August 30, 2007

Mr. Scott Fox
Minnesota Pollution Control Agency
Storm Water Management Unit – Municipal Division
520 Lafayette Road North
St. Paul, MN 5155-4194

RE: ***CITY OF ROCHESTER NONDEGRADATION REVIEW***

Dear Scott:

In accordance with the requirements of the Municipal Separate Storm Sewer System permit, I am hereby submitting the *City of Rochester Nondegradation Review*, for all waters and for Outstanding Resource Value Waters (ORVWs).

This submittal, which for the City of Rochester is due on September 1, 2007, includes the following components:

- The Loading Assessment (see Part A),
- The Nondegradation Report (see Part B),
- Proposed Storm Water Pollution Prevention Program (SWPPP) modifications (see Part B), and
- Public and local water authority comments and a Record of Decision on the comments (see Record of Decision).

The City of Rochester is proposing SWPPP modifications to address volume control, as outlined in four BMP summary sheets as follows:

1. Current Infiltration Initiatives
2. Technical Review and BMP Trials
3. Wellhead Protection Coordination
4. Public Works Department Policy and Procedure Development

Please consider this letter and the attachments as an application to modify the City's coverage under the General Permit. The City of Rochester looks forward to the Minnesota Pollution Control Agency's (MPCA) review of this analysis. We believe the findings in this report will enable MPCA to make a determination that the City of Rochester is meeting the nondegradation rules for all waters and for ORVWs and that no additional control measures beyond those proposed are warranted.

Sincerely,

Barbara J. Huberty, Environmental and Regulatory Compliance Coordinator
Rochester Public Works Department

Encl: City of Rochester Nondegradation Review
Record of Decision on the City of Rochester Nondegradation Review



the quality of our water resources. Assets such as Silver Lake and the Zumbro River help make Rochester one of the nation's most livable communities. Keeping our water resources clean and usable is in everyone's interest. StormWater MANAGEMENT

City of Rochester
201 4th Street SE
Rochester, MN 55904-3740

Record of Decision
On the
City of Rochester Nondegradation Review

1. Project Description

In 2006, the Minnesota Pollution Control Agency (MPCA) revised the Municipal Separate Storm Sewer System (MS4) permit program to require 30 municipalities from across the state, whose storm water discharges are authorized by the MS4 permit, to complete additional work called a "Nondegradation Review" for all waters (MN R. 7050.0185). The intent of the Review was to enable MPCA to determine whether the state's nondegradation rules are being met as a function of the MS4 permit requirements. Rochester is one of the 30 selected municipalities to which this Nondegradation Review requirement applies.

In addition to the Nondegradation Review for all waters, Appendix C of the MS4 permit requires the completion of a Nondegradation Review for "Outstanding Resource Value Waters" (ORVWs; MN R. 7050.0180) by permittees discharging to such waters. There are six calcareous fens located within the Project Area that are classified as specific type of ORVW known as restricted discharge waters for which the Nondegradation Review is required. Therefore, as outlined in the MS4 permit, the *City of Rochester Nondegradation Review* includes a Loading Assessment (Part A), a Nondegradation Report (Part B) for all waters and for ORVWs, which includes proposed Storm Water Pollution Prevention Program (SWPPP) modifications.

2. Public Input Process

2.1. Public Review and Input

Public notices, publicly available document copies, and public presentations were utilized to solicit comments on the *City of Rochester Nondegradation Review.*

The City of Rochester held a 30 day public comment period for the *City of Rochester Nondegradation Review* that commenced on Wednesday, July 18, 2007 and ended on Thursday, August 16, 2007. Notification of the public comment period was provided via a legal advertisement in the Rochester Post Bulletin (the newspaper of record for the City of Rochester; see Appendix A) and via direct mailing to local officials, agencies, and organizations interested in water quality issues (see Appendix B). Copies of the public review draft of the *City of Rochester Nondegradation Review* were made available in the reference section of the Rochester Library, at the Rochester Public Works Department front office, and on the storm water web site (www.rochesterstormwater.com).

As directed by the MPCA MS4 permit, an opportunity to review and comment on the proposed SWPPP modifications was provided to the Olmsted County water planner by

the City. A copy of the public review draft of *the City of Rochester Nondegradation Review* was delivered to Terry Lee, Olmsted County Water Resources Coordinator, at the start of the comment period.

A presentation about the *City of Rochester Nondegradation Review* was made to the City of Rochester Council members and the public at the August 13, 2007 Committee of the Whole Meeting. The presentation was repeated before the Olmsted County Environmental Commission and the public on August 15, 2007.

2.2. Comments Received

Written comments were received by the following parties:

a. Olmsted County Water Planner
b. Rochester Public Utilities
c. Flo Sandok

Copies of the comment letters are included in Appendix C. In general, the comments can be grouped into the following categories:

1. Questions on the technical approach for the City's nondegradation loading assessment and how that approach corresponds to the issues that must be addressed according to the MS4 permit requirements and guidance.
2. Comments on the recommended Best Management Practice (BMP) summary sheets presented in Part B of the nondegradation review.
3. Comments on the City's operations as they relate to pollution prevention and on the need for water quality monitoring. (Note: these comments are more directly applicable to the City's SWPPP and are not directly applicable to Nondegradation Review process or findings.)

2.3. Responses to Comments

The Olmsted County Water Planner submitted some clarifying questions/comments via e-mail early in the comment period. The comments were largely of a technical nature pertaining to the approach used in the loading assessment, so the responses to those comments focused largely on explaining reasons for the selected methodologies. Responses to comments were provided to the Olmsted County Water Planner in letter format; a copy of which is included in Appendix D.

Rochester Public Utilities (RPU) submitted a comment letter that was supportive of the City's past and proposed future approach to runoff volume control through infiltration. Additionally, RPU suggested expanding the BMP Summary Sheet for Volume Control – Wellhead Protection Coordination (Unique BMP 5d-3) to include the water conservation measures outlined in their Wellhead Protection Plan. The Rochester Public Works Department is appreciative of RPU's storm water program support and will add the water conservation measures to BMP 5d-3, as suggested (see Section 2.4 below). A response letter was not necessary in this case.

Resident Flo Sandok submitted comments that pertained more to specific storm water management operations than with the *City of Rochester's Nondegradation Review*. Her concerns are already addressed by the MS4 permit and the City's SWPPP, therefore, no changes to the proposed SWPPP modifications are necessary as a result of her comments. A response letter was sent to Flo Sandok to address her comments and a copy is included in Appendix D.

2.4 Document Revisions

Modifications were made to the BMP Summary Sheet for Volume Control – Wellhead Protection Coordination (Unique BMP 5d-3) in response to the comment letter from RPU. These modifications reflect the role of urban water conservation as a means of mitigating lost aquifer recharge resulting from increases in impervious surface. A copy of the revised BMP summary sheet is included in Appendix D of this document and is incorporated into the final nondegradation review document submitted to MPCA.

Additionally, several minor revisions to the public review draft edition of the Nondegradation Review were made to the final document that will be submitted to the MPCA. These minor revisions were identified through internal review of the document during the comment period and fell into the following categories of corrections:

- Numerical discrepancies
- Grammatical errors
- Formatting inconsistencies
- Typographic errors
- Absent or incorrect references
- Clarifications

No substantive changes to the Nondegradation Review occurred as a result of these minor corrections.

3. Rochester City Council Action

On Monday, August 20, 2007, the Rochester City Council passed a resolution at its regularly scheduled meeting accepting the findings of the *City of Rochester's Nondegradation Review*, adopting this Record of Decision, and directing staff to submit the required Nondegradation Review documents, including the proposed SWPPP modifications, to MPCA in compliance with the requirements of the MS4 permit. A copy of that resolution is included in Appendix E of this document.

Appendices

A Rochester Post Bulletin Advertisement and Affidavit of Publication
B Public Comment Period Notices and Recipients
C Comments Received
D Responses to Comments Received
E. Rochester City Council Resolution

Appendix A
Rochester Post Bulletin Advertisement and Affidavit of Publication

AFFIDAVIT OF PUBLICATION

State of Minnesota
County of Olmsted

Sue Lovejoy, being duly sworn, on oath that she is the publisher or authorized agent and employee of the publisher of the newspaper known as the Post-Bulletin, and has full knowledge of the facts which are stated below:

(A) The newspaper has complied with all the requirements constituting qualifications as a legal newspaper, as provided by Minnesota Statute 331A.02, 331A.07 and other applicable laws, as amended.

(B) The printed notice

Which is attached was cut from the columns of said newspaper, And was printed and published 1 times for 1 weeks; it was first Published on Tuesday, the 17th day of July, 2007; and was thereafter printed and published Tuesday, the 17th day of July, 2007; and printed below is a

copy of the lower case alphabet from a to z, both inclusive, which is hereby acknowledged as being the size and kind of type used in the composition and publication of the notice:

abcdefghijklmnopqrstuvwxyz

POST-BULLETIN COMPANY L.L.C.

BY: Sue Lovejoy

TITLE: Classified Manager

Subscribed and sworn to me on
This 17th day of July, 2007

CHRISTY S. BLADE
NOTARY PUBLIC-MINNESOTA
My Comm. Exp. Jan. 31, 2010

Christy S. Blade
Notary Public

RATE INFORMATION

1)	Lowest classified rate paid by commercial user For comparable space	$ (Line rate	6.49
2)	Publication Fee	$	159.55

NOTICE OF PUBLIC COMMENT PERIOD
On the
City of Rochester
Nondegradation
Review

In compliance with the City of Rochester Municipal Separate Storm Sewer System general permit, the City of Rochester has completed its Nondegradation Review showing that its storm water management program meets the intent of the Minnesota nondegradation rules. The public is invited to review and comment on this document beginning Wednesday, July 18, 2007. Relevant written comments must be received no later than the close of business on Thursday, August 16, 2007 and may be submitted by mail, e-mail or fax, as follows:

By Mail:
Rochester Public Works Department
ATTN: Barb Huberty
201 4th St. SE, Room 108
Rochester, MN 55904

By E-Mail:
bhuberty@ci.rochester.mn.us
Subject:
Nondegradation Review Comments

By Fax: 507/328-2401

Following the 30-day comment period, the City Council will be asked to consider the public comments received and adopt the Nondegradation Review at its August 20, 2007 meeting. Thereafter, it will be submitted to the Minnesota Pollution Control Agency.

On Wednesday, July 18, 2007, a copy of the "City of Rochester Nondegradation Review" will be posted on the City's storm water web site: www.rochesterstormwater.com. For those without internet access, hard copies of the document will be available in the reference section of the Rochester Public Library (Mon - Thu, 9:30am - 9:00pm; Fri 9:30am - 5:30pm; and Sat, 9:30am - 1:30 pm) and at the Public Works Department front desk (Room 108, City Hall, 201 4th St. SE, Mon - Fri, 8:00am - 5:00pm).

(7/17)

Appendix B
Public Comment Period Notices and Recipients

PLEASE POST OR DISTRIBUTE

NOTICE OF PUBLIC COMMENT PERIOD
On the City of Rochester Nondegradation Review

In compliance with the City of Rochester Municipal Separate Storm Sewer System general permit, the City of Rochester has completed its Nondegradation Review showing that its storm water management program meets the intent of the Minnesota nondegradation rules. The public is invited to review and comment on this document beginning Wednesday, July 18, 2007. Relevant written comments must be received no later than the close of business on Thursday, August 16, 2007 and may be submitted by mail, e-mail or fax, as follows:

By Mail:	Rochester Public Works Department ATTN: Barb Huberty 201 4th St. SE, Room 108 Rochester, MN 55904
By E-Mail:	bhuberty@ci.rochester.mn.us, Subject: Nondegradation Review Comments
By Fax:	507/328-2401

Following the 30-day comment period, the City Council will be asked to consider the public comments received and adopt the Nondegradation Review at its August 20, 2007 meeting. Thereafter, it will be submitted to the Minnesota Pollution Control Agency.

On Wednesday, July 18, 2007, a copy of the "City of Rochester Nondegradation Review" will be posted on the City's storm water web site: www.rochesterstormwater.com. For those without internet access, hard copies of the document will be available in the reference section of the Rochester Public Library (Mon – Thu, 9:30am – 9:00pm; Fri 9:30am – 5:30pm; and Sat, 9:30am – 1:30 pm) and at the Public Works Department front desk (Room 108, City Hall, 201 4th St. SE; Mon – Fri, 8:00am – 5:00pm).



the quality of our water resources. Assets such as Silver Lake and the Zumbro River help make Rochester one of the nation's most livable communities. Keeping our water resources clean and usable is in everyone's interest. StormWater MANAGEMENT

City of Rochester
201 4th Street SE
Rochester, MN 55904-3740

Nondegradation Review Public Comment Period Notice Distribution List

CASCADE TOWNSHIP BOARD CHAIRPERSON
LENNY LAURES
1520 75 ST NE
ROCHESTER, MN 55906

HAVERHILL TOWNSHIP BOARD CHAIRPERSON
BEN HAIN
1750 40TH AVE NE
ROCHESTER, MN 55906

MARION TOWNSHIP BOARD CHAIRPERSON
ROGER BJERKE
3840 30TH ST SE
ROCHESTER, MN 55904

ROCHESTER TOWNSHIP BOARD CHAIRPERSON
BRENDA DICKEN
821 PAXTON RD SW
ROCHESTER, MN 55902

TERRY KNIGHT, MS4 PERMIT MANAGER
ROCHESTER COMMUNITY AND TECHNICAL COLLEGE
851 - 30TH AVE. SE
ROCHESTER, MN 55904

ROCHESTER COMMITTEE ON URBAN DESIGN AND ENVIRONMENT
C/O SANDI GOSLEE
ROCHESTER-OLMSTED PLANNING DEPARTMENT
2122 CAMPUS DRIVE SE; SUITE 100
ROCHESTER, MN 55904

ROCHESTER PLANNING AND ZONING COMMISSION
C/O JENNIFER GARNESS
ROCHESTER-OLMSTED PLANNING DEPARTMENT
2122 CAMPUS DRIVE SE; SUITE 100
ROCHESTER, MN 55904

OLMSTED COUNTY BOARD OF COMMISSIONERS
C/O RICHARD DEVLIN
151 4TH ST. SE
ROCHESTER, MN 55904

MICHAEL COUSINO
OLMSTED COUNTY PUBLIC WORKS DEPARTMENT
2122 CAMPUS DRIVE SE; SUITE 200
ROCHESTER, MN 55904

MICHAEL SHEEHAN
OLMSTED COUNTY PUBLIC WORKS DEPARTMENT
2122 CAMPUS DRIVE SE; SUITE 200
ROCHESTER, MN 55904

TONY HILL
OLMSTED COUNTY PUBLIC WORKS DEPARTMENT
2122 CAMPUS DRIVE SE; SUITE 200
ROCHESTER, MN 55904

FLOYD WHITAKER
OLMSTED SOIL AND WATER CONSERVATION DISTRICT
1485 INDUSTRIAL DRIVE NW
ROCHESTER, MN 55901

OLMSTED COUNTY ENVIRONMENTAL COMMISSION
C/O TERRY LEE, WATER RESOURCES COORDINATOR
2100 CAMPUS DRIVE SE
ROCHESTER, MN 55904

TERRY LEE
OLMSTED COUNTY WATER PLANNER
2100 CAMPUS DRIVE SE
ROCHESTER, MN 55904

COREY HANSON, REGIONAL HYDROLOGIST
DEPARTMENT OF NATURAL RESOURCES
2300 SILVER LAKE DR NE
ROCHESTER, MN 55906

KJERSTI ANDERSON, P.E.
MN/DOT REGION 6
2900 48TH ST. NW
ROCHESTER, MN 55901

MARY KELLS
BOARD OF WATER AND SOIL RESOURCES
40, 16TH STREET SE, SUITE A
ROCHESTER, MN 55904-7987

ZUMBRO WATERSHED PARTNERSHIP
C/O JENNIFER RONNENBERG
1485 INDUSTRIAL DR NW
ROCHESTER, MN 55901

ZUMBRO LAND CONSERVANCY
C/O JIM MOSSER
3617 ARLINGTON LN SE
ROCHESTER, MN 55904

GLOBAL ACTION
C/O FLO SANDOK
1516 13TH AVE NE
ROCHESTER, MN 55906

ZUMBRO VALLEY MEDICAL SOCIETY,
ENVIRONMENTAL COMMITTEE
C/O FRED NOBREGA
1118 SKYLINE DRIVE SW
ROCHESTER, MN 55902-0950

ROCHESTER OFFICIALS/STAFF:
- MAYOR & COUNCIL
- ADMINISTRATION- STEVAN KVENVOLD & GARY NEUMANN
- JOHN HARFORD (ROPD)
- PHIL WHEELER (ROPD)
- TODD OSWEILER (RPU)

TO: Terry Lee, Olmsted County Water Planner
FROM: Barb Huberty, Environmental and Regulatory Affairs Coordinator BJH
DATE: July 17, 2007
SUBJECT: Review of the "City of Rochester Nondegradation Review" by the County Water Planning Authority by August 16, 2007

As a requirement of the Minnesota Pollution Control Agency's Municipal Separate Storm Sewer System general permit (June 2006), the City of Rochester completed a Nondegradation Review to assess the change in storm water discharge loading, comparing Baseline (1988), Present, and 2020 conditions. Computer models were used to calculate loads for the required parameters (Total Phosphorus (TP), Total Suspended Solids (TSS), and runoff volume) and assess the treatment effect of the City's storm water management system. This data showed that the City is meeting the intent of the Minnesota nondegradation rules for "all waters" and for "Outstanding Resource Value Waters".



One of the nondegradation requirements in the permit instructs the City to submit its proposed Storm Water Pollution Prevention Program (SWPPP) modifications to the appropriate county water planning authority to allow for their review and comment. Technically, because the Nondegradation Review shows that the City is meeting the nondegradation rules, the City does not need to alter its SWPPP to address nondegradation. However, the City wishes to modify its SWPPP to account for current activities that further address volume control, to integrate the storm water related elements of Rochester Public Utility's Wellhead Protection Plan into its SWPPP, to document the City's intent to continue technical review and BMP trials of appropriate volume control technologies, and to amend the City's policies and procedures as feasible alternatives are identified. The proposed SWPPP modifications that we are required to send to you for your review and comment are contained in Appendix G of the attached "City of Rochester Nondegradation Review".

The public comment period for this effort begins on Wednesday, July 18, 2007. If you have any formal comments you wish to add to the record after your review of the proposed SWPPP modifications and/or the full document, please submit them to me, in writing, no later than the close of business on Thursday, August 16, 2007 via mail, e-mail or fax, as follows:

By Mail: Rochester Public Works Department
ATTN: Barb Huberty
201 4th St. SE, Room 108
Rochester, MN 55904
By E-Mail: bhuberty@ci.rochester.mn.us,
Subject: Nondegradation Review Comments
By Fax: 507/328-2401

Following the 30-day comment period, the City Council will be asked to consider the public comments received and adopt the Nondegradation Review at its August 20, 2007 meeting. Thereafter, it will be submitted to the Minnesota Pollution Control Agency.

Encl. City of Rochester Nondegradation Review

P:\COMMON\MS4\Permit\Non Degradation\County Water Authority Public Comment Period Notice.doc

City of Rochester
201 4th Street SE
Rochester, MN 55904-3740

Appendix C
Comments Received

From: Lee Terry [lee.terry@CO.OLMSTED.MN.US]
Sent: Tuesday, July 24, 2007 10:58 AM
To: Huberty, Barbara
Subject: Nondegradation review

Barb - I have a few questions and comments about the Nondegradation Review that you might be able to answer.

1. It's noted that a module was developed for PondNET to also model TSS but no mention was made of fecal coliform. Since this is a pollutant of particular concern in the South Zumbro, was any effort made to model coliform loadings?

2. Do you have any local TP and TSS measurements that support the model inputs?

3. Are the local stream TP measurements within the predicted ranges of the model-predicted values?

4. The description of PondNET suggests that soils information isn't used in the model. If that is the case, was a model that included soils considered?

5. What was the definition of Open Space that was used in the land cover assessment? Also, how were cemeteries classified?

6. How was the wetland on CR104 and Hwy14 classified in the modeling? Is it modeled as a wetland, infiltration basin, or both?

7. There is phosphorus use information from our lawn care survey and soil sampling in Country Club Manor in the SZWP Report. At the time of the survey, all but one of the professional lawn care services had already taken phosphorus out of their products. Was that local information considered in the trend assessment?

Thanks
Terry

Terry Lee
Olmsted County Env. Services
2116 Campus Drive SE
Rochester, MN 55904
(507) 285-8339
Fax (507) 280-4799
Sec (507) 285-7087
lee.terry@co.olmsted.mn.us

rpu
we pledge, we deliver®
an enfinity energy partner

507.280.1601

July 27, 2007

Ms. Barb Huberty
Environmental and Regulatory Affairs Coordinator
Rochester Public Works Department
201 4th St. SE, Room 108
Rochester, MN 55904

SUBJECT: CITY OF ROCHESTER NONDEGRADATION REVIEW

Dear Ms. Huberty:

As the water supplier for the City of Rochester, Rochester Public Utilities (RPU) appreciates the opportunity to comment on the *City of Rochester Nondegradation Review*. RPU supports the continuing collaboration between RPU and the Rochester Public Works Department to integrate and coordinate storm water management and wellhead protection efforts. RPU has the following comments regarding the Nondegradation Review:

1. RPU agrees with the conservative approach the City of Rochester has taken thus far toward volume control through infiltration. Although RPU recognizes that recharge is essential to maintain groundwater quantity, preventing pollution from surface water infiltration, whether from storm water or any other source, is a critical management practice for protecting the quality of the City's drinking water supply. In addition to implementing measures to protect drinking water supply management areas (DWSMAs) , RPU has recently begun discussions with the Minnesota Department of Health (MDH) concerning aquifer protection. Given the sensitivity of our groundwater to pollution (as determined by a number of investigations and studies by the U.S. Geological Survey and the Minnesota Geological Survey) and the moderate to high vulnerability of the majority of the City's DWSMAs (as identified by the MDH), it is in the City's best interest to determine whether a broader plan is needed to protect the water supply far into the future. Further evaluation of storm water infiltration should be an integral element of those aquifer protection discussions.

2. RPU supports the proposed Storm Water Pollution Prevention Plan modifications. However, RPU recommends that BMP Summary Sheet 5d-3 (Volume Control – Wellhead Protection Coordination) be expanded to take advantage of the urban water conservation awareness action items that are contained in RPU's Wellhead Protection Plan, as follows:
   - Provide customers with water conservation tips and information about water-saving technologies and promote RPU's low-volume washer rebate program;
   - Review and evaluate RPU's Emergency Water Conservation Plan and update/expand it as necessary;

- Develop a method to insert customer water use data into billing statements; and
- Review and evaluate water use information from large volume customers and recommend appropriate water saving retrofits to reduce usage.

RPU believes that effective water conservation is one means to mitigate lost aquifer recharge resulting from increases in impervious surface.

RPU looks forward to continued collaboration with Rochester Public Works to protect water quality in Rochester.

Sincerely,

Larry Koshire

ROCHESTER PUBLIC UTILITIES
Larry Koshire, General Manager

cc: Richard Freese, Rochester Public Works Director
Joe Hensel, RPU Director of Field Services

Huberty, Barbara

From: Flo Sandok [bfsandok@earthlink.net]
Sent: Tuesday, August 14, 2007 8:36 PM
To: Huberty, Barbara; Terry Lee; floyd.whitaker@mn.nacdnet.net
Subject: Subject:Nondegradation Review Comments

Comment for the Nondegradation Review: Comments to be entered in the Public record:

In maintaining a healthy water system, Storm Water Safety can be safeguarded by prioritizing several practices that presently need changing.

1. We need to coordinate practices that keep our water clean 2. We need proper signage when chemicals are used 3. we need significant water testing 4.we need to curtail activities that contaminate our water

There is little or no coordination between various departments and projects, which can result in finally degrading our water systems; For example; recently the Rochester City Council passed a resolution which addresses the problems with the Silver Lake Goose population .Installing landscaping around Silver Lake was one solution. To prepare the ground for landscaping used as a barrier to the geese, two chemicals were used.. Garlon and Roundup.

.Garlon is registered as an Environmentally Hazardous Substance.(Triclopyr Butoxyethyl)
It is known to have health effects in animals Ie:, blood , kidney. liver, testes, tumors, " very toxic to aquatic organisms. may cause long term adverse effects in the aquatic environment." "toxic to flora"
Roundup has side effects which include reproduction, kidney and liver damage, and is a sensitizer and irritant . Other sources show links to cancer, neurotoxicity, and toxicity to aquatic organisms.
In order to solve one problem ., namely the geese, we create another for those trying to protect water, groundwater and storm runoff.

Had there been communication between projects and individuals responsible for these projects, other methods for preparing the landscaping could have been used.. such as physical removal of existing vegetation... or plastic sheeting.

It is likely some of the above listed chemicals will find their way into the lake with the first rain, compromising the water sources we are trying to protect.

These products were applied right next to the lake, without signage to alert the public. It is common practice to put chemicals in the environment,(whether it be government or individuals). without notification.
That is a practice that needs to change in order to reflect our new understanding of potential health effects that come with the use of chemicals.
It is time to initiate proper signage and notification for public safety during the time period when the chemical is active, not an arbitrary 1 or 2 days which does not properly reflect the time the chemicals are still active, which can be days weeks or months.

Suggestion:Perhaps a designated person/persons coordinate and flag practices and projects that may be at cross purposes in various departments is needed. The ultimate goal is water protection, and that should be the guideline in all practices.

Homeowners need to be instructed in minimizing their impact on storm water.. perhaps neighborhood associations can be helpful in educating the public..

Strong deterrents that keep chemical and toxic products out of the mainstream are needed.

.A city wide ban on certain products would help, followed up by teams that educate at city and county events such as Rochesterfest.

Painting the stormwater drains was very effective.

.We also need critical monitoring of our streams and waterways so we know which are clean and which are polluted, and what the sources of pollution are.. Testing of our streams, wells and lakes are far overdue. This is the proper activity for government agencies in charge of water quality and
health. Such testing is now too expensive for private individuals.

This is a critical need if we are to be serious about our goals.

It is always nice not to know what we are dealing with, because once the facts are known, we have to then be accountable and act.
Legislation is pending(3 proposed laws and one passed already by Rep. Ken Tschumper) which when inacted will probably take some of the chemical offenders off the market.
It would be a wise policy for County Government to be proactive and take action before legislation is imposed.

As a citizen,I hope these comments help my city and county officials to pinpoint areas that need change, and help them intiate those changes.
We place our trust for our health and environment with our officials. The solutions we choose need to reflect our growing awareness of the health and safety problems associated with contaminants to our water supplies and initiation of new approaches that will be effective.
.
Our water is a critical resource we must protect with great resolve .

Florence Sandok
1516 13th Ave. N.E.
Rochester, Mn.
55906
507-288-1149

Appendix D
Responses to Comments Received

TO: Terry Lee, Olmsted County Water Planner

FROM: Barb Huberty, Environmental and Regulatory Affairs Coordinator; Rochester Public Works Department

DATE: July 26, 2007

SUBJECT: **Responses to Questions Submitted on 7/24/07**

Below you will find responses to the questions you submitted via e-mail on July 24, 2007. Your questions are noted in bold and the responses follow each question, noted in italics. Thanks for your interest.

1. **It's noted that a module was developed for PondNET to also model TSS but no mention was made of fecal coliform. Since this is a pollutant of particular concern in the South Zumbro, was any effort made to model coliform loadings?**

   The parameters we modeled were dictated by the requirements in our municipal storm water permit. Fecal coliform bacteria was not one of the required parameters, so it was not included in the scope of work for the Nondegradation Review.

2. **Do you have any local TP and TSS measurements that support the model inputs?**

   MPCA's expectation was for consistent modeling that shows relative changes in the three parameters for three time periods outlined in the permit and that the modeling effort be simple enough to be completed by the required deadline. At the beginning of this process, City staff and their engineering consultants determined that the most reliable data available upon which these objectives could be achieved by the required deadline was changes in land use coverage and their associated runoff coefficients, based on defensible literature values.

   Although there have been some efforts to obtain total phosphorus (TP) and total suspended solids (TSS) data from within Rochester and its urban growth area, significant time and effort would have been needed to evaluate the sampling locations and contributing watershed areas, sample timing, and the collection and analytical methods to determine whether the data was appropriate for and extensive enough to be used as defensible model inputs for this application. In addition to being beyond the scope of the permit requirements, the deadlines imposed on the City for submittal of this document precluded such an effort. Without extensive analysis of the data, it is difficult to conclude whether the locally available data does or does not support the model inputs.

3. **Are the local stream TP measurements within the predicted ranges of the model-predicted values?**

   Currently, Barr Engineering is under contract with the MPCA to develop the nutrient and turbidity Total Maximum Daily Load (TMDL) Study for SE MN. As



the quality of our water resources. Assets such as Silver Lake and the Zumbro River help make Rochester one of the nation's most livable communities. Keeping our water resources clean and usable is in everyone's interest. StormWater MANAGEMENT

City of Rochester
201 4th Street SE
Rochester, MN 55904-3740

part of this effort, they will be evaluating the available TP and TSS data to determine the usefulness and defensibility of the data. Until local stream TP measurements have undergone such validation, it is not a useful exercise to postulate whether or not they are within the predicted ranges of the model-predicted values.

Additionally, in-stream data must be evaluated in the context of the watershed draining to the sampling location, which extends far beyond the Project Area for the Nondegradation Review. Therefore, an assessment of in-stream TP values as they apply to urban contributions would be inappropriate as it relates to the Nondegradation Review context.

4. **The description of PondNET suggests that soils information isn't used in the model. If that is the case, was a model that included soils considered?**

   Yes, it was considered but rejected because we felt the additional work needed to account explicitly for soils types was not necessary and would not have changed the outcomes arising from the project at the scale appropriate for this analysis. The soils information was considered in establishing runoff coefficients, especially for the non-urban land uses. We based the runoff coefficients on Hydrologic Soil Group B soils as the dominant soils group. Hydrologic Soil Group B soils underlie almost 75% of the Project Area. Of the remaining acreage within the Project Area, only about 4% is underlain by more permeable Hydrologic Group A soils, while the remainder is underlain by tighter Hydrologic Soil Group C and D soils. This approach is consistent with the conservative approach taken for the over-all analysis.

5. **What was the definition of Open Space that was used in the land cover assessment? Also, how were cemeteries classified?**

   See page 21: "Open Space/Park - maintained and unmaintained open spaces, including: natural resource area parks, cemeteries, wooded/forested areas, and recreational parks other than golf courses."

6. **How was the wetland on CR104 and Hwy14 classified in the modeling? Is it modeled as a wetland, infiltration basin, or both?**

   That wetland was just west of the Project Area boundary and was therefore not modeled.

7. **There is phosphorus use information from our lawn care survey and soil sampling in Country Club Manor in the SZWP Report. At the time of the survey, all but one of the professional lawn care services had already taken phosphorus out of their products. Was that local information considered in the trend assessment?**

   No, we relied on broad-scale, published or publicly available studies. In particular, we selected the Barton study because it was the dominant technical support for the passage of the state phosphorus fertilizer ban.

Florence Sandok
1516 13th Ave. N.E.
Rochester, MN 55906

August 16, 2007

Dear Flo,

Thank you for your comments on the *City of Rochester's Nondegradation Review*. We have entered them into the official record for this project. Although your comments fall less in the realm of the Nondegradation Review context and more within the realm of the City's Storm Water Pollution Prevention Program (SWPPP), I would like to provide responses to your four key comment areas.

1. We need to coordinate practices that keep our water clean

The City of Rochester does try to coordinate between departments, as is appropriate to projects and departmental functions. For instance, one of our SWPPP initiatives has been to provide employee training to all City departments about the storm water permit and best management practices each department can take to reduce or prevent pollution. Further, under our SWPPP, each department will be audited to examine its practices to insure they are protective of water quality and, at that time, suggestions to adopt practices that are more water quality protective will be made, if needed.

With regard to the Silver Lake project that you specifically discussed, there has been a high degree of public and interdepartmental coordination for the Silver Lake buffer project. A design task force was established at the beginning of the project to receive input from affected and interested parties. Staff from the Park and Recreation and Public Works Departments have been working together to develop the plans and specifications and oversee installation of the project. Numerous project signs and posters, newspaper articles, radio interviews and web site postings have been used to share information about the project with the public.

During the development of the Silver Lake buffer project, the City made an informed choice regarding the method to eliminate unwanted vegetation from the buffer area. The contracting firm uses experienced, licensed pesticide applicators and EPA-approved pesticides suitable for this application were specified in the contract documents. They were applied using appropriate application rates and timing. Other vegetation removal methods were considered, but they were determined to be too slow and ineffective to meet the needs of this project schedule and design. The short-term risk to water quality was deemed to be insignificant when compared to the long term water quality improvement benefits of installing a natural vegetative buffer.



the quality of our water resources. Assets such as Silver Lake and the Zumbro River help make Rochester one of the nation's most livable communities. Keeping our water resources clean and usable is in everyone's interest. StormWater MANAGEMENT

City of Rochester
201 4th Street SE
Rochester, MN 55904-3740

2. We need proper signage when chemicals are used

Extensive signage and other methods have been used to inform the public about the Silver Lake project. Theft has severely diminished the success of those signs. The specifications prepared for this contract required that the contractor utilize a licensed pesticide applicator and follow label directions when applying the pesticides.

3. We need significant water testing

Due to its technical complexity and high cost, the responsibility for water quality monitoring has traditionally been assigned to organizations like the Minnesota Pollution Control Agency (MPCA), the Minnesota Department of Health (MDH), and the Minnesota Department of Natural Resources (DNR). All three agencies have monitoring locations in and around Rochester from which they collect data. Among its many uses, the data is used by the MPCA to determine whether water bodies need to be added to the federal list of impaired waters, by the MDH to evaluate the safety of our drinking water supply, and by the DNR to assess habitat condition and recreation value of waters.

Recently, the Minnesota legislature passed the Clean Water Legacy Act and appropriated additional funding for monitoring activities. In particular, the MPCA has received an infusion of money to conduct monitoring for testing rivers and lakes that are lacking such data. This money will also be used to prepare Total Maximum Daily Load (TMDL) reports that allocate responsibility to reduce pollutant loads. The City of Rochester is already working to meet its load reduction requirements for the SE MN Fecal Coliform Bacterial TMDL.

4. We need to curtail activities that contaminate our water

The City of Rochester conducts education about how individuals can help keep storm water clean. In 2006, over 1,000,000 educational contacts were made. One of the City's educational partners is RNeighbors, the non-profit organization that assists neighborhood associations.

As you know, education alone does not always result in behavior change, which is why product deterrents or bans are enacted. Historically, these have been most effective when they are initiated at the state or federal level. The statewide phosphorus fertilizer use ban is one such example. As you noted, Representative Tschumper's is continuing such efforts at the state level.

The City Council may also consider city-wide product deterrents or bans at any time. For instance, your recent initiatives resulted in the Council's decision to direct the Park and Recreation Department to evaluate chemical-free methods for athletic field turf management at one test site.

Again, thank you for your interest and your suggestions.

Sincerely,

Barbara J. Huberty

Barbara J. Huberty, Environmental and Regulatory Affairs Coordinator
Rochester Public Works Department

BMP Summary Sheet 5d-3 regarding Volume Control – Wellhead Protection Coordination was revised in response to the Rochester Public Utilities Comment Letter.
The following BMP Summary Sheet reflects the necessary revisions.

BMP Summary Sheet

MS4 Name: City of Rochester

Minimum Control Measure: 5-Post-Construction Storm Water Management in New Development and Redevelopment

Unique BMP Identification Number: 5d-3

***BMP Title:** VOLUME CONTROL – WELLHEAD PROTECTION COORDINATION

***BMP Description:**

The Rochester Public Works Department will collaborate with Rochester Public Utilities (RPU) to protect the City's drinking water resources by implementing the storm water management land use BMPs outlined in RPU's January 2007 Wellhead and Source Water Protection Plan (WHP Plan). Specifically, the WHP Plan identifies the following actions:

A) Storm Water Management, general (Rochester Public Works – lead)

1. Develop collaborative educational programs with the Rochester Urbanizing Area MS4 Work Group.
2. Further develop the City's Illicit Discharge Detection and Elimination program within the Drinking Water Supply Management Areas (DWSMA's).
3. Evaluate existing and planned storm water control systems within Drinking Water Supply Management Areas and determine whether they have the potential to negatively impact the associated water supply wells and identify areas that have the best potential for installing storm water infiltration practices, following Minnesota Department of Health guidance for infiltration in karst areas.
4. Implement good housekeeping measures.

B) Water Conservation, as a means to mitigate for lost aquifer recharge resulting from increases in impervious surfaces (Rochester Public Utilities – lead)

1. Provide customers with water conservation tips and information about water-saving technologies and promote RPU's low-volume washer rebate program.
2. Review and evaluate RPU's Emergency Water Conservation Plan and update/expand it as necessary.
3. Develop a method to insert customer water use data into billing statements.
4. Review and evaluate water use information from large volume customers and recommend appropriate water saving retrofits to reduce usage.

C) Additionally, when developments are proposed, storm water engineers will utilize the Minnesota Department of Health flow chart for "Evaluating Proposed Storm Water Infiltration Projects in Vulnerable Wellhead Protection Areas" to determine if infiltration is appropriate in the proposed setting.

***Measurable Goals:**

A-1. Number of educational materials developed and distributed that address the surface water/groundwater connection.

A-2. Summary of land uses within DWSMA's; list of land uses with the potential for illicit discharges posing a significant risk to the water supply; educational materials (by impact type) for property owners with operations that pose a high risk to the water supply, and number of educational contacts made.

A-3. Summary of existing ponds located within DWSMA's and an assessment of their potential effect on water supply wells; RPU and RPW referral comments on future General Development Plans and Site Development Plans, as appropriate; map of infiltration potential areas.

A-4. Employee operations that are protective of water quality based on staff training and standard operating procedures for outdoor activities.

B-1. Number of bill inserts distributed, public contacts regarding water saving technologies, and participation rates in the low-volume washer rebate program.

B-2. Establishment of a committee to review and evaluate RPU's Emergency Water Conservation Plan, annual review of the plan, and update as necessary.

B-3. Inclusion of customer water use data into billing statements.

B-4. Number of contacts with large water use customers.
C. Number of development proposals evaluated for infiltration potential.

***Timeline/Implementation Schedule:**

A-1. Ongoing throughout the term of the permit.
A-2. 2008
A-3. Referral comments are ongoing throughout the term of the permit; map in 2008.
A-4. Ongoing throughout the term of the permit.
B-1. Ongoing throughout the term of the permit.
B-2. Annual review of the plan, updates as needed.
B-3. 2011
B-4. Ongoing throughout the term of the permit.
C. Ongoing throughout the term of the permit.

Specific Components and Notes:

None.

***Responsible Party for this BMP:**

Name: Barb Huberty.
Department: Rochester Public Works Department
Phone: 507/328-2425
E-mail: bhuberty@ci.rochester.mn.us

**Indicates a REQUIRED field. Failure to complete any required field will result in rejection of the application due to incompleteness.*

Appendix E
Rochester City Council Resolution

411-07

D 25

RESOLUTION

WHEREAS, the Municipal Separate Storm Sewer System (MS4) permit issued by the Minnesota Pollution Control Agency requires the City of Rochester to complete a Nondegradation Review for all waters and for Outstanding Resource Value Waters, and

WHEREAS, the Nondegradation Review consists of a Loading Assessment of total phosphorus, total suspended solids, and storm water volume based on land uses in 1988, 2005 and 2020, and

WHEREAS, the findings of the Loading Assessment must be used to prepare a Nondegradation Report, including any proposed modifications to the City's Storm Water Pollution Prevention Program, and

WHEREAS, based upon the findings of the *City of Rochester's Nondegradation Review*, the City is requesting a determination from the Minnesota Pollution Control Agency that the City's storm water management system adequate to meet the state's nondegradation requirements, and

WHEREAS, a thirty-day public comment period was held and responses to comments received during that time were compiled in a Record of Decision, and

NOW THEREFORE BE IT RESOLVED, that the Common Council of the City of Rochester accept the findings of the *City of Rochester's Nondegradation Review*, adopt the Record of Decision for this matter, and direct staff to submit the required Nondegradation Review documents, including the proposed SWPPP modifications, to MPCA in compliance with the requirements of the MS4 permit.

PASSED AND ADOPTED BY THE COMMON COUNCIL OF THE CITY OF ROCHESTER, MINNESOTA, THIS 20th DAY OF AUGUST, 2007.

James L Hanson
PRESIDENT OF SAID COMMON COUNCIL

ATTEST: Valori Langseth
DEPUTY CITY CLERK

APPROVED THIS 21st DAY OF AUGUST, 2007.

Ardell F. Brede
MAYOR OF SAID CITY OF ROCHETER

(Seal of the City of
Rochester, Minnesota)



CITY OF ROCHESTER
NONDEGRADATION REVIEW

Part A – Nondegradation Loading Assessment

Part B – Nondegradation Report

Rochester, MN

August 2007

Project Number: 363-06158-2

Bonestroo

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Part A – Nondegradation Loading Assessment

Executive Summary – Loading Assessment

ES.1 INTRODUCTION

This Executive Summary summarizes the results of the nondegradation loading assessment conducted for the City of Rochester. This summary is laid out in five sections. Section ES.2 provides a brief explanation of nondegradation and why the City needed to do this assessment. Section ES.3 explains the modeling approach taken to conduct the loading assessment for Rochester. Section ES.4 explains how the Project Area for the loading assessment was defined, presents information on the land use changes that have occurred or are expected to occur within the Project Area over the two time periods of interest, and summarizes and explains the modeling results for the Project Area. Finally, Section ES.5 presents the summary results of the loading assessment for known "restricted discharge waters" – all of which are calcareous fens. Figures ES.1 and ES.2 are also included to show the degree to which each of the ten Drainage Districts that comprise the Project Area and each of the six restricted discharge waters, respectively, meet nondegradation criteria.

ES.2 BACKGROUND

Minnesota nondegradation rules for all waters (MN Rules Ch. 7050.0185, adopted in 1987) and for outstanding resource value waters (ORVWs; MN Rules Ch. 7050.0180, adopted in 1984) protect Minnesota waters from significant degradation by requiring that significant new and expanded discharges that occur after 1988 (or in the case of ORVWs, after the date of designation) provide sufficient treatment to "maintain water uses, aquatic and wetland habitats, and the level of water quality necessary to protect these uses", according to the provisions of the rules. These state policies were put in place in order to comply with the "antidegradation" part of the federal Clean Water Act passed in 1972.

Since 2003, most municipalities with a population between 10,000 and 100,000 have been required to secure a permit from the Minnesota Pollution Control Agency (MPCA) that authorizes stormwater discharges from their municipal storm drainage system to waters of the state under the National Pollutant Discharge Elimination System (NPDES) program. These systems are known as Municipal Separate Storm Sewer Systems or MS4's.

In 2003, the MPCA was sued by the Minnesota Center for Environmental Advocacy over the State's alleged noncompliance with its nondegradation rules. As part of the court decision, the Minnesota Court of Appeals ruled that MPCA's plans to address nondegradation via future rulemaking was inadequate, necessitating a revision to the MS4 permit. Under the 2006 revision, 30 municipalities across the state were selected to complete additional work called a "Nondegradation Review". The Review is intended to enable the MPCA to determine if nondegradation rules are being met. These 30 MS4s were selected by MPCA as being the communities most likely to have expanded stormwater discharges to surface waters, as reflected by:

- population changes since 1990,
- current population, and
- projected population growth to 2020.

Rochester is one of the 30 permitted MS4s to which this Nondegradation Review requirement applies.

The Nondegradation Review includes conducting a pollutant loading assessment, writing a nondegradation plan, and, if necessary, modifying the City's Storm Water Pollution Prevention Program (SWPPP) to address the findings of the assessment. The Baseline condition is used as the "yardstick" to measure changes in pollutant loads over time. Permittees are considered to be in compliance with the Nondegradation rules when their stormwater Best Management Practices (BMPs) reduce pollutant loads to 1988 water quality levels, unless mitigating environmental, economic, and social factors make additional control measures unreasonable or impractical, or for ORVWs, imprudent or unfeasible.

The purpose of the Loading Assessment Report is to present the methods used and results for the pollutant loading assessment portion of the Nondegradation Review requirements of the NPDES MS4 General Permit administered by the MPCA.

ES.3 MODELING APPROACH

The intent of the Nondegradation Review for all waters is to provide defensible, calculated values that illustrate the degree to which the City of Rochester's stormwater management program achieves compliance with the nondegradation rules, utilizing procedures outlined in the MS4 General Permit. This was accomplished by first calculating the estimated pollutant loads for the land use conditions at three time conditions: Baseline (1988), Present (2005), and 2020. Next, the treatment effect of various stormwater best management practices (BMPs) was calculated to determine how pollutant loads for the Present and projected 2020 conditions compared to Baseline levels. The BMPs that were quantified in the model were wet detention basins, street sweeping, and (for 2020) the phosphorus fertilizer ban. In order to complete this review, a "routed modeling approach" was taken. This means that a computer model was used to estimate the volume of runoff as well as the mass of total phosphorus and total suspended solids carried in runoff as it moved across the land and through natural and constructed conveyance and treatment facilities to receiving waters. The analysis was conducted assuming average annual precipitation conditions.

A number of water quality computer models were considered for use in conducting the nondegradation loading assessment for Rochester. While there are a number of other water quality models available, W.W. Walker's PondNet was selected for the following reasons:

- PondNet is designed to estimate runoff volume and total phosphorus (TP) loads over a wide range of urban and non-urban land uses.
- PondNet is relatively easy to use, understand, and review.
- It has credible standing within the professional community for water resources planning and analysis applications.
- Reliable values for model inputs are relatively easy to obtain for Minnesota.
- PondNet can assess the influence of natural and constructed wetlands and wet detention basins (e.g., ponds) on attenuation of phosphorus pollutant loads. Further, it can also be adapted to account for the influence of other types of BMPs, such as street sweeping, infiltration, and the phosphorus fertilizer ban.

As with any model, PondNet also has limitations, which include the following:

- The focus of the model is on total phosphorus and water volume loadings, not total suspended solids (TSS).
- The model is designed primarily to assess the impact of settling basin networks on phosphorus loads, and does not have explicit routines to estimate the impact of non-pond BMPs.
- The model is intended to quantify runoff volume and pollutant loadings from broad-scale land uses (e.g., row crop agriculture, low density residential, etc.), and loses accuracy when modeling at the smaller-scale of source areas (e.g., rooftops, driveways, lawns, etc).

To address the first limitation, a module to calculate and track TSS loads through the modeled system was developed for PondNet using an accepted relationship between the removal efficiency of total phosphorus and total suspended sediment in wet detention basins. This approach was presented to MPCA staff who confirmed that the TSS calculation strategy was reasonable and would be adequate for the nondegradation pollutant loading analysis.

Regarding the second limitation, methods were developed to account for the treatment effects of street sweeping, infiltration, and the effects of the phosphorus fertilizer ban. The quantification of treatment for each of these BMPs relied on supplemental technical analyses that were transparently incorporated into the model. Overall, these additional BMPs had a relatively minor impact on pollutant loads compared to the treatment capacity of wet detention basins.

The third limitation became evident when modeling a very small subwatershed area (< 15 acres) draining to a calcareous fen with changing land use conditions and for which fen management BMPs were constructed and intended to treat stormwater runoff from specific source areas (rooftops, driveways, etc.). To provide a more accurate representation of treatment provided by the fen management BMPs at this small scale, the WinSLAMM model was used for the Mutchler Fen.

Other BMPs used by the City of Rochester to improve stormwater quality (e.g., education, public participation, erosion and sediment control inspections and enforcement, illicit discharge detection and elimination, good housekeeping practices, etc.) were not quantified in the loading assessment because technical documentation supporting the effectiveness of those activities is not available at this time. Therefore, the loading assessment results do not reflect the benefits of these BMPs and thereby represent a conservative estimate of pollutant load reduction.

ES.4 OVERVIEW OF MODELING RESULTS FOR PROJECT AREA

ES.4.1 BACKGROUND

One of the first and most important aspects was to define the geographical limits, or Project Area, for the loading assessment. The Project Area was defined by the Rochester-Olmsted Planning Department (ROPD) and the Rochester Department of Public Works (RDPW) based on the anticipated City limits in 2020, plus lands owned and operated by the City outside its contiguous limits. The Project Area is approximately 53,000 acres or approximately 83 square miles, as shown in Figure ES.1.

In general, average annual runoff volume and TP and TSS loads tend to increase when non-urban land is converted to urban land, primarily due to increases in impervious cover. This conversion increases the volume of runoff for the small and medium-sized storms, that is, those storms generating less than 1.5-inches in precipitation over 24 hours, which produce the vast majority of runoff during an average year. Thus, land use changes over time are a useful predictor of changes in runoff quality and quantity. Land use information for the Baseline (1988), Present (2005), and 2020 conditions within the Project Area were obtained from the ROPD.

Ponds with standing water (i.e., wet detention basins) have been the primary BMP used by local governments, including Rochester, over the last 10-15 years to improve stormwater quality. A single well-designed pond of the type required by the City of Rochester to mitigate the impacts of new development will annually remove 50-60% of the total phosphorus (TP) load and 80-90% of the total suspended solids (TSS) load. Ponds constructed prior to the Present condition (2005) are accounted for specifically in the model. For development occurring after 2005, load estimates were generated assuming that current water quality treatment requirements will be applied as they are today.

Minnesota Department of Health guidance discourages infiltration in karst areas, like Rochester, in order to protect drinking water supplies. To date, infiltration BMPs have been used on only a very limited and site-specific basis in Rochester. One flood control reservoir (FCR), KR6, that was constructed outside drinking water supply management areas provides infiltration and quantifiable volume control that is reflected in the water volume results for the Present and 2020 conditions. Because this FCR is wholly within the Project Area, the volume control is not reflected as a "credit". Seepage, evaporation, and evapotranspiration from wet detention basins also provide volume control but were not quantified specifically. Other small scale infiltration BMPs have been constructed to sustain calcareous fens, to protect a high quality recreational lake, and as a new test site that will undergo monitoring by the US Geological Survey.

ES.4.2 Project Area Modeling Summary

This section presents a summary of the loading assessment for the entire 53,000-acre Project Area. Load estimates for the three conditions (Baseline, Present, and 2020) for the three parameters (total phosphorus, total suspended solids, and runoff volume) are presented as a sum of the load estimates for the ten Drainage Districts, each of which is discussed separately in the main report.. The Project Area summary also accounts for the treatment provided by the City-owned and operated FCRs to runoff from areas outside the Project Area. The FCRs catch and treat runoff from a total of 16,700 acres, 11,350 acres of which lie outside the designated Project Area and are dominated by row crop agriculture land use.

ES.4.2.1 Land Use Overview

Table ES.4.1 summarizes the changes in each land use category between the Baseline, Present, and 2020 development conditions for the Project Area.

Table ES.4.1 - Land Use Change Summary Table for the Project Area

Land Use	Baseline Condition (ac)	Present Condition[1]			2020 Condition[1]		
		Acres	Change (ac)	Change (%)	Acres	Change (ac)	Change (%)
Row Crop Agriculture	18,161	13,325	-4,835	-27%	11,436	-6,725	-37%
Very Low Density Residential	2,677	2,752	75	3%	2,656	-20	-1%
Low Density Residential	5,946	9,852	3,905	66%	11,767	5,821	98%
Medium Density Residential	462	505	43	9%	923	461	100%
High Density Residential	734	1,423	689	94%	1,538	804	110%
Commercial/Industrial	2,711	3,669	958	35%	4,841	2,130	79%
Institutional	1,115	1,499	384	34%	1,551	436	39%
Open Space	16,691	14,677	-2,014	-12%	12,994	-3,696	-22%
Golf Course	730	844	114	16%	822	92	13%
Pits and Quarries	412	414	2	1%	409	-3	-1%
Right-of-Way	3,068	3,223	155	5%	3,215	147	5%
Water	618	1,141	523	85%	1,172	554	90%
TOTAL	53,325	53,324[2]			53,325		

[1] *Change shown is compared to Baseline condition*

[2] *The Present Condition total acreage is less than the other two conditions due to slight differences in the digital land use coverages.*

There are several significant land use changes within the Project Area worth noting:

1. Under the Baseline condition, the dominant land use in the Project Area is row crop agriculture (34% of the Project Area), followed by undeveloped open space (31% of the Project Area).
2. Low density residential development is the largest single urban land use in the Baseline condition, comprising about 11% of the Project Area.
3. The biggest land use changes between the Baseline condition and the Present condition are a decrease of over 4,800 acres and 2,000 acres of row crop agriculture and open space, respectively, and an increase of over 3,900 acres of low density residential. High density residential and commercial land uses increase by a total of just under 1,650 acres.
4. Land dedicated to row crop agriculture is expected to drop another 1,900 acres between the Present and 2020 conditions and open space will drop by an additional 1,700 acres. For the dominant urban land uses, low density residential is expected to increase by 1,900 acres, but commercial and industrial land uses alone will increase by over 1,170 acres between the Present and 2020 conditions.

ES.4.2.2 Overview of Nondegradation Modeling Results

Table ES.4.2 summarizes the modeled differences in loads for the three parameters for each of the three conditions for the Project Area. The loads presented in this table take into account water quality treatment provided by the following BMPs: wet detention basins (including the flood control reservoirs [FCRs] whose subwatersheds are located wholly within the Project Area), Central Business District street sweeping, and for 2020, the effects of the phosphorus fertilizer ban as applied to residential land use areas within the Project Area (see Appendix D for additional information regarding the treatment value of nonstructural BMPs). The results also account specifically for treatment "credits" generated by FCRs that were constructed by the City after the Baseline condition, are owned and operated by the city, and which catch and treat runoff from outside the Project Area.

Table ES.4.2 - Summary of Modeled Loadings for the Project Area

	TP Load (lbs/yr)	TSS Load (lbs/yr)	Water Volume (ac-ft/yr)
Baseline Condition	23,000	8,620,000	22,000
Present Condition	20,000	6,490,000	24,000
2020 Condition	19,000	6,290,000	26,000
FCR load reductions to runoff generated outside of the Project Area (i.e., "Credit")	3,200	1,640,000	0
Present Condition with Credit	16,800	4,850,000	24,000
2020 Condition with Credit	15,800	4,650,000	26,000

Note: See Appendix C for the PondNet Model's actual output and an explanation of the significant figures criteria application.

The key findings reflected in the above modeling results are as follows:

1. Calculated loads of both total phosphorus and total suspended solids for the Present and 2020 conditions are significantly less than for the Baseline condition. Since the objective of the nondegradation rule is to employ BMPs to prevent pollutant load increases above 1988 levels, this data indicates that the BMPs are successfully achieving nondegradation. Further water quality improvement is achieved by taking into account the treatment "credit" associated with the FCRs that catch and treat runoff from outside the Project Area.
2. The BMP that provides the greatest mitigation of stormwater impacts are wet detention basins, also known as stormwater ponds. Prior to 1988, the City had installed 19 wet detention basins to address development. Between the Baseline and Present conditions, 241 wet detention basins were added in the Project Area, excluding the six Flood Control Reservoirs. Cumulatively, the area of these detention basins is about 235 acres and the wet volume storage about 1,250 acre-feet. These wet detention basins were sized according to the City of Rochester's sizing criteria and modeling shows that each wet detention BMP generally achieves removal efficiencies above 50% for total phosphorus and 80-90% for total suspended solids.
3. Modeled runoff volume for the Project Area increases moderately between the Baseline and Present conditions and again between the Present and 2020 conditions. The reason for this is two-fold. First, the conversion of non-urban to urban land uses increases impervious coverage, which is reflected in a higher runoff coefficient for the urban land uses. Second, very few infiltration BMPs have been constructed in the City, to date. The City of Rochester overlies sandstone and limestone bedrock formations that are part of the SE MN karst area. Rochester extracts its drinking water from groundwater aquifers within these formations. In accordance with Minnesota Department of Health (MDH) recommendations (see Appendix F), the City has exercised a conservative approach to stormwater infiltration as a source water protection measure. Thus far, the City has only pursued volume control through infiltration in specific areas to protect calcareous fens, to protect a recreational lake currently under development, and in one location at which a U.S. Geological Survey monitoring program is being established to evaluate the effects on a nearby municipal water supply well. Additionally, FCR KR-6 (constructed in 1994), which is wholly located within the Cascade Creek Drainage District and outside the City's Drinking Water Supply Management Areas, infiltrates virtually all runoff from its 1,000-acre watershed under average annual precipitation conditions. Volume control that may be occurring from other ponding areas as a result of evaporation, evapotranspiration, or seepage were not specifically accounted for in the model because of the lack of compelling documentation to quantify these water losses.

4. Loads calculated for the 2020 condition are based on the assumptions that:
    - Wet ponds and FCRs will have sufficient maintenance to sustain the intended function and capacity of each BMP.
    - The City will continue to apply the same water quality treatment requirements to new developments in the future as it does today.
    - Public information and education efforts supporting the state-wide phosphorus fertilizer application restrictions (effective in January 2005) would result in a 13% reduction in phosphorus loading from all residential property (see Appendix D for documentation on how this reduction is derived).
    - Intensive street-sweeping (5 times weekly) will continue in the Central Business District (see Appendix D for documentation on how street sweeping benefits are quantified).
5. Modeling of the performance of the Flood Control Reservoirs indicates that they remove about 3,200 pounds/year and 1,640,000 pounds/year of total phosphorus and total suspended solids, respectively, from runoff generated by largely agricultural land use outside the Project Area. These numbers are accounted for as a treatment "credit" by subtracting them from the modeled loads for the respective parameters for the Present and 2020 land use conditions. Other than the observed infiltration capacity of KR-6 discussed above, the FCRs are assumed not to provide any volume control benefits based on the absence of compelling evidence or documentation. Therefore, there are no water volume credits applied.

Figure ES.1 shows to what degree each of the ten Drainage Districts comprising the Project Area meet nondegradation criteria for the three parameters (average annual total phosphorus, total suspended solids, and runoff volume) compared to the Baseline condition. Blue shading means that the estimated load for that particular parameter and time period are less than or equal to the estimated load for the Baseline condition. Brown shading means that the estimated load for the particular parameter and time period is greater than the estimated load for the Baseline condition. The numerical value in the brown-shaded boxes indicates by what percentage the load exceeds the Baseline condition load.

Table ES.4.3 shows a comparison of modeled Baseline and Present conditions with and without the BMPs that mitigate stormwater impacts associated with development activities within the Project Area. The "without BMPs" scenario presents the modeled loads for the three parameters that would have resulted if there were no wet detention basins, street sweeping program, or stormwater treatment by FCRs (for the portions of their watersheds within the Project Area). The loads presented in this summary table do not include the treatment credit generated through treatment of runoff generated outside the Project Area by FCRs. An assessment of pollutant load reduction under the 2020 condition is not presented because that would be a hypothetical, projected scenario with unknown magnitude, types, and performance of future stormwater treatment methods.

Table ES.4.3 - Comparison of Baseline and Present Conditions Loads With and Without BMPs for the Project Area

	TP Load (lbs/yr)	TSS Load (lbs/yr)	Water Volume (ac-ft/yr)
Baseline Condition[1]	23,000	8,610,000	22,000
Present Condition Without BMPs	27,000	10,200,000	24,000
Present Condition With BMPs[2]	20,000	6,490,000	24,000
Loads Removed Under Present Condition[3]	7,000	3,710,000	0

[1] Where BMPs existed prior to 1988, the Baseline load accounts for that treatment.

[2] Loads do not include treatment of runoff generated outside the Project Area, as provided by FCRs.

[3] Loads Removed = Present Loading without BMPs – Present Loading with BMPs

Key findings are as follows:

1. The loading numbers for the Present Condition Without BMPs scenario shows how pollutant loads would have increased without treatment.
2. Without the BMPs described above, Present condition total phosphorus and total suspended solids loadings associated with development within the Project Area would have exceeded Baseline loadings by about 4,000 pounds/year (17%) and 1,590,000 pounds/year (18%) respectively. With the BMPs, loadings for these parameters for the Present condition are instead 3,000 pounds/year (13%) and 2,120,000 pounds/year (25%) below the Baseline loading condition, respectively.
3. Few of the BMPs are intended for volume control, and therefore, estimated runoff volume for both the Present Condition With BMPs and the Present Condition Without BMPs scenarios is about 2,000 acre-feet/year (9%) more than for the Baseline condition. The runoff volume reduction associated with FCR KR-6 infiltrating virtually all of the average annual runoff volume from its 1,000-acre watershed and the small amount of additional infiltration losses associated with the Grandville Development in the Cascade Creek Drainage District amount to less than 400 acre-feet per year. Due to the rounding criteria used to present the results, the 400-acre-feet per year difference is not large enough to show a difference in volume between the two scenarios, Present condition with BMPs and Present condition without BMPs.

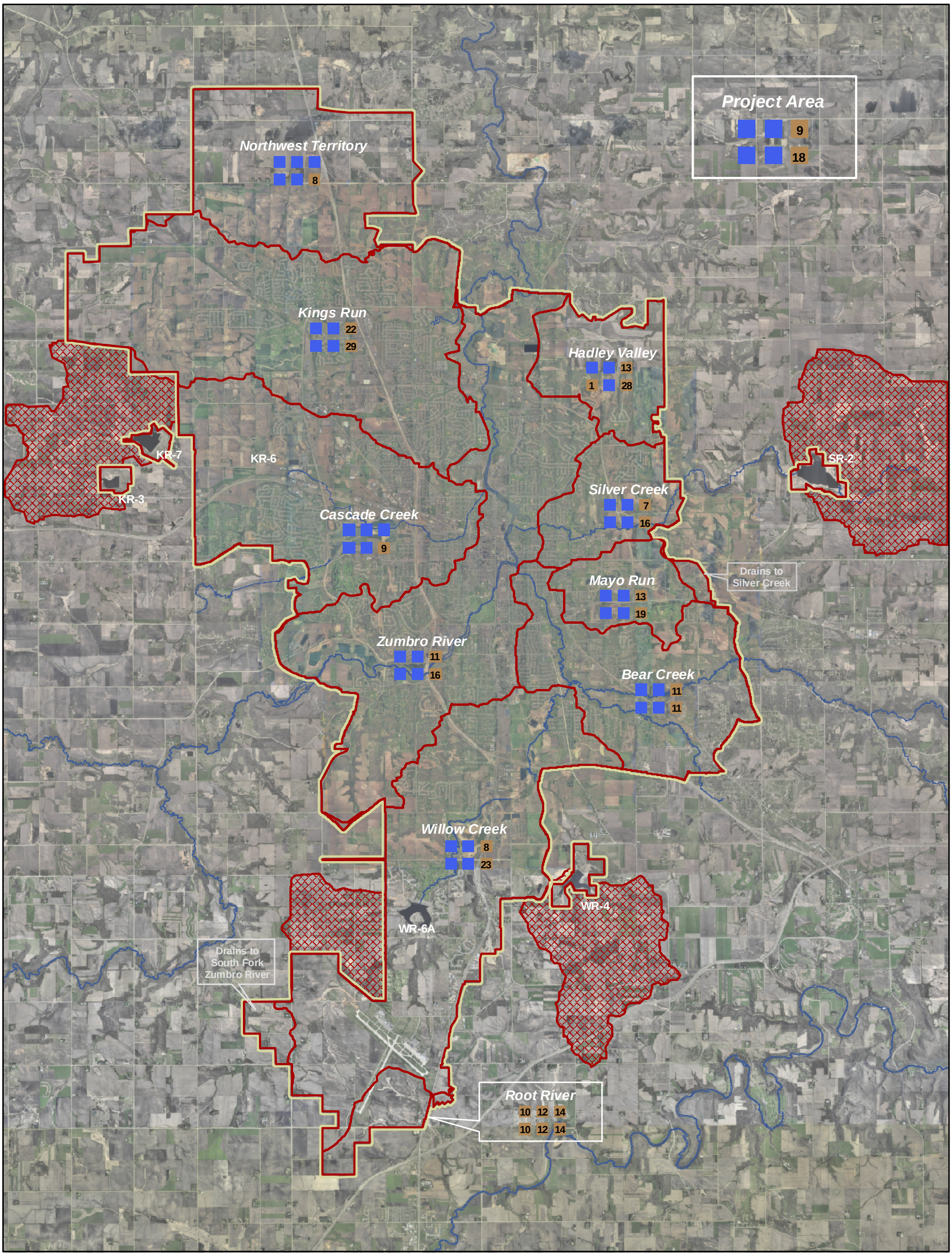


Figure ES.1
City of Rochester
Nondegradation Loading Assessment Summary for Project Area

1 0.5 0 1 2 Miles

N

Legend

- Project Area
- Major Water Course
- Flood Control Reservoir Drainage Areas Outside of the Project Area
- Drainage District Boundaries within the Project Area

Nondegradation Assessment

- 10 load increases (%) from Baseline condition
- load decreases or no change from Baseline condition

Nondegradation Assessment Example Notation and Explanation

TP	TSS	Volume	
		10	Present Condition
		20	2020 Condition

Example interpretation of the above nondegradation assessment symbol: Annual TP (total phosphorus) and TSS (total suspended sediment) loads (lbs) in the Present and 2020 conditions are equal to or less than the loads in the Baseline condition. The annual runoff volume (ac-ft) in the Present and 2020 conditions exceeds the volume in the Baseline condition by 10% and 20%, respectively.

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ES.5 OVERVIEW OF MODELING RESULTS FOR RESTRICTED WATERS

ES.5.1 INTRODUCTION

Under the terms of the 2006, revised municipal stormwater permit, Rochester is required to complete a nondegradation analysis for "waters with restricted discharges." Minn. R. 7050.0180 contains the state's provisions for nondegradation to Outstanding Resource Value Waters (ORVWs), which includes waters with restricted discharge (subpart 6). The only ORVW located within the Project Area is one type of restricted discharge water: calcareous fens (hereafter, Fens). This section summarizes the results of the watershed loading assessment for six Fens located within the Project Area. The Fen names, the year in which each was officially designated, their location, and other key information is presented in Table ES.5.1 below.

Table ES.5.1 - Known Calcareous Fens in the Nondegradation Project Area

Official Site Name (common name)	Year Designated	Fen ID No.	Drainage District	Township	Township	Range	Section(s)
Airport Fen	1991	8275	Willow Creek	High Forest	T105N	R14W	NENENE15
Rochester 23 Fen (Mutchler)	2002	31980	Willow Creek	Rochester	T106N	R14W	SWNW23
Stonehedge Fen	2003	31983	Hadley Valley	Haverhill	T107N	R13W	NENW19
Joyce Park Fen	2004	31964	Bear Creek	Marion	T106N	R13W	NWSW8
Marion 8 Fen	2004	31964	Bear Creek	Marion	T106N	R13W	NWSW8
Haverhill 19 Fen	2005	n/a	Hadley Valley	Haverhill	T107N	R13W	19

The loading assessment prepared for each Fen was conducted using the same methodology as that used to analyze the nondegradation Project Area as a whole. There are, however, three important differences:

1. The surface watershed delineations and watershed land use composition for each Fen was done at a finer level of detail than for the nondegradation Project Area loading assessment. This was mainly because of the smaller scale of the area of interest (the watershed area draining directly to the fen) which was less than 100 acres in every case.
2. A very small subwatershed area (< 15 acres) with changing land use conditions drains to Mutchler Fen, which is protected by fen management BMPs. The PondNet model is intended to quantify runoff volume and pollutant loadings from broad-scale land uses (e.g., row crop agriculture, low density residential, etc.), and loses accuracy when modeling at the smaller-scale of source areas (e.g., rooftops, driveways, lawns, etc). The presence of fen management BMPs intended to treat stormwater runoff from source areas justified the use of WinSLAMM for the Mutchler Fen and not any others.
3. Since none of the Fens had been classified by DNR prior to 1988, the Baseline land use and loading condition was based on the year of designation of the individual Fen, as per the interpretation of MPCA guidance on this issue, as interpreted by consulting and City staff. The year of designation for each Fen is presented in Table ES.5.1.

A summary of the loading assessment prepared for each Fen is presented in the following section.

ES.5.2 Restricted Waters Loading Assessment Results

Table ES.5.2 summarizes the loading assessment results for each of the Fens, which are depicted on Figure ES.2. Information on land use changes for each Fen for each of the three conditions are generally minor and can be found in the main body of the report. As can be seen in this table, the watershed area draining to each Fen represents a very small portion of the Project Area. The sum of the Fen watersheds totals approximately 219 acres or 0.41% of the total Project Area.

Table ES.5.2 and Figure ES.2 shows that each of the six Fens meets nondegradation criteria for the three parameters (average annual total phosphorus, total suspended solids, and runoff volume) compared to the Baseline condition.

Table ES.5.2 - Summary of Fens Loading Assessment

Fen Name	Watershed Size (acres)	% of Project Area	Land Use Condition	TP Load (lbs/yr)	TSS Load (lbs/yr)	Runoff Volume (ac-ft/yr)
Airport	90	0.17%	Baseline (1991)	43	16,100	36
			Present (2005)	41	16,000	36
			2020	41	16,000	36
Mutchler	12.5	0.02%	Baseline (2002)	3.2	1,030	1.9
			Present (2005)	3.2	916	1.4
			2020	3.2	916	1.4
Stonehedge	56	0.11%	Baseline (2003)	18	8,270	17
			Present (2005)	4.3	2,620	4.7
			2020	5.2	2,760	5.8
Joyce Park	17	0.03%	Baseline (2004)	2.1	2,160	3.7
			Present (2005)	2.1	2,160	3.7
			2020	2.1	2,160	3.7
Marion 8	1.2	0.002%	Baseline (2004)	0.2	153	0.3
			Present (2005)	0.2	153	0.3
			2020	0.2	153	0.3
Haverhill 19	42	0.08%	Baseline (2005)	24	8,220	21
			Present (2005)	24	8,220	21
			2020	21	8,220	21

The key findings are as follows:

1. The Airport, Mutchler, Stonehedge, Joyce Park, Marion 8, and Haverhill 19 Fens' loading assessments indicate that the Present and 2020 condition loadings are equal to or lower than the Baseline condition loading for each Fen.

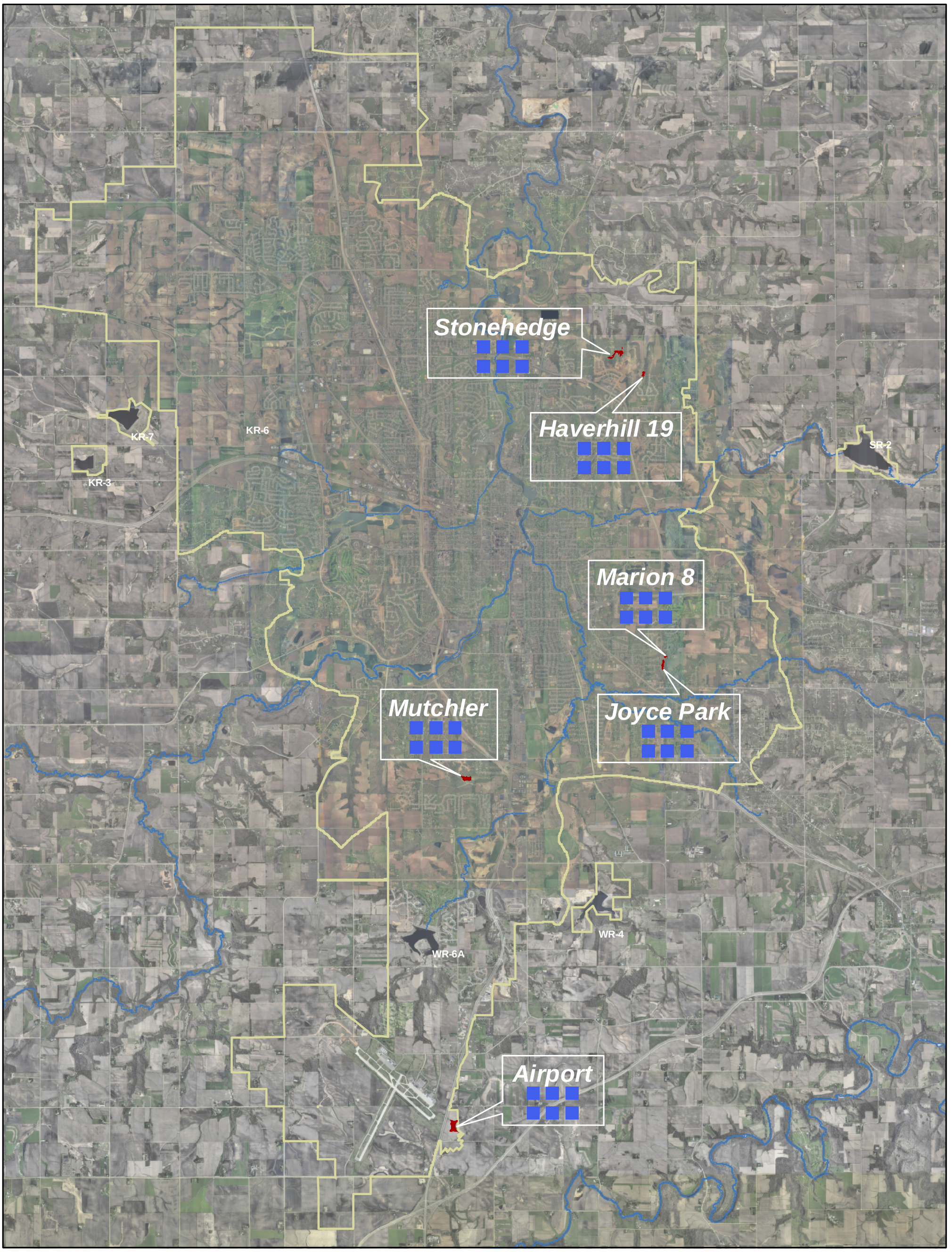


Figure ES.2
Nondegradation Loading Assessment Summary of Outstanding Resource Value Waters (ORVWs)

1 0.5 0 1 2 Miles

N

Legend

- Project Area
- Outstanding Resource Value Water
- Major Water Course

Nondegradation Assessment

- load increases from baseline conditions
- load decreases or no change from baseline conditions

Nondegradation Assessment Example Notation and Explanation

TP TSS Volume

- Present Condition
- 2020 Condition

Example interpretation of the above nondegradation assessment symbol: Annual TP (total phosphorus) and TSS (total suspended sediment) loads (lbs) in the present and 2020 conditions are equal to or less than the loads in the baseline condition. The annual runoff volume (ac-ft) in the present and 2020 conditions is greater than the volume in the baseline condition.

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ROCHESTER MINNESOTA

A1. Introduction

A1.1 BACKGROUND

In 2006, the Minnesota Pollution Control Agency (MPCA) revised the Municipal Separate Storm Sewer System (MS4) permit program to require 30 municipalities from across the state, whose stormwater discharges are authorized by the MS4 permit, to complete additional work called a "Nondegradation Review" for all waters (MN R. 7050.0185). The intent of the Review was to enable MPCA to determine whether the state's nondegradation rules are being met as a function of the permit requirements. Rochester is one of the 30 selected municipalities to which this Nondegradation Review requirement applies.

In addition to the Nondegradation Review for all waters, Appendix C of the MS4 permit requires the completion of a Nondegradation Review for "Outstanding Resource Value Waters" (ORVWs; MN R. 7050.0180) by permittees discharging to such waters. There are six calcareous fens located within the Project Area that are classified as specific type of ORVW known as restricted discharge waters for which the Nondegradation Review is required. Therefore, as outlined in the MS4 permit, Rochester's Nondegradation Review includes a Loading Assessment (Part A) and a Nondegradation Report (Part B) for all waters and for ORVWs.

A1.2 PURPOSE AND SCOPE

The purpose of Part A – Nondegradation Loading Assessment is to present the methods used and results for the pollutant loading assessment portion of the Nondegradation Review requirements of the NPDES MS4 General Permit administered by the MPCA. One of the first and most important aspects was to define the geographical limits for the loading assessment. The geographical limits of the Project Area were defined by the Rochester-Olmsted County Planning Department (ROPD) and the Rochester Department of Public Works (RDPW) based on the anticipated City limits in 2020. These limits, called the Project Area throughout the remainder of this report, are shown in all of the figures within the report and in Appendix A.

Part A – Nondegradation Loading Assessment includes the technical modeling information used to quantify the City's stormwater loadings, as well as the supporting information necessary for the reader to understand the modeling methods and results. Specifically, the report is organized into the following sections:

- Modeling Approach, including documentation of model algorithms, limitations of the model, Quality Assurance/Quality Control (QA/QC) procedures, and model input requirements.
- Modeling Results for all waters that identify key changes in land use, as well as average annual total phosphorus (TP), total suspended solids (TSS) and runoff volume for the Project Area as a whole and for each of ten Drainage Districts within the Project Area for three time periods (i.e., Baseline, Present, and 2020).
- Modeling Results for ORVWs that identify key changes in land use, as well as average annual total phosphorus (TP), total suspended solids (TSS) and runoff volume for each of six calcareous fens within the Project Area for three time periods (i.e., Baseline, Present, and 2020).

The intent of the Nondegradation Review for all waters is to provide defensible, calculated values that illustrate the degree to which the City of Rochester's stormwater management program achieves compliance with the nondegradation rules, utilizing procedures outlined in the MS4 General Permit. This was accomplished by first calculating the estimated pollutant loads for the land use conditions at three time conditions: Baseline (1988), Present (2005), and 2020. Next, the treatment effect of various stormwater best management practices (BMPs) was calculated to determine how pollutant load reductions compared to Baseline levels.

In addition to the nondegradation loading assessment for all waters, Part A also contains the results of a loading assessment for ORVWs. Although there is only one rule-listed ORVW located within the Project Area, the High Forest (or Airport) calcareous fen, there are five other known calcareous fens within the Project Area that have also been assessed in this report. Under the terms of the MS4 General Permit, these ORVWs are also designated as "Restricted Discharge" waters. This information is intended to satisfy requirements of Part IX, Appendix C, Item D of the General Permit.

A1.3 WATER QUALITY PRIMER

It is widely recognized that pollutant loads can vary dramatically for any given land use as a result of time of the year, climatic conditions, human activities, or other variables such as soils, slope, and vegetative cover. Pollutant loading to receiving waters is expressed in terms of mass per unit time. In this report, loads are presented as pounds per year and referred to as annual load. Pollutant load is the product of pollutant concentration and total runoff volume.

For general watershed loading analyses of the type acceptable for the Nondegradation Review requirements, a static pollutant concentration (termed Event Mean Concentration or EMC) is chosen from a range of values to reflect typical runoff quality for a specific type of land use for an annual analysis period. For phosphorus, these annual EMC values range from 150-200 parts per billion (ppb) for runoff from relatively undisturbed land (forest, grassland, etc.) to as high as 300-800 ppb for modified landscapes supporting land uses such as residential, commercial, or agricultural row crop.

The runoff volume applied to the pollutant concentration to generate a load estimate is dependant on rainfall depth and land use characteristics of the watershed. A volumetric runoff coefficient (Rv) is used to represent the proportion (expressed as a decimal fraction) of precipitation that results in runoff for each type of land use. Runoff coefficients vary according to the amount of impervious cover present. Areas of high impervious cover prevent rainfall from soaking into the ground, increasing runoff volume and generating high runoff coefficients. Areas of low impervious cover and well established vegetation result in lower surface runoff volumes, and consequently, lower runoff coefficients. Annual volumetric runoff coefficients vary from between 0.05 and 0.1 for well vegetated, undisturbed land uses (forest, grassland, etc.) to upwards of 0.3 to 0.7 for high density residential and commercial/industrial development with high impervious coverage. Agricultural land uses like row crops often fall between these two ranges, though the values can be highly variable depending on the soil, slope, extent and type of tile drainage, crop type, and other factors.

A2. Description of Modeling Approach

A2.1 SELECTED MODEL DOCUMENTATION

A number of water quality computer models were considered for use in conducting the nondegradation loading assessment for Rochester. While there are a number of other water quality models available, W.W. Walker's PondNet was selected for the following reasons:

- PondNet is designed to estimate runoff volume and total phosphorus (TP) loads over a wide range of urban and non-urban land uses.
- PondNet is relatively easy to use, understand, and review.
- It has credible standing within the professional community for water resources planning and analysis applications.
- Reliable values for model inputs are relatively easy to obtain for Minnesota.
- PondNet can assess the influence of natural and constructed wetlands and wet detention basins (e.g., ponds) on attenuation of phosphorus pollutant loads. Further, it can also be adapted to account for the influence of other types of BMPs, such as street sweeping, infiltration, and the phosphorus fertilizer ban.

The PondNet model was developed by William W. Walker, Jr, an Environmental Engineer from Massachusetts (http://wwwalker.net/). The spreadsheet-based model employs algorithms established by Walker (1987) to estimate the retention of total phosphorus (TP) in wet detention basins. The algorithms are based on empirical relationships from EPA's Nationwide Urban Runoff Program (NURP) that describe both settling of the particulate fraction of phosphorus and biological uptake of the dissolved fraction during quiescent times between storm events on an annual time scale.

The following formulas are utilized in the PondNet model to describe both the settling and biological reaction rates. These equations are combined to produce the retention coefficient for mixed basins to describe the fraction of TP removed from surface water runoff. The key algorithms are:

$$R_p = 1+[1-(1+4N_r)^{0.5}]/(2N_r) = \text{Retention Coefficient (Mixed System), where}$$

$$N_r = K_2 P_i T = \text{Dimensionless Reaction Rate, and}$$

$$K_2 = 0.056 Q_s F_0^{-1}/(Q_s+13.3) = \text{Second Order Decay Rate } (m^3/mg\text{-}yr)$$

The symbol definitions are as follows:

F_0 = inflow ortho phosphorus/total phosphorus ratio
T = mean hydraulic residence time (years) = pool volume/mean outflow rate
Q_s = mean surface overflow rate = mean outflow rate/surface area
P_i = inflow total phosphorus concentration (mg/m^3) = total phosphorus loading/mean outflow rate

As part of its development, the model was tested twice: the first time when developed using 20 ponds from a study completed by Clasen and Bernhardt (1980) and the second time in a study completed by Walker (1987). Overall the model performs quite well, with mean squared errors less then 4%. This means the estimated values predicted by the model are within the 90% confidence interval for the observed values for 96% of the ponds analyzed in the studies.

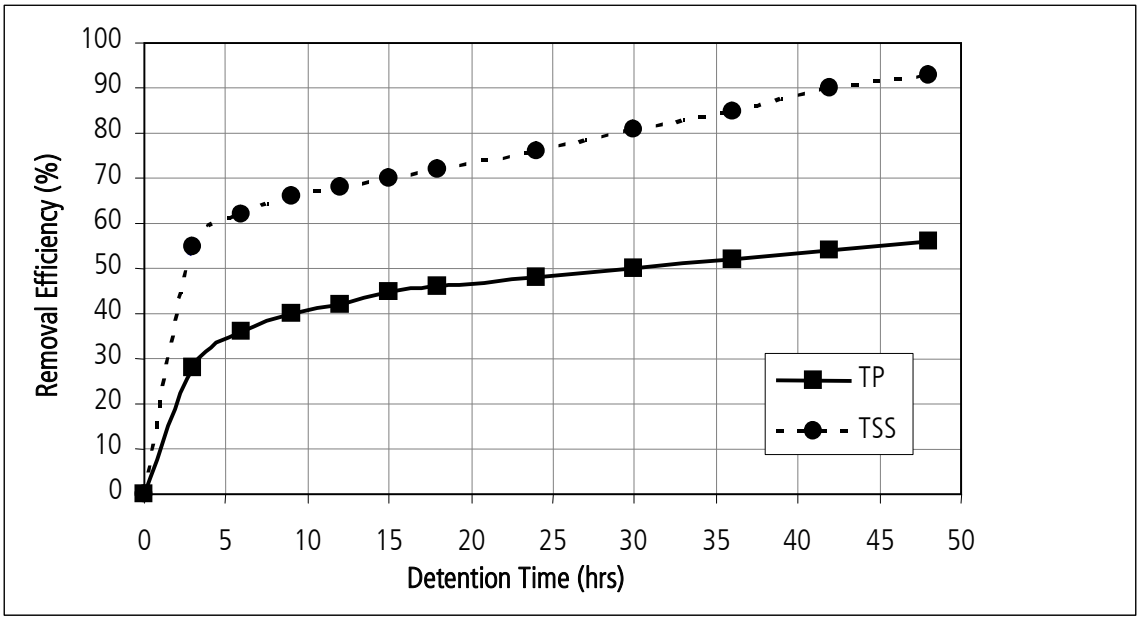
A2.2 MODEL LIMITATIONS

As with any model, PondNet also has limitations, which include the following:

- The focus of the model is on total phosphorus and water volume loadings, not total suspended solids (TSS).
- The model is designed primarily to assess the impact of settling basin networks on phosphorus loads, and does not have explicit routines to estimate the impact of non-pond BMPs.
- The model is intended to quantify runoff volume and pollutant loadings from broad-scale land uses (e.g., row crop agriculture, low density residential, etc.), and loses accuracy when modeling at the smaller-scale of source areas (e.g., rooftops, driveways, lawns, etc).

To address the first limitation, a module to calculate and track TSS loads through the modeled system was developed for PondNet. Using an accepted relationship between the removal efficiency of total phosphorus and total suspended sediment in wet detention basins (shown below in Figure A2.1), a look-up table was incorporated into the PondNet spreadsheet model to arrive at an estimated TSS removal efficiency from the modeled TP removal efficiency for the pond.

Figure A2.1 - Stormwater Pollutant Removal Efficiencies related to Detention Time (Adapted from OWML, 1983)



Similar to the Phosphorus Budget in PondNet, TSS runoff loads from the immediate watershed discharging directly to the pond (direct drainage) and upstream watershed (indirect drainage) are combined to estimate the TSS inflow to a pond. The TP removal efficiency calculated in PondNet is used to select the TSS removal efficiency from Figure A2.1. The product of TSS inflow load and removal efficiency provide for net sedimentation, which, when subtracted from TSS inflow load, results in TSS outflow load from a given pond. The PondNet model ensures that the TP-to-TSS removal efficiency relationship is only applied to wet detention BMPs by utilizing an "if-then" MS Excel function to confirm that the mean depth is greater than zero.

Informal review meetings were held with MPCA staff on May 3, 2006 and June 29, 2006 to review this enhancement to the model and obtain feed-back on whether this modification established an adequate technical basis to provide a credible TSS load calculation capability for PondNet for the nondegradation loading assessment. MPCA staff indicated the calculation strategy was reasonable and appeared adequate for the nondegradation pollutant loading analysis.

Regarding the second limitation, methods were developed to account for the treatment effects of certain BMPs in addition to the wet detention BMPs in the modeling results, when appropriate. Those additional BMPs included street sweeping and P-fertilizer use reduction. The quantification of the impact relied on supplemental technical analyses outside the modeling framework itself, but changes to the model were made to account for the impact in a way that was transparent. Technical documentation for the application of these additional BMPs for various modeling scenarios is presented in Appendix D at the back of this report.

The PondNet model also does not intrinsically account for infiltration BMPs. The two instances in which infiltration BMP benefits were quantified (both in the Cascade Creek Drainage District), pollutant load removal efficiencies and runoff volume reduction were assigned to the infiltration features based on their designed infiltration capacity, which were then applied to the drainage subdistricts' pollutant loads and runoff volume generated in the PondNet model.

The third limitation became evident when modeling a very small subwatershed area (< 15 acres) draining to a calcareous fen with changing land use conditions and for which fen management BMPs were constructed and intended to treat stormwater runoff from specific source areas (rooftops, driveways, etc.). To provide a more accurate representation of treatment provided by the fen management BMPs at this small scale, the WinSLAMM (Source Loading Area Management Model) model was used for the Mutchler Fen. WinSLAMM was created and is maintained by Dr. Robert Pitt and John Vorhees (PV and Associates), and the most recent version, v.9.2.4 (updated June 16, 2007), was used to conduct the modeling of watershed loadings and pollutant removal by fen management BMPs for the Mutchler Fen.

Other BMPs used by the City of Rochester to improve stormwater quality (e.g., education, public participation, erosion and sediment control inspections and enforcement, illicit discharge detection and elimination, good housekeeping practices, etc.) were not quantified in the loading assessment because technical documentation supporting the effectiveness of those activities is not available at this time. Therefore, the loading assessment results do not reflect the benefits of these BMPs and thereby represent a conservative estimate of pollutant load reduction.

A2.3 QUALITY ASSURANCE/QUALITY CONTROL PROCEDURES

The PondNet model itself is relatively easy to use and understand, but requires a good understanding of the operation of Microsoft's Excel spreadsheet software program. Modifications made to allow automated incorporation of GIS-based land use input do make the model more complex to use, however. It is important to follow a basic set of QA/QC procedures to help assure that the automated functions are working properly and that the model is functioning as intended. They are as follows:

- Make sure the season length is set at 1 year across all columns.
- Make sure that season precipitation is the correct value for the location and is referenced correctly across all columns.
- Check pond inputs, especially with regard to watershed area draining directly to the pond, pond area at the normal water elevation, and pond "wet" volume at the normal water elevation.
- Make sure all watershed areas draining to a given pond or evaluation point are connected as appropriate (that is, the columns are linked in the spreadsheet).
- Check that each watershed's land use percents add up to 100%.
- Check general accuracy of runoff total phosphorus, runoff total suspended solids, annual volumetric runoff coefficient, and dissolved/total P ratio for each land use in the Loading Parameters section of PondNet. The values calculated in this section of PondNet act as inputs to many other equations in the spreadsheet.
- Make sure that the derived unit exports (in lb/ac/yr) in the loading parameter table are calculated correctly based on total phosphorus and total suspended sediment concentrations, volumetric runoff coefficient, and the annual precipitation amount.
- Confirm that the total phosphorus and total suspended sediment concentrations, the volumetric runoff coefficient, and the dissolved-to-total phosphorus ratio are consistent for each land use category among the three conditions (i.e., Baseline, Present, and 2020) for the loading assessment.
- Verify that any significant changes in runoff volume, total phosphorus loads, or total suspended solids loads at the load calculation points among the Baseline, Present, and 2020 conditions for the load assessment can be attributed to land use changes. In virtually every case, the magnitude and direction of change should be related to how one or more significant variables in the model were modified to represent changed runoff quality or quantity for the time period of interest.
- The number of listed subwatersheds in ArcView's report of land use types per subwatershed should equal the number of columns in PondNet, because each column in PondNet represents one subwatershed in the system. If the number of columns is different than the number of subwatersheds defined in the land use mapping, then lists from each source will need to be crosschecked to identify and correct the cause of discrepancy.
- All functions that search a database of values need to be checked to ensure that they are searching the full range of that database. For instance, PondNet contains functions that look up values in the reference tables on land use and water bodies. When information is added to these tables, the number of columns or rows increases, changing the range of the table. The reference to the table in the equation does not automatically change when the table is changed, and therefore needs to be adjusted.

- Verify that the selected data inputs (e.g., pollutant concentrations, runoff coefficients, etc.) were correctly entered into the model with the proper units.
- Sum area for each land use category and compare it to the Project Area total or subwatershed total for each time period.
- An experienced staff person other than the modeler provided an independent review of the model inputs and outputs to verify the reasonableness of the model and its results.

A2.4 OVERVIEW OF DATA REQUIREMENTS

Stormwater runoff characteristics and receiving water quality is affected mainly by the size and land use composition of the contributing watershed and the performance of any BMPs used to decrease pollutant loading from that watershed. Stormwater pollutant loads can be estimated from:

- A pollutant Event Mean Concentration (EMC) (variable by land use)
- A runoff coefficient (Rv) for each identified land use
- A representative annual average precipitation amount

Contributing watershed areas are determined by the topography and the natural and constructed conveyance infrastructure in the area around the receiving water. BMP performance is determined by the size and land use characteristics of the service area draining to the BMP, as well as the size and operation of the BMP itself. Quantifying the effect of these key variables is important to credibly model any system. The following sections describe how this information was generated for the nondegradation load assessment effort.

A2.5 LAND USE-DEPENDENT INPUT DATA

A2.5.1 OVERVIEW OF LAND USE-DEPENDENT VARIABLES

Pollutant loads are the product of runoff volume and pollutant concentration (represented as an event mean concentration or EMC). Runoff volume is a function of precipitation depth and a runoff coefficient (Rv). Both runoff coefficients and pollutant concentrations in runoff vary with land use type. The runoff coefficients and runoff pollutant concentrations for TP and TSS assigned to each land use category were held constant throughout the PondNet modeling for each time period.

The over-riding consideration in developing input parameters reflective of each land use was to generate unit load estimates within accepted literature value ranges for Minnesota and the upper Midwest. For agricultural row crop and low density residential, it was also appropriate to reflect the general view among knowledgeable water quality professionals that raw TP export rates for agricultural row crops with conservation practices are slightly/moderately lower than raw export rates for residential. If either the loading rate and the EMC or the loading rate and the Rv for a given land use were available, the missing value could be derived arithmetically through the following relationship:

$$EMC \times P \times Rv \times 2.71 = \text{Pollutant Loading Rate}$$

Where:
EMC = Event Mean Concentration of total phosphorus or total suspended solids in runoff from the land use, expressed as mg/l

P = Average annual precipitation depth for Rochester expressed in feet (31.8 inches or 2.65 feet)

Rv = Volumetric runoff coefficient expressed as a decimal fraction to represent the proportion of precipitation that results in surface runoff over an average year

2.71 = a unit conversion factor

Pollutant Loading Rate = annual load for total phosphorus or total suspended solids for the land use, expressed in lbs./acre/yr

The two land use classifications that have the greatest influence on the model for this analysis are row crop agriculture and low density residential areas, because they exhibit the most change throughout the nondegradation timeframe within the Project Area. The following section presents the values assigned to each land use category. The subsequent sections provide more detail to support the selection of the data inputs for the urban and non-urban land uses.

A2.5.2 Land Use-Dependent Variables for PondNet

For each of the land use categories within the Project Area, a combination of EMCs and Rv values were selected, which resulted in a representative average annual unit area load. These values are critical to the modeling results and are presented in Table 2.1.

Table 2.1 - PondNet Input Values used for Rochester Loading Assessment

Land Use Category	Impervious Coverage[1] (%)	Rv (fraction)	TP EMC (ppb)	TP Loading Rate[2] (lbs/ac/yr)	DP[3]:TP Ratio (fraction)	TSS EMC (ppm)	TSS Loading Rate[2] (lbs/ac/yr)
Row Crop Agriculture[4]	n/a	0.14	540▲	0.54□	0.2	163▲	164□
Very Low Density Residential	10	0.09	350	0.24	0.5	216	145
Low Density Residential[5]	30	0.21	450•	0.69‡	0.3	140•	213‡ □
Medium Density Residential	45	0.31	450•	0.99‡	0.3	140•	308‡
High Density Residential	65	0.43	450•	1.38	0.3	140•	430□
Commercial/Industrial	70	0.46	350†	1.15‡	0.3	140	460‡ □
Institutional	45	0.31	350	0.77	0.3	140	308
Open Space	n/a	0.08	200•	0.11□	0.6	216•	124
Golf Course	10	0.09	550	0.37	0.7	216	145
Pits and Quarries	0	0.00	0	0	0	0	0
Right-of-Way	40	0.28	400	0.79□	0.3	140	277

[1]Non-urban land uses with "n/a" for impervious coverage signify the absence of the following relationship between impervious coverage and runoff coefficient: Rv=[0.607*Impervious Fraction]+0.033 (See Section A2.5.3)

[2]All loading rates based on average annual precipitation depth (P) of 31.8 inches/year. Source: Minnesota Climatology Working Group, 1975-2005, Stations 217004 and 217011.

[3]DP = dissolved phosphorus

[4]Dominant non-urban land use.

[5]Dominant urban land use.

† Bannerman, R.T., D.W. Owens, R.B. Dodds and N.J. Hornewer. 1993. Sources of Pollutants in Wisconsin Stormwater. Wat. Sci. Tech. 28: 241-59.

‡ Bannerman, R.T. 2001. Presentation at North American Lake Management Society Workshop on Stormwater Management Practices to Protect Lakes. November 6, 2001. Madison, WI

▲ Cave, K., T. Quasebarth, and E. Harold. 1994. Rouge River National Wet Weather Demonstration Project. Technical Memorandum – Selection of Stormwater Pollutant Loading Factors.

• Minnesota Pollution Control Agency (MPCA). 2000. Protecting Water Quality in Urban Areas. Best Management Practices for Dealing with Stormwater Runoff from Urban, Suburban, and Developing Areas of Minnesota.

□ University of Wisconsin Extension. 1995. Urban Runoff: How Polluted Is It? 6 pgs.

Note: Any values without a referenced source are derived from values with references sources, based on similar land use traits.

The values themselves were derived using a combination of detailed site specific study results from the upper Midwest, generally accepted literature values from credible sources, knowledge of local conditions, and professional judgment. More detailed explanations of how the load values were determined are presented in the following four sections.

Following are brief descriptions of each land use category modeled in this Nondegradation Review:

- Row Crop Agriculture – the dominant non-urban land use, primarily corn and soybean fields.

- Very Low Density Residential – primarily farmsteads, estates, and large lot residential developments; at a density of 1 unit/acre or less.
- Low Density Residential – the dominant urban land use; includes mostly single family detached homes; at a housing density range of 2-4 units/acre.
- Medium Density Residential – includes duplexes, triplexes, fourplexes, trailer homes, twinhomes, and townhouses at a density range of 5-8 dwelling units per acre.
- High Density Residential – includes senior housing, apartments, and other multiple family housing at a density greater than 8 dwelling units per acre.
- Commercial/Industrial – includes portions of the airport, factories, warehouses, shopping centers, etc.
- Institutional – includes places of worship, medical care facilities, and educational facilities (e.g., K-12 schools, colleges, and universities).
- 0pen Space/Park – maintained and unmaintained open spaces, including: natural resource area parks, cemeteries, wooded/forested areas, and recreational parks other than golf courses.
- Golf Course – public and private golf courses.
- Pits and Quarries – current or past sand and gravel mine sites.
- Right-of-Way – major rights-of-way, such as interstate, state divided highway, city, and county roads.

A2.5.3 Urban Total Phosphorus Loading Rates

For urban land uses, the volumetric runoff coefficient was derived from the impervious coverage using a relationship developed as part of the NURP study (Beduhn,1994) as reflected by the following equation:

$$Rv = (0.607 \times \text{Impervious fraction}) + 0.033$$

For urban land uses, EMCs for TP generally decrease as impervious coverage increases as documented in numerous references for the upper Midwest (MPCA 2000; Bannerman, et. al. 1993; University of Wisconsin Extension 1995; Cave, et. al. 1994). However, significantly higher volumetric runoff coefficients associated with higher impervious coverage more than compensate for the lower EMCs, resulting in higher overall loads as urban land use intensity increases. The urban phosphorus loads used as inputs to this model for Rochester's Project Area are within accepted literature loading rates for this part of the country and appear reasonable relative to each other, with land uses having higher impervious coverage generating higher TP loads.

A2.5.4 Non-Urban Total Phosphorus Loading Rates

Reference EMC and Rv values for non-urban uses are less commonly documented in stormwater literature than EMC and Rv values for urban land uses. However, for agricultural row crop values, an EMC of 540 ppb was selected based on a detailed field monitoring study aimed at developing credible EMC values for three row crop-dominated agricultural subwatersheds in Michigan (Cave et al. 1994). This reference was a credible source for agricultural values for the following reasons:

1. The Cave study was the most comprehensive, field-based monitoring study found for derivation of EMCs for upland runoff in crop-dominated watersheds in the upper Midwest.
2. The Cave study covered an area with a climate similar to that of the Rochester area.

3. Mean annual precipitation in the reference agricultural watersheds was 31.6" per year, nearly the same as the approximately 31.8" per year for the Rochester area. Further, precipitation totals for the years in which monitoring data was collected to support development of agricultural EMCs was near the long-term mean, with 30.8" and 34.9" of precipitation recorded at a nearby monitoring station in 1991 and 1992, respectively.
4. Hydrologic Group B soils cover between 79 and 95% of the three monitored subwatersheds, closely matching the soil coverage in Rochester.
5. Conservation tillage was practiced on most cropland, similar to the Rochester area.

The Rv value for agricultural row crop was the most difficult variable to select because of the wide range of conditions inherent in this land use that can affect runoff (soils, topography, tile drainage, tillage practices, crop cover, etc.). An Rv value of 0.14 was selected as being appropriate, based in part on the fact that this value produces a unit load rate (0.54 lbs/ac/yr) for this land use. This unit load rate is about 20% below that for low density residential (0.69 lbs/ac/yr), which reflects the general view among knowledgeable water quality professionals that raw TP export rates for agricultural row crops with conservation practices are slightly lower than raw export rates for residential. Olmsted County water resources consultants familiar with major agricultural watersheds in the Rochester area indicated that it often takes over an inch of rainfall to generate surface runoff from predominantly agricultural row crop land, thus indicating that a relatively low annual Rv value would be warranted. Development of EMCs and Rv values for other non-urban land uses were stepped down from those described above for row crop agricultural values, reflecting either lower runoff volumes because of continuous plant cover, lower EMCs due to reduced sediment transport and supplemental nutrient additions, or both.

MPCA's manual Protecting Water Quality in Urban Areas (MPCA, 2000) provides a TP EMC of 230 μg/L for open space/non-urban land use. The University of Wisconsin Extension (UWEX,1995) suggests a loading rate of 0.07 lb/ac/yr for open space. If the pollutant loading rate equation in Section A2.5.1 and Rochester's average annual precipitation depth of 2.65 feet are applied, an EMC of 122 μg/L is calculated. Therefore, the TP EMC selected for Rochester's Nondegradation Review is 200 μg/L, a composite of the two cited EMC values that gives the MPCA value more weight.

A2.5.5 URBAN TOTAL SUSPENDED SEDIMENT LOADING RATES

Representative EMCs for total suspended sediment (TSS) were researched for key land uses and the formula presented previously relating EMCs and Rv values to pollutant loading rates for each land use was used.

The principle source for TSS EMCs for urban land uses was MPCA's manual Protecting Water Quality in Urban Areas (MPCA, 2000). The manual provides a mean TSS concentration of 140 mg/l based on NURP data for runoff from urban residential land uses. The resulting loads are shown in the preceding Table 2.1 and reflect the strong influence of the Rv values that represent each land use. TSS loading rates vary from 213 lbs./ac./yr for low density residential (2-4 units/ac) to 430 lbs./ac/yr. for high density residential (8+ units per acre). These calculated Rochester values compared favorably with results of a study in Madison, WI by Bannerman (2001), where an average annual TSS loading rate was estimated to be 212 lb/ac/yr for a mature residential development (3 units/ac). In the same study, Bannerman (2001) found the average annual loading rate of 496 lb/ac/yr for commercial development. This value is close to the TSS loading rate of 460 lbs./ac./yr. for commercial/industrial land use in Table 2.1.

A2.5.6 NON-URBAN TOTAL SUSPENDED SEDIMENT LOADING RATES

For agricultural land uses, Cave, et al. (1994) was again utilized in the absence of Rochester-specific information. An EMC for TSS of 163 ppm was derived through the field monitoring of three agricultural subwatersheds cited in the Rouge River watershed project in southern Michigan and mentioned previously in this report. The open/non-urban value of 216 mg/l cited in the MPCA's manual (2000) was used as the EMC for other non-agricultural land uses dominated by pervious coverage, such as very low density residential, open space, and golf course.

A2.6 PRECIPITATION

An average annual precipitation of 31.8 inches was used for the PondNet model throughout the entire nondegradation timeframe. This value of 31.8 inches was calculated from long-term annual precipitation data (1975-2005) provided by the Minnesota Climatology Working Group and collected at stations 217004 and 217011, which are located within 6-8 miles of Rochester's city center. Together, volumetric runoff coefficients and annual precipitation depth applied to a specific area result in total annual runoff volume.

A2.7 PROJECT AREA AND DRAINAGE DISTRICT BOUNDARIES

The geographical limits of the Project Area were defined by the Rochester-Olmsted County Planning Department (ROPD) and the Rochester Department of Public Works (RDPW) based on the location of anticipated City limits in 2020, plus lands owned and operated by the City outside its contiguous limits. The area defined is approximately 53,000 acres, or approximately 83 square miles, and will be called the "Project Area" for the remainder of this report. The Project Area boundary is shown on all figures within the report and in Appendix A.

To be consistent with the nomenclature utilized in the City of Rochester's Surface Water Management Plans (SWMPs) (Bonestroo, 1997, 2004a, 2004b, and 2004c), the term "Drainage District" is used to describe the sub-watershed areas that drain to the South Fork of the Zumbro River. There were nine major Drainage Districts in the City of Rochester as identified in Rochester's 1997 SWMP for the City and succeeding addenda, as noted below:

- Kings Run (KR)
- Zumbro River (ZR)
- Hadley Valley (HV)
- Northwest Territory (NW)
- Cascade Creek (CC)
- Silver Creek (SC)
- Mayo Run (MR)
- Bear Creek (BC)
- Willow Creek (WC)

A portion of the Willow Creek Drainage District identified in the 1997 SWMP actually drains to a tributary of the North Branch of the Root River. Various reaches of the North Branch Root River system downstream of Rochester are designated trout streams. Because of the significance of the eventual receiving water, this area of the Willow Creek Drainage District has been analyzed separately and is identified as the "Root River

Drainage District" in Section A3.3. Similarly, there are small portions of the Mayo Run and Willow Creek Drainage Districts identified in the 1997 SWMP that actually drain to the Silver Creek and South Fork of the Zumbro River Drainage Districts, respectively. These two portions have been modeled according to their actual drainages in the nondegradation loading assessment. All Drainage District boundaries, as well as these three differences from the 1997 SWMP, are shown on Figure ES.1 in the Executive Summary, Figure A3.1 in Section A3.1, and all figures in Appendix A.

The land area draining through the Project Area to the South Fork of the Zumbro River actually extends well beyond the ten Drainage Districts evaluated in this nondegradation loading assessment. The Project Area is situated at the downstream confluence of forty-one minor watersheds that drain 320 square miles (203,600 acres) of land to the South Fork of the Zumbro River (USGS, 2007). The Project Area accounts for only 26% of this watershed area, which means a majority of the stormwater runoff reaching the Project Area is generated outside of it. Figure A2.2 illustrates the extent of land outside the Project Area that drains through it.

Even though the actual hydrologic boundaries of many of the ten Drainage Districts encompass areas far beyond the Project Area for the City of Rochester, the modeling approach focused only on the loadings generated within the portion of each Drainage District that fell within the Project Area. The rationale for this approach was that the intent of the loading assessment was to focus on areas of the Drainage Districts within which the City could be expected to exert some control, and therefore, for which it is expected to take responsibility to meet the objectives of the Nondegradation rules.

The City of Rochester opted to utilize a routing method rather than an overlay method to complete its Nondegradation Review. In a routing method, the model directs loads generated within specific areas along conveyance routes and through treatment features in a way which is intended to represent what actually happens "on the ground". Accordingly, Drainage District boundaries and their interconnectivity need to be identified. The 1997 Surface Water Management Plan utilized an XPSWMM model to identify the sub-district boundaries within each Drainage District used to define the hydrologic and hydraulic characteristics and development needs for the City's stormwater management system. This model has been used since 1997 to guide the development of the City's stormwater management system and it provided a starting point from which to develop the Nondegradation Review model. For example, sub-district boundaries had to be adjusted in the Nondegradation Review model to account for the construction of storm sewers and storm ponds since 1997. Grading plans, utility plans, and 2-ft contour data (1999) were also used to more accurately draw sub-district boundaries and define flow directions. Following the 1997 SWMP nomenclature, sub-districts were named and numbered to correspond with their Drainage District, as indicated in the 1997 SWMP (e.g., cc-a2.1). Stormwater detention basins identified in each sub-district include a "p" in the description (e.g., cc-p2.1). The complete sub-district coverage and nomenclature information for the City is available electronically in a GIS format, but is not presented within this report. However, the sub-district and pond nomenclature is expressed in the model output data contained in Appendix C.

Goodhue

Wabasha

Dodge

Olmsted

Mower

Fillmore

Figure A2.2

City of Rochester

Watershed draining to the South Fork of the Zumbro River through the Project Area

Legend

- Project Area
- South Fork of the Zumbro River Watershed draining through the Project Area
- County Boundary

2 1 0 2 4 Miles

1

Bonestroo

ROCHESTER MINNESOTA

A2.8 WET DETENTION BMPS

Water bodies with standing water have historically been shown to be effective at treating runoff for pollutants such as TP and TSS. These can include natural or constructed ponds, lakes, reservoirs, or wetlands. Constructed, stormwater "wet" ponds have been the primary BMP used by local governments, including Rochester, over the last 10-15 years to improve stormwater quality. In general, wet detention BMPs reduce loadings of pollutants by slowing the flow rate of stormwater so that a portion of the particles carried in suspension or along the bottom of the pipe or channel entering the pond settle out before the water leaves the pond through the outlet. They can also remove dissolved pollutants (especially nutrients like phosphorus) through uptake due to biological activity in the ponds themselves. Thus, a single well-designed and constructed pond of the type required by the City of Rochester to mitigate the impacts of new development has the capacity to remove 50-60% of the total phosphorus (TP) load it receives over the course of a year and 80-90% of the total suspended solids (TSS) load. The treatment provided by wet ponds is by far the dominant influence in mitigating pollutant loads carried by urban stormwater in Rochester and PondNet's ability to account for this treatment effect is one reason it was chosen for this analysis.

Within the Project Area, 19 wet detention basins were in existence by 1988, distributed throughout eight of the ten Drainage Districts (Bear Creek and Root River lack pre-1988 basins). Therefore, modeled Baseline loading conditions incorporated the treatment provided by these 19 BMPs since they provided wet detention, even though their primary function may not have been stormwater management. These 19 basins included: golf course water hazard (1), farm ponds (9), wetlands (3), a reservoir (1), a nature center pond (1), an aggregate quarry (1), and stormwater management ponds (3). The three stormwater management ponds were the first to be constructed in association with new development under the City's evolving water quality treatment requirements.

Runoff volume control that may be occurring from wet detention BMPs as a result of seepage, evaporation, or evapotranspiration were not specifically accounted for because of the lack of documentation to quantify these losses, with the exception of Flood Control Reservoir (FCR) KR-6, which is discussed further in section A3.11 and Appendix E.

The key inputs needed by the PondNet model to account for attenuation of pollutant loads by wet detention BMPs that have been incorporated into the City's stormwater management system are the surface area and standing water "pool" volume of the pond at normal water level. To secure this data, multiple data sets provided by the City of Rochester were reviewed, as described below.

Prior to the onset of the Nondegradation Review process, the City of Rochester had begun transferring stormwater management system information from its paper maps into its "storm pond" digital ArcGIS database, a geographic information system. Initially, to meet the requirements of the MS4 permit, this work focused on completing a digital map showing the location of storm sewers, inlets, outlets, and stormwater treatment ponds. Next, the City began upgrading its "storm pond" database by adding rectified grading plans for each pond, where available, thereby allowing the addition of the normal water level elevation (NWL), high water level elevation, pond depths, and inlet/outlet structural elevations to the attribute table in the database. This process had just been initiated at the time the Nondegradation Review process began. The digital map is currently undergoing further enhancements through a field verification process to more fully populate the database with other desirable data, such as overland flow routes, and to QA/QC the data and fill data gaps.

At the time the Nondegradation Review process began, the City's electronic "storm pond" database had evolved to the point where the complete set of critical information needed for modeling (i.e., surface area, wet pond volume, number of cells, and year constructed) was only available for 56 of the 270 ponds listed. The remaining ponds had only some or none of the critical data provided. Missing data for the ponds in the "storm ponds" database was derived by analysis of approved grading plans for those ponds as part of the Nondegradation Review process. Pond volumes were then calculated using the depths and surface areas at the following three points in a pond's profile: lowest contour (pond bottom), slope break, and pond surface at NWL. As the Nondegradation Review process progressed, 37 ponds serving the City's stormwater management system were added. Data essential to modeling of these 37 ponds was developed and added to the database. Therefore, a total of 307 ponds listed in the "storm pond" database were included in the loading assessment for the Nondegradation Review. Fifty three of these ponds were dry extended detention basins for which no pollutant removal benefits were assigned, with the remainder being single or multi-cell wet detention basins for which the model did calculate TP and TSS removal.

Six City-owned and operated flood control reservoirs (FCRs), listed in the "storm ponds" database, were incorporated into the loading assessment model because of the significant treatment they provide. FCR drainage areas located within the contiguous Project Area limits were accounted for in the same manner as any other wet detention BMP. Treatment of noncontiguous FCR drainage areas was calculated as a credit. See Appendix E at the back of this report for additional documentation and sections A3.4, A3.7, and A3.11 for further discussion.

Simultaneous to the development of its "storm ponds" database, the City created a second data base, called "other ponds" that identifies the location of 132 other water features with primary purposes other than stormwater treatment. These "other ponds" generally fell into one of the following categories:

- Water hazards on golf courses
- Farm ponds (constructed by the Soil Conservation Service)
- Wetlands (constructed and natural)
- Flood storage ponds (designed to mitigate for floodplain filling)
- Quarry ponds (created from the below water table extraction of sand/gravel deposits or limestone/sandstone bedrock)
- Temporary construction basins
- Snow storage basin
- Private stormwater treatment ponds located outside the 2020 Project Area
- Reservoirs that are in-line with a receiving water system (e.g., Silver Lake, Manorwoods Lake, Interlachen Lake, etc.)

After reviewing these water features, 29 additional ponds were identified as performing significant stormwater treatment functions and were subsequently incorporated into the loading assessment model using best available information. These 29 water features fell into the following three primary categories: wetlands, farm ponds, and quarry ponds. The remainder of "other ponds" were not included in the model for the following reasons:

- They were temporary features of the landscape that were part of a transition from one land use to another (temporary sediment basins, some quarries).
- Their primary function (e.g., recreational, aesthetic, animal watering, or snow storage) precluded any significant stormwater treatment function.
- They were outside the Project Area (private stormwater treatment ponds outside 2020 boundaries).
- They have little to no detention and would provide minimal water quality treatment.
- They were part of a receiving water system that is not expected to be modeled as part of this effort.

A2.9 WETLANDS

Rochester is in a part of the state that is fairly well-drained due to the relatively high density of streams and rivers and underlying karst bedrock, as is evidenced by the absence of any natural lakes and the presence of losing streams. In addition, past agricultural activities in the region have resulted in tile-drainage of many of the low-lying areas that tended to accumulate and hold runoff or the conversion of depressions to farm ponds. As a result, large areas without natural wetlands are prevalent throughout the landscape. There are, however, some larger wetland features along drainage ways, in areas underlain by impermeable clays, and at groundwater discharge locations.

The City's geographic information system includes key data layers that were used to help assess the relationship between wet detention basins and potential wetland areas. These data layers were: National Wetland Inventory areas, DNR Public Waters, hydric soils, two-foot topographic contours, and wetland replacement file data. Since the inception of the MN Wetland Conservation Act (WCA), the City has learned through experience that the National Wetland Inventory alone is a poor predictor of wetland sites. Although it is still used as a screening tool, the City more typically relies on the location of hydric soils and their relationship to waterways and depressions.

A data table was created to identify which wet detention basins intersected with the National Wetland Inventory polygons, resulting in the identification of 20 wet detention basins, already included in the loading assessment model because they already provide or will provide stormwater quality treatment. The other data layers were then evaluated to further assess their relationship to wetlands. It was found that wetland mitigation has already been required under WCA for 14 of these BMPs necessitating the development and approval of wetland replacement plans. Five of the remaining 20 BMPs were constructed prior to the existence of WCA as farm ponds, so no wetland mitigation was required. These farm ponds were originally constructed outside the City limits, but have either been annexed into the City or are expected to be annexed by 2020. When development occurs around these farm ponds, they will likely be retrofit for stormwater management. When that happens, wetland delineations will be completed, as required by WCA. The last of the 20 BMPs is located at the site of a former food processing wastewater treatment lagoon, which had been constructed in the 1940's or 1950's, prior to the existence of wetland protection regulations. When the private food processing company connected to the City's wastewater treatment plant and abandoned the use of their lagoon, the City retrofit the site for stormwater management.

In summary, since the inception of wetland protection regulations, wet detention BMPs have been constructed in a manner that either avoids wetlands, minimizes impacts to them, or mitigates for impacts so that new and expanded discharges are prevented from adversely affecting wetlands.

A3. Loading Assessment Modeling Results

A3.1 BACKGROUND

This section summarizes the results of the loading assessment for the City, accounting for pollutant loads generated by each of the ten Drainage Districts both with and without BMPs. Load assessments used a routed modeling approach as described in Section A2.7. This section provides narrative summaries of the load estimates for each Drainage District, as well as for the Project Area as a whole. In addition, loads were estimated for each flood control reservoir (FCR) watershed so that any treatment of runoff by the FCRs from areas outside the Project Area could be calculated and applied as a "credit" when the BMPs for each respective Drainage District were analyzed to assess load mitigation. (See Appendix E at the back of this report for an explanation for the rationale explaining why the FCRs were included in the Nondegradation Review.) Figure A3.1 shows the areas where loads presented in this report were estimated, which include each of the ten Drainage Districts and the portions of the FCR watersheds that extend outside the Project Area.

Figures A-1 through A-3 in Appendix A at the back of this report show the following:

- Figure A-1 shows the Project Area land use distribution for the Baseline (1988) modeling condition.
- Figure A-2 shows the Project Area land use distribution for the Present (2005) modeling condition.
- Figure A-3 shows the Project Area land use distribution for the 2020 Development modeling condition.

All figures in Appendix A also show the following:

- The Project Area boundary (based on the estimated location of the City's jurisdictional limits in 2020).
- The delineated boundaries for, and names of, the ten Drainage Districts.

Land use information presented in Figures A-1 through A-3 was supplied by the Rochester-Olmsted County Planning Department.

Key data for all stormwater treatment ponds and FCRs accounted for in the modeling of each Drainage District are presented in Appendix B, organized alphabetically by Drainage District. Appendix C contains the detailed model output for each Drainage District for each of the three modeled conditions (i.e., Baseline, Present, and 2020), organized alphabetically by Drainage District.

It is important to note that while the narrative summaries contained in this section concentrate primarily on a comparison of the loadings at the mouth of each Drainage District, the detailed model output in Appendix C shows loadings for each sub-district within each of the ten Drainage Districts. Finally, the detailed model output in the appendices differs slightly from that presented in the text summaries due to rounding of numerical loads presented in the summary tables. The numbers in the summary tables for total phosphorus loading and runoff volume are presented to two significant figures and those for total suspended solids loading to three significant figures. This is consistent with the number of significant figures for the EMCs, on which the unit loads for each parameter are based.

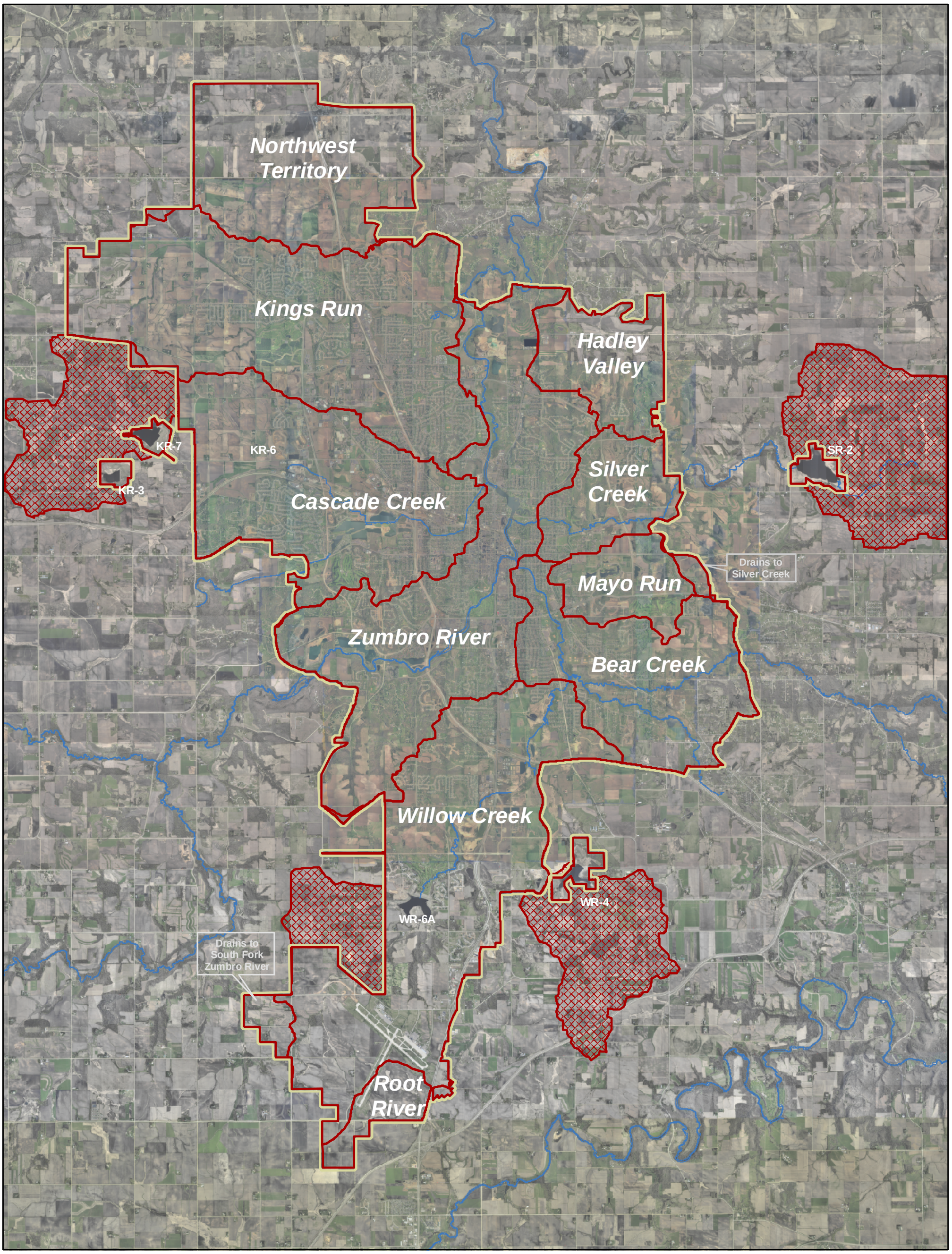


Figure A3.1
City of Rochester
Nondegradation Loading Assessment Drainage Districts and Project Area

1 0.5 0 1 2 Miles

N

Legend

- Project Area
- Flood Control Reservoir Drainage Areas Outside of the Project Area
- Drainage District Boundaries within the Project Area
- Major Water Course

Bonestroo

ROCHESTER MINNESOTA

A3.2 OVERVIEW OF MODELING RESULTS FOR THE PROJECT AREA

A3.2.1 INTRODUCTION

This section presents a summary of the loading assessment for the entire 53,000-acre Project Area. Load estimates for the three time conditions (Baseline, Present, and 2020) for the three parameters (total phosphorus, total suspended solids, and runoff volume) are presented as a sum of the load estimates for the ten Drainage Districts, each of which is discussed separately in the succeeding sections. The Project Area summary also accounts for the treatment provided by the City-owned and operated FCRs to runoff from areas outside the Project Area. The FCRs catch and treat runoff from a total of 16,700 acres, 11,350 acres of which lie outside the Project Area and are dominated by row crop agriculture land use.

A3.2.2 LAND USE OVERVIEW

Table 3.1 summarizes the changes in each land use category between the Baseline, Present, and 2020 development conditions for the Project Area.

Table 3.1 - Land Use Change Summary Table for the Project Area

Land Use	Baseline Condition (ac)	Present Condition[1]			2020 Condition[1]		
		Acres	Change (ac)	Change (%)	Acres	Change (ac)	Change (%)
Row Crop Agriculture	18,161	13,325	-4,835	-27%	11,436	-6,725	-37%
Very Low Density Residential	2,677	2,752	75	3%	2,656	-20	-1%
Low Density Residential	5,946	9,852	3,905	66%	11,767	5,821	98%
Medium Density Residential	462	505	43	9%	923	461	100%
High Density Residential	734	1,423	689	94%	1,538	804	110%
Commercial/Industrial	2,711	3,669	958	35%	4,841	2,130	79%
Institutional	1,115	1,499	384	34%	1,551	436	39%
Open Space	16,691	14,677	-2,014	-12%	12,994	-3,696	-22%
Golf Course	730	844	114	16%	822	92	13%
Pits and Quarries	412	414	2	1%	409	-3	-1%
Right-of-Way	3,068	3,223	155	5%	3,215	147	5%
Water	618	1,141	523	85%	1,172	554	90%
TOTAL	53,325	53,324[2]			53,325		

[1] *Change shown is compared to Baseline condition*

[2] *The Present Condition total acreage is less than the other two conditions due to slight differences in the digital land use coverages.*

There are several significant land use changes within the Project Area worth noting:

1. Under the Baseline condition, the dominant land use in the Project Area is row crop agriculture (34% of the Project Area), followed by undeveloped open space (31% of the Project Area).
2. Low density residential development is the largest single urban land use in the Baseline condition, comprising about 11% of the Project Area.
3. The biggest land use changes between the Baseline condition and the Present condition are a decrease of over 4,800 acres and 2,000 acres of row crop agriculture and open space, respectively, and an increase of over 3,900 acres of low density residential. High density residential and commercial land uses increase by a total of just under 1,650 acres.

4. Land dedicated to row crop agriculture is expected to decrease 1,900 acres between the Present and 2020 conditions, and open space will decrease by an additional 1,700 acres. For the dominant urban land uses, low density residential is expected to increase by 1,900 acres and commercial and industrial land use alone will increase by over 1,170 acres between the Present and 2020 conditions.
5. Almost two-thirds of the land use changes that will take place between the Baseline and 2020 condition have already occurred.

A3.2.3 Overview of Nondegradation Modeling Results

Table 3.2 summarizes the modeled differences in loadings for the three parameters for each of the three conditions for the Project Area.

Table 3.2 - Summary of Modeled Loadings for the Project Area

	TP Load (lbs/yr)	TSS Load (lbs/yr)	Water Volume (ac-ft/yr)
Baseline Condition	23,000	8,620,000	22,000
Present Condition	20,000	6,490,000	24,000
2020 Condition	19,000	6,290,000	26,000
FCR load reductions to runoff generated outside of the Project Area (i.e., "Credit")	3,200	1,640,000	0
Present Condition with Credit	16,800	4,850,000	24,000
2020 Condition with Credit	15,800	4,650,000	26,000

Note: See Appendix C for the PondNet Model's actual output and an explanation of the significant figures criteria application.

The key findings reflected in the above modeling results are as follows:

1. Calculated loads of both total phosphorus and total suspended solids for the Present and 2020 conditions are significantly less than for the Baseline condition. Since the objective of the nondegradation rule is to employ BMPs to prevent pollutant load increases above 1988 levels, this data indicates that the BMPs are successfully achieving nondegradation. Further water quality improvement is achieved by taking into account the treatment "credit" associated with the FCRs that catch and treat runoff from outside the Project Area.
2. The BMP that provides the greatest mitigation of stormwater impacts are wet detention basins, also known as stormwater ponds. The modeling accounts for the effect of 19 wet detention features existing prior to 1988. Between the Baseline and Present conditions, 241 wet detention basin systems were constructed in the Project Area, excluding the six Flood Control Reservoirs. Cumulatively, the area of these detention basins is about 235 acres and the wet volume storage is about 1,250 acre-feet. These wet detention basins were sized according to the City of Rochester's sizing criteria and modeling shows that each wet detention BMP generally achieves removal efficiencies above 50% for total phosphorus and 80-90% for total suspended solids.

3. Modeled runoff volume for the Project Area increases moderately between the Baseline and Present conditions and again between the Present and 2020 conditions. The reason for this is two-fold. First, the conversion of non-urban to urban land uses increases impervious coverage, which is reflected in a higher runoff coefficient for the urban land uses. Second, few infiltration BMPs have been constructed in the City, to date. The City of Rochester overlies sandstone and limestone bedrock formations that are part of the SE MN karst area. Rochester extracts its drinking water from groundwater aquifers within these formations. In accordance with Minnesota Department of Health (MDH) recommendations (see Appendix F), the City has exercised a conservative approach to stormwater infiltration as a source water protection measure. Thus far, the City has only pursued volume control through infiltration in specific areas to protect calcareous fens, to protect a recreational lake currently under development, and in one location at which a U.S. Geological Survey monitoring program is being established to evaluate the effects on a nearby municipal water supply well. Additionally, FCR KR-6 (constructed in 1994), which is wholly located within the Cascade Creek Drainage District and outside the City's Drinking Water Supply Management Areas, infiltrates virtually all runoff from its 1,000-acre watershed under average annual precipitation conditions. Volume control that may be occurring from other ponding areas as a result of evaporation, evapotranspiration, or seepage were not specifically accounted for in the model because of the lack of compelling documentation to quantify these water losses.
4. Loads calculated for the 2020 condition are based on the assumptions that:
    - Wet ponds and FCRs will have sufficient maintenance to sustain the intended function and capacity of each BMP.
    - The City will continue to apply the water quality treatment requirements to new developments in the future as it does today.
    - Public information and education efforts supporting the state-wide phosphorus fertilizer application restrictions (effective in January 2005) would result in a 13% reduction in phosphorus loading from all residential property (see Appendix D for documentation on how this reduction is derived).
    - Intensive street-sweeping (5 times weekly) will continue in the Central Business District (see Appendix D for documentation on how street sweeping benefits are quantified).
5. Modeling of the performance of the Flood Control Reservoirs indicates that they remove about 3,200 pounds/year and 1,640,000 pounds/year of total phosphorus and total suspended solids, respectively, from runoff generated by largely agricultural land use outside the Project Area. These numbers are accounted for as a treatment "credit" by subtracting them from the modeled loads for the respective parameters for the Present and 2020 land use conditions. Other than the observed infiltration capacity of KR-6 discussed above, the FCRs are assumed not to provide any volume control benefits based on the absence of compelling evidence or documentation. Therefore, there are no water volume credits applied.

Table 3.3 shows a comparison of modeled Baseline and Present conditions with and without the BMPs that mitigate stormwater impacts associated with development activities within the Project Area. The "without BMPs" scenario presents the modeled loads for the three parameters that would have resulted if there were no wet detention basins, street sweeping program, or stormwater treatment by FCRs (for the portions of their watersheds within the Project Area). The loads presented in this summary table do not include the treatment credit generated through treatment of runoff generated outside the Project Area by FCRs. An assessment of pollutant load reduction under the 2020 condition is not presented because that would be a hypothetical, projected scenario with unknown magnitude, types, and performance of future stormwater treatment methods.

Table 3.3 - Comparison of Baseline and Present Condition Loads With and Without BMPs in the Project Area

	TP Load (lbs/yr)	TSS Load (lbs/yr)	Water Volume (ac-ft/yr)
Baseline Condition[1]	23,000	8,610,000	22,000
Present Condition Without BMPs	27,000	10,200,000	24,000
Present Condition With BMPs[2]	20,000	6,490,000	24,000
Loads Removed Under Present Condition[3]	7,000	3,710,000	0

[1] *Where BMPs existed prior to 1988, the Baseline load accounts for that treatment.*

[2] *Loads do not include treatment of runoff generated outside the Project Area, as provided by FCRs.*

[3] *Loads Removed = Present Loading without BMPs – Present Loading with BMPs*

Key findings are as follows:

1. The loading numbers for the Present Condition Without BMPs scenario shows how pollutant loads would have increased without treatment.
2. Without the BMPs described above, Present condition total phosphorus and total suspended solids loadings associated with development within the Project Area would have exceeded Baseline loadings by about 4,000 pounds/year (17%) and 1,590,000 pounds/year (18%), respectively. With the BMPs, loadings for these parameters for the Present condition are instead 3,000 pounds/year (13%) and 2,120,000 pounds/year (25%) below the Baseline condition, respectively.
3. Few of the BMPs are intended for volume control, and therefore, estimated runoff volume for both the Present Condition With BMPs and the Present Condition Without BMPs scenarios is about 2,000 acre-feet/year (9%) more than for the Baseline condition. The runoff volume reduction associated with FCR KR-6, that infiltrates virtually all of the average annual runoff volume from its 1,000-acre watershed, and the small amount of additional infiltration associated with the Grandville Development in the Cascade Creek Drainage District amount to less than 400 acre-feet per year. Due to the rounding criteria used to present the results, the 400 acre-feet per year difference is not large enough to show a difference in volume between the two scenarios, Present condition with BMPs and Present condition without BMPs.

A3.3 ROOT RIVER DRAINAGE DISTRICT

A3.3.1 INTRODUCTION

The Root River Drainage District lies in the southernmost portion of the Project Area and comprises just over 800 acres (1.5%) of the 53,000 acre nondegradation Project Area (see Figure A3.1). The Root River Drainage District discharges south out of the Project Area to an unnamed, ephemeral tributary to the North Branch of the Root River. The North Branch of the Root River is located roughly 10 miles south of Rochester's downtown, and flows northeasterly before turning south. It is not listed as an impaired water within Olmsted County. Load estimates for the three conditions (Baseline, Present and 2020) for the three parameters (total phosphorus, total suspended solids, and runoff volume) are presented for the sum of discharges exiting the Project Area.

A3.3.2 LAND USE OVERVIEW

Table 3.4 summarizes the changes in each land use category between the Baseline, Present, and 2020 conditions of the Root River Drainage District.

Table 3.4 - Land Use Change Summary Table for the Root River Drainage District

Land Use	Baseline Condition (ac)	Present Condition[1]			2020 Condition[1]		
		Acres	Change (ac)	Change (%)	Acres	Change (ac)	Change (%)
Row Crop Agriculture	609	571	-38	-6%	571	-38	-6%
Very Low Density Residential	5	5	0	-4%	5	0	-4%
Low Density Residential	0	0	0	0%	0	0	0%
Medium Density Residential	0	0	0	0%	0	0	0%
High Density Residential	0	0	0	0%	0	0	0%
Commercial/Industrial	44	92	49	112%	92	49	112%
Institutional	0	0	0	0%	0	0	0%
Open Space	118	108	-10	-9%	108	-10	-9%
Golf Course	0	0	0	0%	0	0	0%
Pits and Quarries	0	0	0	0%	0	0	0%
Right-of-Way	37	37	0	0%	37	0	0%
Water	0	0	0	0%	0	0	0%
TOTAL	812	812			812		

[1] *Change shown is compared to Baseline condition*

A narrative summary of the most significant land use factors affecting this Drainage District follows:

1. Under the Baseline condition, the dominant land use is row crop agriculture (75% of the Drainage District) followed by undeveloped open space (19% of the Drainage District).
2. A small portion of U.S. Highway 63, State Highway 30, and the Rochester International Airport (RIA) lies within the Root River Drainage District. These are the only urban land uses in the Baseline condition, comprising about 5% of the Drainage District.

3. Due to an airport runway expansion, the only land use change between the Baseline condition and the Present conditions is an increase of almost 50 acres of commercial/industrial land use and decreases of roughly 10 and 40 acres of open space and row crop agriculture land uses, respectively.
4. Land use is not expected to change in the Root River Drainage District between the Present and 2020 conditions.

A3.3.3 Overview of Nondegradation Modeling Results

Table 3.5 summarizes the modeled differences in loadings for the three parameters for each of the three conditions. In this Drainage District, there are no wet detention basins, street sweeping, or phosphorus fertilizer ban BMPs to account for in the model, so this table parallels the "without BMP" scenario discussed in other sections. These values represent the summation of the loads exiting the Project Area to the south, toward the North Branch of the Root River (see Figure A3.1).

Table 3.5 - Summary of Modeled Loadings for the Root River Drainage District

	TP Load (lbs/yr)	TSS Load (lbs/yr)	Runoff Volume (ac-ft/yr)
Baseline Condition	720	250,000	570
Present Condition	790	279,000	650
2020 Condition	790	279,000	650

The key findings reflected in the above modeling results are as follows:

1. Calculated loads of total phosphorus, total suspended solids, and runoff volume for the Present and 2020 land use conditions are greater than the loads for the Baseline condition. These increases in loads are associated with the increase in impervious cover associated with the airport runway expansion.
2. One dry stormwater detention basin was constructed to control increased stormwater discharges resulting from the runway expansion. Due to Federal Aviation Administration safety guidance, the construction of wet detention basins is not advised in order to reduce the potential conflict between water fowl and air traffic, therefore, no water quality treatment or volume control benefits are associated with this BMP.
3. A general industrial stormwater permit has been issued to the Rochester International Airport (RIA). Under this permit, airport operations are implemented to avoid, minimize, and mitigate stormwater impacts according to the permit requirements and the BMPs outlined in RIA's site-specific Storm Water Pollution Prevention Program. These BMPs were not incorporated into the modeling results due to the lack of quantifiable documentation.
4. Only 30 of the 812 acres (3.7%) of this Drainage District are impervious. The substantial amount of vegetated pervious area surrounding the impervious areas further mitigates stormwater runoff, but is not accounted for in the model due to lack of quantitative documentation.

Due to the absence of modeled stormwater quality BMPs in this Drainage District, there is no quantifiable difference between the Present condition with BMPs and Present condition without BMPs scenarios.

A3.4 WILLOW CREEK DRAINAGE DISTRICT

A3.4.1 INTRODUCTION

The Willow Creek Drainage District lies in the southern portion of the Project Area and comprises just over 9,800 acres (18%) of the 53,000 acre nondegradation Project Area (see Figure A3.1). Willow Creek discharges to Bear Creek, approximately 2.5 river miles before the confluence of Bear Creek and the South Fork of the Zumbro River. Load estimates for the three conditions (Baseline, Present, and 2020) for the three parameters (total phosphorus, total suspended solids and runoff volume) are presented for the mouth of Willow Creek, where it discharges to Bear Creek (Figure A3.1).

Two FCRs (WR-6A and WR-4) lie within the Willow Creek Drainage District and provide significant benefits in attenuating TP and TSS loads generated within and outside the Project Area (Figure A3.1). Both reservoirs were constructed by the City of Rochester after 1988. About 26% of the watershed draining to FCR WR-6A lies outside the nondegradation Project Area, whereas the watershed draining to FCR WR-4 lies almost entirely outside the nondegradation Project Area. Land use in these outlying watersheds is almost exclusively row crop agriculture. As discussed earlier, the benefits these reservoirs provide in treating runoff from outside the Project Area are modeled separately, then applied as a treatment "credit" in the loading calculations presented below.

A large portion of Willow Creek is listed as impaired for aquatic life due to excess turbidity. Two calcareous fens, the Airport Fen and the Mutchler Fen, are located within the Willow Creek Drainage District.

A3.4.2 LAND USE OVERVIEW

Table 3.6 summarizes the changes in each land use category between the Baseline, Present, and the 2020 conditions for the Willow Creek Drainage District.

Table 3.6 - Land Use Change Summary Table for the Willow Creek Drainage District

Land Use	Baseline Condition (ac)	Present Condition[1]			2020 Condition[1]		
		Acres	Change (ac)	Change (%)	Acres	Change (ac)	Change (%)
Row Crop Agriculture	3,549	2,871	-678	-19%	2,563	-986	-28%
Very Low Density Residential	252	289	37	15%	276	24	10%
Low Density Residential	576	1,205	629	109%	1,551	975	169%
Medium Density Residential	15	30	15	106%	135	120	826%
High Density Residential	46	118	72	157%	143	98	213%
Commercial/Industrial	797	936	139	17%	1,347	551	69%
Institutional	50	41	-9	-17%	41	-9	-17%
Open Space	3,487	3,094	-393	-11%	2,535	-952	-27%
Golf Course	171	251	80	46%	251	80	46%
Pits and Quarries	143	138	-6	-4%	132	-11	-8%
Right-of-Way	613	652	39	6%	648	35	6%
Water	139	212	74	53%	214	75	54%
TOTAL	9,836	9,836			9,837		

[1] *Change shown is compared to Baseline condition*

A narrative summary of the most significant land use factors affecting this Drainage District follows:

1. Under the Baseline condition, the dominant land use in the drainage is row crop agriculture (36% of the Drainage District) followed by undeveloped open space (35% of the Drainage District).
2. Most of the Rochester International Airport (RIA) lies within the Willow Creek Drainage District. This commercial/industrial land use category is the largest single urban land use in the Baseline condition, comprising about 8% of the Drainage District.
3. The biggest land use changes between the Baseline and Present conditions are decreases of nearly 680 acres in row crop agriculture and 400 acres of open space, while residential land uses increase by nearly 750 acres. Commercial/industrial land use increases by nearly 140 acres and golf course lands increase by 80 acres. An increase of 74 water acres is also a significant land use change between the Baseline and Present conditions, resulting from the construction of FCRs and wet detention basins.
4. About 900 acres of land is expected to be developed in the Willow Creek Drainage District between the Present and 2020 conditions. Land dedicated to open space is expected to decrease 560 acres between the Present and 2020 conditions, and row crop agriculture will decrease by an additional 290 acres. For the dominant urban land uses, the commercial/industrial land use is expected to increase by another 410 acres, and low density residential land use will increase by 350 acres, as compared to the Present condition.

A3.4.3 Overview of Nondegradation Modeling Results

Table 3.7 summarizes the modeled differences in loads for the three parameters for each of the three conditions, accounting for water quality treatment provided by the wet detention basins and phosphorus fertilizer ban BMPs, as distinguished from the FCR credits. The summary of modeled load estimates is presented for the mouth of Willow Creek at Bear Creek (Figure A3.1).

Table 3.7 - Summary of Modeled Loadings for the Willow Creek Drainage District

	TP Load (lbs/yr)	TSS Load (lbs/yr)	Runoff Volume (ac-ft/yr)
Baseline Condition	2,900	1,010,000	4,000
Present Condition	2,200	541,000	4,300
2020 Condition	2,200	604,000	4,900
FCR load reductions to runoff generated outside of the Project Area (i.e., "Credit")	1,200	637,000	0
Present Condition with Credit	950	-95,700	4,300
2020 Condition with Credit	1,000	-32,600	4,900

The key findings reflected in the above modeling results are as follows:

1. Calculated loads of both total phosphorus and total suspended solids for the Present and 2020 conditions are significantly less than for the Baseline condition, even without taking into account the treatment "credit" associated with the two FCRs.

2. To mitigate stormwater impacts associated with new development, 51 wet detention basins were added in the Willow Creek Drainage District as development proceeded between the Baseline and Present conditions. Cumulatively, the area of these detention basins is just over 60 acres and the wet volume storage equals about 435 acre-feet.
3. Modeled runoff volume for this Drainage District increases between the Baseline and Present conditions. This increase in runoff volume is associated with the continued conversion of non-urban to urban land uses with higher runoff coefficients.
4. Five dry stormwater detention basins were constructed to control increased stormwater discharges resulting from the runway expansion. Due to Federal Aviation Administration safety guidance, the construction of wet detention basins is not advised in order to reduce the potential conflict between water fowl and air traffic, therefore, no water quality treatment or volume control benefits are associated with this BMP.
5. As discussed previously, a general industrial stormwater permit has been issued to the Rochester International Airport (RIA). Under this permit, airport operations are implemented to avoid, minimize, and mitigate stormwater impacts according to the permit requirements and the BMPs outlined in RIA's site-specific Storm Water Pollution Prevention Program. These BMPs were not incorporated into the modeling results due to the lack of quantifiable documentation.
6. Loads calculated for the 2020 condition are based on the assumptions that:
    - The City will continue to apply the same water quality treatment requirements to new developments in the future as it does today.
    - Public information and education efforts supporting the state-wide phosphorus fertilizer application restrictions (effective in January 2005) would result in a 13% reduction in phosphorus loading from all residential property (Appendix D).
7. Modeling of the performance of the FCRs WR-6A and WR-4 indicates that they remove about 1200 pounds/year and 637,000 pounds/year of total phosphorus and total suspended solids, respectively, from the runoff generated by largely agricultural areas of their watersheds that lie outside the nondegradation Project Area. These numbers are accounted for as a treatment "credit" by subtracting them from the modeled loads for the respective parameters at the load estimation point for Willow Creek for the Present and 2020 conditions. It is assumed that the FCRs do not provide significant infiltration, and therefore, there are no volume control credits applied.
8. When the water quality treatment "credits" generated by FCRs WR-6A and WR-4 are subtracted from the modeled load estimate for the Willow Creek Drainage District, net negative loads for TSS result. Since these credits are greater than the TSS loadings for the Willow Creek Drainage District, the remainder of the credit will be applied at the load estimation point where the South Fork of the Zumbro River exits the Project Area. This credit is large compared to the loadings for the Willow Creek Drainage District because the area being treated outside the 2020 project boundary by the FCRs (4,320 acres) is almost half the size of the Willow Creek Drainage District itself.

Table 3.8 shows a comparison of modeled Baseline and Present conditions with and without the BMPs that mitigate stormwater impacts associated with development activities within the Willow Creek Drainage District. The "without BMPs" scenario presents the modeled loads for the three parameters that would have resulted if there were no wet detention basins or stormwater treatment by FCRs (for the portions of their watersheds within the Project Area). The loads presented in this summary table do not include the treatment credit generated through treatment of runoff generated outside the Project Area by FCRs WR-6A and WR-4. An assessment of pollutant load reduction under the 2020 condition is not presented because that would be a hypothetical, projected scenario with unknown magnitude, types, and performance of future stormwater treatment methods.

Table 3.8 - Comparison of Baseline and Present Conditions Loads With and Without BMPs for the Willow Creek Drainage District

	TP Load (lbs/yr)	TSS Load (lbs/yr)	Runoff Volume (ac-ft/yr)
Baseline Condition[1]	2,900	1,010,000	4,000
Present Condition Without BMPs	4,500	1,760,000	4,300
Present Condition With BMPs[2]	2,200	541,000	4,300
Loads Removed Under Present Conditions[3]	2,300	1,219,000	0

[1] *Where BMPs existed prior to 1988, the Baseline load accounts for that treatment.*

[2] *Loads do not include treatment of runoff generated outside the Project Area, as provided by FCRs.*

[3] *Loads Removed = Present Loading without BMPs – Present Loading with BMPs*

Key findings are as follows:

1. The loading numbers for the Present Condition Without BMPs scenario shows how pollutant loads would have increased without treatment.
2. Without the BMPs described above, Present condition total phosphorus and total suspended solids loadings associated with development within the Willow Creek Drainage District contained within the Project Area would have exceeded Baseline loadings by about 1,600 pounds/year (55%) and 75,000 pounds/year (74%), respectively. With the installed BMPs, loadings for these parameters for the Present condition are instead 700 pounds/year (24%) and 469,000 pounds/year (46%) below the Baseline loading condition, respectively.
3. Since the Baseline condition, no BMPs have been installed to mitigate increased runoff volume. Therefore, a 300 acre-feet/year increase in runoff volume occurs between the Baseline and Present conditions, and there is no difference between the Present Condition With BMPs and the Present Condition Without BMPs scenarios for this parameter.

A3.5 BEAR CREEK DRAINAGE DISTRICT

A3.5.1 INTRODUCTION

The Bear Creek Drainage District lies in the southeastern portion of the Project Area and comprises just over 4,600 acres (9%) of the 53,000 acre nondegradation Project Area (Figure A3.1). Bear Creek discharges to the South Fork of the Zumbro River, immediately southeast of downtown Rochester and less than a mile south of Silver Lake. Load estimates for the three conditions (Baseline, Present, and 2020) for the three parameters (total phosphorus, total suspended solids, and runoff volume) are presented for the mouth of Bear Creek where it discharges to the South Fork of the Zumbro River (Figure A3.1). The Bear Creek Drainage District includes another water course in Rochester called Badger Run, which joins Bear Creek upstream (south) of the convergence of Willow Creek and Bear Creek.

There are no City-owned FCRs affecting the Bear Creek Drainage District. Neither Bear Creek nor Badger Run are listed as impaired waters. There are two calcareous fens in the Bear Creek Drainage District: the Joyce Park Fen and the Marion 8 Fen.

A3.5.2 LAND USE OVERVIEW

Table 3.9 summarizes the changes in each land use category between the Baseline, Present, and 2020 conditions of the Bear Creek Drainage District.

Table 3.9 - Land Use Change Summary Table for the Bear Creek Drainage District

Land Use	Baseline Condition (ac)	Present Condition[1]			2020 Condition[1]		
		Acres	Change (ac)	Change (%)	Acres	Change (ac)	Change (%)
Row Crop Agriculture	601	444	-157	-26%	417	-184	-31%
Very Low Density Residential	394	417	24	6%	399	6	1%
Low Density Residential	961	1,206	245	25%	1,318	357	37%
Medium Density Residential	86	80	-6	-7%	110	24	28%
High Density Residential	134	192	58	43%	192	58	43%
Commercial/Industrial	95	97	1	2%	97	1	2%
Institutional	121	124	3	2%	126	5	4%
Open Space	2,011	1,838	-173	-9%	1,738	-273	-14%
Golf Course	0	1	0	11%	1	0	11%
Pits and Quarries	8	4	-3	-45%	4	-3	-45%
Right-of-Way	158	158	0	0%	158	0	0%
Water	52	62	10	19%	62	10	20%
TOTAL	4,621	4,621			4,621		

[1] *Change shown is compared to Baseline condition*

A narrative summary of the most significant land use factors affecting this Drainage District follows:

1. Under the Baseline condition, the dominant land use in the drainage is undeveloped open space (44% of the Drainage District) followed by low density residential (21% of the Drainage District). Row crop agriculture comprises only 13% of the Drainage District.
2. The biggest land use changes between the Baseline condition and the Present condition are an increase of almost 250 acres of low density residential and decreases of roughly 170 and 160 acres of open space and row crop agriculture, respectively. The dominant land use in the Present condition remains open space at 40% of the Drainage District.
3. Land use does not change dramatically in the Bear Creek Drainage District between the Baseline and 2020 conditions. For example, land dedicated to undeveloped open space is expected to decrease by only another 100 acres between the Present and 2020 conditions and low density residential will increase by only another 110 acres.

A3.5.3 Overview of Nondegradation Modeling Results

Table 3.10 summarizes the modeled differences in loads for the three parameters for each of the three conditions, accounting for water quality treatment provided by the wet detention basins and phosphorus fertilizer ban BMPs. The summary of modeled load estimates is presented for the mouth of the Bear Creek at Willow Creek (Figure A3.1).

Table 3.10 - Summary of Modeled Loadings for the Bear Creek Drainage District

	TP Load (lbs/yr)	TSS Load (lbs/yr)	Runoff Volume (ac-ft/yr)
Baseline Condition	1,900	819,000	1,800
Present Condition	1,800	737,000	2,000
2020 Condition	1,700	704,000	2,000

The key findings reflected in the above modeling results are as follows:

1. Calculated loads of both total phosphorus and total suspended solids for the Present and 2020 land use conditions are similar to loads for the Baseline condition. This is due to the fact that most of the existing development in this area was in place before 1988 and further development by 2020 is not expected to be significant.
2. To mitigate stormwater impacts associated with development that occurred between Baseline and Present conditions, 14 wet detention basins were added in the Bear Creek Drainage District. Cumulatively, the area of these detention basins is just less than 10 acres and the wet volume storage equals about 37 acre-feet.
3. Modeled runoff volume for the Drainage District increases slightly between the Baseline and Present conditions. This small increase in runoff volume is indicative of the slow-paced development in this area of Rochester.

4. Loads calculated for the 2020 condition are based on the assumptions that:
    - The City of Rochester will continue to apply the same water quality treatment requirements to new developments in the future as it does today.
    - Public information and education efforts supporting the state-wide phosphorus fertilizer application restrictions (effective in January 2005) would result in a 13% reduction in phosphorus loading from all residential property (see Appendix D).

Table 3.11 shows a comparison of modeled Baseline and Present conditions with and without the BMPs that mitigate stormwater impacts associated with development activities within the Bear Creek Drainage District. The "without BMPs" scenario presents the modeled loads for the three parameters that would have resulted if there were no wet detention basins. An assessment of pollutant load reduction under the 2020 condition is not presented because that would be a hypothetical, projected scenario with unknown magnitude, types, and performance of future stormwater treatment methods.

Table 3.11 - Comparison of Baseline and Present Conditions Loads With and Without BMPs for the Bear Creek Drainage District

	TP Load (lbs/yr)	TSS Load (lbs/yr)	Water Volume (ac-ft/yr)
Baseline Condition[1]	1,900	819,000	1,800
Present Condition Without BMPs	2,100	852,000	2,000
Present Condition With BMPs[2]	1,800	737,000	2,000
Loads Removed Under Present Condition[3]	300	115,000	0

[1] *Where BMPs existed prior to 1988, the Baseline load accounts for that treatment.*

[2] *Loads do not include treatment of runoff generated outside the Project Area, as provided by FCRs.*

[3] *Loads Removed = Present Loading without BMPs – Present Loading with BMPs*

Key findings are as follows:

1. The loading numbers for the Present Condition Without BMPs scenario shows how pollutant loads would have increased without treatment.
2. Without the BMPs described above, Present condition total phosphorus and total suspended solids loadings associated with development within the Bear Creek Drainage District would have exceeded Baseline loadings by about 200 pounds/year (11%) and 33,000 pounds/year (4%), respectively. With the BMPs, loadings for these parameters for the Present condition are instead 100 pounds/year (5%) and 82,000 pounds/year (10%) below the Baseline loading condition, respectively.
3. Since the Baseline condition, no BMPs have been installed to mitigate increased runoff volume. Therefore, a 200 acre-feet/year increase in runoff volume occurs between the Baseline and Present conditions, and there is no difference between the Present Condition With BMPs and the Present Condition Without BMPs scenarios.

A3.6 MAYO RUN DRAINAGE DISTRICT

A3.6.1 INTRODUCTION

The Mayo Run Drainage District lies in the eastern and central portion of the Project Area and comprises just over 1,500 acres (3%) of the 53,000 acre nondegradation Project Area (Figure A3.1). Mayo Run discharges to Bear Creek one-third of a mile upstream (south) of where Bear Creek enters the South Fork of the Zumbro River. Load estimates for the three conditions (Baseline, Present and 2020) for the three parameters (total phosphorus, total suspended solids and runoff volume) are presented for the mouth of Mayo Run where it discharges to Bear Creek (Figure A3.1).

There are no FCRs affecting the Mayo Run Drainage District. Mayo Run is not listed as an impaired water and no calcareous fens are located in this Drainage District.

A3.6.2 LAND USE OVERVIEW

Table 3.12 summarizes the changes in each land use category between the Baseline, Present, and 2020 conditions of the Mayo Run Drainage District.

Table 3.12 - Land Use Change Summary Table for the Mayo Run Drainage District

Land Use	Baseline Condition (ac)	Present Condition[1]			2020 Condition[1]		
		Acres	Change (ac)	Change (%)	Acres	Change (ac)	Change (%)
Row Crop Agriculture	340	191	-150	-44%	164	-176	-52%
Very Low Density Residential	2	13	11	673%	10	8	475%
Low Density Residential	90	192	103	114%	234	144	161%
Medium Density Residential	4	4	0	2%	34	30	857%
High Density Residential	62	51	-11	-17%	57	-4	-7%
Commercial/Industrial	28	43	15	54%	50	22	81%
Institutional	92	210	119	129%	210	119	129%
Open Space	643	528	-115	-18%	493	-150	-23%
Golf Course	155	153	-2	-1%	133	-22	-14%
Pits and Quarries	2	0	-2	-100%	0	-2	-100%
Right-of-Way	122	120	-2	-1%	120	-2	-1%
Water	1	35	33	2619%	35	33	2620%
TOTAL	1,540	1,540			1,540		

[1] *Change shown is compared to Baseline condition*

A narrative summary of the most significant land use factors affecting this Drainage District follows:

1. Under the Baseline condition, the dominant land use in the drainage is undeveloped open space (42% of the Drainage District) followed by row crop agriculture (22% of the Drainage District).
2. Low density residential and institutional are the largest urban land uses in the Baseline condition, each comprising 90 acres or 6% of the Drainage District.

3. The biggest land use changes between the Baseline condition and the Present condition are increases of 100 and 120 acres of low density residential and institutional, respectively, and decreases of roughly 115 and 150 acres of open space and row crop agriculture, respectively. The dominant land use in the Present condition remains open space at 34% of the Drainage District.
4. Most of the land use change that will take place in the Mayo Run Drainage District between the Baseline and 2020 conditions has already taken place, however, minor expansion of the college campus may occur. Land dedicated to row crop agriculture is expected to decrease only another 25 acres between the Present and 2020 conditions, while open space will decrease by an additional 35 acres. For the dominant urban land uses, low density residential land use is expected to increase by only another 40 acres, and medium density residential land use will increase 30 acres, as compared to the Present condition.

A3.6.3 Overview of Nondegradation Modeling Results

Table 3.13 summarizes the modeled differences in loads for the three parameters for each of the three conditions, accounting for water quality treatment provided by the wet detention basins and phosphorus fertilizer ban BMPs. The summary of modeled load estimates is presented for the mouth of the Mayo Run (Figure A3.1).

Table 3.13 - Summary of Modeled Loadings for the Mayo Run Drainage District

	TP Load (lbs/yr)	TSS Load (lbs/yr)	Runoff Volume (ac-ft/yr)
Baseline Condition	670	280,000	620
Present Condition	280	63,800	700
2020 Condition	250	62,100	740

The key findings reflected in the above modeling results are as follows:

1. Calculated loads of both total phosphorus and total suspended solids for the Present and 2020 land use conditions are significantly less than the loads for the Baseline condition.
2. Fourteen wet ponds were added in the Mayo Run Drainage District as development proceeded between the Baseline and Present conditions. Cumulatively, the area of these detention basins is about 32 acres and the wet volume storage is about 96 acre-feet. The large size of these ponds significantly reduces the pollutant loadings for this Drainage District, mitigating for pre-1988 development as well as for development between the Baseline and Present conditions.
3. Modeled runoff volume for this Drainage District increases between the Baseline and Present conditions and between the Present and 2020 conditions, but not drastically in either case. This is most likely due to the large proportion of open space present in this Drainage District during all three conditions.
4. Loads calculated for the 2020 condition are based on the assumptions that:
    - The City of Rochester will continue to apply the same water quality treatment requirements to new developments in the future as it does today.
    - Public information and education efforts supporting the state-wide phosphorus fertilizer application restrictions (effective in January 2005) would result in a 13% reduction in phosphorus loading from all residential property (Appendix D).

Table 3.14 shows a comparison of modeled Baseline and Present conditions with and without the BMPs that mitigate stormwater impacts associated with development activities within the Mayo Run Drainage District. The "without BMPs" scenario presents the modeled loads for the three parameters that would have resulted if there were no wet detention basins. An assessment of pollutant load reduction under the 2020 condition is not presented because that would be a hypothetical, projected scenario with unknown magnitude, types, and performance of future stormwater treatment methods.

Table 3.14 - Comparison of Baseline and Present Conditions Loads With and Without BMPs for the Mayo Run Drainage District

	TP Load (lbs/yr)	TSS Load (lbs/yr)	Water Volume (ac-ft/yr)
Baseline Condition[1]	670	280,000	620
Present Condition Without BMPs	740	303,000	700
Present Condition With BMPs[2]	280	63,800	700
Loads Removed Under Present Condition[3]	460	239,200	0

[1] *Where BMPs existed prior to 1988, the Baseline load accounts for that treatment.*

[2] *Loads do not include treatment of runoff generated outside the Project Area, as provided by FCRs.*

[3] *Loads Removed = Present Loading without BMPs – Present Loading with BMPs*

Key findings are as follows:

1. The loading numbers for the Present Condition Without BMPs scenario shows how the pollutant loads would have increased without treatment.
2. Without the BMPs discussed above, Present condition total phosphorus and total suspended solids loadings associated with development within the Mayo Run Drainage District would have exceeded Baseline loadings by about 70 pounds/year (11%) and 23,000 pounds/year (8%), respectively. With the installed BMPs, loadings for these parameters for the Present condition are instead 390 pounds/year (61%) and 216,200 pounds/year (77%) below the Baseline loading condition, respectively.
3. Since the Baseline condition, no BMPs were installed to mitigate increased runoff volume. Therefore, an 80 acre-feet/year increase in runoff volume occurs between the Baseline and Present conditions, and there is no difference between the Present Condition With BMPs and the Present Condition Without BMPs scenarios.

A3.7 SILVER CREEK DRAINAGE DISTRICT

A3.7.1 INTRODUCTION

The Silver Creek Drainage District lies in the eastern portion of the Project Area and comprises just over 2,300 acres (4%) of the 53,000 acre nondegradation Project Area (Figure A3.1). Silver Creek discharges to the South Fork of the Zumbro River just north of downtown Rochester, at the southern end of Silver Lake. Load estimates for the three conditions (Baseline, Present, and 2020) for the three parameters (total phosphorus, total suspended solids, and runoff volume) are presented for the mouth of Silver Creek where it discharges to the South Creek of the Zumbro River (Figure A3.1).

FCR SR-2 is the only reservoir in the Silver Creek Drainage District that provides significant benefits in attenuating TP and TSS loads generated outside the Project Area (Figure A3.1). This FCR was constructed by the City of Rochester in 1992. The agricultural land draining to the FCR lies almost entirely outside of the Project Area. The benefits this reservoir provides in treating runoff from outside the Project Area is modeled separately, then applied as a treatment "credit" in the loading calculations presented below.

Silver Creek is listed as an impaired water for aquatic life due to excess turbidity. There are no calcareous fens in this Drainage District.

A3.7.2 LAND USE OVERVIEW

Table 3.15 summarizes the changes in each land use category between the Baseline, Present, and 2020 conditions of the Silver Creek Drainage District.

Table 3.15 - Land Use Change Summary Table for the Silver Creek Drainage District

Land Use	Baseline Condition (ac)	Present Condition[1]			2020 Condition[1]		
		Acres	Change (ac)	Change (%)	Acres	Change (ac)	Change (%)
Row Crop Agriculture	533	285	-248	-47%	237	-296	-56%
Very Low Density Residential	13	17	4	26%	12	-1	-9%
Low Density Residential	275	483	208	76%	601	327	119%
Medium Density Residential	18	18	0	1%	39	21	116%
High Density Residential	21	38	17	84%	38	17	84%
Commercial/Industrial	50	65	15	30%	103	53	106%
Institutional	74	106	32	44%	106	32	44%
Open Space	1,199	1,067	-132	-11%	945	-255	-21%
Golf Course	0	0	0	0%	0	0	0%
Pits and Quarries	10	1	-9	-90%	1	-9	-90%
Right-of-Way	122	124	1	1%	122	0	0%
Water	15	126	111	722%	126	111	722%
TOTAL	2,330	2,330			2,330		

[1] *Change shown is compared to Baseline condition*

A narrative summary of the most significant land use factors affecting this Drainage District follows:

1. Under the Baseline condition, the dominant land use in the drainage is undeveloped open space (51% of the Drainage District), followed by row crop agriculture (23% of the Drainage District).
2. Low density residential development is the largest single urban land use in the Baseline condition, comprising about 12% of the Drainage District.
3. The biggest land use changes between the Baseline condition and the Present condition are decreases of nearly 250 acres in row crop agriculture and 130 acres in undeveloped open space and an increase of over 200 acres of low density residential land use.
4. By the 2020 condition, it is expected that the Silver Creek Drainage District will still be predominantly undeveloped (10% row crop agriculture and 41% open space). Land dedicated to row crop agriculture is expected to decrease by another 120 acres between the Present and 2020 conditions and open space will decrease by an additional 50 acres. The dominant urban land use, low density residential, is expected to increase by only another 120 acres.

A3.7.3 Overview of Nondegradation Modeling Results

Table 3.16 summarizes the modeled differences in loads for the three parameters for each of the three conditions, accounting for water quality treatment provided by the wet detention basins and phosphorus fertilizer ban BMPs, as distinguished from the FCR credits. The summary of modeled load estimates is presented for the mouth of the Silver Creek at the South Fork of the Zumbro River (Figure A3.1).

Table 3.16 - Summary of Modeled Loadings for the Silver Creek Drainage District

	TP Load (lbs/yr)	TSS Load (lbs/yr)	Runoff Volume (ac-ft/yr)
Baseline Condition	820	340,000	860
Present Condition	730	273,000	920
2020 Condition	720	272,000	1,000
FCR load reductions to runoff generated outside of the Project Area (i.e., "Credit")	1,200	584,000	0
Present Condition with Credit	-440	-311,000	920
2020 Condition with Credit	-440	-312,000	1,000

The key findings reflected in the above modeling results are as follows:

1. Calculated loads of both total phosphorus and total suspended solids for the Present and 2020 land use conditions are less than for the Baseline condition, even without taking into account the treatment "credit" associated with FCR SR-2.
2. To mitigate stormwater impacts associated with new development, 10 wet detention basins were added in the Silver Creek Drainage District as development proceeded between the Baseline and Present conditions. Cumulatively, the area of these detention basins is just over 7 acres and the wet volume storage is about 30 acre-feet.
3. Modeled runoff volume for the Drainage District increases between the Baseline and Present conditions. This increase in runoff volume is associated with the continued conversion of non-urban to urban land uses.

4. Loads calculated for the 2020 condition are based on the assumptions that:
    - The City of Rochester will continue to apply the same water quality treatment requirements to new developments in the future as it does today.
    - Public information and education efforts supporting the state-wide phosphorus fertilizer application restrictions (effective in January 2005) would result in a 13% reduction in phosphorus loading from all residential property (Appendix D).
5. Modeling the performance of FCR SR-2 indicates that it removes about 1,200 pounds/year and 584,000 pounds/year of total phosphorus and total suspended solids, respectively, from the runoff generated by its largely agricultural watershed, which lies wholly outside the nondegradation Project Area. These loads are accounted for as a treatment "credit" by subtracting them off the modeled loads for the respective parameters at the load estimation point for Silver Creek for the Present and 2020 land use conditions. The FCR is assumed not to provide any significant infiltration, so there is no volume control credit applied.
6. When the treatment "credit" generated by the FCR SR-2 is subtracted from the modeled load estimate for Silver Creek Drainage District, it results in net negative loads for total phosphorus and total suspended solids. Since this credit is greater than the loadings for Silver Creek Drainage District, the remainder of the credit will be applied at the load estimation point where the South Fork of the Zumbro River exits the Project Area. The FCR treatment credit is large compared to the loadings for the Silver Creek Drainage District because the watershed area outside the Project Area treated by FCR SR-2 (3,930 acres) is almost twice the size of the Silver Creek Drainage District that is within the Project Area.

Table 3.17 shows a comparison of modeled Baseline and Present conditions with and without the BMPs that mitigate stormwater impacts associated with development activities within the Project Area. The "without BMPs" scenario presents the modeled loads for the three parameters that would have resulted if there were no wet detention basins or stormwater treatment by FCRs (for the portions of their watersheds within the Project Area). The loads presented in this summary table do not include the treatment credit generated through treatment of runoff generated outside the Project Area by FCR SR-2. An assessment of pollutant load reduction under the 2020 condition is not presented because that would be a hypothetical, projected scenario with unknown magnitude, types, and performance of future stormwater treatment methods.

Table 3.17 - Comparison of Baseline and Present Conditions Loads With and Without BMPs for the Silver Creek Drainage District

	TP Load (lbs/yr)	TSS Load (lbs/yr)	Water Volume (ac-ft/yr)
Baseline Condition[1]	820	340,000	860
Present Condition Without BMPs	940	404,000	920
Present Condition With BMPs[2]	730	273,000	920
Loads Removed Under Present Condition[3]	210	131,000	0

[1] *Where BMPs existed prior to 1988, the Baseline load accounts for that treatment.*

[2] *Loads do not include treatment of runoff generated outside the Project Area, as provided by FCRs.*

[3] *Loads Removed = Present Loading without BMPs – Present Loading with BMPs*

Key findings are as follows:

1. The loading numbers for the Present Condition Without BMPs scenario shows how pollutant loads would have increased without treatment.
2. Without the BMPs described above, Present condition total phosphorus and total suspended solids loadings associated with development within the Silver Creek Drainage District would have exceeded Baseline loadings by about 120 pounds/year (15%) and 64,000 pounds/year (19%) respectively. With the BMPs, loadings for these parameters for the Present condition are instead 90 pounds/year (11%) and 67,000 pounds/year (20%) below the Baseline loading condition, respectively.
3. Since the Baseline condition, one infiltration BMP and one filtration BMP have been constructed, but since they were not completed at the time of the loading assessment, no volume control BMPs were accounted for in the modeling. Therefore, a 60 acre-feet/year increase in runoff volume occurs between the Baseline and Present conditions, and there is no difference between the Present Condition With BMPs and the Present Condition Without BMPs scenarios.

A3.8 HADLEY VALLEY DRAINAGE DISTRICT

A3.8.1 INTRODUCTION

The Hadley Valley Drainage District lies in the northeastern portion of the Project Area and comprises just under 2,200 acres (4%) of the 53,000 acre nondegradation Project Area (Figure A3.1). Hadley Valley discharges to Hadley Valley Creek, which enters the South Fork of the Zumbro River just over three miles north of downtown. Load estimates for the three conditions (Baseline, Present, and 2020) for the three parameters (total phosphorus, total suspended, solids and runoff volume) are presented for the point at which Hadley Valley Creek crosses U.S. Highway 63 (also known as Broadway Avenue) (Figure A3.1).

There are no FCRs affecting the Hadley Valley Drainage District. Hadley Valley Creek is not listed as an impaired water. There are two calcareous fens located within this Drainage District: the Stonehedge Fen and the Haverhill 19 Fen.

A3.8.2 LAND USE OVERVIEW

Table 3.18 summarizes the changes in each land use category between the Baseline, Present, and 2020 conditions of the Hadley Valley Drainage District.

Table 3.18 - Land Use Change Summary Table for the Hadley Valley Drainage District

Land Use	Baseline Condition (ac)	Present Condition[1]			2020 Condition[1]		
		Acres	Change (ac)	Change (%)	Acres	Change (ac)	Change (%)
Row Crop Agriculture	774	638	-136	-18%	547	-228	-29%
Very Low Density Residential	140	163	23	16%	163	23	16%
Low Density Residential	59	201	142	239%	448	388	655%
Medium Density Residential	0	1	1	N/A	51	51	N/A
High Density Residential	0	2	2	N/A	2	2	N/A
Commercial/Industrial	28	28	0	1%	29	1	4%
Institutional	2	89	87	5062%	89	87	5062%
Open Space	1,115	994	-121	-11%	788	-327	-29%
Golf Course[2]	0	0	0	0%	0	0	0%
Pits and Quarries	0	0	0	0%	0	0	0%
Right-of-Way	63	63	-1	-1%	63	-1	-1%
Water	3	6	2	77%	7	4	137%
TOTAL	2,185	2,185			2,185		

[1] *Change shown is compared to Baseline condition*

[2] *Forty acres of the future Hawthorne Hills Golf Course site has been used as a golf learning center in the Present Condition, and was therefore, not identified in the Golf Course land use category. The size of the future golf course was unknown until May 2007, after modeling for the 2020 Condition had been completed. The recently submitted general development plan for that area has identified an expansion of the golf learning center into a full-service golf course encompassing 80 acres.*

A narrative summary of the most significant land use factors affecting this Drainage District follows:

1. Under the Baseline condition, the dominant land use in the drainage is undeveloped open space (51% of the Drainage District), followed by row crop agriculture (35% of the Drainage District).
2. Low density residential is the largest single urban land use in the Baseline condition, but covers only 60 acres, or about 3% of the Drainage District.

3. The biggest land use changes between the Baseline condition and the Present condition are increases of 140 and 90 acres of low density residential and institutional land uses, respectively, and decreases of roughly 120 and 140 acres of open space and row crop agriculture, respectively. The dominant land use in the Present condition remains open space at 45% of the Drainage District.
4. Land dedicated to row crop agriculture is expected to decrease by another 90 acres between the Present and 2020 conditions, while open space will decrease by an additional 200 acres. For the dominant urban land uses, low density residential is expected to increase by 250 acres and medium density residential will increase 50 acres, as compared to the Present condition.

A3.8.3 Overview of Nondegradation Modeling Results

Table 3.19 summarizes the modeled difference in loadings for the three parameters for each of the three conditions, accounting for water quality treatment provided by the wet detention and phosphorus fertilizer ban BMPs. The summary of modeled load estimates is presented for the juncture of Hadley Valley Creek and U.S. Highway 63 (Figure A3.1).

Table 3.19 - Summary of Modeled Loadings for the Hadley Valley Drainage District

	TP Load (lbs/yr)	TSS Load (lbs/yr)	Runoff Volume (ac-ft/yr)
Baseline Condition	670	296,000	670
Present Condition	670	273,000	760
2020 Condition	680	250,000	860

The key findings reflected in the above modeling results are as follows:

1. Calculated loads of total phosphorus for the Present and 2020 land use conditions are, respectively, equal to and slightly higher than the loads for the Baseline condition. Total suspended solids loads are slightly less in the Present and 2020 conditions than in the Baseline conditions.
2. The pre-development land use is predominantly undeveloped open space, which generates significantly lower Baseline condition loads than row crop agriculture land use would generate. In addition, development for both the Present and 2020 conditions shows a greater proportion of high impervious cover land uses such as institutional and medium density residential, as compared to the other Drainage Districts.
3. To mitigate stormwater impacts associated with new development, 9 wet detention basins were added in the Hadley Valley Drainage District as development proceeded between the Baseline and Present conditions. The ponds have a cumulative surface area of 2.7 acres and a cumulative wet volume slightly more than 9 acre-feet.
4. Modeled runoff volume for the Drainage District increases between the Baseline and Present conditions and between the Present and 2020 conditions. This increase in runoff volume is associated with the continued conversion of non-urban to urban land uses.

5. Loads calculated for the 2020 condition are based on the assumptions that:
    - The City of Rochester will continue to apply the same water quality treatment requirements to new developments in the future as it does today.
    - Public information and education efforts supporting the state-wide phosphorus fertilizer application restrictions (effective in January 2005) would result in a 13% reduction in phosphorus loading from all residential property (Appendix D).

Table 3.20 shows a comparison of modeled Baseline and Present conditions with and without the BMPs that mitigate stormwater impacts associated with development activities within the Hadley Valley Drainage District. The "without BMPs" scenario presents the modeled loads for the three parameters that would have resulted if there were no wet detention basins. An assessment of pollutant load reduction under the 2020 condition is not presented because that would be a hypothetical, projected scenario with unknown magnitude, types, and performance of future stormwater treatment methods.

Table 3.20 - Comparison of Baseline and Present Conditions Loads With and Without BMPs for the Hadley Valley Drainage District

	TP Load (lbs/yr)	TSS Load (lbs/yr)	Water Volume (ac-ft/yr)
Baseline Condition[1]	670	296,000	670
Present Condition Without BMPs	790	353,000	760
Present Condition With BMPs[2]	670	273,000	760
Loads Removed Under Present Condition[3]	120	80,000	0

[1] Where BMPs existed prior to 1988, the Baseline load accounts for that treatment.

[2] Loads do not include treatment of runoff generated outside the Project Area, as provided by FCRs.

[3] Loads Removed = Present Loading without BMPs – Present Loading with BMPs

Key findings are as follows:

1. The loading numbers for the Present Condition Without BMPs scenario shows how pollutant loads would have increased without treatment.
2. Without the BMPs described above, Present condition total phosphorus and total suspended solids loadings associated with development within the Hadley Valley Drainage District would have exceeded Baseline loadings by about 120 pounds/year (18%) and 57,000 pounds/year (19%), respectively. With the BMPs, loadings for TP and TSS for the Present condition are equal to and 23,000 pounds/year (8%) below the Baseline loading condition, respectively.
3. Since the Baseline condition, no BMPs were installed to mitigate increased runoff volume. Therefore, a 90 acre-feet/year increase in runoff volume occurs between the Baseline and Present conditions, and there is no difference between the Present Condition With BMPs and the Present Condition Without BMPs scenarios.

A3.9 NORTHWEST TERRITORY DRAINAGE DISTRICT

A3.9.1 INTRODUCTION

The Northwest Territory Drainage District lies in the northwestern portion of the Project Area and comprises just over 5,000 acres (9%) of the 53,000 acre nondegradation Project Area (Figure A3.1). The Northwest Territory discharges to an ephemeral, unnamed tributary to the South Fork of the Zumbro River at a confluence point located approximately 3.5 river miles northeast and outside of the Project Area near Lake Zumbro. There are three individual subdistricts that also exit the Project Area before reaching the South Fork of the Zumbro River. The load estimate for the three conditions (Baseline, Present, and 2020) for the three parameters (total phosphorus, total suspended solids, and runoff volume) are presented for the sum of discharges exiting the Project Area.

There are no FCRs affecting the Northwest Territory Drainage District. The unnamed tributary located within this Drainage District is not on the impaired waters list. There are no known calcareous fens in this Drainage District.

A3.9.2 LAND USE OVERVIEW

Table 3.21 summarizes the changes in each land use category between the Baseline, Present, and 2020 development conditions of the Northwest Territory Drainage District, respectively.

Table 3.21 - Land Use Change Summary Table for the Northwest Territory Drainage District

Land Use	Baseline Condition (ac)	Present Condition[1]			2020 Condition[1]		
		Acres	Change (ac)	Change (%)	Acres	Change (ac)	Change (%)
Row Crop Agriculture	3,384	3,134	-250	-7%	2,879	-504	-15%
Very Low Density Residential	205	246	41	20%	241	35	17%
Low Density Residential	14	49	35	245%	148	133	938%
Medium Density Residential	0	7	7	n/a	9	9	n/a
High Density Residential	0	38	38	n/a	46	46	n/a
Commercial/Industrial	52	52	0	0%	325	273	528%
Institutional	0	15	15	n/a	15	15	n/a
Open Space	1,119	1,160	41	4%	1,040	-79	-7%
Golf Course	0	0	0	0%	0	0	0%
Pits and Quarries	13	26	12	94%	26	12	94%
Right-of-Way	244	298	53	22%	296	52	21%
Water	0	7	7	1650%	7	7	1638%
TOTAL	5,032	5,032			5,032		

[1] *Change shown is compared to Baseline condition*

A narrative summary of the most significant land use factors affecting this Drainage District follows:

1. Under the Baseline condition, the dominant land use in the drainage is row crop agriculture (67% of the Drainage District) followed by undeveloped open space (22% of the Drainage District).
2. The commercial/industrial land use comprises the largest urban land use in the Baseline condition encompassing only 50 acres or about 1% of the Drainage District.

3. Only about 5% of the Drainage District was developed between the Baseline and Present condition. The biggest land use changes between the Baseline and Present conditions were an increase of almost 170 acres of residential and right-of-way land uses, and a decrease of 250 acres of the row crop agriculture land use.
4. About 11% of the Drainage District is expected to develop between the Present and 2020 conditions. The row crop agriculture land use will decrease by another 250 acres by 2020. For the dominant urban land uses, low density residential is expected to increase by only another 100 acres and commercial/industrial land use will increase by 270 acres, as compared to the Present condition.

A3.9.3 Overview of Nondegradation Modeling Results

Table 3.22 summarizes the modeled difference in loadings for the three parameters for each of the three conditions, accounting for water quality treatment provided by wet detention ponds and phosphorus fertilizer ban BMPs. These values represent the summation of the loads exiting the Northwest Territory Drainage District and the Project Area to the north, toward the South Fork of the Zumbro River (Figure A3.1).

Table 3.22 - Summary of Modeled Loadings for the Northwest Territory Drainage District

	TP Load (lbs/yr)	TSS Load (lbs/yr)	Runoff Volume (ac-ft/yr)
Baseline Condition	1,600	549,000	1,300
Present Condition	1,600	543,000	1,300
2020 Condition	1,600	530,000	1,400

The key findings reflected in the above modeling results are as follows:

1. Calculated loads of total phosphorus for the Present and 2020 land use conditions are equal to the loads for the Baseline condition, whereas, loads of total suspended solids are less in the Present and 2020 conditions than in the Baseline conditions.
2. To mitigate stormwater impacts associated with new development, 5 wet detention basins were added in the Northwest Territory Drainage District as development proceeded between the Baseline and Present conditions. Cumulatively, the area of these detention basins is just under 7 acres and the wet volume storage is about 35 acre-feet.
3. Modeled runoff volume for the Drainage District slightly increases between the Baseline and Present conditions. This small increase in runoff volume is associated with the conversion of non-urban to urban land uses.
4. Loads calculated for the 2020 condition are based on the assumptions that:
    - The City of Rochester will continue to apply the same water quality treatment requirements to new developments in the future as it does today.
    - Public information and education efforts supporting the state-wide phosphorus fertilizer application restrictions (effective in January 2005) would result in a 13% reduction in phosphorus loading from all residential property (Appendix D).

Table 3.23 shows a comparison of modeled Baseline and Present conditions with and without the BMPs that mitigate stormwater impacts associated with development activities within the Northwest Territory Drainage District. The "without BMPs" scenario presents the modeled loads for the three parameters that would have resulted if there were no wet detention basins. An assessment of pollutant load reduction under the 2020 condition is not presented because that would be a hypothetical, projected scenario with unknown magnitude, types, and performance of future stormwater treatment methods.

Table 3.23 - Comparison of Baseline and Present Conditions Loads With and Without BMPs for the Northwest Territory Drainage District

	TP Load (lbs/yr)	TSS Load (lbs/yr)	Water Volume (ac-ft/yr)
Baseline Condition[1]	1,600	549,000	1,300
Present Condition Without BMPs	1,700	592,000	1,300
Present Condition With BMPs[2]	1,600	543,000	1,300
Loads Removed Under Present Condition[3]	100	49,000	0

[1] *Where BMPs existed prior to 1988, the Baseline load accounts for that treatment.*

[2] *Loads do not include treatment of runoff generated outside the Project Area, as provided by FCRs.*

[3] *Loads Removed = Present Loading without BMPs – Present Loading with BMPs*

Key findings are as follows:

1. The loading numbers for the Present Condition Without BMPs scenario shows how pollutant loads would have increased without treatment.
2. Without the BMPs described above, Present condition total phosphorus and total suspended solids loadings associated with development within the Northwest Territory Drainage District would have exceeded Baseline loadings by about 100 pounds/year (6%) and 43,000 pounds/year (8%), respectively. With the BMPs, loadings for these parameters for the Present condition are equal to and 6,000 pounds/year (1%) below the Baseline loading condition, respectively.
3. Since the Baseline condition, no BMPs were installed to mitigate increased runoff volume. The development between Baseline and Present conditions resulted in a small increase in runoff volume, but it is not apparent in Table 3.23 due to the use of significant digits.

A3.10 KINGS RUN DRAINAGE DISTRICT

A3.10.1 Introduction

The Kings Run Drainage District lies in the northwestern portion of the Project Area and comprises nearly 10,000 acres (19%) of the 53,000 acre nondegradation Project Area (Figure A3.1). Kings Run discharges to the South Fork of the Zumbro River about 4 miles north of downtown Rochester, near the point where the South Fork of the Zumbro River exits the Project Area. There are six subdistricts that exit the Kings Run Drainage District to the northwest of the Project Area, as well as six additional subdistricts that drain directly to the South Fork of the Zumbro River within the Project Area. The load estimate for the three conditions (Baseline, Present, and 2020) for the three parameters (total phosphorus, total suspended solids, and runoff volume) are presented for the sum of discharges exiting the Drainage District and/or Project Area.

There are no FCRs affecting the Kings Run Drainage District. Kings Run is not listed as an impaired water. There are no calcareous fens within this Drainage District.

A3.10.2 Land Use Overview

Table 3.24 summarizes the changes in each land use category between the Baseline, Present, and 2020 conditions of the Kings Run Drainage District.

Table 3.24 - Land Use Change Summary Table for the Kings Run Drainage District

Land Use	Baseline Condition (ac)	Present Condition[1]			2020 Condition[1]		
		Acres	Change (ac)	Change (%)	Acres	Change (ac)	Change (%)
Row Crop Agriculture	4,372	2,944	-1,428	-33%	2,275	-2,097	-48%
Very Low Density Residential	415	383	-33	-8%	346	-69	-17%
Low Density Residential	1,171	2,385	1,214	104%	3,032	1,862	159%
Medium Density Residential	85	91	6	7%	231	146	172%
High Density Residential	113	371	258	228%	382	269	238%
Commercial/Industrial	373	702	329	88%	807	434	116%
Institutional	167	280	113	67%	280	113	67%
Open Space	2,615	2,071	-544	-21%	1,848	-768	-29%
Golf Course	137	137	0	0%	137	0	0%
Pits and Quarries	2	0	-2	-100%	0	-2	-100%
Right-of-Way	512	547	35	7%	546	35	7%
Water	6	59	53	850%	85	79	1266%
TOTAL	9,969	9,969			9,969		

[1] *Change shown is compared to Baseline condition*

A narrative summary of the most significant land use factors affecting this Drainage District follows:

1. Under the Baseline condition, the dominant land use in the drainage is row crop agriculture (44% of the Drainage District), followed by undeveloped open space (26% of the Drainage District).
2. Low density residential development is the largest single urban land use in the Baseline condition, comprising about 12% of the Drainage District.

3. About 20% of the Drainage District was developed between the Baseline and Present conditions. The biggest land use changes between the Baseline and Present conditions are a decrease of over 1,400 acres in row crop agriculture land use and an increase of over 1,200 acres of low density residential land use. The second largest change is a decrease of over 500 acres in undeveloped open space. High density residential, commercial/industrial, and institutional land uses increase by a total of 700 acres.
4. An additional 10% of the Drainage District is expected to develop between the Present and 2020 conditions. The row crop agriculture land use is expected to decrease by another 670 acres between the Present and 2020 conditions and open space will decrease by an additional 225 acres. For the dominant urban land uses, commercial/industrial land use is expected to increase by only another 100 acres, but low and medium density residential land uses together will increase by roughly 800 acres, as compared to the Present condition.

A3.10.3 Overview of Nondegradation Modeling Results

Table 3.25 summarizes the modeled difference in loadings for the three parameters for each of the three conditions, accounting for water quality treatment provided by the wet detention and phosphorus fertilizer ban BMPs. The summary of modeled load estimates is presented for the summation of the loadings at the mouth of the Kings Run, as well as twelve individual sub-districts draining to the South Fork of the Zumbro River or out of the Project Area (Figure A3.1).

Table 3.25 - Summary of Modeled Loadings for the Kings Run Drainage District

	TP Load (lbs/yr)	TSS Load (lbs/yr)	Runoff Volume (ac-ft/yr)
Baseline Condition	4,800	1,810,000	4,100
Present Condition	4,100	1,190,000	5,000
2020 Condition	3,700	1,090,000	5,300

The key findings reflected in the above modeling results are as follows:

1. Calculated loads of both total phosphorus and total suspended solids for the Present and 2020 conditions are significantly less than for the Baseline condition.
2. To mitigate stormwater impacts associated with new development, 55 wet detention basins were added in the Kings Run Drainage District as development proceeded between the Baseline and Present conditions. Cumulatively, the area of these detention basins is just over 46 acres and the wet volume storage is about 182 acre-feet.
3. Modeled runoff volume for the Drainage District increases between the Baseline and Present conditions. This increase in runoff volume is associated with the continued conversion of non-urban to urban land uses.
4. Loads calculated for the 2020 condition are based on the assumptions that:
    - The City of Rochester will continue to apply the same water quality treatment requirements to new developments in the future as it does today.
    - Public information and education efforts supporting the state-wide phosphorus fertilizer application restrictions (effective in January 2005) would result in a 13% reduction in phosphorus loading from all residential property (Appendix D).

Table 3.26 shows a comparison of modeled Baseline and Present conditions with and without the BMPs that mitigate stormwater impacts associated with development activities within the Kings Run Drainage District. The "without BMPs" scenario presents the modeled loads for the three parameters that would have resulted if there were no wet detention basins. An assessment of pollutant load reduction under the 2020 condition is not presented because that would be a hypothetical, projected scenario with unknown magnitude, types, and performance of future stormwater treatment methods.

Table 3.26 - Comparison of Baseline and Present Conditions Loads With and Without BMPs for the Kings Run Drainage District

	TP Load (lbs/yr)	TSS Load (lbs/yr)	Water Volume (ac-ft/yr)
Baseline Condition[1]	4,800	1,810,000	4,100
Present Condition Without BMPs	5,700	2,070,000	5,000
Present Condition With BMPs[2]	4,100	1,190,000	5,000
Loads Removed Under Present Condition[3]	1,600	880,000	0

[1] *Where BMPs existed prior to 1988, the Baseline load accounts for that treatment.*

[2] *Loads do not include treatment of runoff generated outside the Project Area, as provided by FCRs.*

[3] *Loads Removed = Present Loading without BMPs – Present Loading with BMPs*

Key findings are as follows:

1. The loading numbers for the Present Condition Without BMPs scenario shows how pollutant loads would have increased without treatment.
2. Without the BMPs described above, Present condition total phosphorus and total suspended solids loadings associated with development within the Kings Run Drainage District would have exceeded Baseline loadings by about 900 pounds/year (19%) and 260,000 pounds/year (14%), respectively. With the BMPs, loadings for these parameters for the Present condition are instead 700 pounds/year (15%) and 620,000 pounds/year (34%) below the Baseline loading condition, respectively.
3. Since the Baseline condition, no BMPs were installed to mitigate increased runoff volume. Therefore, a 900 acre-feet/year increase in runoff volume occurs between the Baseline and Present conditions, and there is no difference between the Present Condition With BMPs and the Present Condition Without BMPs scenarios.

A3.11 CASCADE CREEK DRAINAGE DISTRICT

A3.11.1 INTRODUCTION

The Cascade Creek Drainage District lies in the western portion of the Project Area and comprises just over 7,400 acres (14%) of the 53,000 acre nondegradation Project Area (Figure A3.1). Cascade Creek discharges to the South Fork of the Zumbro River just north of downtown Rochester, at the northern end of Silver Lake. Load estimates for the three conditions (Baseline, Present, and 2020) for the three parameters (total phosphorus, total suspended solids, and runoff volume) are presented for the mouth of Cascade Creek where it discharges to the South Fork of the Zumbro River (Figure A3.1).

The modeled area for the Cascade Creek Drainage District contains three FCRs that were constructed by the City of Rochester after 1988 and provide significant benefits in attenuating TP, TSS, and/or runoff volume. The area draining to two of the FCRs (KR-3 and KR-7) are located almost entirely outside the nondegradation Project Area (Figure A3.1). The FCR entirely within the nondegradation Project Area (KR-6) was located and designed specifically to hold and infiltrate runoff from normal rainfall events. Because FCR KR-6 and the area it serves are located wholly within the nondegradation Project Area, its treatment effects are accounted for as part of the overall Cascade Creek model. Because, FCRs KR-3 and KR-7 catch and treat water from areas outside the Project Area, their benefit in treating agricultural runoff is modeled separately and then applied as a credit in the loading calculations.

Cascade Creek is listed as an impaired water for aquatic life due to excess turbidity. There are no known calcareous fens in this Drainage District.

A3.11.2 LAND USE OVERVIEW

Table 3.27 summarizes the changes in each land use category between the Baseline, Present, and 2020 conditions of the Cascade Creek Drainage District.

Table 3.27 - Land Use Change Summary Table for the Cascade Creek Drainage District

Land Use	Baseline Condition (ac)	Present Condition[1]			2020 Condition[1]		
		Acres	Change (ac)	Change (%)	Acres	Change (ac)	Change (%)
Row Crop Agriculture	2,425	1,349	-1,076	-44%	1,120	-1,305	-54%
Very Low Density Residential	530	502	-28	-5%	498	-31	-6%
Low Density Residential	960	1,623	663	69%	1,688	729	76%
Medium Density Residential	95	113	18	19%	133	38	40%
High Density Residential	129	271	142	110%	313	184	142%
Commercial/Industrial	566	739	172	30%	945	379	67%
Institutional	186	235	49	26%	285	100	54%
Open Space	1,707	1,503	-203	-12%	1,353	-354	-21%
Golf Course	157	193	36	23%	191	34	22%
Pits and Quarries	21	15	-5	-25%	15	-5	-25%
Right-of-Way	519	554	35	7%	554	34	7%
Water	115	312	196	170%	313	198	172%
TOTAL	7,409	7,409			7,409		

[1] *Change shown is compared to Baseline condition*

A narrative summary of the most significant land use factors affecting this Drainage District follows:

1. Under the Baseline condition, the dominant land use in the drainage is row crop agriculture (33% of the Drainage District), followed by undeveloped open space (23% of the Drainage District).
2. Low density residential development is the largest single urban land use in the Baseline condition, comprising about 13% of the Drainage District.
3. About 18% of the Drainage District was developed between the Baseline and Present conditions. The biggest land use changes between the Baseline and Present conditions are a decrease of over 1,000 acres in row crop agriculture land use and an increase of over 650 acres of low density residential land use. High density residential and commercial/industrial land uses increase by a total of just over 300 acres.
4. Most of the land use change that will take place in the Cascade Creek Drainage District between the Baseline and 2020 conditions has already taken place. The row crop agriculture land use is expected to decrease by another 230 acres between the Present and 2020 conditions and open space will decrease by an additional 140 acres. For the dominant urban land uses, low density residential is expected to increase by only another 70 acres, but the commercial/industrial land use alone will increase by over 200 acres, as compared to the Present condition.

A3.11.3 Overview of Nondegradation Modeling Results

Table 3.28 summarizes the modeled difference in loadings for the three parameters for each of the three conditions, accounting for water quality treatment provided by the wet detention basins (including FCR KR-6) and phosphorus fertilizer ban, as distinguished from the FCR credits for KR-3 and KR-7. The summary of modeled load estimates is presented for the mouth of the Cascade Creek where it enters the South Fork of the Zumbro River (Figure A3.1).

Table 3.28 - Summary of Modeled Loadings for the Cascade Creek Drainage District

	TP Load (lbs/yr)	TSS Load (lbs/yr)	Water Volume (ac-ft/yr)
Baseline Condition	3,800	1,440,000	3,400
Present Condition	2,800	933,000	3,400
2020 Condition	2,700	885,000	3,700
FCR load reductions to runoff generated outside of the Project Area (i.e., "Credit")	830	423,000	0
Present Condition with Credit	2,000	509,000	3,400
2020 Condition with Credit	1,900	462,000	3,700

The key findings reflected in the above modeling results are as follows:

1. Calculated loads of both total phosphorus and total suspended solids for the Present and 2020 conditions are significantly less than for the Baseline condition, even without taking into account the treatment "credit" associated with the two FCRs serving areas outside the Project Area.
2. To mitigate stormwater impacts associated with new development, 49 wet detention basins were added in the Cascade Creek Drainage District as development proceeded between the Baseline and Present conditions. Cumulatively, the area of these detention basins is about 38 acres and the wet volume storage is about 186 acre-feet.

3. Modeled runoff volume for the Drainage District increases slightly between the Baseline and Present conditions. The reason for this small increase is that despite increases in runoff volume associated with the conversion of non-urban to urban land uses, FCR KR-6 (constructed in 1994) infiltrates virtually all the runoff entering it from its 1000-acre watershed under average annual precipitation conditions. This represents 100% runoff volume control, in addition to the treatment of the total phosphorus and total suspended solids loads from the KR-6 sub-district compared to the Baseline condition. When accounted for, the volume control provided by FCR KR-6 for its 1,000-acre drainage area almost compensates for runoff volume increases created by the conversion of non-urban to urban land uses elsewhere in Cascade Creek Drainage District.
4. Loads calculated for the 2020 condition are based on the assumptions that:
    - KR-6 will continue to infiltrate all runoff reaching it from its sub-watershed under average annual precipitation conditions.
    - The City of Rochester will continue to apply the same water quality treatment requirements to new developments in the future as it does today.
    - Public information and education efforts supporting the state-wide phosphorus fertilizer application restrictions (effective in January 2005) would result in a 13% reduction in phosphorus loading from all residential property (Appendix D).
5. Modeling of the performance of FCRs KR-3 and KR-7 indicates that they remove about 750 pounds/year and 414,000 pounds/year of total phosphorus and total suspended solids, respectively, from the runoff generated by their largely agricultural watersheds located outside the Project Area. These numbers are accounted for as a treatment "credit" by subtracting them from the modeled loads for the respective parameters at the load estimation point for Cascade Creek for the Present and 2020 conditions. These two FCRs are assumed not to provide any runoff volume loss benefits, so there are no water load credits applied.

Table 3.29 shows a comparison of modeled Baseline and Present conditions with and without the BMPs that mitigate stormwater impacts associated with development activities within the Project Area. The "without BMPs" scenario presents the modeled loads for the three parameters that would have resulted if there were no wet detention basins or stormwater treatment by FCR KR-6, whose watershed lies wholly within the Project Area. The loads presented in this summary table do not include the treatment credit generated through treatment of runoff generated outside the Project Area by FCRs KR-3 and KR-7. An assessment of pollutant load reduction under the 2020 condition is not presented because that would be a hypothetical, projected scenario with unknown magnitude, types, and performance of future stormwater treatment methods.

Table 3.29 - Comparison of Baseline and Present Conditions Loads With and Without BMPs for the Cascade Creek Drainage District

	TP Load (lbs/yr)	TSS Load (lbs/yr)	Water Volume (ac-ft/yr)
Baseline Condition[1]	3,800	1,440,000	3,400
Present Condition Without BMPs	4,200	1,570,000	3,800
Present Condition With BMPs[2]	2,800	933,000	3,400
Loads Removed Under Present Condition[3]	1,400	637,000	0

[1] *Where BMPs existed prior to 1988, the Baseline load accounts for that treatment.*

[2] *Loads do not include treatment of runoff generated outside the Project Area, as provided by FCRs KR-3 and KR7.*

[3] *Loads Removed = Present Loading without BMPs – Present Loading with BMPs*

Key findings are as follows:

1. The loading numbers for the Present Condition Without BMPs scenario shows how pollutant loads would have increased without treatment.
2. Without the BMPs described above, Present condition total phosphorus and total suspended solids loadings associated with development within the Cascade Creek Drainage District would have exceeded Baseline loadings by about 400 pounds/year (11%) and 130,000 pounds/year (9%) respectively. With the BMPs, loadings for these parameters for the Present condition are instead 1000 pounds/year (26%) and 507,000 pounds/year (35%) below the Baseline loading condition, respectively.
3. Estimated runoff volume for the Present Condition – Without BMPs scenario is about 400 acre-feet/year (12%) more than for the Baseline condition. For the Present Condition – With BMP scenario, the runoff volume is the same as for the Baseline Condition. The latter figure largely reflects the effect of FCR KR-6 in infiltrating virtually all of the average annual runoff volume from its 1000-acre watershed under the Present Condition-With BMPs scenario. A small amount of the volume loss (less than 25 acre-feet) is also associated with the infiltration BMP associated with the Grandville Development in sub-districts cc-a4.2g and cc-a4.2h.

A3.12 ZUMBRO RIVER DRAINAGE DISTRICT

A3.12.1 Introduction

The Zumbro River Drainage District lies in the central portion of the Project Area, running from the southwest to the north, and comprises nearly 9,600 acres (18%) of the 53,000 acre nondegradation Project Area (Figure A3.1). Most of the City of Rochester's downtown area and many of the older residential areas lie within the Zumbro River Drainage District. The South Fork of the Zumbro River is the main water course in Rochester and exits the Project Area at its northern boundary. With the exception of the Root River Drainage District, all of the Drainage Districts covered previously in this report are tributaries to the South Fork of the Zumbro River. Load estimates for the three conditions (Baseline, Present, and 2020) for the three parameters (total phosphorus, total suspended solids, and runoff volume) are presented for stormwater entering the South Fork of the Zumbro River from this 9,600-acre Drainage District, but do not include loadings from the other Drainage Districts, which have been covered previously in this report.

There are no FCRs in the Zumbro River Drainage District. Several impairments are associated with the South Fork of the Zumbro River. The southwestern-most reach is impaired for aquatic life and aquatic recreation due to excessive levels of fecal coliform bacteria and turbidity. The reach located between the South Fork of the Zumbro River/Broadway Avenue intersection and the confluence of Cascade Creek and the South Fork of the Zumbro River is listed as impaired for aquatic recreation due to excess fecal coliform bacteria. North of the Cascade Creek confluence, the South Fork of the Zumbro River is again listed as impaired for aquatic life due to excess turbidity. There are no calcareous fens in this Drainage District.

A3.12.2 Land Use Overview

Table 3.30 summarizes the changes in each land use category between the Baseline, Present, and 2020 conditions of the Zumbro River Drainage District.

Table 3.30 - Land Use Change Summary Table for the Zumbro River Drainage District

Land Use	Baseline Condition (ac)	Present Condition[1]			2020 Condition[1]		
		Acres	Change (ac)	Change (%)	Acres	Change (ac)	Change (%)
Row Crop Agriculture	1,575	900	-675	-43%	664	-910	-58%
Very Low Density Residential	720	716	-4	-1%	706	-14	-2%
Low Density Residential	1,841	2,508	667	36%	2,746	905	49%
Medium Density Residential	160	162	2	2%	183	23	15%
High Density Residential	229	342	113	49%	364	135	59%
Commercial/Industrial	679	916	237	35%	1,045	366	54%
Institutional	425	398	-27	-6%	398	-27	-6%
Open Space	2,677	2,314	-363	-14%	2,149	-528	-20%
Golf Course	110	110	0	0%	110	0	0%
Pits and Quarries	213	231	18	8%	231	18	8%
Right-of-Way	677	671	-6	-1%	671	-6	-1%
Water	286	323	37	13%	323	37	13%
TOTAL	9,590	9,590			9,590		

[1] *Change shown is compared to Baseline condition*

A narrative summary of the most significant land use factors affecting this Drainage District follows:

1. Under the Baseline condition, the dominant land use in the drainage is undeveloped open space (28% of the Drainage District), followed by low density residential (19%) and row crop agriculture (16%).
2. The biggest land use changes between the Baseline condition and the Present condition are a decrease of 675 acres in row crop agriculture land use and an increase of almost 670 acres of low density residential land use. The second largest change is a decrease of over 360 acres in undeveloped open space. High density residential and commercial/industrial land uses increase by a total of 350 acres.
3. Most of the land use change that will take place in the Zumbro River Drainage District between the Baseline and 2020 conditions has already taken place. The row crop agriculture land use is expected to decrease by another 240 acres between the Present and 2020 conditions and open space will decrease by an additional 165 acres. For the dominant urban land uses, low density residential land use is expected to increase by only another 240 acres, and the commercial/industrial land use will increase by 130 acres, as compared to the Present condition.

A3.12.3 Overview of Nondegradation Modeling Results

Table 3.31 summarizes the modeled difference in loadings for the three parameters for each of the three conditions, accounting for water quality treatment provided by the wet detention basins, street sweeping, and phosphorus fertilizer ban BMPs. The summary of modeled load estimates is presented for the South Fork of the Zumbro River at the point where it exits the Project Area.

Table 3.31 - Summary of Modeled Loadings for the Zumbro River Drainage District

	TP Load (lbs/yr)	TSS Load (lbs/yr)	Runoff Volume (ac-ft/yr)
Baseline Condition	4,700	1,840,000	4,400
Present Condition	4,600	1,650,000	4,900
2020 Condition	4,300	1,620,000	5,100

The key findings reflected in the above modeling results for the Zumbro River Drainage District are as follows:

1. Calculated loads of both total phosphorus and total suspended solids for the Present and 2020 conditions are less than the loads for the Baseline condition. This is due to the fact that the Zumbro River Drainage District was fairly well-developed in 1988 (54% urban land uses) with limited development occurring between the Baseline and 2020 conditions (65% urban land uses in 2005 and 69% anticipated urban land uses by 2020).
2. To mitigate stormwater impacts associated with new development, 34 wet detention basins were added in the Zumbro River Drainage District as development proceeded between the Baseline and Present conditions. Cumulatively, the area of these detention basins is about 30 acres and the wet volume storage equals about 235 acre-feet. Intensive street sweeping of the 200-acre area of the Central Business District is also accounted for in the Present condition scenario, with decreases of 16.6 pounds /year for TP and 11,900 pounds/year TSS assigned for this practice (Appendix D).
3. Modeled runoff volume for the Drainage District increases between the Baseline and Present conditions. This increase in runoff volume is associated with the continued conversion of non-urban to urban land uses.

4. Loads calculated for the 2020 condition are based on the assumptions that:
    - The City of Rochester will continue to apply the same water quality treatment requirements to new developments in the future as it does today.
    - Public information and education efforts supporting the state-wide phosphorus fertilizer application restrictions (effective in January 2005) would result in a 13% reduction in phosphorus loading from all residential property (Appendix D).
    - The City will continue to intensively sweep the Central Business District as it does under the Present condition.

Table 3.32 shows a comparison of modeled Baseline and Present conditions with and without the BMPs that mitigate stormwater impacts associated with development activities within the Project Area. The "without BMPs" scenario presents the modeled loads for the three parameters that would have resulted if there were no wet detention basins or street sweeping program. An assessment of pollutant load reduction under the 2020 condition is not presented because that would be a hypothetical, projected scenario with unknown magnitude, types, and performance of future stormwater treatment methods.

Table 3.32 - Comparison of Baseline and Present Conditions Loads With and Without BMPs for the Zumbro River Drainage District

	TP Load (lbs/yr)	TSS Load (lbs/yr)	Water Volume (ac-ft/yr)
Baseline Condition[1]	4,700	1,840,000	4,400
Present Condition Without BMPs	5,000	1,890,000	4,900
Present Condition With BMPs[2]	4,600	1,650,000	4,900
Loads Removed Under Present Condition[3]	400	240,000	0

[1] *Where BMPs existed prior to 1988, the Baseline load accounts for that treatment.*

[2] *Loads do not include treatment of runoff generated outside the Project Area, as provided by FCRs.*

[3] *Loads Removed = Present Loading without BMPs – Present Loading with BMPs*

Key findings are as follows:

1. The loading numbers for the Present Condition Without BMPs scenario shows how pollutant loads would have increased without treatment.
2. Without the BMPs described above, Present condition total phosphorus and total suspended solids loadings associated with development within the Zumbro River Drainage District would have exceeded Baseline loadings by about 300 pounds/year (6%) and 50,000 pounds/year (3%), respectively. With the BMPs, loadings for these parameters for the Present condition are instead 100 pounds/year (2%) and 190,000 pounds/year (10%) below the Baseline loading condition, respectively.
3. Since the Baseline condition, no BMPs were installed to mitigate increased runoff volume. Therefore, a 500 acre-feet/year increase in runoff volume occurs between the Baseline and Present conditions, and there is no difference between the Present Condition With BMPs and the Present Condition Without BMPs scenarios.

A4. Restricted Waters Nondegradation Analysis

A4.1 INTRODUCTION

Under the terms of the 2006, revised municipal stormwater permit, Rochester is required to complete a nondegradation analysis for "waters with restricted discharges." Minn. R. 7050.0180 contains the state's provisions for nondegradation to Outstanding Resource Value Waters (ORVWs), which includes waters with restricted discharge (subpart 6). The only ORVW category located within the Project Area is one type of restricted discharge water: calcareous fens (hereafter, Fens). Subpart 6b lists the restricted waters located in Olmsted County. Of these, there is only one restricted water listed that is located within the Project Area: High Forest fen, 12 (T.105, R.14, S.14, 15). This Fen has since been renamed by the DNR as the Airport Fen. According to subpart 7 of this rule, the MPCA is responsible for managing discharges to those ORVWs that are not specified in the rule "to the extent that this stringent protection is necessary to preserve the existing high quality, or to preserve the wilderness, scientific, recreational, or other special characteristics that make the water an outstanding resource value water." Therefore, as new Fen locations have been confirmed by the DNR, the City of Rochester has added them to the City's ORVW list (see Table 4.1 below) for consideration of special, site-specific water management provisions as the area affecting each develops. Unlike other restricted discharge waters, Fen protection is more complicated because state statute requires very specific oversight by the DNR and because the consideration of groundwater issues affecting Fens is outside the scope of the stormwater permit. Both issues are discussed in more detail below.

Protection of Fens, which are groundwater-fed wetlands, requires balanced management of surface water and groundwater hydrology. The assessment of stormwater impacts to these restricted waters, under Appendix C of the stormwater permit, therefore focuses on land use changes within the surface water watershed draining to each of the six Fens. It should be understood, however, that when a development is proposed that has the potential to affect a Fen, the City of Rochester reviews expected changes in both surface water and groundwater hydrology as they relate to the sustainability of the Fen and requires the implementation of BMPs that are protective of the Fen. Furthermore, because the DNR has jurisdictional authority over Fens, Fen Management Plans must be prepared and submitted to the DNR for review and approval. Due to this jurisdictional issue, it has been the City's practice to distinguish between BMPs installed specifically to protect Fens as outlined in Fen Management Plans and the BMPs required by the City to manage stormwater. Several infiltration, filtration, and dry detention BMPs have been installed at various developments to sustain Fen hydrology, but due to their relatively small impact on volume control, they were not quantified as part of the loading assessment for the affected Drainage Districts discussed in Section A.3 for the Nondegradation Review of all waters. They were, however, quantified for the Nondegradation Review for ORVWs.

This section summarizes the results of the watershed loading assessment for six Fens located within the Project Area. The Fen names, the year in which each was officially designated, their location, and other key information is presented in Table 4.1.

Table 4.1 - Known Calcareous Fens in the Nondegradation Project Area

Official Site Name (common name)	Year Designated	Fen ID No.	Drainage District	Township	Township	Range	Section(s)
Airport Fen	1991	8275	Willow Creek	High Forest	T105N	R14W	NENENE15
Rochester 23 Fen (Mutchler)	2002	31980	Willow Creek	Rochester	T106N	R14W	SWNW23
Stonehedge Fen	2003	31983	Hadley Valley	Haverhill	T107N	R13W	NENW19
Joyce Park Fen	2004	31964	Bear Creek	Marion	T106N	R13W	NWSW8
Marion 8 Fen	2004	31964	Bear Creek	Marion	T106N	R13W	NWSW8
Haverhill 19 Fen	2005	n/a	Hadley Valley	Haverhill	T107N	R13W	19

A4.2 RESTRICTED WATERS LOADING ASSESSMENT MODELING RESULTS

A4.2.1 BACKGROUND

The loading assessment prepared for each Fen was conducted using the same methodology as that used to analyze the nondegradation Project Area as a whole. There are, however, three important differences:

1. The surface watershed delineations and watershed land use composition for each Fen was done at a finer level of detail than for the nondegradation Project Area loading assessment. This was mainly because of the smaller scale of the area of interest (the watershed area affecting the Fen directly) which was less than 100 acres in every case.
2. A very small subwatershed area (< 15 acres) with changing land use conditions drains to Mutchler Fen, which is protected by fen management BMPs. The PondNet model is intended to quantify runoff volume and pollutant loadings from broad-scale land uses (e.g., row crop agriculture, low density residential, etc.), and loses accuracy when modeling at the smaller-scale of source areas (e.g., rooftops, driveways, lawns, etc). The presence of fen management BMPs intended to treat stormwater runoff from source areas justified the use of WinSLAMM for the Mutchler Fen and not any others.
3. Since none of the Fens had been classified by DNR prior to 1988, the Baseline land use and loading condition was based on the year of designation of the individual Fen, as per the interpretation of MPCA guidance on this issue, as interpreted by consulting and City staff. The year of designation for each Fen is presented in Table 4.1.

An overview of the loading assessment prepared for each Fen is presented in the following sections.

A4.2.2 AIRPORT CALCAREOUS FEN

The Airport Fen is a medium to high quality Fen located on an upland till plain on public land that forms the headwaters of one branch of Willow Creek. The three land activities with the potential to impact the Airport Fen (airport operations, highways, and agriculture) were all in place a minimum of twenty years before the Airport Fen was designated.

Table 4.2 summarizes the changes in each land use category between the Baseline (1991 in this case), the Present, and 2020 development conditions for the Airport Fen.

Table 4.2 - Land Use Change Summary Table for the Airport Fen Watershed

Land Use	Baseline Condition (ac)	Present Condition[1]			2020 Condition[1]		
		Acres	Change (ac)	Change (%)	Acres	Change (ac)	Change (%)
Row Crop Agriculture	47	44	-3	-6%	44	-3	-6%
Very Low Density Residential	0	0	0	0%	0	0	0%
Low Density Residential	0	0	0	0%	0	0	0%
Medium Density Residential	0	0	0	0%	0	0	0%
High Density Residential	0	0	0	0%	0	0	0%
Commercial/Industrial	3	3	0	0%	3	0	0%
Institutional	0	0	0	0%	0	0	0%
Open Space	27	30	3	11%	30	3	11%
Golf Course	0	0	0	0%	0	0	0%
Pits and Quarries	0	0	0	0%	0	0	0%
Right-of-Way	13	13	0	0%	13	0	0%
TOTAL	90	90			90		

[1] *Change shown is compared to Baseline condition*

Table 4.3 summarizes the modeled difference in loads for the three parameters for each of the three conditions for the Airport Fen watershed.

Table 4.3 - Summary of Modeled Loadings for the Airport Fen Watershed

	TP Load (lbs/yr)	TSS Load (lbs/yr)	Runoff Volume (ac-ft/yr)
Baseline (1991) Condition	43	16,100	36
Present Condition	41	16,000	36
2020 Condition	41	16,000	36

The key findings reflected in the above modeling results are as follows:

1. The land use composition within the watershed draining to the Airport Fen has not changed significantly since the Baseline year of 1991. The only change that occurred has been the conversion of about three acres of land from row crop agriculture to open space. This has caused a slight decrease in the estimated loads of TP and TSS to the Fen between the Baseline and Present conditions.
2. No changes in the land use composition within the watershed draining towards the Fen in a way that would raise TP or TSS loads or runoff volume are expected between the Present and 2020 condition.
3. The Rochester International Airport (RIA) updated its Storm Water Pollution Prevention Program (SWPPP) for its Industrial Storm Water Permit in 2006. As part of this effort, a Fen Management Plan was prepared and previously unperformed vegetative management practices have now been instituted. In addition, new operational BMPs were added to the SWPPP specifically to increase protection of the Airport Fen, but were not quantified in this loading assessment due to lack of data.

A4.2.3 MUTCHLER CALCAREOUS FEN

The Mutchler Fen is a hillside terrace Fen that is in a highly degraded condition due to past farming, pasturing, and logging practices. State rules (MN R. 8420.1040) state that "Calcareous fens may not be drained or filled or otherwise altered or degraded except as provided for in a management plan approved by the commissioner." A Fen Management Plan has been written for the Mutchler Fen by the upgradient property developer and only addresses the impacts of that development on the Fen. If the property on which the fen is located is developed, the property owner will need to amend the existing Mutchler Fen Management Plan or prepare a separate Fen Management Plan to address development-specific impacts.

PondNet was not used to model the loadings to this Fen. The Mutchler Fen watershed was instead modeled in WinSLAMM (Source Loading Area Management Model), a model created and maintained by Dr. Robert Pitt and John Vorhees (PV and Associates). The most recent version of WinSLAMM, v.9.2.4 (updated June 16, 2007), was used to conduct the modeling of watershed loadings and pollutant removal by BMPs for the Mutchler Fen. A different modeling approach was necessary due to the very small size of the watershed, the land use changes, and the source area-specific BMPs applied, such as infiltration trenches/sumps for capturing roof and driveway runoff and rock dams for treating backyard runoff. These BMPs were required by the Barony Woods Addition Fen Management Plan (2003) and implemented as the development was constructed. More specifically, there are eight low density residential lots draining toward the Mutchler Fen, six of which have underground infiltration trenches/sumps infiltrating the runoff from the roof area and driveway area draining toward the fen. There are also four rock dams constructed approximately 275 feet upgradient of the Mutchler Fen, which are designed to reduce peak flows and treat runoff from all eight residential lots draining toward the fen. WinSLAMM is capable of routing source areas (e.g., roof and driveway) to specific BMPs (e.g., infiltration trench), and was, therefore, an appropriate model to calculate the loadings generated and treatment attained by BMPs within the Mutchler Fen watershed for the three time conditions. Appendix C contains the detailed WinSLAMM inputs and outputs.

Table 4.4 summarizes the changes in each land use category, as well as source area, between the Baseline (2002 in this case), Present, and 2020 development conditions for the Mutchler Fen Watershed.

Table 4.4 - Land Use and Source Area Change Summary Table for the Mutchler Fen Watershed

Land Use and Source Area	Baseline Condition (ac)	Present Condition[1]			2020 Condition[1]		
		Acres	Change (ac)	Change (%)	Acres	Change (ac)	Change (%)
Low Density Residential	0.0	4.1	4.1	N/A%	4.1	4.1	N/A%
Roof	0.0	0.4			0.4		
Driveway	0.0	0.3			0.3		
Backyard	0.0	2.8			2.8		
Wooded	0.0	0.6			0.6		
Open Space	14.4	8.4	-6.0	-42%	8.4	-6.0	-42%
Wooded	14.4	8.4			0.0		
TOTAL	14.4	12.5[2]			12.5[2]		

[1] *Change shown is compared to Baseline condition*

[2] *The total watershed area decreases from the Baseline condition to 2005 and 2020 because runoff from the roadway serving the low density residential development is routed away from the Fen to a detention basin outside the Fen watershed.*

Table 4.5 summarizes the modeled difference in loads for the three parameters for each of the three conditions for the Mutchler Fen watershed.

Table 4.5 - Summary of Modeled Loadings for the Mutchler Fen Watershed

	TP Load (lbs/yr)	TSS Load (lbs/yr)	Runoff Volume (ac-ft/yr)
Baseline (2002) Condition	3.2	1,030	1.9
Present Condition	3.2	916	1.4
2020 Condition	3.2	916	1.4

The key findings reflected in the above modeling results are as follows:

1. The watershed draining to the Fen is 14.4 acres under the Baseline condition. Since the Baseline condition, it has been reduced by almost 2 acres because runoff from the roadway serving the low density residential development was routed away from the Fen to a detention basin outside the Fen's watershed. No significant watershed configuration or land use changes are expected to occur between the Present and 2020 condition, and therefore, no increased loading to the Fen is shown for that time period.
2. Between the Baseline and Present conditions, the load assessment modeling shows no change in TP loading and slight decreases in TSS loading and runoff volume to the Fen, largely due to the protection provided by the infiltration trench and rock dam BMPs installed.
3. In addition to mitigating runoff volume increases, fen management BMPs recharge and sustain the groundwater hydrology of the fen.
4. There is a slight decrease in TP loading to the Fen between the Present and 2020 conditions that is not shown in Table 4.5 due to the significant figure criteria applied. This decrease is from the calculated benefit of using phosphorus-free fertilizer on most residential properties by 2020. The phosphorus-free fertilizer BMP does not decrease TSS loading, and therefore the TSS load remains constant from the Present to 2020 conditions.

A4.2.4 Stonehedge Calcareous Fen

The Stonehedge Fen is hillside terrace Fen that is in fairly good condition. Although it was pastured in the past, the steepness of the adjoining slopes precluded farming or logging. The Fen is located on private property owned by the same person that is developing the land upgradient of the Fen. Therefore, a Fen Management Plan has been prepared and is being implemented by the property owner on the Fen itself and on the lands upgradient of the Fen.

Table 4.6 summarizes the changes in each land use category between the Baseline (2003 in this case), the Present, and 2020 development conditions for the Stonehedge Fen watershed.

Table 4.6 - Land Use Change Summary Table for the Stonehedge Fen Watershed

Land Use	Baseline Condition (ac)	Present Condition[1]			2020 Condition[1]		
		Acres	Change (ac)	Change (%)	Acres	Change (ac)	Change (%)
Row Crop Agriculture	16	0	-16	-100%	0	-16	-100%
Very Low Density Residential	0	0	0	0%	0	0	0%
Low Density Residential	6	4	-2	-33%	5	-1	-17%
Medium Density Residential	0	0	0	0%	0	0	0%
High Density Residential	1	0	-1	-100%	0	-1	-100%
Commercial/Industrial	0	0	0	0%	0	0	0%
Institutional	0	0	0	0%	0	0	0%
Open Space	33	14	-19	-58%	13	-20	-61%
Golf Course	0	0	0	0%	0	0	0%
Pits and Quarries	0	0	0	0%	0	0	0%
Right-of-Way	0	0	0	0%	0	0	0%
TOTAL	56	18[2]			18[2]		

[1] *Change shown is compared to Baseline condition*

[2] *The total watershed area decreases from the Baseline to the Present condition because runoff from 24 acres Low Density Residential, 1 acre High Density Residential, and 13 acres Open Space (a total of 38 acres) is diverted away from the Stonehedge Fen on an average annual basis due to the construction of an approximately 3-foot high berm. The runoff from these 38 acres is routed to a stormwater wet detention basin downstream of the Fen.*

Table 4.7 summarizes the modeled difference in loads for the three parameters for each of the three conditions for the Stonehedge Fen watershed.

Table 4.7 - Summary of Modeled Loadings for the Stonehedge Fen Watershed

	TP Load (lbs/yr)	TSS Load (lbs/yr)	Runoff Volume (ac-ft/yr)
Baseline (2003) Condition	18	8,270	17
Present Condition	4	2,620	5
2020 Condition	5	2,760	6

The key findings reflected in the above modeling results are as follows:

1. The watershed draining to the Fen is 56 acres under the Baseline condition. Between the Baseline and Present conditions, it has been reduced by 38 acres (24 acres Low Density Residential, 1 acre High Density Residential, and 13 acres Open Space) due to the construction of a approximately 3-foot high berm that diverts runoff from these areas away from the fen and to a wet detention basin downstream of the Fen.
2. Between the Baseline and Present conditions, the load assessment modeling shows significant decreases in TP and TSS loadings and runoff volume to the Fen, entirely due to the protection provided by the diversion berm installed.
3. In addition to mitigating runoff volume increases, fen management BMPs recharge and sustain the groundwater hydrology of the fen.

4. Between the Present and 2020 conditions, no significant watershed configuration or land use changes are expected to occur for the portion of the Stonehedge Fen watershed draining to the diversion berm, and therefore, the same amount of treatment offered by this berm (i.e., 100% diversion) is expected to remain in the 2020 condition. However, a slight increase in Low Density Residential land use is expected to occur in the portion of the Stonehedge Fen watershed draining directly to the fen. This change in land use causes the 2020 condition TP and TSS loadings and runoff volume to increase from the Present condition loadings, but remain below the Baseline condition loadings.

A4.2.5 JOYCE PARK CALCAREOUS FEN

The Joyce Park Fen is hillside terrace Fen that is in poor to moderate condition due to development attempts in the mid-1960s, past telephone line maintenance practices, historical encroachment by neighbors, and the absence of vegetative management. The property on which the Fen is located was given to the City when the developer found it impossible to develop, decades before the Fen was discovered. Due to its proximity to a pre-existing park, that land is now considered part of Joyce Park even though there are no park activities or amenities associated with the remnant parcel. This Fen was discovered as a result of planning activities for an upgradient development that was being considered by the adjacent property owner. No development proposals have been brought forward, as yet, so a development-related Fen Management Plan has not been written. The City plans to prepare a Fen Management Plan for the Joyce Park Fen, specifically as it relates to park use, signage, encroachments, utility line maintenance, and vegetative management.

Table 4.8 summarizes the changes in each land use category between the Baseline (2004 in this case), the Present, and 2020 development conditions for the Joyce Park Fen Watershed.

Table 4.8 - Land Use Change Summary Table for the Joyce Park Fen Watershed

Land Use	Baseline Condition (ac)	Present Condition[1]			2020 Condition[1]		
		Acres	Change (ac)	Change (%)	Acres	Change (ac)	Change (%)
Row Crop Agriculture	0	0	0	0%	0	0	0%
Very Low Density Residential	1	1	0	0%	1	0	0%
Low Density Residential	0	0	0	0%	0	0	0%
Medium Density Residential	0	0	0	0%	0	0	0%
High Density Residential	0	0	0	0%	0	0	0%
Commercial/Industrial	0	0	0	0%	0	0	0%
Institutional	0	0	0	0%	0	0	0%
Open Space	16	16	0	0%	16	0	0%
Golf Course	0	0	0	0%	0	0	0%
Pits and Quarries	0	0	0	0%	0	0	0%
Right-of-Way	0	0	0	0%	0	0	0%
TOTAL	17	17			17		

[1] *Change shown is compared to Baseline condition*

Table 4.9 summarizes the modeled difference in loads for the three parameters for each of the three conditions for the Joyce Park Fen watershed.

Table 4.9 - Summary of Modeled Loadings for the Joyce Park Fen Watershed

	TP Load (lbs/yr)	TSS Load (lbs/yr)	Runoff Volume (ac-ft/yr)
Baseline (2004) Condition	2.1	2,160	3.7
Present Condition	2.1	2,160	3.7
2020 Condition	2.1	2,160	3.7

The key findings reflected in the above modeling results are as follows:

- There has been no change in land use in the Joyce Park Fen watershed from the Baseline to the Present conditions and no change is expected to occur from the Present condition to the 2020 condition. Therefore, no change in loadings has been seen or is expected.

A4.2.6 MARION 8 CALCAREOUS FEN

The Marion 8 Fen is a very small hillside terrace Fen in moderate to good condition that is located on private property. It was discovered during the same process that resulted in the identification of the Joyce Park Fen. There are no requirements for management of the Marion 8 Fen by the private property owner on whose land it resides as long as their land management activities do not negatively impact it; hence, a Fen Management Plan has not been written for this Fen.

Table 4.10 summarizes the changes in each land use category between the Baseline (2004 in case), the Present, and 2020 Development conditions for the Marion 8 Fen watershed.

Table 4.10 - Land Use Change Summary Table for the Marion 8 Fen Watershed

Land Use	Baseline Condition (ac)	Present Condition[1]			2020 Condition[1]		
		Acres	Change (ac)	Change (%)	Acres	Change (ac)	Change (%)
Row Crop Agriculture	0.0	0.0	0.0	0%	0.0	0.0	0%
Very Low Density Residential	0.3	0.3	0.0	0%	0.3	0.0	0%
Low Density Residential	0.0	0.0	0.0	0%	0.0	0.0	0%
Medium Density Residential	0.0	0.0	0.0	0%	0.0	0.0	0%
High Density Residential	0.0	0.0	0.0	0%	0.0	0.0	0%
Commercial/Industrial	0.0	0.0	0.0	0%	0.0	0.0	0%
Institutional	0.0	0.0	0.0	0%	0.0	0.0	0%
Open Space	0.9	0.9	0.0	0%	0.9	0.0	0%
Golf Course	0.0	0.0	0.0	0%	0.0	0.0	0%
Pits and Quarries	0.0	0.0	0.0	0%	0.0	0.0	0%
Right-of-Way	0.0	0.0	0.0	0%	0.0	0.0	0%
TOTAL	1.2	1.2			1.2		

[1] *Change shown is compared to Baseline condition*

Table 4.11 summarizes the modeled difference in loads for the three parameters for each of the three conditions for the Marion 8 Fen watershed.

Table 4.11 - Summary of Modeled Loadings for the Marion 8 Fen Watershed

	TP Load (lbs/yr)	TSS Load (lbs/yr)	Runoff Volume (ac-ft/yr)
Baseline (2004) Condition	0.2	153	0.3
Present Condition	0.2	153	0.3
2020 Condition	0.2	153	0.3

The key findings reflected in the above modeling results are as follows:

- This Fen is quite small and has a mostly undeveloped watershed draining to it under the Baseline and Present conditions that generates virtually no pollutant loading or surface runoff. In addition, no land use changes are expected in the Marion 8 Fen watershed from the Present condition to the 2020 condition. Therefore, no change in loadings has been seen or is expected.

A4.2.7 HAVERHILL 19 CALCAREOUS FEN

The Haverhill 19 Fen is hillside terrace Fen in moderate to good condition that is located on public and private property in an isolated and undeveloped area. This wetland was not identified as a Fen when it was delineated in the late 1990's in association with a nearby development proposal. The identification of other hillside terrace Fens caused the City to revisit the site and utilize the DNR's more recent Fen classification protocols and criteria in 2005, resulting in the Fen classification. No new development proposals have been proposed that would impact this Fen, so a Fen Management Plan has not yet been prepared.

Table 4.12 summarizes the changes in each land use category between the Baseline (2005 in this case), the Present, and 2020 Development conditions for the Haverhill 19 Fen watershed.

Table 4.12 - Land Use Change Summary Table for the Haverhill 19 Fen Watershed

Land Use	Baseline Condition (ac)	Present Condition[1]			2020 Condition[1]		
		Acres	Change (ac)	Change (%)	Acres	Change (ac)	Change (%)
Row Crop Agriculture	0	0	0	0%	0	0	0%
Very Low Density Residential	0	0	0	0%	0	0	0%
Low Density Residential	32	32	0	0%	32	0	0%
Medium Density Residential	0	0	0	0%	0	0	0%
High Density Residential	0	0	0	0%	0	0	0%
Commercial/Industrial	0	0	0	0%	0	0	0%
Institutional	1	1	0	0%	1	0	1%
Open Space	10	10	0	0%	10	0	0%
Golf Course	0	0	0	0%	0	0	0%
Pits and Quarries	0	0	0	0%	0	0	0%
Right-of-Way	0	0	0	0%	0	0	0%
TOTAL	42	42			42		

[1] *Change shown is compared to Baseline condition*

Table 4.13 summarizes the modeled difference in loads for the three parameters for each of the three conditions for the Haverhill 19 Fen watershed.

Table 4.13 - Summary of Modeled Loadings for the Haverhill 19 Fen Watershed

	TP Load (lbs/yr)	TSS Load (lbs/yr)	Runoff Volume (ac-ft/yr)
Baseline (2005) Condition	24	8,220	21
Present Condition	24	8,220	21
2020 Condition	21	8,220	21

The key findings reflected in the above modeling results are as follows:

1. No land use changes have occurred or are expected to occur in the Haverhill 19 Fen watershed from the Baseline condition through 2020. Therefore, no change in TSS loadings or runoff volume from the Baseline condition is expected.
2. The decrease in TP loading to the Fen between the Present and 2020 conditions is due to the calculated benefit of using phosphorus-free fertilizer on most residential properties by 2020.

A4.3 ASSESSMENT OF IMPERVIOUS COVERAGE IN RESTRICTED WATERS WATERSHEDS

A4.3.1 BACKGROUND

In addition to preparing a watershed land use summary and loading assessment summary for each Fen, information on the amount of impervious coverage present in each Fen watershed was also refined. For most of the Fens, impervious coverage was calculated by estimating the area of each type of land use within the delineated Fen watershed, then multiplying the percentage of impervious coverage associated with each land use, as depicted in Table 4.14, to the area covered by that land use to estimate total impervious coverage. This revised information is presented in the Section 4.3.2 and is intended to supersede previous estimates.

Table 4.14 - Assumed Impervious Coverage by Land Use

	Impervious Coverage (%)
Row Crop Agriculture	0
Very Low Density Residential	10
Low Density Residential	30
Medium Density Residential	45
High Density Residential	65
Commercial/Industrial	70
Institutional	45
Open Space	0
Golf Course	10
Pits and Quarries	0
Right-of-Way	40

A4.3.2 Overview of Updated Impervious Coverage Estimates in Fen Watersheds

Based on the loading assessment completed for the restricted discharge waters, the revised impervious coverage estimates for each Fen for the three conditions (Baseline, Present, and 2020) are presented in Table 4.15.

Table 4.15 - Fen Watershed Impervious Coverage Estimates

Fen Name	Watershed Area to Fen Area (acres)	Percentage of Project Area	Baseline Impervious Coverage (ac) (Baseline Year)	Present Impervious Coverage (ac)	2020 Impervious Coverage (ac)
Airport	90.0	0.17%	8.8 (1991)	8.7	8.7
Mutchler	12.5[1]	0.02%	0.0 (2002)	0.0[2]	0.0[2]
Stonehedge	18.0[3]	0.11%	1.6 (2003)	1.2	1.5
Joyce Park	17.2	0.03%	0.02 (2004)	0.02	0.02
Marion 8	1.2	0.002%	0.0 (2004)	0.0	0.0
Haverhill 19	42.1	0.08%	4.1 (2005)	4.1	4.1

[1]The total watershed area for the Mutchler Fen decreases from 14.4 acres under the Baseline condition to 12.5 acres under the Present and 2020 conditions because runoff from the roadway serving an adjacent low density residential development was routed away from the Fen to a detention basin outside the Fen's watershed.

[2]The watershed area for the Mutchler Fen has 0.7 acres impervious area from rooftops and driveways in the low density residential development in the Present and 2020 conditions, but this impervious coverage is routed to infiltration trenches that capture and treat all of the stormwater runoff volume on an average annual basis.

[3]The total watershed area decreases from the Baseline to the Present condition because runoff from 24 acres Low Density Residential, 1 acre High Density Residential, and 13 acres Open Space (a total of 38 acres) is diverted away from the Stonehedge Fen on an average annual basis due to the construction of an approximately 3-foot high berm. The runoff from these 38 acres is routed to a stormwater wet detention basin downstream of the Fen.

Part B – Nondegradation Report

B1. Background

This Nondegradation Report (Part B) summarizes the findings of the Loading Assessment, discusses those findings in the context of the City's current stormwater management program, and identifies how the City's Storm Water Pollution Prevention Program (SWPPP) will be modified to address Nondegradation of all waters and of Outstanding Resource Value Waters (ORVWs). Because the City's current program meets the nondegradation criteria for total phosphorus (TP) and total suspended solids (TSS), no SWPPP modifications are proposed in that regard. Four modifications to the SWPPP (in the form of Best Management Practice [BMP] Summary Sheets; see Appendix G) are proposed to address increases in stormwater runoff volume.

B2. Overview of Key Findings from the Loading Assessment

The key findings of the Loading Assessment for all waters and for ORVWs located within the Project Area are as follows:

1. Stormwater runoff that reaches the South Fork of the Zumbro River in Rochester comes from lands located within the City's Project Area and from primarily agricultural lands located upgradient of the City. To put the stormwater impact on the Zumbro River in context, it is important to realize that Rochester's Project Area comprises only 26% of the South Fork of the Zumbro River watershed (Figure A2.2), when evaluated at the northern Project Area boundary.
2. As applied to the entire Project Area, calculated loads of both TP and TSS for the Present and 2020 conditions are significantly less than for the Baseline condition. Since the objective of nondegradation is to employ BMPs to prevent pollutant load increases above 1988 (Baseline) levels, this data indicates that the stormwater management BMPs currently implemented by the City are successfully achieving nondegradation. Further load reductions for both parameters are achieved by taking into account the treatment "credit" associated with Flood Control Reservoirs (FCRs) that catch and treat runoff from outside the Project Area. FCR watersheds that lie within the Project Area have been modeled in all three conditions and there are no credits associated with these areas.
3. At the Drainage District scale, the Loading Assessment shows minor increases in TP and/or TSS in two of the ten Drainage Districts. Within the Root River Drainage District (1.5% of the Project Area), the calculated loads of TP are 10% greater than Baseline during the Present and 2020 conditions. Similarly, the calculated loads of TSS are 12% greater than Baseline during the Present and 2020 conditions. These increases in loads are associated with the increase in impervious cover associated with the airport runway expansion. There is no projected land use change between the Present and 2020 conditions. The Federal Aviation Administration does not advise the use of BMPs, such as wet detention or biofiltration, near runways due to the safety hazards posed by wildlife that such BMPs attract. Because of this, mitigation of these minor TP and TSS load increases is not reasonable.
4. In the Hadley Valley Drainage District (4% of the Project Area), calculated TP loads are projected to be 1% higher in the 2020 condition as compared to the Baseline condition. The City employs other stormwater management BMPs that could not be accounted for in the model due to the absence of quantifiable reference data, which would offset this insignificant increase. These other BMPs include erosion and sediment control inspection and enforcement, public education, and 2-3 street sweepings per year (see Appendix D for more detailed information).
5. Modeled runoff volume for the Project Area increased moderately between the Baseline and Present conditions and is projected to increase moderately between the Present and 2020 conditions (Figure 2-2). The reasons for this are two-fold. First, the conversion of non-urban to urban land uses increases impervious coverage, which is reflected in a higher runoff coefficient for the urban land uses. Second, very few infiltration BMPs have been constructed in the City, to date, largely due to the pollution susceptibility of its underlying karst geology and the City's desire to protect its drinking water supply, which is extracted from those groundwater aquifers.
6. For each of the six restricted discharge waters (i.e., calcareous fens) subject to Nondegradation Review for ORVWs, calculated loads of TP, TSS, and runoff volume in the Present and 2020 conditions are less than or equal to the Baseline condition (Figure ES.2). In the case of ORVWs, Baseline conditions are established as the date of ORVW designation, which ranges from 1991 for the Airport fen to 2005 for the Haverhill 19 fen.

B3. Historical Context for Rochester's Stormwater Management

The City of Rochester's first initiatives in stormwater management began in the mid-1980's. While Minnesota's first construction stormwater permit wasn't issued until 1998, the Environmental Protection Agency's (EPA's) National Pollutant Discharge Elimination Program System (NPDES) program requirements on stormwater management were first developed in the late 1980's in response to the Federal Clean Water Act Amendment in 1987. Additionally, the City began its Flood Control Project in the mid-1980's. These early efforts led to the development of the City's first comprehensive stormwater management plan (Plan), which was completed in 1997 and has been periodically revised and amended since that time. The Plan was intended to more effectively address Rochester's rapid growth, improve its response to MPCA's Phase 1 construction stormwater permit requirements, and proactively prepare for the forthcoming NPDES Phase 2 municipal stormwater permit that would apply to Rochester. The fundamental approach adopted by the City was the integration of a local and regional stormwater pond network within its stormwater conveyance system to manage stormwater quality in addition to stormwater quantity. As part of this process, the City developed specific criteria upon which wet detention basin designs were based. This initiative is the primary reason why over 200 local and regional detention basins were constructed after the Baseline year (1988).

In order to meet the requirements of the March 2003 MS4 permit, the City of Rochester developed a SWPPP to further enhance its stormwater management program. It is important to realize that only three BMPs were accounted for in the nondegradation modeling: wet detention basins, street sweeping, and the phosphorus fertilizer ban (for 2020 conditions only). The Loading Assessment does not account for 45 BMPs (as outlined in the 2006 – 2011 SWPPP) that were not incorporated into the model because of the lack of quantifiable reference data. Because of this, the results of the Loading Assessment should be considered conservative estimates of treatment.

It should be noted that, unlike the Twin Cities Metropolitan Area, Rochester has only been subject to the NPDES requirements. The Metropolitan Area has been subject to additional regulations that came about in response to the Metropolitan Surface Water Management Act (Act) that was adopted in 1982. The Act required the formation of watershed management authorities based on hydrologic boundaries and mandated the preparation and implementation of watershed management plans, many of which included regulatory requirements that were more stringent than the NPDES requirements. Subsequently, a state statute was passed in 1988 that required counties to develop county water management plans, focused initially on groundwater management. Later iterations of county plans incorporated a surface water component, but did not necessarily evolve into more stringent regulations, as was the case in Olmsted County. There are no watershed management organizations or districts that encompass Rochester.

It is also important to note that none of the state or federal initiatives that have driven urban stormwater management in Minnesota and Rochester have required stormwater runoff volume control. For example, there are no specific requirements in either the NPDES Phase 1 or Phase 2 construction or MS4 general permits that require control of runoff volumes. Even in the Twin Cities Metropolitan Area, requirements for runoff volume control adopted by several watershed districts have only arisen within the last few years. Historically, the City of Rochester has taken a cautious approach to infiltration, the most common runoff volume BMP, because of its desire to adequately protect its drinking water supply, which is extracted from karst aquifers underlying the City.

B4. Proposed SWPPP Modifications - Runoff Volume Control

The Loading Assessment has shown that, of the three loading parameters examined, stormwater runoff volume is the only parameter that consistently does not meet the Baseline condition, either at the Drainage District scale or the Project Area scale. This section provides a discussion about the City's need for, constraints to, and current and future efforts to manage runoff volume.

B4.1 NEED

Rochester is located at the confluence of a dendritic stream network, several of which are 4th order and higher streams for which volume control is not a channel protection issue (Minnesota Stormwater Manual, September 2006, Volume 2, Chapter 10, page 15). This guidance indicates that channel protection criteria, which drive the regulatory interest in volume control under nondegradation, need not be applied in areas that discharge directly to 4th order or higher streams. This is because discharges associated with the incremental increase in runoff volume relative to stream volume at those points in the watershed are not large enough to be a significant factor in channel erosion.

It should also be noted that, as part of Rochester's Flood Control Project, the Army Corps of Engineers straightened and widened the channel and armored the bank of about 5.2 miles of the 9 miles of the South Fork of the Zumbro River within the City. Similarly, about 1.3 miles of Bear Creek's 2.8 miles in Rochester were stabilized and about 1.2 miles of Cascade Creek's 3.7 miles in Rochester were stabilized. The lower reaches of Bear Creek and Cascade Creek are 4th order streams and the South Fork of the Zumbro River is a 5th order stream south of and a 6th order stream north of the mouth of Bear Creek (see Section B4.2 and Figure B4.1 for areas within the Project Area that discharge directly to 4th order and higher stream reaches).

B4.2 CONSTRAINTS

The City's geophysical and hydrogeologic environments present several constraints to infiltration. First, all of southeastern Minnesota is underlain by karst aquifers that supply drinking water. The City of Rochester extracts the majority of its water from the Prairie du Chien (limestone) and Jordan (sandstone) aquifers. As part of its wellhead protection planning requirements, the City has delineated the Drinking Water Supply Management Areas (DWSMAs) for each of its drinking water supply wells and for some nearby industrial water supply wells. Additionally, a vulnerability rating has been determined for the DWSMAs, based on the permeability of overlying soils and the permeability of the geologic formations from which each well draws its water. The Minnesota Department of Health (MDH) suggests that care be exercised when planning projects involving stormwater infiltration in vulnerable wellhead protection areas. In their guidance document, "Evaluating Proposed Storm Water Infiltration Projects in Vulnerable Wellhead Protection Areas", MDH offers evaluation criteria and presents a flow chart that can be used by local stormwater and water supply managers to determine whether infiltration is appropriate in any given area (December 2006; see Appendix F). Particular areas that MDH suggests may be inappropriate for infiltration are areas underlain by geologic formations with fracture and solution enhanced flow conditions (such as the Prairie du Chien and Galena limestone formations that are prevalent in Rochester); areas with commercial and industrial land uses; and transportation corridors.

Low permeability soils (i.e., hydrologic soil group D), shallow (i.e. $\leq$ 3') depth to groundwater, and shallow (i.e. $\leq$ 3') depth to bedrock are also impediments to infiltration in certain areas of Rochester. The Minnesota Stormwater Manual (Volume 2, Chapter 12-7, page 12) highly recommends that infiltration areas have a minimum infiltration rate of 0.2 in/hr (typically, hydrologic soil groups A, B, and C) and a minimum vertical distance of 3 feet between the bottom of the infiltration practice and the seasonally high water table or bedrock layer.

Rochester Public Utilities recently began a new initiative to better understand aquifer vulnerability in the City of Rochester in addition to wellhead vulnerability, as part of its Wellhead Protection planning efforts. Mapping aquifer vulnerability is a goal in the new initiative, but will not be completed for several more years. Therefore, in order to put this RPU initiative into context with stormwater infiltration, the "Sensitivity of the Ground-Water System to Pollution" map (Plate 6) in the Geologic Atlas of Olmsted County of the Minnesota Geological Survey (MGS) developed by the University of Minnesota in 1988 was referenced. The sensitivity to pollution mapping considers geologic material composition, bedrock conditions, pore space of geologic material, thickness of geologic material, depth to the water table, and combined attributes of bedrock geology (Plate 2, MGS) and surficial deposits (Plate 3, MGS). Essentially, infiltration of urban stormwater runoff poses less of an aquifer pollution threat when it occurs in areas with greater separation to bedrock and the water table and smaller pore space than in areas with little separation to bedrock and the water table and larger pore space.

As an initial screening tool, the City has identified which areas do not need volume control for channel protection and which areas are constrained for infiltration by vulnerable DWSMAs, soil type, and groundwater's sensitivity to pollution. Specifically, Figure B4.1 shows the portions of the nondegradation Project Area that:

- Drain or discharge directly to a 4th order or higher stream reach
- Lie within a moderately to highly vulnerable portion of a DWSMA
- Are underlain by native soils that have an infiltration capacity too low to be considered suitable for urban runoff infiltration (i.e., hydrologic soil group D)
- Lie within an area in which groundwater is moderately to very highly sensitive to pollution
- Have bedrock or groundwater less than 5 feet below the surface

Based on this assessment, only about 6,400 acres of the 53,000-acre Project Area is potentially suitable for infiltration. Of the potentially suitable area, approximately 2,100 acres is already in a developed condition, leaving only 4,300 acres that could be reasonably considered for infiltration. It should be noted that areas with impermeable clay till lying below the first 5 feet of soil were not included in the development of Figure B4.1 because available, digitized planning data does not contain this level of detail. This figure also does not account for future well locations, for which Drinking Water Supply Management Areas and wellhead vulnerability have not been established. Additionally, areas with projected commercial and industrial land use and transportation corridors were not incorporated into Figure B4.1 because of site-specific uncertainties associated with that data. Therefore, the 4,300 acres is a gross estimate that could be significantly reduced at the time of development proposal submission, when site-specific data becomes available.

Aggregate of All Six
Constraints and Exceptions

White space = potential infiltration areas
(totaling 6,400 acres or 12% of the Project Area)

Figure B4.1
City of Rochester
Volume Control Constraints and Exceptions

1 0.5 0 1 2 Miles

N

Legend

- Project Area
- Hydrologic Soil Group D (Soils to depth of 5 feet. Includes dual HSGs A/D and B/D and SSURGO classifications urban and water) (Source: Natural Resouces Conservation Service - Soil Survey Geographic [SSURGO] Database, July 2007)
- Drinking Water Supply Management Area - Moderate and High Vulnerability (Source: Rochester Public Utilities, July 2007)
- Area Tributary to 4th, 5th, or 6th Order Stream/River (Source: Bonestroo, June 2007)
- Groundwater Sensitivity to Pollution - Very High, High, High Moderate, and Moderate (Source: Minnesota Geological Survey - Geologic Atlas of Olmsted County, 1988)
- Bedrock or Groundwater, respectively, within 5 feet of surface (Source: Rochester Public Utilities, July 2007)

Bonestroo

Note: In areas that appear to be suitable for infiltration, the surficial geology (between the bedrock and 5 feet below the surface) may have soils that preclude infiltration.

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B4.3 CURRENT INITIATIVES

Despite the fact that the vast majority of the Project Area lies in areas that are constrained for infiltration or where volume control is not necessary for channel protection, the City of Rochester has initiated a number of infiltration and volume control measures to protect and promote the protection of the surface water/groundwater hydrologic regime. They are:

1. Preparation and submittal of Fen Management Plans to the Department of Natural Resources (DNR) for calcareous fens located on public property. The plans are implemented after DNR approval is received.
2. Review and comment on fen protection BMPs proposed as part of development plans, grading plans, and/or Fen Management Plans that are prepared for calcareous fens located on private property. This involves measures to assure that groundwater flows are adequate to sustain the fens, based on the amount of recharge lost as a function of impervious area increases.
3. Implementation of Ch. 59 of the Rochester Code of Ordinances (Wetland Conservation), which includes specific provisions prohibiting the destruction and mitigation of water features (groundwater-supported wetlands, springs, seeps, and hydric soils) in the Platteville-Glenwood-Decorah geologic formation in order to preserve the discharge/interflow/recharge of groundwater from the upper aquifer into the lower aquifer. Similarly, Section 62.1100 of the City's Land Development Manual limits the amount of Substantial Land Alteration that can occur within the Decorah Edge and Emergency Response Zones of municipal wells.
4. Operation by the U.S. Geological Survey (USGS) of a monitoring system (consisting of pressure transducers, precipitation monitors, and specific conductance monitors) at a test infiltration basin in Quarry Hill Park to evaluate the hydrologic regime and its potential to impact an adjacent water supply well.
5. Participation in activities that protect the City of Rochester's urban forest and promote the expansion of urban forest to achieve a target canopy cover of 40%, as follows.
    - The Rochester Committee on Urban Design and the Environment's (CUDE) has formed a Tree Ordinance Subcommittee that is educating the public on the value of trees (including stormwater management benefits), enhancing boulevard planting and tree conservation ordinances for Council consideration, and preparing an Urban Forest Master Plan for the City.
    - RNeighbors, the Rochester Neighborhood Resource Center, coordinates the RNeighborWoods program that includes Citizen Forester Training, Jr. Forester Training, and tree planting events.
    - The Rochester Park and Recreation Department has a Forestry Division that insures compliance with the four standards needed to maintain its "Tree City, USA" designation: having staff legally responsible for care and management of the City's trees, implementing a tree care ordinance, having a budget of at least $2 per capita, and hosting an annual Arbor Day event.
6. The City promotes overland conveyance of stormwater in "environmental corridors" to increase infiltration and biofiltration opportunities, where feasible. The City's Surface Water Management Plan already identifies the preferred locations for these environmental corridors. To further this effort, the Rochester Public Works Department created a Focused Discharge Task Force in February 2007, consisting of public and private stormwater management professionals, to evaluate means to improve protection of natural and constructed channels used for overland conveyance of stormwater. Among those options being considered at this time are: added inspections during construction to insure adequate channel protection, new design standards for conveyance, preparation of feasibility studies of channel capacity in advance of development, ordinance modifications, and the requirement of performance bonds for grading activities to insure compliance.

7. The Rochester-Olmsted Planning Department (ROPD) is responsible for the development and implementation of the City's Zoning Ordinance and Land Development Manual that sets development standards and thereby guides development styles. The ROPD is currently reviewing its parking standards to determine what revisions will be necessary to establish maximum parking lot sizes, facilitate shared parking, and establish landscaping standards to reduce the creation of impervious surface and increase vegetative uptake of stormwater.

Since the City's 2006 - 2011 SWPPP does not itemize these initiatives, BMP No. 5d-1 has been prepared as a SWPPP modification (see Appendix G).

B4.4 FUTURE INITIATIVES

The City has developed three other BMPs that outline future initiatives for runoff volume control to address the nondegradation findings. They are described below and can be found in Appendix G.

BMP NO. 5d-2: VOLUME CONTROL - TECHNICAL REVIEW AND BMP TRIALS

As discussed earlier, the City of Rochester does not promote nor discourage the management of increased stormwater volume on lands within areas that drain directly to 4th order or higher streams, as per guidance in the Minnesota Stormwater Manual. Additionally, Rochester does not promote volume control via infiltration within 20 of its 28 wellhead protection areas that are designated as moderately or highly vulnerable to contamination. Similarly, the City does not promote volume control via infiltration on lands with physical constraints, including areas with underlying low permeability soils (hydrologic soil group D), areas with less than five feet to groundwater or bedrock, and areas being developed for transportation corridors and for commercial and industrial uses. As a result of these combined factors, the City estimates that less than 4,300 acres of the undeveloped land within its 2020 urban growth boundary that drains to 1st, 2nd, and 3rd order streams is suitable to consider volume control via infiltration.

The City is interested in testing infiltration in suitable locations and in evaluating alternative means for volume control. Accordingly, the City's stormwater engineers will review available and emerging information about the qualitative and quantitative volume control benefits of BMPs such as: evaporation from wet detention basins, biofiltration, evapotranspiration, outlet modifications to extend detention, and pond design modifications that create infiltration/filtration shelves. If suitable BMP alternatives and appropriate locations are identified, the City will begin constructing them and evaluate their performance and public acceptance.

BMP NO. 5d-3: VOLUME CONTROL – WELLHEAD PROTECTION COORDINATION

The Rochester Public Works Department will collaborate with Rochester Public Utilities (RPU) to protect the City's drinking water resources by implementing the stormwater management land use BMPs outlined in RPU's January 2007 Wellhead and Source Water Protection Plan (WHP Plan). Specifically, the WHP Plan identifies the following actions:

1. Develop collaborative educational programs with the Rochester Urbanizing Area MS4 Work Group.
2. Further develop the City's Illicit Discharge Detection and Elimination program within the DWSMAs.
3. Evaluate existing and planned stormwater control systems within DWSMAs and determine whether they have the potential to negatively impact the associated water supply wells and identify areas that have the best potential for installing stormwater infiltration practices, following MDH guidance for infiltration in karst areas.

4. Implement good housekeeping measures.

Additionally, when developments are proposed, stormwater engineers will utilize the MDH flow chart for "Evaluating Proposed Storm Water Infiltration Projects in Vulnerable Wellhead Protection Areas" to determine if infiltration is appropriate in the proposed setting.

BMP No. 5d-4: Volume Control - Public Works Department Policy and Procedure Development

As the City of Rochester identifies alternative means to manage increased storm water volumes that are protective of its drinking water aquifers, technically feasible, cost-effective to construct and maintain, and publicly acceptable (see BMP No. 5d-2), the City will add them to their engineering standards, detail sheets, grading plan checklists and other appropriate resources and educate the appropriate target audiences about their use.

The City will also develop a standardized procedure for staff use of the PondNet model developed for the Nondegradation Loading Assessment, or other suitable models, as a means to evaluate future potential development impacts on surface water wetlands and groundwater fed wetlands and the suitability of mitigation measures proposed to protect them.

B5. Summary and Determination

When a permittee proposes an expanded discharge from a point or nonpoint source, such as certain stormwater discharges resulting from urban growth that increase pollutant loadings, the nondegradation rules for all waters requires the MPCA to determine whether additional control measures can reasonably be taken to minimize the impact of the discharge on the receiving water, beyond the minimum treatment measures needed to meet water quality standards and maintain all existing beneficial uses in the receiving waters.

In making the determination as to additional control measures, the MPCA must "consider the importance of economic and social impacts of the project, the impact of the discharge on the quality of the receiving water, the characteristics of the receiving water, the cumulative impacts of all new or expanded discharges on the receiving water, the costs of additional treatment beyond what is required in subpart 3, and other matters as shall be brought to the agency's attention." In this Nondegradation Review, the City of Rochester has shown that it satisfies the nondegradation rules. Specifically, sufficient treatment has been provided throughout the City so that TP and TSS loads for present and likely future development conditions are less than or equal to 1988 levels. Although stormwater volume increased, the City contends that this alone does not trigger further nondegradation review or a need for controls since the pollutant loadings did not increase so as to create an "expanded discharge" under the nondegradation rules. Regardless, the City has presented and prepared four BMPs to modify its SWPPP that discuss the City's current and future volume control initiatives. Therefore, the City requests a determination by the MPCA that the City's 2006 – 2011 SWPPP and the proposed SWPPP modifications are reasonable control measures and that no other control measures are warranted.

The nondegradation rules for ORVWs state that no person may cause or allow an expanded discharge of other waste unless there is not a prudent and feasible alternative to the discharge. There are six calcareous fens located within the Project Area that, as restricted discharge waters, are ORVWs. Based on the Loading Assessment results, the City of Rochester concludes that the fen management BMPs that have been implemented are successful at maintaining TP, TSS and volume to the levels present as of the dates of designation, or Baseline conditions. In particular, the volume control mechanisms have been utilized to sustain groundwater hydrology supporting the fens. Therefore, the City requests a determination by the MPCA that it is meeting nondegradation requirements as they apply to the calcareous fens.

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Appendix A – Land Use Maps

Northwest Territory
Kings Run
Hadley Valley
Silver Creek
Cascade Creek
Drains to Silver Creek
Mayo Run
Zumbro River
Bear Creek
Willow Creek
Drains to South Fork Zumbro River
Root River

Figure A-1

City of Rochester Baseline (1988) Condition Land Use

Phase II Nondegradation Loading Assessment

8

0.5 0 0.5 1 Miles

Bonestroo

Legend

- Drainage District Boundary
- Project Area

Land Use Categories

- Row Crop Agriculture
- Very Low Density Residential
- Low Density Residential
- Medium Density Residential
- High Density Residential
- Commercial/Industrial
- Institutional
- Open Space
- Golf Course
- Pits and Quarries
- Right-of-Way
- Water

ROCHESTER MINNESOTA

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Northwest Territory
Kings Run
Hadley Valley
KR-7
KR-6
SR-2
KR-3
Cascade Creek
Silver Creek
Drains to Silver Creek
Mayo Run
Zumbro River
Bear Creek
Willow Creek
WR-4
WR-6A
Drains to South Fork Zumbro River
Root River

Figure A-2

City of Rochester Present (2005) Condition Land Use

Phase II Nondegradation Loading Assessment

0.5 0 0.5 1 Miles

Legend

- Drainage District Boundary
- Project Area

Land Use Categories

- Row Crop Agriculture
- Very Low Density Residential
- Low Density Residential
- Medium Density Residential
- High Density Residential
- Commercial/Industrial
- Institutional
- Open Space
- Golf Course
- Pits and Quarries
- Right-of-Way
- Water

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Northwest Territory
Kings Run
Hadley Valley
Silver Creek
Cascade Creek
Mayo Run
Zumbro River
Bear Creek
Willow Creek
Root River
KR-7
KR-6
KR-3
SR-2
WR-4
WR-6A
Drains to Silver Creek
Drains to South Fork Zumbro River

Figure A-3

City of Rochester 2020 Condition Land Use

Phase II Nondegradation Loading Assessment

0.5 0 0.5 1 Miles

Legend

- Drainage District Boundary
- Project Area

Land Use Categories

- Row Crop Agriculture
- Very Low Density Residential
- Low Density Residential
- Medium Density Residential
- High Density Residential
- Commercial/Industrial
- Institutional
- Open Space
- Golf Course
- Pits and Quarries
- Right-of-Way
- Water

Bonestroo

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Appendix B – Pond Data

Pond Tabulation by Drainage District, Condition, and Pond Category

Drainage District	Condition	No. of City Ponds in each drainage district in PondNet[1]					not modeled[2]		database check[2]		flow-thru ponds[3] (no trmt)	nwi[4]	
		storm ponds			other							storm	other
		dry	wet	FCRs	ponds	total	storm	other	storm	other		pond	pond
Root River	Baseline					0							
	Present	1	0			1			1	0			
	2020					0							
Willow Creek	Baseline	1	1		2	4							
	Present	9	47	2	4	62	1	29	63	35		5	1
	2020		2			2							
Bear Creek	Baseline					0							
	Present		14			14		4	16	4			
	2020		2			2							
Mayo Run	Baseline				1	1							
	Present	2	14			16		6	16	7		2	
	2020					0							
Silver Creek	Baseline				2	2							
	Present		9	1	1	11		3	10	6		1	2
	2020					0							
Hadley Valley	Baseline				4	4							
	Present		8		1	9		2	10	7			1
	2020		2			2							
Northwest Territory	Baseline				1	1							
	Present		5			5		1	5	2			
	2020					0							
Kings Run	Baseline	1			3	4							
	Present	12	55			67		17	72	20		3	1
	2020	1	3			4							
Cascade Creek	Baseline		1		3	4					2		
	Present	8	44	3	4	59		10	60	17	3	3	
	2020		4			4							
Zumbro River	Baseline	3	1		3	7					1		
	Present	15	34			49		27	53	30			1
	2020					0							
TOTAL	Baseline	5	3	0	19	27					3		
	Present	47	230	6	10	293	1	99	306	128	3	20	
	2020	1	13	0	0	14							
No. of Detention Ponds per category:		53	246	6	29	334							
Total No. of Wet Detention Ponds (excl. dry ponds & incl. FCRs & other ponds):						281							

Notes:

[1] Some single-celled ponds in the data bases are paired with other single-celled ponds to created multi-celled pond systems in PondNet. These values align with the data base counts.

[2] The columns "not modeled" and "data base check" were utilized to ascertain that all ponds were being accounted for in the data bases.

[3] Some ponds are in the City's data base, and have information on surface area and volume, but were not modeled in the Nondegradation Loading Assessment due to a DNR Protected Water passing through it.

[4] These two columns account for any ponds in either data base that overlapped the National Wetland Inventory's delineated areas of wetlands.
There are 4 unlabeled ponds included in the loading assessment located within the Cascade Creek Drainage District. Two of which could likely be added to the storm pond data base,
and the other two could be added to the other pond data base. The two unlabeled, "other ponds" were not modeled for treatment, however, because a DNR protected water passes through them.

ROOT RIVER POND DATA

Watershed ID	1988		2005		2020		Additional Information		
	Pond Surface Area (ac)	Pond Volume (ac-ft)	Pond Surface Area (ac)	Pond Volume (ac-ft)	Pond Surface Area (ac)	Pond Volume (ac-ft)	Pond ID	Year Built	Notes
rr-a1.1	0.00	0.00	0.03	0.00	0.03	0.00	318	2000	dry pond/flow-through
rr-a1.2	0.00	0.00	0.00	0.00	0.00	0.00	no pond		

WILLOW CREEK POND DATA

Watershed ID	1988		2005		2020		Additional Information			
	Pond Surface Area (ac)	Pond Volume (ac-ft)	Pond Surface Area (ac)	Pond Volume (ac-ft)	Pond Surface Area (ac)	Pond Volume (ac-ft)	Pond ID	Year Built	Cells	Notes
wc-a1.1(C)	0.00	0.00	0.00	0.00	0.00	0.00	no pond			
wc-a1.10a	36.00	314.00	36.00	314.00	36.00	314.00	21	1990	1	WR-4
wc-a1.10a(C1)	0.00	0.00	0.00	0.00	0.00	0.00	no pond			
wc-a1.10a(C2)	0.00	0.00	0.00	0.00	0.00	0.00	no pond			
wc-a1.10b	0.00	0.00	0.00	0.00	0.00	0.00	no pond			
wc-a1.2(C)	0.00	0.00	0.00	0.00	0.00	0.00	no pond			
wc-a1.3(C)	0.00	0.00	0.00	0.00	0.00	0.00	no pond			
wc-a1.4(C)	0.00	0.00	0.00	0.00	0.00	0.00	no pond			
wc-a1.5(C)	0.00	0.00	0.00	0.00	0.00	0.00	no pond			
wc-a1.6(C)	0.00	0.00	0.00	0.00	0.00	0.00	no pond			
wc-a1.7(C)	0.00	0.00	0.00	0.00	0.00	0.00	no pond			
wc-a1.8(C)	0.00	0.00	0.00	0.00	0.00	0.00	no pond			
wc-a1.9(C)	0.00	0.00	0.00	0.00	0.00	0.00	no pond			
wc-a1.9a	0.00	0.00	0.00	0.00	0.00	0.00	no pond			
wc-a1.9b	0.00	0.00	0.00	0.00	0.00	0.00	no pond			
wc-a2.1	0.00	0.00	0.00	0.00	0.00	0.00	no pond			
wc-a2.10a	0.00	0.00	0.00	0.00	0.00	0.00	no pond			
wc-a2.10b	0.13	0.00	0.13	0.00	0.13	0.00	229	1981	1	dry/flow-through
wc-a2.2	0.00	0.00	0.00	0.00	0.00	0.00	no pond			
wc-a2.4	0.00	0.00	0.00	0.00	0.00	0.00	no pond			
wc-a2.6	0.00	0.00	0.00	0.00	0.00	0.00	no pond			
wc-a2.7	0.00	0.00	0.00	0.00	0.00	0.00	no pond			
wc-a2.8	0.00	0.00	0.00	0.00	0.00	0.00	no pond			
wc-a2.9a	0.00	0.00	0.89	2.70	0.89	2.70	150	2002	1	
wc-a2.9b	0.00	0.00	0.07	0.28	0.07	0.28	150	btwn 88 & 05	1	
wc-a2.9c	0.00	0.00	0.00	0.00	0.00	0.00	no pond			
wc-a3.10	0.00	0.00	0.00	0.00	0.00	0.00	no pond			
wc-a3.11	0.00	0.00	0.00	0.00	0.00	0.00	no pond			
wc-a3.12a	0.00	0.00	0.00	0.00	0.00	0.00	no pond			
wc-a3.12b	0.00	0.00	0.20	0.37	0.20	0.37	189	2003	1	
wc-a3.13	0.00	0.00	0.00	0.00	0.00	0.00	no pond			
wc-a3.14a	0.00	0.00	0.00	0.00	0.00	0.00	no pond			
wc-a3.14b	0.20	0.80	0.20	0.80	0.20	0.80	37	88 or before	1	
wc-a3.14c	0.00	0.00	3.65	15.32	3.65	15.32	299*	2005	1	
wc-a3.15	0.00	0.00	0.00	0.00	0.00	0.00	no pond			
wc-a3.2	0.00	0.00	0.00	0.00	0.00	0.00	no pond			
wc-a3.5a	0.00	0.00	0.00	0.00	0.00	0.00	no pond			
wc-a3.5b	0.00	0.00	0.04	0.08	0.04	0.08	26	1998	1	
wc-a3.6a	0.00	0.00	0.00	0.00	0.00	0.00	no pond			
wc-a3.6b	0.00	0.00	0.23	0.80	0.23	0.80	213	2005	1	
wc-a3.6c	0.00	0.00	0.04	0.12	0.04	0.12	211	2004	1	
wc-a3.8	0.00	0.00	0.00	0.00	0.00	0.00	no pond			
wc-a4.1	0.00	0.00	0.00	0.00	0.00	0.00	no pond			
wc-a4.10	0.00	0.00	0.00	0.00	0.00	0.00	no pond			
wc-a4.11	0.00	0.00	0.00	0.00	0.00	0.00	no pond			
wc-a4.12a	0.00	0.00	0.00	0.00	0.00	0.00	no pond			
wc-a4.12b	0.00	0.00	0.11	0.10	0.11	0.10	209	1994	1	
wc-a4.12c	0.00	0.00	0.43	2.34	0.43	2.34	79	1997	1	
wc-a4.12d	0.00	0.00	0.21	0.40	0.21	0.40	28	2000	1	
wc-a4.12e	0.00	0.00	0.14	0.17	0.14	0.17	212	2003	1	
wc-a4.13(C)	0.00	0.00	0.00	0.00	0.00	0.00	no pond			
wc-a4.14a	71.00	630.40	71.00	630.40	71.00	630.40	29	1989	1	WR-6A
wc-a4.14a(C)	0.00	0.00	0.00	0.00	0.00	0.00	no pond			
wc-a4.14b	0.00	0.00	0.06	0.08	0.06	0.08	204	2001	1	
wc-a4.2a	0.00	0.00	0.00	0.00	0.00	0.00	no pond			
wc-a4.2b	0.00	0.00	0.75	0.00	0.75	0.00	317	2000	1	dry/flow-through
wc-a4.3a	0.00	0.00	0.00	0.00	0.00	0.00	no pond			
wc-a4.3b	0.00	0.00	0.00	0.00	0.00	0.00	no pond			
wc-a4.3c	0.00	0.00	0.95	0.00	0.95	0.00	320	2005	1	dry/flow-through
wc-a4.3d	0.00	0.00	0.39	0.00	0.39	0.00	319	2005	1	dry/flow-through

WILLOW CREEK POND DATA

WILLOW CREEK POND DATA

Watershed ID	1988		2005		2020		Additional Information			
	Pond Surface Area (ac)	Pond Volume (ac-ft)	Pond Surface Area (ac)	Pond Volume (ac-ft)	Pond Surface Area (ac)	Pond Volume (ac-ft)	Pond ID	Year Built	Cells	Notes
wc-a4.3e	0.00	0.00	0.00	0.00	0.00	0.00	no pond			
wc-a4.3f	0.00	0.00	0.00	0.00	0.00	0.00	no pond			
wc-a4.5a	0.00	0.00	0.00	0.00	0.00	0.00	no pond			
wc-a4.5a(C)	0.00	0.00	0.00	0.00	0.00	0.00	no pond			
wc-a4.5b	0.00	0.00	0.07	0.00	0.07	0.00	322	2005	1	dry/flow-through
wc-a4.5c	0.00	0.00	0.27	0.00	0.27	0.00	321	2005	1	dry/flow-through
wc-a4.6a	0.00	0.00	0.00	0.00	0.00	0.00	no pond			
wc-a4.6b	0.00	0.00	0.38	1.52	0.38	1.52	7	btwn 88 & 05	1	
wc-a4.7	0.00	0.00	0.00	0.00	0.00	0.00	no pond			
wc-a4.7(C)	0.00	0.00	0.00	0.00	0.00	0.00	no pond			
wc-a4.8a	0.00	0.00	0.00	0.00	0.00	0.00	no pond			
wc-a4.8b	0.00	0.00	0.11	0.19	0.11	0.19	51	1999	1	
wc-a4.8c	0.00	0.00	0.08	0.14	0.08	0.14	52	1999	1	
wc-a4.9	0.00	0.00	0.53	1.13	0.53	1.13	43	1992	1	
wc-a5.1	0.00	0.00	0.00	0.00	0.00	0.00	no pond			
wc-a5.10	0.00	0.00	0.00	0.00	0.00	0.00	no pond			
wc-a5.11a	0.00	0.00	0.00	0.00	0.00	0.00	no pond			
wc-a5.11b	3.88	15.52	3.88	15.52	3.88	15.52	39	88 or before	1	
wc-a5.11c	0.00	0.00	0.65	2.49	0.65	2.49	301	2005	1	
wc-a5.12a	0.00	0.00	0.00	0.00	0.00	0.00	no pond			
wc-a5.12b	0.00	0.00	0.34	0.00	0.34	0.00	138	1993	1	dry/flow-through
wc-a5.2	0.00	0.00	0.00	0.00	0.00	0.00	no pond			
wc-a5.3a	0.00	0.00	0.00	0.00	0.00	0.00	no pond			
wc-a5.3b	0.00	0.00	0.63	2.23	0.63	2.23	93	1999	1	
wc-a5.4	0.00	0.00	0.00	0.00	0.00	0.00	no pond			
wc-a5.5a	0.00	0.00	0.00	0.00	0.00	0.00	no pond			
wc-a5.5b	0.00	0.00	0.53	1.60	0.53	1.60	94	1999	1	
wc-a5.5c	0.00	0.00	0.33	1.52	0.33	1.52	253	2004	1	
wc-a5.6a	0.00	0.00	0.00	0.00	0.00	0.00	no pond			
wc-a5.6b	0.00	0.00	0.00	0.00	0.00	0.00	no pond			
wc-a5.7a	0.00	0.00	0.94	3.17	0.94	3.17	112	1998	1	
wc-a5.7b	0.00	0.00	0.00	0.00	0.00	0.00	no pond			
wc-a5.7c	0.00	0.00	0.04	0.00	0.04	0.00	61	1995	1	dry/flow-through
wc-a5.8a	0.00	0.00	0.00	0.00	0.00	0.00	no pond			
wc-a5.8b	0.00	0.00	1.79	7.16	1.79	7.16	38	btwn 88 & 05	1	
wc-a5.8c	0.00	0.00	0.11	0.26	0.11	0.26	232	2005	1	
wc-a5.8d	0.00	0.00	0.46	1.50	0.46	1.50	170	2004	1	
wc-a5.9a	0.00	0.00	0.00	0.00	0.00	0.00	no pond			
wc-a5.9b	0.00	0.00	2.64	13.75	2.64	13.75	256 & 257	2005	2	*cell 1: 0.43, 1.64; cell 2: 2.21, 12.11; two storm ponds in the same drainage area; treating them as a two cell pond, therefore, specific cell data
wc-a6.1	0.00	0.00	0.66	3.76	0.66	3.76	180	2004	1	
wc-a6.10a	0.00	0.00	0.00	0.00	0.00	0.00	no pond			
wc-a6.10b	0.00	0.00	0.14	0.52	0.14	0.52	192	2004	1	
wc-a6.11	0.00	0.00	8.91	178.20	8.91	178.20	10	1999	1	
wc-a6.12	0.00	0.00	0.33	1.98	0.33	1.98	345	2005	1	
wc-a6.13a	0.00	0.00	0.47	1.32	0.47	1.32	66	1996	1	
wc-a6.13b	0.00	0.00	5.62	30.00	5.62	30.00	23	1999	3	**cell 1: 1.243, 6.636; cell 2: 1.886, 10.069; cell 3: 2.490, 13.294
wc-a6.13c	0.00	0.00	0.00	0.00	0.00	0.00	no pond			
wc-a6.13d	0.00	0.00	0.00	0.00	0.00	0.00	no pond			
wc-a6.14a	0.00	0.00	0.00	0.00	0.00	0.00	no pond			
wc-a6.14b	0.00	0.00	5.45	21.80	5.45	21.80	35	btwn 88 & 05	1	
wc-a6.14c	0.00	0.00	0.97	2.87	0.97	2.87	60	1995	1	
wc-a6.14d	0.00	0.00	0.03	0.00	0.03	0.00	230	2003	1	dry/flow-through
wc-a6.15	0.00	0.00	0.00	0.00	0.00	0.00	no pond			
wc-a6.2a	0.00	0.00	0.00	0.00	1.01	6.14	312	2006	1	
wc-a6.2b	0.00	0.00	0.00	0.00	0.55	1.45	313	2006	1	
wc-a6.2c	0.00	0.00	0.23	0.59	0.23	0.59	188	2004	1	
wc-a6.2d	0.00	0.00	0.28	1.24	0.28	1.24	187	2004	1	
wc-a6.3a	0.00	0.00	0.00	0.00	0.00	0.00	no pond			
wc-a6.3b	0.00	0.00	1.67	12.73	1.67	12.73	184	2004	1	
wc-a6.3c	0.00	0.00	1.98	15.87	1.98	15.87	183	2004	1	
wc-a6.3d	0.00	0.00	0.72	3.50	0.72	3.50	178	2004	1	

WILLOW CREEK POND DATA

Watershed ID	1988		2005		2020		Additional Information			
	Pond Surface Area (ac)	Pond Volume (ac-ft)	Pond Surface Area (ac)	Pond Volume (ac-ft)	Pond Surface Area (ac)	Pond Volume (ac-ft)	Pond ID	Year Built	Cells	Notes
wc-a6.3e	0.00	0.00	0.54	2.89	0.54	2.89	179	2004	1	
wc-a6.3f	0.00	0.00	0.65	3.41	0.65	3.41	181	2004	1	
wc-a6.3g	0.00	0.00	0.48	2.21	0.48	2.21	182	2004	1	
wc-a6.4a	0.00	0.00	4.72	18.88	4.72	18.88	231	2004	2	*cell 1: 2.55, 10.20; cell 2: 2.17, 8.68 [There is a third "cell" in this drg basin. It is storm pond 258. It has minimal drg to it, and therefore is not included
wc-a6.4b	0.00	0.00	0.48	1.82	0.48	1.82	169	2004	1	
wc-a6.5a	0.00	0.00	5.19	42.23	5.19	42.23	186	2004	1	
wc-a6.5b	0.00	0.00	4.51	22.22	4.51	22.22	185	2004	1	
wc-a6.5c	0.00	0.00	0.00	0.00	0.00	0.00	no pond			
wc-a6.6a	0.00	0.00	0.00	0.00	0.00	0.00	no pond			
wc-a6.6b	0.00	0.00	0.26	0.69	0.26	0.69	171	2004	2	**cell 1: 0.1, 0.265; cell 2: 0.16, 0.425
wc-a6.7	0.00	0.00	0.00	0.00	0.00	0.00	no pond			
wc-a6.8	0.00	0.00	1.15	4.62	1.15	4.62	24	2001	1	
wc-a6.9a	0.00	0.00	0.00	0.00	0.00	0.00	no pond			
wc-a6.9b	0.00	0.00	0.06	0.14	0.06	0.14	191	2004	1	
wc-a6.9c	0.00	0.00	0.66	3.14	0.66	3.14	113	2000	2	*cell 1: 0.12, 0.14; cell 2: 0.54, 3.00
wc-a6.9d	0.00	0.00	0.00	0.00	0.00	0.00	no pond			
wc-a6.9e	0.00	0.00	0.21	0.82	0.21	0.82	297	2005	1	
wc-a6.9f	0.00	0.00	0.01	0.00	0.01	0.00	35	1991	1	dry/flow-through
wc-a6.9g	0.60	2.05	0.60	2.05	0.60	2.05	8	1988	1	

BEAR CREEK POND DATA

Watershed ID	1988		2005		2020		Additional Information			
	Pond Surface Area (ac)	Pond Volume (ac-ft)	Pond Surface Area (ac)	Pond Volume (ac-ft)	Pond Surface Area (ac)	Pond Volume (ac-ft)	Pond ID	Year Built	Cells	Notes
bc-a1.11	0.00	0.00	0.00	0.00	0.00	0.00	no pond			
bc-a1.12	0.00	0.00	0.00	0.00	0.00	0.00	no pond			
bc-a1.15	0.00	0.00	0.00	0.00	0.00	0.00	no pond			
bc-a1.16	0.00	0.00	0.00	0.00	0.00	0.00	no pond			
bc-a1.17	0.00	0.00	0.00	0.00	0.00	0.00	no pond			
bc-a1.18	0.00	0.00	0.00	0.00	0.00	0.00	no pond			
bc-a1.19	0.00	0.00	0.00	0.00	0.00	0.00	no pond			
bc-a1.20	0.00	0.00	0.00	0.00	0.00	0.00	no pond			
bc-a1.21a	0.00	0.00	0.36	1.15	0.36	1.15	176	2004	1	
bc-a1.21b	0.00	0.00	0.35	0.94	0.35	0.94	177	2004	1	
bc-a1.22a	0.00	0.00	0.00	0.00	0.00	0.00	no pond			
bc-a1.22b	0.00	0.00	0.00	0.00	0.12	0.25	311	2006	1	
bc-a1.23	0.00	0.00	0.00	0.00	0.00	0.00	no pond			
bc-a1.24a	0.00	0.00	1.99	9.87	1.99	9.87	59	2000	3	**cell 1: 0.334, 1.656; cell 2: 0.637, 3.158; cell 3: 1.02, 5.056
bc-a1.24b	0.00	0.00	1.04	4.20	1.04	4.20	174	2003	1	
bc-a1.24c	0.00	0.00	0.40	1.58	0.40	1.58	175	2003	1	
bc-a1.24d	0.00	0.00	0.26	0.73	0.26	0.73	107	1999	1	
bc-a1.26	0.00	0.00	0.00	0.00	0.00	0.00	no pond			
bc-a2.10	0.00	0.00	0.00	0.00	0.00	0.00	no pond			
bc-a2.11	0.00	0.00	0.00	0.00	0.00	0.00	no pond			
bc-a2.12	0.00	0.00	0.00	0.00	0.00	0.00	no pond			
bc-a2.13	0.00	0.00	0.00	0.00	0.00	0.00	no pond			
bc-a2.14a	0.00	0.00	0.00	0.00	0.19	0.73	338	2006	1	
bc-a2.14b	0.00	0.00	1.96	8.15	1.96	8.15	222	2005	3	**cell 1: .301, 1.255; cell 2: .306, 1.275; cell 3: 1.348, 5.620
bc-a2.15	0.00	0.00	0.00	0.00	0.00	0.00	no pond			
bc-a2.16a	0.00	0.00	0.00	0.00	0.00	0.00	no pond			
bc-a2.16b	0.00	0.00	0.00	0.00	0.00	0.00	no pond			
bc-a2.16c	0.00	0.00	0.80	1.80	0.80	1.80	155	2002	2	**cell 1: 0.381, 0.857; cell 2: 0.419, 0.943
bc-a2.16d	0.00	0.00	0.19	0.46	0.19	0.46	22 & 116	2000	2	runoff will be split 50/50 btwn two ponds; cell 1: 0.11, 0.32; cell 2: 0.08, 0.14
bc-a2.17	0.00	0.00	0.00	0.00	0.00	0.00	no pond			
bc-a2.18	0.00	0.00	0.00	0.00	0.00	0.00	no pond			
bc-a2.19	0.00	0.00	0.00	0.00	0.00	0.00	no pond			
bc-a2.20	0.00	0.00	0.00	0.00	0.00	0.00	no pond			
bc-a2.6a	0.00	0.00	0.00	0.00	0.00	0.00	no pond			
bc-a2.6b	0.00	0.00	0.33	0.78	0.33	0.78	75	1997	1	
bc-a2.6c	0.00	0.00	0.42	1.94	0.42	1.94	125	2000	1	
bc-a2.7a	0.00	0.00	1.05	4.30	1.05	4.30	324	2005	3	**cell 1: .223, 0.915; cell 2: 0.229, 0.94; cell 3: 0.596, 2.445
bc-a2.7b	0.00	0.00	0.00	0.00	0.00	0.00	no pond			
bc-a2.7c	0.00	0.00	0.42	1.43	0.42	1.43	214	2003	1	
bc-a2.8	0.00	0.00	0.00	0.00	0.00	0.00	no pond			
bc-a2.9	0.00	0.00	0.00	0.00	0.00	0.00	no pond			

BEAR CREEK POND DATA

MAYO RUN POND DATA

Watershed ID	1988		2005		2020		Additional Information			
	Pond Surface Area (ac)	Pond Volume (ac-ft)	Pond Surface Area (ac)	Pond Volume (ac-ft)	Pond Surface Area (ac)	Pond Volume (ac-ft)	Pond ID	Year Built	Cells	Notes
mr-a1.1a	0.00	0.00	6.86	17.44	6.86	17.44	201	1995	3	**cell 1: 1.013, 2.576; cell 2: 1.943, 4.940; cell 3: 3.903, 9.923
mr-a1.1b	0.00	0.00	0.71	1.45	0.71	1.45	173	2003	2	**cell 1: 0.228, 0.468; cell 2: 0.479, 0.982
mr-a1.1c	0.00	0.00	0.33	1.32	0.33	1.32	8	88 or before	1	
mr-a1.1d	0.00	0.00	0.92	3.02	0.92	3.02	294	2005	2	**cell 1: 0.172, 0.247; cell 2: 0.748, 1.073
mr-a1.1e	0.00	0.00	0.90	5.52	0.90	5.52	323	2005	1	
mr-a1.1f	0.00	0.00	0.73	2.78	0.73	2.78	293	2005	2	**cell 1: 0.254, 0.967; cell 2: 0.475, 1.813
mr-a1.1g	0.00	0.00	0.97	4.60	0.97	4.60	221	2004	1	
mr-a1.1h	0.00	0.00	0.43	2.96	0.43	2.96	149	2003	1	
mr-a1.1i	0.00	0.00	0.04	0.00	0.04	0.00	136	1995	1	dry/flow-through
mr-a1.2a	0.00	0.00	12.85	31.32	12.85	31.32	215	1999	7	ponds 215 (10.88 S.A., 28.12 Vol, 5 cells): **cell 1: 0.295, 0.85; cell 2: 0.662, 1.906; cell 3: 0.958, 2.759; cell 4: 3.101, 8.93; cell 5: 5.86, 1
mr-a1.2b	0.00	0.00	0.69	1.38	0.69	1.38	217	1999	2	**cell 1: 0.29, 0.58; cell 2: 0.4, 0.8 216 (1.97, 3.2, 2) in same watershed: **cell 1: 0.771, 1.252; cell 2: 1.2, 1.948
mr-a1.2c	0.00	0.00	0.20	0.54	0.20	0.54	152	2002	1	
mr-a1.3a	0.00	0.00	0.00	0.00	0.00	0.00	no pond			
mr-a1.3b	0.00	0.00	6.62	24.08	6.62	24.08	218	1999	2	**cell 1: 2.562, 9.316; cell 2: 4.06, 14.764
mr-a1.3c	0.00	0.00	0.04	0.00	0.04	0.00	220	2000	1	dry/flow-through
mr-a1.3d	0.00	0.00	0.32	0.77	0.32	0.77	11	2000	1	
mr-a1.3e	0.00	0.00	0.07	0.14	0.07	0.14	219	2000	1	
mr-a1.4	0.00	0.00	0.00	0.00	0.00	0.00	no pond			

MAYO RUN POND DATA

SILVER CREEK POND DATA

Watershed ID	1988		2005		2020		Additional Information			
	Pond Surface Area (ac)	Pond Volume (ac-ft)	Pond Surface Area (ac)	Pond Volume (ac-ft)	Pond Surface Area (ac)	Pond Volume (ac-ft)	Pond ID	Year Built	Cells	Notes
sc-a1.10	0.00	0.00	0.00	0.00	0.00	0.00	no pond			
sc-a1.11a	0.00	0.00	0.00	0.00	0.00	0.00	no pond			
sc-a1.11b	0.00	0.00	0.74	5.63	0.74	5.63	90	2000	2	**cell 1: 0.112, 0.849; cell 2: 0.631, 4.781
sc-a1.12a	0.00	0.00	0.00	0.00	0.00	0.00	no pond			
sc-a1.12b	1.40	5.60	1.40	5.60	1.40	5.60	53	88 or before	1	
sc-a1.12c	0.00	0.00	0.96	2.95	0.96	2.95	101	2000	1	
sc-a1.12d	0.20	0.80	0.20	0.80	0.20	0.80	49	88 or before	1	
sc-a1.12e	0.00	0.00	0.05	0.09	0.05	0.09	102	1997	1	
sc-a1.12f	0.00	0.00	0.07	0.13	0.07	0.13	71	1997	1	
sc-a1.12g	0.00	0.00	2.00	6.31	2.00	6.31	234	1998	3	***cell 1: 0.5, 1.5775; cell 2: 0.6, 1.893; cell 3: 0.9, 2.8395
sc-a1.13	0.00	0.00	0.00	0.00	0.00	0.00	no pond			
sc-a1.2	0.00	0.00	106.24	920.82	106.24	920.82	246	1992	1	SR-2
sc-a1.2(C)	0.00	0.00	0.00	0.00	0.00	0.00	no pond			
sc-a1.3a	0.00	0.00	0.00	0.00	0.00	0.00	no pond			
sc-a1.5a	0.00	0.00	0.00	0.00	0.00	0.00	no pond			
sc-a1.5c	0.00	0.00	0.26	1.18	0.26	1.18	133	2001	1	
sc-a1.6a	0.00	0.00	0.00	0.00	0.00	0.00	no pond			
sc-a1.6b	0.00	0.00	0.00	0.00	0.00	0.00	no pond			
sc-a1.6c	0.00	0.00	1.28	6.02	1.28	6.02	269	2005	2	**cell 1: 0.501, 2.355; cell 2: .779, 3.665
sc-a1.6d	0.00	0.00	1.30	4.70	1.30	4.70	290	2005	2	**cell 1: 0.745, 2.695; cell 2: 0.555, 2.005
sc-a1.6e	0.00	0.00	0.59	3.28	0.59	3.28	132	2002	2	**cell 1: 0.109, 0.606; cell 2: 0.481, 2.674
sc-a1.8a	0.00	0.00	0.00	0.00	0.00	0.00	no pond			
sc-a1.8b	0.00	0.00	0.05	0.20	0.05	0.20	149	btwn 88 & 05	1	
sc-a1.9a	0.00	0.00	0.00	0.00	0.00	0.00	no pond			
sc-a1.9b	0.00	0.00	0.00	0.00	0.00	0.00	no pond			

SILVER CREEK POND DATA

HADLEY VALLEY POND DATA

Watershed ID	1988		2005		2020		Additional Information			
	Pond Surface Area (ac)	Pond Volume (ac-ft)	Pond Surface Area (ac)	Pond Volume (ac-ft)	Pond Surface Area (ac)	Pond Volume (ac-ft)	Pond ID	Year Built	Cells	Notes
hv-a1.7c	0.00	0.00	0.32	0.66	0.32	0.66	236	1998	1	
hv-a1.7d	0.00	0.00	0.32	0.66	0.32	0.66	235	1998	1	
hv-a1.7e	0.00	0.00	0.03	0.05	0.03	0.05	85	1998	1	
hv-a1.8f	0.00	0.00	0.39	1.54	0.39	1.54	110	1999	1	
hv-a1.11b	0.00	0.00	0.78	2.98	0.78	2.98	172	2003	2	*cell 1: 0.22, 0.62; cell 2: 0.56, 2.36
hv-a1.7f	0.00	0.00	0.33	0.84	0.33	0.84	166	2003	1	
hv-a1.15b	0.00	0.00	0.37	2.06	0.37	2.06	280	2005	1	
hv-a1.8d	0.00	0.00	0.06	0.07	0.06	0.07	289	2005	1	
hv-a1.8a	0.00	0.00	0.00	0.00	0.96	2.27	288	2006	2	**cell 1: 0.422, 0.996; cell 2: 0.540, 1.274
hv-a1.9b	0.00	0.00	0.00	0.00	0.51	1.19	326	2006	1	
hv-a1.4b	0.20	0.80	0.20	0.80	0.20	0.80	147	88 or before	n/a	assumed 4ft mean depth
hv-a1.4c	0.20	0.80	0.20	0.80	0.20	0.80	146	88 or before	n/a	assumed 4ft mean depth
hv-a1.7a	2.65	10.60	2.65	10.60	0.20	0.80	48	88 or before	n/a	assumed 4ft mean depth
hv-a1.8e	0.03	0.12	0.03	0.12	0.20	0.80	84	88 or before	n/a	assumed 4ft mean depth
hv-a1.8c	0.00	0.00	0.08	0.32	0.08	0.32	94	btwn 88 & 05	n/a	assumed 4ft mean depth
hv-a1.11a	0.00	0.00	0.00	0.00	0.00	0.00	no pond			
hv-a1.11c	0.00	0.00	0.00	0.00	0.00	0.00	no pond			
hv-a1.12	0.00	0.00	0.00	0.00	0.00	0.00	no pond			
hv-a1.13	0.00	0.00	0.00	0.00	0.00	0.00	no pond			
hv-a1.14	0.00	0.00	0.00	0.00	0.00	0.00	no pond			
hv-a1.15a	0.00	0.00	0.00	0.00	0.00	0.00	no pond			
hv-a1.4a	0.00	0.00	0.00	0.00	0.00	0.00	no pond			
hv-a1.5	0.00	0.00	0.00	0.00	0.00	0.00	no pond			
hv-a1.6c	0.00	0.00	0.00	0.00	0.00	0.00	no pond			
hv-a1.6d	0.00	0.00	0.00	0.00	0.00	0.00	no pond			
hv-a1.7b	0.00	0.00	0.00	0.00	0.00	0.00	no pond			
hv-a1.8b	0.00	0.00	0.00	0.00	0.00	0.00	no pond			
hv-a1.9a	0.00	0.00	0.00	0.00	0.00	0.00	no pond			

HADLEY VALLEY POND DATA

NORTHWEST TERRITORY POND DATA

Watershed ID	1988		2005		2020		Additional Information			
	Pond Surface Area (ac)	Pond Volume (ac-ft)	Pond Surface Area (ac)	Pond Volume (ac-ft)	Pond Surface Area (ac)	Pond Volume (ac-ft)	Pond ID	Year Built	Cells	Notes
exit 5	0.00	0.00	0.00	0.00	0.00	0.00	no pond			
exit 6	0.00	0.00	0.00	0.00	0.00	0.00	no pond			
nw-a1	0.00	0.00	0.00	0.00	0.00	0.00	no pond			
nw-a2	0.00	0.00	0.00	0.00	0.00	0.00	no pond			
nw-a3	0.40	1.60	0.40	1.60	0.40	1.60	110	88 or before	1	
nw-a4	0.00	0.00	0.00	0.00	0.00	0.00	no pond			
nw-a5.1	0.00	0.00	0.00	0.00	0.00	0.00	no pond			
nw-a5.2	0.00	0.00	2.40	14.70	2.40	14.70	158	2003	1	
nw-a6.1	0.00	0.00	0.00	0.00	0.00	0.00	no pond			
nw-a6.2	0.00	0.00	0.86	4.60	0.86	4.60	273	2005	1	
nw-a6.3	0.00	0.00	0.71	3.39	0.71	3.39	19	2000	2	**cell 1: 0.304, 1.454; cell 2: 0.405, 1.936
nw-a6.4	0.00	0.00	0.13	0.37	0.13	0.37	274	2005	1	
nw-a6.5	0.00	0.00	2.63	12.40	2.63	12.40	325	2004	1	

NORTHWEST TERRITORY POND DATA

KINGS RUN POND DATA

Watershed ID	1988		2005		2020		Additional Information			
	Pond Surface Area (ac)	Pond Volume (ac-ft)	Pond Surface Area (ac)	Pond Volume (ac-ft)	Pond Surface Area (ac)	Pond Volume (ac-ft)	Pond ID	Year Built	Cells	Notes
exit 1	0.00	0.00	0.00	0.00	0.00	0.00	no pond			
exit 2	0.00	0.00	0.00	0.00	0.00	0.00	no pond			
exit 3	0.00	0.00	0.00	0.00	0.00	0.00	no pond			
exit 4	0.00	0.00	0.00	0.00	0.00	0.00	no pond			
exit 7	0.00	0.00	0.00	0.00	0.00	0.00	no pond			
exit 8	0.00	0.00	0.00	0.00	0.00	0.00	no pond			
kr-a1.10a	0.00	0.00	2.05	11.10	2.05	11.10	259	2005	1	
kr-a1.10b	0.00	0.00	0.13	0.32	0.13	0.32	262	2004	1	
kr-a1.10c	0.00	0.00	0.19	0.56	0.19	0.56	261	2004	1	
kr-a1.10d	0.00	0.00	0.10	0.19	0.10	0.19	260	2004	1	
kr-a1.11a	0.00	0.00	3.53	19.31	3.53	19.31	99	1996	4	*cell 1: 0.51, 2.34; cell 2: 0.64, 3.05; cell 3: 1.14, 5.83; cell 4: 1.24, 8.10; cell 3 receives flow from kr-a1.7b
kr-a1.11b	0.50	2.00	0.50	2.00	0.50	2.00	60	88 or before	1	assumes 4ft mean depth
kr-a1.11c	0.34	1.36	0.34	1.36	0.34	1.36	57	88 or before	1	assumes 4ft mean depth
kr-a1.11d	0.00	0.00	0.43	1.16	0.43	1.16	157	2001	2	**cell 1: .139, .375; cell 2: .291, .785
kr-a1.12a	0.00	0.00	2.19	0.00	2.19	0.00	38	1991	1	dry/flow-through
kr-a1.12b	0.00	0.00	0.14	0.39	0.14	0.39	122	2000	1	
kr-a1.13	0.00	0.00	1.31	0.00	1.31	0.00	25	1993	1	dry/flow-through
kr-a1.14	0.00	0.00	0.31	1.18	0.31	1.18	15	2001	1	
kr-a1.15a	0.63	0.00	0.63	0.00	0.63	0.00	3	1987	1	dry/flow-through
kr-a1.15b	0.00	0.00	0.00	0.00	0.00	0.00	no pond			
kr-a1.16a	0.00	0.00	0.00	0.00	0.00	0.00	no pond			
kr-a1.16b	0.00	0.00	0.46	1.15	0.46	1.15	64	1995	1	
kr-a1.16c	0.00	0.00	0.06	0.00	0.06	0.00	84	1993	1	dry/flow-through
kr-a1.17	0.00	0.00	1.50	4.17	1.50	4.17	70	1997	3	**cell 1: .452, 1.258; cell 2: .47, 1.308; cell 3: .576, 1.603
kr-a1.18a	0.00	0.00	0.15	0.26	0.15	0.26	340	2005	1	
kr-a1.18b	0.00	0.00	0.73	0.00	0.73	0.00	12	1998	1	dry/flow-through
kr-a1.18c	0.00	0.00	0.74	3.20	0.74	3.20	115	2000	1	
kr-a1.18d	0.00	0.00	0.71	2.14	0.71	2.14	165	2003	1	
kr-a1.18e	0.00	0.00	0.52	2.20	0.52	2.20	238	2004	1	
kr-a1.18f	0.00	0.00	0.26	0.80	0.26	0.80	239	2004	1	
kr-a1.19a	0.00	0.00	0.00	0.00	0.00	0.00	no pond			
kr-a1.19b	0.00	0.00	0.09	0.00	0.09	0.00	44	1992	1	dry/flow-through
kr-a1.19c	0.00	0.00	0.31	0.27	0.31	0.27	45	1992	1	
kr-a1.19d	0.00	0.00	0.06	0.07	0.06	0.07	92	2001	1	
kr-a1.19e	0.00	0.00	0.60	1.80	0.60	1.80	145	2002	2	**cell 1: .077, .226; cell 2: .536, 1.574
kr-a1.1a	0.00	0.00	0.00	0.00	0.00	0.00	no pond			
kr-a1.1b	0.00	0.00	0.00	0.00	0.00	0.00	no pond			
kr-a1.1c	0.00	0.00	0.00	0.00	0.00	0.00	no pond			
kr-a1.1d	0.00	0.00	0.00	0.00	0.00	0.00	no pond			
kr-a1.1e	0.00	0.00	0.00	0.00	0.00	0.00	no pond			
kr-a1.1f	0.00	0.00	0.00	0.00	0.00	0.00	no pond			
kr-a1.2	0.00	0.00	0.00	0.00	0.00	0.00	no pond			
kr-a1.3a	0.00	0.00	0.00	0.00	0.00	0.00	no pond			
kr-a1.3b	0.00	0.00	0.00	0.00	0.00	0.00	no pond			
kr-a1.4a	0.00	0.00	0.00	0.00	11.40	16.60	306	2006	1	
kr-a1.4b	0.00	0.00	0.00	0.00	0.00	0.00	no pond			
kr-a1.5a	0.00	0.00	0.00	0.00	0.00	0.00	no pond			
kr-a1.5b	0.00	0.00	1.07	2.99	1.07	2.99	237	2003	2	*cell 1: .41, .94; cell 2: .66, 2.05
kr-a1.5c	0.00	0.00	0.94	2.00	0.94	2.00	131	2001	3	**cell 1: .171, .362; cell 2: .291, .616; cell 3: .483, 1.022
kr-a1.6	0.00	0.00	1.28	7.84	1.28	7.84	126	2000	3	*cell 1: 0.1, .07; cell 2: .36, 2.42; cell 3: .82, 5.36
kr-a1.7a	0.00	0.00	1.41	4.15	1.41	4.15	156	2003	3	**cell 1: 0.45, 1.329; cell 2: 0.36, 1.063; cell 3: 0.595, 1.757
kr-a1.7b	0.00	0.00	0.00	0.00	0.00	0.00	no pond			
kr-a1.7c	0.00	0.00	0.36	0.39	0.36	0.39	73	1997	3	*cell 1: .24, .00; cell 2: .01, .01; cell 3: .11, .38
kr-a1.7d	0.00	0.00	0.13	0.00	0.13	0.00	47	1993	1	dry/flow-through
kr-a1.7e	0.00	0.00	0.00	0.00	3.80	5.85	304	2006	1	
kr-a1.7f	0.00	0.00	0.00	0.00	4.10	5.30	305	2006	1	
kr-a1.8a	0.00	0.00	0.00	0.00	0.00	0.00	no pond			
kr-a1.8b	0.00	0.00	0.00	0.00	0.00	0.00	no pond			
kr-a1.8c	0.00	0.00	0.00	0.00	0.00	0.00	no pond			
kr-a1.8d	0.00	0.00	0.73	1.89	0.73	1.89	143	2002	2	**cell 1: .093, .241; cell 2: .637, 1.649
kr-a1.9a	0.00	0.00	0.00	0.00	0.00	0.00	no pond			
kr-a1.9b	0.00	0.00	0.09	0.05	0.09	0.05	72	1998	2	**cell 1: .032, .018; cell 2: .058, .032

KINGS RUN POND DATA

KINGS RUN POND DATA

Watershed ID	1988		2005		2020		Additional Information			
	Pond Surface Area (ac)	Pond Volume (ac-ft)	Pond Surface Area (ac)	Pond Volume (ac-ft)	Pond Surface Area (ac)	Pond Volume (ac-ft)	Pond ID	Year Built	Cells	Notes
kr-a2.10	0.00	0.00	0.00	0.00	0.00	0.00	no pond			
kr-a2.11a	0.00	0.00	0.00	0.00	0.00	0.00	no pond			
kr-a2.11b	0.00	0.00	0.16	0.00	0.16	0.00	33	1990	1	dry/flow-through
kr-a2.11c	0.00	0.00	0.78	0.00	0.78	0.00	88	1991	1	dry/flow-through
kr-a2.12a	0.00	0.00	0.00	0.00	0.00	0.00	no pond			
kr-a2.12b	0.17	0.68	0.17	0.68	0.17	0.68	65	88 or before	1	assumes 4ft mean depth
kr-a2.13	0.00	0.00	0.00	0.00	0.00	0.00	no pond			
kr-a2.1a	0.00	0.00	0.00	0.00	0.00	0.00	no pond			
kr-a2.1b	0.00	0.00	4.20	16.23	4.20	16.23	241	2004	5	**cell 1: .513, 1.983; cell 2: .843, 3.258, cell 3: .879, 3.398; cell 4: .918, 3.546; cell 5: 1.046, 4.044
kr-a2.1c	0.00	0.00	0.50	1.59	0.50	1.59	62	1997	1	
kr-a2.1d	0.00	0.00	0.93	2.55	0.93	2.55	86	1998	2	**cell 1: .245, .671; cell 2: .685, 1.879
kr-a2.1e	0.00	0.00	1.13	1.23	1.13	1.23	266	2005	3	*cell 1: 0.32, 0.20; cell 2: 0.46, 0.39; cell 3: 0.35, 0.64
kr-a2.1f	0.00	0.00	0.22	0.36	0.22	0.36	264	2005	2	**cell 1: .083, .139; cell 2: .132, .221
kr-a2.1g	0.00	0.00	0.08	0.12	0.08	0.12	265	2005	1	
kr-a2.2a	0.00	0.00	2.64	12.86	2.64	12.86	154	2002	3	*cell 1: .76, 2.45; cell 2: .12, 4.20; cell 3: 1.76, 6.21
kr-a2.2b	0.00	0.00	0.00	0.00	0.00	0.00	no pond			
kr-a2.2c	0.00	0.00	0.00	0.00	0.00	0.00	no pond			
kr-a2.2d	0.00	0.00	0.25	0.00	0.25	0.00	137	1996	1	dry/flow-through
kr-a2.2e	0.00	0.00	0.14	0.27	0.14	0.27	121	2000	1	
kr-a2.2f	0.00	0.00	0.29	0.66	0.29	0.66	329	1998	1	
kr-a2.2g	0.00	0.00	0.36	2.23	0.36	2.23	82	1998	1	
kr-a2.2h	0.00	0.00	0.00	0.00	0.00	0.00	no pond			
kr-a2.2i	0.00	0.00	0.75	4.80	0.75	4.80	117	2000	1	
kr-a2.3a	0.00	0.00	0.89	5.28	0.89	5.28	118	2000	1	
kr-a2.3b	0.00	0.00	0.00	0.00	0.00	0.00	no pond			
kr-a2.4a	0.00	0.00	0.00	0.00	0.00	0.00	no pond			
kr-a2.4b	0.00	0.00	0.01	0.00	0.01	0.00	14	2000	1	dry/flow-through
kr-a2.4c	0.00	0.00	0.05	0.06	0.05	0.06	63	1996	1	
kr-a2.5a	0.00	0.00	0.00	0.00	0.00	0.00	no pond			
kr-a2.5b	0.00	0.00	0.00	0.00	0.00	0.00	no pond			
kr-a2.5c	0.00	0.00	0.18	0.31	0.18	0.31	343	2005	2	*cell 1: .04, .00; cell 2: .14, .31
kr-a2.5d	0.00	0.00	0.57	2.99	0.57	2.99	342	2005	1	
kr-a2.5e	0.00	0.00	0.49	1.97	0.49	1.97	337	2005	1	
kr-a2.6a	0.00	0.00	0.44	1.72	0.44	1.72	341	2005	1	
kr-a2.6b	0.00	0.00	0.01	0.01	0.01	0.01	36	1997	1	
kr-a2.6c	0.00	0.00	0.64	1.78	0.64	1.78	130	2001	3	**cell 1: .172, .477; cell 2: .183, .510; cell 3: .285, .793
kr-a2.6d	0.00	0.00	0.13	0.46	0.13	0.46	129	2001	1	
kr-a2.7	0.00	0.00	2.25	8.90	2.25	8.90	199	1999	5	**cell 1: .405, 1.598; cell 2: .442, 1.744; cell 3: .446, 1.76; cell 4: .458, 1.808; cell 5: .504, 1.989
kr-a2.8a	0.00	0.00	0.00	0.00	0.00	0.00	no pond			
kr-a2.8b	0.00	0.00	0.51	1.98	0.51	1.98	240	1999	1	
kr-a2.8c	0.00	0.00	2.13	8.67	2.13	8.67	111	1999	3	**cell 1: .086, .351; cell 2: .428, 1.745; cell 3: 1.612, 6.574
kr-a2.8d	0.00	0.00	1.31	5.90	1.31	5.90	160	2003	1	
kr-a2.8e	0.00	0.00	0.56	2.34	0.56	2.34	161	2003	1	
kr-a2.8f	0.00	0.00	0.91	2.30	0.91	2.30	162	2003	1	
kr-a2.9	0.00	0.00	0.00	0.00	0.00	0.00	no pond			
kr-a3.1a	0.00	0.00	3.56	15.71	3.56	15.71	16	2000	3	**cell 1:.242, 1.067; cell 2: .297, 1.31; cell 3: 3.023, 13.333
kr-a3.1b	0.00	0.00	0.00	0.00	0.00	0.00	no pond			
kr-a3.2	0.00	0.00	2.04	8.52	2.04	8.52	336	2005	1	
kr-a3.3	0.00	0.00	0.31	0.82	0.31	0.82	339	2005	1	
kr-a3.4a	0.00	0.00	0.00	0.00	0.00	0.00	no pond			
kr-a3.4b	0.00	0.00	0.00	0.00	0.01	0.00	315	2006	1	dry/flow-through
kr-a3.4c	0.00	0.00	0.02	0.02	0.02	0.02	17	1999	1	
kr-a3.5a	0.00	0.00	0.00	0.00	0.00	0.00	no pond			
kr-a3.5b	0.00	0.00	0.21	0.00	0.21	0.00	39	1992	1	dry/flow-through
kr-a3.6a	0.00	0.00	0.00	0.00	0.00	0.00	no pond			
kr-a3.6b	0.00	0.00	0.02	0.00	0.02	0.00	263	2004	1	dry/flow-through
kr-a3.7	0.00	0.00	0.00	0.00	0.00	0.00	no pond			
kr-a3.8a	0.00	0.00	0.00	0.00	0.00	0.00	no pond			
kr-a3.8b	0.00	0.00	0.00	0.00	0.00	0.00	no pond			

CASCADE CREEK POND DATA

Watershed ID	1988		2005		2020		Additional Information			
	Pond Surface Area (ac)	Pond Volume (ac-ft)	Pond Surface Area (ac)	Pond Volume (ac-ft)	Pond Surface Area (ac)	Pond Volume (ac-ft)	Pond ID	Year Built	Cells	Notes
cc-a1.10a	0.00	0.00	0.00	0.00	0.00	0.00	no ID	1991		Interlachen Lake (south forth CC runs thru it); S.A. = 14, Vol = 168
cc-a1.10b	0.00	0.00	0.25	2.05	0.25	2.05	190	2004	2	**cell 1 = .123, .959; cell 2 = .14, 1.091
cc-a1.10c	0.00	0.00	0.32	0.64	0.32	0.64	58	1992	1	
cc-a1.10d	0.00	0.00	0.17	0.30	0.17	0.30	103	1999	2	**cell 1 = .024, .042; cell 2 = .149, .258
cc-a1.10e	0.00	0.00	2.83	15.44	2.83	15.44	105	1999	2	**cell 1 = .719, 3.926; cell 2 = 2.109, 11.514
cc-a1.10f	0.00	0.00	0.13	0.35	0.13	0.35	104	1999	1	
cc-a1.10g	0.00	0.00	0.02	0.00	0.02	0.00	69	1996	1	dry/flow-through
cc-a1.10h	0.00	0.00	0.68	2.72	0.68	2.72	22	88 or before	1	assumed 4 ft mean depth
cc-a1.3	0.00	0.00	0.00	0.00	0.00	0.00	no pond			
cc-a1.5b	0.00	0.00	0.00	0.00	0.00	0.00	no pond			
cc-a1.7	0.00	0.00	0.00	0.00	0.17	0.29	327	2006	1	
cc-a1.8a	0.00	0.00	0.00	0.00	0.00	0.00	no pond			
cc-a1.8b	0.00	0.00	0.23	0.41	0.23	0.41	146	2002	1	
cc-a1.8c	0.00	0.00	0.00	0.00	0.00	0.00	no pond			
cc-a1.8d	0.00	0.00	0.40	1.05	0.40	1.05	95	1999	2	**cell 1 = .095, .25; cell 2 = .305, .8
cc-a1.8e	0.00	0.00	0.32	2.10	0.32	2.10	96	1999	2	**cell 1 = .042, .275; cell 2 = .278, 1.825
cc-a1.8f	0.00	0.00	0.00	0.00	0.00	0.00	no pond			
cc-a1.9a	0.00	0.00	0.00	0.00	0.00	0.00	no pond			
cc-a1.9b	0.00	0.00	0.80	3.20	0.80	3.20	142	btwn 88 & 05	1	assumed 4 ft mean depth
cc-a1.9c	0.00	0.00	0.00	0.00	0.74	3.14	328	2006	1	
cc-a2.10a	0.00	0.00	0.54	2.16	0.54	2.16	no ID	btwn 91 & 99		assumed 4 ft mean depth
cc-a2.10b	0.00	0.00	0.06	0.12	0.06	0.12	46	2001	1	
cc-a2.10c	0.90	3.60	0.90	3.60	0.90	3.60	1	1988	1	
cc-a2.10d	0.00	0.00	0.64	2.03	0.64	2.03	87	1998	2	**cell 1 = .153, .484; cell 2 = .487, 1.546
cc-a2.10e	0.00	0.00	0.14	0.28	0.14	0.28	77	btwn 88 & 05	1	
cc-a2.10f	0.00	0.00	0.31	1.86	0.31	1.86	200	1999	1	
cc-a2.10g	0.00	0.00	0.12	0.48	0.12	0.48	78	btwn 88 & 05	1	assumed 4 ft mean depth
cc-a2.11	0.00	0.00	0.00	0.00	0.00	0.00	no pond			
cc-a2.12a	0.00	0.00	0.00	0.00	0.00	0.00	no pond			
cc-a2.12b	0.00	0.00	0.13	0.25	0.13	0.25	286	2005	1	
cc-a2.2	0.00	0.00	23.65	116.46	23.65	116.46	244	1995	1	KR-3
cc-a2.2(C)	0.00	0.00	0.00	0.00	0.00	0.00	no pond			
cc-a2.3(C)	0.00	0.00	0.00	0.00	0.00	0.00	no pond			
cc-a2.3a	0.00	0.00	50.30	260.76	50.30	260.76	243	1996	1	KR-7
cc-a2.3b	0.00	0.00	0.00	0.00	0.00	0.00	no pond			
cc-a2.3c	0.00	0.00	0.00	0.00	0.00	0.00	no pond			
cc-a2.3d	0.00	0.00	0.00	0.00	0.00	0.00	no pond			
cc-a2.4a	0.00	0.00	0.00	0.00	0.00	0.00	no pond			
cc-a2.4b	0.00	0.00	0.00	0.00	0.00	0.00	no pond			
cc-a2.4c	0.00	0.00	0.00	0.00	0.00	0.00	no pond			
cc-a2.5	0.00	0.00	0.00	0.00	0.00	0.00	no pond			
cc-a2.6a	0.00	0.00	0.00	0.00	0.00	0.00	no pond			
cc-a2.6b	0.00	0.00	0.00	0.00	0.00	0.00	no pond			
cc-a2.7a	0.00	0.00	0.00	0.00	0.00	0.00	no pond			
cc-a2.7b	0.00	0.00	0.11	0.23	0.11	0.23	148	2002	1	
cc-a2.7c	0.00	0.00	0.13	0.28	0.13	0.28	147	2002	1	
cc-a2.7d	0.00	0.00	0.15	0.24	0.15	0.24	144	2003	1	
cc-a2.7e	0.00	0.00	0.44	1.89	0.44	1.89	109	1999	1	
cc-a2.8a	0.00	0.00	0.00	0.00	0.00	0.00	no pond			
cc-a2.8b	0.00	0.00	0.00	0.00	0.35	1.14	310	2006	1	
cc-a2.8c	0.00	0.00	0.00	0.00	0.30	0.80	309	2006	1	
cc-a2.8d	0.00	0.00	0.23	0.57	0.23	0.57	98	1999	1	
cc-a2.8e	0.00	0.00	0.44	1.07	0.44	1.07	97	1999	1	
cc-a2.9a	0.00	0.00	0.00	0.00	0.00	0.00	no pond			
cc-a2.9b	0.00	0.00	0.13	0.13	0.13	0.13	108	1999	2	**cell 1 = .053, .053; cell 2 = .08, .08
cc-a2.9c	0.00	0.00	0.07	0.00	0.07	0.00	248	1998	1	dry/flow-through
cc-a3.1	0.00	0.00	27.73	110.25	27.73	110.25	245	1994	1	KR-6
cc-a3.2	0.00	0.00	0.41	1.16	0.41	1.16	20	2001	1	
cc-a3.4a	0.00	0.00	7.13	28.52	7.13	28.52	83	2000	1	
cc-a3.4b	0.00	0.00	1.20	7.42	1.20	7.42	128	2000	2	**cell 1 = .269, 1.665; cell 2 = .93, 5.755
cc-a3.5	0.00	0.00	1.68	9.36	1.68	9.36	252	2004	2	**cell 1 = .508, 2.832; cell 2 = 1.172, 6.529
cc-a3.6a	0.00	0.00	0.00	0.00	0.00	0.00	no pond			
cc-a3.6b	0.00	0.00	0.31	1.24	0.31	1.24	106	2001	1	
cc-a3.6c	0.00	0.00	0.60	2.75	0.60	2.75	254	2004	1	
cc-a3.6d	0.00	0.00	0.71	3.19	0.71	3.19	74	1997	3	**cell 1 = .164, .739; cell 2 = .174, .784; cell 3 = .370, 1.667
cc-a3.7a	0.00	0.00	1.50	4.99	1.50	4.99	48	1992	1	

CASCADE CREEK POND DATA

CASCADE CREEK POND DATA

Watershed ID	1988		2005		2020		Additional Information			
	Pond Surface Area (ac)	Pond Volume (ac-ft)	Pond Surface Area (ac)	Pond Volume (ac-ft)	Pond Surface Area (ac)	Pond Volume (ac-ft)	Pond ID	Year Built	Cells	Notes
cc-a3.7b	0.00	0.00	0.42	0.84	0.42	0.84	268	2005	2	**cell 1 = .164, .328; cell 2 = .256, .512
cc-a3.7d	0.00	0.00	0.00	0.00	0.00	0.00	no pond			
cc-a3.8a	0.00	0.00	0.00	0.00	0.00	0.00	no pond			
cc-a3.8b	0.00	0.00	0.10	0.00	0.10	0.00	270	2005	1	dry/flow-through
cc-a3.8c	0.00	0.00	0.01	0.00	0.01	0.00	255	2004	1	dry/flow-through
cc-a3.8d	0.00	0.00	0.39	1.56	0.39	1.56	no ID	2005		assumed 4 ft mean depth
cc-a3.9a	0.00	0.00	0.00	0.00	0.00	0.00	no pond			
cc-a3.9b	0.00	0.00	0.00	0.00	0.00	0.00	6	1999	1	dry/flow-through
cc-a3.9c	0.00	0.00	0.74	2.69	0.74	2.69	335	2005	1	
cc-a4.1	0.00	0.00	0.00	0.00	0.00	0.00	no pond			
cc-a4.2a	0.00	0.00	0.00	0.00	0.00	0.00	no pond			
cc-a4.2b	0.00	0.00	0.00	0.00	0.00	0.00	81	88 or before	1	Manorwoods Lake: S.A. = 47 acres; Vol = 376 ac-ft
cc-a4.2c	0.00	0.00	0.00	0.00	0.00	0.00	80	btwn 88 & 05	1	Cascade Lake: SA = 31 ac; Vol = 372 ac-ft
cc-a4.2d	0.00	0.00	0.00	0.00	0.00	0.00	79	88 or before	1	SA = 31 ac; Vol = 434 ac-ft
cc-a4.2e	0.00	0.00	0.00	0.00	0.00	0.00	no ID	btwn 91 & 99		area estimated from aerial; 21 ft mean depth estimated from cascade lake complex conditions in 2003.
cc-a4.2f	0.00	0.00	0.15	0.32	0.15	0.32	56	1997	1	
cc-a4.2g	0.00	0.00	0.77	2.75	0.77	2.75	307	2005	2	**cell 1 = .382, 1.357; cell 2 = .392, 1.393
cc-a4.2h	0.00	0.00	0.38	1.44	0.38	1.44	285	2005	1	
cc-a4.2i	0.00	0.00	0.03	0.06	0.03	0.06	67	1996	1	
cc-a4.2j	0.00	0.00	0.46	1.53	0.46	1.53	164	2003	2	**cell 1 = .203, .672; cell 2 = .259, .858
cc-a4.2k	0.00	0.00	0.04	0.09	0.04	0.09	250	2004	1	
cc-a4.2l	0.00	0.00	0.00	0.00	0.00	0.00	249	2004	1	dry/flow-through
cc-a4.2m	0.00	0.00	0.30	0.94	0.30	0.94	100	1998	2	**cell 1 = .113, .355; cell 2 = .187, .585
cc-a4.2n	0.00	0.00	0.00	0.00	0.00	0.00	no pond			
cc-a4.2o	0.00	0.00	0.07	0.09	0.07	0.09	57	1998	1	
cc-a4.2p	0.00	0.00	0.16	0.54	0.16	0.54	196	1998	1	
cc-a4.3a	0.00	0.00	0.69	2.92	0.69	2.92	141	1998	1	
cc-a4.3b	0.00	0.00	0.51	3.29	0.51	3.29	153	2002	1	
cc-a4.3c	0.00	0.00	0.07	0.15	0.07	0.15	127	2001	1	
cc-a4.3d	0.00	0.00	0.01	0.00	0.01	0.00	114	1993	1	dry/flow-through
cc-a4.3e	0.00	0.00	0.00	0.00	0.00	0.00	9	1993	1	dry/flow-through
cc-a4.4a	0.00	0.00	7.46	59.68	7.46	59.68	251	2005	1	
cc-a4.4b	0.00	0.00	2.35	8.25	2.35	8.25	163	2003	2	**cell 1 = .143, .502; cell 2 = 2.208, 7.748
cc-a4.4c	0.00	0.00	0.89	3.32	0.89	3.32	140	1998	3	**cell 1 = .150, .561; cell 2 = .370, 1.385; cell 3 = .367, 1.374
cc-a4.5	0.00	0.00	0.00	0.00	0.00	0.00	no pond			
cc-a4.6	0.00	0.00	0.00	0.00	0.00	0.00	no pond			
cc-a4.7	0.00	0.00	0.00	0.00	0.00	0.00	no pond			
cc-a4.8	0.00	0.00	0.00	0.00	0.00	0.00	no pond			

ZUMBRO RIVER POND DATA

Watershed ID	1988		2005		2020		Additional Information			
	Pond Surface Area (ac)	Pond Volume (ac-ft)	Pond Surface Area (ac)	Pond Volume (ac-ft)	Pond Surface Area (ac)	Pond Volume (ac-ft)	Pond ID	Year Built	Cells	Notes
zr-a3.3a	0.27	0.00	0.27	0.00	0.27	0.00	227	1984	1	dry/flow-through
zr-a3.8i	0.11	0.13	0.11	0.13	0.11	0.13	7	1985	1	
zr-a3.3e	0.26	0.00	0.26	0.00	0.26	0.00	2	1987	1	dry/flow-through
zr-a3.3f	0.03	0.00	0.03	0.00	0.03	0.00	31	1988	1	dry/flow-through
zr-a1.10b	0.00	0.00	0.83	7.44	0.83	7.44	68	1989	1	
zr-a3.4b	0.00	0.00	0.01	0.00	0.01	0.00	27	1989	1	dry/flow-through
zr-a4.1d	0.00	0.00	0.08	0.00	0.08	0.00	30	1989	1	dry/flow-through
zr-a4.3d	0.00	0.00	0.00	0.00	0.00	0.00	53	1989	1	dry/flow-through
zr-a2.7c	0.00	0.00	0.42	0.67	0.42	0.67	34	1990	2	**cell 1: 0.163, 0.261; cell 2: 0.255, 0.409
zr-a4.3e	0.00	0.00	0.02	0.00	0.02	0.00	242	1990	1	dry/flow-through
zr-a3.3c	0.00	0.00	0.07	0.00	0.07	0.00	37	1991	1	dry/flow-through
zr-a3.3d	0.00	0.00	0.46	0.00	0.46	0.00	40	1991	1	dry/flow-through
zr-a3.3g	0.00	0.00	0.00	0.00	0.00	0.00	4	1991	1	dry/flow-through
zr-a3.3i	0.00	0.00	0.01	0.00	0.01	0.00	41	1991	1	dry/flow-through
zr-a2.7b	0.00	0.00	0.26	0.00	0.26	0.00	226	1992	1	dry/flow-through
zr-a4.3c	0.00	0.00	0.15	0.00	0.15	0.00	80	1992	1	dry/flow-through
zr-a4.1b	0.00	0.00	0.03	0.00	0.03	0.00	18	1993	1	dry/flow-through
zr-a4.1c	0.00	0.00	0.01	0.00	0.01	0.00	32	1993	1	dry/flow-through
zr-a2.8a	0.00	0.00	2.37	15.75	2.37	15.75	55	1994	1	
zr-a4.4c	0.00	0.00	0.09	0.24	0.09	0.24	76	1996	1	
zr-a3.8g	0.00	0.00	0.04	0.93	0.04	0.93	78	1997	1	
zr-a3.8h	0.00	0.00	0.03	0.05	0.03	0.05	77	1997	1	
zr-a1.8c	0.00	0.00	0.25	0.50	0.25	0.50	81	1998	1	
zr-a3.1b	0.00	0.00	1.80	9.48	1.80	9.48	228	1998	1	
zr-a1.9b	0.00	0.00	0.47	1.68	0.47	1.68	120	1999	1	
zr-a4.6c	0.00	0.00	0.62	2.05	0.62	2.05	13	1999	1	
zr-a1.8d	0.00	0.00	0.50	1.96	0.50	1.96	135	2000	2	**cell 1: 0.24, 0.941; cell 2: 0.26, 1.019
zr-a4.2b	0.00	0.00	0.14	0.42	0.14	0.42	49	2000	1	
zr-a4.4d	0.00	0.00	0.02	0.00	0.02	0.00	123	2000	2	dry/flow-through; cell data specified (not going to break into two cells b/c dry)
zr-a4.4e	0.00	0.00	0.56	0.00	0.56	0.00	124	2000	1	dry/flow-through
zr-a1.8a	0.00	0.00	1.35	5.76	1.35	5.76	134	2001	1	
zr-a2.8b	0.00	0.00	0.60	1.87	0.60	1.87	198	2001	1	
zr-a3.1c	0.00	0.00	0.33	0.95	0.33	0.95	330	2001	1	
zr-a3.3b	0.00	0.00	0.04	0.03	0.04	0.03	5	2001	1	formerly listed as having 3 cells, but overrode w/ aerial observation
zr-a4.6b	0.00	0.00	0.34	0.93	0.34	0.93	89	2001	1	
zr-a3.2b	0.00	0.00	0.23	0.70	0.23	0.70	151	2002	1	
zr-a4.4f	0.00	0.00	0.40	1.48	0.40	1.48	142	2002	2	**cell 1: 0.159, 0.588; cell 2: 0.241, 0.892
zr-a1.7a	0.00	0.00	7.25	116.67	7.25	116.67	194	2003	1	
zr-a1.7b	0.00	0.00	2.29	23.05	2.29	23.05	224	2003	1	
zr-a1.7d	0.00	0.00	0.40	2.00	0.40	2.00	193	2003	1	
zr-a1.7e	0.00	0.00	0.87	4.75	0.87	4.75	223	2003	2	**cell 1: 0.417, 2.274; cell 2: 0.454, 2.476
zr-a4.3b	0.00	0.00	0.66	2.68	0.66	2.68	168	2003	1	
zr-a4.4b	0.00	0.00	0.57	1.58	0.57	1.58	167	2003	1	
zr-a3.3h	0.00	0.00	0.02	0.00	0.02	0.00	225	2004	1	dry/flow-through
zr-a3.6a	0.00	0.00	0.09	0.54	0.09	0.54	344	2004	1	
zr-a1.7c	0.00	0.00	0.84	5.60	0.84	5.60	300	2005	1	
zr-a2.5b	0.00	0.00	0.42	1.67	0.42	1.67	316	2005	1	
zr-a2.5e	0.00	0.00	0.94	3.84	0.94	3.84	298	2005	2	**cell 1: 0.453, 1.851; cell 2: 0.487, 1.989
zr-a3.4a	0.00	0.00	1.50	8.25	1.50	8.25	333	2005	1	
zr-a3.8b	0.00	0.00	0.92	2.96	0.92	2.96	331	2005	1	
zr-a3.8c	0.00	0.00	1.00	3.12	1.00	3.12	332	2005	1	
zr-a3.8e	0.00	0.00	1.05	4.10	1.05	4.10	334	2005	2	***cell 1: 0.35, 1.366; cell 2: 0.7, 2.733
zr-a4.3f	0.00	0.00	0.39	1.52	0.39	1.52	282	2005	1	
zr-a1.10a	0.00	0.00	0.00	0.00	0.00	0.00	24	88 or before		bamber lake 64 ac S.A.
zr-a2.8c	2.50	10.00	2.50	10.00	2.50	10.00	26	88 or before	1	
zr-a3.7	0.75	3.00	0.75	3.00	0.75	3.00	30	88 or before	1	
exit 9	0.00	0.00	0.00	0.00	0.00	0.00	no pond			
wc-a4.4	0.00	0.00	0.00	0.00	0.00	0.00	no pond			
zr-a1.4	0.00	0.00	0.00	0.00	0.00	0.00	no pond			
zr-a1.5	0.00	0.00	0.00	0.00	0.00	0.00	no pond			

ZUMBRO RIVER POND DATA

ZUMBRO RIVER POND DATA

Watershed ID	1988		2005		2020		Additional Information			
	Pond Surface Area (ac)	Pond Volume (ac-ft)	Pond Surface Area (ac)	Pond Volume (ac-ft)	Pond Surface Area (ac)	Pond Volume (ac-ft)	Pond ID	Year Built	Cells	Notes
zr-a1.6	0.00	0.00	0.00	0.00	0.00	0.00	no pond			
zr-a1.8b	0.00	0.00	0.00	0.00	0.00	0.00	no pond			
zr-a1.9a	0.00	0.00	0.00	0.00	0.00	0.00	no pond			
zr-a2.1a	0.00	0.00	0.00	0.00	0.00	0.00	no pond			
zr-a2.1b	0.00	0.00	0.00	0.00	0.00	0.00	no pond			
zr-a2.2	0.00	0.00	0.00	0.00	0.00	0.00	no pond			
zr-a2.3	0.00	0.00	0.00	0.00	0.00	0.00	no pond			
zr-a2.4	0.00	0.00	0.00	0.00	0.00	0.00	no pond			
zr-a2.5a	0.00	0.00	0.00	0.00	0.00	0.00	no pond			
zr-a2.5c	0.00	0.00	0.00	0.00	0.00	0.00	no pond			
zr-a2.5d	0.00	0.00	0.00	0.00	0.00	0.00	no pond			
zr-a2.5f	0.00	0.00	0.00	0.00	0.00	0.00	no pond			
zr-a2.6	0.00	0.00	0.00	0.00	0.00	0.00	no pond			
zr-a2.7a	0.00	0.00	0.00	0.00	0.00	0.00	no pond			
zr-a3.10	0.00	0.00	0.00	0.00	0.00	0.00	no pond			
zr-a3.11	0.00	0.00	0.00	0.00	0.00	0.00	no pond			
zr-a3.12	0.00	0.00	0.00	0.00	0.00	0.00	no pond			
zr-a3.1a	0.00	0.00	0.00	0.00	0.00	0.00	no pond			
zr-a3.1d	0.00	0.00	0.00	0.00	0.00	0.00	no pond			lake george
zr-a3.2a	0.00	0.00	0.00	0.00	0.00	0.00	no pond			
zr-a3.3j	0.00	0.00	0.00	0.00	0.00	0.00	no pond			
zr-a3.5a	0.00	0.00	0.00	0.00	0.00	0.00	no pond			
zr-a3.5b	0.00	0.00	0.00	0.00	0.00	0.00	no pond			
zr-a3.6b	0.00	0.00	0.00	0.00	0.00	0.00	no pond			
zr-a3.8a	0.00	0.00	0.00	0.00	0.00	0.00	no pond			
zr-a3.8d	0.00	0.00	0.00	0.00	0.00	0.00	no pond			
zr-a3.8f	0.00	0.00	0.00	0.00	0.00	0.00	no pond			
zr-a3.9	0.00	0.00	0.00	0.00	0.00	0.00	no pond			
zr-a4.1a	0.00	0.00	0.00	0.00	0.00	0.00	no pond			
zr-a4.2a	0.00	0.00	0.00	0.00	0.00	0.00	no pond			
zr-a4.3a	0.00	0.00	0.00	0.00	0.00	0.00	no pond			
zr-a4.4a	0.00	0.00	0.00	0.00	0.00	0.00	no pond			
zr-a4.5	0.00	0.00	0.00	0.00	0.00	0.00	no pond			
zr-a4.6a	0.00	0.00	0.00	0.00	0.00	0.00	no pond			
zr-a4.6d	0.00	0.00	0.00	0.00	0.00	0.00	no pond			Foster Arend
zr-a4.7	0.00	0.00	0.00	0.00	0.00	0.00	no pond			
zr-a4.8	0.00	0.00	0.00	0.00	0.00	0.00	no pond			

Appendix C – PondNet Output by Drainage District

Modeled Loadings for Project Area

Table 1	TP Load (lbs/yr)	TSS Load (lbs/yr)	Runoff Volume (ac-ft/yr)
Baseline (1988) Condition	23,000	8,620,000	22,000
Present (2005) Condition	20,000	6,490,000	24,000
2020 Condition	19,000	6,290,000	26,000
FCR load reductions to runoff generated outside of the Project Area (i.e., "Credit")	3,200	1,640,000	0
Present Condition with Credit	16,800	4,850,000	24,000
2020 Condition with Credit	15,800	4,650,000	26,000

Table 2	TP Load (lbs/yr)	TSS Load (lbs/yr)	Runoff Volume (ac-ft/yr)
Baseline (1988) Condition	22,686	8,624,208	21,835
Present (2005) Condition	19,524	6,487,565	23,908
2020 Condition	18,664	6,288,942	25,592
FCR load reductions to runoff generated outside of the Project Area (i.e., "Credit")	3,189	1,644,051	0
Present Condition with Credit	16,335	4,843,514	23,908
2020 Condition with Credit	15,475	4,644,891	25,592

Table 1 contains the same values that are shown in Table ES.4.2 in the Executive Summary and Table 3.2 in Chapter Three of the Nondegradation Loading Assessment (Part A). Table 2 contains the values as they were calculated in the PondNet Model. Table 1 is the result of applying the criteria for significant figures to the first four rows of Table 2 (Baseline, Present, and 2020 Conditions, as well as the Credit). Rows five and six of Table 1 are a result of subtracting the rounded credit values in Table 1 from the rounded Present condition and 2020 condition values in Table 1.

Rochester Loading Assessment			
Root River			
363-06-158-2			
Baseline (1988) LOADS			
		rr-a1.1	**rr-a1.2**
Routed TO:		rr-a1.2	exit city
INPUT VARIABLES....	UNITS		
case label	-		
Watershed area	acres	569.2	243.2
basin area	acres	0.00	0.00
basin volume	acre-ft	0.00	0.00
Row Crop Agriculture		69%	88%
Very Low Density Residential		1%	0%
Low Density Residential		0%	0%
Medium Density Residential		0%	0%
High Density Residential		0%	0%
Commercial/Industrial		8%	0%
Institutional		0%	0%
Open Space		18%	6%
Golf Course		0%	0%
Pits and Quarries		0%	0%
Right-of-Way		4%	6%
WATERSHED-WIDE ACCOUNTING……			
tributary land area	ac	569.22	812.41
tributary water area	ac	0.00	0.00
direct and ponded area	ac	569.22	812.41
ASSUMED EXPORT FACTORS.....			
season length	yrs	1	1
season precipitation	inches	31.8	31.8
runoff total p	ppb	456.6459162	510.4031278
runoff ortho p/total p	-	0.286777125	0.230979702
unit runoff	in/yr	5.035708618	4.588825036
unit export	lbs/ac-y	0.52	0.53
POND WATER BUDGETS.....			
runoff	ac-ft/yr	238.87	93.00
upstream pond	ac-ft/yr	0.00	238.87
total inflow	**ac-ft/yr**	**238.87**	**331.87**
outflow	ac-ft/yr	238.87	331.87
POND PHOSPHORUS BUDGETS.....			
runoff	lbs/yr	296.24	129.51
upstream pond	lbs/yr	0.00	296.24
total inflow	**lbs/yr**	**296.24**	**425.74**
net sedimentation	lbs/yr	0.00	0.00
outflow	lbs/yr	296.24	425.74
p removal efficiency	%	0.00	0.00
upstream w-shed p load	lbs/yr	296.24	425.74
total removal %	%	0.00	0.00
HYDRAULIC PARAMETERS.....			
pond mean depth	feet	1.00	1.00
relative volume	inches	0.00	0.00
residence time	years	0.00	0.00
residence time	days	0.00	0.00
overflow rate	ft/yr	23886802.42	33186633.02
inflow phos conc	ppb	456.28	471.99
outflow phos conc	ppb	456.28	471.99
p reaction rate	-	0.00	0.00
1-rp	-	1.00	1.00
vlawmo pond volume	acre-ft	18.78	7.31
LAND USE PARAMETERS.....			
runoff total P conc	ppb	456.65	510.40
runoff coefficient		0.16	0.14
dissolved/total P		0.29	0.23
runoff TSS conc	ppm	170.42	164.95
POND TSS BUDGETS.....			
runoff	lbs/yr	104530.06	40886.30
upstream pond	lbs/yr	0.00	104530.06
total inflow	**lbs/yr**	**104530.06**	**145416.36**
p removal efficiency (no inf)	%	0.00	0.00
tss removal efficiency (no inf)	%	0.00	0.00
net sedimentation	lbs/yr	0.00	0.00
outflow	lbs/yr	104530.06	145416.36
tss removal efficiency (inf)		0.00	0.00
upstream watershed tss load	lbs/yr	104530.06	145416.36
tss total removal efficiency	%	0.00	0.00
INFILTRATION BMP/POND……			
Annual runoff infiltrated	%	0.00	0.00
Adjusted outflow	**ac-ft/yr**	**238.87**	**331.87**
Adjusted TP outflow	**lbs/yr**	**296.24**	**425.74**
Adjusted TSS outflow	**lbs/yr**	**104530.06**	**145416.36**

Rochester Loading Assessment			
Root River			
363-06-158-2			
Existing (2005) LOADS			
		rr-a1.1	**rr-a1.2**
Routed TO:		rr-a1.2	exit city
INPUT VARIABLES....	UNITS		
case label	-		
Watershed area	acres	569.2	243.2
basin area	acres	0.03	0.00
basin volume	acre-ft	0.00	0.00
Row Crop Agriculture		63%	86%
Very Low Density Residential		1%	0%
Low Density Residential		0%	0%
Medium Density Residential		0%	0%
High Density Residential		0%	0%
Commercial/Industrial		16%	1%
Institutional		0%	0%
Open Space		16%	6%
Golf Course		0%	0%
Pits and Quarries		0%	0%
Right-of-Way		4%	6%
WATERSHED-WIDE ACCOUNTING…….			
tributary land area	ac	569.19	812.36
tributary water area	ac	0.03	0.03
direct and ponded area	ac	569.22	812.39
ASSUMED EXPORT FACTORS.....			
season length	yrs	1	1
season precipitation	inches	31.8	31.8
runoff total p	ppb	447.93	507.61
runoff ortho p/total p	-	0.29	0.23
unit runoff	in/yr	5.87	4.74
unit export	lbs/ac-y	0.58	0.54
POND WATER BUDGETS.....			
runoff	ac-ft/yr	278.51	96.00
upstream pond	ac-ft/yr	0.00	278.51
total inflow	**ac-ft/yr**	**278.51**	**374.51**
outflow	ac-ft/yr	278.51	374.51
POND PHOSPHORUS BUDGETS.....			
runoff	lbs/yr	328.27	131.67
upstream pond	lbs/yr	0.00	328.27
total inflow	**lbs/yr**	**328.27**	**459.94**
net sedimentation	lbs/yr	0.00	0.00
outflow	lbs/yr	328.27	459.94
p removal efficiency	%	0.00	0.00
upstream w-shed p load	lbs/yr	328.27	459.94
total removal %	%	0.00	0.00
HYDRAULIC PARAMETERS.....			
pond mean depth	feet	0.00	1.00
relative volume	inches	0.00	0.00
residence time	years	0.00	0.00
residence time	days	0.00	0.00
overflow rate	ft/yr	10315.33	37451499.64
inflow phos conc	ppb	433.65	451.84
outflow phos conc	ppb	433.64	451.84
p reaction rate	-	0.00	0.00
1-rp	-	1.00	1.00
vlawmo pond volume	acre-ft	21.90	7.55
LAND USE PARAMETERS.....			
runoff total P conc	ppb	447.93	507.61
runoff coefficient		0.18	0.15
dissolved/total P		0.29	0.23
runoff TSS conc	ppm	167.61	164.62
POND TSS BUDGETS.....			
runoff	lbs/yr	118307.68	41942.33
upstream pond	lbs/yr	0.00	118307.68
total inflow	**lbs/yr**	**118307.68**	**160250.01**
p removal efficiency (no inf)	%	0.00	0.00
tss removal efficiency (no inf)	%	0.00	0.00
net sedimentation	lbs/yr	0.00	0.00
outflow	lbs/yr	118307.68	160250.01
tss removal efficiency (inf)	%	0.00	0.00
upstream watershed tss load	lbs/yr	118307.68	160250.01
tss total removal efficiency	%	0.00	0.00
INFILTRATION BMP/POND……			
Annual runoff infiltrated	%	0.00	0.00
Adjusted outflow	**ac-ft/yr**	**278.51**	**374.51**
Adjusted TP outflow	**lbs/yr**	**328.27**	**459.94**
Adjusted TSS outflow	**lbs/yr**	**118307.68**	**160250.01**

Rochester Loading Assessment					
Root River					
363-06-158-2					
2020 LOADS					
		future rr-a1.1	**rr-a1.1**	**future rr-a1.2**	**rr-a1.2**
		rr-a1.1	rr-a1.2	rr-a1.2	exit city
INPUT VARIABLES....	UNITS				
case label	-				
Watershed area	acres	0.0	569.2	0.0	243.2
basin area	acres	0.00	0.03	0.00	0.00
basin volume	acre-ft	0.00	0.00	0.00	0.00
Row Crop Agriculture		0%	63%	0%	86%
Very Low Density Residential		0%	1%	0%	0%
Low Density Residential		0%	0%	0%	0%
Medium Density Residential		0%	0%	0%	0%
High Density Residential		0%	0%	0%	0%
Commercial/Industrial		0%	16%	0%	1%
Institutional		0%	0%	0%	0%
Open Space		0%	16%	0%	6%
Golf Course		0%	0%	0%	0%
Pits and Quarries		0%	0%	0%	0%
Right-of-Way		0%	4%	0%	6%
WATERSHED-WIDE ACCOUNTING.....					
tributary land area	ac	0.00	569.19	0.00	812.36
tributary water area	ac	0.00	0.03	0.00	0.03
direct and ponded area	ac	0.00	569.22	0.00	812.39
ASSUMED EXPORT FACTORS.....					
season length	yrs	1.00	1.00	1.00	1.00
season precipitation	inches	31.80	31.80	31.80	31.80
runoff total p	ppb	0.00	447.53	0.00	507.61
runoff ortho p/total p	-	0.00	0.29	0.00	0.23
unit runoff	in/yr	0.00	5.87	0.00	4.74
unit export	lbs/ac-y	0.00	0.58	0.00	0.54
POND WATER BUDGETS.....					
runoff	ac-ft/yr	0.00	278.51	0.00	96.00
upstream pond	ac-ft/yr	0.00	0.00	0.00	278.51
total inflow	**ac-ft/yr**	**0.00**	**278.51**	**0.00**	**374.51**
outflow	ac-ft/yr	0.00	278.51	0.00	374.51
POND PHOSPHORUS BUDGETS.....					
runoff	lbs/yr	0.00	328.12	0.00	131.67
upstream pond	lbs/yr	0.00	0.00	0.00	328.11
total inflow	**lbs/yr**	**0.00**	**328.12**	**0.00**	**459.79**
net sedimentation	lbs/yr	0.00	0.00	0.00	0.00
outflow	lbs/yr	0.00	328.11	0.00	459.79
p removal efficiency	%	3.78	0.00	3.78	0.00
upstream w-shed p load	lbs/yr	0.00	328.12	0.00	459.79
total removal %	%	3.78	0.00	3.78	0.00
HYDRAULIC PARAMETERS.....					
pond mean depth	feet	0.00	0.00	0.00	1.00
relative volume	inches	1.58	0.00	1.58	0.00
residence time	years	0.05	0.00	0.05	0.00
residence time	days	18.08	0.00	18.08	0.00
overflow rate	ft/yr	0.00	10315.28	0.00	37451378.30
inflow phos conc	ppb	384.34	433.44	384.34	451.69
outflow phos conc	ppb	369.82	433.44	369.82	451.69
p reaction rate	-	0.04	0.00	0.04	0.00
1-rp	-	0.96	1.00	0.96	1.00
vlawmo pond volume	acre-ft	0.00	21.90	0.00	7.55
LAND USE PARAMETERS.....					
runoff total P conc	ppb	0.00	447.53	0.00	507.61
runoff coefficient		0.00	0.18	0.00	0.15
dissolved/total P		0.00	0.29	0.00	0.23
runoff TSS conc	ppm	0.00	167.61	0.00	164.62
POND TSS BUDGETS.....					
runoff	lbs/yr	0.00	118307.22	0.00	41942.33
upstream pond	lbs/yr	0.00	0.00	0.00	118307.22
total inflow	**lbs/yr**	**0.00**	**118307.22**	**0.00**	**160249.55**
p removal efficiency (no inf)	%	5.00	0.00	5.00	0.00
tss removal efficiency (no inf)	%	9.82	0.00	9.82	0.00
net sedimentation	lbs/yr	0.00	0.00	0.00	0.00
outflow	lbs/yr	0.00	118307.22	0.00	160249.55
tss removal efficiency (inf)	%	9.82	0.00	9.82	0.00
upstream watershed tss load	lbs/yr	0.00	118307.22	0.00	160249.55
tss total removal efficiency	%	9.82	0.00	9.82	0.00
INFILTRATION BMP/POND.....					
Annual runoff infiltrated	%	0.00	0.00	0.00	0.00
Adjusted outflow	**ac-ft/yr**	**0.00**	**278.51**	**0.00**	**374.51**
Adjusted TP outflow	**lbs/yr**	**0.00**	**328.11**	**0.00**	**459.79**
Adjusted TSS outflow	**lbs/yr**	**0.00**	**118307.22**	**0.00**	**160249.55**
POND P BUDGETS W/O P-BAN.....					
runoff	lbs/yr	0.00	328.27	0.00	131.67
Adjusted TP outflow	**lbs/yr**	**0.00**	**328.27**	**0.00**	**459.94**
upstream pond	lbs/yr	0.00	0.00	0.00	328.27
total inflow	**lbs/yr**	**0.00**	**328.27**	**0.00**	**459.94**
outflow	lbs/yr	0.00	328.27	0.00	459.94
inflow phos conc	ppb	409.24	433.65	409.24	451.84
outflow phos conc	ppb	392.86	433.64	392.86	451.84
p reaction rate	-	0.04	0.00	0.04	0.00
1-rp	-	0.96	1.00	0.96	1.00
runoff total p conc	ppb	0.00	447.93	0.00	507.61

Rochester Loading Assessment																						
Willow Creek																						
363-06-158-2																						
Baseline (1988) LOADS																						
		wc-a4.2b	**wc-a4.2a**	**wc-a4.3a**	**wc-a4.3b**	**wc-a4.3c**	**wc-a4.3d**	**wc-a4.3e**	**wc-a4.3f**	**wc-a4.1**	**wc-a4.5c**	**wc-a4.5b**	**wc-a4.5a**	**wc-a4.6b**	**wc-a4.6a**	**wc-a4.7**	**wc-a4.8c**	**wc-a4.8b**	**wc-a4.8a**	**wc-a4.9**	**wc-a4.10**	**wc-a4.11**
Routed TO:		wc-a4.2a	wc-a4.1	wc-a4.1	wc-a4.6a	wc-a4.1	wc-a4.7	wc-a4.3c	wc-a4.5a	wc-a4.5a	wc-a4.5b	wc-a4.5a	wc-a4.7	wc-a4.6a	wc-a4.7	wc-a4.14a	wc-a4.8a	wc-a4.8a	wc-a4.11	wc-a4.11	wc-a4.11	wc-a4.14a
INPUT VARIABLES....	UNITS																					
case label	-																					
Watershed area	acres	10.6	239.5	313.9	142.3	60.1	11.1	13.9	10.2	694.0	14.7	6.1	384.3	112.7	45.2	281.6	4.5	4.0	253.3	45.1	80.5	545.6
basin area	acres	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
basin volume	acre-ft	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Row Crop Agriculture		67%	81%	74%	34%	50%	0%	0%	76%	79%	96%	95%	76%	17%	17%	28%	0%	0%	44%	90%	68%	35%
Very Low Density Residential		0%	2%	1%	0%	0%	0%	0%	0%	1%	0%	0%	8%	0%	1%	8%	0%	0%	0%	0%	2%	2%
Low Density Residential		0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Medium Density Residential		0%	1%	0%	0%	0%	0%	0%	0%	1%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
High Density Residential		0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Commercial/Industrial		33%	0%	15%	66%	50%	93%	86%	8%	0%	0%	0%	0%	73%	59%	2%	100%	100%	41%	0%	0%	17%
Institutional		0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	2%	0%	0%
Open Space		0%	12%	9%	0%	0%	0%	0%	0%	16%	1%	5%	16%	5%	12%	60%	0%	0%	12%	2%	29%	45%
Golf Course		0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Pits and Quarries		0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Right-of-Way		0%	3%	1%	0%	0%	7%	14%	16%	3%	4%	0%	1%	5%	12%	3%	0%	0%	4%	6%	1%	2%
WATERSHED-WIDE ACCOUNTING.....																						
tributary land area	ac	10.64	250.13	313.87	142.28	74.00	11.12	13.93	10.16	1331.97	14.75	20.89	1747.32	112.71	300.15	2340.19	4.46	3.96	261.70	45.10	80.47	932.82
tributary water area	ac	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
direct and ponded area	ac	10.64	250.13	313.87	142.28	74.00	11.12	13.93	10.16	1331.97	14.75	20.89	1747.32	112.71	300.15	2340.19	4.46	3.96	261.70	45.10	80.47	932.82
ASSUMED EXPORT FACTORS.....																						
season length	yrs	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
season precipitation	inches	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8
runoff total p	ppb	478.1712991	488.0646106	478.5773713	414.947811	444.4953132	353.5802445	357.0280923	502.7352871	479.3052003	533.1940891	523.0724619	470.6733153	377.0232779	370.6348315	314.8783517	350.0005376	350.0006062	416.8886929	521.0629842	435.2389806	349.8865947
runoff ortho p/total p	-	0.23254201	0.260766224	0.25407419	0.265816986	0.250265729	0.30000045	0.299878428	0.223763372	0.269633911	0.205724689	0.219913813	0.287170084	0.298587528	0.319255123	0.466073007	0.30000112	0.300001263	0.291840866	0.215532693	0.323954558	0.402211329
unit runoff	in/yr	7.741616892	4.384038093	5.815724205	11.10557441	9.533450708	14.14652121	13.76172152	5.941008306	4.318286182	4.593829543	4.357067656	4.066427392	11.92992121	10.70398686	3.559104694	14.56103166	14.56100764	8.527301987	4.79997544	3.918925912	5.417382763
unit export	lbs/ac-y	0.74	0.50	0.60	0.95	0.85	1.13	1.10	0.63	0.49	0.55	0.52	0.45	0.98	0.88	0.29	1.15	1.15	0.75	0.56	0.42	0.46
POND WATER BUDGETS.....																						
runoff	ac-ft/yr	6.87	87.49	152.11	131.67	47.72	13.11	15.98	5.03	249.73	5.64	2.23	130.23	112.05	40.28	83.52	5.42	4.80	179.98	18.04	26.28	246.29
upstream pond	ac-ft/yr	0.00	6.87	0.00	0.00	15.98	0.00	0.00	0.00	310.17	0.00	5.64	572.81	0.00	243.72	1000.15	0.00	0.00	10.22	0.00	0.00	234.52
total inflow	**ac-ft/yr**	**6.87**	**94.36**	**152.11**	**131.67**	**63.70**	**13.11**	**15.98**	**5.03**	**559.90**	**5.64**	**7.88**	**703.04**	**112.05**	**284.01**	**1083.67**	**5.42**	**4.80**	**190.20**	**18.04**	**26.28**	**480.81**
outflow	ac-ft/yr	6.87	94.36	152.11	131.67	63.70	13.11	15.98	5.03	559.90	5.64	7.88	703.04	112.05	284.01	1083.67	5.42	4.80	190.20	18.04	26.28	480.81
POND PHOSPHORUS BUDGETS.....																						
runoff	lbs/yr	7.91	119.22	187.31	134.59	51.12	12.55	15.39	6.43	336.92	8.12	3.22	174.69	110.31	39.86	80.69	5.15	4.57	190.71	25.13	33.49	250.47
upstream pond	lbs/yr	0.00	7.91	0.00	0.00	15.39	0.00	0.00	0.00	380.95	0.00	8.12	735.63	0.00	244.89	1207.62	0.00	0.00	9.72	0.00	0.00	259.05
total inflow	**lbs/yr**	**7.91**	**127.13**	**187.31**	**134.59**	**66.51**	**12.55**	**15.39**	**6.43**	**717.87**	**8.12**	**11.34**	**910.32**	**110.31**	**284.75**	**1288.31**	**5.15**	**4.57**	**200.43**	**25.13**	**33.49**	**509.52**
net sedimentation	lbs/yr	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
outflow	lbs/yr	7.91	127.13	187.31	134.59	66.51	12.55	15.39	6.43	717.87	8.12	11.34	910.32	110.31	284.75	1288.31	5.15	4.57	200.43	25.13	33.49	509.52
p removal efficiency	%	0.01	0.00	0.00	0.00	0.00	0.01	0.00	0.02	0.00	0.03	0.02	0.00	0.00	0.00	0.00	0.01	0.01	0.00	0.01	0.00	0.00
upstream w-shed p load	lbs/yr	7.91	127.13	187.31	134.59	66.51	12.55	15.39	6.43	717.87	8.12	11.34	910.34	110.31	284.75	1288.33	5.15	4.57	200.43	25.13	33.49	509.52
total removal %	%	0.01	0.00	0.00	0.00	0.00	0.01	0.00	0.02	0.00	0.03	0.04	0.00	0.00	0.00	0.00	0.01	0.01	0.00	0.01	0.00	0.00
HYDRAULIC PARAMETERS.....																						
pond mean depth	feet	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
relative volume	inches	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
residence time	years	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
residence time	days	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
overflow rate	ft/yr	686558.20	9436004.05	15211368.82	13167332.63	6369711.97	1310567.91	1597974.40	502959.82	55990383.01	564469.87	787663.93	70303641.19	11204986.62	28400770.06	108367072.61	541682.51	480404.04	19019957.23	1803953.57	2627936.03	48080716.21
inflow phos conc	ppb	423.73	495.69	453.06	376.06	384.18	352.24	354.43	470.21	471.72	529.57	529.63	476.40	362.20	368.88	437.40	350.02	350.02	387.71	512.48	468.87	389.89
outflow phos conc	ppb	423.67	495.68	453.06	376.05	384.17	352.22	354.41	470.10	471.72	529.43	529.54	476.40	362.19	368.88	437.40	349.98	349.97	387.71	512.44	468.85	389.89
p reaction rate	-	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1-rp	-	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
vlawmo pond volume	acre-ft	0.54	6.88	11.96	10.35	3.75	1.03	1.26	0.40	19.63	0.44	0.18	10.24	8.81	3.17	6.57	0.43	0.38	14.15	1.42	2.07	19.36
LAND USE PARAMETERS.....																						
runoff total P conc	ppb	478.17	488.06	478.58	414.95	444.50	353.58	357.03	502.74	479.31	533.19	523.07	470.67	377.02	370.63	314.88	350.00	350.00	416.89	521.06	435.24	349.89
runoff coefficient		0.24	0.14	0.18	0.35	0.30	0.44	0.43	0.19	0.14	0.14	0.14	0.13	0.38	0.34	0.11	0.46	0.46	0.27	0.15	0.12	0.17
dissolved/total P		0.23	0.26	0.25	0.27	0.25	0.30	0.30	0.22	0.27	0.21	0.22	0.29	0.30	0.32	0.47	0.30	0.30	0.29	0.22	0.32	0.40
runoff TSS conc	ppm	155.52	169.81	164.60	147.86	151.44	140.00	140.03	157.53	170.83	162.48	165.64	175.35	147.93	153.26	197.48	140.00	140.00	158.97	162.03	179.24	183.04
POND TSS BUDGETS.....																						
runoff	lbs/yr	2770.81	39260.93	64487.53	51081.52	18794.75	4972.30	6063.11	2087.33	112528.47	2472.21	995.23	60322.94	43216.92	15706.27	41925.49	2055.15	1822.65	72136.05	7816.78	12335.32	108871.14
upstream pond	lbs/yr	0.00	2770.81	0.00	0.00	6063.11	0.00	0.00	0.00	131377.13	0.00	2472.21	249460.37	0.00	94298.44	424760.31	0.00	0.00	3877.80	0.00	0.00	96165.95
total inflow	**lbs/yr**	**2770.81**	**42031.74**	**64487.53**	**51081.52**	**24857.86**	**4972.30**	**6063.11**	**2087.33**	**243905.60**	**2472.21**	**3467.44**	**309783.30**	**43216.92**	**110004.71**	**466685.80**	**2055.15**	**1822.65**	**76013.85**	**7816.78**	**12335.32**	**205037.08**
p removal efficiency (no inf)	%	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
tss removal efficiency (no inf)	%	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
net sedimentation	lbs/yr	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
outflow	lbs/yr	2770.81	42031.74	64487.53	51081.52	24857.86	4972.30	6063.11	2087.33	243905.60	2472.21	3467.44	309783.30	43216.92	110004.71	466685.80	2055.15	1822.65	76013.85	7816.78	12335.32	205037.08
tss removal efficiency (inf)		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
upstream watershed tss load	lbs/yr	2770.81	42031.74	64487.53	51081.52	24857.86	4972.30	6063.11	2087.33	243905.60	2472.21	3467.44	309783.30	43216.92	110004.71	466685.80	2055.15	1822.65	76013.85	7816.78	12335.32	205037.08
tss total removal efficiency	%	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
INFILTRATION BMP/POND.....																						
Annual runoff infiltrated	%	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Adjusted outflow	**ac-ft/yr**	**6.87**	**94.36**	**152.11**	**131.67**	**63.70**	**13.11**	**15.98**	**5.03**	**559.90**	**5.64**	**7.88**	**703.04**	**112.05**	**284.01**	**1083.67**	**5.42**	**4.80**	**190.20**	**18.04**	**26.28**	**480.81**
Adjusted TP outflow	**lbs/yr**	**7.91**	**127.13**	**187.31**	**134.59**	**66.51**	**12.55**	**15.39**	**6.43**	**717.87**	**8.12**	**11.34**	**910.32**	**110.31**	**284.75**	**1288.31**	**5.15**	**4.57**	**200.43**	**25.13**	**33.49**	**509.52**
Adjusted TSS outflow	**lbs/yr**	**2770.81**	**42031.74**	**64487.53**	**51081.52**	**24857.86**	**4972.30**	**6063.11**	**2087.33**	**243905.60**	**2472.21**	**3467.44**	**309783.30**	**43216.92**	**110004.71**	**466685.80**	**2055.15**	**1822.65**	**76013.85**	**7816.78**	**12335.32**	**205037.08**

Rochester Loading Assessment																						
Willow Creek																						
363-06-158-2																						
Baseline (1988) LOADS																						
		wc-a4.12e	**wc-a4.12d**	**wc-a4.12c**	**wc-a4.12b**	**wc-a4.12a**	**wc-a4.14b**	**wc-a5.5c**	**wc-a4.14a**	**wc-a5.5b**	**wc-a5.5a**	**wc-a5.1**	**wc-a5.3b**	**wc-a5.3a**	**wc-a5.2**	**wc-a5.4**	**wc-a5.6b**	**wc-a5.7c**	**wc-a5.7b**	**wc-a5.7a**	**wc-a3.14b**	**wc-a3.2**
Routed TO:		wc-a4.12a	wc-a4.12a	wc-a4.12a	wc-a4.12a	wc-a4.14a	wc-a4.14a	wc-a4.14a	wc-a5.7b	wc-a5.5a	wc-a5.7b	wc-a5.3b	wc-a5.3a	wc-a5.6b	wc-a5.4	wc-a5.6b	wc-a5.7b	wc-a5.7b	wc-a5.7a	wc-a3.14a	wc-a3.14a	wc-a3.15
INPUT VARIABLES....	UNITS																					
case label	-																					
Watershed area	acres	4.9	10.8	35.2	8.6	234.3	38.1	27.5	188.9	78.1	30.2	2.0	43.0	16.4	25.2	83.3	31.2	15.0	98.0	58.3	7.0	152.7
basin area	acres	0.00	0.00	0.00	0.00	0.00	0.00	0.00	71.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.20	0.00
basin volume	acre-ft	0.00	0.00	0.00	0.00	0.00	0.00	0.00	630.40	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.80	0.00
Row Crop Agriculture		2%	0%	61%	92%	33%	69%	73%	39%	74%	32%	0%	21%	2%	88%	44%	0%	80%	18%	56%	61%	45%
Very Low Density Residential		0%	0%	0%	0%	14%	0%	0%	1%	0%	0%	0%	12%	5%	0%	20%	0%	0%	2%	7%	0%	0%
Low Density Residential		0%	3%	0%	0%	1%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	12%	2%	0%	0%
Medium Density Residential		0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
High Density Residential		0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Commercial/Industrial		81%	0%	0%	0%	10%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	21%
Institutional		0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Open Space		0%	93%	29%	8%	29%	28%	27%	59%	25%	31%	0%	68%	48%	0%	30%	10%	20%	35%	34%	25%	9%
Golf Course		0%	0%	0%	0%	0%	0%	0%	0%	1%	37%	0%	0%	31%	0%	0%	87%	0%	28%	0%	0%	0%
Pits and Quarries		0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	15%	0%
Right-of-Way		18%	4%	10%	0%	13%	3%	0%	1%	0%	0%	100%	0%	14%	12%	6%	4%	0%	5%	1%	0%	25%
WATERSHED-WIDE ACCOUNTING.....																						
tributary land area	ac	4.86	10.82	35.23	8.59	293.83	38.14	27.46	3821.37	78.07	108.25	2.05	45.00	61.41	25.24	108.56	201.20	14.99	4243.81	4302.10	7.01	152.66
tributary water area	ac	0.00	0.00	0.00	0.00	0.00	0.00	0.00	71.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	71.00	71.00	0.20	0.00
direct and ponded area	ac	4.86	10.82	35.23	8.59	293.83	38.14	27.46	3892.37	78.07	108.25	2.05	45.00	61.41	25.24	108.56	201.20	14.99	4314.81	4373.10	7.21	152.66
ASSUMED EXPORT FACTORS.....																						
season length	yrs	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
season precipitation	inches	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8
runoff total p	ppb	362.1121002	215.3554963	426.7766714	514.3500825	376.6404031	439.762842	447.4345678	334.9337999	454.9229142	439.7667722	399.9984864	287.2252054	350.3674494	523.1033092	391.7960149	510.4369079	473.4963899	402.5702406	405.768275	378.2574867	433.4747749
runoff ortho p/total p	-	0.298232444	0.57901141	0.326742197	0.230175702	0.380980087	0.315903773	0.308900299	0.441525565	0.305177122	0.508748958	0.300002441	0.506232178	0.576133855	0.212069175	0.385622322	0.675193444	0.278239157	0.501255007	0.358195531	0.269121163	0.283458585
unit runoff	in/yr	13.3687204	2.933739826	4.32632414	4.308102362	5.346432757	4.0490119	3.932558233	3.344678009	3.959380647	3.319593223	8.770340508	2.986496186	3.595204464	4.973183462	3.851778142	3.156407182	4.07882241	3.828078837	3.789981847	3.338176004	7.4559276
unit export	lbs/ac-y	1.08	0.16	0.44	0.51	0.48	0.43	0.43	0.29	0.44	0.35	0.79	0.22	0.30	0.57	0.37	0.36	0.46	0.37	0.38	0.36	0.69
POND WATER BUDGETS.....																						
runoff	ac-ft/yr	5.42	2.65	12.70	3.08	104.40	12.87	9.00	52.66	25.76	8.35	1.50	10.69	4.92	10.46	26.74	8.22	5.10	31.26	18.41	1.95	94.85
upstream pond	ac-ft/yr	0.00	0.00	0.00	0.00	23.85	0.00	0.00	1714.59	0.00	25.76	0.00	1.50	12.19	0.00	10.46	54.31	0.00	1868.98	1900.24	0.00	0.00
total inflow	**ac-ft/yr**	**5.42**	**2.65**	**12.70**	**3.08**	**128.25**	**12.87**	**9.00**	**1767.25**	**25.76**	**34.11**	**1.50**	**12.19**	**17.10**	**10.46**	**37.20**	**62.52**	**5.10**	**1900.24**	**1918.65**	**1.95**	**94.85**
outflow	ac-ft/yr	5.42	2.65	12.70	3.08	128.25	12.87	9.00	1767.25	25.76	34.11	1.50	12.19	17.10	10.46	37.20	62.52	5.10	1900.24	1918.65	1.95	94.85
POND PHOSPHORUS BUDGETS.....																						
runoff	lbs/yr	5.25	1.74	15.65	4.40	111.63	16.45	11.74	54.58	33.98	10.52	1.63	9.34	4.97	14.51	30.82	11.32	6.90	36.18	22.26	2.53	105.87
upstream pond	lbs/yr	0.00	0.00	0.00	0.00	27.04	0.00	0.00	1964.69	0.00	33.98	0.00	1.63	10.97	0.00	14.50	61.26	0.00	759.83	796.01	0.00	0.00
total inflow	**lbs/yr**	**5.25**	**1.74**	**15.65**	**4.40**	**138.67**	**16.45**	**11.74**	**2019.27**	**33.98**	**44.50**	**1.63**	**10.97**	**15.94**	**14.51**	**45.32**	**72.58**	**6.90**	**796.01**	**818.27**	**2.53**	**105.87**
net sedimentation	lbs/yr	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1383.43	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.75	0.00
outflow	lbs/yr	5.25	1.74	15.65	4.40	138.67	16.45	11.74	635.84	33.98	44.50	1.63	10.97	15.93	14.50	45.32	72.58	6.90	796.01	818.27	0.77	105.87
p removal efficiency	%	0.01	0.01	0.01	0.04	0.00	0.01	0.01	68.51	0.00	0.00	0.05	0.00	0.00	0.01	0.00	0.00	0.02	0.00	0.00	69.43	0.00
upstream w-shed p load	lbs/yr	5.25	1.74	15.65	4.40	138.67	16.45	11.74	2019.30	33.98	44.50	1.63	10.97	15.94	14.51	45.33	72.58	6.90	2179.47	2201.73	2.53	105.87
total removal %	%	0.01	0.01	0.01	0.04	0.00	0.01	0.01	68.51	0.00	0.00	0.05	0.01	0.01	0.01	0.01	0.01	0.02	63.48	62.84	69.43	0.00
HYDRAULIC PARAMETERS.....																						
pond mean depth	feet	1.00	1.00	1.00	1.00	1.00	1.00	1.00	8.88	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	4.00	1.00
relative volume	inches	0.00	0.00	0.00	0.00	0.00	0.00	0.00	380.68	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	13.04	0.00
residence time	years	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.36	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.41	0.00
residence time	days	0.00	0.00	0.00	0.00	0.00	0.00	0.00	130.20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	149.72	0.00
overflow rate	ft/yr	541664.90	264551.70	1270103.49	308391.56	12824648.57	1286981.13	899903.36	24.89	2576041.68	3410727.94	149687.79	1218656.31	1710272.36	1045988.54	3720312.45	6252278.61	509515.96	190024044.91	191864967.01	9.75	9485124.78
inflow phos conc	ppb	356.88	241.52	453.32	524.88	397.82	470.32	480.14	420.38	485.37	480.06	400.02	331.11	342.80	510.23	448.23	427.10	498.55	154.12	156.91	476.45	410.66
outflow phos conc	ppb	356.84	241.50	453.30	524.66	397.82	470.29	480.10	132.37	485.36	480.05	399.82	331.10	342.79	510.16	448.23	427.10	498.45	154.12	156.91	145.65	410.66
p reaction rate	-	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.91	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	7.43	0.00
1-rp	-	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.31	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.31	1.00
vlawmo pond volume	acre-ft	0.43	0.21	1.00	0.24	8.21	1.01	0.71	4.14	2.03	0.66	0.12	0.84	0.39	0.82	2.10	0.65	0.40	2.46	1.45	0.15	7.46
LAND USE PARAMETERS.....																						
runoff total P conc	ppb	362.11	215.36	426.78	514.35	376.64	439.76	447.43	334.93	454.92	439.77	400.00	287.23	350.37	523.10	391.80	510.44	473.50	402.57	405.77	378.26	433.47
runoff coefficient		0.42	0.09	0.14	0.14	0.17	0.13	0.12	0.11	0.12	0.10	0.28	0.09	0.11	0.16	0.12	0.10	0.13	0.12	0.12	0.10	0.23
dissolved/total P		0.30	0.58	0.33	0.23	0.38	0.32	0.31	0.44	0.31	0.51	0.30	0.51	0.58	0.21	0.39	0.68	0.28	0.50	0.36	0.27	0.28
runoff TSS conc	ppm	140.41	210.68	176.17	167.00	179.90	177.22	177.43	194.81	176.80	198.97	140.00	205.11	204.44	160.22	188.01	213.13	173.37	193.46	183.04	152.36	157.50
POND TSS BUDGETS.....																						
runoff	lbs/yr	2057.07	1443.14	5763.28	1381.99	45983.87	5958.13	4202.78	26668.54	12002.38	4369.24	567.92	5786.99	2520.26	4481.68	12932.29	4632.08	2339.96	15269.37	8798.40	913.90	38199.93
upstream pond	lbs/yr	0.00	0.00	0.00	0.00	10645.47	0.00	0.00	738513.13	0.00	12002.38	0.00	567.92	6354.91	0.00	4481.68	26289.15	0.00	103195.54	118464.90	0.00	0.00
total inflow	**lbs/yr**	**2057.07**	**1443.14**	**5763.28**	**1381.99**	**56629.34**	**5958.13**	**4202.78**	**765181.67**	**12002.38**	**16371.62**	**567.92**	**6354.91**	**8875.18**	**4481.68**	**17413.98**	**30921.23**	**2339.96**	**118464.90**	**127263.31**	**913.90**	**38199.93**
p removal efficiency (no inf)	%	0.00	0.00	0.00	0.00	0.00	0.00	0.00	69.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	70.00	0.00
tss removal efficiency (no inf)	%	0.00	0.00	0.00	0.00	0.00	0.00	0.00	93.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	93.00	0.00
net sedimentation	lbs/yr	0.00	0.00	0.00	0.00	0.00	0.00	0.00	711618.96	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	849.93	0.00
outflow	lbs/yr	2057.07	1443.14	5763.28	1381.99	56629.34	5958.13	4202.78	53562.72	12002.38	16371.62	567.92	6354.91	8875.18	4481.68	17413.98	30921.23	2339.96	118464.90	127263.31	63.97	38199.93
tss removal efficiency (inf)		0.00	0.00	0.00	0.00	0.00	0.00	0.00	93.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	93.00	0.00
upstream watershed tss load	lbs/yr	2057.07	1443.14	5763.28	1381.99	56629.34	5958.13	4202.78	765181.67	12002.38	16371.62	567.92	6354.91	8875.18	4481.68	17413.98	30921.23	2339.96	830083.86	838882.26	913.90	38199.93
tss total removal efficiency	%	0.00	0.00	0.00	0.00	0.00	0.00	0.00	93.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	85.73	84.83	93.00	0.00
INFILTRATION BMP/POND.....																						
Annual runoff infiltrated	%	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Adjusted outflow	**ac-ft/yr**	**5.42**	**2.65**	**12.70**	**3.08**	**128.25**	**12.87**	**9.00**	**1767.25**	**25.76**	**34.11**	**1.50**	**12.19**	**17.10**	**10.46**	**37.20**	**62.52**	**5.10**	**1900.24**	**1918.65**	**1.95**	**94.85**
Adjusted TP outflow	**lbs/yr**	**5.25**	**1.74**	**15.65**	**4.40**	**138.67**	**16.45**	**11.74**	**635.84**	**33.98**	**44.50**	**1.63**	**10.97**	**15.93**	**14.50**	**45.32**	**72.58**	**6.90**	**796.01**	**818.27**	**0.77**	**105.87**
Adjusted TSS outflow	**lbs/yr**	**2057.07**	**1443.14**	**5763.28**	**1381.99**	**56629.34**	**5958.13**	**4202.78**	**53562.72**	**12002.38**	**16371.62**	**567.92**	**6354.91**	**8875.18**	**4481.68**	**17413.98**	**30921.23**	**2339.96**	**118464.90**	**127263.31**	**63.97**	**38199.93**

Rochester Loading Assessment																						
Willow Creek																						
363-06-158-2																						
Baseline (1988) LOADS																						
		wc-a3.5b	**wc-a3.5a**	**wc-a3.6c**	**wc-a3.6b**	**wc-a3.6a**	**wc-a3.8**	**wc-a3.10**	**wc-a3.11**	**wc-a3.15**	**wc-a3.12b**	**wc-a3.12a**	**wc-a3.13**	**wc-a3.14c**	**wc-a3.14a**	**wc-a5.6a**	**wc-a5.8d**	**wc-a5.8c**	**wc-a5.8b**	**wc-a5.8a**	**wc-a5.10**	**wc-a5.11c**
Routed TO:		wc-a3.5a	wc-a3.15	wc-a3.6a	wc-a3.6a	wc-a3.15	wc-a3.15	wc-a3.15	wc-a3.15	wc-a3.14c	wc-a3.12a	wc-a3.13	wc-a3.14c	wc-a3.14a	wc-a5.8a	wc-a5.8a	wc-a5.8c	wc-a5.8b	wc-a5.8a	wc-a5.9a	wc-a5.11b	wc-a5.11b
INPUT VARIABLES....	UNITS																					
case label	-																					
Watershed area	acres	14.4	41.2	2.9	17.5	7.0	43.3	16.4	14.6	32.0	10.1	75.5	70.8	257.2	42.3	126.6	4.3	2.7	10.5	159.7	40.9	10.8
basin area	acres	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
basin volume	acre-ft	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Row Crop Agriculture		14%	5%	0%	0%	0%	0%	0%	0%	0%	23%	33%	0%	30%	2%	7%	0%	0%	0%	32%	25%	92%
Very Low Density Residential		0%	3%	0%	3%	0%	0%	0%	0%	0%	0%	0%	11%	3%	0%	0%	0%	0%	0%	4%	4%	0%
Low Density Residential		0%	0%	0%	0%	0%	0%	0%	53%	1%	0%	2%	1%	3%	0%	0%	0%	0%	0%	2%	0%	0%
Medium Density Residential		0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
High Density Residential		0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	3%	0%	0%	0%	0%	0%	0%
Commercial/Industrial		57%	17%	100%	0%	59%	15%	0%	0%	0%	0%	0%	0%	3%	0%	0%	0%	0%	0%	0%	0%	0%
Institutional		0%	7%	0%	0%	0%	0%	0%	0%	0%	0%	0%	1%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Open Space		17%	13%	0%	97%	40%	0%	0%	6%	0%	77%	62%	65%	48%	72%	6%	100%	100%	100%	57%	69%	8%
Golf Course		0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	79%	0%	0%	0%	0%	0%	0%
Pits and Quarries		0%	0%	0%	0%	0%	62%	100%	42%	85%	0%	0%	0%	2%	4%	0%	0%	0%	0%	1%	0%	0%
Right-of-Way		12%	55%	0%	0%	1%	23%	0%	0%	14%	0%	3%	21%	9%	22%	5%	0%	0%	0%	5%	1%	0%
WATERSHED-WIDE ACCOUNTING.....																						
tributary land area	ac	14.43	55.59	2.85	17.54	27.39	43.31	16.35	14.61	341.85	10.15	85.63	156.46	755.52	5106.88	126.63	4.34	7.04	17.56	5410.73	40.89	10.75
tributary water area	ac	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	71.20	0.00	0.00	0.00	0.00	71.20	0.00	0.00
direct and ponded area	ac	14.43	55.59	2.85	17.54	27.39	43.31	16.35	14.61	341.85	10.15	85.63	156.46	755.52	5178.08	126.63	4.34	7.04	17.56	5481.93	40.89	10.75
ASSUMED EXPORT FACTORS.....																						
season length	yrs	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
season precipitation	inches	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8
runoff total p	ppb	356.3635878	367.4445596	350.0008415	204.8780007	289.9211047	146.1191034	2.346681881	248.9512955	59.80227225	276.6809856	323.2615138	264.0884616	334.7496369	243.7779511	517.9128671	200.0043527	200.0069997	200.0017976	327.880685	293.4986906	513.4071695
runoff ortho p/total p	-	0.33766108	0.339935348	0.300001753	0.596680706	0.420959726	0.115001084	0.000870539	0.19192261	0.044799766	0.509786508	0.452689204	0.518188949	0.415389877	0.501154592	0.627208395	0.599993552	0.59998963	0.599997337	0.443970676	0.492431348	0.231285147
unit runoff	in/yr	10.42771638	8.653401752	14.56092522	2.560441682	9.669439129	4.255680161	0.019373003	3.69829798	1.288968886	2.97435262	3.464323191	4.038981776	4.178145384	3.857713226	3.621036009	2.544110808	2.544178193	2.544045761	3.533696044	3.124244989	4.302802173
unit export	lbs/ac-y	0.85	0.74	1.15	0.12	0.73	0.36	0.00	0.37	0.12	0.21	0.29	0.29	0.36	0.27	0.42	0.12	0.12	0.12	0.30	0.24	0.51
POND WATER BUDGETS.....																						
runoff	ac-ft/yr	12.54	29.68	3.46	3.74	5.64	15.36	0.03	4.50	3.43	2.51	21.79	23.84	89.55	13.59	38.21	0.92	0.57	2.23	47.01	10.65	3.86
upstream pond	ac-ft/yr	0.00	12.54	0.00	0.00	7.20	0.00	0.00	0.00	169.79	0.00	2.51	24.31	221.37	2231.53	0.00	0.00	0.92	1.49	2287.04	0.00	0.00
total inflow	**ac-ft/yr**	**12.54**	**42.22**	**3.46**	**3.74**	**12.84**	**15.36**	**0.03**	**4.50**	**173.23**	**2.51**	**24.31**	**48.15**	**310.93**	**2245.11**	**38.21**	**0.92**	**1.49**	**3.72**	**2334.06**	**10.65**	**3.86**
outflow	ac-ft/yr	12.54	42.22	3.46	3.74	12.84	15.36	0.03	4.50	173.23	2.51	24.31	48.15	310.93	2245.11	38.21	0.92	1.49	3.72	2334.06	10.65	3.86
POND PHOSPHORUS BUDGETS.....																						
runoff	lbs/yr	12.26	30.41	3.29	2.09	5.12	15.60	0.04	5.39	3.75	2.15	21.92	20.32	92.89	11.41	52.60	0.50	0.31	1.21	47.94	9.67	5.49
upstream pond	lbs/yr	0.00	12.26	0.00	0.00	5.39	0.00	0.00	0.00	180.05	0.00	2.15	24.07	228.19	1140.12	0.00	0.00	0.50	0.81	1206.15	0.00	0.00
total inflow	**lbs/yr**	**12.26**	**42.67**	**3.29**	**2.09**	**10.51**	**15.60**	**0.04**	**5.39**	**183.80**	**2.15**	**24.07**	**44.40**	**321.08**	**1151.53**	**52.60**	**0.50**	**0.81**	**2.02**	**1254.09**	**9.67**	**5.49**
net sedimentation	lbs/yr	0.00	0.00	0.00	0.00	0.00	0.00	0.03	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
outflow	lbs/yr	12.26	42.67	3.29	2.09	10.51	15.60	0.01	5.39	183.79	2.15	24.07	44.40	321.08	1151.53	52.60	0.50	0.81	2.02	1254.09	9.67	5.49
p removal efficiency	%	0.00	0.00	0.02	0.01	0.00	0.01	75.80	0.03	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.02	0.01	0.01	0.00	0.00	0.03
upstream w-shed p load	lbs/yr	12.26	42.67	3.29	2.09	10.51	15.60	0.04	5.39	183.83	2.15	24.08	44.40	321.12	2536.79	52.60	0.50	0.81	2.02	2639.35	9.67	5.49
total removal %	%	0.00	0.00	0.02	0.01	0.01	0.01	75.80	0.03	0.02	0.01	0.00	0.00	0.01	54.61	0.00	0.02	0.02	0.02	52.48	0.00	0.03
HYDRAULIC PARAMETERS.....																						
pond mean depth	feet	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
relative volume	inches	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
residence time	years	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
residence time	days	0.00	0.00	0.00	0.00	0.00	0.00	0.14	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
overflow rate	ft/yr	1253590.52	4221638.81	346076.79	374274.27	1283924.65	1535771.06	2640.07	450177.48	17322529.91	251458.96	2430635.46	4814579.15	31092547.27	224511077.55	3821190.28	92056.53	149302.66	372205.59	233405880.50	1064692.44	385570.16
inflow phos conc	ppb	359.92	371.88	350.02	205.87	301.15	373.82	539.71	440.55	390.37	314.79	364.41	339.26	379.93	188.71	506.43	200.03	200.00	200.00	197.68	334.12	524.30
outflow phos conc	ppb	359.91	371.88	349.95	205.86	301.14	373.78	130.64	440.43	390.36	314.75	364.41	339.26	379.93	188.71	506.43	199.98	199.98	199.99	197.68	334.11	524.13
p reaction rate	-	0.00	0.00	0.00	0.00	0.00	0.00	12.94	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1-rp	-	1.00	1.00	1.00	1.00	1.00	1.00	0.24	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
vlawmo pond volume	acre-ft	0.99	2.33	0.27	0.29	0.44	1.21	0.00	0.35	0.27	0.20	1.71	1.87	7.04	1.07	3.00	0.07	0.05	0.18	3.70	0.84	0.30
LAND USE PARAMETERS.....																						
runoff total P conc	ppb	356.36	367.44	350.00	204.88	289.92	146.12	2.35	248.95	59.80	276.68	323.26	264.09	334.75	243.78	517.91	200.00	200.01	200.00	327.88	293.50	513.41
runoff coefficient		0.33	0.27	0.46	0.08	0.30	0.13	0.00	0.12	0.04	0.09	0.11	0.13	0.13	0.12	0.11	0.08	0.08	0.08	0.11	0.10	0.14
dissolved/total P		0.34	0.34	0.30	0.60	0.42	0.12	0.00	0.19	0.04	0.51	0.45	0.52	0.42	0.50	0.63	0.60	0.60	0.60	0.44	0.49	0.23
runoff TSS conc	ppm	156.13	153.28	140.00	215.97	170.64	53.80	0.71	86.10	20.91	204.05	194.54	198.12	183.35	189.51	206.41	216.00	216.00	216.00	192.48	201.81	167.14
POND TSS BUDGETS.....																						
runoff	lbs/yr	4909.36	11604.46	1313.02	2189.79	2261.33	5828.64	11.66	1744.51	1303.55	1350.01	10878.38	11469.01	41683.01	6500.36	20169.75	538.85	335.08	1304.77	23289.33	5605.19	1728.78
upstream pond	lbs/yr	0.00	4909.36	0.00	0.00	3502.81	0.00	0.00	0.00	68051.85	0.00	1350.01	12228.38	93052.79	262063.09	0.00	0.00	538.85	873.94	290911.91	0.00	0.00
total inflow	**lbs/yr**	**4909.36**	**16513.82**	**1313.02**	**2189.79**	**5764.14**	**5828.64**	**11.66**	**1744.51**	**69355.40**	**1350.01**	**12228.38**	**23697.39**	**134735.81**	**268563.45**	**20169.75**	**538.85**	**873.94**	**2178.71**	**314201.24**	**5605.19**	**1728.78**
p removal efficiency (no inf)	%	0.00	0.00	0.00	0.00	0.00	0.00	76.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
tss removal efficiency (no inf)	%	0.00	0.00	0.00	0.00	0.00	0.00	93.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
net sedimentation	lbs/yr	0.00	0.00	0.00	0.00	0.00	0.00	10.84	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
outflow	lbs/yr	4909.36	16513.82	1313.02	2189.79	5764.14	5828.64	0.82	1744.51	69355.40	1350.01	12228.38	23697.39	134735.81	268563.45	20169.75	538.85	873.94	2178.71	314201.24	5605.19	1728.78
tss removal efficiency (inf)		0.00	0.00	0.00	0.00	0.00	0.00	93.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
upstream watershed tss load	lbs/yr	4909.36	16513.82	1313.02	2189.79	5764.14	5828.64	11.66	1744.51	69366.24	1350.01	12228.38	23697.39	134746.65	981043.18	20169.75	538.85	873.94	2178.71	1026680.97	5605.19	1728.78
tss total removal efficiency	%	0.00	0.00	0.00	0.00	0.00	0.00	93.00	0.00	0.02	0.00	0.00	0.00	0.01	72.62	0.00	0.00	0.00	0.00	69.40	0.00	0.00
INFILTRATION BMP/POND.....																						
Annual runoff infiltrated	%	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Adjusted outflow	**ac-ft/yr**	**12.54**	**42.22**	**3.46**	**3.74**	**12.84**	**15.36**	**0.03**	**4.50**	**173.23**	**2.51**	**24.31**	**48.15**	**310.93**	**2245.11**	**38.21**	**0.92**	**1.49**	**3.72**	**2334.06**	**10.65**	**3.86**
Adjusted TP outflow	**lbs/yr**	**12.26**	**42.67**	**3.29**	**2.09**	**10.51**	**15.60**	**0.01**	**5.39**	**183.79**	**2.15**	**24.07**	**44.40**	**321.08**	**1151.53**	**52.60**	**0.50**	**0.81**	**2.02**	**1254.09**	**9.67**	**5.49**
Adjusted TSS outflow	**lbs/yr**	**4909.36**	**16513.82**	**1313.02**	**2189.79**	**5764.14**	**5828.64**	**0.82**	**1744.51**	**69355.40**	**1350.01**	**12228.38**	**23697.39**	**134735.81**	**268563.45**	**20169.75**	**538.85**	**873.94**	**2178.71**	**314201.24**	**5605.19**	**1728.78**

Rochester Loading Assessment																						
Willow Creek																						
363-06-158-2																						
Baseline (1988) LOADS																						
		wc-a5.11b	**wc-a5.11a**	**wc-a5.9b**	**wc-a5.9a**	**wc-a6.4b**	**wc-a6.4a**	**wc-a5.12b**	**wc-a5.12a**	**wc-a6.7**	**wc-a6.2d**	**wc-a6.2c**	**wc-a6.2b**	**wc-a6.2a**	**wc-a6.1**	**wc-a6.5c**	**wc-a6.3g**	**wc-a6.3f**	**wc-a6.3e**	**wc-a6.3d**	**wc-a6.3c**	**wc-a6.3b**
Routed TO:		wc-a5.11a	wc-a5.9a	wc-a5.9a	wc-a6.7	wc-a6.4a	wc-a6.7	wc-a5.12a	wc-a6.7	wc-a6.6a	wc-a6.2b	wc-a6.2b	wc-a6.2a	wc-a6.3a	wc-a6.3e	wc-a6.3e	wc-a6.5a	wc-a6.3c	wc-a6.3c	wc-a6.3c	wc-a6.3b	wc-a6.3a
INPUT VARIABLES....	UNITS																					
case label	-																					
Watershed area	acres	189.9	59.0	44.9	43.6	33.2	113.9	14.2	204.0	107.4	17.1	12.0	6.1	36.1	137.4	34.1	7.7	16.2	57.1	18.5	19.4	11.0
basin area	acres	3.88	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
basin volume	acre-ft	15.52	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Row Crop Agriculture		27%	27%	59%	28%	0%	52%	84%	12%	0%	53%	0%	1%	3%	60%	95%	7%	22%	87%	84%	11%	28%
Very Low Density Residential		5%	15%	0%	0%	0%	0%	1%	4%	0%	0%	0%	0%	0%	3%	0%	0%	0%	0%	0%	1%	13%
Low Density Residential		17%	7%	0%	0%	0%	2%	0%	27%	7%	0%	0%	0%	0%	1%	0%	0%	0%	0%	0%	0%	0%
Medium Density Residential		0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
High Density Residential		0%	0%	0%	0%	0%	0%	0%	1%	33%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Commercial/Industrial		0%	2%	0%	0%	0%	9%	0%	0%	47%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Institutional		0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Open Space		47%	47%	40%	68%	89%	28%	15%	52%	3%	47%	100%	99%	91%	10%	0%	75%	74%	6%	16%	79%	59%
Golf Course		0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Pits and Quarries		0%	0%	0%	1%	0%	1%	0%	0%	0%	0%	0%	0%	0%	25%	0%	0%	0%	0%	0%	0%	0%
Right-of-Way		4%	3%	0%	3%	11%	9%	0%	4%	10%	0%	0%	0%	6%	2%	4%	19%	3%	7%	0%	10%	0%
WATERSHED-WIDE ACCOUNTING.....																						
tributary land area	ac	241.53	300.52	44.95	5799.77	33.20	147.10	14.17	218.17	6272.39	17.11	11.95	35.16	71.30	137.41	34.08	7.66	16.20	228.59	18.50	282.66	293.69
tributary water area	ac	3.88	3.88	0.00	75.08	0.00	0.00	0.00	0.00	75.08	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
direct and ponded area	ac	245.41	304.40	44.95	5874.85	33.20	147.10	14.17	218.17	6347.47	17.11	11.95	35.16	71.30	137.41	34.08	7.66	16.20	228.59	18.50	282.66	293.69
ASSUMED EXPORT FACTORS.....																						
season length	yrs	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
season precipitation	inches	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8
runoff total p	ppb	350.6860219	337.9565596	401.4974164	299.5848084	221.3651145	410.0676107	486.8807627	324.3852019	389.6355716	381.5240277	200.0015814	203.4036067	223.5442539	364.7303966	533.2331731	259.9944931	282.34792	509.5891476	484.5241254	257.6220886	314.9868312
runoff ortho p/total p	-	0.422622387	0.444743784	0.359822032	0.475355031	0.567952339	0.329438504	0.263480133	0.452245871	0.309615032	0.386441983	0.599997657	0.595994811	0.568409617	0.202480197	0.205124001	0.517523917	0.500894476	0.231660346	0.265265423	0.526677942	0.474985217
unit runoff	in/yr	4.063264667	3.766663912	3.669450783	3.248090798	3.209139788	5.197422817	4.148690546	4.268442276	12.75587331	3.562692051	2.544040259	2.563161747	2.983070452	3.232010166	4.637807954	3.832846979	3.181672009	4.617434388	4.140702716	3.351297299	3.134803123
unit export	lbs/ac-y	0.36	0.32	0.37	0.25	0.19	0.50	0.48	0.36	1.13	0.34	0.12	0.12	0.17	0.37	0.55	0.27	0.23	0.53	0.47	0.23	0.25
POND WATER BUDGETS.....																						
runoff	ac-ft/yr	64.29	18.52	13.74	11.79	8.88	49.33	4.90	72.56	114.12	5.08	2.53	1.30	8.98	37.01	13.17	2.45	4.29	21.97	6.38	5.41	2.88
upstream pond	ac-ft/yr	14.50	78.80	0.00	2445.12	0.00	8.88	0.00	4.90	2592.58	0.00	0.00	7.61	8.92	0.00	0.00	0.00	0.00	50.18	0.00	82.83	88.24
total inflow	**ac-ft/yr**	**78.80**	**97.32**	**13.74**	**2456.91**	**8.88**	**58.21**	**4.90**	**77.46**	**2706.70**	**5.08**	**2.53**	**8.92**	**17.90**	**37.01**	**13.17**	**2.45**	**4.29**	**72.15**	**6.38**	**88.24**	**91.12**
outflow	ac-ft/yr	78.80	97.32	13.74	2456.91	8.88	58.21	4.90	77.46	2706.70	5.08	2.53	8.92	17.90	37.01	13.17	2.45	4.29	72.15	6.38	88.24	91.12
POND PHOSPHORUS BUDGETS.....																						
runoff	lbs/yr	69.12	19.00	16.64	11.10	6.23	56.84	6.75	74.30	121.24	5.89	1.38	0.73	6.17	50.19	18.90	2.07	3.79	30.50	8.78	4.42	2.77
upstream pond	lbs/yr	15.16	35.50	0.00	1325.22	0.00	6.23	0.00	6.75	1480.45	0.00	0.00	7.27	8.00	0.00	0.00	0.00	0.00	69.09	0.00	112.16	116.58
total inflow	**lbs/yr**	**84.28**	**54.50**	**16.64**	**1336.32**	**6.23**	**63.08**	**6.75**	**81.05**	**1601.69**	**5.89**	**1.38**	**8.00**	**14.17**	**50.19**	**18.90**	**2.07**	**3.79**	**99.60**	**8.78**	**116.58**	**119.35**
net sedimentation	lbs/yr	48.78	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
outflow	lbs/yr	35.50	54.49	16.64	1336.32	6.23	63.08	6.75	81.05	1601.69	5.89	1.38	8.00	14.17	50.19	18.90	2.07	3.79	99.59	8.78	116.58	119.35
p removal efficiency	%	57.88	0.00	0.01	0.00	0.00	0.00	0.02	0.00	0.00	0.01	0.01	0.00	0.00	0.00	0.01	0.01	0.01	0.00	0.02	0.00	0.00
upstream w-shed p load	lbs/yr	84.28	103.28	16.64	2770.37	6.23	63.08	6.75	81.05	3035.73	5.89	1.38	8.00	14.17	50.19	18.90	2.07	3.79	99.60	8.78	116.59	119.36
total removal %	%	57.88	47.24	0.01	51.76	0.00	0.00	0.02	0.00	47.24	0.01	0.01	0.01	0.01	0.00	0.01	0.01	0.01	0.01	0.02	0.01	0.01
HYDRAULIC PARAMETERS.....																						
pond mean depth	feet	4.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
relative volume	inches	7.68	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
residence time	years	0.20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
residence time	days	71.89	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
overflow rate	ft/yr	20.31	9731517.92	1374364.66	245691227.67	887730.70	5821039.98	489997.69	7746172.78	270669956.31	508042.56	253367.33	891663.15	1789942.23	3700976.19	1317024.61	244761.46	429421.79	7215132.68	638464.96	8824116.26	9112154.51
inflow phos conc	ppb	393.53	206.03	445.40	200.11	258.40	398.69	507.20	384.96	217.71	426.86	200.02	330.09	291.18	498.99	528.08	311.64	324.58	507.87	505.94	486.09	481.90
outflow phos conc	ppb	165.75	206.03	445.38	200.11	258.40	398.68	507.08	384.96	217.71	426.81	200.00	330.08	291.17	498.97	528.02	311.60	324.55	507.86	505.86	486.08	481.90
p reaction rate	-	3.26	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1-rp	-	0.42	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
vlawmo pond volume	acre-ft	5.05	1.46	1.08	0.93	0.70	3.88	0.39	5.70	8.97	0.40	0.20	0.10	0.71	2.91	1.04	0.19	0.34	1.73	0.50	0.43	0.23
LAND USE PARAMETERS.....																						
runoff total P conc	ppb	350.69	337.96	401.50	299.58	221.37	410.07	486.88	324.39	389.64	381.52	200.00	203.40	223.54	364.73	533.23	259.99	282.35	509.59	484.52	257.62	314.99
runoff coefficient		0.13	0.12	0.12	0.10	0.10	0.16	0.13	0.13	0.40	0.11	0.08	0.08	0.09	0.10	0.15	0.12	0.10	0.15	0.13	0.11	0.10
dissolved/total P		0.42	0.44	0.36	0.48	0.57	0.33	0.26	0.45	0.31	0.39	0.60	0.60	0.57	0.20	0.21	0.52	0.50	0.23	0.27	0.53	0.47
runoff TSS conc	ppm	185.43	193.40	183.67	197.51	207.88	171.85	171.58	185.29	142.46	187.70	216.00	215.47	209.63	129.30	162.09	198.34	201.62	164.83	171.65	202.94	201.21
POND TSS BUDGETS.....																						
runoff	lbs/yr	29929.37	9058.24	6620.35	6058.75	4662.63	21457.90	2235.30	33136.73	43447.60	2487.04	1483.10	759.19	4865.83	16755.48	5751.55	1190.57	2238.24	9644.09	2912.22	2775.75	1522.14
upstream pond	lbs/yr	7333.98	2608.43	0.00	332488.26	0.00	4662.63	0.00	2235.30	400039.57	0.00	0.00	3970.14	4729.33	0.00	0.00	0.00	0.00	22507.03	0.00	37301.58	40077.33
total inflow	**lbs/yr**	**37263.34**	**11666.67**	**6620.35**	**338547.01**	**4662.63**	**26120.53**	**2235.30**	**35372.03**	**443487.17**	**2487.04**	**1483.10**	**4729.33**	**9595.16**	**16755.48**	**5751.55**	**1190.57**	**2238.24**	**32151.12**	**2912.22**	**40077.33**	**41599.47**
p removal efficiency (no inf)	%	58.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
tss removal efficiency (no inf)	%	93.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
net sedimentation	lbs/yr	34654.91	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
outflow	lbs/yr	2608.43	11666.67	6620.35	338547.01	4662.63	26120.53	2235.30	35372.03	443487.17	2487.04	1483.10	4729.33	9595.16	16755.48	5751.55	1190.57	2238.24	32151.12	2912.22	40077.33	41599.47
tss removal efficiency (inf)		93.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
upstream watershed tss load	lbs/yr	37263.34	46321.58	6620.35	1085681.65	4662.63	26120.53	2235.30	35372.03	1190621.81	2487.04	1483.10	4729.33	9595.16	16755.48	5751.55	1190.57	2238.24	32151.12	2912.22	40077.33	41599.47
tss total removal efficiency	%	93.00	74.81	0.00	68.82	0.00	0.00	0.00	0.00	62.75	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
INFILTRATION BMP/POND.....																						
Annual runoff infiltrated	%	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Adjusted outflow	**ac-ft/yr**	**78.80**	**97.32**	**13.74**	**2456.91**	**8.88**	**58.21**	**4.90**	**77.46**	**2706.70**	**5.08**	**2.53**	**8.92**	**17.90**	**37.01**	**13.17**	**2.45**	**4.29**	**72.15**	**6.38**	**88.24**	**91.12**
Adjusted TP outflow	**lbs/yr**	**35.50**	**54.49**	**16.64**	**1336.32**	**6.23**	**63.08**	**6.75**	**81.05**	**1601.69**	**5.89**	**1.38**	**8.00**	**14.17**	**50.19**	**18.90**	**2.07**	**3.79**	**99.59**	**8.78**	**116.58**	**119.35**
Adjusted TSS outflow	**lbs/yr**	**2608.43**	**11666.67**	**6620.35**	**338547.01**	**4662.63**	**26120.53**	**2235.30**	**35372.03**	**443487.17**	**2487.04**	**1483.10**	**4729.33**	**9595.16**	**16755.48**	**5751.55**	**1190.57**	**2238.24**	**32151.12**	**2912.22**	**40077.33**	**41599.47**

Rochester Loading Assessment																						
Willow Creek																						
363-06-158-2																						
Baseline (1988) LOADS																						
		wc-a6.3a	**wc-a6.5b**	**wc-a6.5a**	**wc-a6.8**	**wc-a6.9g**	**wc-a6.9f**	**wc-a6.9e**	**wc-a6.9d**	**wc-a6.9c**	**wc-a6.9b**	**wc-a6.9a**	**wc-a6.10b**	**wc-a6.12**	**wc-a6.10a**	**wc-a6.11**	**wc-a6.6b**	**wc-a6.6a**	**wc-a1.9b**	**wc-a1.9a**	**wc-a1.10b**	**wc-a1.10a**
Routed TO:		wc-a6.5a	wc-a6.5a	wc-a6.6a	wc-a6.9a	wc-a6.9a	wc-a6.9a	wc-a6.9a	wc-a6.9c	wc-a6.9b	wc-a6.9a	wc-a6.10a	wc-a6.10a	wc-a6.10a	wc-a6.11	wc-a6.6a	wc-a6.6a	wc-a6.14a	wc-a1.9a	wc-a1.10a	wc-a1.10a	wc-a2.2
INPUT VARIABLES....	UNITS																					
case label	-																					
Watershed area	acres	95.7	142.5	44.5	102.0	27.5	41.1	9.6	62.1	15.2	7.2	119.6	17.2	207.3	159.0	128.0	3.8	224.2	14.1	18.2	10.8	69.3
basin area	acres	0.00	0.00	0.00	0.00	0.60	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	36.00
basin volume	acre-ft	0.00	0.00	0.00	0.00	2.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	314.00
Row Crop Agriculture		14%	90%	49%	79%	22%	78%	83%	38%	21%	0%	11%	0%	0%	0%	0%	0%	9%	10%	65%	26%	14%
Very Low Density Residential		8%	0%	3%	9%	3%	0%	9%	0%	0%	0%	4%	0%	6%	0%	0%	0%	0%	13%	0%	0%	0%
Low Density Residential		0%	0%	0%	1%	24%	0%	0%	8%	0%	0%	2%	2%	39%	19%	0%	0%	0%	0%	0%	0%	0%
Medium Density Residential		0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	1%	0%	0%	0%	0%	0%	0%	0%	0%
High Density Residential		0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Commercial/Industrial		0%	0%	21%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	51%	100%	4%	0%	0%	0%	0%
Institutional		0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Open Space		59%	10%	20%	11%	51%	20%	8%	54%	79%	100%	80%	98%	29%	72%	27%	0%	80%	77%	35%	22%	86%
Golf Course		0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Pits and Quarries		0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	52%	0%
Right-of-Way		19%	1%	7%	0%	0%	1%	0%	0%	0%	0%	3%	0%	26%	9%	22%	0%	7%	0%	0%	0%	0%
WATERSHED-WIDE ACCOUNTING.....																						
tributary land area	ac	460.65	142.55	655.35	101.99	27.49	41.05	9.59	62.14	77.34	84.54	384.25	17.24	207.26	767.70	895.68	3.76	8051.36	14.13	32.38	10.79	112.46
tributary water area	ac	0.00	0.00	0.00	0.00	0.60	0.00	0.00	0.00	0.00	0.00	0.60	0.00	0.00	0.60	0.60	0.00	75.68	0.00	0.00	0.00	36.00
direct and ponded area	ac	460.65	142.55	655.35	101.99	28.09	41.05	9.59	62.14	77.34	84.54	384.85	17.24	207.26	768.30	896.28	3.76	8127.04	14.13	32.38	10.79	148.46
ASSUMED EXPORT FACTORS.....																						
season length	yrs	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
season precipitation	inches	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8
runoff total p	ppb	297.5065036	506.4530428	417.2491958	484.058204	340.2521162	469.5910628	496.5943749	348.943125	271.6463312	200.0026268	253.843614	204.1492241	359.7715414	265.4939731	321.0520388	350.9309694	250.9680268	252.1425417	419.567962	182.8310982	246.2982238
runoff ortho p/total p	-	0.478589322	0.238921799	0.315906691	0.272489584	0.436054829	0.282450724	0.257828765	0.424391926	0.516259027	0.599996108	0.538091822	0.595020622	0.397316321	0.515812185	0.380382225	0.300798756	0.530765339	0.548625503	0.341684435	0.185530402	0.545531418
unit runoff	in/yr	4.043542783	4.306748642	6.457885478	4.129796289	3.986803812	4.113429065	4.172536466	3.595008728	2.947021749	2.54406687	3.028646583	2.613710932	5.885241456	3.927288022	10.03918422	14.59970155	3.623544703	2.783691127	3.776184293	1.707894607	2.803820152
unit export	lbs/ac-y	0.32	0.51	0.60	0.47	0.35	0.46	0.48	0.32	0.21	0.12	0.20	0.12	0.53	0.29	0.80	1.16	0.24	0.17	0.39	0.17	0.17
POND WATER BUDGETS.....																						
runoff	ac-ft/yr	32.23	51.16	23.95	35.10	9.13	14.07	3.33	18.61	3.74	1.53	30.18	3.75	101.65	52.02	107.06	4.58	67.69	3.28	5.74	1.54	16.19
upstream pond	ac-ft/yr	109.02	0.00	194.86	0.00	0.00	0.00	0.00	0.00	18.61	22.35	85.52	0.00	0.00	221.10	273.12	0.00	3310.27	0.00	3.28	0.00	10.56
total inflow	**ac-ft/yr**	**141.26**	**51.16**	**218.81**	**35.10**	**9.13**	**14.07**	**3.33**	**18.61**	**22.35**	**23.88**	**115.70**	**3.75**	**101.65**	**273.12**	**380.19**	**4.58**	**3377.96**	**3.28**	**9.02**	**1.54**	**26.75**
outflow	ac-ft/yr	141.26	51.16	218.81	35.10	9.13	14.07	3.33	18.61	22.35	23.88	115.70	3.75	101.65	273.12	380.19	4.58	3377.96	3.28	9.02	1.54	26.75
POND PHOSPHORUS BUDGETS.....																						
runoff	lbs/yr	30.17	72.10	26.53	47.98	9.66	18.89	4.64	20.07	3.13	0.83	23.61	2.15	109.67	45.67	101.75	4.35	54.48	2.43	7.16	1.78	12.04
upstream pond	lbs/yr	133.52	0.00	237.85	0.00	0.00	0.00	0.00	0.00	20.07	23.20	99.77	0.00	0.00	235.20	280.87	0.00	2253.04	0.00	2.43	0.00	11.37
total inflow	**lbs/yr**	**163.68**	**72.10**	**264.38**	**47.98**	**9.66**	**18.89**	**4.64**	**20.07**	**23.20**	**24.03**	**123.39**	**2.15**	**109.67**	**280.87**	**382.62**	**4.35**	**2307.52**	**2.43**	**9.59**	**1.78**	**23.41**
net sedimentation	lbs/yr	0.00	0.00	0.00	0.00	5.42	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	15.85
outflow	lbs/yr	163.68	72.10	264.38	47.97	4.24	18.89	4.64	20.07	23.20	24.03	123.38	2.15	109.67	280.87	382.62	4.35	2307.52	2.43	9.59	1.78	7.56
p removal efficiency	%	0.00	0.00	0.00	0.00	56.08	0.01	0.03	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.01	0.00	0.01	0.01	0.08	67.72
upstream w-shed p load	lbs/yr	163.69	72.10	264.39	47.98	9.66	18.89	4.64	20.07	23.20	24.03	128.81	2.15	109.67	286.30	388.05	4.35	3747.01	2.43	9.60	1.78	23.41
total removal %	%	0.01	0.00	0.01	0.00	56.08	0.01	0.03	0.00	0.00	0.01	4.21	0.01	0.00	1.90	1.40	0.01	38.42	0.01	0.01	0.08	67.72
HYDRAULIC PARAMETERS.....																						
pond mean depth	feet	1.00	1.00	1.00	1.00	3.42	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	8.72
relative volume	inches	0.00	0.00	0.00	0.00	7.15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	616.78
residence time	years	0.00	0.00	0.00	0.00	0.22	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	11.74
residence time	days	0.00	0.00	0.00	0.00	82.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4285.20
overflow rate	ft/yr	14125577.37	5115881.91	21880861.72	3510122.42	15.22	1407137.93	333353.67	1861467.66	2234980.32	2387520.45	11569804.50	375417.97	10164550.59	27312089.83	38018551.86	457712.81	337796288.76	327735.09	902001.15	153626.26	0.74
inflow phos conc	ppb	426.33	518.51	444.54	502.87	389.22	493.96	511.81	396.69	381.87	370.25	392.36	210.72	396.95	378.36	370.28	350.02	251.33	273.06	391.36	426.57	322.03
outflow phos conc	ppb	426.33	518.49	444.54	502.85	170.96	493.93	511.64	396.68	381.86	370.24	392.36	210.71	396.95	378.36	370.28	349.97	251.33	273.04	391.33	426.21	103.95
p reaction rate	-	0.00	0.00	0.00	0.00	2.91	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.50
1-rp	-	1.00	1.00	1.00	1.00	0.44	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.32
vlawmo pond volume	acre-ft	2.53	4.02	1.88	2.76	0.72	1.11	0.26	1.46	0.29	0.12	2.37	0.30	7.99	4.09	8.42	0.36	5.32	0.26	0.45	0.12	1.27
LAND USE PARAMETERS.....																						
runoff total P conc	ppb	297.51	506.45	417.25	484.06	340.25	469.59	496.59	348.94	271.65	200.00	253.84	204.15	359.77	265.49	321.05	350.93	250.97	252.14	419.57	182.83	246.30
runoff coefficient		0.13	0.14	0.20	0.13	0.13	0.13	0.13	0.11	0.09	0.08	0.10	0.08	0.19	0.12	0.32	0.46	0.11	0.09	0.12	0.05	0.09
dissolved/total P		0.48	0.24	0.32	0.27	0.44	0.28	0.26	0.42	0.52	0.60	0.54	0.60	0.40	0.52	0.38	0.30	0.53	0.55	0.34	0.19	0.55
runoff TSS conc	ppm	193.98	167.85	168.59	173.43	186.04	173.57	171.83	189.95	204.99	216.00	206.61	214.74	166.09	194.67	160.36	140.37	202.66	210.92	181.77	90.05	208.78
POND TSS BUDGETS.....																						
runoff	lbs/yr	15384.09	22956.87	10042.73	16141.98	4260.02	6450.87	1525.60	9080.58	2015.92	892.90	16194.12	2164.43	41757.95	24730.56	42117.54	1736.56	33946.20	1846.27	2733.53	752.24	8973.78
upstream pond	lbs/yr	51194.63	0.00	90726.17	0.00	0.00	0.00	0.00	0.00	9080.58	11096.50	36406.05	0.00	0.00	96522.55	121253.11	0.00	709363.28	0.00	1846.27	0.00	5332.04
total inflow	**lbs/yr**	**66578.73**	**22956.87**	**100768.90**	**16141.98**	**4260.02**	**6450.87**	**1525.60**	**9080.58**	**11096.50**	**11989.39**	**52600.17**	**2164.43**	**41757.95**	**121253.11**	**163370.65**	**1736.56**	**743309.48**	**1846.27**	**4579.80**	**752.24**	**14305.82**
p removal efficiency (no inf)	%	0.00	0.00	0.00	0.00	57.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	68.00
tss removal efficiency (no inf)	%	0.00	0.00	0.00	0.00	93.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	93.00
net sedimentation	lbs/yr	0.00	0.00	0.00	0.00	3961.82	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	13304.41
outflow	lbs/yr	66578.73	22956.87	100768.90	16141.98	298.20	6450.87	1525.60	9080.58	11096.50	11989.39	52600.17	2164.43	41757.95	121253.11	163370.65	1736.56	743309.48	1846.27	4579.80	752.24	1001.41
tss removal efficiency (inf)		0.00	0.00	0.00	0.00	93.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	93.00
upstream watershed tss load	lbs/yr	66578.73	22956.87	100768.90	16141.98	4260.02	6450.87	1525.60	9080.58	11096.50	11989.39	56561.98	2164.43	41757.95	125214.93	167332.47	1736.56	1494405.93	1846.27	4579.80	752.24	14305.82
tss total removal efficiency	%	0.00	0.00	0.00	0.00	93.00	0.00	0.00	0.00	0.00	0.00	7.00	0.00	0.00	3.16	2.37	0.00	50.26	0.00	0.00	0.00	93.00
INFILTRATION BMP/POND.....																						
Annual runoff infiltrated	%	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Adjusted outflow	**ac-ft/yr**	**141.26**	**51.16**	**218.81**	**35.10**	**9.13**	**14.07**	**3.33**	**18.61**	**22.35**	**23.88**	**115.70**	**3.75**	**101.65**	**273.12**	**380.19**	**4.58**	**3377.96**	**3.28**	**9.02**	**1.54**	**26.75**
Adjusted TP outflow	**lbs/yr**	**163.68**	**72.10**	**264.38**	**47.97**	**4.24**	**18.89**	**4.64**	**20.07**	**23.20**	**24.03**	**123.38**	**2.15**	**109.67**	**280.87**	**382.62**	**4.35**	**2307.52**	**2.43**	**9.59**	**1.78**	**7.56**
Adjusted TSS outflow	**lbs/yr**	**66578.73**	**22956.87**	**100768.90**	**16141.98**	**298.20**	**6450.87**	**1525.60**	**9080.58**	**11096.50**	**11989.39**	**52600.17**	**2164.43**	**41757.95**	**121253.11**	**163370.65**	**1736.56**	**743309.48**	**1846.27**	**4579.80**	**752.24**	**1001.41**

Rochester Loading Assessment																					
Willow Creek																					
363-06-158-2																					
Baseline (1988) LOADS																					
		wc-a2.1	**wc-a2.2**	**wc-a2.4**	**wc-a2.8**	**wc-a2.6**	**wc-a2.7**	**wc-a2.9c**	**wc-a2.9b**	**wc-a2.9a**	**wc-a2.10b**	**wc-a2.10a**	**wc-a6.14d**	**wc-a6.14c**	**wc-a6.14b**	**wc-a6.13d**	**wc-a6.13c**	**wc-a6.13b**	**wc-a6.13a**	**wc-a6.14a**	**wc-a6.15**
Routed TO:		wc-a2.2	wc-a2.6	wc-a2.6	wc-a2.6	wc-a2.10a	wc-a2.9c	wc-a2.10a	wc-a2.9a	wc-a2.10a	wc-a2.10a	wc-a6.14a	wc-a6.14a	wc-a6.13b	wc-a6.14a	wc-a6.14a	wc-a6.14a	wc-a6.14a	wc-a6.14a	wc-a6.15	bc-a2.19
INPUT VARIABLES....	UNITS																				
case label	-																				
Watershed area	acres	32.5	71.4	59.5	0.1	4.9	0.1	39.9	29.1	128.0	8.1	193.8	1.8	25.0	34.9	46.6	60.6	307.9	88.9	287.9	112.6
basin area	acres	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.13	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
basin volume	acre-ft	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Row Crop Agriculture		0%	0%	59%	0%	42%	0%	1%	8%	8%	0%	24%	0%	6%	18%	21%	0%	0%	13%	8%	47%
Very Low Density Residential		0%	0%	0%	0%	0%	0%	0%	0%	1%	0%	2%	0%	0%	0%	0%	0%	3%	0%	0%	3%
Low Density Residential		0%	0%	0%	0%	0%	0%	2%	0%	0%	0%	33%	0%	0%	0%	19%	0%	41%	38%	18%	19%
Medium Density Residential		0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	1%	0%	0%	0%	1%	2%
High Density Residential		0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	2%	0%	0%	0%
Commercial/Industrial		0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	31%	0%	0%	0%	1%	19%	0%	0%
Institutional		0%	0%	0%	0%	0%	0%	0%	0%	0%	88%	1%	100%	0%	0%	0%	0%	3%	8%	4%	6%
Open Space		100%	100%	24%	0%	41%	0%	36%	92%	84%	2%	25%	0%	64%	48%	0%	100%	45%	7%	65%	19%
Golf Course		0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Pits and Quarries		0%	0%	16%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	15%	0%	0%	1%	0%	0%	0%
Right-of-Way		0%	0%	1%	100%	17%	100%	61%	1%	7%	9%	15%	0%	0%	19%	58%	0%	4%	14%	4%	4%
WATERSHED-WIDE ACCOUNTING.....																					
tributary land area	ac	32.47	216.29	59.51	0.07	280.78	0.09	40.04	29.06	157.07	8.09	679.79	1.81	24.99	34.93	46.62	60.62	332.91	88.92	9584.80	9697.36
tributary water area	ac	0.00	36.00	0.00	0.00	36.00	0.00	0.00	0.00	0.00	0.13	36.13	0.00	0.00	0.00	0.00	0.00	0.00	0.00	111.81	111.81
direct and ponded area	ac	32.47	252.29	59.51	0.07	316.78	0.09	40.04	29.06	157.07	8.22	715.92	1.81	24.99	34.93	46.62	60.62	332.91	88.92	9696.61	9809.17
ASSUMED EXPORT FACTORS.....																					
season length	yrs	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
season precipitation	inches	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8
runoff total p	ppb	200.0005821	200.5333925	370.6120989	399.9575923	377.2218579	399.9655938	329.4465513	227.3612757	241.1516837	351.3402653	398.2423102	350.0013252	266.0546861	269.5785434	438.8837824	200.0507365	326.1441454	407.9663016	289.7654842	433.7190681
runoff ortho p/total p	-	0.599999138	0.59958349	0.266003569	0.300068399	0.380630662	0.300055494	0.407950619	0.567444909	0.54833674	0.306774944	0.355003654	0.300002761	0.484550586	0.379756633	0.280190145	0.599940215	0.438892163	0.309715721	0.485758978	0.31585284
unit runoff	in/yr	2.544014819	2.545877506	3.328409715	8.767652454	4.396190757	8.768178406	6.442837228	2.726362	3.105091665	9.481282984	5.396280143	9.73539887	6.328759515	3.678327967	7.453951505	2.544290909	5.077478176	8.184410478	4.055248293	5.100217633
unit export	lbs/ac-y	0.12	0.12	0.36	0.79	0.41	0.79	0.54	0.15	0.19	0.76	0.52	0.77	0.46	0.30	0.72	0.12	0.44	0.74	0.31	0.52
POND WATER BUDGETS.....																					
runoff	ac-ft/yr	6.88	15.14	16.51	0.05	1.80	0.07	21.45	6.60	33.12	6.39	87.16	1.47	13.18	10.71	28.96	12.85	130.29	60.65	97.28	47.84
upstream pond	ac-ft/yr	0.00	33.63	0.00	0.00	65.33	0.00	0.07	0.00	6.60	0.00	134.76	0.00	0.00	0.00	0.00	0.00	13.18	0.00	3857.97	3955.25
total inflow	**ac-ft/yr**	**6.88**	**48.77**	**16.51**	**0.05**	**67.13**	**0.07**	**21.51**	**6.60**	**39.73**	**6.39**	**221.91**	**1.47**	**13.18**	**10.71**	**28.96**	**12.85**	**143.47**	**60.65**	**3955.25**	**4003.09**
outflow	ac-ft/yr	6.88	48.77	16.51	0.05	67.13	0.07	21.51	6.60	39.73	6.39	221.91	1.47	13.18	10.71	28.96	12.85	143.47	60.65	3955.25	4003.09
POND PHOSPHORUS BUDGETS.....																					
runoff	lbs/yr	3.74	8.26	21.24	0.06	2.02	0.07	21.75	4.42	24.88	6.14	100.22	1.40	11.45	10.62	33.59	6.99	134.50	65.69	90.66	58.09
upstream pond	lbs/yr	0.00	11.30	0.00	0.00	40.85	0.00	0.07	0.00	4.42	0.00	100.13	0.00	0.00	0.00	0.00	0.00	11.45	0.00	2772.11	2862.77
total inflow	**lbs/yr**	**3.74**	**19.56**	**21.24**	**0.06**	**42.87**	**0.07**	**21.82**	**4.42**	**29.30**	**6.14**	**200.35**	**1.40**	**11.45**	**10.62**	**33.59**	**6.99**	**145.96**	**65.69**	**2862.77**	**2920.85**
net sedimentation	lbs/yr	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
outflow	lbs/yr	3.74	19.56	21.23	0.06	42.87	0.07	21.82	4.42	29.30	6.14	200.35	1.40	11.45	10.62	33.59	6.99	145.96	65.69	2862.77	2920.85
p removal efficiency	%	0.00	0.00	0.01	1.35	0.00	1.10	0.00	0.00	0.00	0.01	0.00	0.04	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00
upstream w-shed p load	lbs/yr	3.74	35.41	21.24	0.06	58.72	0.07	21.82	4.42	29.31	6.14	216.21	1.40	11.45	10.62	33.59	6.99	145.96	65.69	4318.12	4376.21
total removal %	%	0.00	44.77	0.01	1.35	27.00	1.10	0.01	0.00	0.00	0.01	7.34	0.04	0.00	0.01	0.00	0.00	0.00	0.00	33.70	33.26
HYDRAULIC PARAMETERS.....																					
pond mean depth	feet	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
relative volume	inches	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
residence time	years	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
residence time	days	0.00	0.00	0.00	0.07	0.00	0.06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
overflow rate	ft/yr	688306.53	4876854.41	1650504.85	5340.96	6712580.62	6583.44	2151300.33	660213.10	3972571.18	49.16	22191379.27	146931.51	1318073.87	1070548.85	2895739.65	1285229.26	14346587.10	6064515.17	395525052.25	400308802.65
inflow phos conc	ppb	200.01	147.55	473.38	400.03	234.95	400.03	373.10	246.48	271.41	353.48	332.17	350.02	319.68	364.92	426.84	200.10	374.30	398.51	266.29	268.45
outflow phos conc	ppb	200.01	147.55	473.35	394.63	234.95	395.62	373.09	246.47	271.40	353.46	332.17	349.87	319.67	364.90	426.82	200.10	374.30	398.51	266.29	268.45
p reaction rate	-	0.00	0.00	0.00	0.01	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1-rp	-	1.00	1.00	1.00	0.99	1.00	0.99	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
vlawmo pond volume	acre-ft	0.54	1.19	1.30	0.00	0.14	0.01	1.69	0.52	2.60	0.50	6.85	0.12	1.04	0.84	2.28	1.01	10.24	4.77	7.65	3.76
LAND USE PARAMETERS.....																					
runoff total P conc	ppb	200.00	200.53	370.61	399.96	377.22	399.97	329.45	227.36	241.15	351.34	398.24	350.00	266.05	269.58	438.88	200.05	326.14	407.97	289.77	433.72
runoff coefficient		0.08	0.08	0.10	0.28	0.14	0.28	0.20	0.09	0.10	0.30	0.17	0.31	0.20	0.12	0.23	0.08	0.16	0.26	0.13	0.16
dissolved/total P		0.60	0.60	0.27	0.30	0.38	0.30	0.41	0.57	0.55	0.31	0.36	0.30	0.48	0.38	0.28	0.60	0.44	0.31	0.49	0.32
runoff TSS conc	ppm	216.00	215.98	149.70	140.02	180.84	140.01	167.77	211.48	206.94	141.72	166.07	140.00	189.63	159.38	145.17	215.99	175.69	148.64	191.07	167.44
POND TSS BUDGETS.....																					
runoff	lbs/yr	4029.06	8860.96	7700.94	20.27	818.23	24.98	8777.79	3720.46	17599.88	2432.85	36460.18	557.46	5728.10	4938.42	11222.26	7522.73	55970.70	23562.73	45591.13	20470.88
upstream pond	lbs/yr	0.00	5030.47	0.00	0.00	21611.84	0.00	24.00	0.00	3720.46	0.00	54985.05	0.00	0.00	0.00	0.00	0.00	5728.10	0.00	944257.10	989848.23
total inflow	**lbs/yr**	**4029.06**	**13891.43**	**7700.94**	**20.27**	**22430.08**	**24.98**	**8801.79**	**3720.46**	**21320.34**	**2432.85**	**91445.23**	**557.46**	**5728.10**	**4938.42**	**11222.26**	**7522.73**	**61698.80**	**23562.73**	**989848.23**	**1010319.12**
p removal efficiency (no inf)	%	0.00	0.00	0.00	2.00	0.00	2.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
tss removal efficiency (no inf)	%	0.00	0.00	0.00	3.93	0.00	3.93	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
net sedimentation	lbs/yr	0.00	0.00	0.00	0.80	0.00	0.98	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
outflow	lbs/yr	4029.06	13891.43	7700.94	19.47	22430.08	24.00	8801.79	3720.46	21320.34	2432.85	91445.23	557.46	5728.10	4938.42	11222.26	7522.73	61698.80	23562.73	989848.23	1010319.12
tss removal efficiency (inf)		0.00	0.00	0.00	3.93	0.00	3.93	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
upstream watershed tss load	lbs/yr	4029.06	27195.84	7700.94	20.27	35735.29	24.98	8802.77	3720.46	21320.34	2432.85	104751.42	557.46	5728.10	4938.42	11222.26	7522.73	61698.80	23562.73	1754250.88	1774721.76
tss total removal efficiency	%	0.00	48.92	0.00	3.93	37.23	3.93	0.01	0.00	0.00	0.00	12.70	0.00	0.00	0.00	0.00	0.00	0.00	0.00	43.57	43.07
INFILTRATION BMP/POND.....																					
Annual runoff infiltrated	%	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Adjusted outflow	**ac-ft/yr**	**6.88**	**48.77**	**16.51**	**0.05**	**67.13**	**0.07**	**21.51**	**6.60**	**39.73**	**6.39**	**221.91**	**1.47**	**13.18**	**10.71**	**28.96**	**12.85**	**143.47**	**60.65**	**3955.25**	**4003.09**
Adjusted TP outflow	**lbs/yr**	**3.74**	**19.56**	**21.23**	**0.06**	**42.87**	**0.07**	**21.82**	**4.42**	**29.30**	**6.14**	**200.35**	**1.40**	**11.45**	**10.62**	**33.59**	**6.99**	**145.96**	**65.69**	**2862.77**	**2920.85**
Adjusted TSS outflow	**lbs/yr**	**4029.06**	**13891.43**	**7700.94**	**19.47**	**22430.08**	**24.00**	**8801.79**	**3720.46**	**21320.34**	**2432.85**	**91445.23**	**557.46**	**5728.10**	**4938.42**	**11222.26**	**7522.73**	**61698.80**	**23562.73**	**989848.23**	**1010319.12**

Rochester Loading Assessment																						
Willow Creek																						
363-06-158-2																						
Present (2005) LOADS																						
		wc-a4.2b	**wc-a4.2a**	**wc-a4.3a**	**wc-a4.3b**	**wc-a4.3c**	**wc-a4.3d**	**wc-a4.3e**	**wc-a4.3f**	**wc-a4.1**	**wc-a4.5c**	**wc-a4.5b**	**wc-a4.5a**	**wc-a4.6b**	**wc-a4.6a**	**wc-a4.7**	**wc-a4.8c**	**wc-a4.8b**	**wc-a4.8a**	**wc-a4.9**	**wc-a4.10**	**wc-a4.11**
Routed TO:		wc-a4.2a	wc-a4.1	wc-a4.1	wc-a4.6a	wc-a4.1	wc-a4.7	wc-a4.3c	wc-a4.5a	wc-a4.5a	wc-a4.5b	wc-a4.5a	wc-a4.7	wc-a4.6a	wc-a4.7	wc-a4.14a	wc-a4.8a	wc-a4.8a	wc-a4.11	wc-a4.11	wc-a4.11	wc-a4.14a
INPUT VARIABLES....	UNITS																					
case label	-																					
Watershed area	acres	9.9	239.5	313.9	142.3	59.1	10.7	13.9	10.2	694.0	14.5	6.1	384.3	112.3	45.2	281.8	4.4	3.8	253.3	44.6	80.5	545.6
basin area	acres	0.75	0.00	0.00	0.00	0.95	0.39	0.00	0.00	0.00	0.27	0.07	0.00	0.38	0.00	0.00	0.08	0.11	0.00	0.53	0.00	0.00
basin volume	acre-ft	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.52	0.00	0.00	0.14	0.19	0.00	1.13	0.00	0.00
Row Crop Agriculture		0%	87%	84%	35%	36%	40%	0%	25%	79%	96%	96%	76%	11%	39%	28%	0%	0%	43%	52%	63%	35%
Very Low Density Residential		0%	3%	0%	0%	0%	0%	0%	0%	1%	0%	0%	8%	0%	1%	8%	0%	0%	0%	3%	2%	1%
Low Density Residential		0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Medium Density Residential		0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
High Density Residential		0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Commercial/Industrial		100%	0%	5%	65%	64%	53%	86%	60%	0%	0%	0%	0%	73%	31%	2%	100%	100%	41%	36%	0%	17%
Institutional		0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Open Space		0%	7%	10%	0%	0%	0%	0%	0%	16%	0%	4%	16%	11%	17%	35%	0%	0%	12%	3%	34%	43%
Golf Course		0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	25%	0%	0%	0%	0%	0%	2%
Pits and Quarries		0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Right-of-Way		0%	3%	1%	0%	0%	7%	14%	16%	3%	4%	0%	1%	5%	12%	3%	0%	0%	4%	6%	1%	2%
WATERSHED-WIDE ACCOUNTING.....																						
tributary land area	ac	9.89	249.38	313.87	142.28	73.05	10.73	13.93	10.16	1330.27	14.47	20.55	1745.28	112.32	299.75	2337.51	4.38	3.85	261.50	44.57	80.47	932.10
tributary water area	ac	0.75	0.75	0.00	0.00	0.95	0.39	0.00	0.00	1.70	0.27	0.34	2.04	0.38	0.38	2.81	0.08	0.11	0.19	0.53	0.00	0.72
direct and ponded area	ac	10.64	250.13	313.87	142.28	74.00	11.12	13.93	10.16	1331.97	14.74	20.89	1747.32	112.70	300.13	2340.32	4.46	3.96	261.69	45.10	80.47	932.82
ASSUMED EXPORT FACTORS.....																						
season length	yrs	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
season precipitation	inches	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8
runoff total p	ppb	350.00	506.70	496.18	417.08	418.42	429.43	356.80	404.55	478.87	534.59	524.90	470.67	356.46	403.75	401.34	350.00	350.00	414.17	448.48	419.75	358.44
runoff ortho p/total p	-	0.30	0.24	0.24	0.26	0.26	0.26	0.30	0.28	0.27	0.20	0.22	0.29	0.32	0.31	0.49	0.30	0.30	0.29	0.26	0.34	0.40
unit runoff	in/yr	14.56	4.45	4.80	10.99	10.92	10.11	13.77	11.17	4.28	4.61	4.37	4.07	11.84	7.76	3.67	14.56	14.56	8.55	8.27	3.83	5.44
unit export	lbs/ac-y	1.15	0.52	0.53	0.94	0.93	0.89	1.11	0.95	0.48	0.55	0.53	0.45	0.95	0.69	0.35	1.15	1.15	0.75	0.76	0.40	0.47
POND WATER BUDGETS.....																						
runoff	ac-ft/yr	12.00	88.79	125.48	130.33	53.80	9.04	15.99	9.45	247.53	5.55	2.21	130.23	110.85	29.21	86.07	5.32	4.67	180.47	30.70	25.70	247.40
upstream pond	ac-ft/yr	0.00	12.00	0.00	0.00	15.99	0.00	0.00	0.00	296.06	0.00	5.55	560.80	0.00	241.18	970.46	0.00	0.00	9.99	0.00	0.00	246.85
total inflow	**ac-ft/yr**	**12.00**	**100.79**	**125.48**	**130.33**	**69.79**	**9.04**	**15.99**	**9.45**	**543.58**	**5.55**	**7.77**	**691.03**	**110.85**	**270.40**	**1056.53**	**5.32**	**4.67**	**190.46**	**30.70**	**25.70**	**494.26**
outflow	ac-ft/yr	12.00	100.79	125.48	130.33	69.79	9.04	15.99	9.45	543.58	5.55	7.77	691.03	110.85	270.40	1056.53	5.32	4.67	190.46	30.70	25.70	494.26
POND PHOSPHORUS BUDGETS.....																						
runoff	lbs/yr	11.41	123.66	167.75	133.61	55.26	9.50	15.40	9.63	334.03	8.00	3.20	174.69	107.26	31.00	98.52	5.06	4.44	190.58	33.84	31.92	254.79
upstream pond	lbs/yr	0.00	11.41	0.00	0.00	15.40	0.00	0.00	0.00	373.49	0.00	8.00	728.34	0.00	205.42	1148.95	0.00	0.00	5.62	0.00	0.00	245.55
total inflow	**lbs/yr**	**11.41**	**135.07**	**167.75**	**133.61**	**70.66**	**9.50**	**15.40**	**9.63**	**707.52**	**8.00**	**11.20**	**903.03**	**107.26**	**236.42**	**1247.48**	**5.06**	**4.44**	**196.20**	**33.84**	**31.92**	**500.33**
net sedimentation	lbs/yr	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	35.45	0.00	0.00	1.97	1.91	0.00	16.41	0.00	0.00
outflow	lbs/yr	11.41	135.07	167.75	133.61	70.66	9.50	15.40	9.63	707.51	8.00	11.20	903.03	71.81	236.42	1247.47	3.09	2.53	196.20	17.43	31.92	500.33
p removal efficiency	%	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.01	0.01	0.00	33.05	0.00	0.00	38.84	43.11	0.00	48.50	0.00	0.00
upstream w-shed p load	lbs/yr	11.41	135.07	167.75	133.61	70.66	9.50	15.40	9.63	707.52	8.00	11.20	903.04	107.26	271.87	1282.94	5.06	4.44	200.08	33.84	31.92	520.63
total removal %	%	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.01	0.02	0.00	33.05	13.04	2.76	38.84	43.11	1.94	48.50	0.00	3.90
HYDRAULIC PARAMETERS.....																						
pond mean depth	feet	0.00	1.00	1.00	1.00	0.00	0.00	1.00	1.00	1.00	0.00	0.00	1.00	4.00	1.00	1.00	1.75	1.75	1.00	2.14	1.00	1.00
relative volume	inches	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.44	0.00	0.00	0.84	1.31	0.00	1.17	0.00	0.00
residence time	years	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.03	0.04	0.00	0.04	0.00	0.00
residence time	days	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.00	0.00	0.00	9.61	15.09	0.00	13.47	0.00	0.00
overflow rate	ft/yr	16.00	10078679.84	12547845.73	13032627.27	73.46	23.18	1599406.92	945238.20	54358189.30	20.57	110.95	69102738.96	291.72	27039505.50	105653425.23	66.48	42.44	19045659.55	57.93	2569662.53	49425641.42
inflow phos conc	ppb	350.02	493.08	491.87	377.19	372.51	386.49	354.35	374.82	478.87	530.24	530.49	480.79	355.98	321.69	434.41	350.02	350.02	379.02	405.57	456.97	372.44
outflow phos conc	ppb	350.01	493.08	491.87	377.19	372.50	386.48	354.33	374.79	478.87	530.19	530.42	480.79	238.33	321.69	434.41	214.07	199.13	379.01	208.86	456.96	372.44
p reaction rate	-	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.74	0.00	0.00	1.04	1.33	0.00	1.83	0.00	0.00
1-rp	-	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.67	1.00	1.00	0.61	0.57	1.00	0.51	1.00	1.00
vlawmo pond volume	acre-ft	0.94	6.98	9.86	10.25	4.23	0.71	1.26	0.74	19.46	0.44	0.17	10.24	8.72	2.30	6.77	0.42	0.37	14.19	2.41	2.02	19.45
LAND USE PARAMETERS.....																						
runoff total P conc	ppb	350.00	506.70	496.18	417.08	418.42	429.43	356.80	404.55	478.87	534.59	524.90	470.67	356.46	403.75	401.34	350.00	350.00	414.17	448.48	419.75	358.44
runoff coefficient		0.46	0.14	0.15	0.35	0.34	0.32	0.43	0.35	0.13	0.14	0.14	0.13	0.37	0.24	0.12	0.46	0.46	0.27	0.26	0.12	0.17
dissolved/total P		0.30	0.24	0.24	0.26	0.26	0.26	0.30	0.28	0.27	0.20	0.22	0.29	0.32	0.31	0.49	0.30	0.30	0.29	0.26	0.34	0.40
runoff TSS conc	ppm	140.00	167.44	166.89	148.12	148.28	149.19	140.00	145.65	171.23	162.23	165.35	175.35	151.00	162.81	197.51	140.00	140.00	159.21	156.25	181.65	182.60
POND TSS BUDGETS.....																						
runoff	lbs/yr	4552.23	39583.05	55083.62	50607.42	20902.64	3529.22	6068.15	3643.93	111882.78	2429.89	985.68	60323.22	42890.18	11852.70	43423.40	2017.85	1771.09	72333.79	12304.69	12189.51	109246.28
upstream pond	lbs/yr	0.00	4552.23	0.00	0.00	6068.15	0.00	0.00	0.00	126189.69	0.00	2429.89	245131.97	0.00	67656.27	388493.38	0.00	0.00	1249.38	0.00	0.00	88418.19
total inflow	**lbs/yr**	**4552.23**	**44135.28**	**55083.62**	**50607.42**	**26970.79**	**3529.22**	**6068.15**	**3643.93**	**238072.46**	**2429.89**	**3415.57**	**305455.19**	**42890.18**	**79508.97**	**431916.78**	**2017.85**	**1771.09**	**73583.18**	**12304.69**	**12189.51**	**197664.47**
p removal efficiency (no inf)	%	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	34.00	0.00	0.00	39.00	44.00	0.00	49.00	0.00	0.00
tss removal efficiency (no inf)	%	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	60.25	0.00	0.00	65.00	69.33	0.00	78.50	0.00	0.00
net sedimentation	lbs/yr	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	25841.34	0.00	0.00	1311.61	1227.96	0.00	9659.18	0.00	0.00
outflow	lbs/yr	4552.23	44135.28	55083.62	50607.42	26970.79	3529.22	6068.15	3643.93	238072.46	2429.89	3415.57	305455.19	17048.85	79508.97	431916.78	706.25	543.13	73583.18	2645.51	12189.51	197664.47
tss removal efficiency (inf)	%	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	60.25	0.00	0.00	65.00	69.33	0.00	78.50	0.00	0.00
upstream watershed tss load	lbs/yr	4552.23	44135.28	55083.62	50607.42	26970.79	3529.22	6068.15	3643.93	238072.46	2429.89	3415.57	305455.19	42890.18	105350.31	457758.12	2017.85	1771.09	76122.74	12304.69	12189.51	209863.21
tss total removal efficiency	%	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	60.25	24.53	5.65	65.00	69.33	3.34	78.50	0.00	5.81
INFILTRATION BMP/POND.....																						
Annual runoff infiltrated	%	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Adjusted outflow	**ac-ft/yr**	**12.00**	**100.79**	**125.48**	**130.33**	**69.79**	**9.04**	**15.99**	**9.45**	**543.58**	**5.55**	**7.77**	**691.03**	**110.85**	**270.40**	**1056.53**	**5.32**	**4.67**	**190.46**	**30.70**	**25.70**	**494.26**
Adjusted TP outflow	**lbs/yr**	**11.41**	**135.07**	**167.75**	**133.61**	**70.66**	**9.50**	**15.40**	**9.63**	**707.51**	**8.00**	**11.20**	**903.03**	**71.81**	**236.42**	**1247.47**	**3.09**	**2.53**	**196.20**	**17.43**	**31.92**	**500.33**
Adjusted TSS outflow	**lbs/yr**	**4552.23**	**44135.28**	**55083.62**	**50607.42**	**26970.79**	**3529.22**	**6068.15**	**3643.93**	**238072.46**	**2429.89**	**3415.57**	**305455.19**	**17048.85**	**79508.97**	**431916.78**	**706.25**	**543.13**	**73583.18**	**2645.51**	**12189.51**	**197664.47**

Rochester Loading Assessment																						
Willow Creek																						
363-06-158-2																						
Present (2005) LOADS																						
		wc-a4.12e	**wc-a4.12d**	**wc-a4.12c**	**wc-a4.12b**	**wc-a4.12a**	**wc-a4.14b**	**wc-a5.5c**	**wc-a4.14a**	**wc-a5.5b**	**wc-a5.5a**	**wc-a5.1**	**wc-a5.3b**	**wc-a5.3a**	**wc-a5.2**	**wc-a5.4**	**wc-a5.6b**	**wc-a5.7c**	**wc-a5.7b**	**wc-a5.7a**	**wc-a3.14b**	**wc-a3.2**
Routed TO:		wc-a4.12a	wc-a4.12a	wc-a4.12a	wc-a4.12a	wc-a4.14a	wc-a4.14a	wc-a4.14a	wc-a5.7b	wc-a5.5a	wc-a5.7b	wc-a5.3b	wc-a5.3a	wc-a5.6b	wc-a5.4	wc-a5.6b	wc-a5.7b	wc-a5.7b	wc-a5.7a	wc-a3.14a	wc-a3.14a	wc-a3.15
INPUT VARIABLES....	UNITS																					
case label	-																					
Watershed area	acres	4.7	10.6	34.8	8.5	234.3	38.1	27.1	193.4	77.5	30.2	2.0	42.3	16.4	25.1	83.3	31.2	14.9	98.0	57.3	7.0	152.6
basin area	acres	0.14	0.21	0.43	0.11	0.00	0.06	0.33	71.00	0.53	0.00	0.00	0.63	0.00	0.00	0.00	0.00	0.04	0.00	0.94	0.20	0.00
basin volume	acre-ft	0.17	0.40	2.34	0.10	0.00	0.08	1.52	630.40	1.60	0.00	0.00	2.23	0.00	0.00	0.00	0.00	0.00	0.00	3.17	0.80	0.00
Row Crop Agriculture		2%	0%	0%	0%	7%	1%	41%	34%	20%	0%	0%	0%	0%	88%	40%	0%	0%	15%	7%	0%	35%
Very Low Density Residential		0%	0%	0%	0%	23%	0%	0%	2%	1%	6%	0%	0%	0%	0%	20%	0%	5%	5%	0%	0%	0%
Low Density Residential		0%	3%	60%	100%	18%	74%	50%	4%	66%	12%	0%	86%	55%	0%	0%	8%	92%	31%	65%	17%	0%
Medium Density Residential		0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
High Density Residential		0%	0%	4%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	22%	61%	0%
Commercial/Industrial		80%	92%	0%	0%	12%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	32%
Institutional		0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Open Space		0%	0%	25%	0%	28%	21%	8%	59%	12%	47%	0%	14%	0%	0%	33%	2%	3%	17%	5%	22%	8%
Golf Course		0%	0%	0%	0%	0%	0%	0%	0%	1%	35%	0%	0%	31%	0%	0%	86%	0%	27%	0%	0%	0%
Pits and Quarries		0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Right-of-Way		18%	4%	10%	0%	13%	3%	0%	1%	0%	0%	100%	0%	14%	12%	6%	4%	0%	5%	1%	0%	25%
WATERSHED-WIDE ACCOUNTING.....																						
tributary land area	ac	4.72	10.64	34.80	8.48	292.96	38.08	27.12	3821.18	77.49	107.66	2.05	44.37	60.77	25.14	108.46	200.47	14.95	4242.25	4299.60	7.01	152.62
tributary water area	ac	0.14	0.21	0.43	0.11	0.89	0.06	0.33	75.81	0.53	0.53	0.00	0.63	0.63	0.00	0.00	0.63	0.04	77.01	77.95	0.20	0.00
direct and ponded area	ac	4.86	10.85	35.23	8.59	293.85	38.14	27.45	3896.99	78.02	108.19	2.05	45.00	61.40	25.14	108.46	201.10	14.99	4319.26	4377.55	7.21	152.62
ASSUMED EXPORT FACTORS.....																						
season length	yrs	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
season precipitation	inches	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8
runoff total p	ppb	362.47	354.46	381.49	450.00	345.82	396.92	467.08	330.25	438.08	361.13	400.00	416.29	473.79	523.04	380.08	528.95	437.01	441.78	442.48	394.31	417.36
runoff ortho p/total p	-	0.30	0.30	0.38	0.30	0.42	0.36	0.28	0.45	0.32	0.59	0.30	0.34	0.42	0.21	0.40	0.65	0.32	0.45	0.31	0.37	0.29
unit runoff	in/yr	13.33	14.03	6.16	6.74	5.75	5.89	5.45	3.42	5.71	3.22	8.77	6.16	5.86	4.98	3.79	3.50	6.41	4.61	7.89	9.97	8.66
unit export	lbs/ac-y	1.08	1.12	0.58	0.69	0.49	0.57	0.58	0.29	0.58	0.28	0.79	0.61	0.60	0.57	0.36	0.41	0.65	0.47	0.80	0.98	0.77
POND WATER BUDGETS.....																						
runoff	ac-ft/yr	5.25	12.44	17.86	4.77	112.33	18.69	12.33	55.11	36.86	8.09	1.50	21.73	8.01	10.42	26.34	9.11	7.99	37.65	37.71	5.83	110.11
upstream pond	ac-ft/yr	0.00	0.00	0.00	0.00	40.32	0.00	0.00	1734.45	0.00	36.86	0.00	1.50	23.22	0.00	10.42	68.00	0.00	1919.59	1957.24	0.00	0.00
total inflow	**ac-ft/yr**	**5.25**	**12.44**	**17.86**	**4.77**	**152.64**	**18.69**	**12.33**	**1789.56**	**36.86**	**44.95**	**1.50**	**23.22**	**31.24**	**10.42**	**36.76**	**77.10**	**7.99**	**1957.24**	**1994.96**	**5.83**	**110.11**
outflow	ac-ft/yr	5.25	12.44	17.86	4.77	152.64	18.69	12.33	1789.56	36.86	44.95	1.50	23.22	31.24	10.42	36.76	77.10	7.99	1957.24	1994.96	5.83	110.11
POND PHOSPHORUS BUDGETS.....																						
runoff	lbs/yr	5.09	11.93	20.23	5.83	113.79	21.63	15.78	56.46	45.16	8.43	1.63	25.76	9.92	14.45	29.64	12.74	9.65	46.05	45.98	6.90	117.74
upstream pond	lbs/yr	0.00	0.00	0.00	0.00	21.78	0.00	0.00	1906.84	0.00	22.24	0.00	1.63	11.70	0.00	14.45	65.71	0.00	751.86	797.91	0.00	0.00
total inflow	**lbs/yr**	**5.09**	**11.93**	**20.23**	**5.83**	**135.57**	**21.63**	**15.78**	**1963.30**	**45.16**	**30.67**	**1.63**	**27.39**	**21.61**	**14.45**	**44.10**	**78.45**	**9.65**	**797.91**	**843.88**	**6.90**	**117.74**
net sedimentation	lbs/yr	1.95	4.95	12.30	2.10	0.00	3.68	10.26	1330.21	22.93	0.00	0.00	15.69	0.00	0.00	0.00	0.00	0.00	0.00	34.16	4.12	0.00
outflow	lbs/yr	3.14	6.98	7.92	3.73	135.57	17.95	5.52	633.09	22.24	30.67	1.63	11.70	21.61	14.45	44.10	78.45	9.65	797.91	809.73	2.79	117.74
p removal efficiency	%	38.27	41.51	60.83	35.99	0.00	17.03	65.00	67.75	50.76	0.00	0.05	57.30	0.00	0.01	0.00	0.00	0.01	0.00	4.05	59.62	0.00
upstream w-shed p load	lbs/yr	5.09	11.93	20.23	5.83	156.87	21.63	15.78	2054.30	45.16	53.60	1.63	27.39	37.30	14.45	44.10	94.14	9.65	2257.74	2303.72	6.90	117.74
total removal %	%	38.27	41.51	60.83	35.99	13.58	17.03	65.00	69.18	50.76	42.78	0.05	57.30	42.07	0.01	0.01	16.67	0.01	64.66	64.85	59.62	0.00
HYDRAULIC PARAMETERS.....																						
pond mean depth	feet	1.21	1.90	5.44	0.91	1.00	1.33	4.61	8.88	3.02	1.00	1.00	3.54	1.00	1.00	1.00	1.00	0.00	1.00	3.37	4.00	1.00
relative volume	inches	1.03	1.02	4.17	0.67	0.00	0.14	3.92	363.78	1.38	0.00	0.00	3.27	0.00	0.00	0.00	0.00	0.00	0.00	2.67	4.36	0.00
residence time	years	0.03	0.03	0.13	0.02	0.00	0.00	0.12	0.35	0.04	0.00	0.00	0.10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.14	0.00
residence time	days	11.82	11.73	47.82	7.66	0.00	1.56	45.01	128.58	15.84	0.00	0.00	35.09	0.00	0.00	0.00	0.00	0.00	0.00	0.58	50.10	0.00
overflow rate	ft/yr	37.49	59.26	41.54	43.32	15264452.38	311.48	37.35	25.21	69.55	4494753.83	149687.79	36.86	3123648.18	1042464.04	3676219.96	7710392.75	199.67	195724441.03	2122.30	29.14	11011488.29
inflow phos conc	ppb	357.10	352.65	416.62	450.02	326.76	425.84	471.05	403.64	450.80	251.06	400.02	433.88	254.54	510.13	441.32	374.33	444.50	149.99	155.63	435.82	393.39
outflow phos conc	ppb	220.45	206.27	163.21	288.06	326.75	353.32	164.88	130.16	221.97	251.06	399.82	185.27	254.54	510.06	441.31	374.32	444.47	149.99	149.33	175.97	393.39
p reaction rate	-	1.00	1.21	3.96	0.88	0.00	0.25	5.31	6.52	2.09	0.00	0.00	3.14	0.00	0.00	0.00	0.00	0.00	0.00	0.04	3.66	0.00
1-rp	-	0.62	0.58	0.39	0.64	1.00	0.83	0.35	0.32	0.49	1.00	1.00	0.43	1.00	1.00	1.00	1.00	1.00	1.00	0.96	0.40	1.00
vlawmo pond volume	acre-ft	0.41	0.98	1.40	0.37	8.83	1.47	0.97	4.33	2.90	0.64	0.12	1.71	0.63	0.82	2.07	0.72	0.63	2.96	2.96	0.46	8.66
LAND USE PARAMETERS.....																						
runoff total P conc	ppb	362.47	354.46	381.49	450.00	345.82	396.92	467.08	330.25	438.08	361.13	400.00	416.29	473.79	523.04	380.08	528.95	437.01	441.78	442.48	394.31	417.36
runoff coefficient		0.42	0.44	0.19	0.21	0.18	0.19	0.17	0.11	0.18	0.10	0.28	0.19	0.18	0.16	0.12	0.11	0.20	0.14	0.25	0.31	0.27
dissolved/total P		0.30	0.30	0.38	0.30	0.42	0.36	0.28	0.45	0.32	0.59	0.30	0.34	0.42	0.21	0.40	0.65	0.32	0.45	0.31	0.37	0.29
runoff TSS conc	ppm	140.42	140.35	159.29	140.00	179.83	156.36	155.69	194.36	155.14	207.07	140.00	150.46	163.45	160.21	189.74	206.91	146.42	180.47	145.54	156.93	153.92
POND TSS BUDGETS.....																						
runoff	lbs/yr	1993.07	4723.61	7162.13	1807.85	48532.31	7453.80	5032.62	27630.09	14823.31	4323.59	567.92	8499.62	3298.56	4466.11	12831.00	4856.11	3091.37	16944.29	14530.87	2279.45	43528.15
upstream pond	lbs/yr	0.00	0.00	0.00	0.00	3397.46	0.00	0.00	686681.66	0.00	2519.96	0.00	567.92	634.73	0.00	4466.11	21230.40	0.00	86023.26	102967.55	0.00	0.00
total inflow	**lbs/yr**	**1993.07**	**4723.61**	**7162.13**	**1807.85**	**51929.77**	**7453.80**	**5032.62**	**714311.75**	**14823.31**	**6843.55**	**567.92**	**9067.54**	**3933.29**	**4466.11**	**17297.11**	**26086.51**	**3091.37**	**102967.55**	**117498.42**	**2279.45**	**43528.15**
p removal efficiency (no inf)	%	39.00	42.00	61.00	36.00	0.00	18.00	65.00	68.00	51.00	0.00	0.00	58.00	0.00	0.00	0.00	0.00	0.00	0.00	5.00	60.00	0.00
tss removal efficiency (no inf)	%	65.00	68.00	93.00	62.00	0.00	35.36	93.00	93.00	83.00	0.00	0.00	93.00	0.00	0.00	0.00	0.00	0.00	0.00	9.82	93.00	0.00
net sedimentation	lbs/yr	1295.50	3212.05	6660.78	1120.87	0.00	2635.45	4680.34	664309.92	12303.35	0.00	0.00	8432.81	0.00	0.00	0.00	0.00	0.00	0.00	11540.02	2119.88	0.00
outflow	lbs/yr	697.58	1511.55	501.35	686.98	51929.77	4818.35	352.28	50001.82	2519.96	6843.55	567.92	634.73	3933.29	4466.11	17297.11	26086.51	3091.37	102967.55	105958.40	159.56	43528.15
tss removal efficiency (inf)	%	65.00	68.00	93.00	62.00	0.00	35.36	93.00	93.00	83.00	0.00	0.00	93.00	0.00	0.00	0.00	0.00	0.00	0.00	9.82	93.00	0.00
upstream watershed tss load	lbs/yr	1993.07	4723.61	7162.13	1807.85	64218.98	7453.80	5032.62	771956.82	14823.31	19146.90	567.92	9067.54	12366.10	4466.11	17297.11	34519.32	3091.37	845658.71	860189.58	2279.45	43528.15
tss total removal efficiency	%	65.00	68.00	93.00	62.00	19.14	35.36	93.00	93.52	83.00	64.26	0.00	93.00	68.19	0.00	0.00	24.43	0.00	87.82	87.68	93.00	0.00
INFILTRATION BMP/POND.....																						
Annual runoff infiltrated	%	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Adjusted runoff outflow	**ac-ft/yr**	**5.25**	**12.44**	**17.86**	**4.77**	**152.64**	**18.69**	**12.33**	**1789.56**	**36.86**	**44.95**	**1.50**	**23.22**	**31.24**	**10.42**	**36.76**	**77.10**	**7.99**	**1957.24**	**1994.96**	**5.83**	**110.11**
Adjusted TP outflow	**lbs/yr**	**3.14**	**6.98**	**7.92**	**3.73**	**135.57**	**17.95**	**5.52**	**633.09**	**22.24**	**30.67**	**1.63**	**11.70**	**21.61**	**14.45**	**44.10**	**78.45**	**9.65**	**797.91**	**809.73**	**2.79**	**117.74**
Adjusted TSS outflow	**lbs/yr**	**697.58**	**1511.55**	**501.35**	**686.98**	**51929.77**	**4818.35**	**352.28**	**50001.82**	**2519.96**	**6843.55**	**567.92**	**634.73**	**3933.29**	**4466.11**	**17297.11**	**26086.51**	**3091.37**	**102967.55**	**105958.40**	**159.56**	**43528.15**

Rochester Loading Assessment																						
Willow Creek																						
363-06-158-2																						
Present (2005) LOADS																						
		wc-a3.5b	**wc-a3.5a**	**wc-a3.6c**	**wc-a3.6b**	**wc-a3.6a**	**wc-a3.8**	**wc-a3.10**	**wc-a3.11**	**wc-a3.15**	**wc-a3.12b**	**wc-a3.12a**	**wc-a3.13**	**wc-a3.14c**	**wc-a3.14a**	**wc-a5.6a**	**wc-a5.8d**	**wc-a5.8c**	**wc-a5.8b**	**wc-a5.8a**	**wc-a5.10**	**wc-a5.11c**
Routed TO:		wc-a3.5a	wc-a3.15	wc-a3.6a	wc-a3.6a	wc-a3.15	wc-a3.15	wc-a3.15	wc-a3.15	wc-a3.14c	wc-a3.12a	wc-a3.13	wc-a3.14c	wc-a3.14a	wc-a5.8a	wc-a5.8a	wc-a5.8c	wc-a5.8b	wc-a5.8a	wc-a5.9a	wc-a5.11b	wc-a5.11b
INPUT VARIABLES....	UNITS																					
case label	-																					
Watershed area	acres	14.4	41.2	2.8	17.3	7.0	43.3	16.4	14.6	32.0	10.0	75.5	70.8	253.6	42.3	126.5	3.9	2.5	8.7	159.8	40.9	10.2
basin area	acres	0.04	0.00	0.04	0.23	0.00	0.00	0.00	0.00	0.00	0.20	0.00	0.00	3.65	0.00	0.00	0.46	0.11	1.79	0.00	0.00	0.65
basin volume	acre-ft	0.08	0.00	0.12	0.80	0.00	0.00	0.00	0.00	0.00	0.37	0.00	0.00	15.32	0.00	0.00	1.50	0.26	7.16	0.00	0.00	2.49
Row Crop Agriculture		14%	4%	0%	0%	0%	0%	0%	0%	0%	0%	31%	0%	17%	0%	0%	0%	0%	0%	36%	21%	94%
Very Low Density Residential		0%	3%	0%	0%	0%	0%	0%	5%	0%	0%	2%	10%	4%	0%	0%	0%	0%	0%	3%	0%	0%
Low Density Residential		0%	0%	0%	40%	4%	0%	0%	54%	0%	28%	3%	1%	6%	0%	0%	0%	0%	0%	2%	4%	0%
Medium Density Residential		0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
High Density Residential		0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	6%	0%	7%	0%	0%	0%	0%	0%	0%
Commercial/Industrial		74%	37%	100%	0%	59%	15%	0%	0%	0%	0%	0%	8%	3%	0%	0%	0%	0%	0%	0%	21%	0%
Institutional		0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Open Space		0%	1%	0%	60%	36%	0%	0%	0%	0%	72%	61%	51%	52%	78%	9%	100%	87%	100%	53%	52%	6%
Golf Course		0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	79%	0%	0%	0%	0%	0%	0%
Pits and Quarries		0%	0%	0%	0%	0%	62%	100%	42%	85%	0%	0%	0%	2%	0%	0%	0%	0%	0%	1%	0%	0%
Right-of-Way		12%	55%	0%	0%	1%	23%	0%	0%	14%	0%	3%	30%	9%	22%	5%	0%	13%	0%	6%	1%	0%
WATERSHED-WIDE ACCOUNTING.....																						
tributary land area	ac	14.39	55.55	2.81	17.31	27.11	43.31	16.35	14.61	341.50	9.97	85.43	156.26	751.34	5100.22	126.51	3.89	6.42	15.15	5401.67	40.89	10.24
tributary water area	ac	0.04	0.04	0.04	0.23	0.27	0.00	0.00	0.00	0.31	0.20	0.20	0.20	4.16	82.31	0.00	0.46	0.57	2.36	84.67	0.00	0.65
direct and ponded area	ac	14.43	55.59	2.85	17.54	27.38	43.31	16.35	14.61	341.81	10.17	85.63	156.46	755.50	5182.53	126.51	4.35	6.99	17.51	5486.35	40.89	10.89
ASSUMED EXPORT FACTORS.....																						
season length	yrs	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
season precipitation	inches	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8
runoff total p	ppb	381.97	384.18	350.00	299.24	300.67	145.08	0.00	257.32	59.09	270.28	323.07	289.90	314.38	244.31	503.41	200.00	226.29	200.00	341.03	317.30	520.32
runoff ortho p/total p	-	0.29	0.30	0.30	0.48	0.41	0.11	0.00	0.18	0.04	0.52	0.45	0.47	0.44	0.53	0.64	0.60	0.56	0.60	0.43	0.43	0.22
unit runoff	in/yr	12.47	10.51	14.56	4.21	9.88	4.25	0.00	3.75	1.28	3.72	3.50	5.45	4.78	3.92	3.93	2.54	3.36	2.54	3.67	5.74	4.34
unit export	lbs/ac-y	1.03	0.89	1.15	0.34	0.76	0.36	0.00	0.38	0.12	0.28	0.29	0.42	0.40	0.27	0.44	0.12	0.20	0.12	0.32	0.46	0.52
POND WATER BUDGETS.....																						
runoff	ac-ft/yr	14.95	36.04	3.41	6.08	5.76	15.33	0.00	4.57	3.41	3.09	22.00	32.19	101.11	13.82	41.41	0.82	0.71	1.85	48.90	19.55	3.71
upstream pond	ac-ft/yr	0.00	14.95	0.00	0.00	9.48	0.00	0.00	0.00	196.24	0.00	3.09	25.09	256.93	2358.83	0.00	0.00	0.82	1.53	2417.44	0.00	0.00
total inflow	**ac-ft/yr**	**14.95**	**50.99**	**3.41**	**6.08**	**15.24**	**15.33**	**0.00**	**4.57**	**199.65**	**3.09**	**25.09**	**57.29**	**358.04**	**2372.65**	**41.41**	**0.82**	**1.53**	**3.38**	**2466.35**	**19.55**	**3.71**
outflow	ac-ft/yr	14.95	50.99	3.41	6.08	15.24	15.33	0.00	4.57	199.65	3.09	25.09	57.29	358.04	2372.65	41.41	0.82	1.53	3.38	2466.35	19.55	3.71
POND PHOSPHORUS BUDGETS.....																						
runoff	lbs/yr	14.77	36.83	3.24	5.93	5.31	15.56	0.00	5.54	3.71	2.75	22.10	29.77	102.65	11.23	55.09	0.45	0.52	1.01	51.58	18.75	5.32
upstream pond	lbs/yr	0.00	11.65	0.00	0.00	4.70	0.00	0.00	0.00	197.32	0.00	1.65	23.75	254.54	1013.69	0.00	0.00	0.25	0.51	1080.87	0.00	0.00
total inflow	**lbs/yr**	**14.77**	**48.47**	**3.24**	**5.93**	**10.01**	**15.56**	**0.00**	**5.54**	**201.03**	**2.75**	**23.75**	**53.52**	**357.20**	**1024.92**	**55.09**	**0.45**	**0.77**	**1.52**	**1132.45**	**18.75**	**5.32**
net sedimentation	lbs/yr	3.13	0.00	1.47	3.00	0.00	0.00	0.00	0.00	0.00	1.10	0.00	0.00	156.02	0.00	0.00	0.19	0.26	0.66	0.00	0.00	3.90
outflow	lbs/yr	11.65	48.47	1.77	2.93	10.01	15.56	0.00	5.54	201.02	1.65	23.75	53.52	201.18	1024.92	55.09	0.25	0.51	0.86	1132.45	18.75	1.42
p removal efficiency	%	21.16	0.00	45.38	50.62	0.00	0.01	99.78	0.03	0.00	40.02	0.00	0.00	43.68	0.00	0.00	43.22	33.70	43.39	0.00	0.00	73.31
upstream w-shed p load	lbs/yr	14.77	51.60	3.24	5.93	14.48	15.56	0.00	5.54	208.63	2.75	24.85	54.62	365.91	2687.77	55.09	0.45	0.97	1.97	2796.40	18.75	5.32
total removal %	%	21.16	6.06	45.38	50.62	30.88	0.01	99.78	0.03	3.65	40.02	4.43	2.02	45.02	61.87	0.00	43.22	46.98	56.42	59.50	0.00	73.31
HYDRAULIC PARAMETERS.....																						
pond mean depth	feet	2.00	1.00	3.00	3.48	1.00	1.00	1.00	1.00	1.00	1.85	1.00	1.00	4.20	1.00	1.00	3.26	2.38	4.00	1.00	1.00	3.83
relative volume	inches	0.17	0.00	1.12	4.19	0.00	0.00	5.01	0.00	0.00	3.80	0.00	0.00	4.82	0.00	0.00	57.90	11.82	123.08	0.00	0.00	21.34
residence time	years	0.01	0.00	0.04	0.13	0.00	0.00	0.16	0.00	0.00	0.12	0.00	0.00	0.04	0.00	0.00	1.82	0.17	2.12	0.00	0.00	0.67
residence time	days	1.95	0.00	12.85	48.06	0.00	0.00	57.56	0.00	0.00	43.64	0.00	0.00	15.61	0.00	0.00	664.53	62.82	772.30	0.00	0.00	244.97
overflow rate	ft/yr	373.71	5098651.76	85.21	26.42	1524410.54	1532692.13	6.34	456552.53	19964668.33	15.47	2509232.01	5728598.68	98.09	237264907.63	4140885.72	1.79	13.82	1.89	246634525.94	1954888.56	5.70
inflow phos conc	ppb	363.55	349.79	350.02	358.94	241.59	373.49	409.24	446.33	370.46	327.26	348.28	343.73	367.05	158.93	489.46	200.03	185.33	165.05	168.93	352.91	528.49
outflow phos conc	ppb	286.62	349.78	191.17	177.25	241.59	373.44	0.92	446.20	370.45	196.29	348.27	343.73	206.73	158.93	489.46	113.58	122.88	93.44	168.93	352.90	141.06
p reaction rate	-	0.34	0.00	1.52	2.08	0.00	0.00	197383.46	0.00	0.00	1.11	0.00	0.00	1.38	0.00	0.00	1.34	0.77	1.35	0.00	0.00	10.29
1-rp	-	0.79	1.00	0.55	0.49	1.00	1.00	0.00	1.00	1.00	0.60	1.00	1.00	0.56	1.00	1.00	0.57	0.66	0.57	1.00	1.00	0.27
vlawmo pond volume	acre-ft	1.18	2.83	0.27	0.48	0.45	1.20	0.00	0.36	0.27	0.24	1.73	2.53	7.95	1.09	3.26	0.06	0.06	0.15	3.84	1.54	0.29
LAND USE PARAMETERS.....																						
runoff total P conc	ppb	381.97	384.18	350.00	299.24	300.67	145.08	0.00	257.32	59.09	270.28	323.07	289.90	314.38	244.31	503.41	200.00	226.29	200.00	341.03	317.30	520.32
runoff coefficient		0.39	0.33	0.46	0.13	0.31	0.13	0.00	0.12	0.04	0.12	0.11	0.17	0.15	0.12	0.12	0.08	0.11	0.08	0.12	0.18	0.14
dissolved/total P		0.29	0.30	0.30	0.48	0.41	0.11	0.00	0.18	0.04	0.52	0.45	0.47	0.44	0.53	0.64	0.60	0.56	0.60	0.43	0.43	0.22
runoff TSS conc	ppm	143.21	143.93	140.00	185.82	167.27	53.49	0.00	85.04	20.77	194.63	194.40	186.18	183.93	199.16	207.20	216.00	206.01	216.00	189.60	184.44	166.07
POND TSS BUDGETS.....																						
runoff	lbs/yr	5717.43	13792.37	1293.22	2761.07	2294.64	5815.04	0.03	1766.89	1294.82	1487.18	10944.81	14145.30	45629.85	6678.68	21343.14	482.26	365.50	1082.89	23790.90	8546.73	1655.24
upstream pond	lbs/yr	0.00	3246.69	0.00	0.00	831.48	0.00	0.00	0.00	71275.26	0.00	490.77	11435.57	98150.96	150210.74	0.00	0.00	147.89	204.07	178627.23	0.00	0.00
total inflow	**lbs/yr**	**5717.43**	**17039.06**	**1293.22**	**2761.07**	**3126.12**	**5815.04**	**0.03**	**1766.89**	**72570.08**	**1487.18**	**11435.57**	**25580.88**	**143780.81**	**156889.42**	**21343.14**	**482.26**	**513.39**	**1286.96**	**202418.13**	**8546.73**	**1655.24**
p removal efficiency (no inf)	%	22.00	0.00	46.00	51.00	0.00	0.00	100.00	0.00	0.00	41.00	0.00	0.00	44.00	0.00	0.00	44.00	34.00	44.00	0.00	0.00	74.00
tss removal efficiency (no inf)	%	43.21	0.00	72.00	83.00	0.00	0.00	93.00	0.00	0.00	67.00	0.00	0.00	69.33	0.00	0.00	69.33	60.25	69.33	0.00	0.00	93.00
net sedimentation	lbs/yr	2470.75	0.00	931.12	2291.69	0.00	0.00	0.02	0.00	0.00	996.41	0.00	0.00	99688.03	0.00	0.00	334.37	309.32	892.29	0.00	0.00	1539.37
outflow	lbs/yr	3246.69	17039.06	362.10	469.38	3126.12	5815.04	0.00	1766.89	72570.08	490.77	11435.57	25580.88	44092.78	156889.42	21343.14	147.89	204.07	394.67	202418.13	8546.73	115.87
tss removal efficiency (inf)	%	43.21	0.00	72.00	83.00	0.00	0.00	93.00	0.00	0.00	67.00	0.00	0.00	69.33	0.00	0.00	69.33	60.25	69.33	0.00	0.00	93.00
upstream watershed tss load	lbs/yr	5717.43	19509.81	1293.22	2761.07	6348.93	5815.04	0.03	1766.89	78263.66	1487.18	12431.98	26577.29	150470.80	1019618.50	21343.14	482.26	847.76	1930.65	1066683.19	8546.73	1655.24
tss total removal efficiency	%	43.21	12.66	72.00	83.00	50.76	0.00	93.00	0.00	7.27	67.00	8.01	3.75	70.70	84.61	0.00	69.33	75.93	79.56	81.02	0.00	93.00
INFILTRATION BMP/POND.....																						
Annual runoff infiltrated	%	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Adjusted outflow	**ac-ft/yr**	**14.95**	**50.99**	**3.41**	**6.08**	**15.24**	**15.33**	**0.00**	**4.57**	**199.65**	**3.09**	**25.09**	**57.29**	**358.04**	**2372.65**	**41.41**	**0.82**	**1.53**	**3.38**	**2466.35**	**19.55**	**3.71**
Adjusted TP outflow	**lbs/yr**	**11.65**	**48.47**	**1.77**	**2.93**	**10.01**	**15.56**	**0.00**	**5.54**	**201.02**	**1.65**	**23.75**	**53.52**	**201.18**	**1024.92**	**55.09**	**0.25**	**0.51**	**0.86**	**1132.45**	**18.75**	**1.42**
Adjusted TSS outflow	**lbs/yr**	**3246.69**	**17039.06**	**362.10**	**469.38**	**3126.12**	**5815.04**	**0.00**	**1766.89**	**72570.08**	**490.77**	**11435.57**	**25580.88**	**44092.78**	**156889.42**	**21343.14**	**147.89**	**204.07**	**394.67**	**202418.13**	**8546.73**	**115.87**

Rochester Loading Assessment																						
Willow Creek																						
363-06-158-2																						
Present (2005) LOADS																						
		wc-a5.11b	**wc-a5.11a**	**wc-a5.9b**	**wc-a5.9b cell 2**	**wc-a5.9a**	**wc-a6.4b**	**wc-a6.4a**	**wc-a6.4a cell 2**	**wc-a5.12b**	**wc-a5.12a**	**wc-a6.7**	**wc-a6.2d**	**wc-a6.2c**	**wc-a6.2b**	**wc-a6.2a**	**wc-a6.1**	**wc-a6.5c**	**wc-a6.3g**	**wc-a6.3f**	**wc-a6.3e**	**wc-a6.3d**
Routed TO:		wc-a5.11a	wc-a5.9a	wc-a5.9b cell 2	wc-a5.9a	wc-a6.7	wc-a6.4a	wc-a6.4a cell 2	wc-a6.7	wc-a5.12a	wc-a6.7	wc-a6.6a	wc-a6.2b	wc-a6.2b	wc-a6.2a	wc-a6.3a	wc-a6.3e	wc-a6.3e	wc-a6.5a	wc-a6.3c	wc-a6.3c	wc-a6.3c
INPUT VARIABLES....	UNITS																					
case label	-																					
Watershed area	acres	189.9	59.0	42.3	0.0	43.6	32.7	107.6	0.0	13.8	204.2	107.4	16.8	11.7	6.1	36.1	136.8	34.1	7.2	15.6	56.5	17.6
basin area	acres	3.88	0.00	0.43	2.21	0.00	0.48	2.55	2.17	0.34	0.00	0.00	0.28	0.23	0.00	0.00	0.66	0.00	0.48	0.65	0.54	0.72
basin volume	acre-ft	15.52	0.00	1.64	12.11	0.00	1.82	10.20	8.68	0.00	0.00	0.00	1.24	0.59	0.00	0.00	3.76	0.00	2.21	3.41	2.89	3.50
Row Crop Agriculture		19%	16%	60%	0%	35%	0%	50%	0%	0%	10%	0%	0%	0%	0%	0%	59%	95%	0%	0%	85%	83%
Very Low Density Residential		17%	22%	0%	0%	0%	0%	0%	0%	1%	7%	0%	0%	0%	0%	0%	3%	0%	0%	0%	0%	0%
Low Density Residential		17%	7%	0%	0%	0%	0%	0%	0%	94%	38%	6%	63%	0%	0%	3%	1%	0%	0%	0%	0%	0%
Medium Density Residential		0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
High Density Residential		0%	0%	0%	0%	0%	0%	0%	0%	0%	1%	33%	0%	0%	0%	0%	0%	0%	0%	18%	0%	0%
Commercial/Industrial		0%	5%	0%	0%	0%	0%	7%	0%	0%	0%	43%	0%	0%	0%	0%	0%	0%	1%	0%	0%	0%
Institutional		0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Open Space		43%	48%	39%	100%	61%	88%	33%	100%	5%	40%	8%	37%	100%	100%	89%	10%	0%	78%	78%	6%	6%
Golf Course		0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Pits and Quarries		0%	0%	0%	0%	1%	0%	1%	0%	0%	0%	0%	0%	0%	0%	0%	25%	0%	0%	0%	0%	0%
Right-of-Way		4%	3%	0%	0%	3%	12%	9%	0%	0%	4%	10%	0%	0%	0%	8%	3%	4%	20%	4%	9%	10%
WATERSHED-WIDE ACCOUNTING.....																						
tributary land area	ac	241.02	300.01	42.31	42.32	5787.58	32.71	140.31	140.32	13.83	217.99	6253.25	16.83	11.75	34.68	70.81	136.76	34.08	7.19	15.56	227.36	17.64
tributary water area	ac	4.53	4.53	0.43	2.64	91.84	0.48	3.03	5.20	0.34	0.34	97.38	0.28	0.23	0.51	0.51	0.66	0.00	0.48	0.65	1.20	0.72
direct and ponded area	ac	245.55	304.54	42.74	44.96	5879.43	33.19	143.34	145.52	14.17	218.33	6350.63	17.11	11.98	35.19	71.32	137.42	34.08	7.67	16.21	228.56	18.36
ASSUMED EXPORT FACTORS.....																						
season length	yrs	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
season precipitation	inches	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8
runoff total p	ppb	340.28	316.52	404.28	200.00	324.16	224.98	396.76	200.00	436.71	350.28	382.73	356.66	200.00	200.00	223.62	362.96	533.21	242.52	252.64	506.21	503.65
runoff ortho p/total p	-	0.44	0.47	0.36	0.60	0.45	0.56	0.35	0.60	0.32	0.42	0.32	0.41	0.60	0.60	0.57	0.20	0.21	0.54	0.53	0.23	0.24
unit runoff	in/yr	3.98	3.98	3.68	2.54	3.41	3.32	4.95	2.54	6.49	4.70	12.30	5.18	2.54	2.54	3.16	3.25	4.64	3.96	4.78	4.72	4.77
unit export	lbs/ac-y	0.34	0.32	0.37	0.12	0.29	0.20	0.47	0.12	0.65	0.42	1.09	0.47	0.12	0.12	0.19	0.37	0.55	0.27	0.37	0.54	0.54
POND WATER BUDGETS.....																						
runoff	ac-ft/yr	62.91	19.56	12.99	0.00	12.38	9.05	44.36	0.00	7.48	79.97	110.07	7.26	2.49	1.29	9.51	36.99	13.17	2.37	6.20	22.23	7.02
upstream pond	ac-ft/yr	23.26	86.17	0.00	12.99	2585.07	0.00	9.05	53.42	0.00	7.48	2738.32	0.00	0.00	9.75	11.04	0.00	0.00	0.00	0.00	50.16	0.00
total inflow	**ac-ft/yr**	**86.17**	**105.73**	**12.99**	**12.99**	**2597.44**	**9.05**	**53.42**	**53.42**	**7.48**	**87.46**	**2848.39**	**7.26**	**2.49**	**11.04**	**20.55**	**36.99**	**13.17**	**2.37**	**6.20**	**72.39**	**7.02**
outflow	ac-ft/yr	86.17	105.73	12.99	12.99	2597.44	9.05	53.42	53.42	7.48	87.46	2848.39	7.26	2.49	11.04	20.55	36.99	13.17	2.37	6.20	72.39	7.02
POND PHOSPHORUS BUDGETS.....																						
runoff	lbs/yr	65.39	18.72	15.81	0.00	12.52	6.55	50.39	0.00	9.05	86.19	117.05	7.97	1.35	0.70	6.72	49.96	18.90	1.91	5.77	30.53	9.57
upstream pond	lbs/yr	20.17	38.08	0.00	6.40	1192.51	0.00	3.51	21.62	0.00	9.05	1314.39	0.00	0.00	4.14	4.84	0.00	0.00	0.00	0.00	33.85	0.00
total inflow	**lbs/yr**	**85.56**	**56.80**	**15.81**	**6.40**	**1205.04**	**6.55**	**53.90**	**21.62**	**9.05**	**95.24**	**1431.44**	**7.97**	**1.35**	**4.84**	**11.57**	**49.96**	**18.90**	**1.91**	**5.77**	**64.39**	**9.57**
net sedimentation	lbs/yr	47.48	0.00	9.41	3.13	0.00	3.03	32.28	7.51	0.00	0.00	0.00	4.70	0.49	0.00	0.00	35.01	0.00	1.08	3.41	33.95	7.07
outflow	lbs/yr	38.08	56.80	6.40	3.27	1205.04	3.51	21.62	14.12	9.05	95.24	1431.44	3.27	0.87	4.84	11.57	14.95	18.90	0.84	2.36	30.44	2.50
p removal efficiency	%	55.49	0.00	59.53	48.90	0.00	46.31	59.89	34.72	0.00	0.00	0.00	58.95	36.01	0.00	0.00	70.07	0.01	56.28	59.14	52.73	73.89
upstream w-shed p load	lbs/yr	89.46	108.18	15.81	15.81	2932.92	6.55	56.93	56.93	9.05	95.24	3202.14	7.97	1.35	10.03	16.76	49.96	18.90	1.91	5.77	99.39	9.57
total removal %	%	57.43	47.50	59.53	79.32	58.91	46.31	62.02	75.21	0.00	0.00	55.30	58.95	36.01	51.72	30.96	70.07	0.01	56.28	59.14	69.38	73.89
HYDRAULIC PARAMETERS.....																						
pond mean depth	feet	4.00	1.00	3.81	5.48	1.00	3.79	4.00	4.00	0.00	1.00	1.00	4.43	2.57	1.00	1.00	5.70	1.00	4.60	5.25	5.35	4.86
relative volume	inches	7.84	0.00	4.01	181650.00	0.00	6.39	7.31	130200.00	0.00	0.00	0.00	5.43	7.53	0.00	0.00	3.23	0.00	29.64	17.50	4.13	15.86
residence time	years	0.18	0.00	0.13	0.93	0.00	0.20	0.19	0.16	0.00	0.00	0.00	0.17	0.24	0.00	0.00	0.10	0.00	0.93	0.55	0.04	0.50
residence time	days	65.74	0.00	46.08	340.18	0.00	73.36	69.69	59.31	0.00	0.00	0.00	62.35	86.46	0.00	0.00	37.10	0.00	340.19	200.90	14.57	182.01
overflow rate	ft/yr	22.21	10572792.97	30.21	5.88	259744335.70	18.86	20.95	24.62	22.01	8745795.18	284839361.53	25.93	10.83	1104264.76	2055221.01	56.04	1316992.81	4.94	9.53	134.06	9.75
inflow phos conc	ppb	365.31	197.64	447.80	181.22	170.69	265.98	371.23	148.92	444.73	400.66	184.89	404.14	200.02	161.35	207.07	496.93	528.06	296.88	342.59	327.22	501.83
outflow phos conc	ppb	162.59	197.64	181.22	92.61	170.69	142.80	148.91	97.21	444.71	400.65	184.89	165.91	127.99	161.35	207.07	148.72	528.01	129.80	140.00	154.69	131.01
p reaction rate	-	2.80	0.00	3.64	1.87	0.00	1.61	3.72	0.81	0.00	0.00	0.00	3.50	0.88	0.00	0.00	7.82	0.00	2.94	3.54	2.36	10.84
1-rp	-	0.45	1.00	0.40	0.51	1.00	0.54	0.40	0.65	1.00	1.00	1.00	0.41	0.64	1.00	1.00	0.30	1.00	0.44	0.41	0.47	0.26
vlawmo pond volume	acre-ft	4.95	1.54	1.02	0.00	0.97	0.71	3.49	0.00	0.59	6.29	8.65	0.57	0.20	0.10	0.75	2.91	1.04	0.19	0.49	1.75	0.55
LAND USE PARAMETERS.....																						
runoff total P conc	ppb	340.28	316.52	404.28	200.00	324.16	224.98	396.76	200.00	436.71	350.28	382.73	356.66	200.00	200.00	223.62	362.96	533.21	242.52	252.64	506.21	503.65
runoff coefficient		0.13	0.13	0.12	0.08	0.11	0.10	0.16	0.08	0.20	0.15	0.39	0.16	0.08	0.08	0.10	0.10	0.15	0.12	0.15	0.15	0.15
dissolved/total P		0.44	0.47	0.36	0.60	0.45	0.56	0.35	0.60	0.32	0.42	0.32	0.41	0.60	0.60	0.57	0.20	0.21	0.54	0.53	0.23	0.24
runoff TSS conc	ppm	189.67	196.83	183.17	216.00	193.62	206.51	175.06	216.00	144.64	178.05	145.78	168.38	216.00	216.00	207.67	129.07	162.09	199.63	199.45	164.24	164.04
POND TSS BUDGETS.....																						
runoff	lbs/yr	29877.28	9537.66	6244.73	1.24	6213.38	4685.29	19602.51	1.24	2877.55	35118.85	42117.40	3028.59	1457.91	756.64	5012.80	16719.19	5751.47	1145.89	2882.04	9698.20	3052.12
upstream pond	lbs/yr	8662.60	2697.79	0.00	437.13	214747.83	0.00	1218.18	1457.45	0.00	2877.55	259524.67	0.00	0.00	751.43	1508.07	0.00	0.00	0.00	0.00	6921.81	0.00
total inflow	**lbs/yr**	**38539.88**	**12235.45**	**6244.73**	**438.37**	**220961.21**	**4685.29**	**20820.68**	**1458.69**	**2877.55**	**37996.39**	**301642.07**	**3028.59**	**1457.91**	**1508.07**	**6520.87**	**16719.19**	**5751.47**	**1145.89**	**2882.04**	**16620.02**	**3052.12**
p removal efficiency (no inf)	%	56.00	0.00	60.00	49.00	0.00	47.00	60.00	35.00	0.00	0.00	0.00	59.00	37.00	0.00	0.00	71.00	0.00	57.00	60.00	53.00	74.00
tss removal efficiency (no inf)	%	93.00	0.00	93.00	78.50	0.00	74.00	93.00	61.13	0.00	0.00	0.00	93.00	63.00	0.00	0.00	93.00	0.00	93.00	93.00	87.50	93.00
net sedimentation	lbs/yr	35842.08	0.00	5807.60	344.12	0.00	3467.12	19363.23	891.62	0.00	0.00	0.00	2816.59	918.48	0.00	0.00	15548.85	0.00	1065.68	2680.29	14542.51	2838.47
outflow	lbs/yr	2697.79	12235.45	437.13	94.25	220961.21	1218.18	1457.45	567.07	2877.55	37996.39	301642.07	212.00	539.43	1508.07	6520.87	1170.34	5751.47	80.21	201.74	2077.50	213.65
tss removal efficiency (inf)	%	93.00	0.00	93.00	78.50	0.00	74.00	93.00	61.13	0.00	0.00	0.00	93.00	63.00	0.00	0.00	93.00	0.00	93.00	93.00	87.50	93.00
upstream watershed tss load	lbs/yr	40079.24	49616.90	6244.73	6245.97	1128759.44	4685.29	24287.80	24289.04	2877.55	37996.39	1233162.28	3028.59	1457.91	5243.14	10255.94	16719.19	5751.47	1145.89	2882.04	32168.86	3052.12
tss total removal efficiency	%	93.27	75.34	93.00	98.49	80.42	74.00	94.00	97.67	0.00	0.00	75.54	93.00	63.00	71.24	36.42	93.00	0.00	93.00	93.00	93.54	93.00
INFILTRATION BMP/POND.....																						
Annual runoff infiltrated	%	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Adjusted runoff infiltrated	**ac-ft/yr**	**86.17**	**105.73**	**12.99**	**12.99**	**2597.44**	**9.05**	**53.42**	**53.42**	**7.48**	**87.46**	**2848.39**	**7.26**	**2.49**	**11.04**	**20.55**	**36.99**	**13.17**	**2.37**	**6.20**	**72.39**	**7.02**
Adjusted TP outflow	**lbs/yr**	**38.08**	**56.80**	**6.40**	**3.27**	**1205.04**	**3.51**	**21.62**	**14.12**	**9.05**	**95.24**	**1431.44**	**3.27**	**0.87**	**4.84**	**11.57**	**14.95**	**18.90**	**0.84**	**2.36**	**30.44**	**2.50**
Adjusted TSS outflow	**lbs/yr**	**2697.79**	**12235.45**	**437.13**	**94.25**	**220961.21**	**1218.18**	**1457.45**	**567.07**	**2877.55**	**37996.39**	**301642.07**	**212.00**	**539.43**	**1508.07**	**6520.87**	**1170.34**	**5751.47**	**80.21**	**201.74**	**2077.50**	**213.65**

Rochester Loading Assessment																						
Willow Creek																						
363-06-158-2																						
Present (2005) LOADS																						
		wc-a6.3c	**wc-a6.3b**	**wc-a6.3a**	**wc-a6.5b**	**wc-a6.5a**	**wc-a6.8**	**wc-a6.9g**	**wc-a6.9f**	**wc-a6.9e**	**wc-a6.9d**	**wc-a6.9c**	**wc-a6.9c cell 2**	**wc-a6.9b**	**wc-a6.9a**	**wc-a6.10b**	**wc-a6.12**	**wc-a6.10a**	**wc-a6.11**	**wc-a6.6b**	**wc-a6.6b cell 2**	**wc-a6.6a**
Routed TO:		wc-a6.3b	wc-a6.3a	wc-a6.5a	wc-a6.5a	wc-a6.6a	wc-a6.9a	wc-a6.9a	wc-a6.9a	wc-a6.9a	wc-a6.9c	wc-a6.9c cell 2	wc-a6.9b	wc-a6.9a	wc-a6.10a	wc-a6.10a	wc-a6.10a	wc-a6.11	wc-a6.6a	wc-a6.6b cell 2	wc-a6.6a	wc-a6.14a
INPUT VARIABLES....	UNITS																					
case label	-																					
Watershed area	acres	17.4	9.4	95.7	137.8	39.4	100.5	27.4	40.7	9.4	62.0	14.7	0.0	7.1	119.7	17.1	206.9	158.9	118.9	3.5	0.0	224.2
basin area	acres	1.98	1.67	0.00	4.51	5.19	1.15	0.60	0.01	0.21	0.00	0.12	0.54	0.06	0.00	0.14	0.33	0.00	8.91	0.10	0.16	0.00
basin volume	acre-ft	15.87	12.73	0.00	22.22	42.23	4.62	2.05	0.00	0.82	0.00	0.14	3.00	0.14	0.00	0.52	1.98	0.00	178.20	0.27	0.43	0.00
Row Crop Agriculture		0%	15%	7%	53%	0%	27%	0%	0%	83%	4%	0%	0%	0%	9%	0%	0%	0%	0%	0%	0%	5%
Very Low Density Residential		0%	0%	0%	0%	0%	4%	3%	0%	9%	0%	0%	0%	0%	4%	0%	6%	2%	0%	0%	0%	0%
Low Density Residential		0%	0%	2%	0%	3%	63%	95%	86%	2%	79%	60%	0%	55%	9%	52%	43%	23%	0%	0%	0%	0%
Medium Density Residential		0%	0%	0%	15%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
High Density Residential		0%	0%	0%	16%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Commercial/Industrial		0%	11%	3%	0%	24%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	1%	57%	100%	0%	4%
Institutional		0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	1%	0%	0%	0%	0%	0%
Open Space		89%	74%	55%	15%	46%	6%	2%	12%	6%	17%	40%	100%	45%	75%	48%	24%	64%	19%	0%	100%	82%
Golf Course		0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Pits and Quarries		0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Right-of-Way		11%	0%	34%	1%	27%	0%	0%	1%	0%	0%	0%	0%	0%	3%	0%	26%	9%	24%	0%	0%	9%
WATERSHED-WIDE ACCOUNTING.....																						
tributary land area	ac	277.96	287.35	453.88	137.85	638.32	100.51	27.41	40.70	9.37	62.02	76.69	76.70	83.83	381.50	17.10	206.93	764.39	883.28	3.50	3.51	8002.53
tributary water area	ac	4.55	6.22	6.73	4.51	16.91	1.15	0.60	0.01	0.21	0.00	0.12	0.66	0.72	2.69	0.14	0.33	3.16	12.07	0.10	0.26	126.62
direct and ponded area	ac	282.51	293.57	460.61	142.36	655.23	101.66	28.01	40.71	9.58	62.02	76.81	77.36	84.55	384.19	17.24	207.26	767.55	895.35	3.60	3.77	8129.15
ASSUMED EXPORT FACTORS.....																						
season length	yrs	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
season precipitation	inches	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8
runoff total p	ppb	221.83	266.67	300.52	459.85	297.53	455.59	441.18	418.64	501.13	410.68	350.37	200.00	337.58	264.81	331.18	369.32	281.33	334.14	351.00	200.00	240.89
runoff ortho p/total p	-	0.57	0.51	0.46	0.29	0.44	0.30	0.31	0.34	0.25	0.35	0.42	0.60	0.43	0.52	0.44	0.38	0.50	0.36	0.30	0.60	0.54
unit runoff	in/yr	3.23	4.14	5.16	6.43	7.21	5.72	6.53	6.25	4.25	5.93	5.06	2.54	4.86	3.29	4.75	6.05	4.27	10.92	14.60	2.54	3.65
unit export	lbs/ac-y	0.19	0.29	0.41	0.68	0.56	0.60	0.66	0.62	0.49	0.58	0.46	0.12	0.43	0.23	0.42	0.55	0.33	0.87	1.16	0.12	0.24
POND WATER BUDGETS.....																						
runoff	ac-ft/yr	4.68	3.24	41.12	73.89	23.69	47.91	14.92	21.19	3.32	30.66	6.19	0.00	2.89	32.78	6.77	104.38	56.56	108.20	4.26	0.00	68.21
upstream pond	ac-ft/yr	85.61	90.29	114.08	0.00	231.46	0.00	0.00	0.00	0.00	0.00	30.66	36.85	36.85	127.07	0.00	0.00	271.00	327.56	0.00	4.26	3543.57
total inflow	**ac-ft/yr**	**90.29**	**93.53**	**155.20**	**73.89**	**255.15**	**47.91**	**14.92**	**21.19**	**3.32**	**30.66**	**36.85**	**36.85**	**39.74**	**159.85**	**6.77**	**104.38**	**327.56**	**435.76**	**4.26**	**4.26**	**3611.78**
outflow	ac-ft/yr	90.29	93.53	155.20	73.89	255.15	47.91	14.92	21.19	3.32	30.66	36.85	36.85	39.74	159.85	6.77	104.38	327.56	435.76	4.26	4.26	3611.78
POND PHOSPHORUS BUDGETS.....																						
runoff	lbs/yr	3.31	2.74	39.41	93.94	22.24	59.94	18.10	25.14	4.63	36.19	6.72	0.00	3.07	27.45	7.10	113.84	52.16	103.88	4.05	0.00	53.21
upstream pond	lbs/yr	35.29	21.66	27.52	0.00	96.58	0.00	0.00	0.00	0.00	0.00	36.19	36.89	19.43	77.69	0.00	0.00	179.59	231.74	0.00	2.03	1585.19
total inflow	**lbs/yr**	**38.61**	**24.40**	**66.93**	**93.94**	**118.83**	**59.94**	**18.10**	**25.14**	**4.63**	**36.19**	**42.91**	**36.89**	**22.49**	**105.14**	**7.10**	**113.84**	**231.74**	**335.62**	**4.05**	**2.03**	**1638.40**
net sedimentation	lbs/yr	16.95	8.45	0.00	65.12	58.58	36.67	11.03	0.00	3.22	0.00	6.02	17.46	1.70	0.00	3.54	42.96	0.00	243.53	2.03	0.61	0.00
outflow	lbs/yr	21.66	15.96	66.93	28.82	60.24	23.27	7.07	25.14	1.41	36.19	36.89	19.43	20.79	105.14	3.57	70.88	231.74	92.09	2.03	1.42	1638.40
p removal efficiency	%	43.90	34.61	0.00	69.32	49.30	61.18	60.92	0.00	69.51	0.00	14.04	47.34	7.57	0.00	49.79	37.73	0.00	72.56	50.02	30.13	0.00
upstream w-shed p load	lbs/yr	118.05	120.79	176.95	93.94	295.05	59.94	18.10	25.14	4.63	36.19	42.91	42.91	45.98	181.25	7.10	113.84	354.35	458.22	4.05	4.06	4012.68
total removal %	%	81.65	86.79	62.18	69.32	79.58	61.18	60.92	0.00	69.51	0.00	14.04	54.73	54.79	41.99	49.79	37.73	34.60	79.90	50.02	65.07	59.17
HYDRAULIC PARAMETERS.....																						
pond mean depth	feet	8.02	7.62	1.00	4.93	8.14	4.01	3.42	0.00	3.90	1.00	1.17	5.56	2.33	1.00	3.71	6.00	1.00	20.00	2.65	2.66	1.00
relative volume	inches	107.73	125.02	0.00	9.56	56.69	3.06	4.38	0.00	7.85	0.00	0.72	45000.00	1.54	0.00	2.44	0.60	0.00	52.37	1.98	6375.00	0.00
residence time	years	0.18	0.14	0.00	0.30	0.17	0.10	0.14	0.00	0.25	0.00	0.00	0.08	0.00	0.00	0.08	0.02	0.00	0.41	0.06	0.10	0.00
residence time	days	64.15	49.68	0.00	109.76	60.41	35.17	50.22	0.00	90.12	0.00	1.39	29.72	1.29	0.00	28.05	6.92	0.00	149.26	22.70	36.38	0.00
overflow rate	ft/yr	45.60	56.01	15520185.52	16.38	49.16	41.66	24.87	2118.51	15.79	3066151.42	307.06	68.24	662.26	15985013.96	48.33	316.30	32755919.96	48.91	42.62	26.65	361177558.43
inflow phos conc	ppb	157.31	95.99	158.66	467.73	171.34	460.29	446.39	436.67	513.46	434.27	428.48	368.32	208.27	241.99	386.35	401.26	260.30	283.37	350.02	174.97	166.90
outflow phos conc	ppb	88.26	62.77	158.66	143.48	86.87	178.69	174.43	436.65	156.55	434.26	368.33	193.95	192.50	241.99	194.00	249.85	260.30	77.75	174.95	122.24	166.90
p reaction rate	-	1.39	0.81	0.00	7.37	1.92	4.06	3.99	0.00	7.48	0.00	0.19	1.71	0.09	0.00	1.97	0.97	0.00	9.64	2.00	0.62	0.00
1-rp	-	0.56	0.65	1.00	0.31	0.51	0.39	0.39	1.00	0.30	1.00	0.86	0.53	0.92	1.00	0.50	0.62	1.00	0.27	0.50	0.70	1.00
vlawmo pond volume	acre-ft	0.37	0.25	3.23	5.81	1.86	3.77	1.17	1.67	0.26	2.41	0.49	0.00	0.23	2.58	0.53	8.21	4.45	8.51	0.34	0.00	5.36
LAND USE PARAMETERS.....																						
runoff total P conc	ppb	221.83	266.67	300.52	459.85	297.53	455.59	441.18	418.64	501.13	410.68	350.37	200.00	337.58	264.81	331.18	369.32	281.33	334.14	351.00	200.00	240.89
runoff coefficient		0.10	0.13	0.16	0.20	0.23	0.18	0.21	0.20	0.13	0.19	0.16	0.08	0.15	0.10	0.15	0.19	0.13	0.34	0.46	0.08	0.11
dissolved/total P		0.57	0.51	0.46	0.29	0.44	0.30	0.31	0.34	0.25	0.35	0.42	0.60	0.43	0.52	0.44	0.38	0.50	0.36	0.30	0.60	0.54
runoff TSS conc	ppm	207.75	199.86	183.25	163.72	175.13	153.88	144.05	149.42	170.49	153.97	170.60	216.00	174.18	202.29	176.12	163.00	190.34	154.16	140.40	216.00	203.48
POND TSS BUDGETS.....																						
runoff	lbs/yr	2454.51	1565.23	18048.28	30640.91	9782.52	19279.90	5730.51	8258.38	1506.28	12155.29	2604.20	1.24	1235.19	16864.68	2921.71	42427.40	26076.88	42019.06	1616.87	1.24	34157.85
upstream pond	lbs/yr	2492.89	1517.20	7719.17	0.00	27992.52	0.00	0.00	0.00	0.00	0.00	12155.29	10410.72	2498.87	13261.84	0.00	0.00	45955.50	72032.38	0.00	274.87	316919.93
total inflow	**lbs/yr**	**4947.40**	**3082.44**	**25767.45**	**30640.91**	**37775.04**	**19279.90**	**5730.51**	**8258.38**	**1506.28**	**12155.29**	**14759.50**	**10411.96**	**3734.06**	**30126.51**	**2921.71**	**42427.40**	**72032.38**	**114051.44**	**1616.87**	**276.11**	**351077.78**
p removal efficiency (no inf)	%	44.00	35.00	0.00	70.00	50.00	62.00	61.00	0.00	70.00	0.00	15.00	48.00	8.00	0.00	50.00	38.00	0.00	73.00	51.00	31.00	0.00
tss removal efficiency (no inf)	%	69.33	61.13	0.00	93.00	81.00	93.00	93.00	0.00	93.00	0.00	29.46	76.00	15.71	0.00	81.00	64.00	0.00	93.00	83.00	57.63	0.00
net sedimentation	lbs/yr	3430.20	1884.14	0.00	28496.05	30597.78	17930.30	5329.37	0.00	1400.84	0.00	4348.78	7913.09	586.78	0.00	2366.58	27153.53	0.00	106067.84	1342.00	159.11	0.00
outflow	lbs/yr	1517.20	1198.30	25767.45	2144.86	7177.26	1349.59	401.14	8258.38	105.44	12155.29	10410.72	2498.87	3147.28	30126.51	555.12	15273.86	72032.38	7983.60	274.87	117.00	351077.78
tss removal efficiency (inf)	%	69.33	61.13	0.00	93.00	81.00	93.00	93.00	0.00	93.00	0.00	29.46	76.00	15.71	0.00	81.00	64.00	0.00	93.00	83.00	57.63	0.00
upstream watershed tss load	lbs/yr	40557.52	42122.75	70426.98	30640.91	111996.30	19279.90	5730.51	8258.38	1506.28	12155.29	14759.50	14760.74	15995.93	67635.69	2921.71	42427.40	139061.67	181080.73	1616.87	1618.11	1562015.27
tss total removal efficiency	%	96.26	97.16	63.41	93.00	93.59	93.00	93.00	0.00	93.00	0.00	29.46	83.07	80.32	55.46	81.00	64.00	48.20	95.59	83.00	92.77	77.52
INFILTRATION BMP/POND.....																						
Annual runoff infiltrated	%	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Adjusted outflow	**ac-ft/yr**	**90.29**	**93.53**	**155.20**	**73.89**	**255.15**	**47.91**	**14.92**	**21.19**	**3.32**	**30.66**	**36.85**	**36.85**	**39.74**	**159.85**	**6.77**	**104.38**	**327.56**	**435.76**	**4.26**	**4.26**	**3611.78**
Adjusted TP outflow	**lbs/yr**	**21.66**	**15.96**	**66.93**	**28.82**	**60.24**	**23.27**	**7.07**	**25.14**	**1.41**	**36.19**	**36.89**	**19.43**	**20.79**	**105.14**	**3.57**	**70.88**	**231.74**	**92.09**	**2.03**	**1.42**	**1638.40**
Adjusted TSS outflow	**lbs/yr**	**1517.20**	**1198.30**	**25767.45**	**2144.86**	**7177.26**	**1349.59**	**401.14**	**8258.38**	**105.44**	**12155.29**	**10410.72**	**2498.87**	**3147.28**	**30126.51**	**555.12**	**15273.86**	**72032.38**	**7983.60**	**274.87**	**117.00**	**351077.78**

Rochester Loading Assessment																					
Willow Creek																					
363-06-158-2																					
Present (2005) LOADS																					
		wc-a1.9b	**wc-a1.9a**	**wc-a1.10b**	**wc-a1.10a**	**wc-a2.1**	**wc-a2.2**	**wc-a2.4**	**wc-a2.8**	**wc-a2.6**	**wc-a2.7**	**wc-a2.9c**	**wc-a2.9b**	**wc-a2.9a**	**wc-a2.10b**	**wc-a2.10a**	**wc-a6.14d**	**wc-a6.14c**	**wc-a6.14b**	**wc-a6.13d**	**wc-a6.13c**	**wc-a6.13b**
Routed TO:		wc-a1.9a	wc-a1.10a	wc-a1.10a	wc-a2.2	wc-a2.2	wc-a2.6	wc-a2.6	wc-a2.6	wc-a2.10a	wc-a2.9c	wc-a2.10a	wc-a2.9a	wc-a2.10a	wc-a2.10a	wc-a6.14a	wc-a6.14a	wc-a6.13b	wc-a6.14a	wc-a6.14a	wc-a6.14a	wc-a6.13b cell 2
INPUT VARIABLES....	UNITS																					
case label	-																					
Watershed area	acres	14.1	18.2	10.8	58.0	32.5	71.4	59.4	0.1	4.9	0.1	39.9	29.0	127.1	8.1	193.8	1.8	24.0	29.5	46.6	60.6	302.3
basin area	acres	0.00	0.00	0.00	36.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.07	0.89	0.13	0.00	0.03	0.97	5.45	0.00	0.00	1.24
basin volume	acre-ft	0.00	0.00	0.00	314.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.28	2.70	0.00	0.00	0.00	2.87	21.80	0.00	0.00	6.64
Row Crop Agriculture		9%	0%	25%	0%	0%	0%	59%	0%	1%	0%	0%	8%	0%	0%	21%	0%	0%	34%	0%	0%	0%
Very Low Density Residential		13%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	1%	0%	4%	0%	0%	0%	0%	0%	3%
Low Density Residential		0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	2%	0%	8%	0%	37%	0%	0%	4%	11%	0%	48%
Medium Density Residential		0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	100%	0%	0%	1%	0%	0%
High Density Residential		0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	1%	0%	0%	0%	0%	0%	1%
Commercial/Industrial		0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	100%	0%	28%	1%	10%
Institutional		0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	88%	1%	0%	0%	0%	1%	0%	2%
Open Space		78%	100%	22%	100%	100%	100%	24%	0%	83%	0%	37%	92%	85%	2%	22%	0%	0%	22%	0%	99%	32%
Golf Course		0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Pits and Quarries		0%	0%	52%	0%	0%	0%	16%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	18%	0%	0%	0%
Right-of-Way		0%	0%	0%	0%	0%	0%	1%	100%	17%	100%	61%	1%	7%	9%	15%	0%	0%	22%	58%	0%	4%
WATERSHED-WIDE ACCOUNTING.....																						
tributary land area	ac	14.07	32.32	10.76	101.11	32.47	204.94	59.38	0.07	269.31	0.09	40.03	28.98	156.10	8.09	667.34	1.78	24.03	29.49	46.62	60.62	326.31
tributary water area	ac	0.00	0.00	0.00	36.00	0.00	36.00	0.00	0.00	36.00	0.00	0.00	0.07	0.96	0.13	37.09	0.03	0.97	5.45	0.00	0.00	2.21
direct and ponded area	ac	14.07	32.32	10.76	137.11	32.47	240.94	59.38	0.07	305.31	0.09	40.03	29.05	157.06	8.22	704.43	1.81	25.00	34.94	46.62	60.62	328.52
ASSUMED EXPORT FACTORS.....																						
season length	yrs	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
season precipitation	inches	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8
runoff total p	ppb	250.35	200.00	181.27	200.00	200.00	200.00	370.85	399.96	235.60	399.97	326.50	227.43	233.95	351.32	401.67	450.00	350.00	334.18	391.17	201.15	353.49
runoff ortho p/total p	-	0.55	0.60	0.19	0.60	0.60	0.60	0.27	0.30	0.55	0.30	0.41	0.57	0.56	0.31	0.35	0.30	0.30	0.28	0.30	0.60	0.40
unit runoff	in/yr	2.77	2.54	1.70	2.54	2.54	2.54	3.33	8.77	3.60	8.77	6.43	2.73	3.28	9.48	5.57	9.74	14.56	4.30	10.16	2.64	6.32
unit export	lbs/ac-y	0.17	0.12	0.16	0.12	0.12	0.12	0.36	0.79	0.23	0.79	0.54	0.15	0.20	0.76	0.53	0.99	1.15	0.42	0.88	0.12	0.55
POND WATER BUDGETS.....																						
runoff	ac-ft/yr	3.25	3.87	1.52	12.30	6.88	15.13	16.48	0.05	1.47	0.07	21.39	6.59	34.71	6.39	89.89	1.45	29.16	10.57	39.45	13.32	159.15
upstream pond	ac-ft/yr	0.00	3.25	0.00	8.64	0.00	27.83	0.00	0.00	59.48	0.00	0.07	0.00	6.59	0.00	130.10	0.00	0.00	0.00	0.00	0.00	29.16
total inflow	**ac-ft/yr**	**3.25**	**7.12**	**1.52**	**20.94**	**6.88**	**42.96**	**16.48**	**0.05**	**60.96**	**0.07**	**21.46**	**6.59**	**41.29**	**6.39**	**219.99**	**1.45**	**29.16**	**10.57**	**39.45**	**13.32**	**188.30**
outflow	ac-ft/yr	3.25	7.12	1.52	20.94	6.88	42.96	16.48	0.05	60.96	0.07	21.46	6.59	41.29	6.39	219.99	1.45	29.16	10.57	39.45	13.32	188.30
POND PHOSPHORUS BUDGETS.....																						
runoff	lbs/yr	2.39	2.10	1.76	6.69	3.74	8.22	21.21	0.06	1.14	0.07	21.60	4.41	26.02	6.14	103.68	1.77	27.74	12.25	41.14	7.47	167.53
upstream pond	lbs/yr	0.00	2.39	0.00	6.25	0.00	8.71	0.00	0.00	38.20	0.00	0.07	0.00	2.99	0.00	85.72	0.00	0.00	0.00	0.00	0.00	12.64
total inflow	**lbs/yr**	**2.39**	**4.49**	**1.76**	**12.94**	**3.74**	**16.93**	**21.21**	**0.06**	**39.34**	**0.07**	**21.67**	**4.41**	**29.00**	**6.14**	**189.40**	**1.77**	**27.74**	**12.25**	**41.14**	**7.47**	**180.17**
net sedimentation	lbs/yr	0.00	0.00	0.00	7.97	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.43	10.43	0.00	0.00	0.00	15.10	8.52	0.00	0.00	77.98
outflow	lbs/yr	2.39	4.49	1.76	4.96	3.74	16.93	21.21	0.06	39.34	0.07	21.67	2.99	18.58	6.14	189.40	1.77	12.64	3.73	41.14	7.47	102.19
p removal efficiency	%	0.01	0.00	0.08	61.63	0.00	0.00	0.01	1.35	0.00	1.10	0.00	32.35	35.96	0.01	0.00	0.03	54.43	69.58	0.00	0.00	43.28
upstream w-shed p load	lbs/yr	2.39	4.49	1.76	12.94	3.74	24.90	21.21	0.06	47.32	0.07	21.67	4.41	30.43	6.14	209.23	1.77	27.74	12.25	41.14	7.47	195.26
total removal %	%	0.01	0.01	0.08	61.63	0.00	32.02	0.01	1.35	16.86	1.10	0.01	32.35	38.96	0.01	9.48	0.03	54.43	69.58	0.00	0.00	47.67
HYDRAULIC PARAMETERS.....																						
pond mean depth	feet	1.00	1.00	1.00	8.72	1.00	1.00	1.00	1.00	1.00	1.00	1.00	4.00	3.03	0.00	1.00	0.00	2.96	4.00	1.00	1.00	5.34
relative volume	inches	0.00	0.00	0.00	811.56	0.00	0.00	0.00	0.01	0.00	0.00	0.00	1.35	2.47	0.00	0.00	0.00	3.13	65.57	0.00	0.00	1.33
residence time	years	0.00	0.00	0.00	14.99	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.04	0.07	0.00	0.00	0.00	0.10	2.06	0.00	0.00	0.04
residence time	days	0.00	0.00	0.00	5472.28	0.00	0.00	0.00	0.07	0.00	0.06	0.00	15.52	23.87	0.00	0.00	0.00	35.91	752.57	0.00	0.00	12.86
overflow rate	ft/yr	325145.14	712008.87	151993.86	0.58	688306.53	4295559.12	1647573.95	5340.96	6095881.33	6583.44	2145760.10	94.09	46.40	49.16	21999394.90	48.25	30.06	1.94	3945383.13	1331752.19	151.49
inflow phos conc	ppb	270.32	232.11	425.35	227.25	200.01	145.01	473.72	400.03	237.43	400.03	371.50	246.59	258.42	353.47	316.75	450.02	350.02	426.23	383.67	206.38	352.02
outflow phos conc	ppb	270.30	232.10	424.99	87.20	200.01	145.01	473.69	394.63	237.43	395.62	371.50	166.82	165.50	353.45	316.75	449.88	159.49	129.68	383.66	206.38	199.66
p reaction rate	-	0.00	0.00	0.00	4.18	0.00	0.00	0.00	0.01	0.00	0.01	0.00	0.71	0.88	0.00	0.00	0.00	2.62	7.52	0.00	0.00	1.35
1-rp	-	1.00	1.00	1.00	0.38	1.00	1.00	1.00	0.99	1.00	0.99	1.00	0.68	0.64	1.00	1.00	1.00	0.46	0.30	1.00	1.00	0.57
vlawmo pond volume	acre-ft	0.26	0.30	0.12	0.97	0.54	1.19	1.30	0.00	0.12	0.01	1.68	0.52	2.73	0.50	7.07	0.11	2.29	0.83	3.10	1.05	12.51
LAND USE PARAMETERS.....																						
runoff total P conc	ppb	250.35	200.00	181.27	200.00	200.00	200.00	370.85	399.96	235.60	399.97	326.50	227.43	233.95	351.32	401.67	450.00	350.00	334.18	391.17	201.15	353.49
runoff coefficient		0.09	0.08	0.05	0.08	0.08	0.08	0.10	0.28	0.11	0.28	0.20	0.09	0.10	0.30	0.18	0.31	0.46	0.14	0.32	0.08	0.20
dissolved/total P		0.55	0.60	0.19	0.60	0.60	0.60	0.27	0.30	0.55	0.30	0.41	0.57	0.56	0.31	0.35	0.30	0.30	0.28	0.30	0.60	0.40
runoff TSS conc	ppm	211.24	216.00	89.70	216.00	216.00	216.00	149.58	140.02	202.92	140.01	168.23	211.47	205.27	141.72	164.40	140.00	140.00	139.48	140.21	215.42	166.30
POND TSS BUDGETS.....																						
runoff	lbs/yr	1835.96	2264.53	745.03	7202.08	4029.06	8855.79	7684.80	20.27	737.12	24.98	8763.79	3711.15	17947.39	2432.69	37281.75	549.15	11061.51	4523.07	14974.29	7679.07	65011.51
upstream pond	lbs/yr	0.00	1835.96	0.00	4845.52	0.00	4872.39	0.00	0.00	21432.44	0.00	24.00	0.00	1507.66	0.00	40782.95	0.00	0.00	0.00	0.00	0.00	940.23
total inflow	**lbs/yr**	**1835.96**	**4100.49**	**745.03**	**12047.60**	**4029.06**	**13728.18**	**7684.80**	**20.27**	**22169.57**	**24.98**	**8787.78**	**3711.15**	**19455.05**	**2432.69**	**78064.71**	**549.15**	**11061.51**	**4523.07**	**14974.29**	**7679.07**	**65951.74**
p removal efficiency (no inf)	%	0.00	0.00	0.00	62.00	0.00	0.00	0.00	2.00	0.00	2.00	0.00	33.00	36.00	0.00	0.00	0.00	55.00	70.00	0.00	0.00	44.00
tss removal efficiency (no inf)	%	0.00	0.00	0.00	93.00	0.00	0.00	0.00	3.93	0.00	3.93	0.00	59.38	62.00	0.00	0.00	0.00	91.50	93.00	0.00	0.00	69.33
net sedimentation	lbs/yr	0.00	0.00	0.00	11204.27	0.00	0.00	0.00	0.80	0.00	0.98	0.00	2203.50	12062.13	0.00	0.00	0.00	10121.28	4206.45	0.00	0.00	45726.54
outflow	lbs/yr	1835.96	4100.49	745.03	843.33	4029.06	13728.18	7684.80	19.47	22169.57	24.00	8787.78	1507.66	7392.92	2432.69	78064.71	549.15	940.23	316.61	14974.29	7679.07	20225.20
tss removal efficiency (inf)	%	0.00	0.00	0.00	93.00	0.00	0.00	0.00	3.93	0.00	3.93	0.00	59.38	62.00	0.00	0.00	0.00	91.50	93.00	0.00	0.00	69.33
upstream watershed tss load	lbs/yr	1835.96	4100.49	745.03	12047.60	4029.06	24932.44	7684.80	20.27	33374.63	24.98	8788.77	3711.15	21658.55	2432.69	103536.38	549.15	11061.51	4523.07	14974.29	7679.07	76073.02
tss total removal efficiency	%	0.00	0.00	0.00	93.00	0.00	44.94	0.00	3.93	33.57	3.93	0.01	59.38	65.87	0.00	24.60	0.00	91.50	93.00	0.00	0.00	73.41
INFILTRATION BMP/POND.....																						
Annual runoff infiltrated	%	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Adjusted outflow	**ac-ft/yr**	**3.25**	**7.12**	**1.52**	**20.94**	**6.88**	**42.96**	**16.48**	**0.05**	**60.96**	**0.07**	**21.46**	**6.59**	**41.29**	**6.39**	**219.99**	**1.45**	**29.16**	**10.57**	**39.45**	**13.32**	**188.30**
Adjusted TP outflow	**lbs/yr**	**2.39**	**4.49**	**1.76**	**4.96**	**3.74**	**16.93**	**21.21**	**0.06**	**39.34**	**0.07**	**21.67**	**2.99**	**18.58**	**6.14**	**189.40**	**1.77**	**12.64**	**3.73**	**41.14**	**7.47**	**102.19**
Adjusted TSS outflow	**lbs/yr**	**1835.96**	**4100.49**	**745.03**	**843.33**	**4029.06**	**13728.18**	**7684.80**	**19.47**	**22169.57**	**24.00**	**8787.78**	**1507.66**	**7392.92**	**2432.69**	**78064.71**	**549.15**	**940.23**	**316.61**	**14974.29**	**7679.07**	**20225.20**

Rochester Loading Assessment						
Willow Creek						
363-06-158-2						
Present (2005) LOADS						
		wc-a6.13b cell 2	**wc-a6.13b cell 3**	**wc-a6.13a**	**wc-a6.14a**	**wc-a6.15**
Routed TO:		wc-a6.13b cell 3	wc-a6.14a	wc-a6.14a	wc-a6.15	bc-a2.19
INPUT VARIABLES....	UNITS					
case label	-					
Watershed area	acres	0.0	0.0	88.6	287.9	112.6
basin area	acres	1.89	2.49	0.47	0.00	0.00
basin volume	acre-ft	10.07	13.29	1.32	0.00	0.00
Row Crop Agriculture		0%	0%	0%	7%	1%
Very Low Density Residential		0%	0%	0%	0%	0%
Low Density Residential		0%	0%	27%	19%	56%
Medium Density Residential		0%	0%	0%	1%	3%
High Density Residential		0%	0%	0%	0%	7%
Commercial/Industrial		0%	0%	53%	3%	0%
Institutional		0%	0%	4%	4%	7%
Open Space		100%	100%	1%	63%	22%
Golf Course		0%	0%	0%	0%	0%
Pits and Quarries		0%	0%	0%	0%	0%
Right-of-Way		0%	0%	14%	4%	4%
WATERSHED-WIDE ACCOUNTING.....						
tributary land area	ac	326.32	326.33	88.64	9511.28	9623.84
tributary water area	ac	4.10	6.59	0.47	176.25	176.25
direct and ponded area	ac	330.42	332.92	89.11	9687.53	9800.09
ASSUMED EXPORT FACTORS.....						
season length	yrs	1	1	1	1	1
season precipitation	inches	31.8	31.8	31.8	31.8	31.8
runoff total p	ppb	200.00	200.00	382.80	291.70	386.31
runoff ortho p/total p	-	0.60	0.60	0.30	0.48	0.37
unit runoff	in/yr	2.54	2.54	11.25	4.40	6.61
unit export	lbs/ac-y	0.12	0.12	0.95	0.34	0.62
POND WATER BUDGETS.....						
runoff	ac-ft/yr	0.00	0.00	83.13	105.47	62.02
upstream pond	ac-ft/yr	188.30	188.31	0.00	4168.00	4273.47
total inflow	**ac-ft/yr**	**188.31**	**188.31**	**83.13**	**4273.47**	**4335.48**
outflow	ac-ft/yr	188.31	188.31	83.13	4273.47	4335.48
POND PHOSPHORUS BUDGETS.....						
runoff	lbs/yr	0.00	0.00	83.96	98.79	70.23
upstream pond	lbs/yr	102.19	69.45	0.00	1985.24	2084.03
total inflow	**lbs/yr**	**102.19**	**69.45**	**83.96**	**2084.03**	**2154.26**
net sedimentation	lbs/yr	32.73	19.98	30.11	0.00	0.00
outflow	lbs/yr	69.45	49.47	53.85	2084.03	2154.26
p removal efficiency	%	32.03	28.77	35.86	0.00	0.00
upstream w-shed p load	lbs/yr	195.27	195.27	83.96	4662.56	4732.79
total removal %	%	64.43	74.66	35.86	55.30	54.48
HYDRAULIC PARAMETERS.....						
pond mean depth	feet	5.34	5.34	2.80	1.00	1.00
relative volume	inches	151035.00	199410.00	0.50	0.00	0.00
residence time	years	0.05	0.07	0.02	0.00	0.00
residence time	days	19.52	25.77	5.78	0.00	0.00
overflow rate	ft/yr	99.84	75.63	176.87	427346623.73	433548367.57
inflow phos conc	ppb	199.66	135.70	371.61	179.42	182.81
outflow phos conc	ppb	135.70	96.66	238.36	179.42	182.81
p reaction rate	-	0.69	0.57	0.87	0.00	0.00
1-rp	-	0.68	0.71	0.64	1.00	1.00
vlawmo pond volume	acre-ft	0.00	0.00	6.54	8.29	4.88
LAND USE PARAMETERS.....						
runoff total P conc	ppb	200.00	200.00	382.80	291.70	386.31
runoff coefficient		0.08	0.08	0.35	0.14	0.21
dissolved/total P		0.60	0.60	0.30	0.48	0.37
runoff TSS conc	ppm	216.00	216.00	140.90	189.24	157.40
POND TSS BUDGETS.....						
runoff	lbs/yr	1.24	1.24	31584.28	48370.97	24669.44
upstream pond	lbs/yr	20225.20	8216.99	0.00	468289.94	516660.91
total inflow	**lbs/yr**	**20226.44**	**8218.23**	**31584.28**	**516660.91**	**541330.35**
p removal efficiency (no inf)	%	33.00	29.00	36.00	0.00	0.00
tss removal efficiency (no inf)	%	59.38	55.88	62.00	0.00	0.00
net sedimentation	lbs/yr	12009.45	4591.94	19582.26	0.00	0.00
outflow	lbs/yr	8216.99	3626.30	12002.03	516660.91	541330.35
tss removal efficiency (inf)	%	59.38	55.88	62.00	0.00	0.00
upstream watershed tss load	lbs/yr	76074.26	76075.50	31584.28	1849307.97	1873977.41
tss total removal efficiency	%	89.20	95.23	62.00	72.06	71.11
INFILTRATION BMP/POND.....						
Annual runoff infiltrated	%	0.00	0.00	0.00	0.00	0.00
Adjusted outflow	**ac-ft/yr**	**188.31**	**188.31**	**83.13**	**4273.47**	**4335.48**
Adjusted TP outflow	**lbs/yr**	**69.45**	**49.47**	**53.85**	**2084.03**	**2154.26**
Adjusted TSS outflow	**lbs/yr**	**8216.99**	**3626.30**	**12002.03**	**516660.91**	**541330.35**

Rochester Loading Assessment
Willow Creek
363-06-158-2
2020 LOADS

		future wc-a1.9b	wc-a1.9b	future wc-a1.9a	wc-a1.9a	future wc-a1.10b	wc-a1.10b	future wc-a1.10a	wc-a1.10a	future wc-a2.1	wc-a2.1	future wc-a2.2	wc-a2.2	future wc-a2.4	wc-a2.4	future wc-a2.8	wc-a2.8	future wc-a2.6	wc-a2.6	future wc-a2.7	wc-a2.7	future wc-a2.9c	wc-a2.9c	future wc-a2.9b	wc-a2.9b
		wc-a1.9b	wc-a1.9a	wc-a1.9a	wc-a1.10a	wc-a1.10b	wc-a1.10a	wc-a1.10a	wc-a2.2	wc-a2.1	wc-a2.2	wc-a2.2	wc-a2.6	wc-a2.4	wc-a2.6	wc-a2.8	wc-a2.6	wc-a2.6	wc-a2.10a	wc-a2.7	wc-a2.9c	wc-a2.9c	wc-a2.10a	wc-a2.9b	wc-a2.9a
INPUT VARIABLES....	UNITS																								
case label	-																								
Watershed area	acres	0.0	14.1	0.0	18.2	0.0	10.8	0.0	58.0	0.0	32.5	0.0	71.4	0.0	59.4	0.0	0.1	0.0	4.9	0.0	0.1	11.9	28.1	12.5	16.5
basin area	acres	0.00	0.00	0.00	0.00	0.00	0.00	0.00	36.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.32	0.00	0.12	0.07
basin volume	acre-ft	0.00	0.00	0.00	0.00	0.00	0.00	0.00	314.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.94	0.00	0.34	0.28
Row Crop Agriculture		0%	9%	0%	0%	0%	25%	0%	0%	0%	0%	0%	0%	0%	59%	0%	0%	0%	1%	0%	0%	0%	0%	0%	12%
Very Low Density Residential		0%	13%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Low Density Residential		0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	2%	100%	0%
Medium Density Residential		0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
High Density Residential		0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Commercial/Industrial		0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	100%	0%	0%	0%
Institutional		0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Open Space		0%	78%	0%	100%	0%	22%	0%	100%	0%	100%	0%	100%	0%	24%	0%	0%	0%	83%	0%	0%	0%	11%	0%	87%
Golf Course		0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Pits and Quarries		0%	0%	0%	0%	0%	52%	0%	0%	0%	0%	0%	0%	0%	16%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Right-of-Way		0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	1%	0%	100%	0%	17%	0%	100%	0%	87%	0%	1%
WATERSHED-WIDE ACCOUNTING.....																									
tributary land area	ac	0.00	14.07	0.00	32.32	0.00	10.76	0.00	101.11	0.00	32.47	0.00	204.94	0.00	59.38	0.00	0.07	0.00	269.31	0.00	0.09	11.88	40.03	12.52	28.98
tributary water area	ac	0.00	0.00	0.00	0.00	0.00	0.00	0.00	36.00	0.00	0.00	0.00	36.00	0.00	0.00	0.00	0.00	0.00	36.00	0.00	0.00	0.32	0.32	0.12	0.19
direct and ponded area	ac	0.00	14.07	0.00	32.32	0.00	10.76	0.00	137.11	0.00	32.47	0.00	240.94	0.00	59.38	0.00	0.07	0.00	305.31	0.00	0.09	12.20	40.36	12.65	29.18
ASSUMED EXPORT FACTORS.....																									
season length	yrs	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
season precipitation	inches	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80
runoff total p	ppb	0.00	244.33	0.00	200.00	0.00	181.27	0.00	200.00	0.00	200.00	0.00	200.00	0.00	370.85	0.00	399.98	0.00	235.60	0.00	399.99	350.00	378.76	391.50	244.03
runoff ortho p/total p	-	0.00	0.55	0.00	0.60	0.00	0.19	0.00	0.60	0.00	0.60	0.00	0.60	0.00	0.27	0.00	0.30	0.00	0.55	0.00	0.30	0.30	0.33	0.30	0.55
unit runoff	in/yr	0.00	2.77	0.00	2.54	0.00	1.70	0.00	2.54	0.00	2.54	0.00	2.54	0.00	3.33	0.00	8.77	0.00	3.60	0.00	8.77	14.56	8.07	6.74	2.84
unit export	lbs/ac-y	0.00	0.17	0.00	0.12	0.00	0.16	0.00	0.12	0.00	0.12	0.00	0.12	0.00	0.36	0.00	0.79	0.00	0.23	0.00	0.79	1.15	0.72	0.60	0.18
POND WATER BUDGETS.....																									
runoff	ac-ft/yr	0.00	3.25	0.00	3.87	0.00	1.52	0.00	12.30	0.00	6.88	0.00	15.13	0.00	16.48	0.00	0.05	0.00	1.47	0.00	0.07	14.42	18.87	7.04	3.90
upstream pond	ac-ft/yr	0.00	0.00	0.00	3.25	0.00	0.00	0.00	8.64	0.00	0.00	0.00	27.83	0.00	0.00	0.00	0.00	0.00	59.48	0.00	0.00	0.00	14.48	0.00	7.04
total inflow	**ac-ft/yr**	**0.00**	**3.25**	**0.00**	**7.12**	**0.00**	**1.52**	**0.00**	**20.94**	**0.00**	**6.88**	**0.00**	**42.96**	**0.00**	**16.48**	**0.00**	**0.05**	**0.00**	**60.96**	**0.00**	**0.07**	**14.42**	**33.36**	**7.04**	**10.94**
outflow	ac-ft/yr	0.00	3.25	0.00	7.12	0.00	1.52	0.00	20.94	0.00	6.88	0.00	42.96	0.00	16.48	0.00	0.05	0.00	60.96	0.00	0.07	14.42	33.36	7.04	10.94
POND PHOSPHORUS BUDGETS.....																									
runoff	lbs/yr	0.00	2.33	0.00	2.10	0.00	1.76	0.00	6.69	0.00	3.74	0.00	8.22	0.00	21.21	0.00	0.06	0.00	1.14	0.00	0.07	13.72	20.17	7.49	2.88
upstream pond	lbs/yr	0.00	0.00	0.00	2.33	0.00	0.00	0.00	6.19	0.00	0.00	0.00	8.69	0.00	0.00	0.00	0.00	0.00	38.19	0.00	0.00	0.00	6.76	0.00	3.73
total inflow	**lbs/yr**	**0.00**	**2.33**	**0.00**	**4.43**	**0.00**	**1.76**	**0.00**	**12.88**	**0.00**	**3.74**	**0.00**	**16.92**	**0.00**	**21.21**	**0.00**	**0.06**	**0.00**	**39.33**	**0.00**	**0.07**	**13.72**	**26.93**	**7.49**	**6.61**
net sedimentation	lbs/yr	0.00	0.00	0.00	0.00	0.00	0.00	0.00	7.93	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	7.03	0.00	3.76	1.68
outflow	lbs/yr	0.00	2.33	0.00	4.43	0.00	1.76	0.00	4.95	0.00	3.74	0.00	16.92	0.00	21.21	0.00	0.06	0.00	39.33	0.00	0.07	6.69	26.93	3.73	4.94
p removal efficiency	%	3.78	0.01	3.78	0.00	3.78	0.08	3.78	61.56	3.78	0.00	3.78	0.00	3.78	0.01	3.78	1.35	3.78	0.00	3.78	1.10	51.24	0.00	50.17	25.37
upstream w-shed p load	lbs/yr	0.00	2.33	0.00	4.43	0.00	1.76	0.00	12.88	0.00	3.74	0.00	24.85	0.00	21.21	0.00	0.06	0.00	47.26	0.00	0.07	13.72	33.96	7.49	10.37
total removal %	%	3.78	0.01	3.78	0.01	3.78	0.08	3.78	61.57	3.78	0.00	3.78	31.92	3.78	0.01	3.78	1.35	3.78	16.79	3.78	1.10	51.24	20.70	50.17	52.41
HYDRAULIC PARAMETERS.....																									
pond mean depth	feet	0.00	1.00	0.00	1.00	0.00	1.00	0.00	8.72	0.00	1.00	0.00	1.00	0.00	1.00	0.00	1.00	0.00	1.00	0.00	1.00	2.91	1.00	2.77	4.00
relative volume	inches	1.58	0.00	1.58	0.00	1.58	0.00	1.58	811.56	1.58	0.00	1.58	0.00	1.58	0.00	1.58	0.01	1.58	0.00	1.58	0.00	2.07	0.00	1.56	2.28
residence time	years	0.05	0.00	0.05	0.00	0.05	0.00	0.05	14.99	0.05	0.00	0.05	0.00	0.05	0.00	0.05	0.00	0.05	0.00	0.05	0.00	0.07	0.00	0.05	0.03
residence time	days	18.08	0.00	18.08	0.00	18.08	0.00	18.08	5472.28	18.08	0.00	18.08	0.00	18.08	0.00	18.08	0.07	18.08	0.00	18.08	0.06	23.81	0.00	17.86	9.34
overflow rate	ft/yr	0.00	325145.14	0.00	712008.87	0.00	151993.86	0.00	0.58	0.00	688306.53	0.00	4295559.12	0.00	1647573.95	0.00	5340.96	0.00	6095881.33	0.00	6583.44	44.59	3335563.81	56.63	156.24
inflow phos conc	ppb	384.34	263.86	384.34	229.16	384.34	425.35	384.34	226.25	384.34	200.01	384.34	144.89	384.34	473.72	384.34	400.00	384.34	237.35	384.34	400.01	350.02	297.05	391.52	222.52
outflow phos conc	ppb	369.82	263.84	369.82	229.15	369.82	424.99	369.82	86.97	369.82	200.01	369.82	144.89	369.82	473.69	369.82	394.61	369.82	237.35	369.82	395.60	170.68	297.04	195.11	166.07
p reaction rate	-	0.04	0.00	0.04	0.00	0.04	0.00	0.04	4.17	0.04	0.00	0.04	0.00	0.04	0.00	0.04	0.01	0.04	0.00	0.04	0.01	2.15	0.00	2.02	0.46
1-rp	-	0.96	1.00	0.96	1.00	0.96	1.00	0.96	0.38	0.96	1.00	0.96	1.00	0.96	1.00	0.96	0.99	0.96	1.00	0.96	0.99	0.49	1.00	0.50	0.75
vlawmo pond volume	acre-ft	0.00	0.26	0.00	0.30	0.00	0.12	0.00	0.97	0.00	0.54	0.00	1.19	0.00	1.30	0.00	0.00	0.00	0.12	0.00	0.01	1.13	1.48	0.55	0.31
LAND USE PARAMETERS.....																									
runoff total P conc	ppb	0.00	244.33	0.00	200.00	0.00	181.27	0.00	200.00	0.00	200.00	0.00	200.00	0.00	370.85	0.00	399.98	0.00	235.60	0.00	399.99	350.00	378.76	391.50	244.03
runoff coefficient		0.00	0.09	0.00	0.08	0.00	0.05	0.00	0.08	0.00	0.08	0.00	0.08	0.00	0.10	0.00	0.28	0.00	0.11	0.00	0.28	0.46	0.25	0.21	0.09
dissolved/total P		0.00	0.55	0.00	0.60	0.00	0.19	0.00	0.60	0.00	0.60	0.00	0.60	0.00	0.27	0.00	0.30	0.00	0.55	0.00	0.30	0.30	0.33	0.30	0.55
runoff TSS conc	ppm	0.00	211.24	0.00	216.00	0.00	89.70	0.00	216.00	0.00	216.00	0.00	216.00	0.00	149.58	0.00	140.03	0.00	202.92	0.00	140.03	140.00	148.00	140.00	208.69
POND TSS BUDGETS.....																									
runoff	lbs/yr	0.00	1835.96	0.00	2264.53	0.00	745.03	0.00	7202.08	0.00	4029.06	0.00	8855.79	0.00	7684.80	0.00	20.27	0.00	737.12	0.00	24.98	5469.74	7289.40	2670.48	2148.61
upstream pond	lbs/yr	0.00	0.00	0.00	1835.96	0.00	0.00	0.00	4845.52	0.00	0.00	0.00	4872.39	0.00	0.00	0.00	0.00	0.00	21432.44	0.00	0.00	0.00	844.46	0.00	333.81
total inflow	**lbs/yr**	**0.00**	**1835.96**	**0.00**	**4100.49**	**0.00**	**745.03**	**0.00**	**12047.60**	**0.00**	**4029.06**	**0.00**	**13728.18**	**0.00**	**7684.80**	**0.00**	**20.27**	**0.00**	**22169.57**	**0.00**	**24.98**	**5469.74**	**8133.86**	**2670.48**	**2482.42**
p removal efficiency (no inf)	%	5.00	0.00	5.00	0.00	5.00	0.00	5.00	62.00	5.00	0.00	5.00	0.00	5.00	0.00	5.00	2.00	5.00	0.00	5.00	2.00	52.00	0.00	53.00	27.00
tss removal efficiency (no inf)	%	9.82	0.00	9.82	0.00	9.82	0.00	9.82	93.00	9.82	0.00	9.82	0.00	9.82	0.00	9.82	3.93	9.82	0.00	9.82	3.93	85.00	0.00	87.50	53.04
net sedimentation	lbs/yr	0.00	0.00	0.00	0.00	0.00	0.00	0.00	11204.27	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.80	0.00	0.00	0.00	0.98	4649.28	0.00	2336.67	1316.57
outflow	lbs/yr	0.00	1835.96	0.00	4100.49	0.00	745.03	0.00	843.33	0.00	4029.06	0.00	13728.18	0.00	7684.80	0.00	19.47	0.00	22169.57	0.00	24.00	820.46	8133.86	333.81	1165.85
tss removal efficiency (inf)	%	9.82	0.00	9.82	0.00	9.82	0.00	9.82	93.00	9.82	0.00	9.82	0.00	9.82	0.00	9.82	3.93	9.82	0.00	9.82	3.93	85.00	0.00	87.50	53.04
upstream watershed tss load	lbs/yr	0.00	1835.96	0.00	4100.49	0.00	745.03	0.00	12047.60	0.00	4029.06	0.00	24932.44	0.00	7684.80	0.00	20.27	0.00	33374.63	0.00	24.98	5469.74	12784.11	2670.48	4819.09
tss total removal efficiency	%	9.82	0.00	9.82	0.00	9.82	0.00	9.82	93.00	9.82	0.00	9.82	44.94	9.82	0.00	9.82	3.93	9.82	33.57	9.82	3.93	85.00	36.38	87.50	75.81
INFILTRATION BMP/POND.....																									
Annual runoff infiltrated	%	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Adjusted outflow	**ac-ft/yr**	**0.00**	**3.25**	**0.00**	**7.12**	**0.00**	**1.52**	**0.00**	**20.94**	**0.00**	**6.88**	**0.00**	**42.96**	**0.00**	**16.48**	**0.00**	**0.05**	**0.00**	**60.96**	**0.00**	**0.07**	**14.42**	**33.36**	**7.04**	**10.94**
Adjusted TP outflow	**lbs/yr**	**0.00**	**2.33**	**0.00**	**4.43**	**0.00**	**1.76**	**0.00**	**4.95**	**0.00**	**3.74**	**0.00**	**16.92**	**0.00**	**21.21**	**0.00**	**0.06**	**0.00**	**39.33**	**0.00**	**0.07**	**6.69**	**26.93**	**3.73**	**4.94**
Adjusted TSS outflow	**lbs/yr**	**0.00**	**1835.96**	**0.00**	**4100.49**	**0.00**	**745.03**	**0.00**	**843.33**	**0.00**	**4029.06**	**0.00**	**13728.18**	**0.00**	**7684.80**	**0.00**	**19.47**	**0.00**	**22169.57**	**0.00**	**24.00**	**820.46**	**8133.86**	**333.81**	**1165.85**
POND P BUDGETS W/O P-BAN.....																									
runoff	lbs/yr	0.00	2.39	0.00	2.10	0.00	1.76	0.00	6.69	0.00	3.74	0.00	8.22	0.00	21.21	0.00	0.06	0.00	1.14	0.00	0.07	13.72	20.23	8.61	2.88
Adjusted TP outflow	**lbs/yr**	**0.00**	**2.39**	**0.00**	**4.49**	**0.00**	**1.76**	**0.00**	**4.96**	**0.00**	**3.74**	**0.00**	**16.93**	**0.00**	**21.21**	**0.00**	**0.06**	**0.00**	**39.34**	**0.00**	**0.07**	**6.69**	**26.99**	**4.09**	**5.15**
upstream pond	lbs/yr	0.00	0.00	0.00	2.39	0.00	0.00	0.00	6.25	0.00	0.00	0.00	8.71	0.00	0.00	0.00	0.00	0.00	38.20	0.00	0.00	0.00	6.76	0.00	4.09
total inflow	**lbs/yr**	**0.00**	**2.39**	**0.00**	**4.49**	**0.00**	**1.76**	**0.00**	**12.94**	**0.00**	**3.74**	**0.00**	**16.93**	**0.00**	**21.21**	**0.00**	**0.06**	**0.00**	**39.34**	**0.00**	**0.07**	**13.72**	**26.99**	**8.61**	**6.97**
outflow	lbs/yr	0.00	2.39	0.00	4.49	0.00	1.76	0.00	4.96	0.00	3.74	0.00	16.93	0.00	21.21	0.00	0.06	0.00	39.34	0.00	0.07	6.69	26.99	4.09	5.15
inflow phos conc	ppb	409.24	270.32	409.24	232.11	409.24	425.35	409.24	227.25	409.24	200.01	409.24	145.01	409.24	473.72	409.24	400.03	409.24	237.43	409.24	400.03	350.02	297.66	450.02	234.62
outflow phos conc	ppb	392.86	270.30	392.86	232.10	392.86	424.99	392.86	87.20	392.86	200.01	392.86	145.01	392.86	473.69	392.86	394.64	392.86	237.43	392.86	395.62	170.68	297.65	213.91	173.21
p reaction rate	-	0.04	0.00	0.04	0.00	0.04	0.00	0.04	4.18	0.04	0.00	0.04	0.00	0.04	0.00	0.04	0.01	0.04	0.00	0.04	0.01	2.15	0.00	2.32	0.48
1-rp	-	0.96	1.00	0.96	1.00	0.96	1.00	0.96	0.38	0.96	1.00	0.96	1.00	0.96	1.00	0.96	0.99	0.96	1.00	0.96	0.99	0.49	1.00	0.48	0.74
runoff total p conc	ppb	0.00	250.35	0.00	200.00	0.00	181.27	0.00	200.00	0.00	200.00	0.00	200.00	0.00	370.85	0.00	400.01	0.00	235.60	0.00	400.01	350.00	380.05	450.00	244.03

Rochester Loading Assessm						
Willow Creek						
363-06-158-2						
2020 LOADS						
	future wc-a2.9a	**wc-a2.9a**	**future wc-a2.10b**	**wc-a2.10b**	**future wc-a2.10a**	**wc-a2.10a**
	wc-a2.9a	wc-a2.10a	wc-a2.10b	wc-a2.10a	wc-a2.10a	wc-a6.14a
INPUT VARIABLES....						
case label						
Watershed area	48.1	79.0	0.0	8.1	1.7	192.1
basin area	0.49	0.89	0.00	0.13	0.04	0.00
basin volume	1.65	2.70	0.00	0.00	0.05	0.00
Row Crop Agriculture	0%	0%	0%	0%	0%	21%
Very Low Density Residential	0%	0%	0%	0%	0%	4%
Low Density Residential	65%	12%	0%	0%	95%	37%
Medium Density Residential	32%	0%	0%	0%	0%	0%
High Density Residential	0%	0%	0%	0%	0%	1%
Commercial/Industrial	3%	0%	0%	0%	5%	0%
Institutional	0%	0%	0%	88%	0%	1%
Open Space	0%	77%	0%	2%	0%	21%
Golf Course	0%	0%	0%	0%	0%	0%
Pits and Quarries	0%	0%	0%	0%	0%	0%
Right-of-Way	0%	11%	0%	9%	0%	15%
WATERSHED-WIDE ACCOUNTI						
tributary land area	48.14	156.10	0.00	8.09	1.66	667.34
tributary water area	0.49	1.57	0.00	0.13	0.04	38.07
direct and ponded area	48.63	157.68	0.00	8.22	1.70	705.41
ASSUMED EXPORT FACTORS...						
season length	1.00	1.00	1.00	1.00	1.00	1.00
season precipitation	31.80	31.80	31.80	31.80	31.80	31.80
runoff total p	390.06	244.40	0.00	351.32	389.40	379.77
runoff ortho p/total p	0.30	0.53	0.00	0.31	0.30	0.35
unit runoff	7.97	3.71	0.00	9.48	7.14	5.59
unit export	0.70	0.25	0.00	0.76	0.63	0.50
POND WATER BUDGETS.....						
runoff	31.97	24.44	0.00	6.39	0.99	89.54
upstream pond	0.00	42.91	0.00	0.00	0.00	169.05
total inflow	**31.97**	**67.35**	**0.00**	**6.39**	**0.99**	**258.59**
outflow	31.97	67.35	0.00	6.39	0.99	258.59
POND PHOSPHORUS BUDGETS						
runoff	33.80	19.41	0.00	6.14	1.04	96.73
upstream pond	0.00	21.17	0.00	0.00	0.00	101.60
total inflow	**33.80**	**40.58**	**0.00**	**6.14**	**1.04**	**198.33**
net sedimentation	17.57	11.97	0.00	0.00	0.44	0.00
outflow	16.23	28.61	0.00	6.14	0.60	198.33
p removal efficiency	51.98	29.50	3.78	0.01	42.61	0.00
upstream w-shed p load	33.80	63.58	0.00	6.14	1.04	248.71
total removal %	51.98	55.01	3.78	0.01	42.61	20.26
HYDRAULIC PARAMETERS.....						
pond mean depth	3.39	3.03	0.00	0.00	1.21	1.00
relative volume	1.64	3.51	1.58	0.00	1.61	0.00
residence time	0.05	0.04	0.05	0.00	0.05	0.00
residence time	18.88	14.63	18.08	0.00	18.47	0.00
overflow rate	65.59	75.68	0.00	49.16	23.87	25858733.82
inflow phos conc	388.89	221.67	384.34	353.47	387.25	282.18
outflow phos conc	186.73	156.28	369.82	353.45	222.22	282.18
p reaction rate	2.25	0.59	0.04	0.00	1.29	0.00
1-rp	0.48	0.71	0.96	1.00	0.57	1.00
vlawmo pond volume	2.51	1.92	0.00	0.50	0.08	7.04
LAND USE PARAMETERS.....						
runoff total P conc	390.06	244.40	0.00	351.32	389.40	379.77
runoff coefficient	0.25	0.12	0.00	0.30	0.22	0.18
dissolved/total P	0.30	0.53	0.00	0.31	0.30	0.35
runoff TSS conc	140.00	198.74	0.00	141.72	140.00	163.95
POND TSS BUDGETS.....						
runoff	12131.19	11937.91	0.00	2432.69	375.33	37075.26
upstream pond	0.00	2197.00	0.00	0.00	0.00	38838.37
total inflow	**12131.19**	**14134.91**	**0.00**	**2432.69**	**375.33**	**75913.63**
p removal efficiency (no inf)	55.00	31.00	5.00	0.00	45.00	0.00
tss removal efficiency (no inf)	91.50	57.63	9.82	0.00	70.00	0.00
net sedimentation	11100.04	8145.24	0.00	0.00	262.73	0.00
outflow	1031.15	5989.67	0.00	2432.69	112.60	75913.63
tss removal efficiency (inf)	91.50	57.63	9.82	0.00	70.00	0.00
upstream watershed tss load	12131.19	28888.19	0.00	2432.69	375.33	114930.20
tss total removal efficiency	91.50	79.27	9.82	0.00	70.00	33.95
INFILTRATION BMP/POND.....						
Annual runoff infiltrated	0.00	0.00	0.00	0.00	0.00	0.00
Adjusted outflow	**31.97**	**67.35**	**0.00**	**6.39**	**0.99**	**258.59**
Adjusted TP outflow	**16.23**	**28.61**	**0.00**	**6.14**	**0.60**	**198.33**
Adjusted TSS outflow	**1031.15**	**5989.67**	**0.00**	**2432.69**	**112.60**	**75913.63**
POND P BUDGETS W/O P-BAN.						
runoff	38.56	20.27	0.00	6.14	1.18	103.49
Adjusted TP outflow	**17.69**	**29.97**	**0.00**	**6.14**	**0.65**	**206.57**
upstream pond	0.00	22.84	0.00	0.00	0.00	103.09
total inflow	**38.56**	**43.10**	**0.00**	**6.14**	**1.18**	**206.57**
outflow	17.69	29.97	0.00	6.14	0.65	206.57
inflow phos conc	443.68	235.46	409.24	353.47	439.72	293.91
outflow phos conc	203.53	163.71	392.86	353.45	242.77	293.91
p reaction rate	2.57	0.63	0.04	0.00	1.47	0.00
1-rp	0.46	0.70	0.96	1.00	0.55	1.00
runoff total p conc	446.53	251.47	0.00	351.32	444.95	403.41

Rochester Loading Assessment																								
Willow Creek																								
363-06-158-2																								
2020 LOADS																								
		future wc-a4.2b	**wc-a4.2b**	**future wc-a4.2a**	**wc-a4.2a**	**future wc-a4.3a**	**wc-a4.3a**	**future wc-a4.3b**	**wc-a4.3b**	**future wc-a4.3c**	**wc-a4.3c**	**future wc-a4.3d**	**wc-a4.3d**	**future wc-a4.3e**	**wc-a4.3e**	**future wc-a4.3f**	**wc-a4.3f**	**future wc-a4.1**	**wc-a4.1**	**future wc-a4.5c**	**wc-a4.5c**	**future wc-a4.5b**	**wc-a4.5b**	**future wc-a4.5a**	**wc-a4.5a**
		wc-a4.2b	wc-a4.2a	wc-a4.2a	wc-a4.1	wc-a4.3a	wc-a4.1	wc-a4.3b	wc-a4.6a	wc-a4.3c	wc-a4.1	wc-a4.3d	wc-a4.7	wc-a4.3e	wc-a4.3c	wc-a4.3f	wc-a4.5a	wc-a4.1	wc-a4.5a	wc-a4.5c	wc-a4.5b	wc-a4.5b	wc-a4.5a	wc-a4.5a	wc-a4.7
INPUT VARIABLES....	UNITS																							
case label	-																							
Watershed area	acres	0.0	9.9	0.0	239.5	0.0	313.9	0.0	142.3	0.0	59.1	0.0	10.7	0.0	13.9	0.0	10.2	0.0	694.0	0.0	14.5	0.0	6.1	0.0	384.3
basin area	acres	0.00	0.75	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.95	0.00	0.39	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.27	0.00	0.07	0.00	0.00
basin volume	acre-ft	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Row Crop Agriculture		0%	0%	0%	87%	0%	84%	0%	35%	0%	36%	0%	40%	0%	0%	0%	25%	0%	79%	0%	96%	0%	96%	0%	76%
Very Low Density Residential		0%	0%	0%	3%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	1%	0%	0%	0%	0%	0%	8%
Low Density Residential		0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Medium Density Residential		0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
High Density Residential		0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Commercial/Industrial		0%	100%	0%	0%	0%	5%	0%	65%	0%	64%	0%	53%	0%	86%	0%	60%	0%	0%	0%	0%	0%	0%	0%	0%
Institutional		0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Open Space		0%	0%	0%	7%	0%	10%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	16%	0%	0%	0%	4%	0%	16%
Golf Course		0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Pits and Quarries		0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Right-of-Way		0%	0%	0%	3%	0%	1%	0%	0%	0%	0%	0%	7%	0%	14%	0%	16%	0%	3%	0%	4%	0%	0%	0%	1%
WATERSHED-WIDE ACCOUNTING.....																								
tributary land area	ac	0.00	9.89	0.00	249.38	0.00	313.87	0.00	142.28	0.00	73.05	0.00	10.73	0.00	13.93	0.00	10.16	0.00	1330.27	0.00	14.47	0.00	20.55	0.00	1745.28
tributary water area	ac	0.00	0.75	0.00	0.75	0.00	0.00	0.00	0.00	0.00	0.95	0.00	0.39	0.00	0.00	0.00	0.00	0.00	1.70	0.00	0.27	0.00	0.34	0.00	2.04
direct and ponded area	ac	0.00	10.64	0.00	250.13	0.00	313.87	0.00	142.28	0.00	74.00	0.00	11.12	0.00	13.93	0.00	10.16	0.00	1331.97	0.00	14.74	0.00	20.89	0.00	1747.32
ASSUMED EXPORT FACTORS.....																								
season length	yrs	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
season precipitation	inches	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80
runoff total p	ppb	0.00	350.00	0.00	505.22	0.00	496.18	0.00	417.08	0.00	418.42	0.00	429.43	0.00	356.80	0.00	404.55	0.00	478.18	0.00	534.59	0.00	524.90	0.00	467.07
runoff ortho p/total p	-	0.00	0.30	0.00	0.24	0.00	0.24	0.00	0.26	0.00	0.26	0.00	0.26	0.00	0.30	0.00	0.28	0.00	0.27	0.00	0.20	0.00	0.22	0.00	0.29
unit runoff	in/yr	0.00	14.56	0.00	4.45	0.00	4.80	0.00	10.99	0.00	10.92	0.00	10.11	0.00	13.77	0.00	11.17	0.00	4.28	0.00	4.61	0.00	4.37	0.00	4.07
unit export	lbs/ac-y	0.00	1.15	0.00	0.52	0.00	0.53	0.00	0.94	0.00	0.93	0.00	0.89	0.00	1.11	0.00	0.95	0.00	0.48	0.00	0.55	0.00	0.53	0.00	0.45
POND WATER BUDGETS.....																								
runoff	ac-ft/yr	0.00	12.00	0.00	88.79	0.00	125.48	0.00	130.33	0.00	53.80	0.00	9.04	0.00	15.99	0.00	9.45	0.00	247.53	0.00	5.55	0.00	2.21	0.00	130.23
upstream pond	ac-ft/yr	0.00	0.00	0.00	12.00	0.00	0.00	0.00	0.00	0.00	15.99	0.00	0.00	0.00	0.00	0.00	0.00	0.00	296.06	0.00	0.00	0.00	5.55	0.00	560.80
total inflow	**ac-ft/yr**	**0.00**	**12.00**	**0.00**	**100.79**	**0.00**	**125.48**	**0.00**	**130.33**	**0.00**	**69.79**	**0.00**	**9.04**	**0.00**	**15.99**	**0.00**	**9.45**	**0.00**	**543.58**	**0.00**	**5.55**	**0.00**	**7.77**	**0.00**	**691.03**
outflow	ac-ft/yr	0.00	12.00	0.00	100.79	0.00	125.48	0.00	130.33	0.00	69.79	0.00	9.04	0.00	15.99	0.00	9.45	0.00	543.58	0.00	5.55	0.00	7.77	0.00	691.03
POND PHOSPHORUS BUDGETS.....																								
runoff	lbs/yr	0.00	11.41	0.00	123.42	0.00	167.75	0.00	133.61	0.00	55.26	0.00	9.50	0.00	15.40	0.00	9.63	0.00	333.60	0.00	8.00	0.00	3.20	0.00	173.76
upstream pond	lbs/yr	0.00	0.00	0.00	11.41	0.00	0.00	0.00	0.00	0.00	15.40	0.00	0.00	0.00	0.00	0.00	0.00	0.00	373.25	0.00	0.00	0.00	8.00	0.00	727.67
total inflow	**lbs/yr**	**0.00**	**11.41**	**0.00**	**134.83**	**0.00**	**167.75**	**0.00**	**133.61**	**0.00**	**70.66**	**0.00**	**9.50**	**0.00**	**15.40**	**0.00**	**9.63**	**0.00**	**706.85**	**0.00**	**8.00**	**0.00**	**11.20**	**0.00**	**901.43**
net sedimentation	lbs/yr	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
outflow	lbs/yr	0.00	11.41	0.00	134.83	0.00	167.75	0.00	133.61	0.00	70.66	0.00	9.50	0.00	15.40	0.00	9.63	0.00	706.85	0.00	8.00	0.00	11.20	0.00	901.43
p removal efficiency	%	3.78	0.00	3.78	0.00	3.78	0.00	3.78	0.00	3.78	0.00	3.78	0.00	3.78	0.00	3.78	0.01	3.78	0.00	3.78	0.01	3.78	0.01	3.78	0.00
upstream w-shed p load	lbs/yr	0.00	11.41	0.00	134.84	0.00	167.75	0.00	133.61	0.00	70.66	0.00	9.50	0.00	15.40	0.00	9.63	0.00	706.85	0.00	8.00	0.00	11.20	0.00	901.44
total removal %	%	3.78	0.00	3.78	0.00	3.78	0.00	3.78	0.00	3.78	0.00	3.78	0.00	3.78	0.00	3.78	0.01	3.78	0.00	3.78	0.01	3.78	0.02	3.78	0.00
HYDRAULIC PARAMETERS.....																								
pond mean depth	feet	0.00	0.00	0.00	1.00	0.00	1.00	0.00	1.00	0.00	0.00	0.00	0.00	0.00	1.00	0.00	1.00	0.00	1.00	0.00	0.00	0.00	0.00	0.00	1.00
relative volume	inches	1.58	0.00	1.58	0.00	1.58	0.00	1.58	0.00	1.58	0.00	1.58	0.00	1.58	0.00	1.58	0.00	1.58	0.00	1.58	0.00	1.58	0.00	1.58	0.00
residence time	years	0.05	0.00	0.05	0.00	0.05	0.00	0.05	0.00	0.05	0.00	0.05	0.00	0.05	0.00	0.05	0.00	0.05	0.00	0.05	0.00	0.05	0.00	0.05	0.00
residence time	days	18.08	0.00	18.08	0.00	18.08	0.00	18.08	0.00	18.08	0.00	18.08	0.00	18.08	0.00	18.08	0.00	18.08	0.00	18.08	0.00	18.08	0.00	18.08	0.00
overflow rate	ft/yr	0.00	16.00	0.00	10078679.84	0.00	12547845.73	0.00	13032627.27	0.00	73.46	0.00	23.18	0.00	1599406.92	0.00	945238.20	0.00	54358189.30	0.00	20.57	0.00	110.95	0.00	69102738.96
inflow phos conc	ppb	384.34	350.02	384.34	492.21	384.34	491.87	384.34	377.19	384.34	372.51	384.34	386.49	384.34	354.35	384.34	374.82	384.34	478.42	384.34	530.24	384.34	530.49	384.34	479.94
outflow phos conc	ppb	369.82	350.01	369.82	492.20	369.82	491.87	369.82	377.19	369.82	372.50	369.82	386.48	369.82	354.33	369.82	374.79	369.82	478.42	369.82	530.19	369.82	530.42	369.82	479.94
p reaction rate	-	0.04	0.00	0.04	0.00	0.04	0.00	0.04	0.00	0.04	0.00	0.04	0.00	0.04	0.00	0.04	0.00	0.04	0.00	0.04	0.00	0.04	0.00	0.04	0.00
1-rp	-	0.96	1.00	0.96	1.00	0.96	1.00	0.96	1.00	0.96	1.00	0.96	1.00	0.96	1.00	0.96	1.00	0.96	1.00	0.96	1.00	0.96	1.00	0.96	1.00
vlawmo pond volume	acre-ft	0.00	0.94	0.00	6.98	0.00	9.86	0.00	10.25	0.00	4.23	0.00	0.71	0.00	1.26	0.00	0.74	0.00	19.46	0.00	0.44	0.00	0.17	0.00	10.24
LAND USE PARAMETERS.....																								
runoff total P conc	ppb	0.00	350.00	0.00	505.22	0.00	496.18	0.00	417.08	0.00	418.42	0.00	429.43	0.00	356.80	0.00	404.55	0.00	478.18	0.00	534.59	0.00	524.90	0.00	467.07
runoff coefficient		0.00	0.46	0.00	0.14	0.00	0.15	0.00	0.35	0.00	0.34	0.00	0.32	0.00	0.43	0.00	0.35	0.00	0.13	0.00	0.14	0.00	0.14	0.00	0.13
dissolved/total P		0.00	0.30	0.00	0.24	0.00	0.24	0.00	0.26	0.00	0.26	0.00	0.26	0.00	0.30	0.00	0.28	0.00	0.27	0.00	0.20	0.00	0.22	0.00	0.29
runoff TSS conc	ppm	0.00	140.00	0.00	167.44	0.00	166.89	0.00	148.12	0.00	148.28	0.00	149.19	0.00	140.00	0.00	145.65	0.00	171.23	0.00	162.23	0.00	165.35	0.00	175.35
POND TSS BUDGETS.....																								
runoff	lbs/yr	0.00	4552.23	0.00	39583.05	0.00	55083.62	0.00	50607.42	0.00	20902.64	0.00	3529.22	0.00	6068.15	0.00	3643.93	0.00	111882.78	0.00	2429.89	0.00	985.68	0.00	60323.22
upstream pond	lbs/yr	0.00	0.00	0.00	4552.23	0.00	0.00	0.00	0.00	0.00	6068.15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	126189.69	0.00	0.00	0.00	2429.89	0.00	245131.97
total inflow	**lbs/yr**	**0.00**	**4552.23**	**0.00**	**44135.28**	**0.00**	**55083.62**	**0.00**	**50607.42**	**0.00**	**26970.79**	**0.00**	**3529.22**	**0.00**	**6068.15**	**0.00**	**3643.93**	**0.00**	**238072.46**	**0.00**	**2429.89**	**0.00**	**3415.57**	**0.00**	**305455.19**
p removal efficiency (no inf)	%	5.00	0.00	5.00	0.00	5.00	0.00	5.00	0.00	5.00	0.00	5.00	0.00	5.00	0.00	5.00	0.00	5.00	0.00	5.00	0.00	5.00	0.00	5.00	0.00
tss removal efficiency (no inf)	%	9.82	0.00	9.82	0.00	9.82	0.00	9.82	0.00	9.82	0.00	9.82	0.00	9.82	0.00	9.82	0.00	9.82	0.00	9.82	0.00	9.82	0.00	9.82	0.00
net sedimentation	lbs/yr	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
outflow	lbs/yr	0.00	4552.23	0.00	44135.28	0.00	55083.62	0.00	50607.42	0.00	26970.79	0.00	3529.22	0.00	6068.15	0.00	3643.93	0.00	238072.46	0.00	2429.89	0.00	3415.57	0.00	305455.19
tss removal efficiency (inf)	%	9.82	0.00	9.82	0.00	9.82	0.00	9.82	0.00	9.82	0.00	9.82	0.00	9.82	0.00	9.82	0.00	9.82	0.00	9.82	0.00	9.82	0.00	9.82	0.00
upstream watershed tss load	lbs/yr	0.00	4552.23	0.00	44135.28	0.00	55083.62	0.00	50607.42	0.00	26970.79	0.00	3529.22	0.00	6068.15	0.00	3643.93	0.00	238072.46	0.00	2429.89	0.00	3415.57	0.00	305455.19
tss total removal efficiency	%	9.82	0.00	9.82	0.00	9.82	0.00	9.82	0.00	9.82	0.00	9.82	0.00	9.82	0.00	9.82	0.00	9.82	0.00	9.82	0.00	9.82	0.00	9.82	0.00
INFILTRATION BMP/POND.....																								
Annual runoff infiltrated	%	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Adjusted outflow	**ac-ft/yr**	**0.00**	**12.00**	**0.00**	**100.79**	**0.00**	**125.48**	**0.00**	**130.33**	**0.00**	**69.79**	**0.00**	**9.04**	**0.00**	**15.99**	**0.00**	**9.45**	**0.00**	**543.58**	**0.00**	**5.55**	**0.00**	**7.77**	**0.00**	**691.03**
Adjusted TP outflow	**lbs/yr**	**0.00**	**11.41**	**0.00**	**134.83**	**0.00**	**167.75**	**0.00**	**133.61**	**0.00**	**70.66**	**0.00**	**9.50**	**0.00**	**15.40**	**0.00**	**9.63**	**0.00**	**706.85**	**0.00**	**8.00**	**0.00**	**11.20**	**0.00**	**901.43**
Adjusted TSS outflow	**lbs/yr**	**0.00**	**4552.23**	**0.00**	**44135.28**	**0.00**	**55083.62**	**0.00**	**50607.42**	**0.00**	**26970.79**	**0.00**	**3529.22**	**0.00**	**6068.15**	**0.00**	**3643.93**	**0.00**	**238072.46**	**0.00**	**2429.89**	**0.00**	**3415.57**	**0.00**	**305455.19**
POND P BUDGETS W/O P-BAN.....																								
runoff	lbs/yr	0.00	11.41	0.00	123.66	0.00	167.75	0.00	133.61	0.00	55.26	0.00	9.50	0.00	15.40	0.00	9.63	0.00	334.03	0.00	8.00	0.00	3.20	0.00	174.69
Adjusted TP outflow	**lbs/yr**	**0.00**	**11.41**	**0.00**	**135.07**	**0.00**	**167.75**	**0.00**	**133.61**	**0.00**	**70.66**	**0.00**	**9.50**	**0.00**	**15.40**	**0.00**	**9.63**	**0.00**	**707.51**	**0.00**	**8.00**	**0.00**	**11.20**	**0.00**	**903.03**
upstream pond	lbs/yr	0.00	0.00	0.00	11.41	0.00	0.00	0.00	0.00	0.00	15.40	0.00	0.00	0.00	0.00	0.00	0.00	0.00	373.49	0.00	0.00	0.00	8.00	0.00	728.34
total inflow	**lbs/yr**	**0.00**	**11.41**	**0.00**	**135.07**	**0.00**	**167.75**	**0.00**	**133.61**	**0.00**	**70.66**	**0.00**	**9.50**	**0.00**	**15.40**	**0.00**	**9.63**	**0.00**	**707.52**	**0.00**	**8.00**	**0.00**	**11.20**	**0.00**	**903.03**
outflow	lbs/yr	0.00	11.41	0.00	135.07	0.00	167.75	0.00	133.61	0.00	70.66	0.00	9.50	0.00	15.40	0.00	9.63	0.00	707.51	0.00	8.00	0.00	11.20	0.00	903.03
inflow phos conc	ppb	409.24	350.02	409.24	493.08	409.24	491.87	409.24	377.19	409.24	372.51	409.24	386.49	409.24	354.35	409.24	374.82	409.24	478.87	409.24	530.24	409.24	530.49	409.24	480.79
outflow phos conc	ppb	392.86	350.01	392.86	493.08	392.86	491.87	392.86	377.19	392.86	372.50	392.86	386.48	392.86	354.33	392.86	374.79	392.86	478.87	392.86	530.19	392.86	530.42	392.86	480.79
p reaction rate	-	0.04	0.00	0.04	0.00	0.04	0.00	0.04	0.00	0.04	0.00	0.04	0.00	0.04	0.00	0.04	0.00	0.04	0.00	0.04	0.00	0.04	0.00	0.04	0.00
1-rp	-	0.96	1.00	0.96	1.00	0.96	1.00	0.96	1.00	0.96	1.00	0.96	1.00	0.96	1.00	0.96	1.00	0.96	1.00	0.96	1.00	0.96	1.00	0.96	1.00
runoff total p conc	ppb	0.00	350.00	0.00	506.70	0.00	496.18	0.00	417.08	0.00	418.42	0.00	429.43	0.00	356.80	0.00	404.55	0.00	478.87	0.00	534.59	0.00	524.90	0.00	470.67

Rochester Loading Assessm																							
Willow Creek																							
363-06-158-2																							
2020 LOADS																							
	future wc-a4.6b	**wc-a4.6b**	**future wc-a4.6a**	**wc-a4.6a**	**future wc-a4.7**	**wc-a4.7**	**future wc-a4.8c**	**wc-a4.8c**	**future wc-a4.8b**	**wc-a4.8b**	**future wc-a4.8a**	**wc-a4.8a**	**future wc-a4.9**	**wc-a4.9**	**future wc-a4.10**	**wc-a4.10**	**future wc-a4.11**	**wc-a4.11**	**future wc-a4.12e**	**wc-a4.12e**	**future wc-a4.12d**	**wc-a4.12d**	**future wc-a4.12c**	**wc-a4.12c**
	wc-a4.6b	wc-a4.6a	wc-a4.6a	wc-a4.7	wc-a4.7	wc-a4.14a	wc-a4.8c	wc-a4.8a	wc-a4.8b	wc-a4.8a	wc-a4.8a	wc-a4.11	wc-a4.9	wc-a4.11	wc-a4.10	wc-a4.11	wc-a4.11	wc-a4.14a	wc-a4.12e	wc-a4.12a	wc-a4.12d	wc-a4.12a	wc-a4.12c	wc-a4.12a
INPUT VARIABLES....																							
case label																							
Watershed area	7.1	105.2	0.0	45.2	11.5	270.2	0.0	4.4	0.0	3.8	23.0	230.3	4.6	40.0	0.0	80.5	2.6	543.0	0.0	4.7	0.0	10.6	0.0	34.8
basin area	0.25	0.38	0.00	0.00	0.32	0.00	0.00	0.08	0.00	0.11	0.51	0.00	0.17	0.53	0.00	0.00	0.08	0.00	0.00	0.14	0.00	0.21	0.00	0.43
basin volume	0.56	1.52	0.00	0.00	0.91	0.00	0.00	0.14	0.00	0.19	1.82	0.00	0.36	1.13	0.00	0.00	0.21	0.00	0.00	0.17	0.00	0.40	0.00	2.34
Row Crop Agriculture	0%	5%	0%	39%	0%	29%	0%	0%	0%	0%	0%	37%	0%	50%	0%	63%	0%	35%	0%	2%	0%	0%	0%	0%
Very Low Density Residential	0%	0%	0%	1%	0%	8%	0%	0%	0%	0%	0%	0%	0%	0%	0%	2%	0%	1%	0%	0%	0%	0%	0%	0%
Low Density Residential	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	3%	0%	60%
Medium Density Residential	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
High Density Residential	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	4%
Commercial/Industrial	100%	78%	0%	31%	100%	3%	0%	100%	0%	100%	100%	45%	100%	40%	0%	0%	100%	18%	0%	80%	0%	92%	0%	0%
Institutional	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Open Space	0%	12%	0%	17%	0%	32%	0%	0%	0%	0%	0%	13%	0%	3%	0%	34%	0%	43%	0%	0%	0%	0%	0%	25%
Golf Course	0%	0%	0%	0%	0%	26%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	2%	0%	0%	0%	0%	0%	0%
Pits and Quarries	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Right-of-Way	0%	5%	0%	12%	0%	3%	0%	0%	0%	0%	0%	4%	0%	7%	0%	1%	0%	2%	0%	18%	0%	4%	0%	10%
WATERSHED-WIDE ACCOUNTIN																							
tributary land area	7.13	112.32	0.00	299.75	11.51	2337.51	0.00	4.38	0.00	3.85	23.01	261.50	4.60	44.57	0.00	80.47	2.60	932.10	0.00	4.72	0.00	10.64	0.00	34.80
tributary water area	0.25	0.63	0.00	0.63	0.32	3.38	0.00	0.08	0.00	0.11	0.51	0.70	0.17	0.70	0.00	0.00	0.08	1.47	0.00	0.14	0.00	0.21	0.00	0.43
direct and ponded area	7.38	112.95	0.00	300.37	11.84	2340.89	0.00	4.46	0.00	3.96	23.52	262.20	4.77	45.27	0.00	80.47	2.68	933.57	0.00	4.86	0.00	10.85	0.00	35.23
ASSUMED EXPORT FACTORS..																							
season length	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
season precipitation	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80
runoff total p	350.00	344.02	0.00	403.38	350.00	406.14	0.00	350.00	0.00	350.00	350.00	402.32	350.00	444.17	0.00	418.86	350.00	357.23	0.00	362.47	0.00	352.57	0.00	343.75
runoff ortho p/total p	0.30	0.33	0.00	0.31	0.30	0.49	0.00	0.30	0.00	0.30	0.30	0.30	0.30	0.26	0.00	0.34	0.30	0.40	0.00	0.30	0.00	0.30	0.00	0.38
unit runoff	14.56	12.34	0.00	7.76	14.56	3.71	0.00	14.56	0.00	14.56	14.56	8.96	14.56	8.75	0.00	3.83	14.56	5.45	0.00	13.33	0.00	14.03	0.00	6.16
unit export	1.15	0.98	0.00	0.69	1.15	0.36	0.00	1.15	0.00	1.15	1.15	0.77	1.15	0.79	0.00	0.40	1.15	0.47	0.00	1.08	0.00	1.12	0.00	0.52
POND WATER BUDGETS.....																							
runoff	8.65	108.21	0.00	29.21	13.97	83.62	0.00	5.32	0.00	4.67	27.92	172.01	5.59	29.15	0.00	25.70	3.16	246.44	0.00	5.25	0.00	12.44	0.00	17.86
upstream pond	0.00	8.65	0.00	247.19	0.00	990.44	0.00	0.00	0.00	0.00	0.00	37.91	0.00	5.59	0.00	0.00	0.00	273.51	0.00	0.00	0.00	0.00	0.00	0.00
total inflow	**8.65**	**116.86**	**0.00**	**276.40**	**13.97**	**1074.06**	**0.00**	**5.32**	**0.00**	**4.67**	**27.92**	**209.92**	**5.59**	**34.74**	**0.00**	**25.70**	**3.16**	**519.95**	**0.00**	**5.25**	**0.00**	**12.44**	**0.00**	**17.86**
outflow	8.65	116.86	0.00	276.40	13.97	1074.06	0.00	5.32	0.00	4.67	27.92	209.92	5.59	34.74	0.00	25.70	3.16	519.95	0.00	5.25	0.00	12.44	0.00	17.86
POND PHOSPHORUS BUDGETS																							
runoff	8.23	103.38	0.00	30.99	13.29	96.50	0.00	5.06	0.00	4.44	26.57	178.26	5.31	31.74	0.00	31.87	3.00	253.25	0.00	5.09	0.00	11.90	0.00	18.09
upstream pond	0.00	4.19	0.00	207.78	0.00	1156.21	0.00	0.00	0.00	0.00	0.00	18.14	0.00	2.72	0.00	0.00	0.00	248.49	0.00	0.00	0.00	0.00	0.00	0.00
total inflow	**8.23**	**107.57**	**0.00**	**238.77**	**13.29**	**1252.71**	**0.00**	**5.06**	**0.00**	**4.44**	**26.57**	**196.40**	**5.31**	**34.46**	**0.00**	**31.87**	**3.00**	**501.74**	**0.00**	**5.09**	**0.00**	**11.90**	**0.00**	**18.09**
net sedimentation	4.04	33.40	0.00	0.00	6.78	0.00	0.00	1.97	0.00	1.91	14.05	0.00	2.59	15.74	0.00	0.00	1.50	0.00	0.00	1.95	0.00	4.93	0.00	10.70
outflow	4.19	74.17	0.00	238.77	6.52	1252.71	0.00	3.09	0.00	2.53	12.52	196.40	2.72	18.72	0.00	31.87	1.50	501.74	0.00	3.14	0.00	6.96	0.00	7.39
p removal efficiency	49.07	31.05	3.78	0.00	50.98	0.00	3.78	38.84	3.78	43.11	52.89	0.00	48.77	45.67	3.78	0.00	49.89	0.00	3.78	38.27	3.78	41.46	3.78	59.15
upstream w-shed p load	8.23	111.61	0.00	276.21	13.29	1296.94	0.00	5.06	0.00	4.44	26.57	214.33	5.31	37.05	0.00	31.87	3.00	539.50	0.00	5.09	0.00	11.90	0.00	18.09
total removal %	49.07	33.55	3.78	13.56	50.98	3.41	3.78	38.84	3.78	43.11	52.89	8.37	48.77	49.47	3.78	0.00	49.89	7.00	3.78	38.27	3.78	41.46	3.78	59.15
HYDRAULIC PARAMETERS.....																							
pond mean depth	2.27	4.00	0.00	1.00	2.82	1.00	0.00	1.75	0.00	1.75	3.61	1.00	2.20	2.14	0.00	1.00	2.48	1.00	0.00	1.21	0.00	1.90	0.00	5.44
relative volume	2.07	0.45	1.58	0.00	2.07	0.00	1.58	0.84	1.58	1.31	2.07	0.00	2.07	1.24	1.58	0.00	2.07	0.00	1.58	1.03	1.58	1.02	1.58	4.17
residence time	0.07	0.01	0.05	0.00	0.07	0.00	0.05	0.03	0.05	0.04	0.07	0.00	0.07	0.03	0.05	0.00	0.07	0.00	0.05	0.03	0.05	0.03	0.05	0.13
residence time	23.81	4.75	18.08	0.00	23.81	0.00	18.08	9.61	18.08	15.09	23.81	0.00	23.81	11.90	18.08	0.00	23.81	0.00	18.08	11.82	18.08	11.73	18.08	47.82
overflow rate	34.81	307.53	0.00	27640161.65	43.21	107405566.31	0.00	66.48	0.00	42.44	55.29	20992077.87	33.71	65.55	0.00	2569662.53	38.09	51995144.55	0.00	37.49	0.00	59.26	0.00	41.54
inflow phos conc	350.02	338.66	384.34	317.83	350.02	429.12	384.34	350.02	384.34	350.02	350.02	344.21	350.02	364.97	384.34	456.28	350.02	355.03	384.34	357.10	384.34	351.74	384.34	372.67
outflow phos conc	178.27	233.50	369.82	317.83	171.59	429.12	369.82	214.07	369.82	199.13	164.90	344.21	179.32	198.30	369.82	456.26	175.39	355.03	369.82	220.45	369.82	205.90	369.82	152.22
p reaction rate	1.89	0.65	0.04	0.00	2.12	0.00	0.04	1.04	0.04	1.33	2.38	0.00	1.86	1.55	0.04	0.00	1.99	0.00	0.04	1.00	0.04	1.21	0.04	3.55
1-rp	0.51	0.69	0.96	1.00	0.49	1.00	0.96	0.61	0.96	0.57	0.47	1.00	0.51	0.54	0.96	1.00	0.50	1.00	0.96	0.62	0.96	0.59	0.96	0.41
vlawmo pond volume	0.68	8.51	0.00	2.30	1.10	6.57	0.00	0.42	0.00	0.37	2.20	13.52	0.44	2.29	0.00	2.02	0.25	19.37	0.00	0.41	0.00	0.98	0.00	1.40
LAND USE PARAMETERS.....																							
runoff total P conc	350.00	344.02	0.00	403.38	350.00	406.14	0.00	350.00	0.00	350.00	350.00	402.32	350.00	444.17	0.00	418.86	350.00	357.23	0.00	362.47	0.00	352.57	0.00	343.75
runoff coefficient	0.46	0.39	0.00	0.24	0.46	0.12	0.00	0.46	0.00	0.46	0.46	0.28	0.46	0.28	0.00	0.12	0.46	0.17	0.00	0.42	0.00	0.44	0.00	0.19
dissolved/total P	0.30	0.33	0.00	0.31	0.30	0.49	0.00	0.30	0.00	0.30	0.30	0.30	0.30	0.26	0.00	0.34	0.30	0.40	0.00	0.30	0.00	0.30	0.00	0.38
runoff TSS conc	140.00	150.18	0.00	162.81	140.00	196.72	0.00	140.00	0.00	140.00	140.00	158.72	140.00	153.74	0.00	181.65	140.00	182.70	0.00	140.42	0.00	140.35	0.00	159.29
POND TSS BUDGETS.....																							
runoff	3282.49	41721.71	0.00	11852.70	5300.32	41986.24	0.00	2017.85	0.00	1771.09	10594.20	68582.08	2119.58	11574.46	0.00	12189.51	1197.44	108820.18	0.00	1993.07	0.00	4723.61	0.00	7162.13
upstream pond	0.00	623.67	0.00	68180.75	0.00	389918.92	0.00	0.00	0.00	0.00	0.00	2573.66	0.00	455.71	0.00	0.00	0.00	86941.21	0.00	0.00	0.00	0.00	0.00	0.00
total inflow	**3282.49**	**42345.38**	**0.00**	**80033.46**	**5300.32**	**431905.16**	**0.00**	**2017.85**	**0.00**	**1771.09**	**10594.20**	**71155.74**	**2119.58**	**12030.17**	**0.00**	**12189.51**	**1197.44**	**195761.39**	**0.00**	**1993.07**	**0.00**	**4723.61**	**0.00**	**7162.13**
p removal efficiency (no inf)	50.00	32.00	5.00	0.00	51.00	0.00	5.00	39.00	5.00	44.00	53.00	0.00	49.00	46.00	5.00	0.00	50.00	0.00	5.00	39.00	5.00	42.00	5.00	61.00
tss removal efficiency (no inf)	81.00	58.50	9.82	0.00	83.00	0.00	9.82	65.00	9.82	69.33	87.50	0.00	78.50	72.00	9.82	0.00	81.00	0.00	9.82	65.00	9.82	68.00	9.82	93.00
net sedimentation	2658.82	24772.05	0.00	0.00	4399.27	0.00	0.00	1311.61	0.00	1227.96	9269.93	0.00	1663.87	8661.72	0.00	0.00	969.93	0.00	0.00	1295.50	0.00	3212.05	0.00	6660.78
outflow	623.67	17573.33	0.00	80033.46	901.05	431905.16	0.00	706.25	0.00	543.13	1324.28	71155.74	455.71	3368.45	0.00	12189.51	227.51	195761.39	0.00	697.58	0.00	1511.55	0.00	501.35
tss removal efficiency (inf)	81.00	58.50	9.82	0.00	83.00	0.00	9.82	65.00	9.82	69.33	87.50	0.00	78.50	72.00	9.82	0.00	81.00	0.00	9.82	65.00	9.82	68.00	9.82	93.00
upstream watershed tss load	3282.49	45004.20	0.00	107464.32	5300.32	463735.29	0.00	2017.85	0.00	1771.09	10594.20	82965.23	2119.58	13694.03	0.00	12189.51	1197.44	218866.39	0.00	1993.07	0.00	4723.61	0.00	7162.13
tss total removal efficiency	81.00	60.95	9.82	25.53	83.00	6.86	9.82	65.00	9.82	69.33	87.50	14.23	78.50	75.40	9.82	0.00	81.00	10.56	9.82	65.00	9.82	68.00	9.82	93.00
INFILTRATION BMP/POND.....																							
Annual runoff infiltrated	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Adjusted outflow	**8.65**	**116.86**	**0.00**	**276.40**	**13.97**	**1074.06**	**0.00**	**5.32**	**0.00**	**4.67**	**27.92**	**209.92**	**5.59**	**34.74**	**0.00**	**25.70**	**3.16**	**519.95**	**0.00**	**5.25**	**0.00**	**12.44**	**0.00**	**17.86**
Adjusted TP outflow	**4.19**	**74.17**	**0.00**	**238.77**	**6.52**	**1252.71**	**0.00**	**3.09**	**0.00**	**2.53**	**12.52**	**196.40**	**2.72**	**18.72**	**0.00**	**31.87**	**1.50**	**501.74**	**0.00**	**3.14**	**0.00**	**6.96**	**0.00**	**7.39**
Adjusted TSS outflow	**623.67**	**17573.33**	**0.00**	**80033.46**	**901.05**	**431905.16**	**0.00**	**706.25**	**0.00**	**543.13**	**1324.28**	**71155.74**	**455.71**	**3368.45**	**0.00**	**12189.51**	**227.51**	**195761.39**	**0.00**	**697.58**	**0.00**	**1511.55**	**0.00**	**501.35**
POND P BUDGETS W/O P-BAN.																							
runoff	8.23	103.38	0.00	31.00	13.29	97.15	0.00	5.06	0.00	4.44	26.57	178.26	5.31	31.74	0.00	31.92	3.00	253.37	0.00	5.09	0.00	11.93	0.00	20.23
Adjusted TP outflow	**4.19**	**74.17**	**0.00**	**238.78**	**6.52**	**1254.98**	**0.00**	**3.09**	**0.00**	**2.53**	**12.52**	**196.40**	**2.72**	**18.72**	**0.00**	**31.92**	**1.50**	**501.91**	**0.00**	**3.14**	**0.00**	**6.98**	**0.00**	**7.92**
upstream pond	0.00	4.19	0.00	207.78	0.00	1157.83	0.00	0.00	0.00	0.00	0.00	18.14	0.00	2.72	0.00	0.00	0.00	248.54	0.00	0.00	0.00	0.00	0.00	0.00
total inflow	**8.23**	**107.57**	**0.00**	**238.78**	**13.29**	**1254.98**	**0.00**	**5.06**	**0.00**	**4.44**	**26.57**	**196.40**	**5.31**	**34.46**	**0.00**	**31.92**	**3.00**	**501.91**	**0.00**	**5.09**	**0.00**	**11.93**	**0.00**	**20.23**
outflow	4.19	74.17	0.00	238.78	6.52	1254.98	0.00	3.09	0.00	2.53	12.52	196.40	2.72	18.72	0.00	31.92	1.50	501.91	0.00	3.14	0.00	6.98	0.00	7.92
inflow phos conc	350.02	338.66	409.24	317.84	350.02	429.89	409.24	350.02	409.24	350.02	350.02	344.21	350.02	364.97	409.24	456.97	350.02	355.15	409.24	357.10	409.24	352.65	409.24	416.62
outflow phos conc	178.27	233.50	392.86	317.84	171.59	429.89	392.86	214.07	392.86	199.13	164.90	344.21	179.32	198.30	392.86	456.96	175.39	355.15	392.86	220.45	392.86	206.27	392.86	163.21
p reaction rate	1.89	0.65	0.04	0.00	2.12	0.00	0.04	1.04	0.04	1.33	2.38	0.00	1.86	1.55	0.04	0.00	1.99	0.00	0.04	1.00	0.04	1.21	0.04	3.96
1-rp	0.51	0.69	0.96	1.00	0.49	1.00	0.96	0.61	0.96	0.57	0.47	1.00	0.51	0.54	0.96	1.00	0.50	1.00	0.96	0.62	0.96	0.58	0.96	0.39
runoff total p conc	350.00	344.02	0.00	403.75	350.00	409.71	0.00	350.00	0.00	350.00	350.00	402.32	350.00	444.17	0.00	419.75	350.00	357.57	0.00	362.47	0.00	354.46	0.00	381.49

Rochester Loading Assessm																								
Willow Creek																								
363-06-158-2																								
2020 LOADS																								
	future wc-a4.12b	**wc-a4.12b**	**future wc-a4.12a**	**wc-a4.12a**	**future wc-a4.14b**	**wc-a4.14b**	**future wc-a5.5c**	**wc-a5.5c**	**future wc-a4.14a**	**wc-a4.14a**	**future wc-a5.5b**	**wc-a5.5b**	**future wc-a5.5a**	**wc-a5.5a**	**future wc-a5.1**	**wc-a5.1**	**future wc-a5.3b**	**wc-a5.3b**	**future wc-a5.3a**	**wc-a5.3a**	**future wc-a5.2**	**wc-a5.2**	**future wc-a5.4**	**wc-a5.4**	**future wc-a5.6b**
	wc-a4.12b	wc-a4.12a	wc-a4.12a	wc-a4.14a	wc-a4.14b	wc-a4.14a	wc-a5.5c	wc-a4.14a	wc-a4.14a	wc-a5.7b	wc-a5.5b	wc-a5.5a	wc-a5.5a	wc-a5.7b	wc-a5.1	wc-a5.3b	wc-a5.3b	wc-a5.3a	wc-a5.3a	wc-a5.6b	wc-a5.2	wc-a5.4	wc-a5.4	wc-a5.6b	wc-a5.6b
INPUT VARIABLES....																								
case label																								
Watershed area	0.0	8.5	0.0	234.3	0.0	38.1	12.0	15.1	12.3	181.1	16.1	61.4	0.0	30.2	0.0	2.0	0.0	42.3	0.0	16.4	0.0	25.1	32.4	50.9	0.0
basin area	0.00	0.11	0.00	0.00	0.00	0.06	0.12	0.33	0.12	71.00	0.17	0.53	0.00	0.00	0.00	0.00	0.00	0.63	0.00	0.00	0.00	0.00	0.32	0.00	0.00
basin volume	0.00	0.10	0.00	0.00	0.00	0.08	0.33	1.52	0.34	630.40	0.44	1.60	0.00	0.00	0.00	0.00	0.00	2.23	0.00	0.00	0.00	0.00	0.89	0.00	0.00
Row Crop Agriculture	0%	0%	0%	7%	0%	1%	0%	0%	0%	34%	0%	1%	0%	0%	0%	0%	0%	0%	0%	0%	0%	88%	0%	31%	0%
Very Low Density Residential	0%	0%	0%	23%	0%	0%	0%	0%	0%	2%	0%	1%	0%	6%	0%	0%	0%	0%	0%	0%	0%	0%	0%	33%	0%
Low Density Residential	0%	100%	0%	18%	0%	74%	100%	90%	100%	4%	100%	83%	0%	12%	0%	0%	0%	86%	0%	55%	0%	0%	100%	0%	0%
Medium Density Residential	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
High Density Residential	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Commercial/Industrial	0%	0%	0%	12%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Institutional	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Open Space	0%	0%	0%	28%	0%	21%	0%	10%	0%	59%	0%	14%	0%	47%	0%	0%	0%	14%	0%	0%	0%	0%	0%	26%	0%
Golf Course	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	1%	0%	35%	0%	0%	0%	0%	0%	31%	0%	0%	0%	0%	0%
Pits and Quarries	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Right-of-Way	0%	0%	0%	13%	0%	3%	0%	0%	0%	1%	0%	0%	0%	0%	0%	100%	0%	0%	0%	14%	0%	12%	0%	10%	0%
WATERSHED-WIDE ACCOUNTII																								
tributary land area	0.00	8.48	0.00	292.96	0.00	38.08	11.98	27.13	12.34	3821.18	16.09	77.48	0.00	107.66	0.00	2.05	0.00	44.37	0.00	60.77	0.00	25.14	32.43	108.46	0.00
tributary water area	0.00	0.11	0.00	0.89	0.00	0.06	0.12	0.45	0.12	77.38	0.17	0.70	0.00	0.70	0.00	0.00	0.00	0.63	0.00	0.63	0.00	0.00	0.32	0.32	0.00
direct and ponded area	0.00	8.59	0.00	293.85	0.00	38.14	12.10	27.58	12.47	3898.56	16.25	78.18	0.00	108.35	0.00	2.05	0.00	45.00	0.00	61.40	0.00	25.14	32.75	108.78	0.00
ASSUMED EXPORT FACTORS...																									
season length	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
season precipitation	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80
runoff total p	0.00	391.50	0.00	325.00	0.00	353.41	391.50	373.26	391.50	328.51	391.50	367.08	0.00	351.54	0.00	400.00	0.00	366.02	0.00	441.36	0.00	523.04	391.50	360.02	0.00
runoff ortho p/total p	0.00	0.30	0.00	0.42	0.00	0.36	0.30	0.33	0.30	0.45	0.30	0.35	0.00	0.59	0.00	0.30	0.00	0.34	0.00	0.42	0.00	0.21	0.30	0.41	0.00
unit runoff	0.00	6.74	0.00	5.75	0.00	5.89	6.74	6.34	6.74	3.44	6.74	6.06	0.00	3.22	0.00	8.77	0.00	6.16	0.00	5.86	0.00	4.98	6.74	3.92	0.00
unit export	0.00	0.60	0.00	0.46	0.00	0.50	0.60	0.55	0.60	0.29	0.60	0.52	0.00	0.27	0.00	0.79	0.00	0.53	0.00	0.55	0.00	0.57	0.60	0.35	0.00
POND WATER BUDGETS.....																									
runoff	0.00	4.77	0.00	112.33	0.00	18.69	6.73	8.00	6.94	51.87	9.04	31.03	0.00	8.09	0.00	1.50	0.00	21.73	0.00	8.01	0.00	10.42	18.22	16.61	0.00
upstream pond	0.00	0.00	0.00	40.32	0.00	0.00	0.00	6.73	0.00	1787.01	0.00	9.04	0.00	40.07	0.00	0.00	0.00	1.50	0.00	23.22	0.00	0.00	0.00	28.65	0.00
total inflow	**0.00**	**4.77**	**0.00**	**152.64**	**0.00**	**18.69**	**6.73**	**14.73**	**6.94**	**1838.88**	**9.04**	**40.07**	**0.00**	**48.16**	**0.00**	**1.50**	**0.00**	**23.22**	**0.00**	**31.24**	**0.00**	**10.42**	**18.22**	**45.26**	**0.00**
outflow	0.00	4.77	0.00	152.64	0.00	18.69	6.73	14.73	6.94	1838.88	9.04	40.07	0.00	48.16	0.00	1.50	0.00	23.22	0.00	31.24	0.00	10.42	18.22	45.26	0.00
POND PHOSPHORUS BUDGETS																									
runoff	0.00	5.07	0.00	108.40	0.00	19.10	7.16	8.36	7.38	52.60	9.62	32.19	0.00	8.06	0.00	1.63	0.00	22.51	0.00	9.10	0.00	14.45	19.39	17.68	0.00
upstream pond	0.00	0.00	0.00	20.86	0.00	0.00	0.00	3.59	0.00	1908.95	0.00	4.82	0.00	20.81	0.00	0.00	0.00	1.63	0.00	10.79	0.00	0.00	0.00	24.12	0.00
total inflow	**0.00**	**5.07**	**0.00**	**129.27**	**0.00**	**19.10**	**7.16**	**11.95**	**7.38**	**1961.55**	**9.62**	**37.01**	**0.00**	**28.87**	**0.00**	**1.63**	**0.00**	**24.14**	**0.00**	**19.89**	**0.00**	**14.45**	**19.39**	**41.81**	**0.00**
net sedimentation	0.00	1.71	0.00	0.00	0.00	2.97	3.57	6.53	3.70	1320.29	4.80	16.20	0.00	0.00	0.00	0.00	0.00	13.35	0.00	0.00	0.00	0.00	9.72	0.00	0.00
outflow	0.00	3.36	0.00	129.27	0.00	16.13	3.59	5.42	3.69	641.26	4.82	20.81	0.00	28.87	0.00	1.63	0.00	10.79	0.00	19.89	0.00	14.45	9.67	41.81	0.00
p removal efficiency	3.78	33.65	3.78	0.00	3.78	15.57	49.84	54.62	50.06	67.31	49.89	43.78	3.78	0.00	3.78	0.05	3.78	55.31	3.78	0.00	3.78	0.01	50.13	0.00	3.78
upstream w-shed p load	0.00	5.07	0.00	148.56	0.00	19.10	7.16	15.52	7.38	2079.59	9.62	41.81	0.00	49.87	0.00	1.63	0.00	24.14	0.00	33.24	0.00	14.45	19.39	51.53	0.00
total removal %	3.78	33.65	3.78	12.99	3.78	15.57	49.84	65.06	50.06	69.16	49.89	50.24	3.78	42.12	3.78	0.05	3.78	55.31	3.78	40.17	3.78	0.01	50.13	18.87	3.78
HYDRAULIC PARAMETERS.....																									
pond mean depth	0.00	0.91	0.00	1.00	0.00	1.33	2.65	4.61	2.73	8.88	2.67	3.02	0.00	1.00	0.00	1.00	0.00	3.54	0.00	1.00	0.00	1.00	2.76	1.00	0.00
relative volume	1.58	0.67	1.58	0.00	1.58	0.14	1.56	6.04	1.56	386.46	1.56	1.64	1.58	0.00	1.58	0.00	1.58	3.27	1.58	0.00	1.58	0.00	1.56	0.00	1.58
residence time	0.05	0.02	0.05	0.00	0.05	0.00	0.05	0.10	0.05	0.34	0.05	0.04	0.05	0.00	0.05	0.00	0.05	0.10	0.05	0.00	0.05	0.00	0.05	0.00	0.05
residence time	18.08	7.66	18.08	0.00	18.08	1.56	17.86	37.66	17.86	125.13	17.86	14.57	18.08	0.00	18.08	0.00	18.08	35.09	18.08	0.00	18.08	0.00	17.86	0.00	18.08
overflow rate	0.00	43.32	0.00	15264452.38	0.00	311.48	54.16	44.64	55.81	25.90	54.56	75.61	0.00	4815817.69	0.00	149687.79	0.00	36.86	0.00	3123683.18	0.00	1042464.04	56.36	4526169.27	0.00
inflow phos conc	384.34	391.52	384.34	311.57	384.34	376.01	391.52	298.40	391.52	392.46	391.52	339.82	384.34	220.54	384.34	400.02	384.34	382.39	384.34	234.28	384.34	510.13	391.52	339.83	384.34
outflow phos conc	369.82	259.79	369.82	311.57	369.82	317.46	196.39	135.40	195.52	128.30	196.18	191.04	369.82	220.54	369.82	399.82	369.82	170.89	369.82	234.28	369.82	510.06	195.24	339.83	369.82
p reaction rate	0.04	0.76	0.04	0.00	0.04	0.22	1.98	2.65	2.01	6.30	1.99	1.39	0.04	0.00	0.04	0.00	0.04	2.77	0.04	0.00	0.04	0.00	2.02	0.00	0.04
1-rp	0.96	0.66	0.96	1.00	0.96	0.84	0.50	0.45	0.50	0.33	0.50	0.56	0.96	1.00	0.96	1.00	0.96	0.45	0.96	1.00	0.96	1.00	0.50	1.00	0.96
vlawmo pond volume	0.00	0.37	0.00	8.83	0.00	1.47	0.53	0.63	0.55	4.08	0.71	2.44	0.00	0.64	0.00	0.12	0.00	1.71	0.00	0.63	0.00	0.82	1.43	1.31	0.00
LAND USE PARAMETERS.....																									
runoff total P conc	0.00	391.50	0.00	325.00	0.00	353.41	391.50	373.26	391.50	328.51	391.50	367.08	0.00	351.54	0.00	400.00	0.00	366.02	0.00	441.36	0.00	523.04	391.50	360.02	0.00
runoff coefficient	0.00	0.21	0.00	0.18	0.00	0.19	0.21	0.20	0.21	0.11	0.21	0.19	0.00	0.10	0.00	0.28	0.00	0.19	0.00	0.18	0.00	0.16	0.21	0.12	0.00
dissolved/total P	0.00	0.30	0.00	0.42	0.00	0.36	0.30	0.33	0.30	0.45	0.30	0.35	0.00	0.59	0.00	0.30	0.00	0.34	0.00	0.42	0.00	0.21	0.30	0.41	0.00
runoff TSS conc	0.00	140.00	0.00	179.83	0.00	156.36	140.00	147.31	140.00	194.02	140.00	152.33	0.00	207.07	0.00	140.00	0.00	150.46	0.00	163.45	0.00	160.21	140.00	191.68	0.00
POND TSS BUDGETS.....																									
runoff	0.00	1807.85	0.00	48532.31	0.00	7453.80	2554.07	3099.21	2631.68	25943.91	3430.16	12221.31	0.00	4323.59	0.00	567.92	0.00	8499.71	0.00	3298.56	0.00	4466.11	6914.26	8093.60	0.00
upstream pond	0.00	0.00	0.00	3397.46	0.00	0.00	0.00	319.26	0.00	684982.93	0.00	428.77	0.00	3542.02	0.00	0.00	0.00	567.92	0.00	634.73	0.00	0.00	0.00	5330.40	0.00
total inflow	**0.00**	**1807.85**	**0.00**	**51929.77**	**0.00**	**7453.80**	**2554.07**	**3418.47**	**2631.68**	**710926.84**	**3430.16**	**12650.08**	**0.00**	**7865.61**	**0.00**	**567.92**	**0.00**	**9067.63**	**0.00**	**3933.29**	**0.00**	**4466.11**	**6914.26**	**13424.00**	**0.00**
p removal efficiency (no inf)	5.00	36.00	5.00	0.00	5.00	18.00	53.00	57.00	53.00	68.00	53.00	46.00	5.00	0.00	5.00	0.00	5.00	58.00	5.00	0.00	5.00	0.00	53.00	0.00	5.00
tss removal efficiency (no inf)	9.82	62.00	9.82	0.00	9.82	35.36	87.50	93.00	87.50	93.00	87.50	72.00	9.82	0.00	9.82	0.00	9.82	93.00	9.82	0.00	9.82	0.00	87.50	0.00	9.82
net sedimentation	0.00	1120.87	0.00	0.00	0.00	2635.45	2234.81	3179.17	2302.72	661161.96	3001.39	9108.06	0.00	0.00	0.00	0.00	0.00	8432.89	0.00	0.00	0.00	0.00	6049.98	0.00	0.00
outflow	0.00	686.98	0.00	51929.77	0.00	4818.35	319.26	239.29	328.96	49764.88	428.77	3542.02	0.00	7865.61	0.00	567.92	0.00	634.73	0.00	3933.29	0.00	4466.11	864.28	13424.00	0.00
tss removal efficiency (inf)	9.82	62.00	9.82	0.00	9.82	35.36	87.50	93.00	87.50	93.00	87.50	72.00	9.82	0.00	9.82	0.00	9.82	93.00	9.82	0.00	9.82	0.00	87.50	0.00	9.82
upstream watershed tss load	0.00	1807.85	0.00	64218.98	0.00	7453.80	2554.07	5653.28	2631.68	788503.34	3430.16	15651.47	0.00	19975.06	0.00	567.92	0.00	9067.63	0.00	12366.19	0.00	4466.11	6914.26	19473.98	0.00
tss total removal efficiency	9.82	62.00	9.82	19.14	9.82	35.36	87.50	95.77	87.50	93.69	87.50	77.37	9.82	60.62	9.82	0.00	9.82	93.00	9.82	68.19	9.82	0.00	87.50	31.07	9.82
INFILTRATION BMP/POND.....																									
Annual runoff infiltrated	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Adjusted outflow	**0.00**	**4.77**	**0.00**	**152.64**	**0.00**	**18.69**	**6.73**	**14.73**	**6.94**	**1838.88**	**9.04**	**40.07**	**0.00**	**48.16**	**0.00**	**1.50**	**0.00**	**23.22**	**0.00**	**31.24**	**0.00**	**10.42**	**18.22**	**45.26**	**0.00**
Adjusted TP outflow	**0.00**	**3.36**	**0.00**	**129.27**	**0.00**	**16.13**	**3.59**	**5.42**	**3.69**	**641.26**	**4.82**	**20.81**	**0.00**	**28.87**	**0.00**	**1.63**	**0.00**	**10.79**	**0.00**	**19.89**	**0.00**	**14.45**	**9.67**	**41.81**	**0.00**
Adjusted TSS outflow	**0.00**	**686.98**	**0.00**	**51929.77**	**0.00**	**4818.35**	**319.26**	**239.29**	**328.96**	**49764.88**	**428.77**	**3542.02**	**0.00**	**7865.61**	**0.00**	**567.92**	**0.00**	**634.73**	**0.00**	**3933.29**	**0.00**	**4466.11**	**864.28**	**13424.00**	**0.00**
POND P BUDGETS W/O P-BAN.																									
runoff	0.00	5.83	0.00	113.79	0.00	21.63	8.23	9.58	8.48	53.37	11.06	36.78	0.00	8.43	0.00	1.63	0.00	25.76	0.00	9.92	0.00	14.45	22.29	18.21	0.00
Adjusted TP outflow	**0.00**	**3.73**	**0.00**	**135.57**	**0.00**	**17.95**	**3.94**	**5.87**	**4.04**	**643.63**	**5.29**	**22.73**	**0.00**	**31.16**	**0.00**	**1.63**	**0.00**	**11.70**	**0.00**	**21.61**	**0.00**	**14.45**	**10.60**	**43.27**	**0.00**
upstream pond	0.00	0.00	0.00	21.78	0.00	0.00	0.00	3.94	0.00	1920.31	0.00	5.29	0.00	22.73	0.00	0.00	0.00	1.63	0.00	11.70	0.00	0.00	0.00	25.06	0.00
total inflow	**0.00**	**5.83**	**0.00**	**135.57**	**0.00**	**21.63**	**8.23**	**13.52**	**8.48**	**1973.68**	**11.06**	**42.06**	**0.00**	**31.16**	**0.00**	**1.63**	**0.00**	**27.39**	**0.00**	**21.61**	**0.00**	**14.45**	**22.29**	**43.27**	**0.00**
outflow	0.00	3.73	0.00	135.57	0.00	17.95	3.94	5.87	4.04	643.63	5.29	22.73	0.00	31.16	0.00	1.63	0.00	11.70	0.00	21.61	0.00	14.45	10.60	43.27	0.00
inflow phos conc	409.24	450.02	409.24	326.76	409.24	425.84	450.02	337.60	450.02	394.89	450.02	386.21	409.24	238.07	409.24	400.02	409.24	433.88	409.24	254.54	409.24	510.13	450.02	351.71	409.24
outflow phos conc	392.86	288.06	392.86	326.75	392.86	353.32	215.36	146.58	214.39	128.78	215.12	208.68	392.86	238.06	392.86	399.82	392.86	185.27	392.86	254.54	392.86	510.06	214.07	351.71	392.86
p reaction rate	0.04	0.88	0.04	0.00	0.04	0.25	2.28	3.00	2.31	6.34	2.28	1.57	0.04	0.00	0.04	0.00	0.04	3.14	0.04	0.00	0.04	0.00	2.32	0.00	0.04
1-rp	0.96	0.64	0.96	1.00	0.96	0.83	0.48	0.43	0.48	0.33	0.48	0.54	0.96	1.00	0.96	1.00	0.96	0.43	0.96	1.00	0.96	1.00	0.48	1.00	0.96
runoff total p conc	0.00	450.00	0.00	345.82	0.00	396.92	450.00	426.09	450.00	331.84	450.00	416.21	0.00	361.13	0.00	400.00	0.00	416.29	0.00	473.79	0.00	523.04	450.00	375.10	0.00

Rochester Loading Assessm																								
Willow Creek																								
363-06-158-2																								
2020 LOADS																								
	wc-a5.6b	**future wc-a5.7c**	**wc-a5.7c**	**future wc-a5.7b**	**wc-a5.7b**	**future wc-a5.7a**	**wc-a5.7a**	**future wc-a3.14b**	**wc-a3.14b**	**future wc-a3.2**	**wc-a3.2**	**future wc-a3.5b**	**wc-a3.5b**	**future wc-a3.5a**	**wc-a3.5a**	**future wc-a3.6c**	**wc-a3.6c**	**future wc-a3.6b**	**wc-a3.6b**	**future wc-a3.6a**	**wc-a3.6a**	**future wc-a3.8**	**wc-a3.8**	**future wc-a3.10**	**wc-a3.10**
	wc-a5.7b	wc-a5.7c	wc-a5.7b	wc-a5.7b	wc-a5.7a	wc-a5.7a	wc-a3.14a	wc-a3.14b	wc-a3.14a	wc-a3.2	wc-a3.15	wc-a3.5b	wc-a3.5a	wc-a3.5a	wc-a3.15	wc-a3.6c	wc-a3.6a	wc-a3.6b	wc-a3.6a	wc-a3.6a	wc-a3.15	wc-a3.8	wc-a3.15	wc-a3.10	wc-a3.15
INPUT VARIABLES....																								
case label																								
Watershed area	31.2	0.0	14.9	0.0	98.0	0.0	57.3	0.7	6.3	7.6	145.0	0.0	14.4	0.0	41.2	0.0	2.8	0.0	17.3	0.0	7.0	0.0	43.3	0.0	16.4
basin area	0.00	0.00	0.04	0.00	0.00	0.00	0.94	0.04	0.20	0.25	0.00	0.00	0.04	0.00	0.00	0.00	0.04	0.00	0.23	0.00	0.00	0.00	0.00	0.00	0.00
basin volume	0.00	0.00	0.00	0.00	0.00	0.00	3.17	0.06	0.80	0.60	0.00	0.00	0.08	0.00	0.00	0.00	0.12	0.00	0.80	0.00	0.00	0.00	0.00	0.00	0.00
Row Crop Agriculture	0%	0%	0%	0%	15%	0%	7%	0%	0%	0%	32%	0%	14%	0%	4%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Very Low Density Residential	0%	0%	5%	0%	5%	0%	0%	0%	0%	0%	0%	0%	0%	0%	3%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Low Density Residential	8%	0%	92%	0%	31%	0%	65%	0%	19%	0%	0%	0%	0%	0%	0%	0%	0%	0%	40%	0%	4%	0%	0%	0%	0%
Medium Density Residential	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
High Density Residential	0%	0%	0%	0%	0%	0%	22%	0%	68%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Commercial/Industrial	0%	0%	0%	0%	0%	0%	0%	100%	0%	100%	34%	0%	74%	0%	37%	0%	100%	0%	0%	0%	59%	0%	15%	0%	0%
Institutional	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Open Space	2%	0%	3%	0%	17%	0%	5%	0%	13%	0%	8%	0%	0%	0%	1%	0%	0%	0%	60%	0%	36%	0%	0%	0%	0%
Golf Course	86%	0%	0%	0%	27%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Pits and Quarries	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	62%	0%	100%
Right-of-Way	4%	0%	0%	0%	5%	0%	1%	0%	0%	0%	26%	0%	12%	0%	55%	0%	0%	0%	0%	0%	1%	0%	23%	0%	0%
WATERSHED-WIDE ACCOUNTII																								
tributary land area	200.47	0.00	14.95	0.00	4242.25	0.00	4299.60	0.73	7.01	7.61	152.62	0.00	14.39	0.00	55.55	0.00	2.81	0.00	17.31	0.00	27.11	0.00	43.31	0.00	16.35
tributary water area	0.95	0.00	0.04	0.00	79.07	0.00	80.01	0.04	0.24	0.25	0.25	0.00	0.04	0.00	0.04	0.00	0.04	0.00	0.23	0.00	0.27	0.00	0.00	0.00	0.00
direct and ponded area	201.42	0.00	14.99	0.00	4321.33	0.00	4379.61	0.78	7.25	7.86	152.87	0.00	14.43	0.00	55.59	0.00	2.85	0.00	17.54	0.00	27.38	0.00	43.31	0.00	16.35
ASSUMED EXPORT FACTORS...																								
season length	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
season precipitation	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80
runoff total p	524.16	0.00	380.99	0.00	421.11	0.00	391.94	350.00	366.27	350.00	410.93	0.00	381.93	0.00	382.77	0.00	350.00	0.00	276.04	0.00	298.27	0.00	145.08	0.00	0.00
runoff ortho p/total p	0.65	0.00	0.32	0.00	0.45	0.00	0.31	0.30	0.34	0.30	0.29	0.00	0.29	0.00	0.30	0.00	0.30	0.00	0.48	0.00	0.41	0.00	0.11	0.00	0.00
unit runoff	3.50	0.00	6.41	0.00	4.61	0.00	7.89	14.56	10.84	14.56	8.88	0.00	12.47	0.00	10.51	0.00	14.56	0.00	4.21	0.00	9.88	0.00	4.25	0.00	0.00
unit export	0.40	0.00	0.56	0.00	0.44	0.00	0.70	1.15	0.95	1.15	0.78	0.00	1.03	0.00	0.89	0.00	1.15	0.00	0.31	0.00	0.76	0.00	0.36	0.00	0.00
POND WATER BUDGETS.....																									
runoff	9.11	0.00	7.99	0.00	37.65	0.00	37.71	0.89	5.67	9.23	107.29	0.00	14.95	0.00	36.04	0.00	3.41	0.00	6.08	0.00	5.76	0.00	15.33	0.00	0.00
upstream pond	76.50	0.00	0.00	0.00	1980.63	0.00	2018.28	0.00	0.89	0.00	9.23	0.00	0.00	0.00	14.95	0.00	0.00	0.00	0.00	0.00	9.48	0.00	0.00	0.00	0.00
total inflow	**85.60**	**0.00**	**7.99**	**0.00**	**2018.28**	**0.00**	**2055.99**	**0.89**	**6.56**	**9.23**	**116.52**	**0.00**	**14.95**	**0.00**	**50.99**	**0.00**	**3.41**	**0.00**	**6.08**	**0.00**	**15.24**	**0.00**	**15.33**	**0.00**	**0.00**
outflow	85.60	0.00	7.99	0.00	2018.28	0.00	2055.99	0.89	6.56	9.23	116.52	0.00	14.95	0.00	50.99	0.00	3.41	0.00	6.08	0.00	15.24	0.00	15.33	0.00	0.00
POND PHOSPHORUS BUDGETS																									
runoff	12.51	0.00	8.40	0.00	43.12	0.00	40.41	0.85	5.95	8.78	113.60	0.00	14.77	0.00	36.79	0.00	3.24	0.00	5.31	0.00	5.29	0.00	15.56	0.00	0.00
upstream pond	61.70	0.00	0.00	0.00	752.74	0.00	795.85	0.00	0.47	0.00	4.42	0.00	0.00	0.00	11.64	0.00	0.00	0.00	0.00	0.00	4.49	0.00	0.00	0.00	0.00
total inflow	**74.21**	**0.00**	**8.40**	**0.00**	**795.85**	**0.00**	**836.27**	**0.85**	**6.42**	**8.78**	**118.02**	**0.00**	**14.77**	**0.00**	**48.43**	**0.00**	**3.24**	**0.00**	**5.31**	**0.00**	**9.78**	**0.00**	**15.56**	**0.00**	**0.00**
net sedimentation	0.00	0.00	0.00	0.00	0.00	0.00	31.76	0.37	3.67	4.36	0.00	0.00	3.13	0.00	0.00	0.00	1.47	0.00	2.59	0.00	0.00	0.00	0.00	0.00	0.00
outflow	74.21	0.00	8.40	0.00	795.85	0.00	804.51	0.47	2.75	4.42	118.02	0.00	11.64	0.00	48.43	0.00	1.77	0.00	2.72	0.00	9.78	0.00	15.56	0.00	0.00
p removal efficiency	0.00	3.78	0.01	3.78	0.00	3.78	3.80	44.05	57.12	49.66	0.00	3.78	21.16	3.78	0.00	3.78	45.38	3.78	48.79	3.78	0.00	3.78	0.01	3.78	99.77
upstream w-shed p load	97.29	0.00	8.40	0.00	2278.27	0.00	2318.68	0.85	6.79	8.78	122.38	0.00	14.77	0.00	51.56	0.00	3.24	0.00	5.31	0.00	13.84	0.00	15.56	0.00	0.00
total removal %	23.72	3.78	0.01	3.78	65.07	3.78	65.30	44.05	59.47	49.66	3.56	3.78	21.16	3.78	6.06	3.78	45.38	3.78	48.79	3.78	29.36	3.78	0.01	3.78	99.77
HYDRAULIC PARAMETERS.....																									
pond mean depth	1.00	0.00	0.00	0.00	1.00	0.00	3.37	1.40	4.00	2.42	1.00	0.00	2.00	0.00	1.00	0.00	3.00	0.00	3.48	0.00	1.00	0.00	1.00	0.00	1.00
relative volume	0.00	1.58	0.00	1.58	0.00	1.58	2.67	2.07	4.48	2.07	0.00	1.58	0.17	1.58	0.00	1.58	1.12	1.58	4.19	1.58	0.00	1.58	0.00	1.58	5.01
residence time	0.00	0.05	0.00	0.05	0.00	0.05	0.00	0.07	0.12	0.07	0.00	0.05	0.01	0.05	0.00	0.05	0.04	0.05	0.13	0.05	0.00	0.05	0.00	0.05	0.16
residence time	0.00	18.08	0.00	18.08	0.00	18.08	0.56	23.81	44.49	23.81	0.00	18.08	1.95	18.08	0.00	18.08	12.85	18.08	48.06	18.08	0.00	18.08	0.00	18.08	57.56
overflow rate	8560377.06	0.00	199.67	0.00	201828023.31	0.00	2187.23	21.49	32.82	37.14	11652375.74	0.00	373.71	0.00	5098651.76	0.00	85.21	0.00	26.42	0.00	1524410.54	0.00	1532692.13	0.00	6.34
inflow phos conc	318.94	384.34	387.03	384.34	145.08	384.34	149.65	350.02	359.85	350.02	372.63	384.34	363.54	384.34	349.50	384.34	350.02	384.34	321.79	384.34	236.00	384.34	373.49	384.34	384.34
outflow phos conc	318.94	369.82	387.00	369.82	145.08	369.82	143.97	195.84	154.32	176.18	372.63	369.82	286.61	369.82	349.50	369.82	191.17	369.82	164.78	369.82	235.99	369.82	373.44	369.82	0.89
p reaction rate	0.00	0.04	0.00	0.04	0.00	0.04	0.04	1.41	3.11	1.96	0.00	0.04	0.34	0.04	0.00	0.04	1.52	0.04	1.86	0.04	0.00	0.04	0.00	0.04	185372.07
1-rp	1.00	0.96	1.00	0.96	1.00	0.96	0.96	0.56	0.43	0.50	1.00	0.96	0.79	0.96	1.00	0.96	0.55	0.96	0.51	0.96	1.00	0.96	1.00	0.96	0.00
vlawmo pond volume	0.72	0.00	0.63	0.00	2.96	0.00	2.96	0.07	0.45	0.73	8.43	0.00	1.18	0.00	2.83	0.00	0.27	0.00	0.48	0.00	0.45	0.00	1.20	0.00	0.00
LAND USE PARAMETERS.....																									
runoff total P conc	524.16	0.00	380.99	0.00	421.11	0.00	391.94	350.00	366.27	350.00	410.93	0.00	381.93	0.00	382.77	0.00	350.00	0.00	276.04	0.00	298.27	0.00	145.08	0.00	0.00
runoff coefficient	0.11	0.00	0.20	0.00	0.14	0.00	0.25	0.46	0.34	0.46	0.28	0.00	0.39	0.00	0.33	0.00	0.46	0.00	0.13	0.00	0.31	0.00	0.13	0.00	0.00
dissolved/total P	0.65	0.00	0.32	0.00	0.45	0.00	0.31	0.30	0.34	0.30	0.29	0.00	0.29	0.00	0.30	0.00	0.30	0.00	0.48	0.00	0.41	0.00	0.11	0.00	0.00
runoff TSS conc	206.91	0.00	146.42	0.00	180.47	0.00	145.54	140.00	150.01	140.00	153.45	0.00	143.21	0.00	143.93	0.00	140.00	0.00	185.82	0.00	167.27	0.00	53.49	0.00	0.00
POND TSS BUDGETS.....																									
runoff	4856.11	0.00	3091.37	0.00	16944.29	0.00	14530.87	337.91	2188.23	3502.55	42281.18	0.00	5717.43	0.00	13792.37	0.00	1293.22	0.00	2761.07	0.00	2294.64	0.00	5815.04	0.00	0.03
upstream pond	17357.30	0.00	0.00	0.00	82935.27	0.00	99879.56	0.00	101.37	0.00	665.48	0.00	0.00	0.00	3246.69	0.00	0.00	0.00	0.00	0.00	831.48	0.00	0.00	0.00	0.00
total inflow	**22213.40**	**0.00**	**3091.37**	**0.00**	**99879.56**	**0.00**	**114410.43**	**337.91**	**2289.61**	**3502.55**	**42946.66**	**0.00**	**5717.43**	**0.00**	**17039.06**	**0.00**	**1293.22**	**0.00**	**2761.07**	**0.00**	**3126.12**	**0.00**	**5815.04**	**0.00**	**0.03**
p removal efficiency (no inf)	0.00	5.00	0.00	5.00	0.00	5.00	4.00	45.00	60.00	50.00	0.00	5.00	22.00	5.00	0.00	5.00	46.00	5.00	51.00	5.00	0.00	5.00	0.00	5.00	100.00
tss removal efficiency (no inf)	0.00	9.82	0.00	9.82	0.00	9.82	7.86	70.00	93.00	81.00	0.00	9.82	43.21	9.82	0.00	9.82	72.00	9.82	83.00	9.82	0.00	9.82	0.00	9.82	93.00
net sedimentation	0.00	0.00	0.00	0.00	0.00	0.00	8989.39	236.54	2129.34	2837.07	0.00	0.00	2470.75	0.00	0.00	0.00	931.12	0.00	2291.69	0.00	0.00	0.00	0.00	0.00	0.02
outflow	22213.40	0.00	3091.37	0.00	99879.56	0.00	105421.04	101.37	160.27	665.48	42946.66	0.00	3246.69	0.00	17039.06	0.00	362.10	0.00	469.38	0.00	3126.12	0.00	5815.04	0.00	0.00
tss removal efficiency (inf)	0.00	9.82	0.00	9.82	0.00	9.82	7.86	70.00	93.00	81.00	0.00	9.82	43.21	9.82	0.00	9.82	72.00	9.82	83.00	9.82	0.00	9.82	0.00	9.82	93.00
upstream watershed tss load	36696.27	0.00	3091.37	0.00	865210.34	0.00	879741.21	337.91	2526.15	3502.55	45783.73	0.00	5717.43	0.00	19509.81	0.00	1293.22	0.00	2761.07	0.00	6348.93	0.00	5815.04	0.00	0.03
tss total removal efficiency	39.47	9.82	0.00	9.82	88.46	9.82	88.02	70.00	93.66	81.00	6.20	9.82	43.21	9.82	12.66	9.82	72.00	9.82	83.00	9.82	50.76	9.82	0.00	9.82	93.00
INFILTRATION BMP/POND.....																									
Annual runoff infiltrated	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Adjusted outflow	**85.60**	**0.00**	**7.99**	**0.00**	**2018.28**	**0.00**	**2055.99**	**0.89**	**6.56**	**9.23**	**116.52**	**0.00**	**14.95**	**0.00**	**50.99**	**0.00**	**3.41**	**0.00**	**6.08**	**0.00**	**15.24**	**0.00**	**15.33**	**0.00**	**0.00**
Adjusted TP outflow	**74.21**	**0.00**	**8.40**	**0.00**	**795.85**	**0.00**	**804.51**	**0.47**	**2.75**	**4.42**	**118.02**	**0.00**	**11.64**	**0.00**	**48.43**	**0.00**	**1.77**	**0.00**	**2.72**	**0.00**	**9.78**	**0.00**	**15.56**	**0.00**	**0.00**
Adjusted TSS outflow	**22213.40**	**0.00**	**3091.37**	**0.00**	**99879.56**	**0.00**	**105421.04**	**101.37**	**160.27**	**665.48**	**42946.66**	**0.00**	**3246.69**	**0.00**	**17039.06**	**0.00**	**362.10**	**0.00**	**469.38**	**0.00**	**3126.12**	**0.00**	**5815.04**	**0.00**	**0.00**
POND P BUDGETS W/O P-BAN.																									
runoff	12.74	0.00	9.65	0.00	46.05	0.00	45.98	0.85	6.82	8.78	113.60	0.00	14.77	0.00	36.83	0.00	3.24	0.00	5.93	0.00	5.31	0.00	15.56	0.00	0.00
Adjusted TP outflow	**77.62**	**0.00**	**9.65**	**0.00**	**808.11**	**0.00**	**821.01**	**0.47**	**2.98**	**4.42**	**118.02**	**0.00**	**11.65**	**0.00**	**48.47**	**0.00**	**1.77**	**0.00**	**2.93**	**0.00**	**10.01**	**0.00**	**15.56**	**0.00**	**0.00**
upstream pond	64.88	0.00	0.00	0.00	762.06	0.00	808.11	0.00	0.47	0.00	4.42	0.00	0.00	0.00	11.65	0.00	0.00	0.00	0.00	0.00	4.70	0.00	0.00	0.00	0.00
total inflow	**77.62**	**0.00**	**9.65**	**0.00**	**808.11**	**0.00**	**854.08**	**0.85**	**7.29**	**8.78**	**118.02**	**0.00**	**14.77**	**0.00**	**48.47**	**0.00**	**3.24**	**0.00**	**5.93**	**0.00**	**10.01**	**0.00**	**15.56**	**0.00**	**0.00**
outflow	77.62	0.00	9.65	0.00	808.11	0.00	821.01	0.47	2.98	4.42	118.02	0.00	11.65	0.00	48.47	0.00	1.77	0.00	2.93	0.00	10.01	0.00	15.56	0.00	0.00
inflow phos conc	333.60	409.24	444.50	409.24	147.31	409.24	152.84	350.02	408.85	350.02	372.63	409.24	363.55	409.24	349.79	409.24	350.02	409.24	358.94	409.24	241.59	409.24	373.49	409.24	409.24
outflow phos conc	333.60	392.86	444.47	392.86	147.31	392.86	146.92	195.84	167.29	176.18	372.63	392.86	286.62	392.86	349.78	392.86	191.17	392.86	177.25	392.86	241.59	392.86	373.44	392.86	0.92
p reaction rate	0.00	0.04	0.00	0.04	0.00	0.04	0.04	1.41	3.53	1.96	0.00	0.04	0.34	0.04	0.00	0.04	1.52	0.04	2.08	0.04	0.00	0.04	0.00	0.04	197383.36
1-rp	1.00	0.96	1.00	0.96	1.00	0.96	0.96	0.56	0.41	0.50	1.00	0.96	0.79	0.96	1.00	0.96	0.55	0.96	0.49	0.96	1.00	0.96	1.00	0.96	0.00
runoff total p conc	528.95	0.00	437.01	0.00	441.78	0.00	442.48	350.00	417.06	350.00	410.93	0.00	381.97	0.00	384.18	0.00	350.00	0.00	299.24	0.00	300.67	0.00	145.08	0.00	0.00

Rochester Loading Assessm																								
Willow Creek																								
363-06-158-2																								
2020 LOADS																								
	future wc-a3.11	**wc-a3.11**	**future wc-a3.15**	**wc-a3.15**	**future wc-a3.12b**	**wc-a3.12b**	**future wc-a3.12a**	**wc-a3.12a**	**future wc-a3.13**	**wc-a3.13**	**future wc-a3.14c**	**wc-a3.14c**	**future wc-a3.14a**	**wc-a3.14a**	**future wc-a5.6a**	**wc-a5.6a**	**future wc-a5.8d**	**wc-a5.8d**	**future wc-a5.8c**	**wc-a5.8c**	**future wc-a5.8b**	**wc-a5.8b**	**future wc-a5.8a**	**wc-a5.8a**	**future wc-a5.10**
	wc-a3.11	wc-a3.15	wc-a3.15	wc-a3.14c	wc-a3.12b	wc-a3.12a	wc-a3.12a	wc-a3.13	wc-a3.13	wc-a3.14c	wc-a3.14c	wc-a3.14a	wc-a3.14a	wc-a5.8a	wc-a5.6a	wc-a5.8a	wc-a5.8d	wc-a5.8c	wc-a5.8c	wc-a5.8b	wc-a5.8b	wc-a5.8a	wc-a5.8a	wc-a5.9a	wc-a5.10
INPUT VARIABLES....																								
case label																								
Watershed area	0.0	14.6	0.0	32.0	7.1	2.8	3.7	71.7	19.3	51.5	17.1	236.5	12.7	29.6	0.0	126.5	3.9	0.0	0.9	1.6	3.6	5.2	80.1	79.7	0.6
basin area	0.00	0.00	0.00	0.00	0.08	0.20	0.04	0.00	0.25	0.00	0.42	3.65	0.34	0.00	0.00	0.00	0.12	0.46	0.04	0.11	0.12	1.79	0.63	0.00	0.00
basin volume	0.00	0.00	0.00	0.00	0.20	0.37	0.10	0.00	0.55	0.00	1.35	15.32	1.00	0.00	0.00	0.00	0.31	1.50	0.07	0.26	0.28	7.16	2.59	0.00	0.02
Row Crop Agriculture	0%	0%	0%	0%	0%	0%	0%	33%	0%	0%	0%	18%	0%	0%	0%	0%	0%	1%	0%	0%	0%	0%	0%	28%	0%
Very Low Density Residential	0%	5%	0%	0%	0%	0%	0%	2%	0%	13%	0%	4%	0%	0%	0%	0%	0%	1%	0%	0%	0%	0%	0%	5%	0%
Low Density Residential	0%	54%	0%	0%	100%	99%	100%	4%	98%	2%	0%	7%	0%	0%	0%	0%	0%	1%	0%	0%	0%	0%	77%	4%	100%
Medium Density Residential	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	1%	0%	0%	0%	0%	20%	0%	0%
High Density Residential	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	7%	0%	0%	0%	7%	0%	1%	0%	0%	0%	0%	0%	0%	0%
Commercial/Industrial	0%	0%	0%	0%	0%	0%	0%	0%	2%	11%	100%	4%	100%	0%	0%	0%	100%	1%	100%	0%	100%	0%	3%	0%	0%
Institutional	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	1%	0%	0%	0%	0%	0%	0%	0%
Open Space	0%	0%	0%	0%	0%	1%	0%	59%	0%	33%	0%	50%	0%	68%	0%	9%	0%	91%	0%	80%	0%	100%	0%	51%	0%
Golf Course	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	79%	0%	1%	0%	0%	0%	0%	0%	0%	0%
Pits and Quarries	0%	42%	0%	85%	0%	0%	0%	0%	0%	0%	0%	1%	0%	0%	0%	0%	0%	1%	0%	0%	0%	0%	0%	0%	0%
Right-of-Way	0%	0%	0%	14%	0%	0%	0%	4%	0%	42%	0%	10%	0%	32%	0%	5%	0%	1%	0%	20%	0%	0%	0%	12%	0%
WATERSHED-WIDE ACCOUNTII																								
tributary land area	0.00	14.61	0.00	341.50	7.14	9.97	3.73	85.43	19.34	156.26	17.08	751.35	12.67	5100.23	0.00	126.51	3.88	3.89	0.90	6.42	3.56	15.15	80.14	5401.68	0.64
tributary water area	0.00	0.00	0.00	0.56	0.08	0.28	0.04	0.32	0.25	0.57	0.42	5.20	0.34	85.80	0.00	0.00	0.12	0.58	0.04	0.74	0.12	2.65	0.63	89.08	0.00
direct and ponded area	0.00	14.61	0.00	342.06	7.22	10.25	3.77	85.76	19.58	156.83	17.50	756.56	13.01	5186.03	0.00	126.51	4.01	4.47	0.94	7.16	3.68	17.80	80.77	5490.76	0.64
ASSUMED EXPORT FACTORS...																									
season length	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
season precipitation	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80
runoff total p	0.00	223.87	0.00	58.84	391.50	389.61	391.50	326.56	390.63	316.56	350.00	315.70	350.00	263.28	0.00	499.55	350.00	215.17	350.00	240.74	350.00	200.00	390.17	330.81	391.50
runoff ortho p/total p	0.00	0.18	0.00	0.04	0.30	0.30	0.30	0.45	0.30	0.42	0.30	0.44	0.30	0.51	0.00	0.64	0.30	0.57	0.30	0.54	0.30	0.60	0.30	0.44	0.30
unit runoff	0.00	3.75	0.00	1.28	6.74	6.70	6.74	3.55	6.91	6.55	14.56	4.98	14.56	4.51	0.00	3.93	14.56	2.98	14.56	3.81	14.56	2.54	7.59	4.00	6.74
unit export	0.00	0.33	0.00	0.12	0.60	0.59	0.60	0.30	0.61	0.53	1.15	0.41	1.15	0.33	0.00	0.42	1.15	0.16	1.15	0.25	1.15	0.12	0.67	0.34	0.60
POND WATER BUDGETS.....																									
runoff	0.00	4.57	0.00	3.41	4.01	1.58	2.10	21.21	11.13	28.09	20.73	98.17	15.38	11.13	0.00	41.41	4.71	0.00	1.09	0.52	4.32	1.10	50.72	26.54	0.36
upstream pond	0.00	0.00	0.00	202.65	0.00	4.01	0.00	7.69	0.00	40.03	0.00	294.90	0.00	2471.01	0.00	0.00	0.00	4.71	0.00	5.81	0.00	10.64	0.00	2586.01	0.00
total inflow	**0.00**	**4.57**	**0.00**	**206.06**	**4.01**	**5.59**	**2.10**	**28.90**	**11.13**	**68.12**	**20.73**	**393.08**	**15.38**	**2482.14**	**0.00**	**41.41**	**4.71**	**4.71**	**1.09**	**6.32**	**4.32**	**11.74**	**50.72**	**2612.55**	**0.36**
outflow	0.00	4.57	0.00	206.06	4.01	5.59	2.10	28.90	11.13	68.12	20.73	393.08	15.38	2482.14	0.00	41.41	4.71	4.71	1.09	6.32	4.32	11.74	50.72	2612.55	0.36
POND PHOSPHORUS BUDGETS																									
runoff	0.00	4.82	0.00	3.70	4.27	1.68	2.23	21.40	11.79	27.25	19.72	96.44	14.63	9.77	0.00	53.58	4.48	0.00	1.04	0.41	4.11	0.60	53.62	26.97	0.38
upstream pond	0.00	0.00	0.00	196.60	0.00	2.18	0.00	3.39	0.00	30.86	0.00	267.88	0.00	1027.79	0.00	0.00	0.00	2.25	0.00	1.93	0.00	3.95	0.00	1119.07	0.00
total inflow	**0.00**	**4.82**	**0.00**	**200.30**	**4.27**	**3.86**	**2.23**	**24.79**	**11.79**	**58.11**	**19.72**	**364.32**	**14.63**	**1037.56**	**0.00**	**53.58**	**4.48**	**2.25**	**1.04**	**2.35**	**4.11**	**4.55**	**53.62**	**1146.04**	**0.38**
net sedimentation	0.00	0.00	0.00	0.00	2.09	1.60	1.10	0.00	5.72	0.00	10.25	150.90	7.51	0.00	0.00	0.00	2.24	0.87	0.48	0.49	2.02	1.78	28.46	0.00	0.23
outflow	0.00	4.82	0.00	200.30	2.18	2.26	1.13	24.79	6.07	58.11	9.47	213.42	7.12	1037.56	0.00	53.58	2.25	1.38	0.56	1.86	2.09	2.76	25.16	1146.04	0.15
p removal efficiency	3.78	0.03	3.78	0.00	48.98	41.49	49.32	0.00	48.51	0.00	51.98	41.42	51.35	0.00	3.78	0.00	49.85	38.79	46.29	20.97	49.05	39.19	53.08	0.00	59.27
upstream w-shed p load	0.00	4.82	0.00	211.86	4.27	5.95	2.23	29.58	11.79	68.62	19.72	396.64	14.63	2746.51	0.00	53.58	4.48	4.49	1.04	5.94	4.11	10.64	53.62	2891.33	0.38
total removal %	3.78	0.03	3.78	5.46	48.98	62.06	49.32	16.20	48.51	15.32	51.98	46.19	51.35	62.22	3.78	0.00	49.85	69.31	46.29	68.74	49.05	74.03	53.08	60.36	59.27
HYDRAULIC PARAMETERS.....																									
pond mean depth	0.00	1.00	0.00	1.00	2.37	1.85	2.48	1.00	2.22	1.00	3.19	4.20	2.95	1.00	0.00	1.00	2.47	3.26	1.72	2.38	2.27	4.00	4.14	1.00	1746.25
relative volume	1.58	0.00	1.58	0.00	1.56	7.44	1.56	0.00	1.58	0.00	2.07	4.96	2.07	0.00	1.58	0.00	2.07	174536.74	2.07	16.16	2.07	207.81	1.62	0.00	1.56
residence time	0.05	0.00	0.05	0.00	0.05	0.07	0.05	0.00	0.05	0.00	0.07	0.04	0.07	0.00	0.05	0.00	0.07	0.32	0.07	0.04	0.07	0.61	0.05	0.00	0.05
residence time	18.08	0.00	18.08	0.00	17.86	24.14	17.86	0.00	18.13	0.00	23.81	14.22	23.81	0.00	18.08	0.00	23.81	116.13	23.81	15.24	23.81	222.62	18.65	0.00	17.86
overflow rate	0.00	456552.53	0.00	20605555.77	48.42	27.97	50.59	2889651.85	44.78	6812225.59	48.96	107.69	45.22	248214022.72	0.00	4140885.72	37.93	10.25	26.33	56.98	34.75	6.56	81.02	261254964.93	35685.24
inflow phos conc	384.34	388.31	384.34	357.64	391.52	253.76	391.52	315.62	389.68	313.84	350.02	341.00	350.02	153.79	384.34	476.08	350.02	175.53	350.02	136.63	350.02	142.45	388.97	161.39	391.52
outflow phos conc	369.82	388.21	369.82	357.64	199.76	148.47	198.42	315.62	200.65	313.84	168.08	199.76	170.28	153.79	369.82	476.08	175.52	107.43	188.01	107.98	178.32	86.63	182.50	161.39	159.48
p reaction rate	0.04	0.00	0.04	0.00	1.88	1.21	1.92	0.00	1.83	0.00	2.25	1.21	2.17	0.00	0.04	0.00	1.98	1.04	1.60	0.34	1.89	1.06	2.41	0.00	3.57
1-rp	0.96	1.00	0.96	1.00	0.51	0.59	0.51	1.00	0.51	1.00	0.48	0.59	0.49	1.00	0.96	1.00	0.50	0.61	0.54	0.79	0.51	0.61	0.47	1.00	0.41
vlawmo pond volume	0.00	0.36	0.00	0.27	0.32	0.12	0.16	1.67	0.88	2.21	1.63	7.72	1.21	0.88	0.00	3.26	0.37	0.00	0.09	0.04	0.34	0.09	3.99	2.09	0.03
LAND USE PARAMETERS.....																									
runoff total P conc	0.00	223.87	0.00	58.84	391.50	389.61	391.50	326.56	390.63	316.56	350.00	315.70	350.00	263.28	0.00	499.55	350.00	215.17	350.00	240.74	350.00	200.00	390.17	330.81	391.50
runoff coefficient	0.00	0.12	0.00	0.04	0.21	0.21	0.21	0.11	0.22	0.21	0.46	0.16	0.46	0.14	0.00	0.12	0.46	0.09	0.46	0.12	0.46	0.08	0.24	0.13	0.21
dissolved/total P	0.00	0.18	0.00	0.04	0.30	0.30	0.30	0.45	0.30	0.42	0.30	0.44	0.30	0.51	0.00	0.64	0.30	0.57	0.30	0.54	0.30	0.60	0.30	0.44	0.30
runoff TSS conc	0.00	85.04	0.00	20.77	140.00	140.75	140.00	193.27	140.00	174.98	140.00	184.54	140.00	191.95	0.00	207.20	140.00	209.41	140.00	200.52	140.00	216.00	140.00	189.00	140.00
POND TSS BUDGETS.....																									
runoff	0.00	1766.89	0.00	1294.82	1522.34	601.13	795.28	10481.93	4223.06	11746.03	7863.52	43908.89	5833.44	5106.25	0.00	21343.14	1788.56	0.15	413.87	253.93	1638.48	641.35	19242.97	12570.26	135.39
upstream pond	0.00	0.00	0.00	70693.76	0.00	228.35	0.00	373.67	0.00	11573.51	0.00	96487.65	0.00	151383.22	0.00	0.00	0.00	339.83	0.00	226.60	0.00	593.62	0.00	179599.51	0.00
total inflow	**0.00**	**1766.89**	**0.00**	**71988.59**	**1522.34**	**829.48**	**795.28**	**10855.59**	**4223.06**	**23319.54**	**7863.52**	**140396.54**	**5833.44**	**156489.47**	**0.00**	**21343.14**	**1788.56**	**339.98**	**413.87**	**480.53**	**1638.48**	**1234.98**	**19242.97**	**192169.77**	**135.39**
p removal efficiency (no inf)	5.00	0.00	5.00	0.00	52.00	44.00	52.00	0.00	51.00	0.00	52.00	42.00	52.00	0.00	5.00	0.00	50.00	39.00	47.00	21.00	50.00	40.00	56.00	0.00	62.00
tss removal efficiency (no inf)	9.82	0.00	9.82	0.00	85.00	69.33	85.00	0.00	83.00	0.00	85.00	68.00	85.00	0.00	9.82	0.00	81.00	65.00	74.00	41.25	81.00	66.00	93.00	0.00	93.00
net sedimentation	0.00	0.00	0.00	0.00	1293.99	575.11	675.99	0.00	3505.14	0.00	6683.99	95469.65	4958.42	0.00	0.00	0.00	1448.73	220.98	306.27	198.22	1327.17	815.09	17895.96	0.00	125.91
outflow	0.00	1766.89	0.00	71988.59	228.35	254.37	119.29	10855.59	717.92	23319.54	1179.53	44926.89	875.02	156489.47	0.00	21343.14	339.83	118.99	107.61	282.31	311.31	419.89	1347.01	192169.77	9.48
tss removal efficiency (inf)	9.82	0.00	9.82	0.00	85.00	69.33	85.00	0.00	83.00	0.00	85.00	68.00	85.00	0.00	9.82	0.00	81.00	65.00	74.00	41.25	81.00	66.00	93.00	0.00	93.00
upstream watershed tss load	0.00	1766.89	0.00	80519.23	1522.34	2123.47	795.28	13400.67	4223.06	29369.76	7863.52	161661.39	5833.44	1054868.43	0.00	21343.14	1788.56	1788.71	413.87	2456.52	1638.48	4736.35	19242.97	1112761.15	135.39
tss total removal efficiency	9.82	0.00	9.82	10.59	85.00	88.02	85.00	18.99	83.00	20.60	85.00	72.21	85.00	85.17	9.82	0.00	81.00	93.35	74.00	88.51	81.00	91.13	93.00	82.73	93.00
INFILTRATION BMP/POND.....																									
Annual runoff infiltrated	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Adjusted outflow	**0.00**	**4.57**	**0.00**	**206.06**	**4.01**	**5.59**	**2.10**	**28.90**	**11.13**	**68.12**	**20.73**	**393.08**	**15.38**	**2482.14**	**0.00**	**41.41**	**4.71**	**4.71**	**1.09**	**6.32**	**4.32**	**11.74**	**50.72**	**2612.55**	**0.36**
Adjusted TP outflow	**0.00**	**4.82**	**0.00**	**200.30**	**2.18**	**2.26**	**1.13**	**24.79**	**6.07**	**58.11**	**9.47**	**213.42**	**7.12**	**1037.56**	**0.00**	**53.58**	**2.25**	**1.38**	**0.56**	**1.86**	**2.09**	**2.76**	**25.16**	**1146.04**	**0.15**
Adjusted TSS outflow	**0.00**	**1766.89**	**0.00**	**71988.59**	**228.35**	**254.37**	**119.29**	**10855.59**	**717.92**	**23319.54**	**1179.53**	**44926.89**	**875.02**	**156489.47**	**0.00**	**21343.14**	**339.83**	**118.99**	**107.61**	**282.31**	**311.31**	**419.89**	**1347.01**	**192169.77**	**9.48**
POND P BUDGETS W/O P-BAN.																									
runoff	0.00	5.54	0.00	3.71	4.91	1.93	2.56	21.67	13.48	27.54	19.72	101.06	14.63	9.77	0.00	55.09	4.48	0.00	1.04	0.41	4.11	0.60	61.19	27.39	0.44
Adjusted TP outflow	**0.00**	**5.54**	**0.00**	**201.30**	**2.39**	**2.44**	**1.24**	**25.36**	**6.64**	**59.53**	**9.47**	**216.32**	**7.12**	**1057.20**	**0.00**	**55.09**	**2.25**	**1.38**	**0.56**	**1.86**	**2.09**	**2.76**	**27.41**	**1169.85**	**0.17**
upstream pond	0.00	0.00	0.00	197.59	0.00	2.39	0.00	3.68	0.00	31.99	0.00	270.30	0.00	1047.43	0.00	0.00	0.00	2.25	0.00	1.93	0.00	3.95	0.00	1142.46	0.00
total inflow	**0.00**	**5.54**	**0.00**	**201.31**	**4.91**	**4.32**	**2.56**	**25.36**	**13.48**	**59.53**	**19.72**	**371.36**	**14.63**	**1057.20**	**0.00**	**55.09**	**4.48**	**2.25**	**1.04**	**2.35**	**4.11**	**4.55**	**61.19**	**1169.85**	**0.44**
outflow	0.00	5.54	0.00	201.30	2.39	2.44	1.24	25.36	6.64	59.53	9.47	216.32	7.12	1057.20	0.00	55.09	2.25	1.38	0.56	1.86	2.09	2.76	27.41	1169.85	0.17
inflow phos conc	409.24	446.33	409.24	359.44	450.02	284.17	450.02	322.84	445.59	321.54	350.02	347.59	350.02	156.70	409.24	489.46	350.02	175.53	350.02	136.63	350.02	142.45	443.88	164.75	450.02
outflow phos conc	392.86	446.20	392.86	359.43	219.18	160.75	217.66	322.83	219.46	321.54	168.08	202.48	170.28	156.70	392.86	489.46	175.52	107.43	188.01	107.98	178.32	86.63	198.83	164.75	173.95
p reaction rate	0.04	0.00	0.04	0.00	2.16	1.36	2.21	0.00	2.09	0.00	2.25	1.23	2.17	0.00	0.04	0.00	1.98	1.04	1.60	0.34	1.89	1.06	2.75	0.00	4.11
1-rp	0.96	1.00	0.96	1.00	0.49	0.57	0.48	1.00	0.49	1.00	0.48	0.58	0.49	1.00	0.96	1.00	0.50	0.61	0.54	0.79	0.51	0.61	0.45	1.00	0.39
runoff total p conc	0.00	257.32	0.00	59.09	450.00	447.53	450.00	329.47	447.90	323.66	350.00	325.35	350.00	263.28	0.00	503.41	350.00	217.18	350.00	240.74	350.00	200.00	446.80	335.65	450.00

Rochester Loading Assessm																								
Willow Creek																								
363-06-158-2																								
2020 LOADS																								
	wc-a5.10	**future wc-a5.11c**	**wc-a5.11c**	**future wc-a5.11b**	**wc-a5.11b**	**future wc-a5.11a**	**wc-a5.11a**	**future wc-a5.9b**	**wc-a5.9b**	**wc-a5.9b cell 2**	**future wc-a5.9a**	**wc-a5.9a**	**future wc-a6.4b**	**wc-a6.4b**	**future wc-a6.4a**	**wc-a6.4a**	**wc-a6.4a cell 2**	**future wc-a5.12b**	**wc-a5.12b**	**future wc-a5.12a**	**wc-a5.12a**	**future wc-a6.7**	**wc-a6.7**	**future wc-a6.2d**	**wc-a6.2d**
	wc-a5.11b	wc-a5.11c	wc-a5.11b	wc-a5.11b	wc-a5.11a	wc-a5.11a	wc-a5.9a	wc-a5.9b	wc-a5.9b cell 2	wc-a5.9a	wc-a5.9a	wc-a6.7	wc-a6.4b	wc-a6.4a	wc-a6.4a	wc-a6.4a cell 2	wc-a6.7	wc-a5.12b	wc-a5.12a	wc-a5.12a	wc-a6.7	wc-a6.7	wc-a6.6a	wc-a6.2d	wc-a6.2b
INPUT VARIABLES....																								
case label																								
Watershed area	40.3	6.5	3.8	43.9	145.9	3.7	55.3	4.0	38.3	0.0	2.7	40.9	19.1	13.6	54.3	53.3	0.0	0.0	13.8	20.3	183.9	0.1	107.2	5.6	11.3
basin area	0.00	0.17	0.65	0.40	3.88	0.12	0.00	0.12	0.43	2.21	0.04	0.00	0.45	0.48	0.89	2.55	2.17	0.00	0.34	0.31	0.00	0.00	0.00	0.08	0.28
basin volume	0.00	0.42	2.49	1.31	15.52	0.28	0.00	0.32	1.64	12.11	0.14	0.00	1.52	1.82	4.30	10.20	8.68	0.00	0.00	0.85	0.00	0.01	0.00	0.25	1.24
Row Crop Agriculture	20%	0%	84%	0%	6%	0%	16%	0%	64%	0%	0%	34%	0%	0%	0%	34%	0%	0%	0%	0%	2%	0%	0%	0%	0%
Very Low Density Residential	0%	0%	0%	0%	22%	0%	18%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	1%	0%	8%	0%	0%	0%	0%
Low Density Residential	4%	6%	0%	94%	22%	6%	7%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	94%	9%	42%	0%	6%	58%	94%
Medium Density Residential	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	75%	0%	0%	0%	0%	0%	0%	0%	0%	91%	0%	78%	0%	0%	0%
High Density Residential	0%	94%	0%	6%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	1%	0%	33%	42%	0%
Commercial/Industrial	21%	0%	0%	0%	0%	94%	5%	100%	0%	0%	25%	0%	100%	0%	100%	15%	0%	0%	0%	0%	0%	22%	43%	0%	0%
Institutional	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Open Space	53%	0%	16%	0%	44%	0%	51%	0%	36%	100%	0%	63%	0%	70%	0%	32%	100%	0%	5%	0%	43%	0%	7%	0%	6%
Golf Course	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Pits and Quarries	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Right-of-Way	1%	0%	0%	0%	6%	0%	3%	0%	0%	0%	0%	3%	0%	30%	0%	19%	0%	0%	0%	0%	4%	0%	10%	0%	0%
WATERSHED-WIDE ACCOUNTII																									
tributary land area	40.89	6.46	10.24	43.94	241.02	3.68	300.01	4.04	42.31	42.32	2.71	5787.59	19.14	32.71	54.26	140.31	140.32	0.00	13.83	20.26	217.99	0.13	6253.26	5.57	16.83
tributary water area	0.00	0.17	0.82	0.40	5.10	0.12	5.22	0.12	0.55	2.76	0.04	97.10	0.45	0.93	0.89	4.36	6.53	0.00	0.34	0.31	0.65	0.00	104.28	0.08	0.36
direct and ponded area	40.89	6.63	11.06	44.34	246.11	3.80	305.23	4.16	42.86	45.08	2.75	5884.69	19.58	33.64	55.14	144.68	146.86	0.00	14.17	20.57	218.63	0.13	6357.54	5.65	17.19
ASSUMED EXPORT FACTORS...																									
season length	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
season precipitation	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80
runoff total p	311.18	391.50	486.67	391.50	298.21	352.43	301.48	350.00	417.05	200.00	381.29	320.04	350.00	260.21	350.00	376.15	200.00	0.00	381.18	391.50	305.57	382.42	359.94	391.50	379.29
runoff ortho p/total p	0.44	0.30	0.26	0.30	0.47	0.30	0.47	0.30	0.34	0.60	0.30	0.45	0.30	0.51	0.30	0.36	0.60	0.00	0.32	0.30	0.44	0.30	0.32	0.30	0.32
unit runoff	5.76	13.19	4.15	7.13	4.06	14.10	4.04	14.56	3.76	2.54	10.92	3.40	14.56	4.42	14.56	6.18	2.54	0.00	6.49	9.46	4.76	10.79	12.31	9.64	6.48
unit export	0.45	1.17	0.48	0.63	0.31	1.12	0.31	1.15	0.39	0.12	0.93	0.28	1.15	0.32	1.15	0.55	0.12	0.00	0.57	0.84	0.37	0.93	1.03	0.85	0.57
POND WATER BUDGETS.....																									
runoff	19.31	7.10	1.31	26.12	49.41	4.32	18.62	4.90	12.00	0.00	2.46	11.59	23.22	5.00	65.84	27.46	0.00	0.00	7.48	15.97	72.88	0.12	110.04	4.47	6.08
upstream pond	0.36	0.00	7.10	0.00	54.20	0.00	107.93	0.00	4.90	16.90	0.00	2758.46	0.00	23.22	0.00	94.06	121.52	0.00	0.00	0.00	23.46	0.00	2988.04	0.00	4.47
total inflow	**19.67**	**7.10**	**8.41**	**26.12**	**103.61**	**4.32**	**126.55**	**4.90**	**16.90**	**16.90**	**2.46**	**2770.06**	**23.22**	**28.22**	**65.84**	**121.52**	**121.53**	**0.00**	**7.48**	**15.97**	**96.34**	**0.12**	**3098.08**	**4.47**	**10.55**
outflow	19.67	7.10	8.41	26.12	103.61	4.32	126.55	4.90	16.90	16.90	2.46	2770.06	23.22	28.22	65.84	121.52	121.53	0.00	7.48	15.97	96.34	0.12	3098.08	4.47	10.55
POND PHOSPHORUS BUDGETS																									
runoff	18.25	7.56	1.80	27.79	45.13	4.12	17.14	4.66	14.90	0.00	2.53	11.55	22.09	4.34	62.64	29.14	0.00	0.00	7.88	17.00	68.64	0.12	110.01	4.76	6.39
upstream pond	0.15	0.00	3.71	0.00	34.14	0.00	42.33	0.00	2.32	7.67	0.00	1210.78	0.00	10.51	0.00	38.08	37.83	0.00	0.00	0.00	16.22	0.00	1335.81	0.00	2.30
total inflow	**18.40**	**7.56**	**5.51**	**27.79**	**79.27**	**4.12**	**59.47**	**4.66**	**17.22**	**7.67**	**2.53**	**1222.33**	**22.09**	**14.85**	**62.64**	**67.22**	**37.83**	**0.00**	**7.88**	**17.00**	**84.86**	**0.12**	**1445.83**	**4.76**	**8.69**
net sedimentation	0.00	3.85	3.24	14.32	39.04	2.02	0.00	2.34	9.55	3.60	1.33	0.00	11.58	5.07	34.33	29.38	9.26	0.00	0.00	8.65	0.00	0.07	0.00	2.46	4.87
outflow	18.40	3.71	2.27	13.48	40.23	2.10	59.47	2.32	7.67	4.07	1.20	1222.33	10.51	9.78	28.30	37.83	28.57	0.00	7.88	8.34	84.86	0.05	1445.83	2.30	3.82
p removal efficiency	0.00	50.97	58.85	51.51	49.25	49.00	0.00	50.20	55.48	46.91	52.53	0.00	52.44	34.15	54.82	43.72	24.48	3.78	0.00	50.91	0.00	61.01	0.00	51.70	56.02
upstream w-shed p load	18.62	7.56	9.36	27.79	100.91	4.12	122.17	4.66	19.56	19.56	2.53	3047.14	22.09	26.43	62.64	118.21	118.21	0.00	7.88	17.00	93.52	0.12	3369.00	4.76	11.15
total removal %	1.21	50.97	75.78	51.51	60.13	49.00	51.32	50.20	60.81	79.19	52.53	59.89	52.44	63.01	54.82	67.99	75.83	3.78	0.00	50.91	9.26	61.01	57.08	51.70	65.72
HYDRAULIC PARAMETERS.....																									
pond mean depth	1.00	2.51	3.83	3.27	4.00	2.25	1.00	2.57	3.81	5.48	3.41	1.00	3.39	3.79	4.84	4.00	4.00	0.00	0.00	2.77	1.00	654.96	1.00	2.96	4.43
relative volume	0.00	1.86	60.45	1.59	9.99	2.06	0.00	2.07	4.35	181650.00	1.82	0.00	2.07	11.58	2.07	11.81	130200.00	1.58	0.00	1.69	0.00	1.81	0.00	1.74	6.49
residence time	0.00	0.06	0.30	0.05	0.15	0.06	0.00	0.07	0.10	0.72	0.06	0.00	0.07	0.06	0.07	0.08	0.07	0.05	0.00	0.05	0.00	0.06	0.00	0.05	0.12
residence time	0.00	21.37	107.95	18.25	54.68	23.65	0.00	23.81	35.42	261.50	20.91	0.00	23.81	23.54	23.81	30.64	26.07	18.08	0.00	19.39	0.00	20.77	0.00	20.01	42.90
overflow rate	1967015.30	42.86	12.94	65.29	26.70	34.76	12654538.65	39.44	39.31	7.65	59.46	277005563.35	51.99	58.79	74.23	47.66	56.00	0.00	22.01	52.09	9634047.41	11509.78	309808022.01	53.94	37.68
inflow phos conc	344.15	391.52	241.03	391.52	281.50	351.18	172.91	350.02	374.86	166.88	377.91	162.35	350.02	193.58	350.02	203.50	114.54	384.34	387.40	391.52	324.08	379.27	171.70	391.52	303.00
outflow phos conc	344.15	191.97	99.18	189.84	142.86	179.12	172.91	174.31	166.88	88.59	179.39	162.35	166.48	127.48	158.15	114.54	86.50	369.82	387.39	192.19	324.08	147.87	171.70	189.12	133.26
p reaction rate	0.00	2.12	3.48	2.19	1.91	1.88	0.00	2.02	2.80	1.66	2.33	0.00	2.32	0.79	2.68	1.38	0.43	0.04	0.00	2.11	0.00	4.01	0.00	2.22	2.90
1-rp	1.00	0.49	0.41	0.48	0.51	0.51	1.00	0.50	0.45	0.53	0.47	1.00	0.48	0.66	0.45	0.56	0.76	0.96	1.00	0.49	1.00	0.39	1.00	0.48	0.44
vlawmo pond volume	1.52	0.56	0.10	2.05	3.88	0.34	1.46	0.39	0.94	0.00	0.19	0.91	1.83	0.39	5.18	2.16	0.00	0.00	0.59	1.26	5.73	0.01	8.65	0.35	0.48
LAND USE PARAMETERS.....																									
runoff total P conc	311.18	391.50	486.67	391.50	298.21	352.43	301.48	350.00	417.05	200.00	381.29	320.04	350.00	260.21	350.00	376.15	200.00	0.00	381.18	391.50	305.57	382.42	359.94	391.50	379.29
runoff coefficient	0.18	0.41	0.13	0.22	0.13	0.44	0.13	0.46	0.12	0.08	0.34	0.11	0.46	0.14	0.46	0.19	0.08	0.00	0.20	0.30	0.15	0.34	0.39	0.30	0.20
dissolved/total P	0.44	0.30	0.26	0.30	0.47	0.30	0.47	0.30	0.34	0.60	0.30	0.45	0.30	0.51	0.30	0.36	0.60	0.00	0.32	0.30	0.44	0.30	0.32	0.30	0.32
runoff TSS conc	184.77	140.00	171.31	140.00	191.33	140.00	195.76	140.00	182.23	216.00	140.00	195.22	140.00	193.12	140.00	172.12	216.00	0.00	144.64	140.00	178.94	140.00	145.70	140.00	144.84
POND TSS BUDGETS.....																									
runoff	8442.67	2694.57	596.07	9909.10	23375.80	1639.21	8999.37	1859.92	5722.19	1.24	934.84	5837.94	8810.69	2310.34	24979.15	11584.87	1.24	0.00	2877.55	6060.71	31904.83	43.67	42101.58	1695.86	2337.87
upstream pond	9.48	0.00	269.46	0.00	9503.64	0.00	5900.95	0.00	316.19	422.69	0.00	207259.78	0.00	1101.34	0.00	3449.52	4610.55	0.00	0.00	0.00	3483.62	0.00	250836.30	0.00	169.59
total inflow	**8452.15**	**2694.57**	**865.52**	**9909.10**	**32879.44**	**1639.21**	**14900.33**	**1859.92**	**6038.38**	**423.93**	**934.84**	**213097.73**	**8810.69**	**3411.68**	**24979.15**	**15034.39**	**4611.79**	**0.00**	**2877.55**	**6060.71**	**35388.45**	**43.67**	**292937.88**	**1695.86**	**2507.46**
p removal efficiency (no inf)	0.00	54.00	60.00	54.00	51.00	50.00	0.00	51.00	56.00	47.00	55.00	0.00	53.00	35.00	55.00	44.00	25.00	5.00	0.00	54.00	0.00	63.00	0.00	54.00	58.00
tss removal efficiency (no inf)	0.00	90.00	93.00	90.00	83.00	81.00	0.00	83.00	93.00	74.00	91.50	0.00	87.50	61.13	91.50	69.33	49.11	9.82	0.00	90.00	0.00	93.00	0.00	90.00	93.00
net sedimentation	0.00	2425.11	804.94	8918.19	27289.93	1327.76	0.00	1543.73	5615.69	313.71	855.38	0.00	7709.36	2085.39	22855.92	10423.84	2264.72	0.00	0.00	5454.64	0.00	40.61	0.00	1526.27	2331.94
outflow	8452.15	269.46	60.59	990.91	5589.50	311.45	14900.33	316.19	422.69	110.22	79.46	213097.73	1101.34	1326.29	2123.23	4610.55	2347.07	0.00	2877.55	606.07	35388.45	3.06	292937.88	169.59	175.52
tss removal efficiency (inf)	0.00	90.00	93.00	90.00	83.00	81.00	0.00	83.00	93.00	74.00	91.50	0.00	87.50	61.13	91.50	69.33	49.11	9.82	0.00	90.00	0.00	93.00	0.00	90.00	93.00
upstream watershed tss load	8578.06	2694.57	3290.64	9909.10	45153.59	1639.21	55792.17	1859.92	7582.11	7583.35	934.84	1182909.46	8810.69	11121.03	24979.15	47685.06	47686.30	0.00	2877.55	6060.71	40843.08	43.67	1313584.09	1695.86	4033.73
tss total removal efficiency	1.47	90.00	98.16	90.00	87.62	81.00	73.29	83.00	94.43	98.55	91.50	81.99	87.50	88.07	91.50	90.33	95.08	9.82	0.00	90.00	13.36	93.00	77.70	90.00	95.65
INFILTRATION BMP/POND.....																									
Annual runoff infiltrated	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Adjusted outflow	**19.67**	**7.10**	**8.41**	**26.12**	**103.61**	**4.32**	**126.55**	**4.90**	**16.90**	**16.90**	**2.46**	**2770.06**	**23.22**	**28.22**	**65.84**	**121.52**	**121.53**	**0.00**	**7.48**	**15.97**	**96.34**	**0.12**	**3098.08**	**4.47**	**10.55**
Adjusted TP outflow	**18.40**	**3.71**	**2.27**	**13.48**	**40.23**	**2.10**	**59.47**	**2.32**	**7.67**	**4.07**	**1.20**	**1222.33**	**10.51**	**9.78**	**28.30**	**37.83**	**28.57**	**0.00**	**7.88**	**8.34**	**84.86**	**0.05**	**1445.83**	**2.30**	**3.82**
Adjusted TSS outflow	**8452.15**	**269.46**	**60.59**	**990.91**	**5589.50**	**311.45**	**14900.33**	**316.19**	**422.69**	**110.22**	**79.46**	**213097.73**	**1101.34**	**1326.29**	**2123.23**	**4610.55**	**2347.07**	**0.00**	**2877.55**	**606.07**	**35388.45**	**3.06**	**292937.88**	**169.59**	**175.52**
POND P BUDGETS W/O P-BAN.																									
runoff	18.41	8.69	1.80	31.95	49.00	4.14	17.78	4.66	14.90	0.00	2.79	11.55	22.09	4.34	62.64	29.14	0.00	0.00	9.05	19.54	76.31	0.13	117.03	5.47	7.33
Adjusted TP outflow	**18.57**	**4.06**	**2.36**	**14.76**	**42.05**	**2.11**	**61.94**	**2.32**	**7.67**	**4.07**	**1.28**	**1248.70**	**10.51**	**9.78**	**28.30**	**37.83**	**28.57**	**0.00**	**9.05**	**9.14**	**94.50**	**0.05**	**1488.85**	**2.52**	**4.14**
upstream pond	0.17	0.00	4.06	0.00	35.70	0.00	44.16	0.00	2.32	7.67	0.00	1237.14	0.00	10.51	0.00	38.08	37.83	0.00	0.00	0.00	18.19	0.00	1371.82	0.00	2.52
total inflow	**18.57**	**8.69**	**5.87**	**31.95**	**84.70**	**4.14**	**61.94**	**4.66**	**17.22**	**7.67**	**2.79**	**1248.70**	**22.09**	**14.85**	**62.64**	**67.22**	**37.83**	**0.00**	**9.05**	**19.54**	**94.50**	**0.13**	**1488.85**	**5.47**	**9.85**
outflow	18.57	4.06	2.36	14.76	42.05	2.11	61.94	2.32	7.67	4.07	1.28	1248.70	10.51	9.78	28.30	37.83	28.57	0.00	9.05	9.14	94.50	0.05	1488.85	2.52	4.14
inflow phos conc	347.42	450.02	256.58	450.02	300.77	352.82	180.09	350.02	374.86	166.88	417.22	165.85	350.02	193.58	350.02	203.50	114.54	409.24	444.73	450.02	360.88	420.50	176.81	450.02	343.51
outflow phos conc	347.41	210.37	103.15	207.97	149.32	179.68	180.09	174.31	166.88	88.59	191.35	165.85	166.48	127.48	158.15	114.54	86.50	392.86	444.71	210.62	360.88	157.62	176.81	207.16	144.35
p reaction rate	0.00	2.44	3.70	2.52	2.04	1.89	0.00	2.02	2.80	1.66	2.57	0.00	2.32	0.79	2.68	1.38	0.43	0.04	0.00	2.43	0.00	4.45	0.00	2.55	3.28
1-rp	1.00	0.47	0.40	0.46	0.50	0.51	1.00	0.50	0.45	0.53	0.46	1.00	0.48	0.66	0.45	0.56	0.76	0.96	1.00	0.47	1.00	0.37	1.00	0.46	0.42
runoff total p conc	313.79	450.00	486.67	450.00	321.08	355.85	313.56	350.00	417.05	200.00	425.40	320.04	350.00	260.21	350.00	376.15	200.00	0.00	436.71	450.00	334.31	428.12	382.91	450.00	434.07

Rochester Loading Assessm																								
Willow Creek																								
363-06-158-2																								
2020 LOADS																								
	future wc-a6.2c	**wc-a6.2c**	**future wc-a6.2b**	**wc-a6.2b**	**future wc-a6.2a**	**wc-a6.2a**	**future wc-a6.1**	**wc-a6.1**	**future wc-a6.5c**	**wc-a6.5c**	**future wc-a6.3g**	**wc-a6.3g**	**future wc-a6.3f**	**wc-a6.3f**	**future wc-a6.3e**	**wc-a6.3e**	**future wc-a6.3d**	**wc-a6.3d**	**future wc-a6.3c**	**wc-a6.3c**	**future wc-a6.3b**	**wc-a6.3b**	**future wc-a6.3a**	**wc-a6.3a**	**future wc-a6.5b**
	wc-a6.2c	wc-a6.2b	wc-a6.2b	wc-a6.2a	wc-a6.2a	wc-a6.3a	wc-a6.1	wc-a6.3e	wc-a6.5c	wc-a6.3e	wc-a6.3g	wc-a6.5a	wc-a6.3f	wc-a6.3c	wc-a6.3e	wc-a6.3c	wc-a6.3d	wc-a6.3c	wc-a6.3c	wc-a6.3b	wc-a6.3b	wc-a6.3a	wc-a6.3a	wc-a6.5a	wc-a6.5b
INPUT VARIABLES....																								
case label																								
Watershed area	11.7	0.0	5.6	0.1	31.1	4.0	0.4	136.4	0.0	34.1	6.5	0.7	10.3	5.2	25.4	31.1	15.9	1.8	16.0	1.4	8.4	1.0	57.9	37.9	3.6
basin area	0.21	0.23	0.17	0.55	0.60	1.01	0.00	0.66	0.00	0.00	0.21	0.48	0.12	0.65	0.54	0.54	0.40	0.72	0.40	1.98	0.29	1.67	0.90	0.00	0.04
basin volume	0.46	0.59	0.43	1.45	2.40	6.14	0.03	3.76	0.00	0.00	0.51	2.21	0.28	3.41	2.01	2.89	1.26	3.50	1.26	15.87	0.66	12.73	4.38	0.00	0.10
Row Crop Agriculture	0%	9%	0%	0%	0%	0%	0%	59%	0%	95%	0%	0%	0%	0%	0%	85%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Very Low Density Residential	0%	9%	0%	0%	0%	0%	0%	3%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Low Density Residential	71%	9%	1%	0%	0%	31%	0%	1%	0%	0%	0%	3%	100%	0%	0%	0%	0%	0%	0%	0%	0%	0%	7%	5%	100%
Medium Density Residential	0%	9%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
High Density Residential	29%	9%	14%	0%	16%	0%	0%	0%	0%	0%	0%	0%	0%	54%	0%	0%	0%	0%	0%	3%	0%	0%	0%	0%	0%
Commercial/Industrial	0%	9%	85%	0%	84%	0%	100%	0%	0%	0%	100%	14%	0%	0%	100%	0%	100%	0%	100%	0%	100%	100%	93%	6%	0%
Institutional	0%	9%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Open Space	0%	9%	0%	100%	0%	1%	0%	10%	0%	0%	0%	42%	0%	35%	0%	0%	0%	0%	0%	85%	0%	0%	0%	4%	0%
Golf Course	0%	9%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Pits and Quarries	0%	9%	0%	0%	0%	0%	0%	25%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Right-of-Way	0%	9%	0%	0%	0%	68%	0%	3%	0%	4%	0%	41%	0%	11%	0%	15%	0%	100%	0%	12%	0%	0%	0%	84%	0%
WATERSHED-WIDE ACCOUNTII																								
tributary land area	11.75	11.75	5.57	34.21	31.12	69.34	0.38	136.76	0.00	34.08	6.50	7.19	10.33	15.56	25.44	227.36	15.88	17.64	15.96	277.96	8.37	287.35	57.87	452.50	3.64
tributary water area	0.21	0.44	0.17	1.52	0.60	3.12	0.00	0.66	0.00	0.00	0.21	0.69	0.12	0.77	0.54	1.74	0.40	1.12	0.40	6.01	0.29	7.97	0.90	12.00	0.04
direct and ponded area	11.96	12.19	5.73	35.72	31.72	72.46	0.38	137.42	0.00	34.08	6.71	7.87	10.46	16.34	25.98	229.10	16.28	18.76	16.36	283.98	8.66	295.33	58.77	464.50	3.68
ASSUMED EXPORT FACTORS...																									
season length	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
season precipitation	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80
runoff total p	391.50	351.73	356.20	200.27	356.70	395.16	350.00	360.86	0.00	533.21	350.00	308.71	391.50	325.06	350.00	518.92	350.00	400.00	350.00	229.36	350.00	350.00	352.77	387.92	391.50
runoff ortho p/total p	0.30	0.35	0.30	0.60	0.30	0.30	0.30	0.20	0.00	0.21	0.30	0.43	0.30	0.41	0.30	0.22	0.30	0.30	0.30	0.56	0.30	0.30	0.30	0.31	0.30
unit runoff	8.73	6.92	14.32	2.55	14.41	8.08	14.56	3.24	0.00	4.64	14.56	6.93	6.74	9.19	14.56	5.10	14.56	8.77	14.56	3.60	14.56	14.56	14.04	8.77	6.75
unit export	0.77	0.60	1.15	0.12	1.16	0.73	1.15	0.36	0.00	0.55	1.15	0.56	0.60	0.78	1.15	0.58	1.15	0.79	1.15	0.23	1.15	1.15	1.12	0.78	0.60
POND WATER BUDGETS.....																									
runoff	8.55	0.00	6.64	0.01	37.36	2.70	0.46	36.87	0.00	13.17	7.89	0.39	5.81	4.00	30.87	13.22	19.27	1.29	19.36	0.43	10.15	1.24	67.70	27.74	2.04
upstream pond	0.00	8.55	0.00	25.74	0.00	63.12	0.00	0.46	0.00	0.00	0.00	7.89	0.00	5.81	0.00	81.36	0.00	19.27	0.00	144.31	0.00	154.89	0.00	289.65	0.00
total inflow	**8.55**	**8.55**	**6.64**	**25.76**	**37.36**	**65.81**	**0.46**	**37.32**	**0.00**	**13.17**	**7.89**	**8.29**	**5.81**	**9.81**	**30.87**	**94.58**	**19.27**	**20.56**	**19.36**	**144.74**	**10.15**	**156.14**	**67.70**	**317.39**	**2.04**
outflow	8.55	8.55	6.64	25.76	37.36	65.81	0.46	37.32	0.00	13.17	7.89	8.29	5.81	9.81	30.87	94.58	19.27	20.56	19.36	144.74	10.15	156.14	67.70	317.39	2.04
POND PHOSPHORUS BUDGETS																									
runoff	9.10	0.00	6.42	0.01	36.19	2.91	0.44	49.58	0.00	18.90	7.51	0.38	6.18	4.07	29.36	18.10	18.33	1.40	18.42	0.33	9.66	1.18	64.65	29.55	2.18
upstream pond	0.00	4.63	0.00	9.85	0.00	24.32	0.00	0.17	0.00	0.00	0.00	3.76	0.00	3.17	0.00	47.66	0.00	8.83	0.00	51.90	0.00	37.95	0.00	68.42	0.00
total inflow	**9.10**	**4.63**	**6.42**	**9.86**	**36.19**	**27.24**	**0.44**	**49.75**	**0.00**	**18.90**	**7.51**	**4.14**	**6.18**	**7.24**	**29.36**	**65.75**	**18.33**	**10.22**	**18.42**	**52.23**	**9.66**	**39.13**	**64.65**	**97.97**	**2.18**
net sedimentation	4.47	1.79	3.23	2.25	19.47	12.51	0.27	34.76	0.00	0.00	3.75	2.01	3.01	4.22	15.60	30.61	9.51	5.35	9.56	19.20	4.74	14.65	35.44	0.00	1.07
outflow	4.63	2.84	3.19	7.61	16.72	14.73	0.17	14.99	0.00	18.90	3.76	2.13	3.17	3.02	13.76	35.14	8.83	4.88	8.86	33.03	4.91	24.48	29.21	97.97	1.11
p removal efficiency	49.12	38.62	50.37	22.83	53.80	45.93	61.88	69.87	3.78	0.01	49.89	48.50	48.69	58.28	53.12	46.55	51.85	52.31	51.89	36.75	49.12	37.44	54.82	0.00	49.13
upstream w-shed p load	9.10	9.10	6.42	26.67	36.19	65.77	0.44	50.02	0.00	18.90	7.51	7.89	6.18	10.25	29.36	116.39	18.33	19.73	18.42	165.11	9.66	175.95	64.65	335.93	2.18
total removal %	49.12	68.77	50.37	71.48	53.80	77.61	61.88	70.03	3.78	0.01	49.89	72.96	48.69	70.53	53.12	69.80	51.85	75.29	51.89	79.99	49.12	86.09	54.82	70.84	49.13
HYDRAULIC PARAMETERS.....																									
pond mean depth	2.20	2.57	2.58	2.64	4.03	6.08	2984.50	5.70	0.00	1.00	2.49	4.60	2.29	5.25	3.73	5.35	3.14	4.86	3.16	8.02	2.28	7.62	4.86	1.00	2.41
relative volume	1.70	295861.08	2.05	3548.75	2.04	72.37	2.07	3.24	1.58	0.00	2.07	178.29	1.56	27.08	2.07	6.95	2.07	86.57	2.07	1169.49	2.07	325.46	2.06	0.00	1.56
residence time	0.05	0.07	0.06	0.06	0.06	0.09	0.07	0.10	0.05	0.00	0.07	0.27	0.05	0.35	0.07	0.03	0.07	0.17	0.07	0.11	0.07	0.08	0.06	0.00	0.05
residence time	19.50	25.19	23.47	20.55	23.46	34.05	23.81	36.77	18.08	0.00	23.81	97.35	17.86	126.85	23.81	11.15	23.81	62.14	23.81	40.02	23.81	29.76	23.62	0.00	17.86
overflow rate	41.27	37.17	40.09	46.83	62.69	65.16	45745.29	56.55	0.00	1316992.81	38.10	17.26	46.73	15.10	57.16	175.14	48.18	28.55	48.41	73.10	35.00	93.49	75.09	31738554.92	49.34
inflow phos conc	391.52	199.20	355.64	140.80	356.34	152.26	350.02	490.42	384.34	528.06	350.02	183.88	391.52	271.43	350.02	255.79	350.02	182.99	350.02	132.76	350.02	92.20	351.35	113.57	391.52
outflow phos conc	199.20	122.26	176.51	108.66	164.63	82.33	133.42	147.76	369.82	528.01	175.38	94.70	200.88	113.23	164.08	136.72	168.52	87.26	168.39	83.97	178.08	57.68	158.76	113.57	199.18
p reaction rate	1.90	1.03	2.04	0.38	2.52	1.57	4.26	7.70	0.04	0.00	1.99	1.83	1.85	3.35	2.42	1.63	2.24	2.30	2.24	0.92	1.90	0.96	2.68	0.00	1.90
1-rp	0.51	0.61	0.50	0.77	0.46	0.54	0.38	0.30	0.96	1.00	0.50	0.51	0.51	0.42	0.47	0.53	0.48	0.48	0.48	0.63	0.51	0.63	0.45	1.00	0.51
vlawmo pond volume	0.67	0.00	0.52	0.00	2.94	0.21	0.04	2.90	0.00	1.04	0.62	0.03	0.46	0.31	2.43	1.04	1.52	0.10	1.52	0.03	0.80	0.10	5.32	2.18	0.16
LAND USE PARAMETERS.....																									
runoff total P conc	391.50	351.73	356.20	200.27	356.70	395.16	350.00	360.86	0.00	533.21	350.00	308.71	391.50	325.06	350.00	518.92	350.00	400.00	350.00	229.36	350.00	350.00	352.77	387.92	391.50
runoff coefficient	0.27	0.22	0.45	0.08	0.45	0.25	0.46	0.10	0.00	0.15	0.46	0.22	0.21	0.29	0.46	0.16	0.46	0.28	0.46	0.11	0.46	0.46	0.44	0.28	0.21
dissolved/total P	0.30	0.35	0.30	0.60	0.30	0.30	0.30	0.20	0.00	0.21	0.30	0.43	0.30	0.41	0.30	0.22	0.30	0.30	0.30	0.56	0.30	0.30	0.30	0.31	0.30
runoff TSS conc	140.00	150.09	140.00	215.88	140.00	140.85	140.00	128.93	0.00	162.09	140.00	171.87	140.00	166.73	140.00	159.54	140.00	140.00	140.00	204.75	140.00	140.00	140.00	143.23	140.00
POND TSS BUDGETS.....																									
runoff	3243.59	0.03	2520.60	7.59	14174.49	1025.59	173.56	16661.74	0.00	5751.47	2994.29	162.04	2203.55	1599.50	11710.61	5625.33	7311.71	487.78	7346.70	217.30	3851.06	471.91	25683.91	10594.84	775.67
upstream pond	0.00	486.54	0.00	764.59	0.00	1612.99	0.00	12.15	0.00	0.00	0.00	568.92	0.00	330.53	0.00	8089.70	0.00	1096.76	0.00	5001.08	0.00	2662.50	0.00	3997.55	0.00
total inflow	**3243.59**	**486.56**	**2520.60**	**772.18**	**14174.49**	**2638.57**	**173.56**	**16673.89**	**0.00**	**5751.47**	**2994.29**	**730.95**	**2203.55**	**1930.03**	**11710.61**	**13715.03**	**7311.71**	**1584.54**	**7346.70**	**5218.38**	**3851.06**	**3134.41**	**25683.91**	**14592.39**	**775.67**
p removal efficiency (no inf)	52.00	41.00	51.00	24.00	55.00	47.00	62.00	70.00	5.00	0.00	50.00	49.00	52.00	60.00	54.00	47.00	52.00	53.00	52.00	37.00	50.00	38.00	55.00	0.00	52.00
tss removal efficiency (no inf)	85.00	67.00	83.00	47.14	91.50	74.00	93.00	93.00	9.82	0.00	81.00	78.50	85.00	93.00	90.00	74.00	85.00	87.50	85.00	63.00	81.00	64.00	91.50	0.00	85.00
net sedimentation	2757.05	326.00	2092.09	364.03	12969.66	1952.54	161.41	15506.72	0.00	0.00	2425.38	573.80	1873.01	1794.93	10539.55	10149.12	6214.95	1386.47	6244.69	3287.58	3119.36	2006.02	23500.78	0.00	659.32
outflow	486.54	160.57	428.50	408.15	1204.83	686.03	12.15	1167.17	0.00	5751.47	568.92	157.16	330.53	135.10	1171.06	3565.91	1096.76	198.07	1102.00	1930.80	731.70	1128.39	2183.13	14592.39	116.35
tss removal efficiency (inf)	85.00	67.00	83.00	47.14	91.50	74.00	93.00	93.00	9.82	0.00	81.00	78.50	85.00	93.00	90.00	74.00	85.00	87.50	85.00	63.00	81.00	64.00	91.50	0.00	85.00
upstream watershed tss load	3243.59	3243.62	2520.60	9805.54	14174.49	25005.62	173.56	16835.30	0.00	5751.47	2994.29	3156.33	2203.55	3803.05	11710.61	39922.71	7311.71	7799.49	7346.70	59089.23	3851.06	63412.20	25683.91	124696.56	775.67
tss total removal efficiency	85.00	95.05	83.00	95.84	91.50	97.26	93.00	93.07	9.82	0.00	81.00	95.02	85.00	96.45	90.00	91.07	85.00	97.46	85.00	96.73	81.00	98.22	91.50	88.30	85.00
INFILTRATION BMP/POND.....																									
Annual runoff infiltrated	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Adjusted outflow	**8.55**	**8.55**	**6.64**	**25.76**	**37.36**	**65.81**	**0.46**	**37.32**	**0.00**	**13.17**	**7.89**	**8.29**	**5.81**	**9.81**	**30.87**	**94.58**	**19.27**	**20.56**	**19.36**	**144.74**	**10.15**	**156.14**	**67.70**	**317.39**	**2.04**
Adjusted TP outflow	**4.63**	**2.84**	**3.19**	**7.61**	**16.72**	**14.73**	**0.17**	**14.99**	**0.00**	**18.90**	**3.76**	**2.13**	**3.17**	**3.02**	**13.76**	**35.14**	**8.83**	**4.88**	**8.86**	**33.03**	**4.91**	**24.48**	**29.21**	**97.97**	**1.11**
Adjusted TSS outflow	**486.54**	**160.57**	**428.50**	**408.15**	**1204.83**	**686.03**	**12.15**	**1167.17**	**0.00**	**5751.47**	**568.92**	**157.16**	**330.53**	**135.10**	**1171.06**	**3565.91**	**1096.76**	**198.07**	**1102.00**	**1930.80**	**731.70**	**1128.39**	**2183.13**	**14592.39**	**116.35**
POND P BUDGETS W/O P-BAN.																									
runoff	10.46	0.00	6.56	0.01	37.09	3.02	0.44	49.81	0.00	18.90	7.51	0.38	7.10	4.58	29.36	18.10	18.33	1.40	18.42	0.33	9.66	1.18	64.99	29.72	2.50
Adjusted TP outflow	**5.08**	**3.04**	**3.23**	**7.96**	**16.99**	**15.00**	**0.17**	**15.03**	**0.00**	**18.90**	**3.76**	**2.13**	**3.48**	**3.23**	**13.76**	**35.16**	**8.83**	**4.88**	**8.86**	**33.14**	**4.91**	**24.53**	**29.31**	**98.56**	**1.21**
upstream pond	0.00	5.08	0.00	10.41	0.00	24.94	0.00	0.17	0.00	0.00	0.00	3.76	0.00	3.48	0.00	47.69	0.00	8.83	0.00	52.13	0.00	38.05	0.00	68.84	0.00
total inflow	**10.46**	**5.08**	**6.56**	**10.42**	**37.09**	**27.96**	**0.44**	**49.97**	**0.00**	**18.90**	**7.51**	**4.14**	**7.10**	**8.06**	**29.36**	**65.79**	**18.33**	**10.22**	**18.42**	**52.46**	**9.66**	**39.24**	**64.99**	**98.56**	**2.50**
outflow	5.08	3.04	3.23	7.96	16.99	15.00	0.17	15.03	0.00	18.90	3.76	2.13	3.48	3.23	13.76	35.16	8.83	4.88	8.86	33.14	4.91	24.53	29.31	98.56	1.21
inflow phos conc	450.02	218.54	363.55	148.80	365.26	156.33	350.02	492.60	409.24	528.06	350.02	183.95	450.02	302.13	350.02	255.95	350.02	182.99	350.02	133.35	350.02	92.46	353.23	114.25	450.02
outflow phos conc	218.54	130.67	179.11	113.64	167.29	83.83	133.42	148.15	392.86	528.01	175.38	94.72	220.45	121.12	164.08	136.77	168.52	87.26	168.39	84.24	178.08	57.80	159.31	114.25	218.51
p reaction rate	2.18	1.12	2.09	0.41	2.58	1.61	4.26	7.73	0.04	0.00	1.99	1.83	2.13	3.73	2.42	1.63	2.24	2.30	2.24	0.92	1.90	0.96	2.70	0.00	2.18
1-rp	0.49	0.60	0.49	0.76	0.46	0.54	0.38	0.30	0.96	1.00	0.50	0.51	0.49	0.40	0.47	0.53	0.48	0.48	0.48	0.63	0.51	0.63	0.45	1.00	0.49
runoff total p conc	450.00	371.82	364.95	200.31	366.15	413.02	350.00	362.79	0.00	533.21	350.00	310.34	450.00	356.75	350.00	518.92	350.00	400.00	350.00	230.95	350.00	350.00	356.69	390.85	450.00

Rochester Loading Assessm																								
Willow Creek																								
363-06-158-2																								
2020 LOADS																								
	wc-a6.5b	**future wc-a6.5a**	**wc-a6.5a**	**future wc-a6.8**	**wc-a6.8**	**future wc-a6.9g**	**wc-a6.9g**	**future wc-a6.9f**	**wc-a6.9f**	**future wc-a6.9e**	**wc-a6.9e**	**future wc-a6.9d**	**wc-a6.9d**	**future wc-a6.9c**	**wc-a6.9c**	**wc-a6.9c cell 2**	**future wc-a6.9b**	**wc-a6.9b**	**future wc-a6.9a**	**wc-a6.9a**	**future wc-a6.10b**	**wc-a6.10b**	**future wc-a6.12**	**wc-a6.12**	**future wc-a6.10a**
	wc-a6.5a	wc-a6.5a	wc-a6.6a	wc-a6.8	wc-a6.9a	wc-a6.9g	wc-a6.9a	wc-a6.9f	wc-a6.9a	wc-a6.9e	wc-a6.9a	wc-a6.9d	wc-a6.9c	wc-a6.9c	wc-a6.9c cell 2	wc-a6.9b	wc-a6.9b	wc-a6.9a	wc-a6.9a	wc-a6.10a	wc-a6.10b	wc-a6.10a	wc-a6.12	wc-a6.10a	wc-a6.10a
INPUT VARIABLES....																								
case label																								
Watershed area	134.2	3.3	36.1	30.0	70.5	0.0	27.4	0.0	40.7	9.2	0.2	2.4	59.6	0.0	14.7	0.0	0.0	7.1	27.9	91.8	0.0	17.1	0.0	206.9	70.6
basin area	4.51	0.12	5.19	0.32	1.15	0.00	0.60	0.00	0.01	0.12	0.21	0.04	0.00	0.00	0.12	0.54	0.00	0.06	0.31	0.00	0.00	0.14	0.00	0.33	0.78
basin volume	22.22	0.26	42.23	0.94	4.62	0.00	2.05	0.00	0.00	0.25	0.82	0.07	0.00	0.00	0.14	3.00	0.00	0.14	0.77	0.00	0.00	0.52	0.00	1.98	3.60
Row Crop Agriculture	55%	0%	0%	0%	1%	0%	0%	0%	0%	0%	4%	0%	1%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Very Low Density Residential	0%	0%	0%	0%	1%	0%	3%	0%	0%	0%	2%	0%	0%	0%	0%	0%	0%	0%	0%	3%	0%	0%	0%	6%	0%
Low Density Residential	0%	0%	3%	71%	90%	0%	95%	0%	86%	100%	86%	100%	82%	0%	60%	0%	0%	55%	100%	12%	0%	52%	0%	43%	3%
Medium Density Residential	15%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	75%
High Density Residential	16%	0%	0%	18%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Commercial/Industrial	0%	100%	26%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	23%
Institutional	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	1%	0%
Open Space	13%	0%	41%	11%	8%	0%	2%	0%	12%	0%	8%	0%	17%	0%	40%	100%	0%	45%	0%	81%	0%	48%	0%	24%	0%
Golf Course	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Pits and Quarries	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Right-of-Way	1%	0%	29%	0%	0%	0%	0%	0%	1%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	4%	0%	0%	0%	26%	0%
WATERSHED-WIDE ACCOUNTI																								
tributary land area	137.85	3.32	636.94	30.02	100.51	0.00	27.41	0.00	40.70	9.18	9.37	2.37	62.02	0.00	76.69	76.70	0.00	83.83	27.89	381.50	0.00	17.10	0.00	206.93	70.57
tributary water area	4.55	0.12	22.55	0.32	1.47	0.00	0.60	0.00	0.01	0.12	0.33	0.04	0.04	0.00	0.16	0.70	0.00	0.76	0.31	3.49	0.00	0.14	0.00	0.33	0.78
direct and ponded area	142.40	3.44	659.49	30.34	101.99	0.00	28.01	0.00	40.71	9.31	9.71	2.41	62.06	0.00	76.85	77.40	0.00	84.59	28.19	384.98	0.00	17.24	0.00	207.26	71.36
ASSUMED EXPORT FACTORS...																								
season length	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
season precipitation	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80
runoff total p	448.42	350.00	304.26	369.52	375.70	0.00	384.43	0.00	368.00	391.50	379.40	391.50	359.52	0.00	315.04	200.00	0.00	305.39	391.50	233.58	0.00	300.49	0.00	341.47	382.08
runoff ortho p/total p	0.28	0.30	0.42	0.33	0.33	0.00	0.31	0.00	0.34	0.30	0.32	0.30	0.35	0.00	0.42	0.60	0.00	0.43	0.30	0.55	0.00	0.44	0.00	0.38	0.30
unit runoff	6.54	14.56	7.64	7.48	6.33	0.00	6.53	0.00	6.25	6.74	6.24	6.74	6.00	0.00	5.07	2.54	0.00	4.86	6.74	3.28	0.00	4.75	0.00	6.05	10.75
unit export	0.65	1.15	0.60	0.65	0.55	0.00	0.58	0.00	0.54	0.60	0.55	0.60	0.51	0.00	0.41	0.12	0.00	0.38	0.60	0.20	0.00	0.37	0.00	0.51	0.92
POND WATER BUDGETS.....																								
runoff	73.12	4.02	22.99	18.71	37.18	0.00	14.92	0.00	21.19	5.16	0.10	1.33	29.84	0.00	6.19	0.00	0.00	2.89	15.67	25.12	0.00	6.77	0.00	104.38	63.22
upstream pond	2.04	0.00	404.86	0.00	18.71	0.00	0.00	0.00	0.00	0.00	5.16	0.00	1.33	0.00	31.17	37.36	0.00	37.37	0.00	153.18	0.00	0.00	0.00	0.00	0.00
total inflow	**75.16**	**4.02**	**427.85**	**18.71**	**55.89**	**0.00**	**14.92**	**0.00**	**21.19**	**5.16**	**5.26**	**1.33**	**31.17**	**0.00**	**37.36**	**37.37**	**0.00**	**40.25**	**15.67**	**178.30**	**0.00**	**6.77**	**0.00**	**104.38**	**63.22**
outflow	75.16	4.02	427.85	18.71	55.89	0.00	14.92	0.00	21.19	5.16	5.26	1.33	31.17	0.00	37.36	37.37	0.00	40.25	15.67	178.30	0.00	6.77	0.00	104.38	63.22
POND PHOSPHORUS BUDGETS																								
runoff	86.94	3.83	21.72	19.53	38.96	0.00	15.76	0.00	22.00	5.49	0.10	1.42	30.68	0.00	5.94	0.00	0.00	2.72	16.68	18.40	0.00	6.30	0.00	105.50	65.09
upstream pond	1.11	0.00	129.73	0.00	10.03	0.00	0.00	0.00	0.00	0.00	2.87	0.00	0.77	0.00	31.46	32.77	0.00	18.04	0.00	80.73	0.00	0.00	0.00	0.00	0.00
total inflow	**88.05**	**3.83**	**151.45**	**19.53**	**48.99**	**0.00**	**15.76**	**0.00**	**22.00**	**5.49**	**2.98**	**1.42**	**31.46**	**0.00**	**37.40**	**32.77**	**0.00**	**20.76**	**16.68**	**99.12**	**0.00**	**6.30**	**0.00**	**105.50**	**65.09**
net sedimentation	60.40	1.85	60.57	9.49	25.99	0.00	9.27	0.00	0.00	2.62	1.50	0.64	0.00	0.00	4.63	14.73	0.00	1.44	8.24	0.00	0.00	3.01	0.00	38.44	35.40
outflow	27.65	1.98	90.88	10.03	23.00	0.00	6.49	0.00	22.00	2.87	1.48	0.77	31.46	0.00	32.77	18.04	0.00	19.32	8.44	99.12	0.00	3.29	0.00	67.06	29.69
p removal efficiency	68.60	48.38	39.99	48.62	53.05	3.78	58.84	3.78	0.00	47.70	50.31	45.33	0.00	3.78	12.38	44.95	3.78	6.91	49.40	0.00	3.78	47.78	3.78	36.44	54.38
upstream w-shed p load	89.12	3.83	458.48	19.53	58.48	0.00	15.76	0.00	22.00	5.49	5.60	1.42	32.10	0.00	38.04	38.04	0.00	40.76	16.68	177.67	0.00	6.30	0.00	105.50	65.09
total removal %	68.97	48.38	80.18	48.62	60.67	3.78	58.84	3.78	0.00	47.70	73.58	45.33	2.00	3.78	13.86	52.57	3.78	52.59	49.40	44.21	3.78	47.78	3.78	36.44	54.38
HYDRAULIC PARAMETERS.....																								
pond mean depth	4.93	2.11	8.14	2.91	4.01	0.00	3.42	0.00	0.00	2.03	3.90	1.57	1.00	0.00	1.17	5.56	0.00	2.33	2.50	1.00	0.00	3.71	0.00	6.00	4.59
relative volume	9.66	2.07	58.43	1.60	3.95	1.58	4.38	1.58	0.00	1.56	264.72	1.56	0.00	1.58	0.72	45000.00	1.58	1.54	1.56	0.00	1.58	2.44	1.58	0.60	1.81
residence time	0.30	0.07	0.10	0.05	0.08	0.05	0.14	0.05	0.00	0.05	0.16	0.05	0.00	0.05	0.00	0.08	0.05	0.00	0.05	0.00	0.05	0.08	0.05	0.02	0.06
residence time	107.90	23.81	36.03	18.33	30.15	18.08	50.22	18.08	0.00	17.86	56.84	17.86	0.00	18.08	1.37	29.30	18.08	1.27	17.86	0.00	18.08	28.05	18.08	6.92	20.80
overflow rate	16.67	32.38	82.44	57.86	48.60	0.00	24.87	0.00	2118.51	41.52	25.05	32.11	3117187.80	0.00	311.37	69.20	0.00	670.88	51.10	17830413.68	0.00	48.33	0.00	316.30	80.58
inflow phos conc	430.99	350.02	130.24	384.04	322.49	384.34	388.59	384.34	382.04	391.52	208.19	391.52	371.27	384.34	368.23	322.65	384.34	189.73	391.52	204.53	384.34	342.75	384.34	371.86	378.76
outflow phos conc	135.35	180.66	78.15	197.34	151.42	369.82	159.94	369.82	382.03	204.76	103.44	214.05	371.26	369.82	322.66	177.63	369.82	176.62	198.11	204.53	369.82	178.99	369.82	236.36	172.78
p reaction rate	6.96	1.82	1.11	1.84	2.41	0.04	3.47	0.04	0.00	1.74	2.04	1.52	0.00	0.04	0.16	1.48	0.04	0.08	1.93	0.00	0.04	1.75	0.04	0.90	2.61
1-rp	0.31	0.52	0.60	0.51	0.47	0.96	0.41	0.96	1.00	0.52	0.50	0.55	1.00	0.96	0.88	0.55	0.96	0.93	0.51	1.00	0.96	0.52	0.96	0.64	0.46
vlawmo pond volume	5.75	0.32	1.81	1.47	2.92	0.00	1.17	0.00	1.67	0.41	0.01	0.10	2.35	0.00	0.49	0.00	0.00	0.23	1.23	1.98	0.00	0.53	0.00	8.21	4.97
LAND USE PARAMETERS.....																								
runoff total P conc	448.42	350.00	304.26	369.52	375.70	0.00	384.43	0.00	368.00	391.50	379.40	391.50	359.52	0.00	315.04	200.00	0.00	305.39	391.50	233.58	0.00	300.49	0.00	341.47	382.08
runoff coefficient	0.21	0.46	0.24	0.24	0.20	0.00	0.21	0.00	0.20	0.21	0.20	0.21	0.19	0.00	0.16	0.08	0.00	0.15	0.21	0.10	0.00	0.15	0.00	0.19	0.34
dissolved/total P	0.28	0.30	0.42	0.33	0.33	0.00	0.31	0.00	0.34	0.30	0.32	0.30	0.35	0.00	0.42	0.60	0.00	0.43	0.30	0.55	0.00	0.44	0.00	0.38	0.30
runoff TSS conc	162.31	140.00	171.37	148.72	147.48	0.00	144.05	0.00	149.42	140.00	148.49	140.00	153.28	0.00	170.54	216.00	0.00	174.18	140.00	204.19	0.00	176.12	0.00	163.00	140.00
POND TSS BUDGETS.....																								
runoff	30189.82	1527.07	9370.89	7248.08	14422.76	0.00	5730.51	0.00	8258.38	1958.14	38.34	504.89	11781.11	0.00	2606.03	1.24	0.00	1235.19	5945.64	12940.67	0.00	2921.71	0.00	42427.40	23987.13
upstream pond	116.35	0.00	17199.29	0.00	1232.17	0.00	0.00	0.00	0.00	0.00	332.88	0.00	121.17	0.00	11902.29	10518.53	0.00	2735.14	0.00	14049.32	0.00	0.00	0.00	0.00	0.00
total inflow	**30306.17**	**1527.07**	**26570.18**	**7248.08**	**15654.94**	**0.00**	**5730.51**	**0.00**	**8258.38**	**1958.14**	**371.23**	**504.89**	**11902.29**	**0.00**	**14508.32**	**10519.77**	**0.00**	**3970.34**	**5945.64**	**26989.99**	**0.00**	**2921.71**	**0.00**	**42427.40**	**23987.13**
p removal efficiency (no inf)	70.00	49.00	41.00	51.00	56.00	5.00	61.00	5.00	0.00	51.00	52.00	48.00	0.00	5.00	14.00	47.00	5.00	8.00	52.00	0.00	5.00	50.00	5.00	38.00	57.00
tss removal efficiency (no inf)	93.00	78.50	67.00	83.00	93.00	9.82	93.00	9.82	0.00	83.00	85.00	76.00	0.00	9.82	27.50	74.00	9.82	15.71	85.00	0.00	9.82	81.00	9.82	64.00	93.00
net sedimentation	28184.74	1198.75	17802.02	6015.90	14559.09	0.00	5329.37	0.00	0.00	1625.26	315.54	383.71	0.00	0.00	3989.79	7784.63	0.00	623.91	5053.79	0.00	0.00	2366.58	0.00	27153.53	22308.03
outflow	2121.43	328.32	8768.16	1232.17	1095.85	0.00	401.14	0.00	8258.38	332.88	55.68	121.17	11902.29	0.00	10518.53	2735.14	0.00	3346.43	891.85	26989.99	0.00	555.12	0.00	15273.86	1679.10
tss removal efficiency (inf)	93.00	78.50	67.00	83.00	93.00	9.82	93.00	9.82	0.00	83.00	85.00	76.00	0.00	9.82	27.50	74.00	9.82	15.71	85.00	0.00	9.82	81.00	9.82	64.00	93.00
upstream watershed tss load	30965.49	1527.07	169716.34	7248.08	21670.84	0.00	5730.51	0.00	8258.38	1958.14	1996.48	504.89	12286.00	0.00	14892.03	14893.27	0.00	16128.47	5945.64	72670.99	0.00	2921.71	0.00	42427.40	23987.13
tss total removal efficiency	93.15	78.50	94.83	83.00	94.94	9.82	93.00	9.82	0.00	83.00	97.21	76.00	3.12	9.82	29.37	81.64	9.82	79.25	85.00	62.86	9.82	81.00	9.82	64.00	93.00
INFILTRATION BMP/POND.....																								
Annual runoff infiltrated	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Adjusted outflow	**75.16**	**4.02**	**427.85**	**18.71**	**55.89**	**0.00**	**14.92**	**0.00**	**21.19**	**5.16**	**5.26**	**1.33**	**31.17**	**0.00**	**37.36**	**37.37**	**0.00**	**40.25**	**15.67**	**178.30**	**0.00**	**6.77**	**0.00**	**104.38**	**63.22**
Adjusted TP outflow	**27.65**	**1.98**	**90.88**	**10.03**	**23.00**	**0.00**	**6.49**	**0.00**	**22.00**	**2.87**	**1.48**	**0.77**	**31.46**	**0.00**	**32.77**	**18.04**	**0.00**	**19.32**	**8.44**	**99.12**	**0.00**	**3.29**	**0.00**	**67.06**	**29.69**
Adjusted TSS outflow	**2121.43**	**328.32**	**8768.16**	**1232.17**	**1095.85**	**0.00**	**401.14**	**0.00**	**8258.38**	**332.88**	**55.68**	**121.17**	**11902.29**	**0.00**	**10518.53**	**2735.14**	**0.00**	**3346.43**	**891.85**	**26989.99**	**0.00**	**555.12**	**0.00**	**15273.86**	**1679.10**
POND P BUDGETS W/O P-BAN.																								
runoff	93.52	3.83	21.86	22.39	44.62	0.00	18.10	0.00	25.14	6.31	0.12	1.63	35.06	0.00	6.73	0.00	0.00	3.07	19.17	19.47	0.00	7.10	0.00	113.84	72.05
Adjusted TP outflow	**28.87**	**1.98**	**91.71**	**10.99**	**24.98**	**0.00**	**7.07**	**0.00**	**25.14**	**3.15**	**1.57**	**0.85**	**35.91**	**0.00**	**36.80**	**19.53**	**0.00**	**20.92**	**9.26**	**108.41**	**0.00**	**3.57**	**0.00**	**70.88**	**31.70**
upstream pond	1.21	0.00	131.54	0.00	10.99	0.00	0.00	0.00	0.00	0.00	3.15	0.00	0.85	0.00	35.91	36.80	0.00	19.53	0.00	88.94	0.00	0.00	0.00	0.00	0.00
total inflow	**94.73**	**3.83**	**153.40**	**22.39**	**55.62**	**0.00**	**18.10**	**0.00**	**25.14**	**6.31**	**3.27**	**1.63**	**35.91**	**0.00**	**42.64**	**36.80**	**0.00**	**22.60**	**19.17**	**108.41**	**0.00**	**7.10**	**0.00**	**113.84**	**72.05**
outflow	28.87	1.98	91.71	10.99	24.98	0.00	7.07	0.00	25.14	3.15	1.57	0.85	35.91	0.00	36.80	19.53	0.00	20.92	9.26	108.41	0.00	3.57	0.00	70.88	31.70
inflow phos conc	463.70	350.02	131.92	440.26	366.11	409.24	446.39	409.24	436.67	450.02	228.92	450.02	423.82	409.24	419.82	362.33	409.24	206.58	450.02	223.70	409.24	386.35	409.24	401.26	419.29
outflow phos conc	141.34	180.66	78.87	216.18	164.42	392.86	174.43	392.86	436.65	224.84	110.14	235.40	423.81	392.86	362.34	192.33	392.86	191.21	217.31	223.70	392.86	194.00	392.86	249.85	184.48
p reaction rate	7.48	1.82	1.13	2.11	2.73	0.04	3.99	0.04	0.00	2.00	2.24	1.74	0.00	0.04	0.18	1.67	0.04	0.09	2.22	0.00	0.04	1.97	0.04	0.97	2.89
1-rp	0.30	0.52	0.60	0.49	0.45	0.96	0.39	0.96	1.00	0.50	0.48	0.52	1.00	0.96	0.86	0.53	0.96	0.93	0.48	1.00	0.96	0.50	0.96	0.62	0.44
runoff total p conc	466.89	350.00	306.50	421.30	428.68	0.00	441.18	0.00	418.64	450.00	430.56	450.00	407.56	0.00	350.15	200.00	0.00	337.58	450.00	242.08	0.00	331.18	0.00	369.32	427.31

Rochester Loading Assessm																								
Willow Creek																								
363-06-158-2																								
2020 LOADS																								
	wc-a6.10a	future wc-a6.11	wc-a6.11	future wc-a6.6b	wc-a6.6b	wc-a6.6b cell 2	future wc-a6.6a	wc-a6.6a	future wc-a6.14d	wc-a6.14d	future wc-a6.14c	wc-a6.14c	future wc-a6.14b	wc-a6.14b	future wc-a6.13d	wc-a6.13d	future wc-a6.13c	wc-a6.13c	future wc-a6.13b	wc-a6.13b	wc-a6.13b cell 2	wc-a6.13b cell 3	future wc-a6.13a	wc-a6.13a	future wc-a6.14a
	wc-a6.11	wc-a6.11	wc-a6.6a	wc-a6.6b	wc-a6.6b cell 2	wc-a6.6a	wc-a6.6a	wc-a6.14a	wc-a6.14d	wc-a6.14a	wc-a6.14c	wc-a6.13b	wc-a6.14b	wc-a6.14a	wc-a6.13d	wc-a6.14a	wc-a6.13c	wc-a6.14a	wc-a6.13b	wc-a6.13b cell 2	wc-a6.13b cell 3	wc-a6.14a	wc-a6.13a	wc-a6.14a	wc-a6.14a
INPUT VARIABLES....																								
case label																								
Watershed area	88.4	0.0	118.9	0.0	3.5	0.0	0.0	224.2	0.0	1.8	0.0	24.0	0.0	29.5	0.0	46.6	34.8	25.8	0.0	302.3	0.0	0.0	0.5	88.1	5.8
basin area	0.00	0.00	8.91	0.00	0.10	0.16	0.00	0.00	0.00	0.03	0.00	0.97	0.00	5.45	0.00	0.00	0.66	0.00	0.00	1.24	1.89	2.49	0.00	0.47	0.21
basin volume	0.00	0.00	178.20	0.00	0.27	0.43	0.00	0.00	0.00	0.00	0.00	2.87	0.00	21.80	0.00	0.00	2.76	0.00	0.00	6.64	10.07	13.29	0.04	1.32	0.46
Row Crop Agriculture	0%	0%	0%	0%	0%	0%	0%	5%	0%	0%	0%	0%	0%	34%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Very Low Density Residential	3%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	3%	0%	0%	0%	0%	0%
Low Density Residential	41%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	4%	0%	11%	0%	0%	0%	48%	0%	0%	0%	28%	0%
Medium Density Residential	0%	0%	0%	0%	0%	0%	0%	0%	0%	100%	0%	0%	0%	0%	0%	1%	0%	0%	0%	0%	0%	0%	0%	0%	0%
High Density Residential	1%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	1%	0%	0%	0%	0%	0%
Commercial/Industrial	2%	0%	57%	0%	100%	0%	0%	4%	0%	0%	0%	100%	0%	0%	0%	28%	100%	2%	0%	10%	0%	0%	100%	53%	100%
Institutional	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	1%	0%	0%	0%	2%	0%	0%	0%	4%	0%
Open Space	36%	0%	19%	0%	0%	100%	0%	82%	0%	0%	0%	0%	0%	22%	0%	0%	0%	98%	0%	32%	100%	100%	0%	1%	0%
Golf Course	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Pits and Quarries	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	18%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Right-of-Way	17%	0%	24%	0%	0%	0%	0%	9%	0%	0%	0%	0%	0%	22%	0%	58%	0%	0%	0%	4%	0%	0%	0%	14%	0%
WATERSHED-WIDE ACCOUNTII																								
tributary land area	764.47	0.00	883.35	0.00	3.50	3.51	0.00	8001.24	0.00	1.78	0.00	24.03	0.00	29.49	0.00	46.62	34.80	60.62	0.00	326.31	326.32	326.33	0.53	88.64	5.78
tributary water area	4.74	0.00	13.65	0.00	0.10	0.26	0.00	140.74	0.00	0.03	0.00	0.97	0.00	5.45	0.00	0.00	0.66	0.66	0.00	2.21	4.10	6.59	0.00	0.47	0.21
direct and ponded area	769.21	0.00	897.00	0.00	3.60	3.77	0.00	8141.98	0.00	1.81	0.00	25.00	0.00	34.94	0.00	46.62	35.46	61.28	0.00	328.52	330.42	332.92	0.53	89.11	5.99
ASSUMED EXPORT FACTORS...																								
season length	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
season precipitation	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80
runoff total p	320.18	0.00	334.14	0.00	351.00	200.00	0.00	240.62	0.00	391.50	0.00	350.00	0.00	331.60	0.00	383.85	350.00	202.71	0.00	323.56	200.00	200.00	350.00	367.71	350.00
runoff ortho p/total p	0.41	0.00	0.36	0.00	0.30	0.60	0.00	0.54	0.00	0.30	0.00	0.30	0.00	0.28	0.00	0.30	0.30	0.59	0.00	0.40	0.60	0.60	0.30	0.30	0.30
unit runoff	5.65	0.00	10.92	0.00	14.60	2.54	0.00	3.65	0.00	9.74	0.00	14.56	0.00	4.30	0.00	10.16	14.56	2.76	0.00	6.32	2.54	2.54	14.56	11.31	14.56
unit export	0.46	0.00	0.87	0.00	1.16	0.12	0.00	0.24	0.00	0.86	0.00	1.15	0.00	0.41	0.00	0.87	1.15	0.13	0.00	0.51	0.12	0.12	1.15	0.93	1.15
POND WATER BUDGETS.....																								
runoff	41.62	0.00	108.20	0.00	4.26	0.00	0.00	68.21	0.00	1.45	0.00	29.16	0.00	10.57	0.00	39.45	42.23	5.94	0.00	159.15	0.00	0.00	0.64	83.02	7.02
upstream pond	352.67	0.00	394.29	0.00	0.00	4.26	0.00	4032.68	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	42.23	0.00	29.16	188.30	188.31	0.00	0.64	0.00
total inflow	**394.29**	**0.00**	**502.49**	**0.00**	**4.26**	**4.26**	**0.00**	**4100.89**	**0.00**	**1.45**	**0.00**	**29.16**	**0.00**	**10.57**	**0.00**	**39.45**	**42.23**	**48.17**	**0.00**	**188.30**	**188.31**	**188.31**	**0.64**	**83.65**	**7.02**
outflow	394.29	0.00	502.49	0.00	4.26	4.26	0.00	4100.89	0.00	1.45	0.00	29.16	0.00	10.57	0.00	39.45	42.23	48.17	0.00	188.30	188.31	188.31	0.64	83.65	7.02
POND PHOSPHORUS BUDGETS																								
runoff	40.59	0.00	103.88	0.00	4.05	0.00	0.00	53.12	0.00	1.54	0.00	27.74	0.00	12.13	0.00	40.60	40.18	3.46	0.00	153.72	0.00	0.00	0.61	81.72	6.68
upstream pond	199.16	0.00	239.75	0.00	0.00	2.03	0.00	1640.47	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	18.52	0.00	12.64	96.63	66.56	0.00	0.23	0.00
total inflow	**239.75**	**0.00**	**343.63**	**0.00**	**4.05**	**2.03**	**0.00**	**1693.58**	**0.00**	**1.54**	**0.00**	**27.74**	**0.00**	**12.13**	**0.00**	**40.60**	**40.18**	**21.98**	**0.00**	**166.36**	**96.63**	**66.57**	**0.61**	**81.96**	**6.68**
net sedimentation	0.00	0.00	241.28	0.00	2.03	0.61	0.00	0.00	0.00	0.00	0.00	15.10	0.00	8.43	0.00	0.00	21.66	0.00	0.00	69.73	30.07	18.70	0.38	28.98	3.26
outflow	239.75	0.00	102.34	0.00	2.03	1.42	0.00	1693.58	0.00	1.54	0.00	12.64	0.00	3.71	0.00	40.60	18.52	21.98	0.00	96.63	66.56	47.86	0.23	52.98	3.42
p removal efficiency	0.00	3.78	70.22	3.78	50.02	30.13	3.78	0.00	3.78	0.03	3.78	54.43	3.78	69.46	3.78	0.00	53.91	0.00	3.78	41.91	31.12	28.10	61.88	35.36	48.82
upstream w-shed p load	395.14	0.00	499.02	0.00	4.05	4.06	0.00	4383.68	0.00	1.54	0.00	27.74	0.00	12.13	0.00	40.60	40.18	43.63	0.00	181.46	181.46	181.46	0.61	82.33	6.68
total removal %	39.33	3.78	79.49	3.78	50.02	65.07	3.78	61.37	3.78	0.03	3.78	54.43	3.78	69.46	3.78	0.00	53.91	49.64	3.78	46.75	63.32	73.62	61.88	35.65	48.82
HYDRAULIC PARAMETERS.....																								
pond mean depth	1.00	0.00	20.00	0.00	2.65	2.66	0.00	1.00	0.00	0.00	0.00	2.96	0.00	4.00	0.00	1.00	4.19	1.00	0.00	5.34	5.34	5.34	4164.17	2.80	2.21
relative volume	0.00	1.58	52.37	1.58	1.98	6375.00	1.58	0.00	1.58	0.00	1.58	3.13	1.58	65.57	1.58	0.00	2.07	0.00	1.58	1.33	151035.00	199410.00	2.07	0.50	2.07
residence time	0.00	0.05	0.35	0.05	0.06	0.10	0.05	0.00	0.05	0.00	0.05	0.10	0.05	2.06	0.05	0.00	0.07	0.00	0.05	0.04	0.05	0.07	0.07	0.02	0.07
residence time	0.00	18.08	129.44	18.08	22.70	36.38	18.08	0.00	18.08	0.00	18.08	35.91	18.08	752.57	18.08	0.00	23.81	0.00	18.08	12.86	19.52	25.77	23.81	5.75	23.81
overflow rate	39429084.51	0.00	56.40	0.00	42.62	26.65	0.00	410088829.78	0.00	48.25	0.00	30.06	0.00	1.94	0.00	3945383.13	64.18	4816946.27	0.00	151.49	99.84	75.63	63826.68	177.99	33.88
inflow phos conc	223.71	384.34	251.60	384.34	350.02	174.97	384.34	151.94	384.34	391.52	384.34	350.02	384.34	422.19	384.34	378.60	350.02	167.86	384.34	325.05	188.80	130.06	350.02	360.44	350.02
outflow phos conc	223.71	369.82	74.93	369.82	174.95	122.24	369.82	151.94	369.82	391.42	369.82	159.49	369.82	128.95	369.82	378.60	161.32	167.86	369.82	188.80	130.06	93.51	133.41	233.01	179.15
p reaction rate	0.00	0.04	7.92	0.04	2.00	0.62	0.04	0.00	0.04	0.00	0.04	2.62	0.04	7.45	0.04	0.00	2.54	0.00	0.04	1.24	0.66	0.54	4.26	0.85	1.86
1-rp	1.00	0.96	0.30	0.96	0.50	0.70	0.96	1.00	0.96	1.00	0.96	0.46	0.96	0.31	0.96	1.00	0.46	1.00	0.96	0.58	0.69	0.72	0.38	0.65	0.51
vlawmo pond volume	3.27	0.00	8.51	0.00	0.34	0.00	0.00	5.36	0.00	0.11	0.00	2.29	0.00	0.83	0.00	3.10	3.32	0.47	0.00	12.51	0.00	0.00	0.05	6.53	0.55
LAND USE PARAMETERS.....																								
runoff total P conc	320.18	0.00	334.14	0.00	351.00	200.00	0.00	240.62	0.00	391.50	0.00	350.00	0.00	331.60	0.00	383.85	350.00	202.71	0.00	323.56	200.00	200.00	350.00	367.71	350.00
runoff coefficient	0.18	0.00	0.34	0.00	0.46	0.08	0.00	0.11	0.00	0.31	0.00	0.46	0.00	0.14	0.00	0.32	0.46	0.09	0.00	0.20	0.08	0.08	0.46	0.36	0.46
dissolved/total P	0.41	0.00	0.36	0.00	0.30	0.60	0.00	0.54	0.00	0.30	0.00	0.30	0.00	0.28	0.00	0.30	0.30	0.59	0.00	0.40	0.60	0.60	0.30	0.30	0.30
runoff TSS conc	169.87	0.00	154.16	0.00	140.40	216.00	0.00	203.48	0.00	140.00	0.00	140.00	0.00	139.48	0.00	140.21	140.00	214.63	0.00	166.30	216.00	216.00	140.00	140.45	140.00
POND TSS BUDGETS.....																								
runoff	17327.96	0.00	42019.06	0.00	1616.87	1.24	0.00	34157.85	0.00	549.15	0.00	11061.51	0.00	4523.07	0.00	14974.29	16022.05	3360.27	0.00	65011.51	1.24	1.24	242.16	31519.01	2662.82
upstream pond	44498.07	0.00	61826.04	0.00	0.00	274.87	0.00	309092.20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1602.20	0.00	940.23	20225.20	8216.99	0.00	16.95	0.00
total inflow	**61826.04**	**0.00**	**103845.10**	**0.00**	**1616.87**	**276.11**	**0.00**	**343250.05**	**0.00**	**549.15**	**0.00**	**11061.51**	**0.00**	**4523.07**	**0.00**	**14974.29**	**16022.05**	**4962.48**	**0.00**	**65951.74**	**20226.44**	**8218.23**	**242.16**	**31535.96**	**2662.82**
p removal efficiency (no inf)	0.00	5.00	71.00	5.00	51.00	31.00	5.00	0.00	5.00	0.00	5.00	55.00	5.00	70.00	5.00	0.00	54.00	0.00	5.00	44.00	33.00	29.00	62.00	36.00	49.00
tss removal efficiency (no inf)	0.00	9.82	93.00	9.82	83.00	57.63	9.82	0.00	9.82	0.00	9.82	91.50	9.82	93.00	9.82	0.00	90.00	0.00	9.82	69.33	59.38	55.88	93.00	62.00	78.50
net sedimentation	0.00	0.00	96575.94	0.00	1342.00	159.11	0.00	0.00	0.00	0.00	0.00	10121.28	0.00	4206.45	0.00	0.00	14419.84	0.00	0.00	45726.54	12009.45	4591.94	225.21	19552.29	2090.32
outflow	61826.04	0.00	7269.16	0.00	274.87	117.00	0.00	343250.05	0.00	549.15	0.00	940.23	0.00	316.61	0.00	14974.29	1602.20	4962.48	0.00	20225.20	8216.99	3626.30	16.95	11983.66	572.51
tss removal efficiency (inf)	0.00	9.82	93.00	9.82	83.00	57.63	9.82	0.00	9.82	0.00	9.82	91.50	9.82	93.00	9.82	0.00	90.00	0.00	9.82	69.33	59.38	55.88	93.00	62.00	78.50
upstream watershed tss load	159335.19	0.00	201354.25	0.00	1616.87	1618.11	0.00	1720430.64	0.00	549.15	0.00	11061.51	0.00	4523.07	0.00	14974.29	16022.05	19382.32	0.00	76073.02	76074.26	76075.50	242.16	31761.17	2662.82
tss total removal efficiency	61.20	9.82	96.39	9.82	83.00	92.77	9.82	80.05	9.82	0.00	9.82	91.50	9.82	93.00	9.82	0.00	90.00	74.40	9.82	73.41	89.20	95.23	93.00	62.27	78.50
INFILTRATION BMP/POND.....																								
Annual runoff infiltrated	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Adjusted outflow	**394.29**	**0.00**	**502.49**	**0.00**	**4.26**	**4.26**	**0.00**	**4100.89**	**0.00**	**1.45**	**0.00**	**29.16**	**0.00**	**10.57**	**0.00**	**39.45**	**42.23**	**48.17**	**0.00**	**188.30**	**188.31**	**188.31**	**0.64**	**83.65**	**7.02**
Adjusted TP outflow	**239.75**	**0.00**	**102.34**	**0.00**	**2.03**	**1.42**	**0.00**	**1693.58**	**0.00**	**1.54**	**0.00**	**12.64**	**0.00**	**3.71**	**0.00**	**40.60**	**18.52**	**21.98**	**0.00**	**96.63**	**66.56**	**47.86**	**0.23**	**52.98**	**3.42**
Adjusted TSS outflow	**61826.04**	**0.00**	**7269.16**	**0.00**	**274.87**	**117.00**	**0.00**	**343250.05**	**0.00**	**549.15**	**0.00**	**940.23**	**0.00**	**316.61**	**0.00**	**14974.29**	**1602.20**	**4962.48**	**0.00**	**20225.20**	**8216.99**	**3626.30**	**16.95**	**11983.66**	**572.51**
POND P BUDGETS W/O P-BAN.																								
runoff	44.03	0.00	103.88	0.00	4.05	0.00	0.00	53.21	0.00	1.77	0.00	27.74	0.00	12.25	0.00	41.14	40.18	3.46	0.00	167.53	0.00	0.00	0.61	83.90	6.68
Adjusted TP outflow	**258.60**	**0.00**	**105.60**	**0.00**	**2.03**	**1.42**	**0.00**	**1740.79**	**0.00**	**1.77**	**0.00**	**12.64**	**0.00**	**3.73**	**0.00**	**41.14**	**18.52**	**21.98**	**0.00**	**102.19**	**69.45**	**49.47**	**0.23**	**54.01**	**3.42**
upstream pond	214.56	0.00	258.60	0.00	0.00	2.03	0.00	1687.58	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	18.52	0.00	12.64	102.19	69.45	0.00	0.23	0.00
total inflow	**258.60**	**0.00**	**362.47**	**0.00**	**4.05**	**2.03**	**0.00**	**1740.79**	**0.00**	**1.77**	**0.00**	**27.74**	**0.00**	**12.25**	**0.00**	**41.14**	**40.18**	**21.98**	**0.00**	**180.17**	**102.19**	**69.45**	**0.61**	**84.13**	**6.68**
outflow	258.60	0.00	105.60	0.00	2.03	1.42	0.00	1740.79	0.00	1.77	0.00	12.64	0.00	3.73	0.00	41.14	18.52	21.98	0.00	102.19	69.45	49.47	0.23	54.01	3.42
inflow phos conc	241.30	409.24	265.40	409.24	350.02	174.97	409.24	156.18	409.24	450.02	409.24	350.02	409.24	426.23	409.24	383.67	350.02	167.86	409.24	352.02	199.66	135.70	350.02	370.02	350.02
outflow phos conc	241.30	392.86	77.32	392.86	174.95	122.24	392.86	156.18	392.86	449.88	392.86	159.49	392.86	129.68	392.86	383.66	161.32	167.86	392.86	199.66	135.70	96.66	133.41	237.56	179.15
p reaction rate	0.00	0.04	8.35	0.04	2.00	0.62	0.04	0.00	0.04	0.00	0.04	2.62	0.04	7.52	0.04	0.00	2.54	0.00	0.04	1.35	0.69	0.57	4.26	0.87	1.86
1-rp	1.00	0.96	0.29	0.96	0.50	0.70	0.96	1.00	0.96	1.00	0.96	0.46	0.96	0.30	0.96	1.00	0.46	1.00	0.96	0.57	0.68	0.71	0.38	0.64	0.51
runoff total p conc	346.22	0.00	334.14	0.00	351.00	200.00	0.00	240.89	0.00	450.00	0.00	350.00	0.00	334.18	0.00	391.17	350.00	202.71	0.00	353.49	200.00	200.00	350.00	383.89	350.00

Rochester Loading Assessm							
Willow Creek							
363-06-158-2							
2020 LOADS				copied from tab "2020 Loads" for accounting purposes			
	wc-a6.14a	**future wc-a6.15**	**wc-a6.15**	**wc-a2.10a**			
	wc-a6.15	wc-a6.15	bc-a2.19	wc-a6.14a			
INPUT VARIABLES....							
case label							
Watershed area	282.1	0.0	112.6	192.1			
basin area	0.00	0.00	0.00	0.0			
basin volume	0.00	0.00	0.00	0.0			
Row Crop Agriculture	7%	0%	1%	21%			
Very Low Density Residential	0%	0%	0%	4%			
Low Density Residential	19%	0%	56%	37%			
Medium Density Residential	1%	0%	3%	0%			
High Density Residential	0%	0%	7%	1%			
Commercial/Industrial	3%	0%	0%	0%			
Institutional	4%	0%	7%	1%			
Open Space	62%	0%	22%	21%			
Golf Course	0%	0%	0%	0%			
Pits and Quarries	0%	0%	0%	0%			
Right-of-Way	4%	0%	4%	15%			
WATERSHED-WIDE ACCOUNTI							
tributary land area	9509.99	0.00	9622.55	667.3			
tributary water area	192.22	0.00	192.22	38.1			
direct and ponded area	9702.21	0.00	9814.76	705.4			
ASSUMED EXPORT FACTORS..							
season length	1.00	1.00	1.00	1.0			
season precipitation	31.80	31.80	31.80	31.8			
runoff total p	281.87	0.00	347.89	379.8			
runoff ortho p/total p	0.48	0.00	0.37	0.4			
unit runoff	4.43	0.00	6.61	5.6			
unit export	0.33	0.00	0.56	0.5			
POND WATER BUDGETS.....							
runoff	104.24	0.00	62.02	89.5			
upstream pond	4738.10	0.00	4842.34	169.0			
total inflow	**4842.34**	**0.00**	**4904.36**	258.6			
outflow	4842.34	0.00	4904.36	258.6			
POND PHOSPHORUS BUDGETS							
runoff	92.96	0.00	62.78	96.7			
upstream pond	2063.99	0.00	2156.95	101.6			
total inflow	**2156.95**	**0.00**	**2219.73**	198.3			
net sedimentation	0.00	0.00	0.00	0.0			
outflow	2156.95	0.00	2219.73	198.3			
p removal efficiency	0.00	3.78	0.00	0.0			
upstream w-shed p load	5093.72	0.00	5156.51	248.7			
total removal %	57.65	3.78	56.95	20.3			
HYDRAULIC PARAMETERS.....							
pond mean depth	1.00	0.00	1.00	1.0			
relative volume	0.00	1.58	0.00	0.0			
residence time	0.00	0.05	0.00	0.0			
residence time	0.00	18.08	0.00	0.0			
overflow rate	484234333.58	0.00	490436077.41	25858733.8			
inflow phos conc	163.88	384.34	166.52	282.2			
outflow phos conc	163.88	369.82	166.52	282.2			
p reaction rate	0.00	0.04	0.00	0.0			
1-rp	1.00	0.96	1.00	1.0			
vlawmo pond volume	8.20	0.00	4.88	7.0			
LAND USE PARAMETERS.....							
runoff total P conc	281.87	0.00	347.89	379.8			
runoff coefficient	0.14	0.00	0.21	0.2			
dissolved/total P	0.48	0.00	0.37	0.4			
runoff TSS conc	188.70	0.00	157.40	164.0			
POND TSS BUDGETS.....							
runoff	47653.20	0.00	24669.44	37075.3			
upstream pond	456148.68	0.00	503801.88	38838.4			
total inflow	**503801.88**	**0.00**	**604384.95**	75913.6			
p removal efficiency (no inf)	0.00	5.00	0.00	0.0			
tss removal efficiency (no inf)	0.00	9.82	0.00	0.0			
net sedimentation	0.00	0.00	0.00	0.0			
outflow	503801.88	0.00	604384.95	75913.6			
tss removal efficiency (inf)	0.00	9.82	0.00	0.0			
upstream watershed tss load	2032942.36	0.00	2057611.79	114930.2			
tss total removal efficiency	75.22	9.82	70.63	33.9			
INFILTRATION BMP/POND.....							
Annual runoff infiltrated	0.00	0.00	0.00	0.0			
Adjusted outflow	**4842.34**	**0.00**	**4904.36**	258.6			
Adjusted TP outflow	**2156.95**	**0.00**	**2219.73**	198.3			
Adjusted TSS outflow	**503801.88**	**0.00**	**604384.95**	75913.6			
POND P BUDGETS W/O P-BAN.							
runoff	98.12	0.00	70.23	103.5			
Adjusted TP outflow	**2221.00**	**0.00**	**2291.23**	206.6			
upstream pond	2122.88	0.00	2221.00	103.1			
total inflow	**2221.00**	**0.00**	**2291.23**	206.6			
outflow	2221.00	0.00	2291.23	206.6			
inflow phos conc	168.75	409.24	171.88	293.9			
outflow phos conc	168.75	392.86	171.88	293.9			
p reaction rate	0.00	0.04	0.00	0.0			
1-rp	1.00	0.96	1.00	1.0			
runoff total p conc	293.58	0.00	386.31	403.4			

Rochester Loading Assessment																						
Willow Creek																						
363-06-158-2																						
FCP Reservoir Credit																						
		wc-a4.2b	**wc-a4.2a**	**wc-a4.3a**	**wc-a4.3b**	**wc-a4.3c**	**wc-a4.3d**	**wc-a4.3e**	**wc-a4.3f**	**wc-a4.1**	**wc-a4.5c**	**wc-a4.5b**	**wc-a4.5a(C)**	**wc-a4.5a**	**wc-a4.6b**	**wc-a4.6a**	**wc-a4.7(C)**	**wc-a4.7**	**wc-a4.8c**	**wc-a4.8b**	**wc-a4.8a**	**wc-a4.9**
Routed TO:		wc-a4.2a	wc-a4.1	wc-a4.1	wc-a4.6a	wc-a4.1	wc-a4.7	wc-a4.3c	wc-a4.5a	wc-a4.5a	wc-a4.5b	wc-a4.5a	wc-a4.5a	wc-a4.7	wc-a4.6a	wc-a4.7	wc-a4.7	wc-a4.14a	wc-a4.8a	wc-a4.8a	wc-a4.11	wc-a4.11
INPUT VARIABLES....	UNITS																					
case label	-																					
Watershed area	acres	9.9	239.5	313.9	142.3	59.1	10.7	13.9	10.2	694.0	14.5	6.1	268.1	384.3	112.3	45.2	299.2	281.8	4.4	3.8	253.3	44.6
basin area	acres	0.75	0.00	0.00	0.00	0.95	0.39	0.00	0.00	0.00	0.27	0.07	0.00	0.00	0.38	0.00	0.00	0.00	0.08	0.11	0.00	0.53
basin volume	acre-ft	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.52	0.00	0.00	0.00	0.14	0.19	0.00	1.13
Row Crop Agriculture		0%	87%	84%	35%	36%	40%	0%	25%	79%	96%	96%	73%	76%	11%	39%	43%	28%	0%	0%	43%	52%
Very Low Density Residential		0%	3%	0%	0%	0%	0%	0%	0%	1%	0%	0%	8%	8%	0%	1%	9%	8%	0%	0%	0%	3%
Low Density Residential		0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Medium Density Residential		0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
High Density Residential		0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Commercial/Industrial		100%	0%	5%	65%	64%	53%	86%	60%	0%	0%	0%	3%	0%	73%	31%	1%	2%	100%	100%	41%	36%
Institutional		0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Open Space		0%	7%	10%	0%	0%	0%	0%	0%	16%	0%	4%	9%	16%	11%	17%	33%	35%	0%	0%	12%	3%
Golf Course		0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	13%	25%	0%	0%	0%	0%
Pits and Quarries		0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	7%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Right-of-Way		0%	3%	1%	0%	0%	7%	14%	16%	3%	4%	0%	0%	1%	5%	12%	0%	3%	0%	0%	4%	6%
WATERSHED-WIDE ACCOUNTING.....																						
tributary land area	ac	9.89	249.38	313.87	142.28	73.05	10.73	13.93	10.16	1330.27	14.47	20.55	268.11	2013.39	112.32	299.75	299.17	2904.78	4.38	3.85	261.50	44.57
tributary water area	ac	0.75	0.75	0.00	0.00	0.95	0.39	0.00	0.00	1.70	0.27	0.34	0.00	2.04	0.38	0.38	0.00	2.81	0.08	0.11	0.19	0.53
direct and ponded area	ac	10.64	250.13	313.87	142.28	74.00	11.12	13.93	10.16	1331.97	14.74	20.89	268.11	2015.43	112.70	300.13	299.17	2907.59	4.46	3.96	261.69	45.10
ASSUMED EXPORT FACTORS.....																						
season length	yrs	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
season precipitation	inches	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8
runoff total p	ppb	350.00	506.70	496.18	417.08	418.42	429.43	356.80	404.55	478.87	534.59	524.90	449.19	470.67	356.46	403.75	409.52	401.34	350.00	350.00	414.17	448.48
runoff ortho p/total p	-	0.30	0.24	0.24	0.26	0.26	0.26	0.30	0.28	0.27	0.20	0.22	0.25	0.29	0.32	0.31	0.43	0.49	0.30	0.30	0.29	0.26
unit runoff	in/yr	14.56	4.45	4.80	10.99	10.92	10.11	13.77	11.17	4.28	4.61	4.37	4.14	4.07	11.84	7.76	3.63	3.67	14.56	14.56	8.55	8.27
unit export	lbs/ac-y	1.15	0.52	0.53	0.94	0.93	0.89	1.11	0.95	0.48	0.55	0.53	0.46	0.45	0.95	0.69	0.36	0.35	1.15	1.15	0.75	0.76
POND WATER BUDGETS.....																						
runoff	ac-ft/yr	12.00	88.79	125.48	130.33	53.80	9.04	15.99	9.45	247.53	5.55	2.21	92.47	130.23	110.85	29.21	90.44	86.07	5.32	4.67	180.47	30.70
upstream pond	ac-ft/yr	0.00	12.00	0.00	0.00	15.99	0.00	0.00	0.00	296.06	0.00	5.55	0.00	653.27	0.00	241.18	0.00	1153.38	0.00	0.00	9.99	0.00
total inflow	**ac-ft/yr**	**12.00**	**100.79**	**125.48**	**130.33**	**69.79**	**9.04**	**15.99**	**9.45**	**543.58**	**5.55**	**7.77**	**92.47**	**783.50**	**110.85**	**270.40**	**90.44**	**1239.45**	**5.32**	**4.67**	**190.46**	**30.70**
outflow	ac-ft/yr	12.00	100.79	125.48	130.33	69.79	9.04	15.99	9.45	543.58	5.55	7.77	92.47	783.50	110.85	270.40	90.44	1239.45	5.32	4.67	190.46	30.70
POND PHOSPHORUS BUDGETS.....																						
runoff	lbs/yr	11.41	123.66	167.75	133.61	55.26	9.50	15.40	9.63	334.03	8.00	3.20	123.28	174.69	107.26	31.00	107.72	98.52	5.06	4.44	190.58	33.84
upstream pond	lbs/yr	0.00	11.41	0.00	0.00	15.40	0.00	0.00	0.00	373.49	0.00	8.00	0.00	851.61	0.00	205.42	0.00	1379.95	0.00	0.00	5.62	0.00
total inflow	**lbs/yr**	**11.41**	**135.07**	**167.75**	**133.61**	**70.66**	**9.50**	**15.40**	**9.63**	**707.52**	**8.00**	**11.20**	**123.28**	**1026.31**	**107.26**	**236.42**	**107.72**	**1478.47**	**5.06**	**4.44**	**196.20**	**33.84**
net sedimentation	lbs/yr	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	35.45	0.00	0.00	0.00	1.97	1.91	0.00	16.41
outflow	lbs/yr	11.41	135.07	167.75	133.61	70.66	9.50	15.40	9.63	707.51	8.00	11.20	123.27	1026.31	71.81	236.42	107.72	1478.47	3.09	2.53	196.20	17.43
p removal efficiency	%	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.01	0.01	0.00	0.00	33.05	0.00	0.00	0.00	38.84	43.11	0.00	48.50
upstream w-shed p load	lbs/yr	11.41	135.07	167.75	133.61	70.66	9.50	15.40	9.63	707.52	8.00	11.20	123.28	1026.32	107.26	271.87	107.72	1513.93	5.06	4.44	200.08	33.84
total removal %	%	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.01	0.02	0.00	0.00	33.05	13.04	0.00	2.34	38.84	43.11	1.94	48.50
HYDRAULIC PARAMETERS.....																						
pond mean depth	feet	0.00	1.00	1.00	1.00	0.00	0.00	1.00	1.00	1.00	0.00	0.00	1.00	1.00	4.00	1.00	1.00	1.00	1.75	1.75	1.00	2.14
relative volume	inches	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.44	0.00	0.00	0.00	0.84	1.31	0.00	1.17
residence time	years	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.03	0.04	0.00	0.04
residence time	days	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.00	0.00	0.00	0.00	9.61	15.09	0.00	13.47
overflow rate	ft/yr	16.00	10078679.84	12547845.73	13032627.27	73.46	23.18	1599406.92	945238.20	54358189.30	20.57	110.95	9247252.89	78349991.85	291.72	27039505.50	9044336.10	123945014.22	66.48	42.44	19045659.55	57.93
inflow phos conc	ppb	350.02	493.08	491.87	377.19	372.51	386.49	354.35	374.82	478.87	530.24	530.49	490.48	481.94	355.98	321.69	438.20	438.87	350.02	350.02	379.02	405.57
outflow phos conc	ppb	350.01	493.08	491.87	377.19	372.50	386.48	354.33	374.79	478.87	530.19	530.42	490.47	481.93	238.33	321.69	438.20	438.87	214.07	199.13	379.01	208.86
p reaction rate	-	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.74	0.00	0.00	0.00	1.04	1.33	0.00	1.83
1-rp	-	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.67	1.00	1.00	1.00	0.61	0.57	1.00	0.51
vlawmo pond volume	acre-ft	0.94	6.98	9.86	10.25	4.23	0.71	1.26	0.74	19.46	0.44	0.17	7.27	10.24	8.72	2.30	7.11	6.77	0.42	0.37	14.19	2.41
LAND USE PARAMETERS.....																						
runoff total P conc	ppb	350.00	506.70	496.18	417.08	418.42	429.43	356.80	404.55	478.87	534.59	524.90	449.19	470.67	356.46	403.75	409.52	401.34	350.00	350.00	414.17	448.48
runoff coefficient		0.46	0.14	0.15	0.35	0.34	0.32	0.43	0.35	0.13	0.14	0.14	0.13	0.13	0.37	0.24	0.11	0.12	0.46	0.46	0.27	0.26
dissolved/total P		0.30	0.24	0.24	0.26	0.26	0.26	0.30	0.28	0.27	0.20	0.22	0.25	0.29	0.32	0.31	0.43	0.49	0.30	0.30	0.29	0.26
runoff TSS conc	ppm	140.00	167.44	166.89	148.12	148.28	149.19	140.00	145.65	171.23	162.23	165.35	159.36	175.35	151.00	162.81	192.04	197.51	140.00	140.00	159.21	156.25
POND TSS BUDGETS.....																						
runoff	lbs/yr	4552.23	39583.05	55083.62	50607.42	20902.64	3529.22	6068.15	3643.93	111882.78	2429.89	985.68	41736.77	60323.22	42890.18	11852.70	45048.97	43423.40	2017.85	1771.09	72333.79	12304.69
upstream pond	lbs/yr	0.00	4552.23	0.00	0.00	6068.15	0.00	0.00	0.00	126189.69	0.00	2429.89	0.00	286868.73	0.00	67656.27	0.00	475279.12	0.00	0.00	1249.38	0.00
total inflow	**lbs/yr**	**4552.23**	**44135.28**	**55083.62**	**50607.42**	**26970.79**	**3529.22**	**6068.15**	**3643.93**	**238072.46**	**2429.89**	**3415.57**	**41736.77**	**347191.96**	**42890.18**	**79508.97**	**45048.97**	**518702.52**	**2017.85**	**1771.09**	**73583.18**	**12304.69**
p removal efficiency (no inf)	%	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	34.00	0.00	0.00	0.00	39.00	44.00	0.00	49.00
tss removal efficiency (no inf)	%	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	60.25	0.00	0.00	0.00	65.00	69.33	0.00	78.50
net sedimentation	lbs/yr	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	25841.34	0.00	0.00	0.00	1311.61	1227.96	0.00	9659.18
outflow	lbs/yr	4552.23	44135.28	55083.62	50607.42	26970.79	3529.22	6068.15	3643.93	238072.46	2429.89	3415.57	41736.77	347191.96	17048.85	79508.97	45048.97	518702.52	706.25	543.13	73583.18	2645.51
tss removal efficiency (inf)	%	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	60.25	0.00	0.00	0.00	65.00	69.33	0.00	78.50
upstream watershed tss load	lbs/yr	4552.23	44135.28	55083.62	50607.42	26970.79	3529.22	6068.15	3643.93	238072.46	2429.89	3415.57	41736.77	347191.96	42890.18	105350.31	45048.97	544543.85	2017.85	1771.09	76122.74	12304.69
tss total removal efficiency	%	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	60.25	24.53	0.00	4.75	65.00	69.33	3.34	78.50
INFILTRATION BMP/POND.....																						
Annual runoff infiltrated	%	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Adjusted outflow	**ac-ft/yr**	**12.00**	**100.79**	**125.48**	**130.33**	**69.79**	**9.04**	**15.99**	**9.45**	**543.58**	**5.55**	**7.77**	**92.47**	**783.50**	**110.85**	**270.40**	**90.44**	**1239.45**	**5.32**	**4.67**	**190.46**	**30.70**
Adjusted TP outflow	**lbs/yr**	**11.41**	**135.07**	**167.75**	**133.61**	**70.66**	**9.50**	**15.40**	**9.63**	**707.51**	**8.00**	**11.20**	**123.27**	**1026.31**	**71.81**	**236.42**	**107.72**	**1478.47**	**3.09**	**2.53**	**196.20**	**17.43**
Adjusted TSS outflow	**lbs/yr**	**4552.23**	**44135.28**	**55083.62**	**50607.42**	**26970.79**	**3529.22**	**6068.15**	**3643.93**	**238072.46**	**2429.89**	**3415.57**	**41736.77**	**347191.96**	**17048.85**	**79508.97**	**45048.97**	**518702.52**	**706.25**	**543.13**	**73583.18**	**2645.51**

Rochester Loading Assessment																						
Willow Creek																						
363-06-158-2																						
FCP Reservoir Credit													WR-6A									
		wc-a4.10	**wc-a4.11**	**wc-a4.12e**	**wc-a4.12d**	**wc-a4.12c**	**wc-a4.12b**	**wc-a4.12a**	**wc-a4.14b**	**wc-a5.5c**	**wc-a4.13(C)**	**wc-a4.14a(C)**	**wc-a4.14a**	**wc-a1.1(C)**	**wc-a1.2(C)**	**wc-a1.3(C)**	**wc-a1.4(C)**	**wc-a1.5(C)**	**wc-a1.6(C)**	**wc-a1.7(C)**	**wc-a1.8(C)**	**wc-a1.9(C)**
Routed TO:		wc-a4.11	wc-a4.14a	wc-a4.12a	wc-a4.12a	wc-a4.12a	wc-a4.12a	wc-a4.14a	wc-a4.14a	wc-a4.14a	wc-a4.14a(C)	wc-a4.14a	wc-a5.7b	wc-a1.2(C)	wc-a1.3(C)	wc-a1.4(C)	wc-a1.7(C)	wc-a1.6(C)	wc-a1.7(C)	wc-a1.10a(C2)	wc-a1.9(C)	wc-a1.9a
INPUT VARIABLES....	UNITS																					
case label	-																					
Watershed area	acres	80.5	545.6	4.7	10.6	34.8	8.5	234.3	38.1	27.1	621.4	161.9	193.4	139.5	370.9	311.2	108.3	544.6	205.6	299.2	175.4	662.1
basin area	acres	0.00	0.00	0.14	0.21	0.43	0.11	0.00	0.06	0.33	0.00	0.00	71.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
basin volume	acre-ft	0.00	0.00	0.17	0.40	2.34	0.10	0.00	0.08	1.52	0.00	0.00	630.40	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Row Crop Agriculture		63%	35%	2%	0%	0%	0%	7%	1%	41%	68%	46%	34%	88%	96%	44%	60%	81%	82%	52%	79%	38%
Very Low Density Residential		2%	1%	0%	0%	0%	0%	23%	0%	0%	12%	25%	2%	3%	4%	11%	6%	7%	0%	12%	2%	3%
Low Density Residential		0%	0%	0%	3%	60%	100%	18%	74%	50%	0%	0%	4%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Medium Density Residential		0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
High Density Residential		0%	0%	0%	0%	4%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Commercial/Industrial		0%	17%	80%	92%	0%	0%	12%	0%	0%	2%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Institutional		0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Open Space		34%	43%	0%	0%	25%	0%	28%	21%	8%	18%	29%	59%	9%	0%	45%	34%	12%	18%	36%	19%	59%
Golf Course		0%	2%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Pits and Quarries		0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Right-of-Way		1%	2%	18%	4%	10%	0%	13%	3%	0%	0%	0%	1%	0%	0%	0%	0%	0%	0%	0%	0%	0%
WATERSHED-WIDE ACCOUNTING.....																						
tributary land area	ac	80.47	932.10	4.72	10.64	34.80	8.48	292.96	38.08	27.12	621.35	783.28	5171.73	139.53	510.47	821.65	929.94	544.60	750.23	1979.42	175.38	837.46
tributary water area	ac	0.00	0.72	0.14	0.21	0.43	0.11	0.89	0.06	0.33	0.00	0.00	75.81	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
direct and ponded area	ac	80.47	932.82	4.86	10.85	35.23	8.59	293.85	38.14	27.45	621.35	783.28	5247.54	139.53	510.47	821.65	929.94	544.60	750.23	1979.42	175.38	837.46
ASSUMED EXPORT FACTORS.....																						
season length	yrs	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
season precipitation	inches	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8
runoff total p	ppb	419.75	358.44	362.47	354.46	381.49	450.00	345.82	396.92	467.08	452.25	393.46	330.25	503.34	532.08	367.27	412.69	485.27	478.57	394.70	472.38	333.64
runoff ortho p/total p	-	0.34	0.40	0.30	0.30	0.38	0.30	0.42	0.36	0.28	0.31	0.39	0.45	0.25	0.21	0.41	0.35	0.27	0.27	0.38	0.28	0.45
unit runoff	in/yr	3.83	5.44	13.33	14.03	6.16	6.74	5.75	5.89	5.45	4.15	3.53	3.42	4.24	4.39	3.44	3.71	4.12	4.11	3.59	4.06	3.28
unit export	lbs/ac-y	0.40	0.47	1.08	1.12	0.58	0.69	0.49	0.57	0.58	0.44	0.34	0.29	0.50	0.53	0.32	0.38	0.47	0.47	0.35	0.46	0.28
POND WATER BUDGETS.....																						
runoff	ac-ft/yr	25.70	247.40	5.25	12.44	17.86	4.77	112.33	18.69	12.33	214.99	47.60	55.11	49.25	135.72	89.16	33.49	186.84	70.38	89.50	59.38	181.03
upstream pond	ac-ft/yr	0.00	246.85	0.00	0.00	0.00	0.00	40.32	0.00	0.00	0.00	214.99	2179.96	0.00	49.25	184.97	274.13	0.00	186.84	564.84	0.00	59.38
total inflow	**ac-ft/yr**	**25.70**	**494.26**	**5.25**	**12.44**	**17.86**	**4.77**	**152.64**	**18.69**	**12.33**	**214.99**	**262.59**	**2235.06**	**49.25**	**184.97**	**274.13**	**307.62**	**186.84**	**257.22**	**654.34**	**59.38**	**240.41**
outflow	ac-ft/yr	25.70	494.26	5.25	12.44	17.86	4.77	152.64	18.69	12.33	214.99	262.59	2235.06	49.25	184.97	274.13	307.62	186.84	257.22	654.34	59.38	240.41
POND PHOSPHORUS BUDGETS.....																						
runoff	lbs/yr	31.92	254.79	5.09	11.93	20.23	5.83	113.79	21.63	15.78	275.73	55.43	56.46	69.27	197.23	99.25	41.09	256.36	96.03	105.66	80.25	186.60
upstream pond	lbs/yr	0.00	245.55	0.00	0.00	0.00	0.00	21.78	0.00	0.00	0.00	275.73	2469.00	0.00	69.27	266.49	365.75	0.00	256.36	759.22	0.00	80.25
total inflow	**lbs/yr**	**31.92**	**500.33**	**5.09**	**11.93**	**20.23**	**5.83**	**135.57**	**21.63**	**15.78**	**275.73**	**331.16**	**2525.46**	**69.27**	**266.50**	**365.75**	**406.83**	**256.36**	**352.39**	**864.88**	**80.25**	**266.84**
net sedimentation	lbs/yr	0.00	0.00	1.95	4.95	12.30	2.10	0.00	3.68	10.26	0.00	0.00	1691.94	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
outflow	lbs/yr	31.92	500.33	3.14	6.98	7.92	3.73	135.57	17.95	5.52	275.73	331.16	833.52	69.27	266.49	365.75	406.83	256.36	352.39	864.88	80.25	266.84
p removal efficiency	%	0.00	0.00	38.27	41.51	60.83	35.99	0.00	17.03	65.00	0.00	0.00	67.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
upstream w-shed p load	lbs/yr	31.92	520.63	5.09	11.93	20.23	5.83	156.87	21.63	15.78	275.73	331.16	2616.46	69.27	266.50	365.75	406.84	256.36	352.39	864.89	80.25	266.85
total removal %	%	0.00	3.90	38.27	41.51	60.83	35.99	13.58	17.03	65.00	0.00	0.00	68.14	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
HYDRAULIC PARAMETERS.....																						
pond mean depth	feet	1.00	1.00	1.21	1.90	5.44	0.91	1.00	1.33	4.61	1.00	1.00	8.88	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
relative volume	inches	0.00	0.00	1.03	1.02	4.17	0.67	0.00	0.14	3.92	0.00	0.00	363.78	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
residence time	years	0.00	0.00	0.03	0.03	0.13	0.02	0.00	0.00	0.12	0.00	0.00	0.28	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
residence time	days	0.00	0.00	11.82	11.73	47.82	7.66	0.00	1.56	45.01	0.00	0.00	102.95	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
overflow rate	ft/yr	2569662.53	49425641.42	37.49	59.26	41.54	43.32	15264452.38	311.48	37.35	21499101.71	26259206.06	31.48	4924835.47	18496867.76	27412744.00	30762052.34	18684013.63	25722196.78	65434495.09	5938066.47	24041363.39
inflow phos conc	ppb	456.97	372.44	357.10	352.65	416.62	450.02	326.76	425.84	471.05	471.86	463.99	415.72	517.49	530.08	490.88	486.57	504.82	504.04	486.29	497.20	408.37
outflow phos conc	ppb	456.96	372.44	220.45	206.27	163.21	288.06	326.75	353.32	164.88	471.86	463.99	137.21	517.48	530.08	490.88	486.57	504.82	504.04	486.29	497.20	408.37
p reaction rate	-	0.00	0.00	1.00	1.21	3.96	0.88	0.00	0.25	5.31	0.00	0.00	6.15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1-rp	-	1.00	1.00	0.62	0.58	0.39	0.64	1.00	0.83	0.35	1.00	1.00	0.33	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
vlawmo pond volume	acre-ft	2.02	19.45	0.41	0.98	1.40	0.37	8.83	1.47	0.97	16.90	3.74	4.33	3.87	10.67	7.01	2.63	14.69	5.53	7.04	4.67	14.23
LAND USE PARAMETERS.....																						
runoff total P conc	ppb	419.75	358.44	362.47	354.46	381.49	450.00	345.82	396.92	467.08	452.25	393.46	330.25	503.34	532.08	367.27	412.69	485.27	478.57	394.70	472.38	333.64
runoff coefficient		0.12	0.17	0.42	0.44	0.19	0.21	0.18	0.19	0.17	0.13	0.11	0.11	0.13	0.14	0.11	0.12	0.13	0.13	0.11	0.13	0.10
dissolved/total P		0.34	0.40	0.30	0.30	0.38	0.30	0.42	0.36	0.28	0.31	0.39	0.45	0.25	0.21	0.41	0.35	0.27	0.27	0.38	0.28	0.45
runoff TSS conc	ppm	181.65	182.60	140.42	140.35	159.29	140.00	179.83	156.36	155.69	178.42	191.72	194.36	169.34	165.21	192.49	184.35	173.14	172.58	188.38	174.09	195.90
POND TSS BUDGETS.....																						
runoff	lbs/yr	12189.51	109246.28	1993.07	4723.61	7162.13	1807.85	48532.31	7453.80	5032.62	100032.45	23910.50	27630.09	22281.89	60503.03	44833.84	16159.77	85900.46	32221.06	44082.26	27369.78	92592.40
upstream pond	lbs/yr	0.00	88418.19	0.00	0.00	0.00	0.00	3397.46	0.00	0.00	0.00	100032.45	897410.35	0.00	22281.89	82784.92	127618.76	0.00	85900.46	261900.04	0.00	27369.78
total inflow	**lbs/yr**	**12189.51**	**197664.47**	**1993.07**	**4723.61**	**7162.13**	**1807.85**	**51929.77**	**7453.80**	**5032.62**	**100032.45**	**123942.95**	**925040.43**	**22281.89**	**82784.92**	**127618.76**	**143778.52**	**85900.46**	**118121.51**	**305982.29**	**27369.78**	**119962.18**
p removal efficiency (no inf)	%	0.00	0.00	39.00	42.00	61.00	36.00	0.00	18.00	65.00	0.00	0.00	67.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
tss removal efficiency (no inf)	%	0.00	0.00	65.00	68.00	93.00	62.00	0.00	35.36	93.00	0.00	0.00	93.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
net sedimentation	lbs/yr	0.00	0.00	1295.50	3212.05	6660.78	1120.87	0.00	2635.45	4680.34	0.00	0.00	860287.60	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
outflow	lbs/yr	12189.51	197664.47	697.58	1511.55	501.35	686.98	51929.77	4818.35	352.28	100032.45	123942.95	64752.83	22281.89	82784.92	127618.76	143778.52	85900.46	118121.51	305982.29	27369.78	119962.18
tss removal efficiency (inf)	%	0.00	0.00	65.00	68.00	93.00	62.00	0.00	35.36	93.00	0.00	0.00	93.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
upstream watershed tss load	lbs/yr	12189.51	209863.21	1993.07	4723.61	7162.13	1807.85	64218.98	7453.80	5032.62	100032.45	123942.95	982685.51	22281.89	82784.92	127618.76	143778.52	85900.46	118121.51	305982.29	27369.78	119962.18
tss total removal efficiency	%	0.00	5.81	65.00	68.00	93.00	62.00	19.14	35.36	93.00	0.00	0.00	93.41	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
INFILTRATION BMP/POND.....																						
Annual runoff infiltrated	%	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Adjusted outflow	**ac-ft/yr**	**25.70**	**494.26**	**5.25**	**12.44**	**17.86**	**4.77**	**152.64**	**18.69**	**12.33**	**214.99**	**262.59**	**2235.06**	**49.25**	**184.97**	**274.13**	**307.62**	**186.84**	**257.22**	**654.34**	**59.38**	**240.41**
Adjusted TP outflow	**lbs/yr**	**31.92**	**500.33**	**3.14**	**6.98**	**7.92**	**3.73**	**135.57**	**17.95**	**5.52**	**275.73**	**331.16**	**833.52**	**69.27**	**266.49**	**365.75**	**406.83**	**256.36**	**352.39**	**864.88**	**80.25**	**266.84**
Adjusted TSS outflow	**lbs/yr**	**12189.51**	**197664.47**	**697.58**	**1511.55**	**501.35**	**686.98**	**51929.77**	**4818.35**	**352.28**	**100032.45**	**123942.95**	**64752.83**	**22281.89**	**82784.92**	**127618.76**	**143778.52**	**85900.46**	**118121.51**	**305982.29**	**27369.78**	**119962.18**

Rochester Loading Assessment													
Willow Creek													
363-06-158-2													
FCP Reservoir Credit							WR-4						
		wc-a1.9b	**wc-a1.9a**	**wc-a1.10a(C2)**	**wc-a1.10b**	**wc-a1.10a(C1)**	**wc-a1.10a**				wc-a4.14a	wc-a1.10a	Total
Routed TO:		wc-a1.9a	wc-a1.10a	wc-a1.10a	wc-a1.10a	wc-a1.10a	wc-a2.2				WR-6A	WR-4	
INPUT VARIABLES....	UNITS												
case label	-									units			
Watershed area	acres	14.1	18.2	113.5	10.8	36.2	58.0		**Watershed Area Proportion**				
basin area	acres	0.00	0.00	0.00	0.00	0.00	36.00		Total Area to FCP Reservoir	ac	5171.73	3067.73	
basin volume	acre-ft	0.00	0.00	0.00	0.00	0.00	314.00		Area to FCP Reservoir outside 2020 bndry	ac	1350.5	2966.6	
Row Crop Agriculture		9%	0%	17%	25%	23%	0%		Area to FCP Reservoir outside 2020 bndry	%	26.1	96.7	
Very Low Density Residential		13%	0%	0%	0%	0%	0%						
Low Density Residential		0%	0%	0%	0%	0%	0%		**Net Sedimentation in FCP Reservoirs**				
Medium Density Residential		0%	0%	0%	0%	0%	0%		TP	lb	1691.94	761.87	
High Density Residential		0%	0%	0%	0%	0%	0%		TSS	lb	860288	425633	
Commercial/Industrial		0%	0%	0%	0%	0%	0%						
Institutional		0%	0%	0%	0%	0%	0%		**Treatment Credit generated by FCP Reservoirs**				
Open Space		78%	100%	83%	22%	77%	100%		TP	lb	441.83	736.76	1178.60
Golf Course		0%	0%	0%	0%	0%	0%		TSS	lb	224655.82	411604.56	636260
Pits and Quarries		0%	0%	0%	52%	0%	0%						
Right-of-Way		0%	0%	0%	0%	0%	0%						
WATERSHED-WIDE ACCOUNTING.....													
tributary land area	ac	14.07	869.78	2092.95	10.76	36.21	3067.73						
tributary water area	ac	0.00	0.00	0.00	0.00	0.00	36.00						
direct and ponded area	ac	14.07	869.78	2092.95	10.76	36.21	3103.73						
ASSUMED EXPORT FACTORS.....													
season length	yrs	1	1	1	1	1	1						
season precipitation	inches	31.8	31.8	31.8	31.8	31.8	31.8						
runoff total p	ppb	250.35	200.00	258.03	181.27	276.75	200.00						
runoff ortho p/total p	-	0.55	0.60	0.53	0.19	0.51	0.60						
unit runoff	in/yr	2.77	2.54	2.87	1.70	2.97	2.54						
unit export	lbs/ac-y	0.17	0.12	0.19	0.16	0.21	0.12						
POND WATER BUDGETS.....													
runoff	ac-ft/yr	3.25	3.87	27.15	1.52	8.98	12.30						
upstream pond	ac-ft/yr	0.00	243.67	654.34	0.00	0.00	939.52						
total inflow	**ac-ft/yr**	**3.25**	**247.53**	**681.49**	**1.52**	**8.98**	**951.83**						
outflow	ac-ft/yr	3.25	247.53	681.49	1.52	8.98	951.83						
POND PHOSPHORUS BUDGETS.....													
runoff	lbs/yr	2.39	2.10	21.40	1.76	7.68	6.69						
upstream pond	lbs/yr	0.00	269.23	864.88	0.00	0.00	1167.05						
total inflow	**lbs/yr**	**2.39**	**271.34**	**886.28**	**1.76**	**7.68**	**1173.74**						
net sedimentation	lbs/yr	0.00	0.00	0.00	0.00	0.00	761.87						
outflow	lbs/yr	2.39	271.34	886.28	1.76	7.68	411.87						
p removal efficiency	%	0.01	0.00	0.00	0.08	0.00	64.91						
upstream w-shed p load	lbs/yr	2.39	271.34	886.29	1.76	7.68	1173.76						
total removal %	%	0.01	0.00	0.00	0.08	0.00	64.91						
HYDRAULIC PARAMETERS.....													
pond mean depth	feet	1.00	1.00	1.00	1.00	1.00	8.72						
relative volume	inches	0.00	0.00	0.00	0.00	0.00	811.56						
residence time	years	0.00	0.00	0.00	0.00	0.00	0.33						
residence time	days	0.00	0.00	0.00	0.00	0.00	120.41						
overflow rate	ft/yr	325145.14	24753372.26	68149478.85	151993.86	897534.26	26.44						
inflow phos conc	ppb	270.32	403.30	478.48	425.35	314.91	453.70						
outflow phos conc	ppb	270.30	403.30	478.47	424.99	314.90	159.20						
p reaction rate	-	0.00	0.00	0.00	0.00	0.00	5.27						
1-rp	-	1.00	1.00	1.00	1.00	1.00	0.35						
vlawmo pond volume	acre-ft	0.26	0.30	2.13	0.12	0.71	0.97						
LAND USE PARAMETERS.....													
runoff total P conc	ppb	250.35	200.00	258.03	181.27	276.75	200.00						
runoff coefficient		0.09	0.08	0.09	0.05	0.09	0.08						
dissolved/total P		0.55	0.60	0.53	0.19	0.51	0.60						
runoff TSS conc	ppm	211.24	216.00	206.95	89.70	204.02	216.00						
POND TSS BUDGETS.....													
runoff	lbs/yr	1835.96	2264.53	14859.93	745.03	4818.18	7202.08						
upstream pond	lbs/yr	0.00	121798.14	305982.29	0.00	0.00	450468.11						
total inflow	**lbs/yr**	**1835.96**	**124062.68**	**320842.23**	**745.03**	**4818.18**	**457670.19**						
p removal efficiency (no inf)	%	0.00	0.00	0.00	0.00	0.00	65.00						
tss removal efficiency (no inf)	%	0.00	0.00	0.00	0.00	0.00	93.00						
net sedimentation	lbs/yr	0.00	0.00	0.00	0.00	0.00	425633.27						
outflow	lbs/yr	1835.96	124062.68	320842.23	745.03	4818.18	32036.91						
tss removal efficiency (inf)	%	0.00	0.00	0.00	0.00	0.00	93.00						
upstream watershed tss load	lbs/yr	1835.96	124062.68	320842.23	745.03	4818.18	457670.19						
tss total removal efficiency	%	0.00	0.00	0.00	0.00	0.00	93.00						
INFILTRATION BMP/POND.....													
Annual runoff infiltrated	%	0.00	0.00	0.00	0.00	0.00	0.00						
Adjusted outflow	**ac-ft/yr**	**3.25**	**247.53**	**681.49**	**1.52**	**8.98**	**951.83**						
Adjusted TP outflow	**lbs/yr**	**2.39**	**271.34**	**886.28**	**1.76**	**7.68**	**411.87**						
Adjusted TSS outflow	**lbs/yr**	**1835.96**	**124062.68**	**320842.23**	**745.03**	**4818.18**	**32036.91**						

Rochester Loading Assessment																								
Willow Creek																								
363-06-158-2																								
FCP Reservoir Credit																								
		future wc-a4.2b	**wc-a4.2b**	**future wc-a4.2a**	**wc-a4.2a**	**future wc-a4.3a**	**wc-a4.3a**	**future wc-a4.3b**	**wc-a4.3b**	**future wc-a4.3c**	**wc-a4.3c**	**future wc-a4.3d**	**wc-a4.3d**	**future wc-a4.3e**	**wc-a4.3e**	**future wc-a4.3f**	**wc-a4.3f**	**future wc-a4.1**	**wc-a4.1**	**future wc-a4.5c**	**wc-a4.5c**	**future wc-a4.5b**	**wc-a4.5b**	**future wc-a4.5a(C)**	**wc-a4.5a(C)**
Routed TO:		wc-a4.2b	wc-a4.2a	wc-a4.2a	wc-a4.1	wc-a4.3a	wc-a4.1	wc-a4.3b	wc-a4.6a	wc-a4.3c	wc-a4.1	wc-a4.3d	wc-a4.7	wc-a4.3e	wc-a4.3c	wc-a4.3f	wc-a4.5a	wc-a4.1	wc-a4.5a	wc-a4.5c	wc-a4.5b	wc-a4.5b	wc-a4.5a	wc-a4.5a(C)	wc-a4.5a
INPUT VARIABLES....	UNITS																							
case label	-																							
Watershed area	acres	0.0	9.9	0.0	239.5	0.0	313.9	0.0	142.3	0.0	59.1	0.0	10.7	0.0	13.9	0.0	10.2	0.0	694.0	0.0	14.5	0.0	6.1	0.0	268.1
basin area	acres	0.00	0.75	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.95	0.00	0.39	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.27	0.00	0.07	0.00	0.00
basin volume	acre-ft	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Row Crop Agriculture		0%	0%	0%	87%	0%	84%	0%	35%	0%	36%	0%	40%	0%	0%	0%	25%	0%	79%	0%	96%	0%	96%	0%	73%
Very Low Density Residential		0%	0%	0%	3%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	1%	0%	0%	0%	0%	0%	8%
Low Density Residential		0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Medium Density Residential		0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
High Density Residential		0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Commercial/Industrial		0%	100%	0%	0%	0%	5%	0%	65%	0%	64%	0%	53%	0%	86%	0%	60%	0%	0%	0%	0%	0%	0%	0%	3%
Institutional		0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Open Space		0%	0%	0%	7%	0%	10%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	16%	0%	0%	0%	4%	0%	9%
Golf Course		0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Pits and Quarries		0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	7%
Right-of-Way		0%	0%	0%	3%	0%	1%	0%	0%	0%	0%	0%	7%	0%	14%	0%	16%	0%	3%	0%	4%	0%	0%	0%	0%
WATERSHED-WIDE ACCOUNTING.....																								
tributary land area	ac	0.00	9.89	0.00	249.38	0.00	313.87	0.00	142.28	0.00	73.05	0.00	10.73	0.00	13.93	0.00	10.16	0.00	1330.27	0.00	14.47	0.00	20.55	0.00	268.11
tributary water area	ac	0.00	0.75	0.00	0.75	0.00	0.00	0.00	0.00	0.00	0.95	0.00	0.39	0.00	0.00	0.00	0.00	0.00	1.70	0.00	0.27	0.00	0.34	0.00	0.00
direct and ponded area	ac	0.00	10.64	0.00	250.13	0.00	313.87	0.00	142.28	0.00	74.00	0.00	11.12	0.00	13.93	0.00	10.16	0.00	1331.97	0.00	14.74	0.00	20.89	0.00	268.11
ASSUMED EXPORT FACTORS.....																								
season length	yrs	1.00	1	1.00	1	1.00	1	1.00	1	1.00	1	1.00	1	1.00	1	1.00	1	1.00	1	1.00	1	1.00	1	1.00	1
season precipitation	inches	31.80	31.8	31.80	31.8	31.80	31.8	31.80	31.8	31.80	31.8	31.80	31.8	31.80	31.8	31.80	31.8	31.80	31.8	31.80	31.8	31.80	31.8	31.80	31.8
runoff total p	ppb	0.00	350.00	0.00	506.70	0.00	496.18	0.00	417.08	0.00	418.42	0.00	429.43	0.00	356.80	0.00	404.55	0.00	478.87	0.00	534.59	0.00	524.90	0.00	449.19
runoff ortho p/total p	-	0.00	0.30	0.00	0.24	0.00	0.24	0.00	0.26	0.00	0.26	0.00	0.26	0.00	0.30	0.00	0.28	0.00	0.27	0.00	0.20	0.00	0.22	0.00	0.25
unit runoff	in/yr	0.00	14.56	0.00	4.45	0.00	4.80	0.00	10.99	0.00	10.92	0.00	10.11	0.00	13.77	0.00	11.17	0.00	4.28	0.00	4.61	0.00	4.37	0.00	4.14
unit export	lbs/ac-y	0.00	1.15	0.00	0.52	0.00	0.53	0.00	0.94	0.00	0.93	0.00	0.89	0.00	1.11	0.00	0.95	0.00	0.48	0.00	0.55	0.00	0.53	0.00	0.46
POND WATER BUDGETS.....																								
runoff	ac-ft/yr	0.00	12.00	0.00	88.79	0.00	125.48	0.00	130.33	0.00	53.80	0.00	9.04	0.00	15.99	0.00	9.45	0.00	247.53	0.00	5.55	0.00	2.21	0.00	92.47
upstream pond	ac-ft/yr	0.00	0.00	0.00	12.00	0.00	0.00	0.00	0.00	0.00	15.99	0.00	0.00	0.00	0.00	0.00	0.00	0.00	296.06	0.00	0.00	0.00	5.55	0.00	0.00
total inflow	**ac-ft/yr**	**0.00**	**12.00**	**0.00**	**100.79**	**0.00**	**125.48**	**0.00**	**130.33**	**0.00**	**69.79**	**0.00**	**9.04**	**0.00**	**15.99**	**0.00**	**9.45**	**0.00**	**543.58**	**0.00**	**5.55**	**0.00**	**7.77**	**0.00**	**92.47**
outflow	ac-ft/yr	0.00	12.00	0.00	100.79	0.00	125.48	0.00	130.33	0.00	69.79	0.00	9.04	0.00	15.99	0.00	9.45	0.00	543.58	0.00	5.55	0.00	7.77	0.00	92.47
POND PHOSPHORUS BUDGETS.....																								
runoff	lbs/yr	0.00	11.41	0.00	123.66	0.00	167.75	0.00	133.61	0.00	55.26	0.00	9.50	0.00	15.40	0.00	9.63	0.00	334.03	0.00	8.00	0.00	3.20	0.00	123.28
upstream pond	lbs/yr	0.00	0.00	0.00	11.41	0.00	0.00	0.00	0.00	0.00	15.40	0.00	0.00	0.00	0.00	0.00	0.00	0.00	373.49	0.00	0.00	0.00	8.00	0.00	0.00
total inflow	**lbs/yr**	**0.00**	**11.41**	**0.00**	**135.07**	**0.00**	**167.75**	**0.00**	**133.61**	**0.00**	**70.66**	**0.00**	**9.50**	**0.00**	**15.40**	**0.00**	**9.63**	**0.00**	**707.52**	**0.00**	**8.00**	**0.00**	**11.20**	**0.00**	**123.28**
net sedimentation	lbs/yr	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
outflow	lbs/yr	0.00	11.41	0.00	135.07	0.00	167.75	0.00	133.61	0.00	70.66	0.00	9.50	0.00	15.40	0.00	9.63	0.00	707.51	0.00	8.00	0.00	11.20	0.00	123.27
p removal efficiency	%	3.87	0.00	3.87	0.00	3.87	0.00	3.87	0.00	3.87	0.00	3.87	0.00	3.87	0.00	3.87	0.01	3.87	0.00	3.87	0.01	3.87	0.01	3.87	0.00
upstream w-shed p load	lbs/yr	0.00	11.41	0.00	135.07	0.00	167.75	0.00	133.61	0.00	70.66	0.00	9.50	0.00	15.40	0.00	9.63	0.00	707.52	0.00	8.00	0.00	11.20	0.00	123.28
total removal %	%	3.87	0.00	3.87	0.00	3.87	0.00	3.87	0.00	3.87	0.00	3.87	0.00	3.87	0.00	3.87	0.01	3.87	0.00	3.87	0.01	3.87	0.02	3.87	0.00
HYDRAULIC PARAMETERS.....																								
pond mean depth	feet	0.00	0.00	0.00	1.00	0.00	1.00	0.00	1.00	0.00	0.00	0.00	0.00	0.00	1.00	0.00	1.00	0.00	1.00	0.00	0.00	0.00	0.00	0.00	1.00
relative volume	inches	1.58	0.00	1.58	0.00	1.58	0.00	1.58	0.00	1.58	0.00	1.58	0.00	1.58	0.00	1.58	0.00	1.58	0.00	1.58	0.00	1.58	0.00	1.58	0.00
residence time	years	0.05	0.00	0.05	0.00	0.05	0.00	0.05	0.00	0.05	0.00	0.05	0.00	0.05	0.00	0.05	0.00	0.05	0.00	0.05	0.00	0.05	0.00	0.05	0.00
residence time	days	18.08	0.00	18.08	0.00	18.08	0.00	18.08	0.00	18.08	0.00	18.08	0.00	18.08	0.00	18.08	0.00	18.08	0.00	18.08	0.00	18.08	0.00	18.08	0.00
overflow rate	ft/yr	0.00	16.00	0.00	10078679.84	0.00	12547845.73	0.00	13032627.27	0.00	73.46	0.00	23.18	0.00	1599406.92	0.00	945238.20	0.00	54358189.30	0.00	20.57	0.00	110.95	0.00	9247252.89
inflow phos conc	ppb	394.79	350.02	394.79	493.08	394.79	491.87	394.79	377.19	394.79	372.51	394.79	386.49	394.79	354.35	394.79	374.82	394.79	478.87	394.79	530.24	394.79	530.49	394.79	490.48
outflow phos conc	ppb	379.50	350.01	379.50	493.08	379.50	491.87	379.50	377.19	379.50	372.50	379.50	386.48	379.50	354.33	379.50	374.79	379.50	478.87	379.50	530.19	379.50	530.42	379.50	490.47
p reaction rate	-	0.04	0.00	0.04	0.00	0.04	0.00	0.04	0.00	0.04	0.00	0.04	0.00	0.04	0.00	0.04	0.00	0.04	0.00	0.04	0.00	0.04	0.00	0.04	0.00
1-rp	-	0.96	1.00	0.96	1.00	0.96	1.00	0.96	1.00	0.96	1.00	0.96	1.00	0.96	1.00	0.96	1.00	0.96	1.00	0.96	1.00	0.96	1.00	0.96	1.00
vlawmo pond volume	acre-ft	0.00	0.94	0.00	6.98	0.00	9.86	0.00	10.25	0.00	4.23	0.00	0.71	0.00	1.26	0.00	0.74	0.00	19.46	0.00	0.44	0.00	0.17	0.00	7.27
LAND USE PARAMETERS.....																								
runoff total P conc	ppb	0.00	350.00	0.00	506.70	0.00	496.18	0.00	417.08	0.00	418.42	0.00	429.43	0.00	356.80	0.00	404.55	0.00	478.87	0.00	534.59	0.00	524.90	0.00	449.19
runoff coefficient		0.00	0.46	0.00	0.14	0.00	0.15	0.00	0.35	0.00	0.34	0.00	0.32	0.00	0.43	0.00	0.35	0.00	0.13	0.00	0.14	0.00	0.14	0.00	0.13
dissolved/total P		0.00	0.30	0.00	0.24	0.00	0.24	0.00	0.26	0.00	0.26	0.00	0.26	0.00	0.30	0.00	0.28	0.00	0.27	0.00	0.20	0.00	0.22	0.00	0.25
runoff TSS conc	ppm	0.00	140.00	0.00	167.44	0.00	166.89	0.00	148.12	0.00	148.28	0.00	149.19	0.00	140.00	0.00	145.65	0.00	171.23	0.00	162.23	0.00	165.35	0.00	159.36
POND TSS BUDGETS.....																								
runoff	lbs/yr	0.00	4552.23	0.00	39583.05	0.00	55083.62	0.00	50607.42	0.00	20902.64	0.00	3529.22	0.00	6068.15	0.00	3643.93	0.00	111882.78	0.00	2429.89	0.00	985.68	0.00	41736.77
upstream pond	lbs/yr	0.00	0.00	0.00	4552.23	0.00	0.00	0.00	0.00	0.00	6068.15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	126189.69	0.00	0.00	0.00	2429.89	0.00	0.00
total inflow	**lbs/yr**	**0.00**	**4552.23**	**0.00**	**44135.28**	**0.00**	**55083.62**	**0.00**	**50607.42**	**0.00**	**26970.79**	**0.00**	**3529.22**	**0.00**	**6068.15**	**0.00**	**3643.93**	**0.00**	**238072.46**	**0.00**	**2429.89**	**0.00**	**3415.57**	**0.00**	**41736.77**
p removal efficiency (no inf)	%	5.00	0.00	5.00	0.00	5.00	0.00	5.00	0.00	5.00	0.00	5.00	0.00	5.00	0.00	5.00	0.00	5.00	0.00	5.00	0.00	5.00	0.00	5.00	0.00
tss removal efficiency (no inf)	%	9.82	0.00	9.82	0.00	9.82	0.00	9.82	0.00	9.82	0.00	9.82	0.00	9.82	0.00	9.82	0.00	9.82	0.00	9.82	0.00	9.82	0.00	9.82	0.00
net sedimentation	lbs/yr	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
outflow	lbs/yr	0.00	4552.23	0.00	44135.28	0.00	55083.62	0.00	50607.42	0.00	26970.79	0.00	3529.22	0.00	6068.15	0.00	3643.93	0.00	238072.46	0.00	2429.89	0.00	3415.57	0.00	41736.77
tss removal efficiency (inf)	%	9.82	0.00	9.82	0.00	9.82	0.00	9.82	0.00	9.82	0.00	9.82	0.00	9.82	0.00	9.82	0.00	9.82	0.00	9.82	0.00	9.82	0.00	9.82	0.00
upstream watershed tss load	lbs/yr	0.00	4552.23	0.00	44135.28	0.00	55083.62	0.00	50607.42	0.00	26970.79	0.00	3529.22	0.00	6068.15	0.00	3643.93	0.00	238072.46	0.00	2429.89	0.00	3415.57	0.00	41736.77
tss total removal efficiency	%	9.82	0.00	9.82	0.00	9.82	0.00	9.82	0.00	9.82	0.00	9.82	0.00	9.82	0.00	9.82	0.00	9.82	0.00	9.82	0.00	9.82	0.00	9.82	0.00
INFILTRATION BMP/POND.....																								
Annual runoff infiltrated	%	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Adjusted outflow	**ac-ft/yr**	**0.00**	**12.00**	**0.00**	**100.79**	**0.00**	**125.48**	**0.00**	**130.33**	**0.00**	**69.79**	**0.00**	**9.04**	**0.00**	**15.99**	**0.00**	**9.45**	**0.00**	**543.58**	**0.00**	**5.55**	**0.00**	**7.77**	**0.00**	**92.47**
Adjusted TP outflow	**lbs/yr**	**0.00**	**11.41**	**0.00**	**135.07**	**0.00**	**167.75**	**0.00**	**133.61**	**0.00**	**70.66**	**0.00**	**9.50**	**0.00**	**15.40**	**0.00**	**9.63**	**0.00**	**707.51**	**0.00**	**8.00**	**0.00**	**11.20**	**0.00**	**123.27**
Adjusted TSS outflow	**lbs/yr**	**0.00**	**4552.23**	**0.00**	**44135.28**	**0.00**	**55083.62**	**0.00**	**50607.42**	**0.00**	**26970.79**	**0.00**	**3529.22**	**0.00**	**6068.15**	**0.00**	**3643.93**	**0.00**	**238072.46**	**0.00**	**2429.89**	**0.00**	**3415.57**	**0.00**	**41736.77**
POND P BUDGETS W/O P-BAN.....																								
runoff	lbs/yr	0.00	11.41	0.00	123.66	0.00	167.75	0.00	133.61	0.00	55.26	0.00	9.50	0.00	15.40	0.00	9.63	0.00	334.03	0.00	8.00	0.00	3.20	0.00	123.28
Adjusted TP outflow	**lbs/yr**	**0.00**	**11.41**	**0.00**	**135.07**	**0.00**	**167.75**	**0.00**	**133.61**	**0.00**	**70.66**	**0.00**	**9.50**	**0.00**	**15.40**	**0.00**	**9.63**	**0.00**	**707.51**	**0.00**	**8.00**	**0.00**	**11.20**	**0.00**	**123.27**
upstream pond	lbs/yr	0.00	0.00	0.00	11.41	0.00	0.00	0.00	0.00	0.00	15.40	0.00	0.00	0.00	0.00	0.00	0.00	0.00	373.49	0.00	0.00	0.00	8.00	0.00	0.00
total inflow	**lbs/yr**	**0.00**	**11.41**	**0.00**	**135.07**	**0.00**	**167.75**	**0.00**	**133.61**	**0.00**	**70.66**	**0.00**	**9.50**	**0.00**	**15.40**	**0.00**	**9.63**	**0.00**	**707.52**	**0.00**	**8.00**	**0.00**	**11.20**	**0.00**	**123.28**
outflow	lbs/yr	0.00	11.41	0.00	135.07	0.00	167.75	0.00	133.61	0.00	70.66	0.00	9.50	0.00	15.40	0.00	9.63	0.00	707.51	0.00	8.00	0.00	11.20	0.00	123.27
inflow phos conc	ppb	409.24	350.02	409.24	493.08	409.24	491.87	409.24	377.19	409.24	372.51	409.24	386.49	409.24	354.35	409.24	374.82	409.24	478.87	409.24	530.24	409.24	530.49	409.24	490.48
outflow phos conc	ppb	392.86	350.01	392.86	493.08	392.86	491.87	392.86	377.19	392.86	372.50	392.86	386.48	392.86	354.33	392.86	374.79	392.86	478.87	392.86	530.19	392.86	530.42	392.86	490.47
p reaction rate	-	0.04	0.00	0.04	0.00	0.04	0.00	0.04	0.00	0.04	0.00	0.04	0.00	0.04	0.00	0.04	0.00	0.04	0.00	0.04	0.00	0.04	0.00	0.04	0.00
1-rp	-	0.96	1.00	0.96	1.00	0.96	1.00	0.96	1.00	0.96	1.00	0.96	1.00	0.96	1.00	0.96	1.00	0.96	1.00	0.96	1.00	0.96	1.00	0.96	1.00
runoff total p conc	ppb	0.00	350.00	0.00	506.70	0.00	496.18	0.00	417.08	0.00	418.42	0.00	429.43	0.00	356.80	0.00	404.55	0.00	478.87	0.00	534.59	0.00	524.90	0.00	449.19

Rochester Loading Assessment																								
Willow Creek																								
363-06-158-2																								
FCP Reservoir Credit																								
		future wc-a4.5a	**wc-a4.5a**	**future wc-a4.6b**	**wc-a4.6b**	**future wc-a4.6a**	**wc-a4.6a**	**future wc-a4.7(C)**	**wc-a4.7(C)**	**future wc-a4.7**	**wc-a4.7**	**future wc-a4.8c**	**wc-a4.8c**	**future wc-a4.8b**	**wc-a4.8b**	**future wc-a4.8a**	**wc-a4.8a**	**future wc-a4.9**	**wc-a4.9**	**future wc-a4.10**	**wc-a4.10**	**future wc-a4.11**	**wc-a4.11**	**future wc-a4.12e**	**wc-a4.12e**
Routed TO:		wc-a4.5a	wc-a4.7	wc-a4.6b	wc-a4.6a	wc-a4.6a	wc-a4.7	wc-a4.7(C)	wc-a4.7	wc-a4.7	wc-a4.14a	wc-a4.8c	wc-a4.8a	wc-a4.8b	wc-a4.8a	wc-a4.8a	wc-a4.11	wc-a4.9	wc-a4.11	wc-a4.10	wc-a4.11	wc-a4.11	wc-a4.14a	wc-a4.12e	wc-a4.12a
INPUT VARIABLES....	UNITS																							
case label	-																							
Watershed area	acres	0.0	384.3	7.1	112.3	0.0	45.2	0.7	299.2	11.5	281.8	0.0	4.4	0.0	3.8	23.0	253.3	4.6	44.6	0.0	80.5	2.6	545.6	0.0	4.7
basin area	acres	0.00	0.00	0.25	0.38	0.00	0.00	0.04	0.00	0.32	0.00	0.00	0.08	0.00	0.11	0.51	0.00	0.17	0.53	0.00	0.00	0.08	0.00	0.00	0.14
basin volume	acre-ft	0.00	0.00	0.56	1.52	0.00	0.00	0.06	0.00	0.91	0.00	0.00	0.14	0.00	0.19	1.82	0.00	0.36	1.13	0.00	0.00	0.21	0.00	0.00	0.17
Row Crop Agriculture		0%	76%	0%	5%	0%	39%	0%	43%	0%	28%	0%	0%	0%	0%	0%	34%	0%	45%	0%	63%	0%	35%	0%	2%
Very Low Density Residential		0%	8%	0%	0%	0%	1%	0%	9%	0%	8%	0%	0%	0%	0%	0%	0%	0%	0%	0%	2%	0%	1%	0%	0%
Low Density Residential		0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Medium Density Residential		0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
High Density Residential		0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Commercial/Industrial		0%	0%	100%	80%	0%	31%	100%	2%	100%	7%	0%	100%	0%	100%	100%	50%	100%	46%	0%	0%	100%	18%	0%	80%
Institutional		0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Open Space		0%	16%	0%	11%	0%	17%	0%	32%	0%	31%	0%	0%	0%	0%	0%	12%	0%	3%	0%	34%	0%	43%	0%	0%
Golf Course		0%	0%	0%	0%	0%	0%	0%	13%	0%	25%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	2%	0%	0%
Pits and Quarries		0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Right-of-Way		0%	1%	0%	5%	0%	12%	0%	0%	0%	3%	0%	0%	0%	0%	0%	4%	0%	6%	0%	1%	0%	2%	0%	18%
WATERSHED-WIDE ACCOUNTING.....																								
tributary land area	ac	0.00	2013.39	7.13	119.45	0.00	306.88	0.72	299.88	11.51	2924.14	0.00	4.38	0.00	3.85	23.01	284.52	4.60	49.17	0.00	80.47	2.60	962.31	0.00	4.72
tributary water area	ac	0.00	2.04	0.25	0.63	0.00	0.63	0.04	0.04	0.32	3.42	0.00	0.08	0.00	0.11	0.51	0.70	0.17	0.70	0.00	0.00	0.08	1.47	0.00	0.14
direct and ponded area	ac	0.00	2015.43	7.38	120.08	0.00	307.50	0.76	299.92	11.84	2927.57	0.00	4.46	0.00	3.96	23.52	285.21	4.77	49.87	0.00	80.47	2.68	963.79	0.00	4.86
ASSUMED EXPORT FACTORS.....																								
season length	yrs	1.00	1	1.00	1	1.00	1	1.00	1	1.00	1	1.00	1	1.00	1	1.00	1	1.00	1	1.00	1	1.00	1	1.00	1
season precipitation	inches	31.80	31.8	31.80	31.8	31.80	31.8	31.80	31.8	31.80	31.8	31.80	31.8	31.80	31.8	31.80	31.8	31.80	31.8	31.80	31.8	31.80	31.8	31.80	31.8
runoff total p	ppb	0.00	470.67	350.00	344.40	0.00	403.75	350.00	409.88	350.00	407.27	0.00	350.00	0.00	350.00	350.00	397.56	350.00	434.44	0.00	419.75	350.00	357.53	0.00	362.47
runoff ortho p/total p	-	0.00	0.29	0.30	0.33	0.00	0.31	0.30	0.43	0.30	0.48	0.00	0.30	0.00	0.30	0.30	0.30	0.30	0.26	0.00	0.34	0.30	0.40	0.00	0.30
unit runoff	in/yr	0.00	4.07	14.56	12.49	0.00	7.76	14.56	3.66	14.56	4.16	0.00	14.56	0.00	14.56	14.56	9.47	14.56	9.35	0.00	3.83	14.56	5.49	0.00	13.33
unit export	lbs/ac-y	0.00	0.45	1.15	0.99	0.00	0.69	1.15	0.36	1.15	0.39	0.00	1.15	0.00	1.15	1.15	0.81	1.15	0.83	0.00	0.40	1.15	0.47	0.00	1.08
POND WATER BUDGETS.....																								
runoff	ac-ft/yr	0.00	130.23	8.65	116.86	0.00	29.21	0.87	91.16	13.97	97.59	0.00	5.32	0.00	4.67	27.92	199.93	5.59	34.74	0.00	25.70	3.16	249.59	0.00	5.25
upstream pond	ac-ft/yr	0.00	653.27	0.00	8.65	0.00	255.84	0.00	0.87	0.00	1183.60	0.00	0.00	0.00	0.00	0.00	37.91	0.00	5.59	0.00	0.00	0.00	307.02	0.00	0.00
total inflow	**ac-ft/yr**	**0.00**	**783.50**	**8.65**	**125.51**	**0.00**	**285.05**	**0.87**	**92.03**	**13.97**	**1281.18**	**0.00**	**5.32**	**0.00**	**4.67**	**27.92**	**237.84**	**5.59**	**40.33**	**0.00**	**25.70**	**3.16**	**556.62**	**0.00**	**5.25**
outflow	ac-ft/yr	0.00	783.50	8.65	125.51	0.00	285.05	0.87	92.03	13.97	1281.18	0.00	5.32	0.00	4.67	27.92	237.84	5.59	40.33	0.00	25.70	3.16	556.62	0.00	5.25
POND PHOSPHORUS BUDGETS.....																								
runoff	lbs/yr	0.00	174.69	8.23	111.61	0.00	31.00	0.83	108.47	13.29	110.44	0.00	5.06	0.00	4.44	26.57	204.83	5.31	37.05	0.00	31.92	3.00	256.37	0.00	5.09
upstream pond	lbs/yr	0.00	851.61	0.00	4.19	0.00	214.48	0.00	0.47	0.00	1396.73	0.00	0.00	0.00	0.00	0.00	18.14	0.00	2.72	0.00	0.00	0.00	278.77	0.00	0.00
total inflow	**lbs/yr**	**0.00**	**1026.31**	**8.23**	**115.80**	**0.00**	**245.49**	**0.83**	**108.93**	**13.29**	**1507.18**	**0.00**	**5.06**	**0.00**	**4.44**	**26.57**	**222.96**	**5.31**	**39.78**	**0.00**	**31.92**	**3.00**	**535.14**	**0.00**	**5.09**
net sedimentation	lbs/yr	0.00	0.00	4.04	34.93	0.00	0.00	0.36	0.00	6.78	0.00	0.00	1.97	0.00	1.91	14.05	0.00	2.59	17.39	0.00	0.00	1.50	0.00	0.00	1.95
outflow	lbs/yr	0.00	1026.31	4.19	80.87	0.00	245.49	0.47	108.93	6.52	1507.18	0.00	3.09	0.00	2.53	12.52	222.96	2.72	22.39	0.00	31.92	1.50	535.14	0.00	3.14
p removal efficiency	%	3.87	0.00	49.07	30.16	3.87	0.00	43.78	0.00	50.98	0.00	3.87	38.84	3.87	43.11	52.89	0.00	48.77	43.72	3.87	0.00	49.89	0.00	3.87	38.27
upstream w-shed p load	lbs/yr	0.00	1026.32	8.23	119.84	0.00	284.45	0.83	109.29	13.29	1553.29	0.00	5.06	0.00	4.44	26.57	240.89	5.31	42.37	0.00	31.92	3.00	574.55	0.00	5.09
total removal %	%	3.87	0.00	49.07	32.52	3.87	13.70	43.78	0.33	50.98	2.97	3.87	38.84	3.87	43.11	52.89	7.44	48.77	47.16	3.87	0.00	49.89	6.86	3.87	38.27
HYDRAULIC PARAMETERS.....																								
pond mean depth	feet	0.00	1.00	2.27	4.00	0.00	1.00	1.37	1.00	2.82	1.00	0.00	1.75	0.00	1.75	3.61	1.00	2.20	2.14	0.00	1.00	2.48	1.00	0.00	1.21
relative volume	inches	1.58	0.00	2.07	0.41	1.58	0.00	2.07	0.00	2.07	0.00	1.58	0.84	1.58	1.31	2.07	0.00	2.07	1.04	1.58	0.00	2.07	0.00	1.58	1.03
residence time	years	0.05	0.00	0.07	0.01	0.05	0.00	0.07	0.00	0.07	0.00	0.05	0.03	0.05	0.04	0.07	0.00	0.07	0.03	0.05	0.00	0.07	0.00	0.05	0.03
residence time	days	18.08	0.00	23.81	4.42	18.08	0.00	23.81	0.00	23.81	0.00	18.08	9.61	18.08	15.09	23.81	0.00	23.81	10.25	18.08	0.00	23.81	0.00	18.08	11.82
overflow rate	ft/yr	0.00	78349991.85	34.81	330.30	0.00	28505340.81	21.00	9203142.28	43.21	128118168.34	0.00	66.48	0.00	42.44	55.29	23784434.49	33.71	76.09	0.00	2569662.53	38.09	55661781.09	0.00	37.49
inflow phos conc	ppb	394.79	481.94	350.02	339.44	394.79	316.85	350.02	435.48	350.02	432.82	394.79	350.02	394.79	350.02	350.02	344.90	350.02	362.90	394.79	456.97	350.02	353.72	394.79	357.10
outflow phos conc	ppb	379.50	481.93	178.27	237.06	379.50	316.85	196.79	435.48	171.59	432.82	379.50	214.07	379.50	199.13	164.90	344.90	179.32	204.25	379.50	456.96	175.39	353.72	379.50	220.45
p reaction rate	-	0.04	0.00	1.89	0.62	0.04	0.00	1.39	0.00	2.12	0.00	0.04	1.04	0.04	1.33	2.38	0.00	1.86	1.38	0.04	0.00	1.99	0.00	0.04	1.00
1-rp	-	0.96	1.00	0.51	0.70	0.96	1.00	0.56	1.00	0.49	1.00	0.96	0.61	0.96	0.57	0.47	1.00	0.51	0.56	0.96	1.00	0.50	1.00	0.96	0.62
vlawmo pond volume	acre-ft	0.00	10.24	0.68	9.19	0.00	2.30	0.07	7.17	1.10	7.67	0.00	0.42	0.00	0.37	2.20	15.72	0.44	2.73	0.00	2.02	0.25	19.62	0.00	0.41
LAND USE PARAMETERS.....																								
runoff total P conc	ppb	0.00	470.67	350.00	344.40	0.00	403.75	350.00	409.88	350.00	407.27	0.00	350.00	0.00	350.00	350.00	397.56	350.00	434.44	0.00	419.75	350.00	357.53	0.00	362.47
runoff coefficient		0.00	0.13	0.46	0.39	0.00	0.24	0.46	0.11	0.46	0.13	0.00	0.46	0.00	0.46	0.46	0.30	0.46	0.29	0.00	0.12	0.46	0.17	0.00	0.42
dissolved/total P		0.00	0.29	0.30	0.33	0.00	0.31	0.30	0.43	0.30	0.48	0.00	0.30	0.00	0.30	0.30	0.30	0.30	0.26	0.00	0.34	0.30	0.40	0.00	0.30
runoff TSS conc	ppm	0.00	175.35	140.00	149.54	0.00	162.81	140.00	191.86	140.00	194.40	0.00	140.00	0.00	140.00	140.00	157.02	140.00	152.32	0.00	181.65	140.00	182.49	0.00	140.42
POND TSS BUDGETS.....																								
runoff	lbs/yr	0.00	60323.22	3282.49	45004.20	0.00	11852.70	330.09	45290.08	5300.32	47286.56	0.00	2017.85	0.00	1771.09	10594.20	79176.28	2119.58	13694.03	0.00	12189.51	1197.44	110017.63	0.00	1993.07
upstream pond	lbs/yr	0.00	286868.73	0.00	623.67	0.00	69942.23	0.00	101.23	0.00	478808.48	0.00	0.00	0.00	0.00	0.00	2573.66	0.00	455.71	0.00	0.00	0.00	98506.21	0.00	0.00
total inflow	**lbs/yr**	**0.00**	**347191.96**	**3282.49**	**45627.87**	**0.00**	**81794.93**	**330.09**	**45391.31**	**5300.32**	**526095.04**	**0.00**	**2017.85**	**0.00**	**1771.09**	**10594.20**	**81749.94**	**2119.58**	**14149.74**	**0.00**	**12189.51**	**1197.44**	**208523.84**	**0.00**	**1993.07**
p removal efficiency (no inf)	%	5.00	0.00	50.00	31.00	5.00	0.00	44.00	0.00	51.00	0.00	5.00	39.00	5.00	44.00	53.00	0.00	49.00	44.00	5.00	0.00	50.00	0.00	5.00	39.00
tss removal efficiency (no inf)	%	9.82	0.00	81.00	57.63	9.82	0.00	69.33	0.00	83.00	0.00	9.82	65.00	9.82	69.33	87.50	0.00	78.50	69.33	9.82	0.00	81.00	0.00	9.82	65.00
net sedimentation	lbs/yr	0.00	0.00	2658.82	26293.06	0.00	0.00	228.86	0.00	4399.27	0.00	0.00	1311.61	0.00	1227.96	9269.93	0.00	1663.87	9810.49	0.00	0.00	969.93	0.00	0.00	1295.50
outflow	lbs/yr	0.00	347191.96	623.67	19334.81	0.00	81794.93	101.23	45391.31	901.05	526095.04	0.00	706.25	0.00	543.13	1324.28	81749.94	455.71	4339.25	0.00	12189.51	227.51	208523.84	0.00	697.58
tss removal efficiency (inf)	%	9.82	0.00	81.00	57.63	9.82	0.00	69.33	0.00	83.00	0.00	9.82	65.00	9.82	69.33	87.50	0.00	78.50	69.33	9.82	0.00	81.00	0.00	9.82	65.00
upstream watershed tss load	lbs/yr	0.00	347191.96	3282.49	48286.69	0.00	110746.81	330.09	45620.17	5300.32	559675.05	0.00	2017.85	0.00	1771.09	10594.20	93559.43	2119.58	15813.61	0.00	12189.51	1197.44	232777.61	0.00	1993.07
tss total removal efficiency	%	9.82	0.00	81.00	59.96	9.82	26.14	69.33	0.50	83.00	6.00	9.82	65.00	9.82	69.33	87.50	12.62	78.50	72.56	9.82	0.00	81.00	10.42	9.82	65.00
INFILTRATION BMP/POND.....																								
Annual runoff infiltrated	%	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Adjusted outflow	**ac-ft/yr**	**0.00**	**783.50**	**8.65**	**125.51**	**0.00**	**285.05**	**0.87**	**92.03**	**13.97**	**1281.18**	**0.00**	**5.32**	**0.00**	**4.67**	**27.92**	**237.84**	**5.59**	**40.33**	**0.00**	**25.70**	**3.16**	**556.62**	**0.00**	**5.25**
Adjusted TP outflow	**lbs/yr**	**0.00**	**1026.31**	**4.19**	**80.87**	**0.00**	**245.49**	**0.47**	**108.93**	**6.52**	**1507.18**	**0.00**	**3.09**	**0.00**	**2.53**	**12.52**	**222.96**	**2.72**	**22.39**	**0.00**	**31.92**	**1.50**	**535.14**	**0.00**	**3.14**
Adjusted TSS outflow	**lbs/yr**	**0.00**	**347191.96**	**623.67**	**19334.81**	**0.00**	**81794.93**	**101.23**	**45391.31**	**901.05**	**526095.04**	**0.00**	**706.25**	**0.00**	**543.13**	**1324.28**	**81749.94**	**455.71**	**4339.25**	**0.00**	**12189.51**	**227.51**	**208523.84**	**0.00**	**697.58**
POND P BUDGETS W/O P-BAN.....																								
runoff	lbs/yr	0.00	174.69	8.23	111.61	0.00	31.00	0.83	108.47	13.29	110.44	0.00	5.06	0.00	4.44	26.57	204.83	5.31	37.05	0.00	31.92	3.00	256.37	0.00	5.09
Adjusted TP outflow	**lbs/yr**	**0.00**	**1026.31**	**4.19**	**80.87**	**0.00**	**245.49**	**0.47**	**108.93**	**6.52**	**1507.18**	**0.00**	**3.09**	**0.00**	**2.53**	**12.52**	**222.96**	**2.72**	**22.39**	**0.00**	**31.92**	**1.50**	**535.14**	**0.00**	**3.14**
upstream pond	lbs/yr	0.00	851.61	0.00	4.19	0.00	214.48	0.00	0.47	0.00	1396.73	0.00	0.00	0.00	0.00	0.00	18.14	0.00	2.72	0.00	0.00	0.00	278.77	0.00	0.00
total inflow	**lbs/yr**	**0.00**	**1026.31**	**8.23**	**115.80**	**0.00**	**245.49**	**0.83**	**108.93**	**13.29**	**1507.18**	**0.00**	**5.06**	**0.00**	**4.44**	**26.57**	**222.96**	**5.31**	**39.78**	**0.00**	**31.92**	**3.00**	**535.14**	**0.00**	**5.09**
outflow	lbs/yr	0.00	1026.31	4.19	80.87	0.00	245.49	0.47	108.93	6.52	1507.18	0.00	3.09	0.00	2.53	12.52	222.96	2.72	22.39	0.00	31.92	1.50	535.14	0.00	3.14
inflow phos conc	ppb	409.24	481.94	350.02	339.44	409.24	316.85	350.02	435.48	350.02	432.82	409.24	350.02	409.24	350.02	350.02	344.90	350.02	362.90	409.24	456.97	350.02	353.72	409.24	357.10
outflow phos conc	ppb	392.86	481.93	178.27	237.06	392.86	316.85	196.79	435.48	171.59	432.82	392.86	214.07	392.86	199.13	164.90	344.90	179.32	204.25	392.86	456.96	175.39	353.72	392.86	220.45
p reaction rate	-	0.04	0.00	1.89	0.62	0.04	0.00	1.39	0.00	2.12	0.00	0.04	1.04	0.04	1.33	2.38	0.00	1.86	1.38	0.04	0.00	1.99	0.00	0.04	1.00
1-rp	-	0.96	1.00	0.51	0.70	0.96	1.00	0.56	1.00	0.49	1.00	0.96	0.61	0.96	0.57	0.47	1.00	0.51	0.56	0.96	1.00	0.50	1.00	0.96	0.62
runoff total p conc	ppb	0.00	470.67	350.00	344.40	0.00	403.75	350.00	409.88	350.00	407.27	0.00	350.00	0.00	350.00	350.00	397.56	350.00	434.44	0.00	419.75	350.00	357.53	0.00	362.47

Rochester Loading Assessment																							
Willow Creek																							
363-06-158-2																							
FCP Reservoir Credit																							
		future wc-a4.12d	**wc-a4.12d**	**future wc-a4.12c**	**wc-a4.12c**	**future wc-a4.12b**	**wc-a4.12b**	**future wc-a4.12a**	**wc-a4.12a**	**future wc-a4.14b**	**wc-a4.14b**	**future wc-a5.5c**	**wc-a5.5c**	**future wc-a4.13(C)**	**wc-a4.13(C)**	**future wc-a4.14a(C)**	**wc-a4.14a(C)**	**future wc-a4.14a**	WR-6A **wc-a4.14a**	**future wc-a1.1(C)**	**wc-a1.1(C)**	**future wc-a1.2(C)**	**wc-a1.2(C)**	**future wc-a1.3(C)**
Routed TO:		wc-a4.12d	wc-a4.12a	wc-a4.12c	wc-a4.12a	wc-a4.12b	wc-a4.12a	wc-a4.12a	wc-a4.14a	wc-a4.14b	wc-a4.14a	wc-a5.5c	wc-a4.14a	wc-a4.13(C)	wc-a4.14a(C)	wc-a4.14a(C)	wc-a4.14a	wc-a4.14a	wc-a5.7b	wc-a1.1(C)	wc-a1.2(C)	wc-a1.2(C)	wc-a1.3(C)	wc-a1.3(C)
INPUT VARIABLES....	UNITS																						
case label	-																						
Watershed area	acres	0.0	10.6	0.0	34.8	0.0	8.5	0.0	234.3	0.0	38.1	12.0	27.1	0.0	621.4	0.0	161.9	12.3	193.4	0.0	139.5	0.0	370.9	0.0
basin area	acres	0.00	0.21	0.00	0.43	0.00	0.11	0.00	0.00	0.00	0.06	0.12	0.33	0.00	0.00	0.00	0.00	0.12	71.00	0.00	0.00	0.00	0.00	0.00
basin volume	acre-ft	0.00	0.40	0.00	2.34	0.00	0.10	0.00	0.00	0.00	0.08	0.33	1.52	0.00	0.00	0.00	0.00	0.34	630.40	0.00	0.00	0.00	0.00	0.00
Row Crop Agriculture		0%	0%	0%	0%	0%	0%	0%	7%	0%	1%	0%	0%	0%	68%	0%	46%	0%	32%	0%	88%	0%	96%	0%
Very Low Density Residential		0%	0%	0%	0%	0%	0%	0%	23%	0%	0%	0%	0%	0%	12%	0%	25%	0%	2%	0%	3%	0%	4%	0%
Low Density Residential		0%	3%	0%	60%	0%	100%	0%	18%	0%	74%	100%	95%	0%	0%	0%	0%	100%	10%	0%	0%	0%	0%	0%
Medium Density Residential		0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
High Density Residential		0%	0%	0%	4%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Commercial/Industrial		0%	92%	0%	0%	0%	0%	0%	12%	0%	0%	0%	0%	0%	2%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Institutional		0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Open Space		0%	0%	0%	25%	0%	0%	0%	28%	0%	21%	0%	5%	0%	18%	0%	29%	0%	55%	0%	9%	0%	0%	0%
Golf Course		0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Pits and Quarries		0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Right-of-Way		0%	4%	0%	10%	0%	0%	0%	13%	0%	3%	0%	0%	0%	0%	0%	0%	0%	1%	0%	0%	0%	0%	0%
WATERSHED-WIDE ACCOUNTING.....																							
tributary land area	ac	0.00	10.64	0.00	34.80	0.00	8.48	0.00	292.96	0.00	38.08	11.98	39.10	0.00	621.35	0.00	783.28	12.34	5245.62	0.00	139.53	0.00	510.47	0.00
tributary water area	ac	0.00	0.21	0.00	0.43	0.00	0.11	0.00	0.89	0.00	0.06	0.12	0.45	0.00	0.00	0.00	0.00	0.12	77.43	0.00	0.00	0.00	0.00	0.00
direct and ponded area	ac	0.00	10.85	0.00	35.23	0.00	8.59	0.00	293.85	0.00	38.14	12.10	39.56	0.00	621.35	0.00	783.28	12.47	5323.05	0.00	139.53	0.00	510.47	0.00
ASSUMED EXPORT FACTORS.....																							
season length	yrs	1.00	1	1.00	1	1.00	1	1.00	1	1.00	1	1.00	1	1.00	1	1.00	1	1.00	1	1.00	1	1.00	1	1.00
season precipitation	inches	31.80	31.8	31.80	31.8	31.80	31.8	31.80	31.8	31.80	31.8	31.80	31.8	31.80	31.8	31.80	31.8	31.80	31.8	31.80	31.8	31.80	31.8	31.80
runoff total p	ppb	0.00	354.46	0.00	381.49	0.00	450.00	0.00	345.82	0.00	396.92	391.50	436.65	0.00	452.25	0.00	393.46	391.50	339.39	0.00	503.34	0.00	532.08	0.00
runoff ortho p/total p	-	0.00	0.30	0.00	0.38	0.00	0.30	0.00	0.42	0.00	0.36	0.30	0.32	0.00	0.31	0.00	0.39	0.30	0.44	0.00	0.25	0.00	0.21	0.00
unit runoff	in/yr	0.00	14.03	0.00	6.16	0.00	6.74	0.00	5.75	0.00	5.89	6.74	6.52	0.00	4.15	0.00	3.53	6.74	3.65	0.00	4.24	0.00	4.39	0.00
unit export	lbs/ac-y	0.00	1.12	0.00	0.58	0.00	0.69	0.00	0.49	0.00	0.57	0.60	0.66	0.00	0.44	0.00	0.34	0.60	0.32	0.00	0.50	0.00	0.53	0.00
POND WATER BUDGETS.....																							
runoff	ac-ft/yr	0.00	12.44	0.00	17.86	0.00	4.77	0.00	112.33	0.00	18.69	6.73	14.73	0.00	214.99	0.00	47.60	6.94	58.81	0.00	49.25	0.00	135.72	0.00
upstream pond	ac-ft/yr	0.00	0.00	0.00	0.00	0.00	0.00	0.00	40.32	0.00	0.00	0.00	6.73	0.00	0.00	0.00	214.99	0.00	2300.13	0.00	0.00	0.00	49.25	0.00
total inflow	**ac-ft/yr**	**0.00**	**12.44**	**0.00**	**17.86**	**0.00**	**4.77**	**0.00**	**152.64**	**0.00**	**18.69**	**6.73**	**21.46**	**0.00**	**214.99**	**0.00**	**262.59**	**6.94**	**2358.93**	**0.00**	**49.25**	**0.00**	**184.97**	**0.00**
outflow	ac-ft/yr	0.00	12.44	0.00	17.86	0.00	4.77	0.00	152.64	0.00	18.69	6.73	21.46	0.00	214.99	0.00	262.59	6.94	2358.93	0.00	49.25	0.00	184.97	0.00
POND PHOSPHORUS BUDGETS.....																							
runoff	lbs/yr	0.00	11.93	0.00	20.23	0.00	5.83	0.00	113.79	0.00	21.63	7.16	17.81	0.00	275.73	0.00	55.43	7.38	61.86	0.00	69.27	0.00	197.23	0.00
upstream pond	lbs/yr	0.00	0.00	0.00	0.00	0.00	0.00	0.00	21.78	0.00	0.00	0.00	3.59	0.00	0.00	0.00	275.73	0.00	2540.26	0.00	0.00	0.00	69.27	0.00
total inflow	**lbs/yr**	**0.00**	**11.93**	**0.00**	**20.23**	**0.00**	**5.83**	**0.00**	**135.57**	**0.00**	**21.63**	**7.16**	**21.41**	**0.00**	**275.73**	**0.00**	**331.16**	**7.38**	**2602.11**	**0.00**	**69.27**	**0.00**	**266.50**	**0.00**
net sedimentation	lbs/yr	0.00	4.95	0.00	12.30	0.00	2.10	0.00	0.00	0.00	3.68	3.57	11.82	0.00	0.00	0.00	0.00	3.70	1735.75	0.00	0.00	0.00	0.00	0.00
outflow	lbs/yr	0.00	6.98	0.00	7.92	0.00	3.73	0.00	135.57	0.00	17.95	3.59	9.58	0.00	275.73	0.00	331.16	3.69	866.36	0.00	69.27	0.00	266.49	0.00
p removal efficiency	%	3.87	41.51	3.87	60.83	3.87	35.99	3.87	0.00	3.87	17.03	49.84	55.23	3.87	0.00	3.87	0.00	50.06	66.71	3.87	0.00	3.87	0.00	3.87
upstream w-shed p load	lbs/yr	0.00	11.93	0.00	20.23	0.00	5.83	0.00	156.87	0.00	21.63	7.16	24.98	0.00	275.73	0.00	331.16	7.38	2731.72	0.00	69.27	0.00	266.50	0.00
total removal %	%	3.87	41.51	3.87	60.83	3.87	35.99	3.87	13.58	3.87	17.03	49.84	61.63	3.87	0.00	3.87	0.00	50.06	68.29	3.87	0.00	3.87	0.00	3.87
HYDRAULIC PARAMETERS.....																							
pond mean depth	feet	0.00	1.90	0.00	5.44	0.00	0.91	0.00	1.00	0.00	1.33	2.65	4.61	0.00	1.00	0.00	1.00	2.73	8.88	0.00	1.00	0.00	1.00	0.00
relative volume	inches	1.58	1.02	1.58	4.17	1.58	0.67	1.58	0.00	1.58	0.14	1.56	3.28	1.58	0.00	1.58	0.00	1.56	340.88	1.58	0.00	1.58	0.00	1.58
residence time	years	0.05	0.03	0.05	0.13	0.05	0.02	0.05	0.00	0.05	0.00	0.05	0.07	0.05	0.00	0.05	0.00	0.05	0.27	0.05	0.00	0.05	0.00	0.05
residence time	days	18.08	11.73	18.08	47.82	18.08	7.66	18.08	0.00	18.08	1.56	17.86	25.85	18.08	0.00	18.08	0.00	17.86	97.54	18.08	0.00	18.08	0.00	18.08
overflow rate	ft/yr	0.00	59.26	0.00	41.54	0.00	43.32	0.00	15264452.38	0.00	311.48	54.16	65.04	0.00	21499101.71	0.00	26259206.06	55.81	33.22	0.00	4924835.47	0.00	18496867.76	0.00
inflow phos conc	ppb	394.79	352.65	394.79	416.62	394.79	450.02	394.79	326.76	394.79	425.84	391.52	366.91	394.79	471.86	394.79	463.99	391.52	405.85	394.79	517.49	394.79	530.08	394.79
outflow phos conc	ppb	379.50	206.27	379.50	163.21	379.50	288.06	379.50	326.75	379.50	353.32	196.39	164.26	379.50	471.86	379.50	463.99	195.52	135.12	379.50	517.48	379.50	530.08	379.50
p reaction rate	-	0.04	1.21	0.04	3.96	0.04	0.88	0.04	0.00	0.04	0.25	1.98	2.76	0.04	0.00	0.04	0.00	2.01	6.02	0.04	0.00	0.04	0.00	0.04
1-rp	-	0.96	0.58	0.96	0.39	0.96	0.64	0.96	1.00	0.96	0.83	0.50	0.45	0.96	1.00	0.96	1.00	0.50	0.33	0.96	1.00	0.96	1.00	0.96
vlawmo pond volume	acre-ft	0.00	0.98	0.00	1.40	0.00	0.37	0.00	8.83	0.00	1.47	0.53	1.16	0.00	16.90	0.00	3.74	0.55	4.62	0.00	3.87	0.00	10.67	0.00
LAND USE PARAMETERS.....																							
runoff total P conc	ppb	0.00	354.46	0.00	381.49	0.00	450.00	0.00	345.82	0.00	396.92	391.50	436.65	0.00	452.25	0.00	393.46	391.50	339.39	0.00	503.34	0.00	532.08	0.00
runoff coefficient		0.00	0.44	0.00	0.19	0.00	0.21	0.00	0.18	0.00	0.19	0.21	0.20	0.00	0.13	0.00	0.11	0.21	0.11	0.00	0.13	0.00	0.14	0.00
dissolved/total P		0.00	0.30	0.00	0.38	0.00	0.30	0.00	0.42	0.00	0.36	0.30	0.32	0.00	0.31	0.00	0.39	0.30	0.44	0.00	0.25	0.00	0.21	0.00
runoff TSS conc	ppm	0.00	140.35	0.00	159.29	0.00	140.00	0.00	179.83	0.00	156.36	140.00	144.08	0.00	178.42	0.00	191.72	140.00	190.57	0.00	169.34	0.00	165.21	0.00
POND TSS BUDGETS.....																							
runoff	lbs/yr	0.00	4723.61	0.00	7162.13	0.00	1807.85	0.00	48532.31	0.00	7453.80	2554.07	5653.28	0.00	100032.45	0.00	23910.50	2631.68	28575.59	0.00	22281.89	0.00	60503.03	0.00
upstream pond	lbs/yr	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3397.46	0.00	0.00	0.00	319.26	0.00	0.00	0.00	100032.45	0.00	916056.99	0.00	0.00	0.00	22281.89	0.00
total inflow	**lbs/yr**	**0.00**	**4723.61**	**0.00**	**7162.13**	**0.00**	**1807.85**	**0.00**	**51929.77**	**0.00**	**7453.80**	**2554.07**	**5972.54**	**0.00**	**100032.45**	**0.00**	**123942.95**	**2631.68**	**944632.59**	**0.00**	**22281.89**	**0.00**	**82784.92**	**0.00**
p removal efficiency (no inf)	%	5.00	42.00	5.00	61.00	5.00	36.00	5.00	0.00	5.00	18.00	53.00	56.00	5.00	0.00	5.00	0.00	53.00	67.00	5.00	0.00	5.00	0.00	5.00
tss removal efficiency (no inf)	%	9.82	68.00	9.82	93.00	9.82	62.00	9.82	0.00	9.82	35.36	87.50	93.00	9.82	0.00	9.82	0.00	87.50	93.00	9.82	0.00	9.82	0.00	9.82
net sedimentation	lbs/yr	0.00	3212.05	0.00	6660.78	0.00	1120.87	0.00	0.00	0.00	2635.45	2234.81	5554.46	0.00	0.00	0.00	0.00	2302.72	878508.30	0.00	0.00	0.00	0.00	0.00
outflow	lbs/yr	0.00	1511.55	0.00	501.35	0.00	686.98	0.00	51929.77	0.00	4818.35	319.26	418.08	0.00	100032.45	0.00	123942.95	328.96	66124.28	0.00	22281.89	0.00	82784.92	0.00
tss removal efficiency (inf)	%	9.82	68.00	9.82	93.00	9.82	62.00	9.82	0.00	9.82	35.36	87.50	93.00	9.82	0.00	9.82	0.00	87.50	93.00	9.82	0.00	9.82	0.00	9.82
upstream watershed tss load	lbs/yr	0.00	4723.61	0.00	7162.13	0.00	1807.85	0.00	64218.98	0.00	7453.80	2554.07	8207.35	0.00	100032.45	0.00	123942.95	2631.68	1027483.01	0.00	22281.89	0.00	82784.92	0.00
tss total removal efficiency	%	9.82	68.00	9.82	93.00	9.82	62.00	9.82	19.14	9.82	35.36	87.50	94.91	9.82	0.00	9.82	0.00	87.50	93.56	9.82	0.00	9.82	0.00	9.82
INFILTRATION BMP/POND.....																							
Annual runoff infiltrated	%	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Adjusted outflow	**ac-ft/yr**	**0.00**	**12.44**	**0.00**	**17.86**	**0.00**	**4.77**	**0.00**	**152.64**	**0.00**	**18.69**	**6.73**	**21.46**	**0.00**	**214.99**	**0.00**	**262.59**	**6.94**	**2358.93**	**0.00**	**49.25**	**0.00**	**184.97**	**0.00**
Adjusted TP outflow	**lbs/yr**	**0.00**	**6.98**	**0.00**	**7.92**	**0.00**	**3.73**	**0.00**	**135.57**	**0.00**	**17.95**	**3.59**	**9.58**	**0.00**	**275.73**	**0.00**	**331.16**	**3.69**	**866.36**	**0.00**	**69.27**	**0.00**	**266.49**	**0.00**
Adjusted TSS outflow	**lbs/yr**	**0.00**	**1511.55**	**0.00**	**501.35**	**0.00**	**686.98**	**0.00**	**51929.77**	**0.00**	**4818.35**	**319.26**	**418.08**	**0.00**	**100032.45**	**0.00**	**123942.95**	**328.96**	**66124.28**	**0.00**	**22281.89**	**0.00**	**82784.92**	**0.00**
POND P BUDGETS W/O P-BAN.....																							
runoff	lbs/yr	0.00	11.93	0.00	20.23	0.00	5.83	0.00	113.79	0.00	21.63	8.23	17.81	0.00	275.73	0.00	55.43	8.48	61.86	0.00	69.27	0.00	197.23	0.00
Adjusted TP outflow	**lbs/yr**	**0.00**	**6.98**	**0.00**	**7.92**	**0.00**	**3.73**	**0.00**	**135.57**	**0.00**	**17.95**	**3.94**	**9.68**	**0.00**	**275.73**	**0.00**	**331.16**	**4.04**	**866.45**	**0.00**	**69.27**	**0.00**	**266.49**	**0.00**
upstream pond	lbs/yr	0.00	0.00	0.00	0.00	0.00	0.00	0.00	21.78	0.00	0.00	0.00	3.94	0.00	0.00	0.00	275.73	0.00	2540.71	0.00	0.00	0.00	69.27	0.00
total inflow	**lbs/yr**	**0.00**	**11.93**	**0.00**	**20.23**	**0.00**	**5.83**	**0.00**	**135.57**	**0.00**	**21.63**	**8.23**	**21.75**	**0.00**	**275.73**	**0.00**	**331.16**	**8.48**	**2602.57**	**0.00**	**69.27**	**0.00**	**266.50**	**0.00**
outflow	lbs/yr	0.00	6.98	0.00	7.92	0.00	3.73	0.00	135.57	0.00	17.95	3.94	9.68	0.00	275.73	0.00	331.16	4.04	866.45	0.00	69.27	0.00	266.49	0.00
inflow phos conc	ppb	409.24	352.65	409.24	416.62	409.24	450.02	409.24	326.76	409.24	425.84	450.02	372.86	409.24	471.86	409.24	463.99	450.02	405.92	409.24	517.49	409.24	530.08	409.24
outflow phos conc	ppb	392.86	206.27	392.86	163.21	392.86	288.06	392.86	326.75	392.86	353.32	215.36	165.97	392.86	471.86	392.86	463.99	214.39	135.14	392.86	517.48	392.86	530.08	392.86
p reaction rate	-	0.04	1.21	0.04	3.96	0.04	0.88	0.04	0.00	0.04	0.25	2.28	2.80	0.04	0.00	0.04	0.00	2.31	6.02	0.04	0.00	0.04	0.00	0.04
1-rp	-	0.96	0.58	0.96	0.39	0.96	0.64	0.96	1.00	0.96	0.83	0.48	0.45	0.96	1.00	0.96	1.00	0.48	0.33	0.96	1.00	0.96	1.00	0.96
runoff total p conc	ppb	0.00	354.46	0.00	381.49	0.00	450.00	0.00	345.82	0.00	396.92	450.00	436.65	0.00	452.25	0.00	393.46	450.00	339.39	0.00	503.34	0.00	532.08	0.00

Rochester Loading Assessment																							
Willow Creek																							
363-06-158-2																							
FCP Reservoir Credit																							
		wc-a1.3(C)	**future wc-a1.4(C)**	**wc-a1.4(C)**	**future wc-a1.5(C)**	**wc-a1.5(C)**	**future wc-a1.6(C)**	**wc-a1.6(C)**	**future wc-a1.7(C)**	**wc-a1.7(C)**	**future wc-a1.8(C)**	**wc-a1.8(C)**	**future wc-a1.9(C)**	**wc-a1.9(C)**	**future wc-a1.9b**	**wc-a1.9b**	**future wc-a1.9a**	**wc-a1.9a**	**future wc-a1.10a(C2)**	**wc-a1.10a(C2)**	**future wc-a1.10b**	**wc-a1.10b**	**future wc-a1.10a(C1)**	**wc-a1.10a(C1)**
Routed TO:		wc-a1.4(C)	wc-a1.4(C)	wc-a1.7(C)	wc-a1.5(C)	wc-a1.6(C)	wc-a1.6(C)	wc-a1.7(C)	wc-a1.7(C)	wc-a1.10a(C2)	wc-a1.8(C)	wc-a1.9(C)	wc-a1.9(C)	wc-a1.9a	wc-a1.9b	wc-a1.9a	wc-a1.9a	wc-a1.10a	wc-a1.10a(C2)	wc-a1.10a	wc-a1.10b	wc-a1.10a	wc-a1.10a(C1)	wc-a1.10a
INPUT VARIABLES....	UNITS																						
case label	-																						
Watershed area	acres	311.2	0.0	108.3	0.0	544.6	0.0	205.6	0.0	299.2	0.0	175.4	0.0	662.1	0.0	14.1	0.0	18.2	0.0	113.5	0.0	10.8	0.0	36.2
basin area	acres	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
basin volume	acre-ft	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Row Crop Agriculture		44%	0%	60%	0%	81%	0%	82%	0%	52%	0%	79%	0%	38%	0%	9%	0%	0%	0%	17%	0%	25%	0%	23%
Very Low Density Residential		11%	0%	6%	0%	7%	0%	0%	0%	12%	0%	2%	0%	3%	0%	13%	0%	0%	0%	0%	0%	0%	0%	0%
Low Density Residential		0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Medium Density Residential		0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
High Density Residential		0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Commercial/Industrial		0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Institutional		0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Open Space		45%	0%	34%	0%	12%	0%	18%	0%	36%	0%	19%	0%	59%	0%	78%	0%	100%	0%	83%	0%	22%	0%	77%
Golf Course		0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Pits and Quarries		0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	52%	0%	0%
Right-of-Way		0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
WATERSHED-WIDE ACCOUNTING.....																							
tributary land area	ac	821.65	0.00	929.94	0.00	544.60	0.00	750.18	0.00	1979.36	0.00	175.38	0.00	837.46	0.00	14.07	0.00	869.78	0.00	2092.90	0.00	10.76	0.00	36.21
tributary water area	ac	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
direct and ponded area	ac	821.65	0.00	929.94	0.00	544.60	0.00	750.18	0.00	1979.36	0.00	175.38	0.00	837.46	0.00	14.07	0.00	869.78	0.00	2092.90	0.00	10.76	0.00	36.21
ASSUMED EXPORT FACTORS.....																							
season length	yrs	1	1.00	1	1.00	1	1.00	1	1.00	1	1.00	1	1.00	1	1.00	1	1.00	1	1.00	1	1.00	1	1.00	1
season precipitation	inches	31.8	31.80	31.8	31.80	31.8	31.80	31.8	31.80	31.8	31.80	31.8	31.80	31.8	31.80	31.8	31.80	31.8	31.80	31.8	31.80	31.8	31.80	31.8
runoff total p	ppb	367.27	0.00	412.69	0.00	485.27	0.00	478.55	0.00	394.70	0.00	472.38	0.00	333.64	0.00	250.35	0.00	200.00	0.00	258.03	0.00	181.27	0.00	276.75
runoff ortho p/total p		0.41	0.00	0.35	0.00	0.27	0.00	0.27	0.00	0.38	0.00	0.28	0.00	0.45	0.00	0.55	0.00	0.60	0.00	0.53	0.00	0.19	0.00	0.51
unit runoff	in/yr	3.44	0.00	3.71	0.00	4.12	0.00	4.11	0.00	3.59	0.00	4.06	0.00	3.28	0.00	2.77	0.00	2.54	0.00	2.87	0.00	1.70	0.00	2.97
unit export	lbs/ac-y	0.32	0.00	0.38	0.00	0.47	0.00	0.47	0.00	0.35	0.00	0.46	0.00	0.28	0.00	0.17	0.00	0.12	0.00	0.19	0.00	0.16	0.00	0.21
POND WATER BUDGETS.....																							
runoff	ac-ft/yr	89.16	0.00	33.49	0.00	186.84	0.00	70.36	0.00	89.50	0.00	59.38	0.00	181.03	0.00	3.25	0.00	3.87	0.00	27.15	0.00	1.52	0.00	8.98
upstream pond	ac-ft/yr	184.97	0.00	274.13	0.00	0.00	0.00	186.84	0.00	564.82	0.00	0.00	0.00	59.38	0.00	0.00	0.00	243.67	0.00	654.32	0.00	0.00	0.00	0.00
total inflow	**ac-ft/yr**	**274.13**	**0.00**	**307.62**	**0.00**	**186.84**	**0.00**	**257.20**	**0.00**	**654.32**	**0.00**	**59.38**	**0.00**	**240.41**	**0.00**	**3.25**	**0.00**	**247.53**	**0.00**	**681.47**	**0.00**	**1.52**	**0.00**	**8.98**
outflow	ac-ft/yr	274.13	0.00	307.62	0.00	186.84	0.00	257.20	0.00	654.32	0.00	59.38	0.00	240.41	0.00	3.25	0.00	247.53	0.00	681.47	0.00	1.52	0.00	8.98
POND PHOSPHORUS BUDGETS.....																							
runoff	lbs/yr	99.25	0.00	41.09	0.00	256.36	0.00	96.00	0.00	105.66	0.00	80.25	0.00	186.60	0.00	2.39	0.00	2.10	0.00	21.40	0.00	1.76	0.00	7.68
upstream pond	lbs/yr	266.49	0.00	365.75	0.00	0.00	0.00	256.36	0.00	759.19	0.00	0.00	0.00	80.25	0.00	0.00	0.00	269.23	0.00	864.85	0.00	0.00	0.00	0.00
total inflow	**lbs/yr**	**365.75**	**0.00**	**406.83**	**0.00**	**256.36**	**0.00**	**352.36**	**0.00**	**864.85**	**0.00**	**80.25**	**0.00**	**266.84**	**0.00**	**2.39**	**0.00**	**271.34**	**0.00**	**886.25**	**0.00**	**1.76**	**0.00**	**7.68**
net sedimentation	lbs/yr	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
outflow	lbs/yr	365.75	0.00	406.83	0.00	256.36	0.00	352.36	0.00	864.85	0.00	80.25	0.00	266.84	0.00	2.39	0.00	271.34	0.00	886.25	0.00	1.76	0.00	7.68
p removal efficiency	%	0.00	3.87	0.00	3.87	0.00	3.87	0.00	3.87	0.00	3.87	0.00	3.87	0.00	3.87	0.01	3.87	0.00	3.87	0.00	3.87	0.08	3.87	0.00
upstream w-shed p load	lbs/yr	365.75	0.00	406.84	0.00	256.36	0.00	352.36	0.00	864.86	0.00	80.25	0.00	266.85	0.00	2.39	0.00	271.34	0.00	886.26	0.00	1.76	0.00	7.68
total removal %	%	0.00	3.87	0.00	3.87	0.00	3.87	0.00	3.87	0.00	3.87	0.00	3.87	0.00	3.87	0.01	3.87	0.00	3.87	0.00	3.87	0.08	3.87	0.00
HYDRAULIC PARAMETERS.....																							
pond mean depth	feet	1.00	0.00	1.00	0.00	1.00	0.00	1.00	0.00	1.00	0.00	1.00	0.00	1.00	0.00	1.00	0.00	1.00	0.00	1.00	0.00	1.00	0.00	1.00
relative volume	inches	0.00	1.58	0.00	1.58	0.00	1.58	0.00	1.58	0.00	1.58	0.00	1.58	0.00	1.58	0.00	1.58	0.00	1.58	0.00	1.58	0.00	1.58	0.00
residence time	years	0.00	0.05	0.00	0.05	0.00	0.05	0.00	0.05	0.00	0.05	0.00	0.05	0.00	0.05	0.00	0.05	0.00	0.05	0.00	0.05	0.00	0.05	0.00
residence time	days	0.00	18.08	0.00	18.08	0.00	18.08	0.00	18.08	0.00	18.08	0.00	18.08	0.00	18.08	0.00	18.08	0.00	18.08	0.00	18.08	0.00	18.08	0.00
overflow rate	ft/yr	27412744.00	0.00	30762052.34	0.00	18684013.63	0.00	25720119.18	0.00	65432417.49	0.00	5938066.47	0.00	24041363.39	0.00	325145.14	0.00	24753372.26	0.00	68147401.25	0.00	151993.86	0.00	897534.26
inflow phos conc	ppb	490.88	394.79	486.57	394.79	504.82	394.79	504.04	394.79	486.29	394.79	497.20	394.79	408.37	394.79	270.32	394.79	403.30	394.79	478.47	394.79	425.35	394.79	314.91
outflow phos conc	ppb	490.88	379.50	486.57	379.50	504.82	379.50	504.04	379.50	486.29	379.50	497.20	379.50	408.37	379.50	270.30	379.50	403.30	379.50	478.47	379.50	424.99	379.50	314.90
p reaction rate	-	0.00	0.04	0.00	0.04	0.00	0.04	0.00	0.04	0.00	0.04	0.00	0.04	0.00	0.04	0.00	0.04	0.00	0.04	0.00	0.04	0.00	0.04	0.00
1-rp	-	1.00	0.96	1.00	0.96	1.00	0.96	1.00	0.96	1.00	0.96	1.00	0.96	1.00	0.96	1.00	0.96	1.00	0.96	1.00	0.96	1.00	0.96	1.00
vlawmo pond volume	acre-ft	7.01	0.00	2.63	0.00	14.69	0.00	5.53	0.00	7.04	0.00	4.67	0.00	14.23	0.00	0.26	0.00	0.30	0.00	2.13	0.00	0.12	0.00	0.71
LAND USE PARAMETERS.....																							
runoff total P conc	ppb	367.27	0.00	412.69	0.00	485.27	0.00	478.55	0.00	394.70	0.00	472.38	0.00	333.64	0.00	250.35	0.00	200.00	0.00	258.03	0.00	181.27	0.00	276.75
runoff coefficient		0.11	0.00	0.12	0.00	0.13	0.00	0.13	0.00	0.11	0.00	0.13	0.00	0.10	0.00	0.09	0.00	0.08	0.00	0.09	0.00	0.05	0.00	0.09
dissolved/total P		0.41	0.00	0.35	0.00	0.27	0.00	0.27	0.00	0.38	0.00	0.28	0.00	0.45	0.00	0.55	0.00	0.60	0.00	0.53	0.00	0.19	0.00	0.51
runoff TSS conc	ppm	192.49	0.00	184.35	0.00	173.14	0.00	172.58	0.00	188.38	0.00	174.09	0.00	195.90	0.00	211.24	0.00	216.00	0.00	206.95	0.00	89.70	0.00	204.02
POND TSS BUDGETS.....																							
runoff	lbs/yr	44833.84	0.00	16159.77	0.00	85900.46	0.00	32211.88	0.00	44082.26	0.00	27369.78	0.00	92592.40	0.00	1835.96	0.00	2264.53	0.00	14859.93	0.00	745.03	0.00	4818.18
upstream pond	lbs/yr	82784.92	0.00	127618.76	0.00	0.00	0.00	85900.46	0.00	261890.86	0.00	0.00	0.00	27369.78	0.00	0.00	0.00	121798.14	0.00	305973.12	0.00	0.00	0.00	0.00
total inflow	**lbs/yr**	**127618.76**	**0.00**	**143778.52**	**0.00**	**85900.46**	**0.00**	**118112.34**	**0.00**	**305973.12**	**0.00**	**27369.78**	**0.00**	**119962.18**	**0.00**	**1835.96**	**0.00**	**124062.68**	**0.00**	**320833.05**	**0.00**	**745.03**	**0.00**	**4818.18**
p removal efficiency (no inf)	%	0.00	5.00	0.00	5.00	0.00	5.00	0.00	5.00	0.00	5.00	0.00	5.00	0.00	5.00	0.00	5.00	0.00	5.00	0.00	5.00	0.00	5.00	0.00
tss removal efficiency (no inf)	%	0.00	9.82	0.00	9.82	0.00	9.82	0.00	9.82	0.00	9.82	0.00	9.82	0.00	9.82	0.00	9.82	0.00	9.82	0.00	9.82	0.00	9.82	0.00
net sedimentation	lbs/yr	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
outflow	lbs/yr	127618.76	0.00	143778.52	0.00	85900.46	0.00	118112.34	0.00	305973.12	0.00	27369.78	0.00	119962.18	0.00	1835.96	0.00	124062.68	0.00	320833.05	0.00	745.03	0.00	4818.18
tss removal efficiency (inf)	%	0.00	9.82	0.00	9.82	0.00	9.82	0.00	9.82	0.00	9.82	0.00	9.82	0.00	9.82	0.00	9.82	0.00	9.82	0.00	9.82	0.00	9.82	0.00
upstream watershed tss load	lbs/yr	127618.76	0.00	143778.52	0.00	85900.46	0.00	118112.34	0.00	305973.12	0.00	27369.78	0.00	119962.18	0.00	1835.96	0.00	124062.68	0.00	320833.05	0.00	745.03	0.00	4818.18
tss total removal efficiency	%	0.00	9.82	0.00	9.82	0.00	9.82	0.00	9.82	0.00	9.82	0.00	9.82	0.00	9.82	0.00	9.82	0.00	9.82	0.00	9.82	0.00	9.82	0.00
INFILTRATION BMP/POND.....																							
Annual runoff infiltrated	%	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Adjusted outflow	**ac-ft/yr**	**274.13**	**0.00**	**307.62**	**0.00**	**186.84**	**0.00**	**257.20**	**0.00**	**654.32**	**0.00**	**59.38**	**0.00**	**240.41**	**0.00**	**3.25**	**0.00**	**247.53**	**0.00**	**681.47**	**0.00**	**1.52**	**0.00**	**8.98**
Adjusted TP outflow	**lbs/yr**	**365.75**	**0.00**	**406.83**	**0.00**	**256.36**	**0.00**	**352.36**	**0.00**	**864.85**	**0.00**	**80.25**	**0.00**	**266.84**	**0.00**	**2.39**	**0.00**	**271.34**	**0.00**	**886.25**	**0.00**	**1.76**	**0.00**	**7.68**
Adjusted TSS outflow	**lbs/yr**	**127618.76**	**0.00**	**143778.52**	**0.00**	**85900.46**	**0.00**	**118112.34**	**0.00**	**305973.12**	**0.00**	**27369.78**	**0.00**	**119962.18**	**0.00**	**1835.96**	**0.00**	**124062.68**	**0.00**	**320833.05**	**0.00**	**745.03**	**0.00**	**4818.18**
POND P BUDGETS W/O P-BAN.....																							
runoff	lbs/yr	99.25	0.00	41.09	0.00	256.36	0.00	96.00	0.00	105.66	0.00	80.25	0.00	186.60	0.00	2.39	0.00	2.10	0.00	21.40	0.00	1.76	0.00	7.68
Adjusted TP outflow	**lbs/yr**	**365.75**	**0.00**	**406.83**	**0.00**	**256.36**	**0.00**	**352.36**	**0.00**	**864.85**	**0.00**	**80.25**	**0.00**	**266.84**	**0.00**	**2.39**	**0.00**	**271.34**	**0.00**	**886.25**	**0.00**	**1.76**	**0.00**	**7.68**
upstream pond	lbs/yr	266.49	0.00	365.75	0.00	0.00	0.00	256.36	0.00	759.19	0.00	0.00	0.00	80.25	0.00	0.00	0.00	269.23	0.00	864.85	0.00	0.00	0.00	0.00
total inflow	**lbs/yr**	**365.75**	**0.00**	**406.83**	**0.00**	**256.36**	**0.00**	**352.36**	**0.00**	**864.85**	**0.00**	**80.25**	**0.00**	**266.84**	**0.00**	**2.39**	**0.00**	**271.34**	**0.00**	**886.25**	**0.00**	**1.76**	**0.00**	**7.68**
outflow	lbs/yr	365.75	0.00	406.83	0.00	256.36	0.00	352.36	0.00	864.85	0.00	80.25	0.00	266.84	0.00	2.39	0.00	271.34	0.00	886.25	0.00	1.76	0.00	7.68
inflow phos conc	ppb	490.88	409.24	486.57	409.24	504.82	409.24	504.04	409.24	486.29	409.24	497.20	409.24	408.37	409.24	270.32	409.24	403.30	409.24	478.47	409.24	425.35	409.24	314.91
outflow phos conc	ppb	490.88	392.86	486.57	392.86	504.82	392.86	504.04	392.86	486.29	392.86	497.20	392.86	408.37	392.86	270.30	392.86	403.30	392.86	478.47	392.86	424.99	392.86	314.90
p reaction rate	-	0.00	0.04	0.00	0.04	0.00	0.04	0.00	0.04	0.00	0.04	0.00	0.04	0.00	0.04	0.00	0.04	0.00	0.04	0.00	0.04	0.00	0.04	0.00
1-rp	-	1.00	0.96	1.00	0.96	1.00	0.96	1.00	0.96	1.00	0.96	1.00	0.96	1.00	0.96	1.00	0.96	1.00	0.96	1.00	0.96	1.00	0.96	1.00
runoff total p conc	ppb	367.27	0.00	412.69	0.00	485.27	0.00	478.55	0.00	394.70	0.00	472.38	0.00	333.64	0.00	250.35	0.00	200.00	0.00	258.03	0.00	181.27	0.00	276.75

Rochester Loading Assessment									
Willow Creek									
363-06-158-2									
FCP Reservoir Credit			WR-4						
		future wc-a1.10a	**wc-a1.10a**				wc-a4.14a	wc-a1.10a	Total
Routed TO:		wc-a1.10a	wc-a2.2				WR-6A	WR-4	
INPUT VARIABLES....	UNITS								
case label	-					units			
Watershed area	acres	0.0	58.0		**Watershed Area Proportion**				
basin area	acres	0.00	36.00		Total Area to FCP Reservoir	ac	5245.62	3067.68	
basin volume	acre-ft	0.00	314.00		Area to FCP Reservoir outside 2020 bndry	ac	1350.5	2966.6	
Row Crop Agriculture		0%	0%		Area to FCP Reservoir outside 2020 bndry	%	25.7	96.7	
Very Low Density Residential		0%	0%						
Low Density Residential		0%	0%		**Net Sedimentation in FCP Reservoirs**				
Medium Density Residential		0%	0%		TP	lb	1735.75	761.85	
High Density Residential		0%	0%		TSS	lb	878508	425625	
Commercial/Industrial		0%	0%						
Institutional		0%	0%		**Treatment Credit generated by FCP Reservoirs**				
Open Space		0%	100%		TP	lb	446.89	736.74	1183.63
Golf Course		0%	0%		TSS	lb	226182.04	411596.04	637778
Pits and Quarries		0%	0%						
Right-of-Way		0%	0%						
WATERSHED-WIDE ACCOUNTING.....									
tributary land area	ac	0.00	3067.68						
tributary water area	ac	0.00	36.00						
direct and ponded area	ac	0.00	3103.68						
ASSUMED EXPORT FACTORS.....									
season length	yrs	1.00	1						
season precipitation	inches	31.80	31.8						
runoff total p	ppb	0.00	200.00						
runoff ortho p/total p	-	0.00	0.60						
unit runoff	in/yr	0.00	2.54						
unit export	lbs/ac-y	0.00	0.12						
POND WATER BUDGETS.....									
runoff	ac-ft/yr	0.00	12.30						
upstream pond	ac-ft/yr	0.00	939.50						
total inflow	**ac-ft/yr**	**0.00**	**951.81**						
outflow	ac-ft/yr	0.00	951.81						
POND PHOSPHORUS BUDGETS.....									
runoff	lbs/yr	0.00	6.69						
upstream pond	lbs/yr	0.00	1167.02						
total inflow	**lbs/yr**	**0.00**	**1173.71**						
net sedimentation	lbs/yr	0.00	761.85						
outflow	lbs/yr	0.00	411.86						
p removal efficiency	%	3.87	64.91						
upstream w-shed p load	lbs/yr	0.00	1173.73						
total removal %	%	3.87	64.91						
HYDRAULIC PARAMETERS.....									
pond mean depth	feet	0.00	8.72						
relative volume	inches	1.58	811.56						
residence time	years	0.05	0.33						
residence time	days	18.08	120.41						
overflow rate	ft/yr	0.00	26.44						
inflow phos conc	ppb	394.79	453.69						
outflow phos conc	ppb	379.50	159.20						
p reaction rate	-	0.04	5.27						
1-rp	-	0.96	0.35						
vlawmo pond volume	acre-ft	0.00	0.97						
LAND USE PARAMETERS.....									
runoff total P conc	ppb	0.00	200.00						
runoff coefficient		0.00	0.08						
dissolved/total P		0.00	0.60						
runoff TSS conc	ppm	0.00	216.00						
POND TSS BUDGETS.....									
runoff	lbs/yr	0.00	7202.08						
upstream pond	lbs/yr	0.00	450458.93						
total inflow	**lbs/yr**	**0.00**	**457661.01**						
p removal efficiency (no inf)	%	5.00	65.00						
tss removal efficiency (no inf)	%	9.82	93.00						
net sedimentation	lbs/yr	0.00	425624.74						
outflow	lbs/yr	0.00	32036.27						
tss removal efficiency (inf)	%	9.82	93.00						
upstream watershed tss load	lbs/yr	0.00	457661.01						
tss total removal efficiency	%	9.82	93.00						
INFILTRATION BMP/POND.....									
Annual runoff infiltrated	%	0.00	0.00						
Adjusted outflow	**ac-ft/yr**	**0.00**	**951.81**						
Adjusted TP outflow	**lbs/yr**	**0.00**	**411.86**						
Adjusted TSS outflow	**lbs/yr**	**0.00**	**32036.27**						
POND P BUDGETS W/O P-BAN.....									
runoff	lbs/yr	0.00	6.69						
Adjusted TP outflow	**lbs/yr**	**0.00**	**411.86**						
upstream pond	lbs/yr	0.00	1167.02						
total inflow	**lbs/yr**	**0.00**	**1173.71**						
outflow	lbs/yr	0.00	411.86						
inflow phos conc	ppb	409.24	453.69						
outflow phos conc	ppb	392.86	159.20						
p reaction rate	-	0.04	5.27						
1-rp	-	0.96	0.35						
runoff total p conc	ppb	0.00	200.00						

Rochester Loading Assessment																						
Bear Creek																						
363-06-158-2																						
Baseline (1988) LOADS																						
		bc-a2.6c	**bc-a2.6b**	**bc-a2.6a**	**bc-a2.7c**	**bc-a2.7b**	**bc-a2.7a**	**bc-a2.9**	**bc-a2.8**	**bc-a2.10**	**bc-a2.11**	**bc-a1.21b**	**bc-a1.21a**	**bc-a1.11**	**bc-a1.12**	**bc-a1.15**	**bc-a2.14b**	**bc-a2.14a**	**bc-a2.12**	**bc-a2.13**	**bc-a2.15**	**bc-a2.16d**
Routed TO:		bc-a2.7b	bc-a2.6a	bc-a2.7b	bc-a2.7b	bc-a2.9	bc-a2.7b	bc-a2.11	bc-a2.11	bc-a2.11	bc-a2.14a	bc-a2.14a	bc-a2.14a	bc-a1.12	bc-a1.15	bc-a2.14a	bc-a2.14a	bc-a2.17	bc-a2.15	bc-a2.15	bc-a2.17	bc-a2.16c
INPUT VARIABLES....	UNITS																					
case label	-																					
Watershed area	acres	22.7	30.2	37.7	20.4	234.9	78.2	11.7	232.0	57.1	182.7	6.1	16.2	8.9	8.1	127.0	11.2	320.3	86.9	55.7	148.5	44.5
basin area	acres	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
basin volume	acre-ft	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Row Crop Agriculture		99%	80%	31%	82%	50%	43%	0%	6%	10%	1%	0%	0%	0%	53%	2%	0%	2%	26%	57%	4%	6%
Very Low Density Residential		0%	0%	6%	0%	7%	0%	0%	14%	0%	20%	0%	0%	0%	3%	36%	0%	37%	7%	0%	0%	0%
Low Density Residential		0%	0%	2%	0%	0%	0%	0%	14%	0%	1%	0%	0%	39%	0%	23%	0%	19%	1%	0%	39%	82%
Medium Density Residential		0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	2%	0%	1%	0%	0%	0%	0%
High Density Residential		0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Commercial/Industrial		0%	0%	8%	0%	0%	0%	0%	0%	0%	0%	0%	30%	0%	0%	0%	0%	2%	0%	0%	1%	0%
Institutional		0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	5%	0%	1%	0%	0%	1%	0%
Open Space		1%	20%	50%	18%	43%	57%	100%	66%	90%	78%	100%	68%	61%	25%	24%	100%	33%	66%	43%	55%	13%
Golf Course		0%	0%	1%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Pits and Quarries		0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Right-of-Way		0%	0%	2%	0%	0%	0%	0%	0%	0%	0%	0%	2%	0%	19%	8%	0%	5%	0%	0%	0%	0%
WATERSHED-WIDE ACCOUNTING.....																						
tributary land area	ac	22.73	30.18	67.85	20.38	424.05	78.18	435.78	231.96	57.06	907.48	6.13	16.22	8.86	16.91	143.86	11.17	1405.14	86.87	55.73	291.14	44.53
tributary water area	ac	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
direct and ponded area	ac	22.73	30.18	67.85	20.38	424.05	78.18	435.78	231.96	57.06	907.48	6.13	16.22	8.86	16.91	143.86	11.17	1405.14	86.87	55.73	291.14	44.53
ASSUMED EXPORT FACTORS.....																						
season length	yrs	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
season precipitation	inches	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8
runoff total p	ppb	537.3520934	471.7022681	339.5059967	478.947362	380.0664852	347.5135551	200.6099604	277.378508	234.2737144	236.3301545	200.0030811	248.91852	297.1503813	422.2368253	345.5403943	200.0417469	326.797765	300.2468486	392.4773146	313.9145494	423.4438534
runoff ortho p/total p	-	0.203114931	0.280350082	0.433885216	0.27182635	0.393572762	0.426454567	0.599281908	0.518658247	0.559677882	0.5725214	0.599995435	0.504389154	0.483427963	0.32854646	0.443949298	0.600024615	0.470799625	0.487444751	0.373555997	0.4615898	0.332326599
unit runoff	in/yr	4.43715707	4.068741627	4.311784963	4.109405367	3.525756934	3.37181616	2.547454927	3.310740544	2.736342594	2.69705486	2.544078437	6.245233136	4.171726378	4.76501726	4.66905056	2.544642924	4.231791358	3.107174013	3.624144131	4.410355079	6.079171604
unit export	lbs/ac-y	0.54	0.46	0.37	0.47	0.34	0.30	0.12	0.24	0.16	0.15	0.12	0.44	0.34	0.48	0.40	0.12	0.35	0.24	0.36	0.37	0.61
POND WATER BUDGETS.....																						
runoff	ac-ft/yr	8.41	10.23	13.54	6.98	69.02	21.97	2.49	64.00	13.01	41.06	1.30	8.44	3.08	3.20	49.40	2.37	112.94	22.49	16.83	54.59	22.56
upstream pond	ac-ft/yr	0.00	0.00	10.23	0.00	61.12	0.00	130.14	0.00	0.00	209.64	0.00	0.00	0.00	3.08	6.28	0.00	318.48	0.00	0.00	39.33	0.00
total inflow	**ac-ft/yr**	**8.41**	**10.23**	**23.77**	**6.98**	**130.14**	**21.97**	**132.63**	**64.00**	**13.01**	**250.70**	**1.30**	**8.44**	**3.08**	**6.28**	**55.67**	**2.37**	**431.42**	**22.49**	**16.83**	**93.92**	**22.56**
outflow	ac-ft/yr	8.41	10.23	23.77	6.98	130.14	21.97	132.63	64.00	13.01	250.70	1.30	8.44	3.08	6.28	55.67	2.37	431.42	22.49	16.83	93.92	22.56
POND PHOSPHORUS BUDGETS.....																						
runoff	lbs/yr	12.30	13.83	13.76	9.53	79.35	23.57	1.36	55.48	9.05	27.44	0.71	7.11	2.99	3.83	50.68	1.29	111.12	20.82	19.97	54.82	27.01
upstream pond	lbs/yr	0.00	0.00	13.83	0.00	72.98	0.00	152.33	0.00	0.00	218.21	0.00	0.00	0.00	2.99	6.82	0.00	312.25	0.00	0.00	40.79	0.00
total inflow	**lbs/yr**	**12.30**	**13.83**	**27.59**	**9.53**	**152.33**	**23.57**	**153.69**	**55.48**	**9.05**	**245.65**	**0.71**	**7.11**	**2.99**	**6.82**	**57.50**	**1.29**	**423.37**	**20.82**	**19.97**	**95.61**	**27.01**
net sedimentation	lbs/yr	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
outflow	lbs/yr	12.30	13.83	27.59	9.52	152.33	23.57	153.69	55.48	9.05	245.65	0.71	7.11	2.99	6.82	57.50	1.29	423.37	20.82	19.97	95.61	27.01
p removal efficiency	%	0.02	0.01	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.01	0.01	0.00	0.01	0.00	0.00	0.00	0.00	0.00
upstream w-shed p load	lbs/yr	12.30	13.83	27.59	9.53	152.34	23.57	153.70	55.48	9.05	245.66	0.71	7.11	2.99	6.82	57.50	1.29	423.38	20.82	19.97	95.61	27.01
total removal %	%	0.02	0.01	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.01	0.02	0.00	0.01	0.00	0.00	0.00	0.00	0.00
HYDRAULIC PARAMETERS.....																						
pond mean depth	feet	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
relative volume	inches	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
residence time	years	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
residence time	days	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
overflow rate	ft/yr	840585.76	1023223.76	2376910.08	697814.36	13013929.17	2196712.66	13262966.02	6399690.99	1301155.76	25069653.34	130046.93	844098.94	307980.48	627636.50	5567221.19	236908.16	43142228.11	2249414.55	1683206.26	9391576.03	2256035.29
inflow phos conc	ppb	538.51	497.32	427.03	502.23	430.65	394.79	426.34	318.93	255.78	360.51	200.02	309.95	356.85	399.79	379.97	200.07	361.05	340.54	436.47	374.54	440.53
outflow phos conc	ppb	538.41	497.27	427.02	502.16	430.65	394.78	426.34	318.93	255.77	360.51	199.99	309.94	356.81	399.74	379.96	200.06	361.05	340.53	436.45	374.54	440.52
p reaction rate	-	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1-rp	-	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
vlawmo pond volume	acre-ft	0.66	0.80	1.06	0.55	5.43	1.73	0.20	5.03	1.02	3.23	0.10	0.66	0.24	0.25	3.88	0.19	8.88	1.77	1.32	4.29	1.77
LAND USE PARAMETERS.....																						
runoff total P conc	ppb	537.35	471.70	339.51	478.95	380.07	347.51	200.61	277.38	234.27	236.33	200.00	248.92	297.15	422.24	345.54	200.04	326.80	300.25	392.48	313.91	423.44
runoff coefficient		0.14	0.13	0.14	0.13	0.11	0.11	0.08	0.10	0.09	0.08	0.08	0.20	0.13	0.15	0.15	0.08	0.13	0.10	0.11	0.14	0.19
dissolved/total P		0.20	0.28	0.43	0.27	0.39	0.43	0.60	0.52	0.56	0.57	0.60	0.50	0.48	0.33	0.44	0.60	0.47	0.49	0.37	0.46	0.33
runoff TSS conc	ppm	163.41	173.65	190.36	172.52	189.58	193.01	215.90	202.01	210.66	214.62	216.00	191.78	186.52	173.46	186.50	216.01	193.70	201.65	186.00	183.02	150.96
POND TSS BUDGETS.....																						
runoff	lbs/yr	3718.51	4704.47	6362.03	3193.87	34162.23	11051.23	1456.63	32931.71	7309.93	23701.66	761.23	3684.99	1405.37	1411.40	22498.48	1386.64	53684.71	11877.47	8171.56	24446.94	8865.27
upstream pond	lbs/yr	0.00	0.00	4704.47	0.00	29030.11	0.00	63192.34	0.00	0.00	104890.61	0.00	0.00	0.00	1405.37	2816.77	0.00	159740.39	0.00	0.00	20049.03	0.00
total inflow	**lbs/yr**	**3718.51**	**4704.47**	**11066.50**	**3193.87**	**63192.34**	**11051.23**	**64648.97**	**32931.71**	**7309.93**	**128592.27**	**761.23**	**3684.99**	**1405.37**	**2816.77**	**25315.26**	**1386.64**	**213425.11**	**11877.47**	**8171.56**	**44495.97**	**8865.27**
p removal efficiency (no inf)	%	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
tss removal efficiency (no inf)	%	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
net sedimentation	lbs/yr	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
outflow	lbs/yr	3718.51	4704.47	11066.50	3193.87	63192.34	11051.23	64648.97	32931.71	7309.93	128592.27	761.23	3684.99	1405.37	2816.77	25315.26	1386.64	213425.11	11877.47	8171.56	44495.97	8865.27
tss removal efficiency (inf)		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
upstream watershed tss load	lbs/yr	3718.51	4704.47	11066.50	3193.87	63192.34	11051.23	64648.97	32931.71	7309.93	128592.27	761.23	3684.99	1405.37	2816.77	25315.26	1386.64	213425.11	11877.47	8171.56	44495.97	8865.27
tss total removal efficiency	%	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
INFILTRATION BMP/POND.....																						
Annual runoff infiltrated	%	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Adjusted outflow	**ac-ft/yr**	**8.41**	**10.23**	**23.77**	**6.98**	**130.14**	**21.97**	**132.63**	**64.00**	**13.01**	**250.70**	**1.30**	**8.44**	**3.08**	**6.28**	**55.67**	**2.37**	**431.42**	**22.49**	**16.83**	**93.92**	**22.56**
Adjusted TP outflow	**lbs/yr**	**12.30**	**13.83**	**27.59**	**9.52**	**152.33**	**23.57**	**153.69**	**55.48**	**9.05**	**245.65**	**0.71**	**7.11**	**2.99**	**6.82**	**57.50**	**1.29**	**423.37**	**20.82**	**19.97**	**95.61**	**27.01**
Adjusted TSS outflow	**lbs/yr**	**3718.51**	**4704.47**	**11066.50**	**3193.87**	**63192.34**	**11051.23**	**64648.97**	**32931.71**	**7309.93**	**128592.27**	**761.23**	**3684.99**	**1405.37**	**2816.77**	**25315.26**	**1386.64**	**213425.11**	**11877.47**	**8171.56**	**44495.97**	**8865.27**

Rochester Loading Assessment																				
Bear Creek																				
363-06-158-2																				
Baseline (1988) LOADS																				
		bc-a2.16c	**bc-a2.16b**	**bc-a2.16a**	**bc-a1.17**	**bc-a1.18**	**bc-a1.20**	**bc-a1.19**	**bc-a1.16**	**bc-a1.22b**	**bc-a1.22a**	**bc-a1.26**	**bc-a1.23**	**bc-a1.24d**	**bc-a1.24c**	**bc-a1.24b**	**bc-a1.24a**	**bc-a2.17**	**bc-a2.18**	**bc-a2.19**	**bc-a2.20**
Routed TO:		bc-a2.16b	bc-a2.17	bc-a2.16b	bc-a1.20	bc-a1.20	bc-a1.19	bc-a1.22a	bc-a1.22a	bc-a1.22a	bc-a1.26	bc-a2.17	bc-a1.24a	bc-a1.24a	bc-a1.24b	bc-a1.24a	bc-a2.17	bc-a2.19	bc-a2.19	bc-a2.20	zr-a4.1a
INPUT VARIABLES....	UNITS																				
case label	-																				
Watershed area	acres	48.0	296.1	77.3	2.4	86.8	105.4	83.6	146.1	10.3	137.9	143.3	99.9	3.7	18.5	47.3	218.2	116.8	155.6	689.1	341.7
basin area	acres	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
basin volume	acre-ft	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Row Crop Agriculture		0%	3%	24%	0%	47%	40%	30%	28%	39%	4%	4%	24%	0%	15%	0%	19%	7%	2%	0%	0%
Very Low Density Residential		9%	1%	17%	0%	0%	0%	17%	11%	0%	22%	4%	12%	0%	7%	22%	9%	3%	0%	0%	0%
Low Density Residential		25%	33%	0%	0%	0%	0%	24%	19%	0%	16%	17%	9%	0%	0%	7%	36%	12%	14%	36%	46%
Medium Density Residential		0%	3%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	1%	5%	10%
High Density Residential		0%	6%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	1%	30%	6%	8%
Commercial/Industrial		0%	6%	0%	0%	0%	0%	0%	1%	0%	8%	4%	0%	0%	0%	0%	0%	1%	2%	2%	8%
Institutional		0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	1%	0%	13%	6%
Open Space		67%	41%	58%	0%	27%	51%	29%	39%	61%	49%	71%	55%	100%	78%	71%	35%	65%	41%	33%	15%
Golf Course		0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Pits and Quarries		0%	0%	0%	0%	5%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	2%	0%	0%
Right-of-Way		0%	7%	0%	100%	21%	8%	0%	2%	0%	0%	0%	0%	0%	0%	0%	0%	10%	8%	5%	6%
WATERSHED-WIDE ACCOUNTING.....																					
tributary land area	ac	92.55	466.02	77.33	2.40	86.78	194.62	278.25	146.13	10.31	572.64	715.90	99.91	3.74	18.46	65.80	387.66	3382.64	155.56	4227.28	4568.97
tributary water area	ac	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
direct and ponded area	ac	92.55	466.02	77.33	2.40	86.78	194.62	278.25	146.13	10.31	572.64	715.90	99.91	3.74	18.46	65.80	387.66	3382.64	155.56	4227.28	4568.97
ASSUMED EXPORT FACTORS.....																					
season length	yrs	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
season precipitation	inches	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8
runoff total p	ppb	274.7080775	340.4371348	309.2780323	399.9987078	391.3785836	354.1604174	387.8377793	364.1209627	331.9185054	301.9322577	267.1030163	322.6713532	200.549292	260.6202476	250.0065677	370.0646988	284.4461696	334.3113328	349.8938276	395.1965951
runoff ortho p/total p	-	0.517494899	0.421658751	0.484386526	0.300002084	0.31950362	0.413427614	0.390282945	0.411637186	0.444801199	0.486581367	0.518887718	0.464251794	0.599352234	0.533744098	0.557893856	0.405062512	0.492576853	0.413384099	0.399931213	0.344831644
unit runoff	in/yr	3.612867563	6.008225279	3.09699212	8.770355064	4.622754115	3.824657534	4.21368777	4.179056451	3.284331985	4.365544163	3.800004579	3.443223195	2.547182729	2.857322778	2.917672623	4.501415204	4.147264868	7.195130016	6.508164268	7.911865729
unit export	lbs/ac-y	0.27	0.53	0.24	0.79	0.45	0.34	0.40	0.38	0.28	0.34	0.27	0.29	0.12	0.19	0.18	0.42	0.32	0.66	0.58	0.74
POND WATER BUDGETS.....																					
runoff	ac-ft/yr	14.46	148.28	19.96	1.75	33.43	33.61	29.37	50.89	2.82	50.18	45.37	28.67	0.79	4.40	11.51	81.85	40.36	93.27	373.72	225.28
upstream pond	ac-ft/yr	22.56	56.97	0.00	0.00	0.00	35.18	68.79	0.00	0.00	151.87	202.05	0.00	0.00	0.00	4.40	45.37	1105.23	0.00	1238.86	1612.58
total inflow	**ac-ft/yr**	**37.02**	**205.25**	**19.96**	**1.75**	**33.43**	**68.79**	**98.16**	**50.89**	**2.82**	**202.05**	**247.42**	**28.67**	**0.79**	**4.40**	**15.91**	**127.22**	**1145.59**	**93.27**	**1612.58**	**1837.86**
outflow	ac-ft/yr	37.02	205.25	19.96	1.75	33.43	68.79	98.16	50.89	2.82	202.05	247.42	28.67	0.79	4.40	15.91	127.22	1145.59	93.27	1612.58	1837.86
POND PHOSPHORUS BUDGETS.....																					
runoff	lbs/yr	12.79	156.83	18.74	1.91	39.37	36.34	33.76	55.76	2.91	46.64	39.14	28.55	0.43	3.46	8.52	91.47	37.02	103.18	397.52	252.26
upstream pond	lbs/yr	27.01	58.55	0.00	0.00	0.00	41.28	77.62	0.00	0.00	170.05	216.69	0.00	0.00	0.00	3.46	40.96	1122.60	0.00	1262.80	1660.32
total inflow	**lbs/yr**	**39.80**	**215.37**	**18.74**	**1.91**	**39.37**	**77.62**	**111.38**	**55.76**	**2.91**	**216.70**	**255.83**	**28.55**	**0.43**	**3.46**	**11.97**	**132.43**	**1159.62**	**103.18**	**1660.32**	**1912.58**
net sedimentation	lbs/yr	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
outflow	lbs/yr	39.80	215.37	18.74	1.91	39.37	77.62	111.38	55.76	2.91	216.69	255.83	28.55	0.43	3.46	11.97	132.42	1159.62	103.18	1660.32	1912.58
p removal efficiency	%	0.00	0.00	0.00	0.04	0.00	0.00	0.00	0.00	0.02	0.00	0.00	0.00	0.02	0.01	0.00	0.00	0.00	0.00	0.00	0.00
upstream w-shed p load	lbs/yr	39.80	215.37	18.74	1.91	39.37	77.62	111.39	55.76	2.91	216.70	255.83	28.55	0.43	3.46	11.98	132.43	1159.64	103.18	1660.34	1912.61
total removal %	%	0.00	0.00	0.00	0.04	0.00	0.00	0.00	0.00	0.02	0.00	0.00	0.00	0.02	0.01	0.00	0.00	0.00	0.00	0.00	0.00
HYDRAULIC PARAMETERS.....																					
pond mean depth	feet	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
relative volume	inches	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
residence time	years	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
residence time	days	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
overflow rate	ft/yr	3701576.12	20524901.89	1995626.10	175341.32	3342985.86	6878896.31	9815733.80	5088908.43	282236.06	20205181.90	24741818.63	2866858.33	79431.56	439529.58	1590504.75	12722282.46	114558926.33	9327168.16	161258253.20	183786304.51
inflow phos conc	ppb	395.60	386.06	345.59	400.02	433.33	415.16	417.50	403.15	378.84	394.58	380.43	366.41	200.98	289.35	277.00	382.96	372.42	407.01	378.81	382.88
outflow phos conc	ppb	395.60	386.06	345.58	399.85	433.32	415.15	417.49	403.14	378.78	394.58	380.43	366.40	200.93	289.33	277.00	382.96	372.42	407.01	378.81	382.88
p reaction rate	-	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1-rp	-	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
vlawmo pond volume	acre-ft	1.14	11.66	1.57	0.14	2.63	2.64	2.31	4.00	0.22	3.95	3.57	2.25	0.06	0.35	0.90	6.44	3.17	7.33	29.38	17.71
LAND USE PARAMETERS.....																					
runoff total P conc	ppb	274.71	340.44	309.28	400.00	391.38	354.16	387.84	364.12	331.92	301.93	267.10	322.67	200.55	260.62	250.01	370.06	284.45	334.31	349.89	395.20
runoff coefficient		0.11	0.19	0.10	0.28	0.15	0.12	0.13	0.13	0.10	0.14	0.12	0.11	0.08	0.09	0.09	0.14	0.13	0.23	0.20	0.25
dissolved/total P		0.52	0.42	0.48	0.30	0.32	0.41	0.39	0.41	0.44	0.49	0.52	0.46	0.60	0.53	0.56	0.41	0.49	0.41	0.40	0.34
runoff TSS conc	ppm	197.36	172.68	202.82	140.00	164.38	188.30	181.56	184.55	195.44	195.04	198.27	196.23	215.91	208.10	211.00	178.15	193.06	168.45	165.52	151.36
POND TSS BUDGETS.....																					
runoff	lbs/yr	7098.72	61937.58	10647.29	665.25	14649.94	16099.16	13491.61	23572.06	1438.89	23692.09	22104.60	14431.50	464.63	2426.17	6377.03	36399.31	18983.73	38247.34	151919.93	87700.93
upstream pond	lbs/yr	8865.27	26611.29	0.00	0.00	0.00	15315.19	31414.34	0.00	0.00	69916.90	93608.99	0.00	0.00	0.00	2426.17	23699.33	522282.18	0.00	579513.25	731433.19
total inflow	**lbs/yr**	**15963.99**	**88548.87**	**10647.29**	**665.25**	**14649.94**	**31414.34**	**44905.95**	**23572.06**	**1438.89**	**93608.99**	**115713.59**	**14431.50**	**464.63**	**2426.17**	**8803.20**	**60098.64**	**541265.91**	**38247.34**	**731433.19**	**819134.12**
p removal efficiency (no inf)	%	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
tss removal efficiency (no inf)	%	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
net sedimentation	lbs/yr	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
outflow	lbs/yr	15963.99	88548.87	10647.29	665.25	14649.94	31414.34	44905.95	23572.06	1438.89	93608.99	115713.59	14431.50	464.63	2426.17	8803.20	60098.64	541265.91	38247.34	731433.19	819134.12
tss removal efficiency (inf)		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
upstream watershed tss load	lbs/yr	15963.99	88548.87	10647.29	665.25	14649.94	31414.34	44905.95	23572.06	1438.89	93608.99	115713.59	14431.50	464.63	2426.17	8803.20	60098.64	541265.91	38247.34	731433.19	819134.12
tss total removal efficiency	%	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
INFILTRATION BMP/POND.....																					
Annual runoff infiltrated	%	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Adjusted outflow	**ac-ft/yr**	**37.02**	**205.25**	**19.96**	**1.75**	**33.43**	**68.79**	**98.16**	**50.89**	**2.82**	**202.05**	**247.42**	**28.67**	**0.79**	**4.40**	**15.91**	**127.22**	**1145.59**	**93.27**	**1612.58**	**1837.86**
Adjusted TP outflow	**lbs/yr**	**39.80**	**215.37**	**18.74**	**1.91**	**39.37**	**77.62**	**111.38**	**55.76**	**2.91**	**216.69**	**255.83**	**28.55**	**0.43**	**3.46**	**11.97**	**132.42**	**1159.62**	**103.18**	**1660.32**	**1912.58**
Adjusted TSS outflow	**lbs/yr**	**15963.99**	**88548.87**	**10647.29**	**665.25**	**14649.94**	**31414.34**	**44905.95**	**23572.06**	**1438.89**	**93608.99**	**115713.59**	**14431.50**	**464.63**	**2426.17**	**8803.20**	**60098.64**	**541265.91**	**38247.34**	**731433.19**	**819134.12**

Rochester Loading Assessment																						
Bear Creek																						
363-06-158-2																						
Present (2005) LOADS																						
		bc-a2.6c	**bc-a2.6b**	**bc-a2.6a**	**bc-a2.7c**	**bc-a2.7b**	**bc-a2.7a**	**bc-a2.7a cell 2**	**bc-a2.7a cell 3**	**bc-a2.9**	**bc-a2.8**	**bc-a2.10**	**bc-a2.11**	**bc-a1.21b**	**bc-a1.21a**	**bc-a1.11**	**bc-a1.12**	**bc-a1.15**	**bc-a2.14b**	**bc-a2.14b cell 2**	**bc-a2.14b cell 3**	**bc-a2.14a**
Routed TO:		bc-a2.7b	bc-a2.6a	bc-a2.7b	bc-a2.7b	bc-a2.9	bc-a2.7a cell 2	bc-a2.7a cell 3	bc-a2.7b	bc-a2.11	bc-a2.11	bc-a2.11	bc-a2.14a	bc-a2.14a	bc-a2.14a	bc-a1.12	bc-a1.15	bc-a2.14a	bc-a2.14b cell 2	bc-a2.14b cell 3	bc-a2.14a	bc-a2.17
INPUT VARIABLES....	UNITS																					
case label	-																					
Watershed area	acres	22.3	29.8	37.7	20.0	234.9	77.1	0.0	0.0	11.7	232.0	57.1	182.7	5.8	15.9	8.8	8.1	127.0	9.2	0.0	0.0	320.2
basin area	acres	0.42	0.33	0.00	0.42	0.00	0.22	0.23	0.60	0.00	0.00	0.00	0.00	0.35	0.36	0.00	0.00	0.00	0.30	0.31	1.35	0.00
basin volume	acre-ft	1.94	0.78	0.00	1.43	0.00	0.92	0.94	2.45	0.00	0.00	0.00	0.00	0.94	1.15	0.00	0.00	0.00	1.26	1.28	5.62	0.00
Row Crop Agriculture		0%	0%	0%	0%	46%	42%	0%	0%	0%	2%	10%	1%	0%	0%	0%	0%	0%	0%	0%	0%	1%
Very Low Density Residential		0%	0%	6%	0%	7%	0%	0%	0%	0%	16%	0%	23%	0%	0%	8%	17%	41%	0%	0%	0%	38%
Low Density Residential		53%	94%	28%	45%	2%	0%	0%	0%	3%	19%	0%	1%	0%	0%	68%	63%	26%	24%	0%	0%	21%
Medium Density Residential		0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	2%	0%	0%	0%	1%
High Density Residential		42%	0%	21%	23%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	2%	0%	0%	0%
Commercial/Industrial		0%	0%	28%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	28%	0%	0%	0%	0%	0%	0%	3%
Institutional		0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	7%	0%	0%	0%	1%
Open Space		5%	6%	15%	32%	44%	58%	100%	100%	97%	63%	90%	75%	100%	69%	24%	0%	16%	75%	100%	100%	31%
Golf Course		0%	0%	1%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Pits and Quarries		0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Right-of-Way		0%	0%	2%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	2%	0%	19%	8%	0%	0%	0%	5%
WATERSHED-WIDE ACCOUNTING.....																						
tributary land area	ac	22.32	29.85	67.55	19.96	421.87	77.11	77.12	77.13	433.60	231.96	57.06	905.30	5.78	15.86	8.82	16.87	143.83	9.22	9.22	9.22	1400.22
tributary water area	ac	0.42	0.33	0.33	0.42	2.22	0.22	0.45	1.05	2.22	0.00	0.00	2.22	0.35	0.36	0.00	0.00	0.00	0.30	0.61	1.96	4.88
direct and ponded area	ac	22.74	30.18	67.88	20.38	424.08	77.34	77.58	78.18	435.82	231.96	57.06	907.52	6.13	16.22	8.82	16.87	143.83	9.52	9.82	11.17	1405.10
ASSUMED EXPORT FACTORS.....																						
season length	yrs	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
season precipitation	inches	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8
runoff total p	ppb	437.86	434.10	379.88	369.95	374.08	344.53	200.00	200.00	207.28	278.04	234.27	241.18	200.00	247.11	382.94	423.14	356.98	263.62	200.00	200.00	329.81
runoff ortho p/total p	-	0.31	0.32	0.36	0.40	0.40	0.43	0.60	0.60	0.59	0.52	0.56	0.57	0.60	0.51	0.39	0.33	0.43	0.52	0.60	0.60	0.47
unit runoff	in/yr	9.43	6.48	9.53	6.96	3.56	3.36	2.54	2.54	2.66	3.45	2.74	2.72	2.54	6.10	5.44	6.49	4.92	3.74	2.54	2.54	4.36
unit export	lbs/ac-y	0.95	0.65	0.85	0.66	0.34	0.30	0.12	0.12	0.13	0.25	0.16	0.15	0.12	0.43	0.52	0.63	0.43	0.27	0.12	0.12	0.36
POND WATER BUDGETS.....																						
runoff	ac-ft/yr	17.54	16.11	29.93	11.57	69.62	21.56	0.00	0.00	2.60	66.72	13.01	41.37	1.23	8.06	4.00	4.35	52.10	2.87	0.00	0.00	116.35
upstream pond	ac-ft/yr	0.00	0.00	16.11	0.00	96.72	0.00	21.56	21.56	166.34	0.00	0.00	248.67	0.00	0.00	0.00	4.00	8.35	0.00	2.87	2.87	362.64
total inflow	**ac-ft/yr**	**17.54**	**16.11**	**46.04**	**11.57**	**166.34**	**21.56**	**21.56**	**21.57**	**168.94**	**66.72**	**13.01**	**290.04**	**1.23**	**8.06**	**4.00**	**8.35**	**60.45**	**2.87**	**2.87**	**2.87**	**479.00**
outflow	ac-ft/yr	17.54	16.11	46.04	11.57	166.34	21.56	21.56	21.57	168.94	66.72	13.01	290.04	1.23	8.06	4.00	8.35	60.45	2.87	2.87	2.87	479.00
POND PHOSPHORUS BUDGETS.....																						
runoff	lbs/yr	21.30	19.43	32.17	13.23	78.96	22.96	0.00	0.00	1.54	58.45	9.05	28.28	0.67	6.75	4.54	5.08	54.23	2.52	0.00	0.00	115.10
upstream pond	lbs/yr	0.00	0.00	9.73	0.00	61.81	0.00	12.62	8.88	140.78	0.00	0.00	209.81	0.00	0.00	0.00	4.54	9.62	0.00	1.14	0.69	306.40
total inflow	**lbs/yr**	**21.30**	**19.43**	**41.90**	**13.23**	**140.78**	**22.96**	**12.62**	**8.88**	**142.32**	**58.45**	**9.05**	**238.09**	**0.67**	**6.75**	**4.54**	**9.62**	**63.85**	**2.52**	**1.14**	**0.69**	**421.50**
net sedimentation	lbs/yr	13.21	9.70	0.00	7.37	0.00	10.34	3.74	2.91	0.00	0.00	0.00	0.00	0.26	3.15	0.00	0.00	0.00	1.39	0.45	0.23	0.00
outflow	lbs/yr	8.09	9.73	41.90	5.86	140.78	12.62	8.88	5.97	142.32	58.45	9.05	238.09	0.40	3.60	4.54	9.62	63.85	1.14	0.69	0.46	421.50
p removal efficiency	%	62.03	49.93	0.00	55.69	0.00	45.04	29.64	32.81	0.00	0.00	0.00	0.00	39.26	46.71	0.02	0.01	0.00	54.96	39.32	33.36	0.00
upstream w-shed p load	lbs/yr	21.30	19.43	51.60	13.23	188.05	22.96	22.96	22.96	189.59	58.45	9.05	285.36	0.67	6.75	4.54	9.62	63.85	2.52	2.52	2.52	474.26
total removal %	%	62.03	49.93	18.80	55.69	25.14	45.04	61.33	74.01	24.93	0.00	0.00	16.57	39.26	46.71	0.02	0.02	0.00	54.96	72.67	81.79	11.12
HYDRAULIC PARAMETERS.....																						
pond mean depth	feet	4.62	2.36	1.00	3.39	1.00	4.10	4.10	4.10	1.00	1.00	1.00	1.00	2.69	3.19	1.00	1.00	1.00	4.17	4.17	4.17	1.00
relative volume	inches	3.52	1.54	0.00	3.92	0.00	1.35	14100.00	36675.00	0.00	0.00	0.00	0.00	24.39	4.54	0.00	0.00	0.00	13.89	191250.00	843000.00	0.00
residence time	years	0.11	0.05	0.00	0.12	0.00	0.04	0.04	0.11	0.00	0.00	0.00	0.00	0.77	0.14	0.00	0.00	0.00	0.44	0.44	1.96	0.00
residence time	days	40.37	17.67	0.00	44.96	0.00	15.49	15.91	41.38	0.00	0.00	0.00	0.00	279.99	52.10	0.00	0.00	0.00	159.41	161.93	713.73	0.00
overflow rate	ft/yr	41.76	48.82	4604437.77	27.55	16633899.85	96.69	94.17	36.19	16893911.47	6671764.17	1301155.76	29003592.39	3.50	22.38	399880.02	835214.51	6045080.58	9.55	9.39	2.13	47899602.07
inflow phos conc	ppb	446.75	443.78	334.80	420.74	311.38	391.71	215.28	151.49	309.94	322.33	255.78	302.02	200.02	308.24	418.03	423.75	388.60	323.23	145.58	88.35	323.76
outflow phos conc	ppb	169.63	222.21	334.79	186.44	311.38	215.28	151.48	101.78	309.94	322.33	255.77	302.02	121.50	164.27	417.97	423.71	388.59	145.58	88.34	58.87	323.76
p reaction rate	-	4.30	1.99	0.00	2.84	0.00	1.49	0.60	0.73	0.00	0.00	0.00	0.00	1.06	1.64	0.00	0.00	0.00	2.71	1.07	0.75	0.00
1-rp	-	0.38	0.50	1.00	0.44	1.00	0.55	0.70	0.67	1.00	1.00	1.00	1.00	0.61	0.53	1.00	1.00	1.00	0.45	0.61	0.67	1.00
vlawmo pond volume	acre-ft	1.38	1.27	2.35	0.91	5.47	1.70	0.00	0.00	0.20	5.25	1.02	3.25	0.10	0.63	0.31	0.34	4.10	0.23	0.00	0.00	9.15
LAND USE PARAMETERS.....																						
runoff total P conc	ppb	437.86	434.10	379.88	369.95	374.08	344.53	200.00	200.00	207.28	278.04	234.27	241.18	200.00	247.11	382.94	423.14	356.98	263.62	200.00	200.00	329.81
runoff coefficient		0.30	0.20	0.30	0.22	0.11	0.11	0.08	0.08	0.08	0.11	0.09	0.09	0.08	0.19	0.17	0.20	0.15	0.12	0.08	0.08	0.14
dissolved/total P		0.31	0.32	0.36	0.40	0.40	0.43	0.60	0.60	0.59	0.52	0.56	0.57	0.60	0.51	0.39	0.33	0.43	0.52	0.60	0.60	0.47
runoff TSS conc	ppm	143.69	144.83	156.21	164.33	189.64	193.54	216.00	216.00	213.88	200.42	210.66	214.48	216.00	192.71	164.23	153.06	183.73	196.72	216.00	216.00	192.61
POND TSS BUDGETS.....																						
runoff	lbs/yr	6701.45	6194.84	11727.35	4668.49	34316.91	10875.60	1.24	1.24	1484.65	33683.11	7309.93	23844.69	717.30	3536.87	1645.50	1722.44	23347.23	1390.45	0.12	0.12	54771.40
upstream pond	lbs/yr	0.00	0.00	1177.02	0.00	14236.04	0.00	3045.17	1317.57	48552.95	0.00	0.00	91030.63	0.00	0.00	0.00	1645.50	3367.94	0.00	118.19	40.23	142770.01
total inflow	**lbs/yr**	**6701.45**	**6194.84**	**12904.37**	**4668.49**	**48552.95**	**10875.60**	**3046.41**	**1318.81**	**50037.59**	**33683.11**	**7309.93**	**114875.33**	**717.30**	**3536.87**	**1645.50**	**3367.94**	**26715.17**	**1390.45**	**118.31**	**40.35**	**197541.41**
p removal efficiency (no inf)	%	63.00	50.00	0.00	56.00	0.00	46.00	30.00	33.00	0.00	0.00	0.00	0.00	40.00	47.00	0.00	0.00	0.00	55.00	40.00	34.00	0.00
tss removal efficiency (no inf)	%	93.00	81.00	0.00	93.00	0.00	72.00	56.75	59.38	0.00	0.00	0.00	0.00	66.00	74.00	0.00	0.00	0.00	91.50	66.00	60.25	0.00
net sedimentation	lbs/yr	6232.35	5017.82	0.00	4341.70	0.00	7830.43	1728.84	783.04	0.00	0.00	0.00	0.00	473.42	2617.28	0.00	0.00	0.00	1272.27	78.09	24.31	0.00
outflow	lbs/yr	469.10	1177.02	12904.37	326.79	48552.95	3045.17	1317.57	535.77	50037.59	33683.11	7309.93	114875.33	243.88	919.59	1645.50	3367.94	26715.17	118.19	40.23	16.04	197541.41
tss removal efficiency (inf)	%	93.00	81.00	0.00	93.00	0.00	72.00	56.75	59.38	0.00	0.00	0.00	0.00	66.00	74.00	0.00	0.00	0.00	91.50	66.00	60.25	0.00
upstream watershed tss load	lbs/yr	6701.45	6194.84	17922.19	4668.49	74487.12	10875.60	10876.84	10878.08	75971.77	33683.11	7309.93	140809.50	717.30	3536.87	1645.50	3367.94	26715.17	1390.45	1390.58	1390.70	227940.95
tss total removal efficiency	%	93.00	81.00	28.00	93.00	34.82	72.00	87.89	95.07	34.14	0.00	0.00	18.42	66.00	74.00	0.00	0.00	0.00	91.50	97.11	98.85	13.34
INFILTRATION BMP/POND.....																						
Annual runoff infiltrated	%	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Adjusted outflow	**ac-ft/yr**	**17.54**	**16.11**	**46.04**	**11.57**	**166.34**	**21.56**	**21.56**	**21.57**	**168.94**	**66.72**	**13.01**	**290.04**	**1.23**	**8.06**	**4.00**	**8.35**	**60.45**	**2.87**	**2.87**	**2.87**	**479.00**
Adjusted TP outflow	**lbs/yr**	**8.09**	**9.73**	**41.90**	**5.86**	**140.78**	**12.62**	**8.88**	**5.97**	**142.32**	**58.45**	**9.05**	**238.09**	**0.40**	**3.60**	**4.54**	**9.62**	**63.85**	**1.14**	**0.69**	**0.46**	**421.50**
Adjusted TSS outflow	**lbs/yr**	**469.10**	**1177.02**	**12904.37**	**326.79**	**48552.95**	**3045.17**	**1317.57**	**535.77**	**50037.59**	**33683.11**	**7309.93**	**114875.33**	**243.88**	**919.59**	**1645.50**	**3367.94**	**26715.17**	**118.19**	**40.23**	**16.04**	**197541.41**

Rochester Loading Assessment																					
Bear Creek																					
363-06-158-2																					
Present (2005) LOADS																					
		bc-a2.12	**bc-a2.13**	**bc-a2.15**	**bc-a2.16d**	**bc-a2.16d cells**	**bc-a2.16d cells**	**bc-a2.16c**	**bc-a2.16c cell 2**	**bc-a2.16b**	**bc-a2.16a**	**bc-a1.17**	**bc-a1.18**	**bc-a1.20**	**bc-a1.19**	**bc-a1.16**	**bc-a1.22b**	**bc-a1.22a**	**bc-a1.26**	**bc-a1.23**	**bc-a1.24d**	**bc-a1.24c**
Routed TO:		bc-a2.15	bc-a2.15	bc-a2.17	bc-a2.16d cells	bc-a2.16c	bc-a2.16c	bc-a2.16c cell 2	bc-a2.16b	bc-a2.17	bc-a2.16b	bc-a1.20	bc-a1.20	bc-a1.19	bc-a1.22a	bc-a1.22a	bc-a1.22a	bc-a1.26	bc-a2.17	bc-a1.24a	bc-a1.24a	bc-a1.24b
INPUT VARIABLES....	UNITS																				
case label	-																				
Watershed area	acres	86.9	55.7	148.5	44.3	0.0	0.0	47.2	0.0	296.1	77.3	2.4	86.8	105.4	83.6	146.1	10.3	137.9	143.2	99.9	3.5	18.1
basin area	acres	0.00	0.00	0.00	0.00	0.11	0.08	0.38	0.42	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.26	0.40
basin volume	acre-ft	0.00	0.00	0.00	0.00	0.32	0.14	0.86	0.94	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.73	1.58
Row Crop Agriculture		25%	57%	4%	4%	0%	0%	0%	0%	3%	24%	0%	47%	40%	26%	24%	39%	4%	4%	24%	0%	15%
Very Low Density Residential		7%	0%	0%	0%	0%	0%	9%	0%	2%	18%	0%	0%	0%	17%	11%	0%	24%	2%	6%	0%	7%
Low Density Residential		4%	0%	41%	85%	0%	0%	86%	0%	37%	0%	0%	0%	0%	31%	18%	0%	18%	16%	26%	0%	53%
Medium Density Residential		0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
High Density Residential		0%	0%	0%	0%	0%	0%	0%	0%	6%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	100%	0%
Commercial/Industrial		0%	0%	1%	0%	0%	0%	0%	0%	6%	0%	0%	0%	0%	0%	1%	0%	8%	8%	0%	0%	0%
Institutional		0%	0%	1%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Open Space		64%	43%	53%	10%	100%	100%	5%	100%	38%	57%	0%	27%	51%	26%	44%	61%	46%	70%	44%	0%	25%
Golf Course		0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Pits and Quarries		0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	5%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Right-of-Way		0%	0%	0%	0%	0%	0%	0%	0%	7%	0%	100%	21%	8%	0%	2%	0%	0%	0%	0%	0%	0%
WATERSHED-WIDE ACCOUNTING.....																						
tributary land area	ac	86.87	55.73	291.14	44.32	44.33	44.33	135.85	135.86	509.31	77.32	2.40	86.78	194.62	278.26	146.05	10.31	572.56	715.81	99.91	3.48	18.11
tributary water area	ac	0.00	0.00	0.00	0.00	0.11	0.08	0.57	0.99	0.99	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.26	0.40
direct and ponded area	ac	86.87	55.73	291.14	44.32	44.44	44.41	136.42	136.85	510.31	77.32	2.40	86.78	194.62	278.26	146.05	10.31	572.56	715.81	99.91	3.74	18.51
ASSUMED EXPORT FACTORS.....																						
season length	yrs	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
season precipitation	inches	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8
runoff total p	ppb	304.64	392.47	319.41	428.54	200.00	200.00	428.70	200.00	346.65	310.70	400.00	391.38	353.75	390.30	349.02	331.92	307.40	267.75	356.80	450.00	393.93
runoff ortho p/total p	-	0.48	0.37	0.45	0.33	0.60	0.60	0.33	0.60	0.41	0.48	0.30	0.32	0.41	0.39	0.43	0.44	0.48	0.51	0.42	0.30	0.37
unit runoff	in/yr	3.20	3.62	4.51	6.22	2.54	2.54	6.19	2.54	6.02	3.10	8.77	4.62	3.82	4.40	4.08	3.28	4.41	4.25	4.14	13.60	5.08
unit export	lbs/ac-y	0.25	0.36	0.38	0.62	0.12	0.12	0.62	0.12	0.53	0.24	0.79	0.45	0.34	0.42	0.36	0.28	0.35	0.31	0.38	1.39	0.49
POND WATER BUDGETS.....																						
runoff	ac-ft/yr	23.17	16.83	55.76	22.96	0.00	0.00	24.35	0.00	148.52	19.98	1.75	33.43	33.59	30.65	49.69	2.82	50.67	50.77	34.47	3.94	7.67
upstream pond	ac-ft/yr	0.00	0.00	40.01	0.00	11.48	11.48	22.97	47.32	67.31	0.00	0.00	0.00	35.18	68.77	0.00	0.00	151.93	202.60	0.00	0.00	0.00
total inflow	**ac-ft/yr**	**23.17**	**16.83**	**95.77**	**22.96**	**11.48**	**11.48**	**47.32**	**47.32**	**215.82**	**19.98**	**1.75**	**33.43**	**68.77**	**99.42**	**49.69**	**2.82**	**202.60**	**253.37**	**34.47**	**3.94**	**7.67**
outflow	ac-ft/yr	23.17	16.83	95.77	22.96	11.48	11.48	47.32	47.32	215.82	19.98	1.75	33.43	68.77	99.42	49.69	2.82	202.60	253.37	34.47	3.94	7.67
POND PHOSPHORUS BUDGETS.....																						
runoff	lbs/yr	21.85	19.97	56.73	27.61	0.00	0.00	29.17	0.00	158.06	18.83	1.91	39.37	36.29	35.32	52.79	2.91	47.64	44.26	37.67	4.82	8.89
upstream pond	lbs/yr	0.00	0.00	41.82	0.00	13.80	13.80	19.66	31.47	43.80	0.00	0.00	0.00	41.28	77.57	0.00	0.00	168.58	216.22	0.00	0.00	0.00
total inflow	**lbs/yr**	**21.85**	**19.97**	**98.55**	**27.61**	**13.80**	**13.80**	**48.82**	**31.47**	**201.87**	**18.83**	**1.91**	**39.37**	**77.57**	**112.88**	**52.79**	**2.91**	**216.23**	**260.49**	**37.67**	**4.82**	**8.89**
net sedimentation	lbs/yr	0.00	0.00	0.00	0.01	4.78	3.16	17.35	6.50	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.95	5.42
outflow	lbs/yr	21.85	19.97	98.55	27.60	9.02	10.64	31.47	24.97	201.87	18.83	1.91	39.37	77.57	112.88	52.79	2.91	216.22	260.49	37.67	1.88	3.46
p removal efficiency	%	0.00	0.00	0.00	0.03	34.64	22.92	35.54	20.66	0.00	0.00	0.04	0.00	0.00	0.00	0.00	0.02	0.00	0.00	0.00	61.06	61.03
upstream w-shed p load	lbs/yr	21.85	19.97	98.55	27.61	27.61	27.61	84.38	84.38	261.28	18.83	1.91	39.37	77.57	112.89	52.79	2.91	216.23	260.49	37.67	4.82	8.89
total removal %	%	0.00	0.00	0.00	0.03	67.33	61.47	62.70	70.41	22.74	0.00	0.04	0.00	0.00	0.00	0.00	0.02	0.00	0.00	0.00	61.06	61.03
HYDRAULIC PARAMETERS.....																						
pond mean depth	feet	1.00	1.00	1.00	0.10	2.91	1.75	2.25	2.25	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	2.82	3.95
relative volume	inches	0.00	0.00	0.00	0.00	4800.00	2100.00	1.12	14145.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.91	6.55
residence time	years	0.00	0.00	0.00	0.00	0.03	0.01	0.02	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.19	0.21
residence time	days	0.00	0.00	0.00	0.00	10.17	4.45	6.61	7.27	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	67.84	75.21
overflow rate	ft/yr	2317337.18	1683227.46	9577009.23	22963.89	104.40	143.55	124.21	112.95	21582275.45	1998154.19	175341.32	3343044.16	6876940.61	9941791.35	4969061.89	282236.06	20259806.94	25336546.69	3447346.80	15.17	19.17
inflow phos conc	ppb	346.96	436.47	378.59	442.31	442.12	442.12	379.57	244.68	344.12	346.74	400.02	433.33	414.98	417.75	390.89	378.84	392.66	378.26	402.08	450.02	426.51
outflow phos conc	ppb	346.95	436.45	378.59	442.16	288.96	340.78	244.68	194.12	344.12	346.73	399.85	433.32	414.98	417.75	390.89	378.78	392.66	378.26	402.08	175.22	166.22
p reaction rate	-	0.00	0.00	0.00	0.00	0.81	0.39	0.86	0.33	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4.03	4.02
1-rp	-	1.00	1.00	1.00	1.00	0.65	0.77	0.64	0.79	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.39	0.39
vlawmo pond volume	acre-ft	1.82	1.32	4.38	1.81	0.00	0.00	1.91	0.00	11.68	1.57	0.14	2.63	2.64	2.41	3.91	0.22	3.98	3.99	2.71	0.31	0.60
LAND USE PARAMETERS.....																						
runoff total P conc	ppb	304.64	392.47	319.41	428.54	200.00	200.00	428.70	200.00	346.65	310.70	400.00	391.38	353.75	390.30	349.02	331.92	307.40	267.75	356.80	450.00	393.93
runoff coefficient		0.10	0.11	0.14	0.20	0.08	0.08	0.19	0.08	0.19	0.10	0.28	0.15	0.12	0.14	0.13	0.10	0.14	0.13	0.13	0.43	0.16
dissolved/total P		0.48	0.37	0.45	0.33	0.60	0.60	0.33	0.60	0.41	0.48	0.30	0.32	0.41	0.39	0.43	0.44	0.48	0.51	0.42	0.30	0.37
runoff TSS conc	ppm	200.05	186.00	181.38	148.88	216.00	216.00	150.73	216.00	171.28	202.82	140.00	164.38	188.37	178.99	187.05	195.44	194.31	195.78	183.15	140.00	167.81
POND TSS BUDGETS.....																						
runoff	lbs/yr	12050.61	8171.68	24753.33	8956.28	1.24	1.24	9562.54	1.24	61816.07	10662.79	665.25	14650.23	16094.19	13823.35	23265.42	1438.89	23838.60	23923.32	15838.31	1496.37	3235.20
upstream pond	lbs/yr	0.00	0.00	20222.29	0.00	4478.14	4478.14	4197.02	5228.63	13735.34	0.00	0.00	0.00	15315.47	31409.66	0.00	0.00	69937.32	93775.92	0.00	0.00	0.00
total inflow	**lbs/yr**	**12050.61**	**8171.68**	**44975.62**	**8956.28**	**4479.38**	**4479.38**	**13759.56**	**5229.87**	**75551.41**	**10662.79**	**665.25**	**14650.23**	**31409.66**	**45233.01**	**23265.42**	**1438.89**	**93775.92**	**117699.24**	**15838.31**	**1496.37**	**3235.20**
p removal efficiency (no inf)	%	0.00	0.00	0.00	0.00	35.00	23.00	36.00	21.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	62.00	62.00
tss removal efficiency (no inf)	%	0.00	0.00	0.00	0.00	61.13	45.18	62.00	41.25	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	93.00	93.00
net sedimentation	lbs/yr	0.00	0.00	0.00	0.00	2738.02	2023.72	8530.93	2157.32	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1391.63	3008.74
outflow	lbs/yr	12050.61	8171.68	44975.62	8956.28	1741.36	2455.66	5228.63	3072.55	75551.41	10662.79	665.25	14650.23	31409.66	45233.01	23265.42	1438.89	93775.92	117699.24	15838.31	104.75	226.46
tss removal efficiency (inf)	%	0.00	0.00	0.00	0.00	61.13	45.18	62.00	41.25	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	93.00	93.00
upstream watershed tss load	lbs/yr	12050.61	8171.68	44975.62	8956.28	8957.52	8957.52	27477.58	27478.82	99957.68	10662.79	665.25	14650.23	31409.66	45233.01	23265.42	1438.89	93775.92	117699.24	15838.31	1496.37	3235.20
tss total removal efficiency	%	0.00	0.00	0.00	0.00	80.56	72.59	80.97	88.82	24.42	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	93.00	93.00
INFILTRATION BMP/POND.....																						
Annual runoff infiltrated	%	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Adjusted outflow	**ac-ft/yr**	**23.17**	**16.83**	**95.77**	**22.96**	**11.48**	**11.48**	**47.32**	**47.32**	**215.82**	**19.98**	**1.75**	**33.43**	**68.77**	**99.42**	**49.69**	**2.82**	**202.60**	**253.37**	**34.47**	**3.94**	**7.67**
Adjusted TP outflow	**lbs/yr**	**21.85**	**19.97**	**98.55**	**27.60**	**9.02**	**10.64**	**31.47**	**24.97**	**201.87**	**18.83**	**1.91**	**39.37**	**77.57**	**112.88**	**52.79**	**2.91**	**216.22**	**260.49**	**37.67**	**1.88**	**3.46**
Adjusted TSS outflow	**lbs/yr**	**12050.61**	**8171.68**	**44975.62**	**8956.28**	**1741.36**	**2455.66**	**5228.63**	**3072.55**	**75551.41**	**10662.79**	**665.25**	**14650.23**	**31409.66**	**45233.01**	**23265.42**	**1438.89**	**93775.92**	**117699.24**	**15838.31**	**104.75**	**226.46**

Rochester Loading Assessment									
Bear Creek									
363-06-158-2									
Present (2005) LOADS									
		bc-a1.24b	**bc-a1.24a**	**bc-a1.24a cell 2**	**bc-a1.24a cell 3**	**bc-a2.17**	**bc-a2.18**	**bc-a2.19**	**bc-a2.20**
Routed TO:		bc-a1.24a	bc-a1.24a cell 2	bc-a1.24a cell 3	bc-a2.17	bc-a2.19	bc-a2.19	bc-a2.20	zr-a4.1a
INPUT VARIABLES....	UNITS								
case label	-								
Watershed area	acres	46.3	216.2	0.0	0.0	116.8	155.6	688.9	341.6
basin area	acres	1.04	0.33	0.64	1.02	0.00	0.00	0.00	0.00
basin volume	acre-ft	4.20	1.66	3.16	5.06	0.00	0.00	0.00	0.00
Row Crop Agriculture		0%	0%	0%	0%	6%	2%	0%	0%
Very Low Density Residential		17%	12%	0%	0%	3%	1%	0%	0%
Low Density Residential		49%	54%	0%	0%	12%	14%	38%	46%
Medium Density Residential		0%	0%	0%	0%	0%	0%	5%	10%
High Density Residential		0%	16%	0%	0%	1%	31%	6%	8%
Commercial/Industrial		0%	0%	0%	0%	1%	3%	2%	3%
Institutional		0%	0%	0%	0%	1%	0%	13%	6%
Open Space		34%	17%	100%	100%	65%	41%	32%	20%
Golf Course		0%	0%	0%	0%	0%	0%	0%	0%
Pits and Quarries		0%	0%	0%	0%	0%	0%	0%	0%
Right-of-Way		0%	0%	0%	0%	10%	8%	5%	6%
WATERSHED-WIDE ACCOUNTING.....									
tributary land area	ac	64.36	383.95	383.96	383.97	3417.24	155.57	4261.67	4603.32
tributary water area	ac	1.44	2.03	2.67	3.69	9.57	0.00	9.57	9.57
direct and ponded area	ac	65.80	385.98	386.63	387.66	3426.80	155.57	4271.24	4612.89
ASSUMED EXPORT FACTORS.....									
season length	yrs	1	1	1	1	1	1	1	1
season precipitation	inches	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8
runoff total p	ppb	348.71	395.83	200.00	200.00	281.10	341.51	354.06	387.85
runoff ortho p/total p	-	0.44	0.37	0.60	0.60	0.50	0.42	0.39	0.36
unit runoff	in/yr	4.68	6.66	2.54	2.54	4.14	7.42	6.57	7.33
unit export	lbs/ac-y	0.42	0.65	0.12	0.12	0.31	0.68	0.59	0.69
POND WATER BUDGETS.....									
runoff	ac-ft/yr	18.04	120.01	0.00	0.00	40.31	96.14	377.21	208.65
upstream pond	ac-ft/yr	7.67	64.13	184.14	184.14	1228.10	0.00	1364.55	1741.76
total inflow	**ac-ft/yr**	**25.71**	**184.14**	**184.14**	**184.14**	**1268.41**	**96.14**	**1741.76**	**1950.41**
outflow	ac-ft/yr	25.71	184.14	184.14	184.14	1268.41	96.14	1741.76	1950.41
POND PHOSPHORUS BUDGETS.....									
runoff	lbs/yr	19.29	139.78	0.00	0.00	36.67	105.95	403.28	234.94
upstream pond	lbs/yr	3.46	50.13	140.67	108.16	1063.47	0.00	1206.09	1609.37
total inflow	**lbs/yr**	**22.76**	**189.91**	**140.67**	**108.16**	**1100.14**	**105.95**	**1609.37**	**1844.31**
net sedimentation	lbs/yr	12.18	49.24	32.51	27.10	0.00	0.00	0.00	0.00
outflow	lbs/yr	10.58	140.67	108.16	81.06	1100.13	105.95	1609.37	1844.31
p removal efficiency	%	53.50	25.93	23.11	25.05	0.00	0.00	0.00	0.00
upstream w-shed p load	lbs/yr	28.18	210.46	210.46	210.46	1341.71	105.95	1850.95	2085.89
total removal %	%	62.45	33.16	48.61	61.48	18.00	0.00	13.05	11.58
HYDRAULIC PARAMETERS.....									
pond mean depth	feet	4.04	4.96	4.96	4.96	1.00	1.00	1.00	1.00
relative volume	inches	7.40	0.44	47370.00	75840.00	0.00	0.00	0.00	0.00
residence time	years	0.16	0.01	0.02	0.03	0.00	0.00	0.00	0.00
residence time	days	59.62	3.28	6.26	10.02	0.00	0.00	0.00	0.00
overflow rate	ft/yr	24.72	551.32	289.08	180.53	126841084.92	9613962.76	174175955.74	195040774.45
inflow phos conc	ppb	325.63	379.45	281.06	216.11	319.11	405.48	339.95	347.90
outflow phos conc	ppb	151.41	281.06	216.11	161.96	319.11	405.48	339.95	347.90
p reaction rate	-	2.47	0.47	0.39	0.45	0.00	0.00	0.00	0.00
1-rp	-	0.46	0.74	0.77	0.75	1.00	1.00	1.00	1.00
vlawmo pond volume	acre-ft	1.42	9.43	0.00	0.00	3.17	7.56	29.65	16.40
LAND USE PARAMETERS.....									
runoff total P conc	ppb	348.71	395.83	200.00	200.00	281.10	341.51	354.06	387.85
runoff coefficient		0.15	0.21	0.08	0.08	0.13	0.23	0.21	0.23
dissolved/total P		0.44	0.37	0.60	0.60	0.50	0.42	0.39	0.36
runoff TSS conc	ppm	178.68	162.23	216.00	216.00	193.42	172.45	164.20	155.07
POND TSS BUDGETS.....									
runoff	lbs/yr	7933.58	48497.40	1.24	1.24	18974.22	39420.06	152714.31	82119.89
upstream pond	lbs/yr	226.46	16759.06	31929.05	16877.44	444026.19	0.00	502420.46	655134.78
total inflow	**lbs/yr**	**8160.05**	**65256.46**	**31930.30**	**16878.68**	**463000.40**	**39420.06**	**655134.78**	**737254.67**
p removal efficiency (no inf)	%	54.00	26.00	24.00	26.00	0.00	0.00	0.00	0.00
tss removal efficiency (no inf)	%	90.00	51.07	47.14	51.07	0.00	0.00	0.00	0.00
net sedimentation	lbs/yr	7344.04	33327.41	15052.85	8620.18	0.00	0.00	0.00	0.00
outflow	lbs/yr	816.00	31929.05	16877.44	8258.50	463000.40	39420.06	655134.78	737254.67
tss removal efficiency (inf)	%	90.00	51.07	47.14	51.07	0.00	0.00	0.00	0.00
upstream watershed tss load	lbs/yr	11168.78	77000.87	77002.11	77003.35	586551.06	39420.06	778685.44	860805.33
tss total removal efficiency	%	92.69	58.53	78.08	89.28	21.06	0.00	15.87	14.35
INFILTRATION BMP/POND.....									
Annual runoff infiltrated	%	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Adjusted outflow	**ac-ft/yr**	**25.71**	**184.14**	**184.14**	**184.14**	**1268.41**	**96.14**	**1741.76**	**1950.41**
Adjusted TP outflow	**lbs/yr**	**10.58**	**140.67**	**108.16**	**81.06**	**1100.13**	**105.95**	**1609.37**	**1844.31**
Adjusted TSS outflow	**lbs/yr**	**816.00**	**31929.05**	**16877.44**	**8258.50**	**463000.40**	**39420.06**	**655134.78**	**737254.67**

Rochester Loading Assessment																								
Bear Creek																								
363-06-158-2																								
2020 LOADS																								
		future bc-a2.6c	bc-a2.6c	future bc-a2.6b	bc-a2.6b	future bc-a2.6a	bc-a2.6a	future bc-a2.7c	bc-a2.7c	future bc-a2.7b	bc-a2.7b	future bc-a2.7a	bc-a2.7a	bc-a2.7a cell 2	bc-a2.7a cell 3	future bc-a2.9	bc-a2.9	future bc-a2.8	bc-a2.8	future bc-a2.10	bc-a2.10	future bc-a2.11	bc-a2.11	future bc-a1.21b	bc-a1.21b
		bc-a2.6c	bc-a2.7b	bc-a2.6b	bc-a2.6a	bc-a2.6a	bc-a2.7b	bc-a2.7c	bc-a2.7b	bc-a2.7b	bc-a2.9	bc-a2.7a	bc-a2.7a cell 2	bc-a2.7a cell 3	bc-a2.7b	bc-a2.9	bc-a2.11	bc-a2.8	bc-a2.11	bc-a2.10	bc-a2.11	bc-a2.11	bc-a2.14a	bc-a1.21b	bc-a2.14a
INPUT VARIABLES....	UNITS																							
case label	-																							
Watershed area	acres	0.0	22.3	0.2	29.7	0.2	37.5	6.3	13.7	20.9	214.0	10.3	66.8	0.0	0.0	0.0	11.7	0.0	232.0	0.0	57.1	0.0	182.7	0.0	5.8
basin area	acres	0.00	0.42	0.00	0.33	0.00	0.00	0.08	0.42	0.29	0.00	0.00	0.22	0.23	0.60	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.35
basin volume	acre-ft	0.00	1.94	0.00	0.78	0.00	0.00	0.19	1.43	0.66	0.00	0.00	0.92	0.94	2.45	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.94
Row Crop Agriculture		0%	0%	0%	0%	0%	0%	0%	0%	0%	48%	0%	34%	0%	0%	0%	0%	0%	2%	0%	10%	0%	1%	0%	0%
Very Low Density Residential		0%	0%	0%	0%	0%	6%	0%	0%	0%	8%	0%	0%	0%	0%	0%	0%	0%	16%	0%	0%	0%	23%	0%	0%
Low Density Residential		0%	53%	100%	94%	100%	28%	83%	66%	74%	3%	0%	0%	0%	0%	0%	3%	0%	19%	0%	0%	0%	1%	0%	0%
Medium Density Residential		0%	0%	0%	0%	0%	0%	17%	0%	26%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
High Density Residential		0%	42%	0%	0%	0%	21%	0%	33%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Commercial/Industrial		0%	0%	0%	0%	0%	28%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Institutional		0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Open Space		0%	5%	0%	6%	0%	14%	0%	1%	0%	42%	100%	66%	100%	100%	0%	97%	0%	63%	0%	90%	0%	75%	0%	100%
Golf Course		0%	0%	0%	0%	0%	1%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Pits and Quarries		0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Right-of-Way		0%	0%	0%	0%	0%	2%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
WATERSHED-WIDE ACCOUNTING.....																								
tributary land area	ac	0.00	22.32	0.16	29.85	0.17	67.55	6.26	19.96	20.89	421.87	10.27	77.12	77.13	77.14	0.00	433.60	0.00	231.96	0.00	57.06	0.00	905.30	0.00	5.78
tributary water area	ac	0.00	0.42	0.00	0.33	0.00	0.33	0.08	0.50	0.29	2.59	0.00	0.22	0.45	1.05	0.00	2.59	0.00	0.00	0.00	0.00	0.00	2.59	0.00	0.35
direct and ponded area	ac	0.00	22.74	0.16	30.18	0.17	67.88	6.34	20.46	21.18	424.46	10.27	77.34	77.58	78.18	0.00	436.19	0.00	231.96	0.00	57.06	0.00	907.89	0.00	6.13
ASSUMED EXPORT FACTORS.....																								
season length	yrs	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
season precipitation	inches	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80
runoff total p	ppb	0.00	382.41	391.50	380.28	391.50	349.12	391.50	389.61	391.50	374.47	200.00	314.49	200.00	200.00	0.00	205.72	0.00	259.80	0.00	234.27	0.00	230.02	0.00	200.00
runoff ortho p/total p	-	0.00	0.31	0.30	0.32	0.30	0.36	0.30	0.30	0.30	0.39	0.60	0.47	0.60	0.60	0.00	0.59	0.00	0.52	0.00	0.56	0.00	0.57	0.00	0.60
unit runoff	in/yr	0.00	9.44	6.74	6.50	6.74	9.56	7.26	8.97	7.51	3.59	2.54	3.19	2.54	2.54	0.00	2.66	0.00	3.45	0.00	2.74	0.00	2.72	0.00	2.54
unit export	lbs/ac-y	0.00	0.83	0.60	0.57	0.60	0.79	0.64	0.79	0.67	0.34	0.12	0.26	0.12	0.12	0.00	0.13	0.00	0.23	0.00	0.16	0.00	0.15	0.00	0.12
POND WATER BUDGETS.....																								
runoff	ac-ft/yr	0.00	17.55	0.09	16.08	0.10	29.90	3.78	10.24	13.07	64.02	2.18	17.75	0.00	0.00	0.00	2.60	0.00	66.72	0.00	13.01	0.00	41.39	0.00	1.23
upstream pond	ac-ft/yr	0.00	0.00	0.00	0.09	0.00	16.26	0.00	3.78	0.00	110.75	0.00	2.18	19.93	19.93	0.00	174.77	0.00	0.00	0.00	0.00	0.00	257.10	0.00	0.00
total inflow	**ac-ft/yr**	**0.00**	**17.55**	**0.09**	**16.17**	**0.10**	**46.16**	**3.78**	**14.03**	**13.07**	**174.77**	**2.18**	**19.93**	**19.93**	**19.93**	**0.00**	**177.37**	**0.00**	**66.72**	**0.00**	**13.01**	**0.00**	**298.49**	**0.00**	**1.23**
outflow	ac-ft/yr	0.00	17.55	0.09	16.17	0.10	46.16	3.78	14.03	13.07	174.77	2.18	19.93	19.93	19.93	0.00	177.37	0.00	66.72	0.00	13.01	0.00	298.49	0.00	1.23
POND PHOSPHORUS BUDGETS.....																								
runoff	lbs/yr	0.00	18.56	0.10	16.92	0.10	29.71	4.03	10.89	13.91	72.42	1.18	17.36	0.00	0.00	0.00	1.51	0.00	53.39	0.00	9.05	0.00	26.81	0.00	0.67
upstream pond	lbs/yr	0.00	0.00	0.00	0.04	0.00	8.92	0.00	2.06	0.00	64.10	0.00	1.18	10.70	7.59	0.00	136.53	0.00	0.00	0.00	0.00	0.00	200.48	0.00	0.00
total inflow	**lbs/yr**	**0.00**	**18.56**	**0.10**	**16.95**	**0.10**	**38.63**	**4.03**	**12.95**	**13.91**	**136.53**	**1.18**	**18.55**	**10.70**	**7.59**	**0.00**	**138.04**	**0.00**	**53.39**	**0.00**	**9.05**	**0.00**	**227.28**	**0.00**	**0.67**
net sedimentation	lbs/yr	0.00	11.14	0.06	8.08	0.06	0.00	1.97	7.16	6.80	0.00	0.00	7.85	3.12	2.44	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.26
outflow	lbs/yr	0.00	7.43	0.04	8.88	0.04	38.63	2.06	5.79	7.11	136.53	1.18	10.70	7.59	5.15	0.00	138.04	0.00	53.39	0.00	9.05	0.00	227.28	0.00	0.40
p removal efficiency	%	3.78	60.00	59.21	47.63	59.22	0.00	48.86	55.28	48.90	0.00	0.01	42.30	29.11	32.09	3.78	0.00	3.78	0.00	3.78	0.00	3.78	0.00	3.78	39.26
upstream w-shed p load	lbs/yr	0.00	18.56	0.10	17.01	0.10	46.82	4.03	14.91	13.91	185.18	1.18	18.55	18.55	18.55	0.00	186.69	0.00	53.39	0.00	9.05	0.00	275.94	0.00	0.67
total removal %	%	3.78	60.00	59.21	47.80	59.22	17.50	48.86	61.18	48.90	26.27	0.01	42.30	59.10	72.22	3.78	26.06	3.78	0.00	3.78	0.00	3.78	17.63	3.78	39.26
HYDRAULIC PARAMETERS.....																								
pond mean depth	feet	0.00	4.62	437.25	2.36	478.50	1.00	2.28	3.39	2.27	1.00	1.00	4.10	4.10	4.10	0.00	1.00	0.00	1.00	0.00	1.00	0.00	1.00	0.00	2.69
relative volume	inches	1.58	3.51	1.56	1.54	1.56	0.00	1.59	4.42	1.60	0.00	0.00	1.64	14100.00	36675.00	1.58	0.00	1.58	0.00	1.58	0.00	1.58	0.00	1.58	24.39
residence time	years	0.05	0.11	0.05	0.05	0.05	0.00	0.05	0.10	0.05	0.00	0.00	0.05	0.05	0.12	0.05	0.00	0.05	0.00	0.05	0.00	0.05	0.00	0.05	0.77
residence time	days	18.08	40.34	17.86	17.61	17.86	0.00	18.24	37.08	18.40	0.00	0.00	16.76	17.21	44.77	18.08	0.00	18.08	0.00	18.08	0.00	18.08	0.00	18.08	279.99
overflow rate	ft/yr	0.00	41.79	8935.36	48.99	9778.32	4616113.05	45.67	33.40	45.08	17477237.18	217787.60	89.37	87.04	33.45	0.00	17737248.80	0.00	6671764.17	0.00	1301155.76	0.00	29849125.11	0.00	3.50
inflow phos conc	ppb	384.34	389.07	391.52	385.87	391.52	307.87	391.52	339.52	391.52	287.41	200.01	342.40	197.56	140.06	384.34	286.33	384.34	294.43	384.34	255.78	384.34	280.15	384.34	200.02
outflow phos conc	ppb	369.82	155.64	159.70	202.08	159.67	307.86	200.24	151.83	200.07	287.41	199.99	197.56	140.05	95.11	369.82	286.33	369.82	294.42	369.82	255.77	369.82	280.15	369.82	121.50
p reaction rate	-	0.04	3.75	3.56	1.74	3.56	0.00	1.87	2.76	1.87	0.00	0.00	1.27	0.58	0.70	0.04	0.00	0.04	0.00	0.04	0.00	0.04	0.00	0.04	1.06
1-rp	-	0.96	0.40	0.41	0.52	0.41	1.00	0.51	0.45	0.51	1.00	1.00	0.58	0.71	0.68	0.96	1.00	0.96	1.00	0.96	1.00	0.96	1.00	0.96	0.61
vlawmo pond volume	acre-ft	0.00	1.38	0.01	1.26	0.01	2.35	0.30	0.81	1.03	5.03	0.17	1.40	0.00	0.00	0.00	0.20	0.00	5.25	0.00	1.02	0.00	3.25	0.00	0.10
LAND USE PARAMETERS.....																								
runoff total P conc	ppb	0.00	382.41	391.50	380.28	391.50	349.12	391.50	389.61	391.50	374.47	200.00	314.49	200.00	200.00	0.00	205.72	0.00	259.80	0.00	234.27	0.00	230.02	0.00	200.00
runoff coefficient		0.00	0.30	0.21	0.20	0.21	0.30	0.23	0.28	0.24	0.11	0.08	0.10	0.08	0.08	0.00	0.08	0.00	0.11	0.00	0.09	0.00	0.09	0.00	0.08
dissolved/total P		0.00	0.31	0.30	0.32	0.30	0.36	0.30	0.30	0.30	0.39	0.60	0.47	0.60	0.60	0.00	0.59	0.00	0.52	0.00	0.56	0.00	0.57	0.00	0.60
runoff TSS conc	ppm	0.00	143.61	140.00	144.45	140.00	155.93	140.00	140.75	140.00	188.89	216.00	198.23	216.00	216.00	0.00	213.88	0.00	200.42	0.00	210.66	0.00	214.47	0.00	216.00
POND TSS BUDGETS.....																								
runoff	lbs/yr	0.00	6706.04	33.90	6175.23	37.10	11705.76	1435.83	3892.14	4959.87	31432.32	1274.84	9192.37	1.24	1.24	0.00	1484.65	0.00	33683.11	0.00	7309.93	0.00	23851.36	0.00	717.30
upstream pond	lbs/yr	0.00	0.00	0.00	2.37	0.00	1176.34	0.00	215.37	0.00	14960.01	0.00	1274.84	3279.72	1419.02	0.00	46392.33	0.00	0.00	0.00	0.00	0.00	88870.02	0.00	0.00
total inflow	**lbs/yr**	**0.00**	**6706.04**	**33.90**	**6177.61**	**37.10**	**12882.10**	**1435.83**	**4107.52**	**4959.87**	**46392.33**	**1274.84**	**10467.21**	**3280.97**	**1420.26**	**0.00**	**47876.98**	**0.00**	**33683.11**	**0.00**	**7309.93**	**0.00**	**112721.38**	**0.00**	**717.30**
p removal efficiency (no inf)	%	5.00	63.00	62.00	50.00	62.00	0.00	52.00	58.00	52.00	0.00	0.00	43.00	30.00	33.00	5.00	0.00	5.00	0.00	5.00	0.00	5.00	0.00	5.00	40.00
tss removal efficiency (no inf)	%	9.82	93.00	93.00	81.00	93.00	0.00	85.00	93.00	85.00	0.00	0.00	68.67	56.75	59.38	9.82	0.00	9.82	0.00	9.82	0.00	9.82	0.00	9.82	66.00
net sedimentation	lbs/yr	0.00	6236.62	31.53	5003.86	34.50	0.00	1220.45	3819.99	4215.89	0.00	0.00	7187.48	1861.95	843.28	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	473.42
outflow	lbs/yr	0.00	469.42	2.37	1173.75	2.60	12882.10	215.37	287.53	743.98	46392.33	1274.84	3279.72	1419.02	576.98	0.00	47876.98	0.00	33683.11	0.00	7309.93	0.00	112721.38	0.00	243.88
tss removal efficiency (inf)	%	9.82	93.00	93.00	81.00	93.00	0.00	85.00	93.00	85.00	0.00	0.00	68.67	56.75	59.38	9.82	0.00	9.82	0.00	9.82	0.00	9.82	0.00	9.82	66.00
upstream watershed tss load	lbs/yr	0.00	6706.04	33.90	6209.13	37.10	17951.99	1435.83	5327.97	4959.87	76847.87	1274.84	10467.21	10468.45	10469.69	0.00	78332.52	0.00	33683.11	0.00	7309.93	0.00	143176.92	0.00	717.30
tss total removal efficiency	%	9.82	93.00	93.00	81.10	93.00	28.24	85.00	94.60	85.00	39.63	0.00	68.67	86.44	94.49	9.82	38.88	9.82	0.00	9.82	0.00	9.82	21.27	9.82	66.00
INFILTRATION BMP/POND.....																								
Annual runoff infiltrated	%	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Adjusted outflow	**ac-ft/yr**	**0.00**	**17.55**	**0.09**	**16.17**	**0.10**	**46.16**	**3.78**	**14.03**	**13.07**	**174.77**	**2.18**	**19.93**	**19.93**	**19.93**	**0.00**	**177.37**	**0.00**	**66.72**	**0.00**	**13.01**	**0.00**	**298.49**	**0.00**	**1.23**
Adjusted TP outflow	**lbs/yr**	**0.00**	**7.43**	**0.04**	**8.88**	**0.04**	**38.63**	**2.06**	**5.79**	**7.11**	**136.53**	**1.18**	**10.70**	**7.59**	**5.15**	**0.00**	**138.04**	**0.00**	**53.39**	**0.00**	**9.05**	**0.00**	**227.28**	**0.00**	**0.40**
Adjusted TSS outflow	**lbs/yr**	**0.00**	**469.42**	**2.37**	**1173.75**	**2.60**	**12882.10**	**215.37**	**287.53**	**743.98**	**46392.33**	**1274.84**	**3279.72**	**1419.02**	**576.98**	**0.00**	**47876.98**	**0.00**	**33683.11**	**0.00**	**7309.93**	**0.00**	**112721.38**	**0.00**	**243.88**
POND P BUDGETS W/O P-BAN.....																								
runoff	lbs/yr	0.00	21.32	0.11	19.41	0.12	32.15	4.63	12.51	15.99	73.40	1.18	17.36	0.00	0.00	0.00	1.54	0.00	58.45	0.00	9.05	0.00	28.31	0.00	0.67
Adjusted TP outflow	**lbs/yr**	**0.00**	**8.09**	**0.04**	**9.74**	**0.05**	**41.94**	**2.26**	**6.30**	**7.80**	**142.68**	**1.18**	**10.70**	**7.59**	**5.15**	**0.00**	**144.22**	**0.00**	**58.45**	**0.00**	**9.05**	**0.00**	**240.03**	**0.00**	**0.40**
upstream pond	lbs/yr	0.00	0.00	0.00	0.04	0.00	9.79	0.00	2.26	0.00	69.28	0.00	1.18	10.70	7.59	0.00	142.68	0.00	0.00	0.00	0.00	0.00	211.72	0.00	0.00
total inflow	**lbs/yr**	**0.00**	**21.32**	**0.11**	**19.46**	**0.12**	**41.94**	**4.63**	**14.77**	**15.99**	**142.68**	**1.18**	**18.55**	**10.70**	**7.59**	**0.00**	**144.22**	**0.00**	**58.45**	**0.00**	**9.05**	**0.00**	**240.03**	**0.00**	**0.67**
outflow	lbs/yr	0.00	8.09	0.04	9.74	0.05	41.94	2.26	6.30	7.80	142.68	1.18	10.70	7.59	5.15	0.00	144.22	0.00	58.45	0.00	9.05	0.00	240.03	0.00	0.40
inflow phos conc	ppb	409.24	446.83	450.02	442.79	450.02	334.24	450.02	387.38	450.02	300.36	200.01	342.40	197.56	140.06	409.24	299.15	409.24	322.33	409.24	255.78	409.24	295.85	409.24	200.02
outflow phos conc	ppb	392.86	169.61	174.19	221.66	174.17	334.24	219.72	165.19	219.52	300.36	199.99	197.56	140.05	95.11	392.86	299.15	392.86	322.33	392.86	255.77	392.86	295.85	392.86	121.50
p reaction rate	-	0.04	4.31	4.09	1.99	4.09	0.00	2.15	3.15	2.15	0.00	0.00	1.27	0.58	0.70	0.04	0.00	0.04	0.00	0.04	0.00	0.04	0.00	0.04	1.06
1-rp	-	0.96	0.38	0.39	0.50	0.39	1.00	0.49	0.43	0.49	1.00	1.00	0.58	0.71	0.68	0.96	1.00	0.96	1.00	0.96	1.00	0.96	1.00	0.96	0.61
runoff total p conc	ppb	0.00	438.14	450.00	435.35	450.00	380.71	450.00	447.54	450.00	379.39	200.00	314.49	200.00	200.00	0.00	207.28	0.00	278.04	0.00	234.27	0.00	241.23	0.00	200.00

Rochester Loading Assessm																							
Bear Creek																							
363-06-158-2																							
2020 LOADS																							
	future bc-a1.21a	**bc-a1.21a**	**future bc-a1.11**	**bc-a1.11**	**future bc-a1.12**	**bc-a1.12**	**future bc-a1.15**	**bc-a1.15**	**future bc-a2.14b**	**bc-a2.14b**	**bc-a2.14b cell 2**	**bc-a2.14b cell 3**	**future bc-a2.14a**	**bc-a2.14a**	**future bc-a2.12**	**bc-a2.12**	**future bc-a2.13**	**bc-a2.13**	**future bc-a2.15**	**bc-a2.15**	**future bc-a2.16d**	**bc-a2.16d**	**bc-a2.16d cells**	**bc-a2.16d cells**
	bc-a1.21a	bc-a2.14a	bc-a1.11	bc-a1.12	bc-a1.12	bc-a1.15	bc-a1.15	bc-a2.14a	bc-a2.14b	bc-a2.14b cell 2	bc-a2.14b cell 3	bc-a2.14a	bc-a2.14a	bc-a2.17	bc-a2.12	bc-a2.15	bc-a2.13	bc-a2.15	bc-a2.15	bc-a2.17	bc-a2.16d	bc-a2.16d cells	bc-a2.16c	bc-a2.16c
INPUT VARIABLES....																							
case label																							
Watershed area	0.0	15.9	0.0	8.8	0.0	8.1	0.0	127.0	6.7	2.6	0.0	0.0	10.6	309.7	0.7	86.1	0.0	55.7	1.8	146.7	2.9	41.4	0.0	0.0
basin area	0.00	0.36	0.00	0.00	0.00	0.00	0.00	0.00	0.12	0.30	0.31	1.35	0.17	0.19	0.00	0.00	0.00	0.00	0.04	0.00	0.04	0.00	0.11	0.08
basin volume	0.00	1.15	0.00	0.00	0.00	0.00	0.00	0.00	0.29	1.26	1.28	5.62	0.37	0.73	0.03	0.00	0.00	0.00	0.05	0.00	0.08	0.00	0.32	0.14
Row Crop Agriculture	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	1%	0%	25%	0%	57%	0%	4%	0%	0%	0%	0%
Very Low Density Residential	0%	0%	0%	8%	0%	17%	0%	41%	0%	0%	0%	0%	0%	39%	0%	7%	0%	0%	0%	0%	0%	0%	0%	0%
Low Density Residential	0%	0%	0%	68%	0%	63%	0%	26%	0%	85%	0%	0%	54%	21%	0%	4%	0%	0%	96%	41%	100%	91%	0%	0%
Medium Density Residential	0%	0%	0%	0%	0%	0%	0%	2%	100%	0%	0%	0%	46%	1%	100%	0%	0%	0%	4%	0%	0%	0%	0%	0%
High Density Residential	0%	0%	0%	0%	0%	0%	0%	0%	0%	7%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Commercial/Industrial	0%	28%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	3%	0%	0%	0%	0%	0%	1%	0%	0%	0%	0%
Institutional	0%	0%	0%	0%	0%	0%	0%	7%	0%	0%	0%	0%	0%	1%	0%	0%	0%	0%	0%	1%	0%	0%	0%	0%
Open Space	0%	69%	0%	24%	0%	0%	0%	16%	0%	8%	100%	100%	0%	29%	0%	64%	0%	43%	0%	52%	0%	8%	100%	100%
Golf Course	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Pits and Quarries	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Right-of-Way	0%	2%	0%	0%	0%	19%	0%	8%	0%	0%	0%	0%	0%	5%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
WATERSHED-WIDE ACCOUNTIN																								
tributary land area	0.00	15.86	0.00	8.82	0.00	16.87	0.00	143.83	6.66	9.22	9.22	9.22	10.57	1400.22	0.73	86.87	0.00	55.73	1.81	291.14	2.88	44.32	44.33	44.33
tributary water area	0.00	0.36	0.00	0.00	0.00	0.00	0.00	0.00	0.12	0.43	0.73	2.08	0.17	5.74	0.00	0.00	0.00	0.00	0.04	0.04	0.04	0.04	0.15	0.12
direct and ponded area	0.00	16.22	0.00	8.82	0.00	16.87	0.00	143.83	6.78	9.64	9.95	11.30	10.73	1405.95	0.73	86.87	0.00	55.73	1.85	291.18	2.92	44.36	44.48	44.45
ASSUMED EXPORT FACTORS..																								
season length	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
season precipitation	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80
runoff total p	0.00	247.11	0.00	339.36	0.00	378.19	0.00	322.03	391.50	375.53	200.00	200.00	391.50	303.47	391.50	300.17	0.00	392.47	391.50	296.72	391.50	375.44	200.00	200.00
runoff ortho p/total p	0.00	0.51	0.00	0.39	0.00	0.33	0.00	0.43	0.30	0.33	0.60	0.60	0.30	0.46	0.30	0.48	0.00	0.37	0.30	0.45	0.30	0.33	0.60	0.60
unit runoff	0.00	6.10	0.00	5.44	0.00	6.49	0.00	4.92	9.74	6.86	2.54	2.54	8.13	4.42	9.74	3.21	0.00	3.62	6.85	4.53	6.74	6.39	2.54	2.54
unit export	0.00	0.43	0.00	0.45	0.00	0.57	0.00	0.39	0.86	0.60	0.12	0.12	0.72	0.34	0.86	0.25	0.00	0.36	0.61	0.35	0.60	0.56	0.12	0.12
POND WATER BUDGETS.....																								
runoff	0.00	8.06	0.00	4.00	0.00	4.35	0.00	52.10	5.40	1.46	0.00	0.00	7.16	114.11	0.59	23.02	0.00	16.83	1.03	55.38	1.62	22.06	0.00	0.00
upstream pond	0.00	0.00	0.00	0.00	0.00	4.00	0.00	8.35	0.00	5.40	6.86	6.86	0.00	382.25	0.00	0.59	0.00	0.00	0.00	41.47	0.00	1.62	11.84	11.84
total inflow	**0.00**	**8.06**	**0.00**	**4.00**	**0.00**	**8.35**	**0.00**	**60.45**	**5.40**	**6.86**	**6.86**	**6.86**	**7.16**	**496.36**	**0.59**	**23.61**	**0.00**	**16.83**	**1.03**	**96.86**	**1.62**	**23.67**	**11.84**	**11.84**
outflow	0.00	8.06	0.00	4.00	0.00	8.35	0.00	60.45	5.40	6.86	6.86	6.86	7.16	496.36	0.59	23.61	0.00	16.83	1.03	96.86	1.62	23.67	11.84	11.84
POND PHOSPHORUS BUDGETS																								
runoff	0.00	6.75	0.00	3.98	0.00	4.58	0.00	49.40	5.75	1.53	0.00	0.00	7.62	103.93	0.63	21.31	0.00	19.97	1.10	51.11	1.72	23.08	0.00	0.00
upstream pond	0.00	0.00	0.00	0.00	0.00	3.98	0.00	8.56	0.00	2.90	2.04	1.41	0.00	294.13	0.00	0.25	0.00	0.00	0.00	42.15	0.00	0.91	11.99	11.99
total inflow	**0.00**	**6.75**	**0.00**	**3.98**	**0.00**	**8.56**	**0.00**	**57.96**	**5.75**	**4.43**	**2.04**	**1.41**	**7.62**	**398.06**	**0.63**	**21.55**	**0.00**	**19.97**	**1.10**	**93.26**	**1.72**	**23.99**	**11.99**	**11.99**
net sedimentation	0.00	3.15	0.00	0.00	0.00	0.00	0.00	0.00	2.85	2.40	0.63	0.42	3.73	18.67	0.38	0.00	0.00	0.00	0.47	0.00	0.81	0.01	3.77	2.43
outflow	0.00	3.60	0.00	3.98	0.00	8.56	0.00	57.96	2.90	2.04	1.41	0.99	3.90	379.39	0.25	21.55	0.00	19.97	0.63	93.26	0.91	23.98	8.22	9.57
p removal efficiency	3.78	46.71	3.78	0.01	3.78	0.01	3.78	0.00	49.56	54.07	30.78	29.76	48.88	4.69	60.59	0.00	3.78	0.00	42.78	0.00	47.16	0.03	31.45	20.22
upstream w-shed p load	0.00	6.75	0.00	3.98	0.00	8.56	0.00	57.96	5.75	7.28	7.28	7.28	7.62	460.15	0.63	21.93	0.00	19.97	1.10	94.11	1.72	24.80	24.80	24.80
total removal %	3.78	46.71	3.78	0.01	3.78	0.01	3.78	0.00	49.56	72.04	80.65	86.41	48.88	17.55	60.59	1.74	3.78	0.00	42.78	0.91	47.16	3.30	66.85	61.43
HYDRAULIC PARAMETERS.....																								
pond mean depth	0.00	3.19	0.00	1.00	0.00	1.00	0.00	1.00	2.32	4.17	4.17	4.17	2.22	3.84	3150.29	1.00	0.00	1.00	1.23	1.00	1.91	0.10	2.91	1.75
relative volume	1.58	4.54	1.58	0.00	1.58	0.00	1.58	0.00	1.70	27.29	191250.00	843000.00	1.64	0.20	1.70	0.00	1.58	0.00	1.56	0.00	1.56	0.00	4800.00	2100.00
residence time	0.05	0.14	0.05	0.00	0.05	0.00	0.05	0.00	0.05	0.18	0.19	0.82	0.05	0.00	0.05	0.00	0.05	0.00	0.05	0.00	0.05	0.00	0.03	0.01
residence time	18.08	52.10	18.08	0.00	18.08	0.00	18.08	0.00	19.50	66.75	67.81	298.88	18.77	0.54	19.50	0.00	18.08	0.00	17.95	0.00	17.86	0.00	9.87	4.32
overflow rate	0.00	22.38	0.00	399880.02	0.00	835214.51	0.00	6045080.58	43.45	22.80	22.43	5.09	43.23	2612.44	58980.52	2360884.09	0.00	1683227.46	24.93	9685510.86	39.05	23673.50	107.63	147.99
inflow phos conc	384.34	308.23	384.34	366.62	384.34	377.15	384.34	352.78	391.52	237.54	109.10	75.53	391.52	295.05	391.52	335.87	384.34	436.46	391.52	354.24	391.52	372.86	372.73	372.73
outflow phos conc	369.82	164.27	369.82	366.57	369.82	377.12	369.82	352.77	197.49	109.10	75.52	53.05	200.14	281.21	154.30	335.87	369.82	436.45	224.02	354.24	206.88	372.76	255.52	297.36
p reaction rate	0.04	1.64	0.04	0.00	0.04	0.00	0.04	0.00	1.95	2.56	0.64	0.60	1.87	0.05	3.90	0.00	0.04	0.00	1.31	0.00	1.69	0.00	0.67	0.32
1-rp	0.96	0.53	0.96	1.00	0.96	1.00	0.96	1.00	0.50	0.46	0.69	0.70	0.51	0.95	0.39	1.00	0.96	1.00	0.57	1.00	0.53	1.00	0.69	0.80
vlawmo pond volume	0.00	0.63	0.00	0.31	0.00	0.34	0.00	4.10	0.42	0.11	0.00	0.00	0.56	8.97	0.05	1.81	0.00	1.32	0.08	4.35	0.13	1.73	0.00	0.00
LAND USE PARAMETERS.....																								
runoff total P conc	0.00	247.11	0.00	339.36	0.00	378.19	0.00	322.03	391.50	375.53	200.00	200.00	391.50	303.47	391.50	300.17	0.00	392.47	391.50	296.72	391.50	375.44	200.00	200.00
runoff coefficient	0.00	0.19	0.00	0.17	0.00	0.20	0.00	0.15	0.31	0.22	0.08	0.08	0.26	0.14	0.31	0.10	0.00	0.11	0.22	0.14	0.21	0.20	0.08	0.08
dissolved/total P	0.00	0.51	0.00	0.39	0.00	0.33	0.00	0.43	0.30	0.33	0.60	0.60	0.30	0.46	0.30	0.48	0.00	0.37	0.30	0.45	0.30	0.33	0.60	0.60
runoff TSS conc	0.00	192.71	0.00	164.23	0.00	153.06	0.00	183.73	140.00	146.58	216.00	216.00	140.00	191.81	140.00	199.91	0.00	186.00	140.00	180.95	140.00	146.61	216.00	216.00
POND TSS BUDGETS.....																								
runoff	0.00	3536.87	0.00	1645.50	0.00	1722.44	0.00	23347.23	2048.97	564.34	0.12	0.12	2717.99	53459.83	223.77	11960.27	0.00	8171.68	391.94	24528.84	613.84	8524.45	1.24	1.24
upstream pond	0.00	0.00	0.00	0.00	0.00	1645.50	0.00	3367.94	0.00	307.35	61.02	25.37	0.00	141018.52	0.00	15.66	0.00	0.00	0.00	20257.36	0.00	116.63	4320.54	4320.54
total inflow	**0.00**	**3536.87**	**0.00**	**1645.50**	**0.00**	**3367.94**	**0.00**	**26715.17**	**2048.97**	**871.69**	**61.14**	**25.50**	**2717.99**	**194478.35**	**223.77**	**11975.94**	**0.00**	**8171.68**	**391.94**	**44786.20**	**613.84**	**8641.08**	**4321.78**	**4321.78**
p removal efficiency (no inf)	5.00	47.00	5.00	0.00	5.00	0.00	5.00	0.00	52.00	56.00	32.00	31.00	52.00	6.00	63.00	0.00	5.00	0.00	46.00	0.00	50.00	0.00	46.00	33.00
tss removal efficiency (no inf)	9.82	74.00	9.82	0.00	9.82	0.00	9.82	0.00	85.00	93.00	58.50	57.63	85.00	11.79	93.00	0.00	9.82	0.00	72.00	0.00	81.00	0.00	72.00	59.38
net sedimentation	0.00	2617.28	0.00	0.00	0.00	0.00	0.00	0.00	1741.62	810.67	35.77	14.69	2310.29	22920.66	208.11	0.00	0.00	0.00	282.20	0.00	497.21	0.00	3111.68	2566.06
outflow	0.00	919.59	0.00	1645.50	0.00	3367.94	0.00	26715.17	307.35	61.02	25.37	10.80	407.70	171557.69	15.66	11975.94	0.00	8171.68	109.74	44786.20	116.63	8641.08	1210.10	1755.72
tss removal efficiency (inf)	9.82	74.00	9.82	0.00	9.82	0.00	9.82	0.00	85.00	93.00	58.50	57.63	85.00	11.79	93.00	0.00	9.82	0.00	72.00	0.00	81.00	0.00	72.00	59.38
upstream watershed tss load	0.00	3536.87	0.00	1645.50	0.00	3367.94	0.00	26715.17	2048.97	2613.31	2613.44	2613.56	2717.99	232937.65	223.77	12184.04	0.00	8171.68	391.94	45276.50	613.84	9138.29	9139.53	9139.53
tss total removal efficiency	9.82	74.00	9.82	0.00	9.82	0.00	9.82	0.00	85.00	97.67	99.03	99.59	85.00	26.35	93.00	1.71	9.82	0.00	72.00	1.08	81.00	5.44	86.76	80.79
INFILTRATION BMP/POND.....																								
Annual runoff infiltrated	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Adjusted outflow	**0.00**	**8.06**	**0.00**	**4.00**	**0.00**	**8.35**	**0.00**	**60.45**	**5.40**	**6.86**	**6.86**	**6.86**	**7.16**	**496.36**	**0.59**	**23.61**	**0.00**	**16.83**	**1.03**	**96.86**	**1.62**	**23.67**	**11.84**	**11.84**
Adjusted TP outflow	**0.00**	**3.60**	**0.00**	**3.98**	**0.00**	**8.56**	**0.00**	**57.96**	**2.90**	**2.04**	**1.41**	**0.99**	**3.90**	**379.39**	**0.25**	**21.55**	**0.00**	**19.97**	**0.63**	**93.26**	**0.91**	**23.98**	**8.22**	**9.57**
Adjusted TSS outflow	**0.00**	**919.59**	**0.00**	**1645.50**	**0.00**	**3367.94**	**0.00**	**26715.17**	**307.35**	**61.02**	**25.37**	**10.80**	**407.70**	**171557.69**	**15.66**	**11975.94**	**0.00**	**8171.68**	**109.74**	**44786.20**	**116.63**	**8641.08**	**1210.10**	**1755.72**
POND P BUDGETS W/O P-BAN.																								
runoff	0.00	6.75	0.00	4.54	0.00	5.08	0.00	54.23	6.61	1.76	0.00	0.00	8.76	113.88	0.72	21.77	0.00	19.97	1.26	56.52	1.98	26.47	0.00	0.00
Adjusted TP outflow	**0.00**	**3.60**	**0.00**	**4.54**	**0.00**	**9.62**	**0.00**	**63.85**	**3.18**	**2.18**	**1.49**	**1.03**	**4.28**	**405.71**	**0.27**	**22.04**	**0.00**	**19.97**	**0.69**	**99.22**	**1.00**	**27.46**	**14.97**	**18.45**
upstream pond	0.00	0.00	0.00	0.00	0.00	4.54	0.00	9.62	0.00	3.18	2.18	1.49	0.00	313.18	0.00	0.27	0.00	0.00	0.00	42.70	0.00	1.00	27.46	27.46
total inflow	**0.00**	**6.75**	**0.00**	**4.54**	**0.00**	**9.62**	**0.00**	**63.85**	**6.61**	**4.94**	**2.18**	**1.49**	**8.76**	**427.07**	**0.72**	**22.04**	**0.00**	**19.97**	**1.26**	**99.22**	**1.98**	**27.47**	**27.46**	**27.46**
outflow	0.00	3.60	0.00	4.54	0.00	9.62	0.00	63.85	3.18	2.18	1.49	1.03	4.28	405.71	0.27	22.04	0.00	19.97	0.69	99.22	1.00	27.46	14.97	18.45
inflow phos conc	409.24	308.24	409.24	418.03	409.24	423.75	409.24	388.60	450.02	264.66	116.99	79.65	450.02	316.55	450.02	343.45	409.24	436.47	450.02	376.90	450.02	426.92	853.46	853.46
outflow phos conc	392.86	164.27	392.86	417.97	392.86	423.71	392.86	388.59	216.60	116.98	79.64	55.26	219.60	300.72	168.19	343.45	392.86	436.45	246.77	376.89	227.24	426.79	465.12	573.30
p reaction rate	0.04	1.64	0.04	0.00	0.04	0.00	0.04	0.00	2.24	2.86	0.69	0.64	2.15	0.06	4.48	0.00	0.04	0.00	1.50	0.00	1.94	0.00	1.53	0.73
1-rp	0.96	0.53	0.96	1.00	0.96	1.00	0.96	1.00	0.48	0.44	0.68	0.69	0.49	0.95	0.37	1.00	0.96	1.00	0.55	1.00	0.50	1.00	0.54	0.67
runoff total p conc	0.00	247.11	0.00	382.94	0.00	423.14	0.00	356.98	450.00	429.11	200.00	200.00	450.00	334.24	450.00	305.52	0.00	392.47	450.00	320.89	450.00	429.04	200.00	200.00

Rochester Loading Assessm																								
Bear Creek																								
363-06-158-2																								
2020 LOADS																								
	future bc-a2.16c	**bc-a2.16c**	**bc-a2.16c cell 2**	**future bc-a2.16b**	**bc-a2.16b**	**future bc-a2.16a**	**bc-a2.16a**	**future bc-a1.17**	**bc-a1.17**	**future bc-a1.18**	**bc-a1.18**	**future bc-a1.20**	**bc-a1.20**	**future bc-a1.19**	**bc-a1.19**	**future bc-a1.16**	**bc-a1.16**	**future bc-a1.22b**	**bc-a1.22b**	**future bc-a1.22a**	**bc-a1.22a**	**future bc-a1.26**	**bc-a1.26**	**future bc-a1.23**	**bc-a1.23**
	bc-a2.16c	bc-a2.16c cell 2	bc-a2.16b	bc-a2.16b	bc-a2.17	bc-a2.16a	bc-a2.16b	bc-a1.17	bc-a1.20	bc-a1.18	bc-a1.20	bc-a1.20	bc-a1.19	bc-a1.19	bc-a1.22a	bc-a1.16	bc-a1.22a	bc-a1.22b	bc-a1.22a	bc-a1.22a	bc-a1.26	bc-a1.26	bc-a2.17	bc-a1.23	bc-a1.24a
INPUT VARIABLES....																								
case label																								
Watershed area	0.1	47.0	0.0	13.6	282.6	12.9	64.4	0.0	2.4	0.0	86.8	0.0	105.4	6.1	77.5	0.0	146.1	6.2	3.9	24.8	113.2	0.0	143.2	2.2	97.8
basin area	0.00	0.38	0.42	0.21	0.00	0.17	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.08	0.00	0.00	0.00	0.08	0.12	0.29	0.00	0.00	0.00	0.04	0.00
basin volume	0.00	0.86	0.94	0.54	0.00	0.36	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.17	0.00	0.00	0.00	0.17	0.25	0.68	0.00	0.00	0.00	0.06	0.00
Row Crop Agriculture	0%	0%	0%	0%	3%	0%	19%	0%	0%	0%	47%	0%	40%	0%	28%	0%	24%	0%	100%	0%	5%	0%	4%	0%	25%
Very Low Density Residential	0%	9%	0%	0%	1%	0%	22%	0%	0%	0%	0%	0%	0%	0%	10%	0%	11%	0%	0%	0%	30%	0%	2%	0%	4%
Low Density Residential	100%	86%	0%	21%	39%	100%	0%	0%	0%	0%	0%	0%	0%	100%	33%	0%	18%	100%	0%	100%	21%	0%	16%	100%	27%
Medium Density Residential	0%	0%	0%	79%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
High Density Residential	0%	0%	0%	0%	6%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Commercial/Industrial	0%	0%	0%	0%	6%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	1%	0%	0%	0%	9%	0%	8%	0%	0%
Institutional	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Open Space	0%	5%	100%	0%	36%	0%	59%	0%	0%	0%	27%	0%	51%	0%	29%	0%	44%	0%	0%	0%	34%	0%	70%	0%	44%
Golf Course	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Pits and Quarries	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	5%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Right-of-Way	0%	0%	0%	0%	7%	0%	0%	0%	100%	0%	21%	0%	8%	0%	0%	0%	2%	0%	0%	0%	0%	0%	0%	0%	0%
WATERSHED-WIDE ACCOUNTII																								
tributary land area	0.14	135.85	135.86	13.56	509.34	12.93	77.35	0.00	2.40	0.00	86.78	0.00	194.62	6.13	278.26	0.00	146.05	6.25	10.19	24.79	572.44	0.00	715.69	2.16	99.91
tributary water area	0.00	0.66	1.07	0.21	1.45	0.17	0.17	0.00	0.00	0.00	0.00	0.00	0.00	0.08	0.08	0.00	0.00	0.08	0.20	0.29	0.58	0.00	0.58	0.04	0.04
direct and ponded area	0.14	136.50	136.93	13.77	510.78	13.10	77.51	0.00	2.40	0.00	86.78	0.00	194.62	6.21	278.34	0.00	146.05	6.33	10.39	25.08	573.02	0.00	716.26	2.20	99.95
ASSUMED EXPORT FACTORS...																								
season length	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
season precipitation	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80
runoff total p	391.50	374.75	200.00	391.50	324.84	391.50	286.70	0.00	400.00	0.00	391.38	0.00	353.64	391.50	369.47	0.00	333.19	391.50	539.39	391.50	304.77	0.00	257.21	391.50	339.26
runoff ortho p/total p	0.30	0.33	0.60	0.30	0.41	0.30	0.50	0.00	0.30	0.00	0.32	0.00	0.41	0.30	0.38	0.00	0.43	0.30	0.20	0.30	0.46	0.00	0.51	0.30	0.42
unit runoff	6.74	6.20	2.54	9.09	6.18	6.74	3.01	0.00	8.77	0.00	4.62	0.00	3.82	6.74	4.51	0.00	4.08	6.74	4.45	6.74	4.82	0.00	4.25	6.74	4.17
unit export	0.60	0.54	0.12	0.81	0.51	0.60	0.22	0.00	0.79	0.00	0.45	0.00	0.34	0.60	0.40	0.00	0.34	0.60	0.54	0.60	0.37	0.00	0.29	0.60	0.35
POND WATER BUDGETS.....																								
runoff	0.08	24.33	0.00	10.28	145.54	7.27	16.15	0.00	1.75	0.00	33.43	0.00	33.59	3.45	29.13	0.00	49.69	3.51	1.46	13.93	45.41	0.00	50.77	1.21	33.93
upstream pond	0.00	23.76	48.08	0.00	81.78	0.00	7.27	0.00	0.00	0.00	0.00	0.00	35.18	0.00	72.22	0.00	0.00	0.00	3.51	0.00	169.94	0.00	215.34	0.00	1.21
total inflow	**0.08**	**48.08**	**48.08**	**10.28**	**227.33**	**7.27**	**23.42**	**0.00**	**1.75**	**0.00**	**33.43**	**0.00**	**68.77**	**3.45**	**101.34**	**0.00**	**49.69**	**3.51**	**4.97**	**13.93**	**215.34**	**0.00**	**266.11**	**1.21**	**35.15**
outflow	0.08	48.08	48.08	10.28	227.33	7.27	23.42	0.00	1.75	0.00	33.43	0.00	68.77	3.45	101.34	0.00	49.69	3.51	4.97	13.93	215.34	0.00	266.11	1.21	35.15
POND PHOSPHORUS BUDGETS																								
runoff	0.08	25.39	0.00	10.94	142.85	7.73	13.95	0.00	1.91	0.00	39.37	0.00	36.27	3.67	31.34	0.00	49.90	3.74	2.14	14.82	41.58	0.00	42.02	1.29	34.67
upstream pond	0.00	17.82	28.93	0.00	46.77	0.00	4.01	0.00	0.00	0.00	0.00	0.00	41.28	0.00	79.47	0.00	0.00	0.00	1.95	0.00	170.30	0.00	211.88	0.00	0.72
total inflow	**0.08**	**43.22**	**28.93**	**10.94**	**189.61**	**7.73**	**17.96**	**0.00**	**1.91**	**0.00**	**39.37**	**0.00**	**77.55**	**3.67**	**110.81**	**0.00**	**49.90**	**3.74**	**4.09**	**14.82**	**211.88**	**0.00**	**253.90**	**1.29**	**35.39**
net sedimentation	0.05	14.29	5.55	5.51	0.00	3.73	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.75	0.00	0.00	0.00	1.79	2.07	7.25	0.00	0.00	0.00	0.57	0.00
outflow	0.03	28.93	23.38	5.42	189.61	4.01	17.96	0.00	1.91	0.00	39.37	0.00	77.55	1.92	110.81	0.00	49.90	1.95	2.02	7.57	211.88	0.00	253.90	0.72	35.39
p removal efficiency	59.20	33.07	19.18	50.41	0.00	48.17	0.00	3.78	0.04	3.78	0.00	3.78	0.00	47.71	0.00	3.78	0.00	47.88	50.56	48.91	0.00	3.78	0.00	44.40	0.00
upstream w-shed p load	0.08	75.08	75.09	10.94	250.56	7.73	21.69	0.00	1.91	0.00	39.37	0.00	77.55	3.67	112.56	0.00	49.90	3.74	5.88	14.82	224.74	0.00	266.76	1.29	35.96
total removal %	59.20	61.48	68.86	50.41	24.32	48.17	17.18	3.78	0.04	3.78	0.00	3.78	0.00	47.71	1.56	3.78	0.00	47.88	65.60	48.91	5.72	3.78	4.82	44.40	1.60
HYDRAULIC PARAMETERS.....																								
pond mean depth	382.25	2.25	2.25	2.61	1.00	2.15	1.00	0.00	1.00	0.00	1.00	0.00	1.00	2.04	1.00	0.00	1.00	2.07	2.08	2.35	1.00	0.00	1.00	1.43	1.00
relative volume	1.56	1.12	14145.00	1.68	0.00	1.56	0.00	1.58	0.00	1.58	0.00	1.58	0.00	1.56	0.00	1.58	0.00	1.56	5.44	1.56	0.00	1.58	0.00	1.56	0.00
residence time	0.05	0.02	0.02	0.05	0.00	0.05	0.00	0.05	0.00	0.05	0.00	0.05	0.00	0.05	0.00	0.05	0.00	0.05	0.05	0.05	0.00	0.05	0.00	0.05	0.00
residence time	17.86	6.51	7.16	19.24	0.00	17.86	0.00	18.08	0.00	18.08	0.00	18.08	0.00	17.86	0.00	18.08	0.00	17.86	18.35	17.86	0.00	18.08	0.00	17.86	0.00
overflow rate	7811.41	126.20	114.76	49.61	22732589.32	43.86	2342282.30	0.00	175341.32	0.00	3343044.16	0.00	6876940.61	41.59	10134132.10	0.00	4969061.89	42.39	41.44	48.04	21534377.41	0.00	26611117.16	29.28	3514690.83
inflow phos conc	391.52	330.69	221.34	391.52	306.88	391.52	282.15	384.34	400.02	384.34	433.33	384.34	414.90	391.52	402.28	384.34	369.46	391.52	302.66	391.52	362.00	384.34	351.03	391.52	370.46
outflow phos conc	159.74	221.34	178.89	194.17	306.88	202.93	282.15	369.82	399.85	369.82	433.32	369.82	414.90	204.71	402.28	369.82	369.46	204.07	149.65	200.01	362.00	369.82	351.03	217.68	370.46
p reaction rate	3.56	0.74	0.29	2.05	0.00	1.79	0.00	0.04	0.00	0.04	0.00	0.04	0.00	1.75	0.00	0.04	0.00	1.76	2.07	1.87	0.00	0.04	0.00	1.44	0.00
1-rp	0.41	0.67	0.81	0.50	1.00	0.52	1.00	0.96	1.00	0.96	1.00	0.96	1.00	0.52	1.00	0.96	1.00	0.52	0.49	0.51	1.00	0.96	1.00	0.56	1.00
vlawmo pond volume	0.01	1.91	0.00	0.81	11.44	0.57	1.27	0.00	0.14	0.00	2.63	0.00	2.64	0.27	2.29	0.00	3.91	0.28	0.11	1.10	3.57	0.00	3.99	0.10	2.67
LAND USE PARAMETERS.....																								
runoff total P conc	391.50	374.75	200.00	391.50	324.84	391.50	286.70	0.00	400.00	0.00	391.38	0.00	353.64	391.50	369.47	0.00	333.19	391.50	539.39	391.50	304.77	0.00	257.21	391.50	339.26
runoff coefficient	0.21	0.20	0.08	0.29	0.19	0.21	0.09	0.00	0.28	0.00	0.15	0.00	0.12	0.21	0.14	0.00	0.13	0.21	0.14	0.21	0.15	0.00	0.13	0.21	0.13
dissolved/total P	0.30	0.33	0.60	0.30	0.41	0.30	0.50	0.00	0.30	0.00	0.32	0.00	0.41	0.30	0.38	0.00	0.43	0.30	0.20	0.30	0.46	0.00	0.51	0.30	0.42
runoff TSS conc	140.00	150.53	216.00	140.00	169.13	140.00	205.82	0.00	140.00	0.00	164.38	0.00	188.37	140.00	176.06	0.00	187.05	140.00	163.09	140.00	189.56	0.00	195.78	140.00	182.44
POND TSS BUDGETS.....																								
runoff	29.64	9545.29	1.24	3898.75	60076.09	2757.47	8788.02	0.00	665.25	0.00	14650.23	0.00	16094.19	1307.42	12932.08	0.00	23265.42	1332.57	645.60	5285.32	20759.93	0.00	23923.32	460.33	15523.95
upstream pond	0.00	2967.90	4254.48	0.00	12077.18	0.00	468.77	0.00	0.00	0.00	0.00	0.00	15315.47	0.00	31631.92	0.00	0.00	0.00	226.54	0.00	68753.04	0.00	89512.97	0.00	119.68
total inflow	**29.64**	**12513.19**	**4255.72**	**3898.75**	**72153.27**	**2757.47**	**9256.79**	**0.00**	**665.25**	**0.00**	**14650.23**	**0.00**	**31409.66**	**1307.42**	**44564.00**	**0.00**	**23265.42**	**1332.57**	**872.14**	**5285.32**	**89512.97**	**0.00**	**113436.29**	**460.33**	**15643.63**
p removal efficiency (no inf)	62.00	40.00	23.00	53.00	0.00	51.00	0.00	5.00	0.00	5.00	0.00	5.00	0.00	51.00	0.00	5.00	0.00	51.00	52.00	52.00	0.00	5.00	0.00	47.00	0.00
tss removal efficiency (no inf)	93.00	66.00	45.18	87.50	0.00	83.00	0.00	9.82	0.00	9.82	0.00	9.82	0.00	83.00	0.00	9.82	0.00	83.00	85.00	85.00	0.00	9.82	0.00	74.00	0.00
net sedimentation	27.56	8258.70	1922.68	3411.41	0.00	2288.70	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1085.16	0.00	0.00	0.00	1106.04	741.32	4492.52	0.00	0.00	0.00	340.64	0.00
outflow	2.07	4254.48	2333.05	487.34	72153.27	468.77	9256.79	0.00	665.25	0.00	14650.23	0.00	31409.66	222.26	44564.00	0.00	23265.42	226.54	130.82	792.80	89512.97	0.00	113436.29	119.68	15643.63
tss removal efficiency (inf)	93.00	66.00	45.18	87.50	0.00	83.00	0.00	9.82	0.00	9.82	0.00	9.82	0.00	83.00	0.00	9.82	0.00	83.00	85.00	85.00	0.00	9.82	0.00	74.00	0.00
upstream watershed tss load	29.64	27853.98	27855.22	3898.75	103375.55	2757.47	11545.50	0.00	665.25	0.00	14650.23	0.00	31409.66	1307.42	45649.16	0.00	23265.42	1332.57	1978.18	5285.32	96938.01	0.00	120861.33	460.33	15984.27
tss total removal efficiency	93.00	84.73	91.62	87.50	30.20	83.00	19.82	9.82	0.00	9.82	0.00	9.82	0.00	83.00	2.38	9.82	0.00	83.00	93.39	85.00	7.66	9.82	6.14	74.00	2.13
INFILTRATION BMP/POND.....																								
Annual runoff infiltrated	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Adjusted outflow	**0.08**	**48.08**	**48.08**	**10.28**	**227.33**	**7.27**	**23.42**	**0.00**	**1.75**	**0.00**	**33.43**	**0.00**	**68.77**	**3.45**	**101.34**	**0.00**	**49.69**	**3.51**	**4.97**	**13.93**	**215.34**	**0.00**	**266.11**	**1.21**	**35.15**
Adjusted TP outflow	**0.03**	**28.93**	**23.38**	**5.42**	**189.61**	**4.01**	**17.96**	**0.00**	**1.91**	**0.00**	**39.37**	**0.00**	**77.55**	**1.92**	**110.81**	**0.00**	**49.90**	**1.95**	**2.02**	**7.57**	**211.88**	**0.00**	**253.90**	**0.72**	**35.39**
Adjusted TSS outflow	**2.07**	**4254.48**	**2333.05**	**487.34**	**72153.27**	**468.77**	**9256.79**	**0.00**	**665.25**	**0.00**	**14650.23**	**0.00**	**31409.66**	**222.26**	**44564.00**	**0.00**	**23265.42**	**226.54**	**130.82**	**792.80**	**89512.97**	**0.00**	**113436.29**	**119.68**	**15643.63**
POND P BUDGETS W/O P-BAN.																								
runoff	0.10	29.15	0.00	12.57	156.18	8.89	14.40	0.00	1.91	0.00	39.37	0.00	36.29	4.22	33.87	0.00	52.79	4.30	2.14	17.04	44.77	0.00	44.26	1.48	37.16
Adjusted TP outflow	**0.04**	**37.97**	**29.28**	**5.95**	**210.20**	**4.40**	**18.80**	**0.00**	**1.91**	**0.00**	**39.37**	**0.00**	**77.57**	**2.11**	**113.54**	**0.00**	**52.79**	**2.14**	**2.08**	**8.31**	**221.50**	**0.00**	**265.76**	**0.79**	**37.94**
upstream pond	0.00	33.45	37.97	0.00	54.02	0.00	4.40	0.00	0.00	0.00	0.00	0.00	41.28	0.00	79.67	0.00	0.00	0.00	2.14	0.00	176.73	0.00	221.50	0.00	0.79
total inflow	**0.10**	**62.60**	**37.97**	**12.57**	**210.20**	**8.89**	**18.80**	**0.00**	**1.91**	**0.00**	**39.37**	**0.00**	**77.57**	**4.22**	**113.54**	**0.00**	**52.79**	**4.30**	**4.28**	**17.04**	**221.50**	**0.00**	**265.76**	**1.48**	**37.95**
outflow	0.04	37.97	29.28	5.95	210.20	4.40	18.80	0.00	1.91	0.00	39.37	0.00	77.57	2.11	113.54	0.00	52.79	2.14	2.08	8.31	221.50	0.00	265.76	0.79	37.94
inflow phos conc	450.02	479.02	290.56	450.02	340.20	450.02	295.33	409.24	400.02	409.24	433.33	409.24	414.98	450.02	412.21	409.24	390.89	450.02	316.77	450.02	378.43	409.24	367.44	450.02	397.21
outflow phos conc	174.24	290.57	224.01	212.86	340.20	222.77	295.33	392.86	399.85	392.86	433.32	392.86	414.98	224.78	412.20	392.86	390.89	224.05	154.23	219.46	378.43	392.86	367.44	239.53	397.20
p reaction rate	4.09	1.07	0.39	2.36	0.00	2.06	0.00	0.04	0.00	0.04	0.00	0.04	0.00	2.01	0.00	0.04	0.00	2.03	2.16	2.15	0.00	0.04	0.00	1.65	0.00
1-rp	0.39	0.61	0.77	0.47	1.00	0.50	1.00	0.96	1.00	0.96	1.00	0.96	1.00	0.50	1.00	0.96	1.00	0.50	0.49	0.49	1.00	0.96	1.00	0.53	1.00
runoff total p conc	450.00	429.38	200.00	450.00	352.26	450.00	296.71	0.00	400.00	0.00	391.38	0.00	353.75	450.00	393.49	0.00	349.02	450.00	539.39	450.00	330.77	0.00	267.75	450.00	356.89

Rochester Loading Assessm																		
Bear Creek																		
363-06-158-2																		
2020 LOADS																		
	future bc-a1.24d	**bc-a1.24d**	**future bc-a1.24c**	**bc-a1.24c**	**future bc-a1.24b**	**bc-a1.24b**	**future bc-a1.24a**	**bc-a1.24a**	**bc-a1.24a cell 2**	**bc-a1.24a cell 3**	**future bc-a2.17**	**bc-a2.17**	**future bc-a2.18**	**bc-a2.18**	**future bc-a2.19**	**bc-a2.19**	**future bc-a2.20**	**bc-a2.20**
	bc-a1.24d	bc-a1.24a	bc-a1.24c	bc-a1.24b	bc-a1.24b	bc-a1.24a	bc-a1.24a	bc-a1.24a cell 2	bc-a1.24a cell 3	bc-a2.17	bc-a2.17	bc-a2.19	bc-a2.18	bc-a2.19	bc-a2.19	bc-a2.20	bc-a2.20	zr-a4.1a
INPUT VARIABLES....																		
case label																		
Watershed area	0.0	3.5	4.7	13.4	4.8	41.5	16.2	200.0	0.0	0.0	0.4	116.4	0.0	155.6	2.1	686.8	0.5	341.1
basin area	0.00	0.26	0.04	0.40	0.04	1.04	0.17	0.33	0.64	1.02	0.00	0.00	0.00	0.00	0.04	0.00	0.00	0.00
basin volume	0.00	0.73	0.13	1.58	0.13	4.20	0.45	1.66	3.16	5.06	0.02	0.00	0.00	0.00	0.09	0.00	0.02	0.00
Row Crop Agriculture	0%	0%	0%	17%	0%	0%	0%	1%	0%	0%	0%	6%	0%	2%	0%	0%	0%	0%
Very Low Density Residential	0%	0%	0%	9%	0%	16%	0%	10%	0%	0%	0%	3%	0%	1%	0%	0%	0%	0%
Low Density Residential	0%	0%	100%	71%	100%	55%	100%	59%	0%	0%	0%	12%	0%	14%	0%	38%	46%	46%
Medium Density Residential	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	100%	0%	0%	0%	0%	5%	0%	10%
High Density Residential	0%	100%	0%	0%	0%	0%	0%	17%	0%	0%	0%	1%	0%	31%	0%	6%	54%	8%
Commercial/Industrial	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	1%	0%	3%	0%	2%	0%	3%
Institutional	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	1%	0%	0%	100%	13%	0%	6%
Open Space	0%	0%	0%	3%	0%	29%	0%	13%	100%	100%	0%	65%	0%	41%	0%	32%	0%	20%
Golf Course	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Pits and Quarries	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Right-of-Way	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	10%	0%	8%	0%	5%	0%	6%
WATERSHED-WIDE ACCOUNTII																		
tributary land area	0.00	3.48	4.69	18.11	4.78	64.36	16.23	384.00	384.01	384.02	0.38	3417.19	0.00	155.57	2.06	4261.63	0.50	4603.28
tributary water area	0.00	0.26	0.04	0.44	0.04	1.52	0.17	2.32	2.96	3.98	0.00	11.78	0.00	0.00	0.04	11.82	0.00	11.82
direct and ponded area	0.00	3.74	4.73	18.55	4.83	65.88	16.40	386.33	386.97	388.00	0.38	3428.97	0.00	155.57	2.10	4273.45	0.50	4615.10
ASSUMED EXPORT FACTORS...																		
season length	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
season precipitation	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80
runoff total p	0.00	391.50	391.50	402.64	391.50	322.05	391.50	358.13	200.00	200.00	391.50	272.30	0.00	314.85	350.00	326.02	391.50	350.27
runoff ortho p/total p	0.00	0.30	0.30	0.31	0.30	0.42	0.30	0.36	0.60	0.60	0.30	0.50	0.00	0.42	0.30	0.39	0.30	0.36
unit runoff	0.00	13.60	6.74	5.89	6.74	4.92	6.74	6.98	2.54	2.54	9.74	4.15	0.00	7.42	9.74	6.58	10.48	7.34
unit export	0.00	1.21	0.60	0.54	0.60	0.39	0.60	0.60	0.12	0.12	0.86	0.30	0.00	0.61	0.77	0.54	0.93	0.62
POND WATER BUDGETS.....																		
runoff	0.00	3.94	2.63	6.59	2.69	16.99	9.12	116.36	0.00	0.00	0.31	40.23	0.00	96.14	1.67	376.77	0.44	208.54
upstream pond	0.00	0.00	0.00	2.63	0.00	11.91	0.00	77.12	193.48	193.48	0.00	1280.45	0.00	0.00	0.00	1418.49	0.00	1795.70
total inflow	**0.00**	**3.94**	**2.63**	**9.23**	**2.69**	**28.90**	**9.12**	**193.48**	**193.48**	**193.48**	**0.31**	**1320.68**	**0.00**	**96.14**	**1.67**	**1795.26**	**0.44**	**2004.24**
outflow	0.00	3.94	2.63	9.23	2.69	28.90	9.12	193.48	193.48	193.48	0.31	1320.68	0.00	96.14	1.67	1795.26	0.44	2004.24
POND PHOSPHORUS BUDGETS																		
runoff	0.00	4.20	2.80	7.23	2.86	16.36	9.71	119.85	0.00	0.00	0.33	35.08	0.00	95.31	1.59	368.20	0.47	211.33
upstream pond	0.00	0.00	0.00	1.37	0.00	4.87	0.00	52.51	131.55	104.10	0.00	996.27	0.00	0.00	0.00	1127.49	0.00	1495.88
total inflow	**0.00**	**4.20**	**2.80**	**8.61**	**2.86**	**21.23**	**9.71**	**172.36**	**131.55**	**104.10**	**0.33**	**1031.34**	**0.00**	**95.31**	**1.59**	**1495.70**	**0.47**	**1707.20**
net sedimentation	0.00	2.48	1.43	5.14	1.46	10.69	4.85	40.81	27.45	24.12	0.20	0.00	0.00	0.00	0.75	0.00	0.29	0.00
outflow	0.00	1.72	1.37	3.47	1.40	10.54	4.86	131.55	104.10	79.98	0.13	1031.34	0.00	95.31	0.84	1495.70	0.18	1707.20
p removal efficiency	3.78	58.98	50.97	59.66	51.11	50.34	49.96	23.68	20.87	23.17	60.58	0.00	3.78	0.00	47.03	0.00	61.27	0.00
upstream w-shed p load	0.00	4.20	2.80	10.04	2.86	29.26	9.71	198.98	198.98	198.98	0.33	1305.96	0.00	95.31	1.59	1771.06	0.47	1982.85
total removal %	3.78	58.98	50.97	65.41	51.11	63.97	49.96	33.89	47.68	59.80	60.58	21.03	3.78	0.00	47.03	15.55	61.27	13.90
HYDRAULIC PARAMETERS.....																		
pond mean depth	0.00	2.82	3.11	3.95	3.17	4.04	2.69	4.96	4.96	4.96	1637.96	1.00	0.00	1.00	2.15	1.00	2447.00	1.00
relative volume	1.58	5.91	1.56	7.62	1.56	7.86	1.56	0.45	47370.00	75840.00	1.70	0.00	1.58	0.00	1.70	0.00	1.78	0.00
residence time	0.05	0.19	0.05	0.17	0.05	0.15	0.05	0.01	0.02	0.03	0.05	0.00	0.05	0.00	0.05	0.00	0.06	0.00
residence time	18.08	67.84	17.86	62.51	17.86	53.04	17.86	3.12	5.96	9.54	19.50	0.00	18.08	0.00	19.50	0.00	20.42	0.00
overflow rate	0.00	15.17	63.57	23.07	64.88	27.79	55.05	579.28	303.74	189.69	30666.23	132067800.58	0.00	9613962.76	40.30	179526068.23	43744.07	200424009.82
inflow phos conc	384.34	391.52	391.52	343.29	391.52	270.26	391.52	327.76	250.16	197.96	391.52	287.31	384.34	364.75	350.02	306.53	391.52	313.39
outflow phos conc	369.82	160.61	191.95	138.47	191.41	134.21	195.92	250.16	197.96	152.09	154.34	287.31	369.82	364.75	185.41	306.53	151.64	313.39
p reaction rate	0.04	3.50	2.12	3.67	2.14	2.04	2.00	0.41	0.33	0.39	3.90	0.00	0.04	0.00	1.68	0.00	4.08	0.00
1-rp	0.96	0.41	0.49	0.40	0.49	0.50	0.50	0.76	0.79	0.77	0.39	1.00	0.96	1.00	0.53	1.00	0.39	1.00
vlawmo pond volume	0.00	0.31	0.21	0.52	0.21	1.34	0.72	9.15	0.00	0.00	0.02	3.16	0.00	7.56	0.13	29.62	0.03	16.39
LAND USE PARAMETERS.....																		
runoff total P conc	0.00	391.50	391.50	402.64	391.50	322.05	391.50	358.13	200.00	200.00	391.50	272.30	0.00	314.85	350.00	326.02	391.50	350.27
runoff coefficient	0.00	0.43	0.21	0.19	0.21	0.15	0.21	0.22	0.08	0.08	0.31	0.13	0.00	0.23	0.31	0.21	0.33	0.23
dissolved/total P	0.00	0.30	0.30	0.31	0.30	0.42	0.30	0.36	0.60	0.60	0.30	0.50	0.00	0.42	0.30	0.39	0.30	0.36
runoff TSS conc	0.00	140.00	140.00	153.04	140.00	174.37	140.00	157.88	216.00	216.00	140.00	193.34	0.00	172.45	140.00	164.04	140.00	154.98
POND TSS BUDGETS.....																		
runoff	0.00	1496.37	999.33	2633.04	1020.01	7314.47	3461.07	46363.25	1.24	1.24	116.35	18927.31	0.00	39420.06	633.62	152459.05	165.97	82057.72
upstream pond	0.00	0.00	0.00	99.93	0.00	293.31	0.00	17131.98	31067.31	17032.23	0.00	410610.42	0.00	0.00	0.00	469109.86	0.00	621580.52
total inflow	**0.00**	**1496.37**	**999.33**	**2732.97**	**1020.01**	**7607.78**	**3461.07**	**63495.24**	**31068.55**	**17033.47**	**116.35**	**429537.73**	**0.00**	**39420.06**	**633.62**	**621568.90**	**165.97**	**703638.24**
p removal efficiency (no inf)	5.00	62.00	54.00	62.00	54.00	53.00	53.00	26.00	23.00	25.00	63.00	0.00	5.00	0.00	48.00	0.00	64.00	0.00
tss removal efficiency (no inf)	9.82	93.00	90.00	93.00	90.00	87.50	87.50	51.07	45.18	49.11	93.00	0.00	9.82	0.00	76.00	0.00	93.00	0.00
net sedimentation	0.00	1391.63	899.39	2541.66	918.01	6656.81	3028.44	32427.93	14036.33	8364.65	108.20	0.00	0.00	0.00	481.55	0.00	154.35	0.00
outflow	0.00	104.75	99.93	191.31	102.00	950.97	432.63	31067.31	17032.23	8668.82	8.14	429537.73	0.00	39420.06	152.07	621568.90	11.62	703638.24
tss removal efficiency (inf)	9.82	93.00	90.00	93.00	90.00	87.50	87.50	51.07	45.18	49.11	93.00	0.00	9.82	0.00	76.00	0.00	93.00	0.00
upstream watershed tss load	0.00	1496.37	999.33	3632.36	1020.01	11966.84	3461.07	79271.82	79273.06	79274.30	116.35	600768.99	0.00	39420.06	633.62	793281.72	165.97	875505.40
tss total removal efficiency	9.82	93.00	90.00	94.73	90.00	92.05	87.50	60.81	78.51	89.06	93.00	28.50	9.82	0.00	76.00	21.65	93.00	19.63
INFILTRATION BMP/POND.....																		
Annual runoff infiltrated	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Adjusted outflow	**0.00**	**3.94**	**2.63**	**9.23**	**2.69**	**28.90**	**9.12**	**193.48**	**193.48**	**193.48**	**0.31**	**1320.68**	**0.00**	**96.14**	**1.67**	**1795.26**	**0.44**	**2004.24**
Adjusted TP outflow	**0.00**	**1.72**	**1.37**	**3.47**	**1.40**	**10.54**	**4.86**	**131.55**	**104.10**	**79.98**	**0.13**	**1031.34**	**0.00**	**95.31**	**0.84**	**1495.70**	**0.18**	**1707.20**
Adjusted TSS outflow	**0.00**	**104.75**	**99.93**	**191.31**	**102.00**	**950.97**	**432.63**	**31067.31**	**17032.23**	**8668.82**	**8.14**	**429537.73**	**0.00**	**39420.06**	**152.07**	**621568.90**	**11.62**	**703638.24**
POND P BUDGETS W/O P-BAN..																		
runoff	0.00	4.82	3.22	8.13	3.29	18.60	11.16	137.19	0.00	0.00	0.38	36.62	0.00	105.95	1.59	403.05	0.54	234.88
Adjusted TP outflow	**0.00**	**1.88**	**1.51**	**3.72**	**1.53**	**11.39**	**5.33**	**144.49**	**112.46**	**85.13**	**0.14**	**1102.79**	**0.00**	**105.95**	**0.84**	**1612.63**	**0.20**	**1847.71**
upstream pond	0.00	0.00	0.00	1.51	0.00	5.26	0.00	56.54	144.49	112.46	0.00	1066.16	0.00	0.00	0.00	1209.58	0.00	1612.83
total inflow	**0.00**	**4.82**	**3.22**	**9.63**	**3.29**	**23.85**	**11.16**	**193.73**	**144.50**	**112.46**	**0.38**	**1102.79**	**0.00**	**105.95**	**1.59**	**1612.63**	**0.54**	**1847.71**
outflow	0.00	1.88	1.51	3.72	1.53	11.39	5.33	144.49	112.46	85.13	0.14	1102.79	0.00	105.95	0.84	1612.63	0.20	1847.71
inflow phos conc	409.24	450.02	450.02	384.12	450.02	303.67	450.02	368.40	274.77	213.85	450.02	307.22	409.24	405.48	350.02	330.49	450.02	339.18
outflow phos conc	392.86	175.22	210.35	148.51	209.74	144.95	214.83	274.77	213.85	161.88	168.23	307.22	392.86	405.48	185.41	330.49	165.23	339.18
p reaction rate	0.04	4.03	2.44	4.10	2.46	2.29	2.29	0.46	0.37	0.42	4.48	0.00	0.04	0.00	1.68	0.00	4.69	0.00
1-rp	0.96	0.39	0.47	0.39	0.47	0.48	0.48	0.75	0.78	0.76	0.37	1.00	0.96	1.00	0.53	1.00	0.37	1.00
runoff total p conc	0.00	450.00	450.00	448.48	450.00	361.56	450.00	407.22	200.00	200.00	450.00	281.36	0.00	341.51	350.00	354.52	450.00	388.12

Rochester Loading Assessment																			
Mayo Run																			
363-06-158-2																			
Baseline (1988) LOADS																			
		mr-a1.1i	**mr-a1.1h**	**mr-a1.1g**	**mr-a1.1f**	**mr-a1.1e**	**mr-a1.1d**	**mr-a1.1c**	**mr-a1.1b**	**mr-a1.1a**	**mr-a1.2c**	**mr-a1.2b**	**mr-a1.2a**	**mr-a1.3e**	**mr-a1.3d**	**mr-a1.3c**	**mr-a1.3b**	**mr-a1.3a**	**mr-a1.4**
Routed TO:		mr-a1.1a	mr-a1.1a	mr-a1.1a	mr-a1.1d	mr-a1.1d	mr-a1.1a	mr-a1.1b	mr-a1.1a	mr-a1.2a	mr-a1.2a	mr-a1.2a	mr-a1.3b	mr-a1.3d	mr-a1.3a	mr-a1.3b	mr-a1.3a	mr-a1.4	bc-a2.20
INPUT VARIABLES....	UNITS																		
case label	-																		
Watershed area	acres	84.5	43.9	46.1	32.6	43.5	16.3	38.1	40.1	582.4	4.4	3.7	312.2	3.2	10.1	10.1	84.9	55.2	127.7
basin area	acres	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
basin volume	acre-ft	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Row Crop Agriculture		24%	7%	37%	40%	59%	6%	5%	55%	19%	0%	100%	33%	0%	0%	0%	26%	0%	0%
Very Low Density Residential		0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Low Density Residential		21%	0%	0%	0%	0%	0%	78%	1%	1%	0%	0%	0%	0%	0%	1%	0%	0%	29%
Medium Density Residential		0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	5%	0%	0%	2%
High Density Residential		0%	0%	0%	0%	0%	0%	0%	0%	1%	0%	0%	0%	0%	0%	25%	12%	18%	28%
Commercial/Industrial		7%	0%	0%	0%	0%	0%	0%	0%	2%	0%	0%	0%	0%	0%	9%	0%	1%	5%
Institutional		13%	0%	0%	0%	0%	0%	5%	0%	0%	0%	0%	11%	96%	100%	0%	16%	18%	5%
Open Space		27%	93%	63%	51%	41%	25%	10%	40%	41%	100%	0%	44%	0%	0%	50%	39%	64%	29%
Golf Course		0%	0%	0%	9%	0%	70%	0%	0%	24%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Pits and Quarries		0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Right-of-Way		7%	0%	0%	0%	0%	0%	2%	3%	12%	0%	0%	12%	4%	0%	9%	6%	0%	1%
WATERSHED-WIDE ACCOUNTING.....																			
tributary land area	ac	84.53	43.86	46.08	32.61	43.49	92.39	38.08	78.16	927.36	4.37	3.72	1247.65	3.21	13.30	10.14	1342.64	1411.14	1538.82
tributary water area	ac	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
direct and ponded area	ac	84.53	43.86	46.08	32.61	43.49	92.39	38.08	78.16	927.36	4.37	3.72	1247.65	3.21	13.30	10.14	1342.64	1411.14	1538.82
ASSUMED EXPORT FACTORS.....																			
season length	yrs	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
season precipitation	inches	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8
runoff total p	ppb	380.7529748	224.220119	324.8426319	366.1160127	400.7334767	463.6337411	422.0136609	397.0434173	377.8613977	200.0043248	539.9950297	352.2063287	351.914041	350.0002379	311.0329797	357.8210299	271.9296419	365.9881881
runoff ortho p/total p	-	0.356552705	0.571505611	0.45312619	0.450744861	0.363842836	0.647340487	0.326416866	0.365928953	0.500734601	0.599993593	0.200004299	0.399375697	0.300001556	0.300000496	0.450354555	0.389267167	0.491375859	0.388431947
unit runoff	in/yr	6.136462981	2.679926162	3.244595616	3.3383054	3.670477665	2.955754678	6.400538852	3.848725184	4.110734689	2.544110098	4.452072878	4.728509804	9.698542016	9.73553928	7.416493362	5.980844364	5.850070284	8.057618215
unit export	lbs/ac-y	0.55	0.15	0.27	0.31	0.37	0.32	0.63	0.38	0.37	0.12	0.54	0.41	0.77	0.77	0.64	0.54	0.46	0.75
POND WATER BUDGETS.....																			
runoff	ac-ft/yr	43.23	9.79	12.46	9.07	13.30	4.01	20.31	12.86	199.49	0.93	1.38	123.02	2.60	8.19	6.27	42.29	26.91	85.74
upstream pond	ac-ft/yr	0.00	0.00	0.00	0.00	0.00	22.37	0.00	20.31	125.03	0.00	0.00	326.83	0.00	2.60	0.00	456.11	509.19	536.09
total inflow	**ac-ft/yr**	**43.23**	**9.79**	**12.46**	**9.07**	**13.30**	**26.39**	**20.31**	**33.17**	**324.52**	**0.93**	**1.38**	**449.85**	**2.60**	**10.78**	**6.27**	**498.40**	**536.09**	**621.83**
outflow	ac-ft/yr	43.23	9.79	12.46	9.07	13.30	26.39	20.31	33.17	324.52	0.93	1.38	449.85	2.60	10.78	6.27	498.40	536.09	621.83
POND PHOSPHORUS BUDGETS.....																			
runoff	lbs/yr	46.46	6.40	12.57	10.05	16.03	5.18	23.91	15.27	217.24	0.50	2.03	128.54	2.48	7.79	6.54	45.45	25.55	95.86
upstream pond	lbs/yr	0.00	0.00	0.00	0.00	0.00	26.08	0.00	23.91	135.87	0.00	0.00	355.65	0.00	2.48	0.00	490.72	546.44	571.98
total inflow	**lbs/yr**	**46.46**	**6.40**	**12.57**	**10.05**	**16.03**	**31.27**	**23.91**	**39.18**	**353.12**	**0.50**	**2.03**	**484.18**	**2.48**	**10.27**	**6.54**	**536.17**	**571.98**	**667.84**
net sedimentation	lbs/yr	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
outflow	lbs/yr	46.46	6.40	12.57	10.05	16.03	31.27	23.91	39.18	353.12	0.50	2.02	484.18	2.48	10.27	6.54	536.17	571.98	667.84
p removal efficiency	%	0.00	0.00	0.00	0.01	0.01	0.00	0.00	0.00	0.00	0.02	0.11	0.00	0.03	0.01	0.01	0.00	0.00	0.00
upstream w-shed p load	lbs/yr	46.46	6.40	12.57	10.05	16.03	31.27	23.91	39.18	353.12	0.50	2.03	484.19	2.48	10.27	6.54	536.18	571.99	667.86
total removal %	%	0.00	0.00	0.00	0.01	0.01	0.01	0.00	0.00	0.00	0.02	0.11	0.00	0.03	0.01	0.01	0.00	0.00	0.00
HYDRAULIC PARAMETERS.....																			
pond mean depth	feet	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
relative volume	inches	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
residence time	years	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
residence time	days	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
overflow rate	ft/yr	4322629.35	979403.36	1245791.96	907075.44	1330183.86	2638554.23	2031000.85	3316509.38	32452180.96	92650.13	138092.17	44984656.14	259766.56	1078290.14	626573.17	49840287.35	53609368.98	62183214.63
inflow phos conc	ppb	395.44	240.25	371.32	407.63	443.50	435.99	433.22	434.65	400.34	200.02	540.02	396.00	351.75	350.41	383.80	395.80	392.55	395.14
outflow phos conc	ppb	395.44	240.24	371.31	407.61	443.48	435.98	433.20	434.64	400.34	199.98	539.43	396.00	351.66	350.39	383.78	395.79	392.55	395.14
p reaction rate	-	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1-rp	-	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
vlawmo pond volume	acre-ft	3.40	0.77	0.98	0.71	1.05	0.32	1.60	1.01	15.68	0.07	0.11	9.67	0.20	0.64	0.49	3.32	2.12	6.74
LAND USE PARAMETERS.....																			
runoff total P conc	ppb	380.75	224.22	324.84	366.12	400.73	463.63	422.01	397.04	377.86	200.00	540.00	352.21	351.91	350.00	311.03	357.82	271.93	365.99
runoff coefficient		0.19	0.08	0.10	0.10	0.12	0.09	0.20	0.12	0.13	0.08	0.14	0.15	0.30	0.31	0.23	0.19	0.18	0.25
dissolved/total P		0.36	0.57	0.45	0.45	0.36	0.65	0.33	0.37	0.50	0.60	0.20	0.40	0.30	0.30	0.45	0.39	0.49	0.39
runoff TSS conc	ppm	166.09	212.22	196.54	195.03	184.71	213.02	148.93	183.42	193.50	216.00	163.00	180.95	140.00	140.00	178.09	175.40	188.48	162.40
POND TSS BUDGETS.....																			
runoff	lbs/yr	17871.06	5566.56	6390.85	4622.14	6418.22	2300.15	7918.37	6096.79	95923.46	542.33	609.99	55026.77	985.56	3105.48	2599.07	17993.07	11746.26	34172.62
upstream pond	lbs/yr	0.00	0.00	0.00	0.00	0.00	11040.36	0.00	7918.37	57184.14	0.00	0.00	154259.91	0.00	985.56	0.00	211885.75	233969.86	245716.12
total inflow	**lbs/yr**	**17871.06**	**5566.56**	**6390.85**	**4622.14**	**6418.22**	**13340.50**	**7918.37**	**14015.16**	**153107.60**	**542.33**	**609.99**	**209286.68**	**985.56**	**4091.04**	**2599.07**	**229878.82**	**245716.12**	**279888.74**
p removal efficiency (no inf)	%	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
tss removal efficiency (no inf)	%	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
net sedimentation	lbs/yr	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
outflow	lbs/yr	17871.06	5566.56	6390.85	4622.14	6418.22	13340.50	7918.37	14015.16	153107.60	542.33	609.99	209286.68	985.56	4091.04	2599.07	229878.82	245716.12	279888.74
tss removal efficiency (inf)		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
upstream watershed tss load	lbs/yr	17871.06	5566.56	6390.85	4622.14	6418.22	13340.50	7918.37	14015.16	153107.60	542.33	609.99	209286.68	985.56	4091.04	2599.07	229878.82	245716.12	279888.74
tss total removal efficiency	%	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
INFILTRATION BMP/POND.....																			
Annual runoff infiltrated	%	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Adjusted outflow	**ac-ft/yr**	**43.23**	**9.79**	**12.46**	**9.07**	**13.30**	**26.39**	**20.31**	**33.17**	**324.52**	**0.93**	**1.38**	**449.85**	**2.60**	**10.78**	**6.27**	**498.40**	**536.09**	**621.83**
Adjusted TP outflow	**lbs/yr**	**46.46**	**6.40**	**12.57**	**10.05**	**16.03**	**31.27**	**23.91**	**39.18**	**353.12**	**0.50**	**2.02**	**484.18**	**2.48**	**10.27**	**6.54**	**536.17**	**571.98**	**667.84**
Adjusted TSS outflow	**lbs/yr**	**17871.06**	**5566.56**	**6390.85**	**4622.14**	**6418.22**	**13340.50**	**7918.37**	**14015.16**	**153107.60**	**542.33**	**609.99**	**209286.68**	**985.56**	**4091.04**	**2599.07**	**229878.82**	**245716.12**	**279888.74**

Rochester Loading Assessment																						
Mayo Run																						
363-06-158-2																						
Present (2005) LOADS																						
		mr-a1.1i	**mr-a1.1h**	**mr-a1.1g**	**mr-a1.1f**	**mr-a1.1f cell 2**	**mr-a1.1e**	**mr-a1.1d**	**mr-a1.1d cell 2**	**mr-a1.1c**	**mr-a1.1b**	**mr-a1.1b cell 2**	**mr-a1.1a**	**mr-a1.1a cell 2**	**mr-a1.1a cell 3**	**mr-a1.2c**	**mr-a1.2b**	**mr-a1.2b cell 2**	**mr-a1.2a**	**mr-a1.2a cell a2**	**mr-a1.2a cell a3**	**mr-a1.2a cell a4**
Routed TO:		mr-a1.1a	mr-a1.1a	mr-a1.1a	mr-a1.1f cell 2	mr-a1.1d	mr-a1.1d	mr-a1.1d cell 2	mr-a1.1a	mr-a1.1b	mr-a1.1b cell 2	mr-a1.1a	mr-a1.1a cell 2	mr-a1.1a cell 3	mr-a1.2a	mr-a1.2a	mr-a1.2b cell 2	mr-a1.2a	mr-a1.2a cell a2	mr-a1.2a cell a3	mr-a1.2a cell a4	mr-a1.2a cell a5
INPUT VARIABLES....	UNITS																					
case label	-																					
Watershed area	acres	84.0	43.4	45.1	32.0	0.0	42.6	15.4	0.0	38.1	39.4	0.0	575.3	0.0	0.0	4.2	2.6	0.0	299.3	0.0	0.0	0.0
basin area	acres	0.04	0.43	0.97	0.25	0.48	0.90	0.17	0.75	0.33	0.23	0.48	1.01	1.94	3.90	0.20	0.29	0.40	0.30	0.66	0.96	3.10
basin volume	acre-ft	0.00	2.96	4.60	0.97	1.81	5.52	0.25	1.07	1.32	0.47	0.98	2.58	4.94	9.92	0.54	0.58	0.80	0.85	1.91	2.76	8.93
Row Crop Agriculture		2%	0%	0%	40%	0%	60%	6%	0%	0%	1%	0%	17%	0%	0%	0%	0%	0%	17%	0%	0%	0%
Very Low Density Residential		0%	10%	0%	0%	0%	0%	0%	0%	0%	3%	0%	1%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Low Density Residential		36%	65%	52%	0%	0%	0%	0%	0%	82%	48%	0%	3%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Medium Density Residential		0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
High Density Residential		0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Commercial/Industrial		7%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	5%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Institutional		23%	0%	0%	0%	0%	0%	0%	0%	5%	0%	0%	0%	0%	0%	100%	98%	0%	52%	0%	0%	0%
Open Space		24%	25%	48%	53%	100%	40%	30%	100%	11%	45%	100%	37%	100%	100%	0%	2%	100%	20%	100%	100%	100%
Golf Course		0%	0%	0%	7%	0%	0%	64%	0%	0%	0%	0%	25%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Pits and Quarries		0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Right-of-Way		7%	0%	0%	0%	0%	0%	0%	0%	2%	3%	0%	12%	0%	0%	0%	0%	0%	12%	0%	0%	0%
WATERSHED-WIDE ACCOUNTING.....																						
tributary land area	ac	83.97	43.43	45.05	31.98	31.99	42.57	89.93	89.94	38.08	77.44	77.45	915.18	915.19	915.20	4.17	2.63	2.64	1221.33	1221.34	1221.35	1221.36
tributary water area	ac	0.04	0.43	0.97	0.25	0.73	0.90	1.80	2.55	0.33	0.56	1.04	6.04	7.98	11.89	0.20	0.29	0.69	13.07	13.73	14.69	17.79
direct and ponded area	ac	84.01	43.86	46.02	32.23	32.72	43.47	91.73	92.49	38.41	78.00	78.49	921.22	923.17	927.08	4.37	2.92	3.33	1234.40	1235.07	1236.04	1239.15
ASSUMED EXPORT FACTORS.....																						
season length	yrs	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
season precipitation	inches	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8
runoff total p	ppb	356.39	377.26	330.05	360.99	200.00	402.81	443.86	200.00	415.79	333.92	200.00	385.05	200.00	200.00	350.00	347.97	200.00	358.14	200.00	200.00	200.00
runoff ortho p/total p	-	0.37	0.39	0.44	0.45	0.60	0.36	0.64	0.60	0.33	0.44	0.60	0.50	0.60	0.60	0.30	0.31	0.60	0.34	0.60	0.60	0.60
unit runoff	in/yr	7.07	5.32	4.73	3.34	2.54	3.68	2.94	2.54	6.47	4.81	2.54	4.43	2.54	2.54	9.74	9.61	2.54	7.33	2.54	2.54	2.54
unit export	lbs/ac-y	0.61	0.50	0.41	0.31	0.12	0.37	0.30	0.12	0.63	0.42	0.12	0.40	0.12	0.12	0.77	0.76	0.12	0.61	0.12	0.12	0.12
POND WATER BUDGETS.....																						
runoff	ac-ft/yr	49.47	19.26	17.75	8.90	0.00	13.06	3.76	0.00	20.54	15.78	0.00	212.39	0.00	0.00	3.38	2.11	0.00	182.94	0.00	0.00	0.00
upstream pond	ac-ft/yr	0.00	0.00	0.00	0.00	8.90	0.00	21.97	25.73	0.00	20.54	36.31	148.54	360.93	360.93	0.00	0.00	2.11	366.43	549.37	549.37	549.37
total inflow	**ac-ft/yr**	**49.47**	**19.26**	**17.75**	**8.90**	**8.91**	**13.06**	**25.73**	**25.73**	**20.54**	**36.31**	**36.32**	**360.93**	**360.93**	**360.93**	**3.38**	**2.11**	**2.11**	**549.37**	**549.37**	**549.37**	**549.37**
outflow	ac-ft/yr	49.47	19.26	17.75	8.90	8.91	13.06	25.73	25.73	20.54	36.31	36.32	360.93	360.93	360.93	3.38	2.11	2.11	549.37	549.37	549.37	549.37
POND PHOSPHORUS BUDGETS.....																						
runoff	lbs/yr	50.81	21.70	18.60	9.77	0.00	15.81	4.67	0.00	23.99	16.57	0.00	231.52	0.00	0.00	3.22	2.00	0.00	181.97	0.00	0.00	0.00
upstream pond	lbs/yr	0.00	0.00	0.00	0.00	4.56	0.00	7.63	11.15	0.00	10.78	21.38	92.23	270.26	219.47	0.00	0.00	0.93	170.88	334.33	314.01	289.56
total inflow	**lbs/yr**	**50.81**	**21.70**	**18.60**	**9.77**	**4.56**	**15.81**	**12.31**	**11.16**	**23.99**	**27.35**	**21.38**	**323.75**	**270.26**	**219.47**	**3.22**	**2.00**	**0.93**	**352.85**	**334.33**	**314.02**	**289.56**
net sedimentation	lbs/yr	0.00	13.65	11.14	5.21	1.80	10.94	1.16	2.04	13.21	5.97	4.58	53.49	50.79	50.65	1.80	1.07	0.28	18.52	20.32	24.46	47.69
outflow	lbs/yr	50.81	8.05	7.46	4.56	2.76	4.87	11.15	9.12	10.78	21.38	16.80	270.26	219.47	168.82	1.42	0.93	0.65	334.33	314.01	289.56	241.87
p removal efficiency	%	0.00	62.92	59.89	53.34	39.45	69.17	9.38	18.28	55.06	21.82	21.42	16.52	18.79	23.08	56.03	53.64	30.15	5.25	6.08	7.79	16.47
upstream w-shed p load	lbs/yr	50.81	21.70	18.60	9.77	9.77	15.81	30.25	30.26	23.99	40.55	40.56	393.44	393.44	393.45	3.22	2.00	2.00	580.63	580.63	580.63	580.64
total removal %	%	0.00	62.92	59.89	53.34	71.74	69.17	63.13	69.87	55.06	47.28	58.57	31.31	44.22	57.09	56.03	53.64	67.60	42.42	45.92	50.13	58.34
HYDRAULIC PARAMETERS.....																						
pond mean depth	feet	0.00	6.88	4.74	3.81	3.82	6.13	1.44	1.43	4.00	2.05	2.05	2.54	2.54	2.54	2.69	2.00	2.00	2.88	2.88	2.88	2.88
relative volume	inches	0.00	4.89	8.24	3.45	27195.00	13.44	2.09	16095.00	2.04	0.94	14730.00	0.39	74100.00	148845.00	5.05	8.75	12000.00	0.15	28590.00	41385.00	133950.00
residence time	years	0.00	0.15	0.26	0.11	0.20	0.42	0.01	0.04	0.06	0.01	0.03	0.01	0.01	0.03	0.16	0.28	0.38	0.00	0.00	0.01	0.02
residence time	days	0.00	56.09	94.58	39.64	74.30	154.23	3.50	15.22	23.46	4.70	9.87	2.61	5.00	10.03	57.92	100.42	138.37	0.56	1.27	1.83	5.93
overflow rate	ft/yr	1236.85	44.79	18.30	35.06	18.75	14.51	149.59	34.40	62.23	159.27	75.82	356.30	185.76	92.48	16.92	7.27	5.28	1862.26	829.86	573.46	177.16
inflow phos conc	ppb	377.87	414.47	385.49	403.69	188.37	445.24	176.01	159.50	429.73	277.06	216.60	330.02	275.49	223.72	350.02	349.13	161.90	236.31	223.90	210.30	193.92
outflow phos conc	ppb	377.87	153.70	154.60	188.37	114.06	137.26	159.49	130.34	193.11	216.61	170.20	275.49	223.72	172.09	153.91	161.86	113.08	223.90	210.30	193.92	161.98
p reaction rate	-	0.00	4.58	3.72	2.45	1.08	7.28	0.11	0.27	2.73	0.36	0.35	0.24	0.28	0.39	2.90	2.50	0.62	0.06	0.07	0.09	0.24
1-rp	-	1.00	0.37	0.40	0.47	0.61	0.31	0.91	0.82	0.45	0.78	0.79	0.83	0.81	0.77	0.44	0.46	0.70	0.95	0.94	0.92	0.84
vlawmo pond volume	acre-ft	3.89	1.51	1.40	0.70	0.00	1.03	0.30	0.00	1.61	1.24	0.00	16.70	0.00	0.00	0.27	0.17	0.00	14.38	0.00	0.00	0.00
LAND USE PARAMETERS.....																						
runoff total P conc	ppb	356.39	377.26	330.05	360.99	200.00	402.81	443.86	200.00	415.79	333.92	200.00	385.05	200.00	200.00	350.00	347.97	200.00	358.14	200.00	200.00	200.00
runoff coefficient		0.22	0.17	0.15	0.11	0.08	0.12	0.09	0.08	0.20	0.15	0.08	0.14	0.08	0.08	0.31	0.30	0.08	0.23	0.08	0.08	0.08
dissolved/total P		0.37	0.39	0.44	0.45	0.60	0.36	0.64	0.60	0.33	0.44	0.60	0.50	0.60	0.60	0.30	0.31	0.60	0.34	0.60	0.60	0.60
runoff TSS conc	ppm	159.00	166.47	176.46	194.78	216.00	184.39	213.05	216.00	148.49	176.42	216.00	192.07	216.00	216.00	140.00	142.24	216.00	158.77	216.00	216.00	216.00
POND TSS BUDGETS.....																						
runoff	lbs/yr	19701.84	7999.32	7679.33	4527.91	1.24	6293.53	2153.49	1.24	7977.05	6819.99	1.24	99896.22	1.24	1.24	1283.88	802.41	1.24	73124.47	1.24	1.24	1.24
upstream pond	lbs/yr	0.00	0.00	0.00	0.00	452.79	0.00	594.92	2208.54	0.00	558.39	4189.87	24564.36	82899.63	51961.08	0.00	0.00	80.24	27590.20	88844.72	76629.65	64588.89
total inflow	**lbs/yr**	**19701.84**	**7999.32**	**7679.33**	**4527.91**	**454.03**	**6293.53**	**2748.41**	**2209.78**	**7977.05**	**7378.39**	**4191.11**	**124460.57**	**82900.87**	**51962.32**	**1283.88**	**802.41**	**81.48**	**100714.67**	**88845.97**	**76630.89**	**64590.13**
p removal efficiency (no inf)	%	0.00	63.00	60.00	54.00	40.00	70.00	10.00	19.00	56.00	22.00	22.00	17.00	19.00	24.00	57.00	54.00	31.00	6.00	7.00	8.00	17.00
tss removal efficiency (no inf)	%	0.00	93.00	93.00	90.00	66.00	93.00	19.64	37.32	93.00	43.21	43.21	33.39	37.32	47.14	93.00	90.00	57.63	11.79	13.75	15.71	33.39
net sedimentation	lbs/yr	0.00	7439.37	7141.78	4075.12	299.66	5852.98	539.87	824.72	7418.66	3188.52	1811.16	41560.94	30939.79	24496.52	1194.01	722.17	46.95	11869.94	12216.32	12042.00	21568.49
outflow	lbs/yr	19701.84	559.95	537.55	452.79	154.37	440.55	2208.54	1385.06	558.39	4189.87	2379.95	82899.63	51961.08	27465.80	89.87	80.24	34.53	88844.72	76629.65	64588.89	43021.64
tss removal efficiency (inf)	%	0.00	93.00	93.00	90.00	66.00	93.00	19.64	37.32	93.00	43.21	43.21	33.39	37.32	47.14	93.00	90.00	57.63	11.79	13.75	15.71	33.39
upstream watershed tss load	lbs/yr	19701.84	7999.32	7679.33	4527.91	4529.15	6293.53	12976.16	12977.40	7977.05	14797.04	14798.28	163052.39	163053.63	163054.87	1283.88	802.41	803.65	238266.87	238268.11	238269.36	238270.60
tss total removal efficiency	%	0.00	93.00	93.00	90.00	96.59	93.00	82.98	89.33	93.00	71.68	83.92	49.16	68.13	83.16	93.00	90.00	95.70	62.71	67.84	72.89	81.94
INFILTRATION BMP/POND.....																						
Annual runoff infiltrated	%	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Adjusted outflow	**ac-ft/yr**	**49.47**	**19.26**	**17.75**	**8.90**	**8.91**	**13.06**	**25.73**	**25.73**	**20.54**	**36.31**	**36.32**	**360.93**	**360.93**	**360.93**	**3.38**	**2.11**	**2.11**	**549.37**	**549.37**	**549.37**	**549.37**
Adjusted TP outflow	**lbs/yr**	**50.81**	**8.05**	**7.46**	**4.56**	**2.76**	**4.87**	**11.15**	**9.12**	**10.78**	**21.38**	**16.80**	**270.26**	**219.47**	**168.82**	**1.42**	**0.93**	**0.65**	**334.33**	**314.01**	**289.56**	**241.87**
Adjusted TSS outflow	**lbs/yr**	**19701.84**	**559.95**	**537.55**	**452.79**	**154.37**	**440.55**	**2208.54**	**1385.06**	**558.39**	**4189.87**	**2379.95**	**82899.63**	**51961.08**	**27465.80**	**89.87**	**80.24**	**34.53**	**88844.72**	**76629.65**	**64588.89**	**43021.64**

Rochester Loading Assessment											
Mayo Run											
363-06-158-2											
Present (2005) LOADS											
		mr-a1.2a cell a5	**mr-a1.2a cell b1**	**mr-a1.2a cell b2**	**mr-a1.3e**	**mr-a1.3d**	**mr-a1.3c**	**mr-a1.3b**	**mr-a1.3b cell 2**	**mr-a1.3a**	**mr-a1.4**
Routed TO:		mr-a1.2a cell b1	mr-a1.2a cell b2	mr-a1.3b	mr-a1.3d	mr-a1.3a	mr-a1.3b	mr-a1.3b cell 2	mr-a1.3a	mr-a1.4	bc-a2.20
INPUT VARIABLES....	UNITS										
case label	-										
Watershed area	acres	0.0	0.0	0.0	3.1	9.8	9.6	78.3	0.0	55.2	127.9
basin area	acres	5.86	0.77	1.20	0.07	0.32	0.04	2.56	4.06	0.00	0.00
basin volume	acre-ft	16.88	1.25	1.95	0.14	0.77	0.00	9.32	14.76	0.00	0.00
Row Crop Agriculture		0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Very Low Density Residential		0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Low Density Residential		0%	0%	0%	0%	0%	32%	0%	0%	1%	33%
Medium Density Residential		0%	0%	0%	0%	0%	5%	0%	0%	0%	2%
High Density Residential		0%	0%	0%	0%	0%	0%	9%	0%	17%	25%
Commercial/Industrial		0%	0%	0%	0%	0%	10%	0%	0%	0%	7%
Institutional		0%	0%	0%	96%	74%	3%	11%	0%	0%	5%
Open Space		100%	100%	100%	0%	26%	18%	73%	100%	82%	26%
Golf Course		0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Pits and Quarries		0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Right-of-Way		0%	0%	0%	4%	0%	33%	7%	0%	0%	1%
WATERSHED-WIDE ACCOUNTING.....											
tributary land area	ac	1221.37	1221.38	1221.39	3.15	12.92	9.63	1309.29	1309.30	1377.43	1505.35
tributary water area	ac	23.65	24.42	25.62	0.07	0.39	0.04	28.22	32.28	32.67	32.67
direct and ponded area	ac	1245.02	1245.80	1247.01	3.22	13.31	9.67	1337.51	1341.58	1410.10	1538.03
ASSUMED EXPORT FACTORS.....											
season length	yrs	1	1	1	1	1	1	1	1	1	1
season precipitation	inches	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8
runoff total p	ppb	200.00	200.00	200.00	351.95	311.25	376.32	252.21	200.00	245.02	371.47
runoff ortho p/total p	-	0.60	0.60	0.60	0.30	0.38	0.35	0.52	0.60	0.55	0.38
unit runoff	in/yr	2.54	2.54	2.54	9.70	7.88	7.66	4.74	2.54	4.49	8.17
unit export	lbs/ac-y	0.12	0.12	0.12	0.77	0.60	0.68	0.35	0.12	0.34	0.76
POND WATER BUDGETS.....											
runoff	ac-ft/yr	0.00	0.00	0.00	2.54	6.41	6.15	30.92	0.00	20.67	87.15
upstream pond	ac-ft/yr	549.37	549.37	549.38	0.00	2.54	0.00	555.52	586.45	595.40	616.07
total inflow	**ac-ft/yr**	**549.37**	**549.38**	**549.38**	**2.54**	**8.96**	**6.15**	**586.45**	**586.45**	**616.07**	**703.22**
outflow	ac-ft/yr	549.37	549.38	549.38	2.54	8.96	6.15	586.45	586.45	616.07	703.22
POND PHOSPHORUS BUDGETS.....											
runoff	lbs/yr	0.00	0.00	0.00	2.43	5.88	6.58	27.07	0.00	18.67	97.24
upstream pond	lbs/yr	241.87	193.04	188.28	0.00	1.30	0.00	188.19	184.54	160.70	179.37
total inflow	**lbs/yr**	**241.87**	**193.04**	**188.28**	**2.43**	**7.18**	**6.58**	**215.26**	**184.54**	**179.37**	**276.61**
net sedimentation	lbs/yr	48.83	4.76	6.67	1.14	3.22	0.00	30.72	27.81	0.00	0.00
outflow	lbs/yr	193.04	188.28	181.61	1.30	3.96	6.58	184.54	156.73	179.37	276.61
p removal efficiency	%	20.19	2.46	3.54	46.68	44.80	0.01	14.27	15.07	0.00	0.00
upstream w-shed p load	lbs/yr	580.64	580.64	580.64	2.43	8.32	6.58	614.29	614.29	641.28	738.52
total removal %	%	66.75	67.57	68.72	46.68	52.33	0.01	69.96	74.49	72.03	62.55
HYDRAULIC PARAMETERS.....											
pond mean depth	feet	2.88	1.62	1.62	2.00	2.41	0.00	3.64	3.64	1.00	1.00
relative volume	inches	253125.00	18780.00	29220.00	1.75	3.82	0.00	9.58	221460.00	0.00	0.00
residence time	years	0.03	0.00	0.00	0.06	0.09	0.00	0.02	0.03	0.00	0.00
residence time	days	11.21	0.83	1.29	20.09	31.38	0.00	5.80	9.19	0.00	0.00
overflow rate	ft/yr	93.75	712.55	457.82	36.34	27.99	153.64	228.90	144.45	61607390.61	70321994.99
inflow phos conc	ppb	161.98	129.28	126.09	351.79	294.91	394.12	135.05	115.78	107.12	144.72
outflow phos conc	ppb	129.28	126.09	121.62	187.56	162.80	394.09	115.78	98.33	107.12	144.72
p reaction rate	-	0.32	0.03	0.04	1.64	1.47	0.00	0.19	0.21	0.00	0.00
1-rp	-	0.80	0.98	0.96	0.53	0.55	1.00	0.86	0.85	1.00	1.00
vlawmo pond volume	acre-ft	0.00	0.00	0.00	0.20	0.50	0.48	2.43	0.00	1.62	6.85
LAND USE PARAMETERS.....											
runoff total P conc	ppb	200.00	200.00	200.00	351.95	311.25	376.32	252.21	200.00	245.02	371.47
runoff coefficient		0.08	0.08	0.08	0.30	0.25	0.24	0.15	0.08	0.14	0.26
dissolved/total P		0.60	0.60	0.60	0.30	0.38	0.35	0.52	0.60	0.55	0.38
runoff TSS conc	ppm	216.00	216.00	216.00	140.00	159.64	153.50	195.67	216.00	202.12	160.12
POND TSS BUDGETS.....											
runoff	lbs/yr	1.24	1.24	1.24	965.24	2543.30	2406.38	14234.03	1.24	9812.15	34541.74
upstream pond	lbs/yr	43021.64	25275.94	23787.64	0.00	250.96	0.00	24326.13	27198.68	19489.65	29301.80
total inflow	**lbs/yr**	**43022.88**	**25277.18**	**23788.88**	**965.24**	**2794.26**	**2406.38**	**38560.16**	**27199.92**	**29301.80**	**63843.55**
p removal efficiency (no inf)	%	21.00	3.00	4.00	47.00	45.00	0.00	15.00	16.00	0.00	0.00
tss removal efficiency (no inf)	%	41.25	5.89	7.86	74.00	70.00	0.00	29.46	31.43	0.00	0.00
net sedimentation	lbs/yr	17746.94	1489.55	1869.13	714.28	1955.98	0.00	11361.48	8548.55	0.00	0.00
outflow	lbs/yr	25275.94	23787.64	21919.75	250.96	838.28	2406.38	27198.68	18651.38	29301.80	63843.55
tss removal efficiency (inf)	%	41.25	5.89	7.86	74.00	70.00	0.00	29.46	31.43	0.00	0.00
upstream watershed tss load	lbs/yr	238271.84	238273.08	238274.32	965.24	3508.54	2406.38	254914.73	254915.97	268236.66	302778.40
tss total removal efficiency	%	89.39	90.02	90.80	74.00	76.11	0.00	89.33	92.68	89.08	78.91
INFILTRATION BMP/POND.....											
Annual runoff infiltrated	%	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Adjusted outflow	**ac-ft/yr**	**549.37**	**549.38**	**549.38**	**2.54**	**8.96**	**6.15**	**586.45**	**586.45**	**616.07**	**703.22**
Adjusted TP outflow	**lbs/yr**	**193.04**	**188.28**	**181.61**	**1.30**	**3.96**	**6.58**	**184.54**	**156.73**	**179.37**	**276.61**
Adjusted TSS outflow	**lbs/yr**	**25275.94**	**23787.64**	**21919.75**	**250.96**	**838.28**	**2406.38**	**27198.68**	**18651.38**	**29301.80**	**63843.55**

Rochester Loading Assessment																								
Mayo Run																								
363-06-158-2																								
2020 LOADS																								
		future mr-a1.1i	mr-a1.1i	future mr-a1.1h	mr-a1.1h	future mr-a1.1g	mr-a1.1g	future mr-a1.1f	mr-a1.1f	mr-a1.1f cell 2	future mr-a1.1e	mr-a1.1e	future mr-a1.1d	mr-a1.1d	mr-a1.1d cell 2	future mr-a1.1c	mr-a1.1c	future mr-a1.1b	mr-a1.1b	mr-a1.1b cell 2	future mr-a1.1a	mr-a1.1a	mr-a1.1a cell 2	mr-a1.1a cell 3	future mr-a1.2c
		mr-a1.1i	mr-a1.1a	mr-a1.1h	mr-a1.1a	mr-a1.1g	mr-a1.1a	mr-a1.1f	mr-a1.1f cell 2	mr-a1.1d	mr-a1.1e	mr-a1.1d	mr-a1.1d	mr-a1.1d cell 2	mr-a1.1a	mr-a1.1c	mr-a1.1b	mr-a1.1b	mr-a1.1b cell 2	mr-a1.1a	mr-a1.1a	mr-a1.1a cell 2	mr-a1.1a cell 3	mr-a1.2a	mr-a1.2c
INPUT VARIABLES....	UNITS																							
case label	-																							
Watershed area	acres	2.6	81.4	5.1	38.3	18.1	27.0	12.7	19.3	0.0	6.0	36.5	0.6	14.8	0.0	0.0	38.1	0.0	39.4	0.0	36.4	539.0	0.0	0.0	0.0
basin area	acres	0.04	0.04	0.08	0.43	0.21	0.97	0.12	0.25	0.48	0.04	0.90	0.00	0.17	0.75	0.00	0.33	0.00	0.23	0.48	0.45	1.01	1.94	3.90	0.00
basin volume	acre-ft	0.11	0.00	0.19	2.96	0.50	4.60	0.26	0.97	1.81	0.09	5.52	0.00	0.25	1.07	0.00	1.32	0.00	0.47	0.98	1.53	2.58	4.94	9.92	0.00
Row Crop Agriculture		0%	2%	0%	0%	0%	0%	0%	1%	0%	0%	53%	0%	2%	0%	0%	0%	0%	1%	0%	0%	18%	0%	0%	0%
Very Low Density Residential		0%	0%	0%	6%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	3%	0%	0%	1%	0%	0%	0%
Low Density Residential		0%	37%	39%	74%	100%	87%	74%	0%	0%	52%	0%	15%	0%	0%	0%	82%	0%	48%	0%	25%	3%	0%	0%	0%
Medium Density Residential		100%	0%	61%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	68%	0%	0%	0%	0%
High Density Residential		0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Commercial/Industrial		0%	7%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	7%	5%	0%	0%	0%
Institutional		0%	24%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	5%	0%	0%	0%	0%	0%	0%	0%	0%
Open Space		0%	22%	0%	20%	0%	13%	26%	88%	100%	48%	47%	85%	31%	100%	0%	11%	0%	45%	100%	0%	38%	100%	100%	0%
Golf Course		0%	0%	0%	0%	0%	0%	0%	12%	0%	0%	0%	0%	66%	0%	0%	0%	0%	0%	0%	0%	22%	0%	0%	0%
Pits and Quarries		0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Right-of-Way		0%	8%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	2%	0%	3%	0%	0%	13%	0%	0%	0%
WATERSHED-WIDE ACCOUNTING.....																								
tributary land area	ac	2.59	83.97	5.14	43.43	18.08	45.05	12.74	32.00	32.01	6.04	42.58	0.56	89.96	89.97	0.00	38.08	0.00	77.44	77.45	36.38	915.22	915.23	915.24	0.00
tributary water area	ac	0.04	0.08	0.08	0.51	0.21	1.18	0.12	0.38	0.85	0.04	0.94	0.00	1.97	2.71	0.00	0.33	0.00	0.56	1.04	0.45	6.98	8.93	12.83	0.00
direct and ponded area	ac	2.64	84.05	5.23	43.94	18.29	46.23	12.87	32.38	32.86	6.08	43.52	0.56	91.92	92.68	0.00	38.41	0.00	78.00	78.49	36.82	922.20	924.16	928.07	0.00
ASSUMED EXPORT FACTORS.....																								
season length	yrs	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
season precipitation	inches	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80
runoff total p	ppb	391.50	339.66	391.50	348.25	391.50	366.41	341.28	242.69	200.00	299.89	380.15	227.84	440.20	200.00	0.00	368.02	0.00	304.48	200.00	388.45	378.69	200.00	200.00	0.00
runoff ortho p/total p	-	0.30	0.36	0.30	0.37	0.30	0.34	0.38	0.61	0.60	0.44	0.39	0.56	0.66	0.60	0.00	0.33	0.00	0.44	0.60	0.30	0.49	0.60	0.60	0.00
unit runoff	in/yr	9.74	7.21	8.56	5.68	6.74	6.19	5.64	2.61	2.54	4.73	3.55	3.15	2.88	2.54	0.00	6.47	0.00	4.81	2.54	9.35	4.52	2.54	2.54	0.00
unit export	lbs/ac-y	0.86	0.59	0.76	0.48	0.60	0.53	0.47	0.15	0.12	0.37	0.34	0.19	0.29	0.12	0.00	0.56	0.00	0.38	0.12	0.82	0.40	0.12	0.12	0.00
POND WATER BUDGETS.....																								
runoff	ac-ft/yr	2.11	48.92	3.67	18.11	10.16	13.92	5.99	4.18	0.00	2.38	10.82	0.15	3.55	0.00	0.00	20.54	0.00	15.78	0.00	28.34	203.19	0.00	0.00	0.00
upstream pond	ac-ft/yr	0.00	2.11	0.00	3.67	0.00	10.16	0.00	5.99	10.18	0.00	2.38	0.00	23.53	27.08	0.00	0.00	0.00	20.54	36.31	0.00	188.63	391.82	391.82	0.00
total inflow	**ac-ft/yr**	**2.11**	**51.03**	**3.67**	**21.78**	**10.16**	**24.08**	**5.99**	**10.18**	**10.18**	**2.38**	**13.21**	**0.15**	**27.08**	**27.09**	**0.00**	**20.54**	**0.00**	**36.31**	**36.32**	**28.34**	**391.82**	**391.82**	**391.82**	**0.00**
outflow	ac-ft/yr	2.11	51.03	3.67	21.78	10.16	24.08	5.99	10.18	10.18	2.38	13.21	0.15	27.08	27.09	0.00	20.54	0.00	36.31	36.32	28.34	391.82	391.82	391.82	0.00
POND PHOSPHORUS BUDGETS.....																								
runoff	lbs/yr	2.24	47.81	3.90	18.30	10.81	14.42	6.01	2.84	0.00	2.22	12.52	0.10	4.37	0.00	0.00	21.21	0.00	14.84	0.00	29.79	218.04	0.00	0.00	0.00
upstream pond	lbs/yr	0.00	1.10	0.00	1.98	0.00	5.51	0.00	3.50	3.96	0.00	1.41	0.00	7.37	10.78	0.00	0.00	0.00	9.95	19.72	0.00	104.06	274.26	227.32	0.00
total inflow	**lbs/yr**	**2.24**	**48.92**	**3.90**	**20.28**	**10.81**	**19.93**	**6.01**	**6.34**	**3.96**	**2.22**	**13.93**	**0.10**	**11.74**	**10.78**	**0.00**	**21.21**	**0.00**	**24.79**	**19.72**	**29.79**	**322.11**	**274.26**	**227.32**	**0.00**
net sedimentation	lbs/yr	1.14	0.00	1.92	12.18	5.31	11.73	2.51	2.37	1.35	0.80	9.26	0.02	0.96	1.83	0.00	11.26	0.00	5.07	4.01	15.60	47.85	46.94	49.13	0.00
outflow	lbs/yr	1.10	48.92	1.98	8.10	5.51	8.20	3.50	3.96	2.61	1.41	4.68	0.08	10.78	8.95	0.00	9.95	0.00	19.72	15.71	14.19	274.26	227.32	178.19	0.00
p removal efficiency	%	50.81	0.00	49.27	60.07	49.08	58.88	41.82	37.46	34.09	36.28	66.43	23.30	8.17	16.94	3.78	53.08	3.78	20.47	20.32	52.37	14.85	17.12	21.61	3.78
upstream w-shed p load	lbs/yr	2.24	50.05	3.90	22.20	10.81	25.24	6.01	8.85	8.85	2.22	14.74	0.10	28.06	28.06	0.00	21.21	0.00	36.05	36.05	29.79	409.44	409.44	409.44	0.00
total removal %	%	50.81	2.28	49.27	63.53	49.08	67.52	41.82	55.22	70.48	36.28	68.26	23.30	61.59	68.09	3.78	53.08	3.78	45.31	56.42	52.37	33.02	44.48	56.48	3.78
HYDRAULIC PARAMETERS.....																								
pond mean depth	feet	2.71	0.00	2.30	6.88	2.40	4.74	2.08	3.81	3.82	2.09	6.13	225.47	1.44	1.43	0.00	4.00	0.00	2.05	2.05	3.42	2.54	2.54	2.54	0.00
relative volume	inches	1.70	0.00	1.65	5.20	1.56	10.51	1.37	7.35	27195.00	1.16	16.22	0.48	2.21	16095.00	1.58	2.04	1.58	0.94	14730.00	1.72	0.40	74100.00	148845.00	1.58
residence time	years	0.05	0.00	0.05	0.14	0.05	0.19	0.04	0.10	0.18	0.04	0.42	0.02	0.01	0.04	0.05	0.06	0.05	0.01	0.03	0.05	0.01	0.01	0.03	0.05
residence time	days	19.50	0.00	18.99	49.61	17.86	69.72	15.75	34.69	65.02	13.27	152.56	5.55	3.33	14.46	18.08	23.46	18.08	4.70	9.87	19.70	2.40	4.60	9.24	18.08
overflow rate	ft/yr	50.81	1275.73	44.26	50.65	49.06	24.83	48.21	40.06	21.43	57.48	14.67	14826.01	157.46	36.21	0.00	62.23	0.00	159.27	75.82	63.45	386.79	201.66	100.39	0.00
inflow phos conc	ppb	391.52	352.68	391.52	342.56	391.52	304.48	368.87	229.11	143.30	342.29	388.21	259.53	159.47	146.43	384.34	379.95	384.34	251.16	199.75	386.78	302.46	257.53	213.45	384.34
outflow phos conc	ppb	192.58	352.68	198.61	136.78	199.36	125.21	214.62	143.28	94.45	218.12	130.33	199.06	146.43	121.63	369.82	178.28	369.82	199.75	159.17	184.21	257.53	213.45	167.32	369.82
p reaction rate	-	2.10	0.00	1.91	3.77	1.89	3.48	1.24	0.96	0.78	0.89	5.89	0.40	0.10	0.25	0.04	2.41	0.04	0.32	0.32	2.31	0.20	0.25	0.35	0.04
1-rp	-	0.49	1.00	0.51	0.40	0.51	0.41	0.58	0.63	0.66	0.64	0.34	0.77	0.92	0.83	0.96	0.47	0.96	0.80	0.80	0.48	0.85	0.83	0.78	0.96
vlawmo pond volume	acre-ft	0.17	3.85	0.29	1.42	0.80	1.09	0.47	0.33	0.00	0.19	0.85	0.01	0.28	0.00	0.00	1.61	0.00	1.24	0.00	2.23	15.97	0.00	0.00	0.00
LAND USE PARAMETERS.....																								
runoff total P conc	ppb	391.50	339.66	391.50	348.25	391.50	366.41	341.28	242.69	200.00	299.89	380.15	227.84	440.20	200.00	0.00	368.02	0.00	304.48	200.00	388.45	378.69	200.00	200.00	0.00
runoff coefficient		0.31	0.23	0.27	0.18	0.21	0.19	0.18	0.08	0.08	0.15	0.11	0.10	0.09	0.08	0.00	0.20	0.00	0.15	0.08	0.29	0.14	0.08	0.08	0.00
dissolved/total P		0.30	0.36	0.30	0.37	0.30	0.34	0.38	0.61	0.60	0.44	0.39	0.56	0.66	0.60	0.00	0.33	0.00	0.44	0.60	0.30	0.49	0.60	0.60	0.00
runoff TSS conc	ppm	140.00	157.18	140.00	159.81	140.00	149.96	159.94	215.78	216.00	176.36	187.92	204.95	214.96	216.00	0.00	148.49	0.00	176.42	216.00	140.00	190.89	216.00	216.00	0.00
POND TSS BUDGETS.....																								
runoff	lbs/yr	798.75	19379.81	1391.63	7324.82	3855.30	5435.42	2419.19	2442.67	1.24	1029.79	5304.50	77.30	2061.22	1.24	0.00	7977.05	0.00	6819.99	1.24	10751.97	94742.44	1.24	1.24	0.00
upstream pond	lbs/yr	0.00	79.88	0.00	208.75	0.00	578.30	0.00	725.76	1108.95	0.00	360.43	0.00	867.47	2410.94	0.00	0.00	0.00	558.39	4189.87	0.00	25261.17	82288.19	53194.24	0.00
total inflow	**lbs/yr**	**798.75**	**19459.69**	**1391.63**	**7533.56**	**3855.30**	**6013.72**	**2419.19**	**3168.43**	**1110.19**	**1029.79**	**5664.93**	**77.30**	**2928.69**	**2412.18**	**0.00**	**7977.05**	**0.00**	**7378.39**	**4191.11**	**10751.97**	**120003.61**	**82289.43**	**53195.48**	**0.00**
p removal efficiency (no inf)	%	54.00	0.00	52.00	62.00	52.00	61.00	45.00	39.00	35.00	39.00	67.00	25.00	9.00	18.00	5.00	56.00	5.00	22.00	22.00	55.00	16.00	18.00	22.00	5.00
tss removal efficiency (no inf)	%	90.00	0.00	85.00	93.00	85.00	93.00	70.00	65.00	61.13	65.00	93.00	49.11	17.68	35.36	9.82	93.00	9.82	43.21	43.21	91.50	31.43	35.36	43.21	9.82
net sedimentation	lbs/yr	718.88	0.00	1182.89	7006.21	3277.01	5592.76	1693.43	2059.48	678.61	669.37	5268.38	37.96	517.75	852.88	0.00	7418.66	0.00	3188.52	1811.16	9838.06	37715.42	29095.19	22988.05	0.00
outflow	lbs/yr	79.88	19459.69	208.75	527.35	578.30	420.96	725.76	1108.95	431.59	360.43	396.55	39.34	2410.94	1559.30	0.00	558.39	0.00	4189.87	2379.95	913.92	82288.19	53194.24	30207.43	0.00
tss removal efficiency (inf)	%	90.00	0.00	85.00	93.00	85.00	93.00	70.00	65.00	61.13	65.00	93.00	49.11	17.68	35.36	9.82	93.00	9.82	43.21	43.21	91.50	31.43	35.36	43.21	9.82
upstream watershed tss load	lbs/yr	798.75	20178.56	1391.63	8716.45	3855.30	9290.73	2419.19	4861.87	4863.11	1029.79	6334.30	77.30	13335.92	13337.16	0.00	7977.05	0.00	14797.04	14798.28	10751.97	171815.60	171816.84	171818.09	0.00
tss total removal efficiency	%	90.00	3.56	85.00	93.95	85.00	95.47	70.00	77.19	91.13	65.00	93.74	49.11	81.92	88.31	9.82	93.00	9.82	71.68	83.92	91.50	52.11	69.04	82.42	9.82
INFILTRATION BMP/POND.....																								
Annual runoff infiltrated	%	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Adjusted outflow	**ac-ft/yr**	**2.11**	**51.03**	**3.67**	**21.78**	**10.16**	**24.08**	**5.99**	**10.18**	**10.18**	**2.38**	**13.21**	**0.15**	**27.08**	**27.09**	**0.00**	**20.54**	**0.00**	**36.31**	**36.32**	**28.34**	**391.82**	**391.82**	**391.82**	**0.00**
Adjusted TP outflow	**lbs/yr**	**1.10**	**48.92**	**1.98**	**8.10**	**5.51**	**8.20**	**3.50**	**3.96**	**2.61**	**1.41**	**4.68**	**0.08**	**10.78**	**8.95**	**0.00**	**9.95**	**0.00**	**19.72**	**15.71**	**14.19**	**274.26**	**227.32**	**178.19**	**0.00**
Adjusted TSS outflow	**lbs/yr**	**79.88**	**19459.69**	**208.75**	**527.35**	**578.30**	**420.96**	**725.76**	**1108.95**	**431.59**	**360.43**	**396.55**	**39.34**	**2410.94**	**1559.30**	**0.00**	**558.39**	**0.00**	**4189.87**	**2379.95**	**913.92**	**82288.19**	**53194.24**	**30207.43**	**0.00**
POND P BUDGETS W/O P-BAN.....																								
runoff	lbs/yr	2.58	50.51	4.49	20.90	12.43	16.52	6.85	2.84	0.00	2.50	12.52	0.11	4.37	0.00	0.00	23.99	0.00	16.57	0.00	33.78	220.04	0.00	0.00	0.00
Adjusted TP outflow	**lbs/yr**	**1.21**	**51.72**	**2.17**	**8.77**	**6.04**	**8.86**	**3.83**	**4.11**	**2.69**	**1.54**	**4.70**	**0.08**	**10.87**	**9.02**	**0.00**	**10.78**	**0.00**	**21.38**	**16.80**	**15.40**	**280.54**	**231.75**	**181.04**	**0.00**
upstream pond	lbs/yr	0.00	1.21	0.00	2.17	0.00	6.04	0.00	3.83	4.11	0.00	1.54	0.00	7.47	10.87	0.00	0.00	0.00	10.78	21.38	0.00	110.57	280.54	231.75	0.00
total inflow	**lbs/yr**	**2.58**	**51.72**	**4.49**	**23.07**	**12.43**	**22.56**	**6.85**	**6.67**	**4.11**	**2.50**	**14.06**	**0.11**	**11.84**	**10.87**	**0.00**	**23.99**	**0.00**	**27.35**	**21.38**	**33.78**	**330.61**	**280.54**	**231.75**	**0.00**
outflow	lbs/yr	1.21	51.72	2.17	8.77	6.04	8.86	3.83	4.11	2.69	1.54	4.70	0.08	10.87	9.02	0.00	10.78	0.00	21.38	16.80	15.40	280.54	231.75	181.04	0.00
inflow phos conc	ppb	450.02	372.91	450.02	389.80	450.02	344.64	420.45	241.23	148.75	385.76	391.78	277.71	160.88	147.63	409.24	429.73	409.24	277.06	216.60	438.59	310.44	263.43	217.62	409.24
outflow phos conc	ppb	211.06	372.90	217.87	148.21	218.72	135.31	235.20	148.74	97.11	237.97	131.05	210.25	147.63	122.48	392.86	193.11	392.86	216.61	170.20	199.95	263.43	217.62	170.00	392.86
p reaction rate	-	2.41	0.00	2.20	4.29	2.18	3.94	1.41	1.01	0.81	1.01	5.95	0.42	0.10	0.25	0.04	2.73	0.04	0.36	0.35	2.62	0.21	0.25	0.36	0.04
1-rp	-	0.47	1.00	0.48	0.38	0.49	0.39	0.56	0.62	0.65	0.62	0.33	0.76	0.92	0.83	0.96	0.45	0.96	0.78	0.79	0.46	0.85	0.83	0.78	0.96
runoff total p conc	ppb	450.00	361.37	450.00	394.41	450.00	417.24	384.43	242.69	200.00	330.40	380.15	236.34	440.20	200.00	0.00	415.79	0.00	333.92	200.00	442.66	381.11	200.00	200.00	0.00

Rochester Loading Assessm																								
Mayo Run																								
363-06-158-2																								
2020 LOADS																								
	mr-a1.2c	future mr-a1.2b	mr-a1.2b	mr-a1.2b cell 2	future mr-a1.2a	mr-a1.2a	mr-a1.2a cell a2	mr-a1.2a cell a3	mr-a1.2a cell a4	mr-a1.2a cell a5	mr-a1.2a cell b1	mr-a1.2a cell b2	mr-a1.2a cell b2	future mr-a1.3e	mr-a1.3e	future mr-a1.3d	mr-a1.3d	future mr-a1.3c	mr-a1.3c	future mr-a1.3b	mr-a1.3b	mr-a1.3b cell 2	future mr-a1.3a	mr-a1.3a	future mr-a1.4	mr-a1.4
	mr-a1.2a	mr-a1.2b	mr-a1.2b cell 2	mr-a1.2a	mr-a1.2a	mr-a1.2a cell a2	mr-a1.2a cell a3	mr-a1.2a cell a4	mr-a1.2a cell a5	mr-a1.2a cell b1	mr-a1.2a cell b2	mr-a1.3b	mr-a1.3e	mr-a1.3d	mr-a1.3d	mr-a1.3a	mr-a1.3c	mr-a1.3b	mr-a1.3b	mr-a1.3b cell 2	mr-a1.3a	mr-a1.3a	mr-a1.4	mr-a1.4	bc-a2.20
INPUT VARIABLES....																								
case label																								
Watershed area	4.2	0.0	2.6	0.0	4.7	294.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	3.1	0.0	9.8	0.0	9.6	0.0	78.3	0.0	0.0	55.2	6.3	121.7
basin area	0.20	0.00	0.29	0.40	0.17	12.85	0.66	0.96	3.10	5.86	0.77	1.20	0.00	0.07	0.00	0.32	0.00	0.04	0.00	2.56	4.06	0.00	0.00	0.17	0.00
basin volume	0.54	0.00	0.58	0.80	0.37	31.32	1.91	2.76	8.93	16.88	1.25	1.95	0.00	0.14	0.00	0.77	0.00	0.00	0.00	9.32	14.76	0.00	0.00	0.42	0.00
Row Crop Agriculture	0%	0%	0%	0%	0%	16%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Very Low Density Residential	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Low Density Residential	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	32%	0%	0%	0%	0%	1%	0%	34%
Medium Density Residential	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	5%	0%	0%	0%	0%	0%	0%	3%
High Density Residential	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	9%	0%	0%	17%	100%	27%
Commercial/Industrial	0%	0%	0%	0%	100%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	10%	0%	0%	0%	0%	0%	0%	8%
Institutional	100%	0%	98%	0%	0%	53%	0%	0%	0%	0%	0%	0%	0%	96%	0%	74%	0%	3%	0%	11%	0%	0%	0%	0%	5%
Open Space	0%	0%	2%	100%	0%	19%	100%	100%	100%	100%	100%	100%	0%	0%	0%	26%	0%	18%	0%	73%	100%	0%	82%	0%	23%
Golf Course	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Pits and Quarries	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Right-of-Way	0%	0%	0%	0%	0%	12%	0%	0%	0%	0%	0%	0%	0%	4%	0%	0%	0%	33%	0%	7%	0%	0%	0%	0%	1%
WATERSHED-WIDE ACCOUNTI																								
tributary land area	4.17	0.00	2.63	2.64	4.73	1221.37	1221.38	1221.39	1221.40	1221.41	1221.42	1221.43	0.00	3.15	0.00	12.92	0.00	9.63	0.00	1309.33	1309.34	0.00	1377.47	6.25	1505.39
tributary water area	0.20	0.00	0.29	0.69	0.17	26.73	27.40	28.35	31.46	37.32	38.09	39.29	0.00	0.07	0.00	0.39	0.00	0.04	0.00	41.89	45.95	0.00	46.34	0.17	46.50
direct and ponded area	4.37	0.00	2.92	3.33	4.90	1248.10	1248.77	1249.74	1252.85	1258.72	1259.50	1260.71	0.00	3.22	0.00	13.31	0.00	9.67	0.00	1351.22	1355.29	0.00	1423.81	6.42	1551.90
ASSUMED EXPORT FACTORS..																								
season length	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
season precipitation	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80
runoff total p	350.00	0.00	347.97	200.00	350.00	357.11	200.00	200.00	200.00	200.00	200.00	200.00	0.00	351.95	0.00	311.25	0.00	354.91	0.00	247.15	200.00	0.00	234.71	391.50	342.99
runoff ortho p/total p	0.30	0.00	0.31	0.60	0.30	0.34	0.60	0.60	0.60	0.60	0.60	0.60	0.00	0.30	0.00	0.38	0.00	0.35	0.00	0.52	0.60	0.00	0.55	0.30	0.37
unit runoff	9.74	0.00	9.61	2.54	14.56	7.39	2.54	2.54	2.54	2.54	2.54	2.54	0.00	9.70	0.00	7.88	0.00	7.66	0.00	4.74	2.54	0.00	4.49	13.60	8.46
unit export	0.77	0.00	0.76	0.12	1.15	0.61	0.12	0.12	0.12	0.12	0.12	0.12	0.00	0.77	0.00	0.60	0.00	0.65	0.00	0.33	0.12	0.00	0.31	1.21	0.71
POND WATER BUDGETS.....																								
runoff	3.38	0.00	2.11	0.00	5.74	181.44	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.54	0.00	6.41	0.00	6.15	0.00	30.92	0.00	0.00	20.67	7.08	85.82
upstream pond	0.00	0.00	0.00	2.11	0.00	403.06	584.50	584.50	584.50	584.50	584.51	584.51	0.00	0.00	0.00	2.54	0.00	0.00	0.00	590.66	621.58	0.00	630.54	0.00	658.29
total inflow	**3.38**	**0.00**	**2.11**	**2.11**	**5.74**	**584.50**	**584.50**	**584.50**	**584.50**	**584.51**	**584.51**	**584.51**	**0.00**	**2.54**	**0.00**	**8.96**	**0.00**	**6.15**	**0.00**	**621.58**	**621.58**	**0.00**	**651.21**	**7.08**	**744.11**
outflow	3.38	0.00	2.11	2.11	5.74	584.50	584.50	584.50	584.50	584.51	584.51	584.51	0.00	2.54	0.00	8.96	0.00	6.15	0.00	621.58	621.58	0.00	651.21	7.08	744.11
POND PHOSPHORUS BUDGETS																								
runoff	3.22	0.00	2.00	0.00	5.46	180.09	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.43	0.00	5.88	0.00	6.25	0.00	25.85	0.00	0.00	16.97	7.54	86.50
upstream pond	0.00	0.00	0.00	0.93	0.00	183.04	223.02	214.61	203.86	180.19	152.68	150.01	0.00	0.00	0.00	1.30	0.00	0.00	0.00	152.42	158.03	0.00	142.42	0.00	163.08
total inflow	**3.22**	**0.00**	**2.00**	**0.93**	**5.46**	**363.13**	**223.02**	**214.61**	**203.86**	**180.19**	**152.68**	**150.01**	**0.00**	**2.43**	**0.00**	**7.18**	**0.00**	**6.25**	**0.00**	**178.27**	**158.03**	**0.00**	**159.39**	**7.54**	**249.58**
net sedimentation	1.80	0.00	1.07	0.28	2.68	140.11	8.41	10.76	23.67	27.51	2.68	3.84	0.00	1.14	0.00	3.22	0.00	0.00	0.00	20.23	19.58	0.00	0.00	3.85	0.00
outflow	1.42	0.00	0.93	0.65	2.78	223.02	214.61	203.86	180.19	152.68	150.01	146.17	0.00	1.30	0.00	3.96	0.00	6.25	0.00	158.03	138.46	0.00	159.39	3.69	249.58
p removal efficiency	56.03	3.78	53.64	30.15	49.03	38.59	3.77	5.01	11.61	15.27	1.75	2.56	3.78	46.68	3.78	44.80	3.78	0.01	3.78	11.35	12.39	3.78	0.00	51.03	0.00
upstream w-shed p load	3.22	0.00	2.00	2.00	5.46	600.21	600.21	600.22	600.22	600.22	600.22	600.22	0.00	2.43	0.00	8.32	0.00	6.25	0.00	632.32	632.32	0.00	657.61	7.54	751.64
total removal %	56.03	3.78	53.64	67.60	49.03	62.84	64.24	66.04	69.98	74.56	75.01	75.65	3.78	46.68	3.78	52.33	3.78	0.01	3.78	75.01	78.10	3.78	75.76	51.03	66.80
HYDRAULIC PARAMETERS.....																								
pond mean depth	2.69	0.00	2.00	2.00	2.26	2.44	2.88	2.88	2.88	2.88	1.62	1.62	0.00	2.00	0.00	2.41	0.00	0.00	0.00	3.64	3.64	0.00	1.00	2.51	1.00
relative volume	5.05	1.58	8.75	12000.00	2.07	5.49	28590.00	41385.00	133950.00	253125.00	18780.00	29220.00	1.58	1.75	1.58	3.82	1.58	0.00	1.58	9.58	221460.00	1.58	0.00	1.87	0.00
residence time	0.16	0.05	0.28	0.38	0.07	0.05	0.00	0.00	0.02	0.03	0.00	0.00	0.05	0.06	0.05	0.09	0.05	0.00	0.05	0.01	0.02	0.05	0.00	0.06	0.00
residence time	57.92	18.08	100.42	138.37	23.81	19.56	1.19	1.72	5.58	10.54	0.78	1.22	18.08	20.09	18.08	31.38	18.08	0.00	18.08	5.47	8.67	18.08	0.00	21.48	0.00
overflow rate	16.92	0.00	7.27	5.28	34.64	45.49	882.93	610.13	188.49	99.75	758.12	487.09	0.00	36.34	0.00	27.99	0.00	153.64	0.00	242.61	153.10	0.00	65120601.71	42.73	74410835.78
inflow phos conc	350.02	384.34	349.13	161.90	350.02	228.58	140.38	135.09	128.32	113.42	96.11	94.42	384.34	351.79	384.34	294.91	384.34	374.10	384.34	105.52	93.54	384.34	90.05	391.52	123.40
outflow phos conc	153.91	369.82	161.86	113.08	178.42	140.38	135.09	128.32	113.42	96.11	94.42	92.01	369.82	187.56	369.82	162.80	369.82	374.07	369.82	93.54	81.95	369.82	90.05	191.73	123.40
p reaction rate	2.90	0.04	2.50	0.62	1.89	1.02	0.04	0.06	0.15	0.21	0.02	0.03	0.04	1.64	0.04	1.47	0.04	0.00	0.04	0.14	0.16	0.04	0.00	2.13	0.00
1-rp	0.44	0.96	0.46	0.70	0.51	0.61	0.96	0.95	0.88	0.85	0.98	0.97	0.96	0.53	0.96	0.55	0.96	1.00	0.96	0.89	0.88	0.96	1.00	0.49	1.00
vlawmo pond volume	0.27	0.00	0.17	0.00	0.45	14.26	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.20	0.00	0.50	0.00	0.48	0.00	2.43	0.00	0.00	1.62	0.56	6.75
LAND USE PARAMETERS.....																								
runoff total P conc	350.00	0.00	347.97	200.00	350.00	357.11	200.00	200.00	200.00	200.00	200.00	200.00	0.00	351.95	0.00	311.25	0.00	354.91	0.00	247.15	200.00	0.00	234.71	391.50	342.99
runoff coefficient	0.31	0.00	0.30	0.08	0.46	0.23	0.08	0.08	0.08	0.08	0.08	0.08	0.00	0.30	0.00	0.25	0.00	0.24	0.00	0.15	0.08	0.00	0.14	0.43	0.27
dissolved/total P	0.30	0.00	0.31	0.60	0.30	0.34	0.60	0.60	0.60	0.60	0.60	0.60	0.00	0.30	0.00	0.38	0.00	0.35	0.00	0.52	0.60	0.00	0.55	0.30	0.37
runoff TSS conc	140.00	0.00	142.24	216.00	140.00	158.41	216.00	216.00	216.00	216.00	216.00	216.00	0.00	140.00	0.00	159.64	0.00	153.50	0.00	195.67	216.00	0.00	202.12	140.00	157.25
POND TSS BUDGETS.....																								
runoff	1283.88	0.00	802.41	1.24	2178.04	72414.19	1.24	1.24	1.24	1.24	1.24	1.24	0.00	965.24	0.00	2543.30	0.00	2406.38	0.00	14234.03	1.24	0.00	9812.15	2686.64	33766.14
upstream pond	0.00	0.00	0.00	80.24	0.00	30745.66	36105.95	33270.20	29350.16	22432.86	15383.38	14780.23	0.00	0.00	0.00	250.96	0.00	0.00	0.00	16316.80	23349.56	0.00	18226.28	0.00	28307.10
total inflow	**1283.88**	**0.00**	**802.41**	**81.48**	**2178.04**	**103159.85**	**36107.19**	**33271.44**	**29351.40**	**22434.10**	**15384.62**	**14781.47**	**0.00**	**965.24**	**0.00**	**2794.26**	**0.00**	**2406.38**	**0.00**	**30550.82**	**23350.80**	**0.00**	**28038.43**	**2686.64**	**62073.24**
p removal efficiency (no inf)	57.00	5.00	54.00	31.00	50.00	39.00	4.00	6.00	12.00	16.00	2.00	3.00	5.00	47.00	5.00	45.00	5.00	0.00	5.00	12.00	13.00	5.00	0.00	54.00	0.00
tss removal efficiency (no inf)	93.00	9.82	90.00	57.63	81.00	65.00	7.86	11.79	23.57	31.43	3.93	5.89	9.82	74.00	9.82	70.00	9.82	0.00	9.82	23.57	25.54	9.82	0.00	90.00	0.00
net sedimentation	1194.01	0.00	722.17	46.95	1764.21	67053.90	2836.99	3921.28	6918.54	7050.72	604.40	871.05	0.00	714.28	0.00	1955.98	0.00	0.00	0.00	7201.27	5962.79	0.00	0.00	2417.98	0.00
outflow	89.87	0.00	80.24	34.53	413.83	36105.95	33270.20	29350.16	22432.86	15383.38	14780.23	13910.42	0.00	250.96	0.00	838.28	0.00	2406.38	0.00	23349.56	17388.01	0.00	28038.43	268.66	62073.24
tss removal efficiency (inf)	93.00	9.82	90.00	57.63	81.00	65.00	7.86	11.79	23.57	31.43	3.93	5.89	9.82	74.00	9.82	70.00	9.82	0.00	9.82	23.57	25.54	9.82	0.00	90.00	0.00
upstream watershed tss load	1283.88	0.00	802.41	803.65	2178.04	248497.85	248499.09	248500.33	248501.57	248502.81	248504.05	248505.29	0.00	965.24	0.00	3508.54	0.00	2406.38	0.00	265145.70	265146.94	0.00	278467.63	2686.64	314920.42
tss total removal efficiency	93.00	9.82	90.00	95.70	81.00	85.47	86.61	88.19	90.97	93.81	94.05	94.40	9.82	74.00	9.82	76.11	9.82	0.00	9.82	91.19	93.44	9.82	89.93	90.00	80.29
INFILTRATION BMP/POND.....																								
Annual runoff infiltrated	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Adjusted outflow	**3.38**	**0.00**	**2.11**	**2.11**	**5.74**	**584.50**	**584.50**	**584.50**	**584.50**	**584.51**	**584.51**	**584.51**	**0.00**	**2.54**	**0.00**	**8.96**	**0.00**	**6.15**	**0.00**	**621.58**	**621.58**	**0.00**	**651.21**	**7.08**	**744.11**
Adjusted TP outflow	**1.42**	**0.00**	**0.93**	**0.65**	**2.78**	**223.02**	**214.61**	**203.86**	**180.19**	**152.68**	**150.01**	**146.17**	**0.00**	**1.30**	**0.00**	**3.96**	**0.00**	**6.25**	**0.00**	**158.03**	**138.46**	**0.00**	**159.39**	**3.69**	**249.58**
Adjusted TSS outflow	**89.87**	**0.00**	**80.24**	**34.53**	**413.83**	**36105.95**	**33270.20**	**29350.16**	**22432.86**	**15383.38**	**14780.23**	**13910.42**	**0.00**	**250.96**	**0.00**	**838.28**	**0.00**	**2406.38**	**0.00**	**23349.56**	**17388.01**	**0.00**	**28038.43**	**268.66**	**62073.24**
POND P BUDGETS W/O P-BAN.																								
runoff	3.22	0.00	2.00	0.00	5.46	180.09	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.43	0.00	5.88	0.00	6.58	0.00	27.07	0.00	0.00	18.67	8.66	96.52
Adjusted TP outflow	**1.42**	**0.00**	**0.93**	**0.65**	**2.78**	**224.28**	**215.78**	**204.91**	**181.03**	**153.30**	**150.60**	**146.73**	**0.00**	**1.30**	**0.00**	**3.96**	**0.00**	**6.58**	**0.00**	**159.72**	**139.77**	**0.00**	**162.40**	**4.04**	**262.96**
upstream pond	0.00	0.00	0.00	0.93	0.00	185.89	224.28	215.78	204.91	181.03	153.30	150.60	0.00	0.00	0.00	1.30	0.00	0.00	0.00	153.32	159.72	0.00	143.73	0.00	166.45
total inflow	**3.22**	**0.00**	**2.00**	**0.93**	**5.46**	**365.98**	**224.28**	**215.78**	**204.91**	**181.03**	**153.30**	**150.60**	**0.00**	**2.43**	**0.00**	**7.18**	**0.00**	**6.58**	**0.00**	**180.39**	**159.72**	**0.00**	**162.40**	**8.66**	**262.96**
outflow	1.42	0.00	0.93	0.65	2.78	224.28	215.78	204.91	181.03	153.30	150.60	146.73	0.00	1.30	0.00	3.96	0.00	6.58	0.00	159.72	139.77	0.00	162.40	4.04	262.96
inflow phos conc	350.02	409.24	349.13	161.90	350.02	230.37	141.17	135.82	128.98	113.95	96.49	94.80	409.24	351.79	409.24	294.91	409.24	394.12	409.24	106.77	94.54	409.24	91.75	450.02	130.02
outflow phos conc	153.91	392.86	161.86	113.08	178.42	141.17	135.82	128.98	113.95	96.49	94.80	92.36	392.86	187.56	392.86	162.80	392.86	394.09	392.86	94.54	82.73	392.86	91.75	210.10	130.02
p reaction rate	2.90	0.04	2.50	0.62	1.89	1.03	0.04	0.06	0.15	0.21	0.02	0.03	0.04	1.64	0.04	1.47	0.04	0.00	0.04	0.15	0.16	0.04	0.00	2.45	0.00
1-rp	0.44	0.96	0.46	0.70	0.51	0.61	0.96	0.95	0.88	0.85	0.98	0.97	0.96	0.53	0.96	0.55	0.96	1.00	0.96	0.89	0.88	0.96	1.00	0.47	1.00
runoff total p conc	350.00	0.00	347.97	200.00	350.00	357.11	200.00	200.00	200.00	200.00	200.00	200.00	0.00	351.96	0.00	311.25	0.00	376.32	0.00	252.21	200.00	0.00	245.02	450.00	380.28

Rochester Loading Assessment																					
Silver Creek																					
363-06-158-2																					
Baseline (1988) LOADS																					
		sc-a1.2	**sc-a1.3a**	**sc-a1.5c**	**sc-a1.5a**	**sc-a1.6e**	**sc-a1.6d**	**sc-a1.6c**	**sc-a1.6b**	**sc-a1.6a**	**sc-a1.8b**	**sc-a1.8a**	**sc-a1.9a**	**sc-a1.9b**	**sc-a1.11b**	**sc-a1.11a**	**sc-a1.10**	**sc-a1.12g**	**sc-a1.12f**	**sc-a1.12e**	**sc-a1.12d**	**sc-a1.12c**
Routed TO:		sc-a1.3a	sc-a1.6a	sc-a1.5a	sc-a1.6a	sc-a1.6d	sc-a1.6b	sc-a1.6a	sc-a1.6a	sc-a1.10	sc-a1.8a	sc-a1.9b	sc-a1.9b	sc-a1.10	sc-a1.11a	sc-a1.10	sc-a1.13	sc-a1.12c	sc-a1.12d	sc-a1.12d	sc-a1.12c	sc-a1.12a
INPUT VARIABLES....	UNITS																				
case label	-																				
Watershed area	acres	201.1	22.6	9.1	7.6	30.8	122.2	90.9	35.7	102.0	10.1	118.5	23.4	2.5	73.6	94.0	276.2	34.4	26.5	13.4	12.4	105.5
basin area	acres	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.20	0.00
basin volume	acre-ft	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.80	0.00
Row Crop Agriculture		45%	75%	0%	0%	5%	6%	75%	47%	33%	52%	43%	66%	71%	51%	32%	29%	78%	51%	37%	4%	17%
Very Low Density Residential		0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	2%	2%	2%	0%	0%	0%	0%
Low Density Residential		0%	0%	0%	0%	0%	0%	0%	0%	0%	9%	4%	8%	0%	0%	0%	0%	0%	0%	0%	2%	1%
Medium Density Residential		0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	1%	0%	0%	0%	0%	0%
High Density Residential		0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Commercial/Industrial		0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	2%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Institutional		0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	1%	0%	0%	0%	0%	0%
Open Space		55%	25%	100%	100%	95%	93%	24%	53%	63%	39%	42%	25%	29%	49%	49%	60%	0%	44%	47%	94%	75%
Golf Course		0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Pits and Quarries		0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	1%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Right-of-Way		0%	0%	0%	0%	0%	0%	1%	0%	4%	0%	8%	1%	0%	0%	17%	7%	20%	5%	16%	0%	8%
WATERSHED-WIDE ACCOUNTING.....																						
tributary land area	ac	201.07	223.64	9.14	16.77	30.82	153.01	90.94	188.71	622.02	10.06	128.52	23.38	154.39	73.57	167.61	1220.18	34.44	26.52	13.44	52.34	192.24
tributary water area	ac	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.20	0.20
direct and ponded area	ac	201.07	223.64	9.14	16.77	30.82	153.01	90.94	188.71	622.02	10.06	128.52	23.38	154.39	73.57	167.61	1220.18	34.44	26.52	13.44	52.54	192.44
ASSUMED EXPORT FACTORS.....																						
season length	yrs	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
season precipitation	inches	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8
runoff total p	ppb	353.0027789	454.8527876	200.0020687	200.0024751	216.4483313	222.9518194	455.8530133	360.5698731	319.8923448	398.6690953	373.7258933	447.309594	441.4070775	372.3892889	346.3907418	318.5495036	508.2782376	383.6245262	357.3691154	220.2764303	275.3842393
runoff ortho p/total p	-	0.420031687	0.300172936	0.599996935	0.599996333	0.580648835	0.572711867	0.29857162	0.411094105	0.456478191	0.365765452	0.381569468	0.307626934	0.315989352	0.397188994	0.418574799	0.455907095	0.225892342	0.380523269	0.40450853	0.576026575	0.506320003
unit runoff	in/yr	3.402431667	3.974190498	2.544052663	2.544063008	2.636316335	2.695359025	4.013297591	3.445090855	3.411800837	3.899319049	4.230031316	4.233983178	3.898870769	3.511413225	4.205127119	3.675768972	5.286133801	3.846427819	4.243639719	2.714078657	3.374955596
unit export	lbs/ac-y	0.31	0.44	0.12	0.12	0.14	0.15	0.44	0.32	0.28	0.39	0.40	0.45	0.42	0.33	0.37	0.30	0.59	0.37	0.38	0.15	0.24
POND WATER BUDGETS.....																						
runoff	ac-ft/yr	57.01	7.47	1.94	1.62	6.77	27.45	30.41	10.25	28.99	3.27	41.76	8.25	0.81	21.53	32.95	84.59	15.17	8.50	4.75	2.80	29.66
upstream pond	ac-ft/yr	0.00	57.01	0.00	1.94	0.00	6.77	0.00	34.22	142.92	0.00	3.27	0.00	53.28	0.00	21.53	280.47	0.00	0.00	0.00	13.25	31.23
total inflow	**ac-ft/yr**	**57.01**	**64.49**	**1.94**	**3.56**	**6.77**	**34.22**	**30.41**	**44.46**	**171.91**	**3.27**	**45.03**	**8.25**	**54.08**	**21.53**	**54.48**	**365.07**	**15.17**	**8.50**	**4.75**	**16.05**	**60.88**
outflow	ac-ft/yr	57.01	64.49	1.94	3.56	6.77	34.22	30.41	44.46	171.91	3.27	45.03	8.25	54.08	21.53	54.48	365.07	15.17	8.50	4.75	16.05	60.88
POND PHOSPHORUS BUDGETS.....																						
runoff	lbs/yr	62.01	9.86	1.05	0.88	4.19	17.85	40.11	11.35	28.85	3.91	46.86	10.63	1.04	24.49	34.76	83.70	20.27	9.81	5.14	1.81	25.80
upstream pond	lbs/yr	0.00	62.01	0.00	1.05	0.00	4.19	0.00	22.05	147.32	0.00	3.91	0.00	61.39	0.00	24.49	297.85	0.00	0.00	0.00	14.94	30.08
total inflow	**lbs/yr**	**62.01**	**71.88**	**1.05**	**1.93**	**4.19**	**22.05**	**40.11**	**33.40**	**176.16**	**3.91**	**50.77**	**10.63**	**62.44**	**24.49**	**59.25**	**381.55**	**20.27**	**9.81**	**5.14**	**16.75**	**55.89**
net sedimentation	lbs/yr	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.93	0.00
outflow	lbs/yr	62.01	71.87	1.05	1.93	4.19	22.05	40.11	33.40	176.16	3.91	50.77	10.63	62.44	24.49	59.25	381.55	20.27	9.81	5.14	9.82	55.89
p removal efficiency	%	0.00	0.00	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.02	0.00	0.01	0.00	0.00	0.00	0.00	0.01	0.01	0.01	41.39	0.00
upstream w-shed p load	lbs/yr	62.01	71.88	1.05	1.93	4.19	22.05	40.11	33.40	176.17	3.91	50.77	10.63	62.44	24.49	59.25	381.56	20.27	9.81	5.14	16.75	62.83
total removal %	%	0.00	0.00	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.02	0.00	0.01	0.01	0.00	0.00	0.00	0.01	0.01	0.01	41.40	11.04
HYDRAULIC PARAMETERS.....																						
pond mean depth	feet	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	4.00	1.00
relative volume	inches	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	9.09	0.00
residence time	years	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.00
residence time	days	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	18.19	0.00
overflow rate	ft/yr	5701088.42	6448537.27	193689.33	355578.66	677117.86	3421736.37	3041413.37	4446481.22	17190792.52	326993.00	4502775.57	824852.96	5408305.59	2152791.56	5448247.01	36506730.42	1517256.08	850031.06	475290.48	80.26	6088455.09
inflow phos conc	ppb	400.19	410.08	200.02	200.01	227.79	237.05	485.26	276.34	377.03	439.48	414.82	474.06	424.75	418.59	400.12	384.53	491.49	424.52	397.68	383.93	337.73
outflow phos conc	ppb	400.19	410.07	200.00	200.00	227.78	237.05	485.25	276.34	377.03	439.39	414.81	474.01	424.74	418.58	400.11	384.53	491.45	424.49	397.63	225.01	337.72
p reaction rate	-	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.21	0.00
1-rp	-	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.59	1.00
vlawmo pond volume	acre-ft	4.48	0.59	0.15	0.13	0.53	2.16	2.39	0.81	2.28	0.26	3.28	0.65	0.06	1.69	2.59	6.65	1.19	0.67	0.37	0.22	2.33
LAND USE PARAMETERS.....																						
runoff total P conc	ppb	353.00	454.85	200.00	200.00	216.45	222.95	455.85	360.57	319.89	398.67	373.73	447.31	441.41	372.39	346.39	318.55	508.28	383.62	357.37	220.28	275.38
runoff coefficient		0.11	0.12	0.08	0.08	0.08	0.08	0.13	0.11	0.11	0.12	0.13	0.13	0.12	0.11	0.13	0.12	0.17	0.12	0.13	0.09	0.11
dissolved/total P		0.42	0.30	0.60	0.60	0.58	0.57	0.30	0.41	0.46	0.37	0.38	0.31	0.32	0.40	0.42	0.46	0.23	0.38	0.40	0.58	0.51
runoff TSS conc	ppm	192.16	176.27	216.00	216.00	213.44	212.22	175.82	190.97	195.60	181.85	180.87	173.78	178.37	189.13	186.21	193.90	159.45	184.99	184.30	212.09	200.59
POND TSS BUDGETS.....																						
runoff	lbs/yr	28552.47	3473.80	1133.77	947.62	3884.12	15561.99	14085.47	5100.18	14588.30	1534.52	19204.46	3735.85	378.30	10613.87	15315.62	41473.89	6412.75	4044.14	2194.42	1580.23	15103.82
upstream pond	lbs/yr	0.00	28552.47	0.00	1133.77	0.00	3884.12	0.00	19446.10	72739.42	0.00	1534.52	0.00	24474.83	0.00	10613.87	138110.34	0.00	0.00	0.00	6238.56	8914.77
total inflow	**lbs/yr**	**28552.47**	**32026.27**	**1133.77**	**2081.39**	**3884.12**	**19446.10**	**14085.47**	**24546.28**	**87327.73**	**1534.52**	**20738.98**	**3735.85**	**24853.13**	**10613.87**	**25929.49**	**179584.23**	**6412.75**	**4044.14**	**2194.42**	**7818.80**	**24018.59**
p removal efficiency (no inf)	%	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	42.00	0.00
tss removal efficiency (no inf)	%	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	68.00	0.00
net sedimentation	lbs/yr	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5316.78	0.00
outflow	lbs/yr	28552.47	32026.27	1133.77	2081.39	3884.12	19446.10	14085.47	24546.28	87327.73	1534.52	20738.98	3735.85	24853.13	10613.87	25929.49	179584.23	6412.75	4044.14	2194.42	2502.01	24018.59
tss removal efficiency (inf)		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	68.00	0.00
upstream watershed tss load	lbs/yr	28552.47	32026.27	1133.77	2081.39	3884.12	19446.10	14085.47	24546.28	87327.73	1534.52	20738.98	3735.85	24853.13	10613.87	25929.49	179584.23	6412.75	4044.14	2194.42	7818.80	29335.37
tss total removal efficiency	%	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	68.00	18.12
INFILTRATION BMP/POND.....																						
Annual runoff infiltrated	%	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Adjusted outflow	**ac-ft/yr**	**57.01**	**64.49**	**1.94**	**3.56**	**6.77**	**34.22**	**30.41**	**44.46**	**171.91**	**3.27**	**45.03**	**8.25**	**54.08**	**21.53**	**54.48**	**365.07**	**15.17**	**8.50**	**4.75**	**16.05**	**60.88**
Adjusted TP outflow	**lbs/yr**	**62.01**	**71.87**	**1.05**	**1.93**	**4.19**	**22.05**	**40.11**	**33.40**	**176.16**	**3.91**	**50.77**	**10.63**	**62.44**	**24.49**	**59.25**	**381.55**	**20.27**	**9.81**	**5.14**	**9.82**	**55.89**
Adjusted TSS outflow	**lbs/yr**	**28552.47**	**32026.27**	**1133.77**	**2081.39**	**3884.12**	**19446.10**	**14085.47**	**24546.28**	**87327.73**	**1534.52**	**20738.98**	**3735.85**	**24853.13**	**10613.87**	**25929.49**	**179584.23**	**6412.75**	**4044.14**	**2194.42**	**2502.01**	**24018.59**

Rochester Loading Assessment				
Silver Creek				
363-06-158-2				
Baseline (1988) LOADS				
		sc-a1.12b	**sc-a1.12a**	**sc-a1.13**
Routed TO:		sc-a1.13	sc-a1.12b	zr-a4.1a
INPUT VARIABLES....	UNITS			
case label	-			
Watershed area	acres	138.4	176.9	587.4
basin area	acres	1.40	0.00	0.00
basin volume	acre-ft	5.60	0.00	0.00
Row Crop Agriculture		0%	7%	0%
Very Low Density Residential		0%	3%	0%
Low Density Residential		15%	17%	36%
Medium Density Residential		0%	2%	2%
High Density Residential		0%	0%	4%
Commercial/Industrial		0%	0%	8%
Institutional		0%	4%	11%
Open Space		83%	53%	33%
Golf Course		0%	0%	0%
Pits and Quarries		1%	0%	1%
Right-of-Way		1%	15%	5%
WATERSHED-WIDE ACCOUNTING.....				
tributary land area	ac	507.51	369.11	2315.04
tributary water area	ac	1.60	0.20	1.60
direct and ponded area	ac	509.11	369.31	2316.64
ASSUMED EXPORT FACTORS.....				
season length	yrs	1	1	1
season precipitation	inches	31.8	31.8	31.8
runoff total p	ppb	238.4449353	311.3092578	340.7780405
runoff ortho p/total p	-	0.5457668	0.45570353	0.39495344
unit runoff	in/yr	3.227073667	4.724248402	6.643527692
unit export	lbs/ac-y	0.21	0.39	0.57
POND WATER BUDGETS.....				
runoff	ac-ft/yr	37.22	69.63	325.17
upstream pond	ac-ft/yr	130.52	60.88	532.80
total inflow	**ac-ft/yr**	**167.73**	**130.52**	**857.98**
outflow	ac-ft/yr	167.73	130.52	857.98
POND PHOSPHORUS BUDGETS.....				
runoff	lbs/yr	28.87	68.56	337.34
upstream pond	lbs/yr	124.44	55.89	480.71
total inflow	**lbs/yr**	**153.31**	**124.45**	**818.05**
net sedimentation	lbs/yr	54.16	0.00	0.00
outflow	lbs/yr	99.16	124.44	818.05
p removal efficiency	%	35.32	0.00	0.00
upstream w-shed p load	lbs/yr	160.25	131.38	879.16
total removal %	%	38.12	5.28	6.95
HYDRAULIC PARAMETERS.....				
pond mean depth	feet	4.00	1.00	1.00
relative volume	inches	4.78	0.00	0.00
residence time	years	0.03	0.00	0.00
residence time	days	12.19	0.00	0.00
overflow rate	ft/yr	119.81	13051683.86	85797527.58
inflow phos conc	ppb	336.29	350.80	350.80
outflow phos conc	ppb	217.49	350.80	350.80
p reaction rate	-	0.84	0.00	0.00
1-rp	-	0.65	1.00	1.00
vlawmo pond volume	acre-ft	2.93	5.47	25.56
LAND USE PARAMETERS.....				
runoff total P conc	ppb	238.44	311.31	340.78
runoff coefficient		0.10	0.15	0.21
dissolved/total P		0.55	0.46	0.39
runoff TSS conc	ppm	201.69	183.73	163.27
POND TSS BUDGETS.....				
runoff	lbs/yr	19124.79	31027.86	131823.97
upstream pond	lbs/yr	55046.46	24018.59	207769.30
total inflow	**lbs/yr**	**74171.25**	**55046.46**	**339593.27**
p removal efficiency (no inf)	%	36.00	0.00	0.00
tss removal efficiency (no inf)	%	62.00	0.00	0.00
net sedimentation	lbs/yr	45986.17	0.00	0.00
outflow	lbs/yr	28185.07	55046.46	339593.27
tss removal efficiency (inf)		62.00	0.00	0.00
upstream watershed tss load	lbs/yr	79488.03	60363.24	390896.22
tss total removal efficiency	%	64.54	8.81	13.12
INFILTRATION BMP/POND.....				
Annual runoff infiltrated	%	0.00	0.00	0.00
Adjusted outflow	**ac-ft/yr**	**167.73**	**130.52**	**857.98**
Adjusted TP outflow	**lbs/yr**	**99.16**	**124.44**	**818.05**
Adjusted TSS outflow	**lbs/yr**	**28185.07**	**55046.46**	**339593.27**

Rochester Loading Assessment																						
Silver Creek																						
363-06-158-2																						
Present (2005) LOADS																						
		sc-a1.2	**sc-a1.3a**	**sc-a1.5c**	**sc-a1.5a**	**sc-a1.6e**	**sc-a1.6e cell 2**	**sc-a1.6d**	**sc-a1.6d cell 2**	**sc-a1.6c**	**sc-a1.6c cell 2**	**sc-a1.6b**	**sc-a1.6a**	**sc-a1.8b**	**sc-a1.8a**	**sc-a1.9a**	**sc-a1.9b**	**sc-a1.11b**	**sc-a1.11b cell 2**	**sc-a1.11a**	**sc-a1.10**	**sc-a1.12g**
Routed TO:		sc-a1.3a	sc-a1.6a	sc-a1.5a	sc-a1.6a	sc-a1.6e cell 2	sc-a1.6d	sc-a1.6d cell 2	sc-a1.6b	sc-a1.6c cell 2	sc-a1.6a	sc-a1.6a	sc-a1.10	sc-a1.8a	sc-a1.9b	sc-a1.9b	sc-a1.10	sc-a1.11b cell 2	sc-a1.11a	sc-a1.10	sc-a1.13	sc-a1.12g cell 2
INPUT VARIABLES....	UNITS																					
case label	-																					
Watershed area	acres	94.8	22.6	8.9	7.6	30.6	0.0	121.3	0.0	89.6	0.0	35.7	102.0	10.0	118.5	23.4	2.5	72.8	0.0	94.0	276.2	34.2
basin area	acres	106.24	0.00	0.26	0.00	0.11	0.48	0.75	0.56	0.50	0.78	0.00	0.00	0.05	0.00	0.00	0.00	0.11	0.63	0.00	0.00	0.50
basin volume	acre-ft	920.82	0.00	1.18	0.00	0.61	2.67	2.70	2.01	2.36	3.67	0.00	0.00	0.20	0.00	0.00	0.00	0.85	4.78	0.00	0.00	1.58
Row Crop Agriculture		0%	0%	0%	0%	5%	0%	4%	0%	73%	0%	47%	32%	6%	39%	66%	1%	18%	0%	14%	27%	0%
Very Low Density Residential		0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	11%	0%	0%	0%	0%	3%	0%
Low Density Residential		0%	0%	85%	47%	37%	0%	42%	0%	2%	0%	0%	1%	55%	9%	8%	3%	59%	0%	4%	0%	0%
Medium Density Residential		0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	1%	0%
High Density Residential		0%	0%	0%	0%	0%	0%	1%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Commercial/Industrial		0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	2%	0%	0%	0%	0%	0%	3%	0%
Institutional		0%	0%	1%	0%	39%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	79%
Open Space		100%	100%	14%	53%	19%	100%	52%	100%	24%	100%	53%	63%	39%	40%	13%	97%	23%	100%	67%	59%	1%
Golf Course		0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Pits and Quarries		0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	1%	0%	0%	0%	0%	0%	0%	0%
Right-of-Way		0%	0%	0%	0%	0%	0%	0%	0%	1%	0%	0%	4%	0%	8%	1%	0%	0%	0%	15%	7%	20%
WATERSHED-WIDE ACCOUNTING.....																						
tributary land area	ac	94.83	117.40	8.88	16.51	30.62	30.63	151.88	151.89	89.61	89.62	187.58	513.06	10.02	128.48	23.38	154.34	72.82	72.83	166.87	1110.44	34.16
tributary water area	ac	106.24	106.24	0.26	0.26	0.11	0.59	1.34	1.89	0.50	1.28	1.89	109.67	0.05	0.05	0.00	0.05	0.11	0.74	0.74	110.46	0.50
direct and ponded area	ac	201.07	223.64	9.14	16.77	30.73	31.22	153.21	153.78	90.11	90.90	189.47	622.73	10.07	128.53	23.38	154.39	72.93	73.57	167.61	1220.90	34.66
ASSUMED EXPORT FACTORS.....																						
season length	yrs	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
season precipitation	inches	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8
runoff total p	ppb	200.14	200.00	413.92	316.80	368.65	200.00	322.50	200.00	455.16	200.00	360.57	318.97	358.21	374.62	464.20	209.08	409.32	200.00	288.85	317.36	358.67
runoff ortho p/total p	-	0.60	0.60	0.34	0.46	0.35	0.60	0.45	0.60	0.30	0.60	0.41	0.46	0.41	0.38	0.30	0.59	0.35	0.60	0.49	0.46	0.30
unit runoff	in/yr	2.54	2.54	6.16	4.51	7.01	2.54	4.55	2.54	4.05	2.54	3.45	3.43	4.97	4.42	4.28	2.67	5.36	2.54	3.94	3.98	9.47
unit export	lbs/ac-y	0.12	0.12	0.61	0.38	0.61	0.12	0.39	0.12	0.44	0.12	0.32	0.28	0.46	0.41	0.47	0.13	0.53	0.12	0.30	0.33	0.77
POND WATER BUDGETS.....																						
runoff	ac-ft/yr	20.11	4.78	4.56	2.87	17.90	0.00	46.00	0.00	30.27	0.00	10.25	29.11	4.15	43.65	8.34	0.55	32.55	0.00	30.84	91.64	26.95
upstream pond	ac-ft/yr	0.00	20.11	0.00	4.56	0.00	17.90	17.90	63.90	0.00	30.27	63.90	136.74	0.00	4.15	0.00	56.14	0.00	32.55	32.56	285.94	0.00
total inflow	**ac-ft/yr**	**20.11**	**24.89**	**4.56**	**7.43**	**17.90**	**17.90**	**63.90**	**63.90**	**30.27**	**30.27**	**74.15**	**165.85**	**4.15**	**47.80**	**8.34**	**56.70**	**32.55**	**32.56**	**63.39**	**377.58**	**26.95**
outflow	ac-ft/yr	20.11	24.89	4.56	7.43	17.90	17.90	63.90	63.90	30.27	30.27	74.15	165.85	4.15	47.80	8.34	56.70	32.55	32.56	63.39	377.58	26.95
POND PHOSPHORUS BUDGETS.....																						
runoff	lbs/yr	10.95	2.60	5.38	2.92	18.57	0.00	47.47	0.00	39.81	0.00	11.35	28.91	4.57	48.96	10.95	0.33	38.63	0.00	28.49	89.87	26.29
upstream pond	lbs/yr	0.00	4.40	0.00	1.89	0.00	9.93	5.68	32.34	0.00	15.41	24.81	57.51	0.00	2.39	0.00	62.29	0.00	20.84	10.89	188.43	0.00
total inflow	**lbs/yr**	**10.95**	**7.00**	**5.38**	**4.81**	**18.57**	**9.93**	**53.15**	**32.34**	**39.81**	**15.41**	**36.16**	**86.42**	**4.57**	**51.35**	**10.95**	**62.62**	**38.63**	**20.84**	**39.38**	**278.30**	**26.29**
net sedimentation	lbs/yr	6.54	0.00	3.49	0.00	8.64	4.25	20.81	7.53	24.40	5.88	0.00	0.00	2.18	0.00	0.00	0.00	17.79	9.95	0.00	0.00	13.45
outflow	lbs/yr	4.40	7.00	1.89	4.81	9.93	5.68	32.34	24.81	15.41	9.53	36.16	86.42	2.39	51.35	10.95	62.62	20.84	10.89	39.38	278.30	12.85
p removal efficiency	%	59.79	0.00	64.90	0.00	46.52	42.82	39.16	23.28	61.29	38.15	0.00	0.00	47.72	0.00	0.01	0.00	46.05	47.75	0.00	0.00	51.15
upstream w-shed p load	lbs/yr	10.95	13.55	5.38	8.31	18.57	18.57	66.04	66.04	39.81	39.81	77.39	167.97	4.57	53.53	10.95	64.81	38.63	38.63	67.12	389.77	26.29
total removal %	%	59.79	48.31	64.90	42.08	46.52	69.42	51.03	62.43	61.29	76.05	53.27	48.55	47.72	4.07	0.01	3.37	46.05	71.81	41.33	28.60	51.15
HYDRAULIC PARAMETERS.....																						
pond mean depth	feet	8.67	1.00	4.54	1.00	5.56	5.56	3.62	3.61	4.70	4.70	1.00	1.00	4.00	1.00	1.00	1.00	7.58	7.58	1.00	1.00	3.16
relative volume	inches	1456.11	0.00	8.23	0.00	1.08	40110.00	1.86	30075.00	2.47	54975.00	0.00	0.00	1.53	0.00	0.00	0.00	0.83	71715.00	0.00	0.00	1.86
residence time	years	45.79	0.00	0.26	0.00	0.03	0.15	0.04	0.03	0.08	0.12	0.00	0.00	0.05	0.00	0.00	0.00	0.03	0.15	0.00	0.00	0.06
residence time	days	16713.21	0.00	94.47	0.00	12.36	54.53	15.39	11.45	28.40	44.19	0.00	0.00	17.60	0.00	0.00	0.00	9.52	53.60	0.00	0.00	21.36
overflow rate	ft/yr	0.19	2489469.59	17.53	742677.85	164.19	37.21	85.77	115.13	60.42	38.86	7414580.91	16585144.40	82.97	4779855.11	834476.65	5669591.67	290.66	51.59	6339424.59	37758431.36	53.91
inflow phos conc	ppb	200.26	103.49	434.50	238.34	381.65	204.09	306.03	186.19	483.86	187.32	179.43	191.71	405.14	395.22	482.68	406.39	436.55	235.52	228.57	271.17	358.92
outflow phos conc	ppb	80.52	103.49	152.49	238.33	204.09	116.69	186.19	142.85	187.32	115.86	179.43	191.71	211.81	395.22	482.63	406.38	235.52	123.06	228.57	271.17	175.35
p reaction rate	-	3.70	0.00	5.27	0.00	1.63	1.31	1.06	0.40	4.09	1.00	0.00	0.00	1.75	0.00	0.00	0.00	1.58	1.75	0.00	0.00	2.14
1-rp	-	0.40	1.00	0.35	1.00	0.53	0.57	0.61	0.77	0.39	0.62	1.00	1.00	0.52	1.00	1.00	1.00	0.54	0.52	1.00	1.00	0.49
vlawmo pond volume	acre-ft	1.58	0.38	0.36	0.23	1.41	0.00	3.62	0.00	2.38	0.00	0.81	2.29	0.33	3.43	0.66	0.04	2.56	0.00	2.42	7.20	2.12
LAND USE PARAMETERS.....																						
runoff total P conc	ppb	200.14	200.00	413.92	316.80	368.65	200.00	322.50	200.00	455.16	200.00	360.57	318.97	358.21	374.62	464.20	209.08	409.32	200.00	288.85	317.36	358.67
runoff coefficient		0.08	0.08	0.19	0.14	0.22	0.08	0.14	0.08	0.13	0.08	0.11	0.11	0.16	0.14	0.13	0.08	0.17	0.08	0.12	0.13	0.30
dissolved/total P		0.60	0.60	0.34	0.46	0.35	0.60	0.45	0.60	0.30	0.60	0.41	0.46	0.41	0.38	0.30	0.59	0.35	0.60	0.49	0.46	0.30
runoff TSS conc	ppm	215.98	216.00	150.80	180.49	155.41	216.00	180.68	216.00	175.37	216.00	190.97	195.48	170.99	178.74	173.78	213.58	161.61	216.00	193.80	192.99	140.90
POND TSS BUDGETS.....																						
runoff	lbs/yr	11769.38	2800.88	1784.78	1265.71	7075.22	1.24	20332.22	1.24	13957.83	1.24	5100.18	14620.10	1758.28	19736.73	3792.01	314.80	13386.20	1.24	14738.22	43968.41	10242.43
upstream pond	lbs/yr	0.00	823.86	0.00	124.93	0.00	1839.56	576.78	7109.06	0.00	977.05	3758.30	14216.27	0.00	421.99	0.00	23950.73	0.00	3480.41	835.60	68675.71	0.00
total inflow	**lbs/yr**	**11769.38**	**3624.74**	**1784.78**	**1390.65**	**7075.22**	**1840.80**	**20909.00**	**7110.30**	**13957.83**	**978.29**	**8858.48**	**28836.36**	**1758.28**	**20158.72**	**3792.01**	**24265.53**	**13386.20**	**3481.65**	**15573.81**	**112644.12**	**10242.43**
p removal efficiency (no inf)	%	60.00	0.00	65.00	0.00	47.00	43.00	40.00	24.00	62.00	39.00	0.00	0.00	48.00	0.00	0.00	0.00	47.00	48.00	0.00	0.00	52.00
tss removal efficiency (no inf)	%	93.00	0.00	93.00	0.00	74.00	68.67	66.00	47.14	93.00	65.00	0.00	0.00	76.00	0.00	0.00	0.00	74.00	76.00	0.00	0.00	85.00
net sedimentation	lbs/yr	10945.52	0.00	1659.85	0.00	5235.66	1264.01	13799.94	3352.00	12980.78	635.89	0.00	0.00	1336.29	0.00	0.00	0.00	9905.79	2646.06	0.00	0.00	8706.07
outflow	lbs/yr	823.86	3624.74	124.93	1390.65	1839.56	576.78	7109.06	3758.30	977.05	342.40	8858.48	28836.36	421.99	20158.72	3792.01	24265.53	3480.41	835.60	15573.81	112644.12	1536.36
tss removal efficiency (inf)	%	93.00	0.00	93.00	0.00	74.00	68.67	66.00	47.14	93.00	65.00	0.00	0.00	76.00	0.00	0.00	0.00	74.00	76.00	0.00	0.00	85.00
upstream watershed tss load	lbs/yr	11769.38	14570.26	1784.78	3050.49	7075.22	7076.46	27408.68	27409.92	13957.83	13959.07	32510.10	78710.02	1758.28	21495.01	3792.01	25601.82	13386.20	13387.44	28125.66	176405.91	10242.43
tss total removal efficiency	%	93.00	75.12	93.00	54.41	74.00	91.85	74.06	86.29	93.00	97.55	72.75	63.36	76.00	6.22	0.00	5.22	74.00	93.76	44.63	36.14	85.00
INFILTRATION BMP/POND.....																						
Annual runoff infiltrated	%	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Adjusted outflow	**ac-ft/yr**	**20.11**	**24.89**	**4.56**	**7.43**	**17.90**	**17.90**	**63.90**	**63.90**	**30.27**	**30.27**	**74.15**	**165.85**	**4.15**	**47.80**	**8.34**	**56.70**	**32.55**	**32.56**	**63.39**	**377.58**	**26.95**
Adjusted TP outflow	**lbs/yr**	**4.40**	**7.00**	**1.89**	**4.81**	**9.93**	**5.68**	**32.34**	**24.81**	**15.41**	**9.53**	**36.16**	**86.42**	**2.39**	**51.35**	**10.95**	**62.62**	**20.84**	**10.89**	**39.38**	**278.30**	**12.85**
Adjusted TSS outflow	**lbs/yr**	**823.86**	**3624.74**	**124.93**	**1390.65**	**1839.56**	**576.78**	**7109.06**	**3758.30**	**977.05**	**342.40**	**8858.48**	**28836.36**	**421.99**	**20158.72**	**3792.01**	**24265.53**	**3480.41**	**835.60**	**15573.81**	**112644.12**	**1536.36**

Rochester Loading Assessment										
Silver Creek										
363-06-158-2										
Present (2005) LOADS										
		sc-a1.12g cell 2	**sc-a1.12g cell 3**	**sc-a1.12f**	**sc-a1.12e**	**sc-a1.12d**	**sc-a1.12c**	**sc-a1.12b**	**sc-a1.12a**	**sc-a1.13**
Routed TO:		sc-a1.12g cell 3	sc-a1.12c	sc-a1.12d	sc-a1.12d	sc-a1.12c	sc-a1.12a	sc-a1.13	sc-a1.12b	zr-a4.1a
INPUT VARIABLES....	UNITS									
case label	-									
Watershed area	acres	0.0	0.0	26.4	13.4	12.4	104.5	138.4	176.8	587.6
basin area	acres	0.60	0.90	0.07	0.05	0.20	0.96	1.40	0.00	0.00
basin volume	acre-ft	1.89	2.84	0.13	0.09	0.80	2.95	5.60	0.00	0.00
Row Crop Agriculture		0%	0%	0%	0%	0%	0%	0%	0%	0%
Very Low Density Residential		0%	0%	0%	0%	0%	0%	0%	3%	0%
Low Density Residential		0%	0%	50%	0%	19%	36%	15%	30%	36%
Medium Density Residential		0%	0%	0%	0%	0%	0%	0%	2%	2%
High Density Residential		0%	0%	39%	52%	12%	0%	0%	0%	3%
Commercial/Industrial		0%	0%	0%	0%	0%	0%	0%	0%	9%
Institutional		0%	0%	0%	0%	0%	0%	0%	6%	10%
Open Space		100%	100%	6%	32%	69%	57%	83%	45%	35%
Golf Course		0%	0%	0%	0%	0%	0%	0%	0%	0%
Pits and Quarries		0%	0%	0%	0%	0%	0%	0%	0%	0%
Right-of-Way		0%	0%	5%	16%	0%	8%	1%	15%	5%
WATERSHED-WIDE ACCOUNTING.....										
tributary land area	ac	34.17	34.18	26.44	13.39	52.21	190.89	506.13	367.73	2204.13
tributary water area	ac	1.10	2.00	0.07	0.05	0.32	3.28	4.68	3.28	115.14
direct and ponded area	ac	35.27	36.18	26.51	13.44	52.53	194.17	510.81	371.01	2319.27
ASSUMED EXPORT FACTORS.....										
season length	yrs	1	1	1	1	1	1	1	1	1
season precipitation	inches	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8
runoff total p	ppb	200.00	200.00	433.35	361.62	277.31	304.64	240.80	322.31	341.97
runoff ortho p/total p	-	0.60	0.60	0.32	0.40	0.51	0.47	0.55	0.44	0.40
unit runoff	in/yr	2.54	2.54	9.31	9.27	4.67	4.52	3.26	5.31	6.65
unit export	lbs/ac-y	0.12	0.12	0.94	0.88	0.38	0.37	0.21	0.45	0.57
POND WATER BUDGETS.....										
runoff	ac-ft/yr	0.00	0.00	20.52	10.34	4.81	39.39	37.59	78.22	325.84
upstream pond	ac-ft/yr	26.95	26.96	0.00	0.00	30.86	62.63	180.24	102.02	595.42
total inflow	**ac-ft/yr**	**26.96**	**26.96**	**20.52**	**10.34**	**35.67**	**102.02**	**217.83**	**180.24**	**921.26**
outflow	ac-ft/yr	26.96	26.96	20.52	10.34	35.67	102.02	217.83	180.24	921.26
POND PHOSPHORUS BUDGETS.....										
runoff	lbs/yr	0.00	0.00	24.74	11.82	4.66	38.86	29.19	78.97	336.22
upstream pond	lbs/yr	12.85	9.09	0.00	0.00	27.45	28.76	126.60	47.63	390.59
total inflow	**lbs/yr**	**12.85**	**9.09**	**24.74**	**11.82**	**32.10**	**67.62**	**155.80**	**126.60**	**726.81**
net sedimentation	lbs/yr	3.75	2.43	6.17	2.94	10.01	19.99	43.51	0.00	0.00
outflow	lbs/yr	9.09	6.67	18.57	8.88	22.09	47.63	112.29	126.60	726.81
p removal efficiency	%	29.22	26.69	24.94	24.88	31.19	29.56	27.93	0.00	0.00
upstream w-shed p load	lbs/yr	26.30	26.30	24.74	11.82	41.21	106.37	214.54	185.34	940.53
total removal %	%	65.42	74.65	24.94	24.88	46.40	55.23	47.66	31.69	22.72
HYDRAULIC PARAMETERS.....										
pond mean depth	feet	3.16	3.16	1.90	1.86	4.00	3.07	4.00	1.00	1.00
relative volume	inches	28395.00	42592.50	0.21	0.29	5.29	2.38	4.74	0.00	0.00
residence time	years	0.07	0.11	0.01	0.01	0.02	0.03	0.03	0.00	0.00
residence time	days	25.63	38.45	2.37	3.28	8.19	10.55	9.38	0.00	0.00
overflow rate	ft/yr	44.93	29.95	293.08	206.87	178.36	106.27	155.59	18023944.01	92125846.36
inflow phos conc	ppb	175.35	124.12	443.69	420.37	331.12	243.84	263.14	258.43	290.26
outflow phos conc	ppb	124.12	90.99	333.04	315.78	227.84	171.76	189.66	258.43	290.26
p reaction rate	-	0.58	0.50	0.44	0.44	0.66	0.60	0.54	0.00	0.00
1-rp	-	0.71	0.73	0.75	0.75	0.69	0.70	0.72	1.00	1.00
vlawmo pond volume	acre-ft	0.00	0.00	1.61	0.81	0.38	3.10	2.96	6.15	25.62
LAND USE PARAMETERS.....										
runoff total P conc	ppb	200.00	200.00	433.35	361.62	277.31	304.64	240.80	322.31	341.97
runoff coefficient		0.08	0.08	0.29	0.29	0.15	0.14	0.10	0.17	0.21
dissolved/total P		0.60	0.60	0.32	0.40	0.51	0.47	0.55	0.44	0.40
runoff TSS conc	ppm	216.00	216.00	144.25	164.43	192.50	183.01	203.44	175.91	166.50
POND TSS BUDGETS.....										
runoff	lbs/yr	1.24	1.24	7848.16	4112.27	2199.47	17527.30	19306.16	33359.61	132578.01
upstream pond	lbs/yr	1536.36	665.01	0.00	0.00	6087.00	3751.79	42562.82	9203.21	140485.16
total inflow	**lbs/yr**	**1537.61**	**666.26**	**7848.16**	**4112.27**	**8286.48**	**21279.09**	**61868.98**	**42562.82**	**273063.17**
p removal efficiency (no inf)	%	30.00	27.00	25.00	25.00	32.00	30.00	28.00	0.00	0.00
tss removal efficiency (no inf)	%	56.75	53.04	49.11	49.11	58.50	56.75	55.00	0.00	0.00
net sedimentation	lbs/yr	872.59	353.35	3854.01	2019.42	4847.59	12075.89	34027.94	0.00	0.00
outflow	lbs/yr	665.01	312.90	3994.15	2092.85	3438.89	9203.21	27841.04	42562.82	273063.17
tss removal efficiency (inf)	%	56.75	53.04	49.11	49.11	58.50	56.75	55.00	0.00	0.00
upstream watershed tss load	lbs/yr	10243.67	10244.91	7848.16	4112.27	14159.90	41932.12	94597.89	75291.73	403581.81
tss total removal efficiency	%	93.51	96.95	49.11	49.11	75.71	78.05	70.57	43.47	32.34
INFILTRATION BMP/POND.....										
Annual runoff infiltrated	%	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Adjusted outflow	**ac-ft/yr**	**26.96**	**26.96**	**20.52**	**10.34**	**35.67**	**102.02**	**217.83**	**180.24**	**921.26**
Adjusted TP outflow	**lbs/yr**	**9.09**	**6.67**	**18.57**	**8.88**	**22.09**	**47.63**	**112.29**	**126.60**	**726.81**
Adjusted TSS outflow	**lbs/yr**	**665.01**	**312.90**	**3994.15**	**2092.85**	**3438.89**	**9203.21**	**27841.04**	**42562.82**	**273063.17**

Rochester Loading Assessment																								
Silver Creek																								
363-06-158-2																								
2020 LOADS																								
		future sc-a1.2	**sc-a1.2**	**future sc-a1.3a**	**sc-a1.3a**	**future sc-a1.5c**	**sc-a1.5c**	**future sc-a1.5a**	**sc-a1.5a**	**future sc-a1.6e**	**sc-a1.6e**	**sc-a1.6e cell 2**	**future sc-a1.6d**	**sc-a1.6d**	**sc-a1.6d cell 2**	**future sc-a1.6c**	**sc-a1.6c**	**sc-a1.6c cell 2**	**future sc-a1.6b**	**sc-a1.6b**	**future sc-a1.6a**	**sc-a1.6a**	**future sc-a1.8b**	**sc-a1.8b**	**future sc-a1.8a**
		sc-a1.2	sc-a1.3a	sc-a1.3a	sc-a1.6a	sc-a1.5c	sc-a1.5a	sc-a1.5a	sc-a1.6a	sc-a1.6e	sc-a1.6e cell 2	sc-a1.6d	sc-a1.6d	sc-a1.6d cell 2	sc-a1.6b	sc-a1.6c	sc-a1.6c cell 2	sc-a1.6a	sc-a1.6b	sc-a1.6a	sc-a1.6a	sc-a1.10	sc-a1.8b	sc-a1.8a	sc-a1.8a
INPUT VARIABLES....	UNITS																							
case label	-																							
Watershed area	acres	0.0	94.8	0.0	22.6	0.0	8.9	0.0	7.6	3.0	27.6	0.0	41.1	80.1	0.0	20.1	69.5	0.0	3.0	32.7	0.0	102.0	0.0	10.0	0.0
basin area	acres	0.00	106.24	0.00	0.00	0.00	0.26	0.00	0.00	0.04	0.11	0.48	0.36	0.75	0.56	0.25	0.50	0.78	0.04	0.00	0.00	0.00	0.00	0.05	0.00
basin volume	acre-ft	0.00	920.82	0.00	0.00	0.00	1.18	0.00	0.00	0.08	0.61	2.67	1.13	2.70	2.01	0.55	2.36	3.67	0.08	0.00	0.00	0.00	0.00	0.20	0.00
Row Crop Agriculture		0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	68%	0%	0%	52%	0%	32%	0%	6%	0%
Very Low Density Residential		0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Low Density Residential		0%	0%	0%	0%	0%	85%	0%	47%	100%	42%	0%	100%	63%	0%	100%	2%	0%	100%	0%	0%	1%	0%	55%	0%
Medium Density Residential		0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
High Density Residential		0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	2%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Commercial/Industrial		0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Institutional		0%	0%	0%	0%	0%	1%	0%	0%	0%	43%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Open Space		0%	100%	0%	100%	0%	14%	0%	53%	0%	15%	100%	0%	34%	100%	0%	29%	100%	0%	48%	0%	63%	0%	39%	0%
Golf Course		0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Pits and Quarries		0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Right-of-Way		0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	1%	0%	0%	1%	0%	0%	0%	0%	4%	0%	0%	0%
WATERSHED-WIDE ACCOUNTING.....																								
tributary land area	ac	0.00	94.83	0.00	117.40	0.00	8.88	0.00	16.51	3.03	30.61	30.62	41.14	151.87	151.88	20.10	89.61	89.62	2.99	187.58	0.00	513.06	0.00	10.02	0.00
tributary water area	ac	0.00	106.24	0.00	106.24	0.00	0.26	0.00	0.26	0.04	0.15	0.63	0.36	1.74	2.29	0.25	0.75	1.53	0.04	2.33	0.00	110.36	0.00	0.05	0.00
direct and ponded area	ac	0.00	201.07	0.00	223.64	0.00	9.14	0.00	16.77	3.07	30.76	31.26	41.50	153.61	154.17	20.35	90.35	91.14	3.03	189.91	0.00	623.42	0.00	10.07	0.00
ASSUMED EXPORT FACTORS.....																								
season length	yrs	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
season precipitation	inches	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80
runoff total p	ppb	0.00	200.14	0.00	200.00	0.00	364.05	0.00	289.47	391.50	344.55	200.00	391.50	326.69	200.00	391.50	438.27	200.00	391.50	375.23	0.00	318.56	0.00	326.06	0.00
runoff ortho p/total p	-	0.00	0.60	0.00	0.60	0.00	0.34	0.00	0.46	0.30	0.35	0.60	0.30	0.40	0.60	0.30	0.32	0.60	0.30	0.39	0.00	0.46	0.00	0.41	0.00
unit runoff	in/yr	0.00	2.54	0.00	2.54	0.00	6.16	0.00	4.51	6.74	7.40	2.54	6.74	5.47	2.54	6.74	3.99	2.54	6.74	3.53	0.00	3.43	0.00	4.97	0.00
unit export	lbs/ac-y	0.00	0.12	0.00	0.12	0.00	0.53	0.00	0.34	0.60	0.60	0.12	0.60	0.45	0.12	0.60	0.42	0.12	0.60	0.34	0.00	0.28	0.00	0.41	0.00
POND WATER BUDGETS.....																								
runoff	ac-ft/yr	0.00	20.11	0.00	4.78	0.00	4.56	0.00	2.87	1.70	17.02	0.00	23.12	36.50	0.00	11.30	23.10	0.00	1.68	9.61	0.00	29.11	0.00	4.15	0.00
upstream pond	ac-ft/yr	0.00	0.00	0.00	20.11	0.00	0.00	0.00	4.56	0.00	1.70	18.72	0.00	41.84	78.35	0.00	11.30	34.40	0.00	80.03	0.00	156.36	0.00	0.00	0.00
total inflow	**ac-ft/yr**	**0.00**	**20.11**	**0.00**	**24.89**	**0.00**	**4.56**	**0.00**	**7.43**	**1.70**	**18.72**	**18.72**	**23.12**	**78.35**	**78.35**	**11.30**	**34.40**	**34.40**	**1.68**	**89.64**	**0.00**	**185.47**	**0.00**	**4.15**	**0.00**
outflow	ac-ft/yr	0.00	20.11	0.00	24.89	0.00	4.56	0.00	7.43	1.70	18.72	18.72	23.12	78.35	78.35	11.30	34.40	34.40	1.68	89.64	0.00	185.47	0.00	4.15	0.00
POND PHOSPHORUS BUDGETS.....																								
runoff	lbs/yr	0.00	10.95	0.00	2.60	0.00	4.71	0.00	2.60	1.81	16.55	0.00	24.60	35.85	0.00	12.02	29.51	0.00	1.79	11.01	0.00	28.85	0.00	4.08	0.00
upstream pond	lbs/yr	0.00	0.00	0.00	4.40	0.00	0.00	0.00	1.74	0.00	0.95	9.73	0.00	17.75	34.57	0.00	6.19	15.86	0.00	28.84	0.00	61.44	0.00	0.00	0.00
total inflow	**lbs/yr**	**0.00**	**10.95**	**0.00**	**7.00**	**0.00**	**4.71**	**0.00**	**4.34**	**1.81**	**17.50**	**9.73**	**24.60**	**53.60**	**34.57**	**12.02**	**35.71**	**15.86**	**1.79**	**39.85**	**0.00**	**90.28**	**0.00**	**4.08**	**0.00**
net sedimentation	lbs/yr	0.00	6.54	0.00	0.00	0.00	2.97	0.00	0.00	0.86	7.78	4.02	12.56	19.03	6.67	5.83	19.85	5.62	0.85	0.00	0.00	0.00	0.00	1.87	0.00
outflow	lbs/yr	0.00	4.40	0.00	7.00	0.00	1.74	0.00	4.34	0.95	9.73	5.71	12.05	34.57	27.90	6.19	15.86	10.24	0.94	39.85	0.00	90.28	0.00	2.21	0.00
p removal efficiency	%	3.78	59.79	3.78	0.00	3.78	63.02	3.78	0.00	47.62	44.42	41.34	51.04	35.50	19.29	48.46	55.59	35.41	47.49	0.00	3.78	0.00	3.78	45.79	3.78
upstream w-shed p load	lbs/yr	0.00	10.95	0.00	13.55	0.00	4.71	0.00	7.31	1.81	18.37	18.37	24.60	78.82	78.82	12.02	41.53	41.53	1.79	91.61	0.00	182.85	0.00	4.08	0.00
total removal %	%	3.78	59.79	3.78	48.31	3.78	63.02	3.78	40.58	47.62	47.04	68.93	51.04	56.14	64.60	48.46	61.82	75.33	47.49	56.51	3.78	50.62	3.78	45.79	3.78
HYDRAULIC PARAMETERS.....																								
pond mean depth	feet	0.00	8.67	0.00	1.00	0.00	4.54	0.00	1.00	2.01	5.56	5.56	3.14	3.62	3.61	2.22	4.70	4.70	1.98	1.00	0.00	1.00	0.00	4.00	0.00
relative volume	inches	1.58	1456.11	1.58	0.00	1.58	8.23	1.58	0.00	1.56	1.13	40110.00	1.56	2.35	30075.00	1.56	3.24	54975.00	1.56	0.00	1.58	0.00	1.58	1.53	1.58
residence time	years	0.05	45.79	0.05	0.00	0.05	0.26	0.05	0.00	0.05	0.03	0.14	0.05	0.03	0.03	0.05	0.07	0.11	0.05	0.00	0.05	0.00	0.05	0.05	0.05
residence time	days	18.08	16713.21	18.08	0.00	18.08	94.47	18.08	0.00	17.86	11.82	52.13	17.86	12.56	9.34	17.86	24.99	38.89	17.86	0.00	18.08	0.00	18.08	17.60	18.08
overflow rate	ft/yr	0.00	0.19	0.00	2489469.59	0.00	17.53	0.00	742677.85	41.12	171.75	38.93	64.23	105.17	141.17	45.44	68.65	44.16	40.51	8964345.65	0.00	18547337.76	0.00	82.97	0.00
inflow phos conc	ppb	384.34	200.26	384.34	103.49	384.34	379.93	384.34	215.19	391.52	343.97	191.17	391.52	251.69	162.34	391.52	381.95	169.63	391.52	163.54	384.34	179.10	384.34	361.50	384.34
outflow phos conc	ppb	369.82	80.52	369.82	103.49	369.82	140.50	369.82	215.18	205.09	191.17	112.13	191.67	162.34	131.02	201.78	169.63	109.57	205.60	163.54	369.82	179.09	369.82	195.99	369.82
p reaction rate	-	0.04	3.70	0.04	0.00	0.04	4.61	0.04	0.00	1.74	1.44	1.20	2.13	0.85	0.30	1.82	2.82	0.85	1.72	0.00	0.04	0.00	0.04	1.56	0.04
1-rp	-	0.96	0.40	0.96	1.00	0.96	0.37	0.96	1.00	0.52	0.56	0.59	0.49	0.64	0.81	0.52	0.44	0.65	0.53	1.00	0.96	1.00	0.96	0.54	0.96
vlawmo pond volume	acre-ft	0.00	1.58	0.00	0.38	0.00	0.36	0.00	0.23	0.13	1.34	0.00	1.82	2.87	0.00	0.89	1.82	0.00	0.13	0.76	0.00	2.29	0.00	0.33	0.00
LAND USE PARAMETERS.....																								
runoff total P conc	ppb	0.00	200.14	0.00	200.00	0.00	364.05	0.00	289.47	391.50	344.55	200.00	391.50	326.69	200.00	391.50	438.27	200.00	391.50	375.23	0.00	318.56	0.00	326.06	0.00
runoff coefficient		0.00	0.08	0.00	0.08	0.00	0.19	0.00	0.14	0.21	0.23	0.08	0.21	0.17	0.08	0.21	0.13	0.08	0.21	0.11	0.00	0.11	0.00	0.16	0.00
dissolved/total P		0.00	0.60	0.00	0.60	0.00	0.34	0.00	0.46	0.30	0.35	0.60	0.30	0.40	0.60	0.30	0.32	0.60	0.30	0.39	0.00	0.46	0.00	0.41	0.00
runoff TSS conc	ppm	0.00	215.98	0.00	216.00	0.00	150.80	0.00	180.49	140.00	151.61	216.00	140.00	165.74	216.00	140.00	177.58	216.00	140.00	188.68	0.00	195.48	0.00	170.99	0.00
POND TSS BUDGETS.....																								
runoff	lbs/yr	0.00	11769.38	0.00	2800.88	0.00	1784.78	0.00	1265.71	646.46	6639.43	1.24	8772.19	15033.68	1.24	4285.35	10735.37	1.24	636.86	4729.51	0.00	14620.10	0.00	1758.28	0.00
upstream pond	lbs/yr	0.00	0.00	0.00	823.86	0.00	0.00	0.00	124.93	0.00	122.83	1893.43	0.00	1470.88	5941.64	0.00	728.51	802.47	0.00	3612.45	0.00	13662.75	0.00	0.00	0.00
total inflow	**lbs/yr**	**0.00**	**11769.38**	**0.00**	**3624.74**	**0.00**	**1784.78**	**0.00**	**1390.65**	**646.46**	**6762.26**	**1894.67**	**8772.19**	**16504.56**	**5942.88**	**4285.35**	**11463.88**	**803.71**	**636.86**	**8341.95**	**0.00**	**28282.84**	**0.00**	**1758.28**	**0.00**
p removal efficiency (no inf)	%	5.00	60.00	5.00	0.00	5.00	65.00	5.00	0.00	50.00	46.00	43.00	54.00	38.00	21.00	51.00	56.00	36.00	50.00	0.00	5.00	0.00	5.00	48.00	5.00
tss removal efficiency (no inf)	%	9.82	93.00	9.82	0.00	9.82	93.00	9.82	0.00	81.00	72.00	68.67	90.00	64.00	41.25	83.00	93.00	62.00	81.00	0.00	9.82	0.00	9.82	76.00	9.82
net sedimentation	lbs/yr	0.00	10945.52	0.00	0.00	0.00	1659.85	0.00	0.00	523.63	4868.82	1301.01	7894.97	10562.92	2451.44	3556.84	10661.41	498.30	515.86	0.00	0.00	0.00	0.00	1336.29	0.00
outflow	lbs/yr	0.00	823.86	0.00	3624.74	0.00	124.93	0.00	1390.65	122.83	1893.43	593.66	877.22	5941.64	3491.44	728.51	802.47	305.41	121.00	8341.95	0.00	28282.84	0.00	421.99	0.00
tss removal efficiency (inf)	%	9.82	93.00	9.82	0.00	9.82	93.00	9.82	0.00	81.00	72.00	68.67	90.00	64.00	41.25	83.00	93.00	62.00	81.00	0.00	9.82	0.00	9.82	76.00	9.82
upstream watershed tss load	lbs/yr	0.00	11769.38	0.00	14570.26	0.00	1784.78	0.00	3050.49	646.46	7285.89	7287.13	8772.19	31093.00	31094.24	4285.35	15020.73	15021.97	636.86	36460.61	0.00	83723.43	0.00	1758.28	0.00
tss total removal efficiency	%	9.82	93.00	9.82	75.12	9.82	93.00	9.82	54.41	81.00	74.01	91.85	90.00	80.89	88.77	83.00	94.66	97.97	81.00	77.12	9.82	66.22	9.82	76.00	9.82
INFILTRATION BMP/POND.....																								
Annual runoff infiltrated	%	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Adjusted outflow	**ac-ft/yr**	**0.00**	**20.11**	**0.00**	**24.89**	**0.00**	**4.56**	**0.00**	**7.43**	**1.70**	**18.72**	**18.72**	**23.12**	**78.35**	**78.35**	**11.30**	**34.40**	**34.40**	**1.68**	**89.64**	**0.00**	**185.47**	**0.00**	**4.15**	**0.00**
Adjusted TP outflow	**lbs/yr**	**0.00**	**4.40**	**0.00**	**7.00**	**0.00**	**1.74**	**0.00**	**4.34**	**0.95**	**9.73**	**5.71**	**12.05**	**34.57**	**27.90**	**6.19**	**15.86**	**10.24**	**0.94**	**39.85**	**0.00**	**90.28**	**0.00**	**2.21**	**0.00**
Adjusted TSS outflow	**lbs/yr**	**0.00**	**823.86**	**0.00**	**3624.74**	**0.00**	**124.93**	**0.00**	**1390.65**	**122.83**	**1893.43**	**593.66**	**877.22**	**5941.64**	**3491.44**	**728.51**	**802.47**	**305.41**	**121.00**	**8341.95**	**0.00**	**28282.84**	**0.00**	**421.99**	**0.00**
POND P BUDGETS W/O P-BAN.....																								
runoff	lbs/yr	0.00	10.95	0.00	2.60	0.00	5.38	0.00	2.92	2.08	17.58	0.00	28.28	40.65	0.00	13.82	29.64	0.00	2.05	11.01	0.00	28.91	0.00	4.57	0.00
Adjusted TP outflow	**lbs/yr**	**0.00**	**4.40**	**0.00**	**7.00**	**0.00**	**1.89**	**0.00**	**4.81**	**1.04**	**10.15**	**5.88**	**13.20**	**37.43**	**29.81**	**6.80**	**16.07**	**10.34**	**1.03**	**41.85**	**0.00**	**92.92**	**0.00**	**2.39**	**0.00**
upstream pond	lbs/yr	0.00	0.00	0.00	4.40	0.00	0.00	0.00	1.89	0.00	1.04	10.15	0.00	19.08	37.43	0.00	6.80	16.07	0.00	30.84	0.00	64.01	0.00	0.00	0.00
total inflow	**lbs/yr**	**0.00**	**10.95**	**0.00**	**7.00**	**0.00**	**5.38**	**0.00**	**4.81**	**2.08**	**18.62**	**10.15**	**28.28**	**59.73**	**37.43**	**13.82**	**36.44**	**16.07**	**2.05**	**41.85**	**0.00**	**92.92**	**0.00**	**4.57**	**0.00**
outflow	lbs/yr	0.00	4.40	0.00	7.00	0.00	1.89	0.00	4.81	1.04	10.15	5.88	13.20	37.43	29.81	6.80	16.07	10.34	1.03	41.85	0.00	92.92	0.00	2.39	0.00
inflow phos conc	ppb	409.24	200.26	409.24	103.49	409.24	434.50	409.24	238.34	450.02	365.91	199.50	450.02	280.49	175.76	450.02	389.76	171.85	450.02	171.76	409.24	184.32	409.24	405.14	409.24
outflow phos conc	ppb	392.86	80.52	392.86	103.49	392.86	152.49	392.86	238.33	225.21	199.50	115.56	210.04	175.76	140.00	221.46	171.85	110.63	225.79	171.76	392.86	184.32	392.86	211.81	392.86
p reaction rate	-	0.04	3.70	0.04	0.00	0.04	5.27	0.04	0.00	1.99	1.53	1.25	2.45	0.95	0.32	2.10	2.88	0.86	1.98	0.00	0.04	0.00	0.04	1.75	0.04
1-rp	-	0.96	0.40	0.96	1.00	0.96	0.35	0.96	1.00	0.50	0.55	0.58	0.47	0.63	0.80	0.49	0.44	0.64	0.50	1.00	0.96	1.00	0.96	0.52	0.96
runoff total p conc	ppb	0.00	200.14	0.00	200.00	0.00	413.92	0.00	316.80	450.00	368.83	200.00	450.00	364.87	200.00	450.00	439.45	200.00	450.00	375.23	0.00	318.97	0.00	358.21	0.00

Rochester Loading Assessm																							
Silver Creek																							
363-06-158-2																							
2020 LOADS																							
	sc-a1.8a	future sc-a1.9a	sc-a1.9a	future sc-a1.9b	sc-a1.9b	future sc-a1.11b	sc-a1.11b	sc-a1.11b cell 2	future sc-a1.11a	sc-a1.11a	future sc-a1.10	sc-a1.10	future sc-a1.12g	sc-a1.12g	sc-a1.12g cell 2	sc-a1.12g cell 3	future sc-a1.12f	sc-a1.12f	future sc-a1.12e	sc-a1.12e	future sc-a1.12d	sc-a1.12d	future sc-a1.12c	sc-a1.12c
	sc-a1.9b	sc-a1.9a	sc-a1.9b	sc-a1.9b	sc-a1.10	sc-a1.11b	sc-a1.11b cell 2	sc-a1.11a	sc-a1.11a	sc-a1.10	sc-a1.10	sc-a1.13	sc-a1.12g	sc-a1.12g cell 2	sc-a1.12g cell 3	sc-a1.12c	sc-a1.12f	sc-a1.12d	sc-a1.12e	sc-a1.12d	sc-a1.12d	sc-a1.12c	sc-a1.12c	sc-a1.12a
INPUT VARIABLES....																							
case label																							
Watershed area	118.5	0.0	23.4	0.0	2.5	25.4	47.4	0.0	8.7	85.3	16.6	259.6	0.0	34.2	0.0	0.0	0.0	26.4	0.0	13.4	0.0	12.4	24.1	80.4
basin area	0.00	0.00	0.00	0.00	0.00	0.29	0.11	0.63	0.08	0.00	0.25	0.00	0.00	0.50	0.60	0.90	0.00	0.07	0.00	0.05	0.00	0.20	0.52	0.96
basin volume	0.00	0.00	0.00	0.00	0.00	0.70	0.85	4.78	0.24	0.00	0.62	0.00	0.00	1.58	1.89	2.84	0.00	0.13	0.00	0.09	0.00	0.80	1.91	2.95
Row Crop Agriculture	39%	0%	66%	0%	1%	0%	2%	0%	0%	11%	0%	26%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Very Low Density Residential	0%	0%	11%	0%	0%	0%	0%	0%	0%	0%	0%	3%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Low Density Residential	9%	0%	8%	0%	3%	100%	90%	0%	100%	5%	81%	0%	0%	0%	0%	0%	0%	50%	0%	0%	0%	19%	0%	46%
Medium Density Residential	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	1%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
High Density Residential	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	39%	0%	52%	0%	12%	0%	0%
Commercial/Industrial	2%	0%	0%	0%	0%	0%	0%	0%	0%	0%	19%	3%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	100%	0%
Institutional	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	79%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Open Space	40%	0%	13%	0%	97%	0%	7%	100%	0%	68%	0%	59%	0%	1%	100%	100%	0%	6%	0%	32%	0%	69%	0%	44%
Golf Course	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Pits and Quarries	1%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Right-of-Way	8%	0%	1%	0%	0%	0%	0%	0%	0%	17%	0%	8%	0%	20%	0%	0%	0%	5%	0%	16%	0%	0%	0%	10%
WATERSHED-WIDE ACCOUNTII																							
tributary land area	128.48	0.00	23.38	0.00	154.34	25.39	72.82	72.83	8.74	166.87	16.61	1110.43	0.00	34.17	34.18	34.19	0.00	26.44	0.00	13.39	0.00	52.21	24.10	190.89
tributary water area	0.05	0.00	0.00	0.00	0.05	0.29	0.40	1.03	0.08	1.12	0.25	111.78	0.00	0.50	1.10	2.00	0.00	0.07	0.00	0.05	0.00	0.32	0.52	3.80
direct and ponded area	128.53	0.00	23.38	0.00	154.39	25.68	73.22	73.86	8.82	167.98	16.85	1222.21	0.00	34.67	35.28	36.19	0.00	26.51	0.00	13.44	0.00	52.53	24.62	194.70
ASSUMED EXPORT FACTORS...																								
season length	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
season precipitation	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80
runoff total p	369.20	0.00	454.32	0.00	207.50	391.50	380.49	200.00	391.50	279.48	383.70	313.35	0.00	358.57	200.00	200.00	0.00	381.24	0.00	331.32	0.00	259.22	350.00	308.88
runoff ortho p/total p	0.38	0.00	0.30	0.00	0.59	0.30	0.32	0.60	0.30	0.49	0.30	0.46	0.00	0.30	0.60	0.60	0.00	0.32	0.00	0.40	0.00	0.51	0.30	0.43
unit runoff	4.42	0.00	4.28	0.00	2.67	6.74	6.38	2.54	6.74	3.99	8.21	4.02	0.00	9.47	2.54	2.54	0.00	9.31	0.00	9.27	0.00	4.67	14.56	5.12
unit export	0.41	0.00	0.46	0.00	0.13	0.60	0.56	0.12	0.60	0.30	0.70	0.32	0.00	0.77	0.12	0.12	0.00	0.82	0.00	0.79	0.00	0.34	1.15	0.41
POND WATER BUDGETS.....																								
runoff	43.67	0.00	8.34	0.00	0.55	14.27	25.22	0.00	4.91	28.35	11.36	86.97	0.00	26.95	0.00	0.00	0.00	20.52	0.00	10.34	0.00	4.81	29.24	34.28
upstream pond	4.15	0.00	0.00	0.00	56.17	0.00	14.27	39.49	0.00	44.40	0.00	326.31	0.00	0.00	26.95	26.96	0.00	0.00	0.00	0.00	0.00	30.86	0.00	91.87
total inflow	**47.82**	**0.00**	**8.34**	**0.00**	**56.72**	**14.27**	**39.49**	**39.49**	**4.91**	**72.76**	**11.36**	**413.29**	**0.00**	**26.95**	**26.96**	**26.96**	**0.00**	**20.52**	**0.00**	**10.34**	**0.00**	**35.67**	**29.24**	**126.15**
outflow	47.82	0.00	8.34	0.00	56.72	14.27	39.49	39.49	4.91	72.76	11.36	413.29	0.00	26.95	26.96	26.96	0.00	20.52	0.00	10.34	0.00	35.67	29.24	126.15
POND PHOSPHORUS BUDGETS																								
runoff	47.99	0.00	10.70	0.00	0.33	15.18	26.60	0.00	5.23	25.44	11.67	84.29	0.00	26.29	0.00	0.00	0.00	21.69	0.00	10.57	0.00	4.18	27.82	32.75
upstream pond	2.21	0.00	0.00	0.00	60.89	0.00	7.73	20.82	0.00	14.54	0.00	197.35	0.00	0.00	12.84	9.09	0.00	0.00	0.00	0.00	0.00	24.81	0.00	40.18
total inflow	**50.20**	**0.00**	**10.70**	**0.00**	**61.22**	**15.18**	**34.33**	**20.82**	**5.23**	**39.98**	**11.67**	**281.64**	**0.00**	**26.29**	**12.85**	**9.09**	**0.00**	**21.69**	**0.00**	**10.57**	**0.00**	**28.99**	**27.82**	**72.93**
net sedimentation	0.00	0.00	0.00	0.00	0.00	7.46	13.51	8.87	2.64	0.00	5.80	0.00	0.00	13.45	3.75	2.43	0.00	4.99	0.00	2.46	0.00	8.56	14.74	19.21
outflow	50.19	0.00	10.70	0.00	61.22	7.73	20.82	11.95	2.59	39.98	5.87	281.64	0.00	12.84	9.09	6.67	0.00	16.70	0.00	8.11	0.00	20.43	13.08	53.72
p removal efficiency	0.00	3.78	0.01	3.78	0.00	49.10	39.35	42.58	50.49	0.00	49.68	0.00	3.78	51.15	29.21	26.69	3.78	23.01	3.78	23.24	3.78	29.54	52.97	26.34
upstream w-shed p load	52.06	0.00	10.70	0.00	63.08	15.18	41.78	41.79	5.23	72.45	11.67	414.34	0.00	26.29	26.30	26.30	0.00	21.69	0.00	10.57	0.00	36.44	27.82	123.31
total removal %	3.59	3.78	0.01	3.78	2.96	49.10	50.17	71.39	50.49	44.82	49.68	32.03	3.78	51.15	65.42	74.65	3.78	23.01	3.78	23.24	3.78	43.94	52.97	56.43
HYDRAULIC PARAMETERS.....																								
pond mean depth	1.00	0.00	1.00	0.00	1.00	2.41	7.58	7.58	2.90	1.00	2.49	1.00	0.00	3.16	3.16	3.16	0.00	1.90	0.00	1.86	0.00	4.00	3.65	3.07
relative volume	0.00	1.58	0.00	1.58	0.00	1.56	1.07	71715.00	1.56	0.00	1.73	0.00	1.58	1.86	28395.00	42592.50	1.58	0.21	1.58	0.29	1.58	5.29	2.07	2.74
residence time	0.00	0.05	0.00	0.05	0.00	0.05	0.02	0.12	0.05	0.00	0.05	0.00	0.05	0.06	0.07	0.11	0.05	0.01	0.05	0.01	0.05	0.02	0.07	0.02
residence time	0.00	18.08	0.00	18.08	0.00	17.86	7.85	44.19	17.86	0.00	19.84	0.00	18.08	21.36	25.63	38.45	18.08	2.37	18.08	3.28	18.08	8.19	23.81	8.54
overflow rate	4782164.93	0.00	834476.65	0.00	5671901.49	49.20	352.57	62.58	59.29	7275685.08	45.72	41328750.53	0.00	53.91	44.93	29.95	0.00	293.08	0.00	206.87	0.00	178.36	55.97	131.41
inflow phos conc	386.18	384.34	471.61	384.34	397.09	391.52	319.85	193.99	391.52	202.18	377.69	250.72	384.34	358.92	175.33	124.11	384.34	389.02	384.34	375.92	384.34	299.03	350.02	212.69
outflow phos conc	386.17	369.82	471.56	369.82	397.09	199.27	193.99	111.38	193.82	202.17	190.07	250.72	369.82	175.33	124.11	90.98	369.82	299.53	369.82	288.57	369.82	210.71	164.60	156.67
p reaction rate	0.00	0.04	0.00	0.04	0.00	1.90	1.07	1.29	2.06	0.00	1.96	0.00	0.04	2.14	0.58	0.50	0.04	0.39	0.04	0.39	0.04	0.59	2.40	0.49
1-rp	1.00	0.96	1.00	0.96	1.00	0.51	0.61	0.57	0.50	1.00	0.50	1.00	0.96	0.49	0.71	0.73	0.96	0.77	0.96	0.77	0.96	0.70	0.47	0.74
vlawmo pond volume	3.43	0.00	0.66	0.00	0.04	1.12	1.98	0.00	0.39	2.23	0.89	6.84	0.00	2.12	0.00	0.00	0.00	1.61	0.00	0.81	0.00	0.38	2.30	2.70
LAND USE PARAMETERS.....																								
runoff total P conc	369.20	0.00	454.32	0.00	207.50	391.50	380.49	200.00	391.50	279.48	383.70	313.35	0.00	358.57	200.00	200.00	0.00	381.24	0.00	331.32	0.00	259.22	350.00	308.88
runoff coefficient	0.14	0.00	0.13	0.00	0.08	0.21	0.20	0.08	0.21	0.13	0.26	0.13	0.00	0.30	0.08	0.08	0.00	0.29	0.00	0.29	0.00	0.15	0.46	0.16
dissolved/total P	0.38	0.00	0.30	0.00	0.59	0.30	0.32	0.60	0.30	0.49	0.30	0.46	0.00	0.30	0.60	0.60	0.00	0.32	0.00	0.40	0.00	0.51	0.30	0.43
runoff TSS conc	178.70	0.00	173.78	0.00	213.58	140.00	146.22	216.00	140.00	193.98	140.00	192.99	0.00	140.86	216.00	216.00	0.00	144.25	0.00	164.43	0.00	192.50	140.00	173.13
POND TSS BUDGETS.....																								
runoff	19742.61	0.00	3792.01	0.00	314.80	5413.03	9747.48	1.24	1863.90	13495.53	4311.54	41620.46	0.00	10242.43	1.24	1.24	0.00	7848.16	0.00	4112.27	0.00	2199.47	11094.63	14536.46
upstream pond	421.99	0.00	0.00	0.00	23956.61	0.00	811.95	3379.02	0.00	1247.07	0.00	67943.59	0.00	0.00	1536.36	665.01	0.00	0.00	0.00	0.00	0.00	6087.00	0.00	5138.62
total inflow	**20164.60**	**0.00**	**3792.01**	**0.00**	**24271.41**	**5413.03**	**10559.44**	**3380.26**	**1863.90**	**14742.60**	**4311.54**	**109564.05**	**0.00**	**10242.43**	**1537.61**	**666.26**	**0.00**	**7848.16**	**0.00**	**4112.27**	**0.00**	**8286.48**	**11094.63**	**19675.08**
p removal efficiency (no inf)	0.00	5.00	0.00	5.00	0.00	52.00	42.00	45.00	53.00	0.00	52.00	0.00	5.00	52.00	30.00	27.00	5.00	25.00	5.00	25.00	5.00	32.00	53.00	28.00
tss removal efficiency (no inf)	0.00	9.82	0.00	9.82	0.00	85.00	68.00	70.00	87.50	0.00	85.00	0.00	9.82	85.00	56.75	53.04	9.82	49.11	9.82	49.11	9.82	58.50	87.50	55.00
net sedimentation	0.00	0.00	0.00	0.00	0.00	4601.08	7180.42	2366.18	1630.91	0.00	3664.81	0.00	0.00	8706.07	872.59	353.35	0.00	3854.01	0.00	2019.42	0.00	4847.59	9707.80	10821.29
outflow	20164.60	0.00	3792.01	0.00	24271.41	811.95	3379.02	1014.08	232.99	14742.60	646.73	109564.05	0.00	1536.36	665.01	312.90	0.00	3994.15	0.00	2092.85	0.00	3438.89	1386.83	8853.78
tss removal efficiency (inf)	0.00	9.82	0.00	9.82	0.00	85.00	68.00	70.00	87.50	0.00	85.00	0.00	9.82	85.00	56.75	53.04	9.82	49.11	9.82	49.11	9.82	58.50	87.50	55.00
upstream watershed tss load	21500.89	0.00	3792.01	0.00	25607.70	5413.03	15160.51	15161.76	1863.90	30521.19	4311.54	185784.33	0.00	10242.43	10243.67	10244.91	0.00	7848.16	0.00	4112.27	0.00	14159.90	11094.63	50035.90
tss total removal efficiency	6.22	9.82	0.00	9.82	5.22	85.00	77.71	93.31	87.50	51.70	85.00	41.03	9.82	85.00	93.51	96.95	9.82	49.11	9.82	49.11	9.82	75.71	87.50	82.31
INFILTRATION BMP/POND.....																								
Annual runoff infiltrated	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Adjusted outflow	**47.82**	**0.00**	**8.34**	**0.00**	**56.72**	**14.27**	**39.49**	**39.49**	**4.91**	**72.76**	**11.36**	**413.29**	**0.00**	**26.95**	**26.96**	**26.96**	**0.00**	**20.52**	**0.00**	**10.34**	**0.00**	**35.67**	**29.24**	**126.15**
Adjusted TP outflow	**50.19**	**0.00**	**10.70**	**0.00**	**61.22**	**7.73**	**20.82**	**11.95**	**2.59**	**39.98**	**5.87**	**281.64**	**0.00**	**12.84**	**9.09**	**6.67**	**0.00**	**16.70**	**0.00**	**8.11**	**0.00**	**20.43**	**13.08**	**53.72**
Adjusted TSS outflow	**20164.60**	**0.00**	**3792.01**	**0.00**	**24271.41**	**811.95**	**3379.02**	**1014.08**	**232.99**	**14742.60**	**646.73**	**109564.05**	**0.00**	**1536.36**	**665.01**	**312.90**	**0.00**	**3994.15**	**0.00**	**2092.85**	**0.00**	**3438.89**	**1386.83**	**8853.78**
POND P BUDGETS W/O P-BAN.																								
runoff	49.00	0.00	10.95	0.00	0.33	17.45	30.43	0.00	6.01	25.79	12.87	84.86	0.00	26.29	0.00	0.00	0.00	24.74	0.00	11.82	0.00	4.66	27.82	36.08
Adjusted TP outflow	**51.38**	**0.00**	**10.95**	**0.00**	**62.66**	**8.48**	**22.76**	**12.72**	**2.84**	**41.34**	**6.27**	**288.05**	**0.00**	**12.84**	**9.09**	**6.67**	**0.00**	**18.57**	**0.00**	**8.88**	**0.00**	**22.09**	**13.08**	**56.60**
upstream pond	2.39	0.00	0.00	0.00	62.33	0.00	8.48	22.76	0.00	15.56	0.00	203.19	0.00	0.00	12.84	9.09	0.00	0.00	0.00	0.00	0.00	27.45	0.00	41.84
total inflow	**51.38**	**0.00**	**10.95**	**0.00**	**62.66**	**17.45**	**38.91**	**22.76**	**6.01**	**41.34**	**12.87**	**288.05**	**0.00**	**26.29**	**12.85**	**9.09**	**0.00**	**24.74**	**0.00**	**11.82**	**0.00**	**32.10**	**27.82**	**77.92**
outflow	51.38	0.00	10.95	0.00	62.66	8.48	22.76	12.72	2.84	41.34	6.27	288.05	0.00	12.84	9.09	6.67	0.00	18.57	0.00	8.88	0.00	22.09	13.08	56.60
inflow phos conc	395.32	409.24	482.68	409.24	406.46	450.02	362.53	212.08	450.02	209.07	416.71	256.43	409.24	358.92	175.33	124.11	409.24	443.69	409.24	420.37	409.24	331.12	350.02	227.25
outflow phos conc	395.32	392.86	482.63	392.86	406.46	218.62	212.08	118.53	212.47	209.07	202.90	256.43	392.86	175.33	124.11	90.98	392.86	333.04	392.86	315.78	392.86	227.84	164.60	165.06
p reaction rate	0.00	0.04	0.00	0.04	0.00	2.18	1.21	1.41	2.37	0.00	2.16	0.00	0.04	2.14	0.58	0.50	0.04	0.44	0.04	0.44	0.04	0.66	2.40	0.52
1-rp	1.00	0.96	1.00	0.96	1.00	0.49	0.59	0.56	0.47	1.00	0.49	1.00	0.96	0.49	0.71	0.73	0.96	0.75	0.96	0.75	0.96	0.69	0.47	0.73
runoff total p conc	374.76	0.00	464.20	0.00	209.08	450.00	433.35	200.00	450.00	282.15	431.21	315.41	0.00	358.57	200.00	200.00	0.00	433.35	0.00	361.62	0.00	277.31	350.00	336.01

Rochester Loading Assessm						
Silver Creek						
363-06-158-2						
2020 LOADS						
	future sc-a1.12b	**sc-a1.12b**	**future sc-a1.12a**	**sc-a1.12a**	**future sc-a1.13**	**sc-a1.13**
	sc-a1.12b	sc-a1.13	sc-a1.12a	sc-a1.12b	sc-a1.13	zr-a4.1a
INPUT VARIABLES....						
case label						
Watershed area	0.0	138.4	35.1	141.7	0.0	587.6
basin area	0.00	1.40	0.52	0.00	0.00	0.00
basin volume	0.00	5.60	1.85	0.00	0.00	0.00
Row Crop Agriculture	0%	0%	0%	0%	0%	0%
Very Low Density Residential	0%	0%	0%	0%	0%	0%
Low Density Residential	0%	15%	11%	38%	0%	36%
Medium Density Residential	0%	0%	58%	2%	0%	2%
High Density Residential	0%	0%	0%	0%	0%	3%
Commercial/Industrial	0%	0%	31%	0%	0%	9%
Institutional	0%	0%	0%	8%	0%	10%
Open Space	0%	83%	0%	35%	0%	35%
Golf Course	0%	0%	0%	0%	0%	0%
Pits and Quarries	0%	0%	0%	0%	0%	0%
Right-of-Way	0%	1%	0%	18%	0%	5%
WATERSHED-WIDE ACCOUNTI						
tributary land area	0.00	506.14	35.11	367.74	0.00	2204.13
tributary water area	0.00	5.73	0.52	4.33	0.00	117.50
direct and ponded area	0.00	511.86	35.63	372.07	0.00	2321.63
ASSUMED EXPORT FACTORS...						
season length	1.00	1.00	1.00	1.00	1.00	1.00
season precipitation	31.80	31.80	31.80	31.80	31.80	31.80
runoff total p	0.00	231.75	378.68	322.23	0.00	317.50
runoff ortho p/total p	0.00	0.55	0.30	0.41	0.00	0.40
unit runoff	0.00	3.26	10.90	5.91	0.00	6.65
unit export	0.00	0.20	0.92	0.48	0.00	0.53
POND WATER BUDGETS.....						
runoff	0.00	37.59	31.90	69.78	0.00	325.85
upstream pond	0.00	227.84	0.00	158.06	0.00	678.72
total inflow	**0.00**	**265.43**	**31.90**	**227.84**	**0.00**	**1004.56**
outflow	0.00	265.43	31.90	227.84	0.00	1004.56
POND PHOSPHORUS BUDGETS						
runoff	0.00	27.28	32.47	68.16	0.00	312.13
upstream pond	0.00	137.22	0.00	69.06	0.00	407.70
total inflow	**0.00**	**164.50**	**32.47**	**137.22**	**0.00**	**719.83**
net sedimentation	0.00	38.44	17.13	0.00	0.00	0.00
outflow	0.00	126.06	15.34	137.22	0.00	719.83
p removal efficiency	3.78	23.37	52.76	0.00	3.78	0.00
upstream w-shed p load	0.00	251.21	32.47	223.93	0.00	977.68
total removal %	3.78	49.82	52.76	38.72	3.78	26.37
HYDRAULIC PARAMETERS.....						
pond mean depth	0.00	4.00	3.54	1.00	0.00	1.00
relative volume	1.58	4.74	1.84	0.00	1.58	0.00
residence time	0.05	0.02	0.06	0.00	0.05	0.00
residence time	18.08	7.70	21.17	0.00	18.08	0.00
overflow rate	0.00	189.59	61.06	22784053.31	0.00	100456494.08
inflow phos conc	384.34	228.01	374.40	221.58	384.34	263.63
outflow phos conc	369.82	174.73	176.87	221.58	369.82	263.63
p reaction rate	0.04	0.40	2.36	0.00	0.04	0.00
1-rp	0.96	0.77	0.47	1.00	0.96	1.00
vlawmo pond volume	0.00	2.96	2.51	5.49	0.00	25.62
LAND USE PARAMETERS.....						
runoff total P conc	0.00	231.75	378.68	322.23	0.00	317.50
runoff coefficient	0.00	0.10	0.34	0.19	0.00	0.21
dissolved/total P	0.00	0.55	0.30	0.41	0.00	0.40
runoff TSS conc	0.00	203.44	140.00	166.83	0.00	166.50
POND TSS BUDGETS.....						
runoff	0.00	19306.16	12104.39	28659.62	0.00	132578.84
upstream pond	0.00	38542.28	0.00	9882.66	0.00	139004.77
total inflow	**0.00**	**57848.44**	**12104.39**	**38542.28**	**0.00**	**271583.62**
p removal efficiency (no inf)	5.00	25.00	55.00	0.00	5.00	0.00
tss removal efficiency (no inf)	9.82	49.11	91.50	0.00	9.82	0.00
net sedimentation	0.00	28407.72	11075.52	0.00	0.00	0.00
outflow	0.00	29440.72	1028.87	38542.28	0.00	271583.62
tss removal efficiency (inf)	9.82	49.11	91.50	0.00	9.82	0.00
upstream watershed tss load	0.00	110106.07	12104.39	90799.91	0.00	428469.24
tss total removal efficiency	9.82	73.26	91.50	57.55	9.82	36.62
INFILTRATION BMP/POND.....						
Annual runoff infiltrated	0.00	0.00	0.00	0.00	0.00	0.00
Adjusted outflow	**0.00**	**265.43**	**31.90**	**227.84**	**0.00**	**1004.56**
Adjusted TP outflow	**0.00**	**126.06**	**15.34**	**137.22**	**0.00**	**719.83**
Adjusted TSS outflow	**0.00**	**29440.72**	**1028.87**	**38542.28**	**0.00**	**271583.62**
POND P BUDGETS W/O P-BAN.						
runoff	0.00	29.19	35.45	73.28	0.00	336.22
Adjusted TP outflow	**0.00**	**132.71**	**16.24**	**146.12**	**0.00**	**756.98**
upstream pond	0.00	146.12	0.00	72.84	0.00	420.76
total inflow	**0.00**	**175.31**	**35.45**	**146.12**	**0.00**	**756.98**
outflow	0.00	132.71	16.24	146.12	0.00	756.98
inflow phos conc	409.24	243.01	408.76	235.95	409.24	277.24
outflow phos conc	392.86	183.95	187.28	235.95	392.86	277.24
p reaction rate	0.04	0.42	2.58	0.00	0.04	0.00
1-rp	0.96	0.76	0.46	1.00	0.96	1.00
runoff total p conc	0.00	240.80	419.10	345.36	0.00	341.97

Rochester Loading Assessment			
Silver Creek			
363-06-158-2			
FCP Reservoir Loading Credit			
		sc-a1.2(C)	**sc-a1.2**
Routed TO:		sc-a1.2	sc-a1.3a
INPUT VARIABLES....	UNITS		
case label	-		
Watershed area	acres	3929.0	94.8
basin area	acres	0.00	106.24
basin volume	acre-ft	0.00	920.82
Row Crop Agriculture		78%	0%
Very Low Density Residential		6%	0%
Low Density Residential		1%	0%
Medium Density Residential		0%	0%
High Density Residential		0%	0%
Commercial/Industrial		0%	0%
Institutional		0%	0%
Open Space		15%	100%
Golf Course		0%	0%
Pits and Quarries		0%	0%
Right-of-Way		0%	0%
WATERSHED-WIDE ACCOUNTING.....			
tributary land area	ac	3928.99	4023.81
tributary water area	ac	0.00	106.24
direct and ponded area	ac	3928.99	4130.05
ASSUMED EXPORT FACTORS.....			
season length	yrs	1	1
season precipitation	inches	31.8	31.8
runoff total p	ppb	476.39	200.14
runoff ortho p/total p	-	0.28	0.60
unit runoff	in/yr	4.09	2.54
unit export	lbs/ac-y	0.44	0.12
POND WATER BUDGETS.....			
runoff	ac-ft/yr	1337.57	20.11
upstream pond	ac-ft/yr	0.00	1337.57
total inflow	**ac-ft/yr**	**1337.57**	**1357.68**
outflow	ac-ft/yr	1337.57	1357.68
POND PHOSPHORUS BUDGETS.....			
runoff	lbs/yr	1732.02	10.94
upstream pond	lbs/yr	0.00	1732.01
total inflow	**lbs/yr**	**1732.02**	**1742.95**
net sedimentation	lbs/yr	0.00	1189.75
outflow	lbs/yr	1732.01	553.20
outflow (irr concen)	lbs/yr	1732.01	553.52
p removal efficiency	%	0.00	68.24
upstream w-shed p load	lbs/yr	1732.02	1742.96
total removal %	%	0.00	68.24
HYDRAULIC PARAMETERS.....			
pond mean depth	feet	1.00	8.67
relative volume	inches	0.00	1456.11
residence time	years	0.00	0.68
residence time	days	0.00	247.55
overflow rate	ft/yr	133756589.96	12.78
inflow phos conc	ppb	476.42	472.32
outflow phos conc	ppb	476.42	149.91
p reaction rate	-	0.00	6.78
1-rp	-	1.00	0.32
vlawmo pond volume	acre-ft	105.15	1.58
LAND USE PARAMETERS.....			
runoff total P calc	ppb	476.39	200.14
runoff coefficient		0.13	0.08
dissolved/total P		0.28	0.60
runoff TSS conc	ppm	174.12	215.98
POND TSS BUDGETS.....			
runoff	lbs/yr	631138.72	11770.28
upstream pond	lbs/yr	0.00	631138.72
total inflow	**lbs/yr**	**631138.72**	**642909.00**
p removal efficiency (no inf)	%	0.00	69.00
tss removal efficiency (no inf)	%	0.00	93.00
net sedimentation	lbs/yr	0.00	597905.37
outflow	lbs/yr	631138.72	45003.63
outflow (irr concen)	lbs/yr	631138.72	73586.02
tss removal efficiency (inf)	%	0.00	88.55
upstream watershed tss load	lbs/yr	631138.72	642909.00
tss total removal efficiency	%	0.00	88.55
INFILTRATION BMP/POND.....			
Annual runoff infiltrated	%	0.00	0.00
Adjusted outflow	**ac-ft/yr**	**1337.57**	**1357.68**
Adjusted TP outflow	**lbs/yr**	**1732.01**	**553.52**
Adjusted TSS outflow	**lbs/yr**	**631138.72**	**73586.02**

		sc-a1.2
		SR-2
	units	
Watershed Area Proportion		
Total Area to FCP Reservoir	ac	4023.81
Area to FCP Reservoir outside 2020 bndry	ac	3929.0
Area to FCP Reservoir outside 2020 bndry	%	97.6
Net Sedimentation in FCP Reservoir		
TP	lb	1189.75
TSS	lb	597905
Treatment Credit generated by FCP Reservoir		
TP	lb	1161.72
TSS	lb	583815

Rochester Loading Assessment																						
Hadley Valley																						
363-06-158-2																						
Baseline (1988) LOADS																						
		hv-a1.4c	**hv-a1.4b**	**hv-a1.4a**	**hv-a1.5**	**hv-a1.6c**	**hv-a1.6d**	**hv-a1.9b**	**hv-a1.7f**	**hv-a1.7e**	**hv-a1.7d**	**hv-a1.7c**	**hv-a1.7a**	**hv-a1.7b**	**hv-a1.8d**	**hv-a1.8c**	**hv-a1.8e**	**hv-a1.8a**	**hv-a1.8f**	**hv-a1.8b**	**hv-a1.9a**	**hv-a1.12**
Routed TO:		hv-a1.4a	hv-a1.4a	hv-a1.5	hv-a1.12	hv-a1.6d	hv-a1.9a	hv-a1.9a	hv-a1.7a	hv-a1.7a	hv-a1.7a	hv-a1.7a	hv-a1.7b	hv-a1.9a	hv-a1.8c	hv-a1.8a	hv-a1.8a	hv-a1.8b	hv-a1.8b	hv-a1.9a	hv-a1.12	hv-a1.14
INPUT VARIABLES....	UNITS																					
case label	-																					
Watershed area	acres	2.8	1.5	231.8	35.3	18.4	91.3	27.7	18.7	17.7	7.8	17.1	170.2	161.3	6.9	16.4	30.1	62.8	47.4	129.9	226.6	270.9
basin area	acres	0.20	0.20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.65	0.00	0.00	0.00	0.03	0.00	0.00	0.00	0.00	0.00
basin volume	acre-ft	0.80	0.80	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	10.60	0.00	0.00	0.00	0.12	0.00	0.00	0.00	0.00	0.00
Row Crop Agriculture		14%	0%	51%	64%	0%	31%	17%	36%	45%	86%	61%	13%	10%	61%	57%	34%	31%	57%	31%	55%	42%
Very Low Density Residential		13%	0%	6%	0%	30%	12%	17%	0%	0%	0%	25%	8%	9%	0%	7%	0%	1%	0%	0%	8%	5%
Low Density Residential		0%	0%	0%	0%	0%	0%	0%	29%	0%	0%	0%	8%	0%	0%	0%	0%	0%	0%	0%	0%	1%
Medium Density Residential		0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
High Density Residential		0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Commercial/Industrial		0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	2%
Institutional		0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Open Space		61%	100%	40%	22%	70%	56%	66%	30%	52%	14%	9%	68%	80%	39%	36%	42%	68%	42%	69%	34%	46%
Golf Course		0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Pits and Quarries		0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Right-of-Way		11%	0%	4%	14%	0%	0%	0%	4%	2%	0%	5%	4%	0%	0%	0%	23%	0%	0%	0%	3%	3%
WATERSHED-WIDE ACCOUNTING.....																						
tributary land area	ac	2.81	1.55	236.20	271.47	18.36	109.71	27.69	18.71	17.72	7.80	17.08	231.52	392.87	6.85	23.26	30.14	116.20	47.41	293.55	1050.46	1592.85
tributary water area	ac	0.20	0.20	0.40	0.40	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.65	2.65	0.00	0.00	0.03	0.03	0.00	0.03	2.68	3.08
direct and ponded area	ac	3.01	1.75	236.60	271.87	18.36	109.71	27.69	18.71	17.72	7.80	17.08	234.17	395.52	6.85	23.26	30.17	116.23	47.41	293.58	1053.14	1595.93
ASSUMED EXPORT FACTORS.....																						
season length	yrs	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
season precipitation	inches	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8
runoff total p	ppb	291.0226275	200.0122322	388.2826036	445.3431776	244.4076573	324.8184268	281.6452038	404.2536189	358.8686875	493.6448726	455.0034641	282.1983972	249.1486003	406.7294736	404.8411389	363.151168	307.8265671	395.5213973	306.552096	405.2058595	363.4512255
runoff ortho p/total p	-	0.495870302	0.599981878	0.380510677	0.302373201	0.570394056	0.462586079	0.516950827	0.355142139	0.41199036	0.254534705	0.316333813	0.506383549	0.549274113	0.356788013	0.364284156	0.393067714	0.473981579	0.369946787	0.474644549	0.362683971	0.406238265
unit runoff	in/yr	3.575845131	2.544311397	3.766460602	4.629773022	2.673000813	3.194369619	2.933127031	4.722207083	3.540808773	4.191914037	4.120509844	3.379069848	2.78212852	3.704171919	3.665534582	4.641973838	3.144661212	3.654501293	3.141948178	3.837568151	3.89963552
unit export	lbs/ac-y	0.27	0.12	0.36	0.48	0.15	0.26	0.21	0.47	0.32	0.49	0.44	0.25	0.17	0.38	0.37	0.42	0.25	0.36	0.25	0.38	0.35
POND WATER BUDGETS.....																						
runoff	ac-ft/yr	0.84	0.33	72.77	13.61	4.09	24.32	6.77	7.36	5.23	2.72	5.86	47.93	37.41	2.11	5.01	11.66	16.46	14.44	34.02	72.48	88.04
upstream pond	ac-ft/yr	0.00	0.00	1.17	73.93	0.00	4.09	0.00	0.00	0.00	0.00	0.00	21.18	69.11	0.00	2.11	0.00	18.79	0.00	49.68	225.39	385.42
total inflow	**ac-ft/yr**	**0.84**	**0.33**	**73.93**	**87.54**	**4.09**	**28.41**	**6.77**	**7.36**	**5.23**	**2.72**	**5.86**	**69.11**	**106.52**	**2.11**	**7.13**	**11.66**	**35.24**	**14.44**	**83.70**	**297.87**	**473.46**
outflow	ac-ft/yr	0.84	0.33	73.93	87.54	4.09	28.41	6.77	7.36	5.23	2.72	5.86	69.11	106.52	2.11	7.13	11.66	35.24	14.44	83.70	297.87	473.46
POND PHOSPHORUS BUDGETS.....																						
runoff	lbs/yr	0.76	0.18	84.59	17.08	2.77	24.15	5.72	8.72	5.75	3.79	7.52	42.44	27.58	2.58	6.06	12.66	15.74	17.22	32.46	86.89	96.12
upstream pond	lbs/yr	0.00	0.00	0.42	85.01	0.00	2.77	0.00	0.00	0.00	0.00	0.00	25.78	32.51	0.00	2.58	0.00	17.80	0.00	50.77	175.96	364.95
total inflow	**lbs/yr**	**0.76**	**0.18**	**85.01**	**102.09**	**2.77**	**26.93**	**5.72**	**8.72**	**5.75**	**3.79**	**7.52**	**68.22**	**60.09**	**2.58**	**8.64**	**12.66**	**33.54**	**17.22**	**83.22**	**262.86**	**461.06**
net sedimentation	lbs/yr	0.43	0.08	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	35.71	0.00	0.00	0.00	3.50	0.00	0.00	0.00	0.00	0.00
outflow	lbs/yr	0.32	0.09	85.01	102.09	2.77	26.93	5.72	8.72	5.75	3.79	7.52	32.51	60.09	2.58	8.64	9.17	33.54	17.22	83.22	262.86	461.06
p removal efficiency	%	57.28	46.76	0.00	0.00	0.01	0.00	0.00	0.01	0.01	0.04	0.01	52.34	0.00	0.03	0.01	27.61	0.00	0.00	0.00	0.00	0.00
upstream w-shed p load	lbs/yr	0.76	0.18	85.53	102.61	2.77	26.93	5.72	8.72	5.75	3.79	7.52	68.22	95.80	2.58	8.64	12.66	37.04	17.22	86.72	302.07	500.79
total removal %	%	57.28	46.76	0.61	0.51	0.01	0.00	0.00	0.01	0.01	0.04	0.01	52.35	37.27	0.03	0.02	27.61	9.44	0.00	4.03	12.98	7.93
HYDRAULIC PARAMETERS.....																						
pond mean depth	feet	4.00	4.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	4.00	1.00	1.00	1.00	4.00	1.00	1.00	1.00	1.00	1.00
relative volume	inches	30.36	77.66	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	7.03	0.00	0.00	0.00	0.33	0.00	0.00	0.00	0.00	0.00
residence time	years	0.95	2.44	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.15	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00
residence time	days	348.47	891.33	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	55.98	0.00	0.00	0.00	3.76	0.00	0.00	0.00	0.00	0.00
overflow rate	ft/yr	4.19	1.64	7393360.27	8754130.81	409015.68	2840625.20	676698.80	736194.84	522920.51	272372.76	586316.62	26.08	10651645.27	211449.26	712805.19	388.57	3524389.33	1443713.17	8370337.26	29787451.67	47345791.21
inflow phos conc	ppb	332.30	200.05	423.03	429.06	249.52	348.76	311.14	435.65	404.67	511.89	472.11	363.16	207.57	448.49	445.75	399.60	350.16	438.96	365.81	324.67	358.28
outflow phos conc	ppb	141.94	106.50	423.03	429.06	249.50	348.75	311.12	435.61	404.62	511.68	472.04	173.07	207.57	448.34	445.71	289.27	350.15	438.94	365.81	324.67	358.28
p reaction rate	-	3.14	1.65	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.30	0.00	0.00	0.00	0.53	0.00	0.00	0.00	0.00	0.00
1-rp	-	0.43	0.53	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.48	1.00	1.00	1.00	0.72	1.00	1.00	1.00	1.00	1.00
vlawmo pond volume	acre-ft	0.07	0.03	5.72	1.07	0.32	1.91	0.53	0.58	0.41	0.21	0.46	3.77	2.94	0.17	0.39	0.92	1.29	1.13	2.67	5.70	6.92
LAND USE PARAMETERS.....																						
runoff total P conc	ppb	291.02	200.01	388.28	445.34	244.41	324.82	281.65	404.25	358.87	493.64	455.00	282.20	249.15	406.73	404.84	363.15	307.83	395.52	306.55	405.21	363.45
runoff coefficient		0.11	0.08	0.12	0.15	0.08	0.10	0.09	0.15	0.11	0.13	0.13	0.11	0.09	0.12	0.12	0.15	0.10	0.11	0.10	0.12	0.12
dissolved/total P		0.50	0.60	0.38	0.30	0.57	0.46	0.52	0.36	0.41	0.25	0.32	0.51	0.55	0.36	0.36	0.39	0.47	0.37	0.47	0.36	0.41
runoff TSS conc	ppm	199.89	216.00	186.34	171.53	216.00	199.43	207.25	171.50	190.37	170.23	180.02	200.51	210.51	183.77	185.68	180.18	199.45	185.35	199.39	184.41	188.62
POND TSS BUDGETS.....																						
runoff	lbs/yr	421.47	191.75	35044.22	6025.32	2394.20	12711.58	3717.54	3199.00	2576.94	1235.52	2752.69	24419.99	21005.78	1015.79	2434.42	5221.06	8589.01	6981.01	17745.37	34650.08	42205.95
upstream pond	lbs/yr	0.00	0.00	79.36	35123.58	0.00	2394.20	0.00	0.00	0.00	0.00	0.00	9764.15	4273.02	0.00	1015.79	0.00	5799.68	0.00	21369.70	83217.18	159016.16
total inflow	**lbs/yr**	**421.47**	**191.75**	**35123.58**	**41148.90**	**2394.20**	**15105.78**	**3717.54**	**3199.00**	**2576.94**	**1235.52**	**2752.69**	**34184.14**	**25278.80**	**1015.79**	**3450.21**	**5221.06**	**14388.69**	**6981.01**	**39115.07**	**117867.26**	**201222.11**
p removal efficiency (no inf)	%	58.00	47.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	53.00	0.00	0.00	0.00	28.00	0.00	0.00	0.00	0.00	0.00
tss removal efficiency (no inf)	%	93.00	74.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	87.50	0.00	0.00	0.00	55.00	0.00	0.00	0.00	0.00	0.00
net sedimentation	lbs/yr	391.96	141.90	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	29911.12	0.00	0.00	0.00	2871.58	0.00	0.00	0.00	0.00	0.00
outflow	lbs/yr	29.50	49.86	35123.58	41148.90	2394.20	15105.78	3717.54	3199.00	2576.94	1235.52	2752.69	4273.02	25278.80	1015.79	3450.21	2349.48	14388.69	6981.01	39115.07	117867.26	201222.11
tss removal efficiency (inf)		93.00	74.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	87.50	0.00	0.00	0.00	55.00	0.00	0.00	0.00	0.00	0.00
upstream watershed tss load	lbs/yr	421.47	191.75	35657.44	41682.76	2394.20	15105.78	3717.54	3199.00	2576.94	1235.52	2752.69	34184.14	55189.92	1015.79	3450.21	5221.06	17260.28	6981.01	41986.65	150649.97	234538.68
tss total removal efficiency	%	93.00	74.00	1.50	1.28	0.00	0.00	0.00	0.00	0.00	0.00	0.00	87.50	54.20	0.00	0.00	55.00	16.64	0.00	6.84	21.76	14.21
INFILTRATION BMP/POND.....																						
Annual runoff infiltrated	%	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Adjusted outflow	**ac-ft/yr**	**0.84**	**0.33**	**73.93**	**87.54**	**4.09**	**28.41**	**6.77**	**7.36**	**5.23**	**2.72**	**5.86**	**69.11**	**106.52**	**2.11**	**7.13**	**11.66**	**35.24**	**14.44**	**83.70**	**297.87**	**473.46**
Adjusted TP outflow	**lbs/yr**	**0.32**	**0.09**	**85.01**	**102.09**	**2.77**	**26.93**	**5.72**	**8.72**	**5.75**	**3.79**	**7.52**	**32.51**	**60.09**	**2.58**	**8.64**	**9.17**	**33.54**	**17.22**	**83.22**	**262.86**	**461.06**
Adjusted TSS outflow	**lbs/yr**	**29.50**	**49.86**	**35123.58**	**41148.90**	**2394.20**	**15105.78**	**3717.54**	**3199.00**	**2576.94**	**1235.52**	**2752.69**	**4273.02**	**25278.80**	**1015.79**	**3450.21**	**2349.48**	**14388.69**	**6981.01**	**39115.07**	**117867.26**	**201222.11**

Rochester Loading Assessment								
Hadley Valley								
363-06-158-2								
Baseline (1988) LOADS								
		hv-a1.11c	**hv-a1.11b**	**hv-a1.11a**	**hv-a1.13**	**hv-a1.15a**	**hv-a1.15b**	**hv-a1.14**
Routed TO:		hv-a1.11b	hv-a1.11a	hv-a1.13	hv-a1.14	hv-a1.15b	hv-a1.14	zr-a4.6a
INPUT VARIABLES....	UNITS							
case label	-							
Watershed area	acres	49.5	8.4	185.1	105.9	131.6	31.3	77.2
basin area	acres	0.00	0.00	0.00	0.00	0.00	0.00	0.00
basin volume	acre-ft	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Row Crop Agriculture		35%	0%	35%	50%	8%	9%	41%
Very Low Density Residential		0%	0%	2%	14%	15%	0%	0%
Low Density Residential		0%	0%	4%	0%	23%	0%	0%
Medium Density Residential		0%	0%	0%	0%	0%	0%	0%
High Density Residential		0%	0%	0%	0%	0%	0%	0%
Commercial/Industrial		0%	0%	0%	0%	6%	0%	17%
Institutional		0%	0%	0%	0%	1%	0%	0%
Open Space		65%	100%	57%	32%	44%	91%	34%
Golf Course		0%	0%	0%	0%	0%	0%	0%
Pits and Quarries		0%	0%	0%	0%	0%	0%	0%
Right-of-Way		0%	0%	2%	4%	3%	0%	8%
WATERSHED-WIDE ACCOUNTING.....								
tributary land area	ac	49.50	57.87	243.00	348.90	131.61	162.92	2181.86
tributary water area	ac	0.00	0.00	0.00	0.00	0.00	0.00	3.08
direct and ponded area	ac	49.50	57.87	243.00	348.90	131.61	162.92	2184.94
ASSUMED EXPORT FACTORS.....								
season length	yrs	1	1	1	1	1	1	1
season precipitation	inches	31.8	31.8	31.8	31.8	31.8	31.8	31.8
runoff total p	ppb	319.4950148	200.0022575	335.9708603	399.9872375	324.5868464	231.9883953	380.8520047
runoff ortho p/total p	-	0.459417513	0.599996656	0.440203383	0.37316326	0.452731929	0.56236641	0.360599235
unit runoff	in/yr	3.214585484	2.544057469	3.522963127	3.810226405	4.71552217	2.723523326	5.922716254
unit export	lbs/ac-y	0.27	0.12	0.31	0.37	0.39	0.16	0.53
POND WATER BUDGETS.....								
runoff	ac-ft/yr	13.26	1.77	54.35	33.62	51.72	7.11	38.10
upstream pond	ac-ft/yr	0.00	13.26	15.03	69.39	0.00	51.72	635.29
total inflow	**ac-ft/yr**	**13.26**	**15.03**	**69.39**	**103.01**	**51.72**	**58.82**	**673.39**
outflow	ac-ft/yr	13.26	15.03	69.39	103.01	51.72	58.82	673.39
POND PHOSPHORUS BUDGETS.....								
runoff	lbs/yr	13.17	0.96	56.51	39.68	51.37	4.87	40.64
upstream pond	lbs/yr	0.00	13.17	14.14	70.64	0.00	51.37	627.63
total inflow	**lbs/yr**	**13.17**	**14.14**	**70.64**	**110.32**	**51.37**	**56.25**	**668.27**
net sedimentation	lbs/yr	0.00	0.00	0.00	0.00	0.00	0.00	0.00
outflow	lbs/yr	13.17	14.14	70.64	110.32	51.37	56.25	668.27
p removal efficiency	%	0.00	0.00	0.00	0.00	0.00	0.00	0.00
upstream w-shed p load	lbs/yr	13.17	14.14	70.64	110.33	51.37	56.25	708.00
total removal %	%	0.00	0.01	0.00	0.00	0.00	0.00	5.61
HYDRAULIC PARAMETERS.....								
pond mean depth	feet	1.00	1.00	1.00	1.00	1.00	1.00	1.00
relative volume	inches	0.00	0.00	0.00	0.00	0.00	0.00	0.00
residence time	years	0.00	0.00	0.00	0.00	0.00	0.00	0.00
residence time	days	0.00	0.00	0.00	0.00	0.00	0.00	0.00
overflow rate	ft/yr	1325938.56	1503431.09	6938513.57	10300913.27	5171710.82	5882393.58	67339085.68
inflow phos conc	ppb	365.51	345.96	374.59	394.05	365.47	351.79	365.12
outflow phos conc	ppb	365.50	345.96	374.59	394.04	365.46	351.79	365.12
p reaction rate	-	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1-rp	-	1.00	1.00	1.00	1.00	1.00	1.00	1.00
vlawmo pond volume	acre-ft	1.04	0.14	4.27	2.64	4.07	0.56	3.00
LAND USE PARAMETERS.....								
runoff total P conc	ppb	319.50	200.00	335.97	399.99	324.59	231.99	380.85
runoff coefficient		0.10	0.08	0.11	0.12	0.15	0.09	0.19
dissolved/total P		0.46	0.60	0.44	0.37	0.45	0.56	0.36
runoff TSS conc	ppm	197.37	216.00	192.80	186.48	186.39	211.01	175.02
POND TSS BUDGETS.....								
runoff	lbs/yr	6834.53	1038.96	26901.38	16226.42	23381.51	4003.06	16320.22
upstream pond	lbs/yr	0.00	6834.53	7873.49	34774.87	0.00	23381.51	279607.96
total inflow	**lbs/yr**	**6834.53**	**7873.49**	**34774.87**	**51001.28**	**23381.51**	**27384.57**	**295928.18**
p removal efficiency (no inf)	%	0.00	0.00	0.00	0.00	0.00	0.00	0.00
tss removal efficiency (no inf)	%	0.00	0.00	0.00	0.00	0.00	0.00	0.00
net sedimentation	lbs/yr	0.00	0.00	0.00	0.00	0.00	0.00	0.00
outflow	lbs/yr	6834.53	7873.49	34774.87	51001.28	23381.51	27384.57	295928.18
tss removal efficiency (inf)		0.00	0.00	0.00	0.00	0.00	0.00	0.00
upstream watershed tss load	lbs/yr	6834.53	7873.49	34774.87	51001.28	23381.51	27384.57	329244.75
tss total removal efficiency	%	0.00	0.00	0.00	0.00	0.00	0.00	10.12
INFILTRATION BMP/POND.....								
Annual runoff infiltrated	%	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Adjusted outflow	**ac-ft/yr**	**13.26**	**15.03**	**69.39**	**103.01**	**51.72**	**58.82**	**673.39**
Adjusted TP outflow	**lbs/yr**	**13.17**	**14.14**	**70.64**	**110.32**	**51.37**	**56.25**	**668.27**
Adjusted TSS outflow	**lbs/yr**	**6834.53**	**7873.49**	**34774.87**	**51001.28**	**23381.51**	**27384.57**	**295928.18**

Rochester Loading Assessment																						
Hadley Valley																						
363-06-158-2																						
Present (2005) LOADS																						
		hv-a1.4c	**hv-a1.4b**	**hv-a1.4a**	**hv-a1.5**	**hv-a1.6c**	**hv-a1.6d**	**hv-a1.9b**	**hv-a1.7f**	**hv-a1.7e**	**hv-a1.7d**	**hv-a1.7c**	**hv-a1.7a**	**hv-a1.7b**	**hv-a1.8d**	**hv-a1.8c**	**hv-a1.8e**	**hv-a1.8a**	**hv-a1.8f**	**hv-a1.8b**	**hv-a1.9a**	**hv-a1.12**
Routed TO:		hv-a1.4a	hv-a1.4a	hv-a1.5	hv-a1.12	hv-a1.6d	hv-a1.9a	hv-a1.9a	hv-a1.7a	hv-a1.7a	hv-a1.7a	hv-a1.7a	hv-a1.7b	hv-a1.9a	hv-a1.8c	hv-a1.8a	hv-a1.8a	hv-a1.8b	hv-a1.8b	hv-a1.9a	hv-a1.12	hv-a1.14
INPUT VARIABLES....	UNITS																					
case label	-																					
Watershed area	acres	2.8	1.5	231.8	35.3	18.4	91.3	27.7	18.4	17.7	7.8	16.9	170.2	161.3	6.8	16.3	30.1	62.8	47.0	129.9	226.6	270.9
basin area	acres	0.20	0.20	0.00	0.00	0.00	0.00	0.00	0.33	0.03	0.32	0.32	2.65	0.00	0.06	0.08	0.03	0.00	0.39	0.00	0.00	0.00
basin volume	acre-ft	0.80	0.80	0.00	0.00	0.00	0.00	0.00	0.84	0.05	0.66	0.66	10.60	0.00	0.07	0.32	0.12	0.00	1.54	0.00	0.00	0.00
Row Crop Agriculture		0%	0%	49%	64%	0%	31%	16%	31%	24%	0%	0%	5%	10%	0%	0%	0%	6%	0%	31%	55%	42%
Very Low Density Residential		28%	0%	7%	0%	38%	12%	17%	0%	0%	0%	0%	13%	20%	0%	0%	0%	0%	0%	0%	8%	5%
Low Density Residential		0%	0%	0%	0%	0%	0%	0%	39%	0%	0%	0%	16%	0%	0%	61%	0%	18%	77%	0%	0%	1%
Medium Density Residential		0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
High Density Residential		0%	0%	0%	0%	0%	0%	0%	3%	0%	0%	0%	0%	0%	0%	3%	2%	0%	0%	0%	0%	0%
Commercial/Industrial		0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	2%
Institutional		0%	0%	0%	0%	0%	0%	0%	7%	34%	92%	92%	18%	0%	0%	0%	58%	13%	5%	0%	0%	0%
Open Space		61%	100%	40%	22%	62%	56%	67%	15%	39%	8%	3%	45%	70%	100%	37%	19%	64%	18%	69%	34%	47%
Golf Course		0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Pits and Quarries		0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Right-of-Way		11%	0%	4%	14%	0%	0%	0%	5%	2%	0%	5%	4%	0%	0%	0%	21%	0%	0%	0%	3%	3%
WATERSHED-WIDE ACCOUNTING.....																						
tributary land area	ac	2.81	1.55	236.20	271.47	18.36	109.71	27.69	18.36	17.69	7.80	16.91	230.98	392.33	6.79	23.09	30.13	116.03	47.01	292.99	1049.35	1591.74
tributary water area	ac	0.20	0.20	0.40	0.40	0.00	0.00	0.00	0.33	0.03	0.32	0.32	3.65	3.65	0.06	0.14	0.03	0.17	0.39	0.56	4.21	4.61
direct and ponded area	ac	3.01	1.75	236.60	271.87	18.36	109.71	27.69	18.69	17.72	8.12	17.23	234.63	395.98	6.85	23.23	30.16	116.20	47.40	293.55	1053.56	1596.35
ASSUMED EXPORT FACTORS.....																						
season length	yrs	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
season precipitation	inches	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8
runoff total p	ppb	264.00	200.01	386.03	445.52	257.03	324.54	281.08	430.68	337.35	338.57	348.55	309.97	265.55	200.00	358.05	334.82	283.07	401.08	306.55	405.24	361.64
runoff ortho p/total p	-	0.54	0.60	0.38	0.30	0.56	0.46	0.52	0.31	0.39	0.32	0.31	0.45	0.54	0.60	0.41	0.36	0.49	0.35	0.47	0.36	0.41
unit runoff	in/yr	3.37	2.54	3.75	4.63	2.71	3.19	2.93	5.88	5.60	9.19	9.50	4.89	2.84	2.54	5.38	8.28	4.33	6.15	3.14	3.84	3.88
unit export	lbs/ac-y	0.23	0.12	0.36	0.48	0.16	0.26	0.21	0.59	0.46	0.72	0.76	0.39	0.18	0.12	0.50	0.67	0.33	0.59	0.25	0.38	0.35
POND WATER BUDGETS.....																						
runoff	ac-ft/yr	0.79	0.33	72.43	13.61	4.15	24.30	6.76	8.99	8.26	5.97	13.39	69.43	38.13	1.44	7.31	20.80	22.68	24.11	34.02	72.47	87.69
upstream pond	ac-ft/yr	0.00	0.00	1.12	73.55	0.00	4.15	0.00	0.00	0.00	0.00	0.00	36.61	106.04	0.00	1.44	0.00	29.55	0.00	76.33	289.74	449.37
total inflow	**ac-ft/yr**	**0.79**	**0.33**	**73.55**	**87.16**	**4.15**	**28.45**	**6.76**	**8.99**	**8.26**	**5.97**	**13.39**	**106.04**	**144.17**	**1.44**	**8.75**	**20.80**	**52.22**	**24.11**	**110.35**	**362.21**	**537.06**
outflow	ac-ft/yr	0.79	0.33	73.55	87.16	4.15	28.45	6.76	8.99	8.26	5.97	13.39	106.04	144.17	1.44	8.75	20.80	52.22	24.11	110.35	362.21	537.06
POND PHOSPHORUS BUDGETS.....																						
runoff	lbs/yr	0.63	0.18	83.75	17.09	2.96	24.12	5.70	10.75	8.10	5.63	12.78	65.82	29.84	0.78	8.07	20.14	20.50	27.78	32.46	86.88	95.37
upstream pond	lbs/yr	0.00	0.00	0.38	84.13	0.00	2.96	0.00	0.00	0.00	0.00	0.00	21.13	45.19	0.00	0.62	0.00	21.16	0.00	54.50	194.77	382.87
total inflow	**lbs/yr**	**0.63**	**0.18**	**84.13**	**101.22**	**2.96**	**27.08**	**5.70**	**10.75**	**8.10**	**5.63**	**12.78**	**86.95**	**75.03**	**0.78**	**8.70**	**20.14**	**41.66**	**27.78**	**86.96**	**281.65**	**478.24**
net sedimentation	lbs/yr	0.34	0.08	0.00	0.00	0.00	0.00	0.00	5.97	1.51	2.81	5.84	41.76	0.00	0.16	3.72	3.96	0.00	14.94	0.00	0.00	0.00
outflow	lbs/yr	0.29	0.09	84.13	101.22	2.96	27.08	5.70	4.78	6.59	2.82	6.94	45.19	75.03	0.62	4.98	16.18	41.66	12.84	86.96	281.65	478.24
p removal efficiency	%	54.20	46.76	0.00	0.00	0.01	0.00	0.00	55.56	18.60	49.98	45.69	48.03	0.00	20.41	42.77	19.65	0.00	53.78	0.00	0.00	0.00
upstream w-shed p load	lbs/yr	0.63	0.18	84.56	101.65	2.96	27.08	5.70	10.75	8.10	5.63	12.78	103.08	132.91	0.78	8.86	20.14	49.50	27.78	109.74	362.32	559.34
total removal %	%	54.20	46.76	0.51	0.42	0.01	0.00	0.00	55.56	18.60	49.98	45.69	56.16	43.55	20.41	43.80	19.65	15.83	53.78	20.76	22.26	14.50
HYDRAULIC PARAMETERS.....																						
pond mean depth	feet	4.00	4.00	1.00	1.00	1.00	1.00	1.00	2.55	1.75	2.07	2.07	4.00	1.00	1.17	4.00	4.00	1.00	3.94	1.00	1.00	1.00
relative volume	inches	32.25	77.66	0.00	0.00	0.00	0.00	0.00	2.97	0.20	3.53	1.57	4.85	0.00	1.55	1.39	0.18	0.00	2.03	0.00	0.00	0.00
residence time	years	1.01	2.44	0.00	0.00	0.00	0.00	0.00	0.09	0.01	0.11	0.05	0.10	0.00	0.05	0.04	0.01	0.00	0.06	0.00	0.00	0.00
residence time	days	370.14	891.33	0.00	0.00	0.00	0.00	0.00	34.10	2.32	40.54	18.07	36.49	0.00	17.75	13.35	2.11	0.00	23.29	0.00	0.00	0.00
overflow rate	ft/yr	3.94	1.64	7354985.62	8716042.36	414582.40	2844962.32	675967.40	27.24	275.34	18.60	41.84	40.02	14417267.36	24.00	109.32	693.35	5222473.76	61.81	11035499.00	36221095.77	53706225.34
inflow phos conc	ppb	295.45	200.05	420.86	427.28	262.73	350.22	310.40	439.71	360.88	346.85	351.24	301.67	191.46	200.02	365.81	356.20	293.51	424.00	289.92	286.09	327.62
outflow phos conc	ppb	135.32	106.50	420.86	427.27	262.72	350.21	310.38	195.42	293.74	173.51	190.76	156.79	191.46	159.20	209.36	286.21	293.50	195.97	289.92	286.09	327.62
p reaction rate	-	2.58	1.65	0.00	0.00	0.00	0.00	0.00	2.81	0.28	2.00	1.55	1.78	0.00	0.32	1.31	0.30	0.00	2.52	0.00	0.00	0.00
1-rp	-	0.46	0.53	1.00	1.00	1.00	1.00	1.00	0.44	0.81	0.50	0.54	0.52	1.00	0.80	0.57	0.80	1.00	0.46	1.00	1.00	1.00
vlawmo pond volume	acre-ft	0.06	0.03	5.69	1.07	0.33	1.91	0.53	0.71	0.65	0.47	1.05	5.46	3.00	0.11	0.57	1.64	1.78	1.90	2.67	5.70	6.89
LAND USE PARAMETERS.....																						
runoff total P conc	ppb	264.00	200.01	386.03	445.52	257.03	324.54	281.08	430.68	337.35	338.57	348.55	309.97	265.55	200.00	358.05	334.82	283.07	401.08	306.55	405.24	361.64
runoff coefficient		0.11	0.08	0.12	0.15	0.09	0.10	0.09	0.18	0.18	0.29	0.30	0.15	0.09	0.08	0.17	0.26	0.14	0.19	0.10	0.12	0.12
dissolved/total P		0.54	0.60	0.38	0.30	0.56	0.46	0.52	0.31	0.39	0.32	0.31	0.45	0.54	0.60	0.41	0.36	0.49	0.35	0.47	0.36	0.41
runoff TSS conc	ppm	207.43	216.00	186.96	171.50	216.00	199.47	207.34	158.79	175.64	145.79	141.98	184.74	210.33	216.00	167.95	154.12	189.63	153.36	199.39	184.43	188.96
POND TSS BUDGETS.....																						
runoff	lbs/yr	414.05	191.75	34992.99	6026.04	2426.79	12708.43	3715.71	3666.27	3538.37	2290.86	5099.51	30962.66	21392.05	842.76	3033.76	8136.18	10430.06	9507.43	17745.49	34651.84	42114.03
upstream pond	lbs/yr	0.00	0.00	85.05	35078.04	0.00	2426.79	0.00	0.00	0.00	0.00	0.00	4337.57	7589.55	0.00	495.12	0.00	6045.54	0.00	17426.34	83004.36	158760.27
total inflow	**lbs/yr**	**414.05**	**191.75**	**35078.04**	**41104.08**	**2426.79**	**15135.22**	**3715.71**	**3666.27**	**3538.37**	**2290.86**	**5099.51**	**35300.22**	**28981.59**	**842.76**	**3528.88**	**8136.18**	**16475.60**	**9507.43**	**35171.84**	**117656.20**	**200874.31**
p removal efficiency (no inf)	%	55.00	47.00	0.00	0.00	0.00	0.00	0.00	56.00	19.00	50.00	46.00	49.00	0.00	21.00	43.00	20.00	0.00	54.00	0.00	0.00	0.00
tss removal efficiency (no inf)	%	91.50	74.00	0.00	0.00	0.00	0.00	0.00	93.00	37.32	81.00	72.00	78.50	0.00	41.25	68.67	39.29	0.00	90.00	0.00	0.00	0.00
net sedimentation	lbs/yr	378.86	141.90	0.00	0.00	0.00	0.00	0.00	3409.63	1320.57	1855.60	3671.65	27710.67	0.00	347.64	2423.16	3196.36	0.00	8556.68	0.00	0.00	0.00
outflow	lbs/yr	35.19	49.86	35078.04	41104.08	2426.79	15135.22	3715.71	256.64	2217.80	435.26	1427.86	7589.55	28981.59	495.12	1105.72	4939.82	16475.60	950.74	35171.84	117656.20	200874.31
tss removal efficiency (inf)	%	91.50	74.00	0.00	0.00	0.00	0.00	0.00	93.00	37.32	81.00	72.00	78.50	0.00	41.25	68.67	39.29	0.00	90.00	0.00	0.00	0.00
upstream watershed tss load	lbs/yr	414.05	191.75	35598.80	41624.83	2426.79	15135.22	3715.71	3666.27	3538.37	2290.86	5099.51	45557.67	66949.72	842.76	3876.52	8136.18	22442.76	9507.43	49695.68	170148.16	253887.03
tss total removal efficiency	%	91.50	74.00	1.46	1.25	0.00	0.00	0.00	93.00	37.32	81.00	72.00	83.34	56.71	41.25	71.48	39.29	26.59	90.00	29.23	30.85	20.88
INFILTRATION BMP/POND.....																						
Annual runoff infiltrated	%	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Adjusted outflow	**ac-ft/yr**	**0.79**	**0.33**	**73.55**	**87.16**	**4.15**	**28.45**	**6.76**	**8.99**	**8.26**	**5.97**	**13.39**	**106.04**	**144.17**	**1.44**	**8.75**	**20.80**	**52.22**	**24.11**	**110.35**	**362.21**	**537.06**
Adjusted TP outflow	**lbs/yr**	**0.29**	**0.09**	**84.13**	**101.22**	**2.96**	**27.08**	**5.70**	**4.78**	**6.59**	**2.82**	**6.94**	**45.19**	**75.03**	**0.62**	**4.98**	**16.18**	**41.66**	**12.84**	**86.96**	**281.65**	**478.24**
Adjusted TSS outflow	**lbs/yr**	**35.19**	**49.86**	**35078.04**	**41104.08**	**2426.79**	**15135.22**	**3715.71**	**256.64**	**2217.80**	**435.26**	**1427.86**	**7589.55**	**28981.59**	**495.12**	**1105.72**	**4939.82**	**16475.60**	**950.74**	**35171.84**	**117656.20**	**200874.31**

Rochester Loading Assessment									
Hadley Valley									
363-06-158-2									
Present (2005) LOADS									
		hv-a1.11c	**hv-a1.11b**	**hv-a1.11b cell 2**	**hv-a1.11a**	**hv-a1.13**	**hv-a1.15a**	**hv-a1.15b**	**hv-a1.14**
Routed TO:		hv-a1.11b	hv-a1.11b cell 2	hv-a1.11a	hv-a1.13	hv-a1.14	hv-a1.15b	hv-a1.14	zr-a4.6a
INPUT VARIABLES....	UNITS								
case label	-								
Watershed area	acres	49.3	7.8	0.0	185.1	105.9	131.6	30.8	77.2
basin area	acres	0.00	0.22	0.56	0.00	0.00	0.00	0.37	0.00
basin volume	acre-ft	0.00	0.62	2.36	0.00	0.00	0.00	2.06	0.00
Row Crop Agriculture		0%	0%	0%	33%	50%	2%	10%	41%
Very Low Density Residential		0%	0%	0%	2%	14%	14%	0%	0%
Low Density Residential		53%	0%	0%	8%	0%	50%	0%	0%
Medium Density Residential		0%	0%	0%	0%	0%	1%	0%	0%
High Density Residential		1%	0%	0%	0%	0%	0%	0%	0%
Commercial/Industrial		0%	0%	0%	0%	0%	6%	0%	17%
Institutional		0%	0%	0%	0%	0%	0%	0%	0%
Open Space		46%	100%	100%	55%	32%	24%	90%	34%
Golf Course		0%	0%	0%	0%	0%	0%	0%	0%
Pits and Quarries		0%	0%	0%	0%	0%	0%	0%	0%
Right-of-Way		0%	0%	0%	2%	4%	3%	0%	8%
WATERSHED-WIDE ACCOUNTING.....									
tributary land area	ac	49.27	57.08	57.09	242.21	348.11	131.60	162.41	2179.46
tributary water area	ac	0.00	0.22	0.78	0.78	0.78	0.00	0.37	5.76
direct and ponded area	ac	49.27	57.30	57.87	242.99	348.89	131.60	162.78	2185.22
ASSUMED EXPORT FACTORS.....									
season length	yrs	1	1	1	1	1	1	1	1
season precipitation	inches	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8
runoff total p	ppb	334.18	200.26	200.00	338.21	399.98	371.01	232.51	380.80
runoff ortho p/total p	-	0.44	0.60	0.60	0.44	0.37	0.40	0.56	0.36
unit runoff	in/yr	4.84	2.55	2.54	3.63	3.81	5.71	2.73	5.92
unit export	lbs/ac-y	0.43	0.12	0.12	0.32	0.37	0.52	0.16	0.53
POND WATER BUDGETS.....									
runoff	ac-ft/yr	19.87	1.66	0.00	55.99	33.62	62.66	7.00	38.10
upstream pond	ac-ft/yr	0.00	19.87	21.53	21.53	77.53	0.00	62.66	717.87
total inflow	**ac-ft/yr**	**19.87**	**21.53**	**21.53**	**77.53**	**111.15**	**62.66**	**69.66**	**755.97**
outflow	ac-ft/yr	19.87	21.53	21.53	77.53	111.15	62.66	69.66	755.97
POND PHOSPHORUS BUDGETS.....									
runoff	lbs/yr	21.02	0.90	0.00	58.62	39.68	68.16	4.82	40.64
upstream pond	lbs/yr	0.00	21.02	14.89	8.70	67.32	0.00	68.16	631.37
total inflow	**lbs/yr**	**21.02**	**21.92**	**14.89**	**67.32**	**107.00**	**68.16**	**72.97**	**672.01**
net sedimentation	lbs/yr	0.00	7.03	6.19	0.00	0.00	0.00	26.84	0.00
outflow	lbs/yr	21.02	14.89	8.70	67.32	107.00	68.16	46.13	672.01
p removal efficiency	%	0.00	32.08	41.59	0.00	0.00	0.00	36.78	0.00
upstream w-shed p load	lbs/yr	21.02	21.92	21.92	80.55	120.23	68.16	72.97	793.17
total removal %	%	0.00	32.08	60.33	16.42	11.00	0.00	36.78	15.28
HYDRAULIC PARAMETERS.....									
pond mean depth	feet	1.00	2.82	4.21	1.00	1.00	1.00	5.55	1.00
relative volume	inches	0.00	11.90	35400.00	0.00	0.00	0.00	9.34	0.00
residence time	years	0.00	0.03	0.11	0.00	0.00	0.00	0.03	0.00
residence time	days	0.00	10.51	40.00	0.00	0.00	0.00	10.77	0.00
overflow rate	ft/yr	1987489.02	97.87	38.45	7752515.64	11114808.25	6266142.10	188.27	75597158.55
inflow phos conc	ppb	389.15	374.59	254.41	319.49	354.18	400.19	385.41	327.05
outflow phos conc	ppb	389.14	254.42	148.60	319.49	354.18	400.19	243.66	327.05
p reaction rate	-	0.00	0.70	1.22	0.00	0.00	0.00	0.92	0.00
1-rp	-	1.00	0.68	0.58	1.00	1.00	1.00	0.63	1.00
vlawmo pond volume	acre-ft	1.56	0.13	0.00	4.40	2.64	4.93	0.55	3.00
LAND USE PARAMETERS.....									
runoff total P conc	ppb	334.18	200.26	200.00	338.21	399.98	371.01	232.51	380.80
runoff coefficient		0.15	0.08	0.08	0.11	0.12	0.18	0.09	0.19
dissolved/total P		0.44	0.60	0.60	0.44	0.37	0.40	0.56	0.36
runoff TSS conc	ppm	175.21	216.28	216.00	191.20	186.49	169.24	210.93	175.02
POND TSS BUDGETS.....									
runoff	lbs/yr	8537.24	969.59	1.24	27321.03	16226.16	26150.79	3940.64	16319.60
upstream pond	lbs/yr	0.00	8537.24	3862.15	1236.29	28557.32	0.00	26150.79	256791.61
total inflow	**lbs/yr**	**8537.24**	**9506.83**	**3863.39**	**28557.32**	**44783.48**	**26150.79**	**30091.43**	**273111.22**
p removal efficiency (no inf)	%	0.00	33.00	42.00	0.00	0.00	0.00	37.00	0.00
tss removal efficiency (no inf)	%	0.00	59.38	68.00	0.00	0.00	0.00	63.00	0.00
net sedimentation	lbs/yr	0.00	5644.68	2627.11	0.00	0.00	0.00	18957.60	0.00
outflow	lbs/yr	8537.24	3862.15	1236.29	28557.32	44783.48	26150.79	11133.83	273111.22
tss removal efficiency (inf)	%	0.00	59.38	68.00	0.00	0.00	0.00	63.00	0.00
upstream watershed tss load	lbs/yr	8537.24	9506.83	9508.07	36829.10	53055.27	26150.79	30091.43	353353.33
tss total removal efficiency	%	0.00	59.38	87.00	22.46	15.59	0.00	63.00	22.71
INFILTRATION BMP/POND.....									
Annual runoff infiltrated	%	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Adjusted outflow	**ac-ft/yr**	**19.87**	**21.53**	**21.53**	**77.53**	**111.15**	**62.66**	**69.66**	**755.97**
Adjusted TP outflow	**lbs/yr**	**21.02**	**14.89**	**8.70**	**67.32**	**107.00**	**68.16**	**46.13**	**672.01**
Adjusted TSS outflow	**lbs/yr**	**8537.24**	**3862.15**	**1236.29**	**28557.32**	**44783.48**	**26150.79**	**11133.83**	**273111.22**

Rochester Loading Assessment																								
Hadley Valley																								
363-06-158-2																								
2020 LOADS																								
		future hv-a1.4c	**hv-a1.4c**	**future hv-a1.4b**	**hv-a1.4b**	**future hv-a1.4a**	**hv-a1.4a**	**future hv-a1.5**	**hv-a1.5**	**future hv-a1.6c**	**hv-a1.6c**	**future hv-a1.6d**	**hv-a1.6d**	**future hv-a1.9b**	**hv-a1.9b**	**future hv-a1.7f**	**hv-a1.7f**	**future hv-a1.7e**	**hv-a1.7e**	**future hv-a1.7d**	**hv-a1.7d**	**future hv-a1.7c**	**hv-a1.7c**	**future hv-a1.7a**	**hv-a1.7a**
		hv-a1.4c	hv-a1.4a	hv-a1.4b	hv-a1.4a	hv-a1.4a	hv-a1.5	hv-a1.5	hv-a1.12	hv-a1.6c	hv-a1.6d	hv-a1.6d	hv-a1.9a	hv-a1.9b	hv-a1.9a	hv-a1.7f	hv-a1.7a	hv-a1.7e	hv-a1.7a	hv-a1.7d	hv-a1.7a	hv-a1.7c	hv-a1.7a	hv-a1.7a	hv-a1.7b
INPUT VARIABLES....	UNITS																							
case label	-																							
Watershed area	acres	0.0	2.8	0.0	1.5	0.0	231.8	22.3	13.0	0.0	18.4	0.0	91.3	0.0	27.2	0.0	18.4	0.0	17.7	0.0	7.8	0.0	16.9	5.2	165.0
basin area	acres	0.00	0.20	0.00	0.20	0.00	0.00	0.12	0.00	0.00	0.00	0.00	0.00	0.00	0.51	0.00	0.33	0.00	0.03	0.00	0.32	0.00	0.32	0.08	0.20
basin volume	acre-ft	0.00	0.80	0.00	0.80	0.00	0.00	0.30	0.00	0.00	0.00	0.00	0.00	0.00	1.19	0.00	0.84	0.00	0.05	0.00	0.66	0.00	0.66	0.23	0.80
Row Crop Agriculture		0%	0%	0%	0%	0%	49%	0%	3%	0%	0%	0%	31%	0%	16%	0%	31%	0%	24%	0%	0%	0%	0%	0%	5%
Very Low Density Residential		0%	28%	0%	0%	0%	7%	0%	0%	0%	38%	0%	12%	0%	16%	0%	0%	0%	0%	0%	0%	0%	0%	0%	13%
Low Density Residential		0%	0%	0%	0%	0%	0%	49%	0%	0%	0%	0%	0%	0%	0%	0%	39%	0%	0%	0%	0%	0%	0%	0%	16%
Medium Density Residential		0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	100%	0%
High Density Residential		0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	3%	0%	0%	0%	0%	0%	0%	0%	0%
Commercial/Industrial		0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Institutional		0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	7%	0%	34%	0%	92%	0%	92%	0%	19%
Open Space		0%	61%	0%	100%	0%	40%	51%	60%	0%	62%	0%	56%	0%	68%	0%	15%	0%	39%	0%	8%	0%	3%	0%	43%
Golf Course		0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Pits and Quarries		0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Right-of-Way		0%	11%	0%	0%	0%	4%	0%	38%	0%	0%	0%	0%	0%	0%	0%	5%	0%	2%	0%	0%	0%	5%	0%	4%
WATERSHED-WIDE ACCOUNTING.....																								
tributary land area	ac	0.00	2.81	0.00	1.55	0.00	236.20	22.26	271.47	0.00	18.36	0.00	109.71	0.00	27.23	0.00	18.36	0.00	17.69	0.00	7.80	0.00	16.91	5.24	230.98
tributary water area	ac	0.00	0.20	0.00	0.20	0.00	0.40	0.12	0.52	0.00	0.00	0.00	0.00	0.00	0.51	0.00	0.33	0.00	0.03	0.00	0.32	0.00	0.32	0.08	1.28
direct and ponded area	ac	0.00	3.01	0.00	1.75	0.00	236.60	22.38	272.00	0.00	18.36	0.00	109.71	0.00	27.74	0.00	18.69	0.00	17.72	0.00	8.12	0.00	17.23	5.32	232.26
ASSUMED EXPORT FACTORS.....																								
season length	yrs	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
season precipitation	inches	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80
runoff total p	ppb	0.00	251.43	0.00	200.01	0.00	382.88	292.93	283.96	0.00	239.73	0.00	318.93	0.00	272.36	0.00	406.21	0.00	337.20	0.00	338.57	0.00	348.55	391.50	298.12
runoff ortho p/total p	-	0.00	0.54	0.00	0.60	0.00	0.38	0.45	0.48	0.00	0.56	0.00	0.46	0.00	0.52	0.00	0.31	0.00	0.39	0.00	0.32	0.00	0.31	0.30	0.45
unit runoff	in/yr	0.00	3.37	0.00	2.54	0.00	3.75	4.58	4.94	0.00	2.71	0.00	3.19	0.00	2.93	0.00	5.88	0.00	5.60	0.00	9.19	0.00	9.50	9.74	4.97
unit export	lbs/ac-y	0.00	0.22	0.00	0.12	0.00	0.36	0.35	0.38	0.00	0.15	0.00	0.26	0.00	0.20	0.00	0.55	0.00	0.46	0.00	0.72	0.00	0.76	0.86	0.38
POND WATER BUDGETS.....																								
runoff	ac-ft/yr	0.00	0.79	0.00	0.33	0.00	72.43	8.50	5.35	0.00	4.15	0.00	24.30	0.00	6.64	0.00	8.99	0.00	8.26	0.00	5.97	0.00	13.39	4.25	68.32
upstream pond	ac-ft/yr	0.00	0.00	0.00	0.00	0.00	1.12	0.00	82.05	0.00	0.00	0.00	4.15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	40.86
total inflow	**ac-ft/yr**	**0.00**	**0.79**	**0.00**	**0.33**	**0.00**	**73.55**	**8.50**	**87.40**	**0.00**	**4.15**	**0.00**	**28.45**	**0.00**	**6.64**	**0.00**	**8.99**	**0.00**	**8.26**	**0.00**	**5.97**	**0.00**	**13.39**	**4.25**	**109.18**
outflow	ac-ft/yr	0.00	0.79	0.00	0.33	0.00	73.55	8.50	87.40	0.00	4.15	0.00	28.45	0.00	6.64	0.00	8.99	0.00	8.26	0.00	5.97	0.00	13.39	4.25	109.18
POND PHOSPHORUS BUDGETS.....																								
runoff	lbs/yr	0.00	0.61	0.00	0.18	0.00	83.25	7.78	4.97	0.00	2.75	0.00	23.77	0.00	5.45	0.00	10.01	0.00	8.10	0.00	5.63	0.00	12.78	4.52	62.18
upstream pond	lbs/yr	0.00	0.00	0.00	0.00	0.00	0.38	0.00	88.60	0.00	0.00	0.00	2.75	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	23.14
total inflow	**lbs/yr**	**0.00**	**0.61**	**0.00**	**0.18**	**0.00**	**83.63**	**7.78**	**93.57**	**0.00**	**2.75**	**0.00**	**26.52**	**0.00**	**5.45**	**0.00**	**10.01**	**0.00**	**8.10**	**0.00**	**5.63**	**0.00**	**12.78**	**4.52**	**85.32**
net sedimentation	lbs/yr	0.00	0.33	0.00	0.08	0.00	0.00	2.81	0.00	0.00	0.00	0.00	0.00	0.00	2.36	0.00	5.45	0.00	1.51	0.00	2.81	0.00	5.84	2.30	14.34
outflow	lbs/yr	0.00	0.28	0.00	0.09	0.00	83.63	4.97	93.57	0.00	2.75	0.00	26.52	0.00	3.09	0.00	4.56	0.00	6.59	0.00	2.82	0.00	6.94	2.22	70.98
p removal efficiency	%	3.78	53.58	3.78	46.76	3.78	0.00	36.13	0.00	3.78	0.01	3.78	0.00	3.78	43.25	3.78	54.43	3.78	18.60	3.78	49.98	3.78	45.69	50.88	16.81
upstream w-shed p load	lbs/yr	0.00	0.61	0.00	0.18	0.00	84.04	7.78	96.79	0.00	2.75	0.00	26.52	0.00	5.45	0.00	10.01	0.00	8.10	0.00	5.63	0.00	12.78	4.52	103.23
total removal %	%	3.78	53.58	3.78	46.76	3.78	0.49	36.13	3.33	3.78	0.01	3.78	0.00	3.78	43.25	3.78	54.43	3.78	18.60	3.78	49.98	3.78	45.69	50.88	31.24
HYDRAULIC PARAMETERS.....																								
pond mean depth	feet	0.00	4.00	0.00	4.00	0.00	1.00	2.39	1.00	0.00	1.00	0.00	1.00	0.00	2.33	0.00	2.55	0.00	1.75	0.00	2.07	0.00	2.07	2.74	4.00
relative volume	inches	1.58	32.25	1.58	77.66	1.58	0.00	1.11	0.00	1.58	0.00	1.58	0.00	1.58	5.70	1.58	2.97	1.58	0.20	1.58	3.53	1.58	1.57	1.70	0.37
residence time	years	0.05	1.01	0.05	2.44	0.05	0.00	0.03	0.00	0.05	0.00	0.05	0.00	0.05	0.18	0.05	0.09	0.05	0.01	0.05	0.11	0.05	0.05	0.05	0.01
residence time	days	18.08	370.14	18.08	891.33	18.08	0.00	12.76	0.00	18.08	0.00	18.08	0.00	18.08	65.42	18.08	34.10	18.08	2.32	18.08	40.54	18.08	18.07	19.50	2.67
overflow rate	ft/yr	0.00	3.94	0.00	1.64	0.00	7354985.62	68.39	8740350.21	0.00	414582.40	0.00	2844962.32	0.00	13.02	0.00	27.24	0.00	275.34	0.00	18.60	0.00	41.84	51.28	545.90
inflow phos conc	ppb	384.34	284.32	384.34	200.05	384.34	418.36	336.79	393.89	384.34	243.71	384.34	342.97	384.34	301.80	384.34	409.78	384.34	360.80	384.34	346.85	384.34	351.24	391.52	287.50
outflow phos conc	ppb	369.82	131.99	369.82	106.50	369.82	418.35	215.11	393.88	369.82	243.69	369.82	342.96	369.82	171.28	369.82	186.73	369.82	293.68	369.82	173.51	369.82	190.76	192.30	239.18
p reaction rate	-	0.04	2.49	0.04	1.65	0.04	0.00	0.89	0.00	0.04	0.00	0.04	0.00	0.04	1.34	0.04	2.62	0.04	0.28	0.04	2.00	0.04	1.55	2.11	0.24
1-rp	-	0.96	0.46	0.96	0.53	0.96	1.00	0.64	1.00	0.96	1.00	0.96	1.00	0.96	0.57	0.96	0.46	0.96	0.81	0.96	0.50	0.96	0.54	0.49	0.83
vlawmo pond volume	acre-ft	0.00	0.06	0.00	0.03	0.00	5.69	0.67	0.42	0.00	0.33	0.00	1.91	0.00	0.52	0.00	0.71	0.00	0.65	0.00	0.47	0.00	1.05	0.33	5.37
LAND USE PARAMETERS.....																								
runoff total P conc	ppb	0.00	251.43	0.00	200.01	0.00	382.88	292.93	283.96	0.00	239.73	0.00	318.93	0.00	272.36	0.00	406.21	0.00	337.20	0.00	338.57	0.00	348.55	391.50	298.12
runoff coefficient		0.00	0.11	0.00	0.08	0.00	0.12	0.14	0.16	0.00	0.09	0.00	0.10	0.00	0.09	0.00	0.18	0.00	0.18	0.00	0.29	0.00	0.30	0.31	0.16
dissolved/total P		0.00	0.54	0.00	0.60	0.00	0.38	0.45	0.48	0.00	0.56	0.00	0.46	0.00	0.52	0.00	0.31	0.00	0.39	0.00	0.32	0.00	0.31	0.30	0.45
runoff TSS conc	ppm	0.00	207.43	0.00	216.00	0.00	186.96	179.12	186.04	0.00	216.00	0.00	199.47	0.00	207.29	0.00	158.79	0.00	175.64	0.00	145.79	0.00	141.98	140.00	183.75
POND TSS BUDGETS.....																								
runoff	lbs/yr	0.00	414.05	0.00	191.75	0.00	34992.99	3725.08	2378.85	0.00	2426.79	0.00	12708.43	0.00	3647.87	0.00	3666.05	0.00	3538.37	0.00	2290.86	0.00	5099.51	1612.29	30312.64
upstream pond	lbs/yr	0.00	0.00	0.00	0.00	0.00	85.05	0.00	36381.82	0.00	0.00	0.00	2426.79	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4498.78
total inflow	**lbs/yr**	**0.00**	**414.05**	**0.00**	**191.75**	**0.00**	**35078.04**	**3725.08**	**38760.66**	**0.00**	**2426.79**	**0.00**	**15135.22**	**0.00**	**3647.87**	**0.00**	**3666.05**	**0.00**	**3538.37**	**0.00**	**2290.86**	**0.00**	**5099.51**	**1612.29**	**34811.42**
p removal efficiency (no inf)	%	5.00	55.00	5.00	47.00	5.00	0.00	39.00	0.00	5.00	0.00	5.00	0.00	5.00	44.00	5.00	56.00	5.00	19.00	5.00	50.00	5.00	46.00	54.00	18.00
tss removal efficiency (no inf)	%	9.82	91.50	9.82	74.00	9.82	0.00	65.00	0.00	9.82	0.00	9.82	0.00	9.82	69.33	9.82	93.00	9.82	37.32	9.82	81.00	9.82	72.00	90.00	35.36
net sedimentation	lbs/yr	0.00	378.86	0.00	141.90	0.00	0.00	2421.30	0.00	0.00	0.00	0.00	0.00	0.00	2529.19	0.00	3409.43	0.00	1320.57	0.00	1855.60	0.00	3671.65	1451.06	12308.32
outflow	lbs/yr	0.00	35.19	0.00	49.86	0.00	35078.04	1303.78	38760.66	0.00	2426.79	0.00	15135.22	0.00	1118.68	0.00	256.62	0.00	2217.80	0.00	435.26	0.00	1427.86	161.23	22503.10
tss removal efficiency (inf)	%	9.82	91.50	9.82	74.00	9.82	0.00	65.00	0.00	9.82	0.00	9.82	0.00	9.82	69.33	9.82	93.00	9.82	37.32	9.82	81.00	9.82	72.00	90.00	35.36
upstream watershed tss load	lbs/yr	0.00	414.05	0.00	191.75	0.00	35598.80	3725.08	41702.72	0.00	2426.79	0.00	15135.22	0.00	3647.87	0.00	3666.05	0.00	3538.37	0.00	2290.86	0.00	5099.51	1612.29	46519.73
tss total removal efficiency	%	9.82	91.50	9.82	74.00	9.82	1.46	65.00	7.05	9.82	0.00	9.82	0.00	9.82	69.33	9.82	93.00	9.82	37.32	9.82	81.00	9.82	72.00	90.00	51.63
INFILTRATION BMP/POND.....																								
Annual runoff infiltrated	%	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Adjusted outflow	**ac-ft/yr**	**0.00**	**0.79**	**0.00**	**0.33**	**0.00**	**73.55**	**8.50**	**87.40**	**0.00**	**4.15**	**0.00**	**28.45**	**0.00**	**6.64**	**0.00**	**8.99**	**0.00**	**8.26**	**0.00**	**5.97**	**0.00**	**13.39**	**4.25**	**109.18**
Adjusted TP outflow	**lbs/yr**	**0.00**	**0.28**	**0.00**	**0.09**	**0.00**	**83.63**	**4.97**	**93.57**	**0.00**	**2.75**	**0.00**	**26.52**	**0.00**	**3.09**	**0.00**	**4.56**	**0.00**	**6.59**	**0.00**	**2.82**	**0.00**	**6.94**	**2.22**	**70.98**
Adjusted TSS outflow	**lbs/yr**	**0.00**	**35.19**	**0.00**	**49.86**	**0.00**	**35078.04**	**1303.78**	**38760.66**	**0.00**	**2426.79**	**0.00**	**15135.22**	**0.00**	**1118.68**	**0.00**	**256.62**	**0.00**	**2217.80**	**0.00**	**435.26**	**0.00**	**1427.86**	**161.23**	**22503.10**
POND P BUDGETS W/O P-BAN.....																								
runoff	lbs/yr	0.00	0.63	0.00	0.18	0.00	83.75	8.75	4.97	0.00	2.96	0.00	24.12	0.00	5.58	0.00	10.74	0.00	8.10	0.00	5.63	0.00	12.78	5.20	65.22
Adjusted TP outflow	**lbs/yr**	**0.00**	**0.29**	**0.00**	**0.09**	**0.00**	**84.13**	**5.41**	**94.52**	**0.00**	**2.96**	**0.00**	**27.08**	**0.00**	**3.14**	**0.00**	**4.78**	**0.00**	**6.59**	**0.00**	**2.82**	**0.00**	**6.94**	**2.43**	**73.43**
upstream pond	lbs/yr	0.00	0.00	0.00	0.00	0.00	0.38	0.00	89.54	0.00	0.00	0.00	2.96	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	23.56
total inflow	**lbs/yr**	**0.00**	**0.63**	**0.00**	**0.18**	**0.00**	**84.13**	**8.75**	**94.52**	**0.00**	**2.96**	**0.00**	**27.08**	**0.00**	**5.58**	**0.00**	**10.74**	**0.00**	**8.10**	**0.00**	**5.63**	**0.00**	**12.78**	**5.20**	**88.78**
outflow	lbs/yr	0.00	0.29	0.00	0.09	0.00	84.13	5.41	94.52	0.00	2.96	0.00	27.08	0.00	3.14	0.00	4.78	0.00	6.59	0.00	2.82	0.00	6.94	2.43	73.43
inflow phos conc	ppb	409.24	295.45	409.24	200.05	409.24	420.86	378.57	397.86	409.24	262.73	409.24	350.22	409.24	309.12	409.24	439.71	409.24	360.88	409.24	346.85	409.24	351.24	450.02	299.17
outflow phos conc	ppb	392.86	135.33	392.86	106.50	392.86	420.86	234.26	397.85	392.86	262.72	392.86	350.21	392.86	174.16	392.86	195.42	392.86	293.74	392.86	173.51	392.86	190.76	210.75	247.45
p reaction rate	-	0.04	2.58	0.04	1.65	0.04	0.00	1.00	0.00	0.04	0.00	0.04	0.00	0.04	1.38	0.04	2.81	0.04	0.28	0.04	2.00	0.04	1.55	2.42	0.25
1-rp	-	0.96	0.46	0.96	0.53	0.96	1.00	0.62	1.00	0.96	1.00	0.96	1.00	0.96	0.56	0.96	0.44	0.96	0.81	0.96	0.50	0.96	0.54	0.47	0.83
runoff total p conc	ppb	0.00	264.00	0.00	200.01	0.00	386.03	321.31	283.96	0.00	257.04	0.00	324.54	0.00	279.55	0.00	430.68	0.00	337.35	0.00	338.57	0.00	348.55	450.00	313.46

Rochester Loading Assessm																							
Hadley Valley																							
363-06-158-2																							
2020 LOADS																							
	future hv-a1.7b	**hv-a1.7b**	**future hv-a1.8d**	**hv-a1.8d**	**future hv-a1.8c**	**hv-a1.8c**	**future hv-a1.8e**	**hv-a1.8e**	**future hv-a1.8a**	**hv-a1.8a**	**hv-a1.8a cell 2**	**future hv-a1.8f**	**hv-a1.8f**	**future hv-a1.8b**	**hv-a1.8b**	**future hv-a1.9a**	**hv-a1.9a**	**future hv-a1.12**	**hv-a1.12**	**future hv-a1.11c**	**hv-a1.11c**	**future hv-a1.11b**	**hv-a1.11b**	**hv-a1.11b cell 2**
	hv-a1.7b	hv-a1.9a	hv-a1.8d	hv-a1.8c	hv-a1.8c	hv-a1.8a	hv-a1.8e	hv-a1.8a	hv-a1.8a	hv-a1.8a cell 2	hv-a1.8b	hv-a1.8f	hv-a1.8b	hv-a1.8b	hv-a1.9a	hv-a1.9a	hv-a1.12	hv-a1.12	hv-a1.14	hv-a1.11c	hv-a1.11b	hv-a1.11b	hv-a1.11b cell 2	hv-a1.11a
INPUT VARIABLES....																							
case label																							
Watershed area	2.2	159.1	4.8	2.0	3.8	12.5	5.3	24.9	32.3	29.5	0.0	0.1	46.9	5.1	124.9	0.0	226.6	50.0	221.0	20.4	28.9	7.8	0.0	0.0
basin area	0.04	0.00	0.08	0.06	0.08	0.08	0.08	0.20	0.40	0.42	0.54	0.00	0.39	0.04	0.00	0.00	0.00	0.34	0.00	0.25	0.00	0.08	0.22	0.56
basin volume	0.10	0.00	0.21	0.07	0.17	0.32	0.23	0.80	1.34	1.00	1.27	0.01	1.54	0.14	0.00	0.00	0.00	0.95	0.00	0.56	0.00	0.21	0.62	2.36
Row Crop Agriculture	0%	11%	0%	0%	0%	0%	0%	0%	0%	2%	0%	0%	0%	0%	31%	0%	55%	0%	29%	0%	0%	0%	9%	0%
Very Low Density Residential	0%	20%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	8%	0%	6%	0%	0%	0%	9%	0%
Low Density Residential	0%	0%	0%	0%	0%	79%	0%	0%	12%	38%	0%	0%	78%	100%	0%	0%	0%	69%	1%	100%	90%	100%	9%	0%
Medium Density Residential	100%	0%	100%	0%	100%	0%	99%	0%	88%	0%	0%	100%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	9%	0%
High Density Residential	0%	0%	0%	0%	0%	3%	0%	3%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	1%	0%	9%	0%
Commercial/Industrial	0%	0%	0%	0%	0%	0%	1%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	3%	0%	0%	0%	9%	0%
Institutional	0%	0%	0%	0%	0%	0%	0%	71%	0%	28%	0%	0%	5%	0%	0%	0%	0%	0%	0%	0%	0%	0%	9%	0%
Open Space	0%	69%	0%	100%	0%	18%	0%	2%	0%	33%	100%	0%	17%	0%	69%	0%	34%	31%	57%	0%	9%	0%	9%	100%
Golf Course	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	9%	0%
Pits and Quarries	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	9%	0%
Right-of-Way	0%	0%	0%	0%	0%	0%	0%	25%	0%	0%	0%	0%	0%	0%	0%	0%	3%	0%	4%	0%	0%	0%	9%	0%
WATERSHED-WIDE ACCOUNTIN																							
tributary land area	2.23	392.33	4.84	6.79	3.84	23.10	5.26	30.14	32.35	115.06	115.07	0.14	47.01	5.06	292.03	0.00	1047.93	49.97	1590.32	20.37	49.27	7.81	57.09	57.09
tributary water area	0.04	1.33	0.08	0.14	0.08	0.31	0.08	0.28	0.40	1.41	1.95	0.00	0.39	0.04	2.38	0.00	4.22	0.34	5.08	0.25	0.25	0.08	0.55	1.11
direct and ponded area	2.28	393.65	4.92	6.93	3.92	23.40	5.34	30.42	32.75	116.47	117.02	0.14	47.40	5.10	294.41	0.00	1052.15	50.31	1595.41	20.62	49.52	7.90	57.64	58.20
ASSUMED EXPORT FACTORS..																							
season length	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
season precipitation	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80
runoff total p	391.50	257.29	391.50	200.01	391.50	357.95	391.22	361.47	391.50	319.38	200.00	391.50	356.22	391.50	304.37	0.00	401.41	332.46	317.90	391.50	375.22	391.50	351.73	200.00
runoff ortho p/total p	0.30	0.54	0.30	0.60	0.30	0.35	0.30	0.30	0.30	0.40	0.60	0.30	0.35	0.30	0.48	0.00	0.36	0.39	0.46	0.30	0.33	0.30	0.35	0.60
unit runoff	9.74	2.84	9.74	2.54	9.74	6.24	9.77	9.49	9.37	6.16	2.54	9.74	6.16	6.74	3.13	0.00	3.84	5.45	3.76	6.74	6.46	6.74	6.92	2.54
unit export	0.86	0.18	0.86	0.12	0.86	0.53	0.87	0.78	0.83	0.49	0.12	0.86	0.52	0.60	0.25	0.00	0.38	0.45	0.31	0.60	0.56	0.60	0.60	0.12
POND WATER BUDGETS.....																							
runoff	1.81	37.66	3.93	0.41	3.11	6.48	4.28	19.67	25.25	15.13	0.00	0.11	24.08	2.84	32.57	0.00	72.47	22.69	69.15	11.45	15.56	4.39	0.00	0.00
upstream pond	0.00	110.99	0.00	3.93	0.00	7.45	0.00	4.28	0.00	63.13	78.26	0.00	0.11	0.00	105.30	0.00	321.61	0.00	504.17	0.00	11.45	0.00	31.39	31.39
total inflow	**1.81**	**148.65**	**3.93**	**4.34**	**3.11**	**13.94**	**4.28**	**23.95**	**25.25**	**78.26**	**78.26**	**0.11**	**24.19**	**2.84**	**137.87**	**0.00**	**394.08**	**22.69**	**573.33**	**11.45**	**27.00**	**4.39**	**31.39**	**31.39**
outflow	1.81	148.65	3.93	4.34	3.11	13.94	4.28	23.95	25.25	78.26	78.26	0.11	24.19	2.84	137.87	0.00	394.08	22.69	573.33	11.45	27.00	4.39	31.39	31.39
POND PHOSPHORUS BUDGETS																							
runoff	1.93	28.58	4.18	0.22	3.31	6.66	4.55	19.39	26.87	14.35	0.00	0.12	24.51	3.02	30.85	0.00	86.29	22.45	67.52	12.18	16.28	4.67	0.00	0.00
upstream pond	0.00	71.95	0.00	2.08	0.00	3.70	0.00	2.23	0.00	31.50	36.67	0.00	0.05	0.00	44.62	0.00	205.61	0.00	398.29	0.00	6.26	0.00	24.90	16.79
total inflow	**1.93**	**100.53**	**4.18**	**2.30**	**3.31**	**10.36**	**4.55**	**21.62**	**26.87**	**45.85**	**36.67**	**0.12**	**24.56**	**3.02**	**75.47**	**0.00**	**291.90**	**22.45**	**465.82**	**12.18**	**22.55**	**4.67**	**24.90**	**16.79**
net sedimentation	0.96	0.00	2.10	0.31	1.60	3.56	2.32	9.75	14.04	9.18	5.38	0.07	12.70	1.56	0.00	0.00	0.00	9.63	0.00	5.92	0.00	2.32	8.10	5.70
outflow	0.97	100.53	2.08	1.99	1.71	6.80	2.23	11.87	12.83	36.67	31.29	0.05	11.86	1.47	75.47	0.00	291.90	12.82	465.82	6.26	22.55	2.35	16.79	11.10
p removal efficiency	49.62	0.00	50.27	13.66	48.29	34.36	50.96	45.09	52.25	20.02	14.66	60.54	51.71	51.47	0.00	3.78	0.00	42.90	0.00	48.57	0.00	49.68	32.55	33.92
upstream w-shed p load	1.93	133.74	4.18	4.40	3.31	14.38	4.55	23.94	26.87	79.53	79.53	0.12	24.63	3.02	138.04	0.00	390.03	22.45	576.80	12.18	28.47	4.67	33.14	33.14
total removal %	49.62	24.83	50.27	54.85	48.29	52.70	50.96	50.41	52.25	53.89	60.65	60.54	51.85	51.47	45.33	3.78	25.16	42.90	19.24	48.57	20.79	49.68	49.32	66.51
HYDRAULIC PARAMETERS.....																							
pond mean depth	2.34	1.00	2.53	1.17	2.01	4.00	2.77	4.00	3.35	2.36	2.36	597.96	3.94	3.36	1.00	0.00	1.00	2.80	1.00	2.25	1.00	2.59	2.82	4.21
relative volume	1.70	0.00	1.70	5.38	1.70	1.57	1.70	1.29	1.69	2.09	19110.00	1.70	2.03	1.56	0.00	1.58	0.00	1.33	0.00	1.56	0.00	1.56	310904.86	35400000.00
residence time	0.05	0.00	0.05	0.02	0.05	0.02	0.05	0.03	0.05	0.01	0.02	0.05	0.06	0.05	0.00	0.05	0.00	0.04	0.00	0.05	0.00	0.05	0.02	0.08
residence time	19.50	0.00	19.50	5.89	19.50	8.38	19.54	12.19	19.35	4.65	5.94	19.50	23.21	17.86	0.00	18.08	0.00	15.29	0.00	17.86	0.00	17.86	7.21	27.44
overflow rate	43.76	14865064.56	47.40	72.35	37.58	174.24	51.68	119.75	63.12	185.45	144.93	11195.09	62.03	68.58	13786629.09	0.00	39407950.74	66.74	57332544.24	46.05	2700382.50	52.99	142.70	56.06
inflow phos conc	391.52	248.81	391.52	195.21	391.52	273.48	391.11	332.12	391.52	215.54	172.39	391.52	373.53	391.52	201.41	384.34	272.53	363.96	298.93	391.52	307.21	391.52	291.80	196.82
outflow phos conc	197.25	248.81	194.70	168.54	202.44	179.50	191.79	182.37	186.97	172.39	147.11	154.49	180.37	189.99	201.41	369.82	272.52	207.83	298.93	201.35	307.20	197.03	196.82	130.07
p reaction rate	1.95	0.00	2.03	0.18	1.81	0.80	2.12	1.50	2.29	0.31	0.20	3.89	2.22	2.19	0.00	0.04	0.00	1.32	0.00	1.84	0.00	1.96	0.72	0.78
1-rp	0.50	1.00	0.50	0.86	0.52	0.66	0.49	0.55	0.48	0.80	0.85	0.39	0.48	0.49	1.00	0.96	1.00	0.57	1.00	0.51	1.00	0.50	0.67	0.66
vlawmo pond volume	0.14	2.96	0.31	0.03	0.24	0.51	0.34	1.55	1.98	1.19	0.00	0.01	1.89	0.22	2.56	0.00	5.70	1.78	5.44	0.90	1.22	0.35	0.00	0.00
LAND USE PARAMETERS.....																							
runoff total P conc	391.50	257.29	391.50	200.01	391.50	357.95	391.22	361.47	391.50	319.38	200.00	391.50	356.22	391.50	304.37	0.00	401.41	332.46	317.90	391.50	375.22	391.50	351.73	200.00
runoff coefficient	0.31	0.09	0.31	0.08	0.31	0.20	0.31	0.30	0.29	0.19	0.08	0.31	0.19	0.21	0.10	0.00	0.12	0.17	0.12	0.21	0.20	0.21	0.22	0.08
dissolved/total P	0.30	0.54	0.30	0.60	0.30	0.35	0.30	0.30	0.30	0.40	0.60	0.30	0.35	0.30	0.48	0.00	0.36	0.39	0.46	0.30	0.33	0.30	0.35	0.60
runoff TSS conc	140.00	210.25	140.00	216.00	140.00	153.31	140.00	141.15	140.00	165.43	216.00	140.00	153.18	140.00	199.73	0.00	184.43	163.43	194.84	140.00	146.46	140.00	150.09	216.00
POND TSS BUDGETS.....																							
runoff	687.94	21114.69	1490.09	242.14	1181.36	2555.37	1624.70	7478.07	9578.37	6173.46	1.24	42.47	9490.43	1078.21	17023.01	0.00	34651.84	9281.39	33924.86	4343.13	6009.40	1665.83	0.03	0.00
upstream pond	0.00	22606.29	0.00	186.26	0.00	503.00	0.00	162.47	0.00	4085.11	6026.91	0.00	2.97	0.00	5190.75	0.00	82188.64	0.00	158199.93	0.00	738.33	0.00	6997.61	2720.33
total inflow	**687.94**	**43720.98**	**1490.09**	**428.40**	**1181.36**	**3058.37**	**1624.70**	**7640.54**	**9578.37**	**10258.57**	**6028.15**	**42.47**	**9493.40**	**1078.21**	**22213.76**	**0.00**	**116840.48**	**9281.39**	**192124.78**	**4343.13**	**6747.73**	**1665.83**	**6997.63**	**2720.33**
p removal efficiency (no inf)	52.00	0.00	53.00	15.00	51.00	37.00	54.00	46.00	55.00	21.00	16.00	63.00	54.00	54.00	0.00	5.00	0.00	46.00	0.00	51.00	0.00	52.00	35.00	36.00
tss removal efficiency (no inf)	85.00	0.00	87.50	29.46	83.00	63.00	90.00	72.00	91.50	41.25	31.43	93.00	90.00	90.00	0.00	9.82	0.00	72.00	0.00	83.00	0.00	85.00	61.13	62.00
net sedimentation	584.75	0.00	1303.83	126.22	980.53	1926.78	1462.23	5501.19	8764.21	4231.66	1894.56	39.50	8544.06	970.39	0.00	0.00	0.00	6682.60	0.00	3604.80	0.00	1415.95	4277.30	1686.61
outflow	103.19	43720.98	186.26	302.17	200.83	1131.60	162.47	2139.35	814.16	6026.91	4133.59	2.97	949.34	107.82	22213.76	0.00	116840.48	2598.79	192124.78	738.33	6747.73	249.87	2720.33	1033.73
tss removal efficiency (inf)	85.00	0.00	87.50	29.46	83.00	63.00	90.00	72.00	91.50	41.25	31.43	93.00	90.00	90.00	0.00	9.82	0.00	72.00	0.00	83.00	0.00	85.00	61.13	62.00
upstream watershed tss load	687.94	68322.36	1490.09	1732.22	1181.36	5468.95	1624.70	9102.77	9578.37	30323.56	30324.80	42.47	9532.90	1078.21	57958.92	0.00	179716.21	9281.39	264625.17	4343.13	10352.53	1665.83	12018.38	12018.39
tss total removal efficiency	85.00	36.01	87.50	82.56	83.00	79.31	90.00	76.50	91.50	80.12	86.37	93.00	90.04	90.00	61.67	9.82	34.99	72.00	27.40	83.00	34.82	85.00	77.37	91.40
INFILTRATION BMP/POND.....																							
Annual runoff infiltrated	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Adjusted outflow	**1.81**	**148.65**	**3.93**	**4.34**	**3.11**	**13.94**	**4.28**	**23.95**	**25.25**	**78.26**	**78.26**	**0.11**	**24.19**	**2.84**	**137.87**	**0.00**	**394.08**	**22.69**	**573.33**	**11.45**	**27.00**	**4.39**	**31.39**	**31.39**
Adjusted TP outflow	**0.97**	**100.53**	**2.08**	**1.99**	**1.71**	**6.80**	**2.23**	**11.87**	**12.83**	**36.67**	**31.29**	**0.05**	**11.86**	**1.47**	**75.47**	**0.00**	**291.90**	**12.82**	**465.82**	**6.26**	**22.55**	**2.35**	**16.79**	**11.10**
Adjusted TSS outflow	**103.19**	**43720.98**	**186.26**	**302.17**	**200.83**	**1131.60**	**162.47**	**2139.35**	**814.16**	**6026.91**	**4133.59**	**2.97**	**949.34**	**107.82**	**22213.76**	**0.00**	**116840.48**	**2598.79**	**192124.78**	**738.33**	**6747.73**	**249.87**	**2720.33**	**1033.73**
POND P BUDGETS W/O P-BAN.																							
runoff	2.22	29.58	4.80	0.22	3.81	7.62	5.23	19.51	30.88	15.34	0.00	0.14	27.77	3.48	30.85	0.00	86.88	25.53	68.16	14.00	18.67	5.37	0.00	0.00
Adjusted TP outflow	**1.07**	**104.07**	**2.28**	**2.14**	**1.88**	**7.41**	**2.44**	**12.00**	**14.05**	**38.62**	**32.74**	**0.05**	**12.87**	**1.61**	**78.06**	**0.00**	**299.24**	**14.02**	**475.93**	**6.88**	**25.55**	**2.58**	**18.40**	**11.88**
upstream pond	0.00	74.50	0.00	2.28	0.00	4.02	0.00	2.44	0.00	33.46	38.62	0.00	0.05	0.00	47.21	0.00	212.36	0.00	407.77	0.00	6.88	0.00	28.13	18.40
total inflow	**2.22**	**104.07**	**4.80**	**2.50**	**3.81**	**11.64**	**5.23**	**21.95**	**30.88**	**48.80**	**38.62**	**0.14**	**27.82**	**3.48**	**78.06**	**0.00**	**299.24**	**25.53**	**475.93**	**14.00**	**25.55**	**5.37**	**28.13**	**18.40**
outflow	1.07	104.07	2.28	2.14	1.88	7.41	2.44	12.00	14.05	38.62	32.74	0.05	12.87	1.61	78.06	0.00	299.24	14.02	475.93	6.88	25.55	2.58	18.40	11.88
inflow phos conc	450.02	257.59	450.02	212.18	450.02	307.14	449.03	337.24	450.02	229.41	181.55	450.02	423.09	450.02	208.32	409.24	279.37	414.04	305.41	450.02	348.10	450.02	329.63	215.63
outflow phos conc	216.34	257.59	213.46	181.31	222.21	195.58	210.03	184.30	204.74	181.55	153.89	168.39	195.69	208.14	208.32	392.86	279.37	227.30	305.41	220.97	348.09	216.09	215.63	139.19
p reaction rate	2.25	0.00	2.34	0.20	2.08	0.90	2.43	1.52	2.63	0.33	0.21	4.47	2.51	2.51	0.00	0.04	0.00	1.50	0.00	2.11	0.00	2.25	0.81	0.85
1-rp	0.48	1.00	0.47	0.85	0.49	0.64	0.47	0.55	0.45	0.79	0.85	0.37	0.46	0.46	1.00	0.96	1.00	0.55	1.00	0.49	1.00	0.48	0.65	0.65
runoff total p conc	450.00	266.47	450.00	200.01	450.00	406.20	449.33	363.05	450.00	341.50	200.00	450.00	401.67	450.00	304.37	0.00	405.24	372.93	321.31	450.00	428.75	450.00	371.82	200.00

Rochester Loading Assessm										
Hadley Valley										
363-06-158-2										
2020 LOADS										
	future hv-a1.11a	**hv-a1.11a**	**future hv-a1.13**	**hv-a1.13**	**future hv-a1.15a**	**hv-a1.15a**	**future hv-a1.15b**	**hv-a1.15b**	**future hv-a1.14**	**hv-a1.14**
	hv-a1.11a	hv-a1.13	hv-a1.13	hv-a1.14	hv-a1.15a	hv-a1.15b	hv-a1.15b	hv-a1.14	hv-a1.14	zr-a4.6a
INPUT VARIABLES....										
case label										
Watershed area	64.4	120.7	21.2	84.7	23.9	107.7	30.8	0.0	24.5	52.7
basin area	0.51	0.00	0.25	0.00	0.29	0.00	0.31	0.37	0.29	0.00
basin volume	1.77	0.00	0.58	0.00	0.70	0.00	0.85	2.06	0.67	0.00
Row Crop Agriculture	0%	49%	0%	63%	0%	1%	0%	9%	0%	47%
Very Low Density Residential	0%	3%	0%	18%	0%	17%	0%	9%	0%	0%
Low Density Residential	100%	12%	100%	0%	97%	62%	100%	9%	100%	0%
Medium Density Residential	0%	0%	0%	0%	0%	1%	0%	9%	0%	0%
High Density Residential	0%	0%	0%	0%	0%	0%	0%	9%	0%	0%
Commercial/Industrial	0%	0%	0%	0%	3%	7%	0%	9%	0%	25%
Institutional	0%	0%	0%	0%	0%	0%	0%	9%	0%	0%
Open Space	0%	33%	0%	15%	0%	9%	0%	9%	0%	16%
Golf Course	0%	0%	0%	0%	0%	0%	0%	9%	0%	0%
Pits and Quarries	0%	0%	0%	0%	0%	0%	0%	9%	0%	0%
Right-of-Way	0%	3%	0%	4%	0%	4%	0%	9%	0%	12%
WATERSHED-WIDE ACCOUNTI										
tributary land area	64.43	242.22	21.23	348.11	23.94	131.60	30.81	162.41	24.46	2178.04
tributary water area	0.51	1.62	0.25	1.87	0.29	0.29	0.31	0.97	0.29	8.20
direct and ponded area	64.94	243.83	21.48	349.98	24.23	131.89	31.12	163.38	24.75	2186.24
ASSUMED EXPORT FACTORS...										
season length	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
season precipitation	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80
runoff total p	391.50	398.69	391.50	440.91	390.19	358.00	391.50	351.73	391.50	420.83
runoff ortho p/total p	0.30	0.36	0.30	0.32	0.30	0.36	0.30	0.35	0.30	0.30
unit runoff	6.74	4.18	6.74	4.12	6.99	6.38	6.74	6.92	6.74	7.24
unit export	0.60	0.41	0.60	0.43	0.62	0.54	0.60	0.60	0.60	0.66
POND WATER BUDGETS.....										
runoff	36.21	42.06	11.93	29.08	13.94	57.25	17.31	0.00	13.75	31.84
upstream pond	0.00	67.60	0.00	121.60	0.00	13.94	0.00	88.51	0.00	826.26
total inflow	**36.21**	**109.67**	**11.93**	**150.68**	**13.94**	**71.19**	**17.31**	**88.51**	**13.75**	**858.10**
outflow	36.21	109.67	11.93	150.68	13.94	71.19	17.31	88.51	13.75	858.10
POND PHOSPHORUS BUDGETS										
runoff	38.53	49.06	12.70	36.65	14.73	57.89	18.43	0.00	14.63	34.90
upstream pond	0.00	29.69	0.00	85.23	0.00	7.49	0.00	74.57	0.00	641.45
total inflow	**38.53**	**78.75**	**12.70**	**121.89**	**14.73**	**65.38**	**18.43**	**74.57**	**14.63**	**676.35**
net sedimentation	19.94	0.00	6.21	0.00	7.24	0.00	9.24	28.31	7.14	0.00
outflow	18.59	78.75	6.49	121.89	7.49	65.38	9.19	46.26	7.49	676.35
p removal efficiency	51.75	0.00	48.91	0.00	49.17	0.00	50.15	37.97	48.81	0.00
upstream w-shed p load	38.53	120.73	12.70	170.08	14.73	72.63	18.43	91.05	14.63	887.46
total removal %	51.75	34.77	48.91	28.33	49.17	9.98	50.15	49.20	48.81	23.79
HYDRAULIC PARAMETERS.....										
pond mean depth	3.51	1.00	2.35	1.00	2.40	1.00	2.76	5.55	2.32	1.00
relative volume	1.56	0.00	1.56	0.00	1.59	0.00	1.56	1030499.18	1.56	0.00
residence time	0.05	0.00	0.05	0.00	0.05	0.00	0.05	0.02	0.05	0.00
residence time	17.86	0.00	17.86	0.00	18.25	0.00	17.86	8.47	17.86	0.00
overflow rate	71.70	10966862.69	47.99	15067987.43	48.08	7119369.10	56.46	239.21	47.41	85809625.42
inflow phos conc	391.52	264.18	391.52	297.61	388.79	337.89	391.52	309.97	391.52	289.99
outflow phos conc	188.89	264.18	200.04	297.61	197.63	337.89	195.19	192.28	200.43	289.99
p reaction rate	2.22	0.00	1.87	0.00	1.90	0.00	2.02	0.99	1.86	0.00
1-rp	0.48	1.00	0.51	1.00	0.51	1.00	0.50	0.62	0.51	1.00
vlawmo pond volume	2.85	3.31	0.94	2.29	1.10	4.50	1.36	0.00	1.08	2.50
LAND USE PARAMETERS.....										
runoff total P conc	391.50	398.69	391.50	440.91	390.19	358.00	391.50	351.73	391.50	420.83
runoff coefficient	0.21	0.13	0.21	0.13	0.22	0.20	0.21	0.22	0.21	0.23
dissolved/total P	0.30	0.36	0.30	0.32	0.30	0.36	0.30	0.35	0.30	0.30
runoff TSS conc	140.00	178.70	140.00	179.25	140.00	159.88	140.00	150.09	140.00	162.82
POND TSS BUDGETS.....										
runoff	13737.91	19258.43	4526.28	13581.33	5290.09	23095.82	6569.07	0.03	5215.81	13014.05
upstream pond	0.00	2201.45	0.00	22138.82	0.00	793.51	0.00	24710.47	0.00	237028.87
total inflow	**13737.91**	**21459.88**	**4526.28**	**35720.15**	**5290.09**	**23889.34**	**6569.07**	**24710.49**	**5215.81**	**250042.92**
p removal efficiency (no inf)	55.00	0.00	52.00	0.00	52.00	0.00	53.00	40.00	52.00	0.00
tss removal efficiency (no inf)	91.50	0.00	85.00	0.00	85.00	0.00	87.50	66.00	85.00	0.00
net sedimentation	12570.18	0.00	3847.34	0.00	4496.58	0.00	5747.93	16308.93	4433.44	0.00
outflow	1167.72	21459.88	678.94	35720.15	793.51	23889.34	821.13	8401.57	782.37	250042.92
tss removal efficiency (inf)	91.50	0.00	85.00	0.00	85.00	0.00	87.50	66.00	85.00	0.00
upstream watershed tss load	13737.91	45014.72	4526.28	63122.33	5290.09	28385.91	6569.07	34955.01	5215.81	380932.37
tss total removal efficiency	91.50	52.33	85.00	43.41	85.00	15.84	87.50	75.96	85.00	34.36
INFILTRATION BMP/POND.....										
Annual runoff infiltrated	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Adjusted outflow	**36.21**	**109.67**	**11.93**	**150.68**	**13.94**	**71.19**	**17.31**	**88.51**	**13.75**	**858.10**
Adjusted TP outflow	**18.59**	**78.75**	**6.49**	**121.89**	**7.49**	**65.38**	**9.19**	**46.26**	**7.49**	**676.35**
Adjusted TSS outflow	**1167.72**	**21459.88**	**678.94**	**35720.15**	**793.51**	**23889.34**	**821.13**	**8401.57**	**782.37**	**250042.92**
POND P BUDGETS W/O P-BAN..										
runoff	44.29	50.47	14.59	37.12	16.81	64.49	21.18	0.00	16.82	34.91
Adjusted TP outflow	**20.36**	**82.71**	**7.12**	**126.95**	**8.18**	**72.67**	**10.07**	**49.85**	**8.22**	**695.85**
upstream pond	0.00	32.24	0.00	89.83	0.00	8.18	0.00	82.74	0.00	660.95
total inflow	**44.29**	**82.71**	**14.59**	**126.95**	**16.81**	**72.67**	**21.18**	**82.74**	**16.82**	**695.85**
outflow	20.36	82.71	7.12	126.95	8.18	72.67	10.07	49.85	8.22	695.85
inflow phos conc	450.02	277.49	450.02	309.98	443.44	375.53	450.02	343.93	450.02	298.35
outflow phos conc	206.90	277.49	219.49	309.98	215.71	375.52	214.01	207.23	219.93	298.35
p reaction rate	2.56	0.00	2.15	0.00	2.17	0.00	2.32	1.09	2.14	0.00
1-rp	0.46	1.00	0.49	1.00	0.49	1.00	0.48	0.60	0.49	1.00
runoff total p conc	450.00	407.24	450.00	449.09	446.84	402.33	450.00	371.82	450.00	420.96

Rochester Loading Assessment														
Northwest Territory														
363-06-158-2														
Baseline (1988) LOADS														
		nw-a1	**nw-a2**	**nw-a3**	**nw-a4**	**nw-a5.2**	**nw-a5.1**	**nw-a6.5**	**nw-a6.4**	**nw-a6.3**	**nw-a6.2**	**nw-a6.1**	**exit 5**	**exit 6**
Routed TO:		exit city	nw-a4	nw-a4	nw-a5.1	nw-a5.1	exit city	nw-a6.1	nw-a6.1	nw-a6.1	nw-a6.1	exit city	exit city	exit city
INPUT VARIABLES....	UNITS													
case label	-													
Watershed area	acres	75.0	62.7	330.7	2566.3	103.5	440.4	74.0	3.7	48.3	276.8	1021.2	3.4	25.6
basin area	acres	0.00	0.00	0.40	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
basin volume	acre-ft	0.00	0.00	1.60	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Row Crop Agriculture		43%	62%	76%	77%	72%	62%	35%	7%	72%	57%	50%	63%	31%
Very Low Density Residential		22%	14%	3%	3%	0%	2%	6%	0%	1%	3%	5%	23%	33%
Low Density Residential		2%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Medium Density Residential		0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
High Density Residential		0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Commercial/Industrial		0%	0%	0%	0%	10%	3%	0%	0%	0%	5%	1%	0%	0%
Institutional		0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Open Space		33%	18%	21%	16%	9%	24%	6%	93%	26%	21%	39%	0%	0%
Golf Course		0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Pits and Quarries		0%	0%	0%	0%	9%	1%	0%	0%	0%	0%	0%	0%	0%
Right-of-Way		1%	5%	0%	3%	0%	7%	53%	0%	1%	13%	4%	14%	36%
WATERSHED-WIDE ACCOUNTING.....														
tributary land area	ac	74.97	62.68	330.69	2959.71	103.53	3503.62	73.98	3.66	48.30	276.78	1423.92	3.41	25.59
tributary water area	ac	0.00	0.00	0.40	0.40	0.00	0.40	0.00	0.00	0.00	0.00	0.00	0.00	0.00
direct and ponded area	ac	74.97	62.68	331.09	2960.11	103.53	3504.02	73.98	3.66	48.30	276.78	1423.92	3.41	25.59
ASSUMED EXPORT FACTORS.....														
season length	yrs	1	1	1	1	1	1	1	1	1	1	1	1	1
season precipitation	inches	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8
runoff total p	ppb	384.484619	444.2632075	461.9493838	473.6255663	439.4674023	433.2227125	434.1846637	222.6579631	448.0437363	434.0938239	388.4106429	476.788707	426.3149337
runoff ortho p/total p	-	0.399143557	0.31998755	0.293672043	0.278613516	0.22779081	0.311864346	0.295054154	0.573341999	0.308527252	0.312038935	0.378110064	0.282744032	0.335961116
unit runoff	in/yr	3.585458946	4.133820076	4.010146073	4.230723107	4.850712504	4.59655186	6.541543409	2.671253579	3.987954864	5.102514627	3.938549936	4.723753049	5.514559431
unit export	lbs/ac-y	0.34	0.44	0.44	0.47	0.51	0.47	0.63	0.14	0.43	0.51	0.38	0.51	0.53
POND WATER BUDGETS.....														
runoff	ac-ft/yr	22.40	21.59	110.51	904.79	41.85	168.69	40.33	0.82	16.05	117.69	335.17	1.34	11.76
upstream pond	ac-ft/yr	0.00	0.00	0.00	132.10	0.00	1078.74	0.00	0.00	0.00	0.00	174.89	0.00	0.00
total inflow	**ac-ft/yr**	**22.40**	**21.59**	**110.51**	**1036.89**	**41.85**	**1247.43**	**40.33**	**0.82**	**16.05**	**117.69**	**510.06**	**1.34**	**11.76**
outflow	ac-ft/yr	22.40	21.59	110.51	1036.89	41.85	1247.43	40.33	0.82	16.05	117.69	510.06	1.34	11.76
POND PHOSPHORUS BUDGETS.....														
runoff	lbs/yr	25.62	27.40	147.09	1212.08	53.20	207.09	46.84	0.53	20.88	141.04	386.67	1.74	13.61
upstream pond	lbs/yr	0.00	0.00	0.00	114.40	0.00	1379.68	0.00	0.00	0.00	0.00	209.28	0.00	0.00
total inflow	**lbs/yr**	**25.62**	**27.40**	**147.09**	**1326.48**	**53.20**	**1586.77**	**46.84**	**0.53**	**20.88**	**141.04**	**595.96**	**1.74**	**13.61**
net sedimentation	lbs/yr	0.00	0.00	60.09	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
outflow	lbs/yr	25.62	27.40	87.00	1326.48	53.20	1586.77	46.84	0.53	20.88	141.04	595.96	1.74	13.60
p removal efficiency	%	0.00	0.00	40.85	0.00	0.00	0.00	0.00	0.03	0.01	0.00	0.00	0.07	0.01
upstream w-shed p load	lbs/yr	25.62	27.40	147.09	1386.57	53.20	1646.87	46.84	0.53	20.88	141.04	595.96	1.74	13.61
total removal %	%	0.00	0.00	40.85	4.33	0.00	3.65	0.00	0.03	0.01	0.00	0.00	0.07	0.01
HYDRAULIC PARAMETERS.....														
pond mean depth	feet	1.00	1.00	4.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
relative volume	inches	0.00	0.00	0.46	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
residence time	years	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
residence time	days	0.00	0.00	5.28	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
overflow rate	ft/yr	2239927.63	2159372.23	276.27	103689002.31	4184995.06	124742846.27	4032919.84	81519.76	1605287.09	11768824.55	51005612.84	134354.56	1175799.66
inflow phos conc	ppb	420.76	466.83	489.72	470.67	467.70	468.00	427.32	237.78	478.60	440.91	429.88	475.96	425.72
outflow phos conc	ppb	420.74	466.81	289.66	470.67	467.68	468.00	427.31	237.72	478.58	440.91	429.88	475.63	425.69
p reaction rate	-	0.00	0.00	1.17	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1-rp	-	1.00	1.00	0.59	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
vlawmo pond volume	acre-ft	1.76	1.70	8.69	71.13	3.29	13.26	3.17	0.06	1.26	9.25	26.35	0.11	0.92
LAND USE PARAMETERS.....														
runoff total P conc	ppb	384.48	444.26	461.95	473.63	439.47	433.22	434.18	222.66	448.04	434.09	388.41	476.79	426.31
runoff coefficient		0.11	0.13	0.13	0.13	0.15	0.14	0.21	0.08	0.13	0.16	0.12	0.15	0.17
dissolved/total P		0.40	0.32	0.29	0.28	0.23	0.31	0.30	0.57	0.31	0.31	0.38	0.28	0.34
runoff TSS conc	ppm	191.23	178.82	175.70	172.65	150.32	173.09	157.20	212.47	177.16	171.50	185.19	171.89	172.39
POND TSS BUDGETS.....														
runoff	lbs/yr	11143.56	10044.66	51258.59	411634.44	18007.79	75434.19	16322.92	464.17	7469.78	51293.21	159113.12	599.42	5078.76
upstream pond	lbs/yr	0.00	0.00	0.00	26960.00	0.00	456602.22	0.00	0.00	0.00	0.00	75550.07	0.00	0.00
total inflow	**lbs/yr**	**11143.56**	**10044.66**	**51258.59**	**438594.43**	**18007.79**	**532036.41**	**16322.92**	**464.17**	**7469.78**	**51293.21**	**234663.19**	**599.42**	**5078.76**
p removal efficiency (no inf)	%	0.00	0.00	41.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
tss removal efficiency (no inf)	%	0.00	0.00	67.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
net sedimentation	lbs/yr	0.00	0.00	34343.26	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
outflow	lbs/yr	11143.56	10044.66	16915.33	438594.43	18007.79	532036.41	16322.92	464.17	7469.78	51293.21	234663.19	599.42	5078.76
tss removal efficiency (inf)		0.00	0.00	67.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
upstream watershed tss load	lbs/yr	11143.56	10044.66	51258.59	472937.69	18007.79	566379.67	16322.92	464.17	7469.78	51293.21	234663.19	599.42	5078.76
tss total removal efficiency	%	0.00	0.00	67.00	7.26	0.00	6.06	0.00	0.00	0.00	0.00	0.00	0.00	0.00
INFILTRATION BMP/POND.....														
Annual runoff infiltrated	%	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Adjusted outflow	**ac-ft/yr**	**22.40**	**21.59**	**110.51**	**1036.89**	**41.85**	**1247.43**	**40.33**	**0.82**	**16.05**	**117.69**	**510.06**	**1.34**	**11.76**
Adjusted TP outflow	**lbs/yr**	**25.62**	**27.40**	**87.00**	**1326.48**	**53.20**	**1586.77**	**46.84**	**0.53**	**20.88**	**141.04**	**595.96**	**1.74**	**13.60**
Adjusted TSS outflow	**lbs/yr**	**11143.56**	**10044.66**	**16915.33**	**438594.43**	**18007.79**	**532036.41**	**16322.92**	**464.17**	**7469.78**	**51293.21**	**234663.19**	**599.42**	**5078.76**

Rochester Loading Assessment															
Northwest Territory															
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Present (2005) LOADS															
		nw-a1	**nw-a2**	**nw-a3**	**nw-a4**	**nw-a5.2**	**nw-a5.1**	**nw-a6.5**	**nw-a6.4**	**nw-a6.3**	**nw-a6.3 cell 2**	**nw-a6.2**	**nw-a6.1**	**exit 5**	**exit 6**
Routed TO:		exit city	nw-a4	nw-a4	nw-a5.1	nw-a5.1	exit city	nw-a6.1	nw-a6.1	nw-a6.3 cell 2	nw-a6.1	nw-a6.1	exit city	exit city	exit city
INPUT VARIABLES....	UNITS														
case label	-														
Watershed area	acres	75.0	62.7	330.7	2566.3	100.9	440.4	71.9	3.5	47.6	0.0	275.9	1021.0	3.4	25.3
basin area	acres	0.00	0.00	0.40	0.00	2.40	0.00	2.63	0.13	0.30	0.41	0.86	0.00	0.00	0.00
basin volume	acre-ft	0.00	0.00	1.60	0.00	14.70	0.00	12.40	0.37	1.45	1.94	4.60	0.00	0.00	0.00
Row Crop Agriculture		43%	66%	76%	75%	47%	48%	15%	43%	6%	0%	44%	47%	63%	0%
Very Low Density Residential		22%	14%	3%	4%	0%	3%	0%	0%	0%	0%	3%	7%	23%	19%
Low Density Residential		2%	0%	0%	0%	0%	0%	0%	0%	51%	0%	1%	0%	0%	13%
Medium Density Residential		0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	1%	0%	0%
High Density Residential		0%	0%	0%	0%	0%	8%	0%	0%	2%	0%	0%	0%	0%	0%
Commercial/Industrial		0%	0%	0%	0%	10%	3%	0%	0%	0%	0%	5%	1%	0%	0%
Institutional		0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	6%	0%	0%	0%
Open Space		33%	14%	21%	17%	20%	24%	6%	57%	40%	100%	28%	38%	0%	32%
Golf Course		0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Pits and Quarries		0%	0%	0%	0%	20%	1%	0%	0%	0%	0%	0%	0%	0%	0%
Right-of-Way		1%	5%	0%	3%	3%	11%	79%	0%	1%	0%	13%	6%	14%	36%
WATERSHED-WIDE ACCOUNTING.....															
tributary land area	ac	74.97	62.70	330.69	2959.73	100.93	3501.05	71.86	3.53	47.58	47.59	275.87	1419.84	3.41	25.29
tributary water area	ac	0.00	0.00	0.40	0.40	2.40	2.80	2.63	0.13	0.30	0.71	0.86	4.33	0.00	0.00
direct and ponded area	ac	74.97	62.70	331.09	2960.13	103.33	3503.85	74.48	3.66	47.89	48.30	276.73	1424.16	3.41	25.29
ASSUMED EXPORT FACTORS.....															
season length	yrs	1	1	1	1	1	1	1	1	1	1	1	1	1	1
season precipitation	inches	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8
runoff total p	ppb	384.48	456.56	461.95	470.10	340.24	414.80	408.59	347.56	353.61	200.00	400.04	385.88	476.79	333.84
runoff ortho p/total p	-	0.40	0.31	0.29	0.28	0.25	0.33	0.30	0.43	0.42	0.60	0.35	0.38	0.28	0.43
unit runoff	in/yr	3.59	4.20	4.01	4.22	4.32	5.46	7.73	3.37	5.07	2.54	5.28	4.04	4.72	5.44
unit export	lbs/ac-y	0.34	0.45	0.44	0.47	0.42	0.54	0.71	0.30	0.46	0.12	0.49	0.38	0.51	0.46
POND WATER BUDGETS.....															
runoff	ac-ft/yr	22.40	21.96	110.51	902.06	36.35	200.56	46.26	0.99	20.08	0.00	121.49	343.59	1.34	11.46
upstream pond	ac-ft/yr	0.00	0.00	0.00	132.47	0.00	1070.88	0.00	0.00	0.00	20.08	0.00	188.82	0.00	0.00
total inflow	**ac-ft/yr**	**22.40**	**21.96**	**110.51**	**1034.53**	**36.35**	**1271.44**	**46.26**	**0.99**	**20.08**	**20.09**	**121.49**	**532.41**	**1.34**	**11.46**
outflow	ac-ft/yr	22.40	21.96	110.51	1034.53	36.35	1271.44	46.26	0.99	20.08	20.09	121.49	532.41	1.34	11.46
POND PHOSPHORUS BUDGETS.....															
runoff	lbs/yr	25.62	28.38	147.09	1201.38	42.23	238.39	51.31	1.06	21.99	0.00	136.37	392.97	1.74	11.63
upstream pond	lbs/yr	0.00	0.00	0.00	115.38	0.00	1328.21	0.00	0.00	0.00	10.38	0.00	93.28	0.00	0.00
total inflow	**lbs/yr**	**25.62**	**28.38**	**147.09**	**1316.76**	**42.23**	**1566.61**	**51.31**	**1.06**	**21.99**	**10.38**	**136.37**	**486.24**	**1.74**	**11.63**
net sedimentation	lbs/yr	0.00	0.00	60.09	0.00	30.78	0.00	33.97	0.60	11.60	3.80	67.48	0.00	0.00	0.00
outflow	lbs/yr	25.62	28.38	87.00	1316.76	11.46	1566.61	17.34	0.47	10.38	6.58	68.89	486.24	1.74	11.63
p removal efficiency	%	0.00	0.00	40.85	0.00	72.87	0.00	66.21	55.93	52.77	36.60	49.48	0.00	0.07	0.00
upstream w-shed p load	lbs/yr	25.62	28.38	147.09	1376.85	42.23	1657.48	51.31	1.06	21.99	21.99	136.37	603.70	1.74	11.63
total removal %	%	0.00	0.00	40.85	4.36	72.87	5.48	66.21	55.93	52.77	70.06	49.48	19.46	0.07	0.00
HYDRAULIC PARAMETERS.....															
pond mean depth	feet	1.00	1.00	4.00	1.00	6.13	1.00	4.72	2.85	4.78	4.78	5.35	1.00	1.00	1.00
relative volume	inches	0.00	0.00	0.46	0.00	12.86	0.00	8.53	11.86	2.30	29040.00	1.20	0.00	0.00	0.00
residence time	years	0.00	0.00	0.01	0.00	0.40	0.00	0.27	0.37	0.07	0.10	0.04	0.00	0.00	0.00
residence time	days	0.00	0.00	5.28	0.00	147.59	0.00	97.86	136.14	26.42	35.18	13.82	0.00	0.00	0.00
overflow rate	ft/yr	2239927.63	2195926.33	276.27	103452645.13	15.15	127143631.31	17.61	7.63	66.07	49.60	141.26	53241286.61	134354.56	1145875.93
inflow phos conc	ppb	420.76	475.48	489.72	468.29	427.42	453.33	408.08	394.84	402.76	190.21	412.99	336.01	475.96	373.30
outflow phos conc	ppb	420.74	475.46	289.66	468.29	115.94	453.33	137.88	174.01	190.21	120.60	208.63	336.01	475.63	373.29
p reaction rate	-	0.00	0.00	1.17	0.00	9.90	0.00	5.80	2.88	2.37	0.91	1.94	0.00	0.00	0.00
1-rp	-	1.00	1.00	0.59	1.00	0.27	1.00	0.34	0.44	0.47	0.63	0.51	1.00	1.00	1.00
vlawmo pond volume	acre-ft	1.76	1.73	8.69	70.92	2.86	15.77	3.64	0.08	1.58	0.00	9.55	27.01	0.11	0.90
LAND USE PARAMETERS.....															
runoff total P conc	ppb	384.48	456.56	461.95	470.10	340.24	414.80	408.59	347.56	353.61	200.00	400.04	385.88	476.79	333.84
runoff coefficient		0.11	0.13	0.13	0.13	0.14	0.17	0.24	0.11	0.16	0.08	0.17	0.13	0.15	0.17
dissolved/total P		0.40	0.31	0.29	0.28	0.25	0.33	0.30	0.43	0.42	0.60	0.35	0.38	0.28	0.43
runoff TSS conc	ppm	191.23	176.90	175.70	173.31	137.56	170.65	148.26	193.00	172.02	216.00	173.63	185.05	171.89	178.49
POND TSS BUDGETS.....															
runoff	lbs/yr	11143.56	10137.20	51258.59	411340.10	15760.48	86476.73	17999.59	499.03	8521.31	1.24	52697.75	162055.94	599.42	4942.87
upstream pond	lbs/yr	0.00	0.00	0.00	27052.53	0.00	439495.87	0.00	0.00	0.00	1065.16	0.00	11702.05	0.00	0.00
total inflow	**lbs/yr**	**11143.56**	**10137.20**	**51258.59**	**438392.63**	**15760.48**	**525972.59**	**17999.59**	**499.03**	**8521.31**	**1066.40**	**52697.75**	**173757.99**	**599.42**	**4942.87**
p removal efficiency (no inf)	%	0.00	0.00	41.00	0.00	73.00	0.00	67.00	56.00	53.00	37.00	50.00	0.00	0.00	0.00
tss removal efficiency (no inf)	%	0.00	0.00	67.00	0.00	93.00	0.00	93.00	93.00	87.50	63.00	81.00	0.00	0.00	0.00
net sedimentation	lbs/yr	0.00	0.00	34343.26	0.00	14657.25	0.00	16739.62	464.10	7456.14	671.83	42685.18	0.00	0.00	0.00
outflow	lbs/yr	11143.56	10137.20	16915.33	438392.63	1103.23	525972.59	1259.97	34.93	1065.16	394.57	10012.57	173757.99	599.42	4942.87
tss removal efficiency (inf)	%	0.00	0.00	67.00	0.00	93.00	0.00	93.00	93.00	87.50	63.00	81.00	0.00	0.00	0.00
upstream watershed tss load	lbs/yr	11143.56	10137.20	51258.59	472735.89	15760.48	574973.10	17999.59	499.03	8521.31	8522.55	52697.75	241774.86	599.42	4942.87
tss total removal efficiency	%	0.00	0.00	67.00	7.26	93.00	8.52	93.00	93.00	87.50	95.37	81.00	28.13	0.00	0.00
INFILTRATION BMP/POND.....															
Annual runoff infiltrated	%	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Adjusted outflow	**ac-ft/yr**	**22.40**	**21.96**	**110.51**	**1034.53**	**36.35**	**1271.44**	**46.26**	**0.99**	**20.08**	**20.09**	**121.49**	**532.41**	**1.34**	**11.46**
Adjusted TP outflow	**lbs/yr**	**25.62**	**28.38**	**87.00**	**1316.76**	**11.46**	**1566.61**	**17.34**	**0.47**	**10.38**	**6.58**	**68.89**	**486.24**	**1.74**	**11.63**
Adjusted TSS outflow	**lbs/yr**	**11143.56**	**10137.20**	**16915.33**	**438392.63**	**1103.23**	**525972.59**	**1259.97**	**34.93**	**1065.16**	**394.57**	**10012.57**	**173757.99**	**599.42**	**4942.87**

Rochester Loading Assessment
Northwest Territory
363-06-158-2
2020 LOADS

		future nw-a1	nw-a1	future nw-a2	nw-a2	future nw-a3	nw-a3	future nw-a4	nw-a4	future nw-a5.2	nw-a5.2	future nw-a5.1	nw-a5.1	future nw-a6.5	nw-a6.5	future nw-a6.4	nw-a6.4	future nw-a6.3	nw-a6.3	nw-a6.3 cell 2	future nw-a6.2	nw-a6.2	future nw-a6.1	nw-a6.1	future exit 5
		nw-a1	exit city	nw-a2	nw-a4	nw-a3	nw-a4	nw-a4	nw-a5.1	nw-a5.2	nw-a5.1	nw-a5.1	exit city	nw-a6.5	nw-a6.1	nw-a6.4	nw-a6.1	nw-a6.3	nw-a6.3 cell 2	nw-a6.1	nw-a6.2	nw-a6.1	nw-a6.1	exit city	exit 5
INPUT VARIABLES....	UNITS																								
case label	-																								
Watershed area	acres	0.0	75.0	0.0	62.7	30.4	300.3	97.5	2468.9	0.0	100.9	0.0	440.4	11.7	60.1	3.5	0.0	10.9	36.7	0.0	126.9	149.1	130.9	890.3	0.0
basin area	acres	0.00	0.00	0.00	0.00	0.00	0.40	1.22	0.00	0.00	2.40	0.00	0.00	0.32	2.63	0.04	0.13	0.31	0.30	0.41	1.63	0.86	1.19	0.00	0.00
basin volume	acre-ft	0.00	0.00	0.00	0.00	0.00	1.60	6.74	0.00	0.00	14.70	0.00	0.00	0.93	12.40	0.10	0.37	0.83	1.45	1.94	9.83	4.60	6.50	0.00	0.00
Row Crop Agriculture		0%	43%	0%	66%	0%	73%	0%	75%	0%	47%	0%	48%	0%	6%	0%	9%	0%	5%	0%	0%	31%	0%	47%	0%
Very Low Density Residential		0%	22%	0%	14%	0%	3%	0%	5%	0%	0%	0%	3%	0%	0%	0%	9%	0%	0%	0%	0%	2%	0%	8%	0%
Low Density Residential		0%	2%	0%	0%	0%	0%	19%	0%	0%	0%	0%	0%	0%	0%	100%	9%	5%	66%	0%	1%	1%	57%	1%	0%
Medium Density Residential		0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	9%	0%	0%	0%	1%	0%	1%	1%	0%
High Density Residential		0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	8%	0%	0%	0%	9%	0%	2%	0%	6%	0%	0%	0%	0%
Commercial/Industrial		0%	0%	0%	0%	0%	0%	81%	0%	0%	10%	0%	3%	100%	0%	0%	9%	95%	0%	0%	92%	10%	42%	1%	0%
Institutional		0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	9%	0%	0%	0%	0%	10%	0%	0%	0%
Open Space		0%	33%	0%	14%	100%	24%	0%	17%	0%	20%	0%	24%	0%	0%	0%	9%	0%	25%	100%	0%	22%	0%	36%	0%
Golf Course		0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	9%	0%	0%	0%	0%	0%	0%	0%	0%
Pits and Quarries		0%	0%	0%	0%	0%	0%	0%	0%	0%	20%	0%	1%	0%	0%	0%	9%	0%	0%	0%	0%	0%	0%	0%	0%
Right-of-Way		0%	1%	0%	5%	0%	0%	0%	3%	0%	3%	0%	11%	0%	94%	0%	9%	0%	1%	0%	0%	24%	0%	6%	0%
WATERSHED-WIDE ACCOUNTING.....																									
tributary land area	ac	0.00	74.97	0.00	62.70	30.38	330.69	97.47	2959.73	0.00	100.93	0.00	3501.05	11.72	71.86	3.53	3.53	10.86	47.59	47.60	126.86	275.93	130.86	1420.04	0.00
tributary water area	ac	0.00	0.00	0.00	0.00	0.00	0.40	1.22	1.62	0.00	2.40	0.00	4.02	0.32	2.95	0.04	0.17	0.31	0.61	1.02	1.63	2.49	1.19	7.82	0.00
direct and ponded area	ac	0.00	74.97	0.00	62.70	30.38	331.09	98.68	2961.34	0.00	103.33	0.00	3505.06	12.04	74.81	3.57	3.70	11.17	48.20	48.61	128.50	278.43	132.04	1427.86	0.00
ASSUMED EXPORT FACTORS.....																									
season length	yrs	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
season precipitation	inches	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80
runoff total p	ppb	0.00	373.20	0.00	450.10	200.00	452.79	358.01	467.74	0.00	340.24	0.00	408.24	350.00	407.06	391.50	351.73	352.25	350.02	200.00	353.21	388.20	373.89	385.38	0.00
runoff ortho p/total p	-	0.00	0.40	0.00	0.31	0.60	0.30	0.30	0.28	0.00	0.25	0.00	0.33	0.30	0.30	0.30	0.35	0.30	0.37	0.60	0.30	0.34	0.30	0.38	0.00
unit runoff	in/yr	0.00	3.59	0.00	4.20	2.54	3.97	13.05	4.22	0.00	4.32	0.00	5.46	14.56	8.49	6.74	6.92	14.14	5.76	2.54	14.36	6.61	10.11	4.12	0.00
unit export	lbs/ac-y	0.00	0.33	0.00	0.45	0.12	0.43	1.05	0.47	0.00	0.42	0.00	0.53	1.15	0.78	0.60	0.60	1.12	0.49	0.12	1.15	0.59	0.84	0.39	0.00
POND WATER BUDGETS.....																									
runoff	ac-ft/yr	0.00	22.40	0.00	21.96	6.44	99.24	106.02	869.07	0.00	36.35	0.00	200.56	14.22	42.57	1.98	0.00	12.80	17.63	0.00	151.84	82.07	110.26	305.67	0.00
upstream pond	ac-ft/yr	0.00	0.00	0.00	0.00	0.00	6.44	0.00	233.66	0.00	0.00	0.00	1139.08	0.00	14.22	0.00	1.98	0.00	12.80	30.42	0.00	151.84	0.00	433.37	0.00
total inflow	**ac-ft/yr**	**0.00**	**22.40**	**0.00**	**21.96**	**6.44**	**105.68**	**106.02**	**1102.72**	**0.00**	**36.35**	**0.00**	**1339.63**	**14.22**	**56.79**	**1.98**	**1.98**	**12.80**	**30.42**	**30.43**	**151.84**	**233.91**	**110.26**	**739.04**	**0.00**
outflow	ac-ft/yr	0.00	22.40	0.00	21.96	6.44	105.68	106.02	1102.72	0.00	36.35	0.00	1339.63	14.22	56.79	1.98	1.98	12.80	30.42	30.43	151.84	233.91	110.26	739.04	0.00
POND PHOSPHORUS BUDGETS.....																									
runoff	lbs/yr	0.00	24.96	0.00	28.11	3.50	130.30	102.05	1152.37	0.00	42.23	0.00	231.20	13.53	46.73	2.11	0.00	12.21	18.00	0.00	145.56	87.76	109.73	347.60	0.00
upstream pond	lbs/yr	0.00	0.00	0.00	0.00	0.00	3.50	0.00	153.64	0.00	0.00	0.00	1317.47	0.00	6.61	0.00	1.08	0.00	6.03	13.30	0.00	63.98	0.00	182.61	0.00
total inflow	**lbs/yr**	**0.00**	**24.96**	**0.00**	**28.11**	**3.50**	**133.80**	**102.05**	**1306.02**	**0.00**	**42.23**	**0.00**	**1548.68**	**13.53**	**53.35**	**2.11**	**1.08**	**12.21**	**24.03**	**13.30**	**145.56**	**151.74**	**109.73**	**530.21**	**0.00**
net sedimentation	lbs/yr	0.00	0.00	0.00	0.00	0.00	53.66	56.64	0.00	0.00	30.78	0.00	0.00	6.92	33.83	1.03	0.50	6.18	10.73	3.96	81.58	47.78	60.52	0.00	0.00
outflow	lbs/yr	0.00	24.96	0.00	28.10	3.50	80.13	45.41	1306.02	0.00	11.46	0.00	1548.68	6.61	19.52	1.08	0.58	6.03	13.30	9.34	63.98	103.96	49.21	530.20	0.00
p removal efficiency	%	3.78	0.00	3.78	0.00	0.00	40.11	55.51	0.00	3.78	72.87	3.78	0.00	51.12	63.41	48.89	45.90	50.63	44.65	29.79	56.05	31.49	55.16	0.00	3.78
upstream w-shed p load	lbs/yr	0.00	24.96	0.00	28.11	3.50	133.80	102.05	1416.33	0.00	42.23	0.00	1689.76	13.53	60.26	2.11	2.11	12.21	30.21	30.21	145.56	233.33	109.73	783.24	0.00
total removal %	%	3.78	0.00	3.78	0.00	0.00	40.11	55.51	7.79	3.78	72.87	3.78	8.35	51.12	67.61	48.89	72.35	50.63	55.97	69.09	56.05	55.44	55.16	32.31	3.78
HYDRAULIC PARAMETERS.....																									
pond mean depth	feet	0.00	1.00	0.00	1.00	1.00	4.00	5.55	1.00	0.00	6.13	0.00	1.00	2.87	4.72	2.34	2.85	2.70	4.78	4.78	6.02	5.35	5.48	1.00	0.00
relative volume	inches	1.58	0.00	1.58	0.00	0.00	0.51	2.02	0.00	1.58	12.86	1.58	0.00	2.07	9.27	1.56	185540.00	2.06	2.62	29040.00	2.06	1.78	1.88	0.00	1.58
residence time	years	0.05	0.00	0.05	0.00	0.00	0.02	0.06	0.00	0.05	0.40	0.05	0.00	0.07	0.22	0.05	0.19	0.06	0.05	0.06	0.06	0.02	0.06	0.00	0.05
residence time	days	18.08	0.00	18.08	0.00	0.00	5.53	23.22	0.00	18.08	147.59	18.08	0.00	23.81	79.72	17.86	68.08	23.66	17.44	23.22	23.63	7.18	21.53	0.00	18.08
overflow rate	ft/yr	0.00	2239927.63	0.00	2195926.33	643950.00	264.20	87.26	110272258.43	0.00	15.15	0.00	133963244.61	43.98	21.62	47.87	15.26	41.72	100.08	75.13	93.01	271.99	92.85	73903676.80	0.00
inflow phos conc	ppb	384.34	409.96	384.34	470.90	200.01	465.81	354.16	435.75	384.34	427.42	384.34	425.33	350.02	345.62	391.52	200.12	351.09	290.53	160.82	352.70	238.67	366.17	263.95	384.34
outflow phos conc	ppb	369.82	409.95	369.82	470.88	200.00	278.98	157.58	435.75	369.82	115.94	369.82	425.33	171.08	126.46	200.12	108.27	173.35	160.82	112.92	155.02	163.52	164.20	263.95	369.82
p reaction rate	-	0.04	0.00	0.04	0.00	0.00	1.12	2.80	0.00	0.04	9.90	0.04	0.00	2.14	4.74	1.87	1.57	2.08	1.46	0.60	2.90	0.67	2.74	0.00	0.04
1-rp	-	0.96	1.00	0.96	1.00	1.00	0.60	0.44	1.00	0.96	0.27	0.96	1.00	0.49	0.37	0.51	0.54	0.49	0.55	0.70	0.44	0.69	0.45	1.00	0.96
vlawmo pond volume	acre-ft	0.00	1.76	0.00	1.73	0.51	7.80	8.33	68.32	0.00	2.86	0.00	15.77	1.12	3.35	0.16	0.00	1.01	1.39	0.00	11.94	6.45	8.67	24.03	0.00
LAND USE PARAMETERS.....																									
runoff total P conc	ppb	0.00	373.20	0.00	450.10	200.00	452.79	358.01	467.74	0.00	340.24	0.00	408.24	350.00	407.06	391.50	351.73	352.25	350.02	200.00	353.21	388.20	373.89	385.38	0.00
runoff coefficient		0.00	0.11	0.00	0.13	0.08	0.12	0.41	0.13	0.00	0.14	0.00	0.17	0.46	0.27	0.21	0.22	0.44	0.18	0.08	0.45	0.21	0.32	0.13	0.00
dissolved/total P		0.00	0.40	0.00	0.31	0.60	0.30	0.30	0.28	0.00	0.25	0.00	0.33	0.30	0.30	0.30	0.35	0.30	0.37	0.60	0.30	0.34	0.30	0.38	0.00
runoff TSS conc	ppm	0.00	191.23	0.00	176.90	216.00	176.98	140.00	173.29	0.00	137.56	0.00	170.65	140.00	141.68	140.00	150.09	140.00	160.41	216.00	140.00	164.95	140.00	184.20	0.00
POND TSS BUDGETS.....																									
runoff	lbs/yr	0.00	11143.56	0.00	10137.20	3769.43	46280.68	40222.38	396160.18	0.00	15760.48	0.00	86476.73	5395.16	16241.58	752.64	0.03	4854.42	7135.44	1.24	57609.33	33752.44	41831.03	143252.55	0.00
upstream pond	lbs/yr	0.00	0.00	0.00	0.00	0.00	3769.43	0.00	29469.30	0.00	0.00	0.00	426732.71	0.00	809.27	0.00	112.90	0.00	825.25	2069.78	0.00	4032.65	0.00	20707.24	0.00
total inflow	**lbs/yr**	**0.00**	**11143.56**	**0.00**	**10137.20**	**3769.43**	**50050.11**	**40222.38**	**425629.48**	**0.00**	**15760.48**	**0.00**	**513209.44**	**5395.16**	**17050.85**	**752.64**	**112.92**	**4854.42**	**7960.69**	**2071.02**	**57609.33**	**37785.10**	**41831.03**	**163959.79**	**0.00**
p removal efficiency (no inf)	%	5.00	0.00	5.00	0.00	0.00	41.00	56.00	0.00	5.00	73.00	5.00	0.00	52.00	64.00	52.00	48.00	51.00	47.00	31.00	57.00	32.00	57.00	0.00	5.00
tss removal efficiency (no inf)	%	9.82	0.00	9.82	0.00	0.00	67.00	93.00	0.00	9.82	93.00	9.82	0.00	85.00	93.00	85.00	76.00	83.00	74.00	57.63	93.00	58.50	93.00	0.00	9.82
net sedimentation	lbs/yr	0.00	0.00	0.00	0.00	0.00	33533.57	37406.81	0.00	0.00	14657.25	0.00	0.00	4585.88	15857.29	639.74	85.82	4029.17	5890.91	1193.43	53576.68	22104.28	38902.86	0.00	0.00
outflow	lbs/yr	0.00	11143.56	0.00	10137.20	3769.43	16516.53	2815.57	425629.48	0.00	1103.23	0.00	513209.44	809.27	1193.56	112.90	27.10	825.25	2069.78	877.59	4032.65	15680.81	2928.17	163959.79	0.00
tss removal efficiency (inf)	%	9.82	0.00	9.82	0.00	0.00	67.00	93.00	0.00	9.82	93.00	9.82	0.00	85.00	93.00	85.00	76.00	83.00	74.00	57.63	93.00	58.50	93.00	0.00	9.82
upstream watershed tss load	lbs/yr	0.00	11143.56	0.00	10137.20	3769.43	50050.11	40222.38	496569.86	0.00	15760.48	0.00	598807.07	5395.16	21636.73	752.64	752.66	4854.42	11989.86	11991.10	57609.33	91361.77	41831.03	310825.85	0.00
tss total removal efficiency	%	9.82	0.00	9.82	0.00	0.00	67.00	93.00	14.29	9.82	93.00	9.82	14.29	85.00	94.48	85.00	96.40	83.00	82.74	92.68	93.00	82.84	93.00	47.25	9.82
INFILTRATION BMP/POND.....																									
Annual runoff infiltrated	%	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Adjusted outflow	**ac-ft/yr**	**0.00**	**22.40**	**0.00**	**21.96**	**6.44**	**105.68**	**106.02**	**1102.72**	**0.00**	**36.35**	**0.00**	**1339.63**	**14.22**	**56.79**	**1.98**	**1.98**	**12.80**	**30.42**	**30.43**	**151.84**	**233.91**	**110.26**	**739.04**	**0.00**
Adjusted TP outflow	**lbs/yr**	**0.00**	**24.96**	**0.00**	**28.10**	**3.50**	**80.13**	**45.41**	**1306.02**	**0.00**	**11.46**	**0.00**	**1548.68**	**6.61**	**19.52**	**1.08**	**0.58**	**6.03**	**13.30**	**9.34**	**63.98**	**103.96**	**49.21**	**530.20**	**0.00**
Adjusted TSS outflow	**lbs/yr**	**0.00**	**11143.56**	**0.00**	**10137.20**	**3769.43**	**16516.53**	**2815.57**	**425629.48**	**0.00**	**1103.23**	**0.00**	**513209.44**	**809.27**	**1193.56**	**112.90**	**27.10**	**825.25**	**2069.78**	**877.59**	**4032.65**	**15680.81**	**2928.17**	**163959.79**	**0.00**
POND P BUDGETS W/O P-BAN.....																									
runoff	lbs/yr	0.00	25.62	0.00	28.38	3.50	130.55	103.73	1156.86	0.00	42.23	0.00	238.39	13.53	46.73	2.43	0.00	12.26	20.32	0.00	147.12	88.05	116.55	351.19	0.00
Adjusted TP outflow	**lbs/yr**	**0.00**	**25.62**	**0.00**	**28.38**	**3.50**	**80.24**	**45.89**	**1311.37**	**0.00**	**11.46**	**0.00**	**1561.22**	**6.61**	**19.52**	**1.18**	**0.62**	**6.05**	**14.18**	**9.81**	**64.42**	**104.34**	**51.15**	**536.62**	**0.00**
upstream pond	lbs/yr	0.00	0.00	0.00	0.00	0.00	3.50	0.00	154.51	0.00	0.00	0.00	1322.82	0.00	6.61	0.00	1.18	0.00	6.05	14.18	0.00	64.42	0.00	185.44	0.00
total inflow	**lbs/yr**	**0.00**	**25.62**	**0.00**	**28.38**	**3.50**	**134.05**	**103.73**	**1311.37**	**0.00**	**42.23**	**0.00**	**1561.22**	**13.53**	**53.35**	**2.43**	**1.18**	**12.26**	**26.37**	**14.18**	**147.12**	**152.46**	**116.55**	**536.62**	**0.00**
outflow	lbs/yr	0.00	25.62	0.00	28.38	3.50	80.24	45.89	1311.37	0.00	11.46	0.00	1561.22	6.61	19.52	1.18	0.62	6.05	14.18	9.81	64.42	104.34	51.15	536.62	0.00
inflow phos conc	ppb	409.24	420.76	409.24	475.48	200.01	466.70	359.99	437.53	409.24	427.42	409.24	428.77	350.02	345.62	450.02	219.59	352.60	318.85	171.44	356.48	239.80	388.93	267.15	409.24
outflow phos conc	ppb	392.86	420.74	392.86	475.46	200.00	279.36	159.24	437.53	392.86	115.94	392.86	428.77	171.08	126.46	219.58	115.34	173.84	171.44	118.60	156.08	164.11	170.68	267.15	392.86
p reaction rate	-	0.04	0.00	0.04	0.00	0.00	1.12	2.85	0.00	0.04	9.90	0.04	0.00	2.14	4.74	2.15	1.72	2.09	1.60	0.64	2.93	0.67	2.91	0.00	0.04
1-rp	-	0.96	1.00	0.96	1.00	1.00	0.60	0.44	1.00	0.96	0.27	0.96	1.00	0.49	0.37	0.49	0.53	0.49	0.54	0.69	0.44	0.68	0.44	1.00	0.96
runoff total p conc	ppb	0.00	384.48	0.00	456.56	200.00	454.06	369.30	470.08	0.00	340.24	0.00	414.80	350.00	407.06	450.00	371.82	355.41	390.08	200.00	357.74	389.94	407.58	389.86	0.00

Rochester Loading Assessm			
Northwest Territory			
363-06-158-2			
2020 LOADS			
	exit 5	**future exit 6**	**exit 6**
	exit city	exit 6	exit city
INPUT VARIABLES....			
case label			
Watershed area	3.4	0.0	25.3
basin area	0.00	0.00	0.00
basin volume	0.00	0.00	0.00
Row Crop Agriculture	63%	0%	0%
Very Low Density Residential	23%	0%	19%
Low Density Residential	0%	0%	13%
Medium Density Residential	0%	0%	0%
High Density Residential	0%	0%	0%
Commercial/Industrial	0%	0%	0%
Institutional	0%	0%	0%
Open Space	0%	0%	32%
Golf Course	0%	0%	0%
Pits and Quarries	0%	0%	0%
Right-of-Way	14%	0%	36%
WATERSHED-WIDE ACCOUNTI			
tributary land area	3.41	0.00	25.29
tributary water area	0.00	0.00	0.00
direct and ponded area	3.41	0.00	25.29
ASSUMED EXPORT FACTORS...			
season length	1.00	1.00	1.00
season precipitation	31.80	31.80	31.80
runoff total p	466.38	0.00	317.56
runoff ortho p/total p	0.28	0.00	0.43
unit runoff	4.72	0.00	5.44
unit export	0.50	0.00	0.44
POND WATER BUDGETS.....			
runoff	1.34	0.00	11.46
upstream pond	0.00	0.00	0.00
total inflow	**1.34**	**0.00**	**11.46**
outflow	1.34	0.00	11.46
POND PHOSPHORUS BUDGETS			
runoff	1.71	0.00	11.19
upstream pond	0.00	0.00	0.00
total inflow	**1.71**	**0.00**	**11.19**
net sedimentation	0.00	0.00	0.00
outflow	1.71	0.00	11.18
p removal efficiency	0.07	3.78	0.00
upstream w-shed p load	1.71	0.00	11.19
total removal %	0.07	3.78	0.00
HYDRAULIC PARAMETERS.....			
pond mean depth	1.00	0.00	1.00
relative volume	0.00	1.58	0.00
residence time	0.00	0.05	0.00
residence time	0.00	18.08	0.00
overflow rate	134354.56	0.00	1145875.93
inflow phos conc	469.39	384.34	359.14
outflow phos conc	469.07	369.82	359.12
p reaction rate	0.00	0.04	0.00
1-rp	1.00	0.96	1.00
vlawmo pond volume	0.11	0.00	0.90
LAND USE PARAMETERS.....			
runoff total P conc	466.38	0.00	317.56
runoff coefficient	0.15	0.00	0.17
dissolved/total P	0.28	0.00	0.43
runoff TSS conc	171.89	0.00	178.49
POND TSS BUDGETS.....			
runoff	599.42	0.00	4942.87
upstream pond	0.00	0.00	0.00
total inflow	**599.42**	**0.00**	**4942.87**
p removal efficiency (no inf)	0.00	5.00	0.00
tss removal efficiency (no inf)	0.00	9.82	0.00
net sedimentation	0.00	0.00	0.00
outflow	599.42	0.00	4942.87
tss removal efficiency (inf)	0.00	9.82	0.00
upstream watershed tss load	599.42	0.00	4942.87
tss total removal efficiency	0.00	9.82	0.00
INFILTRATION BMP/POND.....			
Annual runoff infiltrated	0.00	0.00	0.00
Adjusted outflow	**1.34**	**0.00**	**11.46**
Adjusted TP outflow	**1.71**	**0.00**	**11.18**
Adjusted TSS outflow	**599.42**	**0.00**	**4942.87**
POND P BUDGETS W/O P-BAN			
runoff	1.74	0.00	11.63
Adjusted TP outflow	**1.74**	**0.00**	**11.63**
upstream pond	0.00	0.00	0.00
total inflow	**1.74**	**0.00**	**11.63**
outflow	1.74	0.00	11.63
inflow phos conc	475.96	409.24	373.30
outflow phos conc	475.63	392.86	373.29
p reaction rate	0.00	0.04	0.00
1-rp	1.00	0.96	1.00
runoff total p conc	476.79	0.00	333.84

Rochester Loading Assessment																						
King's Run																						
363-06-158-2																						
Baseline (1988) LOADS																						
		kr-a1.1f	**kr-a1.1e**	**kr-a1.1d**	**kr-a1.1c**	**kr-a1.1b**	**kr-a1.1a**	**kr-a1.2**	**kr-a1.4b**	**kr-a1.4a**	**kr-a1.7f**	**kr-a1.7e**	**kr-a1.7d**	**kr-a1.7a**	**kr-a1.7c**	**kr-a1.7b**	**kr-a1.3b**	**kr-a1.3a**	**kr-a1.5b**	**kr-a1.5c**	**kr-a1.5a**	**kr-a1.6**
Routed TO:		kr-a1.1d	kr-a1.1d	kr-a1.1a	kr-a1.1b	kr-a1.1a	kr-a1.4a	kr-a1.4a	kr-a1.4a	kr-a1.11a	kr-a1.11a	kr-a1.7a	kr-a1.7e	kr-a1.7b	kr-a1.7b	kr-a1.11a	kr-a1.3a	kr-a1.5a	kr-a1.5a	kr-a1.5a	kr-a1.6	kr-a1.11a
INPUT VARIABLES....	UNITS																					
case label	-																					
Watershed area	acres	146.9	134.0	389.0	44.5	303.8	419.3	358.4	63.9	288.0	81.2	89.9	13.4	19.0	22.9	15.4	246.9	8.3	65.4	46.7	242.7	71.2
basin area	acres	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
basin volume	acre-ft	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Row Crop Agriculture		67%	73%	69%	37%	46%	81%	81%	90%	85%	84%	68%	0%	22%	0%	0%	73%	74%	57%	66%	66%	64%
Very Low Density Residential		3%	6%	3%	14%	4%	4%	2%	2%	3%	3%	3%	0%	0%	7%	0%	7%	0%	3%	19%	3%	4%
Low Density Residential		0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	2%	0%	0%	0%	0%	0%	0%	0%	0%	1%	0%
Medium Density Residential		0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
High Density Residential		0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Commercial/Industrial		0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Institutional		0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Open Space		26%	20%	26%	43%	47%	12%	14%	7%	9%	9%	24%	100%	54%	90%	89%	16%	12%	35%	14%	27%	28%
Golf Course		0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Pits and Quarries		0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Right-of-Way		4%	1%	2%	7%	2%	3%	3%	1%	3%	3%	3%	0%	24%	2%	11%	4%	14%	6%	2%	3%	5%
WATERSHED-WIDE ACCOUNTING.....																						
tributary land area	ac	146.87	134.03	669.93	44.54	348.33	1437.52	358.36	63.92	2147.80	81.19	103.32	13.45	122.27	22.94	160.56	246.91	255.23	65.44	46.74	610.06	681.24
tributary water area	ac	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
direct and ponded area	ac	146.87	134.03	669.93	44.54	348.33	1437.52	358.36	63.92	2147.80	81.19	103.32	13.45	122.27	22.94	160.56	246.91	255.23	65.44	46.74	610.06	681.24
ASSUMED EXPORT FACTORS.....																						
season length	yrs	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
season precipitation	inches	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8
runoff total p	ppb	439.8288649	458.6553301	444.4848364	359.5979262	367.7609468	486.5918965	483.5262645	511.8559566	499.06136	497.6648516	447.1742069	200.0014057	323.5653623	216.8001624	221.3346562	466.5184598	478.5923554	408.9189862	454.8336221	438.3440626	431.9341327
runoff ortho p/total p	-	0.317892571	0.29929345	0.313262662	0.418479024	0.404400402	0.263357981	0.265980588	0.233779263	0.248733305	0.250526598	0.308886891	0.599997917	0.438938886	0.584171795	0.567998039	0.288971968	0.263453465	0.352506797	0.313460717	0.32035548	0.327248958
unit runoff	in/yr	4.073117795	4.036916531	4.009357156	3.724976934	3.59325427	4.314229864	4.283672332	4.354411822	4.352300972	4.346457045	4.1384034	2.544035785	4.475071721	2.744512606	3.208187797	4.209288773	4.800817077	4.004443571	3.992448186	4.03150705	4.064472248
unit export	lbs/ac-y	0.43	0.44	0.43	0.34	0.33	0.49	0.48	0.51	0.50	0.50	0.44	0.12	0.37	0.14	0.19	0.46	0.53	0.40	0.43	0.43	0.43
POND WATER BUDGETS.....																						
runoff	ac-ft/yr	49.85	45.09	129.98	13.83	90.97	150.73	127.92	23.20	104.45	29.41	30.99	2.85	7.07	5.25	4.11	86.61	3.33	21.84	15.55	81.52	24.11
upstream pond	ac-ft/yr	0.00	0.00	94.94	0.00	13.83	329.71	0.00	0.00	631.57	0.00	2.85	0.00	33.84	0.00	46.16	0.00	86.61	0.00	0.00	127.32	208.85
total inflow	**ac-ft/yr**	**49.85**	**45.09**	**224.92**	**13.83**	**104.79**	**480.45**	**127.92**	**23.20**	**736.02**	**29.41**	**33.84**	**2.85**	**40.91**	**5.25**	**50.26**	**86.61**	**89.94**	**21.84**	**15.55**	**208.85**	**232.95**
outflow	ac-ft/yr	49.85	45.09	224.92	13.83	104.79	480.45	127.92	23.20	736.02	29.41	33.84	2.85	40.91	5.25	50.26	86.61	89.94	21.84	15.55	208.85	232.95
POND PHOSPHORUS BUDGETS.....																						
runoff	lbs/yr	63.49	59.42	167.58	14.96	101.64	205.19	173.80	32.82	144.76	40.69	39.92	1.55	7.10	3.28	2.88	114.49	4.37	26.32	20.19	103.78	30.25
upstream pond	lbs/yr	0.00	0.00	122.90	0.00	14.96	407.08	0.00	0.00	818.88	0.00	1.55	0.00	41.47	0.00	51.85	0.00	114.49	0.00	0.00	165.36	269.15
total inflow	**lbs/yr**	**63.49**	**59.42**	**290.48**	**14.96**	**116.60**	**612.27**	**173.80**	**32.82**	**963.64**	**40.69**	**41.47**	**1.55**	**48.57**	**3.28**	**54.73**	**114.49**	**118.86**	**26.32**	**20.19**	**269.15**	**299.40**
net sedimentation	lbs/yr	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
outflow	lbs/yr	63.48	59.42	290.48	14.96	116.60	612.27	173.80	32.82	963.64	40.68	41.47	1.55	48.57	3.28	54.73	114.49	118.86	26.32	20.19	269.15	299.40
p removal efficiency	%	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00
upstream w-shed p load	lbs/yr	63.49	59.42	290.48	14.96	116.60	612.27	173.80	32.82	963.65	40.69	41.47	1.55	48.57	3.28	54.73	114.49	118.86	26.32	20.19	269.15	299.40
total removal %	%	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00
HYDRAULIC PARAMETERS.....																						
pond mean depth	feet	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
relative volume	inches	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
residence time	years	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
residence time	days	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
overflow rate	ft/yr	4985193.07	4508901.71	22492165.73	1382651.53	10479246.30	48044578.71	12792475.97	2319597.72	73601814.58	2940706.35	3384499.43	285040.13	4091190.82	524546.57	5026280.90	8660859.65	8993639.48	2183792.27	1554927.82	20884639.97	23295450.18
inflow phos conc	ppb	468.54	484.84	475.15	398.09	409.38	468.87	499.85	520.52	481.70	509.03	450.78	200.02	436.77	230.00	400.61	486.36	486.23	443.43	477.76	474.15	472.86
outflow phos conc	ppb	468.53	484.83	475.15	398.07	409.37	468.86	499.85	520.49	481.70	509.01	450.77	200.00	436.76	229.99	400.61	486.36	486.22	443.41	477.73	474.15	472.86
p reaction rate	-	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1-rp	-	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
vlawmo pond volume	acre-ft	3.92	3.54	10.22	1.09	7.15	11.85	10.06	1.82	8.21	2.31	2.44	0.22	0.56	0.41	0.32	6.81	0.26	1.72	1.22	6.41	1.90
LAND USE PARAMETERS.....																						
runoff total P conc	ppb	439.83	458.66	444.48	359.60	367.76	486.59	483.53	511.86	499.06	497.66	447.17	200.00	323.57	216.80	221.33	466.52	478.59	408.92	454.83	438.34	431.93
runoff coefficient		0.13	0.13	0.13	0.12	0.11	0.14	0.13	0.14	0.14	0.14	0.13	0.08	0.14	0.09	0.10	0.13	0.15	0.13	0.13	0.13	0.13
dissolved/total P		0.32	0.30	0.31	0.42	0.40	0.26	0.27	0.23	0.25	0.25	0.31	0.60	0.44	0.58	0.57	0.29	0.26	0.35	0.31	0.32	0.33
runoff TSS conc	ppm	177.66	176.46	177.65	191.35	189.77	170.62	170.89	167.26	168.86	169.02	175.96	216.00	185.87	213.82	207.89	174.26	166.48	181.44	179.86	178.13	178.73
POND TSS BUDGETS.....																						
runoff	lbs/yr	23100.73	20938.98	60489.58	6768.92	44682.80	68027.83	57815.00	10381.60	46894.71	13208.65	14242.87	1668.50	3222.04	2975.14	2156.58	39632.65	1450.09	10225.19	7339.33	37905.59	11201.21
upstream pond	lbs/yr	0.00	0.00	44039.71	0.00	6768.92	155981.01	0.00	0.00	292205.44	0.00	1668.50	0.00	15911.37	0.00	22108.55	0.00	39632.65	0.00	0.00	58647.27	96552.86
total inflow	**lbs/yr**	**23100.73**	**20938.98**	**104529.29**	**6768.92**	**51451.72**	**224008.84**	**57815.00**	**10381.60**	**339100.15**	**13208.65**	**15911.37**	**1668.50**	**19133.41**	**2975.14**	**24265.13**	**39632.65**	**41082.74**	**10225.19**	**7339.33**	**96552.86**	**107754.07**
p removal efficiency (no inf)	%	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
tss removal efficiency (no inf)	%	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
net sedimentation	lbs/yr	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
outflow	lbs/yr	23100.73	20938.98	104529.29	6768.92	51451.72	224008.84	57815.00	10381.60	339100.15	13208.65	15911.37	1668.50	19133.41	2975.14	24265.13	39632.65	41082.74	10225.19	7339.33	96552.86	107754.07
tss removal efficiency (inf)		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
upstream watershed tss load	lbs/yr	23100.73	20938.98	104529.29	6768.92	51451.72	224008.84	57815.00	10381.60	339100.15	13208.65	15911.37	1668.50	19133.41	2975.14	24265.13	39632.65	41082.74	10225.19	7339.33	96552.86	107754.07
tss total removal efficiency	%	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
INFILTRATION BMP/POND.....																						
Annual runoff infiltrated	%	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Adjusted outflow	**ac-ft/yr**	**49.85**	**45.09**	**224.92**	**13.83**	**104.79**	**480.45**	**127.92**	**23.20**	**736.02**	**29.41**	**33.84**	**2.85**	**40.91**	**5.25**	**50.26**	**86.61**	**89.94**	**21.84**	**15.55**	**208.85**	**232.95**
Adjusted TP outflow	**lbs/yr**	**63.48**	**59.42**	**290.48**	**14.96**	**116.60**	**612.27**	**173.80**	**32.82**	**963.64**	**40.68**	**41.47**	**1.55**	**48.57**	**3.28**	**54.73**	**114.49**	**118.86**	**26.32**	**20.19**	**269.15**	**299.40**
Adjusted TSS outflow	**lbs/yr**	**23100.73**	**20938.98**	**104529.29**	**6768.92**	**51451.72**	**224008.84**	**57815.00**	**10381.60**	**339100.15**	**13208.65**	**15911.37**	**1668.50**	**19133.41**	**2975.14**	**24265.13**	**39632.65**	**41082.74**	**10225.19**	**7339.33**	**96552.86**	**107754.07**

Rochester Loading Assessment																						
King's Run																						
363-06-158-2																						
Baseline (1988) LOADS																						
		kr-a1.11c	**kr-a1.11b**	**kr-a1.10d**	**kr-a1.10c**	**kr-a1.10b**	**kr-a1.10a**	**kr-a1.12b**	**kr-a1.11d**	**kr-a1.11a**	**kr-a1.12a**	**kr-a1.13**	**kr-a1.14**	**kr-a1.8a**	**kr-a1.8b**	**kr-a1.8d**	**kr-a1.8c**	**kr-a1.9b**	**kr-a1.9a**	**kr-a1.16b**	**kr-a1.16c**	**kr-a1.16a**
Routed TO:		kr-a1.11b	kr-a1.11a	kr-a1.10a	kr-a1.10a	kr-a1.10a	kr-a1.11d	kr-a1.11d	kr-a1.11a	kr-a1.16a	kr-a1.13	kr-a1.16a	kr-a1.16a	kr-a1.8c	kr-a1.8c	kr-a1.8c	kr-a1.9a	kr-a1.9a	kr-a1.16a	kr-a1.16a	kr-a1.16a	kr-a1.19a
INPUT VARIABLES....	UNITS																					
case label	-																					
Watershed area	acres	3.8	30.1	6.6	13.4	7.3	45.9	11.9	43.8	65.1	69.4	110.4	26.5	138.4	100.5	27.9	468.9	38.7	273.4	11.3	24.2	105.5
basin area	acres	0.34	0.50	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
basin volume	acre-ft	1.36	2.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Row Crop Agriculture		3%	21%	75%	94%	99%	48%	99%	57%	86%	92%	27%	0%	89%	79%	99%	69%	2%	0%	99%	0%	26%
Very Low Density Residential		1%	7%	0%	0%	0%	3%	0%	0%	0%	0%	3%	0%	3%	3%	0%	1%	0%	0%	0%	0%	10%
Low Density Residential		14%	3%	0%	0%	0%	0%	0%	0%	0%	0%	1%	85%	0%	2%	0%	0%	0%	0%	0%	0%	10%
Medium Density Residential		0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
High Density Residential		0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Commercial/Industrial		0%	3%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Institutional		0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Open Space		73%	55%	24%	2%	1%	45%	1%	43%	10%	7%	69%	15%	1%	10%	1%	29%	90%	48%	1%	100%	51%
Golf Course		0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	4%	49%	0%	0%	0%
Pits and Quarries		0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Right-of-Way		9%	10%	1%	4%	0%	4%	0%	0%	3%	1%	1%	0%	6%	6%	0%	1%	4%	3%	0%	0%	3%
WATERSHED-WIDE ACCOUNTING.....																						
tributary land area	ac	3.81	33.88	6.58	13.45	7.29	73.26	11.94	128.98	3298.79	69.41	179.83	26.46	138.39	100.45	27.85	735.55	38.66	1047.62	11.26	24.19	4693.68
tributary water area	ac	0.34	0.84	0.00	0.00	0.00	0.00	0.00	0.00	0.84	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.84
direct and ponded area	ac	4.15	34.72	6.58	13.45	7.29	73.26	11.94	128.98	3299.63	69.41	179.83	26.46	138.39	100.45	27.85	735.55	38.66	1047.62	11.26	24.19	4694.52
ASSUMED EXPORT FACTORS.....																						
season length	yrs	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
season precipitation	inches	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8
runoff total p	ppb	264.8584646	316.9583716	456.5555856	527.8393034	536.219679	374.5519985	536.2966105	393.5013837	499.5767376	514.936803	298.5513294	411.9684254	519.901222	489.806691	538.0339345	440.0424332	227.8005187	379.244501	536.1951615	201.5892229	333.0906118
runoff ortho p/total p	-	0.517708721	0.457185859	0.297460563	0.211572964	0.204446646	0.394589531	0.204356446	0.372351182	0.245348451	0.229108505	0.485862464	0.345668196	0.221962928	0.257588885	0.202312811	0.317355185	0.584148451	0.640636248	0.204458017	0.598130088	0.44795048
unit runoff	in/yr	3.753043287	4.128316463	4.039670847	4.599392034	4.430837185	3.700901695	4.431248866	3.629892802	4.399348882	4.34113639	3.143787277	6.098428446	4.659284868	4.502969733	4.440980371	3.952333723	2.867400837	2.934594151	4.439121471	2.552933854	3.707295721
unit export	lbs/ac-y	0.27	0.34	0.44	0.55	0.54	0.35	0.54	0.36	0.51	0.52	0.24	0.60	0.54	0.51	0.54	0.42	0.16	0.26	0.54	0.12	0.32
POND WATER BUDGETS.....																						
runoff	ac-ft/yr	1.19	10.35	2.21	5.15	2.69	14.17	4.41	13.24	23.88	25.11	28.93	13.45	53.73	37.69	10.31	154.42	9.24	66.86	4.17	5.15	32.61
upstream pond	ac-ft/yr	0.00	1.19	0.00	0.00	0.00	10.06	0.00	28.64	1102.06	0.00	25.11	0.00	0.00	0.00	0.00	101.73	0.00	265.39	0.00	0.00	1535.00
total inflow	**ac-ft/yr**	**1.19**	**11.54**	**2.21**	**5.15**	**2.69**	**24.23**	**4.41**	**41.88**	**1125.94**	**25.11**	**54.04**	**13.45**	**53.73**	**37.69**	**10.31**	**256.16**	**9.24**	**332.26**	**4.17**	**5.15**	**1567.60**
outflow	ac-ft/yr	1.19	11.54	2.21	5.15	2.69	24.23	4.41	41.88	1125.94	25.11	54.04	13.45	53.73	37.69	10.31	256.16	9.24	332.26	4.17	5.15	1567.60
POND PHOSPHORUS BUDGETS.....																						
runoff	lbs/yr	1.03	10.12	2.92	7.36	3.93	16.06	6.45	15.74	33.10	35.78	26.81	15.87	75.40	51.05	15.10	198.49	6.27	71.48	6.09	2.84	33.46
upstream pond	lbs/yr	0.00	0.45	0.00	0.00	0.00	14.21	0.00	36.70	1415.81	0.00	35.77	0.00	0.00	0.00	0.00	141.54	0.00	346.30	0.00	0.00	1954.05
total inflow	**lbs/yr**	**1.03**	**10.57**	**2.92**	**7.36**	**3.93**	**30.26**	**6.45**	**52.45**	**1448.91**	**35.78**	**62.59**	**15.87**	**75.40**	**51.05**	**15.10**	**340.03**	**6.27**	**417.78**	**6.09**	**2.84**	**1987.51**
net sedimentation	lbs/yr	0.58	5.66	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
outflow	lbs/yr	0.45	4.91	2.92	7.36	3.93	30.26	6.44	52.45	1448.89	35.77	62.59	15.87	75.40	51.05	15.09	340.03	6.27	417.78	6.09	2.84	1987.51
p removal efficiency	%	56.17	53.51	0.04	0.03	0.05	0.00	0.03	0.00	0.00	0.01	0.00	0.01	0.00	0.00	0.01	0.00	0.00	0.00	0.04	0.00	0.00
upstream w-shed p load	lbs/yr	1.03	11.15	2.92	7.36	3.93	30.27	6.45	52.46	1455.17	35.78	62.59	15.87	75.40	51.05	15.10	340.04	6.27	417.79	6.09	2.84	1993.80
total removal %	%	56.17	55.93	0.04	0.03	0.05	0.02	0.03	0.02	0.43	0.01	0.00	0.01	0.00	0.00	0.01	0.00	0.00	0.00	0.04	0.00	0.32
HYDRAULIC PARAMETERS.....																						
pond mean depth	feet	4.00	4.00	1.00	1.00	1.00	1.00	1.00	1.00	0.10	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
relative volume	inches	36.28	6.15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
residence time	years	1.14	0.17	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
residence time	days	416.47	63.27	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
overflow rate	ft/yr	3.51	23.08	221342.99	515364.94	269139.76	2422955.95	440875.66	4188291.47	1125943.36	2511097.06	5403802.10	1344503.75	5373244.95	3769363.17	1030680.86	25615618.72	923782.64	33225704.42	416651.50	514524.46	156760152.55
inflow phos conc	ppb	318.56	337.02	485.11	525.29	537.86	459.51	537.90	460.73	473.45	524.17	426.13	434.20	516.29	498.30	538.90	488.39	249.61	462.62	537.59	202.78	466.47
outflow phos conc	ppb	139.61	156.68	484.91	525.15	537.56	459.50	537.72	460.72	473.45	524.14	426.13	434.18	516.27	498.28	538.82	488.39	249.60	462.62	537.40	202.78	466.47
p reaction rate	-	2.92	2.48	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1-rp	-	0.44	0.46	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
vlawmo pond volume	acre-ft	0.09	0.81	0.17	0.41	0.21	1.11	0.35	1.04	1.88	1.97	2.27	1.06	4.22	2.96	0.81	12.14	0.73	5.26	0.33	0.40	2.56
LAND USE PARAMETERS.....																						
runoff total P conc	ppb	264.86	316.96	456.56	527.84	536.22	374.55	536.30	393.50	499.58	514.94	298.55	411.97	519.90	489.81	538.03	440.04	227.80	379.24	536.20	201.59	333.09
runoff coefficient		0.12	0.13	0.13	0.14	0.14	0.12	0.14	0.11	0.14	0.14	0.10	0.19	0.15	0.14	0.14	0.12	0.09	0.09	0.14	0.08	0.12
dissolved/total P		0.52	0.46	0.30	0.21	0.20	0.39	0.20	0.37	0.25	0.23	0.49	0.35	0.22	0.26	0.20	0.32	0.58	0.64	0.20	0.60	0.45
runoff TSS conc	ppm	196.83	191.92	175.52	163.00	163.59	187.84	163.58	185.84	167.77	166.65	200.66	151.65	163.95	168.36	163.31	178.11	211.78	213.77	163.48	215.75	192.26
POND TSS BUDGETS.....																						
runoff	lbs/yr	578.02	4901.47	1022.69	2258.17	1191.33	6867.69	1951.44	6425.00	10655.37	11224.54	15137.57	5278.57	23541.27	16750.08	4557.73	72101.48	5116.45	37968.09	1842.84	3005.79	15882.75
upstream pond	lbs/yr	0.00	40.46	0.00	0.00	0.00	4472.19	0.00	13291.31	504538.50	0.00	11224.54	0.00	0.00	0.00	0.00	44849.08	0.00	122067.01	0.00	0.00	711718.29
total inflow	**lbs/yr**	**578.02**	**4941.93**	**1022.69**	**2258.17**	**1191.33**	**11339.88**	**1951.44**	**19716.31**	**515193.87**	**11224.54**	**26362.11**	**5278.57**	**23541.27**	**16750.08**	**4557.73**	**116950.56**	**5116.45**	**160035.10**	**1842.84**	**3005.79**	**727601.04**
p removal efficiency (no inf)	%	57.00	54.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
tss removal efficiency (no inf)	%	93.00	90.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
net sedimentation	lbs/yr	537.55	4447.73	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
outflow	lbs/yr	40.46	494.19	1022.69	2258.17	1191.33	11339.88	1951.44	19716.31	515193.87	11224.54	26362.11	5278.57	23541.27	16750.08	4557.73	116950.56	5116.45	160035.10	1842.84	3005.79	727601.04
tss removal efficiency (inf)		93.00	90.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
upstream watershed tss load	lbs/yr	578.02	5479.48	1022.69	2258.17	1191.33	11339.88	1951.44	19716.31	520179.16	11224.54	26362.11	5278.57	23541.27	16750.08	4557.73	116950.56	5116.45	160035.10	1842.84	3005.79	732586.33
tss total removal efficiency	%	93.00	90.98	0.00	0.00	0.00	0.00	0.00	0.00	0.96	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.68
INFILTRATION BMP/POND.....																						
Annual runoff infiltrated	%	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Adjusted outflow	**ac-ft/yr**	**1.19**	**11.54**	**2.21**	**5.15**	**2.69**	**24.23**	**4.41**	**41.88**	**1125.94**	**25.11**	**54.04**	**13.45**	**53.73**	**37.69**	**10.31**	**256.16**	**9.24**	**332.26**	**4.17**	**5.15**	**1567.60**
Adjusted TP outflow	**lbs/yr**	**0.45**	**4.91**	**2.92**	**7.36**	**3.93**	**30.26**	**6.44**	**52.45**	**1448.89**	**35.77**	**62.59**	**15.87**	**75.40**	**51.05**	**15.09**	**340.03**	**6.27**	**417.78**	**6.09**	**2.84**	**1987.51**
Adjusted TSS outflow	**lbs/yr**	**40.46**	**494.19**	**1022.69**	**2258.17**	**1191.33**	**11339.88**	**1951.44**	**19716.31**	**515193.87**	**11224.54**	**26362.11**	**5278.57**	**23541.27**	**16750.08**	**4557.73**	**116950.56**	**5116.45**	**160035.10**	**1842.84**	**3005.79**	**727601.04**

Rochester Loading Assessment																						
King's Run																						
363-06-158-2																						
Baseline (1988) LOADS																						
		kr-a1.17	**kr-a1.19b**	**kr-a1.19c**	**kr-a1.19d**	**kr-a1.19e**	**kr-a1.19a**	**kr-a1.15a**	**kr-a1.15b**	**kr-a1.18d**	**kr-a1.18c**	**kr-a1.18b**	**kr-a1.18e**	**kr-a1.18f**	**kr-a2.6b**	**kr-a2.6c**	**kr-a2.6d**	**kr-a2.6a**	**kr-a1.18a**	**kr-a2.5d**	**kr-a2.5c**	**kr-a2.5b**
Routed TO:		kr-a1.19a	kr-a1.19a	kr-a1.19a	kr-a1.19a	kr-a1.19a	kr-a2.5b	kr-a1.15b	kr-a1.18a	kr-a1.18b	kr-a1.18b	kr-a1.18a	kr-a1.18a	kr-a1.18a	kr-a2.6a	kr-a2.6a	kr-a2.6a	kr-a1.18a	kr-a2.5d	kr-a2.5b	kr-a2.5b	kr-a2.10
INPUT VARIABLES....	UNITS																					
case label	-																					
Watershed area	acres	212.5	22.8	25.6	7.1	25.3	84.7	23.8	53.8	18.7	84.0	44.8	17.2	3.1	4.8	19.0	4.7	94.0	89.2	9.4	4.8	15.0
basin area	acres	0.00	0.00	0.00	0.00	0.00	0.00	0.63	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
basin volume	acre-ft	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Row Crop Agriculture		66%	91%	98%	63%	61%	29%	2%	0%	83%	91%	14%	1%	0%	0%	78%	100%	2%	0%	0%	0%	0%
Very Low Density Residential		2%	0%	0%	6%	1%	0%	20%	92%	0%	3%	27%	0%	0%	0%	13%	0%	14%	26%	0%	0%	0%
Low Density Residential		6%	0%	0%	0%	0%	15%	34%	3%	0%	0%	0%	1%	14%	0%	0%	0%	0%	28%	0%	0%	0%
Medium Density Residential		0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
High Density Residential		0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Commercial/Industrial		0%	0%	0%	0%	0%	9%	0%	0%	0%	0%	0%	0%	14%	100%	0%	0%	20%	0%	0%	0%	6%
Institutional		2%	0%	0%	0%	0%	15%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	4%	0%	0%	0%	0%
Open Space		20%	0%	2%	14%	38%	19%	43%	1%	17%	6%	59%	97%	65%	0%	5%	0%	32%	19%	0%	0%	28%
Golf Course		0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Pits and Quarries		0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Right-of-Way		4%	9%	0%	16%	0%	13%	0%	4%	0%	0%	0%	0%	7%	0%	4%	0%	28%	27%	100%	100%	66%
WATERSHED-WIDE ACCOUNTING.....																						
tributary land area	ac	212.48	22.77	25.58	7.14	25.30	5071.61	23.81	77.61	18.73	84.02	147.52	17.22	3.13	4.78	18.96	4.72	122.50	457.18	466.63	4.77	5558.02
tributary water area	ac	0.00	0.00	0.00	0.00	0.00	0.84	0.63	0.63	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.63	0.63	0.00	1.47
direct and ponded area	ac	212.48	22.77	25.58	7.14	25.30	5072.45	24.44	78.24	18.73	84.02	147.52	17.22	3.13	4.78	18.96	4.72	122.50	457.82	467.26	4.77	5559.49
ASSUMED EXPORT FACTORS.....																						
season length	yrs	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
season precipitation	inches	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8
runoff total p	ppb	453.3908432	527.2869792	532.8762328	457.6529733	409.682499	397.6995998	322.5149269	354.4849188	481.1334258	512.4389574	288.4018252	207.6503738	270.0728651	350.0005022	492.1410932	539.9960798	319.2455581	362.1084565	399.9996718	399.9993494	340.4207697
runoff ortho p/total p	-	0.298818717	0.209086131	0.208380677	0.291002331	0.354272595	0.328949936	0.469404441	0.485851848	0.269254485	0.234728396	0.516755631	0.590912137	0.494914783	0.300001046	0.263808655	0.20000339	0.422384275	0.410183346	0.300000529	0.300001049	0.384805815
unit runoff	in/yr	4.415632619	4.843568709	4.412037755	4.805087669	3.715615502	6.665654212	4.110845034	3.337504903	4.121674661	4.285104301	2.929861676	2.628359775	5.254816715	14.56104408	4.321326907	4.452057481	7.109942149	5.497885406	8.770418428	8.770397237	7.342364471
unit export	lbs/ac-y	0.47	0.57	0.54	0.51	0.38	0.60	0.34	0.27	0.47	0.51	0.21	0.13	0.39	1.15	0.49	0.54	0.57	0.49	0.79	0.79	0.62
POND WATER BUDGETS.....																						
runoff	ac-ft/yr	78.19	9.19	9.41	2.86	7.83	47.03	8.16	14.96	6.43	30.00	10.93	3.77	1.37	5.80	6.83	1.75	55.72	40.86	6.90	3.48	9.18
upstream pond	ac-ft/yr	0.00	0.00	0.00	0.00	0.00	1675.08	0.00	8.16	0.00	0.00	36.43	0.00	0.00	0.00	0.00	0.00	14.38	145.73	186.59	0.00	1919.08
total inflow	**ac-ft/yr**	**78.19**	**9.19**	**9.41**	**2.86**	**7.83**	**1722.10**	**8.16**	**23.12**	**6.43**	**30.00**	**47.37**	**3.77**	**1.37**	**5.80**	**6.83**	**1.75**	**70.10**	**186.59**	**193.50**	**3.48**	**1928.26**
outflow	ac-ft/yr	78.19	9.19	9.41	2.86	7.83	1722.10	8.16	23.12	6.43	30.00	47.37	3.77	1.37	5.80	6.83	1.75	70.10	186.59	193.50	3.48	1928.26
POND PHOSPHORUS BUDGETS.....																						
runoff	lbs/yr	100.33	12.92	13.70	3.61	9.59	51.06	8.20	14.70	8.81	42.65	9.33	2.22	1.22	5.52	9.31	2.57	53.35	43.53	7.51	3.79	9.35
upstream pond	lbs/yr	0.00	0.00	0.00	0.00	0.00	2127.66	0.00	8.20	0.00	0.00	51.46	0.00	0.00	0.00	0.00	0.00	17.40	157.85	201.39	0.00	2391.40
total inflow	**lbs/yr**	**100.33**	**12.92**	**13.70**	**3.61**	**9.59**	**2178.72**	**8.20**	**22.89**	**8.81**	**42.65**	**60.79**	**2.22**	**1.22**	**5.52**	**9.31**	**2.57**	**70.75**	**201.39**	**208.89**	**3.79**	**2400.74**
net sedimentation	lbs/yr	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
outflow	lbs/yr	100.33	12.91	13.70	3.61	9.59	2178.72	8.20	22.89	8.81	42.65	60.78	2.22	1.22	5.52	9.31	2.57	70.75	201.39	208.89	3.79	2400.74
p removal efficiency	%	0.00	0.02	0.02	0.03	0.01	0.00	0.00	0.00	0.02	0.00	0.00	0.01	0.03	0.01	0.02	0.09	0.00	0.00	0.00	0.02	0.00
upstream w-shed p load	lbs/yr	100.33	12.92	13.70	3.61	9.59	2185.02	8.20	22.89	8.81	42.65	60.79	2.22	1.22	5.52	9.31	2.57	70.75	201.40	208.90	3.79	2407.06
total removal %	%	0.00	0.02	0.02	0.03	0.01	0.29	0.00	0.00	0.02	0.00	0.01	0.01	0.03	0.01	0.02	0.09	0.01	0.01	0.01	0.02	0.26
HYDRAULIC PARAMETERS.....																						
pond mean depth	feet	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
relative volume	inches	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
residence time	years	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
residence time	days	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
overflow rate	ft/yr	7818614.96	919150.71	940649.76	285705.31	783378.08	172210273.20	12.95	2312096.91	643362.16	3000111.51	4736753.50	377237.09	137022.41	579905.71	682880.21	175080.87	7009635.17	18659234.42	19349619.83	348265.17	192826325.15
inflow phos conc	ppb	472.13	517.03	535.92	465.47	450.52	465.47	369.71	364.27	503.69	523.08	472.14	216.20	326.65	350.02	501.83	540.02	371.33	397.09	397.19	400.02	458.07
outflow phos conc	ppb	472.13	516.95	535.84	465.33	450.48	465.47	369.70	364.26	503.61	523.06	472.13	216.19	326.56	349.98	501.76	539.56	371.32	397.09	397.19	399.94	458.07
p reaction rate	-	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1-rp	-	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
vlawmo pond volume	acre-ft	6.15	0.72	0.74	0.22	0.62	3.70	0.64	1.18	0.51	2.36	0.86	0.30	0.11	0.46	0.54	0.14	4.38	3.21	0.54	0.27	0.72
LAND USE PARAMETERS.....																						
runoff total P conc	ppb	453.39	527.29	532.88	457.65	409.68	397.70	322.51	354.48	481.13	512.44	288.40	207.65	270.07	350.00	492.14	540.00	319.25	362.11	400.00	400.00	340.42
runoff coefficient		0.14	0.15	0.14	0.15	0.12	0.21	0.13	0.10	0.13	0.13	0.09	0.08	0.17	0.46	0.14	0.14	0.22	0.17	0.28	0.28	0.23
dissolved/total P		0.30	0.21	0.21	0.29	0.35	0.33	0.47	0.49	0.27	0.23	0.52	0.59	0.49	0.30	0.26	0.20	0.42	0.41	0.30	0.30	0.38
runoff TSS conc	ppm	172.35	160.92	164.11	169.92	183.61	161.45	188.92	210.43	172.18	168.00	208.57	214.26	189.38	140.00	171.82	163.00	175.37	174.54	140.00	140.00	161.48
POND TSS BUDGETS.....																						
runoff	lbs/yr	35046.89	3966.12	4171.45	1254.72	3761.60	19130.26	3804.43	8225.11	2940.67	13506.96	6064.97	2168.01	608.63	2200.16	3102.51	773.38	23164.28	17448.74	2619.32	1321.32	3668.75
upstream pond	lbs/yr	0.00	0.00	0.00	0.00	0.00	775801.81	0.00	3804.43	0.00	0.00	16447.63	0.00	0.00	0.00	0.00	0.00	6076.05	66559.12	84007.86	0.00	882880.58
total inflow	**lbs/yr**	**35046.89**	**3966.12**	**4171.45**	**1254.72**	**3761.60**	**794932.08**	**3804.43**	**12029.54**	**2940.67**	**13506.96**	**22512.60**	**2168.01**	**608.63**	**2200.16**	**3102.51**	**773.38**	**29240.33**	**84007.86**	**86627.18**	**1321.32**	**886549.33**
p removal efficiency (no inf)	%	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
tss removal efficiency (no inf)	%	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
net sedimentation	lbs/yr	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
outflow	lbs/yr	35046.89	3966.12	4171.45	1254.72	3761.60	794932.08	3804.43	12029.54	2940.67	13506.96	22512.60	2168.01	608.63	2200.16	3102.51	773.38	29240.33	84007.86	86627.18	1321.32	886549.33
tss removal efficiency (inf)		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
upstream watershed tss load	lbs/yr	35046.89	3966.12	4171.45	1254.72	3761.60	799917.37	3804.43	12029.54	2940.67	13506.96	22512.60	2168.01	608.63	2200.16	3102.51	773.38	29240.33	84007.86	86627.18	1321.32	891534.62
tss total removal efficiency	%	0.00	0.00	0.00	0.00	0.00	0.62	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.56
INFILTRATION BMP/POND.....																						
Annual runoff infiltrated	%	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Adjusted outflow	**ac-ft/yr**	**78.19**	**9.19**	**9.41**	**2.86**	**7.83**	**1722.10**	**8.16**	**23.12**	**6.43**	**30.00**	**47.37**	**3.77**	**1.37**	**5.80**	**6.83**	**1.75**	**70.10**	**186.59**	**193.50**	**3.48**	**1928.26**
Adjusted TP outflow	**lbs/yr**	**100.33**	**12.91**	**13.70**	**3.61**	**9.59**	**2178.72**	**8.20**	**22.89**	**8.81**	**42.65**	**60.78**	**2.22**	**1.22**	**5.52**	**9.31**	**2.57**	**70.75**	**201.39**	**208.89**	**3.79**	**2400.74**
Adjusted TSS outflow	**lbs/yr**	**35046.89**	**3966.12**	**4171.45**	**1254.72**	**3761.60**	**794932.08**	**3804.43**	**12029.54**	**2940.67**	**13506.96**	**22512.60**	**2168.01**	**608.63**	**2200.16**	**3102.51**	**773.38**	**29240.33**	**84007.86**	**86627.18**	**1321.32**	**886549.33**

Rochester Loading Assessment																						
King's Run																						
363-06-158-2																						
Baseline (1988) LOADS																						
		kr-a2.7	**kr-a2.1a**	**kr-a2.1b**	**kr-a2.1c**	**kr-a2.1d**	**kr-a2.1e**	**kr-a2.1f**	**kr-a2.1g**	**kr-a2.2g**	**kr-a2.2f**	**kr-a2.2e**	**kr-a2.2d**	**kr-a2.2c**	**kr-a2.2b**	**kr-a2.2i**	**kr-a2.2a**	**kr-a2.2h**	**kr-a2.4c**	**kr-a2.4b**	**kr-a2.4a**	**kr-a2.3a**
Routed TO:		kr-a2.10	kr-a2.1b	kr-a2.2c	kr-a2.1d	kr-a2.1e	kr-a2.1f	kr-a2.2c	kr-a2.2c	kr-a2.2c	kr-a2.2d	kr-a2.2d	kr-a2.2c	kr-a2.2b	kr-a2.2a	kr-a2.2a	kr-a2.4a	kr-a2.4a	kr-a2.4a	kr-a2.4a	kr-a2.5a	kr-a2.5a
INPUT VARIABLES....	UNITS																					
case label	-																					
Watershed area	acres	171.0	112.9	57.3	7.8	20.5	3.5	2.4	6.5	18.7	15.2	12.2	5.9	244.6	32.5	30.4	90.4	28.1	2.7	1.2	113.7	39.7
basin area	acres	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
basin volume	acre-ft	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Row Crop Agriculture		15%	24%	21%	80%	94%	86%	94%	57%	82%	78%	67%	7%	17%	52%	4%	27%	91%	0%	0%	5%	0%
Very Low Density Residential		0%	0%	0%	0%	0%	0%	0%	0%	3%	4%	0%	0%	3%	0%	0%	0%	0%	0%	0%	1%	3%
Low Density Residential		26%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	3%	0%	0%	0%	9%	0%	0%	14%	0%
Medium Density Residential		1%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
High Density Residential		1%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Commercial/Industrial		0%	0%	0%	3%	0%	0%	0%	0%	0%	0%	0%	0%	31%	0%	10%	43%	0%	0%	0%	50%	1%
Institutional		4%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	88%	0%	0%
Open Space		49%	75%	73%	9%	6%	14%	6%	11%	0%	18%	33%	93%	37%	48%	86%	30%	0%	85%	0%	25%	90%
Golf Course		0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Pits and Quarries		0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Right-of-Way		4%	1%	6%	8%	0%	0%	0%	32%	15%	0%	0%	0%	9%	0%	0%	0%	0%	15%	12%	6%	6%
WATERSHED-WIDE ACCOUNTING.....																						
tributary land area	ac	170.99	112.90	170.19	7.78	28.29	31.81	34.22	6.47	18.69	15.21	12.20	33.26	507.41	539.88	30.35	660.61	28.13	2.75	1.24	806.41	39.69
tributary water area	ac	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
direct and ponded area	ac	170.99	112.90	170.19	7.78	28.29	31.81	34.22	6.47	18.69	15.21	12.20	33.26	507.41	539.88	30.35	660.61	28.13	2.75	1.24	806.41	39.69
ASSUMED EXPORT FACTORS.....																						
season length	yrs	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
season precipitation	inches	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8
runoff total p	ppb	335.5291807	284.8082083	283.0128093	492.6550391	519.2717853	492.1286428	521.0977193	456.6202427	513.7920334	470.5913298	426.9727198	224.7336789	335.3746125	375.1784807	228.4004918	355.9754107	531.4889145	229.2521889	356.044606	338.1998421	217.8622313
runoff ortho p/total p	-	0.431949995	0.499509185	0.498774451	0.246402821	0.224370107	0.256317608	0.222235586	0.277481422	0.223466381	0.284467827	0.332972798	0.571005012	0.398966358	0.393907492	0.553669699	0.363287727	0.2094566	0.556121844	0.300004029	0.372299183	0.575715779
unit runoff	in/yr	4.643618533	3.07643769	3.290934322	4.968040843	4.33693853	4.183463669	4.346080411	5.610014738	5.048540395	4.047591725	3.817748232	2.682309046	7.266462776	3.527071968	3.872033471	8.233258345	4.668710382	3.454645979	9.618680989	9.543528508	3.061606734
unit export	lbs/ac-y	0.40	0.23	0.24	0.55	0.52	0.48	0.52	0.58	0.57	0.45	0.40	0.15	0.59	0.34	0.24	0.68	0.56	0.21	0.77	0.77	0.17
POND WATER BUDGETS.....																						
runoff	ac-ft/yr	66.17	28.94	15.71	3.22	7.41	1.23	0.87	3.02	7.86	5.13	3.88	1.31	148.10	9.54	9.79	62.01	10.94	0.79	0.99	90.41	10.13
upstream pond	ac-ft/yr	0.00	0.00	28.94	0.00	3.22	10.63	11.86	0.00	0.00	0.00	0.00	9.01	78.60	226.70	0.00	246.03	0.00	0.00	0.00	320.78	0.00
total inflow	**ac-ft/yr**	**66.17**	**28.94**	**44.66**	**3.22**	**10.63**	**11.86**	**12.73**	**3.02**	**7.86**	**5.13**	**3.88**	**10.32**	**226.70**	**236.24**	**9.79**	**308.05**	**10.94**	**0.79**	**0.99**	**411.19**	**10.13**
outflow	ac-ft/yr	66.17	28.94	44.66	3.22	10.63	11.86	12.73	3.02	7.86	5.13	3.88	10.32	226.70	236.24	9.79	308.05	10.94	0.79	0.99	411.19	10.13
POND PHOSPHORUS BUDGETS.....																						
runoff	lbs/yr	69.19	25.64	13.95	4.26	10.63	1.71	1.26	3.72	10.70	6.91	4.90	0.86	144.62	10.92	7.28	61.30	15.70	0.59	0.96	87.69	6.79
upstream pond	lbs/yr	0.00	0.00	25.63	0.00	4.26	14.89	16.59	0.00	0.00	0.00	0.00	11.81	84.52	229.14	0.00	247.35	0.00	0.00	0.00	325.90	0.00
total inflow	**lbs/yr**	**69.19**	**25.64**	**39.59**	**4.26**	**14.89**	**16.59**	**17.85**	**3.72**	**10.70**	**6.91**	**4.90**	**12.67**	**229.15**	**240.07**	**7.28**	**308.65**	**15.70**	**0.59**	**0.96**	**413.59**	**6.79**
net sedimentation	lbs/yr	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
outflow	lbs/yr	69.19	25.63	39.59	4.26	14.89	16.59	17.84	3.72	10.70	6.91	4.90	12.67	229.14	240.07	7.28	308.65	15.70	0.59	0.96	413.59	6.79
p removal efficiency	%	0.00	0.00	0.00	0.03	0.01	0.01	0.01	0.03	0.02	0.02	0.02	0.00	0.00	0.00	0.00	0.00	0.01	0.03	0.07	0.00	0.00
upstream w-shed p load	lbs/yr	69.19	25.64	39.59	4.26	14.89	16.60	17.85	3.72	10.70	6.91	4.90	12.67	229.16	240.08	7.28	308.67	15.70	0.59	0.96	413.60	6.79
total removal %	%	0.00	0.00	0.00	0.03	0.02	0.03	0.04	0.03	0.02	0.02	0.02	0.02	0.01	0.01	0.00	0.00	0.01	0.03	0.07	0.00	0.00
HYDRAULIC PARAMETERS.....																						
pond mean depth	feet	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
relative volume	inches	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
residence time	years	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
residence time	days	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
overflow rate	ft/yr	6616732.29	2894417.18	4465593.69	322180.35	1063257.61	1186080.27	1273403.53	302477.03	786355.60	512933.76	388267.86	1031965.97	22669818.85	23624100.21	979368.91	30804764.80	1094427.03	79142.77	99480.41	41118640.54	1012500.65
inflow phos conc	ppb	384.74	325.85	326.17	486.36	515.21	514.71	515.64	452.72	500.79	495.65	464.71	451.65	371.89	373.88	273.62	368.64	527.73	274.28	355.53	370.07	246.59
outflow phos conc	ppb	384.74	325.85	326.17	486.19	515.14	514.66	515.59	452.58	500.71	495.55	464.61	451.63	371.89	373.88	273.61	368.64	527.67	274.18	355.30	370.06	246.58
p reaction rate	-	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1-rp	-	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
vlawmo pond volume	acre-ft	5.20	2.28	1.24	0.25	0.58	0.10	0.07	0.24	0.62	0.40	0.31	0.10	11.64	0.75	0.77	4.88	0.86	0.06	0.08	7.11	0.80
LAND USE PARAMETERS.....																						
runoff total P conc	ppb	335.53	284.81	283.01	492.66	519.27	492.13	521.10	456.62	513.79	470.59	426.97	224.73	335.37	375.18	228.40	355.98	531.49	229.25	356.04	338.20	217.86
runoff coefficient		0.15	0.10	0.10	0.16	0.14	0.13	0.14	0.18	0.16	0.13	0.12	0.08	0.23	0.11	0.12	0.26	0.15	0.11	0.30	0.30	0.10
dissolved/total P		0.43	0.50	0.50	0.25	0.22	0.26	0.22	0.28	0.22	0.28	0.33	0.57	0.40	0.39	0.55	0.36	0.21	0.56	0.30	0.37	0.58
runoff TSS conc	ppm	180.69	202.28	200.59	165.05	166.22	170.46	165.94	161.72	161.13	174.68	180.62	212.18	174.22	188.69	206.07	169.02	160.83	204.88	140.00	160.85	210.50
POND TSS BUDGETS.....																						
runoff	lbs/yr	29355.64	15293.15	8075.63	1396.01	3311.33	557.64	389.81	1264.71	3366.82	2370.73	1838.63	742.94	61472.70	4694.59	4879.10	25275.37	4741.24	402.75	377.43	35723.90	5456.58
upstream pond	lbs/yr	0.00	0.00	15293.15	0.00	1396.01	4707.34	5264.99	0.00	0.00	0.00	0.00	4209.36	38607.41	100080.11	0.00	109653.80	0.00	0.00	0.00	140450.59	0.00
total inflow	**lbs/yr**	**29355.64**	**15293.15**	**23368.78**	**1396.01**	**4707.34**	**5264.99**	**5654.80**	**1264.71**	**3366.82**	**2370.73**	**1838.63**	**4952.30**	**100080.11**	**104774.70**	**4879.10**	**134929.17**	**4741.24**	**402.75**	**377.43**	**176174.49**	**5456.58**
p removal efficiency (no inf)	%	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
tss removal efficiency (no inf)	%	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
net sedimentation	lbs/yr	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
outflow	lbs/yr	29355.64	15293.15	23368.78	1396.01	4707.34	5264.99	5654.80	1264.71	3366.82	2370.73	1838.63	4952.30	100080.11	104774.70	4879.10	134929.17	4741.24	402.75	377.43	176174.49	5456.58
tss removal efficiency (inf)		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
upstream watershed tss load	lbs/yr	29355.64	15293.15	23368.78	1396.01	4707.34	5264.99	5654.80	1264.71	3366.82	2370.73	1838.63	4952.30	100080.11	104774.70	4879.10	134929.17	4741.24	402.75	377.43	176174.49	5456.58
tss total removal efficiency	%	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
INFILTRATION BMP/POND.....																						
Annual runoff infiltrated	%	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Adjusted outflow	**ac-ft/yr**	**66.17**	**28.94**	**44.66**	**3.22**	**10.63**	**11.86**	**12.73**	**3.02**	**7.86**	**5.13**	**3.88**	**10.32**	**226.70**	**236.24**	**9.79**	**308.05**	**10.94**	**0.79**	**0.99**	**411.19**	**10.13**
Adjusted TP outflow	**lbs/yr**	**69.19**	**25.63**	**39.59**	**4.26**	**14.89**	**16.59**	**17.84**	**3.72**	**10.70**	**6.91**	**4.90**	**12.67**	**229.14**	**240.07**	**7.28**	**308.65**	**15.70**	**0.59**	**0.96**	**413.59**	**6.79**
Adjusted TSS outflow	**lbs/yr**	**29355.64**	**15293.15**	**23368.78**	**1396.01**	**4707.34**	**5264.99**	**5654.80**	**1264.71**	**3366.82**	**2370.73**	**1838.63**	**4952.30**	**100080.11**	**104774.70**	**4879.10**	**134929.17**	**4741.24**	**402.75**	**377.43**	**176174.49**	**5456.58**

Rochester Loading Assessment																					
King's Run																					
363-06-158-2																					
Baseline (1988) LOADS																					
		kr-a2.5e	**kr-a2.5a**	**kr-a2.10**	**kr-a2.8f**	**kr-a2.8e**	**kr-a2.8d**	**kr-a2.8c**	**kr-a2.8b**	**kr-a2.8a**	**kr-a2.9**	**kr-a2.11c**	**kr-a2.11b**	**kr-a2.11a**	**kr-a2.12b**	**kr-a2.12a**	**kr-a2.13**	**kr-a3.5b**	**kr-a3.5a**	**kr-a2.3b**	**kr-a3.1a**	**kr-a3.1b**
Routed TO:		kr-a2.5a	kr-a2.10	kr-a2.12a	kr-a2.8e	kr-a2.8d	kr-a2.8c	kr-a2.8b	kr-a2.8a	kr-a2.9	kr-a2.12a	kr-a2.11a	kr-a2.11a	kr-a2.12a	kr-a2.12a	zr-a4.7	zr-a4.7	kr-a3.5a	zr-a4.6a	kr-a3.1a	kr-a3.3	kr-a3.3
INPUT VARIABLES....	UNITS																				
case label	-																				
Watershed area	acres	17.6	166.6	326.6	188.3	10.3	34.8	15.5	11.5	8.4	160.2	43.7	17.9	63.5	3.3	250.6	320.2	52.3	156.7	32.6	115.2	37.1
basin area	acres	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.17	0.00	0.00	0.00	0.00	0.00	0.00	0.00
basin volume	acre-ft	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.68	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Row Crop Agriculture		0%	0%	18%	81%	99%	92%	15%	0%	0%	62%	99%	99%	16%	0%	16%	30%	72%	23%	0%	3%	2%
Very Low Density Residential		0%	0%	0%	0%	0%	0%	0%	0%	37%	4%	0%	0%	0%	65%	5%	35%	0%	0%	0%	0%	0%
Low Density Residential		0%	6%	32%	0%	0%	3%	0%	0%	0%	10%	0%	0%	6%	0%	7%	3%	16%	33%	0%	0%	0%
Medium Density Residential		0%	1%	6%	0%	0%	0%	0%	0%	0%	0%	0%	0%	36%	0%	2%	0%	3%	1%	0%	0%	0%
High Density Residential		0%	3%	6%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	5%	0%	3%	12%	0%	0%	0%
Commercial/Industrial		2%	27%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	4%	89%	49%	0%
Institutional		0%	4%	4%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	5%	0%	5%	17%	0%	0%	0%
Open Space		22%	36%	28%	18%	1%	4%	85%	99%	50%	13%	1%	1%	42%	35%	54%	27%	0%	1%	10%	46%	76%
Golf Course		0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Pits and Quarries		0%	0%	0%	0%	0%	0%	0%	0%	0%	1%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Right-of-Way		76%	23%	5%	0%	0%	0%	0%	1%	13%	9%	0%	0%	0%	0%	6%	5%	0%	8%	2%	2%	20%
WATERSHED-WIDE ACCOUNTING.....																						
tributary land area	ac	17.63	1030.29	7085.94	188.27	198.57	233.37	248.89	260.41	268.78	428.96	43.74	17.93	125.15	3.31	7893.96	320.24	52.26	208.93	32.57	147.72	37.11
tributary water area	ac	0.00	0.00	1.47	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.17	1.64	0.00	0.00	0.00	0.00	0.00	0.00
direct and ponded area	ac	17.63	1030.29	7087.41	188.27	198.57	233.37	248.89	260.41	268.78	428.96	43.74	17.93	125.15	3.48	7895.60	320.24	52.26	208.93	32.57	147.72	37.11
ASSUMED EXPORT FACTORS.....																						
season length	yrs	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
season precipitation	inches	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8
runoff total p	ppb	355.2307813	316.8485882	388.444405	476.7751543	535.9567428	522.4751739	250.4222069	202.6150739	281.177886	457.2008281	537.4498155	536.8710372	359.3143763	297.0988086	315.8389462	370.7458562	508.665539	443.0828565	336.5993574	286.5402199	250.4571796
runoff ortho p/total p	-	0.365864681	0.409712221	0.367239972	0.274542168	0.203458986	0.2201123	0.540679385	0.596359525	0.524275037	0.282083936	0.203000085	0.203680811	0.410101382	0.535262803	0.456696864	0.422915339	0.228842452	0.280824074	0.328563963	0.436523525	0.526866573
unit runoff	in/yr	7.502963148	8.091270156	5.964483394	4.096349195	4.427138777	4.465480196	2.826981734	2.615847826	3.511642089	4.67849214	4.43769754	4.434461911	5.679576929	2.826142707	4.61498669	3.681097184	5.546205671	8.001492902	13.31494686	8.591333225	3.932156883
unit export	lbs/ac-y	0.65	0.65	0.57	0.46	0.54	0.53	0.18	0.12	0.25	0.50	0.54	0.54	0.53	0.19	0.39	0.33	0.62	0.78	1.05	0.65	0.27
POND WATER BUDGETS.....																						
runoff	ac-ft/yr	11.02	112.31	162.35	64.27	3.80	12.95	3.66	2.51	2.45	62.45	16.17	6.63	30.04	0.78	96.38	98.23	24.15	104.46	36.14	82.44	12.16
upstream pond	ac-ft/yr	0.00	432.33	2539.07	0.00	64.27	68.07	81.02	84.67	87.18	89.63	0.00	0.00	22.80	0.00	2907.13	0.00	0.00	24.15	0.00	36.14	0.00
total inflow	**ac-ft/yr**	**11.02**	**544.64**	**2701.43**	**64.27**	**68.07**	**81.02**	**84.67**	**87.18**	**89.63**	**152.08**	**16.17**	**6.63**	**52.84**	**0.78**	**3003.52**	**98.23**	**24.15**	**128.62**	**36.14**	**118.58**	**12.16**
outflow	ac-ft/yr	11.02	544.64	2701.43	64.27	68.07	81.02	84.67	87.18	89.63	152.08	16.17	6.63	52.84	0.78	3003.52	98.23	24.15	128.62	36.14	118.58	12.16
POND PHOSPHORUS BUDGETS.....																						
runoff	lbs/yr	11.49	108.79	185.83	87.47	5.56	18.53	2.78	1.42	2.07	80.46	23.68	9.70	33.83	0.64	96.66	107.08	32.31	121.79	34.17	74.65	10.06
upstream pond	lbs/yr	0.00	431.86	3010.58	0.00	87.47	93.02	111.55	114.33	115.75	117.82	0.00	0.00	33.37	0.00	3462.17	0.00	0.00	32.31	0.00	34.17	0.00
total inflow	**lbs/yr**	**11.49**	**540.65**	**3196.41**	**87.47**	**93.02**	**111.55**	**114.33**	**115.75**	**117.82**	**198.28**	**23.68**	**9.70**	**67.19**	**0.64**	**3558.83**	**107.08**	**32.31**	**154.10**	**34.17**	**108.82**	**10.06**
net sedimentation	lbs/yr	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.35	0.00	0.00	0.00	0.00	0.00	0.00	0.00
outflow	lbs/yr	11.49	540.65	3196.41	87.47	93.02	111.55	114.33	115.75	117.82	198.28	23.67	9.69	67.19	0.29	3558.83	107.08	32.31	154.10	34.17	108.82	10.06
p removal efficiency	%	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.02	0.00	54.46	0.00	0.00	0.00	0.00	0.00	0.00	0.00
upstream w-shed p load	lbs/yr	11.49	540.67	3202.75	87.47	93.02	111.56	114.33	115.75	117.83	198.28	23.68	9.70	67.20	0.64	3565.53	107.08	32.31	154.10	34.17	108.82	10.06
total removal %	%	0.01	0.00	0.20	0.00	0.00	0.00	0.01	0.01	0.01	0.00	0.01	0.02	0.01	54.46	0.19	0.00	0.00	0.00	0.00	0.00	0.00
HYDRAULIC PARAMETERS.....																						
pond mean depth	feet	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	4.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
relative volume	inches	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	27.77	0.00	0.00	0.00	0.00	0.00	0.00	0.00
residence time	years	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.87	0.00	0.00	0.00	0.00	0.00	0.00	0.00
residence time	days	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	318.77	0.00	0.00	0.00	0.00	0.00	0.00	0.00
overflow rate	ft/yr	1102127.76	54464156.23	270142638.37	6426901.53	6806752.99	8101930.91	8467461.77	8718497.71	8963437.08	15208446.29	1617396.16	662733.66	5284440.01	4.58	300351672.12	9823469.81	2415374.88	12861659.26	3613796.41	11858116.38	1215988.39
inflow phos conc	ppb	383.46	365.22	435.33	500.72	502.80	506.57	496.76	488.44	483.61	479.67	538.57	538.23	467.81	302.40	435.94	401.05	492.23	440.82	347.87	337.64	304.47
outflow phos conc	ppb	383.44	365.22	435.33	500.71	502.79	506.57	496.76	488.44	483.61	479.66	538.52	538.11	467.80	137.73	435.94	401.05	492.20	440.82	347.86	337.63	304.46
p reaction rate	-	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.63	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1-rp	-	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.46	1.00	1.00	1.00	1.00	1.00	1.00	1.00
vlawmo pond volume	acre-ft	0.87	8.83	12.76	5.05	0.30	1.02	0.29	0.20	0.19	4.91	1.27	0.52	2.36	0.06	7.58	7.72	1.90	8.21	2.84	6.48	0.96
LAND USE PARAMETERS.....																						
runoff total P conc	ppb	355.23	316.85	388.44	476.78	535.96	522.48	250.42	202.62	281.18	457.20	537.45	536.87	359.31	297.10	315.84	370.75	508.67	443.08	336.60	286.54	250.46
runoff coefficient		0.24	0.25	0.19	0.13	0.14	0.14	0.09	0.08	0.11	0.15	0.14	0.14	0.18	0.09	0.15	0.12	0.17	0.25	0.42	0.27	0.12
dissolved/total P		0.37	0.41	0.37	0.27	0.20	0.22	0.54	0.60	0.52	0.28	0.20	0.20	0.41	0.54	0.46	0.42	0.23	0.28	0.33	0.44	0.53
runoff TSS conc	ppm	156.69	167.86	165.83	172.90	163.25	164.36	208.14	215.13	206.15	165.67	163.40	163.49	175.62	216.00	188.68	194.40	156.87	146.42	147.24	175.85	198.67
POND TSS BUDGETS.....																						
runoff	lbs/yr	4350.45	45279.90	67036.00	29462.94	1680.87	5719.43	2017.05	1449.73	1270.44	27281.54	7154.51	2932.52	12797.83	455.76	44068.12	49063.23	10044.43	40573.20	13846.15	33680.83	5873.40
upstream pond	lbs/yr	0.00	185981.52	1147166.39	0.00	29462.94	31143.81	36863.24	38880.29	40330.02	41600.46	0.00	0.00	10087.02	0.00	1306007.98	0.00	0.00	10044.43	0.00	13846.15	0.00
total inflow	**lbs/yr**	**4350.45**	**231261.42**	**1214202.39**	**29462.94**	**31143.81**	**36863.24**	**38880.29**	**40330.02**	**41600.46**	**68882.00**	**7154.51**	**2932.52**	**22884.85**	**455.76**	**1350076.10**	**49063.23**	**10044.43**	**50617.63**	**13846.15**	**47526.98**	**5873.40**
p removal efficiency (no inf)	%	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	55.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
tss removal efficiency (no inf)	%	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	91.50	0.00	0.00	0.00	0.00	0.00	0.00	0.00
net sedimentation	lbs/yr	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	417.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00
outflow	lbs/yr	4350.45	231261.42	1214202.39	29462.94	31143.81	36863.24	38880.29	40330.02	41600.46	68882.00	7154.51	2932.52	22884.85	38.74	1350076.10	49063.23	10044.43	50617.63	13846.15	47526.98	5873.40
tss removal efficiency (inf)		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	91.50	0.00	0.00	0.00	0.00	0.00	0.00	0.00
upstream watershed tss load	lbs/yr	4350.45	231261.42	1219187.68	29462.94	31143.81	36863.24	38880.29	40330.02	41600.46	68882.00	7154.51	2932.52	22884.85	455.76	1355478.42	49063.23	10044.43	50617.63	13846.15	47526.98	5873.40
tss total removal efficiency	%	0.00	0.00	0.41	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	91.50	0.40	0.00	0.00	0.00	0.00	0.00	0.00
INFILTRATION BMP/POND.....																						
Annual runoff infiltrated	%	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Adjusted outflow	**ac-ft/yr**	**11.02**	**544.64**	**2701.43**	**64.27**	**68.07**	**81.02**	**84.67**	**87.18**	**89.63**	**152.08**	**16.17**	**6.63**	**52.84**	**0.78**	**3003.52**	**98.23**	**24.15**	**128.62**	**36.14**	**118.58**	**12.16**
Adjusted TP outflow	**lbs/yr**	**11.49**	**540.65**	**3196.41**	**87.47**	**93.02**	**111.55**	**114.33**	**115.75**	**117.82**	**198.28**	**23.67**	**9.69**	**67.19**	**0.29**	**3558.83**	**107.08**	**32.31**	**154.10**	**34.17**	**108.82**	**10.06**
Adjusted TSS outflow	**lbs/yr**	**4350.45**	**231261.42**	**1214202.39**	**29462.94**	**31143.81**	**36863.24**	**38880.29**	**40330.02**	**41600.46**	**68882.00**	**7154.51**	**2932.52**	**22884.85**	**38.74**	**1350076.10**	**49063.23**	**10044.43**	**50617.63**	**13846.15**	**47526.98**	**5873.40**

Rochester Loading Assessment																	
King's Run																	
363-06-158-2																	
Baseline (1988) LOADS																	
		kr-a3.3	**kr-a3.4c**	**kr-a3.4b**	**kr-a3.4a**	**kr-a3.2**	**kr-a3.6b**	**kr-a3.6a**	**kr-a3.7**	**kr-a3.8a**	**kr-a3.8b**	**exit 1**	**exit 2**	**exit 3**	**exit 4**	**exit 7**	**exit 8**
Routed TO:		kr-a3.4a	kr-a3.4a	kr-a3.4a	zr-a4.6a	kr-a3.6a	kr-a3.6a	kr-a3.7	zr-a4.5	zr-a4.5	zr-a4.2a	exit city	exit city	exit city	exit city	exit city	exit city
INPUT VARIABLES....	UNITS																
case label	-																
Watershed area	acres	157.3	1.2	4.0	177.7	196.4	1.1	391.4	107.7	97.0	107.4	25.0	1.9	68.1	6.6	3.8	8.1
basin area	acres	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
basin volume	acre-ft	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Row Crop Agriculture		0%	0%	0%	0%	40%	0%	0%	0%	4%	0%	96%	89%	48%	82%	7%	20%
Very Low Density Residential		0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	50%
Low Density Residential		43%	0%	0%	62%	32%	0%	72%	83%	69%	88%	0%	0%	0%	0%	0%	0%
Medium Density Residential		11%	0%	0%	2%	1%	0%	1%	0%	1%	0%	0%	0%	0%	0%	0%	0%
High Density Residential		11%	0%	0%	3%	5%	0%	1%	0%	13%	3%	0%	0%	0%	0%	0%	0%
Commercial/Industrial		3%	100%	0%	2%	2%	100%	4%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Institutional		4%	0%	0%	15%	1%	0%	9%	3%	1%	6%	0%	0%	0%	0%	0%	0%
Open Space		14%	0%	73%	12%	9%	0%	6%	14%	6%	0%	0%	11%	52%	0%	93%	26%
Golf Course		0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Pits and Quarries		0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Right-of-Way		14%	0%	27%	5%	10%	0%	7%	0%	6%	2%	4%	0%	0%	18%	0%	4%
WATERSHED-WIDE ACCOUNTING.....																	
tributary land area	ac	342.16	1.24	3.95	525.02	196.40	1.14	588.96	696.62	97.01	107.44	24.99	1.87	68.13	6.62	3.79	8.11
tributary water area	ac	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
direct and ponded area	ac	342.16	1.24	3.95	525.02	196.40	1.14	588.96	696.62	97.01	107.44	24.99	1.87	68.13	6.62	3.79	8.11
ASSUMED EXPORT FACTORS.....																	
season length	yrs	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
season precipitation	inches	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8
runoff total p	ppb	401.4647637	350.0019353	254.5070836	401.4062653	455.7547268	350.0021069	418.2637167	413.3270159	434.403871	442.4423684	534.4533392	501.0221789	364.874507	515.4474845	222.2809761	350.6812403
runoff ortho p/total p	-	0.341662643	0.300004032	0.518239463	0.335984536	0.286225297	0.300004389	0.319347058	0.340478758	0.314123457	0.300041904	0.203962012	0.245853173	0.406029907	0.217537932	0.573785564	0.458037006
unit runoff	in/yr	7.832543155	14.56054203	4.240898288	7.185748546	6.236549284	14.56048191	7.281190498	6.262429112	7.497264172	7.187071104	4.62308032	4.233466527	3.469242445	5.209301635	2.669134689	3.402396157
unit export	lbs/ac-y	0.75	1.15	0.30	0.67	0.64	1.15	0.69	0.61	0.75	0.72	0.55	0.50	0.32	0.59	0.14	0.29
POND WATER BUDGETS.....																	
runoff	ac-ft/yr	102.69	1.50	1.40	106.39	102.07	1.38	237.51	56.18	60.61	64.35	9.63	0.66	19.70	2.87	0.84	2.30
upstream pond	ac-ft/yr	130.74	0.00	0.00	236.33	0.00	0.00	103.45	340.96	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
total inflow	**ac-ft/yr**	**233.43**	**1.50**	**1.40**	**342.72**	**102.07**	**1.38**	**340.96**	**397.14**	**60.61**	**64.35**	**9.63**	**0.66**	**19.70**	**2.87**	**0.84**	**2.30**
outflow	ac-ft/yr	233.43	1.50	1.40	342.72	102.07	1.38	340.96	397.14	60.61	64.35	9.63	0.66	19.70	2.87	0.84	2.30
POND PHOSPHORUS BUDGETS.....																	
runoff	lbs/yr	117.47	1.43	1.19	119.58	125.58	1.31	271.96	65.93	72.83	76.95	13.86	0.92	22.03	3.89	0.54	2.35
upstream pond	lbs/yr	118.88	0.00	0.00	238.97	0.00	0.00	126.89	398.85	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
total inflow	**lbs/yr**	**236.36**	**1.43**	**1.19**	**358.55**	**125.58**	**1.31**	**398.85**	**464.78**	**72.83**	**76.95**	**13.86**	**0.92**	**22.03**	**3.89**	**0.54**	**2.35**
net sedimentation	lbs/yr	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
outflow	lbs/yr	236.36	1.43	1.19	358.55	125.58	1.31	398.85	464.78	72.82	76.94	13.85	0.92	22.03	3.89	0.54	2.35
p removal efficiency	%	0.00	0.04	0.02	0.00	0.00	0.05	0.00	0.00	0.00	0.00	0.02	0.18	0.00	0.04	0.03	0.02
upstream w-shed p load	lbs/yr	236.36	1.43	1.19	358.55	125.58	1.31	398.85	464.78	72.83	76.95	13.86	0.92	22.03	3.89	0.54	2.35
total removal %	%	0.00	0.04	0.02	0.00	0.00	0.05	0.00	0.00	0.00	0.00	0.02	0.18	0.00	0.04	0.03	0.02
HYDRAULIC PARAMETERS.....																	
pond mean depth	feet	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
relative volume	inches	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
residence time	years	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
residence time	days	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00
overflow rate	ft/yr	23343093.62	150471.07	139670.10	34272216.96	10206946.00	138215.37	34095739.16	39713872.34	6060853.33	6434528.46	962798.47	65868.86	1969549.36	287166.66	84190.96	229805.49
inflow phos conc	ppb	372.53	350.02	312.74	384.91	452.66	350.02	430.39	430.58	442.08	439.96	529.51	516.60	411.60	498.69	237.18	375.58
outflow phos conc	ppb	372.53	349.87	312.66	384.91	452.65	349.86	430.39	430.58	442.07	439.96	529.43	515.68	411.59	498.47	237.12	375.51
p reaction rate	-	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1-rp	-	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
vlawmo pond volume	acre-ft	8.07	0.12	0.11	8.36	8.02	0.11	18.67	4.42	4.76	5.06	0.76	0.05	1.55	0.23	0.07	0.18
LAND USE PARAMETERS.....																	
runoff total P conc	ppb	401.46	350.00	254.51	401.41	455.75	350.00	418.26	413.33	434.40	442.44	534.45	501.02	364.87	515.45	222.28	350.68
runoff coefficient		0.25	0.46	0.13	0.23	0.20	0.46	0.23	0.20	0.24	0.23	0.15	0.13	0.11	0.16	0.08	0.11
dissolved/total P		0.34	0.30	0.52	0.34	0.29	0.30	0.32	0.34	0.31	0.30	0.20	0.25	0.41	0.22	0.57	0.46
runoff TSS conc	ppm	150.55	140.00	195.29	149.12	155.71	140.00	144.96	150.29	145.39	140.01	162.09	169.07	190.30	158.97	212.53	202.25
POND TSS BUDGETS.....																	
runoff	lbs/yr	39914.55	570.89	655.44	41294.81	41270.33	524.39	91230.46	21952.42	23331.29	24413.26	4207.87	297.48	9768.56	1215.66	479.59	1207.90
upstream pond	lbs/yr	53400.38	0.00	0.00	94541.26	0.00	0.00	41794.72	133025.18	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
total inflow	**lbs/yr**	**93314.93**	**570.89**	**655.44**	**135836.07**	**41270.33**	**524.39**	**133025.18**	**154977.59**	**23331.29**	**24413.26**	**4207.87**	**297.48**	**9768.56**	**1215.66**	**479.59**	**1207.90**
p removal efficiency (no inf)	%	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
tss removal efficiency (no inf)	%	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
net sedimentation	lbs/yr	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
outflow	lbs/yr	93314.93	570.89	655.44	135836.07	41270.33	524.39	133025.18	154977.59	23331.29	24413.26	4207.87	297.48	9768.56	1215.66	479.59	1207.90
tss removal efficiency (inf)		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
upstream watershed tss load	lbs/yr	93314.93	570.89	655.44	135836.07	41270.33	524.39	133025.18	154977.59	23331.29	24413.26	4207.87	297.48	9768.56	1215.66	479.59	1207.90
tss total removal efficiency	%	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
INFILTRATION BMP/POND.....																	
Annual runoff infiltrated	%	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Adjusted outflow	**ac-ft/yr**	**233.43**	**1.50**	**1.40**	**342.72**	**102.07**	**1.38**	**340.96**	**397.14**	**60.61**	**64.35**	**9.63**	**0.66**	**19.70**	**2.87**	**0.84**	**2.30**
Adjusted TP outflow	**lbs/yr**	**236.36**	**1.43**	**1.19**	**358.55**	**125.58**	**1.31**	**398.85**	**464.78**	**72.82**	**76.94**	**13.85**	**0.92**	**22.03**	**3.89**	**0.54**	**2.35**
Adjusted TSS outflow	**lbs/yr**	**93314.93**	**570.89**	**655.44**	**135836.07**	**41270.33**	**524.39**	**133025.18**	**154977.59**	**23331.29**	**24413.26**	**4207.87**	**297.48**	**9768.56**	**1215.66**	**479.59**	**1207.90**

Rochester Loading Assessment																						
King's Run																						
363-06-158-2																						
Present (2005) LOADS																						
		kr-a1.1f	**kr-a1.1e**	**kr-a1.1d**	**kr-a1.1c**	**kr-a1.1b**	**kr-a1.1a**	**kr-a1.2**	**kr-a1.4b**	**kr-a1.4a**	**kr-a1.7f**	**kr-a1.7e**	**kr-a1.7d**	**kr-a1.7a**	**kr-a1.7a cell 2**	**kr-a1.7a cell 3**	**kr-a1.7c**	**kr-a1.7c cell 2**	**kr-a1.7c cell 3**	**kr-a1.7b**	**kr-a1.3b**	**kr-a1.3a**
Routed TO:		kr-a1.1d	kr-a1.1d	kr-a1.1a	kr-a1.1b	kr-a1.1a	kr-a1.4a	kr-a1.4a	kr-a1.4a	kr-a1.11a	kr-a1.11a	kr-a1.7a	kr-a1.7e	kr-a1.7a cell 2	kr-a1.7a cell 3	kr-a1.7b	kr-a1.7c cell 2	kr-a1.7c cell 3	kr-a1.7b	kr-a1.11a cell 3	kr-a1.3a	kr-a1.5a
INPUT VARIABLES....	UNITS																					
case label	-																					
Watershed area	acres	146.9	134.0	389.0	44.5	303.8	419.3	358.4	63.9	288.0	81.2	89.9	12.9	17.5	0.0	0.0	22.5	0.0	0.0	15.4	247.0	8.3
basin area	acres	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.13	0.45	0.36	0.60	0.24	0.01	0.11	0.00	0.00	0.00
basin volume	acre-ft	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.33	1.06	1.76	0.00	0.01	0.38	0.00	0.00	0.00
Row Crop Agriculture		69%	73%	69%	39%	46%	81%	80%	90%	53%	46%	44%	0%	0%	0%	0%	0%	0%	0%	0%	74%	86%
Very Low Density Residential		3%	6%	3%	11%	4%	4%	2%	3%	6%	7%	3%	0%	21%	0%	0%	0%	0%	0%	0%	7%	0%
Low Density Residential		0%	0%	0%	0%	0%	0%	0%	0%	27%	31%	43%	0%	0%	0%	0%	13%	0%	0%	0%	0%	0%
Medium Density Residential		0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
High Density Residential		0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	34%	0%	0%	85%	0%	0%	0%	0%	0%
Commercial/Industrial		0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Institutional		0%	0%	0%	0%	0%	0%	0%	0%	0%	13%	1%	65%	4%	0%	0%	0%	0%	0%	0%	0%	0%
Open Space		24%	20%	26%	43%	47%	11%	15%	6%	11%	0%	6%	35%	14%	100%	100%	0%	100%	100%	89%	15%	0%
Golf Course		0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Pits and Quarries		0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Right-of-Way		4%	1%	2%	7%	2%	3%	3%	1%	3%	3%	3%	0%	26%	0%	0%	2%	0%	0%	11%	4%	14%
WATERSHED-WIDE ACCOUNTING.....																						
tributary land area	ac	146.87	134.03	669.93	44.54	348.33	1437.52	358.36	63.92	2147.80	81.19	102.72	12.85	120.25	120.26	120.27	22.55	22.56	22.57	158.19	246.95	255.27
tributary water area	ac	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.13	0.13	0.58	0.94	1.54	0.24	0.25	0.36	1.90	0.00	0.00
direct and ponded area	ac	146.87	134.03	669.93	44.54	348.33	1437.52	358.36	63.92	2147.80	81.19	102.85	12.98	120.83	121.20	121.80	22.79	22.81	22.93	160.09	246.95	255.27
ASSUMED EXPORT FACTORS.....																						
season length	yrs	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
season precipitation	inches	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8
runoff total p	ppb	447.01	457.75	444.49	362.72	367.73	488.15	480.30	511.03	462.19	469.12	468.58	297.77	376.71	200.00	200.00	449.18	200.00	200.00	221.33	471.10	520.98
runoff ortho p/total p	-	0.31	0.30	0.31	0.41	0.40	0.26	0.27	0.24	0.29	0.27	0.28	0.40	0.38	0.60	0.60	0.30	0.60	0.60	0.57	0.28	0.21
unit runoff	in/yr	4.11	4.03	4.01	3.75	3.59	4.32	4.27	4.35	4.88	5.83	5.48	7.23	8.32	2.54	2.54	12.59	2.54	2.54	3.21	4.23	5.04
unit export	lbs/ac-y	0.44	0.44	0.43	0.34	0.33	0.49	0.48	0.51	0.52	0.60	0.58	0.54	0.78	0.12	0.12	1.28	0.12	0.12	0.19	0.47	0.58
POND WATER BUDGETS.....																						
runoff	ac-ft/yr	50.34	45.03	129.98	13.94	90.96	150.94	127.38	23.16	117.00	39.42	41.02	7.74	12.15	0.00	0.00	23.66	0.00	0.00	4.11	87.09	3.49
upstream pond	ac-ft/yr	0.00	0.00	95.38	0.00	13.94	330.26	0.00	0.00	631.74	0.00	7.74	0.00	48.77	60.91	60.92	0.00	23.66	23.66	84.58	0.00	87.09
total inflow	**ac-ft/yr**	**50.34**	**45.03**	**225.36**	**13.94**	**104.90**	**481.20**	**127.38**	**23.16**	**748.74**	**39.42**	**48.77**	**7.74**	**60.91**	**60.92**	**60.92**	**23.66**	**23.66**	**23.66**	**88.69**	**87.09**	**90.58**
outflow	ac-ft/yr	50.34	45.03	225.36	13.94	104.90	481.20	127.38	23.16	748.74	39.42	48.77	7.74	60.91	60.92	60.92	23.66	23.66	23.66	88.69	87.09	90.58
POND PHOSPHORUS BUDGETS.....																						
runoff	lbs/yr	64.82	59.27	167.58	15.22	101.63	205.82	172.34	32.72	150.35	48.68	52.29	6.98	13.62	0.00	0.00	28.89	0.00	0.00	2.88	115.81	4.81
upstream pond	lbs/yr	0.00	0.00	124.08	0.00	15.22	408.51	0.00	0.00	819.39	0.00	6.98	0.00	59.27	44.36	34.86	0.00	28.88	28.39	47.08	0.00	115.81
total inflow	**lbs/yr**	**64.82**	**59.27**	**291.66**	**15.22**	**116.85**	**614.33**	**172.34**	**32.72**	**969.74**	**48.68**	**59.27**	**6.98**	**72.89**	**44.36**	**34.86**	**28.89**	**28.88**	**28.39**	**49.97**	**115.81**	**120.62**
net sedimentation	lbs/yr	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	28.53	9.50	8.14	0.01	0.49	8.03	0.00	0.00	0.00
outflow	lbs/yr	64.82	59.26	291.66	15.22	116.85	614.33	172.34	32.72	969.74	48.68	59.27	6.98	44.36	34.86	26.72	28.88	28.39	20.36	49.97	115.81	120.62
p removal efficiency	%	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	39.14	21.42	23.35	0.02	1.68	28.29	0.00	0.00	0.00
upstream w-shed p load	lbs/yr	64.82	59.27	291.66	15.22	116.85	614.34	172.34	32.72	969.75	48.68	59.27	6.98	72.89	72.90	72.90	28.89	28.89	28.89	104.67	115.81	120.62
total removal %	%	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	39.14	52.18	63.34	0.02	1.71	29.51	52.26	0.00	0.00
HYDRAULIC PARAMETERS.....																						
pond mean depth	feet	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	2.95	2.95	2.95	0.00	1.00	3.45	1.00	1.00	1.00
relative volume	inches	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.48	15945.00	26355.00	0.00	150.00	5700.00	0.00	0.00	0.00
residence time	years	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.02	0.03	0.00	0.00	0.02	0.00	0.00	0.00
residence time	days	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	7.96	6.37	10.53	0.00	0.15	5.86	0.00	0.00	0.00
overflow rate	ft/yr	5034477.77	4503278.41	22535990.27	1393554.32	10489572.72	48119768.11	12738447.48	2315648.50	74873938.66	3942263.29	4876764.92	59.57	135.36	169.21	102.38	98.58	2366.18	215.13	8868694.25	8708779.46	9058047.81
inflow phos conc	ppb	473.68	484.20	476.16	401.95	409.85	469.71	497.76	519.87	476.51	454.33	447.15	331.65	440.28	267.94	210.54	449.18	449.04	441.47	207.28	489.25	489.93
outflow phos conc	ppb	473.67	484.19	476.16	401.94	409.85	469.71	497.76	519.85	476.51	454.32	447.14	331.63	267.95	210.54	161.38	449.07	441.50	316.58	207.28	489.25	489.92
p reaction rate	-	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.06	0.35	0.40	0.00	0.02	0.55	0.00	0.00	0.00
1-rp	-	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.61	0.79	0.77	1.00	0.98	0.72	1.00	1.00	1.00
vlawmo pond volume	acre-ft	3.96	3.54	10.22	1.10	7.15	11.87	10.01	1.82	9.20	3.10	3.23	0.61	0.95	0.00	0.00	1.86	0.00	0.00	0.32	6.85	0.27
LAND USE PARAMETERS.....																						
runoff total P conc	ppb	447.01	457.75	444.49	362.72	367.73	488.15	480.30	511.03	462.19	469.12	468.58	297.77	376.71	200.00	200.00	449.18	200.00	200.00	221.33	471.10	520.98
runoff coefficient		0.13	0.13	0.13	0.12	0.11	0.14	0.13	0.14	0.15	0.18	0.17	0.23	0.26	0.08	0.08	0.40	0.08	0.08	0.10	0.13	0.16
dissolved/total P		0.31	0.30	0.31	0.41	0.40	0.26	0.27	0.24	0.29	0.27	0.28	0.40	0.38	0.60	0.60	0.30	0.60	0.60	0.57	0.28	0.21
runoff TSS conc	ppm	176.54	176.60	177.64	190.19	189.78	170.53	171.40	167.54	165.50	156.51	156.91	166.46	167.19	216.00	216.00	140.12	216.00	216.00	207.89	173.73	159.88
POND TSS BUDGETS.....																						
runoff	lbs/yr	23223.98	20924.98	60489.84	6780.36	44682.04	68114.37	57679.70	10376.86	50262.52	16142.72	16846.96	3133.41	4908.84	1.24	1.24	8976.49	1.24	1.24	2156.58	39779.30	1491.34
upstream pond	lbs/yr	0.00	0.00	44148.96	0.00	6780.36	156101.20	0.00	0.00	292272.14	0.00	3133.41	0.00	19980.38	8462.34	4806.10	0.00	8976.49	8625.04	6347.37	0.00	39779.30
total inflow	**lbs/yr**	**23223.98**	**20924.98**	**104638.80**	**6780.36**	**51462.40**	**224215.57**	**57679.70**	**10376.86**	**342534.66**	**16142.72**	**19980.38**	**3133.41**	**24889.22**	**8463.58**	**4807.34**	**8976.49**	**8977.74**	**8626.28**	**8503.95**	**39779.30**	**41270.65**
p removal efficiency (no inf)	%	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	40.00	22.00	24.00	0.00	2.00	29.00	0.00	0.00	0.00
tss removal efficiency (no inf)	%	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	66.00	43.21	47.14	0.00	3.93	55.88	0.00	0.00	0.00
net sedimentation	lbs/yr	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	16426.89	3657.47	2266.32	0.00	352.70	4819.93	0.00	0.00	0.00
outflow	lbs/yr	23223.98	20924.98	104638.80	6780.36	51462.40	224215.57	57679.70	10376.86	342534.66	16142.72	19980.38	3133.41	8462.34	4806.10	2541.02	8976.49	8625.04	3806.35	8503.95	39779.30	41270.65
tss removal efficiency (inf)	%	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	66.00	43.21	47.14	0.00	3.93	55.88	0.00	0.00	0.00
upstream watershed tss load	lbs/yr	23223.98	20924.98	104638.80	6780.36	51462.40	224215.57	57679.70	10376.86	342534.66	16142.72	19980.38	3133.41	24889.22	24890.46	24891.70	8976.49	8977.74	8978.98	36027.26	39779.30	41270.65
tss total removal efficiency	%	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	66.00	80.69	89.79	0.00	3.93	57.61	76.40	0.00	0.00
INFILTRATION BMP/POND.....																						
Annual runoff infiltrated	%	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Adjusted outflow	**ac-ft/yr**	**50.34**	**45.03**	**225.36**	**13.94**	**104.90**	**481.20**	**127.38**	**23.16**	**748.74**	**39.42**	**48.77**	**7.74**	**60.91**	**60.92**	**60.92**	**23.66**	**23.66**	**23.66**	**88.69**	**87.09**	**90.58**
Adjusted TP outflow	**lbs/yr**	**64.82**	**59.26**	**291.66**	**15.22**	**116.85**	**614.33**	**172.34**	**32.72**	**969.74**	**48.68**	**59.27**	**6.98**	**44.36**	**34.86**	**26.72**	**28.88**	**28.39**	**20.36**	**49.97**	**115.81**	**120.62**
Adjusted TSS outflow	**lbs/yr**	**23223.98**	**20924.98**	**104638.80**	**6780.36**	**51462.40**	**224215.57**	**57679.70**	**10376.86**	**342534.66**	**16142.72**	**19980.38**	**3133.41**	**8462.34**	**4806.10**	**2541.02**	**8976.49**	**8625.04**	**3806.35**	**8503.95**	**39779.30**	**41270.65**

Rochester Loading Assessment																						
King's Run																						
363-06-158-2																						
Present (2005) LOADS																						
		kr-a1.5b	**kr-a1.5b cell 2**	**kr-a1.5c**	**kr-a1.5c cell 2**	**kr-a1.5c cell 3**	**kr-a1.5a**	**kr-a1.6**	**kr-a1.6 cell 2**	**kr-a1.6 cell 3**	**kr-a1.11c**	**kr-a1.11b**	**kr-a1.10d**	**kr-a1.10c**	**kr-a1.10b**	**kr-a1.10a**	**kr-a1.12b**	**kr-a1.11d**	**kr-a1.11d cell 2**	**kr-a1.11a**	**kr-a1.11a cell 2**	**kr-a1.11a cell 3**	**kr-a1.11a cell 4**
Routed TO:		kr-a1.5b cell 2	kr-a1.5a	kr-a1.5c cell 2	kr-a1.5c cell 3	kr-a1.5a	kr-a1.6	kr-a1.6 cell 2	kr-a1.6 cell 3	kr-a1.11a	kr-a1.11b	kr-a1.11a	kr-a1.10a	kr-a1.10a	kr-a1.10a	kr-a1.11d	kr-a1.11d	kr-a1.11d cell 2	kr-a1.11a	kr-a1.11a cell 2	kr-a1.11a cell 3	kr-a1.11a cell 4
INPUT VARIABLES....	UNITS																					
case label	-																					
Watershed area	acres	64.4	0.0	45.8	0.0	0.0	242.7	69.9	0.0	0.0	3.8	30.1	6.5	13.4	7.2	44.0	11.8	43.3	0.0	61.4	0.0	0.0
basin area	acres	0.41	0.66	0.17	0.29	0.48	0.00	0.10	0.36	0.82	0.34	0.50	0.10	0.19	0.13	2.05	0.14	0.14	0.29	0.51	0.64	1.14
basin volume	acre-ft	0.94	2.05	0.36	0.62	1.02	0.00	0.07	2.42	5.36	1.36	2.00	0.19	0.56	0.32	11.10	0.39	0.38	0.79	2.34	3.05	5.83
Row Crop Agriculture		11%	0%	0%	0%	0%	58%	0%	0%	0%	3%	0%	0%	0%	54%	19%	0%	1%	0%	0%	0%	0%
Very Low Density Residential		3%	0%	4%	0%	0%	7%	0%	0%	0%	1%	7%	0%	0%	0%	3%	0%	0%	0%	0%	0%	0%
Low Density Residential		44%	0%	68%	0%	0%	1%	11%	0%	0%	14%	21%	88%	91%	39%	17%	96%	54%	0%	74%	0%	0%
Medium Density Residential		0%	0%	0%	0%	0%	0%	1%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
High Density Residential		0%	0%	0%	0%	0%	0%	73%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	10%	0%	0%
Commercial/Industrial		0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	3%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Institutional		0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Open Space		36%	100%	26%	100%	100%	31%	10%	100%	100%	73%	59%	10%	5%	7%	57%	4%	45%	100%	12%	100%	100%
Golf Course		0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Pits and Quarries		0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Right-of-Way		6%	0%	2%	0%	0%	3%	5%	0%	0%	9%	10%	1%	4%	0%	4%	0%	0%	0%	4%	0%	0%
WATERSHED-WIDE ACCOUNTING.....																						
tributary land area	ac	64.36	64.37	45.77	45.78	45.79	608.09	677.95	677.96	677.97	3.81	33.88	6.47	13.36	7.16	70.94	11.80	126.08	126.09	3128.35	3128.36	3286.56
tributary water area	ac	0.41	1.07	0.17	0.46	0.95	2.02	2.12	2.48	3.30	0.34	0.84	0.10	0.19	0.13	2.47	0.14	2.75	3.04	7.69	8.33	11.36
direct and ponded area	ac	64.77	65.44	45.94	46.24	46.74	610.10	680.07	680.44	681.27	4.15	34.72	6.57	13.55	7.29	73.41	11.94	128.83	129.13	3136.04	3136.69	3297.92
ASSUMED EXPORT FACTORS.....																						
season length	yrs	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
season precipitation	inches	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8
runoff total p	ppb	365.36	200.00	380.61	200.00	200.00	415.60	423.97	200.00	200.00	264.86	287.45	423.25	435.69	480.60	320.20	439.47	337.43	200.00	419.19	200.00	200.00
runoff ortho p/total p	-	0.40	0.60	0.39	0.60	0.60	0.35	0.33	0.60	0.60	0.52	0.49	0.33	0.31	0.27	0.46	0.31	0.44	0.60	0.34	0.60	0.60
unit runoff	in/yr	5.00	2.54	5.55	2.54	2.54	3.90	11.50	2.54	2.54	3.75	4.45	6.33	6.63	5.20	3.87	6.57	4.82	2.54	7.04	2.54	2.54
unit export	lbs/ac-y	0.46	0.12	0.52	0.12	0.12	0.40	1.15	0.12	0.12	0.27	0.34	0.63	0.66	0.57	0.32	0.66	0.43	0.12	0.70	0.12	0.12
POND WATER BUDGETS.....																						
runoff	ac-ft/yr	26.83	0.00	21.16	0.00	0.00	78.91	66.94	0.00	0.00	1.19	11.14	3.41	7.37	3.10	14.19	6.46	17.41	0.00	36.04	0.00	0.00
upstream pond	ac-ft/yr	0.00	26.83	0.00	21.16	21.16	138.58	217.48	284.42	284.42	0.00	1.19	0.00	0.00	0.00	13.89	0.00	34.53	51.95	1136.87	1172.90	1261.59
total inflow	**ac-ft/yr**	**26.83**	**26.83**	**21.16**	**21.16**	**21.16**	**217.48**	**284.42**	**284.42**	**284.42**	**1.19**	**12.33**	**3.41**	**7.37**	**3.10**	**28.08**	**6.46**	**51.95**	**51.95**	**1172.90**	**1172.90**	**1261.59**
outflow	ac-ft/yr	26.83	26.83	21.16	21.16	21.16	217.48	284.42	284.42	284.42	1.19	12.33	3.41	7.37	3.10	28.08	6.46	51.95	51.95	1172.90	1172.90	1261.59
POND PHOSPHORUS BUDGETS.....																						
runoff	lbs/yr	29.67	0.00	23.96	0.00	0.00	96.53	80.59	0.00	0.00	1.03	10.33	4.07	8.87	4.07	14.26	7.83	18.50	0.00	42.83	0.00	0.00
upstream pond	lbs/yr	0.00	17.44	0.00	15.90	11.79	140.75	237.27	312.64	251.21	0.00	0.45	0.00	0.00	0.00	7.70	0.00	12.84	27.03	1229.83	1139.45	1106.42
total inflow	**lbs/yr**	**29.67**	**17.44**	**23.96**	**15.90**	**11.79**	**237.28**	**317.87**	**312.65**	**251.21**	**1.03**	**10.78**	**4.07**	**8.87**	**4.07**	**21.96**	**7.83**	**31.33**	**27.03**	**1272.66**	**1139.45**	**1106.42**
net sedimentation	lbs/yr	12.23	6.08	8.07	4.11	3.02	0.00	5.22	61.43	67.91	0.58	5.52	1.95	4.93	2.42	12.78	4.17	4.30	4.19	133.21	82.99	118.18
outflow	lbs/yr	17.44	11.36	15.90	11.79	8.77	237.27	312.64	251.21	183.30	0.45	5.26	2.11	3.94	1.65	9.18	3.65	27.03	22.84	1139.45	1056.45	988.24
p removal efficiency	%	41.23	34.88	33.67	25.83	25.62	0.00	1.64	19.65	27.03	56.17	51.19	48.04	55.58	59.55	58.18	53.32	13.73	15.50	10.47	7.28	10.68
upstream w-shed p load	lbs/yr	29.67	29.67	23.96	23.96	23.97	270.79	351.38	351.38	351.38	1.03	11.36	4.07	8.87	4.07	31.27	7.83	57.60	57.60	1481.60	1481.60	1586.27
total removal %	%	41.23	61.73	33.67	50.80	63.40	12.38	11.02	28.51	47.83	56.17	53.68	48.04	55.58	59.55	70.63	53.32	53.07	60.34	23.09	28.70	37.70
HYDRAULIC PARAMETERS.....																						
pond mean depth	feet	2.29	3.11	2.12	2.12	2.12	1.00	0.70	6.72	6.54	4.00	4.00	1.87	2.95	2.43	5.41	2.75	2.70	2.70	4.59	4.77	5.11
relative volume	inches	1.11	30750.00	0.54	9240.00	15330.00	0.00	0.03	36300.00	80400.00	36.28	5.71	1.74	2.41	3.24	24.88	1.90	0.68	11775.00	2.06	45750.00	87450.00
residence time	years	0.04	0.08	0.02	0.03	0.05	0.00	0.00	0.01	0.02	1.14	0.16	0.05	0.08	0.10	0.40	0.06	0.01	0.02	0.00	0.00	0.00
residence time	days	12.79	27.88	6.25	10.63	17.63	0.00	0.09	3.11	6.88	416.47	59.19	19.97	27.72	37.19	144.30	21.76	2.63	5.52	0.73	0.95	1.69
overflow rate	ft/yr	65.44	40.66	123.73	72.71	43.81	21748140.74	2844.19	790.06	346.86	3.51	24.66	34.11	38.82	23.86	13.70	46.12	373.71	178.52	2299.81	1832.66	1106.66
inflow phos conc	ppb	406.89	239.13	416.72	276.41	205.02	401.40	411.18	404.43	324.96	318.56	321.58	438.72	442.53	482.87	287.82	445.94	221.94	191.46	399.21	357.42	322.66
outflow phos conc	ppb	239.13	155.72	276.41	205.02	152.50	401.40	404.43	324.96	237.11	139.61	156.96	227.95	196.59	195.32	120.35	208.15	191.46	161.79	357.42	331.39	288.20
p reaction rate	-	1.19	0.82	0.77	0.47	0.46	0.00	0.02	0.30	0.51	2.92	2.15	1.78	2.82	3.64	3.33	2.45	0.18	0.22	0.13	0.08	0.13
1-rp	-	0.59	0.65	0.66	0.74	0.74	1.00	0.98	0.80	0.73	0.44	0.49	0.52	0.44	0.40	0.42	0.47	0.86	0.85	0.90	0.93	0.89
vlawmo pond volume	acre-ft	2.11	0.00	1.66	0.00	0.00	6.20	5.26	0.00	0.00	0.09	0.88	0.27	0.58	0.24	1.12	0.51	1.37	0.00	2.83	0.00	0.00
LAND USE PARAMETERS.....																						
runoff total P conc	ppb	365.36	200.00	380.61	200.00	200.00	415.60	423.97	200.00	200.00	264.86	287.45	423.25	435.69	480.60	320.20	439.47	337.43	200.00	419.19	200.00	200.00
runoff coefficient		0.16	0.08	0.17	0.08	0.08	0.12	0.36	0.08	0.08	0.12	0.14	0.20	0.21	0.16	0.12	0.21	0.15	0.08	0.22	0.08	0.08
dissolved/total P		0.40	0.60	0.39	0.60	0.60	0.35	0.33	0.60	0.60	0.52	0.49	0.33	0.31	0.27	0.46	0.31	0.44	0.60	0.34	0.60	0.60
runoff TSS conc	ppm	171.85	216.00	162.79	216.00	216.00	182.29	147.28	216.00	216.00	196.83	190.13	147.96	143.70	157.94	190.05	143.20	174.70	216.00	149.03	216.00	216.00
POND TSS BUDGETS.....																						
runoff	lbs/yr	11442.58	1.24	8638.88	1.24	1.24	37348.11	25686.81	1.24	1.24	578.02	5108.70	1323.70	2826.49	1288.98	6741.94	2471.64	7472.68	1.24	13989.20	1.24	1.24
upstream pond	lbs/yr	0.00	3661.63	0.00	3433.95	1680.79	43517.58	80865.69	102366.51	62151.85	0.00	40.46	0.00	0.00	0.00	572.68	0.00	759.19	5968.10	391511.90	317883.90	276435.71
total inflow	**lbs/yr**	**11442.58**	**3662.87**	**8638.88**	**3435.20**	**1682.03**	**80865.69**	**106552.50**	**102367.75**	**62153.09**	**578.02**	**5149.16**	**1323.70**	**2826.49**	**1288.98**	**7314.62**	**2471.64**	**8231.86**	**5969.34**	**405501.10**	**317885.14**	**276436.95**
p removal efficiency (no inf)	%	42.00	35.00	34.00	26.00	26.00	0.00	2.00	20.00	28.00	57.00	52.00	49.00	56.00	60.00	59.00	54.00	14.00	16.00	11.00	8.00	11.00
tss removal efficiency (no inf)	%	68.00	61.13	60.25	51.07	51.07	0.00	3.93	39.29	55.00	93.00	85.00	78.50	93.00	93.00	93.00	90.00	27.50	31.43	21.61	15.71	21.61
net sedimentation	lbs/yr	7780.95	2238.93	5204.93	1754.40	859.04	0.00	4185.99	40215.90	34184.20	537.55	4376.79	1039.10	2628.64	1198.75	6802.59	2224.47	2263.76	1876.08	87617.20	49953.38	59730.13
outflow	lbs/yr	3661.63	1423.94	3433.95	1680.79	822.99	80865.69	102366.51	62151.85	27968.89	40.46	772.37	284.59	197.85	90.23	512.02	247.16	5968.10	4093.26	317883.90	267931.76	216706.82
tss removal efficiency (inf)	%	68.00	61.13	60.25	51.07	51.07	0.00	3.93	39.29	55.00	93.00	85.00	78.50	93.00	93.00	93.00	90.00	27.50	31.43	21.61	15.71	21.61
upstream watershed tss load	lbs/yr	11442.58	11443.82	8638.88	8640.12	8641.36	98703.94	124390.74	124391.99	124393.23	578.02	5686.72	1323.70	2826.49	1288.98	12181.10	2471.64	22125.41	22126.65	524873.17	524874.41	560902.91
tss total removal efficiency	%	68.00	87.56	60.25	80.55	90.48	18.07	17.71	50.04	77.52	93.00	86.42	78.50	93.00	93.00	95.80	90.00	73.03	81.50	39.44	48.95	61.36
INFILTRATION BMP/POND.....																						
Annual runoff infiltrated	%	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Adjusted outflow	**ac-ft/yr**	**26.83**	**26.83**	**21.16**	**21.16**	**21.16**	**217.48**	**284.42**	**284.42**	**284.42**	**1.19**	**12.33**	**3.41**	**7.37**	**3.10**	**28.08**	**6.46**	**51.95**	**51.95**	**1172.90**	**1172.90**	**1261.59**
Adjusted TP outflow	**lbs/yr**	**17.44**	**11.36**	**15.90**	**11.79**	**8.77**	**237.27**	**312.64**	**251.21**	**183.30**	**0.45**	**5.26**	**2.11**	**3.94**	**1.65**	**9.18**	**3.65**	**27.03**	**22.84**	**1139.45**	**1056.45**	**988.24**
Adjusted TSS outflow	**lbs/yr**	**3661.63**	**1423.94**	**3433.95**	**1680.79**	**822.99**	**80865.69**	**102366.51**	**62151.85**	**27968.89**	**40.46**	**772.37**	**284.59**	**197.85**	**90.23**	**512.02**	**247.16**	**5968.10**	**4093.26**	**317883.90**	**267931.76**	**216706.82**

Rochester Loading Assessment																						
King's Run																						
363-06-158-2																						
Present (2005) LOADS																						
		kr-a1.11a cell 4	**kr-a1.12a**	**kr-a1.13**	**kr-a1.14**	**kr-a1.8a**	**kr-a1.8b**	**kr-a1.8d**	**kr-a1.8d cell 2**	**kr-a1.8c**	**kr-a1.9b**	**kr-a1.9b cell 2**	**kr-a1.9a**	**kr-a1.16a**	**kr-a1.16b**	**kr-a1.16c**	**kr-a1.16a**	**kr-a1.17**	**kr-a1.17 cell 2**	**kr-a1.17 cell 3**	**kr-a1.19b**	**kr-a1.19c**	**kr-a1.19d**
Routed TO:		kr-a1.16a	kr-a1.13	kr-a1.16a	kr-a1.16a	kr-a1.8c	kr-a1.8c	kr-a1.8d cell 2	kr-a1.8c	kr-a1.9a	kr-a1.9b cell 2	kr-a1.9a	kr-a1.16a	kr-a1.16a	kr-a1.16a	kr-a1.19a	kr-a1.17 cell 2	kr-a1.17 cell 3	kr-a1.19a	kr-a1.19a	kr-a1.19a	kr-a1.19a
INPUT VARIABLES....	UNITS																					
case label	-																					
Watershed area	acres	0.0	67.2	109.1	26.2	138.4	100.5	27.1	0.0	468.9	38.5	0.0	273.4	10.8	24.1	105.6	211.0	0.0	0.0	22.7	25.3	7.1
basin area	acres	1.24	2.19	1.31	0.31	0.00	0.00	0.09	0.64	0.00	0.03	0.06	0.00	0.46	0.06	0.00	0.45	0.47	0.58	0.09	0.31	0.06
basin volume	acre-ft	8.10	0.00	0.00	1.18	0.00	0.00	0.24	1.65	0.00	0.02	0.03	0.00	1.15	0.00	0.00	1.26	1.31	1.60	0.00	0.27	0.07
Row Crop Agriculture		0%	0%	1%	0%	89%	78%	0%	0%	64%	2%	0%	0%	0%	0%	0%	9%	0%	0%	0%	0%	0%
Very Low Density Residential		0%	0%	0%	0%	3%	3%	0%	0%	1%	0%	0%	0%	0%	0%	6%	0%	0%	0%	0%	0%	0%
Low Density Residential		0%	89%	89%	90%	0%	2%	89%	0%	11%	75%	0%	3%	0%	97%	17%	53%	0%	0%	0%	0%	0%
Medium Density Residential		0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
High Density Residential		0%	1%	0%	0%	0%	0%	0%	0%	0%	5%	0%	0%	0%	0%	0%	11%	0%	0%	0%	0%	0%
Commercial/Industrial		0%	0%	0%	8%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	2%	2%	0%	0%	89%	100%	69%
Institutional		0%	0%	0%	0%	0%	0%	0%	0%	0%	8%	0%	0%	95%	0%	16%	8%	0%	0%	0%	0%	0%
Open Space		100%	10%	10%	0%	1%	10%	11%	100%	23%	3%	100%	44%	5%	3%	47%	13%	100%	100%	0%	0%	0%
Golf Course		0%	0%	0%	0%	0%	0%	0%	0%	0%	4%	0%	50%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Pits and Quarries		0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Right-of-Way		0%	1%	1%	2%	6%	8%	0%	0%	1%	4%	0%	3%	0%	0%	12%	4%	0%	0%	11%	0%	31%
WATERSHED-WIDE ACCOUNTING.....																						
tributary land area	ac	3286.57	67.22	176.32	26.16	138.39	100.47	27.10	27.11	734.83	38.52	38.53	1046.80	10.80	24.08	4676.30	211.00	211.01	211.02	22.68	25.28	7.08
tributary water area	ac	12.60	2.19	3.50	0.31	0.00	0.00	0.09	0.73	0.73	0.03	0.09	0.82	0.46	0.06	17.75	0.45	0.92	1.50	0.09	0.31	0.06
direct and ponded area	ac	3299.17	69.41	179.82	26.47	138.39	100.47	27.19	27.84	735.56	38.55	38.62	1047.62	11.26	24.14	4694.05	211.46	211.94	212.52	22.77	25.59	7.14
ASSUMED EXPORT FACTORS.....																						
season length	yrs	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
season precipitation	inches	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8
runoff total p	ppb	200.00	424.22	426.34	441.29	519.90	487.52	421.77	200.00	447.80	437.83	200.00	387.50	343.36	441.39	302.02	414.63	200.00	200.00	355.28	349.88	365.28
runoff ortho p/total p	-	0.60	0.33	0.33	0.30	0.22	0.26	0.33	0.60	0.31	0.32	0.60	0.63	0.31	0.31	0.45	0.33	0.60	0.60	0.30	0.30	0.30
unit runoff	in/yr	2.54	6.37	6.33	7.38	4.66	4.57	6.27	2.54	4.30	7.10	2.54	3.08	9.39	6.60	5.37	7.24	2.54	2.54	13.95	14.55	12.79
unit export	lbs/ac-y	0.12	0.63	0.63	0.73	0.54	0.51	0.62	0.12	0.46	0.70	0.12	0.28	0.74	0.67	0.42	0.70	0.12	0.12	1.12	1.15	1.04
POND WATER BUDGETS.....																						
runoff	ac-ft/yr	0.00	35.71	57.52	16.09	53.73	38.29	14.16	0.00	168.01	22.78	0.00	70.29	8.46	13.24	47.27	127.24	0.00	0.00	26.37	30.65	7.55
upstream pond	ac-ft/yr	1261.59	0.00	35.71	0.00	0.00	0.00	0.00	14.16	106.18	0.00	22.78	296.97	0.00	0.00	1759.89	0.00	127.24	127.24	0.00	0.00	0.00
total inflow	**ac-ft/yr**	**1261.60**	**35.71**	**93.23**	**16.09**	**53.73**	**38.29**	**14.16**	**14.16**	**274.19**	**22.78**	**22.78**	**367.26**	**8.46**	**13.24**	**1807.15**	**127.24**	**127.24**	**127.24**	**26.37**	**30.65**	**7.55**
outflow	ac-ft/yr	1261.60	35.71	93.23	16.09	53.73	38.29	14.16	14.16	274.19	22.78	22.78	367.26	8.46	13.24	1807.15	127.24	127.24	127.24	26.37	30.65	7.55
POND PHOSPHORUS BUDGETS.....																						
runoff	lbs/yr	0.00	42.65	68.86	18.97	75.40	51.47	16.87	0.00	216.13	27.00	0.00	76.89	8.01	16.08	44.68	147.79	0.00	0.00	25.32	29.16	7.40
upstream pond	lbs/yr	988.24	0.00	42.65	0.00	0.00	0.00	0.00	10.51	133.36	0.00	25.63	373.98	0.00	0.00	1453.53	0.00	103.09	85.59	0.00	0.00	0.00
total inflow	**lbs/yr**	**988.24**	**42.65**	**111.51**	**18.97**	**75.40**	**51.47**	**16.87**	**10.51**	**349.49**	**27.00**	**25.63**	**450.86**	**8.01**	**16.08**	**1498.20**	**147.79**	**103.09**	**85.59**	**25.32**	**29.16**	**7.40**
net sedimentation	lbs/yr	124.90	0.00	0.00	10.95	0.00	0.00	6.36	4.02	0.00	1.38	1.14	0.00	4.30	0.00	0.00	44.71	17.50	14.39	0.00	6.82	1.88
outflow	lbs/yr	863.34	42.65	111.51	8.02	75.40	51.47	10.51	6.49	349.49	25.63	24.49	450.86	3.71	16.08	1498.20	103.09	85.59	71.20	25.32	22.33	5.51
p removal efficiency	%	12.64	0.00	0.00	57.70	0.00	0.00	37.72	38.23	0.00	5.10	4.46	0.00	53.70	0.01	0.00	30.25	16.98	16.81	0.00	23.41	25.48
upstream w-shed p load	lbs/yr	1586.27	42.65	111.51	18.97	75.40	51.47	16.87	16.87	359.87	27.00	27.01	463.77	8.01	16.08	2249.29	147.79	147.80	147.80	25.32	29.16	7.40
total removal %	%	45.57	0.00	0.00	57.70	0.00	0.00	37.72	61.53	2.89	5.10	9.33	2.78	53.70	0.01	33.39	30.25	42.09	51.83	0.00	23.41	25.48
HYDRAULIC PARAMETERS.....																						
pond mean depth	feet	6.53	0.00	0.00	3.81	1.00	1.00	2.59	2.59	1.00	0.56	0.55	1.00	2.50	0.00	1.00	2.78	2.78	2.78	0.00	0.87	1.16
relative volume	inches	121500.00	0.00	0.00	2.33	0.00	0.00	0.54	24735.00	0.00	0.03	480.00	0.00	4.32	0.00	0.00	0.31	19620.00	24045.00	0.00	0.28	0.29
residence time	years	0.01	0.00	0.00	0.07	0.00	0.00	0.02	0.12	0.00	0.00	0.00	0.00	0.14	0.00	0.00	0.01	0.01	0.01	0.00	0.01	0.01
residence time	days	2.34	0.00	0.00	26.76	0.00	0.00	6.21	42.51	0.00	0.29	0.51	0.00	49.64	0.00	0.00	3.61	3.75	4.60	0.00	3.22	3.35
overflow rate	ft/yr	1017.42	16.30	71.17	51.92	5373244.95	3829193.59	152.21	22.22	27418732.43	711.90	392.81	36726494.43	18.38	220.74	180715306.09	281.50	270.73	220.91	292.97	98.87	125.79
inflow phos conc	ppb	288.20	439.44	440.05	433.73	516.29	494.55	438.50	273.10	468.96	436.13	413.87	451.67	348.36	446.71	305.02	427.35	298.07	247.47	353.34	350.00	360.49
outflow phos conc	ppb	251.77	439.44	440.05	183.45	516.27	494.54	273.11	168.69	468.96	413.89	395.42	451.67	161.28	446.68	305.02	298.08	247.47	205.86	353.33	268.07	268.65
p reaction rate	-	0.17	0.00	0.00	3.23	0.00	0.00	0.97	1.00	0.00	0.06	0.05	0.00	2.51	0.00	0.00	0.62	0.25	0.24	0.00	0.40	0.46
1-rp	-	0.87	1.00	1.00	0.42	1.00	1.00	0.62	0.62	1.00	0.95	0.96	1.00	0.46	1.00	1.00	0.70	0.83	0.83	1.00	0.77	0.75
vlawmo pond volume	acre-ft	0.00	2.81	4.52	1.27	4.22	3.01	1.11	0.00	13.21	1.79	0.00	5.53	0.66	1.04	3.72	10.00	0.00	0.00	2.07	2.41	0.59
LAND USE PARAMETERS.....																						
runoff total P conc	ppb	200.00	424.22	426.34	441.29	519.90	487.52	421.77	200.00	447.80	437.83	200.00	387.50	343.36	441.39	302.02	414.63	200.00	200.00	355.28	349.88	365.28
runoff coefficient		0.08	0.20	0.20	0.23	0.15	0.14	0.20	0.08	0.14	0.22	0.08	0.10	0.30	0.21	0.17	0.23	0.08	0.08	0.44	0.46	0.40
dissolved/total P		0.60	0.33	0.33	0.30	0.22	0.26	0.33	0.60	0.31	0.32	0.60	0.63	0.31	0.31	0.45	0.33	0.60	0.60	0.30	0.30	0.30
runoff TSS conc	ppm	216.00	147.75	147.61	140.00	163.95	167.98	148.69	216.00	172.91	145.25	216.00	211.22	143.52	142.62	180.71	151.85	216.00	216.00	140.00	140.06	140.00
POND TSS BUDGETS.....																						
runoff	lbs/yr	1.24	13846.58	22312.41	6106.06	23541.27	16939.48	5504.84	1.24	75590.37	8774.74	1.24	38870.81	3230.00	5061.15	20450.82	49899.40	1.24	1.24	10003.62	11629.45	2863.48
upstream pond	lbs/yr	216706.82	0.00	13846.58	0.00	0.00	0.00	0.00	1981.74	41174.79	0.00	7740.57	123746.62	0.00	0.00	365958.09	0.00	21144.87	14084.82	0.00	0.00	0.00
total inflow	**lbs/yr**	**216708.07**	**13846.58**	**36158.99**	**6106.06**	**23541.27**	**16939.48**	**5504.84**	**1982.98**	**116765.16**	**8774.74**	**7741.82**	**162617.42**	**3230.00**	**5061.15**	**386408.92**	**49899.40**	**21146.11**	**14086.06**	**10003.62**	**11629.45**	**2863.48**
p removal efficiency (no inf)	%	13.00	0.00	0.00	58.00	0.00	0.00	38.00	39.00	0.00	6.00	5.00	0.00	54.00	0.00	0.00	31.00	17.00	17.00	0.00	24.00	26.00
tss removal efficiency (no inf)	%	25.54	0.00	0.00	93.00	0.00	0.00	64.00	65.00	0.00	11.79	9.82	0.00	90.00	0.00	0.00	57.63	33.39	33.39	0.00	47.14	51.07
net sedimentation	lbs/yr	55337.95	0.00	0.00	5678.64	0.00	0.00	3523.10	1288.94	0.00	1034.17	760.36	0.00	2907.00	0.00	0.00	28754.53	7061.29	4703.74	0.00	5482.46	1462.42
outflow	lbs/yr	161370.11	13846.58	36158.99	427.42	23541.27	16939.48	1981.74	694.04	116765.16	7740.57	6981.46	162617.42	323.00	5061.15	386408.92	21144.87	14084.82	9382.32	10003.62	6147.00	1401.06
tss removal efficiency (inf)	%	25.54	0.00	0.00	93.00	0.00	0.00	64.00	65.00	0.00	11.79	9.82	0.00	90.00	0.00	0.00	57.63	33.39	33.39	0.00	47.14	51.07
upstream watershed tss load	lbs/yr	560904.15	13846.58	36158.99	6106.06	23541.27	16939.48	5504.84	5506.08	121577.20	8774.74	8775.98	169223.98	3230.00	5061.15	801135.15	49899.40	49900.64	49901.88	10003.62	11629.45	2863.48
tss total removal efficiency	%	71.23	0.00	0.00	93.00	0.00	0.00	64.00	87.39	3.96	11.79	20.45	3.90	90.00	0.00	51.77	57.63	71.77	81.20	0.00	47.14	51.07
INFILTRATION BMP/POND.....																						
Annual runoff infiltrated	%	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Adjusted outflow	**ac-ft/yr**	**1261.60**	**35.71**	**93.23**	**16.09**	**53.73**	**38.29**	**14.16**	**14.16**	**274.19**	**22.78**	**22.78**	**367.26**	**8.46**	**13.24**	**1807.15**	**127.24**	**127.24**	**127.24**	**26.37**	**30.65**	**7.55**
Adjusted TP outflow	**lbs/yr**	**863.34**	**42.65**	**111.51**	**8.02**	**75.40**	**51.47**	**10.51**	**6.49**	**349.49**	**25.63**	**24.49**	**450.86**	**3.71**	**16.08**	**1498.20**	**103.09**	**85.59**	**71.20**	**25.32**	**22.33**	**5.51**
Adjusted TSS outflow	**lbs/yr**	**161370.11**	**13846.58**	**36158.99**	**427.42**	**23541.27**	**16939.48**	**1981.74**	**694.04**	**116765.16**	**7740.57**	**6981.46**	**162617.42**	**323.00**	**5061.15**	**386408.92**	**21144.87**	**14084.82**	**9382.32**	**10003.62**	**6147.00**	**1401.06**

Rochester Loading Assessment																						
King's Run																						
363-06-158-2																						
Present (2005) LOADS																						
		kr-a1.19e	**kr-a1.19e cell 2**	**kr-a1.19a**	**kr-a1.15a**	**kr-a1.15b**	**kr-a1.18d**	**kr-a1.18c**	**kr-a1.18b**	**kr-a1.18e**	**kr-a1.18f**	**kr-a2.6b**	**kr-a2.6c**	**kr-a2.6c cell 2**	**kr-a2.6c cell 3**	**kr-a2.6d**	**kr-a2.6a**	**kr-a1.18a**	**kr-a2.5d**	**kr-a2.5c**	**kr-a2.5c cell 2**	**kr-a2.5b**
Routed TO:		kr-a1.19e cell 2	kr-a1.19a	kr-a2.5b	kr-a1.15b	kr-a1.18a	kr-a1.18b	kr-a1.18b	kr-a1.18a	kr-a1.18a	kr-a1.18a	kr-a2.6a	kr-a2.6c cell 2	kr-a2.6c cell 3	kr-a2.6a	kr-a2.6a	kr-a1.18a	kr-a2.5d	kr-a2.5b	kr-a2.5c cell 2	kr-a2.5b	kr-a2.10
INPUT VARIABLES....	UNITS																					
case label	-																					
Watershed area	acres	24.7	0.0	84.7	23.8	53.8	18.0	83.2	44.1	16.7	2.9	4.8	18.3	0.0	0.0	4.5	93.4	88.9	9.0	4.6	0.0	15.0
basin area	acres	0.08	0.54	0.00	0.63	0.00	0.71	0.74	0.73	0.52	0.26	0.01	0.17	0.18	0.29	0.13	0.44	0.15	0.57	0.04	0.14	0.00
basin volume	acre-ft	0.23	1.57	0.00	0.00	0.00	2.14	3.20	0.00	2.20	0.80	0.01	0.48	0.51	0.79	0.46	1.72	0.26	2.99	0.00	0.31	0.00
Row Crop Agriculture		0%	0%	0%	0%	0%	26%	10%	11%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Very Low Density Residential		0%	0%	0%	11%	89%	0%	2%	27%	0%	0%	0%	0%	0%	0%	0%	7%	29%	0%	0%	0%	0%
Low Density Residential		2%	0%	12%	82%	3%	4%	81%	0%	0%	0%	0%	25%	0%	0%	1%	10%	27%	0%	0%	0%	0%
Medium Density Residential		0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	3%	0%	0%	0%	0%	0%
High Density Residential		0%	0%	1%	0%	0%	0%	0%	0%	0%	0%	0%	60%	0%	0%	92%	6%	0%	0%	0%	0%	0%
Commercial/Industrial		16%	0%	37%	0%	0%	0%	0%	0%	0%	15%	100%	0%	0%	0%	0%	34%	0%	0%	0%	0%	34%
Institutional		0%	0%	13%	0%	4%	52%	1%	24%	1%	0%	0%	0%	0%	0%	0%	6%	13%	0%	0%	0%	0%
Open Space		72%	100%	18%	7%	0%	17%	6%	37%	99%	78%	0%	11%	100%	100%	8%	5%	4%	0%	0%	100%	0%
Golf Course		0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Pits and Quarries		0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Right-of-Way		10%	0%	19%	0%	4%	0%	0%	0%	0%	7%	0%	4%	0%	0%	0%	28%	27%	100%	100%	0%	66%
WATERSHED-WIDE ACCOUNTING.....																						
tributary land area	ac	24.67	24.68	5051.70	23.81	77.61	18.02	83.25	145.32	16.70	2.91	4.77	18.34	18.35	18.36	4.54	121.09	452.53	461.57	4.58	4.59	5532.87
tributary water area	ac	0.08	0.61	20.32	0.63	0.63	0.71	0.74	2.18	0.52	0.26	0.01	0.17	0.36	0.64	0.13	1.22	4.96	5.52	0.04	0.18	26.03
direct and ponded area	ac	24.75	25.29	5072.02	24.44	78.24	18.73	83.99	147.50	17.22	3.17	4.78	18.51	18.70	19.00	4.67	122.31	457.48	467.10	4.62	4.77	5558.90
ASSUMED EXPORT FACTORS.....																						
season length	yrs	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
season precipitation	inches	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8
runoff total p	ppb	248.42	200.00	345.76	420.75	354.69	379.38	440.94	316.54	202.54	236.73	350.00	421.09	200.00	200.00	430.65	376.30	383.84	400.00	400.87	200.00	382.81
runoff ortho p/total p	-	0.52	0.60	0.35	0.34	0.48	0.32	0.31	0.45	0.60	0.53	0.30	0.33	0.60	0.60	0.32	0.33	0.37	0.30	0.30	0.60	0.30
unit runoff	in/yr	5.16	2.54	9.73	6.02	3.58	6.99	6.22	4.65	2.61	4.77	14.56	10.51	2.54	2.54	12.70	10.19	6.40	8.77	8.79	2.54	10.76
unit export	lbs/ac-y	0.36	0.12	0.80	0.60	0.29	0.60	0.63	0.36	0.12	0.32	1.15	1.05	0.12	0.12	1.28	0.87	0.57	0.79	0.80	0.12	0.92
POND WATER BUDGETS.....																						
runoff	ac-ft/yr	10.60	0.00	68.68	11.95	16.04	10.50	43.18	17.06	3.63	1.16	5.78	16.06	0.00	0.00	4.80	79.33	47.38	6.61	3.35	0.00	13.46
upstream pond	ac-ft/yr	0.00	10.60	2009.56	0.00	11.95	0.00	0.00	53.69	0.00	0.00	0.00	0.00	16.06	16.06	0.00	26.65	209.50	256.88	0.00	3.35	2345.09
total inflow	**ac-ft/yr**	**10.60**	**10.60**	**2078.24**	**11.95**	**27.99**	**10.50**	**43.18**	**70.75**	**3.63**	**1.16**	**5.78**	**16.06**	**16.06**	**16.06**	**4.80**	**105.97**	**256.88**	**263.49**	**3.35**	**3.35**	**2358.55**
outflow	ac-ft/yr	10.60	10.60	2078.24	11.95	27.99	10.50	43.18	70.75	3.63	1.16	5.78	16.06	16.06	16.06	4.80	105.97	256.88	263.49	3.35	3.35	2358.55
POND PHOSPHORUS BUDGETS.....																						
runoff	lbs/yr	8.85	0.00	67.47	14.19	15.72	10.77	52.55	15.80	2.04	0.93	5.50	19.28	0.00	0.00	5.82	81.58	50.75	7.19	3.64	0.00	13.78
upstream pond	lbs/yr	0.00	6.38	1626.55	0.00	14.19	0.00	0.00	26.27	0.00	0.00	0.00	0.00	10.57	7.81	0.00	13.19	136.30	180.17	0.00	3.59	1832.91
total inflow	**lbs/yr**	**8.85**	**6.38**	**1694.02**	**14.19**	**29.92**	**10.77**	**52.55**	**42.07**	**2.04**	**0.93**	**5.50**	**19.28**	**10.57**	**7.81**	**5.82**	**94.77**	**187.04**	**187.36**	**3.64**	**3.59**	**1846.70**
net sedimentation	lbs/yr	2.48	2.39	0.00	0.00	0.00	6.28	30.77	0.00	0.95	0.46	0.53	8.71	2.76	2.00	3.40	32.02	6.87	50.58	0.05	1.49	0.00
outflow	lbs/yr	6.38	3.99	1694.02	14.19	29.92	4.49	21.79	42.07	1.09	0.46	4.97	10.57	7.81	5.81	2.42	62.75	180.17	136.78	3.59	2.11	1846.70
p removal efficiency	%	27.96	37.45	0.00	0.00	0.00	58.34	58.54	0.00	46.50	49.80	9.65	45.17	26.15	25.67	58.50	33.79	3.67	27.00	1.42	41.40	0.00
upstream w-shed p load	lbs/yr	8.85	8.86	2535.28	14.19	29.92	10.77	52.55	79.12	2.04	0.93	5.50	19.28	19.28	19.28	5.82	112.19	274.94	282.13	3.64	3.65	2834.84
total removal %	%	27.96	54.93	33.18	0.00	0.00	58.34	58.54	46.82	46.50	49.80	9.65	45.17	59.51	69.90	58.50	44.07	34.47	51.52	1.42	42.23	34.86
HYDRAULIC PARAMETERS.....																						
pond mean depth	feet	2.94	2.94	1.00	0.00	1.00	3.01	4.32	0.00	4.23	3.08	1.13	2.77	2.79	2.78	3.54	3.95	1.72	5.26	0.03	2.21	1.00
relative volume	inches	0.68	23610.00	0.00	0.00	0.00	6.48	2.35	0.00	19.27	21.98	0.06	0.94	7650.00	11895.00	3.05	0.69	0.17	14.38	0.01	4650.00	0.00
residence time	years	0.02	0.15	0.00	0.00	0.00	0.20	0.07	0.00	0.61	0.69	0.00	0.03	0.03	0.05	0.10	0.02	0.00	0.01	0.00	0.09	0.00
residence time	days	7.78	54.18	0.00	0.00	0.00	74.36	27.01	0.00	221.14	252.26	0.71	10.84	11.59	18.02	34.98	5.93	0.37	4.14	0.11	33.74	0.00
overflow rate	ft/yr	137.68	19.78	207824374.64	18.98	2799310.12	14.80	58.36	96.92	6.98	4.45	578.33	93.37	87.77	56.36	36.92	243.05	1712.53	463.89	83.80	23.96	235854896.34
inflow phos conc	ppb	307.29	221.38	299.90	436.88	393.22	377.09	447.73	218.79	206.80	294.38	350.02	441.76	242.21	178.87	446.15	329.04	267.89	261.62	400.02	394.22	288.07
outflow phos conc	ppb	221.38	138.48	299.90	436.87	393.21	157.10	185.61	218.79	110.64	147.77	316.25	242.21	178.87	132.96	185.17	217.86	258.05	190.99	394.34	231.01	288.07
p reaction rate	-	0.54	0.96	0.00	0.00	0.00	3.36	3.41	0.00	1.62	1.98	0.12	1.50	0.48	0.46	3.40	0.77	0.04	0.51	0.01	1.21	0.00
1-rp	-	0.72	0.63	1.00	1.00	1.00	0.42	0.41	1.00	0.54	0.50	0.90	0.55	0.74	0.74	0.42	0.66	0.96	0.73	0.99	0.59	1.00
vlawmo pond volume	acre-ft	0.83	0.00	5.40	0.94	1.26	0.83	3.39	1.34	0.29	0.09	0.45	1.26	0.00	0.00	0.38	6.24	3.72	0.52	0.26	0.00	1.06
LAND USE PARAMETERS.....																						
runoff total P conc	ppb	248.42	200.00	345.76	420.75	354.69	379.38	440.94	316.54	202.54	236.73	350.00	421.09	200.00	200.00	430.65	376.30	383.84	400.00	400.87	200.00	382.81
runoff coefficient		0.16	0.08	0.31	0.19	0.11	0.22	0.20	0.15	0.08	0.15	0.46	0.33	0.08	0.08	0.40	0.32	0.20	0.28	0.28	0.08	0.34
dissolved/total P		0.52	0.60	0.35	0.34	0.48	0.32	0.31	0.45	0.60	0.53	0.30	0.33	0.60	0.60	0.32	0.33	0.37	0.30	0.30	0.60	0.30
runoff TSS conc	ppm	195.05	216.00	153.61	153.88	207.74	158.88	148.24	191.22	215.18	199.24	140.00	148.50	216.00	216.00	145.88	149.36	165.46	140.00	140.31	216.00	140.00
POND TSS BUDGETS.....																						
runoff	lbs/yr	4801.48	1.24	26719.02	4744.83	8536.21	4228.25	16871.28	7907.94	2099.57	538.28	2194.18	6180.89	1.24	1.24	1836.27	30650.11	19469.79	2508.41	1271.68	1.24	5106.71
upstream pond	lbs/yr	0.00	2160.67	414121.20	0.00	4744.83	0.00	0.00	1476.97	0.00	0.00	0.00	0.00	1730.65	813.37	0.00	2290.30	36407.92	51487.31	0.00	1221.73	466590.28
total inflow	**lbs/yr**	**4801.48**	**2161.91**	**440840.22**	**4744.83**	**13281.04**	**4228.25**	**16871.28**	**9384.90**	**2099.57**	**538.28**	**2194.18**	**6180.89**	**1731.89**	**814.61**	**1836.27**	**32940.41**	**55877.70**	**53995.72**	**1271.68**	**1222.97**	**471696.99**
p removal efficiency (no inf)	%	28.00	38.00	0.00	0.00	0.00	59.00	59.00	0.00	47.00	50.00	10.00	46.00	27.00	26.00	59.00	34.00	4.00	27.00	2.00	42.00	0.00
tss removal efficiency (no inf)	%	55.00	64.00	0.00	0.00	0.00	93.00	93.00	0.00	74.00	81.00	19.64	72.00	53.04	51.07	93.00	60.25	7.86	53.04	3.93	68.00	0.00
net sedimentation	lbs/yr	2640.81	1383.62	0.00	0.00	0.00	3932.27	15690.29	0.00	1553.68	436.01	431.00	4450.24	918.52	416.03	1707.73	19846.60	4390.39	28637.02	49.96	831.62	0.00
outflow	lbs/yr	2160.67	778.29	440840.22	4744.83	13281.04	295.98	1180.99	9384.90	545.89	102.27	1763.18	1730.65	813.37	398.58	128.54	13093.81	51487.31	25358.70	1221.73	391.35	471696.99
tss removal efficiency (inf)	%	55.00	64.00	0.00	0.00	0.00	93.00	93.00	0.00	74.00	81.00	19.64	72.00	53.04	51.07	93.00	60.25	7.86	53.04	3.93	68.00	0.00
upstream watershed tss load	lbs/yr	4801.48	4802.72	907055.32	4744.83	13281.04	4228.25	16871.28	29007.46	2099.57	538.28	2194.18	6180.89	6182.13	6183.37	1836.27	40863.93	105260.06	107768.47	1271.68	1272.93	1021203.43
tss total removal efficiency	%	55.00	83.79	51.40	0.00	0.00	93.00	93.00	67.65	74.00	81.00	19.64	72.00	86.84	93.55	93.00	67.96	51.09	76.47	3.93	69.26	53.81
INFILTRATION BMP/POND.....																						
Annual runoff infiltrated	%	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Adjusted outflow	**ac-ft/yr**	**10.60**	**10.60**	**2078.24**	**11.95**	**27.99**	**10.50**	**43.18**	**70.75**	**3.63**	**1.16**	**5.78**	**16.06**	**16.06**	**16.06**	**4.80**	**105.97**	**256.88**	**263.49**	**3.35**	**3.35**	**2358.55**
Adjusted TP outflow	**lbs/yr**	**6.38**	**3.99**	**1694.02**	**14.19**	**29.92**	**4.49**	**21.79**	**42.07**	**1.09**	**0.46**	**4.97**	**10.57**	**7.81**	**5.81**	**2.42**	**62.75**	**180.17**	**136.78**	**3.59**	**2.11**	**1846.70**
Adjusted TSS outflow	**lbs/yr**	**2160.67**	**778.29**	**440840.22**	**4744.83**	**13281.04**	**295.98**	**1180.99**	**9384.90**	**545.89**	**102.27**	**1763.18**	**1730.65**	**813.37**	**398.58**	**128.54**	**13093.81**	**51487.31**	**25358.70**	**1221.73**	**391.35**	**471696.99**

Rochester Loading Assessment																						
King's Run																						
363-06-158-2																						
Present (2005) LOADS																						
		kr-a2.7	**kr-a2.7 cell 2**	**kr-a2.7 cell 3**	**kr-a2.7 cell 4**	**kr-a2.7 cell 5**	**kr-a2.1a**	**kr-a2.1b**	**kr-a2.1b cell 2**	**kr-a2.1b cell 3**	**kr-a2.1b cell 4**	**kr-a2.1b cell 5**	**kr-a2.1c**	**kr-a2.1d**	**kr-a2.1d cell 2**	**kr-a2.1e**	**kr-a2.1e cell 2**	**kr-a2.1e cell 3**	**kr-a2.1f**	**kr-a2.1f cell 2**	**kr-a2.1g**	**kr-a2.2g**
Routed TO:		kr-a2.7 cell 2	kr-a2.7 cell 3	kr-a2.7 cell 4	kr-a2.7 cell 5	kr-a2.10	kr-a2.1b	kr-a2.1b cell 2	kr-a2.1b cell 3	kr-a2.1b cell 4	kr-a2.1b cell 5	kr-a2.2c	kr-a2.1d	kr-a2.1d cell 2	kr-a2.1e	kr-a2.1e cell 2	kr-a2.1e cell 3	kr-a2.1f	kr-a2.1f cell 2	kr-a2.2c	kr-a2.2c	kr-a2.2c
INPUT VARIABLES....	UNITS																					
case label	-																					
Watershed area	acres	168.8	0.0	0.0	0.0	0.0	112.9	53.1	0.0	0.0	0.0	0.0	7.3	19.7	0.0	2.4	0.0	0.0	2.2	0.0	6.4	18.4
basin area	acres	0.41	0.44	0.45	0.46	0.50	0.00	0.51	0.84	0.88	0.92	1.05	0.50	0.25	0.69	0.32	0.46	0.35	0.08	0.13	0.08	0.36
basin volume	acre-ft	1.60	1.74	1.76	1.81	1.99	0.00	1.98	3.26	3.40	3.55	4.04	1.59	0.67	1.88	0.20	0.39	0.64	0.14	0.22	0.12	2.23
Row Crop Agriculture		2%	0%	0%	0%	0%	34%	13%	0%	0%	0%	4.04	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Very Low Density Residential		0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Low Density Residential		75%	0%	0%	0%	0%	19%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Medium Density Residential		1%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
High Density Residential		2%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Commercial/Industrial		0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	77%	74%	0%	50%	0%	0%	61%	0%	12%	83%
Institutional		7%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Open Space		8%	100%	100%	100%	100%	47%	81%	100%	100%	100%	100%	12%	26%	100%	50%	100%	100%	39%	100%	56%	2%
Golf Course		0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Pits and Quarries		0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Right-of-Way		4%	0%	0%	0%	0%	1%	6%	0%	0%	0%	0%	11%	0%	0%	0%	0%	0%	0%	0%	32%	15%
WATERSHED-WIDE ACCOUNTING.....																						
tributary land area	ac	168.75	168.76	168.77	168.78	168.79	112.90	165.98	165.99	166.00	166.01	166.02	7.28	27.00	27.01	29.41	29.41	29.41	31.60	31.60	6.39	18.38
tributary water area	ac	0.41	0.85	1.29	1.75	2.26	0.00	0.51	1.36	2.24	3.15	4.20	0.50	0.75	1.43	1.75	2.21	2.56	2.64	2.78	0.08	0.36
direct and ponded area	ac	169.16	169.61	170.06	170.53	171.05	112.90	166.49	167.34	168.23	169.16	170.21	7.78	27.75	28.44	31.16	31.62	31.97	34.25	34.38	6.47	18.74
ASSUMED EXPORT FACTORS.....																						
season length	yrs	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
season precipitation	inches	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8
runoff total p	ppb	421.67	200.00	200.00	200.00	200.00	363.21	257.23	200.00	200.00	200.00	2383.76	336.82	311.61	200.00	274.52	200.00	200.00	291.33	200.00	281.92	353.96
runoff ortho p/total p	-	0.32	0.60	0.60	0.60	0.60	0.41	0.53	0.60	0.60	0.60	1.41	0.34	0.38	0.60	0.45	0.60	0.60	0.42	0.60	0.47	0.31
unit runoff	in/yr	6.85	2.54	2.54	2.54	2.54	4.04	3.17	2.54	2.54	2.54	20.55	12.46	11.48	2.54	8.51	2.54	2.54	9.85	2.54	5.95	13.40
unit export	lbs/ac-y	0.67	0.12	0.12	0.12	0.12	0.37	0.21	0.12	0.12	0.12	2.32	0.99	0.89	0.12	0.63	0.12	0.12	0.75	0.12	0.45	1.08
POND WATER BUDGETS.....																						
runoff	ac-ft/yr	96.37	0.00	0.00	0.00	0.00	37.96	14.02	0.00	0.00	0.00	0.02	7.57	18.86	0.00	1.70	0.00	0.00	1.80	0.00	3.17	20.53
upstream pond	ac-ft/yr	0.00	96.37	96.38	96.38	96.38	0.00	37.96	51.98	51.99	51.99	51.99	0.00	7.57	26.42	26.42	28.12	28.12	28.12	29.93	0.00	0.00
total inflow	**ac-ft/yr**	**96.37**	**96.38**	**96.38**	**96.38**	**96.38**	**37.96**	**51.98**	**51.99**	**51.99**	**51.99**	**52.01**	**7.57**	**26.42**	**26.42**	**28.12**	**28.12**	**28.12**	**29.93**	**29.93**	**3.17**	**20.53**
outflow	ac-ft/yr	96.37	96.38	96.38	96.38	96.38	37.96	51.98	51.99	51.99	51.99	52.01	7.57	26.42	26.42	28.12	28.12	28.12	29.93	29.93	3.17	20.53
POND PHOSPHORUS BUDGETS.....																						
runoff	lbs/yr	112.73	0.00	0.00	0.00	0.00	42.18	11.29	0.00	0.00	0.00	0.02	7.20	17.50	0.00	1.51	0.00	0.00	1.64	0.00	2.91	19.77
upstream pond	lbs/yr	0.00	68.83	53.47	43.32	36.10	0.00	42.18	32.45	21.38	15.45	11.87	0.00	3.07	13.63	9.62	10.31	9.43	8.22	9.27	0.00	0.00
total inflow	**lbs/yr**	**112.73**	**68.84**	**53.47**	**43.32**	**36.10**	**42.18**	**53.48**	**32.45**	**21.38**	**15.45**	**11.89**	**7.20**	**20.57**	**13.63**	**11.13**	**10.31**	**9.43**	**9.86**	**9.27**	**2.91**	**19.77**
net sedimentation	lbs/yr	43.89	15.36	10.16	7.22	5.58	0.00	21.02	11.08	5.93	3.58	1.30	4.13	6.94	4.01	0.82	0.88	1.22	0.59	0.54	0.95	12.04
outflow	lbs/yr	68.83	53.47	43.32	36.10	30.53	42.18	32.45	21.38	15.45	11.87	10.58	3.07	13.63	9.62	10.31	9.43	8.22	9.27	8.73	1.95	7.73
p removal efficiency	%	38.94	22.32	19.00	16.66	15.45	0.00	39.31	34.14	27.74	23.19	10.97	57.33	33.75	29.44	7.37	8.53	12.89	5.95	5.84	32.84	60.89
upstream w-shed p load	lbs/yr	112.73	112.73	112.73	112.73	112.73	42.18	53.48	53.48	53.48	53.48	53.50	7.20	24.70	24.70	26.21	26.21	26.21	27.85	27.85	2.91	19.77
total removal %	%	38.94	52.56	61.57	67.97	72.92	0.00	39.31	60.03	71.11	77.81	80.22	57.33	44.81	61.06	60.67	64.02	68.66	66.72	68.66	32.84	60.89
HYDRAULIC PARAMETERS.....																						
pond mean depth	feet	3.95	3.95	3.95	3.95	3.95	1.00	3.87	3.86	3.87	3.86	3.87	3.18	2.74	2.74	0.63	0.85	1.83	1.67	1.67	1.50	6.20
relative volume	inches	0.53	26160.00	26400.00	27120.00	29835.00	0.00	4.50	48870.00	50970.00	53190.00	7510.21	6.68	1.13	28185.00	3.75	58500.00	96000.00	2.45	33150.00	1.21	3.46
residence time	years	0.02	0.02	0.02	0.02	0.02	0.00	0.04	0.06	0.07	0.07	0.08	0.21	0.03	0.07	0.01	0.01	0.02	0.00	0.01	0.04	0.11
residence time	days	6.05	6.60	6.67	6.85	7.53	0.00	13.92	22.87	23.86	24.89	28.38	76.71	9.27	25.95	2.60	5.06	8.31	1.70	2.70	13.83	39.71
overflow rate	ft/yr	237.96	218.04	216.09	210.44	191.23	3796438.80	101.33	61.67	59.14	56.63	49.72	15.13	107.85	38.58	87.88	61.14	80.35	360.55	226.71	39.57	57.02
inflow phos conc	ppb	430.35	262.78	204.14	165.36	137.82	408.80	378.48	229.68	151.28	109.33	84.11	349.98	286.46	189.80	145.61	134.88	123.38	121.17	113.96	337.78	354.27
outflow phos conc	ppb	262.79	204.14	165.36	137.82	116.52	408.79	229.68	151.28	109.32	83.97	74.88	149.35	189.80	133.93	134.88	123.38	107.48	113.96	107.31	226.86	138.55
p reaction rate	-	1.04	0.37	0.29	0.24	0.22	0.00	1.07	0.79	0.53	0.39	0.14	3.15	0.77	0.59	0.09	0.10	0.17	0.07	0.07	0.73	3.98
1-rp	-	0.61	0.78	0.81	0.83	0.85	1.00	0.61	0.66	0.72	0.77	0.89	0.43	0.66	0.71	0.93	0.91	0.87	0.94	0.94	0.67	0.39
vlawmo pond volume	acre-ft	7.58	0.00	0.00	0.00	0.00	2.98	1.10	0.00	0.00	0.00	0.00	0.59	1.48	0.00	0.13	0.00	0.00	0.14	0.00	0.25	1.61
LAND USE PARAMETERS.....																						
runoff total P conc	ppb	421.67	200.00	200.00	200.00	200.00	363.21	257.23	200.00	200.00	200.00	2383.76	336.82	311.61	200.00	274.52	200.00	200.00	291.33	200.00	281.92	353.96
runoff coefficient		0.22	0.08	0.08	0.08	0.08	0.13	0.10	0.08	0.08	0.08	0.65	0.39	0.36	0.08	0.27	0.08	0.08	0.31	0.08	0.19	0.42
dissolved/total P		0.32	0.60	0.60	0.60	0.60	0.41	0.53	0.60	0.60	0.60	1.41	0.34	0.38	0.60	0.45	0.60	0.60	0.42	0.60	0.47	0.31
runoff TSS conc	ppm	146.96	216.00	216.00	216.00	216.00	183.19	204.60	216.00	216.00	216.00	875.17	149.37	159.62	216.00	178.37	216.00	216.00	169.87	216.00	182.67	141.81
POND TSS BUDGETS.....																						
runoff	lbs/yr	37271.25	1.24	1.24	1.24	1.24	17582.49	7355.50	1.24	1.24	1.24	7.87	2909.72	7375.68	1.24	696.73	0.12	0.12	721.47	0.12	1357.79	7807.00
upstream pond	lbs/yr	0.00	13044.94	7152.10	4483.61	2987.23	0.00	17582.49	8478.92	3296.66	1484.06	785.09	0.00	203.68	3012.80	1303.57	1685.97	1388.02	1033.67	1548.28	0.00	0.00
total inflow	**lbs/yr**	**37271.25**	**13046.18**	**7153.34**	**4484.85**	**2988.47**	**17582.49**	**24937.99**	**8480.16**	**3297.90**	**1485.30**	**792.95**	**2909.72**	**7579.36**	**3014.04**	**2000.30**	**1686.09**	**1388.14**	**1755.14**	**1548.41**	**1357.79**	**7807.00**
p removal efficiency (no inf)	%	39.00	23.00	19.00	17.00	16.00	0.00	40.00	35.00	28.00	24.00	11.00	58.00	34.00	30.00	8.00	9.00	13.00	6.00	6.00	33.00	61.00
tss removal efficiency (no inf)	%	65.00	45.18	37.32	33.39	31.43	0.00	66.00	61.13	55.00	47.14	21.61	93.00	60.25	56.75	15.71	17.68	25.54	11.79	11.79	59.38	93.00
net sedimentation	lbs/yr	24226.31	5894.08	2669.73	1497.62	939.23	0.00	16459.08	5183.50	1813.85	700.21	171.33	2706.04	4566.57	1710.47	314.33	298.08	354.47	206.86	182.49	806.19	7260.51
outflow	lbs/yr	13044.94	7152.10	4483.61	2987.23	2049.24	17582.49	8478.92	3296.66	1484.06	785.09	621.62	203.68	3012.80	1303.57	1685.97	1388.02	1033.67	1548.28	1365.92	551.60	546.49
tss removal efficiency (inf)	%	65.00	45.18	37.32	33.39	31.43	0.00	66.00	61.13	55.00	47.14	21.61	93.00	60.25	56.75	15.71	17.68	25.54	11.79	11.79	59.38	93.00
upstream watershed tss load	lbs/yr	37271.25	37272.49	37273.73	37274.97	37276.21	17582.49	24937.99	24939.24	24940.48	24941.72	24949.59	2909.72	10285.40	10286.64	10983.37	10983.50	10983.62	11705.09	11705.22	1357.79	7807.00
tss total removal efficiency	%	65.00	80.81	87.97	91.99	94.50	0.00	66.00	86.78	94.05	96.85	97.51	93.00	70.71	87.33	84.65	87.36	90.59	86.77	88.33	59.38	93.00
INFILTRATION BMP/POND.....																						
Annual runoff infiltrated	%	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Adjusted outflow	**ac-ft/yr**	**96.37**	**96.38**	**96.38**	**96.38**	**96.38**	**37.96**	**51.98**	**51.99**	**51.99**	**51.99**	**52.01**	**7.57**	**26.42**	**26.42**	**28.12**	**28.12**	**28.12**	**29.93**	**29.93**	**3.17**	**20.53**
Adjusted TP outflow	**lbs/yr**	**68.83**	**53.47**	**43.32**	**36.10**	**30.53**	**42.18**	**32.45**	**21.38**	**15.45**	**11.87**	**10.58**	**3.07**	**13.63**	**9.62**	**10.31**	**9.43**	**8.22**	**9.27**	**8.73**	**1.95**	**7.73**
Adjusted TSS outflow	**lbs/yr**	**13044.94**	**7152.10**	**4483.61**	**2987.23**	**2049.24**	**17582.49**	**8478.92**	**3296.66**	**1484.06**	**785.09**	**621.62**	**203.68**	**3012.80**	**1303.57**	**1685.97**	**1388.02**	**1033.67**	**1548.28**	**1365.92**	**551.60**	**546.49**

Rochester Loading Assessment																						
King's Run																						
363-06-158-2																						
Present (2005) LOADS																						
		kr-a2.2f	**kr-a2.2e**	**kr-a2.2d**	**kr-a2.2c**	**kr-a2.2b**	**kr-a2.2i**	**kr-a2.2a**	**kr-a2.2a cell 2**	**kr-a2.2a cell 3**	**kr-a2.2h**	**kr-a2.4c**	**kr-a2.4b**	**kr-a2.4a**	**kr-a2.3a**	**kr-a2.5e**	**kr-a2.5a**	**kr-a2.10**	**kr-a2.8f**	**kr-a2.8e**	**kr-a2.8d**	**kr-a2.8c**
Routed TO:		kr-a2.2d	kr-a2.2d	kr-a2.2c	kr-a2.2b	kr-a2.2a	kr-a2.2a	kr-a2.2a cell 2	kr-a2.2a cell 3	kr-a2.4a	kr-a2.4a	kr-a2.4a	kr-a2.4a	kr-a2.5a	kr-a2.5a	kr-a2.5a	kr-a2.10	kr-a2.12a	kr-a2.8e	kr-a2.8d	kr-a2.8c	kr-a2.8c cell 2
INPUT VARIABLES....	UNITS																					
case label	-																					
Watershed area	acres	14.9	12.1	5.6	243.6	30.7	29.6	88.1	0.0	0.0	28.1	2.7	1.2	113.9	38.8	17.1	166.9	326.7	187.4	9.7	33.5	13.4
basin area	acres	0.29	0.14	0.25	0.00	0.00	0.75	0.76	0.12	1.76	0.00	0.05	0.01	0.00	0.89	0.49	0.00	0.00	0.91	0.56	1.31	0.09
basin volume	acre-ft	0.66	0.27	0.00	0.00	0.00	4.80	2.45	4.20	6.21	0.00	0.06	0.00	0.00	5.28	1.97	0.00	0.00	2.30	2.34	5.90	0.35
Row Crop Agriculture		0%	0%	0%	17%	16%	0%	9%	0%	0%	0%	0%	0%	0%	0%	0%	0%	11%	25%	0%	0%	0%
Very Low Density Residential		0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Low Density Residential		5%	13%	0%	3%	41%	0%	2%	0%	0%	89%	0%	0%	19%	0%	0%	21%	42%	29%	24%	57%	7%
Medium Density Residential		0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	1%	7%	0%	0%	0%	0%
High Density Residential		1%	80%	14%	0%	3%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	3%	12%	0%	55%	38%	37%
Commercial/Industrial		0%	0%	0%	38%	0%	57%	50%	0%	0%	5%	85%	88%	68%	85%	30%	39%	6%	0%	0%	0%	0%
Institutional		94%	0%	24%	2%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	3%	0%	0%	0%	0%
Open Space		0%	5%	12%	31%	33%	42%	32%	100%	100%	6%	0%	0%	7%	4%	0%	13%	14%	46%	21%	4%	56%
Golf Course		0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Pits and Quarries		0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Right-of-Way		0%	2%	51%	10%	7%	2%	6%	0%	0%	0%	15%	12%	6%	11%	70%	23%	5%	0%	0%	1%	0%
WATERSHED-WIDE ACCOUNTING.....																						
tributary land area	ac	14.92	12.06	32.58	498.61	529.31	29.59	647.04	647.05	647.06	28.13	2.70	1.23	792.99	38.78	17.09	1015.79	7044.19	187.44	197.17	230.67	244.04
tributary water area	ac	0.29	0.14	0.68	8.09	8.09	0.75	9.60	9.72	11.48	0.00	0.05	0.01	11.54	0.89	0.49	12.92	41.20	0.91	1.47	2.78	2.87
direct and ponded area	ac	15.21	12.20	33.26	506.71	537.40	30.34	656.64	656.77	658.54	28.13	2.75	1.24	804.54	39.67	17.58	1028.72	7085.39	188.35	198.64	233.45	246.90
ASSUMED EXPORT FACTORS.....																						
season length	yrs	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
season precipitation	inches	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8
runoff total p	ppb	355.62	435.90	370.37	343.48	378.93	288.40	324.98	200.00	200.00	430.88	357.46	356.08	361.93	349.32	384.64	367.36	412.40	358.81	396.96	439.69	310.96
runoff ortho p/total p	-	0.30	0.32	0.34	0.38	0.38	0.42	0.39	0.60	0.60	0.32	0.30	0.30	0.32	0.31	0.30	0.34	0.33	0.41	0.36	0.31	0.47
unit runoff	in/yr	9.62	12.04	8.89	8.23	5.34	9.47	9.27	2.54	2.54	6.86	13.70	13.86	11.88	13.46	10.50	9.95	7.56	4.24	9.61	9.20	6.95
unit export	lbs/ac-y	0.77	1.22	0.79	0.67	0.50	0.72	0.73	0.12	0.12	0.68	1.10	1.11	0.97	1.07	0.90	0.84	0.73	0.39	0.95	0.93	0.63
POND WATER BUDGETS.....																						
runoff	ac-ft/yr	11.96	12.10	4.15	167.11	13.65	23.34	68.10	0.00	0.00	16.08	3.08	1.43	112.72	43.51	14.95	138.38	205.77	66.25	7.79	25.69	7.75
upstream pond	ac-ft/yr	0.00	0.00	24.06	133.83	300.94	0.00	337.94	406.04	406.04	0.00	0.00	0.00	426.62	0.00	0.00	597.79	3191.11	0.00	66.25	74.05	99.73
total inflow	**ac-ft/yr**	**11.96**	**12.10**	**28.21**	**300.94**	**314.60**	**23.34**	**406.04**	**406.04**	**406.04**	**16.08**	**3.08**	**1.43**	**539.34**	**43.51**	**14.95**	**736.18**	**3396.87**	**66.25**	**74.05**	**99.73**	**107.48**
outflow	ac-ft/yr	11.96	12.10	28.21	300.94	314.60	23.34	406.04	406.04	406.04	16.08	3.08	1.43	539.34	43.51	14.95	736.18	3396.87	66.25	74.05	99.73	107.48
POND PHOSPHORUS BUDGETS.....																						
runoff	lbs/yr	11.53	14.68	4.40	163.79	15.48	21.19	64.75	0.00	0.00	18.99	2.97	1.37	110.59	41.67	15.41	140.85	237.92	73.04	9.24	31.21	8.40
upstream pond	lbs/yr	0.00	0.00	14.66	48.06	211.85	0.00	235.79	253.46	213.94	0.00	0.00	0.00	201.40	0.00	0.00	334.29	2352.35	0.00	42.88	32.69	34.42
total inflow	**lbs/yr**	**11.53**	**14.68**	**19.07**	**211.85**	**227.33**	**21.19**	**300.54**	**253.46**	**213.94**	**18.99**	**2.97**	**1.37**	**311.99**	**41.67**	**15.41**	**475.13**	**2590.28**	**73.04**	**52.12**	**63.90**	**42.82**
net sedimentation	lbs/yr	5.53	6.01	0.00	0.00	0.00	12.73	47.07	39.53	34.88	0.00	0.99	0.00	0.00	25.48	9.30	0.00	0.00	30.16	19.43	29.47	2.14
outflow	lbs/yr	5.99	8.67	19.07	211.85	227.33	8.46	253.46	213.94	179.06	18.99	1.97	1.37	311.99	16.19	6.11	475.13	2590.28	42.88	32.69	34.42	40.68
p removal efficiency	%	48.00	40.96	0.00	0.00	0.00	60.08	15.66	15.60	16.30	0.00	33.46	0.04	0.00	61.15	60.34	0.00	0.00	41.29	37.28	46.13	4.99
upstream w-shed p load	lbs/yr	11.53	14.68	30.61	298.43	313.91	21.19	399.84	399.84	399.84	18.99	2.97	1.37	533.77	41.67	15.41	731.69	3917.18	73.04	82.27	113.48	121.88
total removal %	%	48.00	40.96	37.72	29.01	27.58	60.08	36.61	46.50	55.22	0.00	33.46	0.04	41.55	61.15	60.34	35.06	33.87	41.29	60.27	69.67	66.62
HYDRAULIC PARAMETERS.....																						
pond mean depth	feet	2.28	1.93	0.00	1.00	1.00	6.40	3.22	35.00	3.53	1.00	1.20	0.00	1.00	5.93	4.02	1.00	1.00	2.53	4.18	4.50	4.08
relative volume	inches	1.75	0.71	0.00	0.00	0.00	6.54	1.14	63000.00	93150.00	0.00	0.62	0.00	0.00	3.86	4.19	0.00	0.00	1.10	9.55	7.30	1.44
residence time	years	0.06	0.02	0.00	0.00	0.00	0.21	0.01	0.01	0.02	0.00	0.02	0.00	0.00	0.12	0.13	0.00	0.00	0.03	0.03	0.06	0.00
residence time	days	20.14	8.15	0.00	0.00	0.00	75.07	2.20	3.78	5.58	0.00	7.12	0.00	0.00	44.26	48.14	0.00	0.00	12.67	11.53	21.57	1.19
overflow rate	ft/yr	41.24	86.42	112.83	30094393.73	31459879.69	31.12	534.26	3383.66	230.71	1607546.25	61.55	142.50	53933612.32	48.88	30.52	73617505.95	339687240.97	72.81	132.23	76.13	1249.78
inflow phos conc	ppb	354.53	446.49	248.67	258.99	265.86	334.00	272.32	229.67	193.85	434.70	354.79	353.87	212.83	352.35	379.09	237.46	280.55	405.59	258.95	235.71	146.58
outflow phos conc	ppb	184.37	263.63	248.67	258.99	265.86	133.34	229.67	193.85	162.25	434.68	236.09	353.74	212.83	136.89	150.36	237.46	280.55	238.13	162.42	126.98	139.26
p reaction rate	-	1.77	1.17	0.00	0.00	0.00	3.77	0.22	0.22	0.23	0.00	0.76	0.00	0.00	4.05	3.84	0.00	0.00	1.20	0.95	1.59	0.06
1-rp	-	0.52	0.59	1.00	1.00	1.00	0.40	0.84	0.84	0.84	1.00	0.67	1.00	1.00	0.39	0.40	1.00	1.00	0.59	0.63	0.54	0.95
vlawmo pond volume	acre-ft	0.94	0.95	0.33	13.14	1.07	1.83	5.35	0.00	0.00	1.26	0.24	0.11	8.86	3.42	1.18	10.88	16.18	5.21	0.61	2.02	0.61
LAND USE PARAMETERS.....																						
runoff total P conc	ppb	355.62	435.90	370.37	343.48	378.93	288.40	324.98	200.00	200.00	430.88	357.46	356.08	361.93	349.32	384.64	367.36	412.40	358.81	396.96	439.69	310.96
runoff coefficient		0.30	0.38	0.28	0.26	0.17	0.30	0.29	0.08	0.08	0.22	0.43	0.44	0.37	0.42	0.33	0.31	0.24	0.13	0.30	0.29	0.22
dissolved/total P		0.30	0.32	0.34	0.38	0.38	0.42	0.39	0.60	0.60	0.32	0.30	0.30	0.32	0.31	0.30	0.34	0.33	0.41	0.36	0.31	0.47
runoff TSS conc	ppm	140.00	143.96	149.36	167.61	168.63	171.63	166.34	216.00	216.00	144.60	140.00	140.00	145.21	143.04	140.12	149.73	153.48	180.60	156.16	143.06	182.68
POND TSS BUDGETS.....																						
runoff	lbs/yr	4537.98	4617.89	1603.86	67681.21	5734.76	9392.24	27251.79	1.24	1.24	6174.58	1167.60	540.66	43105.96	16573.77	5674.29	53434.84	80953.44	29983.79	3047.48	9803.86	3265.81
upstream pond	lbs/yr	0.00	0.00	2613.02	7302.51	74983.72	0.00	81375.94	74487.59	51078.05	0.00	0.00	0.00	41201.82	0.00	0.00	85865.15	613046.22	0.00	9594.81	4551.23	3732.32
total inflow	**lbs/yr**	**4537.98**	**4617.89**	**4216.88**	**74983.72**	**80718.48**	**9392.24**	**108627.73**	**74488.83**	**51079.30**	**6174.58**	**1167.60**	**540.66**	**84307.79**	**16573.77**	**5674.29**	**139299.99**	**693999.66**	**29983.79**	**12642.30**	**14355.08**	**6998.13**
p removal efficiency (no inf)	%	48.00	41.00	0.00	0.00	0.00	61.00	16.00	16.00	17.00	0.00	34.00	0.00	0.00	62.00	61.00	0.00	0.00	42.00	38.00	47.00	5.00
tss removal efficiency (no inf)	%	76.00	67.00	0.00	0.00	0.00	93.00	31.43	31.43	33.39	0.00	60.25	0.00	0.00	93.00	93.00	0.00	0.00	68.00	64.00	74.00	9.82
net sedimentation	lbs/yr	3448.87	3093.99	0.00	0.00	0.00	8734.78	34140.14	23410.77	17056.84	0.00	703.48	0.00	0.00	15413.61	5277.09	0.00	0.00	20388.98	8091.07	10622.76	687.32
outflow	lbs/yr	1089.12	1523.90	4216.88	74983.72	80718.48	657.46	74487.59	51078.05	34022.46	6174.58	464.12	540.66	84307.79	1160.16	397.20	139299.99	693999.66	9594.81	4551.23	3732.32	6310.82
tss removal efficiency (inf)	%	76.00	67.00	0.00	0.00	0.00	93.00	31.43	31.43	33.39	0.00	60.25	0.00	0.00	93.00	93.00	0.00	0.00	68.00	64.00	74.00	9.82
upstream watershed tss load	lbs/yr	4537.98	4617.89	10759.73	124260.54	129995.30	9392.24	166639.33	166640.57	166641.81	6174.58	1167.60	540.66	217630.61	16573.77	5674.29	293313.52	1432746.60	29983.79	33031.28	42835.14	46100.95
tss total removal efficiency	%	76.00	67.00	60.81	39.66	37.91	93.00	55.30	69.35	79.58	0.00	60.25	0.00	61.26	93.00	93.00	52.51	51.56	68.00	86.22	91.29	86.31
INFILTRATION BMP/POND.....																						
Annual runoff infiltrated	%	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Adjusted outflow	**ac-ft/yr**	**11.96**	**12.10**	**28.21**	**300.94**	**314.60**	**23.34**	**406.04**	**406.04**	**406.04**	**16.08**	**3.08**	**1.43**	**539.34**	**43.51**	**14.95**	**736.18**	**3396.87**	**66.25**	**74.05**	**99.73**	**107.48**
Adjusted TP outflow	**lbs/yr**	**5.99**	**8.67**	**19.07**	**211.85**	**227.33**	**8.46**	**253.46**	**213.94**	**179.06**	**18.99**	**1.97**	**1.37**	**311.99**	**16.19**	**6.11**	**475.13**	**2590.28**	**42.88**	**32.69**	**34.42**	**40.68**
Adjusted TSS outflow	**lbs/yr**	**1089.12**	**1523.90**	**4216.88**	**74983.72**	**80718.48**	**657.46**	**74487.59**	**51078.05**	**34022.46**	**6174.58**	**464.12**	**540.66**	**84307.79**	**1160.16**	**397.20**	**139299.99**	**693999.66**	**9594.81**	**4551.23**	**3732.32**	**6310.82**

Rochester Loading Assessment																					
King's Run																					
363-06-158-2																					
Present (2005) LOADS																					
		kr-a2.8c cell 2	**kr-a2.8c cell 3**	**kr-a2.8b**	**kr-a2.8a**	**kr-a2.9**	**kr-a2.11c**	**kr-a2.11b**	**kr-a2.11a**	**kr-a2.12b**	**kr-a2.12a**	**kr-a2.13**	**kr-a3.5b**	**kr-a3.5a**	**kr-a2.3b**	**kr-a3.1a**	**kr-a3.1a cell 2**	**kr-a3.1a cell 3**	**kr-a3.1b**	**kr-a3.3**	**kr-a3.4c**
Routed TO:		kr-a2.8c cell 3	kr-a2.8b	kr-a2.8a	kr-a2.9	kr-a2.12a	kr-a2.11a	kr-a2.11a	kr-a2.12a	kr-a2.12a	zr-a4.7	zr-a4.7	kr-a3.5a	zr-a4.6a	kr-a3.1a	kr-a3.1a cell 2	kr-a3.1a cell 3	kr-a3.3	kr-a3.3	kr-a3.4a	kr-a3.4a
INPUT VARIABLES....	UNITS																				
case label	-																				
Watershed area	acres	0.0	0.0	11.0	8.4	160.1	43.0	17.8	63.5	3.3	250.6	320.2	52.1	156.7	32.6	111.7	0.0	0.0	36.9	157.5	1.2
basin area	acres	0.43	1.61	0.51	0.00	0.00	0.78	0.16	0.00	0.17	0.00	0.00	0.21	0.00	0.00	0.24	0.30	3.02	0.00	0.31	0.02
basin volume	acre-ft	1.75	6.57	1.98	0.00	0.00	0.00	0.00	0.00	0.68	0.00	0.00	0.00	0.00	0.00	1.07	1.31	13.33	0.00	0.82	0.02
Row Crop Agriculture		0%	0%	0%	0%	60%	0%	0%	0%	0%	2%	28%	0%	0%	0%	2%	0%	0%	1%	0%	0%
Very Low Density Residential		0%	0%	0%	0%	4%	0%	0%	0%	0%	0%	37%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Low Density Residential		0%	0%	0%	0%	11%	97%	79%	11%	0%	23%	6%	24%	34%	0%	0%	0%	0%	0%	40%	0%
Medium Density Residential		0%	0%	0%	0%	0%	0%	0%	36%	0%	2%	0%	3%	1%	0%	0%	0%	0%	0%	11%	0%
High Density Residential		0%	0%	38%	66%	3%	0%	5%	2%	0%	14%	0%	30%	16%	0%	0%	0%	0%	0%	14%	0%
Commercial/Industrial		0%	0%	0%	0%	0%	0%	0%	0%	0%	2%	0%	0%	13%	89%	69%	0%	0%	2%	6%	100%
Institutional		0%	0%	0%	0%	0%	1%	0%	0%	0%	5%	0%	5%	17%	0%	0%	0%	0%	0%	4%	0%
Open Space		100%	100%	61%	21%	13%	2%	17%	51%	100%	46%	25%	38%	12%	9%	26%	100%	100%	76%	12%	0%
Golf Course		0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Pits and Quarries		0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Right-of-Way		0%	0%	1%	13%	9%	0%	0%	0%	0%	5%	5%	0%	8%	2%	4%	0%	0%	20%	14%	0%
WATERSHED-WIDE ACCOUNTING.....																					
tributary land area	ac	244.05	244.06	255.06	263.43	423.54	42.96	17.77	124.21	3.31	7845.85	320.23	52.05	208.70	32.57	144.24	144.25	144.26	36.95	338.66	1.22
tributary water area	ac	3.29	4.91	5.42	5.42	5.42	0.78	0.16	0.94	0.17	47.73	0.00	0.21	0.21	0.00	0.24	0.54	3.56	0.00	3.88	0.02
direct and ponded area	ac	247.34	248.96	260.47	268.84	428.95	43.74	17.93	125.15	3.48	7893.59	320.23	52.26	208.91	32.57	144.48	144.78	147.82	36.95	342.54	1.24
ASSUMED EXPORT FACTORS.....																					
season length	yrs	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
season precipitation	inches	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8
runoff total p	ppb	200.00	200.00	296.99	390.42	461.82	443.60	408.59	321.93	200.01	325.75	373.44	348.78	387.35	336.92	316.40	200.00	200.00	247.95	403.76	350.00
runoff ortho p/total p	-	0.60	0.60	0.48	0.36	0.29	0.31	0.35	0.45	0.60	0.44	0.42	0.41	0.33	0.33	0.38	0.60	0.60	0.53	0.34	0.30
unit runoff	in/yr	2.54	2.54	6.80	10.62	5.04	6.70	6.38	5.79	2.54	6.20	3.78	7.42	9.07	13.34	11.09	2.54	2.54	4.08	8.37	14.56
unit export	lbs/ac-y	0.12	0.12	0.60	1.04	0.54	0.68	0.63	0.52	0.12	0.54	0.34	0.69	0.82	1.05	0.86	0.12	0.12	0.28	0.79	1.15
POND WATER BUDGETS.....																					
runoff	ac-ft/yr	0.00	0.00	6.23	7.41	67.26	23.98	9.44	30.62	0.70	129.45	100.78	32.17	118.38	36.21	103.19	0.00	0.00	12.57	109.84	1.48
upstream pond	ac-ft/yr	107.48	107.48	107.49	113.72	121.13	0.00	0.00	33.43	0.00	3650.02	0.00	0.00	32.17	0.00	36.21	139.40	139.41	0.00	151.98	0.00
total inflow	**ac-ft/yr**	**107.48**	**107.49**	**113.72**	**121.13**	**188.39**	**23.98**	**9.44**	**64.05**	**0.70**	**3779.47**	**100.78**	**32.17**	**150.54**	**36.21**	**139.40**	**139.41**	**139.41**	**12.57**	**261.82**	**1.48**
outflow	ac-ft/yr	107.48	107.49	113.72	121.13	188.39	23.98	9.44	64.05	0.70	3779.47	100.78	32.17	150.54	36.21	139.40	139.41	139.41	12.57	261.82	1.48
POND PHOSPHORUS BUDGETS.....																					
runoff	lbs/yr	0.00	0.00	6.65	8.70	86.02	29.11	11.13	32.77	0.38	135.95	110.40	35.85	128.34	34.24	96.44	0.00	0.00	10.36	125.03	1.41
upstream pond	lbs/yr	40.68	35.21	26.75	28.86	37.56	0.00	0.00	40.24	0.00	2787.07	0.00	0.00	35.85	0.00	34.24	101.72	86.04	0.00	62.94	0.00
total inflow	**lbs/yr**	**40.68**	**35.21**	**33.40**	**37.56**	**123.58**	**29.11**	**11.13**	**73.01**	**0.38**	**2923.03**	**110.40**	**35.85**	**164.18**	**34.24**	**130.69**	**101.72**	**86.05**	**10.36**	**187.97**	**1.41**
net sedimentation	lbs/yr	5.48	8.45	4.54	0.00	0.00	0.00	0.00	0.00	0.17	0.00	0.00	0.00	0.00	0.00	28.97	15.68	33.47	0.00	19.80	0.34
outflow	lbs/yr	35.21	26.75	28.86	37.56	123.58	29.11	11.13	73.01	0.21	2923.03	110.40	35.85	164.18	34.24	101.72	86.04	52.58	10.36	168.17	1.07
p removal efficiency	%	13.46	24.01	13.59	0.00	0.00	0.00	0.00	0.00	45.85	0.00	0.00	0.00	0.00	0.00	22.16	15.41	38.89	0.00	10.53	24.02
upstream w-shed p load	lbs/yr	121.88	121.88	128.53	137.23	223.25	29.11	11.13	73.01	0.38	4349.78	110.40	35.85	164.18	34.24	130.69	130.69	130.69	10.36	266.08	1.41
total removal %	%	71.11	78.05	77.55	72.63	44.64	0.00	0.00	0.00	45.85	32.80	0.00	0.00	0.00	0.00	22.16	34.16	59.77	0.00	36.80	24.02
HYDRAULIC PARAMETERS.....																					
pond mean depth	feet	4.08	4.08	3.87	1.00	1.00	0.00	0.00	1.00	4.00	1.00	1.00	0.00	1.00	1.00	4.41	4.41	4.41	1.00	2.62	0.75
relative volume	inches	26175.00	98610.00	10.07	0.00	0.00	0.00	0.00	0.00	30.85	0.00	0.00	0.00	0.00	0.00	0.33	19650.00	199995.00	0.00	0.24	0.32
residence time	years	0.02	0.06	0.02	0.00	0.00	0.00	0.00	0.00	0.97	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.10	0.00	0.00	0.01
residence time	days	5.93	22.32	6.34	0.00	0.00	0.00	0.00	0.00	354.10	0.00	0.00	0.00	0.00	0.00	2.79	3.43	34.91	0.00	1.14	3.69
overflow rate	ft/yr	251.13	66.68	222.98	12113011.47	18839462.32	30.74	59.03	6404899.26	4.12	377946595.92	10078367.10	153.18	15054316.38	3621172.71	576.05	469.38	46.12	1256954.07	836.49	74.14
inflow phos conc	ppb	139.26	120.52	108.06	114.09	241.35	446.58	433.50	419.38	200.03	284.55	403.02	410.00	401.25	347.93	344.92	268.47	227.09	303.31	264.14	350.02
outflow phos conc	ppb	120.51	91.58	93.37	114.09	241.34	446.57	433.48	419.38	108.31	284.55	403.02	409.99	401.25	347.93	268.47	227.09	138.76	303.31	236.32	265.94
p reaction rate	-	0.18	0.42	0.18	0.00	0.00	0.00	0.00	0.00	1.56	0.00	0.00	0.00	0.00	0.00	0.37	0.22	1.04	0.00	0.13	0.42
1-rp	-	0.87	0.76	0.86	1.00	1.00	1.00	1.00	1.00	0.54	1.00	1.00	1.00	1.00	1.00	0.78	0.85	0.61	1.00	0.89	0.76
vlawmo pond volume	acre-ft	0.00	0.00	0.49	0.58	5.29	1.89	0.74	2.41	0.06	10.18	7.92	2.53	9.31	2.85	8.11	0.00	0.00	0.99	8.64	0.12
LAND USE PARAMETERS.....																					
runoff total P conc	ppb	200.00	200.00	296.99	390.42	461.82	443.60	408.59	321.93	200.01	325.75	373.44	348.78	387.35	336.92	316.40	200.00	200.00	247.95	403.76	350.00
runoff coefficient		0.08	0.08	0.21	0.33	0.16	0.21	0.20	0.18	0.08	0.19	0.12	0.23	0.29	0.42	0.35	0.08	0.08	0.13	0.26	0.46
dissolved/total P		0.60	0.60	0.48	0.36	0.29	0.31	0.35	0.45	0.60	0.44	0.42	0.41	0.33	0.33	0.38	0.60	0.60	0.53	0.34	0.30
runoff TSS conc	ppm	216.00	216.00	186.33	156.14	167.09	141.66	152.59	178.93	216.00	175.69	193.15	169.11	148.74	147.07	159.99	216.00	216.00	198.31	148.88	140.00
POND TSS BUDGETS.....																					
runoff	lbs/yr	1.24	1.24	2658.18	2889.21	29012.26	9139.22	3711.89	13038.35	410.29	54303.60	49766.97	13074.92	45698.58	13871.03	40450.53	1.24	1.24	6010.73	42477.75	562.60
upstream pond	lbs/yr	6310.82	4576.24	2329.61	3616.15	6505.35	0.00	0.00	12851.11	0.00	755521.61	0.00	0.00	13074.92	0.00	13871.03	29779.86	20421.32	0.00	13158.63	0.00
total inflow	**lbs/yr**	**6312.06**	**4577.48**	**4987.79**	**6505.35**	**35517.61**	**9139.22**	**3711.89**	**25889.46**	**410.29**	**809825.21**	**49766.97**	**13074.92**	**58773.50**	**13871.03**	**54321.56**	**29781.10**	**20422.56**	**6010.73**	**55636.38**	**562.60**
p removal efficiency (no inf)	%	14.00	25.00	14.00	0.00	0.00	0.00	0.00	0.00	46.00	0.00	0.00	0.00	0.00	0.00	23.00	16.00	39.00	0.00	11.00	25.00
tss removal efficiency (no inf)	%	27.50	49.11	27.50	0.00	0.00	0.00	0.00	0.00	72.00	0.00	0.00	0.00	0.00	0.00	45.18	31.43	65.00	0.00	21.61	49.11
net sedimentation	lbs/yr	1735.82	2247.87	1371.64	0.00	0.00	0.00	0.00	0.00	295.41	0.00	0.00	0.00	0.00	0.00	24541.71	9359.77	13274.67	0.00	12021.43	276.28
outflow	lbs/yr	4576.24	2329.61	3616.15	6505.35	35517.61	9139.22	3711.89	25889.46	114.88	809825.21	49766.97	13074.92	58773.50	13871.03	29779.86	20421.32	7147.90	6010.73	43614.95	286.32
tss removal efficiency (inf)	%	27.50	49.11	27.50	0.00	0.00	0.00	0.00	0.00	72.00	0.00	0.00	0.00	0.00	0.00	45.18	31.43	65.00	0.00	21.61	49.11
upstream watershed tss load	lbs/yr	46102.19	46103.43	48761.60	51650.81	80663.07	9139.22	3711.89	25889.46	410.29	1594013.02	49766.97	13074.92	58773.50	13871.03	54321.56	54322.80	54324.04	6010.73	102812.52	562.60
tss total removal efficiency	%	90.07	94.95	92.58	87.41	55.97	0.00	0.00	0.00	72.00	49.20	0.00	0.00	0.00	0.00	45.18	62.41	86.84	0.00	57.58	49.11
INFILTRATION BMP/POND.....																					
Annual runoff infiltrated	%	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Adjusted outflow	**ac-ft/yr**	**107.48**	**107.49**	**113.72**	**121.13**	**188.39**	**23.98**	**9.44**	**64.05**	**0.70**	**3779.47**	**100.78**	**32.17**	**150.54**	**36.21**	**139.40**	**139.41**	**139.41**	**12.57**	**261.82**	**1.48**
Adjusted TP outflow	**lbs/yr**	**35.21**	**26.75**	**28.86**	**37.56**	**123.58**	**29.11**	**11.13**	**73.01**	**0.21**	**2923.03**	**110.40**	**35.85**	**164.18**	**34.24**	**101.72**	**86.04**	**52.58**	**10.36**	**168.17**	**1.07**
Adjusted TSS outflow	**lbs/yr**	**4576.24**	**2329.61**	**3616.15**	**6505.35**	**35517.61**	**9139.22**	**3711.89**	**25889.46**	**114.88**	**809825.21**	**49766.97**	**13074.92**	**58773.50**	**13871.03**	**29779.86**	**20421.32**	**7147.90**	**6010.73**	**43614.95**	**286.32**

Rochester Loading Assessment															
King's Run															
363-06-158-2															
Present (2005) LOADS															
		kr-a3.4b	**kr-a3.4a**	**kr-a3.2**	**kr-a3.6b**	**kr-a3.6a**	**kr-a3.7**	**kr-a3.8a**	**kr-a3.8b**	**exit 1**	**exit 2**	**exit 3**	**exit 4**	**exit 7**	**exit 8**
Routed TO:		kr-a3.4a	zr-a4.6a	kr-a3.6a	kr-a3.6a	kr-a3.7	zr-a4.5	zr-a4.5	zr-a4.2a	exit city	exit city	exit city	exit city	exit city	exit city
INPUT VARIABLES....	UNITS														
case label	-														
Watershed area	acres	4.0	177.7	195.1	1.1	391.8	107.6	97.0	107.4	25.0	1.9	68.1	6.6	3.8	8.1
basin area	acres	0.00	0.00	2.04	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
basin volume	acre-ft	0.00	0.00	8.52	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Row Crop Agriculture		0%	0%	37%	0%	0%	0%	0%	0%	95%	87%	48%	82%	0%	13%
Very Low Density Residential		0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	40%
Low Density Residential		0%	67%	33%	0%	71%	85%	71%	89%	0%	0%	0%	0%	45%	19%
Medium Density Residential		0%	2%	1%	0%	1%	0%	1%	0%	0%	0%	0%	0%	0%	0%
High Density Residential		0%	3%	5%	0%	3%	0%	17%	3%	0%	0%	0%	0%	0%	0%
Commercial/Industrial		48%	2%	2%	100%	4%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Institutional		0%	15%	1%	0%	8%	3%	1%	6%	0%	0%	0%	0%	0%	0%
Open Space		25%	6%	10%	0%	6%	12%	4%	0%	1%	13%	52%	0%	55%	23%
Golf Course		0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Pits and Quarries		0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Right-of-Way		27%	5%	10%	0%	7%	0%	6%	2%	4%	0%	0%	18%	0%	4%
WATERSHED-WIDE ACCOUNTING.....															
tributary land area	ac	3.95	521.57	195.11	1.12	588.00	695.61	97.01	107.44	24.99	1.87	68.13	6.62	3.79	8.11
tributary water area	ac	0.00	3.90	2.04	0.02	2.06	2.06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
direct and ponded area	ac	3.95	525.46	197.15	1.14	590.06	697.67	97.01	107.44	24.99	1.87	68.13	6.62	3.79	8.11
ASSUMED EXPORT FACTORS.....															
season length	yrs	1	1	1	1	1	1	1	1	1	1	1	1	1	1
season precipitation	inches	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8
runoff total p	ppb	326.82	415.15	449.33	350.00	418.65	418.11	435.45	442.48	531.39	496.83	361.85	515.45	312.42	361.58
runoff ortho p/total p	-	0.37	0.32	0.29	0.30	0.32	0.33	0.31	0.30	0.21	0.25	0.41	0.22	0.47	0.44
unit runoff	in/yr	10.03	7.48	6.22	14.56	7.38	6.38	7.89	7.16	4.61	4.21	3.45	5.21	4.43	4.04
unit export	lbs/ac-y	0.80	0.71	0.63	1.15	0.71	0.63	0.79	0.71	0.55	0.49	0.32	0.59	0.37	0.36
POND WATER BUDGETS.....															
runoff	ac-ft/yr	3.31	110.73	101.21	1.36	241.08	57.17	63.78	64.07	9.59	0.66	19.60	2.87	1.40	2.73
upstream pond	ac-ft/yr	0.00	266.61	0.00	0.00	102.56	343.64	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
total inflow	**ac-ft/yr**	**3.31**	**377.34**	**101.21**	**1.36**	**343.64**	**400.81**	**63.78**	**64.07**	**9.59**	**0.66**	**19.60**	**2.87**	**1.40**	**2.73**
outflow	ac-ft/yr	3.31	377.34	101.21	1.36	343.64	400.81	63.78	64.07	9.59	0.66	19.60	2.87	1.40	2.73
POND PHOSPHORUS BUDGETS.....															
runoff	lbs/yr	3.17	125.97	123.59	1.29	276.74	67.43	76.63	76.61	13.76	0.91	21.77	3.89	1.41	2.91
upstream pond	lbs/yr	0.00	172.41	0.00	0.00	50.31	327.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
total inflow	**lbs/yr**	**3.17**	**298.38**	**123.59**	**1.29**	**327.05**	**394.48**	**76.63**	**76.61**	**13.76**	**0.91**	**21.77**	**3.89**	**1.41**	**2.91**
net sedimentation	lbs/yr	0.00	0.00	74.57	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
outflow	lbs/yr	3.17	298.38	49.02	1.29	327.05	394.48	76.62	76.61	13.76	0.91	21.77	3.89	1.41	2.91
p removal efficiency	%	0.02	0.00	60.34	0.03	0.00	0.00	0.00	0.00	0.01	0.17	0.00	0.04	0.03	0.02
upstream w-shed p load	lbs/yr	3.17	396.63	123.59	1.29	401.62	469.06	76.63	76.61	13.76	0.91	21.77	3.89	1.41	2.91
total removal %	%	0.02	24.77	60.34	0.03	18.57	15.90	0.00	0.00	0.01	0.17	0.00	0.04	0.03	0.02
HYDRAULIC PARAMETERS.....															
pond mean depth	feet	1.00	1.00	4.17	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
relative volume	inches	0.00	0.00	2.68	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
residence time	years	0.00	0.00	0.08	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
residence time	days	0.00	0.00	30.71	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00
overflow rate	ft/yr	330563.60	37733926.74	49.61	67.77	34364021.03	40080835.17	6378274.15	6406843.58	959220.76	65503.16	1959913.96	287166.66	139812.84	272671.89
inflow phos conc	ppb	352.59	290.93	449.29	350.02	350.16	362.11	442.00	439.93	527.78	513.94	408.74	498.69	371.06	392.41
outflow phos conc	ppb	352.54	290.93	178.19	349.92	350.15	362.11	441.99	439.93	527.70	513.04	408.73	498.47	370.94	392.34
p reaction rate	-	0.00	0.00	3.84	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1-rp	-	1.00	1.00	0.40	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
vlawmo pond volume	acre-ft	0.26	8.71	7.96	0.11	18.95	4.49	5.01	5.04	0.75	0.05	1.54	0.23	0.11	0.21
LAND USE PARAMETERS.....															
runoff total P conc	ppb	326.82	415.15	449.33	350.00	418.65	418.11	435.45	442.48	531.39	496.83	361.85	515.45	312.42	361.58
runoff coefficient		0.32	0.24	0.20	0.46	0.23	0.20	0.25	0.23	0.14	0.13	0.11	0.16	0.14	0.13
dissolved/total P		0.37	0.32	0.29	0.30	0.32	0.33	0.31	0.30	0.21	0.25	0.41	0.22	0.47	0.44
runoff TSS conc	ppm	158.65	144.72	156.47	140.00	144.86	148.80	143.18	140.00	162.57	169.73	190.77	158.97	181.82	191.22
POND TSS BUDGETS.....															
runoff	lbs/yr	1296.51	42492.28	40966.72	514.26	92558.47	22233.51	24376.58	24307.57	4198.92	296.56	9744.45	1215.66	621.40	1308.00
upstream pond	lbs/yr	0.00	45197.78	0.00	0.00	3381.93	95940.40	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
total inflow	**lbs/yr**	**1296.51**	**87690.07**	**40966.72**	**514.26**	**95940.40**	**118173.91**	**24376.58**	**24307.57**	**4198.92**	**296.56**	**9744.45**	**1215.66**	**621.40**	**1308.00**
p removal efficiency (no inf)	%	0.00	0.00	61.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
tss removal efficiency (no inf)	%	0.00	0.00	93.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
net sedimentation	lbs/yr	0.00	0.00	38099.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
outflow	lbs/yr	1296.51	87690.07	2867.67	514.26	95940.40	118173.91	24376.58	24307.57	4198.92	296.56	9744.45	1215.66	621.40	1308.00
tss removal efficiency (inf)	%	0.00	0.00	93.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
upstream watershed tss load	lbs/yr	1296.51	147163.92	40966.72	514.26	134039.45	156272.97	24376.58	24307.57	4198.92	296.56	9744.45	1215.66	621.40	1308.00
tss total removal efficiency	%	0.00	40.41	93.00	0.00	28.42	24.38	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
INFILTRATION BMP/POND.....															
Annual runoff infiltrated	%	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Adjusted outflow	**ac-ft/yr**	**3.31**	**377.34**	**101.21**	**1.36**	**343.64**	**400.81**	**63.78**	**64.07**	**9.59**	**0.66**	**19.60**	**2.87**	**1.40**	**2.73**
Adjusted TP outflow	**lbs/yr**	**3.17**	**298.38**	**49.02**	**1.29**	**327.05**	**394.48**	**76.62**	**76.61**	**13.76**	**0.91**	**21.77**	**3.89**	**1.41**	**2.91**
Adjusted TSS outflow	**lbs/yr**	**1296.51**	**87690.07**	**2867.67**	**514.26**	**95940.40**	**118173.91**	**24376.58**	**24307.57**	**4198.92**	**296.56**	**9744.45**	**1215.66**	**621.40**	**1308.00**

Rochester Loading Assessment																								
King's Run																								
363-06-158-2																								
2020 LOADS																								
		future kr-a1.1f	**kr-a1.1f**	**future kr-a1.1e**	**kr-a1.1e**	**future kr-a1.1d**	**kr-a1.1d**	**future kr-a1.1c**	**kr-a1.1c**	**future kr-a1.1b**	**kr-a1.1b**	**future kr-a1.1a**	**kr-a1.1a**	**future kr-a1.2**	**kr-a1.2**	**future kr-a1.4b**	**kr-a1.4b**	**future kr-a1.4a**	**kr-a1.4a**	**future kr-a1.7f**	**kr-a1.7f**	**future kr-a1.7e**	**kr-a1.7e**	**future kr-a1.7d**	**kr-a1.7d**
		kr-a1.1f	kr-a1.1d	kr-a1.1e	kr-a1.1d	kr-a1.1d	kr-a1.1a	kr-a1.1c	kr-a1.1b	kr-a1.1b	kr-a1.1a	kr-a1.1a	kr-a1.4a	kr-a1.2	kr-a1.4a	kr-a1.4b	kr-a1.4a	kr-a1.4a	kr-a1.11a	kr-a1.7f	kr-a1.11a	kr-a1.7e	kr-a1.7a	kr-a1.7d	kr-a1.7e
INPUT VARIABLES....	UNITS																							
case label	-																							
Watershed area	acres	0.0	146.9	0.0	134.0	0.0	389.0	0.0	44.5	0.0	303.8	0.0	419.3	106.6	251.7	0.0	63.9	85.3	188.3	35.7	39.2	34.8	49.9	0.0	12.9
basin area	acres	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.67	0.00	0.00	0.00	0.63	11.40	0.36	4.10	0.40	3.80	0.00	0.13
basin volume	acre-ft	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.93	0.00	0.00	0.00	2.61	16.60	1.10	5.30	1.32	5.85	0.00	0.00
Row Crop Agriculture		0%	69%	0%	73%	0%	69%	0%	39%	0%	46%	0%	81%	0%	77%	0%	90%	0%	34%	0%	0%	0%	0%	0%	0%
Very Low Density Residential		0%	3%	0%	6%	0%	3%	0%	11%	0%	4%	0%	4%	0%	3%	0%	3%	0%	4%	0%	4%	0%	4%	0%	0%
Low Density Residential		0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	100%	0%	0%	0%	70%	41%	51%	64%	49%	77%	0%	0%
Medium Density Residential		0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	26%	0%	39%	0%	21%	0%	0%	0%
High Density Residential		0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	11%	0%	0%	0%
Commercial/Industrial		0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	10%	0%	0%	0%
Institutional		0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	26%	0%	2%	0%	65%
Open Space		0%	24%	0%	20%	0%	26%	0%	43%	0%	47%	0%	11%	0%	16%	0%	6%	4%	17%	10%	1%	9%	11%	0%	35%
Golf Course		0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Pits and Quarries		0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Right-of-Way		0%	4%	0%	1%	0%	2%	0%	7%	0%	2%	0%	3%	0%	4%	0%	1%	0%	4%	0%	5%	0%	6%	0%	0%
WATERSHED-WIDE ACCOUNTING.....																								
tributary land area	ac	0.00	146.87	0.00	134.03	0.00	669.93	0.00	44.54	0.00	348.33	0.00	1437.52	106.63	358.36	0.00	63.92	85.30	2133.38	35.67	74.89	34.83	97.61	0.00	12.85
tributary water area	ac	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.67	0.67	0.00	0.00	0.63	12.70	0.36	4.46	0.40	4.33	0.00	0.13
direct and ponded area	ac	0.00	146.87	0.00	134.03	0.00	669.93	0.00	44.54	0.00	348.33	0.00	1437.52	107.31	359.04	0.00	63.92	85.92	2146.08	36.03	79.35	35.23	101.94	0.00	12.98
ASSUMED EXPORT FACTORS.....																								
season length	yrs	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
season precipitation	inches	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80
runoff total p	ppb	0.00	445.50	0.00	455.13	0.00	443.17	0.00	357.76	0.00	365.72	0.00	486.20	391.50	473.98	0.00	509.81	384.61	405.20	371.51	376.31	370.45	366.52	0.00	297.78
runoff ortho p/total p	-	0.00	0.31	0.00	0.30	0.00	0.31	0.00	0.41	0.00	0.40	0.00	0.26	0.30	0.28	0.00	0.24	0.31	0.33	0.33	0.31	0.33	0.34	0.00	0.40
unit runoff	in/yr	0.00	4.11	0.00	4.03	0.00	4.01	0.00	3.75	0.00	3.59	0.00	4.32	6.74	4.30	0.00	4.35	7.37	5.18	7.46	7.47	8.53	6.31	0.00	7.23
unit export	lbs/ac-y	0.00	0.44	0.00	0.44	0.00	0.43	0.00	0.34	0.00	0.33	0.00	0.49	0.60	0.48	0.00	0.51	0.65	0.49	0.65	0.64	0.73	0.54	0.00	0.54
POND WATER BUDGETS.....																								
runoff	ac-ft/yr	0.00	50.34	0.00	45.03	0.00	129.98	0.00	13.94	0.00	90.96	0.00	150.94	59.92	90.21	0.00	23.16	52.37	81.21	22.18	24.41	24.76	26.27	0.00	7.74
upstream pond	ac-ft/yr	0.00	0.00	0.00	0.00	0.00	95.38	0.00	0.00	0.00	13.94	0.00	330.26	0.00	59.92	0.00	0.00	0.00	706.86	0.00	22.18	0.00	32.51	0.00	0.00
total inflow	**ac-ft/yr**	**0.00**	**50.34**	**0.00**	**45.03**	**0.00**	**225.36**	**0.00**	**13.94**	**0.00**	**104.90**	**0.00**	**481.20**	**59.92**	**150.13**	**0.00**	**23.16**	**52.37**	**788.07**	**22.18**	**46.59**	**24.76**	**58.77**	**0.00**	**7.74**
outflow	ac-ft/yr	0.00	50.34	0.00	45.03	0.00	225.36	0.00	13.94	0.00	104.90	0.00	481.20	59.92	150.13	0.00	23.16	52.37	788.07	22.18	46.59	24.76	58.77	0.00	7.74
POND PHOSPHORUS BUDGETS.....																								
runoff	lbs/yr	0.00	64.67	0.00	59.03	0.00	167.23	0.00	15.08	0.00	101.21	0.00	205.27	63.77	120.49	0.00	32.67	55.39	92.00	23.19	24.95	25.53	27.19	0.00	6.98
upstream pond	lbs/yr	0.00	0.00	0.00	0.00	0.00	123.69	0.00	0.00	0.00	15.08	0.00	407.21	0.00	29.97	0.00	0.00	0.00	822.04	0.00	11.83	0.00	19.68	0.00	0.00
total inflow	**lbs/yr**	**0.00**	**64.67**	**0.00**	**59.03**	**0.00**	**290.93**	**0.00**	**15.08**	**0.00**	**116.29**	**0.00**	**612.49**	**63.77**	**150.47**	**0.00**	**32.67**	**55.39**	**914.05**	**23.19**	**36.78**	**25.53**	**46.87**	**0.00**	**6.98**
net sedimentation	lbs/yr	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	33.80	0.00	0.00	0.00	28.97	340.36	11.36	15.38	12.83	19.72	0.00	0.00
outflow	lbs/yr	0.00	64.67	0.00	59.03	0.00	290.93	0.00	15.08	0.00	116.29	0.00	612.49	29.97	150.47	0.00	32.67	26.43	573.68	11.83	21.40	12.70	27.15	0.00	6.98
p removal efficiency	%	3.78	0.00	3.78	0.00	3.78	0.00	3.78	0.00	3.78	0.00	3.78	0.00	53.00	0.00	3.78	0.01	52.29	37.24	48.99	41.80	50.26	42.08	3.78	0.00
upstream w-shed p load	lbs/yr	0.00	64.67	0.00	59.03	0.00	290.93	0.00	15.08	0.00	116.29	0.00	612.49	63.77	184.26	0.00	32.67	55.39	976.82	23.19	48.14	25.53	59.71	0.00	6.98
total removal %	%	3.78	0.00	3.78	0.00	3.78	0.00	3.78	0.00	3.78	0.00	3.78	0.00	53.00	18.34	3.78	0.01	52.29	41.27	48.99	55.54	50.26	54.53	3.78	0.00
HYDRAULIC PARAMETERS.....																								
pond mean depth	feet	0.00	1.00	0.00	1.00	0.00	1.00	0.00	1.00	0.00	1.00	0.00	1.00	4.35	1.00	0.00	1.00	4.17	1.46	3.05	1.29	3.29	1.54	0.00	0.00
relative volume	inches	1.58	0.00	1.58	0.00	1.58	0.00	1.58	0.00	1.58	0.00	1.58	0.00	1.56	0.00	1.58	0.00	1.59	6.50	1.57	6.90	1.69	7.08	1.58	0.00
residence time	years	0.05	0.00	0.05	0.00	0.05	0.00	0.05	0.00	0.05	0.00	0.05	0.00	0.05	0.00	0.05	0.00	0.05	0.02	0.05	0.11	0.05	0.10	0.05	0.00
residence time	days	18.08	0.00	18.08	0.00	18.08	0.00	18.08	0.00	18.08	0.00	18.08	0.00	17.86	0.00	18.08	0.00	18.20	7.69	18.05	41.52	19.42	36.33	18.08	0.00
overflow rate	ft/yr	0.00	5034477.77	0.00	4503278.41	0.00	22535990.27	0.00	1393554.32	0.00	10489572.72	0.00	48119768.11	88.91	15013399.61	0.00	2315648.50	83.66	69.13	61.60	11.36	61.90	15.47	0.00	59.57
inflow phos conc	ppb	384.34	472.58	384.34	482.26	384.34	474.96	384.34	398.02	384.34	407.88	384.34	468.30	391.52	368.73	384.34	519.04	389.14	426.73	384.71	290.45	379.41	293.43	384.34	331.65
outflow phos conc	ppb	369.82	472.58	369.82	482.25	369.82	474.96	369.82	398.00	369.82	407.88	369.82	468.30	184.02	368.73	369.82	519.01	185.64	267.83	196.25	169.03	188.72	169.97	369.82	331.63
p reaction rate	-	0.04	0.00	0.04	0.00	0.04	0.00	0.04	0.00	0.04	0.00	0.04	0.00	2.40	0.00	0.04	0.00	2.30	0.95	1.88	1.23	2.03	1.25	0.04	0.00
1-rp	-	0.96	1.00	0.96	1.00	0.96	1.00	0.96	1.00	0.96	1.00	0.96	1.00	0.47	1.00	0.96	1.00	0.48	0.63	0.51	0.58	0.50	0.58	0.96	1.00
vlawmo pond volume	acre-ft	0.00	3.96	0.00	3.54	0.00	10.22	0.00	1.10	0.00	7.15	0.00	11.87	4.71	7.09	0.00	1.82	4.12	6.38	1.74	1.92	1.95	2.07	0.00	0.61
LAND USE PARAMETERS.....																								
runoff total P conc	ppb	0.00	445.50	0.00	455.13	0.00	443.17	0.00	357.76	0.00	365.72	0.00	486.20	391.50	473.98	0.00	509.81	384.61	405.20	371.51	376.31	370.45	366.52	0.00	297.78
runoff coefficient		0.00	0.13	0.00	0.13	0.00	0.13	0.00	0.12	0.00	0.11	0.00	0.14	0.21	0.14	0.00	0.14	0.23	0.16	0.23	0.23	0.27	0.20	0.00	0.23
dissolved/total P		0.00	0.31	0.00	0.30	0.00	0.31	0.00	0.41	0.00	0.40	0.00	0.26	0.30	0.28	0.00	0.24	0.31	0.33	0.33	0.31	0.33	0.34	0.00	0.40
runoff TSS conc	ppm	0.00	176.54	0.00	176.60	0.00	177.64	0.00	190.19	0.00	189.78	0.00	170.53	140.00	171.79	0.00	167.54	142.74	164.06	147.93	143.43	146.71	151.50	0.00	166.46
POND TSS BUDGETS.....																								
runoff	lbs/yr	0.00	23223.98	0.00	20924.98	0.00	60489.84	0.00	6780.36	0.00	44682.04	0.00	68114.37	22735.46	40801.56	0.00	10376.86	20003.92	34103.43	8576.72	9349.78	9528.67	10310.90	0.00	3133.41
upstream pond	lbs/yr	0.00	0.00	0.00	0.00	0.00	44148.96	0.00	0.00	0.00	6780.36	0.00	156101.20	0.00	1591.48	0.00	0.00	0.00	278685.81	0.00	1286.51	0.00	4324.50	0.00	0.00
total inflow	**lbs/yr**	**0.00**	**23223.98**	**0.00**	**20924.98**	**0.00**	**104638.80**	**0.00**	**6780.36**	**0.00**	**51462.40**	**0.00**	**224215.57**	**22735.46**	**42393.04**	**0.00**	**10376.86**	**20003.92**	**312789.25**	**8576.72**	**10636.29**	**9528.67**	**14635.40**	**0.00**	**3133.41**
p removal efficiency (no inf)	%	5.00	0.00	5.00	0.00	5.00	0.00	5.00	0.00	5.00	0.00	5.00	0.00	56.00	0.00	5.00	0.00	55.00	38.00	52.00	44.00	53.00	44.00	5.00	0.00
tss removal efficiency (no inf)	%	9.82	0.00	9.82	0.00	9.82	0.00	9.82	0.00	9.82	0.00	9.82	0.00	93.00	0.00	9.82	0.00	91.50	64.00	85.00	69.33	87.50	69.33	9.82	0.00
net sedimentation	lbs/yr	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	21143.98	0.00	0.00	0.00	18303.59	200185.12	7290.21	7374.50	8337.59	10147.21	0.00	0.00
outflow	lbs/yr	0.00	23223.98	0.00	20924.98	0.00	104638.80	0.00	6780.36	0.00	51462.40	0.00	224215.57	1591.48	42393.04	0.00	10376.86	1700.33	112604.13	1286.51	3261.80	1191.08	4488.19	0.00	3133.41
tss removal efficiency (inf)	%	9.82	0.00	9.82	0.00	9.82	0.00	9.82	0.00	9.82	0.00	9.82	0.00	93.00	0.00	9.82	0.00	91.50	64.00	85.00	69.33	87.50	69.33	9.82	0.00
upstream watershed tss load	lbs/yr	0.00	23223.98	0.00	20924.98	0.00	104638.80	0.00	6780.36	0.00	51462.40	0.00	224215.57	22735.46	63537.02	0.00	10376.86	20003.92	352236.82	8576.72	17926.50	9528.67	22972.99	0.00	3133.41
tss total removal efficiency	%	9.82	0.00	9.82	0.00	9.82	0.00	9.82	0.00	9.82	0.00	9.82	0.00	93.00	33.28	9.82	0.00	91.50	68.03	85.00	81.80	87.50	80.46	9.82	0.00
INFILTRATION BMP/POND.....																								
Annual runoff infiltrated	%	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Adjusted outflow	**ac-ft/yr**	**0.00**	**50.34**	**0.00**	**45.03**	**0.00**	**225.36**	**0.00**	**13.94**	**0.00**	**104.90**	**0.00**	**481.20**	**59.92**	**150.13**	**0.00**	**23.16**	**52.37**	**788.07**	**22.18**	**46.59**	**24.76**	**58.77**	**0.00**	**7.74**
Adjusted TP outflow	**lbs/yr**	**0.00**	**64.67**	**0.00**	**59.03**	**0.00**	**290.93**	**0.00**	**15.08**	**0.00**	**116.29**	**0.00**	**612.49**	**29.97**	**150.47**	**0.00**	**32.67**	**26.43**	**573.68**	**11.83**	**21.40**	**12.70**	**27.15**	**0.00**	**6.98**
Adjusted TSS outflow	**lbs/yr**	**0.00**	**23223.98**	**0.00**	**20924.98**	**0.00**	**104638.80**	**0.00**	**6780.36**	**0.00**	**51462.40**	**0.00**	**224215.57**	**1591.48**	**42393.04**	**0.00**	**10376.86**	**1700.33**	**112604.13**	**1286.51**	**3261.80**	**1191.08**	**4488.19**	**0.00**	**3133.41**
POND P BUDGETS W/O P-BAN.....																								
runoff	lbs/yr	0.00	64.82	0.00	59.27	0.00	167.58	0.00	15.22	0.00	101.63	0.00	205.82	73.30	120.71	0.00	32.72	63.62	99.08	26.59	27.23	28.70	30.70	0.00	6.98
Adjusted TP outflow	**lbs/yr**	**0.00**	**64.82**	**0.00**	**59.26**	**0.00**	**291.66**	**0.00**	**15.22**	**0.00**	**116.85**	**0.00**	**614.33**	**32.81**	**153.52**	**0.00**	**32.72**	**28.92**	**580.31**	**12.96**	**22.78**	**13.72**	**28.96**	**0.00**	**6.98**
upstream pond	lbs/yr	0.00	0.00	0.00	0.00	0.00	124.08	0.00	0.00	0.00	15.22	0.00	408.51	0.00	32.81	0.00	0.00	0.00	829.49	0.00	12.96	0.00	20.70	0.00	0.00
total inflow	**lbs/yr**	**0.00**	**64.82**	**0.00**	**59.27**	**0.00**	**291.66**	**0.00**	**15.22**	**0.00**	**116.85**	**0.00**	**614.33**	**73.30**	**153.52**	**0.00**	**32.72**	**63.62**	**928.58**	**26.59**	**40.19**	**28.70**	**51.40**	**0.00**	**6.98**
outflow	lbs/yr	0.00	64.82	0.00	59.26	0.00	291.66	0.00	15.22	0.00	116.85	0.00	614.33	32.81	153.52	0.00	32.72	28.92	580.31	12.96	22.78	13.72	28.96	0.00	6.98
inflow phos conc	ppb	409.24	473.68	409.24	484.20	409.24	476.16	409.24	401.95	409.24	409.85	409.24	469.71	450.02	376.21	409.24	519.87	446.92	433.51	441.13	317.38	426.41	321.74	409.24	331.65
outflow phos conc	ppb	392.86	473.67	392.86	484.19	392.86	476.16	392.86	401.94	392.86	409.85	392.86	469.71	201.42	376.21	392.86	519.85	203.17	270.92	214.98	179.88	203.87	181.28	392.86	331.63
p reaction rate	-	0.04	0.00	0.04	0.00	0.04	0.00	0.04	0.00	0.04	0.00	0.04	0.00	2.76	0.00	0.04	0.00	2.64	0.96	2.16	1.35	2.28	1.38	0.04	0.00
1-rp	-	0.96	1.00	0.96	1.00	0.96	1.00	0.96	1.00	0.96	1.00	0.96	1.00	0.45	1.00	0.96	1.00	0.45	0.62	0.49	0.57	0.48	0.56	0.96	1.00
runoff total p conc	ppb	0.00	447.01	0.00	457.75	0.00	444.49	0.00	362.72	0.00	367.73	0.00	488.15	450.00	475.28	0.00	511.03	441.00	430.91	423.90	415.30	417.95	413.38	0.00	297.78

Rochester Loading Assessm																							
King's Run																							
363-06-158-2																							
2020 LOADS																							
	future kr-a1.7a	kr-a1.7a	kr-a1.7a cell 2	kr-a1.7a cell 3	future kr-a1.7c	kr-a1.7c	kr-a1.7c cell 2	kr-a1.7c cell 3	future kr-a1.7b	kr-a1.7b	future kr-a1.3b	kr-a1.3b	future kr-a1.3a	kr-a1.3a	future kr-a1.5b	kr-a1.5b	kr-a1.5b cell 2	future kr-a1.5c	kr-a1.5c	kr-a1.5c cell 2	kr-a1.5c cell 3	future kr-a1.5a	kr-a1.5a	future kr-a1.6
	kr-a1.7a	kr-a1.7a cell 2	kr-a1.7a cell 3	kr-a1.7b	kr-a1.7c	kr-a1.7c cell 2	kr-a1.7c cell 3	kr-a1.7b	kr-a1.7b	kr-a1.11a cell 3	kr-a1.3b	kr-a1.3a	kr-a1.3a	kr-a1.5a	kr-a1.5b	kr-a1.5b cell 2	kr-a1.5a	kr-a1.5c	kr-a1.5c cell 2	kr-a1.5c cell 3	kr-a1.5a	kr-a1.5a	kr-a1.6	kr-a1.6
INPUT VARIABLES....																							
case label																							
Watershed area	3.8	13.7	0.0	0.0	0.0	22.5	0.0	0.0	0.0	15.4	0.0	247.0	0.0	8.3	22.1	42.3	0.0	2.4	43.4	0.0	0.0	30.1	212.6	0.9
basin area	0.12	0.45	0.36	0.60	0.00	0.24	0.01	0.11	0.00	0.00	0.00	0.00	0.00	0.00	0.25	0.41	0.66	0.04	0.17	0.29	0.48	0.31	0.00	0.00
basin volume	0.30	1.33	1.06	1.76	0.00	0.00	0.01	0.38	0.00	0.00	0.00	0.00	0.00	0.00	0.61	0.94	2.05	0.07	0.36	0.62	1.02	0.84	0.00	0.04
Row Crop Agriculture	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	74%	0%	86%	0%	17%	0%	0%	0%	0%	0%	0%	62%	0%
Very Low Density Residential	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	7%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	8%	0%
Low Density Residential	0%	0%	0%	0%	0%	13%	0%	0%	0%	0%	0%	0%	0%	0%	100%	67%	0%	96%	72%	0%	0%	98%	1%	0%
Medium Density Residential	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	4%	0%	0%	0%	2%	0%	100%
High Density Residential	0%	43%	0%	0%	0%	85%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Commercial/Industrial	100%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Institutional	0%	6%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Open Space	0%	18%	100%	100%	0%	0%	100%	100%	0%	89%	0%	15%	0%	0%	0%	6%	100%	0%	26%	100%	100%	0%	26%	0%
Golf Course	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Pits and Quarries	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Right-of-Way	0%	33%	0%	0%	0%	2%	0%	0%	0%	11%	0%	4%	0%	14%	0%	9%	0%	0%	2%	0%	0%	0%	3%	0%
WATERSHED-WIDE ACCOUNTI																							
tributary land area	3.79	115.14	115.15	115.16	0.00	22.55	22.56	22.57	0.00	153.08	0.00	246.95	0.00	255.27	22.11	64.36	64.37	2.41	45.77	45.78	45.79	30.07	608.09	0.86
tributary water area	0.12	4.90	5.26	5.86	0.00	0.24	0.25	0.36	0.00	6.22	0.00	0.00	0.00	0.00	0.25	0.66	1.32	0.04	0.21	0.50	0.99	0.31	2.61	0.00
direct and ponded area	3.92	120.04	120.41	121.02	0.00	22.79	22.81	22.93	0.00	159.30	0.00	246.95	0.00	255.27	22.36	65.02	65.69	2.45	45.98	46.28	46.78	30.38	610.70	0.86
ASSUMED EXPORT FACTORS..																							
season length	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
season precipitation	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80
runoff total p	349.37	358.10	200.00	200.00	0.00	392.05	200.00	200.00	0.00	221.33	0.00	467.77	0.00	520.98	391.50	406.25	200.00	391.50	342.44	200.00	200.00	391.50	427.28	391.50
runoff ortho p/total p	0.30	0.35	0.60	0.60	0.00	0.30	0.60	0.60	0.00	0.57	0.00	0.28	0.00	0.21	0.30	0.30	0.60	0.30	0.38	0.60	0.60	0.30	0.33	0.30
unit runoff	14.51	9.78	2.54	2.54	0.00	12.59	2.54	2.54	0.00	3.21	0.00	4.23	0.00	5.04	6.74	6.27	2.54	6.86	5.70	2.54	2.54	6.80	4.01	9.74
unit export	1.15	0.85	0.12	0.12	0.00	1.12	0.12	0.12	0.00	0.19	0.00	0.47	0.00	0.58	0.60	0.58	0.12	0.61	0.48	0.12	0.12	0.60	0.42	0.86
POND WATER BUDGETS.....																							
runoff	4.59	11.20	0.00	0.00	0.00	23.66	0.00	0.00	0.00	4.11	0.00	87.09	0.00	3.49	12.42	22.08	0.00	1.38	20.59	0.00	0.00	17.03	71.08	0.70
upstream pond	0.00	63.36	74.56	74.56	0.00	0.00	23.66	23.66	0.00	98.23	0.00	0.00	0.00	87.09	0.00	12.42	34.51	0.00	1.38	21.96	21.96	0.00	164.09	0.00
total inflow	**4.59**	**74.56**	**74.56**	**74.56**	**0.00**	**23.66**	**23.66**	**23.66**	**0.00**	**102.33**	**0.00**	**87.09**	**0.00**	**90.58**	**12.42**	**34.51**	**34.51**	**1.38**	**21.96**	**21.96**	**21.97**	**17.03**	**235.17**	**0.70**
outflow	4.59	74.56	74.56	74.56	0.00	23.66	23.66	23.66	0.00	102.33	0.00	87.09	0.00	90.58	12.42	34.51	34.51	1.38	21.96	21.96	21.97	17.03	235.17	0.70
POND PHOSPHORUS BUDGETS																							
runoff	4.36	11.65	0.00	0.00	0.00	25.19	0.00	0.00	0.00	2.88	0.00	115.25	0.00	4.81	13.22	24.37	0.00	1.46	20.68	0.00	0.00	18.13	88.41	0.74
upstream pond	0.00	29.35	30.66	26.77	0.00	0.00	25.18	24.81	0.00	40.96	0.00	0.00	0.00	115.25	0.00	6.71	18.68	0.00	0.79	14.79	11.27	0.00	150.79	0.00
total inflow	**4.36**	**41.00**	**30.66**	**26.78**	**0.00**	**25.19**	**25.18**	**24.81**	**0.00**	**43.84**	**0.00**	**115.25**	**0.00**	**120.06**	**13.22**	**31.08**	**18.68**	**1.46**	**21.48**	**14.79**	**11.27**	**18.13**	**239.20**	**0.74**
net sedimentation	2.16	10.34	3.89	4.13	0.00	0.01	0.37	6.50	0.00	0.00	0.00	0.00	0.00	0.00	6.51	12.40	5.55	0.67	6.69	3.53	2.72	9.07	0.00	0.45
outflow	2.20	30.66	26.77	22.65	0.00	25.18	24.81	18.31	0.00	43.84	0.00	115.25	0.00	120.06	6.71	18.68	13.13	0.79	14.79	11.27	8.55	9.05	239.20	0.29
p removal efficiency	49.52	25.22	12.68	15.42	3.78	0.02	1.47	26.19	3.78	0.00	3.78	0.00	3.78	0.00	49.23	39.90	29.73	45.74	31.13	23.84	24.10	50.07	0.00	60.59
upstream w-shed p load	4.36	75.72	75.72	75.72	0.00	25.19	25.19	25.19	0.00	103.79	0.00	115.25	0.00	120.06	13.22	37.59	37.59	1.46	22.15	22.15	22.15	18.13	286.34	0.74
total removal %	49.52	59.51	64.64	70.09	3.78	0.02	1.49	27.29	3.78	57.76	3.78	0.00	3.78	0.00	49.23	50.31	65.08	45.74	33.21	49.13	61.39	50.07	16.46	60.59
HYDRAULIC PARAMETERS.....																							
pond mean depth	2.41	2.95	2.95	2.95	0.00	0.00	1.00	3.45	0.00	1.00	0.00	1.00	0.00	1.00	2.45	2.29	3.11	1.63	2.12	2.12	2.12	2.72	1.00	3713.67
relative volume	2.07	3.77	15945.00	26355.00	1.58	0.00	150.00	5700.00	1.58	0.00	1.58	0.00	1.58	0.00	1.56	1.35	30750.00	1.56	0.56	9240.00	15330.00	1.56	0.00	1.70
residence time	0.07	0.02	0.01	0.02	0.05	0.00	0.00	0.02	0.05	0.00	0.05	0.00	0.05	0.00	0.05	0.03	0.06	0.05	0.02	0.03	0.05	0.05	0.00	0.05
residence time	23.80	6.51	5.20	8.60	18.08	0.00	0.15	5.86	18.08	0.00	18.08	0.00	18.08	0.00	17.86	9.94	21.68	17.95	6.02	10.24	16.98	17.90	0.00	19.50
overflow rate	36.91	165.68	207.11	125.31	0.00	98.58	2366.18	215.13	0.00	10233082.04	0.00	8708779.46	0.00	9058047.81	49.98	84.16	52.29	33.22	128.43	75.48	45.48	55.54	23516623.26	69528.20
inflow phos conc	349.91	202.33	151.30	132.12	384.34	391.66	391.56	385.78	384.34	157.63	384.34	486.90	384.34	487.67	391.52	331.41	199.16	391.52	359.83	247.82	188.73	391.52	374.23	391.52
outflow phos conc	176.63	151.30	132.12	111.75	369.82	391.58	385.80	284.75	369.82	157.63	369.82	486.90	369.82	487.66	198.78	199.16	139.96	212.43	247.82	188.73	143.25	195.51	374.23	154.30
p reaction rate	1.94	0.45	0.17	0.22	0.04	0.00	0.02	0.48	0.04	0.00	0.04	0.00	0.04	0.00	1.91	1.10	0.60	1.55	0.66	0.41	0.42	2.01	0.00	3.90
1-rp	0.50	0.75	0.87	0.85	0.96	1.00	0.99	0.74	0.96	1.00	0.96	1.00	0.96	1.00	0.51	0.60	0.70	0.54	0.69	0.76	0.76	0.50	1.00	0.39
vlawmo pond volume	0.36	0.88	0.00	0.00	0.00	1.86	0.00	0.00	0.00	0.32	0.00	6.85	0.00	0.27	0.98	1.74	0.00	0.11	1.62	0.00	0.00	1.34	5.59	0.05
LAND USE PARAMETERS.....																							
runoff total P conc	349.37	358.10	200.00	200.00	0.00	392.05	200.00	200.00	0.00	221.33	0.00	467.77	0.00	520.98	391.50	406.25	200.00	391.50	342.44	200.00	200.00	391.50	427.28	391.50
runoff coefficient	0.46	0.31	0.08	0.08	0.00	0.40	0.08	0.08	0.00	0.10	0.00	0.13	0.00	0.16	0.21	0.20	0.08	0.22	0.18	0.08	0.08	0.21	0.13	0.31
dissolved/total P	0.30	0.35	0.60	0.60	0.00	0.30	0.60	0.60	0.00	0.57	0.00	0.28	0.00	0.21	0.30	0.30	0.60	0.30	0.38	0.60	0.60	0.30	0.33	0.30
runoff TSS conc	140.32	153.93	216.00	216.00	0.00	140.12	216.00	216.00	0.00	207.89	0.00	173.73	0.00	159.88	140.00	148.75	216.00	140.00	159.84	216.00	216.00	140.00	179.80	140.00
POND TSS BUDGETS.....																							
runoff	1741.29	4356.28	1.24	1.24	0.00	8976.49	1.24	1.24	0.00	2156.58	0.00	39779.30	0.00	1491.34	4713.91	8662.50	1.24	522.19	8303.99	1.24	1.24	6462.35	33252.97	263.79
upstream pond	0.00	4819.03	4309.12	3125.01	0.00	0.00	8976.49	8625.04	0.00	5950.06	0.00	0.00	0.00	39779.30	0.00	707.09	2998.27	0.00	112.27	3345.46	1637.49	0.00	44151.29	0.00
total inflow	**1741.29**	**9175.32**	**4310.36**	**3126.25**	**0.00**	**8976.49**	**8977.74**	**8626.28**	**0.00**	**8106.64**	**0.00**	**39779.30**	**0.00**	**41270.65**	**4713.91**	**9369.59**	**2999.51**	**522.19**	**8416.26**	**3346.70**	**1638.74**	**6462.35**	**77404.26**	**263.79**
p removal efficiency (no inf)	50.00	27.00	14.00	16.00	5.00	0.00	2.00	29.00	5.00	0.00	5.00	0.00	5.00	0.00	52.00	42.00	31.00	49.00	34.00	26.00	26.00	53.00	0.00	63.00
tss removal efficiency (no inf)	81.00	53.04	27.50	31.43	9.82	0.00	3.93	55.88	9.82	0.00	9.82	0.00	9.82	0.00	85.00	68.00	57.63	78.50	60.25	51.07	51.07	87.50	0.00	93.00
net sedimentation	1410.44	4866.20	1185.35	982.54	0.00	0.00	352.70	4819.93	0.00	0.00	0.00	0.00	0.00	4006.82	6371.32	1728.47	409.92	5070.80	1709.21	836.93	5654.55	0.00	0.00	245.32
outflow	330.84	4309.12	3125.01	2143.72	0.00	8976.49	8625.04	3806.35	0.00	8106.64	0.00	39779.30	0.00	41270.65	707.09	2998.27	1271.04	112.27	3345.46	1637.49	801.81	807.79	77404.26	18.47
tss removal efficiency (inf)	81.00	53.04	27.50	31.43	9.82	0.00	3.93	55.88	9.82	0.00	9.82	0.00	9.82	0.00	85.00	68.00	57.63	78.50	60.25	51.07	51.07	87.50	0.00	93.00
upstream watershed tss load	1741.29	29070.56	29071.80	29073.04	0.00	8976.49	8977.74	8978.98	0.00	40208.60	0.00	39779.30	0.00	41270.65	4713.91	13376.41	13377.66	522.19	8826.17	8827.42	8828.66	6462.35	103192.28	263.79
tss total removal efficiency	81.00	85.18	89.25	92.63	9.82	0.00	3.93	57.61	9.82	79.84	9.82	0.00	9.82	0.00	85.00	77.59	90.50	78.50	62.10	81.45	90.92	87.50	24.99	93.00
INFILTRATION BMP/POND.....																							
Annual runoff infiltrated	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Adjusted outflow	**4.59**	**74.56**	**74.56**	**74.56**	**0.00**	**23.66**	**23.66**	**23.66**	**0.00**	**102.33**	**0.00**	**87.09**	**0.00**	**90.58**	**12.42**	**34.51**	**34.51**	**1.38**	**21.96**	**21.96**	**21.97**	**17.03**	**235.17**	**0.70**
Adjusted TP outflow	**2.20**	**30.66**	**26.77**	**22.65**	**0.00**	**25.18**	**24.81**	**18.31**	**0.00**	**43.84**	**0.00**	**115.25**	**0.00**	**120.06**	**6.71**	**18.68**	**13.13**	**0.79**	**14.79**	**11.27**	**8.55**	**9.05**	**239.20**	**0.29**
Adjusted TSS outflow	**330.84**	**4309.12**	**3125.01**	**2143.72**	**0.00**	**8976.49**	**8625.04**	**3806.35**	**0.00**	**8106.64**	**0.00**	**39779.30**	**0.00**	**41270.65**	**707.09**	**2998.27**	**1271.04**	**112.27**	**3345.46**	**1637.49**	**801.81**	**807.79**	**77404.26**	**18.47**
POND P BUDGETS W/O P-BAN.																							
runoff	4.36	12.71	0.00	0.00	0.00	28.89	0.00	0.00	0.00	2.88	0.00	115.81	0.00	4.81	15.20	26.92	0.00	1.68	23.48	0.00	0.00	20.83	89.14	0.85
Adjusted TP outflow	**2.20**	**32.36**	**28.08**	**23.60**	**0.00**	**28.88**	**28.39**	**20.36**	**0.00**	**46.84**	**0.00**	**115.81**	**0.00**	**120.62**	**7.36**	**20.03**	**13.85**	**0.87**	**16.27**	**12.16**	**9.09**	**9.92**	**242.62**	**0.32**
upstream pond	0.00	31.16	32.36	28.08	0.00	0.00	28.88	28.39	0.00	43.96	0.00	0.00	0.00	115.81	0.00	7.36	20.03	0.00	0.87	16.27	12.16	0.00	153.48	0.00
total inflow	**4.36**	**43.87**	**32.36**	**28.08**	**0.00**	**28.89**	**28.88**	**28.39**	**0.00**	**46.84**	**0.00**	**115.81**	**0.00**	**120.62**	**15.20**	**34.28**	**20.03**	**1.68**	**24.35**	**16.27**	**12.16**	**20.83**	**242.62**	**0.85**
outflow	2.20	32.36	28.08	23.60	0.00	28.88	28.39	20.36	0.00	46.84	0.00	115.81	0.00	120.62	7.36	20.03	13.85	0.87	16.27	12.16	9.09	9.92	242.62	0.32
inflow phos conc	349.91	216.49	159.67	138.57	409.24	449.18	449.04	441.47	409.24	168.42	409.24	489.25	409.24	489.93	450.02	365.52	213.52	450.02	407.99	272.53	203.70	450.02	379.58	450.02
outflow phos conc	176.63	159.67	138.56	116.44	392.86	449.07	441.50	316.58	392.86	168.42	392.86	489.25	392.86	489.92	218.07	213.52	147.63	233.55	272.53	203.70	152.29	214.37	379.58	168.18
p reaction rate	1.94	0.48	0.18	0.23	0.04	0.00	0.02	0.55	0.04	0.00	0.04	0.00	0.04	0.00	2.20	1.22	0.65	1.79	0.74	0.45	0.45	2.31	0.00	4.48
1-rp	0.50	0.74	0.87	0.84	0.96	1.00	0.98	0.72	0.96	1.00	0.96	1.00	0.96	1.00	0.48	0.58	0.69	0.52	0.67	0.75	0.75	0.48	1.00	0.37
runoff total p conc	349.37	383.26	200.00	200.00	0.00	449.18	200.00	200.00	0.00	221.33	0.00	471.10	0.00	520.98	450.00	445.78	200.00	450.00	384.75	200.00	200.00	450.00	431.48	450.00

Rochester Loading Assessm																								
King's Run																								
363-06-158-2																								
2020 LOADS																								
	kr-a1.6	kr-a1.6 cell 2	kr-a1.6 cell 2	future kr-a1.11c	kr-a1.11c	future kr-a1.11b	kr-a1.11b	future kr-a1.10d	kr-a1.10d	future kr-a1.10c	kr-a1.10c	future kr-a1.10b	kr-a1.10b	future kr-a1.10a	kr-a1.10a	future kr-a1.12b	kr-a1.12b	future kr-a1.11d	kr-a1.11d	kr-a1.11d cell 2	future kr-a1.11a	kr-a1.11a	kr-a1.11a cell 2	kr-a1.11a cell 3	kr-a1.11a cell 4
	kr-a1.6 cell 2	kr-a1.6 cell 3	kr-a1.11a	kr-a1.11c	kr-a1.11b	kr-a1.11b	kr-a1.11a	kr-a1.10d	kr-a1.10a	kr-a1.10c	kr-a1.10a	kr-a1.10b	kr-a1.10a	kr-a1.10a	kr-a1.11d	kr-a1.12b	kr-a1.11d	kr-a1.11d	kr-a1.11d cell 2	kr-a1.11a	kr-a1.11a	kr-a1.11a cell 2	kr-a1.11a cell 3	kr-a1.11a cell 4	kr-a1.16a
INPUT VARIABLES....																								
case label																								
Watershed area	69.0	0.0	0.0	2.9	0.9	12.7	17.4	0.0	6.5	0.0	13.4	4.0	3.2	18.4	25.6	0.0	11.8	10.7	32.7	0.0	0.0	61.4	0.0	0.0	0.0
basin area	0.10	0.36	0.82	0.04	0.34	0.12	0.50	0.00	0.10	0.00	0.19	0.04	0.13	0.21	2.05	0.00	0.14	0.12	0.14	0.29	0.00	0.51	0.64	1.14	1.24
basin volume	0.07	2.42	5.36	0.08	1.36	0.35	2.00	0.00	0.19	0.00	0.56	0.11	0.32	0.50	11.10	0.00	0.39	0.29	0.38	0.79	0.00	2.34	3.05	5.83	8.10
Row Crop Agriculture	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Very Low Density Residential	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	6%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Low Density Residential	12%	0%	0%	100%	62%	100%	36%	0%	88%	0%	91%	100%	86%	100%	29%	0%	96%	100%	71%	0%	0%	74%	0%	0%	0%
Medium Density Residential	1%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
High Density Residential	74%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	10%	0%	0%	0%
Commercial/Industrial	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Institutional	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Open Space	8%	100%	100%	0%	0%	0%	51%	0%	10%	0%	5%	0%	14%	0%	59%	0%	4%	0%	29%	100%	0%	12%	100%	100%	100%
Golf Course	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Pits and Quarries	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Right-of-Way	5%	0%	0%	0%	38%	0%	13%	0%	1%	0%	4%	0%	0%	0%	7%	0%	0%	0%	0%	0%	0%	4%	0%	0%	0%
WATERSHED-WIDE ACCOUNTII																								
tributary land area	677.96	677.97	677.97	2.93	3.81	12.70	33.88	0.00	6.47	0.00	13.36	3.95	7.16	18.35	70.94	0.00	11.80	10.68	126.08	126.09	0.00	3107.64	3107.65	3260.74	3260.75
tributary water area	2.71	3.07	3.53	0.04	0.38	0.12	1.01	0.00	0.10	0.00	0.19	0.04	0.17	0.21	2.72	0.00	0.14	0.12	3.12	3.41	0.00	25.62	26.26	33.62	34.86
direct and ponded area	680.67	681.04	681.50	2.97	4.19	12.82	34.89	0.00	6.57	0.00	13.55	3.99	7.33	18.56	73.66	0.00	11.94	10.80	129.20	129.50	0.00	3133.26	3133.91	3294.36	3295.61
ASSUMED EXPORT FACTORS...																									
season length	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
season precipitation	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80
runoff total p	375.88	200.00	200.00	391.50	394.73	391.50	295.25	0.00	371.53	0.00	382.53	391.50	365.33	391.50	274.36	0.00	383.43	391.50	336.86	200.00	0.00	369.22	200.00	200.00	200.00
runoff ortho p/total p	0.33	0.60	0.60	0.30	0.30	0.30	0.45	0.00	0.33	0.00	0.31	0.30	0.34	0.30	0.49	0.00	0.31	0.30	0.39	0.60	0.00	0.34	0.60	0.60	0.60
unit runoff	11.61	2.54	2.54	6.74	7.52	6.74	4.88	0.00	6.33	0.00	6.63	6.74	6.17	6.74	4.20	0.00	6.57	6.74	5.54	2.54	0.00	7.04	2.54	2.54	2.54
unit export	1.02	0.12	0.12	0.60	0.67	0.60	0.38	0.00	0.55	0.00	0.58	0.60	0.53	0.60	0.30	0.00	0.58	0.60	0.46	0.12	0.00	0.61	0.12	0.12	0.12
POND WATER BUDGETS.....																									
runoff	66.76	0.00	0.00	1.65	0.55	7.14	7.07	0.00	3.41	0.00	7.37	2.22	1.65	10.31	8.95	0.00	6.46	6.00	15.09	0.00	0.00	36.02	0.00	0.00	0.00
upstream pond	235.86	302.62	302.62	0.00	1.65	0.00	9.33	0.00	0.00	0.00	0.00	0.00	2.22	0.00	24.97	0.00	0.00	0.00	46.38	61.47	0.00	1215.15	1251.17	1353.51	1353.51
total inflow	**302.62**	**302.62**	**302.62**	**1.65**	**2.20**	**7.14**	**16.40**	**0.00**	**3.41**	**0.00**	**7.37**	**2.22**	**3.87**	**10.31**	**33.92**	**0.00**	**6.46**	**6.00**	**61.47**	**61.47**	**0.00**	**1251.17**	**1251.18**	**1353.51**	**1353.51**
outflow	302.62	302.62	302.62	1.65	2.20	7.14	16.40	0.00	3.41	0.00	7.37	2.22	3.87	10.31	33.92	0.00	6.46	6.00	61.47	61.47	0.00	1251.17	1251.18	1353.51	1353.51
POND PHOSPHORUS BUDGETS																									
runoff	70.45	0.00	0.00	1.75	0.59	7.59	6.58	0.00	3.56	0.00	7.79	2.36	1.71	10.97	7.81	0.00	6.82	6.39	15.03	0.00	0.00	37.56	0.00	0.00	0.00
upstream pond	239.49	305.49	305.49	0.00	0.92	0.00	4.38	0.00	0.00	0.00	0.00	0.00	1.19	0.00	12.71	0.00	0.00	0.00	16.38	27.71	0.00	844.39	821.19	825.09	763.63
total inflow	**309.95**	**305.49**	**305.49**	**1.75**	**1.52**	**7.59**	**10.96**	**0.00**	**3.56**	**0.00**	**7.79**	**2.36**	**2.89**	**10.97**	**20.52**	**0.00**	**6.82**	**6.39**	**31.41**	**27.71**	**0.00**	**881.95**	**821.19**	**825.09**	**763.63**
net sedimentation	4.45	54.39	86.33	0.83	0.91	3.82	5.06	0.00	1.63	0.00	4.16	1.18	1.30	5.40	10.73	0.00	3.48	3.13	3.70	3.47	0.00	60.76	39.94	61.46	70.20
outflow	305.49	251.10	219.16	0.92	0.60	3.78	5.90	0.00	1.93	0.00	3.62	1.19	1.59	5.58	9.79	0.00	3.34	3.26	27.71	24.24	0.00	821.19	781.25	763.63	693.43
p removal efficiency	1.44	17.80	28.26	47.32	60.12	50.27	46.17	3.78	45.76	3.78	53.48	49.76	45.10	49.20	52.30	3.78	51.06	48.95	11.79	12.53	3.78	6.89	4.86	7.45	9.19
upstream w-shed p load	357.54	357.54	357.54	1.75	2.34	7.59	16.52	0.00	3.56	0.00	7.79	2.36	4.07	10.97	34.19	0.00	6.82	6.39	62.42	62.42	0.00	1499.01	1499.01	1602.80	1602.80
total removal %	14.56	29.77	38.70	47.32	74.23	50.27	64.27	3.78	45.76	3.78	53.48	49.76	60.97	49.20	71.37	3.78	51.06	48.95	55.61	61.17	3.78	45.22	47.88	52.36	56.74
HYDRAULIC PARAMETERS.....																									
pond mean depth	0.70	6.72	6.54	1.95	4.00	2.81	4.00	0.00	1.87	0.00	2.95	2.62	2.43	2.44	5.41	0.00	2.75	2.36	2.70	2.70	0.00	4.59	4.77	5.11	6.53
relative volume	0.03	36300.00	80400.00	1.56	78.55	1.56	9.00	1.58	1.74	1.58	2.41	1.56	6.10	1.56	39.44	1.58	1.90	1.56	0.79	11775.00	1.58	2.07	45750.00	87450.00	121500.00
residence time	0.00	0.01	0.02	0.05	0.62	0.05	0.12	0.05	0.05	0.05	0.08	0.05	0.08	0.05	0.33	0.05	0.06	0.05	0.01	0.01	0.05	0.00	0.00	0.00	0.01
residence time	0.08	2.92	6.46	17.86	225.81	17.86	44.51	18.08	19.97	18.08	27.72	17.86	29.81	17.86	119.45	18.08	21.76	17.86	2.23	4.66	18.08	0.68	0.89	1.57	2.18
overflow rate	3026.18	840.61	369.05	39.76	6.47	57.41	32.80	0.00	34.11	0.00	38.82	53.61	29.76	49.78	16.55	0.00	46.12	48.28	442.21	211.23	0.00	2453.28	1954.96	1187.29	1091.54
inflow phos conc	376.83	371.41	371.41	391.52	253.59	391.52	245.98	384.34	383.58	384.34	388.42	391.52	275.07	391.52	222.57	384.34	388.40	391.52	188.02	165.85	384.34	259.35	241.48	224.28	207.57
outflow phos conc	371.41	305.28	266.45	206.24	101.13	194.72	132.42	369.82	208.04	369.82	180.68	196.69	151.02	198.91	106.16	369.82	190.08	199.86	165.85	145.06	369.82	241.48	229.73	207.57	188.49
p reaction rate	0.01	0.26	0.55	1.71	3.78	2.03	1.59	0.04	1.56	0.04	2.47	1.97	1.50	1.91	2.30	0.04	2.13	1.88	0.15	0.16	0.04	0.08	0.05	0.09	0.11
1-rp	0.99	0.82	0.72	0.53	0.40	0.50	0.54	0.96	0.54	0.96	0.47	0.50	0.55	0.51	0.48	0.96	0.49	0.51	0.88	0.87	0.96	0.93	0.95	0.93	0.91
vlawmo pond volume	5.25	0.00	0.00	0.13	0.04	0.56	0.56	0.00	0.27	0.00	0.58	0.17	0.13	0.81	0.70	0.00	0.51	0.47	1.19	0.00	0.00	2.83	0.00	0.00	0.00
LAND USE PARAMETERS.....																									
runoff total P conc	375.88	200.00	200.00	391.50	394.73	391.50	295.25	0.00	371.53	0.00	382.53	391.50	365.33	391.50	274.36	0.00	383.43	391.50	336.86	200.00	0.00	369.22	200.00	200.00	200.00
runoff coefficient	0.36	0.08	0.08	0.21	0.24	0.21	0.15	0.00	0.20	0.00	0.21	0.21	0.19	0.21	0.13	0.00	0.21	0.21	0.17	0.08	0.00	0.22	0.08	0.08	0.08
dissolved/total P	0.33	0.60	0.60	0.30	0.30	0.30	0.45	0.00	0.33	0.00	0.31	0.30	0.34	0.30	0.49	0.00	0.31	0.30	0.39	0.60	0.00	0.34	0.60	0.60	0.60
runoff TSS conc	146.40	216.00	216.00	140.00	140.00	140.00	178.65	0.00	147.96	0.00	143.70	140.00	150.39	140.00	189.00	0.00	143.20	140.00	161.77	216.00	0.00	149.11	216.00	216.00	216.00
POND TSS BUDGETS.....																									
runoff	25580.33	1.24	1.24	625.14	208.90	2707.37	3066.76	0.00	1323.70	0.00	2826.49	842.83	644.33	3912.45	4127.31	0.00	2471.64	2276.47	6133.41	1.24	0.00	13985.46	1.24	1.24	1.24
upstream pond	77422.73	98956.51	98956.51	0.00	118.78	0.00	361.36	0.00	0.00	0.00	0.00	0.00	105.35	0.00	1249.24	0.00	0.00	0.00	1126.29	5405.89	0.00	164273.95	150247.22	143598.56	121034.11
total inflow	**103003.06**	**98957.76**	**98957.76**	**625.14**	**327.68**	**2707.37**	**3428.11**	**0.00**	**1323.70**	**0.00**	**2826.49**	**842.83**	**749.69**	**3912.45**	**5376.55**	**0.00**	**2471.64**	**2276.47**	**7259.70**	**5407.13**	**0.00**	**178259.41**	**150248.46**	**143599.80**	**121035.36**
p removal efficiency (no inf)	2.00	19.00	29.00	50.00	62.00	53.00	48.00	5.00	49.00	5.00	56.00	53.00	48.00	52.00	54.00	5.00	54.00	52.00	13.00	14.00	5.00	8.00	5.00	8.00	10.00
tss removal efficiency (no inf)	3.93	37.32	55.88	81.00	93.00	87.50	76.00	9.82	78.50	9.82	93.00	87.50	76.00	85.00	90.00	9.82	90.00	85.00	25.54	27.50	9.82	15.71	9.82	15.71	19.64
net sedimentation	4046.55	36932.45	55292.65	506.36	304.74	2368.95	2605.37	0.00	1039.10	0.00	2628.64	737.47	569.76	3325.58	4838.89	0.00	2224.47	1935.00	1853.82	1486.96	0.00	28012.19	14756.55	22565.68	23774.80
outflow	98956.51	62025.31	43665.11	118.78	22.94	338.42	822.75	0.00	284.59	0.00	197.85	105.35	179.93	586.87	537.65	0.00	247.16	341.47	5405.89	3920.17	0.00	150247.22	135491.91	121034.11	97260.55
tss removal efficiency (inf)	3.93	37.32	55.88	81.00	93.00	87.50	76.00	9.82	78.50	9.82	93.00	87.50	76.00	85.00	90.00	9.82	90.00	85.00	25.54	27.50	9.82	15.71	9.82	15.71	19.64
upstream watershed tss load	129036.40	129037.64	129037.64	625.14	834.04	2707.37	6608.16	0.00	1323.70	0.00	2826.49	842.83	1487.16	3912.45	13677.10	0.00	2471.64	2276.47	24558.62	24559.86	0.00	544354.45	544355.69	584565.53	584566.77
tss total removal efficiency	23.31	51.93	66.16	81.00	97.25	87.50	87.55	9.82	78.50	9.82	93.00	87.50	87.90	85.00	96.07	9.82	90.00	85.00	77.99	84.04	9.82	72.40	75.11	79.30	83.36
INFILTRATION BMP/POND.....																									
Annual runoff infiltrated	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Adjusted outflow	**302.62**	**302.62**	**302.62**	**1.65**	**2.20**	**7.14**	**16.40**	**0.00**	**3.41**	**0.00**	**7.37**	**2.22**	**3.87**	**10.31**	**33.92**	**0.00**	**6.46**	**6.00**	**61.47**	**61.47**	**0.00**	**1251.17**	**1251.18**	**1353.51**	**1353.51**
Adjusted TP outflow	**305.49**	**251.10**	**219.16**	**0.92**	**0.60**	**3.78**	**5.90**	**0.00**	**1.93**	**0.00**	**3.62**	**1.19**	**1.59**	**5.58**	**9.79**	**0.00**	**3.34**	**3.26**	**27.71**	**24.24**	**0.00**	**821.19**	**781.25**	**763.63**	**693.43**
Adjusted TSS outflow	**98956.51**	**62025.31**	**43665.11**	**118.78**	**22.94**	**338.42**	**822.75**	**0.00**	**284.59**	**0.00**	**197.85**	**105.35**	**179.93**	**586.87**	**537.65**	**0.00**	**247.16**	**341.47**	**5405.89**	**3920.17**	**0.00**	**150247.22**	**135491.91**	**121034.11**	**97260.55**
POND P BUDGETS W/O P-BAN.																									
runoff	80.49	0.00	0.00	2.02	0.64	8.73	7.14	0.00	4.07	0.00	8.87	2.72	1.95	12.61	8.51	0.00	7.83	7.34	17.11	0.00	0.00	42.79	0.00	0.00	0.00
Adjusted TP outflow	**318.59**	**260.19**	**226.43**	**1.01**	**0.64**	**4.14**	**6.25**	**0.00**	**2.11**	**0.00**	**3.94**	**1.30**	**1.72**	**6.12**	**10.36**	**0.00**	**3.65**	**3.58**	**30.28**	**26.22**	**0.00**	**841.04**	**799.24**	**781.68**	**708.41**
upstream pond	242.94	318.59	318.59	0.00	1.01	0.00	4.78	0.00	0.00	0.00	0.00	0.00	1.30	0.00	13.89	0.00	0.00	0.00	17.59	30.28	0.00	861.99	841.04	846.08	781.68
total inflow	**323.43**	**318.59**	**318.59**	**2.02**	**1.65**	**8.73**	**11.92**	**0.00**	**4.07**	**0.00**	**8.87**	**2.72**	**3.25**	**12.61**	**22.40**	**0.00**	**7.83**	**7.34**	**34.71**	**30.29**	**0.00**	**904.77**	**841.04**	**846.08**	**781.68**
outflow	318.59	260.19	226.43	1.01	0.64	4.14	6.25	0.00	2.11	0.00	3.94	1.30	1.72	6.12	10.36	0.00	3.65	3.58	30.28	26.22	0.00	841.04	799.24	781.68	708.41
inflow phos conc	393.22	387.33	387.33	450.02	276.93	450.02	267.33	409.24	438.72	409.24	442.53	450.02	309.49	450.02	242.98	409.24	445.94	450.02	207.75	181.27	409.24	266.06	247.31	229.99	212.48
outflow phos conc	387.33	316.33	275.29	226.52	106.83	213.48	140.14	392.86	227.95	392.86	196.59	215.70	163.71	218.21	112.43	392.86	208.15	219.29	181.27	156.94	392.86	247.31	235.02	212.48	192.56
p reaction rate	0.02	0.27	0.57	1.96	4.13	2.34	1.73	0.04	1.78	0.04	2.82	2.27	1.68	2.19	2.51	0.04	2.45	2.16	0.17	0.18	0.04	0.08	0.06	0.09	0.11
1-rp	0.99	0.82	0.71	0.50	0.39	0.47	0.52	0.96	0.52	0.96	0.44	0.48	0.53	0.48	0.46	0.96	0.47	0.49	0.87	0.87	0.96	0.93	0.95	0.92	0.91
runoff total p conc	426.70	200.00	200.00	450.00	430.94	450.00	316.13	0.00	423.25	0.00	435.69	450.00	415.83	450.00	293.75	0.00	439.47	450.00	378.65	200.00	0.00	418.67	200.00	200.00	200.00

Rochester Loading Assessm																								
King's Run																								
363-06-158-2																								
2020 LOADS																								
	future kr-a1.12a	kr-a1.12a	future kr-a1.13	kr-a1.13	future kr-a1.14	kr-a1.14	future kr-a1.8a	kr-a1.8a	future kr-a1.8b	kr-a1.8b	future kr-a1.8d	kr-a1.8d	kr-a1.8d cell 2	future kr-a1.8c	kr-a1.8c	future kr-a1.9b	kr-a1.9b	kr-a1.9b cell 2	future kr-a1.9a	kr-a1.9a	future kr-a1.16b	kr-a1.16b	future kr-a1.16c	kr-a1.16c	future kr-a1.16a
	kr-a1.12a	kr-a1.13	kr-a1.13	kr-a1.16a	kr-a1.14	kr-a1.16a	kr-a1.8a	kr-a1.8c	kr-a1.8b	kr-a1.8c	kr-a1.8d	kr-a1.8d cell 2	kr-a1.8c	kr-a1.8c	kr-a1.9a	kr-a1.9b	kr-a1.9b cell 2	kr-a1.9a	kr-a1.9a	kr-a1.16a	kr-a1.16b	kr-a1.16a	kr-a1.16c	kr-a1.16a	kr-a1.16a
INPUT VARIABLES....																								
case label																								
Watershed area	0.0	67.2	2.5	106.6	0.0	26.2	0.0	138.4	43.9	56.6	0.0	27.1	0.0	236.3	232.7	1.2	37.3	0.0	0.0	273.4	0.0	10.8	0.0	24.1	8.7
basin area	0.00	2.19	0.04	1.31	0.00	0.31	0.00	0.00	0.52	0.00	0.00	0.09	0.64	1.20	0.00	0.04	0.03	0.06	0.00	0.00	0.00	0.46	0.00	0.06	0.17
basin volume	0.00	0.00	0.09	0.00	0.00	1.18	0.00	0.00	1.92	0.00	0.00	0.24	1.65	6.59	0.00	0.05	0.02	0.03	0.00	0.00	0.00	1.15	0.00	0.00	0.38
Row Crop Agriculture	0%	0%	0%	0%	0%	0%	0%	89%	0%	71%	0%	0%	0%	0%	35%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Very Low Density Residential	0%	0%	0%	0%	0%	0%	0%	3%	0%	6%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Low Density Residential	0%	89%	42%	91%	0%	90%	0%	0%	22%	3%	0%	89%	0%	98%	23%	0%	77%	0%	0%	3%	0%	0%	0%	97%	0%
Medium Density Residential	0%	0%	58%	0%	0%	0%	0%	0%	61%	0%	0%	0%	0%	2%	0%	100%	0%	0%	0%	0%	0%	0%	0%	0%	100%
High Density Residential	0%	1%	0%	0%	0%	0%	0%	0%	17%	0%	0%	0%	0%	0%	0%	0%	5%	0%	0%	0%	0%	0%	0%	0%	0%
Commercial/Industrial	0%	0%	0%	0%	0%	8%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Institutional	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	8%	0%	0%	0%	0%	95%	0%	0%	0%
Open Space	0%	10%	0%	9%	0%	0%	0%	1%	0%	7%	0%	11%	100%	0%	40%	0%	1%	100%	0%	44%	0%	5%	0%	3%	0%
Golf Course	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	4%	0%	0%	50%	0%	0%	0%	0%	0%
Pits and Quarries	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Right-of-Way	0%	1%	0%	1%	0%	2%	0%	6%	0%	13%	0%	0%	0%	0%	2%	0%	5%	0%	0%	3%	0%	0%	0%	0%	0%
WATERSHED-WIDE ACCOUNTII																								
tributary land area	0.00	67.23	2.50	176.33	0.00	26.16	0.00	138.39	43.88	100.47	0.00	27.10	27.11	236.25	734.88	1.17	38.52	38.53	0.00	1046.85	0.00	10.80	0.00	24.08	8.74
tributary water area	0.00	2.19	0.04	3.54	0.00	0.31	0.00	0.00	0.52	0.52	0.00	0.09	0.73	1.20	2.45	0.04	0.07	0.13	0.00	2.59	0.00	0.46	0.00	0.06	0.17
direct and ponded area	0.00	69.42	2.54	179.87	0.00	26.47	0.00	138.39	44.40	100.99	0.00	27.19	27.84	237.46	737.33	1.21	38.59	38.66	0.00	1049.43	0.00	11.26	0.00	24.14	8.91
ASSUMED EXPORT FACTORS...																								
season length	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
season precipitation	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80
runoff total p	0.00	372.02	391.50	375.26	0.00	388.55	0.00	518.33	391.50	480.80	0.00	369.89	200.00	391.50	367.99	391.50	391.65	200.00	0.00	385.58	0.00	343.17	0.00	384.91	391.50
runoff ortho p/total p	0.00	0.33	0.30	0.33	0.00	0.30	0.00	0.22	0.30	0.26	0.00	0.33	0.60	0.30	0.38	0.30	0.32	0.60	0.00	0.63	0.00	0.31	0.00	0.31	0.30
unit runoff	0.00	6.37	8.47	6.40	0.00	7.38	0.00	4.66	9.74	4.88	0.00	6.27	2.54	6.82	4.30	9.74	7.21	2.54	0.00	3.08	0.00	9.39	0.00	6.60	9.74
unit export	0.00	0.55	0.75	0.56	0.00	0.64	0.00	0.54	0.86	0.53	0.00	0.54	0.12	0.60	0.39	0.86	0.63	0.12	0.00	0.28	0.00	0.74	0.00	0.58	0.86
POND WATER BUDGETS.....																								
runoff	0.00	35.71	1.76	56.84	0.00	16.09	0.00	53.73	35.62	23.02	0.00	14.16	0.00	134.20	83.44	0.95	22.43	0.00	0.00	70.29	0.00	8.46	0.00	13.24	7.09
upstream pond	0.00	0.00	0.00	37.47	0.00	0.00	0.00	0.00	0.00	35.62	0.00	0.00	14.16	0.00	260.73	0.00	0.95	23.38	0.00	367.55	0.00	0.00	0.00	0.00	0.00
total inflow	**0.00**	**35.71**	**1.76**	**94.31**	**0.00**	**16.09**	**0.00**	**53.73**	**35.62**	**58.64**	**0.00**	**14.16**	**14.16**	**134.20**	**344.17**	**0.95**	**23.38**	**23.39**	**0.00**	**437.85**	**0.00**	**8.46**	**0.00**	**13.24**	**7.09**
outflow	0.00	35.71	1.76	94.31	0.00	16.09	0.00	53.73	35.62	58.64	0.00	14.16	14.16	134.20	344.17	0.95	23.38	23.39	0.00	437.85	0.00	8.46	0.00	13.24	7.09
POND PHOSPHORUS BUDGETS																								
runoff	0.00	37.25	1.87	59.49	0.00	16.87	0.00	75.24	37.90	30.07	0.00	14.72	0.00	142.81	90.98	1.01	23.71	0.00	0.00	76.09	0.00	8.00	0.00	14.00	7.55
upstream pond	0.00	0.00	0.00	38.21	0.00	0.00	0.00	0.00	0.00	17.79	0.00	0.00	9.51	0.00	194.58	0.00	0.57	23.20	0.00	307.85	0.00	0.00	0.00	0.00	0.00
total inflow	**0.00**	**37.25**	**1.87**	**97.70**	**0.00**	**16.87**	**0.00**	**75.24**	**37.90**	**47.86**	**0.00**	**14.72**	**9.51**	**142.81**	**285.55**	**1.01**	**24.28**	**23.20**	**0.00**	**383.94**	**0.00**	**8.00**	**0.00**	**14.00**	**7.55**
net sedimentation	0.00	0.00	0.92	0.00	0.00	9.42	0.00	0.00	20.11	0.00	0.00	5.21	3.47	77.37	0.00	0.44	1.08	0.90	0.00	0.00	0.00	4.30	0.00	0.00	3.73
outflow	0.00	37.25	0.96	97.70	0.00	7.44	0.00	75.24	17.79	47.86	0.00	9.51	6.04	65.44	285.55	0.57	23.20	22.30	0.00	383.94	0.00	3.71	0.00	14.00	3.82
p removal efficiency	3.78	0.00	48.89	0.00	3.78	55.86	3.78	0.00	53.06	0.00	3.78	35.41	36.53	54.18	0.00	43.28	4.45	3.89	3.78	0.00	3.78	53.70	3.78	0.00	49.43
upstream w-shed p load	0.00	37.25	1.87	98.62	0.00	16.87	0.00	75.24	37.90	67.97	0.00	14.72	14.72	142.81	391.72	1.01	24.72	24.72	0.00	492.53	0.00	8.00	0.00	14.00	7.55
total removal %	3.78	0.00	48.89	0.93	3.78	55.86	3.78	0.00	53.06	29.59	3.78	35.41	59.00	54.18	27.10	43.28	6.14	9.79	3.78	22.05	3.78	53.70	3.78	0.00	49.43
HYDRAULIC PARAMETERS.....																								
pond mean depth	0.00	0.00	2.21	0.00	0.00	3.81	0.00	1.00	3.68	1.00	0.00	2.59	2.59	5.48	1.00	1.23	0.56	0.55	0.00	1.00	0.00	2.50	0.00	0.00	2.29
relative volume	1.58	0.00	1.65	0.00	1.58	2.33	1.58	0.00	1.72	0.00	1.58	0.54	24735.00	1.56	0.00	1.70	0.03	480.00	1.58	0.00	1.58	4.32	1.58	0.00	1.70
residence time	0.05	0.00	0.05	0.00	0.05	0.07	0.05	0.00	0.05	0.00	0.05	0.02	0.12	0.05	0.00	0.05	0.00	0.00	0.05	0.00	0.05	0.14	0.05	0.00	0.05
residence time	18.08	0.00	18.94	0.00	18.08	26.76	18.08	0.00	19.72	0.00	18.08	6.21	42.51	17.92	0.00	19.50	0.28	0.50	18.08	0.00	18.08	49.64	18.08	0.00	19.50
overflow rate	0.00	16.31	42.51	71.99	0.00	51.92	0.00	5373244.95	68.16	5863832.04	0.00	152.21	22.22	111.72	34416534.66	22.95	730.78	403.22	0.00	43784691.79	0.00	18.38	0.00	220.74	42.79
inflow phos conc	384.34	383.79	391.52	381.15	384.34	385.56	384.34	515.21	391.52	300.28	384.34	382.69	247.19	391.52	305.26	391.52	382.01	365.01	384.34	322.62	384.34	348.23	384.34	388.98	391.52
outflow phos conc	369.82	383.79	200.09	381.15	369.82	170.18	369.82	515.20	183.78	300.28	369.82	247.20	156.88	179.41	305.26	222.06	365.02	350.83	369.82	322.62	369.82	161.24	369.82	388.96	197.99
p reaction rate	0.04	0.00	1.87	0.00	0.04	2.87	0.04	0.00	2.41	0.00	0.04	0.85	0.91	2.58	0.00	1.35	0.05	0.04	0.04	0.00	0.04	2.50	0.04	0.00	1.93
1-rp	0.96	1.00	0.51	1.00	0.96	0.44	0.96	1.00	0.47	1.00	0.96	0.65	0.63	0.46	1.00	0.57	0.96	0.96	0.96	1.00	0.96	0.46	0.96	1.00	0.51
vlawmo pond volume	0.00	2.81	0.14	4.47	0.00	1.27	0.00	4.22	2.80	1.81	0.00	1.11	0.00	10.55	6.56	0.07	1.76	0.00	0.00	5.53	0.00	0.66	0.00	1.04	0.56
LAND USE PARAMETERS.....																								
runoff total P conc	0.00	372.02	391.50	375.26	0.00	388.55	0.00	518.33	391.50	480.80	0.00	369.89	200.00	391.50	367.99	391.50	391.65	200.00	0.00	385.58	0.00	343.17	0.00	384.91	391.50
runoff coefficient	0.00	0.20	0.27	0.20	0.00	0.23	0.00	0.15	0.31	0.15	0.00	0.20	0.08	0.21	0.14	0.31	0.23	0.08	0.00	0.10	0.00	0.30	0.00	0.21	0.31
dissolved/total P	0.00	0.33	0.30	0.33	0.00	0.30	0.00	0.22	0.30	0.26	0.00	0.33	0.60	0.30	0.38	0.30	0.32	0.60	0.00	0.63	0.00	0.31	0.00	0.31	0.30
runoff TSS conc	0.00	147.75	140.00	146.46	0.00	140.00	0.00	163.95	140.00	165.89	0.00	148.69	216.00	140.00	178.40	140.00	143.90	216.00	0.00	211.22	0.00	143.52	0.00	142.62	140.00
POND TSS BUDGETS.....																								
runoff	0.00	13847.44	668.30	21959.70	0.00	6106.06	0.00	23541.27	13512.71	10001.10	0.00	5504.84	1.24	50915.88	37605.43	360.75	8604.67	1.24	0.00	38870.81	0.00	3230.00	0.00	5061.15	2690.47
upstream pond	0.00	0.00	0.00	13947.69	0.00	0.00	0.00	0.00	0.00	945.89	0.00	0.00	1981.74	0.00	38746.42	0.00	101.01	7850.66	0.00	83432.58	0.00	0.00	0.00	0.00	0.00
total inflow	**0.00**	**13847.44**	**668.30**	**35907.39**	**0.00**	**6106.06**	**0.00**	**23541.27**	**13512.71**	**10946.99**	**0.00**	**5504.84**	**1982.98**	**50915.88**	**76351.85**	**360.75**	**8705.68**	**7851.90**	**0.00**	**122303.39**	**0.00**	**3230.00**	**0.00**	**5061.15**	**2690.47**
p removal efficiency (no inf)	5.00	0.00	52.00	0.00	5.00	58.00	5.00	0.00	56.00	0.00	5.00	38.00	39.00	57.00	0.00	46.00	5.00	5.00	5.00	0.00	5.00	54.00	5.00	0.00	52.00
tss removal efficiency (no inf)	9.82	0.00	85.00	0.00	9.82	93.00	9.82	0.00	93.00	0.00	9.82	64.00	65.00	93.00	0.00	72.00	9.82	9.82	9.82	0.00	9.82	90.00	9.82	0.00	85.00
net sedimentation	0.00	0.00	568.05	0.00	0.00	5678.64	0.00	0.00	12566.82	0.00	0.00	3523.10	1288.94	47351.77	0.00	259.74	855.02	771.17	0.00	0.00	0.00	2907.00	0.00	0.00	2286.90
outflow	0.00	13847.44	100.24	35907.39	0.00	427.42	0.00	23541.27	945.89	10946.99	0.00	1981.74	694.04	3564.11	76351.85	101.01	7850.66	7080.73	0.00	122303.39	0.00	323.00	0.00	5061.15	403.57
tss removal efficiency (inf)	9.82	0.00	85.00	0.00	9.82	93.00	9.82	0.00	93.00	0.00	9.82	64.00	65.00	93.00	0.00	72.00	9.82	9.82	9.82	0.00	9.82	90.00	9.82	0.00	85.00
upstream watershed tss load	0.00	13847.44	668.30	36475.44	0.00	6106.06	0.00	23541.27	13512.71	23513.82	0.00	5504.84	5506.08	50915.88	141082.48	360.75	8965.42	8966.66	0.00	188919.95	0.00	3230.00	0.00	5061.15	2690.47
tss total removal efficiency	9.82	0.00	85.00	1.56	9.82	93.00	9.82	0.00	93.00	53.44	9.82	64.00	87.39	93.00	45.88	72.00	12.43	21.03	9.82	35.26	9.82	90.00	9.82	0.00	85.00
INFILTRATION BMP/POND.....																								
Annual runoff infiltrated	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Adjusted outflow	**0.00**	**35.71**	**1.76**	**94.31**	**0.00**	**16.09**	**0.00**	**53.73**	**35.62**	**58.64**	**0.00**	**14.16**	**14.16**	**134.20**	**344.17**	**0.95**	**23.38**	**23.39**	**0.00**	**437.85**	**0.00**	**8.46**	**0.00**	**13.24**	**7.09**
Adjusted TP outflow	**0.00**	**37.25**	**0.96**	**97.70**	**0.00**	**7.44**	**0.00**	**75.24**	**17.79**	**47.86**	**0.00**	**9.51**	**6.04**	**65.44**	**285.55**	**0.57**	**23.20**	**22.30**	**0.00**	**383.94**	**0.00**	**3.71**	**0.00**	**14.00**	**3.82**
Adjusted TSS outflow	**0.00**	**13847.44**	**100.24**	**35907.39**	**0.00**	**427.42**	**0.00**	**23541.27**	**945.89**	**10946.99**	**0.00**	**1981.74**	**694.04**	**3564.11**	**76351.85**	**101.01**	**7850.66**	**7080.73**	**0.00**	**122303.39**	**0.00**	**323.00**	**0.00**	**5061.15**	**403.57**
POND P BUDGETS W/O P-BAN.																								
runoff	0.00	42.65	2.15	68.16	0.00	18.97	0.00	75.40	43.56	30.30	0.00	16.87	0.00	164.15	95.69	1.16	26.60	0.00	0.00	76.89	0.00	8.01	0.00	16.08	8.67
Adjusted TP outflow	**0.00**	**42.65**	**1.05**	**111.86**	**0.00**	**8.02**	**0.00**	**75.40**	**19.47**	**49.78**	**0.00**	**10.51**	**6.49**	**71.58**	**298.94**	**0.63**	**25.89**	**24.78**	**0.00**	**400.60**	**0.00**	**3.71**	**0.00**	**16.08**	**4.19**
upstream pond	0.00	0.00	0.00	43.70	0.00	0.00	0.00	0.00	0.00	19.47	0.00	0.00	10.51	0.00	203.25	0.00	0.63	25.89	0.00	323.72	0.00	0.00	0.00	0.00	0.00
total inflow	**0.00**	**42.65**	**2.15**	**111.86**	**0.00**	**18.97**	**0.00**	**75.40**	**43.56**	**49.78**	**0.00**	**16.87**	**10.51**	**164.15**	**298.94**	**1.16**	**27.24**	**25.89**	**0.00**	**400.61**	**0.00**	**8.01**	**0.00**	**16.08**	**8.67**
outflow	0.00	42.65	1.05	111.86	0.00	8.02	0.00	75.40	19.47	49.78	0.00	10.51	6.49	71.58	298.94	0.63	25.89	24.78	0.00	400.60	0.00	3.71	0.00	16.08	4.19
inflow phos conc	409.24	439.43	450.02	436.39	409.24	433.73	409.24	516.29	450.02	312.31	409.24	438.50	273.10	450.02	319.57	450.02	428.50	407.33	409.24	336.62	409.24	348.36	409.24	446.71	450.01
outflow phos conc	392.86	439.43	219.55	436.38	392.86	183.45	392.86	516.27	201.16	312.31	392.86	273.11	168.69	196.24	319.57	244.53	407.34	389.81	392.86	336.62	392.86	161.28	392.86	446.68	217.17
p reaction rate	0.04	0.00	2.15	0.00	0.04	3.23	0.04	0.00	2.77	0.00	0.04	0.97	1.00	2.97	0.00	1.55	0.05	0.05	0.04	0.00	0.04	2.51	0.04	0.00	2.22
1-rp	0.96	1.00	0.49	1.00	0.96	0.42	0.96	1.00	0.45	1.00	0.96	0.62	0.62	0.44	1.00	0.54	0.95	0.96	0.96	1.00	0.96	0.46	0.96	1.00	0.48
runoff total p conc	0.00	424.20	450.00	428.47	0.00	441.29	0.00	519.90	450.00	484.98	0.00	421.77	200.00	450.00	381.27	450.00	439.66	200.00	0.00	387.50	0.00	343.36	0.00	441.39	449.99

Rochester Loading Assessm																								
King's Run																								
363-06-158-2																								
2020 LOADS																								
	kr-a1.16a	future kr-a1.17	kr-a1.17	kr-a1.17 cell 2	kr-a1.17 cell 3	future kr-a1.19b	kr-a1.19b	future kr-a1.19c	kr-a1.19c	future kr-a1.19d	kr-a1.19d	future kr-a1.19e	kr-a1.19e	kr-a1.19e cell 2	future kr-a1.19a	kr-a1.19a	future kr-a1.15a	kr-a1.15a	future kr-a1.15b	kr-a1.15b	future kr-a1.18d	kr-a1.18d	future kr-a1.18c	kr-a1.18c	future kr-a1.18b
	kr-a1.19a	kr-a1.17	kr-a1.17 cell 2	kr-a1.17 cell 3	kr-a1.19a	kr-a1.19b	kr-a1.19a	kr-a1.19c	kr-a1.19a	kr-a1.19d	kr-a1.19a	kr-a1.19e	kr-a1.19e cell 2	kr-a1.19a	kr-a1.19a	kr-a2.5b	kr-a1.15a	kr-a1.15b	kr-a1.15b	kr-a1.18a	kr-a1.18d	kr-a1.18b	kr-a1.18c	kr-a1.18b	kr-a1.18b
INPUT VARIABLES....																								
case label																								
Watershed area	96.8	0.0	211.0	0.0	0.0	0.0	22.7	0.0	25.3	0.0	7.1	11.9	12.8	0.0	1.4	83.3	0.0	23.8	0.6	53.2	7.8	10.2	8.6	74.7	10.9
basin area	0.00	0.00	0.45	0.47	0.58	0.00	0.09	0.00	0.31	0.00	0.06	0.32	0.08	0.54	0.04	0.00	0.00	0.63	0.00	0.00	0.08	0.71	0.08	0.74	0.12
basin volume	0.00	0.00	1.26	1.31	1.60	0.00	0.00	0.00	0.27	0.00	0.07	0.94	0.23	1.57	0.11	0.00	0.00	0.00	0.03	0.00	0.21	2.14	0.24	3.20	0.35
Row Crop Agriculture	0%	0%	9%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Very Low Density Residential	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	11%	0%	89%	0%	0%	0%	2%	0%
Low Density Residential	18%	0%	53%	0%	0%	0%	0%	0%	0%	0%	0%	0%	4%	0%	0%	12%	0%	82%	0%	3%	100%	8%	100%	90%	92%
Medium Density Residential	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	100%	0%	0%	0%	0%	0%	0%
High Density Residential	0%	0%	11%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	1%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Commercial/Industrial	1%	0%	2%	0%	0%	0%	89%	0%	100%	0%	69%	100%	31%	0%	100%	38%	0%	0%	0%	0%	0%	0%	0%	0%	8%
Institutional	17%	0%	8%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	13%	0%	0%	0%	4%	0%	92%	0%	1%	0%
Open Space	50%	0%	13%	100%	100%	0%	0%	0%	0%	0%	0%	0%	47%	100%	0%	17%	0%	7%	0%	0%	0%	0%	0%	7%	0%
Golf Course	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Pits and Quarries	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Right-of-Way	13%	0%	4%	0%	0%	0%	11%	0%	0%	0%	31%	0%	19%	0%	0%	19%	0%	0%	0%	4%	0%	0%	0%	0%	0%
WATERSHED-WIDE ACCOUNTII																								
tributary land area	4650.54	0.00	211.00	211.01	211.02	0.00	22.68	0.00	25.28	0.00	7.08	11.88	24.67	24.68	1.40	5025.94	0.00	23.81	0.62	77.61	7.79	18.02	8.57	83.25	10.90
tributary water area	41.98	0.00	0.45	0.92	1.50	0.00	0.09	0.00	0.31	0.00	0.06	0.32	0.40	0.94	0.04	44.92	0.00	0.63	0.00	0.63	0.08	0.79	0.08	0.82	0.12
direct and ponded area	4692.52	0.00	211.46	211.94	212.52	0.00	22.77	0.00	25.59	0.00	7.14	12.20	25.07	25.61	1.44	5070.86	0.00	24.44	0.62	78.24	7.87	18.82	8.65	84.07	11.02
ASSUMED EXPORT FACTORS...																								
season length	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
season precipitation	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80
runoff total p	289.87	0.00	376.80	200.00	200.00	0.00	355.28	0.00	349.88	0.00	365.28	350.00	291.14	200.00	350.00	340.30	0.00	367.96	391.50	312.54	391.50	353.38	391.50	376.57	388.03
runoff ortho p/total p	0.45	0.00	0.33	0.60	0.60	0.00	0.30	0.00	0.30	0.00	0.30	0.30	0.44	0.60	0.30	0.35	0.00	0.34	0.30	0.48	0.30	0.30	0.30	0.32	0.30
unit runoff	5.56	0.00	7.24	2.54	2.54	0.00	13.95	0.00	14.55	0.00	12.79	14.56	7.58	2.54	14.56	9.86	0.00	6.02	9.74	3.58	6.74	9.50	6.74	6.43	7.40
unit export	0.42	0.00	0.63	0.12	0.12	0.00	1.12	0.00	1.15	0.00	1.04	1.15	0.58	0.12	1.15	0.80	0.00	0.52	0.86	0.26	0.60	0.76	0.60	0.56	0.64
POND WATER BUDGETS.....																								
runoff	44.83	0.00	127.24	0.00	0.00	0.00	26.37	0.00	30.65	0.00	7.55	14.41	8.08	0.00	1.70	68.38	0.00	11.95	0.50	15.89	4.38	8.10	4.81	40.03	6.72
upstream pond	1930.55	0.00	0.00	127.24	127.24	0.00	0.00	0.00	0.00	0.00	0.00	14.41	22.49	0.00	2191.38	0.00	0.00	0.00	0.00	12.45	0.00	4.38	0.00	4.81	0.00
total inflow	**1975.38**	**0.00**	**127.24**	**127.24**	**127.24**	**0.00**	**26.37**	**0.00**	**30.65**	**0.00**	**7.55**	**14.41**	**22.49**	**22.50**	**1.70**	**2259.76**	**0.00**	**11.95**	**0.50**	**28.34**	**4.38**	**12.48**	**4.81**	**44.84**	**6.72**
outflow	1975.38	0.00	127.24	127.24	127.24	0.00	26.37	0.00	30.65	0.00	7.55	14.41	22.49	22.50	1.70	2259.76	0.00	11.95	0.50	28.34	4.38	12.48	4.81	44.84	6.72
POND PHOSPHORUS BUDGETS																								
runoff	40.90	0.00	133.40	0.00	0.00	0.00	25.32	0.00	29.16	0.00	7.40	13.71	7.44	0.00	1.62	66.21	0.00	12.38	0.53	13.98	4.66	7.76	5.12	41.88	7.02
upstream pond	1204.04	0.00	0.00	95.24	79.96	0.00	0.00	0.00	0.00	0.00	0.00	6.69	11.66	0.00	1374.23	0.00	0.00	0.00	0.00	12.59	0.00	2.35	0.00	2.54	0.00
total inflow	**1244.94**	**0.00**	**133.40**	**95.24**	**79.96**	**0.00**	**25.32**	**0.00**	**29.16**	**0.00**	**7.40**	**13.71**	**14.13**	**11.66**	**1.62**	**1440.44**	**0.00**	**12.38**	**0.53**	**26.56**	**4.66**	**10.10**	**5.12**	**44.42**	**7.02**
net sedimentation	0.00	0.00	38.16	15.28	12.81	0.00	0.00	0.00	6.82	0.00	1.88	7.02	2.47	3.49	0.82	0.00	0.00	0.00	0.32	0.00	2.31	5.57	2.58	24.15	3.54
outflow	1244.94	0.00	95.24	79.96	67.16	0.00	25.32	0.00	22.33	0.00	5.51	6.69	11.66	8.17	0.80	1440.44	0.00	12.38	0.21	26.56	2.35	4.53	2.54	20.27	3.48
p removal efficiency	0.00	3.78	28.61	16.04	16.01	3.78	0.00	3.78	23.41	3.78	25.48	51.23	17.49	29.95	50.54	0.00	3.78	0.00	60.59	0.00	49.66	55.14	50.35	54.38	50.42
upstream w-shed p load	2281.27	0.00	133.40	133.40	133.40	0.00	25.32	0.00	29.16	0.00	7.40	13.71	21.15	21.15	1.62	2565.53	0.00	12.38	0.53	26.89	4.66	12.42	5.12	47.00	7.02
total removal %	45.43	3.78	28.61	40.06	49.66	3.78	0.00	3.78	23.41	3.78	25.48	51.23	44.89	61.39	50.54	43.85	3.78	0.00	60.59	1.20	49.66	63.50	50.35	56.88	50.42
HYDRAULIC PARAMETERS.....																								
pond mean depth	1.00	0.00	2.78	2.78	2.78	0.00	0.00	0.00	0.87	0.00	1.16	2.91	2.94	2.94	2.68	1.00	0.00	0.00	2669.29	1.00	2.59	3.01	2.84	4.32	2.79
relative volume	0.00	1.58	0.31	19620.00	24045.00	1.58	0.00	1.58	0.28	1.58	0.29	2.07	0.89	23610.00	2.07	0.00	1.58	0.00	1.70	0.00	1.56	8.40	1.56	2.54	1.64
residence time	0.00	0.05	0.01	0.01	0.01	0.05	0.00	0.05	0.01	0.05	0.01	0.07	0.01	0.07	0.07	0.00	0.05	0.00	0.05	0.00	0.05	0.17	0.05	0.07	0.05
residence time	0.00	18.08	3.61	3.75	4.60	18.08	0.00	18.08	3.22	18.08	3.35	23.81	3.67	25.54	23.81	0.00	18.08	0.00	19.50	0.00	17.86	62.61	17.86	26.01	18.84
overflow rate	197537887.63	0.00	281.50	270.73	220.91	0.00	292.97	0.00	98.87	0.00	125.79	44.57	292.12	41.97	41.03	225976461.28	0.00	18.98	49975.11	2833989.64	52.84	17.57	58.09	60.59	54.05
inflow phos conc	231.87	384.34	385.73	275.39	231.21	384.34	353.34	384.34	350.00	384.34	360.49	350.02	231.08	190.67	350.02	234.52	384.34	380.89	391.52	344.85	391.52	297.89	391.52	364.49	384.69
outflow phos conc	231.87	369.82	275.39	231.21	194.19	369.82	353.33	369.82	268.07	369.82	268.65	170.70	190.67	133.55	173.12	234.52	369.82	380.88	154.31	344.85	197.11	133.65	194.39	166.29	190.73
p reaction rate	0.00	0.04	0.56	0.23	0.23	0.04	0.00	0.04	0.40	0.04	0.46	2.15	0.26	0.61	2.07	0.00	0.04	0.00	3.90	0.00	1.96	2.74	2.04	2.61	2.05
1-rp	1.00	0.96	0.71	0.84	0.84	0.96	1.00	0.96	0.77	0.96	0.75	0.49	0.83	0.70	0.49	1.00	0.96	1.00	0.39	1.00	0.50	0.45	0.50	0.46	0.50
vlawmo pond volume	3.52	0.00	10.00	0.00	0.00	0.00	2.07	0.00	2.41	0.00	0.59	1.13	0.64	0.00	0.13	5.38	0.00	0.94	0.04	1.25	0.34	0.64	0.38	3.15	0.53
LAND USE PARAMETERS.....																								
runoff total P conc	289.87	0.00	376.80	200.00	200.00	0.00	355.28	0.00	349.88	0.00	365.28	350.00	291.14	200.00	350.00	340.30	0.00	367.96	391.50	312.54	391.50	353.38	391.50	376.57	388.03
runoff coefficient	0.17	0.00	0.23	0.08	0.08	0.00	0.44	0.00	0.46	0.00	0.40	0.46	0.24	0.08	0.46	0.31	0.00	0.19	0.31	0.11	0.21	0.30	0.21	0.20	0.23
dissolved/total P	0.45	0.00	0.33	0.60	0.60	0.00	0.30	0.00	0.30	0.00	0.30	0.30	0.44	0.60	0.30	0.35	0.00	0.34	0.30	0.48	0.30	0.30	0.30	0.32	0.30
runoff TSS conc	177.80	0.00	151.85	216.00	216.00	0.00	140.00	0.00	140.06	0.00	140.00	140.00	175.60	216.00	140.00	152.56	0.00	153.88	140.00	207.65	140.00	140.01	140.00	146.45	140.00
POND TSS BUDGETS.....																								
runoff	19112.00	0.00	49899.40	1.24	1.24	0.00	10003.62	0.00	11629.45	0.00	2863.48	5466.98	3327.83	1.24	644.99	26545.16	0.00	4744.83	189.61	8446.68	1661.35	3072.15	1826.16	15472.92	2548.75
upstream pond	261686.48	0.00	0.00	21144.87	14084.82	0.00	0.00	0.00	0.00	0.00	0.00	0.00	820.05	2681.31	0.00	309002.33	0.00	0.00	0.00	4758.10	0.00	249.20	0.00	228.27	0.00
total inflow	**280798.48**	**0.00**	**49899.40**	**21146.11**	**14086.06**	**0.00**	**10003.62**	**0.00**	**11629.45**	**0.00**	**2863.48**	**5466.98**	**4147.88**	**2682.55**	**644.99**	**335547.49**	**0.00**	**4744.83**	**189.61**	**13204.78**	**1661.35**	**3321.35**	**1826.16**	**15701.19**	**2548.75**
p removal efficiency (no inf)	0.00	5.00	31.00	17.00	17.00	5.00	0.00	5.00	24.00	5.00	26.00	52.00	18.00	30.00	51.00	0.00	5.00	0.00	63.00	0.00	52.00	56.00	53.00	57.00	53.00
tss removal efficiency (no inf)	0.00	9.82	57.63	33.39	33.39	9.82	0.00	9.82	47.14	9.82	51.07	85.00	35.36	56.75	83.00	0.00	9.82	0.00	93.00	0.00	85.00	93.00	87.50	93.00	87.50
net sedimentation	0.00	0.00	28754.53	7061.29	4703.74	0.00	0.00	0.00	5482.46	0.00	1462.42	4646.93	1466.57	1522.35	535.34	0.00	0.00	0.00	176.33	0.00	1412.15	3088.86	1597.89	14602.11	2230.16
outflow	280798.48	0.00	21144.87	14084.82	9382.32	0.00	10003.62	0.00	6147.00	0.00	1401.06	820.05	2681.31	1160.20	109.65	335547.49	0.00	4744.83	13.27	13204.78	249.20	232.49	228.27	1099.08	318.59
tss removal efficiency (inf)	0.00	9.82	57.63	33.39	33.39	9.82	0.00	9.82	47.14	9.82	51.07	85.00	35.36	56.75	83.00	0.00	9.82	0.00	93.00	0.00	85.00	93.00	87.50	93.00	87.50
upstream watershed tss load	846161.83	0.00	49899.40	49900.64	49901.88	0.00	10003.62	0.00	11629.45	0.00	2863.48	5466.98	8794.81	8796.05	644.99	956546.47	0.00	4744.83	189.61	13381.11	1661.35	4733.50	1826.16	17299.08	2548.75
tss total removal efficiency	66.82	9.82	57.63	71.77	81.20	9.82	0.00	9.82	47.14	9.82	51.07	85.00	69.51	86.81	83.00	64.92	9.82	0.00	93.00	1.32	85.00	95.09	87.50	93.65	87.50
INFILTRATION BMP/POND.....																								
Annual runoff infiltrated	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Adjusted outflow	**1975.38**	**0.00**	**127.24**	**127.24**	**127.24**	**0.00**	**26.37**	**0.00**	**30.65**	**0.00**	**7.55**	**14.41**	**22.49**	**22.50**	**1.70**	**2259.76**	**0.00**	**11.95**	**0.50**	**28.34**	**4.38**	**12.48**	**4.81**	**44.84**	**6.72**
Adjusted TP outflow	**1244.94**	**0.00**	**95.24**	**79.96**	**67.16**	**0.00**	**25.32**	**0.00**	**22.33**	**0.00**	**5.51**	**6.69**	**11.66**	**8.17**	**0.80**	**1440.44**	**0.00**	**12.38**	**0.21**	**26.56**	**2.35**	**4.53**	**2.54**	**20.27**	**3.48**
Adjusted TSS outflow	**280798.48**	**0.00**	**21144.87**	**14084.82**	**9382.32**	**0.00**	**10003.62**	**0.00**	**6147.00**	**0.00**	**1401.06**	**820.05**	**2681.31**	**1160.20**	**109.65**	**335547.49**	**0.00**	**4744.83**	**13.27**	**13204.78**	**249.20**	**232.49**	**228.27**	**1099.08**	**318.59**
POND P BUDGETS W/O P-BAN.																								
runoff	42.53	0.00	147.79	0.00	0.00	0.00	25.32	0.00	29.16	0.00	7.40	13.71	7.49	0.00	1.62	67.31	0.00	14.19	0.61	15.58	5.36	7.83	5.89	47.94	7.92
Adjusted TP outflow	**1295.40**	**0.00**	**103.09**	**85.59**	**71.20**	**0.00**	**25.32**	**0.00**	**22.33**	**0.00**	**5.51**	**6.69**	**11.69**	**8.18**	**0.80**	**1496.06**	**0.00**	**14.19**	**0.23**	**30.00**	**2.57**	**4.62**	**2.79**	**22.08**	**3.77**
upstream pond	1252.87	0.00	0.00	103.09	85.59	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.69	11.69	0.00	1428.75	0.00	0.00	0.00	14.42	0.00	2.57	0.00	2.79	0.00
total inflow	**1295.40**	**0.00**	**147.79**	**103.09**	**85.59**	**0.00**	**25.32**	**0.00**	**29.16**	**0.00**	**7.40**	**13.71**	**14.17**	**11.69**	**1.62**	**1496.06**	**0.00**	**14.19**	**0.61**	**30.00**	**5.36**	**10.40**	**5.89**	**50.73**	**7.92**
outflow	1295.40	0.00	103.09	85.59	71.20	0.00	25.32	0.00	22.33	0.00	5.51	6.69	11.69	8.18	0.80	1496.06	0.00	14.19	0.23	30.00	2.57	4.62	2.79	22.08	3.77
inflow phos conc	241.27	409.24	427.35	298.07	247.47	409.24	353.34	409.24	350.00	409.24	360.49	350.02	231.79	191.16	350.02	243.58	409.24	436.88	450.02	389.48	450.02	306.72	450.02	416.26	433.57
outflow phos conc	241.27	392.86	298.08	247.47	205.86	392.86	353.33	392.86	268.07	392.86	268.65	170.70	191.16	133.82	173.12	243.58	392.86	436.87	168.20	389.48	216.18	136.18	213.11	181.13	206.41
p reaction rate	0.00	0.04	0.62	0.25	0.24	0.04	0.00	0.04	0.40	0.04	0.46	2.15	0.26	0.61	2.07	0.00	0.04	0.00	4.48	0.00	2.25	2.82	2.35	2.98	2.31
1-rp	1.00	0.96	0.70	0.83	0.83	0.96	1.00	0.96	0.77	0.96	0.75	0.49	0.82	0.70	0.49	1.00	0.96	1.00	0.37	1.00	0.48	0.44	0.47	0.44	0.48
runoff total p conc	300.85	0.00	414.63	200.00	200.00	0.00	355.28	0.00	349.88	0.00	365.28	350.00	293.36	200.00	350.00	348.21	0.00	420.75	450.00	354.74	450.00	358.01	450.00	430.18	441.64

Rochester Loading Assessm																								
King's Run																								
363-06-158-2																								
2020 LOADS																								
	kr-a1.18b	future kr-a1.18e	kr-a1.18e	future kr-a1.18f	kr-a1.18f	future kr-a2.6b	kr-a2.6b	future kr-a2.6c	kr-a2.6c	kr-a2.6c cell 2	kr-a2.6c cell 3	kr-a2.6a	future kr-a2.6d	kr-a2.6d	future kr-a2.6a	kr-a2.6a	future kr-a1.18a	kr-a1.18a	future kr-a2.5d	kr-a2.5d	future kr-a2.5c	kr-a2.5c	kr-a2.5c cell 2	future kr-a2.5b	kr-a2.5b	future kr-a2.7
	kr-a1.18a	kr-a1.18e	kr-a1.18a	kr-a1.18f	kr-a1.18a	kr-a2.6b	kr-a2.6a	kr-a2.6c	kr-a2.6c cell 2	kr-a2.6c cell 3	kr-a2.6a	kr-a2.6d	kr-a2.6a	kr-a2.6a	kr-a1.18a	kr-a1.18a	kr-a2.5d	kr-a2.5d	kr-a2.5b	kr-a2.5c	kr-a2.5c cell 2	kr-a2.5b	kr-a2.5b	kr-a2.10	kr-a2.7
INPUT VARIABLES....																								
case label																								
Watershed area	33.2	6.3	10.5	1.8	1.1	0.0	4.8	0.0	18.3	0.0	0.0	0.0	4.5	2.3	91.1	2.9	85.9	0.0	9.0	0.0	4.6	0.0	0.0	15.0	2.6
basin area	0.73	0.21	0.52	0.04	0.26	0.00	0.01	0.00	0.17	0.18	0.29	0.00	0.13	0.08	0.44	0.08	0.15	0.00	0.57	0.00	0.04	0.14	0.00	0.00	0.04
basin volume	0.00	0.50	2.20	0.14	0.80	0.00	0.01	0.00	0.48	0.51	0.79	0.00	0.46	0.18	1.72	0.17	0.26	0.00	2.99	0.00	0.00	0.31	0.00	0.00	0.11
Row Crop Agriculture	1%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Very Low Density Residential	36%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	8%	0%	28%	0%	0%	0%	0%	0%	0%	0%	0%
Low Density Residential	0%	0%	0%	0%	0%	0%	0%	0%	25%	0%	0%	0%	1%	0%	11%	0%	28%	0%	0%	0%	0%	0%	0%	0%	0%
Medium Density Residential	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	3%	62%	0%	0%	0%	0%	0%	0%	0%	0%	100%
High Density Residential	0%	0%	0%	0%	0%	0%	0%	0%	60%	0%	0%	0%	92%	0%	7%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Commercial/Industrial	0%	100%	0%	100%	39%	0%	100%	0%	0%	0%	0%	0%	0%	100%	35%	38%	0%	0%	0%	0%	0%	0%	0%	34%	0%
Institutional	32%	0%	1%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	6%	0%	13%	0%	0%	0%	0%	0%	0%	0%	0%
Open Space	31%	0%	99%	0%	42%	0%	0%	0%	11%	100%	100%	0%	8%	0%	2%	0%	3%	0%	0%	0%	0%	100%	0%	0%	0%
Golf Course	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Pits and Quarries	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Right-of-Way	0%	0%	0%	0%	19%	0%	0%	0%	4%	0%	0%	0%	0%	0%	29%	0%	28%	0%	100%	0%	100%	0%	0%	66%	0%
WATERSHED-WIDE ACCOUNTII																								
tributary land area	145.32	6.32	16.78	1.80	2.91	0.00	4.77	0.00	18.34	18.35	18.36	0.00	4.54	2.33	121.09	2.94	452.61	0.00	461.66	0.00	4.58	4.59	0.00	5507.19	2.65
tributary water area	2.47	0.21	0.73	0.04	0.30	0.00	0.01	0.00	0.17	0.36	0.64	0.00	0.13	0.08	1.30	0.08	5.66	0.00	6.23	0.00	0.04	0.18	0.00	51.33	0.04
direct and ponded area	147.79	6.53	17.51	1.84	3.21	0.00	4.78	0.00	18.51	18.70	19.00	0.00	4.67	2.41	122.39	3.02	458.27	0.00	467.89	0.00	4.62	4.77	0.00	5558.52	2.69
ASSUMED EXPORT FACTORS...																								
season length	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
season precipitation	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80
runoff total p	289.16	350.12	202.04	350.00	296.01	0.00	350.00	0.00	371.21	200.00	200.00	0.00	376.68	350.00	365.51	375.82	357.91	0.00	400.00	0.00	400.87	200.00	0.00	382.81	391.50
runoff ortho p/total p	0.46	0.30	0.60	0.30	0.43	0.00	0.30	0.00	0.33	0.60	0.60	0.00	0.32	0.30	0.32	0.30	0.37	0.00	0.30	0.00	0.30	0.60	0.00	0.30	0.30
unit runoff	5.06	14.54	2.64	14.56	8.36	0.00	14.56	0.00	10.51	2.54	2.54	0.00	12.70	14.56	10.38	11.56	6.52	0.00	8.77	0.00	8.79	2.54	0.00	10.76	9.74
unit export	0.37	1.15	0.12	1.15	0.65	0.00	1.15	0.00	0.92	0.12	0.12	0.00	1.12	1.15	0.86	0.97	0.55	0.00	0.79	0.00	0.80	0.12	0.00	0.92	0.86
POND WATER BUDGETS.....																								
runoff	13.99	7.66	2.30	2.18	0.78	0.00	5.78	0.00	16.06	0.00	0.00	0.00	4.80	2.83	78.83	2.83	46.69	0.00	6.61	0.00	3.35	0.00	0.00	13.46	2.15
upstream pond	64.03	0.00	7.66	0.00	2.18	0.00	0.00	0.00	0.00	16.06	16.06	0.00	0.00	0.00	29.47	0.00	230.42	0.00	277.11	0.00	0.00	3.35	0.00	2546.84	0.00
total inflow	**78.02**	**7.66**	**9.96**	**2.18**	**2.96**	**0.00**	**5.78**	**0.00**	**16.06**	**16.06**	**16.06**	**0.00**	**4.80**	**2.83**	**108.31**	**2.83**	**277.11**	**0.00**	**283.72**	**0.00**	**3.35**	**3.35**	**0.00**	**2560.30**	**2.15**
outflow	78.02	7.66	9.96	2.18	2.96	0.00	5.78	0.00	16.06	16.06	16.06	0.00	4.80	2.83	108.31	2.83	277.11	0.00	283.72	0.00	3.35	3.35	0.00	2560.30	2.15
POND PHOSPHORUS BUDGETS																								
runoff	12.11	7.29	1.30	2.08	0.72	0.00	5.50	0.00	16.88	0.00	0.00	0.00	5.07	2.69	78.80	2.86	47.32	0.00	7.19	0.00	3.64	0.00	0.00	13.78	2.28
upstream pond	28.28	0.00	3.67	0.00	0.99	0.00	0.00	0.00	0.00	9.64	7.25	0.00	0.00	0.00	14.03	0.00	134.39	0.00	175.97	0.00	0.00	3.59	0.00	1580.84	0.00
total inflow	**40.40**	**7.29**	**4.97**	**2.08**	**1.70**	**0.00**	**5.50**	**0.00**	**16.88**	**9.64**	**7.26**	**0.00**	**5.07**	**2.69**	**92.84**	**2.86**	**181.70**	**0.00**	**183.16**	**0.00**	**3.64**	**3.59**	**0.00**	**1594.62**	**2.28**
net sedimentation	0.00	3.62	2.03	1.09	0.78	0.00	0.53	0.00	7.24	2.39	1.78	0.00	2.86	1.32	30.75	1.38	5.73	0.00	44.87	0.00	0.05	1.49	0.00	0.00	1.16
outflow	40.40	3.67	2.94	0.99	0.92	0.00	4.97	0.00	9.64	7.25	5.47	0.00	2.21	1.38	62.08	1.48	175.97	0.00	138.29	0.00	3.59	2.11	0.00	1594.62	1.12
p removal efficiency	0.00	49.63	40.77	52.53	45.75	3.78	9.65	3.78	42.89	24.75	24.56	3.78	56.35	48.89	33.13	48.23	3.15	3.78	24.50	3.78	1.42	41.40	3.78	0.00	50.96
upstream w-shed p load	78.55	7.29	8.59	2.08	2.79	0.00	5.50	0.00	16.88	16.88	16.88	0.00	5.07	2.69	108.95	2.86	275.94	0.00	283.13	0.00	3.64	3.65	0.00	2866.09	2.28
total removal %	48.58	49.63	65.73	52.53	66.92	3.78	9.65	3.78	42.89	57.03	67.58	3.78	56.35	48.89	43.02	48.23	36.23	3.78	51.16	3.78	1.42	42.23	3.78	44.36	50.96
HYDRAULIC PARAMETERS.....																								
pond mean depth	0.00	2.41	4.23	3.44	3.08	0.00	1.13	0.00	2.77	2.79	2.78	0.00	3.54	2.23	3.95	2.02	1.72	0.00	5.26	0.00	0.03	2.21	0.00	1.00	2.77
relative volume	0.00	2.07	30.44	2.07	32.77	1.58	0.06	1.58	0.94	7650.00	11895.00	1.58	3.05	2.07	0.70	1.88	0.18	1.58	14.38	1.58	0.01	4650.00	1.58	0.00	1.70
residence time	0.00	0.07	0.22	0.07	0.27	0.05	0.00	0.05	0.03	0.03	0.05	0.05	0.10	0.07	0.02	0.06	0.00	0.05	0.01	0.05	0.00	0.09	0.05	0.00	0.05
residence time	0.00	23.81	80.62	23.81	98.71	18.08	0.71	18.08	10.84	11.59	18.02	18.08	34.98	23.81	5.81	21.55	0.34	18.08	3.85	18.08	0.11	33.74	18.08	0.00	19.50
overflow rate	106.88	36.99	19.15	52.65	11.38	0.00	578.33	0.00	93.37	87.77	56.36	0.00	36.92	34.13	248.41	34.17	1847.38	0.00	499.50	0.00	83.80	23.96	0.00	256029695.83	51.81
inflow phos conc	190.48	350.07	183.50	350.02	211.97	384.34	350.02	384.34	386.70	220.83	166.17	384.34	388.55	350.02	315.36	371.76	241.25	384.34	237.52	384.34	400.02	394.22	384.34	229.15	391.52
outflow phos conc	190.48	176.35	108.69	166.15	114.99	369.82	316.25	369.82	220.83	166.17	125.36	369.82	169.60	178.91	210.89	192.46	233.64	369.82	179.33	369.82	394.34	231.01	369.82	229.15	192.00
p reaction rate	0.00	1.96	1.16	2.33	1.55	0.04	0.12	0.04	1.32	0.44	0.43	0.04	2.96	1.87	0.74	1.80	0.03	0.04	0.43	0.04	0.01	1.21	0.04	0.00	2.12
1-rp	1.00	0.50	0.59	0.47	0.54	0.96	0.90	0.96	0.57	0.75	0.75	0.96	0.44	0.51	0.67	0.52	0.97	0.96	0.76	0.96	0.99	0.59	0.96	1.00	0.49
vlawmo pond volume	1.10	0.60	0.18	0.17	0.06	0.00	0.45	0.00	1.26	0.00	0.00	0.00	0.38	0.22	6.20	0.22	3.67	0.00	0.52	0.00	0.26	0.00	0.00	1.06	0.17
LAND USE PARAMETERS.....																								
runoff total P conc	289.16	350.12	202.04	350.00	296.01	0.00	350.00	0.00	371.21	200.00	200.00	0.00	376.68	350.00	365.51	375.82	357.91	0.00	400.00	0.00	400.87	200.00	0.00	382.81	391.50
runoff coefficient	0.16	0.46	0.08	0.46	0.26	0.00	0.46	0.00	0.33	0.08	0.08	0.00	0.40	0.46	0.33	0.36	0.20	0.00	0.28	0.00	0.28	0.08	0.00	0.34	0.31
dissolved/total P	0.46	0.30	0.60	0.30	0.43	0.00	0.30	0.00	0.33	0.60	0.60	0.00	0.32	0.30	0.32	0.30	0.37	0.00	0.30	0.00	0.30	0.60	0.00	0.30	0.30
runoff TSS conc	190.73	140.00	215.00	140.00	172.20	0.00	140.00	0.00	148.50	216.00	216.00	0.00	145.88	140.00	147.65	140.00	163.73	0.00	140.00	0.00	140.31	216.00	0.00	140.00	140.00
POND TSS BUDGETS.....																								
runoff	6365.19	2906.97	1322.62	827.76	315.16	0.00	2194.18	0.00	6180.89	1.24	1.24	0.00	1836.27	1073.14	30360.84	1074.12	19066.36	0.00	2508.41	0.00	1271.68	1.24	0.00	5106.71	814.46
upstream pond	1650.17	0.00	552.32	0.00	103.47	0.00	0.00	0.00	0.00	1730.65	813.37	0.00	0.00	0.00	2521.02	0.00	35230.70	0.00	50030.87	0.00	0.00	1221.73	0.00	361645.56	0.00
total inflow	**8015.36**	**2906.97**	**1874.94**	**827.76**	**418.63**	**0.00**	**2194.18**	**0.00**	**6180.89**	**1731.89**	**814.61**	**0.00**	**1836.27**	**1073.14**	**32881.86**	**1074.12**	**54297.07**	**0.00**	**52539.28**	**0.00**	**1271.68**	**1222.97**	**0.00**	**366752.27**	**814.46**
p removal efficiency (no inf)	0.00	50.00	41.00	53.00	46.00	5.00	10.00	5.00	46.00	27.00	26.00	5.00	59.00	49.00	34.00	50.00	4.00	5.00	26.00	5.00	2.00	42.00	5.00	0.00	54.00
tss removal efficiency (no inf)	0.00	81.00	67.00	87.50	72.00	9.82	19.64	9.82	72.00	53.04	51.07	9.82	93.00	78.50	60.25	81.00	7.86	9.82	51.07	9.82	3.93	68.00	9.82	0.00	90.00
net sedimentation	0.00	2354.65	1256.21	724.29	301.41	0.00	431.00	0.00	4450.24	918.52	416.03	0.00	1707.73	842.41	19811.32	870.03	4266.20	0.00	26832.56	0.00	49.96	831.62	0.00	0.00	733.01
outflow	8015.36	552.32	618.73	103.47	117.22	0.00	1763.18	0.00	1730.65	813.37	398.58	0.00	128.54	230.72	13070.54	204.08	50030.87	0.00	25706.72	0.00	1221.73	391.35	0.00	366752.27	81.45
tss removal efficiency (inf)	0.00	81.00	67.00	87.50	72.00	9.82	19.64	9.82	72.00	53.04	51.07	9.82	93.00	78.50	60.25	81.00	7.86	9.82	51.07	9.82	3.93	68.00	9.82	0.00	90.00
upstream watershed tss load	30946.52	2906.97	4229.59	827.76	1142.91	0.00	2194.18	0.00	6180.89	6182.13	6183.37	0.00	1836.27	1073.14	41647.80	1074.12	111488.41	0.00	113996.82	0.00	1271.68	1272.93	0.00	1076922.92	814.46
tss total removal efficiency	74.10	81.00	85.37	87.50	89.74	9.82	19.64	9.82	72.00	86.84	93.55	9.82	93.00	78.50	68.62	81.00	55.12	9.82	77.45	9.82	3.93	69.26	9.82	65.94	90.00
INFILTRATION BMP/POND.....																								
Annual runoff infiltrated	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Adjusted outflow	**78.02**	**7.66**	**9.96**	**2.18**	**2.96**	**0.00**	**5.78**	**0.00**	**16.06**	**16.06**	**16.06**	**0.00**	**4.80**	**2.83**	**108.31**	**2.83**	**277.11**	**0.00**	**283.72**	**0.00**	**3.35**	**3.35**	**0.00**	**2560.30**	**2.15**
Adjusted TP outflow	**40.40**	**3.67**	**2.94**	**0.99**	**0.92**	**0.00**	**4.97**	**0.00**	**9.64**	**7.25**	**5.47**	**0.00**	**2.21**	**1.38**	**62.08**	**1.48**	**175.97**	**0.00**	**138.29**	**0.00**	**3.59**	**2.11**	**0.00**	**1594.62**	**1.12**
Adjusted TSS outflow	**8015.36**	**552.32**	**618.73**	**103.47**	**117.22**	**0.00**	**1763.18**	**0.00**	**1730.65**	**813.37**	**398.58**	**0.00**	**128.54**	**230.72**	**13070.54**	**204.08**	**50030.87**	**0.00**	**25706.72**	**0.00**	**1221.73**	**391.35**	**0.00**	**366752.27**	**81.45**
POND P BUDGETS W/O P-BAN.																								
runoff	12.49	7.29	1.30	2.08	0.72	0.00	5.50	0.00	19.28	0.00	0.00	0.00	5.82	2.69	81.31	3.10	50.19	0.00	7.19	0.00	3.64	0.00	0.00	13.78	2.63
Adjusted TP outflow	**42.95**	**3.67**	**2.94**	**0.99**	**0.92**	**0.00**	**4.97**	**0.00**	**10.57**	**7.81**	**5.81**	**0.00**	**2.42**	**1.38**	**63.60**	**1.56**	**185.78**	**0.00**	**144.19**	**0.00**	**3.59**	**2.11**	**0.00**	**1656.14**	**1.23**
upstream pond	30.46	0.00	3.67	0.00	0.99	0.00	0.00	0.00	0.00	10.57	7.81	0.00	0.00	0.00	14.57	0.00	141.98	0.00	185.78	0.00	0.00	3.59	0.00	1642.35	0.00
total inflow	**42.95**	**7.29**	**4.97**	**2.08**	**1.70**	**0.00**	**5.50**	**0.00**	**19.28**	**10.57**	**7.81**	**0.00**	**5.82**	**2.69**	**95.88**	**3.10**	**192.17**	**0.00**	**192.97**	**0.00**	**3.64**	**3.59**	**0.00**	**1656.14**	**2.63**
outflow	42.95	3.67	2.94	0.99	0.92	0.00	4.97	0.00	10.57	7.81	5.81	0.00	2.42	1.38	63.60	1.56	185.78	0.00	144.19	0.00	3.59	2.11	0.00	1656.14	1.23
inflow phos conc	202.54	350.15	183.52	350.02	211.97	409.24	350.02	409.24	441.76	242.21	178.87	409.24	446.15	350.02	325.71	402.39	255.15	409.24	250.24	409.24	400.02	394.22	409.24	237.99	450.02
outflow phos conc	202.54	176.38	108.70	166.15	114.99	392.86	316.25	392.86	242.21	178.87	132.96	392.86	185.17	178.91	216.06	202.97	246.67	392.86	186.98	392.86	394.34	231.01	392.86	237.99	210.41
p reaction rate	0.00	1.96	1.16	2.33	1.55	0.04	0.12	0.04	1.50	0.48	0.46	0.04	3.40	1.87	0.77	1.95	0.04	0.04	0.45	0.04	0.01	1.21	0.04	0.00	2.44
1-rp	1.00	0.50	0.59	0.47	0.54	0.96	0.90	0.96	0.55	0.74	0.74	0.96	0.42	0.51	0.66	0.50	0.97	0.96	0.75	0.96	0.99	0.59	0.96	1.00	0.47
runoff total p conc	305.74	350.28	202.04	350.00	296.01	0.00	350.00	0.00	421.09	200.00	200.00	0.00	430.65	350.00	380.82	412.18	386.94	0.00	400.00	0.00	400.87	200.00	0.00	382.81	450.00

Rochester Loading Assessm																								
King's Run																								
363-06-158-2																								
2020 LOADS																								
	kr-a2.7	kr-a2.7 cell 2	kr-a2.7 cell 3	kr-a2.7 cell 4	kr-a2.7 cell 5	future kr-a2.1a	kr-a2.1a	future kr-a2.1b	kr-a2.1b	kr-a2.1b cell 2	kr-a2.1b cell 3	kr-a2.1b cell 4	kr-a2.1b cell 5	future kr-a2.1c	kr-a2.1c	future kr-a2.1d	kr-a2.1d	kr-a2.1d cell 2	future kr-a2.1e	kr-a2.1e	kr-a2.1e cell 2	kr-a2.1e cell 3	future kr-a2.1f	kr-a2.1f	kr-a2.1f cell 2
	kr-a2.7 cell 2	kr-a2.7 cell 3	kr-a2.7 cell 4	kr-a2.7 cell 5	kr-a2.10	kr-a2.1a	kr-a2.1b	kr-a2.1b	kr-a2.1b cell 2	kr-a2.1b cell 3	kr-a2.1b cell 4	kr-a2.1b cell 5	kr-a2.2c	kr-a2.1c	kr-a2.1d	kr-a2.1d	kr-a2.1d cell 2	kr-a2.1e	kr-a2.1e	kr-a2.1e cell 2	kr-a2.1e cell 3	kr-a2.1f	kr-a2.1f	kr-a2.1f cell 2	kr-a2.2c
INPUT VARIABLES....																								
case label																								
Watershed area	166.1	0.0	0.0	0.0	0.0	5.3	107.6	0.0	53.1	0.0	0.0	0.0	0.0	0.0	7.3	2.0	17.7	0.0	0.0	2.4	0.0	0.0	0.4	1.8	0.0
basin area	0.41	0.44	0.45	0.46	0.50	0.00	0.00	0.00	0.51	0.84	0.88	0.92	1.05	0.00	0.50	0.08	0.25	0.69	0.00	0.32	0.46	0.35	0.00	0.08	0.13
basin volume	1.60	1.74	1.76	1.81	1.99	0.00	0.00	0.00	1.98	3.26	3.40	3.55	4.04	0.00	1.59	0.16	0.67	1.88	0.00	0.20	0.39	0.64	0.03	0.14	0.22
Row Crop Agriculture	2%	0%	0%	0%	0%	0%	30%	0%	13%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Very Low Density Residential	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Low Density Residential	76%	0%	0%	0%	0%	0%	19%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Medium Density Residential	1%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
High Density Residential	2%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Commercial/Industrial	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	77%	100%	83%	0%	0%	50%	0%	0%	100%	74%	0%
Institutional	7%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Open Space	7%	100%	100%	100%	100%	100%	49%	0%	81%	100%	100%	100%	100%	0%	12%	0%	17%	100%	0%	50%	100%	100%	0%	26%	100%
Golf Course	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Pits and Quarries	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Right-of-Way	4%	0%	0%	0%	0%	0%	1%	0%	6%	0%	0%	0%	0%	0%	11%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
WATERSHED-WIDE ACCOUNTII																								
tributary land area	168.75	168.76	168.77	168.78	168.79	5.33	112.90	0.00	165.98	165.99	166.00	166.01	166.02	0.00	7.28	1.98	27.00	27.01	0.00	29.40	29.41	29.41	0.40	31.60	31.60
tributary water area	0.45	0.89	1.33	1.79	2.30	0.00	0.00	0.00	0.51	1.36	2.24	3.15	4.20	0.00	0.50	0.08	0.83	1.51	0.00	1.83	2.29	2.64	0.00	2.73	2.86
direct and ponded area	169.20	169.65	170.10	170.57	171.09	5.33	112.90	0.00	166.49	167.34	168.23	169.16	170.22	0.00	7.78	2.06	27.83	28.52	0.00	31.24	31.70	32.05	0.40	34.33	34.46
ASSUMED EXPORT FACTORS...																								
season length	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
season precipitation	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80
runoff total p	378.69	200.00	200.00	200.00	200.00	200.00	343.06	0.00	257.23	200.00	200.00	200.00	200.00	0.00	336.82	350.00	324.06	200.00	0.00	274.64	200.00	200.00	350.00	311.80	200.00
runoff ortho p/total p	0.32	0.60	0.60	0.60	0.60	0.60	0.42	0.00	0.53	0.60	0.60	0.60	0.60	0.00	0.34	0.30	0.35	0.60	0.00	0.45	0.60	0.60	0.30	0.38	0.60
unit runoff	6.92	2.54	2.54	2.54	2.54	2.54	4.01	0.00	3.17	2.54	2.54	2.54	2.54	0.00	12.46	14.56	12.47	2.54	0.00	8.51	2.54	2.54	14.56	11.49	2.54
unit export	0.60	0.12	0.12	0.12	0.12	0.12	0.35	0.00	0.21	0.12	0.12	0.12	0.12	0.00	0.99	1.15	0.97	0.12	0.00	0.63	0.12	0.12	1.15	0.89	0.12
POND WATER BUDGETS.....																								
runoff	95.81	0.00	0.00	0.00	0.00	1.13	35.99	0.00	14.02	0.00	0.00	0.00	0.00	0.00	7.57	2.40	18.44	0.00	0.00	1.70	0.00	0.00	0.49	1.72	0.00
upstream pond	2.15	97.96	97.96	97.96	97.97	0.00	1.13	0.00	37.12	51.14	51.14	51.14	51.14	0.00	0.00	0.00	9.97	28.40	0.00	28.41	30.10	30.10	0.00	30.59	32.31
total inflow	**97.96**	**97.96**	**97.96**	**97.97**	**97.97**	**1.13**	**37.12**	**0.00**	**51.14**	**51.14**	**51.14**	**51.14**	**51.14**	**0.00**	**7.57**	**2.40**	**28.40**	**28.41**	**0.00**	**30.10**	**30.10**	**30.10**	**0.49**	**32.31**	**32.31**
outflow	97.96	97.96	97.96	97.97	97.97	1.13	37.12	0.00	51.14	51.14	51.14	51.14	51.14	0.00	7.57	2.40	28.40	28.41	0.00	30.10	30.10	30.10	0.49	32.31	32.31
POND PHOSPHORUS BUDGETS																								
runoff	100.19	0.00	0.00	0.00	0.00	0.61	37.41	0.00	11.29	0.00	0.00	0.00	0.00	0.00	7.20	2.28	17.27	0.00	0.00	1.51	0.00	0.00	0.46	1.59	0.00
upstream pond	1.12	63.99	50.63	41.56	34.98	0.00	0.61	0.00	38.02	30.38	20.21	14.70	11.34	0.00	0.00	0.00	4.28	14.31	0.00	10.23	10.92	10.03	0.00	8.97	9.92
total inflow	**101.31**	**63.99**	**50.63**	**41.56**	**34.98**	**0.61**	**38.02**	**0.00**	**49.31**	**30.38**	**20.21**	**14.70**	**11.34**	**0.00**	**7.20**	**2.28**	**21.55**	**14.31**	**0.00**	**11.74**	**10.92**	**10.03**	**0.46**	**10.56**	**9.92**
net sedimentation	37.32	13.36	9.07	6.58	5.17	0.00	0.00	0.00	18.94	10.17	5.51	3.36	2.30	0.00	4.13	1.08	7.24	4.08	0.00	0.82	0.89	1.24	0.29	0.64	0.54
outflow	63.99	50.63	41.56	34.98	29.82	0.61	38.02	0.00	30.38	20.21	14.70	11.34	9.05	0.00	3.07	1.20	14.31	10.23	0.00	10.92	10.03	8.79	0.18	9.92	9.37
p removal efficiency	36.83	20.89	17.92	15.82	14.77	0.02	0.00	3.78	38.41	33.46	27.26	22.85	20.25	3.78	57.33	47.28	33.58	28.51	3.78	6.99	8.17	12.39	61.88	6.09	5.47
upstream w-shed p load	102.47	102.47	102.47	102.47	102.48	0.61	38.02	0.00	49.32	49.32	49.32	49.32	49.32	0.00	7.20	2.28	26.76	26.76	0.00	28.27	28.27	28.27	0.46	30.33	30.33
total removal %	37.55	50.59	59.45	65.86	70.90	0.02	0.00	3.78	38.41	59.02	70.19	77.00	81.66	3.78	57.33	47.28	46.50	61.75	3.78	61.36	64.51	68.91	61.88	67.30	69.09
HYDRAULIC PARAMETERS.....																								
pond mean depth	3.95	3.95	3.95	3.95	3.95	1.00	1.00	0.00	3.87	3.86	3.87	3.86	3.87	0.00	3.18	1.89	2.74	2.74	0.00	0.63	0.85	1.83	3182.50	1.67	1.67
relative volume	0.53	26160.00	26400.00	27120.00	29835.00	0.00	0.00	1.58	4.50	48870.00	50970.00	53190.00	60660.00	1.58	6.68	2.07	1.16	28185.00	1.58	3.75	58500.00	96000.00	2.07	2.57	33150.00
residence time	0.02	0.02	0.02	0.02	0.02	0.00	0.00	0.05	0.04	0.06	0.07	0.07	0.08	0.05	0.21	0.07	0.02	0.07	0.05	0.01	0.01	0.02	0.07	0.00	0.01
residence time	5.95	6.50	6.56	6.74	7.41	0.00	0.00	18.08	14.15	23.25	24.25	25.31	28.86	18.08	76.71	23.81	8.62	24.14	18.08	2.42	4.73	7.76	23.81	1.57	2.50
overflow rate	241.87	221.63	219.65	213.90	194.38	113080.80	3711665.30	0.00	99.68	60.66	58.18	55.71	48.90	0.00	15.13	28.98	115.94	41.47	0.00	94.08	65.44	86.01	48780.09	389.27	244.77
inflow phos conc	380.49	240.34	190.14	156.07	131.38	200.01	376.89	384.34	354.81	218.55	145.41	105.77	81.61	384.34	349.98	350.02	279.12	185.39	384.34	143.53	133.50	122.59	350.02	120.24	112.92
outflow phos conc	240.34	190.14	156.07	131.38	111.97	199.98	376.89	369.82	218.55	145.41	105.77	81.60	65.09	369.82	149.35	184.52	185.39	132.54	369.82	133.50	122.59	107.41	133.42	112.92	106.74
p reaction rate	0.92	0.33	0.27	0.22	0.20	0.00	0.00	0.04	1.01	0.76	0.52	0.38	0.32	0.04	3.15	1.70	0.76	0.56	0.04	0.08	0.10	0.16	4.26	0.07	0.06
1-rp	0.63	0.79	0.82	0.84	0.85	1.00	1.00	0.96	0.62	0.67	0.73	0.77	0.80	0.96	0.43	0.53	0.66	0.71	0.96	0.93	0.92	0.88	0.38	0.94	0.95
vlawmo pond volume	7.53	0.00	0.00	0.00	0.00	0.09	2.83	0.00	1.10	0.00	0.00	0.00	0.00	0.00	0.59	0.19	1.45	0.00	0.00	0.13	0.00	0.00	0.04	0.14	0.00
LAND USE PARAMETERS.....																								
runoff total P conc	378.69	200.00	200.00	200.00	200.00	200.00	343.06	0.00	257.23	200.00	200.00	200.00	200.00	0.00	336.82	350.00	324.06	200.00	0.00	274.64	200.00	200.00	350.00	311.80	200.00
runoff coefficient	0.22	0.08	0.08	0.08	0.08	0.08	0.13	0.00	0.10	0.08	0.08	0.08	0.08	0.00	0.39	0.46	0.39	0.08	0.00	0.27	0.08	0.08	0.46	0.36	0.08
dissolved/total P	0.32	0.60	0.60	0.60	0.60	0.60	0.42	0.00	0.53	0.60	0.60	0.60	0.60	0.00	0.34	0.30	0.35	0.60	0.00	0.45	0.60	0.60	0.30	0.38	0.60
runoff TSS conc	145.86	216.00	216.00	216.00	216.00	216.00	184.19	0.00	204.60	216.00	216.00	216.00	216.00	0.00	149.37	140.00	153.33	216.00	0.00	178.45	216.00	216.00	140.00	159.53	216.00
POND TSS BUDGETS.....																								
runoff	36942.89	1.24	1.24	1.24	1.24	661.93	16708.51	0.00	7355.50	1.24	1.24	1.24	1.24	0.00	2909.72	911.09	7130.10	1.24	0.00	696.73	0.12	0.12	185.07	671.58	0.12
upstream pond	81.45	12958.52	7104.72	4453.92	2967.45	0.00	661.93	0.00	17370.44	8406.82	3342.20	1504.55	795.92	0.00	0.00	0.00	422.34	3002.09	0.00	1325.22	1743.94	1435.73	0.00	1082.16	1512.60
total inflow	**37024.33**	**12959.76**	**7105.96**	**4455.16**	**2968.69**	**661.93**	**17370.44**	**0.00**	**24725.94**	**8408.06**	**3343.45**	**1505.79**	**797.16**	**0.00**	**2909.72**	**911.09**	**7552.44**	**3003.33**	**0.00**	**2021.95**	**1744.06**	**1435.86**	**185.07**	**1753.74**	**1512.73**
p removal efficiency (no inf)	39.00	23.00	19.00	17.00	16.00	0.00	0.00	5.00	40.00	34.00	28.00	24.00	21.00	5.00	58.00	48.00	34.00	29.00	5.00	7.00	9.00	13.00	62.00	7.00	6.00
tss removal efficiency (no inf)	65.00	45.18	37.32	33.39	31.43	0.00	0.00	9.82	66.00	60.25	55.00	47.14	41.25	9.82	93.00	76.00	60.25	55.88	9.82	13.75	17.68	25.54	93.00	13.75	11.79
net sedimentation	24065.82	5855.03	2652.05	1487.70	933.02	0.00	0.00	0.00	16319.12	5065.86	1838.89	709.87	328.83	0.00	2706.04	692.43	4550.34	1678.11	0.00	278.02	308.32	366.66	172.12	241.14	178.29
outflow	12958.52	7104.72	4453.92	2967.45	2035.68	661.93	17370.44	0.00	8406.82	3342.20	1504.55	795.92	468.33	0.00	203.68	218.66	3002.09	1325.22	0.00	1743.94	1435.73	1069.20	12.96	1512.60	1334.44
tss removal efficiency (inf)	65.00	45.18	37.32	33.39	31.43	0.00	0.00	9.82	66.00	60.25	55.00	47.14	41.25	9.82	93.00	76.00	60.25	55.88	9.82	13.75	17.68	25.54	93.00	13.75	11.79
upstream watershed tss load	37757.34	37758.58	37759.82	37761.06	37762.31	661.93	17370.44	0.00	24725.94	24727.18	24728.42	24729.67	24730.91	0.00	2909.72	911.09	10950.90	10952.14	0.00	11648.87	11649.00	11649.12	185.07	12505.78	12505.90
tss total removal efficiency	65.68	81.18	88.20	92.14	94.61	0.00	0.00	9.82	66.00	86.48	93.92	96.78	98.11	9.82	93.00	76.00	72.59	87.90	9.82	85.03	87.68	90.82	93.00	87.90	89.33
INFILTRATION BMP/POND.....																								
Annual runoff infiltrated	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Adjusted outflow	**97.96**	**97.96**	**97.96**	**97.97**	**97.97**	**1.13**	**37.12**	**0.00**	**51.14**	**51.14**	**51.14**	**51.14**	**51.14**	**0.00**	**7.57**	**2.40**	**28.40**	**28.41**	**0.00**	**30.10**	**30.10**	**30.10**	**0.49**	**32.31**	**32.31**
Adjusted TP outflow	**63.99**	**50.63**	**41.56**	**34.98**	**29.82**	**0.61**	**38.02**	**0.00**	**30.38**	**20.21**	**14.70**	**11.34**	**9.05**	**0.00**	**3.07**	**1.20**	**14.31**	**10.23**	**0.00**	**10.92**	**10.03**	**8.79**	**0.18**	**9.92**	**9.37**
Adjusted TSS outflow	**12958.52**	**7104.72**	**4453.92**	**2967.45**	**2035.68**	**661.93**	**17370.44**	**0.00**	**8406.82**	**3342.20**	**1504.55**	**795.92**	**468.33**	**0.00**	**203.68**	**218.66**	**3002.09**	**1325.22**	**0.00**	**1743.94**	**1435.73**	**1069.20**	**12.96**	**1512.60**	**1334.44**
POND P BUDGETS W/O P-BAN.																								
runoff	112.42	0.00	0.00	0.00	0.00	0.61	39.28	0.00	11.29	0.00	0.00	0.00	0.00	0.00	7.20	2.28	17.27	0.00	0.00	1.51	0.00	0.00	0.46	1.59	0.00
Adjusted TP outflow	**69.56**	**54.23**	**44.04**	**36.77**	**31.14**	**0.61**	**39.89**	**0.00**	**31.20**	**20.62**	**14.93**	**11.49**	**9.14**	**0.00**	**3.07**	**1.20**	**14.31**	**10.23**	**0.00**	**10.92**	**10.03**	**8.79**	**0.18**	**9.92**	**9.37**
upstream pond	1.23	69.56	54.23	44.04	36.77	0.00	0.61	0.00	39.89	31.20	20.62	14.93	11.49	0.00	0.00	0.00	4.28	14.31	0.00	10.23	10.92	10.03	0.00	8.97	9.92
total inflow	**113.65**	**69.56**	**54.23**	**44.04**	**36.77**	**0.61**	**39.89**	**0.00**	**51.19**	**31.20**	**20.62**	**14.94**	**11.49**	**0.00**	**7.20**	**2.28**	**21.55**	**14.31**	**0.00**	**11.74**	**10.92**	**10.03**	**0.46**	**10.56**	**9.92**
outflow	69.56	54.23	44.04	36.77	31.14	0.61	39.89	0.00	31.20	20.62	14.93	11.49	9.14	0.00	3.07	1.20	14.31	10.23	0.00	10.92	10.03	8.79	0.18	9.92	9.37
inflow phos conc	426.85	261.25	203.66	165.39	138.11	200.01	395.44	409.24	368.28	224.49	148.36	107.45	82.66	409.24	349.98	350.02	279.12	185.39	409.24	143.53	133.50	122.59	350.02	120.24	112.92
outflow phos conc	261.25	203.66	165.39	138.11	116.94	199.98	395.44	392.86	224.49	148.36	107.45	82.66	65.78	392.86	149.35	184.52	185.39	132.54	392.86	133.50	122.59	107.41	133.42	112.92	106.74
p reaction rate	1.04	0.36	0.28	0.24	0.21	0.00	0.00	0.04	1.05	0.78	0.53	0.39	0.32	0.04	3.15	1.70	0.76	0.56	0.04	0.08	0.10	0.16	4.26	0.07	0.06
1-rp	0.61	0.78	0.81	0.84	0.85	1.00	1.00	0.96	0.61	0.66	0.72	0.77	0.80	0.96	0.43	0.53	0.66	0.71	0.96	0.93	0.92	0.88	0.38	0.94	0.95
runoff total p conc	425.20	200.00	200.00	200.00	200.00	200.00	354.45	0.00	257.23	200.00	200.00	200.00	200.00	0.00	336.82	350.00	324.06	200.00	0.00	274.64	200.00	200.00	350.00	311.80	200.00

Rochester Loading Assessm																								
King's Run																								
363-06-158-2																								
2020 LOADS																								
	future kr-a2.1g	kr-a2.1g	future kr-a2.2g	kr-a2.2g	future kr-a2.2f	kr-a2.2f	future kr-a2.2e	kr-a2.2e	future kr-a2.2d	kr-a2.2d	future kr-a2.2c	kr-a2.2c	future kr-a2.2b	kr-a2.2b	future kr-a2.2i	kr-a2.2i	future kr-a2.2a	kr-a2.2a	kr-a2.2a cell 2	kr-a2.2a cell 3	future kr-a2.2h	kr-a2.2h	future kr-a2.4c	kr-a2.4c	future kr-a2.4b
	kr-a2.1g	kr-a2.2c	kr-a2.2g	kr-a2.2c	kr-a2.2f	kr-a2.2d	kr-a2.2e	kr-a2.2d	kr-a2.2d	kr-a2.2c	kr-a2.2c	kr-a2.2b	kr-a2.2b	kr-a2.2a	kr-a2.2i	kr-a2.2a	kr-a2.2a	kr-a2.2a cell 2	kr-a2.2a cell 3	kr-a2.4a	kr-a2.2h	kr-a2.4a	kr-a2.4c	kr-a2.4a	kr-a2.4b
INPUT VARIABLES....																								
case label																								
Watershed area	3.4	3.0	0.0	18.4	0.0	14.9	0.0	12.1	0.0	5.6	29.5	214.2	8.0	22.7	0.0	29.6	9.0	79.2	0.0	0.0	0.1	28.0	0.0	2.7	0.0
basin area	0.12	0.08	0.00	0.36	0.00	0.29	0.00	0.14	0.00	0.25	0.58	0.00	0.25	0.00	0.00	0.75	0.29	0.76	0.12	1.76	0.00	0.00	0.00	0.05	0.00
basin volume	0.27	0.12	0.00	2.23	0.00	0.66	0.00	0.27	0.00	0.00	2.33	0.00	0.64	0.00	0.00	4.80	0.71	2.45	4.20	6.21	0.01	0.00	0.00	0.06	0.00
Row Crop Agriculture	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	7%	0%	3%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Very Low Density Residential	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Low Density Residential	0%	0%	0%	0%	0%	5%	0%	13%	0%	0%	0%	3%	0%	55%	0%	0%	0%	2%	0%	0%	0%	89%	0%	0%	0%
Medium Density Residential	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
High Density Residential	0%	0%	0%	0%	0%	1%	0%	80%	0%	14%	0%	0%	0%	4%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Commercial/Industrial	100%	24%	0%	83%	0%	0%	0%	0%	0%	0%	100%	43%	100%	0%	0%	57%	100%	56%	0%	0%	100%	5%	0%	85%	0%
Institutional	0%	0%	0%	0%	0%	94%	0%	0%	0%	24%	0%	2%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Open Space	0%	7%	0%	2%	0%	0%	0%	5%	0%	12%	0%	34%	0%	28%	0%	42%	0%	34%	100%	100%	0%	6%	0%	0%	0%
Golf Course	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Pits and Quarries	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Right-of-Way	0%	68%	0%	15%	0%	0%	0%	2%	0%	51%	0%	11%	0%	10%	0%	2%	0%	7%	0%	0%	0%	0%	0%	15%	0%
WATERSHED-WIDE ACCOUNTII																								
tributary land area	3.36	6.39	0.00	18.38	0.00	14.92	0.00	12.06	0.00	32.58	29.49	498.61	8.04	529.31	0.00	29.59	8.96	647.04	647.05	647.06	0.13	28.13	0.00	2.70	0.00
tributary water area	0.12	0.20	0.00	0.36	0.00	0.29	0.00	0.14	0.00	0.68	0.58	8.88	0.25	9.13	0.00	0.75	0.29	10.93	11.05	12.81	0.00	0.00	0.00	0.05	0.00
direct and ponded area	3.49	6.59	0.00	18.74	0.00	15.21	0.00	12.20	0.00	33.26	30.08	507.50	8.28	538.44	0.00	30.34	9.25	657.97	658.10	659.87	0.13	28.13	0.00	2.75	0.00
ASSUMED EXPORT FACTORS...																								
season length	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
season precipitation	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80
runoff total p	350.00	372.95	0.00	353.96	0.00	352.33	0.00	381.70	0.00	362.43	350.00	319.91	350.00	342.51	0.00	288.40	350.00	302.83	200.00	200.00	350.00	378.15	0.00	357.46	0.00
runoff ortho p/total p	0.30	0.32	0.00	0.31	0.00	0.30	0.00	0.32	0.00	0.34	0.30	0.39	0.30	0.38	0.00	0.42	0.30	0.40	0.60	0.60	0.30	0.32	0.00	0.30	0.00
unit runoff	14.56	9.73	0.00	13.40	0.00	9.62	0.00	12.04	0.00	8.89	14.56	8.78	14.56	5.96	0.00	9.47	14.56	9.84	2.54	2.54	14.56	6.87	0.00	13.70	0.00
unit export	1.15	0.83	0.00	1.08	0.00	0.77	0.00	1.06	0.00	0.76	1.15	0.69	1.15	0.50	0.00	0.72	1.15	0.76	0.12	0.12	1.15	0.60	0.00	1.10	0.00
POND WATER BUDGETS.....																								
runoff	4.08	2.45	0.00	20.53	0.00	11.96	0.00	12.10	0.00	4.15	35.79	156.69	9.75	11.26	0.00	23.34	10.87	64.90	0.00	0.00	0.16	16.03	0.00	3.08	0.00
upstream pond	0.00	4.08	0.00	0.00	0.00	0.00	0.00	0.00	0.00	24.06	0.00	174.51	0.00	340.95	0.00	0.00	0.00	386.42	451.33	451.33	0.00	0.16	0.00	0.00	0.00
total inflow	**4.08**	**6.53**	**0.00**	**20.53**	**0.00**	**11.96**	**0.00**	**12.10**	**0.00**	**28.21**	**35.79**	**331.20**	**9.75**	**352.21**	**0.00**	**23.34**	**10.87**	**451.33**	**451.33**	**451.33**	**0.16**	**16.18**	**0.00**	**3.08**	**0.00**
outflow	4.08	6.53	0.00	20.53	0.00	11.96	0.00	12.10	0.00	28.21	35.79	331.20	9.75	352.21	0.00	23.34	10.87	451.33	451.33	451.33	0.16	16.18	0.00	3.08	0.00
POND PHOSPHORUS BUDGETS																								
runoff	3.88	2.52	0.00	19.77	0.00	11.44	0.00	12.81	0.00	4.26	34.05	148.57	9.28	11.41	0.00	21.19	10.34	60.06	0.00	0.00	0.15	16.69	0.00	2.97	0.00
upstream pond	0.00	2.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	13.83	0.00	63.30	0.00	216.50	0.00	0.00	0.00	241.56	262.26	226.39	0.00	0.06	0.00	0.00	0.00
total inflow	**3.88**	**4.52**	**0.00**	**19.77**	**0.00**	**11.44**	**0.00**	**12.81**	**0.00**	**18.09**	**34.05**	**211.87**	**9.28**	**227.91**	**0.00**	**21.19**	**10.34**	**301.62**	**262.26**	**226.39**	**0.15**	**16.75**	**0.00**	**2.97**	**0.00**
net sedimentation	1.88	1.25	0.00	12.04	0.00	5.48	0.00	4.95	0.00	0.00	18.26	0.00	4.65	0.00	0.00	12.73	5.15	39.37	35.87	33.34	0.09	0.00	0.00	0.99	0.00
outflow	2.00	3.27	0.00	7.73	0.00	5.96	0.00	7.86	0.00	18.09	15.79	211.87	4.62	227.91	0.00	8.46	5.20	262.26	226.39	193.05	0.06	16.75	0.00	1.97	0.00
p removal efficiency	48.52	27.68	3.78	60.89	3.78	47.87	3.78	38.62	3.78	0.00	53.63	0.00	50.15	0.00	3.78	60.08	49.75	13.05	13.68	14.73	61.85	0.00	3.78	33.46	3.78
upstream w-shed p load	3.88	6.40	0.00	19.77	0.00	11.44	0.00	12.81	0.00	28.52	34.05	316.95	9.28	337.63	0.00	21.19	10.34	429.23	429.23	429.23	0.15	16.84	0.00	2.97	0.00
total removal %	48.52	48.96	3.78	60.89	3.78	47.87	3.78	38.62	3.78	36.55	53.63	33.15	50.15	32.50	3.78	60.08	49.75	38.90	47.26	55.02	61.85	0.55	3.78	33.46	3.78
HYDRAULIC PARAMETERS.....																								
pond mean depth	2.14	1.50	0.00	6.20	0.00	2.28	0.00	1.93	0.00	0.00	4.01	1.00	2.56	1.00	0.00	6.40	2.45	3.22	35.00	3.53	1021.25	1.00	0.00	1.20	0.00
relative volume	2.07	1.56	1.58	3.46	1.58	1.75	1.58	0.71	1.58	0.00	2.07	0.00	2.07	0.00	1.58	6.54	2.07	1.20	63000.00	93150.00	2.07	0.00	1.58	0.62	1.58
residence time	0.07	0.02	0.05	0.11	0.05	0.06	0.05	0.02	0.05	0.00	0.07	0.00	0.07	0.00	0.05	0.21	0.07	0.01	0.01	0.01	0.07	0.00	0.05	0.02	0.05
residence time	23.81	6.70	18.08	39.71	18.08	20.14	18.08	8.15	18.08	0.00	23.81	0.00	23.81	0.00	18.08	75.07	23.81	1.98	3.40	5.02	23.81	0.00	18.08	7.12	18.08
overflow rate	32.83	81.67	0.00	57.02	0.00	41.24	0.00	86.42	0.00	112.83	61.49	33120057.92	39.23	35221194.42	0.00	31.12	37.49	593.85	3761.07	256.44	15653.31	1618414.03	0.00	61.55	0.00
inflow phos conc	350.02	254.39	384.34	354.27	384.34	351.89	384.34	389.54	384.34	235.97	350.02	235.36	350.02	238.07	384.34	334.00	350.02	245.88	213.79	184.55	350.02	380.69	384.34	354.79	384.34
outflow phos conc	180.20	183.97	369.82	138.55	369.82	183.44	369.82	239.11	369.82	235.97	162.32	235.36	174.48	238.07	369.82	133.34	175.89	213.79	184.55	157.37	133.52	380.67	369.82	236.09	369.82
p reaction rate	1.83	0.53	0.04	3.98	0.04	1.76	0.04	1.02	0.04	0.00	2.49	0.00	2.02	0.00	0.04	3.77	1.97	0.17	0.18	0.20	4.25	0.00	0.04	0.76	0.04
1-rp	0.51	0.72	0.96	0.39	0.96	0.52	0.96	0.61	0.96	1.00	0.46	1.00	0.50	1.00	0.96	0.40	0.50	0.87	0.86	0.85	0.38	1.00	0.96	0.67	0.96
vlawmo pond volume	0.32	0.19	0.00	1.61	0.00	0.94	0.00	0.95	0.00	0.33	2.81	12.32	0.77	0.89	0.00	1.83	0.85	5.10	0.00	0.00	0.01	1.26	0.00	0.24	0.00
LAND USE PARAMETERS.....																								
runoff total P conc	350.00	372.95	0.00	353.96	0.00	352.33	0.00	381.70	0.00	362.43	350.00	319.91	350.00	342.51	0.00	288.40	350.00	302.83	200.00	200.00	350.00	378.15	0.00	357.46	0.00
runoff coefficient	0.46	0.31	0.00	0.42	0.00	0.30	0.00	0.38	0.00	0.28	0.46	0.28	0.46	0.19	0.00	0.30	0.46	0.31	0.08	0.08	0.46	0.22	0.00	0.43	0.00
dissolved/total P	0.30	0.32	0.00	0.31	0.00	0.30	0.00	0.32	0.00	0.34	0.30	0.39	0.30	0.38	0.00	0.42	0.30	0.40	0.60	0.60	0.30	0.32	0.00	0.30	0.00
runoff TSS conc	140.00	145.63	0.00	141.81	0.00	140.00	0.00	143.96	0.00	149.36	140.00	167.43	140.00	162.00	0.00	171.63	140.00	166.18	216.00	216.00	140.00	144.51	0.00	140.00	0.00
POND TSS BUDGETS.....																								
runoff	1548.25	940.45	0.00	7807.00	0.00	4537.98	0.00	4617.89	0.00	1603.86	13577.91	62978.26	3699.59	4564.62	0.00	9392.24	4124.98	25815.40	1.24	1.24	59.39	6153.44	0.00	1167.60	0.00
upstream pond	0.00	332.87	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2613.02	0.00	8496.93	0.00	72104.12	0.00	0.00	0.00	78109.94	75345.87	54626.66	0.00	4.16	0.00	0.00	0.00
total inflow	**1548.25**	**1273.33**	**0.00**	**7807.00**	**0.00**	**4537.98**	**0.00**	**4617.89**	**0.00**	**4216.88**	**13577.91**	**71475.19**	**3699.59**	**76668.74**	**0.00**	**9392.24**	**4124.98**	**103925.34**	**75347.11**	**54627.90**	**59.39**	**6157.60**	**0.00**	**1167.60**	**0.00**
p removal efficiency (no inf)	49.00	28.00	5.00	61.00	5.00	48.00	5.00	41.00	5.00	0.00	54.00	0.00	51.00	0.00	5.00	61.00	50.00	14.00	14.00	15.00	62.00	0.00	5.00	34.00	5.00
tss removal efficiency (no inf)	78.50	55.00	9.82	93.00	9.82	76.00	9.82	67.00	9.82	0.00	90.00	0.00	83.00	0.00	9.82	93.00	81.00	27.50	27.50	29.46	93.00	0.00	9.82	60.25	9.82
net sedimentation	1215.38	700.33	0.00	7260.51	0.00	3448.87	0.00	3093.99	0.00	0.00	12220.12	0.00	3070.66	0.00	0.00	8734.78	3341.23	28579.47	20720.46	16095.72	55.23	0.00	0.00	703.48	0.00
outflow	332.87	573.00	0.00	546.49	0.00	1089.12	0.00	1523.90	0.00	4216.88	1357.79	71475.19	628.93	76668.74	0.00	657.46	783.75	75345.87	54626.66	38532.18	4.16	6157.60	0.00	464.12	0.00
tss removal efficiency (inf)	78.50	55.00	9.82	93.00	9.82	76.00	9.82	67.00	9.82	0.00	90.00	0.00	83.00	0.00	9.82	93.00	81.00	27.50	27.50	29.46	93.00	0.00	9.82	60.25	9.82
upstream watershed tss load	1548.25	2488.70	0.00	7807.00	0.00	4537.98	0.00	4617.89	0.00	10759.73	13577.91	134848.41	3699.59	143112.62	0.00	9392.24	4124.98	182445.23	182446.47	182447.71	59.39	6212.83	0.00	1167.60	0.00
tss total removal efficiency	78.50	76.98	9.82	93.00	9.82	76.00	9.82	67.00	9.82	60.81	90.00	47.00	83.00	46.43	9.82	93.00	81.00	58.70	70.06	78.88	93.00	0.89	9.82	60.25	9.82
INFILTRATION BMP/POND.....																								
Annual runoff infiltrated	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Adjusted outflow	**4.08**	**6.53**	**0.00**	**20.53**	**0.00**	**11.96**	**0.00**	**12.10**	**0.00**	**28.21**	**35.79**	**331.20**	**9.75**	**352.21**	**0.00**	**23.34**	**10.87**	**451.33**	**451.33**	**451.33**	**0.16**	**16.18**	**0.00**	**3.08**	**0.00**
Adjusted TP outflow	**2.00**	**3.27**	**0.00**	**7.73**	**0.00**	**5.96**	**0.00**	**7.86**	**0.00**	**18.09**	**15.79**	**211.87**	**4.62**	**227.91**	**0.00**	**8.46**	**5.20**	**262.26**	**226.39**	**193.05**	**0.06**	**16.75**	**0.00**	**1.97**	**0.00**
Adjusted TSS outflow	**332.87**	**573.00**	**0.00**	**546.49**	**0.00**	**1089.12**	**0.00**	**1523.90**	**0.00**	**4216.88**	**1357.79**	**71475.19**	**628.93**	**76668.74**	**0.00**	**657.46**	**783.75**	**75345.87**	**54626.66**	**38532.18**	**4.16**	**6157.60**	**0.00**	**464.12**	**0.00**
POND P BUDGETS W/O P-BAN.																								
runoff	3.88	2.52	0.00	19.77	0.00	11.53	0.00	14.68	0.00	4.40	34.05	149.14	9.28	12.69	0.00	21.19	10.34	60.22	0.00	0.00	0.15	18.92	0.00	2.97	0.00
Adjusted TP outflow	**2.00**	**3.27**	**0.00**	**7.73**	**0.00**	**5.99**	**0.00**	**8.67**	**0.00**	**19.07**	**15.79**	**213.51**	**4.62**	**230.82**	**0.00**	**8.46**	**5.20**	**264.61**	**228.17**	**194.37**	**0.06**	**18.98**	**0.00**	**1.97**	**0.00**
upstream pond	0.00	2.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	14.66	0.00	64.37	0.00	218.13	0.00	0.00	0.00	244.47	264.61	228.17	0.00	0.06	0.00	0.00	0.00
total inflow	**3.88**	**4.52**	**0.00**	**19.77**	**0.00**	**11.53**	**0.00**	**14.68**	**0.00**	**19.07**	**34.05**	**213.51**	**9.28**	**230.82**	**0.00**	**21.19**	**10.34**	**304.69**	**264.61**	**228.17**	**0.15**	**18.98**	**0.00**	**2.97**	**0.00**
outflow	2.00	3.27	0.00	7.73	0.00	5.99	0.00	8.67	0.00	19.07	15.79	213.51	4.62	230.82	0.00	8.46	5.20	264.61	228.17	194.37	0.06	18.98	0.00	1.97	0.00
inflow phos conc	350.02	254.39	409.24	354.27	409.24	354.53	409.24	446.49	409.24	248.67	350.02	237.17	350.02	241.11	409.24	334.00	350.02	248.38	215.71	186.00	350.02	431.48	409.24	354.79	409.24
outflow phos conc	180.20	183.97	392.86	138.55	392.86	184.37	392.86	263.63	392.86	248.67	162.32	237.17	174.48	241.11	392.86	133.34	175.89	215.71	186.00	158.45	133.52	431.46	392.86	236.09	392.86
p reaction rate	1.83	0.53	0.04	3.98	0.04	1.77	0.04	1.17	0.04	0.00	2.49	0.00	2.02	0.00	0.04	3.77	1.97	0.17	0.19	0.20	4.25	0.00	0.04	0.76	0.04
1-rp	0.51	0.72	0.96	0.39	0.96	0.52	0.96	0.59	0.96	1.00	0.46	1.00	0.50	1.00	0.96	0.40	0.50	0.87	0.86	0.85	0.38	1.00	0.96	0.67	0.96
runoff total p conc	350.00	372.95	0.00	353.96	0.00	355.62	0.00	435.90	0.00	370.37	350.00	321.62	350.00	377.17	0.00	288.40	350.00	304.10	200.00	200.00	350.00	430.38	0.00	357.46	0.00

Rochester Loading Assessm																								
King's Run																								
363-06-158-2																								
2020 LOADS																								
	kr-a2.4b	future kr-a2.4a	kr-a2.4a	future kr-a2.3a	kr-a2.3a	future kr-a2.5e	kr-a2.5e	future kr-a2.5a	kr-a2.5a	future kr-a2.10	kr-a2.10	future kr-a2.8f	kr-a2.8f	future kr-a2.8e	kr-a2.8e	future kr-a2.8d	kr-a2.8d	future kr-a2.8c	kr-a2.8c	kr-a2.8c cell 2	kr-a2.8c cell 3	future kr-a2.8b	kr-a2.8b	future kr-a2.8a	kr-a2.8a
	kr-a2.4a	kr-a2.4a	kr-a2.5a	kr-a2.3a	kr-a2.5a	kr-a2.5e	kr-a2.5a	kr-a2.5a	kr-a2.10	kr-a2.10	kr-a2.12a	kr-a2.8f	kr-a2.8e	kr-a2.8e	kr-a2.8d	kr-a2.8d	kr-a2.8c	kr-a2.8c	kr-a2.8c cell 2	kr-a2.8c cell 3	kr-a2.8b	kr-a2.8b	kr-a2.8a	kr-a2.8a	kr-a2.9
INPUT VARIABLES....																								
case label																								
Watershed area	1.2	2.1	111.8	0.0	38.8	0.0	17.1	5.0	161.9	5.7	321.1	81.1	106.5	0.0	9.7	0.0	33.5	5.1	8.3	0.0	0.0	5.5	5.5	1.4	7.0
basin area	0.01	0.08	0.00	0.00	0.89	0.00	0.49	0.17	0.00	0.17	0.00	0.63	0.91	0.00	0.56	0.00	1.31	0.08	0.09	0.43	0.61	0.08	0.51	0.04	0.00
basin volume	0.00	0.16	0.00	0.00	5.28	0.00	1.97	0.39	0.00	0.45	0.00	2.56	2.30	0.00	2.34	0.00	5.90	0.22	0.35	1.75	6.57	0.24	1.98	0.06	0.00
Row Crop Agriculture	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	10%	0%	4%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Very Low Density Residential	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Low Density Residential	0%	0%	19%	0%	0%	0%	0%	0%	22%	0%	43%	74%	51%	0%	24%	0%	57%	0%	11%	0%	0%	0%	0%	0%	0%
Medium Density Residential	0%	0%	0%	0%	0%	0%	0%	0%	1%	0%	7%	26%	0%	0%	0%	0%	0%	100%	0%	0%	0%	100%	0%	100%	0%
High Density Residential	0%	0%	0%	0%	0%	0%	0%	0%	3%	0%	12%	0%	0%	0%	55%	0%	38%	0%	60%	0%	0%	0%	76%	0%	79%
Commercial/Industrial	88%	100%	69%	0%	85%	0%	30%	100%	40%	100%	6%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Institutional	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	3%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Open Space	0%	0%	5%	0%	4%	0%	0%	0%	10%	0%	14%	0%	45%	0%	21%	0%	4%	0%	29%	100%	100%	0%	21%	0%	6%
Golf Course	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Pits and Quarries	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Right-of-Way	12%	0%	7%	0%	11%	0%	70%	0%	24%	0%	5%	0%	0%	0%	0%	0%	1%	0%	0%	0%	0%	0%	2%	0%	16%
WATERSHED-WIDE ACCOUNTII																								
tributary land area	1.23	2.06	792.99	0.00	38.78	0.00	17.09	4.99	1015.79	5.68	7018.51	81.06	187.53	0.00	197.26	0.00	230.75	5.12	244.12	244.13	244.14	5.54	255.15	1.39	263.52
tributary water area	0.01	0.08	12.95	0.00	0.89	0.00	0.49	0.17	14.50	0.17	68.29	0.63	1.54	0.00	2.10	0.00	3.41	0.08	3.57	4.00	4.61	0.08	5.21	0.04	5.25
direct and ponded area	1.24	2.14	805.95	0.00	39.67	0.00	17.58	5.15	1030.29	5.85	7086.80	81.69	189.06	0.00	199.36	0.00	234.16	5.20	247.70	248.14	248.76	5.63	260.35	1.43	268.76
ASSUMED EXPORT FACTORS...																								
season length	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
season precipitation	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80
runoff total p	356.08	350.00	353.58	0.00	349.32	0.00	384.88	350.00	357.47	350.00	375.75	391.49	312.35	0.00	350.82	0.00	383.84	391.50	337.84	200.00	200.00	391.50	350.86	391.50	382.13
runoff ortho p/total p	0.30	0.30	0.32	0.00	0.31	0.00	0.30	0.30	0.33	0.30	0.33	0.30	0.43	0.00	0.36	0.00	0.31	0.30	0.39	0.60	0.60	0.30	0.36	0.30	0.32
unit runoff	13.86	14.56	12.05	0.00	13.46	0.00	10.52	14.55	10.18	14.56	7.62	7.52	4.76	0.00	9.61	0.00	9.20	9.74	9.69	2.54	2.54	9.74	11.12	9.74	12.23
unit export	1.11	1.15	0.97	0.00	1.07	0.00	0.90	1.15	0.84	1.15	0.66	0.67	0.38	0.00	0.83	0.00	0.81	0.86	0.83	0.12	0.12	0.86	0.96	0.86	1.08
POND WATER BUDGETS.....																								
runoff	1.43	2.50	112.28	0.00	43.51	0.00	14.98	6.05	137.32	6.89	203.92	50.77	42.25	0.00	7.80	0.00	25.69	4.15	6.66	0.00	0.00	4.50	5.06	1.13	7.12
upstream pond	0.00	0.00	474.51	0.00	0.00	0.00	0.00	0.00	651.33	0.00	3453.81	0.00	50.77	0.00	93.02	0.00	100.82	0.00	130.66	137.32	137.32	0.00	141.82	0.00	148.01
total inflow	**1.43**	**2.50**	**586.79**	**0.00**	**43.51**	**0.00**	**14.98**	**6.05**	**788.65**	**6.89**	**3657.73**	**50.77**	**93.02**	**0.00**	**100.82**	**0.00**	**126.50**	**4.15**	**137.32**	**137.32**	**137.32**	**4.50**	**146.88**	**1.13**	**155.12**
outflow	1.43	2.50	586.79	0.00	43.51	0.00	14.98	6.05	788.65	6.89	3657.73	50.77	93.02	0.00	100.82	0.00	126.50	4.15	137.32	137.32	137.32	4.50	146.88	1.13	155.12
POND PHOSPHORUS BUDGETS																								
runoff	1.37	2.37	108.42	0.00	41.67	0.00	15.44	5.76	136.06	6.56	213.44	54.03	40.39	0.00	8.07	0.00	27.19	4.42	6.83	0.00	0.00	4.79	5.26	1.20	7.55
upstream pond	0.00	0.00	214.38	0.00	0.00	0.00	0.00	0.00	348.01	0.00	2111.75	0.00	25.40	0.00	46.50	0.00	38.78	0.00	41.82	46.56	41.69	0.00	33.98	0.00	34.69
total inflow	**1.37**	**2.37**	**322.80**	**0.00**	**41.67**	**0.00**	**15.44**	**5.76**	**484.07**	**6.56**	**2325.19**	**54.03**	**65.80**	**0.00**	**54.57**	**0.00**	**65.97**	**4.42**	**48.65**	**46.56**	**41.70**	**4.79**	**39.24**	**1.20**	**42.24**
net sedimentation	0.00	1.13	0.00	0.00	25.48	0.00	9.31	2.85	0.00	3.32	0.00	28.63	19.30	0.00	15.79	0.00	26.33	2.24	2.09	4.86	10.04	2.46	5.21	0.54	0.00
outflow	1.37	1.24	322.80	0.00	16.19	0.00	6.12	2.91	484.07	3.24	2325.19	25.40	46.50	0.00	38.78	0.00	39.64	2.18	46.56	41.69	31.65	2.33	34.03	0.66	42.24
p removal efficiency	0.04	47.67	0.00	3.78	61.15	3.78	60.35	49.50	0.00	50.66	0.00	52.98	29.33	3.78	28.93	3.78	39.91	50.71	4.31	10.44	24.08	51.31	13.28	45.12	0.00
upstream w-shed p load	1.37	2.37	561.20	0.00	41.67	0.00	15.44	5.76	760.12	6.56	3948.68	54.03	94.42	0.00	102.49	0.00	129.68	4.42	140.93	140.93	140.93	4.79	150.98	1.20	159.72
total removal %	0.04	47.67	42.48	3.78	61.15	3.78	60.35	49.50	36.32	50.66	41.11	52.98	50.76	3.78	62.16	3.78	69.43	50.71	66.97	70.42	77.54	51.31	77.46	45.12	73.56
HYDRAULIC PARAMETERS.....																								
pond mean depth	0.00	1.97	1.00	0.00	5.93	0.00	4.02	2.38	1.00	2.71	1.00	4.09	2.53	0.00	4.18	0.00	4.50	2.68	4.08	4.08	10.74	2.90	3.87	1.45	1.00
relative volume	0.00	2.07	0.00	1.58	3.86	1.58	4.19	2.07	0.00	2.07	0.00	1.60	1.73	1.58	9.54	1.58	7.30	1.70	1.68	26175.00	98610.00	1.70	12.41	1.70	0.00
residence time	0.00	0.07	0.00	0.05	0.12	0.05	0.13	0.07	0.00	0.07	0.00	0.05	0.02	0.05	0.02	0.05	0.05	0.05	0.00	0.01	0.05	0.05	0.01	0.05	0.00
residence time	0.00	23.81	0.00	18.08	44.26	18.08	48.05	23.81	0.00	23.81	0.00	18.41	9.02	18.08	8.47	18.08	17.01	19.50	0.93	4.64	17.47	19.50	4.91	19.50	0.00
overflow rate	142.50	30.12	58679395.38	0.00	48.88	0.00	30.57	36.50	78865144.65	41.59	365773029.58	81.11	102.22	0.00	180.03	0.00	96.57	50.12	1596.74	320.85	224.39	54.27	288.00	27.16	15512189.11
inflow phos conc	353.87	350.02	202.39	384.34	352.35	384.34	379.10	350.02	225.83	350.02	233.88	391.51	260.24	384.34	199.13	384.34	191.86	391.52	130.35	124.74	111.71	391.52	98.29	391.52	100.17
outflow phos conc	353.74	183.15	202.39	369.82	136.89	369.82	150.32	176.75	225.83	172.71	233.88	184.08	183.90	369.82	141.52	369.82	115.29	192.99	124.74	111.71	84.81	190.64	85.24	214.89	100.17
p reaction rate	0.00	1.74	0.00	0.04	4.05	0.04	3.84	1.94	0.00	2.08	0.00	2.40	0.59	0.04	0.57	0.04	1.11	2.09	0.05	0.13	0.42	2.16	0.18	1.50	0.00
1-rp	1.00	0.52	1.00	0.96	0.39	0.96	0.40	0.50	1.00	0.49	1.00	0.47	0.71	0.96	0.71	0.96	0.60	0.49	0.96	0.90	0.76	0.49	0.87	0.55	1.00
vlawmo pond volume	0.11	0.20	8.83	0.00	3.42	0.00	1.18	0.48	10.80	0.54	16.03	3.99	3.32	0.00	0.61	0.00	2.02	0.33	0.52	0.00	0.00	0.35	0.40	0.09	0.56
LAND USE PARAMETERS.....																								
runoff total P conc	356.08	350.00	353.58	0.00	349.32	0.00	384.88	350.00	357.47	350.00	375.75	391.49	312.35	0.00	350.82	0.00	383.84	391.50	337.84	200.00	200.00	391.50	350.86	391.50	382.13
runoff coefficient	0.44	0.46	0.38	0.00	0.42	0.00	0.33	0.46	0.32	0.46	0.24	0.24	0.15	0.00	0.30	0.00	0.29	0.31	0.30	0.08	0.08	0.31	0.35	0.31	0.38
dissolved/total P	0.30	0.30	0.32	0.00	0.31	0.00	0.30	0.30	0.33	0.30	0.33	0.30	0.43	0.00	0.36	0.00	0.31	0.30	0.39	0.60	0.60	0.30	0.36	0.30	0.32
runoff TSS conc	140.00	140.00	143.91	0.00	143.04	0.00	140.00	140.00	147.69	140.00	153.04	140.00	175.09	0.00	156.14	0.00	143.06	140.00	162.01	216.00	216.00	140.00	156.21	140.00	144.24
POND TSS BUDGETS.....																								
runoff	540.66	947.00	42850.70	0.00	16573.77	0.00	5683.37	2295.14	52815.60	2614.94	80088.24	19263.16	18224.21	0.00	3048.49	0.00	9803.86	1575.66	2630.56	1.24	1.24	1706.17	1970.31	426.92	2716.96
upstream pond	0.00	0.00	45921.84	0.00	0.00	0.00	0.00	0.00	90766.61	0.00	512814.70	0.00	1348.42	0.00	8122.64	0.00	4733.77	0.00	4849.00	6744.96	5156.02	0.00	2693.99	0.00	3484.08
total inflow	**540.66**	**947.00**	**88772.54**	**0.00**	**16573.77**	**0.00**	**5683.37**	**2295.14**	**143582.21**	**2614.94**	**592902.94**	**19263.16**	**19572.63**	**0.00**	**11171.13**	**0.00**	**14537.62**	**1575.66**	**7479.56**	**6746.20**	**5157.27**	**1706.17**	**4664.30**	**426.92**	**6201.04**
p removal efficiency (no inf)	0.00	48.00	0.00	5.00	62.00	5.00	61.00	50.00	0.00	51.00	0.00	56.00	32.00	5.00	31.00	5.00	42.00	53.00	5.00	12.00	26.00	54.00	14.00	48.00	0.00
tss removal efficiency (no inf)	0.00	76.00	0.00	9.82	93.00	9.82	93.00	81.00	0.00	83.00	0.00	93.00	58.50	9.82	57.63	9.82	68.00	87.50	9.82	23.57	51.07	90.00	27.50	76.00	0.00
net sedimentation	0.00	719.72	0.00	0.00	15413.61	0.00	5285.54	1859.06	0.00	2170.40	0.00	17914.74	11449.99	0.00	6437.36	0.00	9885.58	1378.70	734.60	1590.18	2633.89	1535.55	1282.68	324.46	0.00
outflow	540.66	227.28	88772.54	0.00	1160.16	0.00	397.84	436.08	143582.21	444.54	592902.94	1348.42	8122.64	0.00	4733.77	0.00	4652.04	196.96	6744.96	5156.02	2523.38	170.62	3381.62	102.46	6201.04
tss removal efficiency (inf)	0.00	76.00	0.00	9.82	93.00	9.82	93.00	81.00	0.00	83.00	0.00	93.00	58.50	9.82	57.63	9.82	68.00	87.50	9.82	23.57	51.07	90.00	27.50	76.00	0.00
upstream watershed tss load	540.66	947.00	234166.50	0.00	16573.77	0.00	5683.37	2295.14	311534.38	2614.94	1508922.80	19263.16	37487.37	0.00	40535.86	0.00	50339.72	1575.66	54545.94	54547.18	54548.42	1706.17	58224.90	426.92	61368.79
tss total removal efficiency	0.00	76.00	62.09	9.82	93.00	9.82	93.00	81.00	53.91	83.00	60.71	93.00	78.33	9.82	88.32	9.82	90.76	87.50	87.63	90.55	95.37	90.00	94.19	76.00	89.90
INFILTRATION BMP/POND.....																								
Annual runoff infiltrated	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Adjusted outflow	**1.43**	**2.50**	**586.79**	**0.00**	**43.51**	**0.00**	**14.98**	**6.05**	**788.65**	**6.89**	**3657.73**	**50.77**	**93.02**	**0.00**	**100.82**	**0.00**	**126.50**	**4.15**	**137.32**	**137.32**	**137.32**	**4.50**	**146.88**	**1.13**	**155.12**
Adjusted TP outflow	**1.37**	**1.24**	**322.80**	**0.00**	**16.19**	**0.00**	**6.12**	**2.91**	**484.07**	**3.24**	**2325.19**	**25.40**	**46.50**	**0.00**	**38.78**	**0.00**	**39.64**	**2.18**	**46.56**	**41.69**	**31.65**	**2.33**	**34.03**	**0.66**	**42.24**
Adjusted TSS outflow	**540.66**	**227.28**	**88772.54**	**0.00**	**1160.16**	**0.00**	**397.84**	**436.08**	**143582.21**	**444.54**	**592902.94**	**1348.42**	**8122.64**	**0.00**	**4733.77**	**0.00**	**4652.04**	**196.96**	**6744.96**	**5156.02**	**2523.38**	**170.62**	**3381.62**	**102.46**	**6201.04**
POND P BUDGETS W/O P-BAN.																								
runoff	1.37	2.37	110.35	0.00	41.67	0.00	15.44	5.76	140.27	6.56	235.54	62.10	45.24	0.00	9.24	0.00	31.21	5.08	7.81	0.00	0.00	5.50	6.01	1.38	8.54
Adjusted TP outflow	**1.37**	**1.24**	**328.29**	**0.00**	**16.19**	**0.00**	**6.12**	**2.91**	**493.78**	**3.24**	**2419.83**	**27.81**	**50.38**	**0.00**	**41.52**	**0.00**	**42.49**	**2.39**	**50.25**	**44.67**	**33.45**	**2.55**	**36.14**	**0.72**	**45.40**
upstream pond	0.00	0.00	217.94	0.00	0.00	0.00	0.00	0.00	353.51	0.00	2184.29	0.00	27.81	0.00	50.38	0.00	41.52	0.00	44.88	50.25	44.67	0.00	36.01	0.00	36.86
total inflow	**1.37**	**2.37**	**328.30**	**0.00**	**41.67**	**0.00**	**15.44**	**5.76**	**493.78**	**6.56**	**2419.83**	**62.10**	**73.05**	**0.00**	**59.62**	**0.00**	**72.73**	**5.08**	**52.69**	**50.25**	**44.67**	**5.50**	**42.01**	**1.38**	**45.40**
outflow	1.37	1.24	328.29	0.00	16.19	0.00	6.12	2.91	493.78	3.24	2419.83	27.81	50.38	0.00	41.52	0.00	42.49	2.39	50.25	44.67	33.45	2.55	36.14	0.72	45.40
inflow phos conc	353.87	350.02	205.84	409.24	352.35	409.24	379.10	350.02	230.36	350.02	243.40	450.00	288.91	409.24	217.58	409.24	211.52	450.02	141.16	134.62	119.67	450.02	105.24	450.02	107.68
outflow phos conc	353.74	183.15	205.84	392.86	136.89	392.86	150.32	176.75	230.35	172.71	243.40	201.49	199.28	392.86	151.53	392.86	123.57	211.52	134.62	119.67	89.62	208.88	90.52	236.35	107.68
p reaction rate	0.00	1.74	0.00	0.04	4.05	0.04	3.84	1.94	0.00	2.08	0.00	2.75	0.65	0.04	0.63	0.04	1.22	2.40	0.05	0.14	0.45	2.49	0.19	1.72	0.00
1-rp	1.00	0.52	1.00	0.96	0.39	0.96	0.40	0.50	1.00	0.49	1.00	0.45	0.69	0.96	0.70	0.96	0.58	0.47	0.95	0.89	0.75	0.46	0.86	0.53	1.00
runoff total p conc	356.08	350.00	364.91	0.00	349.32	0.00	384.88	350.00	372.52	350.00	411.89	449.98	342.25	0.00	396.89	0.00	439.69	450.00	379.80	200.00	200.00	450.00	395.48	450.00	428.27

Rochester Loading Assessm																		
King's Run																		
363-06-158-2																		
2020 LOADS																		
	future kr-a2.9	kr-a2.9	future kr-a2.11c	kr-a2.11c	future kr-a2.11b	kr-a2.11b	future kr-a2.11a	kr-a2.11a	future kr-a2.12b	kr-a2.12b	future kr-a2.12a	kr-a2.12a	future kr-a2.13	kr-a2.13	future kr-a3.5b	kr-a3.5b	future kr-a3.5a	kr-a3.5a
	kr-a2.9	kr-a2.12a	kr-a2.11c	kr-a2.11a	kr-a2.11b	kr-a2.11a	kr-a2.11a	kr-a2.12a	kr-a2.12b	kr-a2.12a	kr-a2.12a	zr-a4.7	kr-a2.13	zr-a4.7	kr-a3.5b	kr-a3.5a	kr-a3.5a	zr-a4.6a
INPUT VARIABLES....																		
case label																		
Watershed area	22.5	137.6	0.0	43.0	0.0	17.8	0.0	63.5	0.0	3.3	8.8	241.8	0.0	320.2	0.0	52.1	0.0	156.7
basin area	0.31	0.00	0.00	0.78	0.00	0.16	0.00	0.00	0.00	0.17	0.17	0.00	0.00	0.00	0.00	0.21	0.00	0.00
basin volume	0.83	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.68	0.39	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Row Crop Agriculture	0%	56%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	28%	0%	0%	0%	0%
Very Low Density Residential	0%	5%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	37%	0%	0%	0%	0%
Low Density Residential	41%	12%	0%	97%	0%	79%	0%	11%	0%	0%	68%	23%	0%	6%	0%	24%	0%	34%
Medium Density Residential	59%	0%	0%	0%	0%	0%	0%	36%	0%	0%	0%	3%	0%	0%	0%	3%	0%	1%
High Density Residential	0%	4%	0%	0%	0%	5%	0%	2%	0%	0%	0%	14%	0%	0%	0%	30%	0%	16%
Commercial/Industrial	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	32%	2%	0%	0%	0%	0%	0%	13%
Institutional	0%	0%	0%	1%	0%	0%	0%	0%	0%	0%	0%	6%	0%	0%	0%	5%	0%	17%
Open Space	0%	13%	0%	2%	0%	17%	0%	51%	0%	100%	0%	47%	0%	25%	0%	38%	0%	12%
Golf Course	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Pits and Quarries	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Right-of-Way	0%	10%	0%	0%	0%	0%	0%	0%	0%	0%	0%	6%	0%	5%	0%	0%	0%	8%
WATERSHED-WIDE ACCOUNTI																		
tributary land area	22.51	423.62	0.00	42.96	0.00	17.77	0.00	124.21	0.00	3.31	8.82	7820.26	0.00	320.23	0.00	52.05	0.00	208.70
tributary water area	0.31	5.56	0.00	0.78	0.00	0.16	0.00	0.94	0.00	0.17	0.17	75.12	0.00	0.00	0.00	0.21	0.00	0.21
direct and ponded area	22.82	429.18	0.00	43.74	0.00	17.93	0.00	125.15	0.00	3.48	8.99	7895.38	0.00	320.23	0.00	52.26	0.00	208.91
ASSUMED EXPORT FACTORS..																		
season length	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
season precipitation	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80
runoff total p	391.50	447.03	0.00	386.93	0.00	359.78	0.00	293.43	0.00	200.01	378.10	299.65	0.00	353.17	0.00	315.89	0.00	357.73
runoff ortho p/total p	0.30	0.29	0.00	0.31	0.00	0.35	0.00	0.45	0.00	0.60	0.30	0.44	0.00	0.42	0.00	0.41	0.00	0.33
unit runoff	8.51	5.19	0.00	6.70	0.00	6.38	0.00	5.79	0.00	2.54	9.27	6.29	0.00	3.78	0.00	7.42	0.00	9.07
unit export	0.75	0.53	0.00	0.59	0.00	0.55	0.00	0.46	0.00	0.12	0.78	0.50	0.00	0.33	0.00	0.61	0.00	0.76
POND WATER BUDGETS.....																		
runoff	15.96	59.52	0.00	23.98	0.00	9.44	0.00	30.63	0.00	0.70	6.81	126.76	0.00	100.78	0.00	32.17	0.00	118.38
upstream pond	0.00	171.08	0.00	0.00	0.00	0.00	0.00	33.43	0.00	0.00	0.00	3959.90	0.00	0.00	0.00	0.00	0.00	32.17
total inflow	**15.96**	**230.60**	**0.00**	**23.98**	**0.00**	**9.44**	**0.00**	**64.05**	**0.00**	**0.70**	**6.81**	**4086.66**	**0.00**	**100.78**	**0.00**	**32.17**	**0.00**	**150.54**
outflow	15.96	230.60	0.00	23.98	0.00	9.44	0.00	64.05	0.00	0.70	6.81	4086.66	0.00	100.78	0.00	32.17	0.00	150.54
POND PHOSPHORUS BUDGETS																		
runoff	16.98	72.81	0.00	25.38	0.00	9.73	0.00	29.01	0.00	0.38	6.86	120.73	0.00	105.02	0.00	31.77	0.00	118.95
upstream pond	0.00	50.64	0.00	0.00	0.00	0.00	0.00	35.10	0.00	0.00	0.00	2516.43	0.00	0.00	0.00	0.00	0.00	31.77
total inflow	**16.98**	**123.45**	**0.00**	**25.38**	**0.00**	**9.73**	**0.00**	**64.11**	**0.00**	**0.38**	**6.86**	**2637.16**	**0.00**	**105.02**	**0.00**	**31.77**	**0.00**	**150.72**
net sedimentation	8.58	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.17	3.38	0.00	0.00	0.00	0.00	0.00	0.00	0.00
outflow	8.40	123.45	0.00	25.38	0.00	9.73	0.00	64.11	0.00	0.21	3.48	2637.16	0.00	105.02	0.00	31.77	0.00	150.72
p removal efficiency	50.54	0.00	3.78	0.00	3.78	0.00	3.78	0.00	3.78	45.85	49.31	0.00	3.78	0.00	3.78	0.00	3.78	0.00
upstream w-shed p load	16.98	249.52	0.00	25.38	0.00	9.73	0.00	64.11	0.00	0.38	6.86	4390.28	0.00	105.02	0.00	31.77	0.00	150.72
total removal %	50.54	50.53	3.78	0.00	3.78	0.00	3.78	0.00	3.78	45.85	49.31	39.93	3.78	0.00	3.78	0.00	3.78	0.00
HYDRAULIC PARAMETERS.....																		
pond mean depth	2.70	1.00	0.00	0.00	0.00	0.00	0.00	1.00	0.00	4.00	2.35	1.00	0.00	1.00	0.00	0.00	0.00	1.00
relative volume	1.65	0.00	1.58	0.00	1.58	0.00	1.58	0.00	1.58	30.85	1.82	0.00	1.58	0.00	1.58	0.00	1.58	0.00
residence time	0.05	0.00	0.05	0.00	0.05	0.00	0.05	0.00	0.05	0.97	0.06	0.00	0.05	0.00	0.05	0.00	0.05	0.00
residence time	18.96	0.00	18.08	0.00	18.08	0.00	18.08	0.00	18.08	354.10	20.88	0.00	18.08	0.00	18.08	0.00	18.08	0.00
overflow rate	52.04	23060342.08	0.00	30.74	0.00	59.03	0.00	6405340.43	0.00	4.12	41.10	408665729.30	0.00	10078367.10	0.00	153.18	0.00	15054316.38
inflow phos conc	391.52	196.96	384.34	389.36	384.34	378.87	384.34	368.24	384.34	200.03	370.47	237.42	384.34	383.40	384.34	363.38	384.34	368.36
outflow phos conc	193.65	196.96	369.82	389.36	369.82	378.85	369.82	368.24	369.82	108.31	187.79	237.42	369.82	383.40	369.82	363.38	369.82	368.35
p reaction rate	2.07	0.00	0.04	0.00	0.04	0.00	0.04	0.00	0.04	1.56	1.92	0.00	0.04	0.00	0.04	0.00	0.04	0.00
1-rp	0.49	1.00	0.96	1.00	0.96	1.00	0.96	1.00	0.96	0.54	0.51	1.00	0.96	1.00	0.96	1.00	0.96	1.00
vlawmo pond volume	1.25	4.68	0.00	1.89	0.00	0.74	0.00	2.41	0.00	0.06	0.54	9.97	0.00	7.92	0.00	2.53	0.00	9.31
LAND USE PARAMETERS.....																		
runoff total P conc	391.50	447.03	0.00	386.93	0.00	359.78	0.00	293.43	0.00	200.01	378.10	299.65	0.00	353.17	0.00	315.89	0.00	357.73
runoff coefficient	0.27	0.16	0.00	0.21	0.00	0.20	0.00	0.18	0.00	0.08	0.29	0.20	0.00	0.12	0.00	0.23	0.00	0.29
dissolved/total P	0.30	0.29	0.00	0.31	0.00	0.35	0.00	0.45	0.00	0.60	0.30	0.44	0.00	0.42	0.00	0.41	0.00	0.33
runoff TSS conc	140.00	166.29	0.00	141.66	0.00	152.59	0.00	178.92	0.00	216.00	140.00	175.36	0.00	193.15	0.00	169.11	0.00	148.74
POND TSS BUDGETS.....																		
runoff	6055.31	25475.42	0.00	9139.22	0.00	3711.89	0.00	13039.54	0.00	410.29	2584.21	53003.58	0.00	49766.97	0.00	13074.92	0.00	45698.58
upstream pond	0.00	6957.96	0.00	0.00	0.00	0.00	0.00	12851.11	0.00	0.00	0.00	651781.16	0.00	0.00	0.00	0.00	0.00	13074.92
total inflow	**6055.31**	**32433.37**	**0.00**	**9139.22**	**0.00**	**3711.89**	**0.00**	**25890.65**	**0.00**	**410.29**	**2584.21**	**704784.74**	**0.00**	**49766.97**	**0.00**	**13074.92**	**0.00**	**58773.50**
p removal efficiency (no inf)	53.00	0.00	5.00	0.00	5.00	0.00	5.00	0.00	5.00	46.00	51.00	0.00	5.00	0.00	5.00	0.00	5.00	0.00
tss removal efficiency (no inf)	87.50	0.00	9.82	0.00	9.82	0.00	9.82	0.00	9.82	72.00	83.00	0.00	9.82	0.00	9.82	0.00	9.82	0.00
net sedimentation	5298.39	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	295.41	2144.90	0.00	0.00	0.00	0.00	0.00	0.00	0.00
outflow	756.91	32433.37	0.00	9139.22	0.00	3711.89	0.00	25890.65	0.00	114.88	439.32	704784.74	0.00	49766.97	0.00	13074.92	0.00	58773.50
tss removal efficiency (inf)	87.50	0.00	9.82	0.00	9.82	0.00	9.82	0.00	9.82	72.00	83.00	0.00	9.82	0.00	9.82	0.00	9.82	0.00
upstream watershed tss load	6055.31	92899.51	0.00	9139.22	0.00	3711.89	0.00	25890.65	0.00	410.29	2584.21	1683711.03	0.00	49766.97	0.00	13074.92	0.00	58773.50
tss total removal efficiency	87.50	65.09	9.82	0.00	9.82	0.00	9.82	0.00	9.82	72.00	83.00	58.14	9.82	0.00	9.82	0.00	9.82	0.00
INFILTRATION BMP/POND.....																		
Annual runoff infiltrated	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Adjusted outflow	**15.96**	**230.60**	**0.00**	**23.98**	**0.00**	**9.44**	**0.00**	**64.05**	**0.00**	**0.70**	**6.81**	**4086.66**	**0.00**	**100.78**	**0.00**	**32.17**	**0.00**	**150.54**
Adjusted TP outflow	**8.40**	**123.45**	**0.00**	**25.38**	**0.00**	**9.73**	**0.00**	**64.11**	**0.00**	**0.21**	**3.48**	**2637.16**	**0.00**	**105.02**	**0.00**	**31.77**	**0.00**	**150.72**
Adjusted TSS outflow	**756.91**	**32433.37**	**0.00**	**9139.22**	**0.00**	**3711.89**	**0.00**	**25890.65**	**0.00**	**114.88**	**439.32**	**704784.74**	**0.00**	**49766.97**	**0.00**	**13074.92**	**0.00**	**58773.50**
POND P BUDGETS W/O P-BAN.																		
runoff	19.52	75.41	0.00	29.11	0.00	11.13	0.00	32.78	0.00	0.38	7.39	132.72	0.00	110.40	0.00	35.85	0.00	128.34
Adjusted TP outflow	**9.21**	**130.01**	**0.00**	**29.11**	**0.00**	**11.13**	**0.00**	**73.01**	**0.00**	**0.21**	**3.65**	**2759.44**	**0.00**	**110.40**	**0.00**	**35.85**	**0.00**	**164.18**
upstream pond	0.00	54.61	0.00	0.00	0.00	0.00	0.00	40.24	0.00	0.00	0.00	2626.72	0.00	0.00	0.00	0.00	0.00	35.85
total inflow	**19.52**	**130.01**	**0.00**	**29.11**	**0.00**	**11.13**	**0.00**	**73.02**	**0.00**	**0.38**	**7.39**	**2759.44**	**0.00**	**110.40**	**0.00**	**35.85**	**0.00**	**164.18**
outflow	9.21	130.01	0.00	29.11	0.00	11.13	0.00	73.01	0.00	0.21	3.65	2759.44	0.00	110.40	0.00	35.85	0.00	164.18
inflow phos conc	450.02	207.43	409.24	446.58	409.24	433.50	409.24	419.39	409.24	200.03	399.30	248.43	409.24	403.02	409.24	410.00	409.24	401.25
outflow phos conc	212.28	207.43	392.86	446.57	392.86	433.48	392.86	419.39	392.86	108.31	197.41	248.43	392.86	403.02	392.86	409.99	392.86	401.25
p reaction rate	2.37	0.00	0.04	0.00	0.04	0.00	0.04	0.00	0.04	1.56	2.07	0.00	0.04	0.00	0.04	0.00	0.04	0.00
1-rp	0.47	1.00	0.96	1.00	0.96	1.00	0.96	1.00	0.96	0.54	0.49	1.00	0.96	1.00	0.96	1.00	0.96	1.00
runoff total p conc	450.00	458.48	0.00	443.60	0.00	408.59	0.00	321.98	0.00	200.01	417.72	323.07	0.00	373.44	0.00	348.78	0.00	387.35

Rochester Loading Assessment																								
King's Run																								
363-06-158-2																								
2020 LOADS																								
		future kr-a2.3b	**kr-a2.3b**	**future kr-a3.1a**	**kr-a3.1a**	**kr-a3.1a cell 2**	**kr-a3.1a cell 3**	**future kr-a3.1b**	**kr-a3.1b**	**future kr-a3.3**	**kr-a3.3**	**future kr-a3.4c**	**kr-a3.4c**	**future kr-a3.4b**	**kr-a3.4b**	**future kr-a3.4a**	**kr-a3.4a**	**future kr-a3.2**	**kr-a3.2**	**future kr-a3.6b**	**kr-a3.6b**	**future kr-a3.6a**	**kr-a3.6a**	**future kr-a3.7**	**kr-a3.7**
		kr-a2.3b	kr-a3.1a	kr-a3.1a	kr-a3.1a cell 2	kr-a3.1a cell 3	kr-a3.3	kr-a3.1b	kr-a3.3	kr-a3.3	kr-a3.4a	kr-a3.4c	kr-a3.4a	kr-a3.4b	kr-a3.4a	kr-a3.4a	zr-a4.6a	kr-a3.2	kr-a3.6a	kr-a3.6b	kr-a3.6a	kr-a3.6a	kr-a3.7	kr-a3.7	zr-a4.5
INPUT VARIABLES....	UNITS																							
case label	-																							
Watershed area	acres	0.0	32.6	0.0	111.7	0.0	0.0	0.0	36.9	3.3	154.2	0.0	1.2	0.9	3.0	0.4	177.3	0.0	195.1	0.0	1.1	0.7	391.1	0.0	107.6
basin area	acres	0.00	0.00	0.00	0.24	0.30	3.02	0.00	0.00	0.12	0.31	0.00	0.02	0.04	0.01	0.00	0.00	0.00	2.04	0.00	0.02	0.04	0.00	0.00	0.00
basin volume	acre-ft	0.00	0.00	0.00	1.07	1.31	13.33	0.00	0.00	0.26	0.82	0.00	0.02	0.07	0.00	0.03	0.00	0.00	8.52	0.00	0.00	0.06	0.00	0.00	0.00
Row Crop Agriculture		0%	0%	0%	2%	0%	0%	0%	1%	0%	0%	0%	0%	0%	0%	0%	0%	0%	37%	0%	0%	0%	0%	0%	0%
Very Low Density Residential		0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Low Density Residential		0%	0%	0%	0%	0%	0%	0%	0%	0%	41%	0%	0%	0%	0%	0%	67%	0%	33%	0%	0%	0%	71%	0%	85%
Medium Density Residential		0%	0%	0%	0%	0%	0%	0%	0%	0%	11%	0%	0%	0%	0%	0%	2%	0%	1%	0%	0%	0%	1%	0%	0%
High Density Residential		0%	0%	0%	0%	0%	0%	0%	0%	0%	14%	0%	0%	0%	0%	0%	3%	0%	5%	0%	0%	0%	3%	0%	0%
Commercial/Industrial		0%	89%	0%	69%	0%	0%	0%	2%	100%	6%	0%	100%	100%	63%	100%	2%	0%	2%	0%	100%	100%	4%	0%	0%
Institutional		0%	0%	0%	0%	0%	0%	0%	0%	0%	4%	0%	0%	0%	0%	0%	15%	0%	1%	0%	0%	0%	8%	0%	3%
Open Space		0%	9%	0%	26%	100%	100%	0%	76%	0%	10%	0%	0%	0%	2%	0%	6%	0%	10%	0%	0%	0%	6%	0%	12%
Golf Course		0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Pits and Quarries		0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Right-of-Way		0%	2%	0%	4%	0%	0%	0%	20%	0%	14%	0%	0%	0%	35%	0%	5%	0%	10%	0%	0%	0%	7%	0%	0%
WATERSHED-WIDE ACCOUNTING.....																								
tributary land area	ac	0.00	32.57	0.00	144.24	144.25	144.26	0.00	36.95	3.28	338.66	0.00	1.22	0.90	3.94	0.41	521.56	0.00	195.11	0.00	1.12	0.72	588.00	0.00	695.61
tributary water area	ac	0.00	0.00	0.00	0.24	0.54	3.56	0.00	0.00	0.12	4.00	0.00	0.02	0.04	0.05	0.00	4.07	0.00	2.04	0.00	0.02	0.04	2.10	0.00	2.10
direct and ponded area	ac	0.00	32.57	0.00	144.48	144.78	147.82	0.00	36.95	3.40	342.66	0.00	1.24	0.94	4.00	0.41	525.63	0.00	197.15	0.00	1.14	0.76	590.10	0.00	697.71
ASSUMED EXPORT FACTORS.....																								
season length	yrs	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
season precipitation	inches	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80
runoff total p	ppb	0.00	336.92	0.00	316.40	200.00	200.00	0.00	247.80	350.00	369.64	0.00	350.00	350.00	364.85	350.00	373.49	0.00	426.72	0.00	350.00	350.00	375.16	0.00	368.11
runoff ortho p/total p	-	0.00	0.33	0.00	0.38	0.60	0.60	0.00	0.53	0.30	0.33	0.00	0.30	0.30	0.31	0.30	0.32	0.00	0.29	0.00	0.30	0.30	0.32	0.00	0.33
unit runoff	in/yr	0.00	13.34	0.00	11.09	2.54	2.54	0.00	4.08	14.56	8.49	0.00	14.56	14.56	12.28	14.56	7.49	0.00	6.22	0.00	14.56	14.56	7.39	0.00	6.38
unit export	lbs/ac-y	0.00	1.05	0.00	0.86	0.12	0.12	0.00	0.28	1.15	0.73	0.00	1.15	1.15	1.01	1.15	0.64	0.00	0.59	0.00	1.15	1.15	0.64	0.00	0.55
POND WATER BUDGETS.....																								
runoff	ac-ft/yr	0.00	36.21	0.00	103.19	0.00	0.00	0.00	12.57	3.97	109.15	0.00	1.48	1.10	3.11	0.50	110.64	0.00	101.21	0.00	1.36	0.87	240.92	0.00	57.17
upstream pond	ac-ft/yr	0.00	0.00	0.00	36.21	139.40	139.41	0.00	0.00	0.00	155.95	0.00	0.00	0.00	1.10	0.00	271.29	0.00	0.00	0.00	0.00	0.00	103.44	0.00	344.36
total inflow	**ac-ft/yr**	**0.00**	**36.21**	**0.00**	**139.40**	**139.41**	**139.41**	**0.00**	**12.57**	**3.97**	**265.10**	**0.00**	**1.48**	**1.10**	**4.21**	**0.50**	**381.93**	**0.00**	**101.21**	**0.00**	**1.36**	**0.87**	**344.36**	**0.00**	**401.53**
outflow	ac-ft/yr	0.00	36.21	0.00	139.40	139.41	139.41	0.00	12.57	3.97	265.10	0.00	1.48	1.10	4.21	0.50	381.93	0.00	101.21	0.00	1.36	0.87	344.36	0.00	401.53
POND PHOSPHORUS BUDGETS.....																								
runoff	lbs/yr	0.00	34.24	0.00	96.44	0.00	0.00	0.00	10.35	3.78	112.98	0.00	1.41	1.04	3.06	0.48	113.83	0.00	115.94	0.00	1.29	0.83	249.19	0.00	59.17
upstream pond	lbs/yr	0.00	0.00	0.00	34.24	101.72	86.04	0.00	0.00	0.00	64.88	0.00	0.00	0.00	0.56	0.00	164.94	0.00	0.00	0.00	0.00	0.00	48.85	0.00	298.04
total inflow	**lbs/yr**	**0.00**	**34.24**	**0.00**	**130.69**	**101.72**	**86.05**	**0.00**	**10.35**	**3.78**	**177.86**	**0.00**	**1.41**	**1.04**	**3.62**	**0.48**	**278.76**	**0.00**	**115.94**	**0.00**	**1.29**	**0.83**	**298.05**	**0.00**	**357.22**
net sedimentation	lbs/yr	0.00	0.00	0.00	28.97	15.68	33.47	0.00	0.00	1.82	17.80	0.00	0.34	0.48	0.00	0.30	0.00	0.00	68.84	0.00	0.00	0.36	0.00	0.00	0.00
outflow	lbs/yr	0.00	34.24	0.00	101.72	86.04	52.58	0.00	10.35	1.96	160.06	0.00	1.07	0.56	3.62	0.18	278.76	0.00	47.10	0.00	1.29	0.47	298.04	0.00	357.21
p removal efficiency	%	3.78	0.00	3.78	22.16	15.41	38.89	3.78	0.00	48.26	10.01	3.78	24.02	46.33	0.01	61.88	0.00	3.78	59.38	3.78	0.03	43.84	0.00	3.78	0.00
upstream w-shed p load	lbs/yr	0.00	34.24	0.00	130.69	130.69	130.69	0.00	10.35	3.78	257.80	0.00	1.41	1.04	4.11	0.48	377.62	0.00	115.94	0.00	1.29	0.83	367.26	0.00	426.43
total removal %	%	3.78	0.00	3.78	22.16	34.16	59.77	3.78	0.00	48.26	37.91	3.78	24.02	46.33	11.78	61.88	26.18	3.78	59.38	3.78	0.03	43.84	18.85	3.78	16.23
HYDRAULIC PARAMETERS.....																								
pond mean depth	feet	0.00	1.00	0.00	4.41	4.41	4.41	0.00	1.00	2.09	2.62	0.00	0.75	1.73	0.00	3269.58	1.00	0.00	4.17	0.00	0.00	1.38	1.00	0.00	1.00
relative volume	inches	1.58	0.00	1.58	0.33	19650.00	199995.00	1.58	0.00	2.07	0.24	1.58	0.32	2.07	0.00	2.07	0.00	1.58	2.68	1.58	0.00	2.07	0.00	1.58	0.00
residence time	years	0.05	0.00	0.05	0.01	0.01	0.10	0.05	0.00	0.07	0.00	0.05	0.01	0.07	0.00	0.07	0.00	0.05	0.08	0.05	0.00	0.07	0.00	0.05	0.00
residence time	days	18.08	0.00	18.08	2.79	3.43	34.91	18.08	0.00	23.81	1.13	18.08	3.69	23.81	0.00	23.81	0.00	18.08	30.71	18.08	0.00	23.81	0.00	18.08	0.00
overflow rate	ft/yr	0.00	3621172.71	0.00	576.05	469.38	46.12	0.00	1256954.07	31.97	846.97	0.00	74.14	26.44	420.80	50114.87	38193494.75	0.00	49.61	0.00	67.77	21.11	34436151.40	0.00	40152965.55
inflow phos conc	ppb	384.34	347.93	384.34	344.92	268.47	227.09	384.34	302.94	350.02	246.85	384.34	350.02	350.02	316.71	350.02	268.53	384.34	421.48	384.34	350.02	350.02	318.43	384.34	327.31
outflow phos conc	ppb	369.82	347.93	369.82	268.47	227.09	138.76	369.82	302.94	181.10	222.14	369.82	265.94	187.84	316.67	133.42	268.53	369.82	171.21	369.82	349.92	196.56	318.43	369.82	327.31
p reaction rate	-	0.04	0.00	0.04	0.37	0.22	1.04	0.04	0.00	1.80	0.12	0.04	0.42	1.61	0.00	4.26	0.00	0.04	3.60	0.04	0.00	1.39	0.00	0.04	0.00
1-rp	-	0.96	1.00	0.96	0.78	0.85	0.61	0.96	1.00	0.52	0.90	0.96	0.76	0.54	1.00	0.38	1.00	0.96	0.41	0.96	1.00	0.56	1.00	0.96	1.00
vlawmo pond volume	acre-ft	0.00	2.85	0.00	8.11	0.00	0.00	0.00	0.99	0.31	8.58	0.00	0.12	0.09	0.24	0.04	8.70	0.00	7.96	0.00	0.11	0.07	18.94	0.00	4.49
LAND USE PARAMETERS.....																								
runoff total P conc	ppb	0.00	336.92	0.00	316.40	200.00	200.00	0.00	247.80	350.00	369.64	0.00	350.00	350.00	364.85	350.00	373.49	0.00	426.72	0.00	350.00	350.00	375.16	0.00	368.11
runoff coefficient		0.00	0.42	0.00	0.35	0.08	0.08	0.00	0.13	0.46	0.27	0.00	0.46	0.46	0.39	0.46	0.24	0.00	0.20	0.00	0.46	0.46	0.23	0.00	0.20
dissolved/total P		0.00	0.33	0.00	0.38	0.60	0.60	0.00	0.53	0.30	0.33	0.00	0.30	0.30	0.31	0.30	0.32	0.00	0.29	0.00	0.30	0.30	0.32	0.00	0.33
runoff TSS conc	ppm	0.00	147.07	0.00	159.99	216.00	216.00	0.00	198.31	140.00	147.45	0.00	140.00	140.00	141.45	140.00	144.55	0.00	156.47	0.00	140.00	140.00	144.73	0.00	148.80
POND TSS BUDGETS.....																								
runoff	lbs/yr	0.00	13871.03	0.00	40450.53	1.24	1.24	0.00	6010.73	1507.74	42071.33	0.00	562.60	415.72	1183.34	190.14	42441.03	0.00	40966.72	0.00	514.26	331.93	92468.72	0.00	22233.51
upstream pond	lbs/yr	0.00	0.00	0.00	13871.03	29779.86	20421.32	0.00	0.00	0.00	13482.79	0.00	0.00	0.00	108.09	0.00	45141.52	0.00	0.00	0.00	0.00	0.00	3483.73	0.00	95952.44
total inflow	**lbs/yr**	**0.00**	**13871.03**	**0.00**	**54321.56**	**29781.10**	**20422.56**	**0.00**	**6010.73**	**1507.74**	**55554.12**	**0.00**	**562.60**	**415.72**	**1291.42**	**190.14**	**87582.55**	**0.00**	**40966.72**	**0.00**	**514.26**	**331.93**	**95952.44**	**0.00**	**118185.96**
p removal efficiency (no inf)	%	5.00	0.00	5.00	23.00	16.00	39.00	5.00	0.00	49.00	11.00	5.00	25.00	47.00	0.00	62.00	0.00	5.00	61.00	5.00	0.00	44.00	0.00	5.00	0.00
tss removal efficiency (no inf)	%	9.82	0.00	9.82	45.18	31.43	65.00	9.82	0.00	78.50	21.61	9.82	49.11	74.00	0.00	93.00	0.00	9.82	93.00	9.82	0.00	69.33	0.00	9.82	0.00
net sedimentation	lbs/yr	0.00	0.00	0.00	24541.71	9359.77	13274.67	0.00	0.00	1183.57	12003.66	0.00	276.28	307.63	0.00	176.83	0.00	0.00	38099.05	0.00	0.00	230.14	0.00	0.00	0.00
outflow	lbs/yr	0.00	13871.03	0.00	29779.86	20421.32	7147.90	0.00	6010.73	324.16	43550.47	0.00	286.32	108.09	1291.42	13.31	87582.55	0.00	2867.67	0.00	514.26	101.79	95952.44	0.00	118185.96
tss removal efficiency (inf)	%	9.82	0.00	9.82	45.18	31.43	65.00	9.82	0.00	78.50	21.61	9.82	49.11	74.00	0.00	93.00	0.00	9.82	93.00	9.82	0.00	69.33	0.00	9.82	0.00
upstream watershed tss load	lbs/yr	0.00	13871.03	0.00	54321.56	54322.80	54324.04	0.00	6010.73	1507.74	103913.84	0.00	562.60	415.72	1599.06	190.14	148706.67	0.00	40966.72	0.00	514.26	331.93	134281.64	0.00	156515.15
tss total removal efficiency	%	9.82	0.00	9.82	45.18	62.41	86.84	9.82	0.00	78.50	58.09	9.82	49.11	74.00	19.24	93.00	41.10	9.82	93.00	9.82	0.00	69.33	28.54	9.82	24.49
INFILTRATION BMP/POND.....																								
Annual runoff infiltrated	%	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Adjusted outflow	**ac-ft/yr**	**0.00**	**36.21**	**0.00**	**139.40**	**139.41**	**139.41**	**0.00**	**12.57**	**3.97**	**265.10**	**0.00**	**1.48**	**1.10**	**4.21**	**0.50**	**381.93**	**0.00**	**101.21**	**0.00**	**1.36**	**0.87**	**344.36**	**0.00**	**401.53**
Adjusted TP outflow	**lbs/yr**	**0.00**	**34.24**	**0.00**	**101.72**	**86.04**	**52.58**	**0.00**	**10.35**	**1.96**	**160.06**	**0.00**	**1.07**	**0.56**	**3.62**	**0.18**	**278.76**	**0.00**	**47.10**	**0.00**	**1.29**	**0.47**	**298.04**	**0.00**	**357.21**
Adjusted TSS outflow	**lbs/yr**	**0.00**	**13871.03**	**0.00**	**29779.86**	**20421.32**	**7147.90**	**0.00**	**6010.73**	**324.16**	**43550.47**	**0.00**	**286.32**	**108.09**	**1291.42**	**13.31**	**87582.55**	**0.00**	**2867.67**	**0.00**	**514.26**	**101.79**	**95952.44**	**0.00**	**118185.96**
POND P BUDGETS W/O P-BAN.....																								
runoff	lbs/yr	0.00	34.24	0.00	96.44	0.00	0.00	0.00	10.36	3.78	124.65	0.00	1.41	1.04	3.06	0.48	125.92	0.00	123.59	0.00	1.29	0.83	276.66	0.00	67.43
Adjusted TP outflow	**lbs/yr**	**0.00**	**34.24**	**0.00**	**101.72**	**86.04**	**52.58**	**0.00**	**10.36**	**1.96**	**169.57**	**0.00**	**1.07**	**0.56**	**3.62**	**0.18**	**300.37**	**0.00**	**49.02**	**0.00**	**1.29**	**0.47**	**327.43**	**0.00**	**394.86**
upstream pond	lbs/yr	0.00	0.00	0.00	34.24	101.72	86.04	0.00	0.00	0.00	64.90	0.00	0.00	0.00	0.56	0.00	174.44	0.00	0.00	0.00	0.00	0.00	50.77	0.00	327.43
total inflow	**lbs/yr**	**0.00**	**34.24**	**0.00**	**130.69**	**101.72**	**86.05**	**0.00**	**10.36**	**3.78**	**189.55**	**0.00**	**1.41**	**1.04**	**3.62**	**0.48**	**300.37**	**0.00**	**123.59**	**0.00**	**1.29**	**0.83**	**327.43**	**0.00**	**394.87**
outflow	lbs/yr	0.00	34.24	0.00	101.72	86.04	52.58	0.00	10.36	1.96	169.57	0.00	1.07	0.56	3.62	0.18	300.37	0.00	49.02	0.00	1.29	0.47	327.43	0.00	394.86
inflow phos conc	ppb	409.24	347.93	409.24	344.92	268.47	227.09	409.24	303.31	350.02	263.06	409.24	350.02	350.02	316.71	350.02	289.34	409.24	449.29	409.24	350.02	350.02	349.83	409.24	361.81
outflow phos conc	ppb	392.86	347.93	392.86	268.47	227.09	138.76	392.86	303.31	181.10	235.33	392.86	265.94	187.84	316.67	133.42	289.34	392.86	178.19	392.86	349.92	196.56	349.83	392.86	361.81
p reaction rate	-	0.04	0.00	0.04	0.37	0.22	1.04	0.04	0.00	1.80	0.13	0.04	0.42	1.61	0.00	4.26	0.00	0.04	3.84	0.04	0.00	1.39	0.00	0.04	0.00
1-rp	-	0.96	1.00	0.96	0.78	0.85	0.61	0.96	1.00	0.52	0.89	0.96	0.76	0.54	1.00	0.38	1.00	0.96	0.40	0.96	1.00	0.56	1.00	0.96	1.00
runoff total p conc	ppb	0.00	336.92	0.00	316.40	200.00	200.00	0.00	247.95	350.00	408.08	0.00	350.00	350.00	364.85	350.00	415.65	0.00	449.33	0.00	350.01	350.00	419.06	0.00	418.11

Rochester Loading Assessm																
King's Run																
363-06-158-2																
2020 LOADS																
	future kr-a3.8a	kr-a3.8a	future kr-a3.8b	kr-a3.8b	future exit 1	exit 1	future exit 2	exit 2	future exit 3	exit 3	future exit 4	exit 4	future exit 7	exit 7	future exit 8	exit 8
	kr-a3.8a	zr-a4.5	kr-a3.8b	zr-a4.2a	exit 1	exit city	exit 2	exit city	exit 3	exit city	exit 4	exit city	exit 7	exit city	exit 8	exit city
INPUT VARIABLES....																
case label																
Watershed area	0.0	97.0	0.0	107.4	0.0	25.0	0.0	1.9	0.0	68.1	0.0	6.6	0.0	3.8	0.0	8.1
basin area	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
basin volume	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Row Crop Agriculture	0%	0%	0%	0%	0%	95%	0%	87%	0%	48%	0%	82%	0%	0%	0%	13%
Very Low Density Residential	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	40%
Low Density Residential	0%	71%	0%	89%	0%	0%	0%	0%	0%	0%	0%	0%	0%	45%	0%	19%
Medium Density Residential	0%	1%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
High Density Residential	0%	17%	0%	3%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Commercial/Industrial	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Institutional	0%	1%	0%	6%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Open Space	0%	4%	0%	0%	0%	1%	0%	13%	0%	52%	0%	0%	0%	55%	0%	23%
Golf Course	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Pits and Quarries	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Right-of-Way	0%	6%	0%	2%	0%	4%	0%	0%	0%	0%	0%	18%	0%	0%	0%	4%
WATERSHED-WIDE ACCOUNTI																
tributary land area	0.00	97.01	0.00	107.44	0.00	24.99	0.00	1.87	0.00	68.13	0.00	6.62	0.00	3.79	0.00	8.11
tributary water area	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
direct and ponded area	0.00	97.01	0.00	107.44	0.00	24.99	0.00	1.87	0.00	68.13	0.00	6.62	0.00	3.79	0.00	8.11
ASSUMED EXPORT FACTORS..																
season length	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
season precipitation	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80
runoff total p	0.00	383.61	0.00	389.00	0.00	531.39	0.00	496.84	0.00	361.85	0.00	515.45	0.00	286.11	0.00	332.19
runoff ortho p/total p	0.00	0.31	0.00	0.30	0.00	0.21	0.00	0.25	0.00	0.41	0.00	0.22	0.00	0.47	0.00	0.44
unit runoff	0.00	7.89	0.00	7.16	0.00	4.61	0.00	4.21	0.00	3.45	0.00	5.21	0.00	4.43	0.00	4.04
unit export	0.00	0.70	0.00	0.63	0.00	0.55	0.00	0.49	0.00	0.32	0.00	0.59	0.00	0.33	0.00	0.33
POND WATER BUDGETS.....																
runoff	0.00	63.78	0.00	64.07	0.00	9.59	0.00	0.66	0.00	19.60	0.00	2.87	0.00	1.40	0.00	2.73
upstream pond	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
total inflow	**0.00**	**63.78**	**0.00**	**64.07**	**0.00**	**9.59**	**0.00**	**0.66**	**0.00**	**19.60**	**0.00**	**2.87**	**0.00**	**1.40**	**0.00**	**2.73**
outflow	0.00	63.78	0.00	64.07	0.00	9.59	0.00	0.66	0.00	19.60	0.00	2.87	0.00	1.40	0.00	2.73
POND PHOSPHORUS BUDGETS																
runoff	0.00	67.44	0.00	67.58	0.00	13.76	0.00	0.91	0.00	21.77	0.00	3.89	0.00	1.26	0.00	2.67
upstream pond	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
total inflow	**0.00**	**67.44**	**0.00**	**67.58**	**0.00**	**13.76**	**0.00**	**0.91**	**0.00**	**21.77**	**0.00**	**3.89**	**0.00**	**1.26**	**0.00**	**2.67**
net sedimentation	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
outflow	0.00	67.44	0.00	67.58	0.00	13.76	0.00	0.91	0.00	21.77	0.00	3.89	0.00	1.26	0.00	2.67
p removal efficiency	3.78	0.00	3.78	0.00	3.78	0.01	3.78	0.17	3.78	0.00	3.78	0.04	3.78	0.03	3.78	0.02
upstream w-shed p load	0.00	67.44	0.00	67.58	0.00	13.76	0.00	0.91	0.00	21.77	0.00	3.89	0.00	1.26	0.00	2.67
total removal %	3.78	0.00	3.78	0.00	3.78	0.01	3.78	0.17	3.78	0.00	3.78	0.04	3.78	0.03	3.78	0.02
HYDRAULIC PARAMETERS.....																
pond mean depth	0.00	1.00	0.00	1.00	0.00	1.00	0.00	1.00	0.00	1.00	0.00	1.00	0.00	1.00	0.00	1.00
relative volume	1.58	0.00	1.58	0.00	1.58	0.00	1.58	0.00	1.58	0.00	1.58	0.00	1.58	0.00	1.58	0.00
residence time	0.05	0.00	0.05	0.00	0.05	0.00	0.05	0.00	0.05	0.00	0.05	0.00	0.05	0.00	0.05	0.00
residence time	18.08	0.00	18.08	0.00	18.08	0.00	18.08	0.01	18.08	0.00	18.08	0.00	18.08	0.00	18.08	0.00
overflow rate	0.00	6378274.15	0.00	6406843.58	0.00	959220.76	0.00	65503.16	0.00	1959913.96	0.00	287166.66	0.00	139812.84	0.00	272671.89
inflow phos conc	384.34	389.03	384.34	388.09	384.34	527.78	384.34	513.93	384.34	408.74	384.34	498.69	384.34	331.03	384.34	360.30
outflow phos conc	369.82	389.02	369.82	388.09	369.82	527.70	369.82	513.04	369.82	408.73	369.82	498.47	369.82	330.94	369.82	360.23
p reaction rate	0.04	0.00	0.04	0.00	0.04	0.00	0.04	0.00	0.04	0.00	0.04	0.00	0.04	0.00	0.04	0.00
1-rp	0.96	1.00	0.96	1.00	0.96	1.00	0.96	1.00	0.96	1.00	0.96	1.00	0.96	1.00	0.96	1.00
vlawmo pond volume	0.00	5.01	0.00	5.04	0.00	0.75	0.00	0.05	0.00	1.54	0.00	0.23	0.00	0.11	0.00	0.21
LAND USE PARAMETERS.....																
runoff total P conc	0.00	383.61	0.00	389.00	0.00	531.39	0.00	496.84	0.00	361.85	0.00	515.45	0.00	286.11	0.00	332.19
runoff coefficient	0.00	0.25	0.00	0.23	0.00	0.14	0.00	0.13	0.00	0.11	0.00	0.16	0.00	0.14	0.00	0.13
dissolved/total P	0.00	0.31	0.00	0.30	0.00	0.21	0.00	0.25	0.00	0.41	0.00	0.22	0.00	0.47	0.00	0.44
runoff TSS conc	0.00	143.18	0.00	140.00	0.00	162.57	0.00	169.73	0.00	190.77	0.00	158.97	0.00	181.82	0.00	191.22
POND TSS BUDGETS.....																
runoff	0.00	24376.58	0.00	24307.57	0.00	4198.92	0.00	296.56	0.00	9744.45	0.00	1215.66	0.00	621.40	0.00	1308.00
upstream pond	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
total inflow	**0.00**	**24376.58**	**0.00**	**24307.57**	**0.00**	**4198.92**	**0.00**	**296.56**	**0.00**	**9744.45**	**0.00**	**1215.66**	**0.00**	**621.40**	**0.00**	**1308.00**
p removal efficiency (no inf)	5.00	0.00	5.00	0.00	5.00	0.00	5.00	0.00	5.00	0.00	5.00	0.00	5.00	0.00	5.00	0.00
tss removal efficiency (no inf)	9.82	0.00	9.82	0.00	9.82	0.00	9.82	0.00	9.82	0.00	9.82	0.00	9.82	0.00	9.82	0.00
net sedimentation	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
outflow	0.00	24376.58	0.00	24307.57	0.00	4198.92	0.00	296.56	0.00	9744.45	0.00	1215.66	0.00	621.40	0.00	1308.00
tss removal efficiency (inf)	9.82	0.00	9.82	0.00	9.82	0.00	9.82	0.00	9.82	0.00	9.82	0.00	9.82	0.00	9.82	0.00
upstream watershed tss load	0.00	24376.58	0.00	24307.57	0.00	4198.92	0.00	296.56	0.00	9744.45	0.00	1215.66	0.00	621.40	0.00	1308.00
tss total removal efficiency	9.82	0.00	9.82	0.00	9.82	0.00	9.82	0.00	9.82	0.00	9.82	0.00	9.82	0.00	9.82	0.00
INFILTRATION BMP/POND.....																
Annual runoff infiltrated	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Adjusted outflow	**0.00**	**63.78**	**0.00**	**64.07**	**0.00**	**9.59**	**0.00**	**0.66**	**0.00**	**19.60**	**0.00**	**2.87**	**0.00**	**1.40**	**0.00**	**2.73**
Adjusted TP outflow	**0.00**	**67.44**	**0.00**	**67.58**	**0.00**	**13.76**	**0.00**	**0.91**	**0.00**	**21.77**	**0.00**	**3.89**	**0.00**	**1.26**	**0.00**	**2.67**
Adjusted TSS outflow	**0.00**	**24376.58**	**0.00**	**24307.57**	**0.00**	**4198.92**	**0.00**	**296.56**	**0.00**	**9744.45**	**0.00**	**1215.66**	**0.00**	**621.40**	**0.00**	**1308.00**
POND P BUDGETS W/O P-BAN.																
runoff	0.00	76.63	0.00	76.61	0.00	13.76	0.00	0.91	0.00	21.77	0.00	3.89	0.00	1.41	0.00	2.91
Adjusted TP outflow	**0.00**	**76.62**	**0.00**	**76.61**	**0.00**	**13.76**	**0.00**	**0.91**	**0.00**	**21.77**	**0.00**	**3.89**	**0.00**	**1.41**	**0.00**	**2.91**
upstream pond	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
total inflow	**0.00**	**76.63**	**0.00**	**76.61**	**0.00**	**13.76**	**0.00**	**0.91**	**0.00**	**21.77**	**0.00**	**3.89**	**0.00**	**1.41**	**0.00**	**2.91**
outflow	0.00	76.62	0.00	76.61	0.00	13.76	0.00	0.91	0.00	21.77	0.00	3.89	0.00	1.41	0.00	2.91
inflow phos conc	409.24	442.00	409.24	439.93	409.24	527.78	409.24	513.94	409.24	408.74	409.24	498.69	409.24	371.06	409.24	392.41
outflow phos conc	392.86	441.99	392.86	439.93	392.86	527.70	392.86	513.04	392.86	408.73	392.86	498.47	392.86	370.94	392.86	392.34
p reaction rate	0.04	0.00	0.04	0.00	0.04	0.00	0.04	0.00	0.04	0.00	0.04	0.00	0.04	0.00	0.04	0.00
1-rp	0.96	1.00	0.96	1.00	0.96	1.00	0.96	1.00	0.96	1.00	0.96	1.00	0.96	1.00	0.96	1.00
runoff total p conc	0.00	435.45	0.00	442.48	0.00	531.39	0.00	496.84	0.00	361.85	0.00	515.45	0.00	312.42	0.00	361.58

Rochester Loading Assessment																						
Cascade Creek																						
363-06-158-2																						
Baseline (1988) TP LOADS																						
		cc-a2.2	**cc-a2.3d**	**cc-a2.3c**	**cc-a2.3b**	**cc-a2.3a**	**cc-a2.4c**	**cc-a2.4b**	**cc-a2.4a**	**cc-a2.6b**	**cc-a2.6a**	**cc-a2.8e**	**cc-a2.8d**	**cc-a2.8c**	**cc-a2.8b**	**cc-a2.8a**	**cc-a2.11**	**cc-a3.2**	**cc-a3.1**	**cc-a3.5**	**cc-a3.6b**	**cc-a3.4b**
Routed TO:		cc-a2.4c	cc-a2.3a	cc-a2.3a	cc-a2.3a	cc-a2.4a	cc-a2.8a	cc-a2.8a	cc-a2.8a	cc-a2.8a	cc-a2.8a	cc-a2.8a	cc-a2.8a	cc-a2.8a	cc-a2.8a	cc-a2.11	cc-a2.12a	cc-a3.1	cc-a3.4a	cc-a3.4a	cc-a3.4b	cc-a3.4a
INPUT VARIABLES....	UNITS																					
case label	-																					
Watershed area	acres	79.8	35.5	39.2	3.1	96.6	35.6	26.7	36.6	61.0	156.2	27.2	6.5	4.9	8.6	323.4	72.1	15.7	985.9	24.7	10.3	128.3
basin area	acres	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
basin volume	acre-ft	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Row Crop Agriculture		87%	95%	93%	100%	95%	81%	86%	100%	66%	90%	4%	20%	38%	0%	25%	41%	76%	70%	89%	78%	48%
Very Low Density Residential		0%	0%	0%	0%	0%	0%	0%	0%	9%	4%	0%	0%	0%	0%	0%	0%	0%	5%	0%	0%	7%
Low Density Residential		0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	1%	0%	0%	0%	0%	0%	0%
Medium Density Residential		0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
High Density Residential		0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Commercial/Industrial		0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	91%	80%	62%	98%	15%	0%	0%	0%	0%	0%	0%
Institutional		0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	1%	0%	0%	0%	0%	0%	0%
Open Space		13%	0%	4%	0%	5%	19%	14%	0%	21%	3%	5%	0%	0%	2%	43%	42%	22%	20%	11%	0%	40%
Golf Course		0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Pits and Quarries		0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	2%	1%	0%	0%	0%
Right-of-Way		0%	5%	3%	0%	0%	0%	1%	0%	4%	3%	0%	0%	0%	0%	15%	17%	0%	4%	0%	22%	5%
WATERSHED-WIDE ACCOUNTING.....																						
tributary land area	ac	79.77	35.49	39.16	3.12	174.34	115.38	26.70	210.99	61.04	156.16	27.24	6.53	4.87	8.62	2322.30	2394.40	15.71	1001.57	24.67	10.32	138.59
tributary water area	ac	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
direct and ponded area	ac	79.77	35.49	39.16	3.12	174.34	115.38	26.70	210.99	61.04	156.16	27.24	6.53	4.87	8.62	2322.30	2394.40	15.71	1001.57	24.67	10.32	138.59
ASSUMED EXPORT FACTORS.....																						
season length	yrs	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
season precipitation	inches	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8
runoff total p	ppb	496.4283686	533.5291949	521.470464	539.9940631	522.8898415	474.029451	493.3144797	539.9010426	446.4226343	519.0483976	349.4638101	387.2327856	422.5413784	346.467187	341.7758596	374.6306795	454.3602616	453.7712519	501.8833677	508.8618764	384.8664821
runoff ortho p/total p	-	0.251260671	0.204622082	0.220128933	0.200005135	0.220129539	0.277612249	0.254579758	0.200155888	0.314353354	0.225642658	0.311308989	0.280472079	0.261821613	0.307066763	0.404409558	0.383429911	0.284752909	0.298023452	0.244842863	0.222241787	0.384265595
unit runoff	in/yr	4.207490959	4.651590016	4.479787549	4.452087051	4.3559857	4.081799333	4.217174318	4.451244477	4.097498466	4.479012889	13.59217261	12.57399701	10.70140643	14.27806953	5.838819597	4.401718506	3.944203353	4.165564607	4.23811363	5.412457548	3.83089989
unit export	lbs/ac-y	0.49	0.56	0.53	0.54	0.52	0.46	0.49	0.54	0.44	0.53	1.08	1.03	0.92	1.13	0.49	0.41	0.44	0.45	0.50	0.60	0.37
POND WATER BUDGETS.....																						
runoff	ac-ft/yr	27.97	13.76	14.62	1.16	35.06	12.11	9.38	13.59	20.84	58.29	30.86	6.85	4.34	10.25	157.34	26.45	5.16	342.22	8.71	4.65	40.95
upstream pond	ac-ft/yr	0.00	0.00	0.00	0.00	29.53	27.97	0.00	64.59	0.00	0.00	0.00	0.00	0.00	0.00	730.86	888.20	0.00	5.16	0.00	0.00	4.65
total inflow	**ac-ft/yr**	**27.97**	**13.76**	**14.62**	**1.16**	**64.59**	**40.08**	**9.38**	**78.18**	**20.84**	**58.29**	**30.86**	**6.85**	**4.34**	**10.25**	**888.20**	**914.64**	**5.16**	**347.39**	**8.71**	**4.65**	**45.60**
outflow	ac-ft/yr	27.97	13.76	14.62	1.16	64.59	40.08	9.38	78.18	20.84	58.29	30.86	6.85	4.34	10.25	888.20	914.64	5.16	347.39	8.71	4.65	45.60
POND PHOSPHORUS BUDGETS.....																						
runoff	lbs/yr	39.05	19.73	20.84	1.70	50.50	16.43	13.02	19.95	26.71	82.58	29.43	6.76	4.49	9.74	158.42	29.50	6.90	445.39	12.25	6.19	47.09
upstream pond	lbs/yr	0.00	0.00	0.00	0.00	42.27	39.05	0.00	92.78	0.00	0.00	0.00	0.00	0.00	0.00	936.09	1094.50	0.00	6.90	0.00	0.00	6.19
total inflow	**lbs/yr**	**39.05**	**19.73**	**20.84**	**1.70**	**92.78**	**55.47**	**13.02**	**112.73**	**26.71**	**82.58**	**29.43**	**6.76**	**4.49**	**9.74**	**1094.50**	**1124.01**	**6.90**	**452.28**	**12.25**	**6.19**	**53.29**
net sedimentation	lbs/yr	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
outflow	lbs/yr	39.05	19.73	20.84	1.70	92.78	55.47	13.02	112.73	26.71	82.58	29.43	6.76	4.49	9.74	1094.50	1124.01	6.90	452.28	12.25	6.19	53.29
p removal efficiency	%	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
upstream w-shed p load	lbs/yr	39.05	19.73	20.84	1.70	92.78	55.47	13.02	112.73	26.71	82.58	29.43	6.76	4.49	9.74	1094.51	1124.01	6.90	452.28	12.25	6.19	53.29
total removal %	%	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
HYDRAULIC PARAMETERS.....																						
pond mean depth	feet	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
relative volume	inches	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
residence time	years	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
residence time	days	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
overflow rate	ft/yr	27967574.58	13755174.20	14620189.85	1156095.70	64588102.33	40081365.17	9381483.82	78182236.35	20841949.85	58286167.36	30858853.17	6846625.20	4342175.92	10254140.69	888195493.55	914644712.11	5164960.58	347386243.97	8713946.58	4654303.05	45602495.07
inflow phos conc	ppb	513.68	527.83	524.48	540.02	528.48	509.22	510.76	530.48	471.47	521.27	350.89	363.21	380.20	349.39	453.38	452.13	491.46	479.02	517.15	489.57	429.92
outflow phos conc	ppb	513.68	527.82	524.48	539.95	528.48	509.21	510.76	530.48	471.47	521.27	350.89	363.21	380.19	349.39	453.38	452.13	491.45	479.02	517.14	489.56	429.92
p reaction rate	-	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1-rp	-	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
vlawmo pond volume	acre-ft	2.20	1.08	1.15	0.09	2.76	0.95	0.74	1.07	1.64	4.58	2.43	0.54	0.34	0.81	12.37	2.08	0.41	26.90	0.69	0.37	3.22
LAND USE PARAMETERS.....																						
runoff total P conc	ppb	496.43	533.53	521.47	539.99	522.89	474.03	493.31	539.90	446.42	519.05	349.46	387.23	422.54	346.47	341.78	374.63	454.36	453.77	501.88	508.86	384.87
runoff coefficient		0.13	0.15	0.14	0.14	0.14	0.13	0.13	0.14	0.13	0.14	0.43	0.40	0.34	0.45	0.18	0.14	0.12	0.13	0.13	0.17	0.12
dissolved/total P		0.25	0.20	0.22	0.20	0.22	0.28	0.25	0.20	0.31	0.23	0.31	0.28	0.26	0.31	0.40	0.38	0.28	0.30	0.24	0.22	0.38
runoff TSS conc	ppm	169.79	161.94	164.73	163.00	165.67	173.28	170.04	163.03	177.87	165.78	144.63	144.54	148.78	141.79	178.88	181.08	171.61	174.31	168.94	157.88	186.36
POND TSS BUDGETS.....																						
runoff	lbs/yr	12665.37	6001.36	6464.43	510.68	15633.55	5561.43	4247.44	6005.61	9676.64	25869.58	11790.22	2627.34	1690.41	3899.29	67744.96	12031.65	2387.48	156954.49	3933.43	1951.39	19629.96
upstream pond	lbs/yr	0.00	0.00	0.00	0.00	12976.47	12665.37	0.00	28610.02	0.00	0.00	0.00	0.00	0.00	0.00	330925.06	398670.02	0.00	2387.48	0.00	0.00	1951.39
total inflow	**lbs/yr**	**12665.37**	**6001.36**	**6464.43**	**510.68**	**28610.02**	**18226.80**	**4247.44**	**34615.64**	**9676.64**	**25869.58**	**11790.22**	**2627.34**	**1690.41**	**3899.29**	**398670.02**	**410701.68**	**2387.48**	**159341.97**	**3933.43**	**1951.39**	**21581.36**
p removal efficiency (no inf)	%	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
tss removal efficiency (no inf)	%	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
net sedimentation	lbs/yr	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
outflow	lbs/yr	12665.37	6001.36	6464.43	510.68	28610.02	18226.80	4247.44	34615.64	9676.64	25869.58	11790.22	2627.34	1690.41	3899.29	398670.02	410701.68	2387.48	159341.97	3933.43	1951.39	21581.36
tss removal efficiency (inf)		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
upstream watershed tss load	lbs/yr	12665.37	6001.36	6464.43	510.68	28610.02	18226.80	4247.44	34615.64	9676.64	25869.58	11790.22	2627.34	1690.41	3899.29	398670.02	410701.68	2387.48	159341.97	3933.43	1951.39	21581.36
tss total removal efficiency	%	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
INFILTRATION BMP/POND.....																						
Annual runoff infiltrated	%	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Adjusted outflow	**ac-ft/yr**	**27.97**	**13.76**	**14.62**	**1.16**	**64.59**	**40.08**	**9.38**	**78.18**	**20.84**	**58.29**	**30.86**	**6.85**	**4.34**	**10.25**	**888.20**	**914.64**	**5.16**	**347.39**	**8.71**	**4.65**	**45.60**
Adjusted TP outflow	**lbs/yr**	**39.05**	**19.73**	**20.84**	**1.70**	**92.78**	**55.47**	**13.02**	**112.73**	**26.71**	**82.58**	**29.43**	**6.76**	**4.49**	**9.74**	**1094.50**	**1124.01**	**6.90**	**452.28**	**12.25**	**6.19**	**53.29**
Adjusted TSS outflow	**lbs/yr**	**12665.37**	**6001.36**	**6464.43**	**510.68**	**28610.02**	**18226.80**	**4247.44**	**34615.64**	**9676.64**	**25869.58**	**11790.22**	**2627.34**	**1690.41**	**3899.29**	**398670.02**	**410701.68**	**2387.48**	**159341.97**	**3933.43**	**1951.39**	**21581.36**

Rochester Loading Assessment
Cascade Creek
363-06-158-2
Baseline (1988) TP LOADS

		cc-a3.4a	cc-a3.6d	cc-a3.6c	cc-a3.6a	cc-a3.7a	cc-a3.7b	cc-a3.8d	cc-a3.8c	cc-a3.8b	cc-a3.8a	cc-a3.7d	cc-a3.9c	cc-a3.9b	cc-a3.9a	cc-a2.5	cc-a2.7e	cc-a2.7d	cc-a2.7c	cc-a2.7b	cc-a2.7a	cc-a2.9c
Routed TO:		cc-a2.8a	cc-a3.6a	cc-a3.6a	cc-a3.8a	cc-a3.8a	cc-a3.8a	cc-a3.8a	cc-a3.8b	cc-a3.8a	cc-a3.9a	cc-a3.9a	cc-a4.2a	cc-a3.9a	cc-a4.2a	cc-a2.7a	cc-a2.9a	cc-a2.7a	cc-a2.7a	cc-a2.7a	cc-a2.9a	cc-a2.9a
INPUT VARIABLES....	UNITS																					
case label	-																					
Watershed area	acres	216.6	50.1	29.5	239.3	232.7	8.8	14.0	0.5	2.7	172.0	55.7	32.0	3.5	299.4	132.2	30.4	13.4	5.1	33.1	397.2	10.7
basin area	acres	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
basin volume	acre-ft	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Row Crop Agriculture		44%	87%	94%	42%	23%	64%	24%	0%	0%	20%	0%	0%	0%	0%	4%	52%	0%	100%	40%	32%	36%
Very Low Density Residential		1%	4%	0%	2%	3%	0%	0%	0%	0%	3%	0%	0%	0%	0%	90%	2%	1%	0%	28%	42%	0%
Low Density Residential		0%	0%	0%	1%	8%	0%	0%	0%	0%	0%	56%	0%	0%	28%	1%	3%	0%	0%	0%	1%	0%
Medium Density Residential		0%	0%	0%	0%	2%	0%	0%	0%	0%	0%	13%	0%	0%	2%	0%	0%	0%	0%	0%	0%	0%
High Density Residential		0%	0%	0%	0%	21%	0%	0%	0%	0%	0%	6%	0%	55%	4%	0%	0%	0%	0%	0%	0%	0%
Commercial/Industrial		1%	0%	0%	24%	16%	0%	0%	100%	65%	15%	5%	11%	0%	37%	0%	0%	0%	0%	0%	0%	0%
Institutional		0%	0%	0%	0%	1%	0%	0%	0%	0%	5%	17%	0%	34%	5%	0%	0%	0%	0%	0%	0%	0%
Open Space		48%	0%	0%	26%	18%	36%	76%	0%	35%	49%	0%	6%	0%	7%	2%	43%	99%	0%	32%	22%	64%
Golf Course		0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Pits and Quarries		0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Right-of-Way		7%	9%	6%	5%	9%	0%	0%	0%	0%	7%	4%	83%	11%	17%	2%	0%	0%	0%	0%	3%	0%
WATERSHED-WIDE ACCOUNTING.....																						
tributary land area	ac	1381.41	50.06	29.49	318.86	232.74	8.84	14.00	0.54	3.24	749.64	55.68	32.03	3.50	1108.20	132.17	30.38	13.42	5.15	33.06	580.95	10.75
tributary water area	ac	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
direct and ponded area	ac	1381.41	50.06	29.49	318.86	232.74	8.84	14.00	0.54	3.24	749.64	55.68	32.03	3.50	1108.20	132.17	30.38	13.42	5.15	33.06	580.95	10.75
ASSUMED EXPORT FACTORS.....																						
season length	yrs	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
season precipitation	inches	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8
runoff total p	ppb	365.0350711	520.0309024	531.1027875	394.3478153	402.1452216	417.3948783	282.0494439	350.0044601	297.2619153	317.4609089	426.1794833	382.2074368	410.5357102	381.5364802	357.0129532	387.9742706	201.1749102	539.9964071	376.8817452	379.729998	323.3520423
runoff ortho p/total p	-	0.4016188	0.22063378	0.206446054	0.340049974	0.336627369	0.344240667	0.503470831	0.300009292	0.405582305	0.43430449	0.30000009	0.318562124	0.300001428	0.321487052	0.482436713	0.380111764	0.599215579	0.200003107	0.41335245	0.419070613	0.454879414
unit runoff	in/yr	3.88288396	4.783646833	4.72520143	6.596547533	8.316530008	3.764011344	3.004468968	14.55965755	10.32646284	5.586942703	8.50794089	9.012651922	11.74671191	10.17756627	3.219788523	3.674032909	2.547444171	4.452052681	3.422724111	3.536606914	3.236257538
unit export	lbs/ac-y	0.36	0.56	0.56	0.59	0.78	0.39	0.22	1.15	0.79	0.45	0.81	0.79	1.11	0.88	0.27	0.36	0.12	0.54	0.32	0.33	0.27
POND WATER BUDGETS.....																						
runoff	ac-ft/yr	70.08	19.96	11.61	131.55	161.30	2.77	3.50	0.65	2.33	80.06	39.47	24.06	3.43	253.92	35.46	9.30	2.85	1.91	9.43	117.05	2.90
upstream pond	ac-ft/yr	401.70	0.00	0.00	31.57	0.00	0.00	0.00	0.00	0.65	333.68	0.00	0.00	0.00	456.64	0.00	0.00	0.00	0.00	0.00	49.65	0.00
total inflow	**ac-ft/yr**	**471.78**	**19.96**	**11.61**	**163.12**	**161.30**	**2.77**	**3.50**	**0.65**	**2.98**	**413.74**	**39.47**	**24.06**	**3.43**	**710.56**	**35.46**	**9.30**	**2.85**	**1.91**	**9.43**	**166.70**	**2.90**
outflow	ac-ft/yr	471.78	19.96	11.61	163.12	161.30	2.77	3.50	0.65	2.98	413.74	39.47	24.06	3.43	710.56	35.46	9.30	2.85	1.91	9.43	166.70	2.90
POND PHOSPHORUS BUDGETS.....																						
runoff	lbs/yr	77.34	27.79	16.53	140.57	181.28	3.44	3.06	0.62	2.13	76.62	45.06	25.36	3.89	262.42	35.11	10.90	1.56	2.80	10.56	129.65	2.91
upstream pond	lbs/yr	517.82	0.00	0.00	44.32	0.00	0.00	0.00	0.00	0.62	375.43	0.00	0.00	0.00	501.00	0.00	0.00	0.00	0.00	0.00	50.03	0.00
total inflow	**lbs/yr**	**595.16**	**27.79**	**16.53**	**184.89**	**181.28**	**3.44**	**3.06**	**0.62**	**2.75**	**452.05**	**45.06**	**25.36**	**3.89**	**763.42**	**35.11**	**10.90**	**1.56**	**2.80**	**10.56**	**179.68**	**2.91**
net sedimentation	lbs/yr	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
outflow	lbs/yr	595.16	27.79	16.53	184.89	181.28	3.44	3.06	0.62	2.75	452.05	45.06	25.36	3.89	763.42	35.11	10.90	1.56	2.80	10.56	179.68	2.91
p removal efficiency	%	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00
upstream w-shed p load	lbs/yr	595.16	27.79	16.53	184.89	181.28	3.44	3.06	0.62	2.75	452.05	45.06	25.36	3.89	763.42	35.11	10.90	1.56	2.80	10.56	179.68	2.91
total removal %	%	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00
HYDRAULIC PARAMETERS.....																						
pond mean depth	feet	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
relative volume	inches	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
residence time	years	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
residence time	days	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
overflow rate	ft/yr	471781318.33	19957402.49	11613395.32	163120275.63	161301885.55	2772222.58	3504735.58	652879.31	2979844.45	413737082.53	39474754.20	24058583.34	3428160.40	710557587.47	35464376.79	9301448.08	2848910.84	1910338.70	9428772.06	166699369.07	2898362.58
inflow phos conc	ppb	464.13	512.33	523.61	417.02	413.49	457.16	321.60	350.02	339.88	401.99	419.97	387.77	417.78	395.29	364.26	431.29	201.39	540.02	412.00	396.57	369.71
outflow phos conc	ppb	464.13	512.33	523.61	417.02	413.49	457.14	321.60	349.99	339.87	401.99	419.97	387.77	417.77	395.29	364.26	431.29	201.39	539.98	412.00	396.57	369.71
p reaction rate	-	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1-rp	-	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
vlawmo pond volume	acre-ft	5.51	1.57	0.91	10.34	12.68	0.22	0.28	0.05	0.18	6.29	3.10	1.89	0.27	19.96	2.79	0.73	0.22	0.15	0.74	9.20	0.23
LAND USE PARAMETERS.....																						
runoff total P conc	ppb	365.04	520.03	531.10	394.35	402.15	417.39	282.05	350.00	297.26	317.46	426.18	382.21	410.54	381.54	357.01	387.97	201.17	540.00	376.88	379.73	323.35
runoff coefficient		0.12	0.15	0.15	0.21	0.26	0.12	0.09	0.46	0.32	0.18	0.27	0.28	0.37	0.32	0.10	0.12	0.08	0.14	0.11	0.11	0.10
dissolved/total P		0.40	0.22	0.21	0.34	0.34	0.34	0.50	0.30	0.41	0.43	0.30	0.32	0.30	0.32	0.48	0.38	0.60	0.20	0.41	0.42	0.45
runoff TSS conc	ppm	187.23	162.98	161.52	170.95	160.85	182.11	203.21	140.00	166.77	184.46	140.00	144.70	140.00	145.44	210.98	186.04	216.00	163.00	194.99	196.41	196.77
POND TSS BUDGETS.....																						
runoff	lbs/yr	33424.95	8679.70	5044.17	55197.53	64552.30	1321.61	1871.52	247.70	924.44	35146.19	14976.72	9214.37	1300.65	97272.61	19787.31	4494.23	1667.63	843.85	4820.79	59798.48	1488.81
upstream pond	lbs/yr	184856.76	0.00	0.00	13723.87	0.00	0.00	0.00	0.00	247.70	137838.98	0.00	0.00	0.00	189262.54	0.00	0.00	0.00	0.00	0.00	27119.57	0.00
total inflow	**lbs/yr**	**218281.71**	**8679.70**	**5044.17**	**68921.40**	**64552.30**	**1321.61**	**1871.52**	**247.70**	**1172.15**	**172985.17**	**14976.72**	**9214.37**	**1300.65**	**286535.15**	**19787.31**	**4494.23**	**1667.63**	**843.85**	**4820.79**	**86918.05**	**1488.81**
p removal efficiency (no inf)	%	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
tss removal efficiency (no inf)	%	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
net sedimentation	lbs/yr	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
outflow	lbs/yr	218281.71	8679.70	5044.17	68921.40	64552.30	1321.61	1871.52	247.70	1172.15	172985.17	14976.72	9214.37	1300.65	286535.15	19787.31	4494.23	1667.63	843.85	4820.79	86918.05	1488.81
tss removal efficiency (inf)		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
upstream watershed tss load	lbs/yr	218281.71	8679.70	5044.17	68921.40	64552.30	1321.61	1871.52	247.70	1172.15	172985.17	14976.72	9214.37	1300.65	286535.15	19787.31	4494.23	1667.63	843.85	4820.79	86918.05	1488.81
tss total removal efficiency	%	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
INFILTRATION BMP/POND.....																						
Annual runoff infiltrated	%	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Adjusted outflow	**ac-ft/yr**	**471.78**	**19.96**	**11.61**	**163.12**	**161.30**	**2.77**	**3.50**	**0.65**	**2.98**	**413.74**	**39.47**	**24.06**	**3.43**	**710.56**	**35.46**	**9.30**	**2.85**	**1.91**	**9.43**	**166.70**	**2.90**
Adjusted TP outflow	**lbs/yr**	**595.16**	**27.79**	**16.53**	**184.89**	**181.28**	**3.44**	**3.06**	**0.62**	**2.75**	**452.05**	**45.06**	**25.36**	**3.89**	**763.42**	**35.11**	**10.90**	**1.56**	**2.80**	**10.56**	**179.68**	**2.91**
Adjusted TSS outflow	**lbs/yr**	**218281.71**	**8679.70**	**5044.17**	**68921.40**	**64552.30**	**1321.61**	**1871.52**	**247.70**	**1172.15**	**172985.17**	**14976.72**	**9214.37**	**1300.65**	**286535.15**	**19787.31**	**4494.23**	**1667.63**	**843.85**	**4820.79**	**86918.05**	**1488.81**

Rochester Loading Assessment																						
Cascade Creek																						
363-06-158-2																						
Baseline (1988) TP LOADS																						
		cc-a2.9b	**cc-a2.9a**	**cc-a2.10g**	**cc-a2.10f**	**cc-a2.10e**	**cc-a2.10d**	**cc-a2.10c**	**cc-a2.10b**	**cc-a2.10a**	**cc-a2.12b**	**cc-a2.12a**	**cc-a1.3**	**cc-a1.8a**	**cc-a1.8b**	**cc-a1.8c**	**cc-a1.8d**	**cc-a1.8e**	**cc-a1.8f**	**cc-a1.5b**	**cc-a1.7**	**cc-a1.9c**
Routed TO:		cc-a2.9a	cc-a2.10a	cc-a2.10e	cc-a2.10e	cc-a2.10d	cc-a2.10c	cc-a2.10a	cc-a2.10a	cc-a2.12a	cc-a2.12a	cc-a4.2n	cc-a1.9a	cc-a1.8c	cc-a1.8c	cc-a1.8d	cc-a1.8e	cc-a1.9a	cc-a1.9a	cc-a1.9a	cc-a1.9c	cc-a1.9a
INPUT VARIABLES....	UNITS																					
case label	-																					
Watershed area	acres	34.8	41.2	10.6	12.8	31.4	73.9	99.9	2.8	131.9	4.1	45.1	28.3	3.6	10.2	5.8	12.1	18.3	12.9	0.4	30.1	95.6
basin area	acres	0.00	0.00	0.00	0.00	0.00	0.00	0.90	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
basin volume	acre-ft	0.00	0.00	0.00	0.00	0.00	0.00	3.60	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Row Crop Agriculture		65%	5%	0%	0%	68%	30%	14%	0%	11%	0%	26%	0%	71%	100%	35%	69%	65%	16%	89%	16%	14%
Very Low Density Residential		5%	0%	0%	0%	0%	0%	8%	0%	0%	0%	0%	100%	10%	0%	10%	0%	2%	14%	0%	7%	55%
Low Density Residential		1%	0%	0%	0%	0%	33%	22%	0%	26%	1%	19%	0%	0%	0%	6%	0%	0%	56%	0%	2%	8%
Medium Density Residential		0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	2%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
High Density Residential		0%	0%	0%	0%	0%	0%	0%	0%	3%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Commercial/Industrial		0%	2%	0%	0%	0%	0%	0%	100%	24%	61%	6%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Institutional		0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Open Space		29%	38%	100%	100%	32%	37%	56%	0%	32%	38%	25%	0%	19%	0%	49%	31%	33%	14%	11%	75%	23%
Golf Course		0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Pits and Quarries		0%	16%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Right-of-Way		0%	39%	0%	0%	0%	0%	0%	0%	5%	0%	23%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
WATERSHED-WIDE ACCOUNTING.....																						
tributary land area	ac	34.82	698.10	10.58	12.82	54.75	128.63	228.50	2.75	1061.28	4.07	3504.86	28.33	3.55	10.22	19.59	31.69	50.04	12.95	0.36	30.07	125.62
tributary water area	ac	0.00	0.00	0.00	0.00	0.00	0.00	0.90	0.00	0.90	0.00	0.90	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
direct and ponded area	ac	34.82	698.10	10.58	12.82	54.75	128.63	229.40	2.75	1062.18	4.07	3505.76	28.33	3.55	10.22	19.59	31.69	50.04	12.95	0.36	30.07	125.62
ASSUMED EXPORT FACTORS.....																						
season length	yrs	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
season precipitation	inches	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8
runoff total p	ppb	431.0825768	265.4772265	200.0017872	200.0014745	431.3186834	384.5391222	314.227758	350.0008727	353.0431405	293.9081883	394.0726101	350.0000847	455.5609328	539.8654118	349.881363	435.0135702	422.3950193	415.6739311	503.7763589	269.6380172	351.3036839
runoff ortho p/total p	-	0.331826501	0.358793469	0.599997352	0.599997816	0.327860189	0.380913804	0.470241312	0.300001818	0.385900419	0.413733179	0.348474784	0.4999994	0.307062587	0.200157775	0.43069002	0.323512489	0.339871263	0.35374558	0.242599905	0.523198476	0.46340554
unit runoff	in/yr	3.838199116	4.901393218	2.544045497	2.544037536	3.842117986	4.530484215	3.767895512	14.56091428	7.312821936	9.94057566	6.090659967	2.979675292	3.937233591	4.451281433	3.528700085	3.863345468	3.78401521	5.289970462	4.249771819	2.969393713	3.407804662
unit export	lbs/ac-y	0.41	0.40	0.12	0.12	0.41	0.44	0.31	1.15	0.63	0.76	0.57	0.24	0.43	0.54	0.31	0.41	0.39	0.52	0.50	0.20	0.29
POND WATER BUDGETS.....																						
runoff	ac-ft/yr	11.14	16.83	2.24	2.72	10.04	27.89	31.36	3.34	80.40	3.37	22.89	7.03	1.17	3.79	1.71	3.90	5.79	5.71	0.13	7.44	27.14
upstream pond	ac-ft/yr	0.00	190.04	0.00	0.00	4.96	15.00	42.89	0.00	284.45	0.00	1282.87	0.00	0.00	0.00	4.96	6.67	10.56	0.00	0.00	0.00	7.44
total inflow	**ac-ft/yr**	**11.14**	**206.87**	**2.24**	**2.72**	**15.00**	**42.89**	**74.25**	**3.34**	**364.85**	**3.37**	**1305.76**	**7.03**	**1.17**	**3.79**	**6.67**	**10.56**	**16.35**	**5.71**	**0.13**	**7.44**	**34.58**
outflow	ac-ft/yr	11.14	206.87	2.24	2.72	15.00	42.89	74.25	3.34	364.85	3.37	1305.76	7.03	1.17	3.79	6.67	10.56	16.35	5.71	0.13	7.44	34.58
POND PHOSPHORUS BUDGETS.....																						
runoff	lbs/yr	14.11	16.66	1.22	1.48	12.77	32.18	31.01	3.17	82.55	3.08	25.56	6.69	1.53	5.56	1.83	4.99	7.24	6.79	0.18	6.14	27.76
upstream pond	lbs/yr	0.00	207.61	0.00	0.00	2.70	15.47	47.65	0.00	270.85	0.00	1480.48	0.00	0.00	0.00	7.09	8.92	13.91	0.00	0.00	0.00	6.14
total inflow	**lbs/yr**	**14.11**	**224.27**	**1.22**	**1.48**	**15.47**	**47.65**	**78.66**	**3.17**	**353.40**	**3.08**	**1506.04**	**6.69**	**1.53**	**5.56**	**8.92**	**13.91**	**21.15**	**6.79**	**0.18**	**6.14**	**33.90**
net sedimentation	lbs/yr	0.00	0.00	0.00	0.00	0.00	0.00	35.26	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
outflow	lbs/yr	14.11	224.27	1.22	1.48	15.47	47.65	43.40	3.17	353.40	3.08	1506.04	6.69	1.53	5.56	8.92	13.91	21.15	6.79	0.18	6.14	33.90
p removal efficiency	%	0.00	0.00	0.00	0.00	0.00	0.00	44.82	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.09	0.00	0.00
upstream w-shed p load	lbs/yr	14.11	224.27	1.22	1.48	15.47	47.65	78.66	3.17	388.65	3.08	1541.30	6.69	1.53	5.56	8.92	13.91	21.15	6.79	0.18	6.14	33.90
total removal %	%	0.00	0.00	0.00	0.00	0.00	0.00	44.82	0.00	9.07	0.00	2.29	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.09	0.00	0.00
HYDRAULIC PARAMETERS.....																						
pond mean depth	feet	1.00	1.00	1.00	1.00	1.00	1.00	4.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
relative volume	inches	0.00	0.00	0.00	0.00	0.00	0.00	3.65	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
residence time	years	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
residence time	days	0.00	0.00	0.00	0.00	0.00	0.00	17.70	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
overflow rate	ft/yr	11137196.82	206867376.92	2241961.29	2717477.29	14997961.17	42892934.00	82.50	3336997.53	364850674.89	3371569.90	1305761773.09	7034293.28	1166103.60	3789928.58	6666293.13	10561858.90	16347958.72	5707904.58	126462.58	7439833.27	34575349.72
inflow phos conc	ppb	466.18	398.87	200.02	200.02	379.43	408.71	389.76	350.02	356.37	336.01	424.35	350.02	483.34	539.95	492.51	484.53	476.03	437.39	518.31	303.62	360.76
outflow phos conc	ppb	466.17	398.87	200.01	200.01	379.42	408.71	215.07	350.01	356.37	336.01	424.35	350.02	483.30	539.93	492.50	484.52	476.03	437.38	517.82	303.62	360.76
p reaction rate	-	0.00	0.00	0.00	0.00	0.00	0.00	1.47	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1-rp	-	1.00	1.00	1.00	1.00	1.00	1.00	0.55	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
vlawmo pond volume	acre-ft	0.88	1.32	0.18	0.21	0.79	2.19	2.47	0.26	6.32	0.27	1.80	0.55	0.09	0.30	0.13	0.31	0.45	0.45	0.01	0.58	2.13
LAND USE PARAMETERS.....																						
runoff total P conc	ppb	431.08	265.48	200.00	200.00	431.32	384.54	314.23	350.00	353.04	293.91	394.07	350.00	455.56	539.87	349.88	435.01	422.40	415.67	503.78	269.64	351.30
runoff coefficient		0.12	0.15	0.08	0.08	0.12	0.14	0.12	0.46	0.23	0.31	0.19	0.09	0.12	0.14	0.11	0.12	0.12	0.17	0.13	0.09	0.11
dissolved/total P		0.33	0.36	0.60	0.60	0.33	0.38	0.47	0.30	0.39	0.41	0.35	0.50	0.31	0.20	0.43	0.32	0.34	0.35	0.24	0.52	0.46
runoff TSS conc	ppm	180.89	146.91	216.00	216.00	179.94	174.76	191.87	140.00	166.86	168.81	164.65	216.00	178.52	163.02	192.51	179.36	181.79	164.70	168.63	205.92	202.09
POND TSS BUDGETS.....																						
runoff	lbs/yr	5281.68	7111.38	1312.34	1590.69	4739.48	12275.03	15069.74	1266.06	32675.66	1346.55	9439.43	4117.58	548.67	1674.24	848.73	1834.50	2755.92	2382.94	57.02	4023.97	14228.57
upstream pond	lbs/yr	0.00	98182.77	0.00	0.00	2903.03	7642.51	19917.55	0.00	117056.40	0.00	561780.29	0.00	0.00	0.00	2222.91	3071.65	4906.14	0.00	0.00	0.00	4023.97
total inflow	**lbs/yr**	**5281.68**	**105294.15**	**1312.34**	**1590.69**	**7642.51**	**19917.55**	**34987.29**	**1266.06**	**149732.06**	**1346.55**	**571219.72**	**4117.58**	**548.67**	**1674.24**	**3071.65**	**4906.14**	**7662.06**	**2382.94**	**57.02**	**4023.97**	**18252.54**
p removal efficiency (no inf)	%	0.00	0.00	0.00	0.00	0.00	0.00	45.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
tss removal efficiency (no inf)	%	0.00	0.00	0.00	0.00	0.00	0.00	70.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
net sedimentation	lbs/yr	0.00	0.00	0.00	0.00	0.00	0.00	24491.10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
outflow	lbs/yr	5281.68	105294.15	1312.34	1590.69	7642.51	19917.55	10496.19	1266.06	149732.06	1346.55	571219.72	4117.58	548.67	1674.24	3071.65	4906.14	7662.06	2382.94	57.02	4023.97	18252.54
tss removal efficiency (inf)		0.00	0.00	0.00	0.00	0.00	0.00	70.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
upstream watershed tss load	lbs/yr	5281.68	105294.15	1312.34	1590.69	7642.51	19917.55	34987.29	1266.06	174223.16	1346.55	595710.82	4117.58	548.67	1674.24	3071.65	4906.14	7662.06	2382.94	57.02	4023.97	18252.54
tss total removal efficiency	%	0.00	0.00	0.00	0.00	0.00	0.00	70.00	0.00	14.06	0.00	4.11	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
INFILTRATION BMP/POND.....																						
Annual runoff infiltrated	%	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Adjusted outflow	**ac-ft/yr**	**11.14**	**206.87**	**2.24**	**2.72**	**15.00**	**42.89**	**74.25**	**3.34**	**364.85**	**3.37**	**1305.76**	**7.03**	**1.17**	**3.79**	**6.67**	**10.56**	**16.35**	**5.71**	**0.13**	**7.44**	**34.58**
Adjusted TP outflow	**lbs/yr**	**14.11**	**224.27**	**1.22**	**1.48**	**15.47**	**47.65**	**43.40**	**3.17**	**353.40**	**3.08**	**1506.04**	**6.69**	**1.53**	**5.56**	**8.92**	**13.91**	**21.15**	**6.79**	**0.18**	**6.14**	**33.90**
Adjusted TSS outflow	**lbs/yr**	**5281.68**	**105294.15**	**1312.34**	**1590.69**	**7642.51**	**19917.55**	**10496.19**	**1266.06**	**149732.06**	**1346.55**	**571219.72**	**4117.58**	**548.67**	**1674.24**	**3071.65**	**4906.14**	**7662.06**	**2382.94**	**57.02**	**4023.97**	**18252.54**

Rochester Loading Assessment																					
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363-06-158-2																					
Baseline (1988) TP LOADS																					
		cc-a1.9b	**cc-a1.9a**	**cc-a1.10h**	**cc-a1.10g**	**cc-a1.10c**	**cc-a1.10b**	**cc-a1.10f**	**cc-a1.10a**	**cc-a4.1**	**cc-a4.3e**	**cc-a1.10e**	**cc-a1.10d**	**cc-a4.2f**	**cc-a4.2g**	**cc-a4.2h**	**cc-a4.2d**	**cc-a4.3d**	**cc-a4.3c**	**cc-a4.3b**	**cc-a4.3a**	**cc-a4.4c**
Routed TO:		cc-a1.9a	cc-a1.10a	cc-a1.10a	cc-a1.10a	cc-a1.10a	cc-a1.10a	cc-a1.10a	cc-a4.2b	cc-a4.2b	cc-a1.10e	cc-a1.10d	cc-a4.2b	cc-a4.2d	cc-a4.2d	cc-a4.2d	cc-a4.2a	cc-a4.3a	cc-a4.3a	cc-a4.3a	cc-a4.4c	cc-a4.2e
INPUT VARIABLES....	UNITS																				
case label	-																				
Watershed area	acres	48.0	71.2	7.9	13.4	4.3	5.0	5.2	186.2	236.0	6.2	25.5	12.5	10.6	10.3	29.2	18.8	7.1	22.8	99.3	121.0	6.3
basin area	acres	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
basin volume	acre-ft	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Row Crop Agriculture		18%	46%	0%	0%	51%	94%	50%	1%	0%	0%	32%	96%	86%	91%	89%	89%	0%	0%	18%	15%	100%
Very Low Density Residential		47%	5%	0%	0%	0%	0%	0%	0%	0%	0%	12%	0%	3%	2%	0%	0%	0%	0%	4%	3%	0%
Low Density Residential		3%	16%	0%	0%	0%	0%	0%	6%	86%	0%	0%	0%	0%	0%	0%	0%	0%	0%	13%	25%	0%
Medium Density Residential		0%	2%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	2%	0%
High Density Residential		0%	0%	0%	0%	0%	0%	0%	0%	0%	34%	1%	0%	0%	0%	1%	0%	52%	0%	1%	5%	0%
Commercial/Industrial		0%	1%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	7%	0%
Institutional		0%	0%	0%	0%	0%	0%	0%	0%	4%	0%	0%	0%	0%	3%	2%	0%	0%	0%	0%	0%	0%
Open Space		14%	20%	34%	70%	0%	4%	37%	14%	6%	46%	24%	4%	0%	0%	4%	11%	48%	100%	64%	40%	0%
Golf Course		0%	0%	66%	30%	49%	2%	0%	74%	0%	20%	19%	0%	0%	0%	0%	0%	0%	0%	0%	1%	0%
Pits and Quarries		0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Right-of-Way		19%	11%	0%	0%	0%	0%	14%	5%	3%	0%	12%	0%	12%	4%	4%	0%	0%	0%	0%	3%	0%
WATERSHED-WIDE ACCOUNTING.....																						
tributary land area	ac	48.02	336.55	7.94	13.39	4.35	5.00	5.23	558.62	236.05	6.17	31.68	44.19	10.60	10.30	29.16	68.84	7.08	22.79	99.32	250.14	256.41
tributary water area	ac	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
direct and ponded area	ac	48.02	336.55	7.94	13.39	4.35	5.00	5.23	558.62	236.05	6.17	31.68	44.19	10.60	10.30	29.16	68.84	7.08	22.79	99.32	250.14	256.41
ASSUMED EXPORT FACTORS.....																						
season length	yrs	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
season precipitation	inches	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8
runoff total p	ppb	375.74231	429.2931429	429.9514496	304.2579935	544.7008107	527.6662238	396.4347389	486.7047163	428.2810993	354.4202022	419.671306	527.0118323	518.4172507	525.5983793	516.5153145	502.5193457	329.2209027	200.0008292	302.3541071	354.6464094	539.943357
runoff ortho p/total p	-	0.416769213	0.324904543	0.665696206	0.629785503	0.447225034	0.224030628	0.360049493	0.636723362	0.31897877	0.519283124	0.439439045	0.215279737	0.219738818	0.212448794	0.22305212	0.24409458	0.444934165	0.599998772	0.481687829	0.415401561	0.200065719
unit runoff	in/yr	4.377278145	4.998356122	2.830288087	2.673808573	3.723572431	4.354423619	4.346520834	3.461482914	6.670865838	6.346142899	4.121185688	4.379143431	4.924782229	4.743005302	4.753746526	4.241687361	8.256594123	2.544021109	3.565279775	5.560134566	4.451741962
unit export	lbs/ac-y	0.39	0.51	0.28	0.19	0.46	0.53	0.42	0.38	0.66	0.59	0.41	0.53	0.57	0.56	0.55	0.50	0.77	0.12	0.29	0.50	0.54
POND WATER BUDGETS.....																						
runoff	ac-ft/yr	17.52	29.67	1.87	2.98	1.35	1.81	1.89	53.70	131.22	3.26	8.76	4.57	4.35	4.07	11.55	6.64	4.87	4.83	29.51	56.04	2.33
upstream pond	ac-ft/yr	0.00	81.31	0.00	0.00	0.00	0.00	0.00	120.89	0.00	0.00	3.26	12.02	0.00	0.00	0.00	19.97	0.00	0.00	0.00	39.21	95.25
total inflow	**ac-ft/yr**	**17.52**	**110.98**	**1.87**	**2.98**	**1.35**	**1.81**	**1.89**	**174.60**	**131.22**	**3.26**	**12.02**	**16.59**	**4.35**	**4.07**	**11.55**	**26.61**	**4.87**	**4.83**	**29.51**	**95.25**	**97.58**
outflow	ac-ft/yr	17.52	110.98	1.87	2.98	1.35	1.81	1.89	174.60	131.22	3.26	12.02	16.59	4.35	4.07	11.55	26.61	4.87	4.83	29.51	95.25	97.58
POND PHOSPHORUS BUDGETS.....																						
runoff	lbs/yr	18.85	36.00	2.25	2.56	1.99	2.63	2.21	70.39	155.36	3.66	10.40	6.61	6.00	5.72	16.10	9.34	5.47	2.63	28.31	60.15	3.41
upstream pond	lbs/yr	0.00	87.57	0.00	0.00	0.00	0.00	0.00	135.21	0.00	0.00	3.66	14.06	0.00	0.00	0.00	27.82	0.00	0.00	0.00	36.40	96.55
total inflow	**lbs/yr**	**18.85**	**123.57**	**2.25**	**2.56**	**1.99**	**2.63**	**2.21**	**205.60**	**155.36**	**3.66**	**14.06**	**20.67**	**6.00**	**5.72**	**16.10**	**37.16**	**5.47**	**2.63**	**28.31**	**96.55**	**99.97**
net sedimentation	lbs/yr	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
outflow	lbs/yr	18.85	123.57	2.25	2.56	1.99	2.63	2.21	205.60	155.36	3.66	14.06	20.67	6.00	5.72	16.10	37.16	5.46	2.63	28.31	96.55	99.97
p removal efficiency	%	0.00	0.00	0.00	0.00	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
upstream w-shed p load	lbs/yr	18.85	123.57	2.25	2.56	1.99	2.63	2.21	205.60	155.36	3.66	14.06	20.67	6.00	5.72	16.10	37.16	5.47	2.63	28.31	96.55	99.97
total removal %	%	0.00	0.00	0.00	0.00	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
HYDRAULIC PARAMETERS.....																						
pond mean depth	feet	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
relative volume	inches	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
residence time	years	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
residence time	days	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
overflow rate	ft/yr	17517155.83	110981049.42	1871785.08	2983099.15	1348888.94	1813646.47	1894021.81	174596835.79	131220417.20	3260373.22	12021344.30	16588093.89	4351898.73	4070711.97	11550043.25	26610219.53	4870764.41	4832177.29	29507758.78	95254544.82	97580242.40
inflow phos conc	ppb	396.02	409.64	442.12	316.20	543.82	532.84	428.51	433.24	435.60	413.09	430.24	458.39	507.47	516.76	512.83	513.72	412.81	200.01	352.95	372.94	376.92
outflow phos conc	ppb	396.01	409.64	442.11	316.20	543.79	532.80	428.50	433.24	435.60	413.08	430.24	458.38	507.45	516.74	512.83	513.72	412.80	200.01	352.95	372.94	376.92
p reaction rate	-	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1-rp	-	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
vlawmo pond volume	acre-ft	1.38	2.33	0.15	0.23	0.11	0.14	0.15	4.22	10.32	0.26	0.69	0.36	0.34	0.32	0.91	0.52	0.38	0.38	2.32	4.41	0.18
LAND USE PARAMETERS.....																						
runoff total P conc	ppb	375.74	429.29	429.95	304.26	544.70	527.67	396.43	486.70	428.28	354.42	419.67	527.01	518.42	525.60	516.52	502.52	329.22	200.00	302.35	354.65	539.94
runoff coefficient		0.14	0.16	0.09	0.08	0.12	0.14	0.14	0.11	0.21	0.20	0.13	0.14	0.15	0.15	0.15	0.13	0.26	0.08	0.11	0.17	0.14
dissolved/total P		0.42	0.32	0.67	0.63	0.45	0.22	0.36	0.64	0.32	0.52	0.44	0.22	0.22	0.21	0.22	0.24	0.44	0.60	0.48	0.42	0.20
runoff TSS conc	ppm	190.02	169.49	216.00	216.00	189.21	165.94	179.24	206.98	144.81	190.46	189.33	165.02	161.67	162.43	163.56	168.84	176.72	216.00	195.78	176.80	163.01
POND TSS BUDGETS.....																						
runoff	lbs/yr	8278.43	12810.50	1095.66	1746.18	672.50	810.06	862.22	28581.36	50437.05	1424.97	4188.04	2031.82	1875.10	1771.84	5034.15	2995.04	1997.30	2828.55	14585.51	24037.25	1027.36
upstream pond	lbs/yr	0.00	40750.57	0.00	0.00	0.00	0.00	0.00	58747.68	0.00	0.00	1424.97	5613.01	0.00	0.00	0.00	8681.09	0.00	0.00	0.00	19411.36	43448.61
total inflow	**lbs/yr**	**8278.43**	**53561.07**	**1095.66**	**1746.18**	**672.50**	**810.06**	**862.22**	**87329.04**	**50437.05**	**1424.97**	**5613.01**	**7644.84**	**1875.10**	**1771.84**	**5034.15**	**11676.13**	**1997.30**	**2828.55**	**14585.51**	**43448.61**	**44475.97**
p removal efficiency (no inf)	%	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
tss removal efficiency (no inf)	%	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
net sedimentation	lbs/yr	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
outflow	lbs/yr	8278.43	53561.07	1095.66	1746.18	672.50	810.06	862.22	87329.04	50437.05	1424.97	5613.01	7644.84	1875.10	1771.84	5034.15	11676.13	1997.30	2828.55	14585.51	43448.61	44475.97
tss removal efficiency (inf)		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
upstream watershed tss load	lbs/yr	8278.43	53561.07	1095.66	1746.18	672.50	810.06	862.22	87329.04	50437.05	1424.97	5613.01	7644.84	1875.10	1771.84	5034.15	11676.13	1997.30	2828.55	14585.51	43448.61	44475.97
tss total removal efficiency	%	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
INFILTRATION BMP/POND.....																						
Annual runoff infiltrated	%	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Adjusted outflow	**ac-ft/yr**	**17.52**	**110.98**	**1.87**	**2.98**	**1.35**	**1.81**	**1.89**	**174.60**	**131.22**	**3.26**	**12.02**	**16.59**	**4.35**	**4.07**	**11.55**	**26.61**	**4.87**	**4.83**	**29.51**	**95.25**	**97.58**
Adjusted TP outflow	**lbs/yr**	**18.85**	**123.57**	**2.25**	**2.56**	**1.99**	**2.63**	**2.21**	**205.60**	**155.36**	**3.66**	**14.06**	**20.67**	**6.00**	**5.72**	**16.10**	**37.16**	**5.46**	**2.63**	**28.31**	**96.55**	**99.97**
Adjusted TSS outflow	**lbs/yr**	**8278.43**	**53561.07**	**1095.66**	**1746.18**	**672.50**	**810.06**	**862.22**	**87329.04**	**50437.05**	**1424.97**	**5613.01**	**7644.84**	**1875.10**	**1771.84**	**5034.15**	**11676.13**	**1997.30**	**2828.55**	**14585.51**	**43448.61**	**44475.97**

Rochester Loading Assessment																			
Cascade Creek																			
363-06-158-2																			
Baseline (1988) TP LOADS																			
		cc-a4.2e	**cc-a4.4a**	**cc-a4.4b**	**cc-a4.2k**	**cc-a4.2i**	**cc-a4.2l**	**cc-a4.2m**	**cc-a4.2o**	**cc-a4.2p**	**cc-a4.2j**	**cc-a4.2n**	**cc-a4.2b**	**cc-a4.2c**	**cc-a4.2a**	**cc-a4.5**	**cc-a4.7**	**cc-a4.6**	**cc-a4.8**
Routed TO:		cc-a4.2a	cc-a4.4b	cc-a4.2a	cc-a4.2b	cc-a4.2b	cc-a4.2m	cc-a4.2n	cc-a4.2n	cc-a4.2n	cc-a4.2n	cc-a4.2a	cc-a4.2a	cc-a4.2a	cc-a4.5	cc-a4.7	cc-a4.8	cc-a4.8	Zumbro River
INPUT VARIABLES....	UNITS																		
case label	-																		
Watershed area	acres	33.4	230.3	8.6	2.6	13.4	8.6	24.2	1.4	4.4	22.4	33.4	37.8	66.2	56.2	301.8	104.5	241.9	293.5
basin area	acres	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
basin volume	acre-ft	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Row Crop Agriculture		100%	3%	0%	0%	61%	0%	20%	0%	0%	42%	6%	4%	90%	24%	0%	0%	0%	0%
Very Low Density Residential		0%	0%	0%	0%	0%	0%	4%	0%	0%	0%	0%	0%	0%	0%	0%	0%	1%	0%
Low Density Residential		0%	48%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	37%	33%	20%	46%
Medium Density Residential		0%	4%	0%	11%	0%	8%	0%	0%	0%	0%	0%	0%	0%	0%	6%	21%	1%	6%
High Density Residential		0%	5%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	3%	10%	3%	3%
Commercial/Industrial		0%	13%	1%	0%	0%	0%	0%	100%	100%	0%	65%	0%	2%	4%	16%	7%	12%	13%
Institutional		0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	17%	7%	27%	5%
Open Space		0%	20%	97%	63%	38%	78%	37%	0%	0%	58%	13%	86%	8%	34%	10%	10%	20%	18%
Golf Course		0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Pits and Quarries		0%	0%	0%	1%	1%	10%	27%	0%	0%	0%	0%	1%	0%	0%	0%	0%	0%	0%
Right-of-Way		0%	7%	2%	26%	0%	4%	12%	0%	0%	0%	17%	9%	0%	38%	10%	13%	17%	9%
WATERSHED-WIDE ACCOUNTING.....																			
tributary land area	ac	289.79	230.27	238.89	2.64	13.43	8.55	32.71	1.39	4.38	22.38	3599.17	892.77	66.21	6352.09	6653.85	6758.37	241.85	7293.70
tributary water area	ac	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.90	0.00	0.00	0.90	0.90	0.90	0.00	0.90
direct and ponded area	ac	289.79	230.27	238.89	2.64	13.43	8.55	32.71	1.39	4.38	22.38	3600.07	892.77	66.21	6352.99	6654.75	6759.27	241.85	7294.60
ASSUMED EXPORT FACTORS.....																			
season length	yrs	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
season precipitation	inches	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8
runoff total p	ppb	539.5411081	384.9495905	205.0597442	276.054134	406.2443982	210.8635145	242.9930224	350.0017277	350.0005479	343.3683019	350.2757043	227.31466	508.49786	364.37175	386.5152996	405.6790173	352.8052177	382.2390786
runoff ortho p/total p	-	0.2005397	0.358126078	0.591610055	0.48739761	0.34958699	0.504137813	0.317520817	0.300003599	0.300001142	0.431331152	0.332729414	0.550367129	0.234549863	0.376987234	0.330023067	0.329358192	0.361419532	0.354153192
unit runoff	in/yr	4.449436045	7.431451838	2.779916894	4.875491999	3.688195039	3.183857055	2.967915106	14.56061475	14.56102805	3.348565936	11.44834236	3.141655115	4.502423516	5.859094003	8.731646986	8.614187011	8.151064839	7.707930954
unit export	lbs/ac-y	0.54	0.68	0.14	0.38	0.38	0.21	0.25	1.15	1.15	0.30	0.92	0.19	0.52	0.52	0.77	0.81	0.69	0.70
POND WATER BUDGETS.....																			
runoff	ac-ft/yr	12.37	142.60	2.00	1.07	4.13	2.27	5.98	1.69	5.31	6.25	31.91	9.90	24.84	27.44	219.58	75.03	164.28	188.51
upstream pond	ac-ft/yr	97.58	0.00	142.60	0.00	0.00	0.00	2.27	0.00	0.00	0.00	1327.25	327.61	0.00	2737.29	2764.73	2984.31	0.00	3223.61
total inflow	**ac-ft/yr**	**109.95**	**142.60**	**144.60**	**1.07**	**4.13**	**2.27**	**8.24**	**1.69**	**5.31**	**6.25**	**1359.16**	**337.51**	**24.84**	**2764.73**	**2984.31**	**3059.33**	**164.28**	**3412.12**
outflow	ac-ft/yr	109.95	142.60	144.60	1.07	4.13	2.27	8.24	1.69	5.31	6.25	1359.16	337.51	24.84	2764.73	2984.31	3059.33	164.28	3412.12
POND PHOSPHORUS BUDGETS.....																			
runoff	lbs/yr	18.15	156.64	1.19	1.01	5.06	1.78	6.12	1.60	5.06	6.63	30.92	7.21	34.56	29.20	233.56	85.12	166.27	204.38
upstream pond	lbs/yr	99.97	0.00	156.64	0.00	0.00	0.00	1.78	0.00	0.00	0.00	1527.23	387.69	0.00	3089.49	3118.69	3352.26	0.00	3603.65
total inflow	**lbs/yr**	**118.12**	**156.64**	**157.83**	**1.01**	**5.06**	**1.78**	**7.90**	**1.60**	**5.06**	**6.63**	**1558.15**	**394.90**	**34.56**	**3118.69**	**3352.26**	**3437.38**	**166.27**	**3808.02**
net sedimentation	lbs/yr	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
outflow	lbs/yr	118.12	156.64	157.83	1.01	5.06	1.78	7.90	1.60	5.06	6.63	1558.15	394.90	34.56	3118.69	3352.26	3437.38	166.27	3808.02
p removal efficiency	%	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
upstream w-shed p load	lbs/yr	118.12	156.64	157.83	1.01	5.06	1.78	7.90	1.60	5.06	6.63	1593.41	394.90	34.56	3153.96	3387.52	3472.64	166.27	3843.29
total removal %	%	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.21	0.00	0.00	1.12	1.04	1.02	0.00	0.92
HYDRAULIC PARAMETERS.....																			
pond mean depth	feet	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
relative volume	inches	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
residence time	years	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
residence time	days	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
overflow rate	ft/yr	109954898.99	142600290.03	144597215.53	1073855.55	4128651.58	2269312.69	8244729.94	1685512.50	5314896.58	6245100.58	1359161471.72	337511940.09	24840650.96	2764730250.76	2984307917.17	3059334643.35	164279977.43	3412120448.20
inflow phos conc	ppb	395.25	404.13	401.58	344.66	451.23	288.86	352.45	350.02	350.02	390.63	421.78	430.47	511.92	415.02	413.28	413.38	372.37	410.61
outflow phos conc	ppb	395.25	404.13	401.58	344.65	451.22	288.86	352.45	350.01	350.01	390.63	421.78	430.47	511.91	415.02	413.28	413.38	372.37	410.61
p reaction rate	-	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1-rp	-	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
vlawmo pond volume	acre-ft	0.97	11.21	0.16	0.08	0.32	0.18	0.47	0.13	0.42	0.49	2.51	0.78	1.95	2.16	17.26	5.90	12.92	14.82
LAND USE PARAMETERS.....																			
runoff total P conc	ppb	539.54	384.95	205.06	276.05	406.24	210.86	242.99	350.00	350.00	343.37	350.28	227.31	508.50	364.37	386.52	405.68	352.81	382.24
runoff coefficient		0.14	0.23	0.09	0.15	0.12	0.10	0.09	0.46	0.46	0.11	0.36	0.10	0.14	0.18	0.27	0.27	0.26	0.24
dissolved/total P		0.20	0.36	0.59	0.49	0.35	0.50	0.32	0.30	0.30	0.43	0.33	0.55	0.23	0.38	0.33	0.33	0.36	0.35
runoff TSS conc	ppm	163.07	156.27	213.87	187.01	181.55	185.61	137.75	140.00	140.00	193.65	151.18	204.23	166.84	171.12	147.61	147.44	155.83	153.72
POND TSS BUDGETS.....																			
runoff	lbs/yr	5467.62	56327.45	1123.49	480.34	1978.61	1150.73	2821.46	639.49	2016.47	3152.75	12341.06	5209.02	11034.94	11548.31	84626.41	28911.73	64547.72	73832.19
upstream pond	lbs/yr	44475.97	0.00	56327.45	0.00	0.00	0.00	1150.73	0.00	0.00	0.00	581000.62	147869.88	0.00	1172275.70	1183824.01	1268450.42	0.00	1361909.87
total inflow	**lbs/yr**	**49943.59**	**56327.45**	**57450.94**	**480.34**	**1978.61**	**1150.73**	**3972.19**	**639.49**	**2016.47**	**3152.75**	**593341.68**	**153078.90**	**11034.94**	**1183824.01**	**1268450.42**	**1297362.15**	**64547.72**	**1435742.06**
p removal efficiency (no inf)	%	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
tss removal efficiency (no inf)	%	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
net sedimentation	lbs/yr	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
outflow	lbs/yr	49943.59	56327.45	57450.94	480.34	1978.61	1150.73	3972.19	639.49	2016.47	3152.75	593341.68	153078.90	11034.94	1183824.01	1268450.42	1297362.15	64547.72	1435742.06
tss removal efficiency (inf)		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
upstream watershed tss load	lbs/yr	49943.59	56327.45	57450.94	480.34	1978.61	1150.73	3972.19	639.49	2016.47	3152.75	617832.78	153078.90	11034.94	1208315.11	1292941.52	1321853.25	64547.72	1460233.16
tss total removal efficiency	%	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.96	0.00	0.00	2.03	1.89	1.85	0.00	1.68
INFILTRATION BMP/POND.....																			
Annual runoff infiltrated	%	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Adjusted outflow	**ac-ft/yr**	**109.95**	**142.60**	**144.60**	**1.07**	**4.13**	**2.27**	**8.24**	**1.69**	**5.31**	**6.25**	**1359.16**	**337.51**	**24.84**	**2764.73**	**2984.31**	**3059.33**	**164.28**	**3412.12**
Adjusted TP outflow	**lbs/yr**	**118.12**	**156.64**	**157.83**	**1.01**	**5.06**	**1.78**	**7.90**	**1.60**	**5.06**	**6.63**	**1558.15**	**394.90**	**34.56**	**3118.69**	**3352.26**	**3437.38**	**166.27**	**3808.02**
Adjusted TSS outflow	**lbs/yr**	**49943.59**	**56327.45**	**57450.94**	**480.34**	**1978.61**	**1150.73**	**3972.19**	**639.49**	**2016.47**	**3152.75**	**593341.68**	**153078.90**	**11034.94**	**1183824.01**	**1268450.42**	**1297362.15**	**64547.72**	**1435742.06**

Rochester Loading Assessment																						
Cascade Creek																						
363-06-158-2																						
Existing (2005) TP LOADS																						
		cc-a2.2	**cc-a2.3d**	**cc-a2.3c**	**cc-a2.3b**	**cc-a2.3a**	**cc-a2.4c**	**cc-a2.4b**	**cc-a2.4a**	**cc-a2.6b**	**cc-a2.6a**	**cc-a2.8e**	**cc-a2.8d**	**cc-a2.8c**	**cc-a2.8b**	**cc-a2.8a**	**cc-a2.11**	**cc-a3.2**	**cc-a3.1**	**cc-a3.5**	**cc-a3.5 cell 2**	**cc-a3.6b**
Routed TO:		cc-a2.4c	cc-a2.3a	cc-a2.3a	cc-a2.3a	cc-a2.4a	cc-a2.8a	cc-a2.8a	cc-a2.8a	cc-a2.8a	cc-a2.8a	cc-a2.8a	cc-a2.8a	cc-a2.8a	cc-a2.8a	cc-a2.11	cc-a2.12a	cc-a3.1	cc-a3.4a	cc-a3.5 cell 2	cc-a3.4a	cc-a3.4b
INPUT VARIABLES....	UNITS																					
case label	-																					
Watershed area	acres	56.3	35.5	39.2	3.1	42.3	35.6	26.7	36.6	61.0	156.2	26.8	6.3	4.9	8.6	323.5	72.1	15.3	957.2	22.9	0.1	10.2
basin area	acres	23.65	0.00	0.00	0.00	50.30	0.00	0.00	0.00	0.00	0.00	0.44	0.23	0.00	0.00	0.00	0.00	0.41	27.73	0.51	1.17	0.31
basin volume	acre-ft	116.46	0.00	0.00	0.00	260.76	0.00	0.00	0.00	0.00	0.00	1.07	0.57	0.00	0.00	0.00	0.00	1.16	110.25	2.83	6.53	1.24
Row Crop Agriculture		17%	95%	93%	0%	0%	0%	86%	0%	66%	90%	1%	3%	0%	0%	20%	31%	3%	73%	0%	0%	0%
Very Low Density Residential		0%	0%	0%	0%	0%	0%	0%	0%	9%	4%	0%	0%	0%	0%	0%	0%	0%	6%	0%	0%	0%
Low Density Residential		0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	97%	1%	82%	0%	0%
Medium Density Residential		0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
High Density Residential		0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Commercial/Industrial		0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	88%	97%	100%	100%	17%	1%	0%	0%	0%	0%	78%
Institutional		0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	1%	0%	0%	0%	0%	0%	0%
Open Space		83%	0%	4%	100%	100%	100%	14%	100%	21%	3%	11%	0%	0%	0%	44%	41%	0%	15%	18%	100%	0%
Golf Course		0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Pits and Quarries		0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	1%	0%	0%	0%
Right-of-Way		0%	5%	3%	0%	0%	0%	1%	0%	4%	3%	0%	0%	0%	0%	19%	27%	0%	5%	0%	0%	22%
WATERSHED-WIDE ACCOUNTING.....																						
tributary land area	ac	56.31	35.49	39.16	3.12	120.05	91.92	26.70	156.70	61.04	156.16	26.81	6.31	4.87	8.62	2204.76	2276.86	15.31	972.46	22.88	22.98	10.18
tributary water area	ac	23.65	0.00	0.00	0.00	50.30	23.65	0.00	50.30	0.00	0.00	0.44	0.23	0.00	0.00	113.08	113.08	0.41	28.14	0.51	1.68	0.31
direct and ponded area	ac	79.96	35.49	39.16	3.12	170.35	115.57	26.70	207.00	61.04	156.16	27.25	6.54	4.87	8.62	2317.84	2389.94	15.72	1000.60	23.39	24.66	10.49
ASSUMED EXPORT FACTORS.....																						
season length	yrs	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
season precipitation	inches	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8
runoff total p	ppb	259.33	533.53	521.47	200.01	200.02	200.00	493.31	200.00	446.42	519.05	334.54	356.06	350.00	350.00	331.12	361.97	452.32	467.66	405.90	200.00	361.20
runoff ortho p/total p	-	0.53	0.20	0.22	0.60	0.60	0.60	0.25	0.60	0.31	0.23	0.33	0.30	0.30	0.30	0.41	0.39	0.30	0.28	0.36	0.60	0.30
unit runoff	in/yr	2.88	4.65	4.48	2.54	2.54	2.54	4.22	2.54	4.10	4.48	13.13	14.23	14.56	14.56	6.11	4.94	6.66	4.27	6.00	2.54	13.26
unit export	lbs/ac-y	0.19	0.56	0.53	0.12	0.12	0.12	0.49	0.12	0.44	0.53	1.03	1.13	1.15	1.15	0.50	0.44	0.68	0.47	0.58	0.12	1.07
POND WATER BUDGETS.....																						
runoff	ac-ft/yr	13.50	13.76	14.62	0.66	8.97	7.55	9.38	7.77	20.84	58.29	29.34	7.49	5.91	10.46	164.71	29.69	8.50	340.22	11.44	0.02	11.25
upstream pond	ac-ft/yr	0.00	0.00	0.00	0.00	29.04	13.50	0.00	38.00	0.00	0.00	0.00	0.00	0.00	0.00	444.73	609.43	0.00	8.50	0.00	11.44	0.00
total inflow	**ac-ft/yr**	**13.50**	**13.76**	**14.62**	**0.66**	**38.00**	**21.05**	**9.38**	**45.77**	**20.84**	**58.29**	**29.34**	**7.49**	**5.91**	**10.46**	**609.43**	**639.12**	**8.50**	**348.72**	**11.44**	**11.46**	**11.25**
outflow	ac-ft/yr	13.50	13.76	14.62	0.66	38.00	21.05	9.38	45.77	20.84	58.29	29.34	7.49	5.91	10.46	609.43	639.12	8.50	348.72	11.44	11.46	11.25
POND PHOSPHORUS BUDGETS.....																						
runoff	lbs/yr	10.71	19.73	20.84	0.36	4.87	4.10	13.02	4.22	26.71	82.58	27.69	7.16	5.62	9.95	162.74	31.97	10.44	450.95	13.38	0.01	10.93
upstream pond	lbs/yr	0.00	0.00	0.00	0.00	40.93	4.43	0.00	16.63	0.00	0.00	0.00	0.00	0.00	0.00	273.17	435.92	0.00	4.17	0.00	4.55	0.00
total inflow	**lbs/yr**	**10.71**	**19.73**	**20.84**	**0.36**	**45.81**	**8.53**	**13.02**	**20.85**	**26.71**	**82.58**	**27.69**	**7.16**	**5.62**	**9.95**	**435.92**	**467.89**	**10.44**	**455.12**	**13.38**	**4.57**	**10.93**
net sedimentation	lbs/yr	6.28	0.00	0.00	0.00	29.18	0.00	0.00	0.00	0.00	0.00	11.79	3.67	0.00	0.00	0.00	0.00	6.26	310.45	8.83	2.02	6.37
outflow	lbs/yr	4.43	19.73	20.84	0.36	16.63	8.53	13.02	20.85	26.71	82.58	15.90	3.49	5.62	9.95	435.92	467.89	4.17	144.67	4.55	2.54	4.56
p removal efficiency	%	58.67	0.00	0.00	0.00	63.70	0.00	0.00	0.00	0.00	0.00	42.57	51.27	0.00	0.00	0.00	0.00	60.02	100.00	65.97	44.29	58.24
upstream w-shed p load	lbs/yr	10.71	19.73	20.84	0.36	45.81	14.81	13.02	50.03	26.71	82.58	27.69	7.16	5.62	9.95	1104.51	1136.48	10.44	461.39	13.38	13.40	10.93
total removal %	%	58.67	0.00	0.00	0.00	63.70	42.41	0.00	58.33	0.00	0.00	42.57	51.27	0.00	0.00	60.53	58.83	60.02	100.00	65.97	81.01	58.24
HYDRAULIC PARAMETERS.....																						
pond mean depth	feet	4.92	1.00	1.00	1.00	5.18	1.00	1.00	1.00	1.00	1.00	2.44	2.48	1.00	1.00	1.00	1.00	2.83	3.98	5.57	5.57	4.00
relative volume	inches	274.33	0.00	0.00	0.00	924.95	0.00	0.00	0.00	0.00	0.00	1.16	2.42	0.00	0.00	0.00	0.00	4.34	10.31	7.87	9793.50	3.51
residence time	years	8.63	0.00	0.00	0.00	6.86	0.00	0.00	0.00	0.00	0.00	0.04	0.08	0.00	0.00	0.00	0.00	0.14	0.32	0.25	0.57	0.11
residence time	days	3148.71	0.00	0.00	0.00	2504.60	0.00	0.00	0.00	0.00	0.00	13.35	27.79	0.00	0.00	0.00	0.00	49.83	115.40	90.36	207.94	40.23
overflow rate	ft/yr	0.57	13755174.20	14620189.85	660653.29	0.76	21049916.88	9381483.82	45770462.22	20841949.85	58286167.36	66.68	32.55	5908266.30	10457434.11	609432420.51	639119890.57	20.73	12.58	22.52	9.78	36.29
inflow phos conc	ppb	291.83	527.83	524.48	200.03	443.51	149.09	510.76	167.60	471.47	521.27	347.23	351.92	350.02	350.02	263.17	269.34	451.95	480.18	430.49	146.58	357.43
outflow phos conc	ppb	120.62	527.82	524.48	200.03	160.98	149.09	510.76	167.60	471.47	521.27	199.40	171.47	350.02	350.02	263.17	269.34	180.71	152.64	146.48	81.66	149.26
p reaction rate	-	3.43	0.00	0.00	0.00	4.84	0.00	0.00	0.00	0.00	0.00	1.29	2.16	0.00	0.00	0.00	0.00	3.75	6.75	5.70	1.43	3.34
1-rp	-	0.41	1.00	1.00	1.00	0.36	1.00	1.00	1.00	1.00	1.00	0.57	0.49	1.00	1.00	1.00	1.00	0.40	0.32	0.34	0.56	0.42
vlawmo pond volume	acre-ft	1.06	1.08	1.15	0.05	0.70	0.59	0.74	0.61	1.64	4.58	2.31	0.59	0.46	0.82	12.95	2.33	0.67	26.75	0.90	0.00	0.88
LAND USE PARAMETERS.....																						
runoff total P conc	ppb	259.33	533.53	521.47	200.01	200.02	200.00	493.31	200.00	446.42	519.05	334.54	356.06	350.00	350.00	331.12	361.97	452.32	467.66	405.90	200.00	361.20
runoff coefficient		0.09	0.15	0.14	0.08	0.08	0.08	0.13	0.08	0.13	0.14	0.41	0.45	0.46	0.46	0.19	0.16	0.21	0.13	0.19	0.08	0.42
dissolved/total P		0.53	0.20	0.22	0.60	0.60	0.60	0.25	0.60	0.31	0.23	0.33	0.30	0.30	0.30	0.41	0.39	0.30	0.28	0.36	0.60	0.30
runoff TSS conc	ppm	206.75	161.94	164.73	216.00	216.00	216.00	170.04	216.00	177.87	165.78	148.72	140.76	140.00	140.00	178.24	178.13	140.56	171.96	154.62	216.00	140.00
POND TSS BUDGETS.....																						
runoff	lbs/yr	7378.82	6001.36	6464.43	386.71	5247.64	4419.34	4247.44	4547.91	9676.64	25869.58	11267.54	2845.06	2241.60	3967.55	70241.11	13066.95	3235.23	154487.72	4524.14	12.41	4268.30
upstream pond	lbs/yr	0.00	0.00	0.00	0.00	12852.50	516.52	0.00	1267.01	0.00	0.00	0.00	0.00	0.00	0.00	74245.32	144486.43	0.00	226.47	0.00	316.69	0.00
total inflow	**lbs/yr**	**7378.82**	**6001.36**	**6464.43**	**386.71**	**18100.14**	**4935.86**	**4247.44**	**5814.92**	**9676.64**	**25869.58**	**11267.54**	**2845.06**	**2241.60**	**3967.55**	**144486.43**	**157553.38**	**3235.23**	**154714.19**	**4524.14**	**329.10**	**4268.30**
p removal efficiency (no inf)	%	59.00	0.00	0.00	0.00	64.00	0.00	0.00	0.00	0.00	0.00	43.00	52.00	0.00	0.00	0.00	0.00	61.00	69.00	66.00	45.00	59.00
tss removal efficiency (no inf)	%	93.00	0.00	0.00	0.00	93.00	0.00	0.00	0.00	0.00	0.00	68.67	85.00	0.00	0.00	0.00	0.00	93.00	93.00	93.00	70.00	93.00
net sedimentation	lbs/yr	6862.30	0.00	0.00	0.00	16833.13	0.00	0.00	0.00	0.00	0.00	7737.04	2418.30	0.00	0.00	0.00	0.00	3008.76	143884.20	4207.45	230.37	3969.52
outflow	lbs/yr	516.52	6001.36	6464.43	386.71	1267.01	4935.86	4247.44	5814.92	9676.64	25869.58	3530.50	426.76	2241.60	3967.55	144486.43	157553.38	226.47	10829.99	316.69	98.73	298.78
tss removal efficiency (inf)	%	93.00	0.00	0.00	0.00	93.00	0.00	0.00	0.00	0.00	0.00	68.67	85.00	0.00	0.00	0.00	0.00	93.00	100.00	93.00	70.00	93.00
upstream watershed tss load	lbs/yr	7378.82	6001.36	6464.43	386.71	18100.14	11798.16	4247.44	22648.05	9676.64	25869.58	11267.54	2845.06	2241.60	3967.55	418048.37	431115.32	3235.23	157722.95	4524.14	4536.55	4268.30
tss total removal efficiency	%	93.00	0.00	0.00	0.00	93.00	58.16	0.00	74.32	0.00	0.00	68.67	85.00	0.00	0.00	65.44	63.45	93.00	100.00	93.00	97.82	93.00
INFILTRATION BMP/POND.....																						
Annual runoff infiltrated	%	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00	0.00	0.00	0.00
Adjusted outflow	**ac-ft/yr**	**13.50**	**13.76**	**14.62**	**0.66**	**38.00**	**21.05**	**9.38**	**45.77**	**20.84**	**58.29**	**29.34**	**7.49**	**5.91**	**10.46**	**609.43**	**639.12**	**8.50**	**0.00**	**11.44**	**11.46**	**11.25**
Adjusted TP outflow	**lbs/yr**	**4.43**	**19.73**	**20.84**	**0.36**	**16.63**	**8.53**	**13.02**	**20.85**	**26.71**	**82.58**	**15.90**	**3.49**	**5.62**	**9.95**	**435.92**	**467.89**	**4.17**	**0.00**	**4.55**	**2.54**	**4.56**
Adjusted TSS outflow	**lbs/yr**	**516.52**	**6001.36**	**6464.43**	**386.71**	**1267.01**	**4935.86**	**4247.44**	**5814.92**	**9676.64**	**25869.58**	**3530.50**	**426.76**	**2241.60**	**3967.55**	**144486.43**	**157553.38**	**226.47**	**0.00**	**316.69**	**98.73**	**298.78**

Rochester Loading Assessment																						
Cascade Creek																						
363-06-158-2																						
Existing (2005) TP LOADS																						
		cc-a3.4b	**cc-a3.4b cell 2**	**cc-a3.4a**	**cc-a3.6d**	**cc-a3.6d cell 2**	**cc-a3.6d cell 3**	**cc-a3.6c**	**cc-a3.6a**	**cc-a3.7a**	**cc-a3.7b**	**cc-a3.7b cell 2**	**cc-a3.8d**	**cc-a3.8c**	**cc-a3.8b**	**cc-a3.8a**	**cc-a3.7d**	**cc-a3.9c**	**cc-a3.9b**	**cc-a3.9a**	**cc-a2.5**	**cc-a2.7e**
Routed TO:		cc-a3.4b cell 2	cc-a3.4a	cc-a2.8a	cc-a3.6d cell 2	cc-a3.6d cell 3	cc-a3.6a	cc-a3.6a	cc-a3.8a	cc-a3.8a	cc-a3.7b cell 2	cc-a3.8a	cc-a3.8a	cc-a3.8b	cc-a3.8a	cc-a3.9a	cc-a3.9a	cc-a4.2a	cc-a3.9a	cc-a4.2a	cc-a2.7a	cc-a2.9a
INPUT VARIABLES....	UNITS																					
case label	-																					
Watershed area	acres	127.0	0.1	209.5	49.0	0.1	0.1	29.1	239.3	231.6	8.4	0.0	13.6	0.5	2.6	172.0	55.7	31.4	3.5	299.4	132.2	29.9
basin area	acres	0.27	0.93	7.13	0.16	0.17	0.37	0.60	0.00	1.50	0.16	0.26	0.39	0.01	0.10	0.00	0.00	0.74	0.00	0.00	0.00	0.44
basin volume	acre-ft	1.67	5.76	28.52	0.74	0.78	1.67	2.75	0.00	4.99	0.33	0.51	1.56	0.00	0.00	0.00	0.00	2.69	0.00	0.00	0.00	1.89
Row Crop Agriculture		4%	0%	8%	0%	0%	0%	0%	40%	6%	0%	0%	25%	0%	0%	12%	0%	0%	0%	0%	4%	2%
Very Low Density Residential		0%	0%	0%	0%	0%	0%	0%	2%	2%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	92%	0%
Low Density Residential		21%	0%	10%	0%	0%	0%	0%	0%	11%	0%	0%	0%	0%	0%	0%	56%	0%	0%	28%	1%	88%
Medium Density Residential		0%	0%	0%	0%	0%	0%	0%	0%	3%	0%	0%	0%	0%	0%	0%	13%	0%	0%	2%	0%	0%
High Density Residential		19%	0%	8%	0%	0%	0%	0%	1%	28%	0%	0%	0%	0%	0%	0%	5%	0%	55%	5%	0%	0%
Commercial/Industrial		7%	0%	22%	84%	0%	0%	94%	28%	20%	79%	0%	0%	98%	17%	22%	2%	12%	0%	38%	0%	0%
Institutional		25%	0%	0%	0%	0%	0%	0%	0%	1%	0%	0%	0%	0%	0%	0%	17%	0%	34%	4%	0%	0%
Open Space		19%	100%	46%	7%	100%	100%	0%	24%	20%	21%	100%	75%	2%	83%	58%	4%	6%	0%	6%	0%	10%
Golf Course		0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Pits and Quarries		0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Right-of-Way		5%	0%	7%	9%	0%	0%	6%	5%	10%	0%	0%	0%	0%	0%	8%	4%	83%	11%	17%	2%	0%
WATERSHED-WIDE ACCOUNTING.....																						
tributary land area	ac	137.15	137.25	1342.15	48.99	49.04	49.09	29.14	317.56	231.57	8.41	8.42	13.61	0.53	3.17	746.28	55.68	31.37	3.48	1104.86	132.17	29.93
tributary water area	ac	0.58	1.51	38.46	0.16	0.34	0.71	0.60	1.31	1.50	0.16	0.42	0.39	0.01	0.11	3.73	0.00	0.74	0.00	3.73	0.00	0.44
direct and ponded area	ac	137.72	138.75	1380.61	49.16	49.38	49.80	29.74	318.87	233.07	8.57	8.84	14.00	0.54	3.28	750.01	55.68	32.11	3.48	1108.59	132.17	30.37
ASSUMED EXPORT FACTORS.....																						
season length	yrs	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
season precipitation	inches	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8
runoff total p	ppb	372.49	200.00	316.67	344.51	200.00	200.00	353.13	394.18	377.61	318.65	200.00	284.41	346.90	225.48	288.37	420.69	382.75	410.26	383.35	360.04	427.41
runoff ortho p/total p	-	0.35	0.60	0.43	0.32	0.60	0.60	0.30	0.33	0.36	0.36	0.60	0.50	0.31	0.55	0.46	0.31	0.32	0.30	0.32	0.48	0.33
unit runoff	in/yr	8.54	2.54	7.05	13.19	2.54	2.54	14.20	7.11	9.46	12.03	2.54	3.02	14.31	4.58	5.91	8.04	9.09	11.73	10.33	3.23	6.30
unit export	lbs/ac-y	0.76	0.12	0.58	1.05	0.12	0.12	1.13	0.63	0.86	0.94	0.12	0.22	1.13	0.29	0.45	0.77	0.80	1.11	0.89	0.27	0.63
POND WATER BUDGETS.....																						
runoff	ac-ft/yr	90.36	0.02	123.11	53.86	0.01	0.01	34.48	141.85	182.46	8.43	0.00	3.42	0.63	1.01	84.69	37.31	23.77	3.40	257.64	35.56	15.72
upstream pond	ac-ft/yr	11.25	101.61	113.09	0.00	53.86	53.87	0.00	88.36	0.00	0.00	8.43	0.00	0.00	0.63	426.17	0.00	0.00	0.00	551.57	0.00	0.00
total inflow	**ac-ft/yr**	**101.61**	**101.63**	**236.21**	**53.86**	**53.87**	**53.88**	**34.48**	**230.21**	**182.46**	**8.43**	**8.43**	**3.42**	**0.63**	**1.64**	**510.86**	**37.31**	**23.77**	**3.40**	**809.21**	**35.56**	**15.72**
outflow	ac-ft/yr	101.61	101.63	236.21	53.86	53.87	53.88	34.48	230.21	182.46	8.43	8.43	3.42	0.63	1.64	510.86	37.31	23.77	3.40	809.21	35.56	15.72
POND PHOSPHORUS BUDGETS.....																						
runoff	lbs/yr	97.01	0.01	121.46	51.38	0.01	0.01	32.98	150.30	199.45	7.87	0.00	3.02	0.60	0.77	77.06	42.79	25.03	3.86	266.68	35.43	18.85
upstream pond	lbs/yr	4.56	65.42	44.22	0.00	34.39	28.01	0.00	35.56	0.00	0.00	4.72	0.00	0.00	0.60	307.27	0.00	0.00	0.00	430.97	0.00	0.00
total inflow	**lbs/yr**	**101.58**	**65.43**	**165.68**	**51.38**	**34.39**	**28.02**	**32.98**	**185.86**	**199.45**	**7.87**	**4.72**	**3.02**	**0.60**	**1.37**	**384.33**	**42.79**	**25.03**	**3.86**	**697.66**	**35.43**	**18.85**
net sedimentation	lbs/yr	36.16	23.75	79.16	17.00	6.38	6.82	18.62	0.00	84.22	3.15	1.27	1.67	0.00	0.00	0.00	0.00	14.53	0.00	0.00	0.00	11.55
outflow	lbs/yr	65.42	41.68	86.52	34.39	28.01	21.20	14.36	185.86	115.23	4.72	3.45	1.35	0.60	1.37	384.33	42.79	10.50	3.86	697.66	35.43	7.30
p removal efficiency	%	35.60	36.30	47.78	33.08	18.55	24.33	56.46	0.00	42.23	40.01	26.86	55.22	0.01	0.00	0.00	0.00	58.03	0.00	0.00	0.00	61.28
upstream w-shed p load	lbs/yr	107.94	107.95	704.19	51.38	51.39	51.40	32.98	234.69	199.45	7.87	7.87	3.02	0.60	1.37	523.45	42.79	25.03	3.86	836.78	35.43	18.85
total removal %	%	39.39	61.39	87.71	33.08	45.49	58.75	56.46	20.80	42.23	40.01	56.12	55.22	0.01	0.00	26.58	0.00	58.03	0.00	16.63	0.00	61.28
HYDRAULIC PARAMETERS.....																						
pond mean depth	feet	6.19	6.19	4.00	4.51	4.51	4.51	4.58	1.00	3.33	2.00	2.00	3.97	0.00	0.00	1.00	1.00	3.65	1.00	1.00	1.00	4.30
relative volume	inches	0.59	8632.50	7.37	0.44	2352.00	5001.00	2.54	0.00	0.87	1.24	7680.00	14.50	0.00	0.00	0.00	0.00	3.60	0.00	0.00	0.00	3.82
residence time	years	0.02	0.06	0.12	0.01	0.01	0.03	0.08	0.00	0.03	0.04	0.06	0.46	0.00	0.00	0.00	0.00	0.11	0.00	0.00	0.00	0.12
residence time	days	5.98	20.67	44.07	5.01	5.31	11.29	29.11	0.00	9.98	14.20	22.16	166.41	0.00	0.00	0.00	0.00	41.36	0.00	0.00	0.00	43.88
overflow rate	ft/yr	377.74	109.28	33.13	328.43	309.62	145.63	57.47	230213793.39	121.64	51.42	32.95	8.71	63.34	16.41	510858861.12	37307150.33	32.25	3400968.22	809209009.36	35559596.23	35.73
inflow phos conc	ppb	367.78	236.86	258.06	350.99	234.87	191.30	351.95	297.04	402.17	343.30	205.95	324.55	349.47	307.37	276.79	421.95	387.48	417.52	317.20	366.61	441.23
outflow phos conc	ppb	236.87	150.88	134.77	234.87	191.30	144.75	153.23	297.04	232.35	205.95	150.63	145.34	349.45	307.37	276.79	421.95	162.61	417.51	317.20	366.61	170.83
p reaction rate	-	0.86	0.89	1.75	0.74	0.28	0.43	2.98	0.00	1.27	1.11	0.50	2.75	0.00	0.00	0.00	0.00	3.30	0.00	0.00	0.00	4.09
1-rp	-	0.64	0.64	0.52	0.67	0.81	0.76	0.44	1.00	0.58	0.60	0.73	0.45	1.00	1.00	1.00	1.00	0.42	1.00	1.00	1.00	0.39
vlawmo pond volume	acre-ft	7.10	0.00	9.68	4.23	0.00	0.00	2.71	11.15	14.34	0.66	0.00	0.27	0.05	0.08	6.66	2.93	1.87	0.27	20.25	2.80	1.24
LAND USE PARAMETERS.....																						
runoff total P conc	ppb	372.49	200.00	316.67	344.51	200.00	200.00	353.13	394.18	377.61	318.65	200.00	284.41	346.90	225.48	288.37	420.69	382.75	410.26	383.35	360.04	427.41
runoff coefficient		0.27	0.08	0.22	0.41	0.08	0.08	0.45	0.22	0.30	0.38	0.08	0.09	0.45	0.14	0.19	0.25	0.29	0.37	0.32	0.10	0.20
dissolved/total P		0.35	0.60	0.43	0.32	0.60	0.60	0.30	0.33	0.36	0.36	0.60	0.50	0.31	0.55	0.46	0.31	0.32	0.30	0.32	0.48	0.33
runoff TSS conc	ppm	155.28	216.00	176.56	145.76	216.00	216.00	140.00	168.64	158.18	156.26	216.00	202.84	141.57	203.09	187.06	142.78	144.34	140.00	144.73	210.98	147.73
POND TSS BUDGETS.....																						
runoff	lbs/yr	35439.97	12.41	51265.46	20589.48	6.20	6.20	13082.02	58738.97	71817.58	3277.02	1.24	1822.87	240.78	478.04	36976.21	14243.28	9094.70	1290.33	98563.58	19842.93	6102.58
upstream pond	lbs/yr	298.78	13580.72	5128.19	0.00	8184.32	5133.70	0.00	3531.59	0.00	0.00	1081.42	0.00	0.00	240.78	86128.28	0.00	0.00	0.00	138638.10	0.00	0.00
total inflow	**lbs/yr**	**35738.75**	**13593.13**	**56393.65**	**20589.48**	**8190.52**	**5139.91**	**13082.02**	**62270.56**	**71817.58**	**3277.02**	**1082.66**	**1822.87**	**240.78**	**718.82**	**123104.49**	**14243.28**	**9094.70**	**1290.33**	**237201.68**	**19842.93**	**6102.58**
p removal efficiency (no inf)	%	36.00	37.00	48.00	34.00	19.00	25.00	57.00	0.00	43.00	41.00	27.00	56.00	0.00	0.00	0.00	0.00	59.00	0.00	0.00	0.00	62.00
tss removal efficiency (no inf)	%	62.00	63.00	76.00	60.25	37.32	49.11	93.00	0.00	68.67	67.00	53.04	93.00	0.00	0.00	0.00	0.00	93.00	0.00	0.00	0.00	93.00
net sedimentation	lbs/yr	22158.02	8563.67	42859.17	12405.16	3056.82	2524.06	12166.28	0.00	49314.74	2195.60	574.20	1695.27	0.00	0.00	0.00	0.00	8458.07	0.00	0.00	0.00	5675.40
outflow	lbs/yr	13580.72	5029.46	13534.47	8184.32	5133.70	2615.85	915.74	62270.56	22502.84	1081.42	508.46	127.60	240.78	718.82	123104.49	14243.28	636.63	1290.33	237201.68	19842.93	427.18
tss removal efficiency (inf)	%	62.00	63.00	76.00	60.25	37.32	49.11	93.00	0.00	68.67	67.00	53.04	93.00	0.00	0.00	0.00	0.00	93.00	0.00	0.00	0.00	93.00
upstream watershed tss load	lbs/yr	39708.27	39720.68	253245.64	20589.48	20595.68	20601.89	13082.02	92422.87	71817.58	3277.02	3278.26	1822.87	240.78	718.82	207036.61	14243.28	9094.70	1290.33	321133.80	19842.93	6102.58
tss total removal efficiency	%	65.80	87.34	94.66	60.25	75.07	87.30	93.00	32.62	68.67	67.00	84.49	93.00	0.00	0.00	40.54	0.00	93.00	0.00	26.14	0.00	93.00
INFILTRATION BMP/POND.....																						
Annual runoff infiltrated	%	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Adjusted outflow	**ac-ft/yr**	**101.61**	**101.63**	**236.21**	**53.86**	**53.87**	**53.88**	**34.48**	**230.21**	**182.46**	**8.43**	**8.43**	**3.42**	**0.63**	**1.64**	**510.86**	**37.31**	**23.77**	**3.40**	**809.21**	**35.56**	**15.72**
Adjusted TP outflow	**lbs/yr**	**65.42**	**41.68**	**86.52**	**34.39**	**28.01**	**21.20**	**14.36**	**185.86**	**115.23**	**4.72**	**3.45**	**1.35**	**0.60**	**1.37**	**384.33**	**42.79**	**10.50**	**3.86**	**697.66**	**35.43**	**7.30**
Adjusted TSS outflow	**lbs/yr**	**13580.72**	**5029.46**	**13534.47**	**8184.32**	**5133.70**	**2615.85**	**915.74**	**62270.56**	**22502.84**	**1081.42**	**508.46**	**127.60**	**240.78**	**718.82**	**123104.49**	**14243.28**	**636.63**	**1290.33**	**237201.68**	**19842.93**	**427.18**

Rochester Loading Assessment																						
Cascade Creek																						
363-06-158-2																						
Existing (2005) TP LOADS																						
		cc-a2.7d	**cc-a2.7c**	**cc-a2.7b**	**cc-a2.7a**	**cc-a2.9c**	**cc-a2.9b**	**cc-a2.9b cell 2**	**cc-a2.9a**	**cc-a2.10g**	**cc-a2.10f**	**cc-a2.10e**	**cc-a2.10d**	**cc-a2.10d cell 2**	**cc-a2.10c**	**cc-a2.10b**	**cc-a2.10a**	**cc-a2.12b**	**cc-a2.12a**	**cc-a1.3**	**cc-a1.8a**	**cc-a1.8b**
Routed TO:		cc-a2.7a	cc-a2.7a	cc-a2.7a	cc-a2.9a	cc-a2.9a	cc-a2.9b cell 2	cc-a2.9a	cc-a2.10a	cc-a2.10e	cc-a2.10e	cc-a2.10d	cc-a2.10d cell 2	cc-a2.10c	cc-a2.10a	cc-a2.10a	cc-a2.12a	cc-a2.12a	cc-a4.2n	cc-a1.9a	cc-a1.8c	cc-a1.8c
INPUT VARIABLES....	UNITS																			leaves and reenters City		
case label	-																					
Watershed area	acres	13.3	5.0	32.9	397.1	10.7	34.7	0.0	41.3	10.5	12.5	31.2	73.2	0.1	99.9	2.7	131.5	3.9	45.1	28.2	3.6	10.0
basin area	acres	0.15	0.13	0.11	0.00	0.07	0.05	0.08	0.00	0.12	0.31	0.14	0.15	0.49	0.90	0.06	0.54	0.13	0.00	0.00	0.00	0.23
basin volume	acre-ft	0.24	0.28	0.23	0.00	0.00	0.05	0.08	0.00	0.48	1.86	0.28	0.48	1.55	3.60	0.12	2.16	0.25	0.00	0.00	0.00	0.41
Row Crop Agriculture		0%	0%	0%	28%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Very Low Density Residential		0%	0%	35%	43%	0%	0%	0%	0%	0%	0%	0%	0%	0%	6%	0%	0%	0%	0%	78%	0%	0%
Low Density Residential		89%	93%	63%	8%	84%	84%	0%	12%	82%	93%	87%	83%	0%	90%	0%	61%	0%	19%	20%	98%	95%
Medium Density Residential		0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
High Density Residential		0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	4%	0%	0%	0%	6%	0%	3%	0%	0%	0%
Commercial/Industrial		0%	0%	0%	0%	0%	0%	0%	30%	0%	0%	0%	0%	0%	0%	100%	24%	55%	1%	0%	0%	0%
Institutional		0%	0%	0%	2%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Open Space		11%	7%	2%	16%	16%	16%	100%	20%	18%	7%	13%	13%	100%	4%	0%	1%	25%	49%	1%	2%	5%
Golf Course		0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Pits and Quarries		0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Right-of-Way		0%	0%	0%	3%	0%	0%	0%	38%	0%	0%	0%	0%	0%	0%	0%	8%	21%	27%	0%	0%	0%
WATERSHED-WIDE ACCOUNTING.....																						
tributary land area	ac	13.26	5.02	32.95	580.54	10.67	34.66	34.67	697.12	10.46	12.50	54.17	127.36	127.46	227.33	2.70	1058.65	3.94	3384.56	28.18	3.55	9.99
tributary water area	ac	0.15	0.13	0.11	0.39	0.07	0.05	0.13	1.04	0.12	0.31	0.57	0.72	1.21	2.11	0.06	3.75	0.13	116.96	0.00	0.00	0.23
direct and ponded area	ac	13.41	5.15	33.06	580.93	10.74	34.71	34.80	698.15	10.58	12.81	54.74	128.08	128.67	229.44	2.76	1062.39	4.07	3501.52	28.18	3.55	10.22
ASSUMED EXPORT FACTORS.....																						
season length	yrs	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
season precipitation	inches	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8
runoff total p	ppb	421.51	431.91	410.48	388.61	410.63	410.81	200.00	351.41	404.58	433.42	416.61	418.51	200.00	433.00	350.00	419.77	323.52	313.06	367.90	444.72	438.72
runoff ortho p/total p	-	0.33	0.32	0.38	0.41	0.35	0.35	0.60	0.36	0.35	0.32	0.34	0.34	0.60	0.33	0.30	0.30	0.37	0.45	0.46	0.31	0.31
unit runoff	in/yr	6.27	6.44	5.36	3.92	6.08	6.09	2.54	9.01	5.98	6.47	6.18	6.51	2.54	6.33	14.56	9.22	10.40	5.58	3.73	6.66	6.55
unit export	lbs/ac-y	0.62	0.65	0.52	0.37	0.60	0.60	0.12	0.75	0.58	0.65	0.61	0.65	0.12	0.63	1.15	0.85	0.82	0.47	0.33	0.68	0.66
POND WATER BUDGETS.....																						
runoff	ac-ft/yr	6.92	2.69	14.72	129.78	5.41	17.58	0.00	31.03	5.21	6.74	16.08	39.73	0.02	52.68	3.28	101.00	3.41	20.96	8.76	1.97	5.46
upstream pond	ac-ft/yr	0.00	0.00	0.00	59.89	0.00	0.00	17.58	228.38	0.00	0.00	11.95	28.03	67.76	67.78	0.00	383.14	0.00	1126.67	0.00	0.00	0.00
total inflow	**ac-ft/yr**	**6.92**	**2.69**	**14.72**	**189.67**	**5.41**	**17.58**	**17.58**	**259.40**	**5.21**	**6.74**	**28.03**	**67.76**	**67.78**	**120.46**	**3.28**	**484.14**	**3.41**	**1147.63**	**8.76**	**1.97**	**5.46**
outflow	ac-ft/yr	6.92	2.69	14.72	189.67	5.41	17.58	17.58	259.40	5.21	6.74	28.03	67.76	67.78	120.46	3.28	484.14	3.41	1147.63	8.76	1.97	5.46
POND PHOSPHORUS BUDGETS.....																						
runoff	lbs/yr	8.25	3.24	17.14	145.19	6.38	20.71	0.00	31.14	6.10	8.12	19.07	47.24	0.01	63.40	3.12	111.78	3.25	21.03	9.17	2.40	6.61
upstream pond	lbs/yr	0.00	0.00	0.00	53.13	0.00	0.00	17.85	227.95	0.00	0.00	5.14	18.28	50.59	37.94	0.00	320.31	0.00	825.83	0.00	0.00	0.00
total inflow	**lbs/yr**	**8.25**	**3.24**	**17.14**	**198.32**	**6.38**	**20.71**	**17.85**	**259.09**	**6.10**	**8.12**	**24.20**	**65.52**	**50.60**	**101.34**	**3.12**	**432.09**	**3.25**	**846.86**	**9.17**	**2.40**	**6.61**
net sedimentation	lbs/yr	3.50	1.75	5.68	0.00	0.00	2.87	1.89	0.00	3.49	5.60	5.92	14.93	12.66	41.88	1.34	75.95	1.44	0.00	0.00	0.00	3.37
outflow	lbs/yr	4.75	1.49	11.46	198.32	6.38	17.85	15.96	259.09	2.61	2.52	18.28	50.59	37.94	59.45	1.77	356.14	1.80	846.86	9.17	2.40	3.24
p removal efficiency	%	42.46	54.02	33.13	0.00	0.00	13.83	10.59	0.00	57.22	68.91	24.48	22.79	25.03	41.33	43.08	17.58	44.47	0.00	0.00	0.00	51.00
upstream w-shed p load	lbs/yr	8.25	3.24	17.14	209.25	6.38	20.71	20.71	286.33	6.10	8.12	33.29	80.53	80.54	143.94	3.12	545.16	3.25	1705.92	9.17	2.40	6.61
total removal %	%	42.46	54.02	33.13	5.22	0.00	13.83	22.95	9.51	57.22	68.91	45.09	37.18	52.90	58.70	43.08	34.67	44.47	50.36	0.00	0.00	51.00
HYDRAULIC PARAMETERS.....																						
pond mean depth	feet	1.57	2.11	2.05	1.00	0.00	1.00	1.00	1.00	4.00	6.00	2.00	3.16	3.17	4.00	2.00	3.99	1.92	1.00	1.00	1.00	1.81
relative volume	inches	1.08	3.34	0.49	0.00	0.00	0.10	1200.00	0.00	2.93	8.78	0.55	0.39	2319.00	2.17	1.16	0.68	2.33	0.00	0.00	0.00	2.39
residence time	years	0.03	0.11	0.02	0.00	0.00	0.00	0.00	0.00	0.09	0.28	0.01	0.01	0.02	0.03	0.04	0.00	0.07	0.00	0.00	0.00	0.08
residence time	days	12.39	38.37	5.61	0.00	0.00	1.10	1.66	0.00	33.61	100.77	3.65	2.61	8.33	10.91	13.36	1.63	26.72	0.00	0.00	0.00	27.42
overflow rate	ft/yr	46.15	20.09	133.79	189670003.64	77.29	331.62	219.73	259403924.04	43.44	21.73	200.21	442.85	139.17	133.84	54.63	893.24	26.27	1147631130.08	8761137.47	1970495.16	24.04
inflow phos conc	ppb	438.46	442.88	428.46	384.69	433.56	433.59	373.58	367.47	430.70	443.50	317.70	355.77	274.67	309.51	350.02	328.37	349.77	271.49	384.90	448.01	445.64
outflow phos conc	ppb	252.31	203.63	286.51	384.69	433.55	373.60	334.04	367.47	184.27	137.90	239.94	274.69	205.93	181.58	199.22	270.65	194.24	271.49	384.90	447.99	218.35
p reaction rate	-	1.28	2.56	0.74	0.00	0.00	0.19	0.13	0.00	3.13	7.13	0.43	0.38	0.45	1.20	1.33	0.26	1.44	0.00	0.00	0.00	2.12
1-rp	-	0.58	0.46	0.67	1.00	1.00	0.86	0.89	1.00	0.43	0.31	0.76	0.77	0.75	0.59	0.57	0.82	0.56	1.00	1.00	1.00	0.49
vlawmo pond volume	acre-ft	0.54	0.21	1.16	10.20	0.43	1.38	0.00	2.44	0.41	0.53	1.26	3.12	0.00	4.14	0.26	7.94	0.27	1.65	0.69	0.15	0.43
LAND USE PARAMETERS.....																						
runoff total P conc	ppb	421.51	431.91	410.48	388.61	410.63	410.81	200.00	351.41	404.58	433.42	416.61	418.51	200.00	433.00	350.00	419.77	323.52	313.06	367.90	444.72	438.72
runoff coefficient		0.20	0.20	0.17	0.12	0.19	0.19	0.08	0.28	0.19	0.20	0.19	0.20	0.08	0.20	0.46	0.29	0.33	0.18	0.12	0.21	0.21
dissolved/total P		0.33	0.32	0.38	0.41	0.35	0.35	0.60	0.36	0.35	0.32	0.34	0.34	0.60	0.33	0.30	0.30	0.37	0.45	0.46	0.31	0.31
runoff TSS conc	ppm	148.66	145.50	167.77	191.47	151.97	151.99	216.00	155.11	153.81	145.04	150.15	149.95	216.00	147.97	140.00	140.59	158.69	177.03	200.69	141.60	143.43
POND TSS BUDGETS.....																						
runoff	lbs/yr	2692.56	1037.15	6194.13	63369.43	2126.05	6906.32	1.24	12129.42	2060.48	2592.15	6283.07	15482.78	12.41	20490.11	1243.50	38362.52	1337.92	8911.97	4471.45	750.88	2090.46
upstream pond	lbs/yr	0.00	0.00	0.00	23236.93	0.00	0.00	5007.08	93085.75	0.00	0.00	325.68	3363.38	10331.74	5061.24	0.00	113772.95	0.00	256299.47	0.00	0.00	0.00
total inflow	**lbs/yr**	**2692.56**	**1037.15**	**6194.13**	**86606.36**	**2126.05**	**6906.32**	**5008.32**	**105215.17**	**2060.48**	**2592.15**	**6608.75**	**18846.17**	**10344.15**	**25551.35**	**1243.50**	**152135.46**	**1337.92**	**265211.44**	**4471.45**	**750.88**	**2090.46**
p removal efficiency (no inf)	%	43.00	55.00	34.00	0.00	0.00	14.00	11.00	0.00	58.00	69.00	25.00	23.00	26.00	42.00	44.00	18.00	45.00	0.00	0.00	0.00	52.00
tss removal efficiency (no inf)	%	68.67	91.50	60.25	0.00	0.00	27.50	21.61	0.00	93.00	93.00	49.11	45.18	51.07	68.00	69.33	35.36	70.00	0.00	0.00	0.00	85.00
net sedimentation	lbs/yr	1848.89	948.99	3731.97	0.00	0.00	1899.24	1082.16	0.00	1916.24	2410.70	3245.37	8514.43	5282.90	17374.92	862.16	53790.75	936.54	0.00	0.00	0.00	1776.89
outflow	lbs/yr	843.67	88.16	2462.17	86606.36	2126.05	5007.08	3926.17	105215.17	144.23	181.45	3363.38	10331.74	5061.24	8176.43	381.34	98344.71	401.38	265211.44	4471.45	750.88	313.57
tss removal efficiency (inf)	%	68.67	91.50	60.25	0.00	0.00	27.50	21.61	0.00	93.00	93.00	49.11	45.18	51.07	68.00	69.33	35.36	70.00	0.00	0.00	0.00	85.00
upstream watershed tss load	lbs/yr	2692.56	1037.15	6194.13	93136.20	2126.05	6906.32	6907.56	120401.82	2060.48	2592.15	10935.69	26418.48	26430.89	46921.00	1243.50	206928.83	1337.92	648294.04	4471.45	750.88	2090.46
tss total removal efficiency	%	68.67	91.50	60.25	7.01	0.00	27.50	43.16	12.61	93.00	93.00	69.24	60.89	80.85	82.57	69.33	52.47	70.00	59.09	0.00	0.00	85.00
INFILTRATION BMP/POND.....																						
Annual runoff infiltrated	%	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Adjusted outflow	**ac-ft/yr**	**6.92**	**2.69**	**14.72**	**189.67**	**5.41**	**17.58**	**17.58**	**259.40**	**5.21**	**6.74**	**28.03**	**67.76**	**67.78**	**120.46**	**3.28**	**484.14**	**3.41**	**1147.63**	**8.76**	**1.97**	**5.46**
Adjusted TP outflow	**lbs/yr**	**4.75**	**1.49**	**11.46**	**198.32**	**6.38**	**17.85**	**15.96**	**259.09**	**2.61**	**2.52**	**18.28**	**50.59**	**37.94**	**59.45**	**1.77**	**356.14**	**1.80**	**846.86**	**9.17**	**2.40**	**3.24**
Adjusted TSS outflow	**lbs/yr**	**843.67**	**88.16**	**2462.17**	**86606.36**	**2126.05**	**5007.08**	**3926.17**	**105215.17**	**144.23**	**181.45**	**3363.38**	**10331.74**	**5061.24**	**8176.43**	**381.34**	**98344.71**	**401.38**	**265211.44**	**4471.45**	**750.88**	**313.57**

Rochester Loading Assessment																						
Cascade Creek																						
363-06-158-2																						
Existing (2005) TP LOADS																						
		cc-a1.8c	**cc-a1.8d**	**cc-a1.8d cell 2**	**cc-a1.8e**	**cc-a1.8e cell 2**	**cc-a1.8f**	**cc-a1.5b**	**cc-a1.7**	**cc-a1.9c**	**cc-a1.9b**	**cc-a1.9a**	**cc-a1.10h**	**cc-a1.10g**	**cc-a1.10c**	**cc-a1.10b**	**cc-a1.10b cell 2**	**cc-a1.10f**	**cc-a1.10a**	**cc-a4.1**	**cc-a4.3e**	**cc-a1.10e**
Routed TO:		cc-a1.8d	cc-a1.8d cell 2	cc-a1.8e	cc-a1.8e cell 2	cc-a1.9a	cc-a1.9a	cc-a1.9a	cc-a1.9c	cc-a1.9a	cc-a1.9a	cc-a1.10a	cc-a1.10a	cc-a1.10a	cc-a1.10a	cc-a1.10b cell 2	cc-a1.10a	cc-a1.10a	cc-a4.2b	cc-a4.2b	cc-a1.10e	cc-a1.10e cell 2
INPUT VARIABLES....	UNITS																					
case label	-																					
Watershed area	acres	5.8	11.6	0.0	18.3	0.0	12.9	0.4	30.1	95.6	47.3	71.2	8.0	13.4	4.0	4.7	0.0	5.2	186.3	236.0	6.1	22.6
basin area	acres	0.00	0.10	0.31	0.04	0.28	0.00	0.00	0.00	0.00	0.80	0.00	0.68	0.02	0.32	0.12	0.14	0.13	0.00	0.00	0.00	0.72
basin volume	acre-ft	0.00	0.25	0.80	0.28	1.83	0.00	0.00	0.00	0.00	3.20	0.00	2.72	0.00	0.64	0.96	1.09	0.35	0.00	0.00	0.00	3.93
Row Crop Agriculture		13%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Very Low Density Residential		10%	0%	0%	0%	0%	0%	0%	6%	59%	55%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Low Density Residential		71%	0%	0%	0%	0%	56%	0%	6%	2%	1%	16%	34%	70%	0%	34%	0%	0%	17%	86%	32%	7%
Medium Density Residential		0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	80%	0%	0%	0%	17%
High Density Residential		3%	90%	0%	95%	0%	43%	0%	0%	0%	0%	0%	0%	0%	55%	64%	0%	0%	1%	0%	49%	19%
Commercial/Industrial		0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	1%	0%	0%	0%	0%	0%	0%	0%	0%	0%	14%
Institutional		0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	20%	0%	0%	0%	0%	0%	0%	0%	4%	0%	0%
Open Space		3%	10%	100%	5%	100%	1%	100%	88%	37%	22%	4%	0%	0%	0%	1%	100%	6%	4%	6%	0%	8%
Golf Course		0%	0%	0%	0%	0%	0%	0%	0%	2%	3%	48%	66%	30%	45%	2%	0%	0%	73%	0%	19%	21%
Pits and Quarries		0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Right-of-Way		0%	0%	0%	0%	0%	0%	0%	0%	0%	19%	11%	0%	0%	0%	0%	0%	14%	5%	3%	0%	13%
WATERSHED-WIDE ACCOUNTING.....																						
tributary land area	ac	19.36	30.94	30.95	49.29	49.30	12.95	0.36	30.07	125.62	47.30	334.93	8.01	13.37	4.03	4.71	4.72	5.16	556.57	236.05	6.12	28.70
tributary water area	ac	0.23	0.32	0.63	0.67	0.95	0.00	0.00	0.00	0.00	0.80	1.75	0.68	0.02	0.32	0.12	0.26	0.13	3.16	0.00	0.00	0.72
direct and ponded area	ac	19.59	31.26	31.58	49.96	50.25	12.95	0.36	30.07	125.62	48.10	336.67	8.69	13.39	4.35	4.84	4.99	5.29	559.73	236.05	6.12	29.42
ASSUMED EXPORT FACTORS.....																						
season length	yrs	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
season precipitation	inches	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8
runoff total p	ppb	444.20	424.87	200.00	438.45	200.00	448.37	200.05	224.62	300.78	333.70	461.45	515.98	479.82	495.39	449.90	200.00	428.74	510.93	428.14	469.27	431.52
runoff ortho p/total p	-	0.32	0.33	0.60	0.31	0.60	0.30	0.60	0.58	0.54	0.49	0.50	0.56	0.42	0.48	0.31	0.60	0.32	0.61	0.32	0.38	0.41
unit runoff	in/yr	6.11	12.48	2.54	13.08	2.54	9.65	2.55	2.84	2.90	4.02	5.66	4.26	5.62	8.78	10.99	2.54	9.19	3.97	6.67	9.36	8.82
unit export	lbs/ac-y	0.62	1.26	0.12	1.33	0.12	0.98	0.12	0.16	0.20	0.32	0.55	0.48	0.59	0.93	1.12	0.12	0.91	0.44	0.66	0.97	0.84
POND WATER BUDGETS.....																						
runoff	ac-ft/yr	2.96	12.04	0.00	20.00	0.00	10.42	0.08	7.11	23.12	15.84	33.57	2.84	6.26	2.95	4.32	0.00	3.95	61.68	131.17	4.78	16.59
upstream pond	ac-ft/yr	7.43	10.39	22.43	22.43	42.43	0.00	0.00	0.00	7.11	0.00	107.76	0.00	0.00	0.00	0.00	4.32	0.00	161.66	0.00	0.00	4.78
total inflow	**ac-ft/yr**	**10.39**	**22.43**	**22.43**	**42.43**	**42.43**	**10.42**	**0.08**	**7.11**	**30.23**	**15.84**	**141.33**	**2.84**	**6.26**	**2.95**	**4.32**	**4.32**	**3.95**	**223.34**	**131.17**	**4.78**	**21.37**
outflow	ac-ft/yr	10.39	22.43	22.43	42.43	42.43	10.42	0.08	7.11	30.23	15.84	141.33	2.84	6.26	2.95	4.32	4.32	3.95	223.34	131.17	4.78	21.37
POND PHOSPHORUS BUDGETS.....																						
runoff	lbs/yr	3.63	14.56	0.00	24.33	0.00	12.72	0.04	4.77	19.52	15.33	38.84	3.84	7.93	3.73	5.28	0.00	4.72	82.68	155.28	5.92	19.00
upstream pond	lbs/yr	5.64	9.27	16.61	11.82	28.41	0.00	0.00	0.00	4.77	0.00	72.07	0.00	0.00	0.00	0.00	1.56	0.00	125.16	0.00	0.00	5.92
total inflow	**lbs/yr**	**9.27**	**23.82**	**16.62**	**36.16**	**28.41**	**12.72**	**0.04**	**4.77**	**24.30**	**15.33**	**110.91**	**3.84**	**7.93**	**3.73**	**5.28**	**1.56**	**4.72**	**207.84**	**155.28**	**5.92**	**24.92**
net sedimentation	lbs/yr	0.00	7.21	4.79	7.75	9.59	0.00	0.00	0.00	0.00	8.31	0.00	2.36	0.00	1.88	3.72	0.67	2.63	0.00	0.00	0.00	15.50
outflow	lbs/yr	9.27	16.61	11.82	28.41	18.82	12.72	0.04	4.77	24.30	7.03	110.91	1.48	7.93	1.85	1.56	0.90	2.10	207.84	155.28	5.92	9.42
p removal efficiency	%	0.00	30.26	28.83	21.43	33.75	0.00	0.02	0.00	0.00	54.17	0.00	61.41	0.00	50.40	70.41	42.70	55.60	0.00	0.00	0.00	62.20
upstream w-shed p load	lbs/yr	12.64	27.20	27.20	51.53	51.53	12.72	0.04	4.77	24.30	15.33	151.92	3.84	7.93	3.73	5.28	5.28	4.72	260.11	155.28	5.92	24.92
total removal %	%	26.68	38.91	56.52	44.87	63.48	0.00	0.02	0.00	0.00	54.17	27.00	61.41	0.00	50.40	70.41	83.04	55.60	20.09	0.00	0.00	62.20
HYDRAULIC PARAMETERS.....																						
pond mean depth	feet	1.00	2.63	2.62	6.55	6.56	1.00	1.00	1.00	1.00	4.00	1.00	4.00	0.00	2.00	7.80	7.79	2.69	1.00	1.00	1.00	5.46
relative volume	inches	0.00	0.66	12000.00	0.44	27375.00	0.00	0.00	0.00	0.00	6.42	0.00	30.41	0.00	6.91	7.06	16365.00	2.81	0.00	0.00	0.00	7.53
residence time	years	0.00	0.01	0.04	0.01	0.04	0.00	0.00	0.00	0.00	0.20	0.00	0.96	0.00	0.22	0.22	0.25	0.09	0.00	0.00	0.00	0.18
residence time	days	0.00	4.07	13.02	2.37	15.70	0.00	0.00	0.00	0.00	73.73	0.00	349.09	0.00	79.27	81.06	92.17	32.31	0.00	0.00	0.00	67.07
overflow rate	ft/yr	10390340.02	236.12	73.55	1010.20	152.63	10415640.87	75533.29	7109813.17	30230757.51	19.80	141330032.25	4.18	313.19	9.21	35.11	30.86	30.41	223335118.54	131173520.92	4776564.07	29.72
inflow phos conc	ppb	328.12	390.76	272.51	313.54	246.35	449.40	200.19	247.07	295.70	356.08	288.73	496.18	465.83	465.44	450.08	133.21	439.45	342.40	435.54	456.16	429.16
outflow phos conc	ppb	328.12	272.52	193.94	246.36	163.20	449.39	200.14	247.07	295.70	163.20	288.73	191.49	465.83	230.85	133.18	76.32	195.10	342.40	435.54	456.15	162.24
p reaction rate	-	0.00	0.62	0.57	0.35	0.77	0.00	0.00	0.00	0.00	2.58	0.00	4.12	0.00	2.05	8.04	1.30	2.82	0.00	0.00	0.00	4.35
1-rp	-	1.00	0.70	0.71	0.79	0.66	1.00	1.00	1.00	1.00	0.46	1.00	0.39	1.00	0.50	0.30	0.57	0.44	1.00	1.00	1.00	0.38
vlawmo pond volume	acre-ft	0.23	0.95	0.00	1.57	0.00	0.82	0.01	0.56	1.82	1.25	2.64	0.22	0.49	0.23	0.34	0.00	0.31	4.85	10.31	0.38	1.30
LAND USE PARAMETERS.....																						
runoff total P conc	ppb	444.20	424.87	200.00	438.45	200.00	448.37	200.05	224.62	300.78	333.70	461.45	515.98	479.82	495.39	449.90	200.00	428.74	510.93	428.14	469.27	431.52
runoff coefficient		0.19	0.39	0.08	0.41	0.08	0.30	0.08	0.09	0.09	0.13	0.18	0.13	0.18	0.28	0.35	0.08	0.29	0.12	0.21	0.29	0.28
dissolved/total P		0.32	0.33	0.60	0.31	0.60	0.30	0.60	0.58	0.54	0.49	0.50	0.56	0.42	0.48	0.31	0.60	0.32	0.61	0.32	0.38	0.41
runoff TSS conc	ppm	152.87	147.88	216.00	143.66	216.00	140.42	215.98	211.14	214.31	200.83	179.41	190.15	162.67	174.50	142.13	216.00	144.36	198.71	144.85	154.65	163.08
POND TSS BUDGETS.....																						
runoff	lbs/yr	1178.60	4619.86	1.24	7623.95	1.24	3954.80	44.20	3939.21	13287.76	7869.23	14605.96	1349.33	2580.45	1211.56	1644.83	1.24	1513.03	30706.21	50425.11	1872.58	6621.15
upstream pond	lbs/yr	1064.45	2243.05	2908.16	1283.77	5058.31	0.00	0.00	0.00	3939.21	0.00	28377.48	0.00	0.00	0.00	0.00	115.14	0.00	46006.69	0.00	0.00	1872.58
total inflow	**lbs/yr**	**2243.05**	**6862.91**	**2909.40**	**8907.72**	**5059.55**	**3954.80**	**44.20**	**3939.21**	**17226.98**	**7869.23**	**42983.44**	**1349.33**	**2580.45**	**1211.56**	**1644.83**	**116.38**	**1513.03**	**76712.90**	**50425.11**	**1872.58**	**8493.72**
p removal efficiency (no inf)	%	0.00	31.00	29.00	22.00	34.00	0.00	0.00	0.00	0.00	55.00	0.00	62.00	0.00	51.00	71.00	43.00	56.00	0.00	0.00	0.00	63.00
tss removal efficiency (no inf)	%	0.00	57.63	55.88	43.21	60.25	0.00	0.00	0.00	0.00	91.50	0.00	93.00	0.00	83.00	93.00	68.67	93.00	0.00	0.00	0.00	93.00
net sedimentation	lbs/yr	0.00	3954.75	1625.63	3849.41	3048.38	0.00	0.00	0.00	0.00	7200.35	0.00	1254.88	0.00	1005.59	1529.70	79.91	1407.11	0.00	0.00	0.00	7899.16
outflow	lbs/yr	2243.05	2908.16	1283.77	5058.31	2011.17	3954.80	44.20	3939.21	17226.98	668.88	42983.44	94.45	2580.45	205.97	115.14	36.47	105.91	76712.90	50425.11	1872.58	594.56
tss removal efficiency (inf)	%	0.00	57.63	55.88	43.21	60.25	0.00	0.00	0.00	0.00	91.50	0.00	93.00	0.00	83.00	93.00	68.67	93.00	0.00	0.00	0.00	93.00
upstream watershed tss load	lbs/yr	4019.94	8639.80	8641.04	16264.99	16266.23	3954.80	44.20	3939.21	17226.98	7869.23	64438.85	1349.33	2580.45	1211.56	1644.83	1646.08	1513.03	103445.51	50425.11	1872.58	8493.72
tss total removal efficiency	%	44.20	66.34	85.14	68.90	87.64	0.00	0.00	0.00	0.00	91.50	33.30	93.00	0.00	83.00	93.00	97.78	93.00	25.84	0.00	0.00	93.00
INFILTRATION BMP/POND.....																						
Annual runoff infiltrated	%	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Adjusted outflow	**ac-ft/yr**	**10.39**	**22.43**	**22.43**	**42.43**	**42.43**	**10.42**	**0.08**	**7.11**	**30.23**	**15.84**	**141.33**	**2.84**	**6.26**	**2.95**	**4.32**	**4.32**	**3.95**	**223.34**	**131.17**	**4.78**	**21.37**
Adjusted TP outflow	**lbs/yr**	**9.27**	**16.61**	**11.82**	**28.41**	**18.82**	**12.72**	**0.04**	**4.77**	**24.30**	**7.03**	**110.91**	**1.48**	**7.93**	**1.85**	**1.56**	**0.90**	**2.10**	**207.84**	**155.28**	**5.92**	**9.42**
Adjusted TSS outflow	**lbs/yr**	**2243.05**	**2908.16**	**1283.77**	**5058.31**	**2011.17**	**3954.80**	**44.20**	**3939.21**	**17226.98**	**668.88**	**42983.44**	**94.45**	**2580.45**	**205.97**	**115.14**	**36.47**	**105.91**	**76712.90**	**50425.11**	**1872.58**	**594.56**

Rochester Loading Assessment																						
Cascade Creek																						
363-06-158-2																						
Existing (2005) TP LOADS																						
		cc-a1.10e cell 2	**cc-a1.10d**	**cc-a1.10d cell 2**	**cc-a4.2f**	**cc-a4.2g**	**cc-a4.2g cell 2**	**cc-a4.2h**	**cc-a4.2d**	**cc-a4.3d**	**cc-a4.3c**	**cc-a4.3b**	**cc-a4.3a**	**cc-a4.4c**	**cc-a4.4c cell 2**	**cc-a4.4c cell 3**	**cc-a4.2e**	**cc-a4.4a**	**cc-a4.4b**	**cc-a4.4b cell 2**	**cc-a4.2k**	**cc-a4.2i**
Routed TO:		cc-a1.10d	cc-a1.10d cell 2	cc-a4.2b	cc-a4.2d	cc-a4.2g cell 2	cc-a4.2d	cc-a4.2d	cc-a4.2a	cc-a4.3a	cc-a4.3a	cc-a4.3a	cc-a4.4c	cc-a4.4c cell 2	cc-a4.4c cell 3	cc-a4.2e	cc-a4.2a	cc-a4.4b	cc-a4.4b cell 2	cc-a4.2a	cc-a4.2b	cc-a4.2b
INPUT VARIABLES....	UNITS																					
case label	-																					
Watershed area	acres	0.1	12.3	0.0	10.5	9.5	0.0	28.8	18.8	7.2	22.7	98.8	120.3	5.4	0.0	0.0	15.7	222.8	6.3	0.0	2.6	13.4
basin area	acres	2.11	0.02	0.15	0.15	0.38	0.39	0.38	0.00	0.01	0.07	0.51	0.69	0.15	0.37	0.37	0.00	7.46	0.14	2.21	0.04	0.03
basin volume	acre-ft	11.51	0.04	0.26	0.32	1.36	1.39	1.44	0.00	0.00	0.15	3.29	2.92	0.56	1.39	1.37	0.00	59.68	0.50	7.75	0.09	0.06
Row Crop Agriculture		0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	2%	0%	0%	0%	0%
Very Low Density Residential		0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	4%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Low Density Residential		0%	0%	0%	0%	0%	0%	0%	0%	15%	80%	62%	42%	0%	0%	0%	0%	59%	0%	0%	5%	94%
Medium Density Residential		0%	88%	0%	1%	0%	0%	0%	0%	0%	0%	0%	2%	0%	0%	0%	0%	4%	0%	0%	0%	0%
High Density Residential		0%	0%	0%	0%	0%	0%	22%	0%	85%	1%	3%	18%	0%	0%	0%	0%	9%	0%	0%	0%	1%
Commercial/Industrial		0%	0%	0%	0%	23%	0%	8%	0%	0%	0%	0%	8%	0%	0%	0%	0%	9%	0%	0%	50%	0%
Institutional		0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Open Space		100%	12%	100%	87%	72%	100%	66%	99%	0%	19%	31%	26%	100%	100%	100%	40%	9%	75%	100%	19%	5%
Golf Course		0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	1%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Pits and Quarries		0%	0%	0%	0%	0%	0%	0%	1%	0%	0%	0%	0%	0%	0%	0%	60%	0%	0%	0%	0%	0%
Right-of-Way		0%	0%	0%	12%	5%	0%	4%	0%	0%	0%	0%	3%	0%	0%	0%	0%	7%	25%	0%	26%	0%
WATERSHED-WIDE ACCOUNTING.....																						
tributary land area	ac	28.80	41.14	41.15	10.46	9.51	9.52	28.77	67.53	7.17	22.73	98.80	249.01	254.38	254.39	254.39	270.06	222.85	229.11	229.12	2.61	13.41
tributary water area	ac	2.83	2.85	3.00	0.15	0.38	0.77	0.38	1.30	0.01	0.07	0.51	1.28	1.43	1.80	2.17	2.17	7.46	7.60	9.81	0.04	0.03
direct and ponded area	ac	31.63	43.99	44.15	10.61	9.90	10.30	29.15	68.84	7.18	22.80	99.31	250.29	255.81	256.19	256.56	272.23	230.31	236.71	238.93	2.65	13.44
ASSUMED EXPORT FACTORS.....																						
season length	yrs	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
season precipitation	inches	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8
runoff total p	ppb	200.00	420.72	200.00	227.04	244.00	200.00	274.89	198.62	450.00	402.09	368.01	375.87	200.38	200.00	200.00	80.73	415.06	251.13	200.00	339.05	438.25
runoff ortho p/total p	-	0.60	0.34	0.60	0.56	0.52	0.60	0.50	0.60	0.30	0.36	0.40	0.38	0.60	0.60	0.60	0.24	0.33	0.52	0.60	0.36	0.31
unit runoff	in/yr	2.54	8.89	2.54	3.38	5.61	2.54	6.18	2.53	12.57	5.98	5.49	7.57	2.55	2.54	2.54	1.03	7.93	4.13	2.54	10.42	6.64
unit export	lbs/ac-y	0.12	0.89	0.12	0.21	0.39	0.12	0.50	0.11	1.28	0.58	0.51	0.70	0.12	0.12	0.12	0.05	0.76	0.29	0.12	0.84	0.67
POND WATER BUDGETS.....																						
runoff	ac-ft/yr	0.02	9.14	0.00	2.94	4.45	0.00	14.81	3.95	7.51	11.33	45.18	75.89	1.14	0.00	0.00	1.34	147.35	2.15	0.00	2.26	7.41
upstream pond	ac-ft/yr	21.37	21.39	30.52	0.00	0.00	0.13	0.00	3.52	0.00	0.00	0.00	64.01	139.90	141.04	141.04	141.04	0.00	147.35	149.50	0.00	0.00
total inflow	**ac-ft/yr**	**21.39**	**30.52**	**30.53**	**2.94**	**4.45**	**0.14**	**14.81**	**7.48**	**7.51**	**11.33**	**45.18**	**139.90**	**141.04**	**141.04**	**141.04**	**142.39**	**147.35**	**149.50**	**149.50**	**2.26**	**7.41**
outflow	ac-ft/yr	21.39	30.52	30.53	2.94	4.45	0.14	14.81	7.48	7.51	11.33	45.18	139.90	141.04	141.04	141.04	142.39	147.35	149.50	149.50	2.26	7.41
POND PHOSPHORUS BUDGETS.....																						
runoff	lbs/yr	0.01	10.96	0.00	2.17	3.68	0.00	14.51	2.15	9.18	13.23	50.55	84.68	0.62	0.00	0.00	0.73	169.06	1.80	0.00	2.20	8.98
upstream pond	lbs/yr	9.42	5.13	15.46	0.00	0.00	0.05	0.00	1.64	0.00	0.00	0.00	40.66	81.54	76.73	67.08	59.53	0.00	47.42	47.33	0.00	0.00
total inflow	**lbs/yr**	**9.43**	**16.10**	**15.46**	**2.17**	**3.68**	**0.06**	**14.51**	**3.78**	**9.18**	**13.23**	**50.55**	**125.34**	**82.17**	**76.73**	**67.08**	**60.26**	**169.06**	**49.23**	**47.33**	**2.20**	**8.98**
net sedimentation	lbs/yr	4.30	0.64	1.52	0.79	1.87	0.02	7.08	0.00	0.00	4.26	28.03	43.79	5.44	9.65	7.55	0.00	121.63	1.90	10.06	0.92	2.53
outflow	lbs/yr	5.13	15.46	13.94	1.38	1.81	0.03	7.43	3.78	9.18	8.96	22.52	81.54	76.73	67.08	59.53	60.26	47.42	47.33	37.27	1.27	6.45
p removal efficiency	%	45.57	3.97	9.85	36.39	98.53	40.32	98.46	0.00	0.00	32.23	55.46	34.94	6.62	12.58	11.25	0.00	71.95	3.85	21.25	42.11	28.18
upstream w-shed p load	lbs/yr	24.93	35.90	35.90	2.17	3.68	3.68	14.51	22.51	9.18	13.23	50.55	157.64	158.26	158.26	158.26	158.99	169.06	170.86	170.86	2.20	8.98
total removal %	%	79.41	56.93	61.17	36.39	98.53	99.10	98.46	83.19	0.00	32.23	55.46	48.27	51.52	57.62	62.39	62.10	71.95	72.30	78.18	42.11	28.18
HYDRAULIC PARAMETERS.....																						
pond mean depth	feet	5.46	1.75	1.73	2.10	3.55	3.55	3.79	1.00	0.00	2.14	6.44	4.23	3.74	3.74	3.74	1.00	8.00	3.51	3.51	2.25	2.00
relative volume	inches	17271.00	0.15	3870.00	3.40	9.70	20895.00	3.09	0.00	0.00	0.42	2.31	1.22	15.63	41550.00	41220.00	0.00	12.88	7.41	116220.00	1.26	0.26
residence time	years	0.54	0.00	0.01	0.11	0.31	10.27	0.10	0.00	0.00	0.01	0.07	0.02	0.00	0.01	0.01	0.00	0.41	0.00	0.05	0.04	0.01
residence time	days	196.50	0.50	3.08	39.05	111.33	3749.93	35.49	0.00	0.00	4.83	26.54	7.62	1.45	3.58	3.56	0.00	147.84	1.23	18.92	14.51	2.95
overflow rate	ft/yr	10.14	1271.81	204.87	19.63	11.65	0.35	38.97	7477268.14	750.76	161.83	88.58	202.76	940.29	381.20	384.32	142385853.97	19.75	1045.46	67.71	56.59	247.13
inflow phos conc	ppb	162.27	194.05	186.35	271.06	304.31	150.09	360.53	186.23	450.02	429.65	411.67	329.62	214.33	200.15	174.97	155.70	422.13	121.15	116.48	356.95	445.52
outflow phos conc	ppb	88.33	186.35	167.99	172.42	149.30	89.57	184.68	186.23	450.02	291.15	183.36	214.45	200.15	174.97	155.28	155.70	118.41	116.48	91.73	206.62	319.96
p reaction rate	-	1.54	0.04	0.12	0.90	2.12	1.13	1.86	0.00	0.00	0.70	2.80	0.83	0.08	0.16	0.14	0.00	9.14	0.04	0.34	1.26	0.55
1-rp	-	0.54	0.96	0.90	0.64	0.49	0.60	0.51	1.00	1.00	0.68	0.45	0.65	0.93	0.87	0.89	1.00	0.28	0.96	0.79	0.58	0.72
vlawmo pond volume	acre-ft	0.00	0.72	0.00	0.23	0.35	0.00	1.16	0.31	0.59	0.89	3.55	5.97	0.09	0.00	0.00	0.11	11.58	0.17	0.00	0.18	0.58
LAND USE PARAMETERS.....																						
runoff total P conc	ppb	200.00	420.72	200.00	227.04	244.00	200.00	274.89	198.62	450.00	402.09	368.01	375.87	200.38	200.00	200.00	80.73	415.06	251.13	200.00	339.05	438.25
runoff coefficient		0.08	0.28	0.08	0.11	0.18	0.08	0.19	0.08	0.40	0.19	0.17	0.24	0.08	0.08	0.08	0.03	0.25	0.13	0.08	0.33	0.21
dissolved/total P		0.60	0.34	0.60	0.56	0.52	0.60	0.50	0.60	0.30	0.36	0.40	0.38	0.60	0.60	0.60	0.24	0.33	0.52	0.60	0.36	0.31
runoff TSS conc	ppm	216.00	149.12	216.00	205.96	195.19	216.00	190.23	214.50	140.00	154.56	166.87	160.98	216.40	216.00	216.00	87.19	147.43	197.04	216.00	154.45	143.57
POND TSS BUDGETS.....																						
runoff	lbs/yr	12.41	3530.07	1.24	1513.26	1988.76	1.24	6449.43	2314.05	2848.39	4488.14	18697.15	30255.59	668.03	0.62	0.62	784.93	56888.73	1021.56	1.24	880.51	2840.32
upstream pond	lbs/yr	594.56	169.95	3409.31	0.00	0.00	10.14	0.00	605.26	0.00	0.00	0.00	5980.50	14086.78	12726.03	9476.81	7243.46	0.00	3982.21	4610.62	0.00	0.00
total inflow	**lbs/yr**	**606.97**	**3700.03**	**3410.55**	**1513.26**	**1988.76**	**11.38**	**6449.43**	**2919.31**	**2848.39**	**4488.14**	**18697.15**	**36236.08**	**14754.81**	**12726.65**	**9477.43**	**8028.40**	**56888.73**	**5003.77**	**4611.86**	**880.51**	**2840.32**
p removal efficiency (no inf)	%	46.00	4.00	10.00	37.00	51.00	41.00	49.00	0.00	0.00	33.00	56.00	35.00	7.00	13.00	12.00	0.00	72.00	4.00	22.00	43.00	29.00
tss removal efficiency (no inf)	%	72.00	7.86	19.64	63.00	83.00	67.00	78.50	0.00	0.00	59.38	93.00	61.13	13.75	25.54	23.57	0.00	93.00	7.86	43.21	68.67	55.88
net sedimentation	lbs/yr	437.02	290.72	669.93	953.35	1650.67	7.63	5062.80	0.00	0.00	2664.83	17388.35	22149.30	2028.79	3249.84	2233.96	0.00	52906.52	393.15	1992.98	604.62	1587.03
outflow	lbs/yr	169.95	3409.31	2740.62	559.90	338.09	3.76	1386.63	2919.31	2848.39	1823.31	1308.80	14086.78	12726.03	9476.81	7243.46	8028.40	3982.21	4610.62	2618.88	275.89	1253.29
tss removal efficiency (inf)	%	72.00	7.86	19.64	63.00	99.49	67.00	99.36	0.00	0.00	59.38	93.00	61.13	13.75	25.54	23.57	0.00	93.00	7.86	43.21	68.67	55.88
upstream watershed tss load	lbs/yr	8506.13	12036.21	12037.45	1513.26	1988.76	1990.01	6449.43	12266.74	2848.39	4488.14	18697.15	56289.27	56957.30	56957.92	56958.55	57743.48	56888.73	57910.29	57911.53	880.51	2840.32
tss total removal efficiency	%	98.00	71.67	77.23	63.00	99.49	99.81	99.36	76.20	0.00	59.38	93.00	74.97	77.66	83.36	87.28	86.10	93.00	92.04	95.48	68.67	55.88
INFILTRATION BMP/POND.....																						
Annual runoff infiltrated	%	0.00	0.00	0.00	0.00	97.00	0.00	97.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Adjusted outflow	**ac-ft/yr**	**21.39**	**30.52**	**30.53**	**2.94**	**0.13**	**0.14**	**0.44**	**7.48**	**7.51**	**11.33**	**45.18**	**139.90**	**141.04**	**141.04**	**141.04**	**142.39**	**147.35**	**149.50**	**149.50**	**2.26**	**7.41**
Adjusted TP outflow	**lbs/yr**	**5.13**	**15.46**	**13.94**	**1.38**	**0.05**	**0.03**	**0.22**	**3.78**	**9.18**	**8.96**	**22.52**	**81.54**	**76.73**	**67.08**	**59.53**	**60.26**	**47.42**	**47.33**	**37.27**	**1.27**	**6.45**
Adjusted TSS outflow	**lbs/yr**	**169.95**	**3409.31**	**2740.62**	**559.90**	**10.14**	**3.76**	**41.60**	**2919.31**	**2848.39**	**1823.31**	**1308.80**	**14086.78**	**12726.03**	**9476.81**	**7243.46**	**8028.40**	**3982.21**	**4610.62**	**2618.88**	**275.89**	**1253.29**

Rochester Loading Assessment																
Cascade Creek																
363-06-158-2																
Existing (2005) TP LOADS																
		cc-a4.2l	**cc-a4.2m**	**cc-a4.2m cell 2**	**cc-a4.2o**	**cc-a4.2p**	**cc-a4.2j**	**cc-a4.2j cell 2**	**cc-a4.2n**	**cc-a4.2b**	**cc-a4.2c**	**cc-a4.2a**	**cc-a4.5**	**cc-a4.7**	**cc-a4.6**	**cc-a4.8**
Routed TO:		cc-a4.2m	cc-a4.2m cell 2	cc-a4.2n	cc-a4.2n	cc-a4.2n	cc-a4.2j cell 2	cc-a4.2n	cc-a4.2a	cc-a4.2a	cc-a4.2a	cc-a4.5	cc-a4.7	cc-a4.8	cc-a4.8	Zumbro River
INPUT VARIABLES....	UNITS															
case label	-															
Watershed area	acres	8.5	23.8	0.1	1.3	4.2	21.9	0.0	33.4	37.8	36.8	51.2	301.8	104.4	241.9	292.8
basin area	acres	0.00	0.11	0.19	0.07	0.16	0.20	0.26	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
basin volume	acre-ft	0.00	0.36	0.59	0.09	0.54	0.67	0.86	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Row Crop Agriculture		0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Very Low Density Residential		0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Low Density Residential		57%	85%	0%	0%	0%	96%	0%	11%	50%	0%	0%	37%	34%	19%	46%
Medium Density Residential		0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	6%	21%	1%	6%
High Density Residential		6%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	3%	8%	3%	2%
Commercial/Industrial		14%	0%	0%	100%	0%	0%	0%	46%	0%	0%	0%	16%	7%	12%	12%
Institutional		0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	17%	7%	28%	6%
Open Space		20%	3%	100%	0%	100%	4%	100%	26%	41%	100%	53%	10%	11%	20%	19%
Golf Course		0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Pits and Quarries		0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	1%	0%	0%	0%	0%
Right-of-Way		4%	12%	0%	0%	0%	0%	0%	17%	9%	0%	46%	10%	13%	17%	9%
WATERSHED-WIDE ACCOUNTING.....																
tributary land area	ac	8.55	32.31	32.41	1.32	4.22	21.91	21.92	3477.88	887.61	36.84	6156.45	6458.23	6562.63	241.91	7097.33
tributary water area	ac	0.00	0.11	0.30	0.07	0.16	0.20	0.46	117.95	6.23	0.00	141.93	141.93	141.93	0.00	141.93
direct and ponded area	ac	8.55	32.43	32.71	1.39	4.38	22.11	22.38	3595.83	893.84	36.84	6298.38	6600.16	6704.56	241.91	7239.26
ASSUMED EXPORT FACTORS.....																
season length	yrs	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
season precipitation	inches	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8
runoff total p	ppb	385.49	438.11	200.00	350.00	200.00	440.19	200.00	330.98	344.07	200.00	291.51	385.71	403.39	351.63	380.98
runoff ortho p/total p	-	0.36	0.31	0.60	0.30	0.60	0.31	0.60	0.38	0.42	0.60	0.46	0.33	0.33	0.36	0.36
unit runoff	in/yr	7.46	6.91	2.54	14.56	2.54	6.58	2.54	9.63	5.23	2.54	5.42	8.72	8.49	8.26	7.59
unit export	lbs/ac-y	0.68	0.69	0.12	1.15	0.12	0.66	0.12	0.77	0.47	0.12	0.43	0.77	0.80	0.69	0.68
POND WATER BUDGETS.....																
runoff	ac-ft/yr	5.31	13.69	0.02	1.60	0.90	12.01	0.00	26.83	16.49	7.81	23.11	219.23	73.85	166.61	185.21
upstream pond	ac-ft/yr	0.00	5.31	19.00	0.00	0.00	0.00	12.01	1181.16	394.71	0.00	2759.35	2782.46	3001.69	0.00	3242.15
total inflow	**ac-ft/yr**	**5.31**	**19.00**	**19.03**	**1.60**	**0.90**	**12.01**	**12.01**	**1207.99**	**411.21**	**7.81**	**2782.46**	**3001.69**	**3075.54**	**166.61**	**3427.37**
outflow	ac-ft/yr	5.31	19.00	19.03	1.60	0.90	12.01	12.01	1207.99	411.21	7.81	2782.46	3001.69	3075.54	166.61	3427.37
POND PHOSPHORUS BUDGETS.....																
runoff	lbs/yr	5.84	16.34	0.01	1.52	0.49	14.56	0.00	25.91	17.62	4.25	22.00	232.98	83.48	168.06	200.42
upstream pond	lbs/yr	0.00	5.84	13.18	0.00	0.00	0.00	6.68	862.15	384.78	0.00	2104.17	2126.17	2359.15	0.00	2610.70
total inflow	**lbs/yr**	**5.84**	**22.18**	**13.19**	**1.52**	**0.49**	**14.56**	**6.68**	**888.05**	**402.40**	**4.25**	**2126.17**	**2359.15**	**2442.63**	**168.06**	**2811.12**
net sedimentation	lbs/yr	0.00	9.00	3.58	0.65	0.21	7.89	2.15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
outflow	lbs/yr	5.84	13.18	9.61	0.87	0.28	6.68	4.52	888.05	402.40	4.25	2126.17	2359.15	2442.63	168.06	2811.12
p removal efficiency	%	0.00	40.58	27.17	42.77	42.30	54.16	32.25	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
upstream w-shed p load	lbs/yr	5.84	22.18	22.19	1.52	0.49	14.56	14.57	1770.59	480.08	4.25	3491.09	3724.07	3807.55	168.06	4176.03
total removal %	%	0.00	40.58	56.71	42.77	42.30	54.16	68.94	49.84	16.18	0.00	39.10	36.65	35.85	0.00	32.68
HYDRAULIC PARAMETERS.....																
pond mean depth	feet	1.00	3.14	3.13	1.33	3.35	3.31	3.31	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
relative volume	inches	0.00	0.82	877.50	1.85	19.04	1.78	12870.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
residence time	years	0.00	0.02	0.03	0.06	0.60	0.06	0.07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
residence time	days	0.00	6.82	11.22	21.22	218.51	20.42	26.07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
overflow rate	ft/yr	5314439.37	168.18	101.74	22.85	5.60	59.17	46.38	1207993701.53	411206559.39	7809081.29	2782455461.24	3001689200.45	3075538455.08	166614322.91	3427366928.34
inflow phos conc	ppb	404.39	429.33	255.06	350.02	200.03	446.15	204.51	270.47	360.04	200.01	281.14	289.16	292.21	371.12	301.77
outflow phos conc	ppb	404.39	255.12	185.75	200.32	115.41	204.51	138.56	270.47	360.04	200.01	281.14	289.16	292.21	371.12	301.77
p reaction rate	-	0.00	1.15	0.51	1.31	1.27	2.58	0.70	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1-rp	-	1.00	0.59	0.73	0.57	0.58	0.46	0.68	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
vlawmo pond volume	acre-ft	0.42	1.08	0.00	0.13	0.07	0.94	0.00	2.11	1.30	0.61	1.82	17.24	5.81	13.10	14.56
LAND USE PARAMETERS.....																
runoff total P conc	ppb	385.49	438.11	200.00	350.00	200.00	440.19	200.00	330.98	344.07	200.00	291.51	385.71	403.39	351.63	380.98
runoff coefficient		0.23	0.22	0.08	0.46	0.08	0.21	0.08	0.30	0.16	0.08	0.17	0.27	0.27	0.26	0.24
dissolved/total P		0.36	0.31	0.60	0.30	0.60	0.31	0.60	0.38	0.42	0.60	0.46	0.33	0.33	0.36	0.36
runoff TSS conc	ppm	154.82	142.89	216.00	140.00	216.00	143.11	216.00	159.56	170.80	216.00	179.32	147.82	148.06	155.11	154.07
POND TSS BUDGETS.....																
runoff	lbs/yr	2089.09	5225.35	12.41	606.80	524.08	4595.18	1.24	10554.90	6927.50	4571.11	9949.86	84533.34	28501.85	65313.39	72636.68
upstream pond	lbs/yr	0.00	2089.09	2413.76	0.00	0.00	0.00	390.59	266816.74	131407.82	0.00	671682.97	681632.83	766166.17	0.00	859981.40
total inflow	**lbs/yr**	**2089.09**	**7314.44**	**2426.17**	**606.80**	**524.08**	**4595.18**	**391.83**	**277371.64**	**138335.33**	**4571.11**	**681632.83**	**766166.17**	**794668.02**	**65313.39**	**932618.08**
p removal efficiency (no inf)	%	0.00	41.00	28.00	43.00	43.00	55.00	33.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
tss removal efficiency (no inf)	%	0.00	67.00	55.00	68.67	68.67	91.50	59.38	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
net sedimentation	lbs/yr	0.00	4900.67	1334.40	416.67	359.87	4204.59	232.65	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
outflow	lbs/yr	2089.09	2413.76	1091.78	190.13	164.21	390.59	159.18	277371.64	138335.33	4571.11	681632.83	766166.17	794668.02	65313.39	932618.08
tss removal efficiency (inf)	%	0.00	67.00	55.00	68.67	68.67	91.50	59.38	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
upstream watershed tss load	lbs/yr	2089.09	7314.44	7326.84	606.80	524.08	4595.18	4596.42	671903.09	176556.41	4571.11	1321130.71	1405664.05	1434165.90	65313.39	1572115.97
tss total removal efficiency	%	0.00	67.00	85.10	68.67	68.67	91.50	96.54	58.72	21.65	0.00	48.41	45.49	44.59	0.00	40.68
INFILTRATION BMP/POND.....																
Annual runoff infiltrated	%	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Adjusted outflow	**ac-ft/yr**	**5.31**	**19.00**	**19.03**	**1.60**	**0.90**	**12.01**	**12.01**	**1207.99**	**411.21**	**7.81**	**2782.46**	**3001.69**	**3075.54**	**166.61**	**3427.37**
Adjusted TP outflow	**lbs/yr**	**5.84**	**13.18**	**9.61**	**0.87**	**0.28**	**6.68**	**4.52**	**888.05**	**402.40**	**4.25**	**2126.17**	**2359.15**	**2442.63**	**168.06**	**2811.12**
Adjusted TSS outflow	**lbs/yr**	**2089.09**	**2413.76**	**1091.78**	**190.13**	**164.21**	**390.59**	**159.18**	**277371.64**	**138335.33**	**4571.11**	**681632.83**	**766166.17**	**794668.02**	**65313.39**	**932618.08**

Rochester Loading Assessment																								
Cascade Creek																								
363-06-158-2																								
2020 TP LOADS																								
		future cc-a2.2	**cc-a2.2**	**future cc-a2.3d**	**cc-a2.3d**	**future cc-a2.3c**	**cc-a2.3c**	**future cc-a2.3b**	**cc-a2.3b**	**future cc-a2.3a**	**cc-a2.3a**	**future cc-a2.4c**	**cc-a2.4c**	**future cc-a2.4b**	**cc-a2.4b**	**future cc-a2.4a**	**cc-a2.4a**	**future cc-a2.6b**	**cc-a2.6b**	**future cc-a2.6a**	**cc-a2.6a**	**future cc-a2.8e**	**cc-a2.8e**	**future cc-a2.8d**	**cc-a2.8d**
		cc-a2.2	cc-a2.4c	cc-a2.3d	cc-a2.3a	cc-a2.3c	cc-a2.3a	cc-a2.3b	cc-a2.3a	cc-a2.3a	cc-a2.4a	cc-a2.4c	cc-a2.8a	cc-a2.4b	cc-a2.8a	cc-a2.4a	cc-a2.8a	cc-a2.6b	cc-a2.8a	cc-a2.6a	cc-a2.8a	cc-a2.8e	cc-a2.8a	cc-a2.8d	cc-a2.8a
INPUT VARIABLES....	UNITS																							
case label	-																							
Watershed area	acres	0.0	56.3	0.0	35.5	0.0	39.2	0.0	3.1	0.0	42.3	0.0	35.6	0.0	26.7	0.0	36.6	23.9	37.1	0.0	156.2	0.0	26.8	0.0	6.3
basin area	acres	0.00	23.65	0.00	0.00	0.00	0.00	0.00	0.00	0.00	50.30	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.44	0.00	0.23
basin volume	acre-ft	0.00	116.46	0.00	0.00	0.00	0.00	0.00	0.00	0.00	260.76	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.07	0.00	0.57
Row Crop Agriculture		0%	17%	0%	95%	0%	93%	0%	0%	0%	0%	0%	0%	0%	86%	0%	0%	0%	44%	0%	90%	0%	1%	0%	3%
Very Low Density Residential		0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	15%	0%	4%	0%	0%	0%	0%
Low Density Residential		0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Medium Density Residential		0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
High Density Residential		0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Commercial/Industrial		0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	88%	0%	97%
Institutional		0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Open Space		0%	83%	0%	0%	0%	4%	0%	100%	0%	100%	0%	100%	0%	14%	0%	100%	100%	34%	0%	3%	0%	11%	0%	0%
Golf Course		0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Pits and Quarries		0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Right-of-Way		0%	0%	0%	5%	0%	3%	0%	0%	0%	0%	0%	0%	0%	1%	0%	0%	0%	7%	0%	3%	0%	0%	0%	0%
WATERSHED-WIDE ACCOUNTING.....																								
tributary land area	ac	0.00	56.31	0.00	35.49	0.00	39.16	0.00	3.12	0.00	120.05	0.00	91.92	0.00	26.70	0.00	156.70	23.92	61.04	0.00	156.16	0.00	26.81	0.00	6.31
tributary water area	ac	0.00	23.65	0.00	0.00	0.00	0.00	0.00	0.00	0.00	50.30	0.00	23.65	0.00	0.00	0.00	50.30	0.00	0.00	0.00	0.00	0.00	0.44	0.00	0.23
direct and ponded area	ac	0.00	79.96	0.00	35.49	0.00	39.16	0.00	3.12	0.00	170.35	0.00	115.57	0.00	26.70	0.00	207.00	23.92	61.04	0.00	156.16	0.00	27.25	0.00	6.54
ASSUMED EXPORT FACTORS.....																								
season length	yrs	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
season precipitation	inches	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80
runoff total p	ppb	0.00	259.33	0.00	533.53	0.00	521.47	0.00	200.01	0.00	200.02	0.00	200.00	0.00	493.31	0.00	200.00	200.14	379.38	0.00	517.25	0.00	334.54	0.00	356.06
runoff ortho p/total p	-	0.00	0.53	0.00	0.20	0.00	0.22	0.00	0.60	0.00	0.60	0.00	0.60	0.00	0.25	0.00	0.60	0.60	0.39	0.00	0.23	0.00	0.33	0.00	0.30
unit runoff	in/yr	0.00	2.88	0.00	4.65	0.00	4.48	0.00	2.54	0.00	2.54	0.00	2.54	0.00	4.22	0.00	2.54	2.56	3.87	0.00	4.48	0.00	13.13	0.00	14.23
unit export	lbs/ac-y	0.00	0.19	0.00	0.56	0.00	0.53	0.00	0.12	0.00	0.12	0.00	0.12	0.00	0.49	0.00	0.12	0.12	0.36	0.00	0.53	0.00	1.03	0.00	1.13
POND WATER BUDGETS.....																								
runoff	ac-ft/yr	0.00	13.50	0.00	13.76	0.00	14.62	0.00	0.66	0.00	8.97	0.00	7.55	0.00	9.38	0.00	7.77	5.09	11.97	0.00	58.29	0.00	29.34	0.00	7.49
upstream pond	ac-ft/yr	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	29.04	0.00	13.50	0.00	0.00	0.00	38.00	0.00	5.09	0.00	0.00	0.00	0.00	0.00	0.00
total inflow	**ac-ft/yr**	**0.00**	**13.50**	**0.00**	**13.76**	**0.00**	**14.62**	**0.00**	**0.66**	**0.00**	**38.00**	**0.00**	**21.05**	**0.00**	**9.38**	**0.00**	**45.77**	**5.09**	**17.06**	**0.00**	**58.29**	**0.00**	**29.34**	**0.00**	**7.49**
outflow	ac-ft/yr	0.00	13.50	0.00	13.76	0.00	14.62	0.00	0.66	0.00	38.00	0.00	21.05	0.00	9.38	0.00	45.77	5.09	17.06	0.00	58.29	0.00	29.34	0.00	7.49
POND PHOSPHORUS BUDGETS.....																								
runoff	lbs/yr	0.00	10.71	0.00	19.73	0.00	20.84	0.00	0.36	0.00	4.87	0.00	4.10	0.00	13.02	0.00	4.22	2.78	13.51	0.00	82.39	0.00	27.69	0.00	7.16
upstream pond	lbs/yr	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	40.93	0.00	4.43	0.00	0.00	0.00	16.63	0.00	2.76	0.00	0.00	0.00	0.00	0.00	0.00
total inflow	**lbs/yr**	**0.00**	**10.71**	**0.00**	**19.73**	**0.00**	**20.84**	**0.00**	**0.36**	**0.00**	**45.81**	**0.00**	**8.53**	**0.00**	**13.02**	**0.00**	**20.85**	**2.78**	**16.28**	**0.00**	**82.39**	**0.00**	**27.69**	**0.00**	**7.16**
net sedimentation	lbs/yr	0.00	6.28	0.00	0.00	0.00	0.00	0.00	0.00	0.00	29.18	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.00	0.00	0.00	0.00	11.79	0.00	3.67
outflow	lbs/yr	0.00	4.43	0.00	19.73	0.00	20.84	0.00	0.36	0.00	16.63	0.00	8.53	0.00	13.02	0.00	20.85	2.76	16.28	0.00	82.39	0.00	15.90	0.00	3.49
p removal efficiency	%	3.78	58.67	3.78	0.00	3.78	0.00	3.78	0.00	3.78	63.70	3.78	0.00	3.78	0.00	3.78	0.00	0.63	0.00	3.78	0.00	3.78	42.57	3.78	51.27
upstream w-shed p load	lbs/yr	0.00	10.71	0.00	19.73	0.00	20.84	0.00	0.36	0.00	45.81	0.00	14.81	0.00	13.02	0.00	50.03	2.78	16.29	0.00	82.39	0.00	27.69	0.00	7.16
total removal %	%	3.78	58.67	3.78	0.00	3.78	0.00	3.78	0.00	3.78	63.70	3.78	42.41	3.78	0.00	3.78	58.33	0.63	0.11	3.78	0.00	3.78	42.57	3.78	51.27
HYDRAULIC PARAMETERS.....																								
pond mean depth	feet	0.00	4.92	0.00	1.00	0.00	1.00	0.00	1.00	0.00	5.18	0.00	1.00	0.00	1.00	0.00	1.00	174.09	1.00	0.00	1.00	0.00	2.44	0.00	2.48
relative volume	inches	1.58	274.33	1.58	0.00	1.58	0.00	1.58	0.00	1.58	924.95	1.58	0.00	1.58	0.00	1.58	0.00	0.01	0.00	1.58	0.00	1.58	1.16	1.58	2.42
residence time	years	0.05	8.63	0.05	0.00	0.05	0.00	0.05	0.00	0.05	6.86	0.05	0.00	0.05	0.00	0.05	0.00	0.00	0.00	0.05	0.00	0.05	0.04	0.05	0.08
residence time	days	18.08	3148.71	18.08	0.00	18.08	0.00	18.08	0.00	18.08	2504.60	18.08	0.00	18.08	0.00	18.08	0.00	0.12	0.00	18.08	0.00	18.08	13.35	18.08	27.79
overflow rate	ft/yr	0.00	0.57	0.00	13755174.20	0.00	14620189.85	0.00	660653.29	0.00	0.76	0.00	21049916.88	0.00	9381483.82	0.00	45770462.22	509284.74	17060848.28	0.00	58286167.36	0.00	66.68	0.00	32.55
inflow phos conc	ppb	384.34	291.83	384.34	527.83	384.34	524.48	384.34	200.03	384.34	443.51	384.34	149.09	384.34	510.76	384.34	167.60	200.80	350.99	384.34	520.07	384.34	347.23	384.34	351.92
outflow phos conc	ppb	369.82	120.62	369.82	527.82	369.82	524.48	369.82	200.02	369.82	160.98	369.82	149.09	369.82	510.76	369.82	167.60	199.53	350.99	369.82	520.07	369.82	199.40	369.82	171.47
p reaction rate	-	0.04	3.43	0.04	0.00	0.04	0.00	0.04	0.00	0.04	4.84	0.04	0.00	0.04	0.00	0.04	0.00	0.01	0.00	0.04	0.00	0.04	1.29	0.04	2.16
1-rp	-	0.96	0.41	0.96	1.00	0.96	1.00	0.96	1.00	0.96	0.36	0.96	1.00	0.96	1.00	0.96	1.00	0.99	1.00	0.96	1.00	0.96	0.57	0.96	0.49
vlawmo pond volume	acre-ft	0.00	1.06	0.00	1.08	0.00	1.15	0.00	0.05	0.00	0.70	0.00	0.59	0.00	0.74	0.00	0.61	0.40	0.94	0.00	4.58	0.00	2.31	0.00	0.59
LAND USE PARAMETERS.....																								
runoff total P conc	ppb	0.00	259.33	0.00	533.53	0.00	521.47	0.00	200.01	0.00	200.02	0.00	200.00	0.00	493.31	0.00	200.00	200.14	379.38	0.00	517.25	0.00	334.54	0.00	356.06
runoff coefficient		0.00	0.09	0.00	0.15	0.00	0.14	0.00	0.08	0.00	0.08	0.00	0.08	0.00	0.13	0.00	0.08	0.08	0.12	0.00	0.14	0.00	0.41	0.00	0.45
dissolved/total P		0.00	0.53	0.00	0.20	0.00	0.22	0.00	0.60	0.00	0.60	0.00	0.60	0.00	0.25	0.00	0.60	0.60	0.39	0.00	0.23	0.00	0.33	0.00	0.30
runoff TSS conc	ppm	0.00	206.75	0.00	161.94	0.00	164.73	0.00	216.00	0.00	216.00	0.00	216.00	0.00	170.04	0.00	216.00	215.93	187.46	0.00	165.78	0.00	148.72	0.00	140.76
POND TSS BUDGETS.....																								
runoff	lbs/yr	0.00	7378.82	0.00	6001.36	0.00	6464.43	0.00	386.71	0.00	5247.64	0.00	4419.34	0.00	4247.44	0.00	4547.91	2975.65	5756.75	0.00	25869.58	0.00	11267.54	0.00	2845.06
upstream pond	lbs/yr	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	12852.50	0.00	516.52	0.00	0.00	0.00	1267.01	0.00	2917.20	0.00	0.00	0.00	0.00	0.00	0.00
total inflow	**lbs/yr**	**0.00**	**7378.82**	**0.00**	**6001.36**	**0.00**	**6464.43**	**0.00**	**386.71**	**0.00**	**18100.14**	**0.00**	**4935.86**	**0.00**	**4247.44**	**0.00**	**5814.92**	**2975.65**	**8673.95**	**0.00**	**25869.58**	**0.00**	**11267.54**	**0.00**	**2845.06**
p removal efficiency (no inf)	%	5.00	59.00	5.00	0.00	5.00	0.00	5.00	0.00	5.00	64.00	5.00	0.00	5.00	0.00	5.00	0.00	1.00	0.00	5.00	0.00	5.00	43.00	5.00	52.00
tss removal efficiency (no inf)	%	9.82	93.00	9.82	0.00	9.82	0.00	9.82	0.00	9.82	93.00	9.82	0.00	9.82	0.00	9.82	0.00	1.96	0.00	9.82	0.00	9.82	68.67	9.82	85.00
net sedimentation	lbs/yr	0.00	6862.30	0.00	0.00	0.00	0.00	0.00	0.00	0.00	16833.13	0.00	0.00	0.00	0.00	0.00	0.00	58.45	0.00	0.00	0.00	0.00	7737.04	0.00	2418.30
outflow	lbs/yr	0.00	516.52	0.00	6001.36	0.00	6464.43	0.00	386.71	0.00	1267.01	0.00	4935.86	0.00	4247.44	0.00	5814.92	2917.20	8673.95	0.00	25869.58	0.00	3530.50	0.00	426.76
tss removal efficiency (inf)	%	9.82	93.00	9.82	0.00	9.82	0.00	9.82	0.00	9.82	93.00	9.82	0.00	9.82	0.00	9.82	0.00	1.96	0.00	9.82	0.00	9.82	68.67	9.82	85.00
upstream watershed tss load	lbs/yr	0.00	7378.82	0.00	6001.36	0.00	6464.43	0.00	386.71	0.00	18100.14	0.00	11798.16	0.00	4247.44	0.00	22648.05	2975.65	8732.40	0.00	25869.58	0.00	11267.54	0.00	2845.06
tss total removal efficiency	%	9.82	93.00	9.82	0.00	9.82	0.00	9.82	0.00	9.82	93.00	9.82	58.16	9.82	0.00	9.82	74.32	1.96	0.67	9.82	0.00	9.82	68.67	9.82	85.00
INFILTRATION BMP/POND.....																								
Annual runoff infiltrated	%	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Adjusted outflow	**ac-ft/yr**	**0.00**	**13.50**	**0.00**	**13.76**	**0.00**	**14.62**	**0.00**	**0.66**	**0.00**	**38.00**	**0.00**	**21.05**	**0.00**	**9.38**	**0.00**	**45.77**	**5.09**	**17.06**	**0.00**	**58.29**	**0.00**	**29.34**	**0.00**	**7.49**
Adjusted TP outflow	**lbs/yr**	**0.00**	**4.43**	**0.00**	**19.73**	**0.00**	**20.84**	**0.00**	**0.36**	**0.00**	**16.63**	**0.00**	**8.53**	**0.00**	**13.02**	**0.00**	**20.85**	**2.76**	**16.28**	**0.00**	**82.39**	**0.00**	**15.90**	**0.00**	**3.49**
Adjusted TSS outflow	**lbs/yr**	**0.00**	**516.52**	**0.00**	**6001.36**	**0.00**	**6464.43**	**0.00**	**386.71**	**0.00**	**1267.01**	**0.00**	**4935.86**	**0.00**	**4247.44**	**0.00**	**5814.92**	**2917.20**	**8673.95**	**0.00**	**25869.58**	**0.00**	**3530.50**	**0.00**	**426.76**
POND P BUDGETS W/O P-BAN.....																								
runoff	lbs/yr	0.00	10.71	0.00	19.73	0.00	20.84	0.00	0.36	0.00	4.87	0.00	4.10	0.00	13.02	0.00	4.22	2.78	13.68	0.00	82.58	0.00	27.69	0.00	7.16
Adjusted TP outflow	**lbs/yr**	**0.00**	**4.43**	**0.00**	**19.73**	**0.00**	**20.84**	**0.00**	**0.36**	**0.00**	**16.63**	**0.00**	**8.53**	**0.00**	**13.02**	**0.00**	**20.85**	**2.76**	**16.44**	**0.00**	**82.58**	**0.00**	**15.90**	**0.00**	**3.49**
upstream pond	lbs/yr	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	40.93	0.00	4.43	0.00	0.00	0.00	16.63	0.00	2.76	0.00	0.00	0.00	0.00	0.00	0.00
total inflow	**lbs/yr**	**0.00**	**10.71**	**0.00**	**19.73**	**0.00**	**20.84**	**0.00**	**0.36**	**0.00**	**45.81**	**0.00**	**8.53**	**0.00**	**13.02**	**0.00**	**20.85**	**2.78**	**16.44**	**0.00**	**82.58**	**0.00**	**27.69**	**0.00**	**7.16**
outflow	lbs/yr	0.00	4.43	0.00	19.73	0.00	20.84	0.00	0.36	0.00	16.63	0.00	8.53	0.00	13.02	0.00	20.85	2.76	16.44	0.00	82.58	0.00	15.90	0.00	3.49
inflow phos conc	ppb	409.24	291.83	409.24	527.83	409.24	524.48	409.24	200.03	409.24	443.51	409.24	149.09	409.24	510.76	409.24	167.60	200.80	354.63	409.24	521.27	409.24	347.23	409.24	351.92
outflow phos conc	ppb	392.86	120.62	392.86	527.82	392.86	524.48	392.86	200.03	392.86	160.98	392.86	149.09	392.86	510.76	392.86	167.60	199.53	354.63	392.86	521.27	392.86	199.40	392.86	171.47
p reaction rate	-	0.04	3.43	0.04	0.00	0.04	0.00	0.04	0.00	0.04	4.84	0.04	0.00	0.04	0.00	0.04	0.00	0.01	0.00	0.04	0.00	0.04	1.29	0.04	2.16
1-rp	-	0.96	0.41	0.96	1.00	0.96	1.00	0.96	1.00	0.96	0.36	0.96	1.00	0.96	1.00	0.96	1.00	0.99	1.00	0.96	1.00	0.96	0.57	0.96	0.49
runoff total p conc	ppb	0.00	259.33	0.00	533.53	0.00	521.47	0.00	200.01	0.00	200.02	0.00	200.00	0.00	493.31	0.00	200.00	200.14	386.12	0.00	519.05	0.00	334.54	0.00	356.06

Rochester Loading Assessment																								
Cascade Creek																								
363-06-158-2																								
2020 TP LOADS																								
		future cc-a2.8c	**cc-a2.8c**	**future cc-a2.8b**	**cc-a2.8b**	**future cc-a2.8a**	**cc-a2.8a**	**future cc-a2.11**	**cc-a2.11**	**future cc-a3.2**	**cc-a3.2**	**future cc-a3.1**	**cc-a3.1**	**future cc-a3.5**	**cc-a3.5**	**cc-a3.5 cell 2**	**future cc-a3.6b**	**cc-a3.6b**	**future cc-a3.4b**	**cc-a3.4b**	**cc-a3.4b cell 2**	**future cc-a3.4a**	**cc-a3.4a**	**future cc-a3.6d**	**cc-a3.6d**
		cc-a2.8c	cc-a2.8a	cc-a2.8b	cc-a2.8a	cc-a2.8a	cc-a2.11	cc-a2.11	cc-a2.12a	cc-a3.2	cc-a3.1	cc-a3.1	cc-a3.4a	cc-a3.5	cc-a3.5 cell 2	cc-a3.4a	cc-a3.6b	cc-a3.4b	cc-a3.4b	cc-a3.4b cell 2	cc-a3.4a	cc-a3.4a	cc-a2.8a	cc-a3.6d	cc-a3.6d cell 2
INPUT VARIABLES....	UNITS																							
case label	-																							
Watershed area	acres	0.0	4.6	0.0	8.3	54.7	268.8	30.2	41.9	0.0	15.3	85.9	871.3	2.7	20.2	0.1	0.0	10.2	6.1	120.8	0.1	35.0	174.5	0.0	49.0
basin area	acres	0.00	0.30	0.00	0.35	0.89	0.00	0.60	0.00	0.00	0.41	0.45	27.73	0.04	0.51	1.17	0.00	0.31	0.21	0.27	0.93	0.42	7.13	0.00	0.16
basin volume	acre-ft	0.00	0.80	0.00	1.14	4.33	0.00	2.39	0.00	0.00	1.16	1.50	110.25	0.07	2.83	6.53	0.00	1.24	0.46	1.67	5.76	1.45	28.52	0.00	0.74
Row Crop Agriculture		0%	0%	0%	0%	0%	12%	0%	20%	0%	3%	0%	71%	0%	0%	0%	0%	0%	0%	4%	0%	0%	6%	0%	0%
Very Low Density Residential		0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	7%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Low Density Residential		0%	0%	0%	0%	0%	0%	0%	0%	0%	97%	0%	1%	100%	93%	0%	0%	0%	0%	22%	0%	0%	48%	0%	0%
Medium Density Residential		0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	8%	0%	0%	0%	0%	0%	0%	10%	0%	0%	37%	0%	0%	0%
High Density Residential		0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	3%	20%	0%	0%	9%	0%	0%
Commercial/Industrial		0%	100%	0%	100%	100%	20%	100%	2%	0%	0%	0%	0%	0%	0%	0%	0%	78%	88%	7%	0%	16%	27%	0%	84%
Institutional		0%	0%	0%	0%	0%	1%	0%	0%	0%	0%	32%	0%	0%	0%	0%	0%	0%	0%	25%	0%	0%	0%	0%	0%
Open Space		0%	0%	0%	0%	0%	45%	0%	31%	0%	0%	60%	16%	0%	8%	100%	0%	0%	0%	17%	100%	0%	38%	0%	7%
Golf Course		0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Pits and Quarries		0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	1%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Right-of-Way		0%	0%	0%	0%	0%	22%	0%	46%	0%	0%	0%	5%	0%	0%	0%	0%	22%	0%	6%	0%	0%	8%	0%	9%
WATERSHED-WIDE ACCOUNTING.....																								
tributary land area	ac	0.00	4.57	0.00	8.27	54.70	2204.12	30.21	2276.23	0.00	15.31	85.90	972.47	2.70	22.88	22.98	0.00	10.18	6.12	137.15	137.25	34.97	1342.17	0.00	48.99
tributary water area	ac	0.00	0.30	0.00	0.35	0.89	115.73	0.60	116.33	0.00	0.41	0.45	28.59	0.04	0.55	1.72	0.00	0.31	0.21	0.79	1.72	0.42	39.58	0.00	0.16
direct and ponded area	ac	0.00	4.87	0.00	8.62	55.59	2319.85	30.80	2392.56	0.00	15.72	86.35	1001.05	2.74	23.43	24.70	0.00	10.49	6.33	137.93	138.96	35.39	1381.75	0.00	49.16
ASSUMED EXPORT FACTORS.....																								
season length	yrs	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
season precipitation	inches	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80
runoff total p	ppb	0.00	350.00	0.00	350.00	350.00	316.36	350.05	364.87	0.00	395.77	263.71	457.15	391.50	379.04	200.00	0.00	361.20	355.09	352.80	200.00	385.05	318.74	0.00	344.51
runoff ortho p/total p	-	0.00	0.30	0.00	0.30	0.30	0.42	0.30	0.37	0.00	0.30	0.48	0.29	0.30	0.32	0.60	0.00	0.30	0.30	0.35	0.60	0.30	0.41	0.00	0.32
unit runoff	in/yr	0.00	14.56	0.00	14.56	14.56	6.60	14.55	6.03	0.00	6.66	5.44	4.25	6.74	6.46	2.54	0.00	13.26	14.07	8.73	2.54	9.05	7.91	0.00	13.19
unit export	lbs/ac-y	0.00	1.15	0.00	1.15	1.15	0.53	1.15	0.54	0.00	0.60	0.39	0.46	0.60	0.56	0.12	0.00	1.07	1.13	0.73	0.12	0.78	0.63	0.00	1.05
POND WATER BUDGETS.....																								
runoff	ac-ft/yr	0.00	5.54	0.00	10.03	66.37	147.90	36.64	21.05	0.00	8.50	38.92	308.35	1.52	10.87	0.02	0.00	11.25	7.18	87.94	0.02	26.38	114.97	0.00	53.86
upstream pond	ac-ft/yr	0.00	0.00	0.00	0.00	0.00	530.48	0.00	715.02	0.00	0.00	0.00	47.42	0.00	1.52	12.38	0.00	0.00	0.00	18.43	106.37	0.00	145.18	0.00	0.00
total inflow	**ac-ft/yr**	**0.00**	**5.54**	**0.00**	**10.03**	**66.37**	**678.38**	**36.64**	**736.07**	**0.00**	**8.50**	**38.92**	**355.78**	**1.52**	**12.38**	**12.41**	**0.00**	**11.25**	**7.18**	**106.37**	**106.39**	**26.38**	**260.16**	**0.00**	**53.86**
outflow	ac-ft/yr	0.00	5.54	0.00	10.03	66.37	678.38	36.64	736.07	0.00	8.50	38.92	355.78	1.52	12.38	12.41	0.00	11.25	7.18	106.37	106.39	26.38	260.16	0.00	53.86
POND PHOSPHORUS BUDGETS.....																								
runoff	lbs/yr	0.00	5.27	0.00	9.54	63.14	142.37	34.86	22.46	0.00	9.12	33.23	401.89	1.61	11.40	0.01	0.00	10.93	6.90	88.23	0.01	27.33	110.67	0.00	51.38
upstream pond	lbs/yr	0.00	0.00	0.00	0.00	0.00	285.22	0.00	443.76	0.00	0.00	0.00	24.71	0.00	0.86	4.34	0.00	0.00	0.00	8.09	64.01	0.00	57.44	0.00	0.00
total inflow	**lbs/yr**	**0.00**	**5.27**	**0.00**	**9.54**	**63.14**	**427.60**	**34.86**	**466.23**	**0.00**	**9.12**	**33.23**	**426.61**	**1.61**	**12.26**	**4.35**	**0.00**	**10.93**	**6.90**	**96.32**	**64.02**	**27.33**	**168.12**	**0.00**	**51.38**
net sedimentation	lbs/yr	0.00	2.93	0.00	5.37	34.64	0.00	18.69	0.00	0.00	5.28	12.35	284.43	0.75	7.92	1.82	0.00	6.37	3.38	32.31	22.15	14.28	78.38	0.00	17.00
outflow	lbs/yr	0.00	2.35	0.00	4.17	28.50	427.60	16.17	466.22	0.00	3.83	20.88	142.18	0.86	4.34	2.53	0.00	4.56	3.52	64.01	41.87	13.05	89.74	0.00	34.39
p removal efficiency	%	3.78	55.52	3.78	56.28	54.86	0.00	53.62	0.00	3.78	57.96	37.16	100.00	46.57	64.61	41.85	3.78	58.24	48.96	33.55	34.60	52.26	46.62	3.78	33.08
upstream w-shed p load	lbs/yr	0.00	5.27	0.00	9.54	63.14	1133.08	34.86	1190.40	0.00	9.12	33.23	444.24	1.61	13.01	13.02	0.00	10.93	6.90	106.06	106.07	27.33	701.34	0.00	51.38
total removal %	%	3.78	55.52	3.78	56.28	54.86	62.26	53.62	60.83	3.78	57.96	37.16	100.00	46.57	66.66	80.58	3.78	58.24	48.96	39.65	60.53	52.26	87.20	3.78	33.08
HYDRAULIC PARAMETERS.....																								
pond mean depth	feet	0.00	2.67	0.00	3.26	4.88	1.00	4.01	1.00	0.00	2.83	3.35	3.98	1.79	5.57	5.57	0.00	4.00	2.23	6.19	6.19	3.41	4.00	0.00	4.51
relative volume	inches	1.58	4.59	1.58	3.61	2.07	0.00	2.07	0.00	1.58	4.34	1.22	11.37	1.56	8.29	9793.50	1.58	3.51	2.04	0.60	8632.50	1.74	7.89	1.58	0.44
residence time	years	0.05	0.14	0.05	0.11	0.07	0.00	0.07	0.00	0.05	0.14	0.04	0.31	0.05	0.23	0.53	0.05	0.11	0.06	0.02	0.05	0.05	0.11	0.05	0.01
residence time	days	18.08	52.68	18.08	41.48	23.81	0.00	23.81	0.00	18.08	49.83	14.04	113.11	17.86	83.47	192.10	18.08	40.23	23.47	5.71	19.74	19.99	40.01	18.08	5.01
overflow rate	ft/yr	0.00	18.48	0.00	28.66	74.84	678377100.84	61.47	736067958.31	0.00	20.73	87.14	12.83	36.60	24.38	10.58	0.00	36.29	34.65	395.43	114.40	62.32	36.49	0.00	328.43
inflow phos conc	ppb	384.34	350.02	384.34	350.02	350.02	231.91	350.05	233.04	384.34	394.70	314.08	441.17	391.52	364.21	129.00	384.34	357.43	353.83	333.14	221.38	381.14	237.76	384.34	350.99
outflow phos conc	ppb	369.82	155.70	369.82	153.03	157.99	231.91	162.34	233.04	369.82	165.95	197.37	147.03	209.17	128.88	75.02	369.82	149.26	180.58	221.39	144.78	181.97	126.91	369.82	234.87
p reaction rate	-	0.04	2.81	0.04	2.94	2.69	0.00	2.49	0.00	0.04	3.28	0.94	6.00	1.63	5.16	1.24	0.04	3.34	1.88	0.76	0.81	2.29	1.64	0.04	0.74
1-rp	-	0.96	0.44	0.96	0.44	0.45	1.00	0.46	1.00	0.96	0.42	0.63	0.33	0.53	0.35	0.58	0.96	0.42	0.51	0.66	0.65	0.48	0.53	0.96	0.67
vlawmo pond volume	acre-ft	0.00	0.44	0.00	0.79	5.22	11.63	2.88	1.66	0.00	0.67	3.06	24.24	0.12	0.85	0.00	0.00	0.88	0.56	6.91	0.00	2.07	9.04	0.00	4.23
LAND USE PARAMETERS.....																								
runoff total P conc	ppb	0.00	350.00	0.00	350.00	350.00	316.36	350.05	364.87	0.00	395.77	263.71	457.15	391.50	379.04	200.00	0.00	361.20	355.09	352.80	200.00	385.05	318.74	0.00	344.51
runoff coefficient		0.00	0.46	0.00	0.46	0.46	0.21	0.46	0.19	0.00	0.21	0.17	0.13	0.21	0.20	0.08	0.00	0.42	0.44	0.27	0.08	0.28	0.25	0.00	0.41
dissolved/total P		0.00	0.30	0.00	0.30	0.30	0.42	0.30	0.37	0.00	0.30	0.48	0.29	0.30	0.32	0.60	0.00	0.30	0.30	0.35	0.60	0.30	0.41	0.00	0.32
runoff TSS conc	ppm	0.00	140.00	0.00	140.00	140.00	177.02	140.00	168.58	0.00	140.56	185.42	172.84	140.00	146.41	216.00	0.00	140.00	140.00	153.54	216.00	140.00	170.05	0.00	145.76
POND TSS BUDGETS.....																								
runoff	lbs/yr	0.00	2103.02	0.00	3805.96	25182.17	62149.59	13900.57	8760.19	0.00	3235.23	17009.40	140410.99	575.46	4189.33	12.41	0.00	4268.30	2723.35	34342.13	12.41	10009.91	46744.90	0.00	20589.48
upstream pond	lbs/yr	0.00	0.00	0.00	0.00	0.00	68746.87	0.00	132286.51	0.00	0.00	0.00	6349.85	0.00	123.72	301.91	0.00	0.00	0.00	816.22	13667.81	0.00	6145.72	0.00	0.00
total inflow	**lbs/yr**	**0.00**	**2103.02**	**0.00**	**3805.96**	**25182.17**	**130896.46**	**13900.57**	**141046.71**	**0.00**	**3235.23**	**17009.40**	**146760.84**	**575.46**	**4313.05**	**314.32**	**0.00**	**4268.30**	**2723.35**	**35158.35**	**13680.22**	**10009.91**	**52890.62**	**0.00**	**20589.48**
p removal efficiency (no inf)	%	5.00	56.00	5.00	57.00	55.00	0.00	54.00	0.00	5.00	61.00	38.00	67.00	49.00	67.00	44.00	5.00	59.00	50.00	35.00	36.00	55.00	48.00	5.00	34.00
tss removal efficiency (no inf)	%	9.82	93.00	9.82	93.00	91.50	0.00	90.00	0.00	9.82	93.00	64.00	93.00	78.50	93.00	69.33	9.82	93.00	81.00	61.13	62.00	91.50	76.00	9.82	60.25
net sedimentation	lbs/yr	0.00	1955.81	0.00	3539.54	23041.69	0.00	12510.52	0.00	0.00	3008.76	10886.02	136487.58	451.74	4011.14	217.93	0.00	3969.52	2205.91	21490.54	8481.73	9159.07	40196.87	0.00	12405.16
outflow	lbs/yr	0.00	147.21	0.00	266.42	2140.48	130896.46	1390.06	141046.71	0.00	226.47	6123.39	10273.26	123.72	301.91	96.39	0.00	298.78	517.44	13667.81	5198.48	850.84	12693.75	0.00	8184.32
tss removal efficiency (inf)	%	9.82	93.00	9.82	93.00	91.50	0.00	90.00	0.00	9.82	93.00	64.00	100.00	78.50	93.00	69.33	9.82	93.00	81.00	61.13	62.00	91.50	76.00	9.82	60.25
upstream watershed tss load	lbs/yr	0.00	2103.02	0.00	3805.96	25182.17	444182.80	13900.57	466843.57	0.00	3235.23	17009.40	160655.62	575.46	4764.79	4777.20	0.00	4268.30	2723.35	41333.78	41346.19	10009.91	263533.82	0.00	20589.48
tss total removal efficiency	%	9.82	93.00	9.82	93.00	91.50	70.53	90.00	69.79	9.82	93.00	64.00	100.00	78.50	93.66	97.98	9.82	93.00	81.00	66.93	87.43	91.50	95.18	9.82	60.25
INFILTRATION BMP/POND.....																								
Annual runoff infiltrated	%	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Adjusted outflow	**ac-ft/yr**	**0.00**	**5.54**	**0.00**	**10.03**	**66.37**	**678.38**	**36.64**	**736.07**	**0.00**	**8.50**	**38.92**	**0.00**	**1.52**	**12.38**	**12.41**	**0.00**	**11.25**	**7.18**	**106.37**	**106.39**	**26.38**	**260.16**	**0.00**	**53.86**
Adjusted TP outflow	**lbs/yr**	**0.00**	**2.35**	**0.00**	**4.17**	**28.50**	**427.60**	**16.17**	**466.22**	**0.00**	**3.83**	**20.88**	**0.00**	**0.86**	**4.34**	**2.53**	**0.00**	**4.56**	**3.52**	**64.01**	**41.87**	**13.05**	**89.74**	**0.00**	**34.39**
Adjusted TSS outflow	**lbs/yr**	**0.00**	**147.21**	**0.00**	**266.42**	**2140.48**	**130896.46**	**1390.06**	**141046.71**	**0.00**	**226.47**	**6123.39**	**0.00**	**123.72**	**301.91**	**96.39**	**0.00**	**298.78**	**517.44**	**13667.81**	**5198.48**	**850.84**	**12693.75**	**0.00**	**8184.32**
POND P BUDGETS W/O P-BAN.....																								
runoff	lbs/yr	0.00	5.27	0.00	9.54	63.14	142.37	34.86	22.46	0.00	10.44	34.12	404.17	1.86	13.07	0.01	0.00	10.93	7.01	94.93	0.01	30.48	115.46	0.00	51.38
Adjusted TP outflow	**lbs/yr**	**0.00**	**2.35**	**0.00**	**4.17**	**28.50**	**430.66**	**16.17**	**469.28**	**0.00**	**4.17**	**21.29**	**0.00**	**0.95**	**4.70**	**2.68**	**0.00**	**4.56**	**3.56**	**67.31**	**43.46**	**14.01**	**92.44**	**0.00**	**34.39**
upstream pond	lbs/yr	0.00	0.00	0.00	0.00	0.00	288.28	0.00	446.82	0.00	0.00	0.00	25.46	0.00	0.95	4.70	0.00	0.00	0.00	8.12	67.31	0.00	60.15	0.00	0.00
total inflow	**lbs/yr**	**0.00**	**5.27**	**0.00**	**9.54**	**63.14**	**430.66**	**34.86**	**469.28**	**0.00**	**10.44**	**34.12**	**429.64**	**1.86**	**14.02**	**4.72**	**0.00**	**10.93**	**7.01**	**103.05**	**67.33**	**30.48**	**175.61**	**0.00**	**51.38**
outflow	lbs/yr	0.00	2.35	0.00	4.17	28.50	430.66	16.17	469.28	0.00	4.17	21.29	142.78	0.95	4.70	2.68	0.00	4.56	3.56	67.31	43.46	14.01	92.44	0.00	34.39
inflow phos conc	ppb	409.24	350.02	409.24	350.02	350.02	233.57	350.05	234.57	409.24	451.95	322.54	444.30	450.02	416.56	139.88	409.24	357.43	359.21	356.42	232.82	425.02	248.35	409.24	350.99
outflow phos conc	ppb	392.86	155.70	392.86	153.03	157.99	233.57	162.34	234.57	392.86	180.71	201.23	147.66	229.85	139.78	79.40	392.86	149.26	182.42	232.82	150.28	195.39	130.73	392.86	234.87
p reaction rate	-	0.04	2.81	0.04	2.94	2.69	0.00	2.49	0.00	0.04	3.75	0.97	6.05	1.88	5.90	1.34	0.04	3.34	1.91	0.81	0.85	2.56	1.71	0.04	0.74
1-rp	-	0.96	0.44	0.96	0.44	0.45	1.00	0.46	1.00	0.96	0.40	0.62	0.33	0.51	0.34	0.57	0.96	0.42	0.51	0.65	0.65	0.46	0.53	0.96	0.67
runoff total p conc	ppb	0.00	350.00	0.00	350.00	350.00	316.36	350.05	364.87	0.00	452.32	268.43	460.53	450.00	433.43	200.00	0.00	361.20	362.27	377.42	200.00	434.45	331.14	0.00	344.51

Rochester Loading Assessment																								
Cascade Creek																								
363-06-158-2																								
2020 TP LOADS																								
		cc-a3.6d cell 2	**cc-a3.6d cell 3**	**future cc-a3.6c**	**cc-a3.6c**	**future cc-a3.6a**	**cc-a3.6a**	**future cc-a3.7a**	**cc-a3.7a**	**future cc-a3.7b**	**cc-a3.7b**	**cc-a3.7b cell 2**	**future cc-a3.8d**	**cc-a3.8d**	**future cc-a3.8c**	**cc-a3.8c**	**future cc-a3.8b**	**cc-a3.8b**	**future cc-a3.8a**	**cc-a3.8a**	**future cc-a3.7d**	**cc-a3.7d**	**future cc-a3.9c**	**cc-a3.9c**	**future cc-a3.9b**
		cc-a3.6d cell 3	cc-a3.6a	cc-a3.6c	cc-a3.6a	cc-a3.6a	cc-a3.8a	cc-a3.7a	cc-a3.8a	cc-a3.7b	cc-a3.7b cell 2	cc-a3.8a	cc-a3.8d	cc-a3.8a	cc-a3.8c	cc-a3.8b	cc-a3.8b	cc-a3.8a	cc-a3.8a	cc-a3.9a	cc-a3.7d	cc-a3.9a	cc-a3.9c	cc-a4.2a	cc-a3.9b
INPUT VARIABLES....	UNITS																							
case label	-																							
Watershed area	acres	0.1	0.1	0.0	29.1	44.7	194.6	48.3	183.3	0.0	8.4	0.0	0.0	13.6	0.0	0.5	0.0	2.6	27.6	144.3	1.2	54.4	1.1	30.3	0.0
basin area	acres	0.17	0.37	0.00	0.60	0.77	0.00	0.69	1.50	0.00	0.16	0.26	0.00	0.39	0.00	0.01	0.00	0.10	0.55	0.00	0.04	0.00	0.04	0.74	0.00
basin volume	acre-ft	0.78	1.67	0.00	2.75	3.54	0.00	3.02	4.99	0.00	0.33	0.51	0.00	1.56	0.00	0.00	0.00	0.00	2.11	0.00	0.10	0.00	0.08	2.69	0.00
Row Crop Agriculture		0%	0%	0%	0%	0%	28%	0%	0%	0%	0%	0%	0%	25%	0%	0%	0%	0%	0%	5%	0%	0%	0%	0%	0%
Very Low Density Residential		0%	0%	0%	0%	0%	2%	0%	1%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Low Density Residential		0%	0%	0%	0%	0%	0%	0%	14%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	57%	0%	0%	0%
Medium Density Residential		0%	0%	0%	0%	0%	0%	0%	3%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	14%	0%	0%	0%
High Density Residential		0%	0%	0%	0%	0%	1%	0%	35%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	5%	0%	0%	0%
Commercial/Industrial		0%	0%	0%	94%	100%	35%	54%	25%	0%	79%	0%	0%	0%	0%	98%	0%	17%	92%	26%	100%	2%	100%	12%	0%
Institutional		0%	0%	0%	0%	0%	0%	46%	1%	0%	0%	0%	0%	0%	0%	0%	0%	0%	8%	0%	0%	17%	0%	0%	0%
Open Space		100%	100%	0%	0%	0%	28%	0%	8%	0%	21%	100%	0%	75%	0%	2%	0%	83%	0%	59%	0%	1%	0%	2%	0%
Golf Course		0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Pits and Quarries		0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Right-of-Way		0%	0%	0%	6%	0%	6%	0%	13%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	9%	0%	4%	0%	86%	0%
WATERSHED-WIDE ACCOUNTING.....																								
tributary land area	ac	49.04	49.09	0.00	29.14	44.69	317.56	48.30	231.57	0.00	8.41	8.42	0.00	13.61	0.00	0.53	0.00	3.17	27.62	746.28	1.24	55.68	1.07	31.37	0.00
tributary water area	ac	0.34	0.71	0.00	0.60	0.77	2.08	0.69	2.19	0.00	0.16	0.42	0.00	0.39	0.00	0.01	0.00	0.11	0.55	5.75	0.04	0.04	0.04	0.78	0.00
direct and ponded area	ac	49.38	49.80	0.00	29.74	45.46	319.64	48.99	233.76	0.00	8.57	8.84	0.00	14.00	0.00	0.54	0.00	3.28	28.17	752.02	1.29	55.72	1.11	32.15	0.00
ASSUMED EXPORT FACTORS.....																								
season length	yrs	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
season precipitation	inches	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80
runoff total p	ppb	200.00	200.00	0.00	353.13	350.00	364.06	350.00	366.89	0.00	318.65	200.00	0.00	284.47	0.00	346.90	0.00	225.54	350.00	274.73	350.00	381.27	350.05	389.21	0.00
runoff ortho p/total p	-	0.60	0.60	0.00	0.30	0.30	0.36	0.30	0.32	0.00	0.36	0.60	0.00	0.50	0.00	0.31	0.00	0.55	0.30	0.47	0.30	0.30	0.30	0.31	0.00
unit runoff	in/yr	2.54	2.54	0.00	14.20	14.56	7.75	12.32	11.14	0.00	12.03	2.54	0.00	3.02	0.00	14.31	0.00	4.59	14.19	6.38	14.56	8.17	14.56	9.32	0.00
unit export	lbs/ac-y	0.12	0.12	0.00	1.13	1.15	0.65	0.98	0.95	0.00	0.94	0.12	0.00	0.22	0.00	1.13	0.00	0.29	1.13	0.47	1.15	0.71	1.15	0.82	0.00
POND WATER BUDGETS.....																								
runoff	ac-ft/yr	0.01	0.01	0.00	34.48	54.23	125.72	49.59	170.07	0.00	8.43	0.00	0.00	3.43	0.00	0.63	0.00	1.01	32.66	76.77	1.51	37.04	1.30	23.54	0.00
upstream pond	ac-ft/yr	53.86	53.87	0.00	0.00	0.00	142.59	0.00	49.59	0.00	0.00	8.43	0.00	0.00	0.00	0.00	0.00	0.63	0.00	534.14	0.00	1.51	0.00	1.30	0.00
total inflow	**ac-ft/yr**	**53.87**	**53.88**	**0.00**	**34.48**	**54.23**	**268.31**	**49.59**	**219.66**	**0.00**	**8.43**	**8.43**	**0.00**	**3.43**	**0.00**	**0.63**	**0.00**	**1.64**	**32.66**	**610.91**	**1.51**	**38.55**	**1.30**	**24.84**	**0.00**
outflow	ac-ft/yr	53.87	53.88	0.00	34.48	54.23	268.31	49.59	219.66	0.00	8.43	8.43	0.00	3.43	0.00	0.63	0.00	1.64	32.66	610.91	1.51	38.55	1.30	24.84	0.00
POND PHOSPHORUS BUDGETS.....																								
runoff	lbs/yr	0.01	0.01	0.00	32.98	51.59	126.71	47.18	173.33	0.00	7.87	0.00	0.00	3.02	0.00	0.60	0.00	0.77	31.07	68.31	1.44	38.39	1.24	24.91	0.00
upstream pond	lbs/yr	34.39	28.01	0.00	0.00	0.00	59.03	0.00	21.93	0.00	0.00	4.72	0.00	0.00	0.00	0.00	0.00	0.60	0.00	327.54	0.00	0.73	0.00	0.64	0.00
total inflow	**lbs/yr**	**34.39**	**28.02**	**0.00**	**32.98**	**51.59**	**185.74**	**47.18**	**195.26**	**0.00**	**7.87**	**4.72**	**0.00**	**3.02**	**0.00**	**0.60**	**0.00**	**1.37**	**31.07**	**395.85**	**1.44**	**39.12**	**1.24**	**25.55**	**0.00**
net sedimentation	lbs/yr	6.38	6.82	0.00	18.62	28.11	0.00	25.25	74.19	0.00	3.15	1.27	0.00	1.67	0.00	0.00	0.00	0.00	16.53	0.00	0.71	0.00	0.59	14.78	0.00
outflow	lbs/yr	28.01	21.20	0.00	14.36	23.47	185.74	21.93	121.07	0.00	4.72	3.45	0.00	1.35	0.00	0.60	0.00	1.37	14.55	395.85	0.73	39.12	0.64	10.76	0.00
p removal efficiency	%	18.55	24.33	3.78	56.46	54.50	0.00	53.51	37.99	3.78	40.01	26.86	3.78	55.22	3.78	0.01	3.78	0.00	53.18	0.00	49.49	0.00	48.08	57.87	3.78
upstream w-shed p load	lbs/yr	51.39	51.40	0.00	32.98	51.59	262.68	47.18	220.51	0.00	7.87	7.87	0.00	3.02	0.00	0.60	0.00	1.37	31.07	594.84	1.44	39.83	1.24	26.14	0.00
total removal %	%	45.49	58.75	3.78	56.46	54.50	29.29	53.51	45.09	3.78	40.01	56.12	3.78	55.22	3.78	0.01	3.78	0.00	53.18	33.45	49.49	1.78	48.08	58.83	3.78
HYDRAULIC PARAMETERS.....																								
pond mean depth	feet	4.51	4.51	0.00	4.58	4.59	1.00	4.38	3.33	0.00	2.00	2.00	0.00	3.97	0.00	0.00	0.00	0.00	3.81	1.00	2.38	1.00	2.05	3.65	0.00
relative volume	inches	2352.00	5001.00	1.58	2.54	2.07	0.00	1.94	0.93	1.58	1.24	7680.00	1.58	14.48	1.58	0.00	1.58	0.00	2.05	0.00	2.07	0.00	2.07	3.64	1.58
residence time	years	0.01	0.03	0.05	0.08	0.07	0.00	0.06	0.02	0.05	0.04	0.06	0.05	0.46	0.05	0.00	0.05	0.00	0.06	0.00	0.07	0.00	0.07	0.11	0.05
residence time	days	5.31	11.29	18.08	29.11	23.81	0.00	22.23	8.29	18.08	14.20	22.16	18.08	166.17	18.08	0.00	18.08	0.00	23.59	0.00	23.81	0.00	23.81	39.57	18.08
overflow rate	ft/yr	309.62	145.63	0.00	57.47	70.42	268313249.11	71.87	146.44	0.00	51.42	32.95	0.00	8.72	0.00	63.34	0.00	16.42	58.96	610905564.30	36.43	38552723.47	31.38	33.70	0.00
inflow phos conc	ppb	234.87	191.30	384.34	351.95	350.02	254.70	350.02	327.06	384.34	343.30	205.95	384.34	324.64	384.34	349.47	384.34	307.40	350.02	238.40	350.02	373.32	350.05	378.43	384.34
outflow phos conc	ppb	191.30	144.75	369.82	153.23	159.27	254.70	162.71	202.79	369.82	205.95	150.63	369.82	145.37	369.82	349.45	369.82	307.40	163.87	238.40	176.80	373.32	181.75	159.43	369.82
p reaction rate	-	0.28	0.43	0.04	2.98	2.63	0.00	2.48	0.99	0.04	1.11	0.50	0.04	2.75	0.04	0.00	0.04	0.00	2.43	0.00	1.94	0.00	1.78	3.26	0.04
1-rp	-	0.81	0.76	0.96	0.44	0.46	1.00	0.46	0.62	0.96	0.60	0.73	0.96	0.45	0.96	1.00	0.96	1.00	0.47	1.00	0.51	1.00	0.52	0.42	0.96
vlawmo pond volume	acre-ft	0.00	0.00	0.00	2.71	4.26	9.88	3.90	13.37	0.00	0.66	0.00	0.00	0.27	0.00	0.05	0.00	0.08	2.57	6.04	0.12	2.91	0.10	1.85	0.00
LAND USE PARAMETERS.....																								
runoff total P conc	ppb	200.00	200.00	0.00	353.13	350.00	364.06	350.00	366.89	0.00	318.65	200.00	0.00	284.47	0.00	346.90	0.00	225.54	350.00	274.73	350.00	381.27	350.05	389.21	0.00
runoff coefficient		0.08	0.08	0.00	0.45	0.46	0.24	0.39	0.35	0.00	0.38	0.08	0.00	0.10	0.00	0.45	0.00	0.14	0.45	0.20	0.46	0.26	0.46	0.29	0.00
dissolved/total P		0.60	0.60	0.00	0.30	0.30	0.36	0.30	0.32	0.00	0.36	0.60	0.00	0.50	0.00	0.31	0.00	0.55	0.30	0.47	0.30	0.30	0.30	0.31	0.00
runoff TSS conc	ppm	216.00	216.00	0.00	140.00	140.00	169.16	140.00	146.62	0.00	156.26	216.00	0.00	202.81	0.00	141.58	0.00	203.06	140.00	186.28	140.00	141.11	140.00	141.81	0.00
POND TSS BUDGETS.....																								
runoff	lbs/yr	6.20	6.20	0.00	13082.02	20573.80	51528.32	18814.65	65241.26	0.00	3277.02	1.24	0.00	1824.55	0.00	240.78	0.00	478.22	12392.32	33032.36	572.71	14088.78	493.34	8961.79	0.00
upstream pond	lbs/yr	8184.32	5133.70	0.00	0.00	0.00	5280.36	0.00	1881.47	0.00	0.00	1081.42	0.00	0.00	0.00	0.00	0.00	240.78	0.00	82224.82	0.00	108.81	0.00	106.07	0.00
total inflow	**lbs/yr**	**8190.52**	**5139.91**	**0.00**	**13082.02**	**20573.80**	**56808.68**	**18814.65**	**67122.72**	**0.00**	**3277.02**	**1082.66**	**0.00**	**1824.55**	**0.00**	**240.78**	**0.00**	**719.00**	**12392.32**	**115257.19**	**572.71**	**14197.59**	**493.34**	**9067.86**	**0.00**
p removal efficiency (no inf)	%	19.00	25.00	5.00	57.00	55.00	0.00	54.00	40.00	5.00	41.00	27.00	5.00	56.00	5.00	0.00	5.00	0.00	54.00	0.00	50.00	0.00	49.00	58.00	5.00
tss removal efficiency (no inf)	%	37.32	49.11	9.82	93.00	91.50	0.00	90.00	66.00	9.82	67.00	53.04	9.82	93.00	9.82	0.00	9.82	0.00	90.00	0.00	81.00	0.00	78.50	93.00	9.82
net sedimentation	lbs/yr	3056.82	2524.06	0.00	12166.28	18825.03	0.00	16933.19	44301.00	0.00	2195.60	574.20	0.00	1696.83	0.00	0.00	0.00	0.00	11153.09	0.00	463.89	0.00	387.27	8433.11	0.00
outflow	lbs/yr	5133.70	2615.85	0.00	915.74	1748.77	56808.68	1881.47	22821.73	0.00	1081.42	508.46	0.00	127.72	0.00	240.78	0.00	719.00	1239.23	115257.19	108.81	14197.59	106.07	634.75	0.00
tss removal efficiency (inf)	%	37.32	49.11	9.82	93.00	91.50	0.00	90.00	66.00	9.82	67.00	53.04	9.82	93.00	9.82	0.00	9.82	0.00	90.00	0.00	81.00	0.00	78.50	93.00	9.82
upstream watershed tss load	lbs/yr	20595.68	20601.89	0.00	13082.02	20573.80	105786.03	18814.65	84055.91	0.00	3277.02	3278.26	0.00	1824.55	0.00	240.78	0.00	719.00	12392.32	241088.43	572.71	14661.49	493.34	9455.13	0.00
tss total removal efficiency	%	75.07	87.30	9.82	93.00	91.50	46.30	90.00	72.85	9.82	67.00	84.49	9.82	93.00	9.82	0.00	9.82	0.00	90.00	52.19	81.00	3.16	78.50	93.29	9.82
INFILTRATION BMP/POND.....																								
Annual runoff infiltrated	%	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Adjusted outflow	**ac-ft/yr**	**53.87**	**53.88**	**0.00**	**34.48**	**54.23**	**268.31**	**49.59**	**219.66**	**0.00**	**8.43**	**8.43**	**0.00**	**3.43**	**0.00**	**0.63**	**0.00**	**1.64**	**32.66**	**610.91**	**1.51**	**38.55**	**1.30**	**24.84**	**0.00**
Adjusted TP outflow	**lbs/yr**	**28.01**	**21.20**	**0.00**	**14.36**	**23.47**	**185.74**	**21.93**	**121.07**	**0.00**	**4.72**	**3.45**	**0.00**	**1.35**	**0.00**	**0.60**	**0.00**	**1.37**	**14.55**	**395.85**	**0.73**	**39.12**	**0.64**	**10.76**	**0.00**
Adjusted TSS outflow	**lbs/yr**	**5133.70**	**2615.85**	**0.00**	**915.74**	**1748.77**	**56808.68**	**1881.47**	**22821.73**	**0.00**	**1081.42**	**508.46**	**0.00**	**127.72**	**0.00**	**240.78**	**0.00**	**719.00**	**1239.23**	**115257.19**	**108.81**	**14197.59**	**106.07**	**634.75**	**0.00**
POND P BUDGETS W/O P-BAN.....																								
runoff	lbs/yr	0.01	0.01	0.00	32.98	51.59	127.19	47.18	187.98	0.00	7.87	0.00	0.00	3.02	0.00	0.60	0.00	0.77	31.07	68.31	1.44	42.64	1.24	24.91	0.00
Adjusted TP outflow	**lbs/yr**	**28.01**	**21.20**	**0.00**	**14.36**	**23.47**	**186.22**	**21.93**	**127.56**	**0.00**	**4.72**	**3.45**	**0.00**	**1.35**	**0.00**	**0.60**	**0.00**	**1.37**	**14.55**	**402.82**	**0.73**	**43.37**	**0.64**	**10.76**	**0.00**
upstream pond	lbs/yr	34.39	28.01	0.00	0.00	0.00	59.03	0.00	21.93	0.00	0.00	4.72	0.00	0.00	0.00	0.00	0.00	0.60	0.00	334.51	0.00	0.73	0.00	0.64	0.00
total inflow	**lbs/yr**	**34.39**	**28.02**	**0.00**	**32.98**	**51.59**	**186.22**	**47.18**	**209.92**	**0.00**	**7.87**	**4.72**	**0.00**	**3.02**	**0.00**	**0.60**	**0.00**	**1.37**	**31.07**	**402.82**	**1.44**	**43.37**	**1.24**	**25.55**	**0.00**
outflow	lbs/yr	28.01	21.20	0.00	14.36	23.47	186.22	21.93	127.56	0.00	4.72	3.45	0.00	1.35	0.00	0.60	0.00	1.37	14.55	402.82	0.73	43.37	0.64	10.76	0.00
inflow phos conc	ppb	234.87	191.30	409.24	351.95	350.02	255.35	350.02	351.60	409.24	343.30	205.95	409.24	324.64	409.24	349.47	409.24	307.40	350.02	242.60	350.02	413.87	350.05	378.43	409.24
outflow phos conc	ppb	191.30	144.75	392.86	153.23	159.27	255.35	162.71	213.66	392.86	205.95	150.63	392.86	145.37	392.86	349.45	392.86	307.40	163.87	242.60	176.80	413.87	181.75	159.43	392.86
p reaction rate	-	0.28	0.43	0.04	2.98	2.63	0.00	2.48	1.06	0.04	1.11	0.50	0.04	2.75	0.04	0.00	0.04	0.00	2.43	0.00	1.94	0.00	1.78	3.26	0.04
1-rp	-	0.81	0.76	0.96	0.44	0.46	1.00	0.46	0.61	0.96	0.60	0.73	0.96	0.45	0.96	1.00	0.96	1.00	0.47	1.00	0.51	1.00	0.52	0.42	0.96
runoff total p conc	ppb	200.00	200.00	0.00	353.13	350.00	365.67	350.00	397.86	0.00	318.65	200.00	0.00	284.47	0.00	346.91	0.00	225.54	350.00	274.73	350.00	425.74	350.05	389.21	0.00

Rochester Loading Assessment																								
Cascade Creek																								
363-06-158-2																								
2020 TP LOADS																								
		cc-a3.9b	**future cc-a3.9a**	**cc-a3.9a**	**future cc-a2.5**	**cc-a2.5**	**future cc-a2.7e**	**cc-a2.7e**	**future cc-a2.7d**	**cc-a2.7d**	**future cc-a2.7c**	**cc-a2.7c**	**future cc-a2.7b**	**cc-a2.7b**	**future cc-a2.7a**	**cc-a2.7a**	**future cc-a2.9c**	**cc-a2.9c**	**future cc-a2.9b**	**cc-a2.9b**	**cc-a2.9b cell 2**	**future cc-a2.9a**	**cc-a2.9a**	**future cc-a2.10g**	**cc-a2.10g**
		cc-a3.9a	cc-a3.9a	cc-a4.2a	cc-a2.5	cc-a2.7a	cc-a2.7e	cc-a2.9a	cc-a2.7d	cc-a2.7a	cc-a2.7c	cc-a2.7a	cc-a2.7b	cc-a2.7a	cc-a2.7a	cc-a2.9a	cc-a2.9a	cc-a2.9a	cc-a2.9b	cc-a2.9b cell 2	cc-a2.9a	cc-a2.9a	cc-a2.10a	cc-a2.10g	cc-a2.10e
INPUT VARIABLES....	UNITS																							
case label	-																							
Watershed area	acres	3.5	4.7	294.7	0.0	132.2	0.0	29.9	0.0	13.3	0.0	5.0	0.0	32.9	0.0	397.1	0.0	10.7	0.0	34.7	0.0	0.0	41.3	0.0	10.5
basin area	acres	0.00	0.17	0.00	0.00	0.00	0.00	0.44	0.00	0.15	0.00	0.13	0.00	0.11	0.00	0.00	0.00	0.07	0.00	0.05	0.08	0.00	0.00	0.00	0.12
basin volume	acre-ft	0.00	0.38	0.00	0.00	0.00	0.00	1.89	0.00	0.24	0.00	0.28	0.00	0.23	0.00	0.00	0.00	0.00	0.00	0.05	0.08	0.00	0.00	0.00	0.48
Row Crop Agriculture		0%	0%	0%	0%	4%	0%	2%	0%	0%	0%	0%	0%	0%	0%	28%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Very Low Density Residential		0%	0%	0%	0%	92%	0%	0%	0%	0%	0%	0%	0%	35%	0%	43%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Low Density Residential		0%	0%	28%	0%	1%	0%	88%	0%	89%	0%	93%	0%	63%	0%	8%	0%	84%	0%	84%	0%	0%	12%	0%	82%
Medium Density Residential		0%	0%	2%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
High Density Residential		55%	0%	5%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Commercial/Industrial		0%	100%	39%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	30%	0%	0%
Institutional		34%	0%	4%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	2%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Open Space		0%	0%	5%	0%	0%	0%	10%	0%	11%	0%	7%	0%	2%	0%	16%	0%	16%	0%	16%	100%	0%	20%	0%	18%
Golf Course		0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Pits and Quarries		0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Right-of-Way		11%	0%	17%	0%	2%	0%	0%	0%	0%	0%	0%	0%	0%	0%	3%	0%	0%	0%	0%	0%	0%	38%	0%	0%
WATERSHED-WIDE ACCOUNTING.....																								
tributary land area	ac	3.48	4.74	1104.85	0.00	132.17	0.00	29.93	0.00	13.26	0.00	5.02	0.00	32.95	0.00	580.54	0.00	10.67	0.00	34.66	34.67	0.00	697.12	0.00	10.46
tributary water area	ac	0.00	0.17	5.95	0.00	0.00	0.00	0.44	0.00	0.15	0.00	0.13	0.00	0.11	0.00	0.39	0.00	0.07	0.00	0.05	0.13	0.00	1.04	0.00	0.12
direct and ponded area	ac	3.48	4.90	1110.80	0.00	132.17	0.00	30.37	0.00	13.41	0.00	5.15	0.00	33.06	0.00	580.93	0.00	10.74	0.00	34.71	34.80	0.00	698.15	0.00	10.58
ASSUMED EXPORT FACTORS.....																								
season length	yrs	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
season precipitation	inches	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80
runoff total p	ppb	378.32	350.00	365.92	0.00	317.39	0.00	375.61	0.00	369.68	0.00	377.64	0.00	357.64	0.00	364.17	0.00	361.34	0.00	361.50	200.00	0.00	344.30	0.00	356.71
runoff ortho p/total p	-	0.30	0.30	0.31	0.00	0.48	0.00	0.33	0.00	0.33	0.00	0.32	0.00	0.38	0.00	0.41	0.00	0.35	0.00	0.35	0.60	0.00	0.36	0.00	0.35
unit runoff	in/yr	11.73	14.56	10.45	0.00	3.23	0.00	6.30	0.00	6.27	0.00	6.44	0.00	5.36	0.00	3.92	0.00	6.08	0.00	6.09	2.54	0.00	9.01	0.00	5.98
unit export	lbs/ac-y	1.01	1.15	0.87	0.00	0.24	0.00	0.55	0.00	0.54	0.00	0.56	0.00	0.45	0.00	0.35	0.00	0.52	0.00	0.52	0.12	0.00	0.74	0.00	0.51
POND WATER BUDGETS.....																								
runoff	ac-ft/yr	3.40	5.75	256.64	0.00	35.56	0.00	15.72	0.00	6.92	0.00	2.69	0.00	14.72	0.00	129.78	0.00	5.41	0.00	17.58	0.00	0.00	31.03	0.00	5.21
upstream pond	ac-ft/yr	0.00	0.00	658.61	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	59.89	0.00	0.00	0.00	0.00	17.58	0.00	228.38	0.00	0.00
total inflow	**ac-ft/yr**	**3.40**	**5.75**	**915.24**	**0.00**	**35.56**	**0.00**	**15.72**	**0.00**	**6.92**	**0.00**	**2.69**	**0.00**	**14.72**	**0.00**	**189.67**	**0.00**	**5.41**	**0.00**	**17.58**	**17.58**	**0.00**	**259.40**	**0.00**	**5.21**
outflow	ac-ft/yr	3.40	5.75	915.24	0.00	35.56	0.00	15.72	0.00	6.92	0.00	2.69	0.00	14.72	0.00	189.67	0.00	5.41	0.00	17.58	17.58	0.00	259.40	0.00	5.21
POND PHOSPHORUS BUDGETS.....																								
runoff	lbs/yr	3.52	5.47	255.50	0.00	31.54	0.00	16.49	0.00	7.20	0.00	2.82	0.00	14.92	0.00	137.05	0.00	5.57	0.00	18.10	0.00	0.00	30.69	0.00	5.34
upstream pond	lbs/yr	0.00	0.00	441.27	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	47.53	0.00	0.00	0.00	0.00	15.84	0.00	211.18	0.00	0.00
total inflow	**lbs/yr**	**3.52**	**5.47**	**696.77**	**0.00**	**31.54**	**0.00**	**16.49**	**0.00**	**7.20**	**0.00**	**2.82**	**0.00**	**14.92**	**0.00**	**184.57**	**0.00**	**5.57**	**0.00**	**18.10**	**15.84**	**0.00**	**241.87**	**0.00**	**5.34**
net sedimentation	lbs/yr	0.00	2.68	0.00	0.00	0.00	0.00	9.77	0.00	2.89	0.00	1.46	0.00	4.60	0.00	0.00	0.00	0.00	0.00	2.26	1.52	0.00	0.00	0.00	2.94
outflow	lbs/yr	3.52	2.79	696.77	0.00	31.54	0.00	6.71	0.00	4.31	0.00	1.36	0.00	10.32	0.00	184.57	0.00	5.57	0.00	15.84	14.32	0.00	241.87	0.00	2.40
p removal efficiency	%	0.00	49.04	0.00	3.78	0.00	3.78	59.28	3.78	40.12	3.78	51.78	3.78	30.85	3.78	0.00	3.78	0.00	3.78	12.47	9.60	3.78	0.00	3.78	55.11
upstream w-shed p load	lbs/yr	3.52	5.47	899.15	0.00	31.54	0.00	16.49	0.00	7.20	0.00	2.82	0.00	14.92	0.00	193.53	0.00	5.57	0.00	18.10	18.10	0.00	264.38	0.00	5.34
total removal %	%	0.00	49.04	22.51	3.78	0.00	3.78	59.28	3.78	40.12	3.78	51.78	3.78	30.85	3.78	4.63	3.78	0.00	3.78	12.47	20.88	3.78	8.51	3.78	55.11
HYDRAULIC PARAMETERS.....																								
pond mean depth	feet	1.00	2.26	1.00	0.00	1.00	0.00	4.30	0.00	1.57	0.00	2.11	0.00	2.05	0.00	1.00	0.00	0.00	0.00	1.00	1.00	0.00	1.00	0.00	4.00
relative volume	inches	0.00	2.07	0.00	1.58	0.00	1.58	3.82	1.58	1.08	1.58	3.34	1.58	0.49	1.58	0.00	1.58	0.00	1.58	0.10	1200.00	1.58	0.00	1.58	2.93
residence time	years	0.00	0.07	0.00	0.05	0.00	0.05	0.12	0.05	0.03	0.05	0.11	0.05	0.02	0.05	0.00	0.05	0.00	0.05	0.00	0.00	0.05	0.00	0.05	0.09
residence time	days	0.00	23.81	0.00	18.08	0.00	18.08	43.88	18.08	12.39	18.08	38.37	18.08	5.61	18.08	0.00	18.08	0.00	18.08	1.10	1.66	18.08	0.00	18.08	33.61
overflow rate	ft/yr	3400968.22	34.69	915244352.40	0.00	35559596.23	0.00	35.73	0.00	46.15	0.00	20.09	0.00	133.79	0.00	189670003.64	0.00	77.29	0.00	331.62	219.73	0.00	259403924.04	0.00	43.44
inflow phos conc	ppb	380.51	350.02	280.09	384.34	326.30	384.34	385.82	384.34	382.66	384.34	386.05	384.34	373.01	384.34	358.03	384.34	378.91	384.34	378.93	331.64	384.34	343.05	384.34	376.72
outflow phos conc	ppb	380.50	178.38	280.09	369.82	326.30	369.82	157.11	369.82	229.13	369.82	186.14	369.82	257.95	369.82	358.03	369.82	378.90	369.82	331.66	299.79	369.82	343.05	369.82	169.12
p reaction rate	-	0.00	1.89	0.00	0.04	0.00	0.04	3.58	0.04	1.12	0.04	2.23	0.04	0.64	0.04	0.00	0.04	0.00	0.04	0.16	0.12	0.04	0.00	0.04	2.73
1-rp	-	1.00	0.51	1.00	0.96	1.00	0.96	0.41	0.96	0.60	0.96	0.48	0.96	0.69	0.96	1.00	0.96	1.00	0.96	0.88	0.90	0.96	1.00	0.96	0.45
vlawmo pond volume	acre-ft	0.27	0.45	20.18	0.00	2.80	0.00	1.24	0.00	0.54	0.00	0.21	0.00	1.16	0.00	10.20	0.00	0.43	0.00	1.38	0.00	0.00	2.44	0.00	0.41
LAND USE PARAMETERS.....																								
runoff total P conc	ppb	378.32	350.00	365.92	0.00	317.39	0.00	375.61	0.00	369.68	0.00	377.64	0.00	357.64	0.00	364.17	0.00	361.34	0.00	361.50	200.00	0.00	344.30	0.00	356.71
runoff coefficient		0.37	0.46	0.33	0.00	0.10	0.00	0.20	0.00	0.20	0.00	0.20	0.00	0.17	0.00	0.12	0.00	0.19	0.00	0.19	0.08	0.00	0.28	0.00	0.19
dissolved/total P		0.30	0.30	0.31	0.00	0.48	0.00	0.33	0.00	0.33	0.00	0.32	0.00	0.38	0.00	0.41	0.00	0.35	0.00	0.35	0.60	0.00	0.36	0.00	0.35
runoff TSS conc	ppm	140.00	140.00	143.59	0.00	210.98	0.00	147.73	0.00	148.66	0.00	145.50	0.00	167.77	0.00	191.47	0.00	151.97	0.00	151.99	216.00	0.00	155.11	0.00	153.81
POND TSS BUDGETS.....																								
runoff	lbs/yr	1290.33	2180.81	97975.46	0.00	19842.93	0.00	6102.58	0.00	2692.56	0.00	1037.15	0.00	6194.13	0.00	63369.43	0.00	2126.05	0.00	6906.32	1.24	0.00	12129.42	0.00	2060.48
upstream pond	lbs/yr	0.00	0.00	131159.46	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	23236.93	0.00	0.00	0.00	0.00	5007.08	0.00	93085.75	0.00	0.00
total inflow	**lbs/yr**	**1290.33**	**2180.81**	**229134.92**	**0.00**	**19842.93**	**0.00**	**6102.58**	**0.00**	**2692.56**	**0.00**	**1037.15**	**0.00**	**6194.13**	**0.00**	**86606.36**	**0.00**	**2126.05**	**0.00**	**6906.32**	**5008.32**	**0.00**	**105215.17**	**0.00**	**2060.48**
p removal efficiency (no inf)	%	0.00	50.00	0.00	5.00	0.00	5.00	62.00	5.00	43.00	5.00	55.00	5.00	34.00	5.00	0.00	5.00	0.00	5.00	14.00	11.00	5.00	0.00	5.00	58.00
tss removal efficiency (no inf)	%	0.00	81.00	0.00	9.82	0.00	9.82	93.00	9.82	68.67	9.82	91.50	9.82	60.25	9.82	0.00	9.82	0.00	9.82	27.50	21.61	9.82	0.00	9.82	93.00
net sedimentation	lbs/yr	0.00	1766.45	0.00	0.00	0.00	0.00	5675.40	0.00	1848.89	0.00	948.99	0.00	3731.97	0.00	0.00	0.00	0.00	0.00	1899.24	1082.16	0.00	0.00	0.00	1916.24
outflow	lbs/yr	1290.33	414.35	229134.92	0.00	19842.93	0.00	427.18	0.00	843.67	0.00	88.16	0.00	2462.17	0.00	86606.36	0.00	2126.05	0.00	5007.08	3926.17	0.00	105215.17	0.00	144.23
tss removal efficiency (inf)	%	0.00	81.00	0.00	9.82	0.00	9.82	93.00	9.82	68.67	9.82	91.50	9.82	60.25	9.82	0.00	9.82	0.00	9.82	27.50	21.61	9.82	0.00	9.82	93.00
upstream watershed tss load	lbs/yr	1290.33	2180.81	357196.51	0.00	19842.93	0.00	6102.58	0.00	2692.56	0.00	1037.15	0.00	6194.13	0.00	93136.20	0.00	2126.05	0.00	6906.32	6907.56	0.00	120401.82	0.00	2060.48
tss total removal efficiency	%	0.00	81.00	35.85	9.82	0.00	9.82	93.00	9.82	68.67	9.82	91.50	9.82	60.25	9.82	7.01	9.82	0.00	9.82	27.50	43.16	9.82	12.61	9.82	93.00
INFILTRATION BMP/POND.....																								
Annual runoff infiltrated	%	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Adjusted outflow	**ac-ft/yr**	**3.40**	**5.75**	**915.24**	**0.00**	**35.56**	**0.00**	**15.72**	**0.00**	**6.92**	**0.00**	**2.69**	**0.00**	**14.72**	**0.00**	**189.67**	**0.00**	**5.41**	**0.00**	**17.58**	**17.58**	**0.00**	**259.40**	**0.00**	**5.21**
Adjusted TP outflow	**lbs/yr**	**3.52**	**2.79**	**696.77**	**0.00**	**31.54**	**0.00**	**6.71**	**0.00**	**4.31**	**0.00**	**1.36**	**0.00**	**10.32**	**0.00**	**184.57**	**0.00**	**5.57**	**0.00**	**15.84**	**14.32**	**0.00**	**241.87**	**0.00**	**2.40**
Adjusted TSS outflow	**lbs/yr**	**1290.33**	**414.35**	**229134.92**	**0.00**	**19842.93**	**0.00**	**427.18**	**0.00**	**843.67**	**0.00**	**88.16**	**0.00**	**2462.17**	**0.00**	**86606.36**	**0.00**	**2126.05**	**0.00**	**5007.08**	**3926.17**	**0.00**	**105215.17**	**0.00**	**144.23**
POND P BUDGETS W/O P-BAN.....																								
runoff	lbs/yr	3.86	5.47	266.14	0.00	35.43	0.00	18.85	0.00	8.25	0.00	3.24	0.00	17.14	0.00	145.19	0.00	6.38	0.00	20.71	0.00	0.00	31.14	0.00	6.10
Adjusted TP outflow	**lbs/yr**	**3.86**	**2.79**	**718.97**	**0.00**	**35.43**	**0.00**	**7.30**	**0.00**	**4.75**	**0.00**	**1.49**	**0.00**	**11.46**	**0.00**	**198.32**	**0.00**	**6.38**	**0.00**	**17.85**	**15.96**	**0.00**	**259.09**	**0.00**	**2.61**
upstream pond	lbs/yr	0.00	0.00	452.83	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	53.13	0.00	0.00	0.00	0.00	17.85	0.00	227.95	0.00	0.00
total inflow	**lbs/yr**	**3.86**	**5.47**	**718.97**	**0.00**	**35.43**	**0.00**	**18.85**	**0.00**	**8.25**	**0.00**	**3.24**	**0.00**	**17.14**	**0.00**	**198.32**	**0.00**	**6.38**	**0.00**	**20.71**	**17.85**	**0.00**	**259.09**	**0.00**	**6.10**
outflow	lbs/yr	3.86	2.79	718.97	0.00	35.43	0.00	7.30	0.00	4.75	0.00	1.49	0.00	11.46	0.00	198.32	0.00	6.38	0.00	17.85	15.96	0.00	259.09	0.00	2.61
inflow phos conc	ppb	417.52	350.02	289.02	409.24	366.61	409.24	441.23	409.24	438.46	409.24	442.88	409.24	428.46	409.24	384.69	409.24	433.56	409.24	433.59	373.58	409.24	367.47	409.24	430.70
outflow phos conc	ppb	417.51	178.38	289.02	392.86	366.61	392.86	170.83	392.86	252.31	392.86	203.63	392.86	286.51	392.86	384.69	392.86	433.55	392.86	373.60	334.04	392.86	367.47	392.86	184.27
p reaction rate	-	0.00	1.89	0.00	0.04	0.00	0.04	4.09	0.04	1.28	0.04	2.56	0.04	0.74	0.04	0.00	0.04	0.00	0.04	0.19	0.13	0.04	0.00	0.04	3.13
1-rp	-	1.00	0.51	1.00	0.96	1.00	0.96	0.39	0.96	0.58	0.96	0.46	0.96	0.67	0.96	1.00	0.96	1.00	0.96	0.86	0.89	0.96	1.00	0.96	0.43
runoff total p conc	ppb	410.26	350.00	386.30	0.00	360.04	0.00	427.41	0.00	421.51	0.00	431.91	0.00	410.48	0.00	388.61	0.00	410.63	0.00	410.81	200.00	0.00	351.41	0.00	404.58

Rochester Loading Assessment																								
Cascade Creek																								
363-06-158-2																								
2020 TP LOADS																								
		future cc-a2.10f	**cc-a2.10f**	**future cc-a2.10e**	**cc-a2.10e**	**future cc-a2.10d**	**cc-a2.10d**	**cc-a2.10d cell 2**	**future cc-a2.10c**	**cc-a2.10c**	**future cc-a2.10b**	**cc-a2.10b**	**future cc-a2.10a**	**cc-a2.10a**	**future cc-a2.12b**	**cc-a2.12b**	**future cc-a2.12a**	**cc-a2.12a**	**future cc-a1.3**	**cc-a1.3**	**future cc-a1.8a**	**cc-a1.8a**	**future cc-a1.8b**	**cc-a1.8b**	**future cc-a1.8c**
		cc-a2.10f	cc-a2.10e	cc-a2.10e	cc-a2.10d	cc-a2.10d	cc-a2.10d cell 2	cc-a2.10c	cc-a2.10c	cc-a2.10a	cc-a2.10b	cc-a2.10a	cc-a2.10a	cc-a2.12a	cc-a2.12b	cc-a2.12a	cc-a2.12a	cc-a4.2n	cc-a1.3	cc-a1.9a	cc-a1.8a	cc-a1.8c	cc-a1.8b	cc-a1.8c	cc-a1.8c
INPUT VARIABLES....	UNITS																							
case label	-																							
Watershed area	acres	0.0	12.5	0.0	31.2	0.0	73.2	0.1	0.0	99.9	0.0	2.7	0.0	131.5	0.6	3.4	0.8	44.3	0.0	28.2	0.0	3.6	0.0	10.0	0.0
basin area	acres	0.00	0.31	0.00	0.14	0.00	0.15	0.49	0.00	0.90	0.00	0.06	0.00	0.54	0.00	0.13	0.04	0.00	0.00	0.00	0.00	0.00	0.00	0.23	0.00
basin volume	acre-ft	0.00	1.86	0.00	0.28	0.00	0.48	1.55	0.00	3.60	0.00	0.12	0.00	2.16	0.05	0.25	0.06	0.00	0.00	0.00	0.00	0.00	0.00	0.41	0.00
Row Crop Agriculture		0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Very Low Density Residential		0%	0%	0%	0%	0%	0%	0%	0%	6%	0%	0%	0%	0%	0%	0%	0%	0%	0%	78%	0%	0%	0%	0%	0%
Low Density Residential		0%	93%	0%	87%	0%	83%	0%	0%	90%	0%	0%	0%	61%	0%	0%	0%	20%	0%	20%	0%	98%	0%	95%	0%
Medium Density Residential		0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
High Density Residential		0%	0%	0%	0%	0%	4%	0%	0%	0%	0%	0%	0%	6%	0%	0%	0%	3%	0%	0%	0%	0%	0%	0%	0%
Commercial/Industrial		0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	100%	0%	24%	100%	64%	100%	1%	0%	0%	0%	0%	0%	0%	0%
Institutional		0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Open Space		0%	7%	0%	13%	0%	13%	100%	0%	4%	0%	0%	0%	1%	0%	12%	0%	48%	0%	1%	0%	2%	0%	5%	0%
Golf Course		0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Pits and Quarries		0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Right-of-Way		0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	8%	0%	24%	0%	28%	0%	0%	0%	0%	0%	0%	0%
WATERSHED-WIDE ACCOUNTING.....																								
tributary land area	ac	0.00	12.50	0.00	54.17	0.00	127.36	127.46	0.00	227.33	0.00	2.70	0.00	1058.65	0.58	3.94	0.82	3383.92	0.00	28.18	0.00	3.55	0.00	9.99	0.00
tributary water area	ac	0.00	0.31	0.00	0.57	0.00	0.72	1.21	0.00	2.11	0.00	0.06	0.00	3.75	0.00	0.13	0.04	120.25	0.00	0.00	0.00	0.00	0.00	0.23	0.00
direct and ponded area	ac	0.00	12.81	0.00	54.74	0.00	128.08	128.67	0.00	229.44	0.00	2.76	0.00	1062.39	0.58	4.07	0.86	3504.17	0.00	28.18	0.00	3.55	0.00	10.22	0.00
ASSUMED EXPORT FACTORS.....																								
season length	yrs	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
season precipitation	inches	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80
runoff total p	ppb	0.00	378.80	0.00	365.92	0.00	367.44	200.00	0.00	377.84	0.00	350.00	0.00	380.51	350.00	344.71	350.00	301.81	0.00	320.47	0.00	387.46	0.00	382.86	0.00
runoff ortho p/total p	-	0.00	0.32	0.00	0.34	0.00	0.34	0.60	0.00	0.33	0.00	0.30	0.00	0.30	0.30	0.33	0.30	0.44	0.00	0.46	0.00	0.31	0.00	0.31	0.00
unit runoff	in/yr	0.00	6.47	0.00	6.18	0.00	6.51	2.54	0.00	6.33	0.00	14.56	0.00	9.22	14.56	11.75	14.56	5.63	0.00	3.73	0.00	6.66	0.00	6.55	0.00
unit export	lbs/ac-y	0.00	0.57	0.00	0.53	0.00	0.56	0.12	0.00	0.55	0.00	1.15	0.00	0.78	1.15	0.95	1.15	0.45	0.00	0.28	0.00	0.59	0.00	0.58	0.00
POND WATER BUDGETS.....																								
runoff	ac-ft/yr	0.00	6.74	0.00	16.08	0.00	39.73	0.02	0.00	52.68	0.00	3.28	0.00	101.00	0.70	3.29	1.00	20.79	0.00	8.76	0.00	1.97	0.00	5.46	0.00
upstream pond	ac-ft/yr	0.00	0.00	0.00	11.95	0.00	28.03	67.76	0.00	67.78	0.00	0.00	0.00	383.14	0.00	0.70	0.00	1225.19	0.00	0.00	0.00	0.00	0.00	0.00	0.00
total inflow	**ac-ft/yr**	**0.00**	**6.74**	**0.00**	**28.03**	**0.00**	**67.76**	**67.78**	**0.00**	**120.46**	**0.00**	**3.28**	**0.00**	**484.14**	**0.70**	**3.99**	**1.00**	**1245.98**	**0.00**	**8.76**	**0.00**	**1.97**	**0.00**	**5.46**	**0.00**
outflow	ac-ft/yr	0.00	6.74	0.00	28.03	0.00	67.76	67.78	0.00	120.46	0.00	3.28	0.00	484.14	0.70	3.99	1.00	1245.98	0.00	8.76	0.00	1.97	0.00	5.46	0.00
POND PHOSPHORUS BUDGETS.....																								
runoff	lbs/yr	0.00	7.08	0.00	16.65	0.00	41.24	0.01	0.00	55.22	0.00	3.12	0.00	103.13	0.67	3.18	0.95	19.91	0.00	7.98	0.00	2.09	0.00	5.76	0.00
upstream pond	lbs/yr	0.00	0.00	0.00	4.72	0.00	16.53	45.62	0.00	34.91	0.00	0.00	0.00	298.34	0.00	0.25	0.00	803.16	0.00	0.00	0.00	0.00	0.00	0.00	0.00
total inflow	**lbs/yr**	**0.00**	**7.08**	**0.00**	**21.37**	**0.00**	**57.77**	**45.64**	**0.00**	**90.13**	**0.00**	**3.12**	**0.00**	**401.46**	**0.67**	**3.43**	**0.95**	**823.07**	**0.00**	**7.98**	**0.00**	**2.09**	**0.00**	**5.76**	**0.00**
net sedimentation	lbs/yr	0.00	4.75	0.00	4.84	0.00	12.14	10.72	0.00	35.44	0.00	1.34	0.00	66.99	0.41	1.50	0.43	0.00	0.00	0.00	0.00	0.00	0.00	2.80	0.00
outflow	lbs/yr	0.00	2.33	0.00	16.53	0.00	45.62	34.91	0.00	54.69	0.00	1.77	0.00	334.48	0.25	1.94	0.52	823.07	0.00	7.98	0.00	2.09	0.00	2.95	0.00
p removal efficiency	%	3.78	67.13	3.78	22.66	3.78	21.02	23.50	3.78	39.32	3.78	43.08	3.78	16.69	61.89	43.57	45.29	0.00	3.78	0.00	3.78	0.00	3.78	48.70	3.78
upstream w-shed p load	lbs/yr	0.00	7.08	0.00	29.07	0.00	70.31	70.32	0.00	125.54	0.00	3.12	0.00	496.16	0.67	3.85	0.95	1711.27	0.00	7.98	0.00	2.09	0.00	5.76	0.00
total removal %	%	3.78	67.13	3.78	43.13	3.78	35.10	50.35	3.78	56.44	3.78	43.08	3.78	32.59	61.89	49.62	45.29	51.90	3.78	0.00	3.78	0.00	3.78	48.70	3.78
HYDRAULIC PARAMETERS.....																								
pond mean depth	feet	0.00	6.00	0.00	2.00	0.00	3.16	3.17	0.00	4.00	0.00	2.00	0.00	3.99	4567.92	1.92	1.57	1.00	0.00	1.00	0.00	1.00	0.00	1.81	0.00
relative volume	inches	1.58	8.78	1.58	0.55	1.58	0.39	2319.00	1.58	2.17	1.58	1.16	1.58	0.68	2.07	2.41	2.07	0.00	1.58	0.00	1.58	0.00	1.58	2.39	1.58
residence time	years	0.05	0.28	0.05	0.01	0.05	0.01	0.02	0.05	0.03	0.05	0.04	0.05	0.00	0.07	0.06	0.07	0.00	0.05	0.00	0.05	0.00	0.05	0.08	0.05
residence time	days	18.08	100.77	18.08	3.65	18.08	2.61	8.33	18.08	10.91	18.08	13.36	18.08	1.63	23.81	22.85	23.81	0.00	18.08	0.00	18.08	0.00	18.08	27.42	18.08
overflow rate	ft/yr	0.00	21.73	0.00	200.21	0.00	442.85	139.17	0.00	133.84	0.00	54.63	0.00	893.24	70015.20	30.71	24.01	1245977990.50	0.00	8761137.47	0.00	1970495.16	0.00	24.04	0.00
inflow phos conc	ppb	384.34	386.52	384.34	280.56	384.34	313.68	247.73	384.34	275.30	384.34	350.02	384.34	305.09	350.02	316.42	350.02	243.04	384.34	335.13	384.34	389.98	384.34	388.17	384.34
outflow phos conc	ppb	369.82	127.06	369.82	216.98	369.82	247.74	189.51	369.82	167.04	369.82	199.22	369.82	254.18	133.41	178.55	191.49	243.04	369.82	335.13	369.82	389.96	369.82	199.13	369.82
p reaction rate	-	0.04	6.21	0.04	0.38	0.04	0.34	0.40	0.04	1.07	0.04	1.33	0.04	0.24	4.26	1.37	1.51	0.00	0.04	0.00	0.04	0.00	0.04	1.85	0.04
1-rp	-	0.96	0.33	0.96	0.77	0.96	0.79	0.77	0.96	0.61	0.96	0.57	0.96	0.83	0.38	0.56	0.55	1.00	0.96	1.00	0.96	1.00	0.96	0.51	0.96
vlawmo pond volume	acre-ft	0.00	0.53	0.00	1.26	0.00	3.12	0.00	0.00	4.14	0.00	0.26	0.00	7.94	0.06	0.26	0.08	1.63	0.00	0.69	0.00	0.15	0.00	0.43	0.00
LAND USE PARAMETERS.....																								
runoff total P conc	ppb	0.00	378.80	0.00	365.92	0.00	367.44	200.00	0.00	377.84	0.00	350.00	0.00	380.51	350.00	344.71	350.00	301.81	0.00	320.47	0.00	387.46	0.00	382.86	0.00
runoff coefficient		0.00	0.20	0.00	0.19	0.00	0.20	0.08	0.00	0.20	0.00	0.46	0.00	0.29	0.46	0.37	0.46	0.18	0.00	0.12	0.00	0.21	0.00	0.21	0.00
dissolved/total P		0.00	0.32	0.00	0.34	0.00	0.34	0.60	0.00	0.33	0.00	0.30	0.00	0.30	0.30	0.33	0.30	0.44	0.00	0.46	0.00	0.31	0.00	0.31	0.00
runoff TSS conc	ppm	0.00	145.04	0.00	150.15	0.00	149.95	216.00	0.00	147.97	0.00	140.00	0.00	140.59	140.00	148.86	140.00	176.31	0.00	200.69	0.00	141.60	0.00	143.43	0.00
POND TSS BUDGETS.....																								
runoff	lbs/yr	0.00	2592.15	0.00	6283.07	0.00	15482.78	12.41	0.00	20490.11	0.00	1243.50	0.00	38362.52	265.64	1266.31	377.51	8810.09	0.00	4471.45	0.00	750.88	0.00	2090.46	0.00
upstream pond	lbs/yr	0.00	0.00	0.00	325.68	0.00	3363.38	10331.74	0.00	5061.24	0.00	0.00	0.00	113772.95	0.00	18.59	0.00	239891.16	0.00	0.00	0.00	0.00	0.00	0.00	0.00
total inflow	**lbs/yr**	**0.00**	**2592.15**	**0.00**	**6608.75**	**0.00**	**18846.17**	**10344.15**	**0.00**	**25551.35**	**0.00**	**1243.50**	**0.00**	**152135.46**	**265.64**	**1284.91**	**377.51**	**248701.25**	**0.00**	**4471.45**	**0.00**	**750.88**	**0.00**	**2090.46**	**0.00**
p removal efficiency (no inf)	%	5.00	69.00	5.00	25.00	5.00	23.00	26.00	5.00	42.00	5.00	44.00	5.00	18.00	62.00	44.00	46.00	0.00	5.00	0.00	5.00	0.00	5.00	52.00	5.00
tss removal efficiency (no inf)	%	9.82	93.00	9.82	49.11	9.82	45.18	51.07	9.82	68.00	9.82	69.33	9.82	35.36	93.00	69.33	72.00	0.00	9.82	0.00	9.82	0.00	9.82	85.00	9.82
net sedimentation	lbs/yr	0.00	2410.70	0.00	3245.37	0.00	8514.43	5282.90	0.00	17374.92	0.00	862.16	0.00	53790.75	247.04	890.87	271.81	0.00	0.00	0.00	0.00	0.00	0.00	1776.89	0.00
outflow	lbs/yr	0.00	181.45	0.00	3363.38	0.00	10331.74	5061.24	0.00	8176.43	0.00	381.34	0.00	98344.71	18.59	394.04	105.70	248701.25	0.00	4471.45	0.00	750.88	0.00	313.57	0.00
tss removal efficiency (inf)	%	9.82	93.00	9.82	49.11	9.82	45.18	51.07	9.82	68.00	9.82	69.33	9.82	35.36	93.00	69.33	72.00	0.00	9.82	0.00	9.82	0.00	9.82	85.00	9.82
upstream watershed tss load	lbs/yr	0.00	2592.15	0.00	10935.69	0.00	26418.48	26430.89	0.00	46921.00	0.00	1243.50	0.00	206928.83	265.64	1531.95	377.51	684491.94	0.00	4471.45	0.00	750.88	0.00	2090.46	0.00
tss total removal efficiency	%	9.82	93.00	9.82	69.24	9.82	60.89	80.85	9.82	82.57	9.82	69.33	9.82	52.47	93.00	74.28	72.00	63.67	9.82	0.00	9.82	0.00	9.82	85.00	9.82
INFILTRATION BMP/POND.....																								
Annual runoff infiltrated	%	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Adjusted outflow	**ac-ft/yr**	**0.00**	**6.74**	**0.00**	**28.03**	**0.00**	**67.76**	**67.78**	**0.00**	**120.46**	**0.00**	**3.28**	**0.00**	**484.14**	**0.70**	**3.99**	**1.00**	**1245.98**	**0.00**	**8.76**	**0.00**	**1.97**	**0.00**	**5.46**	**0.00**
Adjusted TP outflow	**lbs/yr**	**0.00**	**2.33**	**0.00**	**16.53**	**0.00**	**45.62**	**34.91**	**0.00**	**54.69**	**0.00**	**1.77**	**0.00**	**334.48**	**0.25**	**1.94**	**0.52**	**823.07**	**0.00**	**7.98**	**0.00**	**2.09**	**0.00**	**2.95**	**0.00**
Adjusted TSS outflow	**lbs/yr**	**0.00**	**181.45**	**0.00**	**3363.38**	**0.00**	**10331.74**	**5061.24**	**0.00**	**8176.43**	**0.00**	**381.34**	**0.00**	**98344.71**	**18.59**	**394.04**	**105.70**	**248701.25**	**0.00**	**4471.45**	**0.00**	**750.88**	**0.00**	**313.57**	**0.00**
POND P BUDGETS W/O P-BAN.....																								
runoff	lbs/yr	0.00	8.12	0.00	19.07	0.00	47.24	0.01	0.00	63.40	0.00	3.12	0.00	111.78	0.67	3.18	0.95	20.94	0.00	9.17	0.00	2.40	0.00	6.61	0.00
Adjusted TP outflow	**lbs/yr**	**0.00**	**2.52**	**0.00**	**18.28**	**0.00**	**50.59**	**37.94**	**0.00**	**59.45**	**0.00**	**1.77**	**0.00**	**356.14**	**0.25**	**1.94**	**0.52**	**848.82**	**0.00**	**9.17**	**0.00**	**2.40**	**0.00**	**3.24**	**0.00**
upstream pond	lbs/yr	0.00	0.00	0.00	5.14	0.00	18.28	50.59	0.00	37.94	0.00	0.00	0.00	320.31	0.00	0.25	0.00	827.88	0.00	0.00	0.00	0.00	0.00	0.00	0.00
total inflow	**lbs/yr**	**0.00**	**8.12**	**0.00**	**24.20**	**0.00**	**65.52**	**50.60**	**0.00**	**101.34**	**0.00**	**3.12**	**0.00**	**432.09**	**0.67**	**3.43**	**0.95**	**848.82**	**0.00**	**9.17**	**0.00**	**2.40**	**0.00**	**6.61**	**0.00**
outflow	lbs/yr	0.00	2.52	0.00	18.28	0.00	50.59	37.94	0.00	59.45	0.00	1.77	0.00	356.14	0.25	1.94	0.52	848.82	0.00	9.17	0.00	2.40	0.00	3.24	0.00
inflow phos conc	ppb	409.24	443.50	409.24	317.70	409.24	355.77	274.67	409.24	309.51	409.24	350.02	409.24	328.37	350.02	316.42	350.02	250.64	409.24	384.90	409.24	448.01	409.24	445.64	409.24
outflow phos conc	ppb	392.86	137.90	392.86	239.94	392.86	274.69	205.93	392.86	181.58	392.86	199.22	392.86	270.65	133.41	178.55	191.49	250.64	392.86	384.90	392.86	447.99	392.86	218.35	392.86
p reaction rate	-	0.04	7.13	0.04	0.43	0.04	0.38	0.45	0.04	1.20	0.04	1.33	0.04	0.26	4.26	1.37	1.51	0.00	0.04	0.00	0.04	0.00	0.04	2.12	0.04
1-rp	-	0.96	0.31	0.96	0.76	0.96	0.77	0.75	0.96	0.59	0.96	0.57	0.96	0.82	0.38	0.56	0.55	1.00	0.96	1.00	0.96	1.00	0.96	0.49	0.96
runoff total p conc	ppb	0.00	433.43	0.00	416.61	0.00	418.51	200.00	0.00	433.00	0.00	350.00	0.00	419.77	350.00	344.71	350.00	315.16	0.00	367.90	0.00	444.72	0.00	438.72	0.00

Rochester Loading Assessment																								
Cascade Creek																								
363-06-158-2																								
2020 TP LOADS																								
		cc-a1.8c	**future cc-a1.8d**	**cc-a1.8d**	**cc-a1.8d cell 2**	**future cc-a1.8e**	**cc-a1.8e**	**cc-a1.8e cell 2**	**future cc-a1.8f**	**cc-a1.8f**	**future cc-a1.5b**	**cc-a1.5b**	**future cc-a1.7**	**cc-a1.7**	**future cc-a1.9c**	**cc-a1.9c**	**future cc-a1.9b**	**cc-a1.9b**	**future cc-a1.9a**	**cc-a1.9a**	**future cc-a1.10h**	**cc-a1.10h**	**future cc-a1.10g**	**cc-a1.10g**	**future cc-a1.10c**
		cc-a1.8d	cc-a1.8d	cc-a1.8d cell 2	cc-a1.8e	cc-a1.8e	cc-a1.8e cell 2	cc-a1.9a	cc-a1.8f	cc-a1.9a	cc-a1.5b	cc-a1.9a	cc-a1.7	cc-a1.9c	cc-a1.9c	cc-a1.9a	cc-a1.9b	cc-a1.9a	cc-a1.9a	cc-a1.10a	cc-a1.10h	cc-a1.10a	cc-a1.10g	cc-a1.10a	cc-a1.10c
INPUT VARIABLES....	UNITS																							
case label	-																							
Watershed area	acres	5.8	0.0	11.6	0.0	0.0	18.3	0.0	0.0	12.9	0.0	0.4	22.8	7.2	16.5	78.4	10.0	37.3	2.3	68.9	0.0	8.0	0.0	13.4	0.0
basin area	acres	0.00	0.00	0.10	0.31	0.00	0.04	0.28	0.00	0.00	0.00	0.00	0.25	0.17	0.21	0.74	0.25	0.80	0.04	0.00	0.00	0.68	0.00	0.02	0.00
basin volume	acre-ft	0.00	0.00	0.25	0.80	0.00	0.28	1.83	0.00	0.00	0.00	0.00	0.63	0.29	0.45	3.14	0.63	3.20	0.07	0.00	0.00	2.72	0.00	0.00	0.00
Row Crop Agriculture		13%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Very Low Density Residential		10%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	24%	0%	72%	0%	70%	0%	0%	0%	0%	0%	0%	0%
Low Density Residential		71%	0%	0%	0%	0%	0%	0%	0%	56%	0%	0%	100%	27%	100%	3%	11%	1%	94%	17%	0%	34%	0%	70%	0%
Medium Density Residential		0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
High Density Residential		3%	0%	90%	0%	0%	95%	0%	0%	43%	0%	0%	0%	0%	0%	0%	89%	0%	6%	0%	0%	0%	0%	0%	0%
Commercial/Industrial		0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	1%	0%	0%	0%	0%	0%
Institutional		0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	21%	0%	0%	0%	0%	0%
Open Space		3%	0%	10%	100%	0%	5%	100%	0%	1%	0%	100%	0%	49%	0%	24%	0%	1%	0%	1%	0%	0%	0%	0%	0%
Golf Course		0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	1%	0%	4%	0%	49%	0%	66%	0%	30%	0%
Pits and Quarries		0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Right-of-Way		0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	24%	0%	11%	0%	0%	0%	0%	0%
WATERSHED-WIDE ACCOUNTING.....																								
tributary land area	ac	19.36	0.00	30.94	30.95	0.00	49.29	49.30	0.00	12.95	0.00	0.36	22.77	29.92	16.46	124.73	10.04	47.29	2.33	334.04	0.00	8.01	0.00	13.37	0.00
tributary water area	ac	0.23	0.00	0.32	0.63	0.00	0.67	0.95	0.00	0.00	0.00	0.00	0.25	0.42	0.21	1.37	0.25	1.05	0.04	3.40	0.00	0.68	0.00	0.02	0.00
direct and ponded area	ac	19.59	0.00	31.26	31.58	0.00	49.96	50.25	0.00	12.95	0.00	0.36	23.02	30.34	16.67	126.10	10.29	48.34	2.38	337.44	0.00	8.69	0.00	13.39	0.00
ASSUMED EXPORT FACTORS.....																								
season length	yrs	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
season precipitation	inches	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80
runoff total p	ppb	396.63	0.00	372.29	200.00	0.00	382.68	200.00	0.00	390.34	0.00	200.05	391.50	276.76	391.50	283.90	391.50	337.00	391.50	460.39	0.00	496.08	0.00	438.77	0.00
runoff ortho p/total p	-	0.32	0.00	0.33	0.60	0.00	0.31	0.60	0.00	0.30	0.00	0.60	0.30	0.50	0.30	0.52	0.30	0.46	0.30	0.50	0.00	0.56	0.00	0.42	0.00
unit runoff	in/yr	6.11	0.00	12.48	2.54	0.00	13.08	2.54	0.00	9.65	0.00	2.55	6.74	3.78	6.74	2.98	12.83	4.42	7.17	5.76	0.00	4.26	0.00	5.62	0.00
unit export	lbs/ac-y	0.55	0.00	1.10	0.12	0.00	1.15	0.12	0.00	0.86	0.00	0.12	0.60	0.27	0.60	0.20	1.14	0.36	0.64	0.54	0.00	0.45	0.00	0.53	0.00
POND WATER BUDGETS.....																								
runoff	ac-ft/yr	2.96	0.00	12.04	0.00	0.00	20.00	0.00	0.00	10.42	0.00	0.08	12.80	2.25	9.25	19.44	10.74	13.71	1.40	33.08	0.00	2.84	0.00	6.26	0.00
upstream pond	ac-ft/yr	7.43	0.00	10.39	22.43	0.00	22.43	42.43	0.00	0.00	0.00	0.00	0.00	12.80	0.00	24.30	0.00	10.74	0.00	131.27	0.00	0.00	0.00	0.00	0.00
total inflow	**ac-ft/yr**	**10.39**	**0.00**	**22.43**	**22.43**	**0.00**	**42.43**	**42.43**	**0.00**	**10.42**	**0.00**	**0.08**	**12.80**	**15.05**	**9.25**	**43.74**	**10.74**	**24.45**	**1.40**	**164.35**	**0.00**	**2.84**	**0.00**	**6.26**	**0.00**
outflow	ac-ft/yr	10.39	0.00	22.43	22.43	0.00	42.43	42.43	0.00	10.42	0.00	0.08	12.80	15.05	9.25	43.74	10.74	24.45	1.40	164.35	0.00	2.84	0.00	6.26	0.00
POND PHOSPHORUS BUDGETS.....																								
runoff	lbs/yr	3.21	0.00	12.68	0.00	0.00	21.18	0.00	0.00	11.07	0.00	0.04	13.62	1.91	9.84	15.35	11.43	13.33	1.48	37.52	0.00	3.59	0.00	7.09	0.00
upstream pond	lbs/yr	5.04	0.00	8.26	15.04	0.00	10.94	25.75	0.00	0.00	0.00	0.00	0.00	6.88	0.00	12.14	0.00	5.61	0.00	63.90	0.00	0.00	0.00	0.00	0.00
total inflow	**lbs/yr**	**8.26**	**0.00**	**20.94**	**15.04**	**0.00**	**32.12**	**25.75**	**0.00**	**11.07**	**0.00**	**0.04**	**13.62**	**8.79**	**9.84**	**27.49**	**11.43**	**18.93**	**1.48**	**101.42**	**0.00**	**3.59**	**0.00**	**7.09**	**0.00**
net sedimentation	lbs/yr	0.00	0.00	5.90	4.10	0.00	6.37	8.27	0.00	0.00	0.00	0.00	6.74	1.74	4.76	10.63	5.82	9.27	0.69	0.00	0.00	2.17	0.00	0.00	0.00
outflow	lbs/yr	8.26	0.00	15.04	10.94	0.00	25.75	17.48	0.00	11.07	0.00	0.04	6.88	7.05	5.09	16.86	5.61	9.66	0.80	101.42	0.00	1.42	0.00	7.09	0.00
p removal efficiency	%	0.00	3.78	28.19	27.26	3.78	19.82	32.12	3.78	0.00	3.78	0.02	49.46	19.82	48.32	38.66	50.96	48.97	46.19	0.00	3.78	60.44	3.78	0.00	3.78
upstream w-shed p load	lbs/yr	11.06	0.00	23.74	23.74	0.00	44.93	44.93	0.00	11.07	0.00	0.04	13.62	15.53	9.84	40.72	11.43	24.76	1.48	168.51	0.00	3.59	0.00	7.09	0.00
total removal %	%	25.35	3.78	36.68	53.94	3.78	42.68	61.09	3.78	0.00	3.78	0.02	49.46	54.60	48.32	58.60	50.96	60.97	46.19	39.81	3.78	60.44	3.78	0.00	3.78
HYDRAULIC PARAMETERS.....																								
pond mean depth	feet	1.00	0.00	2.63	2.62	0.00	6.55	6.56	0.00	1.00	0.00	1.00	2.52	1.68	2.19	4.24	2.52	4.00	1.69	1.00	0.00	4.00	0.00	0.00	0.00
relative volume	inches	0.00	1.58	0.66	12000.00	1.58	0.44	27375.00	1.58	0.00	1.58	0.00	1.56	4.02	1.56	5.14	1.85	7.42	1.59	0.00	1.58	30.41	1.58	0.00	1.58
residence time	years	0.00	0.05	0.01	0.04	0.05	0.01	0.04	0.05	0.00	0.05	0.00	0.05	0.02	0.05	0.07	0.06	0.13	0.05	0.00	0.05	0.96	0.05	0.00	0.05
residence time	days	0.00	18.08	4.07	13.02	18.08	2.37	15.70	18.08	0.00	18.08	0.00	17.86	6.91	17.86	26.21	21.27	47.77	18.29	0.00	18.08	349.09	18.08	0.00	18.08
overflow rate	ft/yr	10390340.02	0.00	236.12	73.55	0.00	1010.20	152.63	0.00	10415640.87	0.00	75533.29	51.49	88.53	44.65	59.10	43.21	30.57	33.67	164345807.62	0.00	4.18	0.00	313.19	0.00
inflow phos conc	ppb	292.36	384.34	343.45	246.61	384.34	278.53	223.32	384.34	391.13	384.34	200.17	391.52	214.94	391.52	231.22	391.52	284.84	391.52	227.04	384.34	464.67	384.34	416.58	384.34
outflow phos conc	ppb	292.36	369.82	246.62	179.38	369.82	223.32	151.58	369.82	391.13	369.82	200.12	197.89	172.33	202.34	141.83	192.01	145.36	210.68	227.04	369.82	183.85	369.82	416.58	369.82
p reaction rate	-	0.00	0.04	0.55	0.52	0.04	0.31	0.70	0.04	0.00	0.04	0.00	1.94	0.31	1.81	1.03	2.12	1.88	1.60	0.00	0.04	3.86	0.04	0.00	0.04
1-rp	-	1.00	0.96	0.72	0.73	0.96	0.80	0.68	0.96	1.00	0.96	1.00	0.51	0.80	0.52	0.61	0.49	0.51	0.54	1.00	0.96	0.40	0.96	1.00	0.96
vlawmo pond volume	acre-ft	0.23	0.00	0.95	0.00	0.00	1.57	0.00	0.00	0.82	0.00	0.01	1.01	0.18	0.73	1.53	0.84	1.08	0.11	2.60	0.00	0.22	0.00	0.49	0.00
LAND USE PARAMETERS.....																								
runoff total P conc	ppb	396.63	0.00	372.29	200.00	0.00	382.68	200.00	0.00	390.34	0.00	200.05	391.50	276.76	391.50	283.90	391.50	337.00	391.50	460.39	0.00	496.08	0.00	438.77	0.00
runoff coefficient		0.19	0.00	0.39	0.08	0.00	0.41	0.08	0.00	0.30	0.00	0.08	0.21	0.12	0.21	0.09	0.40	0.14	0.23	0.18	0.00	0.13	0.00	0.18	0.00
dissolved/total P		0.32	0.00	0.33	0.60	0.00	0.31	0.60	0.00	0.30	0.00	0.60	0.30	0.50	0.30	0.52	0.30	0.46	0.30	0.50	0.00	0.56	0.00	0.42	0.00
runoff TSS conc	ppm	152.87	0.00	147.88	216.00	0.00	143.66	216.00	0.00	140.42	0.00	215.99	140.00	195.56	140.00	213.94	140.00	196.74	140.00	178.17	0.00	190.15	0.00	162.67	0.00
POND TSS BUDGETS.....																								
runoff	lbs/yr	1178.60	0.00	4619.86	1.24	0.00	7623.95	1.24	0.00	3954.80	0.00	44.20	4855.48	1095.55	3509.47	11130.68	4074.90	6622.93	529.26	14316.03	0.00	1349.33	0.00	2580.45	0.00
upstream pond	lbs/yr	1064.45	0.00	2243.05	2908.16	0.00	1283.77	5058.31	0.00	0.00	0.00	0.00	0.00	728.32	0.00	1632.31	0.00	407.49	0.00	16002.37	0.00	0.00	0.00	0.00	0.00
total inflow	**lbs/yr**	**2243.05**	**0.00**	**6862.91**	**2909.40**	**0.00**	**8907.72**	**5059.55**	**0.00**	**3954.80**	**0.00**	**44.20**	**4855.48**	**1823.87**	**3509.47**	**12762.98**	**4074.90**	**7030.42**	**529.26**	**30318.40**	**0.00**	**1349.33**	**0.00**	**2580.45**	**0.00**
p removal efficiency (no inf)	%	0.00	5.00	31.00	29.00	5.00	22.00	34.00	5.00	0.00	5.00	0.00	52.00	22.00	51.00	41.00	54.00	51.00	49.00	0.00	5.00	62.00	5.00	0.00	5.00
tss removal efficiency (no inf)	%	0.00	9.82	57.63	55.88	9.82	43.21	60.25	9.82	0.00	9.82	0.00	85.00	43.21	83.00	67.00	90.00	83.00	78.50	0.00	9.82	93.00	9.82	0.00	9.82
net sedimentation	lbs/yr	0.00	0.00	3954.75	1625.63	0.00	3849.41	3048.38	0.00	0.00	0.00	0.00	4127.16	788.17	2912.86	8551.20	3667.41	5835.25	415.47	0.00	0.00	1254.88	0.00	0.00	0.00
outflow	lbs/yr	2243.05	0.00	2908.16	1283.77	0.00	5058.31	2011.17	0.00	3954.80	0.00	44.20	728.32	1035.70	596.61	4211.79	407.49	1195.17	113.79	30318.40	0.00	94.45	0.00	2580.45	0.00
tss removal efficiency (inf)	%	0.00	9.82	57.63	55.88	9.82	43.21	60.25	9.82	0.00	9.82	0.00	85.00	43.21	83.00	67.00	90.00	83.00	78.50	0.00	9.82	93.00	9.82	0.00	9.82
upstream watershed tss load	lbs/yr	4019.94	0.00	8639.80	8641.04	0.00	16264.99	16266.23	0.00	3954.80	0.00	44.20	4855.48	5951.03	3509.47	20591.18	4074.90	10697.83	529.26	70870.98	0.00	1349.33	0.00	2580.45	0.00
tss total removal efficiency	%	44.20	9.82	66.34	85.14	9.82	68.90	87.64	9.82	0.00	9.82	0.00	85.00	82.60	83.00	79.55	90.00	88.83	78.50	57.22	9.82	93.00	9.82	0.00	9.82
INFILTRATION BMP/POND.....																								
Annual runoff infiltrated	%	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Adjusted outflow	**ac-ft/yr**	**10.39**	**0.00**	**22.43**	**22.43**	**0.00**	**42.43**	**42.43**	**0.00**	**10.42**	**0.00**	**0.08**	**12.80**	**15.05**	**9.25**	**43.74**	**10.74**	**24.45**	**1.40**	**164.35**	**0.00**	**2.84**	**0.00**	**6.26**	**0.00**
Adjusted TP outflow	**lbs/yr**	**8.26**	**0.00**	**15.04**	**10.94**	**0.00**	**25.75**	**17.48**	**0.00**	**11.07**	**0.00**	**0.04**	**6.88**	**7.05**	**5.09**	**16.86**	**5.61**	**9.66**	**0.80**	**101.42**	**0.00**	**1.42**	**0.00**	**7.09**	**0.00**
Adjusted TSS outflow	**lbs/yr**	**2243.05**	**0.00**	**2908.16**	**1283.77**	**0.00**	**5058.31**	**2011.17**	**0.00**	**3954.80**	**0.00**	**44.20**	**728.32**	**1035.70**	**596.61**	**4211.79**	**407.49**	**1195.17**	**113.79**	**30318.40**	**0.00**	**94.45**	**0.00**	**2580.45**	**0.00**
POND P BUDGETS W/O P-BAN.....																								
runoff	lbs/yr	3.63	0.00	14.56	0.00	0.00	24.33	0.00	0.00	12.72	0.00	0.04	15.65	2.13	11.31	17.28	13.14	14.17	1.71	38.57	0.00	3.84	0.00	7.93	0.00
Adjusted TP outflow	**lbs/yr**	**9.27**	**0.00**	**16.61**	**11.82**	**0.00**	**28.41**	**18.82**	**0.00**	**12.72**	**0.00**	**0.04**	**7.55**	**7.64**	**5.58**	**18.16**	**6.14**	**10.13**	**0.88**	**108.49**	**0.00**	**1.48**	**0.00**	**7.93**	**0.00**
upstream pond	lbs/yr	5.64	0.00	9.27	16.61	0.00	11.82	28.41	0.00	0.00	0.00	0.00	0.00	7.55	0.00	13.22	0.00	6.14	0.00	69.92	0.00	0.00	0.00	0.00	0.00
total inflow	**lbs/yr**	**9.27**	**0.00**	**23.82**	**16.62**	**0.00**	**36.16**	**28.41**	**0.00**	**12.72**	**0.00**	**0.04**	**15.65**	**9.68**	**11.31**	**30.50**	**13.14**	**20.32**	**1.71**	**108.49**	**0.00**	**3.84**	**0.00**	**7.93**	**0.00**
outflow	lbs/yr	9.27	0.00	16.61	11.82	0.00	28.41	18.82	0.00	12.72	0.00	0.04	7.55	7.64	5.58	18.16	6.14	10.13	0.88	108.49	0.00	1.48	0.00	7.93	0.00
inflow phos conc	ppb	328.12	409.24	390.76	272.51	409.24	313.54	246.35	409.24	449.40	409.24	200.19	450.02	236.74	450.02	256.57	450.02	305.69	450.02	242.87	409.24	496.18	409.24	465.83	409.24
outflow phos conc	ppb	328.12	392.86	272.52	193.94	392.86	246.36	163.20	392.86	449.39	392.86	200.14	217.06	186.72	222.10	152.81	210.42	152.40	231.56	242.87	392.86	191.49	392.86	465.83	392.86
p reaction rate	-	0.00	0.04	0.62	0.57	0.04	0.35	0.77	0.04	0.00	0.04	0.00	2.23	0.34	2.08	1.14	2.44	2.02	1.83	0.00	0.04	4.12	0.04	0.00	0.04
1-rp	-	1.00	0.96	0.70	0.71	0.96	0.79	0.66	0.96	1.00	0.96	1.00	0.48	0.79	0.49	0.60	0.47	0.50	0.51	1.00	0.96	0.39	0.96	1.00	0.96
runoff total p conc	ppb	444.20	0.00	424.87	200.00	0.00	438.45	200.00	0.00	448.37	0.00	200.06	450.00	303.50	450.00	318.36	450.00	369.75	450.00	470.31	0.00	515.98	0.00	479.82	0.00

Rochester Loading Assessment																								
Cascade Creek																								
363-06-158-2																								
2020 TP LOADS																								
		cc-a1.10c	**future cc-a1.10b**	**cc-a1.10b**	**cc-a1.10b cell 2**	**future cc-a1.10f**	**cc-a1.10f**	**future cc-a1.10a**	**cc-a1.10a**	**future cc-a4.1**	**cc-a4.1**	**future cc-a4.3e**	**cc-a4.3e**	**future cc-a1.10e**	**cc-a1.10e**	**cc-a1.10e cell 2**	**future cc-a1.10d**	**cc-a1.10d**	**cc-a1.10d cell 2**	**future cc-a4.2f**	**cc-a4.2f**	**future cc-a4.2g**	**cc-a4.2g**	**cc-a4.2g cell 2**	**future cc-a4.2h**
		cc-a1.10a	cc-a1.10b	cc-a1.10b cell 2	cc-a1.10a	cc-a1.10f	cc-a1.10a	cc-a1.10a	cc-a4.2b	cc-a4.1	cc-a4.2b	cc-a4.3e	cc-a1.10e	cc-a1.10e	cc-a1.10e cell 2	cc-a1.10d	cc-a1.10d	cc-a1.10d cell 2	cc-a4.2b	cc-a4.2f	cc-a4.2d	cc-a4.2g	cc-a4.2g cell 2	cc-a4.2d	cc-a4.2h
INPUT VARIABLES....	UNITS																							
case label	-																							
Watershed area	acres	4.0	0.0	4.7	0.0	0.0	5.2	0.0	186.3	0.0	236.0	0.0	6.1	0.9	21.6	0.1	0.0	12.3	0.0	0.0	10.5	5.8	3.7	0.0	17.2
basin area	acres	0.32	0.00	0.12	0.14	0.00	0.13	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.72	2.11	0.00	0.02	0.15	0.00	0.15	0.17	0.38	0.39	0.36
basin volume	acre-ft	0.64	0.00	0.96	1.09	0.00	0.35	0.00	0.00	0.00	0.00	0.00	0.00	0.03	3.93	11.51	0.00	0.04	0.26	0.00	0.32	0.39	1.36	1.39	1.14
Row Crop Agriculture		0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Very Low Density Residential		0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Low Density Residential		0%	0%	34%	0%	0%	0%	0%	17%	0%	86%	0%	32%	100%	8%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Medium Density Residential		0%	0%	0%	0%	0%	80%	0%	0%	0%	0%	0%	0%	0%	18%	0%	0%	88%	0%	0%	1%	0%	0%	0%	0%
High Density Residential		55%	0%	64%	0%	0%	0%	0%	1%	0%	0%	0%	49%	0%	20%	0%	0%	0%	0%	0%	0%	100%	0%	0%	100%
Commercial/Industrial		0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	15%	0%	0%	0%	0%	0%	0%	0%	60%	0%	0%
Institutional		0%	0%	0%	0%	0%	0%	0%	0%	0%	4%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Open Space		0%	0%	1%	100%	0%	6%	0%	4%	0%	6%	0%	0%	0%	9%	100%	0%	12%	100%	0%	87%	0%	29%	100%	0%
Golf Course		45%	0%	2%	0%	0%	0%	0%	73%	0%	0%	0%	19%	0%	18%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Pits and Quarries		0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Right-of-Way		0%	0%	0%	0%	0%	14%	0%	5%	0%	3%	0%	0%	0%	14%	0%	0%	0%	0%	0%	12%	0%	12%	0%	0%
WATERSHED-WIDE ACCOUNTING.....																								
tributary land area	ac	4.03	0.00	4.70	4.71	0.00	5.16	0.00	555.68	0.00	236.05	0.00	6.12	0.94	28.70	28.80	0.00	41.13	41.14	0.00	10.46	5.82	9.51	9.52	17.16
tributary water area	ac	0.32	0.00	0.12	0.26	0.00	0.13	0.00	4.82	0.00	0.00	0.00	0.00	0.00	0.72	2.83	0.00	2.85	3.00	0.00	0.15	0.17	0.55	0.94	0.36
direct and ponded area	ac	4.35	0.00	4.83	4.98	0.00	5.29	0.00	560.49	0.00	236.05	0.00	6.12	0.94	29.42	31.63	0.00	43.99	44.15	0.00	10.61	5.99	10.06	10.46	17.52
ASSUMED EXPORT FACTORS.....																								
season length	yrs	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
season precipitation	inches	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80
runoff total p	ppb	463.45	0.00	393.88	200.00	0.00	381.70	0.00	500.45	0.00	377.72	0.00	421.90	391.50	399.72	200.00	0.00	369.11	200.00	0.00	226.33	391.50	313.49	200.00	391.50
runoff ortho p/total p	-	0.48	0.00	0.31	0.60	0.00	0.32	0.00	0.60	0.00	0.32	0.00	0.38	0.30	0.40	0.60	0.00	0.34	0.60	0.00	0.56	0.30	0.39	0.60	0.30
unit runoff	in/yr	8.78	0.00	11.02	2.54	0.00	9.19	0.00	3.97	0.00	6.67	0.00	9.37	6.74	9.07	2.54	0.00	8.89	2.54	0.00	3.38	13.60	10.45	2.54	13.60
unit export	lbs/ac-y	0.83	0.00	0.98	0.12	0.00	0.81	0.00	0.43	0.00	0.58	0.00	0.85	0.60	0.80	0.12	0.00	0.78	0.12	0.00	0.21	1.21	0.82	0.12	1.21
POND WATER BUDGETS.....																								
runoff	ac-ft/yr	2.95	0.00	4.32	0.00	0.00	3.95	0.00	61.70	0.00	131.17	0.00	4.78	0.53	16.36	0.02	0.00	9.14	0.00	0.00	2.94	6.60	3.21	0.00	19.44
upstream pond	ac-ft/yr	0.00	0.00	0.00	4.32	0.00	0.00	0.00	184.67	0.00	0.00	0.00	0.00	0.00	5.31	21.66	0.00	21.68	30.82	0.00	0.00	0.00	6.60	0.29	0.00
total inflow	**ac-ft/yr**	**2.95**	**0.00**	**4.32**	**4.32**	**0.00**	**3.95**	**0.00**	**246.37**	**0.00**	**131.17**	**0.00**	**4.78**	**0.53**	**21.66**	**21.68**	**0.00**	**30.82**	**30.82**	**0.00**	**2.94**	**6.60**	**9.81**	**0.30**	**19.44**
outflow	ac-ft/yr	2.95	0.00	4.32	4.32	0.00	3.95	0.00	246.37	0.00	131.17	0.00	4.78	0.53	21.66	21.68	0.00	30.82	30.82	0.00	2.94	6.60	9.81	0.30	19.44
POND PHOSPHORUS BUDGETS.....																								
runoff	lbs/yr	3.33	0.00	4.60	0.00	0.00	4.19	0.00	79.60	0.00	137.10	0.00	5.21	0.56	17.22	0.01	0.00	9.56	0.00	0.00	2.15	7.02	3.01	0.00	20.69
upstream pond	lbs/yr	0.00	0.00	0.00	1.44	0.00	0.00	0.00	114.43	0.00	0.00	0.00	0.00	0.00	5.44	8.84	0.00	4.94	13.99	0.00	0.00	0.00	3.48	0.10	0.00
total inflow	**lbs/yr**	**3.33**	**0.00**	**4.60**	**1.44**	**0.00**	**4.19**	**0.00**	**194.03**	**0.00**	**137.10**	**0.00**	**5.21**	**0.56**	**22.66**	**8.86**	**0.00**	**14.50**	**13.99**	**0.00**	**2.15**	**7.02**	**6.49**	**0.10**	**20.69**
net sedimentation	lbs/yr	1.62	0.00	3.16	0.60	0.00	2.25	0.00	0.00	0.00	0.00	0.00	0.00	0.33	13.82	3.91	0.00	0.51	1.25	0.00	0.78	3.54	3.13	0.04	10.94
outflow	lbs/yr	1.72	0.00	1.44	0.85	0.00	1.94	0.00	194.03	0.00	137.10	0.00	5.21	0.23	8.84	4.94	0.00	13.99	12.74	0.00	1.37	3.48	3.36	0.06	9.75
p removal efficiency	%	48.52	3.78	68.66	41.32	3.78	53.68	3.78	0.00	3.78	0.00	3.78	0.00	59.27	60.97	44.21	3.78	3.54	8.93	3.78	36.26	50.43	98.45	37.23	52.86
upstream w-shed p load	lbs/yr	3.33	0.00	4.60	4.60	0.00	4.19	0.00	270.91	0.00	137.10	0.00	5.21	0.56	22.99	23.01	0.00	32.57	32.57	0.00	2.15	7.02	10.03	10.03	20.69
total removal %	%	48.52	3.78	68.66	81.60	3.78	53.68	3.78	28.38	3.78	0.00	3.78	0.00	59.27	61.54	78.53	3.78	57.05	60.88	3.78	36.26	50.43	99.00	99.36	52.86
HYDRAULIC PARAMETERS.....																								
pond mean depth	feet	2.00	0.00	7.80	7.79	0.00	2.69	0.00	1.00	0.00	1.00	0.00	1.00	2582.25	5.46	5.46	0.00	1.75	1.73	0.00	2.10	2.34	3.55	3.55	3.18
relative volume	inches	6.91	1.58	7.06	16365.00	1.58	2.81	1.58	0.00	1.58	0.00	1.58	0.00	1.56	7.63	17271.00	1.58	0.15	3870.00	1.58	3.40	1.87	13.43	20895.00	1.87
residence time	years	0.22	0.05	0.22	0.25	0.05	0.09	0.05	0.00	0.05	0.00	0.05	0.00	0.05	0.18	0.53	0.05	0.00	0.01	0.05	0.11	0.06	0.14	4.70	0.06
residence time	days	79.27	18.08	81.06	92.17	18.08	32.31	18.08	0.00	18.08	0.00	18.08	0.00	17.86	66.15	193.82	18.08	0.50	3.06	18.08	39.05	21.48	50.47	1714.63	21.48
overflow rate	ft/yr	9.21	0.00	35.11	30.86	0.00	30.41	0.00	246371909.62	0.00	131173520.92	0.00	4777884.10	52769.19	30.13	10.28	0.00	1284.14	206.85	0.00	19.63	39.83	25.69	0.76	54.01
inflow phos conc	ppb	415.95	384.34	392.00	122.90	384.34	389.60	384.34	289.76	384.34	384.55	384.34	401.19	391.52	384.90	150.26	384.34	173.12	166.99	384.34	269.03	391.52	243.30	126.42	391.52
outflow phos conc	ppb	214.12	369.82	122.86	72.12	369.82	180.48	369.82	289.76	369.82	384.55	369.82	401.19	159.46	150.21	83.83	369.82	166.99	152.07	369.82	171.47	194.08	125.89	79.36	184.56
p reaction rate	-	1.83	0.04	6.99	1.20	0.04	2.50	0.04	0.00	0.04	0.00	0.04	0.00	3.57	4.00	1.42	0.04	0.04	0.11	0.04	0.89	2.05	1.80	0.94	2.38
1-rp	-	0.51	0.96	0.31	0.59	0.96	0.46	0.96	1.00	0.96	1.00	0.96	1.00	0.41	0.39	0.56	0.96	0.96	0.91	0.96	0.64	0.50	0.52	0.63	0.47
vlawmo pond volume	acre-ft	0.23	0.00	0.34	0.00	0.00	0.31	0.00	4.85	0.00	10.31	0.00	0.38	0.04	1.29	0.00	0.00	0.72	0.00	0.00	0.23	0.52	0.25	0.00	1.53
LAND USE PARAMETERS.....																								
runoff total P conc	ppb	463.45	0.00	393.88	200.00	0.00	381.70	0.00	500.45	0.00	377.72	0.00	421.90	391.50	399.72	200.00	0.00	369.11	200.00	0.00	226.33	391.50	313.49	200.00	391.50
runoff coefficient		0.28	0.00	0.35	0.08	0.00	0.29	0.00	0.12	0.00	0.21	0.00	0.29	0.21	0.29	0.08	0.00	0.28	0.08	0.00	0.11	0.43	0.33	0.08	0.43
dissolved/total P		0.48	0.00	0.31	0.60	0.00	0.32	0.00	0.60	0.00	0.32	0.00	0.38	0.30	0.40	0.60	0.00	0.34	0.60	0.00	0.56	0.30	0.39	0.60	0.30
runoff TSS conc	ppm	174.50	0.00	142.43	216.00	0.00	144.36	0.00	198.68	0.00	144.85	0.00	154.58	140.00	160.78	216.00	0.00	149.12	216.00	0.00	205.96	140.00	162.32	216.00	140.00
POND TSS BUDGETS.....																								
runoff	lbs/yr	1211.56	0.00	1644.83	1.24	0.00	1513.03	0.00	30710.76	0.00	50425.11	0.00	1872.77	200.21	6484.67	12.41	0.00	3530.07	1.24	0.00	1513.26	2503.95	1265.90	1.24	7377.31
upstream pond	lbs/yr	0.00	0.00	0.00	115.14	0.00	0.00	0.00	33341.65	0.00	0.00	0.00	0.00	0.00	1886.78	586.00	0.00	167.56	3407.10	0.00	0.00	0.00	312.99	9.00	0.00
total inflow	**lbs/yr**	**1211.56**	**0.00**	**1644.83**	**116.38**	**0.00**	**1513.03**	**0.00**	**64052.40**	**0.00**	**50425.11**	**0.00**	**1872.77**	**200.21**	**8371.45**	**598.41**	**0.00**	**3697.63**	**3408.34**	**0.00**	**1513.26**	**2503.95**	**1578.90**	**10.24**	**7377.31**
p removal efficiency (no inf)	%	51.00	5.00	71.00	43.00	5.00	56.00	5.00	0.00	5.00	0.00	5.00	0.00	62.00	63.00	46.00	5.00	4.00	10.00	5.00	37.00	53.00	50.00	38.00	56.00
tss removal efficiency (no inf)	%	83.00	9.82	93.00	68.67	9.82	93.00	9.82	0.00	9.82	0.00	9.82	0.00	93.00	93.00	72.00	9.82	7.86	19.64	9.82	63.00	87.50	81.00	64.00	93.00
net sedimentation	lbs/yr	1005.59	0.00	1529.70	79.91	0.00	1407.11	0.00	0.00	0.00	0.00	0.00	0.00	186.19	7785.45	430.86	0.00	290.53	669.50	0.00	953.35	2190.95	1278.91	6.55	6860.90
outflow	lbs/yr	205.97	0.00	115.14	36.47	0.00	105.91	0.00	64052.40	0.00	50425.11	0.00	1872.77	14.01	586.00	167.56	0.00	3407.10	2738.85	0.00	559.90	312.99	299.99	3.69	516.41
tss removal efficiency (inf)	%	83.00	9.82	93.00	68.67	9.82	93.00	9.82	0.00	9.82	0.00	9.82	0.00	93.00	93.00	72.00	9.82	7.86	19.64	9.82	63.00	87.50	99.43	64.00	93.00
upstream watershed tss load	lbs/yr	1211.56	0.00	1644.83	1646.08	0.00	1513.03	0.00	109882.19	0.00	50425.11	0.00	1872.77	200.21	8557.64	8570.05	0.00	12100.13	12101.37	0.00	1513.26	2503.95	3769.85	3771.09	7377.31
tss total removal efficiency	%	83.00	9.82	93.00	97.78	9.82	93.00	9.82	41.71	9.82	0.00	9.82	0.00	93.00	93.15	98.04	9.82	71.84	77.37	9.82	63.00	87.50	99.76	99.90	93.00
INFILTRATION BMP/POND.....																								
Annual runoff infiltrated	%	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	97.00	0.00	0.00
Adjusted outflow	**ac-ft/yr**	**2.95**	**0.00**	**4.32**	**4.32**	**0.00**	**3.95**	**0.00**	**246.37**	**0.00**	**131.17**	**0.00**	**4.78**	**0.53**	**21.66**	**21.68**	**0.00**	**30.82**	**30.82**	**0.00**	**2.94**	**6.60**	**0.29**	**0.30**	**19.44**
Adjusted TP outflow	**lbs/yr**	**1.72**	**0.00**	**1.44**	**0.85**	**0.00**	**1.94**	**0.00**	**194.03**	**0.00**	**137.10**	**0.00**	**5.21**	**0.23**	**8.84**	**4.94**	**0.00**	**13.99**	**12.74**	**0.00**	**1.37**	**3.48**	**0.10**	**0.06**	**9.75**
Adjusted TSS outflow	**lbs/yr**	**205.97**	**0.00**	**115.14**	**36.47**	**0.00**	**105.91**	**0.00**	**64052.40**	**0.00**	**50425.11**	**0.00**	**1872.77**	**14.01**	**586.00**	**167.56**	**0.00**	**3407.10**	**2738.85**	**0.00**	**559.90**	**312.99**	**9.00**	**3.69**	**516.41**
POND P BUDGETS W/O P-BAN.....																								
runoff	lbs/yr	3.73	0.00	5.28	0.00	0.00	4.72	0.00	82.70	0.00	155.28	0.00	5.92	0.65	18.65	0.01	0.00	10.96	0.00	0.00	2.17	8.07	3.01	0.00	23.78
Adjusted TP outflow	**lbs/yr**	**1.85**	**0.00**	**1.56**	**0.90**	**0.00**	**2.10**	**0.00**	**205.44**	**0.00**	**155.28**	**0.00**	**5.92**	**0.25**	**9.36**	**5.14**	**0.00**	**15.47**	**13.97**	**0.00**	**1.38**	**3.82**	**0.10**	**0.07**	**10.68**
upstream pond	lbs/yr	0.00	0.00	0.00	1.56	0.00	0.00	0.00	122.74	0.00	0.00	0.00	0.00	0.00	6.17	9.36	0.00	5.14	15.47	0.00	0.00	0.00	3.82	0.10	0.00
total inflow	**lbs/yr**	**3.73**	**0.00**	**5.28**	**1.57**	**0.00**	**4.72**	**0.00**	**205.44**	**0.00**	**155.28**	**0.00**	**5.92**	**0.65**	**24.82**	**9.37**	**0.00**	**16.10**	**15.47**	**0.00**	**2.17**	**8.07**	**6.82**	**0.11**	**23.78**
outflow	lbs/yr	1.85	0.00	1.56	0.90	0.00	2.10	0.00	205.44	0.00	155.28	0.00	5.92	0.25	9.36	5.14	0.00	15.47	13.97	0.00	1.38	3.82	3.47	0.07	10.68
inflow phos conc	ppb	465.44	409.24	450.08	133.33	409.24	439.45	409.24	306.80	409.24	435.54	409.24	456.12	450.02	421.63	158.96	409.24	192.21	184.71	409.24	271.06	450.02	255.86	130.73	450.02
outflow phos conc	ppb	230.85	392.86	133.29	76.37	392.86	195.10	392.86	306.80	392.86	435.54	392.86	456.12	173.93	158.92	87.16	392.86	184.71	166.77	392.86	172.42	212.76	130.23	81.31	202.03
p reaction rate	-	2.05	0.04	8.02	1.30	0.04	2.82	0.04	0.00	0.04	0.00	0.04	0.00	4.11	4.39	1.50	0.04	0.04	0.12	0.04	0.90	2.36	1.90	0.98	2.73
1-rp	-	0.50	0.96	0.30	0.57	0.96	0.44	0.96	1.00	0.96	1.00	0.96	1.00	0.39	0.38	0.55	0.96	0.96	0.90	0.96	0.64	0.47	0.51	0.62	0.45
runoff total p conc	ppb	495.39	0.00	450.86	200.00	0.00	428.74	0.00	510.89	0.00	428.14	0.00	469.18	450.00	426.38	200.00	0.00	420.72	200.00	0.00	227.04	450.00	313.49	200.00	450.00

Rochester Loading Assessment																								
Cascade Creek																								
363-06-158-2																								
2020 TP LOADS																								
		cc-a4.2h	**future cc-a4.2d**	**cc-a4.2d**	**future cc-a4.3d**	**cc-a4.3d**	**future cc-a4.3c**	**cc-a4.3c**	**future cc-a4.3b**	**cc-a4.3b**	**future cc-a4.3a**	**cc-a4.3a**	**future cc-a4.4c**	**cc-a4.4c**	**cc-a4.4c cell 2**	**cc-a4.4c cell 3**	**future cc-a4.2e**	**cc-a4.2e**	**future cc-a4.4a**	**cc-a4.4a**	**future cc-a4.4b**	**cc-a4.4b**	**cc-a4.4b cell 2**	**future cc-a4.2k**	**cc-a4.2k**
		cc-a4.2d	cc-a4.2d	cc-a4.4a	cc-a4.3d	cc-a4.3a	cc-a4.3c	cc-a4.3a	cc-a4.3b	cc-a4.3a	cc-a4.3a	cc-a4.4c	cc-a4.4c	cc-a4.4c cell 2	cc-a4.4c cell 3	cc-a4.2e	cc-a4.2e	cc-a4.4a	cc-a4.4a	cc-a4.4b	cc-a4.4b	cc-a4.4b cell 2	cc-a4.2a	cc-a4.2k	cc-a4.2b
INPUT VARIABLES....	UNITS																							
case label	-																							
Watershed area	acres	11.6	0.0	18.8	0.0	7.2	0.0	22.7	2.4	96.4	0.0	120.3	0.0	5.4	0.0	0.0	0.0	15.7	9.5	213.3	0.0	6.3	0.0	0.0	2.6
basin area	acres	0.38	0.00	0.00	0.00	0.01	0.00	0.07	0.04	0.51	0.00	0.69	0.00	0.15	0.37	0.37	0.00	0.00	0.25	7.46	0.00	0.14	2.21	0.00	0.04
basin volume	acre-ft	1.44	0.00	0.00	0.00	0.00	0.00	0.15	0.07	3.29	0.00	2.92	0.00	0.56	1.39	1.37	0.00	0.00	0.63	59.68	0.00	0.50	7.75	0.00	0.09
Row Crop Agriculture		0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	2%	0%	0%	0%	0%	0%
Very Low Density Residential		0%	0%	0%	0%	0%	0%	0%	0%	4%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Low Density Residential		0%	0%	0%	0%	15%	0%	80%	100%	63%	0%	42%	0%	0%	0%	0%	0%	0%	0%	62%	0%	0%	0%	0%	5%
Medium Density Residential		0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	2%	0%	0%	0%	0%	0%	0%	0%	4%	0%	0%	0%	0%	0%
High Density Residential		55%	0%	0%	0%	85%	0%	1%	0%	3%	0%	18%	0%	0%	0%	0%	0%	0%	100%	9%	0%	0%	0%	0%	0%
Commercial/Industrial		20%	0%	0%	0%	0%	0%	0%	0%	0%	0%	8%	0%	0%	0%	0%	0%	0%	0%	10%	0%	0%	0%	0%	50%
Institutional		0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Open Space		16%	0%	99%	0%	0%	0%	19%	0%	29%	0%	26%	0%	100%	100%	100%	0%	40%	0%	5%	0%	75%	100%	0%	19%
Golf Course		0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	1%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Pits and Quarries		0%	0%	1%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	60%	0%	0%	0%	0%	0%	0%	0%
Right-of-Way		10%	0%	0%	0%	0%	0%	0%	0%	0%	0%	3%	0%	0%	0%	0%	0%	0%	0%	8%	0%	25%	0%	0%	26%
WATERSHED-WIDE ACCOUNTING.....																								
tributary land area	ac	28.77	0.00	67.53	0.00	7.17	0.00	22.73	2.40	98.80	0.00	249.01	0.00	254.38	254.39	254.39	0.00	270.07	9.52	560.45	0.00	566.71	566.72	0.00	2.61
tributary water area	ac	0.74	0.00	1.83	0.00	0.01	0.00	0.07	0.04	0.55	0.00	1.32	0.00	1.47	1.84	2.21	0.00	2.21	0.25	11.75	0.00	11.89	14.10	0.00	0.04
direct and ponded area	ac	29.51	0.00	69.36	0.00	7.18	0.00	22.80	2.44	99.35	0.00	250.33	0.00	255.86	256.23	256.60	0.00	272.27	9.77	572.20	0.00	578.60	580.82	0.00	2.65
ASSUMED EXPORT FACTORS.....																								
season length	yrs	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
season precipitation	inches	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80
runoff total p	ppb	353.58	0.00	199.14	0.00	391.50	0.00	354.80	391.50	331.44	0.00	340.23	0.00	200.38	200.00	200.00	0.00	80.74	391.50	380.40	0.00	251.13	200.00	0.00	336.32
runoff ortho p/total p	-	0.35	0.00	0.60	0.00	0.30	0.00	0.36	0.30	0.40	0.00	0.38	0.00	0.60	0.60	0.60	0.00	0.24	0.30	0.31	0.00	0.52	0.60	0.00	0.36
unit runoff	in/yr	11.55	0.00	2.56	0.00	12.57	0.00	5.98	6.74	5.56	0.00	7.57	0.00	2.55	2.54	2.54	0.00	1.03	13.60	8.17	0.00	4.13	2.54	0.00	10.42
unit export	lbs/ac-y	0.98	0.00	0.12	0.00	1.12	0.00	0.51	0.60	0.46	0.00	0.63	0.00	0.12	0.12	0.12	0.00	0.05	1.21	0.71	0.00	0.29	0.12	0.00	0.84
POND WATER BUDGETS.....																								
runoff	ac-ft/yr	11.17	0.00	4.00	0.00	7.51	0.00	11.33	1.35	44.67	0.00	75.89	0.00	1.14	0.00	0.00	0.00	1.34	10.79	145.33	0.00	2.15	0.00	0.00	2.26
upstream pond	ac-ft/yr	19.44	0.00	4.16	0.00	0.00	0.00	0.00	0.00	1.35	0.00	64.85	0.00	140.74	141.88	141.88	0.00	141.88	0.00	162.17	0.00	307.50	309.66	0.00	0.00
total inflow	**ac-ft/yr**	**30.62**	**0.00**	**8.16**	**0.00**	**7.51**	**0.00**	**11.33**	**1.35**	**46.02**	**0.00**	**140.74**	**0.00**	**141.88**	**141.88**	**141.88**	**0.00**	**143.23**	**10.79**	**307.50**	**0.00**	**309.66**	**309.66**	**0.00**	**2.26**
outflow	ac-ft/yr	30.62	0.00	8.16	0.00	7.51	0.00	11.33	1.35	46.02	0.00	140.74	0.00	141.88	141.88	141.88	0.00	143.23	10.79	307.50	0.00	309.66	309.66	0.00	2.26
POND PHOSPHORUS BUDGETS.....																								
runoff	lbs/yr	11.39	0.00	2.20	0.00	7.99	0.00	11.57	1.43	44.16	0.00	76.13	0.00	0.62	0.00	0.00	0.00	0.73	11.48	151.35	0.00	1.80	0.00	0.00	2.19
upstream pond	lbs/yr	9.75	0.00	1.80	0.00	0.00	0.00	0.00	0.00	0.78	0.00	37.09	0.00	75.79	71.72	63.23	0.00	56.51	0.00	66.85	0.00	82.23	82.66	0.00	0.00
total inflow	**lbs/yr**	**21.15**	**0.00**	**4.01**	**0.00**	**7.99**	**0.00**	**11.57**	**1.43**	**44.94**	**0.00**	**113.21**	**0.00**	**76.41**	**71.72**	**63.23**	**0.00**	**57.24**	**11.48**	**218.20**	**0.00**	**84.03**	**82.66**	**0.00**	**2.19**
net sedimentation	lbs/yr	8.88	0.00	0.00	0.00	0.00	0.00	3.48	0.65	23.94	0.00	37.42	0.00	4.70	8.48	6.73	0.00	0.00	5.87	135.98	0.00	1.38	10.90	0.00	0.92
outflow	lbs/yr	12.27	0.00	4.01	0.00	7.99	0.00	8.10	0.78	21.00	0.00	75.79	0.00	71.72	63.23	56.51	0.00	57.24	5.61	82.23	0.00	82.66	71.76	0.00	1.27
p removal efficiency	%	98.26	3.78	0.00	3.78	0.00	3.78	30.05	45.45	53.27	3.78	33.05	3.78	6.15	11.83	10.64	3.78	0.00	51.16	62.32	3.78	1.64	13.18	3.78	42.03
upstream w-shed p load	lbs/yr	32.08	0.00	46.47	0.00	7.99	0.00	11.57	1.43	45.60	0.00	141.29	0.00	141.91	141.91	141.91	0.00	142.64	11.48	351.94	0.00	353.74	353.75	0.00	2.19
total removal %	%	98.85	3.78	91.37	3.78	0.00	3.78	30.05	45.45	53.94	3.78	46.36	3.78	49.46	55.44	60.18	3.78	59.87	51.16	76.64	3.78	76.63	79.71	3.78	42.03
HYDRAULIC PARAMETERS.....																								
pond mean depth	feet	3.79	0.00	1.00	0.00	0.00	0.00	2.14	1.59	6.44	0.00	4.23	0.00	3.74	3.74	3.74	0.00	1.00	2.55	8.00	0.00	3.51	3.51	0.00	2.25
relative volume	inches	4.10	1.58	0.00	1.58	0.00	1.58	0.42	1.56	2.34	1.58	1.22	1.58	15.63	41550.00	41220.00	1.58	0.00	1.87	13.06	1.58	7.41	116220.00	1.58	1.26
residence time	years	0.05	0.05	0.00	0.05	0.00	0.05	0.01	0.05	0.07	0.05	0.02	0.05	0.00	0.01	0.01	0.05	0.00	0.06	0.19	0.05	0.00	0.03	0.05	0.04
residence time	days	17.17	18.08	0.00	18.08	0.00	18.08	4.83	17.86	26.06	18.08	7.57	18.08	1.44	3.56	3.53	18.08	0.00	21.48	70.84	18.08	0.59	9.13	18.08	14.51
overflow rate	ft/yr	80.57	0.00	8159566.63	0.00	750.76	0.00	161.83	32.52	90.23	0.00	203.97	0.00	945.88	383.47	386.61	0.00	143225299.42	43.40	41.22	0.00	2165.43	140.24	0.00	56.59
inflow phos conc	ppb	254.11	384.34	180.76	384.34	391.52	384.34	375.91	391.52	359.34	384.34	295.96	384.34	198.14	185.97	163.97	384.34	147.03	391.52	261.08	384.34	99.84	98.21	384.34	355.17
outflow phos conc	ppb	147.41	369.82	180.76	369.82	391.52	369.82	262.95	213.57	167.91	369.82	198.13	369.82	185.97	163.97	146.53	369.82	147.03	191.23	98.39	369.82	98.21	85.26	369.82	205.90
p reaction rate	-	1.25	0.04	0.00	0.04	0.00	0.04	0.61	1.53	2.44	0.04	0.74	0.04	0.07	0.15	0.13	0.04	0.00	2.14	4.39	0.04	0.02	0.17	0.04	1.25
1-rp	-	0.58	0.96	1.00	0.96	1.00	0.96	0.70	0.55	0.47	0.96	0.67	0.96	0.94	0.88	0.89	0.96	1.00	0.49	0.38	0.96	0.98	0.87	0.96	0.58
vlawmo pond volume	acre-ft	0.88	0.00	0.31	0.00	0.59	0.00	0.89	0.11	3.51	0.00	5.97	0.00	0.09	0.00	0.00	0.00	0.11	0.85	11.43	0.00	0.17	0.00	0.00	0.18
LAND USE PARAMETERS.....																								
runoff total P conc	ppb	353.58	0.00	199.14	0.00	391.50	0.00	354.80	391.50	331.44	0.00	340.23	0.00	200.38	200.00	200.00	0.00	80.74	391.50	380.40	0.00	251.13	200.00	0.00	336.32
runoff coefficient		0.36	0.00	0.08	0.00	0.40	0.00	0.19	0.21	0.17	0.00	0.24	0.00	0.08	0.08	0.08	0.00	0.03	0.43	0.26	0.00	0.13	0.08	0.00	0.33
dissolved/total P		0.35	0.00	0.60	0.00	0.30	0.00	0.36	0.30	0.40	0.00	0.38	0.00	0.60	0.60	0.60	0.00	0.24	0.30	0.31	0.00	0.52	0.60	0.00	0.36
runoff TSS conc	ppm	152.15	0.00	214.30	0.00	140.00	0.00	154.56	140.00	165.65	0.00	160.98	0.00	216.40	216.00	216.00	0.00	87.19	140.00	144.37	0.00	197.04	216.00	0.00	154.45
POND TSS BUDGETS.....																								
runoff	lbs/yr	4319.66	0.00	2329.76	0.00	2848.39	0.00	4488.14	511.28	18399.57	0.00	30255.59	0.00	668.03	0.62	0.62	0.00	785.06	4092.73	55708.33	0.00	1021.56	1.24	0.00	880.51
upstream pond	lbs/yr	516.41	0.00	608.08	0.00	0.00	0.00	0.00	0.00	122.71	0.00	5968.26	0.00	14082.02	12721.92	9473.75	0.00	7241.13	0.00	11373.30	0.00	4695.71	5492.67	0.00	0.00
total inflow	**lbs/yr**	**4836.07**	**0.00**	**2937.85**	**0.00**	**2848.39**	**0.00**	**4488.14**	**511.28**	**18522.28**	**0.00**	**36223.84**	**0.00**	**14750.05**	**12722.54**	**9474.37**	**0.00**	**8026.18**	**4092.73**	**67081.63**	**0.00**	**5717.28**	**5493.91**	**0.00**	**880.51**
p removal efficiency (no inf)	%	44.00	5.00	0.00	5.00	0.00	5.00	33.00	48.00	56.00	5.00	35.00	5.00	7.00	13.00	12.00	5.00	0.00	54.00	64.00	5.00	2.00	14.00	5.00	43.00
tss removal efficiency (no inf)	%	69.33	9.82	0.00	9.82	0.00	9.82	59.38	76.00	93.00	9.82	61.13	9.82	13.75	25.54	23.57	9.82	0.00	90.00	93.00	9.82	3.93	27.50	9.82	68.67
net sedimentation	lbs/yr	3353.01	0.00	0.00	0.00	0.00	0.00	2664.83	388.58	17225.72	0.00	22141.82	0.00	2028.13	3248.79	2233.24	0.00	0.00	3683.45	62385.91	0.00	224.61	1510.83	0.00	604.62
outflow	lbs/yr	1483.06	0.00	2937.85	0.00	2848.39	0.00	1823.31	122.71	1296.56	0.00	14082.02	0.00	12721.92	9473.75	7241.13	0.00	8026.18	409.27	4695.71	0.00	5492.67	3983.09	0.00	275.89
tss removal efficiency (inf)	%	99.08	9.82	0.00	9.82	0.00	9.82	59.38	76.00	93.00	9.82	61.13	9.82	13.75	25.54	23.57	9.82	0.00	90.00	93.00	9.82	3.93	27.50	9.82	68.67
upstream watershed tss load	lbs/yr	11696.97	0.00	19311.08	0.00	2848.39	0.00	4488.14	511.28	18910.85	0.00	56502.97	0.00	57171.00	57171.63	57172.25	0.00	57957.30	4092.73	137069.43	0.00	138091.00	138092.24	0.00	880.51
tss total removal efficiency	%	99.62	9.82	84.79	9.82	0.00	9.82	59.38	76.00	93.14	9.82	75.08	9.82	77.75	83.43	87.33	9.82	86.15	90.00	96.57	9.82	96.02	97.12	9.82	68.67
INFILTRATION BMP/POND.....																								
Annual runoff infiltrated	%	97.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Adjusted outflow	**ac-ft/yr**	**0.92**	**0.00**	**8.16**	**0.00**	**7.51**	**0.00**	**11.33**	**1.35**	**46.02**	**0.00**	**140.74**	**0.00**	**141.88**	**141.88**	**141.88**	**0.00**	**143.23**	**10.79**	**307.50**	**0.00**	**309.66**	**309.66**	**0.00**	**2.26**
Adjusted TP outflow	**lbs/yr**	**0.37**	**0.00**	**4.01**	**0.00**	**7.99**	**0.00**	**8.10**	**0.78**	**21.00**	**0.00**	**75.79**	**0.00**	**71.72**	**63.23**	**56.51**	**0.00**	**57.24**	**5.61**	**82.23**	**0.00**	**82.66**	**71.76**	**0.00**	**1.27**
Adjusted TSS outflow	**lbs/yr**	**44.49**	**0.00**	**2937.85**	**0.00**	**2848.39**	**0.00**	**1823.31**	**122.71**	**1296.56**	**0.00**	**14082.02**	**0.00**	**12721.92**	**9473.75**	**7241.13**	**0.00**	**8026.18**	**409.27**	**4695.71**	**0.00**	**5492.67**	**3983.09**	**0.00**	**275.89**
POND P BUDGETS W/O P-BAN.....																								
runoff	lbs/yr	12.53	0.00	2.21	0.00	9.18	0.00	13.23	1.65	50.27	0.00	84.68	0.00	0.62	0.00	0.00	0.00	0.73	13.19	167.96	0.00	1.80	0.00	0.00	2.20
Adjusted TP outflow	**lbs/yr**	**0.39**	**0.00**	**4.05**	**0.00**	**9.18**	**0.00**	**8.96**	**0.86**	**22.83**	**0.00**	**81.93**	**0.00**	**77.12**	**67.46**	**59.91**	**0.00**	**60.64**	**6.14**	**86.91**	**0.00**	**87.18**	**75.21**	**0.00**	**1.27**
upstream pond	lbs/yr	10.68	0.00	1.84	0.00	0.00	0.00	0.00	0.00	0.86	0.00	40.98	0.00	81.93	77.12	67.46	0.00	59.91	0.00	70.83	0.00	86.91	87.18	0.00	0.00
total inflow	**lbs/yr**	**23.21**	**0.00**	**4.05**	**0.00**	**9.18**	**0.00**	**13.23**	**1.65**	**51.13**	**0.00**	**125.66**	**0.00**	**82.55**	**77.12**	**67.46**	**0.00**	**60.64**	**13.19**	**238.79**	**0.00**	**88.71**	**87.18**	**0.00**	**2.20**
outflow	lbs/yr	13.09	0.00	4.05	0.00	9.18	0.00	8.96	0.86	22.83	0.00	81.93	0.00	77.12	67.46	59.91	0.00	60.64	6.14	86.91	0.00	87.18	75.21	0.00	1.27
inflow phos conc	ppb	278.94	409.24	182.71	409.24	450.02	409.24	429.65	450.02	408.83	409.24	328.48	409.24	214.06	199.98	174.94	409.24	155.76	450.02	285.71	409.24	105.40	103.58	409.24	356.95
outflow phos conc	ppb	157.35	392.86	182.71	392.86	450.02	392.86	291.15	234.85	182.55	392.86	214.17	392.86	199.98	174.94	155.34	392.86	155.76	209.54	103.98	392.86	103.58	89.36	392.86	206.62
p reaction rate	-	1.37	0.04	0.00	0.04	0.00	0.04	0.70	1.76	2.78	0.04	0.82	0.04	0.08	0.16	0.14	0.04	0.00	2.46	4.80	0.04	0.02	0.18	0.04	1.26
1-rp	-	0.56	0.96	1.00	0.96	1.00	0.96	0.68	0.52	0.45	0.96	0.65	0.96	0.93	0.87	0.89	0.96	1.00	0.47	0.36	0.96	0.98	0.86	0.96	0.58
runoff total p conc	ppb	385.55	0.00	199.30	0.00	450.00	0.00	402.09	450.00	372.19	0.00	375.87	0.00	200.38	200.00	200.00	0.00	80.74	450.00	424.65	0.00	251.13	200.00	0.00	339.06

Rochester Loading Assessment																								
Cascade Creek																								
363-06-158-2																								
2020 TP LOADS																								
		future cc-a4.2i	**cc-a4.2i**	**future cc-a4.2l**	**cc-a4.2l**	**future cc-a4.2m**	**cc-a4.2m**	**cc-a4.2m cell 2**	**future cc-a4.2o**	**cc-a4.2o**	**future cc-a4.2p**	**cc-a4.2p**	**future cc-a4.2j**	**cc-a4.2j**	**cc-a4.2j cell 2**	**future cc-a4.2n**	**cc-a4.2n**	**future cc-a4.2b**	**cc-a4.2b**	**future cc-a4.2c**	**cc-a4.2c**	**future cc-a4.2a**	**cc-a4.2a**	**future cc-a4.5**	**cc-a4.5**
		cc-a4.2i	cc-a4.2b	cc-a4.2l	cc-a4.2m	cc-a4.2m	cc-a4.2m cell 2	cc-a4.2n	cc-a4.2o	cc-a4.2n	cc-a4.2p	cc-a4.2n	cc-a4.2j	cc-a4.2j cell 2	cc-a4.2n	cc-a4.2n	cc-a4.2a	cc-a4.2b	cc-a4.2a	cc-a4.2c	cc-a4.2a	cc-a4.2a	cc-a4.5	cc-a4.5	cc-a4.7
INPUT VARIABLES....	UNITS																							
case label	-																							
Watershed area	acres	0.0	13.4	0.0	8.5	0.0	23.8	0.1	0.0	1.3	0.0	4.2	0.0	21.9	0.0	0.0	33.4	0.0	37.8	0.0	36.8	0.0	51.2	0.0	301.8
basin area	acres	0.00	0.03	0.00	0.00	0.00	0.11	0.19	0.00	0.07	0.00	0.16	0.00	0.20	0.26	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
basin volume	acre-ft	0.00	0.06	0.00	0.00	0.00	0.36	0.59	0.00	0.09	0.00	0.54	0.00	0.67	0.86	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Row Crop Agriculture		0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Very Low Density Residential		0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Low Density Residential		0%	94%	0%	57%	0%	85%	0%	0%	0%	0%	0%	0%	96%	0%	0%	11%	0%	50%	0%	0%	0%	0%	0%	37%
Medium Density Residential		0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	6%
High Density Residential		0%	1%	0%	6%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	3%
Commercial/Industrial		0%	0%	0%	14%	0%	0%	0%	0%	100%	0%	0%	0%	0%	0%	0%	46%	0%	0%	0%	0%	0%	0%	0%	16%
Institutional		0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	17%
Open Space		0%	5%	0%	20%	0%	3%	100%	0%	0%	0%	100%	0%	4%	100%	0%	26%	0%	41%	0%	100%	0%	53%	0%	10%
Golf Course		0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Pits and Quarries		0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	1%	0%	0%
Right-of-Way		0%	0%	0%	4%	0%	12%	0%	0%	0%	0%	0%	0%	0%	0%	0%	17%	0%	9%	0%	0%	0%	46%	0%	10%
WATERSHED-WIDE ACCOUNTING.....																								
tributary land area	ac	0.00	13.41	0.00	8.55	0.00	32.31	32.41	0.00	1.32	0.00	4.22	0.00	21.91	21.92	0.00	3477.24	0.00	886.71	0.00	36.84	0.00	6154.93	0.00	6456.70
tributary water area	ac	0.00	0.03	0.00	0.00	0.00	0.11	0.30	0.00	0.07	0.00	0.16	0.00	0.20	0.46	0.00	121.24	0.00	7.89	0.00	0.00	0.00	149.96	0.00	149.96
direct and ponded area	ac	0.00	13.44	0.00	8.55	0.00	32.43	32.71	0.00	1.39	0.00	4.38	0.00	22.11	22.38	0.00	3598.48	0.00	894.60	0.00	36.84	0.00	6304.88	0.00	6606.66
ASSUMED EXPORT FACTORS.....																								
season length	yrs	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
season precipitation	inches	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80
runoff total p	ppb	0.00	382.50	0.00	348.93	0.00	388.20	200.00	0.00	350.00	0.00	200.00	0.00	384.00	200.00	0.00	324.36	0.00	314.64	0.00	200.00	0.00	291.51	0.00	358.78
runoff ortho p/total p	-	0.00	0.31	0.00	0.36	0.00	0.31	0.60	0.00	0.30	0.00	0.60	0.00	0.31	0.60	0.00	0.38	0.00	0.42	0.00	0.60	0.00	0.46	0.00	0.33
unit runoff	in/yr	0.00	6.64	0.00	7.46	0.00	6.91	2.54	0.00	14.56	0.00	2.54	0.00	6.58	2.54	0.00	9.63	0.00	5.23	0.00	2.54	0.00	5.42	0.00	8.72
unit export	lbs/ac-y	0.00	0.58	0.00	0.62	0.00	0.61	0.12	0.00	1.15	0.00	0.12	0.00	0.58	0.12	0.00	0.76	0.00	0.42	0.00	0.12	0.00	0.43	0.00	0.73
POND WATER BUDGETS.....																								
runoff	ac-ft/yr	0.00	7.41	0.00	5.31	0.00	13.69	0.02	0.00	1.60	0.00	0.90	0.00	12.01	0.00	0.00	26.83	0.00	16.49	0.00	7.81	0.00	23.11	0.00	219.23
upstream pond	ac-ft/yr	0.00	0.00	0.00	0.00	0.00	5.31	19.00	0.00	0.00	0.00	0.00	0.00	0.00	12.01	0.00	1279.51	0.00	418.04	0.00	0.00	0.00	2998.43	0.00	3021.54
total inflow	**ac-ft/yr**	**0.00**	**7.41**	**0.00**	**5.31**	**0.00**	**19.00**	**19.03**	**0.00**	**1.60**	**0.00**	**0.90**	**0.00**	**12.01**	**12.01**	**0.00**	**1306.34**	**0.00**	**434.54**	**0.00**	**7.81**	**0.00**	**3021.54**	**0.00**	**3240.77**
outflow	ac-ft/yr	0.00	7.41	0.00	5.31	0.00	19.00	19.03	0.00	1.60	0.00	0.90	0.00	12.01	12.01	0.00	1306.34	0.00	434.54	0.00	7.81	0.00	3021.54	0.00	3240.77
POND PHOSPHORUS BUDGETS.....																								
runoff	lbs/yr	0.00	7.82	0.00	5.32	0.00	14.52	0.01	0.00	1.52	0.00	0.49	0.00	12.68	0.00	0.00	25.57	0.00	15.92	0.00	4.25	0.00	22.00	0.00	218.92
upstream pond	lbs/yr	0.00	0.00	0.00	0.00	0.00	5.32	12.17	0.00	0.00	0.00	0.00	0.00	0.00	6.10	0.00	837.46	0.00	350.93	0.00	0.00	0.00	2013.41	0.00	2035.41
total inflow	**lbs/yr**	**0.00**	**7.82**	**0.00**	**5.32**	**0.00**	**19.84**	**12.18**	**0.00**	**1.52**	**0.00**	**0.49**	**0.00**	**12.68**	**6.10**	**0.00**	**863.03**	**0.00**	**366.84**	**0.00**	**4.25**	**0.00**	**2035.41**	**0.00**	**2254.33**
net sedimentation	lbs/yr	0.00	2.04	0.00	0.00	0.00	7.67	3.16	0.00	0.65	0.00	0.21	0.00	6.58	1.88	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
outflow	lbs/yr	0.00	5.78	0.00	5.32	0.00	12.17	9.02	0.00	0.87	0.00	0.28	0.00	6.10	4.22	0.00	863.03	0.00	366.84	0.00	4.25	0.00	2035.41	0.00	2254.33
p removal efficiency	%	3.78	26.04	3.78	0.00	3.78	38.67	25.95	3.78	42.77	3.78	42.30	3.78	51.91	30.77	3.78	0.00	3.78	0.00	3.78	0.00	3.78	0.00	3.78	0.00
upstream w-shed p load	lbs/yr	0.00	7.82	0.00	5.32	0.00	19.84	19.86	0.00	1.52	0.00	0.49	0.00	12.68	12.69	0.00	1771.39	0.00	466.50	0.00	4.25	0.00	3543.17	0.00	3762.09
total removal %	%	3.78	26.04	3.78	0.00	3.78	38.67	54.57	3.78	42.77	3.78	42.30	3.78	51.91	66.70	3.78	51.28	3.78	21.36	3.78	0.00	3.78	42.55	3.78	40.08
HYDRAULIC PARAMETERS.....																								
pond mean depth	feet	0.00	2.00	0.00	1.00	0.00	3.14	3.13	0.00	1.33	0.00	3.35	0.00	3.31	3.31	0.00	1.00	0.00	1.00	0.00	1.00	0.00	1.00	0.00	1.00
relative volume	inches	1.58	0.26	1.58	0.00	1.58	0.82	877.50	1.58	1.85	1.58	19.04	1.58	1.78	12870.00	1.58	0.00	1.58	0.00	1.58	0.00	1.58	0.00	1.58	0.00
residence time	years	0.05	0.01	0.05	0.00	0.05	0.02	0.03	0.05	0.06	0.05	0.60	0.05	0.06	0.07	0.05	0.00	0.05	0.00	0.05	0.00	0.05	0.00	0.05	0.00
residence time	days	18.08	2.95	18.08	0.00	18.08	6.82	11.22	18.08	21.22	18.08	218.51	18.08	20.42	26.07	18.08	0.00	18.08	0.00	18.08	0.00	18.08	0.00	18.08	0.00
overflow rate	ft/yr	0.00	247.13	0.00	5314439.37	0.00	168.18	101.74	0.00	22.85	0.00	5.60	0.00	59.17	46.38	0.00	1306340043.09	0.00	434539204.04	0.00	7809081.29	0.00	3021535622.61	0.00	3240769361.82
inflow phos conc	ppb	384.34	388.07	384.34	368.29	384.34	384.16	235.56	384.34	350.02	384.34	200.02	384.34	388.55	186.85	384.34	243.06	384.34	310.60	384.34	200.01	384.34	247.84	384.34	255.93
outflow phos conc	ppb	369.82	287.03	369.82	368.28	369.82	235.60	174.44	369.82	200.32	369.82	115.41	369.82	186.85	129.36	369.82	243.06	369.82	310.60	369.82	200.01	369.82	247.84	369.82	255.93
p reaction rate	-	0.04	0.48	0.04	0.00	0.04	1.03	0.47	0.04	1.31	0.04	1.27	0.04	2.24	0.64	0.04	0.00	0.04	0.00	0.04	0.00	0.04	0.00	0.04	0.00
1-rp	-	0.96	0.74	0.96	1.00	0.96	0.61	0.74	0.96	0.57	0.96	0.58	0.96	0.48	0.69	0.96	1.00	0.96	1.00	0.96	1.00	0.96	1.00	0.96	1.00
vlawmo pond volume	acre-ft	0.00	0.58	0.00	0.42	0.00	1.08	0.00	0.00	0.13	0.00	0.07	0.00	0.94	0.00	0.00	2.11	0.00	1.30	0.00	0.61	0.00	1.82	0.00	17.24
LAND USE PARAMETERS.....																								
runoff total P conc	ppb	0.00	382.50	0.00	348.93	0.00	388.20	200.00	0.00	350.00	0.00	200.00	0.00	384.00	200.00	0.00	324.36	0.00	314.64	0.00	200.00	0.00	291.51	0.00	358.78
runoff coefficient		0.00	0.21	0.00	0.23	0.00	0.22	0.08	0.00	0.46	0.00	0.08	0.00	0.21	0.08	0.00	0.30	0.00	0.16	0.00	0.08	0.00	0.17	0.00	0.27
dissolved/total P		0.00	0.31	0.00	0.36	0.00	0.31	0.60	0.00	0.30	0.00	0.60	0.00	0.31	0.60	0.00	0.38	0.00	0.42	0.00	0.60	0.00	0.46	0.00	0.33
runoff TSS conc	ppm	0.00	143.57	0.00	154.82	0.00	142.89	216.00	0.00	140.00	0.00	216.00	0.00	143.11	216.00	0.00	159.56	0.00	170.80	0.00	216.00	0.00	179.32	0.00	147.82
POND TSS BUDGETS.....																								
runoff	lbs/yr	0.00	2840.32	0.00	2089.09	0.00	5225.35	12.41	0.00	606.80	0.00	524.08	0.00	4595.18	1.24	0.00	10554.75	0.00	6927.50	0.00	4571.11	0.00	9949.86	0.00	84533.34
upstream pond	lbs/yr	0.00	0.00	0.00	0.00	0.00	2089.09	2413.76	0.00	0.00	0.00	0.00	0.00	0.00	390.59	0.00	250306.55	0.00	118745.55	0.00	0.00	0.00	624858.22	0.00	634808.08
total inflow	**lbs/yr**	**0.00**	**2840.32**	**0.00**	**2089.09**	**0.00**	**7314.44**	**2426.17**	**0.00**	**606.80**	**0.00**	**524.08**	**0.00**	**4595.18**	**391.83**	**0.00**	**260861.30**	**0.00**	**125673.05**	**0.00**	**4571.11**	**0.00**	**634808.08**	**0.00**	**719341.42**
p removal efficiency (no inf)	%	5.00	29.00	5.00	0.00	5.00	41.00	28.00	5.00	43.00	5.00	43.00	5.00	55.00	33.00	5.00	0.00	5.00	0.00	5.00	0.00	5.00	0.00	5.00	0.00
tss removal efficiency (no inf)	%	9.82	55.88	9.82	0.00	9.82	67.00	55.00	9.82	68.67	9.82	68.67	9.82	91.50	59.38	9.82	0.00	9.82	0.00	9.82	0.00	9.82	0.00	9.82	0.00
net sedimentation	lbs/yr	0.00	1587.03	0.00	0.00	0.00	4900.67	1334.40	0.00	416.67	0.00	359.87	0.00	4204.59	232.65	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
outflow	lbs/yr	0.00	1253.29	0.00	2089.09	0.00	2413.76	1091.78	0.00	190.13	0.00	164.21	0.00	390.59	159.18	0.00	260861.30	0.00	125673.05	0.00	4571.11	0.00	634808.08	0.00	719341.42
tss removal efficiency (inf)	%	9.82	55.88	9.82	0.00	9.82	67.00	55.00	9.82	68.67	9.82	68.67	9.82	91.50	59.38	9.82	0.00	9.82	0.00	9.82	0.00	9.82	0.00	9.82	0.00
upstream watershed tss load	lbs/yr	0.00	2840.32	0.00	2089.09	0.00	7314.44	7326.84	0.00	606.80	0.00	524.08	0.00	4595.18	4596.42	0.00	708100.84	0.00	183057.01	0.00	4571.11	0.00	1410422.70	0.00	1494956.04
tss total removal efficiency	%	9.82	55.88	9.82	0.00	9.82	67.00	85.10	9.82	68.67	9.82	68.67	9.82	91.50	96.54	9.82	63.16	9.82	31.35	9.82	0.00	9.82	54.99	9.82	51.88
INFILTRATION BMP/POND.....																								
Annual runoff infiltrated	%	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Adjusted outflow	**ac-ft/yr**	**0.00**	**7.41**	**0.00**	**5.31**	**0.00**	**19.00**	**19.03**	**0.00**	**1.60**	**0.00**	**0.90**	**0.00**	**12.01**	**12.01**	**0.00**	**1306.34**	**0.00**	**434.54**	**0.00**	**7.81**	**0.00**	**3021.54**	**0.00**	**3240.77**
Adjusted TP outflow	**lbs/yr**	**0.00**	**5.78**	**0.00**	**5.32**	**0.00**	**12.17**	**9.02**	**0.00**	**0.87**	**0.00**	**0.28**	**0.00**	**6.10**	**4.22**	**0.00**	**863.03**	**0.00**	**366.84**	**0.00**	**4.25**	**0.00**	**2035.41**	**0.00**	**2254.33**
Adjusted TSS outflow	**lbs/yr**	**0.00**	**1253.29**	**0.00**	**2089.09**	**0.00**	**2413.76**	**1091.78**	**0.00**	**190.13**	**0.00**	**164.21**	**0.00**	**390.59**	**159.18**	**0.00**	**260861.30**	**0.00**	**125673.05**	**0.00**	**4571.11**	**0.00**	**634808.08**	**0.00**	**719341.42**
POND P BUDGETS W/O P-BAN.....																								
runoff	lbs/yr	0.00	8.98	0.00	5.84	0.00	16.34	0.01	0.00	1.52	0.00	0.49	0.00	14.56	0.00	0.00	25.91	0.00	17.62	0.00	4.25	0.00	22.00	0.00	232.98
Adjusted TP outflow	**lbs/yr**	**0.00**	**6.45**	**0.00**	**5.84**	**0.00**	**13.18**	**9.61**	**0.00**	**0.87**	**0.00**	**0.28**	**0.00**	**6.68**	**4.52**	**0.00**	**890.01**	**0.00**	**400.03**	**0.00**	**4.25**	**0.00**	**2121.23**	**0.00**	**2354.20**
upstream pond	lbs/yr	0.00	0.00	0.00	0.00	0.00	5.84	13.18	0.00	0.00	0.00	0.00	0.00	0.00	6.68	0.00	864.10	0.00	382.42	0.00	0.00	0.00	2099.23	0.00	2121.23
total inflow	**lbs/yr**	**0.00**	**8.98**	**0.00**	**5.84**	**0.00**	**22.18**	**13.19**	**0.00**	**1.52**	**0.00**	**0.49**	**0.00**	**14.56**	**6.68**	**0.00**	**890.01**	**0.00**	**400.03**	**0.00**	**4.25**	**0.00**	**2121.23**	**0.00**	**2354.20**
outflow	lbs/yr	0.00	6.45	0.00	5.84	0.00	13.18	9.61	0.00	0.87	0.00	0.28	0.00	6.68	4.52	0.00	890.01	0.00	400.03	0.00	4.25	0.00	2121.23	0.00	2354.20
inflow phos conc	ppb	409.24	445.52	409.24	404.39	409.24	429.33	255.06	409.24	350.02	409.24	200.03	409.24	446.15	204.51	409.24	250.66	409.24	338.70	409.24	200.01	409.24	258.29	409.24	267.27
outflow phos conc	ppb	392.86	319.96	392.86	404.39	392.86	255.12	185.75	392.86	200.32	392.86	115.41	392.86	204.51	138.56	392.86	250.66	392.86	338.70	392.86	200.01	392.86	258.29	392.86	267.27
p reaction rate	-	0.04	0.55	0.04	0.00	0.04	1.15	0.51	0.04	1.31	0.04	1.27	0.04	2.58	0.70	0.04	0.00	0.04	0.00	0.04	0.00	0.04	0.00	0.04	0.00
1-rp	-	0.96	0.72	0.96	1.00	0.96	0.59	0.73	0.96	0.57	0.96	0.58	0.96	0.46	0.68	0.96	1.00	0.96	1.00	0.96	1.00	0.96	1.00	0.96	1.00
runoff total p conc	ppb	0.00	438.25	0.00	385.49	0.00	438.11	200.00	0.00	350.00	0.00	200.00	0.00	440.19	200.00	0.00	330.98	0.00	344.07	0.00	200.00	0.00	291.51	0.00	385.71

Rochester Loading Assessment							
Cascade Creek							
363-06-158-2							
2020 TP LOADS							
		future cc-a4.7	**cc-a4.7**	**future cc-a4.6**	**cc-a4.6**	**future cc-a4.8**	**cc-a4.8**
		cc-a4.7	cc-a4.8	cc-a4.6	cc-a4.8	cc-a4.8	Zumbro River
INPUT VARIABLES....	UNITS						
case label	-						
Watershed area	acres	0.0	104.4	7.3	234.6	0.0	292.8
basin area	acres	0.00	0.00	0.25	0.00	0.00	0.00
basin volume	acre-ft	0.00	0.00	0.58	0.00	0.00	0.00
Row Crop Agriculture		0%	0%	0%	0%	0%	0%
Very Low Density Residential		0%	0%	0%	0%	0%	0%
Low Density Residential		0%	34%	0%	20%	0%	46%
Medium Density Residential		0%	21%	0%	1%	0%	6%
High Density Residential		0%	8%	0%	3%	0%	2%
Commercial/Industrial		0%	7%	100%	13%	0%	12%
Institutional		0%	7%	0%	29%	0%	6%
Open Space		0%	11%	0%	18%	0%	19%
Golf Course		0%	0%	0%	0%	0%	0%
Pits and Quarries		0%	0%	0%	0%	0%	0%
Right-of-Way		0%	13%	0%	17%	0%	9%
WATERSHED-WIDE ACCOUNTING.....							
tributary land area	ac	0.00	6561.10	7.27	241.91	0.00	7095.80
tributary water area	ac	0.00	149.96	0.25	0.25	0.00	150.21
direct and ponded area	ac	0.00	6711.06	7.52	242.16	0.00	7246.01
ASSUMED EXPORT FACTORS.....							
season length	yrs	1.00	1.00	1.00	1.00	1.00	1.00
season precipitation	inches	31.80	31.80	31.80	31.80	31.80	31.80
runoff total p	ppb	0.00	366.64	350.00	341.81	0.00	349.35
runoff ortho p/total p	-	0.00	0.33	0.30	0.35	0.00	0.36
unit runoff	in/yr	0.00	8.49	14.56	8.42	0.00	7.59
unit export	lbs/ac-y	0.00	0.73	1.15	0.69	0.00	0.63
POND WATER BUDGETS.....							
runoff	ac-ft/yr	0.00	73.85	8.82	164.71	0.00	185.21
upstream pond	ac-ft/yr	0.00	3240.77	0.00	8.82	0.00	3488.14
total inflow	**ac-ft/yr**	**0.00**	**3314.62**	**8.82**	**173.53**	**0.00**	**3673.36**
outflow	ac-ft/yr	0.00	3314.62	8.82	173.53	0.00	3673.36
POND PHOSPHORUS BUDGETS.....							
runoff	lbs/yr	0.00	75.97	8.39	161.08	0.00	185.11
upstream pond	lbs/yr	0.00	2254.33	0.00	4.26	0.00	2495.64
total inflow	**lbs/yr**	**0.00**	**2330.30**	**8.39**	**165.34**	**0.00**	**2680.75**
net sedimentation	lbs/yr	0.00	0.00	4.13	0.00	0.00	0.00
outflow	lbs/yr	0.00	2330.30	4.26	165.34	0.00	2680.75
p removal efficiency	%	3.78	0.00	49.25	0.00	3.78	0.00
upstream w-shed p load	lbs/yr	0.00	3838.06	8.39	169.47	0.00	4192.64
total removal %	%	3.78	39.28	49.25	2.44	3.78	36.06
HYDRAULIC PARAMETERS.....							
pond mean depth	feet	0.00	1.00	2.32	1.00	0.00	1.00
relative volume	inches	1.58	0.00	2.07	0.00	1.58	0.00
residence time	years	0.05	0.00	0.07	0.00	0.05	0.00
residence time	days	18.08	0.00	23.81	0.00	18.08	0.00
overflow rate	ft/yr	0.00	3314618616.44	35.48	173526122.60	0.00	3673358889.40
inflow phos conc	ppb	384.34	258.66	350.02	350.55	384.34	268.50
outflow phos conc	ppb	369.82	258.66	177.64	350.55	369.82	268.50
p reaction rate	-	0.04	0.00	1.91	0.00	0.04	0.00
1-rp	-	0.96	1.00	0.51	1.00	0.96	1.00
vlawmo pond volume	acre-ft	0.00	5.81	0.69	12.95	0.00	14.56
LAND USE PARAMETERS.....							
runoff total P conc	ppb	0.00	366.64	350.00	341.81	0.00	349.35
runoff coefficient		0.00	0.27	0.46	0.26	0.00	0.24
dissolved/total P		0.00	0.33	0.30	0.35	0.00	0.36
runoff TSS conc	ppm	0.00	148.06	140.00	153.45	0.00	154.07
POND TSS BUDGETS.....							
runoff	lbs/yr	0.00	28501.85	3346.48	64302.72	0.00	72636.68
upstream pond	lbs/yr	0.00	719341.42	0.00	635.83	0.00	812781.82
total inflow	**lbs/yr**	**0.00**	**747843.27**	**3346.48**	**64938.55**	**0.00**	**885418.50**
p removal efficiency (no inf)	%	5.00	0.00	50.00	0.00	5.00	0.00
tss removal efficiency (no inf)	%	9.82	0.00	81.00	0.00	9.82	0.00
net sedimentation	lbs/yr	0.00	0.00	2710.65	0.00	0.00	0.00
outflow	lbs/yr	0.00	747843.27	635.83	64938.55	0.00	885418.50
tss removal efficiency (inf)	%	9.82	0.00	81.00	0.00	9.82	0.00
upstream watershed tss load	lbs/yr	0.00	1523457.89	3346.48	67649.20	0.00	1663743.78
tss total removal efficiency	%	9.82	50.91	81.00	4.01	9.82	46.78
INFILTRATION BMP/POND.....							
Annual runoff infiltrated	%	0.00	0.00	0.00	0.00	0.00	0.00
Adjusted outflow	**ac-ft/yr**	**0.00**	**3314.62**	**8.82**	**173.53**	**0.00**	**3673.36**
Adjusted TP outflow	**lbs/yr**	**0.00**	**2330.30**	**4.26**	**165.34**	**0.00**	**2680.75**
Adjusted TSS outflow	**lbs/yr**	**0.00**	**747843.27**	**635.83**	**64938.55**	**0.00**	**885418.50**
POND P BUDGETS W/O P-BAN.....							
runoff	lbs/yr	0.00	83.48	8.39	166.75	0.00	200.42
Adjusted TP outflow	**lbs/yr**	**0.00**	**2437.69**	**4.26**	**171.01**	**0.00**	**2809.12**
upstream pond	lbs/yr	0.00	2354.20	0.00	4.26	0.00	2608.70
total inflow	**lbs/yr**	**0.00**	**2437.69**	**8.39**	**171.01**	**0.00**	**2809.12**
outflow	lbs/yr	0.00	2437.69	4.26	171.01	0.00	2809.12
inflow phos conc	ppb	409.24	270.58	350.02	362.58	409.24	281.36
outflow phos conc	ppb	392.86	270.58	177.64	362.58	392.86	281.36
p reaction rate	-	0.04	0.00	1.91	0.00	0.04	0.00
1-rp	-	0.96	1.00	0.51	1.00	0.96	1.00
runoff total p conc	ppb	0.00	403.39	350.00	355.73	0.00	380.98

Rochester Loading Assessment								
Cascade Creek								
363-06-158-2								
FCR Loading Credit								
		cc-a2.2(C)	**cc-a2.2**	**cc-a2.3(C)**	**cc-a2.3d**	**cc-a2.3c**	**cc-a2.3b**	**cc-a2.3a**
Routed TO:		cc-a2.2	cc-a2.4c	cc-a2.3a	cc-a2.3a	cc-a2.3a	cc-a2.3a	cc-a2.4a
INPUT VARIABLES....	UNITS							
case label	-							
Watershed area	acres	969.0	56.3	2057.5	35.5	39.2	3.1	42.3
basin area	acres	0.00	23.65	0.00	0.00	0.00	0.00	50.30
basin volume	acre-ft	0.00	116.46	0.00	0.00	0.00	0.00	260.76
Row Crop Agriculture		87%	17%	71%	95%	93%	0%	0%
Very Low Density Residential		7%	0%	6%	0%	0%	0%	0%
Low Density Residential		0%	0%	1%	0%	0%	0%	0%
Medium Density Residential		0%	0%	0%	0%	0%	0%	0%
High Density Residential		0%	0%	0%	0%	0%	0%	0%
Commercial/Industrial		0%	0%	0%	0%	0%	0%	0%
Institutional		0%	0%	0%	0%	0%	0%	0%
Open Space		4%	83%	16%	0%	4%	100%	100%
Golf Course		0%	0%	0%	0%	0%	0%	0%
Pits and Quarries		2%	0%	6%	0%	0%	0%	0%
Right-of-Way		0%	0%	0%	5%	3%	0%	0%
WATERSHED-WIDE ACCOUNTING.....								
tributary land area	ac	968.99	1025.30	2057.53	35.49	39.16	3.12	2177.58
tributary water area	ac	0.00	23.65	0.00	0.00	0.00	0.00	50.30
direct and ponded area	ac	968.99	1048.95	2057.53	35.49	39.16	3.12	2227.88
ASSUMED EXPORT FACTORS.....								
season length	yrs	1	1	1	1	1	1	1
season precipitation	inches	31.8	31.8	31.8	31.8	31.8	31.8	31.8
runoff total p	ppb	502.60	259.33	441.46	533.53	521.47	200.01	200.02
runoff ortho p/total p	-	0.23	0.53	0.27	0.20	0.22	0.60	0.60
unit runoff	in/yr	4.19	2.88	3.82	4.65	4.48	2.54	2.54
unit export	lbs/ac-y	0.50	0.19	0.43	0.56	0.53	0.12	0.12
POND WATER BUDGETS.....								
runoff	ac-ft/yr	338.09	13.50	654.19	13.76	14.62	0.66	8.97
upstream pond	ac-ft/yr	0.00	338.09	0.00	0.00	0.00	0.00	683.23
total inflow	**ac-ft/yr**	**338.09**	**351.59**	**654.19**	**13.76**	**14.62**	**0.66**	**692.19**
outflow	ac-ft/yr	338.09	351.59	654.19	13.76	14.62	0.66	692.19
POND PHOSPHORUS BUDGETS.....								
runoff	lbs/yr	479.81	10.71	875.95	19.73	20.84	0.36	4.87
upstream pond	lbs/yr	0.00	479.81	0.00	0.00	0.00	0.00	916.88
total inflow	**lbs/yr**	**479.81**	**490.52**	**875.95**	**19.73**	**20.84**	**0.36**	**921.76**
net sedimentation	lbs/yr	0.00	308.45	0.00	0.00	0.00	0.00	566.29
outflow	lbs/yr	479.81	182.07	875.95	19.73	20.84	0.36	355.46
outflow (irr concen)	lbs/yr	479.81	182.07	875.95	19.73	20.84	0.36	355.46
p removal efficiency	%	0.00	62.88	0.00	0.00	0.00	0.00	61.44
upstream w-shed p load	lbs/yr	479.81	490.52	875.95	19.73	20.84	0.36	921.76
total removal %	%	0.00	62.88	0.00	0.00	0.00	0.00	61.44
HYDRAULIC PARAMETERS.....								
pond mean depth	feet	1.00	4.92	1.00	1.00	1.00	1.00	5.18
relative volume	inches	0.00	274.33	0.00	0.00	0.00	0.00	924.95
residence time	years	0.00	0.33	0.00	0.00	0.00	0.00	0.38
residence time	days	0.00	120.90	0.00	0.00	0.00	0.00	137.50
overflow rate	ft/yr	338091867.24	14.87	654190526.25	13755174.20	14620189.85	660653.29	13.76
inflow phos conc	ppb	522.14	513.29	492.63	527.83	524.48	200.03	489.94
outflow phos conc	ppb	522.14	190.52	492.63	527.82	524.48	200.03	188.94
p reaction rate	-	0.00	4.56	0.00	0.00	0.00	0.00	4.13
1-rp	-	1.00	0.37	1.00	1.00	1.00	1.00	0.39
vlawmo pond volume	acre-ft	26.58	1.06	51.43	1.08	1.15	0.05	0.70
LAND USE PARAMETERS.....								
runoff total P calc	ppb	502.60	259.33	441.46	533.53	521.47	200.01	200.02
runoff coefficient		0.13	0.09	0.12	0.15	0.14	0.08	0.08
dissolved/total P		0.23	0.53	0.27	0.20	0.22	0.60	0.60
runoff TSS conc	ppm	165.78	206.75	165.45	161.94	164.73	216.00	216.00
POND TSS BUDGETS.....								
runoff	lbs/yr	152960.91	7378.82	303170.80	6001.36	6464.43	386.71	5247.64
upstream pond	lbs/yr	0.00	152960.91	0.00	0.00	0.00	0.00	316023.30
total inflow	**lbs/yr**	**152960.91**	**160339.73**	**303170.80**	**6001.36**	**6464.43**	**386.71**	**321270.93**
p removal efficiency (no inf)	%	0.00	63.00	0.00	0.00	0.00	0.00	62.00
tss removal efficiency (no inf)	%	0.00	93.00	0.00	0.00	0.00	0.00	93.00
net sedimentation	lbs/yr	0.00	149115.95	0.00	0.00	0.00	0.00	298781.97
outflow	lbs/yr	152960.91	11223.78	303170.80	6001.36	6464.43	386.71	22488.97
outflow (irr concen)	lbs/yr	152960.91	19056.29	303170.80	6001.36	6464.43	386.71	37516.78
tss removal efficiency (inf)	%	0.00	88.12	0.00	0.00	0.00	0.00	88.32
upstream watershed tss load	lbs/yr	152960.91	160339.73	303170.80	6001.36	6464.43	386.71	321270.93
tss total removal efficiency	%	0.00	88.12	0.00	0.00	0.00	0.00	88.32
INFILTRATION BMP/POND.....								
Annual runoff infiltrated	%	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Adjusted outflow	**ac-ft/yr**	**338.09**	**351.59**	**654.19**	**13.76**	**14.62**	**0.66**	**692.19**
Adjusted TP outflow	**lbs/yr**	**479.81**	**182.07**	**875.95**	**19.73**	**20.84**	**0.36**	**355.46**
Adjusted TSS outflow	**lbs/yr**	**152960.91**	**19056.29**	**303170.80**	**6001.36**	**6464.43**	**386.71**	**37516.78**

		cc-a2.2	cc-a2.3a	Total
		KR-3	KR-7	
	units			
Watershed Area Proportion				
Total Area to FCR	ac	1025.30	2177.58	
Area to FCR outside 2020 bndry	ac	969.0	2057.5	
Area to FCR outside 2020 bndry	%	94.5	94.5	
Net Sedimentation in FCRs				
TP	lb	308.45	566.29	
TSS	lb	149116	298782	
Treatment Credit generated by FCRs				
TP	lb	291.51	535.07	826.58
TSS	lb	140926	282310	423236

Rochester Loading Assessment																					
Zumbro River																					
363-06-158-2																					
Baseline (1988) LOADS																					
		zr-a2.1a	**zr-a2.2**	**zr-a2.1b**	**zr-a2.3**	**zr-a2.6**	**zr-a2.5a**	**zr-a2.5b**	**zr-a2.5e**	**zr-a2.5f**	**zr-a2.5c**	**zr-a2.5d**	**zr-a2.4**	**zr-a1.6**	**zr-a1.4**	**wc-a4.4**	**zr-a1.5**	**zr-a2.7c**	**zr-a2.7b**	**zr-a2.8c**	**zr-a2.8b**	**zr-a1.7e**
Routed TO:		zr-a2.1b	zr-a2.1b	zr-a2.4	zr-a2.4	zr-a2.4	zr-a2.5c	zr-a2.5e	zr-a2.5f	zr-a2.5c	zr-a2.5d	zr-a2.4	zr-a2.7a	zr-a1.5	zr-a1.5	zr-a1.5	zr-a2.7a	zr-a2.7a	zr-a2.7a	zr-a2.7a	zr-a2.7a	zr-a1.7a
INPUT VARIABLES....	UNITS																				
case label	-																				
Watershed area	acres	212.8	18.2	182.5	42.3	26.5	93.6	28.3	53.8	28.6	210.2	105.4	76.7	73.7	39.0	342.5	247.2	11.7	25.6	148.6	3.4	4.3
basin area	acres	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.50	0.00	0.00
basin volume	acre-ft	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	10.00	0.00	0.00
Row Crop Agriculture		81%	61%	10%	0%	2%	96%	94%	67%	1%	20%	0%	0%	61%	23%	69%	45%	100%	70%	2%	0%	88%
Very Low Density Residential		5%	0%	2%	0%	0%	0%	0%	5%	6%	0%	23%	3%	11%	33%	3%	6%	0%	25%	58%	0%	0%
Low Density Residential		0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	4%	0%	2%	0%	0%	0%	0%	0%	28%	6%	0%
Medium Density Residential		0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	1%	0%	1%	0%	0%	0%	0%	0%
High Density Residential		0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Commercial/Industrial		0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Institutional		0%	0%	0%	0%	0%	0%	0%	0%	7%	3%	1%	0%	0%	0%	0%	0%	0%	0%	2%	0%	0%
Open Space		12%	2%	85%	54%	87%	4%	6%	28%	86%	77%	73%	88%	23%	28%	25%	45%	0%	1%	2%	69%	0%
Golf Course		0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Pits and Quarries		0%	0%	0%	18%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Right-of-Way		2%	36%	2%	28%	11%	0%	0%	0%	0%	0%	0%	9%	3%	14%	3%	4%	0%	4%	8%	24%	12%
WATERSHED-WIDE ACCOUNTING.....																					
tributary land area	ac	212.82	18.25	413.59	42.33	26.47	93.58	28.28	82.04	110.68	414.42	519.86	1078.98	73.65	39.03	342.48	1290.76	11.69	25.58	148.61	3.41	4.34
tributary water area	ac	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.50	0.00	0.00
direct and ponded area	ac	212.82	18.25	413.59	42.33	26.47	93.58	28.28	82.04	110.68	414.42	519.86	1078.98	73.65	39.03	342.48	1290.76	11.69	25.58	151.11	3.41	4.34
ASSUMED EXPORT FACTORS.....																					
season length	yrs	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
season precipitation	inches	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8
runoff total p	ppb	486.7384878	481.8068979	241.743449	220.1142784	228.2228315	525.1872307	519.5581673	435.9535214	222.2691575	272.2207456	243.9167867	221.9810209	434.6628843	361.2084912	446.1535546	369.1377585	540.4604256	483.1902188	382.6389448	264.5689433	522.6851884
runoff ortho p/total p	-	0.264550537	0.245260019	0.551418133	0.409981247	0.559842948	0.217426726	0.224049011	0.326194087	0.570105167	0.510946936	0.564615326	0.57094127	0.329709574	0.426365378	0.310545557	0.400869733	0.200172483	0.282741858	0.420044781	0.507938266	0.212503194
unit runoff	in/yr	4.260394071	5.982181682	2.876233557	3.824230596	3.250895711	4.368878232	4.33729851	3.849103141	3.073081859	3.159831635	2.841082299	3.095776579	4.046874051	4.119026578	4.084544902	3.685687868	4.45583221	4.262174129	4.637510951	4.325207663	4.990882968
unit export	lbs/ac-y	0.48	0.63	0.18	0.28	0.20	0.53	0.52	0.41	0.17	0.22	0.17	0.18	0.42	0.36	0.44	0.34	0.55	0.48	0.42	0.32	0.58
POND WATER BUDGETS.....																					
runoff	ac-ft/yr	75.56	9.10	43.75	13.49	7.17	34.07	10.22	17.25	7.33	55.34	24.96	19.80	24.84	13.40	116.57	75.93	4.34	9.09	57.43	1.23	1.81
upstream pond	ac-ft/yr	0.00	0.00	84.66	0.00	0.00	0.00	0.00	10.22	27.47	68.87	124.21	298.24	0.00	0.00	0.00	381.68	0.00	0.00	0.00	0.00	0.00
total inflow	**ac-ft/yr**	**75.56**	**9.10**	**128.40**	**13.49**	**7.17**	**34.07**	**10.22**	**27.47**	**34.80**	**124.21**	**149.17**	**318.03**	**24.84**	**13.40**	**116.57**	**457.60**	**4.34**	**9.09**	**57.43**	**1.23**	**1.81**
outflow	ac-ft/yr	75.56	9.10	128.40	13.49	7.17	34.07	10.22	27.47	34.80	124.21	149.17	318.03	24.84	13.40	116.57	457.60	4.34	9.09	57.43	1.23	1.81
POND PHOSPHORUS BUDGETS.....																					
runoff	lbs/yr	103.16	11.43	31.99	12.01	5.21	49.21	14.67	22.04	4.89	46.64	17.66	13.64	31.22	14.23	150.12	85.06	6.37	12.15	62.45	1.08	2.50
upstream pond	lbs/yr	0.00	0.00	114.58	0.00	0.00	0.00	0.00	14.67	36.70	90.80	137.44	318.90	0.00	0.00	0.00	469.10	0.00	0.00	0.00	0.00	0.00
total inflow	**lbs/yr**	**103.16**	**11.43**	**146.58**	**12.01**	**5.21**	**49.21**	**14.67**	**36.70**	**41.59**	**137.44**	**155.10**	**332.54**	**31.22**	**14.23**	**150.12**	**554.15**	**6.37**	**12.15**	**62.45**	**1.08**	**2.50**
net sedimentation	lbs/yr	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	35.97	0.00	0.00
outflow	lbs/yr	103.16	11.43	146.57	12.01	5.21	49.21	14.67	36.70	41.59	137.44	155.10	332.53	31.22	14.23	150.12	554.15	6.37	12.15	26.48	1.08	2.50
p removal efficiency	%	0.00	0.01	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.03	0.01	57.60	0.03	0.07
upstream w-shed p load	lbs/yr	103.16	11.43	146.58	12.01	5.21	49.21	14.67	36.71	41.60	137.45	155.11	332.55	31.22	14.23	150.12	554.17	6.37	12.15	62.45	1.08	2.50
total removal %	%	0.00	0.01	0.00	0.00	0.00	0.00	0.01	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.03	0.01	57.60	0.03	0.07
HYDRAULIC PARAMETERS.....																					
pond mean depth	feet	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	4.00	1.00	1.00
relative volume	inches	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.54	0.00	0.00
residence time	years	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.17	0.00	0.00
residence time	days	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	63.55	0.00	0.00
overflow rate	ft/yr	7555953.38	909693.92	12840328.31	1348968.02	717203.94	3407036.56	1022015.36	2746544.44	3480014.04	12420918.25	14917189.52	31803311.99	2483872.14	1339784.10	11657157.38	45760493.48	434001.77	908626.97	22.97	122982.95	180673.71
inflow phos conc	ppb	502.29	462.15	419.99	327.61	267.22	531.40	528.04	491.68	439.74	407.11	382.54	384.69	462.46	390.66	473.79	445.54	540.03	492.17	400.06	323.46	509.38
outflow phos conc	ppb	502.29	462.10	419.98	327.60	267.21	531.38	527.97	491.66	439.74	407.11	382.54	384.69	462.44	390.65	473.79	445.54	539.84	492.12	169.64	323.37	509.01
p reaction rate	-	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.20	0.00	0.00
1-rp	-	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.42	1.00	1.00
vlawmo pond volume	acre-ft	5.94	0.72	3.44	1.06	0.56	2.68	0.80	1.36	0.58	4.35	1.96	1.56	1.95	1.05	9.16	5.97	0.34	0.71	4.52	0.10	0.14
LAND USE PARAMETERS.....																					
runoff total P conc	ppb	486.74	481.81	241.74	220.11	228.22	525.19	519.56	435.95	222.27	272.22	243.92	221.98	434.66	361.21	446.15	369.14	540.46	483.19	382.64	264.57	522.69
runoff coefficient		0.13	0.19	0.09	0.12	0.10	0.14	0.14	0.12	0.10	0.10	0.09	0.10	0.13	0.13	0.13	0.12	0.14	0.13	0.15	0.14	0.16
dissolved/total P		0.26	0.25	0.55	0.41	0.56	0.22	0.22	0.33	0.57	0.51	0.56	0.57	0.33	0.43	0.31	0.40	0.20	0.28	0.42	0.51	0.21
runoff TSS conc	ppm	171.26	155.86	209.12	156.49	206.78	165.31	166.19	180.38	210.40	203.00	212.78	209.43	179.64	191.73	176.83	188.48	163.14	175.60	186.22	192.68	160.17
POND TSS BUDGETS.....																					
runoff	lbs/yr	34268.22	3729.06	24059.51	6123.82	3742.04	15174.04	4566.31	8166.83	3956.68	29014.11	14057.88	10589.59	11604.06	6430.52	53896.25	36955.46	1917.11	4194.53	26413.50	569.86	773.44
upstream pond	lbs/yr	0.00	0.00	37997.29	0.00	0.00	0.00	0.00	4566.31	12733.14	31863.86	60877.97	146858.51	0.00	0.00	0.00	173916.53	0.00	0.00	0.00	0.00	0.00
total inflow	**lbs/yr**	**34268.22**	**3729.06**	**62056.80**	**6123.82**	**3742.04**	**15174.04**	**4566.31**	**12733.14**	**16689.82**	**60877.97**	**74935.86**	**157448.10**	**11604.06**	**6430.52**	**53896.25**	**210871.99**	**1917.11**	**4194.53**	**26413.50**	**569.86**	**773.44**
p removal efficiency (no inf)	%	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	58.00	0.00	0.00
tss removal efficiency (no inf)	%	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	93.00	0.00	0.00
net sedimentation	lbs/yr	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	24564.55	0.00	0.00
outflow	lbs/yr	34268.22	3729.06	62056.80	6123.82	3742.04	15174.04	4566.31	12733.14	16689.82	60877.97	74935.86	157448.10	11604.06	6430.52	53896.25	210871.99	1917.11	4194.53	1848.94	569.86	773.44
tss removal efficiency (inf)		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	93.00	0.00	0.00
upstream watershed tss load	lbs/yr	34268.22	3729.06	62056.80	6123.82	3742.04	15174.04	4566.31	12733.14	16689.82	60877.97	74935.86	157448.10	11604.06	6430.52	53896.25	210871.99	1917.11	4194.53	26413.50	569.86	773.44
tss total removal efficiency	%	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	93.00	0.00	0.00
INFILTRATION BMP/POND.....																					
Annual runoff infiltrated	%	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Adjusted outflow	**ac-ft/yr**	**75.56**	**9.10**	**128.40**	**13.49**	**7.17**	**34.07**	**10.22**	**27.47**	**34.80**	**124.21**	**149.17**	**318.03**	**24.84**	**13.40**	**116.57**	**457.60**	**4.34**	**9.09**	**57.43**	**1.23**	**1.81**
Adjusted TP outflow	**lbs/yr**	**103.16**	**11.43**	**146.57**	**12.01**	**5.21**	**49.21**	**14.67**	**36.70**	**41.59**	**137.44**	**155.10**	**332.53**	**31.22**	**14.23**	**150.12**	**554.15**	**6.37**	**12.15**	**26.48**	**1.08**	**2.50**
Adjusted TSS outflow	**lbs/yr**	**34268.22**	**3729.06**	**62056.80**	**6123.82**	**3742.04**	**15174.04**	**4566.31**	**12733.14**	**16689.82**	**60877.97**	**74935.86**	**157448.10**	**11604.06**	**6430.52**	**53896.25**	**210871.99**	**1917.11**	**4194.53**	**1848.94**	**569.86**	**773.44**

Rochester Loading Assessment																					
Zumbro River																					
363-06-158-2																					
Baseline (1988) LOADS																					
		zr-a1.7d	**zr-a1.7a**	**zr-a1.7b**	**zr-a1.7c**	**zr-a1.8d**	**zr-a1.8c**	**zr-a1.8b**	**zr-a1.8a**	**zr-a1.9b**	**zr-a1.9a**	**zr-a1.10b**	**zr-a1.10a**	**zr-a2.7a**	**zr-a3.1d**	**zr-a3.2b**	**zr-a3.2a**	**zr-a3.1c**	**zr-a2.8a**	**zr-a3.1b**	**zr-a3.5a**	**zr-a3.5b**
Routed TO:		zr-a1.7a	zr-a1.7b	zr-a1.7c	zr-a1.5	zr-a1.8a	zr-a1.8b	zr-a1.8a	zr-a1.5	zr-a1.8a	zr-a3.2a	zr-a1.10a	zr-a2.7a	zr-a3.1a	zr-a3.1a	zr-a3.2a	zr-a3.1c	zr-a3.1a	zr-a3.1b	zr-a3.1a	zr-a3.5b	zr-a3.1a
INPUT VARIABLES....	UNITS																				
case label	-																				
Watershed area	acres	2.0	165.2	72.7	80.5	131.9	2.8	16.2	84.9	27.8	36.2	5.8	59.9	101.5	23.8	22.9	67.8	1.4	26.2	3.7	162.8	213.1
basin area	acres	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
basin volume	acre-ft	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Row Crop Agriculture		100%	45%	57%	26%	13%	100%	31%	27%	78%	1%	2%	11%	20%	0%	0%	0%	0%	94%	100%	14%	8%
Very Low Density Residential		0%	42%	37%	49%	0%	0%	23%	36%	9%	79%	0%	0%	13%	0%	1%	20%	0%	0%	0%	27%	42%
Low Density Residential		0%	4%	3%	14%	58%	0%	7%	15%	5%	6%	0%	2%	6%	0%	4%	26%	0%	0%	0%	12%	25%
Medium Density Residential		0%	1%	0%	8%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	3%	0%	0%	0%	0%	0%
High Density Residential		0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	44%	5%	0%	78%	0%	0%	0%	0%	0%	0%	0%
Commercial/Industrial		0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Institutional		0%	0%	0%	0%	0%	0%	0%	8%	0%	0%	0%	0%	26%	0%	0%	0%	0%	0%	0%	0%	1%
Open Space		0%	7%	0%	0%	27%	0%	25%	0%	0%	0%	13%	47%	28%	16%	95%	37%	0%	0%	0%	43%	19%
Golf Course		0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Pits and Quarries		0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	30%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Right-of-Way		0%	1%	3%	3%	3%	0%	15%	15%	8%	14%	41%	6%	7%	6%	0%	14%	100%	6%	0%	5%	5%
WATERSHED-WIDE ACCOUNTING.....																						
tributary land area	ac	1.95	171.46	244.15	324.64	131.93	2.84	19.06	263.76	27.85	36.21	5.81	65.73	2726.23	23.84	22.92	126.89	128.26	26.16	29.81	162.82	375.96
tributary water area	ac	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.50	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
direct and ponded area	ac	1.95	171.46	244.15	324.64	131.93	2.84	19.06	263.76	27.85	36.21	5.81	65.73	2728.73	23.84	22.92	126.89	128.26	26.16	29.81	162.82	375.96
ASSUMED EXPORT FACTORS.....																						
season length	yrs	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
season precipitation	inches	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8
runoff total p	ppb	539.9905327	429.8818428	463.423583	422.6426842	393.6059829	539.9934793	385.9416945	422.7287794	507.1640751	364.85946	398.9836555	207.7777611	356.4446937	407.1841061	212.4924268	330.3615787	399.9977374	531.5468454	539.994933	325.7498846	365.5880327
runoff ortho p/total p	-	0.200008188	0.360445503	0.316488574	0.372374769	0.367246249	0.20000564	0.388611855	0.344093599	0.240482212	0.457112014	0.336518671	0.340155615	0.389534597	0.347634549	0.585773116	0.450688297	0.300003649	0.206151052	0.200004382	0.468929013	0.431590336
unit runoff	in/yr	4.452138815	3.903985914	4.090330384	4.58765851	5.391072472	4.452095611	4.435129151	5.325658513	4.761850572	3.989299155	10.02055581	3.016370381	5.529025114	11.54005111	2.73395295	4.81444778	8.770291274	4.707691683	4.452074295	3.715645717	4.324220321
unit export	lbs/ac-y	0.54	0.40	0.44	0.45	0.52	0.54	0.41	0.51	0.54	0.34	0.96	0.24	0.47	1.15	0.14	0.41	0.79	0.56	0.54	0.31	0.39
POND WATER BUDGETS.....																						
runoff	ac-ft/yr	0.72	53.73	24.78	30.77	59.27	1.05	5.99	37.69	11.05	12.04	4.85	15.06	46.75	22.93	5.22	27.19	1.00	10.26	1.35	50.42	76.81
upstream pond	ac-ft/yr	0.00	2.53	56.26	81.04	0.00	0.00	1.05	77.37	0.00	0.00	0.00	4.85	867.64	0.00	0.00	17.26	44.45	0.00	10.26	0.00	50.42
total inflow	**ac-ft/yr**	**0.72**	**56.26**	**81.04**	**111.81**	**59.27**	**1.05**	**7.05**	**115.06**	**11.05**	**12.04**	**4.85**	**19.91**	**914.39**	**22.93**	**5.22**	**44.45**	**45.45**	**10.26**	**11.62**	**50.42**	**127.22**
outflow	ac-ft/yr	0.72	56.26	81.04	111.81	59.27	1.05	7.05	115.06	11.05	12.04	4.85	19.91	914.39	22.93	5.22	44.45	45.45	10.26	11.62	50.42	127.22
POND PHOSPHORUS BUDGETS.....																						
runoff	lbs/yr	1.06	65.89	32.10	36.61	68.62	1.54	6.72	43.40	15.10	12.35	5.60	14.66	47.65	27.35	3.25	27.75	1.09	14.63	1.99	49.88	82.44
upstream pond	lbs/yr	0.00	3.56	69.45	101.55	0.00	0.00	1.54	91.98	0.00	0.00	0.00	5.60	953.02	0.00	0.00	15.59	43.34	0.00	14.63	0.00	49.88
total inflow	**lbs/yr**	**1.06**	**69.45**	**101.55**	**138.15**	**68.62**	**1.54**	**8.27**	**135.38**	**15.10**	**12.35**	**5.60**	**20.25**	**1000.67**	**27.35**	**3.25**	**43.35**	**44.43**	**14.63**	**16.62**	**49.88**	**132.32**
net sedimentation	lbs/yr	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
outflow	lbs/yr	1.06	69.45	101.55	138.15	68.62	1.54	8.27	135.38	15.10	12.35	5.60	20.25	1000.67	27.35	3.25	43.34	44.43	14.63	16.61	49.88	132.32
p removal efficiency	%	0.21	0.00	0.00	0.00	0.00	0.14	0.01	0.00	0.01	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.00	0.00
upstream w-shed p load	lbs/yr	1.06	69.45	101.55	138.16	68.62	1.54	8.27	135.39	15.10	12.35	5.60	20.25	1036.68	27.35	3.25	43.35	44.43	14.63	16.62	49.88	132.32
total removal %	%	0.21	0.01	0.01	0.00	0.00	0.14	0.04	0.00	0.01	0.00	0.01	0.01	3.47	0.00	0.00	0.00	0.00	0.01	0.02	0.00	0.00
HYDRAULIC PARAMETERS.....																						
pond mean depth	feet	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
relative volume	inches	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
residence time	years	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
residence time	days	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
overflow rate	ft/yr	72499.37	5626263.05	8104289.84	11181387.24	5927037.17	105258.67	704705.55	11505743.36	1105029.89	1203640.04	485000.75	1991100.87	91438929.76	2293015.85	522255.18	4444656.01	4544790.81	1026279.93	1161738.00	5041544.79	12722118.26
inflow phos conc	ppb	540.02	454.15	461.00	454.58	425.93	540.02	431.61	432.91	502.88	377.37	424.52	374.23	402.64	438.90	228.85	358.80	359.70	524.44	526.19	364.01	382.68
outflow phos conc	ppb	538.90	454.14	461.00	454.58	425.93	539.25	431.57	432.91	502.83	377.35	424.45	374.22	402.63	438.89	228.84	358.80	359.70	524.37	526.13	364.01	382.67
p reaction rate	-	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1-rp	-	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
vlawmo pond volume	acre-ft	0.06	4.22	1.95	2.42	4.66	0.08	0.47	2.96	0.87	0.95	0.38	1.18	3.68	1.80	0.41	2.14	0.08	0.81	0.11	3.96	6.04
LAND USE PARAMETERS.....																						
runoff total P conc	ppb	539.99	429.88	463.42	422.64	393.61	539.99	385.94	422.73	507.16	364.86	398.98	207.78	356.44	407.18	212.49	330.36	400.00	531.55	539.99	325.75	365.59
runoff coefficient		0.14	0.12	0.13	0.14	0.17	0.14	0.14	0.17	0.15	0.13	0.32	0.09	0.17	0.36	0.09	0.15	0.28	0.15	0.14	0.12	0.14
dissolved/total P		0.20	0.36	0.32	0.37	0.37	0.20	0.39	0.34	0.24	0.46	0.34	0.34	0.39	0.35	0.59	0.45	0.30	0.21	0.20	0.47	0.43
runoff TSS conc	ppm	163.00	187.52	181.27	183.48	163.17	163.00	183.24	172.95	164.97	200.59	150.13	136.63	175.71	152.07	212.64	183.19	140.00	161.67	163.00	196.19	187.94
POND TSS BUDGETS.....																						
runoff	lbs/yr	320.25	26142.67	11739.75	14190.70	24408.94	464.96	2754.81	16363.66	4826.53	6049.45	1874.92	7086.06	20120.87	8865.01	2939.70	12096.71	379.91	4463.19	598.36	24931.41	35850.64
upstream pond	lbs/yr	0.00	1093.69	27236.36	38976.11	0.00	0.00	464.96	32455.23	0.00	0.00	0.00	1874.92	385811.52	0.00	0.00	8989.15	21085.86	0.00	4463.19	0.00	24931.41
total inflow	**lbs/yr**	**320.25**	**27236.36**	**38976.11**	**53166.81**	**24408.94**	**464.96**	**3219.76**	**48818.89**	**4826.53**	**6049.45**	**1874.92**	**8960.98**	**405932.39**	**8865.01**	**2939.70**	**21085.86**	**21465.77**	**4463.19**	**5061.54**	**24931.41**	**60782.05**
p removal efficiency (no inf)	%	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
tss removal efficiency (no inf)	%	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
net sedimentation	lbs/yr	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
outflow	lbs/yr	320.25	27236.36	38976.11	53166.81	24408.94	464.96	3219.76	48818.89	4826.53	6049.45	1874.92	8960.98	405932.39	8865.01	2939.70	21085.86	21465.77	4463.19	5061.54	24931.41	60782.05
tss removal efficiency (inf)		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
upstream watershed tss load	lbs/yr	320.25	27236.36	38976.11	53166.81	24408.94	464.96	3219.76	48818.89	4826.53	6049.45	1874.92	8960.98	430496.94	8865.01	2939.70	21085.86	21465.77	4463.19	5061.54	24931.41	60782.05
tss total removal efficiency	%	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.71	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
INFILTRATION BMP/POND.....																						
Annual runoff infiltrated	%	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Adjusted outflow	**ac-ft/yr**	**0.72**	**56.26**	**81.04**	**111.81**	**59.27**	**1.05**	**7.05**	**115.06**	**11.05**	**12.04**	**4.85**	**19.91**	**914.39**	**22.93**	**5.22**	**44.45**	**45.45**	**10.26**	**11.62**	**50.42**	**127.22**
Adjusted TP outflow	**lbs/yr**	**1.06**	**69.45**	**101.55**	**138.15**	**68.62**	**1.54**	**8.27**	**135.38**	**15.10**	**12.35**	**5.60**	**20.25**	**1000.67**	**27.35**	**3.25**	**43.34**	**44.43**	**14.63**	**16.61**	**49.88**	**132.32**
Adjusted TSS outflow	**lbs/yr**	**320.25**	**27236.36**	**38976.11**	**53166.81**	**24408.94**	**464.96**	**3219.76**	**48818.89**	**4826.53**	**6049.45**	**1874.92**	**8960.98**	**405932.39**	**8865.01**	**2939.70**	**21085.86**	**21465.77**	**4463.19**	**5061.54**	**24931.41**	**60782.05**

Rochester Loading Assessment																					
Zumbro River																					
363-06-158-2																					
Baseline (1988) LOADS																					
		zr-a3.6a	**zr-a3.1a**	**zr-a3.3h**	**zr-a3.3g**	**zr-a3.3f**	**zr-a3.3e**	**zr-a3.3i**	**zr-a3.3d**	**zr-a3.3c**	**zr-a3.3j**	**zr-a3.3b**	**zr-a3.3a**	**zr-a3.8d**	**zr-a3.8c**	**zr-a3.8f**	**zr-a3.8e**	**zr-a3.8b**	**zr-a3.6b**	**zr-a3.7**	**zr-a3.8g**	**zr-a3.8i**
Routed TO:		zr-a3.1a	zr-a3.8a	zr-a3.3g	zr-a3.3e	zr-a3.3e	zr-a3.3d	zr-a3.3d	zr-a3.3c	zr-a3.3b	zr-a3.3b	zr-a3.3a	zr-a3.8d	zr-a3.8c	zr-a3.8b	zr-a3.8e	zr-a3.8b	zr-a3.8a	zr-a3.8a	zr-a3.8a	zr-a3.8a	zr-a3.8a
INPUT VARIABLES....	UNITS																					
case label	-																					
Watershed area	acres	56.2	79.0	2.7	14.0	9.3	42.7	42.7	60.0	24.4	1.0	4.9	27.6	18.7	7.0	29.7	53.6	7.5	46.5	82.4	4.8	6.5
basin area	acres	0.00	0.00	0.00	0.00	0.03	0.26	0.00	0.00	0.00	0.00	0.00	0.27	0.00	0.00	0.00	0.00	0.00	0.00	0.75	0.00	0.11
basin volume	acre-ft	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.00	0.00	0.13
Row Crop Agriculture		4%	20%	17%	1%	0%	0%	25%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Very Low Density Residential		16%	0%	83%	26%	39%	0%	0%	0%	0%	0%	0%	13%	0%	0%	0%	0%	0%	19%	13%	0%	13%
Low Density Residential		10%	0%	0%	0%	7%	79%	3%	23%	11%	0%	0%	32%	0%	0%	34%	0%	0%	38%	32%	0%	45%
Medium Density Residential		0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
High Density Residential		0%	10%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	18%	0%	0%	0%	2%	42%
Commercial/Industrial		0%	0%	0%	0%	0%	0%	0%	0%	0%	72%	26%	15%	66%	0%	26%	21%	0%	0%	0%	28%	0%
Institutional		0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	12%	0%	0%	43%	0%	0%
Open Space		45%	58%	0%	74%	53%	21%	72%	77%	89%	1%	20%	22%	0%	0%	18%	15%	0%	14%	9%	70%	0%
Golf Course		0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Pits and Quarries		0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Right-of-Way		25%	11%	0%	0%	0%	0%	0%	0%	0%	28%	54%	19%	34%	100%	22%	34%	100%	30%	3%	0%	0%
WATERSHED-WIDE ACCOUNTING.....																						
tributary land area	ac	56.24	3419.33	2.71	16.75	9.26	68.66	42.73	171.40	195.77	1.02	201.70	229.31	248.04	255.02	29.74	83.31	345.79	46.49	82.39	4.85	6.53
tributary water area	ac	0.00	2.50	0.00	0.00	0.03	0.29	0.00	0.29	0.29	0.00	0.29	0.56	0.56	0.56	0.00	0.00	0.56	0.00	0.75	0.00	0.11
direct and ponded area	ac	56.24	3421.83	2.71	16.75	9.29	68.95	42.73	171.69	196.06	1.02	201.99	229.87	248.60	255.58	29.74	83.31	346.35	46.49	83.14	4.85	6.64
ASSUMED EXPORT FACTORS.....																						
season length	yrs	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
season precipitation	inches	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8
runoff total p	ppb	313.0452507	317.0554926	381.6658002	241.4000205	277.3429187	396.9501307	292.2468203	256.4852653	227.6132367	362.4531533	347.7918519	358.57638	366.906956	399.9995563	366.9581709	361.8037723	399.9995842	382.2864487	370.2766323	247.0307754	437.2806145
runoff ortho p/total p	-	0.462296238	0.454319982	0.449996497	0.570830674	0.538582487	0.363659718	0.491268959	0.532217593	0.566824531	0.302659239	0.358509226	0.391450658	0.300000267	0.300000716	0.355106714	0.3456059	0.300000671	0.37844762	0.353186105	0.509613131	0.325436902
unit runoff	in/yr	4.677028471	4.734176755	3.225196163	2.672600753	3.025392288	5.852503694	3.159253857	3.492879946	3.009753172	12.85836584	9.085075089	6.867303772	12.6031007	8.770410836	8.462604203	10.02194256	8.770412671	6.069239035	7.211637787	6.146807852	9.148725178
unit export	lbs/ac-y	0.38	0.41	0.29	0.15	0.21	0.57	0.24	0.24	0.18	1.05	0.76	0.59	1.03	0.79	0.73	0.87	0.79	0.56	0.62	0.43	0.92
POND WATER BUDGETS.....																						
runoff	ac-ft/yr	21.92	31.16	0.73	3.13	2.33	20.80	11.25	17.47	6.11	1.09	3.72	15.80	19.67	5.11	20.97	44.74	5.45	23.51	49.51	2.48	4.98
upstream pond	ac-ft/yr	0.00	1143.52	0.00	0.73	0.00	6.19	0.00	38.24	55.71	0.00	62.91	66.63	82.43	102.10	0.00	20.97	172.92	0.00	0.00	0.00	0.00
total inflow	**ac-ft/yr**	**21.92**	**1174.68**	**0.73**	**3.85**	**2.33**	**26.99**	**11.25**	**55.71**	**61.82**	**1.09**	**66.63**	**82.43**	**102.10**	**107.21**	**20.97**	**65.71**	**178.37**	**23.51**	**49.51**	**2.48**	**4.98**
outflow	ac-ft/yr	21.92	1174.68	0.73	3.85	2.33	26.99	11.25	55.71	61.82	1.09	66.63	82.43	102.10	107.21	20.97	65.71	178.37	23.51	49.51	2.48	4.98
POND PHOSPHORUS BUDGETS.....																						
runoff	lbs/yr	21.38	32.05	0.78	2.11	1.90	24.14	10.29	14.67	4.35	1.06	3.72	16.37	19.34	5.55	21.65	46.56	5.92	25.88	50.75	2.10	6.03
upstream pond	lbs/yr	0.00	1242.78	0.00	0.78	0.00	4.78	0.00	39.21	53.88	0.00	59.30	63.02	79.39	98.73	0.00	21.65	172.49	0.00	0.00	0.00	0.00
total inflow	**lbs/yr**	**21.38**	**1274.83**	**0.78**	**2.89**	**1.90**	**28.93**	**10.29**	**53.88**	**58.24**	**1.06**	**63.02**	**79.39**	**98.73**	**104.28**	**21.65**	**68.21**	**178.42**	**25.88**	**50.75**	**2.10**	**6.03**
net sedimentation	lbs/yr	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	26.11	0.00	2.32
outflow	lbs/yr	21.38	1274.83	0.78	2.89	1.90	28.93	10.28	53.88	58.23	1.06	63.02	79.39	98.73	104.28	21.65	68.21	178.41	25.88	24.64	2.10	3.71
p removal efficiency	%	0.00	0.00	0.07	0.01	0.01	0.00	0.00	0.00	0.00	0.06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	51.44	0.01	38.54
upstream w-shed p load	lbs/yr	21.38	1310.84	0.78	2.89	1.90	28.93	10.29	53.88	58.24	1.06	63.02	79.39	98.73	104.29	21.65	68.21	178.42	25.88	50.75	2.10	6.03
total removal %	%	0.00	2.75	0.07	0.03	0.01	0.00	0.00	0.00	0.00	0.06	0.01	0.01	0.00	0.01	0.00	0.00	0.00	0.00	51.44	0.01	38.54
HYDRAULIC PARAMETERS.....																						
pond mean depth	feet	1.00	1.00	1.00	1.00	0.00	0.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	4.00	1.00	1.18
relative volume	inches	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.93	0.00	0.83
residence time	years	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.06	0.00	0.03
residence time	days	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	22.12	0.00	9.54
overflow rate	ft/yr	2191813.78	117468286.55	72891.85	385498.84	77.78	103.82	1125065.06	5571017.55	6182275.34	108876.07	6663039.87	305.29	10209847.13	10720511.61	2096967.74	6571101.97	17836555.87	2351176.17	66.02	248232.69	45.23
inflow phos conc	ppb	358.94	399.29	393.74	275.40	299.18	394.27	336.34	355.85	346.57	359.16	347.96	354.35	355.78	357.88	379.83	381.91	368.02	404.94	377.13	310.70	445.88
outflow phos conc	ppb	358.93	399.28	393.47	275.38	299.15	394.26	336.33	355.85	346.57	358.94	347.96	354.35	355.78	357.88	379.81	381.91	368.02	404.93	183.13	310.66	274.02
p reaction rate	-	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.18	0.00	1.02
1-rp	-	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.49	1.00	0.61
vlawmo pond volume	acre-ft	1.72	2.45	0.06	0.25	0.18	1.64	0.88	1.37	0.48	0.09	0.29	1.24	1.55	0.40	1.65	3.52	0.43	1.85	3.89	0.20	0.39
LAND USE PARAMETERS.....																						
runoff total P conc	ppb	313.05	317.06	381.67	241.40	277.34	396.95	292.25	256.49	227.61	362.45	347.79	358.58	366.91	400.00	366.96	361.80	400.00	382.29	370.28	247.03	437.28
runoff coefficient		0.15	0.15	0.10	0.08	0.10	0.18	0.10	0.11	0.09	0.40	0.29	0.22	0.40	0.28	0.27	0.32	0.28	0.19	0.23	0.19	0.29
dissolved/total P		0.46	0.45	0.45	0.57	0.54	0.36	0.49	0.53	0.57	0.30	0.36	0.39	0.30	0.30	0.36	0.35	0.30	0.38	0.35	0.51	0.33
runoff TSS conc	ppm	187.04	188.99	207.16	215.52	210.38	156.13	200.33	198.83	207.60	140.67	154.82	166.48	140.00	140.00	153.96	151.57	140.00	164.67	156.85	193.10	149.67
POND TSS BUDGETS.....																						
runoff	lbs/yr	9924.22	14204.70	402.58	1823.10	1286.67	8288.55	5853.69	8654.90	3265.56	413.47	1452.78	6440.72	7462.95	1937.46	8194.39	17330.03	2067.51	9644.93	19664.85	1089.64	1930.13
upstream pond	lbs/yr	0.00	512030.99	0.00	402.58	0.00	3512.35	0.00	17654.60	26309.51	0.00	29988.54	31441.32	37882.03	45344.98	0.00	8194.39	72806.85	0.00	0.00	0.00	0.00
total inflow	**lbs/yr**	**9924.22**	**526235.69**	**402.58**	**2225.68**	**1286.67**	**11800.91**	**5853.69**	**26309.51**	**29575.07**	**413.47**	**31441.32**	**37882.03**	**45344.98**	**47282.44**	**8194.39**	**25524.41**	**74874.37**	**9644.93**	**19664.85**	**1089.64**	**1930.13**
p removal efficiency (no inf)	%	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	52.00	0.00	39.00
tss removal efficiency (no inf)	%	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	85.00	0.00	65.00
net sedimentation	lbs/yr	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	16715.12	0.00	1254.58
outflow	lbs/yr	9924.22	526235.69	402.58	2225.68	1286.67	11800.91	5853.69	26309.51	29575.07	413.47	31441.32	37882.03	45344.98	47282.44	8194.39	25524.41	74874.37	9644.93	2949.73	1089.64	675.54
tss removal efficiency (inf)		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	85.00	0.00	65.00
upstream watershed tss load	lbs/yr	9924.22	550800.24	402.58	2225.68	1286.67	11800.91	5853.69	26309.51	29575.07	413.47	31441.32	37882.03	45344.98	47282.44	8194.39	25524.41	74874.37	9644.93	19664.85	1089.64	1930.13
tss total removal efficiency	%	0.00	4.46	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	85.00	0.00	65.00
INFILTRATION BMP/POND.....																						
Annual runoff infiltrated	%	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Adjusted outflow	**ac-ft/yr**	**21.92**	**1174.68**	**0.73**	**3.85**	**2.33**	**26.99**	**11.25**	**55.71**	**61.82**	**1.09**	**66.63**	**82.43**	**102.10**	**107.21**	**20.97**	**65.71**	**178.37**	**23.51**	**49.51**	**2.48**	**4.98**
Adjusted TP outflow	**lbs/yr**	**21.38**	**1274.83**	**0.78**	**2.89**	**1.90**	**28.93**	**10.28**	**53.88**	**58.23**	**1.06**	**63.02**	**79.39**	**98.73**	**104.28**	**21.65**	**68.21**	**178.41**	**25.88**	**24.64**	**2.10**	**3.71**
Adjusted TSS outflow	**lbs/yr**	**9924.22**	**526235.69**	**402.58**	**2225.68**	**1286.67**	**11800.91**	**5853.69**	**26309.51**	**29575.07**	**413.47**	**31441.32**	**37882.03**	**45344.98**	**47282.44**	**8194.39**	**25524.41**	**74874.37**	**9644.93**	**2949.73**	**1089.64**	**675.54**

Rochester Loading Assessment																					
Zumbro River																					
363-06-158-2																					
Baseline (1988) LOADS																					
		zr-a3.8h	**zr-a3.8a**	**zr-a3.4b**	**zr-a3.4a**	**zr-a3.9**	**zr-a3.11**	**zr-a3.10**	**zr-a3.12**	**zr-a4.1d**	**zr-a4.1c**	**zr-a4.1b**	**zr-a4.1a**	**zr-a4.2b**	**zr-a4.2a**	**zr-a4.3f**	**zr-a4.3e**	**zr-a4.3d**	**zr-a4.3c**	**zr-a4.3b**	**zr-a4.3a**	**zr-a4.5**
Routed TO:		zr-a3.8a	zr-a3.11	zr-a3.4a	zr-a3.11	zr-a3.11	zr-a3.12	zr-a3.12	zr-a4.1a	zr-a4.1c	zr-a4.1b	zr-a4.1a	zr-a4.2a	zr-a4.2a	zr-a4.5	zr-a4.3a	zr-a4.3a	zr-a4.3a	zr-a4.3b	zr-a4.3a	zr-a4.5	zr-a4.6a
INPUT VARIABLES....	UNITS																					
case label	-																					
Watershed area	acres	4.8	465.2	6.5	184.9	385.1	470.9	153.5	166.2	4.3	8.1	7.1	999.2	2.6	352.3	14.1	12.3	54.3	47.9	3.3	451.8	303.4
basin area	acres	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
basin volume	acre-ft	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Row Crop Agriculture		0%	4%	0%	0%	2%	0%	0%	0%	0%	0%	0%	0%	0%	2%	0%	0%	0%	76%	0%	4%	6%
Very Low Density Residential		0%	8%	0%	6%	0%	1%	0%	0%	0%	0%	0%	0%	0%	2%	0%	0%	0%	0%	0%	1%	0%
Low Density Residential		0%	31%	37%	53%	34%	45%	56%	7%	14%	19%	78%	42%	0%	21%	0%	15%	24%	0%	0%	29%	29%
Medium Density Residential		0%	1%	0%	1%	3%	5%	6%	4%	0%	0%	0%	6%	0%	2%	0%	0%	0%	0%	0%	2%	2%
High Density Residential		3%	2%	0%	1%	3%	2%	2%	8%	0%	0%	0%	3%	0%	7%	0%	57%	0%	0%	0%	6%	5%
Commercial/Industrial		0%	22%	0%	1%	40%	8%	22%	37%	0%	0%	0%	12%	0%	14%	0%	0%	0%	0%	0%	2%	8%
Institutional		0%	4%	0%	8%	2%	2%	10%	31%	0%	0%	9%	10%	0%	8%	0%	22%	0%	0%	0%	2%	2%
Open Space		97%	18%	63%	8%	9%	8%	0%	3%	86%	81%	13%	19%	97%	37%	100%	5%	76%	24%	100%	49%	39%
Golf Course		0%	0%	0%	0%	0%	23%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Pits and Quarries		0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Right-of-Way		0%	10%	0%	22%	8%	6%	4%	10%	0%	0%	0%	8%	3%	7%	0%	0%	0%	0%	0%	3%	8%
WATERSHED-WIDE ACCOUNTING.....																						
tributary land area	ac	4.75	4375.36	6.46	191.38	385.09	5422.77	153.46	5742.47	4.31	12.43	19.55	6761.22	2.64	7116.14	14.06	12.32	54.34	47.88	51.20	583.68	8003.20
tributary water area	ac	0.00	3.92	0.00	0.00	0.00	3.92	0.00	3.92	0.00	0.00	0.00	3.92	0.00	3.92	0.00	0.00	0.00	0.00	0.00	0.00	3.92
direct and ponded area	ac	4.75	4379.28	6.46	191.38	385.09	5426.69	153.46	5746.39	4.31	12.43	19.55	6765.14	2.64	7120.06	14.06	12.32	54.34	47.88	51.20	583.68	8007.12
ASSUMED EXPORT FACTORS.....																						
season length	yrs	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
season precipitation	inches	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8
runoff total p	ppb	206.7899387	368.9077718	291.6705094	403.7975816	384.5529606	439.3966798	415.6642259	369.1799973	234.2520439	248.4422581	408.4324716	376.592119	205.3112626	331.8354889	200.4386458	414.2913001	258.987469	458.0175603	200.0057029	324.1443649	343.9752934
runoff ortho p/total p	-	0.591850954	0.367585888	0.489994565	0.336032873	0.324048935	0.418464184	0.301268739	0.309770447	0.558896314	0.541868635	0.339020468	0.357343519	0.592033239	0.413917626	0.599123405	0.316020198	0.529214939	0.296174156	0.599991551	0.444605488	0.410267783
unit runoff	in/yr	2.844097479	7.774263853	4.083967792	7.062597265	9.949226888	6.578204331	9.131136721	11.31404913	3.119426646	3.357785582	6.468198979	7.709675879	2.709310647	7.080436821	2.565000121	11.10501942	3.53491392	4.01368549	2.544145179	5.370259836	6.24278671
unit export	lbs/ac-y	0.15	0.67	0.33	0.66	0.86	0.64	0.83	0.95	0.19	0.23	0.62	0.69	0.13	0.60	0.12	1.07	0.25	0.44	0.12	0.46	0.55
POND WATER BUDGETS.....																						
runoff	ac-ft/yr	1.13	301.41	2.20	108.83	319.28	258.16	116.77	156.74	1.12	2.27	3.84	641.95	0.60	207.86	3.01	11.40	16.01	16.02	0.70	202.17	157.83
upstream pond	ac-ft/yr	0.00	1434.66	0.00	2.20	0.00	2166.38	0.00	2541.31	0.00	1.12	3.39	2705.29	0.00	3347.84	0.00	0.00	0.00	0.00	16.02	47.13	3805.01
total inflow	**ac-ft/yr**	**1.13**	**1736.07**	**2.20**	**111.03**	**319.28**	**2424.54**	**116.77**	**2698.06**	**1.12**	**3.39**	**7.23**	**3347.24**	**0.60**	**3555.70**	**3.01**	**11.40**	**16.01**	**16.02**	**16.72**	**249.31**	**3962.83**
outflow	ac-ft/yr	1.13	1736.07	2.20	111.03	319.28	2424.54	116.77	2698.06	1.12	3.39	7.23	3347.24	0.60	3555.70	3.01	11.40	16.01	16.02	16.72	249.31	3962.83
POND PHOSPHORUS BUDGETS.....																						
runoff	lbs/yr	0.71	313.44	2.10	122.38	331.37	300.14	127.91	157.59	0.84	1.83	4.42	688.40	0.35	211.16	1.65	13.25	13.60	21.21	0.38	209.68	165.63
upstream pond	lbs/yr	0.00	1510.28	0.00	2.10	0.00	2279.56	0.00	2707.62	0.00	0.84	2.67	2872.29	0.00	3561.05	0.00	0.00	0.00	0.00	21.20	50.08	4031.97
total inflow	**lbs/yr**	**0.71**	**1823.73**	**2.10**	**124.47**	**331.37**	**2579.71**	**127.91**	**2865.20**	**0.84**	**2.67**	**7.09**	**3560.70**	**0.35**	**3772.22**	**1.65**	**13.25**	**13.60**	**21.21**	**21.59**	**259.75**	**4197.60**
net sedimentation	lbs/yr	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
outflow	lbs/yr	0.71	1823.73	2.10	124.47	331.37	2579.71	127.91	2865.20	0.84	2.67	7.09	3560.70	0.35	3772.21	1.65	13.24	13.60	21.20	21.59	259.75	4197.60
p removal efficiency	%	0.02	0.00	0.02	0.00	0.00	0.00	0.00	0.00	0.02	0.01	0.01	0.00	0.03	0.00	0.01	0.01	0.00	0.01	0.00	0.00	0.00
upstream w-shed p load	lbs/yr	0.71	1888.18	2.10	124.47	331.37	2644.16	127.91	2929.66	0.84	2.67	7.09	3625.16	0.35	3836.67	1.65	13.25	13.60	21.21	21.59	259.75	4262.06
total removal %	%	0.02	3.41	0.02	0.00	0.00	2.44	0.00	2.20	0.02	0.02	0.01	1.78	0.03	1.68	0.01	0.01	0.00	0.01	0.01	0.00	1.51
HYDRAULIC PARAMETERS.....																						
pond mean depth	feet	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
relative volume	inches	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
residence time	years	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
residence time	days	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
overflow rate	ft/yr	112628.39	173606842.43	219788.60	11103252.75	31928231.49	242454106.92	11677281.15	269805686.00	112145.73	339162.53	723323.96	334724077.83	59584.29	355569878.68	300534.44	1140306.89	1600670.59	1601596.98	1671859.91	24930834.67	396283311.57
inflow phos conc	ppb	232.46	386.49	351.39	412.46	381.84	391.46	403.01	390.71	274.06	289.60	360.76	391.38	217.20	390.32	201.67	427.36	312.55	487.14	475.04	383.33	389.71
outflow phos conc	ppb	232.42	386.49	351.33	412.45	381.84	391.46	403.01	390.71	274.00	289.57	360.73	391.38	217.13	390.32	201.66	427.33	312.54	487.11	475.03	383.33	389.71
p reaction rate	-	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1-rp	-	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
vlawmo pond volume	acre-ft	0.09	23.70	0.17	8.56	25.10	20.30	9.18	12.32	0.09	0.18	0.30	50.47	0.05	16.34	0.24	0.90	1.26	1.26	0.06	15.89	12.41
LAND USE PARAMETERS.....																						
runoff total P conc	ppb	206.79	368.91	291.67	403.80	384.55	439.40	415.66	369.18	234.25	248.44	408.43	376.59	205.31	331.84	200.44	414.29	258.99	458.02	200.01	324.14	343.98
runoff coefficient		0.09	0.24	0.13	0.22	0.31	0.21	0.29	0.36	0.10	0.11	0.20	0.24	0.09	0.22	0.08	0.35	0.11	0.13	0.08	0.17	0.20
dissolved/total P		0.59	0.37	0.49	0.34	0.32	0.42	0.30	0.31	0.56	0.54	0.34	0.36	0.59	0.41	0.60	0.32	0.53	0.30	0.60	0.44	0.41
runoff TSS conc	ppm	213.94	161.12	188.13	150.56	147.01	164.26	140.32	142.46	205.59	201.27	149.89	154.63	213.98	170.17	215.78	144.06	198.07	175.59	216.00	178.91	170.84
POND TSS BUDGETS.....																						
runoff	lbs/yr	629.17	120469.92	1012.46	42491.63	122760.06	105347.21	44331.94	59703.97	588.04	1146.91	1497.99	251983.96	338.24	85080.46	1752.35	4355.06	7885.72	7414.45	411.28	87023.01	65435.33
upstream pond	lbs/yr	0.00	616099.07	0.00	1012.46	0.00	902833.14	0.00	1052512.29	0.00	588.04	1734.95	1115449.19	0.00	1367771.39	0.00	0.00	0.00	0.00	7414.45	21818.86	1561693.71
total inflow	**lbs/yr**	**629.17**	**736568.99**	**1012.46**	**43504.09**	**122760.06**	**1008180.35**	**44331.94**	**1112216.26**	**588.04**	**1734.95**	**3232.93**	**1367433.15**	**338.24**	**1452851.84**	**1752.35**	**4355.06**	**7885.72**	**7414.45**	**7825.73**	**108841.87**	**1627129.04**
p removal efficiency (no inf)	%	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
tss removal efficiency (no inf)	%	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
net sedimentation	lbs/yr	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
outflow	lbs/yr	629.17	736568.99	1012.46	43504.09	122760.06	1008180.35	44331.94	1112216.26	588.04	1734.95	3232.93	1367433.15	338.24	1452851.84	1752.35	4355.06	7885.72	7414.45	7825.73	108841.87	1627129.04
tss removal efficiency (inf)		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
upstream watershed tss load	lbs/yr	629.17	779103.24	1012.46	43504.09	122760.06	1050714.61	44331.94	1154750.52	588.04	1734.95	3232.93	1409967.41	338.24	1495386.10	1752.35	4355.06	7885.72	7414.45	7825.73	108841.87	1669663.30
tss total removal efficiency	%	0.00	5.46	0.00	0.00	0.00	4.05	0.00	3.68	0.00	0.00	0.00	3.02	0.00	2.84	0.00	0.00	0.00	0.00	0.00	0.00	2.55
INFILTRATION BMP/POND.....																						
Annual runoff infiltrated	%	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Adjusted outflow	**ac-ft/yr**	**1.13**	**1736.07**	**2.20**	**111.03**	**319.28**	**2424.54**	**116.77**	**2698.06**	**1.12**	**3.39**	**7.23**	**3347.24**	**0.60**	**3555.70**	**3.01**	**11.40**	**16.01**	**16.02**	**16.72**	**249.31**	**3962.83**
Adjusted TP outflow	**lbs/yr**	**0.71**	**1823.73**	**2.10**	**124.47**	**331.37**	**2579.71**	**127.91**	**2865.20**	**0.84**	**2.67**	**7.09**	**3560.70**	**0.35**	**3772.21**	**1.65**	**13.24**	**13.60**	**21.20**	**21.59**	**259.75**	**4197.60**
Adjusted TSS outflow	**lbs/yr**	**629.17**	**736568.99**	**1012.46**	**43504.09**	**122760.06**	**1008180.35**	**44331.94**	**1112216.26**	**588.04**	**1734.95**	**3232.93**	**1367433.15**	**338.24**	**1452851.84**	**1752.35**	**4355.06**	**7885.72**	**7414.45**	**7825.73**	**108841.87**	**1627129.04**

Rochester Loading Assessment														
Zumbro River														
363-06-158-2														
Baseline (1988) LOADS														
		zr-a4.4f	**zr-a4.4e**	**zr-a4.4d**	**zr-a4.4c**	**zr-a4.4b**	**zr-a4.4a**	**zr-a4.6d**	**zr-a4.6c**	**zr-a4.6b**	**zr-a4.6a**	**zr-a4.7**	**zr-a4.8**	**exit 9**
Routed TO:		zr-a4.4a	zr-a4.4d	zr-a4.4a	zr-a4.4b	zr-a4.4a	zr-a4.6a	zr-a4.6a	zr-a4.6a	zr-a4.6a	zr-a4.7	exit city	exit city	exit city
INPUT VARIABLES....	UNITS													
case label	-													
Watershed area	acres	42.0	1.1	2.1	11.9	57.5	97.7	22.8	16.2	2.4	707.6	165.4	80.1	93.8
basin area	acres	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
basin volume	acre-ft	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Row Crop Agriculture		70%	0%	0%	82%	10%	10%	3%	4%	100%	28%	24%	7%	4%
Very Low Density Residential		0%	0%	0%	0%	0%	10%	7%	0%	0%	4%	1%	1%	27%
Low Density Residential		0%	0%	0%	0%	0%	8%	0%	0%	0%	1%	3%	13%	4%
Medium Density Residential		0%	0%	0%	0%	0%	1%	0%	0%	0%	0%	0%	0%	0%
High Density Residential		0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	34%	5%
Commercial/Industrial		0%	0%	0%	0%	0%	12%	0%	0%	0%	5%	0%	0%	1%
Institutional		0%	0%	0%	0%	0%	13%	0%	53%	0%	7%	0%	0%	0%
Open Space		17%	100%	97%	18%	62%	24%	80%	40%	0%	24%	58%	36%	53%
Golf Course		0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Pits and Quarries		0%	0%	0%	0%	0%	0%	9%	0%	0%	25%	6%	0%	0%
Right-of-Way		14%	0%	2%	0%	28%	21%	1%	3%	0%	7%	8%	9%	7%
WATERSHED-WIDE ACCOUNTING.....														
tributary land area	ac	42.01	1.10	3.24	11.95	69.42	212.41	22.82	16.16	2.36	8964.55	9129.92	80.06	93.75
tributary water area	ac	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.92	3.92	0.00	0.00
direct and ponded area	ac	42.01	1.10	3.24	11.95	69.42	212.41	22.82	16.16	2.36	8968.47	9133.85	80.06	93.75
ASSUMED EXPORT FACTORS.....														
season length	yrs	1	1	1	1	1	1	1	1	1	1	1	1	1
season precipitation	inches	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8
runoff total p	ppb	464.5327003	200.0172587	205.2333091	478.8020434	289.1701992	353.9149278	207.2923249	298.4392863	539.9921613	284.7277203	294.4550471	360.5948936	289.5272839
runoff ortho p/total p	-	0.280189574	0.599974432	0.592382926	0.271997113	0.476753582	0.381943179	0.524834152	0.417361648	0.200006779	0.276904255	0.435942491	0.402689081	0.509082394
unit runoff	in/yr	4.722538117	2.544439356	2.698991171	4.108602867	4.491108464	6.885591465	2.504673312	6.580757515	4.452114935	4.052570556	3.443525303	7.571297367	3.961131749
unit export	lbs/ac-y	0.51	0.12	0.13	0.47	0.35	0.58	0.14	0.50	0.54	0.36	0.28	0.72	0.30
POND WATER BUDGETS.....														
runoff	ac-ft/yr	16.53	0.23	0.48	4.09	21.51	56.08	4.76	8.86	0.88	238.97	47.46	50.52	30.95
upstream pond	ac-ft/yr	0.00	0.00	0.23	0.00	4.09	42.85	0.00	0.00	0.00	4076.26	4315.23	0.00	0.00
total inflow	**ac-ft/yr**	**16.53**	**0.23**	**0.71**	**4.09**	**25.60**	**98.93**	**4.76**	**8.86**	**0.88**	**4315.23**	**4362.69**	**50.52**	**30.95**
outflow	ac-ft/yr	16.53	0.23	0.71	4.09	25.60	98.93	4.76	8.86	0.88	4315.23	4362.69	50.52	30.95
POND PHOSPHORUS BUDGETS.....														
runoff	lbs/yr	21.31	0.13	0.28	5.58	20.05	56.85	3.13	8.03	1.29	256.31	46.40	57.35	28.32
upstream pond	lbs/yr	0.00	0.00	0.13	0.00	5.58	47.35	0.00	0.00	0.00	4314.25	4570.56	0.00	0.00
total inflow	**lbs/yr**	**21.31**	**0.13**	**0.41**	**5.58**	**25.63**	**104.20**	**3.13**	**8.03**	**1.29**	**4570.56**	**4616.95**	**57.35**	**28.32**
net sedimentation	lbs/yr	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
outflow	lbs/yr	21.31	0.13	0.41	5.58	25.63	104.20	3.13	8.03	1.28	4570.56	4616.95	57.35	28.32
p removal efficiency	%	0.01	0.08	0.03	0.03	0.00	0.00	0.01	0.01	0.17	0.00	0.00	0.00	0.00
upstream w-shed p load	lbs/yr	21.31	0.13	0.41	5.58	25.63	104.20	3.13	8.03	1.29	4635.03	4681.42	57.35	28.32
total removal %	%	0.01	0.08	0.05	0.03	0.01	0.00	0.01	0.01	0.17	1.39	1.38	0.00	0.00
HYDRAULIC PARAMETERS.....														
pond mean depth	feet	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
relative volume	inches	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
residence time	years	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
residence time	days	0.00	0.02	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
overflow rate	ft/yr	1653403.10	23220.13	71421.41	408980.26	2560074.50	9892985.46	476285.75	885993.16	87561.97	431522863.84	436268559.68	5051509.66	3094701.52
inflow phos conc	ppb	474.22	200.07	211.05	502.13	368.33	387.52	241.70	333.65	540.02	389.69	389.36	417.67	336.65
outflow phos conc	ppb	474.19	199.91	210.99	502.01	368.33	387.52	241.68	333.63	539.09	389.69	389.36	417.66	336.65
p reaction rate	-	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1-rp	-	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
vlawmo pond volume	acre-ft	1.30	0.02	0.04	0.32	1.69	4.41	0.37	0.70	0.07	18.79	3.73	3.97	2.43
LAND USE PARAMETERS.....														
runoff total P conc	ppb	464.53	200.02	205.23	478.80	289.17	353.91	207.29	298.44	539.99	284.73	294.46	360.59	289.53
runoff coefficient		0.15	0.08	0.08	0.13	0.14	0.22	0.08	0.21	0.14	0.13	0.11	0.24	0.12
dissolved/total P		0.28	0.60	0.59	0.27	0.48	0.38	0.52	0.42	0.20	0.28	0.44	0.40	0.51
runoff TSS conc	ppm	168.73	215.99	214.12	172.54	189.40	168.32	194.86	171.71	163.00	132.62	182.75	169.39	201.71
POND TSS BUDGETS.....														
runoff	lbs/yr	7256.30	135.91	274.16	1872.05	9846.75	23041.44	2701.94	3662.37	386.79	103866.06	23262.68	20573.80	15291.33
upstream pond	lbs/yr	0.00	0.00	135.91	0.00	1872.05	19385.18	0.00	0.00	0.00	1676306.75	1780172.81	0.00	0.00
total inflow	**lbs/yr**	**7256.30**	**135.91**	**410.07**	**1872.05**	**11718.81**	**42426.61**	**2701.94**	**3662.37**	**386.79**	**1780172.81**	**1803435.49**	**20573.80**	**15291.33**
p removal efficiency (no inf)	%	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
tss removal efficiency (no inf)	%	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
net sedimentation	lbs/yr	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
outflow	lbs/yr	7256.30	135.91	410.07	1872.05	11718.81	42426.61	2701.94	3662.37	386.79	1780172.81	1803435.49	20573.80	15291.33
tss removal efficiency (inf)		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
upstream watershed tss load	lbs/yr	7256.30	135.91	410.07	1872.05	11718.81	42426.61	2701.94	3662.37	386.79	1822707.07	1845969.74	20573.80	15291.33
tss total removal efficiency	%	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.33	2.30	0.00	0.00
INFILTRATION BMP/POND.....														
Annual runoff infiltrated	%	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Adjusted outflow	**ac-ft/yr**	**16.53**	**0.23**	**0.71**	**4.09**	**25.60**	**98.93**	**4.76**	**8.86**	**0.88**	**4315.23**	**4362.69**	**50.52**	**30.95**
Adjusted TP outflow	**lbs/yr**	**21.31**	**0.13**	**0.41**	**5.58**	**25.63**	**104.20**	**3.13**	**8.03**	**1.28**	**4570.56**	**4616.95**	**57.35**	**28.32**
Adjusted TSS outflow	**lbs/yr**	**7256.30**	**135.91**	**410.07**	**1872.05**	**11718.81**	**42426.61**	**2701.94**	**3662.37**	**386.79**	**1780172.81**	**1803435.49**	**20573.80**	**15291.33**

Rochester Loading Assessment																						
Zumbro River																						
363-06-158-2																						
Present (2005) LOADS																						
		zr-a2.1a	**zr-a2.2**	**zr-a2.1b**	**zr-a2.3**	**zr-a2.6**	**zr-a2.5a**	**zr-a2.5b**	**zr-a2.5e**	**zr-a2.5e cell 2**	**zr-a2.5f**	**zr-a2.5c**	**zr-a2.5d**	**zr-a2.4**	**zr-a1.6**	**zr-a1.4**	**wc-a4.4**	**zr-a1.5**	**zr-a2.7c**	**zr-a2.7c cell 2**	**zr-a2.7b**	**zr-a2.8c**
Routed TO:		zr-a2.1b	zr-a2.1b	zr-a2.4	zr-a2.4	zr-a2.4	zr-a2.5c	zr-a2.5e	zr-a2.5e cell 2	zr-a2.5f	zr-a2.5c	zr-a2.5d	zr-a2.4	zr-a2.7a	zr-a1.5	zr-a1.5	zr-a1.5	zr-a2.7a	zr-a2.7c cell 2	zr-a2.7a	zr-a2.7a	zr-a2.7a
INPUT VARIABLES....	UNITS																					
case label	-																					
Watershed area	acres	212.8	18.2	182.5	42.3	26.5	93.6	27.9	52.8	0.0	28.6	210.2	105.4	76.7	73.6	39.0	342.5	247.1	11.3	0.0	25.3	148.6
basin area	acres	0.00	0.00	0.00	0.00	0.00	0.00	0.42	0.45	0.49	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.16	0.26	0.26	2.50
basin volume	acre-ft	0.00	0.00	0.00	0.00	0.00	0.00	1.67	1.85	1.99	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.26	0.41	0.00	10.00
Row Crop Agriculture		81%	61%	10%	0%	0%	95%	72%	67%	0%	0%	19%	0%	0%	53%	23%	69%	17%	0%	0%	0%	0%
Very Low Density Residential		5%	0%	2%	0%	14%	0%	0%	5%	0%	7%	0%	21%	3%	11%	48%	5%	7%	0%	0%	22%	60%
Low Density Residential		0%	0%	0%	8%	7%	1%	28%	0%	0%	0%	0%	5%	0%	11%	8%	0%	0%	53%	0%	73%	24%
Medium Density Residential		0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	1%	0%	1%	0%	0%	0%	0%
High Density Residential		0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Commercial/Industrial		0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Institutional		0%	0%	0%	0%	0%	0%	0%	0%	0%	7%	6%	1%	0%	0%	0%	0%	0%	0%	0%	0%	2%
Open Space		12%	2%	85%	42%	69%	4%	1%	28%	100%	86%	74%	73%	88%	22%	5%	22%	38%	47%	100%	0%	6%
Golf Course		0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Pits and Quarries		0%	0%	0%	22%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	34%	0%	0%	0%	0%
Right-of-Way		2%	36%	2%	28%	11%	0%	0%	0%	0%	0%	0%	0%	9%	3%	14%	3%	4%	0%	0%	5%	8%
WATERSHED-WIDE ACCOUNTING.....																						
tributary land area	ac	212.83	18.25	413.59	42.33	26.47	93.58	27.85	80.67	80.68	109.33	413.06	518.50	1077.63	73.63	39.01	342.48	1276.22	11.27	11.28	25.30	148.58
tributary water area	ac	0.00	0.00	0.00	0.00	0.00	0.00	0.42	0.87	1.36	1.36	1.36	1.36	1.36	0.00	0.00	0.00	14.22	0.16	0.42	0.26	2.50
direct and ponded area	ac	212.83	18.25	413.59	42.33	26.47	93.58	28.27	81.55	82.04	110.69	414.42	519.86	1078.99	73.63	39.01	342.48	1290.44	11.43	11.70	25.56	151.08
ASSUMED EXPORT FACTORS.....																						
season length	yrs	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
season precipitation	inches	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8
runoff total p	ppb	486.68	481.79	241.67	229.82	258.75	523.98	512.92	434.46	200.00	221.26	275.59	245.51	221.98	429.11	403.92	449.36	209.36	332.22	200.00	425.13	369.68
runoff ortho p/total p	-	0.26	0.25	0.55	0.36	0.53	0.22	0.23	0.33	0.60	0.57	0.50	0.56	0.57	0.34	0.39	0.31	0.31	0.44	0.60	0.34	0.44
unit runoff	in/yr	4.26	5.98	2.88	4.02	3.56	4.39	5.07	3.84	2.54	3.08	3.35	2.90	3.10	4.26	4.53	4.09	2.31	4.76	2.54	5.99	4.48
unit export	lbs/ac-y	0.48	0.63	0.18	0.32	0.24	0.53	0.58	0.41	0.12	0.17	0.24	0.17	0.18	0.44	0.43	0.44	0.19	0.42	0.12	0.59	0.40
POND WATER BUDGETS.....																						
runoff	ac-ft/yr	75.55	9.10	43.74	14.20	7.85	34.24	11.77	16.90	0.00	7.36	58.69	25.49	19.80	26.13	14.73	116.83	47.49	4.48	0.00	12.63	55.52
upstream pond	ac-ft/yr	0.00	0.00	84.65	0.00	0.00	0.00	0.00	11.77	28.66	28.67	70.27	128.96	304.89	0.00	0.00	0.00	436.83	0.00	4.48	0.00	0.00
total inflow	**ac-ft/yr**	**75.55**	**9.10**	**128.39**	**14.20**	**7.85**	**34.24**	**11.77**	**28.66**	**28.67**	**36.03**	**128.96**	**154.45**	**324.68**	**26.13**	**14.73**	**116.83**	**484.32**	**4.48**	**4.48**	**12.63**	**55.52**
outflow	ac-ft/yr	75.55	9.10	128.39	14.20	7.85	34.24	11.77	28.66	28.67	36.03	128.96	154.45	324.68	26.13	14.73	116.83	484.32	4.48	4.48	12.63	55.52
POND PHOSPHORUS BUDGETS.....																						
runoff	lbs/yr	103.14	11.43	31.98	13.62	6.44	49.32	16.18	21.53	0.00	4.88	50.24	18.42	13.64	32.34	16.75	151.00	46.33	4.71	0.00	14.95	58.84
upstream pond	lbs/yr	0.00	0.00	114.57	0.00	0.00	0.00	0.00	5.12	12.85	8.99	63.18	113.42	298.45	0.00	0.00	0.00	305.21	0.00	2.83	0.00	0.00
total inflow	**lbs/yr**	**103.14**	**11.43**	**146.54**	**13.62**	**6.44**	**49.32**	**16.18**	**26.65**	**12.85**	**13.87**	**113.42**	**131.84**	**312.09**	**32.34**	**16.75**	**151.00**	**351.54**	**4.71**	**2.83**	**14.95**	**58.84**
net sedimentation	lbs/yr	0.00	0.00	0.00	0.00	0.00	0.00	11.06	13.80	3.86	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.88	0.82	0.00	33.40
outflow	lbs/yr	103.14	11.43	146.54	13.61	6.44	49.31	5.12	12.85	8.99	13.87	113.42	131.84	312.08	32.34	16.75	151.00	351.54	2.83	2.01	14.95	25.44
p removal efficiency	%	0.00	0.01	0.00	0.00	0.00	0.00	68.36	51.79	30.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	39.89	28.83	0.00	56.76
upstream w-shed p load	lbs/yr	103.14	11.43	146.55	13.62	6.44	49.32	16.18	37.71	37.71	42.59	142.15	160.57	340.81	32.34	16.75	151.00	547.31	4.71	4.71	14.95	58.84
total removal %	%	0.00	0.01	0.00	0.00	0.00	0.00	68.36	65.93	76.16	67.44	20.21	17.89	8.43	0.00	0.00	0.00	35.77	39.89	57.21	0.00	56.76
HYDRAULIC PARAMETERS.....																						
pond mean depth	feet	1.00	1.00	1.00	1.00	1.00	1.00	3.98	4.09	4.08	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.60	1.60	0.00	4.00
relative volume	inches	0.00	0.00	0.00	0.00	0.00	0.00	4.51	3.48	29835.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.85	6135.00	0.00	5.73
residence time	years	0.00	0.00	0.00	0.00	0.00	0.00	0.14	0.06	0.07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.06	0.09	0.00	0.18
residence time	days	0.00	0.00	0.00	0.00	0.00	0.00	51.79	23.57	25.33	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	21.29	33.34	0.00	65.75
overflow rate	ft/yr	7555433.98	909715.12	12839225.91	1419656.60	784713.08	3424368.90	28.02	63.28	58.86	3602641.78	12896026.44	15445112.73	32468330.52	2613466.94	1472510.73	11683473.63	48432063.12	27.45	17.56	48.57	22.21
inflow phos conc	ppb	502.26	462.14	419.93	352.85	302.17	529.85	505.90	342.04	164.89	141.64	323.59	314.06	353.64	455.28	418.48	475.50	267.05	386.92	232.55	435.63	389.92
outflow phos conc	ppb	502.25	462.09	419.93	352.84	302.16	529.83	160.06	164.89	115.38	141.64	323.59	314.06	353.64	455.27	418.46	475.49	267.05	232.57	165.52	435.61	168.58
p reaction rate	-	0.00	0.00	0.00	0.00	0.00	0.00	6.83	2.23	0.61	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.10	0.57	0.00	3.04
1-rp	-	1.00	1.00	1.00	1.00	1.00	1.00	0.32	0.48	0.70	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.60	0.71	1.00	0.43
vlawmo pond volume	acre-ft	5.94	0.72	3.44	1.12	0.62	2.69	0.93	1.33	0.00	0.58	4.61	2.00	1.56	2.05	1.16	9.19	3.73	0.35	0.00	0.99	4.36
LAND USE PARAMETERS.....																						
runoff total P conc	ppb	486.68	481.79	241.67	229.82	258.75	523.98	512.92	434.46	200.00	221.26	275.59	245.51	221.98	429.11	403.92	449.36	209.36	332.22	200.00	425.13	369.68
runoff coefficient		0.13	0.19	0.09	0.13	0.11	0.14	0.16	0.12	0.08	0.10	0.11	0.09	0.10	0.13	0.14	0.13	0.07	0.15	0.08	0.19	0.14
dissolved/total P		0.26	0.25	0.55	0.36	0.53	0.22	0.23	0.33	0.60	0.57	0.50	0.56	0.57	0.34	0.39	0.31	0.31	0.44	0.60	0.34	0.44
runoff TSS conc	ppm	171.27	155.86	209.14	140.89	202.67	165.11	157.02	180.78	216.00	210.57	200.99	211.56	209.43	177.28	185.53	176.84	130.76	176.05	216.00	156.96	189.79
POND TSS BUDGETS.....																						
runoff	lbs/yr	34267.00	3729.19	24058.00	6168.15	3957.14	15218.84	4935.58	8016.58	1.24	3968.71	30035.18	14172.24	10589.59	11936.47	6837.48	54052.43	23981.27	1930.46	1.24	5079.54	25975.55
upstream pond	lbs/yr	0.00	0.00	37996.18	0.00	0.00	0.00	0.00	345.49	1254.31	532.04	19719.59	49754.78	136106.49	0.00	0.00	0.00	89912.40	0.00	656.36	0.00	0.00
total inflow	**lbs/yr**	**34267.00**	**3729.19**	**62054.19**	**6168.15**	**3957.14**	**15218.84**	**4935.58**	**8362.07**	**1255.55**	**4500.75**	**49754.78**	**63927.02**	**146696.08**	**11936.47**	**6837.48**	**54052.43**	**113893.68**	**1930.46**	**657.60**	**5079.54**	**25975.55**
p removal efficiency (no inf)	%	0.00	0.00	0.00	0.00	0.00	0.00	69.00	52.00	31.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	40.00	29.00	0.00	57.00
tss removal efficiency (no inf)	%	0.00	0.00	0.00	0.00	0.00	0.00	93.00	85.00	57.63	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	66.00	55.88	0.00	93.00
net sedimentation	lbs/yr	0.00	0.00	0.00	0.00	0.00	0.00	4590.09	7107.76	723.51	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1274.10	367.43	0.00	24157.26
outflow	lbs/yr	34267.00	3729.19	62054.19	6168.15	3957.14	15218.84	345.49	1254.31	532.04	4500.75	49754.78	63927.02	146696.08	11936.47	6837.48	54052.43	113893.68	656.36	290.16	5079.54	1818.29
tss removal efficiency (inf)	%	0.00	0.00	0.00	0.00	0.00	0.00	93.00	85.00	57.63	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	66.00	55.88	0.00	93.00
upstream watershed tss load	lbs/yr	34267.00	3729.19	62054.19	6168.15	3957.14	15218.84	4935.58	12952.16	12953.40	16922.11	62176.14	76348.38	159117.45	11936.47	6837.48	54052.43	215374.86	1930.46	1931.70	5079.54	25975.55
tss total removal efficiency	%	0.00	0.00	0.00	0.00	0.00	0.00	93.00	90.32	95.89	73.40	19.98	16.27	7.81	0.00	0.00	0.00	47.12	66.00	84.98	0.00	93.00
INFILTRATION BMP/POND.....																						
Annual runoff infiltrated	%	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Adjusted outflow	**ac-ft/yr**	**75.55**	**9.10**	**128.39**	**14.20**	**7.85**	**34.24**	**11.77**	**28.66**	**28.67**	**36.03**	**128.96**	**154.45**	**324.68**	**26.13**	**14.73**	**116.83**	**484.32**	**4.48**	**4.48**	**12.63**	**55.52**
Adjusted TP outflow	**lbs/yr**	**103.14**	**11.43**	**146.54**	**13.61**	**6.44**	**49.31**	**5.12**	**12.85**	**8.99**	**13.87**	**113.42**	**131.84**	**312.08**	**32.34**	**16.75**	**151.00**	**351.54**	**2.83**	**2.01**	**14.95**	**25.44**
Adjusted TSS outflow	**lbs/yr**	**34267.00**	**3729.19**	**62054.19**	**6168.15**	**3957.14**	**15218.84**	**345.49**	**1254.31**	**532.04**	**4500.75**	**49754.78**	**63927.02**	**146696.08**	**11936.47**	**6837.48**	**54052.43**	**113893.68**	**656.36**	**290.16**	**5079.54**	**1818.29**

Rochester Loading Assessment																						
Zumbro River																						
363-06-158-2																						
Present (2005) LOADS																						
		zr-a2.8b	**zr-a1.7e**	**zr-a1.7e cell 2**	**zr-a1.7d**	**zr-a1.7a**	**zr-a1.7b**	**zr-a1.7c**	**zr-a1.8d**	**zr-a1.8d cell 2**	**zr-a1.8c**	**zr-a1.8b**	**zr-a1.8a**	**zr-a1.9b**	**zr-a1.9a**	**zr-a1.10b**	**zr-a1.10a**	**zr-a2.7a**	**zr-a3.1d**	**zr-a3.2b**	**zr-a3.2a**	**zr-a3.1c**
Routed TO:		zr-a2.7a	zr-a1.7e cell 2	zr-a1.7a	zr-a1.7a	zr-a1.7b	zr-a1.7c	zr-a1.5	zr-a1.8d cell 2	zr-a1.8a	zr-a1.8b	zr-a1.8a	zr-a1.5	zr-a1.8a	zr-a3.2a	zr-a1.10a	zr-a2.7a	zr-a3.1a	zr-a3.1a	zr-a3.2a	zr-a3.1c	zr-a3.1a
INPUT VARIABLES....	UNITS																					
case label	-																					
Watershed area	acres	2.8	3.5	0.0	1.5	157.9	70.4	79.6	131.5	0.0	2.6	16.2	83.4	27.4	36.2	5.0	56.8	101.5	24.0	22.7	67.8	1.0
basin area	acres	0.60	0.42	0.45	0.40	7.25	2.29	0.84	0.24	0.26	0.25	0.00	1.35	0.47	0.00	0.83	0.00	0.00	0.00	0.23	0.00	0.33
basin volume	acre-ft	1.87	2.27	2.48	2.00	116.67	23.05	5.60	0.94	1.02	0.50	0.00	5.76	1.68	0.00	7.44	0.00	0.00	0.00	0.70	0.00	0.95
Row Crop Agriculture		0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Very Low Density Residential		0%	0%	0%	0%	56%	32%	42%	3%	0%	0%	14%	31%	5%	58%	0%	0%	14%	0%	0%	23%	0%
Low Density Residential		0%	48%	0%	91%	32%	0%	8%	84%	0%	0%	19%	9%	5%	26%	0%	39%	27%	0%	46%	34%	0%
Medium Density Residential		0%	0%	0%	0%	2%	0%	8%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
High Density Residential		0%	0%	0%	0%	0%	0%	0%	0%	0%	100%	46%	0%	82%	1%	46%	13%	0%	78%	23%	5%	0%
Commercial/Industrial		0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Institutional		0%	0%	0%	0%	1%	56%	28%	0%	0%	0%	0%	0%	0%	0%	0%	0%	26%	0%	0%	0%	0%
Open Space		50%	36%	100%	9%	8%	9%	11%	10%	100%	0%	6%	46%	0%	2%	6%	41%	25%	16%	31%	24%	0%
Golf Course		0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Pits and Quarries		0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	1%	0%	0%	0%	0%	0%
Right-of-Way		50%	16%	0%	0%	1%	3%	3%	3%	0%	0%	15%	14%	8%	14%	48%	6%	8%	6%	0%	14%	100%
WATERSHED-WIDE ACCOUNTING.....																						
tributary land area	ac	2.82	3.47	3.47	1.52	162.90	233.31	312.95	131.55	131.56	2.59	18.75	261.09	27.37	36.21	4.98	61.80	2705.09	23.95	22.68	126.64	127.69
tributary water area	ac	0.60	0.42	0.87	0.40	8.52	10.81	11.65	0.24	0.50	0.25	0.25	2.57	0.47	0.00	0.83	0.83	20.19	0.00	0.23	0.23	0.56
direct and ponded area	ac	3.42	3.89	4.35	1.92	171.42	244.12	324.60	131.79	132.06	2.84	19.00	263.66	27.84	36.21	5.81	62.63	2725.28	23.95	22.91	126.87	128.25
ASSUMED EXPORT FACTORS.....																						
season length	yrs	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
season precipitation	inches	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8
runoff total p	ppb	299.01	351.21	200.00	426.76	371.96	337.47	350.43	419.86	200.00	450.00	414.15	297.45	440.79	381.27	411.96	341.42	343.13	406.50	372.73	359.29	400.00
runoff ortho p/total p	-	0.45	0.41	0.60	0.33	0.44	0.39	0.42	0.34	0.60	0.30	0.35	0.50	0.31	0.42	0.32	0.42	0.40	0.35	0.39	0.42	0.30
unit runoff	in/yr	5.63	5.53	2.54	6.35	4.39	6.90	5.85	6.25	2.54	13.60	9.43	3.95	12.30	4.83	10.65	6.01	6.09	11.51	7.00	5.46	8.77
unit export	lbs/ac-y	0.45	0.50	0.12	0.63	0.40	0.54	0.49	0.62	0.12	1.39	0.93	0.30	1.24	0.44	1.03	0.55	0.51	1.14	0.67	0.49	0.79
POND WATER BUDGETS.....																						
runoff	ac-ft/yr	1.32	1.60	0.00	0.80	57.83	40.49	38.81	68.50	0.00	2.93	12.71	27.42	28.05	14.58	4.42	28.45	51.48	22.98	13.24	30.86	0.76
upstream pond	ac-ft/yr	0.00	0.00	1.60	0.00	2.40	60.23	100.71	0.00	68.50	0.00	2.93	112.19	0.00	0.00	0.00	4.42	915.82	0.00	0.00	27.82	58.67
total inflow	**ac-ft/yr**	**1.32**	**1.60**	**1.60**	**0.80**	**60.23**	**100.71**	**139.52**	**68.50**	**68.50**	**2.93**	**15.64**	**139.61**	**28.05**	**14.58**	**4.42**	**32.87**	**967.30**	**22.98**	**13.24**	**58.67**	**59.44**
outflow	ac-ft/yr	1.32	1.60	1.60	0.80	60.23	100.71	139.52	68.50	68.50	2.93	15.64	139.61	28.05	14.58	4.42	32.87	967.30	22.98	13.24	58.67	59.44
POND PHOSPHORUS BUDGETS.....																						
runoff	lbs/yr	1.27	1.72	0.00	0.96	62.39	38.14	38.75	81.21	0.00	3.59	15.02	25.11	34.00	15.85	5.13	31.12	51.70	27.40	15.18	33.38	0.83
upstream pond	lbs/yr	0.00	0.00	0.57	0.00	0.60	14.18	22.34	0.00	52.22	0.00	1.55	73.04	0.00	0.00	0.00	1.21	738.90	0.00	0.00	23.69	57.08
total inflow	**lbs/yr**	**1.27**	**1.72**	**0.57**	**0.96**	**62.99**	**52.31**	**61.09**	**81.21**	**52.22**	**3.59**	**16.57**	**98.15**	**34.00**	**15.85**	**5.13**	**32.32**	**790.61**	**27.40**	**15.18**	**57.08**	**57.91**
net sedimentation	lbs/yr	0.72	1.16	0.25	0.68	48.81	29.98	19.49	29.00	10.92	2.04	0.00	34.62	18.83	0.00	3.92	0.00	0.00	0.00	7.34	0.00	20.64
outflow	lbs/yr	0.55	0.57	0.32	0.28	14.18	22.34	41.60	52.22	41.30	1.55	16.57	63.53	15.17	15.85	1.21	32.32	790.61	27.40	7.84	57.08	37.26
p removal efficiency	%	56.52	67.14	44.01	70.72	77.49	57.30	31.91	35.70	20.90	56.75	0.00	35.27	55.38	0.00	76.48	0.00	0.00	0.00	48.33	0.00	35.65
upstream w-shed p load	lbs/yr	1.27	1.72	1.72	0.96	65.07	103.21	141.96	81.21	81.22	3.59	18.61	158.93	34.00	15.85	5.13	36.25	1055.84	27.40	15.18	64.42	65.25
total removal %	%	56.52	67.14	81.60	70.72	78.22	78.36	70.70	35.70	49.14	56.75	10.95	60.02	55.38	0.00	76.48	10.83	25.12	0.00	48.33	11.39	42.89
HYDRAULIC PARAMETERS.....																						
pond mean depth	feet	3.12	5.45	5.45	5.00	16.09	10.07	6.67	3.92	3.92	2.00	1.00	4.27	3.57	1.00	8.96	1.00	1.00	1.00	3.04	1.00	2.88
relative volume	inches	44.97	45.18	371400.00	79.18	64.16	18.11	4.59	0.44	15285.00	5.42	0.00	6.68	1.90	0.00	53.50	0.00	0.00	0.00	1.68	0.00	39.59
residence time	years	1.41	1.42	1.55	2.49	1.94	0.23	0.04	0.01	0.01	0.17	0.00	0.04	0.06	0.00	1.68	0.00	0.00	0.00	0.05	0.00	0.02
residence time	days	516.21	518.55	564.53	908.84	707.04	83.54	14.65	5.01	5.43	62.19	0.00	15.06	21.86	0.00	614.05	0.00	0.00	0.00	19.30	0.00	5.83
overflow rate	ft/yr	2.20	3.84	3.53	2.01	8.31	43.98	166.10	285.40	263.45	11.74	1564156.81	103.42	59.68	1458199.22	5.33	3286785.91	96729719.82	2297515.87	57.55	5867340.65	180.11
inflow phos conc	ppb	354.36	395.75	130.04	440.72	384.77	191.11	161.09	436.23	280.49	450.02	389.74	258.66	445.97	399.96	426.83	361.84	300.71	438.73	421.96	357.92	358.46
outflow phos conc	ppb	154.08	130.03	72.81	129.05	86.59	81.60	109.69	280.49	221.86	194.62	389.72	167.43	198.99	399.94	100.40	361.83	300.71	438.72	218.03	357.92	230.67
p reaction rate	-	2.99	6.22	1.40	8.25	15.30	3.14	0.69	0.86	0.33	3.03	0.00	0.84	2.78	0.00	13.82	0.00	0.00	0.00	1.81	0.00	0.86
1-rp	-	0.43	0.33	0.56	0.29	0.23	0.43	0.68	0.64	0.79	0.43	1.00	0.65	0.45	1.00	0.24	1.00	1.00	1.00	0.52	1.00	0.64
vlawmo pond volume	acre-ft	0.10	0.13	0.00	0.06	4.55	3.18	3.05	5.38	0.00	0.23	1.00	2.16	2.21	1.15	0.35	2.24	4.05	1.81	1.04	2.43	0.06
LAND USE PARAMETERS.....																						
runoff total P conc	ppb	299.01	351.21	200.00	426.76	371.96	337.47	350.43	419.86	200.00	450.00	414.15	297.45	440.79	381.27	411.96	341.42	343.13	406.50	372.73	359.29	400.00
runoff coefficient		0.18	0.17	0.08	0.20	0.14	0.22	0.18	0.20	0.08	0.43	0.30	0.12	0.39	0.15	0.33	0.19	0.19	0.36	0.22	0.17	0.28
dissolved/total P		0.45	0.41	0.60	0.33	0.44	0.39	0.42	0.34	0.60	0.30	0.35	0.50	0.31	0.42	0.32	0.42	0.40	0.35	0.39	0.42	0.30
runoff TSS conc	ppm	178.38	167.74	216.00	147.06	188.67	171.15	180.04	150.17	216.00	140.00	155.09	198.35	144.04	185.09	144.23	169.74	169.95	152.28	163.49	176.10	140.00
POND TSS BUDGETS.....																						
runoff	lbs/yr	563.83	662.57	0.12	310.90	27011.95	16787.37	16806.28	26785.11	1.24	1113.37	4978.26	13394.08	10715.96	6626.18	1689.96	11801.66	21387.21	8885.75	5327.57	13230.31	289.52
upstream pond	lbs/yr	0.00	0.00	46.38	0.00	35.71	1893.34	1307.65	0.00	10178.34	0.00	77.94	11786.82	0.00	0.00	0.00	118.30	279737.17	0.00	0.00	7771.61	21001.92
total inflow	**lbs/yr**	**563.83**	**662.57**	**46.50**	**310.90**	**27047.67**	**18680.71**	**18113.93**	**26785.11**	**10179.58**	**1113.37**	**5056.19**	**25180.89**	**10715.96**	**6626.18**	**1689.96**	**11919.95**	**301124.38**	**8885.75**	**5327.57**	**21001.92**	**21291.43**
p removal efficiency (no inf)	%	57.00	68.00	45.00	71.00	78.00	58.00	32.00	36.00	21.00	57.00	0.00	36.00	56.00	0.00	77.00	0.00	0.00	0.00	49.00	0.00	36.00
tss removal efficiency (no inf)	%	93.00	93.00	70.00	93.00	93.00	93.00	58.50	62.00	41.25	93.00	0.00	62.00	93.00	0.00	93.00	0.00	0.00	0.00	78.50	0.00	62.00
net sedimentation	lbs/yr	524.37	616.19	32.55	289.14	25154.33	17373.06	10596.65	16606.77	4199.08	1035.43	0.00	15612.15	9965.85	0.00	1571.67	0.00	0.00	0.00	4182.14	0.00	13200.69
outflow	lbs/yr	39.47	46.38	13.95	21.76	1893.34	1307.65	7517.28	10178.34	5980.51	77.94	5056.19	9568.74	750.12	6626.18	118.30	11919.95	301124.38	8885.75	1145.43	21001.92	8090.74
tss removal efficiency (inf)	%	93.00	93.00	70.00	93.00	93.00	93.00	58.50	62.00	41.25	93.00	0.00	62.00	93.00	0.00	93.00	0.00	0.00	0.00	78.50	0.00	62.00
upstream watershed tss load	lbs/yr	563.83	662.57	662.69	310.90	27985.54	44772.91	61579.19	26785.11	26786.36	1113.37	6091.62	56988.02	10715.96	6626.18	1689.96	13491.62	442921.76	8885.75	5327.57	25184.06	25473.57
tss total removal efficiency	%	93.00	93.00	97.89	93.00	93.23	97.08	87.79	62.00	77.67	93.00	17.00	83.21	93.00	0.00	93.00	11.65	32.01	0.00	78.50	16.61	68.24
INFILTRATION BMP/POND.....																						
Annual runoff infiltrated	%	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Adjusted outflow	**ac-ft/yr**	**1.32**	**1.60**	**1.60**	**0.80**	**60.23**	**100.71**	**139.52**	**68.50**	**68.50**	**2.93**	**15.64**	**139.61**	**28.05**	**14.58**	**4.42**	**32.87**	**967.30**	**22.98**	**13.24**	**58.67**	**59.44**
Adjusted TP outflow	**lbs/yr**	**0.55**	**0.57**	**0.32**	**0.28**	**14.18**	**22.34**	**41.60**	**52.22**	**41.30**	**1.55**	**16.57**	**63.53**	**15.17**	**15.85**	**1.21**	**32.32**	**790.61**	**27.40**	**7.84**	**57.08**	**37.26**
Adjusted TSS outflow	**lbs/yr**	**39.47**	**46.38**	**13.95**	**21.76**	**1893.34**	**1307.65**	**7517.28**	**10178.34**	**5980.51**	**77.94**	**5056.19**	**9568.74**	**750.12**	**6626.18**	**118.30**	**11919.95**	**301124.38**	**8885.75**	**1145.43**	**21001.92**	**8090.74**

Rochester Loading Assessment																						
Zumbro River																						
363-06-158-2																						
Present (2005) LOADS																						
		zr-a2.8a	**zr-a3.1b**	**zr-a3.5a**	**zr-a3.5b**	**zr-a3.6a**	**zr-a3.1a**	**zr-a3.3h**	**zr-a3.3g**	**zr-a3.3f**	**zr-a3.3e**	**zr-a3.3i**	**zr-a3.3d**	**zr-a3.3c**	**zr-a3.3j**	**zr-a3.3b**	**zr-a3.3a**	**zr-a3.8d**	**zr-a3.8c**	**zr-a3.8f**	**zr-a3.8e**	**zr-a3.8e cell 2**
Routed TO:		zr-a3.1b	zr-a3.1a	zr-a3.5b	zr-a3.1a	zr-a3.1a	zr-a3.8a	zr-a3.3g	zr-a3.3e	zr-a3.3e	zr-a3.3d	zr-a3.3d	zr-a3.3c	zr-a3.3b	zr-a3.3b	zr-a3.3a	zr-a3.8d	zr-a3.8c	zr-a3.8b	zr-a3.8e	zr-a3.8e cell 2	zr-a3.8b
INPUT VARIABLES....	UNITS																					
case label	-																					
Watershed area	acres	23.6	1.8	162.8	213.1	56.1	79.0	2.7	14.0	9.3	42.7	42.7	59.5	24.1	0.9	4.9	27.6	18.7	6.0	29.7	52.5	0.0
basin area	acres	2.37	1.80	0.00	0.00	0.09	0.00	0.02	0.00	0.03	0.26	0.01	0.46	0.07	0.00	0.04	0.27	0.00	1.00	0.00	0.35	0.70
basin volume	acre-ft	15.75	9.48	0.00	0.00	0.54	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.03	0.00	0.00	3.12	0.00	1.37	2.73
Row Crop Agriculture		0%	0%	4%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Very Low Density Residential		0%	0%	31%	39%	15%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	2%	0%	0%	0%	0%	0%
Low Density Residential		0%	0%	29%	46%	15%	0%	77%	87%	100%	100%	77%	87%	99%	0%	19%	41%	0%	0%	39%	0%	0%
Medium Density Residential		12%	0%	0%	1%	0%	4%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
High Density Residential		79%	73%	0%	0%	0%	10%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	24%	0%
Commercial/Industrial		0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	70%	27%	34%	66%	0%	26%	36%	0%
Institutional		0%	0%	0%	1%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	5%	0%
Open Space		2%	27%	31%	9%	45%	74%	23%	13%	0%	0%	23%	13%	0%	0%	0%	4%	0%	0%	13%	3%	100%
Golf Course		0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Pits and Quarries		0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Right-of-Way		7%	0%	5%	5%	25%	12%	0%	0%	0%	0%	0%	0%	0%	30%	55%	19%	34%	100%	22%	33%	0%
WATERSHED-WIDE ACCOUNTING.....																						
tributary land area	ac	23.63	25.48	162.82	375.96	56.15	3393.32	2.69	16.71	9.26	68.64	42.73	170.92	195.01	0.93	200.81	228.41	247.14	253.12	29.72	82.26	82.27
tributary water area	ac	2.37	4.17	0.00	0.00	0.09	25.01	0.02	0.02	0.03	0.31	0.01	0.78	0.85	0.00	0.89	1.16	1.16	2.16	0.00	0.35	1.05
direct and ponded area	ac	26.00	29.65	162.82	375.96	56.24	3418.33	2.71	16.73	9.29	68.95	42.74	171.70	195.86	0.93	201.70	229.57	248.30	255.28	29.72	82.61	83.32
ASSUMED EXPORT FACTORS.....																						
season length	yrs	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
season precipitation	inches	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8
runoff total p	ppb	441.59	382.42	341.10	385.71	309.96	258.89	393.57	416.49	450.00	449.92	392.95	417.98	448.85	365.14	395.77	394.71	366.91	400.00	380.77	385.41	200.00
runoff ortho p/total p	-	0.31	0.38	0.45	0.40	0.47	0.52	0.37	0.34	0.30	0.30	0.37	0.34	0.30	0.30	0.30	0.32	0.30	0.30	0.34	0.31	0.60
unit runoff	in/yr	12.57	10.61	4.26	5.03	4.79	4.68	5.80	6.18	6.74	6.74	5.79	6.21	6.73	12.81	9.96	9.55	12.60	8.77	8.70	11.83	2.54
unit export	lbs/ac-y	1.27	1.04	0.37	0.47	0.39	0.36	0.56	0.61	0.69	0.69	0.56	0.61	0.68	1.05	0.87	0.84	1.03	0.79	0.76	1.04	0.12
POND WATER BUDGETS.....																						
runoff	ac-ft/yr	24.76	1.63	57.75	89.43	22.43	30.81	1.30	7.22	5.20	23.98	20.60	30.79	13.50	0.99	4.04	21.98	19.67	4.37	21.55	51.79	0.00
upstream pond	ac-ft/yr	0.00	24.76	0.00	57.75	0.00	1245.71	0.00	1.30	0.00	13.72	0.00	58.30	89.09	0.00	103.58	107.63	129.61	149.28	0.00	21.55	73.34
total inflow	**ac-ft/yr**	**24.76**	**26.39**	**57.75**	**147.18**	**22.43**	**1276.52**	**1.30**	**8.52**	**5.20**	**37.70**	**20.60**	**89.09**	**102.60**	**0.99**	**107.63**	**129.61**	**149.28**	**153.65**	**21.55**	**73.34**	**73.34**
outflow	ac-ft/yr	24.76	26.39	57.75	147.18	22.43	1276.52	1.30	8.52	5.20	37.70	20.60	89.09	102.60	0.99	107.63	129.61	149.28	153.65	21.55	73.34	73.34
POND PHOSPHORUS BUDGETS.....																						
runoff	lbs/yr	30.06	1.92	59.60	99.71	21.84	28.32	1.50	8.56	6.36	29.33	23.79	36.57	16.50	0.97	4.25	23.07	19.34	4.75	22.59	54.67	0.00
upstream pond	lbs/yr	0.00	8.11	0.00	59.60	0.00	1033.67	0.00	1.50	0.00	16.42	0.00	69.54	106.11	0.00	123.57	125.52	148.59	167.94	0.00	22.59	46.71
total inflow	**lbs/yr**	**30.06**	**10.03**	**59.60**	**159.31**	**21.84**	**1061.99**	**1.50**	**10.06**	**6.36**	**45.75**	**23.79**	**106.11**	**122.61**	**0.97**	**127.82**	**148.59**	**167.94**	**172.69**	**22.59**	**77.26**	**46.71**
net sedimentation	lbs/yr	21.96	4.89	0.00	0.00	7.88	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.30	0.00	0.00	71.88	0.00	30.54	13.55
outflow	lbs/yr	8.11	5.14	59.60	159.31	13.96	1061.99	1.50	10.06	6.36	45.75	23.79	106.11	122.61	0.97	125.52	148.59	167.94	100.80	22.59	46.71	33.16
p removal efficiency	%	73.03	48.76	0.00	0.00	36.10	0.00	0.03	0.01	0.01	0.00	0.00	0.00	0.00	0.07	1.80	0.00	0.00	41.63	0.00	39.54	29.00
upstream w-shed p load	lbs/yr	30.06	31.99	59.60	159.31	21.84	1389.94	1.50	10.06	6.36	45.75	23.79	106.11	122.61	0.97	127.83	150.90	170.24	174.99	22.59	77.26	77.26
total removal %	%	73.03	83.93	0.00	0.00	36.10	23.59	0.03	0.01	0.01	0.01	0.00	0.00	0.00	0.07	1.80	1.53	1.35	42.39	0.00	39.54	57.07
HYDRAULIC PARAMETERS.....																						
pond mean depth	feet	6.65	5.27	1.00	1.00	6.00	1.00	0.00	1.00	0.00	0.00	0.00	0.00	0.00	1.00	0.63	0.00	1.00	3.12	1.00	3.90	3.90
relative volume	inches	20.23	184.72	0.00	0.00	0.77	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.20	0.00	0.00	22.72	0.00	0.84	40995.00
residence time	years	0.64	0.36	0.00	0.00	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.00	0.02	0.04
residence time	days	232.17	131.10	0.00	0.00	8.79	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.08	0.00	0.00	7.42	0.00	6.80	13.60
overflow rate	ft/yr	10.45	14.66	5775119.99	14718102.23	249.21	127651806.37	64.94	851951.27	173.37	144.99	2060.00	193.68	1465.67	98735.31	2690.68	480.03	14927961.04	153.65	2154516.01	209.54	104.77
inflow phos conc	ppb	446.69	139.84	379.67	398.24	358.24	306.09	425.25	434.54	450.02	446.49	424.93	438.18	439.68	360.39	436.95	421.81	413.90	413.50	385.72	387.57	234.34
outflow phos conc	ppb	120.46	71.66	379.67	398.23	228.93	306.09	425.12	434.50	449.97	446.48	424.92	438.18	439.67	360.14	429.09	421.81	413.90	241.38	385.71	234.34	166.37
p reaction rate	-	10.04	1.86	0.00	0.00	0.88	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.00	0.00	1.22	0.00	1.08	0.58
1-rp	-	0.27	0.51	1.00	1.00	0.64	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.98	1.00	1.00	0.58	1.00	0.60	0.71
vlawmo pond volume	acre-ft	1.95	0.13	4.54	7.03	1.76	2.42	0.10	0.57	0.41	1.89	1.62	2.42	1.06	0.08	0.32	1.73	1.55	0.34	1.69	4.07	0.00
LAND USE PARAMETERS.....																						
runoff total P conc	ppb	441.59	382.42	341.10	385.71	309.96	258.89	393.57	416.49	450.00	449.92	392.95	417.98	448.85	365.14	395.77	394.71	366.91	400.00	380.77	385.41	200.00
runoff coefficient		0.40	0.33	0.13	0.16	0.15	0.15	0.18	0.19	0.21	0.21	0.18	0.20	0.21	0.40	0.31	0.30	0.40	0.28	0.27	0.37	0.08
dissolved/total P		0.31	0.38	0.45	0.40	0.47	0.52	0.37	0.34	0.30	0.30	0.37	0.34	0.30	0.30	0.30	0.32	0.30	0.30	0.34	0.31	0.60
runoff TSS conc	ppm	141.56	160.54	188.58	176.47	185.56	196.29	157.16	150.19	140.00	140.02	157.34	149.74	140.34	140.00	140.00	144.48	140.00	140.00	149.75	142.39	216.00
POND TSS BUDGETS.....																						
runoff	lbs/yr	9415.56	640.97	26897.77	39019.66	10041.41	14242.97	519.26	2821.60	1973.30	9097.61	8241.40	12016.61	5128.13	374.60	1534.03	8414.95	7462.95	1657.68	8340.72	19722.08	1.24
upstream pond	lbs/yr	0.00	659.09	0.00	26897.77	0.00	388013.14	0.00	519.26	0.00	5314.16	0.00	22653.16	34669.77	0.00	40172.51	40068.07	48483.02	55945.97	0.00	8340.72	9541.35
total inflow	**lbs/yr**	**9415.56**	**1300.06**	**26897.77**	**65917.43**	**10041.41**	**402256.11**	**519.26**	**3340.85**	**1973.30**	**14411.76**	**8241.40**	**34669.77**	**39797.91**	**374.60**	**41706.54**	**48483.02**	**55945.97**	**57603.64**	**8340.72**	**28062.80**	**9542.59**
p removal efficiency (no inf)	%	74.00	49.00	0.00	0.00	37.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.00	0.00	0.00	42.00	0.00	40.00	30.00
tss removal efficiency (no inf)	%	93.00	78.50	0.00	0.00	63.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.93	0.00	0.00	68.00	0.00	66.00	56.75
net sedimentation	lbs/yr	8756.47	1020.55	0.00	0.00	6326.09	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1638.47	0.00	0.00	39170.48	0.00	18521.45	5415.42
outflow	lbs/yr	659.09	279.51	26897.77	65917.43	3715.32	402256.11	519.26	3340.85	1973.30	14411.76	8241.40	34669.77	39797.91	374.60	40068.07	48483.02	55945.97	18433.16	8340.72	9541.35	4127.17
tss removal efficiency (inf)	%	93.00	78.50	0.00	0.00	63.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.93	0.00	0.00	68.00	0.00	66.00	56.75
upstream watershed tss load	lbs/yr	9415.56	10056.53	26897.77	65917.43	10041.41	577539.42	519.26	3340.85	1973.30	14411.76	8241.40	34669.77	39797.91	374.60	41706.54	50121.49	57584.44	59242.11	8340.72	28062.80	28064.04
tss total removal efficiency	%	93.00	97.22	0.00	0.00	63.00	30.35	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.93	3.27	2.85	68.89	0.00	66.00	85.29
INFILTRATION BMP/POND.....																						
Annual runoff infiltrated	%	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Adjusted outflow	**ac-ft/yr**	**24.76**	**26.39**	**57.75**	**147.18**	**22.43**	**1276.52**	**1.30**	**8.52**	**5.20**	**37.70**	**20.60**	**89.09**	**102.60**	**0.99**	**107.63**	**129.61**	**149.28**	**153.65**	**21.55**	**73.34**	**73.34**
Adjusted TP outflow	**lbs/yr**	**8.11**	**5.14**	**59.60**	**159.31**	**13.96**	**1061.99**	**1.50**	**10.06**	**6.36**	**45.75**	**23.79**	**106.11**	**122.61**	**0.97**	**125.52**	**148.59**	**167.94**	**100.80**	**22.59**	**46.71**	**33.16**
Adjusted TSS outflow	**lbs/yr**	**659.09**	**279.51**	**26897.77**	**65917.43**	**3715.32**	**402256.11**	**519.26**	**3340.85**	**1973.30**	**14411.76**	**8241.40**	**34669.77**	**39797.91**	**374.60**	**40068.07**	**48483.02**	**55945.97**	**18433.16**	**8340.72**	**9541.35**	**4127.17**

Rochester Loading Assessment																						
Zumbro River																						
363-06-158-2																						
Present (2005) LOADS												street sweeping applied to 4.5 ac		street sweeping applied to 75.1 ac					street sweeping applied to 127.6 ac				
		zr-a3.8b	**zr-a3.6b**	**zr-a3.7**	**zr-a3.8g**	**zr-a3.8i**	**zr-a3.8h**	**zr-a3.8a**	**zr-a3.4b**	**zr-a3.4a**	**zr-a3.9**	**zr-a3.11**	**zr-a3.10**	**zr-a3.12**	**zr-a4.1d**	**zr-a4.1c**	**zr-a4.1b**	**zr-a4.1a**	**zr-a4.2b**	**zr-a4.2a**	**zr-a4.3f**	**zr-a4.3e**
Routed TO:		zr-a3.8a	zr-a3.8a	zr-a3.8a	zr-a3.8a	zr-a3.8a	zr-a3.8a	zr-a3.11	zr-a3.4a	zr-a3.11	zr-a3.11	zr-a3.12	zr-a3.12	zr-a4.1a	zr-a4.1c	zr-a4.1b	zr-a4.1a	zr-a4.2a	zr-a4.2a	zr-a4.5	zr-a4.3a	zr-a4.3a
INPUT VARIABLES....	UNITS																					
case label	-																					
Watershed area	acres	6.4	46.5	82.4	4.7	6.5	4.7	465.0	6.4	183.4	384.9	470.9	153.3	166.0	4.2	8.1	7.1	999.0	2.5	352.4	13.7	12.3
basin area	acres	0.92	0.00	0.75	0.04	0.11	0.03	0.00	0.01	1.50	0.00	0.00	0.00	0.00	0.08	0.01	0.03	0.00	0.14	0.00	0.39	0.02
basin volume	acre-ft	2.96	0.00	3.00	0.93	0.13	0.05	0.00	0.00	8.25	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.42	0.00	1.52	0.00
Row Crop Agriculture		0%	0%	0%	0%	0%	0%	2%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Very Low Density Residential		0%	20%	13%	0%	13%	0%	7%	0%	5%	0%	1%	0%	0%	0%	0%	0%	0%	0%	4%	0%	0%
Low Density Residential		0%	43%	33%	0%	44%	0%	31%	100%	58%	41%	46%	56%	8%	92%	93%	88%	42%	0%	22%	0%	16%
Medium Density Residential		0%	0%	0%	0%	0%	0%	2%	0%	1%	3%	5%	6%	4%	0%	0%	0%	6%	0%	1%	0%	0%
High Density Residential		0%	0%	0%	0%	43%	0%	2%	0%	1%	2%	1%	0%	8%	0%	0%	0%	3%	0%	8%	0%	57%
Commercial/Industrial		0%	0%	0%	97%	0%	100%	22%	0%	1%	41%	8%	23%	41%	0%	0%	0%	14%	0%	16%	0%	0%
Institutional		0%	0%	43%	0%	0%	0%	4%	0%	8%	2%	2%	8%	27%	0%	0%	9%	10%	0%	4%	0%	22%
Open Space		0%	6%	7%	3%	0%	0%	20%	0%	5%	4%	9%	2%	3%	8%	7%	3%	18%	97%	39%	100%	5%
Golf Course		0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	23%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Pits and Quarries		0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Right-of-Way		100%	30%	3%	0%	0%	0%	10%	0%	22%	8%	6%	4%	10%	0%	0%	0%	8%	3%	7%	0%	0%
WATERSHED-WIDE ACCOUNTING.....																						
tributary land area	ac	341.80	46.47	82.40	4.69	6.53	4.68	4344.87	6.45	189.81	384.86	5390.43	153.31	5709.74	4.24	12.35	19.46	6728.18	2.50	7083.05	13.67	12.27
tributary water area	ac	4.13	0.00	0.75	0.04	0.11	0.03	30.07	0.01	1.51	0.00	31.58	0.00	31.58	0.08	0.09	0.12	31.70	0.14	31.84	0.39	0.02
direct and ponded area	ac	345.93	46.47	83.15	4.73	6.64	4.71	4374.95	6.46	191.32	384.86	5422.01	153.31	5741.32	4.32	12.44	19.58	6759.88	2.64	7114.89	14.06	12.29
ASSUMED EXPORT FACTORS.....																						
season length	yrs	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
season precipitation	inches	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8
runoff total p	ppb	400.00	399.05	373.72	345.40	437.28	350.00	364.47	450.00	412.90	393.68	438.16	411.99	369.08	429.59	431.68	433.27	378.46	205.62	325.03	200.90	414.98
runoff ortho p/total p	-	0.30	0.36	0.35	0.31	0.33	0.30	0.37	0.30	0.32	0.31	0.42	0.31	0.31	0.32	0.32	0.31	0.35	0.59	0.42	0.60	0.32
unit runoff	in/yr	8.77	6.32	7.27	14.19	9.21	14.56	7.83	6.74	7.17	10.21	6.50	9.00	11.46	6.40	6.44	6.87	7.87	2.72	7.03	2.59	11.11
unit export	lbs/ac-y	0.79	0.59	0.62	1.12	0.93	1.15	0.68	0.69	0.68	0.89	0.63	0.82	0.96	0.64	0.65	0.68	0.70	0.13	0.59	0.12	1.08
POND WATER BUDGETS.....																						
runoff	ac-ft/yr	4.68	24.47	49.93	5.55	5.01	5.68	303.27	3.62	109.56	327.44	255.21	114.97	158.56	2.26	4.35	4.08	655.46	0.57	206.33	2.95	11.36
upstream pond	ac-ft/yr	226.99	0.00	0.00	0.00	0.00	0.00	1598.83	0.00	3.62	0.00	2342.72	0.00	2712.89	0.00	2.26	6.61	2882.14	0.00	3538.16	0.00	0.00
total inflow	**ac-ft/yr**	**231.68**	**24.47**	**49.93**	**5.55**	**5.01**	**5.68**	**1902.10**	**3.62**	**113.19**	**327.44**	**2597.93**	**114.97**	**2871.45**	**2.26**	**6.61**	**10.69**	**3537.59**	**0.57**	**3744.49**	**2.95**	**11.36**
outflow	ac-ft/yr	231.68	24.47	49.93	5.55	5.01	5.68	1902.10	3.62	113.19	327.44	2597.93	114.97	2871.45	2.26	6.61	10.69	3537.59	0.57	3744.49	2.95	11.36
POND PHOSPHORUS BUDGETS.....																						
runoff	lbs/yr	5.09	27.50	51.42	5.27	6.07	5.40	314.62	4.43	124.45	341.63	295.54	125.11	152.78	2.72	5.23	4.82	692.41	0.34	207.45	1.64	13.19
upstream pond	lbs/yr	133.97	0.00	0.00	0.00	0.00	0.00	1227.71	0.00	4.43	0.00	1937.80	0.00	2358.45	0.00	2.71	7.95	2524.00	0.00	3216.60	0.00	0.00
total inflow	**lbs/yr**	**139.06**	**27.50**	**51.42**	**5.27**	**6.07**	**5.40**	**1542.33**	**4.43**	**128.88**	**341.63**	**2233.35**	**125.11**	**2511.24**	**2.72**	**7.95**	**12.76**	**3216.41**	**0.34**	**3424.05**	**1.64**	**13.19**
net sedimentation	lbs/yr	34.97	0.00	26.55	3.71	2.34	1.44	0.00	0.00	75.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.14	0.00	0.73	0.00
outflow	lbs/yr	104.10	27.50	24.87	1.56	3.73	3.96	1542.33	4.43	53.84	341.63	2233.35	125.10	2511.24	2.71	7.95	12.76	3216.41	0.19	3424.05	0.91	13.19
p removal efficiency	%	25.14	0.00	51.63	70.44	38.49	26.65	0.00	0.02	58.23	0.00	0.00	0.00	0.00	0.01	0.01	0.01	0.00	42.69	0.00	44.66	0.01
upstream w-shed p load	lbs/yr	257.34	27.50	51.42	5.27	6.07	5.40	2057.56	4.43	128.88	341.63	2823.62	125.11	3101.51	2.72	7.95	12.77	3806.69	0.34	4014.47	1.64	13.19
total removal %	%	59.55	0.00	51.63	70.44	38.49	26.65	25.04	0.02	58.23	0.00	20.90	0.00	19.03	0.01	0.02	0.02	15.51	42.69	14.71	44.66	0.01
HYDRAULIC PARAMETERS.....																						
pond mean depth	feet	3.21	1.00	4.00	23.25	1.18	1.77	1.00	0.00	5.50	1.00	1.00	1.00	1.00	0.00	0.00	0.00	1.00	3.00	1.00	3.90	0.00
relative volume	inches	20.09	0.00	1.91	5.33	0.83	0.30	0.00	0.00	2.39	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	23.63	0.00	16.38	0.00
residence time	years	0.01	0.00	0.06	0.17	0.03	0.01	0.00	0.00	0.07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.74	0.00	0.52	0.00
residence time	days	4.66	0.00	21.93	61.14	9.48	3.40	0.00	0.00	26.60	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	271.18	0.00	188.05	0.00
overflow rate	ft/yr	251.00	2447328.30	66.57	138.79	45.52	189.38	190209844.83	362.37	75.46	32743602.54	259792803.41	11496552.78	287145127.02	28.26	660.92	356.21	353759276.78	4.04	374448924.30	7.56	473.21
inflow phos conc	ppb	220.84	413.37	378.90	349.19	445.91	350.02	298.33	450.02	418.94	383.87	316.29	400.37	321.76	441.91	442.46	439.45	334.51	218.13	336.43	204.81	427.45
outflow phos conc	ppb	165.32	413.36	183.27	103.23	274.28	256.73	298.33	449.93	175.01	383.87	316.29	400.37	321.76	441.85	442.42	439.42	334.51	125.01	336.43	113.34	427.43
p reaction rate	-	0.45	0.00	2.21	8.06	1.02	0.50	0.00	0.00	3.34	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.30	0.00	1.46	0.00
1-rp	-	0.75	1.00	0.48	0.30	0.62	0.73	1.00	1.00	0.42	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.57	1.00	0.55	1.00
vlawmo pond volume	acre-ft	0.37	1.92	3.92	0.44	0.39	0.45	23.84	0.28	8.61	25.74	20.06	9.04	12.47	0.18	0.34	0.32	51.53	0.04	16.22	0.23	0.89
LAND USE PARAMETERS.....																						
runoff total P conc	ppb	400.00	399.05	373.72	345.40	437.28	350.00	364.47	450.00	412.90	393.68	438.16	411.99	369.08	429.59	431.68	433.27	378.46	205.62	325.03	200.90	414.98
runoff coefficient		0.28	0.20	0.23	0.45	0.29	0.46	0.25	0.21	0.23	0.32	0.20	0.28	0.36	0.20	0.20	0.22	0.25	0.09	0.22	0.08	0.35
dissolved/total P		0.30	0.36	0.35	0.31	0.33	0.30	0.37	0.30	0.32	0.31	0.42	0.31	0.31	0.32	0.32	0.31	0.35	0.59	0.42	0.60	0.32
runoff TSS conc	ppm	140.00	160.24	155.80	142.33	149.67	140.00	161.12	140.00	147.42	142.82	164.67	141.37	142.51	146.20	145.57	142.41	153.70	213.87	172.66	215.69	143.82
POND TSS BUDGETS.....																						
runoff	lbs/yr	1777.47	9896.41	19771.70	2112.61	1942.04	2155.51	121042.63	1374.82	42412.75	124853.17	104078.89	43738.87	55801.62	872.78	1675.81	1556.74	249494.40	320.37	84996.39	1713.90	4335.77
upstream pond	lbs/yr	22560.34	0.00	0.00	0.00	0.00	0.00	428866.33	0.00	1374.82	0.00	677827.26	0.00	825645.02	0.00	872.78	2548.59	885551.97	0.00	1135146.76	0.00	0.00
total inflow	**lbs/yr**	**24337.80**	**9896.41**	**19771.70**	**2112.61**	**1942.04**	**2155.51**	**549908.96**	**1374.82**	**43787.57**	**124853.17**	**781906.15**	**43738.87**	**881446.64**	**872.78**	**2548.59**	**4105.33**	**1135046.38**	**320.37**	**1220143.15**	**1713.90**	**4335.77**
p removal efficiency (no inf)	%	26.00	0.00	52.00	71.00	39.00	27.00	0.00	0.00	59.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	43.00	0.00	45.00	0.00
tss removal efficiency (no inf)	%	51.07	0.00	85.00	93.00	65.00	53.04	0.00	0.00	93.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	68.67	0.00	70.00	0.00
net sedimentation	lbs/yr	12429.66	0.00	16805.95	1964.72	1262.33	1143.19	0.00	0.00	40722.44	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	219.98	0.00	1199.73	0.00
outflow	lbs/yr	11908.14	9896.41	2965.76	147.88	679.72	1012.32	549908.96	1374.82	3065.13	124853.17	781906.15	43738.87	881446.64	872.78	2548.59	4105.33	1135046.38	100.38	1220143.15	514.17	4335.77
tss removal efficiency (inf)	%	51.07	0.00	85.00	93.00	65.00	53.04	0.00	0.00	93.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	68.67	0.00	70.00	0.00
upstream watershed tss load	lbs/yr	89083.62	9896.41	19771.70	2112.61	1942.04	2155.51	823543.95	1374.82	43787.57	124853.17	1096263.57	43738.87	1195804.06	872.78	2548.59	4105.33	1449403.80	320.37	1534720.56	1713.90	4335.77
tss total removal efficiency	%	86.63	0.00	85.00	93.00	65.00	53.04	33.23	0.00	93.00	0.00	28.68	0.00	26.29	0.00	0.00	0.00	21.69	68.67	20.50	70.00	0.00
INFILTRATION BMP/POND.....																						
Annual runoff infiltrated	%	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Adjusted runoff infiltrated	**ac-ft/yr**	**231.68**	**24.47**	**49.93**	**5.55**	**5.01**	**5.68**	**1902.10**	**3.62**	**113.19**	**327.44**	**2597.93**	**114.97**	**2871.45**	**2.26**	**6.61**	**10.69**	**3537.59**	**0.57**	**3744.49**	**2.95**	**11.36**
Adjusted TP outflow	**lbs/yr**	**104.10**	**27.50**	**24.87**	**1.56**	**3.73**	**3.96**	**1542.33**	**4.43**	**53.84**	**341.63**	**2233.35**	**125.10**	**2511.24**	**2.71**	**7.95**	**12.76**	**3216.41**	**0.19**	**3424.05**	**0.91**	**13.19**
Adjusted TSS outflow	**lbs/yr**	**11908.14**	**9896.41**	**2965.76**	**147.88**	**679.72**	**1012.32**	**549908.96**	**1374.82**	**3065.13**	**124853.17**	**781906.15**	**43738.87**	**881446.64**	**872.78**	**2548.59**	**4105.33**	**1135046.38**	**100.38**	**1220143.15**	**514.17**	**4335.77**

Rochester Loading Assessment																				
Zumbro River																				
363-06-158-2																				
Present (2005) LOADS																				
		zr-a4.3d	**zr-a4.3c**	**zr-a4.3b**	**zr-a4.3a**	**zr-a4.5**	**zr-a4.4f**	**zr-a4.4f cell 2**	**zr-a4.4e**	**zr-a4.4d**	**zr-a4.4c**	**zr-a4.4b**	**zr-a4.4a**	**zr-a4.6d**	**zr-a4.6c**	**zr-a4.6b**	**zr-a4.6a**	**zr-a4.7**	**zr-a4.8**	**exit 9**
Routed TO:		zr-a4.3a	zr-a4.3b	zr-a4.3a	zr-a4.5	zr-a4.6a	zr-a4.4f cell 2	zr-a4.4a	zr-a4.4d	zr-a4.4a	zr-a4.4b	zr-a4.4a	zr-a4.6a	zr-a4.6a	zr-a4.6a	zr-a4.6a	zr-a4.7	exit city	exit city	exit city
INPUT VARIABLES....	UNITS																			
case label	-																			
Watershed area	acres	53.8	47.7	2.7	451.7	303.4	41.6	0.0	0.5	2.1	11.9	56.8	97.7	23.4	15.5	2.0	707.6	165.4	80.2	93.7
basin area	acres	0.00	0.15	0.66	0.00	0.00	0.16	0.24	0.56	0.02	0.09	0.57	0.00	0.00	0.62	0.34	0.00	0.00	0.00	0.00
basin volume	acre-ft	0.00	0.00	2.68	0.00	0.00	0.59	0.89	0.00	0.00	0.24	1.58	0.00	0.00	2.05	0.93	0.00	0.00	0.00	0.00
Row Crop Agriculture		0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	19%	21%	4%	4%
Very Low Density Residential		0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	9%	6%	0%	0%	1%	5%	1%	29%
Low Density Residential		73%	42%	26%	52%	35%	36%	0%	0%	0%	90%	18%	24%	0%	0%	80%	1%	5%	15%	4%
Medium Density Residential		0%	0%	0%	1%	3%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	2%	0%
High Density Residential		0%	22%	0%	8%	7%	12%	0%	21%	21%	10%	8%	0%	0%	0%	0%	1%	0%	44%	10%
Commercial/Industrial		0%	7%	0%	6%	12%	0%	0%	0%	0%	0%	0%	29%	0%	47%	0%	22%	0%	0%	1%
Institutional		0%	1%	0%	2%	1%	25%	0%	0%	0%	0%	0%	3%	0%	0%	0%	1%	0%	0%	0%
Open Space		27%	28%	74%	27%	34%	14%	100%	79%	77%	0%	48%	13%	84%	50%	20%	30%	58%	26%	45%
Golf Course		0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Pits and Quarries		0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	8%	0%	0%	18%	4%	0%	0%
Right-of-Way		0%	0%	0%	3%	8%	14%	0%	0%	2%	0%	26%	21%	1%	3%	0%	7%	7%	9%	7%
WATERSHED-WIDE ACCOUNTING.....																				
tributary land area	ac	53.80	47.69	50.35	581.83	7968.31	41.60	41.61	0.51	2.65	11.86	68.69	210.65	23.37	15.54	2.02	8927.50	9092.85	80.22	93.74
tributary water area	ac	0.00	0.15	0.81	1.22	33.07	0.16	0.40	0.56	0.58	0.09	0.66	1.64	0.00	0.62	0.34	35.66	35.66	0.00	0.00
direct and ponded area	ac	53.80	47.84	51.16	583.06	8001.38	41.76	42.01	1.07	3.22	11.95	69.35	212.28	23.37	16.16	2.36	8963.16	9128.51	80.22	93.74
ASSUMED EXPORT FACTORS.....																				
season length	yrs	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
season precipitation	inches	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8
runoff total p	ppb	382.03	371.93	264.46	372.23	349.08	382.77	200.00	252.17	257.36	450.00	317.70	366.12	196.16	276.17	398.86	281.90	298.42	384.29	307.42
runoff ortho p/total p	-	0.38	0.38	0.52	0.38	0.40	0.34	0.60	0.54	0.53	0.30	0.44	0.36	0.54	0.45	0.36	0.32	0.45	0.37	0.49
unit runoff	in/yr	5.60	7.61	3.63	6.79	7.03	7.96	2.54	4.85	5.01	7.44	5.82	8.63	2.49	8.36	5.88	5.76	3.53	8.79	4.62
unit export	lbs/ac-y	0.53	0.71	0.26	0.63	0.62	0.72	0.12	0.38	0.40	0.76	0.50	0.73	0.13	0.62	0.57	0.48	0.28	0.85	0.38
POND WATER BUDGETS.....																				
runoff	ac-ft/yr	25.11	30.24	0.80	255.69	177.79	27.61	0.00	0.21	0.89	7.35	27.56	70.27	4.85	10.83	0.99	339.43	48.63	58.74	36.07
upstream pond	ac-ft/yr	0.00	0.00	30.24	70.47	4070.64	0.00	27.61	0.00	0.21	0.00	7.35	63.61	0.00	0.00	0.00	4398.99	4738.42	0.00	0.00
total inflow	**ac-ft/yr**	**25.11**	**30.24**	**31.05**	**326.16**	**4248.44**	**27.61**	**27.61**	**0.21**	**1.10**	**7.35**	**34.91**	**133.88**	**4.85**	**10.83**	**0.99**	**4738.42**	**4787.05**	**58.74**	**36.07**
outflow	ac-ft/yr	25.11	30.24	31.05	326.16	4248.44	27.61	27.61	0.21	1.10	7.35	34.91	133.88	4.85	10.83	0.99	4738.42	4787.05	58.74	36.07
POND PHOSPHORUS BUDGETS.....																				
runoff	lbs/yr	28.61	33.89	0.70	282.83	187.88	30.08	0.00	0.20	0.85	8.99	28.34	71.60	2.96	9.67	1.15	337.53	47.12	68.41	35.54
upstream pond	lbs/yr	0.00	0.00	33.89	60.11	3766.98	0.00	18.04	0.00	0.20	0.00	4.69	33.67	0.00	0.00	0.00	4068.23	4405.76	0.00	0.00
total inflow	**lbs/yr**	**28.61**	**33.89**	**34.59**	**342.94**	**3954.87**	**30.08**	**18.04**	**0.20**	**1.04**	**8.99**	**33.03**	**105.27**	**2.96**	**9.67**	**1.15**	**4405.76**	**4452.88**	**68.41**	**35.54**
net sedimentation	lbs/yr	0.00	0.00	17.20	0.00	0.00	12.05	4.97	0.00	0.00	4.30	13.47	0.00	0.00	5.00	0.70	0.00	0.00	0.00	0.00
outflow	lbs/yr	28.61	33.89	17.39	342.94	3954.87	18.04	13.07	0.20	1.04	4.69	19.56	105.27	2.96	4.67	0.45	4405.76	4452.88	68.41	35.54
p removal efficiency	%	0.00	0.00	49.72	0.00	0.00	40.04	27.55	0.00	0.02	47.84	40.78	0.00	0.00	51.68	60.62	0.00	0.00	0.00	0.00
upstream w-shed p load	lbs/yr	28.61	33.89	34.59	360.87	4563.23	30.08	30.08	0.20	1.04	8.99	37.33	140.06	2.96	9.67	1.15	5054.60	5101.72	68.41	35.54
total removal %	%	0.00	0.00	49.73	4.97	13.33	40.04	56.56	0.00	0.02	47.84	47.60	24.84	0.00	51.68	60.62	12.84	12.72	0.00	0.00
HYDRAULIC PARAMETERS.....																				
pond mean depth	feet	1.00	0.00	4.06	1.00	1.00	3.70	3.70	0.00	0.00	2.62	2.77	1.00	1.00	3.31	2.74	1.00	1.00	1.00	1.00
relative volume	inches	0.00	0.00	106.28	0.00	0.00	0.68	13380.00	0.00	0.00	1.02	1.82	0.00	0.00	6.03	29.89	0.00	0.00	0.00	0.00
residence time	years	0.00	0.00	0.09	0.00	0.00	0.02	0.03	0.00	0.00	0.03	0.05	0.00	0.00	0.19	0.94	0.00	0.00	0.00	0.00
residence time	days	0.00	0.00	31.51	0.00	0.00	7.77	11.79	0.02	0.00	11.72	16.52	0.00	0.00	69.19	343.08	0.00	0.00	0.00	0.00
overflow rate	ft/yr	2511476.87	201.62	47.04	32615530.64	424843944.34	173.62	114.56	0.37	73.19	81.66	61.24	13387878.37	485329.63	17.47	2.92	473842078.93	478705234.26	5873621.25	3607449.15
inflow phos conc	ppb	419.15	412.33	409.94	386.85	342.49	400.92	240.38	346.23	349.91	450.02	348.13	289.31	224.32	328.63	427.91	342.09	342.23	428.50	362.42
outflow phos conc	ppb	419.14	412.33	206.10	386.85	342.49	240.38	174.15	346.23	349.83	234.74	206.17	289.31	224.31	158.78	168.50	342.09	342.23	428.49	362.42
p reaction rate	-	0.00	0.00	1.97	0.00	0.00	1.11	0.52	0.00	0.00	1.76	1.16	0.00	0.00	2.21	3.91	0.00	0.00	0.00	0.00
1-rp	-	1.00	1.00	0.50	1.00	1.00	0.60	0.72	1.00	1.00	0.52	0.59	1.00	1.00	0.48	0.39	1.00	1.00	1.00	1.00
vlawmo pond volume	acre-ft	1.97	2.38	0.06	20.10	13.98	2.17	0.00	0.02	0.07	0.58	2.17	5.52	0.38	0.85	0.08	26.68	3.82	4.62	2.84
LAND USE PARAMETERS.....																				
runoff total P conc	ppb	382.03	371.93	264.46	372.23	349.08	382.77	200.00	252.17	257.36	450.00	317.70	366.12	196.16	276.17	398.86	281.90	298.42	384.29	307.42
runoff coefficient		0.18	0.24	0.11	0.21	0.22	0.25	0.08	0.15	0.16	0.23	0.18	0.27	0.08	0.26	0.19	0.18	0.11	0.28	0.15
dissolved/total P		0.38	0.38	0.52	0.38	0.40	0.34	0.60	0.54	0.53	0.30	0.44	0.36	0.54	0.45	0.36	0.32	0.45	0.37	0.49
runoff TSS conc	ppm	160.66	161.41	196.40	160.74	165.52	150.94	216.00	200.14	198.33	140.00	176.30	157.02	196.72	178.14	155.54	142.57	187.28	160.88	197.27
POND TSS BUDGETS.....																				
runoff	lbs/yr	10167.25	12061.13	390.21	102391.19	71903.78	10734.50	1.24	96.40	409.43	2788.27	11640.03	27683.56	2770.36	4449.48	394.67	141541.82	23859.38	23282.49	17012.29
upstream pond	lbs/yr	0.00	0.00	12061.13	17382.95	1339917.29	0.00	3542.38	0.00	96.40	0.00	669.18	6162.50	0.00	0.00	0.00	1449132.55	1590674.37	0.00	0.00
total inflow	**lbs/yr**	**10167.25**	**12061.13**	**12451.34**	**119774.14**	**1411821.07**	**10734.50**	**3543.63**	**96.40**	**505.83**	**2788.27**	**12309.21**	**33846.07**	**2770.36**	**4449.48**	**394.67**	**1590674.37**	**1614533.75**	**23282.49**	**17012.29**
p removal efficiency (no inf)	%	0.00	0.00	50.00	0.00	0.00	41.00	28.00	0.00	0.00	48.00	41.00	0.00	0.00	52.00	61.00	0.00	0.00	0.00	0.00
tss removal efficiency (no inf)	%	0.00	0.00	81.00	0.00	0.00	67.00	55.00	0.00	0.00	76.00	67.00	0.00	0.00	85.00	93.00	0.00	0.00	0.00	0.00
net sedimentation	lbs/yr	0.00	0.00	10085.58	0.00	0.00	7192.11	1948.99	0.00	0.00	2119.08	8247.17	0.00	0.00	3782.06	367.04	0.00	0.00	0.00	0.00
outflow	lbs/yr	10167.25	12061.13	2365.75	119774.14	1411821.07	3542.38	1594.63	96.40	505.83	669.18	4062.04	33846.07	2770.36	667.42	27.63	1590674.37	1614533.75	23282.49	17012.29
tss removal efficiency (inf)	%	0.00	0.00	81.00	0.00	0.00	67.00	55.00	0.00	0.00	76.00	67.00	0.00	0.00	85.00	93.00	0.00	0.00	0.00	0.00
upstream watershed tss load	lbs/yr	10167.25	12061.13	12451.34	131059.46	1737683.79	10734.50	10735.74	96.40	505.83	2788.27	14428.29	53353.43	2770.36	4449.48	394.67	1940193.56	1964052.94	23282.49	17012.29
tss total removal efficiency	%	0.00	0.00	81.00	8.61	18.75	67.00	85.15	0.00	0.00	76.00	71.85	36.56	0.00	85.00	93.00	18.01	17.80	0.00	0.00
INFILTRATION BMP/POND.....																				
Annual runoff infiltrated	%	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Adjusted outflow	**ac-ft/yr**	**25.11**	**30.24**	**31.05**	**326.16**	**4248.44**	**27.61**	**27.61**	**0.21**	**1.10**	**7.35**	**34.91**	**133.88**	**4.85**	**10.83**	**0.99**	**4738.42**	**4787.05**	**58.74**	**36.07**
Adjusted TP outflow	**lbs/yr**	**28.61**	**33.89**	**17.39**	**342.94**	**3954.87**	**18.04**	**13.07**	**0.20**	**1.04**	**4.69**	**19.56**	**105.27**	**2.96**	**4.67**	**0.45**	**4405.76**	**4452.88**	**68.41**	**35.54**
Adjusted TSS outflow	**lbs/yr**	**10167.25**	**12061.13**	**2365.75**	**119774.14**	**1411821.07**	**3542.38**	**1594.63**	**96.40**	**505.83**	**669.18**	**4062.04**	**33846.07**	**2770.36**	**667.42**	**27.63**	**1590674.37**	**1614533.75**	**23282.49**	**17012.29**

Rochester Loading Assessment																										
Zumbro River																										
363-06-158-2																										
2020 LOADS																										
		future zr-a2.1a	**zr-a2.1a**	**future zr-a2.2**	**zr-a2.2**	**future zr-a2.1b**	**zr-a2.1b**	**future zr-a2.3**	**zr-a2.3**	**future zr-a2.6**	**zr-a2.6**	**future zr-a2.5a**	**zr-a2.5a**	**future zr-a2.5b**	**zr-a2.5b**	**future zr-a2.5e**	**zr-a2.5e**	**zr-a2.5e cell 2**	**future zr-a2.5f**	**zr-a2.5f**	**future zr-a2.5c**	**zr-a2.5c**	**future zr-a2.5d**	**zr-a2.5d**	**future zr-a2.4**	**zr-a2.4**
		zr-a2.1a	zr-a2.1b	zr-a2.2	zr-a2.1b	zr-a2.1b	zr-a2.4	zr-a2.3	zr-a2.4	zr-a2.6	zr-a2.4	zr-a2.5a	zr-a2.5c	zr-a2.5b	zr-a2.5e	zr-a2.5e	zr-a2.5e cell 2	zr-a2.5f	zr-a2.5f	zr-a2.5c	zr-a2.5c	zr-a2.5d	zr-a2.5d	zr-a2.4	zr-a2.4	zr-a2.7a
INPUT VARIABLES....	UNITS																									
case label	-																									
Watershed area	acres	1.7	211.1	0.0	18.2	0.0	182.5	0.0	42.3	9.2	17.3	87.8	5.7	1.5	26.3	50.6	2.2	0.0	6.3	22.4	25.1	185.1	0.0	105.4	0.0	76.7
basin area	acres	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.12	0.00	0.45	0.00	0.00	0.42	0.42	0.45	0.49	0.08	0.00	0.21	0.00	0.00	0.00	0.00	0.00
basin volume	acre-ft	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.25	0.00	1.49	0.00	0.04	1.67	1.39	1.85	1.99	0.17	0.00	0.49	0.00	0.00	0.00	0.00	0.00
Row Crop Agriculture		0%	81%	0%	61%	0%	10%	0%	0%	0%	0%	0%	11%	0%	70%	0%	10%	0%	0%	0%	0%	8%	0%	0%	0%	0%
Very Low Density Residential		0%	5%	0%	0%	0%	2%	0%	0%	0%	21%	0%	0%	0%	0%	0%	77%	0%	0%	2%	0%	0%	0%	21%	0%	3%
Low Density Residential		0%	0%	0%	0%	0%	0%	0%	8%	100%	10%	55%	17%	100%	29%	100%	1%	0%	100%	0%	71%	0%	0%	5%	0%	0%
Medium Density Residential		0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
High Density Residential		0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	3%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Commercial/Industrial		0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Institutional		0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	9%	0%	7%	0%	1%	0%	0%
Open Space		100%	12%	0%	2%	0%	85%	0%	42%	0%	52%	42%	72%	0%	1%	0%	13%	100%	0%	89%	29%	84%	0%	73%	0%	88%
Golf Course		0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Pits and Quarries		0%	0%	0%	0%	0%	0%	0%	22%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Right-of-Way		0%	2%	0%	36%	0%	2%	0%	28%	0%	16%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	9%
WATERSHED-WIDE ACCOUNTING.....																										
tributary land area	ac	1.70	212.83	0.00	18.25	0.00	413.59	0.00	42.33	9.21	26.47	87.84	93.58	1.51	27.85	50.61	80.67	80.68	6.27	109.32	25.06	413.06	0.00	518.50	0.00	1077.63
tributary water area	ac	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.12	0.12	0.45	0.45	0.00	0.42	0.42	1.30	1.78	0.08	1.87	0.21	2.52	0.00	2.52	0.00	2.64
direct and ponded area	ac	1.70	212.83	0.00	18.25	0.00	413.59	0.00	42.33	9.33	26.60	88.29	94.03	1.51	28.27	51.03	81.97	82.47	6.35	111.19	25.27	415.58	0.00	521.02	0.00	1080.27
ASSUMED EXPORT FACTORS.....																										
season length	yrs	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
season precipitation	inches	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80
runoff total p	ppb	200.00	484.16	0.00	481.58	0.00	240.54	0.00	225.41	391.50	274.56	311.09	268.82	391.50	494.32	391.50	315.72	200.00	391.50	215.22	335.64	239.57	0.00	232.91	0.00	220.56
runoff ortho p/total p	-	0.60	0.27	0.00	0.25	0.00	0.55	0.00	0.36	0.30	0.50	0.43	0.51	0.30	0.23	0.30	0.48	0.60	0.30	0.57	0.39	0.54	0.00	0.56	0.00	0.57
unit runoff	in/yr	2.54	4.26	0.00	5.98	0.00	2.88	0.00	4.02	6.74	4.10	5.16	3.46	6.74	5.11	6.74	3.10	2.54	6.74	3.20	5.52	3.20	0.00	2.90	0.00	3.10
unit export	lbs/ac-y	0.12	0.48	0.00	0.63	0.00	0.17	0.00	0.31	0.60	0.30	0.41	0.24	0.60	0.56	0.60	0.23	0.12	0.60	0.18	0.46	0.20	0.00	0.16	0.00	0.18
POND WATER BUDGETS.....																										
runoff	ac-ft/yr	0.36	74.92	0.00	9.10	0.00	43.74	0.00	14.20	5.18	5.89	37.75	1.65	0.85	11.21	28.44	0.57	0.00	3.52	5.97	11.53	49.39	0.00	25.49	0.00	19.80
upstream pond	ac-ft/yr	0.00	0.36	0.00	0.00	0.00	84.38	0.00	0.00	0.00	5.18	0.00	37.75	0.00	0.85	0.00	40.50	41.07	0.00	44.59	0.00	101.49	0.00	150.89	0.00	329.77
total inflow	**ac-ft/yr**	**0.36**	**75.28**	**0.00**	**9.10**	**0.00**	**128.12**	**0.00**	**14.20**	**5.18**	**11.07**	**37.75**	**39.41**	**0.85**	**12.06**	**28.44**	**41.07**	**41.07**	**3.52**	**50.56**	**11.53**	**150.89**	**0.00**	**176.38**	**0.00**	**349.56**
outflow	ac-ft/yr	0.36	75.28	0.00	9.10	0.00	128.12	0.00	14.20	5.18	11.07	37.75	39.41	0.85	12.06	28.44	41.07	41.07	3.52	50.56	11.53	150.89	0.00	176.38	0.00	349.56
POND PHOSPHORUS BUDGETS.....																										
runoff	lbs/yr	0.20	101.92	0.00	11.42	0.00	31.84	0.00	13.33	5.51	5.11	36.10	1.39	0.90	14.67	30.26	0.51	0.00	3.75	3.94	11.46	36.53	0.00	17.25	0.00	13.57
upstream pond	lbs/yr	0.00	0.20	0.00	0.00	0.00	113.54	0.00	0.00	0.00	2.88	0.00	21.16	0.00	0.37	0.00	19.71	14.03	0.00	12.83	0.00	45.96	0.00	82.48	0.00	266.43
total inflow	**lbs/yr**	**0.20**	**102.11**	**0.00**	**11.42**	**0.00**	**145.38**	**0.00**	**13.33**	**5.51**	**7.99**	**36.10**	**22.56**	**0.90**	**15.04**	**30.26**	**20.22**	**14.03**	**3.75**	**16.76**	**11.46**	**82.48**	**0.00**	**99.74**	**0.00**	**280.00**
net sedimentation	lbs/yr	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.63	0.00	14.94	0.00	0.54	10.06	15.54	6.19	3.15	1.80	0.00	4.82	0.00	0.00	0.00	0.00	0.00
outflow	lbs/yr	0.20	102.11	0.00	11.42	0.00	145.38	0.00	13.33	2.88	7.99	21.16	22.56	0.37	4.98	14.73	14.03	10.87	1.95	16.76	6.64	82.48	0.00	99.74	0.00	280.00
p removal efficiency	%	0.05	0.00	3.78	0.01	3.78	0.00	3.78	0.00	47.73	0.00	41.38	0.00	59.28	66.87	51.34	30.63	22.49	47.91	0.00	42.09	0.00	3.78	0.00	3.78	0.00
upstream w-shed p load	lbs/yr	0.20	102.12	0.00	11.42	0.00	145.38	0.00	13.33	5.51	10.62	36.10	37.50	0.90	15.58	30.26	46.35	46.35	3.75	54.04	11.46	139.52	0.00	156.78	0.00	339.67
total removal %	%	0.05	0.00	3.78	0.01	3.78	0.00	3.78	0.00	47.73	24.75	41.38	39.84	59.28	68.01	51.34	69.74	76.54	47.91	68.98	42.09	40.88	3.78	36.38	3.78	17.57
HYDRAULIC PARAMETERS.....																										
pond mean depth	feet	1.00	1.00	0.00	1.00	0.00	1.00	0.00	1.00	2.04	1.00	3.34	1.00	4155.25	3.98	3.29	4.09	4.08	2.08	1.00	2.36	1.00	0.00	1.00	0.00	1.00
relative volume	inches	0.00	0.00	1.58	0.00	1.58	0.00	1.58	0.00	1.56	0.00	1.26	0.00	1.56	4.74	1.56	102.84	29835.00	1.56	0.00	1.35	0.00	1.58	0.00	1.58	0.00
residence time	years	0.00	0.00	0.05	0.00	0.05	0.00	0.05	0.00	0.05	0.00	0.04	0.00	0.05	0.14	0.05	0.05	0.05	0.05	0.00	0.04	0.00	0.05	0.00	0.05	0.00
residence time	days	0.01	0.00	18.08	0.00	18.08	0.00	18.08	0.00	17.86	0.00	14.41	0.00	17.86	50.55	17.86	16.45	17.68	17.86	0.00	15.46	0.00	18.08	0.00	18.08	0.00
overflow rate	ft/yr	36018.80	7528419.88	0.00	909715.12	0.00	12812211.81	0.00	1419656.60	41.64	1107037.52	84.52	3940623.57	84914.01	28.71	67.18	90.66	84.33	42.52	5056134.57	55.64	15088707.23	0.00	17637793.52	0.00	34956321.65
inflow phos conc	ppb	200.01	499.04	384.34	462.04	384.34	417.46	384.34	345.46	391.52	265.61	351.85	210.61	391.52	458.99	391.52	181.14	125.66	391.52	121.98	365.77	201.13	384.34	208.05	384.34	294.70
outflow phos conc	ppb	199.91	499.03	369.82	461.98	369.82	417.46	369.82	345.44	204.66	265.61	206.25	210.61	159.44	152.08	190.51	125.65	97.40	203.96	121.98	211.82	201.13	369.82	208.05	369.82	294.70
p reaction rate	-	0.00	0.00	0.04	0.00	0.04	0.00	0.04	0.00	1.75	0.00	1.20	0.00	3.57	6.09	2.17	0.64	0.37	1.77	0.00	1.25	0.00	0.04	0.00	0.04	0.00
1-rp	-	1.00	1.00	0.96	1.00	0.96	1.00	0.96	1.00	0.52	1.00	0.59	1.00	0.41	0.33	0.49	0.69	0.78	0.52	1.00	0.58	1.00	0.96	1.00	0.96	1.00
vlawmo pond volume	acre-ft	0.03	5.89	0.00	0.72	0.00	3.44	0.00	1.12	0.41	0.46	2.97	0.13	0.07	0.88	2.24	0.04	0.00	0.28	0.47	0.91	3.88	0.00	2.00	0.00	1.56
LAND USE PARAMETERS.....																										
runoff total P conc	ppb	200.00	484.16	0.00	481.58	0.00	240.54	0.00	225.41	391.50	274.56	311.09	268.82	391.50	494.32	391.50	315.72	200.00	391.50	215.22	335.64	239.57	0.00	232.91	0.00	220.56
runoff coefficient		0.08	0.13	0.00	0.19	0.00	0.09	0.00	0.13	0.21	0.13	0.16	0.11	0.21	0.16	0.21	0.10	0.08	0.21	0.10	0.17	0.10	0.00	0.09	0.00	0.10
dissolved/total P		0.60	0.27	0.00	0.25	0.00	0.55	0.00	0.36	0.30	0.50	0.43	0.51	0.30	0.23	0.30	0.48	0.60	0.30	0.57	0.39	0.54	0.00	0.56	0.00	0.57
runoff TSS conc	ppm	216.00	171.34	0.00	155.86	0.00	209.14	0.00	140.89	140.00	195.56	171.91	197.45	140.00	156.68	140.00	211.39	216.00	140.00	209.13	162.17	206.14	0.00	211.56	0.00	209.43
POND TSS BUDGETS.....																										
runoff	lbs/yr	210.84	33988.56	0.00	3729.19	0.00	24058.00	0.00	6168.15	1963.69	2814.21	15933.65	823.13	322.16	4687.95	10789.82	322.12	1.24	1336.84	3154.94	4692.09	25928.63	0.00	14172.24	0.00	10589.59
upstream pond	lbs/yr	0.00	210.84	0.00	0.00	0.00	37928.59	0.00	0.00	0.00	333.83	0.00	4886.32	0.00	22.55	0.00	1408.72	718.30	0.00	607.59	0.00	10879.61	0.00	36808.24	0.00	122283.26
total inflow	**lbs/yr**	**210.84**	**34199.40**	**0.00**	**3729.19**	**0.00**	**61986.59**	**0.00**	**6168.15**	**1963.69**	**3148.04**	**15933.65**	**5709.46**	**322.16**	**4710.51**	**10789.82**	**1730.83**	**719.54**	**1336.84**	**3762.53**	**4692.09**	**36808.24**	**0.00**	**50980.49**	**0.00**	**132872.85**
p removal efficiency (no inf)	%	0.00	0.00	5.00	0.00	5.00	0.00	5.00	0.00	51.00	0.00	44.00	0.00	62.00	68.00	54.00	32.00	24.00	51.00	0.00	45.00	0.00	5.00	0.00	5.00	0.00
tss removal efficiency (no inf)	%	0.00	0.00	9.82	0.00	9.82	0.00	9.82	0.00	83.00	0.00	69.33	0.00	93.00	93.00	90.00	58.50	47.14	83.00	0.00	70.00	0.00	9.82	0.00	9.82	0.00
net sedimentation	lbs/yr	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1629.86	0.00	11047.33	0.00	299.61	4380.77	9710.84	1012.54	339.21	1109.58	0.00	3284.46	0.00	0.00	0.00	0.00	0.00
outflow	lbs/yr	210.84	34199.40	0.00	3729.19	0.00	61986.59	0.00	6168.15	333.83	3148.04	4886.32	5709.46	22.55	329.74	1078.98	718.30	380.33	227.26	3762.53	1407.63	36808.24	0.00	50980.49	0.00	132872.85
tss removal efficiency (inf)	%	0.00	0.00	9.82	0.00	9.82	0.00	9.82	0.00	83.00	0.00	69.33	0.00	93.00	93.00	90.00	58.50	47.14	83.00	0.00	70.00	0.00	9.82	0.00	9.82	0.00
upstream watershed tss load	lbs/yr	210.84	34199.40	0.00	3729.19	0.00	61986.59	0.00	6168.15	1963.69	4777.90	15933.65	16756.79	322.16	5010.12	10789.82	16122.05	16123.29	1336.84	20615.07	4692.09	67992.58	0.00	82164.82	0.00	165687.05
tss total removal efficiency	%	0.00	0.00	9.82	0.00	9.82	0.00	9.82	0.00	83.00	34.11	69.33	65.93	93.00	93.42	90.00	95.54	97.64	83.00	81.75	70.00	45.86	9.82	37.95	9.82	19.80
INFILTRATION BMP/POND.....																										
Annual runoff infiltrated	%	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Adjusted outflow	**ac-ft/yr**	**0.36**	**75.28**	**0.00**	**9.10**	**0.00**	**128.12**	**0.00**	**14.20**	**5.18**	**11.07**	**37.75**	**39.41**	**0.85**	**12.06**	**28.44**	**41.07**	**41.07**	**3.52**	**50.56**	**11.53**	**150.89**	**0.00**	**176.38**	**0.00**	**349.56**
Adjusted TP outflow	**lbs/yr**	**0.20**	**102.11**	**0.00**	**11.42**	**0.00**	**145.38**	**0.00**	**13.33**	**2.88**	**7.99**	**21.16**	**22.56**	**0.37**	**4.98**	**14.73**	**14.03**	**10.87**	**1.95**	**16.76**	**6.64**	**82.48**	**0.00**	**99.74**	**0.00**	**280.00**
Adjusted TSS outflow	**lbs/yr**	**210.84**	**34199.40**	**0.00**	**3729.19**	**0.00**	**61986.59**	**0.00**	**6168.15**	**333.83**	**3148.04**	**4886.32**	**5709.46**	**22.55**	**329.74**	**1078.98**	**718.30**	**380.33**	**227.26**	**3762.53**	**1407.63**	**36808.24**	**0.00**	**50980.49**	**0.00**	**132872.85**
POND P BUDGETS W/O P-BAN.....																										
runoff	lbs/yr	0.20	102.22	0.00	11.43	0.00	31.98	0.00	13.62	6.33	5.38	40.86	1.48	1.04	15.36	34.79	0.56	0.00	4.31	3.95	13.04	36.59	0.00	18.42	0.00	13.64
Adjusted TP outflow	**lbs/yr**	**0.20**	**102.41**	**0.00**	**11.43**	**0.00**	**145.81**	**0.00**	**13.61**	**3.16**	**8.54**	**23.09**	**24.57**	**0.40**	**5.13**	**16.13**	**14.87**	**11.40**	**2.14**	**17.49**	**7.26**	**85.92**	**0.00**	**104.34**	**0.00**	**285.95**
upstream pond	lbs/yr	0.00	0.20	0.00	0.00	0.00	113.84	0.00	0.00	0.00	3.16	0.00	23.09	0.00	0.40	0.00	21.26	14.87	0.00	13.54	0.00	49.32	0.00	85.92	0.00	272.31
total inflow	**lbs/yr**	**0.20**	**102.41**	**0.00**	**11.43**	**0.00**	**145.82**	**0.00**	**13.62**	**6.33**	**8.54**	**40.86**	**24.57**	**1.04**	**15.76**	**34.79**	**21.82**	**14.87**	**4.31**	**17.49**	**13.04**	**85.92**	**0.00**	**104.34**	**0.00**	**285.95**
outflow	lbs/yr	0.20	102.41	0.00	11.43	0.00	145.81	0.00	13.61	3.16	8.54	23.09	24.57	0.40	5.13	16.13	14.87	11.40	2.14	17.49	7.26	85.92	0.00	104.34	0.00	285.95
inflow phos conc	ppb	200.01	500.50	409.24	462.14	409.24	418.73	409.24	352.85	450.02	283.98	398.24	229.37	450.02	480.93	450.02	195.50	133.18	450.02	127.28	416.41	209.50	409.24	217.64	409.24	300.96
outflow phos conc	ppb	199.91	500.49	392.86	462.09	392.86	418.72	392.86	352.84	224.73	283.98	224.99	229.37	173.91	156.39	208.73	133.17	102.11	223.93	127.28	231.90	209.50	392.86	217.64	392.86	300.96
p reaction rate	-	0.00	0.00	0.04	0.00	0.04	0.00	0.04	0.00	2.01	0.00	1.36	0.00	4.11	6.38	2.49	0.69	0.40	2.03	0.00	1.43	0.00	0.04	0.00	0.04	0.00
1-rp	-	1.00	1.00	0.96	1.00	0.96	1.00	0.96	1.00	0.50	1.00	0.56	1.00	0.39	0.33	0.46	0.68	0.77	0.50	1.00	0.56	1.00	0.96	1.00	0.96	1.00
runoff total p conc	ppb	200.00	486.25	0.00	481.79	0.00	241.67	0.00	229.82	450.00	290.09	345.02	278.73	450.00	511.37	450.00	351.15	200.00	450.00	215.95	377.08	239.80	0.00	245.51	0.00	221.98

Rochester Loading Assessm																								
Zumbro River																								
363-06-158-2																								
2020 LOADS																								
	future zr-a1.6	zr-a1.6	future zr-a1.4	zr-a1.4	future wc-a4.4	wc-a4.4	future zr-a1.5	zr-a1.5	future zr-a2.7c	zr-a2.7c	zr-a2.7c cell 2	future zr-a2.7b	zr-a2.7b	future zr-a2.8c	zr-a2.8c	future zr-a2.8b	zr-a2.8b	future zr-a1.7e	zr-a1.7e	zr-a1.7e cell 2	future zr-a1.7d	zr-a1.7d	future zr-a1.7a	zr-a1.7a	future zr-a1.7b
	zr-a1.6	zr-a1.5	zr-a1.4	zr-a1.5	wc-a4.4	zr-a1.5	zr-a1.5	zr-a2.7a	zr-a2.7c	zr-a2.7c cell 2	zr-a2.7a	zr-a2.7b	zr-a2.7a	zr-a2.8c	zr-a2.7a	zr-a2.8b	zr-a2.7a	zr-a1.7e	zr-a1.7e cell 2	zr-a1.7a	zr-a1.7d	zr-a1.7a	zr-a1.7a	zr-a1.7b	zr-a1.7b
INPUT VARIABLES....																								
case label																								
Watershed area	0.0	73.6	0.0	39.0	0.0	342.5	0.0	247.1	0.0	11.3	0.0	0.0	25.3	2.0	146.6	0.6	2.2	0.0	3.5	0.0	0.0	1.5	6.6	151.3	1.7
basin area	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.16	0.26	0.00	0.26	0.04	2.50	0.00	0.60	0.00	0.42	0.45	0.00	0.40	0.08	7.25	0.00
basin volume	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.26	0.41	0.00	0.00	0.09	10.00	0.03	1.87	0.00	2.27	2.48	0.00	2.00	0.18	116.67	0.05
Row Crop Agriculture	0%	53%	0%	23%	0%	69%	0%	17%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Very Low Density Residential	0%	11%	0%	48%	0%	5%	0%	7%	0%	0%	0%	0%	22%	0%	60%	0%	0%	0%	0%	0%	0%	0%	0%	58%	0%
Low Density Residential	0%	11%	0%	8%	0%	0%	0%	0%	0%	53%	0%	0%	73%	0%	25%	0%	0%	0%	48%	0%	0%	91%	100%	34%	100%
Medium Density Residential	0%	0%	0%	1%	0%	0%	0%	1%	0%	0%	0%	0%	0%	100%	0%	100%	0%	0%	0%	0%	0%	0%	0%	2%	0%
High Density Residential	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Commercial/Industrial	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Institutional	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	2%	0%	0%	0%	0%	0%	0%	0%	0%	1%	0%
Open Space	0%	22%	0%	5%	0%	22%	0%	38%	0%	47%	100%	0%	0%	0%	5%	0%	36%	0%	36%	100%	0%	9%	0%	4%	0%
Golf Course	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Pits and Quarries	0%	0%	0%	0%	0%	0%	0%	34%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Right-of-Way	0%	3%	0%	14%	0%	3%	0%	4%	0%	0%	0%	0%	5%	0%	8%	0%	64%	0%	16%	0%	0%	0%	0%	1%	0%
WATERSHED-WIDE ACCOUNTI																								
tributary land area	0.00	73.63	0.00	39.01	0.00	342.48	0.00	1276.22	0.00	11.27	11.28	0.00	25.30	2.03	148.58	0.63	2.82	0.00	3.47	3.47	0.00	1.52	6.64	162.90	1.74
tributary water area	0.00	0.00	0.00	0.00	0.00	0.00	0.00	14.30	0.00	0.16	0.42	0.00	0.26	0.04	2.54	0.00	0.60	0.00	0.42	0.87	0.00	0.40	0.08	8.60	0.00
direct and ponded area	0.00	73.63	0.00	39.01	0.00	342.48	0.00	1290.52	0.00	11.43	11.70	0.00	25.56	2.07	151.12	0.63	3.42	0.00	3.89	4.35	0.00	1.92	6.72	171.51	1.74
ASSUMED EXPORT FACTORS..																									
season length	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
season precipitation	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80
runoff total p	0.00	418.04	0.00	376.32	0.00	447.00	0.00	205.61	0.00	301.32	200.00	0.00	372.60	391.50	329.93	391.50	327.28	0.00	323.13	200.00	0.00	373.70	391.50	332.33	391.50
runoff ortho p/total p	0.00	0.34	0.00	0.39	0.00	0.31	0.00	0.31	0.00	0.44	0.60	0.00	0.34	0.30	0.43	0.30	0.41	0.00	0.41	0.60	0.00	0.33	0.30	0.43	0.30
unit runoff	0.00	4.26	0.00	4.53	0.00	4.09	0.00	2.31	0.00	4.76	2.54	0.00	5.99	9.73	4.51	9.74	6.51	0.00	5.53	2.54	0.00	6.35	6.74	4.48	6.74
unit export	0.00	0.43	0.00	0.41	0.00	0.44	0.00	0.18	0.00	0.37	0.12	0.00	0.52	0.86	0.36	0.86	0.55	0.00	0.45	0.12	0.00	0.55	0.60	0.36	0.60
POND WATER BUDGETS.....																									
runoff	0.00	26.13	0.00	14.73	0.00	116.83	0.00	47.49	0.00	4.48	0.00	0.00	12.63	1.65	55.09	0.51	1.19	0.00	1.60	0.00	0.00	0.80	3.73	56.42	0.98
upstream pond	0.00	0.00	0.00	0.00	0.00	0.00	0.00	439.76	0.00	0.00	4.48	0.00	0.00	0.00	1.65	0.00	0.51	0.00	0.00	1.60	0.00	0.00	0.00	6.13	0.00
total inflow	**0.00**	**26.13**	**0.00**	**14.73**	**0.00**	**116.83**	**0.00**	**487.26**	**0.00**	**4.48**	**4.48**	**0.00**	**12.63**	**1.65**	**56.73**	**0.51**	**1.70**	**0.00**	**1.60**	**1.60**	**0.00**	**0.80**	**3.73**	**62.55**	**0.98**
outflow	0.00	26.13	0.00	14.73	0.00	116.83	0.00	487.26	0.00	4.48	4.48	0.00	12.63	1.65	56.73	0.51	1.70	0.00	1.60	1.60	0.00	0.80	3.73	62.55	0.98
POND PHOSPHORUS BUDGETS																									
runoff	0.00	31.40	0.00	15.81	0.00	150.45	0.00	45.55	0.00	4.17	0.00	0.00	13.13	1.75	52.59	0.54	1.20	0.00	1.57	0.00	0.00	0.84	3.97	54.04	1.04
upstream pond	0.00	0.00	0.00	0.00	0.00	0.00	0.00	298.10	0.00	0.00	2.59	0.00	0.00	0.00	0.90	0.00	0.21	0.00	0.00	0.54	0.00	0.00	0.00	2.61	0.00
total inflow	**0.00**	**31.40**	**0.00**	**15.81**	**0.00**	**150.45**	**0.00**	**343.65**	**0.00**	**4.17**	**2.60**	**0.00**	**13.13**	**1.75**	**53.49**	**0.54**	**1.41**	**0.00**	**1.57**	**0.54**	**0.00**	**0.84**	**3.97**	**56.65**	**1.04**
net sedimentation	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.58	0.71	0.00	0.00	0.85	29.36	0.33	0.79	0.00	1.04	0.23	0.00	0.58	1.92	43.14	0.62
outflow	0.00	31.40	0.00	15.81	0.00	150.45	0.00	343.65	0.00	2.59	1.88	0.00	13.13	0.90	24.14	0.21	0.63	0.00	0.54	0.31	0.00	0.26	2.05	13.51	0.42
p removal efficiency	3.78	0.00	3.78	0.00	3.78	0.00	3.78	0.00	3.78	37.84	27.46	3.78	0.00	48.79	54.88	60.59	55.57	3.78	65.93	43.08	3.78	69.02	48.38	76.15	59.28
upstream w-shed p load	0.00	31.40	0.00	15.81	0.00	150.45	0.00	519.40	0.00	4.17	4.18	0.00	13.13	1.75	54.35	0.54	1.74	0.00	1.57	1.57	0.00	0.84	3.97	60.42	1.04
total removal %	3.78	0.00	3.78	0.00	3.78	0.00	3.78	33.84	3.78	37.84	54.90	3.78	0.00	48.79	55.59	60.59	63.93	3.78	65.93	80.61	3.78	69.02	48.38	77.64	59.28
HYDRAULIC PARAMETERS.....																									
pond mean depth	0.00	1.00	0.00	1.00	0.00	1.00	0.00	1.00	0.00	1.60	1.60	0.00	0.00	2.12	4.00	2712.62	3.12	0.00	5.45	5.45	0.00	5.00	2.20	16.09	4787.72
relative volume	1.58	0.00	1.58	0.00	1.58	0.00	1.58	0.00	1.58	1.85	6135.00	1.58	0.00	1.70	5.77	1.70	50.03	1.58	45.18	371400.00	1.58	79.18	1.56	65.76	1.56
residence time	0.05	0.00	0.05	0.00	0.05	0.00	0.05	0.00	0.05	0.06	0.09	0.05	0.00	0.05	0.18	0.05	1.10	0.05	1.42	1.55	0.05	2.49	0.05	1.87	0.05
residence time	18.08	0.00	18.08	0.00	18.08	0.00	18.08	0.00	18.08	21.29	33.34	18.08	0.00	19.49	64.34	19.50	402.34	18.08	518.55	564.53	18.08	908.84	17.86	680.79	17.86
overflow rate	0.00	2613466.94	0.00	1472510.73	0.00	11683473.63	0.00	48725829.26	0.00	27.45	17.56	0.00	48.57	39.72	22.69	50786.41	2.83	0.00	3.84	3.53	0.00	2.01	45.00	8.63	97838.81
inflow phos conc	384.34	442.01	384.34	395.13	384.34	473.78	384.34	259.48	384.34	343.18	213.32	384.34	382.69	391.52	346.90	391.52	306.54	384.34	361.51	123.17	384.34	384.39	391.52	333.22	391.52
outflow phos conc	369.82	442.00	369.82	395.12	369.82	473.78	369.82	259.48	369.82	213.32	154.73	369.82	382.68	200.50	156.52	154.31	136.19	369.82	123.16	70.11	369.82	119.07	202.09	79.47	159.43
p reaction rate	0.04	0.00	0.04	0.00	0.04	0.00	0.04	0.00	0.04	0.98	0.52	0.04	0.00	1.86	2.70	3.90	2.82	0.04	5.68	1.33	0.04	7.19	1.82	13.39	3.57
1-rp	0.96	1.00	0.96	1.00	0.96	1.00	0.96	1.00	0.96	0.62	0.73	0.96	1.00	0.51	0.45	0.39	0.44	0.96	0.34	0.57	0.96	0.31	0.52	0.24	0.41
vlawmo pond volume	0.00	2.05	0.00	1.16	0.00	9.19	0.00	3.73	0.00	0.35	0.00	0.00	0.99	0.13	4.33	0.04	0.09	0.00	0.13	0.00	0.00	0.06	0.29	4.44	0.08
LAND USE PARAMETERS.....																									
runoff total P conc	0.00	418.04	0.00	376.32	0.00	447.00	0.00	205.61	0.00	301.32	200.00	0.00	372.60	391.50	329.93	391.50	327.28	0.00	323.13	200.00	0.00	373.70	391.50	332.33	391.50
runoff coefficient	0.00	0.13	0.00	0.14	0.00	0.13	0.00	0.07	0.00	0.15	0.08	0.00	0.19	0.31	0.14	0.31	0.20	0.00	0.17	0.08	0.00	0.20	0.21	0.14	0.21
dissolved/total P	0.00	0.34	0.00	0.39	0.00	0.31	0.00	0.31	0.00	0.44	0.60	0.00	0.34	0.30	0.43	0.30	0.41	0.00	0.41	0.60	0.00	0.33	0.30	0.43	0.30
runoff TSS conc	0.00	177.28	0.00	185.53	0.00	176.84	0.00	130.76	0.00	176.05	216.00	0.00	156.96	140.00	189.42	140.00	167.63	0.00	167.74	216.00	0.00	147.06	140.00	187.47	140.00
POND TSS BUDGETS.....																									
runoff	0.00	11936.47	0.00	6837.48	0.00	54052.43	0.00	23981.27	0.00	1930.46	1.24	0.00	5079.54	624.44	25723.76	192.68	485.75	0.00	662.57	0.12	0.00	310.90	1414.88	26188.57	371.20
upstream pond	0.00	0.00	0.00	0.00	0.00	0.00	0.00	89905.82	0.00	0.00	656.36	0.00	0.00	0.00	93.67	0.00	13.49	0.00	0.00	46.38	0.00	0.00	0.00	276.24	0.00
total inflow	**0.00**	**11936.47**	**0.00**	**6837.48**	**0.00**	**54052.43**	**0.00**	**113887.09**	**0.00**	**1930.46**	**657.60**	**0.00**	**5079.54**	**624.44**	**25817.43**	**192.68**	**499.24**	**0.00**	**662.57**	**46.50**	**0.00**	**310.90**	**1414.88**	**26464.82**	**371.20**
p removal efficiency (no inf)	5.00	0.00	5.00	0.00	5.00	0.00	5.00	0.00	5.00	40.00	29.00	5.00	0.00	52.00	57.00	63.00	56.00	5.00	68.00	45.00	5.00	71.00	51.00	78.00	62.00
tss removal efficiency (no inf)	9.82	0.00	9.82	0.00	9.82	0.00	9.82	0.00	9.82	66.00	55.88	9.82	0.00	85.00	93.00	93.00	93.00	9.82	93.00	70.00	9.82	93.00	83.00	93.00	93.00
net sedimentation	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1274.10	367.43	0.00	0.00	530.78	24010.21	179.20	464.29	0.00	616.19	32.55	0.00	289.14	1174.35	24612.28	345.22
outflow	0.00	11936.47	0.00	6837.48	0.00	54052.43	0.00	113887.09	0.00	656.36	290.16	0.00	5079.54	93.67	1807.22	13.49	34.95	0.00	46.38	13.95	0.00	21.76	240.53	1852.54	25.98
tss removal efficiency (inf)	9.82	0.00	9.82	0.00	9.82	0.00	9.82	0.00	9.82	66.00	55.88	9.82	0.00	85.00	93.00	93.00	93.00	9.82	93.00	70.00	9.82	93.00	83.00	93.00	93.00
upstream watershed tss load	0.00	11936.47	0.00	6837.48	0.00	54052.43	0.00	216122.90	0.00	1930.46	1931.70	0.00	5079.54	624.44	26348.20	192.68	678.43	0.00	662.57	662.69	0.00	310.90	1414.88	28577.04	371.20
tss total removal efficiency	9.82	0.00	9.82	0.00	9.82	0.00	9.82	47.30	9.82	66.00	84.98	9.82	0.00	85.00	93.14	93.00	94.85	9.82	93.00	97.89	9.82	93.00	83.00	93.52	93.00
INFILTRATION BMP/POND.....																									
Annual runoff infiltrated	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Adjusted outflow	**0.00**	**26.13**	**0.00**	**14.73**	**0.00**	**116.83**	**0.00**	**487.26**	**0.00**	**4.48**	**4.48**	**0.00**	**12.63**	**1.65**	**56.73**	**0.51**	**1.70**	**0.00**	**1.60**	**1.60**	**0.00**	**0.80**	**3.73**	**62.55**	**0.98**
Adjusted TP outflow	**0.00**	**31.40**	**0.00**	**15.81**	**0.00**	**150.45**	**0.00**	**343.65**	**0.00**	**2.59**	**1.88**	**0.00**	**13.13**	**0.90**	**24.14**	**0.21**	**0.63**	**0.00**	**0.54**	**0.31**	**0.00**	**0.26**	**2.05**	**13.51**	**0.42**
Adjusted TSS outflow	**0.00**	**11936.47**	**0.00**	**6837.48**	**0.00**	**54052.43**	**0.00**	**113887.09**	**0.00**	**656.36**	**290.16**	**0.00**	**5079.54**	**93.67**	**1807.22**	**13.49**	**34.95**	**0.00**	**46.38**	**13.95**	**0.00**	**21.76**	**240.53**	**1852.54**	**25.98**
POND P BUDGETS W/O P-BAN.																									
runoff	0.00	32.34	0.00	16.75	0.00	151.00	0.00	46.33	0.00	4.71	0.00	0.00	14.95	2.01	58.60	0.62	1.20	0.00	1.72	0.00	0.00	0.96	4.56	61.62	1.20
Adjusted TP outflow	**0.00**	**32.34**	**0.00**	**16.75**	**0.00**	**151.00**	**0.00**	**352.13**	**0.00**	**2.83**	**2.01**	**0.00**	**14.95**	**0.98**	**25.87**	**0.23**	**0.63**	**0.00**	**0.57**	**0.32**	**0.00**	**0.28**	**2.25**	**14.54**	**0.46**
upstream pond	0.00	0.00	0.00	0.00	0.00	0.00	0.00	305.81	0.00	0.00	2.83	0.00	0.00	0.00	0.98	0.00	0.23	0.00	0.00	0.57	0.00	0.00	0.00	2.85	0.00
total inflow	**0.00**	**32.34**	**0.00**	**16.75**	**0.00**	**151.00**	**0.00**	**352.13**	**0.00**	**4.71**	**2.83**	**0.00**	**14.95**	**2.01**	**59.59**	**0.62**	**1.43**	**0.00**	**1.72**	**0.57**	**0.00**	**0.96**	**4.56**	**64.47**	**1.20**
outflow	0.00	32.34	0.00	16.75	0.00	151.00	0.00	352.13	0.00	2.83	2.01	0.00	14.95	0.98	25.87	0.23	0.63	0.00	0.57	0.32	0.00	0.28	2.25	14.54	0.46
inflow phos conc	409.24	455.28	409.24	418.48	409.24	475.50	409.24	265.89	409.24	386.92	232.55	409.24	435.63	450.02	386.43	450.02	310.70	409.24	395.75	130.04	409.24	440.72	450.02	379.21	450.02
outflow phos conc	392.86	455.27	392.86	418.46	392.86	475.49	392.86	265.89	392.86	232.57	165.52	392.86	435.61	220.02	167.75	168.20	137.37	392.86	130.03	72.81	392.86	129.05	221.81	85.50	173.90
p reaction rate	0.04	0.00	0.04	0.00	0.04	0.00	0.04	0.00	0.04	1.10	0.57	0.04	0.00	2.14	3.00	4.48	2.85	0.04	6.22	1.40	0.04	8.25	2.09	15.24	4.11
1-rp	0.96	1.00	0.96	1.00	0.96	1.00	0.96	1.00	0.96	0.60	0.71	0.96	1.00	0.49	0.43	0.37	0.44	0.96	0.33	0.56	0.96	0.29	0.49	0.23	0.39
runoff total p conc	0.00	429.11	0.00	403.92	0.00	449.36	0.00	209.36	0.00	332.22	200.00	0.00	425.13	450.00	372.03	450.00	327.28	0.00	351.21	200.00	0.00	426.76	450.00	379.50	450.00

Rochester Loading Assessm																									
Zumbro River																									
363-06-158-2																									
2020 LOADS																									
	zr-a1.7b	future zr-a1.7c	zr-a1.7c	future zr-a1.8d	zr-a1.8d	zr-a1.8d cell 2	future zr-a1.8c	zr-a1.8c	future zr-a1.8b	zr-a1.8b	future zr-a1.8a	zr-a1.8a	future zr-a1.9b	zr-a1.9b	future zr-a1.9a	zr-a1.9a	future zr-a1.10b	zr-a1.10b	future zr-a1.10a	zr-a1.10a	future zr-a2.7a	zr-a2.7a	future zr-a3.1d	zr-a3.1d	future zr-a3.2b	zr-a3.2b
	zr-a1.7c	zr-a1.7c	zr-a1.5	zr-a1.8d	zr-a1.8d cell 2	zr-a1.8a	zr-a1.8c	zr-a1.8b	zr-a1.8b	zr-a1.8a	zr-a1.8a	zr-a1.5	zr-a1.9b	zr-a1.8a	zr-a1.9a	zr-a3.2a	zr-a1.10b	zr-a1.10a	zr-a1.10a	zr-a2.7a	zr-a2.7a	zr-a3.1a	zr-a3.1d	zr-a3.1a	zr-a3.2b	zr-a3.2a
INPUT VARIABLES....																									
case label																									
Watershed area	68.7	0.0	79.6	0.0	131.5	0.0	0.0	2.6	0.0	16.2	0.0	83.4	0.0	27.4	0.0	36.2	0.0	5.0	0.4	56.4	2.6	98.9	0.0	24.0	1.2	21.5
basin area	2.29	0.00	0.84	0.00	0.24	0.26	0.00	0.25	0.00	0.00	0.00	1.35	0.00	0.47	0.00	0.00	0.00	0.83	0.00	0.00	0.04	0.00	0.00	0.00	0.00	0.23
basin volume	23.05	0.00	5.60	0.00	0.94	1.02	0.00	0.50	0.00	0.00	0.00	5.76	0.00	1.68	0.00	0.00	0.00	7.44	0.02	0.00	0.07	0.00	0.00	0.00	0.03	0.70
Row Crop Agriculture	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Very Low Density Residential	33%	0%	42%	0%	3%	0%	0%	0%	0%	14%	0%	31%	0%	5%	0%	58%	0%	0%	0%	0%	0%	15%	0%	0%	0%	0%
Low Density Residential	0%	0%	8%	0%	84%	0%	0%	0%	0%	19%	0%	9%	0%	5%	0%	26%	0%	0%	0%	39%	100%	28%	0%	0%	100%	49%
Medium Density Residential	0%	0%	8%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	100%	0%	0%	0%	0%	0%	0%	0%
High Density Residential	0%	0%	0%	0%	0%	0%	0%	100%	0%	46%	0%	0%	0%	82%	0%	1%	0%	46%	0%	13%	0%	0%	0%	78%	0%	24%
Commercial/Industrial	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Institutional	58%	0%	28%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	27%	0%	0%	0%	0%
Open Space	7%	0%	11%	0%	10%	100%	0%	0%	0%	6%	0%	46%	0%	0%	0%	2%	0%	6%	0%	40%	0%	23%	0%	16%	0%	27%
Golf Course	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Pits and Quarries	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	1%	0%	0%	0%	0%	0%	0%
Right-of-Way	3%	0%	3%	0%	3%	0%	0%	0%	0%	15%	0%	14%	0%	8%	0%	14%	0%	48%	0%	6%	0%	8%	0%	6%	0%	0%
WATERSHED-WIDE ACCOUNTII																									
tributary land area	233.31	0.00	312.95	0.00	131.55	131.56	0.00	2.59	0.00	18.75	0.00	261.09	0.00	27.37	0.00	36.21	0.00	4.98	0.40	61.80	2.60	2705.09	0.00	23.95	1.22	22.68
tributary water area	10.89	0.00	11.73	0.00	0.24	0.50	0.00	0.25	0.00	0.25	0.00	2.57	0.00	0.47	0.00	0.00	0.00	0.83	0.00	0.83	0.04	21.64	0.00	0.00	0.00	0.23
direct and ponded area	244.20	0.00	324.68	0.00	131.79	132.06	0.00	2.84	0.00	19.00	0.00	263.66	0.00	27.84	0.00	36.21	0.00	5.81	0.40	62.63	2.64	2726.73	0.00	23.95	1.22	22.91
ASSUMED EXPORT FACTORS...																									
season length	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
season precipitation	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80
runoff total p	326.15	0.00	322.17	0.00	369.33	200.00	0.00	391.50	0.00	369.52	0.00	278.13	0.00	387.51	0.00	339.18	0.00	384.96	391.50	311.58	391.50	324.05	0.00	361.09	391.50	339.82
runoff ortho p/total p	0.39	0.00	0.42	0.00	0.34	0.60	0.00	0.30	0.00	0.35	0.00	0.50	0.00	0.31	0.00	0.42	0.00	0.32	0.30	0.42	0.30	0.40	0.00	0.35	0.30	0.38
unit runoff	7.01	0.00	5.85	0.00	6.25	2.54	0.00	13.60	0.00	9.43	0.00	3.95	0.00	12.30	0.00	4.83	0.00	10.65	9.74	6.03	6.74	6.18	0.00	11.51	6.74	7.26
unit export	0.54	0.00	0.46	0.00	0.54	0.12	0.00	1.21	0.00	0.82	0.00	0.28	0.00	1.09	0.00	0.40	0.00	0.95	0.86	0.49	0.60	0.49	0.00	1.00	0.60	0.61
POND WATER BUDGETS.....																									
runoff	40.12	0.00	38.81	0.00	68.50	0.00	0.00	2.93	0.00	12.71	0.00	27.42	0.00	28.05	0.00	14.58	0.00	4.42	0.33	28.36	1.46	50.93	0.00	22.98	0.68	12.98
upstream pond	63.53	0.00	103.65	0.00	0.00	68.50	0.00	0.00	0.00	2.93	0.00	112.19	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4.75	0.00	946.93	0.00	0.00	0.00	0.68
total inflow	**103.65**	**0.00**	**142.45**	**0.00**	**68.50**	**68.50**	**0.00**	**2.93**	**0.00**	**15.64**	**0.00**	**139.62**	**0.00**	**28.05**	**0.00**	**14.58**	**0.00**	**4.42**	**0.33**	**33.11**	**1.46**	**997.86**	**0.00**	**22.98**	**0.68**	**13.66**
outflow	103.65	0.00	142.45	0.00	68.50	68.50	0.00	2.93	0.00	15.64	0.00	139.62	0.00	28.05	0.00	14.58	0.00	4.42	0.33	33.11	1.46	997.86	0.00	22.98	0.68	13.66
POND PHOSPHORUS BUDGETS																									
runoff	37.25	0.00	36.34	0.00	71.22	0.00	0.00	3.12	0.00	13.33	0.00	23.65	0.00	29.80	0.00	14.31	0.00	4.72	0.35	27.73	1.56	48.52	0.00	24.05	0.73	13.17
upstream pond	13.93	0.00	22.27	0.00	0.00	47.37	0.00	0.00	0.00	1.42	0.00	66.76	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.29	0.00	693.28	0.00	0.00	0.00	0.30
total inflow	**51.19**	**0.00**	**58.61**	**0.00**	**71.22**	**47.37**	**0.00**	**3.12**	**0.00**	**14.75**	**0.00**	**90.41**	**0.00**	**29.80**	**0.00**	**14.31**	**0.00**	**4.72**	**0.35**	**29.02**	**1.56**	**741.80**	**0.00**	**24.05**	**0.73**	**13.47**
net sedimentation	28.92	0.00	17.95	0.00	23.85	9.28	0.00	1.70	0.00	0.00	0.00	30.64	0.00	15.87	0.00	0.00	0.00	3.57	0.21	0.00	0.72	0.00	0.00	0.00	0.43	6.19
outflow	22.27	0.00	40.66	0.00	47.37	38.09	0.00	1.42	0.00	14.75	0.00	59.77	0.00	13.93	0.00	14.31	0.00	1.15	0.14	29.02	0.84	741.80	0.00	24.05	0.30	7.28
p removal efficiency	56.50	3.78	30.62	3.78	33.49	19.59	3.78	54.55	3.78	0.00	3.78	33.89	3.78	53.26	3.78	0.00	3.78	75.61	60.58	0.00	46.23	0.00	3.78	0.00	59.28	45.97
upstream w-shed p load	98.71	0.00	135.06	0.00	71.22	71.22	0.00	3.12	0.00	16.45	0.00	141.12	0.00	29.80	0.00	14.31	0.00	4.72	0.35	32.79	1.56	1015.34	0.00	24.05	0.73	13.90
total removal %	77.44	3.78	69.89	3.78	33.49	46.52	3.78	54.55	3.78	10.36	3.78	57.64	3.78	53.26	3.78	0.00	3.78	75.61	60.58	11.51	46.23	26.94	3.78	0.00	59.28	47.65
HYDRAULIC PARAMETERS.....																									
pond mean depth	10.07	0.00	6.67	0.00	3.92	3.92	0.00	2.00	0.00	1.00	0.00	4.27	0.00	3.57	0.00	1.00	0.00	8.96	1737.62	1.00	1.73	1.00	0.00	1.00	3346.75	3.04
relative volume	18.27	1.58	4.59	1.58	0.44	15285.00	1.58	5.42	1.58	0.00	1.58	6.68	1.58	1.90	1.58	0.00	1.58	53.50	1.70	0.00	1.56	0.00	1.58	0.00	1.56	1.72
residence time	0.22	0.05	0.04	0.05	0.01	0.01	0.05	0.17	0.05	0.00	0.05	0.04	0.05	0.06	0.05	0.00	0.05	1.68	0.05	0.00	0.05	0.00	0.05	0.00	0.05	0.05
residence time	81.17	18.08	14.35	18.08	5.01	5.43	18.08	62.19	18.08	0.00	18.08	15.06	18.08	21.86	18.08	0.00	18.08	614.05	19.50	0.00	17.86	0.00	18.08	0.00	17.86	18.70
overflow rate	45.26	0.00	169.59	0.00	285.42	263.48	0.00	11.74	0.00	1564156.81	0.00	103.42	0.00	59.68	0.00	1458199.22	0.00	5.33	32532.22	3310760.73	35.29	99785503.71	0.00	2297515.87	68392.02	59.40
inflow phos conc	181.70	384.34	151.38	384.34	382.52	254.40	384.34	391.52	384.34	346.86	384.34	238.26	384.34	390.86	384.34	360.94	384.34	392.36	391.52	322.47	391.52	273.51	384.34	385.08	391.52	362.69
outflow phos conc	79.04	369.82	105.02	369.82	254.40	204.56	369.82	177.96	369.82	346.84	369.82	157.51	369.82	182.69	369.82	360.93	369.82	95.71	154.34	322.47	210.51	273.51	369.82	385.07	159.45	195.95
p reaction rate	2.99	0.04	0.64	0.04	0.76	0.30	0.04	2.64	0.04	0.00	0.04	0.78	0.04	2.44	0.04	0.00	0.04	12.70	3.90	0.00	1.60	0.00	0.04	0.00	3.57	1.58
1-rp	0.44	0.96	0.69	0.96	0.67	0.80	0.96	0.45	0.96	1.00	0.96	0.66	0.96	0.47	0.96	1.00	0.96	0.24	0.39	1.00	0.54	1.00	0.96	1.00	0.41	0.54
vlawmo pond volume	3.15	0.00	3.05	0.00	5.39	0.00	0.00	0.23	0.00	1.00	0.00	2.16	0.00	2.21	0.00	1.15	0.00	0.35	0.03	2.23	0.11	4.00	0.00	1.81	0.05	1.02
LAND USE PARAMETERS.....																									
runoff total P conc	326.15	0.00	322.17	0.00	369.33	200.00	0.00	391.50	0.00	369.52	0.00	278.13	0.00	387.51	0.00	339.18	0.00	384.96	391.50	311.58	391.50	324.05	0.00	361.09	391.50	339.82
runoff coefficient	0.22	0.00	0.18	0.00	0.20	0.08	0.00	0.43	0.00	0.30	0.00	0.12	0.00	0.39	0.00	0.15	0.00	0.33	0.31	0.19	0.21	0.19	0.00	0.36	0.21	0.23
dissolved/total P	0.39	0.00	0.42	0.00	0.34	0.60	0.00	0.30	0.00	0.35	0.00	0.50	0.00	0.31	0.00	0.42	0.00	0.32	0.30	0.42	0.30	0.40	0.00	0.35	0.30	0.38
runoff TSS conc	170.02	0.00	180.04	0.00	150.16	216.00	0.00	140.00	0.00	155.09	0.00	198.35	0.00	144.04	0.00	185.09	0.00	144.23	140.00	169.41	140.00	168.74	0.00	152.28	140.00	160.51
POND TSS BUDGETS.....																									
runoff	16571.19	0.00	16806.28	0.00	26786.63	1.24	0.00	1113.37	0.00	4978.26	0.00	13394.08	0.00	10715.96	0.00	6626.18	0.00	1689.96	123.43	11751.68	554.78	21064.29	0.00	8885.75	259.48	5176.54
upstream pond	1878.52	0.00	1291.48	0.00	0.00	10178.92	0.00	0.00	0.00	77.94	0.00	11787.15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	126.94	0.00	265969.71	0.00	0.00	0.00	18.16
total inflow	**18449.72**	**0.00**	**18097.76**	**0.00**	**26786.63**	**10180.16**	**0.00**	**1113.37**	**0.00**	**5056.19**	**0.00**	**25181.23**	**0.00**	**10715.96**	**0.00**	**6626.18**	**0.00**	**1689.96**	**123.43**	**11878.62**	**554.78**	**287034.00**	**0.00**	**8885.75**	**259.48**	**5194.70**
p removal efficiency (no inf)	58.00	5.00	32.00	5.00	36.00	21.00	5.00	57.00	5.00	0.00	5.00	36.00	5.00	56.00	5.00	0.00	5.00	77.00	63.00	0.00	49.00	0.00	5.00	0.00	62.00	49.00
tss removal efficiency (no inf)	93.00	9.82	58.50	9.82	62.00	41.25	9.82	93.00	9.82	0.00	9.82	62.00	9.82	93.00	9.82	0.00	9.82	93.00	93.00	0.00	78.50	0.00	9.82	0.00	93.00	78.50
net sedimentation	17158.24	0.00	10587.19	0.00	16607.71	4199.32	0.00	1035.43	0.00	0.00	0.00	15612.36	0.00	9965.85	0.00	0.00	0.00	1571.67	114.79	0.00	435.50	0.00	0.00	0.00	241.32	4077.84
outflow	1291.48	0.00	7510.57	0.00	10178.92	5980.84	0.00	77.94	0.00	5056.19	0.00	9568.87	0.00	750.12	0.00	6626.18	0.00	118.30	8.64	11878.62	119.28	287034.00	0.00	8885.75	18.16	1116.86
tss removal efficiency (inf)	93.00	9.82	58.50	9.82	62.00	41.25	9.82	93.00	9.82	0.00	9.82	62.00	9.82	93.00	9.82	0.00	9.82	93.00	93.00	0.00	78.50	0.00	9.82	0.00	93.00	78.50
upstream watershed tss load	45519.43	0.00	62325.71	0.00	26786.63	26787.87	0.00	1113.37	0.00	6091.62	0.00	56989.53	0.00	10715.96	0.00	6626.18	0.00	1689.96	123.43	13565.07	554.78	451031.96	0.00	8885.75	259.48	5436.02
tss total removal efficiency	97.16	9.82	87.95	9.82	62.00	77.67	9.82	93.00	9.82	17.00	9.82	83.21	9.82	93.00	9.82	0.00	9.82	93.00	93.00	12.43	78.50	36.36	9.82	0.00	93.00	79.45
INFILTRATION BMP/POND.....																									
Annual runoff infiltrated	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Adjusted outflow	**103.65**	**0.00**	**142.45**	**0.00**	**68.50**	**68.50**	**0.00**	**2.93**	**0.00**	**15.64**	**0.00**	**139.62**	**0.00**	**28.05**	**0.00**	**14.58**	**0.00**	**4.42**	**0.33**	**33.11**	**1.46**	**997.86**	**0.00**	**22.98**	**0.68**	**13.66**
Adjusted TP outflow	**22.27**	**0.00**	**40.66**	**0.00**	**47.37**	**38.09**	**0.00**	**1.42**	**0.00**	**14.75**	**0.00**	**59.77**	**0.00**	**13.93**	**0.00**	**14.31**	**0.00**	**1.15**	**0.14**	**29.02**	**0.84**	**741.80**	**0.00**	**24.05**	**0.30**	**7.28**
Adjusted TSS outflow	**1291.48**	**0.00**	**7510.57**	**0.00**	**10178.92**	**5980.84**	**0.00**	**77.94**	**0.00**	**5056.19**	**0.00**	**9568.87**	**0.00**	**750.12**	**0.00**	**6626.18**	**0.00**	**118.30**	**8.64**	**11878.62**	**119.28**	**287034.00**	**0.00**	**8885.75**	**18.16**	**1116.86**
POND P BUDGETS W/O P-BAN.																									
runoff	37.94	0.00	38.75	0.00	81.22	0.00	0.00	3.59	0.00	15.02	0.00	25.11	0.00	34.00	0.00	15.85	0.00	5.13	0.40	31.07	1.79	51.40	0.00	27.40	0.84	15.04
Adjusted TP outflow	**22.75**	**0.00**	**42.18**	**0.00**	**52.22**	**41.31**	**0.00**	**1.55**	**0.00**	**16.57**	**0.00**	**63.54**	**0.00**	**15.17**	**0.00**	**15.85**	**0.00**	**1.21**	**0.15**	**32.43**	**0.92**	**766.30**	**0.00**	**27.40**	**0.32**	**7.96**
upstream pond	15.00	0.00	22.75	0.00	0.00	52.22	0.00	0.00	0.00	1.55	0.00	73.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.36	0.00	714.89	0.00	0.00	0.00	0.32
total inflow	**52.94**	**0.00**	**61.50**	**0.00**	**81.22**	**52.23**	**0.00**	**3.59**	**0.00**	**16.57**	**0.00**	**98.16**	**0.00**	**34.00**	**0.00**	**15.85**	**0.00**	**5.13**	**0.40**	**32.43**	**1.79**	**766.30**	**0.00**	**27.40**	**0.84**	**15.36**
outflow	22.75	0.00	42.18	0.00	52.22	41.31	0.00	1.55	0.00	16.57	0.00	63.54	0.00	15.17	0.00	15.85	0.00	1.21	0.15	32.43	0.92	766.30	0.00	27.40	0.32	7.96
inflow phos conc	187.91	409.24	158.84	409.24	436.25	280.49	409.24	450.02	409.24	389.74	409.24	258.67	409.24	445.97	409.24	399.96	409.24	426.83	450.02	360.35	450.02	282.54	409.24	438.73	450.02	413.73
outflow phos conc	80.75	392.86	108.95	392.86	280.49	221.86	392.86	194.62	392.86	389.72	392.86	167.43	392.86	198.99	392.86	399.94	392.86	100.40	168.23	360.35	231.37	282.54	392.86	438.72	173.91	214.30
p reaction rate	3.09	0.04	0.67	0.04	0.86	0.33	0.04	3.03	0.04	0.00	0.04	0.84	0.04	2.78	0.04	0.00	0.04	13.82	4.48	0.00	1.84	0.00	0.04	0.00	4.11	1.80
1-rp	0.43	0.96	0.69	0.96	0.64	0.79	0.96	0.43	0.96	1.00	0.96	0.65	0.96	0.45	0.96	1.00	0.96	0.24	0.37	1.00	0.51	1.00	0.96	1.00	0.39	0.52
runoff total p conc	340.96	0.00	350.43	0.00	419.89	200.00	0.00	450.00	0.00	414.15	0.00	297.45	0.00	440.79	0.00	381.27	0.00	411.96	450.00	342.43	450.00	346.90	0.00	406.50	450.00	382.53

Rochester Loading Assessm																									
Zumbro River																									
363-06-158-2																									
2020 LOADS																									
	future zr-a3.2a	**zr-a3.2a**	**future zr-a3.1c**	**zr-a3.1c**	**future zr-a2.8a**	**zr-a2.8a**	**future zr-a3.1b**	**zr-a3.1b**	**future zr-a3.5a**	**zr-a3.5a**	**future zr-a3.5b**	**zr-a3.5b**	**future zr-a3.6a**	**zr-a3.6a**	**future zr-a3.1a**	**zr-a3.1a**	**future zr-a3.3h**	**zr-a3.3h**	**future zr-a3.3g**	**zr-a3.3g**	**future zr-a3.3f**	**zr-a3.3f**	**future zr-a3.3e**	**zr-a3.3e**	**future zr-a3.3i**	**zr-a3.3i**
	zr-a3.2a	zr-a3.1c	zr-a3.1c	zr-a3.1a	zr-a2.8a	zr-a3.1b	zr-a3.1b	zr-a3.1a	zr-a3.5a	zr-a3.5b	zr-a3.5b	zr-a3.1a	zr-a3.6a	zr-a3.1a	zr-a3.1a	zr-a3.8a	zr-a3.3h	zr-a3.3g	zr-a3.3g	zr-a3.3e	zr-a3.3f	zr-a3.3e	zr-a3.3e	zr-a3.3d	zr-a3.3i	zr-a3.3d
INPUT VARIABLES....																									
case label																									
Watershed area	10.1	57.6	0.0	1.0	0.0	23.6	0.0	1.8	7.2	155.7	0.0	213.1	0.0	56.1	0.0	79.0	0.0	2.7	0.9	13.1	0.0	9.3	0.0	42.7	8.3	34.4
basin area	0.25	0.00	0.00	0.33	0.00	2.37	0.00	1.80	0.08	0.00	0.00	0.00	0.00	0.09	0.00	0.00	0.00	0.02	0.00	0.00	0.00	0.03	0.00	0.26	0.08	0.01
basin volume	0.60	0.00	0.00	0.95	0.00	15.75	0.00	9.48	0.20	0.00	0.00	0.00	0.00	0.54	0.00	0.00	0.00	0.00	0.02	0.00	0.00	0.00	0.00	0.00	0.23	0.00
Row Crop Agriculture	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Very Low Density Residential	0%	27%	0%	0%	0%	0%	0%	0%	0%	33%	0%	39%	0%	15%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Low Density Residential	40%	40%	0%	0%	0%	0%	0%	0%	100%	30%	0%	46%	0%	15%	0%	0%	0%	81%	100%	93%	0%	100%	0%	100%	100%	96%
Medium Density Residential	0%	0%	0%	0%	0%	12%	0%	0%	0%	0%	0%	1%	0%	0%	0%	4%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
High Density Residential	0%	6%	0%	0%	0%	79%	0%	73%	0%	0%	0%	0%	0%	0%	0%	10%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Commercial/Industrial	60%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Institutional	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	1%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Open Space	0%	11%	0%	0%	0%	2%	0%	27%	0%	32%	0%	9%	0%	45%	0%	74%	0%	19%	0%	7%	0%	0%	0%	0%	0%	4%
Golf Course	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Pits and Quarries	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Right-of-Way	0%	16%	0%	100%	0%	7%	0%	0%	0%	5%	0%	5%	0%	25%	0%	12%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
WATERSHED-WIDE ACCOUNTII																									
tributary land area	10.13	126.64	0.00	127.69	0.00	23.63	0.00	25.48	7.15	162.82	0.00	375.96	0.00	56.15	0.00	3393.32	0.00	2.69	0.90	16.71	0.00	9.26	0.00	68.64	8.34	42.73
tributary water area	0.25	0.48	0.00	0.81	0.00	2.37	0.00	4.17	0.08	0.08	0.00	0.08	0.00	0.09	0.00	26.79	0.00	0.02	0.00	0.02	0.00	0.03	0.00	0.31	0.08	0.09
direct and ponded area	10.38	127.12	0.00	128.50	0.00	26.00	0.00	29.65	7.24	162.90	0.00	376.04	0.00	56.24	0.00	3420.11	0.00	2.71	0.90	16.73	0.00	9.29	0.00	68.95	8.42	42.82
ASSUMED EXPORT FACTORS...																									
season length	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
season precipitation	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80
runoff total p	366.40	348.21	0.00	400.00	0.00	388.14	0.00	339.74	391.50	302.12	0.00	340.74	0.00	294.30	0.00	250.66	0.00	354.47	391.50	377.25	0.00	391.50	0.00	391.44	391.50	383.64
runoff ortho p/total p	0.30	0.39	0.00	0.30	0.00	0.31	0.00	0.38	0.30	0.46	0.00	0.40	0.00	0.47	0.00	0.52	0.00	0.36	0.30	0.32	0.00	0.30	0.00	0.30	0.30	0.31
unit runoff	11.47	5.98	0.00	8.77	0.00	12.57	0.00	10.61	6.74	4.26	0.00	5.03	0.00	4.79	0.00	4.68	0.00	5.93	6.74	6.43	0.00	6.74	0.00	6.74	6.74	6.57
unit export	0.93	0.50	0.00	0.79	0.00	1.11	0.00	0.91	0.60	0.32	0.00	0.41	0.00	0.37	0.00	0.34	0.00	0.50	0.60	0.56	0.00	0.60	0.00	0.60	0.60	0.58
POND WATER BUDGETS.....																									
runoff	9.68	28.71	0.00	0.76	0.00	24.76	0.00	1.63	4.02	55.30	0.00	89.43	0.00	22.43	0.00	30.81	0.00	1.33	0.51	7.03	0.00	5.20	0.00	23.98	4.69	18.83
upstream pond	0.00	37.93	0.00	66.63	0.00	0.00	0.00	24.76	0.00	4.02	0.00	59.32	0.00	0.00	0.00	1285.80	0.00	0.00	0.00	1.84	0.00	0.00	0.00	14.07	0.00	4.69
total inflow	**9.68**	**66.63**	**0.00**	**67.40**	**0.00**	**24.76**	**0.00**	**26.39**	**4.02**	**59.32**	**0.00**	**148.75**	**0.00**	**22.43**	**0.00**	**1316.60**	**0.00**	**1.33**	**0.51**	**8.87**	**0.00**	**5.20**	**0.00**	**38.04**	**4.69**	**23.52**
outflow	9.68	66.63	0.00	67.40	0.00	24.76	0.00	26.39	4.02	59.32	0.00	148.75	0.00	22.43	0.00	1316.60	0.00	1.33	0.51	8.87	0.00	5.20	0.00	38.04	4.69	23.52
POND PHOSPHORUS BUDGETS																									
runoff	9.47	29.09	0.00	0.83	0.00	26.32	0.00	1.68	4.28	50.48	0.00	88.27	0.00	20.82	0.00	26.48	0.00	1.36	0.54	7.37	0.00	5.53	0.00	25.51	4.99	19.88
upstream pond	0.00	26.36	0.00	55.45	0.00	0.00	0.00	7.51	0.00	2.18	0.00	52.66	0.00	0.00	0.00	963.72	0.00	0.00	0.00	1.58	0.00	0.00	0.00	14.48	0.00	2.49
total inflow	**9.47**	**55.45**	**0.00**	**56.28**	**0.00**	**26.32**	**0.00**	**9.19**	**4.28**	**52.66**	**0.00**	**140.93**	**0.00**	**20.82**	**0.00**	**990.20**	**0.00**	**1.36**	**0.54**	**8.95**	**0.00**	**5.53**	**0.00**	**40.00**	**4.99**	**22.37**
net sedimentation	4.69	0.00	0.00	17.65	0.00	18.82	0.00	4.34	2.10	0.00	0.00	0.00	0.00	7.35	0.00	0.00	0.00	0.00	0.32	0.00	0.00	0.00	0.00	0.00	2.50	0.00
outflow	4.78	55.45	0.00	38.62	0.00	7.51	0.00	4.84	2.18	52.66	0.00	140.93	0.00	13.47	0.00	990.20	0.00	1.36	0.22	8.95	0.00	5.53	0.00	40.00	2.49	22.37
p removal efficiency	49.54	0.00	3.78	31.37	3.78	71.49	3.78	47.27	48.99	0.00	3.78	0.00	3.78	35.29	3.78	0.00	3.78	0.03	59.27	0.01	3.78	0.01	3.78	0.00	50.16	0.00
upstream w-shed p load	9.47	66.76	0.00	67.59	0.00	26.32	0.00	28.00	4.28	54.76	0.00	143.03	0.00	20.82	0.00	1325.30	0.00	1.36	0.54	9.27	0.00	5.53	0.00	40.32	4.99	24.87
total removal %	49.54	16.95	3.78	42.86	3.78	71.49	3.78	82.70	48.99	3.83	3.78	1.47	3.78	35.29	3.78	25.28	3.78	0.03	59.27	3.46	3.78	0.01	3.78	0.80	50.16	10.06
HYDRAULIC PARAMETERS.....																									
pond mean depth	2.39	1.00	0.00	2.88	0.00	6.65	0.00	5.27	2.37	1.00	0.00	1.00	0.00	6.00	0.00	1.00	0.00	0.00	2480.50	1.00	0.00	0.00	0.00	0.00	2.77	0.00
relative volume	1.95	0.00	1.58	39.59	1.58	20.23	1.58	184.72	1.56	0.00	1.58	0.00	1.58	0.77	1.58	0.00	1.58	0.00	1.56	0.00	1.58	0.00	1.58	0.00	1.56	0.00
residence time	0.06	0.00	0.05	0.01	0.05	0.64	0.05	0.36	0.05	0.00	0.05	0.00	0.05	0.02	0.05	0.00	0.05	0.00	0.05	0.00	0.05	0.00	0.05	0.00	0.05	0.00
residence time	22.43	0.00	18.08	5.14	18.08	232.17	18.08	131.10	17.86	0.00	18.08	0.00	18.08	8.79	18.08	0.00	18.08	0.00	17.86	0.00	18.08	0.00	18.08	0.00	17.86	0.00
overflow rate	38.95	6663469.04	0.00	204.24	0.00	10.45	0.00	14.66	48.52	5931563.53	0.00	14874545.78	0.00	249.21	0.00	131660162.20	0.00	66.46	50689.90	886542.32	0.00	173.37	0.00	146.32	56.55	2351.84
inflow phos conc	359.66	306.14	384.34	307.20	384.34	391.12	384.34	128.07	391.52	326.66	384.34	348.59	384.34	341.50	384.34	276.71	384.34	375.64	391.52	371.39	384.34	391.52	384.34	386.80	391.52	349.95
outflow phos conc	181.47	306.14	369.82	210.83	369.82	111.52	369.82	67.53	199.70	326.66	369.82	348.59	369.82	220.99	369.82	276.71	369.82	375.54	159.46	371.36	369.82	391.48	369.82	386.80	195.14	349.94
p reaction rate	1.95	0.00	0.04	0.67	0.04	8.79	0.04	1.70	1.88	0.00	0.04	0.00	0.04	0.84	0.04	0.00	0.04	0.00	3.57	0.00	0.04	0.00	0.04	0.00	2.02	0.00
1-rp	0.50	1.00	0.96	0.69	0.96	0.29	0.96	0.53	0.51	1.00	0.96	1.00	0.96	0.65	0.96	1.00	0.96	1.00	0.41	1.00	0.96	1.00	0.96	1.00	0.50	1.00
vlawmo pond volume	0.76	2.26	0.00	0.06	0.00	1.95	0.00	0.13	0.32	4.35	0.00	7.03	0.00	1.76	0.00	2.42	0.00	0.10	0.04	0.55	0.00	0.41	0.00	1.89	0.37	1.48
LAND USE PARAMETERS.....																									
runoff total P conc	366.40	348.21	0.00	400.00	0.00	388.14	0.00	339.74	391.50	302.12	0.00	340.74	0.00	294.30	0.00	250.66	0.00	354.47	391.50	377.25	0.00	391.50	0.00	391.44	391.50	383.64
runoff coefficient	0.36	0.19	0.00	0.28	0.00	0.40	0.00	0.33	0.21	0.13	0.00	0.16	0.00	0.15	0.00	0.15	0.00	0.19	0.21	0.20	0.00	0.21	0.00	0.21	0.21	0.21
dissolved/total P	0.30	0.39	0.00	0.30	0.00	0.31	0.00	0.38	0.30	0.46	0.00	0.40	0.00	0.47	0.00	0.52	0.00	0.36	0.30	0.32	0.00	0.30	0.00	0.30	0.30	0.31
runoff TSS conc	140.00	169.09	0.00	140.00	0.00	141.56	0.00	160.54	140.00	189.33	0.00	176.47	0.00	185.56	0.00	196.29	0.00	154.70	140.00	145.66	0.00	140.00	0.00	140.02	140.00	143.12
POND TSS BUDGETS.....																									
runoff	3673.54	11973.46	0.00	289.52	0.00	9415.56	0.00	640.97	1525.32	25774.89	0.00	39019.66	0.00	10041.41	0.00	14242.97	0.00	527.01	192.32	2709.54	0.00	1973.30	0.00	9097.61	1777.98	7206.56
upstream pond	0.00	8367.54	0.00	20341.01	0.00	0.00	0.00	659.09	0.00	228.80	0.00	26003.69	0.00	0.00	0.00	373319.08	0.00	0.00	0.00	540.47	0.00	0.00	0.00	5223.31	0.00	222.25
total inflow	**3673.54**	**20341.01**	**0.00**	**20630.52**	**0.00**	**9415.56**	**0.00**	**1300.06**	**1525.32**	**26003.69**	**0.00**	**65023.34**	**0.00**	**10041.41**	**0.00**	**387562.05**	**0.00**	**527.01**	**192.32**	**3250.01**	**0.00**	**1973.30**	**0.00**	**14320.92**	**1777.98**	**7428.81**
p removal efficiency (no inf)	51.00	0.00	5.00	33.00	5.00	74.00	5.00	49.00	52.00	0.00	5.00	0.00	5.00	37.00	5.00	0.00	5.00	0.00	62.00	0.00	5.00	0.00	5.00	0.00	53.00	0.00
tss removal efficiency (no inf)	83.00	0.00	9.82	59.38	9.82	93.00	9.82	78.50	85.00	0.00	9.82	0.00	9.82	63.00	9.82	0.00	9.82	0.00	93.00	0.00	9.82	0.00	9.82	0.00	87.50	0.00
net sedimentation	3049.04	0.00	0.00	12249.37	0.00	8756.47	0.00	1020.55	1296.52	0.00	0.00	0.00	0.00	6326.09	0.00	0.00	0.00	0.00	178.86	0.00	0.00	0.00	0.00	0.00	1555.73	0.00
outflow	624.50	20341.01	0.00	8381.15	0.00	659.09	0.00	279.51	228.80	26003.69	0.00	65023.34	0.00	3715.32	0.00	387562.05	0.00	527.01	13.46	3250.01	0.00	1973.30	0.00	14320.92	222.25	7428.81
tss removal efficiency (inf)	83.00	0.00	9.82	59.38	9.82	93.00	9.82	78.50	85.00	0.00	9.82	0.00	9.82	63.00	9.82	0.00	9.82	0.00	93.00	0.00	9.82	0.00	9.82	0.00	87.50	0.00
upstream watershed tss load	3673.54	27709.20	0.00	27998.72	0.00	9415.56	0.00	10056.53	1525.32	27300.21	0.00	66319.86	0.00	10041.41	0.00	588577.21	0.00	527.01	192.32	3428.86	0.00	1973.30	0.00	14499.78	1777.98	8984.54
tss total removal efficiency	83.00	26.59	9.82	70.07	9.82	93.00	9.82	97.22	85.00	4.75	9.82	1.95	9.82	63.00	9.82	34.15	9.82	0.00	93.00	5.22	9.82	0.00	9.82	1.23	87.50	17.32
INFILTRATION BMP/POND.....																									
Annual runoff infiltrated	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Adjusted outflow	**9.68**	**66.63**	**0.00**	**67.40**	**0.00**	**24.76**	**0.00**	**26.39**	**4.02**	**59.32**	**0.00**	**148.75**	**0.00**	**22.43**	**0.00**	**1316.60**	**0.00**	**1.33**	**0.51**	**8.87**	**0.00**	**5.20**	**0.00**	**38.04**	**4.69**	**23.52**
Adjusted TP outflow	**4.78**	**55.45**	**0.00**	**38.62**	**0.00**	**7.51**	**0.00**	**4.84**	**2.18**	**52.66**	**0.00**	**140.93**	**0.00**	**13.47**	**0.00**	**990.20**	**0.00**	**1.36**	**0.22**	**8.95**	**0.00**	**5.53**	**0.00**	**40.00**	**2.49**	**22.37**
Adjusted TSS outflow	**624.50**	**20341.01**	**0.00**	**8381.15**	**0.00**	**659.09**	**0.00**	**279.51**	**228.80**	**26003.69**	**0.00**	**65023.34**	**0.00**	**3715.32**	**0.00**	**387562.05**	**0.00**	**527.01**	**13.46**	**3250.01**	**0.00**	**1973.30**	**0.00**	**14320.92**	**222.25**	**7428.81**
POND P BUDGETS W/O P-BAN.																									
runoff	9.82	32.22	0.00	0.83	0.00	30.06	0.00	1.92	4.92	56.24	0.00	99.71	0.00	21.84	0.00	28.32	0.00	1.55	0.62	8.46	0.00	6.36	0.00	29.33	5.73	22.83
Adjusted TP outflow	**4.90**	**60.92**	**0.00**	**41.43**	**0.00**	**8.11**	**0.00**	**5.14**	**2.39**	**58.63**	**0.00**	**158.34**	**0.00**	**13.96**	**0.00**	**1040.88**	**0.00**	**1.55**	**0.24**	**10.25**	**0.00**	**6.36**	**0.00**	**45.93**	**2.73**	**25.56**
upstream pond	0.00	28.70	0.00	60.92	0.00	0.00	0.00	8.11	0.00	2.39	0.00	58.63	0.00	0.00	0.00	1012.57	0.00	0.00	0.00	1.79	0.00	0.00	0.00	16.61	0.00	2.73
total inflow	**9.82**	**60.92**	**0.00**	**61.75**	**0.00**	**30.06**	**0.00**	**10.03**	**4.92**	**58.63**	**0.00**	**158.34**	**0.00**	**21.84**	**0.00**	**1040.88**	**0.00**	**1.55**	**0.62**	**10.25**	**0.00**	**6.36**	**0.00**	**45.93**	**5.73**	**25.56**
outflow	4.90	60.92	0.00	41.43	0.00	8.11	0.00	5.14	2.39	58.63	0.00	158.34	0.00	13.96	0.00	1040.88	0.00	1.55	0.24	10.25	0.00	6.36	0.00	45.93	2.73	25.56
inflow phos conc	373.25	336.37	409.24	337.09	409.24	446.69	409.24	139.84	450.02	363.67	409.24	391.66	409.24	358.24	409.24	290.87	409.24	429.29	450.02	425.27	409.24	450.02	409.24	444.22	450.02	399.80
outflow phos conc	186.01	336.37	392.86	226.18	392.86	120.46	392.86	71.66	219.11	363.66	392.86	391.66	392.86	228.93	392.86	290.87	392.86	429.16	173.93	425.24	392.86	449.97	392.86	444.21	213.96	399.79
p reaction rate	2.02	0.00	0.04	0.73	0.04	10.04	0.04	1.86	2.16	0.00	0.04	0.00	0.04	0.88	0.04	0.00	0.04	0.00	4.11	0.00	0.04	0.00	0.04	0.00	2.32	0.00
1-rp	0.50	1.00	0.96	0.67	0.96	0.27	0.96	0.51	0.49	1.00	0.96	1.00	0.96	0.64	0.96	1.00	0.96	1.00	0.39	1.00	0.96	1.00	0.96	1.00	0.48	1.00
runoff total p conc	389.51	387.28	0.00	400.00	0.00	441.59	0.00	382.42	450.00	334.68	0.00	385.71	0.00	309.96	0.00	258.89	0.00	401.66	450.00	431.40	0.00	450.00	0.00	449.92	450.00	439.74

Rochester Loading Assessm																										
Zumbro River																										
363-06-158-2																										
2020 LOADS																										
	future zr-a3.3d	**zr-a3.3d**	**future zr-a3.3c**	**zr-a3.3c**	**future zr-a3.3j**	**zr-a3.3j**	**future zr-a3.3b**	**zr-a3.3b**	**future zr-a3.3a**	**zr-a3.3a**	**future zr-a3.8d**	**zr-a3.8d**	**future zr-a3.8c**	**zr-a3.8c**	**future zr-a3.8f**	**zr-a3.8f**	**future zr-a3.8e**	**zr-a3.8e**	**zr-a3.8e cell 2**	**future zr-a3.8b**	**zr-a3.8b**	**future zr-a3.6b**	**zr-a3.6b**	**future zr-a3.7**	**zr-a3.7**	**future zr-a3.8g**
	zr-a3.3d	zr-a3.3c	zr-a3.3c	zr-a3.3b	zr-a3.3j	zr-a3.3b	zr-a3.3b	zr-a3.3a	zr-a3.3a	zr-a3.8d	zr-a3.8d	zr-a3.8c	zr-a3.8c	zr-a3.8b	zr-a3.8f	zr-a3.8e	zr-a3.8e	zr-a3.8e cell 2	zr-a3.8b	zr-a3.8b	zr-a3.8a	zr-a3.6b	zr-a3.8a	zr-a3.7	zr-a3.8a	zr-a3.8g
INPUT VARIABLES....																										
case label																										
Watershed area	0.0	59.5	0.0	24.1	0.0	0.9	0.0	4.9	1.0	26.6	0.0	18.7	0.0	6.0	0.0	29.7	1.0	51.5	0.0	0.0	6.4	0.0	46.5	0.0	82.4	0.0
basin area	0.00	0.46	0.00	0.07	0.00	0.00	0.00	0.04	0.00	0.27	0.00	0.00	0.00	1.00	0.00	0.00	0.04	0.35	0.70	0.00	0.92	0.00	0.00	0.00	0.75	0.00
basin volume	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.03	0.03	0.00	0.00	0.00	0.00	3.12	0.00	0.00	0.08	1.37	2.73	0.00	2.96	0.00	0.00	0.00	3.00	0.00
Row Crop Agriculture	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Very Low Density Residential	0%	0%	0%	0%	0%	0%	0%	0%	0%	2%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	20%	0%	13%	0%
Low Density Residential	0%	87%	0%	99%	0%	0%	0%	19%	100%	43%	0%	0%	0%	0%	0%	39%	0%	0%	0%	0%	0%	0%	43%	0%	33%	0%
Medium Density Residential	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	7%	0%	0%	0%	0%	0%	0%	0%	0%	0%
High Density Residential	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	24%	0%	0%	0%	0%	0%	0%	0%	0%
Commercial/Industrial	0%	0%	0%	0%	0%	70%	0%	27%	0%	35%	0%	66%	0%	0%	0%	26%	93%	36%	0%	0%	0%	0%	0%	0%	0%	0%
Institutional	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	5%	0%	0%	0%	0%	0%	0%	43%	0%
Open Space	0%	13%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	13%	0%	1%	100%	0%	0%	0%	6%	0%	7%	0%
Golf Course	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Pits and Quarries	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Right-of-Way	0%	0%	0%	0%	0%	30%	0%	55%	0%	19%	0%	34%	0%	100%	0%	22%	0%	33%	0%	0%	100%	0%	30%	0%	3%	0%
WATERSHED-WIDE ACCOUNTII																										
tributary land area	0.00	170.91	0.00	195.01	0.00	0.93	0.00	200.80	0.98	228.41	0.00	247.14	0.00	253.12	0.00	29.72	1.01	82.26	82.27	0.00	341.80	0.00	46.47	0.00	82.40	0.00
tributary water area	0.00	0.86	0.00	0.93	0.00	0.00	0.00	0.97	0.00	1.24	0.00	1.24	0.00	2.24	0.00	0.00	0.04	0.39	1.09	0.00	4.26	0.00	0.00	0.00	0.75	0.00
direct and ponded area	0.00	171.78	0.00	195.94	0.00	0.93	0.00	201.78	0.99	229.66	0.00	248.38	0.00	255.36	0.00	29.72	1.05	82.65	83.36	0.00	346.06	0.00	46.47	0.00	83.15	0.00
ASSUMED EXPORT FACTORS...																										
season length	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
season precipitation	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80
runoff total p	0.00	366.97	0.00	390.65	0.00	365.14	0.00	384.94	391.50	375.96	0.00	366.91	0.00	400.00	0.00	357.91	352.87	374.91	200.00	0.00	400.00	0.00	364.35	0.00	348.11	0.00
runoff ortho p/total p	0.00	0.34	0.00	0.30	0.00	0.30	0.00	0.30	0.30	0.31	0.00	0.30	0.00	0.30	0.00	0.34	0.30	0.30	0.60	0.00	0.30	0.00	0.36	0.00	0.35	0.00
unit runoff	0.00	6.21	0.00	6.73	0.00	12.81	0.00	9.96	6.74	9.81	0.00	12.60	0.00	8.77	0.00	8.70	14.23	12.01	2.54	0.00	8.77	0.00	6.32	0.00	7.27	0.00
unit export	0.00	0.54	0.00	0.60	0.00	1.05	0.00	0.86	0.60	0.82	0.00	1.03	0.00	0.79	0.00	0.72	1.13	1.02	0.12	0.00	0.79	0.00	0.55	0.00	0.59	0.00
POND WATER BUDGETS.....																										
runoff	0.00	30.79	0.00	13.50	0.00	0.99	0.00	4.04	0.55	21.77	0.00	19.67	0.00	4.37	0.00	21.55	1.20	51.58	0.00	0.00	4.68	0.00	24.47	0.00	49.93	0.00
upstream pond	0.00	61.56	0.00	92.36	0.00	0.00	0.00	106.85	0.00	111.45	0.00	133.22	0.00	152.89	0.00	0.00	0.00	22.74	74.32	0.00	231.58	0.00	0.00	0.00	0.00	0.00
total inflow	**0.00**	**92.36**	**0.00**	**105.86**	**0.00**	**0.99**	**0.00**	**110.89**	**0.55**	**133.22**	**0.00**	**152.89**	**0.00**	**157.26**	**0.00**	**21.55**	**1.20**	**74.32**	**74.33**	**0.00**	**236.27**	**0.00**	**24.47**	**0.00**	**49.93**	**0.00**
outflow	0.00	92.36	0.00	105.86	0.00	0.99	0.00	110.89	0.55	133.22	0.00	152.89	0.00	157.26	0.00	21.55	1.20	74.32	74.33	0.00	236.27	0.00	24.47	0.00	49.93	0.00
POND PHOSPHORUS BUDGETS																										
runoff	0.00	31.93	0.00	14.36	0.00	0.97	0.00	4.17	0.59	21.92	0.00	19.34	0.00	4.75	0.00	21.55	1.15	52.31	0.00	0.00	5.09	0.00	25.40	0.00	48.62	0.00
upstream pond	0.00	62.37	0.00	94.29	0.00	0.00	0.00	109.62	0.00	112.30	0.00	134.22	0.00	153.56	0.00	0.00	0.00	22.15	45.57	0.00	128.59	0.00	0.00	0.00	0.00	0.00
total inflow	**0.00**	**94.29**	**0.00**	**108.65**	**0.00**	**0.97**	**0.00**	**113.79**	**0.59**	**134.22**	**0.00**	**153.56**	**0.00**	**158.31**	**0.00**	**21.55**	**1.15**	**74.46**	**45.57**	**0.00**	**133.69**	**0.00**	**25.40**	**0.00**	**48.62**	**0.00**
net sedimentation	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.73	0.35	0.00	0.00	0.00	0.00	62.42	0.00	0.00	0.54	28.90	12.87	0.00	32.11	0.00	0.00	0.00	24.65	0.00
outflow	0.00	94.29	0.00	108.65	0.00	0.97	0.00	112.06	0.24	134.22	0.00	153.56	0.00	95.90	0.00	21.55	0.61	45.57	32.70	0.00	101.58	0.00	25.40	0.00	23.97	0.00
p removal efficiency	3.78	0.00	3.78	0.00	3.78	0.07	3.78	1.52	59.27	0.00	3.78	0.00	3.78	39.43	3.78	0.00	47.21	38.81	28.25	3.78	24.02	3.78	0.00	3.78	50.71	3.78
upstream w-shed p load	0.00	97.12	0.00	111.48	0.00	0.97	0.00	116.61	0.59	139.12	0.00	158.47	0.00	163.22	0.00	21.55	1.15	75.01	75.01	0.00	243.32	0.00	25.40	0.00	48.62	0.00
total removal %	3.78	2.91	3.78	2.53	3.78	0.07	3.78	3.90	59.27	3.52	3.78	3.09	3.78	41.25	3.78	0.00	47.21	39.25	56.41	3.78	58.25	3.78	0.00	3.78	50.71	3.78
HYDRAULIC PARAMETERS.....																										
pond mean depth	0.00	0.00	0.00	0.00	0.00	1.00	0.00	0.63	2708.75	0.00	0.00	1.00	0.00	3.12	0.00	1.00	1.87	3.90	3.90	0.00	3.21	0.00	1.00	0.00	4.00	0.00
relative volume	1.58	0.00	1.58	0.00	1.58	0.00	1.58	0.20	1.56	0.00	1.58	0.00	1.58	22.72	1.58	0.00	2.06	0.84	40995.00	1.58	20.09	1.58	0.00	1.58	1.91	1.58
residence time	0.05	0.00	0.05	0.00	0.05	0.00	0.05	0.00	0.05	0.00	0.05	0.00	0.05	0.02	0.05	0.00	0.06	0.02	0.04	0.05	0.01	0.05	0.00	0.05	0.06	0.05
residence time	18.08	0.00	18.08	0.00	18.08	0.00	18.08	0.08	17.86	0.00	18.08	0.00	18.08	7.25	18.08	0.00	23.61	6.71	13.42	18.08	4.57	18.08	0.00	18.08	21.93	18.08
overflow rate	0.00	200.78	0.00	1512.30	0.00	98735.31	0.00	2772.29	55354.27	493.40	0.00	15288845.02	0.00	157.26	0.00	2154516.01	28.93	212.35	106.18	0.00	255.98	0.00	2447328.30	0.00	66.57	0.00
inflow phos conc	384.34	375.63	384.34	377.62	384.34	360.38	384.34	377.52	391.52	370.69	384.34	369.54	384.34	370.39	384.34	367.99	351.98	368.61	225.57	384.34	208.18	384.34	381.88	384.34	358.29	384.34
outflow phos conc	369.82	375.63	369.82	377.62	369.82	360.14	369.82	371.79	159.45	370.69	369.82	369.54	369.82	224.36	369.82	367.98	185.80	225.57	161.85	369.82	158.18	369.82	381.87	369.82	176.62	369.82
p reaction rate	0.04	0.00	0.04	0.00	0.04	0.00	0.04	0.02	3.57	0.00	0.04	0.00	0.04	1.07	0.04	0.00	1.69	1.04	0.55	0.04	0.42	0.04	0.00	0.04	2.09	0.04
1-rp	0.96	1.00	0.96	1.00	0.96	1.00	0.96	0.98	0.41	1.00	0.96	1.00	0.96	0.61	0.96	1.00	0.53	0.61	0.72	0.96	0.76	0.96	1.00	0.96	0.49	0.96
vlawmo pond volume	0.00	2.42	0.00	1.06	0.00	0.08	0.00	0.32	0.04	1.71	0.00	1.55	0.00	0.34	0.00	1.69	0.09	4.06	0.00	0.00	0.37	0.00	1.92	0.00	3.92	0.00
LAND USE PARAMETERS.....																										
runoff total P conc	0.00	366.97	0.00	390.65	0.00	365.14	0.00	384.94	391.50	375.96	0.00	366.91	0.00	400.00	0.00	357.91	352.87	374.91	200.00	0.00	400.00	0.00	364.35	0.00	348.11	0.00
runoff coefficient	0.00	0.20	0.00	0.21	0.00	0.40	0.00	0.31	0.21	0.31	0.00	0.40	0.00	0.28	0.00	0.27	0.45	0.38	0.08	0.00	0.28	0.00	0.20	0.00	0.23	0.00
dissolved/total P	0.00	0.34	0.00	0.30	0.00	0.30	0.00	0.30	0.30	0.31	0.00	0.30	0.00	0.30	0.00	0.34	0.30	0.30	0.60	0.00	0.30	0.00	0.36	0.00	0.35	0.00
runoff TSS conc	0.00	149.74	0.00	140.34	0.00	140.00	0.00	140.00	140.00	141.83	0.00	140.00	0.00	140.00	0.00	149.75	140.00	140.95	216.00	0.00	140.00	0.00	160.24	0.00	155.80	0.00
POND TSS BUDGETS.....																										
runoff	0.00	12016.61	0.00	5128.13	0.00	374.60	0.00	1534.03	210.01	8292.59	0.00	7462.95	0.00	1657.68	0.00	8340.72	454.76	19596.62	1.24	0.00	1777.47	0.00	9896.41	0.00	19771.70	0.00
upstream pond	0.00	21749.73	0.00	33766.34	0.00	0.00	0.00	39269.07	0.00	39214.83	0.00	47507.42	0.00	54970.36	0.00	0.00	0.00	8449.87	9535.80	0.00	22329.19	0.00	0.00	0.00	0.00	0.00
total inflow	**0.00**	**33766.34**	**0.00**	**38894.47**	**0.00**	**374.60**	**0.00**	**40803.11**	**210.01**	**47507.42**	**0.00**	**54970.36**	**0.00**	**56628.04**	**0.00**	**8340.72**	**454.76**	**28046.48**	**9537.05**	**0.00**	**24106.66**	**0.00**	**9896.41**	**0.00**	**19771.70**	**0.00**
p removal efficiency (no inf)	5.00	0.00	5.00	0.00	5.00	0.00	5.00	2.00	62.00	0.00	5.00	0.00	5.00	42.00	5.00	0.00	48.00	40.00	29.00	5.00	25.00	5.00	0.00	5.00	52.00	5.00
tss removal efficiency (no inf)	9.82	0.00	9.82	0.00	9.82	0.00	9.82	3.93	93.00	0.00	9.82	0.00	9.82	68.00	9.82	0.00	76.00	66.00	55.88	9.82	49.11	9.82	0.00	9.82	85.00	9.82
net sedimentation	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1602.98	195.31	0.00	0.00	0.00	0.00	38507.07	0.00	0.00	345.62	18510.68	5328.82	0.00	11838.09	0.00	0.00	0.00	16805.95	0.00
outflow	0.00	33766.34	0.00	38894.47	0.00	374.60	0.00	39200.13	14.70	47507.42	0.00	54970.36	0.00	18120.97	0.00	8340.72	109.14	9535.80	4208.22	0.00	12268.57	0.00	9896.41	0.00	2965.76	0.00
tss removal efficiency (inf)	9.82	0.00	9.82	0.00	9.82	0.00	9.82	3.93	93.00	0.00	9.82	0.00	9.82	68.00	9.82	0.00	76.00	66.00	55.88	9.82	49.11	9.82	0.00	9.82	85.00	9.82
upstream watershed tss load	0.00	35500.92	0.00	40629.05	0.00	374.60	0.00	42537.69	210.01	51040.30	0.00	58503.24	0.00	60160.92	0.00	8340.72	454.76	28392.10	28393.34	0.00	90331.72	0.00	9896.41	0.00	19771.70	0.00
tss total removal efficiency	9.82	4.89	9.82	4.27	9.82	0.00	9.82	7.85	93.00	6.92	9.82	6.04	9.82	69.88	9.82	0.00	76.00	66.41	85.18	9.82	86.42	9.82	0.00	9.82	85.00	9.82
INFILTRATION BMP/POND.....																										
Annual runoff infiltrated	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Adjusted outflow	**0.00**	**92.36**	**0.00**	**105.86**	**0.00**	**0.99**	**0.00**	**110.89**	**0.55**	**133.22**	**0.00**	**152.89**	**0.00**	**157.26**	**0.00**	**21.55**	**1.20**	**74.32**	**74.33**	**0.00**	**236.27**	**0.00**	**24.47**	**0.00**	**49.93**	**0.00**
Adjusted TP outflow	**0.00**	**94.29**	**0.00**	**108.65**	**0.00**	**0.97**	**0.00**	**112.06**	**0.24**	**134.22**	**0.00**	**153.56**	**0.00**	**95.90**	**0.00**	**21.55**	**0.61**	**45.57**	**32.70**	**0.00**	**101.58**	**0.00**	**25.40**	**0.00**	**23.97**	**0.00**
Adjusted TSS outflow	**0.00**	**33766.34**	**0.00**	**38894.47**	**0.00**	**374.60**	**0.00**	**39200.13**	**14.70**	**47507.42**	**0.00**	**54970.36**	**0.00**	**18120.97**	**0.00**	**8340.72**	**109.14**	**9535.80**	**4208.22**	**0.00**	**12268.57**	**0.00**	**9896.41**	**0.00**	**2965.76**	**0.00**
POND P BUDGETS W/O P-BAN.																										
runoff	0.00	36.57	0.00	16.50	0.00	0.97	0.00	4.25	0.68	22.96	0.00	19.34	0.00	4.75	0.00	22.59	1.16	54.55	0.00	0.00	5.09	0.00	27.50	0.00	51.42	0.00
Adjusted TP outflow	**0.00**	**108.06**	**0.00**	**124.56**	**0.00**	**0.97**	**0.00**	**127.53**	**0.26**	**150.75**	**0.00**	**170.10**	**0.00**	**102.93**	**0.00**	**22.59**	**0.61**	**47.00**	**33.49**	**0.00**	**106.34**	**0.00**	**27.50**	**0.00**	**24.87**	**0.00**
upstream pond	0.00	71.49	0.00	108.06	0.00	0.00	0.00	125.52	0.00	127.80	0.00	150.75	0.00	170.10	0.00	0.00	0.00	23.20	47.00	0.00	136.43	0.00	0.00	0.00	0.00	0.00
total inflow	**0.00**	**108.06**	**0.00**	**124.56**	**0.00**	**0.97**	**0.00**	**129.77**	**0.68**	**150.75**	**0.00**	**170.10**	**0.00**	**174.85**	**0.00**	**22.59**	**1.16**	**77.75**	**47.00**	**0.00**	**141.52**	**0.00**	**27.50**	**0.00**	**51.42**	**0.00**
outflow	0.00	108.06	0.00	124.56	0.00	0.97	0.00	127.53	0.26	150.75	0.00	170.10	0.00	102.93	0.00	22.59	0.61	47.00	33.49	0.00	106.34	0.00	27.50	0.00	24.87	0.00
inflow phos conc	409.24	430.46	409.24	432.89	409.24	360.39	409.24	430.55	450.02	416.35	409.24	409.33	409.24	409.07	409.24	385.72	354.76	384.88	232.67	409.24	220.38	409.24	413.37	409.24	378.90	409.24
outflow phos conc	392.86	430.46	392.86	432.89	392.86	360.14	392.86	423.14	173.92	416.35	392.86	409.32	392.86	240.82	392.86	385.71	186.79	232.67	165.80	392.86	165.59	392.86	413.36	392.86	183.27	392.86
p reaction rate	0.04	0.00	0.04	0.00	0.04	0.00	0.04	0.02	4.11	0.00	0.04	0.00	0.04	1.19	0.04	0.00	1.71	1.08	0.57	0.04	0.44	0.04	0.00	0.04	2.21	0.04
1-rp	0.96	1.00	0.96	1.00	0.96	1.00	0.96	0.98	0.39	1.00	0.96	1.00	0.96	0.59	0.96	1.00	0.53	0.60	0.71	0.96	0.75	0.96	1.00	0.96	0.48	0.96
runoff total p conc	0.00	417.98	0.00	448.85	0.00	365.14	0.00	395.77	450.00	401.92	0.00	366.91	0.00	400.00	0.00	380.77	356.92	389.05	200.00	0.00	400.00	0.00	399.05	0.00	373.72	0.00

Rochester Loading Assessm																									
Zumbro River																									
363-06-158-2																									
2020 LOADS															street sweeping applied to 4.5 ac				street sweeping applied to 75.1 ac						
	zr-a3.8g	future zr-a3.8i	zr-a3.8i	future zr-a3.8h	zr-a3.8h	future zr-a3.8a	zr-a3.8a	future zr-a3.4b	zr-a3.4b	future zr-a3.4a	zr-a3.4a	future zr-a3.9	zr-a3.9	future zr-a3.11	zr-a3.11	future zr-a3.10	zr-a3.10	future zr-a3.12	zr-a3.12	future zr-a4.1d	zr-a4.1d	future zr-a4.1c	zr-a4.1c	future zr-a4.1b	zr-a4.1b	future zr-a4.1a
	zr-a3.8a	zr-a3.8i	zr-a3.8a	zr-a3.8h	zr-a3.8a	zr-a3.8a	zr-a3.11	zr-a3.4b	zr-a3.4a	zr-a3.4a	zr-a3.11	zr-a3.9	zr-a3.11	zr-a3.11	zr-a3.12	zr-a3.10	zr-a3.12	zr-a3.12	zr-a4.1a	zr-a4.1d	zr-a4.1c	zr-a4.1c	zr-a4.1b	zr-a4.1b	zr-a4.1a	zr-a4.1a
INPUT VARIABLES....																									
case label																									
Watershed area	4.7	0.0	6.5	0.0	4.7	10.0	455.0	0.0	6.4	3.7	179.7	0.3	384.5	0.0	470.9	0.0	153.3	0.0	166.0	0.0	4.2	0.0	8.1	0.0	7.1	0.3
basin area	0.04	0.00	0.11	0.00	0.03	0.29	0.00	0.00	0.01	0.04	1.50	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.08	0.00	0.01	0.00	0.03	0.00
basin volume	0.93	0.00	0.13	0.00	0.05	0.70	0.00	0.00	0.00	0.10	8.25	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01
Row Crop Agriculture	0%	0%	0%	0%	0%	0%	2%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Very Low Density Residential	0%	0%	13%	0%	0%	0%	8%	0%	0%	0%	5%	0%	0%	0%	1%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Low Density Residential	0%	0%	44%	0%	0%	0%	32%	0%	100%	100%	59%	0%	41%	0%	46%	0%	56%	0%	8%	0%	92%	0%	93%	0%	88%	100%
Medium Density Residential	0%	0%	0%	0%	0%	0%	2%	0%	0%	0%	1%	0%	3%	0%	5%	0%	6%	0%	4%	0%	0%	0%	0%	0%	0%	0%
High Density Residential	0%	0%	43%	0%	0%	75%	2%	0%	0%	0%	1%	0%	2%	0%	1%	0%	0%	0%	8%	0%	0%	0%	0%	0%	0%	0%
Commercial/Industrial	97%	0%	0%	0%	100%	25%	22%	0%	0%	0%	1%	100%	41%	0%	8%	0%	23%	0%	41%	0%	0%	0%	0%	0%	0%	0%
Institutional	0%	0%	0%	0%	0%	0%	4%	0%	0%	0%	8%	0%	2%	0%	2%	0%	8%	0%	27%	0%	0%	0%	0%	0%	9%	0%
Open Space	3%	0%	0%	0%	0%	0%	18%	0%	0%	0%	3%	0%	4%	0%	9%	0%	2%	0%	3%	0%	8%	0%	7%	0%	3%	0%
Golf Course	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	23%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Pits and Quarries	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Right-of-Way	0%	0%	0%	0%	0%	0%	10%	0%	0%	0%	22%	0%	8%	0%	6%	0%	4%	0%	10%	0%	0%	0%	0%	0%	0%	0%
WATERSHED-WIDE ACCOUNTII																									
tributary land area	4.69	0.00	6.53	0.00	4.68	9.99	4344.87	0.00	6.45	3.71	189.81	0.34	384.86	0.00	5390.42	0.00	153.31	0.00	5709.73	0.00	4.24	0.00	12.35	0.00	19.46	0.30
tributary water area	0.04	0.00	0.11	0.00	0.03	0.29	32.27	0.00	0.01	0.04	1.55	0.00	0.00	0.00	33.82	0.00	0.00	0.00	33.82	0.00	0.08	0.00	0.09	0.00	0.12	0.00
direct and ponded area	4.73	0.00	6.64	0.00	4.71	10.28	4377.14	0.00	6.46	3.75	191.36	0.34	384.86	0.00	5424.24	0.00	153.31	0.00	5743.56	0.00	4.32	0.00	12.44	0.00	19.58	0.31
ASSUMED EXPORT FACTORS...																									
season length	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
season precipitation	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80
runoff total p	345.40	0.00	380.44	0.00	350.00	381.01	343.09	0.00	391.50	391.50	379.41	350.00	367.29	0.00	407.77	0.00	375.38	0.00	357.95	0.00	375.87	0.00	377.47	0.00	381.77	391.50
runoff ortho p/total p	0.31	0.00	0.33	0.00	0.30	0.30	0.37	0.00	0.30	0.30	0.32	0.30	0.31	0.00	0.42	0.00	0.31	0.00	0.31	0.00	0.32	0.00	0.32	0.00	0.31	0.30
unit runoff	14.19	0.00	9.21	0.00	14.56	13.84	7.94	0.00	6.74	6.74	7.27	14.56	10.22	0.00	6.50	0.00	9.00	0.00	11.46	0.00	6.40	0.00	6.44	0.00	6.87	6.74
unit export	1.12	0.00	0.81	0.00	1.15	1.19	0.65	0.00	0.60	0.60	0.63	1.15	0.85	0.00	0.58	0.00	0.76	0.00	0.93	0.00	0.56	0.00	0.56	0.00	0.60	0.60
POND WATER BUDGETS.....																									
runoff	5.55	0.00	5.01	0.00	5.68	11.52	301.12	0.00	3.62	2.08	108.78	0.41	327.36	0.00	255.21	0.00	114.97	0.00	158.56	0.00	2.26	0.00	4.35	0.00	4.08	0.17
upstream pond	0.00	0.00	0.00	0.00	0.00	0.00	1655.03	0.00	0.00	0.00	5.71	0.00	0.41	0.00	2398.40	0.00	0.00	0.00	2768.58	0.00	0.00	0.00	2.26	0.00	6.61	0.00
total inflow	**5.55**	**0.00**	**5.01**	**0.00**	**5.68**	**11.52**	**1956.15**	**0.00**	**3.62**	**2.08**	**114.48**	**0.41**	**327.77**	**0.00**	**2653.61**	**0.00**	**114.97**	**0.00**	**2927.13**	**0.00**	**2.26**	**0.00**	**6.61**	**0.00**	**10.69**	**0.17**
outflow	5.55	0.00	5.01	0.00	5.68	11.52	1956.15	0.00	3.62	2.08	114.48	0.41	327.77	0.00	2653.61	0.00	114.97	0.00	2927.13	0.00	2.26	0.00	6.61	0.00	10.69	0.17
POND PHOSPHORUS BUDGETS																									
runoff	5.27	0.00	5.28	0.00	5.40	11.92	296.01	0.00	3.86	2.22	113.76	0.39	324.98	0.00	272.55	0.00	116.14	0.00	148.58	0.00	2.37	0.00	4.56	0.00	4.26	0.18
upstream pond	0.00	0.00	0.00	0.00	0.00	0.00	1155.95	0.00	0.00	0.00	4.98	0.00	0.15	0.00	1828.22	0.00	0.00	0.00	2216.91	0.00	0.00	0.00	2.37	0.00	6.93	0.00
total inflow	**5.27**	**0.00**	**5.28**	**0.00**	**5.40**	**11.92**	**1451.96**	**0.00**	**3.86**	**2.22**	**118.74**	**0.39**	**325.13**	**0.00**	**2100.77**	**0.00**	**116.14**	**0.00**	**2365.49**	**0.00**	**2.37**	**0.00**	**6.93**	**0.00**	**11.19**	**0.18**
net sedimentation	3.71	0.00	1.91	0.00	1.44	6.01	0.00	0.00	0.00	1.09	67.61	0.24	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.11
outflow	1.56	0.00	3.37	0.00	3.96	5.91	1451.96	0.00	3.86	1.13	51.13	0.15	325.13	0.00	2100.77	0.00	116.14	0.00	2365.49	0.00	2.37	0.00	6.93	0.00	11.18	0.07
p removal efficiency	70.44	3.78	36.12	3.78	26.65	50.41	0.00	3.78	0.02	49.28	56.94	61.88	0.00	3.78	0.00	3.78	0.00	3.78	0.00	3.78	0.01	3.78	0.01	3.78	0.01	59.25
upstream w-shed p load	5.27	0.00	5.28	0.00	5.40	11.92	1966.52	0.00	3.86	2.22	119.83	0.39	325.37	0.00	2684.28	0.00	116.14	0.00	2949.00	0.00	2.37	0.00	6.93	0.00	11.19	0.18
total removal %	70.44	3.78	36.12	3.78	26.65	50.41	26.17	3.78	0.02	49.28	57.33	61.88	0.07	3.78	21.74	3.78	0.00	3.78	19.79	3.78	0.01	3.78	0.01	3.78	0.01	59.25
HYDRAULIC PARAMETERS.....																									
pond mean depth	23.25	0.00	1.18	0.00	1.77	2.41	1.00	0.00	0.00	2.46	5.50	2660.00	1.00	0.00	1.00	0.00	1.00	0.00	1.00	0.00	0.00	0.00	0.00	0.00	0.00	838.75
relative volume	5.33	1.58	0.83	1.58	0.30	1.93	0.00	1.58	0.00	1.56	2.41	2.07	0.00	1.58	0.00	1.58	0.00	1.58	0.00	1.58	0.00	1.58	0.00	1.58	0.00	1.56
residence time	0.17	0.05	0.03	0.05	0.01	0.06	0.00	0.05	0.00	0.05	0.07	0.07	0.00	0.05	0.00	0.05	0.00	0.05	0.00	0.05	0.00	0.05	0.00	0.05	0.00	0.05
residence time	61.14	18.08	9.48	18.08	3.40	22.10	0.00	18.08	0.00	17.86	26.30	23.81	0.00	18.08	0.00	18.08	0.00	18.08	0.00	18.08	0.00	18.08	0.00	18.08	0.00	17.86
overflow rate	138.79	0.00	45.52	0.00	189.38	39.73	195614609.22	0.00	362.37	50.32	76.32	40771.42	32777250.75	0.00	265361055.72	0.00	11496552.78	0.00	292713379.33	0.00	28.26	0.00	660.92	0.00	356.21	17140.15
inflow phos conc	349.19	384.34	387.94	384.34	350.02	380.48	273.09	384.34	391.52	391.52	381.59	350.02	364.95	384.34	291.27	384.34	371.68	384.34	297.32	384.34	385.31	384.34	385.73	384.34	385.09	391.52
outflow phos conc	103.23	369.82	247.82	369.82	256.73	188.69	273.09	369.82	391.45	198.58	164.31	133.43	364.95	369.82	291.27	369.82	371.67	369.82	297.32	369.82	385.26	369.82	385.69	369.82	385.06	159.56
p reaction rate	8.06	0.04	0.89	0.04	0.50	2.05	0.00	0.04	0.00	1.92	3.07	4.26	0.00	0.04	0.00	0.04	0.00	0.04	0.00	0.04	0.00	0.04	0.00	0.04	0.00	3.57
1-rp	0.30	0.96	0.64	0.96	0.73	0.50	1.00	0.96	1.00	0.51	0.43	0.38	1.00	0.96	1.00	0.96	1.00	0.96	1.00	0.96	1.00	0.96	1.00	0.96	1.00	0.41
vlawmo pond volume	0.44	0.00	0.39	0.00	0.45	0.91	23.67	0.00	0.28	0.16	8.55	0.03	25.74	0.00	20.06	0.00	9.04	0.00	12.47	0.00	0.18	0.00	0.34	0.00	0.32	0.01
LAND USE PARAMETERS.....																									
runoff total P conc	345.40	0.00	380.44	0.00	350.00	381.01	343.09	0.00	391.50	391.50	379.41	350.00	367.29	0.00	407.77	0.00	375.38	0.00	357.95	0.00	375.87	0.00	377.47	0.00	381.77	391.50
runoff coefficient	0.45	0.00	0.29	0.00	0.46	0.44	0.25	0.00	0.21	0.21	0.23	0.46	0.32	0.00	0.20	0.00	0.28	0.00	0.36	0.00	0.20	0.00	0.20	0.00	0.22	0.21
dissolved/total P	0.31	0.00	0.33	0.00	0.30	0.30	0.37	0.00	0.30	0.30	0.32	0.30	0.31	0.00	0.42	0.00	0.31	0.00	0.31	0.00	0.32	0.00	0.32	0.00	0.31	0.30
runoff TSS conc	142.33	0.00	149.67	0.00	140.00	140.00	159.94	0.00	140.00	140.00	146.01	140.00	142.76	0.00	164.67	0.00	141.37	0.00	142.51	0.00	146.21	0.00	145.57	0.00	142.41	140.00
POND TSS BUDGETS.....																									
runoff	2112.61	0.00	1942.04	0.00	2155.51	4371.41	119794.63	0.00	1374.82	791.02	41952.35	154.69	124811.47	0.00	104078.89	0.00	43738.87	0.00	55801.62	0.00	872.78	0.00	1675.81	0.00	1556.74	65.03
upstream pond	0.00	0.00	0.00	0.00	0.00	0.00	415079.13	0.00	0.00	0.00	1493.47	0.00	10.83	0.00	662737.27	0.00	0.00	0.00	810555.02	0.00	0.00	0.00	872.78	0.00	2548.59	0.00
total inflow	**2112.61**	**0.00**	**1942.04**	**0.00**	**2155.51**	**4371.41**	**534873.76**	**0.00**	**1374.82**	**791.02**	**43445.82**	**154.69**	**124822.30**	**0.00**	**766816.15**	**0.00**	**43738.87**	**0.00**	**866356.65**	**0.00**	**872.78**	**0.00**	**2548.59**	**0.00**	**4105.33**	**65.03**
p removal efficiency (no inf)	71.00	5.00	39.00	5.00	27.00	53.00	0.00	5.00	0.00	52.00	59.00	62.00	0.00	5.00	0.00	5.00	0.00	5.00	0.00	5.00	0.00	5.00	0.00	5.00	0.00	62.00
tss removal efficiency (no inf)	93.00	9.82	65.00	9.82	53.04	87.50	0.00	9.82	0.00	85.00	93.00	93.00	0.00	9.82	0.00	9.82	0.00	9.82	0.00	9.82	0.00	9.82	0.00	9.82	0.00	93.00
net sedimentation	1964.72	0.00	1262.33	0.00	1143.19	3824.98	0.00	0.00	0.00	672.36	40404.61	143.86	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	60.48
outflow	147.88	0.00	679.72	0.00	1012.32	546.43	534873.76	0.00	1374.82	118.65	3041.21	10.83	124822.30	0.00	766816.15	0.00	43738.87	0.00	866356.65	0.00	872.78	0.00	2548.59	0.00	4105.33	4.55
tss removal efficiency (inf)	93.00	9.82	65.00	9.82	53.04	87.50	0.00	9.82	0.00	85.00	93.00	93.00	0.00	9.82	0.00	9.82	0.00	9.82	0.00	9.82	0.00	9.82	0.00	9.82	0.00	93.00
upstream watershed tss load	2112.61	0.00	1942.04	0.00	2155.51	4371.41	838953.25	0.00	1374.82	791.02	44118.19	154.69	124966.16	0.00	1112116.48	0.00	43738.87	0.00	1211656.98	0.00	872.78	0.00	2548.59	0.00	4105.33	65.03
tss total removal efficiency	93.00	9.82	65.00	9.82	53.04	87.50	36.25	9.82	0.00	85.00	93.11	93.00	0.12	9.82	31.05	9.82	0.00	9.82	28.50	9.82	0.00	9.82	0.00	9.82	0.00	93.00
INFILTRATION BMP/POND.....																									
Annual runoff infiltrated	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Adjusted outflow	**5.55**	**0.00**	**5.01**	**0.00**	**5.68**	**11.52**	**1956.15**	**0.00**	**3.62**	**2.08**	**114.48**	**0.41**	**327.77**	**0.00**	**2653.61**	**0.00**	**114.97**	**0.00**	**2927.13**	**0.00**	**2.26**	**0.00**	**6.61**	**0.00**	**10.69**	**0.17**
Adjusted TP outflow	**1.56**	**0.00**	**3.37**	**0.00**	**3.96**	**5.91**	**1451.96**	**0.00**	**3.86**	**1.13**	**51.13**	**0.15**	**325.13**	**0.00**	**2100.77**	**0.00**	**116.14**	**0.00**	**2365.49**	**0.00**	**2.37**	**0.00**	**6.93**	**0.00**	**11.18**	**0.07**
Adjusted TSS outflow	**147.88**	**0.00**	**679.72**	**0.00**	**1012.32**	**546.43**	**534873.76**	**0.00**	**1374.82**	**118.65**	**3041.21**	**10.83**	**124822.30**	**0.00**	**766816.15**	**0.00**	**43738.87**	**0.00**	**866356.65**	**0.00**	**872.78**	**0.00**	**2548.59**	**0.00**	**4105.33**	**4.55**
POND P BUDGETS W/O P-BAN.																									
runoff	5.27	0.00	6.07	0.00	5.40	13.26	313.38	0.00	4.43	2.55	124.02	0.39	341.59	0.00	295.92	0.00	125.11	0.00	159.16	0.00	2.72	0.00	5.23	0.00	4.82	0.21
Adjusted TP outflow	**1.56**	**0.00**	**3.73**	**0.00**	**3.96**	**6.34**	**1528.57**	**0.00**	**4.43**	**1.23**	**54.07**	**0.15**	**341.74**	**0.00**	**2220.30**	**0.00**	**125.10**	**0.00**	**2504.57**	**0.00**	**2.71**	**0.00**	**7.95**	**0.00**	**12.76**	**0.08**
upstream pond	0.00	0.00	0.00	0.00	0.00	0.00	1215.18	0.00	0.00	0.00	5.67	0.00	0.15	0.00	1924.38	0.00	0.00	0.00	2345.41	0.00	0.00	0.00	2.71	0.00	7.95	0.00
total inflow	**5.27**	**0.00**	**6.07**	**0.00**	**5.40**	**13.26**	**1528.57**	**0.00**	**4.43**	**2.55**	**129.69**	**0.39**	**341.74**	**0.00**	**2220.30**	**0.00**	**125.11**	**0.00**	**2504.57**	**0.00**	**2.72**	**0.00**	**7.95**	**0.00**	**12.76**	**0.21**
outflow	1.56	0.00	3.73	0.00	3.96	6.34	1528.57	0.00	4.43	1.23	54.07	0.15	341.74	0.00	2220.30	0.00	125.10	0.00	2504.57	0.00	2.71	0.00	7.95	0.00	12.76	0.08
inflow phos conc	349.19	409.24	445.91	409.24	350.02	423.42	287.50	409.24	450.02	450.02	416.78	350.02	383.60	409.24	307.84	409.24	400.37	409.24	314.80	409.24	441.91	409.24	442.46	409.24	439.45	450.02
outflow phos conc	103.23	392.86	274.28	392.86	256.73	202.51	287.50	392.86	449.93	217.84	173.77	133.43	383.60	392.86	307.84	392.86	400.37	392.86	314.80	392.86	441.85	392.86	442.42	392.86	439.42	174.04
p reaction rate	8.06	0.04	1.02	0.04	0.50	2.28	0.00	0.04	0.00	2.20	3.35	4.26	0.00	0.04	0.00	0.04	0.00	0.04	0.00	0.04	0.00	0.04	0.00	0.04	0.00	4.10
1-rp	0.30	0.96	0.62	0.96	0.73	0.48	1.00	0.96	1.00	0.48	0.42	0.38	1.00	0.96	1.00	0.96	1.00	0.96	1.00	0.96	1.00	0.96	1.00	0.96	1.00	0.39
runoff total p conc	345.40	0.00	437.28	0.00	350.00	424.71	367.93	0.00	450.00	450.00	417.30	350.00	393.85	0.00	438.16	0.00	411.99	0.00	369.08	0.00	429.59	0.00	431.68	0.00	433.27	450.00

Rochester Loading Assessm																										
Zumbro River																										
363-06-158-2																										
2020 LOADS	street sweeping applied to 127.6 ac																									
	zr-a4.1a	**future zr-a4.2b**	**zr-a4.2b**	**future zr-a4.2a**	**zr-a4.2a**	**future zr-a4.3f**	**zr-a4.3f**	**future zr-a4.3e**	**zr-a4.3e**	**future zr-a4.3d**	**zr-a4.3d**	**future zr-a4.3c**	**zr-a4.3c**	**future zr-a4.3b**	**zr-a4.3b**	**future zr-a4.3a**	**zr-a4.3a**	**future zr-a4.5**	**zr-a4.5**	**future zr-a4.4f**	**zr-a4.4f**	**zr-a4.4f cell 2**	**future zr-a4.4e**	**zr-a4.4e**	**future zr-a4.4d**	**zr-a4.4d**
	zr-a4.2a	zr-a4.2b	zr-a4.2a	zr-a4.2a	zr-a4.5	zr-a4.3f	zr-a4.3a	zr-a4.3e	zr-a4.3a	zr-a4.3d	zr-a4.3a	zr-a4.3c	zr-a4.3b	zr-a4.3b	zr-a4.3a	zr-a4.3a	zr-a4.5	zr-a4.5	zr-a4.6a	zr-a4.4f	zr-a4.4f cell 2	zr-a4.4a	zr-a4.4e	zr-a4.4d	zr-a4.4d	zr-a4.4a
INPUT VARIABLES....																										
case label																										
Watershed area	998.7	1.8	0.7	5.2	347.1	0.0	13.7	0.0	12.3	0.0	53.8	2.2	45.5	0.0	2.7	28.1	423.7	48.5	254.9	1.4	40.2	0.0	0.0	0.5	0.0	2.1
basin area	0.00	0.04	0.14	0.12	0.00	0.00	0.39	0.00	0.02	0.00	0.00	0.08	0.15	0.00	0.66	0.36	0.00	0.67	0.00	0.04	0.16	0.24	0.00	0.56	0.00	0.02
basin volume	0.00	0.12	0.42	0.35	0.00	0.00	1.52	0.00	0.00	0.00	0.00	0.18	0.00	0.00	2.68	1.14	0.00	2.89	0.00	0.06	0.59	0.89	0.00	0.00	0.00	0.00
Row Crop Agriculture	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Very Low Density Residential	0%	0%	0%	0%	4%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Low Density Residential	42%	0%	0%	17%	22%	0%	0%	0%	16%	0%	73%	0%	44%	0%	26%	72%	55%	38%	42%	0%	37%	0%	0%	0%	0%	0%
Medium Density Residential	6%	0%	0%	0%	1%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	1%	0%	4%	100%	0%	0%	0%	0%	0%	0%
High Density Residential	3%	100%	0%	32%	8%	0%	1%	0%	57%	0%	0%	0%	23%	0%	0%	13%	9%	0%	9%	0%	12%	0%	0%	21%	0%	21%
Commercial/Industrial	14%	0%	0%	51%	16%	0%	0%	0%	0%	0%	0%	100%	7%	0%	0%	15%	6%	62%	14%	0%	0%	0%	0%	0%	0%	0%
Institutional	10%	0%	0%	0%	4%	0%	0%	0%	22%	0%	0%	0%	1%	0%	0%	0%	2%	0%	2%	0%	25%	0%	0%	0%	0%	0%
Open Space	18%	0%	90%	0%	38%	0%	99%	0%	5%	0%	27%	0%	25%	0%	74%	0%	22%	0%	21%	0%	11%	100%	0%	79%	0%	77%
Golf Course	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Pits and Quarries	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Right-of-Way	8%	0%	10%	0%	7%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	4%	0%	10%	0%	14%	0%	0%	0%	0%	2%
WATERSHED-WIDE ACCOUNTII																										
tributary land area	6728.18	1.80	2.50	5.25	7083.05	0.00	13.67	0.00	12.27	0.00	53.80	2.22	47.70	0.00	50.35	28.10	581.83	48.53	7968.31	1.37	41.60	41.61	0.00	0.51	0.00	2.65
tributary water area	33.94	0.04	0.18	0.12	34.25	0.00	0.39	0.00	0.02	0.00	0.00	0.08	0.23	0.00	0.89	0.36	1.67	0.67	36.59	0.04	0.20	0.44	0.00	0.56	0.00	0.58
direct and ponded area	6762.12	1.84	2.68	5.37	7117.29	0.00	14.06	0.00	12.29	0.00	53.80	2.30	47.93	0.00	51.24	28.46	583.50	49.21	8004.89	1.41	41.80	42.06	0.00	1.07	0.00	3.22
ASSUMED EXPORT FACTORS...																										
season length	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
season precipitation	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80
runoff total p	348.51	391.50	220.25	370.42	307.20	0.00	201.44	0.00	372.56	0.00	339.43	350.00	340.81	0.00	249.38	385.18	345.31	365.70	345.86	391.50	360.36	200.00	0.00	239.97	0.00	244.95
runoff ortho p/total p	0.35	0.30	0.57	0.30	0.42	0.00	0.60	0.00	0.32	0.00	0.38	0.30	0.37	0.00	0.52	0.30	0.37	0.30	0.36	0.30	0.33	0.60	0.00	0.54	0.00	0.53
unit runoff	7.88	13.60	3.17	12.90	7.09	0.00	2.63	0.00	11.11	0.00	5.60	14.56	7.85	0.00	3.63	8.82	7.07	11.60	7.89	9.74	8.15	2.54	0.00	4.85	0.00	5.01
unit export	0.65	1.21	0.18	1.07	0.56	0.00	0.12	0.00	0.96	0.00	0.47	1.15	0.66	0.00	0.24	0.76	0.59	0.94	0.66	0.86	0.69	0.12	0.00	0.34	0.00	0.36
POND WATER BUDGETS.....																										
runoff	655.39	2.04	0.18	5.64	205.22	0.00	3.00	0.00	11.36	0.00	25.11	2.69	29.75	0.00	0.80	20.64	249.73	46.93	167.51	1.11	27.32	0.00	0.00	0.21	0.00	0.89
upstream pond	2937.99	0.00	2.04	0.00	3601.25	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.69	0.00	32.44	0.00	93.35	0.00	4196.48	0.00	1.11	28.43	0.00	0.00	0.00	0.21
total inflow	**3593.38**	**2.04**	**2.23**	**5.64**	**3806.47**	**0.00**	**3.00**	**0.00**	**11.36**	**0.00**	**25.11**	**2.69**	**32.44**	**0.00**	**33.24**	**20.64**	**343.09**	**46.93**	**4363.99**	**1.11**	**28.43**	**28.43**	**0.00**	**0.21**	**0.00**	**1.10**
outflow	3593.38	2.04	2.23	5.64	3806.47	0.00	3.00	0.00	11.36	0.00	25.11	2.69	32.44	0.00	33.24	20.64	343.09	46.93	4363.99	1.11	28.43	28.43	0.00	0.21	0.00	1.10
POND PHOSPHORUS BUDGETS																										
runoff	641.86	2.17	0.13	5.64	194.35	0.00	1.69	0.00	11.77	0.00	25.11	2.56	29.94	0.00	0.64	21.38	251.10	45.81	167.61	1.18	27.72	0.00	0.00	0.18	0.00	0.77
upstream pond	2376.75	0.00	1.04	0.00	3022.09	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.32	0.00	31.26	0.00	65.16	0.00	3553.80	0.00	0.65	17.43	0.00	0.00	0.00	0.18
total inflow	**3018.61**	**2.17**	**1.17**	**5.64**	**3216.43**	**0.00**	**1.69**	**0.00**	**11.77**	**0.00**	**25.11**	**2.56**	**31.26**	**0.00**	**31.89**	**21.38**	**316.26**	**45.81**	**3721.41**	**1.18**	**28.37**	**17.43**	**0.00**	**0.18**	**0.00**	**0.94**
net sedimentation	0.00	1.13	0.44	2.89	0.00	0.00	0.76	0.00	0.00	0.00	0.00	1.24	0.00	0.00	14.86	11.06	0.00	24.71	0.00	0.53	10.94	4.57	0.00	0.00	0.00	0.00
outflow	3018.61	1.04	0.73	2.75	3216.43	0.00	0.93	0.00	11.76	0.00	25.11	1.32	31.26	0.00	17.03	10.32	316.26	21.10	3721.41	0.65	17.43	12.86	0.00	0.18	0.00	0.94
p removal efficiency	0.00	52.18	37.42	51.25	0.00	3.78	44.88	3.78	0.01	3.78	0.00	48.41	0.00	3.78	46.60	51.74	0.00	53.93	0.00	45.00	38.58	26.23	3.78	0.00	3.78	0.02
upstream w-shed p load	3602.22	2.17	2.30	5.64	3804.51	0.00	1.69	0.00	11.77	0.00	25.11	2.56	32.50	0.00	33.14	21.38	344.19	45.81	4362.12	1.18	28.90	28.91	0.00	0.18	0.00	0.94
total removal %	16.20	52.18	68.27	51.25	15.46	3.78	44.88	3.78	0.01	3.78	0.00	48.41	3.82	3.78	48.60	51.74	8.11	53.93	14.69	45.00	39.71	55.53	3.78	0.00	3.78	0.02
HYDRAULIC PARAMETERS.....																										
pond mean depth	1.00	2.90	3.00	2.80	1.00	0.00	3.90	0.00	0.00	0.00	1.00	2.12	0.00	0.00	4.06	3.15	1.00	4.29	1.00	1.43	3.70	3.70	0.00	0.00	0.00	0.00
relative volume	0.00	1.87	72.95	1.96	0.00	1.58	16.13	1.58	0.00	1.58	0.00	2.07	0.00	1.58	106.28	1.75	0.00	1.96	0.00	1.70	0.68	13380.00	1.58	0.00	1.58	0.00
residence time	0.00	0.06	0.19	0.06	0.00	0.05	0.51	0.05	0.00	0.05	0.00	0.07	0.00	0.05	0.08	0.06	0.00	0.06	0.00	0.05	0.02	0.03	0.05	0.00	0.05	0.00
residence time	0.00	21.48	68.87	22.49	0.00	18.08	185.10	18.08	0.00	18.08	0.00	23.81	0.00	18.08	29.43	20.08	0.00	22.50	0.00	19.50	7.55	11.45	18.08	0.02	18.08	0.00
overflow rate	359338182.04	49.30	15.90	45.37	380646587.50	0.00	7.69	0.00	473.21	0.00	2511455.67	32.48	216.26	0.00	50.37	57.34	34308576.98	69.63	436398853.96	26.86	178.80	117.97	0.00	0.37	0.00	73.19
inflow phos conc	309.07	391.52	192.89	367.73	310.89	384.34	207.52	384.34	381.14	384.34	367.87	350.02	354.53	384.34	353.01	381.08	339.15	359.14	313.74	391.52	367.18	225.53	384.34	312.03	384.34	316.29
outflow phos conc	309.07	187.24	120.70	179.28	310.89	369.82	114.39	369.82	381.12	369.82	367.87	180.56	354.53	369.82	188.51	183.89	339.15	165.45	313.74	215.33	225.53	166.36	369.82	312.02	369.82	316.23
p reaction rate	0.00	2.28	0.96	2.16	0.00	0.04	1.48	0.04	0.00	0.04	0.00	1.82	0.00	0.04	1.63	2.22	0.00	2.54	0.00	1.49	1.02	0.48	0.04	0.00	0.04	0.00
1-rp	1.00	0.48	0.63	0.49	1.00	0.96	0.55	0.96	1.00	0.96	1.00	0.52	1.00	0.96	0.53	0.48	1.00	0.46	1.00	0.55	0.61	0.74	0.96	1.00	0.96	1.00
vlawmo pond volume	51.52	0.16	0.01	0.44	16.13	0.00	0.24	0.00	0.89	0.00	1.97	0.21	2.34	0.00	0.06	1.62	19.63	3.69	13.17	0.09	2.15	0.00	0.00	0.02	0.00	0.07
LAND USE PARAMETERS.....																										
runoff total P conc	348.51	391.50	220.25	370.42	307.20	0.00	201.44	0.00	372.56	0.00	339.43	350.00	340.81	0.00	249.38	385.18	345.31	365.70	345.86	391.50	360.36	200.00	0.00	239.97	0.00	244.95
runoff coefficient	0.25	0.43	0.10	0.41	0.22	0.00	0.08	0.00	0.35	0.00	0.18	0.46	0.25	0.00	0.11	0.28	0.22	0.36	0.25	0.31	0.26	0.08	0.00	0.15	0.00	0.16
dissolved/total P	0.35	0.30	0.57	0.30	0.42	0.00	0.60	0.00	0.32	0.00	0.38	0.30	0.37	0.00	0.52	0.30	0.37	0.30	0.36	0.30	0.33	0.60	0.00	0.54	0.00	0.53
runoff TSS conc	153.68	140.00	208.30	140.00	172.00	0.00	215.41	0.00	143.82	0.00	160.66	140.00	158.83	0.00	196.40	140.00	157.08	140.00	155.91	140.00	148.72	216.00	0.00	200.14	0.00	198.33
POND TSS BUDGETS.....																										
runoff	249456.43	775.04	96.62	2139.42	84345.51	0.00	1729.50	0.00	4335.77	0.00	10167.13	1021.12	11778.50	0.00	390.21	7832.29	98904.70	17805.54	65881.14	422.31	10564.24	1.24	0.00	96.40	0.00	409.43
upstream pond	870466.53	0.00	65.88	0.00	1120247.26	0.00	0.00	0.00	0.00	0.00	0.00	0.00	219.54	0.00	11998.04	0.00	18433.86	0.00	1323444.81	0.00	101.35	3626.30	0.00	0.00	0.00	96.40
total inflow	**1119922.96**	**775.04**	**162.50**	**2139.42**	**1204592.77**	**0.00**	**1729.50**	**0.00**	**4335.77**	**0.00**	**10167.13**	**1021.12**	**11998.04**	**0.00**	**12388.25**	**7832.29**	**117338.57**	**17805.54**	**1389325.95**	**422.31**	**10665.59**	**3627.54**	**0.00**	**96.40**	**0.00**	**505.83**
p removal efficiency (no inf)	0.00	55.00	39.00	53.00	0.00	5.00	46.00	5.00	0.00	5.00	0.00	49.00	0.00	5.00	49.00	54.00	0.00	55.00	0.00	48.00	40.00	28.00	5.00	0.00	5.00	0.00
tss removal efficiency (no inf)	0.00	91.50	65.00	87.50	0.00	9.82	72.00	9.82	0.00	9.82	0.00	78.50	0.00	9.82	78.50	90.00	0.00	91.50	0.00	76.00	66.00	55.00	9.82	0.00	9.82	0.00
net sedimentation	0.00	709.16	105.62	1871.99	0.00	0.00	1245.24	0.00	0.00	0.00	0.00	801.58	0.00	0.00	9724.78	7049.06	0.00	16292.07	0.00	320.95	7039.29	1995.15	0.00	0.00	0.00	0.00
outflow	1119922.96	65.88	56.87	267.43	1204592.77	0.00	484.26	0.00	4335.77	0.00	10167.13	219.54	11998.04	0.00	2663.47	783.23	117338.57	1513.47	1389325.95	101.35	3626.30	1632.39	0.00	96.40	0.00	505.83
tss removal efficiency (inf)	0.00	91.50	65.00	87.50	0.00	9.82	72.00	9.82	0.00	9.82	0.00	78.50	0.00	9.82	78.50	90.00	0.00	91.50	0.00	76.00	66.00	55.00	9.82	0.00	9.82	0.00
upstream watershed tss load	1465283.77	775.04	871.66	2139.42	1552640.35	0.00	1729.50	0.00	4335.77	0.00	10167.13	1021.12	12799.62	0.00	13189.83	7832.29	136159.22	17805.54	1772486.25	422.31	10986.55	10987.79	0.00	96.40	0.00	505.83
tss total removal efficiency	23.57	91.50	93.48	87.50	22.42	9.82	72.00	9.82	0.00	9.82	0.00	78.50	6.26	9.82	79.81	90.00	13.82	91.50	21.62	76.00	66.99	85.14	9.82	0.00	9.82	0.00
INFILTRATION BMP/POND.....																										
Annual runoff infiltrated	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Adjusted outflow	**3593.38**	**2.04**	**2.23**	**5.64**	**3806.47**	**0.00**	**3.00**	**0.00**	**11.36**	**0.00**	**25.11**	**2.69**	**32.44**	**0.00**	**33.24**	**20.64**	**343.09**	**46.93**	**4363.99**	**1.11**	**28.43**	**28.43**	**0.00**	**0.21**	**0.00**	**1.10**
Adjusted TP outflow	**3018.61**	**1.04**	**0.73**	**2.75**	**3216.43**	**0.00**	**0.93**	**0.00**	**11.76**	**0.00**	**25.11**	**1.32**	**31.26**	**0.00**	**17.03**	**10.32**	**316.26**	**21.10**	**3721.41**	**0.65**	**17.43**	**12.86**	**0.00**	**0.18**	**0.00**	**0.94**
Adjusted TSS outflow	**1119922.96**	**65.88**	**56.87**	**267.43**	**1204592.77**	**0.00**	**484.26**	**0.00**	**4335.77**	**0.00**	**10167.13**	**219.54**	**11998.04**	**0.00**	**2663.47**	**783.23**	**117338.57**	**1513.47**	**1389325.95**	**101.35**	**3626.30**	**1632.39**	**0.00**	**96.40**	**0.00**	**505.83**
POND P BUDGETS W/O P-BAN.																										
runoff	702.20	2.50	0.13	6.02	206.85	0.00	1.71	0.00	13.19	0.00	28.61	2.56	33.61	0.00	0.70	23.84	279.59	47.45	182.29	1.36	29.92	0.00	0.00	0.20	0.00	0.85
Adjusted TP outflow	**3219.62**	**1.14**	**0.77**	**2.87**	**3430.11**	**0.00**	**0.94**	**0.00**	**13.19**	**0.00**	**28.61**	**1.32**	**34.93**	**0.00**	**18.36**	**11.08**	**351.77**	**21.59**	**3985.76**	**0.72**	**18.42**	**13.43**	**0.00**	**0.20**	**0.00**	**1.04**
upstream pond	2517.42	0.00	1.14	0.00	3223.26	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.32	0.00	34.93	0.00	72.18	0.00	3803.47	0.00	0.72	18.42	0.00	0.00	0.00	0.20
total inflow	**3219.62**	**2.50**	**1.27**	**6.02**	**3430.11**	**0.00**	**1.71**	**0.00**	**13.19**	**0.00**	**28.61**	**2.56**	**34.93**	**0.00**	**35.62**	**23.84**	**351.77**	**47.45**	**3985.76**	**1.36**	**30.64**	**18.42**	**0.00**	**0.20**	**0.00**	**1.04**
outflow	3219.62	1.14	0.77	2.87	3430.11	0.00	0.94	0.00	13.19	0.00	28.61	1.32	34.93	0.00	18.36	11.08	351.77	21.59	3985.76	0.72	18.42	13.43	0.00	0.20	0.00	1.04
inflow phos conc	329.65	450.02	209.23	392.69	331.54	409.24	209.56	409.24	427.45	409.24	419.15	350.02	396.13	409.24	394.28	424.88	377.23	372.00	336.03	450.02	396.55	238.35	409.24	346.23	409.24	349.91
outflow phos conc	329.65	205.04	128.02	187.21	331.54	392.86	115.16	392.86	427.43	392.86	419.14	180.56	396.12	392.86	203.18	197.48	377.23	169.27	336.03	236.86	238.35	173.78	392.86	346.23	392.86	349.83
p reaction rate	0.00	2.62	1.04	2.30	0.00	0.04	1.49	0.04	0.00	0.04	0.00	1.82	0.00	0.04	1.83	2.48	0.00	2.63	0.00	1.71	1.10	0.51	0.04	0.00	0.04	0.00
1-rp	1.00	0.46	0.61	0.48	1.00	0.96	0.55	0.96	1.00	0.96	1.00	0.52	1.00	0.96	0.52	0.46	1.00	0.46	1.00	0.53	0.60	0.73	0.96	1.00	0.96	1.00
runoff total p conc	378.52	450.00	220.25	399.21	326.91	0.00	201.84	0.00	414.98	0.00	382.03	350.00	380.09	0.00	264.46	434.77	383.65	387.83	377.46	450.00	389.00	200.00	0.00	252.17	0.00	257.36

Rochester Loading Assessm																				
Zumbro River																				
363-06-158-2																				
2020 LOADS																				
	future zr-a4.4c	**zr-a4.4c**	**future zr-a4.4b**	**zr-a4.4b**	**future zr-a4.4a**	**zr-a4.4a**	**future zr-a4.6d**	**zr-a4.6d**	**future zr-a4.6c**	**zr-a4.6c**	**future zr-a4.6b**	**zr-a4.6b**	**future zr-a4.6a**	**zr-a4.6a**	**future zr-a4.7**	**zr-a4.7**	**future zr-a4.8**	**zr-a4.8**	**future exit 9**	**exit 9**
	zr-a4.4c	zr-a4.4b	zr-a4.4b	zr-a4.4a	zr-a4.4a	zr-a4.6a	zr-a4.6d	zr-a4.6a	zr-a4.6c	zr-a4.6a	zr-a4.6b	zr-a4.6a	zr-a4.6a	zr-a4.7	zr-a4.7	exit city	zr-a4.8	exit city	exit 9	exit city
INPUT VARIABLES....																				
case label																				
Watershed area	0.0	11.9	21.4	35.4	7.3	90.4	0.0	23.4	0.0	15.5	0.0	2.0	96.3	611.3	6.6	158.8	0.0	80.2	0.0	93.7
basin area	0.00	0.09	0.31	0.57	0.25	0.00	0.00	0.00	0.00	0.62	0.00	0.34	1.20	0.00	0.08	0.00	0.00	0.00	0.00	0.00
basin volume	0.00	0.24	0.85	1.58	0.58	0.00	0.00	0.00	0.00	2.05	0.00	0.93	6.64	0.00	0.18	0.00	0.00	0.00	0.00	0.00
Row Crop Agriculture	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	10%	0%	18%	0%	4%	0%	4%
Very Low Density Residential	0%	0%	0%	0%	0%	10%	0%	6%	0%	0%	0%	0%	0%	0%	0%	5%	0%	1%	0%	29%
Low Density Residential	0%	90%	24%	29%	0%	23%	0%	0%	0%	0%	0%	80%	18%	1%	100%	5%	0%	15%	0%	4%
Medium Density Residential	0%	0%	76%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	2%	0%	0%
High Density Residential	0%	10%	0%	13%	0%	0%	0%	0%	0%	0%	0%	0%	6%	1%	0%	0%	0%	44%	0%	10%
Commercial/Industrial	0%	0%	0%	0%	100%	31%	0%	0%	0%	47%	0%	0%	76%	26%	0%	0%	0%	0%	0%	1%
Institutional	0%	0%	0%	0%	0%	3%	0%	0%	0%	0%	0%	0%	0%	1%	0%	0%	0%	0%	0%	0%
Open Space	0%	0%	0%	16%	0%	9%	0%	84%	0%	50%	0%	20%	0%	32%	0%	60%	0%	26%	0%	45%
Golf Course	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Pits and Quarries	0%	0%	0%	0%	0%	0%	0%	8%	0%	0%	0%	0%	0%	21%	0%	4%	0%	0%	0%	0%
Right-of-Way	0%	0%	0%	41%	0%	22%	0%	1%	0%	3%	0%	0%	0%	8%	0%	8%	0%	9%	0%	7%
WATERSHED-WIDE ACCOUNTII																				
tributary land area	0.00	11.86	21.45	68.69	7.29	210.65	0.00	23.37	0.00	15.54	0.00	2.02	96.32	8927.50	6.57	9092.85	0.00	80.22	0.00	93.74
tributary water area	0.00	0.09	0.31	0.97	0.25	2.23	0.00	0.00	0.00	0.62	0.00	0.34	1.20	40.98	0.08	41.06	0.00	0.00	0.00	0.00
direct and ponded area	0.00	11.95	21.75	69.66	7.54	212.88	0.00	23.37	0.00	16.16	0.00	2.36	97.52	8968.48	6.66	9133.91	0.00	80.22	0.00	93.74
ASSUMED EXPORT FACTORS...																				
season length	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
season precipitation	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80
runoff total p	0.00	391.50	391.50	364.20	350.00	353.22	0.00	193.27	0.00	276.17	0.00	352.33	360.10	251.57	391.50	284.65	0.00	348.70	0.00	285.84
runoff ortho p/total p	0.00	0.30	0.30	0.35	0.30	0.35	0.00	0.54	0.00	0.45	0.00	0.36	0.30	0.32	0.30	0.46	0.00	0.37	0.00	0.49
unit runoff	0.00	7.44	9.01	7.80	14.56	9.00	0.00	2.49	0.00	8.36	0.00	5.88	13.06	6.03	6.74	3.50	0.00	8.79	0.00	4.62
unit export	0.00	0.66	0.80	0.68	1.15	0.74	0.00	0.12	0.00	0.62	0.00	0.50	1.05	0.48	0.60	0.27	0.00	0.76	0.00	0.35
POND WATER BUDGETS.....																				
runoff	0.00	7.35	16.10	23.01	8.84	67.77	0.00	4.85	0.00	10.83	0.00	0.99	104.85	307.28	3.69	46.29	0.00	58.74	0.00	36.07
upstream pond	0.00	0.00	0.00	23.45	0.00	84.83	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4638.12	0.00	4949.09	0.00	0.00	0.00	0.00
total inflow	**0.00**	**7.35**	**16.10**	**46.46**	**8.84**	**152.60**	**0.00**	**4.85**	**0.00**	**10.83**	**0.00**	**0.99**	**104.85**	**4945.39**	**3.69**	**4995.38**	**0.00**	**58.74**	**0.00**	**36.07**
outflow	0.00	7.35	16.10	46.46	8.84	152.60	0.00	4.85	0.00	10.83	0.00	0.99	104.85	4945.39	3.69	4995.38	0.00	58.74	0.00	36.07
POND PHOSPHORUS BUDGETS																				
runoff	0.00	7.82	17.13	24.10	8.41	66.93	0.00	2.91	0.00	9.67	0.00	1.01	101.60	292.88	3.93	42.87	0.00	60.82	0.00	32.62
upstream pond	0.00	0.00	0.00	12.69	0.00	40.57	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3882.09	0.00	4177.01	0.00	0.00	0.00	0.00
total inflow	**0.00**	**7.82**	**17.13**	**36.80**	**8.41**	**107.50**	**0.00**	**2.91**	**0.00**	**9.67**	**0.00**	**1.01**	**101.60**	**4174.98**	**3.93**	**4219.88**	**0.00**	**60.82**	**0.00**	**32.62**
net sedimentation	0.00	3.56	8.70	14.29	4.14	0.00	0.00	0.00	0.00	5.00	0.00	0.59	56.42	0.00	1.90	0.00	0.00	0.00	0.00	0.00
outflow	0.00	4.26	8.43	22.51	4.27	107.50	0.00	2.91	0.00	4.67	0.00	0.42	45.18	4174.98	2.03	4219.88	0.00	60.82	0.00	32.62
p removal efficiency	3.78	45.48	50.81	38.83	49.27	0.00	3.78	0.00	3.78	51.68	3.78	58.62	55.53	0.00	48.30	0.00	3.78	0.00	3.78	0.00
upstream w-shed p load	0.00	7.82	17.13	49.06	8.41	154.25	0.00	2.91	0.00	9.67	0.00	1.01	101.60	4924.45	3.93	4971.25	0.00	60.82	0.00	32.62
total removal %	3.78	45.48	50.81	54.12	49.27	30.31	3.78	0.00	3.78	51.68	3.78	58.62	55.53	15.22	48.30	15.11	3.78	0.00	3.78	0.00
HYDRAULIC PARAMETERS.....																				
pond mean depth	0.00	2.62	2.76	2.77	2.32	1.00	0.00	1.00	0.00	3.31	0.00	2.74	5.52	1.00	2.18	1.00	0.00	1.00	0.00	1.00
relative volume	1.58	1.02	1.67	2.18	2.07	0.00	1.58	0.00	1.58	6.03	1.58	29.89	2.01	0.00	1.56	0.00	1.58	0.00	1.58	0.00
residence time	0.05	0.03	0.05	0.03	0.07	0.00	0.05	0.00	0.05	0.19	0.05	0.94	0.06	0.00	0.05	0.00	0.05	0.00	0.05	0.00
residence time	18.08	11.72	19.20	12.41	23.81	0.00	18.08	0.00	18.08	69.19	18.08	343.08	23.10	0.00	17.86	0.00	18.08	0.00	18.08	0.00
overflow rate	0.00	81.66	52.50	81.51	35.57	15260020.15	0.00	485329.63	0.00	17.47	0.00	2.92	87.29	494539488.38	44.58	499538260.96	0.00	5873621.25	0.00	3607449.15
inflow phos conc	384.34	391.52	391.52	291.40	350.02	259.19	384.34	220.87	384.34	328.63	384.34	374.59	356.51	310.60	391.52	310.80	384.34	380.98	384.34	332.67
outflow phos conc	369.82	213.47	192.60	178.24	177.56	259.19	369.82	220.86	369.82	158.78	369.82	155.02	158.53	310.60	202.40	310.80	369.82	380.98	369.82	332.66
p reaction rate	0.04	1.53	2.10	1.04	1.91	0.00	0.04	0.00	0.04	2.21	0.04	3.42	2.81	0.00	1.81	0.00	0.04	0.00	0.04	0.00
1-rp	0.96	0.55	0.49	0.61	0.51	1.00	0.96	1.00	0.96	0.48	0.96	0.41	0.44	1.00	0.52	1.00	0.96	1.00	0.96	1.00
vlawmo pond volume	0.00	0.58	1.27	1.81	0.70	5.33	0.00	0.38	0.00	0.85	0.00	0.08	8.24	24.16	0.29	3.64	0.00	4.62	0.00	2.84
LAND USE PARAMETERS.....																				
runoff total P conc	0.00	391.50	391.50	364.20	350.00	353.22	0.00	193.27	0.00	276.17	0.00	352.33	360.10	251.57	391.50	284.65	0.00	348.70	0.00	285.84
runoff coefficient	0.00	0.23	0.28	0.25	0.46	0.28	0.00	0.08	0.00	0.26	0.00	0.19	0.41	0.19	0.21	0.11	0.00	0.28	0.00	0.15
dissolved/total P	0.00	0.30	0.30	0.35	0.30	0.35	0.00	0.54	0.00	0.45	0.00	0.36	0.30	0.32	0.30	0.46	0.00	0.37	0.00	0.49
runoff TSS conc	0.00	140.00	140.00	152.23	140.00	154.55	0.00	196.72	0.00	178.14	0.00	155.55	140.00	137.26	140.00	188.08	0.00	160.88	0.00	197.27
POND TSS BUDGETS.....																				
runoff	0.00	2788.27	6108.23	8978.41	3354.77	26537.18	0.00	2770.36	0.00	4449.48	0.00	394.67	39780.87	126570.49	1401.44	22807.36	0.00	23282.49	0.00	17012.29
upstream pond	0.00	0.00	0.00	1280.01	0.00	6160.91	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1428274.11	0.00	1555082.84	0.00	0.00	0.00	0.00
total inflow	**0.00**	**2788.27**	**6108.23**	**10258.42**	**3354.77**	**32698.09**	**0.00**	**2770.36**	**0.00**	**4449.48**	**0.00**	**394.67**	**39780.87**	**1554844.59**	**1401.44**	**1577890.20**	**0.00**	**23282.49**	**0.00**	**17012.29**
p removal efficiency (no inf)	5.00	48.00	54.00	41.00	50.00	0.00	5.00	0.00	5.00	52.00	5.00	61.00	56.00	0.00	51.00	0.00	5.00	0.00	5.00	0.00
tss removal efficiency (no inf)	9.82	76.00	90.00	67.00	81.00	0.00	9.82	0.00	9.82	85.00	9.82	93.00	93.00	0.00	83.00	0.00	9.82	0.00	9.82	0.00
net sedimentation	0.00	2119.08	5497.41	6873.14	2717.36	0.00	0.00	0.00	0.00	3782.06	0.00	367.04	36996.21	0.00	1163.20	0.00	0.00	0.00	0.00	0.00
outflow	0.00	669.18	610.82	3385.28	637.41	32698.09	0.00	2770.36	0.00	667.42	0.00	27.63	2784.66	1554844.59	238.25	1577890.20	0.00	23282.49	0.00	17012.29
tss removal efficiency (inf)	9.82	76.00	90.00	67.00	81.00	0.00	9.82	0.00	9.82	85.00	9.82	93.00	93.00	0.00	83.00	0.00	9.82	0.00	9.82	0.00
upstream watershed tss load	0.00	2788.27	6108.23	17874.91	3354.77	59260.48	0.00	2770.36	0.00	4449.48	0.00	394.67	39780.87	2005712.59	1401.44	2029921.39	0.00	23282.49	0.00	17012.29
tss total removal efficiency	9.82	76.00	90.00	81.06	81.00	44.82	9.82	0.00	9.82	85.00	9.82	93.00	93.00	22.48	83.00	22.27	9.82	0.00	9.82	0.00
INFILTRATION BMP/POND.....																				
Annual runoff infiltrated	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Adjusted outflow	**0.00**	**7.35**	**16.10**	**46.46**	**8.84**	**152.60**	**0.00**	**4.85**	**0.00**	**10.83**	**0.00**	**0.99**	**104.85**	**4945.39**	**3.69**	**4995.38**	**0.00**	**58.74**	**0.00**	**36.07**
Adjusted TP outflow	**0.00**	**4.26**	**8.43**	**22.51**	**4.27**	**107.50**	**0.00**	**2.91**	**0.00**	**4.67**	**0.00**	**0.42**	**45.18**	**4174.98**	**2.03**	**4219.88**	**0.00**	**60.82**	**0.00**	**32.62**
Adjusted TSS outflow	**0.00**	**669.18**	**610.82**	**3385.28**	**637.41**	**32698.09**	**0.00**	**2770.36**	**0.00**	**667.42**	**0.00**	**27.63**	**2784.66**	**1554844.59**	**238.25**	**1577890.20**	**0.00**	**23282.49**	**0.00**	**17012.29**
POND P BUDGETS W/O P-BAN..																				
runoff	0.00	8.99	19.69	25.87	8.41	69.21	0.00	2.96	0.00	9.67	0.00	1.15	104.21	294.60	4.52	43.81	0.00	68.41	0.00	35.54
Adjusted TP outflow	**0.00**	**4.69**	**9.24**	**23.81**	**4.27**	**111.75**	**0.00**	**2.96**	**0.00**	**4.67**	**0.00**	**0.45**	**45.92**	**4446.13**	**2.23**	**4492.17**	**0.00**	**68.41**	**0.00**	**35.54**
upstream pond	0.00	0.00	0.00	13.93	0.00	42.55	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4151.52	0.00	4448.36	0.00	0.00	0.00	0.00
total inflow	**0.00**	**8.99**	**19.69**	**39.79**	**8.41**	**111.75**	**0.00**	**2.96**	**0.00**	**9.67**	**0.00**	**1.15**	**104.21**	**4446.13**	**4.52**	**4492.17**	**0.00**	**68.41**	**0.00**	**35.54**
outflow	0.00	4.69	9.24	23.81	4.27	111.75	0.00	2.96	0.00	4.67	0.00	0.45	45.92	4446.13	2.23	4492.17	0.00	68.41	0.00	35.54
inflow phos conc	409.24	450.02	450.02	315.14	350.02	269.44	409.24	224.32	409.24	328.63	409.24	427.91	365.67	330.77	450.02	330.85	409.24	428.50	409.24	362.42
outflow phos conc	392.86	234.74	211.09	188.53	177.56	269.44	392.86	224.31	392.86	158.78	392.86	168.50	161.13	330.77	222.16	330.85	392.86	428.49	392.86	362.42
p reaction rate	0.04	1.76	2.41	1.12	1.91	0.00	0.04	0.00	0.04	2.21	0.04	3.91	2.88	0.00	2.08	0.00	0.04	0.00	0.04	0.00
1-rp	0.96	0.52	0.47	0.60	0.51	1.00	0.96	1.00	0.96	0.48	0.96	0.39	0.44	1.00	0.49	1.00	0.96	1.00	0.96	1.00
runoff total p conc	0.00	450.00	450.00	389.04	350.00	371.99	0.00	196.16	0.00	276.17	0.00	398.86	374.33	252.96	450.00	289.78	0.00	384.29	0.00	307.42

Rochester Loading Assessment						
ORVW/Restricted Discharge Modeling						
363-06-158-2						
Baseline LOADS						
		Airport	**Haverhill**	**Joyce Park**	**Marion 8**	**Stonehedge**
Routed TO:						
INPUT VARIABLES....	UNITS					
case label	-					
Watershed area	acres	90.0	42.1	17.2	1.2	55.8
basin area	acres	0.00	0.00	0.00	0.00	0.00
basin volume	acre-ft	0.00	0.00	0.00	0.00	0.00
Row Crop Agriculture		52%	0%	0%	0%	29%
Very Low Density Residential		0%	0%	5%	27%	0%
Low Density Residential		0%	75%	0%	0%	11%
Medium Density Residential		0%	0%	0%	0%	0%
High Density Residential		0%	0%	0%	0%	1%
Commercial/Industrial		4%	0%	0%	0%	0%
Institutional		0%	2%	0%	0%	0%
Open Space		30%	23%	95%	73%	59%
Golf Course		0%	0%	0%	0%	0%
Pits and Quarries		0%	0%	0%	0%	0%
Right-of-Way		15%	0%	0%	0%	0%
WATERSHED-WIDE ACCOUNTING….....						
tributary land area	ac	89.95	42.09	17.24	1.18	55.77
tributary water area	ac	0.00	0.00	0.00	0.00	0.00
direct and ponded area	ac	89.95	42.09	17.24	1.18	55.77
ASSUMED EXPORT FACTORS.....						
season length	yrs	1	1	1	1	1
season precipitation	inches	31.8	31.8	31.8	31.8	31.8
runoff total p	ppb	410.9784802	391.0415932	207.5101064	239.7661482	328.4542823
runoff ortho p/total p	-	0.337990955	0.367970172	0.594992369	0.573476196	0.448190522
unit runoff	in/yr	4.866650457	5.861469341	2.565837079	2.659857693	3.661997753
unit export	lbs/ac-y	0.47	0.56	0.12	0.15	0.31
POND WATER BUDGETS.....						
runoff	ac-ft/yr	36.48	20.56	3.69	0.26	17.02
upstream pond	ac-ft/yr	0.00	0.00	0.00	0.00	0.00
total inflow	**ac-ft/yr**	**36.48**	**20.56**	**3.69**	**0.26**	**17.02**
outflow	ac-ft/yr	36.48	20.56	3.69	0.26	17.02
POND PHOSPHORUS BUDGETS.....						
runoff	lbs/yr	42.63	23.56	2.09	0.17	17.54
upstream pond	lbs/yr	0.00	0.00	0.00	0.00	0.00
total inflow	**lbs/yr**	**42.63**	**23.56**	**2.09**	**0.17**	**17.54**
net sedimentation	lbs/yr	0.00	0.00	0.00	0.00	0.00
outflow	lbs/yr	42.63	23.56	2.09	0.17	17.54
p removal efficiency	%	0.00	0.00	0.01	0.09	0.00
upstream w-shed p load	lbs/yr	42.63	23.56	2.09	0.17	17.54
total removal %	%	0.00	0.00	0.01	0.09	0.00
HYDRAULIC PARAMETERS.....						
pond mean depth	feet	1.00	1.00	1.00	1.00	1.00
relative volume	inches	0.00	0.00	0.00	0.00	0.00
residence time	years	0.00	0.00	0.00	0.00	0.00
residence time	days	0.00	0.00	0.00	0.01	0.00
overflow rate	ft/yr	3648084.58	2055865.43	368605.80	26179.43	1701793.53
inflow phos conc	ppb	429.92	421.59	208.73	244.59	379.27
outflow phos conc	ppb	429.91	421.58	208.72	244.37	379.26
p reaction rate	-	0.00	0.00	0.00	0.00	0.00
1-rp	-	1.00	1.00	1.00	1.00	1.00
vlawmo pond volume	acre-ft	2.87	1.62	0.29	0.02	1.34
LAND USE PARAMETERS.....						
runoff total P conc	ppb	410.98	391.04	207.51	239.77	328.45
runoff coefficient		0.15	0.18	0.08	0.08	0.12
dissolved/total P		0.34	0.37	0.59	0.57	0.45
runoff TSS conc	ppm	174.71	157.22	216.00	215.99	191.65
POND TSS BUDGETS.....						
runoff	lbs/yr	16097.26	8216.33	2157.66	153.23	8272.88
upstream pond	lbs/yr	0.00	0.00	0.00	0.00	0.00
total inflow	**lbs/yr**	**16097.26**	**8216.33**	**2157.66**	**153.23**	**8272.88**
p removal efficiency (no inf)	%	0.00	0.00	0.00	0.00	0.00
tss removal efficiency (no inf)	%	0.00	0.00	0.00	0.00	0.00
net sedimentation	lbs/yr	0.00	0.00	0.00	0.00	0.00
outflow	lbs/yr	16097.26	8216.33	2157.66	153.23	8272.88
tss removal efficiency (inf)		0.00	0.00	0.00	0.00	0.00
upstream watershed tss load	lbs/yr	16097.26	8216.33	2157.66	153.23	8272.88
tss total removal efficiency	%	0.00	0.00	0.00	0.00	0.00
INFILTRATION BMP/POND……						
Annual runoff infiltrated	%	0.00	0.00	0.00	0.00	0.00
Adjusted outflow	**ac-ft/yr**	**36.48**	**20.56**	**3.69**	**0.26**	**17.02**
Adjusted TP outflow	**lbs/yr**	**42.63**	**23.56**	**2.09**	**0.17**	**17.54**
Adjusted TSS outflow	**lbs/yr**	**16097.26**	**8216.33**	**2157.66**	**153.23**	**8272.88**

Rochester Loading Assessment							
ORVW/Restricted Discharge Modeling							
363-06-158-2							
Existing (2005) LOADS							
		Airport	**Haverhill**	**Joyce Park**	**Marion 8**	**Stonehedge - to Berm**	**Stonehedge**
Routed TO:						Stonehedge	
INPUT VARIABLES....	UNITS						
case label	-						
Watershed area	acres	90.0	42.1	17.2	1.2	37.4	18.4
basin area	acres	0.00	0.00	0.00	0.00	0.00	0.00
basin volume	acre-ft	0.00	0.00	0.00	0.00	0.00	0.00
Row Crop Agriculture		49%	0%	0%	0%	0%	0%
Very Low Density Residential		0%	0%	5%	27%	0%	0%
Low Density Residential		0%	75%	0%	0%	64%	21%
Medium Density Residential		0%	0%	0%	0%	0%	0%
High Density Residential		0%	0%	0%	0%	2%	0%
Commercial/Industrial		4%	0%	0%	0%	0%	0%
Institutional		0%	2%	0%	0%	0%	0%
Open Space		33%	23%	95%	73%	35%	79%
Golf Course		0%	0%	0%	0%	0%	0%
Pits and Quarries		0%	0%	0%	0%	0%	0%
Right-of-Way		15%	0%	0%	0%	0%	0%
WATERSHED-WIDE ACCOUNTING.....							
tributary land area	ac	89.95	42.09	17.24	1.18	37.36	55.75
tributary water area	ac	0.00	0.00	0.00	0.00	0.00	0.00
direct and ponded area	ac	89.95	42.09	17.24	1.18	37.36	55.75
ASSUMED EXPORT FACTORS.....							
season length	yrs	1	1	1	1	1	1
season precipitation	inches	31.8	31.8	31.8	31.8	31.8	31.8
runoff total p	ppb	399.96	391.04	207.51	239.77	363.15	251.40
runoff ortho p/total p	-	0.35	0.37	0.59	0.57	0.40	0.54
unit runoff	in/yr	4.80	5.86	2.57	2.66	5.39	3.41
unit export	lbs/ac-y	0.46	0.56	0.12	0.15	0.50	0.23
POND WATER BUDGETS.....							
runoff	ac-ft/yr	36.02	20.56	3.69	0.26	16.78	5.22
upstream pond	ac-ft/yr	0.00	0.00	0.00	0.00	0.00	0.00
total inflow	**ac-ft/yr**	**36.02**	**20.56**	**3.69**	**0.26**	**16.78**	**5.22**
outflow	ac-ft/yr	36.02	20.56	3.69	0.26	16.78	5.22
POND PHOSPHORUS BUDGETS.....							
runoff	lbs/yr	41.38	23.56	2.09	0.17	18.65	4.28
upstream pond	lbs/yr	0.00	0.00	0.00	0.00	0.00	0.00
total inflow	**lbs/yr**	**41.38**	**23.56**	**2.09**	**0.17**	**18.65**	**4.28**
net sedimentation	lbs/yr	0.01	0.01	0.00	0.00	0.01	0.00
outflow	lbs/yr	41.37	23.55	2.09	0.17	18.65	4.28
p removal efficiency	%	0.02	0.03	0.05	0.09	100.00	0.01
upstream w-shed p load	lbs/yr	41.38	23.56	2.09	0.17	18.65	22.94
total removal %	%	0.02	0.03	0.05	0.09	100.00	81.33
HYDRAULIC PARAMETERS.....							
pond mean depth	feet	0.10	0.10	0.10	0.10	0.10	1.00
relative volume	inches	0.00	0.00	0.00	0.00	0.00	0.00
residence time	years	0.00	0.00	0.00	0.00	0.00	0.00
residence time	days	0.00	0.00	0.01	0.01	0.00	0.00
overflow rate	ft/yr	36017.20	20558.65	3686.06	2617.94	16779.49	522176.88
inflow phos conc	ppb	422.66	421.59	208.73	244.59	409.03	301.75
outflow phos conc	ppb	422.59	421.46	208.62	244.37	408.89	301.73
p reaction rate	-	0.00	0.00	0.00	0.00	0.00	0.00
1-rp	-	1.00	1.00	1.00	1.00	1.00	1.00
vlawmo pond volume	acre-ft	2.83	1.62	0.29	0.02	1.32	0.41
LAND USE PARAMETERS.....							
runoff total P conc	ppb	399.96	391.04	207.51	239.77	363.15	251.40
runoff coefficient		0.15	0.18	0.08	0.08	0.17	0.11
dissolved/total P		0.35	0.37	0.59	0.57	0.40	0.54
runoff TSS conc	ppm	176.43	157.22	216.00	215.99	166.40	200.37
POND TSS BUDGETS.....							
runoff	lbs/yr	15981.25	8216.33	2157.66	153.23	6932.80	2618.98
upstream pond	lbs/yr	0.00	0.00	0.00	0.00	0.00	0.00
total inflow	**lbs/yr**	**15981.25**	**8216.33**	**2157.66**	**153.23**	**6932.80**	**2618.98**
p removal efficiency (no inf)	%	0.00	0.00	0.00	0.00	0.00	0.00
tss removal efficiency (no inf)	%	0.00	0.00	0.00	0.00	0.00	0.00
net sedimentation	lbs/yr	0.00	0.00	0.00	0.00	0.00	0.00
outflow	lbs/yr	15981.25	8216.33	2157.66	153.23	6932.80	2618.98
tss removal efficiency (inf)	%	0.00	0.00	0.00	0.00	100.00	0.00
upstream watershed tss load	lbs/yr	15981.25	8216.33	2157.66	153.23	6932.80	9551.78
tss total removal efficiency	%	0.00	0.00	0.00	0.00	100.00	72.58
INFILTRATION BMP/POND.....							
Annual runoff infiltrated	%	0.00	0.00	0.00	0.00	100.00	0.00
Adjusted outflow	**ac-ft/yr**	**36.02**	**20.56**	**3.69**	**0.26**	**0.00**	**5.22**
Adjusted TP outflow	**lbs/yr**	**41.37**	**23.55**	**2.09**	**0.17**	**0.00**	**4.28**
Adjusted TSS outflow	**lbs/yr**	**15981.25**	**8216.33**	**2157.66**	**153.23**	**0.00**	**2618.98**

Rochester Loading Assessment														
ORVW/Restricted Discharge Modeling														
363-06-158-2														
2020 LOADS														
		future Airport	**Airport**	**future Haverhill**	**Haverhill**	**future Joyce Park**	**Joyce Park**	**future Marion 8**	**Marion 8**	**future Stonehedge - to Berm**	**Stonehedge - to Berm**	**future Stonehedge**	**Stonehedge**
		Airport		Haverhill		Joyce Park		Marion 8		Stonehedge - to Berm	Stonehedge	Stonehedge	
INPUT VARIABLES....	UNITS												
case label	-												
Watershed area	acres	0.0	90.0	0.0	42.1	0.0	17.2	0.0	1.2	0.0	37.4	1.6	16.8
basin area	acres	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
basin volume	acre-ft	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Row Crop Agriculture		0%	49%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Very Low Density Residential		0%	0%	0%	0%	0%	5%	0%	27%	0%	0%	0%	0%
Low Density Residential		0%	0%	0%	75%	0%	0%	0%	0%	0%	64%	100%	23%
Medium Density Residential		0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
High Density Residential		0%	0%	0%	0%	0%	0%	0%	0%	0%	2%	0%	0%
Commercial/Industrial		0%	4%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Institutional		0%	0%	0%	2%	0%	0%	0%	0%	0%	0%	0%	0%
Open Space		0%	33%	0%	23%	0%	95%	0%	73%	0%	35%	0%	77%
Golf Course		0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Pits and Quarries		0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Right-of-Way		0%	15%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
WATERSHED-WIDE ACCOUNTING.....													
tributary land area	ac	0.00	89.95	0.00	42.09	0.00	17.24	0.00	1.18	0.00	37.36	1.61	55.76
tributary water area	ac	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
direct and ponded area	ac	0.00	89.96	0.00	42.09	0.00	17.24	0.00	1.18	0.00	37.36	1.61	55.76
ASSUMED EXPORT FACTORS.....													
season length	yrs	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
season precipitation	inches	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80	31.80
runoff total p	ppb	0.00	399.93	0.00	347.14	0.00	205.23	0.00	227.71	0.00	324.99	391.50	243.13
runoff ortho p/total p	-	0.00	0.35	0.00	0.37	0.00	0.59	0.00	0.57	0.00	0.40	0.30	0.53
unit runoff	in/yr	0.00	4.80	0.00	5.86	0.00	2.57	0.00	2.66	0.00	5.39	6.74	3.49
unit export	lbs/ac-y	0.00	0.46	0.00	0.49	0.00	0.12	0.00	0.14	0.00	0.44	0.60	0.22
POND WATER BUDGETS.....													
runoff	ac-ft/yr	0.00	36.02	0.00	20.56	0.00	3.69	0.00	0.26	0.00	16.78	0.91	4.88
upstream pond	ac-ft/yr	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.91
total inflow	**ac-ft/yr**	**0.00**	**36.02**	**0.00**	**20.56**	**0.00**	**3.69**	**0.00**	**0.26**	**0.00**	**16.78**	**0.91**	**5.79**
outflow	ac-ft/yr	0.00	36.02	0.00	20.56	0.00	3.69	0.00	0.26	0.00	16.78	0.91	5.79
POND PHOSPHORUS BUDGETS.....													
runoff	lbs/yr	0.00	41.37	0.00	20.74	0.00	2.06	0.00	0.16	0.00	16.42	0.96	3.76
upstream pond	lbs/yr	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.96
total inflow	**lbs/yr**	**0.00**	**41.37**	**0.00**	**20.74**	**0.00**	**2.06**	**0.00**	**0.16**	**0.00**	**16.42**	**0.96**	**4.72**
net sedimentation	lbs/yr	0.00	0.01	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
outflow	lbs/yr	0.00	41.37	0.00	20.73	0.00	2.06	0.00	0.16	0.00	16.42	0.96	4.72
p removal efficiency	%	99.72	0.02	99.72	0.03	99.72	0.05	99.72	0.08	99.72	100.00	0.08	0.01
upstream w-shed p load	lbs/yr	0.00	41.37	0.00	20.74	0.00	2.06	0.00	0.16	0.00	16.42	0.96	21.15
total removal %	%	99.72	0.02	99.72	0.03	99.72	0.05	99.72	0.08	99.72	100.00	0.08	77.67
HYDRAULIC PARAMETERS.....													
pond mean depth	feet	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	1.00	1.00
relative volume	inches	501459455.96	0.00	501459455.96	0.00	501459455.96	0.00	501459455.96	0.00	501459455.96	0.00	0.00	0.00
residence time	years	15769165.28	0.00	15769165.28	0.00	15769165.28	0.00	15769165.28	0.00	15769165.28	0.00	0.00	0.00
residence time	days	5755745327.82	0.00	5755745327.82	0.00	5755745327.82	0.01	5755745327.82	0.01	5755745327.82	0.00	0.00	0.00
overflow rate	ft/yr	0.00	36016.93	0.00	20560.40	0.00	3686.06	0.00	2617.94	0.00	16779.75	90589.93	578846.80
inflow phos conc	ppb	384.34	422.64	384.34	371.08	384.34	206.09	384.34	231.08	384.34	360.13	391.52	300.23
outflow phos conc	ppb	1.07	422.56	1.07	370.98	1.07	205.98	1.07	230.88	1.07	360.02	391.21	300.22
p reaction rate	-	129834.20	0.00	129834.20	0.00	129834.20	0.00	129834.20	0.00	129834.20	0.00	0.00	0.00
1-rp	-	0.00	1.00	0.00	1.00	0.00	1.00	0.00	1.00	0.00	1.00	1.00	1.00
vlawmo pond volume	acre-ft	0.00	2.83	0.00	1.62	0.00	0.29	0.00	0.02	0.00	1.32	0.07	0.38
LAND USE PARAMETERS.....													
runoff total P conc	ppb	0.00	399.93	0.00	347.14	0.00	205.23	0.00	227.71	0.00	324.99	391.50	243.13
runoff coefficient		0.00	0.15	0.00	0.18	0.00	0.08	0.00	0.08	0.00	0.17	0.21	0.11
dissolved/total P		0.00	0.35	0.00	0.37	0.00	0.59	0.00	0.57	0.00	0.40	0.30	0.53
runoff TSS conc	ppm	0.00	176.43	0.00	157.22	0.00	216.00	0.00	216.00	0.00	166.40	140.00	198.88
POND TSS BUDGETS.....													
runoff	lbs/yr	0.00	15981.26	0.00	8216.99	0.00	2157.66	0.00	153.23	0.00	6932.73	343.70	2420.42
upstream pond	lbs/yr	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	343.70
total inflow	**lbs/yr**	**0.00**	**15981.26**	**0.00**	**8216.99**	**0.00**	**2157.66**	**0.00**	**153.23**	**0.00**	**6932.73**	**343.70**	**2764.12**
p removal efficiency (no inf)	%	100.00	0.00	100.00	0.00	100.00	0.00	100.00	0.00	100.00	0.00	0.00	0.00
tss removal efficiency (no inf)	%	93.00	0.00	93.00	0.00	93.00	0.00	93.00	0.00	93.00	0.00	0.00	0.00
net sedimentation	lbs/yr	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
outflow	lbs/yr	0.00	15981.26	0.00	8216.99	0.00	2157.66	0.00	153.23	0.00	6932.73	343.70	2764.12
tss removal efficiency (inf)	%	93.00	0.00	93.00	0.00	93.00	0.00	93.00	0.00	93.00	100.00	0.00	0.00
upstream watershed tss load	lbs/yr	0.00	15981.26	0.00	8216.99	0.00	2157.66	0.00	153.23	0.00	6932.73	343.70	9696.85
tss total removal efficiency	%	93.00	0.00	93.00	0.00	93.00	0.00	93.00	0.00	93.00	100.00	0.00	71.49
INFILTRATION BMP/POND.....													
Annual runoff infiltrated	%	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00	0.00	0.00
Adjusted outflow	**ac-ft/yr**	**0.00**	**36.02**	**0.00**	**20.56**	**0.00**	**3.69**	**0.00**	**0.26**	**0.00**	**0.00**	**0.91**	**5.79**
Adjusted TP outflow	**lbs/yr**	**0.00**	**41.37**	**0.00**	**20.73**	**0.00**	**2.06**	**0.00**	**0.16**	**0.00**	**0.00**	**0.96**	**4.72**
Adjusted TSS outflow	**lbs/yr**	**0.00**	**15981.26**	**0.00**	**8216.99**	**0.00**	**2157.66**	**0.00**	**153.23**	**0.00**	**0.00**	**343.70**	**2764.12**
POND P BUDGETS W/O P-BAN.....													
runoff	lbs/yr	0.00	41.37	0.00	23.56	0.00	2.09	0.00	0.17	0.00	18.66	1.11	4.10
Adjusted TP outflow	**lbs/yr**	**0.00**	**41.37**	**0.00**	**23.55**	**0.00**	**2.09**	**0.00**	**0.17**	**0.00**	**0.00**	**1.11**	**5.20**
upstream pond	lbs/yr	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.11
total inflow	**lbs/yr**	**0.00**	**41.37**	**0.00**	**23.56**	**0.00**	**2.09**	**0.00**	**0.17**	**0.00**	**18.66**	**1.11**	**5.21**
outflow	lbs/yr	0.00	41.37	0.00	23.55	0.00	2.09	0.00	0.17	0.00	18.65	1.11	5.20
inflow phos conc	ppb	409.24	422.64	409.24	421.57	409.24	208.73	409.24	244.59	409.24	409.04	450.02	330.85
outflow phos conc	ppb	1.10	422.56	1.10	421.43	1.10	208.62	1.10	244.37	1.10	408.90	449.61	330.83
p reaction rate	-	138246.88	0.00	138246.88	0.00	138246.88	0.00	138246.88	0.00	138246.88	0.00	0.00	0.00
1-rp	-	0.00	1.00	0.00	1.00	0.00	1.00	0.00	1.00	0.00	1.00	1.00	1.00
runoff total p conc	ppb	0.00	399.93	0.00	391.03	0.00	207.51	0.00	239.77	0.00	363.17	450.00	256.30

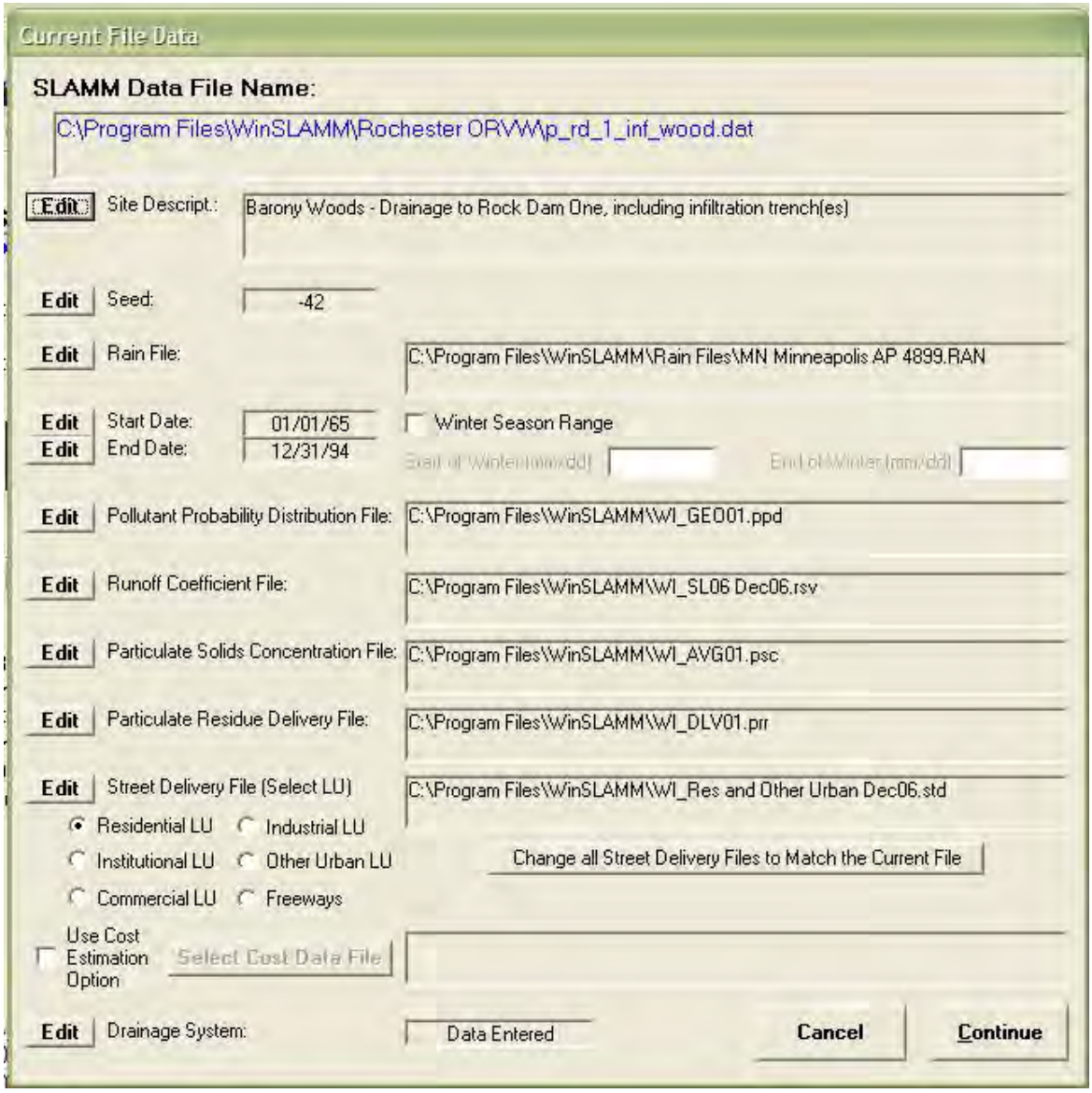
WinSLAMM Modeling for

Mutchler Fen

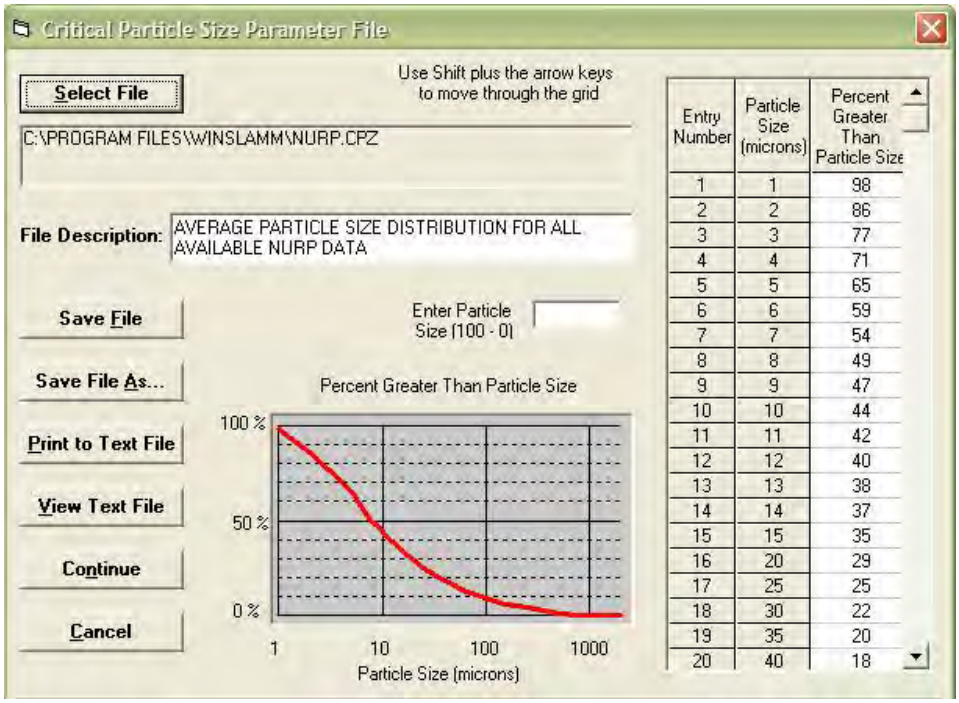
WinSLAMM Results

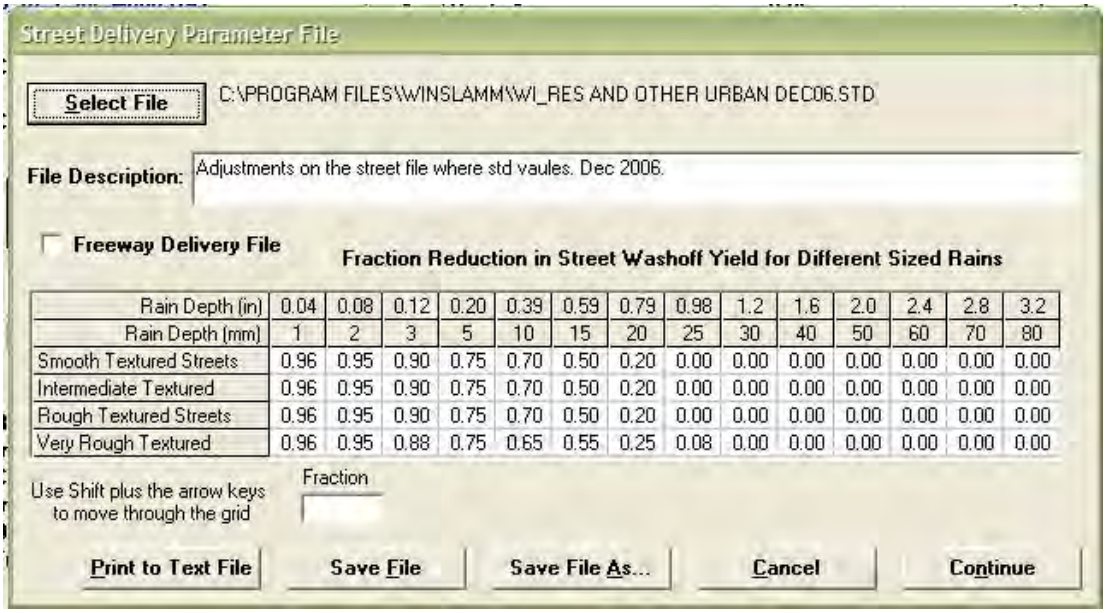
Condition - Watershed	Annual Load with 30 years Precipitation Water Volume (ac-ft)	TS (lbs)	TP (lbs)	Comments
Baseline - direct to fen	1.88	1034	3.15	Fen watershed is 12.5 ac in this condition
Present - rock dam 1	0.10	75	0.32	Fen watershed is 14.4 ac in this condition
Present - rock dam 2	0.30	222	0.91	without any treatment: no infiltration trenches,
Present - rock dam 3	0.13	92	0.36	no rock dams
Present - rock dam 4	0.11	85	0.37	
Present - direct to fen	1.00	564	1.79	
Total Present	1.64	1038	3.74	
Required Reduction to meet Baseline	-15%	0%	16%	
Present - rock dam 1	0.05	54	0.24	Fen watershed is 14.4 ac in this condition
Present - rock dam 2	0.19	178	0.74	treatment includes: infiltration trenches, rock dams
Present - rock dam 3	0.07	71	0.28	
Present - rock dam 4	0.05	61	0.27	
Present - direct to fen	1.00	553	1.71	
Total Present	1.36	916	3.24	
Required Reduction to meet Baseline	-38%	-13%	3%	
2020 - rock dam 1	0.05	54	0.22	Fen watershed is 14.4 ac in this condition
2020 - rock dam 2	0.19	178	0.70	treatment includes: infiltration trenches, rock dams
2020 - rock dam 3	0.07	71	0.27	phosphorus ban (13% reduction in raw TP conc)
2020 - rock dam 4	0.05	61	0.26	
2020 - direct to fen	1.00	553	1.71	
Total 2020	1.36	916	3.16	
Required Reduction to meet Baseline	-38%	-13%	0%	

General Model Inputs

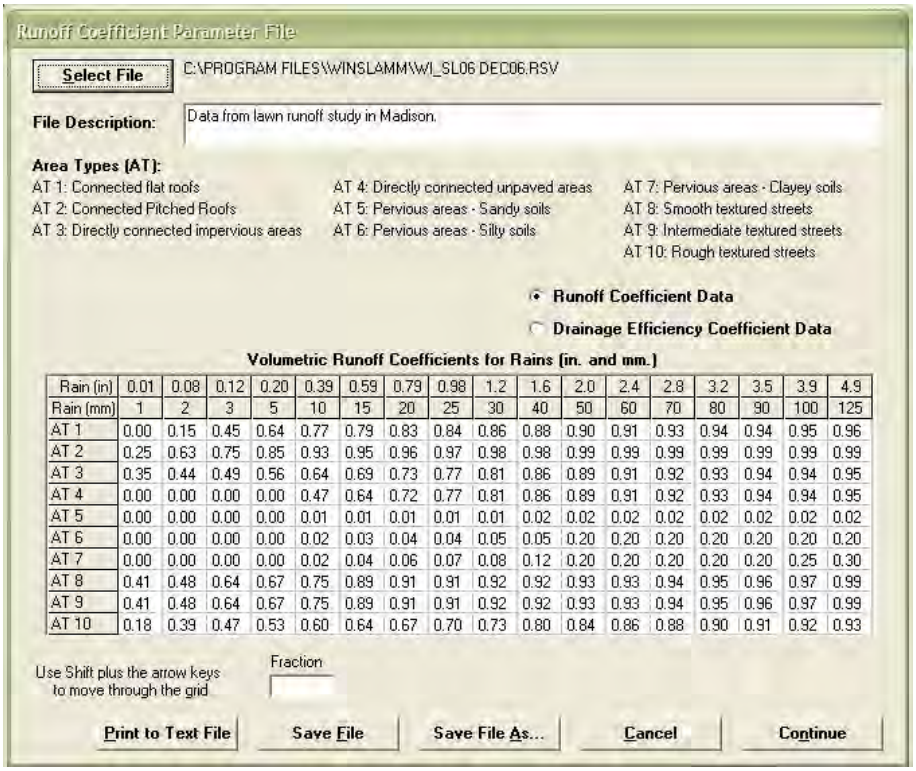


General Model Inputs (continued)





General Model Inputs (continued)



Runoff Coefficient Parameter File

Select File: C:\PROGRAM FILES\WINSLAMM\WI_SL06 DEC06.RSV

File Description: Data from lawn runoff study in Madison.

Area Types (AT):

AT 1: Connected flat roofs
AT 2: Connected Pitched Roofs
AT 3: Directly connected impervious areas
AT 4: Directly connected unpaved areas
AT 5: Pervious areas - Sandy soils
AT 6: Pervious areas - Silty soils
AT 7: Pervious areas - Clayey soils
AT 8: Smooth textured streets
AT 9: Intermediate textured streets
AT 10: Rough textured streets

(•) Runoff Coefficient Data
( ) Drainage Efficiency Coefficient Data

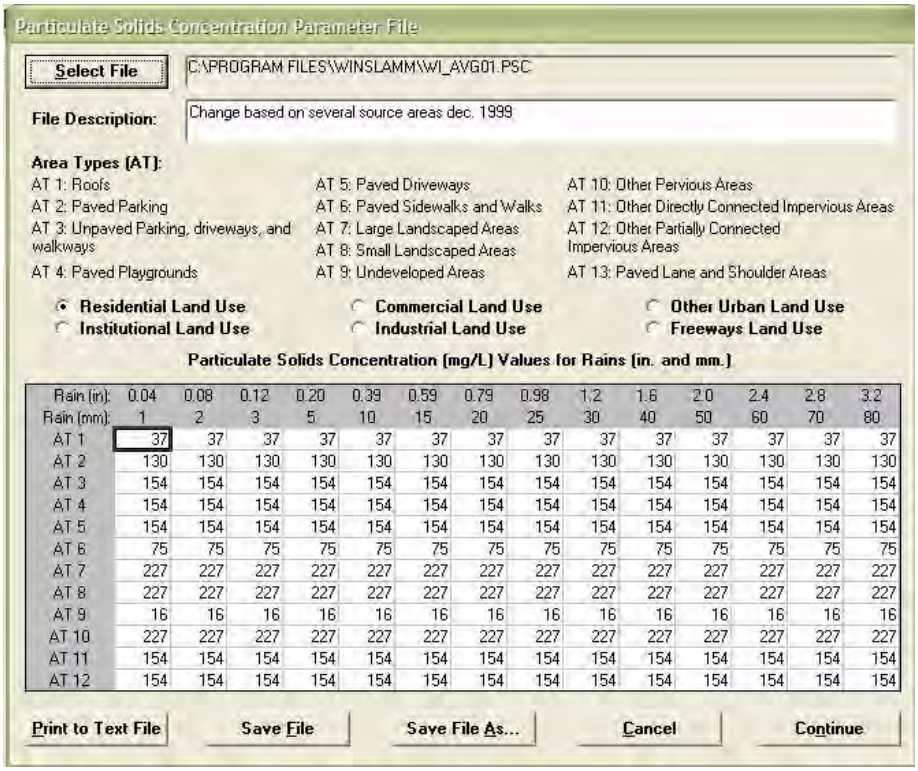
Volumetric Runoff Coefficients for Rains (in. and mm.)

Rain (in)	0.01	0.08	0.12	0.20	0.39	0.59	0.79	0.98	1.2	1.6	2.0	2.4	2.8	3.2	3.5	3.9	4.9
Rain (mm)	1	2	3	5	10	15	20	25	30	40	50	60	70	80	90	100	125
AT 1	0.00	0.15	0.45	0.64	0.77	0.79	0.83	0.84	0.86	0.88	0.90	0.91	0.93	0.94	0.94	0.95	0.96
AT 2	0.25	0.63	0.75	0.85	0.93	0.95	0.96	0.97	0.98	0.98	0.99	0.99	0.99	0.99	0.99	0.99	0.99
AT 3	0.35	0.44	0.49	0.56	0.64	0.69	0.73	0.77	0.81	0.86	0.89	0.91	0.92	0.93	0.94	0.94	0.95
AT 4	0.00	0.00	0.00	0.00	0.47	0.64	0.72	0.77	0.81	0.86	0.89	0.91	0.92	0.93	0.94	0.94	0.95
AT 5	0.00	0.00	0.00	0.00	0.01	0.01	0.01	0.01	0.01	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02
AT 6	0.00	0.00	0.00	0.00	0.02	0.03	0.04	0.04	0.05	0.05	0.20	0.20	0.20	0.20	0.20	0.20	0.20
AT 7	0.00	0.00	0.00	0.00	0.02	0.04	0.06	0.07	0.08	0.12	0.20	0.20	0.20	0.20	0.20	0.25	0.30
AT 8	0.41	0.48	0.64	0.67	0.75	0.89	0.91	0.91	0.92	0.92	0.93	0.93	0.94	0.95	0.96	0.97	0.99
AT 9	0.41	0.48	0.64	0.67	0.75	0.89	0.91	0.91	0.92	0.92	0.93	0.93	0.94	0.95	0.96	0.97	0.99
AT 10	0.18	0.39	0.47	0.53	0.60	0.64	0.67	0.70	0.73	0.80	0.84	0.86	0.88	0.90	0.91	0.92	0.93

Use Shift plus the arrow keys to move through the grid

Fraction

Print to Text File | Save File | Save File As... | Cancel | Continue



Particulate Solids Concentration Parameter File

Select File: C:\PROGRAM FILES\WINSLAMM\WI_AVG01.PSC

File Description: Change based on several source areas dec. 1999

Area Types (AT):

AT 1: Roofs
AT 2: Paved Parking
AT 3: Unpaved Parking, driveways, and walkways
AT 4: Paved Playgrounds
AT 5: Paved Driveways
AT 6: Paved Sidewalks and Walks
AT 7: Large Landscaped Areas
AT 8: Small Landscaped Areas
AT 9: Undeveloped Areas
AT 10: Other Pervious Areas
AT 11: Other Directly Connected Impervious Areas
AT 12: Other Partially Connected Impervious Areas
AT 13: Paved Lane and Shoulder Areas

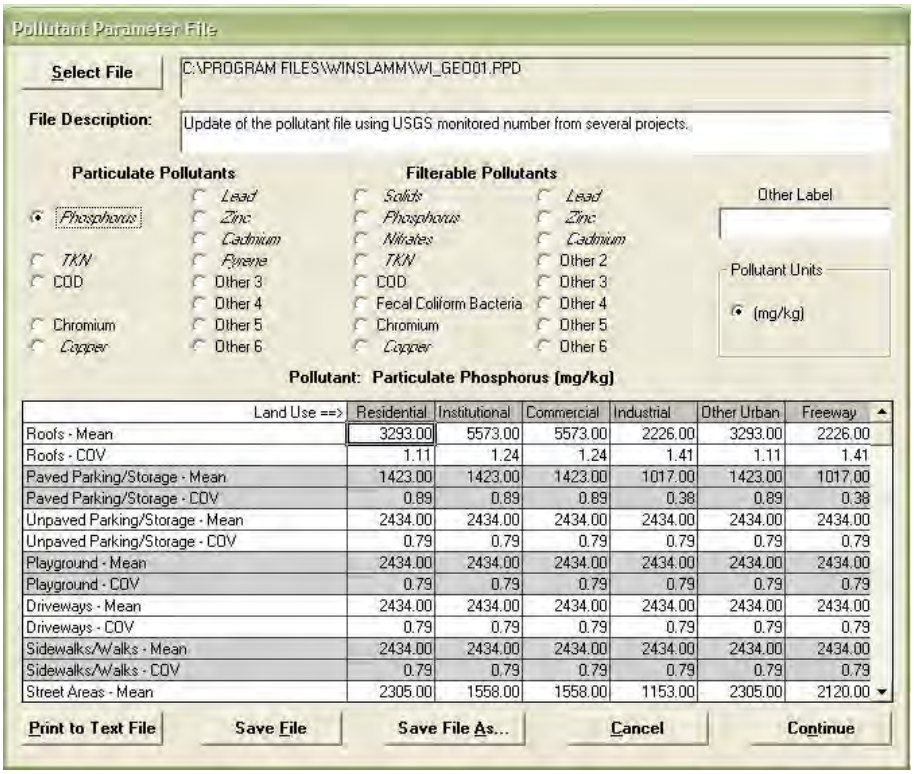
(•) Residential Land Use
( ) Commercial Land Use
( ) Other Urban Land Use
( ) Institutional Land Use
( ) Industrial Land Use
( ) Freeways Land Use

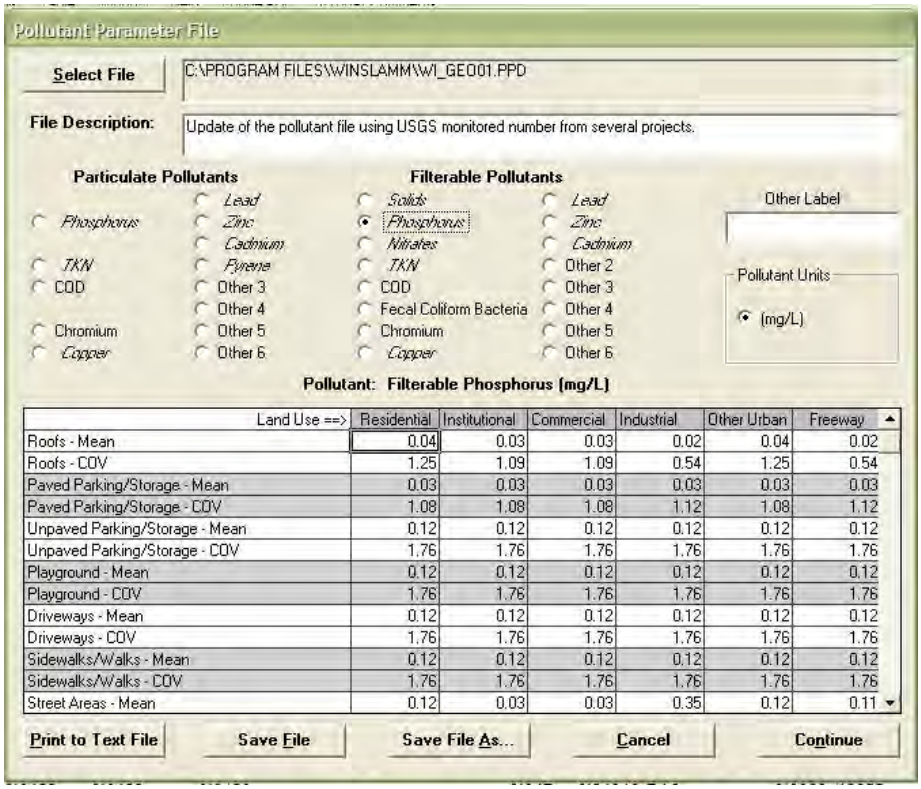
Particulate Solids Concentration (mg/L) Values for Rains (in. and mm.)

Rain (in):	0.04	0.08	0.12	0.20	0.39	0.59	0.79	0.98	1.2	1.6	2.0	2.4	2.8	3.2
Rain (mm):	1	2	3	5	10	15	20	25	30	40	50	60	70	80
AT 1	37	37	37	37	37	37	37	37	37	37	37	37	37	37
AT 2	130	130	130	130	130	130	130	130	130	130	130	130	130	130
AT 3	154	154	154	154	154	154	154	154	154	154	154	154	154	154
AT 4	154	154	154	154	154	154	154	154	154	154	154	154	154	154
AT 5	154	154	154	154	154	154	154	154	154	154	154	154	154	154
AT 6	75	75	75	75	75	75	75	75	75	75	75	75	75	75
AT 7	227	227	227	227	227	227	227	227	227	227	227	227	227	227
AT 8	227	227	227	227	227	227	227	227	227	227	227	227	227	227
AT 9	16	16	16	16	16	16	16	16	16	16	16	16	16	16
AT 10	227	227	227	227	227	227	227	227	227	227	227	227	227	227
AT 11	154	154	154	154	154	154	154	154	154	154	154	154	154	154
AT 12	154	154	154	154	154	154	154	154	154	154	154	154	154	154

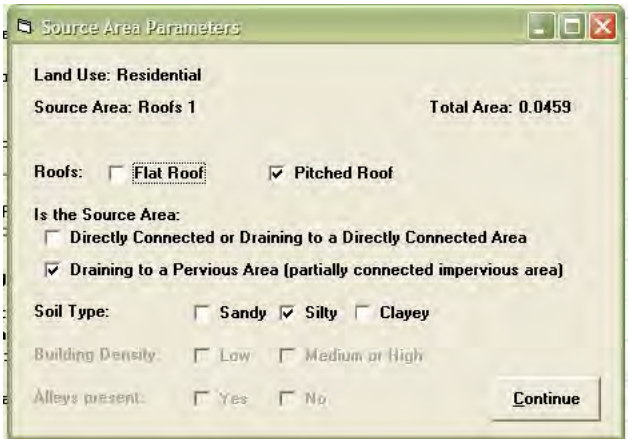
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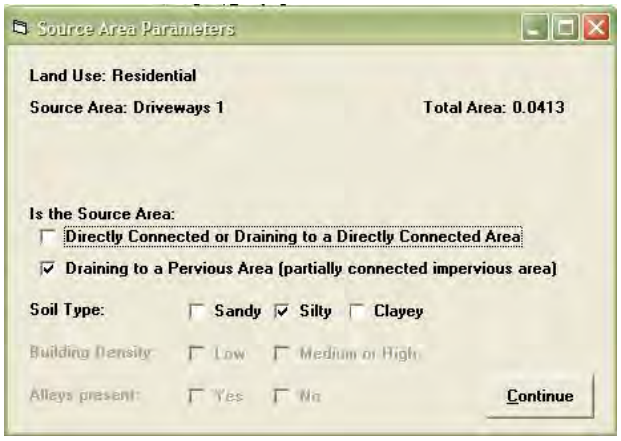
General Model Inputs (continued)

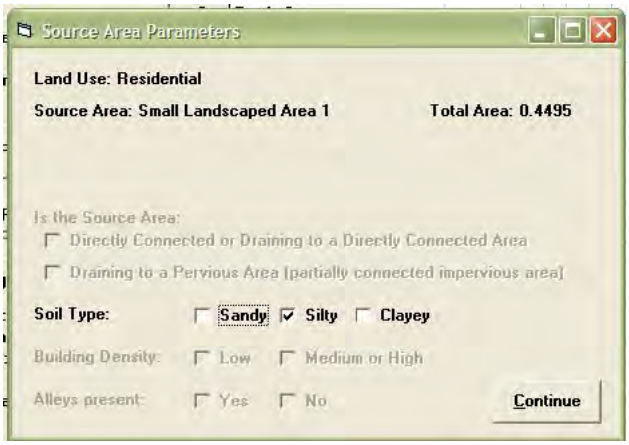


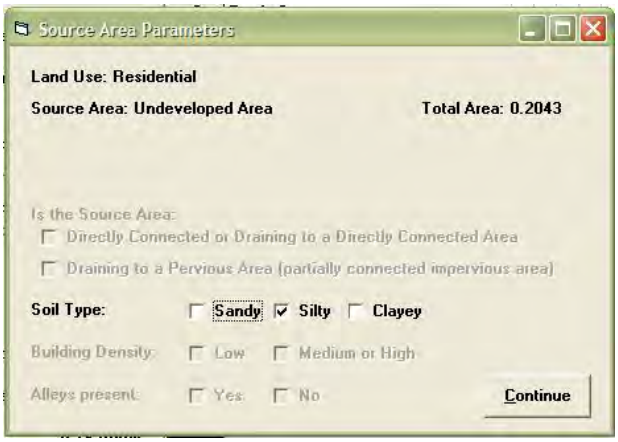


Detailed Source Area Inputs

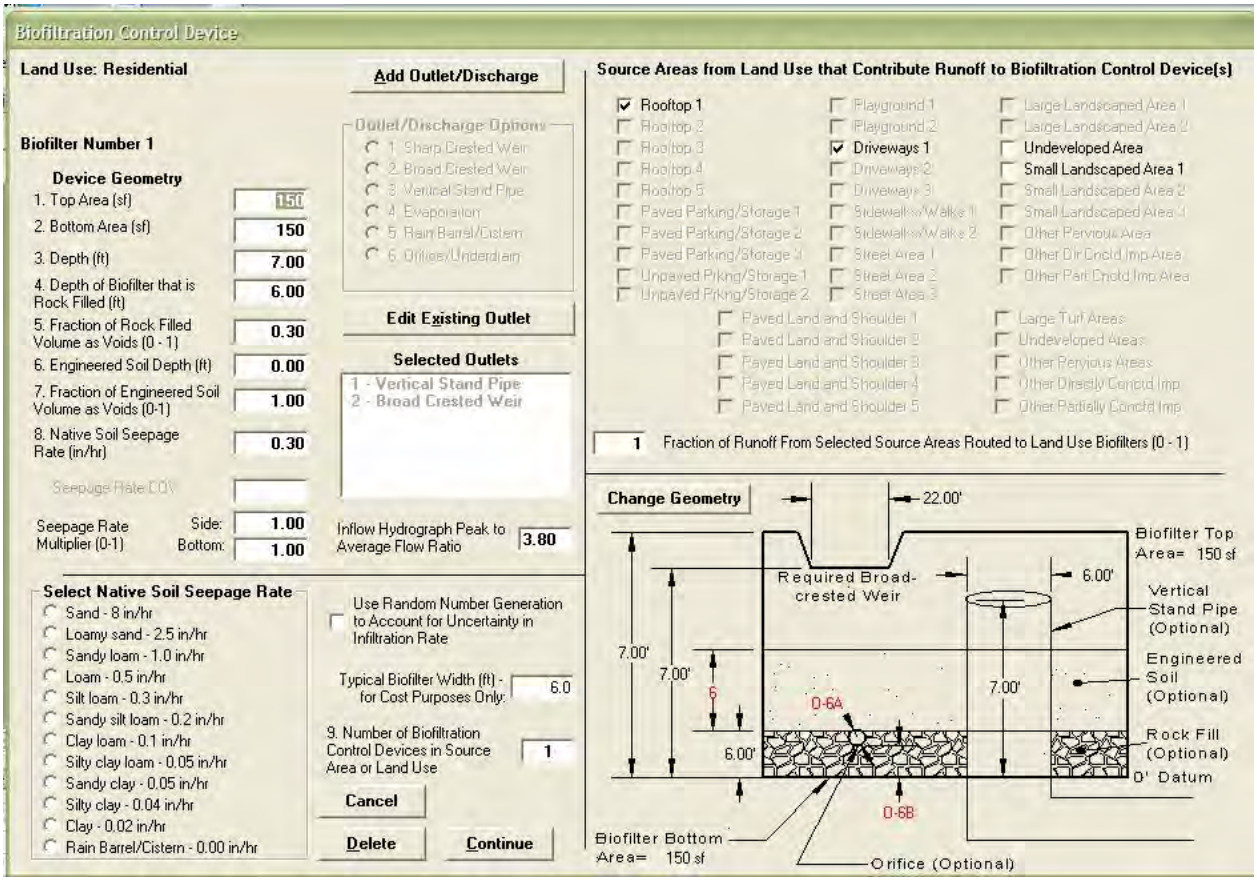




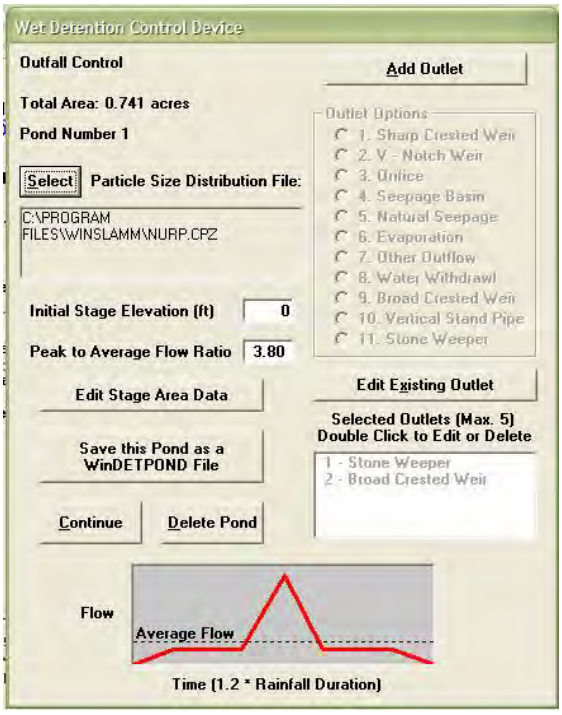


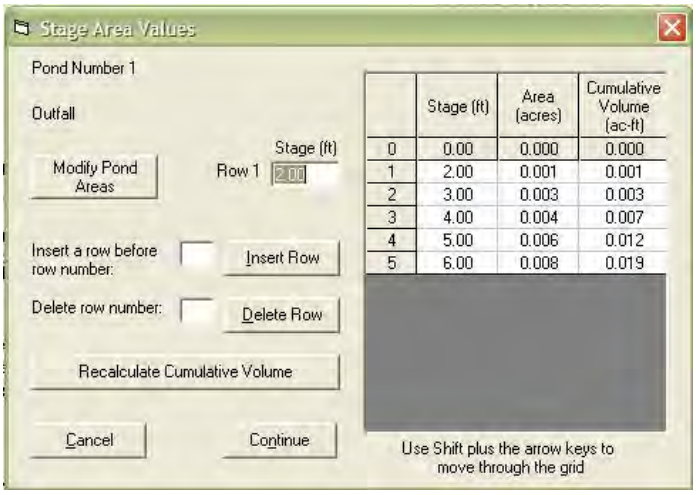


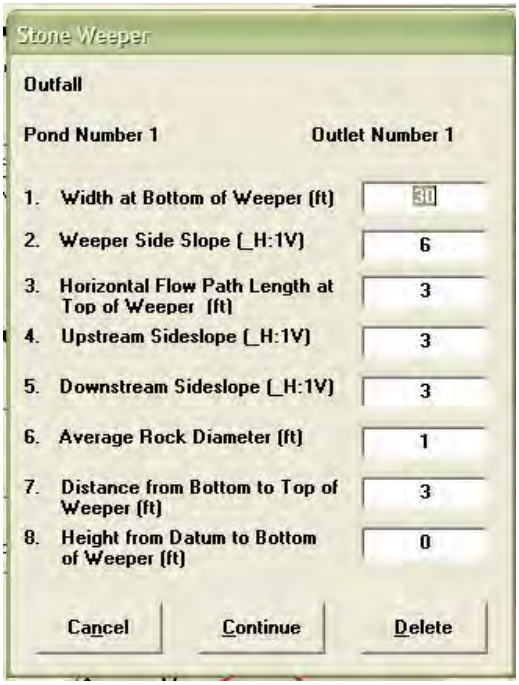
Infiltration Trench BMP Inputs

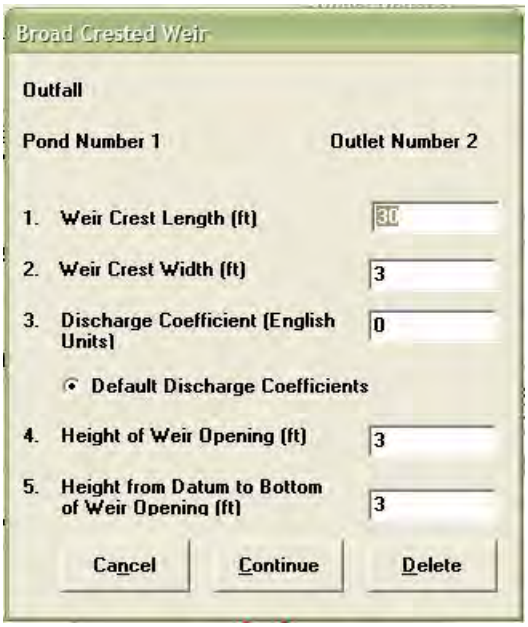


Rock Dam BMP Inputs









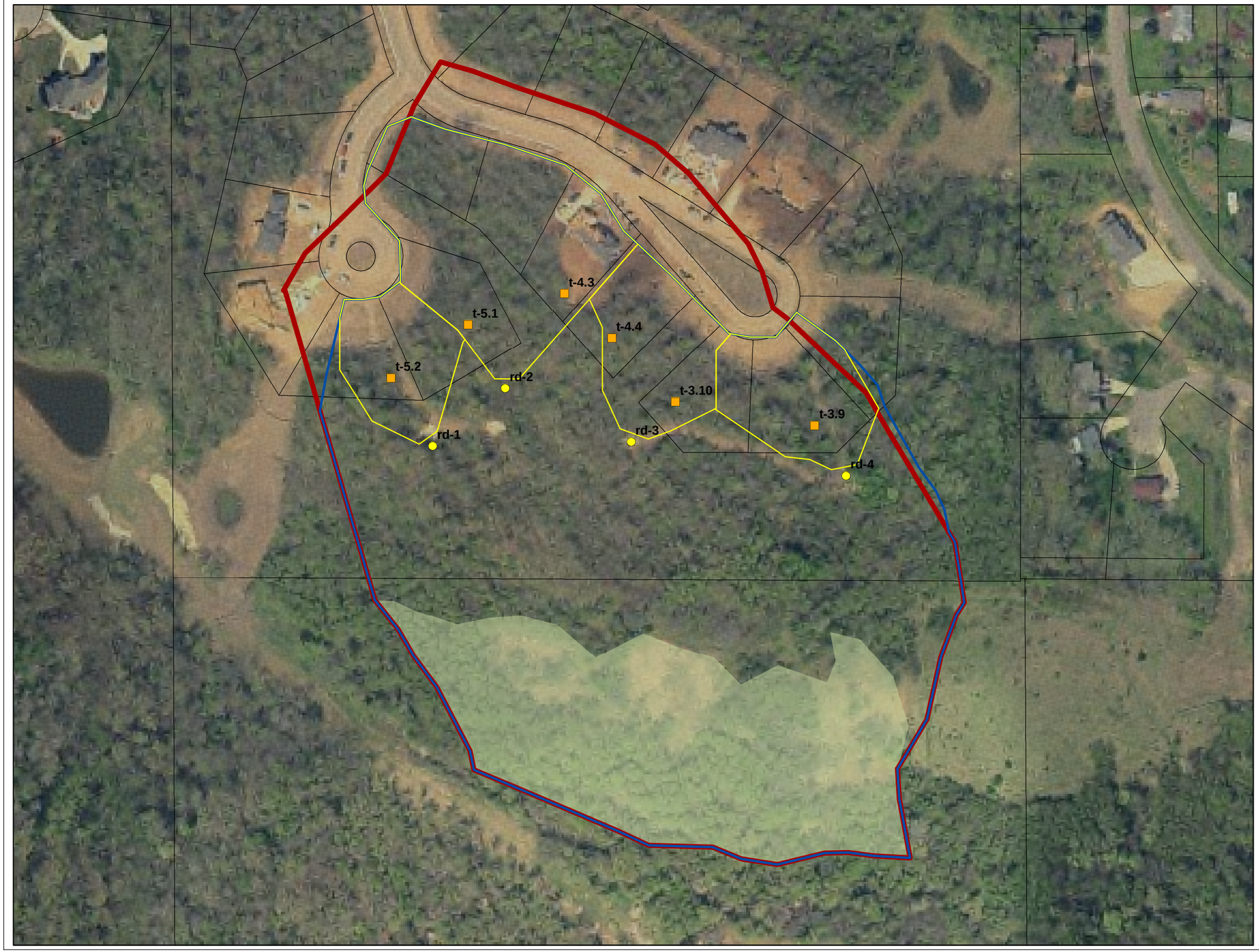


Figure C-1

City of Rochester

Watershed draining to the Mutchler Fen

Legend

Fen Management BMPs

- Rock Dams (rd-#)
- Infiltration Trench (t-block#.lot#)
- Watersheds to Rock Dams
- Post Development Watershed to Fen
- Baseline (2002) Watershed to Fen
- Mutchler Fen
- Parcel Data

100 50 0 100 200 Feet

N

Bonestroo

ROCHESTER MINNESOTA

Appendix D – Documentation for Additional BMPs

D. Documentation for Additional BMPs

D.1 INTRODUCTION

The value of non-structural BMPs with respect to the Nondegradation Review was evaluated. The intent of this evaluation is to provide guidance for quantifying the impact of application of these measures to credibly claim further reductions in total phosphorus, total suspended solids, and/or runoff volume for post-Baseline time periods. The non-structural BMPs selected for this evaluation include:

- Street Sweeping
- Open Space Preservation
- Erosion and Sediment Control
- Public Education and Participation
- Phosphorus Ban

Three principle factors need to be accounted for in determining, what, if any, quantifiable load reduction can be attributed to application of a particular non-structural BMP. They are:

1. **The parameter affected by the particular BMP.** Most non-structural BMPs affect the concentration of pollutants such as TP or TSS in the stormwater rather than the volume of stormwater runoff itself.
2. **Whether the City's application of that BMP changed or will change between the Baseline condition and either of the two later conditions (Present and 2020).** If the BMP was or will be applied more widely and/or more intensively, then an additional load reduction for one or more of the selected parameters could be justified.
3. **Whether a rational basis exists or can be developed to quantify the impact of the change in application of the BMP after the Baseline condition.**

Each BMP noted above was assessed for its application to Rochester's Nondegradation Review by researching stormwater literature to establish a technical basis for claiming additional load reduction through application of the BMP. Then, the City's history of applying the BMP is presented, focusing on any changes in the application of the BMP since the Baseline condition. Lastly, a recommendation is provided on whether a load reduction can be justified based on any change in BMP application since the Baseline condition, and if so, the parameters to which the load reduction would be applied and how the reduction could be quantified.

D.2 STREET SWEEPING

D.2.1 TECHNICAL BACKGROUND

A joint study was completed in June 2002 in Wisconsin to quantify the performance and watershed impact of high efficiency street sweeping (WisDOT, 2002). Statistical analysis of the data indicated that, at the 90% confidence interval, there was a significant reduction in total suspended solids (TSS) due to the sweeping program. Reductions in TSS concentration, not load, ranged from 1% to 280%. Due to financial constraints, modeling to predict TSS load reductions and associated reductions in phosphorus load was not performed. Yet results from one study in 1999 in Virginia indicated that high efficiency sweepers removed over 9 pounds of phosphorus from two passes on a 2.65 mile stretch of road (USEPA, 1999). Other studies show that high efficiency sweepers can reduce nutrient loads by 15% to 40% (The Terrene Institute, 1998).

The above mentioned studies did not provide sufficient data on impervious coverage relative to land use in the watershed in which sweeping was studied. Since it was impossible to derive a percent reduction in TSS from these studies to use in the Nondegradation Review, a simple P8 model was created to illustrate the percentage reductions of TSS and TP in stormwater runoff that can be expected, given varying sweeping frequencies. The results of this simple P8 model are shown in Table D.1. The significant reduction in both TP and TSS loads with several passes per week lends support to considering street sweeping as a BMP in the Nondegradation loading assessment.

Table D.1 - Simple P8 model example of a 100 ac watershed with 70% imperviousness

Sweeping Frequency (times/week)	TSS Load (lb/yr)	% reduction of TSS	TP Load (lb/yr)	% reduction of TP
0	44367	-	143	-
1	42658	3.9	140	2.1
2	41107	7.3	137	4.3
7	35042	21.0	126	12.1

D.2.2 HISTORICAL SUMMARY

The City of Rochester's street sweeping program is operational year-round with sweepings occurring anytime temperatures are above freezing. The annual sweeping schedule begins in the spring with a citywide sweep to remove sediment and litter that have accumulated over the winter. Sweeping continues throughout the summer, primarily to collect litter, but also to maintain known sediment accumulation points, such as certain industrial areas or topographically low areas. Due to the variety of tree species and density of trees, fall necessitates multiple sweepings to collect leaves.

Citywide street sweeping includes 408 street miles or 816 curb miles and is estimated to occur three times per year. Due to the intensity of traffic and concentrated pedestrian use, the central business district is considered a priority area and is swept nightly during the work week using two sweepers (not in tandem) and a flusher truck.

At the time of the loading assessment, the City owned five Pelican mechanical sweepers (effective at picking up large debris and coarse particles, such as litter and sand) and one Elgin vacuum sweeper (effective at removing fine particles, such as dust). Since then, the City has purchased an Elgin Eagle SC8000 sweeper, combining mechanical brooms with vacuum sweeping, to replace one of the Pelican

mechanical sweepers. The City employs the use of the Elgin sweeper as often as possible in the downtown area, because it is more effective at collecting the types of fines that are generated in this area. The City optimizes use of the sweeping equipment by almost always having one being maintained while the other five are operational. Proper, proactive maintenance will preserve the high efficiency performance of the unit and promote its useful life.

Additional sweeping efforts include "on-demand" sweeping in response to complaints, accidents, sweepings of all City-owned parking lots, contracting with a private vendor to sweep all City-owned parking garages/ramps, as well as sweepings during the grind/mill/overlay process of road rehabilitation.

Materials collected from street sweeping operations are taken to the City's 80-acre Material Processing Facility. Collections are stockpiled until a sufficient amount is ready for a screening process that separates debris and sand. The debris is then landfilled and the sand is stored for reuse at appropriate construction projects. In the fall, leaves are collected for composting and soil amending, with debris removal associated with each method of management.

A supplementary operation to street sweeping is catch basin cleaning. After every rainfall event of 1 inch or larger, maintenance staff inspect catch basins and remove any accumulated sediment, litter, grass clippings, leaves or other debris that have collected as a result of the storm. Removal is either completed manually, with the vacuum hose attachment of the vacuum sweeper, or with the VacAll truck, as conditions dictate. If standing water is observed, the storm drain and pipe are jetted to restore conveyance. In addition to the post-storm event inspections, maintenance staff complete inspections to review the structural integrity of the catch basins and determine if repair or replacement is needed. The maintenance crew performing these activities begins from the center of the business district and works outward, doing as much as time will permit.

Beginning in 2007, the City will utilize a newly developed database to more closely track and record the following information on an annual basis: number and quantity of street sweeping collection loads and number of curb miles swept.

With respect to the nondegradation period, the City of Rochester's street sweeping program has come a long way since 1988. The fleet has increased from two mechanical sweepers to the five mechanical and one vacuum sweeper that they have today. The handling of the sweeping collections has changed drastically from simply dumping the material at the end of dead end streets in 1988 to today's materials handling procedure described above. The frequency of city-wide sweeping has increased from only 1-2 times per year in 1988 to 3-4 times per year today, plus the five times per week Central Business District sweeping.

D.2.3 Application to Nondegradation

Street sweeping is a BMP that targets two of the three constituents of concern in the nondegradation analysis: sediment and phosphorus. There are several factors that suggest additional load reductions associated with street sweeping could, and should, be claimed for these parameters as part of the nondegradation analysis. These are:

1. Rochester has significantly increased the frequency and efficiency of its street sweeping, particularly in the highly impervious downtown area. The sweeping frequency in the downtown area has increased from 1-2 times per year in 1988 to 5 times per week currently. In addition, where less efficient

mechanical sweepers were used under the Baseline condition, a combination of mechanical and high efficiency vacuum sweepers is now used.

2. Runoff from the downtown area discharges directly to the South Fork of the Zumbro River untreated.

Assuming Rochester intends to continue the current street sweeping practices, reductions in TP and TSS loads should be applied to the Central Business District area for the Present and 2020 conditions. The reductions are being recommended for the Central Business District area only, since the remaining areas of the City are not swept frequently enough under the current practices (1-2 times/year in 1988 and 3-4 times/year in 2005) to arrive at a quantifiable reduction to TSS and TP loads.

Table D.2 shows the TSS and TP load reductions that can credibly be applied for the Present and 2020 condition to the Central Business District area, based on application of the street sweeping function in P8 at a frequency of seven times per week to a 70% impervious watershed, thought to be reflective of the Central Business District area.

Table D.2 - TSS and TP load reductions to be applied to Rochester's nondegradation loading assessment due to street sweeping practices in the Central Business District

Water Quality Parameter	Baseline Study Conditions	Present Study Conditions	2020 Study Conditions
Total Suspended Solids	0%	20%	20%
Total Phosphorus	0%	10%	10%

Upon delineation of the Central Business District within Rochester that is swept and confirmation of the frequency of sweeping, the values shown in Table D.2 required modification. The Central Business District is swept five times per week and is roughly covered 53% by impervious surfaces. A P8 model with these assumptions indicated that TP and TSS reductions of 8.8% and 16.2%, respectively, should be used in the loading assessment of the Central Business District only.

D.3 PRESERVATION OF OPEN SPACE

D.3.1 TECHNICAL BACKGROUND

One of the most effective ways to minimize pollutant export from land is to preserve that land as undisturbed open space with natural ground cover. This is especially true when the area converted to open space was previously a more intensive land use such as row crop agriculture.

For the purposes of this report, a simple modeling effort best illustrates the effects of using open space versus ponds as a BMP. A simple PondNet model is utilized to compare runoff from the following four land uses to that of open space: agricultural row crop, single-family residential, multi-family residential, and commercial/industrial.

Table D.3 shows the difference in phosphorus loads per acre between open space and the other non-urban and urban land uses, assuming that the open space has less than 6% impervious coverage (to account for parking, trails, etc.). Export rates for developed urban uses are presented for two different scenarios. The first assumes that no treatment of raw runoff is provided, while the second assumes treatment of runoff by detention basins to remove 60 percent of the incoming phosphorus load.

Table D.3 - Unit Export Rates and Unit Runoff for different land uses and types of BMP used

Land Use	Total Phosphorus Unit Export Rate (lbs/ac/yr)		Total Suspended Sediment Unit Export Rate (lbs/ac/yr)		Water Volume Unit Runoff[2] (ft/yr)
	Without ponding	With ponding[1]	Without ponding	With ponding[1]	
Open Space[3]	0.11	N/A	124	N/A	0.21
Agriculture Row Crop	0.54	N/A	164	N/A	0.37
Low Density Residential	0.69	0.27	213	15	0.56
High Density Residential	1.38	0.55	430	30	1.13
Commercial/Industrial	1.15	0.46	460	32	1.21

[1] Assumes treatment with properly designed wet detention basin to achieve at least 60 percent removal of total phosphorus

[2] Assumes 31.8 inches annual precipitation, the City of Rochester's average annual precipitation for the time period 1975-2005.

[3] Assumes open space has 7-8 percent impervious area for access trails, etc.

Table D.3 illustrates several important points. First, by converting agricultural row crop to open space with native ground cover, average annual runoff volume is reduced by 50%. Significant reductions in TP loads (76%) and TSS loads (33%) are also achieved. Second, by creating open space instead of converting to an urban land use, considerable benefits are derived in the control of both runoff volume and total phosphorus, even with traditional treatment. For example, an acre of open space generates between 66% and 85% less average annual runoff volume than developed urban uses, whether ponding is used or not (since conventionally designed wet detention basins have little volume control benefit). Further, the phosphorus export from an acre of developed land will be 5.5-11 times higher (0.13 to 1.43 lb/ac more) than from the open space, assuming no treatment is provided for runoff from the developed land uses. Even with treatment, however, unit loads from developed land uses would still be 2-3.5 times higher (an additional 0.13 to 0.48 lb/ac) than from the open space.

Specifying the most cost-effective combination of natural open space conversion and other BMPs to meet a particular downstream water quality goal would require a detailed study. However, the better the water quality the City of Rochester desires for particular water resources, the more valuable conversion of land for natural open space is likely to become in reducing phosphorus loads to a receiving water.

D.3.2 Historical Summary

There are many public open space areas throughout the City of Rochester that will remain undeveloped. In fact, Rochester has permanently retained nearly a quarter (23.5%) of City lands as public open space. These lands can be categorized as follows with examples of each shown in parentheses.

- Recreational lands (ball fields and golf courses)
- Natural areas (Quarry Hill and Essex Parks)
- Water parks (Silver Lake, Cascade Lake, and Foster Arend)
- Dog parks
- Stormwater parcels (ponds and drainage ways and remainder land within a purchased parcel)
- Flood plain and reservoir land preserved as part of the flood control project
- Agricultural land obtained for biosolids application
- Wetlands

- Undevelopable outlots

There are other public open space lands within the City such as recreational lands owned by the school district, DNR wildlife management areas and geese food plots, and some County land.

D.3.3 APPLICATION TO NONDEGRADATION

The use of open space as a non-structural BMP in lieu of urbanized development offers the potential to reduce loads for at least 2 of three water quality parameters of concern in the nondegradation review. Of particular potential benefit is its impact on volume reduction, as runoff volume is expected to be the most difficult of the three parameters to show as meeting the Baseline condition. The reductions will be applied in the loading assessment, not through load reduction percentages for TP and TSS as was done for Central Business District street sweeping, but rather by assigning the appropriate loading parameters to the open space land use. Table D.4 shows loading parameters that were used to generate the values for the land use types shown in Table D.3 and will be used for Rochester's Loading Assessment in the Nondegradation Review.

Table D.4 - Example loading parameters to be used in Rochester's PondNet model loading assessment in order to account for the use of open space non-structural BMPs

Land Use	Impervious Coverage (%)	Runoff Coeffi-cient	TP Runoff Conc. (ppb)	Unit P Loading Rate (lb/ac/yr)	TSS Runoff Conc. (ppb)	Unit TSS Loading Rate (lb/ac/yr)
Open Space	n/a*	0.08	200	0.11	216	124
Low Density Residential	30	0.21	450	0.69	140	213
High Density Residential	65	0.43	450	1.38	140	430
Commercial	70	0.46	350	1.15	140	460
Row Crop Agriculture	n/a*	0.14	540	0.54	163	164

** Non-urban land uses with "n/a" for impervious coverage signify the absence of the following relationship between impervious coverage and runoff coefficient: Rv = [0.607*Impervious fraction] + 0.033 (Beduhn, 1994)*

D.4 EROSION AND SEDIMENT CONTROL

D.4.1 APPLICATION TO NONDEGRADATION

Erosion and sediment control BMPs are important aspects of the City's stormwater management program. Among other benefits, it is important in preserving the treatment capacity of the structural stormwater BMPs that are anticipated to account for most of the treatment benefit quantified through the loading assessment. However, we do not believe it will be appropriate to make adjustments in the loading assessment to account for the City's erosion and sediment control efforts. The main reason for this is that the nondegradation effort is intended to focus on differences in loadings as a result of changes in land use from one static condition to another. While erosion and sediment control plays an important stormwater protection role during this transition, it is not part of the post-development static condition. Further, the nondegradation timeframe is long-term, representing several decades of development. Erosion and sediment control efforts are applied to short-term construction activities.

D.5 PUBLIC EDUCATION AND PARTICIPATION

D.5.1 TECHNICAL BACKGROUND

NPDES Phase II requirements and the MPCA (Minnesota Pollution Control Agency) make public education and participation critical aspects of stormwater management. However, "…evaluating the performance of education and outreach programs is difficult. There is little quantitative data in the literature that measures the effectiveness of these programs in improving water quality. Information exists on how education programs have been implemented and what their success rate has been as far as changing the (self-reported) habits of a select group of people, but data linking implementation with improvements in water quality are scarce" (USEPA, 1997).

It can be difficult to conduct sound evaluations of public education and participation BMPs due to the following reasons (Taylor and Wong, 2002):

- Unfounded assumptions (e.g., increased knowledge directly leads to improved behavior).
- Degree of behavioral change being context-dependent (e.g., desirable behaviors may occur due to instilled self-interest and/or ease of compliance due to supporting infrastructure).
- Lake of rigor and objectivity in the evaluation and reporting.
- Over-reliance on self-reported behavioral-change, without validation of actual behavior change.

With respect to the last reason listed above, self-reported data can provide varying results from being closely aligned to actual data to being highly misleading. Several littering studies show that only 33-50% of people who were witnessed littering would actually self-report that they had done so. Such information could be used to adjust self-reported behavior represent actual conditions (Taylor and Wong, 2002).

Combining awareness and participatory programming for a period of time greater than 6-12 months can result in the number of people undertaking a desirable behavior to increase by 20 – 29% (according to self-reported data) (Taylor and Wong, 2002).

Public education efforts are enhanced when social and physical infrastructure support objectives of public education campaigns. For instance, raising awareness of litter on surface water quality and encouraging behavior change to not litter and pick-up litter is enhanced when a citizen feels they have time to clean up after themselves and trash receptacles are present (Taylor and Wong, 2002).

There is evidence that signage can produce localized results. For example, an initial reduction of 14% in the proportion of waste material littered is possible through the introduction of signage. However, signage is likely to have short-term effectiveness unless supported by other initiatives (additional infrastructure, behavior change through public involvement programs, etc.) (Taylor and Wong, 2002).

Media campaigns appear to be more cost-effective in raising awareness in the broader community, while intensive training (e.g., the US Master Gardener approach) is more effective at changing behavior, albeit in a small segment of the community. It is suggested both are needed for comprehensive citywide stormwater quality management, as a broad heightening of awareness is likely to produce long term benefits (e.g. increased political support and funding for strict planning and regulatory controls), while behavioral change by sectors of the community is likely to produce more immediate, localized benefits to stormwater quality and waterway health (Taylor and Wong, 2002).

A study examining education and participation strategies used for urban nutrient management programs (Schueler, 2000) found that:

- the community generally preferred television and major newspapers as the most effective way to attract their attention, while brochures, billboards and meetings were least preferred;
- brochures and training workshops were the most commonly used strategies by stormwater managers involved with 50 U.S. urban nutrient management programs; and
- community newsletters, local newspapers, home and phone consultations, training workshops, the provision of information on property purchase, and visits to groups were seen by the same stormwater managers as being the most effective.

Another study utilized intensive education on one suburban watershed (the treatment watershed) and compared its stormwater runoff water quality to another suburban watershed without any education program (the control watershed). The education workshops in the treatment watershed focused on redirecting runoff from impervious areas to pervious surfaces, applying fertilizer based on soil test results, leaving grass clippings on the lawn to reduce nitrogen input, and properly disposing pet waste to reduce sources of bacteria. A few yard structural BMPs were put in place following the workshops, such as two rain barrels and rain garden. Intensive education efforts appeared to produce a relatively small change in measured behavior in the first 13 months following treatment. However, bacteria counts in the treatment watershed decreased. Although there was a significant reduction in NO3-N concentrations, TN concentrations did not significantly change due to treatment (Dietz et al., 2002).

A significant finding in the literature is that "the effectiveness of BMPs in other categories is often tied to the effectiveness of the public education program" (Lehner et al., 1999).

D.5.2 HISTORICAL SUMMARY

The City of Rochester, on its own and with others interested in promoting awareness of stormwater management, offers public education campaigns on a variety of topics. The City of Rochester's overarching public education program goals are to increase awareness about the impacts of stormwater discharge on Rochester's receiving waters and identify steps that individuals can take to reduce pollutants in stormwater.

The municipal separate storm sewer system permit holders within the Rochester Urbanizing Area have formed a collaborative educational work group with the following goals: share ideas specific to the Rochester Urbanizing Area, avoid duplication of services, present consistent messages applicable to the Rochester Urbanizing Area and the specified audiences, expand the distribution of information to each partner's audiences, and evaluate potential cost-sharing opportunities for the development and/or distribution of materials.

The City's public education topics include, but are not limited to: general stormwater management issues, groundwater and surface water interaction, illicit discharges, construction site stormwater runoff control, and post-construction stormwater management. The City distributes educational materials to the public via a variety of means, including: the City's storm water website (www.rochesterstormwater.com), kiosks, brochures, pamphlets, flyers, bill stuffers, direct mailings, posters, billboards, press releases, print articles, television or radio reports, fact sheets, handouts, curricula, and presentations. All City employees have

been educated about the conditions of the storm water permit and steps they can take at work and at home to prevent water pollution. Additionally, operations-specific employee training is provided to employees with Good Housekeeping responsibilities.

Two-way education and communication is facilitated by the City of Rochester through its public participation activities. Residents are encouraged to report stormwater management-related incidents and obtain program information or assistance by using the Rochester Public Works Department Storm Water Customer Service Line (507/328-2440). Input on the City's Stormwater Pollution Prevention Program from the public is solicited by the City through the annual public information meeting at which the annual report is presented to the City Council. Also, the development review process affords the public multiple opportunities to provide oral or written input on stormwater issues associated with development to the Planning and Zoning Commission and/or the City Council, which are then referred to the appropriate staff.

Citizen participation in ongoing stormwater programs administered by the City and other agencies is promoted via the website. The following is a listing of some programs:

- MPCA's citizen lake and stream monitoring programs
- MnDOT and Olmsted County Adopt-a-Highway programs
- DNR's Adopt-a-River program
- Rochester's Adopt-a-Park program
- Distribution of litter bags by RNeighbors volunteers at the RochesterFest parade
- Posting displays and/or distributing handouts at Olmsted County Fair booths hosted by Rochester Public Utilities staff, Master Gardener volunteers, the Mayor, and/or others
- Quarry Hill Nature Center's Children's Water Festival and the Earth Day/Spring Thing event
- Rochester School District's Summer of Service youth service program
- Rochester's Arbor Day event
- RNeighborWoods and Citizen Forester program
- Community Work Service's litter clean-up crews

D.5.3 Application to Nondegradation

Many of the studies outlined in the above literature review fall short of providing the type of data necessary to account for public education efforts in a stormwater loading assessment. The one study linking intensive public education to water quality monitoring results had statistically insignificant results for total phosphorus or water volume and did not analyze total suspended solids. More research on the influence of public education on stormwater quality is needed to be able to apply technically-credible load reductions in a PondNet model. Therefore, we propose not to make any adjustments to the nondegradation loading assessment based on public education activities because of the lack of a credible underlying technical basis for claiming/quantifying benefit for any of the three load parameters.

Even though public education and outreach will not be quantified in the loading assessment, it should be remembered that a strong public education and outreach program increases awareness of stormwater pollution prevention and has the potential to influence the effectiveness of permanent, structural BMPs and reduce phosphorus and sediment loading in stormwater runoff.

D.6 PHOSPHORUS BAN

D.6.1 TECHNICAL BACKGROUND

A paired-watershed study in Maple Grove and Plymouth in 2001-2003 demonstrated a potential to reduce phosphorus export from residential areas by restricting the use of phosphorus-containing fertilizer (Three Rivers Park District, 2005). This study along with several analyses of available phosphorus in Twin Cities Metropolitan Area lawns (Rosen et al., 1998; Rehm and Schmitt, 1993; Schultz, 1995; Grava and Fenster, 1979; Barten, 1994; Shover, 1997; and Swenson, 1997), convinced the Minnesota Legislature to consider banning the use of phosphorus-containing fertilizer.

In order to determine appropriate phosphorus load reductions for each of the three conditions (Baseline, Present, and 2020) of the nondegradation review, conditions and results of the paired-watershed study will be compared against Rochester's practices.

The phosphorus loading in runoff from sewersheds in Plymouth, where 71% of the residents did not apply phosphorus-containing fertilizer, was 12-16% less than from sewersheds in Maple Grove, where only 26% of the residents applied phosphorus-free fertilizer. This reduction potential is limited to precipitation events greater than 2 cm (approximately ¾"), the threshold at which runoff from pervious surfaces typically begins. Rainfall events less than 2 cm result in runoff from impervious surfaces only, where no fertilizer (whether containing phosphorus or not) is applied, and therefore, no reduction in phosphorus in runoff can be realized for these smaller events. Rain events greater than 2 cm during the 2001-2003 time period accounted for 14% of annual rain events and 80% of annual runoff volume (Three Rivers Park District, 2005). Thus, the annual reduction in phosphorus export is 80% of 12-16%, or 9.6-12.8%.

The City of Plymouth instituted a phosphorus-free fertilizer ordinance in 1995, six years prior to the paired-watershed study. The City informed the residents of the ordinance through a public education campaign where short, catchy reminders were place in at least four city newsletters per year. For a few years following the establishment of the ordinance, the City would feature water quality solely in one City newsletter offering more in depth information about the impacts of phosphorus-containing fertilizer on valued water resources.

D.6.2 HISTORICAL SUMMARY

In 2002, Minnesota Legislature passed a law that restricted the use of lawn fertilizers to only those that contain 0% phosphorus in the Twin Cities Metro Area and 3% phosphorus throughout Greater Minnesota, effective January 2004 (ME Partnership, 2006). In 2004, Rochester was required to follow the latter restriction. The metro area law requiring phosphorus-free lawn fertilizer was expanded to be effective statewide in January 2005 (MDA, 2006). Since this law's premise is that lawns are provided enough nutrients from accumulated phosphorus in the lawn from years of fertilizing, phosphorus fertilizer may still be purchased upon proof from a soil test that supplemental phosphorus is necessary. In contrast to the metro area's rules, Greater Minnesota residents were permitted to use any leftover fertilizer containing phosphorus in 2005.

D.6.3 APPLICATION TO NONDEGRADATION

Restrictions on phosphorus-containing fertilizer use began in Rochester in 2004, and it is likely that leftover phosphorus-containing fertilizer was still being applied in 2005. Therefore, without the five year time period

for the effects of the ban to take place, a reduction in phosphorus for the Present condition could not be modeled in the loading assessment. Rochester, along with most cities, had little to no emphasis on restricting phosphorus-containing fertilizer in 1988. It is assumed that residents will be able to change behavior by 2020, allowing for the maximum reduction in phosphorus (12.8%, rounded to 13%).

Thus, we propose to apply the following phosphorus load reductions to all residential land use types in the loading assessment for the evaluation years listed:

- Baseline and Present: 0%
- 2020: 13%

In 2020, the percentage reduction will result in modified phosphorus runoff concentrations of 305 ppb for Rural Residential and 392 ppb for Low, Medium, and High Density Residential in place of 350 and 450 ppb, respectively.

D.7 SUMMARY

In summary, the non-structural BMPs were evaluated to determine whether they could be defensibly quantified in the loading assessment to claim further reductions in total phosphorus, total suspended solids, and/or runoff volume for post-Baseline time periods. The results were as follows:

- Street Sweeping – yes, but only for the Central Business District,
- Open Space Preservation – yes, but it is already inherent in the loading rates assumed only as a means to select the loading parameters,
- Erosion and Sediment Control – no,
- Public Education and Participation – no, and
- Phosphorus Ban – yes, but only for residential land use areas for the 2020 condition.

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Appendix E – Value of Flood Control Reservoirs in the Nondegradation Review

E. Value of Flood Control Reservoirs

In discussions with City staff leading up to the Nondegradation Review, it was suggested that the Flood Control Reservoirs (FCRs) constructed in the late 1980's and 1990's should be assessed to determine their treatment value. Information that was used to determine the magnitude of this benefit is presented in this Appendix.

Seven reservoirs were constructed as part of the South Zumbro Watershed Flood Control Project to provide flood protection to the City of Rochester. These reservoirs were built from 1988 to 1996 at a cost of more than $12.1 million, some of which was paid for by the City of Rochester. One of those reservoirs, BR-1, was not included in the Nondegradation Review since it is not owned and operated by the City of Rochester. The FCRs' numerical designation and the sub-watersheds they serve are as follows:

- WR-4 (Gamehaven) and WR-6A in the Willow Creek Watershed
- SR-2 in the Silver Creek Watershed
- KR-6, KR-3, and KR-7 in the Cascade Creek Watershed

There are several points worth noting with regard to calculating a water quality benefit of the FCRs to be used in the City of Rochester's nondegradation loading assessment. They are as follows:

1. The flood control reservoirs have a significant capacity for retaining water below their low-flow orifice. Thus, they act as large wet detention basins for the land areas that drain to them.
2. The ratio between the area of the watershed served and the pool area at the low-flow orifice elevation is similar to typical detention basins designed to serve urban watersheds. This means a relatively high performance for removal of total phosphorus and total suspended solids can be expected.
3. Construction of all reservoirs was completed during or after the nondegradation Baseline year of 1988. This means that timing of installation of the reservoirs is such that they should not be considered as part of the Baseline condition against which nondegradation is to be measured.
4. The reservoirs were constructed as part of a City initiative and benefit areas within the permitted MS4 area, including the same receiving waters that will be the focus of the loading assessment.
5. The reservoirs serve watersheds totaling over 28,000 acres in area and that, while not the subject of extensive urban development, are heavily disturbed by row crop agriculture. Phosphorus and total suspended solids loads for row crop agriculture are comparable to those for single family residential development. Thus, the load reductions as a result of the influence of the reservoirs are likely to be significant compared to the increases in loads caused by urban developments within the nondegradation Project Area.
6. At least one of the reservoirs, KR-6 in the Cascade Creek watershed, exhibits high infiltration rates due to the presence of the St. Peter Sandstone bedrock formation at the bottom of the reservoir. Runoff volume will be the most difficult of the three nondegradation parameters to meet, since conventional BMPs used by Rochester and most cities since 1988 have not been designed for runoff volume reduction. This reservoir, KR-6, can therefore compensate for some increases in runoff volume caused by urban development elsewhere in the Cascade Creek watershed of this reservoir.
7. The reservoirs have likely had a positive effect on the stabilization of stream channels below them by reducing peak flows.

Table E.1 provides detailed data on characteristics of the six FCRs in the South Zumbro Watershed modeled as part of the nondegradation loading assessment.

Table E.1 - South Zumbro Watershed Flood Control Reservoirs Summary Data

Description	WR-4	WR-6A	SR-2	KR-6	KR-3	KR-7
Controlled Watershed (square miles)	4.26	9.4	9.9	1.6	1.6	3.8
Dam Height Above Ground (feet)	50	54	50	28	28	29
Top of Dam Elevation (feet)	1140	1145	1190	1069.5	1120	1102.5
Length of Dam (feet)	925	1530	990	638	1327	1968
Normal Pool Depth (feet)	21	15	11	6	6	5
Normal Pool Area (acres)	40	72	98	28.8	24.9	48.2
Normal Pool Volume (ac-ft./ with sediment)	331	621	721	112	112	237
Flood Pool Depth (feet above normal pool)	12.8	16.4	17	8.7	8.1	9.8
Flood Pool Area (acres)	125	154	283	55.5	53.7	121
Flood Pool Volume (ac-ft./ with sediment)	993	1798	3276	372	314	802
Depth of Foundation Cutoff (feet)	20 (foundation)	28 (slurry trench)	5 (core trench)	6 (foundation)	25 (slurry trench)	37 (slurry trench)
Total Volume of Earthfill (cu.yd.)	306,585	428,639	198,852	69,000	153,000	182,000
Bedrock Grouting (cu.yd.)	1,035	1,124	57	0	0	0
Sand/Gravel Relief Drains (cubic yards)	25,437	20,115	8,614	4,500	12,000	11,750
Structural Concrete (cubic yards)	125	190	122	77	77	77
Principal Spillway Pipe Dia. (inches)	30	42	30	30	30	30
Length of Spillway Pipe (feet)	266	214	251	152	156	165
Construction Cost	$2,086,523	$2,237,604	$961,185	$507,184	$1,324,665	$1,418,960
Primary Contractor	Minnkota Excavating Inc.	Mathiowetz Construction Company	Road Constructors Inc.	Elcor Construction Company	Park Construction Company	Ames Construction Company
Construction Period	6/86 to 11/88	5/88 to 8/89	10/90 to 7/92	9/93 to 9/94	6/94 to 7/95	5/95 to 7/96

Appendix F – Minnesota Department of Health Guidance on Stormwater Infiltration in Wellhead Protection Areas

Evaluating Proposed Storm Water Infiltration Projects in Vulnerable Wellhead Protection Areas
December, 2006

Introduction

Infiltration is widely promoted because it is a practice with demonstrated long-term value in managing storm water. As a management technique, properly designed and executed infiltration techniques convey several benefits, including the following (as identified in the Minnesota Storm water Manual): 1) reducing the volume of storm water runoff; 2) controlling and improving water quality; 3) recharging groundwater; 4) mitigating thermal affects on cold-water fisheries; and 5) attenuating peak flows. Infiltration is clearly a versatile and effective technique for addressing a wide range of storm water issues. Accordingly, MDH encourages its use in most settings statewide.

Infiltration practices redirect storm water into the subsurface, where it becomes groundwater. As most people in Minnesota use groundwater as a source of drinking water, the Minnesota Department of Health (MDH) would like to see care exercised in planning projects involving storm water infiltration, especially in vulnerable wellhead protection areas.

Storm water runoff often carries with it contaminants that can lead to adverse health effects. The types of contaminants vary widely depending on land use; common contaminants include nitrates, pathogens, metals, chloride, and hydrocarbons. When present at high concentrations, these contaminants can pollute groundwater supplies if infiltrated into the ground. The effects of such contamination can be devastating. An example involving not urban storm water but runoff from agricultural fields in Ontario illustrates the danger posed by pathogens. Infiltration of the runoff led directly to bacteriological contamination of a well and the associated public water supply system. The resulting disease outbreak took several lives and sickened hundreds of others. This example not only demonstrates the potential for rapid connection between surface water and groundwater, but it clearly indicates that groundwater quality can be jeopardized by infiltration of storm water from the ground surface.

Most of the public water supply systems that distribute drinking water in Minnesota rely on groundwater as their source. Drinking water protection activities are the responsibility in Minnesota of the MDH. As part of these efforts, MDH regulates wellhead protection planning activities carried out by public water suppliers in the state. One of the goals of wellhead protection planning is to determine the recharge area (i.e., the wellhead protection area) for a well and to manage that area in a manner consistent with safeguarding the drinking water supply.

Storm water management occurs in urban or suburban areas and in developing communities where impervious surfaces begin to replace natural ground cover. This document describes suggested considerations for evaluating projects that use infiltration

to manage storm water, with emphasis on how such projects may affect groundwater used for drinking water purposes in wellhead protection areas. A flowchart (Appendix A) is attached to help understand the process.

General Requirements

Federal, regional and state authorities regulate various aspects of the manner in which storm water is handled, managed, and controlled in Minnesota. For example, the Minnesota Pollution Control Agency (MPCA) administers the Storm Water program, which regulates much of the management of storm water through the use of permits. The MPCA, regional and local authorities are typically the governmental entities implementing and enforcing storm water requirements. This guidance applies regardless of whether the storm water management at the site is regulated or not.

The Minnesota Department of Health has no regulatory authority over most routine handling of storm water, but does administer the Wellhead Protection Program and other drinking water protection programs. Wellhead protection planning is largely a local activity in Minnesota. Individual public water supply systems decide how to manage land use within wellhead protection areas. Certain land use activities may adversely affect ground water supplies. Therefore wellhead protection strategies are balanced with aquifer vulnerability. As wellhead protection planning and storm water management both involve a substantial amount of local government involvement and leadership, good opportunities exist for adopting a consistent approach in the application of each.

Assembling Existing Information

This document is intended for use as guidance for local authorities in evaluating storm water infiltration projects. Prior to doing so, existing information must be gathered, as described in this section.

- *Is your proposed project in an approved wellhead protection area?* Information in a wellhead plan may help to evaluate proposed infiltration projects. Copies of the report are usually kept with the wellhead protection manager for the public water supplier. While municipalities are typically the largest groundwater users for public consumption, other entities that may have wellhead plans are schools, mobile home parks, and large businesses or employers. Step 1, below, describes how to identify wellhead activities in your area of interest.
- *What aquifer is used by drinking water supply wells in the area of the proposed infiltration?* It is important to know the aquifer used by area wells because in some parts of the state, many potential aquifers are available and depending on local geology, each aquifer may have a different sensitivity to activities at the ground surface.
- *Where is the aquifer(s)vulnerable to contamination from activities at the land surface?* Vulnerability means the degree to which the aquifer is likely to be affected by activities at the ground surface. A wellhead protection plan distinguishes between zones within the wellhead protection area that are

vulnerable from those that are not. Understanding this characteristic helps in evaluating the risk posed by activities like storm water management.

- *What land uses exist or are proposed for the area generating storm water?* Local authorities are the best source of information on local land use. Land uses vary in their potential to generate contaminants in storm water runoff. For example, potential contaminants from industrial or commercial areas are far different from those that may be generated from park or residential areas. The Minnesota Stormwater Manual (links in Appendix B) describes certain land uses that it terms "potential stormwater hotspots (PSH)" that may be incompatible with infiltration in wellhead protection areas. Land use is very hard to characterize broadly. Accordingly, site-specific considerations should be made wherever possible. Consult the Minnesota Stormwater Manual for information on land uses and associated storm water problems.
- *What are the contaminants of concern in the storm water and can contaminants be managed?* Do the storm water management protocols identify any type of pre-treatment that may help to mitigate contaminants in the runoff and are they appropriate for the types of contaminants that are likely to be present in the storm water?

Each of these items is considered as part of the evaluation process that MDH proposes for considering storm water infiltration projects in vulnerable wellhead protection areas. The process is described below and is summarized in the flowchart attached as Appendix A.

Process for Evaluating Storm Water Infiltration Projects

Step 1: **Determine if any part of the proposed infiltration site is within a vulnerable wellhead protection area (WHPA) or drinking water supply management area (DWSMA) as defined by Minnesota Rules (4720.5100-5590).** This information is available from the Wellhead Protection Manager at the public water supplier or from MDH staff (651-201-4700). Also, the wellhead protection plan likely contains a section describing the vulnerability assessment, which describes how the vulnerability is determined and how it may vary throughout the DWSMA.

The term 'infiltration site" refers to any structure or device designed to transfer surface waters to the subsurface. In practice, these facilities range in size from rain gardens designed to handle runoff from residential rooftops to basins collecting runoff from large commercial areas. The scale of the infiltration project, in terms of the volume of storm water handled, clearly must be considered, along with land use, as part of this review process. MDH generally encourages multiple small-scale infiltration projects distributed over a large site in lieu of one large structure to handle storm water from a site.

> **If yes, proceed to Step 2**. Yes means that the infiltration site is in close proximity to wells used to supply a public water supply system. The wellhead report may indicate the travel time in years between the proposed site and the wells. A vulnerable determination (very high, high, or moderate vulnerability) means the

aquifer will likely be affected by activities at the ground surface. Hence, the proposed infiltration needs to be considered in more detail.

If no, it is unlikely that the proposed storm water management project will affect drinking water supplies for a public water supply system (with a defined wellhead area), but the project still must comply with MPCA and local requirements for storm water handling.

Step 2: **Does the aquifer receiving the water from the infiltration basin exhibit fracture or solution-enhanced groundwater flow conditions (secondary porosity features)?** This means groundwater flow through rocks or other geologic materials exhibiting porosity is dominated by fractures or dissolution features (examples include the Prairie du Chien Dolomite and the Galena Limestone). Aquifers characterized by secondary porosity can display extremely rapid groundwater travel times that can put a well at risk in a matter of hours and can have complicated and tortuous flowpaths that are difficult to predict without special testing. Infiltration of stormwater within WHPAs is not recommended in such settings, especially if karst features exist. Infiltration might be acceptable if the karst aquifer is covered by 100 feet or more of other materials. The Minnesota Stormwater Manual identifies karst settings as especially problematic in managing storm water. Appendix B contains web links to the complete stormwater manual, which should be consulted for more background on managing storm water in karst areas, as well as maps showing the location of Minnesota's karst areas.

If no, proceed to Step 3.

If yes, infiltration may not be appropriate for this setting. Consider other storm water handling procedures such as storm water retention and conveyance outside of the WHPA or moving the infiltration area to a non-vulnerable part of the DWSMA. Additional handling alternatives are presented in the Minnesota Stormwater Manual (see reference in Appendix B).

Step 3: **Is the proposed infiltration site within the 1-year time-of-travel (emergency response zone) as designated by MDH?** A 1-year travel time is significant for several reasons. Most pathogens are not viable in the groundwater after 365 days. So a 1-year travel time represents a margin of safety that will allow some contaminants to attenuate or, additionally, sufficient time for local authorities to react.

If no, proceed to Step 4.

If yes, infiltration is not appropriate in this setting as insufficient time is available after infiltration to cause pathogens to die off or for local authorities to react to a spill. Extenuating circumstances here might be the presence of a sufficiently thick unsaturated zone between the water table and the base of the infiltration site that pathogen attenuation would take place.

Step 4: **What current or proposed land uses drain into the infiltration site?**

Classify the predominant land use upgradient of the infiltration site into one of the following categories:

1. Commercial and industrial;
2. Transportation corridors;
3. Forest, parkland, open space;
4. Low density residential;
5. High density residential; and
6. Golf course, active agricultural (i.e., cropland, feedlots).

Storm water infiltration in commercial and industrial areas, as well as in transportation corridors is only appropriate if the collection and infiltration system is designed to allow spill containment. MPCA permitting requirements currently prohibit infiltration from industrial areas containing exposed potential contaminant sources or from vehicle fueling or maintenance areas. Categories 3 through 6 represent land uses from which infiltrated runoff is not as likely to contain contaminants that may adversely affect human health if introduced into a drinking water supply, although this may depend on 1) the degree to which land management BMPs have been adopted, and 2) storm water pretreatment measures. The use of storm water infiltration devices may be acceptable in areas where they would otherwise be inappropriate if flows from, say, rooftop drainage could be collected for infiltration separate from runoff from industrial areas.

The land use categories presented here are quite broad and there will be differences in the kinds of contaminants that could be generated in runoff from each. The Minnesota Stormwater Manual contains a lengthy discussion (chapter 13) about potential stormwater hotspots (PSHs), which are land uses that have the potential to affect the water quality of storm water. The Minnesota Stormwater Manual describes conditions under which infiltration of runoff from land uses containing PSHs as a practice is not appropriate. Users of this guidance should be familiar with the PSHs identified in the Minnesota Stormwater Manual as a means of providing context for evaluating general land uses. While the manual identifies many PSHs, the list is not exhaustive, and each land use should be considered on its own merits.

Step 5: (This step does not apply to some land uses – see flow chart): **Are emergency procedures for containment of spills established and acceptable?** The primary concern here relates to transportation corridors. Fuels, chemicals, and other potentially hazardous materials all are moved on roadways and railways. Accidents that happen in unpredictable locations have the potential to affect groundwater. While it may not be practical to design protections against the eventuality of all possible such accidents, local and regional authorities should have a means of responding should a spill occur.

> **If no**, infiltration is not appropriate in this setting.
>
> **If yes**, infiltration may be acceptable but only if contingency responses for spill containment are included in the site planning process.

Step 6: **Are site planning, BMPs, pre-treatment, or secondary containment measures acceptable to meet federal drinking water standards?** Regardless of the approach used, the goal should be that the water entering the infiltration basin must meet federal drinking water quality standards. Such standards may be more stringent than is required by MPCA for routine considerations of storm water management.

> **If no**, infiltration is not appropriate in this setting.
>
> **If yes**, planned infiltration appropriate unless site conditions differ in a manner likely to affect storm water quality adversely thereby not meeting drinking water standards.

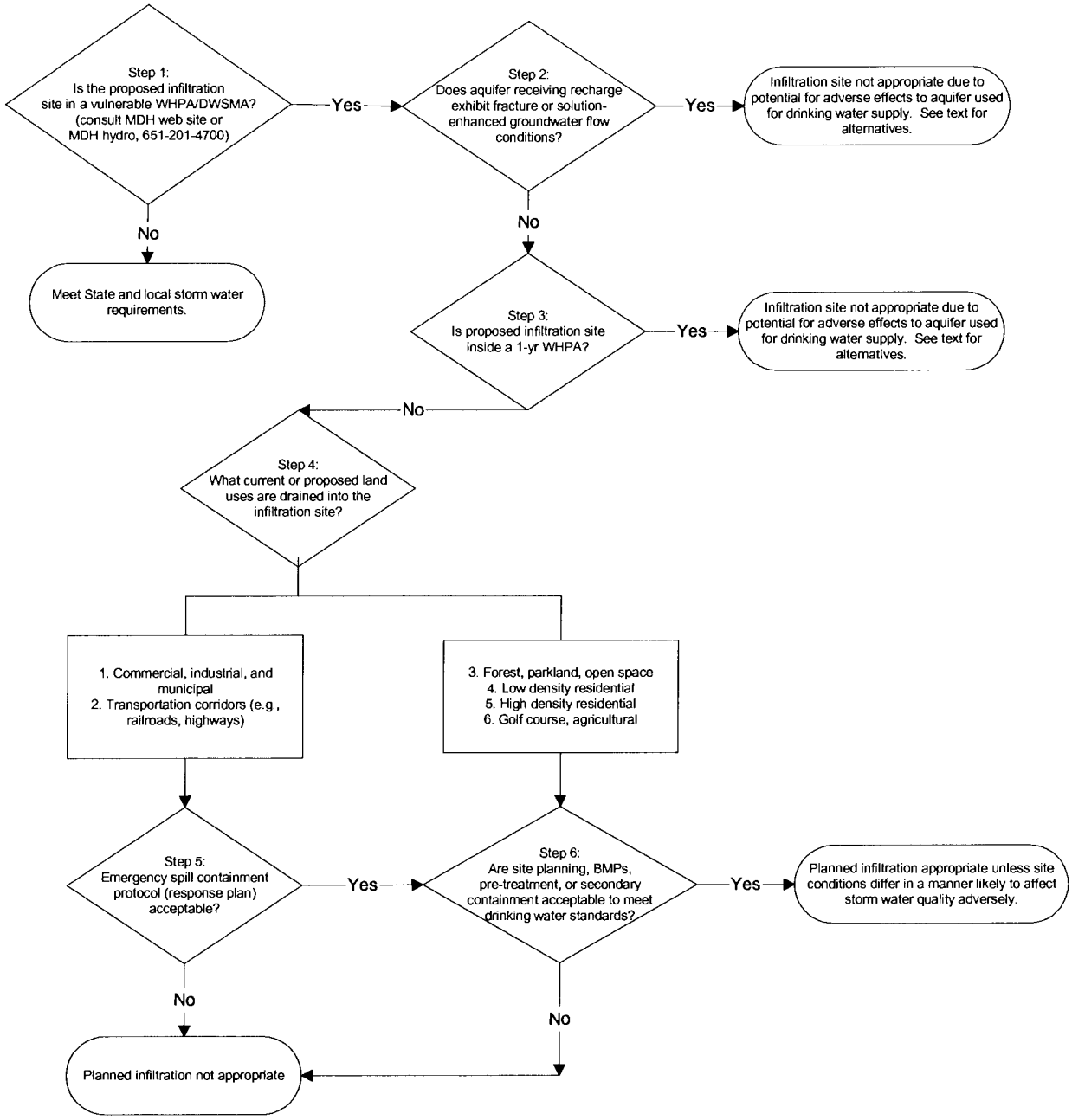
Special Situations

Certain circumstances may dictate a response to the proposed infiltration different from the recommendations of this guidance. For instance, a project involving the infiltration of volumes of water that are large relative to the amount pumped by a nearby well may leave little room for natural processes to dilute the storm water. Or perhaps specialized predictive tools, such as a groundwater flow model, are available that can help to forecast the effects of the infiltration. Such tools may make it easier to interpret likely effects of the proposed infiltration. While it is impossible to predict all such extenuating circumstances, it will be the role of the user to decide how to incorporate such conditions in the analysis of site-specific infiltration proposals.

Contacting Minnesota Department of Health Staff

Appendix B lists various resources available to help work through this guidance, including MDH staff contacts. MDH hydrologists are generally assigned to specific regions of the state (see Appendix B) but additional assistance is available by calling the Source Water Protection Unit at 651-201-4700.

Appendix A.
A Flow Chart for Evaluating Proposed Storm Water Infiltration Projects in Areas with Vulnerable Groundwater



Note: This flow chart intended for use in conjunction with MDH guidance on evaluating storm water infiltration projects in vulnerable wellhead protection areas.

Appendix G – Proposed Stormwater Pollution Prevention Program (SWPPP) Modifications

BMP Summary Sheet

MS4 Name: City of Rochester

Minimum Control Measure: 5-Post-Construction Storm Water Management in New Development and Redevelopment

Unique BMP Identification Number: 5d-1

***BMP Title:** VOLUME CONTROL – CURRENT INFILTRATION INITIATIVES

***BMP Description:**

Despite the fact that a large portion of the City either drains directly to 4th order or higher streams or is in areas constrained for infiltration (due to impermeable soils, high groundwater table, and vulnerable wellhead protection areas), the City of Rochester has a number of initiatives in place or underway to protect and promote the protection of the surface water/groundwater hydrologic regime. They are:

1. Preparation and submittal of Fen Management Plans to the Department of Natural Resources (DNR) for calcareous fens located on public property. Implementation of those plans after DNR approval is received.
2. Review and comment on fen protection BMPs proposed as part of development plans, grading plans, and/or Fen Management Plans that are prepared for calcareous fens located on private property. This involves assuring that groundwater flows are adequate to sustain the fens, based on the amount of recharge lost as a function of impervious area increases.
3. Implementation of Ch. 59 of the Rochester Code of Ordinances (Wetland Conservation), which includes specific provisions prohibiting the destruction and mitigation of water features (groundwater-supported wetlands, springs, seeps, and hydric soils) in the Platteville-Glenwood-Decorah geologic formation in order to preserve the discharge/interflow/recharge of groundwater from the upper aquifer into the lower aquifer. Similarly, Section 62.1100 of the City's Land Development Manual limits the amount of Substantial Land Alteration that can occur within the Decorah Edge and Emergency Response Zones of municipal wells.
4. Operation by the U.S. Geological Survey (USGS) of a monitoring system (consisting of pressure transducers, precipitation monitors, and specific conductance monitors) at a test infiltration basin in Quarry Hill Park to evaluate the hydrologic regime and its potential to impact an adjacent water supply well.
5. Participation in activities that protect the City's urban forest and promote the expansion of Rochester's urban forest to achieve a target canopy cover of 40%, as follows.
   - The Rochester Committee on Urban Design and the Environment's (CUDE) has formed a Tree Ordinance Subcommittee that is educating the public on the value of trees (including storm water management benefits), enhancing boulevard planting and tree conservation ordinances for Council consideration, and preparing an Urban Forest Master Plan for the City.
   - RNeighbors, the Rochester Neighborhood Resource Center, coordinates the RNeighborWoods program that includes Citizen Forester Training, Jr. Forester Training, and tree planting events.
   - The Rochester Park and Recreation Department has a Forestry Division that insures compliance with the four standards needed to maintain its "Tree City, USA" designation: having staff legally responsible for care and management of the City's trees, implementing a tree care ordinance, having a budget of at least $2 per capita, and hosting an annual Arbor Day event.
6. The City promotes overland conveyance of storm water in "environmental corridors" to increase infiltration and biofiltration opportunities, where feasible. The City's Storm Water Management Plan already identifies the preferred locations for these environmental corridors. To further this effort, the Rochester Public Works Department created a Focused Discharge Task Force in February 2007, consisting of public and private storm water management professionals, to evaluate means to improve protection of natural and constructed channels used for overland conveyance of storm water. Among those options being considered at this time are: added inspections during construction to insure adequate channel protection, new design standards for conveyance, preparation of feasibility studies of channel capacity in advance of development, ordinance modifications, and the requirement of performance bonds for grading activities to insure compliance.
7. The Rochester-Olmsted Planning Department (ROPD) is responsible for the development and implementation of the City's Zoning Ordinance and Land Development Manual that sets development standards and thereby guides development styles. The ROPD is currently reviewing its parking standards

to determine what revisions will be necessary to establish maximum parking lot sizes, facilitate shared parking, and establish landscaping standards to reduce the creation of impervious surface and increase vegetative uptake of storm water.

***Measurable Goals:**

1. Number of Fen Management Plans prepared for Fens on public property and the associated implementation activities.
2. Number of referral comments provided by Public Works staff as they relate to fen protection BMPs proposed in development, grading and/or fen management plans.
3. Number of reviews related to Decorah Edge wetlands by ROPD staff.
4. Flow regime data and assessment by the USGS.
5. Number of products (e.g., ordinance revisions, policies, procedures, plans, or standards) prepared by CUDE's Tree subcommittee; number citizen foresters trained and trees planted by RNeighborWoods; and maintenance of the "Tree City, USA" designation by the City Forester.
6. Number of products (e.g., policies, procedures, ordinance revisions, or standards) prepared by Public Works staff, as recommended by the Focused Discharge Task Force.
7. Completion of parking standard revisions incorporated into the Zoning Ordinance and Land Development Manual revisions by ROPD.

***Timeline/Implementation Schedule:**

1. Ongoing throughout the term of the permit.
2. Ongoing throughout the term of the permit.
3. Ongoing throughout the term of the permit.
4. 2007/2008.
5. Education – 2007, ordinance revisions – 2008, Urban Forest Master Plan – 2010; RNeighborWoods and "Tree City, USA" designation – ongoing throughout the term of the permit.
6. 2007/2008.
7. Parking standards revisions – 2008.

Specific Components and Notes:

None.

***Responsible Party for this BMP:**

Name: Barb Huberty

Department: Rochester Public Works Department

Phone: 507/328-2425

E-mail: bhuberty@ci.rochester.mn.us

**Indicates a REQUIRED field. Failure to complete any required field will result in rejection of the application due to incompleteness.*

BMP Summary Sheet

MS4 Name: City of Rochester

Minimum Control Measure: 5-Post-Construction Storm Water Management in New Development and Redevelopment

Unique BMP Identification Number: 5d-2

***BMP Title:** VOLUME CONTROL – TECHNICAL REVIEW AND BMP TRIALS

***BMP Description:**

The City of Rochester does not promote nor discourage the management of increased storm water volume on lands within areas that drain directly to 4th order or higher streams, as per MPCA guidance. Additionally, Rochester does not promote volume control via infiltration within 20 of its 28 wellhead protection areas that are designated as moderately or highly vulnerable to contamination. Similarly, the City does not promote volume control via infiltration on lands with physical constraints, including areas with underlying impermeable soils (hydrologic soil group D) and areas with less than three feet to groundwater or bedrock, and areas being developed for transportation corridors and for commercial and industrial uses. As a result of these combined factors, the City estimates that less than 5,700 acres of the undeveloped land within its 2020 urban growth boundary that drains to 1st, 2nd, and 3rd order streams is suitable to consider for volume control via infiltration.

Therefore, the City is interested in testing infiltration in suitable locations and in evaluating alternative means for volume control. Accordingly, the City's storm water engineers will review available and emerging information about the qualitative and quantitative volume control benefits of BMPs such as: evaporation from wet detention basins, biofiltration, evapotranspiration, outlet modifications to extend detention, and pond design modifications that create infiltration/filtration shelves.

If suitable BMP alternatives and appropriate locations are identified, the City will begin constructing them and evaluate their performance and public acceptance.

***Measurable Goals:**

1. City assessment of alternative volume control BMPs.
2. Number of trial BMPs constructed.

***Timeline/Implementation Schedule:**

Ongoing throughout the term of the permit.

Specific Components and Notes:

None.

***Responsible Party for this BMP:**

Name: John Wellner, P.E.

Department: Rochester Public Works Department

Phone: 507/328-2422

E-mail: jwellner@ci.rochester.mn.us

**Indicates a REQUIRED field. Failure to complete any required field will result in rejection of the application due to incompleteness.*

BMP Summary Sheet

MS4 Name: City of Rochester

Minimum Control Measure: 5-Post-Construction Storm Water Management in New Development and Redevelopment

Unique BMP Identification Number: 5d-3

***BMP Title:** VOLUME CONTROL – WELLHEAD PROTECTION COORDINATION

***BMP Description:**

The Rochester Public Works Department will collaborate with Rochester Public Utilities (RPU) to protect the City's drinking water resources by implementing the storm water management land use BMPs outlined in RPU's January 2007 Wellhead and Source Water Protection Plan (WHP Plan). Specifically, the WHP Plan identifies the following actions:

A) Storm Water Management, general (Rochester Public Works – lead)

1. Develop collaborative educational programs with the Rochester Urbanizing Area MS4 Work Group.
2. Further develop the City's Illicit Discharge Detection and Elimination program within the Drinking Water Supply Management Areas (DWSMAs).
3. Evaluate existing and planned storm water control systems within Drinking Water Supply Management Areas and determine whether they have the potential to negatively impact the associated water supply wells and identify areas that have the best potential for installing storm water infiltration practices, following Minnesota Department of Health guidance for infiltration in karst areas.
4. Implement good housekeeping measures.

B) Water Conservation, as a means to mitigate for lost aquifer recharge resulting from increases in impervious surfaces (Rochester Public Utilities – lead)

1. Provide customers with water conservation tips and information about water-saving technologies and promote RPU's low-volume washer rebate program.
2. Review and evaluate RPU's Emergency Water Conservation Plan and update/expand it as necessary.
3. Develop a method to insert customer water use data into billing statements.
4. Review and evaluate water use information from large volume customers and recommend appropriate water saving retrofits to reduce usage.

C) Additionally, when developments are proposed, storm water engineers will utilize the Minnesota Department of Health flow chart for "Evaluating Proposed Storm Water Infiltration Projects in Vulnerable Wellhead Protection Areas" to determine if infiltration is appropriate in the proposed setting.

***Measurable Goals:**

A-1. Number of educational materials developed and distributed that address the surface water/groundwater connection.

A-2. Summary of land uses within DWSMAs; list of land uses with the potential for illicit discharges posing a significant risk to the water supply; educational materials (by impact type) for property owners with operations that pose a high risk to the water supply, and number of educational contacts made.

A-3. Summary of existing ponds located within DWSMAs and an assessment of their potential effect on water supply wells; RPU and RPW referral comments on future General Development Plans and Site Development Plans, as appropriate; map of infiltration potential areas.

A-4. Employee operations that are protective of water quality based on staff training and standard operating procedures for outdoor activities.

B-1. Number of bill inserts distributed, public contacts regarding water saving technologies, and participation rates in the low-volume washer rebate program.

B-2. Establishment of a committee to review and evaluate RPU's Emergency Water Conservation Plan, annual review of the plan, and update as necessary.

B-3. Inclusion of customer water use data into billing statements.

B-4. Number of contacts with large water use customers.
C. Number of development proposals evaluated for infiltration potential.

***Timeline/Implementation Schedule:**

A-1. Ongoing throughout the term of the permit.
A-2. 2008
A-3. Referral comments are ongoing throughout the term of the permit; map in 2008.
A-4. Ongoing throughout the term of the permit.
B-1. Ongoing throughout the term of the permit.
B-2. Annual review of the plan, updates as needed.
B-3. 2011
B-4. Ongoing throughout the term of the permit.
C. Ongoing throughout the term of the permit.

Specific Components and Notes:

None.

***Responsible Party for this BMP:**

Name: Barb Huberty
Department: Rochester Public Works Department
Phone: 507/328-2425
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**Indicates a REQUIRED field. Failure to complete any required field will result in rejection of the application due to incompleteness.*

BMP Summary Sheet

MS4 Name: City of Rochester

Minimum Control Measure: 5-Post-Construction Storm Water Management in New Development and Redevelopment

Unique BMP Identification Number: 5d-4

***BMP Title:** VOLUME CONTROL – PUBLIC WORKS DEPARTMENT POLICY AND PROCEDURE DEVELOPMENT

***BMP Description:**

As the City of Rochester identifies alternative means to manage increased storm water volumes that are protective of its drinking water aquifers, technically feasible, cost-effective to construct and maintain, and publicly acceptable (see BMP No. 5d-2), the City will add them to their engineering standards, detail sheets, grading plan checklists and other appropriate resources and educate the appropriate target audiences about their use.

The City will also develop a standardized procedure for staff use the PondNet model developed for the Nondegradation Review Loading Assessment, or other suitable models, as a means to evaluate future potential development impacts on surface water wetlands and groundwater fed wetlands and the suitability of mitigation measures proposed to protect them.

***Measurable Goals:**

1. Updated list of acceptable BMPs.
2. Technical memorandum or presentation to engineers and developers.
3. Standard operating procedure for wetland impact/mitigation review.

***Timeline/Implementation Schedule:**

Ongoing throughout the term of the permit.

Specific Components and Notes:

None.

***Responsible Party for this BMP:**

Name: John Wellner, P.E.

Department: Rochester Public Works Department

Phone: 507/328-2422

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**Indicates a REQUIRED field. Failure to complete any required field will result in rejection of the application due to incompleteness.*