Appendix 9.5 Preliminary Stormwater Pollution Prevention Plan (SWPPP)

Appendix 9.5.1 Proposed Action SWPPP

Engineering Report

SILO RIDGE RESORT COMMUNITY

SEQRA - Master Stormwater Pollution Prevention Plan

Town of Amenia
Dutchess County, New York

April 10, 2006

THE Chazen COMPANIES

Prepared for:

Higher Ground Country Club
Management Co., L.L.C.
P.O. Box 86, Route 22
Amenia, New York 12501

Stormwater Pollution Prevention Plan

SILO RIDGE RESORT COMMUNITY

SEQRA - Master Stormwater Pollution Prevention Plan

Town of Amenia
Dutchess County, New York

April 10, 2006

Prepared by:

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PREPARER OF THE SWPPP

"I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gathered and evaluated the information submitted. Based on my inquiry of the person(s) who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that false statements made herein are punishable as a class A misdemeanor pursuant to Section 29.45 if the Penal Law."

Name:[1] Richard Chazen, P.E.

Title: Principal – The Chazen Companies

License No.: 57818

Date: April 10, 2006

[1] This is a signature of an officer of the corporation authorized in policy or decision making functions of the corporation.

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1.0 EXECUTIVE SUMMARY

The proposed Silo Ridge Resort Community ("the project") is a master planned community complex incorporating recreational amenities, community facilities, up-scale hotel and spa and a range of residential housing types, which will be designed, developed and operated with sensitivity to environmental resources and in keeping with the character of the area and local community.

This Master Stormwater Pollution Prevention Plan (SWPPP) has been prepared to support state environmental quality review (SEQR) of the proposed project. As such, design concepts are provided for stormwater collection and conveyance systems, and water quality and quantity control facilities. This report is not intended to be a final engineering design as certain detailed aspects of the project are liable to change during the review process. Portions of the design were advanced to substantiate regulatory compliance determinations and to provide input pertinent to the environmental assessment of impacts of the proposed project. Final stormwater design will be advanced in support of and during site plan permitting.

The intent of this Master SWPPP is to provide sufficient documentation for an overall SEQR determination, and to serve as the baseline for the final SWPPP that will be prepared for the proposed development, as approved. The stormwater analysis follows the *NYS Guidelines for Urban Erosion and Sediment Control* and USDA Technical Release No. 20.

The analysis is an integral part of the project's natural resource environmental analysis which takes into consideration existing parameters of site topography, soils, erosion potential, surface waters, their connectivity and water quality, vegetative characteristics, visual resources, and the overall health of the watersheds. Flow projections, modeling, and project design sensitive to stormwater concerns combine to manage stormwater in compliance with current regulations, incorporating engineering design measures to minimize impacts on the sites natural resources through proposed stormwater management facilities discussed in the report. The methodology used to develop this Master SWPPP shall be adhered to for the preparation of the project's final SWPPP. Stormwater quality and quantity controls designed for this Master SWPPP are preliminary in nature and are intended to demonstrate their location, approximate size, and design concept. Detailed analysis of these practices must be performed, and the design of each practice must be refined as part of the final SWPPP preparation.

Construction phase pollutant sources anticipated at the site include sediment, vehicle fuels and lubricants, chemicals associated with building construction, and building materials. Without adequate control there is the potential for each type of pollutant to be transported by stormwater. Mitigation measures involve preventing soil erosion and sedimentation resulting from stormwater run-off both during and after construction. During construction, this is accomplished by sequencing site disturbance activities to establish erosion controls, minimize disturbed areas, maintain existing vegetation as much as possible, and stabilize newly disturbed areas as soon as possible. Stormwater pollutant controls utilized during construction will include temporary sediment barriers and sediment basins. Stormwater pollutant controls utilized after construction will include stormwater quality control facilities designed in accordance with the "*New York State Stormwater Management Design Manual*".

Land development can also have an effect on site hydrology. Impervious areas such as rooftops, roads, driveways, and parking lots can cause rainfall to rapidly convert into stormwater runoff. Increases in runoff can cause stream bank erosion and floodplain expansion. To mitigate these impacts, stormwater quantity controls will be implemented to capture and release runoff less than predevelopment discharge rates. A hydrologic and hydraulic analysis was performed using computer modeling and an evaluation of the proposed improvements across the subject site. A conventional stormwater management system was developed, consisting of centralized stormwater quantity controls designed to meet the requirements of the "*New York State Stormwater Management Design Manual*", dated August 2003.

The plan, for the most part, allows for the maintenance of existing drainage patterns while continuing the conveyance of upland watershed areas. The stormwater management system has been designed to attenuate runoff generated during the 1-, 2-, 10-, 25-, 50- and 100- year storm events such that the peak rates realized at the designated design points will not exceed the rates that existed prior to development of the project.

There are two relatively large unnamed NYSDEC Class "C" ponds, DEC #1121 and #1122, in the central portion of the project site. The existing Silo Ridge Golf Club draws water from pond #1121 to irrigate the golf course during the summer months. During irrigation operations the water demands can outpace the natural recharge of this pond causing a noticeable drop (approximately 8-feet) in water level. To offset this drop in water level, a system of valves allows the golf course operators to transfer water from pond #1122 as necessary.

Because the golf course will not be expanded (i.e. additional holes), it is anticipated that the water demand for irrigation purposes will not increase. However, to minimize the strain on pond #1121, treated wastewater will be pumped into pond #1122. As the site becomes developed and occupied, pond #1122 will become the primary source of golf course irrigation water, with pond #1121 providing only supplemental "make-up" water during the most severe droughts. The recycling of highly treated "clean" wastewater effluent is a sustainable design feature of the project which will assist in the preservation of ground water resources.

Several areas of proposed roadway are located such that the topography or adjacent constraints make it impractical to locate stormwater quality facilities. Waivers will be requested from NYSDEC for treatment of stormwater runoff from these areas as the site plan review and approval process progresses.

The "*New York State Standards and Specifications for Erosion and Sediment Control*" identifies that no more than 5-acres may be disturbed at any given time. Construction of this project will involve a golf course, cluster developments, and residential subdivisions with roadways in excess of a mile long. This will require construction to proceed with disturbance of greater than 5-acres at one time. The NYSDEC allows disturbance of greater than 5-acres upon receipt of written authorization. Therefore, waivers will be requested from NYSDEC for these areas as the site plan review and approval process progresses. Typically NYSDEC will grant such a waiver provided that every attempt is made to minimize erosion and establish vegetation as quickly as possible.

2.0 NYSDEC SPDES GENERAL PERMIT GP-02-01

A summary of responsibilities and obligations of all parties involved with compliance with the NYSDEC SPDES General Permit, GP-02-01 conditions are outlined in the subsequent sections. For a complete listing of the responsibilities and obligations refer to the SPDES General Permit GP-02-01 presented in Appendix A.

2.1 Definitions

1. "General Permit" shall mean the general stormwater permit for construction activities issued by the United States Environmental Protection Agency, New York State Department of Environmental Conservation or a comparable general permit issued by local or other appropriate governmental agency.

2. "Operator" shall be any party (or parties) that has (or have) either (a) operational control over construction plans and specifications, including the ability to make modification to those plans and specifications or (b) day-to-day operational control of those activities at a project which are necessary to ensure compliance with the SWPPP for the site or other permit conditions. There may be occasions during the course of a project in which there are multiple Operators, all of which will need to file and maintain the appropriate SWPPP documents and plans, including without limitation, the Notice of Intent (NOI) and Notice of Termination (NOT).

3. "Operator's Engineer" shall be that person or entity retained by an Operator to design and oversee the implementation of the SWPPP.

4. "Contractor" shall be that person or entity identified as such in the construction contract with the Operator. The term "Contractor" shall also include the Contractor's authorized representative, as well as any and all subcontractors retained by the Contractor.

5. "Qualified Professional" shall be a person knowledgeable in the practices of erosion and sediment controls, such as a NYS professional engineer or Certified Professional in Erosion and Sediment Control (CPESC).

2.2 Operator's Responsibilities

1. Have an authorized corporate officer sign the NOI and SWPPP Operator's Certification forms.

2. Submit the signed form along with any required fees and attachments to the following:

   NYS DEC "Notice of Intent"
   Bureau of Permit
   625 Broadway
   Albany, New York 12233-3505

   Town of Amenia Planning Board
   P.O. Box 126
   36B Mechanic Street
   Amenia, New York 12501

3. Retain the services of a "Qualified Professional" as defined under Section 2.1 "Definitions" to provide the services outlined in Section 2.3 "Operator's Engineer's Responsibilities".

4. Schedule a pre-construction meeting which shall include the Town representative, Operator's Engineer, Contractor, and their sub-contractors to discuss responsibilities as they relate to the implementation of this SWPPP.

5. Require the Contractor to fully implement the SWPPP prepared for the site by the Operator's Engineer.

6. Forward a copy of the original permit certificate received from the regulatory agency to the Operator's Engineer for project records, and to the Contractor for display at the job site.

7. Keep a copy of the SWPPP, all NOI's, permit certificates, permit language, Spill Prevention, Countermeasures, and Cleanup ("SPCC") Plan, inspection records, and other required records on the job site so that they may be made available to the regulatory agencies.

8. Post at the site, in a publicly-accessible location, a summary of the site inspection activities on a monthly basis.

9. Prepare a written summary of projects status with respect to compliance with the general permit at a minimum frequency of every three months during which coverage under the permit exists. The summary should address the status of achieving the overall goal of the SWPPP. The summary shall be handled in the same manner as prescribed for SWPPP's under Part III, subsection B of the NYSDEC SPDES General Permit GP-02-01.

10. Submit a Notice of Termination (NOT) form (see Appendix G) within 48 hours of receipt the Operator's Engineer's certification of final site stabilization to the following:

    NYS DEC "Notice of Termination"
    Bureau of Permit
    625 Broadway
    Albany, New York 12233-3505

    Town of Amenia Planning Board
    P.O. Box 126
    36B Mechanic Street
    Amenia, New York 12501

11. Request and receive all SWPPP records from the Operator's Engineer and archive those records for a minimum of three years after the NOT is filed.

12. Require the implementation of the Post-Construction Inspections and Maintenance procedures outlined in Appendix H.

2.3 Operator's Engineers Responsibilities

1. Prepare the SWPPP using good engineering practices, best management practices, and in compliance with all federal, state, and local regulatory requirements.

2. Prepare the Notice of Intent Form (NOI) form (see Appendix B) and forward to Operator for signature.

3. Prepare and forward the SWPPP Operator Certification form for Operator's signature (see Appendix C).

4. Include a signed NOI and Operator Certification forms in the SWPPP prepared for the job site.

5. Provide copies of the SWPPP to the Town of Amenia once all signatures and attachments are complete.

6. Prepare a construction site log book to be used in maintaining a record of all inspection reports generated throughout the duration of construction.

7. Participate at pre-construction meeting with the Town representative, Operator, Contractor, and their sub-contractors to discuss responsibilities as they relate to the implementation of this SWPPP.

8. Enter Contractor's information in Section 2.5 "SWPPP Participants" once a Contractor is selected by the Operator.

9. Conduct an initial site assessment of the site prior to the commencement of construction and certify in an inspection report that the appropriate erosion and sediment control measures described within this SWPPP and required by Part III.D of the NYSDEC General Permit, GP-02-01, have been adequately installed and implemented to ensure overall preparedness of the site.

10. Provide on-site inspections at least every seven (7) calendar days and within 24 hours of the end of a storm event of ½-inch or greater to determine compliance with the SWPPP. The written inspection reports shall be provided to the Operator within 24 hours of the field inspection with any deficiencies identified. A description of Construction Phase Inspections and Maintenance requirements are in presented Appendix D. A sample inspection form is provided in Appendix E.

11. Review the Contractor's SWPPP records on a periodic basis to ensure compliance with the requirements for daily reports and inspections and maintenance logs.

12. Maintain the construction site log book throughout the duration of construction.

13. Update the SWPPP each time there is a significant modification to the pollution prevention measures or a change of the principal Contractor working on the project who may disturb site soil.

14. Provide the Operator certification that an inspection has been completed verifying that the site has undergone final stabilization using appropriate measures and that all temporary erosion and sediment controls have been removed.

15. Transfer the SWPPP documents, along with all NOI's, permit certificates, NOT's, construction site log book, and written records required by the General Permit to the Operator for archiving.

2.4 Contractor's Responsibilities

1. Send all notifications required by SPDES General Permit Number GP-02-01 via certified mail with return receipt. Copies of mailing receipts shall be kept on record at the project site with the SWPPP and shall be considered part of the contract documents.

2. Sign the SWPPP Contractor's Certification form contained within Appendix C and forward to the Operator's Engineer for inclusion into the SWPPP.

3. Provide the names and addresses of all subcontractors working on the project site. Require all subcontractors who will be involved with the major construction activities that will result in soil disturbance sign a copy of the Contractor's Certification Form and forward to the Operator's Engineer for inclusion into the SWPPP. This information must be retained as part of the SWPPP.

4. Participate in pre-construction meeting which shall include the Town representative, Operator, Operator's Engineer, and all sub-contractors to discuss responsibilities as they relate to the implementation of this SWPPP.

5. Implement site stabilization, erosion and sediment control measures, and other requirements of the SWPPP.

6. Conduct daily inspections, prepare, and retain written documentation of inspections as well as all repairs/maintenance activities performed on erosion and sediment control measures.

7. Maintain a record of the dates when major grading activities occur, when construction activities temporarily or permanently cease on a portion of the site, and when stabilization measures are initiated, until such time as the NOT is filed. A log for keeping such records is provided in Appendix F.

8. Provide monthly training sessions for all entities and subcontractors involved with installing, applying, performing, maintaining and inspection of the SWPPP.

2.5 SWPPP Participants

1. Operator's Engineer:

   The Chazen Companies
   21 Fox Street
   Poughkeepsie, NY 12601
   Phone: (845) 454-3980
   Fax: (845) 454-4026

2. Operator:

   Mr. Robert F. Caeners
   Silo Ridge Country Club
   P.O. Box 86
   Route 22
   Amenia, NY 12501
   Phone: (845) 373-7000
   Fax: (845) 373-8847

3. Contractor[2]:

   Name and Title: ______________________________
   Company Name: ______________________________
   Mailing Address: ______________________________
   ____
   Phone: ______________________________
   Fax: ______________________________

[2] Contractor's information to be entered once the Contractor has been selected.

3.0 INTRODUCTION

Higher Ground Country Club Management Co. L.L.C. is proposing the improvement of the existing 668 (+/-) acre Silo Ridge Country Club into a resort community which will include 328 town home and condominium units, 41 single-family residences, two resort hotels, a banquet space, two restaurants, a conference space, a spa and wellness center as well as improved golf course facilities. In general stormwater management ponds will be used to treat and attenuate additional stormwater run-off produced from the proposed improvements.

The proposed project is a master planned community complex incorporating recreational amenities, community facilities, up-scale hotel and spa and a range of residential housing types, which will be designed, developed and operated with sensitivity to environmental resources and in keeping with the character of the area and local community. The existing Silo Ridge Golf Course will be modified to incorporate post construction stormwater management practices developed in support of the proposed project. It is anticipated that these practices will become course amenities and/or hazard areas. A variety of housing configurations will be oriented to various lifestyles using architectural themes compatible with the natural setting of the site and consistent with the character of the local community. The project will include all necessary infrastructure, including an on-site central water and sanitary sewer system, drainage facilities and extensive natural resource conservation, protection and enhancement areas.

This Master SWPPP has been prepared for major activities associated with construction of Silo Ridge Country Club Golf Resort Community in the Town of Amenia, Dutchess County, New York. This Master SWPPP includes the elements necessary to comply with the national baseline general permit for construction activities enacted by the U.S. Environmental Protection Agency (EPA) under the National Pollutant Discharge Elimination System (NPDES) program and all local governing agency requirements. A final detailed SWPPP conforming to the intent of this Master SWPPP will be prepared in support of and during site plan permitting. This SWPPP must be implemented at the start of construction.

3.1 Project Description

The Applicant, Higher Ground Country Club, LLC, is proposing the development of a resort community on a 668±-acre site to be known as Silo Ridge. The project area is located west of New York State (NYS) Route 22 in the Town of Amenia, Dutchess County, New York, identified as Parcel Numbers 7066-00-732810, 7066-00-860725, 7066-00-742300, 7066-00-670717, and 7067-00-709177 by the Town of Amenia Tax Map. The site is currently developed with a 170-acre 18-hole championship golf course. Irrelevant

The development will consist of 328 town home and condominium units, 41 single-family residences, two resort hotels, a banquet space, two restaurants, a conference space, a spa and wellness center as well as improved golf course facilities. The Project construction will consist primarily of site grading, roadway grading and paving, storm drainage, water supply and sanitary sewage collection and treatment.

3.2 Generalized Construction Phasing

It is the intent of the project sponsor to commence with construction in the following order:

1. The first component of development planned will be the modification of the existing golf course. There currently is an 18-hole golf course with practice green and driving range on the project site. In support of the proposed development, multiple greens and fairways will require partial modification. Construction will include the relocation of tees, regrading of greens and fairways and the incorporation of new stormwater management facilities.

2. The next component of development planned is the first of two hotels, existing golf club house renovation, the Resort District (Area "A") and Golf District (Area "H"). This component will also involve the construction of the water supply, treatment and storage system, and wastewater treatment plant with associated roadway and infrastructure.

3. Subsequent components of development will include residential communities consisting of town homes and single-family residences, and second hotel with associated roadway and infrastructure. The order and timeframe for each of these phases will depend on market demand.

3.3 Purpose

Construction phase pollutant sources anticipated at the site are disturbed (exposed) soil, vehicle fuels and lubricants, chemicals associated with building construction, and building materials. Without adequate control there is the potential for each type of pollutant to be transported by stormwater.

This report considers the impacts associated with the intended development with the purpose of:

1. Maintaining existing drainage patterns as much as possible while continuing the conveyance of upland watershed runoff;

2. Controlling increases in the rate of stormwater runoff resulting from the proposed development in order to not adversely impact downstream conditions;

3. Mitigating potential stormwater quality impacts and preventing soil erosion and sedimentation resulting from stormwater runoff generated both during and after construction.

To demonstrate this, pre- and post-development stormwater runoff conditions have been estimated and proposed stormwater management facilities have been described and evaluated.

The hydrologic and hydraulic analyses were completed in accordance with the following standards and guidelines:

- *New York State Stormwater Management Design Manual* (August 2003).

- *New York State Standards and Specifications for Erosion and Sediment Control* (August 2005).

- Town of Amenia Regulations.

The analysis and design completed and documented in this report is intended to be part of the application made for a resort community development project completed on behalf of the Higher Ground Country Club Management Co. L.L.C.

This Master SWPPP and the accompanying drawings entitled “Silo Ridge Golf Resort Community” have been submitted as a set. These drawings are considered an integral part of this Master SWPPP, therefore this Master SWPPP is not considered complete without them. References made herein to “the plans” or to a specific “sheet” refer to these drawings.

A location map of the site has been provided in Appendix I, as Figure 1.

4.0 TYPICAL SITE DEVELOPMENT CONSTRUCTION SEQUENCE

Described below are the major construction activities that are the subject of this SWPPP. They are presented in the order (or sequence) they are expected to begin, but each activity will not necessarily be completed before the next begins. Also, these activities could occur in a different order if necessary to maintain adequate erosion and sediment control.

The Contractor will be responsible for implementing the following erosion and sediment control measures. The Contractor may designate these tasks to certain subcontractors as he sees fit, but the ultimate responsibility for implementing these controls and ensuring their proper function remains with the Contractor. The order of activities will be as follows:

1. Selectively clear only the areas required for the installation of the stabilized construction entrances/exits and temporary sediment and erosion measures.

2. Install stabilized construction entrances/exits for all construction entrances/exits. This will be the first construction work on the project.

3. Install sediment control barriers down slope from construction activities that disturb site soil.

4. Install temporary sediment basins.

5. Begin clearing and grubbing operations. Clearing and grubbing shall be done only in areas where earthwork will be performed and only in areas where construction is planned to commence within 14 days after clearing and grubbing.

6. Frequent watering of the excavation and fill areas shall be done to minimize wind erosion.

7. Commence site grading.

8. Disturbed areas of the site, where construction activity has ceased for more than 14 days, shall be temporarily or permanently seeded, mulched, and watered.

9. Install protective measures at the locations of all grate inlets, curb inlets, and at the ends of all exposed storm sewer pipes.

10. Construct all utilities, curb or gutter, gutter inlets, area inlets, and storm sewer manholes, as shown on the plans. Inlet protection may be removed temporarily for this construction. Place required rip-rap at locations shown on the plans.

11. Finalize pavement sub-grade preparation.

12. Install sub-base material as required for pavement.

13. Remove protective measures around inlets and manholes no more than 24 hours prior to placing stabilized base course.

14. Carry out final grading, seeding, mulching, and landscaping.

15. Install asphalt pavement.

16. Remove silt fencing only after all paving is complete and exposed tributary surfaces are stabilized.

17. Remove stabilized construction entrances only prior to pavement construction in these areas (These areas are to be paved last).

18. Complete on-site stabilization.

19. Remove temporary sediment controls only after all paving is complete and exposed surfaces are completely stabilized, and cleanout all stormwater collection conveyance, and treatment facilities.

Refer to the accompanying plans for clarifications and specifications regarding the construction sequencing schedule.

5.0 SITE DESCRIPTION

5.1 Land Use

The entire project site is located west of New York State Route 22. The majority of the project site lies south of New York State Route 44, with a small portion of the project site lying north of NYS Route 44. At the north end of the project site (north of NYS Route 44) the project site currently consists of open meadows as well as wooded areas. On the south side of NYS Route 44, the project site consists of an 18-hole golf course, a golf course club house, parking areas, as well as other miscellaneous golf course amenities. The Amenia Stream (otherwise known as Cascade Brook) traverses along the eastern edge of the project site and exits the project site near the existing golf course entrance on NYS Route 22. Along the western half of the project site the existing land is comprised of open meadows and large wooded areas which contain an existing dirt trail system. Lastly, the southwestern corner of the project site is largely wooded. It should be noted that there are numerous wetlands scattered throughout the project site, and a large NYSDEC wetland exists near the southeast corner of the project site. Please refer to the accompanying plan set for more information.

The project site is primarily lies within the Town of Amenia's RA, Agricultural Density, with a small portion along NYS Route 22 in the Town's M, Industrial, districts.

Generally, stormwater on the project site flows in an easterly direction and either drains offsite, or infiltrates into the ground. Specifically, at the north end of the project site, (north of NYS Route 44) stormwater flows southeasterly across the north end of the project site, flows under NYS Route 44 via culverts, and spills back onto the project site south of NYS Route 44. The stormwater runoff, then flows across the project site via overland flow, stormwater underdrains, culverts, or ponds and channels, and eventually reaches the Amenia Stream (which flows from north to south). The Amenia Stream then flows offsite via a large box culvert located near the existing golf course entrance on NYS Route 22.

With the exception of a small area consisting of approximately 1,400 linear feet of the existing site entrance roadway as well as the area immediately adjacent to the site roadway, the remainder of the project site drains west to east to a large wetland (Wetland L, see accompanying plans) located near the southeast corner of the project site. This wetland drains offsite via a 30-inch culvert located under NYS Route 22.

Generally stormwater that drains to this large wetland goes through a series of ponds, culverts and/or streams located throughout the central portion of the site prior to reaching the wetland. Lastly, the aforementioned 1400 linear feet of existing site entrance roadway as well as the area adjacent to the roadway drain to two small infiltration ponds located at the front entrance to the site (see accompanying plans).

5.2 Soils

The United States Department of Agriculture (USDA) Soil Conservation Service (SCS) Soil Survey for Dutchess County was reviewed and provided surficial soil conditions for the study area. The SCS identified the presence of Copake, Dutchess-Cardigan complex, Fluvaquents-Udifluvents complex, Galway-Farmington complex, Georgia, Hollis-Chatfield-Rock outcrop complex, Nassau-Cardigan complex, Nassau-Rock outcrop complex, Palms muck, Stockbridge, Stockbridge-Farmington complex, Sun, Udorthents, Udorthents, and Wayland series soil types. Soil data was provided by the SCS and is presented in Table 1.

Table 1: USDA Soil Data

MAP SYMBOL/ DESCRIPTION	HYDRO-LOGIC SOIL GROUP	SLOPE (%)	SOIL PROFILE		K VALUE	DEPTH TO WATER TABLE (FT)	DEPTH TO BEDROCK (IN)
			DEPTH (IN)	USDA TEXTURE			
CuC / Copake gravelly silt loam, nearly level	B	5 to 16	0-6 6-36 36-80	Gravelly silt loam. Gravelly loam, gravelly silt loam, fine sandy loam. Stratified gravelly loamy fine sand to very gravelly coarse sand.	0.10-0.24	> 6.0	> 60
CuD / Copake gravelly silt loam,	B	15 to 30	0-6 6-36	Gravelly silt loam. Gravelly loam,	0.10-0.24	> 6.0	> 60

MAP SYMBOL/ DESCRIPTION	HYDRO-LOGIC SOIL GROUP	SLOPE (%)	SOIL PROFILE		K VALUE	DEPTH TO WATER TABLE (FT)	DEPTH TO BEDROCK (IN)
			DEPTH (IN)	USDA TEXTURE			
rolling			 36-80	gravelly silt loam, fine sandy loam. Stratified gravelly loamy fine sand to very gravelly coarse sand.			
CwB / Copake channery silt loam, 3 to 8 % slopes	B	3 to 8	0-6 6-36 36-80	Channery silt loam. Channery loam, channery silt loam, fine sandy loam. Stratified channery loamy fine sand to channery coarse sand.	0.10-0.24	3.0 to 6.0	> 60
DwB / Dutchess-Cardigan complex, undulating	B	1 to 6	0-8 8-28 28-86	Silt loam. Silt loam, channery silt loam, gravelly loam. Channery silt loam, very channery fine sandy loam, very gravelly sandy loam.	0.32-0.37	> 6.0	20 to 40 & > 60
DwD / Dutchess-Cardigan complex, hilly, rocky	B	15 to 30	0-8 8-28 28-86	Silt loam. Silt loam, channery silt loam, gravelly loam. Channery silt loam, very channery fine sandy loam, very gravelly sandy loam.	0.32-0.37	> 6.0	20 to 40, > 60 & rock outcropping
Ff / Fluvaquents-Udifluvents complex, frequently flooded	D	0 to 3	0-5 5-72	Silt loam. Very gravelly sand, gravelly silt loam, silty clay loam.	0.28-0.32	+0.5 to 1.5 & 2.0 to 6.0	> 60
GfD / Galway-Farmington complex, hilly	B	15 to 30	0-7* 7-15* 15*	Loam.* Silt loam, loam, gravelly fine sandy loam.* Unweathered bedrock*	0.24-0.32	1.5 to 3.0 & >60	10-20, 20-40, & rock outcropping
GsB / Georgia silt loam, 3 to 8 % slopes	C	3 to 8	0-8 8-27 27-80	Silt loam. Loam, silt loam, very gravelly fine sandy loam. Loam, very gravelly fine sandy loam, silt loam gravelly fine sandy loam.	0.32	1.5 to 3.0	> 60
GsC / Georgia silt loam, 8 to 15 % slopes	C	8 to 15	0-8 8-27 27-80	Silt loam. Loam, silt loam, very gravelly fine sandy loam. Loam, very gravelly fine sandy loam, silt loam gravelly fine sandy loam.	0.32	1.5 to 3.0	> 60
HoE / Hollis-Chatfield-Rock outcrop complex, steep	C/D	25 to 45	0-3** 3-15** 15**	Loam.** Gravelly fine sandy loam, sandy loam, loam.** Unweathered bedrock.**	0.24-0.32	> 6.0	10-20, 20-40, & rock outcropping

MAP SYMBOL/ DESCRIPTION	HYDRO-LOGIC SOIL GROUP	SLOPE (%)	SOIL PROFILE		K VALUE	DEPTH TO WATER TABLE (FT)	DEPTH TO BEDROCK (IN)
			DEPTH (IN)	USDA TEXTURE			
NwC / Nassau-Cardigan complex, rolling, very rocky	B	5 to 16	0-5*** 5-16*** 16***	Channey silt loam.*** Very channery silt loam, very channery loam.*** Unweathered bedrock.***	0.20-0.37	> 6.0	10-20, 20-40, & rock outcropping
NwD / Nassau-Cardigan complex, hilly, very rocky	C	15 to 30	0-5*** 5-16*** 16***	Channey silt loam.*** Very channery silt loam, very channery loam.*** Unweathered bedrock.***	0.20-0.37	> 6.0	10-20, 20-40, & rock outcropping
NxE / Nassau-Rock outcrop complex, steep	C	25 to 45	0-5 5-16 16	Channery silt loam. Very channery silt loam, very channery loam. Unweathered bedrock.	0.20	>6.0	10-20 & rock outcropping
NxF / Nassau-Rock outcrop complex, very steep	C	45 to 70	0-5 5-16 16	Channery silt loam. Very channery silt loam, very channery loam. Unweathered bedrock.	0.20	>6.0	10-20 & rock outcropping
Pc / Palms muck	A/D	0 to 2	0-12 12-30 03-80	Muck. Muck. Clay loam, silty clay loam, gravelly fine sandy loam.	0.37	+1.0-1.0	> 60
SkC / Stockbridge silt loam, 8 to 15 % slopes	C	8 to 15	0-6 6-23 23-80	Silt loam. Loam, silt loam, gravelly loam. Gravelly loam, silt loam, very gravelly fine sandy loam.	0.24-0.37	> 6.0	> 60
SkD / Stockbridge silt loam, 15 to 25 % slopes	C	15 to 25	0-6 6-23 23-80	Silt loam. Loam, silt loam, gravelly loam. Gravelly loam, silt loam, very gravelly fine sandy loam.	0.24-0.37	> 6.0	> 60
SkE / Stockbridge silt loam, 25 to 45 % slopes	C	25 to 45	0-6 6-23 23-80	Silt loam. Loam, silt loam, gravelly loam. Gravelly loam, silt loam, very gravelly fine sandy loam.	0.24-0.37	> 6.0	> 60
SmD / Stockbridge-Farmington complex, hilly, rocky	C	15 to 30	0-7 7-15 15	Loam**** Silt loam, loam, very fine sandy loam, gravelly fine sandy loam.**** Unweathered bedrock.****	0.24-0.37	> 6.0	10-20, > 60 & rock outcropping
Su / Sun silt loam	D	0 to 3	0-4 4-22 22-80	Silt loam. Gravelly fine sandy loam, sandy loam, gravelly loam, silt loam, loam. Gravelly fine sandy loam, gravelly loam, very gravelly sandy loam.	0.20-0.28	+1.0-0.5	> 60

MAP SYMBOL/ DESCRIPTION	HYDRO-LOGIC SOIL GROUP	SLOPE (%)	SOIL PROFILE		K VALUE	DEPTH TO WATER TABLE (FT)	DEPTH TO BEDROCK (IN)
			DEPTH (IN)	USDA TEXTURE			
Ud / Udorthents, smoothed	A/D	0 to 8	0-4 4-70	Loam. Very gravelly sandy loam, channery loam, silty clay loam.	0.32-0.37	> 3.0	> 60
Ue / Udorthents, wet substratum	A/D	0 to 8	0-4 4-72	Loam. Very gravelly loamy sand, channery loam, silty clay loam.	0.32-0.37	1.0-3.0	> 60
Wy / Wayland silt loam	C/D	0 to 3	0-9 9-80	Silt loam. Silt loam, silty clay loam.	0.43	+0.5-1.0	> 60

*Soil Profile listed is for the Farmington soil portion of the Galway-Farmington complex.
**Soil Profile listed is for the Hollis soil portion of the Hollis-Chatfield-Rock outcrop complex.
***Soil Profile listed is for the Nassau soil portion of the Nassau-Cardigan complex.
****Soil Profile listed is for the Farmington soil portion of the Stockbridge-Farmington complex.

The Soil Conservation Service defines the hydrologic soil groups as follows:

- <u>Type A Soils:</u> Soils having a high infiltration rate and low runoff potential when thoroughly wet. These soils consist mainly of deep, well drained to excessively drained sands or gravelly sands. These soils have a moderate rate of water transmission.

- <u>Type B Soils:</u> Soils having a moderate infiltration rate when thoroughly wet and consists mainly of moderately deep to deep, moderately well to well drained soils with moderately fine to moderately course textures. These soils have a moderate rate of water transmission.

- <u>Type C Soils:</u> Soils having a low infiltration rate when thoroughly wet and consists chiefly of soils with a layer that impedes downward movement of water and soils with moderately fine-to-fine texture. These soils have a low rate of water transmission.

- <u>Type D Soils:</u> Soils having a very low infiltration rate and high runoff potential when thoroughly wet. These soils consist chiefly of clays that have high shrink-swell potential, soils that have a permanent high water table, soils that have a clay pan or clay layer at or near the surface, and soils that are shallow over nearly impervious material. These soils have a very low rate of water transmission.

The soils map for the study area is presented in Appendix I, as Figure 2.

5.3 Groundwater

The project site is not located over a primary, principal, or sole source aquifer as per the NYSDEC Division of Water Technical and Operational Guidance, Series (2.1.3), Primary and Principle Aquifer Determinations, Table 1, 1990, and the Atlas of Eleven Selected Aquifers in New York, U.S. Geological Survey in cooperation with the NYS Department of Health, 1982.

Depth to groundwater varies across the site according to Table 17 "Soil and Water Features" of the USDA Soil Conservation Service Soil Survey for Dutchess County as shown in Table 1 “USDA Soil Data”.

5.4 Topography

The overall site has varying slopes, with slopes ranging from over 100 percent to nearly level. Site elevations range from over 1100 feet above mean sea level (MSL) to approximately 480 feet above MSL. As previously discussed, the northern end of the site generally slopes southeasterly toward NYS Route 44. Overall, the western portion of the project site is generally higher in elevation than the rest of the project site and slopes toward the central and eastern portions of the project site. Refer to the accompanying plans for more information.

5.5 Wetlands

Wetlands depicted on the accompanying plan set were delineated by The Chazen Companies on May 3, 5, 6, and November 3, 2005. The wetland boundaries were surveyed by The Chazen Companies on June 7, November 3, and December 29, 2005 and are presented on a map entitled “Map of Wetland Survey Prepared for Higher Ground Country Club Management Co.” dated January 13, 2006. The majority of these wetlands are either federally or NYSDEC regulated and they encompass approximately 47(+/-) acres of the 668(+/-) acre property. A Wetland Delineation Report, dated January 2006, prepared by The Chazen Companies, has been submitted to the regulatory authorities in pursuit of jurisdictional determinations.

5.6 Surface Waters and Flood Plains

According to the National Flood Insurance Program Flood Insurance Rate Map (FIRM), Town of Amenia, New York, Community Panel Number 361332 0006 D a small portion of the project site located adjacent to the Amenia Stream lies within Flood Zone AE, an area of “Special Flood Hazard Area Inundated by 100-Year Flood” where base flood elevations have been determined. All other areas of the site appear to be outside the 100-year flood plain.

Numerous wetlands exist on-site, as well as three NYSDEC Class "C" streams. The first Class "C" stream is an unnamed stream that is located in central part of the northern portion of the project site (north of NYS Route 44). This unnamed stream eventually drains to a Class "C_t" stream known as Amenia Brook (also know as Cascade Brook). Amenia Brook enters the project site south of NYS Route 44, traverses along the eastern property boundary and exits the site near the existing golf course site entrance at NYS Route 22. Another Class "C" stream starts at the outlet of two wetlands (golf ponds) located in the central portion of the site. This unnamed stream flows through Wetland L (refer to accompanying plans) and eventually spills in the Amenia Brook off the project site.

Stormwater runoff from the project site flows to the one of three places; as previously mentioned the northern end of the project site eventually drains to the Amenia Brook. The existing entrance road off of NYS Route 22 and the immediate surrounding areas drain to existing infiltration ponds located at the existing site entrance. Finally the remainder of the project site (central portion, western-southwestern portion) drain to the large wetland (labeled as "Wetland L" on the accompanying plans) located in the southeastern portion of the project site.

The Amenia Brook is not a 303(d) listed segment, and it should be noted that the project is located within a Total Maximum Daily Load (TMDL) Watershed (Long Island Sound).

5.7 Rainfall Data

Rainfall data utilized in the modeling and analysis was taken from United States Department of Agriculture (USDA) Technical Release 55 (TP-55), Urban Hydrology for Small Watersheds. Rainfall data specific to the portion of Dutchess County under consideration, for various 24 hour storm events, are presented in Table 2:

Table 2: Rainfall Data

STORM EVENT	24-HOUR RAINFALL
1-year	2.7 inches
2-year	3.4 inches
10-year	5.0 inches
25-year	5.9 inches
50-year	6.7 inches
100-year	7.0 inches

The 2-year through the 100-year values were used to evaluate the pre- and post-development stormwater runoff conditions. The 1-year storm was used to ensure that all stormwater management basins meet the NYSDEC stream channel protection requirements.

6.0 EROSION AND SEDIMENT CONTROLS

The SWPPP and accompanying plans identify the temporary and permanent erosion and sediment control measures that have been incorporated into the design of this project. These measures will be implemented during construction, to minimize soil erosion and control sediment transport off-site, and after construction, to control the quality and quantity of stormwater runoff from the developed site.

Erosion control measures, designed to minimize soil loss, and sediment control measures, intended to retain eroded soil and prevent it from reaching water bodies or adjoining properties, have been developed in accordance with the following documents:

- NYSDEC SPDES General Permit for Stormwater Discharges From Construction Activity, Permit No. GP-02-01 (effective January 2003).

- *New York State Standards and Specifications for Erosion and Sediment Control*, NYSDEC (August 2005).

- *New York State Stormwater Management Design Manual*, NYSDEC (August 2003).

The SWPPP and accompanying plans outline the construction scheduling for implementing the erosion and sediment control measures. The SWPPP and accompanying plans include limitations on the duration of soil exposure, criteria and specifications for placement and installation of the erosion and sediment control measures, a maintenance schedule, and specifications for the implementation of erosion and sediment control practices and procedures.

6.1 Erosion and Sediment Control Measures

The proposed stormwater management system has been designed to convey stormwater flows off-site via a combination of closed storm sewers, open ditches, stormwater quality and quantity control measures with overflow spillways, thereby preventing erosion and uncontrolled conveyance to the down gradient facilities.

The use of micropool extended detention ponds and wet ponds provides treatment of stormwater runoff and removal of suspended particles.

Temporary and permanent erosion and sediment control measures that shall be applied during construction generally include:

1. Minimizing soil erosion and sedimentation by stabilization of disturbed areas and by removing sediment from construction-site discharges.

2. Preservation of existing vegetation as much as possible. Following the completion of construction activities in any portion of the site permanent vegetation shall be established on all exposed soils.

3. Site preparation activities shall be planned to minimize the area and duration of soil disruption.

4. Permanent traffic corridors shall be established and "routes of convenience" shall be avoided.

6.2 Temporary Erosion and Sediment Control Measures

Temporary erosion and sediment control measures are included as part of the construction documents and generally include the following:

1. Stabilized Construction Entrance

   Prior to construction, stabilized construction entrances will be installed, as shown on the detail plan, to reduce the tracking of sediment onto public roadways.

   Construction traffic must enter and exit the site at the stabilized construction entrance. The intent is to trap dust and mud that would otherwise be carried off-site by construction traffic.

   The entrance will be maintained in a condition, which will control tracking of sediment onto public rights-of-way or streets. When necessary, the placement of additional aggregate atop the filter fabric will be done to assure the minimum thickness is maintained. All sediments and soils spilled, dropped, or washed onto the public rights-of-way must be removed immediately. Periodic inspection and needed maintenance will be provided after each substantial rainfall event.

2. Dust Control

   Water trucks will be used as needed during construction to reduce dust generated on the site. Dust control must be provided by the general Contractor to a degree that is acceptable to the Owner, and in compliance with the applicable local and state dust control requirements.

3. Temporary Soil Stockpile

   Materials, such as topsoil, will be temporarily stockpiled (if necessary) on the site during the construction process. Stockpiles shall be located in an area away from storm drainage, water bodies and/or courses, and will be properly protected from erosion by a surrounding silt fence barrier.

4. Silt Fencing

   Prior to the initiation of and during construction activities, a geotextile filter fabric (or silt fence) will be established along the perimeter of areas to be disturbed as a result of the construction which lie up gradient of water courses or adjacent properties. These barriers may extend into non-impact areas to ensure adequate protection of adjacent lands.

   Clearing and grubbing will be performed only as necessary for the installation of the sediment control barrier. To ensure effectiveness of the silt fencing, daily inspections and inspections immediately after significant storm events will be performed by site personnel. Maintenance of the fence will be performed as needed.

5. Temporary Seeding

   Within 14 days after construction activity ceases on any particular area of the site, all disturbed areas where there will not be construction for longer than 21 days shall be temporarily seeded and mulched to minimize erosion and sediment loss.

6. Stone Inlet Protection Barrier

   Concrete blocks surrounded by wire mesh and crushed stone will be placed around both existing catch basins, and proposed catch basins once they have been installed, to keep sediment from entering the catch basins and storm sewer system. During construction, crushed stone shall be replaced as necessary to ensure proper function of the structure.

7. Erosion Control Blanket

   Erosion control blankets shall be installed on all slopes exceeding 3:1. Erosion control blankets provide temporary erosion protection, rapid vegetative establishment, and long-term erosion resistance to shear stresses associated with high runoff flow velocities associated with steep slopes.

8. Stone Check Dams

   Stone check dams will be installed within drainage ditches to reduce the velocity of stormwater runoff, to promote settling of sediment, and to reduce sediment transport offsite.

   The stone check dams will be inspected at least every seven (7) calendar days and within 24 hours of the end of a storm event of ½-inch or greater. Damage will be repaired upon discovery. If significant erosion has occurred between structures, a liner of stone or other suitable material will be installed in that portion of the channel.

   Sediment accumulated behind the stone check dam will be removed as needed to allow the channel to drain through the stone check dam and prevent large flows from carrying sediment over or around the dam. Stones shall be replaced as needed to maintain the design cross section of the structures.

9. Temporary Sediment Basin

   Temporary sediment basins will be constructed to intercept sediment laden runoff and reduce the amount of sediment leaving the disturbed areas and to protect drainage ways, properties, and rights-of-way.

   Temporary sediment basins will be inspected at least every seven (7) calendar days and within 24 hours of the end of a storm event of ½-inch or greater. All damages caused by soil erosion and construction equipment will be repaired upon discovery. Accumulated sediment will be removed from the basin when it reaches 50 percent of the design capacity and shall not exceed 50 percent. Sediment will not be placed downstream from the embankment, adjacent to a stream, or floodplain.

6.3 Permanent Erosion and Sediment Control Measures

Permanent erosion and sediment control measures are included as part of the construction documents and include the following:

1. Establishment of Permanent Vegetation

   Disturbed areas that will be vegetated must be seeded in accordance with the contract documents. The type of seed, mulch, and maintenance measures as described in the contract documents shall also be followed.

All areas at final grade must be seeded and mulched within 14 days after completion of the major construction activity. All seeded areas should be protected with mulch.

Final site stabilization is achieved when all soil-disturbing activities at the site have been completed and a uniform, perennial vegetative cover with a density of 80 percent has been established or equivalent stabilization measures (such as the use of mulches or geotextiles) have been employed on all unpaved areas and areas not covered by permanent structures.

2. Rock Outlet Protection

   Rock outlet protection shall be installed at the locations as indicated and detailed on the accompanying plans. The installation of rock outlet protection will reduce the depth, velocity, and energy of water, such that the flow will not erode the receiving water course or water body.

6.4 Other Pollutant Controls

Control of sediments has been described previously. Other aspects of this SWPPP are listed below:

1. Solid Waste Disposal

   No solid materials, including building materials, are allowed to be discharged from the site with stormwater. All solid waste, including disposable materials incidental to the major construction activities, must be collected and placed in containers. The containers will be emptied periodically by a contract trash disposal service and hauled away from the site.

   Substances that have the potential for polluting surface and/or groundwater must be controlled by whatever means necessary in order to ensure that they do not discharge from the site. As an example, special care must be exercised during equipment fueling and servicing operations. If a spill occurs, it must be contained and disposed so that it will not flow from the site or enter groundwater, even if this requires removal, treatment, and disposal of soil. In this regard, potentially polluting substances should be handled in a manner consistent with the impact they represent.

2. Sanitary Facilities

   Temporary sanitary facilities will be provided by the Contractor throughout the construction phase. They must be utilized by all construction personnel and will be serviced by a commercial Contractor. These facilities must comply with state and local sanitary or septic system regulations.

3. Water Source

   Non-stormwater components of site discharge must be clean water. Water used for construction, which discharges from the site, must originate from a public water supply or private well approved by the Health Department. Water used for construction that does not originate from an approved public supply must not discharge from the site. It can be retained in the ponds until it infiltrates and evaporates.

4. Long-Term Pollutant Controls

   In addition to the permanent stormwater management facilities, identified on the accompanying plans, stormwater pollutant control measures installed during construction that will also provide benefits after construction include temporary sediment basins and rip-rapped outfalls. Temporary sediment basins that do not interfere with normal operations and appear to provide long-term benefits may be left in place after construction is completed, as directed by the Operator.

6.5 Construction Housekeeping Practices

During the construction phase, the general Contractor will implement the following measures:

1. Material resulting from the clearing and grubbing operation will be stockpiled up slope from adequate sedimentation controls.

2. The general Contractor will designate areas for equipment cleaning, maintenance, and repair. The general Contractor and subcontractors will utilize those areas. The areas will be protected by a temporary perimeter berm.

3. The use of detergents for large scale washing is prohibited (i.e., vehicles, buildings, pavement surfaces, etc.)

4. Spill Prevention and Response

   A Spill Prevention and Response Plan shall be developed for the site by the Contractor. The plan shall detail the steps needed to be followed in the event of an accidental spill and shall identify contact names and phone numbers of people and agencies that must be notified.

The plan shall include Material Safety Data Sheets (MSDS) for all materials to be stored on-site. All workers on-site will be required to be trained on safe handling and spill prevention procedures for all materials used during construction. Regular tailgate safety meetings shall be held and all workers that are expected on the site during the week shall be required to attend.

5. Material Storage

Construction materials shall be stored in a dedicated staging area. The staging area shall be located in an area that minimizes the impacts of the construction materials effecting stormwater quality.

Chemicals, paints, solvents, fertilizers, and other toxic material must be stored in waterproof containers. Except during application, the contents must be kept in trucks or within storage facilities. Runoff containing such material must be collected, removed from the site, treated and disposed at an approved solid waste or chemical disposal facility.

6.6 Inspection and Maintenance Requirements

1. Pre-Construction Inspection and Certifications

Prior to the commencement of construction, the Operator's Engineer will conduct an assessment of the site and certify that the appropriate erosion and sediment control structures have been adequately installed and implemented. The Contractor shall contact the Operator's Engineer once the erosion and sediment control measures have been installed.

2. Construction Inspection and Maintenance

To ensure the stability and effectiveness of all protective measures and practices during construction, all erosion and sediment control measures employed will be inspected by the Operator's Engineer at least every seven (7) calendar days and within 24 hours of the end of a storm event of ½-inch or greater. Section 6.7 Subsection 1 "Inspection and Maintenance Reports" outlines what each inspection shall include.

In addition to the inspections performed by the Operator's Engineer, routine inspections shall be performed by the Contractor and include a visual check of all erosion and sediment control measures. All inspections and maintenance will be performed in accordance with the inspection and maintenance schedule provided on the accompanying plans. Sediment removed from erosion and sediment control measures will be exported from the site, stockpiled for later use, or used immediately for general non-structural fill.

3. Post-Construction Inspection and Maintenance

   Inspections shall be performed by the Operator in accordance with Appendix H, when all disturbed areas are stabilized and all stormwater management systems are in place and operable.

6.7 Reporting

1. Inspection and Maintenance Reports

   Inspection/maintenance reports shall be prepared prior to and during construction in accordance with the schedule outlined herein and in the SPDES General Permit GP-02-01. The reports shall be prepared to identify and document the maintenance of the erosion and sediment control measures.

   Specifically, each inspection shall record the following information:

   1. On a site map, indicate the extent of all disturbed site areas and drainage pathways. Indicate site areas that are expected to undergo initial disturbance or significant site work within the next 14 day period.

   2. Indicate on a site map all areas of the site that have undergone temporary or permanent stabilization.

   3. Indicate all disturbed site areas that have not undergone active site work during the previous 14 day period.

   4. Inspect all sediment control practices and record the approximate degree of sediment accumulation as a percentage of the sediment storage volume (e.g., 10 percent, 20 percent, 50 percent, etc.).

5. Inspect all erosion and sediment control practices and record all maintenance requirements such as verifying the integrity of barrier or diversion systems (earthen berms or silt fencing) and containment systems (sediment basins and sediment traps). Identify any evidence of rill or gully erosion occurring on slopes and any loss of stabilizing vegetation or seeding/mulching. Document any excessive deposition of sediment or ponding water along barrier or diversion systems. Record the depth of sediment within containment structures, any erosion near outlet and overflow structures, and verify the ability of rock filters around perforated riser pipes to pass water.

6. All deficiencies identified with the implementation of the SWPPP.

2. Site Log Book

   The Operator shall retain a copy of the SWPPP required by NYSDEC SPDES General Permit GP-02-01 at the construction-site from the date of initiation of construction activities to the date of final stabilization.

   During construction, the Operator or Operator's representative shall maintain a record of all erosion and sediment control inspection reports at the site in a log book. The site log book shall be maintained on-site and made available to the permitting authority.

3. Post Construction Records and Archiving

   Following construction, the Operator shall retain copies of the SWPPP, the complete construction site log book, and records of all data used to complete the NOI to be covered by this permit, for a period of at least three years from the date that the site is finally stabilized. This period may be extended by the Department, in its sole discretion, at any time upon written notification.

   The Operator should maintain a record of all post construction inspections and maintenance work performed in accordance with the requirements outlined in Appendix H.

7.0 STORMWATER MANAGEMENT PLAN

The goals of this Stormwater Management Plan are to analyze the peak rate of runoff under pre- and post-development conditions, not to exceed pre-development in order to minimize impacts to adjacent or downstream properties, and to minimize the development's impact on the quality of runoff leaving the site.

These objectives will be met by applying Best Management Practices (BMPs) to limit peak runoff rates and treat the stormwater runoff. In addition, both temporary and permanent erosion and sediment control measures will be installed prior to and during construction.

7.1 Stormwater Management Systems

Stormwater runoff from the proposed development will be collected and conveyed to the quantity and quality control systems described herein through a network of closed and open conveyances.

The closed stormwater network, consisting of catch basins, drainage manholes, and high density polyethylene piping (HDPE), has been designed to convey the 100-year storm event.

The open stormwater conveyance system, consisting of roadside ditches and HDPE culverts with flared end sections and inlet/outlet protection, has been designed to convey the 50-year storm event.

The following stormwater quantity and quality control systems have been incorporated into the stormwater management plan for this project:

1. Micropool Extended Detention Pond (P-1)

   The micropool extended detention pond is an effective means of removing pollutants and will provide a high pollutant removal rate for stormwater runoff. According to the NYSDEC publication *Reducing the Impacts of Stormwater Runoff from New Development*, high pollutant removal from extended detention ponds is primarily attributed to the permanent pool of water that provides gravity settling of sediment, chemical flocculation and biological uptake of pollutants.

   Sediment forebays will capture sediment and other trash/debris prior to entering the pond. The pond is landscaped with a variety of plantings including emergents and woody shrubs, with each type of planting corresponding to the water depth. An extended aquatic bench will maximize the biological uptake of pollutants.

   The Micropool extended detention pond(s) (P-1) were designed according to the criteria set forth in Section 6.1 “Stormwater Ponds” of the *NYS Stormwater Management Design Manual*.

2. Wet Pond (P-2)

   Wet ponds typically consist of two general components - a forebay and a permanent wet pool. The forebay provides pretreatment by capturing coarse sediment particles in order to minimize the need to remove the sediments from the primary wet pool. The wet pool serves as the primary treatment mechanism and where much of the retention capacity exists.

   When sized to store the water quality volume, a pond system will retain all of the water from storms that generate runoff less than or equal to the water quality volume and result in a significantly increased period of time available for treatment. For storms that generate runoff greater than the water quality volume, wet ponds still provide a reduced level of treatment through conventional settling and filtration for the additional runoff volume that is conveyed through the pond. When properly designed, the permanent pool reduces the velocity of incoming water to prevent resuspension of particles and promote settling of newly introduced suspended solids. The energy dissipating and treatment properties of the permanent pool are enhanced by aquatic vegetation, which is an essential part of the stormwater pond design.

   The wet ponds (P-2) were designed according to the criteria set forth in Section 6.1 “Stormwater Ponds” of the *NYS Stormwater Management Design Manual*. Design Calculations have been provided in Appendix L.

7.2 Hydrologic and Hydraulic Analysis

This report presents the pre-development and post-development features and conditions associated with surface water runoff within the study area. For both cases, the drainage patterns, drainage structures, soil types, and ground cover types are considered in this study.

1. Methodology

   The methodology used for the hydrologic and hydraulic analysis was obtained from the United States Department of Agriculture (USDA) Soil Conservation Service’s (SCS) Technical Release No. 20, as utilized by the application program HydroCAD. HydroCAD, developed by Applied Microcomputer Systems of Chocorua, New Hampshire, is a Computer-Aided-Design (CAD) program for analyzing the hydrologic and hydraulic characteristics of a given watershed and associated stormwater management facilities.

HydroCAD has the capability of computing hydrographs (which represent discharge rates characteristic of specified watershed conditions and precipitation), combining hydrographs and routing flows though pipes, streams and ponds. Documentation for HydroCAD can be found on their website: http://www.hydrocad.net/.

For this analysis, the watershed and drainage system was broken down into a network consisting of three types of components as described below:

1. Subcatchment: A relatively homogeneous area of land, which produces a volume and rate of runoff unique to that area.

2. Reach: Uniform streams, channels or pipes that convey stormwater from one point to another.

3. Pond: Natural or man-made impoundment, which temporarily stores stormwater runoff and empties in a manner determined by its geometry and the hydraulic structure located at its outlets.

Subcatchments, reaches, and ponds are represented by hexagons, squares, and triangles respectively, on the watershed routing diagrams provided with the computations included in Appendix J and Appendix K.

2. Analysis

The analysis of hydrologic and hydraulic conditions and proposed stormwater management facilities, servicing the study area, was performed by dividing the tributary watershed into relatively homogeneous sub-catchments. The separation of the watershed into sub-catchments was dictated by watershed conditions, methods of collection, conveyance, and points of discharge. Watershed characteristics for each subcatchment were then assessed from United States Geological Service (USGS) 7.5-minute topographic maps, aerial photographs, a topographical survey, soil surveys, site investigations, and land use maps.

Proposed stormwater management facilities were designed and evaluated in accordance with the *NYS Stormwater Management Design Manual* and local regulatory requirements. The hydrologic and hydraulic analysis considered the SCS, Type III 24-hour storm events identified in Table 3.

Table 3: Design Events

Facility	24 Hour Storm Event
Storm Culverts	50 year
Stormwater Collection and Conveyance System to Stormwater Management Facilities	100 year
Detention Basin (pond)	2 year
	10 year
	25 year
	50 year
	100 year
Flood Conditions	100 year

3. Study Area and Design Points (DP)

The study area consists of an overall watershed that encompasses approximately 776 acres and contains the entire 668-acre project site. The overall watershed was broken down into smaller watersheds, or subcatchments, to allow for analysis of runoff conditions at several locations throughout the study area. Each of these locations was defined as a Design Point (DP) in order to evaluate the effects of the project on the watershed hydrology. Descriptions of each of the selected design points are provided below.

- <u>Design Point 1</u>: A low area located adjacent to a utility easement within western half of the north portion of the project site (north of New York State Route 44). This low area is drained by a 36-inch Corrugated Metal Pipe (CMP) which flows under NYS Route 44 and discharges back onto the project site south of NYS Route 44. A total of 27-acres drain to this design point in a southeasterly direction.

- <u>Design Point 2</u>: A low area located within the NYS R.O.W. adjacent to NYS Route 44 at the southeastern side of the northern portion of the project site (north of NYS Route 44). This low area receives the waters from a NYSDEC Class “C” stream and is drained by a 24-inch reinforced concrete pipe (RCP). This 24-inch RCP flows under NYS Route 44 and discharges back onto the project site south of NYS Route 44. A total of 98-acres drain to this design point in a southeasterly direction.

- <u>Design Point 3:</u> The entrance to a 12-foot by 12-foot box culvert located within NYS Route 22 which conveys the Amenia Creek (also known as Cascade Brook) off the project site. This culvert is located within the NYS R.O.W. adjacent to NYS Route 22 on the eastern project site property boundary. A total of 213-acres drain to this design point in an easterly direction.

- Design Point 4: The outlet of "Wetland L" located within the NYS R.O.W. adjacent to NYS Route 22 along the eastern project site property boundary. The outlet associated with this wetland is a 30-inch CMP which crosses NYS Route 22 and discharges easterly offsite. A total of 489-acres drain to this design point in an easterly direction.

- Design Point 5: A low area located within the NYS R.O.W. adjacent to NYS Route 22. This area is off the project site near the southeast corner of the project property. The low area is drained by a culvert pipe, which crosses NYS Route 22 and discharges easterly. A total of 28-acres drain to this design point in an easterly direction.

7.3 Pre-Development Watershed Conditions

The existing project site is covered predominantly by open meadows, grass, wetlands, woods, as well as an existing 18-hole golf course, golf course club house and associated amenities. Analysis of pre-development conditions considered existing drainage patterns, soil types, ground cover, and topography. The Pre-Development Watershed Delineation Map has been provided in Appendix I as Figure 3. The results of the computer modeling used to analyze the overall watershed under pre-development conditions are presented in Appendix J. A summary of the pre-development discharge rates is presented in Table 4.

7.4 Post-Development Watershed Conditions

The analysis of post-development conditions considered existing drainage patterns, soil types, ground cover to remain, planned site development, site grading, and stormwater management facilities proposed as part of site improvements. The Post-Development Watershed Delineation Map has been provided in Appendix I as Figure 4. The results of the computer modeling used to analyze the overall watershed under post-development conditions are presented in Appendix K. A summary of the post-development discharge rates is presented in Table 4.

7.5 Hydrologic and Hydraulic Calculations

Comparison of pre- and post-development watershed conditions demonstrates that the peak rate of runoff from the proposed site will not be increased at all design points therefore will not pose a significant adverse impact to the adjacent or downstream properties or receiving water courses. Table 4 "Summary of Pre- and Post-Development Peak Discharge Rates" summarizes the results of the analyses for such comparison.

Table 4: Summary of Pre- & Post-Development Peak Discharge Rates

Pre- vs. Post-Development Discharge Rate (cfs)										
Design Point (DP)	2 year 24 hr storm event		10 year 24 hr storm event		25 year 24 hr storm event		50 year 24 hr storm event		100 year 24 hr storm event	
	Pre	Post	Pre	Post	Pre	Post	Pre	Post	Pre	Post
1	12.00	10.95	29.17	26.58	40.11	36.10	50.31	47.25	54.23	51.27
2	25.54	24.04	69.51	65.20	98.45	92.09	125.74	117.46	136.27	127.33
3	121.33	121.12	195.74	192.28	249.61	242.90	300.14	289.71	319.24	307.06
4	14.57	14.96	26.91	25.67	33.57	32.31	37.28	36.39	38.56	37.64
5	16.05	16.05	37.09	37.09	50.24	50.24	62.42	62.42	67.08	67.08

The results of the computer modeling used to analyze the stormwater management system under pre- and post-development conditions are presented in Appendix J and Appendix K, respectively.

7.6 Proposed Water Quantity and Quality Controls

1. Water Quantity Controls

   The proposed stormwater quantity controls will include open detention basins.

   The proposed quantity controls have been designed and sized to provide channel protection (C_{p_v}), overbank flood control ($Q_{p_{10}}$) and extreme flood protection ($Q_{f_{100}}$), where:

   - Channel Protection Volume (C_{p_v}) requirements are designed to protect stream channels from erosion. This is accomplished by providing 24 hours of extended detention of the 1-year 24-hour storm event, provided that this can be accomplished utilizing an outlet orifice sized to prevent clogging.

   - Overbank Flood Control Volume ($Q_{p_{10}}$) requirements are designed to prevent flow events that exceed the bankfull capacity of a channel, and therefore must spill over into the floodplain. This requires storage to assure that the post-development 10-year 24-hour peak discharge rates do not exceed pre-development rates.

- Extreme Flood Protection Volume ($Q_{f_{100}}$) requirements are designed to prevent the increased risk of flood damage from large storm events, maintain the boundaries of pre-development 100-year floodplain, as well as to protect the physical integrity of the stormwater management practices. This requires storage to assure that the post-development 100-year 24-hour peak discharge rates do not exceed pre-development rates.

There are numerous locations and methods for providing controls of off-site discharge of stormwater. Each proposed stormwater management basin has been designed to provide the above quantity controls by attenuating stormwater runoff from several storm events (up to and including the 100-year event) to ensure that the discharge rate at each design point is equal to or less than the rate that existed prior to development of the site. The performance of each stormwater management basin during each of the design storms can be found in Appendix K of this report.

2. Water Quality Controls

Stormwater runoff from impervious surfaces is recognized as a significant contributor of pollution that can adversely affect the quality of the receiving water bodies. Therefore, treatment of stormwater runoff is important since most runoff related water quality contaminants are transported from land, particularly the impervious surfaces, during the initial stages of storm events.

The proposed water quality (WQ_v) controls have been sized based on the 90% rule methodology as described in Table 4.1 "New York Stormwater Sizing Criteria" of the *NYS Stormwater Management Design Manual* dated August 2003. The water quality (WQ_v) control is defined as:

$$WQ_v = \frac{[(P)(R_V)(A)]}{12}$$

Where:

P	=	90% Rainfall Event Number
R_v	=	0.05 + 0.009 (I), minimum R_v = 0.2
I	=	Impervious Cover (Percent)
A	=	Site Area in Acres

Utilizing the above design equation, each of the devices has been sized accordingly to provide the required water quality volume (WQ_v) for its contributing drainage area. Design computations for the Stormwater Quality Control Components for each basin are presented in Appendix L.

8.0 CONCLUSION

The Chazen Companies have completed a Master Stormwater Pollution Prevention Plan for the planned Silo Ridge Country Club Resort Community. The intent of this Master SWPPP was to provide sufficient documentation for an overall SEQR determination, and to serve as the baseline for the final SWPPP that will be prepared for the proposed development, as approved.

The analyses included the review of watershed conditions, hydrologic and hydraulic analysis using computer modeling, and an evaluation of the proposed improvements across the subject site. The plan allows for the maintenance of existing drainage patterns while continuing the conveyance of stormwater runoff from upland watershed areas.

The plan controls increases in the stormwater rate of runoff resulting from the proposed development without adversely affecting downstream conditions. This is demonstrated by comparing pre- and post-development flows for various storm events. Table 4 “Summary of Pre- and Post-Development Peak Discharge Rates” summarizes the results of the analyses for such comparison.

The comparison of pre- and post-development watershed rate of runoff demonstrates that off-site peak flow conditions at the design points will pose no significant adverse impacts to the adjacent or downstream properties or receiving water courses.

The proposed stormwater collection system consisting of pipes, open drainage ways and on-site stormwater management facilities will adequately collect, treat, and convey the stormwater. Stormwater quality will be enhanced through the implementation of the proposed stormwater management facilities, erosion and sediment control measures and maintenance practices outlines herein.

In conclusion, it is our opinion that the proposed development will not adversely impact adjacent or downstream properties if the stormwater management facilities are properly constructed, and maintained in accordance with the requirements outlined herein.

Appendix A:
NYSDEC SPDES
General Permit GP-02-01

NEW YORK STATE
DEPARTMENT OF ENVIRONMENTAL CONSERVATION

SPDES GENERAL PERMIT
FOR STORMWATER DISCHARGES

from

CONSTRUCTION ACTIVITY

Permit No. GP-02-01

Issued Pursuant to Article 17, Titles 7, 8 and Article 70
of the Environmental Conservation Law

Effective Date: January 8, 2003 | Expiration: January 8, 2008

William R. Adriance
Chief Permit Administrator

Address: NYS DEC
Div. Environmental Permits
625 Broadway, 4th Floor
Albany, N.Y. 12233-1750

Authorized Signature
William R. Adriance

Date: January 8, 2003

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NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION
SPDES GENERAL PERMIT FOR STORMWATER DISCHARGES
FROM CONSTRUCTION ACTIVITY

Preface

Pursuant to Section 402 of the Clean Water Act ("CWA"), stormwater discharges from certain construction activities to waters of the United States[1] are unlawful unless they are authorized by a NPDES (National Pollutant Discharge Elimination System) permit or by a state permit program. New York's SPDES (State Pollutant Discharge Elimination System) is a NPDES-approved program with permits issued in accordance with the Environmental Conservation Law ("ECL"). Discharges of pollutants to all other "Waters of New York State" such as groundwaters are also unlawful unless they are authorized by a SPDES permit.

A discharger, owner, or operator may[2] obtain coverage under this general permit by submitting a Notice of Intent ("NOI") to the Department. Copies of this General Permit and the NOI for New York are available by calling (518) 402-8109 or at any Department of Environmental Conservation (the Department) regional office (see Appendix A on Page 23). They are also available on the Department's website at:

www.dec.state.ny.us

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1 "Waters of the United States" means:

(a) All waters which are currently used, were used in the past, or may be susceptible to use in interstate or foreign commerce, including all waters which are subject to the ebb and flow of the tide; and
(b) All interstate waters, including interstate "wetlands"; and
(c) All other waters such as interstate lakes, rivers, streams (including intermittent streams), mudflats, sandflats, wetlands, sloughs, prairie potholes, wet meadows, playa lakes, or natural ponds the use, degradation, or destruction of which would affect or could affect interstate or foreign commerce including any such waters:
  (1) Which are or could be used by interstate or foreign travelers for recreational or other purposes; or
  (2) From which fish or shellfish are or could be taken and sold in interstate or foreign commerce; or
  (3) Which are used or could be used for industrial purposes by industries in interstate commerce; and
(d) All impoundments of waters otherwise defined as waters of the United States under this definition; and
(e) Tributaries of waters identified in paragraphs (a) through (d) of this definition; and
(f) The territorial sea; and
(g) Wetlands adjacent to waters (other than waters that are themselves wetlands) identified in paragraphs (a) through (f) of this definition.

Waste treatment systems, including treatment ponds or lagoons designed to meet the requirements of the CWA are not waters of the United States. This exclusion applies only to manmade bodies of water which neither were originally created in waters of the United States (such as disposal areas in wetlands) nor resulted from the impoundment of waters of the United States.

2 "may" refers to circumstances under which the discharger is ineligible for coverage under this general permit because of other provisions of this permit. Dischargers which are excluded from coverage under this general permit as provided for in Part I, Section C, for example, are not authorized to discharge under this permit. This also applies to possible situations in which an NOI has been submitted and/or a regulatory fee paid pursuant to Article 72 of the ECL. The submittal of an NOI and/or regulatory fee has no bearing or relevance whatsoever on the eligibility of the construction activity discharging stormwater runoff under the authority of this permit.

Local Programs of a Regulated MS4

Under the federal Phase II stormwater program, many cities, villages, towns, and other public entities in New York State which are located within “Urbanized Areas” as defined by the U.S. Census and who operate a Municipal Separate Storm Sewer System (“MS4”) will be required to obtain SPDES permit coverage for stormwater discharges under their jurisdiction and control (see 40CFR Part 122 §122.26.32). Additionally, MS4s may be designated by the Department as regulated MS4s. Among other requirements, the Phase 2 NPDES stormwater regulations require regulated MS4s to address stormwater runoff from construction activities. Construction activities covered under this general permit, which are subject to stormwater runoff controls of a regulated MS4, will also need to comply with the MS4's controls.

Five (5) Day Coverage

Prior to the submission of an NOI, the owner or operator must have completed a Storm Water Pollution Prevention Plan (SWPPP) that complies with all requirements of this general permit. Submitting an NOI is an affirmation that a SWPPP has been prepared and will be implemented. If an applicant certifies that the SWPPP has been developed in conformance with the Department’s technical standards, the applied-for activity may obtain coverage under this general permit in five (5) business days after the Department’s receipt of the NOI provided, that the activity is eligible for coverage under this general permit and that the Department has not informed the applicant otherwise.

Sixty (60) Day Coverage

While the Department’s technical standards are appropriate statewide, it is recognized that there may be situations where stormwater management goals can best be met by alternative means that are more suitable given local conditions.

For construction projects in these situations, applicants must identify in their NOI each of the deviations from the Department’s technical standards that they are seeking. Applicants must also explain why the deviations are needed or desired and what impacts to water quality, if any, can be expected if the deviation were allowed. Applicants must also explain the actions, if any, that local board(s) have taken with respect to the deviation(s). For applicants which cannot certify conformance with the Department’s technical standards, the SWPPP must also be certified by a licensed/certified professional that the SWPPP has been developed in a manner which will insure compliance with water quality standards and with the substantive intent of this permit.

In cases of deviations from the Department’s technical standards, applicants must allow sixty (60) business days after the receipt by the Department of a completed NOI and certification before gaining coverage under this general permit and before initiating any construction activity. During this 60 day period, the Department may conduct further review of the NOI and SWPPP. If additional information is needed to complete the review, the NOI will be considered incomplete and the applicant will be so advised. The intent of this provision is to require conformance the Department's technical standards wherever possible and appropriate. At the same time, alternative means to address stormwater control may be allowed under this general permit where they are more suitable for the site in question and where they will not diminish water quality protection.

There are other scenarios under which coverage under this general permit will not occur until 60 business days from the receipt of a completed NOI. For example, if the construction activity or post construction runoff causes the discharge of a pollutant of concern to a water identified on the 303(d) list or a watershed with an approved TMDL for that pollutant of concern, coverage under the general permit will not occur until sixty (60) business days from the receipt by the Department of a completed NOI. For these projects the operator may be required to submit the SWPPP and/or appropriate certification(s) to the Department for review. The flowchart shown in Figure 1 on page vi will help to describe the process under which certain conditions exist that require possible further analysis and water quality/quantity considerations.

Computer Tool Available For Completion of SWPPPs and NOIs Under Development

The Department is currently developing an interactive computer software tool entitled "How to Prepare SWPPPs and Notices of Intent" to assist applicants in both developing SWPPPs and completing NOIs. This will be available in the near future for use on the Department website as well as being packaged independently on compact discs. This tool will contain guidance as well as many useful links to reference materials and documents concerning erosion and sedimentation control, as well as to the design of stormwater management practices . The Department's website will contain the latest information and guidance on the various tools available.

The Department's Technical Standards

The Department's technical standards for erosion and sediment control are contained in the document, *"New York Standards and Specifications for Erosion and Sediment Control"*[3] published by the Empire State Chapter of the Soil and Water Conservation Society. For the design of water quantity and water quality controls (post-construction stormwater control practices), the Department's technical standards are detailed in the *"New York State Stormwater Management Design Manual."* Both of these documents are available on the Department's website. If an applicant certifies that stormwater management practices will conform to the Department's technical standards, then coverage under the permit may occur sooner than otherwise would be the case if non-conformance with the manuals existed. See Figure 1 on page vi for more information.

[3] Previously, the *"New York Guidelines for Urban Erosion and Sediment Control"*, also commonly referred to as the "Blue Book".

Permit Valid for Any Size Disturbance

This permit may be used for construction activities involving any amount of disturbed acreage, provided that all other eligibility conditions in subsection B of Part I are satisfactorily met (see page 2 of this permit). Thus, this permit may apply to activities identified under 40 CFR Part 122, subsection 122.26(b)(14)(x) which are also referred to as "NPDES Phase 1 construction activities" involving soil disturbances of five (5) acres or more. This permit may also apply to activities identified under 40 CFR Part 122, subsection 122.26(b)(15) which are also referred to as "NPDES Phase 2 small construction activities" involving soil disturbances of between one (1) and five (5) acres. And, this permit may also apply to construction activities involving soil disturbances of less than one (1) acre if the Department determines that a SPDES permit is required pursuant to the ECL. In any and all cases, all of the eligibility provisions of this general permit must be met in order to gain coverage.

Notice of Termination

After construction is completed as defined in the general permit (see Part II beginning on Page 7), cancellation of coverage is accomplished by the submittal of a Notice of Termination ("NOT"). Failure to submit a NOT may result in the continued obligation to pay a yearly Regulatory Fee established pursuant to Article 72 of the ECL and/or may be cause for suspension of permit coverage.

Previous versions of NOIs, NOTs and Notices of Intent, Transfer and Termination ("NOITT"s) cannot be used in conjunction with this general permit. There is a new NOI required for obtaining coverage under this general permit. Failure to include information identified as "mandatory" entries on the new NOI form may prevent and/or delay discharge authorization being sought under this permit.

The new NOT will also include an identification of any permanent structures that are being left on the site after stabilization occurs and after termination of permit coverage under this general permit. The NOT will also include a certification that the structures were constructed as described in the SWPPP and that an Operation and Maintenance ("O&M") manual has been prepared and has been made available to the owner of such permanent structures who is expected to conduct the necessary O&M over the life of the structure(s).

Ineligible Activities

The submittal of a completed NOI and/or the payment of an annual regulatory fee by an applicant does not necessarily mean that an applicant is covered under this permit if the applicant is ineligible for coverage under this permit under the terms cited in Part I of this permit. In other words, submitting a completed NOI and paying an annual regulatory fee does not automatically gain an applicant permit coverage if the applicant is ineligible for coverage under this permit even if the Department fails to immediately inform the applicant of such ineligibility.

Permit Expiration Date

Coverage under this general permit is available January 8, 2003 and will expire five (5) years after issuance on January 8, 2008.

Activities Previously Covered Under GP-93-06

In a separate proposal, the Department is also concurrently seeking to re-issue GP-93-06 with an expiration of August 1, 2003. The purpose of this action is to provide a transition period for permittees which have had SPDES permit coverage under GP-93-06 immediately prior to January 8, 2003, the effective date of GP-02-01. **Prior to August 1, 2003**, these activities will need to:
(1) stabilize their sites in accordance with GP-93-06 and submit an NOT; or, if necessary,
(2) gain coverage under GP-02-01 by submitting a new NOI.

For **new** construction activities, coverage under GP-93-06 will not be available after the effective date of GP-02-01, January 8, 2003. Such discharges may be eligible for coverage under GP-02-01 (see Part I.B. on page 2 of this permit).

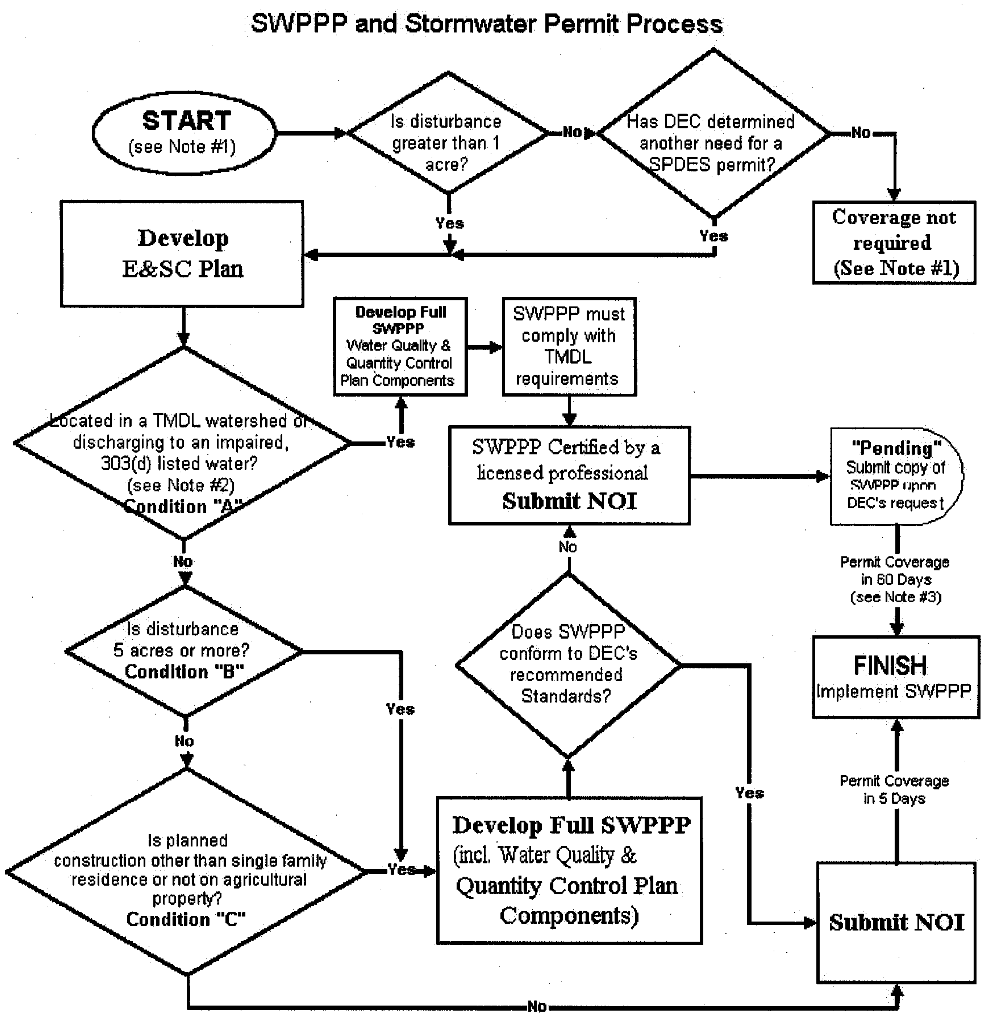
Water Quality Violations Not Permitted

This permit does not authorize any person to cause or contribute to a condition in contravention of any water quality standards that are contained in the Rules and Regulations of the State of New York (see Part I of this permit on page 2) even if the permittee is in compliance with all other provisions of this permit. Any violations of water quality standards may be considered by the Department to be violations of this permit and/or the ECL, including its accompanying regulations.

Other Department Permits

Construction activities may also require other Department permits in addition to the coverage provided by this general permit including, but not limited to, dam safety**,** wetlands and stream protection. Such other Department permits must be obtained separately from coverage under this general permit. Further information concerning these permits should be sought from the Regional Permit Administrator at the appropriate Department regional office (See Appendix A on page 23).

FIGURE 1



NOTES:

1. Under any of the above conditions other environmental permits may be required. DEC may require permit for construction disturbance < 1 acre on a case by case basis.
2. **and** the following exists: construction and/or stormwater discharges from the construction or post-construction site contain the pollutant of concern identified in the TMDL or 303(d) listing.
3. After receipt by DEC of completed application.

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION
SPDES GENERAL PERMIT FOR STORMWATER DISCHARGES

FROM CONSTRUCTION ACTIVITIES

TABLE OF CONTENTS

Part I. COVERAGE UNDER THIS PERMIT

A. **Maintaining Water Quality** - It shall be a violation of this general permit and the Environmental Conservation Law ("ECL") for any discharge authorized by this general permit to either cause or contribute to a violation of water quality standards as contained in Parts 700 through 705 of Title 6 of the Official Compilation of Codes, Rules and Regulations of the State of New York including, but not limited to:

1. There shall be no increase in turbidity that will cause a substantial visible contrast to natural conditions;

2. There shall be no increase in suspended, colloidal and settleable solids that will cause deposition or impair the waters for their best usages; and

3. There shall be no residue from oil and floating substances, nor visible oil film, nor globules of grease.

B. **Eligibility Under This General Permit**

1. This permit may authorize all discharges of stormwater from construction activity[4] to surface waters and groundwaters except for ineligible discharges identified under subparagraph C of this Part (see below). Discharge authorization under this permit requires the submittal of a completed NOI.

2. Except for non-stormwater discharges explicitly listed in the next paragraph, this permit only authorizes stormwater discharges from construction activities.

3. Notwithstanding paragraphs B.1 and B.2 above, the following non-stormwater discharges may be authorized by this permit: discharges from fire

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[4] This includes discharges of stormwater associated with industrial activity identified under 40 CFR Part 122, subsection 122.26(b)(14)(x), small construction activities identified under 40 CFR Part 122, subsection 122.26(b)(15) or any other stormwater from construction activities that are not otherwise ineligible for coverage under this permit (See Part I, subsection B beginning on page 2).

fighting activities; fire hydrant flushings; waters to which cleansers or other components have **not** been added that are used to wash vehicles or control dust in accordance with the SWPPP, routine external building washdown which does not use detergents; pavement washwaters where spills or leaks of toxic or hazardous materials have not occurred (unless all spilled material has been removed) and where detergents are not used; air conditioning condensate; springs; and foundation or footing drains where flows are not contaminated with process materials such as solvents. For those entities required to obtain coverage under this general permit, and who discharge as noted in this paragraph, and with the exception of flows from fire fighting activities, these discharges must be identified in the SWPPP(see Part III beginning on Page 7). Under all circumstances, the permittee must still comply with water quality standards (see Part I, subsection A on Page 2).

C. **Activities Which Are Ineligible for Coverage Under This General Permit** - All of the following stormwater discharges from construction activities are **not** authorized by this permit:

1. Discharges after construction activities have been completed and the site has undergone final stabilization[5];

2. Discharges that are mixed with sources of non-stormwater other than those expressly authorized under subsection B.3. of this Part (see page 3) and identified in the SWPPP required by this permit;

3. Discharges that are subject to an existing SPDES individual or general permit or which are required to obtain an individual or alternative general permit pursuant to Part V, subparagraph K (see page 21) of this permit;

4. Discharges that are likely to adversely affect a listed, or proposed to be listed, endangered or threatened species, or its critical habitat;

5. Discharges which are subject to an existing effluent (limitation) guideline addressing stormwater and/or process wastewater unless said guidelines are contained herein; or

6. Discharges which either cause or contribute to a violation of water quality standards adopted pursuant to the ECL and its accompanying regulations (See subsection A of Part I on page 2).

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[5] "Final Stabilization" means that all soil disturbing activities at the site have been completed, and that a uniform perennial vegetative cover with a density of 80% has been established or equivalent stabilization measures (such as the use of mulches or geotextiles) have been employed on all unpaved areas and areas not covered by permanent structures.

D. **<u>Authorization Under This General Permit</u>**

1. An operator[6] must submit a completed NOI form in order to be authorized to discharge under this general permit. The NOI form shall be one which is associated with this general permit, signed in accordance with Part V. H.(see Page 19) of this permit and submitted to the address indicated on the NOI form. NOIs and NOITTs used in association with either previous or other general permits are not valid for obtaining coverage under this general permit. The submittal of an NOI is an affirmation to the operators' understanding and belief that the activity is eligible for coverage under this permit and that a SWPPP has been prepared and will be implemented in accordance with Part III of this permit.

2. All contractors and subcontractors of the operator identified under Part III.E.1 (see page 17) must provide the certification cited under Part III.E.2 (see page 17). Such certifications shall become part of the SWPPP for the construction activity covered under this general permit.

3. Unless notified by the Department to the contrary, operators who are eligible for coverage under this permit **and** who submit an NOI in accordance with the requirements of this permit, may be authorized to discharge stormwater from construction activities under the terms and conditions of this permit, and in accordance with the following timetable:

a. For construction activities which:

(1) develop a SWPPP in conformance with the Department's technical standards (See subsection D of Part III on page 10), and do not or will not discharge a pollutant of concern to an impaired water or a TMDL watershed;

or

(2) as of the effective date of this general permit, GP-02-01, have obtained coverage under, and are operating in compliance with, GP-93-06; and do not or will not discharge a pollutant of concern to an impaired water or a TMDL watershed;

authorization to discharge under this permit may occur <u>five (5) business days</u> after the date on which the NOI is received by the Department.

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6 For the purposes of this permit, the term "operator" means the person, persons, or legal entity which owns or leases the property on which the construction activity is occurring. Also, see Part V., subsection H. on page 19 of this permit.

b. For activities which do not comply with the preceding subsection (i.e. Part I.D.3.a.), authorization to discharge under this permit will begin no sooner than sixty (60) business days from the receipt of the completed NOI unless notified differently by the Department pursuant to Part V, subsection K of this permit (see page 21). For activities not satisfying Part I.D.3.a.(1) above, or for construction site runoff subject to a TMDL (see Figure 1 on page vi), the SWPPP must be prepared by a licensed/certified professional[7] and include a certification stating that the SWPPP has been developed in a manner which will assure compliance with water quality standards (see Part I.A.) and with the substantive intent of this permit.

c. For construction activities which are subject to a sixty-day period provision identified in the preceding subparagraph b., the SWPPP shall include each of the components identified in Part III.A.1.b. (see page 8).

4. At its sole discretion, the Department may deny or terminate coverage under this permit and require coverage under another SPDES permit at any time based on a review of the NOI, the SWPPP or other relevant information (see Part V, subsection K of this permit on page 21).

5. A copy of the NOI and a brief description of the project shall be posted at the construction site in a prominent place for public viewing.

6. A signed copy of the NOI, the SWPPP, and any reports required by this permit shall also be submitted concurrently to the local governing body and any other authorized agency[8] having jurisdiction or regulatory control over the construction project.

7. New stormwater discharges from construction activities that require any other Uniform Procedures Act permit (Environmental Conservation Law, 6 NYCRR Part 621) cannot be covered under this general permit until the other required permits are obtained. Upon satisfaction of the State Environmental Quality Review Act ("SEQRA") for the proposed action and issuance of necessary permits, the applicant may submit an NOI to obtain coverage under this general

7 A "licensed/certified professional" means a person currently licensed to practice engineering in New York State or is a Certified Professional in Erosion and Sediment Control (CPESC).

8 For the purposes of this general permit, "any other authorized agency" shall include any local, regional, or state entity or agency except the Department which has authority to review stormwater discharge from the project, including authority under any approved watershed protection plan or regulations.

permit.[9] In order to facilitate the Department's review of a multi-permitted project, an applicant should submit, at a minimum, a copy of the SWPPP which contains the information specified in Appendix B (see page 24). This information will assist the Department in determining whether or not coverage under this general permit or another SPDES permit is the more appropriate option. The Department may also require the submission of additional information in order to determine the SWPPP's conformance with the Department's technical standards.

8. Upon renewal of this general permit or issuance of a new general permit, the permittee is required to notify the Department of its intent to be covered by the new general permit. Coverage will continue under this permit for its term unless action is taken to terminate permit coverage as provided elsewhere in this permit. See also Part V. subsection B. on page 18 of this permit.

9. In the event of a transfer of ownership or responsibility for stormwater runoff, there can be no "automatic" transfer of permit coverage from one permittee to the next without appropriate notification from the dischargers. The former permittee must submit an NOT and notify the new discharger of the possible need for the new discharger to submit a new NOI (see Section E, subparagraph 2 below).

E. **<u>Deadlines for Notification</u>**

1. Operators who intend to obtain coverage under this general permit for stormwater runoff from construction activities must submit an NOI in accordance with the requirements of this Part at least five (5), or sixty (60) business days, as appropriately determined from Part I, Section D.3 (see page 4) prior to the commencement of construction[10] activities.

2. For stormwater runoff from construction activities where the operator changes, a new NOI must be submitted by the new operator in accordance with the requirements of this permit. The former operator must submit a NOT in accordance with Part II (see page 7) of this permit and notify the new operator of the requirement to submit a new NOI to obtain coverage under this permit. The new operator must also review and sign the SWPPP in accordance with Part III.B.(see page 9) and continue implementation of the SWPPP as required by this

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9 The purposes of this subsection is to assure that the requirements of SEQRA are fulfilled, if necessary, before any discharge authorization under this general permit is granted.

10 "Commencement of Construction" means the initial disturbance of soils associated with clearing, grading, or excavating activities, or other construction activities.

permit.

Part II. TERMINATION OF COVERAGE[11]

Where a site has been finally stabilized, the operator must submit a NOT form prescribed by the Department for use with this general permit. The NOT shall be signed in accordance with Part V. H.(see page 19) of this permit and submitted to the address indicated on the approved NOT form.

The permittee must identify all permanent stormwater management structures that have been constructed and provide the owner(s) of such structures with a manual describing the operation and maintenance practices that will be necessary in order for the structure to function as designed after the site has been stabilized. The permittee must also certify that the permanent structure(s) have been constructed as described in the SWPPP.

Part III. STORMWATER POLLUTION PREVENTION PLANS ("SWPPP"s)

A. General

1. SWPPP Preparation

a. A SWPPP shall be developed by the operator for construction activities at each site to be covered by this permit, prior to the initiation of activities requiring coverage under this permit. SWPPPs shall be prepared in accordance with sound engineering practices. The SWPPP shall identify potential sources of pollution which may reasonably be expected to affect the quality of stormwater discharges. In addition, the SWPPP shall describe and ensure the implementation of practices which will be used to reduce the pollutants in stormwater discharges and to assure compliance with the terms and conditions of this permit. Operators are encouraged to have their SWPPP reviewed for adequacy and completeness by the local soil and water conservation district ("SWCD") and/or other professionals qualified in erosion and sediment control practices[12] and stormwater management. Moreover, if the construction activity is identified under Part I, subsection D.3.b. (See page 5), or for construction site runoff subject to a TMDL (see Figure 1 on page vi), the SWPPP must include a certification by a licensed/certified professional.

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11 Submittal of an NOT will terminate coverage under this general permit and will also remove the permittee from subsequent billings of the annual regulatory fee levied under Article 72 of the ECL.

12 For example, CPESC, Inc. administers a certified program of individuals under its CPESC (Certified Professional in Erosion and Sediment Control) program which is sponsored by the International Erosion Control Association (IECA) and the Soil and Water Conservation Society (SWCS) and is endorsed by USDA - Natural Resources Conservation Service. CPESC, Inc. also administers the CPSWQ (Certified Professional in Stormwater Quality) program.

b. All SWPPPs shall include erosion and sediment controls. For construction activities meeting either Condition “A”, “B” or “C” described below, the SWPPP shall also include water quantity and water quality controls (post-construction stormwater control practices).(see Part III. D.).

(1) Condition A - Construction site or post construction runoff discharging a pollutant of concern to either an impaired water identified on DEC’s 303(d) list or a TMDL watershed for which pollutants in stormwater have been identified as a source of the impairment.

(2) Condition B - Construction site runoff from Phase 1 construction activities (construction activities disturbing five (5) or more acres) identified under 40 CFR Part 122, §122.26(b)(14)(x).

(3) Condition C - Construction site runoff from construction activity disturbing between one (1) and five (5) acres of land during the course of the project, exclusive of the construction of single family residences and construction activities at agricultural properties.

2. **SWPPP Implementation** - Operators are responsible for implementing the provisions of the SWPPP and ensuring that all contractors and subcontractors who perform professional services at the site provide certification of the SWPPP in accordance with Part I.D.2. (see page 4) and Part III.E.2. (see page 17) of this permit. All contractors and subcontractors identified in the SWPPP in accordance with Part III.E.1. (see page 17) of this permit must agree to implement applicable provisions of the SWPPP and satisfy the certification requirement of Part III.E.2. (see page17). However, contractors and subcontractors who are not operators, as defined in this permit (see page 4), are not required to submit a NOI in addition to the NOI submitted by the operator.

3. **Deadlines for SWPPP Preparation and Compliance** - The SWPPP must be developed prior to the submittal of an NOI and provide for compliance with the terms and schedule of the SWPPP beginning with the initiation of construction activities. The operator shall also certify in the SWPPP that all appropriate stormwater control measures will be in place before commencement of construction of any segment of the project that requires such measures.

4. **Local Requirements** - Developing a SWPPP that complies with the requirements listed herein does not relieve an operator from the obligation of complying with stormwater management requirements of the local government having jurisdiction over the project.

5. **Activities Previously Covered Under GP-93-06** - For construction activities which are covered by GP-93-06 as of the effective date of this permit (GP-02-01), the continued implementation of their SWPPP that was developed and implemented in accordance with GP-93-06 is acceptable until such time as:

(a) an NOT is submitted;

(b) the Department notifies them otherwise in accordance with this permit, including Part V, subsection K (see page 21); or

(c) this permit expires.

B. **Signature and SWPPP Review**

1. The SWPPP shall be signed in accordance with Part V. H.(see page 19), and be retained at the site where the construction activity occurs in accordance with Part IV (see retention of records on page 17) of this permit.

2. The permittee shall submit a copy of the SWPPP and any amendments thereto to the local governing body and any other authorized agency having jurisdiction or regulatory control over the construction activity. The operator shall make SWPPPs available upon request to the Department and any local agency having jurisdiction; or in the case of a stormwater discharge associated with industrial activity which discharges through a municipal separate storm sewer system, to the municipal operator of the system.

3. The Department, or its authorized representative, may notify the permittee at any time that the SWPPP does not meet one or more of the minimum requirements of this permit. Such notification shall identify those provisions of the permit which are not being met by the SWPPP and identify which provisions of the SWPPP require modifications in order to meet the minimum requirements of this permit. Within seven (7) days of such notification, (or as otherwise provided by the Department) the permittee shall make the required changes to the SWPPP and shall submit to the Department a written certification that the requested changes have been made. Notwithstanding the foregoing, the Department reserves all rights to enforce the terms of the ECL.

C. **Keeping SWPPPs Current** - The permittee shall amend the SWPPP whenever:

1. There is a significant change in design, construction, operation, or maintenance which may have a significant effect on the potential for the discharge of pollutants to the waters of the United States and which has not otherwise been addressed in the SWPPP; or

2. The SWPPP proves to be ineffective in:

a. Eliminating or significantly minimizing pollutants from sources identified in the SWPPP required by this permit, or

b. Achieving the general objectives of controlling pollutants in stormwater discharges from permitted construction activity.

3. Additionally, the SWPPP shall be amended to identify any new contractor or subcontractor that will implement any measure of the SWPPP (see Part III.E, page 17 below). Amendments to the SWPPP may be reviewed by the Department in the same manner as provided by Part III.B (see page 9 above).

D. **General Contents of SWPPPs** -

1. Standards for construction activities covered under this permit - The Department's technical standards for erosion and sediment controls are detailed in the "*New York Standards and Specifications for Erosion and Sediment Control*"[13] published by the Empire State Chapter of the Soil and Water Conservation Society. For the design of water quality and water quantity controls (post-construction stormwater control practices), the Department's technical standards are detailed in the "*New York State Stormwater Management Design Manual.*"

If an operator certifies that the SWPPP has been developed in conformance with the Department's technical standards referenced above, they may obtain coverage under this general permit in five (5) business days from the Department's receipt of the NOI, provided the construction activity does not meet Condition A in Part III.A.1.b. For SWPPPs which will not conform with the Department's technical standards, the SWPPP must be prepared by a licensed/certified professional and include a certification stating that the SWPPP has been developed in a manner which will assure compliance with the State's water quality standards and with the substantive intent of this permit. In addition, coverage under this general permit will not begin until sixty (60) business days from the receipt of a completed NOI.

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13 Previously, the "*New York Guidelines for Urban Erosion and Sediment Control*," also commonly referred to as the "Blue Book."

2. **<u>Minimum SWPPP Components</u>** SWPPPs prepared pursuant to this general permit shall present fully designed and engineered stormwater management practices with all necessary maps, plans and construction drawings. The SWPPP must, at a minimum, include the following:

a. <u>For all construction activities subject to this general permit</u> **-**

(1). provide background information about the scope of the project, including the location, type and size of project.

(2) provide a site map/construction drawing(s) for the project, including a general location map. At a minimum, the site map should show the total site area; all improvements; areas of disturbance; areas that will not be disturbed; existing vegetation; on-site and adjacent off-site surface water(s), wetlands and drainage patterns that could be affected by the construction activity; existing and final slopes; locations of off-site material, waste, borrow or equipment storage areas; and location(s) of the stormwater discharge(s);

(3) provide a description of the soil(s) present at the site;

(4) provide a construction phasing plan describing the intended sequence of construction activities, including clearing and grubbing, excavation and grading, utility and infrastructure installation and any other activity at the site that results in soil disturbance. Consistent with the New York Guidelines for Urban Erosion and Sediment Control, there shall not be more than five (5) acres of disturbed soil at any one time without prior written approval from the Department;

(5) provide a description of the pollution prevention measures that will be used to control litter, construction chemicals and construction debris from becoming a pollutant source in the storm water discharges;

(6) provide a description of construction and waste materials expected to be stored on-site with updates as appropriate, and a description of controls to reduce pollutants from these materials including storage practices to minimize exposure of the materials to storm water, and spill prevention and response;

(7) describe the temporary and permanent structural and vegetative measures to be used for soil stabilization, runoff control and sediment control for each stage of the project from initial land

clearing and grubbing to project close-out;

(8) identify and show on a site map/construction drawing(s) the specific location(s), size(s), and length(s) of each erosion and sediment control practice;

(9) provide the dimensions, material specifications and installation details for all erosion and sediment control practices, including the siting and sizing of any temporary sediment basins;

(10) identify temporary practices that will be converted to permanent control measures;

(11) provide an implementation schedule for staging temporary erosion and sediment control practices, including the timing of initial placement and the duration that each practice should remain in place;

(12) provide a maintenance schedule to ensure continuous and effective operation of the erosion and sediment control practices;

(13) provide the names(s) of the receiving water(s);

(14) provide a delineation of SWPPP implementation responsibilities for each part of the site;

(15) provide a description of structural practices to divert flows from exposed soils, store flows, or otherwise limit runoff and the discharge of pollutants from exposed areas of the site to the degree attainable; and

(16) provide any existing data that describes the stormwater runoff characteristics at the site.

b. For construction activities meeting Condition A, B or C in Part III.A.1.b.

(1) provide all the information required in Parts III.D.2.a.1 - 16 above;

(2) provide a description of each post-construction stormwater control practice;

(3) identify and show on a site map/construction drawing(s) the specific location(s) and size(s) of each post-construction stormwater control practice;

(4) provide a hydrologic and hydraulic analysis for all structural components of the stormwater control system for the applicable design storms;

(5) provide a comparison of post-development stormwater runoff conditions with pre-development conditions;

(6) provide the dimensions, material specifications and installation details for each post-construction stormwater control practice;

(7) provide a maintenance schedule to ensure continuous and effective operation of each post-construction stormwater control practice.

The following three subsections, Part III.D. 3. through Part III.D. 5., apply only to construction activities covered under this general permit which meet Conditions "A" , "B"[14] or "C" in Part III. A.1.b. Beginning with Part III.E. below (see page 17) the requirements set forth therein apply to all permittees covered under this permit.

3. **Site Assessment and Inspections** -

a. The operator shall have a qualified professional[15] conduct an assessment of the site prior to the commencement of construction and certify in an inspection report that the appropriate erosion and sediment controls described in the SWPPP and required by Part III.D. (see page 10) of this permit have been adequately installed or implemented to ensure overall preparedness of the site for the commencement of construction. Following the commencement of construction, site inspections shall be conducted by the qualified professional at least every 7 calendar days and within 24 hours of the end of a storm event of 0.5 inches or greater. During each inspection, the qualified professional shall record the following information:

(1) On a site map, indicate the extent of all disturbed site areas and drainage pathways. Indicate site areas that are expected to undergo initial disturbance or significant site work within the next 14-day period;

(2) Indicate on a site map all areas of the site that have undergone temporary or permanent stabilization;

(3) Indicate all disturbed site areas that have not undergone active site work during the previous 14-day period;

(4) Inspect all sediment control practices and record the approximate degree of sediment accumulation as a percentage of the sediment storage volume (for example, 10 percent, 20 percent, 50 percent);

(5) Inspect all erosion and sediment control practices and record all maintenance requirements such as verifying the integrity of barrier or diversion systems (earthen berms or silt fencing) and

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14 Condition "B" includes construction activities covered under GP-93-06 and, therefore, are subject to Part III.D.3 through Part III.D. 5.

15 "Qualified professional" means a person knowledgeable in the principles and practice of erosion and sediment controls, such as a licensed professional engineer, Certified Professional in Erosion and Sediment Control (CPESC), or soil scientist.

containment systems (sediment basins and sediment traps). Identify any evidence of rill or gully erosion occurring on slopes and any loss of stabilizing vegetation or seeding/mulching. Document any excessive deposition of sediment or ponding water along barrier or diversion systems. Record the depth of sediment within containment structures, any erosion near outlet and overflow structures, and verify the ability of rock filters around perforated riser pipes to pass water;
and

(6) All deficiencies that are identified with the implementation of the SWPPP.

b. The operator shall maintain a record of all inspection reports in a site log book. The site log book shall be maintained on site and be made available to the permitting authority upon request. Prior to the commencement of construction,[16] the operator shall certify in the site log book that the SWPPP, prepared in accordance with Part III.D. (see page 10) of this permit, meets all Federal, State and local erosion and sediment control requirements.

The operator shall post at the site, in a publicly-accessible location, a summary of the site inspection activities on a monthly basis.

c. Prior to filing of the Notice of Termination or the end of permit term, the operator shall have the qualified professional perform a final site inspection. The qualified professional shall certify that the site has undergone final stabilization[17] using either vegetative or structural stabilization methods and that all temporary erosion and sediment controls (such as silt fencing) not needed for long-term erosion control have been removed.

d. The operator shall certify that the requirements of Parts III.D.3., III.D.4. and III.D.5 of this permit have been satisfied within 48 hours of actually meeting such requirements.

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16 "Commencement of construction" means the initial removal of vegetation and disturbance of soils associated with clearing, grading or excavating activities or other construction activities.

17 "Final stabilization" means that all soil-disturbing activities at the site have been completed and a uniform, perennial vegetative cover with a density of eighty (80) percent has been established or equivalent stabilization measures (such as the use of mulches or geotextiles) have been employed on all unpaved areas and areas not covered by permanent structures.

4. **Stabilization**[18] - The operator shall initiate stabilization measures as soon as practicable in portions of the site where construction activities have temporarily or permanently ceased, but in no case more than 14 days after the construction activity in that portion of the site has temporarily or permanently ceased. This requirement does not apply in the following instances:

a. Where the initiation of stabilization measures by the 14th day after construction activity temporarily or permanently ceased is precluded by snow cover or frozen ground conditions, stabilization measures shall be initiated as soon as practicable;

b. Where construction activity on a portion of the site is temporarily ceased, and earth-disturbing activities will be resumed within twenty-one (21) days, temporary stabilization measures need not be initiated on that portion of the site.

5. **Maintenance** - Sediment shall be removed from sediment traps or sediment ponds whenever their capacity has been reduced by fifty (50) percent from the design capacity.

[18] "Stabilization" means covering or maintaining an existing cover over soil. Cover can be vegetative (e.g. grass, trees, seed and mulch, shrubs, or turf) or non-vegetative (e.g. geotextiles, riprap, or gabions).

E. **<u>Contractors</u>**

1. The SWPPP must clearly identify for each measure identified in the SWPPP, the contractor(s) and subcontractor(s) that will implement the measure. All contractors and subcontractors identified in the SWPPP must sign a copy of the certification statement in Part III.E.2 (see below) of this permit in accordance with Part V.H.(see page 19) of this permit. All certifications must be included in the SWPPP. Additionally, new contractors and subcontractors (see subsection C.3. above) need to similarly certify.

2. **<u>Certification Statement</u>** - All contractors and subcontractors identified in a SWPPP in accordance with Part III.E.1 (see above) of this permit shall sign a copy of the following certification statement before undertaking any construction activity at the site identified in the SWPPP:

> "I certify under penalty of law that I understand and agree to comply with the terms and conditions of the SWPPP for the construction site identified in such SWPPP as a condition of authorization to discharge stormwater. I also understand that the operator must comply with the terms and conditions of the New York State Pollutant Discharge Elimination System ("SPDES") general permit for stormwater discharges from construction activities and that it is unlawful for any person to cause or contribute to a violation of water quality standards."

The certification must include the name and title of the person providing the signature in accordance with Part V.H.(see page 19) of this permit; the name, address and telephone number of the contracting firm; the address (or other identifying description) of the site; and the date the certification is made.

Part IV. <u>MONITORING, REPORTING AND RETENTION OF RECORDS</u>

A. The Department may, at its sole discretion, require monitoring of discharge(s) from the permitted construction activity after notifying the permittee in writing of the basis for such monitoring, the parameters and frequency at which monitoring shall occur and the associated reporting requirements, if any.

B. The operator shall retain copies of SWPPPs and any reports submitted in conjunction with this permit, and records of all data used to complete the NOI to be covered by this permit, for a period of at least three years from the date that the site is finally stabilized. This period may be extended by the Department, in its sole discretion, at any time upon written notification.

C. The operator shall retain a copy of the SWPPP required by this permit at the construction site from the date of initiation of construction activities to the date of final stabilization.

D. The operator shall also prepare a written summary of its status with respect to compliance with this general permit at a minimum frequency of every three months during which coverage under this permit exists. The summary should address the status of achieving each component of the SWPPP . This summary shall be handled in the same manner as prescribed for SWPPPs under Part III, subsection B (see Page 9).

E. **<u>Addresses</u>** - Except for the submittal of NOIs and NOTs, all written correspondence under this permit directed to the Department, including the submittal of individual permit applications, shall be sent to the address of the appropriate Department Office as listed in Appendix A (see page 23).

Part V. <u>STANDARD PERMIT CONDITIONS</u>

A. **<u>Duty to Comply</u>** - The operator must comply with all conditions of this permit. All contractors and subcontractors associated with the project must comply with the terms of the SWPPP. Any permit noncompliance constitutes a violation of the Clean Water Act (CWA) and the ECL and is grounds for an enforcement action against either the operator or the contractor/subcontractor; permit revocation or modification; or denial of a permit renewal application. Upon a finding of significant non-compliance with this permit or the applicable SWPPP, the Department may order an immediate stop to all construction activity at the site until the non-compliance is remedied. The stop work order shall be in writing, shall describe the non-compliance in detail, and shall be sent to the operator or the operator's on-site representative.

B. **<u>Continuation of the Expired General Permit</u>** - This permit expires five (5) years after issuance on January 8, 2008. However, coverage may be obtained under the expired general permit which will continue in force and effect until a new general permit is issued. After issuance of a new general permit, those with coverage under GP-02-01 will have six (6) months from the effective date of the new general permit to complete their project or obtain coverage under the new permit. Unless otherwise notified by the Department in writing, operators seeking authorization under a new general permit must submit a new NOI in accordance with the terms of such new general permit. See also Part I, subsection D.8. on page 6.

C. **<u>Penalties for Violations of Permit Conditions</u>** - There are substantial criminal, civil, and administrative penalties associated with violating the provisions of this permit. Fines of up to $25,000 per day for each violation and imprisonment for up to fifteen (15) years may be assessed depending upon the nature and degree of the offense.

D. **Need to halt or reduce activity not a defense** - It shall not be a defense for a permittee in an enforcement action that it would have been necessary to halt or reduce the construction activity in order to maintain compliance with the conditions of this permit.

E. **Duty to Mitigate** - The permittee and its contractors and subcontractors shall take all reasonable steps to minimize or prevent any discharge in violation of this permit which has a reasonable likelihood of adversely affecting human health or the environment.

F. **Duty to Provide Information** - The permittee shall furnish any information requested by any agency with regulatory or review authority over this project for the purpose of determining compliance with this permit or compliance with any other regulatory requirements placed on the project in conjunction with this permit. Failure to provide requested information shall be a violation of this permit. Such regulating agencies include but are not limited to the Department, SWCDs,[19] local planning, zoning, health, and building departments that review and approve erosion and sediment control plans, grading plans, and Stormwater Management Plans, as well as MS4s into whose system runoff from the permitted project or activity discharges. The SWPPP and inspection reports required by this general permit are public documents that the operator must make available for inspection, review and copying by any person within five (5) business days of the operator receiving a written request by any such person to review the SWPPP and/or the inspection reports. Copying of documents will be done at the requester's expense.

G. **Other Information** - When the permittee becomes aware that he or she failed to submit any relevant facts or submitted incorrect information in the NOI or in any other report to the Department, he or she shall promptly submit such facts or information.

H. **Signatory Requirements** - All NOIs, NOTs, SWPPPs, reports, certifications or information required by this permit or submitted pursuant to this permit, shall be signed as follows:

1. All NOIs and NOTs shall be signed as follows:

   a. For a corporation: by (1) a president, secretary, treasurer, or vice-president of the corporation in charge of a principal business function, or any other person authorized to and who performs similar policy or decision-making functions for the corporation; or (2) the manager of one or more manufacturing, production or operating facilities employing more than 250 persons or having gross annual sales or expenditures exceeding $25,000,000 (in second-quarter 1980 dollars) if authority to sign documents has been assigned or delegated to the manager in accordance with corporate procedures;

[19] "SWCD" means Soil and Water Conservation District

b. For a partnership or sole proprietorship: by a general partner or the proprietor, respectively; or

c. For a municipality, State, Federal, or other public agency: by either a principal executive officer or ranking elected official. For purposes of this section, a principal executive officer of a Federal agency includes (1) the chief executive officer of the agency, or (2) a senior executive officer having responsibility for the overall operations of a principal geographic unit of the agency (e.g., Regional Administrators of EPA).

2. The SWPPP and all reports required by the permit and other information requested by the Department or local agency shall be signed by a person described above or by a duly authorized representative of that person. A person is a duly authorized representative only if:

a. The authorization is made in writing by a person described above and submitted to the Department.

b. The authorization specifies either an individual or a position having responsibility for the overall operation of the regulated facility or activity, such as the position of manager, operator, superintendent, or position of equivalent responsibility or an individual or position having overall responsibility for environmental matters for the company. (A duly authorized representative may thus be either a named individual or any individual occupying a named position).

c. **Certification** - Except for NOIs and NOTs, any person signing documents in accordance with this Part shall make the following certification:

"I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gathered and evaluated the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that false statements made herein are punishable as a class A misdemeanor pursuant to Section 210.45 of the Penal Law."

I. **Property Rights** - The issuance of this permit does not convey any property rights of any sort, nor any exclusive privileges, nor does it authorize any injury to private property nor any invasion of personal rights, nor any infringement of Federal, State or local laws or regulations.

J. **Severability** - The provisions of this permit are severable, and if any provision of this permit, or the application of any provision of this permit to any circumstance, is held invalid, the application of such provision to other circumstances, and the remainder of this permit shall not be affected thereby.

K. **Denial of Coverage Under This Permit**

1. At its sole discretion, the Department may require any person authorized by this permit to apply for and/or obtain either an individual SPDES permit or an alternative SPDES general permit. Where the Department requires a discharger authorized to discharge under this permit to apply for an individual SPDES permit, the Department shall notify the discharger in writing that a permit application is required. This notification shall include a brief statement of the reasons for this decision, an application form, a statement setting a deadline for the discharger to file the application, and a statement that on the effective date of issuance or denial of the individual SPDES permit or the alternative general permit as it applies to the individual permittee, coverage under this general permit shall automatically terminate. Applications shall be submitted to the appropriate Department Office indicated in Appendix A of this permit. The Department may grant additional time to submit the application upon request of the applicant. If a discharger fails to submit in a timely manner an individual SPDES permit application as required by the Department under this paragraph, then the applicability of this permit to the individual SPDES permittee is automatically terminated at the end of the day specified by the Department for application submittal.

2. Any discharger authorized by this permit may request to be excluded from the coverage under this permit by applying for an individual permit. In such cases, the permittee shall submit an individual application in accordance with the requirements of 40 CFR 122.26(c)(1)(ii) and 6 NYCRR Part 621, with reasons supporting the request, to the Department at the address for the appropriate Department Office (see addresses in Appendix A on page 23 of this permit). The request may be granted by issuance of an individual permit or an alternative general permit at the discretion of the Department.

3. When an individual SPDES permit is issued to a discharger covered by this permit, or the discharger is authorized to discharge under an alternative SPDES general permit, the applicability of this permit to the individual SPDES permittee is automatically terminated on the effective date of the individual permit or the date of authorization of coverage under the alternative general permit, whichever the case may be. When an individual SPDES permit is denied to an operator otherwise subject to this permit, or the operator is denied for coverage under an alternative SPDES general permit, the applicability of this permit to the individual SPDES permittee is automatically terminated on the date of such denial, unless otherwise specified by the Department.

L. **Proper Operation and Maintenance** - The permittee shall at all times properly operate and maintain all facilities and systems of treatment and control (and related appurtenances) which are installed or used by the permittee to achieve compliance with the conditions of this permit and with the requirements of SWPPPs. Proper operation and maintenance also includes adequate laboratory controls and appropriate quality assurance procedures. Proper operation and maintenance requires the operation of backup or auxiliary facilities or similar systems, installed by a permittee only when necessary to achieve compliance with the conditions of the permit.

M. **Inspection and Entry** - The permittee shall allow the Department or an authorized representative of EPA, the State, or, in the case of a construction site which discharges through an MS4, an authorized representative of the MS4 receiving the discharge, upon the presentation of credentials and other documents as may be required by law, to:

1. Enter upon the permittee's premises where a regulated facility or activity is located or conducted or where records must be kept under the conditions of this permit;

2. Have access to and copy at reasonable times, any records that must be kept under the conditions of this permit; and

3. Inspect at reasonable times any facilities or equipment (including monitoring and control equipment).

N. **Permit Actions** - At the Department's sole discretion, this permit may, at any time, be modified, revoked, or renewed. The filing of a request by the permittee for a permit modification, revocation and reissuance, termination, a notification of planned changes or anticipated noncompliance does not stay compliance with any terms of this permit.

APPENDIX A

List of NYS DEC Regional Offices

Region	Covering the following counties:	DIVISION OF ENVIRONMENTAL PERMITS (DEP) Permit Administrators	DIVISION OF WATER (DOW) Water (SPDES) Program
1	Nassau and Suffolk	Bldg 40 - SUNY @ Stony Brook Stony Brook, NY 11790-2356 Tel. (631) 444-0365	Bldg 40 - SUNY @ Stony Brook Stony Brook, NY 11790-2356 Tel. (631) 444-0405
2	Bronx, Kings, New York, Queens and Richmond	1 Hunters Point Plaza, 47-40 21st St. Long Island City, NY 11101-5407 Tel. (718) 482-4997	1 Hunters Point Plaza, 47-40 21st St. Long Island City, NY 11101-5407 Tel. (718) 482-4933
3	Dutchess, Orange, Putnam, Rockland, Sullivan, Ulster and Westchester	21 South Putt Corners Road New Paltz, NY 12561-1696 Tel. (845) 256-3059	200 White Plains Road, 5th Floor Tarrytown, NY 10591-5805 Tel. (845) 332-1835
4	Albany, Columbia, Delaware, Greene, Montgomery, Otsego, Rensselaer, Schenectady and Schoharie	1150 North Westcott Road Schenectady, NY 12306-2014 Tel. (518) 357-2069	1150 North Westcott Road Schenectady, NY 12306-2014 Tel. (518) 357-2045
5	Clinton, Essex, Franklin, Fulton, Hamilton, Saratoga, Warren and Washington	Route 86, PO Box 296 Ray Brook, NY 12977-0296 Tel. (518) 897-1234	232 Hudson Street Warrensburg, NY 12885-0220 Tel. (518) 623-1200
6	Herkimer, Jefferson, Lewis, Oneida and St. Lawrence	State Office Building 317 Washington Street Watertown, NY 13601-3787 Tel. (315) 785-2245	State Office Building 207 Genesee Street Utica, NY 13501-2885 Tel. (315) 793-2554
7	Broome, Cayuga, Chenango, Cortland, Madison, Onondaga, Oswego, Tioga and Tompkins	615 Erie Blvd. West Syracuse, NY 13204-2400 Tel. (315) 426-7438	615 Erie Blvd. West Syracuse, NY 13204-2400 Tel. (315) 426-7500
8	Chemung, Genesee, Livingston, Monroe, Ontario, Orleans, Schuyler, Seneca, Steuben, Wayne and Yates	6274 East Avon-Lima Road Avon, NY 14414-9519 Tel. (585) 226-2466	6274 East Avon-Lima Rd. Avon, NY 14414-9519 Tel. (585) 226-2466
9	Allegany, Cattaraugus, Chautauqua, Erie, Niagara and Wyoming	270 Michigan Avenue Buffalo, NY 14203-2999 Tel. (716) 851-7165	270 Michigan Ave. Buffalo, NY 14203-2999 Tel. (716) 851-7070

APPENDIX B

<u>Information Required of Construction Activities Which Are Identified Under Part I, subsection D.7. (see page 5)</u>

A. The location (including a map) and the nature of the construction activity;

B. The total area of the site and the area of the site that is expected to undergo excavation during the life of the permit;

C. Proposed measures, including best management practices, to control pollutants in storm water discharges during construction, including a brief description of applicable State and local erosion and sediment control requirements;

D. Proposed measures to control pollutants in storm water discharges that will occur after construction operations have been completed, including a brief description of applicable State or local erosion and sediment control requirements;

E. An estimate of the runoff coefficient of the site and the increase in impervious area after the construction addressed in the permit application is completed, the nature of the fill material and existing data describing the soil or the quality of the discharge; and

F. The name of the receiving water(s).

Appendix B:
Notice of Intent (NOI)

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NOTICE OF INTENT

New York State Department of Environmental Conservation
Division of Water
625 Broadway, 4th Floor
Albany, New York 12233-3505

Stormwater Discharges Associated with Construction Activity Under State Pollutant Discharge Elimination System (SPDES) General Permit # GP-02-01

All sections must be completed unless otherwise noted. Failure to complete all items may result in this form being returned to you, thereby delaying your coverage under this General Permit. Applicants must read and understand the conditions of the permit and prepare a Stormwater Pollution Prevention Plan prior to submitting this NOI. Applicants are responsible for identifying and obtaining other DEC permits that may be required.
To properly complete this form, please refer to the Instruction Manual which can be accessed at www.dec.state.ny.us/website/dow/toolbox/instr_man.pdf

-IMPORTANT-

THIS FORM FOR MACHINE PRINT ONLY/USE OTHER FORM FOR HANDPRINT
DO NOT USE HANDWRITING ON THIS FORM

OWNER/OPERATOR MUST SIGN FORM

Owner/Operator Information

Owner/Operator (Company Name/Private Owner Name/Municipality Name)

H I G H E R G R O U N D C C M G N T C O

Owner/Operator Contact Person Last Name (NOT CONSULTANT)

C A E N E R S

Owner/Operator Contact Person First Name

R O B E R T

Owner/Operator Mailing Address

P O B O X 8 6

City

A M E N I A

State: N Y

Zip: 12501 -

Phone (Owner/Operator): 845-373-7000

Fax (Owner/Operator): 845-373-8847

Email (Owner/Operator)

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Location Information

Project Site Information

Project/Site Name

S I L O   R I D G E   C O U N T R Y   C L U B

Street Address (NOT P.O. BOX)

R O U T E   2 2

City/Town/Village (THAT ISSUES BUILDING PERMIT)

A M E N I A

State: N Y

Zip: 12501 -

County

D U T C H E S S

DEC Region (if known): 3

Name of Nearest Cross Street

L A K E   A M E N I A   R D

Distance to Nearest Cross Street (Feet)

2 8 0 0

Direction to Nearest Cross Street

- ● North
- ○ South
- ○ East
- ○ West

1. Provide the Geographic Coordinates for the project site in NYTM Units. To do this you **must** go to the NYSDEC Stormwater Interactive Map on the DEC website at:

www.dec.state.ny.us/website/imsmaps/stormwater/viewer.htm

Zoom into your Project Location such that you can accurately click on the centroid of your site. Once you have located your project site go to the dropdown menu on the left and choose "Get Coordinates". Click on the center of your site and a small window containing the X, Y coordinates in UTM will pop up. Transcribe these coordinates into the boxes below. For problems with the interactive map use the help function.

X Coordinates (Easting)	Y Coordinates (Northing)
6 1 8 5 3 2	4 6 3 2 2 6 4

2. What is the nature of this construction project?

- ○ New Construction
- ● Redevelopment with increase in imperviousness
- ○ Redevelopment with no increase in imperviousness

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3. Select the predominant land use for both pre and post development conditions.
SELECT ONLY ONE CHOICE FOR EACH

Pre-Development Existing Land Use

- ○ FOREST
- ○ PASTURE/OPEN LAND
- ○ CULTIVATED LAND
- ○ SINGLE FAMILY HOME
- ○ SINGLE FAMILY SUBDIVISION
- ○ TOWN HOME RESIDENTIAL
- ○ MULTIFAMILY RESIDENTIAL
- ○ INSTITUTIONAL\SCHOOL
- ○ INDUSTRIAL
- ○ COMMERCIAL
- ○ ROAD\HIGHWAY
- ● RECREATIONAL\SPORTS FIELD
- ○ BIKE PATH\TRAIL
- ○ SUBSURFACE UTILITY
- ○ PARKING LOT

OTHER

Post-Development Future Land Use

- ○ SINGLE FAMILY HOME
- ○ SINGLE FAMILY SUBDIVISION
- ○ TOWN HOME RESIDENTIAL
- ○ MULTIFAMILY RESIDENTIAL
- ○ INSTITUTIONAL\SCHOOL
- ○ INDUSTRIAL
- ○ COMMERCIAL
- ○ ROAD\HIGHWAY
- ● RECREATIONAL\SPORTS FIELD
- ○ BIKE PATH\TRAIL
- ○ SUBSURFACE UTILITY
- ○ PARKING LOT

OTHER

W I T H H O M E S

4. Will future use of this site be an agricultural property as defined by the NYS Agriculture and Markets Law ? ○ **Yes** ● **No**

5. Is this a remediation project conducted in accordance with a NYSDEC approved work plan? ○ **Yes** ● **No**

6. Is this property owned by a state authority, state agency or local government? ○ **Yes** ● **No**

7. In accordance with the larger common plan of development or sale; enter the total project site acreage, the acreage to be disturbed and the future impervious area (acreage)within the disturbed area. Round to the nearest tenth of an acre.

Total Project Site Acreage	**Acreage to be Disturbed**	**Impervious Area within Disturbed**
6686.4 6 8 . 4	.	38.9 3 8 . 9

8. Will there be more than 5 acres disturbed at any given time? ● **Yes** ○ **No**

9. Indicate the percentage of each Hydrologic Soil Group(HSG) at the site.

A	**B**	**C**	**D**
0 %	3 7 %	5 2 %	1 1 %

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10. Is this a phased project? (**if yes, The SWPPP must address all planned phases)**

* ○ Yes ○ No

11. Enter the planned start and end dates of the disturbance activities

Start Date / / - **End Date** / /

Receiving System(s)

12. Provide the name of the surface waterbody(ies) into which construction site runoff will discharge.

A M E N I A S T R E A M

For Questions 13 and 14 refer to the Instruction Manual for a subset of 303(d) segments and TMDL watersheds subject to Condition A of the permit. These waterbodies and watersheds have been identified for regulation within the stormwater program due to a pollutant of concern. The Instruction Manual can be accessed at www.dec.state.ny.us/website/dow/toolbox/instr_man.pdf

13. Has the surface waterbody(ies) in question 12 been identified as a 303(d) segment?

* ○ Yes ● No

14. Is this project located in a TMDL Watershed?

* ● Yes ○ No

***NOTE:** If you answered Yes to either question 13 or 14, Pursuant to Part I.D.3.(b) of the permit, you must have your SWPPP prepared and certified by a licensed/certified professional and the SWPPP is subject to a 60-business day review.**

15. Does the site runoff enter a separate storm sewer system-including roadside drains, swales, ditches, culverts, etc? (**if no, skip question 16**)

● Yes ○ No ○ Unknown

16. What is the name of the municipality/entity that owns the separate storm sewer system?

N E W Y O R K S T A T E D O T

17. Does any runoff from the site enter a sewer classified as a Combined Sewer?

○ Yes ● No ○ Unknown

18. Has the required Erosion and Sediment Control component of the SWPPP been developed in conformance with the current NYS Standards and Specifications for Erosion and Sediment Control (aka Blue Book) ?

(●) Yes ( ) No*

19. Does this construction activity require the development of a SWPPP that includes Water Quality and Quantity Control components (Post-Construction Stormwater Management Practices) **If no, Skip question 20**

(●) Yes ( ) No

20. Have the Water Quality and Quantity Control components of the SWPPP been developed in comformance with the current NYS Stormwater Management Design Manual ?

(●) Yes ( ) No*

NOTE: If you answered no to question 18 or 20, Pursuant to Part I.D.3.(b) of the permit, you must have your SWPPP prepared and certified by a licensed/certified professional and the SWPPP is subject to a 60-business day review. Please provide further details in the details/comment section on the last page of this form.

21. The Stormwater Pollution Prevention Plan (SWPPP) was prepared by:

(●) **Professional Engineer (P.E.)**
( ) **Soil and Water Conservation District (SWCD)**
( ) **Registered Landscape Architect (R.L.A)**
( ) **Certified Professional in Erosion and Sediment Control (CPESC)**
( ) **Owner/Operator**

Other

SWPPP Preparer Information
(if different from Owner/Operator info)

SWPPP Preparer
THE CHAZEN COMPANIES

Contact Name (Last, Space, First)
LANARO JOESPH

Mailing Address
547 RIVER STREET

City
TROY

State
NY

Zip
12180 -

Phone
518-273-0055

Fax
518-273-8391

Email

Stormwater Pollution Prevention Plan (SWPPP)

Erosion and Sediment Control Practices

22. Has a construction sequence schedule for the planned management practices been prepared?

○ **Yes** ○ **No**

23. Select **all** of the erosion and sediment control practices that will be employed on the project site.

Temporary Structural

- ● **Check Dams**
- ○ **Construction Road Stabilization**
- ● **Dust Control**
- ○ **Earth Dike**
- ○ **Level Spreader**
- ○ **Perimeter Dike/Swale**
- ○ **Pipe Slope Drain**
- ○ **Portable Sediment Tank**
- ○ **Rock Dam**
- ● **Sediment Basin**
- ○ **Sediment Traps**
- ● **Silt Fence**
- ● **Stabilized Construction Entrance**
- ● **Storm Drain Inlet Protection**
- ○ **Straw/Hay Bale Dike**
- ○ **Temporary Access Waterway Crossing**
- ○ **Temporary Stormdrain Diversion**
- ○ **Temporary Swale**
- ○ **Turbidity Curtain**
- ○ **Water bars**

Biotechnical

- ○ **Brush Matting**
- ○ **Wattling**

Other

Vegetative Measures

- ○ **Brush Matting**
- ○ **Dune Stabilization**
- ○ **Grassed Waterway**
- ● **Mulching**
- ○ **Protecting Vegetation**
- ○ **Recreation Area Improvement**
- ● **Seeding**
- ○ **Sodding**
- ○ **Straw/Hay Bale Dike**
- ○ **Streambank Protection**
- ○ **Temporary Swale**
- ○ **Topsoiling**
- ○ **Vegetating Waterways**

Permanent Structural

- ○ **Debris Basin**
- ○ **Diversion**
- ○ **Grade Stabilization Structure**
- ○ **Land Grading**
- ○ **Lined Waterway (Rock)**
- ○ **Paved Channel (Concrete)**
- ○ **Paved Flume**
- ○ **Retaining Wall**
- ○ **Riprap Slope Protection**
- ● **Rock Outlet Protection**
- ○ **Streambank Protection**

Stormwater Pollution Prevention Plan (SWPPP)

Water Quality and Quantity Control

Important:Completion of Questions 24-30 is not required if the project:

Disturbs less than 5 acres and is planned for single-family residential homes(including subdivisions) or construction on agricultural property and does not have a discharge to a 303(d) water or is not located within a TMDL watershed.

Additionally, sites where there will be no future impervious area within the disturbed area and that do not have a change(pre to post development)in hydrology do not need to complete questions 24-30.

24. Indicate **all** the permanent Stormwater Management Practice(s) that will be installed on this site

Post Construction Stormwater Management Practices

Ponds

- ● **Micropool Extended Detention (P-1)**
- ● **Wet Pond (P-2)**
- ○ **Wet Extended Detention (P-3)**
- ○ **Multiple Pond System (P-4)**
- ○ **Pocket Pond (P-5)**

Filtering

- ○ **Surface Sand Filter (F-1)**
- ○ **Underground Sand Filter (F-2)**
- ○ **Perimeter Sand Filter (F-3)**
- ○ **Organic Filter (F-4)**
- ○ **Bioretention (F-5)**

Wetlands

- ○ **Shallow Wetland (W-1)**
- ○ **Extended Detention Wetland (W-2)**
- ○ **Pond/Wetland System (W-3)**
- ○ **Pocket Wetland (W-4)**

Infiltration

- ○ **Infiltration Trench (I-1)**
- ○ **Infiltration Basin (I-2)**
- ○ **Dry Well (I-3)**

Open Channels

- ○ **Dry Swale (O-1)**
- ○ **Wet Swale (O-2)**

○ **Other**

Describe other stormwater management practices not listed above or explain any deviations from the technicial standards. If the SWPPP does not conform to the technicial standards, the SWPPP must be prepared and certified by a licensed/certified professional and is subject to a 60-business day review.

Has a long term Operation and Maintenance plan for the post construction management practices been developed? ● **Yes** ○ **No**

If Yes, Identify the entity responsible for the long term Operation and Maintenance

H I G H E R G R O U N D C C M G N T C O

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25. Provide the total water quality volume required and the total provided for the site.

Total Water Quality Volume (WQv)

WQv Required . **acre-feet**

WQv Provided . **acre-feet**

26. Provide the following Unified Stormwater Sizing Criteria for the site.

Total Channel Protection Storage Volume (CPv) - Extended detention of post-developed 1 year, 24 hour storm event

CPv Required . **acre-feet**

CPv Provided . **acre-feet**

The need to provide for channel protection has been waived because

○ **Site discharges directly to fourth order stream or larger**

Total Overbank Flood Control Criteria (Qp) - Peak discharge rate for the 10 year storm

Pre-Development . **CFS**

Post-development . **CFS**

Total Extreme Flood Control Criteria (Qf) - Peak discharge rate for the 100 year storm

Pre-Development . **CFS**

Post-development . **CFS**

The need to provide for flood control has been waived because

○ **Site discharges directly to fourth order stream or larger**

○ **Downstream analysis reveals that flood control is not required**

IMPORTANT: For questions 27 and 28 impervious area should be calculated considering the project site and all offsite areas that drain to the post-construction stormwater management practice(s)   (Total Drainage Area = Project Site + Offsite areas)

27. Pre-Construction Impervious Area - As a percent of the Total Drainage Area enter the percentage of the existing impervious areas before construction begins. 2 %

28. Post-Construction Impervious Area - As a percent of the Total Drainage Area enter the percentage of the future impervious areas that will be created/remain on the site after completion of construction. 7 %

29. Indicate the total number of permanent stormwater management practices to be installed 1 1

30. Provide the total number of stormwater discharge points from the site (include discharges to either surface waters or to seperate storm sewer systems) 4

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Other Permits

31. Select any other DEC permits that are required for this project or ○ None

DEC Permits

- ○ Air Pollution Control
- ○ Coastal Erosion
- ○ Hazardous Waste
- ○ Long Island Wells
- ○ Mined Land Reclamation
- ○ Other SPDES
- ○ Solid Waste
- ○ Stream Protection/Article 15
- ○ Water Quality Certificate
- ○ Dam Safety
- ○ Water Supply
- ○ Freshwater Wetlands
- ○ Tidal Wetlands
- ○ Wild, Scenic and Recreational Rivers

Other

If this NOI is being submitted for the purpose of continuing coverage under a general permit for stormwater runoff from construction activities, please indicate the former SPDES number assigned.

N Y R

Details/Comments

THE PROJECT CONSISTS OF IMPROVING AN EXISTING 18-HOLE GOLF COURSE INTO A RESORT COMMUNITY CONSISTING OF A 18-HOLE GOLF COURSE WITH RESIDENTIAL DWELLINGS, HOTELS AS WELL AS OTHER ASSOCIATED AMENITIES.

Certification

I have read or been advised of the permit conditions and believe that I understand them. I also understand that, under the terms of the permit, there may be reporting requirements. I also certify under penalty of law that this document and the corresponding documents were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person(s) who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations. I further understand that coverage under the general permit will be identified in the acknowledgment that I will receive as a result of submitting this NOI and can be as long as sixty (60) days as provided for in the general permit. I also understand that, by submitting this NOI, I am acknowledging that the SWPPP has been developed and will be implemented as the first element of construction. and agreeing to comply with all the terms and conditions of the general permit for which this NOI is being submitted.

Owner/Operator Signature

Date / /

Appendix C: Operator's and Contractor's Certification Forms

Stormwater Pollution Prevention Plan
Contractor's Certification
Silo Ridge Country Club Golf Resort Community
Town of Amenia
Dutchess County, New York

The Contractor and/or Subcontractor(s) that will implement the pollutant control measures described in the SWPPP must be identified below. Each must sign a statement certifying that they understand the NPDES and NYSDEC general permit authorizing storm water discharges during construction. These statements must be maintained in the SWPPP file on site.

Contractor Implementing the Storm Water Pollution Prevention Plan:

Business Name:____

Business Address:____

Telephone No.:____

Name of Signatory:____

Title of Signatory:____

Signature:____

Date:____

Contractor's Responsibility(s):

Certification:

(Note: signature requirements in Part VI.G. of the NPDES General Permit and Part III.E.1 of the NYSDEC SPDES Permit GP-02-01)

"I certify under penalty of law that I understand and agree to comply with the terms and conditions of the SWPPP for the construction site identified in such SWPPP as a condition of authorization to discharge storm water. I also understand that the Operator must comply with the terms and conditions of the New York State Pollution Discharge Elimination System ("SPDES") general permit for storm water discharges from construction discharges from construction activities and that it is unlawful for any person to cause or contribute to a violation of water quality standards."

Signatory Requirements - All NOIs, NOTs, SWPPPS, reports, certifications or information required by this permit or submitted pursuant to this permit, shall be signed as follows:

1 For a corporation: by a (1) president, secretary, treasurer, or vice-president of the corporation in charge of a principle business function, or any other person authorized to and who performs similar policy or decision-making functions for the corporation; or (2) the manager of one or more manufacturing, production or operating facilities employing more than 250 persons or having a gross annual sales or expenditures exceeding $25,000,000 (in second-quarter 1980 dollars) if authority to sign documents has been assigned or delegated to manage in accordance with corporate procedures;

2 For a partnership or sole proprietorship: by a general partner or the proprietor, respectively; or

3 For a municipality, State, Federal, or other public agency; by either a principal executive officer ranking elected official. For purposes of this section, a principal executive officer of a Federal agency includes (1) the chief executive officer of the agency, or (2) a senior executive officer having responsibility for the overall operations of a principal geographic unit of the agency (e.g. Regional Administrators of EPA).

Stormwater Pollution Prevention Plan
Operator's Certification
Silo Ridge Country Club Golf Resort Community
Town of Amenia
Dutchess County, New York

The Operator that will implement the pollutant control measures described in the SWPPP must be identified below. Each must sign a statement certifying that they understand the NPDES and NYSDEC general permit authorizing storm water discharges during construction. These statements must be maintained in the SWPPP file on site.

Owner:

Business Name:____

Business Address:____

Telephone No.:____

Name of Signatory:____

Title of Signatory:____

Signature:____

Date:____

Certification:

(Note: signature requirements in Part V.H.2.c of the NYSDEC SPDES Permit GP-02-01)

"I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gathered and evaluated the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that false statements made herein are punishable as a class A misdemeanor pursuant to Section 210.45 of the Penal Law."

Signatory Requirements - All NOIs, NOTs, SWPPPS, reports, certifications or information required by this permit or submitted pursuant to this permit, shall be signed as follows:

1 For a corporation: by a (1) president, secretary, treasurer, or vice-president of the corporation in charge of a principle business function, or any other person authorized to and who performs similar policy or decision-making functions for the corporation; or (2) the manager of one or more manufacturing, production or operating facilities employing more than 250 persons or having a gross annual sales or expenditures exceeding $25,000,000 (in second-quarter 1980 dollars) if authority to sign documents has been assigned or delegated to manage in accordance with corporate procedures;

2 For a partnership or sole proprietorship: by a general partner or the proprietor, respectively; or

3 For a municipality, State, Federal, or other public agency; by either a principal executive officer ranking elected official. For purposes of this section, a principal executive officer of a Federal agency includes (1) the chief executive officer of the agency, or (2) a senior executive officer having responsibility for the overall operations of a principal geographic unit of the agency (e.g. Regional Administrators of EPA).

Appendix D: Construction Phase Inspections and Maintenance (Pocket)

CONSTRUCTION PHASE INSPECTIONS AND MAINTENANCE

Between the time this SWPPP is implemented and final site stabilization is achieved, all disturbed areas and pollutant controls must be inspected at least once every seven calendar days and within 24 hours following a rainfall of 0.5 inches or greater. The purpose of site inspections is to assess performance of pollutant controls. The inspections will be conducted by the Operator's Engineer. Based on these inspections, the Operator's Engineer will decide whether it is necessary to modify this SWPPP, add or relocate sediment barriers, or whatever else may be needed in order to prevent pollutants from leaving the site via storm water runoff. The general contractor has the duty to cause pollutant control measures to be repaired, modified, maintained, supplemented, or whatever else is necessary in order to achieve effective pollutant control.

Examples of particular items to evaluate during site inspections are listed below. This list is not intended to be comprehensive. During each inspection the inspector must evaluate overall pollutant control system performance as well as particular details of individual system components. Additional factors should be considered as appropriate to the circumstances.

1. Locations where vehicles enter and exit the site must be inspected for evidence of off-site sediment tracking. A stabilized construction entrance will be constructed where vehicles enter and exit. This entrance will be maintained or supplemented as necessary to prevent sediment from leaving the site on vehicles.

2. Sediment barriers must be inspected and, if necessary, they must be enlarged or cleaned in order to provide additional capacity. All material from behind sediment barriers will be stockpiled on the up slope side. Additional sediment barriers must be constructed as needed.

3. Inspections will evaluate disturbed areas and areas used for storing materials that are exposed to rainfall for evidence of, or the potential for, pollutants entering the drainage system. If necessary, the materials must be covered or original covers must be repaired or supplemented. Also, protective berms must be constructed, if needed, in order to contain runoff from material storage areas.

4. Grassed areas will be inspected to confirm that a healthy stand of grass is maintained. The site has achieved final stabilization once all areas are covered with building foundation or pavement, or have a stand of grass with at least 80 percent density. The density of 80 percent or greater must be maintained to be considered as stabilized. Areas must be watered, fertilized, and reseeded as needed to achieve this goal.

5. All discharge points must be inspected to determine whether erosion control measures are effective in preventing significant impacts to receiving waters.

Based on inspection results, any modification necessary to increase effectiveness of this SWPPP to an acceptable level must be made within seven calendar days of the inspection. The inspection reports must be completed entirely and additional remarks should be included if needed to fully describe a situation. An important aspect of the inspection report is the description of additional measures that need to be taken to enhance plan effectiveness. The inspection report must identify whether the site was in compliance with the SWPPP at the time of inspection and specifically identify all incidents of non-compliance. An erosion and sediment control inspections and maintenance schedule is presented on the project drawings.

Inspection reports must be kept on file by the general contractor as an integral part of this SWPPP for at least three years from the date of completion of the project.

Ultimately, it is the responsibility of the general contractor to assure the adequacy of site pollutant discharge controls. Actual physical site conditions or contractor practices could make it necessary to install more structural controls than are shown on the accompanying plans. (For example, localized concentrations of runoff could make it necessary to install additional sediment barriers.) Assessing the need for additional controls and implementing them or adjusting existing controls will be a continuing aspect of this SWPPP until the site achieves final stabilization.

Appendix E:
Inspection Report (Sample Form)

Silo Ridge Country Club Golf Resort Community
Stormwater Pollution Prevention Plan Construction Site Log Book

Report No.________ Page _____ of _____

Practice	Condition	Accumulation %	Conforming	Actions Required
Temporary Stockpiles	Good / Fair / Poor		Yes / No	
Dust Control	Good / Fair / Poor		Yes / No	
Sedimentation on Public Streets	Good / Fair / Poor		Yes / No	
Less than 5 Acres of Disturbance	Good / Fair / Poor		Yes / No	
Other:	Good / Fair / Poor		Yes / No	
Other:	Good / Fair / Poor		Yes / No	

Non-conforming work items still outstanding (List item number):

____
____

Inspection Notes:

____
____
____
____
____
____
____
____
____
____
____
____
____
____

Inspectors Signature:____________________
Inspectors Printed Name:____________________

Qualified Professional Signature__________________________ Date____________

Qualified Professional Printed Name_______________________

Inspection Type (Circle One):	Routine Weekly	Following 1/2" or Greater Rainfall

Site Assessment / Inspection Report
SWPPP Construction Activities
Silo Ridge Country Club Golf Resort Community
Town of Amenia
Dutchess County, New York

Report Number:______________________________________ Weather:______________________________________
Inspectors Name (Please Print):_________________________ Temperature:_________________________________
Date:______________Time:_______________ Page:_______ of __________

Observation Instructions:

1 On a site map, indicate the extent of all disturbed site areas and drainage pathways. Indicate site areas are expected to undergo initial disturbance or significant site work within the next 14 day period.

2 Indicate on a site map all areas of the site that have undergone temporary or permanent stabilization.

3 Indicate on a site map all areas that have not undergone active site work during the previous 14-day period.

4 Inspect all sediment control practices and record the approximate degree of sediment accumulation as a percentage of the sediment storage volume. Note if a substantial increase in turbidity in downstream water courses/bodies exists.

5 Inspect all erosion and sediment control practices and record all maintenance requirements such as verifying the integrity of sediment control barriers or diversion systems (i.e. silt fence, diversion swales, earthen berms, etc.) and containment systems (i.e. sediment basins and sediment traps, etc.).

6 Inspect all equipment, material handling and storage areas for evidence of apparent spills, leaks or deleterious materials.

7 On a monthly basis, post a copy of the Inspection Log in a publicly accessible location.

Temporary Erosion and Sediment Control Practices:

Practice	Condition	Accumulation %	Conforming	Actions Required
Stabilized Construction Entrance	Good / Fair / Poor		Yes / No	
Temporary Parking	Good / Fair / Poor		Yes / No	
Silt Fence	Good / Fair / Poor		Yes / No	
Temporary Swales and Berms	Good / Fair / Poor		Yes / No	
Check Dams (Stone)	Good / Fair / Poor		Yes / No	
Slope Protection	Good / Fair / Poor		Yes / No	
Dewatering Operations	Good / Fair / Poor		Yes / No	
Sediment Traps	Good / Fair / Poor		Yes / No	
Inlet Protection	Good / Fair / Poor		Yes / No	
Mulching / Seeding	Good / Fair / Poor		Yes / No	

See attached pages for additional comments

Appendix F: Record of Stabilization and Construction Activity Dates (Sample Form)

Site Stabilization & Construction Activities Dates

Silo Ridge Country Club Golf Resort Community
Town of Amenia
Dutchess County, New York

Note: This form shall be completed by the Contractor and shall remain as part of the Storm water Pollution Prevention Plan that is to remain at the project site for the duration of construction.

A record of dates when major grading activities occur, when construction activities temporarily or permanently cease on a portion of the site, and when stabilization measures are initiated shall be maintained until final site stabilization is achieved and the Notice of Termination is filed.

MAJOR GRADING ACTIVITIES:

Page ____ of ____

Description of Activity:________________________________

Contractor:________________________________

Location:________________________________

Start Date:________________ Finish Date:________________

Description of Activity:________________________________

Contractor:________________________________

Location:________________________________

Start Date:________________ Finish Date:________________

Description of Activity:________________________________

Contractor:________________________________

Location:________________________________

Start Date:________________ Finish Date:________________

Description of Activity:________________________________

Contractor:________________________________

Location:________________________________

Start Date:________________ Finish Date:________________

Description of Activity:________________________________

Contractor:________________________________

Location:________________________________

Start Date:________________ Finish Date:________________

Appendix G:
Notice of Termination (NOT)

New York State Department of Environmental Conservation
Division of Water
625 Broadway, 4th Floor
Albany, New York 12233-3505

NOTICE OF TERMINATION for Storm Water Discharges Associated with Construction Activity UNDER SPDES GENERAL PERMIT: ☐ #GP-93-06 or ☐ #GP-02-01

Please indicate your permit identification number: NYR ___ ___ ___ ___ ___ ___

I. Permittee Information

1. Owner/Operator Name:	
2a. Mailing Address:	2b. City/State/Zip:

3a. Contact Person:	3b. Phone:	3c. E-mail:

II. Site /Activity Information

4. Facility/Project Site Name:	
5a. Street Address:	5b. City/State/Zip:
6. County:	

III. Reason for Termination

7a. ☐ Site has been finally stabilized in accordance with permit and SWPPP. Date site stabilization completed: ____________________
month/year

7b. ☐ Permit coverage has been transferred to new owner/operator. Indicate new owner/operator's permit identification number: NYR _ _ _ _ _ _
(Note: Permit coverage can not be terminated by permittee identified in I.1. above until new owner/operator obtains coverage under GP-02-01)

IV. Final Site Information:

8a. Are there permanent stormwater management practices remaining on the site? ☐ yes ☐ no
If the answer to question 8a. is no, go to question 8e.
If the answer to question 8a. is yes, answer the following questions 8b., 8c., and 8d.:

8b. Is the design and function of each permanent practice described in the final SWPPP? ☐ yes ☐ no

8c. Who will be responsible for long-term operation and maintenance of practice(s)?____

8d. Has the individual(s) responsible for long-term operation and maintenance been given a copy of the operation and maintenance requirements? ☐ yes ☐ no

8e. Provide the total acreage of impervious surface (i.e. roof, pavement, concrete, gravel, etc.) constructed within the disturbance area? ____________

V. Certification

I certify under penalty of law that this document was prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person(s) who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Printed Name:	Title/Position:
Signature:	Date:

Reset Button

Appendix H:
Post-Construction Inspections and Maintenance (Pocket)

POST CONSTRUCTION INSPECTIONS AND MAINTENANCE

1. SITE COVER

a. Inspections

Site cover and associated structures and embankments should be inspected periodically for the first few months following construction and then on a biannual basis. Site inspections should also be performed following all major (i.e., intense storms, thunder storms, cloud burst, etc.) storm events. Items to check for include (but are not limited to):

i. Differential settlement of embankments, cracking or erosion.
ii. Lack of vigor and density of grass turf.
iii. Accumulation of sediments or litter on lawn areas, paved areas, or within catch basin sumps.
iv. Accumulation of pollutants, including oils or grease, in catch basin sumps.
v. Damage or fatigue of storm sewer structures or associated components.

b. Mowing and Sweeping

Vegetated areas and landscaping should be maintained to promote vigorous and dense growth. Lawn areas should be mowed at least three times a year (more frequent mowing may be desired for aesthetic reasons). Resultant yard waste shall be collected and disposed of off-site.

Paved areas should be swept at least twice a year. Additional sweeping may be appropriate in the early spring for removal of deicing materials

c. Debris and Litter Removal

Accumulation of litter and debris should be removed during each mowing or sweep operation.

d. Structural Repair or Replacement

Components of the system which require repair or replacement should be addressed immediately following identification.

e. Catch Basins

The frequency for cleanout of catch basin sumps will depend on the efficiency of mowing, sweeping and debris and litter removal. Sumps should be cleaned when accumulation of sediments are within six inches of the catch basin outlet pipe.

f. Grassed Swales

Swale maintenance will include periodic mowing, occasional spot reseeding and weed control to keep grass cover dense and vigorous. Resultant yard waste shall be collected and disposed of off-site. Application of fertilizers and pesticides should be restricted or limited.

g. Winter Maintenance

To prevent impacts to storm water management facilities, the following winter maintenance limitations, restrictions or requirements are recommended:

i. Remove snow and ice from inlet structures, basin inlet and outlet structures and away from culvert end sections.
ii. Snow removed from paved areas should not be piled at inlets/outlets of the storm water management basin.
iii. Use of deicing materials should be limited to sand and "environmentally friendly" chemical products. Use of salt mixtures should be kept to a minimum.
iv. Sand used for deicing should be clean, course material free of fines, silt, and clay.
v. Materials used for deicing should be removed during the early spring by sweeping and/ or vacuuming.

2. DETENTION BASINS

a. Inspections

Detention Basins should be inspected periodically for the first few months after construction and then on an annual basis. Detention Basins should be inspected after major storm events to ensure inlets and outlets remain clear. Items to check for include (but are not limited to):

i. Differential settlement of embankments.
ii. Cracking, erosion or seepage through embankments.

iii. Evidence of clogging at inlets or outlets.
iv. Erosion of the flow path through the detention basin.
v. Brush, shrub or tree growth on embankments.
vi. Condition of the overflow spillway.
vii. Lack of vigor and density of grass turf on the basin embankments.

b. Mowing

The side slopes, embankments, inlets, and overflow spillways of the detention basins should be mowed at least three times a year and resultant yard wastes collected and disposed of off-site.

c. Debris and Litter Control

Removal of debris and litter should be accomplished during mowing operations. Inlet and outlet structures should be cleared of all debris and litter.

d. Structural repairs and Replacement

Components of the detention basin, which require repair or replacement, should be addressed immediately following identification.

e. Erosion Control

Sources of sedimentation, specifically eroded areas in upland drainage areas, should be stabilized immediately upon identification. Stabilization should be with vegetative practices or other erosion control practices when vegetative measures do not prove effective.

Soil slumpage, erosion of the basin embankment or around inlets/outlets, and cracking should be stabilized and repaired immediately upon identification. Repair, replacement or addition of rip-rap aprons, channels or embankments should be pursued as required.

f. Sediment removal

Sediments, which accumulate in the detention basin, should be removed periodically to prevent clogging of inlet or outlet structures. A typical clean-out cycle should be between 5 to 10 years with more frequent cleanings near inlet and outlet structures.

3. FOREBAYS AND WET POOLS

a. Inspections

Forebays and Wet Pools should be inspected periodically for the first few months after construction and then on an annual basis. Forebays and Wet Pools should be inspected following all major storm events. Items to check for include (but are not limited to):

i. Differential settlement of embankments.
ii. Cracking, erosion or seepage through embankments.
iii. Erosion of the flow path through the facility.
iv. Brush, shrub or tree growth on embankments.
v. Condition of the overflow spillway.
vi. Accumulation of sediment.

b. Mowing

Tree and brush growth must be prevented on basin embankments, side slopes, bottoms and around inlets and the overflow spillway(s). Mowing of the embankments shall be at least three times a year unless more frequent mowing is required to control vegetative growth. Resultant yard waste shall be collected and disposed of off-site.

c. Debris and Litter Removal

Removal of debris and litter shall be accomplished during mowing operations. Inlet structures should be cleared of all debris and litter.

d. Structural Repairs and Replacement

Components of the forebay or wet pool, which require repair or replacement, should be addressed immediately following identification.

e. Erosion Control

Sources of sedimentation, specifically eroded areas in upland drainage areas, should be stabilized immediately upon identification. Stabilization should be with vegetative practices or other erosion control practices when vegetative measures do not prove effective.

Soil slumpage, erosion of the basin embankment or around inlets or overflow outlets, and cracking should be stabilized and repaired immediately upon identification. Repair, replacement or addition of rip-rap aprons, channels or embankments should be pursued as required.

f. Sediment Removal

Cleanout frequency of Forebays and Wet Pools is dependent upon bottom cover, storage capacity, volume of inflow, and sediment load.

Sediment shall be removed from the Forebays and Wet Pools every 5 to 6 years or when accumulations reach 12 inches in depth. Monitoring the depth of sediments can be measured by installing permanent markers in the newly constructed facilities with a mark 12 inches above the permanent water surface. Markers should not be spaced more than 50 feet apart along the flow path through the facility. A log should be kept indicating the date that the facility was inspected and the distance to the bottom.

When sediment removal is required, the original grades depicted on the project drawings should be reestablished by a qualified contractor. If any of the impermeable material used in the construction of the basin bottom is removed it must be replaced with clean material consistent with the original material specifications.

4. Aquatic Benches

a. Inspection

Aquatic Benches should be inspected periodically for the first few months after construction and then on an annual basis. Aquatic Benches should be inspected after all major storm events. Items to check for include (but are not limited to):

i. Checking basin embankments for subsidence, erosion, cracking, tree growth and the presence of burrowing animals.
ii. Health and vigor of wetland vegetation.
iii. Accumulation of sediment.

b. Mowing

Mowing is not desirable nor allowed in the Aquatic Benches. Trees and shrubs should be removed from around inlet and outlet structures. Removal should be biannual.

c. Debris, Trash and Litter Control

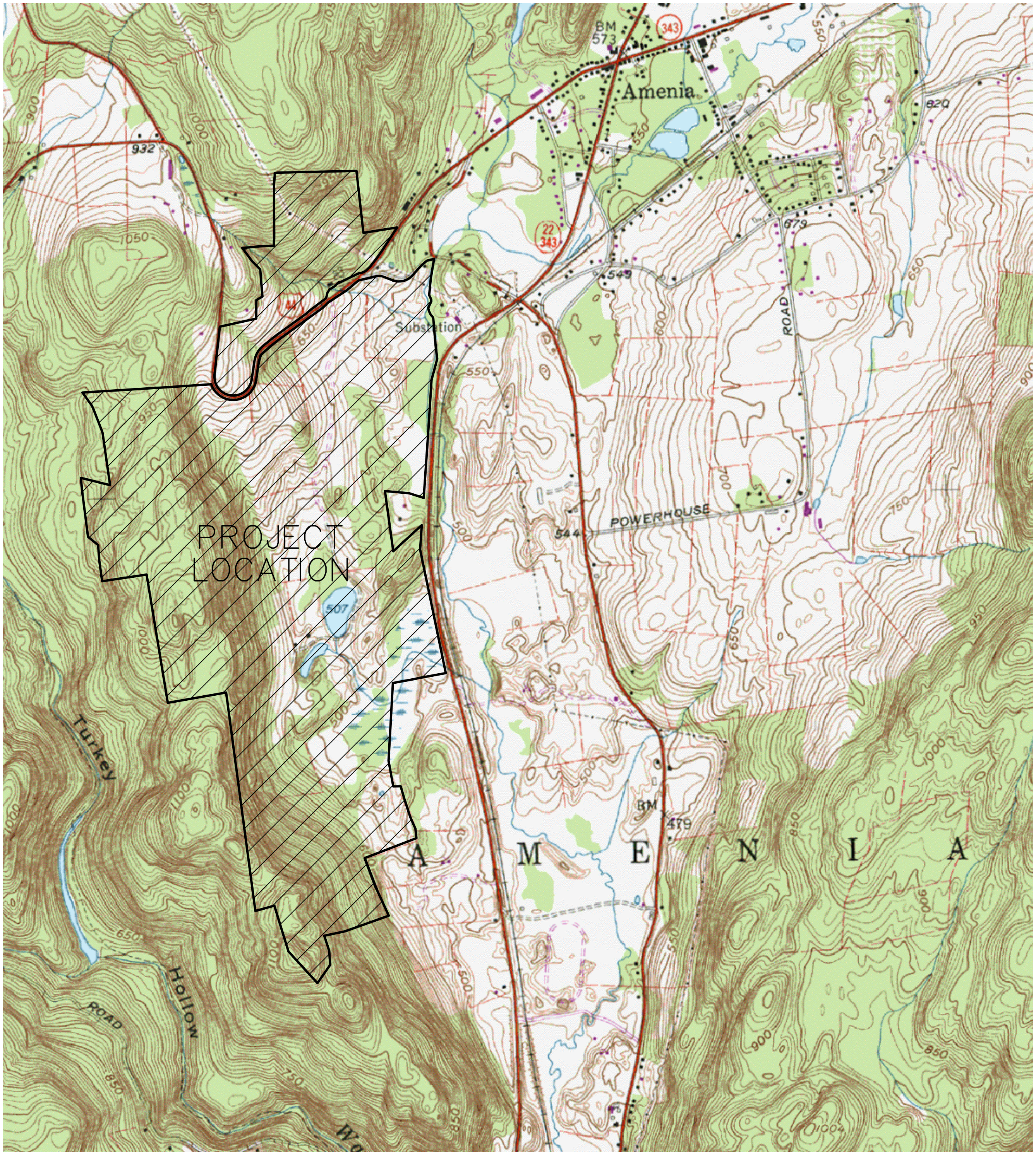
Debris, trash, and litter should be removed from the Aquatic Benches immediately upon discovery.

d. Erosion Control

Soil slumpage, erosion of the Aquatic Bench embankment or around inlets or outlets, and cracking should be stabilized and repaired immediately upon identification.

Appendix I: Figures

Figure 1: Site Location Map



ALTERATION OF THIS DRAWING, EXCEPT BY A LICENSED P.E. IS ILLEGAL. ANY ALTERATION BY A P.E. MUST BE INDICATED AND BEAR THE APPROPRIATE SEAL, SIGNATURE AND DATE OF ALTERATION.

THE Chazen COMPANIES
Engineers/Surveyors
Planners
Environmental Scientists

Dutchess County Office:
21 Fox Street Poughkeepsie, NY 12601
Phone: (845) 454–3980

Capital District Office:
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Phone: (518) 273–0055

Orange County Office:
356 Meadow Avenue Newburgh, NY 12550
Phone: (845) 567–1133

North Country Office:
100 Glen Street Glens Falls, NY 12801
Phone: (518) 812–0513

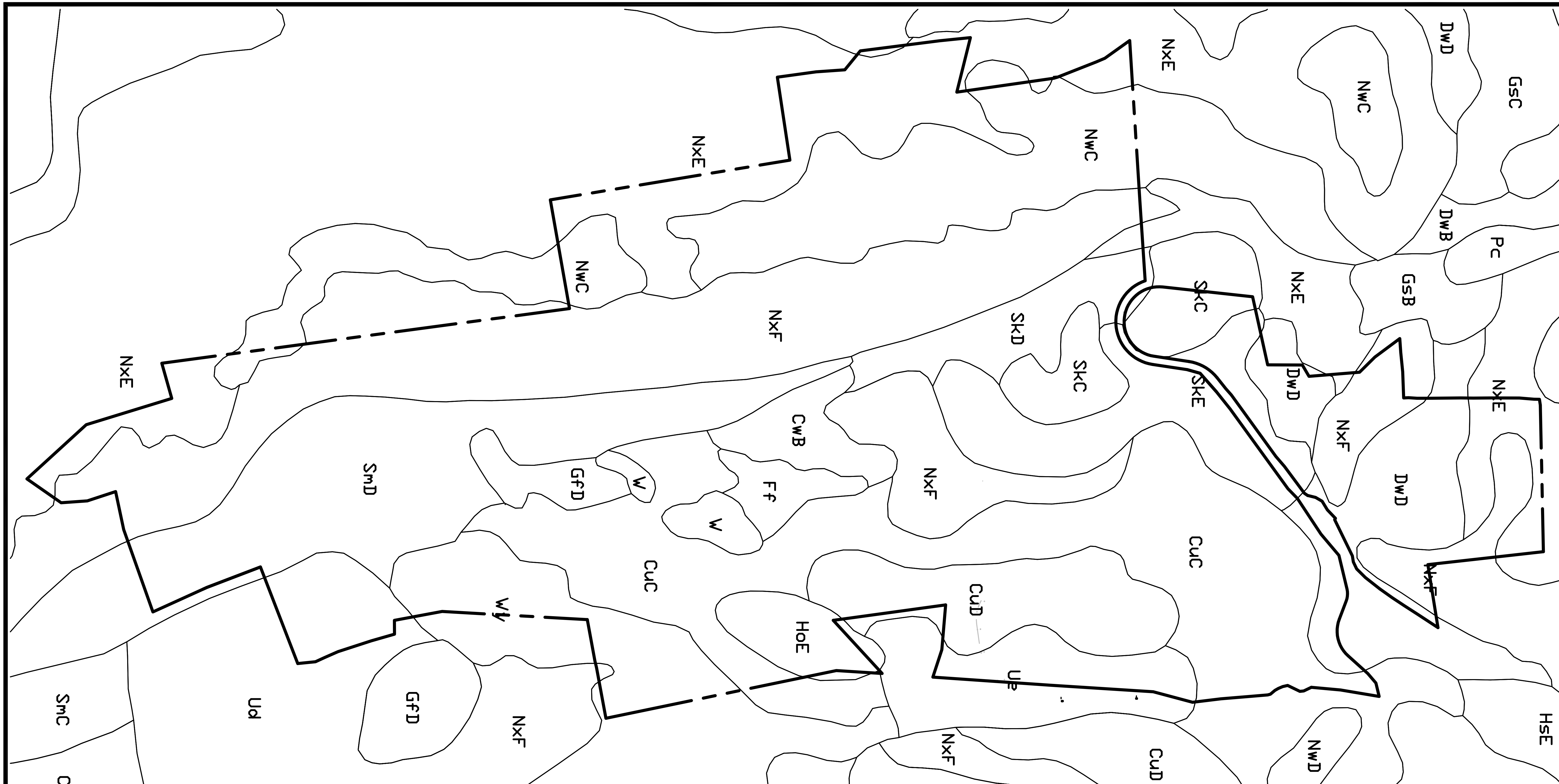
SILO RIDGE RESORT COMMUNITY

SITE LOCATION MAP

TOWN OF AMENIA / DUTCHESS COUNTY / STATE OF NEW YORK

drawn	checked
TCC	
date	scale
2005	NTS
project no.	
10454.01	
sheet no.	
FIG 1	

Figure 2: Soils Map



NOTE: SEE SECTION 5.2 OF THIS REPORT FOR USDA SOIL DATA ASSOCIATED WITH SOILS SHOWN ON PROJECT SITE

CHAZEN ENGINEERING & LAND SURVEYING CO., P.C.

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Glens Falls, New York 12801
Phone: (518) 812-0513

SILO RIDGE COUNTRY CLUB GOLF RESORT COMMUNITY

SOILS MAP

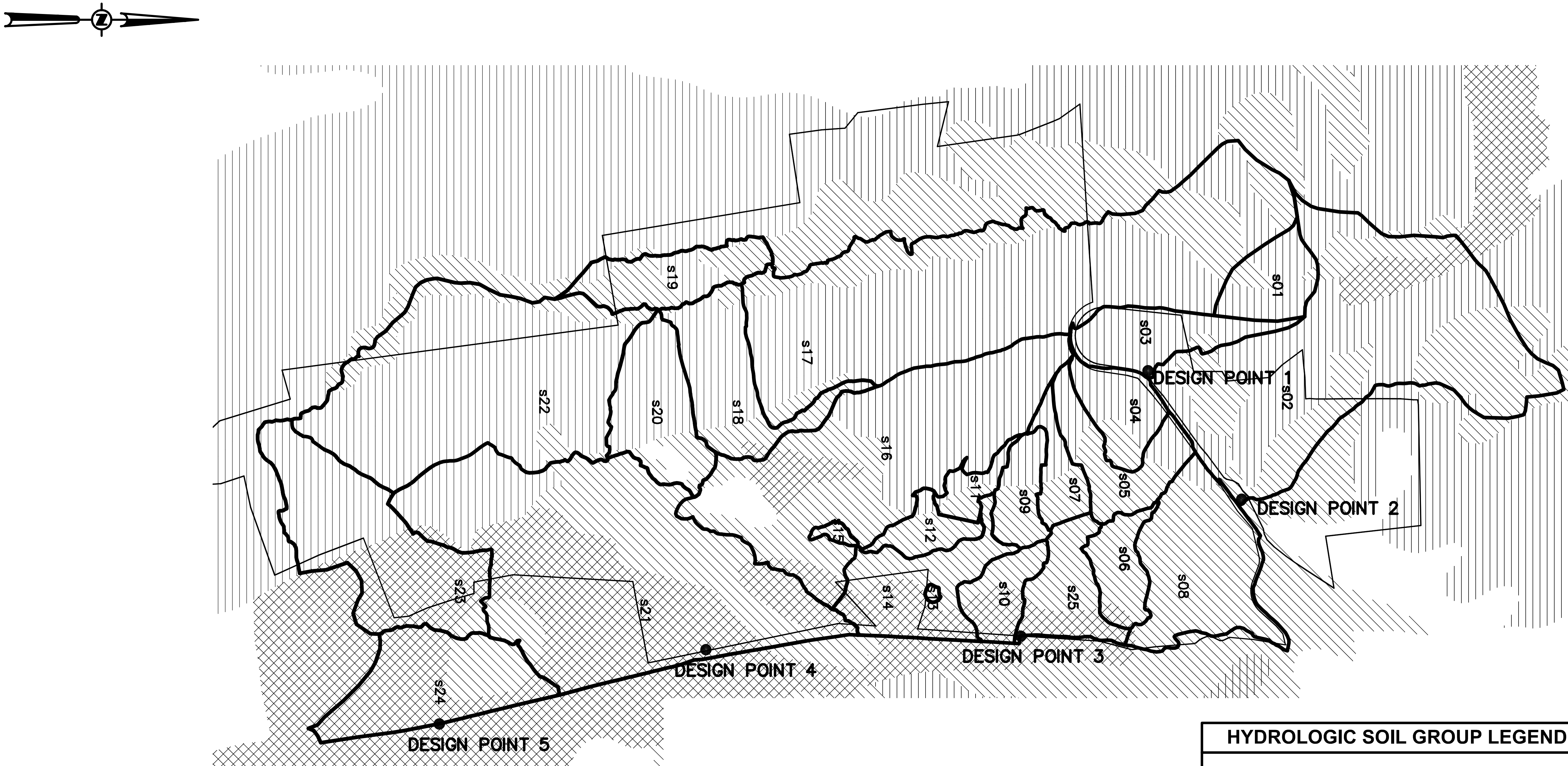
TOWN OF AMENIA, DUTCHESS COUNTY, NEW YORK

drawn	checked
SMD	
date 3/1/06	scale NTS
project no. 10454.01	
sheet no. FIG 2	

XXXXX

Drawing Name: S:\1\10400-10499\10454.00\ENG\DWG\zSWPPP_FIG-2_10454.00_SOILS.dwg Date Printed: Apr 10, 2006, 1:46pm

Figure 3: Pre-Development Watershed Delineation Map



HYDROLOGIC SOIL GROUP LEGEND

-GROUP B SOIL

-GROUP C SOIL

-GROUP D SOIL

NOTE: SEE APPENDIX L OF THIS REPORT FOR CHARACTERISTICS OF EACH SUBCATCHMENT

INTERNAL REVIEW

Silo Ridge Country Club Resort Community

CHAZEN ENGINEERING & LAND SURVEYING CO., P.C.

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SILO RIDGE RESORT COMMUNITY

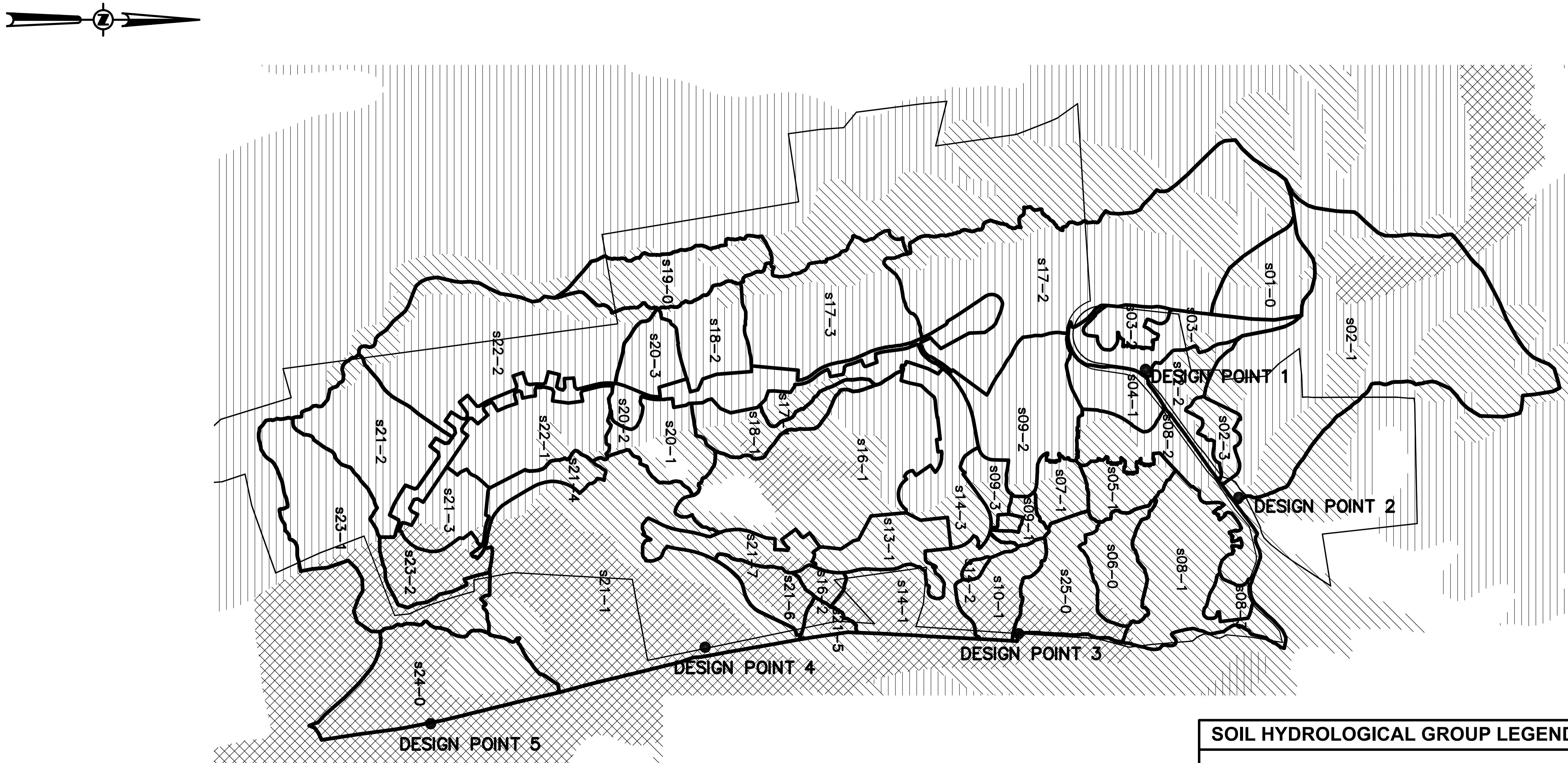
PRE-DEVELOPMENT WATERSHED DELINEATION MAP

TOWN OF AMENIA / DUTCHESS COUNTY / STATE OF NEW YORK

drawn	checked
SMD	PR
date	scale
2005	1"=1000'
project no.	
10454.00	
sheet no.	
FIG 3	

Drawing Name: S:\1\10400–10499\10454.00\ENG\DWG\zSWPPP_FIG–3_10454.00_STORM_EXIST.dwg Date Printed: Apr 10, 2006, 2:06pm

Figure 4: Post-Development Watershed Delineation Map



SOIL HYDROLOGICAL GROUP LEGEND

-GROUP B SOIL

-GROUP C SOIL

-GROUP D SOIL

NOTE: SEE APPENDIX L OF THIS REPORT FOR CHARACTERISTICS OF EACH SUBCATCHMENT

INTERNAL REVIEW

Silo Ridge Country Club
Resort Community

CHAZEN ENGINEERING & LAND SURVEYING CO., P.C.

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SILO RIDGE RESORT COMMUNITY

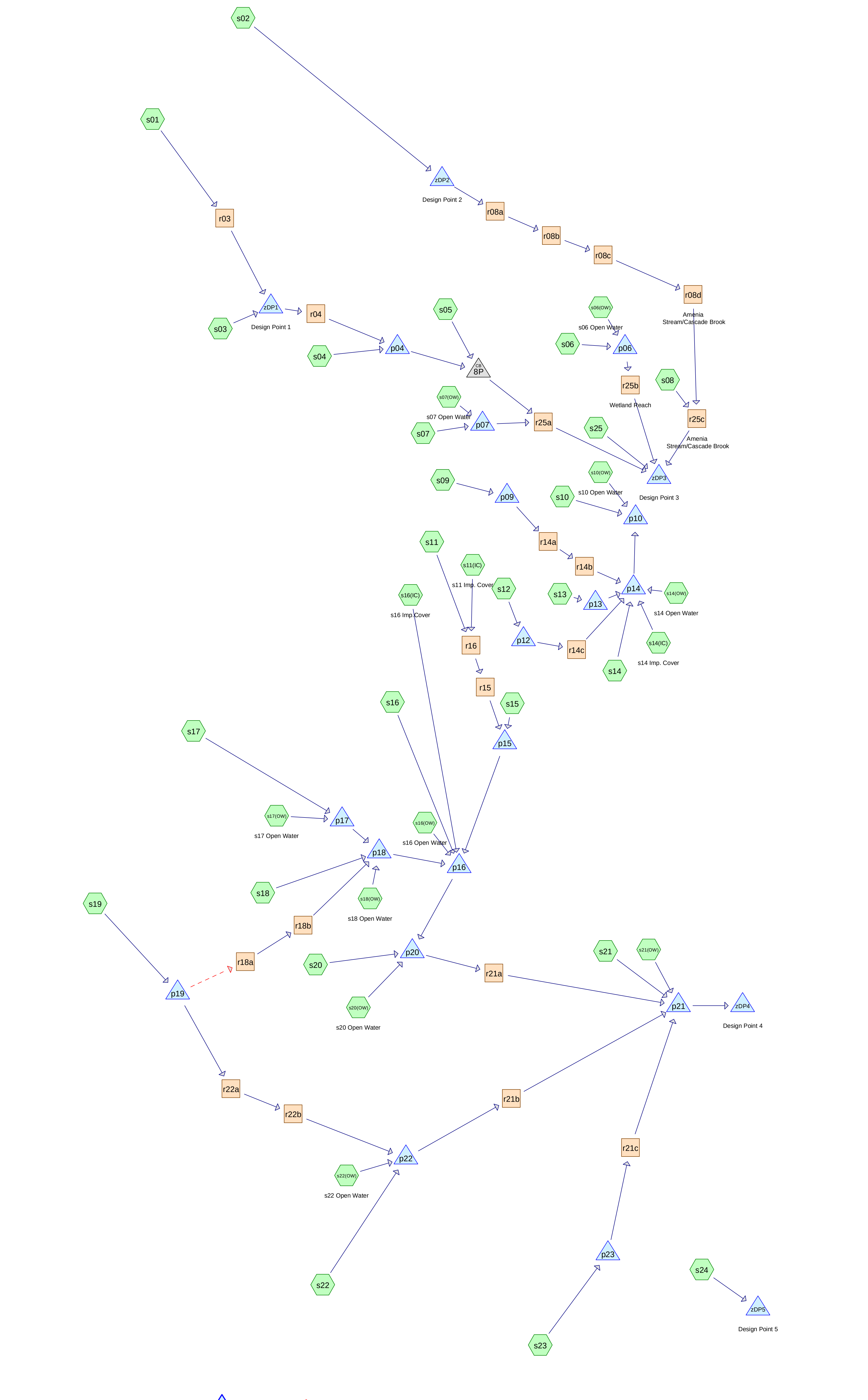
POST-DEVELOPMENT WATERSHED DELINEATION MAP

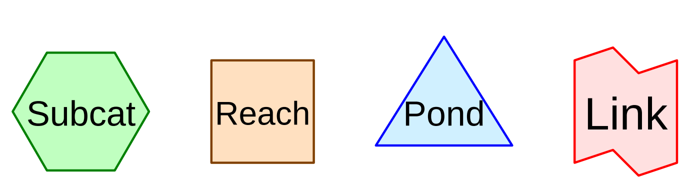
TOWN OF AMENIA / DUTCHESS COUNTY / STATE OF NEW YORK

drawn	checked
SMD	PR
date	scale
2005	1"=1000'
project no.	
10454.00	
sheet no.	
FIG 4	

Drawing Name: S:\1\10400-10499\10454.00\ENG\DWG\zSWPPP_FIG-4_10454.00_STORM_PROPOSED.dwg Date Printed: Apr 10, 2006, 2:12pm

Appendix J:
Pre-Development Watershed Conditions Modeling





Drainage Diagram for Existing Conditions_10454-01
Prepared by The Chazen Companies 4/10/2006
HydroCAD® 7.00 s/n 000927 © 1986-2003 Applied Microcomputer Systems

Pre-Development Conditions
1 year 24 hour Storm Event
Model Computations

Subcatchment s01:

Runoff = 2.38 cfs @ 12.70 hrs, Volume= 0.458 af, Depth= 0.48"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 1-yr Rainfall=2.70"

Area (ac)	CN	Description
11.485	68	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
42.8					**Direct Entry,**

Subcatchment s02:

Runoff = 11.49 cfs @ 13.01 hrs, Volume= 3.061 af, Depth= 0.38"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 1-yr Rainfall=2.70"

Area (ac)	CN	Description
97.712	65	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
61.3					**Direct Entry,**

Subcatchment s03:

Runoff = 4.23 cfs @ 12.49 hrs, Volume= 0.652 af, Depth= 0.52"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 1-yr Rainfall=2.70"

Area (ac)	CN	Description
15.174	69	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
28.8					**Direct Entry,**

Subcatchment s04:

Runoff = 3.09 cfs @ 12.13 hrs, Volume= 0.357 af, Depth= 0.38"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 1-yr Rainfall=2.70"

Area (ac)	CN	Description
11.403	65	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.5					**Direct Entry,**

Subcatchment s05:

Runoff = 1.62 cfs @ 12.47 hrs, Volume= 0.322 af, Depth= 0.26"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 1-yr Rainfall=2.70"

Area (ac)	CN	Description
14.935	61	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
17.3					**Direct Entry,**

Subcatchment s06:

Runoff = 1.16 cfs @ 12.44 hrs, Volume= 0.215 af, Depth= 0.29"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 1-yr Rainfall=2.70"

Area (ac)	CN	Description
9.007	62	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
17.3					**Direct Entry,**

Subcatchment s06(OW): s06 Open Water

Runoff = 1.39 cfs @ 12.00 hrs, Volume= 0.096 af, Depth= 2.70"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 1-yr Rainfall=2.70"

Area (ac)	CN	Description
0.428	100	

Subcatchment s07:

Runoff = 1.26 cfs @ 12.30 hrs, Volume= 0.196 af, Depth= 0.34"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 1-yr Rainfall=2.70"

Area (ac)	CN	Description
6.811	64	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
13.9					**Direct Entry,**

Subcatchment s07(OW): s07 Open Water

Runoff = 1.64 cfs @ 12.00 hrs, Volume= 0.114 af, Depth= 2.70"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 1-yr Rainfall=2.70"

Area (ac)	CN	Description
0.506	100	

Subcatchment s08:

Runoff = 1.75 cfs @ 12.60 hrs, Volume= 0.488 af, Depth= 0.18"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 1-yr Rainfall=2.70"

Area (ac)	CN	Description
31.719	58	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
21.8					**Direct Entry,**

Subcatchment s09:

Runoff = 1.74 cfs @ 12.33 hrs, Volume= 0.265 af, Depth= 0.38"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 1-yr Rainfall=2.70"

Area (ac)	CN	Description
8.452	65	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
16.4					**Direct Entry,**

Subcatchment s10:

Runoff = 1.84 cfs @ 12.49 hrs, Volume= 0.300 af, Depth= 0.44"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 1-yr Rainfall=2.70"

Area (ac)	CN	Description
8.130	67	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
27.9					**Direct Entry,**

Subcatchment s10(OW): s10 Open Water

Runoff = 2.69 cfs @ 12.00 hrs, Volume= 0.187 af, Depth= 2.70"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 1-yr Rainfall=2.70"

Area (ac)	CN	Description
0.830	100	

Subcatchment s11:

Runoff = 0.75 cfs @ 12.35 hrs, Volume= 0.102 af, Depth= 0.52"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 1-yr Rainfall=2.70"

Area (ac)	CN	Description
2.364	69	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
20.5					**Direct Entry,**

Subcatchment s11(IC): s11 Imp. Cover

Runoff = 6.84 cfs @ 12.04 hrs, Volume= 0.481 af, Depth= 2.47"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 1-yr Rainfall=2.70"

Area (ac)	CN	Description
2.338	98	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
2.8					**Direct Entry,**

Subcatchment s12:

Runoff = 0.12 cfs @ 13.30 hrs, Volume= 0.065 af, Depth= 0.12"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 1-yr Rainfall=2.70"

Area (ac)	CN	Description
6.420	55	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
42.0					**Direct Entry,**

Subcatchment s13:

Runoff = 0.01 cfs @ 12.49 hrs, Volume= 0.004 af, Depth= 0.12"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 1-yr Rainfall=2.70"

Area (ac)	CN	Description
0.350	55	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.6					**Direct Entry,**

Subcatchment s14:

Runoff = 2.74 cfs @ 12.55 hrs, Volume= 0.519 af, Depth= 0.34"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 1-yr Rainfall=2.70"

Area (ac)	CN	Description
18.066	64	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
28.1					**Direct Entry,**

Subcatchment s14(IC): s14 Imp. Cover

Runoff = 7.09 cfs @ 12.03 hrs, Volume= 0.490 af, Depth= 2.47"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 1-yr Rainfall=2.70"

Area (ac)	CN	Description
2.380	98	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
2.3					**Direct Entry,**

Subcatchment s14(OW): s14 Open Water

Runoff = 1.68 cfs @ 12.00 hrs, Volume= 0.117 af, Depth= 2.70"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 1-yr Rainfall=2.70"

Area (ac)	CN	Description
0.518	100	

Subcatchment s15:

Runoff = 0.01 cfs @ 14.95 hrs, Volume= 0.005 af, Depth= 0.06"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 1-yr Rainfall=2.70"

Area (ac)	CN	Description
1.068	51	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
13.1					**Direct Entry,**

Subcatchment s16:

Runoff = 14.70 cfs @ 12.42 hrs, Volume= 2.316 af, Depth= 0.41"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 1-yr Rainfall=2.70"

Area (ac)	CN	Description
67.994	66	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
22.3					**Direct Entry,**

Subcatchment s16(IC): s16 Imp.Cover

Runoff = 7.66 cfs @ 12.04 hrs, Volume= 0.541 af, Depth= 2.47"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 1-yr Rainfall=2.70"

Area (ac)	CN	Description
2.629	98	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
2.9					**Direct Entry,**

Subcatchment s16(OW): s16 Open Water

Runoff = 17.34 cfs @ 12.00 hrs, Volume= 1.204 af, Depth= 2.70"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 1-yr Rainfall=2.70"

Area (ac)	CN	Description
5.351	100	

Subcatchment s17:

Runoff = 9.99 cfs @ 14.05 hrs, Volume= 3.945 af, Depth= 0.41"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 1-yr Rainfall=2.70"

Area (ac)	CN	Description
115.827	66	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
125.2					**Direct Entry,**

Subcatchment s17(OW): s17 Open Water

Runoff = 0.53 cfs @ 12.00 hrs, Volume= 0.037 af, Depth= 2.70"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 1-yr Rainfall=2.70"

Area (ac)	CN	Description
0.164	100	

Subcatchment s18:

Runoff = 5.39 cfs @ 12.44 hrs, Volume= 0.836 af, Depth= 0.44"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 1-yr Rainfall=2.70"

Area (ac)	CN	Description
22.654	67	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
24.4					**Direct Entry,**

Subcatchment s18(OW): s18 Open Water

Runoff = 1.53 cfs @ 12.00 hrs, Volume= 0.106 af, Depth= 2.70"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 1-yr Rainfall=2.70"

Area (ac)	CN	Description
0.472	100	

Subcatchment s19:

Runoff = 1.03 cfs @ 12.80 hrs, Volume= 0.301 af, Depth= 0.23"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 1-yr Rainfall=2.70"

Area (ac)	CN	Description
15.520	60	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
40.4					**Direct Entry,**

Subcatchment s20:

Runoff = 4.84 cfs @ 12.58 hrs, Volume= 0.802 af, Depth= 0.52"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 1-yr Rainfall=2.70"

Area (ac)	CN	Description
18.655	69	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
33.9					**Direct Entry,**

Subcatchment s20(OW): s20 Open Water

Runoff = 6.38 cfs @ 12.00 hrs, Volume= 0.443 af, Depth= 2.70"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 1-yr Rainfall=2.70"

Area (ac)	CN	Description
1.968	100	

Subcatchment s21:

Runoff = 24.77 cfs @ 12.47 hrs, Volume= 3.830 af, Depth= 0.48"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 1-yr Rainfall=2.70"

Area (ac)	CN	Description
96.056	68	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
26.7					**Direct Entry,**

Subcatchment s21(OW):

Runoff = 39.66 cfs @ 12.00 hrs, Volume= 2.753 af, Depth= 2.70"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 1-yr Rainfall=2.70"

Area (ac)	CN	Description
12.235	100	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.0					**Direct Entry,**

Subcatchment s22:

Runoff = 22.13 cfs @ 12.53 hrs, Volume= 3.536 af, Depth= 0.52"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 1-yr Rainfall=2.70"

Area (ac)	CN	Description
82.287	69	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
31.3					**Direct Entry,**

Subcatchment s22(OW): s22 Open Water

Runoff = 0.44 cfs @ 12.00 hrs, Volume= 0.031 af, Depth= 2.70"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 1-yr Rainfall=2.70"

Area (ac)	CN	Description
0.136	100	

Subcatchment s23:

Runoff = 12.15 cfs @ 12.74 hrs, Volume= 2.204 af, Depth= 0.64"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 1-yr Rainfall=2.70"

Area (ac)	CN	Description
41.587	72	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
47.0					**Direct Entry,**

Subcatchment s24:

Runoff = 8.52 cfs @ 12.52 hrs, Volume= 1.308 af, Depth= 0.55"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 1-yr Rainfall=2.70"

Area (ac)	CN	Description
28.325	70	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
30.7					**Direct Entry,**

Subcatchment s25:

Runoff = 3.03 cfs @ 12.37 hrs, Volume= 0.462 af, Depth= 0.41"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 1-yr Rainfall=2.70"

Area (ac)	CN	Description
13.562	66	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
20.2					**Direct Entry,**

Reach r03:

Overland Flow Reach
Requires more survey

Inflow Area = 11.485 ac, Inflow Depth = 0.48" for 1-yr event
Inflow = 2.38 cfs @ 12.70 hrs, Volume= 0.458 af
Outflow = 2.35 cfs @ 12.76 hrs, Volume= 0.458 af, Atten= 1%, Lag= 3.7 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Max. Velocity= 3.0 fps, Min. Travel Time= 4.3 min
Avg. Velocity = 1.4 fps, Avg. Travel Time= 9.2 min

Peak Depth= 0.27' @ 12.76 hrs
Capacity at bank full= 92.14 cfs
Inlet Invert= 845.00', Outlet Invert= 728.00'
10.00' x 1.50' deep Parabolic Channel, n= 0.060 Length= 785.0' Slope= 0.1490 '/'

Reach r04:

Channel

Inflow Area = 26.659 ac, Inflow Depth = 0.50" for 1-yr event
Inflow = 6.01 cfs @ 12.58 hrs, Volume= 1.110 af
Outflow = 5.98 cfs @ 12.63 hrs, Volume= 1.110 af, Atten= 1%, Lag= 2.6 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Max. Velocity= 4.0 fps, Min. Travel Time= 2.8 min
Avg. Velocity = 1.9 fps, Avg. Travel Time= 6.0 min

Peak Depth= 0.52' @ 12.63 hrs
Capacity at bank full= 446.15 cfs
Inlet Invert= 685.50', Outlet Invert= 608.00'
12.00' x 4.00' deep Parabolic Channel, n= 0.060 Length= 675.0' Slope= 0.1148 '/'

Reach r08a:

Man Made Ditch
Inverts of pipe to be surveyed

Inflow Area = 97.712 ac, Inflow Depth = 0.38" for 1-yr event
Inflow = 11.49 cfs @ 13.02 hrs, Volume= 3.061 af
Outflow = 11.48 cfs @ 13.03 hrs, Volume= 3.061 af, Atten= 0%, Lag= 0.5 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Max. Velocity= 6.8 fps, Min. Travel Time= 0.6 min
Avg. Velocity = 3.6 fps, Avg. Travel Time= 1.0 min

Peak Depth= 0.40' @ 13.03 hrs
Capacity at bank full= 81.88 cfs
Inlet Invert= 607.00', Outlet Invert= 587.00'
10.00' x 1.00' deep Parabolic Channel, n= 0.027 Length= 226.0' Slope= 0.0885 '/'

Reach r08b:

24" HDPE
Inverts to be surveyed

Inflow Area = 97.712 ac, Inflow Depth = 0.38" for 1-yr event
Inflow = 11.48 cfs @ 13.03 hrs, Volume= 3.061 af
Outflow = 11.48 cfs @ 13.03 hrs, Volume= 3.061 af, Atten= 0%, Lag= 0.2 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Max. Velocity= 17.6 fps, Min. Travel Time= 0.3 min
Avg. Velocity = 9.7 fps, Avg. Travel Time= 0.5 min

Peak Depth= 0.52' @ 13.03 hrs
Capacity at bank full= 77.17 cfs
Inlet Invert= 587.00', Outlet Invert= 557.75'
24.0" Diameter Pipe n= 0.012 Length= 295.0' Slope= 0.0992 '/'

Reach r08c:

Ditch
Pipe inverts to be surveyed

Inflow Area = 97.712 ac, Inflow Depth = 0.38" for 1-yr event
Inflow = 11.48 cfs @ 13.03 hrs, Volume= 3.061 af
Outflow = 11.47 cfs @ 13.06 hrs, Volume= 3.061 af, Atten= 0%, Lag= 1.5 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Max. Velocity= 6.5 fps, Min. Travel Time= 1.5 min
Avg. Velocity = 3.3 fps, Avg. Travel Time= 3.0 min

Peak Depth= 0.41' @ 13.06 hrs
Capacity at bank full= 76.65 cfs
Inlet Invert= 557.75', Outlet Invert= 512.00'
10.00' x 1.00' deep Parabolic Channel, n= 0.027 Length= 590.0' Slope= 0.0775 '/'

Reach r08d: Amenia Stream/Cascade Brook

(Steam) parallel to Route 22
Base Flow estimated from field observation (see field note 21)

Inflow Area = 97.712 ac, Inflow Depth = 19.87" for 1-yr event
Inflow = 51.47 cfs @ 13.06 hrs, Volume= 161.772 af, Incl. 40.00 cfs Base Flow
Outflow = 51.40 cfs @ 13.12 hrs, Volume= 161.528 af, Atten= 0%, Lag= 3.7 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Max. Velocity= 3.2 fps, Min. Travel Time= 4.1 min
Avg. Velocity = 3.0 fps, Avg. Travel Time= 4.4 min

Peak Depth= 2.83' @ 13.12 hrs
Capacity at bank full= 104.49 cfs
Inlet Invert= 512.00', Outlet Invert= 504.00'
10.00' x 4.00' deep Parabolic Channel, n= 0.060 Length= 805.0' Slope= 0.0099 '/'

Reach r14a:

Grass lined channel

Inflow Area = 8.452 ac, Inflow Depth = 0.32" for 1-yr event
Inflow = 0.73 cfs @ 12.83 hrs, Volume= 0.226 af
Outflow = 0.73 cfs @ 12.86 hrs, Volume= 0.226 af, Atten= 0%, Lag= 1.8 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Max. Velocity= 2.7 fps, Min. Travel Time= 2.2 min
Avg. Velocity = 1.2 fps, Avg. Travel Time= 5.1 min

Peak Depth= 0.17' @ 12.86 hrs
Capacity at bank full= 325.42 cfs
Inlet Invert= 542.00', Outlet Invert= 526.00'
10.00' x 3.00' deep Parabolic Channel, n= 0.027 Length= 360.0' Slope= 0.0444 '/'

Reach r14b:

30" HDPE Under Main Entrance Road

Inflow Area = 8.452 ac, Inflow Depth = 0.32" for 1-yr event
Inflow = 0.73 cfs @ 12.86 hrs, Volume= 0.226 af
Outflow = 0.73 cfs @ 12.87 hrs, Volume= 0.226 af, Atten= 0%, Lag= 0.9 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Max. Velocity= 5.7 fps, Min. Travel Time= 1.3 min
Avg. Velocity = 2.5 fps, Avg. Travel Time= 3.0 min

Peak Depth= 0.16' @ 12.87 hrs
Capacity at bank full= 94.91 cfs
Inlet Invert= 526.00', Outlet Invert= 505.70'
30.0" Diameter Pipe n= 0.012 Length= 445.0' Slope= 0.0456 '/'

Reach r14c:

Overland Flow

Inflow Area = 6.420 ac, Inflow Depth = 0.00" for 1-yr event
Inflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Outflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Max. Velocity= 0.0 fps, Min. Travel Time= 0.0 min
Avg. Velocity = 0.0 fps, Avg. Travel Time= 0.0 min

Peak Depth= 0.00' @ 0.00 hrs
Capacity at bank full= 178.07 cfs
Inlet Invert= 544.00', Outlet Invert= 498.00'
50.00' x 1.00' deep Parabolic Channel, n= 0.060 Length= 575.0' Slope= 0.0800 '/'

Reach r15:

Brush Overbanks with Rocky Bottom
Needs to be surveyed

Inflow Area = 4.702 ac, Inflow Depth = 1.49" for 1-yr event
Inflow = 6.65 cfs @ 12.06 hrs, Volume= 0.583 af
Outflow = 6.61 cfs @ 12.07 hrs, Volume= 0.583 af, Atten= 1%, Lag= 0.5 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Max. Velocity= 7.9 fps, Min. Travel Time= 0.6 min
Avg. Velocity = 2.7 fps, Avg. Travel Time= 1.8 min

Peak Depth= 0.58' @ 12.07 hrs
Capacity at bank full= 188.47 cfs
Inlet Invert= 554.00', Outlet Invert= 528.00'
5.00' x 3.00' deep Parabolic Channel, n= 0.027 Length= 290.0' Slope= 0.0897 '/'

Reach r16:

Pipe Reach

Inflow Area = 4.702 ac, Inflow Depth = 1.49" for 1-yr event
Inflow = 6.95 cfs @ 12.04 hrs, Volume= 0.583 af
Outflow = 6.65 cfs @ 12.06 hrs, Volume= 0.583 af, Atten= 4%, Lag= 1.1 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Max. Velocity= 8.6 fps, Min. Travel Time= 1.7 min
Avg. Velocity = 2.8 fps, Avg. Travel Time= 5.1 min

Peak Depth= 0.54' @ 12.06 hrs
Capacity at bank full= 66.05 cfs
Inlet Invert= 573.00', Outlet Invert= 554.00'
30.0" Diameter Pipe n= 0.012 Length= 860.0' Slope= 0.0221 '/'

Reach r18a:

Overland Flow Reach

Inflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Outflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Max. Velocity= 0.0 fps, Min. Travel Time= 0.0 min
Avg. Velocity = 0.0 fps, Avg. Travel Time= 0.0 min

Peak Depth= 0.00' @ 0.00 hrs
Capacity at bank full= 379.63 cfs
Inlet Invert= 973.60', Outlet Invert= 530.00'
50.00' x 1.00' deep Parabolic Channel, n= 0.060 Length= 1,220.0' Slope= 0.3636 '/'

Reach r18b:

Overland Flow Reach

Inflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Outflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Max. Velocity= 0.0 fps, Min. Travel Time= 0.0 min
Avg. Velocity = 0.0 fps, Avg. Travel Time= 0.0 min

Peak Depth= 0.00' @ 0.00 hrs
Capacity at bank full= 151.94 cfs
Inlet Invert= 530.60', Outlet Invert= 514.00'
50.00' x 1.00' deep Parabolic Channel, n= 0.060 Length= 285.0' Slope= 0.0582 '/'

Reach r21a:

Man Made Ditch

Inflow Area = 241.484 ac, Inflow Depth = 0.07" for 1-yr event
Inflow = 1.23 cfs @ 14.55 hrs, Volume= 1.339 af
Outflow = 1.23 cfs @ 14.61 hrs, Volume= 1.337 af, Atten= 0%, Lag= 3.6 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Max. Velocity= 2.2 fps, Min. Travel Time= 4.9 min
Avg. Velocity = 1.3 fps, Avg. Travel Time= 8.3 min

Peak Depth= 0.28' @ 14.61 hrs
Capacity at bank full= 191.76 cfs
Inlet Invert= 504.00', Outlet Invert= 494.00'
10.00' x 3.00' deep Parabolic Channel, n= 0.027 Length= 648.0' Slope= 0.0154 '/'

Reach r21b:

Grass Ditch
Geometry to be confirmed by survey (inverts at pipe)

Inflow Area = 97.943 ac, Inflow Depth = 0.44" for 1-yr event
Inflow = 20.54 cfs @ 12.65 hrs, Volume= 3.568 af
Outflow = 20.52 cfs @ 12.66 hrs, Volume= 3.568 af, Atten= 0%, Lag= 0.5 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Max. Velocity= 5.7 fps, Min. Travel Time= 0.7 min
Avg. Velocity = 1.6 fps, Avg. Travel Time= 2.3 min

Peak Depth= 0.64' @ 12.66 hrs
Capacity at bank full= 239.90 cfs
Inlet Invert= 499.00', Outlet Invert= 491.10'
15.00' x 2.00' deep Parabolic Channel, n= 0.027 Length= 230.0' Slope= 0.0343 '/'

Reach r21c:

Overland Flow Reach

Inflow Area = 41.587 ac, Inflow Depth = 0.37" for 1-yr event
Inflow = 4.95 cfs @ 13.57 hrs, Volume= 1.285 af
Outflow = 4.91 cfs @ 13.59 hrs, Volume= 1.285 af, Atten= 1%, Lag= 1.4 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Max. Velocity= 2.1 fps, Min. Travel Time= 1.3 min
Avg. Velocity = 1.1 fps, Avg. Travel Time= 2.4 min

Peak Depth= 0.17' @ 13.59 hrs
Capacity at bank full= 227.81 cfs
Inlet Invert= 506.70', Outlet Invert= 485.75'
50.00' x 1.00' deep Parabolic Channel, n= 0.060 Length= 160.0' Slope= 0.1309 '/'

Reach r22a:

Overland Flow Reach

Inflow Area = 15.520 ac, Inflow Depth = 0.23" for 1-yr event
Inflow = 0.45 cfs @ 14.68 hrs, Volume= 0.299 af
Outflow = 0.45 cfs @ 14.81 hrs, Volume= 0.299 af, Atten= 0%, Lag= 8.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Max. Velocity= 1.5 fps, Min. Travel Time= 10.7 min
Avg. Velocity = 0.8 fps, Avg. Travel Time= 19.2 min

Peak Depth= 0.04' @ 14.81 hrs
Capacity at bank full= 409.31 cfs
Inlet Invert= 970.00', Outlet Invert= 560.00'
50.00' x 1.00' deep Parabolic Channel, n= 0.060 Length= 970.0' Slope= 0.4227 '/'

Reach r22b:

Overland Flow Reach

Inflow Area = 15.520 ac, Inflow Depth = 0.23" for 1-yr event
Inflow = 0.45 cfs @ 14.81 hrs, Volume= 0.299 af
Outflow = 0.45 cfs @ 14.98 hrs, Volume= 0.299 af, Atten= 0%, Lag= 9.7 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Max. Velocity= 0.8 fps, Min. Travel Time= 12.3 min
Avg. Velocity = 0.4 fps, Avg. Travel Time= 23.8 min

Peak Depth= 0.06' @ 14.98 hrs
Capacity at bank full= 175.17 cfs
Inlet Invert= 560.00', Outlet Invert= 512.00'
50.00' x 1.00' deep Parabolic Channel, n= 0.060 Length= 620.0' Slope= 0.0774 '/'

Reach r25a:

Ditch
Pipe inverts need to be surveyed

Inflow Area = 60.314 ac, Inflow Depth = 0.40" for 1-yr event
Inflow = 8.82 cfs @ 12.52 hrs, Volume= 2.005 af
Outflow = 8.75 cfs @ 12.56 hrs, Volume= 2.005 af, Atten= 1%, Lag= 2.4 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Max. Velocity= 6.0 fps, Min. Travel Time= 3.0 min
Avg. Velocity = 1.7 fps, Avg. Travel Time= 10.8 min

Peak Depth= 0.46' @ 12.56 hrs
Capacity at bank full= 205.50 cfs
Inlet Invert= 570.00', Outlet Invert= 504.00'
10.00' x 2.00' deep Parabolic Channel, n= 0.027 Length= 1,090.0' Slope= 0.0606 '/'

Reach r25b: Wetland Reach

Wetland Reach
Has wetland vegetation within reach

Inflow Area = 9.435 ac, Inflow Depth = 0.36" for 1-yr event
Inflow = 0.29 cfs @ 15.40 hrs, Volume= 0.285 af
Outflow = 0.28 cfs @ 15.62 hrs, Volume= 0.284 af, Atten= 0%, Lag= 13.3 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Max. Velocity= 0.6 fps, Min. Travel Time= 21.7 min
Avg. Velocity = 0.3 fps, Avg. Travel Time= 38.1 min

Peak Depth= 0.16' @ 15.62 hrs
Capacity at bank full= 156.51 cfs
Inlet Invert= 504.00', Outlet Invert= 499.50'
20.00' x 3.00' deep Parabolic Channel, n= 0.045 Length= 750.0' Slope= 0.0060 '/'

Reach r25c: Amenia Stream/Cascade Brook

(Steam) parallel to Route 22
Base Flow estimated from field observation (see field note 21)

Inflow Area = 129.431 ac, Inflow Depth = 29.74" for 1-yr event
Inflow = 92.48 cfs @ 13.10 hrs, Volume= 320.727 af, Incl. 40.00 cfs Base Flow
Outflow = 92.31 cfs @ 13.19 hrs, Volume= 320.045 af, Atten= 0%, Lag= 5.1 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Max. Velocity= 2.7 fps, Min. Travel Time= 6.0 min
Avg. Velocity = 2.6 fps, Avg. Travel Time= 6.2 min

Peak Depth= 4.74' @ 13.19 hrs
Capacity at bank full= 67.14 cfs
Inlet Invert= 504.00', Outlet Invert= 500.00'
10.00' x 4.00' deep Parabolic Channel, n= 0.060 Length= 975.0' Slope= 0.0041 '/'

Pond 8P:

No field note.
Water spills over cart path; no storage.

Inflow Area = 52.997 ac, Inflow Depth = 0.39" for 1-yr event
Inflow = 8.65 cfs @ 12.52 hrs, Volume= 1.723 af
Outflow = 8.65 cfs @ 12.52 hrs, Volume= 1.723 af, Atten= 0%, Lag= 0.0 min
Primary = 8.65 cfs @ 12.52 hrs, Volume= 1.723 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Peak Elev= 575.09' @ 12.52 hrs
Flood Elev= 574.70'
Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= (not calculated)

#	Routing	Invert	Outlet Devices
1	Primary	574.70'	**177.0 deg Sharp-Crested Vee/Trap Weir** C= 2.46

Primary OutFlow Max=8.65 cfs @ 12.52 hrs HW=575.09' TW=570.45' (Dynamic Tailwater)
└─**1=Sharp-Crested Vee/Trap Weir** (Weir Controls 8.65 cfs @ 1.5 fps)

Pond p04:

Field Note #13

Water ponding behind a golf cart path. Overflow dimensions are assumed based on aerial topo, and should be upgraded once survey is available.

Inflow Area = 38.062 ac, Inflow Depth = 0.46" for 1-yr event
Inflow = 7.08 cfs @ 12.53 hrs, Volume= 1.467 af
Outflow = 7.07 cfs @ 12.54 hrs, Volume= 1.401 af, Atten= 0%, Lag= 0.5 min
Primary = 7.07 cfs @ 12.54 hrs, Volume= 1.401 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Peak Elev= 605.73' @ 12.54 hrs Surf.Area= 5,649 sf Storage= 3,389 cf
Flood Elev= 605.50' Surf.Area= 4,803 sf Storage= 2,882 cf
Plug-Flow detention time= 35.7 min calculated for 1.401 af (95% of inflow)
Center-of-Mass det. time= 12.4 min (938.7 - 926.3)

#	Invert	Avail.Storage	Storage Description
1	604.20'	26,897 cf	**Custom Stage Data (Conic)** Listed below

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
604.20	0	0	0	0
606.00	6,650	3,990	3,990	6,655
608.00	17,060	22,907	26,897	17,092

#	Routing	Invert	Outlet Devices
1	Primary	605.50'	**179.0 deg Sharp-Crested Vee/Trap Weir** C= 2.46

Primary OutFlow Max=7.07 cfs @ 12.54 hrs HW=605.73' TW=575.08' (Dynamic Tailwater)
└─**1=Sharp-Crested Vee/Trap Weir** (Weir Controls 7.07 cfs @ 1.2 fps)

Pond p06:

Field Note #22
Geometry to be confirmed by survey.

Inflow Area = 9.435 ac, Inflow Depth = 0.40" for 1-yr event
Inflow = 1.40 cfs @ 12.36 hrs, Volume= 0.311 af
Outflow = 0.29 cfs @ 15.40 hrs, Volume= 0.285 af, Atten= 80%, Lag= 181.9 min
Primary = 0.29 cfs @ 15.40 hrs, Volume= 0.285 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Starting Elev= 506.80' Surf.Area= 18,600 sf Storage= 42,160 cf
Peak Elev= 507.10' @ 15.40 hrs Surf.Area= 19,941 sf Storage= 48,459 cf (6,299 cf above start)
Flood Elev= 507.10' Surf.Area= 19,958 sf Storage= 48,537 cf (6,377 cf above start)
Plug-Flow detention time= (not calculated)
Center-of-Mass det. time= (not calculated)

#	Invert	Avail.Storage	Storage Description
1	500.00'	67,669 cf	**Custom Stage Data (Conic)** Listed below

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
500.00	0	0	0	0
506.80	18,600	42,160	42,160	18,672
508.00	24,030	25,509	67,669	24,138

#	Routing	Invert	Outlet Devices
1	Primary	506.80'	**12.0" x 20.0' long Culvert** CMP, projecting, no headwall, Ke= 0.900 Outlet Invert= 506.00' S= 0.0400 '/' n= 0.024 Cc= 0.900
2	Primary	507.10'	**178.0 deg Sharp-Crested Vee/Trap Weir** C= 2.46

Primary OutFlow Max=0.29 cfs @ 15.40 hrs HW=507.10' TW=504.16' (Dynamic Tailwater)
└─**1=Culvert** (Inlet Controls 0.29 cfs @ 1.5 fps)
└─**2=Sharp-Crested Vee/Trap Weir** (Controls 0.00 cfs)

Pond p07:

Field Note # 29
Outlet geometry to be confirmed by survey.

Inflow Area = 7.317 ac, Inflow Depth = 0.51" for 1-yr event
Inflow = 1.70 cfs @ 12.25 hrs, Volume= 0.309 af
Outflow = 0.29 cfs @ 14.88 hrs, Volume= 0.283 af, Atten= 83%, Lag= 157.5 min
Primary = 0.29 cfs @ 14.88 hrs, Volume= 0.283 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Starting Elev= 572.80' Surf.Area= 21,640 sf Storage= 56,264 cf
Peak Elev= 573.06' @ 14.88 hrs Surf.Area= 22,888 sf Storage= 62,732 cf (6,468 cf above start)
Flood Elev= 573.50' Surf.Area= 24,936 sf Storage= 73,351 cf (17,087 cf above start)
Plug-Flow detention time= (not calculated)
Center-of-Mass det. time= (not calculated)

#	Invert	Avail.Storage	Storage Description
1	565.00'	85,557 cf	**Custom Stage Data (Conic)** Listed below

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
565.00	0	0	0	0
572.80	21,640	56,264	56,264	21,735
574.00	27,290	29,293	85,557	27,424

#	Routing	Invert	Outlet Devices
1	Primary	572.80'	**18.0" x 20.0' long Culvert** CMP, projecting, no headwall, Ke= 0.900 Outlet Invert= 572.00' S= 0.0400 '/' n= 0.024 Cc= 0.900
2	Primary	573.50'	**177.0 deg Sharp-Crested Vee/Trap Weir X 2.00** C= 2.46

Primary OutFlow Max=0.29 cfs @ 14.88 hrs HW=573.06' TW=570.25' (Dynamic Tailwater)
1=Culvert (Inlet Controls 0.29 cfs @ 1.4 fps)
2=Sharp-Crested Vee/Trap Weir (Controls 0.00 cfs)

Pond p09:

Field Note #31
Geometry to be confirmed by survey.

Inflow Area = 8.452 ac, Inflow Depth = 0.38" for 1-yr event
Inflow = 1.74 cfs @ 12.33 hrs, Volume= 0.265 af
Outflow = 0.73 cfs @ 12.83 hrs, Volume= 0.226 af, Atten= 58%, Lag= 30.0 min
Primary = 0.73 cfs @ 12.83 hrs, Volume= 0.226 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Peak Elev= 548.87' @ 12.83 hrs Surf.Area= 3,003 sf Storage= 2,794 cf
Flood Elev= 551.20' Surf.Area= 8,534 sf Storage= 15,673 cf
Plug-Flow detention time= 144.3 min calculated for 0.226 af (85% of inflow)
Center-of-Mass det. time= 78.4 min (1,002.6 - 924.2)

#	Invert	Avail.Storage	Storage Description
1	547.50'	21,989 cf	**Custom Stage Data (Conic)** Listed below

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
547.50	0	0	0	0
548.00	1,080	180	180	1,080
550.00	5,510	6,020	6,200	5,527
552.00	10,550	15,790	21,989	10,606

#	Routing	Invert	Outlet Devices
1	Primary	548.50'	**30.0" x 70.0' long Culvert** CMP, projecting, no headwall, Ke= 0.900 Outlet Invert= 542.00' S= 0.0929 '/' n= 0.012 Cc= 0.900
2	Primary	551.20'	**168.0 deg Sharp-Crested Vee/Trap Weir** C= 2.46

Primary OutFlow Max=0.73 cfs @ 12.83 hrs HW=548.87' TW=542.17' (Dynamic Tailwater)
—**1=Culvert** (Inlet Controls 0.73 cfs @ 1.6 fps)
—**2=Sharp-Crested Vee/Trap Weir** (Controls 0.00 cfs)

Pond p10:

Field Note #25
Need to get full story on how this pond works

Inflow Area = 45.146 ac, Inflow Depth = 0.13" for 1-yr event
Inflow = 2.72 cfs @ 12.00 hrs, Volume= 0.487 af
Outflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Atten= 100%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Starting Elev= 498.40' Surf.Area= 36,110 sf Storage= 101,108 cf
Peak Elev= 498.94' @ 25.62 hrs Surf.Area= 38,236 sf Storage= 122,314 cf (21,206 cf above start)
Plug-Flow detention time= (not calculated)
Center-of-Mass det. time= (not calculated)

#	Invert	Avail.Storage	Storage Description
1	490.00'	581,029 cf	**Custom Stage Data (Conic)** Listed below

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
490.00	0	0	0	0
498.40	36,110	101,108	101,108	36,221
500.00	42,400	62,741	163,849	42,610
502.00	54,880	97,012	260,861	55,187
504.00	78,730	132,895	393,755	79,107
506.00	109,382	187,274	581,029	109,836

Pond p12:

No field note.
Natural depression.

Inflow Area = 6.420 ac, Inflow Depth = 0.12" for 1-yr event
Inflow = 0.12 cfs @ 13.30 hrs, Volume= 0.065 af
Outflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Atten= 100%, Lag= 0.0 min
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Peak Elev= 544.90' @ 26.42 hrs Surf.Area= 2,999 sf Storage= 2,852 cf
Flood Elev= 547.50' Surf.Area= 13,848 sf Storage= 21,762 cf
Plug-Flow detention time= (not calculated)
Center-of-Mass det. time= (not calculated)

#	Invert	Avail.Storage	Storage Description
1	543.50'	26,986 cf	**Custom Stage Data (Conic)** Listed below

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
543.50	0	0	0	0
544.00	1,140	190	190	1,140
546.00	5,260	5,899	6,089	5,278
548.00	16,710	20,897	26,986	16,750

#	Routing	Invert	Outlet Devices
1	Primary	547.50'	**173.0 deg Sharp-Crested Vee/Trap Weir** C= 2.46

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=543.50' TW=544.00' (Dynamic Tailwater)
└─**1=Sharp-Crested Vee/Trap Weir** (Controls 0.00 cfs)

Pond p13:

No Field Note
Natural depression.

Inflow Area = 0.350 ac, Inflow Depth = 0.12" for 1-yr event
Inflow = 0.01 cfs @ 12.49 hrs, Volume= 0.004 af
Outflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Atten= 100%, Lag= 0.0 min
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Peak Elev= 512.09' @ 24.49 hrs Surf.Area= 435 sf Storage= 155 cf
Flood Elev= 519.50' Surf.Area= 4,313 sf Storage= 16,523 cf
Plug-Flow detention time= (not calculated)
Center-of-Mass det. time= (not calculated)

#	Invert	Avail.Storage	Storage Description
1	511.40'	18,490 cf	**Custom Stage Data (Conic)** Listed below

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
511.40	0	0	0	0
512.00	390	78	78	391
514.00	1,360	1,652	1,730	1,381
516.00	2,180	3,508	5,238	2,253
518.00	3,240	5,385	10,623	3,375
520.00	4,670	7,867	18,490	4,872

#	Routing	Invert	Outlet Devices
1	Primary	519.50'	**176.0 deg Sharp-Crested Vee/Trap Weir** C= 2.46

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=511.40' TW=497.40' (Dynamic Tailwater)
└─**1=Sharp-Crested Vee/Trap Weir** (Controls 0.00 cfs)

Pond p14:

Field Note #26
Need to figure out how this pond works

Inflow Area = 36.186 ac, Inflow Depth = 0.45" for 1-yr event
Inflow = 8.49 cfs @ 12.03 hrs, Volume= 1.351 af
Outflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Atten= 100%, Lag= 0.0 min
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Starting Elev= 497.40' Surf.Area= 22,200 sf Storage= 54,760 cf
Peak Elev= 499.17' @ 48.00 hrs Surf.Area= 41,352 sf Storage= 113,598 cf (58,838 cf above start)
Plug-Flow detention time= (not calculated)
Center-of-Mass det. time= (not calculated)

#	Invert	Avail.Storage	Storage Description
1	490.00'	805,062 cf	**Custom Stage Data (Conic)** Listed below

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
490.00	0	0	0	0
497.40	22,200	54,760	54,760	22,286
498.00	25,330	14,249	69,009	25,433
500.00	52,810	76,476	145,485	52,948
502.00	73,360	125,608	271,093	73,574
504.00	84,070	157,308	428,402	84,467
506.00	92,130	176,139	604,540	92,797
508.00	108,618	200,522	805,062	109,437

#	Routing	Invert	Outlet Devices
1	Primary	500.00'	**24.0" x 80.0' long Culvert** CPP, end-section conforming to fill, Ke= 0.500 Outlet Invert= 502.00' S= -0.0250 '/' n= 0.012 Cc= 0.900

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=497.40' TW=498.40' (Dynamic Tailwater)
└─**1=Culvert** (Controls 0.00 cfs)

Pond p15:

Field Note # 43
Infiltration basin

Inflow Area = 5.770 ac, Inflow Depth = 1.22" for 1-yr event
Inflow = 6.61 cfs @ 12.07 hrs, Volume= 0.588 af
Outflow = 3.31 cfs @ 12.22 hrs, Volume= 0.332 af, Atten= 50%, Lag= 9.1 min
Primary = 3.31 cfs @ 12.22 hrs, Volume= 0.332 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Peak Elev= 536.08' @ 12.22 hrs Surf.Area= 3,204 sf Storage= 11,413 cf
Flood Elev= 536.00' Surf.Area= 3,160 sf Storage= 11,127 cf
Plug-Flow detention time= 240.5 min calculated for 0.332 af (57% of inflow)

Center-of-Mass det. time= 115.6 min (906.2 - 790.6)

#	Invert	Avail.Storage	Storage Description
1	526.80'	18,577 cf	**Custom Stage Data (Conic)** Listed below

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
526.80	0	0	0	0
528.00	310	124	124	312
530.00	660	948	1,072	694
532.00	1,180	1,815	2,887	1,256
534.00	1,990	3,135	6,022	2,113
536.00	3,160	5,105	11,127	3,337
538.00	4,320	7,450	18,577	4,575

#	Routing	Invert	Outlet Devices
1	Primary	536.00'	**171.0 deg x 50.0' long Sharp-Crested Vee/Trap Weir** C= 2.46

Primary OutFlow Max=3.31 cfs @ 12.22 hrs HW=536.08' TW=507.28' (Dynamic Tailwater)
1=Sharp-Crested Vee/Trap Weir (Weir Controls 3.31 cfs @ 0.8 fps)

Pond p16:

Field Note # 49
Large pond with man-made island.
Geometry to be verified by survey. In particular, we are making big guesses about the outlets.
Also need to find out about valves...

Inflow Area = 220.861 ac, Inflow Depth = 0.51" for 1-yr event
Inflow = 24.01 cfs @ 12.00 hrs, Volume= 9.313 af
Outflow = 0.13 cfs @ 31.55 hrs, Volume= 0.224 af, Atten= 99%, Lag= 1,172.8 min
Primary = 0.13 cfs @ 31.55 hrs, Volume= 0.224 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Starting Elev= 507.00' Surf.Area= 199,799 sf Storage= 878,320 cf
Peak Elev= 509.17' @ 31.55 hrs Surf.Area= 232,124 sf Storage= 1,279,535 cf (401,215 cf above start)
Flood Elev= 510.50' Surf.Area= 271,550 sf Storage= 1,623,217 cf (744,897 cf above start)
Plug-Flow detention time= (not calculated)
Center-of-Mass det. time= (not calculated)

#	Invert	Avail.Storage	Storage Description
1	500.00'	2,062,087 cf	**Custom Stage Data (Conic)** Listed below

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
500.00	0	0	0	0
503.00	140,344	140,344	140,344	140,358
509.20	232,500	1,143,862	1,284,206	232,994
510.00	249,400	192,720	1,476,927	249,951
512.00	338,000	585,160	2,062,087	338,634

#	Routing	Invert	Outlet Devices
1	Primary	509.00'	**18.0" x 110.0' long Culvert** CMP, projecting, no headwall, Ke= 0.900 Outlet Invert= 505.70' S= 0.0300 '/' n= 0.024 Cc= 0.900
2	Primary	500.00'	**8.0" x 100.0' long assumed equalization pipe w/ valve X 0.00** CMP, projecting, no headwall, Ke= 0.900 Outlet Invert= 500.00' S= 0.0000 '/' n= 0.013 Cc= 0.900
3	Primary	510.50'	**175.0 deg Sharp-Crested Vee/Trap Weir X 2.00** C= 2.46

Primary OutFlow Max=0.13 cfs @ 31.55 hrs HW=509.17' TW=505.20' (Dynamic Tailwater)
—**1=Culvert** (Inlet Controls 0.13 cfs @ 1.1 fps)
—**2=assumed equalization pipe w/ valve** (Controls 0.00 cfs)
—**3=Sharp-Crested Vee/Trap Weir** (Controls 0.00 cfs)

Pond p17:

Field Note #45
Golf pond
Geometry to be confirmed by surveyed

Inflow Area = 115.991 ac, Inflow Depth = 0.41" for 1-yr event
Inflow = 10.01 cfs @ 14.05 hrs, Volume= 3.982 af
Outflow = 9.87 cfs @ 14.21 hrs, Volume= 3.982 af, Atten= 1%, Lag= 9.3 min
Primary = 9.87 cfs @ 14.21 hrs, Volume= 3.982 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Starting Elev= 523.80' Surf.Area= 7,290 sf Storage= 9,234 cf
Peak Elev= 524.87' @ 14.21 hrs Surf.Area= 9,541 sf Storage= 19,174 cf (9,940 cf above start)
Flood Elev= 524.30' Surf.Area= 8,074 sf Storage= 13,623 cf (4,389 cf above start)
Plug-Flow detention time= 67.7 min calculated for 3.769 af (95% of inflow)
Center-of-Mass det. time= 25.6 min (1,042.7 - 1,017.0)

#	Invert	Avail.Storage	Storage Description
1	520.00'	30,224 cf	**Custom Stage Data (Conic)** Listed below

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
520.00	0	0	0	0
523.80	7,290	9,234	9,234	7,313
524.00	7,300	1,459	10,693	7,374
526.00	12,460	19,531	30,224	12,581

#	Routing	Invert	Outlet Devices
1	Primary	523.80'	**2.2' long x 0.5' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 Coef. (English) 2.80 2.92 3.08 3.30 3.32
2	Primary	524.30'	**143.0 deg Sharp-Crested Vee/Trap Weir** C= 2.47
3	Primary	525.20'	**178.0 deg x 60.0' long Sharp-Crested Vee/Trap Weir** C= 2.46

Primary OutFlow Max=9.86 cfs @ 14.21 hrs HW=524.87' TW=515.04' (Dynamic Tailwater)
—**1=Broad-Crested Rectangular Weir** (Weir Controls 8.07 cfs @ 3.4 fps)
—**2=Sharp-Crested Vee/Trap Weir** (Weir Controls 1.80 cfs @ 1.9 fps)
—**3=Sharp-Crested Vee/Trap Weir** (Controls 0.00 cfs)

Pond p18:

Field Note #46
Golf pond
Geometry to be confirmed by surveyed

Inflow Area = 139.117 ac, Inflow Depth = 0.42" for 1-yr event
Inflow = 11.08 cfs @ 14.17 hrs, Volume= 4.924 af
Outflow = 9.71 cfs @ 14.78 hrs, Volume= 4.920 af, Atten= 12%, Lag= 36.2 min
Primary = 9.71 cfs @ 14.78 hrs, Volume= 4.920 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Starting Elev= 513.90' Surf.Area= 20,680 sf Storage= 26,884 cf
Peak Elev= 515.15' @ 14.78 hrs Surf.Area= 25,043 sf Storage= 56,894 cf (30,010 cf above start)
Flood Elev= 514.81' Surf.Area= 23,768 sf Storage= 48,709 cf (21,825 cf above start)
Plug-Flow detention time= 177.2 min calculated for 4.303 af (87% of inflow)
Center-of-Mass det. time= 74.2 min (1,089.2 - 1,015.0)

#	Invert	Avail.Storage	Storage Description
1	510.00'	148,288 cf	**Custom Stage Data (Conic)** Listed below

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
510.00	0	0	0	0
513.90	20,680	26,884	26,884	20,704
514.00	20,690	2,068	28,952	20,756
516.00	28,290	48,782	77,735	28,436
518.00	42,760	70,554	148,288	42,967

#	Routing	Invert	Outlet Devices
1	Primary	513.90'	**2.0' long x 0.5' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 Coef. (English) 2.80 2.92 3.08 3.30 3.32
2	Primary	514.81'	**143.0 deg Sharp-Crested Vee/Trap Weir** C= 2.47
3	Primary	515.32'	**175.0 deg x 10.0' long Sharp-Crested Vee/Trap Weir** C= 2.46

Primary OutFlow Max=9.71 cfs @ 14.78 hrs HW=515.15' TW=507.95' (Dynamic Tailwater)
—**1=Broad-Crested Rectangular Weir** (Weir Controls 9.23 cfs @ 3.7 fps)
—**2=Sharp-Crested Vee/Trap Weir** (Weir Controls 0.48 cfs @ 1.4 fps)
—**3=Sharp-Crested Vee/Trap Weir** (Controls 0.00 cfs)

Pond p19:

Wetland
Geometry to be confirmed by survey
Based off aerial topo, and assumed topo contour

Inflow Area = 15.520 ac, Inflow Depth = 0.23" for 1-yr event
Inflow = 1.03 cfs @ 12.80 hrs, Volume= 0.301 af
Outflow = 0.45 cfs @ 14.68 hrs, Volume= 0.299 af, Atten= 56%, Lag= 112.7 min
Primary = 0.45 cfs @ 14.68 hrs, Volume= 0.299 af
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Starting Elev= 972.00' Surf.Area= 86,000 sf Storage= 57,333 cf
Peak Elev= 972.03' @ 14.68 hrs Surf.Area= 86,763 sf Storage= 60,440 cf (3,107 cf above start)
Plug-Flow detention time= (not calculated)
Center-of-Mass det. time= (not calculated)

#	Invert	Avail.Storage	Storage Description
1	970.00'	282,329 cf	**Custom Stage Data (Conic)** Listed below

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
970.00	0	0	0	0
972.00	86,000	57,333	57,333	86,006
974.00	141,270	224,996	282,329	141,327

#	Routing	Invert	Outlet Devices
1	Secondary	973.60'	**178.0 deg x 51.0' long Sharp-Crested Vee/Trap Weir** C= 2.46
2	Primary	972.00'	**35.0' long x 0.5' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 Coef. (English) 2.80 2.92 3.08 3.30 3.32

Primary OutFlow Max=0.45 cfs @ 14.68 hrs HW=972.03' TW=970.04' (Dynamic Tailwater)
└─**2=Broad-Crested Rectangular Weir** (Weir Controls 0.45 cfs @ 0.5 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=972.00' TW=973.60' (Dynamic Tailwater)
└─**1=Sharp-Crested Vee/Trap Weir** (Controls 0.00 cfs)

Pond p20:

Field Note #50
Spring Fed Pond
Geometry to be confirmed by surveyed

Inflow Area = 241.484 ac, Inflow Depth = 0.07" for 1-yr event
Inflow = 6.50 cfs @ 12.00 hrs, Volume= 1.469 af
Outflow = 1.23 cfs @ 14.55 hrs, Volume= 1.339 af, Atten= 81%, Lag= 153.2 min
Primary = 1.23 cfs @ 14.55 hrs, Volume= 1.339 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

Starting Elev= 505.10' Surf.Area= 89,370 sf Storage= 138,524 cf
Peak Elev= 505.39' @ 14.55 hrs Surf.Area= 89,373 sf Storage= 164,408 cf (25,884 cf above start)
Plug-Flow detention time= (not calculated)
Center-of-Mass det. time= (not calculated)

#	Invert	Avail.Storage	Storage Description
1	502.00'	615,682 cf	**Custom Stage Data (Prismatic)** Listed below

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
502.00	0	0	0
505.10	89,370	138,524	138,524
506.00	89,380	80,437	218,961
508.00	99,280	188,660	407,621
510.00	108,781	208,061	615,682

#	Routing	Invert	Outlet Devices
1	Primary	505.10'	**3.0' long x 1.5' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 Coef. (English) 2.62 2.64 2.64 2.68 2.75 2.86 2.92 3.07 3.07 3.03 3.28 3.32
2	Primary	506.20'	**6.5' long x 1.5' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 Coef. (English) 2.62 2.64 2.64 2.68 2.75 2.86 2.92 3.07 3.07 3.03 3.28 3.32
3	Primary	506.00'	**176.0 deg x 97.0' long Sharp-Crested Vee/Trap Weir** C= 2.46

Primary OutFlow Max=1.23 cfs @ 14.55 hrs HW=505.39' TW=504.28' (Dynamic Tailwater)
├─**1=Broad-Crested Rectangular Weir** (Weir Controls 1.23 cfs @ 1.4 fps)
├─**2=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)
└─**3=Sharp-Crested Vee/Trap Weir** (Controls 0.00 cfs)

Pond p21:

Inflow Area = 489.305 ac, Inflow Depth = 0.31" for 1-yr event
Inflow = 46.21 cfs @ 12.62 hrs, Volume= 12.773 af
Outflow = 9.05 cfs @ 16.70 hrs, Volume= 12.062 af, Atten= 80%, Lag= 244.8 min
Primary = 9.05 cfs @ 16.70 hrs, Volume= 12.062 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Peak Elev= 482.41' @ 16.70 hrs Surf.Area= 260,898 sf Storage= 246,169 cf
Plug-Flow detention time= 413.7 min calculated for 12.059 af (94% of inflow)
Center-of-Mass det. time= 360.9 min (1,314.4 - 953.5)

#	Invert	Avail.Storage	Storage Description
1	480.40'	5,244,885 cf	**Custom Stage Data (Conic)** Listed below

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
480.40	0	0	0	0
482.00	202,230	107,856	107,856	202,234
484.00	485,198	667,114	774,970	485,231
486.00	1,275,481	1,698,237	2,473,208	1,275,541
488.00	1,499,208	2,771,678	5,244,885	1,499,423

#	Routing	Invert	Outlet Devices
1	Primary	480.40'	**30.0" x 70.0' long Culvert** CMP, projecting, no headwall, Ke= 0.900 Outlet Invert= 480.40' S= 0.0000 '/' n= 0.024 Cc= 0.900

Primary OutFlow Max=9.05 cfs @ 16.70 hrs HW=482.41' TW=0.00' (Dynamic Tailwater)
└**1=Culvert** (Barrel Controls 9.05 cfs @ 2.9 fps)

Pond p22:

Field Note #54
Golf Pond
Geometry to be confirmed by survey

Inflow Area = 97.943 ac, Inflow Depth = 0.47" for 1-yr event
Inflow = 22.18 cfs @ 12.53 hrs, Volume= 3.865 af
Outflow = 20.54 cfs @ 12.65 hrs, Volume= 3.568 af, Atten= 7%, Lag= 7.5 min
Primary = 20.54 cfs @ 12.65 hrs, Volume= 3.568 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Starting Elev= 498.10' Surf.Area= 6,520 sf Storage= 10,106 cf
Peak Elev= 500.96' @ 12.65 hrs Surf.Area= 9,902 sf Storage= 33,862 cf (23,756 cf above start)
Plug-Flow detention time= 142.0 min calculated for 3.336 af (86% of inflow)
Center-of-Mass det. time= 58.5 min (992.6 - 934.2)

#	Invert	Avail.Storage	Storage Description
1	495.00'	143,770 cf	**Custom Stage Data (Prismatic)** Listed below

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
495.00	0	0	0
498.10	6,520	10,106	10,106
500.00	8,390	14,164	24,270
502.00	11,530	19,920	44,190
504.00	14,530	26,060	70,250
506.00	18,340	32,870	103,120
508.00	22,310	40,650	143,770

#	Routing	Invert	Outlet Devices
1	Primary	499.75'	**18.0" x 21.0' long Culvert** CMP, projecting, no headwall, Ke= 0.900 Outlet Invert= 499.75' S= 0.0000 '/' n= 0.024 Cc= 0.900
2	Primary	500.50'	**1.0' long x 15.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.68 2.70 2.70 2.64 2.63 2.64 2.64 2.63

#	Routing	Invert	Outlet Devices
3	Primary	500.50'	**20.0' long x 13.5' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.62 2.66 2.70 2.66 2.65 2.66 2.65 2.63

Primary OutFlow Max=20.53 cfs @ 12.65 hrs HW=500.96' TW=499.64' (Dynamic Tailwater)
—**1=Culvert** (Barrel Controls 2.85 cfs @ 2.5 fps)
—**2=Broad-Crested Rectangular Weir** (Weir Controls 0.85 cfs @ 1.8 fps)
—**3=Broad-Crested Rectangular Weir** (Weir Controls 16.83 cfs @ 1.8 fps)

Pond p23:

Inflow Area = 41.587 ac, Inflow Depth = 0.64" for 1-yr event
Inflow = 12.15 cfs @ 12.74 hrs, Volume= 2.204 af
Outflow = 4.95 cfs @ 13.57 hrs, Volume= 1.285 af, Atten= 59%, Lag= 49.9 min
Primary = 4.95 cfs @ 13.57 hrs, Volume= 1.285 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Peak Elev= 507.74' @ 13.57 hrs Surf.Area= 18,395 sf Storage= 40,658 cf
Plug-Flow detention time= 241.0 min calculated for 1.285 af (58% of inflow)
Center-of-Mass det. time= 110.8 min (1,030.2 - 919.4)

#	Invert	Avail.Storage	Storage Description
1	503.50'	100,303 cf	**Custom Stage Data (Prismatic)** Listed below

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
503.50	0	0	0
506.00	11,170	13,963	13,963
508.00	19,460	30,630	44,593
510.00	36,250	55,710	100,303

#	Routing	Invert	Outlet Devices
1	Primary	507.70'	**178.0 deg x 178.0' long Sharp-Crested Vee/Trap Weir** C= 2.46

Primary OutFlow Max=4.95 cfs @ 13.57 hrs HW=507.74' TW=506.87' (Dynamic Tailwater)
—**1=Sharp-Crested Vee/Trap Weir** (Weir Controls 4.95 cfs @ 0.6 fps)

Pond zDP1: Design Point 1

Field note #10.
Culvert dimensions to be confirmed by survey.

Inflow Area = 26.659 ac, Inflow Depth = 0.50" for 1-yr event
Inflow = 6.01 cfs @ 12.58 hrs, Volume= 1.110 af
Outflow = 6.01 cfs @ 12.58 hrs, Volume= 1.110 af, Atten= 0%, Lag= 0.0 min
Primary = 6.01 cfs @ 12.58 hrs, Volume= 1.110 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Peak Elev= 720.98' @ 12.58 hrs Surf.Area= 42 sf Storage= 26 cf
Flood Elev= 727.00' Surf.Area= 1,105 sf Storage= 2,619 cf
Plug-Flow detention time= 0.3 min calculated for 1.110 af (100% of inflow)

Center-of-Mass det. time= 0.2 min (925.6 - 925.4)

#	Invert	Avail.Storage	Storage Description
1	720.10'	3,706 cf	**Custom Stage Data (Conic)** Listed below

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
720.10	0	0	0	0
722.00	90	57	57	96
724.00	340	403	460	364
726.00	760	1,072	1,533	815
728.00	1,450	2,173	3,706	1,543

#	Routing	Invert	Outlet Devices
1	Primary	720.10'	**42.0" x 120.0' long Culvert** CMP, square edge headwall, Ke= 0.500 Outlet Invert= 700.00' S= 0.1675 '/' n= 0.024 Cc= 0.900
2	Primary	727.00'	**155.0 deg Sharp-Crested Vee/Trap Weir** C= 2.47

Primary OutFlow Max=6.01 cfs @ 12.58 hrs HW=720.98' TW=686.01' (Dynamic Tailwater)
1=Culvert (Inlet Controls 6.01 cfs @ 3.2 fps)
2=Sharp-Crested Vee/Trap Weir (Controls 0.00 cfs)

Pond zDP2: Design Point 2

Field Note #15
Culvert dimensions to be confirmed by survey
Overflow to ditch is currently discarded... We may have to model that area...

Inflow Area = 97.712 ac, Inflow Depth = 0.38" for 1-yr event
Inflow = 11.49 cfs @ 13.01 hrs, Volume= 3.061 af
Outflow = 11.49 cfs @ 13.02 hrs, Volume= 3.061 af, Atten= 0%, Lag= 0.3 min
Discarded = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Primary = 11.49 cfs @ 13.02 hrs, Volume= 3.061 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Peak Elev= 621.19' @ 13.02 hrs Surf.Area= 159 sf Storage= 129 cf
Flood Elev= 624.50' Surf.Area= 925 sf Storage= 1,728 cf
Plug-Flow detention time= 0.3 min calculated for 3.061 af (100% of inflow)
Center-of-Mass det. time= 0.2 min (966.0 - 965.8)

#	Invert	Avail.Storage	Storage Description
1	619.60'	7,280 cf	**Custom Stage Data (Conic)** Listed below

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
619.60	0	0	0	0
620.00	10	1	1	10
622.00	260	214	215	269
624.00	760	976	1,192	793
626.00	1,420	2,146	3,338	1,492
628.00	2,580	3,943	7,280	2,694

#	Routing	Invert	Outlet Devices
1	Primary	619.60'	**24.0" x 150.0' long Culvert** RCP, end-section conforming to fill, Ke= 0.500 Outlet Invert= 608.00' S= 0.0773 '/' n= 0.012 Cc= 0.900
2	Discarded	624.50'	**166.0 deg Sharp-Crested Vee/Trap Weir** C= 2.46

Discarded OutFlow Max=0.00 cfs @ 0.00 hrs HW=619.60' (Free Discharge)
↑—**2=Sharp-Crested Vee/Trap Weir** (Controls 0.00 cfs)

Primary OutFlow Max=11.49 cfs @ 13.02 hrs HW=621.19' TW=607.40' (Dynamic Tailwater)
↑—**1=Culvert** (Inlet Controls 11.49 cfs @ 4.3 fps)

Pond zDP3: Design Point 3

Inflow Area = 212.742 ac, Inflow Depth = 18.21" for 1-yr event
Inflow = 98.90 cfs @ 13.04 hrs, Volume= 322.796 af
Primary = 98.90 cfs @ 13.04 hrs, Volume= 322.796 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

Pond zDP4: Design Point 4

Inflow Area = 489.305 ac, Inflow Depth = 0.30" for 1-yr event
Inflow = 9.05 cfs @ 16.70 hrs, Volume= 12.062 af
Primary = 9.05 cfs @ 16.70 hrs, Volume= 12.062 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

Pond zDP5: Design Point 5

Inflow Area = 28.325 ac, Inflow Depth = 0.55" for 1-yr event
Inflow = 8.52 cfs @ 12.52 hrs, Volume= 1.308 af
Primary = 8.52 cfs @ 12.52 hrs, Volume= 1.308 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

Pre-Development Conditions
2 year 24 hour Storm Event
Model Computations

Subcatchment s01:

Runoff = 4.77 cfs @ 12.66 hrs, Volume= 0.808 af, Depth= 0.84"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 2-yr Rainfall=3.40"

Area (ac)	CN	Description
11.485	68	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
42.8					**Direct Entry,**

Subcatchment s02:

Runoff = 25.54 cfs @ 12.95 hrs, Volume= 5.701 af, Depth= 0.70"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 2-yr Rainfall=3.40"

Area (ac)	CN	Description
97.712	65	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
61.3					**Direct Entry,**

Subcatchment s03:

Runoff = 8.25 cfs @ 12.45 hrs, Volume= 1.131 af, Depth= 0.89"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 2-yr Rainfall=3.40"

Area (ac)	CN	Description
15.174	69	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
28.8					**Direct Entry,**

Subcatchment s04:

Runoff = 7.52 cfs @ 12.11 hrs, Volume= 0.665 af, Depth= 0.70"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 2-yr Rainfall=3.40"

Area (ac)	CN	Description
11.403	65	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.5					**Direct Entry,**

Subcatchment s05:

Runoff = 4.60 cfs @ 12.32 hrs, Volume= 0.658 af, Depth= 0.53"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 2-yr Rainfall=3.40"

Area (ac)	CN	Description
14.935	61	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
17.3					**Direct Entry,**

Subcatchment s06:

Runoff = 3.12 cfs @ 12.31 hrs, Volume= 0.427 af, Depth= 0.57"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 2-yr Rainfall=3.40"

Area (ac)	CN	Description
9.007	62	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
17.3					**Direct Entry,**

Subcatchment s06(OW): s06 Open Water

Runoff = 1.75 cfs @ 12.00 hrs, Volume= 0.121 af, Depth= 3.40"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 2-yr Rainfall=3.40"

Area (ac)	CN	Description
0.428	100	

Subcatchment s07:

Runoff = 3.18 cfs @ 12.23 hrs, Volume= 0.372 af, Depth= 0.66"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 2-yr Rainfall=3.40"

Area (ac)	CN	Description
6.811	64	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
13.9					**Direct Entry,**

Subcatchment s07(OW): s07 Open Water

Runoff = 2.07 cfs @ 12.00 hrs, Volume= 0.143 af, Depth= 3.40"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 2-yr Rainfall=3.40"

Area (ac)	CN	Description
0.506	100	

Subcatchment s08:

Runoff = 6.12 cfs @ 12.47 hrs, Volume= 1.095 af, Depth= 0.41"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 2-yr Rainfall=3.40"

Area (ac)	CN	Description
31.719	58	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
21.8					**Direct Entry,**

Subcatchment s09:

Runoff = 4.10 cfs @ 12.27 hrs, Volume= 0.493 af, Depth= 0.70"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 2-yr Rainfall=3.40"

Area (ac)	CN	Description
8.452	65	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
16.4					**Direct Entry,**

Subcatchment s10:

Runoff = 3.83 cfs @ 12.46 hrs, Volume= 0.538 af, Depth= 0.79"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 2-yr Rainfall=3.40"

Area (ac)	CN	Description
8.130	67	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
27.9					**Direct Entry,**

Subcatchment s10(OW): s10 Open Water

Runoff = 3.39 cfs @ 12.00 hrs, Volume= 0.235 af, Depth= 3.40"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 2-yr Rainfall=3.40"

Area (ac)	CN	Description
0.830	100	

Subcatchment s11:

Runoff = 1.48 cfs @ 12.32 hrs, Volume= 0.176 af, Depth= 0.89"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 2-yr Rainfall=3.40"

Area (ac)	CN	Description
2.364	69	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
20.5					**Direct Entry,**

Subcatchment s11(IC): s11 Imp. Cover

Runoff = 8.67 cfs @ 12.04 hrs, Volume= 0.617 af, Depth= 3.17"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 2-yr Rainfall=3.40"

Area (ac)	CN	Description
2.338	98	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
2.8					**Direct Entry,**

Subcatchment s12:

Runoff = 0.59 cfs @ 12.83 hrs, Volume= 0.167 af, Depth= 0.31"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 2-yr Rainfall=3.40"

Area (ac)	CN	Description
6.420	55	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
42.0					**Direct Entry,**

Subcatchment s13:

Runoff = 0.05 cfs @ 12.34 hrs, Volume= 0.009 af, Depth= 0.31"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 2-yr Rainfall=3.40"

Area (ac)	CN	Description
0.350	55	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.6					**Direct Entry,**

Subcatchment s14:

Runoff = 6.49 cfs @ 12.48 hrs, Volume= 0.986 af, Depth= 0.66"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 2-yr Rainfall=3.40"

Area (ac)	CN	Description
18.066	64	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
28.1					**Direct Entry,**

Subcatchment s14(IC): s14 Imp. Cover

Runoff = 8.98 cfs @ 12.03 hrs, Volume= 0.628 af, Depth= 3.17"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 2-yr Rainfall=3.40"

Area (ac)	CN	Description
2.380	98	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
2.3					**Direct Entry,**

Subcatchment s14(OW): s14 Open Water

Runoff = 2.11 cfs @ 12.00 hrs, Volume= 0.147 af, Depth= 3.40"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 2-yr Rainfall=3.40"

Area (ac)	CN	Description
0.518	100	

Subcatchment s15:

Runoff = 0.06 cfs @ 12.50 hrs, Volume= 0.018 af, Depth= 0.20"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 2-yr Rainfall=3.40"

Area (ac)	CN	Description
1.068	51	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
13.1					**Direct Entry,**

Subcatchment s16:

Runoff = 32.25 cfs @ 12.36 hrs, Volume= 4.230 af, Depth= 0.75"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 2-yr Rainfall=3.40"

Area (ac)	CN	Description
67.994	66	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
22.3					**Direct Entry,**

Subcatchment s16(IC): s16 Imp.Cover

Runoff = 9.71 cfs @ 12.04 hrs, Volume= 0.694 af, Depth= 3.17"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 2-yr Rainfall=3.40"

Area (ac)	CN	Description
2.629	98	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
2.9					**Direct Entry,**

Subcatchment s16(OW): s16 Open Water

Runoff = 21.84 cfs @ 12.00 hrs, Volume= 1.516 af, Depth= 3.40"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 2-yr Rainfall=3.40"

Area (ac)	CN	Description
5.351	100	

Subcatchment s17:

Runoff = 20.67 cfs @ 13.91 hrs, Volume= 7.207 af, Depth= 0.75"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 2-yr Rainfall=3.40"

Area (ac)	CN	Description
115.827	66	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
125.2					**Direct Entry,**

Subcatchment s17(OW): s17 Open Water

Runoff = 0.67 cfs @ 12.00 hrs, Volume= 0.046 af, Depth= 3.40"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 2-yr Rainfall=3.40"

Area (ac)	CN	Description
0.164	100	

Subcatchment s18:

Runoff = 11.29 cfs @ 12.39 hrs, Volume= 1.500 af, Depth= 0.79"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 2-yr Rainfall=3.40"

Area (ac)	CN	Description
22.654	67	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
24.4					**Direct Entry,**

Subcatchment s18(OW): s18 Open Water

Runoff = 1.93 cfs @ 12.00 hrs, Volume= 0.134 af, Depth= 3.40"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 2-yr Rainfall=3.40"

Area (ac)	CN	Description
0.472	100	

Subcatchment s19:

Runoff = 3.05 cfs @ 12.70 hrs, Volume= 0.633 af, Depth= 0.49"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 2-yr Rainfall=3.40"

Area (ac)	CN	Description
15.520	60	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
40.4					**Direct Entry,**

Subcatchment s20:

Runoff = 9.42 cfs @ 12.54 hrs, Volume= 1.391 af, Depth= 0.89"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 2-yr Rainfall=3.40"

Area (ac)	CN	Description
18.655	69	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
33.9					**Direct Entry,**

Subcatchment s20(OW): s20 Open Water

Runoff = 8.03 cfs @ 12.00 hrs, Volume= 0.558 af, Depth= 3.40"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 2-yr Rainfall=3.40"

Area (ac)	CN	Description
1.968	100	

Subcatchment s21:

Runoff = 50.01 cfs @ 12.43 hrs, Volume= 6.755 af, Depth= 0.84"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 2-yr Rainfall=3.40"

Area (ac)	CN	Description
96.056	68	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
26.7					**Direct Entry,**

Subcatchment s21(OW):

Runoff = 49.94 cfs @ 12.00 hrs, Volume= 3.467 af, Depth= 3.40"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 2-yr Rainfall=3.40"

Area (ac)	CN	Description
12.235	100	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.0					**Direct Entry,**

Subcatchment s22:

Runoff = 43.09 cfs @ 12.49 hrs, Volume= 6.135 af, Depth= 0.89"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 2-yr Rainfall=3.40"

Area (ac)	CN	Description
82.287	69	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
31.3					**Direct Entry,**

Subcatchment s22(OW): s22 Open Water

Runoff = 0.56 cfs @ 12.00 hrs, Volume= 0.039 af, Depth= 3.40"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 2-yr Rainfall=3.40"

Area (ac)	CN	Description
0.136	100	

Subcatchment s23:

Runoff = 21.80 cfs @ 12.69 hrs, Volume= 3.660 af, Depth= 1.06"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 2-yr Rainfall=3.40"

Area (ac)	CN	Description
41.587	72	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
47.0					**Direct Entry,**

Subcatchment s24:

Runoff = 16.05 cfs @ 12.48 hrs, Volume= 2.235 af, Depth= 0.95"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 2-yr Rainfall=3.40"

Area (ac)	CN	Description
28.325	70	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
30.7					**Direct Entry,**

Subcatchment s25:

Runoff = 6.68 cfs @ 12.33 hrs, Volume= 0.844 af, Depth= 0.75"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 2-yr Rainfall=3.40"

Area (ac)	CN	Description
13.562	66	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
20.2					**Direct Entry,**

Reach r03:

Overland Flow Reach
Requires more survey

Inflow Area = 11.485 ac, Inflow Depth = 0.84" for 2-yr event
Inflow = 4.77 cfs @ 12.66 hrs, Volume= 0.808 af
Outflow = 4.74 cfs @ 12.71 hrs, Volume= 0.808 af, Atten= 1%, Lag= 2.9 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Max. Velocity= 3.8 fps, Min. Travel Time= 3.5 min
Avg. Velocity = 1.6 fps, Avg. Travel Time= 8.1 min

Peak Depth= 0.38' @ 12.71 hrs
Capacity at bank full= 92.14 cfs
Inlet Invert= 845.00', Outlet Invert= 728.00'
10.00' x 1.50' deep Parabolic Channel, n= 0.060 Length= 785.0' Slope= 0.1490 '/'

Reach r04:

Channel

Inflow Area = 26.659 ac, Inflow Depth = 0.87" for 2-yr event
Inflow = 12.00 cfs @ 12.53 hrs, Volume= 1.939 af
Outflow = 11.96 cfs @ 12.56 hrs, Volume= 1.939 af, Atten= 0%, Lag= 2.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Max. Velocity= 5.0 fps, Min. Travel Time= 2.3 min
Avg. Velocity = 2.1 fps, Avg. Travel Time= 5.3 min

Peak Depth= 0.71' @ 12.56 hrs
Capacity at bank full= 446.15 cfs
Inlet Invert= 685.50', Outlet Invert= 608.00'
12.00' x 4.00' deep Parabolic Channel, n= 0.060 Length= 675.0' Slope= 0.1148 '/'

Reach r08a:

Man Made Ditch
Inverts of pipe to be surveyed

Inflow Area = 97.712 ac, Inflow Depth = 0.70" for 2-yr event
Inflow = 25.49 cfs @ 13.00 hrs, Volume= 5.701 af
Outflow = 25.49 cfs @ 13.00 hrs, Volume= 5.701 af, Atten= 0%, Lag= 0.3 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Max. Velocity= 8.6 fps, Min. Travel Time= 0.4 min
Avg. Velocity = 4.2 fps, Avg. Travel Time= 0.9 min

Peak Depth= 0.58' @ 13.00 hrs
Capacity at bank full= 81.88 cfs
Inlet Invert= 607.00', Outlet Invert= 587.00'
10.00' x 1.00' deep Parabolic Channel, n= 0.027 Length= 226.0' Slope= 0.0885 '/'

Reach r08b:

24" HDPE
Inverts to be surveyed

Inflow Area = 97.712 ac, Inflow Depth = 0.70" for 2-yr event
Inflow = 25.49 cfs @ 13.00 hrs, Volume= 5.701 af
Outflow = 25.49 cfs @ 13.00 hrs, Volume= 5.701 af, Atten= 0%, Lag= 0.2 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Max. Velocity= 22.0 fps, Min. Travel Time= 0.2 min
Avg. Velocity = 11.2 fps, Avg. Travel Time= 0.4 min

Peak Depth= 0.79' @ 13.00 hrs
Capacity at bank full= 77.17 cfs
Inlet Invert= 587.00', Outlet Invert= 557.75'
24.0" Diameter Pipe n= 0.012 Length= 295.0' Slope= 0.0992 '/'

Reach r08c:

Ditch
Pipe inverts to be surveyed

Inflow Area = 97.712 ac, Inflow Depth = 0.70" for 2-yr event
Inflow = 25.49 cfs @ 13.00 hrs, Volume= 5.701 af
Outflow = 25.48 cfs @ 13.02 hrs, Volume= 5.701 af, Atten= 0%, Lag= 0.8 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Max. Velocity= 8.2 fps, Min. Travel Time= 1.2 min
Avg. Velocity = 3.8 fps, Avg. Travel Time= 2.6 min

Peak Depth= 0.60' @ 13.02 hrs
Capacity at bank full= 76.65 cfs
Inlet Invert= 557.75', Outlet Invert= 512.00'
10.00' x 1.00' deep Parabolic Channel, n= 0.027 Length= 590.0' Slope= 0.0775 '/'

Reach r08d: Amenia Stream/Cascade Brook

(Steam) parallel to Route 22
Base Flow estimated from field observation (see field note 21)

Inflow Area = 97.712 ac, Inflow Depth = 20.19" for 2-yr event
Inflow = 65.48 cfs @ 13.02 hrs, Volume= 164.412 af, Incl. 40.00 cfs Base Flow
Outflow = 65.35 cfs @ 13.06 hrs, Volume= 164.168 af, Atten= 0%, Lag= 2.6 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Max. Velocity= 3.5 fps, Min. Travel Time= 3.9 min
Avg. Velocity = 3.1 fps, Avg. Travel Time= 4.4 min

Peak Depth= 3.18' @ 13.06 hrs
Capacity at bank full= 104.49 cfs
Inlet Invert= 512.00', Outlet Invert= 504.00'
10.00' x 4.00' deep Parabolic Channel, n= 0.060 Length= 805.0' Slope= 0.0099 '/'

Reach r14a:

Grass lined channel

Inflow Area = 8.452 ac, Inflow Depth = 0.64" for 2-yr event
Inflow = 2.90 cfs @ 12.52 hrs, Volume= 0.454 af
Outflow = 2.89 cfs @ 12.54 hrs, Volume= 0.454 af, Atten= 0%, Lag= 1.1 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Max. Velocity= 4.1 fps, Min. Travel Time= 1.5 min
Avg. Velocity = 1.3 fps, Avg. Travel Time= 4.6 min

Peak Depth= 0.32' @ 12.54 hrs
Capacity at bank full= 325.42 cfs
Inlet Invert= 542.00', Outlet Invert= 526.00'
10.00' x 3.00' deep Parabolic Channel, n= 0.027 Length= 360.0' Slope= 0.0444 '/'

Reach r14b:

30" HDPE Under Main Entrance Road

Inflow Area = 8.452 ac, Inflow Depth = 0.64" for 2-yr event
Inflow = 2.89 cfs @ 12.54 hrs, Volume= 0.454 af
Outflow = 2.89 cfs @ 12.55 hrs, Volume= 0.454 af, Atten= 0%, Lag= 0.6 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Max. Velocity= 8.7 fps, Min. Travel Time= 0.9 min
Avg. Velocity = 2.7 fps, Avg. Travel Time= 2.7 min

Peak Depth= 0.30' @ 12.55 hrs
Capacity at bank full= 94.91 cfs
Inlet Invert= 526.00', Outlet Invert= 505.70'
30.0" Diameter Pipe n= 0.012 Length= 445.0' Slope= 0.0456 '/'

Reach r14c:

Overland Flow

Inflow Area = 6.420 ac, Inflow Depth = 0.00" for 2-yr event
Inflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Outflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Max. Velocity= 0.0 fps, Min. Travel Time= 0.0 min
Avg. Velocity = 0.0 fps, Avg. Travel Time= 0.0 min

Peak Depth= 0.00' @ 0.00 hrs
Capacity at bank full= 178.07 cfs
Inlet Invert= 544.00', Outlet Invert= 498.00'
50.00' x 1.00' deep Parabolic Channel, n= 0.060 Length= 575.0' Slope= 0.0800 '/'

Reach r15:

Brush Overbanks with Rocky Bottom
Needs to be surveyed

Inflow Area = 4.702 ac, Inflow Depth = 2.02" for 2-yr event
Inflow = 8.73 cfs @ 12.06 hrs, Volume= 0.793 af
Outflow = 8.69 cfs @ 12.07 hrs, Volume= 0.793 af, Atten= 1%, Lag= 0.4 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Max. Velocity= 8.5 fps, Min. Travel Time= 0.6 min
Avg. Velocity = 2.9 fps, Avg. Travel Time= 1.7 min

Peak Depth= 0.66' @ 12.07 hrs
Capacity at bank full= 188.47 cfs
Inlet Invert= 554.00', Outlet Invert= 528.00'
5.00' x 3.00' deep Parabolic Channel, n= 0.027 Length= 290.0' Slope= 0.0897 '/'

Reach r16:

Pipe Reach

Inflow Area = 4.702 ac, Inflow Depth = 2.02" for 2-yr event
Inflow = 9.07 cfs @ 12.04 hrs, Volume= 0.793 af
Outflow = 8.73 cfs @ 12.06 hrs, Volume= 0.793 af, Atten= 4%, Lag= 1.1 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Max. Velocity= 9.3 fps, Min. Travel Time= 1.5 min
Avg. Velocity = 3.1 fps, Avg. Travel Time= 4.7 min

Peak Depth= 0.61' @ 12.06 hrs
Capacity at bank full= 66.05 cfs
Inlet Invert= 573.00', Outlet Invert= 554.00'
30.0" Diameter Pipe n= 0.012 Length= 860.0' Slope= 0.0221 '/'

Reach r18a:

Overland Flow Reach

Inflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Outflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Max. Velocity= 0.0 fps, Min. Travel Time= 0.0 min
Avg. Velocity = 0.0 fps, Avg. Travel Time= 0.0 min

Peak Depth= 0.00' @ 0.00 hrs
Capacity at bank full= 379.63 cfs
Inlet Invert= 973.60', Outlet Invert= 530.00'
50.00' x 1.00' deep Parabolic Channel, n= 0.060 Length= 1,220.0' Slope= 0.3636 '/'

Reach r18b:

Overland Flow Reach

Inflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Outflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Max. Velocity= 0.0 fps, Min. Travel Time= 0.0 min
Avg. Velocity = 0.0 fps, Avg. Travel Time= 0.0 min

Peak Depth= 0.00' @ 0.00 hrs
Capacity at bank full= 151.94 cfs
Inlet Invert= 530.60', Outlet Invert= 514.00'
50.00' x 1.00' deep Parabolic Channel, n= 0.060 Length= 285.0' Slope= 0.0582 '/'

Reach r21a:

Man Made Ditch

Inflow Area = 241.484 ac, Inflow Depth = 0.33" for 2-yr event
Inflow = 3.25 cfs @ 24.98 hrs, Volume= 6.552 af
Outflow = 3.25 cfs @ 25.03 hrs, Volume= 6.544 af, Atten= 0%, Lag= 2.7 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Max. Velocity= 2.9 fps, Min. Travel Time= 3.7 min
Avg. Velocity = 2.1 fps, Avg. Travel Time= 5.1 min

Peak Depth= 0.44' @ 25.03 hrs
Capacity at bank full= 191.76 cfs
Inlet Invert= 504.00', Outlet Invert= 494.00'
10.00' x 3.00' deep Parabolic Channel, n= 0.027 Length= 648.0' Slope= 0.0154 '/'

Reach r21b:

Grass Ditch
Geometry to be confirmed by survey (inverts at pipe)

Inflow Area = 97.943 ac, Inflow Depth = 0.80" for 2-yr event
Inflow = 42.65 cfs @ 12.53 hrs, Volume= 6.506 af
Outflow = 42.64 cfs @ 12.54 hrs, Volume= 6.506 af, Atten= 0%, Lag= 0.4 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Max. Velocity= 7.1 fps, Min. Travel Time= 0.5 min
Avg. Velocity = 1.9 fps, Avg. Travel Time= 2.1 min

Peak Depth= 0.89' @ 12.54 hrs
Capacity at bank full= 239.90 cfs
Inlet Invert= 499.00', Outlet Invert= 491.10'
15.00' x 2.00' deep Parabolic Channel, n= 0.027 Length= 230.0' Slope= 0.0343 '/'

Reach r21c:

Overland Flow Reach

Inflow Area = 41.587 ac, Inflow Depth = 0.79" for 2-yr event
Inflow = 19.72 cfs @ 12.87 hrs, Volume= 2.742 af
Outflow = 19.61 cfs @ 12.89 hrs, Volume= 2.742 af, Atten= 1%, Lag= 0.9 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Max. Velocity= 3.2 fps, Min. Travel Time= 0.8 min
Avg. Velocity = 1.3 fps, Avg. Travel Time= 2.0 min

Peak Depth= 0.32' @ 12.89 hrs
Capacity at bank full= 227.81 cfs
Inlet Invert= 506.70', Outlet Invert= 485.75'
50.00' x 1.00' deep Parabolic Channel, n= 0.060 Length= 160.0' Slope= 0.1309 '/'

Reach r22a:

Overland Flow Reach

Inflow Area = 15.520 ac, Inflow Depth = 0.49" for 2-yr event
Inflow = 1.34 cfs @ 13.55 hrs, Volume= 0.631 af
Outflow = 1.34 cfs @ 13.65 hrs, Volume= 0.631 af, Atten= 0%, Lag= 6.2 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Max. Velocity= 2.1 fps, Min. Travel Time= 7.6 min
Avg. Velocity = 1.0 fps, Avg. Travel Time= 16.8 min

Peak Depth= 0.07' @ 13.65 hrs
Capacity at bank full= 409.31 cfs
Inlet Invert= 970.00', Outlet Invert= 560.00'
50.00' x 1.00' deep Parabolic Channel, n= 0.060 Length= 970.0' Slope= 0.4227 '/'

Reach r22b:

Overland Flow Reach

Inflow Area = 15.520 ac, Inflow Depth = 0.49" for 2-yr event
Inflow = 1.34 cfs @ 13.65 hrs, Volume= 0.631 af
Outflow = 1.33 cfs @ 13.78 hrs, Volume= 0.631 af, Atten= 1%, Lag= 7.6 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Max. Velocity= 1.2 fps, Min. Travel Time= 8.8 min
Avg. Velocity = 0.5 fps, Avg. Travel Time= 20.5 min

Peak Depth= 0.11' @ 13.78 hrs
Capacity at bank full= 175.17 cfs
Inlet Invert= 560.00', Outlet Invert= 512.00'
50.00' x 1.00' deep Parabolic Channel, n= 0.060 Length= 620.0' Slope= 0.0774 '/'

Reach r25a:

Ditch
Pipe inverts need to be surveyed

Inflow Area = 60.314 ac, Inflow Depth = 0.73" for 2-yr event
Inflow = 19.01 cfs @ 12.47 hrs, Volume= 3.683 af
Outflow = 18.93 cfs @ 12.49 hrs, Volume= 3.682 af, Atten= 0%, Lag= 1.5 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Max. Velocity= 7.6 fps, Min. Travel Time= 2.4 min
Avg. Velocity = 1.9 fps, Avg. Travel Time= 9.6 min

Peak Depth= 0.65' @ 12.49 hrs
Capacity at bank full= 205.50 cfs
Inlet Invert= 570.00', Outlet Invert= 504.00'
10.00' x 2.00' deep Parabolic Channel, n= 0.027 Length= 1,090.0' Slope= 0.0606 '/'

Reach r25b: Wetland Reach

Wetland Reach
Has wetland vegetation within reach

Inflow Area = 9.435 ac, Inflow Depth = 0.66" for 2-yr event
Inflow = 1.10 cfs @ 12.98 hrs, Volume= 0.522 af
Outflow = 1.04 cfs @ 13.23 hrs, Volume= 0.521 af, Atten= 6%, Lag= 15.3 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Max. Velocity= 0.9 fps, Min. Travel Time= 14.6 min
Avg. Velocity = 0.4 fps, Avg. Travel Time= 34.1 min

Peak Depth= 0.29' @ 13.23 hrs
Capacity at bank full= 156.51 cfs
Inlet Invert= 504.00', Outlet Invert= 499.50'
20.00' x 3.00' deep Parabolic Channel, n= 0.045 Length= 750.0' Slope= 0.0060 '/'

Reach r25c: Amenia Stream/Cascade Brook

(Steam) parallel to Route 22
Base Flow estimated from field observation (see field note 21)

Inflow Area = 129.431 ac, Inflow Depth = 30.04" for 2-yr event
Inflow = 108.01 cfs @ 13.04 hrs, Volume= 323.974 af, Incl. 40.00 cfs Base Flow
Outflow = 107.67 cfs @ 13.11 hrs, Volume= 323.293 af, Atten= 0%, Lag= 4.6 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Max. Velocity= 2.8 fps, Min. Travel Time= 5.8 min
Avg. Velocity = 2.6 fps, Avg. Travel Time= 6.2 min

Peak Depth= 5.20' @ 13.11 hrs
Capacity at bank full= 67.14 cfs
Inlet Invert= 504.00', Outlet Invert= 500.00'
10.00' x 4.00' deep Parabolic Channel, n= 0.060 Length= 975.0' Slope= 0.0041 '/'

Pond 8P:

No field note.
Water spills over cart path; no storage.

Inflow Area = 52.997 ac, Inflow Depth = 0.72" for 2-yr event
Inflow = 18.58 cfs @ 12.46 hrs, Volume= 3.196 af
Outflow = 18.58 cfs @ 12.46 hrs, Volume= 3.196 af, Atten= 0%, Lag= 0.0 min
Primary = 18.58 cfs @ 12.46 hrs, Volume= 3.196 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Peak Elev= 575.22' @ 12.46 hrs
Flood Elev= 574.70'
Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= (not calculated)

#	Routing	Invert	Outlet Devices
1	Primary	574.70'	**177.0 deg Sharp-Crested Vee/Trap Weir** C= 2.46

Primary OutFlow Max=18.58 cfs @ 12.46 hrs HW=575.22' TW=570.65' (Dynamic Tailwater)
1=Sharp-Crested Vee/Trap Weir (Weir Controls 18.58 cfs @ 1.8 fps)

Pond p04:

Field Note #13

Water ponding behind a golf cart path. Overflow dimensions are assumed based on aerial topo, and should be upgraded once survey is available.

Inflow Area = 38.062 ac, Inflow Depth = 0.82" for 2-yr event
Inflow = 14.49 cfs @ 12.48 hrs, Volume= 2.604 af
Outflow = 14.48 cfs @ 12.49 hrs, Volume= 2.538 af, Atten= 0%, Lag= 0.3 min
Primary = 14.48 cfs @ 12.49 hrs, Volume= 2.538 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Peak Elev= 605.81' @ 12.49 hrs Surf.Area= 5,930 sf Storage= 3,558 cf
Flood Elev= 605.50' Surf.Area= 4,803 sf Storage= 2,882 cf
Plug-Flow detention time= 21.0 min calculated for 2.538 af (97% of inflow)
Center-of-Mass det. time= 6.9 min (910.9 - 904.0)

#	Invert	Avail.Storage	Storage Description
1	604.20'	26,897 cf	**Custom Stage Data (Conic)** Listed below

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
604.20	0	0	0	0
606.00	6,650	3,990	3,990	6,655
608.00	17,060	22,907	26,897	17,092

#	Routing	Invert	Outlet Devices
1	Primary	605.50'	**179.0 deg Sharp-Crested Vee/Trap Weir** C= 2.46

Primary OutFlow Max=14.48 cfs @ 12.49 hrs HW=605.81' TW=575.22' (Dynamic Tailwater)
1=Sharp-Crested Vee/Trap Weir (Weir Controls 14.48 cfs @ 1.4 fps)

Pond p06:

Field Note #22
Geometry to be confirmed by survey.

Inflow Area = 9.435 ac, Inflow Depth = 0.70" for 2-yr event
Inflow = 3.56 cfs @ 12.29 hrs, Volume= 0.549 af
Outflow = 1.10 cfs @ 12.98 hrs, Volume= 0.522 af, Atten= 69%, Lag= 41.2 min
Primary = 1.10 cfs @ 12.98 hrs, Volume= 0.522 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Starting Elev= 506.80' Surf.Area= 18,600 sf Storage= 42,160 cf
Peak Elev= 507.21' @ 12.98 hrs Surf.Area= 20,460 sf Storage= 50,896 cf (8,736 cf above start)
Flood Elev= 507.10' Surf.Area= 19,958 sf Storage= 48,537 cf (6,377 cf above start)
Plug-Flow detention time= (not calculated)
Center-of-Mass det. time= (not calculated)

#	Invert	Avail.Storage	Storage Description
1	500.00'	67,669 cf	**Custom Stage Data (Conic)** Listed below

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
500.00	0	0	0	0
506.80	18,600	42,160	42,160	18,672
508.00	24,030	25,509	67,669	24,138

#	Routing	Invert	Outlet Devices
1	Primary	506.80'	**12.0" x 20.0' long Culvert** CMP, projecting, no headwall, Ke= 0.900 Outlet Invert= 506.00' S= 0.0400 '/' n= 0.024 Cc= 0.900
2	Primary	507.10'	**178.0 deg Sharp-Crested Vee/Trap Weir** C= 2.46

Primary OutFlow Max=1.10 cfs @ 12.98 hrs HW=507.21' TW=504.28' (Dynamic Tailwater)
1=Culvert (Inlet Controls 0.52 cfs @ 1.7 fps)
2=Sharp-Crested Vee/Trap Weir (Weir Controls 0.58 cfs @ 0.8 fps)

Pond p07:

Field Note # 29
Outlet geometry to be confirmed by survey.

Inflow Area = 7.317 ac, Inflow Depth = 0.84" for 2-yr event
Inflow = 3.81 cfs @ 12.22 hrs, Volume= 0.515 af
Outflow = 0.65 cfs @ 13.67 hrs, Volume= 0.487 af, Atten= 83%, Lag= 87.1 min
Primary = 0.65 cfs @ 13.67 hrs, Volume= 0.487 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Starting Elev= 572.80' Surf.Area= 21,640 sf Storage= 56,264 cf
Peak Elev= 573.20' @ 13.67 hrs Surf.Area= 23,537 sf Storage= 66,097 cf (9,833 cf above start)
Flood Elev= 573.50' Surf.Area= 24,936 sf Storage= 73,351 cf (17,087 cf above start)
Plug-Flow detention time= (not calculated)
Center-of-Mass det. time= (not calculated)

#	Invert	Avail.Storage	Storage Description
1	565.00'	85,557 cf	**Custom Stage Data (Conic)** Listed below

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
565.00	0	0	0	0
572.80	21,640	56,264	56,264	21,735
574.00	27,290	29,293	85,557	27,424

#	Routing	Invert	Outlet Devices
1	Primary	572.80'	**18.0" x 20.0' long Culvert** CMP, projecting, no headwall, Ke= 0.900 Outlet Invert= 572.00' S= 0.0400 '/' n= 0.024 Cc= 0.900
2	Primary	573.50'	**177.0 deg Sharp-Crested Vee/Trap Weir X 2.00** C= 2.46

Primary OutFlow Max=0.65 cfs @ 13.67 hrs HW=573.20' TW=570.39' (Dynamic Tailwater)
1=Culvert (Inlet Controls 0.65 cfs @ 1.7 fps)
2=Sharp-Crested Vee/Trap Weir (Controls 0.00 cfs)

Pond p09:

Field Note #31
Geometry to be confirmed by survey.

Inflow Area = 8.452 ac, Inflow Depth = 0.70" for 2-yr event
Inflow = 4.10 cfs @ 12.27 hrs, Volume= 0.493 af
Outflow = 2.90 cfs @ 12.52 hrs, Volume= 0.454 af, Atten= 29%, Lag= 15.2 min
Primary = 2.90 cfs @ 12.52 hrs, Volume= 0.454 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Peak Elev= 549.25' @ 12.52 hrs Surf.Area= 3,855 sf Storage= 3,951 cf
Flood Elev= 551.20' Surf.Area= 8,534 sf Storage= 15,673 cf
Plug-Flow detention time= 85.0 min calculated for 0.454 af (92% of inflow)
Center-of-Mass det. time= 46.0 min (945.2 - 899.2)

#	Invert	Avail.Storage	Storage Description
1	547.50'	21,989 cf	**Custom Stage Data (Conic)** Listed below

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
547.50	0	0	0	0
548.00	1,080	180	180	1,080
550.00	5,510	6,020	6,200	5,527
552.00	10,550	15,790	21,989	10,606

#	Routing	Invert	Outlet Devices
1	Primary	548.50'	**30.0" x 70.0' long Culvert** CMP, projecting, no headwall, Ke= 0.900 Outlet Invert= 542.00' S= 0.0929 '/' n= 0.012 Cc= 0.900
2	Primary	551.20'	**168.0 deg Sharp-Crested Vee/Trap Weir** C= 2.46

Primary OutFlow Max=2.90 cfs @ 12.52 hrs HW=549.25' TW=542.32' (Dynamic Tailwater)
—**1=Culvert** (Inlet Controls 2.90 cfs @ 2.3 fps)
—**2=Sharp-Crested Vee/Trap Weir** (Controls 0.00 cfs)

Pond p10:

Field Note #25
Need to get full story on how this pond works

Inflow Area = 45.146 ac, Inflow Depth = 0.21" for 2-yr event
Inflow = 4.34 cfs @ 12.41 hrs, Volume= 0.773 af
Outflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Atten= 100%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Starting Elev= 498.40' Surf.Area= 36,110 sf Storage= 101,108 cf
Peak Elev= 499.26' @ 25.62 hrs Surf.Area= 39,488 sf Storage= 134,799 cf (33,691 cf above start)
Plug-Flow detention time= (not calculated)
Center-of-Mass det. time= (not calculated)

#	Invert	Avail.Storage	Storage Description
1	490.00'	581,029 cf	**Custom Stage Data (Conic)** Listed below

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
490.00	0	0	0	0
498.40	36,110	101,108	101,108	36,221
500.00	42,400	62,741	163,849	42,610
502.00	54,880	97,012	260,861	55,187
504.00	78,730	132,895	393,755	79,107
506.00	109,382	187,274	581,029	109,836

Pond p12:

No field note.
Natural depression.

Inflow Area = 6.420 ac, Inflow Depth = 0.31" for 2-yr event
Inflow = 0.59 cfs @ 12.83 hrs, Volume= 0.167 af
Outflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Atten= 100%, Lag= 0.0 min
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Peak Elev= 546.11' @ 26.42 hrs Surf.Area= 5,917 sf Storage= 7,288 cf
Flood Elev= 547.50' Surf.Area= 13,848 sf Storage= 21,762 cf
Plug-Flow detention time= (not calculated)
Center-of-Mass det. time= (not calculated)

#	Invert	Avail.Storage	Storage Description
1	543.50'	26,986 cf	**Custom Stage Data (Conic)** Listed below

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
543.50	0	0	0	0
544.00	1,140	190	190	1,140
546.00	5,260	5,899	6,089	5,278
548.00	16,710	20,897	26,986	16,750

#	Routing	Invert	Outlet Devices
1	Primary	547.50'	**173.0 deg Sharp-Crested Vee/Trap Weir** C= 2.46

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=543.50' TW=544.00' (Dynamic Tailwater)
└─**1=Sharp-Crested Vee/Trap Weir** (Controls 0.00 cfs)

Pond p13:

No Field Note
Natural depression.

Inflow Area = 0.350 ac, Inflow Depth = 0.31" for 2-yr event
Inflow = 0.05 cfs @ 12.34 hrs, Volume= 0.009 af
Outflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Atten= 100%, Lag= 0.0 min
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Peak Elev= 512.39' @ 24.49 hrs Surf.Area= 577 sf Storage= 397 cf
Flood Elev= 519.50' Surf.Area= 4,313 sf Storage= 16,523 cf
Plug-Flow detention time= (not calculated)
Center-of-Mass det. time= (not calculated)

#	Invert	Avail.Storage	Storage Description
1	511.40'	18,490 cf	**Custom Stage Data (Conic)** Listed below

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
511.40	0	0	0	0
512.00	390	78	78	391
514.00	1,360	1,652	1,730	1,381
516.00	2,180	3,508	5,238	2,253
518.00	3,240	5,385	10,623	3,375
520.00	4,670	7,867	18,490	4,872

#	Routing	Invert	Outlet Devices
1	Primary	519.50'	**176.0 deg Sharp-Crested Vee/Trap Weir** C= 2.46

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=511.40' TW=497.40' (Dynamic Tailwater)
└─**1=Sharp-Crested Vee/Trap Weir** (Controls 0.00 cfs)

Pond p14:

Field Note #26
Need to figure out how this pond works

Inflow Area = 36.186 ac, Inflow Depth = 0.73" for 2-yr event
Inflow = 11.16 cfs @ 12.03 hrs, Volume= 2.215 af
Outflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Atten= 100%, Lag= 0.0 min
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Starting Elev= 497.40' Surf.Area= 22,200 sf Storage= 54,760 cf
Peak Elev= 500.09' @ 48.00 hrs Surf.Area= 53,754 sf Storage= 151,255 cf (96,495 cf above start)
Plug-Flow detention time= (not calculated)
Center-of-Mass det. time= (not calculated)

#	Invert	Avail.Storage	Storage Description
1	490.00'	805,062 cf	**Custom Stage Data (Conic)** Listed below

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
490.00	0	0	0	0
497.40	22,200	54,760	54,760	22,286
498.00	25,330	14,249	69,009	25,433
500.00	52,810	76,476	145,485	52,948
502.00	73,360	125,608	271,093	73,574
504.00	84,070	157,308	428,402	84,467
506.00	92,130	176,139	604,540	92,797
508.00	108,618	200,522	805,062	109,437

#	Routing	Invert	Outlet Devices
1	Primary	500.00'	**24.0" x 80.0' long Culvert** CPP, end-section conforming to fill, Ke= 0.500 Outlet Invert= 502.00' S= -0.0250 '/' n= 0.012 Cc= 0.900

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=497.40' TW=498.40' (Dynamic Tailwater)
└─**1=Culvert** (Controls 0.00 cfs)

Pond p15:

Field Note # 43
Infiltration basin

Inflow Area = 5.770 ac, Inflow Depth = 1.69" for 2-yr event
Inflow = 8.69 cfs @ 12.07 hrs, Volume= 0.811 af
Outflow = 8.49 cfs @ 12.08 hrs, Volume= 0.555 af, Atten= 2%, Lag= 1.0 min
Primary = 8.49 cfs @ 12.08 hrs, Volume= 0.555 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Peak Elev= 536.14' @ 12.08 hrs Surf.Area= 3,243 sf Storage= 11,657 cf
Flood Elev= 536.00' Surf.Area= 3,160 sf Storage= 11,127 cf
Plug-Flow detention time= 191.8 min calculated for 0.555 af (68% of inflow)

Center-of-Mass det. time= 84.9 min (875.9 - 791.0)

#	Invert	Avail.Storage	Storage Description
1	526.80'	18,577 cf	**Custom Stage Data (Conic)** Listed below

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
526.80	0	0	0	0
528.00	310	124	124	312
530.00	660	948	1,072	694
532.00	1,180	1,815	2,887	1,256
534.00	1,990	3,135	6,022	2,113
536.00	3,160	5,105	11,127	3,337
538.00	4,320	7,450	18,577	4,575

#	Routing	Invert	Outlet Devices
1	Primary	536.00'	**171.0 deg x 50.0' long Sharp-Crested Vee/Trap Weir** C= 2.46

Primary OutFlow Max=8.46 cfs @ 12.08 hrs HW=536.14' TW=507.32' (Dynamic Tailwater)
1=Sharp-Crested Vee/Trap Weir (Weir Controls 8.46 cfs @ 1.2 fps)

Pond p16:

Field Note # 49
Large pond with man-made island.
Geometry to be verified by survey. In particular, we are making big guesses about the outlets.
Also need to find out about valves...

Inflow Area = 220.861 ac, Inflow Depth = 0.86" for 2-yr event
Inflow = 45.38 cfs @ 12.34 hrs, Volume= 15.878 af
Outflow = 3.26 cfs @ 24.36 hrs, Volume= 5.140 af, Atten= 93%, Lag= 721.2 min
Primary = 3.26 cfs @ 24.36 hrs, Volume= 5.140 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Starting Elev= 507.00' Surf.Area= 199,799 sf Storage= 878,320 cf
Peak Elev= 509.98' @ 24.36 hrs Surf.Area= 248,980 sf Storage= 1,472,141 cf (593,821 cf above start)
Flood Elev= 510.50' Surf.Area= 271,550 sf Storage= 1,623,217 cf (744,897 cf above start)
Plug-Flow detention time= (not calculated)
Center-of-Mass det. time= (not calculated)

#	Invert	Avail.Storage	Storage Description
1	500.00'	2,062,087 cf	**Custom Stage Data (Conic)** Listed below

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
500.00	0	0	0	0
503.00	140,344	140,344	140,344	140,358
509.20	232,500	1,143,862	1,284,206	232,994
510.00	249,400	192,720	1,476,927	249,951
512.00	338,000	585,160	2,062,087	338,634

#	Routing	Invert	Outlet Devices
1	Primary	509.00'	**18.0" x 110.0' long Culvert** CMP, projecting, no headwall, Ke= 0.900 Outlet Invert= 505.70' S= 0.0300 '/' n= 0.024 Cc= 0.900
2	Primary	500.00'	**8.0" x 100.0' long assumed equalization pipe w/ valve X 0.00** CMP, projecting, no headwall, Ke= 0.900 Outlet Invert= 500.00' S= 0.0000 '/' n= 0.013 Cc= 0.900
3	Primary	510.50'	**175.0 deg Sharp-Crested Vee/Trap Weir X 2.00** C= 2.46

Primary OutFlow Max=3.26 cfs @ 24.36 hrs HW=509.98' TW=505.65' (Dynamic Tailwater)
1=Culvert (Inlet Controls 3.26 cfs @ 2.7 fps)
2=assumed equalization pipe w/ valve (Controls 0.00 cfs)
3=Sharp-Crested Vee/Trap Weir (Controls 0.00 cfs)

Pond p17:

Field Note #45
Golf pond
Geometry to be confirmed by surveyed

Inflow Area = 115.991 ac, Inflow Depth = 0.75" for 2-yr event
Inflow = 20.70 cfs @ 13.91 hrs, Volume= 7.253 af
Outflow = 20.68 cfs @ 13.93 hrs, Volume= 7.253 af, Atten= 0%, Lag= 1.1 min
Primary = 20.68 cfs @ 13.93 hrs, Volume= 7.253 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Starting Elev= 523.80' Surf.Area= 7,290 sf Storage= 9,234 cf
Peak Elev= 525.24' @ 13.93 hrs Surf.Area= 10,505 sf Storage= 22,826 cf (13,592 cf above start)
Flood Elev= 524.30' Surf.Area= 8,074 sf Storage= 13,623 cf (4,389 cf above start)
Plug-Flow detention time= 43.0 min calculated for 7.039 af (97% of inflow)
Center-of-Mass det. time= 19.3 min (1,014.0 - 994.7)

#	Invert	Avail.Storage	Storage Description
1	520.00'	30,224 cf	**Custom Stage Data (Conic)** Listed below

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
520.00	0	0	0	0
523.80	7,290	9,234	9,234	7,313
524.00	7,300	1,459	10,693	7,374
526.00	12,460	19,531	30,224	12,581

#	Routing	Invert	Outlet Devices
1	Primary	523.80'	**2.2' long x 0.5' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 Coef. (English) 2.80 2.92 3.08 3.30 3.32
2	Primary	524.30'	**143.0 deg Sharp-Crested Vee/Trap Weir** C= 2.47
3	Primary	525.20'	**178.0 deg x 60.0' long Sharp-Crested Vee/Trap Weir** C= 2.46

Primary OutFlow Max=20.68 cfs @ 13.93 hrs HW=525.24' TW=515.55' (Dynamic Tailwater)
1=Broad-Crested Rectangular Weir (Weir Controls 12.65 cfs @ 4.0 fps)
2=Sharp-Crested Vee/Trap Weir (Weir Controls 6.36 cfs @ 2.4 fps)
3=Sharp-Crested Vee/Trap Weir (Weir Controls 1.66 cfs @ 0.6 fps)

Pond p18:

Field Note #46
Golf pond
Geometry to be confirmed by surveyed

Inflow Area = 139.117 ac, Inflow Depth = 0.77" for 2-yr event
Inflow = 22.84 cfs @ 13.91 hrs, Volume= 8.886 af
Outflow = 22.53 cfs @ 14.08 hrs, Volume= 8.882 af, Atten= 1%, Lag= 10.2 min
Primary = 22.53 cfs @ 14.08 hrs, Volume= 8.882 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Starting Elev= 513.90' Surf.Area= 20,680 sf Storage= 26,884 cf
Peak Elev= 515.55' @ 14.08 hrs Surf.Area= 26,590 sf Storage= 66,821 cf (39,937 cf above start)
Flood Elev= 514.81' Surf.Area= 23,768 sf Storage= 48,709 cf (21,825 cf above start)
Plug-Flow detention time= 113.7 min calculated for 8.264 af (93% of inflow)
Center-of-Mass det. time= 55.4 min (1,045.6 - 990.2)

#	Invert	Avail.Storage	Storage Description
1	510.00'	148,288 cf	**Custom Stage Data (Conic)** Listed below

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
510.00	0	0	0	0
513.90	20,680	26,884	26,884	20,704
514.00	20,690	2,068	28,952	20,756
516.00	28,290	48,782	77,735	28,436
518.00	42,760	70,554	148,288	42,967

#	Routing	Invert	Outlet Devices
1	Primary	513.90'	**2.0' long x 0.5' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 Coef. (English) 2.80 2.92 3.08 3.30 3.32
2	Primary	514.81'	**143.0 deg Sharp-Crested Vee/Trap Weir** C= 2.47
3	Primary	515.32'	**175.0 deg x 10.0' long Sharp-Crested Vee/Trap Weir** C= 2.46

Primary OutFlow Max=22.53 cfs @ 14.08 hrs HW=515.55' TW=508.42' (Dynamic Tailwater)
1=Broad-Crested Rectangular Weir (Weir Controls 14.11 cfs @ 4.3 fps)
2=Sharp-Crested Vee/Trap Weir (Weir Controls 3.51 cfs @ 2.1 fps)
3=Sharp-Crested Vee/Trap Weir (Weir Controls 4.92 cfs @ 1.4 fps)

Pond p19:

Wetland
Geometry to be confirmed by survey
Based off aerial topo, and assumed topo contour

Inflow Area =	15.520 ac, Inflow Depth = 0.49"	for 2-yr event	
Inflow =	3.05 cfs @ 12.70 hrs, Volume=	0.633 af	
Outflow =	1.34 cfs @ 13.55 hrs, Volume=	0.631 af,	Atten= 56%, Lag= 50.5 min
Primary =	1.34 cfs @ 13.55 hrs, Volume=	0.631 af	
Secondary =	0.00 cfs @ 0.00 hrs, Volume=	0.000 af	

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Starting Elev= 972.00' Surf.Area= 86,000 sf Storage= 57,333 cf
Peak Elev= 972.06' @ 13.55 hrs Surf.Area= 87,584 sf Storage= 63,780 cf (6,447 cf above start)
Plug-Flow detention time= (not calculated)
Center-of-Mass det. time= (not calculated)

#	Invert	Avail.Storage	Storage Description
1	970.00'	282,329 cf	**Custom Stage Data (Conic)** Listed below

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
970.00	0	0	0	0
972.00	86,000	57,333	57,333	86,006
974.00	141,270	224,996	282,329	141,327

#	Routing	Invert	Outlet Devices
1	Secondary	973.60'	**178.0 deg x 51.0' long Sharp-Crested Vee/Trap Weir** C= 2.46
2	Primary	972.00'	**35.0' long x 0.5' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 Coef. (English) 2.80 2.92 3.08 3.30 3.32

Primary OutFlow Max=1.34 cfs @ 13.55 hrs HW=972.06' TW=970.07' (Dynamic Tailwater)
└─**2=Broad-Crested Rectangular Weir** (Weir Controls 1.34 cfs @ 0.7 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=972.00' TW=973.60' (Dynamic Tailwater)
└─**1=Sharp-Crested Vee/Trap Weir** (Controls 0.00 cfs)

Pond p20:

Field Note #50
Spring Fed Pond
Geometry to be confirmed by surveyed

Inflow Area =	241.484 ac, Inflow Depth = 0.35"	for 2-yr event	
Inflow =	10.20 cfs @ 12.47 hrs, Volume=	7.088 af	
Outflow =	3.25 cfs @ 24.98 hrs, Volume=	6.552 af,	Atten= 68%, Lag= 750.6 min
Primary =	3.25 cfs @ 24.98 hrs, Volume=	6.552 af	

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

Starting Elev= 505.10' Surf.Area= 89,370 sf Storage= 138,524 cf
Peak Elev= 505.65' @ 24.98 hrs Surf.Area= 89,376 sf Storage= 187,864 cf (49,340 cf above start)
Plug-Flow detention time= 1,128.6 min calculated for 3.371 af (48% of inflow)
Center-of-Mass det. time= 178.3 min (1,701.5 - 1,523.2)

#	Invert	Avail.Storage	Storage Description
1	502.00'	615,682 cf	**Custom Stage Data (Prismatic)** Listed below

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
502.00	0	0	0
505.10	89,370	138,524	138,524
506.00	89,380	80,437	218,961
508.00	99,280	188,660	407,621
510.00	108,781	208,061	615,682

#	Routing	Invert	Outlet Devices
1	Primary	505.10'	**3.0' long x 1.5' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 Coef. (English) 2.62 2.64 2.64 2.68 2.75 2.86 2.92 3.07 3.07 3.03 3.28 3.32
2	Primary	506.20'	**6.5' long x 1.5' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 Coef. (English) 2.62 2.64 2.64 2.68 2.75 2.86 2.92 3.07 3.07 3.03 3.28 3.32
3	Primary	506.00'	**176.0 deg x 97.0' long Sharp-Crested Vee/Trap Weir** C= 2.46

Primary OutFlow Max=3.25 cfs @ 24.98 hrs HW=505.65' TW=504.44' (Dynamic Tailwater)
—**1=Broad-Crested Rectangular Weir** (Weir Controls 3.25 cfs @ 2.0 fps)
—**2=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)
—**3=Sharp-Crested Vee/Trap Weir** (Controls 0.00 cfs)

Pond p21:

Inflow Area = 489.305 ac, Inflow Depth = 0.64" for 2-yr event
Inflow = 97.31 cfs @ 12.46 hrs, Volume= 26.013 af
Outflow = 14.57 cfs @ 16.56 hrs, Volume= 24.673 af, Atten= 85%, Lag= 245.7 min
Primary = 14.57 cfs @ 16.56 hrs, Volume= 24.673 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Peak Elev= 483.07' @ 16.56 hrs Surf.Area= 353,785 sf Storage= 465,156 cf
Plug-Flow detention time= 467.0 min calculated for 24.668 af (95% of inflow)
Center-of-Mass det. time= 390.0 min (1,486.0 - 1,095.9)

#	Invert	Avail.Storage	Storage Description
1	480.40'	5,244,885 cf	**Custom Stage Data (Conic)** Listed below

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
480.40	0	0	0	0
482.00	202,230	107,856	107,856	202,234
484.00	485,198	667,114	774,970	485,231
486.00	1,275,481	1,698,237	2,473,208	1,275,541
488.00	1,499,208	2,771,678	5,244,885	1,499,423

#	Routing	Invert	Outlet Devices
1	Primary	480.40'	**30.0" x 70.0' long Culvert** CMP, projecting, no headwall, Ke= 0.900 Outlet Invert= 480.40' S= 0.0000 '/' n= 0.024 Cc= 0.900

Primary OutFlow Max=14.57 cfs @ 16.56 hrs HW=483.07' TW=0.00' (Dynamic Tailwater)
↑—**1=Culvert** (Barrel Controls 14.57 cfs @ 3.5 fps)

Pond p22:

Field Note #54
Golf Pond
Geometry to be confirmed by survey

Inflow Area = 97.943 ac, Inflow Depth = 0.83" for 2-yr event
Inflow = 43.15 cfs @ 12.49 hrs, Volume= 6.804 af
Outflow = 42.65 cfs @ 12.53 hrs, Volume= 6.506 af, Atten= 1%, Lag= 2.7 min
Primary = 42.65 cfs @ 12.53 hrs, Volume= 6.506 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Starting Elev= 498.10' Surf.Area= 6,520 sf Storage= 10,106 cf
Peak Elev= 501.28' @ 12.53 hrs Surf.Area= 10,398 sf Storage= 37,007 cf (26,901 cf above start)
Plug-Flow detention time= 83.5 min calculated for 6.274 af (92% of inflow)
Center-of-Mass det. time= 34.2 min (947.6 - 913.5)

#	Invert	Avail.Storage	Storage Description
1	495.00'	143,770 cf	**Custom Stage Data (Prismatic)** Listed below

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
495.00	0	0	0
498.10	6,520	10,106	10,106
500.00	8,390	14,164	24,270
502.00	11,530	19,920	44,190
504.00	14,530	26,060	70,250
506.00	18,340	32,870	103,120
508.00	22,310	40,650	143,770

#	Routing	Invert	Outlet Devices
1	Primary	499.75'	**18.0" x 21.0' long Culvert** CMP, projecting, no headwall, Ke= 0.900 Outlet Invert= 499.75' S= 0.0000 '/' n= 0.024 Cc= 0.900
2	Primary	500.50'	**1.0' long x 15.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.68 2.70 2.70 2.64 2.63 2.64 2.64 2.63

#	Routing	Invert	Outlet Devices
3	Primary	500.50'	**20.0' long x 13.5' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.62 2.66 2.70 2.66 2.65 2.66 2.65 2.63

Primary OutFlow Max=42.64 cfs @ 12.53 hrs HW=501.28' TW=499.89' (Dynamic Tailwater)
—**1=Culvert** (Barrel Controls 4.21 cfs @ 2.9 fps)
—**2=Broad-Crested Rectangular Weir** (Weir Controls 1.82 cfs @ 2.3 fps)
—**3=Broad-Crested Rectangular Weir** (Weir Controls 36.61 cfs @ 2.4 fps)

Pond p23:

Inflow Area = 41.587 ac, Inflow Depth = 1.06" for 2-yr event
Inflow = 21.80 cfs @ 12.69 hrs, Volume= 3.660 af
Outflow = 19.72 cfs @ 12.87 hrs, Volume= 2.742 af, Atten= 10%, Lag= 10.8 min
Primary = 19.72 cfs @ 12.87 hrs, Volume= 2.742 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Peak Elev= 507.81' @ 12.87 hrs Surf.Area= 18,661 sf Storage= 41,639 cf
Plug-Flow detention time= 148.7 min calculated for 2.742 af (75% of inflow)
Center-of-Mass det. time= 53.8 min (956.6 - 902.7)

#	Invert	Avail.Storage	Storage Description
1	503.50'	100,303 cf	**Custom Stage Data (Prismatic)** Listed below

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
503.50	0	0	0
506.00	11,170	13,963	13,963
508.00	19,460	30,630	44,593
510.00	36,250	55,710	100,303

#	Routing	Invert	Outlet Devices
1	Primary	507.70'	**178.0 deg x 178.0' long Sharp-Crested Vee/Trap Weir** C= 2.46

Primary OutFlow Max=19.71 cfs @ 12.87 hrs HW=507.81' TW=507.02' (Dynamic Tailwater)
—**1=Sharp-Crested Vee/Trap Weir** (Weir Controls 19.71 cfs @ 1.0 fps)

Pond zDP1: Design Point 1

Field note #10.
Culvert dimensions to be confirmed by survey.

Inflow Area = 26.659 ac, Inflow Depth = 0.87" for 2-yr event
Inflow = 12.00 cfs @ 12.53 hrs, Volume= 1.939 af
Outflow = 12.00 cfs @ 12.53 hrs, Volume= 1.939 af, Atten= 0%, Lag= 0.0 min
Primary = 12.00 cfs @ 12.53 hrs, Volume= 1.939 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Peak Elev= 721.36' @ 12.53 hrs Surf.Area= 60 sf Storage= 38 cf
Flood Elev= 727.00' Surf.Area= 1,105 sf Storage= 2,619 cf
Plug-Flow detention time= 0.2 min calculated for 1.939 af (100% of inflow)

Center-of-Mass det. time= 0.1 min (905.2 - 905.0)

#	Invert	Avail.Storage	Storage Description
1	720.10'	3,706 cf	**Custom Stage Data (Conic)** Listed below

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
720.10	0	0	0	0
722.00	90	57	57	96
724.00	340	403	460	364
726.00	760	1,072	1,533	815
728.00	1,450	2,173	3,706	1,543

#	Routing	Invert	Outlet Devices
1	Primary	720.10'	**42.0" x 120.0' long Culvert** CMP, square edge headwall, Ke= 0.500 Outlet Invert= 700.00' S= 0.1675 '/' n= 0.024 Cc= 0.900
2	Primary	727.00'	**155.0 deg Sharp-Crested Vee/Trap Weir** C= 2.47

Primary OutFlow Max=12.00 cfs @ 12.53 hrs HW=721.36' TW=686.21' (Dynamic Tailwater)
1=Culvert (Inlet Controls 12.00 cfs @ 3.8 fps)
2=Sharp-Crested Vee/Trap Weir (Controls 0.00 cfs)

Pond zDP2: Design Point 2

Field Note #15
Culvert dimensions to be confirmed by survey
Overflow to ditch is currently discarded... We may have to model that area...

Inflow Area = 97.712 ac, Inflow Depth = 0.70" for 2-yr event
Inflow = 25.54 cfs @ 12.95 hrs, Volume= 5.701 af
Outflow = 25.49 cfs @ 13.00 hrs, Volume= 5.701 af, Atten= 0%, Lag= 3.1 min
Discarded = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Primary = 25.49 cfs @ 13.00 hrs, Volume= 5.701 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Peak Elev= 623.44' @ 13.00 hrs Surf.Area= 620 sf Storage= 918 cf
Flood Elev= 624.50' Surf.Area= 925 sf Storage= 1,728 cf
Plug-Flow detention time= 0.4 min calculated for 5.701 af (100% of inflow)
Center-of-Mass det. time= 0.3 min (941.2 - 940.9)

#	Invert	Avail.Storage	Storage Description
1	619.60'	7,280 cf	**Custom Stage Data (Conic)** Listed below

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
619.60	0	0	0	0
620.00	10	1	1	10
622.00	260	214	215	269
624.00	760	976	1,192	793
626.00	1,420	2,146	3,338	1,492
628.00	2,580	3,943	7,280	2,694

#	Routing	Invert	Outlet Devices
1	Primary	619.60'	**24.0" x 150.0' long Culvert** RCP, end-section conforming to fill, Ke= 0.500 Outlet Invert= 608.00' S= 0.0773 '/' n= 0.012 Cc= 0.900
2	Discarded	624.50'	**166.0 deg Sharp-Crested Vee/Trap Weir** C= 2.46

Discarded OutFlow Max=0.00 cfs @ 0.00 hrs HW=619.60' (Free Discharge)
↑—**2=Sharp-Crested Vee/Trap Weir** (Controls 0.00 cfs)

Primary OutFlow Max=25.49 cfs @ 13.00 hrs HW=623.44' TW=607.58' (Dynamic Tailwater)
↑—**1=Culvert** (Inlet Controls 25.49 cfs @ 8.1 fps)

Pond zDP3: Design Point 3

Inflow Area = 212.742 ac, Inflow Depth = 18.52" for 2-yr event
Inflow = 121.33 cfs @ 12.95 hrs, Volume= 328.340 af
Primary = 121.33 cfs @ 12.95 hrs, Volume= 328.340 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

Pond zDP4: Design Point 4

Inflow Area = 489.305 ac, Inflow Depth = 0.61" for 2-yr event
Inflow = 14.57 cfs @ 16.56 hrs, Volume= 24.673 af
Primary = 14.57 cfs @ 16.56 hrs, Volume= 24.673 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

Pond zDP5: Design Point 5

Inflow Area = 28.325 ac, Inflow Depth = 0.95" for 2-yr event
Inflow = 16.05 cfs @ 12.48 hrs, Volume= 2.235 af
Primary = 16.05 cfs @ 12.48 hrs, Volume= 2.235 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

Pre-Development Conditions
10 year 24 hour Storm Event
Model Computations

Subcatchment s01:

Runoff = 11.66 cfs @ 12.61 hrs, Volume= 1.799 af, Depth= 1.88"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-yr Rainfall=5.00"

Area (ac)	CN	Description
11.485	68	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
42.8					**Direct Entry,**

Subcatchment s02:

Runoff = 69.51 cfs @ 12.87 hrs, Volume= 13.464 af, Depth= 1.65"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-yr Rainfall=5.00"

Area (ac)	CN	Description
97.712	65	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
61.3					**Direct Entry,**

Subcatchment s03:

Runoff = 19.53 cfs @ 12.42 hrs, Volume= 2.475 af, Depth= 1.96"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-yr Rainfall=5.00"

Area (ac)	CN	Description
15.174	69	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
28.8					**Direct Entry,**

Subcatchment s04:

Runoff = 20.66 cfs @ 12.10 hrs, Volume= 1.571 af, Depth= 1.65"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-yr Rainfall=5.00"

Area (ac)	CN	Description
11.403	65	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.5					**Direct Entry,**

Subcatchment s05:

Runoff = 15.43 cfs @ 12.26 hrs, Volume= 1.704 af, Depth= 1.37"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-yr Rainfall=5.00"

Area (ac)	CN	Description
14.935	61	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
17.3					**Direct Entry,**

Subcatchment s06:

Runoff = 9.91 cfs @ 12.26 hrs, Volume= 1.080 af, Depth= 1.44"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-yr Rainfall=5.00"

Area (ac)	CN	Description
9.007	62	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
17.3					**Direct Entry,**

Subcatchment s06(OW): s06 Open Water

Runoff = 2.57 cfs @ 12.00 hrs, Volume= 0.178 af, Depth= 5.00"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-yr Rainfall=5.00"

Area (ac)	CN	Description
0.428	100	

Subcatchment s07:

Runoff = 9.18 cfs @ 12.21 hrs, Volume= 0.897 af, Depth= 1.58"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-yr Rainfall=5.00"

Area (ac)	CN	Description
6.811	64	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
13.9					**Direct Entry,**

Subcatchment s07(OW): s07 Open Water

Runoff = 3.04 cfs @ 12.00 hrs, Volume= 0.211 af, Depth= 5.00"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-yr Rainfall=5.00"

Area (ac)	CN	Description
0.506	100	

Subcatchment s08:

Runoff = 24.28 cfs @ 12.35 hrs, Volume= 3.089 af, Depth= 1.17"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-yr Rainfall=5.00"

Area (ac)	CN	Description
31.719	58	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
21.8					**Direct Entry,**

Subcatchment s09:

Runoff = 11.29 cfs @ 12.24 hrs, Volume= 1.165 af, Depth= 1.65"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-yr Rainfall=5.00"

Area (ac)	CN	Description
8.452	65	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
16.4					**Direct Entry,**

Subcatchment s10:

Runoff = 9.66 cfs @ 12.43 hrs, Volume= 1.222 af, Depth= 1.80"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-yr Rainfall=5.00"

Area (ac)	CN	Description
8.130	67	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
27.9					**Direct Entry,**

Subcatchment s10(OW): s10 Open Water

Runoff = 4.98 cfs @ 12.00 hrs, Volume= 0.346 af, Depth= 5.00"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-yr Rainfall=5.00"

Area (ac)	CN	Description
0.830	100	

Subcatchment s11:

Runoff = 3.52 cfs @ 12.30 hrs, Volume= 0.386 af, Depth= 1.96"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-yr Rainfall=5.00"

Area (ac)	CN	Description
2.364	69	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
20.5					**Direct Entry,**

Subcatchment s11(IC): s11 Imp. Cover

Runoff = 12.83 cfs @ 12.04 hrs, Volume= 0.928 af, Depth= 4.76"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-yr Rainfall=5.00"

Area (ac)	CN	Description
2.338	98	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
2.8					**Direct Entry,**

Subcatchment s12:

Runoff = 2.87 cfs @ 12.69 hrs, Volume= 0.524 af, Depth= 0.98"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-yr Rainfall=5.00"

Area (ac)	CN	Description
6.420	55	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
42.0					**Direct Entry,**

Subcatchment s13:

Runoff = 0.29 cfs @ 12.14 hrs, Volume= 0.029 af, Depth= 0.98"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-yr Rainfall=5.00"

Area (ac)	CN	Description
0.350	55	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.6					**Direct Entry,**

Subcatchment s14:

Runoff = 18.31 cfs @ 12.43 hrs, Volume= 2.380 af, Depth= 1.58"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-yr Rainfall=5.00"

Area (ac)	CN	Description
18.066	64	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
28.1					**Direct Entry,**

Subcatchment s14(IC): s14 Imp. Cover

Runoff = 13.29 cfs @ 12.03 hrs, Volume= 0.945 af, Depth= 4.76"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-yr Rainfall=5.00"

Area (ac)	CN	Description
2.380	98	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
2.3					**Direct Entry,**

Subcatchment s14(OW): s14 Open Water

Runoff = 3.11 cfs @ 12.00 hrs, Volume= 0.216 af, Depth= 5.00"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-yr Rainfall=5.00"

Area (ac)	CN	Description
0.518	100	

Subcatchment s15:

Runoff = 0.49 cfs @ 12.24 hrs, Volume= 0.066 af, Depth= 0.75"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-yr Rainfall=5.00"

Area (ac)	CN	Description
1.068	51	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
13.1					**Direct Entry,**

Subcatchment s16:

Runoff = 84.57 cfs @ 12.32 hrs, Volume= 9.789 af, Depth= 1.73"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-yr Rainfall=5.00"

Area (ac)	CN	Description
67.994	66	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
22.3					**Direct Entry,**

Subcatchment s16(IC): s16 Imp.Cover

Runoff = 14.37 cfs @ 12.04 hrs, Volume= 1.044 af, Depth= 4.76"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-yr Rainfall=5.00"

Area (ac)	CN	Description
2.629	98	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
2.9					**Direct Entry,**

Subcatchment s16(OW): s16 Open Water

Runoff = 32.12 cfs @ 12.00 hrs, Volume= 2.230 af, Depth= 5.00"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-yr Rainfall=5.00"

Area (ac)	CN	Description
5.351	100	

Subcatchment s17:

Runoff = 53.87 cfs @ 13.77 hrs, Volume= 16.676 af, Depth= 1.73"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-yr Rainfall=5.00"

Area (ac)	CN	Description
115.827	66	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
125.2					**Direct Entry,**

Subcatchment s17(OW): s17 Open Water

Runoff = 0.98 cfs @ 12.00 hrs, Volume= 0.068 af, Depth= 5.00"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-yr Rainfall=5.00"

Area (ac)	CN	Description
0.164	100	

Subcatchment s18:

Runoff = 28.52 cfs @ 12.36 hrs, Volume= 3.404 af, Depth= 1.80"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-yr Rainfall=5.00"

Area (ac)	CN	Description
22.654	67	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
24.4					**Direct Entry,**

Subcatchment s18(OW): s18 Open Water

Runoff = 2.83 cfs @ 12.00 hrs, Volume= 0.197 af, Depth= 5.00"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-yr Rainfall=5.00"

Area (ac)	CN	Description
0.472	100	

Subcatchment s19:

Runoff = 10.40 cfs @ 12.62 hrs, Volume= 1.683 af, Depth= 1.30"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-yr Rainfall=5.00"

Area (ac)	CN	Description
15.520	60	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
40.4					**Direct Entry,**

Subcatchment s20:

Runoff = 22.28 cfs @ 12.50 hrs, Volume= 3.043 af, Depth= 1.96"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-yr Rainfall=5.00"

Area (ac)	CN	Description
18.655	69	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
33.9					**Direct Entry,**

Subcatchment s20(OW): s20 Open Water

Runoff = 11.81 cfs @ 12.00 hrs, Volume= 0.820 af, Depth= 5.00"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-yr Rainfall=5.00"

Area (ac)	CN	Description
1.968	100	

Subcatchment s21:

Runoff = 122.06 cfs @ 12.40 hrs, Volume= 15.045 af, Depth= 1.88"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-yr Rainfall=5.00"

Area (ac)	CN	Description
96.056	68	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
26.7					**Direct Entry,**

Subcatchment s21(OW):

Runoff = 73.44 cfs @ 12.00 hrs, Volume= 5.098 af, Depth= 5.00"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-yr Rainfall=5.00"

Area (ac)	CN	Description
12.235	100	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.0					**Direct Entry,**

Subcatchment s22:

Runoff = 101.91 cfs @ 12.46 hrs, Volume= 13.422 af, Depth= 1.96"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-yr Rainfall=5.00"

Area (ac)	CN	Description
82.287	69	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
31.3					**Direct Entry,**

Subcatchment s22(OW): s22 Open Water

Runoff = 0.82 cfs @ 12.00 hrs, Volume= 0.057 af, Depth= 5.00"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-yr Rainfall=5.00"

Area (ac)	CN	Description
0.136	100	

Subcatchment s23:

Runoff = 47.82 cfs @ 12.69 hrs, Volume= 7.617 af, Depth= 2.20"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-yr Rainfall=5.00"

Area (ac)	CN	Description
41.587	72	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
47.0					**Direct Entry,**

Subcatchment s24:

Runoff = 37.09 cfs @ 12.45 hrs, Volume= 4.807 af, Depth= 2.04"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-yr Rainfall=5.00"

Area (ac)	CN	Description
28.325	70	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
30.7					**Direct Entry,**

Subcatchment s25:

Runoff = 17.56 cfs @ 12.30 hrs, Volume= 1.953 af, Depth= 1.73"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-yr Rainfall=5.00"

Area (ac)	CN	Description
13.562	66	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
20.2					**Direct Entry,**

Reach r03:

Overland Flow Reach
Requires more survey

Inflow Area = 11.485 ac, Inflow Depth = 1.88" for 10-yr event
Inflow = 11.66 cfs @ 12.61 hrs, Volume= 1.799 af
Outflow = 11.61 cfs @ 12.65 hrs, Volume= 1.799 af, Atten= 0%, Lag= 2.7 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Max. Velocity= 4.9 fps, Min. Travel Time= 2.6 min
Avg. Velocity = 1.9 fps, Avg. Travel Time= 6.7 min

Peak Depth= 0.57' @ 12.65 hrs
Capacity at bank full= 92.14 cfs
Inlet Invert= 845.00', Outlet Invert= 728.00'
10.00' x 1.50' deep Parabolic Channel, n= 0.060 Length= 785.0' Slope= 0.1490 '/'

Reach r04:

Channel

Inflow Area = 26.659 ac, Inflow Depth = 1.92" for 10-yr event
Inflow = 29.17 cfs @ 12.50 hrs, Volume= 4.274 af
Outflow = 29.12 cfs @ 12.52 hrs, Volume= 4.274 af, Atten= 0%, Lag= 0.9 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Max. Velocity= 6.4 fps, Min. Travel Time= 1.7 min
Avg. Velocity = 2.5 fps, Avg. Travel Time= 4.5 min

Peak Depth= 1.08' @ 12.52 hrs
Capacity at bank full= 446.15 cfs
Inlet Invert= 685.50', Outlet Invert= 608.00'
12.00' x 4.00' deep Parabolic Channel, n= 0.060 Length= 675.0' Slope= 0.1148 '/'

Reach r08a:

Man Made Ditch
Inverts of pipe to be surveyed

Inflow Area = 97.712 ac, Inflow Depth = 1.39" for 10-yr event
Inflow = 34.34 cfs @ 12.88 hrs, Volume= 11.317 af
Outflow = 34.33 cfs @ 12.89 hrs, Volume= 11.317 af, Atten= 0%, Lag= 0.3 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Max. Velocity= 9.4 fps, Min. Travel Time= 0.4 min
Avg. Velocity = 5.1 fps, Avg. Travel Time= 0.7 min

Peak Depth= 0.67' @ 12.89 hrs
Capacity at bank full= 81.88 cfs
Inlet Invert= 607.00', Outlet Invert= 587.00'
10.00' x 1.00' deep Parabolic Channel, n= 0.027 Length= 226.0' Slope= 0.0885 '/'

Reach r08b:

24" HDPE
Inverts to be surveyed

Inflow Area = 97.712 ac, Inflow Depth = 1.39" for 10-yr event
Inflow = 34.33 cfs @ 12.89 hrs, Volume= 11.317 af
Outflow = 34.33 cfs @ 12.89 hrs, Volume= 11.317 af, Atten= 0%, Lag= 0.2 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Max. Velocity= 23.8 fps, Min. Travel Time= 0.2 min
Avg. Velocity = 13.3 fps, Avg. Travel Time= 0.4 min

Peak Depth= 0.93' @ 12.89 hrs
Capacity at bank full= 77.17 cfs
Inlet Invert= 587.00', Outlet Invert= 557.75'
24.0" Diameter Pipe n= 0.012 Length= 295.0' Slope= 0.0992 '/'

Reach r08c:

Ditch
Pipe inverts to be surveyed

Inflow Area = 97.712 ac, Inflow Depth = 1.39" for 10-yr event
Inflow = 34.33 cfs @ 12.89 hrs, Volume= 11.317 af
Outflow = 34.33 cfs @ 12.90 hrs, Volume= 11.317 af, Atten= 0%, Lag= 0.8 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Max. Velocity= 9.0 fps, Min. Travel Time= 1.1 min
Avg. Velocity = 4.6 fps, Avg. Travel Time= 2.1 min

Peak Depth= 0.69' @ 12.90 hrs
Capacity at bank full= 76.65 cfs
Inlet Invert= 557.75', Outlet Invert= 512.00'
10.00' x 1.00' deep Parabolic Channel, n= 0.027 Length= 590.0' Slope= 0.0775 '/'

Reach r08d: Amenia Stream/Cascade Brook

(Steam) parallel to Route 22
Base Flow estimated from field observation (see field note 21)

Inflow Area = 97.712 ac, Inflow Depth = 20.88" for 10-yr event
Inflow = 74.33 cfs @ 12.90 hrs, Volume= 170.028 af, Incl. 40.00 cfs Base Flow
Outflow = 74.31 cfs @ 12.96 hrs, Volume= 169.784 af, Atten= 0%, Lag= 3.3 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Max. Velocity= 3.6 fps, Min. Travel Time= 3.7 min
Avg. Velocity = 3.1 fps, Avg. Travel Time= 4.4 min

Peak Depth= 3.38' @ 12.96 hrs
Capacity at bank full= 104.49 cfs
Inlet Invert= 512.00', Outlet Invert= 504.00'
10.00' x 4.00' deep Parabolic Channel, n= 0.060 Length= 805.0' Slope= 0.0099 '/'

Reach r14a:

Grass lined channel

Inflow Area = 8.452 ac, Inflow Depth = 1.60" for 10-yr event
Inflow = 10.15 cfs @ 12.33 hrs, Volume= 1.126 af
Outflow = 10.14 cfs @ 12.35 hrs, Volume= 1.126 af, Atten= 0%, Lag= 0.9 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Max. Velocity= 6.0 fps, Min. Travel Time= 1.0 min
Avg. Velocity = 1.5 fps, Avg. Travel Time= 4.0 min

Peak Depth= 0.58' @ 12.35 hrs
Capacity at bank full= 325.42 cfs
Inlet Invert= 542.00', Outlet Invert= 526.00'
10.00' x 3.00' deep Parabolic Channel, n= 0.027 Length= 360.0' Slope= 0.0444 '/'

Reach r14b:

30" HDPE Under Main Entrance Road

Inflow Area = 8.452 ac, Inflow Depth = 1.60" for 10-yr event
Inflow = 10.14 cfs @ 12.35 hrs, Volume= 1.126 af
Outflow = 10.14 cfs @ 12.35 hrs, Volume= 1.126 af, Atten= 0%, Lag= 0.4 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Max. Velocity= 12.6 fps, Min. Travel Time= 0.6 min
Avg. Velocity = 3.2 fps, Avg. Travel Time= 2.4 min

Peak Depth= 0.55' @ 12.35 hrs
Capacity at bank full= 94.91 cfs
Inlet Invert= 526.00', Outlet Invert= 505.70'
30.0" Diameter Pipe n= 0.012 Length= 445.0' Slope= 0.0456 '/'

Reach r14c:

Overland Flow

Inflow Area = 6.420 ac, Inflow Depth = 0.04" for 10-yr event
Inflow = 0.07 cfs @ 24.61 hrs, Volume= 0.021 af
Outflow = 0.06 cfs @ 24.87 hrs, Volume= 0.021 af, Atten= 6%, Lag= 15.6 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Max. Velocity= 0.5 fps, Min. Travel Time= 20.2 min
Avg. Velocity = 0.3 fps, Avg. Travel Time= 34.4 min

Peak Depth= 0.03' @ 24.87 hrs
Capacity at bank full= 178.07 cfs
Inlet Invert= 544.00', Outlet Invert= 498.00'
50.00' x 1.00' deep Parabolic Channel, n= 0.060 Length= 575.0' Slope= 0.0800 '/'

Reach r15:

Brush Overbanks with Rocky Bottom
Needs to be surveyed

Inflow Area = 4.702 ac, Inflow Depth = 3.35" for 10-yr event
Inflow = 13.72 cfs @ 12.06 hrs, Volume= 1.314 af
Outflow = 13.67 cfs @ 12.06 hrs, Volume= 1.314 af, Atten= 0%, Lag= 0.4 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Max. Velocity= 9.6 fps, Min. Travel Time= 0.5 min
Avg. Velocity = 3.3 fps, Avg. Travel Time= 1.5 min

Peak Depth= 0.82' @ 12.06 hrs
Capacity at bank full= 188.47 cfs
Inlet Invert= 554.00', Outlet Invert= 528.00'
5.00' x 3.00' deep Parabolic Channel, n= 0.027 Length= 290.0' Slope= 0.0897 '/'

Reach r16:

Pipe Reach

Inflow Area = 4.702 ac, Inflow Depth = 3.35" for 10-yr event
Inflow = 14.13 cfs @ 12.04 hrs, Volume= 1.314 af
Outflow = 13.72 cfs @ 12.06 hrs, Volume= 1.314 af, Atten= 3%, Lag= 1.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Max. Velocity= 10.6 fps, Min. Travel Time= 1.3 min
Avg. Velocity = 3.5 fps, Avg. Travel Time= 4.1 min

Peak Depth= 0.77' @ 12.06 hrs
Capacity at bank full= 66.05 cfs
Inlet Invert= 573.00', Outlet Invert= 554.00'
30.0" Diameter Pipe n= 0.012 Length= 860.0' Slope= 0.0221 '/'

Reach r18a:

Overland Flow Reach

Inflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Outflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Max. Velocity= 0.0 fps, Min. Travel Time= 0.0 min
Avg. Velocity = 0.0 fps, Avg. Travel Time= 0.0 min

Peak Depth= 0.00' @ 0.00 hrs
Capacity at bank full= 379.63 cfs
Inlet Invert= 973.60', Outlet Invert= 530.00'
50.00' x 1.00' deep Parabolic Channel, n= 0.060 Length= 1,220.0' Slope= 0.3636 '/'

Reach r18b:

Overland Flow Reach

Inflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Outflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Max. Velocity= 0.0 fps, Min. Travel Time= 0.0 min
Avg. Velocity = 0.0 fps, Avg. Travel Time= 0.0 min

Peak Depth= 0.00' @ 0.00 hrs
Capacity at bank full= 151.94 cfs
Inlet Invert= 530.60', Outlet Invert= 514.00'
50.00' x 1.00' deep Parabolic Channel, n= 0.060 Length= 285.0' Slope= 0.0582 '/'

Reach r21a:

Man Made Ditch

Inflow Area = 241.484 ac, Inflow Depth = 1.28" for 10-yr event
Inflow = 32.22 cfs @ 16.29 hrs, Volume= 25.771 af
Outflow = 32.22 cfs @ 16.31 hrs, Volume= 25.759 af, Atten= 0%, Lag= 1.4 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Max. Velocity= 5.8 fps, Min. Travel Time= 1.9 min
Avg. Velocity = 3.0 fps, Avg. Travel Time= 3.6 min

Peak Depth= 1.28' @ 16.31 hrs
Capacity at bank full= 191.76 cfs
Inlet Invert= 504.00', Outlet Invert= 494.00'
10.00' x 3.00' deep Parabolic Channel, n= 0.027 Length= 648.0' Slope= 0.0154 '/'

Reach r21b:

Grass Ditch
Geometry to be confirmed by survey (inverts at pipe)

Inflow Area = 97.943 ac, Inflow Depth = 1.82" for 10-yr event
Inflow = 101.85 cfs @ 12.49 hrs, Volume= 14.861 af
Outflow = 101.83 cfs @ 12.50 hrs, Volume= 14.861 af, Atten= 0%, Lag= 0.3 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Max. Velocity= 9.3 fps, Min. Travel Time= 0.4 min
Avg. Velocity = 2.2 fps, Avg. Travel Time= 1.7 min

Peak Depth= 1.34' @ 12.50 hrs
Capacity at bank full= 239.90 cfs
Inlet Invert= 499.00', Outlet Invert= 491.10'
15.00' x 2.00' deep Parabolic Channel, n= 0.027 Length= 230.0' Slope= 0.0343 '/'

Reach r21c:

Overland Flow Reach

Inflow Area = 41.587 ac, Inflow Depth = 1.93" for 10-yr event
Inflow = 47.78 cfs @ 12.69 hrs, Volume= 6.699 af
Outflow = 47.76 cfs @ 12.70 hrs, Volume= 6.699 af, Atten= 0%, Lag= 0.4 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Max. Velocity= 4.2 fps, Min. Travel Time= 0.6 min
Avg. Velocity = 1.6 fps, Avg. Travel Time= 1.6 min

Peak Depth= 0.49' @ 12.70 hrs
Capacity at bank full= 227.81 cfs
Inlet Invert= 506.70', Outlet Invert= 485.75'
50.00' x 1.00' deep Parabolic Channel, n= 0.060 Length= 160.0' Slope= 0.1309 '/'

Reach r22a:

Overland Flow Reach

Inflow Area = 15.520 ac, Inflow Depth = 1.30" for 10-yr event
Inflow = 5.85 cfs @ 13.10 hrs, Volume= 1.681 af
Outflow = 5.81 cfs @ 13.17 hrs, Volume= 1.681 af, Atten= 1%, Lag= 3.8 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Max. Velocity= 3.3 fps, Min. Travel Time= 4.9 min
Avg. Velocity = 1.2 fps, Avg. Travel Time= 14.0 min

Peak Depth= 0.14' @ 13.17 hrs
Capacity at bank full= 409.31 cfs
Inlet Invert= 970.00', Outlet Invert= 560.00'
50.00' x 1.00' deep Parabolic Channel, n= 0.060 Length= 970.0' Slope= 0.4227 '/'

Reach r22b:

Overland Flow Reach

Inflow Area = 15.520 ac, Inflow Depth = 1.30" for 10-yr event
Inflow = 5.81 cfs @ 13.17 hrs, Volume= 1.681 af
Outflow = 5.77 cfs @ 13.24 hrs, Volume= 1.681 af, Atten= 1%, Lag= 4.5 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Max. Velocity= 1.8 fps, Min. Travel Time= 5.6 min
Avg. Velocity = 0.6 fps, Avg. Travel Time= 16.8 min

Peak Depth= 0.21' @ 13.24 hrs
Capacity at bank full= 175.17 cfs
Inlet Invert= 560.00', Outlet Invert= 512.00'
50.00' x 1.00' deep Parabolic Channel, n= 0.060 Length= 620.0' Slope= 0.0774 '/'

Reach r25a:

Ditch
Pipe inverts need to be surveyed

Inflow Area = 60.314 ac, Inflow Depth = 1.70" for 10-yr event
Inflow = 50.11 cfs @ 12.40 hrs, Volume= 8.561 af
Outflow = 50.03 cfs @ 12.42 hrs, Volume= 8.561 af, Atten= 0%, Lag= 1.1 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Max. Velocity= 10.2 fps, Min. Travel Time= 1.8 min
Avg. Velocity = 2.3 fps, Avg. Travel Time= 8.0 min

Peak Depth= 1.03' @ 12.42 hrs
Capacity at bank full= 205.50 cfs
Inlet Invert= 570.00', Outlet Invert= 504.00'
10.00' x 2.00' deep Parabolic Channel, n= 0.027 Length= 1,090.0' Slope= 0.0606 '/'

Reach r25b: Wetland Reach

Wetland Reach
Has wetland vegetation within reach

Inflow Area = 9.435 ac, Inflow Depth = 1.56" for 10-yr event
Inflow = 8.28 cfs @ 12.43 hrs, Volume= 1.229 af
Outflow = 7.38 cfs @ 12.56 hrs, Volume= 1.228 af, Atten= 11%, Lag= 7.7 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Max. Velocity= 1.6 fps, Min. Travel Time= 8.0 min
Avg. Velocity = 0.4 fps, Avg. Travel Time= 29.5 min

Peak Depth= 0.72' @ 12.56 hrs
Capacity at bank full= 156.51 cfs
Inlet Invert= 504.00', Outlet Invert= 499.50'
20.00' x 3.00' deep Parabolic Channel, n= 0.045 Length= 750.0' Slope= 0.0060 '/'

Reach r25c: Amenia Stream/Cascade Brook

(Steam) parallel to Route 22
Base Flow estimated from field observation (see field note 21)

Inflow Area = 129.431 ac, Inflow Depth = 30.74" for 10-yr event
Inflow = 131.17 cfs @ 12.54 hrs, Volume= 331.584 af, Incl. 40.00 cfs Base Flow
Outflow = 129.74 cfs @ 12.63 hrs, Volume= 330.902 af, Atten= 1%, Lag= 5.5 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Max. Velocity= 2.9 fps, Min. Travel Time= 5.6 min
Avg. Velocity = 2.6 fps, Avg. Travel Time= 6.1 min

Peak Depth= 5.85' @ 12.63 hrs
Capacity at bank full= 67.14 cfs
Inlet Invert= 504.00', Outlet Invert= 500.00'
10.00' x 4.00' deep Parabolic Channel, n= 0.060 Length= 975.0' Slope= 0.0041 '/'

Pond 8P:

No field note.
Water spills over cart path; no storage.

Inflow Area = 52.997 ac, Inflow Depth = 1.69" for 10-yr event
Inflow = 48.34 cfs @ 12.39 hrs, Volume= 7.483 af
Outflow = 48.34 cfs @ 12.39 hrs, Volume= 7.483 af, Atten= 0%, Lag= 0.0 min
Primary = 48.34 cfs @ 12.39 hrs, Volume= 7.483 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Peak Elev= 575.47' @ 12.39 hrs
Flood Elev= 574.70'
Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= (not calculated)

#	Routing	Invert	Outlet Devices
1	Primary	574.70'	**177.0 deg Sharp-Crested Vee/Trap Weir** C= 2.46

Primary OutFlow Max=48.34 cfs @ 12.39 hrs HW=575.47' TW=571.03' (Dynamic Tailwater)
1=Sharp-Crested Vee/Trap Weir (Weir Controls 48.34 cfs @ 2.2 fps)

Pond p04:

Field Note #13

Water ponding behind a golf cart path. Overflow dimensions are assumed based on aerial topo, and should be upgraded once survey is available.

Inflow Area = 38.062 ac, Inflow Depth = 1.84" for 10-yr event
Inflow = 35.71 cfs @ 12.45 hrs, Volume= 5.845 af
Outflow = 35.71 cfs @ 12.45 hrs, Volume= 5.779 af, Atten= 0%, Lag= 0.2 min
Primary = 35.71 cfs @ 12.45 hrs, Volume= 5.779 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Peak Elev= 605.94' @ 12.45 hrs Surf.Area= 6,419 sf Storage= 3,852 cf
Flood Elev= 605.50' Surf.Area= 4,803 sf Storage= 2,882 cf
Plug-Flow detention time= 10.2 min calculated for 5.778 af (99% of inflow)
Center-of-Mass det. time= 3.6 min (880.6 - 876.9)

#	Invert	Avail.Storage	Storage Description
1	604.20'	26,897 cf	**Custom Stage Data (Conic)** Listed below

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
604.20	0	0	0	0
606.00	6,650	3,990	3,990	6,655
608.00	17,060	22,907	26,897	17,092

#	Routing	Invert	Outlet Devices
1	Primary	605.50'	**179.0 deg Sharp-Crested Vee/Trap Weir** C= 2.46

Primary OutFlow Max=35.71 cfs @ 12.45 hrs HW=605.94' TW=575.46' (Dynamic Tailwater)
1=Sharp-Crested Vee/Trap Weir (Weir Controls 35.71 cfs @ 1.6 fps)

Pond p06:

Field Note #22
Geometry to be confirmed by survey.

Inflow Area = 9.435 ac, Inflow Depth = 1.60" for 10-yr event
Inflow = 10.64 cfs @ 12.25 hrs, Volume= 1.258 af
Outflow = 8.28 cfs @ 12.43 hrs, Volume= 1.229 af, Atten= 22%, Lag= 10.5 min
Primary = 8.28 cfs @ 12.43 hrs, Volume= 1.229 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Starting Elev= 506.80' Surf.Area= 18,600 sf Storage= 42,160 cf
Peak Elev= 507.40' @ 12.43 hrs Surf.Area= 21,338 sf Storage= 55,020 cf (12,860 cf above start)
Flood Elev= 507.10' Surf.Area= 19,958 sf Storage= 48,537 cf (6,377 cf above start)
Plug-Flow detention time= 875.3 min calculated for 0.262 af (21% of inflow)
Center-of-Mass det. time= 143.4 min (1,000.6 - 857.2)

#	Invert	Avail.Storage	Storage Description
1	500.00'	67,669 cf	**Custom Stage Data (Conic)** Listed below

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
500.00	0	0	0	0
506.80	18,600	42,160	42,160	18,672
508.00	24,030	25,509	67,669	24,138

#	Routing	Invert	Outlet Devices
1	Primary	506.80'	**12.0" x 20.0' long Culvert** CMP, projecting, no headwall, Ke= 0.900 Outlet Invert= 506.00' S= 0.0400 '/' n= 0.024 Cc= 0.900
2	Primary	507.10'	**178.0 deg Sharp-Crested Vee/Trap Weir** C= 2.46

Primary OutFlow Max=8.28 cfs @ 12.43 hrs HW=507.40' TW=504.66' (Dynamic Tailwater)
1=Culvert (Inlet Controls 1.04 cfs @ 2.1 fps)
2=Sharp-Crested Vee/Trap Weir (Weir Controls 7.24 cfs @ 1.4 fps)

Pond p07:

Field Note # 29
Outlet geometry to be confirmed by survey.

Inflow Area = 7.317 ac, Inflow Depth = 1.82" for 10-yr event
Inflow = 10.15 cfs @ 12.20 hrs, Volume= 1.108 af
Outflow = 2.83 cfs @ 12.72 hrs, Volume= 1.078 af, Atten= 72%, Lag= 30.9 min
Primary = 2.83 cfs @ 12.72 hrs, Volume= 1.078 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Starting Elev= 572.80' Surf.Area= 21,640 sf Storage= 56,264 cf
Peak Elev= 573.60' @ 12.72 hrs Surf.Area= 25,389 sf Storage= 75,703 cf (19,439 cf above start)
Flood Elev= 573.50' Surf.Area= 24,936 sf Storage= 73,351 cf (17,087 cf above start)
Plug-Flow detention time= (not calculated)
Center-of-Mass det. time= (not calculated)

#	Invert	Avail.Storage	Storage Description
1	565.00'	85,557 cf	**Custom Stage Data (Conic)** Listed below

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
565.00	0	0	0	0
572.80	21,640	56,264	56,264	21,735
574.00	27,290	29,293	85,557	27,424

#	Routing	Invert	Outlet Devices
1	Primary	572.80'	**18.0" x 20.0' long Culvert** CMP, projecting, no headwall, Ke= 0.900 Outlet Invert= 572.00' S= 0.0400 '/' n= 0.024 Cc= 0.900
2	Primary	573.50'	**177.0 deg Sharp-Crested Vee/Trap Weir X 2.00** C= 2.46

Primary OutFlow Max=2.83 cfs @ 12.72 hrs HW=573.60' TW=570.91' (Dynamic Tailwater)
1=Culvert (Inlet Controls 2.29 cfs @ 2.4 fps)
2=Sharp-Crested Vee/Trap Weir (Weir Controls 0.54 cfs @ 0.8 fps)

Pond p09:

Field Note #31
Geometry to be confirmed by survey.

Inflow Area = 8.452 ac, Inflow Depth = 1.65" for 10-yr event
Inflow = 11.29 cfs @ 12.24 hrs, Volume= 1.165 af
Outflow = 10.15 cfs @ 12.33 hrs, Volume= 1.126 af, Atten= 10%, Lag= 5.5 min
Primary = 10.15 cfs @ 12.33 hrs, Volume= 1.126 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Peak Elev= 550.00' @ 12.33 hrs Surf.Area= 5,516 sf Storage= 6,219 cf
Flood Elev= 551.20' Surf.Area= 8,534 sf Storage= 15,673 cf
Plug-Flow detention time= 43.2 min calculated for 1.125 af (97% of inflow)
Center-of-Mass det. time= 25.0 min (895.5 - 870.5)

#	Invert	Avail.Storage	Storage Description
1	547.50'	21,989 cf	**Custom Stage Data (Conic)** Listed below

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
547.50	0	0	0	0
548.00	1,080	180	180	1,080
550.00	5,510	6,020	6,200	5,527
552.00	10,550	15,790	21,989	10,606

#	Routing	Invert	Outlet Devices
1	Primary	548.50'	**30.0" x 70.0' long Culvert** CMP, projecting, no headwall, Ke= 0.900 Outlet Invert= 542.00' S= 0.0929 '/' n= 0.012 Cc= 0.900
2	Primary	551.20'	**168.0 deg Sharp-Crested Vee/Trap Weir** C= 2.46

Primary OutFlow Max=10.15 cfs @ 12.33 hrs HW=550.00' TW=542.58' (Dynamic Tailwater)
1=Culvert (Inlet Controls 10.15 cfs @ 3.3 fps)
2=Sharp-Crested Vee/Trap Weir (Controls 0.00 cfs)

Pond p10:

Field Note #25
Need to get full story on how this pond works

Inflow Area = 45.146 ac, Inflow Depth = 0.42" for 10-yr event
Inflow = 10.52 cfs @ 12.38 hrs, Volume= 1.567 af
Outflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Atten= 100%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Starting Elev= 498.40' Surf.Area= 36,110 sf Storage= 101,108 cf
Peak Elev= 500.11' @ 25.62 hrs Surf.Area= 43,112 sf Storage= 169,383 cf (68,275 cf above start)
Plug-Flow detention time= (not calculated)
Center-of-Mass det. time= (not calculated)

#	Invert	Avail.Storage	Storage Description
1	490.00'	581,029 cf	**Custom Stage Data (Conic)** Listed below

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
490.00	0	0	0	0
498.40	36,110	101,108	101,108	36,221
500.00	42,400	62,741	163,849	42,610
502.00	54,880	97,012	260,861	55,187
504.00	78,730	132,895	393,755	79,107
506.00	109,382	187,274	581,029	109,836

Pond p12:

No field note.
Natural depression.

Inflow Area = 6.420 ac, Inflow Depth = 0.98" for 10-yr event
Inflow = 2.87 cfs @ 12.69 hrs, Volume= 0.524 af
Outflow = 0.07 cfs @ 24.61 hrs, Volume= 0.021 af, Atten= 98%, Lag= 715.0 min
Primary = 0.07 cfs @ 24.61 hrs, Volume= 0.021 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Peak Elev= 547.58' @ 24.61 hrs Surf.Area= 14,293 sf Storage= 22,575 cf
Flood Elev= 547.50' Surf.Area= 13,848 sf Storage= 21,762 cf
Plug-Flow detention time= 948.2 min calculated for 0.021 af (4% of inflow)
Center-of-Mass det. time= 759.1 min (1,685.1 - 926.0)

#	Invert	Avail.Storage	Storage Description
1	543.50'	26,986 cf	**Custom Stage Data (Conic)** Listed below

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
543.50	0	0	0	0
544.00	1,140	190	190	1,140
546.00	5,260	5,899	6,089	5,278
548.00	16,710	20,897	26,986	16,750

#	Routing	Invert	Outlet Devices
1	Primary	547.50'	**173.0 deg Sharp-Crested Vee/Trap Weir** C= 2.46

Primary OutFlow Max=0.07 cfs @ 24.61 hrs HW=547.58' TW=544.02' (Dynamic Tailwater)
1=Sharp-Crested Vee/Trap Weir (Weir Controls 0.07 cfs @ 0.7 fps)

Pond p13:

No Field Note
Natural depression.

Inflow Area = 0.350 ac, Inflow Depth = 0.98" for 10-yr event
Inflow = 0.29 cfs @ 12.14 hrs, Volume= 0.029 af
Outflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Atten= 100%, Lag= 0.0 min
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Peak Elev= 513.41' @ 24.49 hrs Surf.Area= 1,075 sf Storage= 1,245 cf
Flood Elev= 519.50' Surf.Area= 4,313 sf Storage= 16,523 cf
Plug-Flow detention time= (not calculated)
Center-of-Mass det. time= (not calculated)

#	Invert	Avail.Storage	Storage Description
1	511.40'	18,490 cf	**Custom Stage Data (Conic)** Listed below

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
511.40	0	0	0	0
512.00	390	78	78	391
514.00	1,360	1,652	1,730	1,381
516.00	2,180	3,508	5,238	2,253
518.00	3,240	5,385	10,623	3,375
520.00	4,670	7,867	18,490	4,872

#	Routing	Invert	Outlet Devices
1	Primary	519.50'	**176.0 deg Sharp-Crested Vee/Trap Weir** C= 2.46

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=511.40' TW=497.40' (Dynamic Tailwater)
1=Sharp-Crested Vee/Trap Weir (Controls 0.00 cfs)

Pond p14:

Field Note #26
Need to figure out how this pond works

Inflow Area = 36.186 ac, Inflow Depth = 1.55" for 10-yr event
Inflow = 31.73 cfs @ 12.37 hrs, Volume= 4.687 af
Outflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Atten= 100%, Lag= 0.0 min
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Starting Elev= 497.40' Surf.Area= 22,200 sf Storage= 54,760 cf
Peak Elev= 501.81' @ 48.00 hrs Surf.Area= 71,366 sf Storage= 258,908 cf (204,148 cf above start)
Plug-Flow detention time= (not calculated)
Center-of-Mass det. time= (not calculated)

#	Invert	Avail.Storage	Storage Description
1	490.00'	805,062 cf	**Custom Stage Data (Conic)** Listed below

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
490.00	0	0	0	0
497.40	22,200	54,760	54,760	22,286
498.00	25,330	14,249	69,009	25,433
500.00	52,810	76,476	145,485	52,948
502.00	73,360	125,608	271,093	73,574
504.00	84,070	157,308	428,402	84,467
506.00	92,130	176,139	604,540	92,797
508.00	108,618	200,522	805,062	109,437

#	Routing	Invert	Outlet Devices
1	Primary	500.00'	**24.0" x 80.0' long Culvert** CPP, end-section conforming to fill, Ke= 0.500 Outlet Invert= 502.00' S= -0.0250 '/' n= 0.012 Cc= 0.900

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=497.40' TW=498.40' (Dynamic Tailwater)
└**1=Culvert** (Controls 0.00 cfs)

Pond p15:

Field Note # 43
Infiltration basin

Inflow Area = 5.770 ac, Inflow Depth = 2.87" for 10-yr event
Inflow = 13.80 cfs @ 12.07 hrs, Volume= 1.380 af
Outflow = 13.68 cfs @ 12.08 hrs, Volume= 1.125 af, Atten= 1%, Lag= 0.6 min
Primary = 13.68 cfs @ 12.08 hrs, Volume= 1.125 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Peak Elev= 536.19' @ 12.08 hrs Surf.Area= 3,273 sf Storage= 11,851 cf
Flood Elev= 536.00' Surf.Area= 3,160 sf Storage= 11,127 cf
Plug-Flow detention time= 136.9 min calculated for 1.124 af (81% of inflow)

Center-of-Mass det. time= 58.7 min (848.7 - 790.0)

#	Invert	Avail.Storage	Storage Description
1	526.80'	18,577 cf	**Custom Stage Data (Conic)** Listed below

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
526.80	0	0	0	0
528.00	310	124	124	312
530.00	660	948	1,072	694
532.00	1,180	1,815	2,887	1,256
534.00	1,990	3,135	6,022	2,113
536.00	3,160	5,105	11,127	3,337
538.00	4,320	7,450	18,577	4,575

#	Routing	Invert	Outlet Devices
1	Primary	536.00'	**171.0 deg x 50.0' long Sharp-Crested Vee/Trap Weir** C= 2.46

Primary OutFlow Max=13.65 cfs @ 12.08 hrs HW=536.19' TW=507.64' (Dynamic Tailwater)
1=Sharp-Crested Vee/Trap Weir (Weir Controls 13.65 cfs @ 1.3 fps)

Pond p16:

Field Note # 49
Large pond with man-made island.
Geometry to be verified by survey. In particular, we are making big guesses about the outlets.
Also need to find out about valves...

Inflow Area = 220.861 ac, Inflow Depth = 1.88" for 10-yr event
Inflow = 112.78 cfs @ 12.32 hrs, Volume= 34.527 af
Outflow = 30.19 cfs @ 16.19 hrs, Volume= 22.733 af, Atten= 73%, Lag= 232.0 min
Primary = 30.19 cfs @ 16.19 hrs, Volume= 22.733 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Starting Elev= 507.00' Surf.Area= 199,799 sf Storage= 878,320 cf
Peak Elev= 511.03' @ 16.19 hrs Surf.Area= 294,848 sf Storage= 1,777,090 cf (898,770 cf above start)
Flood Elev= 510.50' Surf.Area= 271,550 sf Storage= 1,623,217 cf (744,897 cf above start)
Plug-Flow detention time= 1,829.6 min calculated for 2.569 af (7% of inflow)
Center-of-Mass det. time= 489.7 min (1,418.7 - 929.0)

#	Invert	Avail.Storage	Storage Description
1	500.00'	2,062,087 cf	**Custom Stage Data (Conic)** Listed below

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
500.00	0	0	0	0
503.00	140,344	140,344	140,344	140,358
509.20	232,500	1,143,862	1,284,206	232,994
510.00	249,400	192,720	1,476,927	249,951
512.00	338,000	585,160	2,062,087	338,634

#	Routing	Invert	Outlet Devices
1	Primary	509.00'	**18.0" x 110.0' long Culvert** CMP, projecting, no headwall, Ke= 0.900 Outlet Invert= 505.70' S= 0.0300 '/' n= 0.024 Cc= 0.900
2	Primary	500.00'	**8.0" x 100.0' long assumed equalization pipe w/ valve X 0.00** CMP, projecting, no headwall, Ke= 0.900 Outlet Invert= 500.00' S= 0.0000 '/' n= 0.013 Cc= 0.900
3	Primary	510.50'	**175.0 deg Sharp-Crested Vee/Trap Weir X 2.00** C= 2.46

Primary OutFlow Max=30.19 cfs @ 16.19 hrs HW=511.03' TW=506.18' (Dynamic Tailwater)
- **1=Culvert** (Inlet Controls 7.59 cfs @ 4.3 fps)
- **2=assumed equalization pipe w/ valve** (Controls 0.00 cfs)
- **3=Sharp-Crested Vee/Trap Weir** (Weir Controls 22.60 cfs @ 1.8 fps)

Pond p17:

Field Note #45
Golf pond
Geometry to be confirmed by surveyed

Inflow Area = 115.991 ac, Inflow Depth = 1.73" for 10-yr event
Inflow = 53.92 cfs @ 13.77 hrs, Volume= 16.744 af
Outflow = 53.88 cfs @ 13.78 hrs, Volume= 16.744 af, Atten= 0%, Lag= 0.7 min
Primary = 53.88 cfs @ 13.78 hrs, Volume= 16.744 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Starting Elev= 523.80' Surf.Area= 7,290 sf Storage= 9,234 cf
Peak Elev= 525.45' @ 13.78 hrs Surf.Area= 11,046 sf Storage= 24,874 cf (15,640 cf above start)
Flood Elev= 524.30' Surf.Area= 8,074 sf Storage= 13,623 cf (4,389 cf above start)
Plug-Flow detention time= 22.7 min calculated for 16.532 af (99% of inflow)
Center-of-Mass det. time= 11.7 min (979.7 - 967.9)

#	Invert	Avail.Storage	Storage Description
1	520.00'	30,224 cf	**Custom Stage Data (Conic)** Listed below

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
520.00	0	0	0	0
523.80	7,290	9,234	9,234	7,313
524.00	7,300	1,459	10,693	7,374
526.00	12,460	19,531	30,224	12,581

#	Routing	Invert	Outlet Devices
1	Primary	523.80'	**2.2' long x 0.5' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 Coef. (English) 2.80 2.92 3.08 3.30 3.32
2	Primary	524.30'	**143.0 deg Sharp-Crested Vee/Trap Weir** C= 2.47
3	Primary	525.20'	**178.0 deg x 60.0' long Sharp-Crested Vee/Trap Weir** C= 2.46

Primary OutFlow Max=53.87 cfs @ 13.78 hrs HW=525.45' TW=515.92' (Dynamic Tailwater)
├─**1=Broad-Crested Rectangular Weir** (Weir Controls 15.51 cfs @ 4.3 fps)
├─**2=Sharp-Crested Vee/Trap Weir** (Weir Controls 10.52 cfs @ 2.7 fps)
└─**3=Sharp-Crested Vee/Trap Weir** (Weir Controls 27.85 cfs @ 1.5 fps)

Pond p18:

Field Note #46
Golf pond
Geometry to be confirmed by surveyed

Inflow Area = 139.117 ac, Inflow Depth = 1.75" for 10-yr event
Inflow = 58.39 cfs @ 13.78 hrs, Volume= 20.345 af
Outflow = 58.22 cfs @ 13.82 hrs, Volume= 20.340 af, Atten= 0%, Lag= 2.1 min
Primary = 58.22 cfs @ 13.82 hrs, Volume= 20.340 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Starting Elev= 513.90' Surf.Area= 20,680 sf Storage= 26,884 cf
Peak Elev= 515.92' @ 13.82 hrs Surf.Area= 27,974 sf Storage= 75,706 cf (48,822 cf above start)
Flood Elev= 514.81' Surf.Area= 23,768 sf Storage= 48,709 cf (21,825 cf above start)
Plug-Flow detention time= 60.1 min calculated for 19.723 af (97% of inflow)
Center-of-Mass det. time= 33.5 min (992.7 - 959.2)

#	Invert	Avail.Storage	Storage Description
1	510.00'	148,288 cf	**Custom Stage Data (Conic)** Listed below

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
510.00	0	0	0	0
513.90	20,680	26,884	26,884	20,704
514.00	20,690	2,068	28,952	20,756
516.00	28,290	48,782	77,735	28,436
518.00	42,760	70,554	148,288	42,967

#	Routing	Invert	Outlet Devices
1	Primary	513.90'	**2.0' long x 0.5' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 Coef. (English) 2.80 2.92 3.08 3.30 3.32
2	Primary	514.81'	**143.0 deg Sharp-Crested Vee/Trap Weir** C= 2.47
3	Primary	515.32'	**175.0 deg x 10.0' long Sharp-Crested Vee/Trap Weir** C= 2.46

Primary OutFlow Max=58.21 cfs @ 13.82 hrs HW=515.92' TW=510.03' (Dynamic Tailwater)
├─**1=Broad-Crested Rectangular Weir** (Weir Controls 19.02 cfs @ 4.7 fps)
├─**2=Sharp-Crested Vee/Trap Weir** (Weir Controls 9.51 cfs @ 2.6 fps)
└─**3=Sharp-Crested Vee/Trap Weir** (Weir Controls 29.68 cfs @ 2.1 fps)

Pond p19:

Wetland
Geometry to be confirmed by survey
Based off aerial topo, and assumed topo contour

Inflow Area = 15.520 ac, Inflow Depth = 1.30" for 10-yr event
Inflow = 10.40 cfs @ 12.62 hrs, Volume= 1.683 af
Outflow = 5.85 cfs @ 13.10 hrs, Volume= 1.681 af, Atten= 44%, Lag= 29.1 min
Primary = 5.85 cfs @ 13.10 hrs, Volume= 1.681 af
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Starting Elev= 972.00' Surf.Area= 86,000 sf Storage= 57,333 cf
Peak Elev= 972.15' @ 13.10 hrs Surf.Area= 90,219 sf Storage= 74,507 cf (17,174 cf above start)
Plug-Flow detention time= 607.9 min calculated for 0.365 af (22% of inflow)
Center-of-Mass det. time= 74.4 min (981.7 - 907.3)

#	Invert	Avail.Storage	Storage Description
1	970.00'	282,329 cf	**Custom Stage Data (Conic)** Listed below

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
970.00	0	0	0	0
972.00	86,000	57,333	57,333	86,006
974.00	141,270	224,996	282,329	141,327

#	Routing	Invert	Outlet Devices
1	Secondary	973.60'	**178.0 deg x 51.0' long Sharp-Crested Vee/Trap Weir** C= 2.46
2	Primary	972.00'	**35.0' long x 0.5' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 Coef. (English) 2.80 2.92 3.08 3.30 3.32

Primary OutFlow Max=5.85 cfs @ 13.10 hrs HW=972.15' TW=970.14' (Dynamic Tailwater)
└─**2=Broad-Crested Rectangular Weir** (Weir Controls 5.85 cfs @ 1.1 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=972.00' TW=973.60' (Dynamic Tailwater)
└─**1=Sharp-Crested Vee/Trap Weir** (Controls 0.00 cfs)

Pond p20:

Field Note #50
Spring Fed Pond
Geometry to be confirmed by surveyed

Inflow Area = 241.484 ac, Inflow Depth = 1.32" for 10-yr event
Inflow = 32.37 cfs @ 16.15 hrs, Volume= 26.596 af
Outflow = 32.22 cfs @ 16.29 hrs, Volume= 25.771 af, Atten= 0%, Lag= 8.3 min
Primary = 32.22 cfs @ 16.29 hrs, Volume= 25.771 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

Starting Elev= 505.10' Surf.Area= 89,370 sf Storage= 138,524 cf
Peak Elev= 506.18' @ 16.29 hrs Surf.Area= 90,255 sf Storage= 235,644 cf (97,120 cf above start)
Plug-Flow detention time= 333.6 min calculated for 22.586 af (85% of inflow)
Center-of-Mass det. time= 85.1 min (1,420.2 - 1,335.1)

#	Invert	Avail.Storage	Storage Description
1	502.00'	615,682 cf	**Custom Stage Data (Prismatic)** Listed below

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
502.00	0	0	0
505.10	89,370	138,524	138,524
506.00	89,380	80,437	218,961
508.00	99,280	188,660	407,621
510.00	108,781	208,061	615,682

#	Routing	Invert	Outlet Devices
1	Primary	505.10'	**3.0' long x 1.5' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 Coef. (English) 2.62 2.64 2.64 2.68 2.75 2.86 2.92 3.07 3.07 3.03 3.28 3.32
2	Primary	506.20'	**6.5' long x 1.5' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 Coef. (English) 2.62 2.64 2.64 2.68 2.75 2.86 2.92 3.07 3.07 3.03 3.28 3.32
3	Primary	506.00'	**176.0 deg x 97.0' long Sharp-Crested Vee/Trap Weir** C= 2.46

Primary OutFlow Max=32.22 cfs @ 16.29 hrs HW=506.18' TW=505.28' (Dynamic Tailwater)
1=Broad-Crested Rectangular Weir (Weir Controls 9.11 cfs @ 2.8 fps)
2=Broad-Crested Rectangular Weir (Controls 0.00 cfs)
3=Sharp-Crested Vee/Trap Weir (Weir Controls 23.11 cfs @ 1.3 fps)

Pond p21:

Inflow Area = 489.305 ac, Inflow Depth = 1.65" for 10-yr event
Inflow = 269.39 cfs @ 12.46 hrs, Volume= 67.462 af
Outflow = 26.91 cfs @ 20.81 hrs, Volume= 61.738 af, Atten= 90%, Lag= 500.5 min
Primary = 26.91 cfs @ 20.81 hrs, Volume= 61.738 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Peak Elev= 484.82' @ 20.81 hrs Surf.Area= 808,155 sf Storage= 1,468,971 cf
Plug-Flow detention time= 689.9 min calculated for 61.725 af (91% of inflow)
Center-of-Mass det. time= 582.3 min (1,663.5 - 1,081.2)

#	Invert	Avail.Storage	Storage Description
1	480.40'	5,244,885 cf	**Custom Stage Data (Conic)** Listed below

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
480.40	0	0	0	0
482.00	202,230	107,856	107,856	202,234
484.00	485,198	667,114	774,970	485,231
486.00	1,275,481	1,698,237	2,473,208	1,275,541
488.00	1,499,208	2,771,678	5,244,885	1,499,423

#	Routing	Invert	Outlet Devices
1	Primary	480.40'	**30.0" x 70.0' long Culvert** CMP, projecting, no headwall, Ke= 0.900 Outlet Invert= 480.40' S= 0.0000 '/' n= 0.024 Cc= 0.900

Primary OutFlow Max=26.91 cfs @ 20.81 hrs HW=484.82' TW=0.00' (Dynamic Tailwater)
└─**1=Culvert** (Barrel Controls 26.91 cfs @ 5.5 fps)

Pond p22:

Field Note #54
Golf Pond
Geometry to be confirmed by survey

Inflow Area = 97.943 ac, Inflow Depth = 1.86" for 10-yr event
Inflow = 102.22 cfs @ 12.46 hrs, Volume= 15.160 af
Outflow = 101.85 cfs @ 12.49 hrs, Volume= 14.861 af, Atten= 0%, Lag= 1.8 min
Primary = 101.85 cfs @ 12.49 hrs, Volume= 14.861 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Starting Elev= 498.10' Surf.Area= 6,520 sf Storage= 10,106 cf
Peak Elev= 501.93' @ 12.49 hrs Surf.Area= 11,424 sf Storage= 43,521 cf (33,415 cf above start)
Plug-Flow detention time= 41.1 min calculated for 14.626 af (96% of inflow)
Center-of-Mass det. time= 17.7 min (904.5 - 886.8)

#	Invert	Avail.Storage	Storage Description
1	495.00'	143,770 cf	**Custom Stage Data (Prismatic)** Listed below

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
495.00	0	0	0
498.10	6,520	10,106	10,106
500.00	8,390	14,164	24,270
502.00	11,530	19,920	44,190
504.00	14,530	26,060	70,250
506.00	18,340	32,870	103,120
508.00	22,310	40,650	143,770

#	Routing	Invert	Outlet Devices
1	Primary	499.75'	**18.0" x 21.0' long Culvert** CMP, projecting, no headwall, Ke= 0.900 Outlet Invert= 499.75' S= 0.0000 '/' n= 0.024 Cc= 0.900
2	Primary	500.50'	**1.0' long x 15.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.68 2.70 2.70 2.64 2.63 2.64 2.64 2.63

#	Routing	Invert	Outlet Devices
3	Primary	500.50'	**20.0' long x 13.5' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.62 2.66 2.70 2.66 2.65 2.66 2.65 2.63

Primary OutFlow Max=101.84 cfs @ 12.49 hrs HW=501.93' TW=500.34' (Dynamic Tailwater)
—**1=Culvert** (Barrel Controls 6.54 cfs @ 3.7 fps)
—**2=Broad-Crested Rectangular Weir** (Weir Controls 4.52 cfs @ 3.2 fps)
—**3=Broad-Crested Rectangular Weir** (Weir Controls 90.78 cfs @ 3.2 fps)

Pond p23:

Inflow Area = 41.587 ac, Inflow Depth = 2.20" for 10-yr event
Inflow = 47.82 cfs @ 12.69 hrs, Volume= 7.617 af
Outflow = 47.78 cfs @ 12.69 hrs, Volume= 6.699 af, Atten= 0%, Lag= 0.2 min
Primary = 47.78 cfs @ 12.69 hrs, Volume= 6.699 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Peak Elev= 507.89' @ 12.69 hrs Surf.Area= 19,006 sf Storage= 42,917 cf
Plug-Flow detention time= 80.3 min calculated for 6.697 af (88% of inflow)
Center-of-Mass det. time= 24.0 min (904.6 - 880.6)

#	Invert	Avail.Storage	Storage Description
1	503.50'	100,303 cf	**Custom Stage Data (Prismatic)** Listed below

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
503.50	0	0	0
506.00	11,170	13,963	13,963
508.00	19,460	30,630	44,593
510.00	36,250	55,710	100,303

#	Routing	Invert	Outlet Devices
1	Primary	507.70'	**178.0 deg x 178.0' long Sharp-Crested Vee/Trap Weir** C= 2.46

Primary OutFlow Max=47.78 cfs @ 12.69 hrs HW=507.89' TW=507.19' (Dynamic Tailwater)
—**1=Sharp-Crested Vee/Trap Weir** (Weir Controls 47.78 cfs @ 1.3 fps)

Pond zDP1: Design Point 1

Field note #10.
Culvert dimensions to be confirmed by survey.

Inflow Area = 26.659 ac, Inflow Depth = 1.92" for 10-yr event
Inflow = 29.17 cfs @ 12.50 hrs, Volume= 4.274 af
Outflow = 29.17 cfs @ 12.50 hrs, Volume= 4.274 af, Atten= 0%, Lag= 0.2 min
Primary = 29.17 cfs @ 12.50 hrs, Volume= 4.274 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Peak Elev= 722.18' @ 12.50 hrs Surf.Area= 112 sf Storage= 93 cf
Flood Elev= 727.00' Surf.Area= 1,105 sf Storage= 2,619 cf
Plug-Flow detention time= 0.1 min calculated for 4.273 af (100% of inflow)

Center-of-Mass det. time= 0.1 min (879.8 - 879.7)

#	Invert	Avail.Storage	Storage Description
1	720.10'	3,706 cf	**Custom Stage Data (Conic)** Listed below

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
720.10	0	0	0	0
722.00	90	57	57	96
724.00	340	403	460	364
726.00	760	1,072	1,533	815
728.00	1,450	2,173	3,706	1,543

#	Routing	Invert	Outlet Devices
1	Primary	720.10'	**42.0" x 120.0' long Culvert** CMP, square edge headwall, Ke= 0.500 Outlet Invert= 700.00' S= 0.1675 '/' n= 0.024 Cc= 0.900
2	Primary	727.00'	**155.0 deg Sharp-Crested Vee/Trap Weir** C= 2.47

Primary OutFlow Max=29.17 cfs @ 12.50 hrs HW=722.18' TW=686.58' (Dynamic Tailwater)
├─**1=Culvert** (Inlet Controls 29.17 cfs @ 4.9 fps)
└─**2=Sharp-Crested Vee/Trap Weir** (Controls 0.00 cfs)

Pond zDP2: Design Point 2

Field Note #15
Culvert dimensions to be confirmed by survey
Overflow to ditch is currently discarded... We may have to model that area...

Inflow Area = 97.712 ac, Inflow Depth = 1.65" for 10-yr event
Inflow = 69.51 cfs @ 12.87 hrs, Volume= 13.464 af
Outflow = 69.49 cfs @ 12.88 hrs, Volume= 13.464 af, Atten= 0%, Lag= 0.4 min
Discarded = 35.15 cfs @ 12.88 hrs, Volume= 2.147 af
Primary = 34.34 cfs @ 12.88 hrs, Volume= 11.317 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Peak Elev= 625.75' @ 12.88 hrs Surf.Area= 1,338 sf Storage= 3,072 cf
Flood Elev= 624.50' Surf.Area= 925 sf Storage= 1,728 cf
Plug-Flow detention time= 0.5 min calculated for 13.461 af (100% of inflow)
Center-of-Mass det. time= 0.5 min (912.7 - 912.2)

#	Invert	Avail.Storage	Storage Description
1	619.60'	7,280 cf	**Custom Stage Data (Conic)** Listed below

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
619.60	0	0	0	0
620.00	10	1	1	10
622.00	260	214	215	269
624.00	760	976	1,192	793
626.00	1,420	2,146	3,338	1,492
628.00	2,580	3,943	7,280	2,694

#	Routing	Invert	Outlet Devices
1	Primary	619.60'	**24.0" x 150.0' long Culvert** RCP, end-section conforming to fill, Ke= 0.500 Outlet Invert= 608.00' S= 0.0773 '/' n= 0.012 Cc= 0.900
2	Discarded	624.50'	**166.0 deg Sharp-Crested Vee/Trap Weir** C= 2.46

Discarded OutFlow Max=35.15 cfs @ 12.88 hrs HW=625.75' (Free Discharge)
↑—**2=Sharp-Crested Vee/Trap Weir** (Weir Controls 35.15 cfs @ 2.8 fps)

Primary OutFlow Max=34.34 cfs @ 12.88 hrs HW=625.75' TW=607.67' (Dynamic Tailwater)
↑—**1=Culvert** (Inlet Controls 34.34 cfs @ 10.9 fps)

Pond zDP3: Design Point 3

Inflow Area = 212.742 ac, Inflow Depth = 19.33" for 10-yr event
Inflow = 195.74 cfs @ 12.51 hrs, Volume= 342.644 af
Primary = 195.74 cfs @ 12.51 hrs, Volume= 342.644 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

Pond zDP4: Design Point 4

Inflow Area = 489.305 ac, Inflow Depth = 1.51" for 10-yr event
Inflow = 26.91 cfs @ 20.81 hrs, Volume= 61.738 af
Primary = 26.91 cfs @ 20.81 hrs, Volume= 61.738 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

Pond zDP5: Design Point 5

Inflow Area = 28.325 ac, Inflow Depth = 2.04" for 10-yr event
Inflow = 37.09 cfs @ 12.45 hrs, Volume= 4.807 af
Primary = 37.09 cfs @ 12.45 hrs, Volume= 4.807 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

Pre-Development Conditions
25 year 24 hour Storm Event
Model Computations

Subcatchment s01:

Runoff = 16.08 cfs @ 12.60 hrs, Volume= 2.435 af, Depth= 2.54"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-yr Rainfall=5.90"

Area (ac)	CN	Description
11.485	68	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
42.8					**Direct Entry,**

Subcatchment s02:

Runoff = 98.45 cfs @ 12.87 hrs, Volume= 18.556 af, Depth= 2.28"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-yr Rainfall=5.90"

Area (ac)	CN	Description
97.712	65	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
61.3					**Direct Entry,**

Subcatchment s03:

Runoff = 26.67 cfs @ 12.41 hrs, Volume= 3.332 af, Depth= 2.63"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-yr Rainfall=5.90"

Area (ac)	CN	Description
15.174	69	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
28.8					**Direct Entry,**

Subcatchment s04:

Runoff = 29.21 cfs @ 12.10 hrs, Volume= 2.166 af, Depth= 2.28"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-yr Rainfall=5.90"

Area (ac)	CN	Description
11.403	65	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.5					**Direct Entry,**

Subcatchment s05:

Runoff = 22.89 cfs @ 12.25 hrs, Volume= 2.413 af, Depth= 1.94"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-yr Rainfall=5.90"

Area (ac)	CN	Description
14.935	61	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
17.3					**Direct Entry,**

Subcatchment s06:

Runoff = 14.52 cfs @ 12.25 hrs, Volume= 1.518 af, Depth= 2.02"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-yr Rainfall=5.90"

Area (ac)	CN	Description
9.007	62	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
17.3					**Direct Entry,**

Subcatchment s06(OW): s06 Open Water

Runoff = 3.03 cfs @ 12.00 hrs, Volume= 0.210 af, Depth= 5.90"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-yr Rainfall=5.90"

Area (ac)	CN	Description
0.428	100	

Subcatchment s07:

Runoff = 13.14 cfs @ 12.20 hrs, Volume= 1.244 af, Depth= 2.19"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-yr Rainfall=5.90"

Area (ac)	CN	Description
6.811	64	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
13.9					**Direct Entry,**

Subcatchment s07(OW): s07 Open Water

Runoff = 3.58 cfs @ 12.00 hrs, Volume= 0.249 af, Depth= 5.90"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-yr Rainfall=5.90"

Area (ac)	CN	Description
0.506	100	

Subcatchment s08:

Runoff = 37.56 cfs @ 12.33 hrs, Volume= 4.480 af, Depth= 1.69"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-yr Rainfall=5.90"

Area (ac)	CN	Description
31.719	58	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
21.8					**Direct Entry,**

Subcatchment s09:

Runoff = 16.02 cfs @ 12.23 hrs, Volume= 1.605 af, Depth= 2.28"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-yr Rainfall=5.90"

Area (ac)	CN	Description
8.452	65	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
16.4					**Direct Entry,**

Subcatchment s10:

Runoff = 13.41 cfs @ 12.40 hrs, Volume= 1.663 af, Depth= 2.45"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-yr Rainfall=5.90"

Area (ac)	CN	Description
8.130	67	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
27.9					**Direct Entry,**

Subcatchment s10(OW): s10 Open Water

Runoff = 5.88 cfs @ 12.00 hrs, Volume= 0.408 af, Depth= 5.90"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-yr Rainfall=5.90"

Area (ac)	CN	Description
0.830	100	

Subcatchment s11:

Runoff = 4.81 cfs @ 12.28 hrs, Volume= 0.519 af, Depth= 2.63"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-yr Rainfall=5.90"

Area (ac)	CN	Description
2.364	69	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
20.5					**Direct Entry,**

Subcatchment s11(IC): s11 Imp. Cover

Runoff = 15.16 cfs @ 12.04 hrs, Volume= 1.103 af, Depth= 5.66"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-yr Rainfall=5.90"

Area (ac)	CN	Description
2.338	98	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
2.8					**Direct Entry,**

Subcatchment s12:

Runoff = 4.67 cfs @ 12.65 hrs, Volume= 0.781 af, Depth= 1.46"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-yr Rainfall=5.90"

Area (ac)	CN	Description
6.420	55	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
42.0					**Direct Entry,**

Subcatchment s13:

Runoff = 0.48 cfs @ 12.14 hrs, Volume= 0.043 af, Depth= 1.46"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-yr Rainfall=5.90"

Area (ac)	CN	Description
0.350	55	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.6					**Direct Entry,**

Subcatchment s14:

Runoff = 26.14 cfs @ 12.40 hrs, Volume= 3.301 af, Depth= 2.19"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-yr Rainfall=5.90"

Area (ac)	CN	Description
18.066	64	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
28.1					**Direct Entry,**

Subcatchment s14(IC): s14 Imp. Cover

Runoff = 15.71 cfs @ 12.03 hrs, Volume= 1.123 af, Depth= 5.66"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-yr Rainfall=5.90"

Area (ac)	CN	Description
2.380	98	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
2.3					**Direct Entry,**

Subcatchment s14(OW): s14 Open Water

Runoff = 3.67 cfs @ 12.00 hrs, Volume= 0.255 af, Depth= 5.90"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-yr Rainfall=5.90"

Area (ac)	CN	Description
0.518	100	

Subcatchment s15:

Runoff = 0.92 cfs @ 12.21 hrs, Volume= 0.104 af, Depth= 1.16"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-yr Rainfall=5.90"

Area (ac)	CN	Description
1.068	51	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
13.1					**Direct Entry,**

Subcatchment s16:

Runoff = 118.67 cfs @ 12.32 hrs, Volume= 13.408 af, Depth= 2.37"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-yr Rainfall=5.90"

Area (ac)	CN	Description
67.994	66	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
22.3					**Direct Entry,**

Subcatchment s16(IC): s16 Imp.Cover

Runoff = 16.98 cfs @ 12.04 hrs, Volume= 1.240 af, Depth= 5.66"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-yr Rainfall=5.90"

Area (ac)	CN	Description
2.629	98	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
2.9					**Direct Entry,**

Subcatchment s16(OW): s16 Open Water

Runoff = 37.90 cfs @ 12.00 hrs, Volume= 2.631 af, Depth= 5.90"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-yr Rainfall=5.90"

Area (ac)	CN	Description
5.351	100	

Subcatchment s17:

Runoff = 75.65 cfs @ 13.77 hrs, Volume= 22.841 af, Depth= 2.37"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-yr Rainfall=5.90"

Area (ac)	CN	Description
115.827	66	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
125.2					**Direct Entry,**

Subcatchment s17(OW): s17 Open Water

Runoff = 1.16 cfs @ 12.00 hrs, Volume= 0.081 af, Depth= 5.90"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-yr Rainfall=5.90"

Area (ac)	CN	Description
0.164	100	

Subcatchment s18:

Runoff = 39.64 cfs @ 12.34 hrs, Volume= 4.634 af, Depth= 2.45"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-yr Rainfall=5.90"

Area (ac)	CN	Description
22.654	67	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
24.4					**Direct Entry,**

Subcatchment s18(OW): s18 Open Water

Runoff = 3.34 cfs @ 12.00 hrs, Volume= 0.232 af, Depth= 5.90"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-yr Rainfall=5.90"

Area (ac)	CN	Description
0.472	100	

Subcatchment s19:

Runoff = 15.56 cfs @ 12.61 hrs, Volume= 2.401 af, Depth= 1.86"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-yr Rainfall=5.90"

Area (ac)	CN	Description
15.520	60	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
40.4					**Direct Entry,**

Subcatchment s20:

Runoff = 30.46 cfs @ 12.47 hrs, Volume= 4.096 af, Depth= 2.63"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-yr Rainfall=5.90"

Area (ac)	CN	Description
18.655	69	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
33.9					**Direct Entry,**

Subcatchment s20(OW): s20 Open Water

Runoff = 13.94 cfs @ 12.00 hrs, Volume= 0.968 af, Depth= 5.90"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-yr Rainfall=5.90"

Area (ac)	CN	Description
1.968	100	

Subcatchment s21:

Runoff = 168.20 cfs @ 12.38 hrs, Volume= 20.366 af, Depth= 2.54"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-yr Rainfall=5.90"

Area (ac)	CN	Description
96.056	68	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
26.7					**Direct Entry,**

Subcatchment s21(OW):

Runoff = 86.66 cfs @ 12.00 hrs, Volume= 6.016 af, Depth= 5.90"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-yr Rainfall=5.90"

Area (ac)	CN	Description
12.235	100	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.0					**Direct Entry,**

Subcatchment s22:

Runoff = 139.25 cfs @ 12.45 hrs, Volume= 18.067 af, Depth= 2.63"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-yr Rainfall=5.90"

Area (ac)	CN	Description
82.287	69	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
31.3					**Direct Entry,**

Subcatchment s22(OW): s22 Open Water

Runoff = 0.96 cfs @ 12.00 hrs, Volume= 0.067 af, Depth= 5.90"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-yr Rainfall=5.90"

Area (ac)	CN	Description
0.136	100	

Subcatchment s23:

Runoff = 63.82 cfs @ 12.68 hrs, Volume= 10.091 af, Depth= 2.91"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-yr Rainfall=5.90"

Area (ac)	CN	Description
41.587	72	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
47.0					**Direct Entry,**

Subcatchment s24:

Runoff = 50.24 cfs @ 12.45 hrs, Volume= 6.435 af, Depth= 2.73"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-yr Rainfall=5.90"

Area (ac)	CN	Description
28.325	70	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
30.7					**Direct Entry,**

Subcatchment s25:

Runoff = 24.65 cfs @ 12.28 hrs, Volume= 2.674 af, Depth= 2.37"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-yr Rainfall=5.90"

Area (ac)	CN	Description
13.562	66	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
20.2					**Direct Entry,**

Reach r03:

Overland Flow Reach
Requires more survey

Inflow Area = 11.485 ac, Inflow Depth = 2.54" for 25-yr event
Inflow = 16.08 cfs @ 12.60 hrs, Volume= 2.435 af
Outflow = 16.00 cfs @ 12.64 hrs, Volume= 2.435 af, Atten= 1%, Lag= 2.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Max. Velocity= 5.5 fps, Min. Travel Time= 2.4 min
Avg. Velocity = 2.1 fps, Avg. Travel Time= 6.3 min

Peak Depth= 0.66' @ 12.64 hrs
Capacity at bank full= 92.14 cfs
Inlet Invert= 845.00', Outlet Invert= 728.00'
10.00' x 1.50' deep Parabolic Channel, n= 0.060 Length= 785.0' Slope= 0.1490 '/'

Reach r04:

Channel

Inflow Area = 26.659 ac, Inflow Depth = 2.60" for 25-yr event
Inflow = 40.11 cfs @ 12.48 hrs, Volume= 5.767 af
Outflow = 40.03 cfs @ 12.51 hrs, Volume= 5.767 af, Atten= 0%, Lag= 1.3 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Max. Velocity= 7.1 fps, Min. Travel Time= 1.6 min
Avg. Velocity = 2.7 fps, Avg. Travel Time= 4.2 min

Peak Depth= 1.26' @ 12.51 hrs
Capacity at bank full= 446.15 cfs
Inlet Invert= 685.50', Outlet Invert= 608.00'
12.00' x 4.00' deep Parabolic Channel, n= 0.060 Length= 675.0' Slope= 0.1148 '/'

Reach r08a:

Man Made Ditch
Inverts of pipe to be surveyed

Inflow Area = 97.712 ac, Inflow Depth = 1.71" for 25-yr event
Inflow = 35.41 cfs @ 12.88 hrs, Volume= 13.933 af
Outflow = 35.41 cfs @ 12.88 hrs, Volume= 13.933 af, Atten= 0%, Lag= 0.3 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Max. Velocity= 9.5 fps, Min. Travel Time= 0.4 min
Avg. Velocity = 5.4 fps, Avg. Travel Time= 0.7 min

Peak Depth= 0.68' @ 12.88 hrs
Capacity at bank full= 81.88 cfs
Inlet Invert= 607.00', Outlet Invert= 587.00'
10.00' x 1.00' deep Parabolic Channel, n= 0.027 Length= 226.0' Slope= 0.0885 '/'

Reach r08b:

24" HDPE
Inverts to be surveyed

Inflow Area = 97.712 ac, Inflow Depth = 1.71" for 25-yr event
Inflow = 35.41 cfs @ 12.88 hrs, Volume= 13.933 af
Outflow = 35.41 cfs @ 12.89 hrs, Volume= 13.933 af, Atten= 0%, Lag= 0.2 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Max. Velocity= 24.0 fps, Min. Travel Time= 0.2 min
Avg. Velocity = 14.1 fps, Avg. Travel Time= 0.3 min

Peak Depth= 0.95' @ 12.89 hrs
Capacity at bank full= 77.17 cfs
Inlet Invert= 587.00', Outlet Invert= 557.75'
24.0" Diameter Pipe n= 0.012 Length= 295.0' Slope= 0.0992 '/'

Reach r08c:

Ditch
Pipe inverts to be surveyed

Inflow Area = 97.712 ac, Inflow Depth = 1.71" for 25-yr event
Inflow = 35.41 cfs @ 12.89 hrs, Volume= 13.933 af
Outflow = 35.41 cfs @ 12.90 hrs, Volume= 13.933 af, Atten= 0%, Lag= 0.6 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Max. Velocity= 9.1 fps, Min. Travel Time= 1.1 min
Avg. Velocity = 4.9 fps, Avg. Travel Time= 2.0 min

Peak Depth= 0.70' @ 12.90 hrs
Capacity at bank full= 76.65 cfs
Inlet Invert= 557.75', Outlet Invert= 512.00'
10.00' x 1.00' deep Parabolic Channel, n= 0.027 Length= 590.0' Slope= 0.0775 '/'

Reach r08d: Amenia Stream/Cascade Brook

(Steam) parallel to Route 22
Base Flow estimated from field observation (see field note 21)

Inflow Area = 97.712 ac, Inflow Depth = 21.20" for 25-yr event
Inflow = 75.41 cfs @ 12.90 hrs, Volume= 172.644 af, Incl. 40.00 cfs Base Flow
Outflow = 75.39 cfs @ 12.94 hrs, Volume= 172.400 af, Atten= 0%, Lag= 2.6 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Max. Velocity= 3.6 fps, Min. Travel Time= 3.7 min
Avg. Velocity = 3.1 fps, Avg. Travel Time= 4.3 min

Peak Depth= 3.41' @ 12.94 hrs
Capacity at bank full= 104.49 cfs
Inlet Invert= 512.00', Outlet Invert= 504.00'
10.00' x 4.00' deep Parabolic Channel, n= 0.060 Length= 805.0' Slope= 0.0099 '/'

Reach r14a:

Grass lined channel

Inflow Area = 8.452 ac, Inflow Depth = 2.22" for 25-yr event
Inflow = 13.21 cfs @ 12.36 hrs, Volume= 1.566 af
Outflow = 13.20 cfs @ 12.37 hrs, Volume= 1.566 af, Atten= 0%, Lag= 0.7 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Max. Velocity= 6.5 fps, Min. Travel Time= 0.9 min
Avg. Velocity = 1.6 fps, Avg. Travel Time= 3.7 min

Peak Depth= 0.66' @ 12.37 hrs
Capacity at bank full= 325.42 cfs
Inlet Invert= 542.00', Outlet Invert= 526.00'
10.00' x 3.00' deep Parabolic Channel, n= 0.027 Length= 360.0' Slope= 0.0444 '/'

Reach r14b:

30" HDPE Under Main Entrance Road

Inflow Area = 8.452 ac, Inflow Depth = 2.22" for 25-yr event
Inflow = 13.20 cfs @ 12.37 hrs, Volume= 1.566 af
Outflow = 13.19 cfs @ 12.38 hrs, Volume= 1.566 af, Atten= 0%, Lag= 0.4 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Max. Velocity= 13.6 fps, Min. Travel Time= 0.5 min
Avg. Velocity = 3.4 fps, Avg. Travel Time= 2.2 min

Peak Depth= 0.63' @ 12.38 hrs
Capacity at bank full= 94.91 cfs
Inlet Invert= 526.00', Outlet Invert= 505.70'
30.0" Diameter Pipe n= 0.012 Length= 445.0' Slope= 0.0456 '/'

Reach r14c:

Overland Flow

Inflow Area = 6.420 ac, Inflow Depth = 0.52" for 25-yr event
Inflow = 0.55 cfs @ 16.49 hrs, Volume= 0.278 af
Outflow = 0.55 cfs @ 16.65 hrs, Volume= 0.278 af, Atten= 1%, Lag= 9.7 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Max. Velocity= 0.9 fps, Min. Travel Time= 10.6 min
Avg. Velocity = 0.4 fps, Avg. Travel Time= 22.8 min

Peak Depth= 0.07' @ 16.65 hrs
Capacity at bank full= 178.07 cfs
Inlet Invert= 544.00', Outlet Invert= 498.00'
50.00' x 1.00' deep Parabolic Channel, n= 0.060 Length= 575.0' Slope= 0.0800 '/'

Reach r15:

Brush Overbanks with Rocky Bottom
Needs to be surveyed

Inflow Area = 4.702 ac, Inflow Depth = 4.14" for 25-yr event
Inflow = 16.62 cfs @ 12.06 hrs, Volume= 1.622 af
Outflow = 16.57 cfs @ 12.06 hrs, Volume= 1.622 af, Atten= 0%, Lag= 0.4 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Max. Velocity= 10.1 fps, Min. Travel Time= 0.5 min
Avg. Velocity = 3.5 fps, Avg. Travel Time= 1.4 min

Peak Depth= 0.90' @ 12.06 hrs
Capacity at bank full= 188.47 cfs
Inlet Invert= 554.00', Outlet Invert= 528.00'
5.00' x 3.00' deep Parabolic Channel, n= 0.027 Length= 290.0' Slope= 0.0897 '/'

Reach r16:

Pipe Reach

Inflow Area = 4.702 ac, Inflow Depth = 4.14" for 25-yr event
Inflow = 17.06 cfs @ 12.04 hrs, Volume= 1.622 af
Outflow = 16.62 cfs @ 12.06 hrs, Volume= 1.622 af, Atten= 3%, Lag= 1.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Max. Velocity= 11.2 fps, Min. Travel Time= 1.3 min
Avg. Velocity = 3.8 fps, Avg. Travel Time= 3.8 min

Peak Depth= 0.85' @ 12.06 hrs
Capacity at bank full= 66.05 cfs
Inlet Invert= 573.00', Outlet Invert= 554.00'
30.0" Diameter Pipe n= 0.012 Length= 860.0' Slope= 0.0221 '/'

Reach r18a:

Overland Flow Reach

Inflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Outflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Max. Velocity= 0.0 fps, Min. Travel Time= 0.0 min
Avg. Velocity = 0.0 fps, Avg. Travel Time= 0.0 min

Peak Depth= 0.00' @ 0.00 hrs
Capacity at bank full= 379.63 cfs
Inlet Invert= 973.60', Outlet Invert= 530.00'
50.00' x 1.00' deep Parabolic Channel, n= 0.060 Length= 1,220.0' Slope= 0.3636 '/'

Reach r18b:

Overland Flow Reach

Inflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Outflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Max. Velocity= 0.0 fps, Min. Travel Time= 0.0 min
Avg. Velocity = 0.0 fps, Avg. Travel Time= 0.0 min

Peak Depth= 0.00' @ 0.00 hrs
Capacity at bank full= 151.94 cfs
Inlet Invert= 530.60', Outlet Invert= 514.00'
50.00' x 1.00' deep Parabolic Channel, n= 0.060 Length= 285.0' Slope= 0.0582 '/'

Reach r21a:

Man Made Ditch

Inflow Area = 241.484 ac, Inflow Depth = 1.93" for 25-yr event
Inflow = 74.47 cfs @ 14.84 hrs, Volume= 38.888 af
Outflow = 74.46 cfs @ 14.86 hrs, Volume= 38.875 af, Atten= 0%, Lag= 1.1 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Max. Velocity= 7.4 fps, Min. Travel Time= 1.5 min
Avg. Velocity = 3.2 fps, Avg. Travel Time= 3.4 min

Peak Depth= 1.90' @ 14.86 hrs
Capacity at bank full= 191.76 cfs
Inlet Invert= 504.00', Outlet Invert= 494.00'
10.00' x 3.00' deep Parabolic Channel, n= 0.027 Length= 648.0' Slope= 0.0154 '/'

Reach r21b:

Grass Ditch
Geometry to be confirmed by survey (inverts at pipe)

Inflow Area = 97.943 ac, Inflow Depth = 2.48" for 25-yr event
Inflow = 139.51 cfs @ 12.49 hrs, Volume= 20.234 af
Outflow = 139.49 cfs @ 12.50 hrs, Volume= 20.234 af, Atten= 0%, Lag= 0.3 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Max. Velocity= 10.2 fps, Min. Travel Time= 0.4 min
Avg. Velocity = 2.4 fps, Avg. Travel Time= 1.6 min

Peak Depth= 1.55' @ 12.50 hrs
Capacity at bank full= 239.90 cfs
Inlet Invert= 499.00', Outlet Invert= 491.10'
15.00' x 2.00' deep Parabolic Channel, n= 0.027 Length= 230.0' Slope= 0.0343 '/'

Reach r21c:

Overland Flow Reach

Inflow Area = 41.587 ac, Inflow Depth = 2.65" for 25-yr event
Inflow = 63.81 cfs @ 12.68 hrs, Volume= 9.172 af
Outflow = 63.81 cfs @ 12.69 hrs, Volume= 9.172 af, Atten= 0%, Lag= 0.3 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Max. Velocity= 4.6 fps, Min. Travel Time= 0.6 min
Avg. Velocity = 1.8 fps, Avg. Travel Time= 1.5 min

Peak Depth= 0.56' @ 12.69 hrs
Capacity at bank full= 227.81 cfs
Inlet Invert= 506.70', Outlet Invert= 485.75'
50.00' x 1.00' deep Parabolic Channel, n= 0.060 Length= 160.0' Slope= 0.1309 '/'

Reach r22a:

Overland Flow Reach

Inflow Area = 15.520 ac, Inflow Depth = 1.86" for 25-yr event
Inflow = 9.63 cfs @ 13.01 hrs, Volume= 2.400 af
Outflow = 9.58 cfs @ 13.07 hrs, Volume= 2.400 af, Atten= 0%, Lag= 3.2 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Max. Velocity= 3.9 fps, Min. Travel Time= 4.2 min
Avg. Velocity = 1.2 fps, Avg. Travel Time= 13.2 min

Peak Depth= 0.18' @ 13.07 hrs
Capacity at bank full= 409.31 cfs
Inlet Invert= 970.00', Outlet Invert= 560.00'
50.00' x 1.00' deep Parabolic Channel, n= 0.060 Length= 970.0' Slope= 0.4227 '/'

Reach r22b:

Overland Flow Reach

Inflow Area = 15.520 ac, Inflow Depth = 1.86" for 25-yr event
Inflow = 9.58 cfs @ 13.07 hrs, Volume= 2.400 af
Outflow = 9.52 cfs @ 13.13 hrs, Volume= 2.399 af, Atten= 1%, Lag= 3.8 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Max. Velocity= 2.1 fps, Min. Travel Time= 4.8 min
Avg. Velocity = 0.7 fps, Avg. Travel Time= 15.7 min

Peak Depth= 0.26' @ 13.13 hrs
Capacity at bank full= 175.17 cfs
Inlet Invert= 560.00', Outlet Invert= 512.00'
50.00' x 1.00' deep Parabolic Channel, n= 0.060 Length= 620.0' Slope= 0.0774 '/'

Reach r25a:

Ditch
Pipe inverts need to be surveyed

Inflow Area = 60.314 ac, Inflow Depth = 2.34" for 25-yr event
Inflow = 74.28 cfs @ 12.40 hrs, Volume= 11.742 af
Outflow = 74.14 cfs @ 12.42 hrs, Volume= 11.741 af, Atten= 0%, Lag= 1.2 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Max. Velocity= 11.4 fps, Min. Travel Time= 1.6 min
Avg. Velocity = 2.4 fps, Avg. Travel Time= 7.5 min

Peak Depth= 1.24' @ 12.42 hrs
Capacity at bank full= 205.50 cfs
Inlet Invert= 570.00', Outlet Invert= 504.00'
10.00' x 2.00' deep Parabolic Channel, n= 0.027 Length= 1,090.0' Slope= 0.0606 '/'

Reach r25b: Wetland Reach

Wetland Reach
Has wetland vegetation within reach

Inflow Area = 9.435 ac, Inflow Depth = 2.16" for 25-yr event
Inflow = 13.69 cfs @ 12.35 hrs, Volume= 1.699 af
Outflow = 12.38 cfs @ 12.45 hrs, Volume= 1.699 af, Atten= 10%, Lag= 6.4 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Max. Velocity= 1.8 fps, Min. Travel Time= 6.9 min
Avg. Velocity = 0.4 fps, Avg. Travel Time= 27.9 min

Peak Depth= 0.92' @ 12.45 hrs
Capacity at bank full= 156.51 cfs
Inlet Invert= 504.00', Outlet Invert= 499.50'
20.00' x 3.00' deep Parabolic Channel, n= 0.045 Length= 750.0' Slope= 0.0060 '/'

Reach r25c: Amenia Stream/Cascade Brook

(Steam) parallel to Route 22
Base Flow estimated from field observation (see field note 21)

Inflow Area = 129.431 ac, Inflow Depth = 31.11" for 25-yr event
Inflow = 146.68 cfs @ 12.41 hrs, Volume= 335.591 af, Incl. 40.00 cfs Base Flow
Outflow = 144.18 cfs @ 12.51 hrs, Volume= 334.909 af, Atten= 2%, Lag= 5.9 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Max. Velocity= 2.9 fps, Min. Travel Time= 5.6 min
Avg. Velocity = 2.7 fps, Avg. Travel Time= 6.1 min

Peak Depth= 6.27' @ 12.51 hrs
Capacity at bank full= 67.14 cfs
Inlet Invert= 504.00', Outlet Invert= 500.00'
10.00' x 4.00' deep Parabolic Channel, n= 0.060 Length= 975.0' Slope= 0.0041 '/'

Pond 8P:

No field note.
Water spills over cart path; no storage.

Inflow Area = 52.997 ac, Inflow Depth = 2.33" for 25-yr event
Inflow = 67.94 cfs @ 12.36 hrs, Volume= 10.279 af
Outflow = 67.94 cfs @ 12.36 hrs, Volume= 10.279 af, Atten= 0%, Lag= 0.0 min
Primary = 67.94 cfs @ 12.36 hrs, Volume= 10.279 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Peak Elev= 575.58' @ 12.36 hrs
Flood Elev= 574.70'
Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= (not calculated)

#	Routing	Invert	Outlet Devices
1	Primary	574.70'	**177.0 deg Sharp-Crested Vee/Trap Weir** C= 2.46

Primary OutFlow Max=67.94 cfs @ 12.36 hrs HW=575.58' TW=571.23' (Dynamic Tailwater)
└─**1=Sharp-Crested Vee/Trap Weir** (Weir Controls 67.94 cfs @ 2.3 fps)

Pond p04:

Field Note #13

Water ponding behind a golf cart path. Overflow dimensions are assumed based on aerial topo, and should be upgraded once survey is available.

Inflow Area = 38.062 ac, Inflow Depth = 2.50" for 25-yr event
Inflow = 49.26 cfs @ 12.43 hrs, Volume= 7.932 af
Outflow = 49.26 cfs @ 12.44 hrs, Volume= 7.866 af, Atten= 0%, Lag= 0.2 min
Primary = 49.26 cfs @ 12.44 hrs, Volume= 7.866 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Peak Elev= 606.00' @ 12.44 hrs Surf.Area= 6,641 sf Storage= 3,985 cf
Flood Elev= 605.50' Surf.Area= 4,803 sf Storage= 2,882 cf
Plug-Flow detention time= 8.1 min calculated for 7.866 af (99% of inflow)
Center-of-Mass det. time= 3.0 min (870.5 - 867.5)

#	Invert	Avail.Storage	Storage Description
1	604.20'	26,897 cf	**Custom Stage Data (Conic)** Listed below

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
604.20	0	0	0	0
606.00	6,650	3,990	3,990	6,655
608.00	17,060	22,907	26,897	17,092

#	Routing	Invert	Outlet Devices
1	Primary	605.50'	**179.0 deg Sharp-Crested Vee/Trap Weir** C= 2.46

Primary OutFlow Max=49.25 cfs @ 12.44 hrs HW=606.00' TW=575.57' (Dynamic Tailwater)
└─**1=Sharp-Crested Vee/Trap Weir** (Weir Controls 49.25 cfs @ 1.7 fps)

Pond p06:

Field Note #22
Geometry to be confirmed by survey.

Inflow Area = 9.435 ac, Inflow Depth = 2.20" for 25-yr event
Inflow = 15.39 cfs @ 12.25 hrs, Volume= 1.728 af
Outflow = 13.69 cfs @ 12.35 hrs, Volume= 1.699 af, Atten= 11%, Lag= 5.9 min
Primary = 13.69 cfs @ 12.35 hrs, Volume= 1.699 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Starting Elev= 506.80' Surf.Area= 18,600 sf Storage= 42,160 cf
Peak Elev= 507.48' @ 12.35 hrs Surf.Area= 21,671 sf Storage= 56,585 cf (14,425 cf above start)
Flood Elev= 507.10' Surf.Area= 19,958 sf Storage= 48,537 cf (6,377 cf above start)
Plug-Flow detention time= 507.9 min calculated for 0.732 af (42% of inflow)
Center-of-Mass det. time= 111.5 min (962.4 - 851.0)

#	Invert	Avail.Storage	Storage Description
1	500.00'	67,669 cf	**Custom Stage Data (Conic)** Listed below

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
500.00	0	0	0	0
506.80	18,600	42,160	42,160	18,672
508.00	24,030	25,509	67,669	24,138

#	Routing	Invert	Outlet Devices
1	Primary	506.80'	**12.0" x 20.0' long Culvert** CMP, projecting, no headwall, Ke= 0.900 Outlet Invert= 506.00' S= 0.0400 '/' n= 0.024 Cc= 0.900
2	Primary	507.10'	**178.0 deg Sharp-Crested Vee/Trap Weir** C= 2.46

Primary OutFlow Max=13.68 cfs @ 12.35 hrs HW=507.48' TW=504.85' (Dynamic Tailwater)
├─**1=Culvert** (Inlet Controls 1.26 cfs @ 2.2 fps)
└─**2=Sharp-Crested Vee/Trap Weir** (Weir Controls 12.43 cfs @ 1.5 fps)

Pond p07:

Field Note # 29
Outlet geometry to be confirmed by survey.

Inflow Area = 7.317 ac, Inflow Depth = 2.45" for 25-yr event
Inflow = 14.31 cfs @ 12.19 hrs, Volume= 1.493 af
Outflow = 7.50 cfs @ 12.49 hrs, Volume= 1.463 af, Atten= 48%, Lag= 17.7 min
Primary = 7.50 cfs @ 12.49 hrs, Volume= 1.463 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Starting Elev= 572.80' Surf.Area= 21,640 sf Storage= 56,264 cf
Peak Elev= 573.73' @ 12.49 hrs Surf.Area= 25,998 sf Storage= 78,858 cf (22,594 cf above start)
Flood Elev= 573.50' Surf.Area= 24,936 sf Storage= 73,351 cf (17,087 cf above start)
Plug-Flow detention time= 1,125.3 min calculated for 0.171 af (11% of inflow)
Center-of-Mass det. time= 176.0 min (1,013.4 - 837.4)

#	Invert	Avail.Storage	Storage Description
1	565.00'	85,557 cf	**Custom Stage Data (Conic)** Listed below

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
565.00	0	0	0	0
572.80	21,640	56,264	56,264	21,735
574.00	27,290	29,293	85,557	27,424

#	Routing	Invert	Outlet Devices
1	Primary	572.80'	**18.0" x 20.0' long Culvert** CMP, projecting, no headwall, Ke= 0.900 Outlet Invert= 572.00' S= 0.0400 '/' n= 0.024 Cc= 0.900
2	Primary	573.50'	**177.0 deg Sharp-Crested Vee/Trap Weir X 2.00** C= 2.46

Primary OutFlow Max=7.50 cfs @ 12.49 hrs HW=573.73' TW=571.22' (Dynamic Tailwater)
1=Culvert (Inlet Controls 2.96 cfs @ 2.6 fps)
2=Sharp-Crested Vee/Trap Weir (Weir Controls 4.54 cfs @ 1.2 fps)

Pond p09:

Field Note #31
Geometry to be confirmed by survey.

Inflow Area = 8.452 ac, Inflow Depth = 2.28" for 25-yr event
Inflow = 16.02 cfs @ 12.23 hrs, Volume= 1.605 af
Outflow = 13.21 cfs @ 12.36 hrs, Volume= 1.566 af, Atten= 18%, Lag= 7.8 min
Primary = 13.21 cfs @ 12.36 hrs, Volume= 1.566 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Peak Elev= 550.26' @ 12.36 hrs Surf.Area= 6,173 sf Storage= 8,277 cf
Flood Elev= 551.20' Surf.Area= 8,534 sf Storage= 15,673 cf
Plug-Flow detention time= 34.8 min calculated for 1.566 af (98% of inflow)
Center-of-Mass det. time= 21.2 min (882.0 - 860.7)

#	Invert	Avail.Storage	Storage Description
1	547.50'	21,989 cf	**Custom Stage Data (Conic)** Listed below

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
547.50	0	0	0	0
548.00	1,080	180	180	1,080
550.00	5,510	6,020	6,200	5,527
552.00	10,550	15,790	21,989	10,606

#	Routing	Invert	Outlet Devices
1	Primary	548.50'	**30.0" x 70.0' long Culvert** CMP, projecting, no headwall, Ke= 0.900 Outlet Invert= 542.00' S= 0.0929 '/' n= 0.012 Cc= 0.900
2	Primary	551.20'	**168.0 deg Sharp-Crested Vee/Trap Weir** C= 2.46

Primary OutFlow Max=13.21 cfs @ 12.36 hrs HW=550.26' TW=542.65' (Dynamic Tailwater)
—**1=Culvert** (Inlet Controls 13.21 cfs @ 3.6 fps)
—**2=Sharp-Crested Vee/Trap Weir** (Controls 0.00 cfs)

Pond p10:

Field Note #25
Need to get full story on how this pond works

Inflow Area = 45.146 ac, Inflow Depth = 0.91" for 25-yr event
Inflow = 14.48 cfs @ 12.37 hrs, Volume= 3.415 af
Outflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Atten= 100%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Starting Elev= 498.40' Surf.Area= 36,110 sf Storage= 101,108 cf
Peak Elev= 501.77' @ 48.00 hrs Surf.Area= 53,467 sf Storage= 249,873 cf (148,765 cf above start)
Plug-Flow detention time= (not calculated)
Center-of-Mass det. time= (not calculated)

#	Invert	Avail.Storage	Storage Description
1	490.00'	581,029 cf	**Custom Stage Data (Conic)** Listed below

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
490.00	0	0	0	0
498.40	36,110	101,108	101,108	36,221
500.00	42,400	62,741	163,849	42,610
502.00	54,880	97,012	260,861	55,187
504.00	78,730	132,895	393,755	79,107
506.00	109,382	187,274	581,029	109,836

Pond p12:

No field note.
Natural depression.

Inflow Area = 6.420 ac, Inflow Depth = 1.46" for 25-yr event
Inflow = 4.67 cfs @ 12.65 hrs, Volume= 0.781 af
Outflow = 0.55 cfs @ 16.49 hrs, Volume= 0.278 af, Atten= 88%, Lag= 230.1 min
Primary = 0.55 cfs @ 16.49 hrs, Volume= 0.278 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Peak Elev= 547.68' @ 16.49 hrs Surf.Area= 14,878 sf Storage= 23,643 cf
Flood Elev= 547.50' Surf.Area= 13,848 sf Storage= 21,762 cf
Plug-Flow detention time= 449.9 min calculated for 0.278 af (36% of inflow)
Center-of-Mass det. time= 296.8 min (1,208.6 - 911.8)

#	Invert	Avail.Storage	Storage Description
1	543.50'	26,986 cf	**Custom Stage Data (Conic)** Listed below

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
543.50	0	0	0	0
544.00	1,140	190	190	1,140
546.00	5,260	5,899	6,089	5,278
548.00	16,710	20,897	26,986	16,750

#	Routing	Invert	Outlet Devices
1	Primary	547.50'	**173.0 deg Sharp-Crested Vee/Trap Weir** C= 2.46

Primary OutFlow Max=0.55 cfs @ 16.49 hrs HW=547.68' TW=544.07' (Dynamic Tailwater)
└─**1=Sharp-Crested Vee/Trap Weir** (Weir Controls 0.55 cfs @ 1.0 fps)

Pond p13:

No Field Note
Natural depression.

Inflow Area = 0.350 ac, Inflow Depth = 1.46" for 25-yr event
Inflow = 0.48 cfs @ 12.14 hrs, Volume= 0.043 af
Outflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Atten= 100%, Lag= 0.0 min
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Peak Elev= 514.07' @ 24.49 hrs Surf.Area= 1,389 sf Storage= 1,856 cf
Flood Elev= 519.50' Surf.Area= 4,313 sf Storage= 16,523 cf
Plug-Flow detention time= (not calculated)
Center-of-Mass det. time= (not calculated)

#	Invert	Avail.Storage	Storage Description
1	511.40'	18,490 cf	**Custom Stage Data (Conic)** Listed below

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
511.40	0	0	0	0
512.00	390	78	78	391
514.00	1,360	1,652	1,730	1,381
516.00	2,180	3,508	5,238	2,253
518.00	3,240	5,385	10,623	3,375
520.00	4,670	7,867	18,490	4,872

#	Routing	Invert	Outlet Devices
1	Primary	519.50'	**176.0 deg Sharp-Crested Vee/Trap Weir** C= 2.46

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=511.40' TW=497.40' (Dynamic Tailwater)
└─**1=Sharp-Crested Vee/Trap Weir** (Controls 0.00 cfs)

Pond p14:

Field Note #26
Need to figure out how this pond works

Inflow Area = 36.186 ac, Inflow Depth = 2.16" for 25-yr event
Inflow = 43.40 cfs @ 12.39 hrs, Volume= 6.522 af
Outflow = 1.41 cfs @ 23.79 hrs, Volume= 1.344 af, Atten= 97%, Lag= 684.1 min
Primary = 1.41 cfs @ 23.79 hrs, Volume= 1.344 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Starting Elev= 497.40' Surf.Area= 22,200 sf Storage= 54,760 cf
Peak Elev= 502.49' @ 23.79 hrs Surf.Area= 75,975 sf Storage= 309,505 cf (254,745 cf above start)
Plug-Flow detention time= 2,325.3 min calculated for 0.087 af (1% of inflow)
Center-of-Mass det. time= 728.2 min (1,590.8 - 862.6)

#	Invert	Avail.Storage	Storage Description
1	490.00'	805,062 cf	**Custom Stage Data (Conic)** Listed below

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
490.00	0	0	0	0
497.40	22,200	54,760	54,760	22,286
498.00	25,330	14,249	69,009	25,433
500.00	52,810	76,476	145,485	52,948
502.00	73,360	125,608	271,093	73,574
504.00	84,070	157,308	428,402	84,467
506.00	92,130	176,139	604,540	92,797
508.00	108,618	200,522	805,062	109,437

#	Routing	Invert	Outlet Devices
1	Primary	500.00'	**24.0" x 80.0' long Culvert** CPP, end-section conforming to fill, Ke= 0.500 Outlet Invert= 502.00' S= -0.0250 '/' n= 0.012 Cc= 0.900

Primary OutFlow Max=1.41 cfs @ 23.79 hrs HW=502.49' TW=501.05' (Dynamic Tailwater)
└─**1=Culvert** (Inlet Controls 1.41 cfs @ 2.4 fps)

Pond p15:

Field Note # 43
Infiltration basin

Inflow Area = 5.770 ac, Inflow Depth = 3.59" for 25-yr event
Inflow = 16.94 cfs @ 12.07 hrs, Volume= 1.726 af
Outflow = 16.83 cfs @ 12.07 hrs, Volume= 1.470 af, Atten= 1%, Lag= 0.6 min
Primary = 16.83 cfs @ 12.07 hrs, Volume= 1.470 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Peak Elev= 536.22' @ 12.07 hrs Surf.Area= 3,289 sf Storage= 11,955 cf
Flood Elev= 536.00' Surf.Area= 3,160 sf Storage= 11,127 cf
Plug-Flow detention time= 119.0 min calculated for 1.470 af (85% of inflow)

Center-of-Mass det. time= 51.4 min (840.3 - 788.9)

#	Invert	Avail.Storage	Storage Description
1	526.80'	18,577 cf	**Custom Stage Data (Conic)** Listed below

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
526.80	0	0	0	0
528.00	310	124	124	312
530.00	660	948	1,072	694
532.00	1,180	1,815	2,887	1,256
534.00	1,990	3,135	6,022	2,113
536.00	3,160	5,105	11,127	3,337
538.00	4,320	7,450	18,577	4,575

#	Routing	Invert	Outlet Devices
1	Primary	536.00'	**171.0 deg x 50.0' long Sharp-Crested Vee/Trap Weir** C= 2.46

Primary OutFlow Max=16.79 cfs @ 12.07 hrs HW=536.22' TW=507.88' (Dynamic Tailwater)
└—**1=Sharp-Crested Vee/Trap Weir** (Weir Controls 16.79 cfs @ 1.4 fps)

Pond p16:

Field Note # 49
Large pond with man-made island.
Geometry to be verified by survey. In particular, we are making big guesses about the outlets.
Also need to find out about valves...

Inflow Area = 220.861 ac, Inflow Depth = 2.53" for 25-yr event
Inflow = 171.50 cfs @ 12.37 hrs, Volume= 46.533 af
Outflow = 70.70 cfs @ 14.75 hrs, Volume= 34.668 af, Atten= 59%, Lag= 142.8 min
Primary = 70.70 cfs @ 14.75 hrs, Volume= 34.668 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Starting Elev= 507.00' Surf.Area= 199,799 sf Storage= 878,320 cf
Peak Elev= 511.29' @ 14.75 hrs Surf.Area= 306,516 sf Storage= 1,854,149 cf (975,829 cf above start)
Flood Elev= 510.50' Surf.Area= 271,550 sf Storage= 1,623,217 cf (744,897 cf above start)
Plug-Flow detention time= 970.7 min calculated for 14.505 af (31% of inflow)
Center-of-Mass det. time= 352.4 min (1,271.0 - 918.7)

#	Invert	Avail.Storage	Storage Description
1	500.00'	2,062,087 cf	**Custom Stage Data (Conic)** Listed below

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
500.00	0	0	0	0
503.00	140,344	140,344	140,344	140,358
509.20	232,500	1,143,862	1,284,206	232,994
510.00	249,400	192,720	1,476,927	249,951
512.00	338,000	585,160	2,062,087	338,634

#	Routing	Invert	Outlet Devices
1	Primary	509.00'	**18.0" x 110.0' long Culvert** CMP, projecting, no headwall, Ke= 0.900 Outlet Invert= 505.70' S= 0.0300 '/' n= 0.024 Cc= 0.900
2	Primary	500.00'	**8.0" x 100.0' long assumed equalization pipe w/ valve X 0.00** CMP, projecting, no headwall, Ke= 0.900 Outlet Invert= 500.00' S= 0.0000 '/' n= 0.013 Cc= 0.900
3	Primary	510.50'	**175.0 deg Sharp-Crested Vee/Trap Weir X 2.00** C= 2.46

Primary OutFlow Max=70.70 cfs @ 14.75 hrs HW=511.29' TW=506.34' (Dynamic Tailwater)
- **1=Culvert** (Inlet Controls 8.33 cfs @ 4.7 fps)
- **2=assumed equalization pipe w/ valve** (Controls 0.00 cfs)
- **3=Sharp-Crested Vee/Trap Weir** (Weir Controls 62.37 cfs @ 2.2 fps)

Pond p17:

Field Note #45
Golf pond
Geometry to be confirmed by surveyed

Inflow Area = 115.991 ac, Inflow Depth = 2.37" for 25-yr event
Inflow = 75.70 cfs @ 13.77 hrs, Volume= 22.921 af
Outflow = 75.66 cfs @ 13.78 hrs, Volume= 22.921 af, Atten= 0%, Lag= 0.5 min
Primary = 75.66 cfs @ 13.78 hrs, Volume= 22.921 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Starting Elev= 523.80' Surf.Area= 7,290 sf Storage= 9,234 cf
Peak Elev= 525.54' @ 13.78 hrs Surf.Area= 11,275 sf Storage= 25,739 cf (16,505 cf above start)
Flood Elev= 524.30' Surf.Area= 8,074 sf Storage= 13,623 cf (4,389 cf above start)
Plug-Flow detention time= 18.0 min calculated for 22.709 af (99% of inflow)
Center-of-Mass det. time= 9.6 min (968.2 - 958.6)

#	Invert	Avail.Storage	Storage Description
1	520.00'	30,224 cf	**Custom Stage Data (Conic)** Listed below

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
520.00	0	0	0	0
523.80	7,290	9,234	9,234	7,313
524.00	7,300	1,459	10,693	7,374
526.00	12,460	19,531	30,224	12,581

#	Routing	Invert	Outlet Devices
1	Primary	523.80'	**2.2' long x 0.5' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 Coef. (English) 2.80 2.92 3.08 3.30 3.32
2	Primary	524.30'	**143.0 deg Sharp-Crested Vee/Trap Weir** C= 2.47
3	Primary	525.20'	**178.0 deg x 60.0' long Sharp-Crested Vee/Trap Weir** C= 2.46

Primary OutFlow Max=75.65 cfs @ 13.78 hrs HW=525.54' TW=516.07' (Dynamic Tailwater)
├—**1=Broad-Crested Rectangular Weir** (Weir Controls 16.77 cfs @ 4.4 fps)
├—**2=Sharp-Crested Vee/Trap Weir** (Weir Controls 12.66 cfs @ 2.8 fps)
└—**3=Sharp-Crested Vee/Trap Weir** (Weir Controls 46.22 cfs @ 1.7 fps)

Pond p18:

Field Note #46
Golf pond
Geometry to be confirmed by surveyed

Inflow Area = 139.117 ac, Inflow Depth = 2.40" for 25-yr event
Inflow = 81.53 cfs @ 13.78 hrs, Volume= 27.788 af
Outflow = 81.31 cfs @ 13.80 hrs, Volume= 27.783 af, Atten= 0%, Lag= 1.7 min
Primary = 81.31 cfs @ 13.80 hrs, Volume= 27.783 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Starting Elev= 513.90' Surf.Area= 20,680 sf Storage= 26,884 cf
Peak Elev= 516.07' @ 13.80 hrs Surf.Area= 28,776 sf Storage= 80,103 cf (53,219 cf above start)
Flood Elev= 514.81' Surf.Area= 23,768 sf Storage= 48,709 cf (21,825 cf above start)
Plug-Flow detention time= 47.0 min calculated for 27.161 af (98% of inflow)
Center-of-Mass det. time= 27.3 min (976.0 - 948.7)

#	Invert	Avail.Storage	Storage Description
1	510.00'	148,288 cf	**Custom Stage Data (Conic)** Listed below

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
510.00	0	0	0	0
513.90	20,680	26,884	26,884	20,704
514.00	20,690	2,068	28,952	20,756
516.00	28,290	48,782	77,735	28,436
518.00	42,760	70,554	148,288	42,967

#	Routing	Invert	Outlet Devices
1	Primary	513.90'	**2.0' long x 0.5' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 Coef. (English) 2.80 2.92 3.08 3.30 3.32
2	Primary	514.81'	**143.0 deg Sharp-Crested Vee/Trap Weir** C= 2.47
3	Primary	515.32'	**175.0 deg x 10.0' long Sharp-Crested Vee/Trap Weir** C= 2.46

Primary OutFlow Max=81.30 cfs @ 13.80 hrs HW=516.07' TW=510.86' (Dynamic Tailwater)
├—**1=Broad-Crested Rectangular Weir** (Weir Controls 21.18 cfs @ 4.9 fps)
├—**2=Sharp-Crested Vee/Trap Weir** (Weir Controls 13.08 cfs @ 2.8 fps)
└—**3=Sharp-Crested Vee/Trap Weir** (Weir Controls 47.04 cfs @ 2.3 fps)

Pond p19:

Wetland
Geometry to be confirmed by survey
Based off aerial topo, and assumed topo contour

Inflow Area =	15.520 ac,	Inflow Depth = 1.86"	for 25-yr event	
Inflow =	15.56 cfs @	12.61 hrs, Volume=	2.401 af	
Outflow =	9.63 cfs @	13.01 hrs, Volume=	2.400 af,	Atten= 38%, Lag= 24.1 min
Primary =	9.63 cfs @	13.01 hrs, Volume=	2.400 af	
Secondary =	0.00 cfs @	0.00 hrs, Volume=	0.000 af	

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Starting Elev= 972.00' Surf.Area= 86,000 sf Storage= 57,333 cf
Peak Elev= 972.21' @ 13.01 hrs Surf.Area= 91,873 sf Storage= 81,241 cf (23,907 cf above start)
Plug-Flow detention time= 386.6 min calculated for 1.083 af (45% of inflow)
Center-of-Mass det. time= 65.1 min (960.9 - 895.8)

#	Invert	Avail.Storage	Storage Description
1	970.00'	282,329 cf	**Custom Stage Data (Conic)** Listed below

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
970.00	0	0	0	0
972.00	86,000	57,333	57,333	86,006
974.00	141,270	224,996	282,329	141,327

#	Routing	Invert	Outlet Devices
1	Secondary	973.60'	**178.0 deg x 51.0' long Sharp-Crested Vee/Trap Weir** C= 2.46
2	Primary	972.00'	**35.0' long x 0.5' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 Coef. (English) 2.80 2.92 3.08 3.30 3.32

Primary OutFlow Max=9.63 cfs @ 13.01 hrs HW=972.21' TW=970.18' (Dynamic Tailwater)
└─**2=Broad-Crested Rectangular Weir** (Weir Controls 9.63 cfs @ 1.3 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=972.00' TW=973.60' (Dynamic Tailwater)
└─**1=Sharp-Crested Vee/Trap Weir** (Controls 0.00 cfs)

Pond p20:

Field Note #50
Spring Fed Pond
Geometry to be confirmed by surveyed

Inflow Area =	241.484 ac,	Inflow Depth = 1.97"	for 25-yr event	
Inflow =	74.91 cfs @	14.74 hrs, Volume=	39.732 af	
Outflow =	74.47 cfs @	14.84 hrs, Volume=	38.888 af,	Atten= 1%, Lag= 6.3 min
Primary =	74.47 cfs @	14.84 hrs, Volume=	38.888 af	

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

Starting Elev= 505.10' Surf.Area= 89,370 sf Storage= 138,524 cf
Peak Elev= 506.34' @ 14.84 hrs Surf.Area= 91,074 sf Storage= 251,251 cf (112,727 cf above start)
Plug-Flow detention time= 222.9 min calculated for 35.700 af (90% of inflow)
Center-of-Mass det. time= 57.6 min (1,273.6 - 1,216.0)

#	Invert	Avail.Storage	Storage Description
1	502.00'	615,682 cf	**Custom Stage Data (Prismatic)** Listed below

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
502.00	0	0	0
505.10	89,370	138,524	138,524
506.00	89,380	80,437	218,961
508.00	99,280	188,660	407,621
510.00	108,781	208,061	615,682

#	Routing	Invert	Outlet Devices
1	Primary	505.10'	**3.0' long x 1.5' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 Coef. (English) 2.62 2.64 2.64 2.68 2.75 2.86 2.92 3.07 3.07 3.03 3.28 3.32
2	Primary	506.20'	**6.5' long x 1.5' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 Coef. (English) 2.62 2.64 2.64 2.68 2.75 2.86 2.92 3.07 3.07 3.03 3.28 3.32
3	Primary	506.00'	**176.0 deg x 97.0' long Sharp-Crested Vee/Trap Weir** C= 2.46

Primary OutFlow Max=74.47 cfs @ 14.84 hrs HW=506.34' TW=505.90' (Dynamic Tailwater)
├─**1=Broad-Crested Rectangular Weir** (Weir Controls 8.99 cfs @ 2.4 fps)
├─**2=Broad-Crested Rectangular Weir** (Weir Controls 0.91 cfs @ 1.0 fps)
└─**3=Sharp-Crested Vee/Trap Weir** (Weir Controls 64.56 cfs @ 1.8 fps)

Pond p21:

Inflow Area =	489.305 ac,	Inflow Depth = 2.32"	for 25-yr event	
Inflow =	368.65 cfs @	12.44 hrs, Volume=	94.664 af	
Outflow =	33.57 cfs @	20.68 hrs, Volume=	81.790 af,	Atten= 91%, Lag= 494.5 min
Primary =	33.57 cfs @	20.68 hrs, Volume=	81.790 af	

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Peak Elev= 485.88' @ 20.68 hrs Surf.Area= 1,229,812 sf Storage= 2,375,071 cf
Plug-Flow detention time= 809.0 min calculated for 81.790 af (86% of inflow)
Center-of-Mass det. time= 679.1 min (1,711.4 - 1,032.4)

#	Invert	Avail.Storage	Storage Description
1	480.40'	5,244,885 cf	**Custom Stage Data (Conic)** Listed below

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
480.40	0	0	0	0
482.00	202,230	107,856	107,856	202,234
484.00	485,198	667,114	774,970	485,231
486.00	1,275,481	1,698,237	2,473,208	1,275,541
488.00	1,499,208	2,771,678	5,244,885	1,499,423

#	Routing	Invert	Outlet Devices
1	Primary	480.40'	**30.0" x 70.0' long Culvert** CMP, projecting, no headwall, Ke= 0.900 Outlet Invert= 480.40' S= 0.0000 '/' n= 0.024 Cc= 0.900

Primary OutFlow Max=33.57 cfs @ 20.68 hrs HW=485.88' TW=0.00' (Dynamic Tailwater)
└—**1=Culvert** (Barrel Controls 33.57 cfs @ 6.8 fps)

Pond p22:

Field Note #54
Golf Pond
Geometry to be confirmed by survey

Inflow Area = 97.943 ac, Inflow Depth = 2.52" for 25-yr event
Inflow = 140.35 cfs @ 12.45 hrs, Volume= 20.533 af
Outflow = 139.51 cfs @ 12.49 hrs, Volume= 20.234 af, Atten= 1%, Lag= 2.3 min
Primary = 139.51 cfs @ 12.49 hrs, Volume= 20.234 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Starting Elev= 498.10' Surf.Area= 6,520 sf Storage= 10,106 cf
Peak Elev= 502.28' @ 12.49 hrs Surf.Area= 11,957 sf Storage= 47,903 cf (37,797 cf above start)
Plug-Flow detention time= 32.2 min calculated for 19.998 af (97% of inflow)
Center-of-Mass det. time= 14.4 min (891.6 - 877.2)

#	Invert	Avail.Storage	Storage Description
1	495.00'	143,770 cf	**Custom Stage Data (Prismatic)** Listed below

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
495.00	0	0	0
498.10	6,520	10,106	10,106
500.00	8,390	14,164	24,270
502.00	11,530	19,920	44,190
504.00	14,530	26,060	70,250
506.00	18,340	32,870	103,120
508.00	22,310	40,650	143,770

#	Routing	Invert	Outlet Devices
1	Primary	499.75'	**18.0" x 21.0' long Culvert** CMP, projecting, no headwall, Ke= 0.900 Outlet Invert= 499.75' S= 0.0000 '/' n= 0.024 Cc= 0.900
2	Primary	500.50'	**1.0' long x 15.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.68 2.70 2.70 2.64 2.63 2.64 2.64 2.63

#	Routing	Invert	Outlet Devices
3	Primary	500.50'	**20.0' long x 13.5' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.62 2.66 2.70 2.66 2.65 2.66 2.65 2.63

Primary OutFlow Max=139.49 cfs @ 12.49 hrs HW=502.28' TW=500.55' (Dynamic Tailwater)
1=Culvert (Barrel Controls 8.05 cfs @ 4.6 fps)
2=Broad-Crested Rectangular Weir (Weir Controls 6.26 cfs @ 3.5 fps)
3=Broad-Crested Rectangular Weir (Weir Controls 125.18 cfs @ 3.5 fps)

Pond p23:

Inflow Area = 41.587 ac, Inflow Depth = 2.91" for 25-yr event
Inflow = 63.82 cfs @ 12.68 hrs, Volume= 10.091 af
Outflow = 63.81 cfs @ 12.68 hrs, Volume= 9.172 af, Atten= 0%, Lag= 0.1 min
Primary = 63.81 cfs @ 12.68 hrs, Volume= 9.172 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Peak Elev= 507.93' @ 12.68 hrs Surf.Area= 19,168 sf Storage= 43,515 cf
Plug-Flow detention time= 64.4 min calculated for 9.170 af (91% of inflow)
Center-of-Mass det. time= 19.2 min (891.5 - 872.4)

#	Invert	Avail.Storage	Storage Description
1	503.50'	100,303 cf	**Custom Stage Data (Prismatic)** Listed below

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
503.50	0	0	0
506.00	11,170	13,963	13,963
508.00	19,460	30,630	44,593
510.00	36,250	55,710	100,303

#	Routing	Invert	Outlet Devices
1	Primary	507.70'	**178.0 deg x 178.0' long Sharp-Crested Vee/Trap Weir** C= 2.46

Primary OutFlow Max=63.81 cfs @ 12.68 hrs HW=507.93' TW=507.26' (Dynamic Tailwater)
1=Sharp-Crested Vee/Trap Weir (Weir Controls 63.81 cfs @ 1.5 fps)

Pond zDP1: Design Point 1

Field note #10.
Culvert dimensions to be confirmed by survey.

Inflow Area = 26.659 ac, Inflow Depth = 2.60" for 25-yr event
Inflow = 40.11 cfs @ 12.48 hrs, Volume= 5.767 af
Outflow = 40.11 cfs @ 12.48 hrs, Volume= 5.767 af, Atten= 0%, Lag= 0.1 min
Primary = 40.11 cfs @ 12.48 hrs, Volume= 5.767 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Peak Elev= 722.62' @ 12.48 hrs Surf.Area= 168 sf Storage= 182 cf
Flood Elev= 727.00' Surf.Area= 1,105 sf Storage= 2,619 cf
Plug-Flow detention time= 0.1 min calculated for 5.766 af (100% of inflow)

Center-of-Mass det. time= 0.1 min (870.8 - 870.7)

#	Invert	Avail.Storage	Storage Description
1	720.10'	3,706 cf	**Custom Stage Data (Conic)** Listed below

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
720.10	0	0	0	0
722.00	90	57	57	96
724.00	340	403	460	364
726.00	760	1,072	1,533	815
728.00	1,450	2,173	3,706	1,543

#	Routing	Invert	Outlet Devices
1	Primary	720.10'	**42.0" x 120.0' long Culvert** CMP, square edge headwall, Ke= 0.500 Outlet Invert= 700.00' S= 0.1675 '/' n= 0.024 Cc= 0.900
2	Primary	727.00'	**155.0 deg Sharp-Crested Vee/Trap Weir** C= 2.47

Primary OutFlow Max=40.10 cfs @ 12.48 hrs HW=722.62' TW=686.76' (Dynamic Tailwater)
1=Culvert (Inlet Controls 40.10 cfs @ 5.4 fps)
2=Sharp-Crested Vee/Trap Weir (Controls 0.00 cfs)

Pond zDP2: Design Point 2

Field Note #15
Culvert dimensions to be confirmed by survey
Overflow to ditch is currently discarded... We may have to model that area...

Inflow Area = 97.712 ac, Inflow Depth = 2.28" for 25-yr event
Inflow = 98.45 cfs @ 12.87 hrs, Volume= 18.556 af
Outflow = 98.40 cfs @ 12.88 hrs, Volume= 18.556 af, Atten= 0%, Lag= 0.4 min
Discarded = 62.99 cfs @ 12.88 hrs, Volume= 4.623 af
Primary = 35.41 cfs @ 12.88 hrs, Volume= 13.933 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Peak Elev= 626.08' @ 12.88 hrs Surf.Area= 1,467 sf Storage= 3,498 cf
Flood Elev= 624.50' Surf.Area= 925 sf Storage= 1,728 cf
Plug-Flow detention time= 0.5 min calculated for 18.552 af (100% of inflow)
Center-of-Mass det. time= 0.5 min (902.9 - 902.4)

#	Invert	Avail.Storage	Storage Description
1	619.60'	7,280 cf	**Custom Stage Data (Conic)** Listed below

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
619.60	0	0	0	0
620.00	10	1	1	10
622.00	260	214	215	269
624.00	760	976	1,192	793
626.00	1,420	2,146	3,338	1,492
628.00	2,580	3,943	7,280	2,694

#	Routing	Invert	Outlet Devices
1	Primary	619.60'	**24.0" x 150.0' long Culvert** RCP, end-section conforming to fill, Ke= 0.500 Outlet Invert= 608.00' S= 0.0773 '/' n= 0.012 Cc= 0.900
2	Discarded	624.50'	**166.0 deg Sharp-Crested Vee/Trap Weir** C= 2.46

Discarded OutFlow Max=62.97 cfs @ 12.88 hrs HW=626.08' (Free Discharge)
└─**2=Sharp-Crested Vee/Trap Weir** (Weir Controls 62.97 cfs @ 3.1 fps)

Primary OutFlow Max=35.41 cfs @ 12.88 hrs HW=626.08' TW=607.68' (Dynamic Tailwater)
└─**1=Culvert** (Inlet Controls 35.41 cfs @ 11.3 fps)

Pond zDP3: Design Point 3

Inflow Area = 212.742 ac, Inflow Depth = 19.80" for 25-yr event
Inflow = 249.61 cfs @ 12.44 hrs, Volume= 351.023 af
Primary = 249.61 cfs @ 12.44 hrs, Volume= 351.023 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

Pond zDP4: Design Point 4

Inflow Area = 489.305 ac, Inflow Depth = 2.01" for 25-yr event
Inflow = 33.57 cfs @ 20.68 hrs, Volume= 81.790 af
Primary = 33.57 cfs @ 20.68 hrs, Volume= 81.790 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

Pond zDP5: Design Point 5

Inflow Area = 28.325 ac, Inflow Depth = 2.73" for 25-yr event
Inflow = 50.24 cfs @ 12.45 hrs, Volume= 6.435 af
Primary = 50.24 cfs @ 12.45 hrs, Volume= 6.435 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

Pre-Development Conditions
50 year 24 hour Storm Event
Model Computations

Subcatchment s01:

Runoff = 20.20 cfs @ 12.60 hrs, Volume= 3.033 af, Depth= 3.17"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 50-yr Rainfall=6.70"

Area (ac)	CN	Description
11.485	68	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
42.8					**Direct Entry,**

Subcatchment s02:

Runoff = 125.74 cfs @ 12.87 hrs, Volume= 23.389 af, Depth= 2.87"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 50-yr Rainfall=6.70"

Area (ac)	CN	Description
97.712	65	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
61.3					**Direct Entry,**

Subcatchment s03:

Runoff = 33.32 cfs @ 12.41 hrs, Volume= 4.134 af, Depth= 3.27"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 50-yr Rainfall=6.70"

Area (ac)	CN	Description
15.174	69	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
28.8					**Direct Entry,**

Subcatchment s04:

Runoff = 37.27 cfs @ 12.10 hrs, Volume= 2.730 af, Depth= 2.87"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 50-yr Rainfall=6.70"

Area (ac)	CN	Description
11.403	65	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.5					**Direct Entry,**

Subcatchment s05:

Runoff = 30.05 cfs @ 12.25 hrs, Volume= 3.096 af, Depth= 2.49"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 50-yr Rainfall=6.70"

Area (ac)	CN	Description
14.935	61	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
17.3					**Direct Entry,**

Subcatchment s06:

Runoff = 18.93 cfs @ 12.25 hrs, Volume= 1.938 af, Depth= 2.58"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 50-yr Rainfall=6.70"

Area (ac)	CN	Description
9.007	62	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
17.3					**Direct Entry,**

Subcatchment s06(OW): s06 Open Water

Runoff = 3.44 cfs @ 12.00 hrs, Volume= 0.239 af, Depth= 6.70"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 50-yr Rainfall=6.70"

Area (ac)	CN	Description
0.428	100	

Subcatchment s07:

Runoff = 16.90 cfs @ 12.20 hrs, Volume= 1.575 af, Depth= 2.78"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 50-yr Rainfall=6.70"

Area (ac)	CN	Description
6.811	64	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
13.9					**Direct Entry,**

Subcatchment s07(OW): s07 Open Water

Runoff = 4.07 cfs @ 12.00 hrs, Volume= 0.283 af, Depth= 6.70"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 50-yr Rainfall=6.70"

Area (ac)	CN	Description
0.506	100	

Subcatchment s08:

Runoff = 50.48 cfs @ 12.33 hrs, Volume= 5.835 af, Depth= 2.21"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 50-yr Rainfall=6.70"

Area (ac)	CN	Description
31.719	58	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
21.8					**Direct Entry,**

Subcatchment s09:

Runoff = 20.48 cfs @ 12.23 hrs, Volume= 2.023 af, Depth= 2.87"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 50-yr Rainfall=6.70"

Area (ac)	CN	Description
8.452	65	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
16.4					**Direct Entry,**

Subcatchment s10:

Runoff = 16.93 cfs @ 12.40 hrs, Volume= 2.080 af, Depth= 3.07"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 50-yr Rainfall=6.70"

Area (ac)	CN	Description
8.130	67	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
27.9					**Direct Entry,**

Subcatchment s10(OW): s10 Open Water

Runoff = 6.68 cfs @ 12.00 hrs, Volume= 0.463 af, Depth= 6.70"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 50-yr Rainfall=6.70"

Area (ac)	CN	Description
0.830	100	

Subcatchment s11:

Runoff = 6.02 cfs @ 12.28 hrs, Volume= 0.644 af, Depth= 3.27"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 50-yr Rainfall=6.70"

Area (ac)	CN	Description
2.364	69	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
20.5					**Direct Entry,**

Subcatchment s11(IC): s11 Imp. Cover

Runoff = 17.23 cfs @ 12.04 hrs, Volume= 1.259 af, Depth= 6.46"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 50-yr Rainfall=6.70"

Area (ac)	CN	Description
2.338	98	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
2.8					**Direct Entry,**

Subcatchment s12:

Runoff = 6.45 cfs @ 12.65 hrs, Volume= 1.036 af, Depth= 1.94"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 50-yr Rainfall=6.70"

Area (ac)	CN	Description
6.420	55	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
42.0					**Direct Entry,**

Subcatchment s13:

Runoff = 0.67 cfs @ 12.13 hrs, Volume= 0.056 af, Depth= 1.94"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 50-yr Rainfall=6.70"

Area (ac)	CN	Description
0.350	55	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.6					**Direct Entry,**

Subcatchment s14:

Runoff = 33.60 cfs @ 12.40 hrs, Volume= 4.178 af, Depth= 2.78"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 50-yr Rainfall=6.70"

Area (ac)	CN	Description
18.066	64	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
28.1					**Direct Entry,**

Subcatchment s14(IC): s14 Imp. Cover

Runoff = 17.86 cfs @ 12.03 hrs, Volume= 1.281 af, Depth= 6.46"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 50-yr Rainfall=6.70"

Area (ac)	CN	Description
2.380	98	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
2.3					**Direct Entry,**

Subcatchment s14(OW): s14 Open Water

Runoff = 4.17 cfs @ 12.00 hrs, Volume= 0.289 af, Depth= 6.70"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 50-yr Rainfall=6.70"

Area (ac)	CN	Description
0.518	100	

Subcatchment s15:

Runoff = 1.36 cfs @ 12.21 hrs, Volume= 0.141 af, Depth= 1.59"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 50-yr Rainfall=6.70"

Area (ac)	CN	Description
1.068	51	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
13.1					**Direct Entry,**

Subcatchment s16:

Runoff = 150.73 cfs @ 12.32 hrs, Volume= 16.832 af, Depth= 2.97"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 50-yr Rainfall=6.70"

Area (ac)	CN	Description
67.994	66	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
22.3					**Direct Entry,**

Subcatchment s16(IC): s16 Imp.Cover

Runoff = 19.30 cfs @ 12.04 hrs, Volume= 1.416 af, Depth= 6.46"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 50-yr Rainfall=6.70"

Area (ac)	CN	Description
2.629	98	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
2.9					**Direct Entry,**

Subcatchment s16(OW): s16 Open Water

Runoff = 43.04 cfs @ 12.00 hrs, Volume= 2.988 af, Depth= 6.70"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 50-yr Rainfall=6.70"

Area (ac)	CN	Description
5.351	100	

Subcatchment s17:

Runoff = 96.16 cfs @ 13.77 hrs, Volume= 28.673 af, Depth= 2.97"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 50-yr Rainfall=6.70"

Area (ac)	CN	Description
115.827	66	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
125.2					**Direct Entry,**

Subcatchment s17(OW): s17 Open Water

Runoff = 1.32 cfs @ 12.00 hrs, Volume= 0.092 af, Depth= 6.70"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 50-yr Rainfall=6.70"

Area (ac)	CN	Description
0.164	100	

Subcatchment s18:

Runoff = 50.08 cfs @ 12.34 hrs, Volume= 5.795 af, Depth= 3.07"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 50-yr Rainfall=6.70"

Area (ac)	CN	Description
22.654	67	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
24.4					**Direct Entry,**

Subcatchment s18(OW): s18 Open Water

Runoff = 3.80 cfs @ 12.00 hrs, Volume= 0.264 af, Depth= 6.70"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 50-yr Rainfall=6.70"

Area (ac)	CN	Description
0.472	100	

Subcatchment s19:

Runoff = 20.51 cfs @ 12.61 hrs, Volume= 3.096 af, Depth= 2.39"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 50-yr Rainfall=6.70"

Area (ac)	CN	Description
15.520	60	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
40.4					**Direct Entry,**

Subcatchment s20:

Runoff = 38.07 cfs @ 12.47 hrs, Volume= 5.083 af, Depth= 3.27"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 50-yr Rainfall=6.70"

Area (ac)	CN	Description
18.655	69	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
33.9					**Direct Entry,**

Subcatchment s20(OW): s20 Open Water

Runoff = 15.83 cfs @ 12.00 hrs, Volume= 1.099 af, Depth= 6.70"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 50-yr Rainfall=6.70"

Area (ac)	CN	Description
1.968	100	

Subcatchment s21:

Runoff = 211.45 cfs @ 12.37 hrs, Volume= 25.368 af, Depth= 3.17"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 50-yr Rainfall=6.70"

Area (ac)	CN	Description
96.056	68	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
26.7					**Direct Entry,**

Subcatchment s21(OW):

Runoff = 98.41 cfs @ 12.00 hrs, Volume= 6.831 af, Depth= 6.70"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 50-yr Rainfall=6.70"

Area (ac)	CN	Description
12.235	100	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.0					**Direct Entry,**

Subcatchment s22:

Runoff = 173.94 cfs @ 12.45 hrs, Volume= 22.420 af, Depth= 3.27"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 50-yr Rainfall=6.70"

Area (ac)	CN	Description
82.287	69	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
31.3					**Direct Entry,**

Subcatchment s22(OW): s22 Open Water

Runoff = 1.09 cfs @ 12.00 hrs, Volume= 0.076 af, Depth= 6.70"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 50-yr Rainfall=6.70"

Area (ac)	CN	Description
0.136	100	

Subcatchment s23:

Runoff = 78.66 cfs @ 12.64 hrs, Volume= 12.389 af, Depth= 3.57"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 50-yr Rainfall=6.70"

Area (ac)	CN	Description
41.587	72	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
47.0					**Direct Entry,**

Subcatchment s24:

Runoff = 62.42 cfs @ 12.45 hrs, Volume= 7.956 af, Depth= 3.37"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 50-yr Rainfall=6.70"

Area (ac)	CN	Description
28.325	70	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
30.7					**Direct Entry,**

Subcatchment s25:

Runoff = 31.32 cfs @ 12.28 hrs, Volume= 3.357 af, Depth= 2.97"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 50-yr Rainfall=6.70"

Area (ac)	CN	Description
13.562	66	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
20.2					**Direct Entry,**

Reach r03:

Overland Flow Reach
Requires more survey

Inflow Area = 11.485 ac, Inflow Depth = 3.17" for 50-yr event
Inflow = 20.20 cfs @ 12.60 hrs, Volume= 3.033 af
Outflow = 20.10 cfs @ 12.63 hrs, Volume= 3.033 af, Atten= 0%, Lag= 1.5 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Max. Velocity= 5.8 fps, Min. Travel Time= 2.2 min
Avg. Velocity = 2.2 fps, Avg. Travel Time= 5.9 min

Peak Depth= 0.74' @ 12.63 hrs
Capacity at bank full= 92.14 cfs
Inlet Invert= 845.00', Outlet Invert= 728.00'
10.00' x 1.50' deep Parabolic Channel, n= 0.060 Length= 785.0' Slope= 0.1490 '/'

Reach r04:

Channel

Inflow Area = 26.659 ac, Inflow Depth = 3.23" for 50-yr event
Inflow = 50.31 cfs @ 12.48 hrs, Volume= 7.167 af
Outflow = 50.23 cfs @ 12.50 hrs, Volume= 7.167 af, Atten= 0%, Lag= 1.1 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Max. Velocity= 7.6 fps, Min. Travel Time= 1.5 min
Avg. Velocity = 2.8 fps, Avg. Travel Time= 4.0 min

Peak Depth= 1.40' @ 12.50 hrs
Capacity at bank full= 446.15 cfs
Inlet Invert= 685.50', Outlet Invert= 608.00'
12.00' x 4.00' deep Parabolic Channel, n= 0.060 Length= 675.0' Slope= 0.1148 '/'

Reach r08a:

Man Made Ditch
Inverts of pipe to be surveyed

Inflow Area = 97.712 ac, Inflow Depth = 1.98" for 50-yr event
Inflow = 36.18 cfs @ 12.87 hrs, Volume= 16.122 af
Outflow = 36.18 cfs @ 12.88 hrs, Volume= 16.122 af, Atten= 0%, Lag= 0.2 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Max. Velocity= 9.6 fps, Min. Travel Time= 0.4 min
Avg. Velocity = 5.6 fps, Avg. Travel Time= 0.7 min

Peak Depth= 0.68' @ 12.88 hrs
Capacity at bank full= 81.88 cfs
Inlet Invert= 607.00', Outlet Invert= 587.00'
10.00' x 1.00' deep Parabolic Channel, n= 0.027 Length= 226.0' Slope= 0.0885 '/'

Reach r08b:

24" HDPE
Inverts to be surveyed

Inflow Area = 97.712 ac, Inflow Depth = 1.98" for 50-yr event
Inflow = 36.18 cfs @ 12.88 hrs, Volume= 16.122 af
Outflow = 36.18 cfs @ 12.88 hrs, Volume= 16.122 af, Atten= 0%, Lag= 0.1 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Max. Velocity= 24.2 fps, Min. Travel Time= 0.2 min
Avg. Velocity = 14.7 fps, Avg. Travel Time= 0.3 min

Peak Depth= 0.96' @ 12.88 hrs
Capacity at bank full= 77.17 cfs
Inlet Invert= 587.00', Outlet Invert= 557.75'
24.0" Diameter Pipe n= 0.012 Length= 295.0' Slope= 0.0992 '/'

Reach r08c:

Ditch
Pipe inverts to be surveyed

Inflow Area = 97.712 ac, Inflow Depth = 1.98" for 50-yr event
Inflow = 36.18 cfs @ 12.88 hrs, Volume= 16.122 af
Outflow = 36.17 cfs @ 12.89 hrs, Volume= 16.122 af, Atten= 0%, Lag= 0.6 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Max. Velocity= 9.2 fps, Min. Travel Time= 1.1 min
Avg. Velocity = 5.1 fps, Avg. Travel Time= 1.9 min

Peak Depth= 0.71' @ 12.89 hrs
Capacity at bank full= 76.65 cfs
Inlet Invert= 557.75', Outlet Invert= 512.00'
10.00' x 1.00' deep Parabolic Channel, n= 0.027 Length= 590.0' Slope= 0.0775 '/'

Reach r08d: Amenia Stream/Cascade Brook

(Steam) parallel to Route 22
Base Flow estimated from field observation (see field note 21)

Inflow Area = 97.712 ac, Inflow Depth = 21.47" for 50-yr event
Inflow = 76.17 cfs @ 12.89 hrs, Volume= 174.833 af, Incl. 40.00 cfs Base Flow
Outflow = 76.15 cfs @ 12.93 hrs, Volume= 174.589 af, Atten= 0%, Lag= 2.3 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Max. Velocity= 3.6 fps, Min. Travel Time= 3.7 min
Avg. Velocity = 3.1 fps, Avg. Travel Time= 4.3 min

Peak Depth= 3.42' @ 12.93 hrs
Capacity at bank full= 104.49 cfs
Inlet Invert= 512.00', Outlet Invert= 504.00'
10.00' x 4.00' deep Parabolic Channel, n= 0.060 Length= 805.0' Slope= 0.0099 '/'

Reach r14a:

Grass lined channel

Inflow Area = 8.452 ac, Inflow Depth = 2.82" for 50-yr event
Inflow = 16.39 cfs @ 12.37 hrs, Volume= 1.984 af
Outflow = 16.38 cfs @ 12.38 hrs, Volume= 1.984 af, Atten= 0%, Lag= 0.6 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Max. Velocity= 6.9 fps, Min. Travel Time= 0.9 min
Avg. Velocity = 1.7 fps, Avg. Travel Time= 3.6 min

Peak Depth= 0.72' @ 12.38 hrs
Capacity at bank full= 325.42 cfs
Inlet Invert= 542.00', Outlet Invert= 526.00'
10.00' x 3.00' deep Parabolic Channel, n= 0.027 Length= 360.0' Slope= 0.0444 '/'

Reach r14b:

30" HDPE Under Main Entrance Road

Inflow Area = 8.452 ac, Inflow Depth = 2.82" for 50-yr event
Inflow = 16.38 cfs @ 12.38 hrs, Volume= 1.984 af
Outflow = 16.38 cfs @ 12.39 hrs, Volume= 1.984 af, Atten= 0%, Lag= 0.4 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Max. Velocity= 14.5 fps, Min. Travel Time= 0.5 min
Avg. Velocity = 3.5 fps, Avg. Travel Time= 2.1 min

Peak Depth= 0.70' @ 12.39 hrs
Capacity at bank full= 94.91 cfs
Inlet Invert= 526.00', Outlet Invert= 505.70'
30.0" Diameter Pipe n= 0.012 Length= 445.0' Slope= 0.0456 '/'

Reach r14c:

Overland Flow

Inflow Area = 6.420 ac, Inflow Depth = 0.99" for 50-yr event
Inflow = 1.30 cfs @ 14.35 hrs, Volume= 0.532 af
Outflow = 1.28 cfs @ 14.48 hrs, Volume= 0.532 af, Atten= 1%, Lag= 7.8 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Max. Velocity= 1.2 fps, Min. Travel Time= 8.2 min
Avg. Velocity = 0.5 fps, Avg. Travel Time= 20.0 min

Peak Depth= 0.10' @ 14.48 hrs
Capacity at bank full= 178.07 cfs
Inlet Invert= 544.00', Outlet Invert= 498.00'
50.00' x 1.00' deep Parabolic Channel, n= 0.060 Length= 575.0' Slope= 0.0800 '/'

Reach r15:

Brush Overbanks with Rocky Bottom
Needs to be surveyed

Inflow Area = 4.702 ac, Inflow Depth = 4.86" for 50-yr event
Inflow = 19.23 cfs @ 12.06 hrs, Volume= 1.903 af
Outflow = 19.17 cfs @ 12.06 hrs, Volume= 1.903 af, Atten= 0%, Lag= 0.3 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Max. Velocity= 10.5 fps, Min. Travel Time= 0.5 min
Avg. Velocity = 3.7 fps, Avg. Travel Time= 1.3 min

Peak Depth= 0.96' @ 12.06 hrs
Capacity at bank full= 188.47 cfs
Inlet Invert= 554.00', Outlet Invert= 528.00'
5.00' x 3.00' deep Parabolic Channel, n= 0.027 Length= 290.0' Slope= 0.0897 '/'

Reach r16:

Pipe Reach

Inflow Area = 4.702 ac, Inflow Depth = 4.86" for 50-yr event
Inflow = 19.71 cfs @ 12.04 hrs, Volume= 1.903 af
Outflow = 19.23 cfs @ 12.06 hrs, Volume= 1.903 af, Atten= 2%, Lag= 0.9 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Max. Velocity= 11.7 fps, Min. Travel Time= 1.2 min
Avg. Velocity = 3.9 fps, Avg. Travel Time= 3.7 min

Peak Depth= 0.92' @ 12.06 hrs
Capacity at bank full= 66.05 cfs
Inlet Invert= 573.00', Outlet Invert= 554.00'
30.0" Diameter Pipe n= 0.012 Length= 860.0' Slope= 0.0221 '/'

Reach r18a:

Overland Flow Reach

Inflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Outflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Max. Velocity= 0.0 fps, Min. Travel Time= 0.0 min
Avg. Velocity = 0.0 fps, Avg. Travel Time= 0.0 min

Peak Depth= 0.00' @ 0.00 hrs
Capacity at bank full= 379.63 cfs
Inlet Invert= 973.60', Outlet Invert= 530.00'
50.00' x 1.00' deep Parabolic Channel, n= 0.060 Length= 1,220.0' Slope= 0.3636 '/'

Reach r18b:

Overland Flow Reach

Inflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Outflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Max. Velocity= 0.0 fps, Min. Travel Time= 0.0 min
Avg. Velocity = 0.0 fps, Avg. Travel Time= 0.0 min

Peak Depth= 0.00' @ 0.00 hrs
Capacity at bank full= 151.94 cfs
Inlet Invert= 530.60', Outlet Invert= 514.00'
50.00' x 1.00' deep Parabolic Channel, n= 0.060 Length= 285.0' Slope= 0.0582 '/'

Reach r21a:

Man Made Ditch

Inflow Area = 241.484 ac, Inflow Depth = 2.55" for 50-yr event
Inflow = 115.73 cfs @ 14.40 hrs, Volume= 51.255 af
Outflow = 115.71 cfs @ 14.42 hrs, Volume= 51.242 af, Atten= 0%, Lag= 0.9 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Max. Velocity= 8.3 fps, Min. Travel Time= 1.3 min
Avg. Velocity = 3.4 fps, Avg. Travel Time= 3.2 min

Peak Depth= 2.35' @ 14.42 hrs
Capacity at bank full= 191.76 cfs
Inlet Invert= 504.00', Outlet Invert= 494.00'
10.00' x 3.00' deep Parabolic Channel, n= 0.027 Length= 648.0' Slope= 0.0154 '/'

Reach r21b:

Grass Ditch
Geometry to be confirmed by survey (inverts at pipe)

Inflow Area = 97.943 ac, Inflow Depth = 3.10" for 50-yr event
Inflow = 175.37 cfs @ 12.49 hrs, Volume= 25.291 af
Outflow = 175.34 cfs @ 12.49 hrs, Volume= 25.291 af, Atten= 0%, Lag= 0.2 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Max. Velocity= 10.9 fps, Min. Travel Time= 0.4 min
Avg. Velocity = 2.5 fps, Avg. Travel Time= 1.5 min

Peak Depth= 1.73' @ 12.49 hrs
Capacity at bank full= 239.90 cfs
Inlet Invert= 499.00', Outlet Invert= 491.10'
15.00' x 2.00' deep Parabolic Channel, n= 0.027 Length= 230.0' Slope= 0.0343 '/'

Reach r21c:

Overland Flow Reach

Inflow Area = 41.587 ac, Inflow Depth = 3.31" for 50-yr event
Inflow = 78.61 cfs @ 12.66 hrs, Volume= 11.471 af
Outflow = 78.61 cfs @ 12.67 hrs, Volume= 11.471 af, Atten= 0%, Lag= 0.5 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Max. Velocity= 4.9 fps, Min. Travel Time= 0.5 min
Avg. Velocity = 1.9 fps, Avg. Travel Time= 1.4 min

Peak Depth= 0.61' @ 12.67 hrs
Capacity at bank full= 227.81 cfs
Inlet Invert= 506.70', Outlet Invert= 485.75'
50.00' x 1.00' deep Parabolic Channel, n= 0.060 Length= 160.0' Slope= 0.1309 '/'

Reach r22a:

Overland Flow Reach

Inflow Area = 15.520 ac, Inflow Depth = 2.39" for 50-yr event
Inflow = 13.60 cfs @ 12.96 hrs, Volume= 3.094 af
Outflow = 13.54 cfs @ 13.00 hrs, Volume= 3.094 af, Atten= 0%, Lag= 2.8 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Max. Velocity= 4.3 fps, Min. Travel Time= 3.8 min
Avg. Velocity = 1.3 fps, Avg. Travel Time= 12.5 min

Peak Depth= 0.21' @ 13.00 hrs
Capacity at bank full= 409.31 cfs
Inlet Invert= 970.00', Outlet Invert= 560.00'
50.00' x 1.00' deep Parabolic Channel, n= 0.060 Length= 970.0' Slope= 0.4227 '/'

Reach r22b:

Overland Flow Reach

Inflow Area = 15.520 ac, Inflow Depth = 2.39" for 50-yr event
Inflow = 13.54 cfs @ 13.00 hrs, Volume= 3.094 af
Outflow = 13.46 cfs @ 13.06 hrs, Volume= 3.094 af, Atten= 1%, Lag= 3.3 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Max. Velocity= 2.4 fps, Min. Travel Time= 4.3 min
Avg. Velocity = 0.7 fps, Avg. Travel Time= 14.9 min

Peak Depth= 0.31' @ 13.06 hrs
Capacity at bank full= 175.17 cfs
Inlet Invert= 560.00', Outlet Invert= 512.00'
50.00' x 1.00' deep Parabolic Channel, n= 0.060 Length= 620.0' Slope= 0.0774 '/'

Reach r25a:

Ditch
Pipe inverts need to be surveyed

Inflow Area = 60.314 ac, Inflow Depth = 2.94" for 50-yr event
Inflow = 98.53 cfs @ 12.36 hrs, Volume= 14.753 af
Outflow = 98.37 cfs @ 12.38 hrs, Volume= 14.753 af, Atten= 0%, Lag= 1.1 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Max. Velocity= 12.4 fps, Min. Travel Time= 1.5 min
Avg. Velocity = 2.6 fps, Avg. Travel Time= 7.0 min

Peak Depth= 1.41' @ 12.38 hrs
Capacity at bank full= 205.50 cfs
Inlet Invert= 570.00', Outlet Invert= 504.00'
10.00' x 2.00' deep Parabolic Channel, n= 0.027 Length= 1,090.0' Slope= 0.0606 '/'

Reach r25b: Wetland Reach

Wetland Reach
Has wetland vegetation within reach

Inflow Area = 9.435 ac, Inflow Depth = 2.73" for 50-yr event
Inflow = 18.58 cfs @ 12.32 hrs, Volume= 2.148 af
Outflow = 17.11 cfs @ 12.40 hrs, Volume= 2.147 af, Atten= 8%, Lag= 5.3 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Max. Velocity= 2.0 fps, Min. Travel Time= 6.2 min
Avg. Velocity = 0.5 fps, Avg. Travel Time= 26.8 min

Peak Depth= 1.07' @ 12.40 hrs
Capacity at bank full= 156.51 cfs
Inlet Invert= 504.00', Outlet Invert= 499.50'
20.00' x 3.00' deep Parabolic Channel, n= 0.045 Length= 750.0' Slope= 0.0060 '/'

Reach r25c: Amenia Stream/Cascade Brook

(Steam) parallel to Route 22
Base Flow estimated from field observation (see field note 21)

Inflow Area = 129.431 ac, Inflow Depth = 31.44" for 50-yr event
Inflow = 161.97 cfs @ 12.35 hrs, Volume= 339.135 af, Incl. 40.00 cfs Base Flow
Outflow = 158.31 cfs @ 12.45 hrs, Volume= 338.454 af, Atten= 2%, Lag= 5.8 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Max. Velocity= 3.0 fps, Min. Travel Time= 5.5 min
Avg. Velocity = 2.7 fps, Avg. Travel Time= 6.1 min

Peak Depth= 6.69' @ 12.45 hrs
Capacity at bank full= 67.14 cfs
Inlet Invert= 504.00', Outlet Invert= 500.00'
10.00' x 4.00' deep Parabolic Channel, n= 0.060 Length= 975.0' Slope= 0.0041 '/'

Pond 8P:

No field note.
Water spills over cart path; no storage.

Inflow Area = 52.997 ac, Inflow Depth = 2.93" for 50-yr event
Inflow = 86.03 cfs @ 12.35 hrs, Volume= 12.927 af
Outflow = 86.03 cfs @ 12.35 hrs, Volume= 12.927 af, Atten= 0%, Lag= 0.0 min
Primary = 86.03 cfs @ 12.35 hrs, Volume= 12.927 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Peak Elev= 575.67' @ 12.35 hrs
Flood Elev= 574.70'
Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= (not calculated)

#	Routing	Invert	Outlet Devices
1	Primary	574.70'	**177.0 deg Sharp-Crested Vee/Trap Weir** C= 2.46

Primary OutFlow Max=86.02 cfs @ 12.35 hrs HW=575.67' TW=571.41' (Dynamic Tailwater)
└─**1=Sharp-Crested Vee/Trap Weir** (Weir Controls 86.02 cfs @ 2.4 fps)

Pond p04:

Field Note #13

Water ponding behind a golf cart path. Overflow dimensions are assumed based on aerial topo, and should be upgraded once survey is available.

Inflow Area = 38.062 ac, Inflow Depth = 3.12" for 50-yr event
Inflow = 61.91 cfs @ 12.43 hrs, Volume= 9.897 af
Outflow = 61.87 cfs @ 12.44 hrs, Volume= 9.831 af, Atten= 0%, Lag= 0.7 min
Primary = 61.87 cfs @ 12.44 hrs, Volume= 9.831 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Peak Elev= 606.05' @ 12.44 hrs Surf.Area= 6,885 sf Storage= 4,508 cf
Flood Elev= 605.50' Surf.Area= 4,803 sf Storage= 2,882 cf
Plug-Flow detention time= 6.9 min calculated for 9.831 af (99% of inflow)
Center-of-Mass det. time= 2.7 min (863.4 - 860.7)

#	Invert	Avail.Storage	Storage Description
1	604.20'	26,897 cf	**Custom Stage Data (Conic)** Listed below

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
604.20	0	0	0	0
606.00	6,650	3,990	3,990	6,655
608.00	17,060	22,907	26,897	17,092

#	Routing	Invert	Outlet Devices
1	Primary	605.50'	**179.0 deg Sharp-Crested Vee/Trap Weir** C= 2.46

Primary OutFlow Max=61.86 cfs @ 12.44 hrs HW=606.05' TW=575.66' (Dynamic Tailwater)
└─**1=Sharp-Crested Vee/Trap Weir** (Weir Controls 61.86 cfs @ 1.8 fps)

Pond p06:

Field Note #22
Geometry to be confirmed by survey.

Inflow Area = 9.435 ac, Inflow Depth = 2.77" for 50-yr event
Inflow = 19.92 cfs @ 12.25 hrs, Volume= 2.177 af
Outflow = 18.58 cfs @ 12.32 hrs, Volume= 2.148 af, Atten= 7%, Lag= 4.3 min
Primary = 18.58 cfs @ 12.32 hrs, Volume= 2.148 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Starting Elev= 506.80' Surf.Area= 18,600 sf Storage= 42,160 cf
Peak Elev= 507.53' @ 12.32 hrs Surf.Area= 21,907 sf Storage= 57,694 cf (15,534 cf above start)
Flood Elev= 507.10' Surf.Area= 19,958 sf Storage= 48,537 cf (6,377 cf above start)
Plug-Flow detention time= 376.2 min calculated for 1.180 af (54% of inflow)
Center-of-Mass det. time= 92.9 min (939.1 - 846.1)

#	Invert	Avail.Storage	Storage Description
1	500.00'	67,669 cf	**Custom Stage Data (Conic)** Listed below

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
500.00	0	0	0	0
506.80	18,600	42,160	42,160	18,672
508.00	24,030	25,509	67,669	24,138

#	Routing	Invert	Outlet Devices
1	Primary	506.80'	**12.0" x 20.0' long Culvert** CMP, projecting, no headwall, Ke= 0.900 Outlet Invert= 506.00' S= 0.0400 '/' n= 0.024 Cc= 0.900
2	Primary	507.10'	**178.0 deg Sharp-Crested Vee/Trap Weir** C= 2.46

Primary OutFlow Max=18.57 cfs @ 12.32 hrs HW=507.53' TW=505.01' (Dynamic Tailwater)
1=Culvert (Inlet Controls 1.41 cfs @ 2.3 fps)
2=Sharp-Crested Vee/Trap Weir (Weir Controls 17.16 cfs @ 1.6 fps)

Pond p07:

Field Note # 29
Outlet geometry to be confirmed by survey.

Inflow Area = 7.317 ac, Inflow Depth = 3.05" for 50-yr event
Inflow = 18.23 cfs @ 12.19 hrs, Volume= 1.858 af
Outflow = 12.56 cfs @ 12.37 hrs, Volume= 1.827 af, Atten= 31%, Lag= 10.9 min
Primary = 12.56 cfs @ 12.37 hrs, Volume= 1.827 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Starting Elev= 572.80' Surf.Area= 21,640 sf Storage= 56,264 cf
Peak Elev= 573.80' @ 12.37 hrs Surf.Area= 26,344 sf Storage= 80,654 cf (24,390 cf above start)
Flood Elev= 573.50' Surf.Area= 24,936 sf Storage= 73,351 cf (17,087 cf above start)
Plug-Flow detention time= 702.8 min calculated for 0.535 af (29% of inflow)
Center-of-Mass det. time= 152.4 min (985.9 - 833.5)

#	Invert	Avail.Storage	Storage Description
1	565.00'	85,557 cf	**Custom Stage Data (Conic)** Listed below

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
565.00	0	0	0	0
572.80	21,640	56,264	56,264	21,735
574.00	27,290	29,293	85,557	27,424

#	Routing	Invert	Outlet Devices
1	Primary	572.80'	**18.0" x 20.0' long Culvert** CMP, projecting, no headwall, Ke= 0.900
			Outlet Invert= 572.00' S= 0.0400 '/' n= 0.024 Cc= 0.900
2	Primary	573.50'	**177.0 deg Sharp-Crested Vee/Trap Weir X 2.00** C= 2.46

Primary OutFlow Max=12.55 cfs @ 12.37 hrs HW=573.80' TW=571.41' (Dynamic Tailwater)
1=Culvert (Inlet Controls 3.36 cfs @ 2.7 fps)
2=Sharp-Crested Vee/Trap Weir (Weir Controls 9.19 cfs @ 1.3 fps)

Pond p09:

Field Note #31
Geometry to be confirmed by survey.

Inflow Area = 8.452 ac, Inflow Depth = 2.87" for 50-yr event
Inflow = 20.48 cfs @ 12.23 hrs, Volume= 2.023 af
Outflow = 16.39 cfs @ 12.37 hrs, Volume= 1.984 af, Atten= 20%, Lag= 8.3 min
Primary = 16.39 cfs @ 12.37 hrs, Volume= 1.984 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Peak Elev= 550.53' @ 12.37 hrs Surf.Area= 6,855 sf Storage= 10,413 cf
Flood Elev= 551.20' Surf.Area= 8,534 sf Storage= 15,673 cf
Plug-Flow detention time= 30.2 min calculated for 1.984 af (98% of inflow)
Center-of-Mass det. time= 19.3 min (873.2 - 853.9)

#	Invert	Avail.Storage	Storage Description
1	547.50'	21,989 cf	**Custom Stage Data (Conic)** Listed below

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
547.50	0	0	0	0
548.00	1,080	180	180	1,080
550.00	5,510	6,020	6,200	5,527
552.00	10,550	15,790	21,989	10,606

#	Routing	Invert	Outlet Devices
1	Primary	548.50'	**30.0" x 70.0' long Culvert** CMP, projecting, no headwall, Ke= 0.900
			Outlet Invert= 542.00' S= 0.0929 '/' n= 0.012 Cc= 0.900
2	Primary	551.20'	**168.0 deg Sharp-Crested Vee/Trap Weir** C= 2.46

Primary OutFlow Max=16.39 cfs @ 12.37 hrs HW=550.53' TW=542.72' (Dynamic Tailwater)
—**1=Culvert** (Inlet Controls 16.39 cfs @ 3.8 fps)
—**2=Sharp-Crested Vee/Trap Weir** (Controls 0.00 cfs)

Pond p10:

Field Note #25
Need to get full story on how this pond works

Inflow Area = 45.146 ac, Inflow Depth = 1.24" for 50-yr event
Inflow = 18.17 cfs @ 12.37 hrs, Volume= 4.664 af
Outflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Atten= 100%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Starting Elev= 498.40' Surf.Area= 36,110 sf Storage= 101,108 cf
Peak Elev= 502.65' @ 48.00 hrs Surf.Area= 62,668 sf Storage= 304,259 cf (203,151 cf above start)
Plug-Flow detention time= (not calculated)
Center-of-Mass det. time= (not calculated)

#	Invert	Avail.Storage	Storage Description
1	490.00'	581,029 cf	**Custom Stage Data (Conic)** Listed below

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
490.00	0	0	0	0
498.40	36,110	101,108	101,108	36,221
500.00	42,400	62,741	163,849	42,610
502.00	54,880	97,012	260,861	55,187
504.00	78,730	132,895	393,755	79,107
506.00	109,382	187,274	581,029	109,836

Pond p12:

No field note.
Natural depression.

Inflow Area = 6.420 ac, Inflow Depth = 1.94" for 50-yr event
Inflow = 6.45 cfs @ 12.65 hrs, Volume= 1.036 af
Outflow = 1.30 cfs @ 14.35 hrs, Volume= 0.532 af, Atten= 80%, Lag= 102.5 min
Primary = 1.30 cfs @ 14.35 hrs, Volume= 0.532 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Peak Elev= 547.75' @ 14.35 hrs Surf.Area= 15,298 sf Storage= 24,410 cf
Flood Elev= 547.50' Surf.Area= 13,848 sf Storage= 21,762 cf
Plug-Flow detention time= 321.0 min calculated for 0.532 af (51% of inflow)
Center-of-Mass det. time= 187.3 min (1,089.7 - 902.5)

#	Invert	Avail.Storage	Storage Description
1	543.50'	26,986 cf	**Custom Stage Data (Conic)** Listed below

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
543.50	0	0	0	0
544.00	1,140	190	190	1,140
546.00	5,260	5,899	6,089	5,278
548.00	16,710	20,897	26,986	16,750

#	Routing	Invert	Outlet Devices
1	Primary	547.50'	**173.0 deg Sharp-Crested Vee/Trap Weir** C= 2.46

Primary OutFlow Max=1.30 cfs @ 14.35 hrs HW=547.75' TW=544.10' (Dynamic Tailwater)
1=Sharp-Crested Vee/Trap Weir (Weir Controls 1.30 cfs @ 1.2 fps)

Pond p13:

No Field Note
Natural depression.

Inflow Area = 0.350 ac, Inflow Depth = 1.94" for 50-yr event
Inflow = 0.67 cfs @ 12.13 hrs, Volume= 0.056 af
Outflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Atten= 100%, Lag= 0.0 min
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Peak Elev= 514.42' @ 24.49 hrs Surf.Area= 1,530 sf Storage= 2,459 cf
Flood Elev= 519.50' Surf.Area= 4,313 sf Storage= 16,523 cf
Plug-Flow detention time= (not calculated)
Center-of-Mass det. time= (not calculated)

#	Invert	Avail.Storage	Storage Description
1	511.40'	18,490 cf	**Custom Stage Data (Conic)** Listed below

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
511.40	0	0	0	0
512.00	390	78	78	391
514.00	1,360	1,652	1,730	1,381
516.00	2,180	3,508	5,238	2,253
518.00	3,240	5,385	10,623	3,375
520.00	4,670	7,867	18,490	4,872

#	Routing	Invert	Outlet Devices
1	Primary	519.50'	**176.0 deg Sharp-Crested Vee/Trap Weir** C= 2.46

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=511.40' TW=497.40' (Dynamic Tailwater)
1=Sharp-Crested Vee/Trap Weir (Controls 0.00 cfs)

Pond p14:

Field Note #26
Need to figure out how this pond works

Inflow Area = 36.186 ac, Inflow Depth = 2.74" for 50-yr event
Inflow = 54.63 cfs @ 12.39 hrs, Volume= 8.265 af
Outflow = 3.24 cfs @ 18.00 hrs, Volume= 2.121 af, Atten= 94%, Lag= 337.1 min
Primary = 3.24 cfs @ 18.00 hrs, Volume= 2.121 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Starting Elev= 497.40' Surf.Area= 22,200 sf Storage= 54,760 cf
Peak Elev= 502.76' @ 18.00 hrs Surf.Area= 77,420 sf Storage= 330,734 cf (275,974 cf above start)
Plug-Flow detention time= 735.4 min calculated for 0.863 af (10% of inflow)
Center-of-Mass det. time= 314.9 min (1,174.2 - 859.3)

#	Invert	Avail.Storage	Storage Description
1	490.00'	805,062 cf	**Custom Stage Data (Conic)** Listed below

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
490.00	0	0	0	0
497.40	22,200	54,760	54,760	22,286
498.00	25,330	14,249	69,009	25,433
500.00	52,810	76,476	145,485	52,948
502.00	73,360	125,608	271,093	73,574
504.00	84,070	157,308	428,402	84,467
506.00	92,130	176,139	604,540	92,797
508.00	108,618	200,522	805,062	109,437

#	Routing	Invert	Outlet Devices
1	Primary	500.00'	**24.0" x 80.0' long Culvert** CPP, end-section conforming to fill, Ke= 0.500 Outlet Invert= 502.00' S= -0.0250 '/' n= 0.012 Cc= 0.900

Primary OutFlow Max=3.24 cfs @ 18.00 hrs HW=502.76' TW=501.34' (Dynamic Tailwater)
└─**1=Culvert** (Inlet Controls 3.24 cfs @ 3.0 fps)

Pond p15:

Field Note # 43
Infiltration basin

Inflow Area = 5.770 ac, Inflow Depth = 4.25" for 50-yr event
Inflow = 19.82 cfs @ 12.07 hrs, Volume= 2.044 af
Outflow = 19.71 cfs @ 12.07 hrs, Volume= 1.789 af, Atten= 1%, Lag= 0.5 min
Primary = 19.71 cfs @ 12.07 hrs, Volume= 1.789 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Peak Elev= 536.25' @ 12.07 hrs Surf.Area= 3,303 sf Storage= 12,044 cf
Flood Elev= 536.00' Surf.Area= 3,160 sf Storage= 11,127 cf
Plug-Flow detention time= 106.4 min calculated for 1.789 af (88% of inflow)

Center-of-Mass det. time= 46.4 min (834.3 - 787.9)

#	Invert	Avail.Storage	Storage Description
1	526.80'	18,577 cf	**Custom Stage Data (Conic)** Listed below

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
526.80	0	0	0	0
528.00	310	124	124	312
530.00	660	948	1,072	694
532.00	1,180	1,815	2,887	1,256
534.00	1,990	3,135	6,022	2,113
536.00	3,160	5,105	11,127	3,337
538.00	4,320	7,450	18,577	4,575

#	Routing	Invert	Outlet Devices
1	Primary	536.00'	**171.0 deg x 50.0' long Sharp-Crested Vee/Trap Weir** C= 2.46

Primary OutFlow Max=19.66 cfs @ 12.07 hrs HW=536.25' TW=508.14' (Dynamic Tailwater)
└─**1=Sharp-Crested Vee/Trap Weir** (Weir Controls 19.66 cfs @ 1.5 fps)

Pond p16:

Field Note # 49
Large pond with man-made island.
Geometry to be verified by survey. In particular, we are making big guesses about the outlets.
Also need to find out about valves...

Inflow Area = 220.861 ac, Inflow Depth = 3.14" for 50-yr event
Inflow = 230.82 cfs @ 12.34 hrs, Volume= 57.842 af
Outflow = 111.99 cfs @ 14.25 hrs, Volume= 45.930 af, Atten= 51%, Lag= 114.8 min
Primary = 111.99 cfs @ 14.25 hrs, Volume= 45.930 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Starting Elev= 507.00' Surf.Area= 199,799 sf Storage= 878,320 cf
Peak Elev= 511.47' @ 14.25 hrs Surf.Area= 314,318 sf Storage= 1,905,677 cf (1,027,357 cf above start)
Flood Elev= 510.50' Surf.Area= 271,550 sf Storage= 1,623,217 cf (744,897 cf above start)
Plug-Flow detention time= 688.1 min calculated for 25.761 af (45% of inflow)
Center-of-Mass det. time= 281.0 min (1,192.4 - 911.4)

#	Invert	Avail.Storage	Storage Description
1	500.00'	2,062,087 cf	**Custom Stage Data (Conic)** Listed below

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
500.00	0	0	0	0
503.00	140,344	140,344	140,344	140,358
509.20	232,500	1,143,862	1,284,206	232,994
510.00	249,400	192,720	1,476,927	249,951
512.00	338,000	585,160	2,062,087	338,634

#	Routing	Invert	Outlet Devices
1	Primary	509.00'	**18.0" x 110.0' long Culvert** CMP, projecting, no headwall, Ke= 0.900 Outlet Invert= 505.70' S= 0.0300 '/' n= 0.024 Cc= 0.900
2	Primary	500.00'	**8.0" x 100.0' long assumed equalization pipe w/ valve X 0.00** CMP, projecting, no headwall, Ke= 0.900 Outlet Invert= 500.00' S= 0.0000 '/' n= 0.013 Cc= 0.900
3	Primary	510.50'	**175.0 deg Sharp-Crested Vee/Trap Weir X 2.00** C= 2.46

Primary OutFlow Max=111.99 cfs @ 14.25 hrs HW=511.47' TW=506.51' (Dynamic Tailwater)
—**1=Culvert** (Inlet Controls 8.80 cfs @ 5.0 fps)
—**2=assumed equalization pipe w/ valve** (Controls 0.00 cfs)
—**3=Sharp-Crested Vee/Trap Weir** (Weir Controls 103.19 cfs @ 2.4 fps)

Pond p17:

Field Note #45
Golf pond
Geometry to be confirmed by surveyed

Inflow Area = 115.991 ac, Inflow Depth = 2.98" for 50-yr event
Inflow = 96.22 cfs @ 13.77 hrs, Volume= 28.765 af
Outflow = 96.17 cfs @ 13.77 hrs, Volume= 28.764 af, Atten= 0%, Lag= 0.4 min
Primary = 96.17 cfs @ 13.77 hrs, Volume= 28.764 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Starting Elev= 523.80' Surf.Area= 7,290 sf Storage= 9,234 cf
Peak Elev= 525.61' @ 13.77 hrs Surf.Area= 11,456 sf Storage= 26,425 cf (17,191 cf above start)
Flood Elev= 524.30' Surf.Area= 8,074 sf Storage= 13,623 cf (4,389 cf above start)
Plug-Flow detention time= 15.2 min calculated for 28.552 af (99% of inflow)
Center-of-Mass det. time= 8.3 min (960.4 - 952.0)

#	Invert	Avail.Storage	Storage Description
1	520.00'	30,224 cf	**Custom Stage Data (Conic)** Listed below

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
520.00	0	0	0	0
523.80	7,290	9,234	9,234	7,313
524.00	7,300	1,459	10,693	7,374
526.00	12,460	19,531	30,224	12,581

#	Routing	Invert	Outlet Devices
1	Primary	523.80'	**2.2' long x 0.5' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 Coef. (English) 2.80 2.92 3.08 3.30 3.32
2	Primary	524.30'	**143.0 deg Sharp-Crested Vee/Trap Weir** C= 2.47
3	Primary	525.20'	**178.0 deg x 60.0' long Sharp-Crested Vee/Trap Weir** C= 2.46

Primary OutFlow Max=96.17 cfs @ 13.77 hrs HW=525.61' TW=516.18' (Dynamic Tailwater)
├─**1=Broad-Crested Rectangular Weir** (Weir Controls 17.80 cfs @ 4.5 fps)
├─**2=Sharp-Crested Vee/Trap Weir** (Weir Controls 14.52 cfs @ 2.8 fps)
└─**3=Sharp-Crested Vee/Trap Weir** (Weir Controls 63.84 cfs @ 1.9 fps)

Pond p18:

Field Note #46
Golf pond
Geometry to be confirmed by surveyed

Inflow Area = 139.117 ac, Inflow Depth = 3.00" for 50-yr event
Inflow = 103.28 cfs @ 13.77 hrs, Volume= 34.823 af
Outflow = 103.13 cfs @ 13.79 hrs, Volume= 34.818 af, Atten= 0%, Lag= 1.2 min
Primary = 103.13 cfs @ 13.79 hrs, Volume= 34.818 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Starting Elev= 513.90' Surf.Area= 20,680 sf Storage= 26,884 cf
Peak Elev= 516.18' @ 13.79 hrs Surf.Area= 29,624 sf Storage= 84,240 cf (57,356 cf above start)
Flood Elev= 514.81' Surf.Area= 23,768 sf Storage= 48,709 cf (21,825 cf above start)
Plug-Flow detention time= 39.8 min calculated for 34.201 af (98% of inflow)
Center-of-Mass det. time= 23.6 min (964.9 - 941.3)

#	Invert	Avail.Storage	Storage Description
1	510.00'	148,288 cf	**Custom Stage Data (Conic)** Listed below

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
510.00	0	0	0	0
513.90	20,680	26,884	26,884	20,704
514.00	20,690	2,068	28,952	20,756
516.00	28,290	48,782	77,735	28,436
518.00	42,760	70,554	148,288	42,967

#	Routing	Invert	Outlet Devices
1	Primary	513.90'	**2.0' long x 0.5' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 Coef. (English) 2.80 2.92 3.08 3.30 3.32
2	Primary	514.81'	**143.0 deg Sharp-Crested Vee/Trap Weir** C= 2.47
3	Primary	515.32'	**175.0 deg x 10.0' long Sharp-Crested Vee/Trap Weir** C= 2.46

Primary OutFlow Max=103.13 cfs @ 13.79 hrs HW=516.18' TW=511.37' (Dynamic Tailwater)
├─**1=Broad-Crested Rectangular Weir** (Weir Controls 22.93 cfs @ 5.0 fps)
├─**2=Sharp-Crested Vee/Trap Weir** (Weir Controls 16.35 cfs @ 2.9 fps)
└─**3=Sharp-Crested Vee/Trap Weir** (Weir Controls 63.85 cfs @ 2.5 fps)

Pond p19:

Wetland
Geometry to be confirmed by survey
Based off aerial topo, and assumed topo contour

Inflow Area = 15.520 ac, Inflow Depth = 2.39" for 50-yr event
Inflow = 20.51 cfs @ 12.61 hrs, Volume= 3.096 af
Outflow = 13.60 cfs @ 12.96 hrs, Volume= 3.094 af, Atten= 34%, Lag= 20.9 min
Primary = 13.60 cfs @ 12.96 hrs, Volume= 3.094 af
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Starting Elev= 972.00' Surf.Area= 86,000 sf Storage= 57,333 cf
Peak Elev= 972.27' @ 12.96 hrs Surf.Area= 93,340 sf Storage= 87,215 cf (29,881 cf above start)
Plug-Flow detention time= 300.9 min calculated for 1.778 af (57% of inflow)
Center-of-Mass det. time= 59.3 min (947.2 - 888.0)

#	Invert	Avail.Storage	Storage Description
1	970.00'	282,329 cf	**Custom Stage Data (Conic)** Listed below

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
970.00	0	0	0	0
972.00	86,000	57,333	57,333	86,006
974.00	141,270	224,996	282,329	141,327

#	Routing	Invert	Outlet Devices
1	Secondary	973.60'	**178.0 deg x 51.0' long Sharp-Crested Vee/Trap Weir** C= 2.46
2	Primary	972.00'	**35.0' long x 0.5' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 Coef. (English) 2.80 2.92 3.08 3.30 3.32

Primary OutFlow Max=13.60 cfs @ 12.96 hrs HW=972.27' TW=970.21' (Dynamic Tailwater)
└─**2=Broad-Crested Rectangular Weir** (Weir Controls 13.60 cfs @ 1.5 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=972.00' TW=973.60' (Dynamic Tailwater)
└─**1=Sharp-Crested Vee/Trap Weir** (Controls 0.00 cfs)

Pond p20:

Field Note #50
Spring Fed Pond
Geometry to be confirmed by surveyed

Inflow Area = 241.484 ac, Inflow Depth = 2.59" for 50-yr event
Inflow = 117.86 cfs @ 14.24 hrs, Volume= 52.112 af
Outflow = 115.73 cfs @ 14.40 hrs, Volume= 51.255 af, Atten= 2%, Lag= 9.5 min
Primary = 115.73 cfs @ 14.40 hrs, Volume= 51.255 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

Starting Elev= 505.10' Surf.Area= 89,370 sf Storage= 138,524 cf
Peak Elev= 506.52' @ 14.42 hrs Surf.Area= 91,962 sf Storage= 268,165 cf (129,641 cf above start)
Plug-Flow detention time= 171.0 min calculated for 48.075 af (92% of inflow)
Center-of-Mass det. time= 44.8 min (1,194.9 - 1,150.1)

#	Invert	Avail.Storage	Storage Description
1	502.00'	615,682 cf	**Custom Stage Data (Prismatic)** Listed below

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
502.00	0	0	0
505.10	89,370	138,524	138,524
506.00	89,380	80,437	218,961
508.00	99,280	188,660	407,621
510.00	108,781	208,061	615,682

#	Routing	Invert	Outlet Devices
1	Primary	505.10'	**3.0' long x 1.5' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 Coef. (English) 2.62 2.64 2.64 2.68 2.75 2.86 2.92 3.07 3.07 3.03 3.28 3.32
2	Primary	506.20'	**6.5' long x 1.5' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 Coef. (English) 2.62 2.64 2.64 2.68 2.75 2.86 2.92 3.07 3.07 3.03 3.28 3.32
3	Primary	506.00'	**176.0 deg x 97.0' long Sharp-Crested Vee/Trap Weir** C= 2.46

Primary OutFlow Max=115.68 cfs @ 14.40 hrs HW=506.52' TW=506.35' (Dynamic Tailwater)
├─**1=Broad-Crested Rectangular Weir** (Weir Controls 7.61 cfs @ 1.8 fps)
├─**2=Broad-Crested Rectangular Weir** (Weir Controls 2.68 cfs @ 1.3 fps)
└─**3=Sharp-Crested Vee/Trap Weir** (Weir Controls 105.39 cfs @ 1.8 fps)

Pond p21:

Inflow Area = 489.305 ac, Inflow Depth = 2.95" for 50-yr event
Inflow = 461.70 cfs @ 12.44 hrs, Volume= 120.203 af
Outflow = 37.28 cfs @ 21.11 hrs, Volume= 96.485 af, Atten= 92%, Lag= 520.3 min
Primary = 37.28 cfs @ 21.11 hrs, Volume= 96.485 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Peak Elev= 486.58' @ 21.11 hrs Surf.Area= 1,340,291 sf Storage= 3,276,119 cf
Plug-Flow detention time= 883.2 min calculated for 96.485 af (80% of inflow)
Center-of-Mass det. time= 735.6 min (1,737.5 - 1,002.0)

#	Invert	Avail.Storage	Storage Description
1	480.40'	5,244,885 cf	**Custom Stage Data (Conic)** Listed below

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
480.40	0	0	0	0
482.00	202,230	107,856	107,856	202,234
484.00	485,198	667,114	774,970	485,231
486.00	1,275,481	1,698,237	2,473,208	1,275,541
488.00	1,499,208	2,771,678	5,244,885	1,499,423

#	Routing	Invert	Outlet Devices
1	Primary	480.40'	**30.0" x 70.0' long Culvert** CMP, projecting, no headwall, Ke= 0.900 Outlet Invert= 480.40' S= 0.0000 '/' n= 0.024 Cc= 0.900

Primary OutFlow Max=37.28 cfs @ 21.11 hrs HW=486.58' TW=0.00' (Dynamic Tailwater)
↑—**1=Culvert** (Barrel Controls 37.28 cfs @ 7.6 fps)

Pond p22:

Field Note #54
Golf Pond
Geometry to be confirmed by survey

Inflow Area =	97.943 ac, Inflow Depth = 3.14"	for 50-yr event	
Inflow =	176.41 cfs @ 12.45 hrs, Volume=	25.590 af	
Outflow =	175.37 cfs @ 12.49 hrs, Volume=	25.291 af,	Atten= 1%, Lag= 2.2 min
Primary =	175.37 cfs @ 12.49 hrs, Volume=	25.291 af	

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Starting Elev= 498.10' Surf.Area= 6,520 sf Storage= 10,106 cf
Peak Elev= 502.60' @ 12.49 hrs Surf.Area= 12,435 sf Storage= 52,053 cf (41,947 cf above start)
Plug-Flow detention time= 27.1 min calculated for 25.053 af (98% of inflow)
Center-of-Mass det. time= 12.5 min (882.9 - 870.4)

#	Invert	Avail.Storage	Storage Description
1	495.00'	143,770 cf	**Custom Stage Data (Prismatic)** Listed below

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
495.00	0	0	0
498.10	6,520	10,106	10,106
500.00	8,390	14,164	24,270
502.00	11,530	19,920	44,190
504.00	14,530	26,060	70,250
506.00	18,340	32,870	103,120
508.00	22,310	40,650	143,770

#	Routing	Invert	Outlet Devices
1	Primary	499.75'	**18.0" x 21.0' long Culvert** CMP, projecting, no headwall, Ke= 0.900 Outlet Invert= 499.75' S= 0.0000 '/' n= 0.024 Cc= 0.900
2	Primary	500.50'	**1.0' long x 15.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.68 2.70 2.70 2.64 2.63 2.64 2.64 2.63

#	Routing	Invert	Outlet Devices
3	Primary	500.50'	**20.0' long x 13.5' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.62 2.66 2.70 2.66 2.65 2.66 2.65 2.63

Primary OutFlow Max=175.33 cfs @ 12.49 hrs HW=502.60' TW=500.73' (Dynamic Tailwater)
1=Culvert (Inlet Controls 9.20 cfs @ 5.2 fps)
2=Broad-Crested Rectangular Weir (Weir Controls 7.91 cfs @ 3.8 fps)
3=Broad-Crested Rectangular Weir (Weir Controls 158.22 cfs @ 3.8 fps)

Pond p23:

Inflow Area = 41.587 ac, Inflow Depth = 3.57" for 50-yr event
Inflow = 78.66 cfs @ 12.64 hrs, Volume= 12.389 af
Outflow = 78.61 cfs @ 12.66 hrs, Volume= 11.471 af, Atten= 0%, Lag= 0.8 min
Primary = 78.61 cfs @ 12.66 hrs, Volume= 11.471 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Peak Elev= 507.96' @ 12.66 hrs Surf.Area= 19,305 sf Storage= 44,019 cf
Plug-Flow detention time= 55.2 min calculated for 11.471 af (93% of inflow)
Center-of-Mass det. time= 16.8 min (883.3 - 866.4)

#	Invert	Avail.Storage	Storage Description
1	503.50'	100,303 cf	**Custom Stage Data (Prismatic)** Listed below

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
503.50	0	0	0
506.00	11,170	13,963	13,963
508.00	19,460	30,630	44,593
510.00	36,250	55,710	100,303

#	Routing	Invert	Outlet Devices
1	Primary	507.70'	**178.0 deg x 178.0' long Sharp-Crested Vee/Trap Weir** C= 2.46

Primary OutFlow Max=78.61 cfs @ 12.66 hrs HW=507.96' TW=507.31' (Dynamic Tailwater)
1=Sharp-Crested Vee/Trap Weir (Weir Controls 78.61 cfs @ 1.6 fps)

Pond zDP1: Design Point 1

Field note #10.
Culvert dimensions to be confirmed by survey.

Inflow Area = 26.659 ac, Inflow Depth = 3.23" for 50-yr event
Inflow = 50.31 cfs @ 12.48 hrs, Volume= 7.167 af
Outflow = 50.31 cfs @ 12.48 hrs, Volume= 7.167 af, Atten= 0%, Lag= 0.1 min
Primary = 50.31 cfs @ 12.48 hrs, Volume= 7.167 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Peak Elev= 723.04' @ 12.48 hrs Surf.Area= 220 sf Storage= 266 cf
Flood Elev= 727.00' Surf.Area= 1,105 sf Storage= 2,619 cf
Plug-Flow detention time= 0.2 min calculated for 7.167 af (100% of inflow)

Center-of-Mass det. time= 0.1 min (864.4 - 864.3)

#	Invert	Avail.Storage	Storage Description
1	720.10'	3,706 cf	**Custom Stage Data (Conic)** Listed below

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
720.10	0	0	0	0
722.00	90	57	57	96
724.00	340	403	460	364
726.00	760	1,072	1,533	815
728.00	1,450	2,173	3,706	1,543

#	Routing	Invert	Outlet Devices
1	Primary	720.10'	**42.0" x 120.0' long Culvert** CMP, square edge headwall, Ke= 0.500 Outlet Invert= 700.00' S= 0.1675 '/' n= 0.024 Cc= 0.900
2	Primary	727.00'	**155.0 deg Sharp-Crested Vee/Trap Weir** C= 2.47

Primary OutFlow Max=50.31 cfs @ 12.48 hrs HW=723.04' TW=686.90' (Dynamic Tailwater)
├─**1=Culvert** (Inlet Controls 50.31 cfs @ 5.8 fps)
└─**2=Sharp-Crested Vee/Trap Weir** (Controls 0.00 cfs)

Pond zDP2: Design Point 2

Field Note #15
Culvert dimensions to be confirmed by survey
Overflow to ditch is currently discarded... We may have to model that area...

Inflow Area = 97.712 ac, Inflow Depth = 2.87" for 50-yr event
Inflow = 125.74 cfs @ 12.87 hrs, Volume= 23.389 af
Outflow = 125.68 cfs @ 12.87 hrs, Volume= 23.389 af, Atten= 0%, Lag= 0.3 min
Discarded = 89.50 cfs @ 12.87 hrs, Volume= 7.267 af
Primary = 36.18 cfs @ 12.87 hrs, Volume= 16.122 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Peak Elev= 626.32' @ 12.87 hrs Surf.Area= 1,605 sf Storage= 3,968 cf
Flood Elev= 624.50' Surf.Area= 925 sf Storage= 1,728 cf
Plug-Flow detention time= 0.7 min calculated for 23.389 af (100% of inflow)
Center-of-Mass det. time= 0.5 min (896.1 - 895.5)

#	Invert	Avail.Storage	Storage Description
1	619.60'	7,280 cf	**Custom Stage Data (Conic)** Listed below

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
619.60	0	0	0	0
620.00	10	1	1	10
622.00	260	214	215	269
624.00	760	976	1,192	793
626.00	1,420	2,146	3,338	1,492
628.00	2,580	3,943	7,280	2,694

#	Routing	Invert	Outlet Devices
1	Primary	619.60'	**24.0" x 150.0' long Culvert** RCP, end-section conforming to fill, Ke= 0.500 Outlet Invert= 608.00' S= 0.0773 '/' n= 0.012 Cc= 0.900
2	Discarded	624.50'	**166.0 deg Sharp-Crested Vee/Trap Weir** C= 2.46

Discarded OutFlow Max=89.48 cfs @ 12.87 hrs HW=626.32' (Free Discharge)
└─**2=Sharp-Crested Vee/Trap Weir** (Weir Controls 89.48 cfs @ 3.3 fps)

Primary OutFlow Max=36.18 cfs @ 12.87 hrs HW=626.32' TW=607.68' (Dynamic Tailwater)
└─**1=Culvert** (Inlet Controls 36.18 cfs @ 11.5 fps)

Pond zDP3: Design Point 3

Inflow Area = 212.742 ac, Inflow Depth = 20.23" for 50-yr event
Inflow = 300.14 cfs @ 12.39 hrs, Volume= 358.711 af
Primary = 300.14 cfs @ 12.39 hrs, Volume= 358.711 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

Pond zDP4: Design Point 4

Inflow Area = 489.305 ac, Inflow Depth = 2.37" for 50-yr event
Inflow = 37.28 cfs @ 21.11 hrs, Volume= 96.485 af
Primary = 37.28 cfs @ 21.11 hrs, Volume= 96.485 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

Pond zDP5: Design Point 5

Inflow Area = 28.325 ac, Inflow Depth = 3.37" for 50-yr event
Inflow = 62.42 cfs @ 12.45 hrs, Volume= 7.956 af
Primary = 62.42 cfs @ 12.45 hrs, Volume= 7.956 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

Pre-Development Conditions
100 year 24 hour Storm Event
Model Computations

Subcatchment s01:

Runoff = 21.78 cfs @ 12.60 hrs, Volume= 3.264 af, Depth= 3.41"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 100-yr Rainfall=7.00"

Area (ac)	CN	Description
11.485	68	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
42.8					**Direct Entry,**

Subcatchment s02:

Runoff = 136.27 cfs @ 12.87 hrs, Volume= 25.263 af, Depth= 3.10"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 100-yr Rainfall=7.00"

Area (ac)	CN	Description
97.712	65	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
61.3					**Direct Entry,**

Subcatchment s03:

Runoff = 35.87 cfs @ 12.41 hrs, Volume= 4.443 af, Depth= 3.51"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 100-yr Rainfall=7.00"

Area (ac)	CN	Description
15.174	69	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
28.8					**Direct Entry,**

Subcatchment s04:

Runoff = 40.38 cfs @ 12.10 hrs, Volume= 2.948 af, Depth= 3.10"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 100-yr Rainfall=7.00"

Area (ac)	CN	Description
11.403	65	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.5					**Direct Entry,**

Subcatchment s05:

Runoff = 32.84 cfs @ 12.25 hrs, Volume= 3.363 af, Depth= 2.70"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 100-yr Rainfall=7.00"

Area (ac)	CN	Description
14.935	61	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
17.3					**Direct Entry,**

Subcatchment s06:

Runoff = 20.64 cfs @ 12.25 hrs, Volume= 2.102 af, Depth= 2.80"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 100-yr Rainfall=7.00"

Area (ac)	CN	Description
9.007	62	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
17.3					**Direct Entry,**

Subcatchment s06(OW): s06 Open Water

Runoff = 3.60 cfs @ 12.00 hrs, Volume= 0.250 af, Depth= 7.00"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 100-yr Rainfall=7.00"

Area (ac)	CN	Description
0.428	100	

Subcatchment s07:

Runoff = 18.36 cfs @ 12.19 hrs, Volume= 1.704 af, Depth= 3.00"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 100-yr Rainfall=7.00"

Area (ac)	CN	Description
6.811	64	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
13.9					**Direct Entry,**

Subcatchment s07(OW): s07 Open Water

Runoff = 4.25 cfs @ 12.00 hrs, Volume= 0.295 af, Depth= 7.00"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 100-yr Rainfall=7.00"

Area (ac)	CN	Description
0.506	100	

Subcatchment s08:

Runoff = 55.54 cfs @ 12.33 hrs, Volume= 6.368 af, Depth= 2.41"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 100-yr Rainfall=7.00"

Area (ac)	CN	Description
31.719	58	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
21.8					**Direct Entry,**

Subcatchment s09:

Runoff = 22.20 cfs @ 12.23 hrs, Volume= 2.185 af, Depth= 3.10"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 100-yr Rainfall=7.00"

Area (ac)	CN	Description
8.452	65	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
16.4					**Direct Entry,**

Subcatchment s10:

Runoff = 18.28 cfs @ 12.40 hrs, Volume= 2.240 af, Depth= 3.31"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 100-yr Rainfall=7.00"

Area (ac)	CN	Description
8.130	67	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
27.9					**Direct Entry,**

Subcatchment s10(OW): s10 Open Water

Runoff = 6.97 cfs @ 12.00 hrs, Volume= 0.484 af, Depth= 7.00"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 100-yr Rainfall=7.00"

Area (ac)	CN	Description
0.830	100	

Subcatchment s11:

Runoff = 6.48 cfs @ 12.28 hrs, Volume= 0.692 af, Depth= 3.51"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 100-yr Rainfall=7.00"

Area (ac)	CN	Description
2.364	69	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
20.5					**Direct Entry,**

Subcatchment s11(IC): s11 Imp. Cover

Runoff = 18.01 cfs @ 12.04 hrs, Volume= 1.317 af, Depth= 6.76"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 100-yr Rainfall=7.00"

Area (ac)	CN	Description
2.338	98	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
2.8					**Direct Entry,**

Subcatchment s12:

Runoff = 7.15 cfs @ 12.64 hrs, Volume= 1.136 af, Depth= 2.12"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 100-yr Rainfall=7.00"

Area (ac)	CN	Description
6.420	55	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
42.0					**Direct Entry,**

Subcatchment s13:

Runoff = 0.74 cfs @ 12.13 hrs, Volume= 0.062 af, Depth= 2.12"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 100-yr Rainfall=7.00"

Area (ac)	CN	Description
0.350	55	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.6					**Direct Entry,**

Subcatchment s14:

Runoff = 36.49 cfs @ 12.40 hrs, Volume= 4.519 af, Depth= 3.00"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 100-yr Rainfall=7.00"

Area (ac)	CN	Description
18.066	64	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
28.1					**Direct Entry,**

Subcatchment s14(IC): s14 Imp. Cover

Runoff = 18.66 cfs @ 12.03 hrs, Volume= 1.341 af, Depth= 6.76"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 100-yr Rainfall=7.00"

Area (ac)	CN	Description
2.380	98	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
2.3					**Direct Entry,**

Subcatchment s14(OW): s14 Open Water

Runoff = 4.35 cfs @ 12.00 hrs, Volume= 0.302 af, Depth= 7.00"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 100-yr Rainfall=7.00"

Area (ac)	CN	Description
0.518	100	

Subcatchment s15:

Runoff = 1.53 cfs @ 12.20 hrs, Volume= 0.156 af, Depth= 1.76"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 100-yr Rainfall=7.00"

Area (ac)	CN	Description
1.068	51	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
13.1					**Direct Entry,**

Subcatchment s16:

Runoff = 163.08 cfs @ 12.32 hrs, Volume= 18.157 af, Depth= 3.20"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 100-yr Rainfall=7.00"

Area (ac)	CN	Description
67.994	66	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
22.3					**Direct Entry,**

Subcatchment s16(IC): s16 Imp.Cover

Runoff = 20.17 cfs @ 12.04 hrs, Volume= 1.481 af, Depth= 6.76"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 100-yr Rainfall=7.00"

Area (ac)	CN	Description
2.629	98	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
2.9					**Direct Entry,**

Subcatchment s16(OW): s16 Open Water

Runoff = 44.97 cfs @ 12.00 hrs, Volume= 3.121 af, Depth= 7.00"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 100-yr Rainfall=7.00"

Area (ac)	CN	Description
5.351	100	

Subcatchment s17:

Runoff = 104.07 cfs @ 13.77 hrs, Volume= 30.930 af, Depth= 3.20"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 100-yr Rainfall=7.00"

Area (ac)	CN	Description
115.827	66	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
125.2					**Direct Entry,**

Subcatchment s17(OW): s17 Open Water

Runoff = 1.38 cfs @ 12.00 hrs, Volume= 0.096 af, Depth= 7.00"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 100-yr Rainfall=7.00"

Area (ac)	CN	Description
0.164	100	

Subcatchment s18:

Runoff = 54.10 cfs @ 12.34 hrs, Volume= 6.243 af, Depth= 3.31"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 100-yr Rainfall=7.00"

Area (ac)	CN	Description
22.654	67	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
24.4					**Direct Entry,**

Subcatchment s18(OW): s18 Open Water

Runoff = 3.97 cfs @ 12.00 hrs, Volume= 0.275 af, Depth= 7.00"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 100-yr Rainfall=7.00"

Area (ac)	CN	Description
0.472	100	

Subcatchment s19:

Runoff = 22.44 cfs @ 12.61 hrs, Volume= 3.367 af, Depth= 2.60"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 100-yr Rainfall=7.00"

Area (ac)	CN	Description
15.520	60	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
40.4					**Direct Entry,**

Subcatchment s20:

Runoff = 40.99 cfs @ 12.47 hrs, Volume= 5.463 af, Depth= 3.51"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 100-yr Rainfall=7.00"

Area (ac)	CN	Description
18.655	69	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
33.9					**Direct Entry,**

Subcatchment s20(OW): s20 Open Water

Runoff = 16.54 cfs @ 12.00 hrs, Volume= 1.148 af, Depth= 7.00"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 100-yr Rainfall=7.00"

Area (ac)	CN	Description
1.968	100	

Subcatchment s21:

Runoff = 228.02 cfs @ 12.37 hrs, Volume= 27.297 af, Depth= 3.41"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 100-yr Rainfall=7.00"

Area (ac)	CN	Description
96.056	68	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
26.7					**Direct Entry,**

Subcatchment s21(OW):

Runoff = 102.81 cfs @ 12.00 hrs, Volume= 7.137 af, Depth= 7.00"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 100-yr Rainfall=7.00"

Area (ac)	CN	Description
12.235	100	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.0					**Direct Entry,**

Subcatchment s22:

Runoff = 187.23 cfs @ 12.45 hrs, Volume= 24.096 af, Depth= 3.51"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 100-yr Rainfall=7.00"

Area (ac)	CN	Description
82.287	69	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
31.3					**Direct Entry,**

Subcatchment s22(OW): s22 Open Water

Runoff = 1.14 cfs @ 12.00 hrs, Volume= 0.079 af, Depth= 7.00"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 100-yr Rainfall=7.00"

Area (ac)	CN	Description
0.136	100	

Subcatchment s23:

Runoff = 84.32 cfs @ 12.64 hrs, Volume= 13.270 af, Depth= 3.83"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 100-yr Rainfall=7.00"

Area (ac)	CN	Description
41.587	72	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
47.0					**Direct Entry,**

Subcatchment s24:

Runoff = 67.08 cfs @ 12.45 hrs, Volume= 8.541 af, Depth= 3.62"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 100-yr Rainfall=7.00"

Area (ac)	CN	Description
28.325	70	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
30.7					**Direct Entry,**

Subcatchment s25:

Runoff = 33.89 cfs @ 12.28 hrs, Volume= 3.622 af, Depth= 3.20"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 100-yr Rainfall=7.00"

Area (ac)	CN	Description
13.562	66	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
20.2					**Direct Entry,**

Reach r03:

Overland Flow Reach
Requires more survey

Inflow Area = 11.485 ac, Inflow Depth = 3.41" for 100-yr event
Inflow = 21.78 cfs @ 12.60 hrs, Volume= 3.264 af
Outflow = 21.68 cfs @ 12.62 hrs, Volume= 3.264 af, Atten= 0%, Lag= 1.4 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Max. Velocity= 6.0 fps, Min. Travel Time= 2.2 min
Avg. Velocity = 2.2 fps, Avg. Travel Time= 5.8 min

Peak Depth= 0.76' @ 12.62 hrs
Capacity at bank full= 92.14 cfs
Inlet Invert= 845.00', Outlet Invert= 728.00'
10.00' x 1.50' deep Parabolic Channel, n= 0.060 Length= 785.0' Slope= 0.1490 '/'

Reach r04:

Channel

Inflow Area = 26.659 ac, Inflow Depth = 3.47" for 100-yr event
Inflow = 54.22 cfs @ 12.48 hrs, Volume= 7.707 af
Outflow = 54.14 cfs @ 12.49 hrs, Volume= 7.707 af, Atten= 0%, Lag= 1.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Max. Velocity= 7.7 fps, Min. Travel Time= 1.5 min
Avg. Velocity = 2.9 fps, Avg. Travel Time= 3.9 min

Peak Depth= 1.45' @ 12.49 hrs
Capacity at bank full= 446.15 cfs
Inlet Invert= 685.50', Outlet Invert= 608.00'
12.00' x 4.00' deep Parabolic Channel, n= 0.060 Length= 675.0' Slope= 0.1148 '/'

Reach r08a:

Man Made Ditch
Inverts of pipe to be surveyed

Inflow Area = 97.712 ac, Inflow Depth = 2.08" for 100-yr event
Inflow = 36.43 cfs @ 12.87 hrs, Volume= 16.917 af
Outflow = 36.43 cfs @ 12.88 hrs, Volume= 16.917 af, Atten= 0%, Lag= 0.3 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Max. Velocity= 9.6 fps, Min. Travel Time= 0.4 min
Avg. Velocity = 5.7 fps, Avg. Travel Time= 0.7 min

Peak Depth= 0.69' @ 12.88 hrs
Capacity at bank full= 81.88 cfs
Inlet Invert= 607.00', Outlet Invert= 587.00'
10.00' x 1.00' deep Parabolic Channel, n= 0.027 Length= 226.0' Slope= 0.0885 '/'

Reach r08b:

24" HDPE
Inverts to be surveyed

Inflow Area = 97.712 ac, Inflow Depth = 2.08" for 100-yr event
Inflow = 36.43 cfs @ 12.88 hrs, Volume= 16.917 af
Outflow = 36.43 cfs @ 12.88 hrs, Volume= 16.917 af, Atten= 0%, Lag= 0.1 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Max. Velocity= 24.2 fps, Min. Travel Time= 0.2 min
Avg. Velocity = 14.9 fps, Avg. Travel Time= 0.3 min

Peak Depth= 0.97' @ 12.88 hrs
Capacity at bank full= 77.17 cfs
Inlet Invert= 587.00', Outlet Invert= 557.75'
24.0" Diameter Pipe n= 0.012 Length= 295.0' Slope= 0.0992 '/'

Reach r08c:

Ditch
Pipe inverts to be surveyed

Inflow Area = 97.712 ac, Inflow Depth = 2.08" for 100-yr event
Inflow = 36.43 cfs @ 12.88 hrs, Volume= 16.917 af
Outflow = 36.43 cfs @ 12.89 hrs, Volume= 16.917 af, Atten= 0%, Lag= 0.6 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Max. Velocity= 9.2 fps, Min. Travel Time= 1.1 min
Avg. Velocity = 5.2 fps, Avg. Travel Time= 1.9 min

Peak Depth= 0.71' @ 12.89 hrs
Capacity at bank full= 76.65 cfs
Inlet Invert= 557.75', Outlet Invert= 512.00'
10.00' x 1.00' deep Parabolic Channel, n= 0.027 Length= 590.0' Slope= 0.0775 '/'

Reach r08d: Amenia Stream/Cascade Brook

(Steam) parallel to Route 22
Base Flow estimated from field observation (see field note 21)

Inflow Area = 97.712 ac, Inflow Depth = 21.57" for 100-yr event
Inflow = 76.43 cfs @ 12.89 hrs, Volume= 175.627 af, Incl. 40.00 cfs Base Flow
Outflow = 76.41 cfs @ 12.92 hrs, Volume= 175.384 af, Atten= 0%, Lag= 2.1 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Max. Velocity= 3.6 fps, Min. Travel Time= 3.7 min
Avg. Velocity = 3.1 fps, Avg. Travel Time= 4.3 min

Peak Depth= 3.43' @ 12.92 hrs
Capacity at bank full= 104.49 cfs
Inlet Invert= 512.00', Outlet Invert= 504.00'
10.00' x 4.00' deep Parabolic Channel, n= 0.060 Length= 805.0' Slope= 0.0099 '/'

Reach r14a:

Grass lined channel

Inflow Area = 8.452 ac, Inflow Depth = 3.05" for 100-yr event
Inflow = 17.61 cfs @ 12.37 hrs, Volume= 2.146 af
Outflow = 17.60 cfs @ 12.38 hrs, Volume= 2.146 af, Atten= 0%, Lag= 0.6 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Max. Velocity= 7.0 fps, Min. Travel Time= 0.9 min
Avg. Velocity = 1.7 fps, Avg. Travel Time= 3.5 min

Peak Depth= 0.75' @ 12.38 hrs
Capacity at bank full= 325.42 cfs
Inlet Invert= 542.00', Outlet Invert= 526.00'
10.00' x 3.00' deep Parabolic Channel, n= 0.027 Length= 360.0' Slope= 0.0444 '/'

Reach r14b:

30" HDPE Under Main Entrance Road

Inflow Area = 8.452 ac, Inflow Depth = 3.05" for 100-yr event
Inflow = 17.60 cfs @ 12.38 hrs, Volume= 2.146 af
Outflow = 17.60 cfs @ 12.39 hrs, Volume= 2.146 af, Atten= 0%, Lag= 0.4 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Max. Velocity= 14.8 fps, Min. Travel Time= 0.5 min
Avg. Velocity = 3.6 fps, Avg. Travel Time= 2.1 min

Peak Depth= 0.73' @ 12.39 hrs
Capacity at bank full= 94.91 cfs
Inlet Invert= 526.00', Outlet Invert= 505.70'
30.0" Diameter Pipe n= 0.012 Length= 445.0' Slope= 0.0456 '/'

Reach r14c:

Overland Flow

Inflow Area = 6.420 ac, Inflow Depth = 1.18" for 100-yr event
Inflow = 1.75 cfs @ 13.91 hrs, Volume= 0.633 af
Outflow = 1.72 cfs @ 14.03 hrs, Volume= 0.633 af, Atten= 2%, Lag= 7.6 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Max. Velocity= 1.3 fps, Min. Travel Time= 7.5 min
Avg. Velocity = 0.5 fps, Avg. Travel Time= 19.4 min

Peak Depth= 0.12' @ 14.03 hrs
Capacity at bank full= 178.07 cfs
Inlet Invert= 544.00', Outlet Invert= 498.00'
50.00' x 1.00' deep Parabolic Channel, n= 0.060 Length= 575.0' Slope= 0.0800 '/'

Reach r15:

Brush Overbanks with Rocky Bottom
Needs to be surveyed

Inflow Area = 4.702 ac, Inflow Depth = 5.13" for 100-yr event
Inflow = 20.21 cfs @ 12.06 hrs, Volume= 2.010 af
Outflow = 20.16 cfs @ 12.06 hrs, Volume= 2.010 af, Atten= 0%, Lag= 0.3 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Max. Velocity= 10.7 fps, Min. Travel Time= 0.5 min
Avg. Velocity = 3.7 fps, Avg. Travel Time= 1.3 min

Peak Depth= 0.99' @ 12.06 hrs
Capacity at bank full= 188.47 cfs
Inlet Invert= 554.00', Outlet Invert= 528.00'
5.00' x 3.00' deep Parabolic Channel, n= 0.027 Length= 290.0' Slope= 0.0897 '/'

Reach r16:

Pipe Reach

Inflow Area = 4.702 ac, Inflow Depth = 5.13" for 100-yr event
Inflow = 20.70 cfs @ 12.04 hrs, Volume= 2.010 af
Outflow = 20.21 cfs @ 12.06 hrs, Volume= 2.010 af, Atten= 2%, Lag= 0.9 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Max. Velocity= 11.8 fps, Min. Travel Time= 1.2 min
Avg. Velocity = 4.0 fps, Avg. Travel Time= 3.6 min

Peak Depth= 0.95' @ 12.06 hrs
Capacity at bank full= 66.05 cfs
Inlet Invert= 573.00', Outlet Invert= 554.00'
30.0" Diameter Pipe n= 0.012 Length= 860.0' Slope= 0.0221 '/'

Reach r18a:

Overland Flow Reach

Inflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Outflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Max. Velocity= 0.0 fps, Min. Travel Time= 0.0 min
Avg. Velocity = 0.0 fps, Avg. Travel Time= 0.0 min

Peak Depth= 0.00' @ 0.00 hrs
Capacity at bank full= 379.63 cfs
Inlet Invert= 973.60', Outlet Invert= 530.00'
50.00' x 1.00' deep Parabolic Channel, n= 0.060 Length= 1,220.0' Slope= 0.3636 '/'

Reach r18b:

Overland Flow Reach

Inflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Outflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Max. Velocity= 0.0 fps, Min. Travel Time= 0.0 min
Avg. Velocity = 0.0 fps, Avg. Travel Time= 0.0 min

Peak Depth= 0.00' @ 0.00 hrs
Capacity at bank full= 151.94 cfs
Inlet Invert= 530.60', Outlet Invert= 514.00'
50.00' x 1.00' deep Parabolic Channel, n= 0.060 Length= 285.0' Slope= 0.0582 '/'

Reach r21a:

Man Made Ditch

Inflow Area = 241.484 ac, Inflow Depth = 2.78" for 100-yr event
Inflow = 129.80 cfs @ 14.30 hrs, Volume= 56.033 af
Outflow = 129.78 cfs @ 14.32 hrs, Volume= 56.020 af, Atten= 0%, Lag= 0.9 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Max. Velocity= 8.6 fps, Min. Travel Time= 1.3 min
Avg. Velocity = 3.4 fps, Avg. Travel Time= 3.2 min

Peak Depth= 2.49' @ 14.32 hrs
Capacity at bank full= 191.76 cfs
Inlet Invert= 504.00', Outlet Invert= 494.00'
10.00' x 3.00' deep Parabolic Channel, n= 0.027 Length= 648.0' Slope= 0.0154 '/'

Reach r21b:

Grass Ditch
Geometry to be confirmed by survey (inverts at pipe)

Inflow Area = 97.943 ac, Inflow Depth = 3.34" for 100-yr event
Inflow = 189.22 cfs @ 12.49 hrs, Volume= 27.242 af
Outflow = 189.19 cfs @ 12.49 hrs, Volume= 27.242 af, Atten= 0%, Lag= 0.2 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Max. Velocity= 11.2 fps, Min. Travel Time= 0.3 min
Avg. Velocity = 2.6 fps, Avg. Travel Time= 1.5 min

Peak Depth= 1.79' @ 12.49 hrs
Capacity at bank full= 239.90 cfs
Inlet Invert= 499.00', Outlet Invert= 491.10'
15.00' x 2.00' deep Parabolic Channel, n= 0.027 Length= 230.0' Slope= 0.0343 '/'

Reach r21c:

Overland Flow Reach

Inflow Area = 41.587 ac, Inflow Depth = 3.56" for 100-yr event
Inflow = 84.28 cfs @ 12.65 hrs, Volume= 12.352 af
Outflow = 84.26 cfs @ 12.66 hrs, Volume= 12.352 af, Atten= 0%, Lag= 0.5 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Max. Velocity= 5.0 fps, Min. Travel Time= 0.5 min
Avg. Velocity = 1.9 fps, Avg. Travel Time= 1.4 min

Peak Depth= 0.63' @ 12.66 hrs
Capacity at bank full= 227.81 cfs
Inlet Invert= 506.70', Outlet Invert= 485.75'
50.00' x 1.00' deep Parabolic Channel, n= 0.060 Length= 160.0' Slope= 0.1309 '/'

Reach r22a:

Overland Flow Reach

Inflow Area = 15.520 ac, Inflow Depth = 2.60" for 100-yr event
Inflow = 15.21 cfs @ 12.94 hrs, Volume= 3.366 af
Outflow = 15.14 cfs @ 12.98 hrs, Volume= 3.366 af, Atten= 0%, Lag= 2.8 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Max. Velocity= 4.5 fps, Min. Travel Time= 3.6 min
Avg. Velocity = 1.3 fps, Avg. Travel Time= 12.3 min

Peak Depth= 0.22' @ 12.98 hrs
Capacity at bank full= 409.31 cfs
Inlet Invert= 970.00', Outlet Invert= 560.00'
50.00' x 1.00' deep Parabolic Channel, n= 0.060 Length= 970.0' Slope= 0.4227 '/'

Reach r22b:

Overland Flow Reach

Inflow Area = 15.520 ac, Inflow Depth = 2.60" for 100-yr event
Inflow = 15.14 cfs @ 12.98 hrs, Volume= 3.366 af
Outflow = 15.05 cfs @ 13.04 hrs, Volume= 3.366 af, Atten= 1%, Lag= 3.2 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Max. Velocity= 2.5 fps, Min. Travel Time= 4.2 min
Avg. Velocity = 0.7 fps, Avg. Travel Time= 14.7 min

Peak Depth= 0.32' @ 13.04 hrs
Capacity at bank full= 175.17 cfs
Inlet Invert= 560.00', Outlet Invert= 512.00'
50.00' x 1.00' deep Parabolic Channel, n= 0.060 Length= 620.0' Slope= 0.0774 '/'

Reach r25a:

Ditch
Pipe inverts need to be surveyed

Inflow Area = 60.314 ac, Inflow Depth = 3.17" for 100-yr event
Inflow = 107.81 cfs @ 12.35 hrs, Volume= 15.920 af
Outflow = 107.64 cfs @ 12.36 hrs, Volume= 15.919 af, Atten= 0%, Lag= 1.1 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Max. Velocity= 12.8 fps, Min. Travel Time= 1.4 min
Avg. Velocity = 2.6 fps, Avg. Travel Time= 6.9 min

Peak Depth= 1.47' @ 12.36 hrs
Capacity at bank full= 205.50 cfs
Inlet Invert= 570.00', Outlet Invert= 504.00'
10.00' x 2.00' deep Parabolic Channel, n= 0.027 Length= 1,090.0' Slope= 0.0606 '/'

Reach r25b: Wetland Reach

Wetland Reach
Has wetland vegetation within reach

Inflow Area =	9.435 ac,	Inflow Depth = 2.95"	for 100-yr event		
Inflow =	20.41 cfs @	12.31 hrs, Volume=	2.323 af		
Outflow =	18.91 cfs @	12.39 hrs, Volume=	2.322 af,	Atten= 7%,	Lag= 5.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Max. Velocity= 2.1 fps, Min. Travel Time= 6.0 min
Avg. Velocity = 0.5 fps, Avg. Travel Time= 26.4 min

Peak Depth= 1.12' @ 12.39 hrs
Capacity at bank full= 156.51 cfs
Inlet Invert= 504.00', Outlet Invert= 499.50'
20.00' x 3.00' deep Parabolic Channel, n= 0.045 Length= 750.0' Slope= 0.0060 '/'

Reach r25c: Amenia Stream/Cascade Brook

(Steam) parallel to Route 22
Base Flow estimated from field observation (see field note 21)

Inflow Area =	129.431 ac,	Inflow Depth = 31.57"	for 100-yr event		
Inflow =	167.68 cfs @	12.34 hrs, Volume=	340.463 af,	Incl. 40.00 cfs Base Flow	
Outflow =	163.72 cfs @	12.44 hrs, Volume=	339.781 af,	Atten= 2%,	Lag= 5.9 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Max. Velocity= 3.0 fps, Min. Travel Time= 5.5 min
Avg. Velocity = 2.7 fps, Avg. Travel Time= 6.1 min

Peak Depth= 6.85' @ 12.44 hrs
Capacity at bank full= 67.14 cfs
Inlet Invert= 504.00', Outlet Invert= 500.00'
10.00' x 4.00' deep Parabolic Channel, n= 0.060 Length= 975.0' Slope= 0.0041 '/'

Pond 8P:

No field note.
Water spills over cart path; no storage.

Inflow Area =	52.997 ac,	Inflow Depth = 3.16"	for 100-yr event		
Inflow =	93.20 cfs @	12.35 hrs, Volume=	13.952 af		
Outflow =	93.20 cfs @	12.35 hrs, Volume=	13.952 af,	Atten= 0%,	Lag= 0.0 min
Primary =	93.20 cfs @	12.35 hrs, Volume=	13.952 af		

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Peak Elev= 575.70' @ 12.35 hrs
Flood Elev= 574.70'
Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= (not calculated)

#	Routing	Invert	Outlet Devices
1	Primary	574.70'	**177.0 deg Sharp-Crested Vee/Trap Weir** C= 2.46

Primary OutFlow Max=93.20 cfs @ 12.35 hrs HW=575.70' TW=571.47' (Dynamic Tailwater)
└─**1=Sharp-Crested Vee/Trap Weir** (Weir Controls 93.20 cfs @ 2.5 fps)

Pond p04:

Field Note #13

Water ponding behind a golf cart path. Overflow dimensions are assumed based on aerial topo, and should be upgraded once survey is available.

Inflow Area = 38.062 ac, Inflow Depth = 3.36" for 100-yr event
Inflow = 66.76 cfs @ 12.43 hrs, Volume= 10.655 af
Outflow = 66.72 cfs @ 12.44 hrs, Volume= 10.589 af, Atten= 0%, Lag= 0.6 min
Primary = 66.72 cfs @ 12.44 hrs, Volume= 10.589 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Peak Elev= 606.06' @ 12.44 hrs Surf.Area= 6,972 sf Storage= 4,699 cf
Flood Elev= 605.50' Surf.Area= 4,803 sf Storage= 2,882 cf
Plug-Flow detention time= 6.5 min calculated for 10.589 af (99% of inflow)
Center-of-Mass det. time= 2.6 min (861.1 - 858.5)

#	Invert	Avail.Storage	Storage Description
1	604.20'	26,897 cf	**Custom Stage Data (Conic)** Listed below

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
604.20	0	0	0	0
606.00	6,650	3,990	3,990	6,655
608.00	17,060	22,907	26,897	17,092

#	Routing	Invert	Outlet Devices
1	Primary	605.50'	**179.0 deg Sharp-Crested Vee/Trap Weir** C= 2.46

Primary OutFlow Max=66.71 cfs @ 12.44 hrs HW=606.06' TW=575.69' (Dynamic Tailwater)
└─**1=Sharp-Crested Vee/Trap Weir** (Weir Controls 66.71 cfs @ 1.8 fps)

Pond p06:

Field Note #22
Geometry to be confirmed by survey.

Inflow Area = 9.435 ac, Inflow Depth = 2.99" for 100-yr event
Inflow = 21.68 cfs @ 12.24 hrs, Volume= 2.352 af
Outflow = 20.41 cfs @ 12.31 hrs, Volume= 2.323 af, Atten= 6%, Lag= 3.9 min
Primary = 20.41 cfs @ 12.31 hrs, Volume= 2.323 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Starting Elev= 506.80' Surf.Area= 18,600 sf Storage= 42,160 cf
Peak Elev= 507.55' @ 12.31 hrs Surf.Area= 21,985 sf Storage= 58,063 cf (15,903 cf above start)
Flood Elev= 507.10' Surf.Area= 19,958 sf Storage= 48,537 cf (6,377 cf above start)
Plug-Flow detention time= 344.2 min calculated for 1.355 af (58% of inflow)
Center-of-Mass det. time= 87.5 min (932.0 - 844.5)

#	Invert	Avail.Storage	Storage Description
1	500.00'	67,669 cf	**Custom Stage Data (Conic)** Listed below

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
500.00	0	0	0	0
506.80	18,600	42,160	42,160	18,672
508.00	24,030	25,509	67,669	24,138

#	Routing	Invert	Outlet Devices
1	Primary	506.80'	**12.0" x 20.0' long Culvert** CMP, projecting, no headwall, Ke= 0.900 Outlet Invert= 506.00' S= 0.0400 '/' n= 0.024 Cc= 0.900
2	Primary	507.10'	**178.0 deg Sharp-Crested Vee/Trap Weir** C= 2.46

Primary OutFlow Max=20.41 cfs @ 12.31 hrs HW=507.55' TW=505.07' (Dynamic Tailwater)
1=Culvert (Inlet Controls 1.47 cfs @ 2.3 fps)
2=Sharp-Crested Vee/Trap Weir (Weir Controls 18.94 cfs @ 1.6 fps)

Pond p07:

Field Note # 29
Outlet geometry to be confirmed by survey.

Inflow Area = 7.317 ac, Inflow Depth = 3.28" for 100-yr event
Inflow = 19.75 cfs @ 12.19 hrs, Volume= 1.999 af
Outflow = 14.61 cfs @ 12.34 hrs, Volume= 1.968 af, Atten= 26%, Lag= 9.0 min
Primary = 14.61 cfs @ 12.34 hrs, Volume= 1.968 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Starting Elev= 572.80' Surf.Area= 21,640 sf Storage= 56,264 cf
Peak Elev= 573.82' @ 12.34 hrs Surf.Area= 26,456 sf Storage= 81,230 cf (24,966 cf above start)
Flood Elev= 573.50' Surf.Area= 24,936 sf Storage= 73,351 cf (17,087 cf above start)
Plug-Flow detention time= 627.9 min calculated for 0.676 af (34% of inflow)
Center-of-Mass det. time= 145.3 min (977.4 - 832.1)

#	Invert	Avail.Storage	Storage Description
1	565.00'	85,557 cf	**Custom Stage Data (Conic)** Listed below

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
565.00	0	0	0	0
572.80	21,640	56,264	56,264	21,735
574.00	27,290	29,293	85,557	27,424

#	Routing	Invert	Outlet Devices
1	Primary	572.80'	**18.0" x 20.0' long Culvert** CMP, projecting, no headwall, Ke= 0.900 Outlet Invert= 572.00' S= 0.0400 '/' n= 0.024 Cc= 0.900
2	Primary	573.50'	**177.0 deg Sharp-Crested Vee/Trap Weir X 2.00** C= 2.46

Primary OutFlow Max=14.60 cfs @ 12.34 hrs HW=573.82' TW=571.47' (Dynamic Tailwater)
1=Culvert (Inlet Controls 3.49 cfs @ 2.7 fps)
2=Sharp-Crested Vee/Trap Weir (Weir Controls 11.12 cfs @ 1.4 fps)

Pond p09:

Field Note #31
Geometry to be confirmed by survey.

Inflow Area = 8.452 ac, Inflow Depth = 3.10" for 100-yr event
Inflow = 22.20 cfs @ 12.23 hrs, Volume= 2.185 af
Outflow = 17.61 cfs @ 12.37 hrs, Volume= 2.146 af, Atten= 21%, Lag= 8.4 min
Primary = 17.61 cfs @ 12.37 hrs, Volume= 2.146 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Peak Elev= 550.64' @ 12.37 hrs Surf.Area= 7,127 sf Storage= 11,266 cf
Flood Elev= 551.20' Surf.Area= 8,534 sf Storage= 15,673 cf
Plug-Flow detention time= 29.2 min calculated for 2.146 af (98% of inflow)
Center-of-Mass det. time= 18.8 min (870.4 - 851.6)

#	Invert	Avail.Storage	Storage Description
1	547.50'	21,989 cf	**Custom Stage Data (Conic)** Listed below

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
547.50	0	0	0	0
548.00	1,080	180	180	1,080
550.00	5,510	6,020	6,200	5,527
552.00	10,550	15,790	21,989	10,606

#	Routing	Invert	Outlet Devices
1	Primary	548.50'	**30.0" x 70.0' long Culvert** CMP, projecting, no headwall, Ke= 0.900 Outlet Invert= 542.00' S= 0.0929 '/' n= 0.012 Cc= 0.900
2	Primary	551.20'	**168.0 deg Sharp-Crested Vee/Trap Weir** C= 2.46

Primary OutFlow Max=17.61 cfs @ 12.37 hrs HW=550.64' TW=542.75' (Dynamic Tailwater)
└─**1=Culvert** (Inlet Controls 17.61 cfs @ 3.9 fps)
└─**2=Sharp-Crested Vee/Trap Weir** (Controls 0.00 cfs)

Pond p10:

Field Note #25
Need to get full story on how this pond works

Inflow Area = 45.146 ac, Inflow Depth = 1.34" for 100-yr event
Inflow = 19.59 cfs @ 12.37 hrs, Volume= 5.056 af
Outflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Atten= 100%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Starting Elev= 498.40' Surf.Area= 36,110 sf Storage= 101,108 cf
Peak Elev= 502.91' @ 48.00 hrs Surf.Area= 65,733 sf Storage= 321,332 cf (220,224 cf above start)
Plug-Flow detention time= (not calculated)
Center-of-Mass det. time= (not calculated)

#	Invert	Avail.Storage	Storage Description
1	490.00'	581,029 cf	**Custom Stage Data (Conic)** Listed below

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
490.00	0	0	0	0
498.40	36,110	101,108	101,108	36,221
500.00	42,400	62,741	163,849	42,610
502.00	54,880	97,012	260,861	55,187
504.00	78,730	132,895	393,755	79,107
506.00	109,382	187,274	581,029	109,836

Pond p12:

No field note.
Natural depression.

Inflow Area = 6.420 ac, Inflow Depth = 2.12" for 100-yr event
Inflow = 7.15 cfs @ 12.64 hrs, Volume= 1.136 af
Outflow = 1.75 cfs @ 13.91 hrs, Volume= 0.633 af, Atten= 76%, Lag= 75.8 min
Primary = 1.75 cfs @ 13.91 hrs, Volume= 0.633 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Peak Elev= 547.79' @ 13.91 hrs Surf.Area= 15,481 sf Storage= 24,744 cf
Flood Elev= 547.50' Surf.Area= 13,848 sf Storage= 21,762 cf
Plug-Flow detention time= 290.9 min calculated for 0.633 af (56% of inflow)
Center-of-Mass det. time= 162.9 min (1,062.4 - 899.5)

#	Invert	Avail.Storage	Storage Description
1	543.50'	26,986 cf	**Custom Stage Data (Conic)** Listed below

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
543.50	0	0	0	0
544.00	1,140	190	190	1,140
546.00	5,260	5,899	6,089	5,278
548.00	16,710	20,897	26,986	16,750

#	Routing	Invert	Outlet Devices
1	Primary	547.50'	**173.0 deg Sharp-Crested Vee/Trap Weir** C= 2.46

Primary OutFlow Max=1.75 cfs @ 13.91 hrs HW=547.79' TW=544.12' (Dynamic Tailwater)
1=Sharp-Crested Vee/Trap Weir (Weir Controls 1.75 cfs @ 1.3 fps)

Pond p13:

No Field Note
Natural depression.

Inflow Area = 0.350 ac, Inflow Depth = 2.12" for 100-yr event
Inflow = 0.74 cfs @ 12.13 hrs, Volume= 0.062 af
Outflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Atten= 100%, Lag= 0.0 min
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Peak Elev= 514.55' @ 24.49 hrs Surf.Area= 1,586 sf Storage= 2,698 cf
Flood Elev= 519.50' Surf.Area= 4,313 sf Storage= 16,523 cf
Plug-Flow detention time= (not calculated)
Center-of-Mass det. time= (not calculated)

#	Invert	Avail.Storage	Storage Description
1	511.40'	18,490 cf	**Custom Stage Data (Conic)** Listed below

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
511.40	0	0	0	0
512.00	390	78	78	391
514.00	1,360	1,652	1,730	1,381
516.00	2,180	3,508	5,238	2,253
518.00	3,240	5,385	10,623	3,375
520.00	4,670	7,867	18,490	4,872

#	Routing	Invert	Outlet Devices
1	Primary	519.50'	**176.0 deg Sharp-Crested Vee/Trap Weir** C= 2.46

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=511.40' TW=497.40' (Dynamic Tailwater)
1=Sharp-Crested Vee/Trap Weir (Controls 0.00 cfs)

Pond p14:

Field Note #26
Need to figure out how this pond works

Inflow Area = 36.186 ac, Inflow Depth = 2.96" for 100-yr event
Inflow = 58.96 cfs @ 12.39 hrs, Volume= 8.941 af
Outflow = 4.19 cfs @ 17.17 hrs, Volume= 2.331 af, Atten= 93%, Lag= 287.0 min
Primary = 4.19 cfs @ 17.17 hrs, Volume= 2.331 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Starting Elev= 497.40' Surf.Area= 22,200 sf Storage= 54,760 cf
Peak Elev= 502.91' @ 47.99 hrs Surf.Area= 78,233 sf Storage= 342,674 cf (287,914 cf above start)
Plug-Flow detention time= 617.9 min calculated for 1.074 af (12% of inflow)
Center-of-Mass det. time= 246.9 min (1,104.6 - 857.7)

#	Invert	Avail.Storage	Storage Description
1	490.00'	805,062 cf	**Custom Stage Data (Conic)** Listed below

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
490.00	0	0	0	0
497.40	22,200	54,760	54,760	22,286
498.00	25,330	14,249	69,009	25,433
500.00	52,810	76,476	145,485	52,948
502.00	73,360	125,608	271,093	73,574
504.00	84,070	157,308	428,402	84,467
506.00	92,130	176,139	604,540	92,797
508.00	108,618	200,522	805,062	109,437

#	Routing	Invert	Outlet Devices
1	Primary	500.00'	**24.0" x 80.0' long Culvert** CPP, end-section conforming to fill, Ke= 0.500 Outlet Invert= 502.00' S= -0.0250 '/' n= 0.012 Cc= 0.900

Primary OutFlow Max=4.19 cfs @ 17.17 hrs HW=502.87' TW=501.54' (Dynamic Tailwater)
1=Culvert (Inlet Controls 4.19 cfs @ 3.2 fps)

Pond p15:

Field Note # 43
Infiltration basin

Inflow Area = 5.770 ac, Inflow Depth = 4.50" for 100-yr event
Inflow = 20.92 cfs @ 12.07 hrs, Volume= 2.166 af
Outflow = 20.80 cfs @ 12.07 hrs, Volume= 1.910 af, Atten= 1%, Lag= 0.5 min
Primary = 20.80 cfs @ 12.07 hrs, Volume= 1.910 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Peak Elev= 536.25' @ 12.07 hrs Surf.Area= 3,308 sf Storage= 12,076 cf
Flood Elev= 536.00' Surf.Area= 3,160 sf Storage= 11,127 cf
Plug-Flow detention time= 102.4 min calculated for 1.910 af (88% of inflow)

Center-of-Mass det. time= 44.9 min (832.3 - 787.5)

#	Invert	Avail.Storage	Storage Description
1	526.80'	18,577 cf	**Custom Stage Data (Conic)** Listed below

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
526.80	0	0	0	0
528.00	310	124	124	312
530.00	660	948	1,072	694
532.00	1,180	1,815	2,887	1,256
534.00	1,990	3,135	6,022	2,113
536.00	3,160	5,105	11,127	3,337
538.00	4,320	7,450	18,577	4,575

#	Routing	Invert	Outlet Devices
1	Primary	536.00'	**171.0 deg x 50.0' long Sharp-Crested Vee/Trap Weir** C= 2.46

Primary OutFlow Max=20.76 cfs @ 12.07 hrs HW=536.25' TW=508.25' (Dynamic Tailwater)
└─**1=Sharp-Crested Vee/Trap Weir** (Weir Controls 20.76 cfs @ 1.5 fps)

Pond p16:

Field Note # 49
Large pond with man-made island.
Geometry to be verified by survey. In particular, we are making big guesses about the outlets.
Also need to find out about valves...

Inflow Area = 220.861 ac, Inflow Depth = 3.38" for 100-yr event
Inflow = 252.10 cfs @ 12.34 hrs, Volume= 62.209 af
Outflow = 126.16 cfs @ 14.14 hrs, Volume= 50.283 af, Atten= 50%, Lag= 108.2 min
Primary = 126.16 cfs @ 14.14 hrs, Volume= 50.283 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Starting Elev= 507.00' Surf.Area= 199,799 sf Storage= 878,320 cf
Peak Elev= 511.52' @ 14.14 hrs Surf.Area= 316,556 sf Storage= 1,920,462 cf (1,042,143 cf above start)
Flood Elev= 510.50' Surf.Area= 271,550 sf Storage= 1,623,217 cf (744,897 cf above start)
Plug-Flow detention time= 622.4 min calculated for 30.119 af (48% of inflow)
Center-of-Mass det. time= 261.1 min (1,170.0 - 908.9)

#	Invert	Avail.Storage	Storage Description
1	500.00'	2,062,087 cf	**Custom Stage Data (Conic)** Listed below

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
500.00	0	0	0	0
503.00	140,344	140,344	140,344	140,358
509.20	232,500	1,143,862	1,284,206	232,994
510.00	249,400	192,720	1,476,927	249,951
512.00	338,000	585,160	2,062,087	338,634

#	Routing	Invert	Outlet Devices
1	Primary	509.00'	**18.0" x 110.0' long Culvert** CMP, projecting, no headwall, Ke= 0.900 Outlet Invert= 505.70' S= 0.0300 '/' n= 0.024 Cc= 0.900
2	Primary	500.00'	**8.0" x 100.0' long assumed equalization pipe w/ valve X 0.00** CMP, projecting, no headwall, Ke= 0.900 Outlet Invert= 500.00' S= 0.0000 '/' n= 0.013 Cc= 0.900
3	Primary	510.50'	**175.0 deg Sharp-Crested Vee/Trap Weir X 2.00** C= 2.46

Primary OutFlow Max=126.16 cfs @ 14.14 hrs HW=511.52' TW=506.60' (Dynamic Tailwater)
—**1=Culvert** (Inlet Controls 8.93 cfs @ 5.1 fps)
—**2=assumed equalization pipe w/ valve** (Controls 0.00 cfs)
—**3=Sharp-Crested Vee/Trap Weir** (Weir Controls 117.23 cfs @ 2.5 fps)

Pond p17:

Field Note #45
Golf pond
Geometry to be confirmed by surveyed

Inflow Area = 115.991 ac, Inflow Depth = 3.21" for 100-yr event
Inflow = 104.13 cfs @ 13.77 hrs, Volume= 31.026 af
Outflow = 104.09 cfs @ 13.77 hrs, Volume= 31.026 af, Atten= 0%, Lag= 0.3 min
Primary = 104.09 cfs @ 13.77 hrs, Volume= 31.026 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Starting Elev= 523.80' Surf.Area= 7,290 sf Storage= 9,234 cf
Peak Elev= 525.64' @ 13.77 hrs Surf.Area= 11,520 sf Storage= 26,666 cf (17,432 cf above start)
Flood Elev= 524.30' Surf.Area= 8,074 sf Storage= 13,623 cf (4,389 cf above start)
Plug-Flow detention time= 14.4 min calculated for 30.814 af (99% of inflow)
Center-of-Mass det. time= 8.0 min (957.8 - 949.8)

#	Invert	Avail.Storage	Storage Description
1	520.00'	30,224 cf	**Custom Stage Data (Conic)** Listed below

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
520.00	0	0	0	0
523.80	7,290	9,234	9,234	7,313
524.00	7,300	1,459	10,693	7,374
526.00	12,460	19,531	30,224	12,581

#	Routing	Invert	Outlet Devices
1	Primary	523.80'	**2.2' long x 0.5' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 Coef. (English) 2.80 2.92 3.08 3.30 3.32
2	Primary	524.30'	**143.0 deg Sharp-Crested Vee/Trap Weir** C= 2.47
3	Primary	525.20'	**178.0 deg x 60.0' long Sharp-Crested Vee/Trap Weir** C= 2.46

Primary OutFlow Max=104.08 cfs @ 13.77 hrs HW=525.64' TW=516.23' (Dynamic Tailwater)
—**1=Broad-Crested Rectangular Weir** (Weir Controls 18.16 cfs @ 4.5 fps)
—**2=Sharp-Crested Vee/Trap Weir** (Weir Controls 15.22 cfs @ 2.9 fps)
—**3=Sharp-Crested Vee/Trap Weir** (Weir Controls 70.70 cfs @ 1.9 fps)

Pond p18:

Field Note #46
Golf pond
Geometry to be confirmed by surveyed

Inflow Area = 139.117 ac, Inflow Depth = 3.24" for 100-yr event
Inflow = 111.66 cfs @ 13.77 hrs, Volume= 37.544 af
Outflow = 111.54 cfs @ 13.79 hrs, Volume= 37.540 af, Atten= 0%, Lag= 1.1 min
Primary = 111.54 cfs @ 13.79 hrs, Volume= 37.540 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Starting Elev= 513.90' Surf.Area= 20,680 sf Storage= 26,884 cf
Peak Elev= 516.23' @ 13.79 hrs Surf.Area= 29,919 sf Storage= 85,679 cf (58,795 cf above start)
Flood Elev= 514.81' Surf.Area= 23,768 sf Storage= 48,709 cf (21,825 cf above start)
Plug-Flow detention time= 37.6 min calculated for 36.922 af (98% of inflow)
Center-of-Mass det. time= 22.5 min (961.4 - 938.9)

#	Invert	Avail.Storage	Storage Description
1	510.00'	148,288 cf	**Custom Stage Data (Conic)** Listed below

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
510.00	0	0	0	0
513.90	20,680	26,884	26,884	20,704
514.00	20,690	2,068	28,952	20,756
516.00	28,290	48,782	77,735	28,436
518.00	42,760	70,554	148,288	42,967

#	Routing	Invert	Outlet Devices
1	Primary	513.90'	**2.0' long x 0.5' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 Coef. (English) 2.80 2.92 3.08 3.30 3.32
2	Primary	514.81'	**143.0 deg Sharp-Crested Vee/Trap Weir** C= 2.47
3	Primary	515.32'	**175.0 deg x 10.0' long Sharp-Crested Vee/Trap Weir** C= 2.46

Primary OutFlow Max=111.53 cfs @ 13.79 hrs HW=516.23' TW=511.47' (Dynamic Tailwater)
—**1=Broad-Crested Rectangular Weir** (Weir Controls 23.54 cfs @ 5.1 fps)
—**2=Sharp-Crested Vee/Trap Weir** (Weir Controls 17.59 cfs @ 2.9 fps)
—**3=Sharp-Crested Vee/Trap Weir** (Weir Controls 70.40 cfs @ 2.5 fps)

Pond p19:

Wetland
Geometry to be confirmed by survey
Based off aerial topo, and assumed topo contour

Inflow Area = 15.520 ac, Inflow Depth = 2.60" for 100-yr event
Inflow = 22.44 cfs @ 12.61 hrs, Volume= 3.367 af
Outflow = 15.21 cfs @ 12.94 hrs, Volume= 3.366 af, Atten= 32%, Lag= 19.9 min
Primary = 15.21 cfs @ 12.94 hrs, Volume= 3.366 af
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Starting Elev= 972.00' Surf.Area= 86,000 sf Storage= 57,333 cf
Peak Elev= 972.29' @ 12.94 hrs Surf.Area= 93,885 sf Storage= 89,433 cf (32,099 cf above start)
Plug-Flow detention time= 278.9 min calculated for 2.049 af (61% of inflow)
Center-of-Mass det. time= 57.4 min (942.9 - 885.4)

#	Invert	Avail.Storage	Storage Description
1	970.00'	282,329 cf	**Custom Stage Data (Conic)** Listed below

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
970.00	0	0	0	0
972.00	86,000	57,333	57,333	86,006
974.00	141,270	224,996	282,329	141,327

#	Routing	Invert	Outlet Devices
1	Secondary	973.60'	**178.0 deg x 51.0' long Sharp-Crested Vee/Trap Weir** C= 2.46
2	Primary	972.00'	**35.0' long x 0.5' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 Coef. (English) 2.80 2.92 3.08 3.30 3.32

Primary OutFlow Max=15.21 cfs @ 12.94 hrs HW=972.29' TW=970.22' (Dynamic Tailwater)
└─**2=Broad-Crested Rectangular Weir** (Weir Controls 15.21 cfs @ 1.5 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=972.00' TW=973.60' (Dynamic Tailwater)
└─**1=Sharp-Crested Vee/Trap Weir** (Controls 0.00 cfs)

Pond p20:

Field Note #50
Spring Fed Pond
Geometry to be confirmed by surveyed

Inflow Area = 241.484 ac, Inflow Depth = 2.83" for 100-yr event
Inflow = 132.70 cfs @ 14.12 hrs, Volume= 56.893 af
Outflow = 129.80 cfs @ 14.30 hrs, Volume= 56.033 af, Atten= 2%, Lag= 10.7 min
Primary = 129.80 cfs @ 14.30 hrs, Volume= 56.033 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

Starting Elev= 505.10' Surf.Area= 89,370 sf Storage= 138,524 cf
Peak Elev= 506.61' @ 14.32 hrs Surf.Area= 92,408 sf Storage= 276,664 cf (138,141 cf above start)
Plug-Flow detention time= 157.0 min calculated for 52.842 af (93% of inflow)
Center-of-Mass det. time= 41.5 min (1,172.6 - 1,131.1)

#	Invert	Avail.Storage	Storage Description
1	502.00'	615,682 cf	**Custom Stage Data (Prismatic)** Listed below

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
502.00	0	0	0
505.10	89,370	138,524	138,524
506.00	89,380	80,437	218,961
508.00	99,280	188,660	407,621
510.00	108,781	208,061	615,682

#	Routing	Invert	Outlet Devices
1	Primary	505.10'	**3.0' long x 1.5' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 Coef. (English) 2.62 2.64 2.64 2.68 2.75 2.86 2.92 3.07 3.07 3.03 3.28 3.32
2	Primary	506.20'	**6.5' long x 1.5' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 Coef. (English) 2.62 2.64 2.64 2.68 2.75 2.86 2.92 3.07 3.07 3.03 3.28 3.32
3	Primary	506.00'	**176.0 deg x 97.0' long Sharp-Crested Vee/Trap Weir** C= 2.46

Primary OutFlow Max=129.71 cfs @ 14.30 hrs HW=506.61' TW=506.49' (Dynamic Tailwater)
1=Broad-Crested Rectangular Weir (Weir Controls 7.47 cfs @ 1.6 fps)
2=Broad-Crested Rectangular Weir (Weir Controls 3.25 cfs @ 1.2 fps)
3=Sharp-Crested Vee/Trap Weir (Weir Controls 118.99 cfs @ 1.7 fps)

Pond p21:

Inflow Area =	489.305 ac,	Inflow Depth = 3.19"	for 100-yr event	
Inflow =	497.54 cfs @	12.44 hrs, Volume=	130.048 af	
Outflow =	38.56 cfs @	21.28 hrs, Volume=	101.325 af,	Atten= 92%, Lag= 530.4 min
Primary =	38.56 cfs @	21.28 hrs, Volume=	101.325 af	

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Peak Elev= 486.84' @ 21.28 hrs Surf.Area= 1,369,088 sf Storage= 3,632,868 cf
Plug-Flow detention time= 905.3 min calculated for 101.325 af (78% of inflow)
Center-of-Mass det. time= 752.6 min (1,745.4 - 992.8)

#	Invert	Avail.Storage	Storage Description
1	480.40'	5,244,885 cf	**Custom Stage Data (Conic)** Listed below

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
480.40	0	0	0	0
482.00	202,230	107,856	107,856	202,234
484.00	485,198	667,114	774,970	485,231
486.00	1,275,481	1,698,237	2,473,208	1,275,541
488.00	1,499,208	2,771,678	5,244,885	1,499,423

#	Routing	Invert	Outlet Devices
1	Primary	480.40'	**30.0" x 70.0' long Culvert** CMP, projecting, no headwall, Ke= 0.900 Outlet Invert= 480.40' S= 0.0000 '/' n= 0.024 Cc= 0.900

Primary OutFlow Max=38.56 cfs @ 21.28 hrs HW=486.84' TW=0.00' (Dynamic Tailwater)
└─**1=Culvert** (Barrel Controls 38.56 cfs @ 7.9 fps)

Pond p22:

Field Note #54
Golf Pond
Geometry to be confirmed by survey

Inflow Area = 97.943 ac, Inflow Depth = 3.37" for 100-yr event
Inflow = 190.35 cfs @ 12.45 hrs, Volume= 27.541 af
Outflow = 189.22 cfs @ 12.49 hrs, Volume= 27.242 af, Atten= 1%, Lag= 2.2 min
Primary = 189.22 cfs @ 12.49 hrs, Volume= 27.242 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Starting Elev= 498.10' Surf.Area= 6,520 sf Storage= 10,106 cf
Peak Elev= 502.72' @ 12.49 hrs Surf.Area= 12,617 sf Storage= 53,629 cf (43,523 cf above start)
Plug-Flow detention time= 25.6 min calculated for 27.005 af (98% of inflow)
Center-of-Mass det. time= 11.9 min (880.1 - 868.2)

#	Invert	Avail.Storage	Storage Description
1	495.00'	143,770 cf	**Custom Stage Data (Prismatic)** Listed below

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
495.00	0	0	0
498.10	6,520	10,106	10,106
500.00	8,390	14,164	24,270
502.00	11,530	19,920	44,190
504.00	14,530	26,060	70,250
506.00	18,340	32,870	103,120
508.00	22,310	40,650	143,770

#	Routing	Invert	Outlet Devices
1	Primary	499.75'	**18.0" x 21.0' long Culvert** CMP, projecting, no headwall, Ke= 0.900 Outlet Invert= 499.75' S= 0.0000 '/' n= 0.024 Cc= 0.900
2	Primary	500.50'	**1.0' long x 15.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.68 2.70 2.70 2.64 2.63 2.64 2.64 2.63

#	Routing	Invert	Outlet Devices
3	Primary	500.50'	**20.0' long x 13.5' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.62 2.66 2.70 2.66 2.65 2.66 2.65 2.63

Primary OutFlow Max=189.17 cfs @ 12.49 hrs HW=502.72' TW=500.79' (Dynamic Tailwater)
1=Culvert (Inlet Controls 9.34 cfs @ 5.3 fps)
2=Broad-Crested Rectangular Weir (Weir Controls 8.56 cfs @ 3.9 fps)
3=Broad-Crested Rectangular Weir (Weir Controls 171.27 cfs @ 3.9 fps)

Pond p23:

Inflow Area = 41.587 ac, Inflow Depth = 3.83" for 100-yr event
Inflow = 84.32 cfs @ 12.64 hrs, Volume= 13.270 af
Outflow = 84.28 cfs @ 12.65 hrs, Volume= 12.352 af, Atten= 0%, Lag= 0.7 min
Primary = 84.28 cfs @ 12.65 hrs, Volume= 12.352 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Peak Elev= 507.97' @ 12.65 hrs Surf.Area= 19,354 sf Storage= 44,202 cf
Plug-Flow detention time= 52.4 min calculated for 12.349 af (93% of inflow)
Center-of-Mass det. time= 16.2 min (880.6 - 864.4)

#	Invert	Avail.Storage	Storage Description
1	503.50'	100,303 cf	**Custom Stage Data (Prismatic)** Listed below

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
503.50	0	0	0
506.00	11,170	13,963	13,963
508.00	19,460	30,630	44,593
510.00	36,250	55,710	100,303

#	Routing	Invert	Outlet Devices
1	Primary	507.70'	**178.0 deg x 178.0' long Sharp-Crested Vee/Trap Weir** C= 2.46

Primary OutFlow Max=84.27 cfs @ 12.65 hrs HW=507.97' TW=507.33' (Dynamic Tailwater)
1=Sharp-Crested Vee/Trap Weir (Weir Controls 84.27 cfs @ 1.6 fps)

Pond zDP1: Design Point 1

Field note #10.
Culvert dimensions to be confirmed by survey.

Inflow Area = 26.659 ac, Inflow Depth = 3.47" for 100-yr event
Inflow = 54.23 cfs @ 12.48 hrs, Volume= 7.707 af
Outflow = 54.22 cfs @ 12.48 hrs, Volume= 7.707 af, Atten= 0%, Lag= 0.1 min
Primary = 54.22 cfs @ 12.48 hrs, Volume= 7.707 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Peak Elev= 723.21' @ 12.48 hrs Surf.Area= 241 sf Storage= 301 cf
Flood Elev= 727.00' Surf.Area= 1,105 sf Storage= 2,619 cf
Plug-Flow detention time= 0.2 min calculated for 7.707 af (100% of inflow)

Center-of-Mass det. time= 0.1 min (862.3 - 862.2)

#	Invert	Avail.Storage	Storage Description
1	720.10'	3,706 cf	**Custom Stage Data (Conic)** Listed below

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
720.10	0	0	0	0
722.00	90	57	57	96
724.00	340	403	460	364
726.00	760	1,072	1,533	815
728.00	1,450	2,173	3,706	1,543

#	Routing	Invert	Outlet Devices
1	Primary	720.10'	**42.0" x 120.0' long Culvert** CMP, square edge headwall, Ke= 0.500 Outlet Invert= 700.00' S= 0.1675 '/' n= 0.024 Cc= 0.900
2	Primary	727.00'	**155.0 deg Sharp-Crested Vee/Trap Weir** C= 2.47

Primary OutFlow Max=54.22 cfs @ 12.48 hrs HW=723.21' TW=686.95' (Dynamic Tailwater)
1=Culvert (Inlet Controls 54.22 cfs @ 6.0 fps)
2=Sharp-Crested Vee/Trap Weir (Controls 0.00 cfs)

Pond zDP2: Design Point 2

Field Note #15
Culvert dimensions to be confirmed by survey
Overflow to ditch is currently discarded... We may have to model that area...

Inflow Area = 97.712 ac, Inflow Depth = 3.10" for 100-yr event
Inflow = 136.27 cfs @ 12.87 hrs, Volume= 25.263 af
Outflow = 136.21 cfs @ 12.87 hrs, Volume= 25.263 af, Atten= 0%, Lag= 0.2 min
Discarded = 99.78 cfs @ 12.87 hrs, Volume= 8.347 af
Primary = 36.43 cfs @ 12.87 hrs, Volume= 16.917 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Peak Elev= 626.40' @ 12.87 hrs Surf.Area= 1,652 sf Storage= 4,127 cf
Flood Elev= 624.50' Surf.Area= 925 sf Storage= 1,728 cf
Plug-Flow detention time= 0.7 min calculated for 25.263 af (100% of inflow)
Center-of-Mass det. time= 0.5 min (893.8 - 893.3)

#	Invert	Avail.Storage	Storage Description
1	619.60'	7,280 cf	**Custom Stage Data (Conic)** Listed below

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
619.60	0	0	0	0
620.00	10	1	1	10
622.00	260	214	215	269
624.00	760	976	1,192	793
626.00	1,420	2,146	3,338	1,492
628.00	2,580	3,943	7,280	2,694

#	Routing	Invert	Outlet Devices
1	Primary	619.60'	**24.0" x 150.0' long Culvert** RCP, end-section conforming to fill, Ke= 0.500 Outlet Invert= 608.00' S= 0.0773 '/' n= 0.012 Cc= 0.900
2	Discarded	624.50'	**166.0 deg Sharp-Crested Vee/Trap Weir** C= 2.46

Discarded OutFlow Max=99.76 cfs @ 12.87 hrs HW=626.40' (Free Discharge)
└─**2=Sharp-Crested Vee/Trap Weir** (Weir Controls 99.76 cfs @ 3.4 fps)

Primary OutFlow Max=36.43 cfs @ 12.87 hrs HW=626.40' TW=607.69' (Dynamic Tailwater)
└─**1=Culvert** (Inlet Controls 36.43 cfs @ 11.6 fps)

Pond zDP3: Design Point 3

Inflow Area = 212.742 ac, Inflow Depth = 20.40" for 100-yr event
Inflow = 319.24 cfs @ 12.38 hrs, Volume= 361.644 af
Primary = 319.24 cfs @ 12.38 hrs, Volume= 361.644 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

Pond zDP4: Design Point 4

Inflow Area = 489.305 ac, Inflow Depth = 2.48" for 100-yr event
Inflow = 38.56 cfs @ 21.28 hrs, Volume= 101.325 af
Primary = 38.56 cfs @ 21.28 hrs, Volume= 101.325 af, Atten= 0%, Lag= 0.0 min

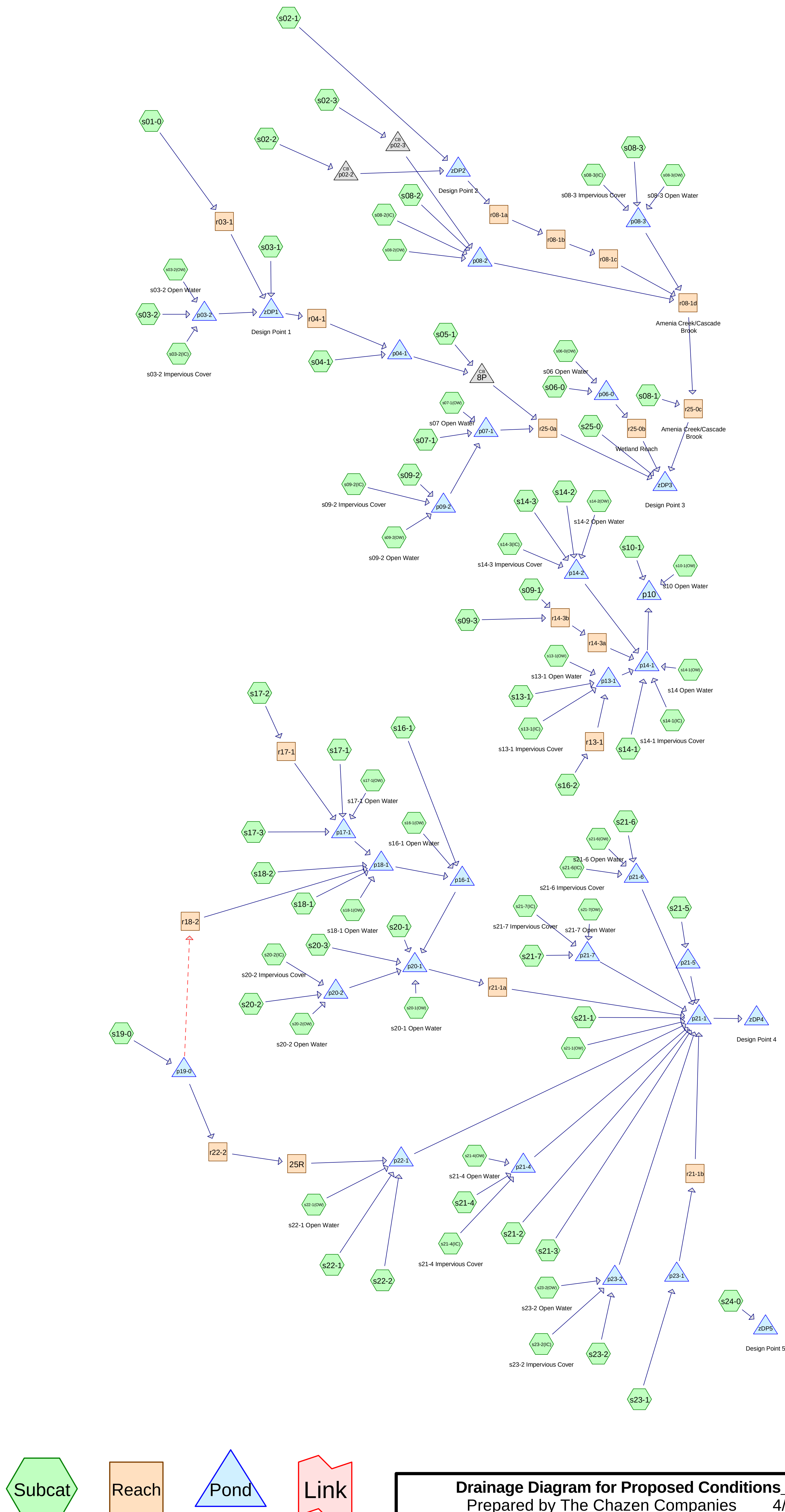
Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

Pond zDP5: Design Point 5

Inflow Area = 28.325 ac, Inflow Depth = 3.62" for 100-yr event
Inflow = 67.08 cfs @ 12.45 hrs, Volume= 8.541 af
Primary = 67.08 cfs @ 12.45 hrs, Volume= 8.541 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

Appendix K: Post-Development Watershed Conditions Modeling



Drainage Diagram for Proposed Conditions_10454-01

Prepared by The Chazen Companies 4/10/2006

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Post-Development Conditions
1 year 24 hour Storm Event
Model Computations

Subcatchment s01-0:

Runoff = 2.38 cfs @ 12.70 hrs, Volume= 0.458 af, Depth= 0.48"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 1-yr Rainfall=2.70"

Area (ac)	CN	Description
11.485	68	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
42.8					**Direct Entry,**

Subcatchment s02-1:

Runoff = 10.07 cfs @ 13.01 hrs, Volume= 2.681 af, Depth= 0.38"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 1-yr Rainfall=2.70"

Area (ac)	CN	Description
85.591	65	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
61.3					**Direct Entry,**

Subcatchment s02-2:

Runoff = 1.52 cfs @ 12.54 hrs, Volume= 0.265 af, Depth= 0.41"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 1-yr Rainfall=2.70"

Area (ac)	CN	Description
7.776	66	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
29.4					**Direct Entry,**

Subcatchment s02-3:

Runoff = 7.91 cfs @ 12.03 hrs, Volume= 0.480 af, Depth= 1.41"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 1-yr Rainfall=2.70"

Area (ac)	CN	Description
4.088	86	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.6					**Direct Entry,**

Subcatchment s03-1:

Runoff = 3.22 cfs @ 12.48 hrs, Volume= 0.482 af, Depth= 0.55"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 1-yr Rainfall=2.70"

Area (ac)	CN	Description
10.435	70	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
28.8					**Direct Entry,**

Subcatchment s03-2:

Runoff = 2.72 cfs @ 12.03 hrs, Volume= 0.182 af, Depth= 0.72"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 1-yr Rainfall=2.70"

Area (ac)	CN	Description
3.021	74	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.5					**Direct Entry,**

Subcatchment s03-2(IC): s03-2 Impervious Cover

Runoff = 5.09 cfs @ 12.02 hrs, Volume= 0.342 af, Depth= 2.47"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 1-yr Rainfall=2.70"

Area (ac)	CN	Description
1.663	98	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.5					**Direct Entry,**

Subcatchment s03-2(OW): s03-2 Open Water

Runoff = 0.18 cfs @ 12.00 hrs, Volume= 0.012 af, Depth= 2.70"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 1-yr Rainfall=2.70"

Area (ac)	CN	Description
0.054	100	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.0					**Direct Entry,**

Subcatchment s04-1:

Runoff = 3.19 cfs @ 12.11 hrs, Volume= 0.301 af, Depth= 0.48"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 1-yr Rainfall=2.70"

Area (ac)	CN	Description
7.549	68	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.1					**Direct Entry,**

Subcatchment s05-1:

Runoff = 0.77 cfs @ 12.42 hrs, Volume= 0.147 af, Depth= 0.26"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 1-yr Rainfall=2.70"

Area (ac)	CN	Description
6.842	61	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
14.4					**Direct Entry,**

Subcatchment s06-0:

Runoff = 1.16 cfs @ 12.44 hrs, Volume= 0.215 af, Depth= 0.29"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 1-yr Rainfall=2.70"

Area (ac)	CN	Description
9.007	62	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
17.3					**Direct Entry,**

Subcatchment s06-0(OW): s06 Open Water

Runoff = 1.39 cfs @ 12.00 hrs, Volume= 0.096 af, Depth= 2.70"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 1-yr Rainfall=2.70"

Area (ac)	CN	Description
0.428	100	

Subcatchment s07-1:

Runoff = 0.95 cfs @ 12.19 hrs, Volume= 0.134 af, Depth= 0.34"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 1-yr Rainfall=2.70"

Area (ac)	CN	Description
4.656	64	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.3					**Direct Entry,**

Subcatchment s07-1(OW): s07 Open Water

Runoff = 1.64 cfs @ 12.00 hrs, Volume= 0.114 af, Depth= 2.70"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 1-yr Rainfall=2.70"

Area (ac)	CN	Description
0.506	100	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.0					**Direct Entry,**

Subcatchment s08-1:

Runoff = 1.89 cfs @ 12.60 hrs, Volume= 0.448 af, Depth= 0.23"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 1-yr Rainfall=2.70"

Area (ac)	CN	Description
23.126	60	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
24.5					**Direct Entry,**

Subcatchment s08-2:

Runoff = 1.46 cfs @ 12.27 hrs, Volume= 0.235 af, Depth= 0.31"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 1-yr Rainfall=2.70"

Area (ac)	CN	Description
8.958	63	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
11.4					**Direct Entry,**

Subcatchment s08-2(IC):

Runoff = 16.10 cfs @ 12.04 hrs, Volume= 1.137 af, Depth= 2.47"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 1-yr Rainfall=2.70"

Area (ac)	CN	Description
5.524	98	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
2.9					**Direct Entry,**

Subcatchment s08-2(OW):

Runoff = 0.62 cfs @ 12.00 hrs, Volume= 0.043 af, Depth= 2.70"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 1-yr Rainfall=2.70"

Area (ac)	CN	Description
0.192	100	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.0					**Direct Entry,**

Subcatchment s08-3:

Runoff = 0.19 cfs @ 12.41 hrs, Volume= 0.037 af, Depth= 0.26"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 1-yr Rainfall=2.70"

Area (ac)	CN	Description
1.700	61	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
13.6					**Direct Entry,**

Subcatchment s08-3(IC): s08-3 Impervious Cover

Runoff = 3.38 cfs @ 12.01 hrs, Volume= 0.224 af, Depth= 2.47"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 1-yr Rainfall=2.70"

Area (ac)	CN	Description
1.086	98	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.0					**Direct Entry,**

Subcatchment s08-3(OW): s08-3 Open Water

Runoff = 0.14 cfs @ 12.00 hrs, Volume= 0.009 af, Depth= 2.70"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 1-yr Rainfall=2.70"

Area (ac)	CN	Description
0.042	100	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.0					**Direct Entry,**

Subcatchment s09-1:

Runoff = 0.26 cfs @ 12.35 hrs, Volume= 0.050 af, Depth= 0.23"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 1-yr Rainfall=2.70"

Area (ac)	CN	Description
2.604	60	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.0					**Direct Entry,**

Subcatchment s09-2:

Runoff = 4.69 cfs @ 12.38 hrs, Volume= 0.687 af, Depth= 0.44"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 1-yr Rainfall=2.70"

Area (ac)	CN	Description
18.608	67	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
20.6					**Direct Entry,**

Subcatchment s09-2(IC): s09-2 Impervious Cover

Runoff = 6.90 cfs @ 12.04 hrs, Volume= 0.481 af, Depth= 2.47"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 1-yr Rainfall=2.70"

Area (ac)	CN	Description
2.336	98	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
2.5					**Direct Entry,**

Subcatchment s09-2(OW): s09-2 Open Water

Runoff = 0.76 cfs @ 12.00 hrs, Volume= 0.053 af, Depth= 2.70"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 1-yr Rainfall=2.70"

Area (ac)	CN	Description
0.236	100	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.0					**Direct Entry,**

Subcatchment s09-3:

Runoff = 1.35 cfs @ 12.19 hrs, Volume= 0.152 af, Depth= 0.48"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 1-yr Rainfall=2.70"

Area (ac)	CN	Description
3.818	68	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.9					**Direct Entry,**

Subcatchment s10-1:

Runoff = 2.04 cfs @ 12.49 hrs, Volume= 0.321 af, Depth= 0.48"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 1-yr Rainfall=2.70"

Area (ac)	CN	Description
8.038	68	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
27.9					**Direct Entry,**

Subcatchment s10-1(OW): s10 Open Water

Runoff = 2.69 cfs @ 12.00 hrs, Volume= 0.187 af, Depth= 2.70"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 1-yr Rainfall=2.70"

Area (ac)	CN	Description
0.830	100	

Subcatchment s13-1:

Runoff = 0.48 cfs @ 12.10 hrs, Volume= 0.077 af, Depth= 0.26"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 1-yr Rainfall=2.70"

Area (ac)	CN	Description
3.555	61	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
2.8					**Direct Entry,**

Subcatchment s13-1(IC): s13-1 Impervious Cover

Runoff = 18.60 cfs @ 12.04 hrs, Volume= 1.309 af, Depth= 2.47"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 1-yr Rainfall=2.70"

Area (ac)	CN	Description
6.360	98	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
2.8					**Direct Entry,**

Subcatchment s13-1(OW): s13-1 Open Water

Runoff = 0.42 cfs @ 12.00 hrs, Volume= 0.029 af, Depth= 2.70"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 1-yr Rainfall=2.70"

Area (ac)	CN	Description
0.131	100	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.0					**Direct Entry,**

Subcatchment s14-1:

Runoff = 3.87 cfs @ 12.48 hrs, Volume= 0.590 af, Depth= 0.52"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 1-yr Rainfall=2.70"

Area (ac)	CN	Description
13.727	69	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
28.1					**Direct Entry,**

Subcatchment s14-1(IC): s14-1 Impervious Cover

Runoff = 5.48 cfs @ 12.03 hrs, Volume= 0.379 af, Depth= 2.47"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 1-yr Rainfall=2.70"

Area (ac)	CN	Description
1.840	98	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
2.3					**Direct Entry,**

Subcatchment s14-1(OW): s14 Open Water

Runoff = 1.68 cfs @ 12.00 hrs, Volume= 0.117 af, Depth= 2.70"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 1-yr Rainfall=2.70"

Area (ac)	CN	Description
0.518	100	

Subcatchment s14-2:

Runoff = 0.06 cfs @ 12.29 hrs, Volume= 0.011 af, Depth= 0.26"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 1-yr Rainfall=2.70"

Area (ac)	CN	Description
0.504	61	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.4					**Direct Entry,**

Subcatchment s14-2(OW): s14-2 Open Water

Runoff = 0.57 cfs @ 12.00 hrs, Volume= 0.040 af, Depth= 2.70"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 1-yr Rainfall=2.70"

Area (ac)	CN	Description
0.176	100	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.0					**Direct Entry,**

Subcatchment s14-3:

Runoff = 2.95 cfs @ 12.14 hrs, Volume= 0.292 af, Depth= 0.52"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 1-yr Rainfall=2.70"

Area (ac)	CN	Description
6.794	69	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.5					**Direct Entry,**

Subcatchment s14-3(IC): s14-3 Impervious Cover

Runoff = 24.66 cfs @ 12.04 hrs, Volume= 1.741 af, Depth= 2.47"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 1-yr Rainfall=2.70"

Area (ac)	CN	Description
8.460	98	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
2.9					**Direct Entry,**

Subcatchment s16-1:

Runoff = 10.27 cfs @ 12.35 hrs, Volume= 1.465 af, Depth= 0.44"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 1-yr Rainfall=2.70"

Area (ac)	CN	Description
39.680	67	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
19.0					**Direct Entry,**

Subcatchment s16-1(OW): s16-1 Open Water

Runoff = 17.34 cfs @ 12.00 hrs, Volume= 1.204 af, Depth= 2.70"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 1-yr Rainfall=2.70"

Area (ac)	CN	Description
5.351	100	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.0					**Direct Entry,**

Subcatchment s16-2:

Runoff = 1.43 cfs @ 12.24 hrs, Volume= 0.148 af, Depth= 0.82"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 1-yr Rainfall=2.70"

Area (ac)	CN	Description
2.176	76	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
15.8					**Direct Entry,**

Subcatchment s17-1:

Runoff = 0.86 cfs @ 12.65 hrs, Volume= 0.175 af, Depth= 0.34"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 1-yr Rainfall=2.70"

Area (ac)	CN	Description
6.110	64	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
33.8					**Direct Entry,**

Subcatchment s17-1(OW): s17-1 Open Water

Runoff = 0.53 cfs @ 12.00 hrs, Volume= 0.037 af, Depth= 2.70"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 1-yr Rainfall=2.70"

Area (ac)	CN	Description
0.164	100	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.0					**Direct Entry,**

Subcatchment s17-2:

Runoff = 7.69 cfs @ 13.51 hrs, Volume= 2.591 af, Depth= 0.41"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 1-yr Rainfall=2.70"

Area (ac)	CN	Description
76.086	66	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
95.7					**Direct Entry,**

Subcatchment s17-3:

Runoff = 5.74 cfs @ 12.55 hrs, Volume= 1.018 af, Depth= 0.41"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 1-yr Rainfall=2.70"

Area (ac)	CN	Description
29.880	66	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
30.7					**Direct Entry,**

Subcatchment s18-1:

Runoff = 1.50 cfs @ 12.34 hrs, Volume= 0.242 af, Depth= 0.34"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 1-yr Rainfall=2.70"

Area (ac)	CN	Description
8.429	64	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
16.4					**Direct Entry,**

Subcatchment s18-1(OW): s18-1 Open Water

Runoff = 1.53 cfs @ 12.00 hrs, Volume= 0.106 af, Depth= 2.70"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 1-yr Rainfall=2.70"

Area (ac)	CN	Description
0.472	100	

Subcatchment s18-2:

Runoff = 3.57 cfs @ 12.30 hrs, Volume= 0.461 af, Depth= 0.52"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 1-yr Rainfall=2.70"

Area (ac)	CN	Description
10.721	69	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
18.0					**Direct Entry,**

Subcatchment s19-0:

Runoff = 1.03 cfs @ 12.80 hrs, Volume= 0.301 af, Depth= 0.23"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 1-yr Rainfall=2.70"

Area (ac)	CN	Description
15.520	60	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
40.4					**Direct Entry,**

Subcatchment s20-1:

Runoff = 1.87 cfs @ 12.40 hrs, Volume= 0.292 af, Depth= 0.41"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 1-yr Rainfall=2.70"

Area (ac)	CN	Description
8.559	66	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
21.5					**Direct Entry,**

Subcatchment s20-1(OW): s20-1 Open Water

Runoff = 6.38 cfs @ 12.00 hrs, Volume= 0.443 af, Depth= 2.70"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 1-yr Rainfall=2.70"

Area (ac)	CN	Description
1.968	100	

Subcatchment s20-2:

Runoff = 5.74 cfs @ 12.13 hrs, Volume= 0.492 af, Depth= 0.72"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 1-yr Rainfall=2.70"

Area (ac)	CN	Description
8.157	74	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.4					**Direct Entry,**

Subcatchment s20-2(IC): s20-2 Impervious Cover

Runoff = 13.96 cfs @ 12.07 hrs, Volume= 1.052 af, Depth= 2.47"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 1-yr Rainfall=2.70"

Area (ac)	CN	Description
5.112	98	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.7					**Direct Entry,**

Subcatchment s20-2(OW): s20-2 Open Water

Runoff = 0.78 cfs @ 12.00 hrs, Volume= 0.054 af, Depth= 2.70"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 1-yr Rainfall=2.70"

Area (ac)	CN	Description
0.242	100	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.0					**Direct Entry,**

Subcatchment s20-3:

Runoff = 2.37 cfs @ 12.37 hrs, Volume= 0.318 af, Depth= 0.55"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 1-yr Rainfall=2.70"

Area (ac)	CN	Description
6.886	70	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
22.0					**Direct Entry,**

Subcatchment s21-1:

Runoff = 19.54 cfs @ 12.29 hrs, Volume= 2.550 af, Depth= 0.48"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 1-yr Rainfall=2.70"

Area (ac)	CN	Description
63.942	68	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
16.6					**Direct Entry,**

Subcatchment s21-1(OW):

Runoff = 39.66 cfs @ 12.00 hrs, Volume= 2.753 af, Depth= 2.70"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 1-yr Rainfall=2.70"

Area (ac)	CN	Description
12.235	100	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.0					**Direct Entry,**

Subcatchment s21-2:

Runoff = 6.24 cfs @ 12.52 hrs, Volume= 0.967 af, Depth= 0.55"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 1-yr Rainfall=2.70"

Area (ac)	CN	Description
20.941	70	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
31.4					**Direct Entry,**

Subcatchment s21-3:

Runoff = 5.48 cfs @ 12.17 hrs, Volume= 0.517 af, Depth= 0.72"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 1-yr Rainfall=2.70"

Area (ac)	CN	Description
8.567	74	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
11.2					**Direct Entry,**

Subcatchment s21-4:

Runoff = 0.97 cfs @ 12.25 hrs, Volume= 0.125 af, Depth= 0.44"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 1-yr Rainfall=2.70"

Area (ac)	CN	Description
3.392	67	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
13.8					**Direct Entry,**

Subcatchment s21-4(IC): s21-4 Impervious Cover

Runoff = 5.01 cfs @ 12.02 hrs, Volume= 0.338 af, Depth= 2.47"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 1-yr Rainfall=2.70"

Area (ac)	CN	Description
1.643	98	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.6					**Direct Entry,**

Subcatchment s21-4(OW): s21-4 Open Water

Runoff = 0.38 cfs @ 12.00 hrs, Volume= 0.026 af, Depth= 2.70"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 1-yr Rainfall=2.70"

Area (ac)	CN	Description
0.117	100	

Subcatchment s21-5:

Runoff = 1.54 cfs @ 12.21 hrs, Volume= 0.154 af, Depth= 0.77"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 1-yr Rainfall=2.70"

Area (ac)	CN	Description
2.398	75	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
13.9					**Direct Entry,**

Subcatchment s21-6:

Runoff = 3.46 cfs @ 12.27 hrs, Volume= 0.373 af, Depth= 0.82"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 1-yr Rainfall=2.70"

Area (ac)	CN	Description
5.463	76	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
17.5					**Direct Entry,**

Subcatchment s21-6(IC): s21-6 Impervious Cover

Runoff = 1.97 cfs @ 12.02 hrs, Volume= 0.132 af, Depth= 2.47"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 1-yr Rainfall=2.70"

Area (ac)	CN	Description
0.643	98	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.5					**Direct Entry,**

Subcatchment s21-6(OW): s21-6 Open Water

Runoff = 0.25 cfs @ 12.00 hrs, Volume= 0.017 af, Depth= 2.70"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 1-yr Rainfall=2.70"

Area (ac)	CN	Description
0.076	100	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.0					**Direct Entry,**

Subcatchment s21-7:

Runoff = 0.82 cfs @ 12.27 hrs, Volume= 0.126 af, Depth= 0.34"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 1-yr Rainfall=2.70"

Area (ac)	CN	Description
4.375	64	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
13.1					**Direct Entry,**

Subcatchment s21-7(IC): s21-7 Impervious Cover

Runoff = 11.50 cfs @ 12.04 hrs, Volume= 0.801 af, Depth= 2.47"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 1-yr Rainfall=2.70"

Area (ac)	CN	Description
3.890	98	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
2.5					**Direct Entry,**

Subcatchment s21-7(OW): s21-7 Open Water

Runoff = 0.29 cfs @ 12.00 hrs, Volume= 0.020 af, Depth= 2.70"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 1-yr Rainfall=2.70"

Area (ac)	CN	Description
0.090	100	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.0					**Direct Entry,**

Subcatchment s22-1:

Runoff = 8.70 cfs @ 12.23 hrs, Volume= 0.947 af, Depth= 0.64"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 1-yr Rainfall=2.70"

Area (ac)	CN	Description
17.878	72	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
14.7					**Direct Entry,**

Subcatchment s22-1(OW): s22-1 Open Water

Runoff = 0.44 cfs @ 12.00 hrs, Volume= 0.031 af, Depth= 2.70"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 1-yr Rainfall=2.70"

Area (ac)	CN	Description
0.136	100	

Subcatchment s22-2:

Runoff = 12.04 cfs @ 12.42 hrs, Volume= 1.788 af, Depth= 0.48"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 1-yr Rainfall=2.70"

Area (ac)	CN	Description
44.848	68	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
24.0					**Direct Entry,**

Subcatchment s23-1:

Runoff = 9.49 cfs @ 12.62 hrs, Volume= 1.543 af, Depth= 0.64"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 1-yr Rainfall=2.70"

Area (ac)	CN	Description
29.123	72	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
38.5					**Direct Entry,**

Subcatchment s23-2:

Runoff = 9.06 cfs @ 12.07 hrs, Volume= 0.633 af, Depth= 0.87"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 1-yr Rainfall=2.70"

Area (ac)	CN	Description
8.741	77	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.0					**Direct Entry,**

Subcatchment s23-2(IC): s23-2 Impervious Cover

Runoff = 20.12 cfs @ 12.06 hrs, Volume= 1.479 af, Depth= 2.47"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 1-yr Rainfall=2.70"

Area (ac)	CN	Description
7.185	98	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.0					**Direct Entry,**

Subcatchment s23-2(OW): s23-2 Open Water

Runoff = 0.54 cfs @ 12.00 hrs, Volume= 0.038 af, Depth= 2.70"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 1-yr Rainfall=2.70"

Area (ac)	CN	Description
0.168	100	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.0					**Direct Entry,**

Subcatchment s24-0:

Runoff = 8.52 cfs @ 12.52 hrs, Volume= 1.308 af, Depth= 0.55"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 1-yr Rainfall=2.70"

Area (ac)	CN	Description
28.325	70	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
30.7					**Direct Entry,**

Subcatchment s25-0:

Runoff = 3.03 cfs @ 12.37 hrs, Volume= 0.462 af, Depth= 0.41"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 1-yr Rainfall=2.70"

Area (ac)	CN	Description
13.562	66	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
20.2					**Direct Entry,**

Reach 25R:

Overland Flow Reach

Inflow Area = 15.520 ac, Inflow Depth = 0.23" for 1-yr event
Inflow = 0.45 cfs @ 14.75 hrs, Volume= 0.299 af
Outflow = 0.45 cfs @ 14.92 hrs, Volume= 0.299 af, Atten= 0%, Lag= 9.9 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Max. Velocity= 0.8 fps, Min. Travel Time= 12.3 min
Avg. Velocity = 0.4 fps, Avg. Travel Time= 23.8 min

Peak Depth= 0.06' @ 14.92 hrs
Capacity at bank full= 175.17 cfs
Inlet Invert= 560.00', Outlet Invert= 512.00'
50.00' x 1.00' deep Parabolic Channel, n= 0.060 Length= 620.0' Slope= 0.0774 '/'

Reach r03-1:

Overland Flow Reach
Requires more survey

Inflow Area = 11.485 ac, Inflow Depth = 0.48" for 1-yr event
Inflow = 2.38 cfs @ 12.70 hrs, Volume= 0.458 af
Outflow = 2.35 cfs @ 12.76 hrs, Volume= 0.458 af, Atten= 1%, Lag= 3.7 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Max. Velocity= 3.0 fps, Min. Travel Time= 4.3 min
Avg. Velocity = 1.4 fps, Avg. Travel Time= 9.2 min

Peak Depth= 0.27' @ 12.76 hrs
Capacity at bank full= 92.14 cfs
Inlet Invert= 845.00', Outlet Invert= 728.00'
10.00' x 1.50' deep Parabolic Channel, n= 0.060 Length= 785.0' Slope= 0.1490 '/'

Reach r04-1:

Channel

Inflow Area = 26.658 ac, Inflow Depth = 0.66" for 1-yr event
Inflow = 5.36 cfs @ 12.61 hrs, Volume= 1.473 af
Outflow = 5.35 cfs @ 12.63 hrs, Volume= 1.473 af, Atten= 0%, Lag= 0.8 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Max. Velocity= 4.4 fps, Min. Travel Time= 1.3 min
Avg. Velocity = 1.6 fps, Avg. Travel Time= 3.5 min

Peak Depth= 0.45' @ 12.63 hrs
Capacity at bank full= 530.15 cfs
Inlet Invert= 685.50', Outlet Invert= 632.00'
12.00' x 4.00' deep Parabolic Channel, n= 0.060 Length= 330.0' Slope= 0.1621 '/'

Reach r08-1a:

Man Made Ditch
Inverts of pipe to be surveyed

Inflow Area = 93.367 ac, Inflow Depth = 0.38" for 1-yr event
Inflow = 10.87 cfs @ 13.01 hrs, Volume= 2.946 af
Outflow = 10.86 cfs @ 13.02 hrs, Volume= 2.946 af, Atten= 0%, Lag= 0.4 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Max. Velocity= 6.6 fps, Min. Travel Time= 0.6 min
Avg. Velocity = 3.5 fps, Avg. Travel Time= 1.1 min

Peak Depth= 0.39' @ 13.02 hrs
Capacity at bank full= 81.88 cfs
Inlet Invert= 607.00', Outlet Invert= 587.00'
10.00' x 1.00' deep Parabolic Channel, n= 0.027 Length= 226.0' Slope= 0.0885 '/'

Reach r08-1b:

24" HDPE
Inverts to be surveyed

Inflow Area = 93.367 ac, Inflow Depth = 0.38" for 1-yr event
Inflow = 10.86 cfs @ 13.02 hrs, Volume= 2.946 af
Outflow = 10.86 cfs @ 13.02 hrs, Volume= 2.946 af, Atten= 0%, Lag= 0.2 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Max. Velocity= 17.3 fps, Min. Travel Time= 0.3 min
Avg. Velocity = 9.5 fps, Avg. Travel Time= 0.5 min

Peak Depth= 0.51' @ 13.02 hrs
Capacity at bank full= 77.17 cfs
Inlet Invert= 587.00', Outlet Invert= 557.75'
24.0" Diameter Pipe n= 0.012 Length= 295.0' Slope= 0.0992 '/'

Reach r08-1c:

Ditch
Pipe inverts to be surveyed

Inflow Area = 93.367 ac, Inflow Depth = 0.38" for 1-yr event
Inflow = 10.86 cfs @ 13.02 hrs, Volume= 2.946 af
Outflow = 10.85 cfs @ 13.04 hrs, Volume= 2.946 af, Atten= 0%, Lag= 1.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Max. Velocity= 6.3 fps, Min. Travel Time= 1.6 min
Avg. Velocity = 3.3 fps, Avg. Travel Time= 3.0 min

Peak Depth= 0.40' @ 13.04 hrs
Capacity at bank full= 76.65 cfs
Inlet Invert= 557.75', Outlet Invert= 512.00'
10.00' x 1.00' deep Parabolic Channel, n= 0.027 Length= 590.0' Slope= 0.0775 '/'

Reach r08-1d: Amenia Creek/Cascade Brook

(Steam) parallel to Route 22
Base Flow estimated from field observation (see field note 21)

Inflow Area = 114.957 ac, Inflow Depth = 17.04" for 1-yr event
Inflow = 51.60 cfs @ 13.04 hrs, Volume= 163.225 af, Incl. 40.00 cfs Base Flow
Outflow = 51.53 cfs @ 13.09 hrs, Volume= 162.980 af, Atten= 0%, Lag= 3.3 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Max. Velocity= 3.2 fps, Min. Travel Time= 4.1 min
Avg. Velocity = 3.1 fps, Avg. Travel Time= 4.4 min

Peak Depth= 2.83' @ 13.09 hrs
Capacity at bank full= 104.49 cfs
Inlet Invert= 512.00', Outlet Invert= 504.00'
10.00' x 4.00' deep Parabolic Channel, n= 0.060 Length= 805.0' Slope= 0.0099 '/'

Reach r13-1:

Inflow Area = 2.176 ac, Inflow Depth = 0.82" for 1-yr event
Inflow = 1.43 cfs @ 12.24 hrs, Volume= 0.148 af
Outflow = 1.40 cfs @ 12.27 hrs, Volume= 0.148 af, Atten= 2%, Lag= 2.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Max. Velocity= 6.0 fps, Min. Travel Time= 2.5 min
Avg. Velocity = 2.5 fps, Avg. Travel Time= 6.1 min

Peak Depth= 0.29' @ 12.27 hrs
Capacity at bank full= 17.79 cfs
Inlet Invert= 546.00', Outlet Invert= 524.00'
18.0" Diameter Pipe n= 0.012 Length= 900.0' Slope= 0.0244 '/'

Reach r14-3a:

30" HDPE Under Main Entrance Road

Inflow Area = 6.422 ac, Inflow Depth = 0.38" for 1-yr event
Inflow = 1.53 cfs @ 12.22 hrs, Volume= 0.203 af
Outflow = 1.52 cfs @ 12.24 hrs, Volume= 0.203 af, Atten= 0%, Lag= 0.8 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Max. Velocity= 7.2 fps, Min. Travel Time= 1.0 min
Avg. Velocity = 3.5 fps, Avg. Travel Time= 2.1 min

Peak Depth= 0.22' @ 12.24 hrs
Capacity at bank full= 94.91 cfs
Inlet Invert= 526.00', Outlet Invert= 505.70'
30.0" Diameter Pipe n= 0.012 Length= 445.0' Slope= 0.0456 '/'

Reach r14-3b:

Grass lined channel

Inflow Area = 6.422 ac, Inflow Depth = 0.38" for 1-yr event
Inflow = 1.55 cfs @ 12.20 hrs, Volume= 0.203 af
Outflow = 1.53 cfs @ 12.22 hrs, Volume= 0.203 af, Atten= 1%, Lag= 1.6 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Max. Velocity= 3.4 fps, Min. Travel Time= 1.8 min
Avg. Velocity = 1.6 fps, Avg. Travel Time= 3.7 min

Peak Depth= 0.24' @ 12.22 hrs
Capacity at bank full= 325.42 cfs
Inlet Invert= 542.00', Outlet Invert= 526.00'
10.00' x 3.00' deep Parabolic Channel, n= 0.027 Length= 360.0' Slope= 0.0444 '/'

Reach r17-1:

Inflow Area = 76.086 ac, Inflow Depth = 0.41" for 1-yr event
Inflow = 7.69 cfs @ 13.51 hrs, Volume= 2.591 af
Outflow = 7.66 cfs @ 13.62 hrs, Volume= 2.591 af, Atten= 0%, Lag= 6.5 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Max. Velocity= 4.4 fps, Min. Travel Time= 5.3 min
Avg. Velocity = 2.2 fps, Avg. Travel Time= 10.8 min

Peak Depth= 0.46' @ 13.62 hrs
Capacity at bank full= 181.28 cfs
Inlet Invert= 646.00', Outlet Invert= 524.00'
12.00' x 2.00' deep Parabolic Channel, n= 0.045 Length= 1,390.0' Slope= 0.0878 '/'

Reach r18-2:

Overland Flow Reach

Inflow =	0.00 cfs @	0.00 hrs, Volume=	0.000 af	
Outflow =	0.00 cfs @	0.00 hrs, Volume=	0.000 af,	Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Max. Velocity= 0.0 fps, Min. Travel Time= 0.0 min
Avg. Velocity = 0.0 fps, Avg. Travel Time= 0.0 min

Peak Depth= 0.00' @ 0.00 hrs
Capacity at bank full= 434.91 cfs
Inlet Invert= 973.60', Outlet Invert= 630.00'
50.00' x 1.00' deep Parabolic Channel, n= 0.060 Length= 720.0' Slope= 0.4772 '/'

Reach r21-1a:

Man Made Ditch

Inflow Area = 207.817 ac, Inflow Depth = 0.11" for 1-yr event

Inflow =	1.25 cfs @	15.12 hrs, Volume=	1.933 af	
Outflow =	1.25 cfs @	15.17 hrs, Volume=	1.930 af,	Atten= 0%, Lag= 3.4 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Max. Velocity= 2.2 fps, Min. Travel Time= 4.9 min
Avg. Velocity = 1.5 fps, Avg. Travel Time= 7.3 min

Peak Depth= 0.28' @ 15.17 hrs
Capacity at bank full= 191.76 cfs
Inlet Invert= 504.00', Outlet Invert= 494.00'
10.00' x 3.00' deep Parabolic Channel, n= 0.027 Length= 648.0' Slope= 0.0154 '/'

Reach r21-1b:

Overland Flow Reach

Inflow Area = 29.123 ac, Inflow Depth = 0.34" for 1-yr event

Inflow =	2.76 cfs @	13.67 hrs, Volume=	0.828 af	
Outflow =	2.73 cfs @	13.70 hrs, Volume=	0.828 af,	Atten= 1%, Lag= 1.9 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Max. Velocity= 1.8 fps, Min. Travel Time= 1.5 min
Avg. Velocity = 1.0 fps, Avg. Travel Time= 2.6 min

Peak Depth= 0.13' @ 13.70 hrs
Capacity at bank full= 227.81 cfs
Inlet Invert= 506.70', Outlet Invert= 485.75'
50.00' x 1.00' deep Parabolic Channel, n= 0.060 Length= 160.0' Slope= 0.1309 '/'

Reach r22-2:

Overland Flow Reach

Inflow Area = 15.520 ac, Inflow Depth = 0.23" for 1-yr event
Inflow = 0.45 cfs @ 14.68 hrs, Volume= 0.299 af
Outflow = 0.45 cfs @ 14.75 hrs, Volume= 0.299 af, Atten= 0%, Lag= 4.2 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Max. Velocity= 1.7 fps, Min. Travel Time= 6.3 min
Avg. Velocity = 0.9 fps, Avg. Travel Time= 11.2 min

Peak Depth= 0.04' @ 14.75 hrs
Capacity at bank full= 469.25 cfs
Inlet Invert= 970.00', Outlet Invert= 620.00'
50.00' x 1.00' deep Parabolic Channel, n= 0.060 Length= 630.0' Slope= 0.5556 '/'

Reach r25-0a:

Ditch
Pipe inverts need to be surveyed

Inflow Area = 67.391 ac, Inflow Depth = 0.52" for 1-yr event
Inflow = 7.21 cfs @ 12.52 hrs, Volume= 2.934 af
Outflow = 7.16 cfs @ 12.56 hrs, Volume= 2.931 af, Atten= 1%, Lag= 2.2 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Max. Velocity= 5.7 fps, Min. Travel Time= 3.2 min
Avg. Velocity = 2.4 fps, Avg. Travel Time= 7.5 min

Peak Depth= 0.42' @ 12.56 hrs
Capacity at bank full= 205.50 cfs
Inlet Invert= 570.00', Outlet Invert= 504.00'
10.00' x 2.00' deep Parabolic Channel, n= 0.027 Length= 1,090.0' Slope= 0.0606 '/'

Reach r25-0b: Wetland Reach

Wetland Reach
Has wetland vegetation within reach

Inflow Area = 9.435 ac, Inflow Depth = 0.36" for 1-yr event
Inflow = 0.29 cfs @ 15.40 hrs, Volume= 0.285 af
Outflow = 0.28 cfs @ 15.62 hrs, Volume= 0.284 af, Atten= 0%, Lag= 13.3 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Max. Velocity= 0.6 fps, Min. Travel Time= 21.7 min
Avg. Velocity = 0.3 fps, Avg. Travel Time= 38.1 min

Peak Depth= 0.16' @ 15.62 hrs
Capacity at bank full= 156.51 cfs
Inlet Invert= 504.00', Outlet Invert= 499.50'
20.00' x 3.00' deep Parabolic Channel, n= 0.045 Length= 750.0' Slope= 0.0060 '/'

Reach r25-0c: Amenia Creek/Cascade Brook

(Steam) parallel to Route 22
Base Flow estimated from field observation (see field note 21)

Inflow Area = 138.083 ac, Inflow Depth = 28.00" for 1-yr event
Inflow = 92.62 cfs @ 13.07 hrs, Volume= 322.138 af, Incl. 40.00 cfs Base Flow
Outflow = 92.48 cfs @ 13.15 hrs, Volume= 321.455 af, Atten= 0%, Lag= 5.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Max. Velocity= 2.7 fps, Min. Travel Time= 6.0 min
Avg. Velocity = 2.6 fps, Avg. Travel Time= 6.2 min

Peak Depth= 4.75' @ 13.15 hrs
Capacity at bank full= 67.14 cfs
Inlet Invert= 504.00', Outlet Invert= 500.00'
10.00' x 4.00' deep Parabolic Channel, n= 0.060 Length= 975.0' Slope= 0.0041 '/'

Pond 8P:

No field note.
Water spills over cart path; no storage.

Inflow Area = 41.049 ac, Inflow Depth = 0.56" for 1-yr event
Inflow = 6.97 cfs @ 12.52 hrs, Volume= 1.922 af
Outflow = 6.97 cfs @ 12.52 hrs, Volume= 1.922 af, Atten= 0%, Lag= 0.0 min
Primary = 6.97 cfs @ 12.52 hrs, Volume= 1.922 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Peak Elev= 575.05' @ 12.52 hrs
Flood Elev= 574.70'
Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= (not calculated)

#	Routing	Invert	Outlet Devices
1	Primary	574.70'	**177.0 deg Sharp-Crested Vee/Trap Weir** C= 2.46

Primary OutFlow Max=6.97 cfs @ 12.52 hrs HW=575.05' TW=570.41' (Dynamic Tailwater)
└─**1=Sharp-Crested Vee/Trap Weir** (Weir Controls 6.97 cfs @ 1.5 fps)

Pond p02-2:

Proposed culvert under proposed road at intersection with 44.

Inflow Area = 7.776 ac, Inflow Depth = 0.41" for 1-yr event
Inflow = 1.52 cfs @ 12.54 hrs, Volume= 0.265 af
Outflow = 1.52 cfs @ 12.54 hrs, Volume= 0.265 af, Atten= 0%, Lag= 0.0 min
Primary = 1.52 cfs @ 12.54 hrs, Volume= 0.265 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Peak Elev= 640.51' @ 12.54 hrs
Flood Elev= 645.00'
Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= (not calculated)

#	Routing	Invert	Outlet Devices
1	Primary	640.00'	**24.0" x 100.0' long Culvert** CPP, end-section conforming to fill, Ke= 0.500 Outlet Invert= 638.00' S= 0.0200 '/' n= 0.012 Cc= 0.900

Primary OutFlow Max=1.52 cfs @ 12.54 hrs HW=640.51' TW=620.65' (Dynamic Tailwater)
└─**1=Culvert** (Inlet Controls 1.52 cfs @ 2.4 fps)

Pond p02-3:

Simulates last DMH at bottom of small road , at intersection with 44. This culvert is only used to size the drain pipe under 44.

Inflow Area = 4.088 ac, Inflow Depth = 1.41" for 1-yr event
Inflow = 7.91 cfs @ 12.03 hrs, Volume= 0.480 af
Outflow = 7.91 cfs @ 12.03 hrs, Volume= 0.480 af, Atten= 0%, Lag= 0.0 min
Primary = 7.91 cfs @ 12.03 hrs, Volume= 0.480 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Peak Elev= 636.45' @ 12.03 hrs
Flood Elev= 645.00'
Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= (not calculated)

#	Routing	Invert	Outlet Devices
1	Primary	635.00'	**24.0" x 100.0' long Culvert** CPP, projecting, no headwall, Ke= 0.900 Outlet Invert= 634.00' S= 0.0100 '/' n= 0.012 Cc= 0.900

Primary OutFlow Max=7.87 cfs @ 12.03 hrs HW=636.45' TW=551.96' (Dynamic Tailwater)
└─**1=Culvert** (Inlet Controls 7.87 cfs @ 3.2 fps)

Pond p03-2:

Inflow Area = 4.738 ac, Inflow Depth = 1.36" for 1-yr event
Inflow = 7.95 cfs @ 12.02 hrs, Volume= 0.537 af
Outflow = 0.34 cfs @ 14.98 hrs, Volume= 0.534 af, Atten= 96%, Lag= 177.6 min
Primary = 0.34 cfs @ 14.98 hrs, Volume= 0.534 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Starting Elev= 774.00' Surf.Area= 2,315 sf Storage= 4,095 cf
Peak Elev= 776.20' @ 14.98 hrs Surf.Area= 7,193 sf Storage= 17,170 cf (13,075 cf above start)
Flood Elev= 779.00' Surf.Area= 9,991 sf Storage= 41,391 cf (37,296 cf above start)
Plug-Flow detention time= 663.3 min calculated for 0.440 af (82% of inflow)
Center-of-Mass det. time= 465.7 min (1,259.4 - 793.7)

#	Invert	Avail.Storage	Storage Description
1	768.00'	51,363 cf	**Custom Stage Data (Conic)** Listed below

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
768.00	67	0	0	67
770.00	345	376	376	361
772.00	729	1,050	1,426	777
772.50	842	392	1,819	901
774.00	2,315	2,277	4,095	2,388
774.50	5,704	1,942	6,037	5,779
776.00	6,996	9,509	15,546	7,138
778.00	8,917	15,874	31,420	9,160
780.00	11,064	19,942	51,363	11,421

#	Routing	Invert	Outlet Devices
1	Primary	774.00'	**3.0" Vert. Orifice/Grate** C= 0.600
2	Primary	776.20'	**6.0" Vert. Orifice/Grate X 2.00** C= 0.600
3	Primary	778.50'	**4.0' long x 6.0' high Sharp-Crested Rectangular Weir** 2 End Contraction(s)

Primary OutFlow Max=0.34 cfs @ 14.98 hrs HW=776.20' TW=720.52' (Dynamic Tailwater)
├─**1=Orifice/Grate** (Orifice Controls 0.34 cfs @ 6.9 fps)
├─**2=Orifice/Grate** (Orifice Controls 0.00 cfs @ 0.2 fps)
└─**3=Sharp-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond p04-1:

Storage, inverts and culvert length based on assumed grading, check when final grading becomes available

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Inflow Area = 34.207 ac, Inflow Depth = 0.62" for 1-yr event
Inflow = 6.26 cfs @ 12.52 hrs, Volume= 1.774 af
Outflow = 6.26 cfs @ 12.53 hrs, Volume= 1.774 af, Atten= 0%, Lag= 0.7 min
Primary = 6.26 cfs @ 12.53 hrs, Volume= 1.774 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

Peak Elev= 639.09' @ 12.53 hrs Surf.Area= 711 sf Storage= 474 cf
Flood Elev= 648.00' Surf.Area= 15,680 sf Storage= 66,062 cf
Plug-Flow detention time= 3.0 min calculated for 1.774 af (100% of inflow)
Center-of-Mass det. time= 2.8 min (1,025.8 - 1,023.0)

#	Invert	Avail.Storage	Storage Description
1	638.00'	66,062 cf	**Custom Stage Data (Conic)** Listed below

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
638.00	0	0	0	0
640.00	1,300	867	867	1,306
642.00	6,180	6,876	7,743	6,203
644.00	7,270	13,435	21,178	7,438
646.00	11,100	18,235	39,414	11,327
648.00	15,680	26,648	66,062	15,980

#	Routing	Invert	Outlet Devices
1	Primary	638.00'	**24.0" x 685.0' long Culvert** CPP, end-section conforming to fill, Ke= 0.500 Outlet Invert= 598.00' S= 0.0584 '/' n= 0.012 Cc= 0.900

Primary OutFlow Max=6.26 cfs @ 12.53 hrs HW=639.09' TW=575.05' (Dynamic Tailwater)
└─**1=Culvert** (Inlet Controls 6.26 cfs @ 3.6 fps)

Pond p06-0:

Field Note #22
Geometry to be confirmed by survey.

Inflow Area = 9.435 ac, Inflow Depth = 0.40" for 1-yr event
Inflow = 1.40 cfs @ 12.36 hrs, Volume= 0.311 af
Outflow = 0.29 cfs @ 15.40 hrs, Volume= 0.285 af, Atten= 80%, Lag= 181.9 min
Primary = 0.29 cfs @ 15.40 hrs, Volume= 0.285 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Starting Elev= 506.80' Surf.Area= 18,600 sf Storage= 42,160 cf
Peak Elev= 507.10' @ 15.40 hrs Surf.Area= 19,941 sf Storage= 48,459 cf (6,299 cf above start)
Flood Elev= 507.10' Surf.Area= 19,958 sf Storage= 48,537 cf (6,377 cf above start)
Plug-Flow detention time= (not calculated)
Center-of-Mass det. time= (not calculated)

#	Invert	Avail.Storage	Storage Description
1	500.00'	67,669 cf	**Custom Stage Data (Conic)** Listed below

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
500.00	0	0	0	0
506.80	18,600	42,160	42,160	18,672
508.00	24,030	25,509	67,669	24,138

#	Routing	Invert	Outlet Devices
1	Primary	506.80'	**12.0" x 20.0' long Culvert** CMP, projecting, no headwall, Ke= 0.900 Outlet Invert= 506.00' S= 0.0400 '/' n= 0.024 Cc= 0.900
2	Primary	507.10'	**178.0 deg Sharp-Crested Vee/Trap Weir** C= 2.46

Primary OutFlow Max=0.29 cfs @ 15.40 hrs HW=507.10' TW=504.16' (Dynamic Tailwater)
1=Culvert (Inlet Controls 0.29 cfs @ 1.5 fps)
2=Sharp-Crested Vee/Trap Weir (Controls 0.00 cfs)

Pond p07-1:

Field Note # 29
Outlet geometry to be confirmed by survey.

Inflow Area = 26.342 ac, Inflow Depth = 0.52" for 1-yr event
Inflow = 1.85 cfs @ 12.00 hrs, Volume= 1.144 af
Outflow = 0.46 cfs @ 16.82 hrs, Volume= 1.012 af, Atten= 75%, Lag= 289.2 min
Primary = 0.46 cfs @ 16.82 hrs, Volume= 1.012 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Starting Elev= 572.80' Surf.Area= 21,640 sf Storage= 56,264 cf
Peak Elev= 573.14' @ 16.82 hrs Surf.Area= 23,227 sf Storage= 64,490 cf (8,226 cf above start)
Flood Elev= 573.50' Surf.Area= 24,936 sf Storage= 73,351 cf (17,087 cf above start)
Plug-Flow detention time= (not calculated)
Center-of-Mass det. time= (not calculated)

#	Invert	Avail.Storage	Storage Description
1	565.00'	85,557 cf	**Custom Stage Data (Conic)** Listed below

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
565.00	0	0	0	0
572.80	21,640	56,264	56,264	21,735
574.00	27,290	29,293	85,557	27,424

#	Routing	Invert	Outlet Devices
1	Primary	572.80'	**18.0" x 20.0' long Culvert** CMP, projecting, no headwall, Ke= 0.900 Outlet Invert= 572.00' S= 0.0400 '/' n= 0.024 Cc= 0.900
2	Primary	573.50'	**177.0 deg Sharp-Crested Vee/Trap Weir X 2.00** C= 2.46

Primary OutFlow Max=0.46 cfs @ 16.82 hrs HW=573.14' TW=570.22' (Dynamic Tailwater)
1=Culvert (Inlet Controls 0.46 cfs @ 1.6 fps)
2=Sharp-Crested Vee/Trap Weir (Controls 0.00 cfs)

Pond p08-2:

Inflow Area = 18.762 ac, Inflow Depth = 1.21" for 1-yr event
Inflow = 24.36 cfs @ 12.04 hrs, Volume= 1.895 af
Outflow = 0.47 cfs @ 19.22 hrs, Volume= 1.299 af, Atten= 98%, Lag= 430.9 min
Primary = 0.47 cfs @ 19.22 hrs, Volume= 1.299 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Starting Elev= 550.00' Surf.Area= 8,558 sf Storage= 24,834 cf
Peak Elev= 554.09' @ 19.22 hrs Surf.Area= 18,385 sf Storage= 86,322 cf (61,488 cf above start)
Flood Elev= 557.00' Surf.Area= 23,344 sf Storage= 147,597 cf (122,763 cf above start)
Plug-Flow detention time= 1,517.7 min calculated for 0.729 af (38% of inflow)
Center-of-Mass det. time= 885.9 min (1,681.3 - 795.4)

#	Invert	Avail.Storage	Storage Description
1	544.00'	170,918 cf	**Custom Stage Data (Conic)** Listed below

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
544.00	1,962	0	0	1,962
546.00	3,155	5,070	5,070	3,207
548.00	4,454	7,572	12,642	4,577
548.50	4,796	2,312	14,954	4,940
550.00	8,558	9,880	24,834	8,726
550.50	12,948	5,339	30,173	13,120
552.00	15,129	21,037	51,209	15,390
554.00	18,234	33,315	84,524	18,627
556.00	21,565	39,752	124,277	22,105
558.00	25,122	46,642	170,918	25,823

#	Routing	Invert	Outlet Devices
1	Primary	550.00'	**3.0" Vert. Orifice/Grate** C= 0.600
2	Primary	554.09'	**12.0" Vert. Orifice/Grate X 2.00** C= 0.600
3	Primary	556.00'	**11.0' long x 6.0' high Sharp-Crested Rectangular Weir** 2 End Contraction(s)

Primary OutFlow Max=0.47 cfs @ 19.22 hrs HW=554.09' TW=514.57' (Dynamic Tailwater)
—**1=Orifice/Grate** (Orifice Controls 0.47 cfs @ 9.6 fps)
—**2=Orifice/Grate** (Orifice Controls 0.00 cfs @ 0.1 fps)
—**3=Sharp-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond p08-3:

Inflow Area = 2.828 ac, Inflow Depth = 1.14" for 1-yr event
Inflow = 3.50 cfs @ 12.01 hrs, Volume= 0.270 af
Outflow = 0.32 cfs @ 12.95 hrs, Volume= 0.269 af, Atten= 91%, Lag= 56.3 min
Primary = 0.32 cfs @ 12.95 hrs, Volume= 0.269 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Starting Elev= 528.00' Surf.Area= 1,849 sf Storage= 2,615 cf
Peak Elev= 530.00' @ 12.95 hrs Surf.Area= 3,341 sf Storage= 7,723 cf (5,108 cf above start)
Flood Elev= 533.00' Surf.Area= 6,389 sf Storage= 22,602 cf (19,987 cf above start)
Plug-Flow detention time= 386.6 min calculated for 0.209 af (77% of inflow)
Center-of-Mass det. time= 202.4 min (982.8 - 780.3)

#	Invert	Avail.Storage	Storage Description
1	524.00'	28,956 cf	**Custom Stage Data (Conic)** Listed below

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
524.00	178	0	0	178
526.00	500	651	651	524
526.50	548	262	913	587
528.00	1,849	1,702	2,615	1,900
530.00	3,344	5,120	7,734	3,437
532.00	5,240	8,513	16,248	5,388
534.00	7,538	12,709	28,956	7,755

#	Routing	Invert	Outlet Devices
1	Primary	528.00'	**3.0" Vert. Orifice/Grate** C= 0.600
2	Primary	530.00'	**12.0" Vert. Orifice/Grate** C= 0.600

Primary OutFlow Max=0.32 cfs @ 12.95 hrs HW=530.00' TW=514.82' (Dynamic Tailwater)
1=Orifice/Grate (Orifice Controls 0.32 cfs @ 6.6 fps)
2=Orifice/Grate (Controls 0.00 cfs)

Pond p09-2:

Inflow Area = 21.180 ac, Inflow Depth = 0.69" for 1-yr event
Inflow = 7.86 cfs @ 12.04 hrs, Volume= 1.221 af
Outflow = 0.34 cfs @ 21.33 hrs, Volume= 0.896 af, Atten= 96%, Lag= 557.5 min
Primary = 0.34 cfs @ 21.33 hrs, Volume= 0.896 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Starting Elev= 586.00' Surf.Area= 10,285 sf Storage= 36,340 cf
Peak Elev= 588.21' @ 21.33 hrs Surf.Area= 19,486 sf Storage= 74,506 cf (38,166 cf above start)
Flood Elev= 593.00' Surf.Area= 27,610 sf Storage= 187,200 cf (150,860 cf above start)
Plug-Flow detention time= 2,350.8 min calculated for 0.062 af (5% of inflow)
Center-of-Mass det. time= 851.6 min (1,697.2 - 845.6)

#	Invert	Avail.Storage	Storage Description
1	580.00'	214,790 cf	**Custom Stage Data (Conic)** Listed below

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
580.00	3,968	0	0	3,968
582.00	5,102	9,046	9,046	5,198
584.00	6,343	11,423	20,469	6,550
584.50	6,670	3,253	23,722	6,907
586.00	10,285	12,619	36,340	10,554
586.50	16,887	6,725	43,066	17,159
588.00	19,143	27,005	70,070	19,525
590.00	22,349	41,451	111,521	22,890
592.00	25,781	48,089	159,610	26,494
594.00	29,439	55,180	214,790	30,336

#	Routing	Invert	Outlet Devices
1	Primary	586.00'	**3.0" Vert. Orifice/Grate** C= 0.600
2	Primary	588.21'	**8.0" Vert. Orifice/Grate** C= 0.600
3	Primary	592.00'	**2.0' long x 6.0' high Sharp-Crested Rectangular Weir** 2 End Contraction(s)

Primary OutFlow Max=0.34 cfs @ 21.33 hrs HW=588.21' TW=573.12' (Dynamic Tailwater)
1=Orifice/Grate (Orifice Controls 0.34 cfs @ 7.0 fps)
2=Orifice/Grate (Orifice Controls 0.00 cfs @ 0.2 fps)
3=Sharp-Crested Rectangular Weir (Controls 0.00 cfs)

Pond p10:

Field Note #25
Need to get full story on how this pond works

Inflow Area = 59.531 ac, Inflow Depth = 0.10" for 1-yr event
Inflow = 2.75 cfs @ 12.00 hrs, Volume= 0.507 af
Outflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Atten= 100%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Starting Elev= 498.40' Surf.Area= 36,110 sf Storage= 101,108 cf
Peak Elev= 498.96' @ 25.62 hrs Surf.Area= 38,325 sf Storage= 123,205 cf (22,097 cf above start)
Plug-Flow detention time= (not calculated)
Center-of-Mass det. time= (not calculated)

#	Invert	Avail.Storage	Storage Description
1	490.00'	581,029 cf	**Custom Stage Data (Conic)** Listed below

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
490.00	0	0	0	0
498.40	36,110	101,108	101,108	36,221
500.00	42,400	62,741	163,849	42,610
502.00	54,880	97,012	260,861	55,187
504.00	78,730	132,895	393,755	79,107
506.00	109,382	187,274	581,029	109,836

Pond p13-1:

No Field Note
Natural depression.

Inflow Area = 12.222 ac, Inflow Depth = 1.54" for 1-yr event
Inflow = 19.60 cfs @ 12.04 hrs, Volume= 1.563 af
Outflow = 16.50 cfs @ 12.08 hrs, Volume= 1.549 af, Atten= 16%, Lag= 2.6 min
Primary = 16.50 cfs @ 12.08 hrs, Volume= 1.549 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Starting Elev= 524.00' Surf.Area= 5,894 sf Storage= 16,480 cf
Peak Elev= 526.37' @ 12.08 hrs Surf.Area= 9,099 sf Storage= 34,496 cf (18,017 cf above start)
Flood Elev= 527.00' Surf.Area= 10,067 sf Storage= 40,862 cf (24,383 cf above start)

Plug-Flow detention time= 458.5 min calculated for 1.170 af (75% of inflow)
Center-of-Mass det. time= 255.2 min (1,032.1 - 776.9)

#	Invert	Avail.Storage	Storage Description
1	518.00'	50,891 cf	**Custom Stage Data (Conic)** Listed below

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
518.00	1,331	0	0	1,331
520.00	2,048	3,353	3,353	2,104
522.00	2,912	4,935	8,288	3,037
522.50	3,150	1,515	9,803	3,294
524.00	5,894	6,676	16,480	6,061
526.00	8,542	14,354	30,834	8,776
528.00	11,592	20,057	50,891	11,908

#	Routing	Invert	Outlet Devices
1	Primary	524.00'	**3.0" Vert. Orifice/Grate** C= 0.600
2	Primary	525.90'	**15.0' long x 1.3' high Sharp-Crested Rectangular Weir** 2 End Contraction(s)

Primary OutFlow Max=16.47 cfs @ 12.08 hrs HW=526.36' TW=498.74' (Dynamic Tailwater)
1=Orifice/Grate (Orifice Controls 0.35 cfs @ 7.2 fps)
2=Sharp-Crested Rectangular Weir (Weir Controls 16.12 cfs @ 2.3 fps)

Pond p14-1:

Field Note #26
Need to figure out how this pond works

Inflow Area = 50.663 ac, Inflow Depth = 1.16" for 1-yr event
Inflow = 44.49 cfs @ 12.08 hrs, Volume= 4.892 af
Outflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Atten= 100%, Lag= 0.0 min
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Starting Elev= 497.40' Surf.Area= 22,200 sf Storage= 54,760 cf
Peak Elev= 501.95' @ 48.00 hrs Surf.Area= 72,831 sf Storage= 267,861 cf (213,101 cf above start)
Plug-Flow detention time= (not calculated)
Center-of-Mass det. time= (not calculated)

#	Invert	Avail.Storage	Storage Description
1	490.00'	805,062 cf	**Custom Stage Data (Conic)** Listed below

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
490.00	0	0	0	0
497.40	22,200	54,760	54,760	22,286
498.00	25,330	14,249	69,009	25,433
500.00	52,810	76,476	145,485	52,948
502.00	73,360	125,608	271,093	73,574
504.00	84,070	157,308	428,402	84,467
506.00	92,130	176,139	604,540	92,797
508.00	108,618	200,522	805,062	109,437

#	Routing	Invert	Outlet Devices
1	Primary	500.00'	**24.0" x 80.0' long Culvert** CPP, end-section conforming to fill, Ke= 0.500 Outlet Invert= 502.00' S= -0.0250 '/' n= 0.012 Cc= 0.900

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=497.40' TW=498.40' (Dynamic Tailwater)
└─**1=Culvert** (Controls 0.00 cfs)

Pond p14-2:

Inflow Area = 15.934 ac, Inflow Depth = 1.57" for 1-yr event
Inflow = 26.57 cfs @ 12.04 hrs, Volume= 2.083 af
Outflow = 22.08 cfs @ 12.09 hrs, Volume= 2.056 af, Atten= 17%, Lag= 2.9 min
Primary = 22.08 cfs @ 12.09 hrs, Volume= 2.056 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Starting Elev= 532.00' Surf.Area= 7,681 sf Storage= 23,903 cf
Peak Elev= 534.19' @ 12.09 hrs Surf.Area= 11,015 sf Storage= 44,574 cf (20,671 cf above start)
Flood Elev= 535.00' Surf.Area= 12,390 sf Storage= 54,538 cf (30,635 cf above start)
Plug-Flow detention time= 429.5 min calculated for 1.507 af (72% of inflow)
Center-of-Mass det. time= 221.7 min (998.7 - 777.0)

#	Invert	Avail.Storage	Storage Description
1	526.00'	66,889 cf	**Custom Stage Data (Conic)** Listed below

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
526.00	2,239	0	0	2,239
528.00	3,156	5,369	5,369	3,227
530.00	4,207	7,338	12,707	4,362
530.50	4,491	2,174	14,881	4,669
532.00	7,681	9,023	23,903	7,885
534.00	10,686	18,285	42,188	10,966
536.00	14,093	24,701	66,889	14,463

#	Routing	Invert	Outlet Devices
1	Primary	532.00'	**3.0" Vert. Orifice/Grate** C= 0.600
2	Primary	533.60'	**14.0' long x 1.5' high Sharp-Crested Rectangular Weir** 2 End Contraction(s)

Primary OutFlow Max=22.06 cfs @ 12.09 hrs HW=534.19' TW=498.77' (Dynamic Tailwater)
1=Orifice/Grate (Orifice Controls 0.34 cfs @ 6.9 fps)
2=Sharp-Crested Rectangular Weir (Weir Controls 21.72 cfs @ 2.6 fps)

Pond p16-1:

Field Note # 49
Large pond with man-made island.
Geometry to be verified by survey. In particular, we are making big guesses about the outlets.
Also need to find out about valves...

Inflow Area = 176.893 ac, Inflow Depth = 0.49" for 1-yr event
Inflow = 17.97 cfs @ 12.00 hrs, Volume= 7.295 af
Outflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Atten= 100%, Lag= 0.0 min
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Starting Elev= 507.00' Surf.Area= 199,799 sf Storage= 878,320 cf
Peak Elev= 508.72' @ 48.00 hrs Surf.Area= 225,401 sf Storage= 1,196,089 cf (317,769 cf above start)
Flood Elev= 510.50' Surf.Area= 271,550 sf Storage= 1,623,217 cf (744,897 cf above start)
Plug-Flow detention time= (not calculated)
Center-of-Mass det. time= (not calculated)

#	Invert	Avail.Storage	Storage Description
1	500.00'	2,062,087 cf	**Custom Stage Data (Conic)** Listed below

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
500.00	0	0	0	0
503.00	140,344	140,344	140,344	140,358
509.20	232,500	1,143,862	1,284,206	232,994
510.00	249,400	192,720	1,476,927	249,951
512.00	338,000	585,160	2,062,087	338,634

#	Routing	Invert	Outlet Devices
1	Primary	509.00'	**18.0" x 110.0' long Culvert** CMP, projecting, no headwall, Ke= 0.900 Outlet Invert= 505.70' S= 0.0300 '/' n= 0.024 Cc= 0.900
2	Primary	500.00'	**8.0" x 100.0' long assumed equalization pipe w/ valve X 0.00** CMP, projecting, no headwall, Ke= 0.900 Outlet Invert= 500.00' S= 0.0000 '/' n= 0.013 Cc= 0.900
3	Primary	510.50'	**175.0 deg Sharp-Crested Vee/Trap Weir X 2.00** C= 2.46

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=507.00' TW=505.10' (Dynamic Tailwater)
1=Culvert (Controls 0.00 cfs)
2=assumed equalization pipe w/ valve (Controls 0.00 cfs)
3=Sharp-Crested Vee/Trap Weir (Controls 0.00 cfs)

Pond p17-1:

Field Note #45
Golf pond
Geometry to be confirmed by surveyed

Inflow Area = 112.240 ac, Inflow Depth = 0.41" for 1-yr event
Inflow = 9.88 cfs @ 13.54 hrs, Volume= 3.821 af
Outflow = 9.76 cfs @ 13.67 hrs, Volume= 3.821 af, Atten= 1%, Lag= 8.3 min
Primary = 9.76 cfs @ 13.67 hrs, Volume= 3.821 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Starting Elev= 523.80' Surf.Area= 7,290 sf Storage= 9,234 cf
Peak Elev= 524.86' @ 13.67 hrs Surf.Area= 9,527 sf Storage= 19,121 cf (9,887 cf above start)
Flood Elev= 524.30' Surf.Area= 8,074 sf Storage= 13,623 cf (4,389 cf above start)
Plug-Flow detention time= 69.2 min calculated for 3.609 af (94% of inflow)
Center-of-Mass det. time= 25.8 min (1,002.1 - 976.3)

#	Invert	Avail.Storage	Storage Description
1	520.00'	30,224 cf	**Custom Stage Data (Conic)** Listed below

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
520.00	0	0	0	0
523.80	7,290	9,234	9,234	7,313
524.00	7,300	1,459	10,693	7,374
526.00	12,460	19,531	30,224	12,581

#	Routing	Invert	Outlet Devices
1	Primary	523.80'	**2.2' long x 0.5' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 Coef. (English) 2.80 2.92 3.08 3.30 3.32
2	Primary	524.30'	**143.0 deg Sharp-Crested Vee/Trap Weir** C= 2.47
3	Primary	525.20'	**178.0 deg x 60.0' long Sharp-Crested Vee/Trap Weir** C= 2.46

Primary OutFlow Max=9.76 cfs @ 13.67 hrs HW=524.86' TW=515.06' (Dynamic Tailwater)
—**1=Broad-Crested Rectangular Weir** (Weir Controls 8.00 cfs @ 3.4 fps)
—**2=Sharp-Crested Vee/Trap Weir** (Weir Controls 1.76 cfs @ 1.9 fps)
—**3=Sharp-Crested Vee/Trap Weir** (Controls 0.00 cfs)

Pond p18-1:

Field Note #46
Golf pond
Geometry to be confirmed by surveyed

Inflow Area = 131.862 ac, Inflow Depth = 0.42" for 1-yr event
Inflow = 10.93 cfs @ 13.65 hrs, Volume= 4.630 af
Outflow = 9.66 cfs @ 14.16 hrs, Volume= 4.626 af, Atten= 12%, Lag= 30.9 min
Primary = 9.66 cfs @ 14.16 hrs, Volume= 4.626 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Starting Elev= 513.90' Surf.Area= 20,680 sf Storage= 26,884 cf
Peak Elev= 515.14' @ 14.16 hrs Surf.Area= 25,028 sf Storage= 56,800 cf (29,916 cf above start)
Flood Elev= 514.81' Surf.Area= 23,768 sf Storage= 48,709 cf (21,825 cf above start)
Plug-Flow detention time= 181.9 min calculated for 4.009 af (87% of inflow)
Center-of-Mass det. time= 74.9 min (1,057.2 - 982.2)

#	Invert	Avail.Storage	Storage Description
1	510.00'	148,288 cf	**Custom Stage Data (Conic)** Listed below

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
510.00	0	0	0	0
513.90	20,680	26,884	26,884	20,704
514.00	20,690	2,068	28,952	20,756
516.00	28,290	48,782	77,735	28,436
518.00	42,760	70,554	148,288	42,967

#	Routing	Invert	Outlet Devices
1	Primary	513.90'	**2.0' long x 0.5' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 Coef. (English) 2.80 2.92 3.08 3.30 3.32
2	Primary	514.81'	**143.0 deg Sharp-Crested Vee/Trap Weir** C= 2.47
3	Primary	515.32'	**175.0 deg x 10.0' long Sharp-Crested Vee/Trap Weir** C= 2.46

Primary OutFlow Max=9.66 cfs @ 14.16 hrs HW=515.14' TW=507.63' (Dynamic Tailwater)
—**1=Broad-Crested Rectangular Weir** (Weir Controls 9.19 cfs @ 3.7 fps)
—**2=Sharp-Crested Vee/Trap Weir** (Weir Controls 0.47 cfs @ 1.4 fps)
—**3=Sharp-Crested Vee/Trap Weir** (Controls 0.00 cfs)

Pond p19-0:

Wetland
Geometry to be confirmed by survey
Based off aerial topo, and assumed topo contour

Pond Unchanged from existing to proposed conditions

Inflow Area =	15.520 ac,	Inflow Depth = 0.23"	for 1-yr event	
Inflow =	1.03 cfs @	12.80 hrs, Volume=	0.301 af	
Outflow =	0.45 cfs @	14.68 hrs, Volume=	0.299 af,	Atten= 56%, Lag= 112.7 min
Primary =	0.45 cfs @	14.68 hrs, Volume=	0.299 af	
Secondary =	0.00 cfs @	0.00 hrs, Volume=	0.000 af	

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Starting Elev= 972.00' Surf.Area= 86,000 sf Storage= 57,333 cf
Peak Elev= 972.03' @ 14.68 hrs Surf.Area= 86,763 sf Storage= 60,440 cf (3,107 cf above start)
Plug-Flow detention time= (not calculated)
Center-of-Mass det. time= (not calculated)

#	Invert	Avail.Storage	Storage Description
1	970.00'	282,329 cf	**Custom Stage Data (Conic)** Listed below

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
970.00	0	0	0	0
972.00	86,000	57,333	57,333	86,006
974.00	141,270	224,996	282,329	141,327

#	Routing	Invert	Outlet Devices
1	Secondary	973.60'	**178.0 deg x 51.0' long Sharp-Crested Vee/Trap Weir** C= 2.46
2	Primary	972.00'	**35.0' long x 0.5' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 Coef. (English) 2.80 2.92 3.08 3.30 3.32

Primary OutFlow Max=0.45 cfs @ 14.68 hrs HW=972.03' TW=970.04' (Dynamic Tailwater)
└─**2=Broad-Crested Rectangular Weir** (Weir Controls 0.45 cfs @ 0.5 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=972.00' TW=973.60' (Dynamic Tailwater)
└─**1=Sharp-Crested Vee/Trap Weir** (Controls 0.00 cfs)

Pond p20-1:

Field Note #50
Spring Fed Pond
Geometry to be confirmed by surveyed

Inflow Area = 207.817 ac, Inflow Depth = 0.13" for 1-yr event
Inflow = 6.90 cfs @ 12.00 hrs, Volume= 2.169 af
Outflow = 1.25 cfs @ 15.12 hrs, Volume= 1.933 af, Atten= 82%, Lag= 187.1 min
Primary = 1.25 cfs @ 15.12 hrs, Volume= 1.933 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Starting Elev= 505.10' Surf.Area= 89,370 sf Storage= 138,524 cf
Peak Elev= 505.39' @ 15.12 hrs Surf.Area= 89,373 sf Storage= 164,694 cf (26,171 cf above start)
Plug-Flow detention time= (not calculated)
Center-of-Mass det. time= (not calculated)

#	Invert	Avail.Storage	Storage Description
1	502.00'	615,682 cf	**Custom Stage Data (Prismatic)** Listed below

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
502.00	0	0	0
505.10	89,370	138,524	138,524
506.00	89,380	80,437	218,961
508.00	99,280	188,660	407,621
510.00	108,781	208,061	615,682

#	Routing	Invert	Outlet Devices
1	Primary	505.10'	**3.0' long x 1.5' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 Coef. (English) 2.62 2.64 2.64 2.68 2.75 2.86 2.92 3.07 3.07 3.03 3.28 3.32
2	Primary	506.20'	**6.5' long x 1.5' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 Coef. (English) 2.62 2.64 2.64 2.68 2.75 2.86 2.92 3.07 3.07 3.03 3.28 3.32
3	Primary	506.00'	**176.0 deg x 97.0' long Sharp-Crested Vee/Trap Weir** C= 2.46

Primary OutFlow Max=1.25 cfs @ 15.12 hrs HW=505.39' TW=504.28' (Dynamic Tailwater)
1=Broad-Crested Rectangular Weir (Weir Controls 1.25 cfs @ 1.4 fps)
2=Broad-Crested Rectangular Weir (Controls 0.00 cfs)
3=Sharp-Crested Vee/Trap Weir (Controls 0.00 cfs)

Pond p20-2:

Inflow Area = 13.511 ac, Inflow Depth = 1.42" for 1-yr event
Inflow = 18.97 cfs @ 12.08 hrs, Volume= 1.599 af
Outflow = 0.41 cfs @ 18.69 hrs, Volume= 1.117 af, Atten= 98%, Lag= 396.6 min
Primary = 0.41 cfs @ 18.69 hrs, Volume= 1.117 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Starting Elev= 552.00' Surf.Area= 10,535 sf Storage= 35,913 cf
Peak Elev= 555.13' @ 18.69 hrs Surf.Area= 19,054 sf Storage= 87,687 cf (51,774 cf above start)
Flood Elev= 559.00' Surf.Area= 25,653 sf Storage= 174,016 cf (138,102 cf above start)
Plug-Flow detention time= 1,958.5 min calculated for 0.293 af (18% of inflow)
Center-of-Mass det. time= 885.5 min (1,679.1 - 793.6)

#	Invert	Avail.Storage	Storage Description
1	546.00'	199,647 cf	**Custom Stage Data (Conic)** Listed below

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
546.00	3,714	0	0	3,714
548.00	4,960	8,644	8,644	5,044
550.00	6,308	11,241	19,885	6,493
550.50	6,661	3,242	23,127	6,874
552.00	10,535	12,786	35,913	10,779
552.50	15,037	6,360	42,273	15,285
554.00	17,268	24,209	66,483	17,616
556.00	20,441	37,664	104,147	20,935
558.00	23,840	44,237	148,384	24,494
560.00	27,465	51,262	199,647	28,292

#	Routing	Invert	Outlet Devices
1	Primary	552.00'	**3.0" Vert. Orifice/Grate** C= 0.600
2	Primary	558.20'	**6.1' long x 6.2' high Sharp-Crested Rectangular Weir** 2 End Contraction(s)

Primary OutFlow Max=0.41 cfs @ 18.69 hrs HW=555.13' TW=505.36' (Dynamic Tailwater)
├─**1=Orifice/Grate** (Orifice Controls 0.41 cfs @ 8.3 fps)
└─**2=Sharp-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond p21-1:

Inflow Area =	459.188 ac, Inflow Depth = 0.41"	for 1-yr event	
Inflow =	46.84 cfs @ 12.48 hrs, Volume=	15.804 af	
Outflow =	9.22 cfs @ 16.99 hrs, Volume=	14.715 af,	Atten= 80%, Lag= 270.2 min
Primary =	9.22 cfs @ 16.99 hrs, Volume=	14.715 af	

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Peak Elev= 482.43' @ 16.99 hrs Surf.Area= 263,757 sf Storage= 252,909 cf
Plug-Flow detention time= 421.7 min calculated for 14.712 af (93% of inflow)
Center-of-Mass det. time= 323.9 min (1,420.8 - 1,096.9)

#	Invert	Avail.Storage	Storage Description
1	480.40'	5,244,885 cf	**Custom Stage Data (Conic)** Listed below

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
480.40	0	0	0	0
482.00	202,230	107,856	107,856	202,234
484.00	485,198	667,114	774,970	485,231
486.00	1,275,481	1,698,237	2,473,208	1,275,541
488.00	1,499,208	2,771,678	5,244,885	1,499,423

#	Routing	Invert	Outlet Devices
1	Primary	480.40'	**30.0" x 70.0' long Culvert** CMP, projecting, no headwall, Ke= 0.900 Outlet Invert= 480.40' S= 0.0000 '/' n= 0.024 Cc= 0.900

Primary OutFlow Max=9.22 cfs @ 16.99 hrs HW=482.43' TW=0.00' (Dynamic Tailwater)
└─**1=Culvert** (Barrel Controls 9.22 cfs @ 2.9 fps)

Pond p21-4:

Inflow Area =	5.152 ac, Inflow Depth = 1.14"	for 1-yr event	
Inflow =	5.49 cfs @ 12.02 hrs, Volume=	0.490 af	
Outflow =	0.32 cfs @ 15.01 hrs, Volume=	0.482 af,	Atten= 94%, Lag= 179.5 min
Primary =	0.32 cfs @ 15.01 hrs, Volume=	0.482 af	

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Starting Elev= 496.00' Surf.Area= 5,112 sf Storage= 14,306 cf
Peak Elev= 497.92' @ 15.01 hrs Surf.Area= 7,372 sf Storage= 26,302 cf (11,996 cf above start)
Flood Elev= 499.00' Surf.Area= 8,847 sf Storage= 35,622 cf (21,317 cf above start)
Plug-Flow detention time= 1,197.3 min calculated for 0.154 af (31% of inflow)
Center-of-Mass det. time= 485.1 min (1,278.8 - 793.7)

#	Invert	Avail.Storage	Storage Description
1	490.00'	44,433 cf	**Custom Stage Data (Conic)** Listed below

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
490.00	1,146	0	0	1,146
492.00	1,784	2,907	2,907	1,839
494.00	2,530	4,292	7,199	2,654
494.50	2,733	1,315	8,514	2,876
496.00	5,112	5,791	14,306	5,278
498.00	7,468	12,506	26,812	7,699
500.00	10,226	17,622	44,433	10,536

#	Routing	Invert	Outlet Devices
1	Primary	496.00'	**3.0" Vert. Orifice/Grate** C= 0.600
2	Primary	498.10'	**5.0' long x 2.0' high Sharp-Crested Rectangular Weir** 2 End Contraction(s)

Primary OutFlow Max=0.32 cfs @ 15.01 hrs HW=497.92' TW=482.39' (Dynamic Tailwater)
1=Orifice/Grate (Orifice Controls 0.32 cfs @ 6.4 fps)
2=Sharp-Crested Rectangular Weir (Controls 0.00 cfs)

Pond p21-5:

Inflow Area = 2.398 ac, Inflow Depth = 0.77" for 1-yr event
Inflow = 1.54 cfs @ 12.21 hrs, Volume= 0.154 af
Primary = 1.54 cfs @ 12.21 hrs, Volume= 0.154 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

Pond p21-6:

Inflow Area = 6.182 ac, Inflow Depth = 1.01" for 1-yr event
Inflow = 4.14 cfs @ 12.25 hrs, Volume= 0.522 af
Outflow = 0.30 cfs @ 16.05 hrs, Volume= 0.517 af, Atten= 93%, Lag= 228.4 min
Primary = 0.30 cfs @ 16.05 hrs, Volume= 0.517 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Starting Elev= 492.00' Surf.Area= 3,323 sf Storage= 4,847 cf
Peak Elev= 493.72' @ 16.05 hrs Surf.Area= 11,011 sf Storage= 18,105 cf (13,259 cf above start)
Flood Elev= 495.00' Surf.Area= 13,824 sf Storage= 34,456 cf (29,609 cf above start)
Plug-Flow detention time= 796.8 min calculated for 0.406 af (78% of inflow)
Center-of-Mass det. time= 549.7 min (1,390.8 - 841.1)

#	Invert	Avail.Storage	Storage Description
1	488.00'	48,245 cf	**Custom Stage Data (Conic)** Listed below

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
488.00	296	0	0	296
490.00	924	1,162	1,162	946
490.50	1,110	508	1,670	1,141
492.00	3,323	3,177	4,847	3,367
492.50	6,166	2,336	7,182	6,212
494.00	12,147	13,484	20,666	12,214
496.00	15,500	27,579	48,245	15,669

#	Routing	Invert	Outlet Devices
1	Primary	492.00'	**3.0" Vert. Orifice/Grate** C= 0.600
2	Primary	494.00'	**5.0' long x 2.0' high Sharp-Crested Rectangular Weir** 2 End Contraction(s)

Primary OutFlow Max=0.30 cfs @ 16.05 hrs HW=493.72' TW=482.43' (Dynamic Tailwater)
1=Orifice/Grate (Orifice Controls 0.30 cfs @ 6.1 fps)
2=Sharp-Crested Rectangular Weir (Controls 0.00 cfs)

Pond p21-7:

Inflow Area = 8.355 ac, Inflow Depth = 1.36" for 1-yr event
Inflow = 11.78 cfs @ 12.04 hrs, Volume= 0.946 af
Outflow = 0.47 cfs @ 15.56 hrs, Volume= 0.936 af, Atten= 96%, Lag= 211.4 min
Primary = 0.47 cfs @ 15.56 hrs, Volume= 0.936 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Starting Elev= 492.00' Surf.Area= 3,941 sf Storage= 8,984 cf
Peak Elev= 496.05' @ 15.56 hrs Surf.Area= 8,772 sf Storage= 34,187 cf (25,203 cf above start)
Flood Elev= 499.00' Surf.Area= 13,379 sf Storage= 67,369 cf (58,385 cf above start)
Plug-Flow detention time= 908.1 min calculated for 0.730 af (77% of inflow)
Center-of-Mass det. time= 629.7 min (1,408.3 - 778.7)

#	Invert	Avail.Storage	Storage Description
1	486.00'	80,712 cf	**Custom Stage Data (Conic)** Listed below

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
486.00	478	0	0	478
488.00	964	1,414	1,414	999
490.00	1,601	2,538	3,952	1,684
490.50	1,782	845	4,797	1,879
492.00	3,941	4,187	8,984	4,056
494.00	6,120	9,981	18,965	6,292
496.00	8,702	14,746	33,712	8,944
498.00	11,686	20,315	54,027	12,012
500.00	15,071	26,685	80,712	15,495

#	Routing	Invert	Outlet Devices
1	Primary	492.00'	**3.0" Vert. Orifice/Grate** C= 0.600
2	Primary	496.05'	**6.0" Vert. Orifice/Grate X 2.00** C= 0.600
3	Primary	498.00'	**5.0' long x 6.0' high Sharp-Crested Rectangular Weir** 2 End Contraction(s)

Primary OutFlow Max=0.47 cfs @ 15.56 hrs HW=496.05' TW=482.41' (Dynamic Tailwater)
└**1=Orifice/Grate** (Orifice Controls 0.47 cfs @ 9.5 fps)
└**2=Orifice/Grate** (Controls 0.00 cfs)
└**3=Sharp-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond p22-1:

Field Note #54
Golf Pond
Geometry to be confirmed by survey

Pond unchanged from existing to proposed conditions

Inflow Area = 78.382 ac, Inflow Depth = 0.47" for 1-yr event
Inflow = 19.01 cfs @ 12.36 hrs, Volume= 3.066 af
Outflow = 16.10 cfs @ 12.55 hrs, Volume= 2.768 af, Atten= 15%, Lag= 11.0 min
Primary = 16.10 cfs @ 12.55 hrs, Volume= 2.768 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Starting Elev= 498.10' Surf.Area= 6,520 sf Storage= 10,106 cf
Peak Elev= 500.89' @ 12.55 hrs Surf.Area= 9,786 sf Storage= 33,127 cf (23,021 cf above start)
Plug-Flow detention time= 177.8 min calculated for 2.536 af (83% of inflow)
Center-of-Mass det. time= 73.1 min (1,001.1 - 928.0)

#	Invert	Avail.Storage	Storage Description
1	495.00'	143,770 cf	**Custom Stage Data (Prismatic)** Listed below

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
495.00	0	0	0
498.10	6,520	10,106	10,106
500.00	8,390	14,164	24,270
502.00	11,530	19,920	44,190
504.00	14,530	26,060	70,250
506.00	18,340	32,870	103,120
508.00	22,310	40,650	143,770

#	Routing	Invert	Outlet Devices
1	Primary	499.75'	**18.0" x 21.0' long Culvert** CMP, projecting, no headwall, Ke= 0.900 Outlet Invert= 499.75' S= 0.0000 '/' n= 0.024 Cc= 0.900
2	Primary	500.50'	**1.0' long x 15.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.68 2.70 2.70 2.64 2.63 2.64 2.64 2.63
3	Primary	500.50'	**20.0' long x 13.5' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.62 2.66 2.70 2.66 2.65 2.66 2.65 2.63

Primary OutFlow Max=16.09 cfs @ 12.55 hrs HW=500.89' TW=482.09' (Dynamic Tailwater)
1=Culvert (Barrel Controls 2.54 cfs @ 2.4 fps)
2=Broad-Crested Rectangular Weir (Weir Controls 0.66 cfs @ 1.7 fps)
3=Broad-Crested Rectangular Weir (Weir Controls 12.90 cfs @ 1.7 fps)

Pond p23-1:

Inflow Area = 29.123 ac, Inflow Depth = 0.64" for 1-yr event
Inflow = 9.49 cfs @ 12.62 hrs, Volume= 1.543 af
Outflow = 2.76 cfs @ 13.67 hrs, Volume= 0.828 af, Atten= 71%, Lag= 63.2 min
Primary = 2.76 cfs @ 13.67 hrs, Volume= 0.828 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Peak Elev= 507.73' @ 13.67 hrs Surf.Area= 13,906 sf Storage= 31,503 cf
Plug-Flow detention time= 265.1 min calculated for 0.828 af (54% of inflow)
Center-of-Mass det. time= 128.4 min (1,040.0 - 911.6)

#	Invert	Avail.Storage	Storage Description
1	503.50'	68,915 cf	**Custom Stage Data (Conic)** Listed below

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
503.50	0	0	0	0
504.00	2,390	398	398	2,390
506.00	9,090	10,761	11,159	9,110
508.00	14,660	23,529	34,688	14,732
510.00	19,690	34,227	68,915	19,847

#	Routing	Invert	Outlet Devices
1	Primary	507.70'	**178.0 deg x 178.0' long Sharp-Crested Vee/Trap Weir** C= 2.46

Primary OutFlow Max=2.76 cfs @ 13.67 hrs HW=507.73' TW=506.83' (Dynamic Tailwater)
1=Sharp-Crested Vee/Trap Weir (Weir Controls 2.76 cfs @ 0.5 fps)

Pond p23-2:

Inflow Area = 16.094 ac, Inflow Depth = 1.60" for 1-yr event
Inflow = 29.46 cfs @ 12.06 hrs, Volume= 2.149 af
Outflow = 0.50 cfs @ 19.28 hrs, Volume= 1.403 af, Atten= 98%, Lag= 432.9 min
Primary = 0.50 cfs @ 19.28 hrs, Volume= 1.403 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Starting Elev= 508.00' Surf.Area= 7,318 sf Storage= 15,927 cf
Peak Elev= 512.54' @ 19.28 hrs Surf.Area= 19,905 sf Storage= 86,895 cf (70,968 cf above start)
Flood Elev= 515.00' Surf.Area= 24,788 sf Storage= 141,986 cf (126,059 cf above start)
Plug-Flow detention time= 1,312.2 min calculated for 1.037 af (48% of inflow)
Center-of-Mass det. time= 894.7 min (1,682.4 - 787.7)

#	Invert	Avail.Storage	Storage Description
1	502.00'	166,746 cf	**Custom Stage Data (Conic)** Listed below

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
502.00	826	0	0	826
504.00	1,667	2,444	2,444	1,702
506.00	2,788	4,407	6,852	2,872
506.50	3,112	1,474	8,326	3,210
508.00	7,318	7,601	15,927	7,432
508.50	12,618	4,924	20,851	12,735
510.00	15,208	20,839	41,690	15,400
512.00	18,859	34,002	75,692	19,166
514.00	22,736	41,535	117,227	23,175
516.00	26,840	49,519	166,746	27,428

#	Routing	Invert	Outlet Devices
1	Primary	508.00'	**3.0" Vert. Orifice/Grate** C= 0.600
2	Primary	512.55'	**12.0" Vert. Orifice/Grate X 2.00** C= 0.600
3	Primary	514.00'	**20.0' long x 6.0' high Sharp-Crested Rectangular Weir** 2 End Contraction(s)

Primary OutFlow Max=0.50 cfs @ 19.28 hrs HW=512.54' TW=482.40' (Dynamic Tailwater)
1=Orifice/Grate (Orifice Controls 0.50 cfs @ 10.1 fps)
2=Orifice/Grate (Controls 0.00 cfs)
3=Sharp-Crested Rectangular Weir (Controls 0.00 cfs)

Pond zDP1: Design Point 1

Field note #10.
Culvert dimensions to be confirmed by survey.

Inflow Area = 26.658 ac, Inflow Depth = 0.66" for 1-yr event
Inflow = 5.36 cfs @ 12.61 hrs, Volume= 1.473 af
Outflow = 5.36 cfs @ 12.61 hrs, Volume= 1.473 af, Atten= 0%, Lag= 0.0 min
Primary = 5.36 cfs @ 12.61 hrs, Volume= 1.473 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Peak Elev= 720.93' @ 12.61 hrs Surf.Area= 39 sf Storage= 25 cf
Flood Elev= 727.00' Surf.Area= 1,105 sf Storage= 2,619 cf
Plug-Flow detention time= 0.2 min calculated for 1.473 af (100% of inflow)
Center-of-Mass det. time= 0.2 min (1,046.3 - 1,046.1)

#	Invert	Avail.Storage	Storage Description
1	720.10'	3,706 cf	**Custom Stage Data (Conic)** Listed below

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
720.10	0	0	0	0
722.00	90	57	57	96
724.00	340	403	460	364
726.00	760	1,072	1,533	815
728.00	1,450	2,173	3,706	1,543

#	Routing	Invert	Outlet Devices
1	Primary	720.10'	**42.0" x 120.0' long Culvert** CMP, square edge headwall, Ke= 0.500 Outlet Invert= 700.00' S= 0.1675 '/' n= 0.024 Cc= 0.900
2	Primary	727.00'	**155.0 deg Sharp-Crested Vee/Trap Weir** C= 2.47

Primary OutFlow Max=5.36 cfs @ 12.61 hrs HW=720.93' TW=685.95' (Dynamic Tailwater)
1=Culvert (Inlet Controls 5.36 cfs @ 3.1 fps)
2=Sharp-Crested Vee/Trap Weir (Controls 0.00 cfs)

Pond zDP2: Design Point 2

Field Note #15
Culvert dimensions to be confirmed by survey
Overflow to ditch is currently discarded... We may have to model that area...

Inflow Area = 93.367 ac, Inflow Depth = 0.38" for 1-yr event
Inflow = 10.87 cfs @ 13.01 hrs, Volume= 2.946 af
Outflow = 10.87 cfs @ 13.01 hrs, Volume= 2.946 af, Atten= 0%, Lag= 0.2 min
Discarded = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Primary = 10.87 cfs @ 13.01 hrs, Volume= 2.946 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Peak Elev= 621.13' @ 13.01 hrs Surf.Area= 151 sf Storage= 122 cf
Flood Elev= 624.50' Surf.Area= 925 sf Storage= 1,728 cf
Plug-Flow detention time= 0.2 min calculated for 2.946 af (100% of inflow)
Center-of-Mass det. time= 0.2 min (962.9 - 962.7)

#	Invert	Avail.Storage	Storage Description
1	619.60'	7,280 cf	**Custom Stage Data (Conic)** Listed below

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
619.60	0	0	0	0
620.00	10	1	1	10
622.00	260	214	215	269
624.00	760	976	1,192	793
626.00	1,420	2,146	3,338	1,492
628.00	2,580	3,943	7,280	2,694

#	Routing	Invert	Outlet Devices
1	Primary	619.60'	**24.0" x 150.0' long Culvert** RCP, end-section conforming to fill, Ke= 0.500 Outlet Invert= 608.00' S= 0.0773 '/' n= 0.012 Cc= 0.900
2	Discarded	624.50'	**166.0 deg Sharp-Crested Vee/Trap Weir** C= 2.46

Discarded OutFlow Max=0.00 cfs @ 0.00 hrs HW=619.60' (Free Discharge)
↑—**2=Sharp-Crested Vee/Trap Weir** (Controls 0.00 cfs)

Primary OutFlow Max=10.87 cfs @ 13.01 hrs HW=621.13' TW=607.39' (Dynamic Tailwater)
↑—**1=Culvert** (Inlet Controls 10.87 cfs @ 4.2 fps)

Pond zDP3: Design Point 3

Inflow Area =	228.471 ac,	Inflow Depth = 17.08"	for 1-yr event	
Inflow =	98.63 cfs @	12.99 hrs, Volume=	325.132 af	
Primary =	98.63 cfs @	12.99 hrs, Volume=	325.132 af,	Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

Pond zDP4: Design Point 4

Inflow Area =	459.188 ac,	Inflow Depth = 0.38"	for 1-yr event	
Inflow =	9.22 cfs @	16.99 hrs, Volume=	14.715 af	
Primary =	9.22 cfs @	16.99 hrs, Volume=	14.715 af,	Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

Pond zDP5: Design Point 5

Inflow Area =	28.325 ac,	Inflow Depth = 0.55"	for 1-yr event	
Inflow =	8.52 cfs @	12.52 hrs, Volume=	1.308 af	
Primary =	8.52 cfs @	12.52 hrs, Volume=	1.308 af,	Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

Post-Development Conditions
2 year 24 hour Storm Event
Model Computations

Subcatchment s01-0:

Runoff = 4.77 cfs @ 12.66 hrs, Volume= 0.808 af, Depth= 0.84"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 2-yr Rainfall=3.40"

Area (ac)	CN	Description
11.485	68	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
42.8					**Direct Entry,**

Subcatchment s02-1:

Runoff = 22.37 cfs @ 12.95 hrs, Volume= 4.994 af, Depth= 0.70"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 2-yr Rainfall=3.40"

Area (ac)	CN	Description
85.591	65	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
61.3					**Direct Entry,**

Subcatchment s02-2:

Runoff = 3.29 cfs @ 12.48 hrs, Volume= 0.484 af, Depth= 0.75"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 2-yr Rainfall=3.40"

Area (ac)	CN	Description
7.776	66	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
29.4					**Direct Entry,**

Subcatchment s02-3:

Runoff = 11.27 cfs @ 12.03 hrs, Volume= 0.685 af, Depth= 2.01"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 2-yr Rainfall=3.40"

Area (ac)	CN	Description
4.088	86	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.6					**Direct Entry,**

Subcatchment s03-1:

Runoff = 6.10 cfs @ 12.45 hrs, Volume= 0.823 af, Depth= 0.95"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 2-yr Rainfall=3.40"

Area (ac)	CN	Description
10.435	70	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
28.8					**Direct Entry,**

Subcatchment s03-2:

Runoff = 4.67 cfs @ 12.03 hrs, Volume= 0.295 af, Depth= 1.17"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 2-yr Rainfall=3.40"

Area (ac)	CN	Description
3.021	74	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.5					**Direct Entry,**

Subcatchment s03-2(IC): s03-2 Impervious Cover

Runoff = 6.45 cfs @ 12.02 hrs, Volume= 0.439 af, Depth= 3.17"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 2-yr Rainfall=3.40"

Area (ac)	CN	Description
1.663	98	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.5					**Direct Entry,**

Subcatchment s03-2(OW): s03-2 Open Water

Runoff = 0.22 cfs @ 12.00 hrs, Volume= 0.015 af, Depth= 3.40"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 2-yr Rainfall=3.40"

Area (ac)	CN	Description
0.054	100	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.0					**Direct Entry,**

Subcatchment s04-1:

Runoff = 6.57 cfs @ 12.10 hrs, Volume= 0.531 af, Depth= 0.84"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 2-yr Rainfall=3.40"

Area (ac)	CN	Description
7.549	68	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.1					**Direct Entry,**

Subcatchment s05-1:

Runoff = 2.23 cfs @ 12.27 hrs, Volume= 0.301 af, Depth= 0.53"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 2-yr Rainfall=3.40"

Area (ac)	CN	Description
6.842	61	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
14.4					**Direct Entry,**

Subcatchment s06-0:

Runoff = 3.12 cfs @ 12.31 hrs, Volume= 0.427 af, Depth= 0.57"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 2-yr Rainfall=3.40"

Area (ac)	CN	Description
9.007	62	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
17.3					**Direct Entry,**

Subcatchment s06-0(OW): s06 Open Water

Runoff = 1.75 cfs @ 12.00 hrs, Volume= 0.121 af, Depth= 3.40"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 2-yr Rainfall=3.40"

Area (ac)	CN	Description
0.428	100	

Subcatchment s07-1:

Runoff = 2.50 cfs @ 12.16 hrs, Volume= 0.254 af, Depth= 0.66"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 2-yr Rainfall=3.40"

Area (ac)	CN	Description
4.656	64	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.3					**Direct Entry,**

Subcatchment s07-1(OW): s07 Open Water

Runoff = 2.07 cfs @ 12.00 hrs, Volume= 0.143 af, Depth= 3.40"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 2-yr Rainfall=3.40"

Area (ac)	CN	Description
0.506	100	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.0					**Direct Entry,**

Subcatchment s08-1:

Runoff = 5.62 cfs @ 12.47 hrs, Volume= 0.942 af, Depth= 0.49"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 2-yr Rainfall=3.40"

Area (ac)	CN	Description
23.126	60	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
24.5					**Direct Entry,**

Subcatchment s08-2:

Runoff = 4.03 cfs @ 12.19 hrs, Volume= 0.457 af, Depth= 0.61"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 2-yr Rainfall=3.40"

Area (ac)	CN	Description
8.958	63	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
11.4					**Direct Entry,**

Subcatchment s08-2(IC):

Runoff = 20.40 cfs @ 12.04 hrs, Volume= 1.458 af, Depth= 3.17"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 2-yr Rainfall=3.40"

Area (ac)	CN	Description
5.524	98	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
2.9					**Direct Entry,**

Subcatchment s08-2(OW):

Runoff = 0.78 cfs @ 12.00 hrs, Volume= 0.054 af, Depth= 3.40"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 2-yr Rainfall=3.40"

Area (ac)	CN	Description
0.192	100	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.0					**Direct Entry,**

Subcatchment s08-3:

Runoff = 0.56 cfs @ 12.25 hrs, Volume= 0.075 af, Depth= 0.53"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 2-yr Rainfall=3.40"

Area (ac)	CN	Description
1.700	61	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
13.6					**Direct Entry,**

Subcatchment s08-3(IC): s08-3 Impervious Cover

Runoff = 4.28 cfs @ 12.01 hrs, Volume= 0.287 af, Depth= 3.17"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 2-yr Rainfall=3.40"

Area (ac)	CN	Description
1.086	98	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.0					**Direct Entry,**

Subcatchment s08-3(OW): s08-3 Open Water

Runoff = 0.17 cfs @ 12.00 hrs, Volume= 0.012 af, Depth= 3.40"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 2-yr Rainfall=3.40"

Area (ac)	CN	Description
0.042	100	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.0					**Direct Entry,**

Subcatchment s09-1:

Runoff = 0.86 cfs @ 12.17 hrs, Volume= 0.106 af, Depth= 0.49"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 2-yr Rainfall=3.40"

Area (ac)	CN	Description
2.604	60	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.0					**Direct Entry,**

Subcatchment s09-2:

Runoff = 9.91 cfs @ 12.34 hrs, Volume= 1.232 af, Depth= 0.79"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 2-yr Rainfall=3.40"

Area (ac)	CN	Description
18.608	67	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
20.6					**Direct Entry,**

Subcatchment s09-2(IC): s09-2 Impervious Cover

Runoff = 8.75 cfs @ 12.04 hrs, Volume= 0.616 af, Depth= 3.17"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 2-yr Rainfall=3.40"

Area (ac)	CN	Description
2.336	98	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
2.5					**Direct Entry,**

Subcatchment s09-2(OW): s09-2 Open Water

Runoff = 0.96 cfs @ 12.00 hrs, Volume= 0.067 af, Depth= 3.40"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 2-yr Rainfall=3.40"

Area (ac)	CN	Description
0.236	100	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.0					**Direct Entry,**

Subcatchment s09-3:

Runoff = 2.80 cfs @ 12.17 hrs, Volume= 0.268 af, Depth= 0.84"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 2-yr Rainfall=3.40"

Area (ac)	CN	Description
3.818	68	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.9					**Direct Entry,**

Subcatchment s10-1:

Runoff = 4.10 cfs @ 12.44 hrs, Volume= 0.565 af, Depth= 0.84"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 2-yr Rainfall=3.40"

Area (ac)	CN	Description
8.038	68	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
27.9					**Direct Entry,**

Subcatchment s10-1(OW): s10 Open Water

Runoff = 3.39 cfs @ 12.00 hrs, Volume= 0.235 af, Depth= 3.40"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 2-yr Rainfall=3.40"

Area (ac)	CN	Description
0.830	100	

Subcatchment s13-1:

Runoff = 1.71 cfs @ 12.07 hrs, Volume= 0.157 af, Depth= 0.53"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 2-yr Rainfall=3.40"

Area (ac)	CN	Description
3.555	61	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
2.8					**Direct Entry,**

Subcatchment s13-1(IC): s13-1 Impervious Cover

Runoff = 23.58 cfs @ 12.04 hrs, Volume= 1.678 af, Depth= 3.17"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 2-yr Rainfall=3.40"

Area (ac)	CN	Description
6.360	98	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
2.8					**Direct Entry,**

Subcatchment s13-1(OW): s13-1 Open Water

Runoff = 0.53 cfs @ 12.00 hrs, Volume= 0.037 af, Depth= 3.40"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 2-yr Rainfall=3.40"

Area (ac)	CN	Description
0.131	100	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.0					**Direct Entry,**

Subcatchment s14-1:

Runoff = 7.53 cfs @ 12.45 hrs, Volume= 1.023 af, Depth= 0.89"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 2-yr Rainfall=3.40"

Area (ac)	CN	Description
13.727	69	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
28.1					**Direct Entry,**

Subcatchment s14-1(IC): s14-1 Impervious Cover

Runoff = 6.95 cfs @ 12.03 hrs, Volume= 0.486 af, Depth= 3.17"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 2-yr Rainfall=3.40"

Area (ac)	CN	Description
1.840	98	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
2.3					**Direct Entry,**

Subcatchment s14-1(OW): s14 Open Water

Runoff = 2.11 cfs @ 12.00 hrs, Volume= 0.147 af, Depth= 3.40"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 2-yr Rainfall=3.40"

Area (ac)	CN	Description
0.518	100	

Subcatchment s14-2:

Runoff = 0.21 cfs @ 12.12 hrs, Volume= 0.022 af, Depth= 0.53"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 2-yr Rainfall=3.40"

Area (ac)	CN	Description
0.504	61	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.4					**Direct Entry,**

Subcatchment s14-2(OW): s14-2 Open Water

Runoff = 0.72 cfs @ 12.00 hrs, Volume= 0.050 af, Depth= 3.40"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 2-yr Rainfall=3.40"

Area (ac)	CN	Description
0.176	100	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.0					**Direct Entry,**

Subcatchment s14-3:

Runoff = 5.85 cfs @ 12.13 hrs, Volume= 0.507 af, Depth= 0.89"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 2-yr Rainfall=3.40"

Area (ac)	CN	Description
6.794	69	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.5					**Direct Entry,**

Subcatchment s14-3(IC): s14-3 Impervious Cover

Runoff = 31.25 cfs @ 12.04 hrs, Volume= 2.233 af, Depth= 3.17"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 2-yr Rainfall=3.40"

Area (ac)	CN	Description
8.460	98	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
2.9					**Direct Entry,**

Subcatchment s16-1:

Runoff = 21.81 cfs @ 12.31 hrs, Volume= 2.627 af, Depth= 0.79"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 2-yr Rainfall=3.40"

Area (ac)	CN	Description
39.680	67	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
19.0					**Direct Entry,**

Subcatchment s16-1(OW): s16-1 Open Water

Runoff = 21.84 cfs @ 12.00 hrs, Volume= 1.516 af, Depth= 3.40"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 2-yr Rainfall=3.40"

Area (ac)	CN	Description
5.351	100	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.0					**Direct Entry,**

Subcatchment s16-2:

Runoff = 2.37 cfs @ 12.23 hrs, Volume= 0.235 af, Depth= 1.29"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 2-yr Rainfall=3.40"

Area (ac)	CN	Description
2.176	76	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
15.8					**Direct Entry,**

Subcatchment s17-1:

Runoff = 2.03 cfs @ 12.58 hrs, Volume= 0.334 af, Depth= 0.66"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 2-yr Rainfall=3.40"

Area (ac)	CN	Description
6.110	64	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
33.8					**Direct Entry,**

Subcatchment s17-1(OW): s17-1 Open Water

Runoff = 0.67 cfs @ 12.00 hrs, Volume= 0.046 af, Depth= 3.40"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 2-yr Rainfall=3.40"

Area (ac)	CN	Description
0.164	100	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.0					**Direct Entry,**

Subcatchment s17-2:

Runoff = 16.23 cfs @ 13.50 hrs, Volume= 4.734 af, Depth= 0.75"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 2-yr Rainfall=3.40"

Area (ac)	CN	Description
76.086	66	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
95.7					**Direct Entry,**

Subcatchment s17-3:

Runoff = 12.41 cfs @ 12.51 hrs, Volume= 1.859 af, Depth= 0.75"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 2-yr Rainfall=3.40"

Area (ac)	CN	Description
29.880	66	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
30.7					**Direct Entry,**

Subcatchment s18-1:

Runoff = 3.71 cfs @ 12.27 hrs, Volume= 0.460 af, Depth= 0.66"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 2-yr Rainfall=3.40"

Area (ac)	CN	Description
8.429	64	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
16.4					**Direct Entry,**

Subcatchment s18-1(OW): s18-1 Open Water

Runoff = 1.93 cfs @ 12.00 hrs, Volume= 0.134 af, Depth= 3.40"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 2-yr Rainfall=3.40"

Area (ac)	CN	Description
0.472	100	

Subcatchment s18-2:

Runoff = 7.04 cfs @ 12.28 hrs, Volume= 0.799 af, Depth= 0.89"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 2-yr Rainfall=3.40"

Area (ac)	CN	Description
10.721	69	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
18.0					**Direct Entry,**

Subcatchment s19-0:

Runoff = 3.05 cfs @ 12.70 hrs, Volume= 0.633 af, Depth= 0.49"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 2-yr Rainfall=3.40"

Area (ac)	CN	Description
15.520	60	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
40.4					**Direct Entry,**

Subcatchment s20-1:

Runoff = 4.12 cfs @ 12.35 hrs, Volume= 0.533 af, Depth= 0.75"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 2-yr Rainfall=3.40"

Area (ac)	CN	Description
8.559	66	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
21.5					**Direct Entry,**

Subcatchment s20-1(OW): s20-1 Open Water

Runoff = 8.03 cfs @ 12.00 hrs, Volume= 0.558 af, Depth= 3.40"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 2-yr Rainfall=3.40"

Area (ac)	CN	Description
1.968	100	

Subcatchment s20-2:

Runoff = 9.85 cfs @ 12.13 hrs, Volume= 0.796 af, Depth= 1.17"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 2-yr Rainfall=3.40"

Area (ac)	CN	Description
8.157	74	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.4					**Direct Entry,**

Subcatchment s20-2(IC): s20-2 Impervious Cover

Runoff = 17.69 cfs @ 12.07 hrs, Volume= 1.349 af, Depth= 3.17"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 2-yr Rainfall=3.40"

Area (ac)	CN	Description
5.112	98	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.7					**Direct Entry,**

Subcatchment s20-2(OW): s20-2 Open Water

Runoff = 0.99 cfs @ 12.00 hrs, Volume= 0.069 af, Depth= 3.40"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 2-yr Rainfall=3.40"

Area (ac)	CN	Description
0.242	100	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.0					**Direct Entry,**

Subcatchment s20-3:

Runoff = 4.50 cfs @ 12.34 hrs, Volume= 0.543 af, Depth= 0.95"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 2-yr Rainfall=3.40"

Area (ac)	CN	Description
6.886	70	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
22.0					**Direct Entry,**

Subcatchment s21-1:

Runoff = 40.15 cfs @ 12.26 hrs, Volume= 4.496 af, Depth= 0.84"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 2-yr Rainfall=3.40"

Area (ac)	CN	Description
63.942	68	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
16.6					**Direct Entry,**

Subcatchment s21-1(OW):

Runoff = 49.94 cfs @ 12.00 hrs, Volume= 3.467 af, Depth= 3.40"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 2-yr Rainfall=3.40"

Area (ac)	CN	Description
12.235	100	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.0					**Direct Entry,**

Subcatchment s21-2:

Runoff = 11.75 cfs @ 12.49 hrs, Volume= 1.652 af, Depth= 0.95"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 2-yr Rainfall=3.40"

Area (ac)	CN	Description
20.941	70	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
31.4					**Direct Entry,**

Subcatchment s21-3:

Runoff = 9.44 cfs @ 12.16 hrs, Volume= 0.836 af, Depth= 1.17"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 2-yr Rainfall=3.40"

Area (ac)	CN	Description
8.567	74	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
11.2					**Direct Entry,**

Subcatchment s21-4:

Runoff = 2.11 cfs @ 12.22 hrs, Volume= 0.225 af, Depth= 0.79"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 2-yr Rainfall=3.40"

Area (ac)	CN	Description
3.392	67	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
13.8					**Direct Entry,**

Subcatchment s21-4(IC): s21-4 Impervious Cover

Runoff = 6.36 cfs @ 12.02 hrs, Volume= 0.434 af, Depth= 3.17"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 2-yr Rainfall=3.40"

Area (ac)	CN	Description
1.643	98	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.6					**Direct Entry,**

Subcatchment s21-4(OW): s21-4 Open Water

Runoff = 0.48 cfs @ 12.00 hrs, Volume= 0.033 af, Depth= 3.40"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 2-yr Rainfall=3.40"

Area (ac)	CN	Description
0.117	100	

Subcatchment s21-5:

Runoff = 2.59 cfs @ 12.20 hrs, Volume= 0.246 af, Depth= 1.23"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 2-yr Rainfall=3.40"

Area (ac)	CN	Description
2.398	75	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
13.9					**Direct Entry,**

Subcatchment s21-6:

Runoff = 5.70 cfs @ 12.25 hrs, Volume= 0.589 af, Depth= 1.29"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 2-yr Rainfall=3.40"

Area (ac)	CN	Description
5.463	76	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
17.5					**Direct Entry,**

Subcatchment s21-6(IC): s21-6 Impervious Cover

Runoff = 2.50 cfs @ 12.02 hrs, Volume= 0.170 af, Depth= 3.17"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 2-yr Rainfall=3.40"

Area (ac)	CN	Description
0.643	98	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.5					**Direct Entry,**

Subcatchment s21-6(OW): s21-6 Open Water

Runoff = 0.31 cfs @ 12.00 hrs, Volume= 0.022 af, Depth= 3.40"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 2-yr Rainfall=3.40"

Area (ac)	CN	Description
0.076	100	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.0					**Direct Entry,**

Subcatchment s21-7:

Runoff = 2.09 cfs @ 12.21 hrs, Volume= 0.239 af, Depth= 0.66"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 2-yr Rainfall=3.40"

Area (ac)	CN	Description
4.375	64	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
13.1					**Direct Entry,**

Subcatchment s21-7(IC): s21-7 Impervious Cover

Runoff = 14.57 cfs @ 12.04 hrs, Volume= 1.027 af, Depth= 3.17"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 2-yr Rainfall=3.40"

Area (ac)	CN	Description
3.890	98	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
2.5					**Direct Entry,**

Subcatchment s21-7(OW): s21-7 Open Water

Runoff = 0.37 cfs @ 12.00 hrs, Volume= 0.025 af, Depth= 3.40"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 2-yr Rainfall=3.40"

Area (ac)	CN	Description
0.090	100	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.0					**Direct Entry,**

Subcatchment s22-1:

Runoff = 15.70 cfs @ 12.22 hrs, Volume= 1.573 af, Depth= 1.06"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 2-yr Rainfall=3.40"

Area (ac)	CN	Description
17.878	72	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
14.7					**Direct Entry,**

Subcatchment s22-1(OW): s22-1 Open Water

Runoff = 0.56 cfs @ 12.00 hrs, Volume= 0.039 af, Depth= 3.40"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 2-yr Rainfall=3.40"

Area (ac)	CN	Description
0.136	100	

Subcatchment s22-2:

Runoff = 24.34 cfs @ 12.39 hrs, Volume= 3.154 af, Depth= 0.84"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 2-yr Rainfall=3.40"

Area (ac)	CN	Description
44.848	68	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
24.0					**Direct Entry,**

Subcatchment s23-1:

Runoff = 16.95 cfs @ 12.58 hrs, Volume= 2.563 af, Depth= 1.06"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 2-yr Rainfall=3.40"

Area (ac)	CN	Description
29.123	72	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
38.5					**Direct Entry,**

Subcatchment s23-2:

Runoff = 14.66 cfs @ 12.06 hrs, Volume= 0.988 af, Depth= 1.36"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 2-yr Rainfall=3.40"

Area (ac)	CN	Description
8.741	77	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.0					**Direct Entry,**

Subcatchment s23-2(IC): s23-2 Impervious Cover

Runoff = 25.49 cfs @ 12.06 hrs, Volume= 1.896 af, Depth= 3.17"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 2-yr Rainfall=3.40"

Area (ac)	CN	Description
7.185	98	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.0					**Direct Entry,**

Subcatchment s23-2(OW): s23-2 Open Water

Runoff = 0.69 cfs @ 12.00 hrs, Volume= 0.048 af, Depth= 3.40"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 2-yr Rainfall=3.40"

Area (ac)	CN	Description
0.168	100	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.0					**Direct Entry,**

Subcatchment s24-0:

Runoff = 16.05 cfs @ 12.48 hrs, Volume= 2.235 af, Depth= 0.95"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 2-yr Rainfall=3.40"

Area (ac)	CN	Description
28.325	70	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
30.7					**Direct Entry,**

Subcatchment s25-0:

Runoff = 6.68 cfs @ 12.33 hrs, Volume= 0.844 af, Depth= 0.75"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 2-yr Rainfall=3.40"

Area (ac)	CN	Description
13.562	66	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
20.2					**Direct Entry,**

Reach 25R:

Overland Flow Reach

Inflow Area = 15.520 ac, Inflow Depth = 0.49" for 2-yr event
Inflow = 1.34 cfs @ 13.61 hrs, Volume= 0.631 af
Outflow = 1.34 cfs @ 13.73 hrs, Volume= 0.631 af, Atten= 1%, Lag= 7.5 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Max. Velocity= 1.2 fps, Min. Travel Time= 8.8 min
Avg. Velocity = 0.5 fps, Avg. Travel Time= 20.5 min

Peak Depth= 0.11' @ 13.73 hrs
Capacity at bank full= 175.17 cfs
Inlet Invert= 560.00', Outlet Invert= 512.00'
50.00' x 1.00' deep Parabolic Channel, n= 0.060 Length= 620.0' Slope= 0.0774 '/'

Reach r03-1:

Overland Flow Reach
Requires more survey

Inflow Area = 11.485 ac, Inflow Depth = 0.84" for 2-yr event
Inflow = 4.77 cfs @ 12.66 hrs, Volume= 0.808 af
Outflow = 4.74 cfs @ 12.71 hrs, Volume= 0.808 af, Atten= 1%, Lag= 2.9 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Max. Velocity= 3.8 fps, Min. Travel Time= 3.5 min
Avg. Velocity = 1.6 fps, Avg. Travel Time= 8.1 min

Peak Depth= 0.38' @ 12.71 hrs
Capacity at bank full= 92.14 cfs
Inlet Invert= 845.00', Outlet Invert= 728.00'
10.00' x 1.50' deep Parabolic Channel, n= 0.060 Length= 785.0' Slope= 0.1490 '/'

Reach r04-1:

Channel

Inflow Area = 26.658 ac, Inflow Depth = 1.07" for 2-yr event
Inflow = 10.95 cfs @ 12.56 hrs, Volume= 2.377 af
Outflow = 10.94 cfs @ 12.58 hrs, Volume= 2.377 af, Atten= 0%, Lag= 0.7 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Max. Velocity= 5.4 fps, Min. Travel Time= 1.0 min
Avg. Velocity = 1.7 fps, Avg. Travel Time= 3.2 min

Peak Depth= 0.63' @ 12.58 hrs
Capacity at bank full= 530.15 cfs
Inlet Invert= 685.50', Outlet Invert= 632.00'
12.00' x 4.00' deep Parabolic Channel, n= 0.060 Length= 330.0' Slope= 0.1621 '/'

Reach r08-1a:

Man Made Ditch
Inverts of pipe to be surveyed

Inflow Area = 93.367 ac, Inflow Depth = 0.70" for 2-yr event
Inflow = 24.00 cfs @ 12.95 hrs, Volume= 5.478 af
Outflow = 24.00 cfs @ 12.96 hrs, Volume= 5.478 af, Atten= 0%, Lag= 0.3 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Max. Velocity= 8.5 fps, Min. Travel Time= 0.4 min
Avg. Velocity = 4.2 fps, Avg. Travel Time= 0.9 min

Peak Depth= 0.57' @ 12.96 hrs
Capacity at bank full= 81.88 cfs
Inlet Invert= 607.00', Outlet Invert= 587.00'
10.00' x 1.00' deep Parabolic Channel, n= 0.027 Length= 226.0' Slope= 0.0885 '/'

Reach r08-1b:

24" HDPE
Inverts to be surveyed

Inflow Area = 93.367 ac, Inflow Depth = 0.70" for 2-yr event
Inflow = 24.00 cfs @ 12.96 hrs, Volume= 5.478 af
Outflow = 24.00 cfs @ 12.96 hrs, Volume= 5.478 af, Atten= 0%, Lag= 0.2 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Max. Velocity= 21.7 fps, Min. Travel Time= 0.2 min
Avg. Velocity = 11.1 fps, Avg. Travel Time= 0.4 min

Peak Depth= 0.77' @ 12.96 hrs
Capacity at bank full= 77.17 cfs
Inlet Invert= 587.00', Outlet Invert= 557.75'
24.0" Diameter Pipe n= 0.012 Length= 295.0' Slope= 0.0992 '/'

Reach r08-1c:

Ditch
Pipe inverts to be surveyed

Inflow Area = 93.367 ac, Inflow Depth = 0.70" for 2-yr event
Inflow = 24.00 cfs @ 12.96 hrs, Volume= 5.478 af
Outflow = 23.98 cfs @ 12.98 hrs, Volume= 5.478 af, Atten= 0%, Lag= 0.8 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Max. Velocity= 8.1 fps, Min. Travel Time= 1.2 min
Avg. Velocity = 3.8 fps, Avg. Travel Time= 2.6 min

Peak Depth= 0.58' @ 12.98 hrs
Capacity at bank full= 76.65 cfs
Inlet Invert= 557.75', Outlet Invert= 512.00'
10.00' x 1.00' deep Parabolic Channel, n= 0.027 Length= 590.0' Slope= 0.0775 '/'

Reach r08-1d: Amenia Creek/Cascade Brook

(Steam) parallel to Route 22
Base Flow estimated from field observation (see field note 21)

Inflow Area = 114.957 ac, Inflow Depth = 17.39" for 2-yr event
Inflow = 66.20 cfs @ 12.99 hrs, Volume= 166.568 af, Incl. 40.00 cfs Base Flow
Outflow = 66.09 cfs @ 13.04 hrs, Volume= 166.323 af, Atten= 0%, Lag= 3.2 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Max. Velocity= 3.5 fps, Min. Travel Time= 3.9 min
Avg. Velocity = 3.1 fps, Avg. Travel Time= 4.4 min

Peak Depth= 3.19' @ 13.04 hrs
Capacity at bank full= 104.49 cfs
Inlet Invert= 512.00', Outlet Invert= 504.00'
10.00' x 4.00' deep Parabolic Channel, n= 0.060 Length= 805.0' Slope= 0.0099 '/'

Reach r13-1:

Inflow Area = 2.176 ac, Inflow Depth = 1.29" for 2-yr event
Inflow = 2.37 cfs @ 12.23 hrs, Volume= 0.235 af
Outflow = 2.33 cfs @ 12.25 hrs, Volume= 0.235 af, Atten= 1%, Lag= 1.5 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Max. Velocity= 7.0 fps, Min. Travel Time= 2.2 min
Avg. Velocity = 2.7 fps, Avg. Travel Time= 5.5 min

Peak Depth= 0.37' @ 12.25 hrs
Capacity at bank full= 17.79 cfs
Inlet Invert= 546.00', Outlet Invert= 524.00'
18.0" Diameter Pipe n= 0.012 Length= 900.0' Slope= 0.0244 '/'

Reach r14-3a:

30" HDPE Under Main Entrance Road

Inflow Area =	6.422 ac,	Inflow Depth = 0.70"	for 2-yr event		
Inflow =	3.62 cfs @	12.19 hrs, Volume=	0.375 af		
Outflow =	3.61 cfs @	12.20 hrs, Volume=	0.375 af,	Atten= 0%,	Lag= 0.6 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Max. Velocity= 9.3 fps, Min. Travel Time= 0.8 min
Avg. Velocity = 4.0 fps, Avg. Travel Time= 1.8 min

Peak Depth= 0.33' @ 12.20 hrs
Capacity at bank full= 94.91 cfs
Inlet Invert= 526.00', Outlet Invert= 505.70'
30.0" Diameter Pipe n= 0.012 Length= 445.0' Slope= 0.0456 '/'

Reach r14-3b:

Grass lined channel

Inflow Area =	6.422 ac,	Inflow Depth = 0.70"	for 2-yr event		
Inflow =	3.66 cfs @	12.17 hrs, Volume=	0.375 af		
Outflow =	3.62 cfs @	12.19 hrs, Volume=	0.375 af,	Atten= 1%,	Lag= 1.1 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Max. Velocity= 4.4 fps, Min. Travel Time= 1.4 min
Avg. Velocity = 1.9 fps, Avg. Travel Time= 3.2 min

Peak Depth= 0.36' @ 12.19 hrs
Capacity at bank full= 325.42 cfs
Inlet Invert= 542.00', Outlet Invert= 526.00'
10.00' x 3.00' deep Parabolic Channel, n= 0.027 Length= 360.0' Slope= 0.0444 '/'

Reach r17-1:

Inflow Area =	76.086 ac,	Inflow Depth = 0.75"	for 2-yr event		
Inflow =	16.23 cfs @	13.50 hrs, Volume=	4.734 af		
Outflow =	16.20 cfs @	13.52 hrs, Volume=	4.734 af,	Atten= 0%,	Lag= 1.1 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Max. Velocity= 5.5 fps, Min. Travel Time= 4.2 min
Avg. Velocity = 2.5 fps, Avg. Travel Time= 9.3 min

Peak Depth= 0.65' @ 13.52 hrs
Capacity at bank full= 181.28 cfs
Inlet Invert= 646.00', Outlet Invert= 524.00'
12.00' x 2.00' deep Parabolic Channel, n= 0.045 Length= 1,390.0' Slope= 0.0878 '/'

Reach r18-2:

Overland Flow Reach

Inflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Outflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Max. Velocity= 0.0 fps, Min. Travel Time= 0.0 min
Avg. Velocity = 0.0 fps, Avg. Travel Time= 0.0 min

Peak Depth= 0.00' @ 0.00 hrs
Capacity at bank full= 434.91 cfs
Inlet Invert= 973.60', Outlet Invert= 630.00'
50.00' x 1.00' deep Parabolic Channel, n= 0.060 Length= 720.0' Slope= 0.4772 '/'

Reach r21-1a:

Man Made Ditch

Inflow Area = 207.817 ac, Inflow Depth = 0.28" for 2-yr event
Inflow = 2.15 cfs @ 14.07 hrs, Volume= 4.789 af
Outflow = 2.15 cfs @ 14.12 hrs, Volume= 4.782 af, Atten= 0%, Lag= 3.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Max. Velocity= 2.6 fps, Min. Travel Time= 4.2 min
Avg. Velocity = 2.0 fps, Avg. Travel Time= 5.5 min

Peak Depth= 0.36' @ 14.12 hrs
Capacity at bank full= 191.76 cfs
Inlet Invert= 504.00', Outlet Invert= 494.00'
10.00' x 3.00' deep Parabolic Channel, n= 0.027 Length= 648.0' Slope= 0.0154 '/'

Reach r21-1b:

Overland Flow Reach

Inflow Area = 29.123 ac, Inflow Depth = 0.76" for 2-yr event
Inflow = 14.23 cfs @ 12.79 hrs, Volume= 1.848 af
Outflow = 14.05 cfs @ 12.81 hrs, Volume= 1.848 af, Atten= 1%, Lag= 1.1 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Max. Velocity= 2.9 fps, Min. Travel Time= 0.9 min
Avg. Velocity = 1.2 fps, Avg. Travel Time= 2.2 min

Peak Depth= 0.28' @ 12.81 hrs
Capacity at bank full= 227.81 cfs
Inlet Invert= 506.70', Outlet Invert= 485.75'
50.00' x 1.00' deep Parabolic Channel, n= 0.060 Length= 160.0' Slope= 0.1309 '/'

Reach r22-2:

Overland Flow Reach

Inflow Area = 15.520 ac, Inflow Depth = 0.49" for 2-yr event
Inflow = 1.34 cfs @ 13.55 hrs, Volume= 0.631 af
Outflow = 1.34 cfs @ 13.61 hrs, Volume= 0.631 af, Atten= 0%, Lag= 3.6 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Max. Velocity= 2.3 fps, Min. Travel Time= 4.5 min
Avg. Velocity = 1.1 fps, Avg. Travel Time= 9.8 min

Peak Depth= 0.07' @ 13.61 hrs
Capacity at bank full= 469.25 cfs
Inlet Invert= 970.00', Outlet Invert= 620.00'
50.00' x 1.00' deep Parabolic Channel, n= 0.060 Length= 630.0' Slope= 0.5556 '/'

Reach r25-0a:

Ditch
Pipe inverts need to be surveyed

Inflow Area = 67.391 ac, Inflow Depth = 0.89" for 2-yr event
Inflow = 15.05 cfs @ 12.48 hrs, Volume= 4.992 af
Outflow = 14.99 cfs @ 12.51 hrs, Volume= 4.989 af, Atten= 0%, Lag= 1.8 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Max. Velocity= 7.1 fps, Min. Travel Time= 2.6 min
Avg. Velocity = 2.7 fps, Avg. Travel Time= 6.7 min

Peak Depth= 0.59' @ 12.51 hrs
Capacity at bank full= 205.50 cfs
Inlet Invert= 570.00', Outlet Invert= 504.00'
10.00' x 2.00' deep Parabolic Channel, n= 0.027 Length= 1,090.0' Slope= 0.0606 '/'

Reach r25-0b: Wetland Reach

Wetland Reach
Has wetland vegetation within reach

Inflow Area = 9.435 ac, Inflow Depth = 0.66" for 2-yr event
Inflow = 1.10 cfs @ 12.98 hrs, Volume= 0.522 af
Outflow = 1.04 cfs @ 13.23 hrs, Volume= 0.521 af, Atten= 6%, Lag= 15.3 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Max. Velocity= 0.9 fps, Min. Travel Time= 14.6 min
Avg. Velocity = 0.4 fps, Avg. Travel Time= 34.1 min

Peak Depth= 0.29' @ 13.23 hrs
Capacity at bank full= 156.51 cfs
Inlet Invert= 504.00', Outlet Invert= 499.50'
20.00' x 3.00' deep Parabolic Channel, n= 0.045 Length= 750.0' Slope= 0.0060 '/'

Reach r25-0c: Amenia Creek/Cascade Brook

(Steam) parallel to Route 22
Base Flow estimated from field observation (see field note 21)

Inflow Area = 138.083 ac, Inflow Depth = 28.33" for 2-yr event
Inflow = 108.58 cfs @ 13.01 hrs, Volume= 325.976 af, Incl. 40.00 cfs Base Flow
Outflow = 108.30 cfs @ 13.09 hrs, Volume= 325.292 af, Atten= 0%, Lag= 5.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Max. Velocity= 2.8 fps, Min. Travel Time= 5.8 min
Avg. Velocity = 2.6 fps, Avg. Travel Time= 6.2 min

Peak Depth= 5.21' @ 13.09 hrs
Capacity at bank full= 67.14 cfs
Inlet Invert= 504.00', Outlet Invert= 500.00'
10.00' x 4.00' deep Parabolic Channel, n= 0.060 Length= 975.0' Slope= 0.0041 '/'

Pond 8P:

No field note.
Water spills over cart path; no storage.

Inflow Area = 41.049 ac, Inflow Depth = 0.94" for 2-yr event
Inflow = 14.54 cfs @ 12.48 hrs, Volume= 3.209 af
Outflow = 14.54 cfs @ 12.48 hrs, Volume= 3.209 af, Atten= 0%, Lag= 0.0 min
Primary = 14.54 cfs @ 12.48 hrs, Volume= 3.209 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Peak Elev= 575.17' @ 12.48 hrs
Flood Elev= 574.70'
Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= (not calculated)

#	Routing	Invert	Outlet Devices
1	Primary	574.70'	**177.0 deg Sharp-Crested Vee/Trap Weir** C= 2.46

Primary OutFlow Max=14.54 cfs @ 12.48 hrs HW=575.17' TW=570.58' (Dynamic Tailwater)
└─**1=Sharp-Crested Vee/Trap Weir** (Weir Controls 14.54 cfs @ 1.7 fps)

Pond p02-2:

Proposed culvert under proposed road at intersection with 44.

Inflow Area =	7.776 ac,	Inflow Depth = 0.75"	for 2-yr event	
Inflow =	3.29 cfs @	12.48 hrs, Volume=	0.484 af	
Outflow =	3.29 cfs @	12.48 hrs, Volume=	0.484 af,	Atten= 0%, Lag= 0.0 min
Primary =	3.29 cfs @	12.48 hrs, Volume=	0.484 af	

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Peak Elev= 640.76' @ 12.48 hrs
Flood Elev= 645.00'
Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= (not calculated)

#	Routing	Invert	Outlet Devices
1	Primary	640.00'	**24.0" x 100.0' long Culvert** CPP, end-section conforming to fill, Ke= 0.500 Outlet Invert= 638.00' S= 0.0200 '/' n= 0.012 Cc= 0.900

Primary OutFlow Max=3.29 cfs @ 12.48 hrs HW=640.76' TW=621.37' (Dynamic Tailwater)
└─**1=Culvert** (Inlet Controls 3.29 cfs @ 3.0 fps)

Pond p02-3:

Simulates last DMH at bottom of small road , at intersection with 44. This culvert is only used to size the drain pipe under 44.

Inflow Area =	4.088 ac,	Inflow Depth = 2.01"	for 2-yr event	
Inflow =	11.27 cfs @	12.03 hrs, Volume=	0.685 af	
Outflow =	11.27 cfs @	12.03 hrs, Volume=	0.685 af,	Atten= 0%, Lag= 0.0 min
Primary =	11.27 cfs @	12.03 hrs, Volume=	0.685 af	

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Peak Elev= 636.88' @ 12.03 hrs
Flood Elev= 645.00'
Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= (not calculated)

#	Routing	Invert	Outlet Devices
1	Primary	635.00'	**24.0" x 100.0' long Culvert** CPP, projecting, no headwall, Ke= 0.900 Outlet Invert= 634.00' S= 0.0100 '/' n= 0.012 Cc= 0.900

Primary OutFlow Max=11.23 cfs @ 12.03 hrs HW=636.87' TW=552.55' (Dynamic Tailwater)
└─**1=Culvert** (Inlet Controls 11.23 cfs @ 3.7 fps)

Pond p03-2:

Inflow Area = 4.738 ac, Inflow Depth = 1.90" for 2-yr event
Inflow = 11.31 cfs @ 12.02 hrs, Volume= 0.749 af
Outflow = 1.07 cfs @ 12.81 hrs, Volume= 0.746 af, Atten= 91%, Lag= 47.5 min
Primary = 1.07 cfs @ 12.81 hrs, Volume= 0.746 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Starting Elev= 774.00' Surf.Area= 2,315 sf Storage= 4,095 cf
Peak Elev= 776.59' @ 12.81 hrs Surf.Area= 7,564 sf Storage= 20,242 cf (16,147 cf above start)
Flood Elev= 779.00' Surf.Area= 9,991 sf Storage= 41,391 cf (37,296 cf above start)
Plug-Flow detention time= 548.6 min calculated for 0.652 af (87% of inflow)
Center-of-Mass det. time= 407.5 min (1,198.5 - 791.0)

#	Invert	Avail.Storage	Storage Description
1	768.00'	51,363 cf	**Custom Stage Data (Conic)** Listed below

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
768.00	67	0	0	67
770.00	345	376	376	361
772.00	729	1,050	1,426	777
772.50	842	392	1,819	901
774.00	2,315	2,277	4,095	2,388
774.50	5,704	1,942	6,037	5,779
776.00	6,996	9,509	15,546	7,138
778.00	8,917	15,874	31,420	9,160
780.00	11,064	19,942	51,363	11,421

#	Routing	Invert	Outlet Devices
1	Primary	774.00'	**3.0" Vert. Orifice/Grate** C= 0.600
2	Primary	776.20'	**6.0" Vert. Orifice/Grate X 2.00** C= 0.600
3	Primary	778.50'	**4.0' long x 6.0' high Sharp-Crested Rectangular Weir** 2 End Contraction(s)

Primary OutFlow Max=1.07 cfs @ 12.81 hrs HW=776.59' TW=721.20' (Dynamic Tailwater)
1=Orifice/Grate (Orifice Controls 0.37 cfs @ 7.6 fps)
2=Orifice/Grate (Orifice Controls 0.70 cfs @ 2.1 fps)
3=Sharp-Crested Rectangular Weir (Controls 0.00 cfs)

Pond p04-1:

Storage, inverts and culvert length based on assumed grading, check when final grading becomes available

Inflow Area = 34.207 ac, Inflow Depth = 1.02" for 2-yr event
Inflow = 12.81 cfs @ 12.49 hrs, Volume= 2.908 af
Outflow = 12.80 cfs @ 12.50 hrs, Volume= 2.907 af, Atten= 0%, Lag= 0.8 min
Primary = 12.80 cfs @ 12.50 hrs, Volume= 2.907 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

Peak Elev= 639.72' @ 12.50 hrs Surf.Area= 1,116 sf Storage= 744 cf
Flood Elev= 648.00' Surf.Area= 15,680 sf Storage= 66,062 cf
Plug-Flow detention time= 2.3 min calculated for 2.907 af (100% of inflow)
Center-of-Mass det. time= 2.2 min (979.1 - 977.0)

#	Invert	Avail.Storage	Storage Description
1	638.00'	66,062 cf	**Custom Stage Data (Conic)** Listed below

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
638.00	0	0	0	0
640.00	1,300	867	867	1,306
642.00	6,180	6,876	7,743	6,203
644.00	7,270	13,435	21,178	7,438
646.00	11,100	18,235	39,414	11,327
648.00	15,680	26,648	66,062	15,980

#	Routing	Invert	Outlet Devices
1	Primary	638.00'	**24.0" x 685.0' long Culvert** CPP, end-section conforming to fill, Ke= 0.500 Outlet Invert= 598.00' S= 0.0584 '/' n= 0.012 Cc= 0.900

Primary OutFlow Max=12.80 cfs @ 12.50 hrs HW=639.72' TW=575.17' (Dynamic Tailwater)
└─**1=Culvert** (Inlet Controls 12.80 cfs @ 4.5 fps)

Pond p06-0:

Field Note #22
Geometry to be confirmed by survey.

Inflow Area = 9.435 ac, Inflow Depth = 0.70" for 2-yr event
Inflow = 3.56 cfs @ 12.29 hrs, Volume= 0.549 af
Outflow = 1.10 cfs @ 12.98 hrs, Volume= 0.522 af, Atten= 69%, Lag= 41.2 min
Primary = 1.10 cfs @ 12.98 hrs, Volume= 0.522 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Starting Elev= 506.80' Surf.Area= 18,600 sf Storage= 42,160 cf
Peak Elev= 507.21' @ 12.98 hrs Surf.Area= 20,460 sf Storage= 50,896 cf (8,736 cf above start)
Flood Elev= 507.10' Surf.Area= 19,958 sf Storage= 48,537 cf (6,377 cf above start)
Plug-Flow detention time= (not calculated)
Center-of-Mass det. time= (not calculated)

#	Invert	Avail.Storage	Storage Description
1	500.00'	67,669 cf	**Custom Stage Data (Conic)** Listed below

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
500.00	0	0	0	0
506.80	18,600	42,160	42,160	18,672
508.00	24,030	25,509	67,669	24,138

#	Routing	Invert	Outlet Devices
1	Primary	506.80'	**12.0" x 20.0' long Culvert** CMP, projecting, no headwall, Ke= 0.900 Outlet Invert= 506.00' S= 0.0400 '/' n= 0.024 Cc= 0.900
2	Primary	507.10'	**178.0 deg Sharp-Crested Vee/Trap Weir** C= 2.46

Primary OutFlow Max=1.10 cfs @ 12.98 hrs HW=507.21' TW=504.28' (Dynamic Tailwater)
—**1=Culvert** (Inlet Controls 0.52 cfs @ 1.7 fps)
—**2=Sharp-Crested Vee/Trap Weir** (Weir Controls 0.58 cfs @ 0.8 fps)

Pond p07-1:

Field Note # 29
Outlet geometry to be confirmed by survey.

Inflow Area = 26.342 ac, Inflow Depth = 0.87" for 2-yr event
Inflow = 3.47 cfs @ 12.15 hrs, Volume= 1.920 af
Outflow = 1.40 cfs @ 17.02 hrs, Volume= 1.783 af, Atten= 60%, Lag= 292.1 min
Primary = 1.40 cfs @ 17.02 hrs, Volume= 1.783 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Starting Elev= 572.80' Surf.Area= 21,640 sf Storage= 56,264 cf
Peak Elev= 573.41' @ 17.02 hrs Surf.Area= 24,492 sf Storage= 71,048 cf (14,784 cf above start)
Flood Elev= 573.50' Surf.Area= 24,936 sf Storage= 73,351 cf (17,087 cf above start)
Plug-Flow detention time= 1,511.5 min calculated for 0.492 af (26% of inflow)
Center-of-Mass det. time= 138.9 min (1,472.4 - 1,333.5)

#	Invert	Avail.Storage	Storage Description
1	565.00'	85,557 cf	**Custom Stage Data (Conic)** Listed below

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
565.00	0	0	0	0
572.80	21,640	56,264	56,264	21,735
574.00	27,290	29,293	85,557	27,424

#	Routing	Invert	Outlet Devices
1	Primary	572.80'	**18.0" x 20.0' long Culvert** CMP, projecting, no headwall, Ke= 0.900 Outlet Invert= 572.00' S= 0.0400 '/' n= 0.024 Cc= 0.900
2	Primary	573.50'	**177.0 deg Sharp-Crested Vee/Trap Weir X 2.00** C= 2.46

Primary OutFlow Max=1.40 cfs @ 17.02 hrs HW=573.41' TW=570.29' (Dynamic Tailwater)
—**1=Culvert** (Inlet Controls 1.40 cfs @ 2.1 fps)
—**2=Sharp-Crested Vee/Trap Weir** (Controls 0.00 cfs)

Pond p08-2:

Inflow Area = 18.762 ac, Inflow Depth = 1.70" for 2-yr event
Inflow = 33.19 cfs @ 12.04 hrs, Volume= 2.653 af
Outflow = 2.24 cfs @ 13.93 hrs, Volume= 2.007 af, Atten= 93%, Lag= 113.5 min
Primary = 2.24 cfs @ 13.93 hrs, Volume= 2.007 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Starting Elev= 550.00' Surf.Area= 8,558 sf Storage= 24,834 cf
Peak Elev= 554.57' @ 13.93 hrs Surf.Area= 19,179 sf Storage= 95,803 cf (70,969 cf above start)
Flood Elev= 557.00' Surf.Area= 23,344 sf Storage= 147,597 cf (122,763 cf above start)
Plug-Flow detention time= 1,016.3 min calculated for 1.437 af (54% of inflow)
Center-of-Mass det. time= 640.3 min (1,434.3 - 793.9)

#	Invert	Avail.Storage	Storage Description
1	544.00'	170,918 cf	**Custom Stage Data (Conic)** Listed below

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
544.00	1,962	0	0	1,962
546.00	3,155	5,070	5,070	3,207
548.00	4,454	7,572	12,642	4,577
548.50	4,796	2,312	14,954	4,940
550.00	8,558	9,880	24,834	8,726
550.50	12,948	5,339	30,173	13,120
552.00	15,129	21,037	51,209	15,390
554.00	18,234	33,315	84,524	18,627
556.00	21,565	39,752	124,277	22,105
558.00	25,122	46,642	170,918	25,823

#	Routing	Invert	Outlet Devices
1	Primary	550.00'	**3.0" Vert. Orifice/Grate** C= 0.600
2	Primary	554.09'	**12.0" Vert. Orifice/Grate X 2.00** C= 0.600
3	Primary	556.00'	**11.0' long x 6.0' high Sharp-Crested Rectangular Weir** 2 End Contraction(s)

Primary OutFlow Max=2.24 cfs @ 13.93 hrs HW=554.57' TW=514.91' (Dynamic Tailwater)
1=Orifice/Grate (Orifice Controls 0.50 cfs @ 10.1 fps)
2=Orifice/Grate (Orifice Controls 1.74 cfs @ 2.4 fps)
3=Sharp-Crested Rectangular Weir (Controls 0.00 cfs)

Pond p08-3:

Inflow Area = 2.828 ac, Inflow Depth = 1.58" for 2-yr event
Inflow = 4.49 cfs @ 12.01 hrs, Volume= 0.373 af
Outflow = 0.82 cfs @ 12.54 hrs, Volume= 0.373 af, Atten= 82%, Lag= 31.7 min
Primary = 0.82 cfs @ 12.54 hrs, Volume= 0.373 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Starting Elev= 528.00' Surf.Area= 1,849 sf Storage= 2,615 cf
Peak Elev= 530.34' @ 12.54 hrs Surf.Area= 3,668 sf Storage= 9,190 cf (6,575 cf above start)
Flood Elev= 533.00' Surf.Area= 6,389 sf Storage= 22,602 cf (19,987 cf above start)
Plug-Flow detention time= 337.5 min calculated for 0.313 af (84% of inflow)
Center-of-Mass det. time= 193.4 min (975.8 - 782.4)

#	Invert	Avail.Storage	Storage Description
1	524.00'	28,956 cf	**Custom Stage Data (Conic)** Listed below

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
524.00	178	0	0	178
526.00	500	651	651	524
526.50	548	262	913	587
528.00	1,849	1,702	2,615	1,900
530.00	3,344	5,120	7,734	3,437
532.00	5,240	8,513	16,248	5,388
534.00	7,538	12,709	28,956	7,755

#	Routing	Invert	Outlet Devices
1	Primary	528.00'	**3.0" Vert. Orifice/Grate** C= 0.600
2	Primary	530.00'	**12.0" Vert. Orifice/Grate** C= 0.600

Primary OutFlow Max=0.82 cfs @ 12.54 hrs HW=530.34' TW=514.89' (Dynamic Tailwater)
1=Orifice/Grate (Orifice Controls 0.35 cfs @ 7.2 fps)
2=Orifice/Grate (Orifice Controls 0.47 cfs @ 2.0 fps)

Pond p09-2:

Inflow Area = 21.180 ac, Inflow Depth = 1.09" for 2-yr event
Inflow = 12.66 cfs @ 12.29 hrs, Volume= 1.915 af
Outflow = 1.29 cfs @ 15.71 hrs, Volume= 1.523 af, Atten= 90%, Lag= 205.2 min
Primary = 1.29 cfs @ 15.71 hrs, Volume= 1.523 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Starting Elev= 586.00' Surf.Area= 10,285 sf Storage= 36,340 cf
Peak Elev= 588.83' @ 15.71 hrs Surf.Area= 20,467 sf Storage= 87,194 cf (50,854 cf above start)
Flood Elev= 593.00' Surf.Area= 27,610 sf Storage= 187,200 cf (150,860 cf above start)
Plug-Flow detention time= 1,329.2 min calculated for 0.688 af (36% of inflow)
Center-of-Mass det. time= 621.0 min (1,464.1 - 843.1)

#	Invert	Avail.Storage	Storage Description
1	580.00'	214,790 cf	**Custom Stage Data (Conic)** Listed below

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
580.00	3,968	0	0	3,968
582.00	5,102	9,046	9,046	5,198
584.00	6,343	11,423	20,469	6,550
584.50	6,670	3,253	23,722	6,907
586.00	10,285	12,619	36,340	10,554
586.50	16,887	6,725	43,066	17,159
588.00	19,143	27,005	70,070	19,525
590.00	22,349	41,451	111,521	22,890
592.00	25,781	48,089	159,610	26,494
594.00	29,439	55,180	214,790	30,336

#	Routing	Invert	Outlet Devices
1	Primary	586.00'	**3.0" Vert. Orifice/Grate** C= 0.600
2	Primary	588.21'	**8.0" Vert. Orifice/Grate** C= 0.600
3	Primary	592.00'	**2.0' long x 6.0' high Sharp-Crested Rectangular Weir** 2 End Contraction(s)

Primary OutFlow Max=1.29 cfs @ 15.71 hrs HW=588.83' TW=573.38' (Dynamic Tailwater)
1=Orifice/Grate (Orifice Controls 0.39 cfs @ 7.9 fps)
2=Orifice/Grate (Orifice Controls 0.90 cfs @ 2.7 fps)
3=Sharp-Crested Rectangular Weir (Controls 0.00 cfs)

Pond p10:

Field Note #25
Need to get full story on how this pond works

Inflow Area = 59.531 ac, Inflow Depth = 0.48" for 2-yr event
Inflow = 4.62 cfs @ 12.40 hrs, Volume= 2.405 af
Outflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Atten= 100%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Starting Elev= 498.40' Surf.Area= 36,110 sf Storage= 101,108 cf
Peak Elev= 500.87' @ 48.00 hrs Surf.Area= 47,807 sf Storage= 205,882 cf (104,774 cf above start)
Plug-Flow detention time= (not calculated)
Center-of-Mass det. time= (not calculated)

#	Invert	Avail.Storage	Storage Description
1	490.00'	581,029 cf	**Custom Stage Data (Conic)** Listed below

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
490.00	0	0	0	0
498.40	36,110	101,108	101,108	36,221
500.00	42,400	62,741	163,849	42,610
502.00	54,880	97,012	260,861	55,187
504.00	78,730	132,895	393,755	79,107
506.00	109,382	187,274	581,029	109,836

Pond p13-1:

No Field Note
Natural depression.

Inflow Area = 12.222 ac, Inflow Depth = 2.07" for 2-yr event
Inflow = 26.43 cfs @ 12.04 hrs, Volume= 2.107 af
Outflow = 22.81 cfs @ 12.08 hrs, Volume= 2.091 af, Atten= 14%, Lag= 2.4 min
Primary = 22.81 cfs @ 12.08 hrs, Volume= 2.091 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Starting Elev= 524.00' Surf.Area= 5,894 sf Storage= 16,480 cf
Peak Elev= 526.48' @ 12.08 hrs Surf.Area= 9,268 sf Storage= 35,610 cf (19,131 cf above start)
Flood Elev= 527.00' Surf.Area= 10,067 sf Storage= 40,862 cf (24,383 cf above start)

Plug-Flow detention time= 348.5 min calculated for 1.712 af (81% of inflow)
Center-of-Mass det. time= 202.2 min (977.7 - 775.5)

#	Invert	Avail.Storage	Storage Description
1	518.00'	50,891 cf	**Custom Stage Data (Conic)** Listed below

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
518.00	1,331	0	0	1,331
520.00	2,048	3,353	3,353	2,104
522.00	2,912	4,935	8,288	3,037
522.50	3,150	1,515	9,803	3,294
524.00	5,894	6,676	16,480	6,061
526.00	8,542	14,354	30,834	8,776
528.00	11,592	20,057	50,891	11,908

#	Routing	Invert	Outlet Devices
1	Primary	524.00'	**3.0" Vert. Orifice/Grate** C= 0.600
2	Primary	525.90'	**15.0' long x 1.3' high Sharp-Crested Rectangular Weir** 2 End Contraction(s)

Primary OutFlow Max=22.79 cfs @ 12.08 hrs HW=526.48' TW=499.38' (Dynamic Tailwater)
1=Orifice/Grate (Orifice Controls 0.36 cfs @ 7.4 fps)
2=Sharp-Crested Rectangular Weir (Weir Controls 22.43 cfs @ 2.6 fps)

Pond p14-1:

Field Note #26
Need to figure out how this pond works

Inflow Area = 50.663 ac, Inflow Depth = 1.64" for 2-yr event
Inflow = 62.90 cfs @ 12.08 hrs, Volume= 6.905 af
Outflow = 1.16 cfs @ 23.63 hrs, Volume= 1.605 af, Atten= 98%, Lag= 692.9 min
Primary = 1.16 cfs @ 23.63 hrs, Volume= 1.605 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Starting Elev= 497.40' Surf.Area= 22,200 sf Storage= 54,760 cf
Peak Elev= 502.44' @ 23.63 hrs Surf.Area= 75,714 sf Storage= 305,667 cf (250,907 cf above start)
Plug-Flow detention time= 1,945.2 min calculated for 0.348 af (5% of inflow)
Center-of-Mass det. time= 815.0 min (1,742.6 - 927.5)

#	Invert	Avail.Storage	Storage Description
1	490.00'	805,062 cf	**Custom Stage Data (Conic)** Listed below

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
490.00	0	0	0	0
497.40	22,200	54,760	54,760	22,286
498.00	25,330	14,249	69,009	25,433
500.00	52,810	76,476	145,485	52,948
502.00	73,360	125,608	271,093	73,574
504.00	84,070	157,308	428,402	84,467
506.00	92,130	176,139	604,540	92,797
508.00	108,618	200,522	805,062	109,437

#	Routing	Invert	Outlet Devices
1	Primary	500.00'	**24.0" x 80.0' long Culvert** CPP, end-section conforming to fill, Ke= 0.500 Outlet Invert= 502.00' S= -0.0250 '/' n= 0.012 Cc= 0.900

Primary OutFlow Max=1.16 cfs @ 23.63 hrs HW=502.44' TW=499.82' (Dynamic Tailwater)
└—**1=Culvert** (Inlet Controls 1.16 cfs @ 2.3 fps)

Pond p14-2:

Inflow Area = 15.934 ac, Inflow Depth = 2.12" for 2-yr event
Inflow = 35.40 cfs @ 12.05 hrs, Volume= 2.811 af
Outflow = 30.16 cfs @ 12.09 hrs, Volume= 2.783 af, Atten= 15%, Lag= 2.8 min
Primary = 30.16 cfs @ 12.09 hrs, Volume= 2.783 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Starting Elev= 532.00' Surf.Area= 7,681 sf Storage= 23,903 cf
Peak Elev= 534.33' @ 12.09 hrs Surf.Area= 11,245 sf Storage= 46,238 cf (22,335 cf above start)
Flood Elev= 535.00' Surf.Area= 12,390 sf Storage= 54,538 cf (30,635 cf above start)
Plug-Flow detention time= 322.3 min calculated for 2.234 af (79% of inflow)
Center-of-Mass det. time= 172.2 min (947.6 - 775.4)

#	Invert	Avail.Storage	Storage Description
1	526.00'	66,889 cf	**Custom Stage Data (Conic)** Listed below

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
526.00	2,239	0	0	2,239
528.00	3,156	5,369	5,369	3,227
530.00	4,207	7,338	12,707	4,362
530.50	4,491	2,174	14,881	4,669
532.00	7,681	9,023	23,903	7,885
534.00	10,686	18,285	42,188	10,966
536.00	14,093	24,701	66,889	14,463

#	Routing	Invert	Outlet Devices
1	Primary	532.00'	**3.0" Vert. Orifice/Grate** C= 0.600
2	Primary	533.60'	**14.0' long x 1.5' high Sharp-Crested Rectangular Weir** 2 End Contraction(s)

Primary OutFlow Max=30.13 cfs @ 12.09 hrs HW=534.33' TW=499.45' (Dynamic Tailwater)
1=Orifice/Grate (Orifice Controls 0.35 cfs @ 7.1 fps)
2=Sharp-Crested Rectangular Weir (Weir Controls 29.78 cfs @ 3.0 fps)

Pond p16-1:

Field Note # 49
Large pond with man-made island.
Geometry to be verified by survey. In particular, we are making big guesses about the outlets.
Also need to find out about valves...

Inflow Area = 176.893 ac, Inflow Depth = 0.85" for 2-yr event
Inflow = 29.36 cfs @ 12.30 hrs, Volume= 12.506 af
Outflow = 1.43 cfs @ 25.98 hrs, Volume= 2.318 af, Atten= 95%, Lag= 820.9 min
Primary = 1.43 cfs @ 25.98 hrs, Volume= 2.318 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Starting Elev= 507.00' Surf.Area= 199,799 sf Storage= 878,320 cf
Peak Elev= 509.61' @ 25.98 hrs Surf.Area= 241,196 sf Storage= 1,383,367 cf (505,047 cf above start)
Flood Elev= 510.50' Surf.Area= 271,550 sf Storage= 1,623,217 cf (744,897 cf above start)
Plug-Flow detention time= (not calculated)
Center-of-Mass det. time= (not calculated)

#	Invert	Avail.Storage	Storage Description
1	500.00'	2,062,087 cf	**Custom Stage Data (Conic)** Listed below

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
500.00	0	0	0	0
503.00	140,344	140,344	140,344	140,358
509.20	232,500	1,143,862	1,284,206	232,994
510.00	249,400	192,720	1,476,927	249,951
512.00	338,000	585,160	2,062,087	338,634

#	Routing	Invert	Outlet Devices
1	Primary	509.00'	**18.0" x 110.0' long Culvert** CMP, projecting, no headwall, Ke= 0.900 Outlet Invert= 505.70' S= 0.0300 '/' n= 0.024 Cc= 0.900
2	Primary	500.00'	**8.0" x 100.0' long assumed equalization pipe w/ valve X 0.00** CMP, projecting, no headwall, Ke= 0.900 Outlet Invert= 500.00' S= 0.0000 '/' n= 0.013 Cc= 0.900
3	Primary	510.50'	**175.0 deg Sharp-Crested Vee/Trap Weir X 2.00** C= 2.46

Primary OutFlow Max=1.42 cfs @ 25.98 hrs HW=509.61' TW=505.48' (Dynamic Tailwater)
1=Culvert (Inlet Controls 1.42 cfs @ 2.1 fps)
2=assumed equalization pipe w/ valve (Controls 0.00 cfs)
3=Sharp-Crested Vee/Trap Weir (Controls 0.00 cfs)

Pond p17-1:

Field Note #45
Golf pond
Geometry to be confirmed by surveyed

Inflow Area =	112.240 ac,	Inflow Depth = 0.75"	for 2-yr event	
Inflow =	20.36 cfs @	13.35 hrs, Volume=	6.973 af	
Outflow =	20.35 cfs @	13.41 hrs, Volume=	6.973 af,	Atten= 0%, Lag= 3.4 min
Primary =	20.35 cfs @	13.41 hrs, Volume=	6.973 af	

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Starting Elev= 523.80' Surf.Area= 7,290 sf Storage= 9,234 cf
Peak Elev= 525.24' @ 13.41 hrs Surf.Area= 10,496 sf Storage= 22,790 cf (13,556 cf above start)
Flood Elev= 524.30' Surf.Area= 8,074 sf Storage= 13,623 cf (4,389 cf above start)
Plug-Flow detention time= 43.7 min calculated for 6.761 af (97% of inflow)
Center-of-Mass det. time= 19.4 min (972.2 - 952.8)

#	Invert	Avail.Storage	Storage Description
1	520.00'	30,224 cf	**Custom Stage Data (Conic)** Listed below

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
520.00	0	0	0	0
523.80	7,290	9,234	9,234	7,313
524.00	7,300	1,459	10,693	7,374
526.00	12,460	19,531	30,224	12,581

#	Routing	Invert	Outlet Devices
1	Primary	523.80'	**2.2' long x 0.5' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 Coef. (English) 2.80 2.92 3.08 3.30 3.32
2	Primary	524.30'	**143.0 deg Sharp-Crested Vee/Trap Weir** C= 2.47
3	Primary	525.20'	**178.0 deg x 60.0' long Sharp-Crested Vee/Trap Weir** C= 2.46

Primary OutFlow Max=20.35 cfs @ 13.41 hrs HW=525.24' TW=515.55' (Dynamic Tailwater)
—**1=Broad-Crested Rectangular Weir** (Weir Controls 12.60 cfs @ 4.0 fps)
—**2=Sharp-Crested Vee/Trap Weir** (Weir Controls 6.30 cfs @ 2.4 fps)
—**3=Sharp-Crested Vee/Trap Weir** (Weir Controls 1.45 cfs @ 0.6 fps)

Pond p18-1:

Field Note #46
Golf pond
Geometry to be confirmed by surveyed

Inflow Area =	131.862 ac,	Inflow Depth = 0.76"	for 2-yr event	
Inflow =	22.44 cfs @	13.37 hrs, Volume=	8.366 af	
Outflow =	22.27 cfs @	13.50 hrs, Volume=	8.362 af,	Atten= 1%, Lag= 8.0 min
Primary =	22.27 cfs @	13.50 hrs, Volume=	8.362 af	

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Starting Elev= 513.90' Surf.Area= 20,680 sf Storage= 26,884 cf
Peak Elev= 515.55' @ 13.50 hrs Surf.Area= 26,574 sf Storage= 66,717 cf (39,833 cf above start)
Flood Elev= 514.81' Surf.Area= 23,768 sf Storage= 48,709 cf (21,825 cf above start)
Plug-Flow detention time= 115.8 min calculated for 7.745 af (93% of inflow)
Center-of-Mass det. time= 55.6 min (1,011.7 - 956.1)

#	Invert	Avail.Storage	Storage Description
1	510.00'	148,288 cf	**Custom Stage Data (Conic)** Listed below

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
510.00	0	0	0	0
513.90	20,680	26,884	26,884	20,704
514.00	20,690	2,068	28,952	20,756
516.00	28,290	48,782	77,735	28,436
518.00	42,760	70,554	148,288	42,967

#	Routing	Invert	Outlet Devices
1	Primary	513.90'	**2.0' long x 0.5' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 Coef. (English) 2.80 2.92 3.08 3.30 3.32
2	Primary	514.81'	**143.0 deg Sharp-Crested Vee/Trap Weir** C= 2.47
3	Primary	515.32'	**175.0 deg x 10.0' long Sharp-Crested Vee/Trap Weir** C= 2.46

Primary OutFlow Max=22.27 cfs @ 13.50 hrs HW=515.55' TW=507.93' (Dynamic Tailwater)
1=Broad-Crested Rectangular Weir (Weir Controls 14.05 cfs @ 4.3 fps)
2=Sharp-Crested Vee/Trap Weir (Weir Controls 3.46 cfs @ 2.1 fps)
3=Sharp-Crested Vee/Trap Weir (Weir Controls 4.76 cfs @ 1.4 fps)

Pond p19-0:

Wetland
Geometry to be confirmed by survey
Based off aerial topo, and assumed topo contour

Pond Unchanged from existing to proposed conditions

Inflow Area =	15.520 ac, Inflow Depth = 0.49"	for 2-yr event	
Inflow =	3.05 cfs @ 12.70 hrs, Volume=	0.633 af	
Outflow =	1.34 cfs @ 13.55 hrs, Volume=	0.631 af,	Atten= 56%, Lag= 50.5 min
Primary =	1.34 cfs @ 13.55 hrs, Volume=	0.631 af	
Secondary =	0.00 cfs @ 0.00 hrs, Volume=	0.000 af	

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Starting Elev= 972.00' Surf.Area= 86,000 sf Storage= 57,333 cf
Peak Elev= 972.06' @ 13.55 hrs Surf.Area= 87,584 sf Storage= 63,780 cf (6,447 cf above start)
Plug-Flow detention time= (not calculated)
Center-of-Mass det. time= (not calculated)

#	Invert	Avail.Storage	Storage Description
1	970.00'	282,329 cf	**Custom Stage Data (Conic)** Listed below

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
970.00	0	0	0	0
972.00	86,000	57,333	57,333	86,006
974.00	141,270	224,996	282,329	141,327

#	Routing	Invert	Outlet Devices
1	Secondary	973.60'	**178.0 deg x 51.0' long Sharp-Crested Vee/Trap Weir** C= 2.46
2	Primary	972.00'	**35.0' long x 0.5' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 Coef. (English) 2.80 2.92 3.08 3.30 3.32

Primary OutFlow Max=1.34 cfs @ 13.55 hrs HW=972.06' TW=970.07' (Dynamic Tailwater)
└─**2=Broad-Crested Rectangular Weir** (Weir Controls 1.34 cfs @ 0.7 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=972.00' TW=973.60' (Dynamic Tailwater)
└─**1=Sharp-Crested Vee/Trap Weir** (Controls 0.00 cfs)

Pond p20-1:

Field Note #50
Spring Fed Pond
Geometry to be confirmed by surveyed

Inflow Area = 207.817 ac, Inflow Depth = 0.31" for 2-yr event
Inflow = 10.81 cfs @ 12.31 hrs, Volume= 5.310 af
Outflow = 2.15 cfs @ 14.07 hrs, Volume= 4.789 af, Atten= 80%, Lag= 105.7 min
Primary = 2.15 cfs @ 14.07 hrs, Volume= 4.789 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Starting Elev= 505.10' Surf.Area= 89,370 sf Storage= 138,524 cf
Peak Elev= 505.52' @ 14.07 hrs Surf.Area= 89,375 sf Storage= 175,981 cf (37,457 cf above start)
Plug-Flow detention time= 1,635.2 min calculated for 1.609 af (30% of inflow)
Center-of-Mass det. time= 177.5 min (1,695.9 - 1,518.5)

#	Invert	Avail.Storage	Storage Description
1	502.00'	615,682 cf	**Custom Stage Data (Prismatic)** Listed below

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
502.00	0	0	0
505.10	89,370	138,524	138,524
506.00	89,380	80,437	218,961
508.00	99,280	188,660	407,621
510.00	108,781	208,061	615,682

#	Routing	Invert	Outlet Devices
1	Primary	505.10'	**3.0' long x 1.5' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 Coef. (English) 2.62 2.64 2.64 2.68 2.75 2.86 2.92 3.07 3.07 3.03 3.28 3.32
2	Primary	506.20'	**6.5' long x 1.5' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 Coef. (English) 2.62 2.64 2.64 2.68 2.75 2.86 2.92 3.07 3.07 3.03 3.28 3.32
3	Primary	506.00'	**176.0 deg x 97.0' long Sharp-Crested Vee/Trap Weir** C= 2.46

Primary OutFlow Max=2.15 cfs @ 14.07 hrs HW=505.52' TW=504.36' (Dynamic Tailwater)
1=Broad-Crested Rectangular Weir (Weir Controls 2.15 cfs @ 1.7 fps)
2=Broad-Crested Rectangular Weir (Controls 0.00 cfs)
3=Sharp-Crested Vee/Trap Weir (Controls 0.00 cfs)

Pond p20-2:

Inflow Area = 13.511 ac, Inflow Depth = 1.97" for 2-yr event
Inflow = 26.49 cfs @ 12.08 hrs, Volume= 2.214 af
Outflow = 0.48 cfs @ 20.06 hrs, Volume= 1.359 af, Atten= 98%, Lag= 478.9 min
Primary = 0.48 cfs @ 20.06 hrs, Volume= 1.359 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Starting Elev= 552.00' Surf.Area= 10,535 sf Storage= 35,913 cf
Peak Elev= 556.27' @ 20.06 hrs Surf.Area= 20,905 sf Storage= 110,186 cf (74,273 cf above start)
Flood Elev= 559.00' Surf.Area= 25,653 sf Storage= 174,016 cf (138,102 cf above start)
Plug-Flow detention time= 1,780.5 min calculated for 0.534 af (24% of inflow)
Center-of-Mass det. time= 901.0 min (1,692.2 - 791.2)

#	Invert	Avail.Storage	Storage Description
1	546.00'	199,647 cf	**Custom Stage Data (Conic)** Listed below

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
546.00	3,714	0	0	3,714
548.00	4,960	8,644	8,644	5,044
550.00	6,308	11,241	19,885	6,493
550.50	6,661	3,242	23,127	6,874
552.00	10,535	12,786	35,913	10,779
552.50	15,037	6,360	42,273	15,285
554.00	17,268	24,209	66,483	17,616
556.00	20,441	37,664	104,147	20,935
558.00	23,840	44,237	148,384	24,494
560.00	27,465	51,262	199,647	28,292

#	Routing	Invert	Outlet Devices
1	Primary	552.00'	**3.0" Vert. Orifice/Grate** C= 0.600
2	Primary	558.20'	**6.1' long x 6.2' high Sharp-Crested Rectangular Weir** 2 End Contraction(s)

Primary OutFlow Max=0.48 cfs @ 20.06 hrs HW=556.27' TW=505.44' (Dynamic Tailwater)
1=Orifice/Grate (Orifice Controls 0.48 cfs @ 9.8 fps)
2=Sharp-Crested Rectangular Weir (Controls 0.00 cfs)

Pond p21-1:

Inflow Area =	459.188 ac, Inflow Depth = 0.71"	for 2-yr event	
Inflow =	104.52 cfs @ 12.32 hrs, Volume=	27.286 af	
Outflow =	14.96 cfs @ 16.77 hrs, Volume=	25.820 af,	Atten= 86%, Lag= 267.0 min
Primary =	14.96 cfs @ 16.77 hrs, Volume=	25.820 af	

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Peak Elev= 483.12' @ 16.77 hrs Surf.Area= 360,734 sf Storage= 481,539 cf
Plug-Flow detention time= 468.6 min calculated for 25.820 af (95% of inflow)
Center-of-Mass det. time= 386.2 min (1,496.1 - 1,109.9)

#	Invert	Avail.Storage	Storage Description
1	480.40'	5,244,885 cf	**Custom Stage Data (Conic)** Listed below

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
480.40	0	0	0	0
482.00	202,230	107,856	107,856	202,234
484.00	485,198	667,114	774,970	485,231
486.00	1,275,481	1,698,237	2,473,208	1,275,541
488.00	1,499,208	2,771,678	5,244,885	1,499,423

#	Routing	Invert	Outlet Devices
1	Primary	480.40'	**30.0" x 70.0' long Culvert** CMP, projecting, no headwall, Ke= 0.900 Outlet Invert= 480.40' S= 0.0000 '/' n= 0.024 Cc= 0.900

Primary OutFlow Max=14.96 cfs @ 16.77 hrs HW=483.12' TW=0.00' (Dynamic Tailwater)
1=Culvert (Barrel Controls 14.96 cfs @ 3.5 fps)

Pond p21-4:

Inflow Area =	5.152 ac, Inflow Depth = 1.61"	for 2-yr event	
Inflow =	7.41 cfs @ 12.02 hrs, Volume=	0.691 af	
Outflow =	1.24 cfs @ 12.73 hrs, Volume=	0.683 af,	Atten= 83%, Lag= 42.4 min
Primary =	1.24 cfs @ 12.73 hrs, Volume=	0.683 af	

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Starting Elev= 496.00' Surf.Area= 5,112 sf Storage= 14,306 cf
Peak Elev= 498.24' @ 12.73 hrs Surf.Area= 7,805 sf Storage= 28,965 cf (14,659 cf above start)
Flood Elev= 499.00' Surf.Area= 8,847 sf Storage= 35,622 cf (21,317 cf above start)
Plug-Flow detention time= 941.9 min calculated for 0.354 af (51% of inflow)
Center-of-Mass det. time= 438.3 min (1,232.7 - 794.4)

#	Invert	Avail.Storage	Storage Description
1	490.00'	44,433 cf	**Custom Stage Data (Conic)** Listed below

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
490.00	1,146	0	0	1,146
492.00	1,784	2,907	2,907	1,839
494.00	2,530	4,292	7,199	2,654
494.50	2,733	1,315	8,514	2,876
496.00	5,112	5,791	14,306	5,278
498.00	7,468	12,506	26,812	7,699
500.00	10,226	17,622	44,433	10,536

#	Routing	Invert	Outlet Devices
1	Primary	496.00'	**3.0" Vert. Orifice/Grate** C= 0.600
2	Primary	498.10'	**5.0' long x 2.0' high Sharp-Crested Rectangular Weir** 2 End Contraction(s)

Primary OutFlow Max=1.24 cfs @ 12.73 hrs HW=498.24' TW=482.51' (Dynamic Tailwater)
1=Orifice/Grate (Orifice Controls 0.34 cfs @ 7.0 fps)
2=Sharp-Crested Rectangular Weir (Weir Controls 0.90 cfs @ 1.3 fps)

Pond p21-5:

Inflow Area = 2.398 ac, Inflow Depth = 1.23" for 2-yr event
Inflow = 2.59 cfs @ 12.20 hrs, Volume= 0.246 af
Primary = 2.59 cfs @ 12.20 hrs, Volume= 0.246 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

Pond p21-6:

Inflow Area = 6.182 ac, Inflow Depth = 1.51" for 2-yr event
Inflow = 6.59 cfs @ 12.24 hrs, Volume= 0.780 af
Outflow = 0.97 cfs @ 13.43 hrs, Volume= 0.773 af, Atten= 85%, Lag= 71.3 min
Primary = 0.97 cfs @ 13.43 hrs, Volume= 0.773 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Starting Elev= 492.00' Surf.Area= 3,323 sf Storage= 4,847 cf
Peak Elev= 494.11' @ 13.43 hrs Surf.Area= 12,339 sf Storage= 22,242 cf (17,395 cf above start)
Flood Elev= 495.00' Surf.Area= 13,824 sf Storage= 34,456 cf (29,609 cf above start)
Plug-Flow detention time= 685.3 min calculated for 0.661 af (85% of inflow)
Center-of-Mass det. time= 516.0 min (1,350.5 - 834.5)

#	Invert	Avail.Storage	Storage Description
1	488.00'	48,245 cf	**Custom Stage Data (Conic)** Listed below

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
488.00	296	0	0	296
490.00	924	1,162	1,162	946
490.50	1,110	508	1,670	1,141
492.00	3,323	3,177	4,847	3,367
492.50	6,166	2,336	7,182	6,212
494.00	12,147	13,484	20,666	12,214
496.00	15,500	27,579	48,245	15,669

#	Routing	Invert	Outlet Devices
1	Primary	492.00'	**3.0" Vert. Orifice/Grate** C= 0.600
2	Primary	494.00'	**5.0' long x 2.0' high Sharp-Crested Rectangular Weir** 2 End Contraction(s)

Primary OutFlow Max=0.97 cfs @ 13.43 hrs HW=494.11' TW=482.79' (Dynamic Tailwater)
├─**1=Orifice/Grate** (Orifice Controls 0.33 cfs @ 6.8 fps)
└─**2=Sharp-Crested Rectangular Weir** (Weir Controls 0.63 cfs @ 1.1 fps)

Pond p21-7:

Inflow Area = 8.355 ac, Inflow Depth = 1.85" for 2-yr event
Inflow = 15.45 cfs @ 12.04 hrs, Volume= 1.291 af
Outflow = 1.42 cfs @ 13.09 hrs, Volume= 1.277 af, Atten= 91%, Lag= 63.1 min
Primary = 1.42 cfs @ 13.09 hrs, Volume= 1.277 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Starting Elev= 492.00' Surf.Area= 3,941 sf Storage= 8,984 cf
Peak Elev= 496.54' @ 13.09 hrs Surf.Area= 9,503 sf Storage= 39,167 cf (30,183 cf above start)
Flood Elev= 499.00' Surf.Area= 13,379 sf Storage= 67,369 cf (58,385 cf above start)
Plug-Flow detention time= 748.9 min calculated for 1.071 af (83% of inflow)
Center-of-Mass det. time= 548.4 min (1,327.1 - 778.7)

#	Invert	Avail.Storage	Storage Description
1	486.00'	80,712 cf	**Custom Stage Data (Conic)** Listed below

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
486.00	478	0	0	478
488.00	964	1,414	1,414	999
490.00	1,601	2,538	3,952	1,684
490.50	1,782	845	4,797	1,879
492.00	3,941	4,187	8,984	4,056
494.00	6,120	9,981	18,965	6,292
496.00	8,702	14,746	33,712	8,944
498.00	11,686	20,315	54,027	12,012
500.00	15,071	26,685	80,712	15,495

#	Routing	Invert	Outlet Devices
1	Primary	492.00'	**3.0" Vert. Orifice/Grate** C= 0.600
2	Primary	496.05'	**6.0" Vert. Orifice/Grate X 2.00** C= 0.600
3	Primary	498.00'	**5.0' long x 6.0' high Sharp-Crested Rectangular Weir** 2 End Contraction(s)

Primary OutFlow Max=1.42 cfs @ 13.09 hrs HW=496.54' TW=482.69' (Dynamic Tailwater)
├─**1=Orifice/Grate** (Orifice Controls 0.50 cfs @ 10.1 fps)
├─**2=Orifice/Grate** (Orifice Controls 0.93 cfs @ 2.4 fps)
└─**3=Sharp-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond p22-1:

Field Note #54
Golf Pond
Geometry to be confirmed by survey

Pond unchanged from existing to proposed conditions

Inflow Area = 78.382 ac, Inflow Depth = 0.83" for 2-yr event
Inflow = 37.07 cfs @ 12.32 hrs, Volume= 5.397 af
Outflow = 36.21 cfs @ 12.39 hrs, Volume= 5.099 af, Atten= 2%, Lag= 3.9 min
Primary = 36.21 cfs @ 12.39 hrs, Volume= 5.099 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Starting Elev= 498.10' Surf.Area= 6,520 sf Storage= 10,106 cf
Peak Elev= 501.19' @ 12.39 hrs Surf.Area= 10,261 sf Storage= 36,138 cf (26,032 cf above start)
Plug-Flow detention time= 103.7 min calculated for 4.866 af (90% of inflow)
Center-of-Mass det. time= 42.4 min (950.0 - 907.7)

#	Invert	Avail.Storage	Storage Description
1	495.00'	143,770 cf	**Custom Stage Data (Prismatic)** Listed below

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
495.00	0	0	0
498.10	6,520	10,106	10,106
500.00	8,390	14,164	24,270
502.00	11,530	19,920	44,190
504.00	14,530	26,060	70,250
506.00	18,340	32,870	103,120
508.00	22,310	40,650	143,770

#	Routing	Invert	Outlet Devices
1	Primary	499.75'	**18.0" x 21.0' long Culvert** CMP, projecting, no headwall, Ke= 0.900 Outlet Invert= 499.75' S= 0.0000 '/' n= 0.024 Cc= 0.900
2	Primary	500.50'	**1.0' long x 15.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.68 2.70 2.70 2.64 2.63 2.64 2.64 2.63
3	Primary	500.50'	**20.0' long x 13.5' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.62 2.66 2.70 2.66 2.65 2.66 2.65 2.63

Primary OutFlow Max=36.21 cfs @ 12.39 hrs HW=501.19' TW=482.25' (Dynamic Tailwater)
1=Culvert (Barrel Controls 3.84 cfs @ 2.8 fps)
2=Broad-Crested Rectangular Weir (Weir Controls 1.54 cfs @ 2.2 fps)
3=Broad-Crested Rectangular Weir (Weir Controls 30.83 cfs @ 2.2 fps)

Pond p23-1:

Inflow Area = 29.123 ac, Inflow Depth = 1.06" for 2-yr event
Inflow = 16.95 cfs @ 12.58 hrs, Volume= 2.563 af
Outflow = 14.23 cfs @ 12.79 hrs, Volume= 1.848 af, Atten= 16%, Lag= 12.7 min
Primary = 14.23 cfs @ 12.79 hrs, Volume= 1.848 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Peak Elev= 507.79' @ 12.79 hrs Surf.Area= 14,065 sf Storage= 32,176 cf
Plug-Flow detention time= 161.1 min calculated for 1.848 af (72% of inflow)
Center-of-Mass det. time= 60.0 min (954.9 - 894.8)

#	Invert	Avail.Storage	Storage Description
1	503.50'	68,915 cf	**Custom Stage Data (Conic)** Listed below

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
503.50	0	0	0	0
504.00	2,390	398	398	2,390
506.00	9,090	10,761	11,159	9,110
508.00	14,660	23,529	34,688	14,732
510.00	19,690	34,227	68,915	19,847

#	Routing	Invert	Outlet Devices
1	Primary	507.70'	**178.0 deg x 178.0' long Sharp-Crested Vee/Trap Weir** C= 2.46

Primary OutFlow Max=14.22 cfs @ 12.79 hrs HW=507.79' TW=506.97' (Dynamic Tailwater)
1=Sharp-Crested Vee/Trap Weir (Weir Controls 14.22 cfs @ 0.9 fps)

Pond p23-2:

Inflow Area = 16.094 ac, Inflow Depth = 2.19" for 2-yr event
Inflow = 40.54 cfs @ 12.06 hrs, Volume= 2.932 af
Outflow = 2.33 cfs @ 13.94 hrs, Volume= 2.128 af, Atten= 94%, Lag= 113.1 min
Primary = 2.33 cfs @ 13.94 hrs, Volume= 2.128 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Starting Elev= 508.00' Surf.Area= 7,318 sf Storage= 15,927 cf
Peak Elev= 513.04' @ 13.94 hrs Surf.Area= 20,869 sf Storage= 97,221 cf (81,294 cf above start)
Flood Elev= 515.00' Surf.Area= 24,788 sf Storage= 141,986 cf (126,059 cf above start)
Plug-Flow detention time= 917.1 min calculated for 1.762 af (60% of inflow)
Center-of-Mass det. time= 657.6 min (1,442.0 - 784.4)

#	Invert	Avail.Storage	Storage Description
1	502.00'	166,746 cf	**Custom Stage Data (Conic)** Listed below

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
502.00	826	0	0	826
504.00	1,667	2,444	2,444	1,702
506.00	2,788	4,407	6,852	2,872
506.50	3,112	1,474	8,326	3,210
508.00	7,318	7,601	15,927	7,432
508.50	12,618	4,924	20,851	12,735
510.00	15,208	20,839	41,690	15,400
512.00	18,859	34,002	75,692	19,166
514.00	22,736	41,535	117,227	23,175
516.00	26,840	49,519	166,746	27,428

#	Routing	Invert	Outlet Devices
1	Primary	508.00'	**3.0" Vert. Orifice/Grate** C= 0.600
2	Primary	512.55'	**12.0" Vert. Orifice/Grate X 2.00** C= 0.600
3	Primary	514.00'	**20.0' long x 6.0' high Sharp-Crested Rectangular Weir** 2 End Contraction(s)

Primary OutFlow Max=2.33 cfs @ 13.94 hrs HW=513.04' TW=482.90' (Dynamic Tailwater)
—**1=Orifice/Grate** (Orifice Controls 0.52 cfs @ 10.7 fps)
—**2=Orifice/Grate** (Orifice Controls 1.80 cfs @ 2.4 fps)
—**3=Sharp-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond zDP1: Design Point 1

Field note #10.
Culvert dimensions to be confirmed by survey.

Inflow Area = 26.658 ac, Inflow Depth = 1.07" for 2-yr event
Inflow = 10.95 cfs @ 12.56 hrs, Volume= 2.377 af
Outflow = 10.95 cfs @ 12.56 hrs, Volume= 2.377 af, Atten= 0%, Lag= 0.0 min
Primary = 10.95 cfs @ 12.56 hrs, Volume= 2.377 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Peak Elev= 721.30' @ 12.56 hrs Surf.Area= 57 sf Storage= 36 cf
Flood Elev= 727.00' Surf.Area= 1,105 sf Storage= 2,619 cf
Plug-Flow detention time= 0.2 min calculated for 2.377 af (100% of inflow)
Center-of-Mass det. time= 0.1 min (997.2 - 997.1)

#	Invert	Avail.Storage	Storage Description
1	720.10'	3,706 cf	**Custom Stage Data (Conic)** Listed below

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
720.10	0	0	0	0
722.00	90	57	57	96
724.00	340	403	460	364
726.00	760	1,072	1,533	815
728.00	1,450	2,173	3,706	1,543

#	Routing	Invert	Outlet Devices
1	Primary	720.10'	**42.0" x 120.0' long Culvert** CMP, square edge headwall, Ke= 0.500 Outlet Invert= 700.00' S= 0.1675 '/' n= 0.024 Cc= 0.900
2	Primary	727.00'	**155.0 deg Sharp-Crested Vee/Trap Weir** C= 2.47

Primary OutFlow Max=10.95 cfs @ 12.56 hrs HW=721.30' TW=686.13' (Dynamic Tailwater)
1=Culvert (Inlet Controls 10.95 cfs @ 3.7 fps)
2=Sharp-Crested Vee/Trap Weir (Controls 0.00 cfs)

Pond zDP2: Design Point 2

Field Note #15
Culvert dimensions to be confirmed by survey
Overflow to ditch is currently discarded... We may have to model that area...

Inflow Area = 93.367 ac, Inflow Depth = 0.70" for 2-yr event
Inflow = 24.04 cfs @ 12.94 hrs, Volume= 5.478 af
Outflow = 24.00 cfs @ 12.95 hrs, Volume= 5.478 af, Atten= 0%, Lag= 1.0 min
Discarded = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Primary = 24.00 cfs @ 12.95 hrs, Volume= 5.478 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Peak Elev= 623.12' @ 12.95 hrs Surf.Area= 539 sf Storage= 760 cf
Flood Elev= 624.50' Surf.Area= 925 sf Storage= 1,728 cf
Plug-Flow detention time= 0.4 min calculated for 5.478 af (100% of inflow)
Center-of-Mass det. time= 0.2 min (938.2 - 937.9)

#	Invert	Avail.Storage	Storage Description
1	619.60'	7,280 cf	**Custom Stage Data (Conic)** Listed below

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
619.60	0	0	0	0
620.00	10	1	1	10
622.00	260	214	215	269
624.00	760	976	1,192	793
626.00	1,420	2,146	3,338	1,492
628.00	2,580	3,943	7,280	2,694

#	Routing	Invert	Outlet Devices
1	Primary	619.60'	**24.0" x 150.0' long Culvert** RCP, end-section conforming to fill, Ke= 0.500 Outlet Invert= 608.00' S= 0.0773 '/' n= 0.012 Cc= 0.900
2	Discarded	624.50'	**166.0 deg Sharp-Crested Vee/Trap Weir** C= 2.46

Discarded OutFlow Max=0.00 cfs @ 0.00 hrs HW=619.60' (Free Discharge)
└─**2=Sharp-Crested Vee/Trap Weir** (Controls 0.00 cfs)

Primary OutFlow Max=24.00 cfs @ 12.95 hrs HW=623.12' TW=607.57' (Dynamic Tailwater)
└─**1=Culvert** (Inlet Controls 24.00 cfs @ 7.6 fps)

Pond zDP3: Design Point 3

Inflow Area =	228.471 ac, Inflow Depth = 17.42"	for 2-yr event	
Inflow =	121.12 cfs @ 12.92 hrs, Volume=	331.646 af	
Primary =	121.12 cfs @ 12.92 hrs, Volume=	331.646 af,	Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

Pond zDP4: Design Point 4

Inflow Area =	459.188 ac, Inflow Depth = 0.67"	for 2-yr event	
Inflow =	14.96 cfs @ 16.77 hrs, Volume=	25.820 af	
Primary =	14.96 cfs @ 16.77 hrs, Volume=	25.820 af,	Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

Pond zDP5: Design Point 5

Inflow Area =	28.325 ac, Inflow Depth = 0.95"	for 2-yr event	
Inflow =	16.05 cfs @ 12.48 hrs, Volume=	2.235 af	
Primary =	16.05 cfs @ 12.48 hrs, Volume=	2.235 af,	Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

Post-Development Conditions
10 year 24 hour Storm Event
Model Computations

Subcatchment s01-0:

Runoff = 11.66 cfs @ 12.61 hrs, Volume= 1.799 af, Depth= 1.88"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-yr Rainfall=5.00"

Area (ac)	CN	Description
11.485	68	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
42.8					**Direct Entry,**

Subcatchment s02-1:

Runoff = 60.88 cfs @ 12.87 hrs, Volume= 11.794 af, Depth= 1.65"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-yr Rainfall=5.00"

Area (ac)	CN	Description
85.591	65	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
61.3					**Direct Entry,**

Subcatchment s02-2:

Runoff = 8.59 cfs @ 12.44 hrs, Volume= 1.120 af, Depth= 1.73"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-yr Rainfall=5.00"

Area (ac)	CN	Description
7.776	66	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
29.4					**Direct Entry,**

Subcatchment s02-3:

Runoff = 19.21 cfs @ 12.02 hrs, Volume= 1.181 af, Depth= 3.47"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-yr Rainfall=5.00"

Area (ac)	CN	Description
4.088	86	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.6					**Direct Entry,**

Subcatchment s03-1:

Runoff = 14.04 cfs @ 12.42 hrs, Volume= 1.771 af, Depth= 2.04"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-yr Rainfall=5.00"

Area (ac)	CN	Description
10.435	70	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
28.8					**Direct Entry,**

Subcatchment s03-2:

Runoff = 9.82 cfs @ 12.02 hrs, Volume= 0.595 af, Depth= 2.36"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-yr Rainfall=5.00"

Area (ac)	CN	Description
3.021	74	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.5					**Direct Entry,**

Subcatchment s03-2(IC): s03-2 Impervious Cover

Runoff = 9.55 cfs @ 12.02 hrs, Volume= 0.660 af, Depth= 4.76"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-yr Rainfall=5.00"

Area (ac)	CN	Description
1.663	98	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.5					**Direct Entry,**

Subcatchment s03-2(OW): s03-2 Open Water

Runoff = 0.32 cfs @ 12.00 hrs, Volume= 0.022 af, Depth= 5.00"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-yr Rainfall=5.00"

Area (ac)	CN	Description
0.054	100	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.0					**Direct Entry,**

Subcatchment s04-1:

Runoff = 16.12 cfs @ 12.10 hrs, Volume= 1.182 af, Depth= 1.88"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-yr Rainfall=5.00"

Area (ac)	CN	Description
7.549	68	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.1					**Direct Entry,**

Subcatchment s05-1:

Runoff = 7.60 cfs @ 12.21 hrs, Volume= 0.781 af, Depth= 1.37"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-yr Rainfall=5.00"

Area (ac)	CN	Description
6.842	61	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
14.4					**Direct Entry,**

Subcatchment s06-0:

Runoff = 9.91 cfs @ 12.26 hrs, Volume= 1.080 af, Depth= 1.44"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-yr Rainfall=5.00"

Area (ac)	CN	Description
9.007	62	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
17.3					**Direct Entry,**

Subcatchment s06-0(OW): s06 Open Water

Runoff = 2.57 cfs @ 12.00 hrs, Volume= 0.178 af, Depth= 5.00"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-yr Rainfall=5.00"

Area (ac)	CN	Description
0.428	100	

Subcatchment s07-1:

Runoff = 7.24 cfs @ 12.14 hrs, Volume= 0.613 af, Depth= 1.58"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-yr Rainfall=5.00"

Area (ac)	CN	Description
4.656	64	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.3					**Direct Entry,**

Subcatchment s07-1(OW): s07 Open Water

Runoff = 3.04 cfs @ 12.00 hrs, Volume= 0.211 af, Depth= 5.00"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-yr Rainfall=5.00"

Area (ac)	CN	Description
0.506	100	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.0					**Direct Entry,**

Subcatchment s08-1:

Runoff = 19.51 cfs @ 12.39 hrs, Volume= 2.507 af, Depth= 1.30"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-yr Rainfall=5.00"

Area (ac)	CN	Description
23.126	60	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
24.5					**Direct Entry,**

Subcatchment s08-2:

Runoff = 12.28 cfs @ 12.17 hrs, Volume= 1.126 af, Depth= 1.51"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-yr Rainfall=5.00"

Area (ac)	CN	Description
8.958	63	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
11.4					**Direct Entry,**

Subcatchment s08-2(IC):

Runoff = 30.19 cfs @ 12.04 hrs, Volume= 2.193 af, Depth= 4.76"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-yr Rainfall=5.00"

Area (ac)	CN	Description
5.524	98	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
2.9					**Direct Entry,**

Subcatchment s08-2(OW):

Runoff = 1.15 cfs @ 12.00 hrs, Volume= 0.080 af, Depth= 5.00"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-yr Rainfall=5.00"

Area (ac)	CN	Description
0.192	100	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.0					**Direct Entry,**

Subcatchment s08-3:

Runoff = 1.93 cfs @ 12.20 hrs, Volume= 0.194 af, Depth= 1.37"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-yr Rainfall=5.00"

Area (ac)	CN	Description
1.700	61	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
13.6					**Direct Entry,**

Subcatchment s08-3(IC): s08-3 Impervious Cover

Runoff = 6.33 cfs @ 12.01 hrs, Volume= 0.431 af, Depth= 4.76"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-yr Rainfall=5.00"

Area (ac)	CN	Description
1.086	98	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.0					**Direct Entry,**

Subcatchment s08-3(OW): s08-3 Open Water

Runoff = 0.25 cfs @ 12.00 hrs, Volume= 0.018 af, Depth= 5.00"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-yr Rainfall=5.00"

Area (ac)	CN	Description
0.042	100	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.0					**Direct Entry,**

Subcatchment s09-1:

Runoff = 3.19 cfs @ 12.14 hrs, Volume= 0.282 af, Depth= 1.30"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-yr Rainfall=5.00"

Area (ac)	CN	Description
2.604	60	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.0					**Direct Entry,**

Subcatchment s09-2:

Runoff = 25.15 cfs @ 12.30 hrs, Volume= 2.796 af, Depth= 1.80"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-yr Rainfall=5.00"

Area (ac)	CN	Description
18.608	67	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
20.6					**Direct Entry,**

Subcatchment s09-2(IC): s09-2 Impervious Cover

Runoff = 12.95 cfs @ 12.04 hrs, Volume= 0.927 af, Depth= 4.76"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-yr Rainfall=5.00"

Area (ac)	CN	Description
2.336	98	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
2.5					**Direct Entry,**

Subcatchment s09-2(OW): s09-2 Open Water

Runoff = 1.42 cfs @ 12.00 hrs, Volume= 0.098 af, Depth= 5.00"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-yr Rainfall=5.00"

Area (ac)	CN	Description
0.236	100	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.0					**Direct Entry,**

Subcatchment s09-3:

Runoff = 6.91 cfs @ 12.16 hrs, Volume= 0.598 af, Depth= 1.88"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-yr Rainfall=5.00"

Area (ac)	CN	Description
3.818	68	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.9					**Direct Entry,**

Subcatchment s10-1:

Runoff = 10.01 cfs @ 12.42 hrs, Volume= 1.259 af, Depth= 1.88"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-yr Rainfall=5.00"

Area (ac)	CN	Description
8.038	68	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
27.9					**Direct Entry,**

Subcatchment s10-1(OW): s10 Open Water

Runoff = 4.98 cfs @ 12.00 hrs, Volume= 0.346 af, Depth= 5.00"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-yr Rainfall=5.00"

Area (ac)	CN	Description
0.830	100	

Subcatchment s13-1:

Runoff = 5.83 cfs @ 12.05 hrs, Volume= 0.406 af, Depth= 1.37"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-yr Rainfall=5.00"

Area (ac)	CN	Description
3.555	61	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
2.8					**Direct Entry,**

Subcatchment s13-1(IC): s13-1 Impervious Cover

Runoff = 34.89 cfs @ 12.04 hrs, Volume= 2.524 af, Depth= 4.76"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-yr Rainfall=5.00"

Area (ac)	CN	Description
6.360	98	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
2.8					**Direct Entry,**

Subcatchment s13-1(OW): s13-1 Open Water

Runoff = 0.79 cfs @ 12.00 hrs, Volume= 0.055 af, Depth= 5.00"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-yr Rainfall=5.00"

Area (ac)	CN	Description
0.131	100	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.0					**Direct Entry,**

Subcatchment s14-1:

Runoff = 17.88 cfs @ 12.40 hrs, Volume= 2.239 af, Depth= 1.96"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-yr Rainfall=5.00"

Area (ac)	CN	Description
13.727	69	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
28.1					**Direct Entry,**

Subcatchment s14-1(IC): s14-1 Impervious Cover

Runoff = 10.28 cfs @ 12.03 hrs, Volume= 0.730 af, Depth= 4.76"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-yr Rainfall=5.00"

Area (ac)	CN	Description
1.840	98	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
2.3					**Direct Entry,**

Subcatchment s14-1(OW): s14 Open Water

Runoff = 3.11 cfs @ 12.00 hrs, Volume= 0.216 af, Depth= 5.00"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-yr Rainfall=5.00"

Area (ac)	CN	Description
0.518	100	

Subcatchment s14-2:

Runoff = 0.73 cfs @ 12.10 hrs, Volume= 0.058 af, Depth= 1.37"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-yr Rainfall=5.00"

Area (ac)	CN	Description
0.504	61	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.4					**Direct Entry,**

Subcatchment s14-2(OW): s14-2 Open Water

Runoff = 1.06 cfs @ 12.00 hrs, Volume= 0.073 af, Depth= 5.00"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-yr Rainfall=5.00"

Area (ac)	CN	Description
0.176	100	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.0					**Direct Entry,**

Subcatchment s14-3:

Runoff = 13.95 cfs @ 12.13 hrs, Volume= 1.108 af, Depth= 1.96"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-yr Rainfall=5.00"

Area (ac)	CN	Description
6.794	69	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.5					**Direct Entry,**

Subcatchment s14-3(IC): s14-3 Impervious Cover

Runoff = 46.24 cfs @ 12.04 hrs, Volume= 3.358 af, Depth= 4.76"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-yr Rainfall=5.00"

Area (ac)	CN	Description
8.460	98	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
2.9					**Direct Entry,**

Subcatchment s16-1:

Runoff = 55.45 cfs @ 12.27 hrs, Volume= 5.962 af, Depth= 1.80"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-yr Rainfall=5.00"

Area (ac)	CN	Description
39.680	67	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
19.0					**Direct Entry,**

Subcatchment s16-1(OW): s16-1 Open Water

Runoff = 32.12 cfs @ 12.00 hrs, Volume= 2.230 af, Depth= 5.00"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-yr Rainfall=5.00"

Area (ac)	CN	Description
5.351	100	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.0					**Direct Entry,**

Subcatchment s16-2:

Runoff = 4.78 cfs @ 12.22 hrs, Volume= 0.460 af, Depth= 2.54"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-yr Rainfall=5.00"

Area (ac)	CN	Description
2.176	76	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
15.8					**Direct Entry,**

Subcatchment s17-1:

Runoff = 5.70 cfs @ 12.51 hrs, Volume= 0.805 af, Depth= 1.58"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-yr Rainfall=5.00"

Area (ac)	CN	Description
6.110	64	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
33.8					**Direct Entry,**

Subcatchment s17-1(OW): s17-1 Open Water

Runoff = 0.98 cfs @ 12.00 hrs, Volume= 0.068 af, Depth= 5.00"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-yr Rainfall=5.00"

Area (ac)	CN	Description
0.164	100	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.0					**Direct Entry,**

Subcatchment s17-2:

Runoff = 42.48 cfs @ 13.30 hrs, Volume= 10.954 af, Depth= 1.73"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-yr Rainfall=5.00"

Area (ac)	CN	Description
76.086	66	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
95.7					**Direct Entry,**

Subcatchment s17-3:

Runoff = 32.40 cfs @ 12.45 hrs, Volume= 4.302 af, Depth= 1.73"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-yr Rainfall=5.00"

Area (ac)	CN	Description
29.880	66	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
30.7					**Direct Entry,**

Subcatchment s18-1:

Runoff = 10.66 cfs @ 12.24 hrs, Volume= 1.110 af, Depth= 1.58"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-yr Rainfall=5.00"

Area (ac)	CN	Description
8.429	64	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
16.4					**Direct Entry,**

Subcatchment s18-1(OW): s18-1 Open Water

Runoff = 2.83 cfs @ 12.00 hrs, Volume= 0.197 af, Depth= 5.00"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-yr Rainfall=5.00"

Area (ac)	CN	Description
0.472	100	

Subcatchment s18-2:

Runoff = 16.85 cfs @ 12.26 hrs, Volume= 1.749 af, Depth= 1.96"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-yr Rainfall=5.00"

Area (ac)	CN	Description
10.721	69	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
18.0					**Direct Entry,**

Subcatchment s19-0:

Runoff = 10.40 cfs @ 12.62 hrs, Volume= 1.683 af, Depth= 1.30"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-yr Rainfall=5.00"

Area (ac)	CN	Description
15.520	60	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
40.4					**Direct Entry,**

Subcatchment s20-1:

Runoff = 10.81 cfs @ 12.31 hrs, Volume= 1.232 af, Depth= 1.73"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-yr Rainfall=5.00"

Area (ac)	CN	Description
8.559	66	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
21.5					**Direct Entry,**

Subcatchment s20-1(OW): s20-1 Open Water

Runoff = 11.81 cfs @ 12.00 hrs, Volume= 0.820 af, Depth= 5.00"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-yr Rainfall=5.00"

Area (ac)	CN	Description
1.968	100	

Subcatchment s20-2:

Runoff = 20.70 cfs @ 12.12 hrs, Volume= 1.607 af, Depth= 2.36"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-yr Rainfall=5.00"

Area (ac)	CN	Description
8.157	74	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.4					**Direct Entry,**

Subcatchment s20-2(IC): s20-2 Impervious Cover

Runoff = 26.18 cfs @ 12.07 hrs, Volume= 2.029 af, Depth= 4.76"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-yr Rainfall=5.00"

Area (ac)	CN	Description
5.112	98	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.7					**Direct Entry,**

Subcatchment s20-2(OW): s20-2 Open Water

Runoff = 1.45 cfs @ 12.00 hrs, Volume= 0.101 af, Depth= 5.00"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-yr Rainfall=5.00"

Area (ac)	CN	Description
0.242	100	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.0					**Direct Entry,**

Subcatchment s20-3:

Runoff = 10.41 cfs @ 12.32 hrs, Volume= 1.169 af, Depth= 2.04"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-yr Rainfall=5.00"

Area (ac)	CN	Description
6.886	70	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
22.0					**Direct Entry,**

Subcatchment s21-1:

Runoff = 99.04 cfs @ 12.23 hrs, Volume= 10.015 af, Depth= 1.88"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-yr Rainfall=5.00"

Area (ac)	CN	Description
63.942	68	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
16.6					**Direct Entry,**

Subcatchment s21-1(OW):

Runoff = 73.44 cfs @ 12.00 hrs, Volume= 5.098 af, Depth= 5.00"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-yr Rainfall=5.00"

Area (ac)	CN	Description
12.235	100	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.0					**Direct Entry,**

Subcatchment s21-2:

Runoff = 27.14 cfs @ 12.46 hrs, Volume= 3.554 af, Depth= 2.04"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-yr Rainfall=5.00"

Area (ac)	CN	Description
20.941	70	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
31.4					**Direct Entry,**

Subcatchment s21-3:

Runoff = 19.87 cfs @ 12.16 hrs, Volume= 1.688 af, Depth= 2.36"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-yr Rainfall=5.00"

Area (ac)	CN	Description
8.567	74	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
11.2					**Direct Entry,**

Subcatchment s21-4:

Runoff = 5.37 cfs @ 12.20 hrs, Volume= 0.510 af, Depth= 1.80"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-yr Rainfall=5.00"

Area (ac)	CN	Description
3.392	67	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
13.8					**Direct Entry,**

Subcatchment s21-4(IC): s21-4 Impervious Cover

Runoff = 9.40 cfs @ 12.02 hrs, Volume= 0.652 af, Depth= 4.76"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-yr Rainfall=5.00"

Area (ac)	CN	Description
1.643	98	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.6					**Direct Entry,**

Subcatchment s21-4(OW): s21-4 Open Water

Runoff = 0.70 cfs @ 12.00 hrs, Volume= 0.049 af, Depth= 5.00"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-yr Rainfall=5.00"

Area (ac)	CN	Description
0.117	100	

Subcatchment s21-5:

Runoff = 5.34 cfs @ 12.19 hrs, Volume= 0.489 af, Depth= 2.45"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-yr Rainfall=5.00"

Area (ac)	CN	Description
2.398	75	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
13.9					**Direct Entry,**

Subcatchment s21-6:

Runoff = 11.52 cfs @ 12.24 hrs, Volume= 1.154 af, Depth= 2.54"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-yr Rainfall=5.00"

Area (ac)	CN	Description
5.463	76	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
17.5					**Direct Entry,**

Subcatchment s21-6(IC): s21-6 Impervious Cover

Runoff = 3.69 cfs @ 12.02 hrs, Volume= 0.255 af, Depth= 4.76"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-yr Rainfall=5.00"

Area (ac)	CN	Description
0.643	98	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.5					**Direct Entry,**

Subcatchment s21-6(OW): s21-6 Open Water

Runoff = 0.46 cfs @ 12.00 hrs, Volume= 0.032 af, Depth= 5.00"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-yr Rainfall=5.00"

Area (ac)	CN	Description
0.076	100	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.0					**Direct Entry,**

Subcatchment s21-7:

Runoff = 6.03 cfs @ 12.19 hrs, Volume= 0.576 af, Depth= 1.58"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-yr Rainfall=5.00"

Area (ac)	CN	Description
4.375	64	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
13.1					**Direct Entry,**

Subcatchment s21-7(IC): s21-7 Impervious Cover

Runoff = 21.56 cfs @ 12.04 hrs, Volume= 1.544 af, Depth= 4.76"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-yr Rainfall=5.00"

Area (ac)	CN	Description
3.890	98	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
2.5					**Direct Entry,**

Subcatchment s21-7(OW): s21-7 Open Water

Runoff = 0.54 cfs @ 12.00 hrs, Volume= 0.037 af, Depth= 5.00"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-yr Rainfall=5.00"

Area (ac)	CN	Description
0.090	100	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.0					**Direct Entry,**

Subcatchment s22-1:

Runoff = 34.67 cfs @ 12.20 hrs, Volume= 3.274 af, Depth= 2.20"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-yr Rainfall=5.00"

Area (ac)	CN	Description
17.878	72	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
14.7					**Direct Entry,**

Subcatchment s22-1(OW): s22-1 Open Water

Runoff = 0.82 cfs @ 12.00 hrs, Volume= 0.057 af, Depth= 5.00"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-yr Rainfall=5.00"

Area (ac)	CN	Description
0.136	100	

Subcatchment s22-2:

Runoff = 59.74 cfs @ 12.35 hrs, Volume= 7.025 af, Depth= 1.88"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-yr Rainfall=5.00"

Area (ac)	CN	Description
44.848	68	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
24.0					**Direct Entry,**

Subcatchment s23-1:

Runoff = 37.22 cfs @ 12.54 hrs, Volume= 5.334 af, Depth= 2.20"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-yr Rainfall=5.00"

Area (ac)	CN	Description
29.123	72	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
38.5					**Direct Entry,**

Subcatchment s23-2:

Runoff = 28.90 cfs @ 12.06 hrs, Volume= 1.911 af, Depth= 2.62"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-yr Rainfall=5.00"

Area (ac)	CN	Description
8.741	77	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.0					**Direct Entry,**

Subcatchment s23-2(IC): s23-2 Impervious Cover

Runoff = 37.73 cfs @ 12.06 hrs, Volume= 2.852 af, Depth= 4.76"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-yr Rainfall=5.00"

Area (ac)	CN	Description
7.185	98	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.0					**Direct Entry,**

Subcatchment s23-2(OW): s23-2 Open Water

Runoff = 1.01 cfs @ 12.00 hrs, Volume= 0.070 af, Depth= 5.00"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-yr Rainfall=5.00"

Area (ac)	CN	Description
0.168	100	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.0					**Direct Entry,**

Subcatchment s24-0:

Runoff = 37.09 cfs @ 12.45 hrs, Volume= 4.807 af, Depth= 2.04"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-yr Rainfall=5.00"

Area (ac)	CN	Description
28.325	70	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
30.7					**Direct Entry,**

Subcatchment s25-0:

Runoff = 17.56 cfs @ 12.30 hrs, Volume= 1.953 af, Depth= 1.73"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-yr Rainfall=5.00"

Area (ac)	CN	Description
13.562	66	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
20.2					**Direct Entry,**

Reach 25R:

Overland Flow Reach

Inflow Area = 15.520 ac, Inflow Depth = 1.30" for 10-yr event
Inflow = 5.84 cfs @ 13.14 hrs, Volume= 1.681 af
Outflow = 5.79 cfs @ 13.21 hrs, Volume= 1.681 af, Atten= 1%, Lag= 4.5 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Max. Velocity= 1.8 fps, Min. Travel Time= 5.6 min
Avg. Velocity = 0.6 fps, Avg. Travel Time= 16.9 min

Peak Depth= 0.21' @ 13.21 hrs
Capacity at bank full= 175.17 cfs
Inlet Invert= 560.00', Outlet Invert= 512.00'
50.00' x 1.00' deep Parabolic Channel, n= 0.060 Length= 620.0' Slope= 0.0774 '/'

Reach r03-1:

Overland Flow Reach
Requires more survey

Inflow Area = 11.485 ac, Inflow Depth = 1.88" for 10-yr event
Inflow = 11.66 cfs @ 12.61 hrs, Volume= 1.799 af
Outflow = 11.61 cfs @ 12.65 hrs, Volume= 1.799 af, Atten= 0%, Lag= 2.7 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Max. Velocity= 4.9 fps, Min. Travel Time= 2.6 min
Avg. Velocity = 1.9 fps, Avg. Travel Time= 6.7 min

Peak Depth= 0.57' @ 12.65 hrs
Capacity at bank full= 92.14 cfs
Inlet Invert= 845.00', Outlet Invert= 728.00'
10.00' x 1.50' deep Parabolic Channel, n= 0.060 Length= 785.0' Slope= 0.1490 '/'

Reach r04-1:

Channel

Inflow Area = 26.658 ac, Inflow Depth = 2.18" for 10-yr event
Inflow = 26.58 cfs @ 12.52 hrs, Volume= 4.843 af
Outflow = 26.56 cfs @ 12.52 hrs, Volume= 4.843 af, Atten= 0%, Lag= 0.5 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Max. Velocity= 7.1 fps, Min. Travel Time= 0.8 min
Avg. Velocity = 2.0 fps, Avg. Travel Time= 2.8 min

Peak Depth= 0.96' @ 12.52 hrs
Capacity at bank full= 530.15 cfs
Inlet Invert= 685.50', Outlet Invert= 632.00'
12.00' x 4.00' deep Parabolic Channel, n= 0.060 Length= 330.0' Slope= 0.1621 '/'

Reach r08-1a:

Man Made Ditch
Inverts of pipe to be surveyed

Inflow Area = 93.367 ac, Inflow Depth = 1.42" for 10-yr event
Inflow = 34.13 cfs @ 12.87 hrs, Volume= 11.019 af
Outflow = 34.13 cfs @ 12.88 hrs, Volume= 11.019 af, Atten= 0%, Lag= 0.3 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Max. Velocity= 9.4 fps, Min. Travel Time= 0.4 min
Avg. Velocity = 5.0 fps, Avg. Travel Time= 0.8 min

Peak Depth= 0.67' @ 12.88 hrs
Capacity at bank full= 81.88 cfs
Inlet Invert= 607.00', Outlet Invert= 587.00'
10.00' x 1.00' deep Parabolic Channel, n= 0.027 Length= 226.0' Slope= 0.0885 '/'

Reach r08-1b:

24" HDPE
Inverts to be surveyed

Inflow Area = 93.367 ac, Inflow Depth = 1.42" for 10-yr event
Inflow = 34.13 cfs @ 12.88 hrs, Volume= 11.019 af
Outflow = 34.13 cfs @ 12.88 hrs, Volume= 11.019 af, Atten= 0%, Lag= 0.1 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Max. Velocity= 23.8 fps, Min. Travel Time= 0.2 min
Avg. Velocity = 13.1 fps, Avg. Travel Time= 0.4 min

Peak Depth= 0.93' @ 12.88 hrs
Capacity at bank full= 77.17 cfs
Inlet Invert= 587.00', Outlet Invert= 557.75'
24.0" Diameter Pipe n= 0.012 Length= 295.0' Slope= 0.0992 '/'

Reach r08-1c:

Ditch
Pipe inverts to be surveyed

Inflow Area = 93.367 ac, Inflow Depth = 1.42" for 10-yr event
Inflow = 34.13 cfs @ 12.88 hrs, Volume= 11.019 af
Outflow = 34.13 cfs @ 12.89 hrs, Volume= 11.019 af, Atten= 0%, Lag= 0.6 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Max. Velocity= 9.0 fps, Min. Travel Time= 1.1 min
Avg. Velocity = 4.5 fps, Avg. Travel Time= 2.2 min

Peak Depth= 0.69' @ 12.89 hrs
Capacity at bank full= 76.65 cfs
Inlet Invert= 557.75', Outlet Invert= 512.00'
10.00' x 1.00' deep Parabolic Channel, n= 0.027 Length= 590.0' Slope= 0.0775 '/'

Reach r08-1d: Amenia Creek/Cascade Brook

(Steam) parallel to Route 22
Base Flow estimated from field observation (see field note 21)

Inflow Area = 114.957 ac, Inflow Depth = 18.19" for 10-yr event
Inflow = 85.81 cfs @ 12.62 hrs, Volume= 174.279 af, Incl. 40.00 cfs Base Flow
Outflow = 85.72 cfs @ 12.68 hrs, Volume= 174.034 af, Atten= 0%, Lag= 3.6 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Max. Velocity= 3.7 fps, Min. Travel Time= 3.6 min
Avg. Velocity = 3.1 fps, Avg. Travel Time= 4.3 min

Peak Depth= 3.63' @ 12.68 hrs
Capacity at bank full= 104.49 cfs
Inlet Invert= 512.00', Outlet Invert= 504.00'
10.00' x 4.00' deep Parabolic Channel, n= 0.060 Length= 805.0' Slope= 0.0099 '/'

Reach r13-1:

Inflow Area = 2.176 ac, Inflow Depth = 2.54" for 10-yr event
Inflow = 4.78 cfs @ 12.22 hrs, Volume= 0.460 af
Outflow = 4.73 cfs @ 12.24 hrs, Volume= 0.460 af, Atten= 1%, Lag= 1.3 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Max. Velocity= 8.5 fps, Min. Travel Time= 1.8 min
Avg. Velocity = 3.2 fps, Avg. Travel Time= 4.7 min

Peak Depth= 0.53' @ 12.24 hrs
Capacity at bank full= 17.79 cfs
Inlet Invert= 546.00', Outlet Invert= 524.00'
18.0" Diameter Pipe n= 0.012 Length= 900.0' Slope= 0.0244 '/'

Reach r14-3a:

30" HDPE Under Main Entrance Road

Inflow Area = 6.422 ac, Inflow Depth = 1.65" for 10-yr event
Inflow = 10.01 cfs @ 12.17 hrs, Volume= 0.880 af
Outflow = 9.99 cfs @ 12.17 hrs, Volume= 0.880 af, Atten= 0%, Lag= 0.4 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Max. Velocity= 12.6 fps, Min. Travel Time= 0.6 min
Avg. Velocity = 4.9 fps, Avg. Travel Time= 1.5 min

Peak Depth= 0.55' @ 12.17 hrs
Capacity at bank full= 94.91 cfs
Inlet Invert= 526.00', Outlet Invert= 505.70'
30.0" Diameter Pipe n= 0.012 Length= 445.0' Slope= 0.0456 '/'

Reach r14-3b:

Grass lined channel

Inflow Area = 6.422 ac, Inflow Depth = 1.65" for 10-yr event
Inflow = 10.08 cfs @ 12.15 hrs, Volume= 0.880 af
Outflow = 10.01 cfs @ 12.17 hrs, Volume= 0.880 af, Atten= 1%, Lag= 0.8 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Max. Velocity= 6.0 fps, Min. Travel Time= 1.0 min
Avg. Velocity = 2.3 fps, Avg. Travel Time= 2.6 min

Peak Depth= 0.58' @ 12.17 hrs
Capacity at bank full= 325.42 cfs
Inlet Invert= 542.00', Outlet Invert= 526.00'
10.00' x 3.00' deep Parabolic Channel, n= 0.027 Length= 360.0' Slope= 0.0444 '/'

Reach r17-1:

Inflow Area = 76.086 ac, Inflow Depth = 1.73" for 10-yr event
Inflow = 42.48 cfs @ 13.30 hrs, Volume= 10.954 af
Outflow = 42.38 cfs @ 13.39 hrs, Volume= 10.954 af, Atten= 0%, Lag= 5.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Max. Velocity= 7.4 fps, Min. Travel Time= 3.2 min
Avg. Velocity = 3.0 fps, Avg. Travel Time= 7.7 min

Peak Depth= 1.01' @ 13.39 hrs
Capacity at bank full= 181.28 cfs
Inlet Invert= 646.00', Outlet Invert= 524.00'
12.00' x 2.00' deep Parabolic Channel, n= 0.045 Length= 1,390.0' Slope= 0.0878 '/'

Reach r18-2:

Overland Flow Reach

Inflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Outflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Max. Velocity= 0.0 fps, Min. Travel Time= 0.0 min
Avg. Velocity = 0.0 fps, Avg. Travel Time= 0.0 min

Peak Depth= 0.00' @ 0.00 hrs
Capacity at bank full= 434.91 cfs
Inlet Invert= 973.60', Outlet Invert= 630.00'
50.00' x 1.00' deep Parabolic Channel, n= 0.060 Length= 720.0' Slope= 0.4772 '/'

Reach r21-1a:

Man Made Ditch

Inflow Area = 207.817 ac, Inflow Depth = 1.16" for 10-yr event
Inflow = 15.24 cfs @ 18.09 hrs, Volume= 20.073 af
Outflow = 15.24 cfs @ 18.12 hrs, Volume= 20.059 af, Atten= 0%, Lag= 1.7 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Max. Velocity= 4.6 fps, Min. Travel Time= 2.3 min
Avg. Velocity = 2.9 fps, Avg. Travel Time= 3.8 min

Peak Depth= 0.90' @ 18.12 hrs
Capacity at bank full= 191.76 cfs
Inlet Invert= 504.00', Outlet Invert= 494.00'
10.00' x 3.00' deep Parabolic Channel, n= 0.027 Length= 648.0' Slope= 0.0154 '/'

Reach r21-1b:

Overland Flow Reach

Inflow Area = 29.123 ac, Inflow Depth = 1.90" for 10-yr event
Inflow = 37.19 cfs @ 12.55 hrs, Volume= 4.619 af
Outflow = 37.17 cfs @ 12.56 hrs, Volume= 4.619 af, Atten= 0%, Lag= 0.6 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Max. Velocity= 3.9 fps, Min. Travel Time= 0.7 min
Avg. Velocity = 1.5 fps, Avg. Travel Time= 1.8 min

Peak Depth= 0.43' @ 12.56 hrs
Capacity at bank full= 227.81 cfs
Inlet Invert= 506.70', Outlet Invert= 485.75'
50.00' x 1.00' deep Parabolic Channel, n= 0.060 Length= 160.0' Slope= 0.1309 '/'

Reach r22-2:

Overland Flow Reach

Inflow Area =	15.520 ac, Inflow Depth = 1.30"	for 10-yr event	
Inflow =	5.85 cfs @ 13.10 hrs, Volume=	1.681 af	
Outflow =	5.84 cfs @ 13.14 hrs, Volume=	1.681 af,	Atten= 0%, Lag= 2.1 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Max. Velocity= 3.7 fps, Min. Travel Time= 2.9 min
Avg. Velocity = 1.3 fps, Avg. Travel Time= 8.2 min

Peak Depth= 0.13' @ 13.14 hrs
Capacity at bank full= 469.25 cfs
Inlet Invert= 970.00', Outlet Invert= 620.00'
50.00' x 1.00' deep Parabolic Channel, n= 0.060 Length= 630.0' Slope= 0.5556 '/'

Reach r25-0a:

Ditch
Pipe inverts need to be surveyed

Inflow Area =	67.391 ac, Inflow Depth = 1.93"	for 10-yr event	
Inflow =	33.69 cfs @ 12.53 hrs, Volume=	10.850 af	
Outflow =	33.68 cfs @ 12.56 hrs, Volume=	10.847 af,	Atten= 0%, Lag= 1.6 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Max. Velocity= 9.0 fps, Min. Travel Time= 2.0 min
Avg. Velocity = 3.2 fps, Avg. Travel Time= 5.7 min

Peak Depth= 0.85' @ 12.56 hrs
Capacity at bank full= 205.50 cfs
Inlet Invert= 570.00', Outlet Invert= 504.00'
10.00' x 2.00' deep Parabolic Channel, n= 0.027 Length= 1,090.0' Slope= 0.0606 '/'

Reach r25-0b: Wetland Reach

Wetland Reach
Has wetland vegetation within reach

Inflow Area =	9.435 ac, Inflow Depth = 1.56"	for 10-yr event	
Inflow =	8.28 cfs @ 12.43 hrs, Volume=	1.229 af	
Outflow =	7.38 cfs @ 12.56 hrs, Volume=	1.228 af,	Atten= 11%, Lag= 7.7 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Max. Velocity= 1.6 fps, Min. Travel Time= 8.0 min
Avg. Velocity = 0.4 fps, Avg. Travel Time= 29.5 min

Peak Depth= 0.72' @ 12.56 hrs
Capacity at bank full= 156.51 cfs
Inlet Invert= 504.00', Outlet Invert= 499.50'
20.00' x 3.00' deep Parabolic Channel, n= 0.045 Length= 750.0' Slope= 0.0060 '/'

Reach r25-0c: Amenia Creek/Cascade Brook

(Steam) parallel to Route 22
Base Flow estimated from field observation (see field note 21)

Inflow Area =	138.083 ac,	Inflow Depth = 29.13"	for 10-yr event		
Inflow =	141.71 cfs @	12.52 hrs,	Volume=	335.252 af,	Incl. 40.00 cfs Base Flow
Outflow =	140.23 cfs @	12.62 hrs,	Volume=	334.568 af,	Atten= 1%, Lag= 6.3 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Max. Velocity= 2.9 fps, Min. Travel Time= 5.6 min
Avg. Velocity = 2.7 fps, Avg. Travel Time= 6.1 min

Peak Depth= 6.16' @ 12.62 hrs
Capacity at bank full= 67.14 cfs
Inlet Invert= 504.00', Outlet Invert= 500.00'
10.00' x 4.00' deep Parabolic Channel, n= 0.060 Length= 975.0' Slope= 0.0041 '/'

Pond 8P:

No field note.
Water spills over cart path; no storage.

Inflow Area =	41.049 ac,	Inflow Depth = 1.99"	for 10-yr event		
Inflow =	31.62 cfs @	12.43 hrs,	Volume=	6.806 af	
Outflow =	31.62 cfs @	12.43 hrs,	Volume=	6.806 af,	Atten= 0%, Lag= 0.0 min
Primary =	31.62 cfs @	12.43 hrs,	Volume=	6.806 af	

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Peak Elev= 575.35' @ 12.43 hrs
Flood Elev= 574.70'
Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= (not calculated)

#	Routing	Invert	Outlet Devices
1	Primary	574.70'	**177.0 deg Sharp-Crested Vee/Trap Weir** C= 2.46

Primary OutFlow Max=31.62 cfs @ 12.43 hrs HW=575.35' TW=570.85' (Dynamic Tailwater)
└─**1=Sharp-Crested Vee/Trap Weir** (Weir Controls 31.62 cfs @ 2.0 fps)

Pond p02-2:

Proposed culvert under proposed road at intersection with 44.

Inflow Area =	7.776 ac, Inflow Depth = 1.73"	for 10-yr event	
Inflow =	8.59 cfs @ 12.44 hrs, Volume=	1.120 af	
Outflow =	8.59 cfs @ 12.44 hrs, Volume=	1.120 af,	Atten= 0%, Lag= 0.0 min
Primary =	8.59 cfs @ 12.44 hrs, Volume=	1.120 af	

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Peak Elev= 641.32' @ 12.44 hrs
Flood Elev= 645.00'
Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= (not calculated)

#	Routing	Invert	Outlet Devices
1	Primary	640.00'	**24.0" x 100.0' long Culvert** CPP, end-section conforming to fill, Ke= 0.500 Outlet Invert= 638.00' S= 0.0200 '/' n= 0.012 Cc= 0.900

Primary OutFlow Max=8.59 cfs @ 12.44 hrs HW=641.32' TW=625.16' (Dynamic Tailwater)
└─**1=Culvert** (Inlet Controls 8.59 cfs @ 3.9 fps)

Pond p02-3:

Simulates last DMH at bottom of small road , at intersection with 44. This culvert is only used to size the drain pipe under 44.

Inflow Area =	4.088 ac, Inflow Depth = 3.47"	for 10-yr event	
Inflow =	19.21 cfs @ 12.02 hrs, Volume=	1.181 af	
Outflow =	19.21 cfs @ 12.02 hrs, Volume=	1.181 af,	Atten= 0%, Lag= 0.0 min
Primary =	19.21 cfs @ 12.02 hrs, Volume=	1.181 af	

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Peak Elev= 638.59' @ 12.02 hrs
Flood Elev= 645.00'
Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= (not calculated)

#	Routing	Invert	Outlet Devices
1	Primary	635.00'	**24.0" x 100.0' long Culvert** CPP, projecting, no headwall, Ke= 0.900 Outlet Invert= 634.00' S= 0.0100 '/' n= 0.012 Cc= 0.900

Primary OutFlow Max=19.10 cfs @ 12.02 hrs HW=638.56' TW=554.10' (Dynamic Tailwater)
└─**1=Culvert** (Inlet Controls 19.10 cfs @ 6.1 fps)

Pond p03-2:

Inflow Area = 4.738 ac, Inflow Depth = 3.24" for 10-yr event
Inflow = 19.64 cfs @ 12.02 hrs, Volume= 1.278 af
Outflow = 2.69 cfs @ 12.50 hrs, Volume= 1.274 af, Atten= 86%, Lag= 28.5 min
Primary = 2.69 cfs @ 12.50 hrs, Volume= 1.274 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Starting Elev= 774.00' Surf.Area= 2,315 sf Storage= 4,095 cf
Peak Elev= 777.84' @ 12.50 hrs Surf.Area= 8,765 sf Storage= 30,160 cf (26,065 cf above start)
Flood Elev= 779.00' Surf.Area= 9,991 sf Storage= 41,391 cf (37,296 cf above start)
Plug-Flow detention time= 387.9 min calculated for 1.180 af (92% of inflow)
Center-of-Mass det. time= 305.5 min (1,090.6 - 785.1)

#	Invert	Avail.Storage	Storage Description
1	768.00'	51,363 cf	**Custom Stage Data (Conic)** Listed below

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
768.00	67	0	0	67
770.00	345	376	376	361
772.00	729	1,050	1,426	777
772.50	842	392	1,819	901
774.00	2,315	2,277	4,095	2,388
774.50	5,704	1,942	6,037	5,779
776.00	6,996	9,509	15,546	7,138
778.00	8,917	15,874	31,420	9,160
780.00	11,064	19,942	51,363	11,421

#	Routing	Invert	Outlet Devices
1	Primary	774.00'	**3.0" Vert. Orifice/Grate** C= 0.600
2	Primary	776.20'	**6.0" Vert. Orifice/Grate X 2.00** C= 0.600
3	Primary	778.50'	**4.0' long x 6.0' high Sharp-Crested Rectangular Weir** 2 End Contraction(s)

Primary OutFlow Max=2.69 cfs @ 12.50 hrs HW=777.84' TW=722.06' (Dynamic Tailwater)
├─**1=Orifice/Grate** (Orifice Controls 0.46 cfs @ 9.3 fps)
├─**2=Orifice/Grate** (Orifice Controls 2.23 cfs @ 5.7 fps)
└─**3=Sharp-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond p04-1:

Storage, inverts and culvert length based on assumed grading, check when final grading becomes available

Inflow Area = 34.207 ac, Inflow Depth = 2.11" for 10-yr event
Inflow = 31.17 cfs @ 12.46 hrs, Volume= 6.026 af
Outflow = 27.68 cfs @ 12.65 hrs, Volume= 6.026 af, Atten= 11%, Lag= 12.0 min
Primary = 27.68 cfs @ 12.65 hrs, Volume= 6.026 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

Peak Elev= 642.35' @ 12.65 hrs Surf.Area= 6,369 sf Storage= 10,078 cf
Flood Elev= 648.00' Surf.Area= 15,680 sf Storage= 66,062 cf
Plug-Flow detention time= 3.0 min calculated for 6.024 af (100% of inflow)
Center-of-Mass det. time= 2.9 min (923.4 - 920.4)

#	Invert	Avail.Storage	Storage Description
1	638.00'	66,062 cf	**Custom Stage Data (Conic)** Listed below

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
638.00	0	0	0	0
640.00	1,300	867	867	1,306
642.00	6,180	6,876	7,743	6,203
644.00	7,270	13,435	21,178	7,438
646.00	11,100	18,235	39,414	11,327
648.00	15,680	26,648	66,062	15,980

#	Routing	Invert	Outlet Devices
1	Primary	638.00'	**24.0" x 685.0' long Culvert** CPP, end-section conforming to fill, Ke= 0.500 Outlet Invert= 598.00' S= 0.0584 '/' n= 0.012 Cc= 0.900

Primary OutFlow Max=27.68 cfs @ 12.65 hrs HW=642.35' TW=575.34' (Dynamic Tailwater)
└─**1=Culvert** (Inlet Controls 27.68 cfs @ 8.8 fps)

Pond p06-0:

Field Note #22
Geometry to be confirmed by survey.

Inflow Area = 9.435 ac, Inflow Depth = 1.60" for 10-yr event
Inflow = 10.64 cfs @ 12.25 hrs, Volume= 1.258 af
Outflow = 8.28 cfs @ 12.43 hrs, Volume= 1.229 af, Atten= 22%, Lag= 10.5 min
Primary = 8.28 cfs @ 12.43 hrs, Volume= 1.229 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Starting Elev= 506.80' Surf.Area= 18,600 sf Storage= 42,160 cf
Peak Elev= 507.40' @ 12.43 hrs Surf.Area= 21,338 sf Storage= 55,020 cf (12,860 cf above start)
Flood Elev= 507.10' Surf.Area= 19,958 sf Storage= 48,537 cf (6,377 cf above start)
Plug-Flow detention time= 875.3 min calculated for 0.262 af (21% of inflow)
Center-of-Mass det. time= 143.4 min (1,000.6 - 857.2)

#	Invert	Avail.Storage	Storage Description
1	500.00'	67,669 cf	**Custom Stage Data (Conic)** Listed below

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
500.00	0	0	0	0
506.80	18,600	42,160	42,160	18,672
508.00	24,030	25,509	67,669	24,138

#	Routing	Invert	Outlet Devices
1	Primary	506.80'	**12.0" x 20.0' long Culvert** CMP, projecting, no headwall, Ke= 0.900 Outlet Invert= 506.00' S= 0.0400 '/' n= 0.024 Cc= 0.900
2	Primary	507.10'	**178.0 deg Sharp-Crested Vee/Trap Weir** C= 2.46

Primary OutFlow Max=8.28 cfs @ 12.43 hrs HW=507.40' TW=504.66' (Dynamic Tailwater)
1=Culvert (Inlet Controls 1.04 cfs @ 2.1 fps)
2=Sharp-Crested Vee/Trap Weir (Weir Controls 7.24 cfs @ 1.4 fps)

Pond p07-1:

Field Note # 29
Outlet geometry to be confirmed by survey.

Inflow Area = 26.342 ac, Inflow Depth = 1.91" for 10-yr event
Inflow = 8.68 cfs @ 12.14 hrs, Volume= 4.186 af
Outflow = 3.92 cfs @ 13.44 hrs, Volume= 4.044 af, Atten= 55%, Lag= 78.1 min
Primary = 3.92 cfs @ 13.44 hrs, Volume= 4.044 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Starting Elev= 572.80' Surf.Area= 21,640 sf Storage= 56,264 cf
Peak Elev= 573.64' @ 13.44 hrs Surf.Area= 25,600 sf Storage= 76,792 cf (20,528 cf above start)
Flood Elev= 573.50' Surf.Area= 24,936 sf Storage= 73,351 cf (17,087 cf above start)
Plug-Flow detention time= 562.2 min calculated for 2.752 af (66% of inflow)
Center-of-Mass det. time= 95.5 min (1,285.1 - 1,189.6)

#	Invert	Avail.Storage	Storage Description
1	565.00'	85,557 cf	**Custom Stage Data (Conic)** Listed below

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
565.00	0	0	0	0
572.80	21,640	56,264	56,264	21,735
574.00	27,290	29,293	85,557	27,424

#	Routing	Invert	Outlet Devices
1	Primary	572.80'	**18.0" x 20.0' long Culvert** CMP, projecting, no headwall, Ke= 0.900 Outlet Invert= 572.00' S= 0.0400 '/' n= 0.024 Cc= 0.900
2	Primary	573.50'	**177.0 deg Sharp-Crested Vee/Trap Weir X 2.00** C= 2.46

Primary OutFlow Max=3.92 cfs @ 13.44 hrs HW=573.64' TW=570.61' (Dynamic Tailwater)
1=Culvert (Inlet Controls 2.51 cfs @ 2.5 fps)
2=Sharp-Crested Vee/Trap Weir (Weir Controls 1.40 cfs @ 0.9 fps)

Pond p08-2:

Inflow Area = 18.762 ac, Inflow Depth = 2.93" for 10-yr event
Inflow = 55.49 cfs @ 12.04 hrs, Volume= 4.580 af
Outflow = 9.93 cfs @ 12.58 hrs, Volume= 3.908 af, Atten= 82%, Lag= 32.3 min
Primary = 9.93 cfs @ 12.58 hrs, Volume= 3.908 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Starting Elev= 550.00' Surf.Area= 8,558 sf Storage= 24,834 cf
Peak Elev= 556.04' @ 12.58 hrs Surf.Area= 21,631 sf Storage= 125,136 cf (100,302 cf above start)
Flood Elev= 557.00' Surf.Area= 23,344 sf Storage= 147,597 cf (122,763 cf above start)
Plug-Flow detention time= 544.0 min calculated for 3.337 af (73% of inflow)
Center-of-Mass det. time= 370.3 min (1,160.3 - 790.0)

#	Invert	Avail.Storage	Storage Description
1	544.00'	170,918 cf	**Custom Stage Data (Conic)** Listed below

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
544.00	1,962	0	0	1,962
546.00	3,155	5,070	5,070	3,207
548.00	4,454	7,572	12,642	4,577
548.50	4,796	2,312	14,954	4,940
550.00	8,558	9,880	24,834	8,726
550.50	12,948	5,339	30,173	13,120
552.00	15,129	21,037	51,209	15,390
554.00	18,234	33,315	84,524	18,627
556.00	21,565	39,752	124,277	22,105
558.00	25,122	46,642	170,918	25,823

#	Routing	Invert	Outlet Devices
1	Primary	550.00'	**3.0" Vert. Orifice/Grate** C= 0.600
2	Primary	554.09'	**12.0" Vert. Orifice/Grate X 2.00** C= 0.600
3	Primary	556.00'	**11.0' long x 6.0' high Sharp-Crested Rectangular Weir** 2 End Contraction(s)

Primary OutFlow Max=9.93 cfs @ 12.58 hrs HW=556.04' TW=515.62' (Dynamic Tailwater)
—**1=Orifice/Grate** (Orifice Controls 0.57 cfs @ 11.7 fps)
—**2=Orifice/Grate** (Orifice Controls 9.10 cfs @ 5.8 fps)
—**3=Sharp-Crested Rectangular Weir** (Weir Controls 0.25 cfs @ 0.6 fps)

Pond p08-3:

Inflow Area = 2.828 ac, Inflow Depth = 2.73" for 10-yr event
Inflow = 7.20 cfs @ 12.02 hrs, Volume= 0.643 af
Outflow = 2.90 cfs @ 12.36 hrs, Volume= 0.642 af, Atten= 60%, Lag= 20.9 min
Primary = 2.90 cfs @ 12.36 hrs, Volume= 0.642 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Starting Elev= 528.00' Surf.Area= 1,849 sf Storage= 2,615 cf
Peak Elev= 530.93' @ 12.36 hrs Surf.Area= 4,227 sf Storage= 11,701 cf (9,086 cf above start)
Flood Elev= 533.00' Surf.Area= 6,389 sf Storage= 22,602 cf (19,987 cf above start)
Plug-Flow detention time= 244.6 min calculated for 0.582 af (91% of inflow)
Center-of-Mass det. time= 152.5 min (936.3 - 783.8)

#	Invert	Avail.Storage	Storage Description
1	524.00'	28,956 cf	**Custom Stage Data (Conic)** Listed below

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
524.00	178	0	0	178
526.00	500	651	651	524
526.50	548	262	913	587
528.00	1,849	1,702	2,615	1,900
530.00	3,344	5,120	7,734	3,437
532.00	5,240	8,513	16,248	5,388
534.00	7,538	12,709	28,956	7,755

#	Routing	Invert	Outlet Devices
1	Primary	528.00'	**3.0" Vert. Orifice/Grate** C= 0.600
2	Primary	530.00'	**12.0" Vert. Orifice/Grate** C= 0.600

Primary OutFlow Max=2.90 cfs @ 12.36 hrs HW=530.93' TW=515.39' (Dynamic Tailwater)
1=Orifice/Grate (Orifice Controls 0.40 cfs @ 8.1 fps)
2=Orifice/Grate (Orifice Controls 2.50 cfs @ 3.3 fps)

Pond p09-2:

Inflow Area = 21.180 ac, Inflow Depth = 2.17" for 10-yr event
Inflow = 29.47 cfs @ 12.29 hrs, Volume= 3.821 af
Outflow = 3.02 cfs @ 14.90 hrs, Volume= 3.362 af, Atten= 90%, Lag= 156.8 min
Primary = 3.02 cfs @ 14.90 hrs, Volume= 3.362 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Starting Elev= 586.00' Surf.Area= 10,285 sf Storage= 36,340 cf
Peak Elev= 590.77' @ 14.90 hrs Surf.Area= 23,669 sf Storage= 130,022 cf (93,682 cf above start)
Flood Elev= 593.00' Surf.Area= 27,610 sf Storage= 187,200 cf (150,860 cf above start)
Plug-Flow detention time= 705.1 min calculated for 2.528 af (66% of inflow)
Center-of-Mass det. time= 442.9 min (1,277.9 - 835.0)

#	Invert	Avail.Storage	Storage Description
1	580.00'	214,790 cf	**Custom Stage Data (Conic)** Listed below

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
580.00	3,968	0	0	3,968
582.00	5,102	9,046	9,046	5,198
584.00	6,343	11,423	20,469	6,550
584.50	6,670	3,253	23,722	6,907
586.00	10,285	12,619	36,340	10,554
586.50	16,887	6,725	43,066	17,159
588.00	19,143	27,005	70,070	19,525
590.00	22,349	41,451	111,521	22,890
592.00	25,781	48,089	159,610	26,494
594.00	29,439	55,180	214,790	30,336

#	Routing	Invert	Outlet Devices
1	Primary	586.00'	**3.0" Vert. Orifice/Grate** C= 0.600
2	Primary	588.21'	**8.0" Vert. Orifice/Grate** C= 0.600
3	Primary	592.00'	**2.0' long x 6.0' high Sharp-Crested Rectangular Weir** 2 End Contraction(s)

Primary OutFlow Max=3.02 cfs @ 14.90 hrs HW=590.77' TW=573.63' (Dynamic Tailwater)
1=Orifice/Grate (Orifice Controls 0.51 cfs @ 10.4 fps)
2=Orifice/Grate (Orifice Controls 2.51 cfs @ 7.2 fps)
3=Sharp-Crested Rectangular Weir (Controls 0.00 cfs)

Pond p10:

Field Note #25
Need to get full story on how this pond works

Inflow Area = 59.531 ac, Inflow Depth = 1.20" for 10-yr event
Inflow = 11.29 cfs @ 12.46 hrs, Volume= 5.973 af
Outflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Atten= 100%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Starting Elev= 498.40' Surf.Area= 36,110 sf Storage= 101,108 cf
Peak Elev= 503.51' @ 48.00 hrs Surf.Area= 72,902 sf Storage= 361,278 cf (260,170 cf above start)
Plug-Flow detention time= (not calculated)
Center-of-Mass det. time= (not calculated)

#	Invert	Avail.Storage	Storage Description
1	490.00'	581,029 cf	**Custom Stage Data (Conic)** Listed below

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
490.00	0	0	0	0
498.40	36,110	101,108	101,108	36,221
500.00	42,400	62,741	163,849	42,610
502.00	54,880	97,012	260,861	55,187
504.00	78,730	132,895	393,755	79,107
506.00	109,382	187,274	581,029	109,836

Pond p13-1:

No Field Note
Natural depression.

Inflow Area = 12.222 ac, Inflow Depth = 3.38" for 10-yr event
Inflow = 43.29 cfs @ 12.04 hrs, Volume= 3.444 af
Outflow = 38.66 cfs @ 12.08 hrs, Volume= 3.429 af, Atten= 11%, Lag= 2.1 min
Primary = 38.66 cfs @ 12.08 hrs, Volume= 3.429 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Starting Elev= 524.00' Surf.Area= 5,894 sf Storage= 16,480 cf
Peak Elev= 526.71' @ 12.08 hrs Surf.Area= 9,629 sf Storage= 37,983 cf (21,503 cf above start)
Flood Elev= 527.00' Surf.Area= 10,067 sf Storage= 40,862 cf (24,383 cf above start)

Plug-Flow detention time= 227.9 min calculated for 3.050 af (89% of inflow)
Center-of-Mass det. time= 134.2 min (906.8 - 772.6)

#	Invert	Avail.Storage	Storage Description
1	518.00'	50,891 cf	**Custom Stage Data (Conic)** Listed below

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
518.00	1,331	0	0	1,331
520.00	2,048	3,353	3,353	2,104
522.00	2,912	4,935	8,288	3,037
522.50	3,150	1,515	9,803	3,294
524.00	5,894	6,676	16,480	6,061
526.00	8,542	14,354	30,834	8,776
528.00	11,592	20,057	50,891	11,908

#	Routing	Invert	Outlet Devices
1	Primary	524.00'	**3.0" Vert. Orifice/Grate** C= 0.600
2	Primary	525.90'	**15.0' long x 1.3' high Sharp-Crested Rectangular Weir** 2 End Contraction(s)

Primary OutFlow Max=38.60 cfs @ 12.08 hrs HW=526.71' TW=500.68' (Dynamic Tailwater)
1=Orifice/Grate (Orifice Controls 0.38 cfs @ 7.7 fps)
2=Sharp-Crested Rectangular Weir (Weir Controls 38.22 cfs @ 3.2 fps)

Pond p14-1:

Field Note #26
Need to figure out how this pond works

Inflow Area = 50.663 ac, Inflow Depth = 2.86" for 10-yr event
Inflow = 111.48 cfs @ 12.08 hrs, Volume= 12.063 af
Outflow = 8.78 cfs @ 14.58 hrs, Volume= 4.368 af, Atten= 92%, Lag= 149.6 min
Primary = 8.78 cfs @ 14.58 hrs, Volume= 4.368 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Starting Elev= 497.40' Surf.Area= 22,200 sf Storage= 54,760 cf
Peak Elev= 503.51' @ 48.00 hrs Surf.Area= 81,453 sf Storage= 389,958 cf (335,198 cf above start)
Plug-Flow detention time= 452.0 min calculated for 3.111 af (26% of inflow)
Center-of-Mass det. time= 155.9 min (1,032.2 - 876.3)

#	Invert	Avail.Storage	Storage Description
1	490.00'	805,062 cf	**Custom Stage Data (Conic)** Listed below

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
490.00	0	0	0	0
497.40	22,200	54,760	54,760	22,286
498.00	25,330	14,249	69,009	25,433
500.00	52,810	76,476	145,485	52,948
502.00	73,360	125,608	271,093	73,574
504.00	84,070	157,308	428,402	84,467
506.00	92,130	176,139	604,540	92,797
508.00	108,618	200,522	805,062	109,437

#	Routing	Invert	Outlet Devices
1	Primary	500.00'	**24.0" x 80.0' long Culvert** CPP, end-section conforming to fill, Ke= 0.500 Outlet Invert= 502.00' S= -0.0250 '/' n= 0.012 Cc= 0.900

Primary OutFlow Max=8.77 cfs @ 14.58 hrs HW=503.34' TW=500.81' (Dynamic Tailwater)
└─**1=Culvert** (Inlet Controls 8.77 cfs @ 3.9 fps)

Pond p14-2:

Inflow Area = 15.934 ac, Inflow Depth = 3.46" for 10-yr event
Inflow = 56.94 cfs @ 12.05 hrs, Volume= 4.597 af
Outflow = 50.62 cfs @ 12.09 hrs, Volume= 4.569 af, Atten= 11%, Lag= 2.6 min
Primary = 50.62 cfs @ 12.09 hrs, Volume= 4.569 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Starting Elev= 532.00' Surf.Area= 7,681 sf Storage= 23,903 cf
Peak Elev= 534.62' @ 12.09 hrs Surf.Area= 11,740 sf Storage= 49,830 cf (25,926 cf above start)
Flood Elev= 535.00' Surf.Area= 12,390 sf Storage= 54,538 cf (30,635 cf above start)
Plug-Flow detention time= 212.2 min calculated for 4.020 af (87% of inflow)
Center-of-Mass det. time= 114.1 min (886.3 - 772.2)

#	Invert	Avail.Storage	Storage Description
1	526.00'	66,889 cf	**Custom Stage Data (Conic)** Listed below

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
526.00	2,239	0	0	2,239
528.00	3,156	5,369	5,369	3,227
530.00	4,207	7,338	12,707	4,362
530.50	4,491	2,174	14,881	4,669
532.00	7,681	9,023	23,903	7,885
534.00	10,686	18,285	42,188	10,966
536.00	14,093	24,701	66,889	14,463

#	Routing	Invert	Outlet Devices
1	Primary	532.00'	**3.0" Vert. Orifice/Grate** C= 0.600
2	Primary	533.60'	**14.0' long x 1.5' high Sharp-Crested Rectangular Weir** 2 End Contraction(s)

Primary OutFlow Max=50.59 cfs @ 12.09 hrs HW=534.62' TW=500.78' (Dynamic Tailwater)
—**1=Orifice/Grate** (Orifice Controls 0.37 cfs @ 7.6 fps)
—**2=Sharp-Crested Rectangular Weir** (Weir Controls 50.22 cfs @ 3.6 fps)

Pond p16-1:

Field Note # 49
Large pond with man-made island.
Geometry to be verified by survey. In particular, we are making big guesses about the outlets.
Also need to find out about valves...

Inflow Area = 176.893 ac, Inflow Depth = 1.86" for 10-yr event
Inflow = 110.76 cfs @ 12.43 hrs, Volume= 27.372 af
Outflow = 13.02 cfs @ 18.15 hrs, Volume= 15.691 af, Atten= 88%, Lag= 343.1 min
Primary = 13.02 cfs @ 18.15 hrs, Volume= 15.691 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Starting Elev= 507.00' Surf.Area= 199,799 sf Storage= 878,320 cf
Peak Elev= 510.81' @ 18.15 hrs Surf.Area= 285,346 sf Storage= 1,714,330 cf (836,010 cf above start)
Flood Elev= 510.50' Surf.Area= 271,550 sf Storage= 1,623,217 cf (744,897 cf above start)
Plug-Flow detention time= (not calculated)
Center-of-Mass det. time= (not calculated)

#	Invert	Avail.Storage	Storage Description
1	500.00'	2,062,087 cf	**Custom Stage Data (Conic)** Listed below

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
500.00	0	0	0	0
503.00	140,344	140,344	140,344	140,358
509.20	232,500	1,143,862	1,284,206	232,994
510.00	249,400	192,720	1,476,927	249,951
512.00	338,000	585,160	2,062,087	338,634

#	Routing	Invert	Outlet Devices
1	Primary	509.00'	**18.0" x 110.0' long Culvert** CMP, projecting, no headwall, Ke= 0.900 Outlet Invert= 505.70' S= 0.0300 '/' n= 0.024 Cc= 0.900
2	Primary	500.00'	**8.0" x 100.0' long assumed equalization pipe w/ valve X 0.00** CMP, projecting, no headwall, Ke= 0.900 Outlet Invert= 500.00' S= 0.0000 '/' n= 0.013 Cc= 0.900
3	Primary	510.50'	**175.0 deg Sharp-Crested Vee/Trap Weir X 2.00** C= 2.46

Primary OutFlow Max=13.02 cfs @ 18.15 hrs HW=510.81' TW=506.08' (Dynamic Tailwater)
—**1=Culvert** (Inlet Controls 6.92 cfs @ 3.9 fps)
—**2=assumed equalization pipe w/ valve** (Controls 0.00 cfs)
—**3=Sharp-Crested Vee/Trap Weir** (Weir Controls 6.10 cfs @ 1.4 fps)

Pond p17-1:

Field Note #45
Golf pond
Geometry to be confirmed by surveyed

Inflow Area = 112.240 ac, Inflow Depth = 1.72" for 10-yr event
Inflow = 52.43 cfs @ 13.28 hrs, Volume= 16.129 af
Outflow = 52.43 cfs @ 13.29 hrs, Volume= 16.129 af, Atten= 0%, Lag= 0.5 min
Primary = 52.43 cfs @ 13.29 hrs, Volume= 16.129 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Starting Elev= 523.80' Surf.Area= 7,290 sf Storage= 9,234 cf
Peak Elev= 525.45' @ 13.29 hrs Surf.Area= 11,029 sf Storage= 24,809 cf (15,575 cf above start)
Flood Elev= 524.30' Surf.Area= 8,074 sf Storage= 13,623 cf (4,389 cf above start)
Plug-Flow detention time= 22.8 min calculated for 15.917 af (99% of inflow)
Center-of-Mass det. time= 11.7 min (936.5 - 924.8)

#	Invert	Avail.Storage	Storage Description
1	520.00'	30,224 cf	**Custom Stage Data (Conic)** Listed below

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
520.00	0	0	0	0
523.80	7,290	9,234	9,234	7,313
524.00	7,300	1,459	10,693	7,374
526.00	12,460	19,531	30,224	12,581

#	Routing	Invert	Outlet Devices
1	Primary	523.80'	**2.2' long x 0.5' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 Coef. (English) 2.80 2.92 3.08 3.30 3.32
2	Primary	524.30'	**143.0 deg Sharp-Crested Vee/Trap Weir** C= 2.47
3	Primary	525.20'	**178.0 deg x 60.0' long Sharp-Crested Vee/Trap Weir** C= 2.46

Primary OutFlow Max=52.43 cfs @ 13.29 hrs HW=525.45' TW=515.91' (Dynamic Tailwater)
1=Broad-Crested Rectangular Weir (Weir Controls 15.42 cfs @ 4.3 fps)
2=Sharp-Crested Vee/Trap Weir (Weir Controls 10.37 cfs @ 2.6 fps)
3=Sharp-Crested Vee/Trap Weir (Weir Controls 26.65 cfs @ 1.5 fps)

Pond p18-1:

Field Note #46
Golf pond
Geometry to be confirmed by surveyed

Inflow Area = 131.862 ac, Inflow Depth = 1.75" for 10-yr event
Inflow = 66.53 cfs @ 12.46 hrs, Volume= 19.185 af
Outflow = 65.48 cfs @ 12.54 hrs, Volume= 19.181 af, Atten= 2%, Lag= 4.6 min
Primary = 65.48 cfs @ 12.54 hrs, Volume= 19.181 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Starting Elev= 513.90' Surf.Area= 20,680 sf Storage= 26,884 cf
Peak Elev= 515.97' @ 12.54 hrs Surf.Area= 28,168 sf Storage= 76,953 cf (50,069 cf above start)
Flood Elev= 514.81' Surf.Area= 23,768 sf Storage= 48,709 cf (21,825 cf above start)
Plug-Flow detention time= 60.0 min calculated for 18.560 af (97% of inflow)
Center-of-Mass det. time= 33.3 min (957.1 - 923.8)

#	Invert	Avail.Storage	Storage Description
1	510.00'	148,288 cf	**Custom Stage Data (Conic)** Listed below

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
510.00	0	0	0	0
513.90	20,680	26,884	26,884	20,704
514.00	20,690	2,068	28,952	20,756
516.00	28,290	48,782	77,735	28,436
518.00	42,760	70,554	148,288	42,967

#	Routing	Invert	Outlet Devices
1	Primary	513.90'	**2.0' long x 0.5' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 Coef. (English) 2.80 2.92 3.08 3.30 3.32
2	Primary	514.81'	**143.0 deg Sharp-Crested Vee/Trap Weir** C= 2.47
3	Primary	515.32'	**175.0 deg x 10.0' long Sharp-Crested Vee/Trap Weir** C= 2.46

Primary OutFlow Max=65.47 cfs @ 12.54 hrs HW=515.97' TW=508.20' (Dynamic Tailwater)
—**1=Broad-Crested Rectangular Weir** (Weir Controls 19.75 cfs @ 4.8 fps)
—**2=Sharp-Crested Vee/Trap Weir** (Weir Controls 10.65 cfs @ 2.7 fps)
—**3=Sharp-Crested Vee/Trap Weir** (Weir Controls 35.07 cfs @ 2.2 fps)

Pond p19-0:

Wetland
Geometry to be confirmed by survey
Based off aerial topo, and assumed topo contour

Pond Unchanged from existing to proposed conditions

Inflow Area =	15.520 ac, Inflow Depth = 1.30"	for 10-yr event	
Inflow =	10.40 cfs @ 12.62 hrs, Volume=	1.683 af	
Outflow =	5.85 cfs @ 13.10 hrs, Volume=	1.681 af,	Atten= 44%, Lag= 29.1 min
Primary =	5.85 cfs @ 13.10 hrs, Volume=	1.681 af	
Secondary =	0.00 cfs @ 0.00 hrs, Volume=	0.000 af	

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Starting Elev= 972.00' Surf.Area= 86,000 sf Storage= 57,333 cf
Peak Elev= 972.15' @ 13.10 hrs Surf.Area= 90,219 sf Storage= 74,507 cf (17,174 cf above start)
Plug-Flow detention time= 607.9 min calculated for 0.365 af (22% of inflow)
Center-of-Mass det. time= 74.4 min (981.7 - 907.3)

#	Invert	Avail.Storage	Storage Description
1	970.00'	282,329 cf	**Custom Stage Data (Conic)** Listed below

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
970.00	0	0	0	0
972.00	86,000	57,333	57,333	86,006
974.00	141,270	224,996	282,329	141,327

#	Routing	Invert	Outlet Devices
1	Secondary	973.60'	**178.0 deg x 51.0' long Sharp-Crested Vee/Trap Weir** C= 2.46
2	Primary	972.00'	**35.0' long x 0.5' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 Coef. (English) 2.80 2.92 3.08 3.30 3.32

Primary OutFlow Max=5.85 cfs @ 13.10 hrs HW=972.15' TW=970.13' (Dynamic Tailwater)
↑—**2=Broad-Crested Rectangular Weir** (Weir Controls 5.85 cfs @ 1.1 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=972.00' TW=973.60' (Dynamic Tailwater)
↑—**1=Sharp-Crested Vee/Trap Weir** (Controls 0.00 cfs)

Pond p20-1:

Field Note #50
Spring Fed Pond
Geometry to be confirmed by surveyed

Inflow Area = 207.817 ac, Inflow Depth = 1.21" for 10-yr event
Inflow = 24.59 cfs @ 12.30 hrs, Volume= 20.990 af
Outflow = 15.24 cfs @ 18.09 hrs, Volume= 20.073 af, Atten= 38%, Lag= 347.4 min
Primary = 15.24 cfs @ 18.09 hrs, Volume= 20.073 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Starting Elev= 505.10' Surf.Area= 89,370 sf Storage= 138,524 cf
Peak Elev= 506.08' @ 18.09 hrs Surf.Area= 89,789 sf Storage= 226,753 cf (88,230 cf above start)
Plug-Flow detention time= 449.0 min calculated for 16.893 af (80% of inflow)
Center-of-Mass det. time= 107.5 min (1,553.3 - 1,445.7)

#	Invert	Avail.Storage	Storage Description
1	502.00'	615,682 cf	**Custom Stage Data (Prismatic)** Listed below

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
502.00	0	0	0
505.10	89,370	138,524	138,524
506.00	89,380	80,437	218,961
508.00	99,280	188,660	407,621
510.00	108,781	208,061	615,682

#	Routing	Invert	Outlet Devices
1	Primary	505.10'	**3.0' long x 1.5' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 Coef. (English) 2.62 2.64 2.64 2.68 2.75 2.86 2.92 3.07 3.07 3.03 3.28 3.32
2	Primary	506.20'	**6.5' long x 1.5' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 Coef. (English) 2.62 2.64 2.64 2.68 2.75 2.86 2.92 3.07 3.07 3.03 3.28 3.32
3	Primary	506.00'	**176.0 deg x 97.0' long Sharp-Crested Vee/Trap Weir** C= 2.46

Primary OutFlow Max=15.24 cfs @ 18.09 hrs HW=506.08' TW=504.90' (Dynamic Tailwater)
1=Broad-Crested Rectangular Weir (Weir Controls 8.02 cfs @ 2.7 fps)
2=Broad-Crested Rectangular Weir (Controls 0.00 cfs)
3=Sharp-Crested Vee/Trap Weir (Weir Controls 7.22 cfs @ 0.9 fps)

Pond p20-2:

Inflow Area = 13.511 ac, Inflow Depth = 3.32" for 10-yr event
Inflow = 45.11 cfs @ 12.08 hrs, Volume= 3.737 af
Outflow = 1.72 cfs @ 15.80 hrs, Volume= 2.078 af, Atten= 96%, Lag= 222.7 min
Primary = 1.72 cfs @ 15.80 hrs, Volume= 2.078 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Starting Elev= 552.00' Surf.Area= 10,535 sf Storage= 35,913 cf
Peak Elev= 558.35' @ 15.80 hrs Surf.Area= 24,470 sf Storage= 157,296 cf (121,383 cf above start)
Flood Elev= 559.00' Surf.Area= 25,653 sf Storage= 174,016 cf (138,102 cf above start)
Plug-Flow detention time= 1,381.8 min calculated for 1.254 af (34% of inflow)
Center-of-Mass det. time= 798.8 min (1,584.8 - 786.0)

#	Invert	Avail.Storage	Storage Description
1	546.00'	199,647 cf	**Custom Stage Data (Conic)** Listed below

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
546.00	3,714	0	0	3,714
548.00	4,960	8,644	8,644	5,044
550.00	6,308	11,241	19,885	6,493
550.50	6,661	3,242	23,127	6,874
552.00	10,535	12,786	35,913	10,779
552.50	15,037	6,360	42,273	15,285
554.00	17,268	24,209	66,483	17,616
556.00	20,441	37,664	104,147	20,935
558.00	23,840	44,237	148,384	24,494
560.00	27,465	51,262	199,647	28,292

#	Routing	Invert	Outlet Devices
1	Primary	552.00'	**3.0" Vert. Orifice/Grate** C= 0.600
2	Primary	558.20'	**6.1' long x 6.2' high Sharp-Crested Rectangular Weir** 2 End Contraction(s)

Primary OutFlow Max=1.72 cfs @ 15.80 hrs HW=558.35' TW=506.03' (Dynamic Tailwater)
├─**1=Orifice/Grate** (Orifice Controls 0.59 cfs @ 12.0 fps)
└─**2=Sharp-Crested Rectangular Weir** (Weir Controls 1.13 cfs @ 1.3 fps)

Pond p21-1:

Inflow Area = 459.188 ac, Inflow Depth = 1.73" for 10-yr event
Inflow = 283.00 cfs @ 12.39 hrs, Volume= 66.032 af
Outflow = 25.67 cfs @ 20.43 hrs, Volume= 60.140 af, Atten= 91%, Lag= 482.6 min
Primary = 25.67 cfs @ 20.43 hrs, Volume= 60.140 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Peak Elev= 484.64' @ 20.43 hrs Surf.Area= 739,721 sf Storage= 1,321,913 cf
Plug-Flow detention time= 667.4 min calculated for 60.127 af (91% of inflow)
Center-of-Mass det. time= 546.0 min (1,656.8 - 1,110.7)

#	Invert	Avail.Storage	Storage Description
1	480.40'	5,244,885 cf	**Custom Stage Data (Conic)** Listed below

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
480.40	0	0	0	0
482.00	202,230	107,856	107,856	202,234
484.00	485,198	667,114	774,970	485,231
486.00	1,275,481	1,698,237	2,473,208	1,275,541
488.00	1,499,208	2,771,678	5,244,885	1,499,423

#	Routing	Invert	Outlet Devices
1	Primary	480.40'	**30.0" x 70.0' long Culvert** CMP, projecting, no headwall, Ke= 0.900 Outlet Invert= 480.40' S= 0.0000 '/' n= 0.024 Cc= 0.900

Primary OutFlow Max=25.67 cfs @ 20.43 hrs HW=484.64' TW=0.00' (Dynamic Tailwater)
└─**1=Culvert** (Barrel Controls 25.67 cfs @ 5.2 fps)

Pond p21-4:

Inflow Area = 5.152 ac, Inflow Depth = 2.82" for 10-yr event
Inflow = 12.22 cfs @ 12.03 hrs, Volume= 1.211 af
Outflow = 7.07 cfs @ 12.31 hrs, Volume= 1.201 af, Atten= 42%, Lag= 17.3 min
Primary = 7.07 cfs @ 12.31 hrs, Volume= 1.201 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Starting Elev= 496.00' Surf.Area= 5,112 sf Storage= 14,306 cf
Peak Elev= 498.65' @ 12.31 hrs Surf.Area= 8,361 sf Storage= 32,515 cf (18,209 cf above start)
Flood Elev= 499.00' Surf.Area= 8,847 sf Storage= 35,622 cf (21,317 cf above start)
Plug-Flow detention time= 544.2 min calculated for 0.872 af (72% of inflow)
Center-of-Mass det. time= 298.6 min (1,091.5 - 793.0)

#	Invert	Avail.Storage	Storage Description
1	490.00'	44,433 cf	**Custom Stage Data (Conic)** Listed below

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
490.00	1,146	0	0	1,146
492.00	1,784	2,907	2,907	1,839
494.00	2,530	4,292	7,199	2,654
494.50	2,733	1,315	8,514	2,876
496.00	5,112	5,791	14,306	5,278
498.00	7,468	12,506	26,812	7,699
500.00	10,226	17,622	44,433	10,536

#	Routing	Invert	Outlet Devices
1	Primary	496.00'	**3.0" Vert. Orifice/Grate** C= 0.600
2	Primary	498.10'	**5.0' long x 2.0' high Sharp-Crested Rectangular Weir** 2 End Contraction(s)

Primary OutFlow Max=7.06 cfs @ 12.31 hrs HW=498.65' TW=482.87' (Dynamic Tailwater)
1=Orifice/Grate (Orifice Controls 0.38 cfs @ 7.6 fps)
2=Sharp-Crested Rectangular Weir (Weir Controls 6.69 cfs @ 2.5 fps)

Pond p21-5:

Inflow Area = 2.398 ac, Inflow Depth = 2.45" for 10-yr event
Inflow = 5.34 cfs @ 12.19 hrs, Volume= 0.489 af
Primary = 5.34 cfs @ 12.19 hrs, Volume= 0.489 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

Pond p21-6:

Inflow Area = 6.182 ac, Inflow Depth = 2.80" for 10-yr event
Inflow = 12.87 cfs @ 12.23 hrs, Volume= 1.441 af
Outflow = 7.13 cfs @ 12.52 hrs, Volume= 1.432 af, Atten= 45%, Lag= 17.3 min
Primary = 7.13 cfs @ 12.52 hrs, Volume= 1.432 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Starting Elev= 492.00' Surf.Area= 3,323 sf Storage= 4,847 cf
Peak Elev= 494.55' @ 12.52 hrs Surf.Area= 13,071 sf Storage= 28,263 cf (23,416 cf above start)
Flood Elev= 495.00' Surf.Area= 13,824 sf Storage= 34,456 cf (29,609 cf above start)
Plug-Flow detention time= 408.3 min calculated for 1.320 af (92% of inflow)
Center-of-Mass det. time= 326.0 min (1,148.7 - 822.7)

#	Invert	Avail.Storage	Storage Description
1	488.00'	48,245 cf	**Custom Stage Data (Conic)** Listed below

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
488.00	296	0	0	296
490.00	924	1,162	1,162	946
490.50	1,110	508	1,670	1,141
492.00	3,323	3,177	4,847	3,367
492.50	6,166	2,336	7,182	6,212
494.00	12,147	13,484	20,666	12,214
496.00	15,500	27,579	48,245	15,669

#	Routing	Invert	Outlet Devices
1	Primary	492.00'	**3.0" Vert. Orifice/Grate** C= 0.600
2	Primary	494.00'	**5.0' long x 2.0' high Sharp-Crested Rectangular Weir** 2 End Contraction(s)

Primary OutFlow Max=7.13 cfs @ 12.52 hrs HW=494.55' TW=483.44' (Dynamic Tailwater)
1=Orifice/Grate (Orifice Controls 0.37 cfs @ 7.5 fps)
2=Sharp-Crested Rectangular Weir (Weir Controls 6.76 cfs @ 2.5 fps)

Pond p21-7:

Inflow Area = 8.355 ac, Inflow Depth = 3.10" for 10-yr event
Inflow = 24.66 cfs @ 12.04 hrs, Volume= 2.158 af
Outflow = 3.91 cfs @ 12.67 hrs, Volume= 2.138 af, Atten= 84%, Lag= 38.1 min
Primary = 3.91 cfs @ 12.67 hrs, Volume= 2.138 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Starting Elev= 492.00' Surf.Area= 3,941 sf Storage= 8,984 cf
Peak Elev= 498.13' @ 12.67 hrs Surf.Area= 11,908 sf Storage= 55,776 cf (46,793 cf above start)
Flood Elev= 499.00' Surf.Area= 13,379 sf Storage= 67,369 cf (58,385 cf above start)
Plug-Flow detention time= 522.8 min calculated for 1.932 af (90% of inflow)
Center-of-Mass det. time= 407.4 min (1,185.2 - 777.8)

#	Invert	Avail.Storage	Storage Description
1	486.00'	80,712 cf	**Custom Stage Data (Conic)** Listed below

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
486.00	478	0	0	478
488.00	964	1,414	1,414	999
490.00	1,601	2,538	3,952	1,684
490.50	1,782	845	4,797	1,879
492.00	3,941	4,187	8,984	4,056
494.00	6,120	9,981	18,965	6,292
496.00	8,702	14,746	33,712	8,944
498.00	11,686	20,315	54,027	12,012
500.00	15,071	26,685	80,712	15,495

#	Routing	Invert	Outlet Devices
1	Primary	492.00'	**3.0" Vert. Orifice/Grate** C= 0.600
2	Primary	496.05'	**6.0" Vert. Orifice/Grate X 2.00** C= 0.600
3	Primary	498.00'	**5.0' long x 6.0' high Sharp-Crested Rectangular Weir** 2 End Contraction(s)

Primary OutFlow Max=3.91 cfs @ 12.67 hrs HW=498.13' TW=483.77' (Dynamic Tailwater)
↑—**1=Orifice/Grate** (Orifice Controls 0.58 cfs @ 11.8 fps)
├—**2=Orifice/Grate** (Orifice Controls 2.56 cfs @ 6.5 fps)
└—**3=Sharp-Crested Rectangular Weir** (Weir Controls 0.77 cfs @ 1.2 fps)

Pond p22-1:

Field Note #54
Golf Pond
Geometry to be confirmed by survey

Pond unchanged from existing to proposed conditions

Inflow Area = 78.382 ac, Inflow Depth = 1.84" for 10-yr event
Inflow = 88.26 cfs @ 12.29 hrs, Volume= 12.037 af
Outflow = 87.47 cfs @ 12.33 hrs, Volume= 11.738 af, Atten= 1%, Lag= 2.0 min
Primary = 87.47 cfs @ 12.33 hrs, Volume= 11.738 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Starting Elev= 498.10' Surf.Area= 6,520 sf Storage= 10,106 cf
Peak Elev= 501.79' @ 12.33 hrs Surf.Area= 11,200 sf Storage= 42,096 cf (31,990 cf above start)
Plug-Flow detention time= 50.8 min calculated for 11.504 af (96% of inflow)
Center-of-Mass det. time= 21.5 min (902.6 - 881.1)

#	Invert	Avail.Storage	Storage Description
1	495.00'	143,770 cf	**Custom Stage Data (Prismatic)** Listed below

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
495.00	0	0	0
498.10	6,520	10,106	10,106
500.00	8,390	14,164	24,270
502.00	11,530	19,920	44,190
504.00	14,530	26,060	70,250
506.00	18,340	32,870	103,120
508.00	22,310	40,650	143,770

#	Routing	Invert	Outlet Devices
1	Primary	499.75'	**18.0" x 21.0' long Culvert** CMP, projecting, no headwall, Ke= 0.900 Outlet Invert= 499.75' S= 0.0000 '/' n= 0.024 Cc= 0.900
2	Primary	500.50'	**1.0' long x 15.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.68 2.70 2.70 2.64 2.63 2.64 2.64 2.63
3	Primary	500.50'	**20.0' long x 13.5' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.62 2.66 2.70 2.66 2.65 2.66 2.65 2.63

Primary OutFlow Max=87.46 cfs @ 12.33 hrs HW=501.79' TW=482.91' (Dynamic Tailwater)
1=Culvert (Barrel Controls 5.82 cfs @ 3.3 fps)
2=Broad-Crested Rectangular Weir (Weir Controls 3.87 cfs @ 3.0 fps)
3=Broad-Crested Rectangular Weir (Weir Controls 77.78 cfs @ 3.0 fps)

Pond p23-1:

Inflow Area = 29.123 ac, Inflow Depth = 2.20" for 10-yr event
Inflow = 37.22 cfs @ 12.54 hrs, Volume= 5.334 af
Outflow = 37.19 cfs @ 12.55 hrs, Volume= 4.619 af, Atten= 0%, Lag= 0.7 min
Primary = 37.19 cfs @ 12.55 hrs, Volume= 4.619 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Peak Elev= 507.86' @ 12.55 hrs Surf.Area= 14,276 sf Storage= 33,065 cf
Plug-Flow detention time= 86.8 min calculated for 4.619 af (87% of inflow)
Center-of-Mass det. time= 25.9 min (898.6 - 872.7)

#	Invert	Avail.Storage	Storage Description
1	503.50'	68,915 cf	**Custom Stage Data (Conic)** Listed below

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
503.50	0	0	0	0
504.00	2,390	398	398	2,390
506.00	9,090	10,761	11,159	9,110
508.00	14,660	23,529	34,688	14,732
510.00	19,690	34,227	68,915	19,847

#	Routing	Invert	Outlet Devices
1	Primary	507.70'	**178.0 deg x 178.0' long Sharp-Crested Vee/Trap Weir** C= 2.46

Primary OutFlow Max=37.18 cfs @ 12.55 hrs HW=507.86' TW=507.13' (Dynamic Tailwater)
1=Sharp-Crested Vee/Trap Weir (Weir Controls 37.18 cfs @ 1.2 fps)

Pond p23-2:

Inflow Area = 16.094 ac, Inflow Depth = 3.60" for 10-yr event
Inflow = 67.24 cfs @ 12.06 hrs, Volume= 4.833 af
Outflow = 17.07 cfs @ 12.42 hrs, Volume= 4.001 af, Atten= 75%, Lag= 21.5 min
Primary = 17.07 cfs @ 12.42 hrs, Volume= 4.001 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Starting Elev= 508.00' Surf.Area= 7,318 sf Storage= 15,927 cf
Peak Elev= 514.25' @ 12.42 hrs Surf.Area= 23,249 sf Storage= 123,418 cf (107,492 cf above start)
Flood Elev= 515.00' Surf.Area= 24,788 sf Storage= 141,986 cf (126,059 cf above start)
Plug-Flow detention time= 528.1 min calculated for 3.636 af (75% of inflow)
Center-of-Mass det. time= 388.3 min (1,166.4 - 778.1)

#	Invert	Avail.Storage	Storage Description
1	502.00'	166,746 cf	**Custom Stage Data (Conic)** Listed below

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
502.00	826	0	0	826
504.00	1,667	2,444	2,444	1,702
506.00	2,788	4,407	6,852	2,872
506.50	3,112	1,474	8,326	3,210
508.00	7,318	7,601	15,927	7,432
508.50	12,618	4,924	20,851	12,735
510.00	15,208	20,839	41,690	15,400
512.00	18,859	34,002	75,692	19,166
514.00	22,736	41,535	117,227	23,175
516.00	26,840	49,519	166,746	27,428

#	Routing	Invert	Outlet Devices
1	Primary	508.00'	**3.0" Vert. Orifice/Grate** C= 0.600
2	Primary	512.55'	**12.0" Vert. Orifice/Grate X 2.00** C= 0.600
3	Primary	514.00'	**20.0' long x 6.0' high Sharp-Crested Rectangular Weir** 2 End Contraction(s)

Primary OutFlow Max=17.07 cfs @ 12.42 hrs HW=514.25' TW=483.16' (Dynamic Tailwater)
—**1=Orifice/Grate** (Orifice Controls 0.58 cfs @ 11.9 fps)
—**2=Orifice/Grate** (Orifice Controls 8.29 cfs @ 5.3 fps)
—**3=Sharp-Crested Rectangular Weir** (Weir Controls 8.19 cfs @ 1.6 fps)

Pond zDP1: Design Point 1

Field note #10.
Culvert dimensions to be confirmed by survey.

Inflow Area = 26.658 ac, Inflow Depth = 2.18" for 10-yr event
Inflow = 26.58 cfs @ 12.51 hrs, Volume= 4.843 af
Outflow = 26.58 cfs @ 12.52 hrs, Volume= 4.843 af, Atten= 0%, Lag= 0.2 min
Primary = 26.58 cfs @ 12.52 hrs, Volume= 4.843 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Peak Elev= 722.07' @ 12.52 hrs Surf.Area= 98 sf Storage= 70 cf
Flood Elev= 727.00' Surf.Area= 1,105 sf Storage= 2,619 cf
Plug-Flow detention time= 0.1 min calculated for 4.842 af (100% of inflow)
Center-of-Mass det. time= 0.1 min (935.6 - 935.5)

#	Invert	Avail.Storage	Storage Description
1	720.10'	3,706 cf	**Custom Stage Data (Conic)** Listed below

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
720.10	0	0	0	0
722.00	90	57	57	96
724.00	340	403	460	364
726.00	760	1,072	1,533	815
728.00	1,450	2,173	3,706	1,543

#	Routing	Invert	Outlet Devices
1	Primary	720.10'	**42.0" x 120.0' long Culvert** CMP, square edge headwall, Ke= 0.500 Outlet Invert= 700.00' S= 0.1675 '/' n= 0.024 Cc= 0.900
2	Primary	727.00'	**155.0 deg Sharp-Crested Vee/Trap Weir** C= 2.47

Primary OutFlow Max=26.57 cfs @ 12.52 hrs HW=722.07' TW=686.46' (Dynamic Tailwater)
1=Culvert (Inlet Controls 26.57 cfs @ 4.8 fps)
2=Sharp-Crested Vee/Trap Weir (Controls 0.00 cfs)

Pond zDP2: Design Point 2

Field Note #15
Culvert dimensions to be confirmed by survey
Overflow to ditch is currently discarded... We may have to model that area...

Inflow Area = 93.367 ac, Inflow Depth = 1.66" for 10-yr event
Inflow = 65.20 cfs @ 12.87 hrs, Volume= 12.913 af
Outflow = 65.17 cfs @ 12.87 hrs, Volume= 12.913 af, Atten= 0%, Lag= 0.2 min
Discarded = 31.04 cfs @ 12.87 hrs, Volume= 1.895 af
Primary = 34.13 cfs @ 12.87 hrs, Volume= 11.019 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Peak Elev= 625.69' @ 12.87 hrs Surf.Area= 1,318 sf Storage= 3,006 cf
Flood Elev= 624.50' Surf.Area= 925 sf Storage= 1,728 cf
Plug-Flow detention time= 0.7 min calculated for 12.913 af (100% of inflow)
Center-of-Mass det. time= 0.5 min (909.9 - 909.4)

#	Invert	Avail.Storage	Storage Description
1	619.60'	7,280 cf	**Custom Stage Data (Conic)** Listed below

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
619.60	0	0	0	0
620.00	10	1	1	10
622.00	260	214	215	269
624.00	760	976	1,192	793
626.00	1,420	2,146	3,338	1,492
628.00	2,580	3,943	7,280	2,694

#	Routing	Invert	Outlet Devices
1	Primary	619.60'	**24.0" x 150.0' long Culvert** RCP, end-section conforming to fill, Ke= 0.500 Outlet Invert= 608.00' S= 0.0773 '/' n= 0.012 Cc= 0.900
2	Discarded	624.50'	**166.0 deg Sharp-Crested Vee/Trap Weir** C= 2.46

Discarded OutFlow Max=31.03 cfs @ 12.87 hrs HW=625.69' (Free Discharge)
└─**2=Sharp-Crested Vee/Trap Weir** (Weir Controls 31.03 cfs @ 2.7 fps)

Primary OutFlow Max=34.13 cfs @ 12.87 hrs HW=625.69' TW=607.67' (Dynamic Tailwater)
└─**1=Culvert** (Inlet Controls 34.13 cfs @ 10.9 fps)

Pond zDP3: Design Point 3

Inflow Area =	228.471 ac,	Inflow Depth = 18.31"	for 10-yr event	
Inflow =	192.28 cfs @	12.55 hrs, Volume=	348.596 af	
Primary =	192.28 cfs @	12.55 hrs, Volume=	348.596 af,	Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

Pond zDP4: Design Point 4

Inflow Area =	459.188 ac,	Inflow Depth = 1.57"	for 10-yr event	
Inflow =	25.67 cfs @	20.43 hrs, Volume=	60.140 af	
Primary =	25.67 cfs @	20.43 hrs, Volume=	60.140 af,	Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

Pond zDP5: Design Point 5

Inflow Area =	28.325 ac,	Inflow Depth = 2.04"	for 10-yr event	
Inflow =	37.09 cfs @	12.45 hrs, Volume=	4.807 af	
Primary =	37.09 cfs @	12.45 hrs, Volume=	4.807 af,	Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

Post-Development Conditions
25 year 24 hour Storm Event
Model Computations

Subcatchment s01-0:

Runoff = 16.08 cfs @ 12.60 hrs, Volume= 2.435 af, Depth= 2.54"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-yr Rainfall=5.90"

Area (ac)	CN	Description
11.485	68	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
42.8					**Direct Entry,**

Subcatchment s02-1:

Runoff = 86.23 cfs @ 12.87 hrs, Volume= 16.254 af, Depth= 2.28"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-yr Rainfall=5.90"

Area (ac)	CN	Description
85.591	65	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
61.3					**Direct Entry,**

Subcatchment s02-2:

Runoff = 12.02 cfs @ 12.44 hrs, Volume= 1.533 af, Depth= 2.37"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-yr Rainfall=5.90"

Area (ac)	CN	Description
7.776	66	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
29.4					**Direct Entry,**

Subcatchment s02-3:

Runoff = 23.69 cfs @ 12.02 hrs, Volume= 1.470 af, Depth= 4.31"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-yr Rainfall=5.90"

Area (ac)	CN	Description
4.088	86	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.6					**Direct Entry,**

Subcatchment s03-1:

Runoff = 19.03 cfs @ 12.41 hrs, Volume= 2.371 af, Depth= 2.73"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-yr Rainfall=5.90"

Area (ac)	CN	Description
10.435	70	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
28.8					**Direct Entry,**

Subcatchment s03-2:

Runoff = 12.93 cfs @ 12.02 hrs, Volume= 0.781 af, Depth= 3.10"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-yr Rainfall=5.90"

Area (ac)	CN	Description
3.021	74	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.5					**Direct Entry,**

Subcatchment s03-2(IC): s03-2 Impervious Cover

Runoff = 11.29 cfs @ 12.02 hrs, Volume= 0.785 af, Depth= 5.66"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-yr Rainfall=5.90"

Area (ac)	CN	Description
1.663	98	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.5					**Direct Entry,**

Subcatchment s03-2(OW): s03-2 Open Water

Runoff = 0.38 cfs @ 12.00 hrs, Volume= 0.027 af, Depth= 5.90"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-yr Rainfall=5.90"

Area (ac)	CN	Description
0.054	100	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.0					**Direct Entry,**

Subcatchment s04-1:

Runoff = 22.18 cfs @ 12.09 hrs, Volume= 1.601 af, Depth= 2.54"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-yr Rainfall=5.90"

Area (ac)	CN	Description
7.549	68	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.1					**Direct Entry,**

Subcatchment s05-1:

Runoff = 11.28 cfs @ 12.21 hrs, Volume= 1.105 af, Depth= 1.94"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-yr Rainfall=5.90"

Area (ac)	CN	Description
6.842	61	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
14.4					**Direct Entry,**

Subcatchment s06-0:

Runoff = 14.52 cfs @ 12.25 hrs, Volume= 1.518 af, Depth= 2.02"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-yr Rainfall=5.90"

Area (ac)	CN	Description
9.007	62	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
17.3					**Direct Entry,**

Subcatchment s06-0(OW): s06 Open Water

Runoff = 3.03 cfs @ 12.00 hrs, Volume= 0.210 af, Depth= 5.90"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-yr Rainfall=5.90"

Area (ac)	CN	Description
0.428	100	

Subcatchment s07-1:

Runoff = 10.35 cfs @ 12.14 hrs, Volume= 0.851 af, Depth= 2.19"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-yr Rainfall=5.90"

Area (ac)	CN	Description
4.656	64	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.3					**Direct Entry,**

Subcatchment s07-1(OW): s07 Open Water

Runoff = 3.58 cfs @ 12.00 hrs, Volume= 0.249 af, Depth= 5.90"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-yr Rainfall=5.90"

Area (ac)	CN	Description
0.506	100	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.0					**Direct Entry,**

Subcatchment s08-1:

Runoff = 29.17 cfs @ 12.38 hrs, Volume= 3.578 af, Depth= 1.86"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-yr Rainfall=5.90"

Area (ac)	CN	Description
23.126	60	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
24.5					**Direct Entry,**

Subcatchment s08-2:

Runoff = 17.76 cfs @ 12.17 hrs, Volume= 1.573 af, Depth= 2.11"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-yr Rainfall=5.90"

Area (ac)	CN	Description
8.958	63	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
11.4					**Direct Entry,**

Subcatchment s08-2(IC):

Runoff = 35.69 cfs @ 12.04 hrs, Volume= 2.606 af, Depth= 5.66"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-yr Rainfall=5.90"

Area (ac)	CN	Description
5.524	98	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
2.9					**Direct Entry,**

Subcatchment s08-2(OW):

Runoff = 1.36 cfs @ 12.00 hrs, Volume= 0.094 af, Depth= 5.90"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-yr Rainfall=5.90"

Area (ac)	CN	Description
0.192	100	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.0					**Direct Entry,**

Subcatchment s08-3:

Runoff = 2.86 cfs @ 12.20 hrs, Volume= 0.275 af, Depth= 1.94"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-yr Rainfall=5.90"

Area (ac)	CN	Description
1.700	61	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
13.6					**Direct Entry,**

Subcatchment s08-3(IC): s08-3 Impervious Cover

Runoff = 7.48 cfs @ 12.01 hrs, Volume= 0.512 af, Depth= 5.66"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-yr Rainfall=5.90"

Area (ac)	CN	Description
1.086	98	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.0					**Direct Entry,**

Subcatchment s08-3(OW): s08-3 Open Water

Runoff = 0.30 cfs @ 12.00 hrs, Volume= 0.021 af, Depth= 5.90"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-yr Rainfall=5.90"

Area (ac)	CN	Description
0.042	100	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.0					**Direct Entry,**

Subcatchment s09-1:

Runoff = 4.79 cfs @ 12.14 hrs, Volume= 0.403 af, Depth= 1.86"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-yr Rainfall=5.90"

Area (ac)	CN	Description
2.604	60	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.0					**Direct Entry,**

Subcatchment s09-2:

Runoff = 35.01 cfs @ 12.29 hrs, Volume= 3.807 af, Depth= 2.45"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-yr Rainfall=5.90"

Area (ac)	CN	Description
18.608	67	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
20.6					**Direct Entry,**

Subcatchment s09-2(IC): s09-2 Impervious Cover

Runoff = 15.30 cfs @ 12.04 hrs, Volume= 1.102 af, Depth= 5.66"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-yr Rainfall=5.90"

Area (ac)	CN	Description
2.336	98	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
2.5					**Direct Entry,**

Subcatchment s09-2(OW): s09-2 Open Water

Runoff = 1.67 cfs @ 12.00 hrs, Volume= 0.116 af, Depth= 5.90"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-yr Rainfall=5.90"

Area (ac)	CN	Description
0.236	100	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.0					**Direct Entry,**

Subcatchment s09-3:

Runoff = 9.53 cfs @ 12.15 hrs, Volume= 0.810 af, Depth= 2.54"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-yr Rainfall=5.90"

Area (ac)	CN	Description
3.818	68	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.9					**Direct Entry,**

Subcatchment s10-1:

Runoff = 13.79 cfs @ 12.40 hrs, Volume= 1.704 af, Depth= 2.54"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-yr Rainfall=5.90"

Area (ac)	CN	Description
8.038	68	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
27.9					**Direct Entry,**

Subcatchment s10-1(OW): s10 Open Water

Runoff = 5.88 cfs @ 12.00 hrs, Volume= 0.408 af, Depth= 5.90"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-yr Rainfall=5.90"

Area (ac)	CN	Description
0.830	100	

Subcatchment s13-1:

Runoff = 8.63 cfs @ 12.05 hrs, Volume= 0.574 af, Depth= 1.94"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-yr Rainfall=5.90"

Area (ac)	CN	Description
3.555	61	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
2.8					**Direct Entry,**

Subcatchment s13-1(IC): s13-1 Impervious Cover

Runoff = 41.24 cfs @ 12.04 hrs, Volume= 3.001 af, Depth= 5.66"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-yr Rainfall=5.90"

Area (ac)	CN	Description
6.360	98	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
2.8					**Direct Entry,**

Subcatchment s13-1(OW): s13-1 Open Water

Runoff = 0.93 cfs @ 12.00 hrs, Volume= 0.064 af, Depth= 5.90"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-yr Rainfall=5.90"

Area (ac)	CN	Description
0.131	100	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.0					**Direct Entry,**

Subcatchment s14-1:

Runoff = 24.44 cfs @ 12.40 hrs, Volume= 3.014 af, Depth= 2.63"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-yr Rainfall=5.90"

Area (ac)	CN	Description
13.727	69	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
28.1					**Direct Entry,**

Subcatchment s14-1(IC): s14-1 Impervious Cover

Runoff = 12.15 cfs @ 12.03 hrs, Volume= 0.868 af, Depth= 5.66"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-yr Rainfall=5.90"

Area (ac)	CN	Description
1.840	98	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
2.3					**Direct Entry,**

Subcatchment s14-1(OW): s14 Open Water

Runoff = 3.67 cfs @ 12.00 hrs, Volume= 0.255 af, Depth= 5.90"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-yr Rainfall=5.90"

Area (ac)	CN	Description
0.518	100	

Subcatchment s14-2:

Runoff = 1.07 cfs @ 12.10 hrs, Volume= 0.081 af, Depth= 1.94"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-yr Rainfall=5.90"

Area (ac)	CN	Description
0.504	61	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.4					**Direct Entry,**

Subcatchment s14-2(OW): s14-2 Open Water

Runoff = 1.25 cfs @ 12.00 hrs, Volume= 0.087 af, Depth= 5.90"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-yr Rainfall=5.90"

Area (ac)	CN	Description
0.176	100	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.0					**Direct Entry,**

Subcatchment s14-3:

Runoff = 19.07 cfs @ 12.12 hrs, Volume= 1.492 af, Depth= 2.63"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-yr Rainfall=5.90"

Area (ac)	CN	Description
6.794	69	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.5					**Direct Entry,**

Subcatchment s14-3(IC): s14-3 Impervious Cover

Runoff = 54.65 cfs @ 12.04 hrs, Volume= 3.992 af, Depth= 5.66"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-yr Rainfall=5.90"

Area (ac)	CN	Description
8.460	98	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
2.9					**Direct Entry,**

Subcatchment s16-1:

Runoff = 77.13 cfs @ 12.27 hrs, Volume= 8.117 af, Depth= 2.45"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-yr Rainfall=5.90"

Area (ac)	CN	Description
39.680	67	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
19.0					**Direct Entry,**

Subcatchment s16-1(OW): s16-1 Open Water

Runoff = 37.90 cfs @ 12.00 hrs, Volume= 2.631 af, Depth= 5.90"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-yr Rainfall=5.90"

Area (ac)	CN	Description
5.351	100	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.0					**Direct Entry,**

Subcatchment s16-2:

Runoff = 6.23 cfs @ 12.22 hrs, Volume= 0.597 af, Depth= 3.29"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-yr Rainfall=5.90"

Area (ac)	CN	Description
2.176	76	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
15.8					**Direct Entry,**

Subcatchment s17-1:

Runoff = 8.13 cfs @ 12.50 hrs, Volume= 1.116 af, Depth= 2.19"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-yr Rainfall=5.90"

Area (ac)	CN	Description
6.110	64	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
33.8					**Direct Entry,**

Subcatchment s17-1(OW): s17-1 Open Water

Runoff = 1.16 cfs @ 12.00 hrs, Volume= 0.081 af, Depth= 5.90"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-yr Rainfall=5.90"

Area (ac)	CN	Description
0.164	100	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.0					**Direct Entry,**

Subcatchment s17-2:

Runoff = 59.85 cfs @ 13.29 hrs, Volume= 15.004 af, Depth= 2.37"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-yr Rainfall=5.90"

Area (ac)	CN	Description
76.086	66	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
95.7					**Direct Entry,**

Subcatchment s17-3:

Runoff = 45.38 cfs @ 12.45 hrs, Volume= 5.892 af, Depth= 2.37"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-yr Rainfall=5.90"

Area (ac)	CN	Description
29.880	66	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
30.7					**Direct Entry,**

Subcatchment s18-1:

Runoff = 15.28 cfs @ 12.23 hrs, Volume= 1.540 af, Depth= 2.19"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-yr Rainfall=5.90"

Area (ac)	CN	Description
8.429	64	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
16.4					**Direct Entry,**

Subcatchment s18-1(OW): s18-1 Open Water

Runoff = 3.34 cfs @ 12.00 hrs, Volume= 0.232 af, Depth= 5.90"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-yr Rainfall=5.90"

Area (ac)	CN	Description
0.472	100	

Subcatchment s18-2:

Runoff = 23.04 cfs @ 12.26 hrs, Volume= 2.354 af, Depth= 2.63"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-yr Rainfall=5.90"

Area (ac)	CN	Description
10.721	69	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
18.0					**Direct Entry,**

Subcatchment s19-0:

Runoff = 15.56 cfs @ 12.61 hrs, Volume= 2.401 af, Depth= 1.86"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-yr Rainfall=5.90"

Area (ac)	CN	Description
15.520	60	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
40.4					**Direct Entry,**

Subcatchment s20-1:

Runoff = 15.16 cfs @ 12.31 hrs, Volume= 1.688 af, Depth= 2.37"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-yr Rainfall=5.90"

Area (ac)	CN	Description
8.559	66	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
21.5					**Direct Entry,**

Subcatchment s20-1(OW): s20-1 Open Water

Runoff = 13.94 cfs @ 12.00 hrs, Volume= 0.968 af, Depth= 5.90"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-yr Rainfall=5.90"

Area (ac)	CN	Description
1.968	100	

Subcatchment s20-2:

Runoff = 27.29 cfs @ 12.12 hrs, Volume= 2.108 af, Depth= 3.10"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-yr Rainfall=5.90"

Area (ac)	CN	Description
8.157	74	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.4					**Direct Entry,**

Subcatchment s20-2(IC): s20-2 Impervious Cover

Runoff = 30.94 cfs @ 12.07 hrs, Volume= 2.412 af, Depth= 5.66"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-yr Rainfall=5.90"

Area (ac)	CN	Description
5.112	98	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.7					**Direct Entry,**

Subcatchment s20-2(OW): s20-2 Open Water

Runoff = 1.71 cfs @ 12.00 hrs, Volume= 0.119 af, Depth= 5.90"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-yr Rainfall=5.90"

Area (ac)	CN	Description
0.242	100	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.0					**Direct Entry,**

Subcatchment s20-3:

Runoff = 14.12 cfs @ 12.30 hrs, Volume= 1.564 af, Depth= 2.73"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-yr Rainfall=5.90"

Area (ac)	CN	Description
6.886	70	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
22.0					**Direct Entry,**

Subcatchment s21-1:

Runoff = 136.65 cfs @ 12.23 hrs, Volume= 13.557 af, Depth= 2.54"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-yr Rainfall=5.90"

Area (ac)	CN	Description
63.942	68	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
16.6					**Direct Entry,**

Subcatchment s21-1(OW):

Runoff = 86.66 cfs @ 12.00 hrs, Volume= 6.016 af, Depth= 5.90"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-yr Rainfall=5.90"

Area (ac)	CN	Description
12.235	100	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.0					**Direct Entry,**

Subcatchment s21-2:

Runoff = 36.78 cfs @ 12.45 hrs, Volume= 4.757 af, Depth= 2.73"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-yr Rainfall=5.90"

Area (ac)	CN	Description
20.941	70	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
31.4					**Direct Entry,**

Subcatchment s21-3:

Runoff = 26.20 cfs @ 12.16 hrs, Volume= 2.214 af, Depth= 3.10"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-yr Rainfall=5.90"

Area (ac)	CN	Description
8.567	74	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
11.2					**Direct Entry,**

Subcatchment s21-4:

Runoff = 7.48 cfs @ 12.19 hrs, Volume= 0.694 af, Depth= 2.45"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-yr Rainfall=5.90"

Area (ac)	CN	Description
3.392	67	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
13.8					**Direct Entry,**

Subcatchment s21-4(IC): s21-4 Impervious Cover

Runoff = 11.11 cfs @ 12.02 hrs, Volume= 0.775 af, Depth= 5.66"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-yr Rainfall=5.90"

Area (ac)	CN	Description
1.643	98	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.6					**Direct Entry,**

Subcatchment s21-4(OW): s21-4 Open Water

Runoff = 0.83 cfs @ 12.00 hrs, Volume= 0.058 af, Depth= 5.90"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-yr Rainfall=5.90"

Area (ac)	CN	Description
0.117	100	

Subcatchment s21-5:

Runoff = 7.00 cfs @ 12.19 hrs, Volume= 0.639 af, Depth= 3.20"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-yr Rainfall=5.90"

Area (ac)	CN	Description
2.398	75	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
13.9					**Direct Entry,**

Subcatchment s21-6:

Runoff = 15.02 cfs @ 12.24 hrs, Volume= 1.500 af, Depth= 3.29"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-yr Rainfall=5.90"

Area (ac)	CN	Description
5.463	76	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
17.5					**Direct Entry,**

Subcatchment s21-6(IC): s21-6 Impervious Cover

Runoff = 4.36 cfs @ 12.02 hrs, Volume= 0.303 af, Depth= 5.66"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-yr Rainfall=5.90"

Area (ac)	CN	Description
0.643	98	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.5					**Direct Entry,**

Subcatchment s21-6(OW): s21-6 Open Water

Runoff = 0.54 cfs @ 12.00 hrs, Volume= 0.037 af, Depth= 5.90"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-yr Rainfall=5.90"

Area (ac)	CN	Description
0.076	100	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.0					**Direct Entry,**

Subcatchment s21-7:

Runoff = 8.64 cfs @ 12.19 hrs, Volume= 0.799 af, Depth= 2.19"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-yr Rainfall=5.90"

Area (ac)	CN	Description
4.375	64	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
13.1					**Direct Entry,**

Subcatchment s21-7(IC): s21-7 Impervious Cover

Runoff = 25.48 cfs @ 12.04 hrs, Volume= 1.835 af, Depth= 5.66"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-yr Rainfall=5.90"

Area (ac)	CN	Description
3.890	98	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
2.5					**Direct Entry,**

Subcatchment s21-7(OW): s21-7 Open Water

Runoff = 0.64 cfs @ 12.00 hrs, Volume= 0.044 af, Depth= 5.90"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-yr Rainfall=5.90"

Area (ac)	CN	Description
0.090	100	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.0					**Direct Entry,**

Subcatchment s22-1:

Runoff = 46.39 cfs @ 12.20 hrs, Volume= 4.338 af, Depth= 2.91"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-yr Rainfall=5.90"

Area (ac)	CN	Description
17.878	72	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
14.7					**Direct Entry,**

Subcatchment s22-1(OW): s22-1 Open Water

Runoff = 0.96 cfs @ 12.00 hrs, Volume= 0.067 af, Depth= 5.90"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-yr Rainfall=5.90"

Area (ac)	CN	Description
0.136	100	

Subcatchment s22-2:

Runoff = 82.29 cfs @ 12.35 hrs, Volume= 9.509 af, Depth= 2.54"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-yr Rainfall=5.90"

Area (ac)	CN	Description
44.848	68	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
24.0					**Direct Entry,**

Subcatchment s23-1:

Runoff = 49.78 cfs @ 12.54 hrs, Volume= 7.066 af, Depth= 2.91"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-yr Rainfall=5.90"

Area (ac)	CN	Description
29.123	72	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
38.5					**Direct Entry,**

Subcatchment s23-2:

Runoff = 37.37 cfs @ 12.06 hrs, Volume= 2.471 af, Depth= 3.39"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-yr Rainfall=5.90"

Area (ac)	CN	Description
8.741	77	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.0					**Direct Entry,**

Subcatchment s23-2(IC): s23-2 Impervious Cover

Runoff = 44.59 cfs @ 12.06 hrs, Volume= 3.390 af, Depth= 5.66"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-yr Rainfall=5.90"

Area (ac)	CN	Description
7.185	98	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.0					**Direct Entry,**

Subcatchment s23-2(OW): s23-2 Open Water

Runoff = 1.19 cfs @ 12.00 hrs, Volume= 0.083 af, Depth= 5.90"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-yr Rainfall=5.90"

Area (ac)	CN	Description
0.168	100	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.0					**Direct Entry,**

Subcatchment s24-0:

Runoff = 50.24 cfs @ 12.45 hrs, Volume= 6.435 af, Depth= 2.73"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-yr Rainfall=5.90"

Area (ac)	CN	Description
28.325	70	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
30.7					**Direct Entry,**

Subcatchment s25-0:

Runoff = 24.65 cfs @ 12.28 hrs, Volume= 2.674 af, Depth= 2.37"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-yr Rainfall=5.90"

Area (ac)	CN	Description
13.562	66	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
20.2					**Direct Entry,**

Reach 25R:

Overland Flow Reach

Inflow Area = 15.520 ac, Inflow Depth = 1.86" for 25-yr event
Inflow = 9.61 cfs @ 13.04 hrs, Volume= 2.400 af
Outflow = 9.55 cfs @ 13.11 hrs, Volume= 2.399 af, Atten= 1%, Lag= 3.7 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Max. Velocity= 2.1 fps, Min. Travel Time= 4.8 min
Avg. Velocity = 0.7 fps, Avg. Travel Time= 15.7 min

Peak Depth= 0.26' @ 13.11 hrs
Capacity at bank full= 175.17 cfs
Inlet Invert= 560.00', Outlet Invert= 512.00'
50.00' x 1.00' deep Parabolic Channel, n= 0.060 Length= 620.0' Slope= 0.0774 '/'

Reach r03-1:

Overland Flow Reach
Requires more survey

Inflow Area = 11.485 ac, Inflow Depth = 2.54" for 25-yr event
Inflow = 16.08 cfs @ 12.60 hrs, Volume= 2.435 af
Outflow = 16.00 cfs @ 12.64 hrs, Volume= 2.435 af, Atten= 1%, Lag= 2.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Max. Velocity= 5.5 fps, Min. Travel Time= 2.4 min
Avg. Velocity = 2.1 fps, Avg. Travel Time= 6.3 min

Peak Depth= 0.66' @ 12.64 hrs
Capacity at bank full= 92.14 cfs
Inlet Invert= 845.00', Outlet Invert= 728.00'
10.00' x 1.50' deep Parabolic Channel, n= 0.060 Length= 785.0' Slope= 0.1490 '/'

Reach r04-1:

Channel

Inflow Area = 26.658 ac, Inflow Depth = 2.88" for 25-yr event
Inflow = 36.10 cfs @ 12.51 hrs, Volume= 6.393 af
Outflow = 36.09 cfs @ 12.52 hrs, Volume= 6.393 af, Atten= 0%, Lag= 0.4 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Max. Velocity= 7.8 fps, Min. Travel Time= 0.7 min
Avg. Velocity = 2.1 fps, Avg. Travel Time= 2.6 min

Peak Depth= 1.11' @ 12.52 hrs
Capacity at bank full= 530.15 cfs
Inlet Invert= 685.50', Outlet Invert= 632.00'
12.00' x 4.00' deep Parabolic Channel, n= 0.060 Length= 330.0' Slope= 0.1621 '/'

Reach r08-1a:

Man Made Ditch
Inverts of pipe to be surveyed

Inflow Area = 93.367 ac, Inflow Depth = 1.74" for 25-yr event
Inflow = 35.21 cfs @ 12.87 hrs, Volume= 13.568 af
Outflow = 35.21 cfs @ 12.87 hrs, Volume= 13.568 af, Atten= 0%, Lag= 0.2 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Max. Velocity= 9.5 fps, Min. Travel Time= 0.4 min
Avg. Velocity = 5.3 fps, Avg. Travel Time= 0.7 min

Peak Depth= 0.68' @ 12.87 hrs
Capacity at bank full= 81.88 cfs
Inlet Invert= 607.00', Outlet Invert= 587.00'
10.00' x 1.00' deep Parabolic Channel, n= 0.027 Length= 226.0' Slope= 0.0885 '/'

Reach r08-1b:

24" HDPE
Inverts to be surveyed

Inflow Area = 93.367 ac, Inflow Depth = 1.74" for 25-yr event
Inflow = 35.21 cfs @ 12.87 hrs, Volume= 13.568 af
Outflow = 35.21 cfs @ 12.87 hrs, Volume= 13.568 af, Atten= 0%, Lag= 0.2 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Max. Velocity= 24.0 fps, Min. Travel Time= 0.2 min
Avg. Velocity = 13.9 fps, Avg. Travel Time= 0.4 min

Peak Depth= 0.95' @ 12.87 hrs
Capacity at bank full= 77.17 cfs
Inlet Invert= 587.00', Outlet Invert= 557.75'
24.0" Diameter Pipe n= 0.012 Length= 295.0' Slope= 0.0992 '/'

Reach r08-1c:

Ditch
Pipe inverts to be surveyed

Inflow Area = 93.367 ac, Inflow Depth = 1.74" for 25-yr event
Inflow = 35.21 cfs @ 12.87 hrs, Volume= 13.568 af
Outflow = 35.21 cfs @ 12.88 hrs, Volume= 13.568 af, Atten= 0%, Lag= 0.4 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Max. Velocity= 9.1 fps, Min. Travel Time= 1.1 min
Avg. Velocity = 4.8 fps, Avg. Travel Time= 2.0 min

Peak Depth= 0.70' @ 12.88 hrs
Capacity at bank full= 76.65 cfs
Inlet Invert= 557.75', Outlet Invert= 512.00'
10.00' x 1.00' deep Parabolic Channel, n= 0.027 Length= 590.0' Slope= 0.0775 '/'

Reach r08-1d: Amenia Creek/Cascade Brook

(Steam) parallel to Route 22
Base Flow estimated from field observation (see field note 21)

Inflow Area = 114.957 ac, Inflow Depth = 18.60" for 25-yr event
Inflow = 102.65 cfs @ 12.39 hrs, Volume= 178.149 af, Incl. 40.00 cfs Base Flow
Outflow = 101.99 cfs @ 12.45 hrs, Volume= 177.904 af, Atten= 1%, Lag= 3.4 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Max. Velocity= 3.9 fps, Min. Travel Time= 3.4 min
Avg. Velocity = 3.1 fps, Avg. Travel Time= 4.3 min

Peak Depth= 3.95' @ 12.45 hrs
Capacity at bank full= 104.49 cfs
Inlet Invert= 512.00', Outlet Invert= 504.00'
10.00' x 4.00' deep Parabolic Channel, n= 0.060 Length= 805.0' Slope= 0.0099 '/'

Reach r13-1:

Inflow Area = 2.176 ac, Inflow Depth = 3.29" for 25-yr event
Inflow = 6.23 cfs @ 12.22 hrs, Volume= 0.597 af
Outflow = 6.17 cfs @ 12.24 hrs, Volume= 0.597 af, Atten= 1%, Lag= 1.3 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Max. Velocity= 9.2 fps, Min. Travel Time= 1.6 min
Avg. Velocity = 3.4 fps, Avg. Travel Time= 4.4 min

Peak Depth= 0.61' @ 12.24 hrs
Capacity at bank full= 17.79 cfs
Inlet Invert= 546.00', Outlet Invert= 524.00'
18.0" Diameter Pipe n= 0.012 Length= 900.0' Slope= 0.0244 '/'

Reach r14-3a:

30" HDPE Under Main Entrance Road

Inflow Area = 6.422 ac, Inflow Depth = 2.27" for 25-yr event
Inflow = 14.20 cfs @ 12.16 hrs, Volume= 1.212 af
Outflow = 14.17 cfs @ 12.17 hrs, Volume= 1.212 af, Atten= 0%, Lag= 0.4 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Max. Velocity= 13.9 fps, Min. Travel Time= 0.5 min
Avg. Velocity = 5.2 fps, Avg. Travel Time= 1.4 min

Peak Depth= 0.65' @ 12.17 hrs
Capacity at bank full= 94.91 cfs
Inlet Invert= 526.00', Outlet Invert= 505.70'
30.0" Diameter Pipe n= 0.012 Length= 445.0' Slope= 0.0456 '/'

Reach r14-3b:

Grass lined channel

Inflow Area = 6.422 ac, Inflow Depth = 2.27" for 25-yr event
Inflow = 14.28 cfs @ 12.15 hrs, Volume= 1.212 af
Outflow = 14.20 cfs @ 12.16 hrs, Volume= 1.212 af, Atten= 1%, Lag= 0.7 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Max. Velocity= 6.6 fps, Min. Travel Time= 0.9 min
Avg. Velocity = 2.5 fps, Avg. Travel Time= 2.4 min

Peak Depth= 0.68' @ 12.16 hrs
Capacity at bank full= 325.42 cfs
Inlet Invert= 542.00', Outlet Invert= 526.00'
10.00' x 3.00' deep Parabolic Channel, n= 0.027 Length= 360.0' Slope= 0.0444 '/'

Reach r17-1:

Inflow Area = 76.086 ac, Inflow Depth = 2.37" for 25-yr event
Inflow = 59.85 cfs @ 13.29 hrs, Volume= 15.004 af
Outflow = 59.64 cfs @ 13.34 hrs, Volume= 15.004 af, Atten= 0%, Lag= 2.7 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Max. Velocity= 8.1 fps, Min. Travel Time= 2.8 min
Avg. Velocity = 3.2 fps, Avg. Travel Time= 7.2 min

Peak Depth= 1.19' @ 13.34 hrs
Capacity at bank full= 181.28 cfs
Inlet Invert= 646.00', Outlet Invert= 524.00'
12.00' x 2.00' deep Parabolic Channel, n= 0.045 Length= 1,390.0' Slope= 0.0878 '/'

Reach r18-2:

Overland Flow Reach

Inflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Outflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Max. Velocity= 0.0 fps, Min. Travel Time= 0.0 min
Avg. Velocity = 0.0 fps, Avg. Travel Time= 0.0 min

Peak Depth= 0.00' @ 0.00 hrs
Capacity at bank full= 434.91 cfs
Inlet Invert= 973.60', Outlet Invert= 630.00'
50.00' x 1.00' deep Parabolic Channel, n= 0.060 Length= 720.0' Slope= 0.4772 '/'

Reach r21-1a:

Man Made Ditch

Inflow Area = 207.817 ac, Inflow Depth = 1.82" for 25-yr event
Inflow = 44.11 cfs @ 15.25 hrs, Volume= 31.459 af
Outflow = 44.11 cfs @ 15.27 hrs, Volume= 31.445 af, Atten= 0%, Lag= 1.3 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Max. Velocity= 6.3 fps, Min. Travel Time= 1.7 min
Avg. Velocity = 3.1 fps, Avg. Travel Time= 3.4 min

Peak Depth= 1.48' @ 15.27 hrs
Capacity at bank full= 191.76 cfs
Inlet Invert= 504.00', Outlet Invert= 494.00'
10.00' x 3.00' deep Parabolic Channel, n= 0.027 Length= 648.0' Slope= 0.0154 '/'

Reach r21-1b:

Overland Flow Reach

Inflow Area = 29.123 ac, Inflow Depth = 2.62" for 25-yr event
Inflow = 49.74 cfs @ 12.55 hrs, Volume= 6.351 af
Outflow = 49.72 cfs @ 12.55 hrs, Volume= 6.351 af, Atten= 0%, Lag= 0.5 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Max. Velocity= 4.3 fps, Min. Travel Time= 0.6 min
Avg. Velocity = 1.6 fps, Avg. Travel Time= 1.6 min

Peak Depth= 0.50' @ 12.55 hrs
Capacity at bank full= 227.81 cfs
Inlet Invert= 506.70', Outlet Invert= 485.75'
50.00' x 1.00' deep Parabolic Channel, n= 0.060 Length= 160.0' Slope= 0.1309 '/'

Reach r22-2:

Overland Flow Reach

Inflow Area =	15.520 ac, Inflow Depth = 1.86"	for 25-yr event	
Inflow =	9.63 cfs @ 13.01 hrs, Volume=	2.400 af	
Outflow =	9.61 cfs @ 13.04 hrs, Volume=	2.400 af,	Atten= 0%, Lag= 1.8 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Max. Velocity= 4.3 fps, Min. Travel Time= 2.5 min
Avg. Velocity = 1.4 fps, Avg. Travel Time= 7.7 min

Peak Depth= 0.17' @ 13.04 hrs
Capacity at bank full= 469.25 cfs
Inlet Invert= 970.00', Outlet Invert= 620.00'
50.00' x 1.00' deep Parabolic Channel, n= 0.060 Length= 630.0' Slope= 0.5556 '/'

Reach r25-0a:

Ditch
Pipe inverts need to be surveyed

Inflow Area =	67.391 ac, Inflow Depth = 2.59"	for 25-yr event	
Inflow =	45.93 cfs @ 12.52 hrs, Volume=	14.567 af	
Outflow =	45.89 cfs @ 12.54 hrs, Volume=	14.563 af,	Atten= 0%, Lag= 1.2 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Max. Velocity= 9.9 fps, Min. Travel Time= 1.8 min
Avg. Velocity = 3.5 fps, Avg. Travel Time= 5.2 min

Peak Depth= 0.99' @ 12.54 hrs
Capacity at bank full= 205.50 cfs
Inlet Invert= 570.00', Outlet Invert= 504.00'
10.00' x 2.00' deep Parabolic Channel, n= 0.027 Length= 1,090.0' Slope= 0.0606 '/'

Reach r25-0b: Wetland Reach

Wetland Reach
Has wetland vegetation within reach

Inflow Area =	9.435 ac, Inflow Depth = 2.16"	for 25-yr event	
Inflow =	13.69 cfs @ 12.35 hrs, Volume=	1.699 af	
Outflow =	12.38 cfs @ 12.45 hrs, Volume=	1.699 af,	Atten= 10%, Lag= 6.4 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Max. Velocity= 1.8 fps, Min. Travel Time= 6.9 min
Avg. Velocity = 0.4 fps, Avg. Travel Time= 27.9 min

Peak Depth= 0.92' @ 12.45 hrs
Capacity at bank full= 156.51 cfs
Inlet Invert= 504.00', Outlet Invert= 499.50'
20.00' x 3.00' deep Parabolic Channel, n= 0.045 Length= 750.0' Slope= 0.0060 '/'

Reach r25-0c: Amenia Creek/Cascade Brook

(Steam) parallel to Route 22
Base Flow estimated from field observation (see field note 21)

Inflow Area = 138.083 ac, Inflow Depth = 29.56" for 25-yr event
Inflow = 170.35 cfs @ 12.42 hrs, Volume= 340.192 af, Incl. 40.00 cfs Base Flow
Outflow = 166.65 cfs @ 12.51 hrs, Volume= 339.508 af, Atten= 2%, Lag= 5.8 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Max. Velocity= 3.0 fps, Min. Travel Time= 5.5 min
Avg. Velocity = 2.7 fps, Avg. Travel Time= 6.1 min

Peak Depth= 6.94' @ 12.51 hrs
Capacity at bank full= 67.14 cfs
Inlet Invert= 504.00', Outlet Invert= 500.00'
10.00' x 4.00' deep Parabolic Channel, n= 0.060 Length= 975.0' Slope= 0.0041 '/'

Pond 8P:

No field note.
Water spills over cart path; no storage.

Inflow Area = 41.049 ac, Inflow Depth = 2.66" for 25-yr event
Inflow = 39.11 cfs @ 12.50 hrs, Volume= 9.099 af
Outflow = 39.11 cfs @ 12.50 hrs, Volume= 9.099 af, Atten= 0%, Lag= 0.0 min
Primary = 39.11 cfs @ 12.50 hrs, Volume= 9.099 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Peak Elev= 575.40' @ 12.50 hrs
Flood Elev= 574.70'
Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= (not calculated)

#	Routing	Invert	Outlet Devices
1	Primary	574.70'	**177.0 deg Sharp-Crested Vee/Trap Weir** C= 2.46

Primary OutFlow Max=39.11 cfs @ 12.50 hrs HW=575.40' TW=570.99' (Dynamic Tailwater)
└─**1=Sharp-Crested Vee/Trap Weir** (Weir Controls 39.11 cfs @ 2.1 fps)

Pond p02-2:

Proposed culvert under proposed road at intersection with 44.

Inflow Area = 7.776 ac, Inflow Depth = 2.37" for 25-yr event
Inflow = 12.02 cfs @ 12.44 hrs, Volume= 1.533 af
Outflow = 12.02 cfs @ 12.44 hrs, Volume= 1.533 af, Atten= 0%, Lag= 0.0 min
Primary = 12.02 cfs @ 12.44 hrs, Volume= 1.533 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Peak Elev= 641.64' @ 12.44 hrs
Flood Elev= 645.00'
Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= (not calculated)

#	Routing	Invert	Outlet Devices
1	Primary	640.00'	**24.0" x 100.0' long Culvert** CPP, end-section conforming to fill, Ke= 0.500 Outlet Invert= 638.00' S= 0.0200 '/' n= 0.012 Cc= 0.900

Primary OutFlow Max=12.02 cfs @ 12.44 hrs HW=641.64' TW=625.60' (Dynamic Tailwater)
└─**1=Culvert** (Inlet Controls 12.02 cfs @ 4.4 fps)

Pond p02-3:

Simulates last DMH at bottom of small road , at intersection with 44. This culvert is only used to size the drain pipe under 44.

Inflow Area = 4.088 ac, Inflow Depth = 4.31" for 25-yr event
Inflow = 23.69 cfs @ 12.02 hrs, Volume= 1.470 af
Outflow = 23.69 cfs @ 12.02 hrs, Volume= 1.470 af, Atten= 0%, Lag= 0.0 min
Primary = 23.69 cfs @ 12.02 hrs, Volume= 1.470 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Peak Elev= 639.93' @ 12.02 hrs
Flood Elev= 645.00'
Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= (not calculated)

#	Routing	Invert	Outlet Devices
1	Primary	635.00'	**24.0" x 100.0' long Culvert** CPP, projecting, no headwall, Ke= 0.900 Outlet Invert= 634.00' S= 0.0100 '/' n= 0.012 Cc= 0.900

Primary OutFlow Max=23.56 cfs @ 12.02 hrs HW=639.89' TW=554.92' (Dynamic Tailwater)
└─**1=Culvert** (Inlet Controls 23.56 cfs @ 7.5 fps)

Pond p03-2:

Inflow Area =	4.738 ac,	Inflow Depth = 4.03"	for 25-yr event	
Inflow =	24.54 cfs @	12.02 hrs, Volume=	1.592 af	
Outflow =	3.36 cfs @	12.50 hrs, Volume=	1.588 af,	Atten= 86%, Lag= 28.4 min
Primary =	3.36 cfs @	12.50 hrs, Volume=	1.588 af	

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Starting Elev= 774.00' Surf.Area= 2,315 sf Storage= 4,095 cf
Peak Elev= 778.55' @ 12.50 hrs Surf.Area= 9,503 sf Storage= 36,861 cf (32,766 cf above start)
Flood Elev= 779.00' Surf.Area= 9,991 sf Storage= 41,391 cf (37,296 cf above start)
Plug-Flow detention time= 345.6 min calculated for 1.494 af (94% of inflow)
Center-of-Mass det. time= 278.0 min (1,060.2 - 782.1)

#	Invert	Avail.Storage	Storage Description
1	768.00'	51,363 cf	**Custom Stage Data (Conic)** Listed below

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
768.00	67	0	0	67
770.00	345	376	376	361
772.00	729	1,050	1,426	777
772.50	842	392	1,819	901
774.00	2,315	2,277	4,095	2,388
774.50	5,704	1,942	6,037	5,779
776.00	6,996	9,509	15,546	7,138
778.00	8,917	15,874	31,420	9,160
780.00	11,064	19,942	51,363	11,421

#	Routing	Invert	Outlet Devices
1	Primary	774.00'	**3.0" Vert. Orifice/Grate** C= 0.600
2	Primary	776.20'	**6.0" Vert. Orifice/Grate X 2.00** C= 0.600
3	Primary	778.50'	**4.0' long x 6.0' high Sharp-Crested Rectangular Weir** 2 End Contraction(s)

Primary OutFlow Max=3.36 cfs @ 12.50 hrs HW=778.55' TW=722.46' (Dynamic Tailwater)
├─**1=Orifice/Grate** (Orifice Controls 0.50 cfs @ 10.1 fps)
├─**2=Orifice/Grate** (Orifice Controls 2.74 cfs @ 7.0 fps)
└─**3=Sharp-Crested Rectangular Weir** (Weir Controls 0.13 cfs @ 0.7 fps)

Pond p04-1:

Storage, inverts and culvert length based on assumed grading, check when final grading becomes available

Inflow Area =	34.207 ac,	Inflow Depth = 2.80"	for 25-yr event	
Inflow =	42.34 cfs @	12.45 hrs, Volume=	7.994 af	
Outflow =	34.38 cfs @	12.73 hrs, Volume=	7.994 af,	Atten= 19%, Lag= 16.6 min
Primary =	34.38 cfs @	12.73 hrs, Volume=	7.994 af	

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

Peak Elev= 644.17' @ 12.73 hrs Surf.Area= 7,590 sf Storage= 22,701 cf
Flood Elev= 648.00' Surf.Area= 15,680 sf Storage= 66,062 cf
Plug-Flow detention time= 4.6 min calculated for 7.994 af (100% of inflow)
Center-of-Mass det. time= 4.5 min (908.8 - 904.3)

#	Invert	Avail.Storage	Storage Description
1	638.00'	66,062 cf	**Custom Stage Data (Conic)** Listed below

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
638.00	0	0	0	0
640.00	1,300	867	867	1,306
642.00	6,180	6,876	7,743	6,203
644.00	7,270	13,435	21,178	7,438
646.00	11,100	18,235	39,414	11,327
648.00	15,680	26,648	66,062	15,980

#	Routing	Invert	Outlet Devices
1	Primary	638.00'	**24.0" x 685.0' long Culvert** CPP, end-section conforming to fill, Ke= 0.500 Outlet Invert= 598.00' S= 0.0584 '/' n= 0.012 Cc= 0.900

Primary OutFlow Max=34.38 cfs @ 12.73 hrs HW=644.17' TW=575.39' (Dynamic Tailwater)
└─**1=Culvert** (Inlet Controls 34.38 cfs @ 10.9 fps)

Pond p06-0:

Field Note #22
Geometry to be confirmed by survey.

Inflow Area = 9.435 ac, Inflow Depth = 2.20" for 25-yr event
Inflow = 15.39 cfs @ 12.25 hrs, Volume= 1.728 af
Outflow = 13.69 cfs @ 12.35 hrs, Volume= 1.699 af, Atten= 11%, Lag= 5.9 min
Primary = 13.69 cfs @ 12.35 hrs, Volume= 1.699 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Starting Elev= 506.80' Surf.Area= 18,600 sf Storage= 42,160 cf
Peak Elev= 507.48' @ 12.35 hrs Surf.Area= 21,671 sf Storage= 56,585 cf (14,425 cf above start)
Flood Elev= 507.10' Surf.Area= 19,958 sf Storage= 48,537 cf (6,377 cf above start)
Plug-Flow detention time= 507.9 min calculated for 0.732 af (42% of inflow)
Center-of-Mass det. time= 111.5 min (962.4 - 851.0)

#	Invert	Avail.Storage	Storage Description
1	500.00'	67,669 cf	**Custom Stage Data (Conic)** Listed below

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
500.00	0	0	0	0
506.80	18,600	42,160	42,160	18,672
508.00	24,030	25,509	67,669	24,138

#	Routing	Invert	Outlet Devices
1	Primary	506.80'	**12.0" x 20.0' long Culvert** CMP, projecting, no headwall, Ke= 0.900 Outlet Invert= 506.00' S= 0.0400 '/' n= 0.024 Cc= 0.900
2	Primary	507.10'	**178.0 deg Sharp-Crested Vee/Trap Weir** C= 2.46

Primary OutFlow Max=13.68 cfs @ 12.35 hrs HW=507.48' TW=504.85' (Dynamic Tailwater)
—**1=Culvert** (Inlet Controls 1.26 cfs @ 2.2 fps)
—**2=Sharp-Crested Vee/Trap Weir** (Weir Controls 12.43 cfs @ 1.5 fps)

Pond p07-1:

Field Note # 29
Outlet geometry to be confirmed by survey.

Inflow Area = 26.342 ac, Inflow Depth = 2.56" for 25-yr event
Inflow = 12.65 cfs @ 12.15 hrs, Volume= 5.613 af
Outflow = 6.83 cfs @ 12.53 hrs, Volume= 5.468 af, Atten= 46%, Lag= 22.9 min
Primary = 6.83 cfs @ 12.53 hrs, Volume= 5.468 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Starting Elev= 572.80' Surf.Area= 21,640 sf Storage= 56,264 cf
Peak Elev= 573.71' @ 12.53 hrs Surf.Area= 25,939 sf Storage= 78,551 cf (22,287 cf above start)
Flood Elev= 573.50' Surf.Area= 24,936 sf Storage= 73,351 cf (17,087 cf above start)
Plug-Flow detention time= 431.5 min calculated for 4.175 af (74% of inflow)
Center-of-Mass det. time= 81.2 min (1,266.0 - 1,184.8)

#	Invert	Avail.Storage	Storage Description
1	565.00'	85,557 cf	**Custom Stage Data (Conic)** Listed below

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
565.00	0	0	0	0
572.80	21,640	56,264	56,264	21,735
574.00	27,290	29,293	85,557	27,424

#	Routing	Invert	Outlet Devices
1	Primary	572.80'	**18.0" x 20.0' long Culvert** CMP, projecting, no headwall, Ke= 0.900 Outlet Invert= 572.00' S= 0.0400 '/' n= 0.024 Cc= 0.900
2	Primary	573.50'	**177.0 deg Sharp-Crested Vee/Trap Weir X 2.00** C= 2.46

Primary OutFlow Max=6.83 cfs @ 12.53 hrs HW=573.71' TW=570.99' (Dynamic Tailwater)
—**1=Culvert** (Inlet Controls 2.89 cfs @ 2.6 fps)
—**2=Sharp-Crested Vee/Trap Weir** (Weir Controls 3.93 cfs @ 1.1 fps)

Pond p08-2:

Inflow Area = 18.762 ac, Inflow Depth = 3.67" for 25-yr event
Inflow = 68.62 cfs @ 12.04 hrs, Volume= 5.743 af
Outflow = 25.71 cfs @ 12.37 hrs, Volume= 5.063 af, Atten= 63%, Lag= 20.0 min
Primary = 25.71 cfs @ 12.37 hrs, Volume= 5.063 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Starting Elev= 550.00' Surf.Area= 8,558 sf Storage= 24,834 cf
Peak Elev= 556.55' @ 12.37 hrs Surf.Area= 22,536 sf Storage= 137,013 cf (112,179 cf above start)
Flood Elev= 557.00' Surf.Area= 23,344 sf Storage= 147,597 cf (122,763 cf above start)
Plug-Flow detention time= 435.9 min calculated for 4.493 af (78% of inflow)
Center-of-Mass det. time= 300.4 min (1,088.2 - 787.9)

#	Invert	Avail.Storage	Storage Description
1	544.00'	170,918 cf	**Custom Stage Data (Conic)** Listed below

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
544.00	1,962	0	0	1,962
546.00	3,155	5,070	5,070	3,207
548.00	4,454	7,572	12,642	4,577
548.50	4,796	2,312	14,954	4,940
550.00	8,558	9,880	24,834	8,726
550.50	12,948	5,339	30,173	13,120
552.00	15,129	21,037	51,209	15,390
554.00	18,234	33,315	84,524	18,627
556.00	21,565	39,752	124,277	22,105
558.00	25,122	46,642	170,918	25,823

#	Routing	Invert	Outlet Devices
1	Primary	550.00'	**3.0" Vert. Orifice/Grate** C= 0.600
2	Primary	554.09'	**12.0" Vert. Orifice/Grate X 2.00** C= 0.600
3	Primary	556.00'	**11.0' long x 6.0' high Sharp-Crested Rectangular Weir** 2 End Contraction(s)

Primary OutFlow Max=25.71 cfs @ 12.37 hrs HW=556.55' TW=515.91' (Dynamic Tailwater)
1=Orifice/Grate (Orifice Controls 0.60 cfs @ 12.2 fps)
2=Orifice/Grate (Orifice Controls 10.58 cfs @ 6.7 fps)
3=Sharp-Crested Rectangular Weir (Weir Controls 14.53 cfs @ 2.4 fps)

Pond p08-3:

Inflow Area =	2.828 ac,	Inflow Depth = 3.43"	for 25-yr event	
Inflow =	8.82 cfs @	12.02 hrs, Volume=	0.808 af	
Outflow =	3.86 cfs @	12.36 hrs, Volume=	0.807 af,	Atten= 56%, Lag= 20.4 min
Primary =	3.86 cfs @	12.36 hrs, Volume=	0.807 af	

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Starting Elev= 528.00' Surf.Area= 1,849 sf Storage= 2,615 cf
Peak Elev= 531.33' @ 12.36 hrs Surf.Area= 4,601 sf Storage= 13,378 cf (10,763 cf above start)
Flood Elev= 533.00' Surf.Area= 6,389 sf Storage= 22,602 cf (19,987 cf above start)
Plug-Flow detention time= 214.4 min calculated for 0.747 af (92% of inflow)
Center-of-Mass det. time= 137.8 min (921.4 - 783.6)

#	Invert	Avail.Storage	Storage Description
1	524.00'	28,956 cf	**Custom Stage Data (Conic)** Listed below

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
524.00	178	0	0	178
526.00	500	651	651	524
526.50	548	262	913	587
528.00	1,849	1,702	2,615	1,900
530.00	3,344	5,120	7,734	3,437
532.00	5,240	8,513	16,248	5,388
534.00	7,538	12,709	28,956	7,755

#	Routing	Invert	Outlet Devices
1	Primary	528.00'	**3.0" Vert. Orifice/Grate** C= 0.600
2	Primary	530.00'	**12.0" Vert. Orifice/Grate** C= 0.600

Primary OutFlow Max=3.86 cfs @ 12.36 hrs HW=531.33' TW=515.89' (Dynamic Tailwater)
1=Orifice/Grate (Orifice Controls 0.42 cfs @ 8.6 fps)
2=Orifice/Grate (Orifice Controls 3.44 cfs @ 4.4 fps)

Pond p09-2:

Inflow Area = 21.180 ac, Inflow Depth = 2.85" for 25-yr event
Inflow = 40.12 cfs @ 12.29 hrs, Volume= 5.025 af
Outflow = 3.94 cfs @ 14.80 hrs, Volume= 4.514 af, Atten= 90%, Lag= 150.8 min
Primary = 3.94 cfs @ 14.80 hrs, Volume= 4.514 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Starting Elev= 586.00' Surf.Area= 10,285 sf Storage= 36,340 cf
Peak Elev= 592.10' @ 14.80 hrs Surf.Area= 25,957 sf Storage= 162,259 cf (125,919 cf above start)
Flood Elev= 593.00' Surf.Area= 27,610 sf Storage= 187,200 cf (150,860 cf above start)
Plug-Flow detention time= 646.3 min calculated for 3.679 af (73% of inflow)
Center-of-Mass det. time= 441.5 min (1,272.3 - 830.7)

#	Invert	Avail.Storage	Storage Description
1	580.00'	214,790 cf	**Custom Stage Data (Conic)** Listed below

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
580.00	3,968	0	0	3,968
582.00	5,102	9,046	9,046	5,198
584.00	6,343	11,423	20,469	6,550
584.50	6,670	3,253	23,722	6,907
586.00	10,285	12,619	36,340	10,554
586.50	16,887	6,725	43,066	17,159
588.00	19,143	27,005	70,070	19,525
590.00	22,349	41,451	111,521	22,890
592.00	25,781	48,089	159,610	26,494
594.00	29,439	55,180	214,790	30,336

#	Routing	Invert	Outlet Devices
1	Primary	586.00'	**3.0" Vert. Orifice/Grate** C= 0.600
2	Primary	588.21'	**8.0" Vert. Orifice/Grate** C= 0.600
3	Primary	592.00'	**2.0' long x 6.0' high Sharp-Crested Rectangular Weir** 2 End Contraction(s)

Primary OutFlow Max=3.94 cfs @ 14.80 hrs HW=592.10' TW=573.67' (Dynamic Tailwater)
—**1=Orifice/Grate** (Orifice Controls 0.58 cfs @ 11.8 fps)
—**2=Orifice/Grate** (Orifice Controls 3.17 cfs @ 9.1 fps)
—**3=Sharp-Crested Rectangular Weir** (Weir Controls 0.19 cfs @ 1.0 fps)

Pond p10:

Field Note #25
Need to get full story on how this pond works

Inflow Area = 59.531 ac, Inflow Depth = 1.56" for 25-yr event
Inflow = 22.95 cfs @ 12.56 hrs, Volume= 7.754 af
Outflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Atten= 100%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Starting Elev= 498.40' Surf.Area= 36,110 sf Storage= 101,108 cf
Peak Elev= 504.48' @ 48.00 hrs Surf.Area= 86,113 sf Storage= 438,865 cf (337,757 cf above start)
Plug-Flow detention time= (not calculated)
Center-of-Mass det. time= (not calculated)

#	Invert	Avail.Storage	Storage Description
1	490.00'	581,029 cf	**Custom Stage Data (Conic)** Listed below

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
490.00	0	0	0	0
498.40	36,110	101,108	101,108	36,221
500.00	42,400	62,741	163,849	42,610
502.00	54,880	97,012	260,861	55,187
504.00	78,730	132,895	393,755	79,107
506.00	109,382	187,274	581,029	109,836

Pond p13-1:

No Field Note
Natural depression.

Inflow Area = 12.222 ac, Inflow Depth = 4.16" for 25-yr event
Inflow = 53.28 cfs @ 12.04 hrs, Volume= 4.237 af
Outflow = 48.20 cfs @ 12.07 hrs, Volume= 4.221 af, Atten= 10%, Lag= 1.9 min
Primary = 48.20 cfs @ 12.07 hrs, Volume= 4.221 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Starting Elev= 524.00' Surf.Area= 5,894 sf Storage= 16,480 cf
Peak Elev= 526.84' @ 12.07 hrs Surf.Area= 9,818 sf Storage= 39,228 cf (22,748 cf above start)
Flood Elev= 527.00' Surf.Area= 10,067 sf Storage= 40,862 cf (24,383 cf above start)

Plug-Flow detention time= 192.2 min calculated for 3.843 af (91% of inflow)
Center-of-Mass det. time= 113.0 min (884.1 - 771.1)

#	Invert	Avail.Storage	Storage Description
1	518.00'	50,891 cf	**Custom Stage Data (Conic)** Listed below

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
518.00	1,331	0	0	1,331
520.00	2,048	3,353	3,353	2,104
522.00	2,912	4,935	8,288	3,037
522.50	3,150	1,515	9,803	3,294
524.00	5,894	6,676	16,480	6,061
526.00	8,542	14,354	30,834	8,776
528.00	11,592	20,057	50,891	11,908

#	Routing	Invert	Outlet Devices
1	Primary	524.00'	**3.0" Vert. Orifice/Grate** C= 0.600
2	Primary	525.90'	**15.0' long x 1.3' high Sharp-Crested Rectangular Weir** 2 End Contraction(s)

Primary OutFlow Max=48.11 cfs @ 12.07 hrs HW=526.84' TW=501.36' (Dynamic Tailwater)
1=Orifice/Grate (Orifice Controls 0.39 cfs @ 7.9 fps)
2=Sharp-Crested Rectangular Weir (Weir Controls 47.72 cfs @ 3.4 fps)

Pond p14-1:

Field Note #26
Need to figure out how this pond works

Inflow Area = 50.663 ac, Inflow Depth = 3.60" for 25-yr event
Inflow = 141.05 cfs @ 12.08 hrs, Volume= 15.193 af
Outflow = 15.27 cfs @ 13.61 hrs, Volume= 5.641 af, Atten= 89%, Lag= 91.3 min
Primary = 15.27 cfs @ 13.61 hrs, Volume= 5.641 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Starting Elev= 497.40' Surf.Area= 22,200 sf Storage= 54,760 cf
Peak Elev= 504.48' @ 48.00 hrs Surf.Area= 86,011 sf Storage= 470,828 cf (416,068 cf above start)
Plug-Flow detention time= 364.2 min calculated for 4.384 af (29% of inflow)
Center-of-Mass det. time= 113.3 min (973.6 - 860.3)

#	Invert	Avail.Storage	Storage Description
1	490.00'	805,062 cf	**Custom Stage Data (Conic)** Listed below

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
490.00	0	0	0	0
497.40	22,200	54,760	54,760	22,286
498.00	25,330	14,249	69,009	25,433
500.00	52,810	76,476	145,485	52,948
502.00	73,360	125,608	271,093	73,574
504.00	84,070	157,308	428,402	84,467
506.00	92,130	176,139	604,540	92,797
508.00	108,618	200,522	805,062	109,437

#	Routing	Invert	Outlet Devices
1	Primary	500.00'	**24.0" x 80.0' long Culvert** CPP, end-section conforming to fill, Ke= 0.500 Outlet Invert= 502.00' S= -0.0250 '/' n= 0.012 Cc= 0.900

Primary OutFlow Max=15.27 cfs @ 13.61 hrs HW=504.02' TW=501.17' (Dynamic Tailwater)
└─**1=Culvert** (Inlet Controls 15.27 cfs @ 4.9 fps)

Pond p14-2:

Inflow Area = 15.934 ac, Inflow Depth = 4.26" for 25-yr event
Inflow = 69.58 cfs @ 12.05 hrs, Volume= 5.651 af
Outflow = 62.82 cfs @ 12.09 hrs, Volume= 5.623 af, Atten= 10%, Lag= 2.5 min
Primary = 62.82 cfs @ 12.09 hrs, Volume= 5.623 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Starting Elev= 532.00' Surf.Area= 7,681 sf Storage= 23,903 cf
Peak Elev= 534.77' @ 12.09 hrs Surf.Area= 11,998 sf Storage= 51,702 cf (27,799 cf above start)
Flood Elev= 535.00' Surf.Area= 12,390 sf Storage= 54,538 cf (30,635 cf above start)
Plug-Flow detention time= 179.7 min calculated for 5.074 af (90% of inflow)
Center-of-Mass det. time= 96.1 min (866.7 - 770.6)

#	Invert	Avail.Storage	Storage Description
1	526.00'	66,889 cf	**Custom Stage Data (Conic)** Listed below

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
526.00	2,239	0	0	2,239
528.00	3,156	5,369	5,369	3,227
530.00	4,207	7,338	12,707	4,362
530.50	4,491	2,174	14,881	4,669
532.00	7,681	9,023	23,903	7,885
534.00	10,686	18,285	42,188	10,966
536.00	14,093	24,701	66,889	14,463

#	Routing	Invert	Outlet Devices
1	Primary	532.00'	**3.0" Vert. Orifice/Grate** C= 0.600
2	Primary	533.60'	**14.0' long x 1.5' high Sharp-Crested Rectangular Weir** 2 End Contraction(s)

Primary OutFlow Max=62.81 cfs @ 12.09 hrs HW=534.77' TW=501.49' (Dynamic Tailwater)
├─**1=Orifice/Grate** (Orifice Controls 0.38 cfs @ 7.8 fps)
└─**2=Sharp-Crested Rectangular Weir** (Weir Controls 62.43 cfs @ 3.9 fps)

Pond p16-1:

Field Note # 49
Large pond with man-made island.
Geometry to be verified by survey. In particular, we are making big guesses about the outlets.
Also need to find out about valves...

Inflow Area = 176.893 ac, Inflow Depth = 2.51" for 25-yr event
Inflow = 165.02 cfs @ 12.35 hrs, Volume= 36.963 af
Outflow = 38.33 cfs @ 15.19 hrs, Volume= 25.205 af, Atten= 77%, Lag= 170.5 min
Primary = 38.33 cfs @ 15.19 hrs, Volume= 25.205 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Starting Elev= 507.00' Surf.Area= 199,799 sf Storage= 878,320 cf
Peak Elev= 511.09' @ 15.19 hrs Surf.Area= 297,832 sf Storage= 1,796,794 cf (918,474 cf above start)
Flood Elev= 510.50' Surf.Area= 271,550 sf Storage= 1,623,217 cf (744,897 cf above start)
Plug-Flow detention time= 1,516.4 min calculated for 5.042 af (14% of inflow)
Center-of-Mass det. time= 448.8 min (1,355.3 - 906.6)

#	Invert	Avail.Storage	Storage Description
1	500.00'	2,062,087 cf	**Custom Stage Data (Conic)** Listed below

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
500.00	0	0	0	0
503.00	140,344	140,344	140,344	140,358
509.20	232,500	1,143,862	1,284,206	232,994
510.00	249,400	192,720	1,476,927	249,951
512.00	338,000	585,160	2,062,087	338,634

#	Routing	Invert	Outlet Devices
1	Primary	509.00'	**18.0" x 110.0' long Culvert** CMP, projecting, no headwall, Ke= 0.900 Outlet Invert= 505.70' S= 0.0300 '/' n= 0.024 Cc= 0.900
2	Primary	500.00'	**8.0" x 100.0' long assumed equalization pipe w/ valve X 0.00** CMP, projecting, no headwall, Ke= 0.900 Outlet Invert= 500.00' S= 0.0000 '/' n= 0.013 Cc= 0.900
3	Primary	510.50'	**175.0 deg Sharp-Crested Vee/Trap Weir X 2.00** C= 2.46

Primary OutFlow Max=38.33 cfs @ 15.19 hrs HW=511.09' TW=506.23' (Dynamic Tailwater)
├─**1=Culvert** (Inlet Controls 7.79 cfs @ 4.4 fps)
├─**2=assumed equalization pipe w/ valve** (Controls 0.00 cfs)
└─**3=Sharp-Crested Vee/Trap Weir** (Weir Controls 30.55 cfs @ 1.9 fps)

Pond p17-1:

Field Note #45
Golf pond
Geometry to be confirmed by surveyed

Inflow Area =	112.240 ac, Inflow Depth = 2.36"	for 25-yr event	
Inflow =	73.46 cfs @ 13.20 hrs, Volume=	22.093 af	
Outflow =	73.45 cfs @ 13.21 hrs, Volume=	22.093 af,	Atten= 0%, Lag= 0.6 min
Primary =	73.45 cfs @ 13.21 hrs, Volume=	22.093 af	

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Starting Elev= 523.80' Surf.Area= 7,290 sf Storage= 9,234 cf
Peak Elev= 525.53' @ 13.21 hrs Surf.Area= 11,254 sf Storage= 25,658 cf (16,424 cf above start)
Flood Elev= 524.30' Surf.Area= 8,074 sf Storage= 13,623 cf (4,389 cf above start)
Plug-Flow detention time= 18.0 min calculated for 21.881 af (99% of inflow)
Center-of-Mass det. time= 9.6 min (924.8 - 915.2)

#	Invert	Avail.Storage	Storage Description
1	520.00'	30,224 cf	**Custom Stage Data (Conic)** Listed below

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
520.00	0	0	0	0
523.80	7,290	9,234	9,234	7,313
524.00	7,300	1,459	10,693	7,374
526.00	12,460	19,531	30,224	12,581

#	Routing	Invert	Outlet Devices
1	Primary	523.80'	**2.2' long x 0.5' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 Coef. (English) 2.80 2.92 3.08 3.30 3.32
2	Primary	524.30'	**143.0 deg Sharp-Crested Vee/Trap Weir** C= 2.47
3	Primary	525.20'	**178.0 deg x 60.0' long Sharp-Crested Vee/Trap Weir** C= 2.46

Primary OutFlow Max=73.45 cfs @ 13.21 hrs HW=525.53' TW=516.06' (Dynamic Tailwater)
—**1=Broad-Crested Rectangular Weir** (Weir Controls 16.66 cfs @ 4.4 fps)
—**2=Sharp-Crested Vee/Trap Weir** (Weir Controls 12.45 cfs @ 2.7 fps)
—**3=Sharp-Crested Vee/Trap Weir** (Weir Controls 44.34 cfs @ 1.7 fps)

Pond p18-1:

Field Note #46
Golf pond
Geometry to be confirmed by surveyed

Inflow Area =	131.862 ac, Inflow Depth = 2.39"	for 25-yr event	
Inflow =	95.05 cfs @ 12.45 hrs, Volume=	26.219 af	
Outflow =	94.10 cfs @ 12.50 hrs, Volume=	26.215 af,	Atten= 1%, Lag= 3.3 min
Primary =	94.10 cfs @ 12.50 hrs, Volume=	26.215 af	

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Starting Elev= 513.90' Surf.Area= 20,680 sf Storage= 26,884 cf
Peak Elev= 516.14' @ 12.50 hrs Surf.Area= 29,289 sf Storage= 82,606 cf (55,722 cf above start)
Flood Elev= 514.81' Surf.Area= 23,768 sf Storage= 48,709 cf (21,825 cf above start)
Plug-Flow detention time= 47.2 min calculated for 25.592 af (98% of inflow)
Center-of-Mass det. time= 27.4 min (940.2 - 912.9)

#	Invert	Avail.Storage	Storage Description
1	510.00'	148,288 cf	**Custom Stage Data (Conic)** Listed below

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
510.00	0	0	0	0
513.90	20,680	26,884	26,884	20,704
514.00	20,690	2,068	28,952	20,756
516.00	28,290	48,782	77,735	28,436
518.00	42,760	70,554	148,288	42,967

#	Routing	Invert	Outlet Devices
1	Primary	513.90'	**2.0' long x 0.5' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 Coef. (English) 2.80 2.92 3.08 3.30 3.32
2	Primary	514.81'	**143.0 deg Sharp-Crested Vee/Trap Weir** C= 2.47
3	Primary	515.32'	**175.0 deg x 10.0' long Sharp-Crested Vee/Trap Weir** C= 2.46

Primary OutFlow Max=94.09 cfs @ 12.50 hrs HW=516.14' TW=508.74' (Dynamic Tailwater)
—**1=Broad-Crested Rectangular Weir** (Weir Controls 22.23 cfs @ 5.0 fps)
—**2=Sharp-Crested Vee/Trap Weir** (Weir Controls 15.00 cfs @ 2.8 fps)
—**3=Sharp-Crested Vee/Trap Weir** (Weir Controls 56.85 cfs @ 2.4 fps)

Pond p19-0:

Wetland
Geometry to be confirmed by survey
Based off aerial topo, and assumed topo contour

Pond Unchanged from existing to proposed conditions

Inflow Area =	15.520 ac,	Inflow Depth = 1.86"	for 25-yr event	
Inflow =	15.56 cfs @	12.61 hrs, Volume=	2.401 af	
Outflow =	9.63 cfs @	13.01 hrs, Volume=	2.400 af,	Atten= 38%, Lag= 24.1 min
Primary =	9.63 cfs @	13.01 hrs, Volume=	2.400 af	
Secondary =	0.00 cfs @	0.00 hrs, Volume=	0.000 af	

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Starting Elev= 972.00' Surf.Area= 86,000 sf Storage= 57,333 cf
Peak Elev= 972.21' @ 13.01 hrs Surf.Area= 91,873 sf Storage= 81,241 cf (23,907 cf above start)
Plug-Flow detention time= 386.6 min calculated for 1.083 af (45% of inflow)
Center-of-Mass det. time= 65.1 min (960.9 - 895.8)

#	Invert	Avail.Storage	Storage Description
1	970.00'	282,329 cf	**Custom Stage Data (Conic)** Listed below

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
970.00	0	0	0	0
972.00	86,000	57,333	57,333	86,006
974.00	141,270	224,996	282,329	141,327

#	Routing	Invert	Outlet Devices
1	Secondary	973.60'	**178.0 deg x 51.0' long Sharp-Crested Vee/Trap Weir** C= 2.46
2	Primary	972.00'	**35.0' long x 0.5' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 Coef. (English) 2.80 2.92 3.08 3.30 3.32

Primary OutFlow Max=9.63 cfs @ 13.01 hrs HW=972.21' TW=970.17' (Dynamic Tailwater)
└─**2=Broad-Crested Rectangular Weir** (Weir Controls 9.63 cfs @ 1.3 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=972.00' TW=973.60' (Dynamic Tailwater)
└─**1=Sharp-Crested Vee/Trap Weir** (Controls 0.00 cfs)

Pond p20-1:

Field Note #50
Spring Fed Pond
Geometry to be confirmed by surveyed

Inflow Area = 207.817 ac, Inflow Depth = 1.87" for 25-yr event
Inflow = 44.32 cfs @ 15.13 hrs, Volume= 32.395 af
Outflow = 44.11 cfs @ 15.25 hrs, Volume= 31.459 af, Atten= 0%, Lag= 7.4 min
Primary = 44.11 cfs @ 15.25 hrs, Volume= 31.459 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Starting Elev= 505.10' Surf.Area= 89,370 sf Storage= 138,524 cf
Peak Elev= 506.23' @ 15.25 hrs Surf.Area= 90,518 sf Storage= 240,656 cf (102,132 cf above start)
Plug-Flow detention time= 287.0 min calculated for 28.273 af (87% of inflow)
Center-of-Mass det. time= 69.7 min (1,357.9 - 1,288.2)

#	Invert	Avail.Storage	Storage Description
1	502.00'	615,682 cf	**Custom Stage Data (Prismatic)** Listed below

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
502.00	0	0	0
505.10	89,370	138,524	138,524
506.00	89,380	80,437	218,961
508.00	99,280	188,660	407,621
510.00	108,781	208,061	615,682

#	Routing	Invert	Outlet Devices
1	Primary	505.10'	**3.0' long x 1.5' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 Coef. (English) 2.62 2.64 2.64 2.68 2.75 2.86 2.92 3.07 3.07 3.03 3.28 3.32
2	Primary	506.20'	**6.5' long x 1.5' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 Coef. (English) 2.62 2.64 2.64 2.68 2.75 2.86 2.92 3.07 3.07 3.03 3.28 3.32
3	Primary	506.00'	**176.0 deg x 97.0' long Sharp-Crested Vee/Trap Weir** C= 2.46

Primary OutFlow Max=44.11 cfs @ 15.25 hrs HW=506.23' TW=505.48' (Dynamic Tailwater)
—**1=Broad-Crested Rectangular Weir** (Weir Controls 9.34 cfs @ 2.8 fps)
—**2=Broad-Crested Rectangular Weir** (Weir Controls 0.09 cfs @ 0.5 fps)
—**3=Sharp-Crested Vee/Trap Weir** (Weir Controls 34.69 cfs @ 1.5 fps)

Pond p20-2:

Inflow Area = 13.511 ac, Inflow Depth = 4.12" for 25-yr event
Inflow = 56.07 cfs @ 12.09 hrs, Volume= 4.639 af
Outflow = 4.62 cfs @ 13.36 hrs, Volume= 2.971 af, Atten= 92%, Lag= 76.6 min
Primary = 4.62 cfs @ 13.36 hrs, Volume= 2.971 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Starting Elev= 552.00' Surf.Area= 10,535 sf Storage= 35,913 cf
Peak Elev= 558.54' @ 13.36 hrs Surf.Area= 24,827 sf Storage= 162,348 cf (126,435 cf above start)
Flood Elev= 559.00' Surf.Area= 25,653 sf Storage= 174,016 cf (138,102 cf above start)
Plug-Flow detention time= 952.4 min calculated for 2.146 af (46% of inflow)
Center-of-Mass det. time= 590.6 min (1,374.0 - 783.4)

#	Invert	Avail.Storage	Storage Description
1	546.00'	199,647 cf	**Custom Stage Data (Conic)** Listed below

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
546.00	3,714	0	0	3,714
548.00	4,960	8,644	8,644	5,044
550.00	6,308	11,241	19,885	6,493
550.50	6,661	3,242	23,127	6,874
552.00	10,535	12,786	35,913	10,779
552.50	15,037	6,360	42,273	15,285
554.00	17,268	24,209	66,483	17,616
556.00	20,441	37,664	104,147	20,935
558.00	23,840	44,237	148,384	24,494
560.00	27,465	51,262	199,647	28,292

#	Routing	Invert	Outlet Devices
1	Primary	552.00'	**3.0" Vert. Orifice/Grate** C= 0.600
2	Primary	558.20'	**6.1' long x 6.2' high Sharp-Crested Rectangular Weir** 2 End Contraction(s)

Primary OutFlow Max=4.62 cfs @ 13.36 hrs HW=558.54' TW=506.07' (Dynamic Tailwater)
1=Orifice/Grate (Orifice Controls 0.60 cfs @ 12.2 fps)
2=Sharp-Crested Rectangular Weir (Weir Controls 4.02 cfs @ 1.9 fps)

Pond p21-1:

Inflow Area = 459.188 ac, Inflow Depth = 2.41" for 25-yr event
Inflow = 421.31 cfs @ 12.28 hrs, Volume= 92.100 af
Outflow = 32.31 cfs @ 20.39 hrs, Volume= 79.726 af, Atten= 92%, Lag= 486.7 min
Primary = 32.31 cfs @ 20.39 hrs, Volume= 79.726 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Peak Elev= 485.66' @ 20.39 hrs Surf.Area= 1,142,622 sf Storage= 2,187,708 cf
Plug-Flow detention time= 797.4 min calculated for 79.710 af (87% of inflow)
Center-of-Mass det. time= 649.1 min (1,703.8 - 1,054.7)

#	Invert	Avail.Storage	Storage Description
1	480.40'	5,244,885 cf	**Custom Stage Data (Conic)** Listed below

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
480.40	0	0	0	0
482.00	202,230	107,856	107,856	202,234
484.00	485,198	667,114	774,970	485,231
486.00	1,275,481	1,698,237	2,473,208	1,275,541
488.00	1,499,208	2,771,678	5,244,885	1,499,423

#	Routing	Invert	Outlet Devices
1	Primary	480.40'	**30.0" x 70.0' long Culvert** CMP, projecting, no headwall, Ke= 0.900 Outlet Invert= 480.40' S= 0.0000 '/' n= 0.024 Cc= 0.900

Primary OutFlow Max=32.31 cfs @ 20.39 hrs HW=485.66' TW=0.00' (Dynamic Tailwater)
1=Culvert (Barrel Controls 32.31 cfs @ 6.6 fps)

Pond p21-4:

Inflow Area = 5.152 ac, Inflow Depth = 3.56" for 25-yr event
Inflow = 15.10 cfs @ 12.03 hrs, Volume= 1.527 af
Outflow = 10.57 cfs @ 12.26 hrs, Volume= 1.516 af, Atten= 30%, Lag= 13.9 min
Primary = 10.57 cfs @ 12.26 hrs, Volume= 1.516 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Starting Elev= 496.00' Surf.Area= 5,112 sf Storage= 14,306 cf
Peak Elev= 498.82' @ 12.26 hrs Surf.Area= 8,602 sf Storage= 34,058 cf (19,752 cf above start)
Flood Elev= 499.00' Surf.Area= 8,847 sf Storage= 35,622 cf (21,317 cf above start)
Plug-Flow detention time= 438.3 min calculated for 1.188 af (78% of inflow)
Center-of-Mass det. time= 252.8 min (1,044.3 - 791.5)

#	Invert	Avail.Storage	Storage Description
1	490.00'	44,433 cf	**Custom Stage Data (Conic)** Listed below

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
490.00	1,146	0	0	1,146
492.00	1,784	2,907	2,907	1,839
494.00	2,530	4,292	7,199	2,654
494.50	2,733	1,315	8,514	2,876
496.00	5,112	5,791	14,306	5,278
498.00	7,468	12,506	26,812	7,699
500.00	10,226	17,622	44,433	10,536

#	Routing	Invert	Outlet Devices
1	Primary	496.00'	**3.0" Vert. Orifice/Grate** C= 0.600
2	Primary	498.10'	**5.0' long x 2.0' high Sharp-Crested Rectangular Weir** 2 End Contraction(s)

Primary OutFlow Max=10.57 cfs @ 12.26 hrs HW=498.82' TW=483.21' (Dynamic Tailwater)
1=Orifice/Grate (Orifice Controls 0.39 cfs @ 7.9 fps)
2=Sharp-Crested Rectangular Weir (Weir Controls 10.18 cfs @ 2.9 fps)

Pond p21-5:

Inflow Area = 2.398 ac, Inflow Depth = 3.20" for 25-yr event
Inflow = 7.00 cfs @ 12.19 hrs, Volume= 0.639 af
Primary = 7.00 cfs @ 12.19 hrs, Volume= 0.639 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

Pond p21-6:

Inflow Area = 6.182 ac, Inflow Depth = 3.57" for 25-yr event
Inflow = 16.62 cfs @ 12.23 hrs, Volume= 1.840 af
Outflow = 11.40 cfs @ 12.43 hrs, Volume= 1.830 af, Atten= 31%, Lag= 12.1 min
Primary = 11.40 cfs @ 12.43 hrs, Volume= 1.830 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Starting Elev= 492.00' Surf.Area= 3,323 sf Storage= 4,847 cf
Peak Elev= 494.76' @ 12.43 hrs Surf.Area= 13,423 sf Storage= 31,159 cf (26,313 cf above start)
Flood Elev= 495.00' Surf.Area= 13,824 sf Storage= 34,456 cf (29,609 cf above start)
Plug-Flow detention time= 330.2 min calculated for 1.719 af (93% of inflow)
Center-of-Mass det. time= 267.3 min (1,084.9 - 817.6)

#	Invert	Avail.Storage	Storage Description
1	488.00'	48,245 cf	**Custom Stage Data (Conic)** Listed below

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
488.00	296	0	0	296
490.00	924	1,162	1,162	946
490.50	1,110	508	1,670	1,141
492.00	3,323	3,177	4,847	3,367
492.50	6,166	2,336	7,182	6,212
494.00	12,147	13,484	20,666	12,214
496.00	15,500	27,579	48,245	15,669

#	Routing	Invert	Outlet Devices
1	Primary	492.00'	**3.0" Vert. Orifice/Grate** C= 0.600
2	Primary	494.00'	**5.0' long x 2.0' high Sharp-Crested Rectangular Weir** 2 End Contraction(s)

Primary OutFlow Max=11.39 cfs @ 12.43 hrs HW=494.76' TW=483.95' (Dynamic Tailwater)
├─**1=Orifice/Grate** (Orifice Controls 0.38 cfs @ 7.8 fps)
└─**2=Sharp-Crested Rectangular Weir** (Weir Controls 11.01 cfs @ 3.0 fps)

Pond p21-7:

Inflow Area = 8.355 ac, Inflow Depth = 3.85" for 25-yr event
Inflow = 30.08 cfs @ 12.04 hrs, Volume= 2.679 af
Outflow = 10.03 cfs @ 12.43 hrs, Volume= 2.657 af, Atten= 67%, Lag= 23.7 min
Primary = 10.03 cfs @ 12.43 hrs, Volume= 2.657 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Starting Elev= 492.00' Surf.Area= 3,941 sf Storage= 8,984 cf
Peak Elev= 498.55' @ 12.43 hrs Surf.Area= 12,617 sf Storage= 61,366 cf (52,382 cf above start)
Flood Elev= 499.00' Surf.Area= 13,379 sf Storage= 67,369 cf (58,385 cf above start)
Plug-Flow detention time= 440.8 min calculated for 2.450 af (91% of inflow)
Center-of-Mass det. time= 348.8 min (1,125.8 - 777.0)

#	Invert	Avail.Storage	Storage Description
1	486.00'	80,712 cf	**Custom Stage Data (Conic)** Listed below

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
486.00	478	0	0	478
488.00	964	1,414	1,414	999
490.00	1,601	2,538	3,952	1,684
490.50	1,782	845	4,797	1,879
492.00	3,941	4,187	8,984	4,056
494.00	6,120	9,981	18,965	6,292
496.00	8,702	14,746	33,712	8,944
498.00	11,686	20,315	54,027	12,012
500.00	15,071	26,685	80,712	15,495

#	Routing	Invert	Outlet Devices
1	Primary	492.00'	**3.0" Vert. Orifice/Grate** C= 0.600
2	Primary	496.05'	**6.0" Vert. Orifice/Grate X 2.00** C= 0.600
3	Primary	498.00'	**5.0' long x 6.0' high Sharp-Crested Rectangular Weir** 2 End Contraction(s)

Primary OutFlow Max=10.03 cfs @ 12.43 hrs HW=498.55' TW=483.95' (Dynamic Tailwater)
—**1=Orifice/Grate** (Orifice Controls 0.60 cfs @ 12.2 fps)
—**2=Orifice/Grate** (Orifice Controls 2.84 cfs @ 7.2 fps)
—**3=Sharp-Crested Rectangular Weir** (Weir Controls 6.59 cfs @ 2.5 fps)

Pond p22-1:

Field Note #54
Golf Pond
Geometry to be confirmed by survey

Pond unchanged from existing to proposed conditions

Inflow Area =	78.382 ac, Inflow Depth = 2.50"	for 25-yr event	
Inflow =	120.81 cfs @ 12.29 hrs, Volume=	16.313 af	
Outflow =	119.41 cfs @ 12.33 hrs, Volume=	16.014 af,	Atten= 1%, Lag= 2.1 min
Primary =	119.41 cfs @ 12.33 hrs, Volume=	16.014 af	

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Starting Elev= 498.10' Surf.Area= 6,520 sf Storage= 10,106 cf
Peak Elev= 502.10' @ 12.33 hrs Surf.Area= 11,685 sf Storage= 45,533 cf (35,427 cf above start)
Plug-Flow detention time= 39.9 min calculated for 15.782 af (97% of inflow)
Center-of-Mass det. time= 17.4 min (888.9 - 871.5)

#	Invert	Avail.Storage	Storage Description
1	495.00'	143,770 cf	**Custom Stage Data (Prismatic)** Listed below

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
495.00	0	0	0
498.10	6,520	10,106	10,106
500.00	8,390	14,164	24,270
502.00	11,530	19,920	44,190
504.00	14,530	26,060	70,250
506.00	18,340	32,870	103,120
508.00	22,310	40,650	143,770

#	Routing	Invert	Outlet Devices
1	Primary	499.75'	**18.0" x 21.0' long Culvert** CMP, projecting, no headwall, Ke= 0.900 Outlet Invert= 499.75' S= 0.0000 '/' n= 0.024 Cc= 0.900
2	Primary	500.50'	**1.0' long x 15.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.68 2.70 2.70 2.64 2.63 2.64 2.64 2.63
3	Primary	500.50'	**20.0' long x 13.5' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.62 2.66 2.70 2.66 2.65 2.66 2.65 2.63

Primary OutFlow Max=119.39 cfs @ 12.33 hrs HW=502.10' TW=483.50' (Dynamic Tailwater)
1=Culvert (Barrel Controls 7.31 cfs @ 4.1 fps)
2=Broad-Crested Rectangular Weir (Weir Controls 5.34 cfs @ 3.3 fps)
3=Broad-Crested Rectangular Weir (Weir Controls 106.74 cfs @ 3.3 fps)

Pond p23-1:

Inflow Area = 29.123 ac, Inflow Depth = 2.91" for 25-yr event
Inflow = 49.78 cfs @ 12.54 hrs, Volume= 7.066 af
Outflow = 49.74 cfs @ 12.55 hrs, Volume= 6.351 af, Atten= 0%, Lag= 0.5 min
Primary = 49.74 cfs @ 12.55 hrs, Volume= 6.351 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Peak Elev= 507.90' @ 12.55 hrs Surf.Area= 14,369 sf Storage= 33,460 cf
Plug-Flow detention time= 69.7 min calculated for 6.351 af (90% of inflow)
Center-of-Mass det. time= 20.5 min (885.0 - 864.5)

#	Invert	Avail.Storage	Storage Description
1	503.50'	68,915 cf	**Custom Stage Data (Conic)** Listed below

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
503.50	0	0	0	0
504.00	2,390	398	398	2,390
506.00	9,090	10,761	11,159	9,110
508.00	14,660	23,529	34,688	14,732
510.00	19,690	34,227	68,915	19,847

#	Routing	Invert	Outlet Devices
1	Primary	507.70'	**178.0 deg x 178.0' long Sharp-Crested Vee/Trap Weir** C= 2.46

Primary OutFlow Max=49.73 cfs @ 12.55 hrs HW=507.90' TW=507.20' (Dynamic Tailwater)
1=Sharp-Crested Vee/Trap Weir (Weir Controls 49.73 cfs @ 1.3 fps)

Pond p23-2:

Inflow Area = 16.094 ac, Inflow Depth = 4.43" for 25-yr event
Inflow = 82.70 cfs @ 12.06 hrs, Volume= 5.943 af
Outflow = 35.84 cfs @ 12.21 hrs, Volume= 5.103 af, Atten= 57%, Lag= 9.4 min
Primary = 35.84 cfs @ 12.21 hrs, Volume= 5.103 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Starting Elev= 508.00' Surf.Area= 7,318 sf Storage= 15,927 cf
Peak Elev= 514.54' @ 12.21 hrs Surf.Area= 23,842 sf Storage= 130,567 cf (114,641 cf above start)
Flood Elev= 515.00' Surf.Area= 24,788 sf Storage= 141,986 cf (126,059 cf above start)
Plug-Flow detention time= 430.8 min calculated for 4.737 af (80% of inflow)
Center-of-Mass det. time= 316.9 min (1,092.1 - 775.2)

#	Invert	Avail.Storage	Storage Description
1	502.00'	166,746 cf	**Custom Stage Data (Conic)** Listed below

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
502.00	826	0	0	826
504.00	1,667	2,444	2,444	1,702
506.00	2,788	4,407	6,852	2,872
506.50	3,112	1,474	8,326	3,210
508.00	7,318	7,601	15,927	7,432
508.50	12,618	4,924	20,851	12,735
510.00	15,208	20,839	41,690	15,400
512.00	18,859	34,002	75,692	19,166
514.00	22,736	41,535	117,227	23,175
516.00	26,840	49,519	166,746	27,428

#	Routing	Invert	Outlet Devices
1	Primary	508.00'	**3.0" Vert. Orifice/Grate** C= 0.600
2	Primary	512.55'	**12.0" Vert. Orifice/Grate X 2.00** C= 0.600
3	Primary	514.00'	**20.0' long x 6.0' high Sharp-Crested Rectangular Weir** 2 End Contraction(s)

Primary OutFlow Max=35.82 cfs @ 12.21 hrs HW=514.54' TW=483.02' (Dynamic Tailwater)
—**1=Orifice/Grate** (Orifice Controls 0.60 cfs @ 12.2 fps)
—**2=Orifice/Grate** (Orifice Controls 9.23 cfs @ 5.9 fps)
—**3=Sharp-Crested Rectangular Weir** (Weir Controls 26.00 cfs @ 2.4 fps)

Pond zDP1: Design Point 1

Field note #10.
Culvert dimensions to be confirmed by survey.

Inflow Area = 26.658 ac, Inflow Depth = 2.88" for 25-yr event
Inflow = 36.10 cfs @ 12.51 hrs, Volume= 6.393 af
Outflow = 36.10 cfs @ 12.51 hrs, Volume= 6.393 af, Atten= 0%, Lag= 0.1 min
Primary = 36.10 cfs @ 12.51 hrs, Volume= 6.393 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Peak Elev= 722.46' @ 12.51 hrs Surf.Area= 148 sf Storage= 150 cf
Flood Elev= 727.00' Surf.Area= 1,105 sf Storage= 2,619 cf
Plug-Flow detention time= 0.1 min calculated for 6.393 af (100% of inflow)
Center-of-Mass det. time= 0.1 min (918.2 - 918.1)

#	Invert	Avail.Storage	Storage Description
1	720.10'	3,706 cf	**Custom Stage Data (Conic)** Listed below

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
720.10	0	0	0	0
722.00	90	57	57	96
724.00	340	403	460	364
726.00	760	1,072	1,533	815
728.00	1,450	2,173	3,706	1,543

#	Routing	Invert	Outlet Devices
1	Primary	720.10'	**42.0" x 120.0' long Culvert** CMP, square edge headwall, Ke= 0.500 Outlet Invert= 700.00' S= 0.1675 '/' n= 0.024 Cc= 0.900
2	Primary	727.00'	**155.0 deg Sharp-Crested Vee/Trap Weir** C= 2.47

Primary OutFlow Max=36.10 cfs @ 12.51 hrs HW=722.46' TW=686.61' (Dynamic Tailwater)
1=Culvert (Inlet Controls 36.10 cfs @ 5.2 fps)
2=Sharp-Crested Vee/Trap Weir (Controls 0.00 cfs)

Pond zDP2: Design Point 2

Field Note #15
Culvert dimensions to be confirmed by survey
Overflow to ditch is currently discarded... We may have to model that area...

Inflow Area = 93.367 ac, Inflow Depth = 2.29" for 25-yr event
Inflow = 92.09 cfs @ 12.87 hrs, Volume= 17.788 af
Outflow = 92.06 cfs @ 12.87 hrs, Volume= 17.788 af, Atten= 0%, Lag= 0.1 min
Discarded = 56.85 cfs @ 12.87 hrs, Volume= 4.219 af
Primary = 35.21 cfs @ 12.87 hrs, Volume= 13.568 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Peak Elev= 626.02' @ 12.87 hrs Surf.Area= 1,430 sf Storage= 3,372 cf
Flood Elev= 624.50' Surf.Area= 925 sf Storage= 1,728 cf
Plug-Flow detention time= 0.5 min calculated for 17.784 af (100% of inflow)
Center-of-Mass det. time= 0.5 min (900.2 - 899.6)

#	Invert	Avail.Storage	Storage Description
1	619.60'	7,280 cf	**Custom Stage Data (Conic)** Listed below

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
619.60	0	0	0	0
620.00	10	1	1	10
622.00	260	214	215	269
624.00	760	976	1,192	793
626.00	1,420	2,146	3,338	1,492
628.00	2,580	3,943	7,280	2,694

#	Routing	Invert	Outlet Devices
1	Primary	619.60'	**24.0" x 150.0' long Culvert** RCP, end-section conforming to fill, Ke= 0.500 Outlet Invert= 608.00' S= 0.0773 '/' n= 0.012 Cc= 0.900
2	Discarded	624.50'	**166.0 deg Sharp-Crested Vee/Trap Weir** C= 2.46

Discarded OutFlow Max=56.84 cfs @ 12.87 hrs HW=626.02' (Free Discharge)
└─**2=Sharp-Crested Vee/Trap Weir** (Weir Controls 56.84 cfs @ 3.0 fps)

Primary OutFlow Max=35.21 cfs @ 12.87 hrs HW=626.02' TW=607.68' (Dynamic Tailwater)
└─**1=Culvert** (Inlet Controls 35.21 cfs @ 11.2 fps)

Pond zDP3: Design Point 3

Inflow Area =	228.471 ac,	Inflow Depth = 18.83"	for 25-yr event
Inflow =	242.90 cfs @ 12.48 hrs,	Volume=	358.444 af
Primary =	242.90 cfs @ 12.48 hrs,	Volume=	358.444 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

Pond zDP4: Design Point 4

Inflow Area =	459.188 ac,	Inflow Depth = 2.08"	for 25-yr event
Inflow =	32.31 cfs @ 20.39 hrs,	Volume=	79.726 af
Primary =	32.31 cfs @ 20.39 hrs,	Volume=	79.726 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

Pond zDP5: Design Point 5

Inflow Area =	28.325 ac,	Inflow Depth = 2.73"	for 25-yr event
Inflow =	50.24 cfs @ 12.45 hrs,	Volume=	6.435 af
Primary =	50.24 cfs @ 12.45 hrs,	Volume=	6.435 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

Post-Development Conditions
50 year 24 hour Storm Event
Model Computations

Subcatchment s01-0:

Runoff = 20.20 cfs @ 12.60 hrs, Volume= 3.033 af, Depth= 3.17"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 50-yr Rainfall=6.70"

Area (ac)	CN	Description
11.485	68	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
42.8					**Direct Entry,**

Subcatchment s02-1:

Runoff = 110.14 cfs @ 12.87 hrs, Volume= 20.488 af, Depth= 2.87"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 50-yr Rainfall=6.70"

Area (ac)	CN	Description
85.591	65	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
61.3					**Direct Entry,**

Subcatchment s02-2:

Runoff = 15.25 cfs @ 12.42 hrs, Volume= 1.925 af, Depth= 2.97"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 50-yr Rainfall=6.70"

Area (ac)	CN	Description
7.776	66	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
29.4					**Direct Entry,**

Subcatchment s02-3:

Runoff = 27.66 cfs @ 12.02 hrs, Volume= 1.730 af, Depth= 5.08"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 50-yr Rainfall=6.70"

Area (ac)	CN	Description
4.088	86	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.6					**Direct Entry,**

Subcatchment s03-1:

Runoff = 23.66 cfs @ 12.41 hrs, Volume= 2.931 af, Depth= 3.37"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 50-yr Rainfall=6.70"

Area (ac)	CN	Description
10.435	70	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
28.8					**Direct Entry,**

Subcatchment s03-2:

Runoff = 15.78 cfs @ 12.02 hrs, Volume= 0.952 af, Depth= 3.78"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 50-yr Rainfall=6.70"

Area (ac)	CN	Description
3.021	74	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.5					**Direct Entry,**

Subcatchment s03-2(IC): s03-2 Impervious Cover

Runoff = 12.83 cfs @ 12.02 hrs, Volume= 0.895 af, Depth= 6.46"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 50-yr Rainfall=6.70"

Area (ac)	CN	Description
1.663	98	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.5					**Direct Entry,**

Subcatchment s03-2(OW): s03-2 Open Water

Runoff = 0.43 cfs @ 12.00 hrs, Volume= 0.030 af, Depth= 6.70"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 50-yr Rainfall=6.70"

Area (ac)	CN	Description
0.054	100	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.0					**Direct Entry,**

Subcatchment s04-1:

Runoff = 27.83 cfs @ 12.09 hrs, Volume= 1.994 af, Depth= 3.17"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 50-yr Rainfall=6.70"

Area (ac)	CN	Description
7.549	68	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.1					**Direct Entry,**

Subcatchment s05-1:

Runoff = 14.80 cfs @ 12.21 hrs, Volume= 1.418 af, Depth= 2.49"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 50-yr Rainfall=6.70"

Area (ac)	CN	Description
6.842	61	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
14.4					**Direct Entry,**

Subcatchment s06-0:

Runoff = 18.93 cfs @ 12.25 hrs, Volume= 1.938 af, Depth= 2.58"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 50-yr Rainfall=6.70"

Area (ac)	CN	Description
9.007	62	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
17.3					**Direct Entry,**

Subcatchment s06-0(OW): s06 Open Water

Runoff = 3.44 cfs @ 12.00 hrs, Volume= 0.239 af, Depth= 6.70"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 50-yr Rainfall=6.70"

Area (ac)	CN	Description
0.428	100	

Subcatchment s07-1:

Runoff = 13.29 cfs @ 12.14 hrs, Volume= 1.077 af, Depth= 2.78"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 50-yr Rainfall=6.70"

Area (ac)	CN	Description
4.656	64	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.3					**Direct Entry,**

Subcatchment s07-1(OW): s07 Open Water

Runoff = 4.07 cfs @ 12.00 hrs, Volume= 0.283 af, Depth= 6.70"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 50-yr Rainfall=6.70"

Area (ac)	CN	Description
0.506	100	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.0					**Direct Entry,**

Subcatchment s08-1:

Runoff = 38.51 cfs @ 12.36 hrs, Volume= 4.613 af, Depth= 2.39"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 50-yr Rainfall=6.70"

Area (ac)	CN	Description
23.126	60	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
24.5					**Direct Entry,**

Subcatchment s08-2:

Runoff = 22.97 cfs @ 12.17 hrs, Volume= 1.999 af, Depth= 2.68"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 50-yr Rainfall=6.70"

Area (ac)	CN	Description
8.958	63	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
11.4					**Direct Entry,**

Subcatchment s08-2(IC):

Runoff = 40.56 cfs @ 12.04 hrs, Volume= 2.974 af, Depth= 6.46"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 50-yr Rainfall=6.70"

Area (ac)	CN	Description
5.524	98	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
2.9					**Direct Entry,**

Subcatchment s08-2(OW):

Runoff = 1.54 cfs @ 12.00 hrs, Volume= 0.107 af, Depth= 6.70"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 50-yr Rainfall=6.70"

Area (ac)	CN	Description
0.192	100	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.0					**Direct Entry,**

Subcatchment s08-3:

Runoff = 3.76 cfs @ 12.20 hrs, Volume= 0.352 af, Depth= 2.49"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 50-yr Rainfall=6.70"

Area (ac)	CN	Description
1.700	61	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
13.6					**Direct Entry,**

Subcatchment s08-3(IC): s08-3 Impervious Cover

Runoff = 8.50 cfs @ 12.01 hrs, Volume= 0.585 af, Depth= 6.46"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 50-yr Rainfall=6.70"

Area (ac)	CN	Description
1.086	98	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.0					**Direct Entry,**

Subcatchment s08-3(OW): s08-3 Open Water

Runoff = 0.34 cfs @ 12.00 hrs, Volume= 0.023 af, Depth= 6.70"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 50-yr Rainfall=6.70"

Area (ac)	CN	Description
0.042	100	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.0					**Direct Entry,**

Subcatchment s09-1:

Runoff = 6.34 cfs @ 12.13 hrs, Volume= 0.519 af, Depth= 2.39"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 50-yr Rainfall=6.70"

Area (ac)	CN	Description
2.604	60	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.0					**Direct Entry,**

Subcatchment s09-2:

Runoff = 44.22 cfs @ 12.29 hrs, Volume= 4.760 af, Depth= 3.07"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 50-yr Rainfall=6.70"

Area (ac)	CN	Description
18.608	67	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
20.6					**Direct Entry,**

Subcatchment s09-2(IC): s09-2 Impervious Cover

Runoff = 17.39 cfs @ 12.04 hrs, Volume= 1.258 af, Depth= 6.46"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 50-yr Rainfall=6.70"

Area (ac)	CN	Description
2.336	98	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
2.5					**Direct Entry,**

Subcatchment s09-2(OW): s09-2 Open Water

Runoff = 1.90 cfs @ 12.00 hrs, Volume= 0.132 af, Depth= 6.70"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 50-yr Rainfall=6.70"

Area (ac)	CN	Description
0.236	100	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.0					**Direct Entry,**

Subcatchment s09-3:

Runoff = 11.98 cfs @ 12.15 hrs, Volume= 1.008 af, Depth= 3.17"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 50-yr Rainfall=6.70"

Area (ac)	CN	Description
3.818	68	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.9					**Direct Entry,**

Subcatchment s10-1:

Runoff = 17.32 cfs @ 12.40 hrs, Volume= 2.123 af, Depth= 3.17"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 50-yr Rainfall=6.70"

Area (ac)	CN	Description
8.038	68	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
27.9					**Direct Entry,**

Subcatchment s10-1(OW): s10 Open Water

Runoff = 6.68 cfs @ 12.00 hrs, Volume= 0.463 af, Depth= 6.70"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 50-yr Rainfall=6.70"

Area (ac)	CN	Description
0.830	100	

Subcatchment s13-1:

Runoff = 11.30 cfs @ 12.05 hrs, Volume= 0.737 af, Depth= 2.49"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 50-yr Rainfall=6.70"

Area (ac)	CN	Description
3.555	61	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
2.8					**Direct Entry,**

Subcatchment s13-1(IC): s13-1 Impervious Cover

Runoff = 46.87 cfs @ 12.04 hrs, Volume= 3.424 af, Depth= 6.46"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 50-yr Rainfall=6.70"

Area (ac)	CN	Description
6.360	98	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
2.8					**Direct Entry,**

Subcatchment s13-1(OW): s13-1 Open Water

Runoff = 1.05 cfs @ 12.00 hrs, Volume= 0.073 af, Depth= 6.70"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 50-yr Rainfall=6.70"

Area (ac)	CN	Description
0.131	100	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.0					**Direct Entry,**

Subcatchment s14-1:

Runoff = 30.54 cfs @ 12.40 hrs, Volume= 3.740 af, Depth= 3.27"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 50-yr Rainfall=6.70"

Area (ac)	CN	Description
13.727	69	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
28.1					**Direct Entry,**

Subcatchment s14-1(IC): s14-1 Impervious Cover

Runoff = 13.81 cfs @ 12.03 hrs, Volume= 0.991 af, Depth= 6.46"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 50-yr Rainfall=6.70"

Area (ac)	CN	Description
1.840	98	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
2.3					**Direct Entry,**

Subcatchment s14-1(OW): s14 Open Water

Runoff = 4.17 cfs @ 12.00 hrs, Volume= 0.289 af, Depth= 6.70"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 50-yr Rainfall=6.70"

Area (ac)	CN	Description
0.518	100	

Subcatchment s14-2:

Runoff = 1.41 cfs @ 12.10 hrs, Volume= 0.104 af, Depth= 2.49"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 50-yr Rainfall=6.70"

Area (ac)	CN	Description
0.504	61	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.4					**Direct Entry,**

Subcatchment s14-2(OW): s14-2 Open Water

Runoff = 1.42 cfs @ 12.00 hrs, Volume= 0.098 af, Depth= 6.70"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 50-yr Rainfall=6.70"

Area (ac)	CN	Description
0.176	100	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.0					**Direct Entry,**

Subcatchment s14-3:

Runoff = 23.82 cfs @ 12.12 hrs, Volume= 1.851 af, Depth= 3.27"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 50-yr Rainfall=6.70"

Area (ac)	CN	Description
6.794	69	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.5					**Direct Entry,**

Subcatchment s14-3(IC): s14-3 Impervious Cover

Runoff = 62.12 cfs @ 12.04 hrs, Volume= 4.555 af, Depth= 6.46"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 50-yr Rainfall=6.70"

Area (ac)	CN	Description
8.460	98	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
2.9					**Direct Entry,**

Subcatchment s16-1:

Runoff = 97.44 cfs @ 12.27 hrs, Volume= 10.150 af, Depth= 3.07"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 50-yr Rainfall=6.70"

Area (ac)	CN	Description
39.680	67	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
19.0					**Direct Entry,**

Subcatchment s16-1(OW): s16-1 Open Water

Runoff = 43.04 cfs @ 12.00 hrs, Volume= 2.988 af, Depth= 6.70"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 50-yr Rainfall=6.70"

Area (ac)	CN	Description
5.351	100	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.0					**Direct Entry,**

Subcatchment s16-2:

Runoff = 7.54 cfs @ 12.21 hrs, Volume= 0.724 af, Depth= 3.99"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 50-yr Rainfall=6.70"

Area (ac)	CN	Description
2.176	76	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
15.8					**Direct Entry,**

Subcatchment s17-1:

Runoff = 10.43 cfs @ 12.50 hrs, Volume= 1.413 af, Depth= 2.78"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 50-yr Rainfall=6.70"

Area (ac)	CN	Description
6.110	64	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
33.8					**Direct Entry,**

Subcatchment s17-1(OW): s17-1 Open Water

Runoff = 1.32 cfs @ 12.00 hrs, Volume= 0.092 af, Depth= 6.70"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 50-yr Rainfall=6.70"

Area (ac)	CN	Description
0.164	100	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.0					**Direct Entry,**

Subcatchment s17-2:

Runoff = 76.21 cfs @ 13.29 hrs, Volume= 18.835 af, Depth= 2.97"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 50-yr Rainfall=6.70"

Area (ac)	CN	Description
76.086	66	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
95.7					**Direct Entry,**

Subcatchment s17-3:

Runoff = 57.57 cfs @ 12.45 hrs, Volume= 7.397 af, Depth= 2.97"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 50-yr Rainfall=6.70"

Area (ac)	CN	Description
29.880	66	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
30.7					**Direct Entry,**

Subcatchment s18-1:

Runoff = 19.65 cfs @ 12.23 hrs, Volume= 1.949 af, Depth= 2.78"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 50-yr Rainfall=6.70"

Area (ac)	CN	Description
8.429	64	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
16.4					**Direct Entry,**

Subcatchment s18-1(OW): s18-1 Open Water

Runoff = 3.80 cfs @ 12.00 hrs, Volume= 0.264 af, Depth= 6.70"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 50-yr Rainfall=6.70"

Area (ac)	CN	Description
0.472	100	

Subcatchment s18-2:

Runoff = 28.80 cfs @ 12.26 hrs, Volume= 2.921 af, Depth= 3.27"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 50-yr Rainfall=6.70"

Area (ac)	CN	Description
10.721	69	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
18.0					**Direct Entry,**

Subcatchment s19-0:

Runoff = 20.51 cfs @ 12.61 hrs, Volume= 3.096 af, Depth= 2.39"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 50-yr Rainfall=6.70"

Area (ac)	CN	Description
15.520	60	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
40.4					**Direct Entry,**

Subcatchment s20-1:

Runoff = 19.27 cfs @ 12.30 hrs, Volume= 2.119 af, Depth= 2.97"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 50-yr Rainfall=6.70"

Area (ac)	CN	Description
8.559	66	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
21.5					**Direct Entry,**

Subcatchment s20-1(OW): s20-1 Open Water

Runoff = 15.83 cfs @ 12.00 hrs, Volume= 1.099 af, Depth= 6.70"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 50-yr Rainfall=6.70"

Area (ac)	CN	Description
1.968	100	

Subcatchment s20-2:

Runoff = 33.31 cfs @ 12.12 hrs, Volume= 2.571 af, Depth= 3.78"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 50-yr Rainfall=6.70"

Area (ac)	CN	Description
8.157	74	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.4					**Direct Entry,**

Subcatchment s20-2(IC): s20-2 Impervious Cover

Runoff = 35.17 cfs @ 12.07 hrs, Volume= 2.752 af, Depth= 6.46"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 50-yr Rainfall=6.70"

Area (ac)	CN	Description
5.112	98	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.7					**Direct Entry,**

Subcatchment s20-2(OW): s20-2 Open Water

Runoff = 1.95 cfs @ 12.00 hrs, Volume= 0.135 af, Depth= 6.70"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 50-yr Rainfall=6.70"

Area (ac)	CN	Description
0.242	100	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.0					**Direct Entry,**

Subcatchment s20-3:

Runoff = 17.57 cfs @ 12.30 hrs, Volume= 1.934 af, Depth= 3.37"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 50-yr Rainfall=6.70"

Area (ac)	CN	Description
6.886	70	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
22.0					**Direct Entry,**

Subcatchment s21-1:

Runoff = 171.73 cfs @ 12.23 hrs, Volume= 16.887 af, Depth= 3.17"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 50-yr Rainfall=6.70"

Area (ac)	CN	Description
63.942	68	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
16.6					**Direct Entry,**

Subcatchment s21-1(OW):

Runoff = 98.41 cfs @ 12.00 hrs, Volume= 6.831 af, Depth= 6.70"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 50-yr Rainfall=6.70"

Area (ac)	CN	Description
12.235	100	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.0					**Direct Entry,**

Subcatchment s21-2:

Runoff = 45.70 cfs @ 12.45 hrs, Volume= 5.882 af, Depth= 3.37"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 50-yr Rainfall=6.70"

Area (ac)	CN	Description
20.941	70	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
31.4					**Direct Entry,**

Subcatchment s21-3:

Runoff = 31.99 cfs @ 12.16 hrs, Volume= 2.700 af, Depth= 3.78"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 50-yr Rainfall=6.70"

Area (ac)	CN	Description
8.567	74	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
11.2					**Direct Entry,**

Subcatchment s21-4:

Runoff = 9.45 cfs @ 12.19 hrs, Volume= 0.868 af, Depth= 3.07"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 50-yr Rainfall=6.70"

Area (ac)	CN	Description
3.392	67	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
13.8					**Direct Entry,**

Subcatchment s21-4(IC): s21-4 Impervious Cover

Runoff = 12.63 cfs @ 12.02 hrs, Volume= 0.885 af, Depth= 6.46"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 50-yr Rainfall=6.70"

Area (ac)	CN	Description
1.643	98	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.6					**Direct Entry,**

Subcatchment s21-4(OW): s21-4 Open Water

Runoff = 0.94 cfs @ 12.00 hrs, Volume= 0.065 af, Depth= 6.70"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 50-yr Rainfall=6.70"

Area (ac)	CN	Description
0.117	100	

Subcatchment s21-5:

Runoff = 8.52 cfs @ 12.19 hrs, Volume= 0.777 af, Depth= 3.89"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 50-yr Rainfall=6.70"

Area (ac)	CN	Description
2.398	75	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
13.9					**Direct Entry,**

Subcatchment s21-6:

Runoff = 18.22 cfs @ 12.23 hrs, Volume= 1.817 af, Depth= 3.99"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 50-yr Rainfall=6.70"

Area (ac)	CN	Description
5.463	76	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
17.5					**Direct Entry,**

Subcatchment s21-6(IC): s21-6 Impervious Cover

Runoff = 4.96 cfs @ 12.02 hrs, Volume= 0.346 af, Depth= 6.46"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 50-yr Rainfall=6.70"

Area (ac)	CN	Description
0.643	98	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.5					**Direct Entry,**

Subcatchment s21-6(OW): s21-6 Open Water

Runoff = 0.61 cfs @ 12.00 hrs, Volume= 0.042 af, Depth= 6.70"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 50-yr Rainfall=6.70"

Area (ac)	CN	Description
0.076	100	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.0					**Direct Entry,**

Subcatchment s21-7:

Runoff = 11.11 cfs @ 12.19 hrs, Volume= 1.012 af, Depth= 2.78"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 50-yr Rainfall=6.70"

Area (ac)	CN	Description
4.375	64	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
13.1					**Direct Entry,**

Subcatchment s21-7(IC): s21-7 Impervious Cover

Runoff = 28.96 cfs @ 12.04 hrs, Volume= 2.094 af, Depth= 6.46"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 50-yr Rainfall=6.70"

Area (ac)	CN	Description
3.890	98	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
2.5					**Direct Entry,**

Subcatchment s21-7(OW): s21-7 Open Water

Runoff = 0.72 cfs @ 12.00 hrs, Volume= 0.050 af, Depth= 6.70"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 50-yr Rainfall=6.70"

Area (ac)	CN	Description
0.090	100	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.0					**Direct Entry,**

Subcatchment s22-1:

Runoff = 57.17 cfs @ 12.20 hrs, Volume= 5.326 af, Depth= 3.57"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 50-yr Rainfall=6.70"

Area (ac)	CN	Description
17.878	72	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
14.7					**Direct Entry,**

Subcatchment s22-1(OW): s22-1 Open Water

Runoff = 1.09 cfs @ 12.00 hrs, Volume= 0.076 af, Depth= 6.70"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 50-yr Rainfall=6.70"

Area (ac)	CN	Description
0.136	100	

Subcatchment s22-2:

Runoff = 103.33 cfs @ 12.35 hrs, Volume= 11.844 af, Depth= 3.17"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 50-yr Rainfall=6.70"

Area (ac)	CN	Description
44.848	68	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
24.0					**Direct Entry,**

Subcatchment s23-1:

Runoff = 61.35 cfs @ 12.53 hrs, Volume= 8.676 af, Depth= 3.57"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 50-yr Rainfall=6.70"

Area (ac)	CN	Description
29.123	72	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
38.5					**Direct Entry,**

Subcatchment s23-2:

Runoff = 45.04 cfs @ 12.06 hrs, Volume= 2.984 af, Depth= 4.10"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 50-yr Rainfall=6.70"

Area (ac)	CN	Description
8.741	77	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.0					**Direct Entry,**

Subcatchment s23-2(IC): s23-2 Impervious Cover

Runoff = 50.68 cfs @ 12.06 hrs, Volume= 3.869 af, Depth= 6.46"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 50-yr Rainfall=6.70"

Area (ac)	CN	Description
7.185	98	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.0					**Direct Entry,**

Subcatchment s23-2(OW): s23-2 Open Water

Runoff = 1.35 cfs @ 12.00 hrs, Volume= 0.094 af, Depth= 6.70"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 50-yr Rainfall=6.70"

Area (ac)	CN	Description
0.168	100	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.0					**Direct Entry,**

Subcatchment s24-0:

Runoff = 62.42 cfs @ 12.45 hrs, Volume= 7.956 af, Depth= 3.37"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 50-yr Rainfall=6.70"

Area (ac)	CN	Description
28.325	70	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
30.7					**Direct Entry,**

Subcatchment s25-0:

Runoff = 31.32 cfs @ 12.28 hrs, Volume= 3.357 af, Depth= 2.97"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 50-yr Rainfall=6.70"

Area (ac)	CN	Description
13.562	66	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
20.2					**Direct Entry,**

Reach 25R:

Overland Flow Reach

Inflow Area = 15.520 ac, Inflow Depth = 2.39" for 50-yr event
Inflow = 13.58 cfs @ 12.98 hrs, Volume= 3.094 af
Outflow = 13.50 cfs @ 13.04 hrs, Volume= 3.094 af, Atten= 1%, Lag= 3.3 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Max. Velocity= 2.4 fps, Min. Travel Time= 4.3 min
Avg. Velocity = 0.7 fps, Avg. Travel Time= 15.0 min

Peak Depth= 0.31' @ 13.04 hrs
Capacity at bank full= 175.17 cfs
Inlet Invert= 560.00', Outlet Invert= 512.00'
50.00' x 1.00' deep Parabolic Channel, n= 0.060 Length= 620.0' Slope= 0.0774 '/'

Reach r03-1:

Overland Flow Reach
Requires more survey

Inflow Area = 11.485 ac, Inflow Depth = 3.17" for 50-yr event
Inflow = 20.20 cfs @ 12.60 hrs, Volume= 3.033 af
Outflow = 20.10 cfs @ 12.63 hrs, Volume= 3.033 af, Atten= 0%, Lag= 1.5 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Max. Velocity= 5.8 fps, Min. Travel Time= 2.2 min
Avg. Velocity = 2.2 fps, Avg. Travel Time= 5.9 min

Peak Depth= 0.74' @ 12.63 hrs
Capacity at bank full= 92.14 cfs
Inlet Invert= 845.00', Outlet Invert= 728.00'
10.00' x 1.50' deep Parabolic Channel, n= 0.060 Length= 785.0' Slope= 0.1490 '/'

Reach r04-1:

Channel

Inflow Area = 26.658 ac, Inflow Depth = 3.53" for 50-yr event
Inflow = 47.25 cfs @ 12.48 hrs, Volume= 7.837 af
Outflow = 47.24 cfs @ 12.48 hrs, Volume= 7.837 af, Atten= 0%, Lag= 0.4 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Max. Velocity= 8.4 fps, Min. Travel Time= 0.7 min
Avg. Velocity = 2.2 fps, Avg. Travel Time= 2.5 min

Peak Depth= 1.26' @ 12.48 hrs
Capacity at bank full= 530.15 cfs
Inlet Invert= 685.50', Outlet Invert= 632.00'
12.00' x 4.00' deep Parabolic Channel, n= 0.060 Length= 330.0' Slope= 0.1621 '/'

Reach r08-1a:

Man Made Ditch
Inverts of pipe to be surveyed

Inflow Area = 93.367 ac, Inflow Depth = 2.02" for 50-yr event
Inflow = 35.96 cfs @ 12.82 hrs, Volume= 15.703 af
Outflow = 35.96 cfs @ 12.83 hrs, Volume= 15.703 af, Atten= 0%, Lag= 0.4 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Max. Velocity= 9.6 fps, Min. Travel Time= 0.4 min
Avg. Velocity = 5.5 fps, Avg. Travel Time= 0.7 min

Peak Depth= 0.68' @ 12.83 hrs
Capacity at bank full= 81.88 cfs
Inlet Invert= 607.00', Outlet Invert= 587.00'
10.00' x 1.00' deep Parabolic Channel, n= 0.027 Length= 226.0' Slope= 0.0885 '/'

Reach r08-1b:

24" HDPE
Inverts to be surveyed

Inflow Area = 93.367 ac, Inflow Depth = 2.02" for 50-yr event
Inflow = 35.96 cfs @ 12.83 hrs, Volume= 15.703 af
Outflow = 35.96 cfs @ 12.83 hrs, Volume= 15.703 af, Atten= 0%, Lag= 0.2 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Max. Velocity= 24.1 fps, Min. Travel Time= 0.2 min
Avg. Velocity = 14.5 fps, Avg. Travel Time= 0.3 min

Peak Depth= 0.96' @ 12.83 hrs
Capacity at bank full= 77.17 cfs
Inlet Invert= 587.00', Outlet Invert= 557.75'
24.0" Diameter Pipe n= 0.012 Length= 295.0' Slope= 0.0992 '/'

Reach r08-1c:

Ditch
Pipe inverts to be surveyed

Inflow Area = 93.367 ac, Inflow Depth = 2.02" for 50-yr event
Inflow = 35.96 cfs @ 12.83 hrs, Volume= 15.703 af
Outflow = 35.96 cfs @ 12.86 hrs, Volume= 15.703 af, Atten= 0%, Lag= 1.6 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Max. Velocity= 9.1 fps, Min. Travel Time= 1.1 min
Avg. Velocity = 5.1 fps, Avg. Travel Time= 1.9 min

Peak Depth= 0.70' @ 12.86 hrs
Capacity at bank full= 76.65 cfs
Inlet Invert= 557.75', Outlet Invert= 512.00'
10.00' x 1.00' deep Parabolic Channel, n= 0.027 Length= 590.0' Slope= 0.0775 '/'

Reach r08-1d: Amenia Creek/Cascade Brook

(Steam) parallel to Route 22
Base Flow estimated from field observation (see field note 21)

Inflow Area = 114.957 ac, Inflow Depth = 18.95" for 50-yr event
Inflow = 117.74 cfs @ 12.29 hrs, Volume= 181.498 af, Incl. 40.00 cfs Base Flow
Outflow = 116.65 cfs @ 12.35 hrs, Volume= 181.253 af, Atten= 1%, Lag= 3.4 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Max. Velocity= 4.0 fps, Min. Travel Time= 3.3 min
Avg. Velocity = 3.1 fps, Avg. Travel Time= 4.3 min

Peak Depth= 4.23' @ 12.35 hrs
Capacity at bank full= 104.49 cfs
Inlet Invert= 512.00', Outlet Invert= 504.00'
10.00' x 4.00' deep Parabolic Channel, n= 0.060 Length= 805.0' Slope= 0.0099 '/'

Reach r13-1:

Inflow Area = 2.176 ac, Inflow Depth = 3.99" for 50-yr event
Inflow = 7.54 cfs @ 12.21 hrs, Volume= 0.724 af
Outflow = 7.48 cfs @ 12.24 hrs, Volume= 0.724 af, Atten= 1%, Lag= 1.3 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Max. Velocity= 9.6 fps, Min. Travel Time= 1.6 min
Avg. Velocity = 3.5 fps, Avg. Travel Time= 4.2 min

Peak Depth= 0.68' @ 12.24 hrs
Capacity at bank full= 17.79 cfs
Inlet Invert= 546.00', Outlet Invert= 524.00'
18.0" Diameter Pipe n= 0.012 Length= 900.0' Slope= 0.0244 '/'

Reach r14-3a:

30" HDPE Under Main Entrance Road

Inflow Area = 6.422 ac, Inflow Depth = 2.85" for 50-yr event
Inflow = 18.15 cfs @ 12.16 hrs, Volume= 1.528 af
Outflow = 18.12 cfs @ 12.16 hrs, Volume= 1.528 af, Atten= 0%, Lag= 0.4 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Max. Velocity= 14.9 fps, Min. Travel Time= 0.5 min
Avg. Velocity = 5.5 fps, Avg. Travel Time= 1.3 min

Peak Depth= 0.74' @ 12.16 hrs
Capacity at bank full= 94.91 cfs
Inlet Invert= 526.00', Outlet Invert= 505.70'
30.0" Diameter Pipe n= 0.012 Length= 445.0' Slope= 0.0456 '/'

Reach r14-3b:

Grass lined channel

Inflow Area = 6.422 ac, Inflow Depth = 2.85" for 50-yr event
Inflow = 18.24 cfs @ 12.15 hrs, Volume= 1.528 af
Outflow = 18.15 cfs @ 12.16 hrs, Volume= 1.528 af, Atten= 0%, Lag= 0.6 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Max. Velocity= 7.1 fps, Min. Travel Time= 0.8 min
Avg. Velocity = 2.6 fps, Avg. Travel Time= 2.3 min

Peak Depth= 0.76' @ 12.16 hrs
Capacity at bank full= 325.42 cfs
Inlet Invert= 542.00', Outlet Invert= 526.00'
10.00' x 3.00' deep Parabolic Channel, n= 0.027 Length= 360.0' Slope= 0.0444 '/'

Reach r17-1:

Inflow Area = 76.086 ac, Inflow Depth = 2.97" for 50-yr event
Inflow = 76.21 cfs @ 13.29 hrs, Volume= 18.835 af
Outflow = 75.95 cfs @ 13.33 hrs, Volume= 18.835 af, Atten= 0%, Lag= 2.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Max. Velocity= 8.8 fps, Min. Travel Time= 2.6 min
Avg. Velocity = 3.4 fps, Avg. Travel Time= 6.8 min

Peak Depth= 1.33' @ 13.33 hrs
Capacity at bank full= 181.28 cfs
Inlet Invert= 646.00', Outlet Invert= 524.00'
12.00' x 2.00' deep Parabolic Channel, n= 0.045 Length= 1,390.0' Slope= 0.0878 '/'

Reach r18-2:

Overland Flow Reach

Inflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Outflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Max. Velocity= 0.0 fps, Min. Travel Time= 0.0 min
Avg. Velocity = 0.0 fps, Avg. Travel Time= 0.0 min

Peak Depth= 0.00' @ 0.00 hrs
Capacity at bank full= 434.91 cfs
Inlet Invert= 973.60', Outlet Invert= 630.00'
50.00' x 1.00' deep Parabolic Channel, n= 0.060 Length= 720.0' Slope= 0.4772 '/'

Reach r21-1a:

Man Made Ditch

Inflow Area = 207.817 ac, Inflow Depth = 2.44" for 50-yr event
Inflow = 82.48 cfs @ 14.29 hrs, Volume= 42.185 af
Outflow = 82.46 cfs @ 14.31 hrs, Volume= 42.171 af, Atten= 0%, Lag= 1.1 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Max. Velocity= 7.6 fps, Min. Travel Time= 1.4 min
Avg. Velocity = 3.3 fps, Avg. Travel Time= 3.3 min

Peak Depth= 2.00' @ 14.31 hrs
Capacity at bank full= 191.76 cfs
Inlet Invert= 504.00', Outlet Invert= 494.00'
10.00' x 3.00' deep Parabolic Channel, n= 0.027 Length= 648.0' Slope= 0.0154 '/'

Reach r21-1b:

Overland Flow Reach

Inflow Area = 29.123 ac, Inflow Depth = 3.28" for 50-yr event
Inflow = 61.30 cfs @ 12.54 hrs, Volume= 7.960 af
Outflow = 61.27 cfs @ 12.55 hrs, Volume= 7.960 af, Atten= 0%, Lag= 0.4 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Max. Velocity= 4.6 fps, Min. Travel Time= 0.6 min
Avg. Velocity = 1.7 fps, Avg. Travel Time= 1.5 min

Peak Depth= 0.55' @ 12.55 hrs
Capacity at bank full= 227.81 cfs
Inlet Invert= 506.70', Outlet Invert= 485.75'
50.00' x 1.00' deep Parabolic Channel, n= 0.060 Length= 160.0' Slope= 0.1309 '/'

Reach r22-2:

Overland Flow Reach

Inflow Area = 15.520 ac, Inflow Depth = 2.39" for 50-yr event
Inflow = 13.60 cfs @ 12.96 hrs, Volume= 3.094 af
Outflow = 13.58 cfs @ 12.98 hrs, Volume= 3.094 af, Atten= 0%, Lag= 1.6 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Max. Velocity= 4.7 fps, Min. Travel Time= 2.2 min
Avg. Velocity = 1.4 fps, Avg. Travel Time= 7.4 min

Peak Depth= 0.19' @ 12.98 hrs
Capacity at bank full= 469.25 cfs
Inlet Invert= 970.00', Outlet Invert= 620.00'
50.00' x 1.00' deep Parabolic Channel, n= 0.060 Length= 630.0' Slope= 0.5556 '/'

Reach r25-0a:

Ditch
Pipe inverts need to be surveyed

Inflow Area = 67.391 ac, Inflow Depth = 3.22" for 50-yr event
Inflow = 56.48 cfs @ 12.40 hrs, Volume= 18.081 af
Outflow = 56.45 cfs @ 12.41 hrs, Volume= 18.078 af, Atten= 0%, Lag= 1.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Max. Velocity= 10.5 fps, Min. Travel Time= 1.7 min
Avg. Velocity = 3.7 fps, Avg. Travel Time= 5.0 min

Peak Depth= 1.09' @ 12.41 hrs
Capacity at bank full= 205.50 cfs
Inlet Invert= 570.00', Outlet Invert= 504.00'
10.00' x 2.00' deep Parabolic Channel, n= 0.027 Length= 1,090.0' Slope= 0.0606 '/'

Reach r25-0b: Wetland Reach

Wetland Reach
Has wetland vegetation within reach

Inflow Area = 9.435 ac, Inflow Depth = 2.73" for 50-yr event
Inflow = 18.58 cfs @ 12.32 hrs, Volume= 2.148 af
Outflow = 17.11 cfs @ 12.40 hrs, Volume= 2.147 af, Atten= 8%, Lag= 5.3 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Max. Velocity= 2.0 fps, Min. Travel Time= 6.2 min
Avg. Velocity = 0.5 fps, Avg. Travel Time= 26.8 min

Peak Depth= 1.07' @ 12.40 hrs
Capacity at bank full= 156.51 cfs
Inlet Invert= 504.00', Outlet Invert= 499.50'
20.00' x 3.00' deep Parabolic Channel, n= 0.045 Length= 750.0' Slope= 0.0060 '/'

Reach r25-0c: Amenia Creek/Cascade Brook

(Steam) parallel to Route 22
Base Flow estimated from field observation (see field note 21)

Inflow Area = 138.083 ac, Inflow Depth = 29.95" for 50-yr event
Inflow = 195.13 cfs @ 12.36 hrs, Volume= 344.577 af, Incl. 40.00 cfs Base Flow
Outflow = 190.12 cfs @ 12.45 hrs, Volume= 343.893 af, Atten= 3%, Lag= 5.6 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Max. Velocity= 3.0 fps, Min. Travel Time= 5.4 min
Avg. Velocity = 2.7 fps, Avg. Travel Time= 6.1 min

Peak Depth= 7.63' @ 12.45 hrs
Capacity at bank full= 67.14 cfs
Inlet Invert= 504.00', Outlet Invert= 500.00'
10.00' x 4.00' deep Parabolic Channel, n= 0.060 Length= 975.0' Slope= 0.0041 '/'

Pond 8P:

No field note.
Water spills over cart path; no storage.

Inflow Area = 41.049 ac, Inflow Depth = 3.29" for 50-yr event
Inflow = 46.03 cfs @ 12.47 hrs, Volume= 11.249 af
Outflow = 46.03 cfs @ 12.47 hrs, Volume= 11.249 af, Atten= 0%, Lag= 0.0 min
Primary = 46.03 cfs @ 12.47 hrs, Volume= 11.249 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Peak Elev= 575.45' @ 12.47 hrs
Flood Elev= 574.70'
Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= (not calculated)

#	Routing	Invert	Outlet Devices
1	Primary	574.70'	**177.0 deg Sharp-Crested Vee/Trap Weir** C= 2.46

Primary OutFlow Max=46.03 cfs @ 12.47 hrs HW=575.45' TW=571.09' (Dynamic Tailwater)
└─**1=Sharp-Crested Vee/Trap Weir** (Weir Controls 46.03 cfs @ 2.1 fps)

Pond p02-2:

Proposed culvert under proposed road at intersection with 44.

Inflow Area = 7.776 ac, Inflow Depth = 2.97" for 50-yr event
Inflow = 15.25 cfs @ 12.42 hrs, Volume= 1.925 af
Outflow = 15.25 cfs @ 12.42 hrs, Volume= 1.925 af, Atten= 0%, Lag= 0.0 min
Primary = 15.25 cfs @ 12.42 hrs, Volume= 1.925 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Peak Elev= 642.02' @ 12.42 hrs
Flood Elev= 645.00'
Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= (not calculated)

#	Routing	Invert	Outlet Devices
1	Primary	640.00'	**24.0" x 100.0' long Culvert** CPP, end-section conforming to fill, Ke= 0.500 Outlet Invert= 638.00' S= 0.0200 '/' n= 0.012 Cc= 0.900

Primary OutFlow Max=15.24 cfs @ 12.42 hrs HW=642.02' TW=625.83' (Dynamic Tailwater)
└─**1=Culvert** (Inlet Controls 15.24 cfs @ 4.9 fps)

Pond p02-3:

Simulates last DMH at bottom of small road , at intersection with 44. This culvert is only used to size the drain pipe under 44.

Inflow Area = 4.088 ac, Inflow Depth = 5.08" for 50-yr event
Inflow = 27.66 cfs @ 12.02 hrs, Volume= 1.730 af
Outflow = 27.66 cfs @ 12.02 hrs, Volume= 1.730 af, Atten= 0%, Lag= 0.0 min
Primary = 27.66 cfs @ 12.02 hrs, Volume= 1.730 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Peak Elev= 641.36' @ 12.02 hrs
Flood Elev= 645.00'
Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= (not calculated)

#	Routing	Invert	Outlet Devices
1	Primary	635.00'	**24.0" x 100.0' long Culvert** CPP, projecting, no headwall, Ke= 0.900 Outlet Invert= 634.00' S= 0.0100 '/' n= 0.012 Cc= 0.900

Primary OutFlow Max=27.51 cfs @ 12.02 hrs HW=641.31' TW=555.62' (Dynamic Tailwater)
└─**1=Culvert** (Inlet Controls 27.51 cfs @ 8.8 fps)

Pond p03-2:

Inflow Area =	4.738 ac,	Inflow Depth = 4.76"	for 50-yr event
Inflow =	28.98 cfs @	12.02 hrs, Volume=	1.878 af
Outflow =	6.85 cfs @	12.37 hrs, Volume=	1.873 af, Atten= 76%, Lag= 21.0 min
Primary =	6.85 cfs @	12.37 hrs, Volume=	1.873 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Starting Elev= 774.00' Surf.Area= 2,315 sf Storage= 4,095 cf
Peak Elev= 778.91' @ 12.37 hrs Surf.Area= 9,892 sf Storage= 40,474 cf (36,379 cf above start)
Flood Elev= 779.00' Surf.Area= 9,991 sf Storage= 41,391 cf (37,296 cf above start)
Plug-Flow detention time= 310.0 min calculated for 1.779 af (95% of inflow)
Center-of-Mass det. time= 252.1 min (1,031.9 - 779.8)

#	Invert	Avail.Storage	Storage Description
1	768.00'	51,363 cf	**Custom Stage Data (Conic)** Listed below

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
768.00	67	0	0	67
770.00	345	376	376	361
772.00	729	1,050	1,426	777
772.50	842	392	1,819	901
774.00	2,315	2,277	4,095	2,388
774.50	5,704	1,942	6,037	5,779
776.00	6,996	9,509	15,546	7,138
778.00	8,917	15,874	31,420	9,160
780.00	11,064	19,942	51,363	11,421

#	Routing	Invert	Outlet Devices
1	Primary	774.00'	**3.0" Vert. Orifice/Grate** C= 0.600
2	Primary	776.20'	**6.0" Vert. Orifice/Grate X 2.00** C= 0.600
3	Primary	778.50'	**4.0' long x 6.0' high Sharp-Crested Rectangular Weir** 2 End Contraction(s)

Primary OutFlow Max=6.85 cfs @ 12.37 hrs HW=778.91' TW=722.80' (Dynamic Tailwater)
1=Orifice/Grate (Orifice Controls 0.52 cfs @ 10.5 fps)
2=Orifice/Grate (Orifice Controls 2.96 cfs @ 7.5 fps)
3=Sharp-Crested Rectangular Weir (Weir Controls 3.37 cfs @ 2.1 fps)

Pond p04-1:

Storage, inverts and culvert length based on assumed grading, check when final grading becomes available

Inflow Area =	34.207 ac,	Inflow Depth = 3.45"	for 50-yr event
Inflow =	55.55 cfs @	12.43 hrs, Volume=	9.831 af
Outflow =	40.31 cfs @	12.77 hrs, Volume=	9.831 af, Atten= 27%, Lag= 20.6 min
Primary =	40.31 cfs @	12.77 hrs, Volume=	9.831 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

Peak Elev= 646.10' @ 12.77 hrs Surf.Area= 11,332 sf Storage= 40,766 cf
Flood Elev= 648.00' Surf.Area= 15,680 sf Storage= 66,062 cf
Plug-Flow detention time= 6.7 min calculated for 9.829 af (100% of inflow)
Center-of-Mass det. time= 6.7 min (898.8 - 892.1)

#	Invert	Avail.Storage	Storage Description
1	638.00'	66,062 cf	**Custom Stage Data (Conic)** Listed below

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
638.00	0	0	0	0
640.00	1,300	867	867	1,306
642.00	6,180	6,876	7,743	6,203
644.00	7,270	13,435	21,178	7,438
646.00	11,100	18,235	39,414	11,327
648.00	15,680	26,648	66,062	15,980

#	Routing	Invert	Outlet Devices
1	Primary	638.00'	**24.0" x 685.0' long Culvert** CPP, end-section conforming to fill, Ke= 0.500 Outlet Invert= 598.00' S= 0.0584 '/' n= 0.012 Cc= 0.900

Primary OutFlow Max=40.31 cfs @ 12.77 hrs HW=646.10' TW=575.44' (Dynamic Tailwater)
└─**1=Culvert** (Inlet Controls 40.31 cfs @ 12.8 fps)

Pond p06-0:

Field Note #22
Geometry to be confirmed by survey.

Inflow Area =	9.435 ac, Inflow Depth = 2.77"	for 50-yr event	
Inflow =	19.92 cfs @ 12.25 hrs, Volume=	2.177 af	
Outflow =	18.58 cfs @ 12.32 hrs, Volume=	2.148 af,	Atten= 7%, Lag= 4.3 min
Primary =	18.58 cfs @ 12.32 hrs, Volume=	2.148 af	

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Starting Elev= 506.80' Surf.Area= 18,600 sf Storage= 42,160 cf
Peak Elev= 507.53' @ 12.32 hrs Surf.Area= 21,907 sf Storage= 57,694 cf (15,534 cf above start)
Flood Elev= 507.10' Surf.Area= 19,958 sf Storage= 48,537 cf (6,377 cf above start)
Plug-Flow detention time= 376.2 min calculated for 1.180 af (54% of inflow)
Center-of-Mass det. time= 92.9 min (939.1 - 846.1)

#	Invert	Avail.Storage	Storage Description
1	500.00'	67,669 cf	**Custom Stage Data (Conic)** Listed below

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
500.00	0	0	0	0
506.80	18,600	42,160	42,160	18,672
508.00	24,030	25,509	67,669	24,138

#	Routing	Invert	Outlet Devices
1	Primary	506.80'	**12.0" x 20.0' long Culvert** CMP, projecting, no headwall, Ke= 0.900 Outlet Invert= 506.00' S= 0.0400 '/' n= 0.024 Cc= 0.900
2	Primary	507.10'	**178.0 deg Sharp-Crested Vee/Trap Weir** C= 2.46

Primary OutFlow Max=18.57 cfs @ 12.32 hrs HW=507.53' TW=505.01' (Dynamic Tailwater)
├─**1=Culvert** (Inlet Controls 1.41 cfs @ 2.3 fps)
└─**2=Sharp-Crested Vee/Trap Weir** (Weir Controls 17.16 cfs @ 1.6 fps)

Pond p07-1:

Field Note # 29
Outlet geometry to be confirmed by survey.

Inflow Area = 26.342 ac, Inflow Depth = 3.18" for 50-yr event
Inflow = 16.63 cfs @ 12.14 hrs, Volume= 6.979 af
Outflow = 10.58 cfs @ 12.38 hrs, Volume= 6.832 af, Atten= 36%, Lag= 14.4 min
Primary = 10.58 cfs @ 12.38 hrs, Volume= 6.832 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Starting Elev= 572.80' Surf.Area= 21,640 sf Storage= 56,264 cf
Peak Elev= 573.77' @ 12.38 hrs Surf.Area= 26,224 sf Storage= 80,032 cf (23,768 cf above start)
Flood Elev= 573.50' Surf.Area= 24,936 sf Storage= 73,351 cf (17,087 cf above start)
Plug-Flow detention time= 347.3 min calculated for 5.539 af (79% of inflow)
Center-of-Mass det. time= 68.3 min (1,210.6 - 1,142.3)

#	Invert	Avail.Storage	Storage Description
1	565.00'	85,557 cf	**Custom Stage Data (Conic)** Listed below

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
565.00	0	0	0	0
572.80	21,640	56,264	56,264	21,735
574.00	27,290	29,293	85,557	27,424

#	Routing	Invert	Outlet Devices
1	Primary	572.80'	**18.0" x 20.0' long Culvert** CMP, projecting, no headwall, Ke= 0.900 Outlet Invert= 572.00' S= 0.0400 '/' n= 0.024 Cc= 0.900
2	Primary	573.50'	**177.0 deg Sharp-Crested Vee/Trap Weir X 2.00** C= 2.46

Primary OutFlow Max=10.58 cfs @ 12.38 hrs HW=573.77' TW=571.09' (Dynamic Tailwater)
├─**1=Culvert** (Inlet Controls 3.22 cfs @ 2.7 fps)
└─**2=Sharp-Crested Vee/Trap Weir** (Weir Controls 7.36 cfs @ 1.3 fps)

Pond p08-2:

Inflow Area = 18.762 ac, Inflow Depth = 4.36" for 50-yr event
Inflow = 80.52 cfs @ 12.04 hrs, Volume= 6.811 af
Outflow = 40.24 cfs @ 12.27 hrs, Volume= 6.125 af, Atten= 50%, Lag= 14.0 min
Primary = 40.24 cfs @ 12.27 hrs, Volume= 6.125 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Starting Elev= 550.00' Surf.Area= 8,558 sf Storage= 24,834 cf
Peak Elev= 556.85' @ 12.27 hrs Surf.Area= 23,078 sf Storage= 144,110 cf (119,276 cf above start)
Flood Elev= 557.00' Surf.Area= 23,344 sf Storage= 147,597 cf (122,763 cf above start)
Plug-Flow detention time= 372.1 min calculated for 5.555 af (82% of inflow)
Center-of-Mass det. time= 257.9 min (1,043.9 - 786.0)

#	Invert	Avail.Storage	Storage Description
1	544.00'	170,918 cf	**Custom Stage Data (Conic)** Listed below

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
544.00	1,962	0	0	1,962
546.00	3,155	5,070	5,070	3,207
548.00	4,454	7,572	12,642	4,577
548.50	4,796	2,312	14,954	4,940
550.00	8,558	9,880	24,834	8,726
550.50	12,948	5,339	30,173	13,120
552.00	15,129	21,037	51,209	15,390
554.00	18,234	33,315	84,524	18,627
556.00	21,565	39,752	124,277	22,105
558.00	25,122	46,642	170,918	25,823

#	Routing	Invert	Outlet Devices
1	Primary	550.00'	**3.0" Vert. Orifice/Grate** C= 0.600
2	Primary	554.09'	**12.0" Vert. Orifice/Grate X 2.00** C= 0.600
3	Primary	556.00'	**11.0' long x 6.0' high Sharp-Crested Rectangular Weir** 2 End Contraction(s)

Primary OutFlow Max=40.23 cfs @ 12.27 hrs HW=556.85' TW=516.17' (Dynamic Tailwater)
1=Orifice/Grate (Orifice Controls 0.61 cfs @ 12.5 fps)
2=Orifice/Grate (Orifice Controls 11.37 cfs @ 7.2 fps)
3=Sharp-Crested Rectangular Weir (Weir Controls 28.25 cfs @ 3.1 fps)

Pond p08-3:

Inflow Area = 2.828 ac, Inflow Depth = 4.08" for 50-yr event
Inflow = 10.30 cfs @ 12.02 hrs, Volume= 0.961 af
Outflow = 4.63 cfs @ 12.36 hrs, Volume= 0.960 af, Atten= 55%, Lag= 20.7 min
Primary = 4.63 cfs @ 12.36 hrs, Volume= 0.960 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Starting Elev= 528.00' Surf.Area= 1,849 sf Storage= 2,615 cf
Peak Elev= 531.72' @ 12.36 hrs Surf.Area= 4,977 sf Storage= 15,065 cf (12,451 cf above start)
Flood Elev= 533.00' Surf.Area= 6,389 sf Storage= 22,602 cf (19,987 cf above start)
Plug-Flow detention time= 194.3 min calculated for 0.900 af (94% of inflow)
Center-of-Mass det. time= 128.0 min (911.2 - 783.1)

#	Invert	Avail.Storage	Storage Description
1	524.00'	28,956 cf	**Custom Stage Data (Conic)** Listed below

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
524.00	178	0	0	178
526.00	500	651	651	524
526.50	548	262	913	587
528.00	1,849	1,702	2,615	1,900
530.00	3,344	5,120	7,734	3,437
532.00	5,240	8,513	16,248	5,388
534.00	7,538	12,709	28,956	7,755

#	Routing	Invert	Outlet Devices
1	Primary	528.00'	**3.0" Vert. Orifice/Grate** C= 0.600
2	Primary	530.00'	**12.0" Vert. Orifice/Grate** C= 0.600

Primary OutFlow Max=4.63 cfs @ 12.36 hrs HW=531.72' TW=516.23' (Dynamic Tailwater)
1=Orifice/Grate (Orifice Controls 0.45 cfs @ 9.1 fps)
2=Orifice/Grate (Orifice Controls 4.18 cfs @ 5.3 fps)

Pond p09-2:

Inflow Area = 21.180 ac, Inflow Depth = 3.48" for 50-yr event
Inflow = 50.05 cfs @ 12.29 hrs, Volume= 6.149 af
Outflow = 7.72 cfs @ 13.37 hrs, Volume= 5.620 af, Atten= 85%, Lag= 64.8 min
Primary = 7.72 cfs @ 13.37 hrs, Volume= 5.620 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Starting Elev= 586.00' Surf.Area= 10,285 sf Storage= 36,340 cf
Peak Elev= 592.71' @ 13.37 hrs Surf.Area= 27,079 sf Storage= 179,197 cf (142,857 cf above start)
Flood Elev= 593.00' Surf.Area= 27,610 sf Storage= 187,200 cf (150,860 cf above start)
Plug-Flow detention time= 557.8 min calculated for 4.786 af (78% of inflow)
Center-of-Mass det. time= 392.3 min (1,219.6 - 827.3)

#	Invert	Avail.Storage	Storage Description
1	580.00'	214,790 cf	**Custom Stage Data (Conic)** Listed below

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
580.00	3,968	0	0	3,968
582.00	5,102	9,046	9,046	5,198
584.00	6,343	11,423	20,469	6,550
584.50	6,670	3,253	23,722	6,907
586.00	10,285	12,619	36,340	10,554
586.50	16,887	6,725	43,066	17,159
588.00	19,143	27,005	70,070	19,525
590.00	22,349	41,451	111,521	22,890
592.00	25,781	48,089	159,610	26,494
594.00	29,439	55,180	214,790	30,336

#	Routing	Invert	Outlet Devices
1	Primary	586.00'	**3.0" Vert. Orifice/Grate** C= 0.600
2	Primary	588.21'	**8.0" Vert. Orifice/Grate** C= 0.600
3	Primary	592.00'	**2.0' long x 6.0' high Sharp-Crested Rectangular Weir** 2 End Contraction(s)

Primary OutFlow Max=7.72 cfs @ 13.37 hrs HW=592.71' TW=573.76' (Dynamic Tailwater)
1=Orifice/Grate (Orifice Controls 0.61 cfs @ 12.4 fps)
2=Orifice/Grate (Orifice Controls 3.43 cfs @ 9.8 fps)
3=Sharp-Crested Rectangular Weir (Weir Controls 3.69 cfs @ 2.8 fps)

Pond p10:

Field Note #25
Need to get full story on how this pond works

Inflow Area = 59.531 ac, Inflow Depth = 1.91" for 50-yr event
Inflow = 33.13 cfs @ 12.47 hrs, Volume= 9.481 af
Outflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Atten= 100%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Starting Elev= 498.40' Surf.Area= 36,110 sf Storage= 101,108 cf
Peak Elev= 505.29' @ 48.00 hrs Surf.Area= 98,426 sf Storage= 514,091 cf (412,983 cf above start)
Plug-Flow detention time= (not calculated)
Center-of-Mass det. time= (not calculated)

#	Invert	Avail.Storage	Storage Description
1	490.00'	581,029 cf	**Custom Stage Data (Conic)** Listed below

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
490.00	0	0	0	0
498.40	36,110	101,108	101,108	36,221
500.00	42,400	62,741	163,849	42,610
502.00	54,880	97,012	260,861	55,187
504.00	78,730	132,895	393,755	79,107
506.00	109,382	187,274	581,029	109,836

Pond p13-1:

No Field Note
Natural depression.

Inflow Area = 12.222 ac, Inflow Depth = 4.87" for 50-yr event
Inflow = 62.38 cfs @ 12.04 hrs, Volume= 4.958 af
Outflow = 56.92 cfs @ 12.07 hrs, Volume= 4.942 af, Atten= 9%, Lag= 1.8 min
Primary = 56.92 cfs @ 12.07 hrs, Volume= 4.942 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Starting Elev= 524.00' Surf.Area= 5,894 sf Storage= 16,480 cf
Peak Elev= 526.94' @ 12.07 hrs Surf.Area= 9,979 sf Storage= 40,285 cf (23,805 cf above start)
Flood Elev= 527.00' Surf.Area= 10,067 sf Storage= 40,862 cf (24,383 cf above start)

Plug-Flow detention time= 168.7 min calculated for 4.563 af (92% of inflow)
Center-of-Mass det. time= 99.2 min (869.1 - 769.9)

#	Invert	Avail.Storage	Storage Description
1	518.00'	50,891 cf	**Custom Stage Data (Conic)** Listed below

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
518.00	1,331	0	0	1,331
520.00	2,048	3,353	3,353	2,104
522.00	2,912	4,935	8,288	3,037
522.50	3,150	1,515	9,803	3,294
524.00	5,894	6,676	16,480	6,061
526.00	8,542	14,354	30,834	8,776
528.00	11,592	20,057	50,891	11,908

#	Routing	Invert	Outlet Devices
1	Primary	524.00'	**3.0" Vert. Orifice/Grate** C= 0.600
2	Primary	525.90'	**15.0' long x 1.3' high Sharp-Crested Rectangular Weir** 2 End Contraction(s)

Primary OutFlow Max=56.84 cfs @ 12.07 hrs HW=526.94' TW=502.00' (Dynamic Tailwater)
1=Orifice/Grate (Orifice Controls 0.40 cfs @ 8.1 fps)
2=Sharp-Crested Rectangular Weir (Weir Controls 56.44 cfs @ 3.7 fps)

Pond p14-1:

Field Note #26
Need to figure out how this pond works

Inflow Area = 50.663 ac, Inflow Depth = 4.28" for 50-yr event
Inflow = 168.24 cfs @ 12.08 hrs, Volume= 18.070 af
Outflow = 19.94 cfs @ 13.39 hrs, Volume= 6.895 af, Atten= 88%, Lag= 78.2 min
Primary = 19.94 cfs @ 13.39 hrs, Volume= 6.895 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Starting Elev= 497.40' Surf.Area= 22,200 sf Storage= 54,760 cf
Peak Elev= 505.29' @ 48.00 hrs Surf.Area= 89,249 sf Storage= 541,581 cf (486,821 cf above start)
Plug-Flow detention time= 330.8 min calculated for 5.637 af (31% of inflow)
Center-of-Mass det. time= 104.1 min (953.8 - 849.6)

#	Invert	Avail.Storage	Storage Description
1	490.00'	805,062 cf	**Custom Stage Data (Conic)** Listed below

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
490.00	0	0	0	0
497.40	22,200	54,760	54,760	22,286
498.00	25,330	14,249	69,009	25,433
500.00	52,810	76,476	145,485	52,948
502.00	73,360	125,608	271,093	73,574
504.00	84,070	157,308	428,402	84,467
506.00	92,130	176,139	604,540	92,797
508.00	108,618	200,522	805,062	109,437

#	Routing	Invert	Outlet Devices
1	Primary	500.00'	**24.0" x 80.0' long Culvert** CPP, end-section conforming to fill, Ke= 0.500 Outlet Invert= 502.00' S= -0.0250 '/' n= 0.012 Cc= 0.900

Primary OutFlow Max=19.95 cfs @ 13.39 hrs HW=504.74' TW=501.68' (Dynamic Tailwater)
└—**1=Culvert** (Inlet Controls 19.95 cfs @ 6.3 fps)

Pond p14-2:

Inflow Area = 15.934 ac, Inflow Depth = 4.98" for 50-yr event
Inflow = 81.03 cfs @ 12.05 hrs, Volume= 6.609 af
Outflow = 73.94 cfs @ 12.09 hrs, Volume= 6.580 af, Atten= 9%, Lag= 2.4 min
Primary = 73.94 cfs @ 12.09 hrs, Volume= 6.580 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Starting Elev= 532.00' Surf.Area= 7,681 sf Storage= 23,903 cf
Peak Elev= 534.90' @ 12.09 hrs Surf.Area= 12,217 sf Storage= 53,287 cf (29,384 cf above start)
Flood Elev= 535.00' Surf.Area= 12,390 sf Storage= 54,538 cf (30,635 cf above start)
Plug-Flow detention time= 158.6 min calculated for 6.032 af (91% of inflow)
Center-of-Mass det. time= 84.4 min (853.7 - 769.3)

#	Invert	Avail.Storage	Storage Description
1	526.00'	66,889 cf	**Custom Stage Data (Conic)** Listed below

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
526.00	2,239	0	0	2,239
528.00	3,156	5,369	5,369	3,227
530.00	4,207	7,338	12,707	4,362
530.50	4,491	2,174	14,881	4,669
532.00	7,681	9,023	23,903	7,885
534.00	10,686	18,285	42,188	10,966
536.00	14,093	24,701	66,889	14,463

#	Routing	Invert	Outlet Devices
1	Primary	532.00'	**3.0" Vert. Orifice/Grate** C= 0.600
2	Primary	533.60'	**14.0' long x 1.5' high Sharp-Crested Rectangular Weir** 2 End Contraction(s)

Primary OutFlow Max=73.91 cfs @ 12.09 hrs HW=534.90' TW=502.14' (Dynamic Tailwater)
—**1=Orifice/Grate** (Orifice Controls 0.39 cfs @ 8.0 fps)
—**2=Sharp-Crested Rectangular Weir** (Weir Controls 73.52 cfs @ 4.1 fps)

Pond p16-1:

Field Note # 49
Large pond with man-made island.
Geometry to be verified by survey. In particular, we are making big guesses about the outlets.
Also need to find out about valves...

Inflow Area = 176.893 ac, Inflow Depth = 3.12" for 50-yr event
Inflow = 213.25 cfs @ 12.33 hrs, Volume= 46.003 af
Outflow = 73.86 cfs @ 14.22 hrs, Volume= 34.198 af, Atten= 65%, Lag= 113.4 min
Primary = 73.86 cfs @ 14.22 hrs, Volume= 34.198 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Starting Elev= 507.00' Surf.Area= 199,799 sf Storage= 878,320 cf
Peak Elev= 511.30' @ 14.22 hrs Surf.Area= 307,205 sf Storage= 1,858,698 cf (980,378 cf above start)
Flood Elev= 510.50' Surf.Area= 271,550 sf Storage= 1,623,217 cf (744,897 cf above start)
Plug-Flow detention time= 971.7 min calculated for 14.032 af (31% of inflow)
Center-of-Mass det. time= 351.2 min (1,249.7 - 898.4)

#	Invert	Avail.Storage	Storage Description
1	500.00'	2,062,087 cf	**Custom Stage Data (Conic)** Listed below

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
500.00	0	0	0	0
503.00	140,344	140,344	140,344	140,358
509.20	232,500	1,143,862	1,284,206	232,994
510.00	249,400	192,720	1,476,927	249,951
512.00	338,000	585,160	2,062,087	338,634

#	Routing	Invert	Outlet Devices
1	Primary	509.00'	**18.0" x 110.0' long Culvert** CMP, projecting, no headwall, Ke= 0.900 Outlet Invert= 505.70' S= 0.0300 '/' n= 0.024 Cc= 0.900
2	Primary	500.00'	**8.0" x 100.0' long assumed equalization pipe w/ valve X 0.00** CMP, projecting, no headwall, Ke= 0.900 Outlet Invert= 500.00' S= 0.0000 '/' n= 0.013 Cc= 0.900
3	Primary	510.50'	**175.0 deg Sharp-Crested Vee/Trap Weir X 2.00** C= 2.46

Primary OutFlow Max=73.86 cfs @ 14.22 hrs HW=511.30' TW=506.37' (Dynamic Tailwater)
—**1=Culvert** (Inlet Controls 8.38 cfs @ 4.7 fps)
—**2=assumed equalization pipe w/ valve** (Controls 0.00 cfs)
—**3=Sharp-Crested Vee/Trap Weir** (Weir Controls 65.49 cfs @ 2.2 fps)

Pond p17-1:

Field Note #45
Golf pond
Geometry to be confirmed by surveyed

Inflow Area = 112.240 ac, Inflow Depth = 2.97" for 50-yr event
Inflow = 93.28 cfs @ 13.19 hrs, Volume= 27.736 af
Outflow = 93.27 cfs @ 13.20 hrs, Volume= 27.736 af, Atten= 0%, Lag= 0.4 min
Primary = 93.27 cfs @ 13.20 hrs, Volume= 27.736 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Starting Elev= 523.80' Surf.Area= 7,290 sf Storage= 9,234 cf
Peak Elev= 525.60' @ 13.20 hrs Surf.Area= 11,432 sf Storage= 26,333 cf (17,099 cf above start)
Flood Elev= 524.30' Surf.Area= 8,074 sf Storage= 13,623 cf (4,389 cf above start)
Plug-Flow detention time= 15.3 min calculated for 27.524 af (99% of inflow)
Center-of-Mass det. time= 8.4 min (916.7 - 908.3)

#	Invert	Avail.Storage	Storage Description
1	520.00'	30,224 cf	**Custom Stage Data (Conic)** Listed below

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
520.00	0	0	0	0
523.80	7,290	9,234	9,234	7,313
524.00	7,300	1,459	10,693	7,374
526.00	12,460	19,531	30,224	12,581

#	Routing	Invert	Outlet Devices
1	Primary	523.80'	**2.2' long x 0.5' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 Coef. (English) 2.80 2.92 3.08 3.30 3.32
2	Primary	524.30'	**143.0 deg Sharp-Crested Vee/Trap Weir** C= 2.47
3	Primary	525.20'	**178.0 deg x 60.0' long Sharp-Crested Vee/Trap Weir** C= 2.46

Primary OutFlow Max=93.27 cfs @ 13.20 hrs HW=525.60' TW=516.17' (Dynamic Tailwater)
—**1=Broad-Crested Rectangular Weir** (Weir Controls 17.66 cfs @ 4.5 fps)
—**2=Sharp-Crested Vee/Trap Weir** (Weir Controls 14.27 cfs @ 2.8 fps)
—**3=Sharp-Crested Vee/Trap Weir** (Weir Controls 61.35 cfs @ 1.8 fps)

Pond p18-1:

Field Note #46
Golf pond
Geometry to be confirmed by surveyed

Inflow Area = 131.862 ac, Inflow Depth = 2.99" for 50-yr event
Inflow = 122.12 cfs @ 12.43 hrs, Volume= 32.870 af
Outflow = 121.37 cfs @ 12.48 hrs, Volume= 32.866 af, Atten= 1%, Lag= 2.9 min
Primary = 121.37 cfs @ 12.48 hrs, Volume= 32.866 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Starting Elev= 513.90' Surf.Area= 20,680 sf Storage= 26,884 cf
Peak Elev= 516.27' @ 12.48 hrs Surf.Area= 30,246 sf Storage= 87,274 cf (60,390 cf above start)
Flood Elev= 514.81' Surf.Area= 23,768 sf Storage= 48,709 cf (21,825 cf above start)
Plug-Flow detention time= 39.9 min calculated for 32.242 af (98% of inflow)
Center-of-Mass det. time= 23.8 min (929.1 - 905.3)

#	Invert	Avail.Storage	Storage Description
1	510.00'	148,288 cf	**Custom Stage Data (Conic)** Listed below

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
510.00	0	0	0	0
513.90	20,680	26,884	26,884	20,704
514.00	20,690	2,068	28,952	20,756
516.00	28,290	48,782	77,735	28,436
518.00	42,760	70,554	148,288	42,967

#	Routing	Invert	Outlet Devices
1	Primary	513.90'	**2.0' long x 0.5' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 Coef. (English) 2.80 2.92 3.08 3.30 3.32
2	Primary	514.81'	**143.0 deg Sharp-Crested Vee/Trap Weir** C= 2.47
3	Primary	515.32'	**175.0 deg x 10.0' long Sharp-Crested Vee/Trap Weir** C= 2.46

Primary OutFlow Max=121.36 cfs @ 12.48 hrs HW=516.27' TW=509.26' (Dynamic Tailwater)
├─**1=Broad-Crested Rectangular Weir** (Weir Controls 24.23 cfs @ 5.1 fps)
├─**2=Sharp-Crested Vee/Trap Weir** (Weir Controls 19.03 cfs @ 3.0 fps)
└─**3=Sharp-Crested Vee/Trap Weir** (Weir Controls 78.11 cfs @ 2.6 fps)

Pond p19-0:

Wetland
Geometry to be confirmed by survey
Based off aerial topo, and assumed topo contour

Pond Unchanged from existing to proposed conditions

Inflow Area = 15.520 ac, Inflow Depth = 2.39" for 50-yr event
Inflow = 20.51 cfs @ 12.61 hrs, Volume= 3.096 af
Outflow = 13.60 cfs @ 12.96 hrs, Volume= 3.094 af, Atten= 34%, Lag= 20.9 min
Primary = 13.60 cfs @ 12.96 hrs, Volume= 3.094 af
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Starting Elev= 972.00' Surf.Area= 86,000 sf Storage= 57,333 cf
Peak Elev= 972.27' @ 12.96 hrs Surf.Area= 93,340 sf Storage= 87,215 cf (29,881 cf above start)
Plug-Flow detention time= 300.9 min calculated for 1.778 af (57% of inflow)
Center-of-Mass det. time= 59.3 min (947.2 - 888.0)

#	Invert	Avail.Storage	Storage Description
1	970.00'	282,329 cf	**Custom Stage Data (Conic)** Listed below

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
970.00	0	0	0	0
972.00	86,000	57,333	57,333	86,006
974.00	141,270	224,996	282,329	141,327

#	Routing	Invert	Outlet Devices
1	Secondary	973.60'	**178.0 deg x 51.0' long Sharp-Crested Vee/Trap Weir** C= 2.46
2	Primary	972.00'	**35.0' long x 0.5' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 Coef. (English) 2.80 2.92 3.08 3.30 3.32

Primary OutFlow Max=13.60 cfs @ 12.96 hrs HW=972.27' TW=970.19' (Dynamic Tailwater)
└─**2=Broad-Crested Rectangular Weir** (Weir Controls 13.60 cfs @ 1.5 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=972.00' TW=973.60' (Dynamic Tailwater)
└─**1=Sharp-Crested Vee/Trap Weir** (Controls 0.00 cfs)

Pond p20-1:

Field Note #50
Spring Fed Pond
Geometry to be confirmed by surveyed

Inflow Area = 207.817 ac, Inflow Depth = 2.49" for 50-yr event
Inflow = 83.08 cfs @ 14.19 hrs, Volume= 43.134 af
Outflow = 82.48 cfs @ 14.29 hrs, Volume= 42.185 af, Atten= 1%, Lag= 6.1 min
Primary = 82.48 cfs @ 14.29 hrs, Volume= 42.185 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Starting Elev= 505.10' Surf.Area= 89,370 sf Storage= 138,524 cf
Peak Elev= 506.37' @ 14.30 hrs Surf.Area= 91,205 sf Storage= 253,741 cf (115,217 cf above start)
Plug-Flow detention time= 215.3 min calculated for 39.005 af (90% of inflow)
Center-of-Mass det. time= 52.4 min (1,252.0 - 1,199.6)

#	Invert	Avail.Storage	Storage Description
1	502.00'	615,682 cf	**Custom Stage Data (Prismatic)** Listed below

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
502.00	0	0	0
505.10	89,370	138,524	138,524
506.00	89,380	80,437	218,961
508.00	99,280	188,660	407,621
510.00	108,781	208,061	615,682

#	Routing	Invert	Outlet Devices
1	Primary	505.10'	**3.0' long x 1.5' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 Coef. (English) 2.62 2.64 2.64 2.68 2.75 2.86 2.92 3.07 3.07 3.03 3.28 3.32
2	Primary	506.20'	**6.5' long x 1.5' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 Coef. (English) 2.62 2.64 2.64 2.68 2.75 2.86 2.92 3.07 3.07 3.03 3.28 3.32
3	Primary	506.00'	**176.0 deg x 97.0' long Sharp-Crested Vee/Trap Weir** C= 2.46

Primary OutFlow Max=82.48 cfs @ 14.29 hrs HW=506.37' TW=506.00' (Dynamic Tailwater)
1=Broad-Crested Rectangular Weir (Weir Controls 8.71 cfs @ 2.3 fps)
2=Broad-Crested Rectangular Weir (Weir Controls 1.18 cfs @ 1.1 fps)
3=Sharp-Crested Vee/Trap Weir (Weir Controls 72.59 cfs @ 1.8 fps)

Pond p20-2:

Inflow Area = 13.511 ac, Inflow Depth = 4.85" for 50-yr event
Inflow = 65.99 cfs @ 12.09 hrs, Volume= 5.458 af
Outflow = 11.19 cfs @ 12.59 hrs, Volume= 3.784 af, Atten= 83%, Lag= 30.3 min
Primary = 11.19 cfs @ 12.59 hrs, Volume= 3.784 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Starting Elev= 552.00' Surf.Area= 10,535 sf Storage= 35,913 cf
Peak Elev= 558.86' @ 12.59 hrs Surf.Area= 25,397 sf Storage= 170,404 cf (134,490 cf above start)
Flood Elev= 559.00' Surf.Area= 25,653 sf Storage= 174,016 cf (138,102 cf above start)
Plug-Flow detention time= 744.4 min calculated for 2.959 af (54% of inflow)
Center-of-Mass det. time= 477.2 min (1,258.5 - 781.2)

#	Invert	Avail.Storage	Storage Description
1	546.00'	199,647 cf	**Custom Stage Data (Conic)** Listed below

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
546.00	3,714	0	0	3,714
548.00	4,960	8,644	8,644	5,044
550.00	6,308	11,241	19,885	6,493
550.50	6,661	3,242	23,127	6,874
552.00	10,535	12,786	35,913	10,779
552.50	15,037	6,360	42,273	15,285
554.00	17,268	24,209	66,483	17,616
556.00	20,441	37,664	104,147	20,935
558.00	23,840	44,237	148,384	24,494
560.00	27,465	51,262	199,647	28,292

#	Routing	Invert	Outlet Devices
1	Primary	552.00'	**3.0" Vert. Orifice/Grate** C= 0.600
2	Primary	558.20'	**6.1' long x 6.2' high Sharp-Crested Rectangular Weir** 2 End Contraction(s)

Primary OutFlow Max=11.19 cfs @ 12.59 hrs HW=558.86' TW=506.17' (Dynamic Tailwater)
1=Orifice/Grate (Orifice Controls 0.61 cfs @ 12.5 fps)
2=Sharp-Crested Rectangular Weir (Weir Controls 10.58 cfs @ 2.7 fps)

Pond p21-1:

Inflow Area = 459.188 ac, Inflow Depth = 3.04" for 50-yr event
Inflow = 535.64 cfs @ 12.27 hrs, Volume= 116.484 af
Outflow = 36.39 cfs @ 20.66 hrs, Volume= 94.467 af, Atten= 93%, Lag= 503.5 min
Primary = 36.39 cfs @ 20.66 hrs, Volume= 94.467 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Peak Elev= 486.41' @ 20.66 hrs Surf.Area= 1,320,933 sf Storage= 3,036,292 cf
Plug-Flow detention time= 873.8 min calculated for 94.448 af (81% of inflow)
Center-of-Mass det. time= 708.7 min (1,726.3 - 1,017.6)

#	Invert	Avail.Storage	Storage Description
1	480.40'	5,244,885 cf	**Custom Stage Data (Conic)** Listed below

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
480.40	0	0	0	0
482.00	202,230	107,856	107,856	202,234
484.00	485,198	667,114	774,970	485,231
486.00	1,275,481	1,698,237	2,473,208	1,275,541
488.00	1,499,208	2,771,678	5,244,885	1,499,423

#	Routing	Invert	Outlet Devices
1	Primary	480.40'	**30.0" x 70.0' long Culvert** CMP, projecting, no headwall, Ke= 0.900 Outlet Invert= 480.40' S= 0.0000 '/' n= 0.024 Cc= 0.900

Primary OutFlow Max=36.39 cfs @ 20.66 hrs HW=486.41' TW=0.00' (Dynamic Tailwater)
1=Culvert (Barrel Controls 36.39 cfs @ 7.4 fps)

Pond p21-4:

Inflow Area = 5.152 ac, Inflow Depth = 4.23" for 50-yr event
Inflow = 17.73 cfs @ 12.03 hrs, Volume= 1.818 af
Outflow = 13.53 cfs @ 12.23 hrs, Volume= 1.806 af, Atten= 24%, Lag= 12.4 min
Primary = 13.53 cfs @ 12.23 hrs, Volume= 1.806 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Starting Elev= 496.00' Surf.Area= 5,112 sf Storage= 14,306 cf
Peak Elev= 498.95' @ 12.23 hrs Surf.Area= 8,785 sf Storage= 35,224 cf (20,918 cf above start)
Flood Elev= 499.00' Surf.Area= 8,847 sf Storage= 35,622 cf (21,317 cf above start)
Plug-Flow detention time= 373.9 min calculated for 1.478 af (81% of inflow)
Center-of-Mass det. time= 221.5 min (1,011.6 - 790.1)

#	Invert	Avail.Storage	Storage Description
1	490.00'	44,433 cf	**Custom Stage Data (Conic)** Listed below

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
490.00	1,146	0	0	1,146
492.00	1,784	2,907	2,907	1,839
494.00	2,530	4,292	7,199	2,654
494.50	2,733	1,315	8,514	2,876
496.00	5,112	5,791	14,306	5,278
498.00	7,468	12,506	26,812	7,699
500.00	10,226	17,622	44,433	10,536

#	Routing	Invert	Outlet Devices
1	Primary	496.00'	**3.0" Vert. Orifice/Grate** C= 0.600
2	Primary	498.10'	**5.0' long x 2.0' high Sharp-Crested Rectangular Weir** 2 End Contraction(s)

Primary OutFlow Max=13.53 cfs @ 12.23 hrs HW=498.95' TW=483.60' (Dynamic Tailwater)
—**1=Orifice/Grate** (Orifice Controls 0.40 cfs @ 8.1 fps)
—**2=Sharp-Crested Rectangular Weir** (Weir Controls 13.13 cfs @ 3.2 fps)

Pond p21-5:

Inflow Area = 2.398 ac, Inflow Depth = 3.89" for 50-yr event
Inflow = 8.52 cfs @ 12.19 hrs, Volume= 0.777 af
Primary = 8.52 cfs @ 12.19 hrs, Volume= 0.777 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

Pond p21-6:

Inflow Area = 6.182 ac, Inflow Depth = 4.28" for 50-yr event
Inflow = 20.03 cfs @ 12.23 hrs, Volume= 2.206 af
Outflow = 15.21 cfs @ 12.39 hrs, Volume= 2.196 af, Atten= 24%, Lag= 9.5 min
Primary = 15.21 cfs @ 12.39 hrs, Volume= 2.196 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Starting Elev= 492.00' Surf.Area= 3,323 sf Storage= 4,847 cf
Peak Elev= 494.93' @ 12.39 hrs Surf.Area= 13,699 sf Storage= 33,430 cf (28,584 cf above start)
Flood Elev= 495.00' Surf.Area= 13,824 sf Storage= 34,456 cf (29,609 cf above start)
Plug-Flow detention time= 282.4 min calculated for 2.084 af (94% of inflow)
Center-of-Mass det. time= 230.2 min (1,043.8 - 813.6)

#	Invert	Avail.Storage	Storage Description
1	488.00'	48,245 cf	**Custom Stage Data (Conic)** Listed below

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
488.00	296	0	0	296
490.00	924	1,162	1,162	946
490.50	1,110	508	1,670	1,141
492.00	3,323	3,177	4,847	3,367
492.50	6,166	2,336	7,182	6,212
494.00	12,147	13,484	20,666	12,214
496.00	15,500	27,579	48,245	15,669

#	Routing	Invert	Outlet Devices
1	Primary	492.00'	**3.0" Vert. Orifice/Grate** C= 0.600
2	Primary	494.00'	**5.0' long x 2.0' high Sharp-Crested Rectangular Weir** 2 End Contraction(s)

Primary OutFlow Max=15.21 cfs @ 12.39 hrs HW=494.93' TW=484.18' (Dynamic Tailwater)
├─**1=Orifice/Grate** (Orifice Controls 0.40 cfs @ 8.1 fps)
└─**2=Sharp-Crested Rectangular Weir** (Weir Controls 14.81 cfs @ 3.3 fps)

Pond p21-7:

Inflow Area = 8.355 ac, Inflow Depth = 4.53" for 50-yr event
Inflow = 35.01 cfs @ 12.04 hrs, Volume= 3.156 af
Outflow = 15.67 cfs @ 12.34 hrs, Volume= 3.133 af, Atten= 55%, Lag= 18.3 min
Primary = 15.67 cfs @ 12.34 hrs, Volume= 3.133 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Starting Elev= 492.00' Surf.Area= 3,941 sf Storage= 8,984 cf
Peak Elev= 498.83' @ 12.34 hrs Surf.Area= 13,082 sf Storage= 65,036 cf (56,052 cf above start)
Flood Elev= 499.00' Surf.Area= 13,379 sf Storage= 67,369 cf (58,385 cf above start)
Plug-Flow detention time= 386.6 min calculated for 2.926 af (93% of inflow)
Center-of-Mass det. time= 308.8 min (1,085.0 - 776.1)

#	Invert	Avail.Storage	Storage Description
1	486.00'	80,712 cf	**Custom Stage Data (Conic)** Listed below

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
486.00	478	0	0	478
488.00	964	1,414	1,414	999
490.00	1,601	2,538	3,952	1,684
490.50	1,782	845	4,797	1,879
492.00	3,941	4,187	8,984	4,056
494.00	6,120	9,981	18,965	6,292
496.00	8,702	14,746	33,712	8,944
498.00	11,686	20,315	54,027	12,012
500.00	15,071	26,685	80,712	15,495

#	Routing	Invert	Outlet Devices
1	Primary	492.00'	**3.0" Vert. Orifice/Grate** C= 0.600
2	Primary	496.05'	**6.0" Vert. Orifice/Grate X 2.00** C= 0.600
3	Primary	498.00'	**5.0' long x 6.0' high Sharp-Crested Rectangular Weir** 2 End Contraction(s)

Primary OutFlow Max=15.66 cfs @ 12.34 hrs HW=498.82' TW=484.09' (Dynamic Tailwater)
—**1=Orifice/Grate** (Orifice Controls 0.61 cfs @ 12.5 fps)
—**2=Orifice/Grate** (Orifice Controls 3.00 cfs @ 7.7 fps)
—**3=Sharp-Crested Rectangular Weir** (Weir Controls 12.05 cfs @ 3.0 fps)

Pond p22-1:

Field Note #54
Golf Pond
Geometry to be confirmed by survey

Pond unchanged from existing to proposed conditions

Inflow Area = 78.382 ac, Inflow Depth = 3.11" for 50-yr event
Inflow = 151.44 cfs @ 12.29 hrs, Volume= 20.340 af
Outflow = 149.85 cfs @ 12.32 hrs, Volume= 20.041 af, Atten= 1%, Lag= 1.9 min
Primary = 149.85 cfs @ 12.32 hrs, Volume= 20.041 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Starting Elev= 498.10' Surf.Area= 6,520 sf Storage= 10,106 cf
Peak Elev= 502.37' @ 12.32 hrs Surf.Area= 12,088 sf Storage= 49,038 cf (38,932 cf above start)
Plug-Flow detention time= 33.3 min calculated for 19.805 af (97% of inflow)
Center-of-Mass det. time= 15.0 min (879.7 - 864.7)

#	Invert	Avail.Storage	Storage Description
1	495.00'	143,770 cf	**Custom Stage Data (Prismatic)** Listed below

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
495.00	0	0	0
498.10	6,520	10,106	10,106
500.00	8,390	14,164	24,270
502.00	11,530	19,920	44,190
504.00	14,530	26,060	70,250
506.00	18,340	32,870	103,120
508.00	22,310	40,650	143,770

#	Routing	Invert	Outlet Devices
1	Primary	499.75'	**18.0" x 21.0' long Culvert** CMP, projecting, no headwall, Ke= 0.900 Outlet Invert= 499.75' S= 0.0000 '/' n= 0.024 Cc= 0.900
2	Primary	500.50'	**1.0' long x 15.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.68 2.70 2.70 2.64 2.63 2.64 2.64 2.63
3	Primary	500.50'	**20.0' long x 13.5' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.62 2.66 2.70 2.66 2.65 2.66 2.65 2.63

Primary OutFlow Max=149.84 cfs @ 12.32 hrs HW=502.37' TW=484.04' (Dynamic Tailwater)
- **1=Culvert** (Barrel Controls 8.39 cfs @ 4.7 fps)
- **2=Broad-Crested Rectangular Weir** (Weir Controls 6.74 cfs @ 3.6 fps)
- **3=Broad-Crested Rectangular Weir** (Weir Controls 134.72 cfs @ 3.6 fps)

Pond p23-1:

Inflow Area = 29.123 ac, Inflow Depth = 3.57" for 50-yr event
Inflow = 61.35 cfs @ 12.53 hrs, Volume= 8.676 af
Outflow = 61.30 cfs @ 12.54 hrs, Volume= 7.960 af, Atten= 0%, Lag= 0.5 min
Primary = 61.30 cfs @ 12.54 hrs, Volume= 7.960 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Peak Elev= 507.92' @ 12.54 hrs Surf.Area= 14,448 sf Storage= 33,792 cf
Plug-Flow detention time= 59.7 min calculated for 7.959 af (92% of inflow)
Center-of-Mass det. time= 17.9 min (876.5 - 858.5)

#	Invert	Avail.Storage	Storage Description
1	503.50'	68,915 cf	**Custom Stage Data (Conic)** Listed below

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
503.50	0	0	0	0
504.00	2,390	398	398	2,390
506.00	9,090	10,761	11,159	9,110
508.00	14,660	23,529	34,688	14,732
510.00	19,690	34,227	68,915	19,847

#	Routing	Invert	Outlet Devices
1	Primary	507.70'	**178.0 deg x 178.0' long Sharp-Crested Vee/Trap Weir** C= 2.46

Primary OutFlow Max=61.29 cfs @ 12.54 hrs HW=507.92' TW=507.25' (Dynamic Tailwater)
- **1=Sharp-Crested Vee/Trap Weir** (Weir Controls 61.29 cfs @ 1.4 fps)

Pond p23-2:

Inflow Area = 16.094 ac, Inflow Depth = 5.18" for 50-yr event
Inflow = 96.57 cfs @ 12.06 hrs, Volume= 6.947 af
Outflow = 60.09 cfs @ 12.14 hrs, Volume= 6.101 af, Atten= 38%, Lag= 5.0 min
Primary = 60.09 cfs @ 12.14 hrs, Volume= 6.101 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Starting Elev= 508.00' Surf.Area= 7,318 sf Storage= 15,927 cf
Peak Elev= 514.82' @ 12.14 hrs Surf.Area= 24,429 sf Storage= 137,649 cf (121,722 cf above start)
Flood Elev= 515.00' Surf.Area= 24,788 sf Storage= 141,986 cf (126,059 cf above start)
Plug-Flow detention time= 373.5 min calculated for 5.735 af (83% of inflow)
Center-of-Mass det. time= 274.3 min (1,047.2 - 772.9)

#	Invert	Avail.Storage	Storage Description
1	502.00'	166,746 cf	**Custom Stage Data (Conic)** Listed below

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
502.00	826	0	0	826
504.00	1,667	2,444	2,444	1,702
506.00	2,788	4,407	6,852	2,872
506.50	3,112	1,474	8,326	3,210
508.00	7,318	7,601	15,927	7,432
508.50	12,618	4,924	20,851	12,735
510.00	15,208	20,839	41,690	15,400
512.00	18,859	34,002	75,692	19,166
514.00	22,736	41,535	117,227	23,175
516.00	26,840	49,519	166,746	27,428

#	Routing	Invert	Outlet Devices
1	Primary	508.00'	**3.0" Vert. Orifice/Grate** C= 0.600
2	Primary	512.55'	**12.0" Vert. Orifice/Grate X 2.00** C= 0.600
3	Primary	514.00'	**20.0' long x 6.0' high Sharp-Crested Rectangular Weir** 2 End Contraction(s)

Primary OutFlow Max=60.05 cfs @ 12.14 hrs HW=514.82' TW=483.13' (Dynamic Tailwater)
1=Orifice/Grate (Orifice Controls 0.61 cfs @ 12.5 fps)
2=Orifice/Grate (Orifice Controls 10.07 cfs @ 6.4 fps)
3=Sharp-Crested Rectangular Weir (Weir Controls 49.37 cfs @ 3.0 fps)

Pond zDP1: Design Point 1

Field note #10.
Culvert dimensions to be confirmed by survey.

Inflow Area = 26.658 ac, Inflow Depth = 3.53" for 50-yr event
Inflow = 47.25 cfs @ 12.47 hrs, Volume= 7.837 af
Outflow = 47.25 cfs @ 12.48 hrs, Volume= 7.837 af, Atten= 0%, Lag= 0.1 min
Primary = 47.25 cfs @ 12.48 hrs, Volume= 7.837 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Peak Elev= 722.91' @ 12.48 hrs Surf.Area= 204 sf Storage= 240 cf
Flood Elev= 727.00' Surf.Area= 1,105 sf Storage= 2,619 cf
Plug-Flow detention time= 0.1 min calculated for 7.837 af (100% of inflow)
Center-of-Mass det. time= 0.1 min (904.8 - 904.8)

#	Invert	Avail.Storage	Storage Description
1	720.10'	3,706 cf	**Custom Stage Data (Conic)** Listed below

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
720.10	0	0	0	0
722.00	90	57	57	96
724.00	340	403	460	364
726.00	760	1,072	1,533	815
728.00	1,450	2,173	3,706	1,543

#	Routing	Invert	Outlet Devices
1	Primary	720.10'	**42.0" x 120.0' long Culvert** CMP, square edge headwall, Ke= 0.500 Outlet Invert= 700.00' S= 0.1675 '/' n= 0.024 Cc= 0.900
2	Primary	727.00'	**155.0 deg Sharp-Crested Vee/Trap Weir** C= 2.47

Primary OutFlow Max=47.25 cfs @ 12.48 hrs HW=722.91' TW=686.76' (Dynamic Tailwater)
1=Culvert (Inlet Controls 47.25 cfs @ 5.7 fps)
2=Sharp-Crested Vee/Trap Weir (Controls 0.00 cfs)

Pond zDP2: Design Point 2

Field Note #15
Culvert dimensions to be confirmed by survey
Overflow to ditch is currently discarded... We may have to model that area...

Inflow Area =	93.367 ac,	Inflow Depth = 2.88"	for 50-yr event
Inflow =	117.46 cfs @	12.81 hrs, Volume=	22.413 af
Outflow =	117.45 cfs @	12.82 hrs, Volume=	22.413 af, Atten= 0%, Lag= 0.5 min
Discarded =	81.48 cfs @	12.82 hrs, Volume=	6.710 af
Primary =	35.96 cfs @	12.82 hrs, Volume=	15.703 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Peak Elev= 626.25' @ 12.82 hrs Surf.Area= 1,567 sf Storage= 3,836 cf
Flood Elev= 624.50' Surf.Area= 925 sf Storage= 1,728 cf
Plug-Flow detention time= 0.5 min calculated for 22.408 af (100% of inflow)
Center-of-Mass det. time= 0.5 min (893.3 - 892.8)

#	Invert	Avail.Storage	Storage Description
1	619.60'	7,280 cf	**Custom Stage Data (Conic)** Listed below

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
619.60	0	0	0	0
620.00	10	1	1	10
622.00	260	214	215	269
624.00	760	976	1,192	793
626.00	1,420	2,146	3,338	1,492
628.00	2,580	3,943	7,280	2,694

#	Routing	Invert	Outlet Devices
1	Primary	619.60'	**24.0" x 150.0' long Culvert** RCP, end-section conforming to fill, Ke= 0.500 Outlet Invert= 608.00' S= 0.0773 '/' n= 0.012 Cc= 0.900
2	Discarded	624.50'	**166.0 deg Sharp-Crested Vee/Trap Weir** C= 2.46

Discarded OutFlow Max=81.48 cfs @ 12.82 hrs HW=626.25' (Free Discharge)
└─**2=Sharp-Crested Vee/Trap Weir** (Weir Controls 81.48 cfs @ 3.3 fps)

Primary OutFlow Max=35.96 cfs @ 12.82 hrs HW=626.25' TW=607.68' (Dynamic Tailwater)
└─**1=Culvert** (Inlet Controls 35.96 cfs @ 11.4 fps)

Pond zDP3: Design Point 3

Inflow Area =	228.471 ac,	Inflow Depth = 19.30"	for 50-yr event		
Inflow =	289.71 cfs @	12.41 hrs, Volume=	367.475 af		
Primary =	289.71 cfs @	12.41 hrs, Volume=	367.475 af,	Atten= 0%,	Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

Pond zDP4: Design Point 4

Inflow Area =	459.188 ac,	Inflow Depth = 2.47"	for 50-yr event		
Inflow =	36.39 cfs @	20.66 hrs, Volume=	94.467 af		
Primary =	36.39 cfs @	20.66 hrs, Volume=	94.467 af,	Atten= 0%,	Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

Pond zDP5: Design Point 5

Inflow Area =	28.325 ac,	Inflow Depth = 3.37"	for 50-yr event		
Inflow =	62.42 cfs @	12.45 hrs, Volume=	7.956 af		
Primary =	62.42 cfs @	12.45 hrs, Volume=	7.956 af,	Atten= 0%,	Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

Post-Development Conditions
100 year 24 hour Storm Event
Model Computations

Subcatchment s01-0:

Runoff = 21.78 cfs @ 12.60 hrs, Volume= 3.264 af, Depth= 3.41"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 100-yr Rainfall=7.00"

Area (ac)	CN	Description
11.485	68	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
42.8					**Direct Entry,**

Subcatchment s02-1:

Runoff = 119.37 cfs @ 12.87 hrs, Volume= 22.129 af, Depth= 3.10"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 100-yr Rainfall=7.00"

Area (ac)	CN	Description
85.591	65	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
61.3					**Direct Entry,**

Subcatchment s02-2:

Runoff = 16.49 cfs @ 12.42 hrs, Volume= 2.076 af, Depth= 3.20"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 100-yr Rainfall=7.00"

Area (ac)	CN	Description
7.776	66	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
29.4					**Direct Entry,**

Subcatchment s02-3:

Runoff = 29.15 cfs @ 12.02 hrs, Volume= 1.828 af, Depth= 5.37"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 100-yr Rainfall=7.00"

Area (ac)	CN	Description
4.088	86	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.6					**Direct Entry,**

Subcatchment s03-1:

Runoff = 25.44 cfs @ 12.39 hrs, Volume= 3.146 af, Depth= 3.62"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 100-yr Rainfall=7.00"

Area (ac)	CN	Description
10.435	70	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
28.8					**Direct Entry,**

Subcatchment s03-2:

Runoff = 16.85 cfs @ 12.02 hrs, Volume= 1.018 af, Depth= 4.04"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 100-yr Rainfall=7.00"

Area (ac)	CN	Description
3.021	74	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.5					**Direct Entry,**

Subcatchment s03-2(IC): s03-2 Impervious Cover

Runoff = 13.41 cfs @ 12.02 hrs, Volume= 0.937 af, Depth= 6.76"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 100-yr Rainfall=7.00"

Area (ac)	CN	Description
1.663	98	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.5					**Direct Entry,**

Subcatchment s03-2(OW): s03-2 Open Water

Runoff = 0.45 cfs @ 12.00 hrs, Volume= 0.031 af, Depth= 7.00"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 100-yr Rainfall=7.00"

Area (ac)	CN	Description
0.054	100	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.0					**Direct Entry,**

Subcatchment s04-1:

Runoff = 29.99 cfs @ 12.09 hrs, Volume= 2.145 af, Depth= 3.41"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 100-yr Rainfall=7.00"

Area (ac)	CN	Description
7.549	68	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.1					**Direct Entry,**

Subcatchment s05-1:

Runoff = 16.18 cfs @ 12.21 hrs, Volume= 1.541 af, Depth= 2.70"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 100-yr Rainfall=7.00"

Area (ac)	CN	Description
6.842	61	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
14.4					**Direct Entry,**

Subcatchment s06-0:

Runoff = 20.64 cfs @ 12.25 hrs, Volume= 2.102 af, Depth= 2.80"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 100-yr Rainfall=7.00"

Area (ac)	CN	Description
9.007	62	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
17.3					**Direct Entry,**

Subcatchment s06-0(OW): s06 Open Water

Runoff = 3.60 cfs @ 12.00 hrs, Volume= 0.250 af, Depth= 7.00"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 100-yr Rainfall=7.00"

Area (ac)	CN	Description
0.428	100	

Subcatchment s07-1:

Runoff = 14.43 cfs @ 12.14 hrs, Volume= 1.165 af, Depth= 3.00"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 100-yr Rainfall=7.00"

Area (ac)	CN	Description
4.656	64	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.3					**Direct Entry,**

Subcatchment s07-1(OW): s07 Open Water

Runoff = 4.25 cfs @ 12.00 hrs, Volume= 0.295 af, Depth= 7.00"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 100-yr Rainfall=7.00"

Area (ac)	CN	Description
0.506	100	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.0					**Direct Entry,**

Subcatchment s08-1:

Runoff = 42.17 cfs @ 12.36 hrs, Volume= 5.018 af, Depth= 2.60"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 100-yr Rainfall=7.00"

Area (ac)	CN	Description
23.126	60	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
24.5					**Direct Entry,**

Subcatchment s08-2:

Runoff = 24.99 cfs @ 12.17 hrs, Volume= 2.165 af, Depth= 2.90"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 100-yr Rainfall=7.00"

Area (ac)	CN	Description
8.958	63	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
11.4					**Direct Entry,**

Subcatchment s08-2(IC):

Runoff = 42.39 cfs @ 12.04 hrs, Volume= 3.112 af, Depth= 6.76"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 100-yr Rainfall=7.00"

Area (ac)	CN	Description
5.524	98	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
2.9					**Direct Entry,**

Subcatchment s08-2(OW):

Runoff = 1.61 cfs @ 12.00 hrs, Volume= 0.112 af, Depth= 7.00"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 100-yr Rainfall=7.00"

Area (ac)	CN	Description
0.192	100	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.0					**Direct Entry,**

Subcatchment s08-3:

Runoff = 4.11 cfs @ 12.20 hrs, Volume= 0.383 af, Depth= 2.70"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 100-yr Rainfall=7.00"

Area (ac)	CN	Description
1.700	61	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
13.6					**Direct Entry,**

Subcatchment s08-3(IC): s08-3 Impervious Cover

Runoff = 8.89 cfs @ 12.01 hrs, Volume= 0.612 af, Depth= 6.76"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 100-yr Rainfall=7.00"

Area (ac)	CN	Description
1.086	98	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.0					**Direct Entry,**

Subcatchment s08-3(OW): s08-3 Open Water

Runoff = 0.35 cfs @ 12.00 hrs, Volume= 0.024 af, Depth= 7.00"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 100-yr Rainfall=7.00"

Area (ac)	CN	Description
0.042	100	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.0					**Direct Entry,**

Subcatchment s09-1:

Runoff = 6.94 cfs @ 12.13 hrs, Volume= 0.565 af, Depth= 2.60"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 100-yr Rainfall=7.00"

Area (ac)	CN	Description
2.604	60	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.0					**Direct Entry,**

Subcatchment s09-2:

Runoff = 47.76 cfs @ 12.29 hrs, Volume= 5.128 af, Depth= 3.31"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 100-yr Rainfall=7.00"

Area (ac)	CN	Description
18.608	67	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
20.6					**Direct Entry,**

Subcatchment s09-2(IC): s09-2 Impervious Cover

Runoff = 18.18 cfs @ 12.04 hrs, Volume= 1.316 af, Depth= 6.76"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 100-yr Rainfall=7.00"

Area (ac)	CN	Description
2.336	98	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
2.5					**Direct Entry,**

Subcatchment s09-2(OW): s09-2 Open Water

Runoff = 1.98 cfs @ 12.00 hrs, Volume= 0.138 af, Depth= 7.00"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 100-yr Rainfall=7.00"

Area (ac)	CN	Description
0.236	100	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.0					**Direct Entry,**

Subcatchment s09-3:

Runoff = 12.91 cfs @ 12.15 hrs, Volume= 1.085 af, Depth= 3.41"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 100-yr Rainfall=7.00"

Area (ac)	CN	Description
3.818	68	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.9					**Direct Entry,**

Subcatchment s10-1:

Runoff = 18.67 cfs @ 12.40 hrs, Volume= 2.284 af, Depth= 3.41"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 100-yr Rainfall=7.00"

Area (ac)	CN	Description
8.038	68	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
27.9					**Direct Entry,**

Subcatchment s10-1(OW): s10 Open Water

Runoff = 6.97 cfs @ 12.00 hrs, Volume= 0.484 af, Depth= 7.00"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 100-yr Rainfall=7.00"

Area (ac)	CN	Description
0.830	100	

Subcatchment s13-1:

Runoff = 12.34 cfs @ 12.05 hrs, Volume= 0.800 af, Depth= 2.70"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 100-yr Rainfall=7.00"

Area (ac)	CN	Description
3.555	61	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
2.8					**Direct Entry,**

Subcatchment s13-1(IC): s13-1 Impervious Cover

Runoff = 48.98 cfs @ 12.04 hrs, Volume= 3.583 af, Depth= 6.76"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 100-yr Rainfall=7.00"

Area (ac)	CN	Description
6.360	98	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
2.8					**Direct Entry,**

Subcatchment s13-1(OW): s13-1 Open Water

Runoff = 1.10 cfs @ 12.00 hrs, Volume= 0.076 af, Depth= 7.00"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 100-yr Rainfall=7.00"

Area (ac)	CN	Description
0.131	100	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.0					**Direct Entry,**

Subcatchment s14-1:

Runoff = 32.88 cfs @ 12.40 hrs, Volume= 4.020 af, Depth= 3.51"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 100-yr Rainfall=7.00"

Area (ac)	CN	Description
13.727	69	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
28.1					**Direct Entry,**

Subcatchment s14-1(IC): s14-1 Impervious Cover

Runoff = 14.43 cfs @ 12.03 hrs, Volume= 1.037 af, Depth= 6.76"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 100-yr Rainfall=7.00"

Area (ac)	CN	Description
1.840	98	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
2.3					**Direct Entry,**

Subcatchment s14-1(OW): s14 Open Water

Runoff = 4.35 cfs @ 12.00 hrs, Volume= 0.302 af, Depth= 7.00"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 100-yr Rainfall=7.00"

Area (ac)	CN	Description
0.518	100	

Subcatchment s14-2:

Runoff = 1.54 cfs @ 12.10 hrs, Volume= 0.113 af, Depth= 2.70"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 100-yr Rainfall=7.00"

Area (ac)	CN	Description
0.504	61	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.4					**Direct Entry,**

Subcatchment s14-2(OW): s14-2 Open Water

Runoff = 1.48 cfs @ 12.00 hrs, Volume= 0.103 af, Depth= 7.00"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 100-yr Rainfall=7.00"

Area (ac)	CN	Description
0.176	100	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.0					**Direct Entry,**

Subcatchment s14-3:

Runoff = 25.63 cfs @ 12.12 hrs, Volume= 1.989 af, Depth= 3.51"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 100-yr Rainfall=7.00"

Area (ac)	CN	Description
6.794	69	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.5					**Direct Entry,**

Subcatchment s14-3(IC): s14-3 Impervious Cover

Runoff = 64.92 cfs @ 12.04 hrs, Volume= 4.766 af, Depth= 6.76"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 100-yr Rainfall=7.00"

Area (ac)	CN	Description
8.460	98	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
2.9					**Direct Entry,**

Subcatchment s16-1:

Runoff = 105.25 cfs @ 12.27 hrs, Volume= 10.935 af, Depth= 3.31"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 100-yr Rainfall=7.00"

Area (ac)	CN	Description
39.680	67	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
19.0					**Direct Entry,**

Subcatchment s16-1(OW): s16-1 Open Water

Runoff = 44.97 cfs @ 12.00 hrs, Volume= 3.121 af, Depth= 7.00"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 100-yr Rainfall=7.00"

Area (ac)	CN	Description
5.351	100	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.0					**Direct Entry,**

Subcatchment s16-2:

Runoff = 8.04 cfs @ 12.21 hrs, Volume= 0.772 af, Depth= 4.26"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 100-yr Rainfall=7.00"

Area (ac)	CN	Description
2.176	76	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
15.8					**Direct Entry,**

Subcatchment s17-1:

Runoff = 11.32 cfs @ 12.50 hrs, Volume= 1.528 af, Depth= 3.00"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 100-yr Rainfall=7.00"

Area (ac)	CN	Description
6.110	64	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
33.8					**Direct Entry,**

Subcatchment s17-1(OW): s17-1 Open Water

Runoff = 1.38 cfs @ 12.00 hrs, Volume= 0.096 af, Depth= 7.00"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 100-yr Rainfall=7.00"

Area (ac)	CN	Description
0.164	100	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.0					**Direct Entry,**

Subcatchment s17-2:

Runoff = 82.52 cfs @ 13.29 hrs, Volume= 20.318 af, Depth= 3.20"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 100-yr Rainfall=7.00"

Area (ac)	CN	Description
76.086	66	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
95.7					**Direct Entry,**

Subcatchment s17-3:

Runoff = 62.26 cfs @ 12.45 hrs, Volume= 7.979 af, Depth= 3.20"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 100-yr Rainfall=7.00"

Area (ac)	CN	Description
29.880	66	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
30.7					**Direct Entry,**

Subcatchment s18-1:

Runoff = 21.34 cfs @ 12.23 hrs, Volume= 2.108 af, Depth= 3.00"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 100-yr Rainfall=7.00"

Area (ac)	CN	Description
8.429	64	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
16.4					**Direct Entry,**

Subcatchment s18-1(OW): s18-1 Open Water

Runoff = 3.97 cfs @ 12.00 hrs, Volume= 0.275 af, Depth= 7.00"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 100-yr Rainfall=7.00"

Area (ac)	CN	Description
0.472	100	

Subcatchment s18-2:

Runoff = 31.00 cfs @ 12.26 hrs, Volume= 3.139 af, Depth= 3.51"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 100-yr Rainfall=7.00"

Area (ac)	CN	Description
10.721	69	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
18.0					**Direct Entry,**

Subcatchment s19-0:

Runoff = 22.44 cfs @ 12.61 hrs, Volume= 3.367 af, Depth= 2.60"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 100-yr Rainfall=7.00"

Area (ac)	CN	Description
15.520	60	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
40.4					**Direct Entry,**

Subcatchment s20-1:

Runoff = 20.85 cfs @ 12.30 hrs, Volume= 2.286 af, Depth= 3.20"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 100-yr Rainfall=7.00"

Area (ac)	CN	Description
8.559	66	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
21.5					**Direct Entry,**

Subcatchment s20-1(OW): s20-1 Open Water

Runoff = 16.54 cfs @ 12.00 hrs, Volume= 1.148 af, Depth= 7.00"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 100-yr Rainfall=7.00"

Area (ac)	CN	Description
1.968	100	

Subcatchment s20-2:

Runoff = 35.59 cfs @ 12.12 hrs, Volume= 2.748 af, Depth= 4.04"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 100-yr Rainfall=7.00"

Area (ac)	CN	Description
8.157	74	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.4					**Direct Entry,**

Subcatchment s20-2(IC): s20-2 Impervious Cover

Runoff = 36.75 cfs @ 12.07 hrs, Volume= 2.880 af, Depth= 6.76"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 100-yr Rainfall=7.00"

Area (ac)	CN	Description
5.112	98	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.7					**Direct Entry,**

Subcatchment s20-2(OW): s20-2 Open Water

Runoff = 2.03 cfs @ 12.00 hrs, Volume= 0.141 af, Depth= 7.00"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 100-yr Rainfall=7.00"

Area (ac)	CN	Description
0.242	100	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.0					**Direct Entry,**

Subcatchment s20-3:

Runoff = 18.89 cfs @ 12.30 hrs, Volume= 2.076 af, Depth= 3.62"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 100-yr Rainfall=7.00"

Area (ac)	CN	Description
6.886	70	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
22.0					**Direct Entry,**

Subcatchment s21-1:

Runoff = 185.20 cfs @ 12.23 hrs, Volume= 18.171 af, Depth= 3.41"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 100-yr Rainfall=7.00"

Area (ac)	CN	Description
63.942	68	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
16.6					**Direct Entry,**

Subcatchment s21-1(OW):

Runoff = 102.81 cfs @ 12.00 hrs, Volume= 7.137 af, Depth= 7.00"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 100-yr Rainfall=7.00"

Area (ac)	CN	Description
12.235	100	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.0					**Direct Entry,**

Subcatchment s21-2:

Runoff = 49.11 cfs @ 12.45 hrs, Volume= 6.314 af, Depth= 3.62"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 100-yr Rainfall=7.00"

Area (ac)	CN	Description
20.941	70	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
31.4					**Direct Entry,**

Subcatchment s21-3:

Runoff = 34.19 cfs @ 12.16 hrs, Volume= 2.886 af, Depth= 4.04"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 100-yr Rainfall=7.00"

Area (ac)	CN	Description
8.567	74	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
11.2					**Direct Entry,**

Subcatchment s21-4:

Runoff = 10.21 cfs @ 12.19 hrs, Volume= 0.935 af, Depth= 3.31"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 100-yr Rainfall=7.00"

Area (ac)	CN	Description
3.392	67	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
13.8					**Direct Entry,**

Subcatchment s21-4(IC): s21-4 Impervious Cover

Runoff = 13.20 cfs @ 12.02 hrs, Volume= 0.926 af, Depth= 6.76"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 100-yr Rainfall=7.00"

Area (ac)	CN	Description
1.643	98	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.6					**Direct Entry,**

Subcatchment s21-4(OW): s21-4 Open Water

Runoff = 0.98 cfs @ 12.00 hrs, Volume= 0.068 af, Depth= 7.00"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 100-yr Rainfall=7.00"

Area (ac)	CN	Description
0.117	100	

Subcatchment s21-5:

Runoff = 9.09 cfs @ 12.19 hrs, Volume= 0.829 af, Depth= 4.15"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 100-yr Rainfall=7.00"

Area (ac)	CN	Description
2.398	75	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
13.9					**Direct Entry,**

Subcatchment s21-6:

Runoff = 19.43 cfs @ 12.23 hrs, Volume= 1.938 af, Depth= 4.26"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 100-yr Rainfall=7.00"

Area (ac)	CN	Description
5.463	76	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
17.5					**Direct Entry,**

Subcatchment s21-6(IC): s21-6 Impervious Cover

Runoff = 5.18 cfs @ 12.02 hrs, Volume= 0.362 af, Depth= 6.76"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 100-yr Rainfall=7.00"

Area (ac)	CN	Description
0.643	98	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.5					**Direct Entry,**

Subcatchment s21-6(OW): s21-6 Open Water

Runoff = 0.64 cfs @ 12.00 hrs, Volume= 0.044 af, Depth= 7.00"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 100-yr Rainfall=7.00"

Area (ac)	CN	Description
0.076	100	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.0					**Direct Entry,**

Subcatchment s21-7:

Runoff = 12.07 cfs @ 12.18 hrs, Volume= 1.094 af, Depth= 3.00"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 100-yr Rainfall=7.00"

Area (ac)	CN	Description
4.375	64	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
13.1					**Direct Entry,**

Subcatchment s21-7(IC): s21-7 Impervious Cover

Runoff = 30.27 cfs @ 12.04 hrs, Volume= 2.192 af, Depth= 6.76"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 100-yr Rainfall=7.00"

Area (ac)	CN	Description
3.890	98	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
2.5					**Direct Entry,**

Subcatchment s21-7(OW): s21-7 Open Water

Runoff = 0.76 cfs @ 12.00 hrs, Volume= 0.053 af, Depth= 7.00"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 100-yr Rainfall=7.00"

Area (ac)	CN	Description
0.090	100	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.0					**Direct Entry,**

Subcatchment s22-1:

Runoff = 61.27 cfs @ 12.20 hrs, Volume= 5.705 af, Depth= 3.83"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 100-yr Rainfall=7.00"

Area (ac)	CN	Description
17.878	72	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
14.7					**Direct Entry,**

Subcatchment s22-1(OW): s22-1 Open Water

Runoff = 1.14 cfs @ 12.00 hrs, Volume= 0.079 af, Depth= 7.00"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 100-yr Rainfall=7.00"

Area (ac)	CN	Description
0.136	100	

Subcatchment s22-2:

Runoff = 111.37 cfs @ 12.34 hrs, Volume= 12.745 af, Depth= 3.41"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 100-yr Rainfall=7.00"

Area (ac)	CN	Description
44.848	68	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
24.0					**Direct Entry,**

Subcatchment s23-1:

Runoff = 65.76 cfs @ 12.53 hrs, Volume= 9.293 af, Depth= 3.83"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 100-yr Rainfall=7.00"

Area (ac)	CN	Description
29.123	72	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
38.5					**Direct Entry,**

Subcatchment s23-2:

Runoff = 47.93 cfs @ 12.06 hrs, Volume= 3.180 af, Depth= 4.37"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 100-yr Rainfall=7.00"

Area (ac)	CN	Description
8.741	77	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.0					**Direct Entry,**

Subcatchment s23-2(IC): s23-2 Impervious Cover

Runoff = 52.97 cfs @ 12.06 hrs, Volume= 4.048 af, Depth= 6.76"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 100-yr Rainfall=7.00"

Area (ac)	CN	Description
7.185	98	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.0					**Direct Entry,**

Subcatchment s23-2(OW): s23-2 Open Water

Runoff = 1.41 cfs @ 12.00 hrs, Volume= 0.098 af, Depth= 7.00"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 100-yr Rainfall=7.00"

Area (ac)	CN	Description
0.168	100	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.0					**Direct Entry,**

Subcatchment s24-0:

Runoff = 67.08 cfs @ 12.45 hrs, Volume= 8.541 af, Depth= 3.62"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 100-yr Rainfall=7.00"

Area (ac)	CN	Description
28.325	70	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
30.7					**Direct Entry,**

Subcatchment s25-0:

Runoff = 33.89 cfs @ 12.28 hrs, Volume= 3.622 af, Depth= 3.20"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 100-yr Rainfall=7.00"

Area (ac)	CN	Description
13.562	66	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
20.2					**Direct Entry,**

Reach 25R:

Overland Flow Reach

Inflow Area = 15.520 ac, Inflow Depth = 2.60" for 100-yr event
Inflow = 15.19 cfs @ 12.96 hrs, Volume= 3.366 af
Outflow = 15.10 cfs @ 13.02 hrs, Volume= 3.366 af, Atten= 1%, Lag= 3.2 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Max. Velocity= 2.5 fps, Min. Travel Time= 4.2 min
Avg. Velocity = 0.7 fps, Avg. Travel Time= 14.7 min

Peak Depth= 0.32' @ 13.02 hrs
Capacity at bank full= 175.17 cfs
Inlet Invert= 560.00', Outlet Invert= 512.00'
50.00' x 1.00' deep Parabolic Channel, n= 0.060 Length= 620.0' Slope= 0.0774 '/'

Reach r03-1:

Overland Flow Reach
Requires more survey

Inflow Area = 11.485 ac, Inflow Depth = 3.41" for 100-yr event
Inflow = 21.78 cfs @ 12.60 hrs, Volume= 3.264 af
Outflow = 21.68 cfs @ 12.62 hrs, Volume= 3.264 af, Atten= 0%, Lag= 1.4 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Max. Velocity= 6.0 fps, Min. Travel Time= 2.2 min
Avg. Velocity = 2.2 fps, Avg. Travel Time= 5.8 min

Peak Depth= 0.76' @ 12.62 hrs
Capacity at bank full= 92.14 cfs
Inlet Invert= 845.00', Outlet Invert= 728.00'
10.00' x 1.50' deep Parabolic Channel, n= 0.060 Length= 785.0' Slope= 0.1490 '/'

Reach r04-1:

Channel

Inflow Area = 26.658 ac, Inflow Depth = 3.78" for 100-yr event
Inflow = 51.27 cfs @ 12.46 hrs, Volume= 8.392 af
Outflow = 51.26 cfs @ 12.47 hrs, Volume= 8.392 af, Atten= 0%, Lag= 0.6 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Max. Velocity= 8.6 fps, Min. Travel Time= 0.6 min
Avg. Velocity = 2.2 fps, Avg. Travel Time= 2.5 min

Peak Depth= 1.31' @ 12.47 hrs
Capacity at bank full= 530.15 cfs
Inlet Invert= 685.50', Outlet Invert= 632.00'
12.00' x 4.00' deep Parabolic Channel, n= 0.060 Length= 330.0' Slope= 0.1621 '/'

Reach r08-1a:

Man Made Ditch
Inverts of pipe to be surveyed

Inflow Area = 93.367 ac, Inflow Depth = 2.12" for 100-yr event
Inflow = 36.22 cfs @ 12.82 hrs, Volume= 16.479 af
Outflow = 36.22 cfs @ 12.82 hrs, Volume= 16.479 af, Atten= 0%, Lag= 0.3 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Max. Velocity= 9.6 fps, Min. Travel Time= 0.4 min
Avg. Velocity = 5.6 fps, Avg. Travel Time= 0.7 min

Peak Depth= 0.68' @ 12.82 hrs
Capacity at bank full= 81.88 cfs
Inlet Invert= 607.00', Outlet Invert= 587.00'
10.00' x 1.00' deep Parabolic Channel, n= 0.027 Length= 226.0' Slope= 0.0885 '/'

Reach r08-1b:

24" HDPE
Inverts to be surveyed

Inflow Area = 93.367 ac, Inflow Depth = 2.12" for 100-yr event
Inflow = 36.22 cfs @ 12.82 hrs, Volume= 16.479 af
Outflow = 36.22 cfs @ 12.83 hrs, Volume= 16.479 af, Atten= 0%, Lag= 0.2 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Max. Velocity= 24.2 fps, Min. Travel Time= 0.2 min
Avg. Velocity = 14.7 fps, Avg. Travel Time= 0.3 min

Peak Depth= 0.96' @ 12.83 hrs
Capacity at bank full= 77.17 cfs
Inlet Invert= 587.00', Outlet Invert= 557.75'
24.0" Diameter Pipe n= 0.012 Length= 295.0' Slope= 0.0992 '/'

Reach r08-1c:

Ditch
Pipe inverts to be surveyed

Inflow Area = 93.367 ac, Inflow Depth = 2.12" for 100-yr event
Inflow = 36.22 cfs @ 12.83 hrs, Volume= 16.479 af
Outflow = 36.22 cfs @ 12.84 hrs, Volume= 16.479 af, Atten= 0%, Lag= 1.1 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Max. Velocity= 9.2 fps, Min. Travel Time= 1.1 min
Avg. Velocity = 5.1 fps, Avg. Travel Time= 1.9 min

Peak Depth= 0.71' @ 12.84 hrs
Capacity at bank full= 76.65 cfs
Inlet Invert= 557.75', Outlet Invert= 512.00'
10.00' x 1.00' deep Parabolic Channel, n= 0.027 Length= 590.0' Slope= 0.0775 '/'

Reach r08-1d: Amenia Creek/Cascade Brook

(Steam) parallel to Route 22
Base Flow estimated from field observation (see field note 21)

Inflow Area = 114.957 ac, Inflow Depth = 19.08" for 100-yr event
Inflow = 123.55 cfs @ 12.26 hrs, Volume= 182.738 af, Incl. 40.00 cfs Base Flow
Outflow = 122.30 cfs @ 12.32 hrs, Volume= 182.493 af, Atten= 1%, Lag= 3.4 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Max. Velocity= 4.1 fps, Min. Travel Time= 3.3 min
Avg. Velocity = 3.1 fps, Avg. Travel Time= 4.3 min

Peak Depth= 4.34' @ 12.32 hrs
Capacity at bank full= 104.49 cfs
Inlet Invert= 512.00', Outlet Invert= 504.00'
10.00' x 4.00' deep Parabolic Channel, n= 0.060 Length= 805.0' Slope= 0.0099 '/'

Reach r13-1:

Inflow Area = 2.176 ac, Inflow Depth = 4.26" for 100-yr event
Inflow = 8.04 cfs @ 12.21 hrs, Volume= 0.772 af
Outflow = 7.98 cfs @ 12.24 hrs, Volume= 0.772 af, Atten= 1%, Lag= 1.3 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Max. Velocity= 9.8 fps, Min. Travel Time= 1.5 min
Avg. Velocity = 3.6 fps, Avg. Travel Time= 4.2 min

Peak Depth= 0.70' @ 12.24 hrs
Capacity at bank full= 17.79 cfs
Inlet Invert= 546.00', Outlet Invert= 524.00'
18.0" Diameter Pipe n= 0.012 Length= 900.0' Slope= 0.0244 '/'

Reach r14-3a:

30" HDPE Under Main Entrance Road

Inflow Area =	6.422 ac,	Inflow Depth = 3.08"	for 100-yr event	
Inflow =	19.67 cfs @	12.16 hrs, Volume=	1.650 af	
Outflow =	19.65 cfs @	12.16 hrs, Volume=	1.650 af,	Atten= 0%, Lag= 0.4 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Max. Velocity= 15.2 fps, Min. Travel Time= 0.5 min
Avg. Velocity = 5.6 fps, Avg. Travel Time= 1.3 min

Peak Depth= 0.77' @ 12.16 hrs
Capacity at bank full= 94.91 cfs
Inlet Invert= 526.00', Outlet Invert= 505.70'
30.0" Diameter Pipe n= 0.012 Length= 445.0' Slope= 0.0456 '/'

Reach r14-3b:

Grass lined channel

Inflow Area =	6.422 ac,	Inflow Depth = 3.08"	for 100-yr event	
Inflow =	19.77 cfs @	12.15 hrs, Volume=	1.650 af	
Outflow =	19.67 cfs @	12.16 hrs, Volume=	1.650 af,	Atten= 0%, Lag= 0.6 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Max. Velocity= 7.3 fps, Min. Travel Time= 0.8 min
Avg. Velocity = 2.6 fps, Avg. Travel Time= 2.3 min

Peak Depth= 0.79' @ 12.16 hrs
Capacity at bank full= 325.42 cfs
Inlet Invert= 542.00', Outlet Invert= 526.00'
10.00' x 3.00' deep Parabolic Channel, n= 0.027 Length= 360.0' Slope= 0.0444 '/'

Reach r17-1:

Inflow Area =	76.086 ac,	Inflow Depth = 3.20"	for 100-yr event	
Inflow =	82.52 cfs @	13.29 hrs, Volume=	20.318 af	
Outflow =	82.25 cfs @	13.32 hrs, Volume=	20.318 af,	Atten= 0%, Lag= 1.8 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Max. Velocity= 9.0 fps, Min. Travel Time= 2.6 min
Avg. Velocity = 3.5 fps, Avg. Travel Time= 6.7 min

Peak Depth= 1.38' @ 13.32 hrs
Capacity at bank full= 181.28 cfs
Inlet Invert= 646.00', Outlet Invert= 524.00'
12.00' x 2.00' deep Parabolic Channel, n= 0.045 Length= 1,390.0' Slope= 0.0878 '/'

Reach r18-2:

Overland Flow Reach

Inflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Outflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Max. Velocity= 0.0 fps, Min. Travel Time= 0.0 min
Avg. Velocity = 0.0 fps, Avg. Travel Time= 0.0 min

Peak Depth= 0.00' @ 0.00 hrs
Capacity at bank full= 434.91 cfs
Inlet Invert= 973.60', Outlet Invert= 630.00'
50.00' x 1.00' deep Parabolic Channel, n= 0.060 Length= 720.0' Slope= 0.4772 '/'

Reach r21-1a:

Man Made Ditch

Inflow Area = 207.817 ac, Inflow Depth = 2.67" for 100-yr event
Inflow = 98.56 cfs @ 14.14 hrs, Volume= 46.326 af
Outflow = 98.54 cfs @ 14.15 hrs, Volume= 46.312 af, Atten= 0%, Lag= 1.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Max. Velocity= 8.0 fps, Min. Travel Time= 1.4 min
Avg. Velocity = 3.4 fps, Avg. Travel Time= 3.2 min

Peak Depth= 2.18' @ 14.15 hrs
Capacity at bank full= 191.76 cfs
Inlet Invert= 504.00', Outlet Invert= 494.00'
10.00' x 3.00' deep Parabolic Channel, n= 0.027 Length= 648.0' Slope= 0.0154 '/'

Reach r21-1b:

Overland Flow Reach

Inflow Area = 29.123 ac, Inflow Depth = 3.53" for 100-yr event
Inflow = 65.71 cfs @ 12.54 hrs, Volume= 8.578 af
Outflow = 65.67 cfs @ 12.55 hrs, Volume= 8.578 af, Atten= 0%, Lag= 0.4 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Max. Velocity= 4.7 fps, Min. Travel Time= 0.6 min
Avg. Velocity = 1.8 fps, Avg. Travel Time= 1.5 min

Peak Depth= 0.56' @ 12.55 hrs
Capacity at bank full= 227.81 cfs
Inlet Invert= 506.70', Outlet Invert= 485.75'
50.00' x 1.00' deep Parabolic Channel, n= 0.060 Length= 160.0' Slope= 0.1309 '/'

Reach r22-2:

Overland Flow Reach

Inflow Area = 15.520 ac, Inflow Depth = 2.60" for 100-yr event
Inflow = 15.21 cfs @ 12.94 hrs, Volume= 3.366 af
Outflow = 15.19 cfs @ 12.96 hrs, Volume= 3.366 af, Atten= 0%, Lag= 1.6 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Max. Velocity= 4.9 fps, Min. Travel Time= 2.1 min
Avg. Velocity = 1.5 fps, Avg. Travel Time= 7.2 min

Peak Depth= 0.21' @ 12.96 hrs
Capacity at bank full= 469.25 cfs
Inlet Invert= 970.00', Outlet Invert= 620.00'
50.00' x 1.00' deep Parabolic Channel, n= 0.060 Length= 630.0' Slope= 0.5556 '/'

Reach r25-0a:

Ditch
Pipe inverts need to be surveyed

Inflow Area = 67.391 ac, Inflow Depth = 3.46" for 100-yr event
Inflow = 60.63 cfs @ 12.31 hrs, Volume= 19.437 af
Outflow = 60.58 cfs @ 12.35 hrs, Volume= 19.434 af, Atten= 0%, Lag= 2.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Max. Velocity= 10.8 fps, Min. Travel Time= 1.7 min
Avg. Velocity = 3.7 fps, Avg. Travel Time= 4.9 min

Peak Depth= 1.12' @ 12.35 hrs
Capacity at bank full= 205.50 cfs
Inlet Invert= 570.00', Outlet Invert= 504.00'
10.00' x 2.00' deep Parabolic Channel, n= 0.027 Length= 1,090.0' Slope= 0.0606 '/'

Reach r25-0b: Wetland Reach

Wetland Reach
Has wetland vegetation within reach

Inflow Area = 9.435 ac, Inflow Depth = 2.95" for 100-yr event
Inflow = 20.41 cfs @ 12.31 hrs, Volume= 2.323 af
Outflow = 18.91 cfs @ 12.39 hrs, Volume= 2.322 af, Atten= 7%, Lag= 5.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Max. Velocity= 2.1 fps, Min. Travel Time= 6.0 min
Avg. Velocity = 0.5 fps, Avg. Travel Time= 26.4 min

Peak Depth= 1.12' @ 12.39 hrs
Capacity at bank full= 156.51 cfs
Inlet Invert= 504.00', Outlet Invert= 499.50'
20.00' x 3.00' deep Parabolic Channel, n= 0.045 Length= 750.0' Slope= 0.0060 '/'

Reach r25-0c: Amenia Creek/Cascade Brook

(Steam) parallel to Route 22
Base Flow estimated from field observation (see field note 21)

Inflow Area = 138.083 ac, Inflow Depth = 30.09" for 100-yr event
Inflow = 204.19 cfs @ 12.34 hrs, Volume= 346.221 af, Incl. 40.00 cfs Base Flow
Outflow = 198.76 cfs @ 12.43 hrs, Volume= 345.537 af, Atten= 3%, Lag= 5.8 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Max. Velocity= 3.0 fps, Min. Travel Time= 5.3 min
Avg. Velocity = 2.7 fps, Avg. Travel Time= 6.1 min

Peak Depth= 7.89' @ 12.43 hrs
Capacity at bank full= 67.14 cfs
Inlet Invert= 504.00', Outlet Invert= 500.00'
10.00' x 4.00' deep Parabolic Channel, n= 0.060 Length= 975.0' Slope= 0.0041 '/'

Pond 8P:

No field note.
Water spills over cart path; no storage.

Inflow Area = 41.049 ac, Inflow Depth = 3.53" for 100-yr event
Inflow = 48.76 cfs @ 12.27 hrs, Volume= 12.077 af
Outflow = 48.76 cfs @ 12.27 hrs, Volume= 12.077 af, Atten= 0%, Lag= 0.0 min
Primary = 48.76 cfs @ 12.27 hrs, Volume= 12.077 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Peak Elev= 575.47' @ 12.27 hrs
Flood Elev= 574.70'
Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= (not calculated)

#	Routing	Invert	Outlet Devices
1	Primary	574.70'	**177.0 deg Sharp-Crested Vee/Trap Weir** C= 2.46

Primary OutFlow Max=48.76 cfs @ 12.27 hrs HW=575.47' TW=571.11' (Dynamic Tailwater)
└─**1=Sharp-Crested Vee/Trap Weir** (Weir Controls 48.76 cfs @ 2.2 fps)

Pond p02-2:

Proposed culvert under proposed road at intersection with 44.

Inflow Area =	7.776 ac, Inflow Depth = 3.20"	for 100-yr event	
Inflow =	16.49 cfs @ 12.42 hrs, Volume=	2.076 af	
Outflow =	16.49 cfs @ 12.42 hrs, Volume=	2.076 af,	Atten= 0%, Lag= 0.0 min
Primary =	16.49 cfs @ 12.42 hrs, Volume=	2.076 af	

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Peak Elev= 642.19' @ 12.42 hrs
Flood Elev= 645.00'
Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= (not calculated)

#	Routing	Invert	Outlet Devices
1	Primary	640.00'	**24.0" x 100.0' long Culvert** CPP, end-section conforming to fill, Ke= 0.500 Outlet Invert= 638.00' S= 0.0200 '/' n= 0.012 Cc= 0.900

Primary OutFlow Max=16.49 cfs @ 12.42 hrs HW=642.19' TW=625.91' (Dynamic Tailwater)
└─**1=Culvert** (Inlet Controls 16.49 cfs @ 5.2 fps)

Pond p02-3:

Simulates last DMH at bottom of small road , at intersection with 44. This culvert is only used to size the drain pipe under 44.

Inflow Area =	4.088 ac, Inflow Depth = 5.37"	for 100-yr event	
Inflow =	29.15 cfs @ 12.02 hrs, Volume=	1.828 af	
Outflow =	29.15 cfs @ 12.02 hrs, Volume=	1.828 af,	Atten= 0%, Lag= 0.0 min
Primary =	29.15 cfs @ 12.02 hrs, Volume=	1.828 af	

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Peak Elev= 641.96' @ 12.02 hrs
Flood Elev= 645.00'
Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= (not calculated)

#	Routing	Invert	Outlet Devices
1	Primary	635.00'	**24.0" x 100.0' long Culvert** CPP, projecting, no headwall, Ke= 0.900 Outlet Invert= 634.00' S= 0.0100 '/' n= 0.012 Cc= 0.900

Primary OutFlow Max=28.99 cfs @ 12.02 hrs HW=641.89' TW=555.88' (Dynamic Tailwater)
└─**1=Culvert** (Inlet Controls 28.99 cfs @ 9.2 fps)

Pond p03-2:

Inflow Area = 4.738 ac, Inflow Depth = 5.03" for 100-yr event
Inflow = 30.65 cfs @ 12.02 hrs, Volume= 1.986 af
Outflow = 8.15 cfs @ 12.34 hrs, Volume= 1.982 af, Atten= 73%, Lag= 18.8 min
Primary = 8.15 cfs @ 12.34 hrs, Volume= 1.982 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Starting Elev= 774.00' Surf.Area= 2,315 sf Storage= 4,095 cf
Peak Elev= 779.00' @ 12.34 hrs Surf.Area= 9,995 sf Storage= 41,432 cf (37,337 cf above start)
Flood Elev= 779.00' Surf.Area= 9,991 sf Storage= 41,391 cf (37,296 cf above start)
Plug-Flow detention time= 298.0 min calculated for 1.888 af (95% of inflow)
Center-of-Mass det. time= 243.1 min (1,022.0 - 779.0)

#	Invert	Avail.Storage	Storage Description
1	768.00'	51,363 cf	**Custom Stage Data (Conic)** Listed below

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
768.00	67	0	0	67
770.00	345	376	376	361
772.00	729	1,050	1,426	777
772.50	842	392	1,819	901
774.00	2,315	2,277	4,095	2,388
774.50	5,704	1,942	6,037	5,779
776.00	6,996	9,509	15,546	7,138
778.00	8,917	15,874	31,420	9,160
780.00	11,064	19,942	51,363	11,421

#	Routing	Invert	Outlet Devices
1	Primary	774.00'	**3.0" Vert. Orifice/Grate** C= 0.600
2	Primary	776.20'	**6.0" Vert. Orifice/Grate X 2.00** C= 0.600
3	Primary	778.50'	**4.0' long x 6.0' high Sharp-Crested Rectangular Weir** 2 End Contraction(s)

Primary OutFlow Max=8.15 cfs @ 12.34 hrs HW=779.00' TW=722.87' (Dynamic Tailwater)
├─**1=Orifice/Grate** (Orifice Controls 0.52 cfs @ 10.6 fps)
├─**2=Orifice/Grate** (Orifice Controls 3.02 cfs @ 7.7 fps)
└─**3=Sharp-Crested Rectangular Weir** (Weir Controls 4.61 cfs @ 2.3 fps)

Pond p04-1:

Storage, inverts and culvert length based on assumed grading, check when final grading becomes available

Inflow Area = 34.207 ac, Inflow Depth = 3.70" for 100-yr event
Inflow = 60.36 cfs @ 12.42 hrs, Volume= 10.537 af
Outflow = 41.99 cfs @ 12.79 hrs, Volume= 10.537 af, Atten= 30%, Lag= 22.3 min
Primary = 41.99 cfs @ 12.79 hrs, Volume= 10.537 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

Peak Elev= 646.71' @ 12.79 hrs Surf.Area= 12,716 sf Storage= 48,817 cf
Flood Elev= 648.00' Surf.Area= 15,680 sf Storage= 66,062 cf
Plug-Flow detention time= 7.7 min calculated for 10.535 af (100% of inflow)
Center-of-Mass det. time= 7.7 min (895.7 - 888.1)

#	Invert	Avail.Storage	Storage Description
1	638.00'	66,062 cf	**Custom Stage Data (Conic)** Listed below

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
638.00	0	0	0	0
640.00	1,300	867	867	1,306
642.00	6,180	6,876	7,743	6,203
644.00	7,270	13,435	21,178	7,438
646.00	11,100	18,235	39,414	11,327
648.00	15,680	26,648	66,062	15,980

#	Routing	Invert	Outlet Devices
1	Primary	638.00'	**24.0" x 685.0' long Culvert** CPP, end-section conforming to fill, Ke= 0.500 Outlet Invert= 598.00' S= 0.0584 '/' n= 0.012 Cc= 0.900

Primary OutFlow Max=41.99 cfs @ 12.79 hrs HW=646.71' TW=575.45' (Dynamic Tailwater)
└─**1=Culvert** (Inlet Controls 41.99 cfs @ 13.4 fps)

Pond p06-0:

Field Note #22
Geometry to be confirmed by survey.

Inflow Area = 9.435 ac, Inflow Depth = 2.99" for 100-yr event
Inflow = 21.68 cfs @ 12.24 hrs, Volume= 2.352 af
Outflow = 20.41 cfs @ 12.31 hrs, Volume= 2.323 af, Atten= 6%, Lag= 3.9 min
Primary = 20.41 cfs @ 12.31 hrs, Volume= 2.323 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Starting Elev= 506.80' Surf.Area= 18,600 sf Storage= 42,160 cf
Peak Elev= 507.55' @ 12.31 hrs Surf.Area= 21,985 sf Storage= 58,063 cf (15,903 cf above start)
Flood Elev= 507.10' Surf.Area= 19,958 sf Storage= 48,537 cf (6,377 cf above start)
Plug-Flow detention time= 344.2 min calculated for 1.355 af (58% of inflow)
Center-of-Mass det. time= 87.5 min (932.0 - 844.5)

#	Invert	Avail.Storage	Storage Description
1	500.00'	67,669 cf	**Custom Stage Data (Conic)** Listed below

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
500.00	0	0	0	0
506.80	18,600	42,160	42,160	18,672
508.00	24,030	25,509	67,669	24,138

#	Routing	Invert	Outlet Devices
1	Primary	506.80'	**12.0" x 20.0' long Culvert** CMP, projecting, no headwall, Ke= 0.900 Outlet Invert= 506.00' S= 0.0400 '/' n= 0.024 Cc= 0.900
2	Primary	507.10'	**178.0 deg Sharp-Crested Vee/Trap Weir** C= 2.46

Primary OutFlow Max=20.41 cfs @ 12.31 hrs HW=507.55' TW=505.07' (Dynamic Tailwater)
1=Culvert (Inlet Controls 1.47 cfs @ 2.3 fps)
2=Sharp-Crested Vee/Trap Weir (Weir Controls 18.94 cfs @ 1.6 fps)

Pond p07-1:

Field Note # 29
Outlet geometry to be confirmed by survey.

Inflow Area = 26.342 ac, Inflow Depth = 3.42" for 100-yr event
Inflow = 18.07 cfs @ 12.14 hrs, Volume= 7.507 af
Outflow = 12.15 cfs @ 12.33 hrs, Volume= 7.360 af, Atten= 33%, Lag= 11.6 min
Primary = 12.15 cfs @ 12.33 hrs, Volume= 7.360 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Starting Elev= 572.80' Surf.Area= 21,640 sf Storage= 56,264 cf
Peak Elev= 573.79' @ 12.33 hrs Surf.Area= 26,321 sf Storage= 80,532 cf (24,268 cf above start)
Flood Elev= 573.50' Surf.Area= 24,936 sf Storage= 73,351 cf (17,087 cf above start)
Plug-Flow detention time= 322.9 min calculated for 6.068 af (81% of inflow)
Center-of-Mass det. time= 64.4 min (1,191.1 - 1,126.7)

#	Invert	Avail.Storage	Storage Description
1	565.00'	85,557 cf	**Custom Stage Data (Conic)** Listed below

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
565.00	0	0	0	0
572.80	21,640	56,264	56,264	21,735
574.00	27,290	29,293	85,557	27,424

#	Routing	Invert	Outlet Devices
1	Primary	572.80'	**18.0" x 20.0' long Culvert** CMP, projecting, no headwall, Ke= 0.900 Outlet Invert= 572.00' S= 0.0400 '/' n= 0.024 Cc= 0.900
2	Primary	573.50'	**177.0 deg Sharp-Crested Vee/Trap Weir X 2.00** C= 2.46

Primary OutFlow Max=12.15 cfs @ 12.33 hrs HW=573.79' TW=571.12' (Dynamic Tailwater)
1=Culvert (Inlet Controls 3.33 cfs @ 2.7 fps)
2=Sharp-Crested Vee/Trap Weir (Weir Controls 8.82 cfs @ 1.3 fps)

Pond p08-2:

Inflow Area = 18.762 ac, Inflow Depth = 4.62" for 100-yr event
Inflow = 85.03 cfs @ 12.04 hrs, Volume= 7.218 af
Outflow = 45.84 cfs @ 12.25 hrs, Volume= 6.530 af, Atten= 46%, Lag= 12.5 min
Primary = 45.84 cfs @ 12.25 hrs, Volume= 6.530 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Starting Elev= 550.00' Surf.Area= 8,558 sf Storage= 24,834 cf
Peak Elev= 556.95' @ 12.25 hrs Surf.Area= 23,262 sf Storage= 146,533 cf (121,699 cf above start)
Flood Elev= 557.00' Surf.Area= 23,344 sf Storage= 147,597 cf (122,763 cf above start)
Plug-Flow detention time= 353.3 min calculated for 5.960 af (83% of inflow)
Center-of-Mass det. time= 245.2 min (1,030.6 - 785.4)

#	Invert	Avail.Storage	Storage Description
1	544.00'	170,918 cf	**Custom Stage Data (Conic)** Listed below

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
544.00	1,962	0	0	1,962
546.00	3,155	5,070	5,070	3,207
548.00	4,454	7,572	12,642	4,577
548.50	4,796	2,312	14,954	4,940
550.00	8,558	9,880	24,834	8,726
550.50	12,948	5,339	30,173	13,120
552.00	15,129	21,037	51,209	15,390
554.00	18,234	33,315	84,524	18,627
556.00	21,565	39,752	124,277	22,105
558.00	25,122	46,642	170,918	25,823

#	Routing	Invert	Outlet Devices
1	Primary	550.00'	**3.0" Vert. Orifice/Grate** C= 0.600
2	Primary	554.09'	**12.0" Vert. Orifice/Grate X 2.00** C= 0.600
3	Primary	556.00'	**11.0' long x 6.0' high Sharp-Crested Rectangular Weir** 2 End Contraction(s)

Primary OutFlow Max=45.83 cfs @ 12.25 hrs HW=556.95' TW=516.27' (Dynamic Tailwater)
├─**1=Orifice/Grate** (Orifice Controls 0.62 cfs @ 12.6 fps)
├─**2=Orifice/Grate** (Orifice Controls 11.63 cfs @ 7.4 fps)
└─**3=Sharp-Crested Rectangular Weir** (Weir Controls 33.59 cfs @ 3.3 fps)

Pond p08-3:

Inflow Area = 2.828 ac, Inflow Depth = 4.32" for 100-yr event
Inflow = 10.87 cfs @ 12.02 hrs, Volume= 1.019 af
Outflow = 4.90 cfs @ 12.36 hrs, Volume= 1.018 af, Atten= 55%, Lag= 20.9 min
Primary = 4.90 cfs @ 12.36 hrs, Volume= 1.018 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Starting Elev= 528.00' Surf.Area= 1,849 sf Storage= 2,615 cf
Peak Elev= 531.88' @ 12.36 hrs Surf.Area= 5,125 sf Storage= 15,730 cf (13,115 cf above start)
Flood Elev= 533.00' Surf.Area= 6,389 sf Storage= 22,602 cf (19,987 cf above start)
Plug-Flow detention time= 188.1 min calculated for 0.958 af (94% of inflow)
Center-of-Mass det. time= 125.0 min (907.9 - 782.9)

#	Invert	Avail.Storage	Storage Description
1	524.00'	28,956 cf	**Custom Stage Data (Conic)** Listed below

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
524.00	178	0	0	178
526.00	500	651	651	524
526.50	548	262	913	587
528.00	1,849	1,702	2,615	1,900
530.00	3,344	5,120	7,734	3,437
532.00	5,240	8,513	16,248	5,388
534.00	7,538	12,709	28,956	7,755

#	Routing	Invert	Outlet Devices
1	Primary	528.00'	**3.0" Vert. Orifice/Grate** C= 0.600
2	Primary	530.00'	**12.0" Vert. Orifice/Grate** C= 0.600

Primary OutFlow Max=4.90 cfs @ 12.36 hrs HW=531.88' TW=516.32' (Dynamic Tailwater)
1=Orifice/Grate (Orifice Controls 0.46 cfs @ 9.3 fps)
2=Orifice/Grate (Orifice Controls 4.44 cfs @ 5.7 fps)

Pond p09-2:

Inflow Area = 21.180 ac, Inflow Depth = 3.73" for 100-yr event
Inflow = 53.86 cfs @ 12.29 hrs, Volume= 6.582 af
Outflow = 9.70 cfs @ 13.16 hrs, Volume= 6.048 af, Atten= 82%, Lag= 52.7 min
Primary = 9.70 cfs @ 13.16 hrs, Volume= 6.048 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Starting Elev= 586.00' Surf.Area= 10,285 sf Storage= 36,340 cf
Peak Elev= 592.95' @ 13.16 hrs Surf.Area= 27,511 sf Storage= 185,705 cf (149,365 cf above start)
Flood Elev= 593.00' Surf.Area= 27,610 sf Storage= 187,200 cf (150,860 cf above start)
Plug-Flow detention time= 527.9 min calculated for 5.212 af (79% of inflow)
Center-of-Mass det. time= 374.4 min (1,200.4 - 826.0)

#	Invert	Avail.Storage	Storage Description
1	580.00'	214,790 cf	**Custom Stage Data (Conic)** Listed below

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
580.00	3,968	0	0	3,968
582.00	5,102	9,046	9,046	5,198
584.00	6,343	11,423	20,469	6,550
584.50	6,670	3,253	23,722	6,907
586.00	10,285	12,619	36,340	10,554
586.50	16,887	6,725	43,066	17,159
588.00	19,143	27,005	70,070	19,525
590.00	22,349	41,451	111,521	22,890
592.00	25,781	48,089	159,610	26,494
594.00	29,439	55,180	214,790	30,336

#	Routing	Invert	Outlet Devices
1	Primary	586.00'	**3.0" Vert. Orifice/Grate** C= 0.600
2	Primary	588.21'	**8.0" Vert. Orifice/Grate** C= 0.600
3	Primary	592.00'	**2.0' long x 6.0' high Sharp-Crested Rectangular Weir** 2 End Contraction(s)

Primary OutFlow Max=9.70 cfs @ 13.16 hrs HW=592.95' TW=573.79' (Dynamic Tailwater)
1=Orifice/Grate (Orifice Controls 0.62 cfs @ 12.6 fps)
2=Orifice/Grate (Orifice Controls 3.53 cfs @ 10.1 fps)
3=Sharp-Crested Rectangular Weir (Weir Controls 5.55 cfs @ 3.2 fps)

Pond p10:

Field Note #25
Need to get full story on how this pond works

Inflow Area = 59.531 ac, Inflow Depth = 2.04" for 100-yr event
Inflow = 36.34 cfs @ 12.46 hrs, Volume= 10.140 af
Outflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Atten= 100%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Starting Elev= 498.40' Surf.Area= 36,110 sf Storage= 101,108 cf
Peak Elev= 505.59' @ 48.00 hrs Surf.Area= 103,129 sf Storage= 542,824 cf (441,716 cf above start)
Plug-Flow detention time= (not calculated)
Center-of-Mass det. time= (not calculated)

#	Invert	Avail.Storage	Storage Description
1	490.00'	581,029 cf	**Custom Stage Data (Conic)** Listed below

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
490.00	0	0	0	0
498.40	36,110	101,108	101,108	36,221
500.00	42,400	62,741	163,849	42,610
502.00	54,880	97,012	260,861	55,187
504.00	78,730	132,895	393,755	79,107
506.00	109,382	187,274	581,029	109,836

Pond p13-1:

No Field Note
Natural depression.

Inflow Area = 12.222 ac, Inflow Depth = 5.14" for 100-yr event
Inflow = 65.83 cfs @ 12.04 hrs, Volume= 5.232 af
Outflow = 60.24 cfs @ 12.07 hrs, Volume= 5.216 af, Atten= 8%, Lag= 1.8 min
Primary = 60.24 cfs @ 12.07 hrs, Volume= 5.216 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Starting Elev= 524.00' Surf.Area= 5,894 sf Storage= 16,480 cf
Peak Elev= 526.98' @ 12.07 hrs Surf.Area= 10,038 sf Storage= 40,670 cf (24,190 cf above start)
Flood Elev= 527.00' Surf.Area= 10,067 sf Storage= 40,862 cf (24,383 cf above start)

Plug-Flow detention time= 161.5 min calculated for 4.837 af (92% of inflow)
Center-of-Mass det. time= 94.9 min (864.3 - 769.4)

#	Invert	Avail.Storage	Storage Description
1	518.00'	50,891 cf	**Custom Stage Data (Conic)** Listed below

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
518.00	1,331	0	0	1,331
520.00	2,048	3,353	3,353	2,104
522.00	2,912	4,935	8,288	3,037
522.50	3,150	1,515	9,803	3,294
524.00	5,894	6,676	16,480	6,061
526.00	8,542	14,354	30,834	8,776
528.00	11,592	20,057	50,891	11,908

#	Routing	Invert	Outlet Devices
1	Primary	524.00'	**3.0" Vert. Orifice/Grate** C= 0.600
2	Primary	525.90'	**15.0' long x 1.3' high Sharp-Crested Rectangular Weir** 2 End Contraction(s)

Primary OutFlow Max=60.17 cfs @ 12.07 hrs HW=526.98' TW=502.21' (Dynamic Tailwater)
—**1=Orifice/Grate** (Orifice Controls 0.40 cfs @ 8.1 fps)
—**2=Sharp-Crested Rectangular Weir** (Weir Controls 59.77 cfs @ 3.7 fps)

Pond p14-1:

Field Note #26
Need to figure out how this pond works

Inflow Area = 50.663 ac, Inflow Depth = 4.54" for 100-yr event
Inflow = 178.60 cfs @ 12.08 hrs, Volume= 19.168 af
Outflow = 21.54 cfs @ 13.35 hrs, Volume= 7.372 af, Atten= 88%, Lag= 75.9 min
Primary = 21.54 cfs @ 13.35 hrs, Volume= 7.372 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Starting Elev= 497.40' Surf.Area= 22,200 sf Storage= 54,760 cf
Peak Elev= 505.59' @ 48.00 hrs Surf.Area= 90,486 sf Storage= 568,606 cf (513,846 cf above start)
Plug-Flow detention time= 322.4 min calculated for 6.114 af (32% of inflow)
Center-of-Mass det. time= 102.8 min (949.0 - 846.3)

#	Invert	Avail.Storage	Storage Description
1	490.00'	805,062 cf	**Custom Stage Data (Conic)** Listed below

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
490.00	0	0	0	0
497.40	22,200	54,760	54,760	22,286
498.00	25,330	14,249	69,009	25,433
500.00	52,810	76,476	145,485	52,948
502.00	73,360	125,608	271,093	73,574
504.00	84,070	157,308	428,402	84,467
506.00	92,130	176,139	604,540	92,797
508.00	108,618	200,522	805,062	109,437

#	Routing	Invert	Outlet Devices
1	Primary	500.00'	**24.0" x 80.0' long Culvert** CPP, end-section conforming to fill, Ke= 0.500 Outlet Invert= 502.00' S= -0.0250 '/' n= 0.012 Cc= 0.900

Primary OutFlow Max=21.55 cfs @ 13.35 hrs HW=505.03' TW=501.89' (Dynamic Tailwater)
└─**1=Culvert** (Inlet Controls 21.55 cfs @ 6.9 fps)

Pond p14-2:

Inflow Area = 15.934 ac, Inflow Depth = 5.25" for 100-yr event
Inflow = 85.36 cfs @ 12.05 hrs, Volume= 6.972 af
Outflow = 78.16 cfs @ 12.09 hrs, Volume= 6.943 af, Atten= 8%, Lag= 2.3 min
Primary = 78.16 cfs @ 12.09 hrs, Volume= 6.943 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Starting Elev= 532.00' Surf.Area= 7,681 sf Storage= 23,903 cf
Peak Elev= 534.95' @ 12.09 hrs Surf.Area= 12,297 sf Storage= 53,864 cf (29,961 cf above start)
Flood Elev= 535.00' Surf.Area= 12,390 sf Storage= 54,538 cf (30,635 cf above start)
Plug-Flow detention time= 152.0 min calculated for 6.395 af (92% of inflow)
Center-of-Mass det. time= 80.8 min (849.6 - 768.8)

#	Invert	Avail.Storage	Storage Description
1	526.00'	66,889 cf	**Custom Stage Data (Conic)** Listed below

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
526.00	2,239	0	0	2,239
528.00	3,156	5,369	5,369	3,227
530.00	4,207	7,338	12,707	4,362
530.50	4,491	2,174	14,881	4,669
532.00	7,681	9,023	23,903	7,885
534.00	10,686	18,285	42,188	10,966
536.00	14,093	24,701	66,889	14,463

#	Routing	Invert	Outlet Devices
1	Primary	532.00'	**3.0" Vert. Orifice/Grate** C= 0.600
2	Primary	533.60'	**14.0' long x 1.5' high Sharp-Crested Rectangular Weir** 2 End Contraction(s)

Primary OutFlow Max=78.12 cfs @ 12.09 hrs HW=534.95' TW=502.35' (Dynamic Tailwater)
├─**1=Orifice/Grate** (Orifice Controls 0.40 cfs @ 8.1 fps)
└─**2=Sharp-Crested Rectangular Weir** (Weir Controls 77.72 cfs @ 4.2 fps)

Pond p16-1:

Field Note # 49
Large pond with man-made island.
Geometry to be verified by survey. In particular, we are making big guesses about the outlets.
Also need to find out about valves...

Inflow Area = 176.893 ac, Inflow Depth = 3.36" for 100-yr event
Inflow = 231.69 cfs @ 12.33 hrs, Volume= 49.496 af
Outflow = 89.45 cfs @ 14.04 hrs, Volume= 37.676 af, Atten= 61%, Lag= 102.9 min
Primary = 89.45 cfs @ 14.04 hrs, Volume= 37.676 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Starting Elev= 507.00' Surf.Area= 199,799 sf Storage= 878,320 cf
Peak Elev= 511.38' @ 14.04 hrs Surf.Area= 310,348 sf Storage= 1,879,457 cf (1,001,137 cf above start)
Flood Elev= 510.50' Surf.Area= 271,550 sf Storage= 1,623,217 cf (744,897 cf above start)
Plug-Flow detention time= 856.5 min calculated for 17.512 af (35% of inflow)
Center-of-Mass det. time= 324.5 min (1,220.2 - 895.8)

#	Invert	Avail.Storage	Storage Description
1	500.00'	2,062,087 cf	**Custom Stage Data (Conic)** Listed below

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
500.00	0	0	0	0
503.00	140,344	140,344	140,344	140,358
509.20	232,500	1,143,862	1,284,206	232,994
510.00	249,400	192,720	1,476,927	249,951
512.00	338,000	585,160	2,062,087	338,634

#	Routing	Invert	Outlet Devices
1	Primary	509.00'	**18.0" x 110.0' long Culvert** CMP, projecting, no headwall, Ke= 0.900 Outlet Invert= 505.70' S= 0.0300 '/' n= 0.024 Cc= 0.900
2	Primary	500.00'	**8.0" x 100.0' long assumed equalization pipe w/ valve X 0.00** CMP, projecting, no headwall, Ke= 0.900 Outlet Invert= 500.00' S= 0.0000 '/' n= 0.013 Cc= 0.900
3	Primary	510.50'	**175.0 deg Sharp-Crested Vee/Trap Weir X 2.00** C= 2.46

Primary OutFlow Max=89.45 cfs @ 14.04 hrs HW=511.38' TW=506.43' (Dynamic Tailwater)
├─**1=Culvert** (Inlet Controls 8.57 cfs @ 4.8 fps)
├─**2=assumed equalization pipe w/ valve** (Controls 0.00 cfs)
└─**3=Sharp-Crested Vee/Trap Weir** (Weir Controls 80.89 cfs @ 2.3 fps)

Pond p17-1:

Field Note #45
Golf pond
Geometry to be confirmed by surveyed

Inflow Area = 112.240 ac, Inflow Depth = 3.20" for 100-yr event
Inflow = 100.93 cfs @ 13.19 hrs, Volume= 29.921 af
Outflow = 100.92 cfs @ 13.20 hrs, Volume= 29.921 af, Atten= 0%, Lag= 0.4 min
Primary = 100.92 cfs @ 13.20 hrs, Volume= 29.921 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Starting Elev= 523.80' Surf.Area= 7,290 sf Storage= 9,234 cf
Peak Elev= 525.63' @ 13.20 hrs Surf.Area= 11,495 sf Storage= 26,571 cf (17,337 cf above start)
Flood Elev= 524.30' Surf.Area= 8,074 sf Storage= 13,623 cf (4,389 cf above start)
Plug-Flow detention time= 14.4 min calculated for 29.702 af (99% of inflow)
Center-of-Mass det. time= 8.0 min (914.1 - 906.1)

#	Invert	Avail.Storage	Storage Description
1	520.00'	30,224 cf	**Custom Stage Data (Conic)** Listed below

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
520.00	0	0	0	0
523.80	7,290	9,234	9,234	7,313
524.00	7,300	1,459	10,693	7,374
526.00	12,460	19,531	30,224	12,581

#	Routing	Invert	Outlet Devices
1	Primary	523.80'	**2.2' long x 0.5' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 Coef. (English) 2.80 2.92 3.08 3.30 3.32
2	Primary	524.30'	**143.0 deg Sharp-Crested Vee/Trap Weir** C= 2.47
3	Primary	525.20'	**178.0 deg x 60.0' long Sharp-Crested Vee/Trap Weir** C= 2.46

Primary OutFlow Max=100.92 cfs @ 13.20 hrs HW=525.63' TW=516.21' (Dynamic Tailwater)
—**1=Broad-Crested Rectangular Weir** (Weir Controls 18.02 cfs @ 4.5 fps)
—**2=Sharp-Crested Vee/Trap Weir** (Weir Controls 14.94 cfs @ 2.8 fps)
—**3=Sharp-Crested Vee/Trap Weir** (Weir Controls 67.95 cfs @ 1.9 fps)

Pond p18-1:

Field Note #46
Golf pond
Geometry to be confirmed by surveyed

Inflow Area = 131.862 ac, Inflow Depth = 3.23" for 100-yr event
Inflow = 132.62 cfs @ 12.43 hrs, Volume= 35.444 af
Outflow = 131.91 cfs @ 12.47 hrs, Volume= 35.439 af, Atten= 1%, Lag= 2.8 min
Primary = 131.91 cfs @ 12.47 hrs, Volume= 35.439 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Starting Elev= 513.90' Surf.Area= 20,680 sf Storage= 26,884 cf
Peak Elev= 516.32' @ 12.47 hrs Surf.Area= 30,579 sf Storage= 88,894 cf (62,010 cf above start)
Flood Elev= 514.81' Surf.Area= 23,768 sf Storage= 48,709 cf (21,825 cf above start)
Plug-Flow detention time= 38.1 min calculated for 34.822 af (98% of inflow)
Center-of-Mass det. time= 22.7 min (925.5 - 902.8)

#	Invert	Avail.Storage	Storage Description
1	510.00'	148,288 cf	**Custom Stage Data (Conic)** Listed below

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
510.00	0	0	0	0
513.90	20,680	26,884	26,884	20,704
514.00	20,690	2,068	28,952	20,756
516.00	28,290	48,782	77,735	28,436
518.00	42,760	70,554	148,288	42,967

#	Routing	Invert	Outlet Devices
1	Primary	513.90'	**2.0' long x 0.5' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 Coef. (English) 2.80 2.92 3.08 3.30 3.32
2	Primary	514.81'	**143.0 deg Sharp-Crested Vee/Trap Weir** C= 2.47
3	Primary	515.32'	**175.0 deg x 10.0' long Sharp-Crested Vee/Trap Weir** C= 2.46

Primary OutFlow Max=131.90 cfs @ 12.47 hrs HW=516.32' TW=509.42' (Dynamic Tailwater)
—**1=Broad-Crested Rectangular Weir** (Weir Controls 24.94 cfs @ 5.2 fps)
—**2=Sharp-Crested Vee/Trap Weir** (Weir Controls 20.56 cfs @ 3.0 fps)
—**3=Sharp-Crested Vee/Trap Weir** (Weir Controls 86.40 cfs @ 2.6 fps)

Pond p19-0:

Wetland
Geometry to be confirmed by survey
Based off aerial topo, and assumed topo contour

Pond Unchanged from existing to proposed conditions

Inflow Area =	15.520 ac,	Inflow Depth = 2.60"	for 100-yr event	
Inflow =	22.44 cfs @	12.61 hrs, Volume=	3.367 af	
Outflow =	15.21 cfs @	12.94 hrs, Volume=	3.366 af,	Atten= 32%, Lag= 19.9 min
Primary =	15.21 cfs @	12.94 hrs, Volume=	3.366 af	
Secondary =	0.00 cfs @	0.00 hrs, Volume=	0.000 af	

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Starting Elev= 972.00' Surf.Area= 86,000 sf Storage= 57,333 cf
Peak Elev= 972.29' @ 12.94 hrs Surf.Area= 93,885 sf Storage= 89,433 cf (32,099 cf above start)
Plug-Flow detention time= 278.9 min calculated for 2.049 af (61% of inflow)
Center-of-Mass det. time= 57.4 min (942.9 - 885.4)

#	Invert	Avail.Storage	Storage Description
1	970.00'	282,329 cf	**Custom Stage Data (Conic)** Listed below

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
970.00	0	0	0	0
972.00	86,000	57,333	57,333	86,006
974.00	141,270	224,996	282,329	141,327

#	Routing	Invert	Outlet Devices
1	Secondary	973.60'	**178.0 deg x 51.0' long Sharp-Crested Vee/Trap Weir** C= 2.46
2	Primary	972.00'	**35.0' long x 0.5' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 Coef. (English) 2.80 2.92 3.08 3.30 3.32

Primary OutFlow Max=15.21 cfs @ 12.94 hrs HW=972.29' TW=970.21' (Dynamic Tailwater)
└─**2=Broad-Crested Rectangular Weir** (Weir Controls 15.21 cfs @ 1.5 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=972.00' TW=973.60' (Dynamic Tailwater)
└─**1=Sharp-Crested Vee/Trap Weir** (Controls 0.00 cfs)

Pond p20-1:

Field Note #50
Spring Fed Pond
Geometry to be confirmed by surveyed

Inflow Area = 207.817 ac, Inflow Depth = 2.73" for 100-yr event
Inflow = 99.91 cfs @ 14.02 hrs, Volume= 47.279 af
Outflow = 98.56 cfs @ 14.14 hrs, Volume= 46.326 af, Atten= 1%, Lag= 7.3 min
Primary = 98.56 cfs @ 14.14 hrs, Volume= 46.326 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Starting Elev= 505.10' Surf.Area= 89,370 sf Storage= 138,524 cf
Peak Elev= 506.43' @ 14.15 hrs Surf.Area= 91,508 sf Storage= 259,519 cf (120,996 cf above start)
Plug-Flow detention time= 196.3 min calculated for 43.137 af (91% of inflow)
Center-of-Mass det. time= 48.0 min (1,222.4 - 1,174.4)

#	Invert	Avail.Storage	Storage Description
1	502.00'	615,682 cf	**Custom Stage Data (Prismatic)** Listed below

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
502.00	0	0	0
505.10	89,370	138,524	138,524
506.00	89,380	80,437	218,961
508.00	99,280	188,660	407,621
510.00	108,781	208,061	615,682

#	Routing	Invert	Outlet Devices
1	Primary	505.10'	**3.0' long x 1.5' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 Coef. (English) 2.62 2.64 2.64 2.68 2.75 2.86 2.92 3.07 3.07 3.03 3.28 3.32
2	Primary	506.20'	**6.5' long x 1.5' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 Coef. (English) 2.62 2.64 2.64 2.68 2.75 2.86 2.92 3.07 3.07 3.03 3.28 3.32
3	Primary	506.00'	**176.0 deg x 97.0' long Sharp-Crested Vee/Trap Weir** C= 2.46

Primary OutFlow Max=98.54 cfs @ 14.14 hrs HW=506.43' TW=506.18' (Dynamic Tailwater)
1=Broad-Crested Rectangular Weir (Weir Controls 8.07 cfs @ 2.0 fps)
2=Broad-Crested Rectangular Weir (Weir Controls 1.88 cfs @ 1.3 fps)
3=Sharp-Crested Vee/Trap Weir (Weir Controls 88.59 cfs @ 1.9 fps)

Pond p20-2:

Inflow Area = 13.511 ac, Inflow Depth = 5.12" for 100-yr event
Inflow = 69.74 cfs @ 12.09 hrs, Volume= 5.769 af
Outflow = 14.79 cfs @ 12.54 hrs, Volume= 4.093 af, Atten= 79%, Lag= 27.0 min
Primary = 14.79 cfs @ 12.54 hrs, Volume= 4.093 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Starting Elev= 552.00' Surf.Area= 10,535 sf Storage= 35,913 cf
Peak Elev= 559.00' @ 12.54 hrs Surf.Area= 25,656 sf Storage= 174,066 cf (138,153 cf above start)
Flood Elev= 559.00' Surf.Area= 25,653 sf Storage= 174,016 cf (138,102 cf above start)
Plug-Flow detention time= 689.6 min calculated for 3.268 af (57% of inflow)
Center-of-Mass det. time= 445.6 min (1,226.0 - 780.5)

#	Invert	Avail.Storage	Storage Description
1	546.00'	199,647 cf	**Custom Stage Data (Conic)** Listed below

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
546.00	3,714	0	0	3,714
548.00	4,960	8,644	8,644	5,044
550.00	6,308	11,241	19,885	6,493
550.50	6,661	3,242	23,127	6,874
552.00	10,535	12,786	35,913	10,779
552.50	15,037	6,360	42,273	15,285
554.00	17,268	24,209	66,483	17,616
556.00	20,441	37,664	104,147	20,935
558.00	23,840	44,237	148,384	24,494
560.00	27,465	51,262	199,647	28,292

#	Routing	Invert	Outlet Devices
1	Primary	552.00'	**3.0" Vert. Orifice/Grate** C= 0.600
2	Primary	558.20'	**6.1' long x 6.2' high Sharp-Crested Rectangular Weir** 2 End Contraction(s)

Primary OutFlow Max=14.79 cfs @ 12.54 hrs HW=559.00' TW=506.20' (Dynamic Tailwater)
↑—**1=Orifice/Grate** (Orifice Controls 0.62 cfs @ 12.6 fps)
└—**2=Sharp-Crested Rectangular Weir** (Weir Controls 14.17 cfs @ 3.0 fps)

Pond p21-1:

Inflow Area = 459.188 ac, Inflow Depth = 3.29" for 100-yr event
Inflow = 578.35 cfs @ 12.27 hrs, Volume= 125.867 af
Outflow = 37.64 cfs @ 20.82 hrs, Volume= 99.293 af, Atten= 93%, Lag= 513.2 min
Primary = 37.64 cfs @ 20.82 hrs, Volume= 99.293 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Peak Elev= 486.65' @ 20.82 hrs Surf.Area= 1,348,222 sf Storage= 3,374,375 cf
Plug-Flow detention time= 898.0 min calculated for 99.292 af (79% of inflow)
Center-of-Mass det. time= 727.8 min (1,734.1 - 1,006.3)

#	Invert	Avail.Storage	Storage Description
1	480.40'	5,244,885 cf	**Custom Stage Data (Conic)** Listed below

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
480.40	0	0	0	0
482.00	202,230	107,856	107,856	202,234
484.00	485,198	667,114	774,970	485,231
486.00	1,275,481	1,698,237	2,473,208	1,275,541
488.00	1,499,208	2,771,678	5,244,885	1,499,423

#	Routing	Invert	Outlet Devices
1	Primary	480.40'	**30.0" x 70.0' long Culvert** CMP, projecting, no headwall, Ke= 0.900 Outlet Invert= 480.40' S= 0.0000 '/' n= 0.024 Cc= 0.900

Primary OutFlow Max=37.64 cfs @ 20.82 hrs HW=486.65' TW=0.00' (Dynamic Tailwater)
↑—**1=Culvert** (Barrel Controls 37.64 cfs @ 7.7 fps)

Pond p21-4:

Inflow Area = 5.152 ac, Inflow Depth = 4.49" for 100-yr event
Inflow = 18.73 cfs @ 12.03 hrs, Volume= 1.929 af
Outflow = 14.59 cfs @ 12.23 hrs, Volume= 1.917 af, Atten= 22%, Lag= 12.0 min
Primary = 14.59 cfs @ 12.23 hrs, Volume= 1.917 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Starting Elev= 496.00' Surf.Area= 5,112 sf Storage= 14,306 cf
Peak Elev= 499.00' @ 12.23 hrs Surf.Area= 8,847 sf Storage= 35,620 cf (21,314 cf above start)
Flood Elev= 499.00' Surf.Area= 8,847 sf Storage= 35,622 cf (21,317 cf above start)
Plug-Flow detention time= 354.4 min calculated for 1.589 af (82% of inflow)
Center-of-Mass det. time= 211.5 min (1,001.0 - 789.5)

#	Invert	Avail.Storage	Storage Description
1	490.00'	44,433 cf	**Custom Stage Data (Conic)** Listed below

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
490.00	1,146	0	0	1,146
492.00	1,784	2,907	2,907	1,839
494.00	2,530	4,292	7,199	2,654
494.50	2,733	1,315	8,514	2,876
496.00	5,112	5,791	14,306	5,278
498.00	7,468	12,506	26,812	7,699
500.00	10,226	17,622	44,433	10,536

#	Routing	Invert	Outlet Devices
1	Primary	496.00'	**3.0" Vert. Orifice/Grate** C= 0.600
2	Primary	498.10'	**5.0' long x 2.0' high Sharp-Crested Rectangular Weir** 2 End Contraction(s)

Primary OutFlow Max=14.59 cfs @ 12.23 hrs HW=499.00' TW=483.78' (Dynamic Tailwater)
—**1=Orifice/Grate** (Orifice Controls 0.40 cfs @ 8.2 fps)
—**2=Sharp-Crested Rectangular Weir** (Weir Controls 14.19 cfs @ 3.3 fps)

Pond p21-5:

Inflow Area = 2.398 ac, Inflow Depth = 4.15" for 100-yr event
Inflow = 9.09 cfs @ 12.19 hrs, Volume= 0.829 af
Primary = 9.09 cfs @ 12.19 hrs, Volume= 0.829 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

Pond p21-6:

Inflow Area = 6.182 ac, Inflow Depth = 4.55" for 100-yr event
Inflow = 21.31 cfs @ 12.23 hrs, Volume= 2.345 af
Outflow = 16.61 cfs @ 12.38 hrs, Volume= 2.334 af, Atten= 22%, Lag= 8.8 min
Primary = 16.61 cfs @ 12.38 hrs, Volume= 2.334 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Starting Elev= 492.00' Surf.Area= 3,323 sf Storage= 4,847 cf
Peak Elev= 494.98' @ 12.38 hrs Surf.Area= 13,794 sf Storage= 34,214 cf (29,367 cf above start)
Flood Elev= 495.00' Surf.Area= 13,824 sf Storage= 34,456 cf (29,609 cf above start)
Plug-Flow detention time= 267.7 min calculated for 2.223 af (95% of inflow)
Center-of-Mass det. time= 218.9 min (1,031.2 - 812.2)

#	Invert	Avail.Storage	Storage Description
1	488.00'	48,245 cf	**Custom Stage Data (Conic)** Listed below

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
488.00	296	0	0	296
490.00	924	1,162	1,162	946
490.50	1,110	508	1,670	1,141
492.00	3,323	3,177	4,847	3,367
492.50	6,166	2,336	7,182	6,212
494.00	12,147	13,484	20,666	12,214
496.00	15,500	27,579	48,245	15,669

#	Routing	Invert	Outlet Devices
1	Primary	492.00'	**3.0" Vert. Orifice/Grate** C= 0.600
2	Primary	494.00'	**5.0' long x 2.0' high Sharp-Crested Rectangular Weir** 2 End Contraction(s)

Primary OutFlow Max=16.61 cfs @ 12.38 hrs HW=494.98' TW=484.26' (Dynamic Tailwater)
—**1=Orifice/Grate** (Orifice Controls 0.40 cfs @ 8.1 fps)
—**2=Sharp-Crested Rectangular Weir** (Weir Controls 16.21 cfs @ 3.4 fps)

Pond p21-7:

Inflow Area = 8.355 ac, Inflow Depth = 4.79" for 100-yr event
Inflow = 36.88 cfs @ 12.04 hrs, Volume= 3.338 af
Outflow = 17.82 cfs @ 12.32 hrs, Volume= 3.314 af, Atten= 52%, Lag= 16.8 min
Primary = 17.82 cfs @ 12.32 hrs, Volume= 3.314 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Starting Elev= 492.00' Surf.Area= 3,941 sf Storage= 8,984 cf
Peak Elev= 498.92' @ 12.32 hrs Surf.Area= 13,242 sf Storage= 66,293 cf (57,309 cf above start)
Flood Elev= 499.00' Surf.Area= 13,379 sf Storage= 67,369 cf (58,385 cf above start)
Plug-Flow detention time= 369.8 min calculated for 3.108 af (93% of inflow)
Center-of-Mass det. time= 296.3 min (1,072.1 - 775.8)

#	Invert	Avail.Storage	Storage Description
1	486.00'	80,712 cf	**Custom Stage Data (Conic)** Listed below

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
486.00	478	0	0	478
488.00	964	1,414	1,414	999
490.00	1,601	2,538	3,952	1,684
490.50	1,782	845	4,797	1,879
492.00	3,941	4,187	8,984	4,056
494.00	6,120	9,981	18,965	6,292
496.00	8,702	14,746	33,712	8,944
498.00	11,686	20,315	54,027	12,012
500.00	15,071	26,685	80,712	15,495

#	Routing	Invert	Outlet Devices
1	Primary	492.00'	**3.0" Vert. Orifice/Grate** C= 0.600
2	Primary	496.05'	**6.0" Vert. Orifice/Grate X 2.00** C= 0.600
3	Primary	498.00'	**5.0' long x 6.0' high Sharp-Crested Rectangular Weir** 2 End Contraction(s)

Primary OutFlow Max=17.82 cfs @ 12.32 hrs HW=498.92' TW=484.13' (Dynamic Tailwater)
├─**1=Orifice/Grate** (Orifice Controls 0.62 cfs @ 12.6 fps)
├─**2=Orifice/Grate** (Orifice Controls 3.06 cfs @ 7.8 fps)
└─**3=Sharp-Crested Rectangular Weir** (Weir Controls 14.14 cfs @ 3.2 fps)

Pond p22-1:

Field Note #54
Golf Pond
Geometry to be confirmed by survey

Pond unchanged from existing to proposed conditions

Inflow Area = 78.382 ac, Inflow Depth = 3.35" for 100-yr event
Inflow = 163.25 cfs @ 12.29 hrs, Volume= 21.895 af
Outflow = 161.62 cfs @ 12.32 hrs, Volume= 21.596 af, Atten= 1%, Lag= 1.8 min
Primary = 161.62 cfs @ 12.32 hrs, Volume= 21.596 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Starting Elev= 498.10' Surf.Area= 6,520 sf Storage= 10,106 cf
Peak Elev= 502.47' @ 12.32 hrs Surf.Area= 12,237 sf Storage= 50,332 cf (40,226 cf above start)
Plug-Flow detention time= 31.5 min calculated for 21.359 af (98% of inflow)
Center-of-Mass det. time= 14.3 min (876.7 - 862.4)

#	Invert	Avail.Storage	Storage Description
1	495.00'	143,770 cf	**Custom Stage Data (Prismatic)** Listed below

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
495.00	0	0	0
498.10	6,520	10,106	10,106
500.00	8,390	14,164	24,270
502.00	11,530	19,920	44,190
504.00	14,530	26,060	70,250
506.00	18,340	32,870	103,120
508.00	22,310	40,650	143,770

#	Routing	Invert	Outlet Devices
1	Primary	499.75'	**18.0" x 21.0' long Culvert** CMP, projecting, no headwall, Ke= 0.900 Outlet Invert= 499.75' S= 0.0000 '/' n= 0.024 Cc= 0.900
2	Primary	500.50'	**1.0' long x 15.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.68 2.70 2.70 2.64 2.63 2.64 2.64 2.63
3	Primary	500.50'	**20.0' long x 13.5' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.62 2.66 2.70 2.66 2.65 2.66 2.65 2.63

Primary OutFlow Max=161.61 cfs @ 12.32 hrs HW=502.47' TW=484.13' (Dynamic Tailwater)
1=Culvert (Barrel Controls 8.75 cfs @ 5.0 fps)
2=Broad-Crested Rectangular Weir (Weir Controls 7.28 cfs @ 3.7 fps)
3=Broad-Crested Rectangular Weir (Weir Controls 145.58 cfs @ 3.7 fps)

Pond p23-1:

Inflow Area =	29.123 ac, Inflow Depth = 3.83"	for 100-yr event		
Inflow =	65.76 cfs @	12.53 hrs, Volume=	9.293 af	
Outflow =	65.71 cfs @	12.54 hrs, Volume=	8.578 af,	Atten= 0%, Lag= 0.5 min
Primary =	65.71 cfs @	12.54 hrs, Volume=	8.578 af	

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Peak Elev= 507.93' @ 12.54 hrs Surf.Area= 14,476 sf Storage= 33,912 cf
Plug-Flow detention time= 56.7 min calculated for 8.576 af (92% of inflow)
Center-of-Mass det. time= 17.2 min (873.8 - 856.6)

#	Invert	Avail.Storage	Storage Description
1	503.50'	68,915 cf	**Custom Stage Data (Conic)** Listed below

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
503.50	0	0	0	0
504.00	2,390	398	398	2,390
506.00	9,090	10,761	11,159	9,110
508.00	14,660	23,529	34,688	14,732
510.00	19,690	34,227	68,915	19,847

#	Routing	Invert	Outlet Devices
1	Primary	507.70'	**178.0 deg x 178.0' long Sharp-Crested Vee/Trap Weir** C= 2.46

Primary OutFlow Max=65.69 cfs @ 12.54 hrs HW=507.93' TW=507.26' (Dynamic Tailwater)
1=Sharp-Crested Vee/Trap Weir (Weir Controls 65.69 cfs @ 1.5 fps)

Pond p23-2:

Inflow Area =	16.094 ac, Inflow Depth = 5.46"	for 100-yr event		
Inflow =	101.80 cfs @	12.06 hrs, Volume=	7.326 af	
Outflow =	69.09 cfs @	12.13 hrs, Volume=	6.478 af,	Atten= 32%, Lag= 4.4 min
Primary =	69.09 cfs @	12.13 hrs, Volume=	6.478 af	

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Starting Elev= 508.00' Surf.Area= 7,318 sf Storage= 15,927 cf
Peak Elev= 514.92' @ 12.13 hrs Surf.Area= 24,621 sf Storage= 139,976 cf (124,049 cf above start)
Flood Elev= 515.00' Surf.Area= 24,788 sf Storage= 141,986 cf (126,059 cf above start)
Plug-Flow detention time= 356.3 min calculated for 6.113 af (83% of inflow)
Center-of-Mass det. time= 261.6 min (1,033.7 - 772.1)

#	Invert	Avail.Storage	Storage Description
1	502.00'	166,746 cf	**Custom Stage Data (Conic)** Listed below

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
502.00	826	0	0	826
504.00	1,667	2,444	2,444	1,702
506.00	2,788	4,407	6,852	2,872
506.50	3,112	1,474	8,326	3,210
508.00	7,318	7,601	15,927	7,432
508.50	12,618	4,924	20,851	12,735
510.00	15,208	20,839	41,690	15,400
512.00	18,859	34,002	75,692	19,166
514.00	22,736	41,535	117,227	23,175
516.00	26,840	49,519	166,746	27,428

#	Routing	Invert	Outlet Devices
1	Primary	508.00'	**3.0" Vert. Orifice/Grate** C= 0.600
2	Primary	512.55'	**12.0" Vert. Orifice/Grate X 2.00** C= 0.600
3	Primary	514.00'	**20.0' long x 6.0' high Sharp-Crested Rectangular Weir** 2 End Contraction(s)

Primary OutFlow Max=69.06 cfs @ 12.13 hrs HW=514.92' TW=483.23' (Dynamic Tailwater)
1=Orifice/Grate (Orifice Controls 0.62 cfs @ 12.5 fps)
2=Orifice/Grate (Orifice Controls 10.34 cfs @ 6.6 fps)
3=Sharp-Crested Rectangular Weir (Weir Controls 58.11 cfs @ 3.2 fps)

Pond zDP1: Design Point 1

Field note #10.
Culvert dimensions to be confirmed by survey.

Inflow Area = 26.658 ac, Inflow Depth = 3.78" for 100-yr event
Inflow = 51.27 cfs @ 12.46 hrs, Volume= 8.392 af
Outflow = 51.27 cfs @ 12.46 hrs, Volume= 8.392 af, Atten= 0%, Lag= 0.0 min
Primary = 51.27 cfs @ 12.46 hrs, Volume= 8.392 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Peak Elev= 723.08' @ 12.46 hrs Surf.Area= 225 sf Storage= 275 cf
Flood Elev= 727.00' Surf.Area= 1,105 sf Storage= 2,619 cf
Plug-Flow detention time= 0.1 min calculated for 8.390 af (100% of inflow)
Center-of-Mass det. time= 0.1 min (900.4 - 900.3)

#	Invert	Avail.Storage	Storage Description
1	720.10'	3,706 cf	**Custom Stage Data (Conic)** Listed below

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
720.10	0	0	0	0
722.00	90	57	57	96
724.00	340	403	460	364
726.00	760	1,072	1,533	815
728.00	1,450	2,173	3,706	1,543

#	Routing	Invert	Outlet Devices
1	Primary	720.10'	**42.0" x 120.0' long Culvert** CMP, square edge headwall, Ke= 0.500 Outlet Invert= 700.00' S= 0.1675 '/' n= 0.024 Cc= 0.900
2	Primary	727.00'	**155.0 deg Sharp-Crested Vee/Trap Weir** C= 2.47

Primary OutFlow Max=51.26 cfs @ 12.46 hrs HW=723.08' TW=686.81' (Dynamic Tailwater)
1=Culvert (Inlet Controls 51.26 cfs @ 5.9 fps)
2=Sharp-Crested Vee/Trap Weir (Controls 0.00 cfs)

Pond zDP2: Design Point 2

Field Note #15
Culvert dimensions to be confirmed by survey
Overflow to ditch is currently discarded... We may have to model that area...

Inflow Area = 93.367 ac, Inflow Depth = 3.11" for 100-yr event
Inflow = 127.33 cfs @ 12.81 hrs, Volume= 24.206 af
Outflow = 127.31 cfs @ 12.82 hrs, Volume= 24.206 af, Atten= 0%, Lag= 0.4 min
Discarded = 91.09 cfs @ 12.82 hrs, Volume= 7.727 af
Primary = 36.22 cfs @ 12.82 hrs, Volume= 16.479 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Peak Elev= 626.33' @ 12.82 hrs Surf.Area= 1,613 sf Storage= 3,993 cf
Flood Elev= 624.50' Surf.Area= 925 sf Storage= 1,728 cf
Plug-Flow detention time= 0.7 min calculated for 24.206 af (100% of inflow)
Center-of-Mass det. time= 0.5 min (891.1 - 890.5)

#	Invert	Avail.Storage	Storage Description
1	619.60'	7,280 cf	**Custom Stage Data (Conic)** Listed below

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
619.60	0	0	0	0
620.00	10	1	1	10
622.00	260	214	215	269
624.00	760	976	1,192	793
626.00	1,420	2,146	3,338	1,492
628.00	2,580	3,943	7,280	2,694

#	Routing	Invert	Outlet Devices
1	Primary	619.60'	**24.0" x 150.0' long Culvert** RCP, end-section conforming to fill, Ke= 0.500 Outlet Invert= 608.00' S= 0.0773 '/' n= 0.012 Cc= 0.900
2	Discarded	624.50'	**166.0 deg Sharp-Crested Vee/Trap Weir** C= 2.46

Discarded OutFlow Max=91.09 cfs @ 12.82 hrs HW=626.33' (Free Discharge)
└─**2=Sharp-Crested Vee/Trap Weir** (Weir Controls 91.09 cfs @ 3.3 fps)

Primary OutFlow Max=36.22 cfs @ 12.82 hrs HW=626.33' TW=607.68' (Dynamic Tailwater)
└─**1=Culvert** (Inlet Controls 36.22 cfs @ 11.5 fps)

Pond zDP3: Design Point 3

Inflow Area =	228.471 ac,	Inflow Depth = 19.48"	for 100-yr event	
Inflow =	307.06 cfs @	12.39 hrs, Volume=	370.914 af	
Primary =	307.06 cfs @	12.39 hrs, Volume=	370.914 af,	Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

Pond zDP4: Design Point 4

Inflow Area =	459.188 ac,	Inflow Depth = 2.59"	for 100-yr event	
Inflow =	37.64 cfs @	20.82 hrs, Volume=	99.293 af	
Primary =	37.64 cfs @	20.82 hrs, Volume=	99.293 af,	Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

Pond zDP5: Design Point 5

Inflow Area =	28.325 ac,	Inflow Depth = 3.62"	for 100-yr event	
Inflow =	67.08 cfs @	12.45 hrs, Volume=	8.541 af	
Primary =	67.08 cfs @	12.45 hrs, Volume=	8.541 af,	Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

Appendix L:
Design Calculations

10454.01 SILO RIDGE COUNTRY GOLF RESORT COMMUNITY
STORMWATER - EXISTING CONDITIONS
SUBCATCHMENT STATISTICS

Subcatchment #			**s01**	**s02**	**s03**	**s04**	**s05**	**s06**	**s06(OW)**	**s07**
Total Area (sq.ft.)			500,284	4,256,334	660,980	496,709	650,587	392,339	18,652	296,676
Total Area (Ac.)			**11.485**	**97.712**	**15.174**	**11.403**	**14.935**	**9.007**	**0.428**	**6.811**
Composite CN			**68**	**65**	**69**	**65**	**61**	**62**	**100**	**64**
Tc (min.)			**42.8**	**61.3**	**28.8**	**6.5**	**17.3**	**17.3**	**0.0**	**13.9**

Land Use	HSG	CN	Area (sq.ft.)	Area (sq.ft.)	Area (sq.ft.)	Area (sq.ft.)	Area (sq.ft.)	Area (sq.ft.)	Area (sq.ft.)	Area (sq.ft.)
Impervious	n/a	98	27,212	154,201	48,276	26,764	7,763	0	0	0
Open Water	n/a	100	0	0	0	0	0	0	18,652	0
Open Space	A	39	0	0	0	0	0	0	0	0
(good condition)	B	61	0	89,888	5,413	0	247,015	369,612	0	156,861
	C	74	0	163,946	0	0	0	0	0	32,368
	D	80	0	39,509	0	0	0	22,727	0	0
Brush	A	30	0	0	0	0	0	0	0	0
(good condition)	B	48	0	342,297	0	100,402	113,197	0	0	0
	C	65	69,152	354,706	356,613	158,627	270,880	0	0	107,448
	D	73	0	9,429	0	0	0	0	0	0
Woods	A	30	0	0	0	0	0	0	0	0
(good condition)	B	55	82,999	1,328,763	21,986	20,395	0	0	0	0
	C	70	320,920	1,566,601	228,693	190,521	11,731	0	0	0
	D	77	0	206,994	0	0	0	0	0	0

SHEET FLOW								
Flow length (ft.)	150	150	20		100	100		100
Slope (ft./ft.)	0.03	0.07	0.03		0.09	0.12		0.11
Manning's n for sheet flow	0.6	0.6	0.011		0.24	0.24		0.24
2-year, 24-hour rainfall (in.)	3.4	3.4	3.4	3.4	3.4	3.4	3.4	3.4
Travel time (min.)	**33.9**	**24.1**	**0.3**	**0.0**	**7.6**	**6.8**	**0.0**	**7.0**
SHALLOW CONCENTRATED								
Flow length (ft.)	420	2100	1480	1030	1470	490		1130
Slope (ft./ft.)	0.29	0.15	0.12	0.16	0.13	0.04		0.15
Kv (fps)	2.5	2.5	2.5	7.0	7.0	7.0		7.0
Travel time (min.)	**5.2**	**36.1**	**28.5**	**6.1**	**9.7**	**5.8**	**0.0**	**6.9**
SHALLOW CONCENTRATED								
Flow length (ft.)	340					630		
Slope (ft./ft.)	0.09					0.10		
Kv (fps)	7.0					7.0		
Travel time (min.)	**2.7**	**0.0**	**0.0**	**0.0**	**0.0**	**4.7**	**0.0**	**0.0**
OPEN CHANNEL OR PIPE								
Flow length (ft.)	650	1700		210				
Slope (ft./ft.)	0.08	0.12		0.08				
Manning's n for channel flow	0.027	0.04		0.045				
Open Channel - Bottom width (ft.)	2	5		4				
Open Channel - Side slopes	3	2		5				
Open Channel - Bank full depth (ft.)	1	6		2				
Pipe - Diameter (in.)								
Travel time (min.)	**1.0**	**1.0**	**0.0**	**0.3**	**0.0**	**0.0**	**0.0**	**0.0**
Time of Concentration (min.)	**42.8**	**61.3**	**28.8**	**6.5**	**17.3**	**17.3**	**0.0**	**13.9**

10454.01 SILO RIDGE COUNTRY GOLF RESORT COMMUNITY
STORMWATER - EXISTING CONDITIONS
SUBCATCHMENT STATISTICS

Subcatchment #			**s07(OW)**	**s08**	**s09**	**s10**	**s10(OW)**	**s11**	**s11(IC)**	**s12**
Total Area (sq.ft.)			22,053	1,381,698	368,154	354,148	36,160	102,963	101,851	279,676
Total Area (Ac.)			**0.506**	**31.719**	**8.452**	**8.130**	**0.830**	**2.364**	**2.338**	**6.420**
Composite CN			**100**	**58**	**65**	**67**	**100**	**69**	**98**	**55**
Tc (min.)			**0.0**	**21.8**	**16.4**	**27.9**	**0.0**	**20.5**	**2.8**	**42.0**
Land Use	HSG	CN	Area (sq.ft.)	Area (sq.ft.)	Area (sq.ft.)	Area (sq.ft.)	Area (sq.ft.)	Area (sq.ft.)	Area (sq.ft.)	Area (sq.ft.)
Impervious	n/a	98	0	25,133	0	4,456	0	0	101,851	13,714
Open Water	n/a	100	22,053	0	0	0	36,160	0	0	0
Open Space	A	39	0	0	0	0	0	0	0	0
(good condition)	B	61	0	827,510	175,170	47,339	0	30,880	0	0
	C	74	0	0	63,353	0	0	36,519	0	0
	D	80	0	6,225	0	152,794	0	0	0	0
Brush	A	30	0	0	0	0	0	0	0	0
(good condition)	B	48	0	390,480	0	0	0	0	0	108,715
	C	65	0	56,290	6,166	0	0	3,551	0	21,152
	D	73	0	0	0	0	0	0	0	0
Woods	A	30	0	0	0	0	0	0	0	0
(good condition)	B	55	0	72,256	42,952	145,968	0	0	0	136,095
	C	70	0	0	80,513	0	0	32,014	0	0
	D	77	0	3,804	0	3,591	0	0	0	0

	s07(OW)	s08	s09	s10	s10(OW)	s11	s11(IC)	s12
SHEET FLOW								
Flow length (ft.)		100	90	130		150	50	150
Slope (ft./ft.)		0.16	0.21	0.09		0.26	0.03	0.10
Manning's n for sheet flow		0.24	0.6	0.6		0.6	0.011	0.24
2-year, 24-hour rainfall (in.)	3.4	3.4	3.4	3.4	3.4	3.4	3.4	3.4
Travel time (min.)	**0.0**	**6.0**	**10.3**	**19.5**	**0.0**	**14.3**	**0.6**	**10.1**
SHALLOW CONCENTRATED								
Flow length (ft.)		280	210	150		200	240	64
Slope (ft./ft.)		0.17	0.36	0.23		0.30	0.03	0.14
Kv (fps)		7.0	2.5	2.5		2.5	20.3	7.0
Travel time (min.)	**0.0**	**1.6**	**2.3**	**2.1**	**0.0**	**2.4**	**1.1**	**0.4**
SHALLOW CONCENTRATED								
Flow length (ft.)		1550	560	600		360		562
Slope (ft./ft.)		0.07	0.13	0.05		0.10		0.01
Kv (fps)		7.0	7.0	7.0		7.0		2.5
Travel time (min.)	**0.0**	**13.9**	**3.7**	**6.4**	**0.0**	**2.7**	**0.0**	**31.4**
OPEN CHANNEL OR PIPE								
Flow length (ft.)		65				520	520	
Slope (ft./ft.)		0.020				0.01	0.01	
Manning's n for channel flow		0.06				0.012	0.012	
Open Channel - Bottom width (ft.)		8						
Open Channel - Side slopes		1						
Open Channel - Bank full depth (ft.)		4						
Pipe - Diameter (in.)						24	24	
Travel time (min.)	**0.0**	**0.2**	**0.0**	**0.0**	**0.0**	**1.1**	**1.1**	**0.0**
Time of Concentration (min.)	**0.0**	**21.8**	**16.4**	**27.9**	**0.0**	**20.5**	**2.8**	**42.0**

10454.01 SILO RIDGE COUNTRY GOLF RESORT COMMUNITY
STORMWATER - EXISTING CONDITIONS
SUBCATCHMENT STATISTICS

Subcatchment #			**s13**	**s14**	**s14(IC)**	**s14(OW)**	**s15**	**s16**	**s16(IC)**	**s16(OW)**
Total Area (sq.ft.)			15,256	786,944	103,664	22,563	46,503	2,961,820	114,515	233,105
Total Area (Ac.)			**0.350**	**18.066**	**2.380**	**0.518**	**1.068**	**67.994**	**2.629**	**5.351**
Composite CN			**55**	**64**	**98**	**100**	**51**	**66**	**98**	**100**
Tc (min.)			**8.6**	**28.1**	**2.3**	**0.0**	**13.1**	**22.3**	**2.9**	**0.0**
Land Use	HSG	CN	Area (sq.ft.)	Area (sq.ft.)	Area (sq.ft.)	Area (sq.ft.)	Area (sq.ft.)	Area (sq.ft.)	Area (sq.ft.)	Area (sq.ft.)
Impervious	n/a	98	0	0	103,664	0	0	0	114,515	0
Open Water	n/a	100	0	0	0	22,563	0	0	0	233,105
Open Space	A	39	0	0	0	0	0	0	0	0
(good condition)	B	61	0	60,933	0	0	0	848,071	0	0
	C	74	0	0	0	0	0	414,618	0	0
	D	80	0	55,295	0	0	0	263,145	0	0
Brush	A	30	0	0	0	0	0	0	0	0
(good condition)	B	48	0	83,704	0	0	24,787	175,490	0	0
	C	65	0	0	0	0	0	994,221	0	0
	D	73	0	94,487	0	0	0	5,762	0	0
Woods	A	30	0	0	0	0	0	0	0	0
(good condition)	B	55	15,256	290,388	0	0	21,716	33,458	0	0
	C	70	0	0	0	0	0	94,539	0	0
	D	77	0	202,136	0	0	0	132,517	0	0

	s13	s14	s14(IC)	s14(OW)	s15	s16	s16(IC)	s16(OW)
SHEET FLOW								
Flow length (ft.)	90	150	20		150	150	80	
Slope (ft./ft.)	0.33	0.25	0.04		0.11	0.15	0.04	
Manning's n for sheet flow	0.6	0.6	0.011		0.24	0.24	0.011	
2-year, 24-hour rainfall (in.)	3.4	3.4	3.4	3.4	3.4	3.4	3.4	3.4
Travel time (min.)	**8.6**	**14.5**	**0.2**	**0.0**	**9.6**	**8.6**	**0.7**	**0.0**
SHALLOW CONCENTRATED								
Flow length (ft.)		295	235		144	470	150	
Slope (ft./ft.)		0.13	0.01		0.11	0.17	0.04	
Kv (fps)		2.5	20.3		7.0	7.0	20.3	
Travel time (min.)	**0.0**	**5.5**	**1.9**	**0.0**	**1.0**	**2.7**	**0.6**	**0.0**
SHALLOW CONCENTRATED								
Flow length (ft.)		760			131	890		
Slope (ft./ft.)		0.05			0.12	0.04		
Kv (fps)		7.0			2.5	7.0		
Travel time (min.)	**0.0**	**8.1**	**0.0**	**0.0**	**2.5**	**10.6**	**0.0**	**0.0**
OPEN CHANNEL OR PIPE								
Flow length (ft.)			130			400	2070	
Slope (ft./ft.)			0.03			0.02	0.05	
Manning's n for channel flow			0.012			0.012	0.012	
Open Channel - Bottom width (ft.)								
Open Channel - Side slopes								
Open Channel - Bank full depth (ft.)								
Pipe - Diameter (in.)			24			36	36	
Travel time (min.)	**0.0**	**0.0**	**0.2**	**0.0**	**0.0**	**0.5**	**1.5**	**0.0**
Time of Concentration (min.)	**8.6**	**28.1**	**2.3**	**0.0**	**13.1**	**22.3**	**2.9**	**0.0**

10454.01 SILO RIDGE COUNTRY GOLF RESORT COMMUNITY
STORMWATER - EXISTING CONDITIONS
SUBCATCHMENT STATISTICS

Subcatchment #			**s17**	**s17(OW)**	**s18**	**s18(OW)**	**s19**	**s20**	**s20(OW)**	**s21**
Total Area (sq.ft.)			5,045,436	7,156	986,815	20,560	676,035	812,610	85,729	4,184,190
Total Area (Ac.)			**115.827**	**0.164**	**22.654**	**0.472**	**15.520**	**18.655**	**1.968**	**96.056**
Composite CN			**66**	**100**	**67**	**100**	**60**	**69**	**100**	**68**
Tc (min.)			**125.2**	**0.0**	**24.4**	**0.0**	**40.4**	**33.9**	**0.0**	**26.7**
Land Use	HSG	CN	Area (sq.ft.)	Area (sq.ft.)	Area (sq.ft.)	Area (sq.ft.)	Area (sq.ft.)	Area (sq.ft.)	Area (sq.ft.)	Area (sq.ft.)
Impervious	n/a	98	48,140	0	0	0	0	0	0	88,484
Open Water	n/a	100	0	7,156	0	20,560	0	0	85,729	0
Open Space	A	39	0	0	0	0	0	0	0	0
(good condition)	B	61	26,475	0	196,514	0	0	113,046	0	308,999
	C	74	75,456	0	63,398	0	0	224,042	0	427,921
	D	80	0	0	17,033	0	0	0	0	46,080
Brush	A	30	0	0	0	0	0	0	0	0
(good condition)	B	48	0	0	22,245	0	0	0	0	457,135
	C	65	324,679	0	64,022	0	0	3,473	0	68,092
	D	73	0	0	0	0	0	0	0	401,560
Woods	A	30	0	0	0	0	0	0	0	0
(good condition)	B	55	1,275,839	0	68,490	0	448,248	71,428	0	773,186
	C	70	3,294,848	0	555,112	0	227,787	400,621	0	226,467
	D	77	0	0	0	0	0	0	0	1,386,265

SHEET FLOW								
Flow length (ft.)	150		150		150	150		150
Slope (ft./ft.)	0.10		0.41		0.07	0.06		0.30
Manning's n for sheet flow	0.6		0.6		0.6	0.6		0.6
2-year, 24-hour rainfall (in.)	3.4	3.4	3.4	3.4	3.4	3.4	3.4	3.4
Travel time (min.)	**20.9**	**0.0**	**11.9**	**0.0**	**24.1**	**25.7**	**0.0**	**13.5**
SHALLOW CONCENTRATED								
Flow length (ft.)	1700		1120		810	770		206
Slope (ft./ft.)	0.14		0.43		0.11	0.52		0.25
Kv (fps)	2.5		2.5		2.5	2.5		2.5
Travel time (min.)	**30.3**	**0.0**	**11.4**	**0.0**	**16.3**	**7.1**	**0.0**	**2.7**
SHALLOW CONCENTRATED								
Flow length (ft.)	3330		140			160		1206
Slope (ft./ft.)	0.09		0.09			0.13		0.07
Kv (fps)	2.5		7.0			7.0		7.0
Travel time (min.)	**74.0**	**0.0**	**1.1**	**0.0**	**0.0**	**1.1**	**0.0**	**10.5**
OPEN CHANNEL OR PIPE								
Flow length (ft.)								
Slope (ft./ft.)								
Manning's n for channel flow								
Open Channel - Bottom width (ft.)								
Open Channel - Side slopes								
Open Channel - Bank full depth (ft.)								
Pipe - Diameter (in.)								
Travel time (min.)	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**
Time of Concentration (min.)	**125.2**	**0.0**	**24.4**	**0.0**	**40.4**	**33.9**	**0.0**	**26.7**

10454.01 SILO RIDGE COUNTRY GOLF RESORT COMMUNITY
STORMWATER - EXISTING CONDITIONS
SUBCATCHMENT STATISTICS

Subcatchment #			**s21(OW)**	**s22**	**s22(OW)**	**s23**	**s24**	**s25**
Total Area (sq.ft.)			532,953	3,584,440	5,908	1,811,550	1,233,858	590,760
Total Area (Ac.)			**12.235**	**82.287**	**0.136**	**41.587**	**28.325**	**13.562**
Composite CN			**100**	**69**	**100**	**72**	**70**	**66**
Tc (min.)			**0.0**	**31.3**	**0.0**	**47.0**	**30.7**	**20.2**
Land Use	HSG	CN	Area (sq.ft.)	Area (sq.ft.)	Area (sq.ft.)	Area (sq.ft.)	Area (sq.ft.)	Area (sq.ft.)
Impervious	n/a	98	0	0	0	0	51,416	827
Open Water	n/a	100	532,953	0	5,908	0	0	0
Open Space	A	39	0	0	0	0	0	0
(good condition)	B	61	0	52,966	0	0	0	297,744
	C	74	0	374,915	0	0	0	0
	D	80	0	0	0	60,413	0	149,068
Brush	A	30	0	0	0	0	0	0
(good condition)	B	48	0	0	0	17,593	65,641	0
	C	65	0	0	0	0	0	0
	D	73	0	0	0	627,888	624,972	43,255
Woods	A	30	0	0	0	0	0	0
(good condition)	B	55	0	418,537	0	31,436	268,274	80,367
	C	70	0	2,738,021	0	899,506	0	0
	D	77	0	0	0	174,714	223,556	19,499

SHEET FLOW						
Flow length (ft.)		150		150	150	150
Slope (ft./ft.)		0.23		0.13	0.13	0.07
Manning's n for sheet flow		0.6		0.6	0.6	0.24
2-year, 24-hour rainfall (in.)	3.4	3.4	3.4	3.4	3.4	3.4
Travel time (min.)	**0.0**	**15.0**	**0.0**	**18.9**	**18.8**	**11.6**
SHALLOW CONCENTRATED						
Flow length (ft.)		1310		1290	152	285
Slope (ft./ft.)		0.42		0.39	0.17	0.16
Kv (fps)		2.5		2.5	2.5	7.0
Travel time (min.)	**0.0**	**13.5**	**0.0**	**13.8**	**2.4**	**1.7**
SHALLOW CONCENTRATED						
Flow length (ft.)		430		1480	1084	225
Slope (ft./ft.)		0.15		0.06	0.07	0.04
Kv (fps)		7.0		7.0	7.0	7.0
Travel time (min.)	**0.0**	**2.6**	**0.0**	**14.4**	**9.4**	**2.7**
OPEN CHANNEL OR PIPE						
Flow length (ft.)		210				575
Slope (ft./ft.)		0.06				0.01
Manning's n for channel flow		0.012				0.045
Open Channel - Bottom width (ft.)						15
Open Channel - Side slopes						7.5
Open Channel - Bank full depth (ft.)						1
Pipe - Diameter (in.)		36				
Travel time (min.)	**0.0**	**0.1**	**0.0**	**0.0**	**0.0**	**4.2**
Time of Concentration (min.)	**0.0**	**31.3**	**0.0**	**47.0**	**30.7**	**20.2**

10454.01 SILO RIDGE COUNTRY GOLF RESORT COMMUNITY
STORMWATER - PROPOSED CONDITIONS
SUBCATCHMENT STATISTICS

Subcatchment #			**s01-0**	**s02-1**	**s02-2**	**s02-3**	**s03-1**	**s03-2**	**s03-2(IC)**	**s03-2(OW)**
Total Area (sq.ft.)			500,284	3,728,339	338,709	178,094	454,566	131,602	72,450	2,362
Total Area (Ac.)			**11.485**	**85.591**	**7.776**	**4.088**	**10.435**	**3.021**	**1.663**	**0.054**
Composite CN			**68**	**65**	**66**	**86**	**70**	**74**	**98**	**100**
Tc (min.)			**42.8**	**61.3**	**29.4**	**1.6**	**28.8**	**1.5**	**1.5**	**0.0**

Land Use	HSG	CN	Area (sq.ft.)	Area (sq.ft.)	Area (sq.ft.)	Area (sq.ft.)	Area (sq.ft.)	Area (sq.ft.)	Area (sq.ft.)	Area (sq.ft.)
Impervious	n/a	98	27,212	124,310	29,794	81,609	38,120	0	72,450	0
Open Water	n/a	100	0	0	0	0	0	0	0	2,362
Open Space	A	39	0	0	0	0	0	0	0	0
(good condition)	B	61	0	59,500	30,292	0	5,413	0	0	0
	C	74	0	163,945	0	0	0	131,602	0	0
	D	80	0	39,509	33,422	80,809	0	0	0	0
Brush	A	30	0	0	0	0	0	0	0	0
(good condition)	B	48	0	148,070	75,018	5,299	0	0	0	0
	C	65	69,152	105,460	146,030	10,378	160,355	0	0	0
	D	73	0	9,429	0	0	0	0	0	0
Woods	A	30	0	0	0	0	0	0	0	0
(good condition)	B	55	82,999	1,328,759	0	0	21,986	0	0	0
	C	70	320,921	1,542,365	24,152	0	228,692	0	0	0
	D	77	0	206,993	0	0	0	0	0	0

Subcatchment #	**s01-0**	**s02-1**	**s02-2**	**s02-3**	**s03-1**	**s03-2**	**s03-2(IC)**	**s03-2(OW)**
SHEET FLOW								
Flow length (ft.)	150	150	150	100	20	50	50	
Slope (ft./ft.)	0.03	0.07	0.13	0.17	0.03	0.04	0.04	
Manning's n for sheet flow	0.6	0.6	0.6	0.011	0.011	0.011	0.011	
2-year, 24-hour rainfall (in.)	3.4	3.4	3.4	3.4	3.4	3.4	3.4	3.4
Travel time (min.)	**33.9**	**24.1**	**18.9**	**0.5**	**0.3**	**0.5**	**0.5**	**0.0**
SHALLOW CONCENTRATED								
Flow length (ft.)	420	2100	570	180	1480	80	80	
Slope (ft./ft.)	0.29	0.15	0.22	0.05	0.12	0.13	0.13	
Kv (fps)	2.5	2.5	2.5	20.3	2.5	7.0	7.0	
Travel time (min.)	**5.2**	**36.1**	**8.1**	**0.7**	**28.5**	**0.5**	**0.5**	**0.0**
SHALLOW CONCENTRATED								
Flow length (ft.)	340		240					
Slope (ft./ft.)	0.09		0.15					
Kv (fps)	7.0		7.0					
Travel time (min.)	**2.7**	**0.0**	**1.5**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**
OPEN CHANNEL OR PIPE								
Flow length (ft.)	650	1700	640	730		600	600	
Slope (ft./ft.)	0.08	0.12	0.08	0.11		0.08	0.08	
Manning's n for channel flow	0.027	0.04	0.027	0.012		0.012	0.012	
Open Channel - Bottom width (ft.)	2	5	2					
Open Channel - Side slopes	3	2	3					
Open Channel - Bank full depth (ft.)	1	6	1					
Pipe - Diameter (in.)				30		24	24	
Travel time (min.)	**1.0**	**1.0**	**1.0**	**0.4**	**0.0**	**0.5**	**0.5**	**0.0**
Time of Concentration (min.)	**42.8**	**61.3**	**29.4**	**1.6**	**28.8**	**1.5**	**1.5**	**0.0**

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STORMWATER - PROPOSED CONDITIONS
SUBCATCHMENT STATISTICS

Subcatchment #			**s04-1**	**s05-1**	**s06-0**	**s06-0(OW)**	**s07-1**	**s07-1(OW)**	**s08-1**	**s08-2**
Total Area (sq.ft.)			328,852	298,028	392,339	18,652	202,800	22,053	1,007,378	390,196
Total Area (Ac.)			**7.549**	**6.842**	**9.007**	**0.428**	**4.656**	**0.506**	**23.126**	**8.958**
Composite CN			**68**	**61**	**62**	**100**	**64**	**100**	**60**	**63**
Tc (min.)			**6.1**	**14.4**	**17.3**	**0.0**	**9.3**	**0.0**	**24.5**	**11.4**
Land Use	HSG	CN	Area (sq.ft.)	Area (sq.ft.)	Area (sq.ft.)	Area (sq.ft.)	Area (sq.ft.)	Area (sq.ft.)	Area (sq.ft.)	Area (sq.ft.)
Impervious	n/a	98	0	0	0	0	0	0	6,637	0
Open Water	n/a	100	0	0	0	18,652	0	22,053	0	0
Open Space (good condition)	A	39	0	0	0	0	0	0	0	0
	B	61	0	267,689	369,612	0	160,287	0	836,719	180,706
	C	74	13,811	13,094	0	0	42,513	0	0	48,324
	D	80	0	0	22,727	0	0	0	6,256	0
Brush (good condition)	A	30	0	0	0	0	0	0	0	0
	B	48	0	17,245	0	0	0	0	81,324	26,228
	C	65	129,457	0	0	0	0	0	0	118,030
	D	73	0	0	0	0	0	0	0	0
Woods (good condition)	A	30	0	0	0	0	0	0	0	0
	B	55	0	0	0	0	0	0	72,619	0
	C	70	185,584	0	0	0	0	0	0	16,909
	D	77	0	0	0	0	0	0	3,823	0

Subcatchment #	**s04-1**	**s05-1**	**s06-0**	**s06-0(OW)**	**s07-1**	**s07-1(OW)**	**s08-1**	**s08-2**
SHEET FLOW								
Flow length (ft.)		100	100		95		150	120
Slope (ft./ft.)		0.14	0.12		0.14		0.21	0.08
Manning's n for sheet flow		0.24	0.24		0.24		0.24	0.24
2-year, 24-hour rainfall (in.)	3.4	3.4	3.4	3.4	3.4	3.4	3.4	3.4
Travel time (min.)	**0.0**	**6.4**	**6.8**	**0.0**	**6.1**	**0.0**	**7.5**	**9.2**
SHALLOW CONCENTRATED								
Flow length (ft.)	990	830	490		485		1105	25
Slope (ft./ft.)	0.15	0.06	0.04		0.13		0.08	0.04
Kv (fps)	7.0	7.0	7.0		7.0		7.0	20.3
Travel time (min.)	**6.1**	**8.1**	**5.8**	**0.0**	**3.2**	**0.0**	**9.3**	**0.1**
SHALLOW CONCENTRATED								
Flow length (ft.)			630				450	
Slope (ft./ft.)			0.10				0.02	
Kv (fps)			7.0				7.0	
Travel time (min.)	**0.0**	**0.0**	**4.7**	**0.0**	**0.0**	**0.0**	**7.6**	**0.0**
OPEN CHANNEL OR PIPE								
Flow length (ft.)							65	2160
Slope (ft./ft.)							0.020	0.050
Manning's n for channel flow							0.06	0.012
Open Channel - Bottom width (ft.)							8	
Open Channel - Side slopes							1	
Open Channel - Bank full depth (ft.)							4	
Pipe - Diameter (in.)								24
Travel time (min.)	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.2**	**2.1**
Time of Concentration (min.)	**6.1**	**14.4**	**17.3**	**0.0**	**9.3**	**0.0**	**24.5**	**11.4**

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Subcatchment #			**s08-2(IC)**	**s08-2(OW)**	**s08-3**	**s08-3(IC)**	**s08-3(OW)**	**s09-1**	**s09-2**	**s09-2(IC)**
Total Area (sq.ft.)			240,632	8,377	74,072	47,304	1,849	113,411	810,566	101,750
Total Area (Ac.)			**5.524**	**0.192**	**1.700**	**1.086**	**0.042**	**2.604**	**18.608**	**2.336**
Composite CN			**98**	**100**	**61**	**98**	**100**	**60**	**67**	**98**
Tc (min.)			**2.9**	**0.0**	**13.6**	**1.0**	**0.0**	**9.0**	**20.6**	**2.5**
Land Use	HSG	CN	Area (sq.ft.)	Area (sq.ft.)	Area (sq.ft.)	Area (sq.ft.)	Area (sq.ft.)	Area (sq.ft.)	Area (sq.ft.)	Area (sq.ft.)
Impervious	n/a	98	240,632	0	0	47,304	0	0	0	101,750
Open Water	n/a	100	0	8,377	0	0	1,849	0	0	0
Open Space	A	39	0	0	0	0	0	0	0	0
(good condition)	B	61	0	0	74,072	0	0	88,876	16,371	0
	C	74	0	0	0	0	0	0	149,060	0
	D	80	0	0	0	0	0	0	0	0
Brush	A	30	0	0	0	0	0	0	0	0
(good condition)	B	48	0	0	0	0	0	0	0	0
	C	65	0	0	0	0	0	0	547,008	0
	D	73	0	0	0	0	0	0	0	0
Woods	A	30	0	0	0	0	0	0	0	0
(good condition)	B	55	0	0	0	0	0	24,535	0	0
	C	70	0	0	0	0	0	0	98,126	0
	D	77	0	0	0	0	0	0	0	0

Subcatchment #	**s08-2(IC)**	**s08-2(OW)**	**s08-3**	**s08-3(IC)**	**s08-3(OW)**	**s09-1**	**s09-2**	**s09-2(IC)**
SHEET FLOW								
Flow length (ft.)	35		150	70		105	150	150
Slope (ft./ft.)	0.03		0.09	0.08		0.10	0.16	0.03
Manning's n for sheet flow	0.011		0.24	0.011		0.24	0.24	0.011
2-year, 24-hour rainfall (in.)	3.4	3.4	3.4	3.4	3.4	3.4	3.4	4.4
Travel time (min.)	**0.4**	**0.0**	**10.5**	**0.5**	**0.0**	**7.6**	**8.3**	**1.2**
SHALLOW CONCENTRATED								
Flow length (ft.)	130		410			50	995	100
Slope (ft./ft.)	0.03		0.10			0.24	0.13	0.09
Kv (fps)	20.3		7.0			7.0	7.0	20.3
Travel time (min.)	**0.6**	**0.0**	**3.1**	**0.0**	**0.0**	**0.2**	**6.6**	**0.3**
SHALLOW CONCENTRATED								
Flow length (ft.)							400	
Slope (ft./ft.)							0.03	
Kv (fps)							7.0	
Travel time (min.)	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**5.5**	**0.0**
OPEN CHANNEL OR PIPE								
Flow length (ft.)	2105			400		540	310	940
Slope (ft./ft.)	0.06			0.080		0.05	0.09	0.06
Manning's n for channel flow	0.012			0.012		0.027	0.012	0.012
Open Channel - Bottom width (ft.)						15		
Open Channel - Side slopes						3		
Open Channel - Bank full depth (ft.)						0.5		
Pipe - Diameter (in.)	24			12			24	18
Travel time (min.)	**1.8**	**0.0**	**0.0**	**0.5**	**0.0**	**1.2**	**0.2**	**1.0**
Time of Concentration (min.)	**2.9**	**0.0**	**13.6**	**1.0**	**0.0**	**9.0**	**20.6**	**2.5**

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Subcatchment #			**s09-2(OW)**	**s09-3**	**s10-1**	**s10-1(OW)**	**s13-1**	**s13-1(IC)**	**s13-1(OW)**	**s14-1**
Total Area (sq.ft.)			10,285	166,298	350,123	36,160	154,850	277,041	5,725	597,966
Total Area (Ac.)			**0.236**	**3.818**	**8.038**	**0.830**	**3.555**	**6.360**	**0.131**	**13.727**
Composite CN			**100**	**68**	**68**	**100**	**61**	**98**	**100**	**69**
Tc (min.)			**0.0**	**10.9**	**27.9**	**0.0**	**2.8**	**2.8**	**0.0**	**28.1**
Land Use	HSG	CN	Area (sq.ft.)	Area (sq.ft.)	Area (sq.ft.)	Area (sq.ft.)	Area (sq.ft.)	Area (sq.ft.)	Area (sq.ft.)	Area (sq.ft.)
Impervious	n/a	98	0	1,491	4,456	0	0	277,041	0	0
Open Water	n/a	100	10,285	0	0	36,160	0	0	5,725	0
Open Space	A	39	0	0	0	0	0	0	0	0
(good condition)	B	61	0	75,342	52,781	0	154,850	0	0	113,977
	C	74	0	74,024	0	0	0	0	0	0
	D	80	0	0	152,794	0	0	0	0	55,324
Brush	A	30	0	0	0	0	0	0	0	0
(good condition)	B	48	0	0	0	0	0	0	0	0
	C	65	0	0	0	0	0	0	0	0
	D	73	0	0	0	0	0	0	0	94,535
Woods	A	30	0	0	0	0	0	0	0	0
(good condition)	B	55	0	0	136,501	0	0	0	0	131,871
	C	70	0	15,442	0	0	0	0	0	0
	D	77	0	0	3,591	0	0	0	0	202,259

Subcatchment #	**s09-2(OW)**	**s09-3**	**s10-1**	**s10-1(OW)**	**s13-1**	**s13-1(IC)**	**s13-1(OW)**	**s14-1**
SHEET FLOW								
Flow length (ft.)		150	130		12	12		150
Slope (ft./ft.)		0.17	0.09		0.02	0.02		0.25
Manning's n for sheet flow		0.24	0.6		0.011	0.011		0.6
2-year, 24-hour rainfall (in.)	3.4	3.4	3.4	3.4	3.4	3.4	3.4	3.4
Travel time (min.)	**0.0**	**8.1**	**19.5**	**0.0**	**0.2**	**0.2**	**0.0**	**14.5**
SHALLOW CONCENTRATED								
Flow length (ft.)		325	150		300	300		295
Slope (ft./ft.)		0.10	0.23		0.02	0.02		0.13
Kv (fps)		7.0	2.5		20.3	20.3		2.5
Travel time (min.)	**0.0**	**2.4**	**2.1**	**0.0**	**1.7**	**1.7**	**0.0**	**5.5**
SHALLOW CONCENTRATED								
Flow length (ft.)			600					760
Slope (ft./ft.)			0.05					0.05
Kv (fps)			7.0					7.0
Travel time (min.)	**0.0**	**0.0**	**6.4**	**0.0**	**0.0**	**0.0**	**0.0**	**8.1**
OPEN CHANNEL OR PIPE								
Flow length (ft.)		170			840	840		
Slope (ft./ft.)		0.09			0.03	0.03		
Manning's n for channel flow		0.027			0.012	0.012		
Open Channel - Bottom width (ft.)		15						
Open Channel - Side slopes		3						
Open Channel - Bank full depth (ft.)		0.5						
Pipe - Diameter (in.)					30	30		
Travel time (min.)	**0.0**	**0.3**	**0.0**	**0.0**	**0.9**	**0.9**	**0.0**	**0.0**
Time of Concentration (min.)	**0.0**	**10.9**	**27.9**	**0.0**	**2.8**	**2.8**	**0.0**	**28.1**

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Subcatchment #			**s14-1(IC)**	**s14-1(OW)**	**s14-2**	**s14-2(OW)**	**s14-3**	**s14-3(IC)**	**s16-1**	**s16-1(OW)**
Total Area (sq.ft.)			80,151	22,563	21,960	7,669	295,959	368,525	1,728,453	233,105
Total Area (Ac.)			**1.840**	**0.518**	**0.504**	**0.176**	**6.794**	**8.460**	**39.680**	**5.351**
Composite CN			**98**	**100**	**61**	**100**	**69**	**98**	**67**	**100**
Tc (min.)			**2.3**	**0.0**	**6.4**	**0.0**	**8.5**	**2.9**	**19.0**	**0.0**

Land Use	HSG	CN	Area (sq.ft.)	Area (sq.ft.)	Area (sq.ft.)	Area (sq.ft.)	Area (sq.ft.)	Area (sq.ft.)	Area (sq.ft.)	Area (sq.ft.)
Impervious	n/a	98	80,151	0	0	0	0	368,525	0	0
Open Water	n/a	100	0	22,563	0	7,669	0	0	0	233,105
Open Space	A	39	0	0	0	0	0	0	0	0
(good condition)	B	61	0	0	21,960	0	90,323	0	901,475	0
	C	74	0	0	0	0	174,097	0	392,889	0
	D	80	0	0	0	0	0	0	235,994	0
Brush	A	30	0	0	0	0	0	0	0	0
(good condition)	B	48	0	0	0	0	0	0	0	0
	C	65	0	0	0	0	31,539	0	198,095	0
	D	73	0	0	0	0	0	0	0	0
Woods	A	30	0	0	0	0	0	0	0	0
(good condition)	B	55	0	0	0	0	0	0	0	0
	C	70	0	0	0	0	0	0	0	0
	D	77	0	0	0	0	0	0	0	0

Subcatchment #	**s14-1(IC)**	**s14-1(OW)**	**s14-2**	**s14-2(OW)**	**s14-3**	**s14-3(IC)**	**s16-1**	**s16-1(OW)**
SHEET FLOW								
Flow length (ft.)	20		130		150	40	100	
Slope (ft./ft.)	0.04		0.23		0.31	0.05	0.16	
Manning's n for sheet flow	0.011		0.24		0.24	0.011	0.24	
2-year, 24-hour rainfall (in.)	3.4	3.4	3.4	3.4	3.4	3.4	3.4	3.4
Travel time (min.)	**0.2**	**0.0**	**6.4**	**0.0**	**6.4**	**0.4**	**6.0**	**0.0**
SHALLOW CONCENTRATED								
Flow length (ft.)	235				30	130	330	
Slope (ft./ft.)	0.01				0.03	0.02	0.17	
Kv (fps)	20.3				7.0	20.3	7.0	
Travel time (min.)	**1.9**	**0.0**	**0.0**	**0.0**	**0.4**	**0.8**	**1.9**	**0.0**
SHALLOW CONCENTRATED								
Flow length (ft.)					150		890	
Slope (ft./ft.)					0.05		0.04	
Kv (fps)					20.3		7.0	
Travel time (min.)	**0.0**	**0.0**	**0.0**	**0.0**	**0.6**	**0.0**	**10.6**	**0.0**
OPEN CHANNEL OR PIPE								
Flow length (ft.)	130				1415	2095	400	
Slope (ft./ft.)	0.03				0.05	0.05	0.02	
Manning's n for channel flow	0.012				0.012	0.012	0.012	
Open Channel - Bottom width (ft.)								
Open Channel - Side slopes								
Open Channel - Bank full depth (ft.)								
Pipe - Diameter (in.)	24				30	30	36	
Travel time (min.)	**0.2**	**0.0**	**0.0**	**0.0**	**1.2**	**1.7**	**0.5**	**0.0**
Time of Concentration (min.)	**2.3**	**0.0**	**6.4**	**0.0**	**8.5**	**2.9**	**19.0**	**0.0**

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Subcatchment #			**s16-2**	**s17-1**	**s17-1(OW)**	**s17-2**	**s17-3**	**s18-1**	**s18-1(OW)**	**s18-2**
Total Area (sq.ft.)			94,766	266,146	7,156	3,314,288	1,301,580	367,146	20,560	467,023
Total Area (Ac.)			**2.176**	**6.110**	**0.164**	**76.086**	**29.880**	**8.429**	**0.472**	**10.721**
Composite CN			**76**	**64**	**100**	**66**	**66**	**64**	**100**	**69**
Tc (min.)			**15.8**	**33.8**	**0.0**	**95.7**	**30.7**	**16.4**	**0.0**	**18.0**

Land Use	HSG	CN	Area (sq.ft.)	Area (sq.ft.)	Area (sq.ft.)	Area (sq.ft.)	Area (sq.ft.)	Area (sq.ft.)	Area (sq.ft.)	Area (sq.ft.)
Impervious	n/a	98	0	0	0	46,821	0	0	0	0
Open Water	n/a	100	0	0	7,156	0	0	0	20,560	0
Open Space	A	39	0	0	0	0	0	0	0	0
(good condition)	B	61	2,152	30,811	0	0	0	199,079	0	0
	C	74	0	0	0	84,708	43,360	86,894	0	22,599
	D	80	8,119	0	0	0	0	16,165	0	0
Brush	A	30	0	0	0	0	0	0	0	0
(good condition)	B	48	0	10,726	0	0	0	22,235	0	0
	C	65	0	38,075	0	524,806	0	9,704	0	0
	D	73	0	0	0	0	0	0	0	0
Woods	A	30	0	0	0	0	0	0	0	0
(good condition)	B	55	1,946	57,903	0	888,814	318,092	24,699	0	43,778
	C	70	0	128,631	0	1,769,139	940,128	8,369	0	400,646
	D	77	82,549	0	0	0	0	0	0	0

Subcatchment #	**s16-2**	**s17-1**	**s17-1(OW)**	**s17-2**	**s17-3**	**s18-1**	**s18-1(OW)**	**s18-2**
SHEET FLOW								
Flow length (ft.)	150	60		150	150	100		150
Slope (ft./ft.)	0.31	0.17		0.10	0.08	0.15		0.41
Manning's n for sheet flow	0.6	0.24		0.6	0.6	0.24		0.6
2-year, 24-hour rainfall (in.)	3.4	3.4	3.4	3.4	3.4	3.4	3.4	3.4
Travel time (min.)	**13.3**	**3.9**	**0.0**	**20.9**	**22.9**	**6.2**	**0.0**	**11.9**
SHALLOW CONCENTRATED								
Flow length (ft.)	140	360		1700	815	1140		635
Slope (ft./ft.)	0.14	0.11		0.14	0.52	0.07		0.58
Kv (fps)	2.5	7.0		2.5	2.5	7.0		2.5
Travel time (min.)	**2.5**	**2.6**	**0.0**	**30.3**	**7.5**	**10.3**	**0.0**	**5.6**
SHALLOW CONCENTRATED								
Flow length (ft.)		1160		2000				
Slope (ft./ft.)		0.08		0.09				
Kv (fps)		2.5		2.5				
Travel time (min.)	**0.0**	**27.3**	**0.0**	**44.4**	**0.0**	**0.0**	**0.0**	**0.0**
OPEN CHANNEL OR PIPE								
Flow length (ft.)					410			490
Slope (ft./ft.)					0.12			0.06
Manning's n for channel flow					0.027			0.027
Open Channel - Bottom width (ft.)					4			4
Open Channel - Side slopes					2			2
Open Channel - Bank full depth (ft.)					2			2
Pipe - Diameter (in.)								
Travel time (min.)	**0.0**	**0.0**	**0.0**	**0.0**	**0.3**	**0.0**	**0.0**	**0.5**
Time of Concentration (min.)	**15.8**	**33.8**	**0.0**	**95.7**	**30.7**	**16.4**	**0.0**	**18.0**

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Subcatchment #			**s19-0**	**s20-1**	**s20-1(OW)**	**s20-2**	**s20-2(IC)**	**s20-2(OW)**	**s20-3**	**s21-1**
Total Area (sq.ft.)			676,035	372,811	85,729	355,306	222,700	10,535	299,956	2,785,332
Total Area (Ac.)			**15.520**	**8.559**	**1.968**	**8.157**	**5.112**	**0.242**	**6.886**	**63.942**
Composite CN			**60**	**66**	**100**	**74**	**98**	**100**	**70**	**68**
Tc (min.)			**40.4**	**21.5**	**0.0**	**8.4**	**4.7**	**0.0**	**22.0**	**16.6**
Land Use	HSG	CN	Area (sq.ft.)	Area (sq.ft.)	Area (sq.ft.)	Area (sq.ft.)	Area (sq.ft.)	Area (sq.ft.)	Area (sq.ft.)	Area (sq.ft.)
Impervious	n/a	98	0	0	0	0	222,700	0	0	96,930
Open Water	n/a	100	0	0	85,729	0	0	10,535	0	0
Open Space (good condition)	A	39	0	0	0	0	0	0	0	0
	B	61	0	113,045	0	0	0	0	0	458,230
	C	74	0	161,003	0	355,306	0	0	22,335	36,657
	D	80	0	0	0	0	0	0	0	22,358
Brush (good condition)	A	30	0	0	0	0	0	0	0	0
	B	48	0	0	0	0	0	0	0	407,425
	C	65	0	0	0	0	0	0	0	40,120
	D	73	0	0	0	0	0	0	0	352,287
Woods (good condition)	A	30	0	0	0	0	0	0	0	0
	B	55	448,248	67,504	0	0	0	0	3,398	265,999
	C	70	227,787	31,259	0	0	0	0	274,223	0
	D	77	0	0	0	0	0	0	0	1,105,325

Subcatchment #	**s19-0**	**s20-1**	**s20-1(OW)**	**s20-2**	**s20-2(IC)**	**s20-2(OW)**	**s20-3**	**s21-1**
SHEET FLOW								
Flow length (ft.)	150	150		50	40		150	150
Slope (ft./ft.)	0.07	0.02		0.10	0.04		0.20	0.11
Manning's n for sheet flow	0.6	0.24		0.24	0.011		0.6	0.24
2-year, 24-hour rainfall (in.)	3.4	3.4	3.4	3.4	3.4	3.4	3.4	3.4
Travel time (min.)	**24.1**	**19.1**	**0.0**	**4.2**	**0.4**	**0.0**	**15.9**	**9.7**
SHALLOW CONCENTRATED								
Flow length (ft.)	810	165		300	300		685	420
Slope (ft./ft.)	0.11	0.03		0.07	0.07		0.56	0.12
Kv (fps)	2.5	7.0		20.3	20.3		2.5	7.0
Travel time (min.)	**16.3**	**2.3**	**0.0**	**0.9**	**0.9**	**0.0**	**6.1**	**2.9**
SHALLOW CONCENTRATED								
Flow length (ft.)								
Slope (ft./ft.)								
Kv (fps)								
Travel time (min.)	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**
OPEN CHANNEL OR PIPE								
Flow length (ft.)		125		2700	2700			641
Slope (ft./ft.)		0.32		0.03	0.03			0.01
Manning's n for channel flow		0.027		0.012	0.012			0.027
Open Channel - Bottom width (ft.)		5						10
Open Channel - Side slopes		2.5						20
Open Channel - Bank full depth (ft.)		1						0.5
Pipe - Diameter (in.)				24	24			
Travel time (min.)	**0.0**	**0.1**	**0.0**	**3.3**	**3.3**	**0.0**	**0.0**	**4.0**
Time of Concentration (min.)	**40.4**	**21.5**	**0.0**	**8.4**	**4.7**	**0.0**	**22.0**	**16.6**

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Subcatchment #			**s21-1(OW)**	**s21-2**	**s21-3**	**s21-4**	**s21-4(IC)**	**s21-4(OW)**	**s21-5**	**s21-6**
Total Area (sq.ft.)			532,953	912,179	373,187	147,753	71,581	5,112	104,457	237,956
Total Area (Ac.)			**12.235**	**20.941**	**8.567**	**3.392**	**1.643**	**0.117**	**2.398**	**5.463**
Composite CN			**100**	**70**	**74**	**67**	**98**	**100**	**75**	**76**
Tc (min.)			**0.0**	**31.4**	**11.2**	**13.8**	**1.6**	**0.0**	**13.9**	**17.5**
Land Use	HSG	CN	Area (sq.ft.)	Area (sq.ft.)	Area (sq.ft.)	Area (sq.ft.)	Area (sq.ft.)	Area (sq.ft.)	Area (sq.ft.)	Area (sq.ft.)
Impervious	n/a	98	0	0	0	0	71,581	0	9,459	0
Open Water	n/a	100	532,953	0	0	0	0	5,112	0	0
Open Space	A	39	0	0	0	0	0	0	0	0
(good condition)	B	61	0	0	0	65,537	0	0	0	0
	C	74	0	62,906	216,942	69,978	0	0	0	0
	D	80	0	0	80,724	4,825	0	0	0	48,207
Brush	A	30	0	0	0	0	0	0	0	0
(good condition)	B	48	0	0	0	0	0	0	0	2,439
	C	65	0	0	9,400	0	0	0	0	0
	D	73	0	0	12,071	0	0	0	0	0
Woods	A	30	0	0	0	0	0	0	0	0
(good condition)	B	55	0	39,608	0	7,413	0	0	19,232	9,137
	C	70	0	809,666	54,051	0	0	0	0	0
	D	77	0	0	0	0	0	0	75,766	178,173

Subcatchment #	**s21-1(OW)**	**s21-2**	**s21-3**	**s21-4**	**s21-4(IC)**	**s21-4(OW)**	**s21-5**	**s21-6**
SHEET FLOW								
Flow length (ft.)		150	150	150	12		150	80
Slope (ft./ft.)		0.12	0.19	0.07	0.02		0.47	0.09
Manning's n for sheet flow		0.6	0.24	0.24	0.011		0.6	0.6
2-year, 24-hour rainfall (in.)	3.4	3.4	3.4	3.4	3.4	3.4	3.4	3.4
Travel time (min.)	**0.0**	**19.4**	**7.8**	**11.6**	**0.2**	**0.0**	**11.3**	**13.2**
SHALLOW CONCENTRATED								
Flow length (ft.)		630	495	130	145		170	250
Slope (ft./ft.)		0.30	0.13	0.14	0.05		0.19	0.40
Kv (fps)		2.5	7.0	7.0	20.3		2.5	2.5
Travel time (min.)	**0.0**	**7.6**	**3.3**	**0.8**	**0.5**	**0.0**	**2.6**	**2.6**
SHALLOW CONCENTRATED								
Flow length (ft.)		475		145				170
Slope (ft./ft.)		0.54		0.05				0.06
Kv (fps)		2.5		20.3				7.0
Travel time (min.)	**0.0**	**4.3**	**0.0**	**0.5**	**0.0**	**0.0**	**0.0**	**1.7**
OPEN CHANNEL OR PIPE								
Flow length (ft.)		170	150	585	585			
Slope (ft./ft.)		0.65	0.05	0.02	0.02			
Manning's n for channel flow		0.027	0.027	0.012	0.012			
Open Channel - Bottom width (ft.)		4	4					
Open Channel - Side slopes		2	2					
Open Channel - Bank full depth (ft.)		2	2					
Pipe - Diameter (in.)				24	24			
Travel time (min.)	**0.0**	**0.1**	**0.2**	**0.9**	**0.9**	**0.0**	**0.0**	**0.0**
Time of Concentration (min.)	**0.0**	**31.4**	**11.2**	**13.8**	**1.6**	**0.0**	**13.9**	**17.5**

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Subcatchment #			**s21-6(IC)**	**s21-6(OW)**	**s21-7**	**s21-7(IC)**	**s21-7(OW)**	**s22-1**	**s22-1(OW)**	**s22-2**
Total Area (sq.ft.)			28,022	3,323	190,567	169,450	3,941	778,782	5,908	1,953,600
Total Area (Ac.)			**0.643**	**0.076**	**4.375**	**3.890**	**0.090**	**17.878**	**0.136**	**44.848**
Composite CN			**98**	**100**	**64**	**98**	**100**	**72**	**100**	**68**
Tc (min.)			**1.5**	**0.0**	**13.1**	**2.5**	**0.0**	**14.7**	**0.0**	**24.0**
Land Use	HSG	CN	Area (sq.ft.)	Area (sq.ft.)	Area (sq.ft.)	Area (sq.ft.)	Area (sq.ft.)	Area (sq.ft.)	Area (sq.ft.)	Area (sq.ft.)
Impervious	n/a	98	28,022	0	0	169,450	0	0	0	0
Open Water	n/a	100	0	3,323	0	0	3,941	0	5,908	0
Open Space	A	39	0	0	0	0	0	0	0	0
(good condition)	B	61	0	0	157,573	0	0	39,566	0	0
	C	74	0	0	0	0	0	576,195	0	92,776
	D	80	0	0	0	0	0	0	0	0
Brush	A	30	0	0	0	0	0	0	0	0
(good condition)	B	48	0	0	0	0	0	0	0	0
	C	65	0	0	0	0	0	0	0	0
	D	73	0	0	0	0	0	0	0	0
Woods	A	30	0	0	0	0	0	0	0	0
(good condition)	B	55	0	0	0	0	0	44,938	0	347,333
	C	70	0	0	0	0	0	118,082	0	1,513,491
	D	77	0	0	32,994	0	0	0	0	0

Subcatchment #	**s21-6(IC)**	**s21-6(OW)**	**s21-7**	**s21-7(IC)**	**s21-7(OW)**	**s22-1**	**s22-1(OW)**	**s22-2**
SHEET FLOW								
Flow length (ft.)	12		150	12		150		150
Slope (ft./ft.)	0.02		0.40	0.02		0.23		0.23
Manning's n for sheet flow	0.011		0.6	0.011		0.24		0.6
2-year, 24-hour rainfall (in.)	3.4	3.4	3.4	3.4	3.4	3.4	3.4	3.4
Travel time (min.)	**0.2**	**0.0**	**12.0**	**0.2**	**0.0**	**7.2**	**0.0**	**15.0**
SHALLOW CONCENTRATED								
Flow length (ft.)	300			300		440		930
Slope (ft./ft.)	0.06			0.04		0.07		0.48
Kv (fps)	20.3			20.3		7.0		2.5
Travel time (min.)	**1.0**	**0.0**	**0.0**	**1.2**	**0.0**	**4.1**	**0.0**	**8.9**
SHALLOW CONCENTRATED								
Flow length (ft.)						405		
Slope (ft./ft.)						0.09		
Kv (fps)						7.0		
Travel time (min.)	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**3.2**	**0.0**	**0.0**
OPEN CHANNEL OR PIPE								
Flow length (ft.)	230		1100	1100		140		180
Slope (ft./ft.)	0.04		0.05	0.05		0.08		0.28
Manning's n for channel flow	0.012		0.012	0.012		0.024		0.027
Open Channel - Bottom width (ft.)								4
Open Channel - Side slopes								2
Open Channel - Bank full depth (ft.)								2
Pipe - Diameter (in.)	24		24	24		36		
Travel time (min.)	**0.2**	**0.0**	**1.0**	**1.0**	**0.0**	**0.2**	**0.0**	**0.1**
Time of Concentration (min.)	**1.5**	**0.0**	**13.1**	**2.5**	**0.0**	**14.7**	**0.0**	**24.0**

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Subcatchment #			**s23-1**	**s23-2**	**s23-2(IC)**	**s23-2(OW)**	**s24-0**	**s25-0**
Total Area (sq.ft.)			1,268,592	380,757	312,986	7,318	1,233,858	590,760
Total Area (Ac.)			**29.123**	**8.741**	**7.185**	**0.168**	**28.325**	**13.562**
Composite CN			**72**	**77**	**98**	**100**	**70**	**66**
Tc (min.)			**38.5**	**4.0**	**4.0**	**0.0**	**30.7**	**20.2**

Land Use	HSG	CN	Area (sq.ft.)	Area (sq.ft.)	Area (sq.ft.)	Area (sq.ft.)	Area (sq.ft.)	Area (sq.ft.)
Impervious	n/a	98	0	0	312,986	0	51,416	827
Open Water	n/a	100	0	0	0	7,318	0	0
Open Space	A	39	0	0	0	0	0	0
(good condition)	B	61	0	0	0	0	0	297,744
	C	74	0	169,563	0	0	0	0
	D	80	55,373	211,194	0	0	0	149,069
Brush	A	30	0	0	0	0	0	0
(good condition)	B	48	0	0	0	0	65,641	0
	C	65	17,593	0	0	0	0	0
	D	73	286,181	0	0	0	624,971	43,255
Woods	A	30	0	0	0	0	0	0
(good condition)	B	55	0	0	0	0	268,274	80,367
	C	70	816,466	0	0	0	0	0
	D	77	92,979	0	0	0	223,556	19,499

Subcatchment #	**s23-1**	**s23-2**	**s23-2(IC)**	**s23-2(OW)**	**s24-0**	**s25-0**
SHEET FLOW						
Flow length (ft.)	150	150	150		150	150
Slope (ft./ft.)	0.13	0.02	0.02		0.13	0.07
Manning's n for sheet flow	0.6	0.011	0.011		0.6	0.24
2-year, 24-hour rainfall (in.)	3.4	3.4	3.4	3.4	3.4	3.4
Travel time (min.)	**18.9**	**1.6**	**1.6**	**0.0**	**18.8**	**11.6**
SHALLOW CONCENTRATED						
Flow length (ft.)	1290	88	88		152	285
Slope (ft./ft.)	0.39	0.03	0.03		0.17	0.16
Kv (fps)	2.5	20.3	20.3		2.5	7.0
Travel time (min.)	**13.8**	**0.4**	**0.4**	**0.0**	**2.4**	**1.7**
SHALLOW CONCENTRATED						
Flow length (ft.)	450				1084	225
Slope (ft./ft.)	0.06				0.07	0.04
Kv (fps)	7.0				7.0	7.0
Travel time (min.)	**4.3**	**0.0**	**0.0**	**0.0**	**9.4**	**2.7**
OPEN CHANNEL OR PIPE						
Flow length (ft.)	1325	2400	2400			575
Slope (ft./ft.)	0.05	0.05	0.05			0.01
Manning's n for channel flow	0.027	0.012	0.012			0.045
Open Channel - Bottom width (ft.)	4					15
Open Channel - Side slopes	2					7.5
Open Channel - Bank full depth (ft.)	2					1
Pipe - Diameter (in.)		30	30			
Travel time (min.)	**1.6**	**2.0**	**2.0**	**0.0**	**0.0**	**4.2**
Time of Concentration (min.)	**38.5**	**4.0**	**4.0**	**0.0**	**30.7**	**20.2**

10454.01 SILO RIDGE COUNTRY GOLF RESORT COMMUNITY
STORMWATER - PROPOSED CONDITIONS
SWM BASIN DESIGN CALCULATIONS

Stormwater Management Facility	NYSDEC Practice	Contributing Subcatchments	Drainage Area (acres)	Impervious Area (acres)	Impervious Cover (%)	WQv Required (cu.ft.)	WQv Provided Permanent Pool (cu.ft.)	WQv Provided Extended Detention (cu.ft.)	WQv Provided TOTAL (cu.ft.)	Basin Surface Area Required (sq.ft.)	Basin Surface Area Provided (sq.ft.)
p03-2	Micropool ED	TOTAL	4.739	1.663	35.1	6,923	4,095	13,076	17,171	2,064	2,315
		s03-2	3.021	0.000							
		s03-2(IC)	1.663	1.663							
		s03-2(OW)	0.054	0.000							
p08-2	Micropool ED	TOTAL	18.763	7.398	39.4	30,331	24,834	61,488	86,322	8,173	8,558
		s02-3	4.088	1.873							
		s08-2	8.958	0.000							
		s08-2(IC)	5.524	5.524							
		s08-2(OW)	0.192	0.000							
p08-3	Micropool ED	TOTAL	2.829	1.086	38.4	4,467	2,615	5,108	7,723	1,232	1,849
		s08-3	1.700	0.000							
		s08-3(IC)	1.086	1.086							
		s08-3(OW)	0.042	0.000							
p09-2	Wet Pond	TOTAL	21.180	2.336	11.0	16,914	36,340	38,169	74,509	9,226	10,285
		s09-2	18.608	0.000							
		s09-2(IC)	2.336	2.336							
		s09-2(OW)	0.236	0.000							
p13-1	Micropool ED	TOTAL	12.222	6.360	52.0	25,296	16,480	13,636	30,116	5,324	5,894
		s13-1	3.555	0.000							
		s13-1(IC)	6.360	6.360							
		s13-1(OW)	0.131	0.000							
		s16-2	2.176	0.000							
p14-2	Micropool ED	TOTAL	15.935	8.460	53.1	33,585	23,903	14,628	38,531	6,941	7,681
		s14-2	0.504	0.000							
		s14-2(OW)	0.176	0.000							
		s14-3	6.794	0.000							
		s14-3(IC)	8.460	8.460							
p20-2	Wet Pond	TOTAL	13.511	5.112	37.8	21,070	35,913	51,774	87,687	5,885	10,535
		s20-2	8.157	0.000							
		s20-2(IC)	5.112	5.112							
		s20-2(OW)	0.242	0.000							

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STORMWATER - PROPOSED CONDITIONS
SWM BASIN DESIGN CALCULATIONS

Stormwater Management Facility	NYSDEC Practice	Contributing Subcatchments	Drainage Area (acres)	Impervious Area (acres)	Impervious Cover (%)	WQv Required (cu.ft.)	WQv Provided Permanent Pool (cu.ft.)	WQv Provided Extended Detention (cu.ft.)	WQv Provided TOTAL (cu.ft.)	Basin Surface Area Required (sq.ft.)	Basin Surface Area Provided (sq.ft.)
p21-4	Micropool ED	TOTAL	5.153	1.643	31.9	6,934	14,306	11,996	26,302	2,244	5,112
		s21-4	3.392	0.000							
		s21-4(IC)	1.643	1.643							
		s21-4(OW)	0.117	0.000							
p21-6	Micropool ED	TOTAL	6.182	0.643	10.4	4,937	4,847	13,258	18,105	2,693	3,323
		s21-6	5.463	0.000							
		s21-6(IC)	0.643	0.643							
		s21-6(OW)	0.076	0.000							
p21-7	Micropool ED	TOTAL	8.355	3.890	46.6	15,648	8,984	25,203	34,187	3,640	3,941
		s21-7	4.375	0.000							
		s21-7(IC)	3.890	3.890							
		s21-7(OW)	0.090	0.000							
p23-2	Micropool ED	TOTAL	16.094	7.185	44.6	29,035	15,927	70,968	86,895	7,011	7,318
		s23-2	8.741	0.000							
		s23-2(IC)	7.185	7.185							
		s23-2(OW)	0.168	0.000							