

PRELIMINARY STORMWATER MANAGEMENT ANALYSIS AND REPORT
FOR
POLO CLUB
NAPERVILLE, ILLINOIS



REVISED JULY 19, 2022
JUNE 7, 2022

402.151

PROFESSIONAL ENGINEER'S CERTIFICATION

STATE OF ILLINOIS }
 SS. }
COUNTY OF DUPAGE }

I, CHRISTOPHER R. MORGART, A LICENSED PROFESSIONAL ENGINEER OF ILLINOIS, HEREBY CERTIFY THAT THIS TECHNICAL SUBMISSION WAS PREPARED ON BEHALF OF PULTE HOME CORPORATION, BY CEMCON, LTD. UNDER MY PERSONAL DIRECTION.

DATED THIS 19th DAY OF July, AD, 2022

ILLINOIS LICENSED PROFESSIONAL ENGINEER NO. 062-055788

MY LICENSE EXPIRES ON NOVEMBER 30, 2023

PROFESSIONAL DESIGN FIRM LICENSE NO. 184-002937, EXPIRATION DATE IS APRIL 30, 2023

NOTE: UNLESS THIS DOCUMENT BEARS THE ORIGINAL SIGNATURE AND IMPRESSED SEAL OF THE DESIGN PROFESSIONAL ENGINEER, IT IS NOT A VALID TECHNICAL SUBMISSION.

PREPARED FOR:

**PULTE HOME COMPANY, LLC
1900 E. GOLF ROAD,
SUITE 300
SCHAUMBURG, IL 60195**

847-230-5400

PREPARED BY:

**CEMCON, LTD.
2280 WHITE OAK CIRCLE,
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AURORA, IL 60504-9675**

630-862-2100

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1.0 PROJECT DESCRIPTION

The Polo Club Subdivision, proposed by Pulte Home Company, LLC., is a 105.6-acre residential development containing single-family lots, townhomes, and a clubhouse. The total property is 110.6 acres (including external R.O.W. to be dedicated) situated at Polo Club, 23700 W. 119th St., Plainfield, IL 60585 (Exhibit A). Site infrastructure improvements (see Site Development Plans) will include the construction of sanitary sewers, a lift station, water main, stormwater drainage and conveyance facilities and stormwater management facilities, which will be vegetatively stabilized for stormwater discharge control. Approximately 5.0 acres will be dedicated to the City of Naperville for the 119th Street R.O.W. 119th Street will be widened to include turn lanes in conjunction with the development of the Project.

The purpose of this Stormwater Management Analysis and Report is to summarize the hydrologic and hydraulic analyses performed to define the Existing Conditions and to demonstrate that, when constructed in conformance with the permit application and supporting documents, the development will comply with Local, State and Federal laws and regulations.

2.0 SPECIAL MANAGEMENT AREAS

During the Project-Planning phase, the subject site was evaluated for the presence of Special Management Areas defined as regulatory floodplains/floodways and wetland habitat. This evaluation consisted of a detailed review of available Topographic, Wetland and FEMA Maps. Following is an account of the sources referenced and procedures employed in conducting the Special Management Area assessment for the Project.

Floodplain/Floodway – According to FEMA FIRM Panels 17197C0037G (effective 02/15/2019) and 17197C0045G (effective 02/15/2019), there are areas of Zone A/E floodplain mapped on the eastern portion of the Project site. The flooding source is the DuPage River. Copies of the effective FIRM panels and relevant sections of the Flood Insurance Study can be found in Exhibit D.

Wetlands – According to the National Wetland Inventory Map there are no wetlands present on site (see Exhibit E). Therefore, there likely will be no wetland impacts during construction. Further confirmation and analysis will be conducted by others and provided with Final Engineering.

3.0 EXISTING “WITHOUT-PROJECT” CONDITIONS SUMMARY

The existing site consists of multiple polo and soccer fields, a small agricultural area, horse stables and other facilities that serve the polo fields. There is currently only one manmade pond on-site that was built for irrigation purposes for the property. Since the pond was not designed for stormwater management, there will not be a need to compensate for displaced storage in the proposed stormwater management facilities.

The site generally drains to three points of discharge: a 22” PVC pipe at the existing Book Road/ 119th Street intersection and a 24” CMP to the northeast under Book Road, as well as a minor outfall across the northern property line with only approximately 8 tributary acres. Refer to Exhibit F for the Existing Conditions Watershed Exhibit. The DuPage River adjacent to the property has a 10-year BFE ranging from 616.1 to 616.7 and a 100-year BFE ranging from 618.0 to 619.0. There are 158.70 acres of tributary area flowing through the Project site to the two outfalls, 48.12 of which is off-site area. Due to the characteristics of the site, the on-site areas have an average CN of about 76, and the primarily agricultural off-site areas have an average curve number of 83. The updated Bulletin 75 Northeast rainfall values (2020 revision) with Huff rainfall distributions were utilized for the stormwater modeling. Further analysis of the Existing Conditions is provided under Exhibits F and G of this Report. During the 100-year, 24-hour event, the peak runoff to the northeast outfall in existing conditions is 75.02 CFS, and the peak runoff to the southeast outfall in existing conditions for the 100-year, 24-hour event is 22.93 CFS. Refer to Section 4.0 in this Report for a comparison to Proposed Conditions. The full Existing Conditions PondPack Model Input and Output can be found in Exhibit G, Tab 2.

4.0 STORMWATER AND FLOODPLAIN MANAGEMENT ANALYSIS

There are 5 ponds proposed to store and attenuate the additional runoff created by the proposed Polo Club Development. Detention would not be required for the turn lane improvements currently proposed per the Will County Stormwater Management Ordinance which states that roadway developments in rights-of-way under the ownership or control of a unit of local government shall require stormwater management when the contiguous area of new roadway construction (excluding previously paved areas) exceeds two acres (Section 55.020 B-1d). While the proposed widening improvements total less than 2 acres of additional impervious area, it has been conservatively assumed herein that a 5-lane 63' wide section will eventually be installed with drainage routed towards the onsite stormwater management facilities. Therefore, in accordance with Illinois Drainage Manual for detention of public highways, detention will be provided for all impervious area while runoff from the remaining pervious area in the expanded R.O.W. will be bypassed through the proposed ponds.

There is a total of 61.38 Ac.-Ft. of storage to be provided for Polo Club. The allowable release rate will be achieved at Stormwater Management Facility (SWMF) 001 (22.19 Ac.-Ft.), the downstream-most pond. SWMF 003 and 004 (15.39 Ac.-Ft.) equalize and drain in to SWMF 002 (22.53 Ac.-Ft.). SWMF 001 accepts flows from SWMF 002 and SWMF 005 (1.27 Ac.-Ft.) prior to draining towards the DuPage River via a multi-stage restrictor system.

The total site has been analyzed to ensure conformance with the Will County Stormwater Ordinance. Subarea 006, along the eastern border of the site, is not tributary to a stormwater facility but drains directly to the northeast outfall; therefore SWMF #1 will over-restrict so that the peak discharge to the northeast outfall remains in conformance with the Ordinance. However, Subarea 007 will remain undisturbed in construction and so the allowable release rate was not consumed by the flows generated from this subarea. First, an on-site only PondPack Model for the 2-year and 100-year events was conducted to ensure that the proposed facilities would provide adequate detention volume for solely the proposed development. Although the proposed SWMF #1 is located within the regulatory floodplain, Section T203.7 of the Will County Stormwater Technical Guidance Manual states that a free discharge can be assumed to establish a required volume for detention sizing purposes. Theoretical restrictors were used so that the development could discharge at 0.04 CFS/Ac. and 0.15 CFS/Ac. for the 2-year and 100-year storm event, respectively. For the 2-year event, the allowable release is 109.31 Ac. x 0.04

CFS/Ac. = 4.37 CFS, and the site releases at a rate of 4.35 CFS. For the 100-year event, the allowable release is $109.31 \text{ Ac.} \times 0.15 = 16.40 \text{ CFS}$ during the 100-year, 24-hour storm, and the site releases at a rate of 16.18 CFS. The on-site high water levels are tabulated below. Storage above the high-water level (HWL) and below the emergency spillway elevation is provided as a buffer for the off-site tributary areas and an overall benefit to the watershed. See Exhibit I, Tab 2 for the On-Site PondPack Modeling.

Table 1
Proposed Conditions High Water Levels – Development Area Only

	SWMF 001	SWMF 002	SWMF 003	SWMF 004	SWMF 005
HWL (ft)	616.4	623.5	633.9	634.0	626.1

Second, a preliminary proposed model was created to simulate the proposed conditions with the off-site tributary area. According to Section T203.7 of the Will County Stormwater Technical Guidance Manual, the actual detention analysis for the facility in the regulatory floodplain must consider all stream flow and backwater conditions in the receiving stream up to the 10-year storm. Therefore, for the 100-year analysis, SWMF #1 has been analyzed in a free-outfall condition as well as a simply varying but conservative time-elevation boundary condition which rises from the normal water level of the pond to 616.4', the approximate 10-year base flood elevation of the DuPage River adjacent to the site. The 100-year restrictor was sized for the sum of tributary on-site and off-site acreage multiplied by 0.15 CFS/Ac. ($105.98 \text{ Ac. on-site} + 55.09 \text{ Ac. off-site} = 161.07 \text{ Ac.} \times 0.15 \text{ CFS/Ac.} = 24.16 \text{ CFS}$). This way, the proposed facilities will be able to convey the flow in a future condition where all upstream areas are developed per the Ordinance. Any unrestricted off-site flow tributary to the basins will be bypassed through the facilities via a reinforced overflow weir. The resulting peak discharge to the outfall will be less than the on-site allowable release rate plus the upstream off-site peak flows (considered bypass flow). Refer to Tab 4 in Exhibit I for the "Prelim With Tailwater" PondPack Model. In all modelling of the 2-year return event series a free outfall was assumed in order to show that the 2-year restrictor meets allowable release rates in low-flow conditions. The 2-year restrictor is sized for $161.07 \text{ Ac.} \times 0.04 \text{ CFS/Ac.} = 6.44 \text{ CFS}$.

In the 2-year 24-hour event the high-water level in SWMF #1 is 615.7, and the resulting peak discharge to Outfall 1 is 14.87 CFS, where the total allowable release is 15.12 CFS (4.37 onsite allowable plus 10.75 CFS bypass flow). In the 100-year, 24-hour event, the proposed peak

discharge to Outfall 1 is 50.86 CFS with an allowable of 52.51 CFS (16.40 plus 36.11 CFS bypass flow). The high-water level in SWMF #1 is 618.2, indicating that the off-site unrestricted flow will be bypassed through the facility via two tenths of flow over the proposed weir. Nearly all flow to the southern 24" CMP culvert has been diverted through the proposed ponds, reducing tributary area from 32.2 Ac. to approximately 0.35 Ac.

The facility in the regulatory floodplain must also demonstrate that the 100-year peak runoff rate does not exceed existing conditions in the event of a blocked restrictor. A PondPack Model was created with no outflow in SWMF #1 until the overflow weir at elevation 618.0. In the 100-year, 24-hour event, the high water level in SWMF #1 is 619.0, and the resulting peak discharge is 65.77 CFS, less than the existing conditions peak discharge of 75.02 CFS. See Tab 5 in Exhibit I for the Blocked Restrictor Model and Analysis.

Compensatory storage for floodplain fill for the site will be provided in SWMF #1. Floodplain compensation is provided at the required 1:1 ratio from the 0-10 year BFE and 10-100 year BFE in accordance with the Will County Stormwater Management Ordinance. Floodplain cut and fill values were determined assuming that in SWMF #1, all storage below the overflow weir of 618.0 will be utilized for detention purposes and therefore unavailable for floodplain compensatory storage. The proposed site fills 0.4 Ac.-Ft. of floodplain from the 0-10 year elevation and 2.3 Ac.-Ft. from the 10-100 year elevation. The 0-10 year compensation is provided in a swale located east of SWMF #1 that will be cut within the mapped floodway. This swale provides 0.8 Ac.-Ft. of compensatory storage, and will require an IDNR floodway excavation permit that will be filed with Final Engineering. The 10-100 year compensation will be provided above the weir elevation of 618.0 in SWMF #1 totaling 2.5 Ac.-Ft. of compensatory storage. The total floodplain fill is 2.7 Ac.-Ft. and the total provided compensatory storage is 3.3 Ac.-Ft.

During the Final Engineering and Permitting process, CEMCON, Ltd. will complete all components of the existing conditions model and proposed conditions models based on the final design. All modeling will be submitted to the City of Naperville for review and approval. Based on the proposed improvements discussed in this Report and on the Preliminary Engineering Plans (under separate cover), the Project will require permits from the IHPA, EcoCAT, and a floodway excavation permit from the IDNR. It should be noted that since the existing floodplain limits do not impact any single family lots a CLOMR and LOMR will not be requested from FEMA as there

will be no need to remap the floodplain in this reach of the DuPage River. See Exhibit B for copies of the permits already acquired for the Project.

5.0 POST CONSTRUCTION BEST MANAGEMENT PRACTICES

The Will County Stormwater Management Ordinance does not require a Post Construction Best Management Practices for the proposed development.

6.0 WETLAND IMPACT SUMMARY

No evidence has yet been found of onsite wetlands and therefore no impact compensation will be required.

7.0 SOIL EROSION AND SEDIMENTATION CONTROL PLAN

Soil Erosion and Sediment Control Measures will be proposed at Final Engineering to protect downstream properties and the Special Management Areas from adverse effects of soil erosion and sedimentation. The Proposed Erosion and Sediment Control features will include:

- Storm sewer inlets protected with sediment trapping/filter control devices during construction.
- Silt fencing installed along the site perimeter and a double row of silt fence along wetland, buffer and floodplain areas.
- Construction entrance(s) will be implemented to minimize the impact to adjacent roadways.
- Temporary stone ditch checks will be used in areas of concentrated flow.
- Disturbed areas permanently seeded and protected from soil erosion after final grading is accomplished.

8.0 STORMWATER SYSTEMS MAINTENANCE PLAN

A detailed Maintenance Plan will be provided at Final Engineering.

9.0 SUMMARY

Pulte Home Company, LLC proposes to develop the former Polo Club located north of 119th Street and west of Book Road, east of Route 59 in the City of Naperville. The development will consist of single-family lots, townhome units, and a clubhouse building. Stormwater storage/management is required to control runoff from the site per the Will County Ordinance.

The stormwater management and conveyance systems proposed will meet the requirements of the City of Naperville and Will County that have been established for storage and allowable release rate. The stormwater management facilities will provide a benefit to the downstream outfalls. Furthermore, Special Management Areas and erosion and sedimentation control issues will be adequately addressed for the Project in Final Engineering.

H:\402151\REPORTS\2022-06-09 Prelim SWM Report.docx

EXHIBIT A

SITE LOCATION MAP

Polo Club of Will County

T37N, R9E, SEC. 22



CEMCON, Ltd.

PROJECT / CLIENT:

Pulte Home Company, LLC
1900 E. Golf Road
Suite 300
Schaumburg, IL 60173
847-230-5400

DRAWN BY:

JEJ

06/01/22

CHECKED BY:

APPROVED:

SCALE: N.T.S.

EXHIBIT B

RELEVANT PERMITS



Illinois Department of Natural Resources

One Natural Resources Way Springfield, Illinois 62702-1271
<http://dnr.state.il.us>

JB Pritzker, Governor

Colleen Callahan, Director

September 20, 2021

Alicia Metzger
V3 Companies
7325 Janes Ave.
Woodridge, IL 60517

RE: Naperville Polo Club
Project Number(s): 2205329 [210735]
County: Will

Dear Applicant:

This letter is in reference to the project you recently submitted for consultation. The natural resource review provided by EcoCAT identified protected resources that may be in the vicinity of the proposed action. The Department has evaluated this information and concluded that adverse effects are unlikely. Therefore, consultation under 17 Ill. Adm. Code Part 1075 is terminated.

This consultation is valid for two years unless new information becomes available that was not previously considered; the proposed action is modified; or additional species, essential habitat, or Natural Areas are identified in the vicinity. If the project has not been implemented within two years of the date of this letter, or any of the above listed conditions develop, a new consultation is necessary.

The natural resource review reflects the information existing in the Illinois Natural Heritage Database at the time of the project submittal, and should not be regarded as a final statement on the site being considered, nor should it be a substitute for detailed site surveys or field surveys required for environmental assessments. If additional protected resources are encountered during the project's implementation, you must comply with the applicable statutes and regulations. Also, note that termination does not imply IDNR's authorization or endorsement of the proposed action.

Please contact me if you have questions regarding this review.

Adam Rawe

Adam Rawe
Division of Ecosystems and Environment
217-785-5500



Illinois Department of Natural Resources

One Natural Resources Way Springfield, Illinois 62702-1271
www.dnr.illinois.gov

JB Pritzker, Governor
Colleen Callahan, Director

402.151 POLO CLUB

Will County
Plainfield
23700 W. 119th St., NW Corner 119th St. and Book Road
CEMCON-402.151 (Previously 637.014), IEPA, V3CI-16039
Demolition of Naperville Polo Club and New Construction of Residential Development

PLEASE REFER TO: SHPO LOG #006022416

March 2, 2022

Paul Passi
CEMCON, Ltd.
2280 White Oak Circle, Suite 100
Aurora, IL 60502-9675

SURVEY REQUEST

Dear Mr. Passi:

The Illinois State Historic Preservation Office is required by the Illinois State Agency Historic Resources Preservation Act (20 ILCS 3420, as amended, 17 IAC 4180) to review all state funded, permitted or licensed undertakings for their effect on cultural resources. We have received information indicating that the referenced project will, under the state law cited above, require comments from our office and our comments follow. Should you have any contrary information, please contact our office at the number below.

According to the information provided to us concerning your proposed project, apparently there is no federal involvement in your project. However, please note that the state law is less restrictive than the federal cultural resource laws concerning archaeology, therefore if your project will use federal loans or grants, need federal agency permits or federal property then your project must be reviewed by us under a slightly different procedure under the National Historic Preservation Act of 1966, as amended. Please notify us immediately if such is the case.

The project area has a high probability of containing significant prehistoric/historic archaeological resources. Accordingly, a Phase I archaeological reconnaissance survey to locate, identify, and record all archaeological resources within the project area will be required, in addition to the survey we will also need clear photographs of all structures in, or adjacent to, the current project area. This decision is based upon our understanding that there has not been any large scale disturbance of the ground surface (excluding agricultural activities) or major construction activity within the project area which would have destroyed existing cultural resources prior to your project. If the area has been disturbed, please contact our office with the appropriate written and/or photographic evidence. The area(s) that need(s) to be surveyed (within the zone that needs to be surveyed) include(s) all area(s) that will be developed as a result of the issuance of the state agency permit(s) or the granting of the state funds or loan guarantees that have prompted this review. Enclosed you will find an attachment briefly describing Phase I surveys and listing archaeological contracting services. A COPY OF OUR LETTER WITH THE SHPO LOG NUMBER SHOULD BE PROVIDED TO THE SELECTED PROFESSIONAL ARCHAEOLOGICAL CONTRACTOR TO ENSURE THAT THE SURVEY RESULTS ARE CONNECTED TO YOUR PROJECT PAPERWORK.

If you have further questions, please contact Jeff Kruchten, Chief Archaeologist at 217/785-1279 or Jeffery.kruchten@illinois.gov.

Sincerely,

"CROOKTON"

Carey L. Mayer

Carey L. Mayer, AIA
Deputy State Historic Preservation Officer

Enclosure



Illinois Department of Natural Resources

www.dnr.illinois.gov

JB Pritzker, Governor
Colleen Callahan, Director

Mailing address: State Historic Preservation Office, 1 Old State Capitol Plaza, Springfield, IL 62701

PROTECTING ILLINOIS' CULTURAL RESOURCES An Introduction to Archaeological Surveys

Prepared by
ILLINOIS STATE HISTORIC PRESERVATION OFFICE

When you read the accompanying letter, you were notified that your Federal or State permitted, funded, or licensed project will require an archaeological survey. We also review projects that use public land. The purpose of this survey will be to determine if prehistoric or historic resources are present within the project area. If you are the average applicant you have had little or no experience with such surveys – this short introduction is designed to help you fulfill the Federal/State requirements and complete the process.

WHY PROTECT HISTORIC RESOURCES? Historic preservation legislation grew out of the public concern for the rapid loss of our prehistoric and historic heritage in the wake of increasingly large-scale Federal/State and private development. The legislation is an attempt to protect our heritage while at the same time allowing economic development to go forward.

WHAT IS THE LEGAL BASIS? The basis for all subsequent historic preservation legislation lies within the national Historic Preservation Act of 1966 (NHPA). Section 106 of NHPA requires all Federal Agencies “undertakings” to “take into account” their effect on historic properties. As of January 1, 1990, the State Agency Historic Resources Preservation Act (Public Act 86-707) requires the same for all private or public undertakings involving state agencies. An “undertaking” is defined to cover a wide range of Federal or State permitting, funding, and licensing activities. It is the responsibility of Federal/State Agencies to ensure the protection of historic resources and the State Historic Preservation Office (SHPO) regulates this effort. In Illinois the SHPO is part of the Illinois Historic Preservation Agency (IHPA).

WHAT IS AN ARCHAEOLOGICAL SURVEY? An archaeological survey includes both (1) an examination of the written records, such as county plat books, published and unpublished archaeological reports, state site files, and (2) a field investigation of the project area to determine if prehistoric or historic resources are present. This process of resource identification is called a Phase I survey.

WHAT DOES A PHASE I SURVEY REQUIRE? Archaeological evidence is normally buried beneath the surface of the ground. To determine if an archaeological site is present it is necessary to get below this surface. The most efficient way is by plowing. If the project area is or can be plowed then the artifactual evidence will be brought to the surface and systematic pedestrian surveys (walkovers) will determine if a site is present. These walkovers are best done when the vegetation is low in the fall or spring. If the project area is covered with vegetation then small shovel probes (1' sq.) are excavated on a systematic grid pattern (usually 50' intervals) to sample the subsurface deposits. Where deeply buried sites may be present, such as in floodplains, deep coring or machine trenching may be required.

WHO DOES ARCHAEOLOGICAL SURVEYS? Professional archaeologists who meet the Federal standards set forth in the Secretary of the Interior's Professional Qualifications Standards (48 FR 44738-9) may conduct Federal surveys, while those meeting the State standards set forth in the Archaeological and Paleontological Resources Protection Act (20 ILCS 3435) may conduct surveys on public land in the State (see the other side of this sheet for information on obtaining the services of a contract archaeologist). The applicant is responsible for obtaining and paying for such services.

AFTER THE SURVEY – WHAT NEXT? When the field investigations are completed the archaeologist will submit a report of their findings and recommendations to the applicant. **IT IS THE RESPONSIBILITY OF THE APPLICANT TO FORWARD ONE PAPER COPY AND ONE (1) CD WITH THE REPORT IN PDF FORMAT TO THE SHPO FOR EVALUATION AND FINDINGS.** If no sites were found or the sites found are not eligible for the National Register the project may proceed after cleared through our office. Occasionally, a significant archaeological site may be encountered. In such a case the SHPO and the Federal or State Agency will work with the applicant to protect both the cultural resources and to facilitate the completion of your project.

NEED FURTHER ASSISTANCE? The SHPO is here to assist you and the Federal/State agencies in complying with the mandates of the historic preservation legislation. If you have questions or need assistance with archaeological resources protection or Federal/State compliance, please contact the Archaeology Section, Review & Compliance, Illinois State Historic Preservation Office, One Old State Capitol Plaza, Springfield, Illinois 62701 (217-782-4836 or SHPO.Review@illinois.gov).

OVER



Illinois Department of Natural Resources

JB Pritzker, Governor
Colleen Callahan, Director

www.dnr.illinois.gov

Mailing address: State Historic Preservation Office, 1 Old State Capitol Plaza, Springfield, IL 62701

Illinois State Historic Preservation Office – Archaeology Section

Information for Developers and Agencies about general procedures for Phase 2 archaeology projects

Anyone notified of an archaeological site subject to Phase 2 testing in their project area, has several options:

1. Preserve the site by planning your project to avoid or greenspace the site, a deed covenant maybe necessary depending on the land ownership and the law the project is being reviewed under.
2. Hire an archaeological firm to conduct a Phase 2 project on the site.
3. Choose a different location for the project (generally means starting review process over from scratch, but there will be rare occasions when this is actually the fastest and cheapest option). This is something you may wish to consider if there are burials in the project area, or an extremely large or dense site in the project area.

Phase 2 archaeological projects consist of fieldwork, analysis, and report by the archaeological firm, and then review of the report by the IHPA and sometimes also by the funding or permitting agency, with additional work required part of time depending on the significance of the site(s). However, if a project has no significant sites after a Phase 2 project has been completed and reviewed, then the archaeology is completed as soon as IHPA accepts the report. If a project area has more than 1 site, each one is reviewed independently, in other words, one could be determined not significant and while another one is determined significant or potentially significant.

Phase 2 field work generally consists of obtaining good artifact type and location data from the site surface by methods such as grid collections, piece plotting, etc., this is followed by a small scale excavation. In some cases the fieldwork (commonly called test units) can be done with assistance of machines like backhoes or occasionally even large equipment like belly scrapers (plowed or partially disturbed sites), but sometimes it is necessary to dig by hand (mounds, unplowed sites, or inaccessible locations). The test units are excavated to the base of the plowzone or topsoil, and then the base of the unit is checked for presence of archaeological features (foundations, pits, hearths, burials, middens, etc.) If features are present, a small number (generally not more than 5-10) of them are excavated to provide information about the site's age, function, integrity, etc. Samples of soil from each feature for botanical and zoological analysis are usually taken. Also on floodplains of large rivers, several additional "deep" trenches are usually necessary to check for buried sites. The amount of time required for fieldwork is highly dependent on the size of a site, on whether machines can be used, and on the density of features, as well as the weather.

Analysis at Phase 2 consists of identifying and inventorying all of the artifacts recovered and preparing data recorded in the field for a report. The length of time needed is again highly variable based on the factors listed above. The report describes the field and lab information, provides a preliminary interpretation of the site, and makes recommendations concerning the significance of the site.

The archaeology staff at the State Historic Preservation Office (SHPO in Illinois) and sometimes the archaeologists at the lead funding or permitting agency review the report. Based on the report and their knowledge of regional archaeological, they determine (following criteria outlined in the appropriate law and regulations for each project) if the work done was acceptable, and whether the site(s) are not significant and need no further investigation or are significant. If a site is significant (meets the eligibility criteria for the National Register of Historic Places), the choices are mitigation (generally by complete excavation) or preservation.

ALL PHOTOS AND MAPS CONTAINED IN ALL REPORTS SHOULD BE SUBMITTED IN COLOR WITH 1 HARD COPY AND ONE PDF VERSION ON A CD.

Jeffery Kruchten, Chief Archaeologist (7-16-2018)

ILLINOIS-BASED CONSULTING SERVICES WITH PROFESSIONAL ARCHAEOLOGISTS In order to assist agencies, engineering firms, and others who require professional archaeological services the Illinois State Historic Preservation Office (SHPO) has listed below Illinois-based firms with professional archaeologists currently performing contract archaeological compliance work. Based on documentation supplied by them these individuals appear to meet current Federal qualifications. This list is provided for your assistance, however, you may use any archaeologist who meets the minimum qualifications as set forth in Secretary of the Interior's Professional Qualifications Standards (36 CFR 61). If you have any questions please contact SHPO at 217-782-4836. THE INCLUSION OF INDIVIDUALS OR ORGANIZATIONS ON THIS LIST DOES NOT CONSTITUTE ANY RECOMMENDATION OR ENDORSEMENT OF THEIR PROFESSIONAL EXPERTISE OR PERFORMANCE RECORD.

Dr. Kevin P. McGowan
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CEMCON, Ltd.

CONSULTING ENGINEERS, LAND SURVEYORS & PLANNERS

Via electronic submittal SHPO.review@illinois.gov

February 2, 2022

State Historic Preservation Office - IHPA
Illinois Department of Natural Resources
Attn: Review and Compliance
1 Old State Capitol Plaza
Springfield, IL 62701

Re: Naperville Polo Club – proposed Residential Development
Naperville, Will County, Illinois
402.151

To Whom It May Concern:

Enclosed please find a Topo/Survey, an ALTA Survey with the legal description, an Aerial Location Map, a USGS Map and photos of the existing buildings for this 110.5 acre residential Project. Many of the surrounding properties have been previously developed without encountering artifacts of historical significance.

This site was previously cleared for a developer that decided to walk away. That was IHPA Log # 006022416. No demolition of any buildings has taken place.

In that this site has not been designated as a high probability area for archaeological resources, it is our opinion this Project is exempt from further review requirements.

We respectfully request your review and concurrence.

Sincerely,
CEMCON, Ltd.

Paul R. Passi, P.E.
Senior Project Engineer
630.484.7007

Enc.

cc: Ty Morris – Pulte Home Company, LLC

L:\402151\Permit Applications\IHPA\2022-02-02 IHPA Cover Letter.docx

EXHIBIT C

USDA NRCS SOILS MAP

MAP LEGEND

Area of Interest (AOI)

 Area of Interest (AOI)

Soils

Soil Rating Polygons

 A
 A/D
 B
 B/D
 C
 C/D
 D
 Not rated or not available

Soil Rating Lines

 A
 A/D
 B
 B/D
 C
 C/D
 D
 Not rated or not available

Soil Rating Points

 A
 A/D
 B
 B/D

 C
 C/D
 D
 Not rated or not available

Water Features

 Streams and Canals

Transportation

 Rails
 Interstate Highways
 US Routes
 Major Roads
 Local Roads

Background

 Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:12,000.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
 Web Soil Survey URL:
 Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Will County, Illinois
 Survey Area Data: Version 16, Aug 31, 2021

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Aug 3, 2019—Aug 24, 2019

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Hydrologic Soil Group

Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
293A	Andres silt loam, 0 to 2 percent slopes	C/D	8.5	5.4%
294B	Symerton silt loam, 2 to 5 percent slopes	C	24.2	15.3%
356A	Elpaso silty clay loam, 0 to 2 percent slopes	B/D	22.3	14.1%
369A	Waupecan silt loam, 0 to 2 percent slopes	B	15.9	10.0%
523A	Dunham silty clay loam, 0 to 2 percent slopes	B/D	14.8	9.3%
614A	Chenoa silty clay loam, 0 to 2 percent slopes	C/D	72.4	45.8%
W	Water		0.2	0.1%
Totals for Area of Interest			158.3	100.0%

Description

Hydrologic soil groups are based on estimates of runoff potential. Soils are assigned to one of four groups according to the rate of water infiltration when the soils are not protected by vegetation, are thoroughly wet, and receive precipitation from long-duration storms.

The soils in the United States are assigned to four groups (A, B, C, and D) and three dual classes (A/D, B/D, and C/D). The groups are defined as follows:

Group A. Soils having a high infiltration rate (low runoff potential) when thoroughly wet. These consist mainly of deep, well drained to excessively drained sands or gravelly sands. These soils have a high rate of water transmission.

Group B. Soils having a moderate infiltration rate when thoroughly wet. These consist chiefly of moderately deep or deep, moderately well drained or well drained soils that have moderately fine texture to moderately coarse texture. These soils have a moderate rate of water transmission.

Group C. Soils having a slow infiltration rate when thoroughly wet. These consist chiefly of soils having a layer that impedes the downward movement of water or soils of moderately fine texture or fine texture. These soils have a slow rate of water transmission.

Group D. Soils having a very slow infiltration rate (high runoff potential) when thoroughly wet. These consist chiefly of clays that have a high shrink-swell potential, soils that have a high water table, soils that have a claypan or clay layer at or near the surface, and soils that are shallow over nearly impervious material. These soils have a very slow rate of water transmission.

If a soil is assigned to a dual hydrologic group (A/D, B/D, or C/D), the first letter is for drained areas and the second is for undrained areas. Only the soils that in their natural condition are in group D are assigned to dual classes.

Rating Options

Aggregation Method: Dominant Condition

Aggregation is the process by which a set of component attribute values is reduced to a single value that represents the map unit as a whole.

A map unit is typically composed of one or more "components". A component is either some type of soil or some nonsoil entity, e.g., rock outcrop. For the attribute being aggregated, the first step of the aggregation process is to derive one attribute value for each of a map unit's components. From this set of component attributes, the next step of the aggregation process derives a single value that represents the map unit as a whole. Once a single value for each map unit is derived, a thematic map for soil map units can be rendered. Aggregation must be done because, on any soil map, map units are delineated but components are not.

For each of a map unit's components, a corresponding percent composition is recorded. A percent composition of 60 indicates that the corresponding component typically makes up approximately 60% of the map unit. Percent composition is a critical factor in some, but not all, aggregation methods.

The aggregation method "Dominant Condition" first groups like attribute values for the components in a map unit. For each group, percent composition is set to the sum of the percent composition of all components participating in that group. These groups now represent "conditions" rather than components. The attribute value associated with the group with the highest cumulative percent composition is returned. If more than one group shares the highest cumulative percent composition, the corresponding "tie-break" rule determines which value should be returned. The "tie-break" rule indicates whether the lower or higher group value should be returned in the case of a percent composition tie. The result returned by this aggregation method represents the dominant condition throughout the map unit only when no tie has occurred.

Component Percent Cutoff: None Specified

Components whose percent composition is below the cutoff value will not be considered. If no cutoff value is specified, all components in the database will be considered. The data for some contrasting soils of minor extent may not be in the database, and therefore are not considered.

Tie-break Rule: Higher

The tie-break rule indicates which value should be selected from a set of multiple candidate values, or which value should be selected in the event of a percent composition tie.

EXHIBIT D

FEMA 2019-02 FIRM PANELS AND FLOOD INSURANCE STUDY



FLOOD HAZARD INFORMATION

SEE FIS REPORT FOR DETAILED LEGEND AND INDEX MAP FOR FIRM PANEL LAYOUT
THE INFORMATION DEPICTED ON THIS MAP AND SUPPORTING DOCUMENTATION ARE ALSO AVAILABLE IN DIGITAL FORMAT AT [HTTP://MSC.FEMA.GOV](http://msc.fema.gov)

SPECIAL FLOOD HAZARD AREAS

- Without Base Flood Elevation (BFE) Zone A, V, AR
- With BFE or Depth Zone AE, AO, AH, VE, AR
- Regulatory Floodway

OTHER AREAS OF FLOOD HAZARD

- 0.2% Annual Chance Flood Hazard, Areas of 1% annual chance flood with average depth less than one foot or with drainage areas of less than one square mile Zone X
- Future Conditions 1% Annual Chance Flood Hazard Zone X
- Area with Reduced Flood Risk due to Levee See Notes Zone X
- Area with Flood Risk due to Levee Zone D
- NO SCREEN Area of Minimal Flood Hazard Zone X
- Area of Undetermined Flood Hazard Zone D

OTHER AREAS

- Channel, Culvert, or Storm Sewer
- Dam, Jetty, or Weir
- Levee, Dike or Floodwall

GENERAL STRUCTURES

- Cross Sections with 1% Annual Chance Water Surface Elevation (BFE) 718.7, 717.5
- Coastal Transect
- Coastal Transect Baseline
- Profile Baseline
- Hydrographic Feature
- Base Flood Elevation Line (BFE) 512

OTHER FEATURES

- Limit of Study
- Jurisdiction Boundary

NOTES TO USERS

For information and questions about this Flood Insurance Rate Map (FIRM), available products associated with this FIRM, including historic versions, the current map date for each FIRM panel, how to order products, or the National Flood Insurance Program (NFIP) in general, please call the FEMA Map Information eXchange at 1-877-FEMA-MAP (1-877-336-2827) or visit the FEMA Flood Map Service Center website at <http://msc.fema.gov>. Available products may include previously issued Letters of Map Change, a Flood Insurance Study Report, and/or digital versions of this map. Many of these products can be ordered or obtained directly from the website.

Communities annexing land on adjacent FIRM panels must obtain a current copy of the adjacent panel as well as the current FIRM index. These may be ordered directly from the Flood Map Service Center at the number listed above.

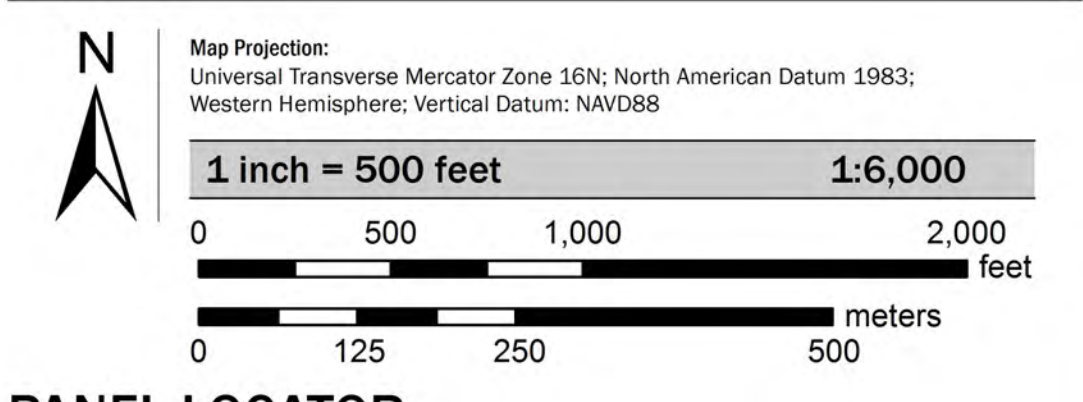
For community and countywide map dates refer to the Flood Insurance Study report for this jurisdiction.

To determine if flood insurance is available in this community, contact your Insurance agent or call the National Flood Insurance Program at 1-800-638-6620.

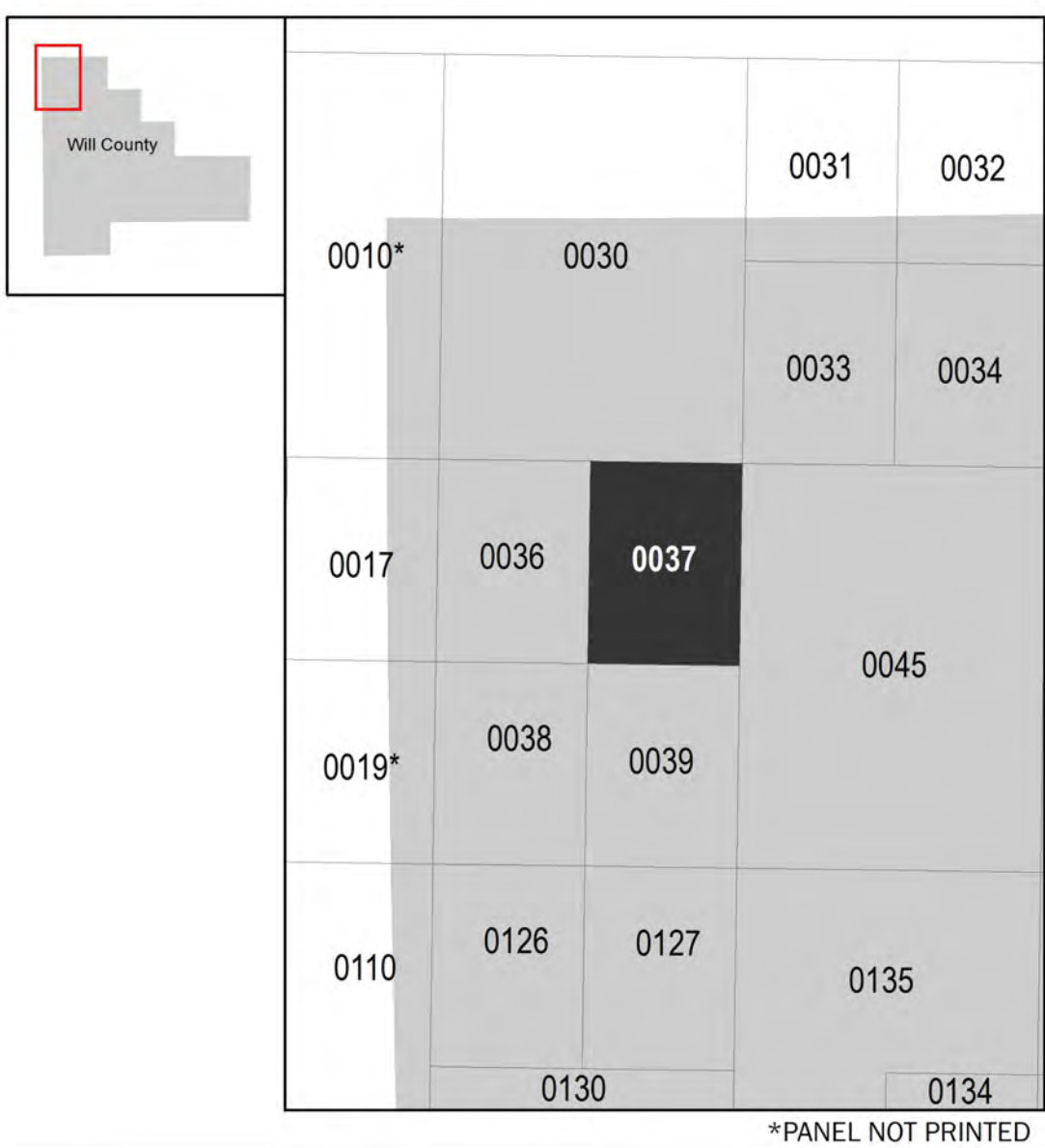
Base map information shown on this FIRM was provided in digital format by Will County, Illinois. This information was derived from digital orthorectified imagery at a spatial resolution of 4 inches where available and 9 inches otherwise, from aerial photography dated 2013.

ILLINOIS
Illinois State Water Survey
PRAIRIE RESEARCH INSTITUTE

SCALE



PANEL LOCATOR



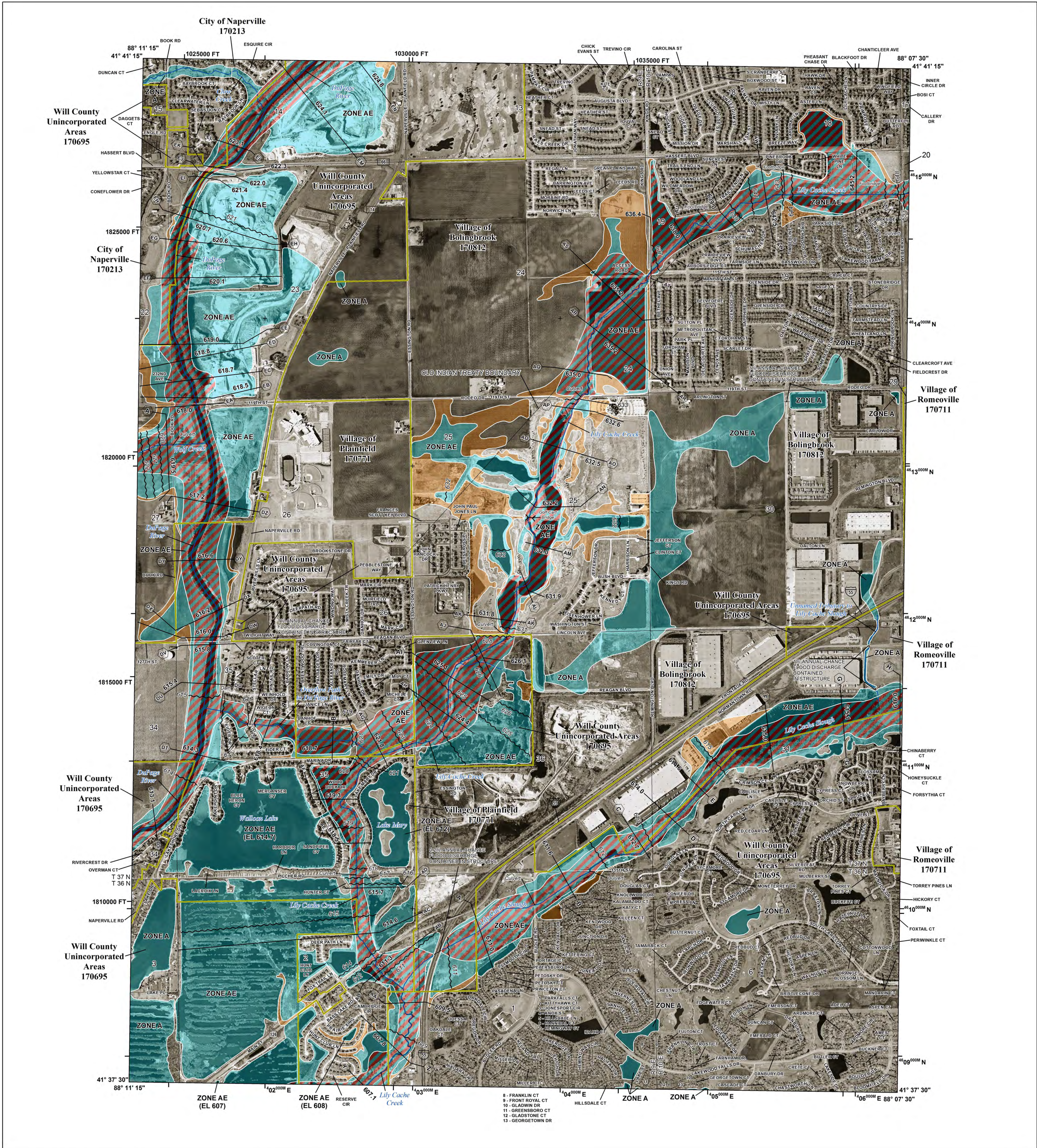
NATIONAL FLOOD INSURANCE PROGRAM
FLOOD INSURANCE RATE MAP

WILL COUNTY, ILLINOIS
and Incorporated Areas
PANEL 37 OF 585



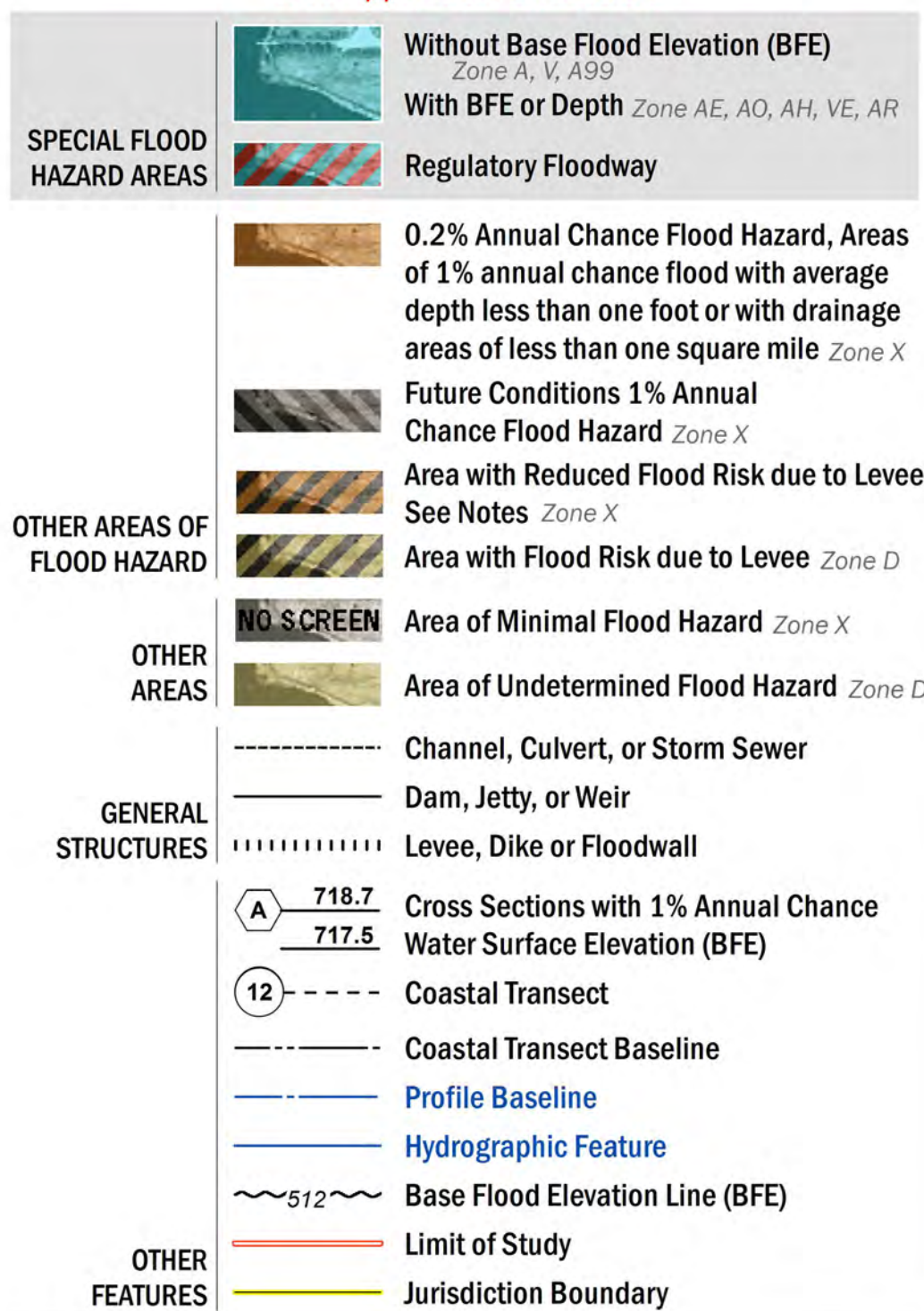
Panel Contains:

COMMUNITY	NUMBER	PANEL	SUFFIX
NAPERVILLE, CITY OF	170213	0037	G
PLAINFIELD, VILLAGE OF	170771	0037	G
WILL COUNTY	170695	0037	G



FLOOD HAZARD INFORMATION

SEE FIS REPORT FOR DETAILED LEGEND AND INDEX MAP FOR FIRM PANEL LAYOUT
THE INFORMATION DEPICTED ON THIS MAP AND SUPPORTING
DOCUMENTATION ARE ALSO AVAILABLE IN DIGITAL FORMAT AT
[HTTP://MSC.FEMA.GOV](http://msc.fema.gov)



NOTES TO USERS

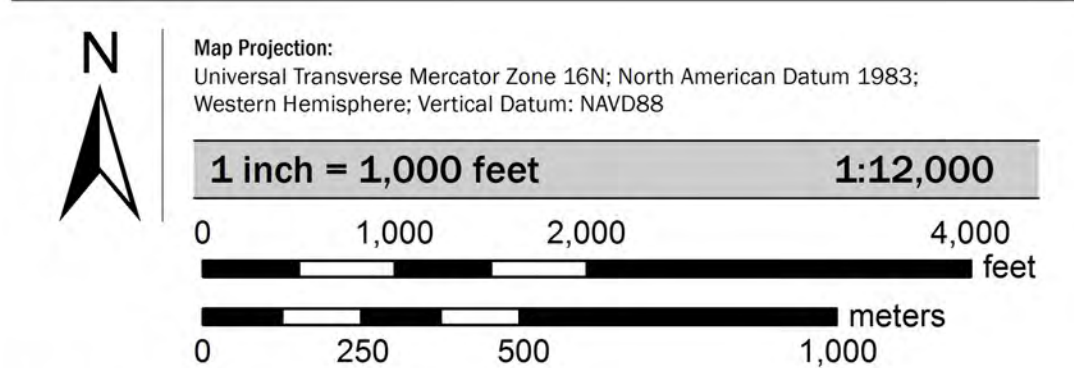
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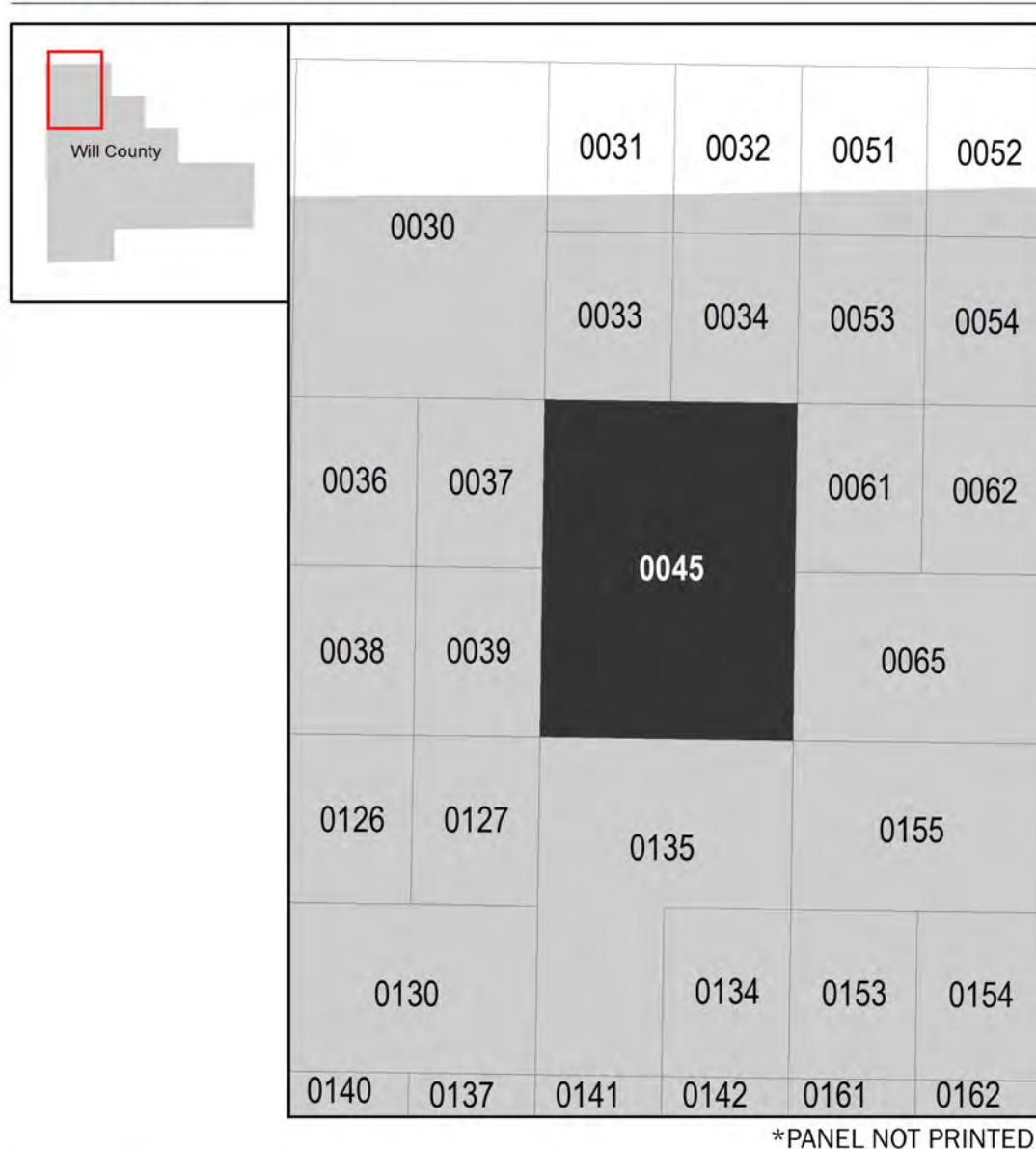
For community and countywide map dates refer to the Flood Insurance Study report for this jurisdiction. To determine if flood insurance is available in this community, contact your insurance agent or call the National Flood Insurance Program at 1-800-638-6620.

Base map information shown on this FIRM was provided in digital format by Will County, Illinois. This information was derived from digital orthorectified imagery at a spatial resolution of 4 inches where available and 9 inches otherwise, from aerial photography dated 2013.

SCALE



PANEL LOCATOR



NATIONAL FLOOD INSURANCE PROGRAM FLOOD INSURANCE RATE MAP

WILL COUNTY, ILLINOIS
and Incorporated Areas

PANEL 45 OF 585



Panel Contains:

COMMUNITY	NUMBER	PANEL	SUFFIX
BOLINGBROOK, VILLAGE OF	170812	0045	G
NAPERVILLE, CITY OF	170213	0045	G
PLAINFIELD, VILLAGE OF	170771	0045	G
ROMEVILLE, VILLAGE OF	170711	0045	G
WILL COUNTY	170695	0045	G

VERSION NUMBER
2.3.3.3

MAP NUMBER
17197C0045G

MAP REVISED
FEBRUARY 15, 2019

FLOODING SOURCE		FLOODWAY			1-PERCENT-ANNUAL-CHANCE FLOOD WATER SURFACE ELEVATION (FEET NAVD88)			
CROSS SECTION	DISTANCE ¹	WIDTH (FEET)	SECTION AREA (SQUARE FEET)	MEAN VELOCITY (FEET PER SECOND)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
DuPage River (continued)								
DF	101,915	429 ³	3,516	3.2	602.6	602.6	602.7	0.1
DG	103,390	548	4,124	2.8	603.2	603.2	603.3	0.1
DH	104,885	745	5,040	2.3	604.3	604.3	604.4	0.1
DI	105,090	653	5,604	2.0	604.5	604.5	604.6	0.1
DJ	105,400	690	4,741	2.4	604.8	604.8	605.1	0.3
DK	106,010	1,027	7,921	1.4	605.6	605.6	605.7	0.1
DL	109,210	990	6,111	1.8	607.1	607.1	607.2	0.1
DM	110,800	829	3,951	2.9	608.0	608.0	608.1	0.1
DN	112,305	942	4,321	2.6	609.0	609.0	609.1	0.1
DO	114,355	711	3,499	3.2	610.3	610.3	610.4	0.1
DP	115,415	448	2,754	4.1	611.2	611.2	611.4	0.2
DQ	115,715	502	3,698	3.1	612.2	612.2	612.3	0.1
DR	115,995	437	3,083	3.7	612.2	612.2	612.4	0.2
DS	117,485	358	2,777	4.1	613.1	613.1	613.2	0.1
DT	119,415	563	3,360	3.4	614.3	614.3	614.5	0.2
DU	120,995	553	3,915	2.9	615.4	615.4	615.5	0.1
DV	121,905	523	3,560	3.2	615.8	615.8	615.9	0.1
DW	122,055	553	4,234	2.7	616.0	616.0	616.2	0.2
DX	122,655	700	4,715	2.4	616.2	616.2	616.4	0.2
DY	123,925	773	4,017	2.8	616.6	616.6	616.7	0.1
DZ	125,335	1,032	5,363	2.1	617.2	617.2	617.3	0.1
EA	127,465	581 ³	3,206	3.4	618.0	618.0	618.1	0.1

¹ Feet above confluence with Des Plaines River

³ Floodway width reflects constricted section, see FIRM panel for regulatory floodway

TABLE 12	FEDERAL EMERGENCY MANAGEMENT AGENCY		FLOODWAY DATA	
	WILL COUNTY, IL AND INCORPORATED AREAS		DU PAGE RIVER	

FLOODING SOURCE		FLOODWAY			1-PERCENT-ANNUAL-CHANCE FLOOD WATER SURFACE ELEVATION (FEET NAVD88)				
CROSS SECTION	DISTANCE ¹	WIDTH (FEET)	SECTION AREA (SQUARE FEET)	MEAN VELOCITY (FEET PER SECOND)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE	
DuPage River (continued)									
	EB	127,635	924	4,457	2.4	618.5	618.5	618.6	0.1
	EC	128,065	1,083	5,903	1.8	618.7	618.7	618.8	0.1
	ED	128,545	485	3,446	3.1	618.8	618.8	618.9	0.1
	EE	128,875	749	3,731	2.9	619.0	619.0	619.1	0.1
	EF	130,425	641	4,112	2.6	620.1	620.1	620.2	0.1
	EG	131,325	654	4,350	2.5	620.6	620.6	620.7	0.1
	EH	131,830	205	2,119	5.1	620.7	620.7	620.8	0.1
	EI	132,795	155	1,542	7.0	621.4	621.4	621.5	0.1
	EJ	132,895	216	2,489	4.3	622.0	622.0	622.2	0.2
	EK	133,020	350	3,075	3.5	622.3	622.3	622.5	0.2
	EL	133,950	654	4,871	2.2	623.1	623.1	623.2	0.1
	EM	135,885	790	4,899	2.1	624.1	624.1	624.2	0.1
	EN	137,285	914	4,791	2.2	624.8	624.8	624.9	0.1
	EO	138,735	1,103	4,966	2.0	625.6	625.6	625.7	0.1
	EP	138,935	970	5,017	2.0	626.3	626.3	626.4	0.1
	EQ	139,855	1,080	4,931	2.0	626.6	626.6	626.7	0.1
	ER	140,995	905	3,545	2.8	627.1	627.1	627.2	0.1
	ES	142,035	1,053	3,682	2.7	628.1	628.1	628.2	0.1
	ET	143,285	1,131	3,935	2.5	629.0	629.0	629.1	0.1
	EU	144,685	1,240	5,198	1.9	630.2	630.2	630.3	0.1
	EV	146,505	937	3,661	2.7	631.3	631.3	631.4	0.1

¹ Feet above confluence with Des Plaines River

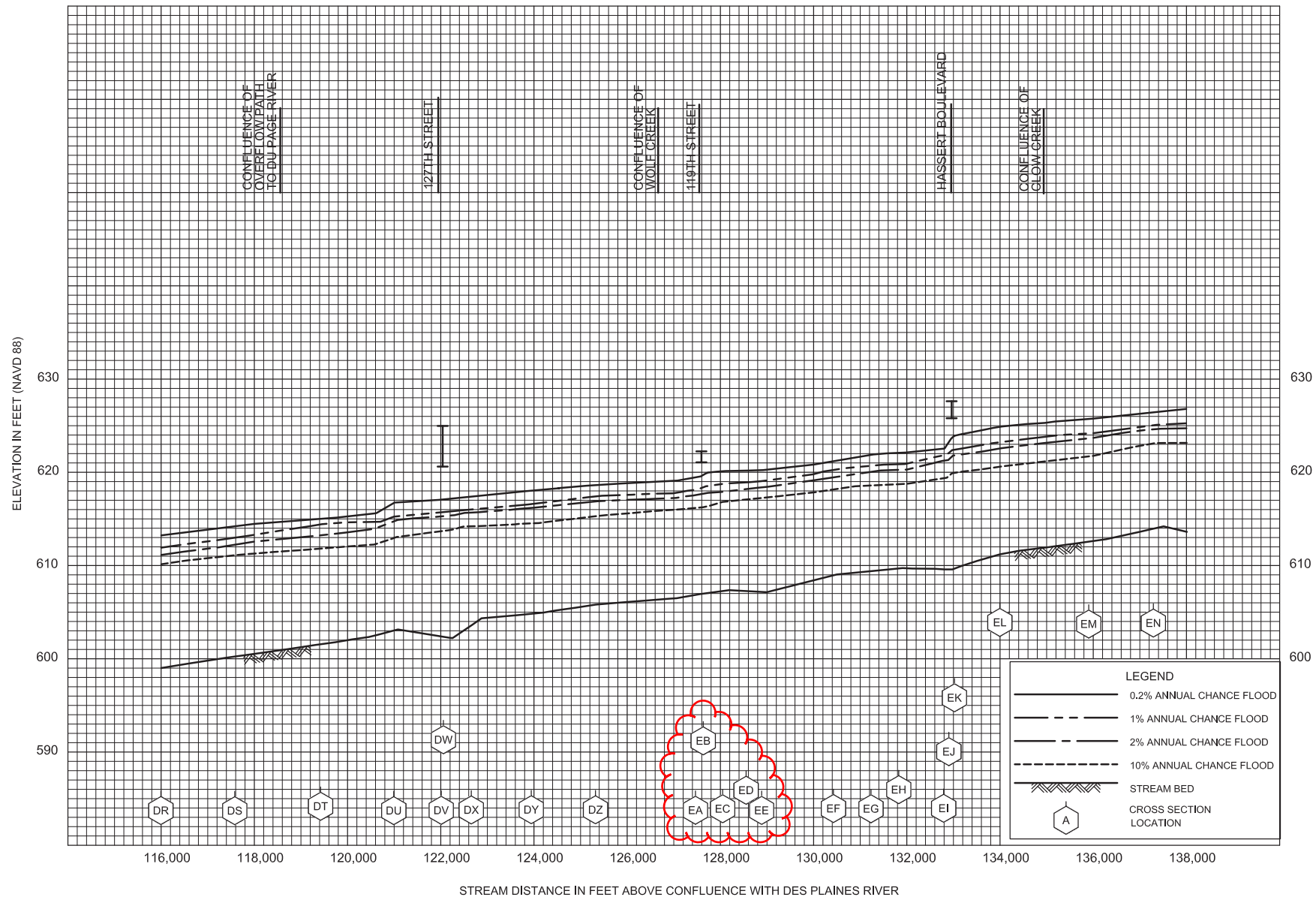
TABLE 12

FEDERAL EMERGENCY MANAGEMENT AGENCY

**WILL COUNTY, IL
AND INCORPORATED AREAS**

FLOODWAY DATA

DU PAGE RIVER



FLOOD PROFILES

DU PAGE RIVER

FEDERAL EMERGENCY MANAGEMENT AGENCY

WILL COUNTY, IL

AND INCORPORATED AREAS

EXHIBIT E

NATIONAL WETLANDS INVENTORY MAP



U.S. Fish and Wildlife Service

National Wetlands Inventory

Wetlands



May 25, 2022

Wetlands



Estuarine and Marine Deepwater



Estuarine and Marine Wetland



Freshwater Emergent Wetland



Freshwater Forested/Shrub Wetland



Freshwater Pond



Lake



Other



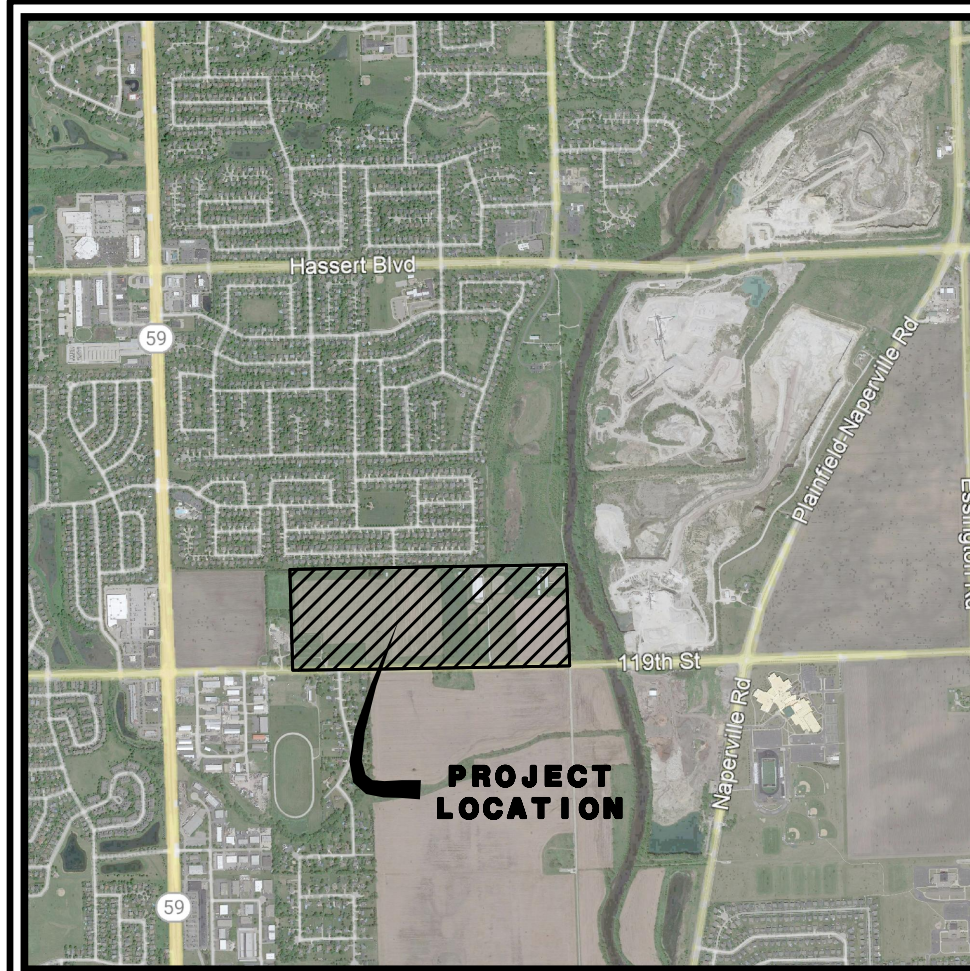
Riverine

This map is for general reference only. The US Fish and Wildlife Service is not responsible for the accuracy or currentness of the base data shown on this map. All wetlands related data should be used in accordance with the layer metadata found on the Wetlands Mapper web site.

EXHIBIT F

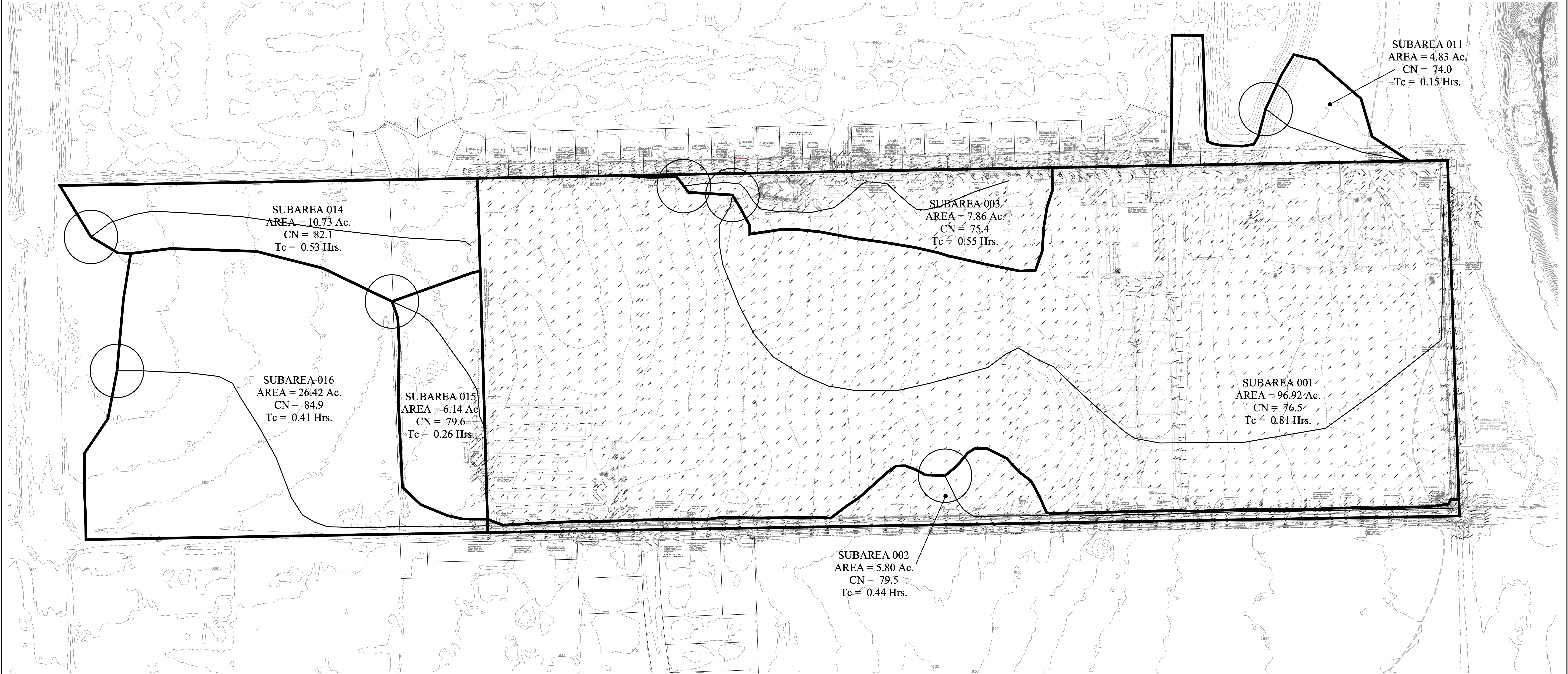
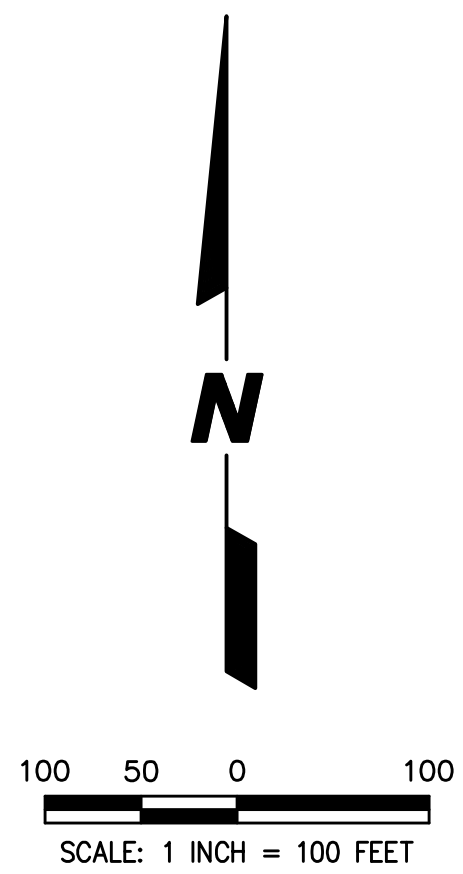
EXISTING CONDITIONS WATERSHED

EXHIBIT



LOCATION MAP

EXISTING WATERSHED EXHIBIT
FOR
POLO CLUB



LEGEND

WATERSHED BOUNDARY

TIME OF CONCENTRATION
FLOW PATH

PREPARED FOR:
PULTE HOME COMPANY, LLC
1900 E. GOLF ROAD, SUITE 300
SCHAUMBURG, IL 60173
(847) 230-5400

PREPARED BY:
CEMCON, Ltd.
Consulting Engineers, Land Surveyors & Planners
2280 White Oak Circle, Suite 100
Aurora, Illinois 60002-9875
PH: 630.862.2100 FAX: 630.862.2199
E-Mail: info@cemcon.com Website: www.cemcon.com

DISC NO.: 402151 FILE NAME: WATERSHED
DRAWN BY: LAL FLD. BK. / PG. NO.: BK./PG.
COMPLETION DATE: 06-06-22 JOB NO.: 402.151
XREF : PREOVR PROJECT MANAGER : CRM

EXHIBIT G

EXISTING CONDITIONS ANALYSIS

TAB 1

SUPPORTING DOCUMENTATION

Worksheet 2: Runoff Curve Number and Runoff

Project Polo Club
Location Naperville, IL

By JMH
Rev

Date 5/31/2022
Date

Circle one: Present Developed

SUB AREA 001

1. Runoff curve number (CN)

Soil Name and Hydrologic Group	Cover Description (cover type, treatment, and hydrologic condition; percent impervious; unconnected/connected impervious area ratio)	CN ^{1/}			Area	Product of CN x Area
		Table 2-2	Fig. 2-3	Fig. 2-4	X acres mi ² %	
C	Open Space - Good Condition	74			77.60	5742.4
C	Straight Row Crops - Good Condition	85			11.07	940.95
D	Open Space - Good Condition (in Floodway)	80			2.46	196.8
D	Straight Row Crops - Good Condition (in Floodway)	89			0.72	64.08
D	Gravel	91			3.69	335.79
	Impervious Area (Pavement, Rooves)	98			1.38	135.24
Totals =					96.92	7415.260

1/ Use only one CN source per line.

$$\text{CN (weighted)} = \frac{\text{Total Product}}{\text{Total Area}} = \frac{7415.260}{96.920} = 76.509$$

Use CN = 76.5

2. Runoff

Frequency yr
Rainfall in
Runoff, Q in
(Use P and CN with table 2-1, fig. 2-1, or eqs. 2-3 and 2-4.)

Storm #1	Storm #2	Storm #3

Worksheet 2: Runoff Curve Number and Runoff

Project Polo Club
Location Naperville, IL

By JMH
Rev

Date 5/31/2022
Date

Circle one: Present Developed

SUB AREA 002

1. Runoff curve number (CN)

Soil Name and Hydrologic Group	Cover Description (cover type, treatment, and hydrologic condition; percent impervious; unconnected/connected impervious area ratio)	CN ^{1/}			Area	Product of CN x Area
		Table 2-2	Fig. 2-3	Fig. 2-4	X acres mi ² %	
C	Open Space - Good Condition	74			4.43	327.82
D	Open Space - Good Condition (in Floodway)	80			0.01	0.8
D	Gravel	91			0.12	10.92
	Impervious Area (Pavement, Rooves)	98			1.24	121.52
Totals =					5.80	461.060

1/ Use only one CN source per line.

$$\text{CN (weighted)} = \frac{\text{Total Product}}{\text{Total Area}} = \frac{461.060}{5.800} = 79.493$$

Use CN = 79.5

2. Runoff

Frequency yr
Rainfall in
Runoff, Q in
(Use P and CN with table 2-1, fig. 2-1, or eqs. 2-3 and 2-4.)

Storm #1	Storm #2	Storm #3

Worksheet 2: Runoff Curve Number and Runoff

Project Polo Club
Location Naperville, IL

By JMH
Rev

Date 5/31/2022
Date

Circle one: Present Developed

SUB AREA 003

1. Runoff curve number (CN)

Soil Name and Hydrologic Group	Cover Description (cover type, treatment, and hydrologic condition; percent impervious; unconnected/connected impervious area ratio)	CN ^{1/}			Area	Product of CN x Area
		Table 2-2	Fig. 2-3	Fig. 2-4	X acres mi ² %	
C	Open Space - Good Condition	74			7.30	540.2
D	Gravel	91			0.33	30.03
	Impervious Area (Pavement, Rooves)	98			0.23	22.54
Totals =					7.86	592.770

1/ Use only one CN source per line.

$$\text{CN (weighted)} = \frac{\text{Total Product}}{\text{Total Area}} = \frac{592.770}{7.860} = 75.416$$

Use CN = 75.4

2. Runoff

Frequency yr
Rainfall in
Runoff, Q in
(Use P and CN with table 2-1, fig. 2-1, or eqs. 2-3 and 2-4.)

Storm #1	Storm #2	Storm #3

Worksheet 2: Runoff Curve Number and Runoff

Project Polo Club
Location Naperville, IL

By JMH
Rev

Date 5/31/2022
Date

Circle one: Present Developed

SUB AREA 011

1. Runoff curve number (CN)

Soil Name and Hydrologic Group	Cover Description (cover type, treatment, and hydrologic condition; percent impervious; unconnected/connected impervious area ratio)	CN ^{1/}			Area	Product of CN x Area
		Table 2-2	Fig. 2-3	Fig. 2-4	X acres mi ² %	
C	Open Space - Good Condition	74			4.83	357.42
Totals =					4.83	357.420

1/ Use only one CN source per line.

$$\text{CN (weighted)} = \frac{\text{Total Product}}{\text{Total Area}} = \frac{357.420}{4.830} = 74.000$$

Use CN = 74.0

2. Runoff

Frequency yr
Rainfall in
Runoff, Q in
(Use P and CN with table 2-1, fig. 2-1, or eqs. 2-3 and 2-4.)

Storm #1	Storm #2	Storm #3

Worksheet 2: Runoff Curve Number and Runoff

Project Polo Club
Location Naperville, IL

By JMH
Rev

Date 5/31/2022
Date

Circle one: Present Developed

SUB AREA 014

1. Runoff curve number (CN)

Soil Name and Hydrologic Group	Cover Description (cover type, treatment, and hydrologic condition; percent impervious; unconnected/connected impervious area ratio)	CN ^{1/}			Area	Product of CN x Area
		Table 2-2	Fig. 2-3	Fig. 2-4	X acres mi ² %	
C	Open Space - Good Condition	74			2.81	207.94
C	Straight Row Crops - Good Condition	85			7.92	673.2
Totals =					10.73	881.140

1/ Use only one CN source per line.

$$\text{CN (weighted)} = \frac{\text{Total Product}}{\text{Total Area}} = \frac{881.140}{10.730} = 82.119$$

Use CN = 82.1

2. Runoff

Frequency yr
Rainfall in
Runoff, Q in
(Use P and CN with table 2-1, fig. 2-1, or eqs. 2-3 and 2-4.)

Storm #1	Storm #2	Storm #3

Worksheet 2: Runoff Curve Number and Runoff

Project Polo Club
Location Naperville, IL

By JMH
Rev

Date 5/31/2022
Date

Circle one: Present Developed

SUB AREA 015

1. Runoff curve number (CN)

Soil Name and Hydrologic Group	Cover Description (cover type, treatment, and hydrologic condition; percent impervious; unconnected/connected impervious area ratio)	CN ^{1/}			Area	Product of CN x Area
		Table 2-2	Fig. 2-3	Fig. 2-4	X acres mi ² %	
C	Open Space - Good Condition	74			4.21	311.54
D	Gravel	91			1.67	151.97
	Impervious Area	98			0.26	25.48
Totals =					6.14	488.990

1/ Use only one CN source per line.

$$\text{CN (weighted)} = \frac{\text{Total Product}}{\text{Total Area}} = \frac{488.990}{6.140} = 79.640$$

Use CN = 79.6

2. Runoff

Frequency yr
Rainfall in
Runoff, Q in
(Use P and CN with table 2-1, fig. 2-1, or eqs. 2-3 and 2-4.)

Storm #1	Storm #2	Storm #3

Worksheet 2: Runoff Curve Number and Runoff

Project Polo Club
Location Naperville, IL

By JMH
Rev

Date 5/31/2022
Date

Circle one: Present Developed

SUB AREA 016

1. Runoff curve number (CN)

Soil Name and Hydrologic Group	Cover Description (cover type, treatment, and hydrologic condition; percent impervious; unconnected/connected impervious area ratio)	CN ^{1/}			Area	Product of CN x Area
		Table 2-2	Fig. 2-3	Fig. 2-4	X acres mi ² %	
C	Open Space - Good Condition	74			0.94	69.56
C	Straight Row Crops - Good Condition	85			24.89	2115.65
	Impervious Area	98			0.59	57.82
Totals =					26.42	2243.030

1/ Use only one CN source per line.

$$\text{CN (weighted)} = \frac{\text{Total Product}}{\text{Total Area}} = \frac{2243.030}{26.420} = 84.899$$

Use CN = 84.9

2. Runoff

Frequency yr
Rainfall in
Runoff, Q in
(Use P and CN with table 2-1, fig. 2-1, or eqs. 2-3 and 2-4.)

Storm #1	Storm #2	Storm #3

Project 402.151
 Location Polo Club

By JMH Date 5/31/2022
 Checked _____ Date _____

Check one: ☒ Present ☐ Developed

Check one: ☒ Tc ☐ Tt

SUBAREA 001

NOTES: Space for as many as two segments per flow type can be used for each worksheet.
 Include a map, schematic, or description of flow segments.

Sheet Flow (Applicable to Tc only)

1. Surface Description (Table 3-1)
2. Manning's roughness coeff., n (Table 3-1)
3. Flow length, L (total $L \leq 300$ ft)
4. Two-yr 24-hr rainfall, P_2
5. Land slope, s

$$T_c = \frac{0.007 (nL)^{0.8}}{P_2^{0.5} s^{0.4}}$$

Segment ID		
	Cultivated Soils	
	0.06	
ft	100	
in	3.34	
ft/ft	0.005	
hr	0.134	+
		=
		0.134

Shallow Concentrated Flow

7. Surface description (paved or unpaved)
8. Flow length, L
9. Watercourse slope, s
10. Average velocity, V (figure 3-1)

$$T_t = \frac{L}{3600 V}$$

Segment ID		
	unpaved	unpaved
	1545	1170
	0.005	0.01
	1.15	1.63
hr	0.374	+
		0.200
		=
		0.574

Channel Flow

12. Cross sectional flow area, a
13. Wetted perimeter, pw
14. Hydraulic radius, $r = a/pw$ compute r
15. Channel Slope, s
16. Manning's roughness coeff., n
17. $V = 1.49 r^{2/3} s^{1/2} / n$
18. Flow length, L

$$T_t = \frac{L}{3600 V}$$

Segment ID		
ft ²		
ft		
ft		
ft/ft		
ft/s	3	3
ft	650	500
hr	0.0602	+
		0.05
		=
		0.106

20. Watershed or subarea T_c or T_t (add T_t in steps 6, 11, and 19) hr 0.814
 min 49

By JMH Date 5/31/2022
Checked _____ Date _____

SUBAREA 002

Sheet Flow (Applicable to Tc only)

Segment ID		
	Short Grass	
e 3-1)	0.15	
ft	100	
in	3.34	
ft/ft	0.006	
hr	0.259	+

hr	0.259	+		=	0.259

Segment ID		

ent ID		
	unpaved	
	90	
	0.018	
	2.18	
hr	0.011	+

hr	0.011	+		=	0.011

Segment ID		

ent ID		
ft ²		
ft		
ft		
ft/ft		
ft/s	3	
ft	1790	
hr	0.1657	+

hr	0.1657	+		=	0.166

hr	0.436

Printed: 6/6/2022

Project 402.151
Location Polo Club

By JMH Date 5/31/2022
Checked _____ Date _____

Check one: ☒ Present ☐ Developed

Check one: ☒ Tc ☐ Tt

SUBAREA 003

NOTES: Space for as many as two segments per flow type can be used for each worksheet.
Include a map, schematic, or description of flow segments.

Sheet Flow (Applicable to Tc only)

1. Surface Description (Table 3-1)
2. Manning's roughness coeff., n (Table 3-1)
3. Flow length, L (total L ≤ 300 ft)
4. Two-yr 24-hr rainfall, P₂
5. Land slope, s

$$T_c = \frac{0.007 (nL)^{0.8}}{P_2^{0.5} S^{0.4}}$$

Segment ID		
	Short Grass	
	0.15	
ft	100	
in	3.34	
ft/ft	0.005	
hr	0.278	+
		=
		0.278

Shallow Concentrated Flow

7. Surface description (paved or unpaved)
8. Flow length, L
9. Watercourse slope, s
10. Average velocity, V (figure 3-1)

$$T_t = \frac{L}{3600 V}$$

Segment ID		
	unpaved	
	1250	
	0.006	
	1.26	
hr	0.276	+
		=
		0.276

Channel Flow

12. Cross sectional flow area, a
13. Wetted perimeter, pw
14. Hydraulic radius, r = a/pw compute r
15. Channel Slope, s
16. Manning's roughness coeff., n
17. $V = 1.49 r^{2/3} s^{1/2} / n$
18. Flow length, L

$$T_t = \frac{L}{3600 V}$$

Segment ID		
ft ²		
ft		
ft		
ft/ft		
ft/s		
ft		
hr		+
		=

20. Watershed or subarea T_c or T_t (add T_t in steps 6, 11, and 19)

hr 0.554
min 33

Project 402.151
Location Polo Club

By JMH Date 5/31/2022
Checked _____ Date _____

Check one: ☒ Present ☐ Developed

Check one: ☒ Tc ☐ Tt

SUBAREA 011

NOTES: Space for as many as two segments per flow type can be used for each worksheet.
Include a map, schematic, or description of flow segments.

Sheet Flow (Applicable to Tc only)

1. Surface Description (Table 3-1)
2. Manning's roughness coeff., n (Table 3-1)
3. Flow length, L (total L ≤ 300 ft)
4. Two-yr 24-hr rainfall, P₂
5. Land slope, s
- 6.

$$T_c = \frac{0.007 (nL)^{0.8}}{P_2^{0.5} S^{0.4}}$$

Segment ID		
	Short Grass	Short Grass
	0.15	0.15
ft	20	80
in	3.34	3.34
ft/ft	0.25	0.01
hr	0.016	0.176
	+	=
		0.192

Shallow Concentrated Flow

7. Surface description (paved or unpaved)
8. Flow length, L
9. Watercourse slope, s
10. Average velocity, V (figure 3-1)
- 11.

$$T_t = \frac{L}{3600 V}$$

Segment ID		
	unpaved	
	480	
	0.01	
	1.63	
hr	0.082	
	+	=
		0.082

Channel Flow

12. Cross sectional flow area, a
13. Wetted perimeter, pw
14. Hydraulic radius, r = a/pw compute r
15. Channel Slope, s
16. Manning's roughness coeff., n
17. $V = 1.49 r^{2/3} s^{1/2} / n$
18. Flow length, L
- 19.

$$T_t = \frac{L}{3600 V}$$

Segment ID		
ft ²		
ft		
ft		
ft/ft		
ft/s		
ft		
hr		
	+	=

20. Watershed or subarea T_c or T_t (add T_t in steps 6, 11, and 19)

hr 0.274
min 16

Project 402.151
Location Polo Club

By JMH Date 5/31/2022
Checked _____ Date _____

Check one: ☒ Present ☐ Developed

Check one: ☒ Tc ☐ Tt

SUBAREA 014

NOTES: Space for as many as two segments per flow type can be used for each worksheet.
Include a map, schematic, or description of flow segments.

Sheet Flow (Applicable to Tc only)

1. Surface Description (Table 3-1)
2. Manning's roughness coeff., n (Table 3-1)
3. Flow length, L (total L ≤ 300 ft)
4. Two-yr 24-hr rainfall, P₂
5. Land slope, s
6.
$$T_c = \frac{0.007 (nL)^{0.8}}{P_2^{0.5} S^{0.4}}$$

Segment ID		
	Cultivated Soil	
	0.06	
ft	100	
in	3.34	
ft/ft	0.003	
hr	0.164	+
		=
		0.164

Shallow Concentrated Flow

7. Surface description (paved or unpaved)
8. Flow length, L
9. Watercourse slope, s
10. Average velocity, V (figure 3-1)
11.
$$T_t = \frac{L}{3600 V}$$

Segment ID		
	unpaved	
	1350	
	0.004	
	1.03	
hr	0.365	+
		=
		0.365

Channel Flow

12. Cross sectional flow area, a
13. Wetted perimeter, pw
14. Hydraulic radius, r = a/pw compute r
15. Channel Slope, s
16. Manning's roughness coeff., n
17. $V = 1.49 r^{2/3} s^{1/2} / n$
18. Flow length, L
19.
$$T_t = \frac{L}{3600 V}$$

Segment ID		
ft ²		
ft		
ft		
ft/ft		
ft/s		
ft		
hr		+
		=

20. Watershed or subarea T_c or T_t (add T_t in steps 6, 11, and 19)

hr 0.529
min 32

Project 402.151
Location Polo Club

By JMH Date 5/31/2022
Checked _____ Date _____

Check one: ☒ Present ☐ Developed

Check one: ☒ Tc ☐ Tt

SUBAREA 015

NOTES: Space for as many as two segments per flow type can be used for each worksheet.
Include a map, schematic, or description of flow segments.

Sheet Flow (Applicable to Tc only)

1. Surface Description (Table 3-1)
2. Manning's roughness coeff., n (Table 3-1)
3. Flow length, L (total L ≤ 300 ft)
4. Two-yr 24-hr rainfall, P₂
5. Land slope, s
6.
$$T_c = \frac{0.007 (nL)^{0.8}}{P_2^{0.5} S^{0.4}}$$

Segment ID		
	Cultivated Soil	
	0.06	
ft	100	
in	3.34	
ft/ft	0.005	
hr	0.134	+
		=
		0.134

Shallow Concentrated Flow

7. Surface description (paved or unpaved)
8. Flow length, L
9. Watercourse slope, s
10. Average velocity, V (figure 3-1)
11.
$$T_t = \frac{L}{3600 V}$$

Segment ID		
	unpaved	
	520	
	0.005	
	1.15	
hr	0.126	+
		=
		0.126

Channel Flow

12. Cross sectional flow area, a
13. Wetted perimeter, pw
14. Hydraulic radius, r = a/pw compute r
15. Channel Slope, s
16. Manning's roughness coeff., n
17. $V = 1.49 r^{2/3} s^{1/2} / n$
18. Flow length, L
19.
$$T_t = \frac{L}{3600 V}$$

Segment ID		
ft ²		
ft		
ft		
ft/ft		
ft/s		
ft		
hr		+
		=

20. Watershed or subarea T_c or T_t (add T_t in steps 6, 11, and 19)

hr 0.260
min 16

Project 402.151
Location Polo Club

By JMH Date 5/31/2022
Checked _____ Date _____

Check one: ☒ Present ☐ Developed

Check one: ☒ Tc ☐ Tt

SUBAREA 016

NOTES: Space for as many as two segments per flow type can be used for each worksheet.
Include a map, schematic, or description of flow segments.

Sheet Flow (Applicable to Tc only)

1. Surface Description (Table 3-1)
2. Manning's roughness coeff., n (Table 3-1)
3. Flow length, L (total L ≤ 300 ft)
4. Two-yr 24-hr rainfall, P₂
5. Land slope, s
6.
$$T_c = \frac{0.007 (nL)^{0.8}}{P_2^{0.5} S^{0.4}}$$

Segment ID		
	Cultivated Soil	
	0.06	
ft	100	
in	3.34	
ft/ft	0.003	
hr	0.164	+
		=
		0.164

Shallow Concentrated Flow

7. Surface description (paved or unpaved)
8. Flow length, L
9. Watercourse slope, s
10. Average velocity, V (figure 3-1)
11.
$$T_t = \frac{L}{3600 V}$$

Segment ID		
	unpaved	
	1000	
	0.008	
	1.45	
hr	0.191	+
		=
		0.191

Channel Flow

12. Cross sectional flow area, a
13. Wetted perimeter, pw
14. Hydraulic radius, r = a/pw compute r
15. Channel Slope, s
16. Manning's roughness coeff., n
17. $V = 1.49 r^{2/3} s^{1/2} / n$
18. Flow length, L
19.
$$T_t = \frac{L}{3600 V}$$

Segment ID		
ft ²		
ft		
ft		
ft/ft		
ft/s	3	
ft	600	
hr	0.0556	+
		=
		0.056

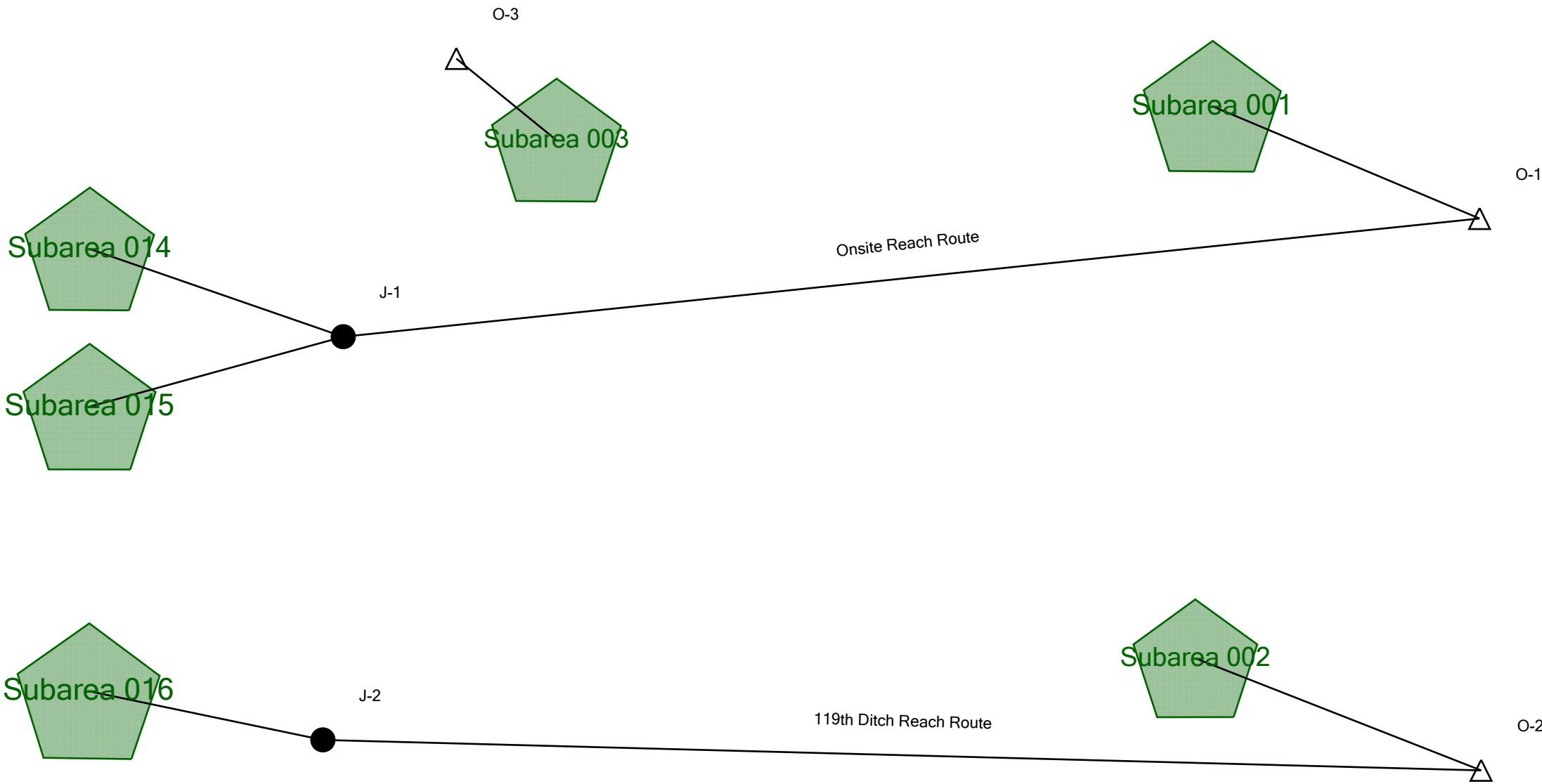
20. Watershed or subarea T_c or T_t (add T_t in steps 6, 11, and 19)

hr	0.411
min	25

TAB 2

“EXIST” PONDPACK MODEL

Scenario: 2Yr 1Hr



Scenario Calculation Summary

Scenario Summary			
ID	1		
Label	100Yr 24 Hr		
Notes			
Active Topology	Base Active Topology		
Hydrology	Base Hydrology		
Rainfall Runoff	100Yr 24Hr		
Physical	Base Physical		
Initial Condition	Base Initial Condition		
Boundary Condition	Base Boundary Condition		
Infiltration and Inflow	Base Infiltration and Inflow		
Output	Base Output		
User Data Extensions	Base User Data Extensions		
PondPack Engine Calculation Options	72Hr		
Output Summary			
Output Increment	0.050 hours	Duration	72.000 hours
Rainfall Summary			
Return Event Tag	100	Rainfall Type	Time-Depth Curve
Total Depth	8.6 in	Storm Event	100YR-24HR

Executive Summary (Nodes)

Label	Scenario	Return Event (years)	Truncation	Hydrograph Volume (ac-ft)	Time to Peak (hours)	Peak Flow (ft ³ /s)	Maximum Water Surface Elevation (ft)	Maximum Pond Storage (ac-ft)
J-1	100Yr 24 Hr	100	None	8.864	16.000	11.73	(N/A)	(N/A)
J-2	100Yr 24 Hr	100	None	14.866	16.000	19.02	(N/A)	(N/A)
O-1	100Yr 24 Hr	100	None	55.219	16.200	75.02	(N/A)	(N/A)
O-2	100Yr 24 Hr	100	None	17.815	16.050	22.93	(N/A)	(N/A)
O-3	100Yr 24 Hr	100	None	3.673	16.100	5.10	(N/A)	(N/A)
Subarea 001	100Yr 24 Hr	100	None	46.356	16.200	63.43	(N/A)	(N/A)
Subarea 002	100Yr 24 Hr	100	None	2.949	16.050	3.96	(N/A)	(N/A)
Subarea 003	100Yr 24 Hr	100	None	3.673	16.100	5.10	(N/A)	(N/A)
Subarea 014	100Yr 24 Hr	100	None	5.736	16.050	7.52	(N/A)	(N/A)
Subarea 015	100Yr 24 Hr	100	None	3.128	16.000	4.21	(N/A)	(N/A)

Scenario Calculation Summary

Executive Summary (Nodes)

Label	Scenario	Return Event (years)	Truncation	Hydrograph Volume (ac-ft)	Time to Peak (hours)	Peak Flow (ft ³ /s)	Maximum Water Surface Elevation (ft)	Maximum Pond Storage (ac-ft)
Subarea 016	100Yr 24 Hr	100	None	14.866	16.000	19.02	(N/A)	(N/A)

Executive Summary (Links)

Label	Type	Location	Hydrograph Volume (ac-ft)	Peak Time (hours)	Peak Flow (ft ³ /s)	End Point	Node Flow Direction
119th Ditch Reach Route	Channel	Upstream	14.866	16.000	19.02	J-2	
119th Ditch Reach Route	Channel	Link	14.866	16.100	18.97		
119th Ditch Reach Route	Channel	Downstream	17.815	16.050	22.93	O-2	
Onsite Reach Route	Channel	Upstream	8.864	16.000	11.73	J-1	
Onsite Reach Route	Channel	Link	8.864	16.200	11.59		
Onsite Reach Route	Channel	Downstream	55.219	16.200	75.02	O-1	

Scenario Calculation Summary

Scenario Summary			
ID	21		
Label	100Yr 2Hr		
Notes			
Active Topology	<I> Base Active Topology		
Hydrology	<I> Base Hydrology		
Rainfall Runoff	100Yr 2Hr		
Physical	<I> Base Physical		
Initial Condition	<I> Base Initial Condition		
Boundary Condition	<I> Base Boundary Condition		
Infiltration and Inflow	<I> Base Infiltration and Inflow		
Output	<I> Base Output		
User Data Extensions	<I> Base User Data Extensions		
PondPack Engine Calculation Options	24Hr		
Output Summary			
Output Increment	0.020 hours	Duration	24.000 hours
Rainfall Summary			
Return Event Tag	100	Rainfall Type	Time-Depth Curve
Total Depth	5.0 in	Storm Event	100YR- 2HR

Executive Summary (Nodes)

Label	Scenario	Return Event (years)	Truncation	Hydrograph Volume (ac-ft)	Time to Peak (hours)	Peak Flow (ft ³ /s)	Maximum Water Surface Elevation (ft)	Maximum Pond Storage (ac-ft)
J-1	100Yr 2Hr	100	None	4.186	0.700	45.78	(N/A)	(N/A)
J-2	100Yr 2Hr	100	None	7.333	0.700	87.41	(N/A)	(N/A)
O-1	100Yr 2Hr	100	None	24.814	1.080	206.19	(N/A)	(N/A)
O-2	100Yr 2Hr	100	None	8.696	0.860	87.75	(N/A)	(N/A)
O-3	100Yr 2Hr	100	None	1.611	0.880	16.29	(N/A)	(N/A)
Subarea 001	100Yr 2Hr	100	None	20.629	1.080	176.82	(N/A)	(N/A)
Subarea 002	100Yr 2Hr	100	None	1.364	0.760	15.44	(N/A)	(N/A)
Subarea 003	100Yr 2Hr	100	None	1.611	0.880	16.29	(N/A)	(N/A)
Subarea 014	100Yr 2Hr	100	None	2.738	0.780	29.31	(N/A)	(N/A)
Subarea 015	100Yr 2Hr	100	None	1.448	0.620	18.94	(N/A)	(N/A)
Subarea 016	100Yr 2Hr	100	None	7.333	0.700	87.41	(N/A)	(N/A)

Executive Summary (Links)

Scenario Calculation Summary

Executive Summary (Links)

Label	Type	Location	Hydrograph Volume (ac-ft)	Peak Time (hours)	Peak Flow (ft ³ /s)	End Point	Node Flow Direction
119th Ditch Reach Route	Channel	Upstream	7.333	0.700	87.41	J-2	
119th Ditch Reach Route	Channel	Link	7.333	0.880	73.52		
119th Ditch Reach Route	Channel	Downstream	8.696	0.860	87.75	O-2	
Onsite Reach Route	Channel	Upstream	4.186	0.700	45.78	J-1	
Onsite Reach Route	Channel	Link	4.184	1.160	29.59		
Onsite Reach Route	Channel	Downstream	24.814	1.080	206.19	O-1	

Scenario Calculation Summary

Scenario Summary			
ID	33		
Label	2Yr 24Hr		
Notes			
Active Topology	Base Active Topology		
Hydrology	Base Hydrology		
Rainfall Runoff	2Yr 24Hr		
Physical	Base Physical		
Initial Condition	Base Initial Condition		
Boundary Condition	Base Boundary Condition		
Infiltration and Inflow	Base Infiltration and Inflow		
Output	Base Output		
User Data Extensions	Base User Data Extensions		
PondPack Engine Calculation Options	72Hr		
Output Summary			
Output Increment	0.050 hours	Duration	72.000 hours
Rainfall Summary			
Return Event Tag	2	Rainfall Type	Time-Depth Curve
Total Depth	3.3 in	Storm Event	2YR-24HR

Executive Summary (Nodes)

Label	Scenario	Return Event (years)	Truncation	Hydrograph Volume (ac-ft)	Time to Peak (hours)	Peak Flow (ft ³ /s)	Maximum Water Surface Elevation (ft)	Maximum Pond Storage (ac-ft)
J-1	2Yr 24Hr	2	None	2.242	16.050	3.42	(N/A)	(N/A)
J-2	2Yr 24Hr	2	None	4.117	16.050	6.03	(N/A)	(N/A)
O-1	2Yr 24Hr	2	None	12.592	17.100	19.92	(N/A)	(N/A)
O-2	2Yr 24Hr	2	None	4.830	16.200	7.07	(N/A)	(N/A)
O-3	2Yr 24Hr	2	None	0.795	17.050	1.30	(N/A)	(N/A)
Subarea 001	2Yr 24Hr	2	None	10.350	17.100	16.59	(N/A)	(N/A)
Subarea 002	2Yr 24Hr	2	None	0.714	16.100	1.11	(N/A)	(N/A)
Subarea 003	2Yr 24Hr	2	None	0.795	17.050	1.30	(N/A)	(N/A)
Subarea 014	2Yr 24Hr	2	None	1.483	16.150	2.24	(N/A)	(N/A)
Subarea 015	2Yr 24Hr	2	None	0.759	16.050	1.19	(N/A)	(N/A)
Subarea 016	2Yr 24Hr	2	None	4.117	16.050	6.03	(N/A)	(N/A)

Executive Summary (Links)

Scenario Calculation Summary

Executive Summary (Links)

Label	Type	Location	Hydrograph Volume (ac-ft)	Peak Time (hours)	Peak Flow (ft ³ /s)	End Point	Node Flow Direction
119th Ditch Reach Route	Channel	Upstream	4.117	16.050	6.03	J-2	
119th Ditch Reach Route	Channel	Link	4.117	16.250	5.96		
119th Ditch Reach Route	Channel	Downstream	4.830	16.200	7.07	O-2	
Onsite Reach Route	Channel	Upstream	2.242	16.050	3.42	J-1	
Onsite Reach Route	Channel	Link	2.242	17.150	3.33		
Onsite Reach Route	Channel	Downstream	12.592	17.100	19.92	O-1	

Scenario Calculation Summary

Scenario Summary			
ID	40		
Label	2Yr 2Hr		
Notes			
Active Topology	<I> Base Active Topology		
Hydrology	<I> Base Hydrology		
Rainfall Runoff	2Yr 2Hr		
Physical	<I> Base Physical		
Initial Condition	<I> Base Initial Condition		
Boundary Condition	<I> Base Boundary Condition		
Infiltration and Inflow	<I> Base Infiltration and Inflow		
Output	<I> Base Output		
User Data Extensions	<I> Base User Data Extensions		
PondPack Engine Calculation Options	24Hr		
Output Summary			
Output Increment	0.020 hours	Duration	24.000 hours
Rainfall Summary			
Return Event Tag	2	Rainfall Type	Time-Depth Curve
Total Depth	1.9 in	Storm Event	2YR- 2HR

Executive Summary (Nodes)

Label	Scenario	Return Event (years)	Truncation	Hydrograph Volume (ac-ft)	Time to Peak (hours)	Peak Flow (ft ³ /s)	Maximum Water Surface Elevation (ft)	Maximum Pond Storage (ac-ft)
J-1	2Yr 2Hr	2	None	0.810	0.840	7.76	(N/A)	(N/A)
J-2	2Yr 2Hr	2	None	1.643	0.760	17.77	(N/A)	(N/A)
O-1	2Yr 2Hr	2	None	4.036	1.400	29.40	(N/A)	(N/A)
O-2	2Yr 2Hr	2	None	1.888	1.080	15.32	(N/A)	(N/A)
O-3	2Yr 2Hr	2	None	0.239	1.040	2.05	(N/A)	(N/A)
Subarea 001	2Yr 2Hr	2	None	3.227	1.300	25.35	(N/A)	(N/A)
Subarea 002	2Yr 2Hr	2	None	0.245	0.880	2.40	(N/A)	(N/A)
Subarea 003	2Yr 2Hr	2	None	0.239	1.040	2.05	(N/A)	(N/A)
Subarea 014	2Yr 2Hr	2	None	0.549	0.920	5.21	(N/A)	(N/A)
Subarea 015	2Yr 2Hr	2	None	0.261	0.700	3.00	(N/A)	(N/A)
Subarea 016	2Yr 2Hr	2	None	1.643	0.760	17.77	(N/A)	(N/A)

Executive Summary (Links)

Scenario Calculation Summary

Executive Summary (Links)

Label	Type	Location	Hydrograph Volume (ac-ft)	Peak Time (hours)	Peak Flow (ft ³ /s)	End Point	Node Flow Direction
119th Ditch Reach Route	Channel	Upstream	1.643	0.760	17.77	J-2	
119th Ditch Reach Route	Channel	Link	1.643	1.100	13.21		
119th Ditch Reach Route	Channel	Downstream	1.888	1.080	15.32	O-2	
Onsite Reach Route	Channel	Upstream	0.810	0.840	7.76	J-1	
Onsite Reach Route	Channel	Link	0.809	1.660	4.41		
Onsite Reach Route	Channel	Downstream	4.036	1.400	29.40	O-1	

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Subsection: Time-Depth Curve
Label: UPDATED 100YR 0,5HR-6HR

Return Event: 100 years
Storm Event: 100YR- 2HR

Time-Depth Curve: 100YR- 2HR

Label	100YR- 2HR
Start Time	0.000 hours
Increment	0.083 hours
End Time	1.999 hours
Return Event	100 years

CUMULATIVE RAINFALL (in)

Output Time Increment = 0.083 hours

Time on left represents time for first value in each row.

Time (hours)	Depth (in)	Depth (in)	Depth (in)	Depth (in)	Depth (in)
0.000	0.0	0.4	0.9	1.4	1.9
0.417	2.4	2.8	3.1	3.3	3.5
0.833	3.7	3.8	4.0	4.1	4.2
1.250	4.3	4.4	4.5	4.6	4.7
1.666	4.7	4.8	4.9	4.9	5.0

Subsection: Time-Depth Curve
Label: UPDATED 100YR 12HR-48HR

Return Event: 100 years
Storm Event: 100YR-24HR

Time-Depth Curve: 100YR-24HR

Label	100YR-24HR
Start Time	0.000 hours
Increment	1.000 hours
End Time	24.000 hours
Return Event	100 years

CUMULATIVE RAINFALL (in)

Output Time Increment = 1.000 hours

Time on left represents time for first value in each row.

Time (hours)	Depth (in)	Depth (in)	Depth (in)	Depth (in)	Depth (in)
0.000	0.0	0.2	0.4	0.6	0.8
5.000	1.0	1.2	1.4	1.7	2.0
10.000	2.3	2.7	3.1	3.8	4.5
15.000	5.2	6.0	6.7	7.3	7.7
20.000	8.0	8.2	8.3	8.4	8.6

Subsection: Time-Depth Curve
Label: UPDATED 2YR 0.5HR-6HR

Return Event: 2 years
Storm Event: 2YR- 2HR

Time-Depth Curve: 2YR- 2HR

Label	2YR- 2HR
Start Time	0.000 hours
Increment	0.083 hours
End Time	2.000 hours
Return Event	2 years

CUMULATIVE RAINFALL (in)

Output Time Increment = 0.083 hours

Time on left represents time for first value in each row.

Time (hours)	Depth (in)	Depth (in)	Depth (in)	Depth (in)	Depth (in)
0.000	0.0	0.2	0.3	0.5	0.7
0.417	0.9	1.1	1.2	1.3	1.4
0.833	1.4	1.5	1.5	1.6	1.7
1.250	1.7	1.7	1.8	1.8	1.8
1.667	1.9	1.9	1.9	1.9	1.9

Subsection: Time-Depth Curve
Label: UPDATED 2YR 12HR-48HR

Return Event: 2 years
Storm Event: 2YR-24HR

Time-Depth Curve: 2YR-24HR

Label	2YR-24HR
Start Time	0.000 hours
Increment	1.000 hours
End Time	24.000 hours
Return Event	2 years

CUMULATIVE RAINFALL (in)

Output Time Increment = 1.000 hours

Time on left represents time for first value in each row.

Time (hours)	Depth (in)	Depth (in)	Depth (in)	Depth (in)	Depth (in)
0.000	0.0	0.1	0.1	0.2	0.3
5.000	0.4	0.5	0.6	0.7	0.8
10.000	0.9	1.0	1.2	1.5	1.7
15.000	2.0	2.3	2.6	2.8	3.0
20.000	3.1	3.2	3.2	3.3	3.3

Subsection: Unit Hydrograph Summary
Label: Subarea 001

Return Event: 2 years
Storm Event: 2YR- 2HR

Storm Event	2YR- 2HR
Return Event	2 years
Duration	24.000 hours
Depth	1.9 in
Time of Concentration (Composite)	0.810 hours
Area (User Defined)	96.920 acres
Computational Time Increment	0.108 hours
Time to Peak (Computed)	1.296 hours
Flow (Peak, Computed)	25.36 ft ³ /s
Output Increment	0.020 hours
Time to Flow (Peak Interpolated Output)	1.300 hours
Flow (Peak Interpolated Output)	25.35 ft ³ /s
Drainage Area	
SCS CN (Composite)	76.500
Area (User Defined)	96.920 acres
Maximum Retention (Pervious)	3.1 in
Maximum Retention (Pervious, 20 percent)	0.6 in
Cumulative Runoff	
Cumulative Runoff Depth (Pervious)	0.4 in
Runoff Volume (Pervious)	3.227 ac-ft
Hydrograph Volume (Area under Hydrograph curve)	
Volume	3.227 ac-ft
SCS Unit Hydrograph Parameters	
Time of Concentration (Composite)	0.810 hours
Computational Time Increment	0.108 hours
Unit Hydrograph Shape Factor	483.432
K Factor	0.749
Receding/Rising, Tr/Tp	1.670
Unit peak, qp	135.57 ft ³ /s
Unit peak time, Tp	0.540 hours

Subsection: Unit Hydrograph Summary
Label: Subarea 001

Return Event: 2 years
Storm Event: 2YR- 2HR

SCS Unit Hydrograph Parameters	
Unit receding limb, Tr	2.160 hours
Total unit time, Tb	2.700 hours

Subsection: Unit Hydrograph Summary
Label: Subarea 001

Return Event: 100 years
Storm Event: 100YR- 2HR

Storm Event	100YR- 2HR
Return Event	100 years
Duration	24.000 hours
Depth	5.0 in
Time of Concentration (Composite)	0.810 hours
Area (User Defined)	96.920 acres

Computational Time Increment	0.108 hours
Time to Peak (Computed)	1.080 hours
Flow (Peak, Computed)	176.82 ft ³ /s
Output Increment	0.020 hours
Time to Flow (Peak Interpolated Output)	1.080 hours
Flow (Peak Interpolated Output)	176.82 ft ³ /s

Drainage Area	
SCS CN (Composite)	76.500
Area (User Defined)	96.920 acres
Maximum Retention (Pervious)	3.1 in
Maximum Retention (Pervious, 20 percent)	0.6 in

Cumulative Runoff	
Cumulative Runoff Depth (Pervious)	2.6 in
Runoff Volume (Pervious)	20.629 ac-ft

Hydrograph Volume (Area under Hydrograph curve)	
Volume	20.629 ac-ft

SCS Unit Hydrograph Parameters	
Time of Concentration (Composite)	0.810 hours
Computational Time Increment	0.108 hours
Unit Hydrograph Shape Factor	483.432
K Factor	0.749
Receding/Rising, Tr/Tp	1.670
Unit peak, qp	135.57 ft ³ /s
Unit peak time, Tp	0.540 hours

Subsection: Unit Hydrograph Summary
Label: Subarea 001

Return Event: 100 years
Storm Event: 100YR- 2HR

SCS Unit Hydrograph Parameters

Unit receding limb, Tr	2.160 hours
Total unit time, Tb	2.700 hours

Subsection: Unit Hydrograph Summary
Label: Subarea 002

Return Event: 2 years
Storm Event: 2YR- 2HR

Storm Event	2YR- 2HR
Return Event	2 years
Duration	24.000 hours
Depth	1.9 in
Time of Concentration (Composite)	0.440 hours
Area (User Defined)	5.800 acres
Computational Time Increment	0.059 hours
Time to Peak (Computed)	0.880 hours
Flow (Peak, Computed)	2.40 ft ³ /s
Output Increment	0.020 hours
Time to Flow (Peak Interpolated Output)	0.880 hours
Flow (Peak Interpolated Output)	2.40 ft ³ /s
Drainage Area	
SCS CN (Composite)	79.500
Area (User Defined)	5.800 acres
Maximum Retention (Pervious)	2.6 in
Maximum Retention (Pervious, 20 percent)	0.5 in
Cumulative Runoff	
Cumulative Runoff Depth (Pervious)	0.5 in
Runoff Volume (Pervious)	0.245 ac-ft
Hydrograph Volume (Area under Hydrograph curve)	
Volume	0.245 ac-ft
SCS Unit Hydrograph Parameters	
Time of Concentration (Composite)	0.440 hours
Computational Time Increment	0.059 hours
Unit Hydrograph Shape Factor	483.432
K Factor	0.749
Receding/Rising, Tr/Tp	1.670
Unit peak, qp	14.94 ft ³ /s
Unit peak time, Tp	0.293 hours

Subsection: Unit Hydrograph Summary
Label: Subarea 002

Return Event: 2 years
Storm Event: 2YR- 2HR

SCS Unit Hydrograph Parameters	
Unit receding limb, Tr	1.173 hours
Total unit time, Tb	1.467 hours

Subsection: Unit Hydrograph Summary
Label: Subarea 002

Return Event: 100 years
Storm Event: 100YR- 2HR

Storm Event	100YR- 2HR
Return Event	100 years
Duration	24.000 hours
Depth	5.0 in
Time of Concentration (Composite)	0.440 hours
Area (User Defined)	5.800 acres
Computational Time Increment	0.059 hours
Time to Peak (Computed)	0.763 hours
Flow (Peak, Computed)	15.45 ft ³ /s
Output Increment	0.020 hours
Time to Flow (Peak Interpolated Output)	0.760 hours
Flow (Peak Interpolated Output)	15.44 ft ³ /s
Drainage Area	
SCS CN (Composite)	79.500
Area (User Defined)	5.800 acres
Maximum Retention (Pervious)	2.6 in
Maximum Retention (Pervious, 20 percent)	0.5 in
Cumulative Runoff	
Cumulative Runoff Depth (Pervious)	2.8 in
Runoff Volume (Pervious)	1.364 ac-ft
Hydrograph Volume (Area under Hydrograph curve)	
Volume	1.364 ac-ft
SCS Unit Hydrograph Parameters	
Time of Concentration (Composite)	0.440 hours
Computational Time Increment	0.059 hours
Unit Hydrograph Shape Factor	483.432
K Factor	0.749
Receding/Rising, Tr/Tp	1.670
Unit peak, qp	14.94 ft ³ /s
Unit peak time, Tp	0.293 hours

Subsection: Unit Hydrograph Summary
Label: Subarea 002

Return Event: 100 years
Storm Event: 100YR- 2HR

SCS Unit Hydrograph Parameters

Unit receding limb, Tr	1.173 hours
Total unit time, Tb	1.467 hours

Subsection: Unit Hydrograph Summary
Label: Subarea 003

Return Event: 2 years
Storm Event: 2YR- 2HR

Storm Event	2YR- 2HR
Return Event	2 years
Duration	24.000 hours
Depth	1.9 in
Time of Concentration (Composite)	0.550 hours
Area (User Defined)	7.860 acres
Computational Time Increment	0.073 hours
Time to Peak (Computed)	1.027 hours
Flow (Peak, Computed)	2.05 ft ³ /s
Output Increment	0.020 hours
Time to Flow (Peak Interpolated Output)	1.040 hours
Flow (Peak Interpolated Output)	2.05 ft ³ /s
Drainage Area	
SCS CN (Composite)	75.400
Area (User Defined)	7.860 acres
Maximum Retention (Pervious)	3.3 in
Maximum Retention (Pervious, 20 percent)	0.7 in
Cumulative Runoff	
Cumulative Runoff Depth (Pervious)	0.4 in
Runoff Volume (Pervious)	0.239 ac-ft
Hydrograph Volume (Area under Hydrograph curve)	
Volume	0.239 ac-ft
SCS Unit Hydrograph Parameters	
Time of Concentration (Composite)	0.550 hours
Computational Time Increment	0.073 hours
Unit Hydrograph Shape Factor	483.432
K Factor	0.749
Receding/Rising, Tr/Tp	1.670
Unit peak, qp	16.19 ft ³ /s
Unit peak time, Tp	0.367 hours

Subsection: Unit Hydrograph Summary
Label: Subarea 003

Return Event: 2 years
Storm Event: 2YR- 2HR

SCS Unit Hydrograph Parameters	
Unit receding limb, Tr	1.467 hours
Total unit time, Tb	1.833 hours

Subsection: Unit Hydrograph Summary
Label: Subarea 003

Return Event: 100 years
Storm Event: 100YR- 2HR

Storm Event	100YR- 2HR
Return Event	100 years
Duration	24.000 hours
Depth	5.0 in
Time of Concentration (Composite)	0.550 hours
Area (User Defined)	7.860 acres
Computational Time Increment	0.073 hours
Time to Peak (Computed)	0.880 hours
Flow (Peak, Computed)	16.29 ft ³ /s
Output Increment	0.020 hours
Time to Flow (Peak Interpolated Output)	0.880 hours
Flow (Peak Interpolated Output)	16.29 ft ³ /s
Drainage Area	
SCS CN (Composite)	75.400
Area (User Defined)	7.860 acres
Maximum Retention (Pervious)	3.3 in
Maximum Retention (Pervious, 20 percent)	0.7 in
Cumulative Runoff	
Cumulative Runoff Depth (Pervious)	2.5 in
Runoff Volume (Pervious)	1.611 ac-ft
Hydrograph Volume (Area under Hydrograph curve)	
Volume	1.611 ac-ft
SCS Unit Hydrograph Parameters	
Time of Concentration (Composite)	0.550 hours
Computational Time Increment	0.073 hours
Unit Hydrograph Shape Factor	483.432
K Factor	0.749
Receding/Rising, Tr/Tp	1.670
Unit peak, qp	16.19 ft ³ /s
Unit peak time, Tp	0.367 hours

Subsection: Unit Hydrograph Summary
Label: Subarea 003

Return Event: 100 years
Storm Event: 100YR- 2HR

SCS Unit Hydrograph Parameters	
Unit receding limb, Tr	1.467 hours
Total unit time, Tb	1.833 hours

Subsection: Unit Hydrograph Summary
Label: Subarea 014

Return Event: 2 years
Storm Event: 2YR- 2HR

Storm Event	2YR- 2HR
Return Event	2 years
Duration	24.000 hours
Depth	1.9 in
Time of Concentration (Composite)	0.530 hours
Area (User Defined)	10.730 acres
Computational Time Increment	0.071 hours
Time to Peak (Computed)	0.919 hours
Flow (Peak, Computed)	5.21 ft ³ /s
Output Increment	0.020 hours
Time to Flow (Peak Interpolated Output)	0.920 hours
Flow (Peak Interpolated Output)	5.21 ft ³ /s
Drainage Area	
SCS CN (Composite)	82.100
Area (User Defined)	10.730 acres
Maximum Retention (Pervious)	2.2 in
Maximum Retention (Pervious, 20 percent)	0.4 in
Cumulative Runoff	
Cumulative Runoff Depth (Pervious)	0.6 in
Runoff Volume (Pervious)	0.549 ac-ft
Hydrograph Volume (Area under Hydrograph curve)	
Volume	0.549 ac-ft
SCS Unit Hydrograph Parameters	
Time of Concentration (Composite)	0.530 hours
Computational Time Increment	0.071 hours
Unit Hydrograph Shape Factor	483.432
K Factor	0.749
Receding/Rising, Tr/Tp	1.670
Unit peak, qp	22.94 ft ³ /s
Unit peak time, Tp	0.353 hours

Subsection: Unit Hydrograph Summary
Label: Subarea 014

Return Event: 2 years
Storm Event: 2YR- 2HR

SCS Unit Hydrograph Parameters	
Unit receding limb, Tr	1.413 hours
Total unit time, Tb	1.767 hours

Subsection: Unit Hydrograph Summary
Label: Subarea 014

Return Event: 100 years
Storm Event: 100YR- 2HR

Storm Event	100YR- 2HR
Return Event	100 years
Duration	24.000 hours
Depth	5.0 in
Time of Concentration (Composite)	0.530 hours
Area (User Defined)	10.730 acres

Computational Time Increment	0.071 hours
Time to Peak (Computed)	0.777 hours
Flow (Peak, Computed)	29.32 ft ³ /s
Output Increment	0.020 hours
Time to Flow (Peak Interpolated Output)	0.780 hours
Flow (Peak Interpolated Output)	29.31 ft ³ /s

Drainage Area	
SCS CN (Composite)	82.100
Area (User Defined)	10.730 acres
Maximum Retention (Pervious)	2.2 in
Maximum Retention (Pervious, 20 percent)	0.4 in

Cumulative Runoff	
Cumulative Runoff Depth (Pervious)	3.1 in
Runoff Volume (Pervious)	2.738 ac-ft

Hydrograph Volume (Area under Hydrograph curve)	
Volume	2.738 ac-ft

SCS Unit Hydrograph Parameters	
Time of Concentration (Composite)	0.530 hours
Computational Time Increment	0.071 hours
Unit Hydrograph Shape Factor	483.432
K Factor	0.749
Receding/Rising, Tr/Tp	1.670
Unit peak, qp	22.94 ft ³ /s
Unit peak time, Tp	0.353 hours

Subsection: Unit Hydrograph Summary
Label: Subarea 014

Return Event: 100 years
Storm Event: 100YR- 2HR

SCS Unit Hydrograph Parameters

Unit receding limb, Tr	1.413 hours
Total unit time, Tb	1.767 hours

Subsection: Unit Hydrograph Summary
Label: Subarea 015

Return Event: 2 years
Storm Event: 2YR- 2HR

Storm Event	2YR- 2HR
Return Event	2 years
Duration	24.000 hours
Depth	1.9 in
Time of Concentration (Composite)	0.260 hours
Area (User Defined)	6.140 acres
Computational Time Increment	0.035 hours
Time to Peak (Computed)	0.693 hours
Flow (Peak, Computed)	3.00 ft ³ /s
Output Increment	0.020 hours
Time to Flow (Peak Interpolated Output)	0.700 hours
Flow (Peak Interpolated Output)	3.00 ft ³ /s
Drainage Area	
SCS CN (Composite)	79.600
Area (User Defined)	6.140 acres
Maximum Retention (Pervious)	2.6 in
Maximum Retention (Pervious, 20 percent)	0.5 in
Cumulative Runoff	
Cumulative Runoff Depth (Pervious)	0.5 in
Runoff Volume (Pervious)	0.261 ac-ft
Hydrograph Volume (Area under Hydrograph curve)	
Volume	0.261 ac-ft
SCS Unit Hydrograph Parameters	
Time of Concentration (Composite)	0.260 hours
Computational Time Increment	0.035 hours
Unit Hydrograph Shape Factor	483.432
K Factor	0.749
Receding/Rising, Tr/Tp	1.670
Unit peak, qp	26.76 ft ³ /s
Unit peak time, Tp	0.173 hours

Subsection: Unit Hydrograph Summary
Label: Subarea 015

Return Event: 2 years
Storm Event: 2YR- 2HR

SCS Unit Hydrograph Parameters	
Unit receding limb, Tr	0.693 hours
Total unit time, Tb	0.867 hours

Subsection: Unit Hydrograph Summary
Label: Subarea 015

Return Event: 100 years
Storm Event: 100YR- 2HR

Storm Event	100YR- 2HR
Return Event	100 years
Duration	24.000 hours
Depth	5.0 in
Time of Concentration (Composite)	0.260 hours
Area (User Defined)	6.140 acres
Computational Time Increment	0.035 hours
Time to Peak (Computed)	0.624 hours
Flow (Peak, Computed)	18.95 ft ³ /s
Output Increment	0.020 hours
Time to Flow (Peak Interpolated Output)	0.620 hours
Flow (Peak Interpolated Output)	18.94 ft ³ /s
Drainage Area	
SCS CN (Composite)	79.600
Area (User Defined)	6.140 acres
Maximum Retention (Pervious)	2.6 in
Maximum Retention (Pervious, 20 percent)	0.5 in
Cumulative Runoff	
Cumulative Runoff Depth (Pervious)	2.8 in
Runoff Volume (Pervious)	1.448 ac-ft
Hydrograph Volume (Area under Hydrograph curve)	
Volume	1.448 ac-ft
SCS Unit Hydrograph Parameters	
Time of Concentration (Composite)	0.260 hours
Computational Time Increment	0.035 hours
Unit Hydrograph Shape Factor	483.432
K Factor	0.749
Receding/Rising, Tr/Tp	1.670
Unit peak, qp	26.76 ft ³ /s
Unit peak time, Tp	0.173 hours

Subsection: Unit Hydrograph Summary
Label: Subarea 015

Return Event: 100 years
Storm Event: 100YR- 2HR

SCS Unit Hydrograph Parameters	
Unit receding limb, Tr	0.693 hours
Total unit time, Tb	0.867 hours

Subsection: Unit Hydrograph Summary
Label: Subarea 016

Return Event: 2 years
Storm Event: 2YR- 2HR

Storm Event	2YR- 2HR
Return Event	2 years
Duration	24.000 hours
Depth	1.9 in
Time of Concentration (Composite)	0.410 hours
Area (User Defined)	26.420 acres
Computational Time Increment	0.055 hours
Time to Peak (Computed)	0.765 hours
Flow (Peak, Computed)	17.82 ft ³ /s
Output Increment	0.020 hours
Time to Flow (Peak Interpolated Output)	0.760 hours
Flow (Peak Interpolated Output)	17.77 ft ³ /s
Drainage Area	
SCS CN (Composite)	84.900
Area (User Defined)	26.420 acres
Maximum Retention (Pervious)	1.8 in
Maximum Retention (Pervious, 20 percent)	0.4 in
Cumulative Runoff	
Cumulative Runoff Depth (Pervious)	0.7 in
Runoff Volume (Pervious)	1.643 ac-ft
Hydrograph Volume (Area under Hydrograph curve)	
Volume	1.643 ac-ft
SCS Unit Hydrograph Parameters	
Time of Concentration (Composite)	0.410 hours
Computational Time Increment	0.055 hours
Unit Hydrograph Shape Factor	483.432
K Factor	0.749
Receding/Rising, Tr/Tp	1.670
Unit peak, qp	73.01 ft ³ /s
Unit peak time, Tp	0.273 hours

Subsection: Unit Hydrograph Summary
Label: Subarea 016

Return Event: 2 years
Storm Event: 2YR- 2HR

SCS Unit Hydrograph Parameters	
Unit receding limb, Tr	1.093 hours
Total unit time, Tb	1.367 hours

Subsection: Unit Hydrograph Summary
Label: Subarea 016

Return Event: 100 years
Storm Event: 100YR- 2HR

Storm Event	100YR- 2HR
Return Event	100 years
Duration	24.000 hours
Depth	5.0 in
Time of Concentration (Composite)	0.410 hours
Area (User Defined)	26.420 acres

Computational Time Increment	0.055 hours
Time to Peak (Computed)	0.711 hours
Flow (Peak, Computed)	87.51 ft ³ /s
Output Increment	0.020 hours
Time to Flow (Peak Interpolated Output)	0.700 hours
Flow (Peak Interpolated Output)	87.41 ft ³ /s

Drainage Area	
SCS CN (Composite)	84.900
Area (User Defined)	26.420 acres
Maximum Retention (Pervious)	1.8 in
Maximum Retention (Pervious, 20 percent)	0.4 in

Cumulative Runoff	
Cumulative Runoff Depth (Pervious)	3.3 in
Runoff Volume (Pervious)	7.333 ac-ft

Hydrograph Volume (Area under Hydrograph curve)	
Volume	7.333 ac-ft

SCS Unit Hydrograph Parameters	
Time of Concentration (Composite)	0.410 hours
Computational Time Increment	0.055 hours
Unit Hydrograph Shape Factor	483.432
K Factor	0.749
Receding/Rising, Tr/Tp	1.670
Unit peak, qp	73.01 ft ³ /s
Unit peak time, Tp	0.273 hours

Subsection: Unit Hydrograph Summary
Label: Subarea 016

Return Event: 100 years
Storm Event: 100YR- 2HR

SCS Unit Hydrograph Parameters	
Unit receding limb, Tr	1.093 hours
Total unit time, Tb	1.367 hours

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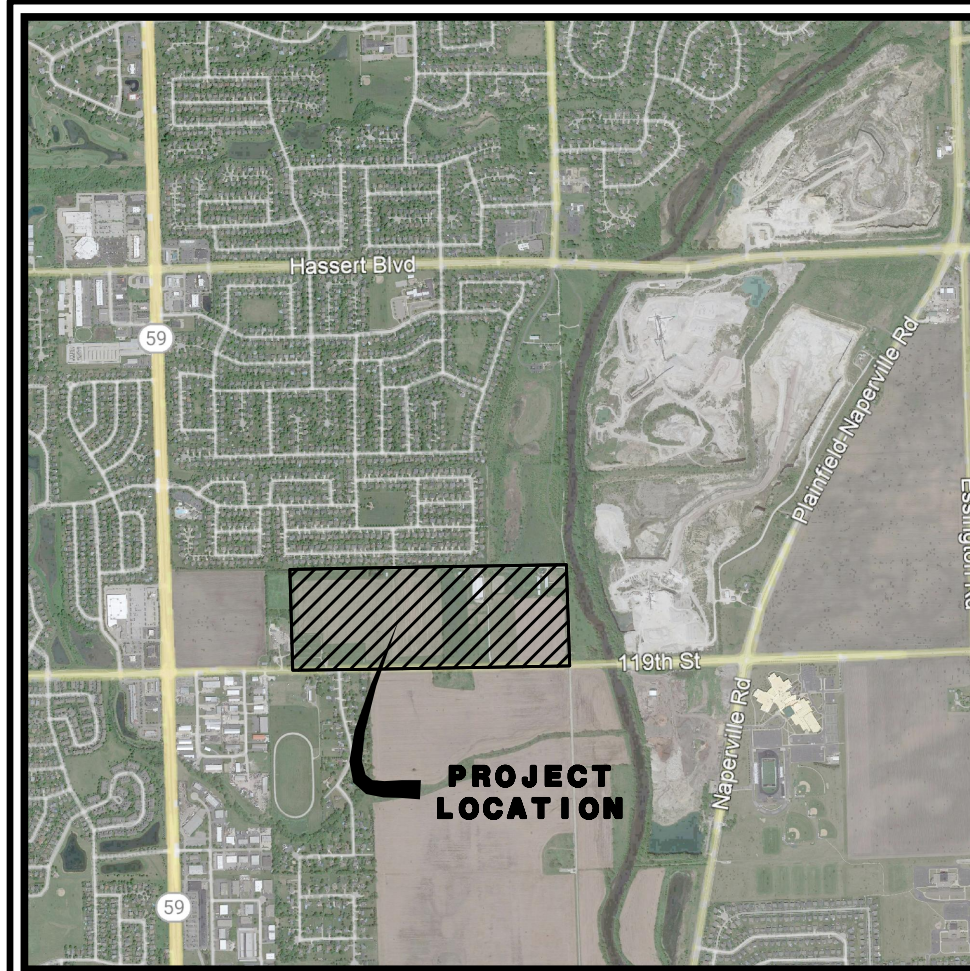
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Subarea 001 (Unit Hydrograph Summary, 2 years)...5, 6
Subarea 002 (Unit Hydrograph Summary, 100 years)...11, 12
Subarea 002 (Unit Hydrograph Summary, 2 years)...9, 10
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UPDATED 2YR 12HR-48HR (Time-Depth Curve, 2 years)...4
UPDATED 100YR 0.5HR-6HR (Time-Depth Curve, 100 years)...1
UPDATED 100YR 12HR-48HR (Time-Depth Curve, 100 years)...2

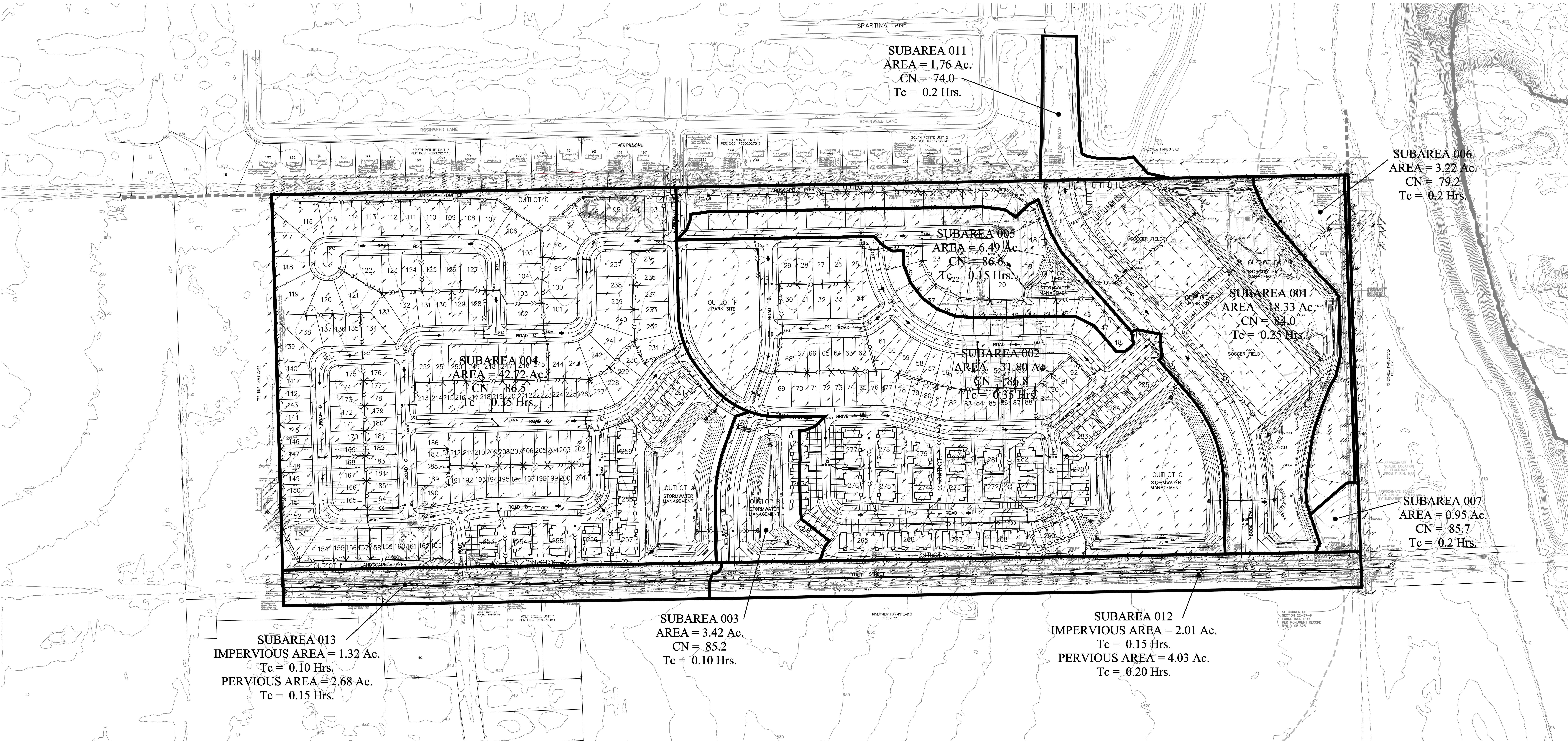
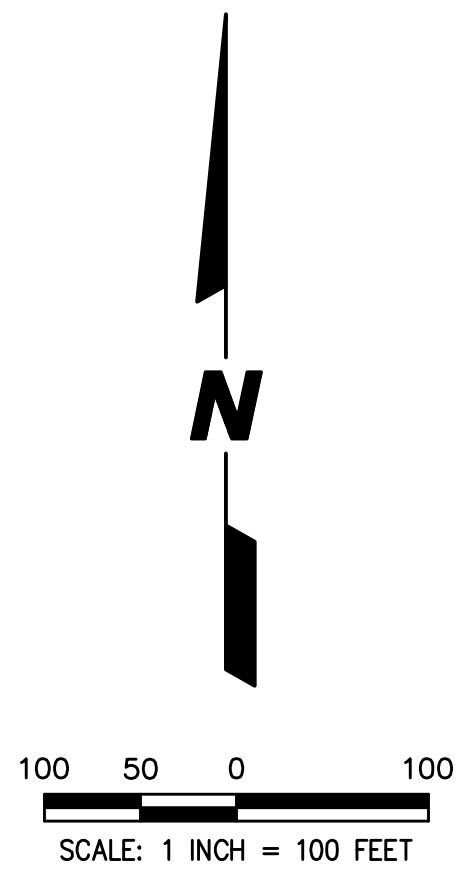
EXHIBIT H

PROPOSED CONDITIONS WATERSHED
EXHIBIT



LOCATION MAP

PROPOSED WATERSHED EXHIBIT
FOR
POLO CLUB



LEGEND

- WATERSHED BOUNDARY
- OVERLAND DRAINAGE ARROW

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DISC NO.: 402151 FILE NAME: WATERSHED
DRAWN BY: LAL FLD. BK. / PG. NO.: BK./PG.
COMPLETION DATE: 06-06-22 JOB NO.: 402151
XREF: PRECVR PROJECT MANAGER: CRM

EXHIBIT I

SUMMARY OF STORMWATER MANAGEMENT

TAB 1

SUPPORTING DOCUMENTATION

Worksheet 2: Runoff Curve Number and Runoff

Project Naperville Polo Club
 Location Naperville, IL

By JMH
 Rev JMH

Date 3/2/2022
 Date 5/12/2022

Circle one: Present Developed

SUB AREA 001

1. Runoff curve number (CN)

Soil Name and Hydrologic Group	Cover Description (cover type, treatment, and hydrologic condition; percent impervious; unconnected/connected impervious area ratio)	CN ^{1/}			Area	Product of CN x Area
		Table 2-2	Fig. 2-3	Fig. 2-4	X acres mi ² %	
C	Open Space - Good Condition	74			8.64	639.36
C	Blue-Green Space (NWL to HWL)	85			2.39	203.15
C	Single Family Lots (Assumed 55% Impervious)	87			1.60	139.2
C	Impervious Area (Pavement, NWL, Post-widening Book Road)	98			5.70	558.6
Totals =					18.33	1540.310

1/ Use only one CN source per line.

$$\text{CN (weighted)} = \frac{\text{Total Product}}{\text{Total Area}} = \frac{1540.310}{18.330} = 84.032$$

Use CN = 84.0

2. Runoff

Frequency yr
 Rainfall in
 Runoff, Q in
 (Use P and CN with table 2-1, fig. 2-1, or eqs. 2-3 and 2-4.)

Storm #1	Storm #2	Storm #3

Worksheet 2: Runoff Curve Number and Runoff

Project Naperville Polo Club
 Location Naperville, IL

By JMH
 Rev JMH

Date 3/2/2022
 Date 5/12/2022

Circle one: Present Developed

SUB AREA 002

1. Runoff curve number (CN)

Soil Name and Hydrologic Group	Cover Description (cover type, treatment, and hydrologic condition; percent impervious; unconnected/connected impervious area ratio)	CN ^{1/}			Area X acres mi ² %	Product of CN x Area
		Table 2-2	Fig. 2-3	Fig. 2-4		
C	Open Space - Good Condition	74			2.82	208.68
C	Single Family Lots (Assumed 55% Impervious)	87			8.39	729.93
C	Multi Family District (Calculated 51% Impervious)	86			8.72	749.92
C	Typical Right-of-Way (Calculated 62% Impervious)	89			7.89	702.21
C	Blue-Green Space (NWL to HWL)	85			1.47	124.95
C	Impervious Area (NWL)	98			2.51	245.98
Totals =					31.80	2761.670

1/ Use only one CN source per line.

$$\text{CN (weighted)} = \frac{\text{Total Product}}{\text{Total Area}} = \frac{2761.670}{31.800} = 86.845$$

Use CN = 86.8

2. Runoff

Frequency yr
 Rainfall in
 Runoff, Q in
 (Use P and CN with table 2-1, fig. 2-1, or eqs. 2-3 and 2-4.)

Storm #1	Storm #2	Storm #3

Worksheet 2: Runoff Curve Number and Runoff

Project Naperville Polo Club
Location Naperville, IL

By JMH
Rev JMH

Date 3/2/2022
Date 5/12/2022

Circle one: Present Developed

SUB AREA 003

1. Runoff curve number (CN)

Soil Name and Hydrologic Group	Cover Description (cover type, treatment, and hydrologic condition; percent impervious; unconnected/connected impervious area ratio)	CN ^{1/}			Area	Product of CN x Area
		Table 2-2	Fig. 2-3	Fig. 2-4	X acres mi ² %	
C	Open Space - Good Condition	74			1.31	96.94
C	Blue-Green Space (NWL to HWL)	85			0.80	68
C	Impervious Area (Pavement, Rooves, NWL)	98			1.23	120.54
Totals =					3.34	285.480

1/ Use only one CN source per line.

$$\text{CN (weighted)} = \frac{\text{Total Product}}{\text{Total Area}} = \frac{285.480}{3.340} = 85.473$$

Use CN = 85.5

2. Runoff

Frequency yr
Rainfall in
Runoff, Q in
(Use P and CN with table 2-1, fig. 2-1, or eqs. 2-3 and 2-4.)

Storm #1	Storm #2	Storm #3

Worksheet 2: Runoff Curve Number and Runoff

Project Naperville Polo Club
 Location Naperville, IL

By JMH
 Rev JMH

Date 3/2/2022
 Date 5/12/2022

Circle one: Present Developed

SUB AREA 004

1. Runoff curve number (CN)

Soil Name and Hydrologic Group	Cover Description (cover type, treatment, and hydrologic condition; percent impervious; unconnected/connected impervious area ratio)	CN ^{1/}			Area X acres mi ² %	Product of CN x Area
		Table 2-2	Fig. 2-3	Fig. 2-4		
C	Open Space - Good Condition	74			3.42	253.08
C	Single Family Lots (Assumed 55% Impervious)	87			23.79	2069.73
C	Multi Family District (Calculated 45% Impervious)	85			3.76	319.6
C	Typical Right-of-Way (Calculated 62% Impervious)	89			9.42	838.38
C	Blue-Green Space (NWL to HWL)	85			1.03	87.55
C	Impervious Area (NWL)	98			1.30	127.4
Totals =					42.72	3695.740

1/ Use only one CN source per line.

$$\text{CN (weighted)} = \frac{\text{Total Product}}{\text{Total Area}} = \frac{3695.740}{42.720} = 86.511$$

Use CN = 86.5

2. Runoff

Frequency yr
 Rainfall in
 Runoff, Q in
 (Use P and CN with table 2-1, fig. 2-1, or eqs. 2-3 and 2-4.)

Storm #1	Storm #2	Storm #3

Worksheet 2: Runoff Curve Number and Runoff

Project Naperville Polo Club
 Location Naperville, IL

By JMH
 Rev

Date 5/12/2022
 Date

Circle one: Present Developed

SUB AREA 005

1. Runoff curve number (CN)

Soil Name and Hydrologic Group	Cover Description (cover type, treatment, and hydrologic condition; percent impervious; unconnected/connected impervious area ratio)	CN ^{1/}			Area	Product of CN x Area
		Table 2-2	Fig. 2-3	Fig. 2-4	X acres mi ² %	
C	Open Space - Good Condition	74			0.35	25.9
C	Single Family Lots (Assumed 55% Impervious)	87			4.33	376.71
C	Typical Right-of-Way (Calculated 62% Impervious)	89			1.38	122.82
C	Blue-Green Space (NWL to HWL)	85			0.43	36.55
C	Impervious Area (Already Accounted for)	98				
Totals =					6.49	561.980

1/ Use only one CN source per line.

$$\text{CN (weighted)} = \frac{\text{Total Product}}{\text{Total Area}} = \frac{561.980}{6.490} = 86.592$$

Use CN = 86.6

2. Runoff

Frequency yr
 Rainfall in
 Runoff, Q in
 (Use P and CN with table 2-1, fig. 2-1, or eqs. 2-3 and 2-4.)

Storm #1	Storm #2	Storm #3

Worksheet 2: Runoff Curve Number and Runoff

Project	Naperville Polo Club
Location	Naperville, IL

By JMH
Rev

Date 5/12/2022
Date _____

Circle one: Present ☒ Developed

SUB AREA 006

1. Runoff curve number (CN)

Soil Name and Hydrologic Group	Cover Description (cover type, treatment, and hydrologic condition; percent impervious; unconnected/connected impervious area ratio)	CN ^{1/}			Area	Product of CN x Area
		Table 2-2	Fig. 2-3	Fig. 2-4	X acres mi ² %	
C	Open Space - Good Condition	74			0.45	33.3
D	Open Space - Good Condition (in Floodway)	80			2.77	221.6
Totals =					3.22	254.900

1/ Use only one CN source per line.

1/ Use only one CN source per line.

Totals =

3.22

254.900

$$\text{CN (weighted)} = \frac{\text{Total Product}}{\text{Total Area}} = \frac{254.900}{3.220} = \underline{\underline{79.161}}$$

Use CN =	79.2

2. Runoff

Frequency

yr

Rainfall

in

Runoff, Q

in

(Use P and CN with table 2-1, fig. 2-1, or eqs. 2-3 and 2-4.)

Storm #1	Storm #2	Storm #3

Worksheet 2: Runoff Curve Number and Runoff

Project Naperville Polo Club
Location Naperville, IL

By JMH
Rev

Date 3/3/2022
Date

Circle one: Present Developed

SUB AREA 006

1. Runoff curve number (CN)

Soil Name and Hydrologic Group	Cover Description (cover type, treatment, and hydrologic condition; percent impervious; unconnected/connected impervious area ratio)	CN ^{1/}			Area	Product of CN x Area
		Table 2-2	Fig. 2-3	Fig. 2-4	X acres mi ² %	
C	Open Space - Good Condition	74			0.05	3.7
D	Open Space - Good Condition (in Floodway)	80			0.58	46.4
	Impervious Space (Existing Book Road)	98			0.32	31.36
Totals =					0.95	81.460

1/ Use only one CN source per line.

$$\text{CN (weighted)} = \frac{\text{Total Product}}{\text{Total Area}} = \frac{81.460}{0.950} = 85.747$$

Use CN = 85.7

2. Runoff

Frequency yr
Rainfall in
Runoff, Q in
(Use P and CN with table 2-1, fig. 2-1, or eqs. 2-3 and 2-4.)

Storm #1	Storm #2	Storm #3

Worksheet 2: Runoff Curve Number and Runoff

Project Naperville Polo Club
Location Naperville, IL

By JMH
Rev

Date 3/2/2022
Date

Circle one: Present Developed

SUB AREA 011

1. Runoff curve number (CN)

Soil Name and Hydrologic Group	Cover Description (cover type, treatment, and hydrologic condition; percent impervious; unconnected/connected impervious area ratio)	CN ^{1/}			Area	Product of CN x Area
		Table 2-2	Fig. 2-3	Fig. 2-4	X acres mi ² %	
C	Open Space - Good Condition	74			1.76	130.24
Totals =					1.76	130.240

1/ Use only one CN source per line.

$$\text{CN (weighted)} = \frac{\text{Total Product}}{\text{Total Area}} = \frac{130.240}{1.760} = 74.000$$

Use CN = 74.0

2. Runoff

Frequency yr
Rainfall in
Runoff, Q in
(Use P and CN with table 2-1, fig. 2-1, or eqs. 2-3 and 2-4.)

Storm #1	Storm #2	Storm #3

Job #: 402.151
Project: Polo Club

Date: February 25, 2022
Revised: May 13, 2022
By: JMH

STORMWATER MANAGEMENT FACILITY 001				
PROPOSED CONDITIONS				
ELEV.	AREA (S.F.)	AREA (AC.)	INCREM. VOLUME (AC.-Ft.)	CUMULATIVE VOLUME (Ac-Ft)
612.50	125870	2.890	0.000	0.000
613.0	134320	3.084	1.493	1.493
614.0	151720	3.483	3.283	4.777
615.0	170060	3.904	3.694	8.470
616.0	189330	4.346	4.125	12.595
617.0	208920	4.796	4.571	17.167
618.0	228640	5.249	5.022	22.189
619.0	241930	5.554	5.401	27.591

NWL

HWL/Overflow

Job #: 402.151
Project: Polo Club

Date: February 25, 2022
Revised: May 17, 2022
By: JMH

STORMWATER MANAGEMENT FACILITY 002				
PROPOSED CONDITIONS				
ELEV.	AREA (S.F.)	AREA (AC.)	INCREM. VOLUME (AC.-Ft.)	CUMULATIVE VOLUME (Ac-Ft)
617.50	134690	3.092	0.000	0.000
618.0	139260	3.197	1.572	1.572
619.0	148600	3.411	3.304	4.876
620.0	158210	3.632	3.522	8.398
621.0	168120	3.860	3.746	12.144
622.0	178290	4.093	3.976	16.120
623.0	188740	4.333	4.213	20.333
623.5	194040	4.455	2.197	22.530
624.5	201180	4.618	4.537	27.066

Job #: 402.151
Project: Polo Club

Date: February 25, 2022
Revised: May 13, 2022
By: JMH

STORMWATER MANAGEMENT FACILITY 003				
PROPOSED CONDITIONS				
ELEV.	AREA (S.F.)	AREA (AC.)	INCREM. VOLUME (AC.-Ft.)	CUMULATIVE VOLUME (Ac-Ft)
628.00	15610	0.358	0.000	0.000
629.0	20590	0.473	0.416	0.416
630.0	25950	0.596	0.534	0.950
631.0	31670	0.727	0.661	1.611
632.0	37680	0.865	0.796	2.407
633.0	43960	1.009	0.937	3.344
634.0	50460	1.158	1.084	4.428
635.0	54920	1.261	1.210	5.638

NWL

HWL

Job #: 402.151
Project: Polo Club

Date: February 25, 2022
Revised: May 13, 2022
By: JMH

STORMWATER MANAGEMENT FACILITY 004				
PROPOSED CONDITIONS				
ELEV.	AREA (S.F.)	AREA (AC.)	INCREM. VOLUME (AC.-Ft.)	CUMULATIVE VOLUME (Ac-Ft)
628.00	56250	1.291	0.000	0.000
629.0	63090	1.448	1.370	1.370
630.0	70180	1.611	1.530	2.900
631.0	77510	1.779	1.695	4.595
632.0	85060	1.953	1.866	6.461
633.0	92850	2.132	2.042	8.503
634.0	100860	2.315	2.223	10.726
635.0	106330	2.441	2.378	13.105

NWL

HWL/Overflow

Job #: 402.151
Project: Polo Club

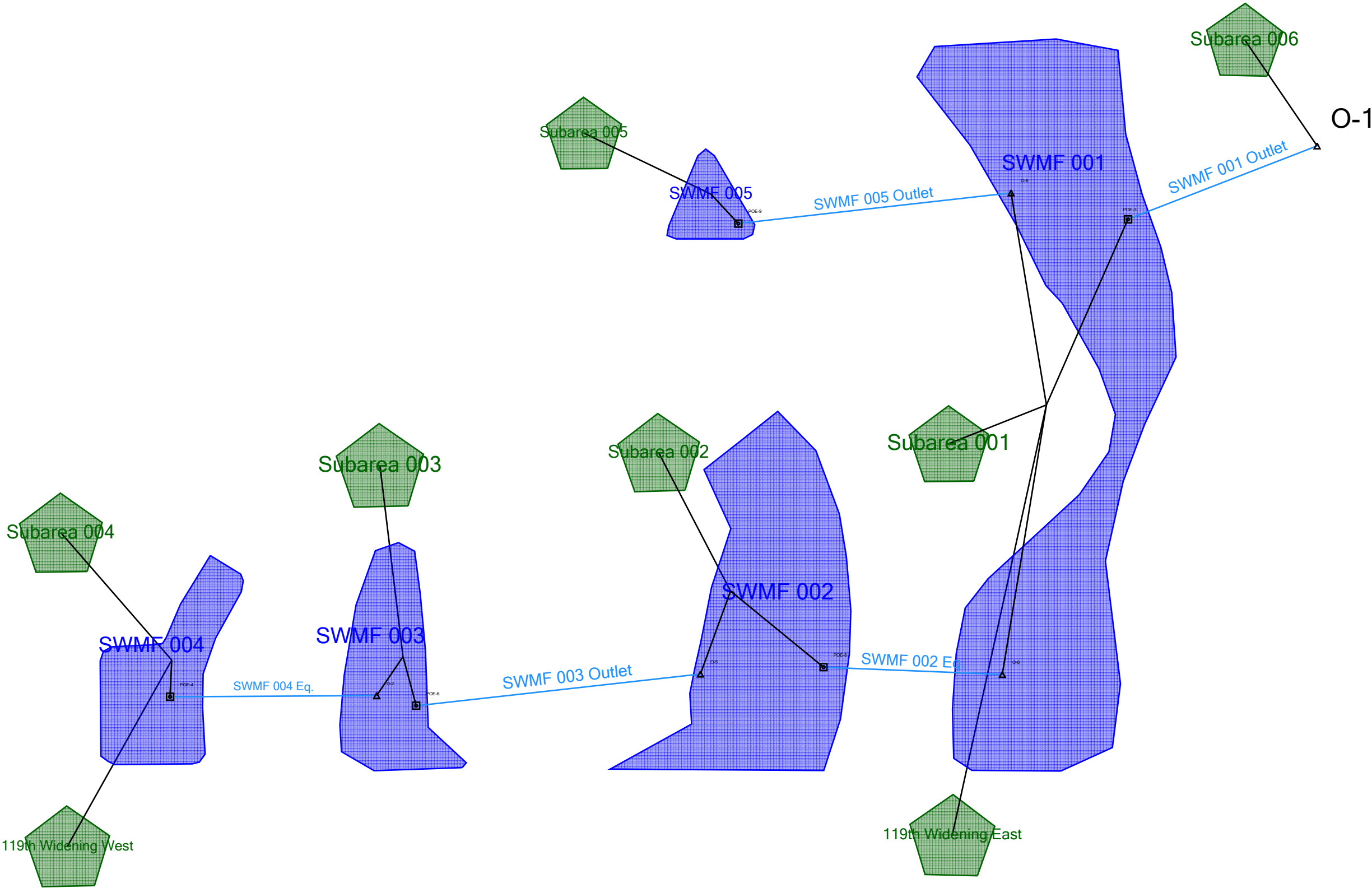
Date: May 13, 2022
Revised:
By: JMH

STORMWATER MANAGEMENT FACILITY 005				
PROPOSED CONDITIONS				
ELEV.	AREA (S.F.)	AREA (AC.)	INCREM. VOLUME (AC.-Ft.)	CUMULATIVE VOLUME (Ac-Ft)
621.00	0	0.000	0.000	0.000
622.0	6280	0.144	0.072	0.072
623.0	8820	0.202	0.173	0.245
624.0	11760	0.270	0.236	0.482
625.0	15120	0.347	0.309	0.790
626.0	18870	0.433	0.390	1.180
627.0	21530	0.494	0.464	1.644

TAB 2

“ONSITE” PONDPACK MODEL

Scenario: 100Yr 2Hr



Scenario Calculation Summary

Scenario Summary	
ID	154
Label	100Yr 24HR (No TW)
Notes	
Active Topology	Base Active Topology
Hydrology	Base Hydrology
Rainfall Runoff	100Yr 24Hr
Physical	No TW
Initial Condition	Base Initial Condition
Boundary Condition	Base Boundary Condition
Infiltration and Inflow	Base Infiltration and Inflow
Output	Base Output
User Data Extensions	Base User Data Extensions
PondPack Engine Calculation Options	72Hr

Output Summary			
Output Increment	0.020 hours	Duration	72.000 hours

Rainfall Summary			
Return Event Tag	100	Rainfall Type	Time-Depth Curve
Total Depth	8.6 in	Storm Event	100YR-24HR

ICPM Output Summary			
Target Convergence	0.00 ft ³ /s	ICPM Time Step	0.020 hours
Maximum Iterations	35		

Executive Summary (Nodes)

Label	Scenario	Return Event (years)	Truncation	Hydrograph Volume (ac-ft)	Time to Peak (hours)	Peak Flow (ft ³ /s)	Maximum Water Surface Elevation (ft)	Maximum Pond Storage (ac-ft)
119th Widening East	100Yr 24HR (No TW)	100	None	1.395	15.000	1.54	(N/A)	(N/A)
119th Widening West	100Yr 24HR (No TW)	100	None	0.916	15.000	1.01	(N/A)	(N/A)
O-1	100Yr 24HR (No TW)	100	None	53.720	18.020	16.18	(N/A)	(N/A)
SWMF 001 (IN)	100Yr 24HR (No TW)	100	None	59.609	16.040	27.70	(N/A)	(N/A)
SWMF 001 (OUT)	100Yr 24HR (No TW)	100	None	52.092	22.220	15.40	616.40	14.425
SWMF 002 (IN)	100Yr 24HR (No TW)	100	None	45.913	16.060	36.14	(N/A)	(N/A)
SWMF 002 (OUT)	100Yr 24HR (No TW)	100	None	44.303	26.560	12.16	623.47	22.392
SWMF 003 (IN)	100Yr 24HR (No TW)	100	None	27.417	16.960	21.28	(N/A)	(N/A)
SWMF 003 (OUT)	100Yr 24HR (No TW)	100	None	27.412	19.440	14.44	633.69	4.094
SWMF 004 (IN)	100Yr 24HR (No TW)	100	None	25.641	16.000	32.17	(N/A)	(N/A)
SWMF 004 (OUT)	100Yr 24HR (No TW)	100	None	25.483	16.960	18.94	633.76	10.189
SWMF 005 (IN)	100Yr 24HR (No TW)	100	None	3.763	16.000	4.75	(N/A)	(N/A)
SWMF 005 (OUT)	100Yr 24HR (No TW)	100	None	3.763	18.020	3.64	623.89	0.455

Scenario Calculation Summary

Executive Summary (Nodes)

Label	Scenario	Return Event (years)	Truncation	Hydrograph Volume (ac-ft)	Time to Peak (hours)	Peak Flow (ft ³ /s)	Maximum Water Surface Elevation (ft)	Maximum Pond Storage (ac-ft)
Subarea 001	100Yr 24HR (No TW)	100	None	10.148	16.000	13.12	(N/A)	(N/A)
Subarea 002	100Yr 24HR (No TW)	100	None	18.501	16.000	23.24	(N/A)	(N/A)
Subarea 003	100Yr 24HR (No TW)	100	None	1.935	16.000	2.48	(N/A)	(N/A)
Subarea 004	100Yr 24HR (No TW)	100	None	24.725	16.000	31.16	(N/A)	(N/A)
Subarea 005	100Yr 24HR (No TW)	100	None	3.763	16.000	4.75	(N/A)	(N/A)
Subarea 006	100Yr 24HR (No TW)	100	None	1.627	16.000	2.20	(N/A)	(N/A)

Executive Summary (Links)

Label	Type	Location	Hydrograph Volume (ac-ft)	Peak Time (hours)	Peak Flow (ft ³ /s)	End Point	Node Flow Direction
SWMF 001 Outlet	Pond Outlet	Upstream	59.609	16.040	27.70	SWMF 001	Pond Inflow
SWMF 001 Outlet	Pond Outlet	Outflow	52.092	22.220	15.40	SWMF 001	Pond Outflow
SWMF 001 Outlet	Pond Outlet	Link	52.092	22.220	15.40		
SWMF 001 Outlet	Pond Outlet	Downstream	53.720	18.020	16.18	O-1	
SWMF 002 Eq.	Pond Outlet	Upstream	45.913	16.060	36.14	SWMF 002	Pond Inflow
SWMF 002 Eq.	Pond Outlet	Outflow	44.303	26.560	12.16	SWMF 002	Pond Outflow
SWMF 002 Eq.	Pond Outlet	Link	44.303	26.560	12.16		
SWMF 002 Eq.	Pond Outlet	Downstream	59.609	16.040	27.70	SWMF 001	
SWMF 003 Outlet	Pond Outlet	Upstream	27.417	16.960	21.28	SWMF 003	Pond Inflow
SWMF 003 Outlet	Pond Outlet	Outflow	27.412	19.440	14.44	SWMF 003	Pond Outflow
SWMF 003 Outlet	Pond Outlet	Link	27.412	19.440	14.44		
SWMF 003 Outlet	Pond Outlet	Downstream	45.913	16.060	36.14	SWMF 002	
SWMF 004 Eq.	Pond Outlet	Upstream	25.641	16.000	32.17	SWMF 004	Pond Inflow
SWMF 004 Eq.	Pond Outlet	Outflow	25.483	16.960	18.94	SWMF 004	Pond Outflow
SWMF 004 Eq.	Pond Outlet	Link	25.483	16.960	18.94		
SWMF 004 Eq.	Pond Outlet	Downstream	27.417	16.960	21.28	SWMF 003	
SWMF 005 Outlet	Pond Outlet	Upstream	3.763	16.000	4.75	SWMF 005	Pond Inflow
SWMF 005 Outlet	Pond Outlet	Outflow	3.763	18.020	3.64	SWMF 005	Pond Outflow
SWMF 005 Outlet	Pond Outlet	Link	3.763	18.020	3.64		
SWMF 005 Outlet	Pond Outlet	Downstream	59.609	16.040	27.70	SWMF 001	

Messages

Scenario Calculation Summary

Messages

Message Id	39
Scenario	100Yr 24HR (No TW)
Element Type	Composite Outlet Structure
Element Id	110
Label	SWMF 002
Time	(N/A)
Message	Reverse flow conditions encountered for one or more headwater elevations. Calculated reverse flows may be approximate.
Source	Warning
Message Id	15
Scenario	100Yr 24HR (No TW)
Element Type	Composite Outlet Structure
Element Id	112
Label	SWMF 004
Time	(N/A)
Message	Kr (reverse flow entrance loss coefficient) was not specified. Kr was set to same value as Ke= 0.200 .
Source	Warning
Message Id	39
Scenario	100Yr 24HR (No TW)
Element Type	Composite Outlet Structure
Element Id	112
Label	SWMF 004
Time	(N/A)
Message	Reverse flow conditions encountered for one or more headwater elevations. Calculated reverse flows may be approximate.
Source	Warning

Scenario Calculation Summary

Scenario Summary	
ID	156
Label	100Yr 18Hr
Notes	
Active Topology	<I> Base Active Topology
Hydrology	<I> Base Hydrology
Rainfall Runoff	100Yr 18Hr
Physical	<I> No TW
Initial Condition	<I> Base Initial Condition
Boundary Condition	<I> Base Boundary Condition
Infiltration and Inflow	<I> Base Infiltration and Inflow
Output	<I> Base Output
User Data Extensions	<I> Base User Data Extensions
PondPack Engine Calculation Options	<I> 72Hr

Output Summary			
Output Increment	0.020 hours	Duration	72.000 hours

Rainfall Summary			
Return Event Tag	100	Rainfall Type	Time-Depth Curve
Total Depth	8.1 in	Storm Event	100YR-18HR

ICPM Output Summary			
Target Convergence	0.00 ft³/s	ICPM Time Step	0.020 hours
Maximum Iterations	35		

Executive Summary (Nodes)

Label	Scenario	Return Event (years)	Truncation	Hydrograph Volume (ac-ft)	Time to Peak (hours)	Peak Flow (ft³/s)	Maximum Water Surface Elevation (ft)	Maximum Pond Storage (ac-ft)
119th Widening East	100Yr 18Hr	100	None	1.310	11.240	1.94	(N/A)	(N/A)
119th Widening West	100Yr 18Hr	100	None	0.860	11.240	1.27	(N/A)	(N/A)
O-1	100Yr 18Hr	100	None	51.082	13.520	15.86	(N/A)	(N/A)
SWMF 001 (IN)	100Yr 18Hr	100	None	55.788	12.040	30.98	(N/A)	(N/A)
SWMF 001 (OUT)	100Yr 18Hr	100	None	49.583	18.180	15.08	616.28	13.869
SWMF 002 (IN)	100Yr 18Hr	100	None	42.646	12.080	41.89	(N/A)	(N/A)
SWMF 002 (OUT)	100Yr 18Hr	100	None	41.585	22.700	11.84	623.18	21.109
SWMF 003 (IN)	100Yr 18Hr	100	None	25.466	12.780	24.47	(N/A)	(N/A)
SWMF 003 (OUT)	100Yr 18Hr	100	None	25.462	15.200	14.79	633.94	4.365
SWMF 004 (IN)	100Yr 18Hr	100	None	23.818	12.000	40.04	(N/A)	(N/A)
SWMF 004 (OUT)	100Yr 18Hr	100	None	23.672	12.780	21.60	634.01	10.752
SWMF 005 (IN)	100Yr 18Hr	100	None	3.494	12.000	5.91	(N/A)	(N/A)
SWMF 005 (OUT)	100Yr 18Hr	100	None	3.494	13.620	3.87	624.68	0.693
Subarea 001	100Yr 18Hr	100	None	9.398	12.000	16.30	(N/A)	(N/A)
Subarea 002	100Yr 18Hr	100	None	17.184	12.000	28.93	(N/A)	(N/A)

Scenario Calculation Summary

Executive Summary (Nodes)

Label	Scenario	Return Event (years)	Truncation	Hydrograph Volume (ac-ft)	Time to Peak (hours)	Peak Flow (ft³/s)	Maximum Water Surface Elevation (ft)	Maximum Pond Storage (ac-ft)
Subarea 003	100Yr 18Hr	100	None	1.794	12.000	3.08	(N/A)	(N/A)
Subarea 004	100Yr 18Hr	100	None	22.958	12.000	38.78	(N/A)	(N/A)
Subarea 005	100Yr 18Hr	100	None	3.494	12.000	5.91	(N/A)	(N/A)
Subarea 006	100Yr 18Hr	100	None	1.499	12.000	2.72	(N/A)	(N/A)

Executive Summary (Links)

Label	Type	Location	Hydrograph Volume (ac-ft)	Peak Time (hours)	Peak Flow (ft³/s)	End Point	Node Flow Direction
SWMF 001 Outlet	Pond Outlet	Upstream	55.788	12.040	30.98	SWMF 001	Pond Inflow
SWMF 001 Outlet	Pond Outlet	Outflow	49.583	18.180	15.08	SWMF 001	Pond Outflow
SWMF 001 Outlet	Pond Outlet	Link	49.583	18.180	15.08		
SWMF 001 Outlet	Pond Outlet	Downstream	51.082	13.520	15.86	O-1	
SWMF 002 Eq.	Pond Outlet	Upstream	42.646	12.080	41.89	SWMF 002	Pond Inflow
SWMF 002 Eq.	Pond Outlet	Outflow	41.585	22.700	11.84	SWMF 002	Pond Outflow
SWMF 002 Eq.	Pond Outlet	Link	41.585	22.700	11.84		
SWMF 002 Eq.	Pond Outlet	Downstream	55.788	12.040	30.98	SWMF 001	
SWMF 003 Outlet	Pond Outlet	Upstream	25.466	12.780	24.47	SWMF 003	Pond Inflow
SWMF 003 Outlet	Pond Outlet	Outflow	25.462	15.200	14.79	SWMF 003	Pond Outflow
SWMF 003 Outlet	Pond Outlet	Link	25.462	15.200	14.79		
SWMF 003 Outlet	Pond Outlet	Downstream	42.646	12.080	41.89	SWMF 002	
SWMF 004 Eq.	Pond Outlet	Upstream	23.818	12.000	40.04	SWMF 004	Pond Inflow
SWMF 004 Eq.	Pond Outlet	Outflow	23.672	12.780	21.60	SWMF 004	Pond Outflow
SWMF 004 Eq.	Pond Outlet	Link	23.672	12.780	21.60		
SWMF 004 Eq.	Pond Outlet	Downstream	25.466	12.780	24.47	SWMF 003	
SWMF 005 Outlet	Pond Outlet	Upstream	3.494	12.000	5.91	SWMF 005	Pond Inflow
SWMF 005 Outlet	Pond Outlet	Outflow	3.494	13.620	3.87	SWMF 005	Pond Outflow
SWMF 005 Outlet	Pond Outlet	Link	3.494	13.620	3.87		
SWMF 005 Outlet	Pond Outlet	Downstream	55.788	12.040	30.98	SWMF 001	

Messages

Message Id	39
Scenario	100Yr 18Hr
Element Type	Composite Outlet Structure
Element Id	110
Label	SWMF 002
Time	(N/A)
Message	Reverse flow conditions encountered for one or more headwater elevations. Calculated reverse flows may be approximate.
Source	Warning

Scenario Calculation Summary

Messages

Message Id	15
Scenario	100Yr 18Hr
Element Type	Composite Outlet Structure
Element Id	112
Label	SWMF 004
Time	(N/A)
Message	Kr (reverse flow entrance loss coefficient) was not specified. Kr was set to same value as Ke= 0.200 .
Source	Warning
Message Id	39
Scenario	100Yr 18Hr
Element Type	Composite Outlet Structure
Element Id	112
Label	SWMF 004
Time	(N/A)
Message	Reverse flow conditions encountered for one or more headwater elevations. Calculated reverse flows may be approximate.
Source	Warning

Scenario Calculation Summary

Scenario Summary	
ID	162
Label	100Yr 2Hr
Notes	
Active Topology	<I> Base Active Topology
Hydrology	<I> Base Hydrology
Rainfall Runoff	100Yr 2Hr
Physical	<I> No TW
Initial Condition	<I> Base Initial Condition
Boundary Condition	<I> Base Boundary Condition
Infiltration and Inflow	<I> Base Infiltration and Inflow
Output	<I> Base Output
User Data Extensions	<I> Base User Data Extensions
PondPack Engine Calculation Options	<I> 72Hr

Output Summary			
Output Increment	0.020 hours	Duration	72.000 hours

Rainfall Summary			
Return Event Tag	100	Rainfall Type	Time-Depth Curve
Total Depth	5.0 in	Storm Event	100YR- 2HR

ICPM Output Summary			
Target Convergence	0.00 ft³/s	ICPM Time Step	0.020 hours
Maximum Iterations	35		

Executive Summary (Nodes)

Label	Scenario	Return Event (years)	Truncation	Hydrograph Volume (ac-ft)	Time to Peak (hours)	Peak Flow (ft³/s)	Maximum Water Surface Elevation (ft)	Maximum Pond Storage (ac-ft)
119th Widening East	100Yr 2Hr	100	None	0.793	0.380	11.84	(N/A)	(N/A)
119th Widening West	100Yr 2Hr	100	None	0.521	0.340	7.97	(N/A)	(N/A)
O-1	100Yr 2Hr	100	None	29.708	0.620	11.64	(N/A)	(N/A)
SWMF 001 (IN)	100Yr 2Hr	100	None	30.583	0.580	82.08	(N/A)	(N/A)
SWMF 001 (OUT)	100Yr 2Hr	100	None	28.959	14.680	8.66	615.34	9.888
SWMF 002 (IN)	100Yr 2Hr	100	None	23.107	0.660	124.27	(N/A)	(N/A)
SWMF 002 (OUT)	100Yr 2Hr	100	None	22.944	9.940	8.93	620.90	11.751
SWMF 003 (IN)	100Yr 2Hr	100	None	13.784	0.780	59.48	(N/A)	(N/A)
SWMF 003 (OUT)	100Yr 2Hr	100	None	13.781	2.300	13.48	633.01	3.358
SWMF 004 (IN)	100Yr 2Hr	100	None	12.941	0.640	161.30	(N/A)	(N/A)
SWMF 004 (OUT)	100Yr 2Hr	100	None	12.826	0.800	52.65	633.08	8.675
SWMF 005 (IN)	100Yr 2Hr	100	None	1.892	0.460	27.38	(N/A)	(N/A)
SWMF 005 (OUT)	100Yr 2Hr	100	None	1.892	1.920	4.26	626.14	1.247
Subarea 001	100Yr 2Hr	100	None	4.954	0.580	66.54	(N/A)	(N/A)
Subarea 002	100Yr 2Hr	100	None	9.325	0.640	117.52	(N/A)	(N/A)

Scenario Calculation Summary

Executive Summary (Nodes)

Label	Scenario	Return Event (years)	Truncation	Hydrograph Volume (ac-ft)	Time to Peak (hours)	Peak Flow (ft³/s)	Maximum Water Surface Elevation (ft)	Maximum Pond Storage (ac-ft)
Subarea 003	100Yr 2Hr	100	None	0.958	0.440	14.10	(N/A)	(N/A)
Subarea 004	100Yr 2Hr	100	None	12.420	0.640	156.33	(N/A)	(N/A)
Subarea 005	100Yr 2Hr	100	None	1.892	0.460	27.38	(N/A)	(N/A)
Subarea 006	100Yr 2Hr	100	None	0.750	0.560	10.22	(N/A)	(N/A)

Executive Summary (Links)

Label	Type	Location	Hydrograph Volume (ac-ft)	Peak Time (hours)	Peak Flow (ft³/s)	End Point	Node Flow Direction
SWMF 001 Outlet	Pond Outlet	Upstream	30.583	0.580	82.08	SWMF 001	Pond Inflow
SWMF 001 Outlet	Pond Outlet	Outflow	28.959	14.680	8.66	SWMF 001	Pond Outflow
SWMF 001 Outlet	Pond Outlet	Link	28.959	14.680	8.66		
SWMF 001 Outlet	Pond Outlet	Downstream	29.708	0.620	11.64	O-1	
SWMF 002 Eq.	Pond Outlet	Upstream	23.107	0.660	124.27	SWMF 002	Pond Inflow
SWMF 002 Eq.	Pond Outlet	Outflow	22.944	9.940	8.93	SWMF 002	Pond Outflow
SWMF 002 Eq.	Pond Outlet	Link	22.944	9.940	8.93		
SWMF 002 Eq.	Pond Outlet	Downstream	30.583	0.580	82.08	SWMF 001	
SWMF 003 Outlet	Pond Outlet	Upstream	13.784	0.780	59.48	SWMF 003	Pond Inflow
SWMF 003 Outlet	Pond Outlet	Outflow	13.781	2.300	13.48	SWMF 003	Pond Outflow
SWMF 003 Outlet	Pond Outlet	Link	13.781	2.300	13.48		
SWMF 003 Outlet	Pond Outlet	Downstream	23.107	0.660	124.27	SWMF 002	
SWMF 004 Eq.	Pond Outlet	Upstream	12.941	0.640	161.30	SWMF 004	Pond Inflow
SWMF 004 Eq.	Pond Outlet	Outflow	12.826	0.800	52.65	SWMF 004	Pond Outflow
SWMF 004 Eq.	Pond Outlet	Link	12.826	0.800	52.65		
SWMF 004 Eq.	Pond Outlet	Downstream	13.784	0.780	59.48	SWMF 003	
SWMF 005 Outlet	Pond Outlet	Upstream	1.892	0.460	27.38	SWMF 005	Pond Inflow
SWMF 005 Outlet	Pond Outlet	Outflow	1.892	1.920	4.26	SWMF 005	Pond Outflow
SWMF 005 Outlet	Pond Outlet	Link	1.892	1.920	4.26		
SWMF 005 Outlet	Pond Outlet	Downstream	30.583	0.580	82.08	SWMF 001	

Messages

Message Id	39
Scenario	100Yr 2Hr
Element Type	Composite Outlet Structure
Element Id	110
Label	SWMF 002
Time	(N/A)
Message	Reverse flow conditions encountered for one or more headwater elevations. Calculated reverse flows may be approximate.
Source	Warning

Scenario Calculation Summary

Messages

Message Id	15
Scenario	100Yr 2Hr
Element Type	Composite Outlet Structure
Element Id	112
Label	SWMF 004
Time	(N/A)
Message	Kr (reverse flow entrance loss coefficient) was not specified. Kr was set to same value as Ke= 0.200 .
Source	Warning
Message Id	39
Scenario	100Yr 2Hr
Element Type	Composite Outlet Structure
Element Id	112
Label	SWMF 004
Time	(N/A)
Message	Reverse flow conditions encountered for one or more headwater elevations. Calculated reverse flows may be approximate.
Source	Warning

Scenario Calculation Summary

Scenario Summary	
ID	33
Label	2Yr 24Hr (No TW)
Notes	
Active Topology	Base Active Topology
Hydrology	Base Hydrology
Rainfall Runoff	2Yr 24Hr
Physical	No TW
Initial Condition	Base Initial Condition
Boundary Condition	Base Boundary Condition
Infiltration and Inflow	Base Infiltration and Inflow
Output	Base Output
User Data Extensions	Base User Data Extensions
PondPack Engine Calculation Options	72Hr

Output Summary			
Output Increment	0.020 hours	Duration	72.000 hours

Rainfall Summary			
Return Event Tag	2	Rainfall Type	Time-Depth Curve
Total Depth	3.3 in	Storm Event	2YR-24HR

ICPM Output Summary			
Target Convergence	0.00 ft ³ /s	ICPM Time Step	0.020 hours
Maximum Iterations	35		

Executive Summary (Nodes)

Label	Scenario	Return Event (years)	Truncation	Hydrograph Volume (ac-ft)	Time to Peak (hours)	Peak Flow (ft ³ /s)	Maximum Water Surface Elevation (ft)	Maximum Pond Storage (ac-ft)
119th Widening East	2Yr 24Hr (No TW)	2	None	0.520	15.000	0.60	(N/A)	(N/A)
119th Widening West	2Yr 24Hr (No TW)	2	None	0.342	15.000	0.39	(N/A)	(N/A)
O-1	2Yr 24Hr (No TW)	2	None	16.118	33.760	4.35	(N/A)	(N/A)
SWMF 001 (IN)	2Yr 24Hr (No TW)	2	None	17.363	17.020	11.11	(N/A)	(N/A)
SWMF 001 (OUT)	2Yr 24Hr (No TW)	2	None	15.728	33.760	4.35	614.73	7.481
SWMF 002 (IN)	2Yr 24Hr (No TW)	2	None	13.222	17.040	14.30	(N/A)	(N/A)
SWMF 002 (OUT)	2Yr 24Hr (No TW)	2	None	13.007	24.020	6.40	619.43	6.402
SWMF 003 (IN)	2Yr 24Hr (No TW)	2	None	7.864	16.880	8.24	(N/A)	(N/A)
SWMF 003 (OUT)	2Yr 24Hr (No TW)	2	None	7.862	18.380	7.19	629.75	0.814
SWMF 004 (IN)	2Yr 24Hr (No TW)	2	None	7.455	16.040	10.61	(N/A)	(N/A)
SWMF 004 (OUT)	2Yr 24Hr (No TW)	2	None	7.325	16.880	7.47	629.80	2.590
SWMF 005 (IN)	2Yr 24Hr (No TW)	2	None	1.085	16.000	1.57	(N/A)	(N/A)
SWMF 005 (OUT)	2Yr 24Hr (No TW)	2	None	1.085	16.020	1.56	621.06	0.004

Scenario Calculation Summary

Executive Summary (Nodes)

Label	Scenario	Return Event (years)	Truncation	Hydrograph Volume (ac-ft)	Time to Peak (hours)	Peak Flow (ft ³ /s)	Maximum Water Surface Elevation (ft)	Maximum Pond Storage (ac-ft)
Subarea 001	2Yr 24Hr (No TW)	2	None	2.750	16.040	4.10	(N/A)	(N/A)
Subarea 002	2Yr 24Hr (No TW)	2	None	5.360	16.040	7.67	(N/A)	(N/A)
Subarea 003	2Yr 24Hr (No TW)	2	None	0.540	16.000	0.80	(N/A)	(N/A)
Subarea 004	2Yr 24Hr (No TW)	2	None	7.113	16.060	10.22	(N/A)	(N/A)
Subarea 005	2Yr 24Hr (No TW)	2	None	1.085	16.000	1.57	(N/A)	(N/A)
Subarea 006	2Yr 24Hr (No TW)	2	None	0.391	16.020	0.62	(N/A)	(N/A)

Executive Summary (Links)

Label	Type	Location	Hydrograph Volume (ac-ft)	Peak Time (hours)	Peak Flow (ft ³ /s)	End Point	Node Flow Direction
SWMF 001 Outlet	Pond Outlet	Upstream	17.363	17.020	11.11	SWMF 001	Pond Inflow
SWMF 001 Outlet	Pond Outlet	Outflow	15.728	33.760	4.35	SWMF 001	Pond Outflow
SWMF 001 Outlet	Pond Outlet	Link	15.728	33.760	4.35		
SWMF 001 Outlet	Pond Outlet	Downstream	16.118	33.760	4.35	O-1	
SWMF 002 Eq.	Pond Outlet	Upstream	13.222	17.040	14.30	SWMF 002	Pond Inflow
SWMF 002 Eq.	Pond Outlet	Outflow	13.007	24.020	6.40	SWMF 002	Pond Outflow
SWMF 002 Eq.	Pond Outlet	Link	13.007	24.020	6.40		
SWMF 002 Eq.	Pond Outlet	Downstream	17.363	17.020	11.11	SWMF 001	
SWMF 003 Outlet	Pond Outlet	Upstream	7.864	16.880	8.24	SWMF 003	Pond Inflow
SWMF 003 Outlet	Pond Outlet	Outflow	7.862	18.380	7.19	SWMF 003	Pond Outflow
SWMF 003 Outlet	Pond Outlet	Link	7.861	18.380	7.19		
SWMF 003 Outlet	Pond Outlet	Downstream	13.222	17.040	14.30	SWMF 002	
SWMF 004 Eq.	Pond Outlet	Upstream	7.455	16.040	10.61	SWMF 004	Pond Inflow
SWMF 004 Eq.	Pond Outlet	Outflow	7.325	16.880	7.47	SWMF 004	Pond Outflow
SWMF 004 Eq.	Pond Outlet	Link	7.325	16.880	7.47		
SWMF 004 Eq.	Pond Outlet	Downstream	7.864	16.880	8.24	SWMF 003	
SWMF 005 Outlet	Pond Outlet	Upstream	1.085	16.000	1.57	SWMF 005	Pond Inflow
SWMF 005 Outlet	Pond Outlet	Outflow	1.085	16.020	1.56	SWMF 005	Pond Outflow
SWMF 005 Outlet	Pond Outlet	Link	1.085	16.020	1.56		
SWMF 005 Outlet	Pond Outlet	Downstream	17.363	17.020	11.11	SWMF 001	

Messages

Scenario Calculation Summary

Messages

Message Id	39
Scenario	2Yr 24Hr (No TW)
Element Type	Composite Outlet Structure
Element Id	110
Label	SWMF 002
Time	(N/A)
Message	Reverse flow conditions encountered for one or more headwater elevations. Calculated reverse flows may be approximate.
Source	Warning
Message Id	15
Scenario	2Yr 24Hr (No TW)
Element Type	Composite Outlet Structure
Element Id	112
Label	SWMF 004
Time	(N/A)
Message	Kr (reverse flow entrance loss coefficient) was not specified. Kr was set to same value as Ke= 0.200 .
Source	Warning
Message Id	39
Scenario	2Yr 24Hr (No TW)
Element Type	Composite Outlet Structure
Element Id	112
Label	SWMF 004
Time	(N/A)
Message	Reverse flow conditions encountered for one or more headwater elevations. Calculated reverse flows may be approximate.
Source	Warning

Scenario Calculation Summary

Scenario Summary	
ID	36
Label	2Yr 18Hr
Notes	
Active Topology	<I> Base Active Topology
Hydrology	<I> Base Hydrology
Rainfall Runoff	2Yr 18Hr
Physical	<I> No TW
Initial Condition	<I> Base Initial Condition
Boundary Condition	<I> Base Boundary Condition
Infiltration and Inflow	<I> Base Infiltration and Inflow
Output	<I> Base Output
User Data Extensions	<I> Base User Data Extensions
PondPack Engine Calculation Options	<I> 72Hr

Output Summary			
Output Increment	0.020 hours	Duration	72.000 hours

Rainfall Summary			
Return Event Tag	2	Rainfall Type	Time-Depth Curve
Total Depth	3.1 in	Storm Event	2YR-18HR

ICPM Output Summary			
Target Convergence	0.00 ft³/s	ICPM Time Step	0.020 hours
Maximum Iterations	35		

Executive Summary (Nodes)

Label	Scenario	Return Event (years)	Truncation	Hydrograph Volume (ac-ft)	Time to Peak (hours)	Peak Flow (ft³/s)	Maximum Water Surface Elevation (ft)	Maximum Pond Storage (ac-ft)
119th Widening East	2Yr 18Hr	2	None	0.487	11.260	0.75	(N/A)	(N/A)
119th Widening West	2Yr 18Hr	2	None	0.320	11.260	0.49	(N/A)	(N/A)
O-1	2Yr 18Hr	2	None	15.010	29.200	4.13	(N/A)	(N/A)
SWMF 001 (IN)	2Yr 18Hr	2	None	15.888	12.780	12.01	(N/A)	(N/A)
SWMF 001 (OUT)	2Yr 18Hr	2	None	14.660	29.200	4.13	614.55	6.815
SWMF 002 (IN)	2Yr 18Hr	2	None	12.065	12.780	16.05	(N/A)	(N/A)
SWMF 002 (OUT)	2Yr 18Hr	2	None	11.918	18.400	6.24	619.36	6.130
SWMF 003 (IN)	2Yr 18Hr	2	None	7.175	12.580	9.11	(N/A)	(N/A)
SWMF 003 (OUT)	2Yr 18Hr	2	None	7.173	14.440	7.51	629.86	0.877
SWMF 004 (IN)	2Yr 18Hr	2	None	6.807	12.040	13.03	(N/A)	(N/A)
SWMF 004 (OUT)	2Yr 18Hr	2	None	6.685	12.940	8.24	629.92	2.771
SWMF 005 (IN)	2Yr 18Hr	2	None	0.990	12.020	1.93	(N/A)	(N/A)
SWMF 005 (OUT)	2Yr 18Hr	2	None	0.990	12.040	1.92	621.07	0.005
Subarea 001	2Yr 18Hr	2	None	2.493	12.040	5.00	(N/A)	(N/A)
Subarea 002	2Yr 18Hr	2	None	4.892	12.040	9.42	(N/A)	(N/A)

Scenario Calculation Summary

Executive Summary (Nodes)

Label	Scenario	Return Event (years)	Truncation	Hydrograph Volume (ac-ft)	Time to Peak (hours)	Peak Flow (ft³/s)	Maximum Water Surface Elevation (ft)	Maximum Pond Storage (ac-ft)
Subarea 003	2Yr 18Hr	2	None	0.491	12.000	0.98	(N/A)	(N/A)
Subarea 004	2Yr 18Hr	2	None	6.487	12.040	12.54	(N/A)	(N/A)
Subarea 005	2Yr 18Hr	2	None	0.990	12.020	1.93	(N/A)	(N/A)
Subarea 006	2Yr 18Hr	2	None	0.350	12.040	0.74	(N/A)	(N/A)

Executive Summary (Links)

Label	Type	Location	Hydrograph Volume (ac-ft)	Peak Time (hours)	Peak Flow (ft³/s)	End Point	Node Flow Direction
SWMF 001 Outlet	Pond Outlet	Upstream	15.888	12.780	12.01	SWMF 001	Pond Inflow
SWMF 001 Outlet	Pond Outlet	Outflow	14.660	29.200	4.13	SWMF 001	Pond Outflow
SWMF 001 Outlet	Pond Outlet	Link	14.660	29.200	4.13		
SWMF 001 Outlet	Pond Outlet	Downstream	15.010	29.200	4.13	O-1	
SWMF 002 Eq.	Pond Outlet	Upstream	12.065	12.780	16.05	SWMF 002	Pond Inflow
SWMF 002 Eq.	Pond Outlet	Outflow	11.918	18.400	6.24	SWMF 002	Pond Outflow
SWMF 002 Eq.	Pond Outlet	Link	11.918	18.400	6.24		
SWMF 002 Eq.	Pond Outlet	Downstream	15.888	12.780	12.01	SWMF 001	
SWMF 003 Outlet	Pond Outlet	Upstream	7.175	12.580	9.11	SWMF 003	Pond Inflow
SWMF 003 Outlet	Pond Outlet	Outflow	7.173	14.440	7.51	SWMF 003	Pond Outflow
SWMF 003 Outlet	Pond Outlet	Link	7.173	14.440	7.51		
SWMF 003 Outlet	Pond Outlet	Downstream	12.065	12.780	16.05	SWMF 002	
SWMF 004 Eq.	Pond Outlet	Upstream	6.807	12.040	13.03	SWMF 004	Pond Inflow
SWMF 004 Eq.	Pond Outlet	Outflow	6.685	12.940	8.24	SWMF 004	Pond Outflow
SWMF 004 Eq.	Pond Outlet	Link	6.685	12.940	8.24		
SWMF 004 Eq.	Pond Outlet	Downstream	7.175	12.580	9.11	SWMF 003	
SWMF 005 Outlet	Pond Outlet	Upstream	0.990	12.020	1.93	SWMF 005	Pond Inflow
SWMF 005 Outlet	Pond Outlet	Outflow	0.990	12.040	1.92	SWMF 005	Pond Outflow
SWMF 005 Outlet	Pond Outlet	Link	0.990	12.040	1.92		
SWMF 005 Outlet	Pond Outlet	Downstream	15.888	12.780	12.01	SWMF 001	

Messages

Message Id	39
Scenario	2Yr 18Hr
Element Type	Composite Outlet Structure
Element Id	110
Label	SWMF 002
Time	(N/A)
Message	Reverse flow conditions encountered for one or more headwater elevations. Calculated reverse flows may be approximate.
Source	Warning

Scenario Calculation Summary

Messages

Message Id	15
Scenario	2Yr 18Hr
Element Type	Composite Outlet Structure
Element Id	112
Label	SWMF 004
Time	(N/A)
Message	Kr (reverse flow entrance loss coefficient) was not specified. Kr was set to same value as Ke= 0.200 .
Source	Warning
Message Id	39
Scenario	2Yr 18Hr
Element Type	Composite Outlet Structure
Element Id	112
Label	SWMF 004
Time	(N/A)
Message	Reverse flow conditions encountered for one or more headwater elevations. Calculated reverse flows may be approximate.
Source	Warning

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Storm Event	2YR-18HR
Return Event	2 years
Duration	72.000 hours
Depth	3.1 in
Time of Concentration (Composite)	0.150 hours
Area (User Defined)	2.010 acres
Computational Time Increment	0.020 hours
Time to Peak (Computed)	11.260 hours
Flow (Peak, Computed)	0.75 ft ³ /s
Output Increment	0.020 hours
Time to Flow (Peak Interpolated Output)	11.260 hours
Flow (Peak Interpolated Output)	0.75 ft ³ /s
Drainage Area	
SCS CN (Composite)	98.000
Area (User Defined)	2.010 acres
Maximum Retention (Pervious)	0.2 in
Maximum Retention (Pervious, 20 percent)	0.0 in
Cumulative Runoff	
Cumulative Runoff Depth (Pervious)	2.9 in
Runoff Volume (Pervious)	0.487 ac-ft
Hydrograph Volume (Area under Hydrograph curve)	
Volume	0.487 ac-ft
SCS Unit Hydrograph Parameters	
Time of Concentration (Composite)	0.150 hours
Computational Time Increment	0.020 hours
Unit Hydrograph Shape Factor	483.432
K Factor	0.749
Receding/Rising, Tr/Tp	1.670
Unit peak, qp	15.18 ft ³ /s
Unit peak time, Tp	0.100 hours
Unit receding limb, Tr	0.400 hours
Total unit time, Tb	0.500 hours

Storm Event	2YR-18HR
Return Event	2 years
Duration	72.000 hours
Depth	3.1 in
Time of Concentration (Composite)	0.100 hours
Area (User Defined)	1.320 acres
Computational Time Increment	0.013 hours
Time to Peak (Computed)	11.253 hours
Flow (Peak, Computed)	0.49 ft ³ /s
Output Increment	0.020 hours
Time to Flow (Peak Interpolated Output)	11.260 hours
Flow (Peak Interpolated Output)	0.49 ft ³ /s
Drainage Area	
SCS CN (Composite)	98.000
Area (User Defined)	1.320 acres
Maximum Retention (Pervious)	0.2 in
Maximum Retention (Pervious, 20 percent)	0.0 in
Cumulative Runoff	
Cumulative Runoff Depth (Pervious)	2.9 in
Runoff Volume (Pervious)	0.320 ac-ft
Hydrograph Volume (Area under Hydrograph curve)	
Volume	0.320 ac-ft
SCS Unit Hydrograph Parameters	
Time of Concentration (Composite)	0.100 hours
Computational Time Increment	0.013 hours
Unit Hydrograph Shape Factor	483.432
K Factor	0.749
Receding/Rising, Tr/Tp	1.670
Unit peak, qp	14.96 ft ³ /s
Unit peak time, Tp	0.067 hours
Unit receding limb, Tr	0.267 hours
Total unit time, Tb	0.333 hours

Storm Event	2YR-18HR
Return Event	2 years
Duration	72.000 hours
Depth	3.1 in
Time of Concentration (Composite)	0.250 hours
Area (User Defined)	18.330 acres
Computational Time Increment	0.033 hours
Time to Peak (Computed)	12.033 hours
Flow (Peak, Computed)	5.00 ft ³ /s
Output Increment	0.020 hours
Time to Flow (Peak Interpolated Output)	12.040 hours
Flow (Peak Interpolated Output)	5.00 ft ³ /s
Drainage Area	
SCS CN (Composite)	84.000
Area (User Defined)	18.330 acres
Maximum Retention (Pervious)	1.9 in
Maximum Retention (Pervious, 20 percent)	0.4 in
Cumulative Runoff	
Cumulative Runoff Depth (Pervious)	1.6 in
Runoff Volume (Pervious)	2.493 ac-ft
Hydrograph Volume (Area under Hydrograph curve)	
Volume	2.493 ac-ft
SCS Unit Hydrograph Parameters	
Time of Concentration (Composite)	0.250 hours
Computational Time Increment	0.033 hours
Unit Hydrograph Shape Factor	483.432
K Factor	0.749
Receding/Rising, Tr/Tp	1.670
Unit peak, qp	83.07 ft ³ /s
Unit peak time, Tp	0.167 hours
Unit receding limb, Tr	0.667 hours
Total unit time, Tb	0.833 hours

Storm Event	2YR-18HR
Return Event	2 years
Duration	72.000 hours
Depth	3.1 in
Time of Concentration (Composite)	0.350 hours
Area (User Defined)	31.800 acres
Computational Time Increment	0.047 hours
Time to Peak (Computed)	12.040 hours
Flow (Peak, Computed)	9.42 ft ³ /s
Output Increment	0.020 hours
Time to Flow (Peak Interpolated Output)	12.040 hours
Flow (Peak Interpolated Output)	9.42 ft ³ /s
Drainage Area	
SCS CN (Composite)	86.800
Area (User Defined)	31.800 acres
Maximum Retention (Pervious)	1.5 in
Maximum Retention (Pervious, 20 percent)	0.3 in
Cumulative Runoff	
Cumulative Runoff Depth (Pervious)	1.8 in
Runoff Volume (Pervious)	4.892 ac-ft
Hydrograph Volume (Area under Hydrograph curve)	
Volume	4.892 ac-ft
SCS Unit Hydrograph Parameters	
Time of Concentration (Composite)	0.350 hours
Computational Time Increment	0.047 hours
Unit Hydrograph Shape Factor	483.432
K Factor	0.749
Receding/Rising, Tr/Tp	1.670
Unit peak, qp	102.95 ft ³ /s
Unit peak time, Tp	0.233 hours
Unit receding limb, Tr	0.933 hours
Total unit time, Tb	1.167 hours

Storm Event	2YR-18HR
Return Event	2 years
Duration	72.000 hours
Depth	3.1 in
Time of Concentration (Composite)	0.100 hours
Area (User Defined)	3.420 acres
Computational Time Increment	0.013 hours
Time to Peak (Computed)	12.000 hours
Flow (Peak, Computed)	0.98 ft ³ /s
Output Increment	0.020 hours
Time to Flow (Peak Interpolated Output)	12.000 hours
Flow (Peak Interpolated Output)	0.98 ft ³ /s
Drainage Area	
SCS CN (Composite)	85.200
Area (User Defined)	3.420 acres
Maximum Retention (Pervious)	1.7 in
Maximum Retention (Pervious, 20 percent)	0.3 in
Cumulative Runoff	
Cumulative Runoff Depth (Pervious)	1.7 in
Runoff Volume (Pervious)	0.491 ac-ft
Hydrograph Volume (Area under Hydrograph curve)	
Volume	0.491 ac-ft
SCS Unit Hydrograph Parameters	
Time of Concentration (Composite)	0.100 hours
Computational Time Increment	0.013 hours
Unit Hydrograph Shape Factor	483.432
K Factor	0.749
Receding/Rising, Tr/Tp	1.670
Unit peak, qp	38.75 ft ³ /s
Unit peak time, Tp	0.067 hours
Unit receding limb, Tr	0.267 hours
Total unit time, Tb	0.333 hours

Storm Event	2YR-18HR
Return Event	2 years
Duration	72.000 hours
Depth	3.1 in
Time of Concentration (Composite)	0.350 hours
Area (User Defined)	42.720 acres
Computational Time Increment	0.047 hours
Time to Peak (Computed)	12.040 hours
Flow (Peak, Computed)	12.54 ft ³ /s
Output Increment	0.020 hours
Time to Flow (Peak Interpolated Output)	12.040 hours
Flow (Peak Interpolated Output)	12.54 ft ³ /s
Drainage Area	
SCS CN (Composite)	86.500
Area (User Defined)	42.720 acres
Maximum Retention (Pervious)	1.6 in
Maximum Retention (Pervious, 20 percent)	0.3 in
Cumulative Runoff	
Cumulative Runoff Depth (Pervious)	1.8 in
Runoff Volume (Pervious)	6.487 ac-ft
Hydrograph Volume (Area under Hydrograph curve)	
Volume	6.487 ac-ft
SCS Unit Hydrograph Parameters	
Time of Concentration (Composite)	0.350 hours
Computational Time Increment	0.047 hours
Unit Hydrograph Shape Factor	483.432
K Factor	0.749
Receding/Rising, Tr/Tp	1.670
Unit peak, qp	138.30 ft ³ /s
Unit peak time, Tp	0.233 hours
Unit receding limb, Tr	0.933 hours
Total unit time, Tb	1.167 hours

Storm Event	2YR-18HR
Return Event	2 years
Duration	72.000 hours
Depth	3.1 in
Time of Concentration (Composite)	0.150 hours
Area (User Defined)	6.490 acres
Computational Time Increment	0.020 hours
Time to Peak (Computed)	12.020 hours
Flow (Peak, Computed)	1.93 ft ³ /s
Output Increment	0.020 hours
Time to Flow (Peak Interpolated Output)	12.020 hours
Flow (Peak Interpolated Output)	1.93 ft ³ /s
Drainage Area	
SCS CN (Composite)	86.600
Area (User Defined)	6.490 acres
Maximum Retention (Pervious)	1.5 in
Maximum Retention (Pervious, 20 percent)	0.3 in
Cumulative Runoff	
Cumulative Runoff Depth (Pervious)	1.8 in
Runoff Volume (Pervious)	0.990 ac-ft
Hydrograph Volume (Area under Hydrograph curve)	
Volume	0.990 ac-ft
SCS Unit Hydrograph Parameters	
Time of Concentration (Composite)	0.150 hours
Computational Time Increment	0.020 hours
Unit Hydrograph Shape Factor	483.432
K Factor	0.749
Receding/Rising, Tr/Tp	1.670
Unit peak, qp	49.02 ft ³ /s
Unit peak time, Tp	0.100 hours
Unit receding limb, Tr	0.400 hours
Total unit time, Tb	0.500 hours

Storm Event	2YR-18HR
Return Event	2 years
Duration	72.000 hours
Depth	3.1 in
Time of Concentration (Composite)	0.200 hours
Area (User Defined)	3.220 acres
Computational Time Increment	0.027 hours
Time to Peak (Computed)	12.027 hours
Flow (Peak, Computed)	0.75 ft ³ /s
Output Increment	0.020 hours
Time to Flow (Peak Interpolated Output)	12.040 hours
Flow (Peak Interpolated Output)	0.74 ft ³ /s
Drainage Area	
SCS CN (Composite)	79.200
Area (User Defined)	3.220 acres
Maximum Retention (Pervious)	2.6 in
Maximum Retention (Pervious, 20 percent)	0.5 in
Cumulative Runoff	
Cumulative Runoff Depth (Pervious)	1.3 in
Runoff Volume (Pervious)	0.350 ac-ft
Hydrograph Volume (Area under Hydrograph curve)	
Volume	0.350 ac-ft
SCS Unit Hydrograph Parameters	
Time of Concentration (Composite)	0.200 hours
Computational Time Increment	0.027 hours
Unit Hydrograph Shape Factor	483.432
K Factor	0.749
Receding/Rising, Tr/Tp	1.670
Unit peak, qp	18.24 ft ³ /s
Unit peak time, Tp	0.133 hours
Unit receding limb, Tr	0.533 hours
Total unit time, Tb	0.667 hours

Time-Depth Curve: 100YR- 2HR	
Label	100YR- 2HR
Start Time	0.000 hours
Increment	0.083 hours
End Time	1.999 hours
Return Event	100 years

CUMULATIVE RAINFALL (in)
Output Time Increment = 0.083 hours
Time on left represents time for first value in each row.

Time (hours)	Depth (in)	Depth (in)	Depth (in)	Depth (in)	Depth (in)
0.000	0.0	0.4	0.9	1.4	1.9
0.417	2.4	2.8	3.1	3.3	3.5
0.833	3.7	3.8	4.0	4.1	4.2
1.250	4.3	4.4	4.5	4.6	4.7
1.666	4.7	4.8	4.9	4.9	5.0

Time-Depth Curve: 100YR-18HR	
Label	100YR-18HR
Start Time	0.000 hours
Increment	0.750 hours
End Time	18.000 hours
Return Event	100 years

CUMULATIVE RAINFALL (in)
Output Time Increment = 0.750 hours
Time on left represents time for first value in each row.

Time (hours)	Depth (in)	Depth (in)	Depth (in)	Depth (in)	Depth (in)
0.000	0.0	0.2	0.3	0.5	0.7
3.750	0.9	1.2	1.4	1.6	1.8
7.500	2.1	2.5	2.9	3.5	4.2
11.250	4.9	5.6	6.3	6.8	7.2
15.000	7.5	7.7	7.8	7.9	8.1

Time-Depth Curve: 100YR-24HR	
Label	100YR-24HR
Start Time	0.000 hours
Increment	1.000 hours
End Time	24.000 hours
Return Event	100 years

CUMULATIVE RAINFALL (in)
Output Time Increment = 1.000 hours
Time on left represents time for first value in each row.

Time (hours)	Depth (in)	Depth (in)	Depth (in)	Depth (in)	Depth (in)
0.000	0.0	0.2	0.4	0.6	0.8
5.000	1.0	1.2	1.4	1.7	2.0
10.000	2.3	2.7	3.1	3.8	4.5
15.000	5.2	6.0	6.7	7.3	7.7
20.000	8.0	8.2	8.3	8.4	8.6

Time-Depth Curve: 2YR-18HR	
Label	2YR-18HR
Start Time	0.000 hours
Increment	0.750 hours
End Time	18.000 hours
Return Event	2 years

CUMULATIVE RAINFALL (in)
Output Time Increment = 0.750 hours
Time on left represents time for first value in each row.

Time (hours)	Depth (in)	Depth (in)	Depth (in)	Depth (in)	Depth (in)
0.000	0.0	0.1	0.1	0.2	0.3
3.750	0.4	0.5	0.5	0.6	0.7
7.500	0.8	1.0	1.1	1.4	1.6
11.250	1.9	2.2	2.5	2.7	2.8
15.000	2.9	3.0	3.0	3.1	3.1

Time-Depth Curve: 2YR-24HR	
Label	2YR-24HR
Start Time	0.000 hours
Increment	1.000 hours
End Time	24.000 hours
Return Event	2 years

CUMULATIVE RAINFALL (in)
Output Time Increment = 1.000 hours
Time on left represents time for first value in each row.

Time (hours)	Depth (in)	Depth (in)	Depth (in)	Depth (in)	Depth (in)
0.000	0.0	0.1	0.1	0.2	0.3
5.000	0.4	0.5	0.6	0.7	0.8
10.000	0.9	1.0	1.2	1.5	1.7
15.000	2.0	2.3	2.6	2.8	3.0
20.000	3.1	3.2	3.2	3.3	3.3

Requested Pond Water Surface Elevations	
Minimum (Headwater)	612.50 ft
Increment (Headwater)	0.10 ft
Maximum (Headwater)	619.00 ft

Outlet Connectivity

Structure Type	Outlet ID	Direction	Outfall	E1 (ft)	E2 (ft)
Culvert-Circular	100yr	Forward	TW	615.50	619.00
Orifice-Circular	2yr	Forward	TW	612.51	615.50
Rectangular Weir	Internal Weir	Forward	TW	615.00	615.50
Tailwater Settings	Tailwater			(N/A)	(N/A)

Structure ID: 2yr Structure Type: Orifice-Circular	
Number of Openings	1
Elevation	612.40 ft
Orifice Diameter	11.00 in
Orifice Coefficient	0.600
Structure ID: Internal Weir Structure Type: Rectangular Weir	
Number of Openings	1
Elevation	615.00 ft
Weir Length	6.00 ft
Weir Coefficient	3.00 (ft ^{0.5})/s
Structure ID: 100yr Structure Type: Culvert-Circular	
Number of Barrels	1
Diameter	17.00 in
Length	6.00 ft
Length (Computed Barrel)	6.00 ft
Slope (Computed)	0.003 ft/ft
Outlet Control Data	
Manning's n	0.013
Ke	0.200
Kb	0.020
Kr	0.200
Convergence Tolerance	0.00 ft
Inlet Control Data	
Equation Form	Form 1
K	0.0045
M	2.0000
C	0.0317
Y	0.6900
T1 ratio (HW/D)	1.094
T2 ratio (HW/D)	1.196
Slope Correction Factor	-0.500

Use unsubmerged inlet control 0 equation below T1 elevation.
Use submerged inlet control 0 equation above T2 elevation

In transition zone between unsubmerged and submerged inlet control,
interpolate between flows at T1 & T2...

T1 Elevation	613.95 ft	T1 Flow	6.57 ft ³ /s
T2 Elevation	614.09 ft	T2 Flow	7.50 ft ³ /s

Structure ID: TW	
Structure Type: TW Setup, DS Channel	
Tailwater Type	Free Outfall
Convergence Tolerances	
Maximum Iterations	30
Tailwater Tolerance (Minimum)	0.01 ft
Tailwater Tolerance (Maximum)	0.50 ft
Headwater Tolerance (Minimum)	0.01 ft
Headwater Tolerance (Maximum)	0.50 ft
Flow Tolerance (Minimum)	0.001 ft ³ /s
Flow Tolerance (Maximum)	10.000 ft ³ /s

Requested Pond Water Surface Elevations	
Minimum (Headwater)	617.50 ft
Increment (Headwater)	0.10 ft
Maximum (Headwater)	624.50 ft

Outlet Connectivity

Structure Type	Outlet ID	Direction	Outfall	E1 (ft)	E2 (ft)
Orifice-Circular	Orifice - 1	Forward + Reverse	TW	617.51	624.50
Tailwater Settings	Tailwater			(N/A)	(N/A)

Structure ID: Orifice - 1	
Structure Type: Orifice-Circular	
Number of Openings	1
Elevation	617.30 ft
Orifice Diameter	14.00 in
Orifice Coefficient	0.600

Requested Pond Water Surface Elevations	
Minimum (Headwater)	628.00 ft
Increment (Headwater)	0.10 ft
Maximum (Headwater)	635.00 ft

Outlet Connectivity

Structure Type	Outlet ID	Direction	Outfall	E1 (ft)	E2 (ft)
Orifice-Circular	Orifice - 1	Forward + Reverse	TW	628.01	635.00
Tailwater Settings	Tailwater			(N/A)	(N/A)

Structure ID: Orifice - 1	
Structure Type: Orifice-Circular	
Number of Openings	1
Elevation	627.80 ft
Orifice Diameter	15.50 in
Orifice Coefficient	0.600

Requested Pond Water Surface Elevations	
Minimum (Headwater)	628.00 ft
Increment (Headwater)	0.10 ft
Maximum (Headwater)	635.00 ft

Outlet Connectivity

Structure Type	Outlet ID	Direction	Outfall	E1 (ft)	E2 (ft)
Culvert-Circular	Culvert - 1	Forward + Reverse	TW	628.00	635.00
Tailwater Settings	Tailwater			(N/A)	(N/A)

Structure ID: Culvert - 1	
Structure Type: Culvert-Circular	
Number of Barrels	2
Diameter	36.00 in
Length	225.00 ft
Length (Computed Barrel)	225.00 ft
Slope (Computed)	0.000 ft/ft
Outlet Control Data	
Manning's n	0.013
Ke	0.200
Kb	0.007
Kr	0.000
Convergence Tolerance	0.00 ft
Inlet Control Data	
Equation Form	Form 1
K	0.0045
M	2.0000
C	0.0317
Y	0.6900
T1 ratio (HW/D)	1.095
T2 ratio (HW/D)	1.197
Slope Correction Factor	-0.500

Use unsubmerged inlet control 0 equation below T1 elevation.
Use submerged inlet control 0 equation above T2 elevation

In transition zone between unsubmerged and submerged inlet control, interpolate between flows at T1 & T2...

T1 Elevation	631.29 ft	T1 Flow	42.85 ft ³ /s
T2 Elevation	631.59 ft	T2 Flow	48.97 ft ³ /s

Requested Pond Water Surface Elevations	
Minimum (Headwater)	621.00 ft
Increment (Headwater)	0.10 ft
Maximum (Headwater)	627.00 ft

Outlet Connectivity

Structure Type	Outlet ID	Direction	Outfall	E1 (ft)	E2 (ft)
Orifice-Circular	Orifice - 1	Forward + Reverse	TW	621.01	627.00
Tailwater Settings	Tailwater			(N/A)	(N/A)

Structure ID: Orifice - 1	
Structure Type: Orifice-Circular	
Number of Openings	1
Elevation	617.50 ft
Orifice Diameter	7.50 in
Orifice Coefficient	0.600

Elevation-Volume

Pond Elevation (ft)		Pond Volume (ac-ft)	
	612.50		0.000
	613.00		1.493
	614.00		4.777
	615.00		8.470
	616.00		12.595
	617.00		17.167
	618.00		22.189
	619.00		27.591

Elevation-Volume

Pond Elevation (ft)		Pond Volume (ac-ft)	
	617.50		0.000
	618.00		1.572
	619.00		4.876
	620.00		8.398
	621.00		12.144
	622.00		16.120
	623.00		20.333
	623.50		22.530
	624.50		27.066

Elevation-Volume

Pond Elevation (ft)		Pond Volume (ac-ft)	
	628.00		0.000
	629.00		0.416
	630.00		0.950
	631.00		1.611
	632.00		2.407
	633.00		3.344
	634.00		4.428
	635.00		5.638

Elevation-Volume

Pond Elevation (ft)		Pond Volume (ac-ft)	
	628.00		0.000
	629.00		1.370
	630.00		2.900
	631.00		4.595
	632.00		6.461
	633.00		8.503
	634.00		10.726
	635.00		13.105

Elevation-Volume

Pond Elevation (ft)		Pond Volume (ac-ft)	
	621.00		0.000
	622.00		0.072
	623.00		0.245
	624.00		0.482
	625.00		0.790
	626.00		1.180
	627.00		1.644

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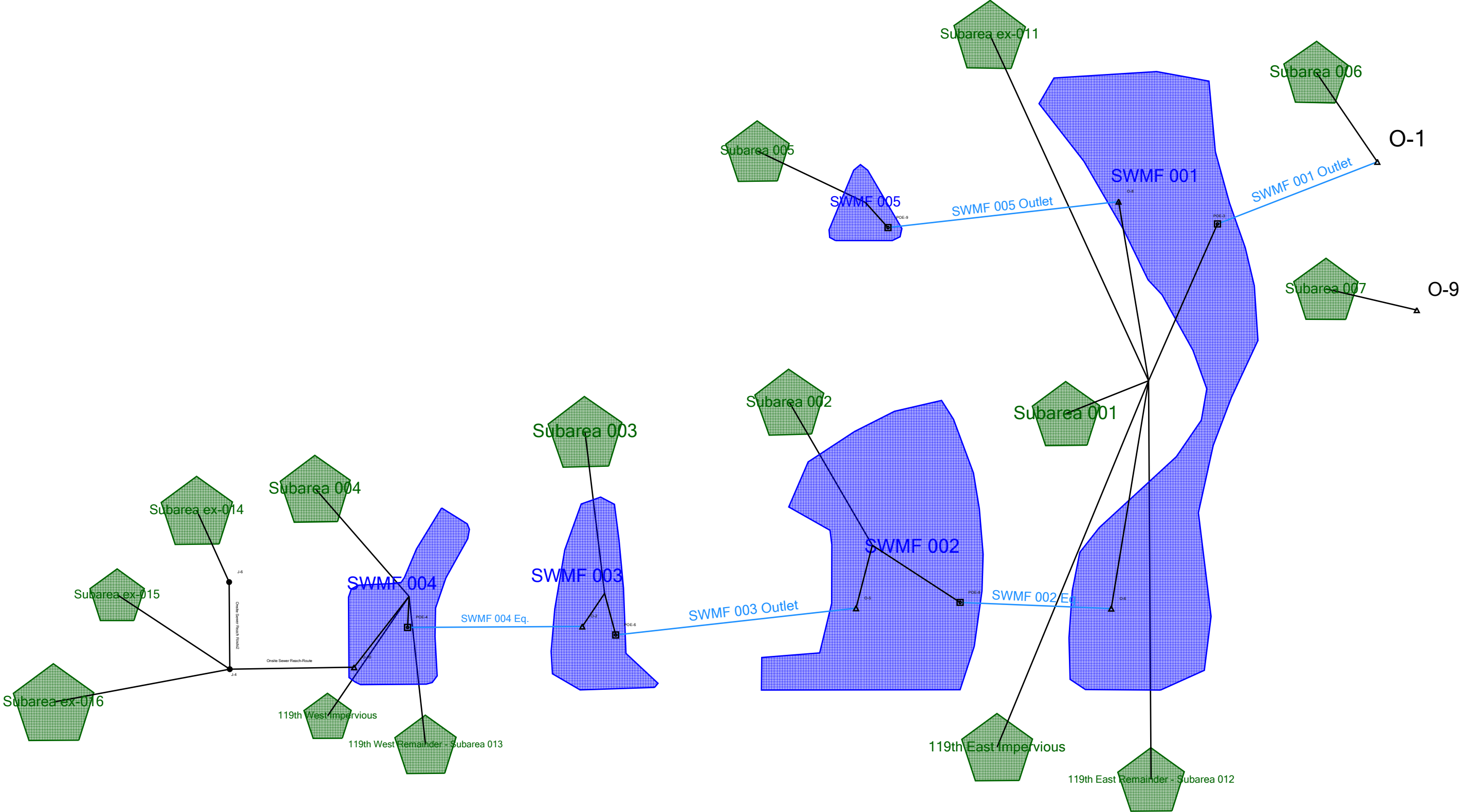
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TAB 3

“PRELIM NO TAILWATER” PONDPACK
MODEL

Scenario: 2Yr 18Hr



Scenario Calculation Summary

Scenario Summary	
ID	154
Label	100Yr 24Hr (No TW)
Notes	
Active Topology	Base Active Topology
Hydrology	Base Hydrology
Rainfall Runoff	100Yr 24Hr
Physical	No TW
Initial Condition	Base Initial Condition
Boundary Condition	Base Boundary Condition
Infiltration and Inflow	Base Infiltration and Inflow
Output	Base Output
User Data Extensions	Base User Data Extensions
PondPack Engine Calculation Options	72Hr

Output Summary			
Output Increment	0.020 hours	Duration	72.000 hours

Rainfall Summary			
Return Event Tag	100	Rainfall Type	Time-Depth Curve
Total Depth	8.6 in	Storm Event	100YR-24HR

ICPM Output Summary			
Target Convergence	0.00 ft³/s	ICPM Time Step	0.020 hours
Maximum Iterations	35		

Executive Summary (Nodes)

Label	Scenario	Return Event (years)	Truncation	Hydrograph Volume (ac-ft)	Time to Peak (hours)	Peak Flow (ft³/s)	Maximum Water Surface Elevation (ft)	Maximum Pond Storage (ac-ft)
119th East Impervious	100Yr 24Hr (No TW)	100	None	1.395	15.000	1.54	(N/A)	(N/A)
119th East Remainder - Subarea 012	100Yr 24Hr (No TW)	100	None	1.826	16.000	2.59	(N/A)	(N/A)
119th West Impervious	100Yr 24Hr (No TW)	100	None	0.916	15.000	1.01	(N/A)	(N/A)
119th West Remainder - Subarea 013	100Yr 24Hr (No TW)	100	None	1.215	16.000	1.72	(N/A)	(N/A)
J-4	100Yr 24Hr (No TW)	100	None	23.730	16.060	30.67	(N/A)	(N/A)
J-6	100Yr 24Hr (No TW)	100	None	5.736	16.040	7.51	(N/A)	(N/A)
O-1	100Yr 24Hr (No TW)	100	None	89.184	21.060	51.03	(N/A)	(N/A)
O-9	100Yr 24Hr (No TW)	100	None	0.542	16.000	0.69	(N/A)	(N/A)
SWMF 001 (IN)	100Yr 24Hr (No TW)	100	None	88.819	19.020	65.79	(N/A)	(N/A)
SWMF 001 (OUT)	100Yr 24Hr (No TW)	100	None	87.557	21.440	50.54	618.01	22.245
SWMF 002 (IN)	100Yr 24Hr (No TW)	100	None	70.955	17.020	84.50	(N/A)	(N/A)
SWMF 002 (OUT)	100Yr 24Hr (No TW)	100	None	70.888	19.220	53.03	623.48	22.425
SWMF 003 (IN)	100Yr 24Hr (No TW)	100	None	52.455	17.020	62.78	(N/A)	(N/A)

Scenario Calculation Summary

Executive Summary (Nodes)

Label	Scenario	Return Event (years)	Truncation	Hydrograph Volume (ac-ft)	Time to Peak (hours)	Peak Flow (ft ³ /s)	Maximum Water Surface Elevation (ft)	Maximum Pond Storage (ac-ft)
SWMF 003 (OUT)	100Yr 24Hr (No TW)	100	None	52.454	17.060	62.64	633.81	4.221
SWMF 004 (IN)	100Yr 24Hr (No TW)	100	None	50.586	16.020	64.53	(N/A)	(N/A)
SWMF 004 (OUT)	100Yr 24Hr (No TW)	100	None	50.520	17.100	60.52	633.95	10.605
SWMF 005 (IN)	100Yr 24Hr (No TW)	100	None	3.763	16.000	4.75	(N/A)	(N/A)
SWMF 005 (OUT)	100Yr 24Hr (No TW)	100	None	3.763	16.100	4.60	625.38	0.938
Subarea 001	100Yr 24Hr (No TW)	100	None	10.148	16.000	13.12	(N/A)	(N/A)
Subarea 002	100Yr 24Hr (No TW)	100	None	18.501	16.000	23.24	(N/A)	(N/A)
Subarea 003	100Yr 24Hr (No TW)	100	None	1.935	16.000	2.48	(N/A)	(N/A)
Subarea 004	100Yr 24Hr (No TW)	100	None	24.725	16.000	31.16	(N/A)	(N/A)
Subarea 005	100Yr 24Hr (No TW)	100	None	3.763	16.000	4.75	(N/A)	(N/A)
Subarea 006	100Yr 24Hr (No TW)	100	None	1.627	16.000	2.20	(N/A)	(N/A)
Subarea 007	100Yr 24Hr (No TW)	100	None	0.542	16.000	0.69	(N/A)	(N/A)
Subarea ex- 011	100Yr 24Hr (No TW)	100	None	0.798	16.040	1.13	(N/A)	(N/A)
Subarea ex- 014	100Yr 24Hr (No TW)	100	None	5.736	16.040	7.51	(N/A)	(N/A)
Subarea ex- 015	100Yr 24Hr (No TW)	100	None	3.128	16.020	4.20	(N/A)	(N/A)
Subarea ex- 016	100Yr 24Hr (No TW)	100	None	14.866	16.060	18.96	(N/A)	(N/A)

Executive Summary (Links)

Label	Type	Location	Hydrograph Volume (ac-ft)	Peak Time (hours)	Peak Flow (ft ³ /s)	End Point	Node Flow Direction
Onsite Sewer Reach Route2	Channel	Upstream	5.736	16.040	7.51	J-6	
Onsite Sewer Reach Route2	Channel	Link	5.736	16.080	7.51		
Onsite Sewer Reach Route2	Channel	Downstream	23.730	16.060	30.67	J-4	
Onsite Sewer Reach-Route	Channel	Upstream	23.730	16.060	30.67	J-4	
Onsite Sewer Reach-Route	Channel	Link	23.730	16.080	30.67		
Onsite Sewer Reach-Route	Channel	Downstream	50.586	16.020	64.53	SWMF 004	
SWMF 001 Outlet	Pond Outlet	Upstream	88.819	19.020	65.79	SWMF 001	Pond Inflow
SWMF 001 Outlet	Pond Outlet	Outflow	87.557	21.440	50.54	SWMF 001	Pond Outflow
SWMF 001 Outlet	Pond Outlet	Link	87.557	21.440	50.54		
SWMF 001 Outlet	Pond Outlet	Downstream	89.184	21.060	51.03	O-1	

Scenario Calculation Summary

Executive Summary (Links)

Label	Type	Location	Hydrograph Volume (ac-ft)	Peak Time (hours)	Peak Flow (ft ³ /s)	End Point	Node Flow Direction
SWMF 002 Eq.	Pond Outlet	Upstream	70.955	17.020	84.50	SWMF 002	Pond Inflow
SWMF 002 Eq.	Pond Outlet	Outflow	70.888	19.220	53.03	SWMF 002	Pond Outflow
SWMF 002 Eq.	Pond Outlet	Link	70.888	19.220	53.03		
SWMF 002 Eq.	Pond Outlet	Downstream	88.819	19.020	65.79	SWMF 001	
SWMF 003 Outlet	Pond Outlet	Upstream	52.455	17.020	62.78	SWMF 003	Pond Inflow
SWMF 003 Outlet	Pond Outlet	Outflow	52.454	17.060	62.64	SWMF 003	Pond Outflow
SWMF 003 Outlet	Pond Outlet	Link	52.454	17.060	62.64		
SWMF 003 Outlet	Pond Outlet	Downstream	70.955	17.020	84.50	SWMF 002	
SWMF 004 Eq.	Pond Outlet	Upstream	50.586	16.020	64.53	SWMF 004	Pond Inflow
SWMF 004 Eq.	Pond Outlet	Outflow	50.520	17.100	60.52	SWMF 004	Pond Outflow
SWMF 004 Eq.	Pond Outlet	Link	50.520	17.100	60.52		
SWMF 004 Eq.	Pond Outlet	Downstream	52.455	17.020	62.78	SWMF 003	
SWMF 005 Outlet	Pond Outlet	Upstream	3.763	16.000	4.75	SWMF 005	Pond Inflow
SWMF 005 Outlet	Pond Outlet	Outflow	3.763	16.100	4.60	SWMF 005	Pond Outflow
SWMF 005 Outlet	Pond Outlet	Link	3.763	16.100	4.60		
SWMF 005 Outlet	Pond Outlet	Downstream	88.819	19.020	65.79	SWMF 001	

Messages

Message Id	67
Scenario	100Yr 24Hr (No TW)
Element Type	Composite Outlet Structure
Element Id	138
Label	No TW SWMF 001 Outlet
Time	(N/A)
Message	Flow direction set to reverse for one ore more structures in composite outlet structure No TW SWMF 001 Outlet. To eliminate this warning, edit outlet data and select forward only. If reverse flow analysis is required, then the tailwater conditions must be set to interconnected pond.
Source	Warning
Message Id	17
Scenario	100Yr 24Hr (No TW)
Element Type	Composite Outlet Structure
Element Id	138
Label	No TW SWMF 001 Outlet
Time	(N/A)
Message	Riser orifice equation controls at one or more headwater elevations for outlet structure.
Source	Information
Message Id	39
Scenario	100Yr 24Hr (No TW)
Element Type	Composite Outlet Structure
Element Id	110
Label	SWMF 002
Time	(N/A)
Message	Reverse flow conditions encountered for one or more headwater elevations. Calculated reverse flows may be approximate.
Source	Warning

Scenario Calculation Summary

Messages

Message Id	15
Scenario	100Yr 24Hr (No TW)
Element Type	Composite Outlet Structure
Element Id	111
Label	SWMF 003
Time	(N/A)
Message	Kr (reverse flow entrance loss coefficient) was not specified. Kr was set to same value as Ke= 0.200 .
Source	Warning
Message Id	15
Scenario	100Yr 24Hr (No TW)
Element Type	Composite Outlet Structure
Element Id	112
Label	SWMF 004
Time	(N/A)
Message	Kr (reverse flow entrance loss coefficient) was not specified. Kr was set to same value as Ke= 0.200 .
Source	Warning
Message Id	39
Scenario	100Yr 24Hr (No TW)
Element Type	Composite Outlet Structure
Element Id	112
Label	SWMF 004
Time	(N/A)
Message	Reverse flow conditions encountered for one or more headwater elevations. Calculated reverse flows may be approximate.
Source	Warning
Message Id	1
Scenario	100Yr 24Hr (No TW)
Element Type	Conduit
Element Id	171
Label	Onsite Sewer Reach-Route
Time	(N/A)
Message	Reach routing link Onsite Sewer Reach-Route is connected to ICPM outfall node SWMF 004.
Source	Warning

Scenario Calculation Summary

Scenario Summary	
ID	156
Label	100Yr 18Hr
Notes	
Active Topology	<I> Base Active Topology
Hydrology	<I> Base Hydrology
Rainfall Runoff	100Yr 18Hr
Physical	<I> No TW
Initial Condition	<I> Base Initial Condition
Boundary Condition	<I> Base Boundary Condition
Infiltration and Inflow	<I> Base Infiltration and Inflow
Output	<I> Base Output
User Data Extensions	<I> Base User Data Extensions
PondPack Engine Calculation Options	<I> 72Hr

Output Summary			
Output Increment	0.020 hours	Duration	72.000 hours

Rainfall Summary			
Return Event Tag	100	Rainfall Type	Time-Depth Curve
Total Depth	8.1 in	Storm Event	100YR-18HR

ICPM Output Summary			
Target Convergence	0.00 ft³/s	ICPM Time Step	0.020 hours
Maximum Iterations	35		

Executive Summary (Nodes)

Label	Scenario	Return Event (years)	Truncation	Hydrograph Volume (ac-ft)	Time to Peak (hours)	Peak Flow (ft³/s)	Maximum Water Surface Elevation (ft)	Maximum Pond Storage (ac-ft)
119th East Impervious	100Yr 18Hr	100	None	1.310	11.240	1.94	(N/A)	(N/A)
119th East Remainder - Subarea 012	100Yr 18Hr	100	None	1.672	12.020	3.18	(N/A)	(N/A)
119th West Impervious	100Yr 18Hr	100	None	0.860	11.240	1.27	(N/A)	(N/A)
119th West Remainder - Subarea 013	100Yr 18Hr	100	None	1.112	12.020	2.12	(N/A)	(N/A)
J-4	100Yr 18Hr	100	None	21.965	12.080	37.99	(N/A)	(N/A)
J-6	100Yr 18Hr	100	None	5.301	12.080	9.29	(N/A)	(N/A)
O-1	100Yr 18Hr	100	None	82.887	17.200	52.99	(N/A)	(N/A)
O-9	100Yr 18Hr	100	None	0.503	12.000	0.86	(N/A)	(N/A)
SWMF 001 (IN)	100Yr 18Hr	100	None	82.377	14.300	76.82	(N/A)	(N/A)
SWMF 001 (OUT)	100Yr 18Hr	100	None	81.388	17.200	52.50	618.17	23.122
SWMF 002 (IN)	100Yr 18Hr	100	None	65.816	12.800	104.70	(N/A)	(N/A)
SWMF 002 (OUT)	100Yr 18Hr	100	None	65.772	14.700	60.85	623.75	23.664
SWMF 003 (IN)	100Yr 18Hr	100	None	48.633	12.780	77.79	(N/A)	(N/A)
SWMF 003 (OUT)	100Yr 18Hr	100	None	48.632	12.860	77.52	633.93	4.357
SWMF 004 (IN)	100Yr 18Hr	100	None	46.895	12.040	80.09	(N/A)	(N/A)

Scenario Calculation Summary

Executive Summary (Nodes)

Label	Scenario	Return Event (years)	Truncation	Hydrograph Volume (ac-ft)	Time to Peak (hours)	Peak Flow (ft ³ /s)	Maximum Water Surface Elevation (ft)	Maximum Pond Storage (ac-ft)
SWMF 004 (OUT)	100Yr 18Hr	100	None	46.838	12.860	75.06	634.14	11.051
SWMF 005 (IN)	100Yr 18Hr	100	None	3.494	12.000	5.91	(N/A)	(N/A)
SWMF 005 (OUT)	100Yr 18Hr	100	None	3.494	12.900	4.81	625.74	1.078
Subarea 001	100Yr 18Hr	100	None	9.398	12.000	16.30	(N/A)	(N/A)
Subarea 002	100Yr 18Hr	100	None	17.184	12.000	28.93	(N/A)	(N/A)
Subarea 003	100Yr 18Hr	100	None	1.794	12.000	3.08	(N/A)	(N/A)
Subarea 004	100Yr 18Hr	100	None	22.958	12.000	38.78	(N/A)	(N/A)
Subarea 005	100Yr 18Hr	100	None	3.494	12.000	5.91	(N/A)	(N/A)
Subarea 006	100Yr 18Hr	100	None	1.499	12.000	2.72	(N/A)	(N/A)
Subarea 007	100Yr 18Hr	100	None	0.503	12.000	0.86	(N/A)	(N/A)
Subarea ex- 011	100Yr 18Hr	100	None	0.730	12.040	1.38	(N/A)	(N/A)
Subarea ex- 014	100Yr 18Hr	100	None	5.301	12.080	9.29	(N/A)	(N/A)
Subarea ex- 015	100Yr 18Hr	100	None	2.883	12.060	5.19	(N/A)	(N/A)
Subarea ex- 016	100Yr 18Hr	100	None	13.781	12.120	23.51	(N/A)	(N/A)

Executive Summary (Links)

Label	Type	Location	Hydrograph Volume (ac-ft)	Peak Time (hours)	Peak Flow (ft ³ /s)	End Point	Node Flow Direction
Onsite Sewer Reach Route2	Channel	Upstream	5.301	12.080	9.29	J-6	
Onsite Sewer Reach Route2	Channel	Link	5.301	12.140	9.29		
Onsite Sewer Reach Route2	Channel	Downstream	21.965	12.080	37.99	J-4	
Onsite Sewer Reach-Route	Channel	Upstream	21.965	12.080	37.99	J-4	
Onsite Sewer Reach-Route	Channel	Link	21.965	12.120	37.98		
Onsite Sewer Reach-Route	Channel	Downstream	46.895	12.040	80.09	SWMF 004	
SWMF 001 Outlet	Pond Outlet	Upstream	82.377	14.300	76.82	SWMF 001	Pond Inflow
SWMF 001 Outlet	Pond Outlet	Outflow	81.388	17.200	52.50	SWMF 001	Pond Outflow
SWMF 001 Outlet	Pond Outlet	Link	81.388	17.200	52.50		
SWMF 001 Outlet	Pond Outlet	Downstream	82.887	17.200	52.99	O-1	
SWMF 002 Eq.	Pond Outlet	Upstream	65.816	12.800	104.70	SWMF 002	Pond Inflow
SWMF 002 Eq.	Pond Outlet	Outflow	65.772	14.700	60.85	SWMF 002	Pond Outflow
SWMF 002 Eq.	Pond Outlet	Link	65.772	14.700	60.85		
SWMF 002 Eq.	Pond Outlet	Downstream	82.377	14.300	76.82	SWMF 001	
SWMF 003 Outlet	Pond Outlet	Upstream	48.633	12.780	77.79	SWMF 003	Pond Inflow
SWMF 003 Outlet	Pond Outlet	Outflow	48.632	12.860	77.52	SWMF 003	Pond Outflow
SWMF 003 Outlet	Pond Outlet	Link	48.632	12.860	77.52		

Scenario Calculation Summary

Executive Summary (Links)

Label	Type	Location	Hydrograph Volume (ac-ft)	Peak Time (hours)	Peak Flow (ft ³ /s)	End Point	Node Flow Direction
SWMF 003 Outlet	Pond Outlet	Downstream	65.816	12.800	104.70	SWMF 002	
SWMF 004 Eq.	Pond Outlet	Upstream	46.895	12.040	80.09	SWMF 004	Pond Inflow
SWMF 004 Eq.	Pond Outlet	Outflow	46.838	12.860	75.06	SWMF 004	Pond Outflow
SWMF 004 Eq.	Pond Outlet	Link	46.838	12.860	75.06		
SWMF 004 Eq.	Pond Outlet	Downstream	48.633	12.780	77.79	SWMF 003	
SWMF 005 Outlet	Pond Outlet	Upstream	3.494	12.000	5.91	SWMF 005	Pond Inflow
SWMF 005 Outlet	Pond Outlet	Outflow	3.494	12.900	4.81	SWMF 005	Pond Outflow
SWMF 005 Outlet	Pond Outlet	Link	3.494	12.900	4.81		
SWMF 005 Outlet	Pond Outlet	Downstream	82.377	14.300	76.82	SWMF 001	

Messages

Message Id	67
Scenario	100Yr 18Hr
Element Type	Composite Outlet Structure
Element Id	138
Label	No TW SWMF 001 Outlet
Time	(N/A)
Message	Flow direction set to reverse for one ore more structures in composite outlet structure No TW SWMF 001 Outlet. To eliminate this warning, edit outlet data and select forward only. If reverse flow analysis is required, then the tailwater conditions must be set to interconnected pond.
Source	Warning
Message Id	17
Scenario	100Yr 18Hr
Element Type	Composite Outlet Structure
Element Id	138
Label	No TW SWMF 001 Outlet
Time	(N/A)
Message	Riser orifice equation controls at one or more headwater elevations for outlet structure.
Source	Information
Message Id	39
Scenario	100Yr 18Hr
Element Type	Composite Outlet Structure
Element Id	110
Label	SWMF 002
Time	(N/A)
Message	Reverse flow conditions encountered for one or more headwater elevations. Calculated reverse flows may be approximate.
Source	Warning
Message Id	15
Scenario	100Yr 18Hr
Element Type	Composite Outlet Structure
Element Id	111
Label	SWMF 003
Time	(N/A)
Message	Kr (reverse flow entrance loss coefficient) was not specified. Kr was set to same value as Ke= 0.200 .
Source	Warning

Scenario Calculation Summary

Messages

Message Id	15
Scenario	100Yr 18Hr
Element Type	Composite Outlet Structure
Element Id	112
Label	SWMF 004
Time	(N/A)
Message	Kr (reverse flow entrance loss coefficient) was not specified. Kr was set to same value as Ke= 0.200 .
Source	Warning
Message Id	39
Scenario	100Yr 18Hr
Element Type	Composite Outlet Structure
Element Id	112
Label	SWMF 004
Time	(N/A)
Message	Reverse flow conditions encountered for one or more headwater elevations. Calculated reverse flows may be approximate.
Source	Warning
Message Id	1
Scenario	100Yr 18Hr
Element Type	Conduit
Element Id	171
Label	Onsite Sewer Reach-Route
Time	(N/A)
Message	Reach routing link Onsite Sewer Reach-Route is connected to ICPM outfall node SWMF 004.
Source	Warning

Scenario Calculation Summary

Scenario Summary	
ID	159
Label	100Yr 3Hr
Notes	
Active Topology	<I> Base Active Topology
Hydrology	<I> Base Hydrology
Rainfall Runoff	100Yr 3Hr
Physical	<I> No TW
Initial Condition	<I> Base Initial Condition
Boundary Condition	<I> Base Boundary Condition
Infiltration and Inflow	<I> Base Infiltration and Inflow
Output	<I> Base Output
User Data Extensions	<I> Base User Data Extensions
PondPack Engine Calculation Options	<I> 72Hr

Output Summary			
Output Increment	0.020 hours	Duration	72.000 hours

Rainfall Summary			
Return Event Tag	100	Rainfall Type	Time-Depth Curve
Total Depth	5.5 in	Storm Event	100YR- 3HR

ICPM Output Summary			
Target Convergence	0.00 ft³/s	ICPM Time Step	0.020 hours
Maximum Iterations	35		

Executive Summary (Nodes)

Label	Scenario	Return Event (years)	Truncation	Hydrograph Volume (ac-ft)	Time to Peak (hours)	Peak Flow (ft³/s)	Maximum Water Surface Elevation (ft)	Maximum Pond Storage (ac-ft)
119th East Impervious	100Yr 3Hr	100	None	0.880	0.520	8.96	(N/A)	(N/A)
119th East Remainder - Subarea 012	100Yr 3Hr	100	None	0.927	0.800	8.64	(N/A)	(N/A)
119th West Impervious	100Yr 3Hr	100	None	0.578	0.440	5.91	(N/A)	(N/A)
119th West Remainder - Subarea 013	100Yr 3Hr	100	None	0.617	0.780	5.81	(N/A)	(N/A)
J-4	100Yr 3Hr	100	None	13.234	1.040	102.48	(N/A)	(N/A)
J-6	100Yr 3Hr	100	None	3.157	1.060	24.86	(N/A)	(N/A)
O-1	100Yr 3Hr	100	None	50.630	7.560	36.80	(N/A)	(N/A)
O-9	100Yr 3Hr	100	None	0.308	0.680	3.00	(N/A)	(N/A)
SWMF 001 (IN)	100Yr 3Hr	100	None	50.313	0.900	82.09	(N/A)	(N/A)
SWMF 001 (OUT)	100Yr 3Hr	100	None	49.759	7.560	36.80	616.93	16.827
SWMF 002 (IN)	100Yr 3Hr	100	None	40.276	1.920	132.57	(N/A)	(N/A)
SWMF 002 (OUT)	100Yr 3Hr	100	None	40.258	3.620	39.77	622.74	19.254
SWMF 003 (IN)	100Yr 3Hr	100	None	29.650	1.920	100.89	(N/A)	(N/A)
SWMF 003 (OUT)	100Yr 3Hr	100	None	29.650	2.040	99.81	634.10	4.546
SWMF 004 (IN)	100Yr 3Hr	100	None	28.592	0.940	227.76	(N/A)	(N/A)

Scenario Calculation Summary

Executive Summary (Nodes)

Label	Scenario	Return Event (years)	Truncation	Hydrograph Volume (ac-ft)	Time to Peak (hours)	Peak Flow (ft ³ /s)	Maximum Water Surface Elevation (ft)	Maximum Pond Storage (ac-ft)
SWMF 004 (OUT)	100Yr 3Hr	100	None	28.555	1.940	97.82	634.43	11.742
SWMF 005 (IN)	100Yr 3Hr	100	None	2.157	0.600	21.38	(N/A)	(N/A)
SWMF 005 (OUT)	100Yr 3Hr	100	None	2.157	2.120	4.96	626.25	1.294
Subarea 001	100Yr 3Hr	100	None	5.685	0.740	53.96	(N/A)	(N/A)
Subarea 002	100Yr 3Hr	100	None	10.626	0.800	97.83	(N/A)	(N/A)
Subarea 003	100Yr 3Hr	100	None	1.096	0.540	10.97	(N/A)	(N/A)
Subarea 004	100Yr 3Hr	100	None	14.164	0.800	130.23	(N/A)	(N/A)
Subarea 005	100Yr 3Hr	100	None	2.157	0.600	21.38	(N/A)	(N/A)
Subarea 006	100Yr 3Hr	100	None	0.871	0.760	8.26	(N/A)	(N/A)
Subarea 007	100Yr 3Hr	100	None	0.308	0.680	3.00	(N/A)	(N/A)
Subarea ex- 011	100Yr 3Hr	100	None	0.405	0.880	3.63	(N/A)	(N/A)
Subarea ex- 014	100Yr 3Hr	100	None	3.157	1.060	24.86	(N/A)	(N/A)
Subarea ex- 015	100Yr 3Hr	100	None	1.681	0.900	14.76	(N/A)	(N/A)
Subarea ex- 016	100Yr 3Hr	100	None	8.396	1.120	64.21	(N/A)	(N/A)

Executive Summary (Links)

Label	Type	Location	Hydrograph Volume (ac-ft)	Peak Time (hours)	Peak Flow (ft ³ /s)	End Point	Node Flow Direction
Onsite Sewer Reach Route2	Channel	Upstream	3.157	1.060	24.86	J-6	
Onsite Sewer Reach Route2	Channel	Link	3.157	1.080	24.81		
Onsite Sewer Reach Route2	Channel	Downstream	13.234	1.040	102.48	J-4	
Onsite Sewer Reach-Route	Channel	Upstream	13.234	1.040	102.48	J-4	
Onsite Sewer Reach-Route	Channel	Link	13.234	1.100	101.95		
Onsite Sewer Reach-Route	Channel	Downstream	28.592	0.940	227.76	SWMF 004	
SWMF 001 Outlet	Pond Outlet	Upstream	50.313	0.900	82.09	SWMF 001	Pond Inflow
SWMF 001 Outlet	Pond Outlet	Outflow	49.759	7.560	36.80	SWMF 001	Pond Outflow
SWMF 001 Outlet	Pond Outlet	Link	49.759	7.560	36.80		
SWMF 001 Outlet	Pond Outlet	Downstream	50.630	7.560	36.80	O-1	
SWMF 002 Eq.	Pond Outlet	Upstream	40.276	1.920	132.57	SWMF 002	Pond Inflow
SWMF 002 Eq.	Pond Outlet	Outflow	40.258	3.620	39.77	SWMF 002	Pond Outflow
SWMF 002 Eq.	Pond Outlet	Link	40.258	3.620	39.77		
SWMF 002 Eq.	Pond Outlet	Downstream	50.313	0.900	82.09	SWMF 001	
SWMF 003 Outlet	Pond Outlet	Upstream	29.650	1.920	100.89	SWMF 003	Pond Inflow
SWMF 003 Outlet	Pond Outlet	Outflow	29.650	2.040	99.81	SWMF 003	Pond Outflow
SWMF 003 Outlet	Pond Outlet	Link	29.650	2.040	99.81		

Scenario Calculation Summary

Executive Summary (Links)

Label	Type	Location	Hydrograph Volume (ac-ft)	Peak Time (hours)	Peak Flow (ft ³ /s)	End Point	Node Flow Direction
SWMF 003 Outlet	Pond Outlet	Downstream	40.276	1.920	132.57	SWMF 002	
SWMF 004 Eq.	Pond Outlet	Upstream	28.592	0.940	227.76	SWMF 004	Pond Inflow
SWMF 004 Eq.	Pond Outlet	Outflow	28.555	1.940	97.82	SWMF 004	Pond Outflow
SWMF 004 Eq.	Pond Outlet	Link	28.555	1.940	97.82		
SWMF 004 Eq.	Pond Outlet	Downstream	29.650	1.920	100.89	SWMF 003	
SWMF 005 Outlet	Pond Outlet	Upstream	2.157	0.600	21.38	SWMF 005	Pond Inflow
SWMF 005 Outlet	Pond Outlet	Outflow	2.157	2.120	4.96	SWMF 005	Pond Outflow
SWMF 005 Outlet	Pond Outlet	Link	2.157	2.120	4.96		
SWMF 005 Outlet	Pond Outlet	Downstream	50.313	0.900	82.09	SWMF 001	

Messages

Message Id	67
Scenario	100Yr 3Hr
Element Type	Composite Outlet Structure
Element Id	138
Label	No TW SWMF 001 Outlet
Time	(N/A)
Message	Flow direction set to reverse for one ore more structures in composite outlet structure No TW SWMF 001 Outlet. To eliminate this warning, edit outlet data and select forward only. If reverse flow analysis is required, then the tailwater conditions must be set to interconnected pond.
Source	Warning
Message Id	17
Scenario	100Yr 3Hr
Element Type	Composite Outlet Structure
Element Id	138
Label	No TW SWMF 001 Outlet
Time	(N/A)
Message	Riser orifice equation controls at one or more headwater elevations for outlet structure.
Source	Information
Message Id	39
Scenario	100Yr 3Hr
Element Type	Composite Outlet Structure
Element Id	110
Label	SWMF 002
Time	(N/A)
Message	Reverse flow conditions encountered for one or more headwater elevations. Calculated reverse flows may be approximate.
Source	Warning
Message Id	15
Scenario	100Yr 3Hr
Element Type	Composite Outlet Structure
Element Id	111
Label	SWMF 003
Time	(N/A)
Message	Kr (reverse flow entrance loss coefficient) was not specified. Kr was set to same value as Ke= 0.200 .
Source	Warning

Scenario Calculation Summary

Messages

Message Id	15
Scenario	100Yr 3Hr
Element Type	Composite Outlet Structure
Element Id	112
Label	SWMF 004
Time	(N/A)
Message	Kr (reverse flow entrance loss coefficient) was not specified. Kr was set to same value as Ke= 0.200 .
Source	Warning
Message Id	39
Scenario	100Yr 3Hr
Element Type	Composite Outlet Structure
Element Id	112
Label	SWMF 004
Time	(N/A)
Message	Reverse flow conditions encountered for one or more headwater elevations. Calculated reverse flows may be approximate.
Source	Warning
Message Id	1
Scenario	100Yr 3Hr
Element Type	Conduit
Element Id	171
Label	Onsite Sewer Reach-Route
Time	(N/A)
Message	Reach routing link Onsite Sewer Reach-Route is connected to ICPM outfall node SWMF 004.
Source	Warning

Scenario Calculation Summary

Scenario Summary	
ID	160
Label	100Yr 2Hr
Notes	
Active Topology	<I> Base Active Topology
Hydrology	<I> Base Hydrology
Rainfall Runoff	100Yr 2Hr
Physical	<I> No TW
Initial Condition	<I> Base Initial Condition
Boundary Condition	<I> Base Boundary Condition
Infiltration and Inflow	<I> Base Infiltration and Inflow
Output	<I> Base Output
User Data Extensions	<I> Base User Data Extensions
PondPack Engine Calculation Options	<I> 72Hr

Output Summary			
Output Increment	0.020 hours	Duration	72.000 hours

Rainfall Summary			
Return Event Tag	100	Rainfall Type	Time-Depth Curve
Total Depth	5.0 in	Storm Event	100YR- 2HR

ICPM Output Summary			
Target Convergence	0.00 ft³/s	ICPM Time Step	0.020 hours
Maximum Iterations	35		

Executive Summary (Nodes)

Label	Scenario	Return Event (years)	Truncation	Hydrograph Volume (ac-ft)	Time to Peak (hours)	Peak Flow (ft³/s)	Maximum Water Surface Elevation (ft)	Maximum Pond Storage (ac-ft)
119th East Impervious	100Yr 2Hr	100	None	0.793	0.380	11.84	(N/A)	(N/A)
119th East Remainder - Subarea 012	100Yr 2Hr	100	None	0.786	0.600	10.46	(N/A)	(N/A)
119th West Impervious	100Yr 2Hr	100	None	0.521	0.340	7.97	(N/A)	(N/A)
119th West Remainder - Subarea 013	100Yr 2Hr	100	None	0.523	0.560	7.18	(N/A)	(N/A)
J-4	100Yr 2Hr	100	None	11.519	0.840	111.94	(N/A)	(N/A)
J-6	100Yr 2Hr	100	None	2.738	0.840	27.35	(N/A)	(N/A)
O-1	100Yr 2Hr	100	None	44.202	8.560	30.85	(N/A)	(N/A)
O-9	100Yr 2Hr	100	None	0.270	0.520	3.77	(N/A)	(N/A)
SWMF 001 (IN)	100Yr 2Hr	100	None	43.979	0.600	95.48	(N/A)	(N/A)
SWMF 001 (OUT)	100Yr 2Hr	100	None	43.453	8.560	30.85	616.82	16.358
SWMF 002 (IN)	100Yr 2Hr	100	None	35.228	0.660	137.71	(N/A)	(N/A)
SWMF 002 (OUT)	100Yr 2Hr	100	None	35.211	3.000	36.48	622.06	16.373
SWMF 003 (IN)	100Yr 2Hr	100	None	25.903	0.680	105.90	(N/A)	(N/A)
SWMF 003 (OUT)	100Yr 2Hr	100	None	25.903	1.740	100.97	634.11	4.556
SWMF 004 (IN)	100Yr 2Hr	100	None	24.982	0.720	252.91	(N/A)	(N/A)

Scenario Calculation Summary

Executive Summary (Nodes)

Label	Scenario	Return Event (years)	Truncation	Hydrograph Volume (ac-ft)	Time to Peak (hours)	Peak Flow (ft ³ /s)	Maximum Water Surface Elevation (ft)	Maximum Pond Storage (ac-ft)
SWMF 004 (OUT)	100Yr 2Hr	100	None	24.945	1.620	100.31	634.45	11.790
SWMF 005 (IN)	100Yr 2Hr	100	None	1.892	0.460	27.38	(N/A)	(N/A)
SWMF 005 (OUT)	100Yr 2Hr	100	None	1.892	1.680	4.95	626.22	1.283
Subarea 001	100Yr 2Hr	100	None	4.954	0.580	66.54	(N/A)	(N/A)
Subarea 002	100Yr 2Hr	100	None	9.325	0.640	117.52	(N/A)	(N/A)
Subarea 003	100Yr 2Hr	100	None	0.958	0.440	14.10	(N/A)	(N/A)
Subarea 004	100Yr 2Hr	100	None	12.420	0.640	156.33	(N/A)	(N/A)
Subarea 005	100Yr 2Hr	100	None	1.892	0.460	27.38	(N/A)	(N/A)
Subarea 006	100Yr 2Hr	100	None	0.750	0.560	10.22	(N/A)	(N/A)
Subarea 007	100Yr 2Hr	100	None	0.270	0.520	3.77	(N/A)	(N/A)
Subarea ex- 011	100Yr 2Hr	100	None	0.343	0.680	4.23	(N/A)	(N/A)
Subarea ex- 014	100Yr 2Hr	100	None	2.738	0.840	27.35	(N/A)	(N/A)
Subarea ex- 015	100Yr 2Hr	100	None	1.448	0.720	17.07	(N/A)	(N/A)
Subarea ex- 016	100Yr 2Hr	100	None	7.333	0.920	70.23	(N/A)	(N/A)

Executive Summary (Links)

Label	Type	Location	Hydrograph Volume (ac-ft)	Peak Time (hours)	Peak Flow (ft ³ /s)	End Point	Node Flow Direction
Onsite Sewer Reach Route2	Channel	Upstream	2.738	0.840	27.35	J-6	
Onsite Sewer Reach Route2	Channel	Link	2.738	0.900	27.23		
Onsite Sewer Reach Route2	Channel	Downstream	11.519	0.840	111.94	J-4	
Onsite Sewer Reach-Route	Channel	Upstream	11.519	0.840	111.94	J-4	
Onsite Sewer Reach-Route	Channel	Link	11.519	0.920	110.93		
Onsite Sewer Reach-Route	Channel	Downstream	24.982	0.720	252.91	SWMF 004	
SWMF 001 Outlet	Pond Outlet	Upstream	43.979	0.600	95.48	SWMF 001	Pond Inflow
SWMF 001 Outlet	Pond Outlet	Outflow	43.453	8.560	30.85	SWMF 001	Pond Outflow
SWMF 001 Outlet	Pond Outlet	Link	43.453	8.560	30.85		
SWMF 001 Outlet	Pond Outlet	Downstream	44.202	8.560	30.85	O-1	
SWMF 002 Eq.	Pond Outlet	Upstream	35.228	0.660	137.71	SWMF 002	Pond Inflow
SWMF 002 Eq.	Pond Outlet	Outflow	35.211	3.000	36.48	SWMF 002	Pond Outflow
SWMF 002 Eq.	Pond Outlet	Link	35.211	3.000	36.48		
SWMF 002 Eq.	Pond Outlet	Downstream	43.979	0.600	95.48	SWMF 001	
SWMF 003 Outlet	Pond Outlet	Upstream	25.903	0.680	105.90	SWMF 003	Pond Inflow
SWMF 003 Outlet	Pond Outlet	Outflow	25.903	1.740	100.97	SWMF 003	Pond Outflow
SWMF 003 Outlet	Pond Outlet	Link	25.903	1.740	100.97		

Scenario Calculation Summary

Executive Summary (Links)

Label	Type	Location	Hydrograph Volume (ac-ft)	Peak Time (hours)	Peak Flow (ft ³ /s)	End Point	Node Flow Direction
SWMF 003 Outlet	Pond Outlet	Downstream	35.228	0.660	137.71	SWMF 002	
SWMF 004 Eq.	Pond Outlet	Upstream	24.982	0.720	252.91	SWMF 004	Pond Inflow
SWMF 004 Eq.	Pond Outlet	Outflow	24.945	1.620	100.31	SWMF 004	Pond Outflow
SWMF 004 Eq.	Pond Outlet	Link	24.945	1.620	100.31		
SWMF 004 Eq.	Pond Outlet	Downstream	25.903	0.680	105.90	SWMF 003	
SWMF 005 Outlet	Pond Outlet	Upstream	1.892	0.460	27.38	SWMF 005	Pond Inflow
SWMF 005 Outlet	Pond Outlet	Outflow	1.892	1.680	4.95	SWMF 005	Pond Outflow
SWMF 005 Outlet	Pond Outlet	Link	1.892	1.680	4.95		
SWMF 005 Outlet	Pond Outlet	Downstream	43.979	0.600	95.48	SWMF 001	

Messages

Message Id	67
Scenario	100Yr 2Hr
Element Type	Composite Outlet Structure
Element Id	138
Label	No TW SWMF 001 Outlet
Time	(N/A)
Message	Flow direction set to reverse for one ore more structures in composite outlet structure No TW SWMF 001 Outlet. To eliminate this warning, edit outlet data and select forward only. If reverse flow analysis is required, then the tailwater conditions must be set to interconnected pond.
Source	Warning
Message Id	17
Scenario	100Yr 2Hr
Element Type	Composite Outlet Structure
Element Id	138
Label	No TW SWMF 001 Outlet
Time	(N/A)
Message	Riser orifice equation controls at one or more headwater elevations for outlet structure.
Source	Information
Message Id	39
Scenario	100Yr 2Hr
Element Type	Composite Outlet Structure
Element Id	110
Label	SWMF 002
Time	(N/A)
Message	Reverse flow conditions encountered for one or more headwater elevations. Calculated reverse flows may be approximate.
Source	Warning
Message Id	15
Scenario	100Yr 2Hr
Element Type	Composite Outlet Structure
Element Id	111
Label	SWMF 003
Time	(N/A)
Message	Kr (reverse flow entrance loss coefficient) was not specified. Kr was set to same value as Ke= 0.200 .
Source	Warning

Scenario Calculation Summary

Messages

Message Id	15
Scenario	100Yr 2Hr
Element Type	Composite Outlet Structure
Element Id	112
Label	SWMF 004
Time	(N/A)
Message	Kr (reverse flow entrance loss coefficient) was not specified. Kr was set to same value as Ke= 0.200 .
Source	Warning
Message Id	39
Scenario	100Yr 2Hr
Element Type	Composite Outlet Structure
Element Id	112
Label	SWMF 004
Time	(N/A)
Message	Reverse flow conditions encountered for one or more headwater elevations. Calculated reverse flows may be approximate.
Source	Warning
Message Id	1
Scenario	100Yr 2Hr
Element Type	Conduit
Element Id	171
Label	Onsite Sewer Reach-Route
Time	(N/A)
Message	Reach routing link Onsite Sewer Reach-Route is connected to ICPM outfall node SWMF 004.
Source	Warning

Scenario Calculation Summary

Scenario Summary	
ID	33
Label	2Yr 24Hr (No TW)
Notes	
Active Topology	Base Active Topology
Hydrology	Base Hydrology
Rainfall Runoff	2Yr 24Hr
Physical	No TW
Initial Condition	Base Initial Condition
Boundary Condition	Base Boundary Condition
Infiltration and Inflow	Base Infiltration and Inflow
Output	Base Output
User Data Extensions	Base User Data Extensions
PondPack Engine Calculation Options	72Hr

Output Summary			
Output Increment	0.020 hours	Duration	72.000 hours

Rainfall Summary			
Return Event Tag	2	Rainfall Type	Time-Depth Curve
Total Depth	3.3 in	Storm Event	2YR-24HR

ICPM Output Summary			
Target Convergence	0.00 ft³/s	ICPM Time Step	0.020 hours
Maximum Iterations	35		

Executive Summary (Nodes)

Label	Scenario	Return Event (years)	Truncation	Hydrograph Volume (ac-ft)	Time to Peak (hours)	Peak Flow (ft³/s)	Maximum Water Surface Elevation (ft)	Maximum Pond Storage (ac-ft)
119th East Impervious	2Yr 24Hr (No TW)	2	None	0.520	15.000	0.60	(N/A)	(N/A)
119th East Remainder - Subarea 012	2Yr 24Hr (No TW)	2	None	0.380	17.000	0.65	(N/A)	(N/A)
119th West Impervious	2Yr 24Hr (No TW)	2	None	0.342	15.000	0.39	(N/A)	(N/A)
119th West Remainder - Subarea 013	2Yr 24Hr (No TW)	2	None	0.253	17.000	0.43	(N/A)	(N/A)
J-4	2Yr 24Hr (No TW)	2	None	6.359	16.160	9.39	(N/A)	(N/A)
J-6	2Yr 24Hr (No TW)	2	None	1.483	16.200	2.23	(N/A)	(N/A)
O-1	2Yr 24Hr (No TW)	2	None	24.310	23.980	14.87	(N/A)	(N/A)
O-9	2Yr 24Hr (No TW)	2	None	0.153	16.020	0.22	(N/A)	(N/A)
SWMF 001 (IN)	2Yr 24Hr (No TW)	2	None	24.772	18.040	23.07	(N/A)	(N/A)
SWMF 001 (OUT)	2Yr 24Hr (No TW)	2	None	23.920	23.980	14.75	615.72	11.448
SWMF 002 (IN)	2Yr 24Hr (No TW)	2	None	19.908	17.040	24.39	(N/A)	(N/A)
SWMF 002 (OUT)	2Yr 24Hr (No TW)	2	None	19.871	19.640	18.92	619.50	6.638
SWMF 003 (IN)	2Yr 24Hr (No TW)	2	None	14.549	16.760	18.17	(N/A)	(N/A)

Scenario Calculation Summary

Executive Summary (Nodes)

Label	Scenario	Return Event (years)	Truncation	Hydrograph Volume (ac-ft)	Time to Peak (hours)	Peak Flow (ft ³ /s)	Maximum Water Surface Elevation (ft)	Maximum Pond Storage (ac-ft)
SWMF 003 (OUT)	2Yr 24Hr (No TW)	2	None	14.548	18.040	17.26	629.90	0.895
SWMF 004 (IN)	2Yr 24Hr (No TW)	2	None	14.066	16.060	20.36	(N/A)	(N/A)
SWMF 004 (OUT)	2Yr 24Hr (No TW)	2	None	14.009	16.760	17.40	629.95	2.820
SWMF 005 (IN)	2Yr 24Hr (No TW)	2	None	1.085	16.000	1.57	(N/A)	(N/A)
SWMF 005 (OUT)	2Yr 24Hr (No TW)	2	None	1.085	18.160	0.98	622.86	0.220
Subarea 001	2Yr 24Hr (No TW)	2	None	2.750	16.040	4.10	(N/A)	(N/A)
Subarea 002	2Yr 24Hr (No TW)	2	None	5.360	16.040	7.67	(N/A)	(N/A)
Subarea 003	2Yr 24Hr (No TW)	2	None	0.540	16.000	0.80	(N/A)	(N/A)
Subarea 004	2Yr 24Hr (No TW)	2	None	7.113	16.060	10.22	(N/A)	(N/A)
Subarea 005	2Yr 24Hr (No TW)	2	None	1.085	16.000	1.57	(N/A)	(N/A)
Subarea 006	2Yr 24Hr (No TW)	2	None	0.391	16.020	0.62	(N/A)	(N/A)
Subarea 007	2Yr 24Hr (No TW)	2	None	0.153	16.020	0.22	(N/A)	(N/A)
Subarea ex- 011	2Yr 24Hr (No TW)	2	None	0.166	17.040	0.28	(N/A)	(N/A)
Subarea ex- 014	2Yr 24Hr (No TW)	2	None	1.483	16.200	2.23	(N/A)	(N/A)
Subarea ex- 015	2Yr 24Hr (No TW)	2	None	0.759	16.080	1.18	(N/A)	(N/A)
Subarea ex- 016	2Yr 24Hr (No TW)	2	None	4.117	16.160	5.98	(N/A)	(N/A)

Executive Summary (Links)

Label	Type	Location	Hydrograph Volume (ac-ft)	Peak Time (hours)	Peak Flow (ft ³ /s)	End Point	Node Flow Direction
Onsite Sewer Reach Route2	Channel	Upstream	1.483	16.200	2.23	J-6	
Onsite Sewer Reach Route2	Channel	Link	1.483	16.220	2.23		
Onsite Sewer Reach Route2	Channel	Downstream	6.359	16.160	9.39	J-4	
Onsite Sewer Reach-Route	Channel	Upstream	6.359	16.160	9.39	J-4	
Onsite Sewer Reach-Route	Channel	Link	6.359	16.240	9.38		
Onsite Sewer Reach-Route	Channel	Downstream	14.066	16.060	20.36	SWMF 004	
SWMF 001 Outlet	Pond Outlet	Upstream	24.772	18.040	23.07	SWMF 001	Pond Inflow
SWMF 001 Outlet	Pond Outlet	Outflow	23.920	23.980	14.75	SWMF 001	Pond Outflow
SWMF 001 Outlet	Pond Outlet	Link	23.920	23.980	14.75		
SWMF 001 Outlet	Pond Outlet	Downstream	24.310	23.980	14.87	O-1	

Scenario Calculation Summary

Executive Summary (Links)

Label	Type	Location	Hydrograph Volume (ac-ft)	Peak Time (hours)	Peak Flow (ft ³ /s)	End Point	Node Flow Direction
SWMF 002 Eq.	Pond Outlet	Upstream	19.908	17.040	24.39	SWMF 002	Pond Inflow
SWMF 002 Eq.	Pond Outlet	Outflow	19.871	19.640	18.92	SWMF 002	Pond Outflow
SWMF 002 Eq.	Pond Outlet	Link	19.871	19.640	18.92		
SWMF 002 Eq.	Pond Outlet	Downstream	24.772	18.040	23.07	SWMF 001	
SWMF 003 Outlet	Pond Outlet	Upstream	14.549	16.760	18.17	SWMF 003	Pond Inflow
SWMF 003 Outlet	Pond Outlet	Outflow	14.548	18.040	17.26	SWMF 003	Pond Outflow
SWMF 003 Outlet	Pond Outlet	Link	14.548	18.040	17.26		
SWMF 003 Outlet	Pond Outlet	Downstream	19.908	17.040	24.39	SWMF 002	
SWMF 004 Eq.	Pond Outlet	Upstream	14.066	16.060	20.36	SWMF 004	Pond Inflow
SWMF 004 Eq.	Pond Outlet	Outflow	14.009	16.760	17.40	SWMF 004	Pond Outflow
SWMF 004 Eq.	Pond Outlet	Link	14.009	16.760	17.40		
SWMF 004 Eq.	Pond Outlet	Downstream	14.549	16.760	18.17	SWMF 003	
SWMF 005 Outlet	Pond Outlet	Upstream	1.085	16.000	1.57	SWMF 005	Pond Inflow
SWMF 005 Outlet	Pond Outlet	Outflow	1.085	18.160	0.98	SWMF 005	Pond Outflow
SWMF 005 Outlet	Pond Outlet	Link	1.085	18.160	0.98		
SWMF 005 Outlet	Pond Outlet	Downstream	24.772	18.040	23.07	SWMF 001	

Messages

Message Id	67
Scenario	2Yr 24Hr (No TW)
Element Type	Composite Outlet Structure
Element Id	138
Label	No TW SWMF 001 Outlet
Time	(N/A)
Message	Flow direction set to reverse for one ore more structures in composite outlet structure No TW SWMF 001 Outlet. To eliminate this warning, edit outlet data and select forward only. If reverse flow analysis is required, then the tailwater conditions must be set to interconnected pond.
Source	Warning
Message Id	17
Scenario	2Yr 24Hr (No TW)
Element Type	Composite Outlet Structure
Element Id	138
Label	No TW SWMF 001 Outlet
Time	(N/A)
Message	Riser orifice equation controls at one or more headwater elevations for outlet structure.
Source	Information
Message Id	39
Scenario	2Yr 24Hr (No TW)
Element Type	Composite Outlet Structure
Element Id	110
Label	SWMF 002
Time	(N/A)
Message	Reverse flow conditions encountered for one or more headwater elevations. Calculated reverse flows may be approximate.
Source	Warning

Scenario Calculation Summary

Messages

Message Id	15
Scenario	2Yr 24Hr (No TW)
Element Type	Composite Outlet Structure
Element Id	111
Label	SWMF 003
Time	(N/A)
Message	Kr (reverse flow entrance loss coefficient) was not specified. Kr was set to same value as Ke= 0.200 .
Source	Warning
Message Id	15
Scenario	2Yr 24Hr (No TW)
Element Type	Composite Outlet Structure
Element Id	112
Label	SWMF 004
Time	(N/A)
Message	Kr (reverse flow entrance loss coefficient) was not specified. Kr was set to same value as Ke= 0.200 .
Source	Warning
Message Id	39
Scenario	2Yr 24Hr (No TW)
Element Type	Composite Outlet Structure
Element Id	112
Label	SWMF 004
Time	(N/A)
Message	Reverse flow conditions encountered for one or more headwater elevations. Calculated reverse flows may be approximate.
Source	Warning
Message Id	1
Scenario	2Yr 24Hr (No TW)
Element Type	Conduit
Element Id	171
Label	Onsite Sewer Reach-Route
Time	(N/A)
Message	Reach routing link Onsite Sewer Reach-Route is connected to ICPM outfall node SWMF 004.
Source	Warning

Scenario Calculation Summary

Scenario Summary	
ID	36
Label	2Yr 18Hr
Notes	
Active Topology	<I> Base Active Topology
Hydrology	<I> Base Hydrology
Rainfall Runoff	2Yr 18Hr
Physical	<I> No TW
Initial Condition	<I> Base Initial Condition
Boundary Condition	<I> Base Boundary Condition
Infiltration and Inflow	<I> Base Infiltration and Inflow
Output	<I> Base Output
User Data Extensions	<I> Base User Data Extensions
PondPack Engine Calculation Options	<I> 72Hr

Output Summary			
Output Increment	0.020 hours	Duration	72.000 hours

Rainfall Summary			
Return Event Tag	2	Rainfall Type	Time-Depth Curve
Total Depth	3.1 in	Storm Event	2YR-18HR

ICPM Output Summary			
Target Convergence	0.00 ft³/s	ICPM Time Step	0.020 hours
Maximum Iterations	35		

Executive Summary (Nodes)

Label	Scenario	Return Event (years)	Truncation	Hydrograph Volume (ac-ft)	Time to Peak (hours)	Peak Flow (ft³/s)	Maximum Water Surface Elevation (ft)	Maximum Pond Storage (ac-ft)
119th East Impervious	2Yr 18Hr	2	None	0.487	11.260	0.75	(N/A)	(N/A)
119th East Remainder - Subarea 012	2Yr 18Hr	2	None	0.335	12.760	0.77	(N/A)	(N/A)
119th West Impervious	2Yr 18Hr	2	None	0.320	11.260	0.49	(N/A)	(N/A)
119th West Remainder - Subarea 013	2Yr 18Hr	2	None	0.223	12.760	0.51	(N/A)	(N/A)
J-4	2Yr 18Hr	2	None	5.760	12.220	11.39	(N/A)	(N/A)
J-6	2Yr 18Hr	2	None	1.338	12.240	2.70	(N/A)	(N/A)
O-1	2Yr 18Hr	2	None	22.205	19.860	12.98	(N/A)	(N/A)
O-9	2Yr 18Hr	2	None	0.139	12.020	0.27	(N/A)	(N/A)
SWMF 001 (IN)	2Yr 18Hr	2	None	22.548	14.300	23.14	(N/A)	(N/A)
SWMF 001 (OUT)	2Yr 18Hr	2	None	21.855	19.860	12.98	615.63	11.083
SWMF 002 (IN)	2Yr 18Hr	2	None	18.123	12.820	27.05	(N/A)	(N/A)
SWMF 002 (OUT)	2Yr 18Hr	2	None	18.096	15.620	19.34	619.52	6.720
SWMF 003 (IN)	2Yr 18Hr	2	None	13.232	12.760	20.24	(N/A)	(N/A)
SWMF 003 (OUT)	2Yr 18Hr	2	None	13.231	13.800	18.72	630.15	1.047
SWMF 004 (IN)	2Yr 18Hr	2	None	12.789	12.080	24.80	(N/A)	(N/A)

Scenario Calculation Summary

Executive Summary (Nodes)

Label	Scenario	Return Event (years)	Truncation	Hydrograph Volume (ac-ft)	Time to Peak (hours)	Peak Flow (ft ³ /s)	Maximum Water Surface Elevation (ft)	Maximum Pond Storage (ac-ft)
SWMF 004 (OUT)	2Yr 18Hr	2	None	12.741	12.760	19.30	630.19	3.230
SWMF 005 (IN)	2Yr 18Hr	2	None	0.990	12.020	1.93	(N/A)	(N/A)
SWMF 005 (OUT)	2Yr 18Hr	2	None	0.990	14.340	1.01	623.15	0.281
Subarea 001	2Yr 18Hr	2	None	2.493	12.040	5.00	(N/A)	(N/A)
Subarea 002	2Yr 18Hr	2	None	4.892	12.040	9.42	(N/A)	(N/A)
Subarea 003	2Yr 18Hr	2	None	0.491	12.000	0.98	(N/A)	(N/A)
Subarea 004	2Yr 18Hr	2	None	6.487	12.040	12.54	(N/A)	(N/A)
Subarea 005	2Yr 18Hr	2	None	0.990	12.020	1.93	(N/A)	(N/A)
Subarea 006	2Yr 18Hr	2	None	0.350	12.040	0.74	(N/A)	(N/A)
Subarea 007	2Yr 18Hr	2	None	0.139	12.020	0.27	(N/A)	(N/A)
Subarea ex- 011	2Yr 18Hr	2	None	0.146	12.760	0.33	(N/A)	(N/A)
Subarea ex- 014	2Yr 18Hr	2	None	1.338	12.240	2.70	(N/A)	(N/A)
Subarea ex- 015	2Yr 18Hr	2	None	0.681	12.120	1.43	(N/A)	(N/A)
Subarea ex- 016	2Yr 18Hr	2	None	3.741	12.220	7.28	(N/A)	(N/A)

Executive Summary (Links)

Label	Type	Location	Hydrograph Volume (ac-ft)	Peak Time (hours)	Peak Flow (ft ³ /s)	End Point	Node Flow Direction
Onsite Sewer Reach Route2	Channel	Upstream	1.338	12.240	2.70	J-6	
Onsite Sewer Reach Route2	Channel	Link	1.338	12.260	2.70		
Onsite Sewer Reach Route2	Channel	Downstream	5.760	12.220	11.39	J-4	
Onsite Sewer Reach-Route	Channel	Upstream	5.760	12.220	11.39	J-4	
Onsite Sewer Reach-Route	Channel	Link	5.760	12.280	11.38		
Onsite Sewer Reach-Route	Channel	Downstream	12.789	12.080	24.80	SWMF 004	
SWMF 001 Outlet	Pond Outlet	Upstream	22.548	14.300	23.14	SWMF 001	Pond Inflow
SWMF 001 Outlet	Pond Outlet	Outflow	21.855	19.860	12.98	SWMF 001	Pond Outflow
SWMF 001 Outlet	Pond Outlet	Link	21.855	19.860	12.98		
SWMF 001 Outlet	Pond Outlet	Downstream	22.205	19.860	12.98	O-1	
SWMF 002 Eq.	Pond Outlet	Upstream	18.123	12.820	27.05	SWMF 002	Pond Inflow
SWMF 002 Eq.	Pond Outlet	Outflow	18.096	15.620	19.34	SWMF 002	Pond Outflow
SWMF 002 Eq.	Pond Outlet	Link	18.096	15.620	19.34		
SWMF 002 Eq.	Pond Outlet	Downstream	22.548	14.300	23.14	SWMF 001	
SWMF 003 Outlet	Pond Outlet	Upstream	13.232	12.760	20.24	SWMF 003	Pond Inflow
SWMF 003 Outlet	Pond Outlet	Outflow	13.231	13.800	18.72	SWMF 003	Pond Outflow
SWMF 003 Outlet	Pond Outlet	Link	13.231	13.800	18.72		

Scenario Calculation Summary

Executive Summary (Links)

Label	Type	Location	Hydrograph Volume (ac-ft)	Peak Time (hours)	Peak Flow (ft ³ /s)	End Point	Node Flow Direction
SWMF 003 Outlet	Pond Outlet	Downstream	18.123	12.820	27.05	SWMF 002	
SWMF 004 Eq.	Pond Outlet	Upstream	12.789	12.080	24.80	SWMF 004	Pond Inflow
SWMF 004 Eq.	Pond Outlet	Outflow	12.741	12.760	19.30	SWMF 004	Pond Outflow
SWMF 004 Eq.	Pond Outlet	Link	12.741	12.760	19.30		
SWMF 004 Eq.	Pond Outlet	Downstream	13.232	12.760	20.24	SWMF 003	
SWMF 005 Outlet	Pond Outlet	Upstream	0.990	12.020	1.93	SWMF 005	Pond Inflow
SWMF 005 Outlet	Pond Outlet	Outflow	0.990	14.340	1.01	SWMF 005	Pond Outflow
SWMF 005 Outlet	Pond Outlet	Link	0.990	14.340	1.01		
SWMF 005 Outlet	Pond Outlet	Downstream	22.548	14.300	23.14	SWMF 001	

Messages

Message Id	67
Scenario	2Yr 18Hr
Element Type	Composite Outlet Structure
Element Id	138
Label	No TW SWMF 001 Outlet
Time	(N/A)
Message	Flow direction set to reverse for one ore more structures in composite outlet structure No TW SWMF 001 Outlet. To eliminate this warning, edit outlet data and select forward only. If reverse flow analysis is required, then the tailwater conditions must be set to interconnected pond.
Source	Warning
Message Id	17
Scenario	2Yr 18Hr
Element Type	Composite Outlet Structure
Element Id	138
Label	No TW SWMF 001 Outlet
Time	(N/A)
Message	Riser orifice equation controls at one or more headwater elevations for outlet structure.
Source	Information
Message Id	39
Scenario	2Yr 18Hr
Element Type	Composite Outlet Structure
Element Id	110
Label	SWMF 002
Time	(N/A)
Message	Reverse flow conditions encountered for one or more headwater elevations. Calculated reverse flows may be approximate.
Source	Warning
Message Id	15
Scenario	2Yr 18Hr
Element Type	Composite Outlet Structure
Element Id	111
Label	SWMF 003
Time	(N/A)
Message	Kr (reverse flow entrance loss coefficient) was not specified. Kr was set to same value as Ke= 0.200 .
Source	Warning

Scenario Calculation Summary

Messages

Message Id	15
Scenario	2Yr 18Hr
Element Type	Composite Outlet Structure
Element Id	112
Label	SWMF 004
Time	(N/A)
Message	Kr (reverse flow entrance loss coefficient) was not specified. Kr was set to same value as Ke= 0.200 .
Source	Warning
Message Id	39
Scenario	2Yr 18Hr
Element Type	Composite Outlet Structure
Element Id	112
Label	SWMF 004
Time	(N/A)
Message	Reverse flow conditions encountered for one or more headwater elevations. Calculated reverse flows may be approximate.
Source	Warning
Message Id	1
Scenario	2Yr 18Hr
Element Type	Conduit
Element Id	171
Label	Onsite Sewer Reach-Route
Time	(N/A)
Message	Reach routing link Onsite Sewer Reach-Route is connected to ICPM outfall node SWMF 004.
Source	Warning

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119th East Impervious

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119th East Remainder - Subarea 012

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119th West Impervious

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119th West Remainder - Subarea 013

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SWMF 001

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Storm Event	2YR-18HR
Return Event	2 years
Duration	72.000 hours
Depth	3.1 in
Time of Concentration (Composite)	0.150 hours
Area (User Defined)	2.010 acres
Computational Time Increment	0.020 hours
Time to Peak (Computed)	11.260 hours
Flow (Peak, Computed)	0.75 ft ³ /s
Output Increment	0.020 hours
Time to Flow (Peak Interpolated Output)	11.260 hours
Flow (Peak Interpolated Output)	0.75 ft ³ /s
Drainage Area	
SCS CN (Composite)	98.000
Area (User Defined)	2.010 acres
Maximum Retention (Pervious)	0.2 in
Maximum Retention (Pervious, 20 percent)	0.0 in
Cumulative Runoff	
Cumulative Runoff Depth (Pervious)	2.9 in
Runoff Volume (Pervious)	0.487 ac-ft
Hydrograph Volume (Area under Hydrograph curve)	
Volume	0.487 ac-ft
SCS Unit Hydrograph Parameters	
Time of Concentration (Composite)	0.150 hours
Computational Time Increment	0.020 hours
Unit Hydrograph Shape Factor	483.432
K Factor	0.749
Receding/Rising, Tr/Tp	1.670
Unit peak, qp	15.18 ft ³ /s
Unit peak time, Tp	0.100 hours
Unit receding limb, Tr	0.400 hours
Total unit time, Tb	0.500 hours

Storm Event	2YR-18HR
Return Event	2 years
Duration	72.000 hours
Depth	3.1 in
Time of Concentration (Composite)	0.200 hours
Area (User Defined)	4.030 acres
Computational Time Increment	0.027 hours
Time to Peak (Computed)	12.773 hours
Flow (Peak, Computed)	0.77 ft ³ /s
Output Increment	0.020 hours
Time to Flow (Peak Interpolated Output)	12.760 hours
Flow (Peak Interpolated Output)	0.77 ft ³ /s
Drainage Area	
SCS CN (Composite)	74.000
Area (User Defined)	4.030 acres
Maximum Retention (Pervious)	3.5 in
Maximum Retention (Pervious, 20 percent)	0.7 in
Cumulative Runoff	
Cumulative Runoff Depth (Pervious)	1.0 in
Runoff Volume (Pervious)	0.335 ac-ft
Hydrograph Volume (Area under Hydrograph curve)	
Volume	0.335 ac-ft
SCS Unit Hydrograph Parameters	
Time of Concentration (Composite)	0.200 hours
Computational Time Increment	0.027 hours
Unit Hydrograph Shape Factor	483.432
K Factor	0.749
Receding/Rising, Tr/Tp	1.670
Unit peak, qp	22.83 ft ³ /s
Unit peak time, Tp	0.133 hours
Unit receding limb, Tr	0.533 hours
Total unit time, Tb	0.667 hours

Storm Event	2YR-18HR
Return Event	2 years
Duration	72.000 hours
Depth	3.1 in
Time of Concentration (Composite)	0.100 hours
Area (User Defined)	1.320 acres
Computational Time Increment	0.013 hours
Time to Peak (Computed)	11.253 hours
Flow (Peak, Computed)	0.49 ft ³ /s
Output Increment	0.020 hours
Time to Flow (Peak Interpolated Output)	11.260 hours
Flow (Peak Interpolated Output)	0.49 ft ³ /s
Drainage Area	
SCS CN (Composite)	98.000
Area (User Defined)	1.320 acres
Maximum Retention (Pervious)	0.2 in
Maximum Retention (Pervious, 20 percent)	0.0 in
Cumulative Runoff	
Cumulative Runoff Depth (Pervious)	2.9 in
Runoff Volume (Pervious)	0.320 ac-ft
Hydrograph Volume (Area under Hydrograph curve)	
Volume	0.320 ac-ft
SCS Unit Hydrograph Parameters	
Time of Concentration (Composite)	0.100 hours
Computational Time Increment	0.013 hours
Unit Hydrograph Shape Factor	483.432
K Factor	0.749
Receding/Rising, Tr/Tp	1.670
Unit peak, qp	14.96 ft ³ /s
Unit peak time, Tp	0.067 hours
Unit receding limb, Tr	0.267 hours
Total unit time, Tb	0.333 hours

Storm Event	2YR-18HR
Return Event	2 years
Duration	72.000 hours
Depth	3.1 in
Time of Concentration (Composite)	0.150 hours
Area (User Defined)	2.680 acres
Computational Time Increment	0.020 hours
Time to Peak (Computed)	12.760 hours
Flow (Peak, Computed)	0.51 ft ³ /s
Output Increment	0.020 hours
Time to Flow (Peak Interpolated Output)	12.760 hours
Flow (Peak Interpolated Output)	0.51 ft ³ /s
Drainage Area	
SCS CN (Composite)	74.000
Area (User Defined)	2.680 acres
Maximum Retention (Pervious)	3.5 in
Maximum Retention (Pervious, 20 percent)	0.7 in
Cumulative Runoff	
Cumulative Runoff Depth (Pervious)	1.0 in
Runoff Volume (Pervious)	0.223 ac-ft
Hydrograph Volume (Area under Hydrograph curve)	
Volume	0.223 ac-ft
SCS Unit Hydrograph Parameters	
Time of Concentration (Composite)	0.150 hours
Computational Time Increment	0.020 hours
Unit Hydrograph Shape Factor	483.432
K Factor	0.749
Receding/Rising, Tr/Tp	1.670
Unit peak, qp	20.24 ft ³ /s
Unit peak time, Tp	0.100 hours
Unit receding limb, Tr	0.400 hours
Total unit time, Tb	0.500 hours

Storm Event	2YR-18HR
Return Event	2 years
Duration	72.000 hours
Depth	3.1 in
Time of Concentration (Composite)	0.250 hours
Area (User Defined)	18.330 acres
Computational Time Increment	0.033 hours
Time to Peak (Computed)	12.033 hours
Flow (Peak, Computed)	5.00 ft ³ /s
Output Increment	0.020 hours
Time to Flow (Peak Interpolated Output)	12.040 hours
Flow (Peak Interpolated Output)	5.00 ft ³ /s
Drainage Area	
SCS CN (Composite)	84.000
Area (User Defined)	18.330 acres
Maximum Retention (Pervious)	1.9 in
Maximum Retention (Pervious, 20 percent)	0.4 in
Cumulative Runoff	
Cumulative Runoff Depth (Pervious)	1.6 in
Runoff Volume (Pervious)	2.493 ac-ft
Hydrograph Volume (Area under Hydrograph curve)	
Volume	2.493 ac-ft
SCS Unit Hydrograph Parameters	
Time of Concentration (Composite)	0.250 hours
Computational Time Increment	0.033 hours
Unit Hydrograph Shape Factor	483.432
K Factor	0.749
Receding/Rising, Tr/Tp	1.670
Unit peak, qp	83.07 ft ³ /s
Unit peak time, Tp	0.167 hours
Unit receding limb, Tr	0.667 hours
Total unit time, Tb	0.833 hours

Storm Event	2YR-18HR
Return Event	2 years
Duration	72.000 hours
Depth	3.1 in
Time of Concentration (Composite)	0.350 hours
Area (User Defined)	31.800 acres
Computational Time Increment	0.047 hours
Time to Peak (Computed)	12.040 hours
Flow (Peak, Computed)	9.42 ft ³ /s
Output Increment	0.020 hours
Time to Flow (Peak Interpolated Output)	12.040 hours
Flow (Peak Interpolated Output)	9.42 ft ³ /s
Drainage Area	
SCS CN (Composite)	86.800
Area (User Defined)	31.800 acres
Maximum Retention (Pervious)	1.5 in
Maximum Retention (Pervious, 20 percent)	0.3 in
Cumulative Runoff	
Cumulative Runoff Depth (Pervious)	1.8 in
Runoff Volume (Pervious)	4.892 ac-ft
Hydrograph Volume (Area under Hydrograph curve)	
Volume	4.892 ac-ft
SCS Unit Hydrograph Parameters	
Time of Concentration (Composite)	0.350 hours
Computational Time Increment	0.047 hours
Unit Hydrograph Shape Factor	483.432
K Factor	0.749
Receding/Rising, Tr/Tp	1.670
Unit peak, qp	102.95 ft ³ /s
Unit peak time, Tp	0.233 hours
Unit receding limb, Tr	0.933 hours
Total unit time, Tb	1.167 hours

Storm Event	2YR-18HR
Return Event	2 years
Duration	72.000 hours
Depth	3.1 in
Time of Concentration (Composite)	0.100 hours
Area (User Defined)	3.420 acres
Computational Time Increment	0.013 hours
Time to Peak (Computed)	12.000 hours
Flow (Peak, Computed)	0.98 ft ³ /s
Output Increment	0.020 hours
Time to Flow (Peak Interpolated Output)	12.000 hours
Flow (Peak Interpolated Output)	0.98 ft ³ /s
Drainage Area	
SCS CN (Composite)	85.200
Area (User Defined)	3.420 acres
Maximum Retention (Pervious)	1.7 in
Maximum Retention (Pervious, 20 percent)	0.3 in
Cumulative Runoff	
Cumulative Runoff Depth (Pervious)	1.7 in
Runoff Volume (Pervious)	0.491 ac-ft
Hydrograph Volume (Area under Hydrograph curve)	
Volume	0.491 ac-ft
SCS Unit Hydrograph Parameters	
Time of Concentration (Composite)	0.100 hours
Computational Time Increment	0.013 hours
Unit Hydrograph Shape Factor	483.432
K Factor	0.749
Receding/Rising, Tr/Tp	1.670
Unit peak, qp	38.75 ft ³ /s
Unit peak time, Tp	0.067 hours
Unit receding limb, Tr	0.267 hours
Total unit time, Tb	0.333 hours

Storm Event	2YR-18HR
Return Event	2 years
Duration	72.000 hours
Depth	3.1 in
Time of Concentration (Composite)	0.350 hours
Area (User Defined)	42.720 acres
Computational Time Increment	0.047 hours
Time to Peak (Computed)	12.040 hours
Flow (Peak, Computed)	12.54 ft ³ /s
Output Increment	0.020 hours
Time to Flow (Peak Interpolated Output)	12.040 hours
Flow (Peak Interpolated Output)	12.54 ft ³ /s
Drainage Area	
SCS CN (Composite)	86.500
Area (User Defined)	42.720 acres
Maximum Retention (Pervious)	1.6 in
Maximum Retention (Pervious, 20 percent)	0.3 in
Cumulative Runoff	
Cumulative Runoff Depth (Pervious)	1.8 in
Runoff Volume (Pervious)	6.487 ac-ft
Hydrograph Volume (Area under Hydrograph curve)	
Volume	6.487 ac-ft
SCS Unit Hydrograph Parameters	
Time of Concentration (Composite)	0.350 hours
Computational Time Increment	0.047 hours
Unit Hydrograph Shape Factor	483.432
K Factor	0.749
Receding/Rising, Tr/Tp	1.670
Unit peak, qp	138.30 ft ³ /s
Unit peak time, Tp	0.233 hours
Unit receding limb, Tr	0.933 hours
Total unit time, Tb	1.167 hours

Storm Event	2YR-18HR
Return Event	2 years
Duration	72.000 hours
Depth	3.1 in
Time of Concentration (Composite)	0.150 hours
Area (User Defined)	6.490 acres
Computational Time Increment	0.020 hours
Time to Peak (Computed)	12.020 hours
Flow (Peak, Computed)	1.93 ft ³ /s
Output Increment	0.020 hours
Time to Flow (Peak Interpolated Output)	12.020 hours
Flow (Peak Interpolated Output)	1.93 ft ³ /s
Drainage Area	
SCS CN (Composite)	86.600
Area (User Defined)	6.490 acres
Maximum Retention (Pervious)	1.5 in
Maximum Retention (Pervious, 20 percent)	0.3 in
Cumulative Runoff	
Cumulative Runoff Depth (Pervious)	1.8 in
Runoff Volume (Pervious)	0.990 ac-ft
Hydrograph Volume (Area under Hydrograph curve)	
Volume	0.990 ac-ft
SCS Unit Hydrograph Parameters	
Time of Concentration (Composite)	0.150 hours
Computational Time Increment	0.020 hours
Unit Hydrograph Shape Factor	483.432
K Factor	0.749
Receding/Rising, Tr/Tp	1.670
Unit peak, qp	49.02 ft ³ /s
Unit peak time, Tp	0.100 hours
Unit receding limb, Tr	0.400 hours
Total unit time, Tb	0.500 hours

Storm Event	2YR-18HR
Return Event	2 years
Duration	72.000 hours
Depth	3.1 in
Time of Concentration (Composite)	0.200 hours
Area (User Defined)	3.220 acres
Computational Time Increment	0.027 hours
Time to Peak (Computed)	12.027 hours
Flow (Peak, Computed)	0.75 ft ³ /s
Output Increment	0.020 hours
Time to Flow (Peak Interpolated Output)	12.040 hours
Flow (Peak Interpolated Output)	0.74 ft ³ /s
Drainage Area	
SCS CN (Composite)	79.200
Area (User Defined)	3.220 acres
Maximum Retention (Pervious)	2.6 in
Maximum Retention (Pervious, 20 percent)	0.5 in
Cumulative Runoff	
Cumulative Runoff Depth (Pervious)	1.3 in
Runoff Volume (Pervious)	0.350 ac-ft
Hydrograph Volume (Area under Hydrograph curve)	
Volume	0.350 ac-ft
SCS Unit Hydrograph Parameters	
Time of Concentration (Composite)	0.200 hours
Computational Time Increment	0.027 hours
Unit Hydrograph Shape Factor	483.432
K Factor	0.749
Receding/Rising, Tr/Tp	1.670
Unit peak, qp	18.24 ft ³ /s
Unit peak time, Tp	0.133 hours
Unit receding limb, Tr	0.533 hours
Total unit time, Tb	0.667 hours

Storm Event	2YR-18HR
Return Event	2 years
Duration	72.000 hours
Depth	3.1 in
Time of Concentration (Composite)	0.200 hours
Area (User Defined)	0.950 acres
Computational Time Increment	0.027 hours
Time to Peak (Computed)	12.027 hours
Flow (Peak, Computed)	0.27 ft ³ /s
Output Increment	0.020 hours
Time to Flow (Peak Interpolated Output)	12.020 hours
Flow (Peak Interpolated Output)	0.27 ft ³ /s
Drainage Area	
SCS CN (Composite)	85.700
Area (User Defined)	0.950 acres
Maximum Retention (Pervious)	1.7 in
Maximum Retention (Pervious, 20 percent)	0.3 in
Cumulative Runoff	
Cumulative Runoff Depth (Pervious)	1.8 in
Runoff Volume (Pervious)	0.139 ac-ft
Hydrograph Volume (Area under Hydrograph curve)	
Volume	0.139 ac-ft
SCS Unit Hydrograph Parameters	
Time of Concentration (Composite)	0.200 hours
Computational Time Increment	0.027 hours
Unit Hydrograph Shape Factor	483.432
K Factor	0.749
Receding/Rising, Tr/Tp	1.670
Unit peak, qp	5.38 ft ³ /s
Unit peak time, Tp	0.133 hours
Unit receding limb, Tr	0.533 hours
Total unit time, Tb	0.667 hours

Storm Event	2YR-18HR
Return Event	2 years
Duration	72.000 hours
Depth	3.1 in
Time of Concentration (Composite)	0.300 hours
Area (User Defined)	1.760 acres
Computational Time Increment	0.040 hours
Time to Peak (Computed)	12.760 hours
Flow (Peak, Computed)	0.33 ft ³ /s
Output Increment	0.020 hours
Time to Flow (Peak Interpolated Output)	12.760 hours
Flow (Peak Interpolated Output)	0.33 ft ³ /s
Drainage Area	
SCS CN (Composite)	74.000
Area (User Defined)	1.760 acres
Maximum Retention (Pervious)	3.5 in
Maximum Retention (Pervious, 20 percent)	0.7 in
Cumulative Runoff	
Cumulative Runoff Depth (Pervious)	1.0 in
Runoff Volume (Pervious)	0.146 ac-ft
Hydrograph Volume (Area under Hydrograph curve)	
Volume	0.146 ac-ft
SCS Unit Hydrograph Parameters	
Time of Concentration (Composite)	0.300 hours
Computational Time Increment	0.040 hours
Unit Hydrograph Shape Factor	483.432
K Factor	0.749
Receding/Rising, Tr/Tp	1.670
Unit peak, qp	6.65 ft ³ /s
Unit peak time, Tp	0.200 hours
Unit receding limb, Tr	0.800 hours
Total unit time, Tb	1.000 hours

Storm Event	2YR-18HR
Return Event	2 years
Duration	72.000 hours
Depth	3.1 in
Time of Concentration (Composite)	0.620 hours
Area (User Defined)	10.730 acres
Computational Time Increment	0.083 hours
Time to Peak (Computed)	12.235 hours
Flow (Peak, Computed)	2.70 ft ³ /s
Output Increment	0.020 hours
Time to Flow (Peak Interpolated Output)	12.240 hours
Flow (Peak Interpolated Output)	2.70 ft ³ /s
Drainage Area	
SCS CN (Composite)	82.100
Area (User Defined)	10.730 acres
Maximum Retention (Pervious)	2.2 in
Maximum Retention (Pervious, 20 percent)	0.4 in
Cumulative Runoff	
Cumulative Runoff Depth (Pervious)	1.5 in
Runoff Volume (Pervious)	1.339 ac-ft
Hydrograph Volume (Area under Hydrograph curve)	
Volume	1.338 ac-ft
SCS Unit Hydrograph Parameters	
Time of Concentration (Composite)	0.620 hours
Computational Time Increment	0.083 hours
Unit Hydrograph Shape Factor	483.432
K Factor	0.749
Receding/Rising, Tr/Tp	1.670
Unit peak, qp	19.61 ft ³ /s
Unit peak time, Tp	0.413 hours
Unit receding limb, Tr	1.653 hours
Total unit time, Tb	2.067 hours

Storm Event	2YR-18HR
Return Event	2 years
Duration	72.000 hours
Depth	3.1 in
Time of Concentration (Composite)	0.390 hours
Area (User Defined)	6.140 acres
Computational Time Increment	0.052 hours
Time to Peak (Computed)	12.116 hours
Flow (Peak, Computed)	1.43 ft ³ /s
Output Increment	0.020 hours
Time to Flow (Peak Interpolated Output)	12.120 hours
Flow (Peak Interpolated Output)	1.43 ft ³ /s
Drainage Area	
SCS CN (Composite)	79.600
Area (User Defined)	6.140 acres
Maximum Retention (Pervious)	2.6 in
Maximum Retention (Pervious, 20 percent)	0.5 in
Cumulative Runoff	
Cumulative Runoff Depth (Pervious)	1.3 in
Runoff Volume (Pervious)	0.681 ac-ft
Hydrograph Volume (Area under Hydrograph curve)	
Volume	0.681 ac-ft
SCS Unit Hydrograph Parameters	
Time of Concentration (Composite)	0.390 hours
Computational Time Increment	0.052 hours
Unit Hydrograph Shape Factor	483.432
K Factor	0.749
Receding/Rising, Tr/Tp	1.670
Unit peak, qp	17.84 ft ³ /s
Unit peak time, Tp	0.260 hours
Unit receding limb, Tr	1.040 hours
Total unit time, Tb	1.300 hours

Storm Event	2YR-18HR
Return Event	2 years
Duration	72.000 hours
Depth	3.1 in
Time of Concentration (Composite)	0.700 hours
Area (User Defined)	26.420 acres
Computational Time Increment	0.093 hours
Time to Peak (Computed)	12.227 hours
Flow (Peak, Computed)	7.28 ft ³ /s
Output Increment	0.020 hours
Time to Flow (Peak Interpolated Output)	12.220 hours
Flow (Peak Interpolated Output)	7.28 ft ³ /s
Drainage Area	
SCS CN (Composite)	84.900
Area (User Defined)	26.420 acres
Maximum Retention (Pervious)	1.8 in
Maximum Retention (Pervious, 20 percent)	0.4 in
Cumulative Runoff	
Cumulative Runoff Depth (Pervious)	1.7 in
Runoff Volume (Pervious)	3.741 ac-ft
Hydrograph Volume (Area under Hydrograph curve)	
Volume	3.741 ac-ft
SCS Unit Hydrograph Parameters	
Time of Concentration (Composite)	0.700 hours
Computational Time Increment	0.093 hours
Unit Hydrograph Shape Factor	483.432
K Factor	0.749
Receding/Rising, Tr/Tp	1.670
Unit peak, qp	42.76 ft ³ /s
Unit peak time, Tp	0.467 hours
Unit receding limb, Tr	1.867 hours
Total unit time, Tb	2.333 hours

Time-Depth Curve: 100YR- 2HR	
Label	100YR- 2HR
Start Time	0.000 hours
Increment	0.083 hours
End Time	1.999 hours
Return Event	100 years

CUMULATIVE RAINFALL (in)
Output Time Increment = 0.083 hours
Time on left represents time for first value in each row.

Time (hours)	Depth (in)	Depth (in)	Depth (in)	Depth (in)	Depth (in)
0.000	0.0	0.4	0.9	1.4	1.9
0.417	2.4	2.8	3.1	3.3	3.5
0.833	3.7	3.8	4.0	4.1	4.2
1.250	4.3	4.4	4.5	4.6	4.7
1.666	4.7	4.8	4.9	4.9	5.0

Time-Depth Curve: 100YR- 3HR	
Label	100YR- 3HR
Start Time	0.000 hours
Increment	0.125 hours
End Time	3.000 hours
Return Event	100 years

CUMULATIVE RAINFALL (in)
Output Time Increment = 0.125 hours
Time on left represents time for first value in each row.

Time (hours)	Depth (in)	Depth (in)	Depth (in)	Depth (in)	Depth (in)
0.000	0.0	0.5	1.0	1.5	2.1
0.625	2.6	3.0	3.4	3.7	3.9
1.250	4.1	4.2	4.4	4.5	4.7
1.875	4.8	4.9	5.0	5.1	5.2
2.500	5.2	5.3	5.4	5.4	5.5

Time-Depth Curve: 100YR-18HR	
Label	100YR-18HR
Start Time	0.000 hours
Increment	0.750 hours
End Time	18.000 hours
Return Event	100 years

CUMULATIVE RAINFALL (in)
Output Time Increment = 0.750 hours
Time on left represents time for first value in each row.

Time (hours)	Depth (in)	Depth (in)	Depth (in)	Depth (in)	Depth (in)
0.000	0.0	0.2	0.3	0.5	0.7
3.750	0.9	1.2	1.4	1.6	1.8
7.500	2.1	2.5	2.9	3.5	4.2
11.250	4.9	5.6	6.3	6.8	7.2
15.000	7.5	7.7	7.8	7.9	8.1

Time-Depth Curve: 100YR-24HR	
Label	100YR-24HR
Start Time	0.000 hours
Increment	1.000 hours
End Time	24.000 hours
Return Event	100 years

CUMULATIVE RAINFALL (in)
Output Time Increment = 1.000 hours
Time on left represents time for first value in each row.

Time (hours)	Depth (in)	Depth (in)	Depth (in)	Depth (in)	Depth (in)
0.000	0.0	0.2	0.4	0.6	0.8
5.000	1.0	1.2	1.4	1.7	2.0
10.000	2.3	2.7	3.1	3.8	4.5
15.000	5.2	6.0	6.7	7.3	7.7
20.000	8.0	8.2	8.3	8.4	8.6

Time-Depth Curve: 2YR-18HR	
Label	2YR-18HR
Start Time	0.000 hours
Increment	0.750 hours
End Time	18.000 hours
Return Event	2 years

CUMULATIVE RAINFALL (in)
Output Time Increment = 0.750 hours
Time on left represents time for first value in each row.

Time (hours)	Depth (in)	Depth (in)	Depth (in)	Depth (in)	Depth (in)
0.000	0.0	0.1	0.1	0.2	0.3
3.750	0.4	0.5	0.5	0.6	0.7
7.500	0.8	1.0	1.1	1.4	1.6
11.250	1.9	2.2	2.5	2.7	2.8
15.000	2.9	3.0	3.0	3.1	3.1

Time-Depth Curve: 2YR-24HR	
Label	2YR-24HR
Start Time	0.000 hours
Increment	1.000 hours
End Time	24.000 hours
Return Event	2 years

CUMULATIVE RAINFALL (in)
Output Time Increment = 1.000 hours
Time on left represents time for first value in each row.

Time (hours)	Depth (in)	Depth (in)	Depth (in)	Depth (in)	Depth (in)
0.000	0.0	0.1	0.1	0.2	0.3
5.000	0.4	0.5	0.6	0.7	0.8
10.000	0.9	1.0	1.2	1.5	1.7
15.000	2.0	2.3	2.6	2.8	3.0
20.000	3.1	3.2	3.2	3.3	3.3

Requested Pond Water Surface Elevations	
Minimum (Headwater)	612.50 ft
Increment (Headwater)	0.10 ft
Maximum (Headwater)	619.00 ft

Outlet Connectivity

Structure Type	Outlet ID	Direction	Outfall	E1 (ft)	E2 (ft)
Orifice-Circular	2yr	Forward	TW	612.51	615.90
Orifice-Circular	Bypass Restrictor	Forward	TW	617.00	619.00
Rectangular Weir	Internal Weir	Forward	TW	615.20	615.90
Inlet Box	High Capacity Grate	Forward	TW	616.60	617.00
Orifice-Circular	100yr	Forward	TW	615.90	619.00
Irregular Weir	Emergency Spillway	Forward	TW	618.00	619.00
Tailwater Settings	Tailwater			(N/A)	(N/A)

Structure ID: 2yr Structure Type: Orifice-Circular	
Number of Openings	1
Elevation	612.40 ft
Orifice Diameter	13.50 in
Orifice Coefficient	0.600

Structure ID: Internal Weir Structure Type: Rectangular Weir	
Number of Openings	1
Elevation	615.20 ft
Weir Length	6.00 ft
Weir Coefficient	3.00 (ft ^{0.5})/s

Structure ID: 100yr Structure Type: Orifice-Circular	
Number of Openings	1
Elevation	612.40 ft
Orifice Diameter	22.50 in
Orifice Coefficient	0.600

Structure ID: Emergency Spillway
Structure Type: Irregular Weir

Station (ft)	Elevation (ft)
0.00	619.00
1.20	618.70
11.20	618.70
14.00	618.00
19.00	618.00
21.80	618.70
31.80	618.70
33.00	619.00

Lowest Elevation	618.00 ft
Weir Coefficient	2.50 (ft ^{0.5})/s

Structure ID: High Capacity Gate Structure Type: Inlet Box	
Number of Openings	1
Elevation	616.60 ft
Orifice Area	21.2 ft ²
Orifice Coefficient	0.600
Weir Length	18.85 ft
Weir Coefficient	3.00 (ft ^{0.5})/s
K Reverse	1.000
Manning's n	0.000
Kev, Charged Riser	0.000
Weir Submergence	False
Orifice H to crest	True

Structure ID: Bypass Restrictor Structure Type: Orifice-Circular	
Number of Openings	1

Structure ID: Bypass Restrictor	
Structure Type: Orifice-Circular	
Elevation	613.60 ft
Orifice Diameter	21.00 in
Orifice Coefficient	0.600
Structure ID: TW	
Structure Type: TW Setup, DS Channel	
Tailwater Type	Free Outfall
Convergence Tolerances	
Maximum Iterations	30
Tailwater Tolerance (Minimum)	0.01 ft
Tailwater Tolerance (Maximum)	0.50 ft
Headwater Tolerance (Minimum)	0.01 ft
Headwater Tolerance (Maximum)	0.50 ft
Flow Tolerance (Minimum)	0.001 ft ³ /s
Flow Tolerance (Maximum)	10.000 ft ³ /s

Requested Pond Water Surface Elevations	
Minimum (Headwater)	617.50 ft
Increment (Headwater)	0.10 ft
Maximum (Headwater)	624.50 ft

Outlet Connectivity

Structure Type	Outlet ID	Direction	Outfall	E1 (ft)	E2 (ft)
Orifice-Circular	Orifice - 1	Forward + Reverse	TW	617.51	624.50
Rectangular Weir	Weir - 1	Forward + Reverse	TW	622.80	624.50
Tailwater Settings	Tailwater			(N/A)	(N/A)

Structure ID: Orifice - 1	
Structure Type: Orifice-Circular	
Number of Openings	1
Elevation	617.30 ft
Orifice Diameter	27.00 in
Orifice Coefficient	0.600
Structure ID: Weir - 1	
Structure Type: Rectangular Weir	
Number of Openings	1
Elevation	622.80 ft
Weir Length	6.00 ft
Weir Coefficient	3.00 (ft ^{0.5})/s

Requested Pond Water Surface Elevations	
Minimum (Headwater)	628.00 ft
Increment (Headwater)	0.10 ft
Maximum (Headwater)	635.00 ft

Outlet Connectivity

Structure Type	Outlet ID	Direction	Outfall	E1 (ft)	E2 (ft)
Culvert-Circular	Sewer	Forward + Reverse	TW	634.30	635.00
Orifice-Circular	Orifice - 1	Forward + Reverse	TW	628.01	634.30
Rectangular Weir	Internal Weir	Forward + Reverse	TW	633.00	634.30
Irregular Weir	Berm Spillway	Forward + Reverse	TW	633.50	635.00
Tailwater Settings	Tailwater			(N/A)	(N/A)

Structure ID: Orifice - 1	
Structure Type: Orifice-Circular	
Number of Openings	1
Elevation	627.50 ft
Orifice Diameter	23.50 in
Orifice Coefficient	0.600
Structure ID: Internal Weir	
Structure Type: Rectangular Weir	
Number of Openings	1
Elevation	633.00 ft
Weir Length	6.00 ft
Weir Coefficient	3.00 (ft ^{0.5})/s

Structure ID: Sewer	
Structure Type: Culvert-Circular	
Number of Barrels	1
Diameter	42.00 in
Length	1,185.00 ft
Length (Computed Barrel)	1,185.04 ft
Slope (Computed)	0.008 ft/ft
Outlet Control Data	
Manning's n	0.013
Ke	0.200
Kb	0.006
Kr	0.000
Convergence Tolerance	0.00 ft
Inlet Control Data	
Equation Form	Form 1
K	0.0045
M	2.0000
C	0.0317
Y	0.6900
T1 ratio (HW/D)	1.091
T2 ratio (HW/D)	1.193
Slope Correction Factor	-0.500

Use unsubmerged inlet control 0 equation below T1 elevation.
Use submerged inlet control 0 equation above T2 elevation

In transition zone between unsubmerged and submerged inlet control, interpolate between flows at T1 & T2...

T1 Elevation	631.32 ft	T1 Flow	63.00 ft³/s
T2 Elevation	631.68 ft	T2 Flow	72.00 ft³/s

Structure ID: Berm Spillway
Structure Type: Irregular Weir

Station (ft)	Elevation (ft)
0.00	635.00
8.00	633.50
38.00	633.50
46.00	635.00

Lowest Elevation 633.50 ft
Weir Coefficient 3.00 (ft^{0.5})/s

Requested Pond Water Surface Elevations	
Minimum (Headwater)	628.00 ft
Increment (Headwater)	0.10 ft
Maximum (Headwater)	635.00 ft

Outlet Connectivity

Structure Type	Outlet ID	Direction	Outfall	E1 (ft)	E2 (ft)
Culvert-Circular	Culvert - 2	Forward + Reverse	TW	628.00	635.00
Culvert-Circular	Culvert - 1	Forward + Reverse	TW	628.00	635.00
Tailwater Settings	Tailwater			(N/A)	(N/A)

Structure ID: Culvert - 1	
Structure Type: Culvert-Circular	
Number of Barrels	2
Diameter	42.00 in
Length	200.00 ft
Length (Computed Barrel)	200.00 ft
Slope (Computed)	0.000 ft/ft
Outlet Control Data	
Manning's n	0.013
Ke	0.200
Kb	0.006
Kr	0.200
Convergence Tolerance	0.00 ft
Inlet Control Data	
Equation Form	Form 1
K	0.0045
M	2.0000
C	0.0317
Y	0.6900
T1 ratio (HW/D)	1.095
T2 ratio (HW/D)	1.197
Slope Correction Factor	-0.500

Use unsubmerged inlet control 0 equation below T1 elevation.
Use submerged inlet control 0 equation above T2 elevation

In transition zone between unsubmerged and submerged inlet control, interpolate between flows at T1 & T2...

T1 Elevation	631.83 ft	T1 Flow	63.00 ft³/s
T2 Elevation	632.19 ft	T2 Flow	72.00 ft³/s

Structure ID: Culvert - 2	
Structure Type: Culvert-Circular	
Number of Barrels	2
Diameter	36.00 in
Length	200.00 ft
Length (Computed Barrel)	200.00 ft
Slope (Computed)	0.000 ft/ft
Outlet Control Data	
Manning's n	0.013
Ke	0.200
Kb	0.007
Kr	0.000
Convergence Tolerance	0.00 ft
Inlet Control Data	
Equation Form	Form 1
K	0.0045
M	2.0000
C	0.0317
Y	0.6900
T1 ratio (HW/D)	1.095
T2 ratio (HW/D)	1.197
Slope Correction Factor	-0.500

Use unsubmerged inlet control 0 equation below T1 elevation.
Use submerged inlet control 0 equation above T2 elevation

In transition zone between unsubmerged and submerged inlet control,
interpolate between flows at T1 & T2...

T1 Elevation	631.29 ft	T1 Flow	42.85 ft³/s
T2 Elevation	631.59 ft	T2 Flow	48.97 ft³/s

Requested Pond Water Surface Elevations	
Minimum (Headwater)	621.00 ft
Increment (Headwater)	0.10 ft
Maximum (Headwater)	627.00 ft

Outlet Connectivity

Structure Type	Outlet ID	Direction	Outfall	E1 (ft)	E2 (ft)
Orifice-Circular	Orifice - 2	Forward + Reverse	TW	625.40	627.00
Orifice-Circular	Orifice - 1	Forward + Reverse	TW	621.01	625.40
Rectangular Weir	Weir - 1	Forward + Reverse	TW	625.00	625.40
Tailwater Settings	Tailwater			(N/A)	(N/A)

Structure ID: Orifice - 1	
Structure Type: Orifice-Circular	
Number of Openings	1
Elevation	617.20 ft
Orifice Diameter	4.00 in
Orifice Coefficient	0.600
Structure ID: Weir - 1	
Structure Type: Rectangular Weir	
Number of Openings	1
Elevation	625.00 ft
Weir Length	6.00 ft
Weir Coefficient	3.00 (ft ^{0.5})/s
Structure ID: Orifice - 2	
Structure Type: Orifice-Circular	
Number of Openings	1
Elevation	617.20 ft
Orifice Diameter	8.00 in
Orifice Coefficient	0.600

Elevation-Volume

Pond Elevation (ft)		Pond Volume (ac-ft)	
	612.50		0.000
	613.00		1.493
	614.00		4.777
	615.00		8.470
	616.00		12.595
	617.00		17.167
	618.00		22.189
	619.00		27.591

Elevation-Volume

Pond Elevation (ft)		Pond Volume (ac-ft)	
	617.50		0.000
	618.00		1.572
	619.00		4.876
	620.00		8.398
	621.00		12.144
	622.00		16.120
	623.00		20.333
	623.50		22.530
	624.50		27.066

Elevation-Volume

Pond Elevation (ft)		Pond Volume (ac-ft)	
	628.00		0.000
	629.00		0.416
	630.00		0.950
	631.00		1.611
	632.00		2.407
	633.00		3.344
	634.00		4.428
	635.00		5.638

Elevation-Volume

Pond Elevation (ft)		Pond Volume (ac-ft)	
	628.00		0.000
	629.00		1.370
	630.00		2.900
	631.00		4.595
	632.00		6.461
	633.00		8.503
	634.00		10.726
	635.00		13.105

Elevation-Volume

Pond Elevation (ft)		Pond Volume (ac-ft)	
	621.00		0.000
	622.00		0.072
	623.00		0.245
	624.00		0.482
	625.00		0.790
	626.00		1.180
	627.00		1.644

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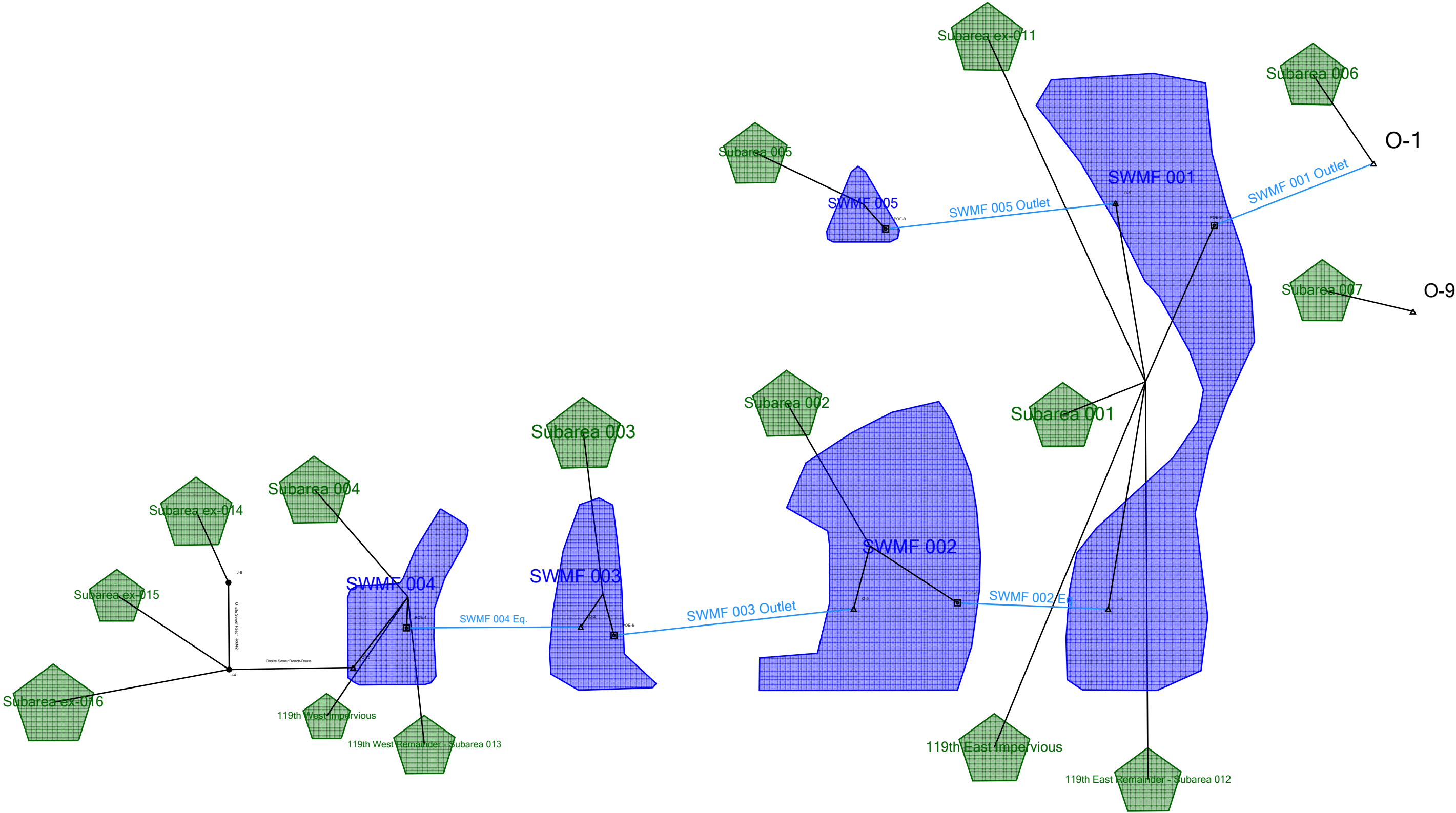
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TAB 4

“PRELIM WITH TAILWATER”

PONDPACK MODEL

Scenario: 2Yr 18Hr



Scenario Calculation Summary

Scenario Summary	
ID	1
Label	100Yr 24 Hr
Notes	
Active Topology	Base Active Topology
Hydrology	Base Hydrology
Rainfall Runoff	100Yr 24Hr
Physical	Base Physical
Initial Condition	Base Initial Condition
Boundary Condition	With Tailwater
Infiltration and Inflow	Base Infiltration and Inflow
Output	Base Output
User Data Extensions	Base User Data Extensions
PondPack Engine Calculation Options	72Hr

Output Summary			
Output Increment	0.020 hours	Duration	72.000 hours

Rainfall Summary			
Return Event Tag	100	Rainfall Type	Time-Depth Curve
Total Depth	8.6 in	Storm Event	100YR-24HR

ICPM Output Summary			
Target Convergence	0.00 ft³/s	ICPM Time Step	0.020 hours
Maximum Iterations	35		

Executive Summary (Nodes)

Label	Scenario	Return Event (years)	Truncation	Hydrograph Volume (ac-ft)	Time to Peak (hours)	Peak Flow (ft³/s)	Maximum Water Surface Elevation (ft)	Maximum Pond Storage (ac-ft)
119th East Impervious	100Yr 24 Hr	100	None	1.395	15.000	1.54	(N/A)	(N/A)
119th East Remainder - Subarea 012	100Yr 24 Hr	100	None	1.826	16.000	2.59	(N/A)	(N/A)
119th West Impervious	100Yr 24 Hr	100	None	0.916	15.000	1.01	(N/A)	(N/A)
119th West Remainder - Subarea 013	100Yr 24 Hr	100	None	1.215	16.000	1.72	(N/A)	(N/A)
J-4	100Yr 24 Hr	100	None	23.730	16.060	30.67	(N/A)	(N/A)
J-6	100Yr 24 Hr	100	None	5.736	16.040	7.51	(N/A)	(N/A)
O-1	100Yr 24 Hr	100	None	76.010	21.380	51.18	(N/A)	(N/A)
O-9	100Yr 24 Hr	100	None	0.542	16.000	0.69	(N/A)	(N/A)
SWMF 001 (IN)	100Yr 24 Hr	100	None	88.819	19.020	65.79	(N/A)	(N/A)
SWMF 001 (OUT)	100Yr 24 Hr	100	None	74.383	21.400	50.73	618.20	23.259
SWMF 002 (IN)	100Yr 24 Hr	100	None	70.955	17.020	84.50	(N/A)	(N/A)

Scenario Calculation Summary

Executive Summary (Nodes)

Label	Scenario	Return Event (years)	Truncation	Hydrograph Volume (ac-ft)	Time to Peak (hours)	Peak Flow (ft³/s)	Maximum Water Surface Elevation (ft)	Maximum Pond Storage (ac-ft)
SWMF 002 (OUT)	100Yr 24 Hr	100	None	70.888	19.220	53.03	623.48	22.425
SWMF 003 (IN)	100Yr 24 Hr	100	None	52.455	17.020	62.78	(N/A)	(N/A)
SWMF 003 (OUT)	100Yr 24 Hr	100	None	52.454	17.060	62.64	633.81	4.221
SWMF 004 (IN)	100Yr 24 Hr	100	None	50.586	16.020	64.53	(N/A)	(N/A)
SWMF 004 (OUT)	100Yr 24 Hr	100	None	50.520	17.100	60.52	633.95	10.605
SWMF 005 (IN)	100Yr 24 Hr	100	None	3.763	16.000	4.75	(N/A)	(N/A)
SWMF 005 (OUT)	100Yr 24 Hr	100	None	3.763	16.100	4.60	625.38	0.938
Subarea 001	100Yr 24 Hr	100	None	10.148	16.000	13.12	(N/A)	(N/A)
Subarea 002	100Yr 24 Hr	100	None	18.501	16.000	23.24	(N/A)	(N/A)
Subarea 003	100Yr 24 Hr	100	None	1.935	16.000	2.48	(N/A)	(N/A)
Subarea 004	100Yr 24 Hr	100	None	24.725	16.000	31.16	(N/A)	(N/A)
Subarea 005	100Yr 24 Hr	100	None	3.763	16.000	4.75	(N/A)	(N/A)
Subarea 006	100Yr 24 Hr	100	None	1.627	16.000	2.20	(N/A)	(N/A)
Subarea 007	100Yr 24 Hr	100	None	0.542	16.000	0.69	(N/A)	(N/A)
Subarea ex -011	100Yr 24 Hr	100	None	0.798	16.040	1.13	(N/A)	(N/A)
Subarea ex -014	100Yr 24 Hr	100	None	5.736	16.040	7.51	(N/A)	(N/A)
Subarea ex -015	100Yr 24 Hr	100	None	3.128	16.020	4.20	(N/A)	(N/A)
Subarea ex -016	100Yr 24 Hr	100	None	14.866	16.060	18.96	(N/A)	(N/A)

Executive Summary (Links)

Label	Type	Location	Hydrograph Volume (ac-ft)	Peak Time (hours)	Peak Flow (ft³/s)	End Point	Node Flow Direction
Onsite Sewer Reach Route2	Channel	Upstream	5.736	16.040	7.51	J-6	
Onsite Sewer Reach Route2	Channel	Link	5.736	16.080	7.51		
Onsite Sewer Reach Route2	Channel	Downstream	23.730	16.060	30.67	J-4	
Onsite Sewer Reach-Route	Channel	Upstream	23.730	16.060	30.67	J-4	
Onsite Sewer Reach-Route	Channel	Link	23.730	16.080	30.67		
Onsite Sewer Reach-Route	Channel	Downstream	50.586	16.020	64.53	SWMF 004	

Scenario Calculation Summary

Executive Summary (Links)

Label	Type	Location	Hydrograph Volume (ac-ft)	Peak Time (hours)	Peak Flow (ft ³ /s)	End Point	Node Flow Direction
SWMF 001 Outlet	Pond Outlet	Upstream	88.819	19.020	65.79	SWMF 001	Pond Inflow
SWMF 001 Outlet	Pond Outlet	Outflow	74.383	21.400	50.73	SWMF 001	Pond Outflow
SWMF 001 Outlet	Pond Outlet	Link	74.383	21.400	50.73		
SWMF 001 Outlet	Pond Outlet	Downstream	76.010	21.380	51.18	O-1	
SWMF 002 Eq.	Pond Outlet	Upstream	70.955	17.020	84.50	SWMF 002	Pond Inflow
SWMF 002 Eq.	Pond Outlet	Outflow	70.888	19.220	53.03	SWMF 002	Pond Outflow
SWMF 002 Eq.	Pond Outlet	Link	70.888	19.220	53.03		
SWMF 002 Eq.	Pond Outlet	Downstream	88.819	19.020	65.79	SWMF 001	
SWMF 003 Outlet	Pond Outlet	Upstream	52.455	17.020	62.78	SWMF 003	Pond Inflow
SWMF 003 Outlet	Pond Outlet	Outflow	52.454	17.060	62.64	SWMF 003	Pond Outflow
SWMF 003 Outlet	Pond Outlet	Link	52.454	17.060	62.64		
SWMF 003 Outlet	Pond Outlet	Downstream	70.955	17.020	84.50	SWMF 002	
SWMF 004 Eq.	Pond Outlet	Upstream	50.586	16.020	64.53	SWMF 004	Pond Inflow
SWMF 004 Eq.	Pond Outlet	Outflow	50.520	17.100	60.52	SWMF 004	Pond Outflow
SWMF 004 Eq.	Pond Outlet	Link	50.520	17.100	60.52		
SWMF 004 Eq.	Pond Outlet	Downstream	52.455	17.020	62.78	SWMF 003	
SWMF 005 Outlet	Pond Outlet	Upstream	3.763	16.000	4.75	SWMF 005	Pond Inflow
SWMF 005 Outlet	Pond Outlet	Outflow	3.763	16.100	4.60	SWMF 005	Pond Outflow
SWMF 005 Outlet	Pond Outlet	Link	3.763	16.100	4.60		
SWMF 005 Outlet	Pond Outlet	Downstream	88.819	19.020	65.79	SWMF 001	

Messages

Message Id	17
Scenario	100Yr 24 Hr
Element Type	Composite Outlet Structure
Element Id	174
Label	With TW SWMF 001 Outlet
Time	(N/A)
Message	Riser orifice equation controls at one or more headwater elevations for outlet structure.
Source	Information

Scenario Calculation Summary

Messages

Message Id	1
Scenario	100Yr 24 Hr
Element Type	Conduit
Element Id	171
Label	Onsite Sewer Reach-Route
Time	(N/A)
Message	Reach routing link Onsite Sewer Reach-Route is connected to ICPM outfall node SWMF 004.
Source	Warning

Scenario Calculation Summary

Scenario Summary	
ID	17
Label	100Yr 18Hr
Notes	
Active Topology	<I> Base Active Topology
Hydrology	<I> Base Hydrology
Rainfall Runoff	100Yr 18Hr
Physical	<I> Base Physical
Initial Condition	<I> Base Initial Condition
Boundary Condition	<I> With Tailwater
Infiltration and Inflow	<I> Base Infiltration and Inflow
Output	<I> Base Output
User Data Extensions	<I> Base User Data Extensions
PondPack Engine Calculation Options	<I> 72Hr

Output Summary			
Output Increment	0.020 hours	Duration	72.000 hours

Rainfall Summary			
Return Event Tag	100	Rainfall Type	Time-Depth Curve
Total Depth	8.1 in	Storm Event	100YR-18HR

ICPM Output Summary			
Target Convergence	0.00 ft³/s	ICPM Time Step	0.020 hours
Maximum Iterations	35		

Executive Summary (Nodes)

Label	Scenario	Return Event (years)	Truncation	Hydrograph Volume (ac-ft)	Time to Peak (hours)	Peak Flow (ft³/s)	Maximum Water Surface Elevation (ft)	Maximum Pond Storage (ac-ft)
119th East Impervious	100Yr 18Hr	100	None	1.310	11.240	1.94	(N/A)	(N/A)
119th East Remainder - Subarea 012	100Yr 18Hr	100	None	1.672	12.020	3.18	(N/A)	(N/A)
119th West Impervious	100Yr 18Hr	100	None	0.860	11.240	1.27	(N/A)	(N/A)
119th West Remainder - Subarea 013	100Yr 18Hr	100	None	1.112	12.020	2.12	(N/A)	(N/A)
J-4	100Yr 18Hr	100	None	21.965	12.080	37.99	(N/A)	(N/A)
J-6	100Yr 18Hr	100	None	5.301	12.080	9.29	(N/A)	(N/A)
O-1	100Yr 18Hr	100	None	69.445	15.040	56.46	(N/A)	(N/A)
O-9	100Yr 18Hr	100	None	0.503	12.000	0.86	(N/A)	(N/A)
SWMF 001 (IN)	100Yr 18Hr	100	None	82.377	14.300	76.83	(N/A)	(N/A)
SWMF 001 (OUT)	100Yr 18Hr	100	None	67.945	15.360	55.53	617.90	21.684
SWMF 002 (IN)	100Yr 18Hr	100	None	65.816	12.800	104.70	(N/A)	(N/A)
SWMF 002 (OUT)	100Yr 18Hr	100	None	65.772	14.700	60.85	623.75	23.664
SWMF 003 (IN)	100Yr 18Hr	100	None	48.633	12.780	77.79	(N/A)	(N/A)

Scenario Calculation Summary

Executive Summary (Nodes)

Label	Scenario	Return Event (years)	Truncation	Hydrograph Volume (ac-ft)	Time to Peak (hours)	Peak Flow (ft³/s)	Maximum Water Surface Elevation (ft)	Maximum Pond Storage (ac-ft)
SWMF 003 (OUT)	100Yr 18Hr	100	None	48.632	12.860	77.52	633.93	4.357
SWMF 004 (IN)	100Yr 18Hr	100	None	46.895	12.040	80.09	(N/A)	(N/A)
SWMF 004 (OUT)	100Yr 18Hr	100	None	46.838	12.860	75.06	634.14	11.051
SWMF 005 (IN)	100Yr 18Hr	100	None	3.494	12.000	5.91	(N/A)	(N/A)
SWMF 005 (OUT)	100Yr 18Hr	100	None	3.494	12.900	4.81	625.74	1.078
Subarea 001	100Yr 18Hr	100	None	9.398	12.000	16.30	(N/A)	(N/A)
Subarea 002	100Yr 18Hr	100	None	17.184	12.000	28.93	(N/A)	(N/A)
Subarea 003	100Yr 18Hr	100	None	1.794	12.000	3.08	(N/A)	(N/A)
Subarea 004	100Yr 18Hr	100	None	22.958	12.000	38.78	(N/A)	(N/A)
Subarea 005	100Yr 18Hr	100	None	3.494	12.000	5.91	(N/A)	(N/A)
Subarea 006	100Yr 18Hr	100	None	1.499	12.000	2.72	(N/A)	(N/A)
Subarea 007	100Yr 18Hr	100	None	0.503	12.000	0.86	(N/A)	(N/A)
Subarea ex -011	100Yr 18Hr	100	None	0.730	12.040	1.38	(N/A)	(N/A)
Subarea ex -014	100Yr 18Hr	100	None	5.301	12.080	9.29	(N/A)	(N/A)
Subarea ex -015	100Yr 18Hr	100	None	2.883	12.060	5.19	(N/A)	(N/A)
Subarea ex -016	100Yr 18Hr	100	None	13.781	12.120	23.51	(N/A)	(N/A)

Executive Summary (Links)

Label	Type	Location	Hydrograph Volume (ac-ft)	Peak Time (hours)	Peak Flow (ft³/s)	End Point	Node Flow Direction
Onsite Sewer Reach Route2	Channel	Upstream	5.301	12.080	9.29	J-6	
Onsite Sewer Reach Route2	Channel	Link	5.301	12.140	9.29		
Onsite Sewer Reach Route2	Channel	Downstream	21.965	12.080	37.99	J-4	
Onsite Sewer Reach-Route	Channel	Upstream	21.965	12.080	37.99	J-4	
Onsite Sewer Reach-Route	Channel	Link	21.965	12.120	37.98		
Onsite Sewer Reach-Route	Channel	Downstream	46.895	12.040	80.09	SWMF 004	
SWMF 001 Outlet	Pond Outlet	Upstream	82.377	14.300	76.83	SWMF 001	Pond Inflow
SWMF 001 Outlet	Pond Outlet	Outflow	67.945	15.360	55.53	SWMF 001	Pond Outflow

Scenario Calculation Summary

Executive Summary (Links)

Label	Type	Location	Hydrograph Volume (ac-ft)	Peak Time (hours)	Peak Flow (ft ³ /s)	End Point	Node Flow Direction
SWMF 001 Outlet	Pond Outlet	Link	67.945	15.360	55.53		
SWMF 001 Outlet	Pond Outlet	Downstream	69.445	15.040	56.46	O-1	
SWMF 002 Eq.	Pond Outlet	Upstream	65.816	12.800	104.70	SWMF 002	Pond Inflow
SWMF 002 Eq.	Pond Outlet	Outflow	65.772	14.700	60.85	SWMF 002	Pond Outflow
SWMF 002 Eq.	Pond Outlet	Link	65.772	14.700	60.85		
SWMF 002 Eq.	Pond Outlet	Downstream	82.377	14.300	76.83	SWMF 001	
SWMF 003 Outlet	Pond Outlet	Upstream	48.633	12.780	77.79	SWMF 003	Pond Inflow
SWMF 003 Outlet	Pond Outlet	Outflow	48.632	12.860	77.52	SWMF 003	Pond Outflow
SWMF 003 Outlet	Pond Outlet	Link	48.632	12.860	77.52		
SWMF 003 Outlet	Pond Outlet	Downstream	65.816	12.800	104.70	SWMF 002	
SWMF 004 Eq.	Pond Outlet	Upstream	46.895	12.040	80.09	SWMF 004	Pond Inflow
SWMF 004 Eq.	Pond Outlet	Outflow	46.838	12.860	75.06	SWMF 004	Pond Outflow
SWMF 004 Eq.	Pond Outlet	Link	46.838	12.860	75.06		
SWMF 004 Eq.	Pond Outlet	Downstream	48.633	12.780	77.79	SWMF 003	
SWMF 005 Outlet	Pond Outlet	Upstream	3.494	12.000	5.91	SWMF 005	Pond Inflow
SWMF 005 Outlet	Pond Outlet	Outflow	3.494	12.900	4.81	SWMF 005	Pond Outflow
SWMF 005 Outlet	Pond Outlet	Link	3.494	12.900	4.81		
SWMF 005 Outlet	Pond Outlet	Downstream	82.377	14.300	76.83	SWMF 001	

Messages

Message Id	17
Scenario	100Yr 18Hr
Element Type	Composite Outlet Structure
Element Id	174
Label	With TW SWMF 001 Outlet
Time	(N/A)
Message	Riser orifice equation controls at one or more headwater elevations for outlet structure.
Source	Information
Message Id	1
Scenario	100Yr 18Hr
Element Type	Conduit
Element Id	171
Label	Onsite Sewer Reach-Route
Time	(N/A)
Message	Reach routing link Onsite Sewer Reach-Route is connected to ICPM outfall node SWMF 004.
Source	Warning

Scenario Calculation Summary

Scenario Summary	
ID	20
Label	100Yr 3Hr
Notes	
Active Topology	<I> Base Active Topology
Hydrology	<I> Base Hydrology
Rainfall Runoff	100Yr 3Hr
Physical	<I> Base Physical
Initial Condition	<I> Base Initial Condition
Boundary Condition	<I> With Tailwater
Infiltration and Inflow	<I> Base Infiltration and Inflow
Output	<I> Base Output
User Data Extensions	<I> Base User Data Extensions
PondPack Engine Calculation Options	24Hr

Output Summary			
Output Increment	0.020 hours	Duration	24.000 hours

Rainfall Summary			
Return Event Tag	100	Rainfall Type	Time-Depth Curve
Total Depth	5.5 in	Storm Event	100YR- 3HR

ICPM Output Summary			
Target Convergence	0.00 ft³/s	ICPM Time Step	0.020 hours
Maximum Iterations	35		

Executive Summary (Nodes)

Label	Scenario	Return Event (years)	Truncation	Hydrograph Volume (ac-ft)	Time to Peak (hours)	Peak Flow (ft³/s)	Maximum Water Surface Elevation (ft)	Maximum Pond Storage (ac-ft)
119th East Impervious	100Yr 3Hr	100	None	0.880	0.520	8.96	(N/A)	(N/A)
119th East Remainder - Subarea 012	100Yr 3Hr	100	None	0.927	0.800	8.64	(N/A)	(N/A)
119th West Impervious	100Yr 3Hr	100	None	0.578	0.440	5.91	(N/A)	(N/A)
119th West Remainder - Subarea 013	100Yr 3Hr	100	None	0.617	0.780	5.81	(N/A)	(N/A)
J-4	100Yr 3Hr	100	None	13.234	1.040	102.48	(N/A)	(N/A)
J-6	100Yr 3Hr	100	None	3.157	1.060	24.86	(N/A)	(N/A)
O-1	100Yr 3Hr	100	None	35.069	7.520	36.08	(N/A)	(N/A)
O-1	100Yr 3Hr	100	None	0.000	20.280	-0.03	(N/A)	(N/A)
O-9	100Yr 3Hr	100	None	0.308	0.680	3.00	(N/A)	(N/A)
SWMF 001 (IN)	100Yr 3Hr	100	None	48.856	0.900	82.09	(N/A)	(N/A)
SWMF 001 (OUT)	100Yr 3Hr	100	None	34.198	7.520	36.08	616.89	16.642
SWMF 001 (Reverse)	100Yr 3Hr	100	None	0.000	20.280	-0.03	(N/A)	(N/A)
SWMF 002 (IN)	100Yr 3Hr	100	None	40.140	1.920	132.57	(N/A)	(N/A)
SWMF 002 (OUT)	100Yr 3Hr	100	None	38.802	3.620	39.77	622.74	19.254

Scenario Calculation Summary

Executive Summary (Nodes)

Label	Scenario	Return Event (years)	Truncation	Hydrograph Volume (ac-ft)	Time to Peak (hours)	Peak Flow (ft ³ /s)	Maximum Water Surface Elevation (ft)	Maximum Pond Storage (ac-ft)
SWMF 003 (IN)	100Yr 3Hr	100	None	29.516	1.920	100.89	(N/A)	(N/A)
SWMF 003 (OUT)	100Yr 3Hr	100	None	29.513	2.040	99.81	634.10	4.546
SWMF 004 (IN)	100Yr 3Hr	100	None	28.592	0.940	227.76	(N/A)	(N/A)
SWMF 004 (OUT)	100Yr 3Hr	100	None	28.421	1.940	97.82	634.43	11.742
SWMF 005 (IN)	100Yr 3Hr	100	None	2.157	0.600	21.38	(N/A)	(N/A)
SWMF 005 (OUT)	100Yr 3Hr	100	None	2.157	2.120	4.96	626.25	1.294
Subarea 001	100Yr 3Hr	100	None	5.685	0.740	53.96	(N/A)	(N/A)
Subarea 002	100Yr 3Hr	100	None	10.626	0.800	97.83	(N/A)	(N/A)
Subarea 003	100Yr 3Hr	100	None	1.096	0.540	10.97	(N/A)	(N/A)
Subarea 004	100Yr 3Hr	100	None	14.164	0.800	130.23	(N/A)	(N/A)
Subarea 005	100Yr 3Hr	100	None	2.157	0.600	21.38	(N/A)	(N/A)
Subarea 006	100Yr 3Hr	100	None	0.871	0.760	8.26	(N/A)	(N/A)
Subarea 007	100Yr 3Hr	100	None	0.308	0.680	3.00	(N/A)	(N/A)
Subarea ex -011	100Yr 3Hr	100	None	0.405	0.880	3.63	(N/A)	(N/A)
Subarea ex -014	100Yr 3Hr	100	None	3.157	1.060	24.86	(N/A)	(N/A)
Subarea ex -015	100Yr 3Hr	100	None	1.681	0.900	14.76	(N/A)	(N/A)
Subarea ex -016	100Yr 3Hr	100	None	8.396	1.120	64.21	(N/A)	(N/A)

Executive Summary (Links)

Label	Type	Location	Hydrograph Volume (ac-ft)	Peak Time (hours)	Peak Flow (ft ³ /s)	End Point	Node Flow Direction
Onsite Sewer Reach Route2	Channel	Upstream	3.157	1.060	24.86	J-6	
Onsite Sewer Reach Route2	Channel	Link	3.157	1.080	24.81		
Onsite Sewer Reach Route2	Channel	Downstream	13.234	1.040	102.48	J-4	
Onsite Sewer Reach-Route	Channel	Upstream	13.234	1.040	102.48	J-4	
Onsite Sewer Reach-Route	Channel	Link	13.234	1.100	101.95		
Onsite Sewer Reach-Route	Channel	Downstream	28.592	0.940	227.76	SWMF 004	
SWMF 001 Outlet	Pond Outlet	Upstream	48.856	0.900	82.09	SWMF 001	Pond Inflow

Scenario Calculation Summary

Executive Summary (Links)

Label	Type	Location	Hydrograph Volume (ac-ft)	Peak Time (hours)	Peak Flow (ft ³ /s)	End Point	Node Flow Direction
SWMF 001 Outlet	Pond Outlet	Outflow	34.198	7.520	36.08	SWMF 001	Pond Outflow
SWMF 001 Outlet	Negative Flow	Outflow	0.000	20.280	-0.03	SWMF 001	Pond Outflow
SWMF 001 Outlet	Pond Outlet	Link	34.198	7.520	36.08		
SWMF 001 Outlet	Negative Flow	Link	0.000	20.280	-0.03		
SWMF 001 Outlet	Pond Outlet	Downstream	35.069	7.520	36.08	O-1	
SWMF 001 Outlet	Negative Flow	Downstream	0.000	20.280	-0.03	O-1	
SWMF 002 Eq.	Pond Outlet	Upstream	40.140	1.920	132.57	SWMF 002	Pond Inflow
SWMF 002 Eq.	Pond Outlet	Outflow	38.802	3.620	39.77	SWMF 002	Pond Outflow
SWMF 002 Eq.	Pond Outlet	Link	38.802	3.620	39.77		
SWMF 002 Eq.	Pond Outlet	Downstream	48.856	0.900	82.09	SWMF 001	
SWMF 003 Outlet	Pond Outlet	Upstream	29.516	1.920	100.89	SWMF 003	Pond Inflow
SWMF 003 Outlet	Pond Outlet	Outflow	29.513	2.040	99.81	SWMF 003	Pond Outflow
SWMF 003 Outlet	Pond Outlet	Link	29.513	2.040	99.81		
SWMF 003 Outlet	Pond Outlet	Downstream	40.140	1.920	132.57	SWMF 002	
SWMF 004 Eq.	Pond Outlet	Upstream	28.592	0.940	227.76	SWMF 004	Pond Inflow
SWMF 004 Eq.	Pond Outlet	Outflow	28.421	1.940	97.82	SWMF 004	Pond Outflow
SWMF 004 Eq.	Pond Outlet	Link	28.421	1.940	97.82		
SWMF 004 Eq.	Pond Outlet	Downstream	29.516	1.920	100.89	SWMF 003	
SWMF 005 Outlet	Pond Outlet	Upstream	2.157	0.600	21.38	SWMF 005	Pond Inflow
SWMF 005 Outlet	Pond Outlet	Outflow	2.157	2.120	4.96	SWMF 005	Pond Outflow
SWMF 005 Outlet	Pond Outlet	Link	2.157	2.120	4.96		
SWMF 005 Outlet	Pond Outlet	Downstream	48.856	0.900	82.09	SWMF 001	

Messages

Message Id	17
Scenario	100Yr 3Hr
Element Type	Composite Outlet Structure
Element Id	174
Label	With TW SWMF 001 Outlet
Time	(N/A)
Message	Riser orifice equation controls at one or more headwater elevations for outlet structure.
Source	Information

Scenario Calculation Summary

Messages

Message Id	1
Scenario	100Yr 3Hr
Element Type	Conduit
Element Id	171
Label	Onsite Sewer Reach-Route
Time	(N/A)
Message	Reach routing link Onsite Sewer Reach-Route is connected to ICPM outfall node SWMF 004.
Source	Warning

Scenario Calculation Summary

Scenario Summary	
ID	21
Label	100Yr 2Hr
Notes	
Active Topology	<I> Base Active Topology
Hydrology	<I> Base Hydrology
Rainfall Runoff	100Yr 2Hr
Physical	<I> Base Physical
Initial Condition	<I> Base Initial Condition
Boundary Condition	<I> With Tailwater
Infiltration and Inflow	<I> Base Infiltration and Inflow
Output	<I> Base Output
User Data Extensions	<I> Base User Data Extensions
PondPack Engine Calculation Options	24Hr

Output Summary			
Output Increment	0.020 hours	Duration	24.000 hours

Rainfall Summary			
Return Event Tag	100	Rainfall Type	Time-Depth Curve
Total Depth	5.0 in	Storm Event	100YR- 2HR

ICPM Output Summary			
Target Convergence	0.00 ft³/s	ICPM Time Step	0.020 hours
Maximum Iterations	35		

Executive Summary (Nodes)

Label	Scenario	Return Event (years)	Truncation	Hydrograph Volume (ac-ft)	Time to Peak (hours)	Peak Flow (ft³/s)	Maximum Water Surface Elevation (ft)	Maximum Pond Storage (ac-ft)
119th East Impervious	100Yr 2Hr	100	None	0.793	0.380	11.84	(N/A)	(N/A)
119th East Remainder - Subarea 012	100Yr 2Hr	100	None	0.786	0.600	10.46	(N/A)	(N/A)
119th West Impervious	100Yr 2Hr	100	None	0.521	0.340	7.97	(N/A)	(N/A)
119th West Remainder - Subarea 013	100Yr 2Hr	100	None	0.523	0.560	7.18	(N/A)	(N/A)
J-4	100Yr 2Hr	100	None	11.519	0.840	111.94	(N/A)	(N/A)
J-6	100Yr 2Hr	100	None	2.738	0.840	27.35	(N/A)	(N/A)
O-1	100Yr 2Hr	100	None	28.939	8.180	30.79	(N/A)	(N/A)
O-1	100Yr 2Hr	100	None	0.000	23.140	-0.02	(N/A)	(N/A)
O-9	100Yr 2Hr	100	None	0.270	0.520	3.77	(N/A)	(N/A)
SWMF 001 (IN)	100Yr 2Hr	100	None	42.700	0.600	95.48	(N/A)	(N/A)
SWMF 001 (OUT)	100Yr 2Hr	100	None	28.189	8.180	30.79	616.80	16.234
SWMF 001 (Reverse)	100Yr 2Hr	100	None	0.000	23.140	-0.02	(N/A)	(N/A)
SWMF 002 (IN)	100Yr 2Hr	100	None	35.098	0.660	137.71	(N/A)	(N/A)
SWMF 002 (OUT)	100Yr 2Hr	100	None	33.932	3.000	36.48	622.06	16.373

Scenario Calculation Summary

Executive Summary (Nodes)

Label	Scenario	Return Event (years)	Truncation	Hydrograph Volume (ac-ft)	Time to Peak (hours)	Peak Flow (ft³/s)	Maximum Water Surface Elevation (ft)	Maximum Pond Storage (ac-ft)
SWMF 003 (IN)	100Yr 2Hr	100	None	25.775	0.680	105.90	(N/A)	(N/A)
SWMF 003 (OUT)	100Yr 2Hr	100	None	25.773	1.740	100.97	634.11	4.556
SWMF 004 (IN)	100Yr 2Hr	100	None	24.982	0.720	252.91	(N/A)	(N/A)
SWMF 004 (OUT)	100Yr 2Hr	100	None	24.818	1.620	100.31	634.45	11.790
SWMF 005 (IN)	100Yr 2Hr	100	None	1.892	0.460	27.38	(N/A)	(N/A)
SWMF 005 (OUT)	100Yr 2Hr	100	None	1.892	1.680	4.95	626.22	1.283
Subarea 001	100Yr 2Hr	100	None	4.954	0.580	66.54	(N/A)	(N/A)
Subarea 002	100Yr 2Hr	100	None	9.325	0.640	117.52	(N/A)	(N/A)
Subarea 003	100Yr 2Hr	100	None	0.958	0.440	14.10	(N/A)	(N/A)
Subarea 004	100Yr 2Hr	100	None	12.420	0.640	156.33	(N/A)	(N/A)
Subarea 005	100Yr 2Hr	100	None	1.892	0.460	27.38	(N/A)	(N/A)
Subarea 006	100Yr 2Hr	100	None	0.750	0.560	10.22	(N/A)	(N/A)
Subarea 007	100Yr 2Hr	100	None	0.270	0.520	3.77	(N/A)	(N/A)
Subarea ex -011	100Yr 2Hr	100	None	0.343	0.680	4.23	(N/A)	(N/A)
Subarea ex -014	100Yr 2Hr	100	None	2.738	0.840	27.35	(N/A)	(N/A)
Subarea ex -015	100Yr 2Hr	100	None	1.448	0.720	17.07	(N/A)	(N/A)
Subarea ex -016	100Yr 2Hr	100	None	7.333	0.920	70.23	(N/A)	(N/A)

Executive Summary (Links)

Label	Type	Location	Hydrograph Volume (ac-ft)	Peak Time (hours)	Peak Flow (ft³/s)	End Point	Node Flow Direction
Onsite Sewer Reach Route2	Channel	Upstream	2.738	0.840	27.35	J-6	
Onsite Sewer Reach Route2	Channel	Link	2.738	0.900	27.23		
Onsite Sewer Reach Route2	Channel	Downstream	11.519	0.840	111.94	J-4	
Onsite Sewer Reach-Route	Channel	Upstream	11.519	0.840	111.94	J-4	
Onsite Sewer Reach-Route	Channel	Link	11.519	0.920	110.93		
Onsite Sewer Reach-Route	Channel	Downstream	24.982	0.720	252.91	SWMF 004	
SWMF 001 Outlet	Pond Outlet	Upstream	42.700	0.600	95.48	SWMF 001	Pond Inflow

Scenario Calculation Summary

Executive Summary (Links)

Label	Type	Location	Hydrograph Volume (ac-ft)	Peak Time (hours)	Peak Flow (ft ³ /s)	End Point	Node Flow Direction
SWMF 001 Outlet	Pond Outlet	Outflow	28.189	8.180	30.79	SWMF 001	Pond Outflow
SWMF 001 Outlet	Negative Flow	Outflow	0.000	23.140	-0.02	SWMF 001	Pond Outflow
SWMF 001 Outlet	Pond Outlet	Link	28.189	8.180	30.79		
SWMF 001 Outlet	Negative Flow	Link	0.000	23.140	-0.02		
SWMF 001 Outlet	Pond Outlet	Downstream	28.939	8.180	30.79	O-1	
SWMF 001 Outlet	Negative Flow	Downstream	0.000	23.140	-0.02	O-1	
SWMF 002 Eq.	Pond Outlet	Upstream	35.098	0.660	137.71	SWMF 002	Pond Inflow
SWMF 002 Eq.	Pond Outlet	Outflow	33.932	3.000	36.48	SWMF 002	Pond Outflow
SWMF 002 Eq.	Pond Outlet	Link	33.930	3.000	36.48		
SWMF 002 Eq.	Pond Outlet	Downstream	42.700	0.600	95.48	SWMF 001	
SWMF 003 Outlet	Pond Outlet	Upstream	25.775	0.680	105.90	SWMF 003	Pond Inflow
SWMF 003 Outlet	Pond Outlet	Outflow	25.773	1.740	100.97	SWMF 003	Pond Outflow
SWMF 003 Outlet	Pond Outlet	Link	25.773	1.740	100.97		
SWMF 003 Outlet	Pond Outlet	Downstream	35.098	0.660	137.71	SWMF 002	
SWMF 004 Eq.	Pond Outlet	Upstream	24.982	0.720	252.91	SWMF 004	Pond Inflow
SWMF 004 Eq.	Pond Outlet	Outflow	24.818	1.620	100.31	SWMF 004	Pond Outflow
SWMF 004 Eq.	Pond Outlet	Link	24.818	1.620	100.31		
SWMF 004 Eq.	Pond Outlet	Downstream	25.775	0.680	105.90	SWMF 003	
SWMF 005 Outlet	Pond Outlet	Upstream	1.892	0.460	27.38	SWMF 005	Pond Inflow
SWMF 005 Outlet	Pond Outlet	Outflow	1.892	1.680	4.95	SWMF 005	Pond Outflow
SWMF 005 Outlet	Pond Outlet	Link	1.892	1.680	4.95		
SWMF 005 Outlet	Pond Outlet	Downstream	42.700	0.600	95.48	SWMF 001	

Messages

Message Id	17
Scenario	100Yr 2Hr
Element Type	Composite Outlet Structure
Element Id	174
Label	With TW SWMF 001 Outlet
Time	(N/A)
Message	Riser orifice equation controls at one or more headwater elevations for outlet structure.
Source	Information

Scenario Calculation Summary

Messages

Message Id	1
Scenario	100Yr 2Hr
Element Type	Conduit
Element Id	171
Label	Onsite Sewer Reach-Route
Time	(N/A)
Message	Reach routing link Onsite Sewer Reach-Route is connected to ICPM outfall node SWMF 004.
Source	Warning

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Storm Event	100YR-18HR
Return Event	100 years
Duration	72.000 hours
Depth	8.1 in
Time of Concentration (Composite)	0.150 hours
Area (User Defined)	2.010 acres
Computational Time Increment	0.020 hours
Time to Peak (Computed)	11.240 hours
Flow (Peak, Computed)	1.94 ft ³ /s
Output Increment	0.020 hours
Time to Flow (Peak Interpolated Output)	11.240 hours
Flow (Peak Interpolated Output)	1.94 ft ³ /s
Drainage Area	
SCS CN (Composite)	98.000
Area (User Defined)	2.010 acres
Maximum Retention (Pervious)	0.2 in
Maximum Retention (Pervious, 20 percent)	0.0 in
Cumulative Runoff	
Cumulative Runoff Depth (Pervious)	7.8 in
Runoff Volume (Pervious)	1.310 ac-ft
Hydrograph Volume (Area under Hydrograph curve)	
Volume	1.310 ac-ft
SCS Unit Hydrograph Parameters	
Time of Concentration (Composite)	0.150 hours
Computational Time Increment	0.020 hours
Unit Hydrograph Shape Factor	483.432
K Factor	0.749
Receding/Rising, Tr/Tp	1.670
Unit peak, qp	15.18 ft ³ /s
Unit peak time, Tp	0.100 hours
Unit receding limb, Tr	0.400 hours
Total unit time, Tb	0.500 hours

Storm Event	100YR-18HR
Return Event	100 years
Duration	72.000 hours
Depth	8.1 in
Time of Concentration (Composite)	0.200 hours
Area (User Defined)	4.030 acres
Computational Time Increment	0.027 hours
Time to Peak (Computed)	12.027 hours
Flow (Peak, Computed)	3.18 ft ³ /s
Output Increment	0.020 hours
Time to Flow (Peak Interpolated Output)	12.020 hours
Flow (Peak Interpolated Output)	3.18 ft ³ /s
Drainage Area	
SCS CN (Composite)	74.000
Area (User Defined)	4.030 acres
Maximum Retention (Pervious)	3.5 in
Maximum Retention (Pervious, 20 percent)	0.7 in
Cumulative Runoff	
Cumulative Runoff Depth (Pervious)	5.0 in
Runoff Volume (Pervious)	1.672 ac-ft
Hydrograph Volume (Area under Hydrograph curve)	
Volume	1.672 ac-ft
SCS Unit Hydrograph Parameters	
Time of Concentration (Composite)	0.200 hours
Computational Time Increment	0.027 hours
Unit Hydrograph Shape Factor	483.432
K Factor	0.749
Receding/Rising, Tr/Tp	1.670
Unit peak, qp	22.83 ft ³ /s
Unit peak time, Tp	0.133 hours
Unit receding limb, Tr	0.533 hours
Total unit time, Tb	0.667 hours

Storm Event	100YR-18HR
Return Event	100 years
Duration	72.000 hours
Depth	8.1 in
Time of Concentration (Composite)	0.100 hours
Area (User Defined)	1.320 acres
Computational Time Increment	0.013 hours
Time to Peak (Computed)	11.240 hours
Flow (Peak, Computed)	1.27 ft ³ /s
Output Increment	0.020 hours
Time to Flow (Peak Interpolated Output)	11.240 hours
Flow (Peak Interpolated Output)	1.27 ft ³ /s
Drainage Area	
SCS CN (Composite)	98.000
Area (User Defined)	1.320 acres
Maximum Retention (Pervious)	0.2 in
Maximum Retention (Pervious, 20 percent)	0.0 in
Cumulative Runoff	
Cumulative Runoff Depth (Pervious)	7.8 in
Runoff Volume (Pervious)	0.860 ac-ft
Hydrograph Volume (Area under Hydrograph curve)	
Volume	0.860 ac-ft
SCS Unit Hydrograph Parameters	
Time of Concentration (Composite)	0.100 hours
Computational Time Increment	0.013 hours
Unit Hydrograph Shape Factor	483.432
K Factor	0.749
Receding/Rising, Tr/Tp	1.670
Unit peak, qp	14.96 ft ³ /s
Unit peak time, Tp	0.067 hours
Unit receding limb, Tr	0.267 hours
Total unit time, Tb	0.333 hours

Storm Event	100YR-18HR
Return Event	100 years
Duration	72.000 hours
Depth	8.1 in
Time of Concentration (Composite)	0.150 hours
Area (User Defined)	2.680 acres
Computational Time Increment	0.020 hours
Time to Peak (Computed)	12.020 hours
Flow (Peak, Computed)	2.12 ft ³ /s
Output Increment	0.020 hours
Time to Flow (Peak Interpolated Output)	12.020 hours
Flow (Peak Interpolated Output)	2.12 ft ³ /s
Drainage Area	
SCS CN (Composite)	74.000
Area (User Defined)	2.680 acres
Maximum Retention (Pervious)	3.5 in
Maximum Retention (Pervious, 20 percent)	0.7 in
Cumulative Runoff	
Cumulative Runoff Depth (Pervious)	5.0 in
Runoff Volume (Pervious)	1.112 ac-ft
Hydrograph Volume (Area under Hydrograph curve)	
Volume	1.112 ac-ft
SCS Unit Hydrograph Parameters	
Time of Concentration (Composite)	0.150 hours
Computational Time Increment	0.020 hours
Unit Hydrograph Shape Factor	483.432
K Factor	0.749
Receding/Rising, Tr/Tp	1.670
Unit peak, qp	20.24 ft ³ /s
Unit peak time, Tp	0.100 hours
Unit receding limb, Tr	0.400 hours
Total unit time, Tb	0.500 hours

Storm Event	100YR-18HR
Return Event	100 years
Duration	72.000 hours
Depth	8.1 in
Time of Concentration (Composite)	0.250 hours
Area (User Defined)	18.330 acres
Computational Time Increment	0.033 hours
Time to Peak (Computed)	12.000 hours
Flow (Peak, Computed)	16.30 ft ³ /s
Output Increment	0.020 hours
Time to Flow (Peak Interpolated Output)	12.000 hours
Flow (Peak Interpolated Output)	16.30 ft ³ /s
Drainage Area	
SCS CN (Composite)	84.000
Area (User Defined)	18.330 acres
Maximum Retention (Pervious)	1.9 in
Maximum Retention (Pervious, 20 percent)	0.4 in
Cumulative Runoff	
Cumulative Runoff Depth (Pervious)	6.2 in
Runoff Volume (Pervious)	9.398 ac-ft
Hydrograph Volume (Area under Hydrograph curve)	
Volume	9.398 ac-ft
SCS Unit Hydrograph Parameters	
Time of Concentration (Composite)	0.250 hours
Computational Time Increment	0.033 hours
Unit Hydrograph Shape Factor	483.432
K Factor	0.749
Receding/Rising, Tr/Tp	1.670
Unit peak, qp	83.07 ft ³ /s
Unit peak time, Tp	0.167 hours
Unit receding limb, Tr	0.667 hours
Total unit time, Tb	0.833 hours

Storm Event	100YR-18HR
Return Event	100 years
Duration	72.000 hours
Depth	8.1 in
Time of Concentration (Composite)	0.350 hours
Area (User Defined)	31.800 acres
Computational Time Increment	0.047 hours
Time to Peak (Computed)	11.993 hours
Flow (Peak, Computed)	28.93 ft ³ /s
Output Increment	0.020 hours
Time to Flow (Peak Interpolated Output)	12.000 hours
Flow (Peak Interpolated Output)	28.93 ft ³ /s
Drainage Area	
SCS CN (Composite)	86.800
Area (User Defined)	31.800 acres
Maximum Retention (Pervious)	1.5 in
Maximum Retention (Pervious, 20 percent)	0.3 in
Cumulative Runoff	
Cumulative Runoff Depth (Pervious)	6.5 in
Runoff Volume (Pervious)	17.184 ac-ft
Hydrograph Volume (Area under Hydrograph curve)	
Volume	17.184 ac-ft
SCS Unit Hydrograph Parameters	
Time of Concentration (Composite)	0.350 hours
Computational Time Increment	0.047 hours
Unit Hydrograph Shape Factor	483.432
K Factor	0.749
Receding/Rising, Tr/Tp	1.670
Unit peak, qp	102.95 ft ³ /s
Unit peak time, Tp	0.233 hours
Unit receding limb, Tr	0.933 hours
Total unit time, Tb	1.167 hours

Storm Event	100YR-18HR
Return Event	100 years
Duration	72.000 hours
Depth	8.1 in
Time of Concentration (Composite)	0.100 hours
Area (User Defined)	3.420 acres
Computational Time Increment	0.013 hours
Time to Peak (Computed)	12.000 hours
Flow (Peak, Computed)	3.08 ft ³ /s
Output Increment	0.020 hours
Time to Flow (Peak Interpolated Output)	12.000 hours
Flow (Peak Interpolated Output)	3.08 ft ³ /s
Drainage Area	
SCS CN (Composite)	85.200
Area (User Defined)	3.420 acres
Maximum Retention (Pervious)	1.7 in
Maximum Retention (Pervious, 20 percent)	0.3 in
Cumulative Runoff	
Cumulative Runoff Depth (Pervious)	6.3 in
Runoff Volume (Pervious)	1.794 ac-ft
Hydrograph Volume (Area under Hydrograph curve)	
Volume	1.794 ac-ft
SCS Unit Hydrograph Parameters	
Time of Concentration (Composite)	0.100 hours
Computational Time Increment	0.013 hours
Unit Hydrograph Shape Factor	483.432
K Factor	0.749
Receding/Rising, Tr/Tp	1.670
Unit peak, qp	38.75 ft ³ /s
Unit peak time, Tp	0.067 hours
Unit receding limb, Tr	0.267 hours
Total unit time, Tb	0.333 hours

Storm Event	100YR-18HR
Return Event	100 years
Duration	72.000 hours
Depth	8.1 in
Time of Concentration (Composite)	0.350 hours
Area (User Defined)	42.720 acres
Computational Time Increment	0.047 hours
Time to Peak (Computed)	11.993 hours
Flow (Peak, Computed)	38.78 ft ³ /s
Output Increment	0.020 hours
Time to Flow (Peak Interpolated Output)	12.000 hours
Flow (Peak Interpolated Output)	38.78 ft ³ /s
Drainage Area	
SCS CN (Composite)	86.500
Area (User Defined)	42.720 acres
Maximum Retention (Pervious)	1.6 in
Maximum Retention (Pervious, 20 percent)	0.3 in
Cumulative Runoff	
Cumulative Runoff Depth (Pervious)	6.4 in
Runoff Volume (Pervious)	22.958 ac-ft
Hydrograph Volume (Area under Hydrograph curve)	
Volume	22.958 ac-ft
SCS Unit Hydrograph Parameters	
Time of Concentration (Composite)	0.350 hours
Computational Time Increment	0.047 hours
Unit Hydrograph Shape Factor	483.432
K Factor	0.749
Receding/Rising, Tr/Tp	1.670
Unit peak, qp	138.30 ft ³ /s
Unit peak time, Tp	0.233 hours
Unit receding limb, Tr	0.933 hours
Total unit time, Tb	1.167 hours

Storm Event	100YR-18HR
Return Event	100 years
Duration	72.000 hours
Depth	8.1 in
Time of Concentration (Composite)	0.150 hours
Area (User Defined)	6.490 acres
Computational Time Increment	0.020 hours
Time to Peak (Computed)	12.000 hours
Flow (Peak, Computed)	5.91 ft ³ /s
Output Increment	0.020 hours
Time to Flow (Peak Interpolated Output)	12.000 hours
Flow (Peak Interpolated Output)	5.91 ft ³ /s
Drainage Area	
SCS CN (Composite)	86.600
Area (User Defined)	6.490 acres
Maximum Retention (Pervious)	1.5 in
Maximum Retention (Pervious, 20 percent)	0.3 in
Cumulative Runoff	
Cumulative Runoff Depth (Pervious)	6.5 in
Runoff Volume (Pervious)	3.494 ac-ft
Hydrograph Volume (Area under Hydrograph curve)	
Volume	3.494 ac-ft
SCS Unit Hydrograph Parameters	
Time of Concentration (Composite)	0.150 hours
Computational Time Increment	0.020 hours
Unit Hydrograph Shape Factor	483.432
K Factor	0.749
Receding/Rising, Tr/Tp	1.670
Unit peak, qp	49.02 ft ³ /s
Unit peak time, Tp	0.100 hours
Unit receding limb, Tr	0.400 hours
Total unit time, Tb	0.500 hours

Storm Event	100YR-18HR
Return Event	100 years
Duration	72.000 hours
Depth	8.1 in
Time of Concentration (Composite)	0.200 hours
Area (User Defined)	3.220 acres
Computational Time Increment	0.027 hours
Time to Peak (Computed)	12.000 hours
Flow (Peak, Computed)	2.72 ft ³ /s
Output Increment	0.020 hours
Time to Flow (Peak Interpolated Output)	12.000 hours
Flow (Peak Interpolated Output)	2.72 ft ³ /s
Drainage Area	
SCS CN (Composite)	79.200
Area (User Defined)	3.220 acres
Maximum Retention (Pervious)	2.6 in
Maximum Retention (Pervious, 20 percent)	0.5 in
Cumulative Runoff	
Cumulative Runoff Depth (Pervious)	5.6 in
Runoff Volume (Pervious)	1.499 ac-ft
Hydrograph Volume (Area under Hydrograph curve)	
Volume	1.499 ac-ft
SCS Unit Hydrograph Parameters	
Time of Concentration (Composite)	0.200 hours
Computational Time Increment	0.027 hours
Unit Hydrograph Shape Factor	483.432
K Factor	0.749
Receding/Rising, Tr/Tp	1.670
Unit peak, qp	18.24 ft ³ /s
Unit peak time, Tp	0.133 hours
Unit receding limb, Tr	0.533 hours
Total unit time, Tb	0.667 hours

Storm Event	100YR-18HR
Return Event	100 years
Duration	72.000 hours
Depth	8.1 in
Time of Concentration (Composite)	0.200 hours
Area (User Defined)	0.950 acres
Computational Time Increment	0.027 hours
Time to Peak (Computed)	12.000 hours
Flow (Peak, Computed)	0.86 ft ³ /s
Output Increment	0.020 hours
Time to Flow (Peak Interpolated Output)	12.000 hours
Flow (Peak Interpolated Output)	0.86 ft ³ /s
Drainage Area	
SCS CN (Composite)	85.700
Area (User Defined)	0.950 acres
Maximum Retention (Pervious)	1.7 in
Maximum Retention (Pervious, 20 percent)	0.3 in
Cumulative Runoff	
Cumulative Runoff Depth (Pervious)	6.4 in
Runoff Volume (Pervious)	0.503 ac-ft
Hydrograph Volume (Area under Hydrograph curve)	
Volume	0.503 ac-ft
SCS Unit Hydrograph Parameters	
Time of Concentration (Composite)	0.200 hours
Computational Time Increment	0.027 hours
Unit Hydrograph Shape Factor	483.432
K Factor	0.749
Receding/Rising, Tr/Tp	1.670
Unit peak, qp	5.38 ft ³ /s
Unit peak time, Tp	0.133 hours
Unit receding limb, Tr	0.533 hours
Total unit time, Tb	0.667 hours

Storm Event	100YR-18HR
Return Event	100 years
Duration	72.000 hours
Depth	8.1 in
Time of Concentration (Composite)	0.300 hours
Area (User Defined)	1.760 acres
Computational Time Increment	0.040 hours
Time to Peak (Computed)	12.040 hours
Flow (Peak, Computed)	1.38 ft ³ /s
Output Increment	0.020 hours
Time to Flow (Peak Interpolated Output)	12.040 hours
Flow (Peak Interpolated Output)	1.38 ft ³ /s
Drainage Area	
SCS CN (Composite)	74.000
Area (User Defined)	1.760 acres
Maximum Retention (Pervious)	3.5 in
Maximum Retention (Pervious, 20 percent)	0.7 in
Cumulative Runoff	
Cumulative Runoff Depth (Pervious)	5.0 in
Runoff Volume (Pervious)	0.730 ac-ft
Hydrograph Volume (Area under Hydrograph curve)	
Volume	0.730 ac-ft
SCS Unit Hydrograph Parameters	
Time of Concentration (Composite)	0.300 hours
Computational Time Increment	0.040 hours
Unit Hydrograph Shape Factor	483.432
K Factor	0.749
Receding/Rising, Tr/Tp	1.670
Unit peak, qp	6.65 ft ³ /s
Unit peak time, Tp	0.200 hours
Unit receding limb, Tr	0.800 hours
Total unit time, Tb	1.000 hours

Storm Event	100YR-18HR
Return Event	100 years
Duration	72.000 hours
Depth	8.1 in
Time of Concentration (Composite)	0.620 hours
Area (User Defined)	10.730 acres
Computational Time Increment	0.083 hours
Time to Peak (Computed)	12.069 hours
Flow (Peak, Computed)	9.30 ft ³ /s
Output Increment	0.020 hours
Time to Flow (Peak Interpolated Output)	12.080 hours
Flow (Peak Interpolated Output)	9.29 ft ³ /s
Drainage Area	
SCS CN (Composite)	82.100
Area (User Defined)	10.730 acres
Maximum Retention (Pervious)	2.2 in
Maximum Retention (Pervious, 20 percent)	0.4 in
Cumulative Runoff	
Cumulative Runoff Depth (Pervious)	5.9 in
Runoff Volume (Pervious)	5.301 ac-ft
Hydrograph Volume (Area under Hydrograph curve)	
Volume	5.301 ac-ft
SCS Unit Hydrograph Parameters	
Time of Concentration (Composite)	0.620 hours
Computational Time Increment	0.083 hours
Unit Hydrograph Shape Factor	483.432
K Factor	0.749
Receding/Rising, Tr/Tp	1.670
Unit peak, qp	19.61 ft ³ /s
Unit peak time, Tp	0.413 hours
Unit receding limb, Tr	1.653 hours
Total unit time, Tb	2.067 hours

Storm Event	100YR-18HR
Return Event	100 years
Duration	72.000 hours
Depth	8.1 in
Time of Concentration (Composite)	0.390 hours
Area (User Defined)	6.140 acres
Computational Time Increment	0.052 hours
Time to Peak (Computed)	12.064 hours
Flow (Peak, Computed)	5.19 ft ³ /s
Output Increment	0.020 hours
Time to Flow (Peak Interpolated Output)	12.060 hours
Flow (Peak Interpolated Output)	5.19 ft ³ /s
Drainage Area	
SCS CN (Composite)	79.600
Area (User Defined)	6.140 acres
Maximum Retention (Pervious)	2.6 in
Maximum Retention (Pervious, 20 percent)	0.5 in
Cumulative Runoff	
Cumulative Runoff Depth (Pervious)	5.6 in
Runoff Volume (Pervious)	2.883 ac-ft
Hydrograph Volume (Area under Hydrograph curve)	
Volume	2.883 ac-ft
SCS Unit Hydrograph Parameters	
Time of Concentration (Composite)	0.390 hours
Computational Time Increment	0.052 hours
Unit Hydrograph Shape Factor	483.432
K Factor	0.749
Receding/Rising, Tr/Tp	1.670
Unit peak, qp	17.84 ft ³ /s
Unit peak time, Tp	0.260 hours
Unit receding limb, Tr	1.040 hours
Total unit time, Tb	1.300 hours

Storm Event	100YR-18HR
Return Event	100 years
Duration	72.000 hours
Depth	8.1 in
Time of Concentration (Composite)	0.700 hours
Area (User Defined)	26.420 acres
Computational Time Increment	0.093 hours
Time to Peak (Computed)	12.133 hours
Flow (Peak, Computed)	23.51 ft ³ /s
Output Increment	0.020 hours
Time to Flow (Peak Interpolated Output)	12.120 hours
Flow (Peak Interpolated Output)	23.51 ft ³ /s
Drainage Area	
SCS CN (Composite)	84.900
Area (User Defined)	26.420 acres
Maximum Retention (Pervious)	1.8 in
Maximum Retention (Pervious, 20 percent)	0.4 in
Cumulative Runoff	
Cumulative Runoff Depth (Pervious)	6.3 in
Runoff Volume (Pervious)	13.781 ac-ft
Hydrograph Volume (Area under Hydrograph curve)	
Volume	13.781 ac-ft
SCS Unit Hydrograph Parameters	
Time of Concentration (Composite)	0.700 hours
Computational Time Increment	0.093 hours
Unit Hydrograph Shape Factor	483.432
K Factor	0.749
Receding/Rising, Tr/Tp	1.670
Unit peak, qp	42.76 ft ³ /s
Unit peak time, Tp	0.467 hours
Unit receding limb, Tr	1.867 hours
Total unit time, Tb	2.333 hours

Time-Depth Curve: 100YR- 2HR	
Label	100YR- 2HR
Start Time	0.000 hours
Increment	0.083 hours
End Time	1.999 hours
Return Event	100 years

CUMULATIVE RAINFALL (in)
Output Time Increment = 0.083 hours
Time on left represents time for first value in each row.

Time (hours)	Depth (in)	Depth (in)	Depth (in)	Depth (in)	Depth (in)
0.000	0.0	0.4	0.9	1.4	1.9
0.417	2.4	2.8	3.1	3.3	3.5
0.833	3.7	3.8	4.0	4.1	4.2
1.250	4.3	4.4	4.5	4.6	4.7
1.666	4.7	4.8	4.9	4.9	5.0

Time-Depth Curve: 100YR- 3HR	
Label	100YR- 3HR
Start Time	0.000 hours
Increment	0.125 hours
End Time	3.000 hours
Return Event	100 years

CUMULATIVE RAINFALL (in)
Output Time Increment = 0.125 hours
Time on left represents time for first value in each row.

Time (hours)	Depth (in)	Depth (in)	Depth (in)	Depth (in)	Depth (in)
0.000	0.0	0.5	1.0	1.5	2.1
0.625	2.6	3.0	3.4	3.7	3.9
1.250	4.1	4.2	4.4	4.5	4.7
1.875	4.8	4.9	5.0	5.1	5.2
2.500	5.2	5.3	5.4	5.4	5.5

Time-Depth Curve: 100YR-18HR	
Label	100YR-18HR
Start Time	0.000 hours
Increment	0.750 hours
End Time	18.000 hours
Return Event	100 years

CUMULATIVE RAINFALL (in)
Output Time Increment = 0.750 hours
Time on left represents time for first value in each row.

Time (hours)	Depth (in)	Depth (in)	Depth (in)	Depth (in)	Depth (in)
0.000	0.0	0.2	0.3	0.5	0.7
3.750	0.9	1.2	1.4	1.6	1.8
7.500	2.1	2.5	2.9	3.5	4.2
11.250	4.9	5.6	6.3	6.8	7.2
15.000	7.5	7.7	7.8	7.9	8.1

Time-Depth Curve: 100YR-24HR	
Label	100YR-24HR
Start Time	0.000 hours
Increment	1.000 hours
End Time	24.000 hours
Return Event	100 years

CUMULATIVE RAINFALL (in)
Output Time Increment = 1.000 hours
Time on left represents time for first value in each row.

Time (hours)	Depth (in)	Depth (in)	Depth (in)	Depth (in)	Depth (in)
0.000	0.0	0.2	0.4	0.6	0.8
5.000	1.0	1.2	1.4	1.7	2.0
10.000	2.3	2.7	3.1	3.8	4.5
15.000	5.2	6.0	6.7	7.3	7.7
20.000	8.0	8.2	8.3	8.4	8.6

Requested Pond Water Surface Elevations	
Minimum (Headwater)	621.00 ft
Increment (Headwater)	0.10 ft
Maximum (Headwater)	627.00 ft

Outlet Connectivity

Structure Type	Outlet ID	Direction	Outfall	E1 (ft)	E2 (ft)
Orifice-Circular	Orifice - 2	Forward + Reverse	TW	625.40	627.00
Orifice-Circular	Orifice - 1	Forward + Reverse	TW	621.01	625.40
Rectangular Weir	Weir - 1	Forward + Reverse	TW	625.00	625.40
Tailwater Settings	Tailwater			(N/A)	(N/A)

Structure ID: Orifice - 1	
Structure Type: Orifice-Circular	
Number of Openings	1
Elevation	617.20 ft
Orifice Diameter	4.00 in
Orifice Coefficient	0.600
Structure ID: Weir - 1	
Structure Type: Rectangular Weir	
Number of Openings	1
Elevation	625.00 ft
Weir Length	6.00 ft
Weir Coefficient	3.00 (ft^0.5)/s
Structure ID: Orifice - 2	
Structure Type: Orifice-Circular	
Number of Openings	1
Elevation	617.20 ft
Orifice Diameter	8.00 in
Orifice Coefficient	0.600

Requested Pond Water Surface Elevations	
Minimum (Headwater)	612.50 ft
Increment (Headwater)	0.10 ft
Maximum (Headwater)	619.00 ft

Outlet Connectivity

Structure Type	Outlet ID	Direction	Outfall	E1 (ft)	E2 (ft)
Orifice-Circular	2yr	Forward	TW	612.51	615.90
Orifice-Circular	Bypass Restrictor	Forward + Reverse	TW	617.00	619.00
Rectangular Weir	Internal Weir	Forward	TW	615.20	615.90
Inlet Box	High Capacity Grate	Forward + Reverse	TW	616.50	617.00
Orifice-Circular	100yr	Forward	TW	615.90	619.00
Irregular Weir	Emergency Spillway	Forward + Reverse	TW	618.00	619.00
Tailwater Settings	Tailwater			(N/A)	(N/A)

Structure ID: 2yr	
Structure Type: Orifice-Circular	
Number of Openings	1
Elevation	612.40 ft
Orifice Diameter	13.50 in
Orifice Coefficient	0.600

Structure ID: Internal Weir	
Structure Type: Rectangular Weir	
Number of Openings	1
Elevation	615.20 ft
Weir Length	6.00 ft
Weir Coefficient	3.00 (ft ^{0.5})/s

Structure ID: 100yr	
Structure Type: Orifice-Circular	
Number of Openings	1
Elevation	612.40 ft
Orifice Diameter	22.50 in
Orifice Coefficient	0.600

Structure ID: Emergency Spillway
Structure Type: Irregular Weir

Station (ft)	Elevation (ft)
0.00	619.00
1.20	618.70
11.20	618.70
14.00	618.00
19.00	618.00
21.80	618.70
31.80	618.70
33.00	619.00

Lowest Elevation	618.00 ft
Weir Coefficient	2.50 (ft ^{0.5})/s

Structure ID: High Capacity Gate	
Structure Type: Inlet Box	
Number of Openings	1
Elevation	616.50 ft
Orifice Area	21.2 ft ²
Orifice Coefficient	0.600
Weir Length	18.85 ft
Weir Coefficient	3.00 (ft ^{0.5})/s
K Reverse	1.000
Manning's n	0.000
Kev, Charged Riser	0.000
Weir Submergence	False
Orifice H to crest	True

Structure ID: Bypass Restrictor	
Structure Type: Orifice-Circular	
Number of Openings	1

Structure ID: Bypass Restrictor	
Structure Type: Orifice-Circular	
Elevation	613.00 ft
Orifice Diameter	30.00 in
Orifice Coefficient	0.600

Elevation-Volume

Pond Elevation (ft)		Pond Volume (ac-ft)	
	612.50		0.000
	613.00		1.493
	614.00		4.777
	615.00		8.470
	616.00		12.595
	617.00		17.167
	618.00		22.189
	619.00		27.591

Elevation-Volume

Pond Elevation (ft)		Pond Volume (ac-ft)	
	617.50		0.000
	618.00		1.572
	619.00		4.876
	620.00		8.398
	621.00		12.144
	622.00		16.120
	623.00		20.333
	623.50		22.530
	624.50		27.066

Elevation-Volume

Pond Elevation (ft)		Pond Volume (ac-ft)	
	628.00		0.000
	629.00		0.416
	630.00		0.950
	631.00		1.611
	632.00		2.407
	633.00		3.344
	634.00		4.428
	635.00		5.638

Elevation-Volume

Pond Elevation (ft)		Pond Volume (ac-ft)	
	628.00		0.000
	629.00		1.370
	630.00		2.900
	631.00		4.595
	632.00		6.461
	633.00		8.503
	634.00		10.726
	635.00		13.105

Elevation-Volume

Pond Elevation (ft)		Pond Volume (ac-ft)	
	621.00		0.000
	622.00		0.072
	623.00		0.245
	624.00		0.482
	625.00		0.790
	626.00		1.180
	627.00		1.644

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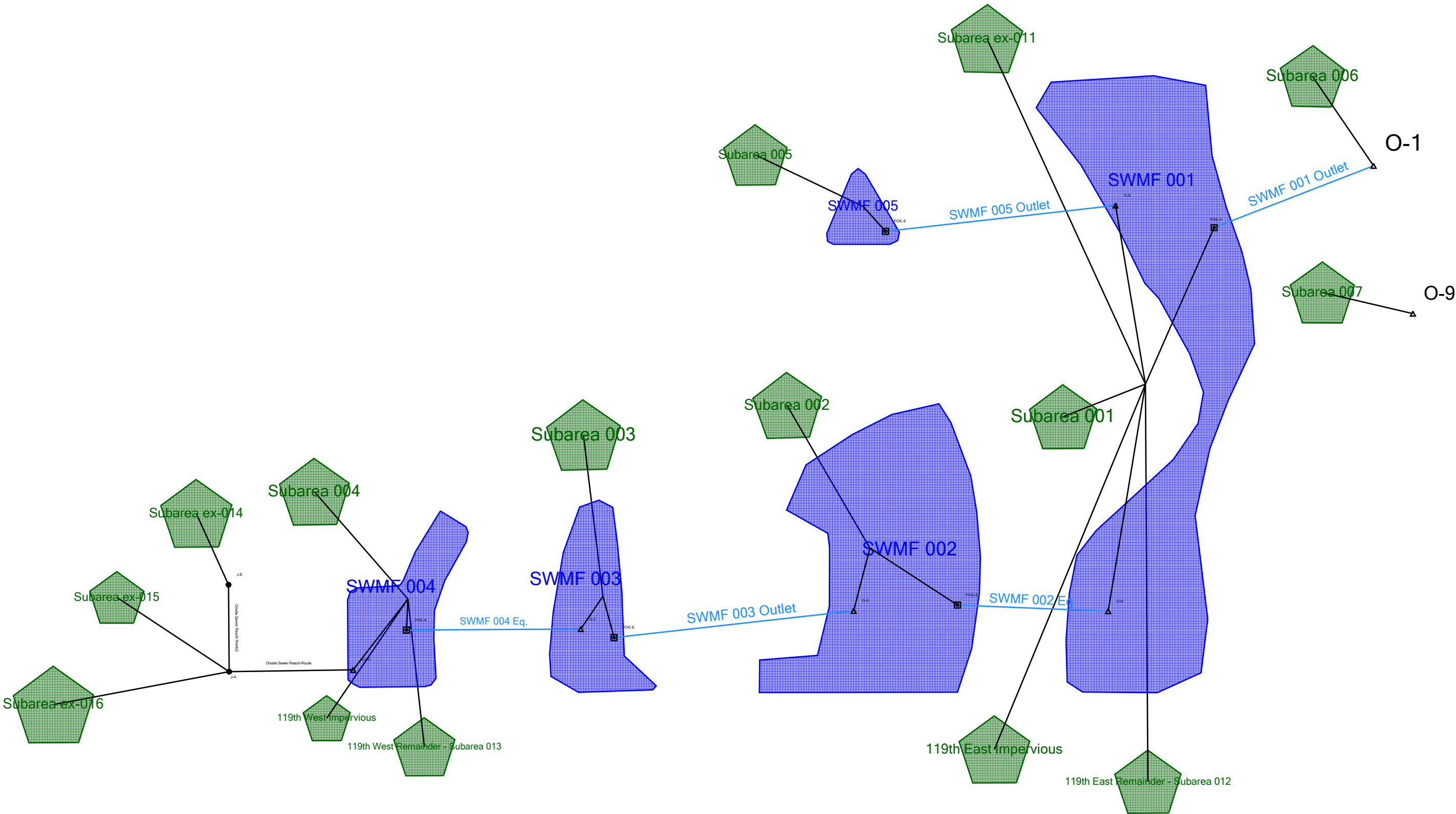
W

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TAB 5

“BLOCKED RESTRICTOR” PONDPACK
MODEL

Scenario: 100Yr 24 Hr



Scenario Calculation Summary

Scenario Summary	
ID	1
Label	100Yr 24 Hr
Notes	
Active Topology	Base Active Topology
Hydrology	Base Hydrology
Rainfall Runoff	100Yr 24Hr
Physical	Base Physical
Initial Condition	Base Initial Condition
Boundary Condition	With Tailwater
Infiltration and Inflow	Base Infiltration and Inflow
Output	Base Output
User Data Extensions	Base User Data Extensions
PondPack Engine Calculation Options	72Hr

Output Summary			
Output Increment	0.020 hours	Duration	72.000 hours

Rainfall Summary			
Return Event Tag	100	Rainfall Type	Time-Depth Curve
Total Depth	8.6 in	Storm Event	100YR-24HR

ICPM Output Summary			
Target Convergence	0.00 ft³/s	ICPM Time Step	0.020 hours
Maximum Iterations	35		

Executive Summary (Nodes)

Label	Scenario	Return Event (years)	Truncation	Hydrograph Volume (ac-ft)	Time to Peak (hours)	Peak Flow (ft³/s)	Maximum Water Surface Elevation (ft)	Maximum Pond Storage (ac-ft)
119th East Impervious	100Yr 24 Hr	100	None	1.395	15.000	1.54	(N/A)	(N/A)
119th East Remainder - Subarea 012	100Yr 24 Hr	100	None	1.826	16.000	2.59	(N/A)	(N/A)
119th West Impervious	100Yr 24 Hr	100	None	0.916	15.000	1.01	(N/A)	(N/A)
119th West Remainder - Subarea 013	100Yr 24 Hr	100	None	1.215	16.000	1.72	(N/A)	(N/A)
J-4	100Yr 24 Hr	100	None	23.730	16.060	30.67	(N/A)	(N/A)
J-6	100Yr 24 Hr	100	None	5.736	16.040	7.51	(N/A)	(N/A)
O-1	100Yr 24 Hr	100	None	66.023	19.080	65.77	(N/A)	(N/A)
O-9	100Yr 24 Hr	100	None	0.542	16.000	0.69	(N/A)	(N/A)
SWMF 001 (IN)	100Yr 24 Hr	100	None	87.012	19.020	65.20	(N/A)	(N/A)
SWMF 001 (OUT)	100Yr 24 Hr	100	None	64.396	19.100	64.61	618.99	27.513
SWMF 002 (IN)	100Yr 24 Hr	100	None	70.955	17.020	84.50	(N/A)	(N/A)
SWMF 002 (OUT)	100Yr 24 Hr	100	None	69.082	19.260	52.49	623.55	22.739
SWMF 003 (IN)	100Yr 24 Hr	100	None	52.455	17.020	62.78	(N/A)	(N/A)
SWMF 003 (OUT)	100Yr 24 Hr	100	None	52.454	17.060	62.64	633.81	4.221
SWMF 004 (IN)	100Yr 24 Hr	100	None	50.586	16.020	64.53	(N/A)	(N/A)

Scenario Calculation Summary

Executive Summary (Nodes)

Label	Scenario	Return Event (years)	Truncation	Hydrograph Volume (ac-ft)	Time to Peak (hours)	Peak Flow (ft ³ /s)	Maximum Water Surface Elevation (ft)	Maximum Pond Storage (ac-ft)
SWMF 004 (OUT)	100Yr 24 Hr	100	None	50.520	17.100	60.52	633.95	10.605
SWMF 005 (IN)	100Yr 24 Hr	100	None	3.763	16.000	4.75	(N/A)	(N/A)
SWMF 005 (OUT)	100Yr 24 Hr	100	None	3.763	16.040	4.46	625.42	0.952
Subarea 001	100Yr 24 Hr	100	None	10.148	16.000	13.12	(N/A)	(N/A)
Subarea 002	100Yr 24 Hr	100	None	18.501	16.000	23.24	(N/A)	(N/A)
Subarea 003	100Yr 24 Hr	100	None	1.935	16.000	2.48	(N/A)	(N/A)
Subarea 004	100Yr 24 Hr	100	None	24.725	16.000	31.16	(N/A)	(N/A)
Subarea 005	100Yr 24 Hr	100	None	3.763	16.000	4.75	(N/A)	(N/A)
Subarea 006	100Yr 24 Hr	100	None	1.627	16.000	2.20	(N/A)	(N/A)
Subarea 007	100Yr 24 Hr	100	None	0.542	16.000	0.69	(N/A)	(N/A)
Subarea ex- 011	100Yr 24 Hr	100	None	0.798	16.040	1.13	(N/A)	(N/A)
Subarea ex- 014	100Yr 24 Hr	100	None	5.736	16.040	7.51	(N/A)	(N/A)
Subarea ex- 015	100Yr 24 Hr	100	None	3.128	16.020	4.20	(N/A)	(N/A)
Subarea ex- 016	100Yr 24 Hr	100	None	14.866	16.060	18.96	(N/A)	(N/A)

Executive Summary (Links)

Label	Type	Location	Hydrograph Volume (ac-ft)	Peak Time (hours)	Peak Flow (ft ³ /s)	End Point	Node Flow Direction
Onsite Sewer Reach Route2	Channel	Upstream	5.736	16.040	7.51	J-6	
Onsite Sewer Reach Route2	Channel	Link	5.736	16.080	7.51		
Onsite Sewer Reach Route2	Channel	Downstream	23.730	16.060	30.67	J-4	
Onsite Sewer Reach-Route	Channel	Upstream	23.730	16.060	30.67	J-4	
Onsite Sewer Reach-Route	Channel	Link	23.730	16.080	30.67		
Onsite Sewer Reach-Route	Channel	Downstream	50.586	16.020	64.53	SWMF 004	
SWMF 001 Outlet	Pond Outlet	Upstream	87.012	19.020	65.20	SWMF 001	Pond Inflow
SWMF 001 Outlet	Pond Outlet	Outflow	64.396	19.100	64.61	SWMF 001	Pond Outflow
SWMF 001 Outlet	Pond Outlet	Link	64.396	19.100	64.61		
SWMF 001 Outlet	Pond Outlet	Downstream	66.023	19.080	65.77	O-1	
SWMF 002 Eq.	Pond Outlet	Upstream	70.955	17.020	84.50	SWMF 002	Pond Inflow
SWMF 002 Eq.	Pond Outlet	Outflow	69.082	19.260	52.49	SWMF 002	Pond Outflow
SWMF 002 Eq.	Pond Outlet	Link	69.082	19.260	52.49		
SWMF 002 Eq.	Pond Outlet	Downstream	87.012	19.020	65.20	SWMF 001	
SWMF 003 Outlet	Pond Outlet	Upstream	52.455	17.020	62.78	SWMF 003	Pond Inflow
SWMF 003 Outlet	Pond Outlet	Outflow	52.454	17.060	62.64	SWMF 003	Pond Outflow
SWMF 003 Outlet	Pond Outlet	Link	52.454	17.060	62.64		

Scenario Calculation Summary

Executive Summary (Links)

Label	Type	Location	Hydrograph Volume (ac-ft)	Peak Time (hours)	Peak Flow (ft ³ /s)	End Point	Node Flow Direction
SWMF 003 Outlet	Pond Outlet	Downstream	70.955	17.020	84.50	SWMF 002	
SWMF 004 Eq.	Pond Outlet	Upstream	50.586	16.020	64.53	SWMF 004	Pond Inflow
SWMF 004 Eq.	Pond Outlet	Outflow	50.520	17.100	60.52	SWMF 004	Pond Outflow
SWMF 004 Eq.	Pond Outlet	Link	50.520	17.100	60.52		
SWMF 004 Eq.	Pond Outlet	Downstream	52.455	17.020	62.78	SWMF 003	
SWMF 005 Outlet	Pond Outlet	Upstream	3.763	16.000	4.75	SWMF 005	Pond Inflow
SWMF 005 Outlet	Pond Outlet	Outflow	3.763	16.040	4.46	SWMF 005	Pond Outflow
SWMF 005 Outlet	Pond Outlet	Link	3.763	16.040	4.46		
SWMF 005 Outlet	Pond Outlet	Downstream	87.012	19.020	65.20	SWMF 001	

Messages

Message Id	1
Scenario	100Yr 24 Hr
Element Type	Conduit
Element Id	171
Label	Onsite Sewer Reach-Route
Time	(N/A)
Message	Reach routing link Onsite Sewer Reach-Route is connected to ICPM outfall node SWMF 004.
Source	Warning

Scenario Calculation Summary

Scenario Summary	
ID	17
Label	100Yr 18Hr
Notes	
Active Topology	<I> Base Active Topology
Hydrology	<I> Base Hydrology
Rainfall Runoff	100Yr 18Hr
Physical	<I> Base Physical
Initial Condition	<I> Base Initial Condition
Boundary Condition	<I> With Tailwater
Infiltration and Inflow	<I> Base Infiltration and Inflow
Output	<I> Base Output
User Data Extensions	<I> Base User Data Extensions
PondPack Engine Calculation Options	<I> 72Hr

Output Summary			
Output Increment	0.020 hours	Duration	72.000 hours

Rainfall Summary			
Return Event Tag	100	Rainfall Type	Time-Depth Curve
Total Depth	8.1 in	Storm Event	100YR-18HR

ICPM Output Summary			
Target Convergence	0.00 ft³/s	ICPM Time Step	0.020 hours
Maximum Iterations	35		

Executive Summary (Nodes)

Label	Scenario	Return Event (years)	Truncation	Hydrograph Volume (ac-ft)	Time to Peak (hours)	Peak Flow (ft³/s)	Maximum Water Surface Elevation (ft)	Maximum Pond Storage (ac-ft)
119th East Impervious	100Yr 18Hr	100	None	1.310	11.240	1.94	(N/A)	(N/A)
119th East Remainder - Subarea 012	100Yr 18Hr	100	None	1.672	12.020	3.18	(N/A)	(N/A)
119th West Impervious	100Yr 18Hr	100	None	0.860	11.240	1.27	(N/A)	(N/A)
119th West Remainder - Subarea 013	100Yr 18Hr	100	None	1.112	12.020	2.12	(N/A)	(N/A)
J-4	100Yr 18Hr	100	None	21.965	12.080	37.99	(N/A)	(N/A)
J-6	100Yr 18Hr	100	None	5.301	12.080	9.29	(N/A)	(N/A)
O-1	100Yr 18Hr	100	None	59.225	14.340	69.58	(N/A)	(N/A)
O-9	100Yr 18Hr	100	None	0.503	12.000	0.86	(N/A)	(N/A)
SWMF 001 (IN)	100Yr 18Hr	100	None	80.597	14.300	74.76	(N/A)	(N/A)
SWMF 001 (OUT)	100Yr 18Hr	100	None	57.726	14.340	68.13	619.00	27.591
SWMF 002 (IN)	100Yr 18Hr	100	None	65.816	12.800	104.70	(N/A)	(N/A)
SWMF 002 (OUT)	100Yr 18Hr	100	None	63.992	14.740	59.53	623.79	23.832
SWMF 003 (IN)	100Yr 18Hr	100	None	48.633	12.780	77.79	(N/A)	(N/A)
SWMF 003 (OUT)	100Yr 18Hr	100	None	48.632	12.860	77.52	633.93	4.357
SWMF 004 (IN)	100Yr 18Hr	100	None	46.895	12.040	80.09	(N/A)	(N/A)

Scenario Calculation Summary

Executive Summary (Nodes)

Label	Scenario	Return Event (years)	Truncation	Hydrograph Volume (ac-ft)	Time to Peak (hours)	Peak Flow (ft ³ /s)	Maximum Water Surface Elevation (ft)	Maximum Pond Storage (ac-ft)
SWMF 004 (OUT)	100Yr 18Hr	100	None	46.838	12.860	75.06	634.14	11.051
SWMF 005 (IN)	100Yr 18Hr	100	None	3.494	12.000	5.91	(N/A)	(N/A)
SWMF 005 (OUT)	100Yr 18Hr	100	None	3.494	12.320	4.79	625.75	1.083
Subarea 001	100Yr 18Hr	100	None	9.398	12.000	16.30	(N/A)	(N/A)
Subarea 002	100Yr 18Hr	100	None	17.184	12.000	28.93	(N/A)	(N/A)
Subarea 003	100Yr 18Hr	100	None	1.794	12.000	3.08	(N/A)	(N/A)
Subarea 004	100Yr 18Hr	100	None	22.958	12.000	38.78	(N/A)	(N/A)
Subarea 005	100Yr 18Hr	100	None	3.494	12.000	5.91	(N/A)	(N/A)
Subarea 006	100Yr 18Hr	100	None	1.499	12.000	2.72	(N/A)	(N/A)
Subarea 007	100Yr 18Hr	100	None	0.503	12.000	0.86	(N/A)	(N/A)
Subarea ex- 011	100Yr 18Hr	100	None	0.730	12.040	1.38	(N/A)	(N/A)
Subarea ex- 014	100Yr 18Hr	100	None	5.301	12.080	9.29	(N/A)	(N/A)
Subarea ex- 015	100Yr 18Hr	100	None	2.883	12.060	5.19	(N/A)	(N/A)
Subarea ex- 016	100Yr 18Hr	100	None	13.781	12.120	23.51	(N/A)	(N/A)

Executive Summary (Links)

Label	Type	Location	Hydrograph Volume (ac-ft)	Peak Time (hours)	Peak Flow (ft ³ /s)	End Point	Node Flow Direction
Onsite Sewer Reach Route2	Channel	Upstream	5.301	12.080	9.29	J-6	
Onsite Sewer Reach Route2	Channel	Link	5.301	12.140	9.29		
Onsite Sewer Reach Route2	Channel	Downstream	21.965	12.080	37.99	J-4	
Onsite Sewer Reach-Route	Channel	Upstream	21.965	12.080	37.99	J-4	
Onsite Sewer Reach-Route	Channel	Link	21.965	12.120	37.98		
Onsite Sewer Reach-Route	Channel	Downstream	46.895	12.040	80.09	SWMF 004	
SWMF 001 Outlet	Pond Outlet	Upstream	80.597	14.300	74.76	SWMF 001	Pond Inflow
SWMF 001 Outlet	Pond Outlet	Outflow	57.726	14.340	68.13	SWMF 001	Pond Outflow
SWMF 001 Outlet	Pond Outlet	Link	57.726	14.340	68.13		
SWMF 001 Outlet	Pond Outlet	Downstream	59.225	14.340	69.58	O-1	
SWMF 002 Eq.	Pond Outlet	Upstream	65.816	12.800	104.70	SWMF 002	Pond Inflow
SWMF 002 Eq.	Pond Outlet	Outflow	63.992	14.740	59.53	SWMF 002	Pond Outflow
SWMF 002 Eq.	Pond Outlet	Link	63.992	14.740	59.53		
SWMF 002 Eq.	Pond Outlet	Downstream	80.597	14.300	74.76	SWMF 001	
SWMF 003 Outlet	Pond Outlet	Upstream	48.633	12.780	77.79	SWMF 003	Pond Inflow
SWMF 003 Outlet	Pond Outlet	Outflow	48.632	12.860	77.52	SWMF 003	Pond Outflow
SWMF 003 Outlet	Pond Outlet	Link	48.632	12.860	77.52		

Scenario Calculation Summary

Executive Summary (Links)

Label	Type	Location	Hydrograph Volume (ac-ft)	Peak Time (hours)	Peak Flow (ft ³ /s)	End Point	Node Flow Direction
SWMF 003 Outlet	Pond Outlet	Downstream	65.816	12.800	104.70	SWMF 002	
SWMF 004 Eq.	Pond Outlet	Upstream	46.895	12.040	80.09	SWMF 004	Pond Inflow
SWMF 004 Eq.	Pond Outlet	Outflow	46.838	12.860	75.06	SWMF 004	Pond Outflow
SWMF 004 Eq.	Pond Outlet	Link	46.838	12.860	75.06		
SWMF 004 Eq.	Pond Outlet	Downstream	48.633	12.780	77.79	SWMF 003	
SWMF 005 Outlet	Pond Outlet	Upstream	3.494	12.000	5.91	SWMF 005	Pond Inflow
SWMF 005 Outlet	Pond Outlet	Outflow	3.494	12.320	4.79	SWMF 005	Pond Outflow
SWMF 005 Outlet	Pond Outlet	Link	3.494	12.320	4.79		
SWMF 005 Outlet	Pond Outlet	Downstream	80.597	14.300	74.76	SWMF 001	

Messages

Message Id	1
Scenario	100Yr 18Hr
Element Type	Conduit
Element Id	171
Label	Onsite Sewer Reach-Route
Time	(N/A)
Message	Reach routing link Onsite Sewer Reach-Route is connected to ICPM outfall node SWMF 004.
Source	Warning

Scenario Calculation Summary

Scenario Summary	
ID	20
Label	100Yr 3Hr
Notes	
Active Topology	<I> Base Active Topology
Hydrology	<I> Base Hydrology
Rainfall Runoff	100Yr 3Hr
Physical	<I> Base Physical
Initial Condition	<I> Base Initial Condition
Boundary Condition	<I> With Tailwater
Infiltration and Inflow	<I> Base Infiltration and Inflow
Output	<I> Base Output
User Data Extensions	<I> Base User Data Extensions
PondPack Engine Calculation Options	24Hr

Output Summary			
Output Increment	0.020 hours	Duration	24.000 hours

Rainfall Summary			
Return Event Tag	100	Rainfall Type	Time-Depth Curve
Total Depth	5.5 in	Storm Event	100YR- 3HR

ICPM Output Summary			
Target Convergence	0.00 ft³/s	ICPM Time Step	0.020 hours
Maximum Iterations	35		

Executive Summary (Nodes)

Label	Scenario	Return Event (years)	Truncation	Hydrograph Volume (ac-ft)	Time to Peak (hours)	Peak Flow (ft³/s)	Maximum Water Surface Elevation (ft)	Maximum Pond Storage (ac-ft)
119th East Impervious	100Yr 3Hr	100	None	0.880	0.520	8.96	(N/A)	(N/A)
119th East Remainder - Subarea 012	100Yr 3Hr	100	None	0.927	0.800	8.64	(N/A)	(N/A)
119th West Impervious	100Yr 3Hr	100	None	0.578	0.440	5.91	(N/A)	(N/A)
119th West Remainder - Subarea 013	100Yr 3Hr	100	None	0.617	0.780	5.81	(N/A)	(N/A)
J-4	100Yr 3Hr	100	None	13.234	1.040	102.48	(N/A)	(N/A)
J-6	100Yr 3Hr	100	None	3.157	1.060	24.86	(N/A)	(N/A)
O-1	100Yr 3Hr	100	None	24.182	8.200	33.61	(N/A)	(N/A)
O-9	100Yr 3Hr	100	None	0.308	0.680	3.00	(N/A)	(N/A)
SWMF 001 (IN)	100Yr 3Hr	100	None	47.246	0.900	82.09	(N/A)	(N/A)
SWMF 001 (OUT)	100Yr 3Hr	100	None	23.310	8.200	33.61	618.85	26.766
SWMF 002 (IN)	100Yr 3Hr	100	None	40.140	1.920	132.57	(N/A)	(N/A)
SWMF 002 (OUT)	100Yr 3Hr	100	None	37.192	3.620	39.77	622.74	19.254
SWMF 003 (IN)	100Yr 3Hr	100	None	29.516	1.920	100.89	(N/A)	(N/A)
SWMF 003 (OUT)	100Yr 3Hr	100	None	29.513	2.040	99.81	634.10	4.546
SWMF 004 (IN)	100Yr 3Hr	100	None	28.592	0.940	227.76	(N/A)	(N/A)

Scenario Calculation Summary

Executive Summary (Nodes)

Label	Scenario	Return Event (years)	Truncation	Hydrograph Volume (ac-ft)	Time to Peak (hours)	Peak Flow (ft ³ /s)	Maximum Water Surface Elevation (ft)	Maximum Pond Storage (ac-ft)
SWMF 004 (OUT)	100Yr 3Hr	100	None	28.421	1.940	97.82	634.43	11.742
SWMF 005 (IN)	100Yr 3Hr	100	None	2.157	0.600	21.38	(N/A)	(N/A)
SWMF 005 (OUT)	100Yr 3Hr	100	None	2.157	2.120	4.96	626.25	1.294
Subarea 001	100Yr 3Hr	100	None	5.685	0.740	53.96	(N/A)	(N/A)
Subarea 002	100Yr 3Hr	100	None	10.626	0.800	97.83	(N/A)	(N/A)
Subarea 003	100Yr 3Hr	100	None	1.096	0.540	10.97	(N/A)	(N/A)
Subarea 004	100Yr 3Hr	100	None	14.164	0.800	130.23	(N/A)	(N/A)
Subarea 005	100Yr 3Hr	100	None	2.157	0.600	21.38	(N/A)	(N/A)
Subarea 006	100Yr 3Hr	100	None	0.871	0.760	8.26	(N/A)	(N/A)
Subarea 007	100Yr 3Hr	100	None	0.308	0.680	3.00	(N/A)	(N/A)
Subarea ex- 011	100Yr 3Hr	100	None	0.405	0.880	3.63	(N/A)	(N/A)
Subarea ex- 014	100Yr 3Hr	100	None	3.157	1.060	24.86	(N/A)	(N/A)
Subarea ex- 015	100Yr 3Hr	100	None	1.681	0.900	14.76	(N/A)	(N/A)
Subarea ex- 016	100Yr 3Hr	100	None	8.396	1.120	64.21	(N/A)	(N/A)

Executive Summary (Links)

Label	Type	Location	Hydrograph Volume (ac-ft)	Peak Time (hours)	Peak Flow (ft ³ /s)	End Point	Node Flow Direction
Onsite Sewer Reach Route2	Channel	Upstream	3.157	1.060	24.86	J-6	
Onsite Sewer Reach Route2	Channel	Link	3.157	1.080	24.81		
Onsite Sewer Reach Route2	Channel	Downstream	13.234	1.040	102.48	J-4	
Onsite Sewer Reach-Route	Channel	Upstream	13.234	1.040	102.48	J-4	
Onsite Sewer Reach-Route	Channel	Link	13.234	1.100	101.95		
Onsite Sewer Reach-Route	Channel	Downstream	28.592	0.940	227.76	SWMF 004	
SWMF 001 Outlet	Pond Outlet	Upstream	47.246	0.900	82.09	SWMF 001	Pond Inflow
SWMF 001 Outlet	Pond Outlet	Outflow	23.310	8.200	33.61	SWMF 001	Pond Outflow
SWMF 001 Outlet	Pond Outlet	Link	23.310	8.200	33.61		
SWMF 001 Outlet	Pond Outlet	Downstream	24.182	8.200	33.61	O-1	
SWMF 002 Eq.	Pond Outlet	Upstream	40.140	1.920	132.57	SWMF 002	Pond Inflow
SWMF 002 Eq.	Pond Outlet	Outflow	37.192	3.620	39.77	SWMF 002	Pond Outflow
SWMF 002 Eq.	Pond Outlet	Link	37.192	3.620	39.77		
SWMF 002 Eq.	Pond Outlet	Downstream	47.246	0.900	82.09	SWMF 001	
SWMF 003 Outlet	Pond Outlet	Upstream	29.516	1.920	100.89	SWMF 003	Pond Inflow
SWMF 003 Outlet	Pond Outlet	Outflow	29.513	2.040	99.81	SWMF 003	Pond Outflow
SWMF 003 Outlet	Pond Outlet	Link	29.513	2.040	99.81		

Scenario Calculation Summary

Executive Summary (Links)

Label	Type	Location	Hydrograph Volume (ac-ft)	Peak Time (hours)	Peak Flow (ft ³ /s)	End Point	Node Flow Direction
SWMF 003 Outlet	Pond Outlet	Downstream	40.140	1.920	132.57	SWMF 002	
SWMF 004 Eq.	Pond Outlet	Upstream	28.592	0.940	227.76	SWMF 004	Pond Inflow
SWMF 004 Eq.	Pond Outlet	Outflow	28.421	1.940	97.82	SWMF 004	Pond Outflow
SWMF 004 Eq.	Pond Outlet	Link	28.421	1.940	97.82		
SWMF 004 Eq.	Pond Outlet	Downstream	29.516	1.920	100.89	SWMF 003	
SWMF 005 Outlet	Pond Outlet	Upstream	2.157	0.600	21.38	SWMF 005	Pond Inflow
SWMF 005 Outlet	Pond Outlet	Outflow	2.157	2.120	4.96	SWMF 005	Pond Outflow
SWMF 005 Outlet	Pond Outlet	Link	2.157	2.120	4.96		
SWMF 005 Outlet	Pond Outlet	Downstream	47.246	0.900	82.09	SWMF 001	

Messages

Message Id	39
Scenario	100Yr 3Hr
Element Type	Composite Outlet Structure
Element Id	110
Label	SWMF 002
Time	(N/A)
Message	Reverse flow conditions encountered for one or more headwater elevations. Calculated reverse flows may be approximate.
Source	Warning
Message Id	15
Scenario	100Yr 3Hr
Element Type	Composite Outlet Structure
Element Id	111
Label	SWMF 003
Time	(N/A)
Message	Kr (reverse flow entrance loss coefficient) was not specified. Kr was set to same value as Ke= 0.200 .
Source	Warning
Message Id	15
Scenario	100Yr 3Hr
Element Type	Composite Outlet Structure
Element Id	112
Label	SWMF 004
Time	(N/A)
Message	Kr (reverse flow entrance loss coefficient) was not specified. Kr was set to same value as Ke= 0.200 .
Source	Warning
Message Id	39
Scenario	100Yr 3Hr
Element Type	Composite Outlet Structure
Element Id	112
Label	SWMF 004
Time	(N/A)
Message	Reverse flow conditions encountered for one or more headwater elevations. Calculated reverse flows may be approximate.
Source	Warning

Scenario Calculation Summary

Messages

Message Id	1
Scenario	100Yr 3Hr
Element Type	Conduit
Element Id	171
Label	Onsite Sewer Reach-Route
Time	(N/A)
Message	Reach routing link Onsite Sewer Reach-Route is connected to ICPM outfall node SWMF 004.
Source	Warning

Scenario Calculation Summary

Scenario Summary	
ID	21
Label	100Yr 2Hr
Notes	
Active Topology	<I> Base Active Topology
Hydrology	<I> Base Hydrology
Rainfall Runoff	100Yr 2Hr
Physical	<I> Base Physical
Initial Condition	<I> Base Initial Condition
Boundary Condition	<I> With Tailwater
Infiltration and Inflow	<I> Base Infiltration and Inflow
Output	<I> Base Output
User Data Extensions	<I> Base User Data Extensions
PondPack Engine Calculation Options	24Hr

Output Summary			
Output Increment	0.020 hours	Duration	24.000 hours

Rainfall Summary			
Return Event Tag	100	Rainfall Type	Time-Depth Curve
Total Depth	5.0 in	Storm Event	100YR- 2HR

ICPM Output Summary			
Target Convergence	0.00 ft³/s	ICPM Time Step	0.020 hours
Maximum Iterations	35		

Executive Summary (Nodes)

Label	Scenario	Return Event (years)	Truncation	Hydrograph Volume (ac-ft)	Time to Peak (hours)	Peak Flow (ft³/s)	Maximum Water Surface Elevation (ft)	Maximum Pond Storage (ac-ft)
119th East Impervious	100Yr 2Hr	100	None	0.793	0.380	11.84	(N/A)	(N/A)
119th East Remainder - Subarea 012	100Yr 2Hr	100	None	0.786	0.600	10.46	(N/A)	(N/A)
119th West Impervious	100Yr 2Hr	100	None	0.521	0.340	7.97	(N/A)	(N/A)
119th West Remainder - Subarea 013	100Yr 2Hr	100	None	0.523	0.560	7.18	(N/A)	(N/A)
J-4	100Yr 2Hr	100	None	11.519	0.840	111.94	(N/A)	(N/A)
J-6	100Yr 2Hr	100	None	2.738	0.840	27.35	(N/A)	(N/A)
O-1	100Yr 2Hr	100	None	18.037	8.820	28.01	(N/A)	(N/A)
O-9	100Yr 2Hr	100	None	0.270	0.520	3.77	(N/A)	(N/A)
SWMF 001 (IN)	100Yr 2Hr	100	None	41.062	0.600	95.48	(N/A)	(N/A)
SWMF 001 (OUT)	100Yr 2Hr	100	None	17.287	8.820	28.01	618.82	26.609
SWMF 002 (IN)	100Yr 2Hr	100	None	35.098	0.660	137.71	(N/A)	(N/A)
SWMF 002 (OUT)	100Yr 2Hr	100	None	32.294	3.000	36.48	622.06	16.373
SWMF 003 (IN)	100Yr 2Hr	100	None	25.775	0.680	105.90	(N/A)	(N/A)
SWMF 003 (OUT)	100Yr 2Hr	100	None	25.773	1.740	100.97	634.11	4.556
SWMF 004 (IN)	100Yr 2Hr	100	None	24.982	0.720	252.91	(N/A)	(N/A)

Scenario Calculation Summary

Executive Summary (Nodes)

Label	Scenario	Return Event (years)	Truncation	Hydrograph Volume (ac-ft)	Time to Peak (hours)	Peak Flow (ft ³ /s)	Maximum Water Surface Elevation (ft)	Maximum Pond Storage (ac-ft)
SWMF 004 (OUT)	100Yr 2Hr	100	None	24.818	1.620	100.31	634.45	11.790
SWMF 005 (IN)	100Yr 2Hr	100	None	1.892	0.460	27.38	(N/A)	(N/A)
SWMF 005 (OUT)	100Yr 2Hr	100	None	1.892	1.680	4.95	626.22	1.283
Subarea 001	100Yr 2Hr	100	None	4.954	0.580	66.54	(N/A)	(N/A)
Subarea 002	100Yr 2Hr	100	None	9.325	0.640	117.52	(N/A)	(N/A)
Subarea 003	100Yr 2Hr	100	None	0.958	0.440	14.10	(N/A)	(N/A)
Subarea 004	100Yr 2Hr	100	None	12.420	0.640	156.33	(N/A)	(N/A)
Subarea 005	100Yr 2Hr	100	None	1.892	0.460	27.38	(N/A)	(N/A)
Subarea 006	100Yr 2Hr	100	None	0.750	0.560	10.22	(N/A)	(N/A)
Subarea 007	100Yr 2Hr	100	None	0.270	0.520	3.77	(N/A)	(N/A)
Subarea ex- 011	100Yr 2Hr	100	None	0.343	0.680	4.23	(N/A)	(N/A)
Subarea ex- 014	100Yr 2Hr	100	None	2.738	0.840	27.35	(N/A)	(N/A)
Subarea ex- 015	100Yr 2Hr	100	None	1.448	0.720	17.07	(N/A)	(N/A)
Subarea ex- 016	100Yr 2Hr	100	None	7.333	0.920	70.23	(N/A)	(N/A)

Executive Summary (Links)

Label	Type	Location	Hydrograph Volume (ac-ft)	Peak Time (hours)	Peak Flow (ft ³ /s)	End Point	Node Flow Direction
Onsite Sewer Reach Route2	Channel	Upstream	2.738	0.840	27.35	J-6	
Onsite Sewer Reach Route2	Channel	Link	2.738	0.900	27.23		
Onsite Sewer Reach Route2	Channel	Downstream	11.519	0.840	111.94	J-4	
Onsite Sewer Reach-Route	Channel	Upstream	11.519	0.840	111.94	J-4	
Onsite Sewer Reach-Route	Channel	Link	11.519	0.920	110.93		
Onsite Sewer Reach-Route	Channel	Downstream	24.982	0.720	252.91	SWMF 004	
SWMF 001 Outlet	Pond Outlet	Upstream	41.062	0.600	95.48	SWMF 001	Pond Inflow
SWMF 001 Outlet	Pond Outlet	Outflow	17.287	8.820	28.01	SWMF 001	Pond Outflow
SWMF 001 Outlet	Pond Outlet	Link	17.287	8.820	28.01		
SWMF 001 Outlet	Pond Outlet	Downstream	18.037	8.820	28.01	O-1	
SWMF 002 Eq.	Pond Outlet	Upstream	35.098	0.660	137.71	SWMF 002	Pond Inflow
SWMF 002 Eq.	Pond Outlet	Outflow	32.294	3.000	36.48	SWMF 002	Pond Outflow
SWMF 002 Eq.	Pond Outlet	Link	32.292	3.000	36.48		
SWMF 002 Eq.	Pond Outlet	Downstream	41.062	0.600	95.48	SWMF 001	
SWMF 003 Outlet	Pond Outlet	Upstream	25.775	0.680	105.90	SWMF 003	Pond Inflow
SWMF 003 Outlet	Pond Outlet	Outflow	25.773	1.740	100.97	SWMF 003	Pond Outflow
SWMF 003 Outlet	Pond Outlet	Link	25.773	1.740	100.97		

Scenario Calculation Summary

Executive Summary (Links)

Label	Type	Location	Hydrograph Volume (ac-ft)	Peak Time (hours)	Peak Flow (ft ³ /s)	End Point	Node Flow Direction
SWMF 003 Outlet	Pond Outlet	Downstream	35.098	0.660	137.71	SWMF 002	
SWMF 004 Eq.	Pond Outlet	Upstream	24.982	0.720	252.91	SWMF 004	Pond Inflow
SWMF 004 Eq.	Pond Outlet	Outflow	24.818	1.620	100.31	SWMF 004	Pond Outflow
SWMF 004 Eq.	Pond Outlet	Link	24.818	1.620	100.31		
SWMF 004 Eq.	Pond Outlet	Downstream	25.775	0.680	105.90	SWMF 003	
SWMF 005 Outlet	Pond Outlet	Upstream	1.892	0.460	27.38	SWMF 005	Pond Inflow
SWMF 005 Outlet	Pond Outlet	Outflow	1.892	1.680	4.95	SWMF 005	Pond Outflow
SWMF 005 Outlet	Pond Outlet	Link	1.892	1.680	4.95		
SWMF 005 Outlet	Pond Outlet	Downstream	41.062	0.600	95.48	SWMF 001	

Messages

Message Id	39
Scenario	100Yr 2Hr
Element Type	Composite Outlet Structure
Element Id	110
Label	SWMF 002
Time	(N/A)
Message	Reverse flow conditions encountered for one or more headwater elevations. Calculated reverse flows may be approximate.
Source	Warning
Message Id	15
Scenario	100Yr 2Hr
Element Type	Composite Outlet Structure
Element Id	111
Label	SWMF 003
Time	(N/A)
Message	Kr (reverse flow entrance loss coefficient) was not specified. Kr was set to same value as Ke= 0.200 .
Source	Warning
Message Id	15
Scenario	100Yr 2Hr
Element Type	Composite Outlet Structure
Element Id	112
Label	SWMF 004
Time	(N/A)
Message	Kr (reverse flow entrance loss coefficient) was not specified. Kr was set to same value as Ke= 0.200 .
Source	Warning
Message Id	39
Scenario	100Yr 2Hr
Element Type	Composite Outlet Structure
Element Id	112
Label	SWMF 004
Time	(N/A)
Message	Reverse flow conditions encountered for one or more headwater elevations. Calculated reverse flows may be approximate.
Source	Warning

Scenario Calculation Summary

Messages

Message Id	1
Scenario	100Yr 2Hr
Element Type	Conduit
Element Id	171
Label	Onsite Sewer Reach-Route
Time	(N/A)
Message	Reach routing link Onsite Sewer Reach-Route is connected to ICPM outfall node SWMF 004.
Source	Warning

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119th West Impervious

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119th West Remainder - Subarea 013

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Storm Event	100YR-18HR
Return Event	100 years
Duration	72.000 hours
Depth	8.1 in
Time of Concentration (Composite)	0.150 hours
Area (User Defined)	2.010 acres
Computational Time Increment	0.020 hours
Time to Peak (Computed)	11.240 hours
Flow (Peak, Computed)	1.94 ft ³ /s
Output Increment	0.020 hours
Time to Flow (Peak Interpolated Output)	11.240 hours
Flow (Peak Interpolated Output)	1.94 ft ³ /s
Drainage Area	
SCS CN (Composite)	98.000
Area (User Defined)	2.010 acres
Maximum Retention (Pervious)	0.2 in
Maximum Retention (Pervious, 20 percent)	0.0 in
Cumulative Runoff	
Cumulative Runoff Depth (Pervious)	7.8 in
Runoff Volume (Pervious)	1.310 ac-ft
Hydrograph Volume (Area under Hydrograph curve)	
Volume	1.310 ac-ft
SCS Unit Hydrograph Parameters	
Time of Concentration (Composite)	0.150 hours
Computational Time Increment	0.020 hours
Unit Hydrograph Shape Factor	483.432
K Factor	0.749
Receding/Rising, Tr/Tp	1.670
Unit peak, qp	15.18 ft ³ /s
Unit peak time, Tp	0.100 hours
Unit receding limb, Tr	0.400 hours
Total unit time, Tb	0.500 hours

Storm Event	100YR-18HR
Return Event	100 years
Duration	72.000 hours
Depth	8.1 in
Time of Concentration (Composite)	0.200 hours
Area (User Defined)	4.030 acres
Computational Time Increment	0.027 hours
Time to Peak (Computed)	12.027 hours
Flow (Peak, Computed)	3.18 ft ³ /s
Output Increment	0.020 hours
Time to Flow (Peak Interpolated Output)	12.020 hours
Flow (Peak Interpolated Output)	3.18 ft ³ /s
Drainage Area	
SCS CN (Composite)	74.000
Area (User Defined)	4.030 acres
Maximum Retention (Pervious)	3.5 in
Maximum Retention (Pervious, 20 percent)	0.7 in
Cumulative Runoff	
Cumulative Runoff Depth (Pervious)	5.0 in
Runoff Volume (Pervious)	1.672 ac-ft
Hydrograph Volume (Area under Hydrograph curve)	
Volume	1.672 ac-ft
SCS Unit Hydrograph Parameters	
Time of Concentration (Composite)	0.200 hours
Computational Time Increment	0.027 hours
Unit Hydrograph Shape Factor	483.432
K Factor	0.749
Receding/Rising, Tr/Tp	1.670
Unit peak, qp	22.83 ft ³ /s
Unit peak time, Tp	0.133 hours
Unit receding limb, Tr	0.533 hours
Total unit time, Tb	0.667 hours

Storm Event	100YR-18HR
Return Event	100 years
Duration	72.000 hours
Depth	8.1 in
Time of Concentration (Composite)	0.100 hours
Area (User Defined)	1.320 acres
Computational Time Increment	0.013 hours
Time to Peak (Computed)	11.240 hours
Flow (Peak, Computed)	1.27 ft ³ /s
Output Increment	0.020 hours
Time to Flow (Peak Interpolated Output)	11.240 hours
Flow (Peak Interpolated Output)	1.27 ft ³ /s
Drainage Area	
SCS CN (Composite)	98.000
Area (User Defined)	1.320 acres
Maximum Retention (Pervious)	0.2 in
Maximum Retention (Pervious, 20 percent)	0.0 in
Cumulative Runoff	
Cumulative Runoff Depth (Pervious)	7.8 in
Runoff Volume (Pervious)	0.860 ac-ft
Hydrograph Volume (Area under Hydrograph curve)	
Volume	0.860 ac-ft
SCS Unit Hydrograph Parameters	
Time of Concentration (Composite)	0.100 hours
Computational Time Increment	0.013 hours
Unit Hydrograph Shape Factor	483.432
K Factor	0.749
Receding/Rising, Tr/Tp	1.670
Unit peak, qp	14.96 ft ³ /s
Unit peak time, Tp	0.067 hours
Unit receding limb, Tr	0.267 hours
Total unit time, Tb	0.333 hours

Storm Event	100YR-18HR
Return Event	100 years
Duration	72.000 hours
Depth	8.1 in
Time of Concentration (Composite)	0.150 hours
Area (User Defined)	2.680 acres
Computational Time Increment	0.020 hours
Time to Peak (Computed)	12.020 hours
Flow (Peak, Computed)	2.12 ft ³ /s
Output Increment	0.020 hours
Time to Flow (Peak Interpolated Output)	12.020 hours
Flow (Peak Interpolated Output)	2.12 ft ³ /s
Drainage Area	
SCS CN (Composite)	74.000
Area (User Defined)	2.680 acres
Maximum Retention (Pervious)	3.5 in
Maximum Retention (Pervious, 20 percent)	0.7 in
Cumulative Runoff	
Cumulative Runoff Depth (Pervious)	5.0 in
Runoff Volume (Pervious)	1.112 ac-ft
Hydrograph Volume (Area under Hydrograph curve)	
Volume	1.112 ac-ft
SCS Unit Hydrograph Parameters	
Time of Concentration (Composite)	0.150 hours
Computational Time Increment	0.020 hours
Unit Hydrograph Shape Factor	483.432
K Factor	0.749
Receding/Rising, Tr/Tp	1.670
Unit peak, qp	20.24 ft ³ /s
Unit peak time, Tp	0.100 hours
Unit receding limb, Tr	0.400 hours
Total unit time, Tb	0.500 hours

Storm Event	100YR-18HR
Return Event	100 years
Duration	72.000 hours
Depth	8.1 in
Time of Concentration (Composite)	0.250 hours
Area (User Defined)	18.330 acres
Computational Time Increment	0.033 hours
Time to Peak (Computed)	12.000 hours
Flow (Peak, Computed)	16.30 ft ³ /s
Output Increment	0.020 hours
Time to Flow (Peak Interpolated Output)	12.000 hours
Flow (Peak Interpolated Output)	16.30 ft ³ /s
Drainage Area	
SCS CN (Composite)	84.000
Area (User Defined)	18.330 acres
Maximum Retention (Pervious)	1.9 in
Maximum Retention (Pervious, 20 percent)	0.4 in
Cumulative Runoff	
Cumulative Runoff Depth (Pervious)	6.2 in
Runoff Volume (Pervious)	9.398 ac-ft
Hydrograph Volume (Area under Hydrograph curve)	
Volume	9.398 ac-ft
SCS Unit Hydrograph Parameters	
Time of Concentration (Composite)	0.250 hours
Computational Time Increment	0.033 hours
Unit Hydrograph Shape Factor	483.432
K Factor	0.749
Receding/Rising, Tr/Tp	1.670
Unit peak, qp	83.07 ft ³ /s
Unit peak time, Tp	0.167 hours
Unit receding limb, Tr	0.667 hours
Total unit time, Tb	0.833 hours

Storm Event	100YR-18HR
Return Event	100 years
Duration	72.000 hours
Depth	8.1 in
Time of Concentration (Composite)	0.350 hours
Area (User Defined)	31.800 acres
Computational Time Increment	0.047 hours
Time to Peak (Computed)	11.993 hours
Flow (Peak, Computed)	28.93 ft ³ /s
Output Increment	0.020 hours
Time to Flow (Peak Interpolated Output)	12.000 hours
Flow (Peak Interpolated Output)	28.93 ft ³ /s
Drainage Area	
SCS CN (Composite)	86.800
Area (User Defined)	31.800 acres
Maximum Retention (Pervious)	1.5 in
Maximum Retention (Pervious, 20 percent)	0.3 in
Cumulative Runoff	
Cumulative Runoff Depth (Pervious)	6.5 in
Runoff Volume (Pervious)	17.184 ac-ft
Hydrograph Volume (Area under Hydrograph curve)	
Volume	17.184 ac-ft
SCS Unit Hydrograph Parameters	
Time of Concentration (Composite)	0.350 hours
Computational Time Increment	0.047 hours
Unit Hydrograph Shape Factor	483.432
K Factor	0.749
Receding/Rising, Tr/Tp	1.670
Unit peak, qp	102.95 ft ³ /s
Unit peak time, Tp	0.233 hours
Unit receding limb, Tr	0.933 hours
Total unit time, Tb	1.167 hours

Storm Event	100YR-18HR
Return Event	100 years
Duration	72.000 hours
Depth	8.1 in
Time of Concentration (Composite)	0.100 hours
Area (User Defined)	3.420 acres
Computational Time Increment	0.013 hours
Time to Peak (Computed)	12.000 hours
Flow (Peak, Computed)	3.08 ft ³ /s
Output Increment	0.020 hours
Time to Flow (Peak Interpolated Output)	12.000 hours
Flow (Peak Interpolated Output)	3.08 ft ³ /s
Drainage Area	
SCS CN (Composite)	85.200
Area (User Defined)	3.420 acres
Maximum Retention (Pervious)	1.7 in
Maximum Retention (Pervious, 20 percent)	0.3 in
Cumulative Runoff	
Cumulative Runoff Depth (Pervious)	6.3 in
Runoff Volume (Pervious)	1.794 ac-ft
Hydrograph Volume (Area under Hydrograph curve)	
Volume	1.794 ac-ft
SCS Unit Hydrograph Parameters	
Time of Concentration (Composite)	0.100 hours
Computational Time Increment	0.013 hours
Unit Hydrograph Shape Factor	483.432
K Factor	0.749
Receding/Rising, Tr/Tp	1.670
Unit peak, qp	38.75 ft ³ /s
Unit peak time, Tp	0.067 hours
Unit receding limb, Tr	0.267 hours
Total unit time, Tb	0.333 hours

Storm Event	100YR-18HR
Return Event	100 years
Duration	72.000 hours
Depth	8.1 in
Time of Concentration (Composite)	0.350 hours
Area (User Defined)	42.720 acres
Computational Time Increment	0.047 hours
Time to Peak (Computed)	11.993 hours
Flow (Peak, Computed)	38.78 ft ³ /s
Output Increment	0.020 hours
Time to Flow (Peak Interpolated Output)	12.000 hours
Flow (Peak Interpolated Output)	38.78 ft ³ /s
Drainage Area	
SCS CN (Composite)	86.500
Area (User Defined)	42.720 acres
Maximum Retention (Pervious)	1.6 in
Maximum Retention (Pervious, 20 percent)	0.3 in
Cumulative Runoff	
Cumulative Runoff Depth (Pervious)	6.4 in
Runoff Volume (Pervious)	22.958 ac-ft
Hydrograph Volume (Area under Hydrograph curve)	
Volume	22.958 ac-ft
SCS Unit Hydrograph Parameters	
Time of Concentration (Composite)	0.350 hours
Computational Time Increment	0.047 hours
Unit Hydrograph Shape Factor	483.432
K Factor	0.749
Receding/Rising, Tr/Tp	1.670
Unit peak, qp	138.30 ft ³ /s
Unit peak time, Tp	0.233 hours
Unit receding limb, Tr	0.933 hours
Total unit time, Tb	1.167 hours

Storm Event	100YR-18HR
Return Event	100 years
Duration	72.000 hours
Depth	8.1 in
Time of Concentration (Composite)	0.150 hours
Area (User Defined)	6.490 acres
Computational Time Increment	0.020 hours
Time to Peak (Computed)	12.000 hours
Flow (Peak, Computed)	5.91 ft ³ /s
Output Increment	0.020 hours
Time to Flow (Peak Interpolated Output)	12.000 hours
Flow (Peak Interpolated Output)	5.91 ft ³ /s
Drainage Area	
SCS CN (Composite)	86.600
Area (User Defined)	6.490 acres
Maximum Retention (Pervious)	1.5 in
Maximum Retention (Pervious, 20 percent)	0.3 in
Cumulative Runoff	
Cumulative Runoff Depth (Pervious)	6.5 in
Runoff Volume (Pervious)	3.494 ac-ft
Hydrograph Volume (Area under Hydrograph curve)	
Volume	3.494 ac-ft
SCS Unit Hydrograph Parameters	
Time of Concentration (Composite)	0.150 hours
Computational Time Increment	0.020 hours
Unit Hydrograph Shape Factor	483.432
K Factor	0.749
Receding/Rising, Tr/Tp	1.670
Unit peak, qp	49.02 ft ³ /s
Unit peak time, Tp	0.100 hours
Unit receding limb, Tr	0.400 hours
Total unit time, Tb	0.500 hours

Storm Event	100YR-18HR
Return Event	100 years
Duration	72.000 hours
Depth	8.1 in
Time of Concentration (Composite)	0.200 hours
Area (User Defined)	3.220 acres
Computational Time Increment	0.027 hours
Time to Peak (Computed)	12.000 hours
Flow (Peak, Computed)	2.72 ft ³ /s
Output Increment	0.020 hours
Time to Flow (Peak Interpolated Output)	12.000 hours
Flow (Peak Interpolated Output)	2.72 ft ³ /s
Drainage Area	
SCS CN (Composite)	79.200
Area (User Defined)	3.220 acres
Maximum Retention (Pervious)	2.6 in
Maximum Retention (Pervious, 20 percent)	0.5 in
Cumulative Runoff	
Cumulative Runoff Depth (Pervious)	5.6 in
Runoff Volume (Pervious)	1.499 ac-ft
Hydrograph Volume (Area under Hydrograph curve)	
Volume	1.499 ac-ft
SCS Unit Hydrograph Parameters	
Time of Concentration (Composite)	0.200 hours
Computational Time Increment	0.027 hours
Unit Hydrograph Shape Factor	483.432
K Factor	0.749
Receding/Rising, Tr/Tp	1.670
Unit peak, qp	18.24 ft ³ /s
Unit peak time, Tp	0.133 hours
Unit receding limb, Tr	0.533 hours
Total unit time, Tb	0.667 hours

Storm Event	100YR-18HR
Return Event	100 years
Duration	72.000 hours
Depth	8.1 in
Time of Concentration (Composite)	0.200 hours
Area (User Defined)	0.950 acres
Computational Time Increment	0.027 hours
Time to Peak (Computed)	12.000 hours
Flow (Peak, Computed)	0.86 ft ³ /s
Output Increment	0.020 hours
Time to Flow (Peak Interpolated Output)	12.000 hours
Flow (Peak Interpolated Output)	0.86 ft ³ /s
Drainage Area	
SCS CN (Composite)	85.700
Area (User Defined)	0.950 acres
Maximum Retention (Pervious)	1.7 in
Maximum Retention (Pervious, 20 percent)	0.3 in
Cumulative Runoff	
Cumulative Runoff Depth (Pervious)	6.4 in
Runoff Volume (Pervious)	0.503 ac-ft
Hydrograph Volume (Area under Hydrograph curve)	
Volume	0.503 ac-ft
SCS Unit Hydrograph Parameters	
Time of Concentration (Composite)	0.200 hours
Computational Time Increment	0.027 hours
Unit Hydrograph Shape Factor	483.432
K Factor	0.749
Receding/Rising, Tr/Tp	1.670
Unit peak, qp	5.38 ft ³ /s
Unit peak time, Tp	0.133 hours
Unit receding limb, Tr	0.533 hours
Total unit time, Tb	0.667 hours

Storm Event	100YR-18HR
Return Event	100 years
Duration	72.000 hours
Depth	8.1 in
Time of Concentration (Composite)	0.300 hours
Area (User Defined)	1.760 acres
Computational Time Increment	0.040 hours
Time to Peak (Computed)	12.040 hours
Flow (Peak, Computed)	1.38 ft ³ /s
Output Increment	0.020 hours
Time to Flow (Peak Interpolated Output)	12.040 hours
Flow (Peak Interpolated Output)	1.38 ft ³ /s
Drainage Area	
SCS CN (Composite)	74.000
Area (User Defined)	1.760 acres
Maximum Retention (Pervious)	3.5 in
Maximum Retention (Pervious, 20 percent)	0.7 in
Cumulative Runoff	
Cumulative Runoff Depth (Pervious)	5.0 in
Runoff Volume (Pervious)	0.730 ac-ft
Hydrograph Volume (Area under Hydrograph curve)	
Volume	0.730 ac-ft
SCS Unit Hydrograph Parameters	
Time of Concentration (Composite)	0.300 hours
Computational Time Increment	0.040 hours
Unit Hydrograph Shape Factor	483.432
K Factor	0.749
Receding/Rising, Tr/Tp	1.670
Unit peak, qp	6.65 ft ³ /s
Unit peak time, Tp	0.200 hours
Unit receding limb, Tr	0.800 hours
Total unit time, Tb	1.000 hours

Storm Event	100YR-18HR
Return Event	100 years
Duration	72.000 hours
Depth	8.1 in
Time of Concentration (Composite)	0.620 hours
Area (User Defined)	10.730 acres
Computational Time Increment	0.083 hours
Time to Peak (Computed)	12.069 hours
Flow (Peak, Computed)	9.30 ft ³ /s
Output Increment	0.020 hours
Time to Flow (Peak Interpolated Output)	12.080 hours
Flow (Peak Interpolated Output)	9.29 ft ³ /s
Drainage Area	
SCS CN (Composite)	82.100
Area (User Defined)	10.730 acres
Maximum Retention (Pervious)	2.2 in
Maximum Retention (Pervious, 20 percent)	0.4 in
Cumulative Runoff	
Cumulative Runoff Depth (Pervious)	5.9 in
Runoff Volume (Pervious)	5.301 ac-ft
Hydrograph Volume (Area under Hydrograph curve)	
Volume	5.301 ac-ft
SCS Unit Hydrograph Parameters	
Time of Concentration (Composite)	0.620 hours
Computational Time Increment	0.083 hours
Unit Hydrograph Shape Factor	483.432
K Factor	0.749
Receding/Rising, Tr/Tp	1.670
Unit peak, qp	19.61 ft ³ /s
Unit peak time, Tp	0.413 hours
Unit receding limb, Tr	1.653 hours
Total unit time, Tb	2.067 hours

Storm Event	100YR-18HR
Return Event	100 years
Duration	72.000 hours
Depth	8.1 in
Time of Concentration (Composite)	0.390 hours
Area (User Defined)	6.140 acres
Computational Time Increment	0.052 hours
Time to Peak (Computed)	12.064 hours
Flow (Peak, Computed)	5.19 ft ³ /s
Output Increment	0.020 hours
Time to Flow (Peak Interpolated Output)	12.060 hours
Flow (Peak Interpolated Output)	5.19 ft ³ /s
Drainage Area	
SCS CN (Composite)	79.600
Area (User Defined)	6.140 acres
Maximum Retention (Pervious)	2.6 in
Maximum Retention (Pervious, 20 percent)	0.5 in
Cumulative Runoff	
Cumulative Runoff Depth (Pervious)	5.6 in
Runoff Volume (Pervious)	2.883 ac-ft
Hydrograph Volume (Area under Hydrograph curve)	
Volume	2.883 ac-ft
SCS Unit Hydrograph Parameters	
Time of Concentration (Composite)	0.390 hours
Computational Time Increment	0.052 hours
Unit Hydrograph Shape Factor	483.432
K Factor	0.749
Receding/Rising, Tr/Tp	1.670
Unit peak, qp	17.84 ft ³ /s
Unit peak time, Tp	0.260 hours
Unit receding limb, Tr	1.040 hours
Total unit time, Tb	1.300 hours

Storm Event	100YR-18HR
Return Event	100 years
Duration	72.000 hours
Depth	8.1 in
Time of Concentration (Composite)	0.700 hours
Area (User Defined)	26.420 acres
Computational Time Increment	0.093 hours
Time to Peak (Computed)	12.133 hours
Flow (Peak, Computed)	23.51 ft ³ /s
Output Increment	0.020 hours
Time to Flow (Peak Interpolated Output)	12.120 hours
Flow (Peak Interpolated Output)	23.51 ft ³ /s
Drainage Area	
SCS CN (Composite)	84.900
Area (User Defined)	26.420 acres
Maximum Retention (Pervious)	1.8 in
Maximum Retention (Pervious, 20 percent)	0.4 in
Cumulative Runoff	
Cumulative Runoff Depth (Pervious)	6.3 in
Runoff Volume (Pervious)	13.781 ac-ft
Hydrograph Volume (Area under Hydrograph curve)	
Volume	13.781 ac-ft
SCS Unit Hydrograph Parameters	
Time of Concentration (Composite)	0.700 hours
Computational Time Increment	0.093 hours
Unit Hydrograph Shape Factor	483.432
K Factor	0.749
Receding/Rising, Tr/Tp	1.670
Unit peak, qp	42.76 ft ³ /s
Unit peak time, Tp	0.467 hours
Unit receding limb, Tr	1.867 hours
Total unit time, Tb	2.333 hours

Time-Depth Curve: 100YR- 2HR	
Label	100YR- 2HR
Start Time	0.000 hours
Increment	0.083 hours
End Time	1.999 hours
Return Event	100 years

CUMULATIVE RAINFALL (in)
Output Time Increment = 0.083 hours
Time on left represents time for first value in each row.

Time (hours)	Depth (in)	Depth (in)	Depth (in)	Depth (in)	Depth (in)
0.000	0.0	0.4	0.9	1.4	1.9
0.417	2.4	2.8	3.1	3.3	3.5
0.833	3.7	3.8	4.0	4.1	4.2
1.250	4.3	4.4	4.5	4.6	4.7
1.666	4.7	4.8	4.9	4.9	5.0

Time-Depth Curve: 100YR- 3HR	
Label	100YR- 3HR
Start Time	0.000 hours
Increment	0.125 hours
End Time	3.000 hours
Return Event	100 years

CUMULATIVE RAINFALL (in)
Output Time Increment = 0.125 hours
Time on left represents time for first value in each row.

Time (hours)	Depth (in)	Depth (in)	Depth (in)	Depth (in)	Depth (in)
0.000	0.0	0.5	1.0	1.5	2.1
0.625	2.6	3.0	3.4	3.7	3.9
1.250	4.1	4.2	4.4	4.5	4.7
1.875	4.8	4.9	5.0	5.1	5.2
2.500	5.2	5.3	5.4	5.4	5.5

Time-Depth Curve: 100YR-18HR	
Label	100YR-18HR
Start Time	0.000 hours
Increment	0.750 hours
End Time	18.000 hours
Return Event	100 years

CUMULATIVE RAINFALL (in)
Output Time Increment = 0.750 hours
Time on left represents time for first value in each row.

Time (hours)	Depth (in)	Depth (in)	Depth (in)	Depth (in)	Depth (in)
0.000	0.0	0.2	0.3	0.5	0.7
3.750	0.9	1.2	1.4	1.6	1.8
7.500	2.1	2.5	2.9	3.5	4.2
11.250	4.9	5.6	6.3	6.8	7.2
15.000	7.5	7.7	7.8	7.9	8.1

Time-Depth Curve: 100YR-24HR	
Label	100YR-24HR
Start Time	0.000 hours
Increment	1.000 hours
End Time	24.000 hours
Return Event	100 years

CUMULATIVE RAINFALL (in)
Output Time Increment = 1.000 hours
Time on left represents time for first value in each row.

Time (hours)	Depth (in)	Depth (in)	Depth (in)	Depth (in)	Depth (in)
0.000	0.0	0.2	0.4	0.6	0.8
5.000	1.0	1.2	1.4	1.7	2.0
10.000	2.3	2.7	3.1	3.8	4.5
15.000	5.2	6.0	6.7	7.3	7.7
20.000	8.0	8.2	8.3	8.4	8.6

Requested Pond Water Surface Elevations	
Minimum (Headwater)	617.50 ft
Increment (Headwater)	0.10 ft
Maximum (Headwater)	624.50 ft

Outlet Connectivity

Structure Type	Outlet ID	Direction	Outfall	E1 (ft)	E2 (ft)
Orifice-Circular	Orifice - 1	Forward + Reverse	TW	617.51	624.50
Rectangular Weir	Weir - 1	Forward + Reverse	TW	622.80	624.50
Tailwater Settings	Tailwater			(N/A)	(N/A)

Structure ID: Orifice - 1	
Structure Type: Orifice-Circular	
Number of Openings	1
Elevation	617.30 ft
Orifice Diameter	27.00 in
Orifice Coefficient	0.600
Structure ID: Weir - 1	
Structure Type: Rectangular Weir	
Number of Openings	1
Elevation	622.80 ft
Weir Length	6.00 ft
Weir Coefficient	3.00 (ft ^{0.5})/s

Requested Pond Water Surface Elevations	
Minimum (Headwater)	628.00 ft
Increment (Headwater)	0.10 ft
Maximum (Headwater)	635.00 ft

Outlet Connectivity

Structure Type	Outlet ID	Direction	Outfall	E1 (ft)	E2 (ft)
Culvert-Circular	Sewer	Forward + Reverse	TW	634.30	635.00
Orifice-Circular	Orifice - 1	Forward + Reverse	TW	628.01	634.30
Rectangular Weir	Internal Weir	Forward + Reverse	TW	633.00	634.30
Irregular Weir	Berm Spillway	Forward + Reverse	TW	633.50	635.00
Tailwater Settings	Tailwater			(N/A)	(N/A)

Structure ID: Orifice - 1	
Structure Type: Orifice-Circular	
Number of Openings	1
Elevation	627.50 ft
Orifice Diameter	23.50 in
Orifice Coefficient	0.600
Structure ID: Internal Weir	
Structure Type: Rectangular Weir	
Number of Openings	1
Elevation	633.00 ft
Weir Length	6.00 ft
Weir Coefficient	3.00 (ft^0.5)/s

Structure ID: Sewer	
Structure Type: Culvert-Circular	
Number of Barrels	1
Diameter	42.00 in
Length	1,185.00 ft
Length (Computed Barrel)	1,185.04 ft
Slope (Computed)	0.008 ft/ft
Outlet Control Data	
Manning's n	0.013
Ke	0.200
Kb	0.006
Kr	0.000
Convergence Tolerance	0.00 ft
Inlet Control Data	
Equation Form	Form 1
K	0.0045
M	2.0000
C	0.0317
Y	0.6900
T1 ratio (HW/D)	1.091
T2 ratio (HW/D)	1.193
Slope Correction Factor	-0.500

Use unsubmerged inlet control 0 equation below T1 elevation.
Use submerged inlet control 0 equation above T2 elevation

In transition zone between unsubmerged and submerged inlet control,
interpolate between flows at T1 & T2...

T1 Elevation	631.32 ft	T1 Flow	63.00 ft³/s
T2 Elevation	631.68 ft	T2 Flow	72.00 ft³/s

Structure ID: Berm Spillway
Structure Type: Irregular Weir

Station (ft)	Elevation (ft)
0.00	635.00
8.00	633.50
38.00	633.50
46.00	635.00

Lowest Elevation 633.50 ft
Weir Coefficient 3.00 (ft^{0.5})/s

Requested Pond Water Surface Elevations	
Minimum (Headwater)	628.00 ft
Increment (Headwater)	0.10 ft
Maximum (Headwater)	635.00 ft

Outlet Connectivity

Structure Type	Outlet ID	Direction	Outfall	E1 (ft)	E2 (ft)
Culvert-Circular	Culvert - 2	Forward + Reverse	TW	628.00	635.00
Culvert-Circular	Culvert - 1	Forward + Reverse	TW	628.00	635.00
Tailwater Settings	Tailwater			(N/A)	(N/A)

Structure ID: Culvert - 1	
Structure Type: Culvert-Circular	
Number of Barrels	2
Diameter	42.00 in
Length	200.00 ft
Length (Computed Barrel)	200.00 ft
Slope (Computed)	0.000 ft/ft
Outlet Control Data	
Manning's n	0.013
Ke	0.200
Kb	0.006
Kr	0.200
Convergence Tolerance	0.00 ft
Inlet Control Data	
Equation Form	Form 1
K	0.0045
M	2.0000
C	0.0317
Y	0.6900
T1 ratio (HW/D)	1.095
T2 ratio (HW/D)	1.197
Slope Correction Factor	-0.500

Use unsubmerged inlet control 0 equation below T1 elevation.
Use submerged inlet control 0 equation above T2 elevation

In transition zone between unsubmerged and submerged inlet control,
interpolate between flows at T1 & T2...

T1 Elevation	631.83 ft	T1 Flow	63.00 ft³/s
T2 Elevation	632.19 ft	T2 Flow	72.00 ft³/s

Structure ID: Culvert - 2	
Structure Type: Culvert-Circular	
Number of Barrels	2
Diameter	36.00 in
Length	200.00 ft
Length (Computed Barrel)	200.00 ft
Slope (Computed)	0.000 ft/ft
Outlet Control Data	
Manning's n	0.013
Ke	0.200
Kb	0.007
Kr	0.000
Convergence Tolerance	0.00 ft
Inlet Control Data	
Equation Form	Form 1
K	0.0045
M	2.0000
C	0.0317
Y	0.6900
T1 ratio (HW/D)	1.095
T2 ratio (HW/D)	1.197
Slope Correction Factor	-0.500

Use unsubmerged inlet control 0 equation below T1 elevation.
Use submerged inlet control 0 equation above T2 elevation

In transition zone between unsubmerged and submerged inlet control,
interpolate between flows at T1 & T2...

T1 Elevation	631.29 ft	T1 Flow	42.85 ft³/s
T2 Elevation	631.59 ft	T2 Flow	48.97 ft³/s

Requested Pond Water Surface Elevations	
Minimum (Headwater)	621.00 ft
Increment (Headwater)	0.10 ft
Maximum (Headwater)	627.00 ft

Outlet Connectivity

Structure Type	Outlet ID	Direction	Outfall	E1 (ft)	E2 (ft)
Orifice-Circular	Orifice - 2	Forward + Reverse	TW	625.40	627.00
Orifice-Circular	Orifice - 1	Forward + Reverse	TW	621.01	625.40
Rectangular Weir	Weir - 1	Forward + Reverse	TW	625.00	625.40
Tailwater Settings	Tailwater			(N/A)	(N/A)

Structure ID: Orifice - 1	
Structure Type: Orifice-Circular	
Number of Openings	1
Elevation	617.20 ft
Orifice Diameter	4.00 in
Orifice Coefficient	0.600
Structure ID: Weir - 1	
Structure Type: Rectangular Weir	
Number of Openings	1
Elevation	625.00 ft
Weir Length	6.00 ft
Weir Coefficient	3.00 (ft ^{0.5})/s
Structure ID: Orifice - 2	
Structure Type: Orifice-Circular	
Number of Openings	1
Elevation	617.20 ft
Orifice Diameter	8.00 in
Orifice Coefficient	0.600

Requested Pond Water Surface Elevations	
Minimum (Headwater)	612.50 ft
Increment (Headwater)	0.10 ft
Maximum (Headwater)	619.00 ft

Outlet Connectivity

Structure Type	Outlet ID	Direction	Outfall	E1 (ft)	E2 (ft)
Irregular Weir	Emergency Spillway	Forward + Reverse	TW	618.00	619.00
Tailwater Settings	Tailwater			(N/A)	(N/A)

Structure ID: Emergency Spillway
Structure Type: Irregular Weir

Station (ft)	Elevation (ft)
0.00	619.00
5.00	618.70
55.00	618.70
60.00	618.00
65.00	618.00
70.00	618.70
120.00	618.70
125.00	619.00

Lowest Elevation 618.00 ft
Weir Coefficient 2.50 (ft^0.5)/s

Elevation-Volume

Pond Elevation (ft)		Pond Volume (ac-ft)	
	612.50		0.000
	613.00		1.493
	614.00		4.777
	615.00		8.470
	616.00		12.595
	617.00		17.167
	618.00		22.189
	619.00		27.591

Elevation-Volume

Pond Elevation (ft)		Pond Volume (ac-ft)	
	617.50		0.000
	618.00		1.572
	619.00		4.876
	620.00		8.398
	621.00		12.144
	622.00		16.120
	623.00		20.333
	623.50		22.530
	624.50		27.066

Elevation-Volume

Pond Elevation (ft)		Pond Volume (ac-ft)	
	628.00		0.000
	629.00		0.416
	630.00		0.950
	631.00		1.611
	632.00		2.407
	633.00		3.344
	634.00		4.428
	635.00		5.638

Elevation-Volume

Pond Elevation (ft)		Pond Volume (ac-ft)	
	628.00		0.000
	629.00		1.370
	630.00		2.900
	631.00		4.595
	632.00		6.461
	633.00		8.503
	634.00		10.726
	635.00		13.105

Elevation-Volume

Pond Elevation (ft)		Pond Volume (ac-ft)	
	621.00		0.000
	622.00		0.072
	623.00		0.245
	624.00		0.482
	625.00		0.790
	626.00		1.180
	627.00		1.644

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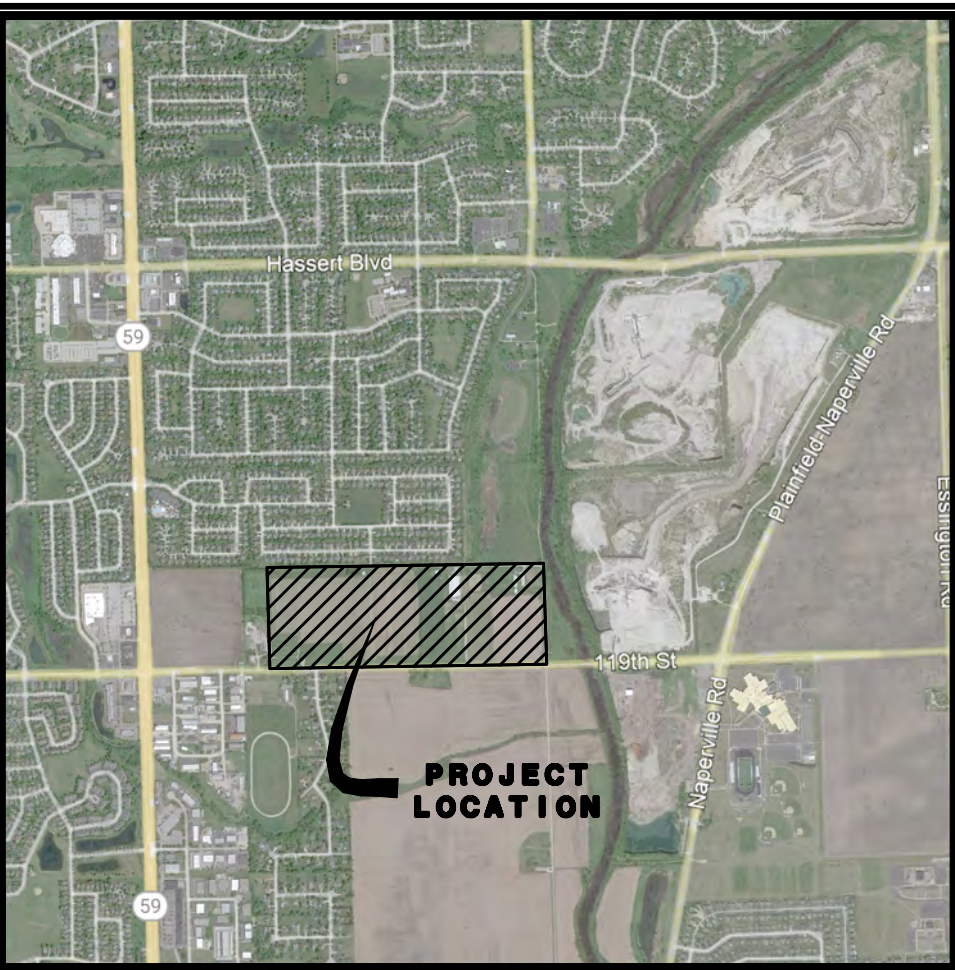
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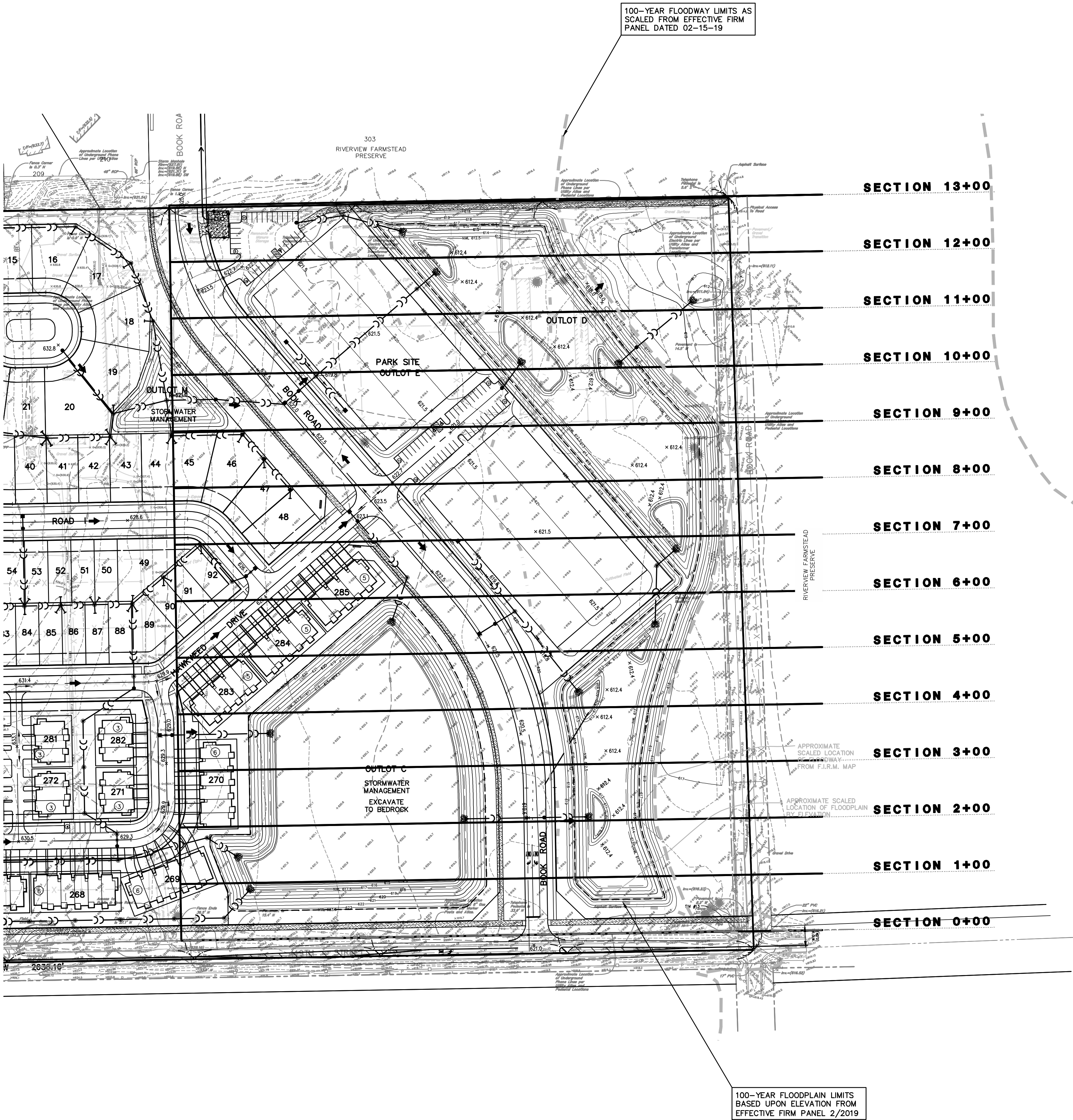
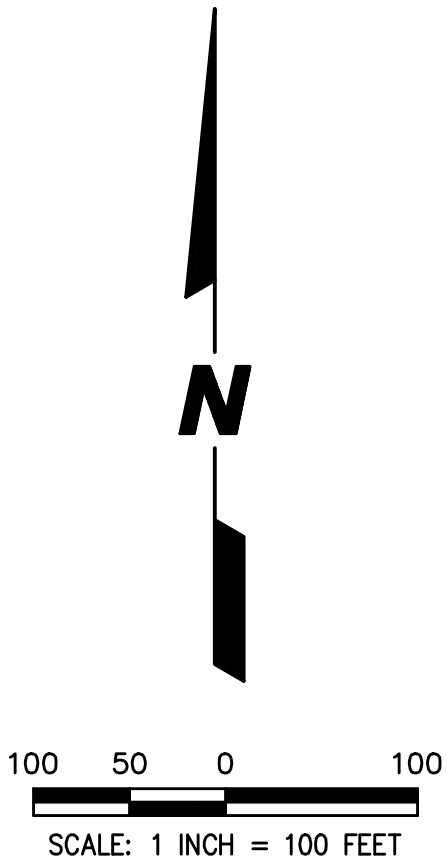
EXHIBIT J

PROPOSED CONDITIONS FLOODPLAIN CROSS-SECTIONS EXHIBIT



LOCATION MAP

PRELIMINARY FLOODPLAIN SECTIONS
FOR
POLO CLUB



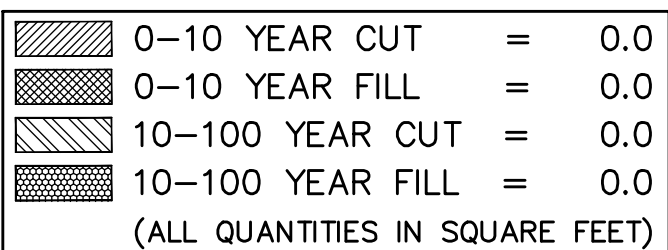
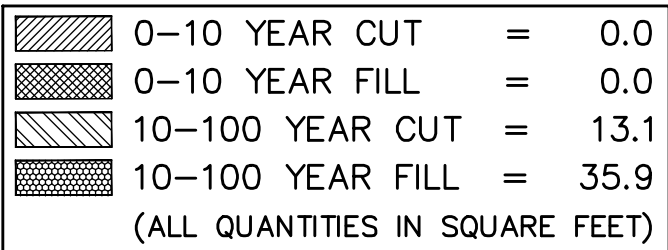
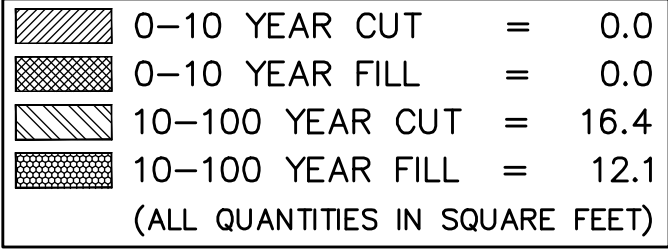
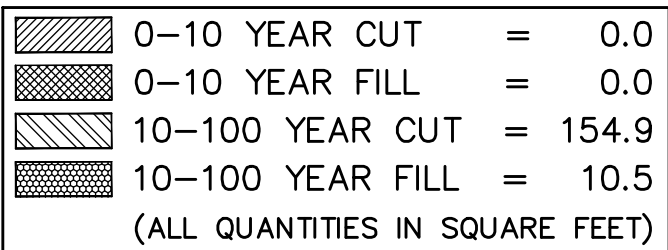
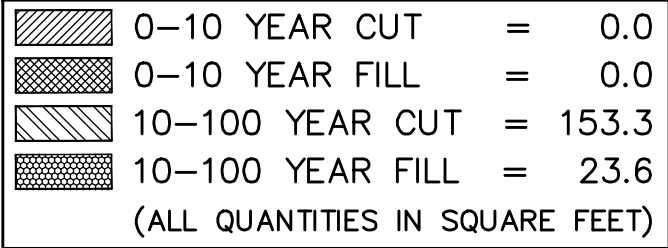
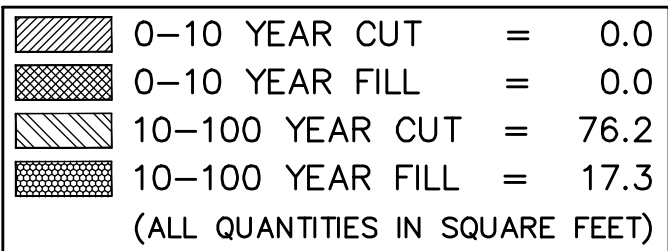
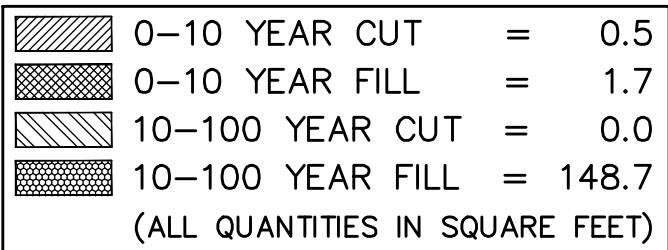
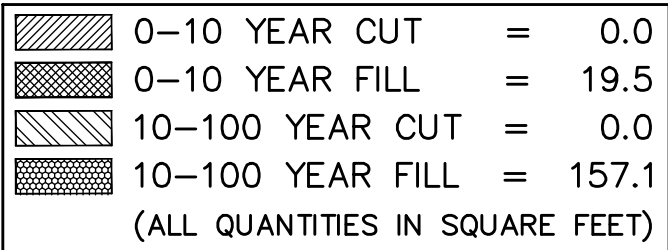
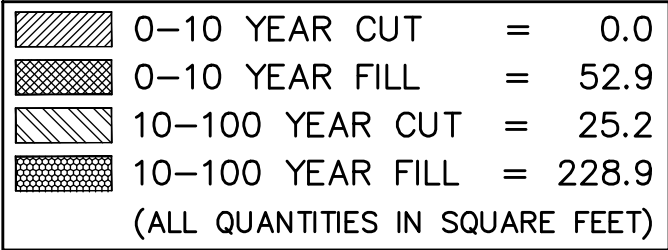
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DRAWN BY: JMH/LAL FLD. BK. / PG. NO.:
COMPLETION DATE: 06-06-22 JOB NO.: 402.151
XREF : PREOVR PROJECT MANAGER : CRM

PRELIMINARY FLOODPLAIN SECTIONS				
POLO CLUB				
FILE NAME: FLOODPLAIN SECTIONS	DSGN. BY: CRM	JOB NO.: 402.151	F.LD. BK./PG.: ---	SHEET NO. 2 of 3
DIN: 402.151	DRN. BY: JMH/LAL	DATE: 06-06-22	SCALE: 1" = 100'H, 5'V	

PRELIMINARY FLOODPLAIN SECTIONS				
POLO CLUB				
FILE NAME: FLOODPLAIN SECTIONS	DSGN. BY: CRM	JOB NO.: 402.151	F.LD. BK./PG.: ---	SHEET NO. 2 of 3
DIR: 402.151	DRN. BY: JMH/LAL	DATE: 06-06-22	SCALE: 1" = 100'H, 5'V	



LINE LEGEND	
----	EXISTING GROUND
=====	PROPOSED GROUND
-----	10 YEAR FLOODPLAIN EL.
-----	100 YEAR FLOODPLAIN EL.

EXHIBIT K

SUMMARY OF FLOODPLAIN COMPENSATORY STORAGE

Job #: 402.151
Project: Polo Club

Date: June 1, 2022
Revised: PME
By: JMH

Regraded Pond w/ HWL = 618.0, Regraded Area East of Pond

RECORD FLOODPLAIN CUT & FILL CALCULATIONS									
STATION	LENGTH (FT)	0-10 YEAR FLOODPLAIN CUT AND FILL CALCULATION				10-100 YEAR FLOODPLAIN CUT AND FILL CALCULATION			
		CROSS-SECTIONAL FILL (SF)	CROSS-SECTIONAL CUT (SF)	CROSS-SECTIONAL FILL VOLUME (CF)	CROSS-SECTIONAL CUT VOLUME (CF)	CROSS-SECTIONAL FILL (SF)	CROSS-SECTIONAL CUT (SF)	CROSS-SECTIONAL FILL VOLUME (CF)	CROSS-SECTIONAL CUT VOLUME (CF)
		10 YR	10 YR	10 YR	10 YR	100 YR	100 YR	100 YR	100 YR
0+00									
1+00	100	0.0	0.0	0.0	0.0	30.2	24.0	1510.0	1200.0
2+00	100	0.0	0.0	0.0	0.0	9.6	27.7	1990.0	2585.0
3+00	100	0.0	0.0	0.0	0.0	10.5	168.2	1005.0	9795.0
4+00	100	0.0	0.0	0.0	0.0	23.6	170.5	1705.0	16935.0
5+00	100	0.0	2.1	0.0	106.8	14.5	87.0	1905.0	12872.5
6+00	100	1.7	0.6	85.0	136.8	143.1	0.0	7880.0	4347.5
7+00	100	19.5	0.0	1060.0	30.0	146.6	2.2	14485.0	107.8
8+00	100	52.9	0.0	3620.0	0.0	217.0	33.7	18180.0	1792.8
9+00	100	90.2	0.0	7155.0	0.0	288.5	0.2	25275.0	1695.0
10+00	100	4.0	11.8	4710.0	590.0	67.8	195.3	17815.0	9775.0
11+00	100	0.0	110.5	200.0	6115.0	11.4	252.0	3960.0	22365.0
12+00	100	0.0	202.6	0.0	15655.0	38.1	130.6	2475.0	19130.0
13+00	100	0.0	0.0	0.0	10130.0	0.0	0.0	1905.0	6530.0
TOTAL (CF)				16830.0	32763.5			100090.0	109130.6
TOTAL (CY)				623.3	1213.5			3707.0	4041.9

	FILL	CUT
10 YEAR (AC.-FT):	0.4	0.8
100 YEAR (AC.-FT):	2.3	2.5
TOTAL (AC.-FT):	2.7	3.3
REQUIRED COMPENSATORY STORAGE:	2.7	
FLOODPLAIN CUT LESS COMPENSATORY STORAGE:		0.6

EXHIBIT L

WETLAND STUDY REPORT BY OTHERS
TO BE PROVIDED AT FINAL