FINAL STORMWATER MANAGEMENT REPORT

FOR

TRAILS OF WOODS CREEK

ALGONQUIN, ILLINOIS

REVISED JULY 13, 2020
REVISED FEBRUARY 13, 2020
DECEMBER 5, 2019

VOLUME I
402.136

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 COMPANY, LLC BY CEMCON, LTD. UNDER MY PERSONAL DIRECTION.

DATED THIS____________ DAY OF ________________________________, AD, 2020

____
ILLINOIS LICENSED PROFESSIONAL ENGINEER NO. 062-055788
MY LICENSE EXPIRES ON NOVEMBER 30, 2021

PROFESSIONAL DESIGN FIRM LICENSE NO. 184-002937, EXPIRATION DATE IS APRIL 30, 2021

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
SUITE 100
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FOR
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ALGONQUIN, ILLINOIS

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FOR

TRAILS OF WOODS CREEK

ALGONQUIN, ILLINOIS

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FOR
TRAILS OF WOODS CREEK
ALGONQUIN, ILLINOIS

1.0 PROJECT LOCATION AND DESCRIPTION

The Trails of Woods Creek Subdivision proposed by Pulte Home Company, LLC is a 139.0± acre development consisting of 278 single family homes and a 10.2± acre park site. The site is an existing golf course situated at the southwest corner of Algonquin Road and Fairway View Drive in the Village of Algonquin (refer to the Project Location map in Exhibit 1B). Although the project location is within McHenry County, the Village of Algonquin follows the Kane County Stormwater Management Ordinance. Infrastructure improvements include the construction of sanitary sewers, watermains, stormwater drainage and conveyance facilities, and nine (9) stormwater management facilities (SWMFs) which will be vegetatively stabilized for stormwater discharge control and best management practices. The purpose of this Stormwater Management Report is to summarize the hydrologic and hydraulic analyses performed for Existing and Proposed Conditions and to demonstrate that, when constructed, the development will comply with County, State, and Federal laws and regulations and provide a significant drainage improvement and regional benefit for the watershed. Relevant Kane County Stormwater Ordinance permit applications will be completed during the Final Engineering design and provided in the Final Stormwater Report.

2.0 EXISTING “WITHOUT-PROJECT” DRAINAGE CONDITIONS

A. WATERSHED DESCRIPTION

The project site is currently a golf course with an entrance road from Algonquin Road leading to three buildings and an associated parking lot at the northwest corner of the property. Refer to Exhibit 7P for the Existing Conditions Watershed Exhibit. Throughout the site, there are multiple asphalt pathways and open water ponds, some of which have been delineated as wetlands (see Wetland Report by V3 Companies of Illinois, Ltd. under separate cover). There are two major hydraulic points of release on the site: Outfall 1 to the east and Outfall 2 to the northwest. The majority of the site drains to a series of ponds along the east boundary. This low area is drained by three existing storm sewers under Fairway View Drive: an 18” H.D.P.E. pipe, a 15” C.M.P., and a 24” H.D.P.E. pipe. A wooded drainageway conveys the discharge to Woods Creek, approximately 1,900 feet to the east of the property (Outfall 1). A portion of the site drains to the northwest to an existing storm sewer, which conveys flow to an existing SWMF on the north side of Algonquin Road (Outfall 2).

There are off-site flows that run through the site and are tributary to each Outfall. To the south of the property, approximately 173.1± acres are tributary to a series of three (3) existing stormwater management facilities located in the Terrace Lakes and Terrace Hill Subdivisions. The ultimate point of discharge to the project site is through a 36” R.C.P. sewer system at the southwest corner of the property. The sewer continues eastward along the southern property line, picking up an additional 5.3± acres from the Terrace Hill subdivision before outletting to an existing pond at the southeast corner of the property. The Prestwick Subdivision’s SWMF to the west detains approximately 32.4± acres via a restrictor structure and connects to the 36” storm sewer at the southwest corner of the property. A hydrologic study of this area titled “Terrace Hill Golf Course: Southwest Drainage Improvements” was previously conducted by Christopher B. Burke Engineering, LTD (CBBEL) in 2019 on behalf of the Village of Algonquin. The study’s outlet structure input and watershed delineations, combined with the McHenry County 2-foot GIS topography, were utilized in preparing the hydrologic and hydraulic analyses contained within this Stormwater Report. The report by CBBEL is included as Exhibit 2G.

To the north, a portion of Algonquin Road (2.5± acres) discharges via storm sewer to the existing pond at the northeast corner of the property. The off-site property adjacent to the golf course and Algonquin Road drains in two directions: either to the before-mentioned on-site pond to the northeast (3.5± acres), or to the existing storm sewer that discharges to the SWMF on the north side of Algonquin Road (7.3± acres).

B. METHODS

A detailed hydrologic analysis of the existing and proposed conditions has been prepared utilizing the PondPack V8i software. The following methodology and procedures were employed in determining the respective hydrologic and hydraulic parameters.

- **Runoff Curve Numbers –** The TR-55 Tables 2-2a *(urban areas)* and 2-2c *(agr. Lands)*, "McHenry County Soil Survey", and watershed land use data were utilized to calculate runoff curve numbers *(CN)* for input to the Pond Pack Model. A CN = 98 was used for all impervious and open water surfaces, a CN = 80 was used for the off-site residential subdivisions (1/2 acre lots), and a CN = 74 was used for all landscaped pervious surfaces (type C soils). The CN documentation for the project site is provided in Exhibit 2H for existing conditions and Exhibit 2I for proposed conditions.
- **Time of Concentration -** The time of concentration *(T_c)* was calculated using SCS TR-55 methodology. The T_c calculations were performed for flow paths representing the travel from the hydraulically most distant point of the watershed to the point of interest. The T_c documentation for the project site is provided in Exhibit 2H for existing conditions and Exhibit 2I for proposed conditions.
- **Precipitation Data/Rainfall Distribution –** Updated Bulletin 70 northeast rainfall values (March 2019 revision) with Huff rainfall distributions were selected in accordance with Appendix E criteria and the "Technical Guidance" to the Ordinance. Storage volumes were evaluated based on the 100-year frequency 24-hour duration event measuring 8.57 inches of precipitation and the Huff 3rd quartile rainfall distribution.
- **Stage vs. Storage and Stage vs. Discharge Relationships** - Stage vs. storage relationships were measured within AutoCAD at regular intervals corresponding to the level of potential inundation, and the volume was calculated by the method of average area times the incremental interval. For off-site areas, the outlet control structures input from Burke Engineering was supplemented with County topography to develop stage-storage and stage-discharge relationships. Stage vs. discharge relationships were developed in PondPack for all possible combinations of headwater and tailwater. PondPack was then run dynamically to evaluate the headwater and tailwater at each time step to determine the flow through each structure. Supporting documentation is provided in Exhibit 2H for existing conditions and Exhibit 2I for proposed conditions.

C. EXISTING CONDITIONS SUMMARY

The existing conditions model was run for the 2-year and 100-year 0.5-hour events through to the 48-hour events. The **2-year 18-hour event** and **100-year 18-hour event** were determined to be the critical duration event leaving the site, generating the highest peak flow. The numerical results are summarized along with the proposed results in Table 2 in Section 4.0 below. Refer to

Exhibit 2H for the PondPack Model input and output for key events for the report. For all every event computed, in order to save paper, refer to the electronic media included with this report.

3.0 FLOODPLAIN, BUFFERS AND WETLANDS ASSESSMENT

The subject site was evaluated for the presence of Special Management Areas such as floodplains, buffers, and wetlands. The evaluation for the site consisted of on-site observation, land surveys, and a detailed review of available topographic and FEMA maps.

A. Floodplain Evaluation

According to the FEMA Flood Insurance Rate Map (FIRM) Panel No. 17111C0336J (see Exhibit 1D), there is unstudied Zone A floodplain through the southeastern part of the project site, tributary to the Woods Creek to the east.

B. Buffer Assessment

The County Ordinance identifies buffer environments as “vegetative upland areas adjacent to wetlands and Waters of the U.S.”. There are both regulatory wetlands and Zone A floodplain located within the property. See the Report prepared by V3 Companies of Illinois, Ltd under separate cover.

C. Wetland Assessment

According to the National Wetland Inventory GIS database, there are wetlands present within the development limits. Refer to Exhibit 1E for a copy of the NWI map. A Wetland Delineation Report has been prepared for the site under separate cover by V3 Companies of Illinois, Ltd.

4.0 PROPOSED (WITH-PROJECT) DRAINAGE CONDITIONS

A. DESCRIPTION

The objectives of the proposed project are the construction of a residential development with the necessary site improvements – mass grading, road construction, and installment of utilities. The projected impervious area to be added to the site will require stormwater management to detain and restrict the onsite runoff. Trails of Woods Creek will incorporate nine (9) SWMFs (see

Exhibit 7Q for the Proposed Conditions Watershed Exhibit). The following is a summary of each stormwater facility proposed on the project site:

- The series of existing ponds along the eastern boundary will be excavated and converted into one large facility, SWMF-01. The facility will discharge via a single 24" R.C.P. underneath Fairway View Drive to the existing drainageway to Woods Creek (Outfall 1). A tailwater condition was assumed at the crown of the 24" outlet pipe (877.95). Ample floodplain storage below the existing conditions high water level (HWL) of 882.1 will be provided (to be discussed later in this report).
- SWMF-02 is an expansion and combination of the existing ponds running southwest to northeast between the proposed residential and park site. The existing 36" storm sewer along the south property line will be intercepted by a proposed sewer that will discharge to SWMF-02. The facility will restrict and discharge to SWMF-01 via a 24" R.C.P.
- SWMF-03 is located immediately to the southwest of SWMF-02. The facility will restrict and discharge to SWMF-02 via a 15" R.C.P.
- SWMF-04 is located in the southwest corner of the property. The facility will restrict and discharge to SWMF-03 via an 18" R.C.P.
- SWMF-05 is located in the northeast portion of the property, between proposed Roads B and D. The facility will discharge via a restrictor structure to SWMF-01.
- SWMF-06 is located in the center of the property, to the southwest of SWMF-05. The facility is hydraulically connected to SWMF-05 via a 24" equalizer R.C.P.
- SWMF-07 is located in the northwest corner of the property. The will discharge via a restrictor structure to grade south of Algonquin Road (Outfall 2).
- SWMF-08 is located to the southeast of SWMF-07. The facility will discharge via a restrictor structure to SWMF-07.
- SWMF-09 is located to the southeast of SWMF-08. The facility will discharge via a restrictor structure to SWMF-08.

B. HYDROLOGIC ANALYSIS

The required detention was calculated in order to meet the requirements of the Kane County Stormwater Ordinance. First, an “onsite-only” PondPack model (PRE-ONSITE) was created to simulate the proposed conditions of the site without additional offsite area, modeling the 100-year, 0.5 hour to 48 hour events. Using theoretical restrictors, a high water level (HWL) was established for each stormwater facility based on an allowable release rate during the 100-year event of 0.1 cfs/acre of onsite tributary area to Outfalls 1 & 2, summarized in Table 1 below. Subarea 010 is developed but undetained area tributary to Outfall 1; therefore, the “proposed peak discharge” listed for SWMF-01 is the addition of the release from SWMF-01 and the direct runoff from Subarea 010, and demonstrates that the allowable release rate to the Outfall is still met. See Exhibit 2I for the supporting documentation and “PRE-ONSITE” PondPack model.

Table 1: Peak Discharge and High Water Level for Onsite-Only Model

Stormwater Facility (Basin)	**Total Onsite Tributary Area (Ac.)**	**Allowable 100-yr Release Rate (cfs)**	**Detention Volume Required (Ac.-ft)**	***Proposed Peak Discharge (cfs)***	**Normal Water Level (NWL)**	***ONSITE High Water Level (HWL)***
SWMF-01	101.07	10.11	14.54	***9.84****	877.0	***879.7***
SWMF-02		-	13.28		880.0	***882.5***
SWMF-03		-	4.20		881.0	***885.7***
SWMF-04		-	2.67		882.0	***886.1***
SWMF-05		-	7.10		886.0	***889.0***
SWMF-06		-	5.36		886.0	***889.0***
SWMF-07	29.91	2.99	1.42	***2.97***	878.9	***882.4***
SWMF-08		-	2.60		879.5	***883.2***
SWMF-09		-	8.66		883.0	***887.9***

Subarea 010 is tributary but undetained to Outfall 1. The hydraulic summation of SWMF-01 Release + Subarea 010 runoff =* ***10.07 cfs*

The results demonstrate that 59.8 Ac-ft of on-site detention is required for proposed conditions. Next, a proposed PondPack model (PROP) was created that routed the off-site tributary areas through the proposed SWMFs. The upstream watershed is completely developed, and its current stormwater management does not adhere to the latest Ordinance standards. Therefore, the outlet structures were sized for a proposed release rate calculated by adding the on-site allowable release rate (0.10 cfs/ac.) to the upstream off-site peak flows (bypass flow) for each of the storm events (0.5Hr through 48Hr). However, the release to Outfall 1 must be further restricted due to an existing discharge lower than allowable. The 2-Year, 24Hr event was also simulated to show that proposed peak discharges will not exceed existing conditions. Tables 2 & 3 below summarize the results for Outfalls 1 & 2, respectively. See Exhibit 2I for the supporting documentation and the “PROP” PondPack model in key events. All existing and proposed analyses and output from PondPack can be found on the electronic media included with this report.

Table 2: Allowable Release Calculations: Outfall 1 Critical Duration Analysis

100YR Storm:	0.5	1	2	3	6	12	18	24	48	2Yr-24Hr
Onsite Allowable Release Rate (cfs/Ac.):	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	-
Development Area (Ac.):	101.07	101.07	101.07	101.07	101.07	101.07	101.07	101.07	101.07	-
Onsite Allowable Release (cfs):	10.11	10.11	10.11	10.11	10.11	10.11	10.11	10.11	10.11	-
Total Bypass Flow To Outfall 1 (cfs):	127.02	131.91	119.31	106.16	90.47	75.29	68.74	61.20	48.25	-
Total Allowable Release Plus By-Pass (cfs):	**137.13**	**142.02**	**129.42**	**116.27**	**100.58**	**85.40**	**78.85**	**71.31**	**58.36**	**-**
Total Proposed Release to Outfall 1 (cfs):	**13.63**	**13.96**	**18.79**	**21.14**	**25.16**	**28.09**	**29.43**	**30.58**	**32.57**	**10.50**
(SWMF-01 + Subarea 010, 030, 032)										
Existing Release to Outfall 1 (cfs):	**28.68**	**32.48**	**35.90**	**37.23**	**38.89**	**40.32**	**40.78**	**40.40**	**39.31**	**20.75**

Table 3: Allowable Release Calculations: Outfall 2 Critical Duration Analysis

100YR Storm:	0.5	1	2	3	6	12	18	24	48	2Yr-24Hr
Onsite Allowable Release Rate (cfs/Ac.):	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	-
Development Area (Ac.):	29.91	29.91	29.91	29.91	29.91	29.91	29.91	29.91	29.91	-
Onsite Allowable Release (cfs):	2.99	2.99	2.99	2.99	2.99	2.99	2.99	2.99	2.99	-
Total Bypass Flow To Outfall 2 (cfs):	17.35	18.99	17.08	14.42	10.14	7.98	7.19	5.86	3.24	-
Total Allowable Release Plus By-Pass (cfs):	**20.34**	**21.98**	**20.07**	**17.41**	**13.13**	**10.97**	**10.18**	**8.85**	**6.23**	**-**
Total Proposed Release to Outfall 2 (cfs):	**13.68**	**14.77**	**13.95**	**12.73**	**10.54**	**9.91**	**9.57**	**8.78**	**6.18**	**3.78**
(SWMF-08 + Subarea 027)										
Existing Release to Outfall 2 (cfs):	**57.38**	**66.35**	**65.94**	**59.36**	**43.51**	**36.00**	**32.20**	**26.43**	**14.65**	**6.88**

A “blocked restrictor” PondPack model (BLOCKED) was created to demonstrate that the conveyance of the emergency overflow does not exceed the existing 100-year peak discharge. See Exhibit 2I for the “Blocked” PondPack model.

- For Outfall 1 (SWMF-01), the existing conditions peak discharge is **40.78 cfs** in the 18-hour event. In proposed conditions with blocked restrictors, the peak discharge to Outfall 1 (SWMF-01 + Subareas 10, 30, & 32) in the 18-hour event is **22.29 cfs**. The peak discharge to Outfall 1 in the 24-hour event is **26.30 cfs.**
- For Outfall 2 (SWMF-07), the existing conditions peak discharge is **66.35 cfs** in the 1-hour event. In proposed conditions with blocked restrictors, the peak discharge to Outfall 2 (SWMF-07 + Subarea 027) in the 1-hour event is **12.69 cfs.** The peak discharge to Outfall 2 in the 24-hour event is **10.58 cfs.**

Proposed retention volumes up to 18 inches (1.5 ft) below the primary gravity outlet were calculated for each stormwater facility (see Exhibit 2I). The purpose is to provide storage below the NWL for the “first flush” of rainfall over the proposed impervious area, which is 1.00 inch of rainfall over the proposed impervious area tributary to that stormwater facility.

C. FLOODPLAIN ANALYSIS

SWMF-01 and SWMF-02, in proposed conditions, will provide floodplain compensatory storage in addition to runoff detention storage. The volume required for on-site detention only for SWMF-01 is 14.54 Ac-ft (HWL = 879.7), leaving 17.58 Ac-ft available between the onsite HWL and the existing peak water surface elevations, considered the BFEs for that location (882.1 for the existing SWMF-01 and 883.0 for the existing SWMF-07). There is approximately 8.90 Ac-ft of total existing volume below the calculated BFEs that will be filled in proposed conditions. Per the Ordinance, floodplain storage filled in a non-riverine floodplain must be compensated at a 1:1 ratio. An excess storage of 17.58 Ac-ft versus a fill of 8.90 Ac-ft yields a **2.0 cut to fill ratio**, satisfying the Ordinance requirements. The volume required for on-site detention only for SWMF-02 is 13.28 Ac-ft (HWL = 882.5), leaving 23.84 Ac-ft available between the onsite HWL and 885.5, the elevation of the proposed overflow weir. **There is no proposed fill under the existing calculated BFE of 887.0 (the existing HWL for SWMF-08);** therefore, the excess 23.84 Ac-ft of storage is providing a substantial benefit to the watershed. See Exhibit 3K for supporting documentation. A LOMR will be prepared and submitted to FEMA to re-map the floodplain on-site.

To summarize the detention volume and floodplain volume requirements, see Table 4 below:

Table 4: Stormwater Management Facilities Volume Summary

Stormwater Facility (Basin)	Detention Volume Required (Ac.-ft)	Floodplain Detention Volume Required (Ac.-ft)	Total Required Detention (Ac.-ft)	Provided Detention to Overflow (Ac.-ft)
SWMF-01	14.54	8.90	**23.44**	**42.01**
SWMF-02	13.28	0.00	**13.28**	**37.12**
SWMF-03	4.20	-	**4.20**	**5.28**
SWMF-04	2.67	-	**2.73**	**3.21**
SWMF-05	7.10	-	**7.10**	**15.62**
SWMF-06	5.36	-	**5.36**	**11.95**
SWMF-07	1.42	-	**1.42**	**1.55**
SWMF-08	2.60	-	**2.60**	**3.82**
SWMF-09	8.66	-	**8.66**	**11.29**
		SUM	**68.79**	**131.85**

5.0 STORMWATER CONVEYANCE

The stormwater conveyance systems have been designed in accordance with the Village standards and general engineering practice. The storm sewer system has been designed to convey the 10-Year critical duration storm event with one exception (the storm sewer from STM Manhole No.318 to FES No. 36 was designed for the 100-Year), and the overland swales have been designed for the 100-Year critical duration storm event. Design of the storm sewer systems was performed with the StormCAD modeling program utilizing gravity design methodology. The overland flood routes have been analyzed at critical overflow weirs that are representative of the full flood route path, with a minimum freeboard of one (1) foot to the tops of foundations. Refer to Exhibit 7R for a Catchment Area Exhibit for the inlets and to Exhibits 2J for the storm sewer and overland flood route calculations, respectively.

6.0 EROSION AND SEDIMENTATION CONTROLS & BEST MANAGEMENT PRACTICES

A variety of soil erosion and sediment control measures and devices and best management practices will be incorporated into the final Project. These measures, devices and practices will protect downstream properties and Special Management Areas from adverse effects due to soil erosion and sedimentation and improve water quality in the downstream receiving water course. The proposed measures and features will include:

- Storm sewer structures with reinforced inlet protectors and insert bags.
- Silt fencing installed along the perimeters of the Project Site.
- Disturbed areas permanently or temporarily protected from soil erosion after final grading is accomplished.
- Temporary and permanent sedimentation basins with silt and sediment dikes and/or permanent pools of water.
- Riprap at all storm sewer outlets.
- Silt fence around topsoil stockpiles.
- Stabilized construction entrance.
- Tree protection and preservation measures.

7.0 STORMWATER SYSTEMS MAINTENANCE PLAN

The Applicant shall be responsible for the periodic monitoring and maintenance of all Stormwater Management and Stormwater Conveyance Facilities until such time of final acceptance of the improvements by Village of Algonquin, at which time the HOA will assume maintenance of such systems which include but are not limited to: (a) storm sewers, storm drains, inlets, manholes, catch basins, and appurtenances; (b) swales and overland drainage ways; (c) all containment berms and all stormwater storage facilities; (d) all landscaping and vegetative cover around and within stormwater conveyance and stormwater storage facilities; and (e) all permanent erosion and sedimentation control devices. The Applicant/HOA shall undertake appropriate measures to monitor and maintain such facilities in accordance with the policies and procedures established under the Ordinance as amended from time-to-time, and/or the programs and procedures set forth by the owner as part of the routine maintenance program. The programs for monitoring and maintaining the Stormwater Management and/or Water Conveyance Facilities/Systems imposed under this plan shall include the following components and procedures:

A. Storm sewers, storm drains and other drainage appurtenances, including manholes and inlets, shall be kept clear of sediment and debris, retained at the elevations, lines and grades intended, and maintained in an operable condition capable of conveying storm water runoff.

B. Swales and overland drainage ways shall be maintained to the line and grade established on the Site Development Plan documents to convey stormwater runoff in a free and unobstructed manner. Landscape planting, earthen fill, or other obstructions that impede the flow of stormwater shall be removed, the area re-graded, and a vegetative cover shall be re-established to deter erosion.

C. The proper function of the Stormwater Management System is dependent upon maintaining both the structural integrity and the minimum elevation of the containment berms, and it is also essential that the volume of potential storage available within the Stormwater Management Facility be preserved. Substantial re-grading, placement of earthen fill, or other earthwork operations that would change the elevation, impair the structural integrity, or diminish the volume contained within the basin shall be prohibited. Containment berms shall be maintained at the minimum elevations noted on the Site Development Plan documents and in good structural condition.

D. A vegetative cover around and within the Stormwater Management Facility is essential for the prevention of soil erosion and the deposition of sediments within the basin. The periodic replanting and replacement of vegetation shall be required, when necessary, to maintain the vegetative cover.

E. Temporary sediment traps, siltation fences, or ditch checks, as well as those permanent facilities including catch basins and inlets shall be periodically cleaned of sediment and debris and/or replaced and restored to operable conditions.

8.0 SUMMARY & CONCLUSION

Pulte Home Company, LLC proposes to develop the existing golf course located at the southwest corner of Algonquin Road and Fairway View Drive in the Village of Algonquin. The development will consist of 278 single-family lots. Stormwater storage/management is required to control runoff from the site per the Village/County Ordinance. The Stormwater Management and Conveyance Systems proposed will meet the requirements the Village of Algonquin and Kane County have established for allowable release rate. Additionally, as demonstrated by the PondPack results, the proposed development will reduce flows downstream.

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TAB 1

PROJECT OVERVIEW

EXHIBIT 1 A

KANE COUNTY STORMWATER PERMIT APPLICATION

KANE COUNTY
STORMWATER MANAGEMENT PERMIT APPLICATION

Applicant Name

Company CEMCON, Ltd.
Address 2280 White Oak Circle, Suite 100
City, State ZIP Aurora, IL 60502
Telephone No. (630) 862-2100
EMAIL ChrisM@Cemcon.com

Owner Name(s)

Company Pulte Homes Company, LLC
Address 1900 East Golf Road, Suite 300
City, State ZIP Schaumburg, IL 60173
Telephone No. (630) 201-3411
EMAIL Ty.Morris@PulteGroup.com

Developer Name

Company Pulte Homes Company, LLC
Address 1900 East Golf Road, Suite 300
City, State ZIP Schaumburg, IL 60173
Telephone No. (630) 201-3411

Project Information:

Common Address of Development 4015 W. Algonquin Road, Algonquin, IL 60102

Legal Description (attach if necessary): See Attached

Parcel Identification Number(s) (PIN): See Attached

Project Name Trails of Woods Creek Phase 1 & 2

Area of Distribution/Land Cover Change (Acre) 139 Acres

Stormwater Management Table (9-81)

☐ New Impervious Area since Jan. 1, 2002 (existing) ________ sq ft
☐ New Impervious Area (proposed with this application) 2,340,750 sq ft
☐ Existing Impervious surface to be removed 125,000 sq ft
☐ Net (New) Impervious Area 2,215,750 sq ft

Submit Application to:

KANE COUNTY
STORMWATER MANAGEMENT PERMIT APPLICATION

Project Narrative: (or attach as necessary)

Development of an existing golf course into 278 unit single family development with a 10 acre park site and large stormwater management areas and open space. Improvements include mass grading, utility and drainage improvements along with

FOR OFFICE USE ONLY

The site contains the following special management area(s):

Floodplain	Floodway	Wetlands
☐ Yes ☐ No	☐ Yes ☐ No	☐ Yes ☐ No

If any of the above are checked "Yes," additional submittals may be required.

This is the opinion of the Kane County Water Resources Division

Name: QERS Exp. Date:

Signature: Date:

Attachments submitted as part of this Permit Application:

Items	**Included (Y/N)?**	**Details (If not included, please explain)**
Plan Set	Y	
Subsurface Drainage Investigation Report	Y	
Engineer's Estimate of Probable Cost	Y	
Transportation Approval / Concurrence	Y	
Copies of other relevant permits or approvals (include applications if permits have not been issued)	Y	
Copy of a completed Joint Application form with transmittal letters to the appropriate agencies (wetland or floodplain submittal).	Y	
Names, addresses and phone numbers of all adjoining property owners within 250 feet of the development	Y	
Stormwater Submittal	Y	
Stormwater Mitigation/BMP/WBM Submittal	Y	
Floodplain Submittal	Y	
Wetland Submittal	Y	
Performance Security Submittal	Y	
Maintenance Schedule & Funding Submittal	Y	

I hereby certify that all information presented in this application is true and accurate to the best of my knowledge. I have read and understand the Kane County Stormwater Management Ordinance, and fully intend to comply with its provisions.

Signature of Developer

7/10/20
Date

I have read and understand the Kane County Stormwater Management Ordinance, and fully intend to comply with its provisions.

Signature of Owner

7/10/20
Date

PARCEL 1:

LOT 215 IN TERRACE HILL SUBDIVISION UNIT NO. 7 BEING A SUBDIVISION OF PART OF THE NORTHEAST 1/4 AND NORTHWEST 1/4 OF SECTION 36 AND PART OF THE SOUTHEAST 1/4 OF SECTION 25, TOWNSHIP 43 NORTH, RANGE 7, EAST OF THE THIRD PRINCIPAL MERIDIAN, ACCORDING THE PLAT THEREOF RECORDED DECEMBER 24, 1997, AS DOCUMENT NUMBER 97R064030, IN MCHENRY COUNTY, ILLINOIS. PARCEL 2:

THE SOUTHEAST QUARTER OF SECTION 25, TOWNSHIP 43 NORTH, RANGE 7 EAST OF THE THIRD PRINCIPAL MERIDIAN IN MCHENRY COUNTY, ILLINOIS

EXCEPTING THEREFROM:

THE NORTH 625.63 FEET OF THE EAST 825.00 FEET OF THE WEST 1134.73 FEET OF THE NORTHWEST QUARTER OF THE SOUTHEAST QUARTER OF SAID SECTION 25

AND ALSO EXCEPTING THEREFROM:

BEGINNING AT THE NORTHEAST CORNER OF THE SOUTHEAST QUARTER OF SAID SECTION 25; THENCE WESTERLY ALONG THE NORTH LINE OF SAID SOUTHEAST QUARTER A DISTANCE OF 33.0 FEET; THENCE SOUTHERLY PARALLEL WITH THE EAST LINE OF SAID SOUTHEAST QUARTER, A DISTANCE OF 347.79 FEET: THENCE WESTERLY AT RIGHT ANGLES TO THE LAST DESCRIBED COURSE A DISTANCE OF 140.0 FEET: THENCE SOUTHERLY PARALLEL WITH THE EAST LINE OF SAID SOUTHEAST QUARTER A DISTANCE OF 870.00 FEET: THENCE EASTERLY AT RIGHT ANGLES TO THE LAST DESCRIBED COURSE A DISTANCE OF 140.00 FEET: THENCE SOUTHERLY PARALLEL WITH THE EAST LINE OF SAID SOUTHEAST QUARTER A DISTANCE OF 100.00 FEET TO THE SOUTH LINE OF THE NORTHEAST QUARTER OF SAID SOUTHEAST QUARTER; THENCE WESTERLY ALONG SAID SOUTH LINE A DISTANCE OF 165.00 FEET; THENCE SOUTHERLY PARALLEL WITH THE EAST LINE OF SAID SOUTHEAST QUARTER A DISTANCE OF 200.00 FEET: THENCE EASTERLY AT RIGHT ANGLES TO THE LAST DESCRIBED COURSE A DISTANCE OF 165.00 FEET: THENCE SOUTHERLY PARALLEL WITH THE EAST LINE OF SAID SOUTHEAST QUARTER A DISTANCE OF 87.57 FEET: THENCE WESTERLY AT RIGHT ANGLES TO THE LAST DESCRIBED COURSE A DISTANCE OF 140.01 FEET: THENCE SOUTHERLY PARALLEL WITH THE EAST LINE OF SAID SOUTHEAST QUARTER A DISTANCE OF 1029.00 FEET TO THE SOUTH LINE OF SAID SOUTHEAST QUARTER: THENCE EASTERLY ALONG SAID SOUTH LINE A DISTANCE OF 173.01 FEET TO THE EAST LINE OF SAID SOUTHEAST QUARTER; THENCE NORTHERLY ALONG SAID EAST LINE A DISTANCE OF 2635.58 FEET TO THE PLACE OF BEGINNING, MCHENRY COUNTY, ILLINOIS.

AND ALSO EXCEPTING THEREFROM THAT PART OF THE NORTHWEST QUARTER OF THE SOUTHEAST QUARTER OF SECTION 25 DESCRIBED AS FOLLOWS: COMMENCING AT THE NORTHWEST CORNER OF SAID SOUTHEAST QUARTER OF SECTION 25, THENCE SOUTH 00 DEGREES 19 MINUTES 08 SECONDS EAST ALONG THE WEST LINE OF SAID SOUTHEAST QUARTER, A DISTANCE OF 21.93 FEET TO A POINT ON THE SOUTH RIGHT OF WAY LINE OF ALGONQUIN ROAD, SAID POINT ALSO BEING THE POINT OF BEGINNING; THENCE SOUTH 89 DEGREES 37 MINUTES 52 SECONDS EAST ALONG SAID SOUTHERLY RIGHT OF WAY LINE, A DISTANCE OF 309.16 FEET; THENCE SOUTH 00 DEGREES 19 MINUTES 08 SECONDS EAST, A DISTANCE OF 32.03 FEET; THENCE NORTH 89 DEGREES 27 MINUTES 52 SECONDS WEST ALONG A LINE 32.03 FEET SOUTH OF AND PARALLEL WITH SAID SOUTHERLY RIGHT OF WAY LINE, A DISTANCE OF 309.16 FEET TO THE WEST LINE OF SAID SOUTHEAST QUARTER OF SECTION 25; THENCE NORTH 00 DEGREES 19 MINUTES 08 SECONDS WEST ALONG SAID WEST LINE, A DISTANCE OF 32.03 FEET TO THE POINT OF BEGINNING, IN MCHENRY COUNTY, ILLINOIS;

AND ALSO EXCEPTING THEREFROM THAT PART OF THE NORTHWEST QUARTER OF THE SOUTHEAST QUARTER OF SECTION 25 DESCRIBED AS FOLLOWS: COMMENCING AT THE NORTHWEST CORNER OF SAID SOUTHEAST QUARTER OF SECTION 25, THENCE SOUTH 00 DEGREES 19 MINUTES 08 SECONDS EAST ALONG THE WEST LINE OF SAID SOUTHEAST QUARTER, A DISTANCE OF 21.93 FEET TO A POINT ON THE SOUTH RIGHT OF WAY LINE OF ALGONQUIN ROAD; THENCE SOUTH 89 DEGREES 37 MINUTES 52 SECONDS EAST ALONG SAID SOUTHERLY RIGHT OF WAY LINE, A DISTANCE OF 1134.21

FEET TO THE POINT OF BEGINNING; THENCE CONTINUING SOUTH 89 DEGREES 37 MINUTES 52 SECONDS EAST ALONG SAID SOUTHERLY LINE, A DISTANCE OF 179.02 FEET; THENCE SOUTH 00 DEGREES 19 MINUTES 08 SECONDS EAST, A DISTANCE OF 32.03 FEET; THENCE NORTH 89 DEGREES 37 MINUTES 52 SECONDS WEST ALONG A LINE 32.03 FEET SOUTH OF AND PARALLEL WITH SAID SOUTHERLY RIGHT OF WAY LINE, A DISTANCE OF 179.02 FEET; THENCE NORTH 00 DEGREES 19 MINUTES 08 SECONDS WEST, A DISTANCE OF 32.03 FEET TO THE POINT OF BEGINNING, IN MCHENRY COUNTY, ILLINOIS;

AND ALSO EXCEPTING THEREFROM THAT PART OF THE NORTHEAST QUARTER OF THE SOUTHEAST QUARTER OF SECTION 25 DESCRIBED AS FOLLOWS: COMMENCING AT THE NORTHEAST CORNER OF THE SOUTHEAST QUARTER OF SAID SECTION 25; THENCE NORTH 89 DEGREES 33 MINUTES 34 SECONDS WEST ALONG THE NORTH LINE OF SAID SOUTHEAST QUARTER, A DISTANCE OF 32.56 FEET TO THE WESTERLY RIGHT OF WAY LINE OF FAIRWAY VIEW DRIVE EXTENDED NORTHERLY; THENCE SOUTH 00 DEGREES 27 MINUTES 46 SECONDS WEST ALONG SAID NORTHERLY EXTENSION, A DISTANCE OF 18.53 FEET TO THE SOUTHERLY RIGHT OF WAY LINE OF HUNTLEY ALGONQUIN ROAD AND THE POINT OF BEGINNING; THENCE CONTINUING SOUTH 00 DEGREES 27 MINUTES 46 SECONDS WEST ALONG SAID WESTERLY RIGHT OF WAY LINE, A DISTANCE OF 61.00 FEET; THENCE NORTH 33 DEGREES 17 MINUTES 43 SECONDS WEST, A DISTANCE OF 17.99 FEET; THENCE NORTH 89 DEGREES 45 MINUTES 31 SECONDS EAST, A DISTANCE OF 389.69 FEET; THENCE WESTERLY ALONG A CURVE CONCAVE TO THE NORTH HAVING A RADIUS OF 9805.00 FEET AN ARC DISTANCE OF 499.20 FEET AND A CHORD BEARING OF NORTH 88 DEGREES 18 MINUTES 00 SECONDS WEST TO A POINT OF REVERSE CURVATURE; THENCE WESTERLY ALONG A CURVE CONCAVE TO THE SOUTH HAVING A RADIUS OF 9665 FEET AN ARC DISTANCE OF 69.55 FEET AND A CHORD BEARING OF NORTH 87 DEGREES 02 MINUTES 51 SECONDS WEST; THENCE NORTH 89 DEGREES 37 MINUTES 52 SECONDS WEST ALONG A LINE 32.03 FEET SOUTH OF AND PARALLEL WITH THE SOUTHERLY RIGHT OF WAY LINE OF ALGONQUIN ROAD, A DISTANCE OF 312.13 FEET; THENCE NORTH 00 DEGREES 19 MINUTES 08 SECONDS WEST, A DISTANCE OF 32.03 FEET TO SAID SOUTHERLY RIGHT OF WAY LINE; THENCE SOUTH 89 DEGREES MINUTES 52 SECONDS EAST, ALONG SAID SOUTHERLY RIGHT OF WAY LINE, A DISTANCE OF 1055.79 FEET; THENCE EASTERLY ALONG A CURVE CONCAVE TO THE NORTH HAVING A RADIUS OF 103166.78 FEET AN ARC DISTANCE OF 224.97 FEET AND A CHORD BEARING OF SOUTH 89 DEGREES 39 MINUTES 59 SECONDS EAST TO THE POINT OF BEGINNING, IN MCHENRY COUNTY, ILLINOIS. AND ALSO

PARCEL 1:

LOTS 250, 251, 252, 253 AND 254 IN TERRACE HILL SUBDIVISION UNIT NO 7, BEING A SUBDIVISION OF PART OF THE NORTHEAST 1/4 AND NORTHWEST 1/4 OF SECTION 36 AND PART OF THE SOUTHEAST 1/4 OF SECTION 25, TOWNSHIP 43 NORTH, RANGE 7 EAST OF THE THIRD PRINCIPAL MERIDIAN, ACCORDING TO THE PLAT THEREOF RECORDED DECEMBER 24, 1997 AS DOCUMENT NUMBER 97R064030 AND CERTIFICATE OF CORRECTION RECORDED JANUARY 15, 1998 AS DOCUMENT NUMBER 98R002718, IN MCHENRY COUNTY, ILLINOIS.

PARCEL 2:

THAT PART OF THE SOUTHEAST QUARTER OF SECTION 25, TOWNSHIP 43 NORTH, RANGE 7 EAST OF THE THIRD PRINCIPAL MERIDIAN DESCRIBED AS FOLLOWS:

COMMENCING AT THE NORTHEAST CORNER OF THE SOUTHEAST QUARTER OF SAID SECTION 25: THENCE WESTERLY ALONG THE NORTH LINE OF SAID SOUTHEAST QUARTER A DISTANCE OF 33.0 FEET; THENCE SOUTHERLY PARALLEL WITH THE EAST LINE OF SAID SOUTHEAST QUARTER, A DISTANCE OF 347.79 FEET TO THE POINT OF BEGINNING; THENCE WESTERLY AT RIGHT ANGLES TO THE LAST DESCRIBED COURSE A DISTANCE OF 140.0 FEET; THENCE SOUTHERLY PARALLEL WITH THE EAST LINE OF SAID SOUTHEAST QUARTER A DISTANCE OF 870.00 FEET: THENCE EASTERLY AT

RIGHT ANGLES TO THE LAST DESCRIBED COURSE A DISTANCE OF 140.00 FEET TO THE EAST LINE OF SAID SOUTHEAST QUARTER; THENCE NORTHERLY ALONG SAID EAST LINE TO THE PLACE OF BEGINNING, IN MCHENRY COUNTY, ILLINOIS. EXCEPTING THEREFROM, LOTS 250, 251, 252, 253 AND 254 IN TERRACE HILL SUBDIVISION UNIT NO. 7 NOTED AT PARCEL 1 ABOVE.

PARCEL INDEX NUMBERS

18-36-205-002
18-25-400-003
18-25-400-023
18-25-400-026
18-25-400-029
18-25-400-030
18-25-426-001
18-25-426-002
18-25-426-003
18-25-426-004
18-25-426-005

ALGONQUIN, ILLINOIS

EXHIBIT 1B

SITE LOCATION MAP

TRAILS OF WOODS CREEK

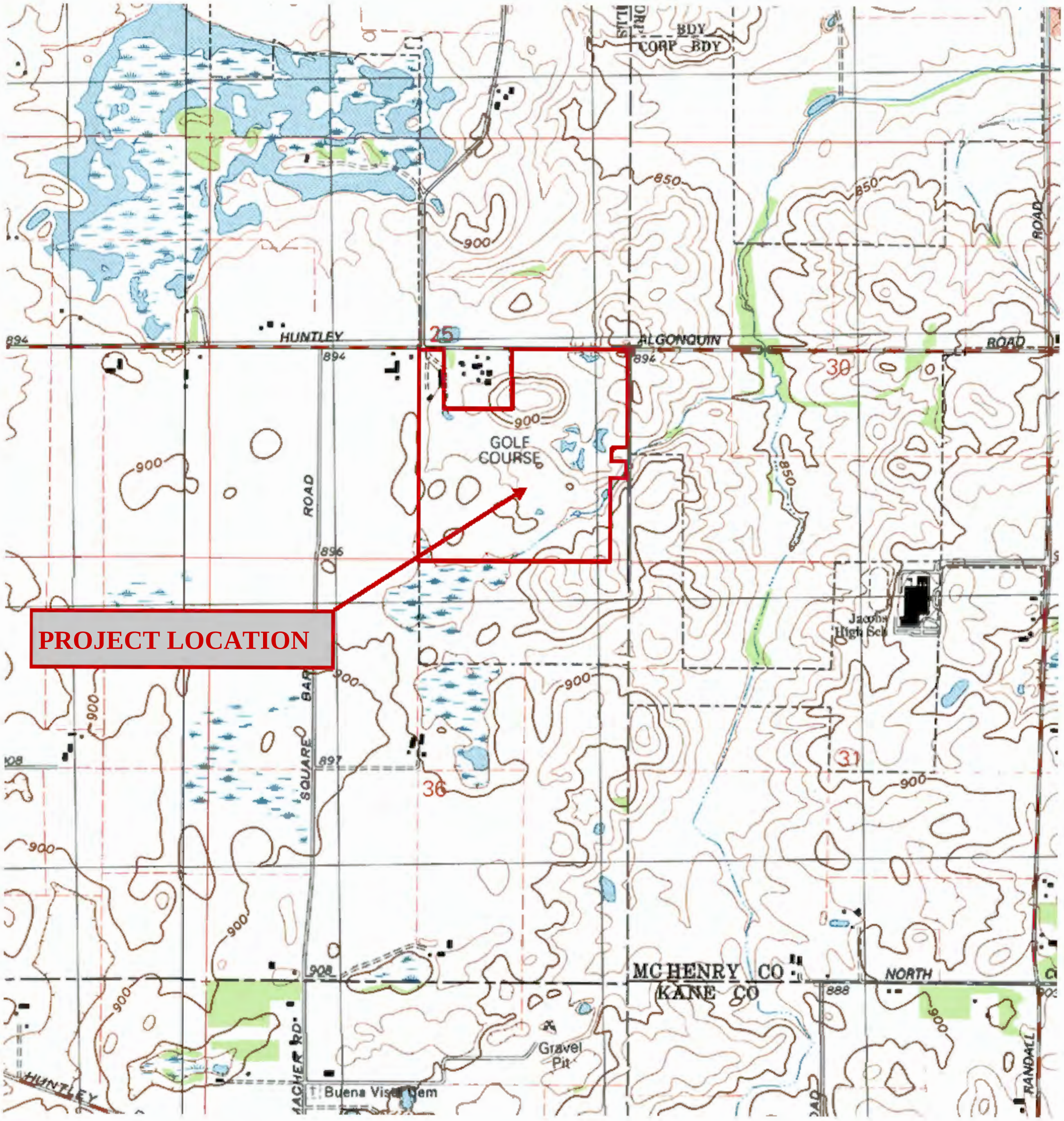
T43N, R7E, SEC. 25
CRYSTAL LAKE QUADRANGLE

CEMCON, Ltd.	PROJECT / CLIENT: Pulte Home Company, LLC 1900 E. Golf Road, Suite 300 Schaumburg, IL 60173 847-230-5400	DRAWN BY:	CAB	12/03/19
		CHECKED BY:		
		APPROVED:		
		SCALE: N.T.S.		

TRAILS OF WOODS CREEK

T43N, R7E, SEC. 25

CRYSTAL LAKE QUADRANGLE



CEMCON, Ltd.

PROJECT / CLIENT:

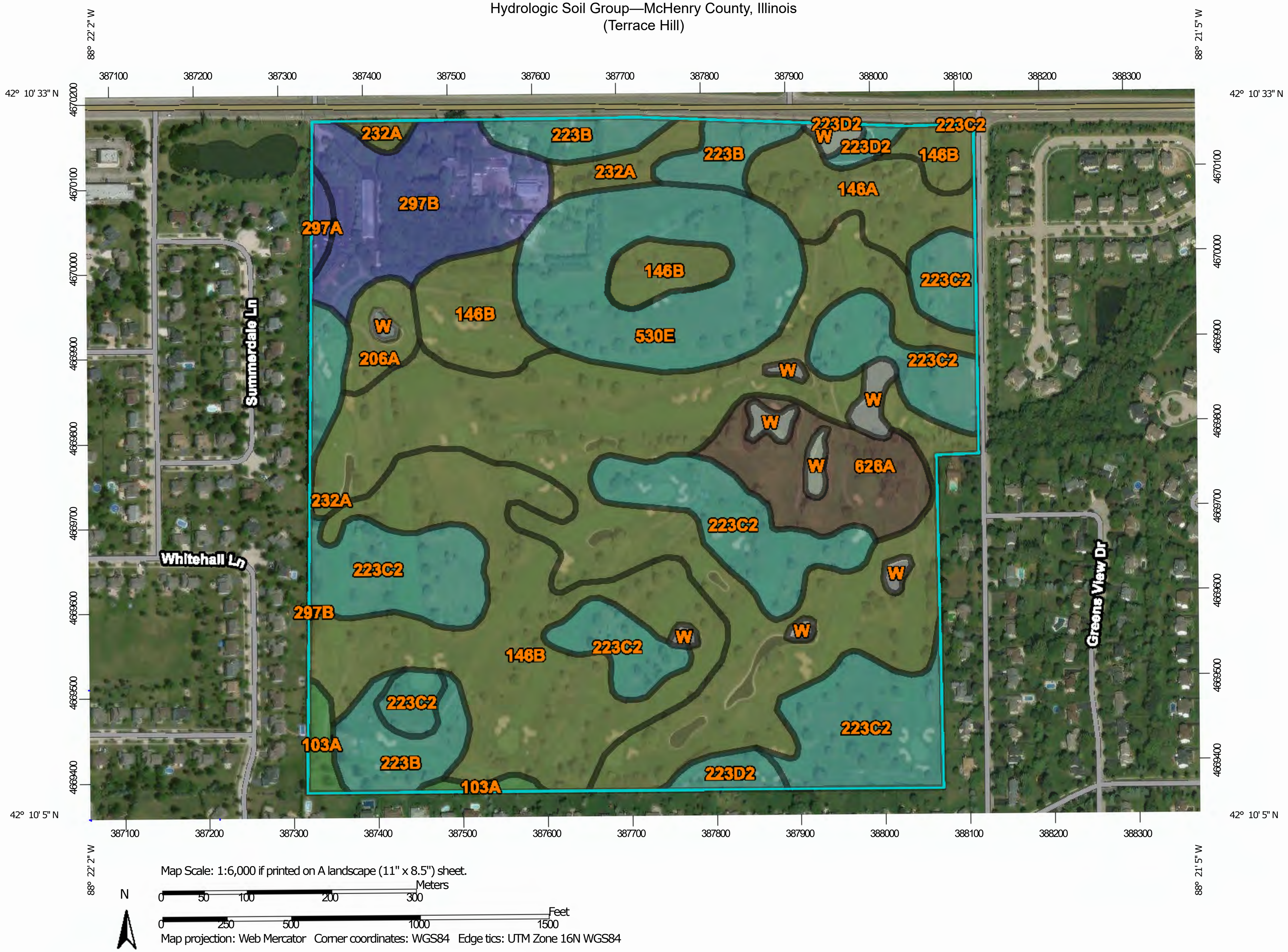
Pulte Home Company, LLC
1900 E. Golf Road, Suite 300
Schaumburg, IL 60173
847-230-5400

DRAWN BY:	CAB	12/03/19
CHECKED BY:		
APPROVED:		
SCALE: N.T.S.		

EXHIBIT 1C

USDA NRCS SOILS MAP

Hydrologic Soil Group—McHenry County, Illinois
(Terrace Hill)



Map Scale: 1:6,000 if printed on A landscape (11" x 8.5") sheet.

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 16N WGS84

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.

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: McHenry County, Illinois
Survey Area Data: Version 15, Sep 16, 2019

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

Date(s) aerial images were photographed: Jul 3, 2011—Oct 22, 2016

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
103A	Houghton muck, 0 to 2 percent slopes	A/D	1.4	1.0%
146A	Elliott silt loam, 0 to 2 percent slopes	C/D	5.5	3.7%
146B	Elliott silt loam, 2 to 4 percent slopes	C/D	29.4	19.6%
206A	Thorp silt loam, 0 to 2 percent slopes	C/D	2.0	1.3%
223B	Varna silt loam, 2 to 4 percent slopes	C	7.7	5.1%
223C2	Varna silt loam, 4 to 6 percent slopes, eroded	C	29.3	19.5%
223D2	Varna silt loam, 6 to 12 percent slopes, eroded	C	1.8	1.2%
232A	Ashkum silty clay loam, 0 to 2 percent slopes	C/D	39.1	26.0%
297A	Ringwood silt loam, 0 to 2 percent slopes	B	0.6	0.4%
297B	Ringwood silt loam, 2 to 4 percent slopes	B	10.5	7.0%
530E	Ozaukee silt loam, 12 to 20 percent slopes	C	13.4	8.9%
626A	Kish loam, 0 to 2 percent slopes	B/D	6.6	4.4%
W	Water		3.0	2.0%
Totals for Area of Interest			**150.2**	**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

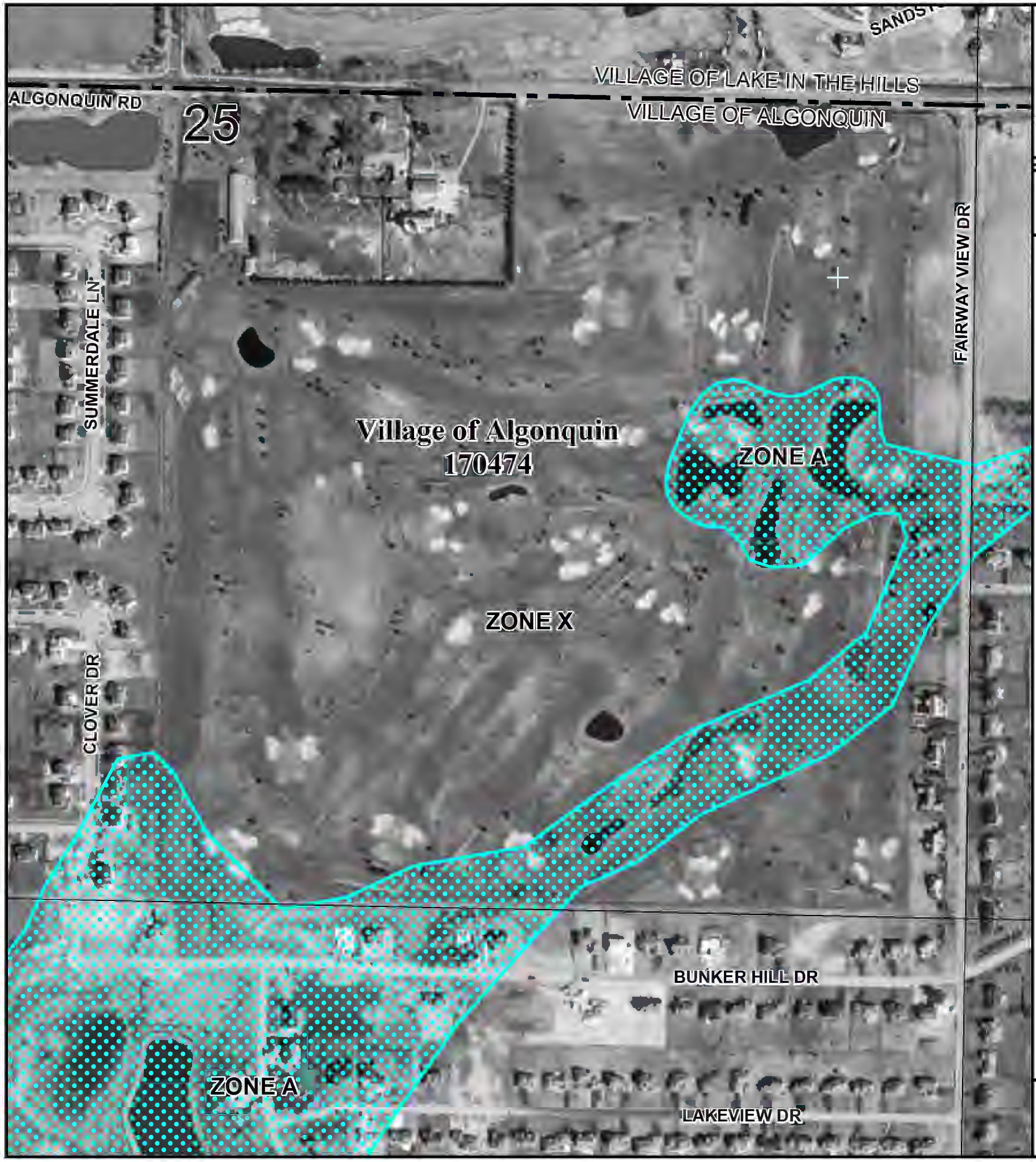
Aggregation Method: Dominant Condition

Component Percent Cutoff: None Specified

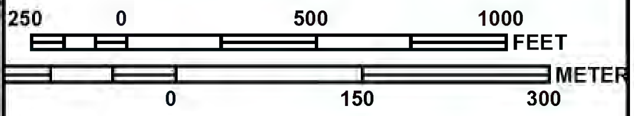
Tie-break Rule: Higher

EXHIBIT 1D

FEMA FIRM PANEL



MAP SCALE 1" = 500'



NFIP

NATIONAL FLOOD INSURANCE PROGRAM

PANEL 0336J

FIRM

FLOOD INSURANCE RATE MAP

McHENRY COUNTY, ILLINOIS
AND INCORPORATED AREAS

PANEL 336 OF 365

(SEE MAP INDEX FOR FIRM PANEL LAYOUT)

CONTAINS:

COMMUNITY	NUMBER	PANEL	SUFFIX
ALGONQUIN, VILLAGE OF	170474	0336	J
CRYSTAL LAKE, CITY OF	170476	0336	J
LAKE IN THE HILLS,	170481	0336	J
VILLAGE OF			J
MCHENRY COUNTY	170732	0336	
			J

Notice to User: The **Map Number** shown below should be used when placing map orders; the **Community Number** shown above should be used on insurance applications for the subject community.

U.S. DEPARTMENT OF HOMELAND SECURITY

MAP NUMBER
17111C0336J

EFFECTIVE DATE
NOVEMBER 16, 2006

Federal Emergency Management Agency

This is an official copy of a portion of the above referenced flood map. It was extracted using F-MIT On-Line. This map does not reflect changes or amendments which may have been made subsequent to the date on the title block. For the latest product information about National Flood Insurance Program flood maps check the FEMA Flood Map Store at www.msc.fema.gov

EXHIBIT 1E

NATIONAL WETLANDS
INVENTORY MAP

U.S. Fish and Wildlife Service

National Wetlands Inventory

Trails of Woods Creek

U.S. Fish and Wildlife Service, National Standards and Support Team, wetlands_team@fws.gov

December 4, 2019

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.

National Wetlands Inventory (NWI)
This page was produced by the NWI mapper

EXHIBIT 1F

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

October 04, 2019

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

RE: Terrace Hill
Project Number(s): 2003204 [19381]
County: McHenry

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.

Brian Willard
Division of Ecosystems and Environment
217-785-5500

ILLINOIS
DEPARTMENT OF
NATURAL
RESOURCES

Illinois Department of
Natural Resources

One Natural Resources Way Springfield, Illinois 62702-1271
www.dnr.illinois.gov Mailing Address: 1 Old State Capitol Plaza, Springfield, IL 62701

JB Pritzker, Governor
Colleen Callahan, Director

FAX (217) 524-7525

McHenry County
Algonquin
Demolition and New Construction of a Residential Development, Terrace Hill Golf Course
4015 W. Algonquin Road
V3CI-19381-Z99
SHPO Log #009110819

April 9, 2020

Scott Brejcha
V3 Companies
7325 Janes Avenue
Woodridge, IL 60517

Dear Mr. Brejcha:

This letter is to inform you that we have reviewed the additional information provided concerning the referenced project.

Our review of the records indicates that no historic, architectural or archaeological sites exist within the project area.

Please retain this letter in your files as evidence of compliance with Section 4 of the Illinois State Agency Historic Resources Preservation Act (20 ILCS 3420/1 et. seq.). This clearance remains in effect for two years from date of issuance. It does not pertain to any discovery during construction, nor is it a clearance for purposes of the Illinois Human Skeletal Remains Protection Act (20 ILCS 3440).

If you have any further questions, please call 217/782-4836.

Sincerely,

Robert F. Appleman
Deputy State Historic
Preservation Officer

TAB 2

STORMWATER SUBMITTAL

EXHIBIT 2G

“TERRACE HILL GOLF COURSE:
SOUTHWEST DRAINAGE IMPROVEMENTS”
MEMORANDUM BY CBBEL (SEPT. 3, 2019)

MEMORANDUM

September 3, 2019

TO: Bob Mitchard – Public Works Director

FROM: Michael E. Kerr, PE
David R. Buckley, PE, CFM
Stephanie N. Maier, EI

SUBJECT: Terrace Hill Golf Course: Southwest Drainage Improvements
(CBBEL Project No. 070273.00109)

The purpose of this memorandum is to summarize the detailed drainage analysis performed by Christopher B. Burke Engineering, Ltd. (CBBEL) for the southwest corner of the Terrace Hill Golf Course in the Village of Algonquin (Village). The study area is located northeast of the intersection of Bunker Hill Drive and Clover Drive, as shown in Exhibit 1. It is our understanding that the golf course and rear yards adjacent to the southwest corner of the golf course (along Clover Drive and Bunker Hill Drive) experience reoccurring nuisance flooding and poor drainage of the area.

CBBEL has previously completed a drainage investigation of this area, for which the goal was to provide solutions to reduce the intensity and duration of the nuisance flooding. The Village has requested to expand the previous study to determine the cause of the poor drainage in the area based on new information and provide both short- and long-term solutions to help mitigate the flooding. This analysis also analyzes the potential benefit of storing additional stormwater in the storage basin upstream of the flooding area.

Existing Conditions Drainage

According to the Kane County 2-foot aerial topography and the Village's storm sewer atlas, there is a total of approximately 218 acres tributary to the southwest corner of the golf course and 270 acres tributary to the entire study area at the Fairway View Drive culvert, as shown on Exhibit 2.

The existing drainage system generally flows east/northeast along the south portion of the golf course through a 36-inch x 30-inch elliptical reinforced concrete pipe (RCP) and into a large pond on the golf course. Drainage continues northeasterly from the large golf course pond via a 30-inch diameter RCP to the 24-inch outfall culvert under Fairway View Drive (Exhibit 3). This system serves as the outfall from tributary areas south of Bunker Hill Drive as well as the upstream Prestwicke Subdivision, west of Clover Drive. Drainage for the Prestwicke Subdivision is served by the northwest pond (NW Pond; Exhibit 3), which discharges to the upstream end of the overall drainage system at the southwest corner of the golf course.

Site Investigation

A site investigation was performed on August 8, 2019 by CBBEL staff. The Village's Utilities Supervisor, Tony Jonas, and the Terrace Hill Golf Course General Manager, Ron Zange, were present during the investigation. The team walked the drainage path from the Prestwicke subdivision along the golf course to the outlet at Fairway View Drive. The following items were noted during the site investigation:

- An inspection of the restrictor manhole (STM 8673) associated with the NW Pond (upstream of the flooding area) indicated that the NW Pond discharges out of the 12-inch diameter pipe in the control structure (Figure 1). The Village Utility Supervisor commented that the NW Pond currently drains from the 12-inch into the downstream 18-inch storm sewer (rather than the 8-inch) and is currently unrestricted. It was also noted that the NW Pond does not fill during storm events and when water is stored in the pond during larger storm events, the draw down time from the NW Pond is rapid.

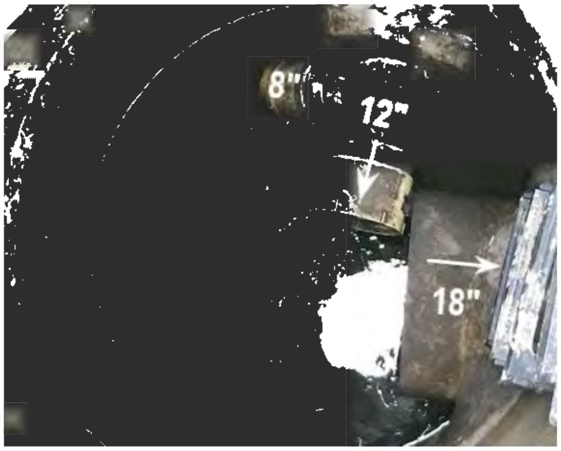


Figure 1: STM 8673 (NW Pond Restrictor Manhole)

- The outlet of the large golf course pond has an approximately 18-inch high steel plate bolted to the bottom of the outlet pipe (invert at 884.15 feet). This has effectively raised the outfall elevation from the pond 1.5 feet and has set the normal water level in the pond at elevation 885.65 feet (Figure 2).
- The site-specific survey indicates that the storm sewer structures between the flooding area and large pond on the golf course were full of water. Exhibit 3 shows the water surface elevation in the large golf course pond and in the upstream storm sewer structures. It is noted that the water surface elevation in the large golf course pond is approximately equivalent to the water elevation within each of the upstream storm sewer structures. This elevation is also approximately equal to the elevation of the top of the steel plate on the outlet of the large golf course pond. This indicates that the steel plate on the outlet of the large golf course pond is controlling the upstream water surface elevations in the storm sewer system.

Figure 2: Outlet of Large Golf Course Pond

- The inlet to the large golf course pond was submerged approximately 3 feet at the time of the site investigation (Figure 3). The golf course manager expressed concern that debris could be trapped inside the inlet pipe due to the grate on the end of the flared end section trapping this material, potentially blocking conveyance.

Figure 3: Inlet of Large Pond on Golf Course

- It was also observed that the normal water level of the North Pond in the Terrace Lakes Subdivision (south of Bunker Hill Drive) was measured to be 8 inches above the invert of the North Pond outfall pipe (Figure 4). Adding the observed 8-inch water depth to the surveyed invert of the North Pond outfall, the normal water level in the North Pond is approximately 0.1 feet above the invert of the steel plate on the large golf course pond. This is consistent with the steel plate controlling the overall drainage system.

Figure 4: Outlet of Terrace Lakes Subdivision - North Pond

Existing Conditions Drainage Analysis

An XP-SWMM hydrologic and hydraulic model was developed in the previous drainage study using subdivision plans, site topographic survey, Kane County aerial topographic mapping, and the Village's storm sewer atlas. The model has been updated to include new information including: the NW Pond, the ponds south of Bunker Hill Drive, and additional site-specific storm sewer survey.

A critical duration analysis was performed to simulate existing conditions and define a baseline condition for which all proposed alternatives would be evaluated. The 24-hour storm event was determined to be the critical duration event. The results of the existing conditions XP-SWMM analysis are shown in Table 1. **Ponding in the southwest corner of the golf course and rear yards begins at elevation 887.6 feet.**

TABLE 1
Existing Conditions XP-SWMM Results
24-Hour Critical Duration Event

Storm Event	**10-yr**	**25-yr**	**50-yr**	**100-yr**
NW Pond Elev. (ft)[1]	891.6	892.4	893.1	893.9
Discharge from Restrictor (cfs)	4.1	4.6	5.0	5.4
Flooding Area Elev. (ft)	**888.8**	**888.9**	**889.3**	**889.5**
Large Golf Course Pond Elev. (ft)[2]	886.4	886.6	886.7	887.5
Terrace Lakes North Pond Elev. (ft)[3]	888.1	889.1	889.6	890.1
Terrace Lakes South Pond Elev. (ft)[4]	888.3	889.1	889.7	890.1

[1] NW Pond Overtop Elevation = 895 ft

[2] Large Golf Course Pond Overtop Elevation = 886 ft

[3] Terrace Lakes Subdivision North Pond Overtop Elevation = 890 ft

[4] Terrace Lakes Subdivision South Pond Overtop Elevation = 891 ft

The model results were determined to be consistent with the location of the flooding experienced in the southwest corner of the golf course. The existing condition flood depths in the southwest corner for the golf course range from 1.2 feet to 1.9 feet and inundation durations range from 22 hours to 43 hours for the 10- through 100-year design storm events. Exhibit 4 shows the extents of flooding, as modeled by the existing conditions XP-SWMM analysis.

Short-Term Action Items

CBBEL has identified two short-term action items for the Village to implement before the proposed long-term improvements. These short-term action items are shown in Exhibit 5 and described below:

Action Item 1 – Modify Existing Restrictor

Action Item 1 includes modifying the existing restrictor upstream of the flooding area at STM 8673. The existing configuration allows stormwater to discharge through the 12-inch diameter pipe within the structure. A cap should be installed on the existing 12-inch diameter pipe to restrict water and only allow discharge through the existing 8-inch diameter pipe within the structure.

Action Item 2 – Modify Pond Outlet Structure

Action Item 2 includes removing the 18-inch high steel plate bolted to the bottom of the outlet of the large golf course pond. Removing the steel plate will allow water to discharge from the pond at the invert of the outlet pipe (884.15 feet) instead of at the top of the steel plate (885.65 feet) and will lower the normal water level of the pond by approximately 1.5 feet.

The results of the implementation of Action Items 1 and 2 are shown in Table 2.

TABLE 2
Action Items 1 + 2 XP-SWMM Results
24-Hour Critical Duration Event

Storm Event	10-yr		25-yr		50-yr		100-yr	
	Exist	Prop	Exist	Prop	Exist	Prop	Exist	Prop
NW Pond Elev. (ft)[1]	891.6	892.0	892.4	892.8	893.1	893.6	893.9	894.5
Discharge from Restrictor (cfs)	4.1	3.1	4.6	3.2	5.0	3.5	5.4	3.8
Flooding Area Elev. (ft)	888.8	888.5	888.9	888.9	889.3	889.2	889.5	889.4
Large Golf Course Pond Elev. (ft)[2]	886.4	885.9	886.6	886.4	886.7	886.7	887.5	887.3
Terrace Lakes North Pond Elev. (ft)[3]	888.1	887.9	889.1	888.8	889.6	889.5	890.1	890.0
Terrace Lakes South Pond Elev. (ft)[4]	888.3	888.1	889.1	889.0	889.7	889.6	890.1	890.1

[1] NW Pond Overtop Elevation = 895 ft

[2] Large Golf Course Pond Overtop Elevation = 886 ft

[3] Terrace Lakes Subdivision North Pond Overtop Elevation = 890 ft

[4] Terrace Lakes Subdivision South Pond Overtop Elevation = 891 ft

The results show that restricting the NW Pond with the 8-inch diameter pipe increases the water elevation in the upstream pond without overtopping, and slightly decreases the depth of the water within the flooding area (~0.3 feet for the 10-year storm event, ~0.1 for larger storm events). With the smaller restrictor, runoff flowing to the southwest corner of the golf course is reduced, which results in slightly less depth and duration of standing water in the flooding area.

With the implementation of both action items, the duration of the standing water in the flooding area decreases by approximately 7 hours for all storm events. This results in inundation duration of 15 to 36 hours for the 10- through 100-year design storms, a decrease from approximately 22 hours to 43 hours for the 10- through 100-year design storm events hours under existing conditions.

Removing the steel plate from the large golf course pond will decrease the standing water in the structures upstream of the large golf course pond. This will allow for more conveyance downstream and will lower the normal water elevation of the large golf course pond by approximately 1.5 feet (height of the steel plate). The golf course manager expressed concern about fish kill and side slope scouring as the existing pond is not very deep and there are fish living in the pond.

Proposed Storm Sewer Improvements

The long-term solution for the nuisance flooding in the southwest corner of the golf course involves a series of storm sewer improvements on and along the golf course. The long-term solution also incorporates the implementation of the two short-term action items.

The proposed storm sewer improvements include a new 30-inch diameter storm sewer that will parallel the existing 36-inch x 30-inch elliptical storm sewer, but instead of discharging to the large gold course pond, the new 30-in storm sewer will connect to the 30-inch diameter storm sewer downstream of the large golf course pond, as shown on Exhibit 6. The installation of the parallel storm sewer will increase conveyance from the flooding area downstream to allow for a decrease of the depth and duration of ponding in the area.

In addition, the Village has expressed concern about the ultimate outlet of the study area (24-inch diameter culvert under Fairway View Drive). At this location, there are two 15-inch diameter culverts that flow east under the road in addition to the 24-inch diameter culvert, as shown on Exhibit 7. CBBEL recommends eliminating the redundant crossings by combining the storm sewers into a single 42-inch diameter culvert under the road. This will reduce maintenance effort in the area and provide sufficient capacity to convey the flow from the area tributary to all three culverts. The actual configuration of the storm sewer improvement will be coordinated with the Village. The results of the implementation of the proposed stormwater improvements are shown in Table 3.

TABLE 3
Proposed Stormwater Improvements XP-SWMM Results
24-Hour Critical Duration Event

Storm Event	**10-yr**		**25-yr**		**50-yr**		**100-yr**	
	Exist	**Prop**	**Exist**	**Prop**	**Exist**	**Prop**	**Exist**	**Prop**
NW Pond Elev. (ft)[1]	891.6	891.8	892.4	892.7	893.1	893.5	893.9	894.4
Discharge from Restrictor (cfs)	4.1	3.6	4.6	3.9	5.0	4.0	5.4	4.2
Flooding Area Elev. (ft)	888.8	887.4	888.9	888.4	889.3	889.0	889.5	889.3
Large Golf Course Pond Elev. (ft)[2]	886.4	886.4	886.6	887.3	886.7	887.8	887.5	888.3
Terrace Lakes North Pond Elev. (ft)[3]	888.1	887.8	889.1	888.7	889.6	889.3	890.1	889.9
Terrace Lakes South Pond Elev. (ft)[4]	888.3	888.0	889.1	888.9	889.7	889.5	890.1	890.0

[1] NW Pond Overtop Elevation = 895 ft

[2] Large Golf Course Pond Overtop Elevation = 886 ft

[3] Terrace Lakes Subdivision North Pond Overtop Elevation = 890 ft

[4] Terrace Lakes Subdivision South Pond Overtop Elevation = 891 ft

The results show that with the proposed stormwater improvements, the water surface elevation in the southwest corner of the golf course is below the beginning ponding elevation of 887.6 feet for the 10-year design storm event. The results also show that the maximum inundation duration is approximately 18 hours for the 100-year design storm event, which is a decrease from approximately 43 hours for the 100-year design storm event under existing conditions.

The proposed improvements provide a 10-year level of service for the overall system, limiting the system to no ponding for storm events up to the 10-year design storm and overland flow continuing for storm events greater than the 10-year and up to the 100-year design storms. **This is consistent with Village design standards.** The engineers estimate of probable cost for the proposed stormwater improvements is approximately $875,000 assuming a 25% contingency (Appendix 1).

Summary

CBBEL has identified both short- and long-term solutions to mitigate the depth and duration of the nuisance flooding in the southwest corner of the Terrace Hills golf course. Each solution and its benefit to the study area is described below:

Short-Term Solutions:

CBBEL recommends the implementation of two short-term solutions (Action Items 1 & 2).

- Action Item 1 includes modifying the existing restrictor for the NW Pond, from 12-inch diameter to 8-inch diameter. The results show that the smaller restrictor will allow less water to enter the area from the NW pond resulting in a small decrease in depth and duration of the flooding.
- Action Item 2 includes removing the existing 18-inch steel plate from the outlet structure of the large golf course pond. Removing the steel plate will decrease standing water surface elevations in the storm structures upstream of the large golf course pond. This will improve conveyance, not only of the upstream storm sewer, but also of the flooding area.

Long-Term Solutions:

CBBEL recommends the implementation of the following stormwater improvements.

- Installation of a new 30-inch storm sewer parallel to the existing 36-inch x 30-inch elliptical storm sewer that would discharge to the 30-inch diameter storm sewer downstream of the large golf course pond. The parallel storm sewer will increase the conveyance from the ponding area in the southwest corner of the golf course to decrease the depth and duration of ponding.
- Elimination of the redundant culverts under Fairway View Drive and replacing them with a single 42-inch diameter culvert under the road to reduce maintenance effort for the Village.

The implementation of both the short-term action items and the proposed stormwater improvements reduce ponding below the storm sewer rim in the southwest corner of the golf course for the 10-year design storm and considerably reduces inundation durations for storm events larger than the 10-year design storm. The engineers estimate of probable cost for the proposed storm sewer improvements is approximately $875,000 assuming a 25% contingency.

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1 inch = 600 feet

DSGN.		CHKD.	

Christopher B. Burke Engineering, Ltd.
9575 West Higgins Road, Suite 600
Rosemont, IL 60018
(847) 823-0500 / FAX (847) 823-0520

CLIENT Village of Algonquin

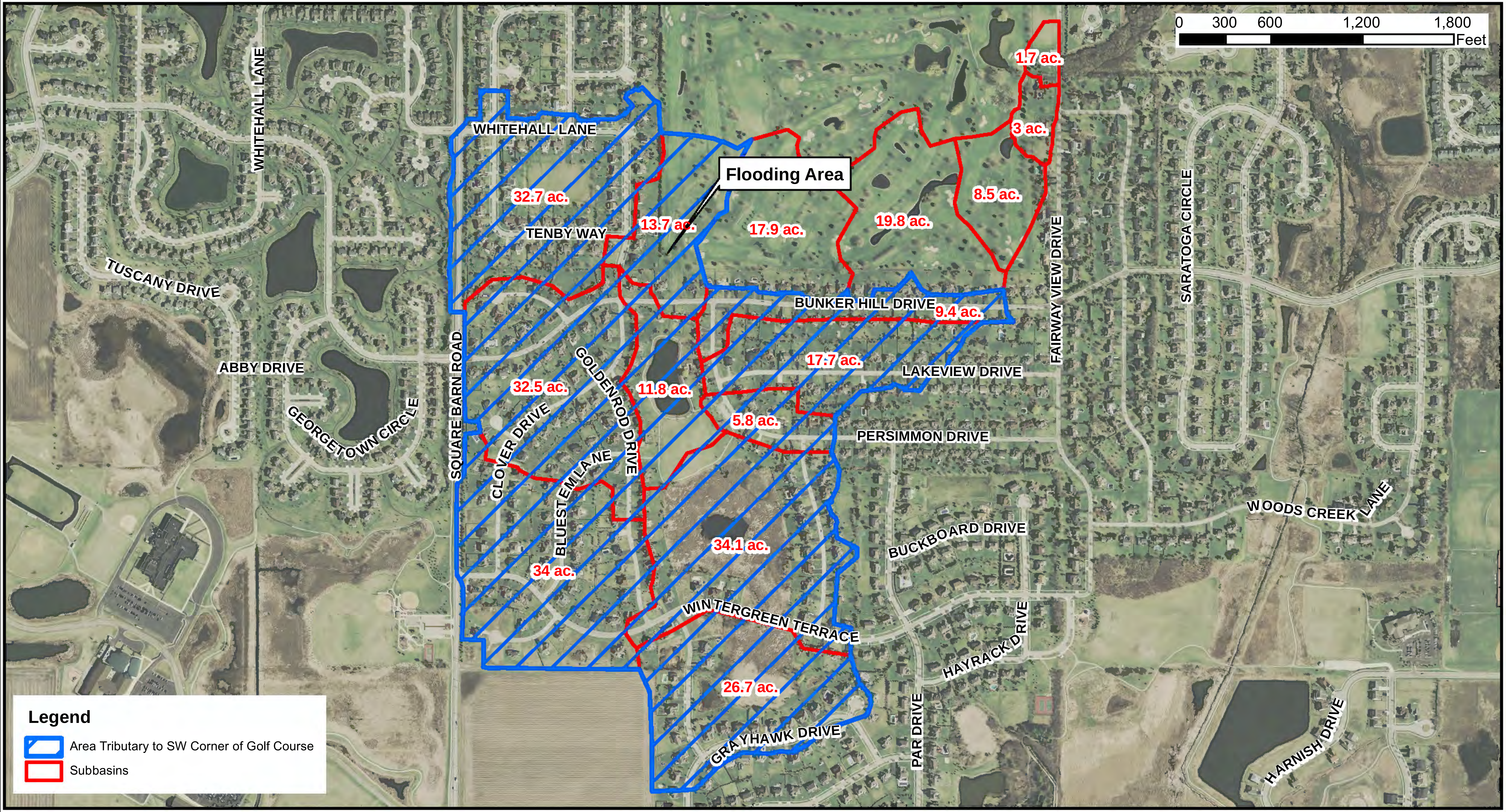
PROJECT NO. 070273.00109

TITLE

Location Map

DATE 08/16/19

EXHIBIT 1



1 inch = 600 feet

DSGN.

CHKD.

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CLIENT Village of Algonquin

PROJECT NO. 070273.00109

TITLE **Tributary Area**

DATE 08/16/19

EXHIBIT 2

1 inch = 400 feet

DSGN.		CHKD.	

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CLIENT Village of Algonquin

PROJECT NO. 070273.00109

TITLE

Drainage Map

DATE 08/16/19

EXHIBIT 3

1 inch = 100 feet

DSGN.		CHKD.	

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CLIENT Village of Algonquin

PROJECT NO. 070273.00109

TITLE

Existing Inundation Map

DATE 08/16/19

EXHIBIT 4

1 inch = 400 feet

DSGN.		CHKD.	

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CLIENT Village of Algonquin

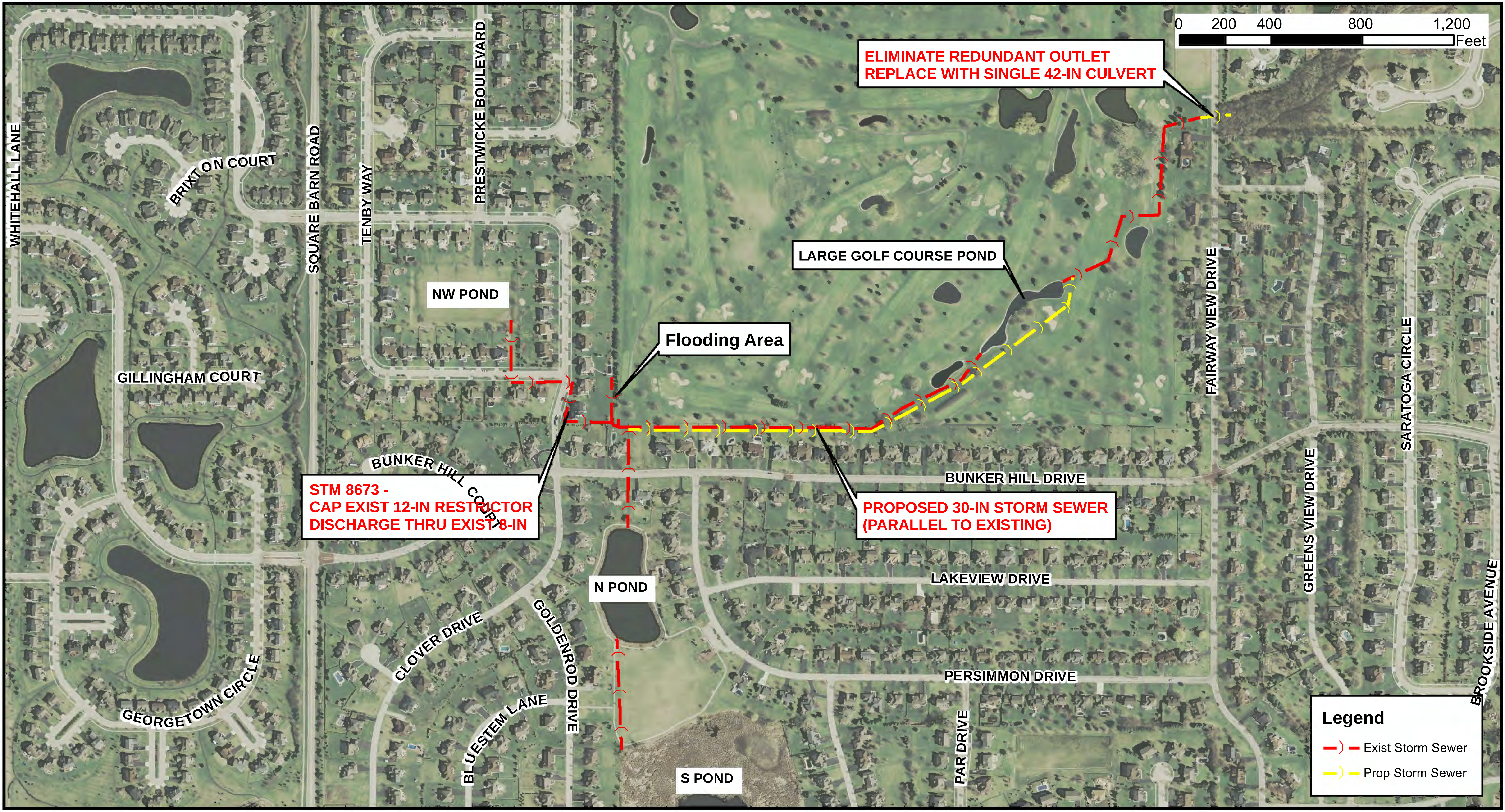
PROJECT NO. 070273.00109

TITLE

Short-Term Action Items

DATE 08/16/19

EXHIBIT 5



1 inch = 400 feet

DSGN.		CHKD.	

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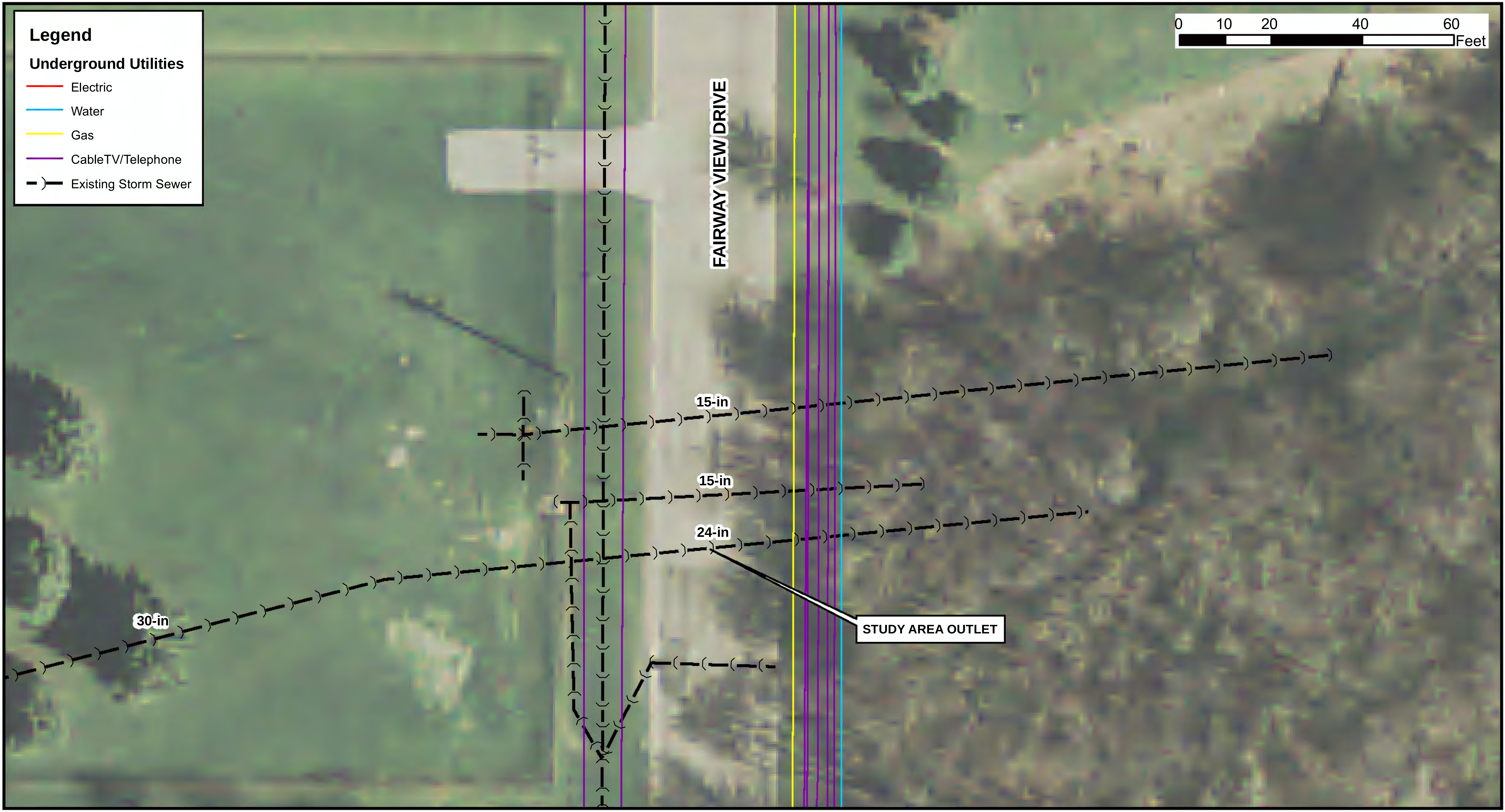
CLIENT	Village of Algonquin	PROJECT NO.	070273.00109
TITLE	**Proposed Stormwater Improvements**	DATE	08/16/19
			EXHIBIT 6



1 inch = 20 feet

DSGN.		CHKD.	

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CLIENT Village of Algonquin

PROJECT NO. 070273.00109

TITLE

Outlet at Fairway View Drive

DATE 08/16/19

EXHIBIT 7

Appendix 1
Engineer's Opinion on Probable Cost

CHRISTOPHER B. BURKE ENGINEERING LTD
9575 WEST HIGGINS ROAD, SUITE 600
ROSEMONT, IL 60018

VILLAGE OF ALGONQUIN
TERRACE HILL GOLF COURSE DRAINAGE STUDY

ENGINEER'S OPINION OF PROBABLE COST
DATE: August 28, 2019
REVISED: September 3, 2019

Calculated By: JMD
Checked By: JAL / LMF

ITEM	UNIT	UNIT COST	QUANTITY	TOTAL COST
TREE REMOVAL	L. SUM	$ 2,500.00	1	$ 2,500.00
TRENCH BACKFILL	CU YD	$ 75.00	30	$ 2,250.00
TOPSOIL FURNISH AND PLACE, 6"	SQ YD	$ 3.00	8,500	$ 25,500.00
GOLF COURSE SEED	SQ YD	$ 5.00	8,500	$ 42,500.00
EROSION CONTROL BLANKET	SQ YD	$ 3.00	8,500	$ 25,500.00
STONE RIPRAP AND FILTER FABRIC	SQ YD	$ 100.00	25	$ 2,500.00
CLASS D PATCHES, 6" (SPECIAL)	SQ YD	$ 100.00	30	$ 3,000.00
PIPE CULVERTS, 42"	FOOT	$ 175.00	300	$ 52,500.00
REINFORCED CONCRETE FLARED END SECTIONS, 42" W/ GRATE	EACH	$ 5,000.00	1	$ 5,000.00
STORM SEWER, RCP 30"	FOOT	$ 100.00	2,350	$ 235,000.00
STORM SEWER REMOVAL	FOOT	$ 15.00	225	$ 3,375.00
CATCH BASINS, TYPE A, 4'-DIAMETER, T1F, CLOSED LID	EACH	$ 5,000.00	14	$ 70,000.00
CATCH BASINS, TYPE A, 6'-DIAMETER, T1F, CLOSED LID	EACH	$ 6,000.00	3	$ 18,000.00
ABANDON AND CAP EXISTING STORM SEWER	EACH	$ 1,000.00	3	$ 3,000.00
STRUCTURE TO BE ABANDONED	EACH	$ 5,000.00	1	$ 5,000.00
DRAINAGE STRUCTURE REMOVAL	EACH	$ 500.00	4	$ 2,000.00
TEMPORARY CONSTRUCTION FENCE	FOOT	$ 10.00	1,200	$ 12,000.00
STABILIZED CONSTRUCTION ENTRANCE	EACH	$ 2,000.00	2	$ 4,000.00
GOLF COURSE SAND TRAP REPLACEMENT	L. SUM	$ 5,000.00	1	$ 5,000.00
GOLF COURSE IRRIGATION REPLACEMENT	L. SUM	$ 10,000.00	1	$ 10,000.00
MOBILIZATION	L. SUM		1	$ 50,000.00
TRAFFIC CONTROL AND PROTECTION	L. SUM		1	$ 7,500.00
CONSTRUCTION LAYOUT	L. SUM		1	$ 7,500.00

SUBTOTAL = $ 593,625.00
CONTINGENCY (25%) = $ 148,406.25
CONSTRUCTION TOTAL = $ 742,031.25

DESIGN ENGINEERING (7.5%) = $ 56,000.000
CONSTRUCTION ENGINEERING (7.5%) = $ 56,000.000
PERMITTING = $ 19,000.000

TOTAL COST OF IMPROVEMENTS = $ 873,031.25

NOTES:
1. THIS ESTIMATE DOES NOT INCLUDE ROW ACQUISITION, TEMPORARY OR CONSTRUCTION EASEMENTS, OR RELOCATING ANY EXISTING UTILITES.
2. THIS ESTIMATE ASSUMES 2019 CONSTRUCTION COSTS.
3. THIS ESTIMATE ASSUMES ALL EXCAVATED MATERIAL TO BE HAULED-OFF MEETS CCDD REQUIREMENTS.
4. THIS ESTIMATE ASSUMES CONSTRUCTION FENCE ADJACENT TO HOMES ONLY.
5. THIS ESTIMATE ASSUMES LANDSCAPE RESTORATION ON GOLF COURSE PROPERTY IS 30 FEET WIDE.

EXHIBIT 2H

EXISTING CONDITIONS ANALYSIS

SUPPORTING DOCUMENTATION

Worksheet 2: Runoff Curve Number and Runoff

Project Trails of Woods Creek By CAB Date 2/12/2020
Location Algonquin, IL Rev Date

Circle one: [✓ Present] Developed **SUBAREA 001**

1. Runoff curve number (CN)

Soil Name and Hydroogic Group	Cover Description (cover type, treatment, and hydrologic condition; percent impervious; unconnected/connected impervious area ratio)	CN [1/] Table 2-2	CN [1/] Fig. 2-3	CN [1/] Fig. 2-4	Area _X_ acres __mi2 __%	Product of CN x Area
C	Open Space (Good Condition)	74			30.52	2258.48
C	Edge of Water	98			1.85	181.3
C	Impervious Area	98			0.44	43.12
				Totals =	32.81	2482.900

1/ Use only one CN source per line.

$$\text{CN (weighted)} = \frac{\text{Total Product}}{\text{Total Area}} = \frac{2482.900}{32.810} = 75.675$$

Use CN = 76

2. Runoff

		Storm #1	Storm #2	Storm #3
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.)

Worksheet 2: Runoff Curve Number and Runoff

Project Trails of Woods Creek By CAB Date 2/12/2020
Location Algonquin, IL Rev Date

Circle one: [✓ Present] Developed **SUBAREA 001A**

1. Runoff curve number (CN)

Soil Name and Hydroogic Group	Cover Description (cover type, treatment, and hydrologic condition; percent impervious; unconnected/connected impervious area ratio)	CN [1/] Table 2-2	Fig. 2-3	Fig. 2-4	Area _X_ acres __mi2 __%	Product of CN x Area
C	Open Space (Good Condition)	74			5.00	370
C	Edge of Water	98			0.08	7.84
C	Impervious Area	98			0.14	13.72
				Totals =	5.22	391.560

1/ Use only one CN source per line.

$$\text{CN (weighted)} = \frac{\text{Total Product}}{\text{Total Area}} = \frac{391.560}{5.220} = 75.011$$

Use CN = 75

2. Runoff

		Storm #1	Storm #2	Storm #3
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.)

Worksheet 2: Runoff Curve Number and Runoff

Project Trails of Woods Creek
Location Algonquin, IL
By CAB
Rev
Date 2/12/2020
Date

Circle one: [✓ Present] Developed

SUBAREA 001B

1. Runoff curve number (CN)

Soil Name and Hydroogic Group	Cover Description (cover type, treatment, and hydrologic condition; percent impervious; unconnected/connected impervious area ratio)	CN [1/] Table 2-2	Fig. 2-3	Fig. 2-4	Area _X_ acres __mi2 __%	Product of CN x Area
C	Open Space (Good Condition)	74			6.72	497.28
C	Edge of Water	98			0.09	8.82
C	Impervious Area	98			0.05	4.9
				Totals =	6.86	511.000

1/ Use only one CN source per line.

$$\text{CN (weighted)} = \frac{\text{Total Product}}{\text{Total Area}} = \frac{511.000}{6.860} = 74.490$$

Use CN = 74

2. Runoff

		Storm #1	Storm #2	Storm #3
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.)

Worksheet 2: Runoff Curve Number and Runoff

Project Trails of Woods Creek
By CAB
Date 11/4/2019
Location Algonquin, IL
Rev
Date

Circle one: [✓ Present] Developed

SUBAREA 002

1. Runoff curve number (CN)

Soil Name and Hydroogic Group	Cover Description (cover type, treatment, and hydrologic condition; percent impervious; unconnected/connected impervious area ratio)	CN [1/] Table 2-2	Fig. 2-3	Fig. 2-4	Area _X_ acres __mi2 __%	Product of CN x Area
C	Open Space (Good Condition)	74			0.60	44.4
C	Impervious Area	98			0.01	0.98
				Totals =	0.61	45.380

1/ Use only one CN source per line.

$$\text{CN (weighted)} = \frac{\text{Total Product}}{\text{Total Area}} = \frac{45.380}{0.610} = 74.393$$

Use CN = 74

2. Runoff

		Storm #1	Storm #2	Storm #3
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.)

Worksheet 2: Runoff Curve Number and Runoff

Project Trails of Woods Creek By CAB Date 3/16/2020
Location Algonquin, IL Rev Date

Circle one: [✓ Present] Developed **SUBAREA 003**

1. Runoff curve number (CN)

Soil Name and Hydroogic Group	Cover Description (cover type, treatment, and hydrologic condition; percent impervious; unconnected/connected impervious area ratio)	CN [1/] Table 2-2	CN [1/] Fig. 2-3	CN [1/] Fig. 2-4	Area _X_ acres __mi2 __%	Product of CN x Area
C	Open Space (Good Condition)	74			5.16	381.84
C	Impervious Area	98			1.84	180.32
				Totals =	7.00	562.160

[1/] Use only one CN source per line.

CN (weighted) = Total Product / Total Area = 562.160 / 7.000 = 80.309

Use CN = 80

2. Runoff

		Storm #1	Storm #2	Storm #3
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.)

Worksheet 2: Runoff Curve Number and Runoff

Project Trails of Woods Creek
Location Algonquin, IL
By CAB
Rev
Date 3/16/2020
Date

Circle one: [✓ Present] Developed

SUBAREA 003A

1. Runoff curve number (CN)

Soil Name and Hydroogic Group	Cover Description (cover type, treatment, and hydrologic condition; percent impervious; unconnected/connected impervious area ratio)	CN [1/] Table 2-2	Fig. 2-3	Fig. 2-4	Area _X_ acres __mi2 __%	Product of CN x Area
C	Open Space (Good Condition)	74			13.60	1006.4
C	Edge of Water	98			0.22	21.56
C	Impervious Area	98			0.50	49
			Totals =		14.32	1076.960

1/ Use only one CN source per line.

$$\text{CN (weighted)} = \frac{\text{Total Product}}{\text{Total Area}} = \frac{1076.960}{14.320} = 75.207$$

Use CN = 75

2. Runoff

		Storm #1	Storm #2	Storm #3
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.)

Worksheet 2: Runoff Curve Number and Runoff

Project Trails of Woods Creek

Location Algonquin, IL

By CAB

Rev

Date 3/16/2020

Date

Circle one: [✓ Present] Developed

SUBAREA 003B

1. Runoff curve number (CN)

Soil Name and Hydroogic Group	Cover Description (cover type, treatment, and hydrologic condition; percent impervious; unconnected/connected impervious area ratio)	CN [1/] Table 2-2	Fig. 2-3	Fig. 2-4	Area _X_ acres __mi2 __%	Product of CN x Area
C	Open Space (Good Condition)	74			4.14	306.36
C	Edge of Water	98			0.09	8.82
				Totals =	4.23	315.180

1/ Use only one CN source per line.

CN (weighted) = Total Product / Total Area = 315.180 / 4.230 = 74.511

Use CN = 75

2. Runoff

		Storm #1	Storm #2	Storm #3
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.)

Worksheet 2: Runoff Curve Number and Runoff

Project Trails of Woods Creek By CAB Date 11/4/2019
Location Algonquin, IL Rev Date

Circle one: [✓ Present] Developed **SUBAREA 004**

1. Runoff curve number (CN)

Soil Name and Hydroogic Group	Cover Description (cover type, treatment, and hydrologic condition; percent impervious; unconnected/connected impervious area ratio)	CN [1/] Table 2-2	Fig. 2-3	Fig. 2-4	Area _X_ acres __mi2 __%	Product of CN x Area
C	Open Space (Good Condition)	74			8.66	640.84
C	Impervious Area	98			0.08	7.84
				Totals =	8.74	648.680

1/ Use only one CN source per line.

CN (weighted) = Total Product / Total Area = 648.680 / 8.740 = 74.220

Use CN = 74

2. Runoff

		Storm #1	Storm #2	Storm #3
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.)

Worksheet 2: Runoff Curve Number and Runoff

Project Trails of Woods Creek By CAB Date 11/4/2019
Location Algonquin, IL Rev Date

Circle one: [✓ Present] Developed **SUBAREA 005**

1. Runoff curve number (CN)

Soil Name and Hydroogic Group	Cover Description (cover type, treatment, and hydrologic condition; percent impervious; unconnected/connected impervious area ratio)	CN [1/] Table 2-2	Fig. 2-3	Fig. 2-4	Area _X_ acres __mi2 __%	Product of CN x Area
C	Open Space (Good Condition)	74			4.49	332.26
C	Impervious Area	98			0.04	3.92
				Totals =	4.53	336.180

1/ Use only one CN source per line.

CN (weighted) = Total Product / Total Area = 336.180 / 4.530 = 74.212

Use CN = 74

2. Runoff

		Storm #1	Storm #2	Storm #3
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.)

Worksheet 2: Runoff Curve Number and Runoff

Project Trails of Woods Creek
By CAB
Date 11/4/2019
Location Algonquin, IL
Rev
Date

Circle one: [✓ Present] Developed

SUBAREA 006

1. Runoff curve number (CN)

		CN 1/			Area	
Soil Name and Hydroogic Group	Cover Description (cover type, treatment, and hydrologic condition; percent impervious; unconnected/connected impervious area ratio)	Table 2-2	Fig. 2-3	Fig. 2-4	_X_ acres __mi2 __%	Product of CN x Area
C	Open Space (Good Condition)	74			14.88	1101.12
C	Edge of Water	98			0.56	54.88
C	Impervious Area	98			0.27	26.46
				Totals =	15.71	1182.460

1/ Use only one CN source per line.

CN (weighted) = Total Product / Total Area = 1182.460 / 15.710 = 75.268

Use CN = 75

2. Runoff

		Storm #1	Storm #2	Storm #3
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.)

Worksheet 2: Runoff Curve Number and Runoff

Project Trails of Woods Creek
Location Algonquin, IL
By CAB
Rev
Date 2/10/2020
Date

Circle one: [✓ Present] Developed

SUBAREA 007

1. Runoff curve number (CN)

Soil Name and Hydroogic Group	Cover Description (cover type, treatment, and hydrologic condition; percent impervious; unconnected/connected impervious area ratio)	CN [1/] Table 2-2	Fig. 2-3	Fig. 2-4	Area _X_ acres __mi2 __%	Product of CN x Area
C	Open Space (Good Condition)	74			7.75	573.5
C	Edge of Water	98			0.22	21.56
C	Impervious Area	98			0.15	14.7
				Totals =	8.12	609.760

1/ Use only one CN source per line.

$$\text{CN (weighted)} = \frac{\text{Total Product}}{\text{Total Area}} = \frac{609.760}{8.120} = 75.094$$

Use CN = 75

2. Runoff

		Storm #1	Storm #2	Storm #3
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.)

Worksheet 2: Runoff Curve Number and Runoff

Project Trails of Woods Creek By CAB Date 2/12/2020
Location Algonquin, IL Rev Date

Circle one: [✓ Present] Developed **SUBAREA 008**

1. Runoff curve number (CN)

Soil Name and Hydroogic Group	Cover Description (cover type, treatment, and hydrologic condition; percent impervious; unconnected/connected impervious area ratio)	CN [1/] Table 2-2	Fig. 2-3	Fig. 2-4	Area _X_ acres __mi2 __%	Product of CN x Area
C	Open Space (Good Condition)	74			23.31	1724.94
C	Edge of Water	98			0.40	39.2
C	Impervious Area	98			0.29	28.42
				Totals =	24.00	1792.560

1/ Use only one CN source per line.

$$\text{CN (weighted)} = \frac{\text{Total Product}}{\text{Total Area}} = \frac{1792.560}{24.000} = 74.690$$

Use CN = 75

2. Runoff

		Storm #1	Storm #2	Storm #3
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.)

Worksheet 2: Runoff Curve Number and Runoff

Project Trails of Woods Creek By CAB Date 2/12/2020
Location Algonquin, IL Rev Date

Circle one: [✓ Present] Developed **SUBAREA 008A**

1. Runoff curve number (CN)

Soil Name and Hydroogic Group	Cover Description (cover type, treatment, and hydrologic condition; percent impervious; unconnected/connected impervious area ratio)	CN 1/ Table 2-2	Fig. 2-3	Fig. 2-4	Area _X_ acres __mi2 __%	Product of CN x Area
C	Open Space (Good Condition)	74			1.77	130.98
C	Edge of Water	98			0.05	4.9
C	Impervious Area	98			0.05	4.9
				Totals =	1.87	140.780

1/ Use only one CN source per line.

$$\text{CN (weighted)} = \frac{\text{Total Product}}{\text{Total Area}} = \frac{140.780}{1.870} = 75.283$$

Use CN = 75

2. Runoff

		Storm #1	Storm #2	Storm #3
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.)

Worksheet 2: Runoff Curve Number and Runoff

Project Trails of Woods Creek By CAB Date 2/12/2020
Location Algonquin, IL Rev Date

Circle one: [✓ Present] Developed **SUBAREA 008B**

1. Runoff curve number (CN)

Soil Name and Hydroogic Group	Cover Description (cover type, treatment, and hydrologic condition; percent impervious; unconnected/connected impervious area ratio)	CN 1/ Table 2-2	CN 1/ Fig. 2-3	CN 1/ Fig. 2-4	Area _X_ acres __mi2 __%	Product of CN x Area
C	Open Space (Good Condition)	74			2.10	155.4
C	Edge of Water	98			0.19	18.62
				Totals =	2.29	174.020

1/ Use only one CN source per line.

$$\text{CN (weighted)} = \frac{\text{Total Product}}{\text{Total Area}} = \frac{174.020}{2.290} = 75.991$$

Use CN = 76

2. Runoff

		Storm #1	Storm #2	Storm #3
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.)

Worksheet 2: Runoff Curve Number and Runoff

Project Trails of Woods Creek
Location Algonquin, IL
By CAB
Rev
Date 2/12/2020
Date

Circle one: [✓ Present] Developed

SUBAREA 009

1. Runoff curve number (CN)

Soil Name and Hydroogic Group	Cover Description (cover type, treatment, and hydrologic condition; percent impervious; unconnected/connected impervious area ratio)	CN [1] Table 2-2	CN [1] Fig. 2-3	CN [1] Fig. 2-4	Area _X_ acres __mi2 __%	Product of CN x Area
C	Open Space (Good Condition)	74			1.03	76.22
C	Edge of Water	98			0.16	15.68
C	Impervious Area	98			0.07	6.86
				Totals =	1.26	98.760

[1] Use only one CN source per line.

CN (weighted) = Total Product / Total Area = 98.760 / 1.260 = 78.381

Use CN = 78

2. Runoff

		Storm #1	Storm #2	Storm #3
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.)

Worksheet 2: Runoff Curve Number and Runoff

Project Trails of Woods Creek By CAB Date 11/4/2019
Location Algonquin, IL Rev Date

Circle one: [✓ Present] Developed **SUBAREA 020**

1. Runoff curve number (CN)

Soil Name and Hydroogic Group	Cover Description (cover type, treatment, and hydrologic condition; percent impervious; unconnected/connected impervious area ratio)	CN [1/] Table 2-2	Fig. 2-3	Fig. 2-4	Area _X_ acres __mi2 __%	Product of CN x Area
C	Residential (1/2 Acre)	80			2.60	208
C	Open Space - Good Condition	74			0.25	18.5
				Totals =	2.85	226.500

1/ Use only one CN source per line.

CN (weighted) = Total Product / Total Area = 226.500 / 2.850 = 79.474

Use CN = 79

2. Runoff

		Storm #1	Storm #2	Storm #3
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.)

Worksheet 2: Runoff Curve Number and Runoff

Project Trails of Woods Creek By CAB Date 11/4/2019
Location Algonquin, IL Rev Date

Circle one: [✓ Present] Developed **SUBAREA 021**

1. Runoff curve number (CN)

Soil Name and Hydroogic Group	Cover Description (cover type, treatment, and hydrologic condition; percent impervious; unconnected/connected impervious area ratio)	CN [1/] Table 2-2	CN [1/] Fig. 2-3	CN [1/] Fig. 2-4	Area _X_ acres __mi2 __%	Product of CN x Area
C	Residential (1/2 Acre)	80			5.26	420.8
				Totals =	5.26	420.800

1/ Use only one CN source per line.

$$\text{CN (weighted)} = \frac{\text{Total Product}}{\text{Total Area}} = \frac{420.800}{5.260} = 80.000$$

Use CN = 80

2. Runoff

		Storm #1	Storm #2	Storm #3
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.)

Worksheet 2: Runoff Curve Number and Runoff

Project Trails of Woods Creek By CAB Date 11/4/2019
Location Algonquin, IL Rev Date

Circle one: [✓ Present] Developed **SUBAREA 022**

1. Runoff curve number (CN)

Soil Name and Hydroogic Group	Cover Description (cover type, treatment, and hydrologic condition; percent impervious; unconnected/connected impervious area ratio)	CN [1/] Table 2-2	Fig. 2-3	Fig. 2-4	Area _X_ acres __mi2 __%	Product of CN x Area
C	Residential (1/2 Acre)	80			69.79	5583.2
C	Impervious Area	98			0.39	38.22
C	Open Space - Good Condition	74			3.04	224.96
C	Edge of Water	98			2.08	203.84
				Totals =	75.30	6050.220

[1/] Use only one CN source per line.

CN (weighted) = Total Product / Total Area = 6050.220 / 75.300 = 80.348

Use CN = 80

2. Runoff

		Storm #1	Storm #2	Storm #3
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.)

Worksheet 2: Runoff Curve Number and Runoff

Project Trails of Woods Creek
By CAB
Date 11/4/2019
Location Algonquin, IL
Rev
Date

Circle one: [✓ Present] Developed

SUBAREA 023

1. Runoff curve number (CN)

Soil Name and Hydroogic Group	Cover Description (cover type, treatment, and hydrologic condition; percent impervious; unconnected/connected impervious area ratio)	CN [1/] Table 2-2	Fig. 2-3	Fig. 2-4	Area _X_ acres __mi2 __%	Product of CN x Area
C	Residential (1/2 Acre)	80			54.86	4388.8
C	Impervious Area	98			0.49	48.02
C	Edge of Water	98			0.85	83.3
C	Open Space - Good Condition	74			2.31	170.94
C	Brush - Good Condition	65			12.57	817.05
				Totals =	71.08	5508.110

1/ Use only one CN source per line.

CN (weighted) = Total Product / Total Area = 5508.110 / 71.080 = 77.492

Use CN = 77

2. Runoff

		Storm #1	Storm #2	Storm #3
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.)

Worksheet 2: Runoff Curve Number and Runoff

Project Trails of Woods Creek
Location Algonquin, IL
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Date 11/4/2019
Date

Circle one: [✓ Present] Developed **SUBAREA 024**

1. Runoff curve number (CN)

Soil Name and Hydroogic Group	Cover Description (cover type, treatment, and hydrologic condition; percent impervious; unconnected/connected impervious area ratio)	CN 1/ Table 2-2	CN 1/ Fig. 2-3	CN 1/ Fig. 2-4	Area _X_ acres __mi2 __%	Product of CN x Area
C	Residential (1/2 Acre)	80			18.36	1468.8
C	Edge of Water	98			1.22	119.56
C	Open Space - Good Condition	74			2.34	173.16
C	Brush - Good Condition	65			4.83	313.95
				Totals =	26.75	2075.470

1/ Use only one CN source per line.

$$\text{CN (weighted)} = \frac{\text{Total Product}}{\text{Total Area}} = \frac{2075.470}{26.750} = 77.588$$

Use CN = 78

2. Runoff

		Storm #1	Storm #2	Storm #3
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.)

Worksheet 2: Runoff Curve Number and Runoff

Project Trails of Woods Creek By CAB Date 11/4/2019
Location Algonquin, IL Rev Date

Circle one: [✓ Present] Developed **SUBAREA 025**

1. Runoff curve number (CN)

Soil Name and Hydroogic Group	Cover Description (cover type, treatment, and hydrologic condition; percent impervious; unconnected/connected impervious area ratio)	CN [1] Table 2-2	CN [1] Fig. 2-3	CN [1] Fig. 2-4	Area _X_ acres __mi2 __%	Product of CN x Area
C	Residential (1/2 Acre)	80			3.91	312.8
				Totals =	3.91	312.800

[1] Use only one CN source per line.

CN (weighted) = Total Product / Total Area = 312.800 / 3.910 = 80.000

Use CN = 80

2. Runoff

		Storm #1	Storm #2	Storm #3
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.)

Worksheet 2: Runoff Curve Number and Runoff

Project Trails of Woods Creek By CAB Date 11/4/2019
Location Algonquin, IL Rev Date

Circle one: [✓ Present] Developed **SUBAREA 026**

1. Runoff curve number (CN)

Soil Name and Hydroogic Group	Cover Description (cover type, treatment, and hydrologic condition; percent impervious; unconnected/connected impervious area ratio)	CN [1/] Table 2-2	CN [1/] Fig. 2-3	CN [1/] Fig. 2-4	Area _X_ acres __mi2 __%	Product of CN x Area
C	Residential (1/2 Acre)	80			30.21	2416.8
C	Edge of Water	98			0.83	81.34
C	Open Space - Good Condition	74			0.27	19.98
C	Impervious Area	98			1.10	107.8
				Totals =	32.41	2625.920

1/ Use only one CN source per line.

$$\text{CN (weighted)} = \frac{\text{Total Product}}{\text{Total Area}} = \frac{2625.920}{32.410} = 81.022$$

Use CN = 81

2. Runoff

		Storm #1	Storm #2	Storm #3
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.)

Worksheet 2: Runoff Curve Number and Runoff

Project Trails of Woods Creek
By CAB
Date 11/4/2019
Location Algonquin, IL
Rev
Date

Circle one: [✓ Present] Developed

SUBAREA 027

1. Runoff curve number (CN)

Soil Name and Hydroogic Group	Cover Description (cover type, treatment, and hydrologic condition; percent impervious; unconnected/connected impervious area ratio)	CN [1/] Table 2-2	Fig. 2-3	Fig. 2-4	Area _X_ acres __mi2 __%	Product of CN x Area
C	Impervious Area	98			1.31	128.38
C	Woods - Good Condition	70			3.67	256.9
C	Open Space - Good Condition	74			2.35	173.9
				Totals =	7.33	559.180

1/ Use only one CN source per line.

CN (weighted) = Total Product / Total Area = 559.180 / 7.330 = 76.286

Use CN = 76

2. Runoff

		Storm #1	Storm #2	Storm #3
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.)

Worksheet 2: Runoff Curve Number and Runoff

Project Trails of Woods Creek
Location Algonquin, IL
By CAB
Rev
Date 11/4/2019
Date

Circle one: [✓ Present] Developed

SUBAREA 028

1. Runoff curve number (CN)

Soil Name and Hydroogic Group	Cover Description (cover type, treatment, and hydrologic condition; percent impervious; unconnected/connected impervious area ratio)	CN 1/ Table 2-2	CN 1/ Fig. 2-3	CN 1/ Fig. 2-4	Area _X_ acres __mi2 __%	Product of CN x Area
C	Impervious Area	98			1.08	105.84
C	Woods - Good Condition	70			0.33	23.1
C	Open Space - Good Condition	74			2.10	155.4
				Totals =	3.51	284.340

1/ Use only one CN source per line.

$$\text{CN (weighted)} = \frac{\text{Total Product}}{\text{Total Area}} = \frac{284.340}{3.510} = 81.009$$

Use CN = 81

2. Runoff

		Storm #1	Storm #2	Storm #3
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.)

Worksheet 2: Runoff Curve Number and Runoff

Project Trails of Woods Creek By CAB Date 11/4/2019
Location Algonquin, IL Rev Date

Circle one: [✓ Present] Developed **SUBAREA 029**

1. Runoff curve number (CN)

Soil Name and Hydroogic Group	Cover Description (cover type, treatment, and hydrologic condition; percent impervious; unconnected/connected impervious area ratio)	CN 1/ Table 2-2	CN 1/ Fig. 2-3	CN 1/ Fig. 2-4	Area _X_ acres __mi2 __%	Product of CN x Area
C	Impervious Area	98			1.40	137.2
C	Open Space - Good Condition	74			1.09	80.66
1/ Use only one CN source per line.				Totals =	2.49	217.860

$$\text{CN (weighted)} = \frac{\text{Total Product}}{\text{Total Area}} = \frac{217.860}{2.490} = 87.494$$

Use CN = 87

2. Runoff

		Storm #1	Storm #2	Storm #3
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.)

Project TRAILS OF WOODS CREEK
Location ALGONQUIN, IL

By CAB Date 3/16/2020
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)

Segment ID					
1. Surface Description (Table 3-1)		Grass			
2. Manning's roughness coeff., n (Table 3-1)		0.24			
3. Flow length, L (total L $\leq$ 300 ft)	ft	100			
4. Two-yr 24-hr rainfall, P_2	in	3.34			
5. Land slope, s	ft/ft	0.005			
6. $Tc = \frac{0.007\ (nL)^{0.8}}{P_2^{0.5}\ s^{0.4}}$	hr	0.405	+	=	0.405

Shallow Concentrated Flow

Segment ID					
7. Surface description (paved or unpaved)		unpaved			
8. Flow length, L		570			
9. Watercourse slope, s		0.005			
10. Average velocity, V (figure 3-1)		1.15			
11. $T_t = \frac{L}{3600\ V}$	hr	0.138	+	=	0.138

Channel Flow

Segment ID					
12. Cross sectional flow area, a	ft^2				
13. Wetted perimeter, pw	ft				
14. Hydraulic radius, r= a/pw compute r	ft				
15. Channel Slope, s	ft/ft				
16. Manning's roughness coeff., n					
17. $V = 1.49\ r^{2/3}\ s^{1/2} / n$	ft/s	2.5			
18. Flow length, L	ft				
19. $T_t = \frac{L}{3600\ V}$	hr		+	=	

20. Watershed or subarea T_c or T_t (add T_t in steps 6, 11, and 19) hr 0.543

min 33

Project TRAILS OF WOODS CREEK
Location ALGONQUIN, IL
By CAB Date 3/16/2020
Checked Date

Check one: ☑ Present ☐ Developed
Check one: ☑ Tc ☐ Tt

SUBAREA 001A

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)

	Segment ID					
1.	Surface Description (Table 3-1)		Grass			
2.	Manning's roughness coeff., n (Table 3-1)		0.24			
3.	Flow length, L (total L $\le$ 300 ft)	ft	100			
4.	Two-yr 24-hr rainfall, P_2	in	3.34			
5.	Land slope, s	ft/ft	0.005			
6.	$Tc = \frac{0.007 (nL)^{0.8}}{P_2^{0.5} s^{0.4}}$	hr	0.405	+	=	0.405

Shallow Concentrated Flow

	Segment ID					
7.	Surface description (paved or unpaved)		unpaved			
8.	Flow length, L		270			
9.	Watercourse slope, s		0.012			
10.	Average velocity, V (figure 3-1)		1.78			
11.	$T_t = \frac{L}{3600 V}$	hr	0.042	+	=	0.042

Channel Flow

	Segment ID					
12.	Cross sectional flow area, a	ft^2				
13.	Wetted perimeter, pw	ft				
14.	Hydraulic radius, r= a/pw compute r	ft				
15.	Channel Slope, s	ft/ft				
16.	Manning's roughness coeff., n					
17.	$V= 1.49 r^{2/3} s^{1/2} / n$	ft/s	2.5			
18.	Flow length, L	ft				
19.	$T_t = \frac{L}{3600 V}$	hr		+	=	

20. Watershed or subarea T_c or T_t (add T_t in steps 6, 11, and 19) hr 0.447

min 27

Project TRAILS OF WOODS CREEK
Location ALGONQUIN, IL

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Check one: ☑ Present ☐ Developed
Check one: ☑ Tc ☐ Tt

SUBAREA 001B

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)

Segment ID					
1. Surface Description (Table 3-1)		Grass			
2. Manning's roughness coeff., n (Table 3-1)		0.24			
3. Flow length, L (total L $\leq$ 300 ft)	ft	100			
4. Two-yr 24-hr rainfall, P_2	in	3.34			
5. Land slope, s	ft/ft	0.005			
6. $Tc = \frac{0.007\ (nL)^{0.8}}{P_2^{0.5}\ s^{0.4}}$	hr	0.405	+	=	0.405

Shallow Concentrated Flow

Segment ID					
7. Surface description (paved or unpaved)		unpaved			
8. Flow length, L		240			
9. Watercourse slope, s		0.02			
10. Average velocity, V (figure 3-1)		2.30			
11. $T_t = \frac{L}{3600\ V}$	hr	0.029	+	=	0.029

Channel Flow

Segment ID					
12. Cross sectional flow area, a	ft^2				
13. Wetted perimeter, pw	ft				
14. Hydraulic radius, r= a/pw compute r	ft				
15. Channel Slope, s	ft/ft				
16. Manning's roughness coeff., n					
17. $V= 1.49\ r^{2/3}\ s^{1/2}\ /\ n$	ft/s	2.5			
18. Flow length, L	ft				
19. $T_t = \frac{L}{3600\ V}$	hr		+	=	

20. Watershed or subarea T_c or T_t (add T_t in steps 6, 11, and 19) hr 0.434

min 26

L:\402136\HYDRO\EXIST\Existing Tc.xls
Tab: 001B

Printed: 7/9/2020

Project TRAILS OF WOODS CREEK By CAB Date 3/16/2020
Location ALGONQUIN, IL Checked Date

Check one: ☑ Present ☐ Developed SUBAREA 002
Check one: ☑ Tc ☐ Tt

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)

	Segment ID					
1. Surface Description (Table 3-1)		Grass				
2. Manning's roughness coeff., n (Table 3-1)		0.24				
3. Flow length, L (total L $\leq$ 300 ft)	ft	100				
4. Two-yr 24-hr rainfall, P_2	in	3.34				
5. Land slope, s	ft/ft	0.03				
6. $Tc = \frac{0.007\,(nL)^{0.8}}{P_2^{0.5}\, s^{0.4}}$	hr	0.198	+		=	0.198

Shallow Concentrated Flow

	Segment ID					
7. Surface description (paved or unpaved)		unpaved				
8. Flow length, L						
9. Watercourse slope, s		0.005				
10. Average velocity, V (figure 3-1)		1.15				
11. $T_t = \frac{L}{3600\ V}$	hr		+		=	

Channel Flow

	Segment ID					
12. Cross sectional flow area, a	ft^2					
13. Wetted perimeter, pw	ft					
14. Hydraulic radius, r= a/pw compute r	ft					
15. Channel Slope, s	ft/ft					
16. Manning's roughness coeff., n						
17. $V= 1.49\ r^{2/3}\ s^{1/2} / n$	ft/s	2.5				
18. Flow length, L	ft					
19. $T_t = \frac{L}{3600\ V}$	hr		+		=	

20. Watershed or subarea T_c or T_t (add T_t in steps 6, 11, and 19) hr 0.198

min 12

Project TRAILS OF WOODS CREEK
By CAB
Date 3/16/2020
Location ALGONQUIN, IL
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.

<u>Sheet Flow</u> (Applicable to Tc only)

	Segment ID				
1. Surface Description (Table 3-1)		Grass			
2. Manning's roughness coeff., n (Table 3-1)		0.24			
3. Flow length, L (total L ≤ 300 ft)	ft	100			
4. Two-yr 24-hr rainfall, P_2	in	3.34			
5. Land slope, s	ft/ft	0.01			
6. $Tc = \frac{0.007 (nL)^{0.8}}{P_2^{0.5} s^{0.4}}$	hr	0.307 +		=	0.307

<u>Shallow Concentrated Flow</u>

	Segment ID				
7. Surface description (paved or unpaved)		unpaved			
8. Flow length, L		500			
9. Watercourse slope, s		0.012			
10. Average velocity, V (figure 3-1)		1.78			
11. $T_t = \frac{L}{3600 V}$	hr	0.078 +		=	0.078

<u>Channel Flow</u>

	Segment ID				
12. Cross sectional flow area, a	ft^2				
13. Wetted perimeter, pw	ft				
14. Hydraulic radius, r= a/pw compute r	ft				
15. Channel Slope, s	ft/ft				
16. Manning's roughness coeff., n					
17. $V = 1.49 r^{2/3} s^{1/2} / n$	ft/s	2.5			
18. Flow length, L	ft				
19. $T_t = \frac{L}{3600 V}$	hr	+		=	

20. Watershed or subarea T_c or T_t (add T_t in steps 6, 11, and 19)	hr	0.385
	min	23

Project TRAILS OF WOODS CREEK
Location ALGONQUIN, IL

By CAB Date 3/16/2020
Checked Date

Check one: ☑ Present ☐ Developed
Check one: ☑ Tc ☐ Tt

SUBAREA 003A

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)

	Segment ID					
1. Surface Description (Table 3-1)		Grass				
2. Manning's roughness coeff., n (Table 3-1)		0.24				
3. Flow length, L (total L $\leq$ 300 ft)	ft	100				
4. Two-yr 24-hr rainfall, P_2	in	3.34				
5. Land slope, s	ft/ft	0.01				
6. $Tc = \frac{0.007\ (nL)^{0.8}}{P_2^{0.5}\ s^{0.4}}$	hr	0.307	+		=	0.307

Shallow Concentrated Flow

	Segment ID					
7. Surface description (paved or unpaved)		unpaved				
8. Flow length, L		600				
9. Watercourse slope, s		0.007				
10. Average velocity, V (figure 3-1)		1.36				
11. $T_t = \frac{L}{3600\ V}$	hr	0.123	+		=	0.123

Channel Flow

	Segment ID					
12. Cross sectional flow area, a	ft^2					
13. Wetted perimeter, pw	ft					
14. Hydraulic radius, r= a/pw compute r	ft					
15. Channel Slope, s	ft/ft					
16. Manning's roughness coeff., n						
17. $V = 1.49\ r^{2/3}\ s^{1/2} / n$	ft/s	2.5				
18. Flow length, L	ft					
19. $T_t = \frac{L}{3600\ V}$	hr		+		=	

20. Watershed or subarea T_c or T_t (add T_t in steps 6, 11, and 19)	hr	0.430
	min	26

Project TRAILS OF WOODS CREEK
Location ALGONQUIN, IL

By CAB
Checked

Date 3/16/2020
Date

Check one: ☑ Present ☐ Developed
Check one: ☑ Tc ☐ Tt

SUBAREA 003B

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)

	Segment ID				
1. Surface Description (Table 3-1)		Grass			
2. Manning's roughness coeff., n (Table 3-1)		0.24			
3. Flow length, L (total L $\leq$ 300 ft)	ft	100			
4. Two-yr 24-hr rainfall, P_2	in	3.34			
5. Land slope, s	ft/ft	0.017			
6. $Tc = \frac{0.007\ (nL)^{0.8}}{P_2^{0.5}\ s^{0.4}}$	hr	0.248	+	=	0.248

Shallow Concentrated Flow

	Segment ID				
7. Surface description (paved or unpaved)		unpaved			
8. Flow length, L		120			
9. Watercourse slope, s		0.037			
10. Average velocity, V (figure 3-1)		3.14			
11. $T_t = \frac{L}{3600\ V}$	hr	0.011	+	=	0.011

Channel Flow

	Segment ID				
12. Cross sectional flow area, a	ft^2				
13. Wetted perimeter, pw	ft				
14. Hydraulic radius, r= a/pw compute r	ft				
15. Channel Slope, s	ft/ft				
16. Manning's roughness coeff., n					
17. $V= 1.49\ r^{2/3}\ s^{1/2} / n$	ft/s	2.5			
18. Flow length, L	ft				
19. $T_t = \frac{L}{3600\ V}$	hr		+	=	

20. Watershed or subarea T_c or T_t (add T_t in steps 6, 11, and 19) hr 0.259

min 16

Project TRAILS OF WOODS CREEK By CAB Date 3/16/2020
Location ALGONQUIN, IL Checked Date

Check one: ☑ Present ☐ Developed
Check one: ☑ Tc ☐ Tt

SUBAREA 004

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)

Segment ID					
1. Surface Description (Table 3-1)		Grass			
2. Manning's roughness coeff., n (Table 3-1)		0.24			
3. Flow length, L (total L $\leq$ 300 ft)	ft	100			
4. Two-yr 24-hr rainfall, P_2	in	3.34			
5. Land slope, s	ft/ft	0.005			
6. $Tc = \frac{0.007\ (nL)^{0.8}}{P_2^{0.5}\ s^{0.4}}$	hr	0.405	+	=	0.405

Shallow Concentrated Flow

Segment ID					
7. Surface description (paved or unpaved)		unpaved			
8. Flow length, L		770			
9. Watercourse slope, s		0.005			
10. Average velocity, V (figure 3-1)		1.15			
11. $T_t = \frac{L}{3600\ V}$	hr	0.186	+	=	0.186

Channel Flow

Segment ID					
12. Cross sectional flow area, a	ft^2				
13. Wetted perimeter, pw	ft				
14. Hydraulic radius, r= a/pw compute r	ft				
15. Channel Slope, s	ft/ft				
16. Manning's roughness coeff., n					
17. $V = 1.49\ r^{2/3}\ s^{1/2} / n$	ft/s	2.5			
18. Flow length, L	ft				
19. $T_t = \frac{L}{3600\ V}$	hr		+	=	

20. Watershed or subarea T_c or T_t (add T_t in steps 6, 11, and 19) hr 0.592

min 35

Project TRAILS OF WOODS CREEK By CAB Date 3/16/2020
Location ALGONQUIN, IL Checked Date

Check one: ☑ Present ☐ Developed
Check one: ☑ Tc ☐ Tt

SUBAREA 005

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)

	Segment ID						
1.	Surface Description (Table 3-1)		Grass				
2.	Manning's roughness coeff., n (Table 3-1)		0.24				
3.	Flow length, L (total L $\leq$ 300 ft)	ft	100				
4.	Two-yr 24-hr rainfall, P_2	in	3.34				
5.	Land slope, s	ft/ft	0.005				
6.	$Tc = \frac{0.007\ (nL)^{0.8}}{P_2^{0.5}\ s^{0.4}}$	hr	0.405	+		=	0.405

Shallow Concentrated Flow

	Segment ID						
7.	Surface description (paved or unpaved)		unpaved				
8.	Flow length, L		290				
9.	Watercourse slope, s		0.016				
10.	Average velocity, V (figure 3-1)		2.06				
11.	$T_t = \frac{L}{3600\ V}$	hr	0.039	+		=	0.039

Channel Flow

	Segment ID						
12.	Cross sectional flow area, a	ft^2					
13.	Wetted perimeter, pw	ft					
14.	Hydraulic radius, r= a/pw compute r	ft					
15.	Channel Slope, s	ft/ft					
16.	Manning's roughness coeff., n						
17.	$V= 1.49\ r^{2/3}\ s^{1/2} / n$	ft/s	2.5				
18.	Flow length, L	ft					
19.	$T_t = \frac{L}{3600\ V}$	hr		+		=	

20.	Watershed or subarea T_c or T_t (add T_t in steps 6, 11, and 19)	hr	0.444
		min	27

Project	TRAILS OF WOODS CREEK	By	CAB
		Date	3/16/2020
Location	ALGONQUIN, IL	Checked	
		Date	

Check one: ☑ Present ☐ Developed

Check one: ☑ Tc ☐ Tt

SUBAREA 006

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)

	Segment ID						
1.	Surface Description (Table 3-1)		Grass				
2.	Manning's roughness coeff., n (Table 3-1)		0.24				
3.	Flow length, L (total L ≤ 300 ft)	ft	100				
4.	Two-yr 24-hr rainfall, P_2	in	3.34				
5.	Land slope, s	ft/ft	0.005				
6.	$Tc = \frac{0.007\ (nL)^{0.8}}{P_2^{0.5}\ s^{0.4}}$	hr	0.405	+		=	0.405

Shallow Concentrated Flow

	Segment ID						
7.	Surface description (paved or unpaved)		unpaved				
8.	Flow length, L		460				
9.	Watercourse slope, s		0.014				
10.	Average velocity, V (figure 3-1)		1.93				
11.	$T_t = \frac{L}{3600\ V}$	hr	0.066	+		=	0.066

Channel Flow

	Segment ID						
12.	Cross sectional flow area, a	ft^2					
13.	Wetted perimeter, pw	ft					
14.	Hydraulic radius, r= a/pw compute r	ft					
15.	Channel Slope, s	ft/ft					
16.	Manning's roughness coeff., n						
17.	$V = 1.49\ r^{2/3}\ s^{1/2}\ /\ n$	ft/s	2.5				
18.	Flow length, L	ft					
19.	$T_t = \frac{L}{3600\ V}$	hr		+		=	

20.	Watershed or subarea T_c or T_t (add T_t in steps 6, 11, and 19)	hr	0.472
		min	28

Project TRAILS OF WOODS CREEK
Location ALGONQUIN, IL

By CAB Date 3/16/2020
Checked Date

Check one: ☑ Present ☐ Developed
Check one: ☑ Tc ☐ Tt

SUBAREA 007

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)

Segment ID					
1. Surface Description (Table 3-1)		Grass			
2. Manning's roughness coeff., n (Table 3-1)		0.24			
3. Flow length, L (total L $\leq$ 300 ft)	ft	100			
4. Two-yr 24-hr rainfall, P_2	in	3.34			
5. Land slope, s	ft/ft	0.007			
6. $Tc = \frac{0.007 (nL)^{0.8}}{P_2^{0.5} s^{0.4}}$	hr	0.354	+	=	0.354

Shallow Concentrated Flow

Segment ID					
7. Surface description (paved or unpaved)		unpaved			
8. Flow length, L		290			
9. Watercourse slope, s		0.008			
10. Average velocity, V (figure 3-1)		1.45			
11. $T_t = \frac{L}{3600 V}$	hr	0.055	+	=	0.055

Channel Flow

Segment ID					
12. Cross sectional flow area, a	ft^2				
13. Wetted perimeter, pw	ft				
14. Hydraulic radius, r= a/pw compute r	ft				
15. Channel Slope, s	ft/ft				
16. Manning's roughness coeff., n					
17. $V = 1.49 r^{2/3} s^{1/2} / n$	ft/s	2.5			
18. Flow length, L	ft				
19. $T_t = \frac{L}{3600 V}$	hr		+	=	

20. Watershed or subarea T_c or T_t (add T_t in steps 6, 11, and 19) hr 0.410

min 25

Project TRAILS OF WOODS CREEK By CAB Date 3/16/2020
Location ALGONQUIN, IL Checked Date

Check one: ☑ Present ☐ Developed
Check one: ☑ Tc ☐ Tt

SUBAREA 008

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)

	Segment ID					
1.	Surface Description (Table 3-1)		Grass			
2.	Manning's roughness coeff., n (Table 3-1)		0.24			
3.	Flow length, L (total L $\leq$ 300 ft)	ft	100			
4.	Two-yr 24-hr rainfall, P_2	in	3.34			
5.	Land slope, s	ft/ft	0.0075			
6.	$Tc = \frac{0.007 (nL)^{0.8}}{P_2^{0.5} s^{0.4}}$	hr	0.345	+	=	0.345

Shallow Concentrated Flow

	Segment ID					
7.	Surface description (paved or unpaved)		unpaved			
8.	Flow length, L		920			
9.	Watercourse slope, s		0.004			
10.	Average velocity, V (figure 3-1)		1.03			
11.	$T_t = \frac{L}{3600 V}$	hr	0.249	+	=	0.249

Channel Flow

	Segment ID					
12.	Cross sectional flow area, a	ft^2				
13.	Wetted perimeter, pw	ft				
14.	Hydraulic radius, r= a/pw compute r	ft				
15.	Channel Slope, s	ft/ft				
16.	Manning's roughness coeff., n					
17.	$V= 1.49 r^{2/3} s^{1/2} / n$	ft/s	2.5			
18.	Flow length, L	ft	1600			
19.	$T_t = \frac{L}{3600 V}$	hr	0.1778	+	=	0.178

20. Watershed or subarea T_c or T_t (add T_t in steps 6, 11, and 19) hr 0.771

min 46

Project TRAILS OF WOODS CREEK By CAB Date 3/16/2020
Location ALGONQUIN, IL Checked Date

Check one: ☑ Present ☐ Developed
Check one: ☑ Tc ☐ Tt

SUBAREA 008A

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)

Segment ID					
1. Surface Description (Table 3-1)		Grass			
2. Manning's roughness coeff., n (Table 3-1)		0.24			
3. Flow length, L (total L $\leq$ 300 ft)	ft	100			
4. Two-yr 24-hr rainfall, P_2	in	3.34			
5. Land slope, s	ft/ft	0.015			
6. $Tc = \frac{0.007\ (nL)^{0.8}}{P_2^{0.5}\ s^{0.4}}$	hr	0.261	+	=	0.261

Shallow Concentrated Flow

Segment ID					
7. Surface description (paved or unpaved)		unpaved			
8. Flow length, L		90			
9. Watercourse slope, s		0.038			
10. Average velocity, V (figure 3-1)		3.18			
11. $T_t = \frac{L}{3600\ V}$	hr	0.008	+	=	0.008

Channel Flow

Segment ID					
12. Cross sectional flow area, a	ft^2				
13. Wetted perimeter, pw	ft				
14. Hydraulic radius, r= a/pw compute r	ft				
15. Channel Slope, s	ft/ft				
16. Manning's roughness coeff., n					
17. $V= 1.49\ r^{2/3}\ s^{1/2}\ /\ n$	ft/s	2.5			
18. Flow length, L	ft				
19. $T_t = \frac{L}{3600\ V}$	hr		+	=	

20. Watershed or subarea T_c or T_t (add T_t in steps 6, 11, and 19) hr 0.269

min 16

Project TRAILS OF WOODS CREEK By CAB Date 3/16/2020
Location ALGONQUIN, IL Checked Date

Check one: ☑ Present ☐ Developed

Check one: ☑ Tc ☐ Tt

SUBAREA 008B

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)

	Segment ID				
1. Surface Description (Table 3-1)		Grass			
2. Manning's roughness coeff., n (Table 3-1)		0.24			
3. Flow length, L (total L $\leq$ 300 ft)	ft	100			
4. Two-yr 24-hr rainfall, P_2	in	3.34			
5. Land slope, s	ft/ft	0.008			
6. $Tc = \frac{0.007 (nL)^{0.8}}{P_2^{0.5} s^{0.4}}$	hr	0.336	+	=	0.336

Shallow Concentrated Flow

	Segment ID				
7. Surface description (paved or unpaved)		unpaved			
8. Flow length, L		90			
9. Watercourse slope, s		0.038			
10. Average velocity, V (figure 3-1)		3.18			
11. $T_t = \frac{L}{3600 V}$	hr	0.008	+	=	0.008

Channel Flow

	Segment ID				
12. Cross sectional flow area, a	ft^2				
13. Wetted perimeter, pw	ft				
14. Hydraulic radius, r= a/pw compute r	ft				
15. Channel Slope, s	ft/ft				
16. Manning's roughness coeff., n					
17. $V= 1.49 r^{2/3} s^{1/2} / n$	ft/s	2.5			
18. Flow length, L	ft				
19. $T_t = \frac{L}{3600 V}$	hr		+	=	

20. Watershed or subarea T_c or T_t (add T_t in steps 6, 11, and 19) hr 0.344

min 21

Project TRAILS OF WOODS CREEK
By CAB
Date 3/16/2020
Location ALGONQUIN, IL
Checked
Date

Check one: ☑ Present ☐ Developed
Check one: ☑ Tc ☐ Tt

SUBAREA 009

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)

	Segment ID				
1. Surface Description (Table 3-1)		Grass	Grass		
2. Manning's roughness coeff., n (Table 3-1)		0.24	0.24		
3. Flow length, L (total L $\leq$ 300 ft)	ft	50	50		
4. Two-yr 24-hr rainfall, P_2	in	3.34	3.04		
5. Land slope, s	ft/ft	0.02	0.075		
6. $Tc = \frac{0.007\ (nL)^{0.8}}{P_2^{0.5}\ s^{0.4}}$	hr	0.134	+ 0.083	=	0.216

Shallow Concentrated Flow

	Segment ID				
7. Surface description (paved or unpaved)		unpaved			
8. Flow length, L		60			
9. Watercourse slope, s		0.075			
10. Average velocity, V (figure 3-1)		4.48			
11. $T_t = \frac{L}{3600\ V}$	hr	0.004	+	=	0.004

Channel Flow

	Segment ID				
12. Cross sectional flow area, a	ft^2				
13. Wetted perimeter, pw	ft				
14. Hydraulic radius, r= a/pw compute r	ft				
15. Channel Slope, s	ft/ft				
16. Manning's roughness coeff., n					
17. $V= 1.49\ r^{2/3}\ s^{1/2} / n$	ft/s	2.5			
18. Flow length, L	ft				
19. $T_t = \frac{L}{3600\ V}$	hr		+	=	

20. Watershed or subarea T_c or T_t (add T_t in steps 6, 11, and 19)	hr	0.220
	min	13

Project TRAILS OF WOODS CREEK By CAB Date 3/16/2020
Location ALGONQUIN, IL Checked Date

Check one: ☑ Present ☐ Developed
Check one: ☑ Tc ☐ Tt

SUBAREA 020

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)

Segment ID						
1. Surface Description (Table 3-1)		Grass				
2. Manning's roughness coeff., n (Table 3-1)		0.24				
3. Flow length, L (total L $\leq$ 300 ft)	ft	100				
4. Two-yr 24-hr rainfall, P_2	in	3.34				
5. Land slope, s	ft/ft	0.02				
6. $Tc = \frac{0.007 (nL)^{0.8}}{P_2^{0.5} s^{0.4}}$	hr	0.233	+		=	0.233

Shallow Concentrated Flow

Segment ID						
7. Surface description (paved or unpaved)		unpaved				
8. Flow length, L		200				
9. Watercourse slope, s		0.07				
10. Average velocity, V (figure 3-1)		4.32				
11. $T_t = \frac{L}{3600 V}$	hr	0.013	+		=	0.013

Channel Flow

Segment ID						
12. Cross sectional flow area, a	ft^2					
13. Wetted perimeter, pw	ft					
14. Hydraulic radius, r= a/pw compute r	ft					
15. Channel Slope, s	ft/ft					
16. Manning's roughness coeff., n						
17. $V = 1.49 r^{2/3} s^{1/2} / n$	ft/s	2.5				
18. Flow length, L	ft					
19. $T_t = \frac{L}{3600 V}$	hr		+		=	

20. Watershed or subarea T_c or T_t (add T_t in steps 6, 11, and 19) hr 0.246

min 15

Project TRAILS OF WOODS CREEK By CAB Date 3/16/2020
Location ALGONQUIN, IL Checked Date

Check one: ☑ Present ☐ Developed
Check one: ☑ Tc ☐ Tt

SUBAREA 021

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)

	Segment ID				
1. Surface Description (Table 3-1)		Grass			
2. Manning's roughness coeff., n (Table 3-1)		0.24			
3. Flow length, L (total L $\leq$ 300 ft)	ft	100			
4. Two-yr 24-hr rainfall, P_2	in	3.34			
5. Land slope, s	ft/ft	0.01			
6. $Tc = \frac{0.007\,(nL)^{0.8}}{P_2^{0.5}\,s^{0.4}}$	hr	0.307 +		=	0.307

Shallow Concentrated Flow

	Segment ID				
7. Surface description (paved or unpaved)		unpaved			
8. Flow length, L		130			
9. Watercourse slope, s		0.008			
10. Average velocity, V (figure 3-1)		1.45			
11. $T_t = \frac{L}{3600\,V}$	hr	0.025 +		=	0.025

Channel Flow

	Segment ID				
12. Cross sectional flow area, a	ft^2				
13. Wetted perimeter, pw	ft				
14. Hydraulic radius, r= a/pw compute r	ft				
15. Channel Slope, s	ft/ft				
16. Manning's roughness coeff., n					
17. $V = 1.49\,r^{2/3}\,s^{1/2}/n$	ft/s	2.5			
18. Flow length, L	ft				
19. $T_t = \frac{L}{3600\,V}$	hr	+		=	

20. Watershed or subarea T_c or T_t (add T_t in steps 6, 11, and 19) hr 0.332

min 20

Project	TRAILS OF WOODS CREEK	By	CAB	Date	3/16/2020
Location	ALGONQUIN, IL	Checked		Date	

Check one: ☑ Present ☐ Developed

Check one: ☑ Tc ☐ Tt

SUBAREA 022

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)

Segment ID					
1. Surface Description (Table 3-1)		Grass			
2. Manning's roughness coeff., n (Table 3-1)		0.24			
3. Flow length, L (total L $\leq$ 300 ft)	ft	100			
4. Two-yr 24-hr rainfall, P_2	in	3.34			
5. Land slope, s	ft/ft	0.01			
6. $Tc = \frac{0.007\,(nL)^{0.8}}{P_2^{0.5}\,s^{0.4}}$	hr	0.307	+	=	0.307

Shallow Concentrated Flow

Segment ID					
7. Surface description (paved or unpaved)		unpaved			
8. Flow length, L		150			
9. Watercourse slope, s		0.01			
10. Average velocity, V (figure 3-1)		1.63			
11. $T_t = \frac{L}{3600\ V}$	hr	0.026	+	=	0.026

Channel Flow

Segment ID					
12. Cross sectional flow area, a	ft^2				
13. Wetted perimeter, pw	ft				
14. Hydraulic radius, r= a/pw compute r	ft				
15. Channel Slope, s	ft/ft				
16. Manning's roughness coeff., n					
17. $V= 1.49\ r^{2/3}\ s^{1/2}\ /\ n$	ft/s	2.5			
18. Flow length, L	ft	1800			
19. $T_t = \frac{L}{3600\ V}$	hr	0.2000	+	=	0.200

20. Watershed or subarea T_c or T_t (add T_t in steps 6, 11, and 19)	hr	0.533
	min	32

Project TRAILS OF WOODS CREEK
Location ALGONQUIN, IL
By CAB Date 3/16/2020
Checked Date

Check one: ☑ Present ☐ Developed
Check one: ☑ Tc ☐ Tt

SUBAREA 023

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)

	Segment ID				
1. Surface Description (Table 3-1)		Grass			
2. Manning's roughness coeff., n (Table 3-1)		0.24			
3. Flow length, L (total L $\leq$ 300 ft)	ft	100			
4. Two-yr 24-hr rainfall, P_2	in	3.34			
5. Land slope, s	ft/ft	0.01			
6. $Tc = \frac{0.007\,(nL)^{0.8}}{P_2^{0.5}\,s^{0.4}}$	hr	0.307	+	=	0.307

Shallow Concentrated Flow

	Segment ID				
7. Surface description (paved or unpaved)		unpaved	unpaved		
8. Flow length, L		150	300		
9. Watercourse slope, s		0.01	0.0067		
10. Average velocity, V (figure 3-1)		1.63	1.33		
11. $T_t = \frac{L}{3600\,V}$	hr	0.026	+ 0.063	=	0.088

Channel Flow

	Segment ID				
12. Cross sectional flow area, a	ft^2				
13. Wetted perimeter, pw	ft				
14. Hydraulic radius, r= a/pw compute r	ft				
15. Channel Slope, s	ft/ft				
16. Manning's roughness coeff., n					
17. $V = 1.49\, r^{2/3}\, s^{1/2} / n$	ft/s	2.5			
18. Flow length, L	ft	1800			
19. $T_t = \frac{L}{3600\,V}$	hr	0.2000	+	=	0.200

20. Watershed or subarea T_c or T_t (add T_t in steps 6, 11, and 19) hr 0.595

min 36

Project TRAILS OF WOODS CREEK By CAB Date 3/16/2020
Location ALGONQUIN, IL Checked Date

Check one: ☑ Present ☐ Developed
Check one: ☑ Tc ☐ Tt

SUBAREA 024

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)

	Segment ID				
1. Surface Description (Table 3-1)		Grass			
2. Manning's roughness coeff., n (Table 3-1)		0.24			
3. Flow length, L (total L $\leq$ 300 ft)	ft	100			
4. Two-yr 24-hr rainfall, P_2	in	3.34			
5. Land slope, s	ft/ft	0.01			
6. $Tc = \frac{0.007\ (nL)^{0.8}}{P_2^{0.5}\ s^{0.4}}$	hr	0.307 +		=	0.307

Shallow Concentrated Flow

	Segment ID				
7. Surface description (paved or unpaved)		unpaved			
8. Flow length, L		150	180		
9. Watercourse slope, s		0.01	0.005		
10. Average velocity, V (figure 3-1)		1.63	1.15		
11. $T_t= \frac{L}{3600\ V}$	hr	0.026 +	0.044	=	0.069

Channel Flow

	Segment ID				
12. Cross sectional flow area, a	ft^2				
13. Wetted perimeter, pw	ft				
14. Hydraulic radius, r= a/pw compute r	ft				
15. Channel Slope, s	ft/ft				
16. Manning's roughness coeff., n					
17. $V= 1.49\ r^{2/3}\ s^{1/2}\ /\ n$	ft/s	2.5			
18. Flow length, L	ft	560			
19. $T_t= \frac{L}{3600\ V}$	hr	0.0622 +		=	0.062

20. Watershed or subarea T_c or T_t (add T_t in steps 6, 11, and 19) hr 0.439

min 26

Project TRAILS OF WOODS CREEK By CAB Date 3/16/2020
Location ALGONQUIN, IL Checked Date

Check one: ☑ Present ☐ Developed
Check one: ☑ Tc ☐ Tt

SUBAREA 025

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.

<u>Sheet Flow</u> (Applicable to Tc only)

	Segment ID				
1. Surface Description (Table 3-1)		Grass			
2. Manning's roughness coeff., n (Table 3-1)		0.24			
3. Flow length, L (total L $\leq$ 300 ft)	ft	100			
4. Two-yr 24-hr rainfall, P_2	in	3.34			
5. Land slope, s	ft/ft	0.02			
6. $Tc = \frac{0.007\ (nL)^{0.8}}{P_2^{0.5}\ s^{0.4}}$	hr	0.233	+	=	0.233

<u>Shallow Concentrated Flow</u>

	Segment ID				
7. Surface description (paved or unpaved)		unpaved			
8. Flow length, L		150			
9. Watercourse slope, s		0.02			
10. Average velocity, V (figure 3-1)		2.30			
11. $T_t = \frac{L}{3600\ V}$	hr	0.018	+	=	0.018

<u>Channel Flow</u>

	Segment ID				
12. Cross sectional flow area, a	ft^2				
13. Wetted perimeter, pw	ft				
14. Hydraulic radius, r= a/pw compute r	ft				
15. Channel Slope, s	ft/ft				
16. Manning's roughness coeff., n					
17. $V= 1.49\ r^{2/3}\ s^{1/2}\ /\ n$	ft/s	2.5			
18. Flow length, L	ft	140			
19. $T_t = \frac{L}{3600\ V}$	hr	0.0156	+	=	0.016

20. Watershed or subarea T_c or T_t (add T_t in steps 6, 11, and 19) hr 0.266

min 16

Project TRAILS OF WOODS CREEK By CAB Date 3/16/2020
Location ALGONQUIN, IL Checked Date

Check one: ☑ Present ☐ Developed SUBAREA 026
Check one: ☑ Tc ☐ Tt

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)

	Segment ID				
1. Surface Description (Table 3-1)		Grass			
2. Manning's roughness coeff., n (Table 3-1)		0.24			
3. Flow length, L (total L $\leq$ 300 ft)	ft	100			
4. Two-yr 24-hr rainfall, P_2	in	3.34			
5. Land slope, s	ft/ft	0.008			
6. $Tc = \frac{0.007\ (nL)^{0.8}}{P_2^{0.5}\ s^{0.4}}$	hr	0.336	+	=	0.336

Shallow Concentrated Flow

	Segment ID				
7. Surface description (paved or unpaved)		unpaved			
8. Flow length, L		150			
9. Watercourse slope, s		0.008			
10. Average velocity, V (figure 3-1)		1.45			
11. $T_t = \frac{L}{3600\ V}$	hr	0.029	+	=	0.029

Channel Flow

	Segment ID				
12. Cross sectional flow area, a	ft^2				
13. Wetted perimeter, pw	ft				
14. Hydraulic radius, r= a/pw compute r	ft				
15. Channel Slope, s	ft/ft				
16. Manning's roughness coeff., n					
17. $V= 1.49\ r^{2/3}\ s^{1/2} / n$	ft/s	2.5			
18. Flow length, L	ft	750			
19. $T_t = \frac{L}{3600\ V}$	hr	0.0833	+	=	0.083

20. Watershed or subarea T_c or T_t (add T_t in steps 6, 11, and 19) hr 0.448

min 27

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Tab: 026

Printed: 7/9/2020

Project	TRAILS OF WOODS CREEK	By	CAB	Date	3/16/2020
Location	ALGONQUIN, IL	Checked		Date	

Check one: ☑ Present ☐ Developed

Check one: ☑ Tc ☐ Tt

SUBAREA 027

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)

Segment ID					
1. Surface Description (Table 3-1)		Grass			
2. Manning's roughness coeff., n (Table 3-1)		0.24			
3. Flow length, L (total L $\leq$ 300 ft)	ft	100			
4. Two-yr 24-hr rainfall, P_2	in	3.34			
5. Land slope, s	ft/ft	0.015			
6. $Tc = \frac{0.007 (nL)^{0.8}}{P_2^{0.5} s^{0.4}}$	hr	0.261	+	=	0.261

Shallow Concentrated Flow

Segment ID					
7. Surface description (paved or unpaved)		unpaved			
8. Flow length, L		540			
9. Watercourse slope, s		0.015			
10. Average velocity, V (figure 3-1)		1.99			
11. $T_t = \frac{L}{3600 V}$	hr	0.075	+	=	0.075

Channel Flow

Segment ID					
12. Cross sectional flow area, a	ft^2				
13. Wetted perimeter, pw	ft				
14. Hydraulic radius, r= a/pw compute r	ft				
15. Channel Slope, s	ft/ft				
16. Manning's roughness coeff., n					
17. $V = 1.49 r^{2/3} s^{1/2} / n$	ft/s	2.5			
18. Flow length, L	ft				
19. $T_t = \frac{L}{3600 V}$	hr		+	=	

20. Watershed or subarea T_c or T_t (add T_t in steps 6, 11, and 19) hr 0.336

min 20

Project TRAILS OF WOODS CREEK
Location ALGONQUIN, IL

By CAB
Checked

Date 3/16/2020
Date

Check one: ☑ Present ☐ Developed
Check one: ☑ Tc ☐ Tt

SUBAREA 028

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)

	Segment ID				
1. Surface Description (Table 3-1)		Grass			
2. Manning's roughness coeff., n (Table 3-1)		0.24			
3. Flow length, L (total L $\leq$ 300 ft)	ft	100			
4. Two-yr 24-hr rainfall, P_2	in	3.34			
5. Land slope, s	ft/ft	0.015			
6. $Tc = \frac{0.007 (nL)^{0.8}}{P_2^{0.5} s^{0.4}}$	hr	0.261 +		=	0.261

Shallow Concentrated Flow

	Segment ID				
7. Surface description (paved or unpaved)		unpaved			
8. Flow length, L		300			
9. Watercourse slope, s		0.015			
10. Average velocity, V (figure 3-1)		1.99			
11. $T_t = \frac{L}{3600 V}$	hr	0.042 +		=	0.042

Channel Flow

	Segment ID				
12. Cross sectional flow area, a	ft^2				
13. Wetted perimeter, pw	ft				
14. Hydraulic radius, r= a/pw compute r	ft				
15. Channel Slope, s	ft/ft				
16. Manning's roughness coeff., n					
17. $V= 1.49 r^{2/3} s^{1/2} / n$	ft/s	2.5			
18. Flow length, L	ft				
19. $T_t = \frac{L}{3600 V}$	hr	+		=	

20. Watershed or subarea T_c or T_t (add T_t in steps 6, 11, and 19) hr 0.303

min 18

Project	TRAILS OF WOODS CREEK	By	CAB	Date	3/16/2020
Location	ALGONQUIN, IL	Checked		Date	

Check one: ☑ Present ☐ Developed

Check one: ☑ Tc ☐ Tt

SUBAREA 029

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)

	Segment ID					
1.	Surface Description (Table 3-1)		Pavement			
2.	Manning's roughness coeff., n (Table 3-1)		0.011			
3.	Flow length, L (total L $\leq$ 300 ft)	ft	100			
4.	Two-yr 24-hr rainfall, P_2	in	3.34			
5.	Land slope, s	ft/ft	0.01			
6.	$Tc = \frac{0.007\ (nL)^{0.8}}{P_2^{0.5}\ s^{0.4}}$	hr	0.026	+	=	0.026

Shallow Concentrated Flow

	Segment ID					
7.	Surface description (paved or unpaved)		Paved			
8.	Flow length, L		100			
9.	Watercourse slope, s		0.01			
10.	Average velocity, V (figure 3-1)		2.07			
11.	$T_t = \frac{L}{3600\ V}$	hr	0.013	+	=	0.013

Channel Flow

	Segment ID					
12.	Cross sectional flow area, a	ft^2				
13.	Wetted perimeter, pw	ft				
14.	Hydraulic radius, r= a/pw compute r	ft				
15.	Channel Slope, s	ft/ft				
16.	Manning's roughness coeff., n					
17.	$V= 1.49\ r^{2/3}\ s^{1/2}\ /\ n$	ft/s	2.5			
18.	Flow length, L	ft	560			
19.	$T_t = \frac{L}{3600\ V}$	hr	0.0622	+	=	0.062

20.	Watershed or subarea T_c or T_t (add T_t in steps 6, 11, and 19)	hr	0.102
		min	6

Job #: 402.136
Project: Trails of Woods Creek

Date: February 11, 2020
Revised:
By: CAB

SWMF 01 - EAST FLOODPLAIN STORAGE
EXISTING CONDITIONS

ELEV.	AREA (S.F.)	AREA (AC.)	INCREM. VOLUME (AC.-Ft.)	**CUMULATIVE VOLUME (Ac-Ft)**
876.0	0	0.000	0.000	**0.000**
877.4	200	0.005	0.003	**0.003**
877.5	2130	0.049	0.003	**0.006**
878.0	3930	0.090	0.035	**0.041**
878.5	100860	2.315	0.601	**0.642**
879.0	139360	3.199	1.379	**2.021**
880.0	232250	5.332	4.265	**6.286**
881.0	387200	8.889	7.110	**13.397**
882.0	519630	11.929	10.409	**23.806**
883.0	618100	14.190	13.059	**36.865**
883.6	710850	16.319	9.153	**46.017**
884.0	741280	17.017	6.667	**52.685**

Job #: 402.136
Project: Trails of Woods Creek

Date: February 12, 2020
Revised:
By: CAB

SWMF 01A - SMALL LAKE TRIBUTARY TO SWMF 01
EXISTING CONDITIONS

ELEV.	AREA (S.F.)	AREA (AC.)	INCREM. VOLUME (AC.-Ft.)	**CUMULATIVE VOLUME (Ac-Ft)**
883.2	3400	0.078	0.000	**0.000**
884.0	7900	0.181	0.104	**0.104**
884.2	9050	0.208	0.039	**0.143**
885.0	14560	0.334	0.217	**0.359**

Job #: 402.136
Project: Trails of Woods Creek

Date: February 12, 2020
Revised:
By: CAB

SWMF 01B - SMALL LAKE TRIBUTARY TO SWMF 01

EXISTING CONDITIONS

ELEV.	AREA (S.F.)	AREA (AC.)	INCREM. VOLUME (AC.-Ft.)	**CUMULATIVE VOLUME (Ac-Ft)**
886.5	3970	0.091	0.000	**0.000**
887.0	6570	0.151	0.060	**0.060**
887.2	9280	0.213	0.036	**0.097**
888.0	24050	0.552	0.306	**0.403**

Job #: 402.136
Project: Trails of Woods Creek

Date: March 16, 2020
Revised:
By: CAB

SWMF-03A

EXISTING CONDITIONS

ELEV.	AREA (S.F.)	AREA (AC.)	INCREM. VOLUME (AC.-Ft.)	**CUMULATIVE VOLUME (Ac-Ft)**
881.5	9480	0.218	0.000	**0.000**
882.0	12530	0.288	0.126	**0.126**
883.0	18910	0.434	0.361	**0.487**
884.0	40630	0.933	0.683	**1.171**
884.7	62970	1.446	0.832	**2.003**
885.0	68850	1.581	0.454	**2.457**
885.5	74980	1.721	0.825	**3.282**

Job #: 402.136
Project: Trails of Woods Creek

Date: March 16, 2020
Revised:
By: CAB

SWMF-03B

EXISTING CONDITIONS

ELEV.	AREA (S.F.)	AREA (AC.)	INCREM. VOLUME (AC.-Ft.)	**CUMULATIVE VOLUME (Ac-Ft)**
883.9	4310	0.099	0.000	**0.000**
885.0	10560	0.242	0.188	**0.188**
886.0	22490	0.516	0.379	**0.567**

Job #: 402.136
Project: Trails of Woods Creek

Date: November 5, 2019
Revised:
By: CAB

SWMF-04

EXISTING CONDITIONS

ELEV.	AREA (S.F.)	AREA (AC.)	INCREM. VOLUME (AC.-Ft.)	**CUMULATIVE VOLUME (Ac-Ft)**
884.4	0	0.000	0.000	**0.000**
887.0	280	0.006	0.008	**0.008**
887.5	11360	0.261	0.067	**0.075**
888.0	18420	0.423	0.171	**0.246**
889.0	43130	0.990	0.706	**0.953**
890.0	103180	2.369	1.679	**2.632**

Job #: 402.136
Project: Trails of Woods Creek

Date: November 5, 2019
Revised:
By: CAB

SWMF-05

EXISTING CONDITIONS

ELEV.	AREA (S.F.)	AREA (AC.)	INCREM. VOLUME (AC.-Ft.)	**CUMULATIVE VOLUME (Ac-Ft)**
879.0	350	0.008	0.000	**0.000**
880.0	5570	0.128	0.068	**0.068**
881.0	13560	0.311	0.220	**0.288**
882.0	21240	0.488	0.399	**0.687**
882.6	29310	0.673	0.348	**1.035**
883.0	36370	0.835	0.302	**1.337**
884.0	67560	1.551	1.193	**2.530**

Job #: 402.136
Project: Trails of Woods Creek

Date: November 5, 2019
Revised:
By: CAB

SWMF-06

EXISTING CONDITIONS

ELEV.	AREA (S.F.)	AREA (AC.)	INCREM. VOLUME (AC.-Ft.)	**CUMULATIVE VOLUME (Ac-Ft)**
878.4	28690	0.659	0.000	**0.000**
879.0	28690	0.659	0.395	**0.395**
880.0	34150	0.784	0.721	**1.116**
881.0	68550	1.574	1.179	**2.295**
882.0	94090	2.160	1.867	**4.162**
883.0	119120	2.735	2.447	**6.609**
884.0	155900	3.579	3.157	**9.766**

Job #: 402.136
Project: Trails of Woods Creek

Date: February 11, 2020
Revised:
By: CAB

SWMF-07

EXISTING CONDITIONS

ELEV.	AREA (S.F.)	AREA (AC.)	INCREM. VOLUME (AC.-Ft.)	**CUMULATIVE VOLUME (Ac-Ft)**
882.0	9680	0.222	0.000	**0.000**
882.3	12030	0.276	0.075	**0.075**
882.5	12930	0.297	0.057	**0.132**
883.0	15280	0.351	0.162	**0.294**
883.5	18010	0.413	0.191	**0.485**
884.0	22840	0.524	0.234	**0.719**

Job #:	402.136	Date:	December 4, 2019
Project:	Trails of Woods Creek	Revised:	February 10, 2020
		By:	CAB

SWMF-08

EXISTING CONDITIONS

ELEV.	AREA (S.F.)	AREA (AC.)	INCREM. VOLUME (AC.-Ft.)	**CUMULATIVE VOLUME (Ac-Ft)**
884.0	16950	0.389	0.000	**0.000**
885.0	19740	0.453	0.421	**0.421**
886.0	30200	0.693	0.573	**0.994**
886.5	35820	0.822	0.379	**1.373**
887.0	41440	0.951	0.443	**1.817**
887.5	48690	1.118	0.517	**2.334**

Job #:	402.136	Date:	February 12, 2020
Project:	Trails of Woods Creek	Revised:	March 18, 2020
		By:	CAB

SWMF 08A - SMALL LAKE TRIBUTARY TO SWMF 08

EXISTING CONDITIONS

ELEV.	AREA (S.F.)	AREA (AC.)	INCREM. VOLUME (AC.-Ft.)	**CUMULATIVE VOLUME (Ac-Ft)**
887.0	0	0.000	0.000	**0.000**
888.0	500	0.011	0.006	**0.006**
888.9	2400	0.055	0.030	**0.036**
889.0	2550	0.059	0.006	**0.041**
889.7	5530	0.127	0.065	**0.106**
890.0	6730	0.154	0.042	**0.149**

Job #: 402.136
Project: Trails of Woods Creek

Date: February 12, 2020
Revised:
By: CAB

SWMF 08B - SMALL LAKE TRIBUTARY TO SWMF 08
EXISTING CONDITIONS

ELEV.	AREA (S.F.)	AREA (AC.)	INCREM. VOLUME (AC.-Ft.)	**CUMULATIVE VOLUME (Ac-Ft)**
889.8	8280	0.190	0.000	**0.000**
890.0	8490	0.195	0.038	**0.038**
891.0	13840	0.318	0.256	**0.295**
891.8	21940	0.504	0.329	**0.623**
892.0	24400	0.560	0.106	**0.730**
892.5	32140	0.738	0.324	**1.054**

Job #: 402.136
Project: Trails of Woods Creek

Date: February 12, 2020
Revised:
By: CAB

SWMF-09

EXISTING CONDITIONS

ELEV.	AREA (S.F.)	AREA (AC.)	INCREM. VOLUME (AC.-Ft.)	**CUMULATIVE VOLUME (Ac-Ft)**
888.3	6700	0.154	0.000	**0.000**
888.8	10650	0.244	0.100	**0.100**
889.0	12530	0.288	0.053	**0.153**
889.5	16450	0.378	0.166	**0.319**

Job #: 402.136
Project: Trails of Woods Creek

Date: December 2, 2019
Revised:
By: CAB

SWMF-22
EXISTING CONDITIONS STAGE-STORAGE TABLE
FROM GUILLOU & ASSOC. REPORT + COUNTY TOPO

ELEV.	AREA (S.F.)	AREA (AC.)	INCREM. VOLUME (AC.-Ft.)	**CUMULATIVE VOLUME (Ac-Ft)**
885.6	89150	2.047	0.000	**0.000**
886.0	91230	2.094	0.828	**0.828**
887.0	96480	2.215	2.155	**2.983**
888.0	101840	2.338	2.276	**5.259**
889.0	107300	2.463	2.401	**7.660**
890.0	112870	2.591	2.527	**10.187**
891.0	118540	2.721	2.656	**12.843**

Job #: 402.136
Project: Trails of Woods Creek

Date: December 2, 2019
Revised:
By: CAB

SWMF-23

EXISTING CONDITIONS STAGE-STORAGE TABLE

FROM GUILLOU & ASSOC. REPORT + COUNTY TOPO

ELEV.	AREA (S.F.)	AREA (AC.)	INCREM. VOLUME (AC.-Ft.)	**CUMULATIVE VOLUME (Ac-Ft)**
885.6	36450	0.837	0.000	**0.000**
886.0	538170	12.355	2.638	**2.638**
887.0	550860	12.646	12.500	**15.139**
888.0	563680	12.940	12.793	**27.932**
889.0	576630	13.238	13.089	**41.021**
890.0	589710	13.538	13.388	**54.408**
891.0	602920	13.841	13.690	**68.098**

Job #: 402.136
Project: Trails of Woods Creek

Date: December 2, 2019
Revised:
By: CAB

SWMF-24

EXISTING CONDITIONS STAGE-STORAGE TABLE

FROM GUILLOU & ASSOC. REPORT + COUNTY TOPO

ELEV.	AREA (S.F.)	AREA (AC.)	INCREM. VOLUME (AC.-Ft.)	**CUMULATIVE VOLUME (Ac-Ft)**
886.0	131450	3.018	0.000	**0.000**
887.0	137380	3.154	3.086	**3.086**
888.0	143420	3.292	3.223	**6.309**
889.0	149570	3.434	3.363	**9.672**
890.0	221000	5.073	4.254	**13.926**
891.0	231820	5.322	5.198	**19.123**
892.0	235580	5.408	5.365	**24.488**

Job #: 402.136
Project: Trails of Woods Creek

Date: November 6, 2019
Revised:
By: CAB

SWMF-26

EXISTING CONDITIONS - COUNTY TOPO

ELEV.	AREA (S.F.)	AREA (AC.)	INCREM. VOLUME (AC.-Ft.)	**CUMULATIVE VOLUME (Ac-Ft)**
887.5	0	0.000	0.000	**0.000**
888.0	5950	0.137	0.034	**0.034**
889.0	22560	0.518	0.327	**0.361**
890.0	39170	0.899	0.709	**1.070**
891.0	65150	1.496	1.197	**2.267**
892.0	91130	2.092	1.794	**4.061**
893.0	105440	2.421	2.256	**6.318**
894.0	119750	2.749	2.585	**8.902**
894.8	135910	3.120	2.348	**11.250**
895.0	139950	3.213	0.633	**11.883**
896.0	160140	3.676	3.445	**15.328**

Job #:	402.136	Date:	December 2, 2019
Project:	Trails of Woods Creek	Revised:	
		By:	CAB

SWMF-22

EXISTING CONDITIONS STAGE-STORAGE TABLE

FROM GUILLOU & ASSOC. HYDROLOGY REPORT

ELEV.	AREA (S.F.)	AREA (AC.)	INCREM. VOLUME (AC.-Ft.)	**CUMULATIVE VOLUME (Ac-Ft)**
885.6	-	2.360	0.000	**0.000**
886.0	-	2.410	0.954	**0.954**
887.0	-	2.550	2.480	**3.434**
888.0	-	2.680	2.615	**6.049**
889.0	-	2.830	2.755	**8.804**
890.0	-	2.980	2.905	**11.709**
891.0	-	3.130	3.055	**14.764**

Job #: 402.136
Project: Trails of Woods Creek

Date: December 2, 2019
Revised:
By: CAB

SWMF-23

EXISTING CONDITIONS STAGE-STORAGE TABLE

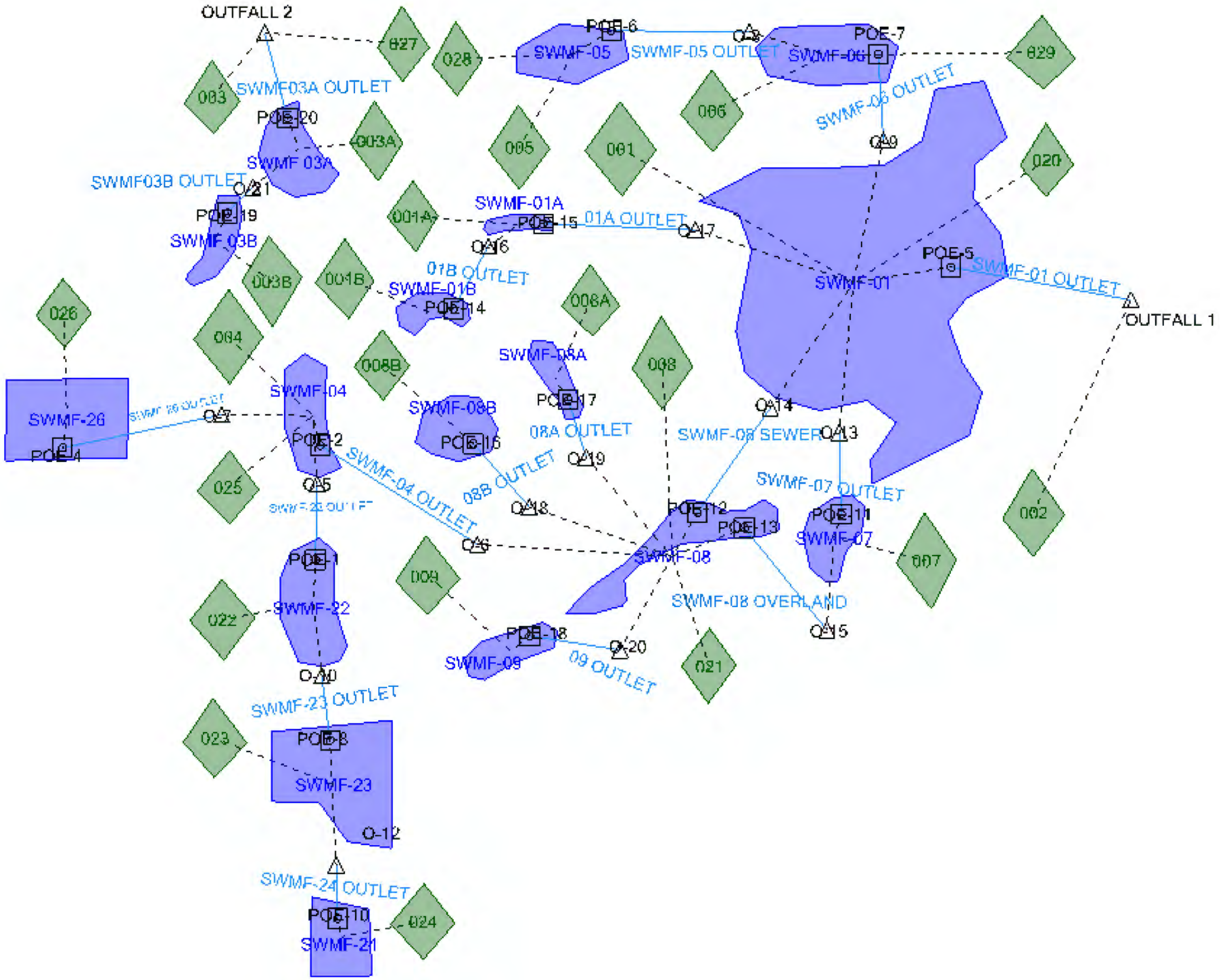
FROM GUILLOU & ASSOC. HYDROLOGY REPORT

ELEV.	AREA (S.F.)	AREA (AC.)	INCREM. VOLUME (AC.-Ft.)	**CUMULATIVE VOLUME (Ac-Ft)**
885.6	-	14.700	0.000	**0.000**
886.0	-	14.870	5.914	**5.914**
887.0	-	15.290	15.080	**20.994**
888.0	-	15.720	15.505	**36.499**
889.0	-	16.160	15.940	**52.439**
890.0	-	17.950	17.055	**69.494**
891.0	-	18.740	18.345	**87.839**

“EXIST” PONDPACK MODEL

& RESULTS

Existing Conditions PondPack Map: Trails of wood Creek Algonquin



Scenario Calculation Summary

Scenario Summary

ID	60
Label	100Yr 18Hr
Notes	
Active Topology	<I> Base Active Topology
Hydrology	<I> Base Hydrology
Rainfall Runoff	100YEAR18HOUR
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	<I> Base Calculation Options

Output Summary

Output Increment	0.050 hours	Duration	36.000 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	0.050 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)
001	100Yr 18Hr	100	None	14.252	11.750	31.89	(N/A)	(N/A)
001A	100Yr 18Hr	100	None	2.217	11.700	5.03	(N/A)	(N/A)
001B	100Yr 18Hr	100	None	2.846	11.700	6.52	(N/A)	(N/A)
002	100Yr 18Hr	100	None	0.253	11.700	0.59	(N/A)	(N/A)
003	100Yr 18Hr	100	None	3.314	11.700	7.26	(N/A)	(N/A)
003A	100Yr 18Hr	100	None	6.081	11.700	13.82	(N/A)	(N/A)
003B	100Yr 18Hr	100	None	1.796	11.700	4.12	(N/A)	(N/A)
004	100Yr 18Hr	100	None	3.627	11.750	8.20	(N/A)	(N/A)
005	100Yr 18Hr	100	None	1.880	11.700	4.30	(N/A)	(N/A)
006	100Yr 18Hr	100	None	6.671	11.700	15.11	(N/A)	(N/A)
007	100Yr 18Hr	100	None	3.448	11.700	7.85	(N/A)	(N/A)
008	100Yr 18Hr	100	None	10.192	11.800	22.54	(N/A)	(N/A)
008A	100Yr 18Hr	100	None	0.794	11.700	1.82	(N/A)	(N/A)
008B	100Yr 18Hr	100	None	0.995	11.700	2.26	(N/A)	(N/A)
009	100Yr 18Hr	100	None	0.980	11.700	2.20	(N/A)	(N/A)
020	100Yr 18Hr	100	None	1.321	11.700	2.94	(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)
021	100Yr 18Hr	100	None	2.490	11.700	5.46	(N/A)	(N/A)
022	100Yr 18Hr	100	None	35.650	11.700	77.32	(N/A)	(N/A)
023	100Yr 18Hr	100	None	31.568	11.750	69.84	(N/A)	(N/A)
024	100Yr 18Hr	100	None	12.141	11.700	26.92	(N/A)	(N/A)
025	100Yr 18Hr	100	None	1.851	11.700	4.07	(N/A)	(N/A)
026	100Yr 18Hr	100	None	15.662	11.700	33.89	(N/A)	(N/A)
027	100Yr 18Hr	100	None	3.184	11.700	7.22	(N/A)	(N/A)
028	100Yr 18Hr	100	None	1.696	11.700	3.69	(N/A)	(N/A)
029	100Yr 18Hr	100	None	1.350	11.650	2.78	(N/A)	(N/A)
OUTFALL 1	100Yr 18Hr	100	None	86.219	18.000	40.78	(N/A)	(N/A)
OUTFALL 2	100Yr 18Hr	100	None	13.997	11.800	29.27	(N/A)	(N/A)
SWMF 03A (IN)	100Yr 18Hr	100	None	7.810	11.750	17.55	(N/A)	(N/A)
SWMF 03A (OUT)	100Yr 18Hr	100	None	7.499	12.000	15.59	885.17	2.745
SWMF 03B (IN)	100Yr 18Hr	100	None	1.796	11.700	4.12	(N/A)	(N/A)
SWMF 03B (OUT)	100Yr 18Hr	100	None	1.729	11.500	3.92	885.25	0.281
SWMF-01 (IN)	100Yr 18Hr	100	None	92.806	11.800	108.91	(N/A)	(N/A)
SWMF-01 (OUT)	100Yr 18Hr	100	None	85.966	18.350	40.67	882.10	25.083
SWMF-01A (IN)	100Yr 18Hr	100	None	5.054	11.750	11.52	(N/A)	(N/A)
SWMF-01A (OUT)	100Yr 18Hr	100	None	4.949	11.800	11.49	884.35	0.185
SWMF-01B (IN)	100Yr 18Hr	100	None	2.846	11.700	6.52	(N/A)	(N/A)
SWMF-01B (OUT)	100Yr 18Hr	100	None	2.837	11.800	6.49	887.35	0.155
SWMF-04 (IN)	100Yr 18Hr	100	None	52.894	11.850	32.68	(N/A)	(N/A)
SWMF-04 (OUT)	100Yr 18Hr	100	None	52.744	13.400	25.66	889.42	1.652
SWMF-05 (IN)	100Yr 18Hr	100	None	3.576	11.700	7.99	(N/A)	(N/A)
SWMF-05 (OUT)	100Yr 18Hr	100	None	1.790	12.700	3.39	883.67	2.132
SWMF-06 (IN)	100Yr 18Hr	100	None	9.811	11.700	20.27	(N/A)	(N/A)
SWMF-06 (OUT)	100Yr 18Hr	100	None	2.028	36.000	1.05	883.67	8.710
SWMF-07 (IN)	100Yr 18Hr	100	None	17.931	11.850	35.21	(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 (ft³/s)	Maximum Water Surface Elevation (ft)	Maximum Pond Storage (ac-ft)
SWMF-07 (OUT)	100Yr 18Hr	100	None	17.925	11.900	35.09	882.83	0.238
SWMF-08 (IN)	100Yr 18Hr	100	None	67.965	11.800	55.73	(N/A)	(N/A)
SWMF-08 (OUT)	100Yr 18Hr	100	None	66.814	11.900	55.03	886.81	1.652
SWMF-08A (IN)	100Yr 18Hr	100	None	0.794	11.700	1.82	(N/A)	(N/A)
SWMF-08A (OUT)	100Yr 18Hr	100	None	0.794	11.850	1.69	889.91	0.136
SWMF-08B (IN)	100Yr 18Hr	100	None	0.995	11.700	2.26	(N/A)	(N/A)
SWMF-08B (OUT)	100Yr 18Hr	100	None	0.781	13.650	0.99	891.81	0.630
SWMF-09 (IN)	100Yr 18Hr	100	None	0.980	11.700	2.20	(N/A)	(N/A)
SWMF-09 (OUT)	100Yr 18Hr	100	None	0.964	11.750	2.18	888.86	0.117
SWMF-22 (IN)	100Yr 18Hr	100	None	42.703	11.400	44.16	(N/A)	(N/A)
SWMF-22 (OUT)	100Yr 18Hr	100	None	37.646	12.100	18.13	889.77	9.601
SWMF-23 (IN)	100Yr 18Hr	100	None	36.860	11.750	71.13	(N/A)	(N/A)
SWMF-23 (OUT)	100Yr 18Hr	100	None	21.263	22.550	15.73	889.36	45.889
SWMF-23 (Reverse)	100Yr 18Hr	100	None	-14.210	12.250	-36.29	(N/A)	(N/A)
SWMF-24 (IN)	100Yr 18Hr	100	None	12.141	11.700	26.92	(N/A)	(N/A)
SWMF-24 (OUT)	100Yr 18Hr	100	None	6.135	20.850	3.87	889.37	11.237
SWMF-24 (Reverse)	100Yr 18Hr	100	None	-0.840	14.150	-4.08	(N/A)	(N/A)
SWMF-26 (IN)	100Yr 18Hr	100	None	15.662	11.700	33.89	(N/A)	(N/A)
SWMF-26 (OUT)	100Yr 18Hr	100	None	9.770	20.100	4.19	894.95	11.713

Executive Summary (Links)

Label	Type	Location	Hydrograph Volume (ac-ft)	Peak Time (hours)	Peak Flow (ft³/s)	End Point	Node Flow Direction
01A OUTLET	Pond Outlet	Upstream	5.054	11.750	11.52	SWMF-01A	Pond Inflow
01A OUTLET	Pond Outlet	Outflow	4.949	11.800	11.49	SWMF-01A	Pond Outflow

Scenario Calculation Summary

Executive Summary (Links)

Label	Type	Location	Hydrograph Volume (ac-ft)	Peak Time (hours)	Peak Flow (ft³/s)	End Point	Node Flow Direction
01A OUTLET	Pond Outlet	Link	4.949	11.800	11.49		
01A OUTLET	Pond Outlet	Downstream	92.806	11.800	108.91	SWMF-01	
01B OUTLET	Pond Outlet	Upstream	2.846	11.700	6.52	SWMF-01B	Pond Inflow
01B OUTLET	Pond Outlet	Outflow	2.837	11.800	6.49	SWMF-01B	Pond Outflow
01B OUTLET	Pond Outlet	Link	2.837	11.800	6.49		
01B OUTLET	Pond Outlet	Downstream	5.054	11.750	11.52	SWMF-01A	
08A OUTLET	Pond Outlet	Upstream	0.794	11.700	1.82	SWMF-08A	Pond Inflow
08A OUTLET	Pond Outlet	Outflow	0.794	11.850	1.69	SWMF-08A	Pond Outflow
08A OUTLET	Pond Outlet	Link	0.794	11.850	1.69		
08A OUTLET	Pond Outlet	Downstream	67.965	11.800	55.73	SWMF-08	
08B OUTLET	Pond Outlet	Upstream	0.995	11.700	2.26	SWMF-08B	Pond Inflow
08B OUTLET	Pond Outlet	Outflow	0.781	13.650	0.99	SWMF-08B	Pond Outflow
08B OUTLET	Pond Outlet	Link	0.781	13.650	0.99		
08B OUTLET	Pond Outlet	Downstream	67.965	11.800	55.73	SWMF-08	
09 OUTLET	Pond Outlet	Upstream	0.980	11.700	2.20	SWMF-09	Pond Inflow
09 OUTLET	Pond Outlet	Outflow	0.964	11.750	2.18	SWMF-09	Pond Outflow
09 OUTLET	Pond Outlet	Link	0.964	11.750	2.18		
09 OUTLET	Pond Outlet	Downstream	67.965	11.800	55.73	SWMF-08	
SWMF-01 OUTLET	Pond Outlet	Upstream	92.806	11.800	108.91	SWMF-01	Pond Inflow
SWMF-01 OUTLET	Pond Outlet	Outflow	85.966	18.350	40.67	SWMF-01	Pond Outflow
SWMF-01 OUTLET	Pond Outlet	Link	85.966	18.350	40.67		
SWMF-01 OUTLET	Pond Outlet	Downstream	86.219	18.000	40.78	OUTFALL 1	
SWMF-04 OUTLET	Pond Outlet	Upstream	52.894	11.850	32.68	SWMF-04	Pond Inflow
SWMF-04 OUTLET	Pond Outlet	Outflow	52.744	13.400	25.66	SWMF-04	Pond Outflow
SWMF-04 OUTLET	Pond Outlet	Link	52.666	13.400	25.66		
SWMF-04 OUTLET	Pond Outlet	Downstream	67.965	11.800	55.73	SWMF-08	
SWMF-05 OUTLET	Pond Outlet	Upstream	3.576	11.700	7.99	SWMF-05	Pond Inflow
SWMF-05 OUTLET	Pond Outlet	Outflow	1.790	12.700	3.39	SWMF-05	Pond Outflow
SWMF-05 OUTLET	Pond Outlet	Link	1.790	12.700	3.39		
SWMF-05 OUTLET	Pond Outlet	Downstream	9.811	11.700	20.27	SWMF-06	
SWMF-06 OUTLET	Pond Outlet	Upstream	9.811	11.700	20.27	SWMF-06	Pond Inflow

Scenario Calculation Summary

Executive Summary (Links)

Label	Type	Location	Hydrograph Volume (ac-ft)	Peak Time (hours)	Peak Flow (ft³/s)	End Point	Node Flow Direction
SWMF-06 OUTLET	Pond Outlet	Outflow	2.028	36.000	1.05	SWMF-06	Pond Outflow
SWMF-06 OUTLET	Pond Outlet	Link	2.028	36.000	1.05		
SWMF-06 OUTLET	Pond Outlet	Downstream	92.806	11.800	108.91	SWMF-01	
SWMF-07 OUTLET	Pond Outlet	Upstream	17.931	11.850	35.21	SWMF-07	Pond Inflow
SWMF-07 OUTLET	Pond Outlet	Outflow	17.925	11.900	35.09	SWMF-07	Pond Outflow
SWMF-07 OUTLET	Pond Outlet	Link	17.925	11.900	35.09		
SWMF-07 OUTLET	Pond Outlet	Downstream	92.806	11.800	108.91	SWMF-01	
SWMF-08 OVERLAND	Pond Outlet	Upstream	67.965	11.800	55.73	SWMF-08	Pond Inflow
SWMF-08 OVERLAND	Pond Outlet	Outflow	66.814	11.900	55.03	SWMF-08	Pond Outflow
SWMF-08 OVERLAND	Pond Outlet	Link	14.483	11.900	27.74		
SWMF-08 OVERLAND	Pond Outlet	Downstream	17.931	11.850	35.21	SWMF-07	
SWMF-08 SEWER	Pond Outlet	Upstream	67.965	11.800	55.73	SWMF-08	Pond Inflow
SWMF-08 SEWER	Pond Outlet	Outflow	66.814	11.900	55.03	SWMF-08	Pond Outflow
SWMF-08 SEWER	Pond Outlet	Link	52.331	11.650	27.56		
SWMF-08 SEWER	Pond Outlet	Downstream	92.806	11.800	108.91	SWMF-01	
SWMF-22 OUTLET	Pond Outlet	Upstream	42.703	11.400	44.16	SWMF-22	Pond Inflow
SWMF-22 OUTLET	Pond Outlet	Outflow	37.646	12.100	18.13	SWMF-22	Pond Outflow
SWMF-22 OUTLET	Pond Outlet	Link	37.646	12.100	18.13		
SWMF-22 OUTLET	Pond Outlet	Downstream	52.894	11.850	32.68	SWMF-04	
SWMF-23 OUTLET	Pond Outlet	Upstream	36.860	11.750	71.13	SWMF-23	Pond Inflow
SWMF-23 OUTLET	Pond Outlet	Outflow	21.263	22.550	15.73	SWMF-23	Pond Outflow
SWMF-23 OUTLET	Negative Flow	Outflow	-14.210	12.250	-36.29	SWMF-23	Pond Outflow
SWMF-23 OUTLET	Pond Outlet	Link	21.263	22.550	15.73		
SWMF-23 OUTLET	Negative Flow	Link	-14.210	12.250	-36.29		

Scenario Calculation Summary

Executive Summary (Links)

Label	Type	Location	Hydrograph Volume (ac-ft)	Peak Time (hours)	Peak Flow (ft³/s)	End Point	Node Flow Direction
SWMF-23 OUTLET	Pond Outlet	Downstream	42.703	11.400	44.16	SWMF-22	
SWMF-24 OUTLET	Pond Outlet	Upstream	12.141	11.700	26.92	SWMF-24	Pond Inflow
SWMF-24 OUTLET	Pond Outlet	Outflow	6.135	20.850	3.87	SWMF-24	Pond Outflow
SWMF-24 OUTLET	Negative Flow	Outflow	-0.840	14.150	-4.08	SWMF-24	Pond Outflow
SWMF-24 OUTLET	Pond Outlet	Link	6.135	20.850	3.87		
SWMF-24 OUTLET	Negative Flow	Link	-0.840	14.150	-4.08		
SWMF-24 OUTLET	Pond Outlet	Downstream	36.860	11.750	71.13	SWMF-23	
SWMF-26 OUTLET	Pond Outlet	Upstream	15.662	11.700	33.89	SWMF-26	Pond Inflow
SWMF-26 OUTLET	Pond Outlet	Outflow	9.770	20.100	4.19	SWMF-26	Pond Outflow
SWMF-26 OUTLET	Pond Outlet	Link	9.755	20.100	4.19		
SWMF-26 OUTLET	Pond Outlet	Downstream	52.894	11.850	32.68	SWMF-04	
SWMF03A OUTLET	Pond Outlet	Upstream	7.810	11.750	17.55	SWMF 03A	Pond Inflow
SWMF03A OUTLET	Pond Outlet	Outflow	7.499	12.000	15.59	SWMF 03A	Pond Outflow
SWMF03A OUTLET	Pond Outlet	Link	7.499	12.000	15.59		
SWMF03A OUTLET	Pond Outlet	Downstream	13.997	11.800	29.27	OUTFALL 2	
SWMF03B OUTLET	Pond Outlet	Upstream	1.796	11.700	4.12	SWMF 03B	Pond Inflow
SWMF03B OUTLET	Pond Outlet	Outflow	1.729	11.500	3.92	SWMF 03B	Pond Outflow
SWMF03B OUTLET	Pond Outlet	Link	1.729	11.500	3.92		
SWMF03B OUTLET	Pond Outlet	Downstream	7.810	11.750	17.55	SWMF 03A	

Messages

Message Id	6
Scenario	(N/A)
Element Type	(N/A)
Element Id	-2
Label	(N/A)
Time	(N/A)
Message	There are user notifications available. Double-click this message to load these messages.
Source	Project File

Scenario Calculation Summary

Scenario Summary

ID	1
Label	100Yr 24Hr
Notes	
Active Topology	Base Active Topology
Hydrology	Base Hydrology
Rainfall Runoff	100YEAR24HOUR
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	Base Calculation Options

Output Summary

Output Increment	0.050 hours	Duration	36.000 hours

Rainfall Summary

Return Event Tag	100	Rainfall Type	Time-Depth Curve
Total Depth	8.6 in	Storm Event	100Yt-24Hr

ICPM Output Summary

Target Convergence	0.00 ft³/s	ICPM Time Step	0.050 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)
001	100Yr 24Hr	100	None	15.528	15.600	26.15	(N/A)	(N/A)
001A	100Yr 24Hr	100	None	2.418	15.600	4.12	(N/A)	(N/A)
001B	100Yr 24Hr	100	None	3.109	15.600	5.35	(N/A)	(N/A)
002	100Yr 24Hr	100	None	0.276	15.600	0.48	(N/A)	(N/A)
003	100Yr 24Hr	100	None	3.594	15.600	5.89	(N/A)	(N/A)
003A	100Yr 24Hr	100	None	6.633	15.600	11.32	(N/A)	(N/A)
003B	100Yr 24Hr	100	None	1.960	15.600	3.36	(N/A)	(N/A)
004	100Yr 24Hr	100	None	3.961	15.650	6.76	(N/A)	(N/A)
005	100Yr 24Hr	100	None	2.053	15.600	3.53	(N/A)	(N/A)
006	100Yr 24Hr	100	None	7.277	15.600	12.40	(N/A)	(N/A)
007	100Yr 24Hr	100	None	3.762	15.600	6.42	(N/A)	(N/A)
008	100Yr 24Hr	100	None	11.117	15.700	18.66	(N/A)	(N/A)
008A	100Yr 24Hr	100	None	0.866	15.600	1.49	(N/A)	(N/A)
008B	100Yr 24Hr	100	None	1.084	15.600	1.84	(N/A)	(N/A)
009	100Yr 24Hr	100	None	1.066	15.600	1.78	(N/A)	(N/A)
020	100Yr 24Hr	100	None	1.435	15.600	2.38	(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)
021	100Yr 24Hr	100	None	2.701	15.600	4.43	(N/A)	(N/A)
022	100Yr 24Hr	100	None	38.662	15.600	63.08	(N/A)	(N/A)
023	100Yr 24Hr	100	None	34.353	15.600	57.31	(N/A)	(N/A)
024	100Yr 24Hr	100	None	13.197	15.600	21.97	(N/A)	(N/A)
025	100Yr 24Hr	100	None	2.008	15.600	3.30	(N/A)	(N/A)
026	100Yr 24Hr	100	None	16.966	15.600	27.54	(N/A)	(N/A)
027	100Yr 24Hr	100	None	3.469	15.600	5.89	(N/A)	(N/A)
028	100Yr 24Hr	100	None	1.837	15.600	2.99	(N/A)	(N/A)
029	100Yr 24Hr	100	None	1.454	15.600	2.24	(N/A)	(N/A)
OUTFALL 1	100Yr 24Hr	100	None	81.836	21.650	40.40	(N/A)	(N/A)
OUTFALL 2	100Yr 24Hr	100	None	14.734	15.650	25.25	(N/A)	(N/A)
SWMF 03A (IN)	100Yr 24Hr	100	None	8.485	15.650	14.48	(N/A)	(N/A)
SWMF 03A (OUT)	100Yr 24Hr	100	None	7.671	15.800	13.71	885.14	2.687
SWMF 03B (IN)	100Yr 24Hr	100	None	1.960	15.600	3.36	(N/A)	(N/A)
SWMF 03B (OUT)	100Yr 24Hr	100	None	1.851	15.200	3.19	885.22	0.273
SWMF-01 (IN)	100Yr 24Hr	100	None	93.325	15.700	93.77	(N/A)	(N/A)
SWMF-01 (OUT)	100Yr 24Hr	100	None	81.559	22.100	40.30	882.02	24.082
SWMF-01A (IN)	100Yr 24Hr	100	None	5.508	15.650	9.45	(N/A)	(N/A)
SWMF-01A (OUT)	100Yr 24Hr	100	None	5.369	15.650	9.43	884.34	0.179
SWMF-01B (IN)	100Yr 24Hr	100	None	3.109	15.600	5.35	(N/A)	(N/A)
SWMF-01B (OUT)	100Yr 24Hr	100	None	3.090	15.650	5.33	887.33	0.147
SWMF-04 (IN)	100Yr 24Hr	100	None	50.308	15.600	27.87	(N/A)	(N/A)
SWMF-04 (OUT)	100Yr 24Hr	100	None	50.010	17.450	24.52	889.13	1.174
SWMF-05 (IN)	100Yr 24Hr	100	None	3.890	15.600	6.52	(N/A)	(N/A)
SWMF-05 (OUT)	100Yr 24Hr	100	None	1.783	16.300	2.81	883.83	2.331
SWMF-06 (IN)	100Yr 24Hr	100	None	10.515	15.600	16.82	(N/A)	(N/A)
SWMF-06 (OUT)	100Yr 24Hr	100	None	1.877	36.000	0.98	883.83	9.236
SWMF-07 (IN)	100Yr 24Hr	100	None	18.563	15.700	28.96	(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-07 (OUT)	100Yr 24Hr	100	None	18.549	15.750	28.86	882.78	0.222
SWMF-08 (IN)	100Yr 24Hr	100	None	66.582	15.700	49.88	(N/A)	(N/A)
SWMF-08 (OUT)	100Yr 24Hr	100	None	65.368	15.800	49.40	886.75	1.593
SWMF-08A (IN)	100Yr 24Hr	100	None	0.866	15.600	1.49	(N/A)	(N/A)
SWMF-08A (OUT)	100Yr 24Hr	100	None	0.866	15.750	1.34	889.87	0.130
SWMF-08B (IN)	100Yr 24Hr	100	None	1.084	15.600	1.84	(N/A)	(N/A)
SWMF-08B (OUT)	100Yr 24Hr	100	None	0.844	18.050	0.87	891.81	0.628
SWMF-09 (IN)	100Yr 24Hr	100	None	1.066	15.600	1.78	(N/A)	(N/A)
SWMF-09 (OUT)	100Yr 24Hr	100	None	1.044	15.600	1.78	888.85	0.113
SWMF-22 (IN)	100Yr 24Hr	100	None	41.375	14.000	33.51	(N/A)	(N/A)
SWMF-22 (OUT)	100Yr 24Hr	100	None	35.143	23.500	18.51	889.43	8.745
SWMF-23 (IN)	100Yr 24Hr	100	None	39.023	15.600	57.52	(N/A)	(N/A)
SWMF-23 (OUT)	100Yr 24Hr	100	None	16.383	28.350	16.00	889.47	47.271
SWMF-23 (Reverse)	100Yr 24Hr	100	None	-13.670	15.950	-31.57	(N/A)	(N/A)
SWMF-24 (IN)	100Yr 24Hr	100	None	13.197	15.600	21.97	(N/A)	(N/A)
SWMF-24 (OUT)	100Yr 24Hr	100	None	5.265	27.950	4.10	889.47	11.683
SWMF-24 (Reverse)	100Yr 24Hr	100	None	-0.596	16.400	-3.44	(N/A)	(N/A)
SWMF-26 (IN)	100Yr 24Hr	100	None	16.966	15.600	27.54	(N/A)	(N/A)
SWMF-26 (OUT)	100Yr 24Hr	100	None	9.197	26.100	4.16	894.93	11.650

Executive Summary (Links)

Label	Type	Location	Hydrograph Volume (ac-ft)	Peak Time (hours)	Peak Flow (ft³/s)	End Point	Node Flow Direction
01A OUTLET	Pond Outlet	Upstream	5.508	15.650	9.45	SWMF-01A	Pond Inflow
01A OUTLET	Pond Outlet	Outflow	5.369	15.650	9.43	SWMF-01A	Pond Outflow

Scenario Calculation Summary

Executive Summary (Links)

Label	Type	Location	Hydrograph Volume (ac-ft)	Peak Time (hours)	Peak Flow (ft³/s)	End Point	Node Flow Direction
01A OUTLET	Pond Outlet	Link	5.369	15.650	9.43		
01A OUTLET	Pond Outlet	Downstream	93.325	15.700	93.77	SWMF-01	
01B OUTLET	Pond Outlet	Upstream	3.109	15.600	5.35	SWMF-01B	Pond Inflow
01B OUTLET	Pond Outlet	Outflow	3.090	15.650	5.33	SWMF-01B	Pond Outflow
01B OUTLET	Pond Outlet	Link	3.090	15.650	5.33		
01B OUTLET	Pond Outlet	Downstream	5.508	15.650	9.45	SWMF-01A	
08A OUTLET	Pond Outlet	Upstream	0.866	15.600	1.49	SWMF-08A	Pond Inflow
08A OUTLET	Pond Outlet	Outflow	0.866	15.750	1.34	SWMF-08A	Pond Outflow
08A OUTLET	Pond Outlet	Link	0.866	15.750	1.34		
08A OUTLET	Pond Outlet	Downstream	66.582	15.700	49.88	SWMF-08	
08B OUTLET	Pond Outlet	Upstream	1.084	15.600	1.84	SWMF-08B	Pond Inflow
08B OUTLET	Pond Outlet	Outflow	0.844	18.050	0.87	SWMF-08B	Pond Outflow
08B OUTLET	Pond Outlet	Link	0.844	18.050	0.87		
08B OUTLET	Pond Outlet	Downstream	66.582	15.700	49.88	SWMF-08	
09 OUTLET	Pond Outlet	Upstream	1.066	15.600	1.78	SWMF-09	Pond Inflow
09 OUTLET	Pond Outlet	Outflow	1.044	15.600	1.78	SWMF-09	Pond Outflow
09 OUTLET	Pond Outlet	Link	1.044	15.600	1.78		
09 OUTLET	Pond Outlet	Downstream	66.582	15.700	49.88	SWMF-08	
SWMF-01 OUTLET	Pond Outlet	Upstream	93.325	15.700	93.77	SWMF-01	Pond Inflow
SWMF-01 OUTLET	Pond Outlet	Outflow	81.559	22.100	40.30	SWMF-01	Pond Outflow
SWMF-01 OUTLET	Pond Outlet	Link	81.559	22.100	40.30		
SWMF-01 OUTLET	Pond Outlet	Downstream	81.836	21.650	40.40	OUTFALL 1	
SWMF-04 OUTLET	Pond Outlet	Upstream	50.308	15.600	27.87	SWMF-04	Pond Inflow
SWMF-04 OUTLET	Pond Outlet	Outflow	50.010	17.450	24.52	SWMF-04	Pond Outflow
SWMF-04 OUTLET	Pond Outlet	Link	49.923	17.450	24.52		
SWMF-04 OUTLET	Pond Outlet	Downstream	66.582	15.700	49.88	SWMF-08	
SWMF-05 OUTLET	Pond Outlet	Upstream	3.890	15.600	6.52	SWMF-05	Pond Inflow
SWMF-05 OUTLET	Pond Outlet	Outflow	1.783	16.300	2.81	SWMF-05	Pond Outflow
SWMF-05 OUTLET	Pond Outlet	Link	1.783	16.300	2.81		
SWMF-05 OUTLET	Pond Outlet	Downstream	10.515	15.600	16.82	SWMF-06	
SWMF-06 OUTLET	Pond Outlet	Upstream	10.515	15.600	16.82	SWMF-06	Pond Inflow

Scenario Calculation Summary

Executive Summary (Links)

Label	Type	Location	Hydrograph Volume (ac-ft)	Peak Time (hours)	Peak Flow (ft³/s)	End Point	Node Flow Direction
SWMF-06 OUTLET	Pond Outlet	Outflow	1.877	36.000	0.98	SWMF-06	Pond Outflow
SWMF-06 OUTLET	Pond Outlet	Link	1.877	36.000	0.98		
SWMF-06 OUTLET	Pond Outlet	Downstream	93.325	15.700	93.77	SWMF-01	
SWMF-07 OUTLET	Pond Outlet	Upstream	18.563	15.700	28.96	SWMF-07	Pond Inflow
SWMF-07 OUTLET	Pond Outlet	Outflow	18.549	15.750	28.86	SWMF-07	Pond Outflow
SWMF-07 OUTLET	Pond Outlet	Link	18.549	15.750	28.86		
SWMF-07 OUTLET	Pond Outlet	Downstream	93.325	15.700	93.77	SWMF-01	
SWMF-08 OVERLAND	Pond Outlet	Upstream	66.582	15.700	49.88	SWMF-08	Pond Inflow
SWMF-08 OVERLAND	Pond Outlet	Outflow	65.368	15.800	49.40	SWMF-08	Pond Outflow
SWMF-08 OVERLAND	Pond Outlet	Link	14.801	15.800	22.80		
SWMF-08 OVERLAND	Pond Outlet	Downstream	18.563	15.700	28.96	SWMF-07	
SWMF-08 SEWER	Pond Outlet	Upstream	66.582	15.700	49.88	SWMF-08	Pond Inflow
SWMF-08 SEWER	Pond Outlet	Outflow	65.368	15.800	49.40	SWMF-08	Pond Outflow
SWMF-08 SEWER	Pond Outlet	Link	50.567	15.700	26.63		
SWMF-08 SEWER	Pond Outlet	Downstream	93.325	15.700	93.77	SWMF-01	
SWMF-22 OUTLET	Pond Outlet	Upstream	41.375	14.000	33.51	SWMF-22	Pond Inflow
SWMF-22 OUTLET	Pond Outlet	Outflow	35.143	23.500	18.51	SWMF-22	Pond Outflow
SWMF-22 OUTLET	Pond Outlet	Link	35.143	23.500	18.51		
SWMF-22 OUTLET	Pond Outlet	Downstream	50.308	15.600	27.87	SWMF-04	
SWMF-23 OUTLET	Pond Outlet	Upstream	39.023	15.600	57.52	SWMF-23	Pond Inflow
SWMF-23 OUTLET	Pond Outlet	Outflow	16.383	28.350	16.00	SWMF-23	Pond Outflow
SWMF-23 OUTLET	Negative Flow	Outflow	-13.670	15.950	-31.57	SWMF-23	Pond Outflow
SWMF-23 OUTLET	Pond Outlet	Link	16.323	28.350	16.00		
SWMF-23 OUTLET	Negative Flow	Link	-13.670	15.950	-31.57		

Scenario Calculation Summary

Executive Summary (Links)

Label	Type	Location	Hydrograph Volume (ac-ft)	Peak Time (hours)	Peak Flow (ft³/s)	End Point	Node Flow Direction
SWMF-23 OUTLET	Pond Outlet	Downstream	41.375	14.000	33.51	SWMF-22	
SWMF-24 OUTLET	Pond Outlet	Upstream	13.197	15.600	21.97	SWMF-24	Pond Inflow
SWMF-24 OUTLET	Pond Outlet	Outflow	5.265	27.950	4.10	SWMF-24	Pond Outflow
SWMF-24 OUTLET	Negative Flow	Outflow	-0.596	16.400	-3.44	SWMF-24	Pond Outflow
SWMF-24 OUTLET	Pond Outlet	Link	5.265	27.950	4.10		
SWMF-24 OUTLET	Negative Flow	Link	-0.596	16.400	-3.44		
SWMF-24 OUTLET	Pond Outlet	Downstream	39.023	15.600	57.52	SWMF-23	
SWMF-26 OUTLET	Pond Outlet	Upstream	16.966	15.600	27.54	SWMF-26	Pond Inflow
SWMF-26 OUTLET	Pond Outlet	Outflow	9.197	26.100	4.16	SWMF-26	Pond Outflow
SWMF-26 OUTLET	Pond Outlet	Link	9.180	26.100	4.16		
SWMF-26 OUTLET	Pond Outlet	Downstream	50.308	15.600	27.87	SWMF-04	
SWMF03A OUTLET	Pond Outlet	Upstream	8.485	15.650	14.48	SWMF 03A	Pond Inflow
SWMF03A OUTLET	Pond Outlet	Outflow	7.671	15.800	13.71	SWMF 03A	Pond Outflow
SWMF03A OUTLET	Pond Outlet	Link	7.671	15.800	13.71		
SWMF03A OUTLET	Pond Outlet	Downstream	14.734	15.650	25.25	OUTFALL 2	
SWMF03B OUTLET	Pond Outlet	Upstream	1.960	15.600	3.36	SWMF 03B	Pond Inflow
SWMF03B OUTLET	Pond Outlet	Outflow	1.851	15.200	3.19	SWMF 03B	Pond Outflow
SWMF03B OUTLET	Pond Outlet	Link	1.851	15.200	3.19		
SWMF03B OUTLET	Pond Outlet	Downstream	8.485	15.650	14.48	SWMF 03A	

Messages

Message Id	6
Scenario	(N/A)
Element Type	(N/A)
Element Id	-2
Label	(N/A)
Time	(N/A)
Message	There are user notifications available. Double-click this message to load these messages.
Source	Project File

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Time-Depth Curve: 100Yt-24Hr	
Label	100Yt-24Hr
Start Time	0.000 hours
Increment	1.200 hours
End Time	24.000 hours
Return Event	100 years

CUMULATIVE RAINFALL (in)
Output Time Increment = 1.200 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	0.3	0.5	0.8	1.0
6.000	1.3	1.6	2.0	2.3	2.7
12.000	3.3	3.9	4.9	6.0	6.8
18.000	7.3	7.6	7.9	8.1	8.3
24.000	8.6	(N/A)	(N/A)	(N/A)	(N/A)

Storm Event	100Yt-24Hr
Return Event	100 years
Duration	36.000 hours
Depth	8.6 in
Time of Concentration (Composite)	0.540 hours
Area (User Defined)	32.810 acres

Computational Time Increment	0.072 hours
Time to Peak (Computed)	15.624 hours
Flow (Peak, Computed)	26.17 ft³/s
Output Increment	0.050 hours
Time to Flow (Peak Interpolated Output)	15.600 hours
Flow (Peak Interpolated Output)	26.15 ft³/s

Drainage Area

SCS CN (Composite)	76.000
Area (User Defined)	32.810 acres
Maximum Retention (Pervious)	3.2 in
Maximum Retention (Pervious, 20 percent)	0.6 in

Cumulative Runoff

Cumulative Runoff Depth (Pervious)	5.7 in
Runoff Volume (Pervious)	15.528 ac-ft

Hydrograph Volume (Area under Hydrograph curve)

Volume	15.528 ac-ft

SCS Unit Hydrograph Parameters

Time of Concentration (Composite)	0.540 hours
Computational Time Increment	0.072 hours
Unit Hydrograph Shape Factor	483.432
K Factor	0.749
Receding/Rising, Tr/Tp	1.670
Unit peak, qp	68.84 ft³/s
Unit peak time, Tp	0.360 hours

Subsection: Unit Hydrograph Summary
Label: 001

Return Event: 100 years
Storm Event: 100Yt-24Hr

SCS Unit Hydrograph Parameters	
Unit receding limb, Tr	1.440 hours
Total unit time, Tb	1.800 hours

Storm Event	100Yt-24Hr
Return Event	100 years
Duration	36.000 hours
Depth	8.6 in
Time of Concentration (Composite)	0.450 hours
Area (User Defined)	5.220 acres

Computational Time Increment	0.060 hours
Time to Peak (Computed)	15.600 hours
Flow (Peak, Computed)	4.12 ft³/s
Output Increment	0.050 hours
Time to Flow (Peak Interpolated Output)	15.600 hours
Flow (Peak Interpolated Output)	4.12 ft³/s

Drainage Area

SCS CN (Composite)	75.000
Area (User Defined)	5.220 acres
Maximum Retention (Pervious)	3.3 in
Maximum Retention (Pervious, 20 percent)	0.7 in

Cumulative Runoff

Cumulative Runoff Depth (Pervious)	5.6 in
Runoff Volume (Pervious)	2.418 ac-ft

Hydrograph Volume (Area under Hydrograph curve)

Volume	2.418 ac-ft

SCS Unit Hydrograph Parameters

Time of Concentration (Composite)	0.450 hours
Computational Time Increment	0.060 hours
Unit Hydrograph Shape Factor	483.432
K Factor	0.749
Receding/Rising, Tr/Tp	1.670
Unit peak, qp	13.14 ft³/s
Unit peak time, Tp	0.300 hours

SCS Unit Hydrograph Parameters	
Unit receding limb, Tr	1.200 hours
Total unit time, Tb	1.500 hours

Storm Event	100Yt-24Hr
Return Event	100 years
Duration	36.000 hours
Depth	8.6 in
Time of Concentration (Composite)	0.430 hours
Area (User Defined)	6.860 acres

Computational Time Increment	0.057 hours
Time to Peak (Computed)	15.595 hours
Flow (Peak, Computed)	5.35 ft³/s
Output Increment	0.050 hours
Time to Flow (Peak Interpolated Output)	15.600 hours
Flow (Peak Interpolated Output)	5.35 ft³/s

Drainage Area

SCS CN (Composite)	74.000
Area (User Defined)	6.860 acres
Maximum Retention (Pervious)	3.5 in
Maximum Retention (Pervious, 20 percent)	0.7 in

Cumulative Runoff

Cumulative Runoff Depth (Pervious)	5.4 in
Runoff Volume (Pervious)	3.109 ac-ft

Hydrograph Volume (Area under Hydrograph curve)

Volume	3.109 ac-ft

SCS Unit Hydrograph Parameters

Time of Concentration (Composite)	0.430 hours
Computational Time Increment	0.057 hours
Unit Hydrograph Shape Factor	483.432
K Factor	0.749
Receding/Rising, Tr/Tp	1.670
Unit peak, qp	18.08 ft³/s
Unit peak time, Tp	0.287 hours

SCS Unit Hydrograph Parameters	
Unit receding limb, Tr	1.147 hours
Total unit time, Tb	1.433 hours

Storm Event	100Yt-24Hr
Return Event	100 years
Duration	36.000 hours
Depth	8.6 in
Time of Concentration (Composite)	0.200 hours
Area (User Defined)	0.610 acres

Computational Time Increment	0.027 hours
Time to Peak (Computed)	15.600 hours
Flow (Peak, Computed)	0.48 ft³/s
Output Increment	0.050 hours
Time to Flow (Peak Interpolated Output)	15.600 hours
Flow (Peak Interpolated Output)	0.48 ft³/s

Drainage Area

SCS CN (Composite)	74.000
Area (User Defined)	0.610 acres
Maximum Retention (Pervious)	3.5 in
Maximum Retention (Pervious, 20 percent)	0.7 in

Cumulative Runoff

Cumulative Runoff Depth (Pervious)	5.4 in
Runoff Volume (Pervious)	0.276 ac-ft

Hydrograph Volume (Area under Hydrograph curve)

Volume	0.276 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	3.46 ft³/s
Unit peak time, Tp	0.133 hours

Subsection: Unit Hydrograph Summary
Label: 002

Return Event: 100 years
Storm Event: 100Yt-24Hr

SCS Unit Hydrograph Parameters	
Unit receding limb, Tr	0.533 hours
Total unit time, Tb	0.667 hours

Storm Event	100Yt-24Hr
Return Event	100 years
Duration	36.000 hours
Depth	8.6 in
Time of Concentration (Composite)	0.390 hours
Area (User Defined)	7.000 acres

Computational Time Increment	0.052 hours
Time to Peak (Computed)	15.600 hours
Flow (Peak, Computed)	5.89 ft³/s
Output Increment	0.050 hours
Time to Flow (Peak Interpolated Output)	15.600 hours
Flow (Peak Interpolated Output)	5.89 ft³/s

Drainage Area

SCS CN (Composite)	80.000
Area (User Defined)	7.000 acres
Maximum Retention (Pervious)	2.5 in
Maximum Retention (Pervious, 20 percent)	0.5 in

Cumulative Runoff

Cumulative Runoff Depth (Pervious)	6.2 in
Runoff Volume (Pervious)	3.594 ac-ft

Hydrograph Volume (Area under Hydrograph curve)

Volume	3.594 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	20.34 ft³/s
Unit peak time, Tp	0.260 hours

SCS Unit Hydrograph Parameters	
Unit receding limb, Tr	1.040 hours
Total unit time, Tb	1.300 hours

Storm Event	100Yt-24Hr
Return Event	100 years
Duration	36.000 hours
Depth	8.6 in
Time of Concentration (Composite)	0.430 hours
Area (User Defined)	14.320 acres

Computational Time Increment	0.057 hours
Time to Peak (Computed)	15.595 hours
Flow (Peak, Computed)	11.32 ft³/s
Output Increment	0.050 hours
Time to Flow (Peak Interpolated Output)	15.600 hours
Flow (Peak Interpolated Output)	11.32 ft³/s

Drainage Area

SCS CN (Composite)	75.000
Area (User Defined)	14.320 acres
Maximum Retention (Pervious)	3.3 in
Maximum Retention (Pervious, 20 percent)	0.7 in

Cumulative Runoff

Cumulative Runoff Depth (Pervious)	5.6 in
Runoff Volume (Pervious)	6.634 ac-ft

Hydrograph Volume (Area under Hydrograph curve)

Volume	6.633 ac-ft

SCS Unit Hydrograph Parameters

Time of Concentration (Composite)	0.430 hours
Computational Time Increment	0.057 hours
Unit Hydrograph Shape Factor	483.432
K Factor	0.749
Receding/Rising, Tr/Tp	1.670
Unit peak, qp	37.73 ft³/s
Unit peak time, Tp	0.287 hours

Subsection: Unit Hydrograph Summary
Label: 003A

Return Event: 100 years
Storm Event: 100Yt-24Hr

SCS Unit Hydrograph Parameters	
Unit receding limb, Tr	1.147 hours
Total unit time, Tb	1.433 hours

Storm Event	100Yt-24Hr
Return Event	100 years
Duration	36.000 hours
Depth	8.6 in
Time of Concentration (Composite)	0.260 hours
Area (User Defined)	4.230 acres

Computational Time Increment	0.035 hours
Time to Peak (Computed)	15.600 hours
Flow (Peak, Computed)	3.36 ft³/s
Output Increment	0.050 hours
Time to Flow (Peak Interpolated Output)	15.600 hours
Flow (Peak Interpolated Output)	3.36 ft³/s

Drainage Area

SCS CN (Composite)	75.000
Area (User Defined)	4.230 acres
Maximum Retention (Pervious)	3.3 in
Maximum Retention (Pervious, 20 percent)	0.7 in

Cumulative Runoff

Cumulative Runoff Depth (Pervious)	5.6 in
Runoff Volume (Pervious)	1.959 ac-ft

Hydrograph Volume (Area under Hydrograph curve)

Volume	1.960 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	18.43 ft³/s
Unit peak time, Tp	0.173 hours

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

Storm Event	100Yt-24Hr
Return Event	100 years
Duration	36.000 hours
Depth	8.6 in
Time of Concentration (Composite)	0.590 hours
Area (User Defined)	8.740 acres

Computational Time Increment	0.079 hours
Time to Peak (Computed)	15.655 hours
Flow (Peak, Computed)	6.76 ft³/s
Output Increment	0.050 hours
Time to Flow (Peak Interpolated Output)	15.650 hours
Flow (Peak Interpolated Output)	6.76 ft³/s

Drainage Area

SCS CN (Composite)	74.000
Area (User Defined)	8.740 acres
Maximum Retention (Pervious)	3.5 in
Maximum Retention (Pervious, 20 percent)	0.7 in

Cumulative Runoff

Cumulative Runoff Depth (Pervious)	5.4 in
Runoff Volume (Pervious)	3.961 ac-ft

Hydrograph Volume (Area under Hydrograph curve)

Volume	3.961 ac-ft

SCS Unit Hydrograph Parameters

Time of Concentration (Composite)	0.590 hours
Computational Time Increment	0.079 hours
Unit Hydrograph Shape Factor	483.432
K Factor	0.749
Receding/Rising, Tr/Tp	1.670
Unit peak, qp	16.78 ft³/s
Unit peak time, Tp	0.393 hours

Subsection: Unit Hydrograph Summary
Label: 004

Return Event: 100 years
Storm Event: 100Yt-24Hr

SCS Unit Hydrograph Parameters	
Unit receding limb, Tr	1.573 hours
Total unit time, Tb	1.967 hours

Storm Event	100Yt-24Hr
Return Event	100 years
Duration	36.000 hours
Depth	8.6 in
Time of Concentration (Composite)	0.440 hours
Area (User Defined)	4.530 acres

Computational Time Increment	0.059 hours
Time to Peak (Computed)	15.605 hours
Flow (Peak, Computed)	3.53 ft³/s
Output Increment	0.050 hours
Time to Flow (Peak Interpolated Output)	15.600 hours
Flow (Peak Interpolated Output)	3.53 ft³/s

Drainage Area

SCS CN (Composite)	74.000
Area (User Defined)	4.530 acres
Maximum Retention (Pervious)	3.5 in
Maximum Retention (Pervious, 20 percent)	0.7 in

Cumulative Runoff

Cumulative Runoff Depth (Pervious)	5.4 in
Runoff Volume (Pervious)	2.053 ac-ft

Hydrograph Volume (Area under Hydrograph curve)

Volume	2.053 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	11.67 ft³/s
Unit peak time, Tp	0.293 hours

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

Storm Event	100Yt-24Hr
Return Event	100 years
Duration	36.000 hours
Depth	8.6 in
Time of Concentration (Composite)	0.470 hours
Area (User Defined)	15.710 acres

Computational Time Increment	0.063 hours
Time to Peak (Computed)	15.604 hours
Flow (Peak, Computed)	12.40 ft³/s
Output Increment	0.050 hours
Time to Flow (Peak Interpolated Output)	15.600 hours
Flow (Peak Interpolated Output)	12.40 ft³/s

Drainage Area

SCS CN (Composite)	75.000
Area (User Defined)	15.710 acres
Maximum Retention (Pervious)	3.3 in
Maximum Retention (Pervious, 20 percent)	0.7 in

Cumulative Runoff

Cumulative Runoff Depth (Pervious)	5.6 in
Runoff Volume (Pervious)	7.277 ac-ft

Hydrograph Volume (Area under Hydrograph curve)

Volume	7.277 ac-ft

SCS Unit Hydrograph Parameters

Time of Concentration (Composite)	0.470 hours
Computational Time Increment	0.063 hours
Unit Hydrograph Shape Factor	483.432
K Factor	0.749
Receding/Rising, Tr/Tp	1.670
Unit peak, qp	37.87 ft³/s
Unit peak time, Tp	0.313 hours

SCS Unit Hydrograph Parameters	
Unit receding limb, Tr	1.253 hours
Total unit time, Tb	1.567 hours

Storm Event	100Yt-24Hr
Return Event	100 years
Duration	36.000 hours
Depth	8.6 in
Time of Concentration (Composite)	0.410 hours
Area (User Defined)	8.120 acres

Computational Time Increment	0.055 hours
Time to Peak (Computed)	15.580 hours
Flow (Peak, Computed)	6.42 ft³/s
Output Increment	0.050 hours
Time to Flow (Peak Interpolated Output)	15.600 hours
Flow (Peak Interpolated Output)	6.42 ft³/s

Drainage Area

SCS CN (Composite)	75.000
Area (User Defined)	8.120 acres
Maximum Retention (Pervious)	3.3 in
Maximum Retention (Pervious, 20 percent)	0.7 in

Cumulative Runoff

Cumulative Runoff Depth (Pervious)	5.6 in
Runoff Volume (Pervious)	3.761 ac-ft

Hydrograph Volume (Area under Hydrograph curve)

Volume	3.762 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	22.44 ft³/s
Unit peak time, Tp	0.273 hours

Subsection: Unit Hydrograph Summary
Label: 007

Return Event: 100 years
Storm Event: 100Yt-24Hr

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

Storm Event	100Yt-24Hr
Return Event	100 years
Duration	36.000 hours
Depth	8.6 in
Time of Concentration (Composite)	0.770 hours
Area (User Defined)	24.000 acres

Computational Time Increment	0.103 hours
Time to Peak (Computed)	15.708 hours
Flow (Peak, Computed)	18.66 ft³/s
Output Increment	0.050 hours
Time to Flow (Peak Interpolated Output)	15.700 hours
Flow (Peak Interpolated Output)	18.66 ft³/s

Drainage Area

SCS CN (Composite)	75.000
Area (User Defined)	24.000 acres
Maximum Retention (Pervious)	3.3 in
Maximum Retention (Pervious, 20 percent)	0.7 in

Cumulative Runoff

Cumulative Runoff Depth (Pervious)	5.6 in
Runoff Volume (Pervious)	11.118 ac-ft

Hydrograph Volume (Area under Hydrograph curve)

Volume	11.117 ac-ft

SCS Unit Hydrograph Parameters

Time of Concentration (Composite)	0.770 hours
Computational Time Increment	0.103 hours
Unit Hydrograph Shape Factor	483.432
K Factor	0.749
Receding/Rising, Tr/Tp	1.670
Unit peak, qp	35.32 ft³/s
Unit peak time, Tp	0.513 hours

SCS Unit Hydrograph Parameters	
Unit receding limb, Tr	2.053 hours
Total unit time, Tb	2.567 hours

Storm Event	100Yt-24Hr
Return Event	100 years
Duration	36.000 hours
Depth	8.6 in
Time of Concentration (Composite)	0.270 hours
Area (User Defined)	1.870 acres

Computational Time Increment	0.036 hours
Time to Peak (Computed)	15.588 hours
Flow (Peak, Computed)	1.49 ft³/s
Output Increment	0.050 hours
Time to Flow (Peak Interpolated Output)	15.600 hours
Flow (Peak Interpolated Output)	1.49 ft³/s

Drainage Area

SCS CN (Composite)	75.000
Area (User Defined)	1.870 acres
Maximum Retention (Pervious)	3.3 in
Maximum Retention (Pervious, 20 percent)	0.7 in

Cumulative Runoff

Cumulative Runoff Depth (Pervious)	5.6 in
Runoff Volume (Pervious)	0.866 ac-ft

Hydrograph Volume (Area under Hydrograph curve)

Volume	0.866 ac-ft

SCS Unit Hydrograph Parameters

Time of Concentration (Composite)	0.270 hours
Computational Time Increment	0.036 hours
Unit Hydrograph Shape Factor	483.432
K Factor	0.749
Receding/Rising, Tr/Tp	1.670
Unit peak, qp	7.85 ft³/s
Unit peak time, Tp	0.180 hours

Subsection: Unit Hydrograph Summary
Label: 008A

Return Event: 100 years
Storm Event: 100Yt-24Hr

SCS Unit Hydrograph Parameters	
Unit receding limb, Tr	0.720 hours
Total unit time, Tb	0.900 hours

Storm Event	100Yt-24Hr
Return Event	100 years
Duration	36.000 hours
Depth	8.6 in
Time of Concentration (Composite)	0.340 hours
Area (User Defined)	2.290 acres

Computational Time Increment	0.045 hours
Time to Peak (Computed)	15.595 hours
Flow (Peak, Computed)	1.84 ft³/s
Output Increment	0.050 hours
Time to Flow (Peak Interpolated Output)	15.600 hours
Flow (Peak Interpolated Output)	1.84 ft³/s

Drainage Area	
SCS CN (Composite)	76.000
Area (User Defined)	2.290 acres
Maximum Retention (Pervious)	3.2 in
Maximum Retention (Pervious, 20 percent)	0.6 in

Cumulative Runoff	
Cumulative Runoff Depth (Pervious)	5.7 in
Runoff Volume (Pervious)	1.084 ac-ft

Hydrograph Volume (Area under Hydrograph curve)	
Volume	1.084 ac-ft

SCS Unit Hydrograph Parameters	
Time of Concentration (Composite)	0.340 hours
Computational Time Increment	0.045 hours
Unit Hydrograph Shape Factor	483.432
K Factor	0.749
Receding/Rising, Tr/Tp	1.670
Unit peak, qp	7.63 ft³/s
Unit peak time, Tp	0.227 hours

SCS Unit Hydrograph Parameters	
Unit receding limb, Tr	0.907 hours
Total unit time, Tb	1.133 hours

Storm Event	100Yt-24Hr
Return Event	100 years
Duration	36.000 hours
Depth	8.6 in
Time of Concentration (Composite)	0.220 hours
Area (User Defined)	2.160 acres

Computational Time Increment	0.029 hours
Time to Peak (Computed)	15.605 hours
Flow (Peak, Computed)	1.78 ft³/s
Output Increment	0.050 hours
Time to Flow (Peak Interpolated Output)	15.600 hours
Flow (Peak Interpolated Output)	1.78 ft³/s

Drainage Area

SCS CN (Composite)	78.000
Area (User Defined)	2.160 acres
Maximum Retention (Pervious)	2.8 in
Maximum Retention (Pervious, 20 percent)	0.6 in

Cumulative Runoff

Cumulative Runoff Depth (Pervious)	5.9 in
Runoff Volume (Pervious)	1.066 ac-ft

Hydrograph Volume (Area under Hydrograph curve)

Volume	1.066 ac-ft

SCS Unit Hydrograph Parameters

Time of Concentration (Composite)	0.220 hours
Computational Time Increment	0.029 hours
Unit Hydrograph Shape Factor	483.432
K Factor	0.749
Receding/Rising, Tr/Tp	1.670
Unit peak, qp	11.12 ft³/s
Unit peak time, Tp	0.147 hours

SCS Unit Hydrograph Parameters	
Unit receding limb, Tr	0.587 hours
Total unit time, Tb	0.733 hours

Storm Event	100Yt-24Hr
Return Event	100 years
Duration	36.000 hours
Depth	8.6 in
Time of Concentration (Composite)	0.250 hours
Area (User Defined)	2.850 acres

Computational Time Increment	0.033 hours
Time to Peak (Computed)	15.600 hours
Flow (Peak, Computed)	2.38 ft³/s
Output Increment	0.050 hours
Time to Flow (Peak Interpolated Output)	15.600 hours
Flow (Peak Interpolated Output)	2.38 ft³/s

Drainage Area	
SCS CN (Composite)	79.000
Area (User Defined)	2.850 acres
Maximum Retention (Pervious)	2.7 in
Maximum Retention (Pervious, 20 percent)	0.5 in

Cumulative Runoff	
Cumulative Runoff Depth (Pervious)	6.0 in
Runoff Volume (Pervious)	1.435 ac-ft

Hydrograph Volume (Area under Hydrograph curve)	
Volume	1.435 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	12.92 ft³/s
Unit peak time, Tp	0.167 hours

SCS Unit Hydrograph Parameters	
Unit receding limb, Tr	0.667 hours
Total unit time, Tb	0.833 hours

Storm Event	100Yt-24Hr
Return Event	100 years
Duration	36.000 hours
Depth	8.6 in
Time of Concentration (Composite)	0.330 hours
Area (User Defined)	5.260 acres

Computational Time Increment	0.044 hours
Time to Peak (Computed)	15.576 hours
Flow (Peak, Computed)	4.43 ft³/s
Output Increment	0.050 hours
Time to Flow (Peak Interpolated Output)	15.600 hours
Flow (Peak Interpolated Output)	4.43 ft³/s

Drainage Area

SCS CN (Composite)	80.000
Area (User Defined)	5.260 acres
Maximum Retention (Pervious)	2.5 in
Maximum Retention (Pervious, 20 percent)	0.5 in

Cumulative Runoff

Cumulative Runoff Depth (Pervious)	6.2 in
Runoff Volume (Pervious)	2.701 ac-ft

Hydrograph Volume (Area under Hydrograph curve)

Volume	2.701 ac-ft

SCS Unit Hydrograph Parameters

Time of Concentration (Composite)	0.330 hours
Computational Time Increment	0.044 hours
Unit Hydrograph Shape Factor	483.432
K Factor	0.749
Receding/Rising, Tr/Tp	1.670
Unit peak, qp	18.06 ft³/s
Unit peak time, Tp	0.220 hours

SCS Unit Hydrograph Parameters	
Unit receding limb, Tr	0.880 hours
Total unit time, Tb	1.100 hours

Storm Event	100Yt-24Hr
Return Event	100 years
Duration	36.000 hours
Depth	8.6 in
Time of Concentration (Composite)	0.530 hours
Area (User Defined)	75.300 acres

Computational Time Increment	0.071 hours
Time to Peak (Computed)	15.617 hours
Flow (Peak, Computed)	63.10 ft³/s
Output Increment	0.050 hours
Time to Flow (Peak Interpolated Output)	15.600 hours
Flow (Peak Interpolated Output)	63.08 ft³/s

Drainage Area

SCS CN (Composite)	80.000
Area (User Defined)	75.300 acres
Maximum Retention (Pervious)	2.5 in
Maximum Retention (Pervious, 20 percent)	0.5 in

Cumulative Runoff

Cumulative Runoff Depth (Pervious)	6.2 in
Runoff Volume (Pervious)	38.662 ac-ft

Hydrograph Volume (Area under Hydrograph curve)

Volume	38.662 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	160.98 ft³/s
Unit peak time, Tp	0.353 hours

Subsection: Unit Hydrograph Summary
Label: 022

Return Event: 100 years
Storm Event: 100Yt-24Hr

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

Storm Event	100Yt-24Hr
Return Event	100 years
Duration	36.000 hours
Depth	8.6 in
Time of Concentration (Composite)	0.600 hours
Area (User Defined)	71.080 acres

Computational Time Increment	0.080 hours
Time to Peak (Computed)	15.600 hours
Flow (Peak, Computed)	57.31 ft³/s
Output Increment	0.050 hours
Time to Flow (Peak Interpolated Output)	15.600 hours
Flow (Peak Interpolated Output)	57.31 ft³/s

Drainage Area

SCS CN (Composite)	77.000
Area (User Defined)	71.080 acres
Maximum Retention (Pervious)	3.0 in
Maximum Retention (Pervious, 20 percent)	0.6 in

Cumulative Runoff

Cumulative Runoff Depth (Pervious)	5.8 in
Runoff Volume (Pervious)	34.353 ac-ft

Hydrograph Volume (Area under Hydrograph curve)

Volume	34.353 ac-ft

SCS Unit Hydrograph Parameters

Time of Concentration (Composite)	0.600 hours
Computational Time Increment	0.080 hours
Unit Hydrograph Shape Factor	483.432
K Factor	0.749
Receding/Rising, Tr/Tp	1.670
Unit peak, qp	134.23 ft³/s
Unit peak time, Tp	0.400 hours

SCS Unit Hydrograph Parameters	
Unit receding limb, Tr	1.600 hours
Total unit time, Tb	2.000 hours

Storm Event	100Yt-24Hr
Return Event	100 years
Duration	36.000 hours
Depth	8.6 in
Time of Concentration (Composite)	0.440 hours
Area (User Defined)	26.750 acres

Computational Time Increment	0.059 hours
Time to Peak (Computed)	15.605 hours
Flow (Peak, Computed)	21.98 ft³/s
Output Increment	0.050 hours
Time to Flow (Peak Interpolated Output)	15.600 hours
Flow (Peak Interpolated Output)	21.97 ft³/s

Drainage Area

SCS CN (Composite)	78.000
Area (User Defined)	26.750 acres
Maximum Retention (Pervious)	2.8 in
Maximum Retention (Pervious, 20 percent)	0.6 in

Cumulative Runoff

Cumulative Runoff Depth (Pervious)	5.9 in
Runoff Volume (Pervious)	13.197 ac-ft

Hydrograph Volume (Area under Hydrograph curve)

Volume	13.197 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	68.88 ft³/s
Unit peak time, Tp	0.293 hours

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

Storm Event	100Yt-24Hr
Return Event	100 years
Duration	36.000 hours
Depth	8.6 in
Time of Concentration (Composite)	0.270 hours
Area (User Defined)	3.910 acres

Computational Time Increment	0.036 hours
Time to Peak (Computed)	15.588 hours
Flow (Peak, Computed)	3.30 ft³/s
Output Increment	0.050 hours
Time to Flow (Peak Interpolated Output)	15.600 hours
Flow (Peak Interpolated Output)	3.30 ft³/s

Drainage Area

SCS CN (Composite)	80.000
Area (User Defined)	3.910 acres
Maximum Retention (Pervious)	2.5 in
Maximum Retention (Pervious, 20 percent)	0.5 in

Cumulative Runoff

Cumulative Runoff Depth (Pervious)	6.2 in
Runoff Volume (Pervious)	2.008 ac-ft

Hydrograph Volume (Area under Hydrograph curve)

Volume	2.008 ac-ft

SCS Unit Hydrograph Parameters

Time of Concentration (Composite)	0.270 hours
Computational Time Increment	0.036 hours
Unit Hydrograph Shape Factor	483.432
K Factor	0.749
Receding/Rising, Tr/Tp	1.670
Unit peak, qp	16.41 ft³/s
Unit peak time, Tp	0.180 hours

SCS Unit Hydrograph Parameters	
Unit receding limb, Tr	0.720 hours
Total unit time, Tb	0.900 hours

Storm Event	100Yt-24Hr
Return Event	100 years
Duration	36.000 hours
Depth	8.6 in
Time of Concentration (Composite)	0.450 hours
Area (User Defined)	32.410 acres

Computational Time Increment	0.060 hours
Time to Peak (Computed)	15.600 hours
Flow (Peak, Computed)	27.54 ft³/s
Output Increment	0.050 hours
Time to Flow (Peak Interpolated Output)	15.600 hours
Flow (Peak Interpolated Output)	27.54 ft³/s

Drainage Area

SCS CN (Composite)	81.000
Area (User Defined)	32.410 acres
Maximum Retention (Pervious)	2.3 in
Maximum Retention (Pervious, 20 percent)	0.5 in

Cumulative Runoff

Cumulative Runoff Depth (Pervious)	6.3 in
Runoff Volume (Pervious)	16.966 ac-ft

Hydrograph Volume (Area under Hydrograph curve)

Volume	16.966 ac-ft

SCS Unit Hydrograph Parameters

Time of Concentration (Composite)	0.450 hours
Computational Time Increment	0.060 hours
Unit Hydrograph Shape Factor	483.432
K Factor	0.749
Receding/Rising, Tr/Tp	1.670
Unit peak, qp	81.60 ft³/s
Unit peak time, Tp	0.300 hours

SCS Unit Hydrograph Parameters	
Unit receding limb, Tr	1.200 hours
Total unit time, Tb	1.500 hours

Storm Event	100Yt-24Hr
Return Event	100 years
Duration	36.000 hours
Depth	8.6 in
Time of Concentration (Composite)	0.340 hours
Area (User Defined)	7.330 acres

Computational Time Increment	0.045 hours
Time to Peak (Computed)	15.595 hours
Flow (Peak, Computed)	5.89 ft³/s
Output Increment	0.050 hours
Time to Flow (Peak Interpolated Output)	15.600 hours
Flow (Peak Interpolated Output)	5.89 ft³/s

Drainage Area

SCS CN (Composite)	76.000
Area (User Defined)	7.330 acres
Maximum Retention (Pervious)	3.2 in
Maximum Retention (Pervious, 20 percent)	0.6 in

Cumulative Runoff

Cumulative Runoff Depth (Pervious)	5.7 in
Runoff Volume (Pervious)	3.469 ac-ft

Hydrograph Volume (Area under Hydrograph curve)

Volume	3.469 ac-ft

SCS Unit Hydrograph Parameters

Time of Concentration (Composite)	0.340 hours
Computational Time Increment	0.045 hours
Unit Hydrograph Shape Factor	483.432
K Factor	0.749
Receding/Rising, Tr/Tp	1.670
Unit peak, qp	24.43 ft³/s
Unit peak time, Tp	0.227 hours

SCS Unit Hydrograph Parameters	
Unit receding limb, Tr	0.907 hours
Total unit time, Tb	1.133 hours

Storm Event	100Yt-24Hr
Return Event	100 years
Duration	36.000 hours
Depth	8.6 in
Time of Concentration (Composite)	0.300 hours
Area (User Defined)	3.510 acres

Computational Time Increment	0.040 hours
Time to Peak (Computed)	15.600 hours
Flow (Peak, Computed)	2.99 ft³/s
Output Increment	0.050 hours
Time to Flow (Peak Interpolated Output)	15.600 hours
Flow (Peak Interpolated Output)	2.99 ft³/s

Drainage Area

SCS CN (Composite)	81.000
Area (User Defined)	3.510 acres
Maximum Retention (Pervious)	2.3 in
Maximum Retention (Pervious, 20 percent)	0.5 in

Cumulative Runoff

Cumulative Runoff Depth (Pervious)	6.3 in
Runoff Volume (Pervious)	1.837 ac-ft

Hydrograph Volume (Area under Hydrograph curve)

Volume	1.837 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	13.26 ft³/s
Unit peak time, Tp	0.200 hours

SCS Unit Hydrograph Parameters	
Unit receding limb, Tr	0.800 hours
Total unit time, Tb	1.000 hours

Storm Event	100Yt-24Hr
Return Event	100 years
Duration	36.000 hours
Depth	8.6 in
Time of Concentration (Composite)	0.100 hours
Area (User Defined)	2.490 acres

Computational Time Increment	0.013 hours
Time to Peak (Computed)	15.600 hours
Flow (Peak, Computed)	2.24 ft³/s
Output Increment	0.050 hours
Time to Flow (Peak Interpolated Output)	15.600 hours
Flow (Peak Interpolated Output)	2.24 ft³/s

Drainage Area

SCS CN (Composite)	87.000
Area (User Defined)	2.490 acres
Maximum Retention (Pervious)	1.5 in
Maximum Retention (Pervious, 20 percent)	0.3 in

Cumulative Runoff

Cumulative Runoff Depth (Pervious)	7.0 in
Runoff Volume (Pervious)	1.454 ac-ft

Hydrograph Volume (Area under Hydrograph curve)

Volume	1.454 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	28.21 ft³/s
Unit peak time, Tp	0.067 hours

Subsection: Unit Hydrograph Summary
Label: 029

Return Event: 100 years
Storm Event: 100Yt-24Hr

SCS Unit Hydrograph Parameters	
Unit receding limb, Tr	0.267 hours
Total unit time, Tb	0.333 hours

Elevation-Volume

Pond Elevation (ft)	Pond Volume (ac-ft)
881.50	0.000
882.00	0.126
883.00	0.487
884.00	1.171
884.70	2.003
885.00	2.457
885.50	3.282

Subsection: Elevation vs. Volume Curve
Label: SWMF 03B

Return Event: 100 years
Storm Event: 100Yt-24Hr

Elevation-Volume

Pond Elevation (ft)	Pond Volume (ac-ft)
883.90	0.000
885.00	0.188
886.00	0.567

Subsection: Elevation vs. Volume Curve
Label: SWMF-01

Return Event: 100 years
Storm Event: 100Yt-24Hr

Elevation-Volume

Pond Elevation (ft)	Pond Volume (ac-ft)
876.00	0.000
877.40	0.003
877.50	0.006
878.00	0.041
878.50	0.642
879.00	2.021
880.00	6.286
881.00	13.397
882.00	23.806
883.00	36.937
883.60	46.089
884.00	52.726

Subsection: Elevation vs. Volume Curve
Label: SWMF-01A

Return Event: 100 years
Storm Event: 100Yt-24Hr

Elevation-Volume

Pond Elevation (ft)	Pond Volume (ac-ft)
883.20	0.000
884.00	0.104
884.20	0.143
885.00	0.359

Subsection: Elevation vs. Volume Curve
Label: SWMF-01B

Return Event: 100 years
Storm Event: 100Yt-24Hr

Elevation-Volume

Pond Elevation (ft)	Pond Volume (ac-ft)
886.50	0.000
887.00	0.060
887.20	0.097
888.00	0.403

Elevation-Volume

Pond Elevation (ft)	Pond Volume (ac-ft)
884.40	0.000
887.00	0.008
887.50	0.075
888.00	0.246
889.00	0.953
890.00	2.632

Elevation-Volume

Pond Elevation (ft)	Pond Volume (ac-ft)
879.00	0.000
880.00	0.068
881.00	0.288
882.00	0.687
882.60	1.035
883.00	1.337
884.00	2.530

Elevation-Volume

Pond Elevation (ft)	Pond Volume (ac-ft)
878.40	0.000
879.00	0.395
880.00	1.116
881.00	2.295
882.00	4.162
883.00	6.609
884.00	9.766

Subsection: Elevation vs. Volume Curve
Label: SWMF-07

Return Event: 100 years
Storm Event: 100Yt-24Hr

Elevation-Volume

Pond Elevation (ft)	Pond Volume (ac-ft)
882.00	0.000
882.30	0.075
882.50	0.132
883.00	0.294
883.50	0.485
884.00	0.719

Elevation-Volume

Pond Elevation (ft)	Pond Volume (ac-ft)
884.00	0.000
885.00	0.421
886.00	0.994
886.50	1.373
887.00	1.817
887.50	2.334

Subsection: Elevation vs. Volume Curve
Label: SWMF-08A

Return Event: 100 years
Storm Event: 100Yt-24Hr

Elevation-Volume

Pond Elevation (ft)	Pond Volume (ac-ft)
887.00	0.000
888.00	0.006
888.90	0.036
889.00	0.041
889.70	0.106
890.00	0.149

Elevation-Volume

Pond Elevation (ft)	Pond Volume (ac-ft)
889.80	0.000
890.00	0.038
891.00	0.295
891.80	0.623
892.00	0.730
892.50	1.054

Elevation-Volume

Pond Elevation (ft)	Pond Volume (ac-ft)
888.30	0.000
888.80	0.100
889.00	0.153
889.50	0.319

Elevation-Volume

Pond Elevation (ft)	Pond Volume (ac-ft)
885.60	0.000
886.00	0.828
887.00	2.983
888.00	5.259
889.00	7.660
890.00	10.187
891.00	12.843

Elevation-Volume

Pond Elevation (ft)	Pond Volume (ac-ft)
885.60	0.000
886.00	2.638
887.00	15.139
888.00	27.932
889.00	41.021
890.00	54.408
891.00	68.098

Elevation-Volume

Pond Elevation (ft)	Pond Volume (ac-ft)
886.00	0.000
887.00	3.086
888.00	6.309
889.00	9.672
890.00	13.926
891.00	19.123
892.00	24.488

Subsection: Elevation vs. Volume Curve
Label: SWMF-26

Return Event: 100 years
Storm Event: 100Yt-24Hr

Elevation-Volume

Pond Elevation (ft)	Pond Volume (ac-ft)
887.50	0.000
888.00	0.034
889.00	0.361
890.00	1.070
891.00	2.267
892.00	4.061
893.00	6.318
894.00	8.902
894.80	11.250
895.00	11.883
896.00	15.328

Requested Pond Water Surface Elevations	
Minimum (Headwater)	876.00 ft
Increment (Headwater)	0.10 ft
Maximum (Headwater)	884.00 ft

Outlet Connectivity

Structure Type	Outlet ID	Direction	Outfall	E1 (ft)	E2 (ft)
Culvert-Circular	18" HDPE	Forward	TW	876.00	884.00
Culvert-Circular	24" HDPE	Forward	TW	876.11	884.00
Culvert-Circular	15" CMP	Forward	TW	878.38	884.00
Irregular Weir	Road Overflow	Forward	TW	883.60	884.00
Tailwater Settings	Tailwater			(N/A)	(N/A)

Structure ID: 24" HDPE
Structure Type: Culvert-Circular

Number of Barrels	1
Diameter	24.0 in
Length	154.00 ft
Length (Computed Barrel)	154.00 ft
Slope (Computed)	-0.002 ft/ft

Outlet Control Data

Manning's n	0.018
Ke	0.200
Kb	0.024
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)	1.096
T2 ratio (HW/D)	1.198
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	878.30 ft	T1 Flow	15.55 ft³/s
T2 Elevation	878.51 ft	T2 Flow	17.77 ft³/s

Structure ID: 18" HDPE
Structure Type: Culvert-Circular

Number of Barrels	1
Diameter	18.0 in
Length	178.00 ft
Length (Computed Barrel)	178.00 ft
Slope (Computed)	0.001 ft/ft

Outlet Control Data

Manning's n	0.018
Ke	0.200
Kb	0.035
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)	1.196
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	877.64 ft	T1 Flow	7.58 ft³/s
T2 Elevation	877.79 ft	T2 Flow	8.66 ft³/s

Structure ID: 15" CMP
Structure Type: Culvert-Circular

Number of Barrels	1
Diameter	15.0 in
Length	84.00 ft
Length (Computed Barrel)	84.01 ft
Slope (Computed)	0.017 ft/ft

Outlet Control Data

Manning's n	0.024
Ke	0.200
Kb	0.079
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)	1.087
T2 ratio (HW/D)	1.189
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	879.74 ft	T1 Flow	4.80 ft³/s
T2 Elevation	879.87 ft	T2 Flow	5.49 ft³/s

Structure ID: Road Overflow
Structure Type: Irregular Weir

Station (ft)	Elevation (ft)
0.00	884.00
58.90	883.60
109.10	883.60
148.70	883.80
171.40	884.00

Lowest Elevation	883.60 ft
Weir Coefficient	3.00 (ft^0.5)/s

Requested Pond Water Surface Elevations	
Minimum (Headwater)	883.20 ft
Increment (Headwater)	0.10 ft
Maximum (Headwater)	885.00 ft

Outlet Connectivity

Structure Type	Outlet ID	Direction	Outfall	E1 (ft)	E2 (ft)
Culvert-Circular	4" CPP	Forward + Reverse	TW	883.20	885.00
Rectangular Weir	Overland Weir	Forward + Reverse	TW	884.20	885.00
Tailwater Settings	Tailwater			(N/A)	(N/A)

Structure ID: 4" CPP
Structure Type: Culvert-Circular

Number of Barrels	1
Diameter	4.0 in
Length	490.00 ft
Length (Computed Barrel)	490.02 ft
Slope (Computed)	0.010 ft/ft

Outlet Control Data

Manning's n	0.024
Ke	0.200
Kb	0.461
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)	0.000
T2 ratio (HW/D)	1.192
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	883.20 ft	T1 Flow	0.18 ft³/s
T2 Elevation	883.60 ft	T2 Flow	0.20 ft³/s

Subsection: Outlet Input Data
Label: EXIST SWMF-01A

Return Event: 100 years
Storm Event: 100Yt-24Hr

Structure ID: Overland Weir
Structure Type: Rectangular Weir

Number of Openings	1
Elevation	884.20 ft
Weir Length	60.00 ft
Weir Coefficient	3.00 (ft^0.5)/s

Requested Pond Water Surface Elevations	
Minimum (Headwater)	886.50 ft
Increment (Headwater)	0.10 ft
Maximum (Headwater)	888.00 ft

Outlet Connectivity

Structure Type	Outlet ID	Direction	Outfall	E1 (ft)	E2 (ft)
Culvert-Circular	4" CPP	Forward + Reverse	TW	886.50	888.00
Rectangular Weir	Overland Weir	Forward + Reverse	TW	887.20	888.00
Tailwater Settings	Tailwater			(N/A)	(N/A)

Structure ID: 4" CPP
Structure Type: Culvert-Circular

Number of Barrels	1
Diameter	4.0 in
Length	320.00 ft
Length (Computed Barrel)	320.02 ft
Slope (Computed)	0.010 ft/ft

Outlet Control Data

Manning's n	0.024
Ke	0.200
Kb	0.461
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)	1.090
T2 ratio (HW/D)	1.192
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	886.86 ft	T1 Flow	0.18 ft³/s
T2 Elevation	886.90 ft	T2 Flow	0.20 ft³/s

Structure ID: Overland Weir
Structure Type: Rectangular Weir

Number of Openings	1
Elevation	887.20 ft
Weir Length	35.00 ft
Weir Coefficient	3.00 (ft^0.5)/s

Requested Pond Water Surface Elevations	
Minimum (Headwater)	881.50 ft
Increment (Headwater)	0.10 ft
Maximum (Headwater)	885.50 ft

Outlet Connectivity

Structure Type	Outlet ID	Direction	Outfall	E1 (ft)	E2 (ft)
Culvert-Circular	12" CMP	Forward	TW	882.08	885.50
Rectangular Weir	Overland Weir	Forward	TW	884.80	885.50
Tailwater Settings	Tailwater			(N/A)	(N/A)

Structure ID: 12" CMP
Structure Type: Culvert-Circular

Number of Barrels	1
Diameter	12.0 in
Length	630.00 ft
Length (Computed Barrel)	630.01 ft
Slope (Computed)	0.005 ft/ft

Outlet Control Data

Manning's n	0.024
Ke	0.200
Kb	0.107
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)	1.093
T2 ratio (HW/D)	1.195
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	883.17 ft	T1 Flow	2.75 ft³/s
T2 Elevation	883.27 ft	T2 Flow	3.14 ft³/s

Structure ID: Overland Weir
Structure Type: Rectangular Weir

Number of Openings	1
Elevation	884.80 ft
Weir Length	20.00 ft
Weir Coefficient	3.00 (ft^0.5)/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 ft³/s
Flow Tolerance (Maximum)	10.000 ft³/s

Requested Pond Water Surface Elevations	
Minimum (Headwater)	883.90 ft
Increment (Headwater)	0.50 ft
Maximum (Headwater)	886.00 ft

Outlet Connectivity

Structure Type	Outlet ID	Direction	Outfall	E1 (ft)	E2 (ft)
Culvert-Circular	6" CPP	Forward + Reverse	TW	884.12	886.00
Irregular Weir	Overland Weir	Forward + Reverse	TW	885.00	886.00
Tailwater Settings	Tailwater			(N/A)	(N/A)

Structure ID: 6" CPP
Structure Type: Culvert-Circular

Number of Barrels	1
Diameter	6.0 in
Length	610.00 ft
Length (Computed Barrel)	610.00 ft
Slope (Computed)	0.003 ft/ft

Outlet Control Data

Manning's n	0.024
Ke	0.200
Kb	0.269
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)	1.093
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	884.67 ft	T1 Flow	0.49 ft³/s
T2 Elevation	884.72 ft	T2 Flow	0.56 ft³/s

Structure ID: Overland Weir
Structure Type: Irregular Weir

Station (ft)	Elevation (ft)
0.00	886.00
49.00	885.00
56.00	885.00
85.00	886.00

Lowest Elevation	885.00 ft
Weir Coefficient	3.00 (ft^0.5)/s

Requested Pond Water Surface Elevations	
Minimum (Headwater)	884.40 ft
Increment (Headwater)	0.10 ft
Maximum (Headwater)	890.00 ft

Outlet Connectivity

Structure Type	Outlet ID	Direction	Outfall	E1 (ft)	E2 (ft)
Culvert-Circular	36" RCP	Forward + Reverse	TW	884.41	890.00
Tailwater Settings	Tailwater			(N/A)	(N/A)

Structure ID: 36" RCP
Structure Type: Culvert-Circular

Number of Barrels	1
Diameter	36.0 in
Length	1,660.00 ft
Length (Computed Barrel)	1,660.00 ft
Slope (Computed)	0.001 ft/ft

Outlet Control Data

Manning's n	0.013
Ke	0.200
Kb	0.007
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	887.64 ft	T1 Flow	42.85 ft³/s
T2 Elevation	887.95 ft	T2 Flow	48.97 ft³/s

Requested Pond Water Surface Elevations	
Minimum (Headwater)	879.00 ft
Increment (Headwater)	0.10 ft
Maximum (Headwater)	884.00 ft

Outlet Connectivity

Structure Type	Outlet ID	Direction	Outfall	E1 (ft)	E2 (ft)
Culvert-Circular	12" RCP	Forward + Reverse	TW	879.00	884.00
Irregular Weir	Overflow	Forward + Reverse	TW	882.60	884.00
Tailwater Settings	Tailwater			(N/A)	(N/A)

Structure ID: 12" RCP
Structure Type: Culvert-Circular

Number of Barrels	1
Diameter	12.0 in
Length	49.00 ft
Length (Computed Barrel)	49.00 ft
Slope (Computed)	0.014 ft/ft

Outlet Control Data

Manning's n	0.013
Ke	0.200
Kb	0.031
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)	1.088
T2 ratio (HW/D)	1.190
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	880.09 ft	T1 Flow	2.75 ft³/s
T2 Elevation	880.19 ft	T2 Flow	3.14 ft³/s

Structure ID: Overflow
Structure Type: Irregular Weir

Station (ft)	Elevation (ft)
0.00	884.00
6.00	882.60
10.20	883.00
21.50	884.00

Lowest Elevation	882.60 ft
Weir Coefficient	3.00 (ft^0.5)/s

Requested Pond Water Surface Elevations	
Minimum (Headwater)	878.40 ft
Increment (Headwater)	0.10 ft
Maximum (Headwater)	884.00 ft

Outlet Connectivity

Structure Type	Outlet ID	Direction	Outfall	E1 (ft)	E2 (ft)
Culvert-Circular	12" CMP	Forward + Reverse	TW	878.40	884.00
Tailwater Settings	Tailwater			(N/A)	(N/A)

Structure ID: 12" CMP
Structure Type: Culvert-Circular

Number of Barrels	1
Diameter	12.0 in
Length	1,100.00 ft
Length (Computed Barrel)	1,100.00 ft
Slope (Computed)	0.003 ft/ft

Outlet Control Data

Manning's n	0.024
Ke	0.200
Kb	0.107
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	879.49 ft	T1 Flow	2.75 ft³/s
T2 Elevation	879.60 ft	T2 Flow	3.14 ft³/s

Requested Pond Water Surface Elevations	
Minimum (Headwater)	882.00 ft
Increment (Headwater)	0.10 ft
Maximum (Headwater)	884.00 ft

Outlet Connectivity

Structure Type	Outlet ID	Direction	Outfall	E1 (ft)	E2 (ft)
Orifice-Area	Restrictor - Top 1/2 of 24" CMP	Forward + Reverse	TW	882.01	884.00
Irregular Weir	Overland Weir	Forward + Reverse	TW	882.30	884.00
Tailwater Settings	Tailwater			(N/A)	(N/A)

Structure ID: Restrictor - Top 1/2 of 24" CMP
Structure Type: Orifice-Area

Number of Openings	1
Elevation	881.50 ft
Orifice Area	1.6 ft²
Top Elevation	882.50 ft
Datum Elevation	881.50 ft
Orifice Coefficient	0.600

Structure ID: Overland Weir
Structure Type: Irregular Weir

Station (ft)	Elevation (ft)
0.00	884.00
5.00	883.50
13.00	883.00
24.00	882.30
64.00	882.70
72.00	883.00
81.00	883.50
90.00	884.00

Lowest Elevation	882.30 ft
Weir Coefficient	3.00 (ft^0.5)/s

Requested Pond Water Surface Elevations	
Minimum (Headwater)	884.00 ft
Increment (Headwater)	0.10 ft
Maximum (Headwater)	887.50 ft

Outlet Connectivity

Structure Type	Outlet ID	Direction	Outfall	E1 (ft)	E2 (ft)
Irregular Weir	Overland Flow	Forward + Reverse	TW	886.00	887.50
Tailwater Settings	Tailwater			(N/A)	(N/A)

Structure ID: Overland Flow
Structure Type: Irregular Weir

Station (ft)	Elevation (ft)
0.00	887.50
36.70	887.00
45.60	886.00
47.60	886.00
75.30	887.00
87.50	887.50

Lowest Elevation	886.00 ft
Weir Coefficient	3.00 (ft^0.5)/s

Requested Pond Water Surface Elevations	
Minimum (Headwater)	884.00 ft
Increment (Headwater)	0.10 ft
Maximum (Headwater)	887.50 ft

Outlet Connectivity

Structure Type	Outlet ID	Direction	Outfall	E1 (ft)	E2 (ft)
Culvert-Circular	30" RCP	Forward + Reverse	TW	884.00	887.50
Tailwater Settings	Tailwater			(N/A)	(N/A)

Structure ID: 30" RCP
Structure Type: Culvert-Circular

Number of Barrels	1
Diameter	30.0 in
Length	1,170.00 ft
Length (Computed Barrel)	1,170.03 ft
Slope (Computed)	0.007 ft/ft

Outlet Control Data

Manning's n	0.013
Ke	0.200
Kb	0.009
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)	1.092
T2 ratio (HW/D)	1.194
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	886.73 ft	T1 Flow	27.16 ft³/s
T2 Elevation	886.98 ft	T2 Flow	31.05 ft³/s

Requested Pond Water Surface Elevations	
Minimum (Headwater)	887.00 ft
Increment (Headwater)	0.10 ft
Maximum (Headwater)	890.00 ft

Outlet Connectivity

Structure Type	Outlet ID	Direction	Outfall	E1 (ft)	E2 (ft)
Culvert-Circular	6" PVC	Forward + Reverse	TW	887.01	890.00
Irregular Weir	Overland Weir	Forward + Reverse	TW	889.70	890.00
Tailwater Settings	Tailwater			(N/A)	(N/A)

Structure ID: 6" PVC
Structure Type: Culvert-Circular

Number of Barrels	1
Diameter	6.0 in
Length	250.00 ft
Length (Computed Barrel)	250.01 ft
Slope (Computed)	0.008 ft/ft

Outlet Control Data

Manning's n	0.011
Ke	0.200
Kb	0.056
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	887.52 ft	T1 Flow	0.49 ft³/s
T2 Elevation	887.57 ft	T2 Flow	0.56 ft³/s

Structure ID: Overland Weir
Structure Type: Irregular Weir

Station (ft)	Elevation (ft)
0.00	890.00
9.00	889.70
14.00	890.00

Lowest Elevation	889.70 ft
Weir Coefficient	3.00 (ft^0.5)/s

Requested Pond Water Surface Elevations	
Minimum (Headwater)	889.80 ft
Increment (Headwater)	0.10 ft
Maximum (Headwater)	892.50 ft

Outlet Connectivity

Structure Type	Outlet ID	Direction	Outfall	E1 (ft)	E2 (ft)
Culvert-Circular	6" CPP	Forward + Reverse	TW	890.56	892.50
Rectangular Weir	Overland Weir	Forward + Reverse	TW	891.80	892.50
Tailwater Settings	Tailwater			(N/A)	(N/A)

Structure ID: 6" CPP
Structure Type: Culvert-Circular

Number of Barrels	1
Diameter	6.0 in
Length	211.00 ft
Length (Computed Barrel)	211.09 ft
Slope (Computed)	0.029 ft/ft

Outlet Control Data

Manning's n	0.024
Ke	0.200
Kb	0.269
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)	1.080
T2 ratio (HW/D)	1.183
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	891.10 ft	T1 Flow	0.49 ft³/s
T2 Elevation	891.15 ft	T2 Flow	0.56 ft³/s

Structure ID: Overland Weir
Structure Type: Rectangular Weir

Number of Openings	1
Elevation	891.80 ft
Weir Length	45.00 ft
Weir Coefficient	3.00 (ft^0.5)/s

Requested Pond Water Surface Elevations	
Minimum (Headwater)	888.30 ft
Increment (Headwater)	0.10 ft
Maximum (Headwater)	889.50 ft

Outlet Connectivity

Structure Type	Outlet ID	Direction	Outfall	E1 (ft)	E2 (ft)
Culvert-Circular	6" CPP	Forward + Reverse	TW	888.33	889.50
Rectangular Weir	Overland Weir	Forward + Reverse	TW	888.80	889.50
Tailwater Settings	Tailwater			(N/A)	(N/A)

Structure ID: 6" CPP
Structure Type: Culvert-Circular

Number of Barrels	1
Diameter	6.0 in
Length	105.00 ft
Length (Computed Barrel)	105.01 ft
Slope (Computed)	0.013 ft/ft

Outlet Control Data

Manning's n	0.024
Ke	0.200
Kb	0.269
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)	1.088
T2 ratio (HW/D)	1.191
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	888.87 ft	T1 Flow	0.49 ft³/s
T2 Elevation	888.93 ft	T2 Flow	0.56 ft³/s

Structure ID: Overland Weir
Structure Type: Rectangular Weir

Number of Openings	1
Elevation	888.80 ft
Weir Length	30.00 ft
Weir Coefficient	3.00 (ft^0.5)/s

Requested Pond Water Surface Elevations	
Minimum (Headwater)	885.60 ft
Increment (Headwater)	0.10 ft
Maximum (Headwater)	891.00 ft

Outlet Connectivity

Structure Type	Outlet ID	Direction	Outfall	E1 (ft)	E2 (ft)
Culvert-Circular	36" RCP	Forward + Reverse	TW	885.61	891.00
Irregular Weir	Overland Weir	Forward + Reverse	TW	890.60	891.00
Tailwater Settings	Tailwater			(N/A)	(N/A)

Structure ID: 36" RCP
Structure Type: Culvert-Circular

Number of Barrels	1
Diameter	36.0 in
Length	450.00 ft
Length (Computed Barrel)	450.00 ft
Slope (Computed)	0.002 ft/ft

Outlet Control Data

Manning's n	0.013
Ke	0.200
Kb	0.007
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	888.50 ft	T1 Flow	42.85 ft³/s
T2 Elevation	888.81 ft	T2 Flow	48.97 ft³/s

Structure ID: Overland Weir
Structure Type: Irregular Weir

Station (ft)	Elevation (ft)
0.00	891.00
8.00	890.60
28.00	890.60
36.00	891.00

Lowest Elevation	890.60 ft
Weir Coefficient	3.00 (ft^0.5)/s

Requested Pond Water Surface Elevations	
Minimum (Headwater)	885.60 ft
Increment (Headwater)	0.10 ft
Maximum (Headwater)	891.00 ft

Outlet Connectivity

Structure Type	Outlet ID	Direction	Outfall	E1 (ft)	E2 (ft)
Culvert-Circular	36" RCP	Forward + Reverse	TW	885.60	891.00
Irregular Weir	Overland Weir	Forward + Reverse	TW	890.60	891.00
Tailwater Settings	Tailwater			(N/A)	(N/A)

Structure ID: Overland Weir
Structure Type: Irregular Weir

Station (ft)	Elevation (ft)
0.00	891.00
8.00	890.60
28.00	890.60
36.00	891.00

Lowest Elevation	890.60 ft
Weir Coefficient	3.00 (ft^0.5)/s

Structure ID: 36" RCP
Structure Type: Culvert-Circular

Number of Barrels	1
Diameter	36.0 in
Length	370.00 ft
Length (Computed Barrel)	370.00 ft
Slope (Computed)	0.000 ft/ft

Outlet Control Data

Manning's n	0.013
Ke	0.200
Kb	0.007
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...

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	888.89 ft	T1 Flow	42.85 ft³/s
T2 Elevation	889.19 ft	T2 Flow	48.97 ft³/s

Requested Pond Water Surface Elevations	
Minimum (Headwater)	886.00 ft
Increment (Headwater)	0.10 ft
Maximum (Headwater)	892.00 ft

Outlet Connectivity

Structure Type	Outlet ID	Direction	Outfall	E1 (ft)	E2 (ft)
Culvert-Circular	42" RCP	Forward + Reverse	TW	886.01	892.00
Rectangular Weir	Overland Weir	Forward + Reverse	TW	891.00	892.00
Tailwater Settings	Tailwater			(N/A)	(N/A)

Structure ID: 42" RCP
Structure Type: Culvert-Circular

Number of Barrels	1
Diameter	42.0 in
Length	100.00 ft
Length (Computed Barrel)	100.00 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	888.83 ft	T1 Flow	63.00 ft³/s
T2 Elevation	889.19 ft	T2 Flow	72.00 ft³/s

Structure ID: Overland Weir
Structure Type: Rectangular Weir

Number of Openings	1
Elevation	891.00 ft
Weir Length	40.00 ft
Weir Coefficient	3.00 (ft^0.5)/s

Requested Pond Water Surface Elevations	
Minimum (Headwater)	887.50 ft
Increment (Headwater)	0.10 ft
Maximum (Headwater)	896.00 ft

Outlet Connectivity

Structure Type	Outlet ID	Direction	Outfall	E1 (ft)	E2 (ft)
Orifice-Circular	8" Restrictor	Forward + Reverse	TW	887.50	896.00
Rectangular Weir	Overland Weir	Forward + Reverse	TW	895.00	896.00
Tailwater Settings	Tailwater			(N/A)	(N/A)

Structure ID: 8" Restrictor
Structure Type: Orifice-Circular

Number of Openings	1
Elevation	887.50 ft
Orifice Diameter	8.0 in
Orifice Coefficient	0.600

Structure ID: Overland Weir
Structure Type: Rectangular Weir

Number of Openings	1
Elevation	895.00 ft
Weir Length	15.00 ft
Weir Coefficient	3.00 (ft^0.5)/s

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EXHIBIT 2I

PROPOSED CONDITIONS ANALYSIS

SUPPORTING DOCUMENTATION

Worksheet 2: Runoff Curve Number and Runoff

Project Trails of Woods Creek By ARF Date 7/6/2020

Location Algonquin, IL Rev Date

Circle one: Present [✓ Developed] **PROPOSED SUBAREA 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/ Table 2-2	Fig. 2-3	Fig. 2-4	Area acres	Product of CN x Area
C	Residential - 1/5 Acre Lots	85			13.2	1122
C	SWMF: NWL	98			3.73	365.54
C	SWMF: NWL to HWL	85			4.22	358.7
C	Open Space - Good Condition	74			1.26	93.24
				Totals =	22.41	1939.480

1/ Use only one CN source per line.

$$\text{CN (weighted)} = \frac{\text{Total Product}}{\text{Total Area}} = \frac{1939.480}{22.410} = 86.545$$

Use CN = 87

2. Runoff

		Storm #1	Storm #2	Storm #3
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.)

Worksheet 2: Runoff Curve Number and Runoff

Project Trails of Woods Creek By ARF Date 7/6/2020
Location Algonquin, IL Rev Date

Circle one: Present [✓ Developed]

PROPOSED SUBAREA 001A

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/] Table 2-2	Fig. 2-3	Fig. 2-4	Area acres	Product of CN x Area
C	Residential - 1/5 Acre Lots	85			2.43	206.55
C	Open Space - Good Condition	74			3.41	252.34
				Totals =	5.84	458.890

1/ Use only one CN source per line.

$$\text{CN (weighted)} = \frac{\text{Total Product}}{\text{Total Area}} = \frac{458.890}{5.840} = 78.577$$

Use CN = 79

2. Runoff

		Storm #1	Storm #2	Storm #3
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.)

Worksheet 2: Runoff Curve Number and Runoff

Project Trails of Woods Creek
By ARF
Date 7/6/2020
Location Algonquin, IL
Rev
Date

Circle one: Present [✓ Developed]

PROPOSED SUBAREA 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/ Table 2-2	Fig. 2-3	Fig. 2-4	Area acres	Product of CN x Area
C	Residential - 1/5 Acre Lots	85			6.64	564.4
C	Impervious Area	98			0.37	36.26
C	SWMF: NWL	98			3.14	307.72
C	SWMF: NWL to HWL	85			5.76	489.685
C	Open Space - Good Condition	74			4.12	304.806
				Totals =	20.03	1702.871

1/ Use only one CN source per line.

CN (weighted) = Total Product / Total Area = 1702.871 / 20.030 = 85.016

Use CN = 85

2. Runoff

		Storm #1	Storm #2	Storm #3
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.)

Worksheet 2: Runoff Curve Number and Runoff

Project Trails of Woods Creek By ARF Date 7/6/2020

Location Algonquin, IL Rev Date

Circle one: Present [✓ Developed]

PROPOSED SUBAREA 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/] Table 2-2	Fig. 2-3	Fig. 2-4	Area acres	Product of CN x Area
C	Residential - 1/5 Acre Lots	85			5.65	480.25
C	Residential - 1/4 Acre Lots	83			2.57	213.31
C	SWMF: NWL	98			0.49	48.02
C	SWMF: NWL to HWL	85			1.12	95.2
C	Open Space - Good Condition	74			2.78	205.72
				Totals =	12.61	1042.500

1/ Use only one CN source per line.

$$\text{CN (weighted)} = \frac{\text{Total Product}}{\text{Total Area}} = \frac{1042.500}{12.610} = 82.672$$

Use CN = 83

2. Runoff

		Storm #1	Storm #2	Storm #3
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.)

Worksheet 2: Runoff Curve Number and Runoff

Project Trails of Woods Creek
Location Algonquin, IL
By ARF
Rev
Date 7/6/2020
Date

Circle one: Present [✓ Developed]

PROPOSED SUBAREA 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/] Table 2-2	Fig. 2-3	Fig. 2-4	Area acres	Product of CN x Area
C	Residential - 1/4 Acre Lots	83			6.79	563.57
C	SWMF: NWL	98			0.36	35.28
C	SWMF: NWL to HWL	85			0.64	54.4
C	Open Space - Good Condition	74			1.82	134.68
				Totals =	9.61	787.930

1/ Use only one CN source per line.

$$\text{CN (weighted)} = \frac{\text{Total Product}}{\text{Total Area}} = \frac{787.930}{9.610} = 81.991$$

Use CN = 82

2. Runoff

		Storm #1	Storm #2	Storm #3
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.)

Worksheet 2: Runoff Curve Number and Runoff

Project Trails of Woods Creek By ARF Date 7/6/2020

Location Algonquin, IL Rev Date

Circle one: Present [✓ Developed]

PROPOSED SUBAREA 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/] Table 2-2	Fig. 2-3	Fig. 2-4	Area acres	Product of CN x Area
C	Residential - 1/5 Acre Lots	85			12.27	1042.95
C	SWMF: NWL	98			1.82	178.36
C	SWMF: NWL to HWL	85			2.12	180.2
C	Open Space - Good Condition	74			2.07	153.18
				Totals =	18.28	1554.690

1/ Use only one CN source per line.

$$\text{CN (weighted)} = \frac{\text{Total Product}}{\text{Total Area}} = \frac{1554.690}{18.280} = 85.049$$

Use CN = 85

2. Runoff

		Storm #1	Storm #2	Storm #3
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.)

Worksheet 2: Runoff Curve Number and Runoff

Project Trails of Woods Creek By ARF Date 7/6/2020
Location Algonquin, IL Rev ______ Date ______

Circle one: Present [✓ Developed] **PROPOSED SUBAREA 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/] Table 2-2	Fig. 2-3	Fig. 2-4	Area acres	Product of CN x Area
C	Residential - 1/5 Acre Lots	85			5.74	487.9
C	SWMF: NWL	98			1.40	137.2
C	SWMF: NWL to HWL	85			1.82	154.7
C	Open Space - Good Condition	74			2.31	170.94
				Totals =	11.27	950.740

1/ Use only one CN source per line.

$$\text{CN (weighted)} = \frac{\text{Total Product}}{\text{Total Area}} = \frac{950.740}{11.270} = 84.360$$

Use CN = 84

2. Runoff

		Storm #1	Storm #2	Storm #3
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.)

Worksheet 2: Runoff Curve Number and Runoff

Project Trails of Woods Creek By ARF Date 7/6/2020
Location Algonquin, IL Rev Date

Circle one: Present [✓ Developed]

PROPOSED SUBAREA 007

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/] Table 2-2	Fig. 2-3	Fig. 2-4	Area acres	Product of CN x Area
C	Residential - 1/5 Acre Lots	85			0.83	70.55
C	Impervious Area	98			0.29	28.42
C	SWMF: NWL	98			0.30	29.4
C	SWMF: NWL to HWL	85			0.34	28.9
C	Open Space - Good Condition	74			1.01	74.74
				Totals =	2.77	232.010

[1/] Use only one CN source per line.

$$\text{CN (weighted)} = \frac{\text{Total Product}}{\text{Total Area}} = \frac{232.010}{2.770} = 83.758$$

Use CN = 84

2. Runoff

		Storm #1	Storm #2	Storm #3
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.)

Worksheet 2: Runoff Curve Number and Runoff

Project Trails of Woods Creek By ARF Date 7/6/2020
Location Algonquin, IL Rev Date

Circle one: Present [✓ Developed] **PROPOSED SUBAREA 008**

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/] Table 2-2	Fig. 2-3	Fig. 2-4	Area acres	Product of CN x Area
C	Residential - 1/4 Acre Lots	83			0.5	41.5
C	Residential - 1/5 Acre Lots	85			1.68	142.8
C	SWMF: NWL	98			0.51	49.98
C	SWMF: NWL to HWL	85			0.89	75.65
C	Open Space - Good Condition	74			0.78	57.72
				Totals =	4.36	367.650

1/ Use only one CN source per line.

$$\text{CN (weighted)} = \frac{\text{Total Product}}{\text{Total Area}} = \frac{367.650}{4.360} = 84.323$$

Use CN = 84

2. Runoff

		Storm #1	Storm #2	Storm #3
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.)

Worksheet 2: Runoff Curve Number and Runoff

Project Trails of Woods Creek By ARF Date 7/6/2020
Location Algonquin, IL Rev Date

Circle one: Present [✓ Developed]

PROPOSED SUBAREA 009

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] Table 2-2	Fig. 2-3	Fig. 2-4	Area acres	Product of CN x Area
C	Residential - 1/4 Acre Lots	83			6.61	548.63
C	Residential - 1/5 Acre Lots	85			7.93	674.05
C	Impervious Area	98			0.78	76.44
C	SWMF: NWL	98			1.36	133.28
C	SWMF: NWL to HWL	85			1.22	103.7
C	Open Space - Good Condition	74			4.88	361.12
				Totals =	22.78	1897.220

[1] Use only one CN source per line.

$$\text{CN (weighted)} = \frac{\text{Total Product}}{\text{Total Area}} = \frac{1897.220}{22.780} = 83.284$$

Use CN = 83

2. Runoff

		Storm #1	Storm #2	Storm #3
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.)

Worksheet 2: Runoff Curve Number and Runoff

Project Trails of Woods Creek By CAB Date 2/10/2020
Location Algonquin, IL Rev Date

Circle one: Present [✓ Developed]

PROPOSED SUBAREA 010
(UNDETAINED AREA TO OUTFALL 1)

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/ Table 2-2	CN 1/ Fig. 2-3	CN 1/ Fig. 2-4	Area acres	Product of CN x Area
C	Open Space - Good Condition	74			0.93	68.82
C	Impervious Area	98			0.09	8.82
				Totals =	1.02	77.640

1/ Use only one CN source per line.

$$\text{CN (weighted)} = \frac{\text{Total Product}}{\text{Total Area}} = \frac{77.640}{1.020} = 76.118$$

Use CN = 76

2. Runoff

		Storm #1	Storm #2	Storm #3
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.)

Worksheet 2: Runoff Curve Number and Runoff

Project Trails of Woods Creek By CAB Date 2/10/2020
Location Algonquin, IL Rev Date

Circle one: Present [✓ Developed] **PROPOSED SUBAREA 020**

1. Runoff curve number (CN)

Soil Name and Hydroogic Group	Cover Description (cover type, treatment, and hydrologic condition; percent impervious; unconnected/connected impervious area ratio)	CN [1/] Table 2-2	Fig. 2-3	Fig. 2-4	Area _X_ acres __mi2 __%	Product of CN x Area
C	Open Space - Good Condition	74			0.20	14.8
			Totals =		0.2	14.800

1/ Use only one CN source per line.

$$\text{CN (weighted)} = \frac{\text{Total Product}}{\text{Total Area}} = \frac{14.800}{0.200} = 74.000$$

Use CN = 74

2. Runoff

		Storm #1	Storm #2	Storm #3
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.)

Worksheet 2: Runoff Curve Number and Runoff

Project Trails of Woods Creek By CAB Date 2/10/2020
Location Algonquin, IL Rev Date

Circle one: Present [✓ Developed] **PROPOSED SUBAREA 021**

1. Runoff curve number (CN)

Soil Name and Hydroogic Group	Cover Description (cover type, treatment, and hydrologic condition; percent impervious; unconnected/connected impervious area ratio)	CN [1/] Table 2-2	Fig. 2-3	Fig. 2-4	Area _X_ acres __mi2 __%	Product of CN x Area
C	Residential (1/2 Acre)	80			3.51	280.8
				Totals =	3.51	280.800

1/ Use only one CN source per line.

CN (weighted) = Total Product / Total Area = 280.800 / 3.510 = 80.000

Use CN = 80

2. Runoff

		Storm #1	Storm #2	Storm #3
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.)

Worksheet 2: Runoff Curve Number and Runoff

Project Trails of Woods Creek By CAB Date 2/10/2020
Location Algonquin, IL Rev Date

Circle one: Present [✓ Developed]

PROPOSED SUBAREA 025

1. Runoff curve number (CN)

Soil Name and Hydroogic Group	Cover Description (cover type, treatment, and hydrologic condition; percent impervious; unconnected/connected impervious area ratio)	CN [1/] Table 2-2	Fig. 2-3	Fig. 2-4	Area _X_ acres __mi2 __%	Product of CN x Area
C	Residential (1/2 Acre)	80			3.49	279.2
				Totals =	3.49	279.200

1/ Use only one CN source per line.

CN (weighted) = Total Product / Total Area = 279.200 / 3.490 = 80.000

Use CN = 80

2. Runoff

		Storm #1	Storm #2	Storm #3
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.)

Worksheet 2: Runoff Curve Number and Runoff

Project Trails of Woods Creek By CAB Date 2/10/2020
Location Algonquin, IL Rev Date

Circle one: Present [✓ Developed]

PROPOSED SUBAREA 027

1. Runoff curve number (CN)

Soil Name and Hydroogic Group	Cover Description (cover type, treatment, and hydrologic condition; percent impervious; unconnected/connected impervious area ratio)	CN [1/] Table 2-2	Fig. 2-3	Fig. 2-4	Area _X_ acres __mi2 __%	Product of CN x Area
C	Impervious Area	98			0.90	88.2
C	Woods - Good Condition	70			1.12	78.4
C	Open Space - Good Condition	74			1.39	102.86
				Totals =	3.41	269.460

1/ Use only one CN source per line.

$$\text{CN (weighted)} = \frac{\text{Total Product}}{\text{Total Area}} = \frac{269.460}{3.410} = 79.021$$

Use CN = 79

2. Runoff

		Storm #1	Storm #2	Storm #3
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.)

Worksheet 2: Runoff Curve Number and Runoff

Project Trails of Woods Creek By CAB Date 2/10/2020
Location Algonquin, IL Rev Date

Circle one: Present [✓ Developed]

PROPOSED SUBAREA 030

1. Runoff curve number (CN)

Soil Name and Hydroogic Group	Cover Description (cover type, treatment, and hydrologic condition; percent impervious; unconnected/connected impervious area ratio)	CN [1/] Table 2-2	Fig. 2-3	Fig. 2-4	Area _X_ acres __mi2 __%	Product of CN x Area
C	Residential - 1/2 Acre	80			2.41	192.8
C	Open Space - Good Condition	74			0.23	17.02
				Totals =	2.64	209.820

1/ Use only one CN source per line.

CN (weighted) = Total Product / Total Area = 209.820 / 2.640 = 79.477

Use CN = 79

2. Runoff

		Storm #1	Storm #2	Storm #3
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.)

Worksheet 2: Runoff Curve Number and Runoff

Project Trails of Woods Creek

Location Algonquin, IL

By CAB

Rev

Date 2/10/2020

Date

Circle one: Present [✓ Developed]

PROPOSED SUBAREA 031

1. Runoff curve number (CN)

Soil Name and Hydroogic Group	Cover Description (cover type, treatment, and hydrologic condition; percent impervious; unconnected/connected impervious area ratio)	CN [1/] Table 2-2	Fig. 2-3	Fig. 2-4	Area _X_ acres __mi2 __%	Product of CN x Area
C	Residential - 1/2 Acre	80			2.98	238.4
C	Open Space - Good Condition	74			6.06	448.44
				Totals =	9.04	686.840

1/ Use only one CN source per line.

$$\text{CN (weighted)} = \frac{\text{Total Product}}{\text{Total Area}} = \frac{686.840}{9.040} = 75.978$$

Use CN = 76

2. Runoff

		Storm #1	Storm #2	Storm #3
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.)

Worksheet 2: Runoff Curve Number and Runoff

Project Trails of Woods Creek
Location Algonquin, IL
By CAB
Rev
Date 2/10/2020
Date

Circle one: Present [✓ Developed]

PROPOSED SUBAREA 032

1. Runoff curve number (CN)

Soil Name and Hydroogic Group	Cover Description (cover type, treatment, and hydrologic condition; percent impervious; unconnected/connected impervious area ratio)	CN [1] Table 2-2	CN [1] Fig. 2-3	CN [1] Fig. 2-4	Area _X_ acres __mi2 __%	Product of CN x Area
C	Open Space - Good Condition	74			0.61	45.14
				Totals =	0.61	45.140

1/ Use only one CN source per line.

$$\text{CN (weighted)} = \frac{\text{Total Product}}{\text{Total Area}} = \frac{45.140}{0.610} = 74.000$$

Use CN = 74

2. Runoff

		Storm #1	Storm #2	Storm #3
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.)

Worksheet 2: Runoff Curve Number and Runoff

Project Trails of Woods Creek
Location Algonquin, IL
By CAB
Rev
Date 2/10/2020
Date

Circle one: Present [✓ Developed]

PROPOSED SUBAREA 033

1. Runoff curve number (CN)

Soil Name and Hydroogic Group	Cover Description (cover type, treatment, and hydrologic condition; percent impervious; unconnected/connected impervious area ratio)	CN [1/] Table 2-2	Fig. 2-3	Fig. 2-4	Area _X_ acres __mi2 __%	Product of CN x Area
C	Impervious Area	98			0.20	19.6
C	Woods - Good Condition	70			2.39	167.3
C	Open Space - Good Condition	74			1.33	98.42
				Totals =	3.92	285.320

1/ Use only one CN source per line.

$$\text{CN (weighted)} = \frac{\text{Total Product}}{\text{Total Area}} = \frac{285.320}{3.920} = 72.786$$

Use CN = 73

2. Runoff

		Storm #1	Storm #2	Storm #3
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.)

Project TRAILS OF WOODS CREEK By ARF Date 7/6/2020
Location ALGONQUIN, IL 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)

	Segment ID				
1. Surface Description (Table 3-1)		Grass			
2. Manning's roughness coeff., n (Table 3-1)		0.24			
3. Flow length, L (total L $\leq$ 300 ft)	ft	100			
4. Two-yr 24-hr rainfall, P_2	in	3.34			
5. Land slope, s	ft/ft	0.02			
6. $Tc = \frac{0.007 (nL)^{0.8}}{P_2^{0.5} s^{0.4}}$	hr	0.233	+	=	0.233

Shallow Concentrated Flow

	Segment ID				
7. Surface description (paved or unpaved)		unpaved	unpaved		
8. Flow length, L		100	150		
9. Watercourse slope, s		0.02	0.06		
10. Average velocity, V (figure 3-1)		2.30	4.00		
11. $T_t = \frac{L}{3600 V}$	hr	0.012	0.010	=	0.022

Channel Flow

	Segment ID				
12. Cross sectional flow area, a	ft^2				
13. Wetted perimeter, pw	ft				
14. Hydraulic radius, r= a/pw compute r	ft				
15. Channel Slope, s	ft/ft				
16. Manning's roughness coeff., n					
17. $V = 1.49 r^{2/3} s^{1/2} / n$	ft/s	2.5			
18. Flow length, L	ft				
19. $T_t = \frac{L}{3600 V}$	hr	+		=	

20. Watershed or subarea T_c or T_t (add T_t in steps 6, 11, and 19)	hr	0.255
	min	15

Project	TRAILS OF WOODS CREEK	By	ARF	Date	7/6/2020
Location	ALGONQUIN, IL	Checked		Date	

Check one: ☐ Present ☑ Developed

SUBAREA 001A

Check one: ☑ Tc ☐ Tt

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.

<u>Sheet Flow</u> (Applicable to Tc only)

	Segment ID				
1. Surface Description (Table 3-1)		Grass			
2. Manning's roughness coeff., n (Table 3-1)		0.24			
3. Flow length, L (total L $\leq$ 300 ft)	ft	100			
4. Two-yr 24-hr rainfall, P_2	in	3.34			
5. Land slope, s	ft/ft	0.02			
6. $Tc = \frac{0.007\ (nL)^{0.8}}{P_2^{0.5}\ s^{0.4}}$	hr	0.233	+	=	0.233

<u>Shallow Concentrated Flow</u>

	Segment ID				
7. Surface description (paved or unpaved)		unpaved			
8. Flow length, L		280			
9. Watercourse slope, s		0.02			
10. Average velocity, V (figure 3-1)		2.30			
11. $T_t = \frac{L}{3600\ V}$	hr	0.034	+	=	0.034

<u>Channel Flow</u>

	Segment ID				
12. Cross sectional flow area, a	ft^2				
13. Wetted perimeter, pw	ft				
14. Hydraulic radius, r= a/pw compute r	ft				
15. Channel Slope, s	ft/ft				
16. Manning's roughness coeff., n					
17. $V = 1.49\ r^{2/3}\ s^{1/2} / n$	ft/s	2.5			
18. Flow length, L	ft	2140			
19. $T_t = \frac{L}{3600\ V}$	hr	0.2378	+	=	0.238

20. Watershed or subarea T_c or T_t (add T_t in steps 6, 11, and 19) hr 0.504

min 30

Project TRAILS OF WOODS CREEK
By ARF
Date 7/6/2020
Location ALGONQUIN, IL
Checked
Date

Check one: ☐ Present ☑ Developed

Check one: ☑ Tc ☐ Tt

SUBAREA 002

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)

Segment ID						
1. Surface Description (Table 3-1)		Grass				
2. Manning's roughness coeff., n (Table 3-1)		0.24				
3. Flow length, L (total L ≤ 300 ft)	ft	100				
4. Two-yr 24-hr rainfall, P_2	in	3.34				
5. Land slope, s	ft/ft	0.02				
6. $Tc = \frac{0.007\ (nL)^{0.8}}{P_2^{0.5}\ s^{0.4}}$	hr	0.233	+		=	0.233

Shallow Concentrated Flow

Segment ID						
7. Surface description (paved or unpaved)		unpaved				
8. Flow length, L		300				
9. Watercourse slope, s		0.02				
10. Average velocity, V (figure 3-1)		2.30				
11. $T_t = \frac{L}{3600\ V}$	hr	0.036			=	0.036

Channel Flow

Segment ID						
12. Cross sectional flow area, a	ft^2					
13. Wetted perimeter, pw	ft					
14. Hydraulic radius, r= a/pw compute r	ft					
15. Channel Slope, s	ft/ft					
16. Manning's roughness coeff., n						
17. $V = 1.49\ r^{2/3}\ s^{1/2} / n$	ft/s	2.5				
18. Flow length, L	ft	240				
19. $T_t = \frac{L}{3600\ V}$	hr	0.0267	+		=	0.027

20. Watershed or subarea T_c or T_t (add T_t in steps 6, 11, and 19) hr 0.296

min 18

Project TRAILS OF WOODS CREEK By ARF Date 7/6/2020
Location ALGONQUIN, IL Checked Date

Check one: ☐ Present ☑ Developed SUBAREA 003
Check one: ☑ Tc ☐ Tt

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)

	Segment ID				
1. Surface Description (Table 3-1)		Grass			
2. Manning's roughness coeff., n (Table 3-1)		0.24			
3. Flow length, L (total L $\leq$ 300 ft)	ft	100			
4. Two-yr 24-hr rainfall, P_2	in	3.34			
5. Land slope, s	ft/ft	0.024			
6. $Tc = \frac{0.007\ (nL)^{0.8}}{P_2^{0.5}\ s^{0.4}}$	hr	0.216	+	=	0.216

Shallow Concentrated Flow

	Segment ID				
7. Surface description (paved or unpaved)		unpaved			
8. Flow length, L		200			
9. Watercourse slope, s		0.02			
10. Average velocity, V (figure 3-1)		2.30			
11. $T_t = \frac{L}{3600\ V}$	hr	0.024		=	0.024

Channel Flow

	Segment ID				
12. Cross sectional flow area, a	ft^2				
13. Wetted perimeter, pw	ft				
14. Hydraulic radius, r= a/pw compute r	ft				
15. Channel Slope, s	ft/ft				
16. Manning's roughness coeff., n					
17. $V= 1.49\ r^{2/3}\ s^{1/2}\ /\ n$	ft/s	2.5			
18. Flow length, L	ft	187			
19. $T_t = \frac{L}{3600\ V}$	hr	0.0208	+	=	0.021

20. Watershed or subarea T_c or T_t (add T_t in steps 6, 11, and 19) hr 0.261

min 16

Project TRAILS OF WOODS CREEK
Location ALGONQUIN, IL
By ARF
Checked
Date 7/6/2020
Date

Check one: ☐ Present ☑ Developed
Check one: ☑ Tc ☐ Tt

SUBAREA 004

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)

	Segment ID					
1.	Surface Description (Table 3-1)		Grass			
2.	Manning's roughness coeff., n (Table 3-1)		0.24			
3.	Flow length, L (total L ≤ 300 ft)	ft	100			
4.	Two-yr 24-hr rainfall, P_2	in	3.34			
5.	Land slope, s	ft/ft	0.02			
6.	$Tc = \frac{0.007 (nL)^{0.8}}{P_2^{0.5} s^{0.4}}$	hr	0.233 +		=	0.233

Shallow Concentrated Flow

	Segment ID					
7.	Surface description (paved or unpaved)		unpaved			
8.	Flow length, L		300			
9.	Watercourse slope, s		0.02			
10.	Average velocity, V (figure 3-1)		2.30			
11.	$T_t = \frac{L}{3600 V}$	hr	0.036		=	0.036

Channel Flow

	Segment ID					
12.	Cross sectional flow area, a	ft^2				
13.	Wetted perimeter, pw	ft				
14.	Hydraulic radius, r= a/pw compute r	ft				
15.	Channel Slope, s	ft/ft				
16.	Manning's roughness coeff., n					
17.	$V= 1.49 r^{2/3} s^{1/2} / n$	ft/s	2.5			
18.	Flow length, L	ft	340			
19.	$T_t = \frac{L}{3600 V}$	hr	0.0378 +		=	0.038

20. Watershed or subarea T_c or T_t (add T_t in steps 6, 11, and 19) hr 0.307

min 18

Project TRAILS OF WOODS CREEK By ARF Date 7/6/2020
Location ALGONQUIN, IL Checked Date

Check one: ☐ Present ☑ Developed SUBAREA 005
Check one: ☑ Tc ☐ Tt

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)

	Segment ID					
1.	Surface Description (Table 3-1)		Grass			
2.	Manning's roughness coeff., n (Table 3-1)		0.24			
3.	Flow length, L (total L $\leq$ 300 ft)	ft	100			
4.	Two-yr 24-hr rainfall, P_2	in	3.34			
5.	Land slope, s	ft/ft	0.01			
6.	$Tc = \frac{0.007\,(nL)^{0.8}}{P_2^{0.5}\,s^{0.4}}$	hr	0.307 +		=	0.307

Shallow Concentrated Flow

	Segment ID					
7.	Surface description (paved or unpaved)		unpaved			
8.	Flow length, L		200			
9.	Watercourse slope, s		0.02			
10.	Average velocity, V (figure 3-1)		2.30			
11.	$T_t = \frac{L}{3600\,V}$	hr	0.024		=	0.024

Channel Flow

	Segment ID					
12.	Cross sectional flow area, a	ft^2				
13.	Wetted perimeter, pw	ft				
14.	Hydraulic radius, r= a/pw compute r	ft				
15.	Channel Slope, s	ft/ft				
16.	Manning's roughness coeff., n					
17.	$V = 1.49\, r^{2/3}\, s^{1/2} / n$	ft/s	2.5			
18.	Flow length, L	ft	468			
19.	$T_t = \frac{L}{3600\,V}$	hr	0.0520 +		=	0.052

20. Watershed or subarea T_c or T_t (add T_t in steps 6, 11, and 19) hr 0.383

min 23

Project TRAILS OF WOODS CREEK By ARF Date 7/6/2020
Location ALGONQUIN, IL Checked Date

Check one: ☐ Present ☑ Developed SUBAREA 006
Check one: ☑ Tc ☐ Tt

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)

	Segment ID				
1. Surface Description (Table 3-1)		Grass			
2. Manning's roughness coeff., n (Table 3-1)		0.24			
3. Flow length, L (total L ≤ 300 ft)	ft	100			
4. Two-yr 24-hr rainfall, P_2	in	3.34			
5. Land slope, s	ft/ft	0.015			
6. $Tc = \frac{0.007\,(nL)^{0.8}}{P_2^{0.5}\,s^{0.4}}$	hr	0.261 +		=	0.261

Shallow Concentrated Flow

	Segment ID				
7. Surface description (paved or unpaved)		unpaved			
8. Flow length, L		775			
9. Watercourse slope, s		0.02			
10. Average velocity, V (figure 3-1)		2.30			
11. $T_t = \frac{L}{3600\,V}$	hr	0.093		=	0.093

Channel Flow

	Segment ID				
12. Cross sectional flow area, a	ft^2				
13. Wetted perimeter, pw	ft				
14. Hydraulic radius, r= a/pw compute r	ft				
15. Channel Slope, s	ft/ft				
16. Manning's roughness coeff., n					
17. $V = 1.49\,r^{2/3}\,s^{1/2} / n$	ft/s	2.5			
18. Flow length, L	ft				
19. $T_t = \frac{L}{3600\,V}$	hr	+		=	

20. Watershed or subarea T_c or T_t (add T_t in steps 6, 11, and 19) hr 0.355

min 21

Project TRAILS OF WOODS CREEK By ARF Date 7/6/2020
Location ALGONQUIN, IL Checked Date

Check one: ☐ Present ☑ Developed SUBAREA 007
Check one: ☑ Tc ☐ Tt

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.

<u>Sheet Flow</u> (Applicable to Tc only)

	Segment ID				
1. Surface Description (Table 3-1)		Grass			
2. Manning's roughness coeff., n (Table 3-1)		0.24			
3. Flow length, L (total L $\leq$ 300 ft)	ft	100			
4. Two-yr 24-hr rainfall, P_2	in	3.34			
5. Land slope, s	ft/ft	0.03			
6. $Tc = \dfrac{0.007\ (nL)^{0.8}}{P_2^{0.5}\ s^{0.4}}$	hr	0.198 +		=	0.198

<u>Shallow Concentrated Flow</u>

	Segment ID				
7. Surface description (paved or unpaved)		unpaved			
8. Flow length, L		115			
9. Watercourse slope, s		0.02			
10. Average velocity, V (figure 3-1)		2.30			
11. $T_t = \dfrac{L}{3600\ V}$	hr	0.014		=	0.014

<u>Channel Flow</u>

	Segment ID				
12. Cross sectional flow area, a	ft^2				
13. Wetted perimeter, pw	ft				
14. Hydraulic radius, r= a/pw compute r	ft				
15. Channel Slope, s	ft/ft				
16. Manning's roughness coeff., n					
17. $V= 1.49\ r^{2/3}\ s^{1/2}\ /\ n$	ft/s	2.5			
18. Flow length, L	ft				
19. $T_t = \dfrac{L}{3600\ V}$	hr	+		=	

20. Watershed or subarea T_c or T_t (add T_t in steps 6, 11, and 19)	hr	0.212
	min	13

Project TRAILS OF WOODS CREEK
Location ALGONQUIN, IL

By ARF Date 7/6/2020
Checked Date

Check one: ☐ Present ☑ Developed
Check one: ☑ Tc ☐ Tt

SUBAREA 008

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)

		Segment ID					
1.	Surface Description (Table 3-1)		Grass				
2.	Manning's roughness coeff., n (Table 3-1)		0.24				
3.	Flow length, L (total L $\leq$ 300 ft)	ft	100				
4.	Two-yr 24-hr rainfall, P_2	in	3.34				
5.	Land slope, s	ft/ft	0.028				
6.	$Tc = \frac{0.007\ (nL)^{0.8}}{P_2^{0.5}\ s^{0.4}}$	hr	0.203	+		=	0.203

Shallow Concentrated Flow

		Segment ID					
7.	Surface description (paved or unpaved)		unpaved				
8.	Flow length, L		300				
9.	Watercourse slope, s		0.02				
10.	Average velocity, V (figure 3-1)		2.30				
11.	$T_t = \frac{L}{3600\ V}$	hr	0.036			=	0.036

Channel Flow

		Segment ID					
12.	Cross sectional flow area, a	ft^2					
13.	Wetted perimeter, pw	ft					
14.	Hydraulic radius, r= a/pw compute r	ft					
15.	Channel Slope, s	ft/ft					
16.	Manning's roughness coeff., n						
17.	$V= 1.49\ r^{2/3}\ s^{1/2}\ /\ n$	ft/s	2.5				
18.	Flow length, L	ft	490				
19.	$T_t = \frac{L}{3600\ V}$	hr	0.0544	+		=	0.054

20.	Watershed or subarea T_c or T_t (add T_t in steps 6, 11, and 19)	hr	0.294
		min	18

Project TRAILS OF WOODS CREEK By ARF Date 7/6/2020
Location ALGONQUIN, IL Checked Date

Check one: ☐ Present ☑ Developed

Check one: ☑ Tc ☐ Tt

SUBAREA 008

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)

	Segment ID					
1. Surface Description (Table 3-1)		Grass				
2. Manning's roughness coeff., n (Table 3-1)		0.24				
3. Flow length, L (total L $\leq$ 300 ft)	ft	100				
4. Two-yr 24-hr rainfall, P_2	in	3.34				
5. Land slope, s	ft/ft	0.028				
6. $Tc = \frac{0.007 (nL)^{0.8}}{P_2^{0.5} s^{0.4}}$	hr	0.203	+		=	0.203

Shallow Concentrated Flow

	Segment ID					
7. Surface description (paved or unpaved)		unpaved				
8. Flow length, L		370				
9. Watercourse slope, s		0.02				
10. Average velocity, V (figure 3-1)		2.30				
11. $T_t = \frac{L}{3600 V}$	hr	0.045			=	0.045

Channel Flow

	Segment ID					
12. Cross sectional flow area, a	ft^2					
13. Wetted perimeter, pw	ft					
14. Hydraulic radius, r= a/pw compute r	ft					
15. Channel Slope, s	ft/ft					
16. Manning's roughness coeff., n						
17. $V= 1.49 r^{2/3} s^{1/2} / n$	ft/s	2.5				
18. Flow length, L	ft					
19. $T_t = \frac{L}{3600 V}$	hr		+		=	

20. Watershed or subarea T_c or T_t (add T_t in steps 6, 11, and 19) hr 0.248

min 15

Project	TRAILS OF WOODS CREEK	By	CAB	Date	3/17/2020
Location	ALGONQUIN, IL	Checked		Date	

Check one: ☐ Present ☑ Developed

Check one: ☑ Tc ☐ Tt

SUBAREA 020

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)

	Segment ID					
1. Surface Description (Table 3-1)		Grass				
2. Manning's roughness coeff., n (Table 3-1)		0.24				
3. Flow length, L (total L $\leq$ 300 ft)	ft	100				
4. Two-yr 24-hr rainfall, P_2	in	3.34				
5. Land slope, s	ft/ft	0.03				
6. $T_c = \frac{0.007 (nL)^{0.8}}{P_2^{0.5} s^{0.4}}$	hr	0.198	+		=	0.198

Shallow Concentrated Flow

	Segment ID					
7. Surface description (paved or unpaved)		unpaved				
8. Flow length, L						
9. Watercourse slope, s		0.05				
10. Average velocity, V (figure 3-1)		3.65				
11. $T_t = \frac{L}{3600 V}$	hr		+		=	

Channel Flow

	Segment ID					
12. Cross sectional flow area, a	ft^2					
13. Wetted perimeter, pw	ft					
14. Hydraulic radius, r= a/pw compute r	ft					
15. Channel Slope, s	ft/ft					
16. Manning's roughness coeff., n						
17. $V = 1.49 r^{2/3} s^{1/2} / n$	ft/s	2.5				
18. Flow length, L	ft					
19. $T_t = \frac{L}{3600 V}$	hr		+		=	

20. Watershed or subarea T_c or T_t (add T_t in steps 6, 11, and 19) hr 0.198

min 12

Project TRAILS OF WOODS CREEK By CAB Date 3/17/2020
Location ALGONQUIN, IL Checked Date

Check one: ☐ Present ☑ Developed

Check one: ☑ Tc ☐ Tt

SUBAREA 030

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)

	Segment ID				
1. Surface Description (Table 3-1)		Grass			
2. Manning's roughness coeff., n (Table 3-1)		0.24			
3. Flow length, L (total L ≤ 300 ft)	ft	100			
4. Two-yr 24-hr rainfall, P_2	in	3.34			
5. Land slope, s	ft/ft	0.035			
6. $Tc = \frac{0.007\,(nL)^{0.8}}{P_2^{0.5}\,s^{0.4}}$	hr	0.186	+	=	0.186

Shallow Concentrated Flow

	Segment ID				
7. Surface description (paved or unpaved)		unpaved			
8. Flow length, L		150			
9. Watercourse slope, s		0.035			
10. Average velocity, V (figure 3-1)		3.05			
11. $T_t = \frac{L}{3600\,V}$	hr	0.014	+	=	0.014

Channel Flow

	Segment ID				
12. Cross sectional flow area, a	ft^2				
13. Wetted perimeter, pw	ft				
14. Hydraulic radius, r= a/pw compute r	ft				
15. Channel Slope, s	ft/ft				
16. Manning's roughness coeff., n					
17. $V = 1.49\,r^{2/3}\,s^{1/2} / n$	ft/s	2.5			
18. Flow length, L	ft				
19. $T_t = \frac{L}{3600\,V}$	hr		+	=	

20. Watershed or subarea T_c or T_t (add T_t in steps 6, 11, and 19) hr 0.200

min 12

Project TRAILS OF WOODS CREEK By CAB Date 3/17/2020
Location ALGONQUIN, IL Checked Date

Check one: ☐ Present ☑ Developed SUBAREA 031
Check one: ☑ Tc ☐ Tt

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.

<u>Sheet Flow</u> (Applicable to Tc only)

	Segment ID				
1. Surface Description (Table 3-1)		Grass			
2. Manning's roughness coeff., n (Table 3-1)		0.24			
3. Flow length, L (total L ≤ 300 ft)	ft	100			
4. Two-yr 24-hr rainfall, P_2	in	3.34			
5. Land slope, s	ft/ft	0.03			
6. $Tc = \frac{0.007\ (nL)^{0.8}}{P_2^{0.5}\ s^{0.4}}$	hr	0.198	+	=	0.198

<u>Shallow Concentrated Flow</u>

	Segment ID				
7. Surface description (paved or unpaved)		unpaved			
8. Flow length, L		400			
9. Watercourse slope, s		0.022			
10. Average velocity, V (figure 3-1)		2.42			
11. $T_t = \frac{L}{3600\ V}$	hr	0.046	+	=	0.046

<u>Channel Flow</u>

	Segment ID				
12. Cross sectional flow area, a	ft^2				
13. Wetted perimeter, pw	ft				
14. Hydraulic radius, r= a/pw compute r	ft				
15. Channel Slope, s	ft/ft				
16. Manning's roughness coeff., n					
17. $V= 1.49\ r^{2/3}\ s^{1/2} / n$	ft/s	2.5			
18. Flow length, L	ft				
19. $T_t = \frac{L}{3600\ V}$	hr		+	=	

20. Watershed or subarea T_c or T_t (add T_t in steps 6, 11, and 19) hr 0.244

min 15

Project TRAILS OF WOODS CREEK
Location ALGONQUIN, IL

By CAB Date 3/17/2020
Checked Date

Check one: ☐ Present ☑ Developed
Check one: ☑ Tc ☐ Tt

SUBAREA 032

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)

	Segment ID				
1. Surface Description (Table 3-1)		Grass			
2. Manning's roughness coeff., n (Table 3-1)		0.24			
3. Flow length, L (total L $\leq$ 300 ft)	ft	100			
4. Two-yr 24-hr rainfall, P_2	in	3.34			
5. Land slope, s	ft/ft	0.03			
6. $Tc = \frac{0.007\,(nL)^{0.8}}{P_2^{0.5}\,s^{0.4}}$	hr	0.198	+	=	0.198

Shallow Concentrated Flow

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

Channel Flow

	Segment ID				
12. Cross sectional flow area, a	ft^2				
13. Wetted perimeter, pw	ft				
14. Hydraulic radius, r= a/pw compute r	ft				
15. Channel Slope, s	ft/ft				
16. Manning's roughness coeff., n					
17. $V = 1.49\, r^{2/3}\, s^{1/2} / n$	ft/s	2.5			
18. Flow length, L	ft				
19. $T_t = \frac{L}{3600\,V}$	hr		+	=	

20. Watershed or subarea T_c or T_t (add T_t in steps 6, 11, and 19) hr 0.198

min 12

Project TRAILS OF WOODS CREEK
Location ALGONQUIN, IL
By CAB Date 3/17/2020
Checked Date

Check one: ☐ Present ☑ Developed
Check one: ☑ Tc ☐ Tt

SUBAREA 033

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)

	Segment ID				
1. Surface Description (Table 3-1)		Grass			
2. Manning's roughness coeff., n (Table 3-1)		0.24			
3. Flow length, L (total L $\leq$ 300 ft)	ft	100			
4. Two-yr 24-hr rainfall, P_2	in	3.34			
5. Land slope, s	ft/ft	0.01			
6. $Tc = \frac{0.007\,(nL)^{0.8}}{P_2^{0.5}\, s^{0.4}}$	hr	0.307	+	=	0.307

Shallow Concentrated Flow

	Segment ID				
7. Surface description (paved or unpaved)		unpaved			
8. Flow length, L		180			
9. Watercourse slope, s		0.02			
10. Average velocity, V (figure 3-1)		2.30			
11. $T_t = \frac{L}{3600\,V}$	hr	0.022	+	=	0.022

Channel Flow

	Segment ID				
12. Cross sectional flow area, a	ft^2				
13. Wetted perimeter, pw	ft				
14. Hydraulic radius, r= a/pw compute r	ft				
15. Channel Slope, s	ft/ft				
16. Manning's roughness coeff., n					
17. $V = 1.49\, r^{2/3}\, s^{1/2} / n$	ft/s	2.5			
18. Flow length, L	ft				
19. $T_t = \frac{L}{3600\,V}$	hr		+	=	

20. Watershed or subarea T_c or T_t (add T_t in steps 6, 11, and 19) hr 0.329

min 20

Job #:	402.136	Date:	December 4, 2019
Project:	Trails of Woods Creek - Algonquin	Revised:	July 6, 2020
		By:	ARF

STORMWATER MANAGEMENT FACILITY 01
PROPOSED CONDITIONS

ELEV.	AREA (S.F.)	AREA (AC.)	INCREM. VOLUME (AC. Ft.)	**CUMULATIVE VOLUME (Ac-Ft)**	
877.0	162430	3.729	0.000	**0.000**	
878.0	220790	5.069	4.399	**4.399**	
879.0	272080	6.246	5.657	**10.056**	
880.0	293410	6.736	6.491	**16.547**	
881.0	306380	7.034	6.885	**23.432**	
882.0	319580	7.337	7.185	**30.617**	HWL
883.0	332940	7.643	7.490	**38.107**	
884.0	346470	7.954	7.799	**45.905**	

STORMWATER MANAGEMENT FACILITY 01
STORAGE BELOW NWL

ELEV.	AREA (S.F.)	AREA (AC.)	INCREM. VOLUME (AC. Ft.)	**CUMULATIVE VOLUME (Ac-Ft)**
875.5	85295	1.958	0.000	**0.000**
876.0	102030	2.342	1.075	**1.075**
877.0	162430	3.729	3.036	**4.111**

RETENTION STORAGE CALCULATIONS

Proposed Impervious Area:	13.56	Ac.
Depth of Rainfall for Calc:	1.00	Inches
Retention Volume Required	**1.130**	Ac.-ft.
Retention Volume Provided:	**4.111**	Ac.-ft.

Job #:	402.136	Date:	December 4, 2019
Project:	Trails of Woods Creek - Algonquin	Revised:	July 6, 2020
		By:	ARF

STORMWATER MANAGEMENT FACILITY 02

PROPOSED CONDITIONS

ELEV.	AREA (S.F.)	AREA (AC.)	INCREM. VOLUME (AC. Ft.)	**CUMULATIVE VOLUME (Ac-Ft)**	
880.0	137140	3.148	0.000	**0.000**	
881.0	220360	5.059	4.104	**4.104**	
882.0	300390	6.896	5.977	**10.081**	
883.0	323450	7.425	7.161	**17.242**	
884.0	341720	7.845	7.635	**24.877**	
885.0	360090	8.267	8.056	**32.932**	
885.5	369360	8.479	4.186	**37.119**	HWL
886.0	378680	8.693	4.293	**41.412**	
886.5	388060	8.909	4.400	**45.813**	

STORMWATER MANAGEMENT FACILITY 02

STORAGE BELOW NWL

ELEV.	AREA (S.F.)	AREA (AC.)	INCREM. VOLUME (AC. Ft.)	**CUMULATIVE VOLUME (Ac-Ft)**
878.5	74040	1.700	0.000	**0.000**
879.0	94740	2.175	0.969	**0.969**
880.0	137140	3.148	2.662	**3.630**

RETENTION STORAGE CALCULATIONS

Proposed Impervious Area:	9.61	Ac.
Depth of Rainfall for Calc:	1.00	Inches
Retention Volume Required:	**0.801**	Ac.-ft.
Retention Volume Provided:	**3.630**	Ac.-ft.

Job #: 402.136
Project: Trails of Woods Creek - Algonquin

Date: December 4, 2019
Revised: July 6, 2020
By: ARF

STORMWATER MANAGEMENT FACILITY 03

PROPOSED CONDITIONS

ELEV.	AREA (S.F.)	AREA (AC.)	INCREM. VOLUME (AC. Ft.)	**CUMULATIVE VOLUME (Ac-Ft)**	
881.0	21530	0.494	0.000	**0.000**	
882.0	29220	0.671	0.583	**0.583**	
883.0	36908	0.847	0.759	**1.342**	
884.0	43550	1.000	0.924	**2.265**	
885.0	50670	1.163	1.081	**3.347**	
886.0	58060	1.333	1.248	**4.595**	
886.5	62030	1.424	0.689	**5.284**	HWL
887.0	66030	1.516	0.735	**6.019**	
887.5	70080	1.609	0.781	**6.800**	

STORMWATER MANAGEMENT FACILITY 06

STORAGE BELOW NWL

ELEV.	AREA (S.F.)	AREA (AC.)	INCREM. VOLUME (AC. Ft.)	**CUMULATIVE VOLUME (Ac-Ft)**
879.5	13890	0.319	0.000	**0.000**
880.0	16190	0.372	0.173	**0.173**
881.0	21530	0.494	0.433	**0.606**

RETENTION STORAGE CALCULATIONS

Proposed Impervious Area:	6.05	Ac.
Depth of Rainfall for Calc:	1.00	Inches
Retention Volume Required:	**0.504**	Ac.-ft.
Retention Volume Provided:	**0.606**	Ac.-ft.

Job #: 402.136
Project: Trails of Woods Creek - Algonquin

Date: December 5, 2019
Revised: July 6, 2020
By: ARF

STORMWATER MANAGEMENT FACILITY 04

PROPOSED CONDITIONS

ELEV.	AREA (S.F.)	AREA (AC.)	INCREM. VOLUME (AC. Ft.)	**CUMULATIVE VOLUME (Ac-Ft)**	
882.0	15450	0.355	0.000	**0.000**	
883.0	22890	0.525	0.440	**0.440**	
884.0	30070	0.690	0.608	**1.048**	
885.0	33580	0.771	0.731	**1.779**	
886.0	37180	0.854	0.812	**2.591**	
886.5	39280	0.902	0.439	**3.030**	HWL
887.0	41430	0.951	0.463	**3.493**	
887.5	43610	1.001	0.488	**3.981**	

STORMWATER MANAGEMENT FACILITY 04

STORAGE BELOW NWL

ELEV.	AREA (S.F.)	AREA (AC.)	INCREM. VOLUME (AC. Ft.)	**CUMULATIVE VOLUME (Ac-Ft)**
880.5	11050	0.254	0.000	**0.000**
881.0	12489	0.287	0.135	**0.135**
882.0	15450	0.355	0.321	**0.456**

RETENTION STORAGE CALCULATIONS

Proposed Impervious Area:	4.61	Ac.
Depth of Rainfall for Calc:	1.00	Inches
Retention Volume Required:	**0.384**	Ac.-ft.
Retention Volume Provided:	**0.456**	Ac.-ft.

Job #:	402.136	Date:	December 5, 2019
Project:	Trails of Woods Creek - Algonquin	Revised:	July 6, 2020
		By:	ARF

STORMWATER MANAGEMENT FACILITY 05

PROPOSED CONDITIONS

ELEV.	AREA (S.F.)	AREA (AC.)	INCREM. VOLUME (AC. Ft.)	**CUMULATIVE VOLUME (Ac-Ft)**	
886.0	79260	1.820	0.000	**0.000**	
887.0	97250	2.233	2.026	**2.026**	
888.0	112670	2.587	2.410	**4.436**	
889.0	121400	2.787	2.687	**7.122**	
890.0	130760	3.002	2.894	**10.017**	
891.0	139390	3.200	3.101	**13.118**	HWL
892.0	171730	3.942	3.571	**16.689**	
893.0	191470	4.396	4.169	**20.858**	

STORMWATER MANAGEMENT FACILITY 05

STORAGE BELOW NWL

ELEV.	AREA (S.F.)	AREA (AC.)	INCREM. VOLUME (AC. Ft.)	**CUMULATIVE VOLUME (Ac-Ft)**
884.5	68100	1.563	0.000	**0.000**
885.0	72130	1.656	0.805	**0.805**
886.0	79260	1.820	1.738	**2.543**

RETENTION STORAGE CALCULATIONS

Proposed Impervious Area:	8.77	Ac.
Depth of Rainfall for Calc:	1.00	Inches
Retention Volume Required:	**0.731**	Ac.-ft.
Retention Volume Provided:	**2.543**	Ac.-ft.

Job #:	402.136	Date:	December 5, 2019
Project:	Trails of Woods Creek - Algonquin	Revised:	July 6, 2020
		By:	ARF

STORMWATER MANAGEMENT FACILITY 06

PROPOSED CONDITIONS

ELEV.	AREA (S.F.)	AREA (AC.)	INCREM. VOLUME (AC. Ft.)	**CUMULATIVE VOLUME (Ac-Ft)**	
886.0	60890	1.398	0.000	**0.000**	
887.0	71860	1.650	1.524	**1.524**	
888.0	84970	1.951	1.800	**3.324**	
889.0	92060	2.113	2.032	**5.356**	
890.0	99460	2.283	2.198	**7.554**	
891.0	109000	2.502	2.393	**9.947**	HWL
892.0	140120	3.217	2.860	**12.807**	
893.0	177980	4.086	3.651	**16.458**	

STORMWATER MANAGEMENT FACILITY 06

STORAGE BELOW NWL

ELEV.	AREA (S.F.)	AREA (AC.)	INCREM. VOLUME (AC. Ft.)	**CUMULATIVE VOLUME (Ac-Ft)**
884.5	51210	1.176	0.000	**0.000**
885.0	54350	1.248	0.606	**0.606**
886.0	60890	1.398	1.323	**1.929**

RETENTION STORAGE CALCULATIONS

Proposed Impervious Area:	5.41	Ac.
Depth of Rainfall for Calc:	1.00	Inches
Retention Volume Required:	**0.451**	Ac.-ft.
Retention Volume Provided:	**1.929**	Ac.-ft.

Job #: 402.136
Project: Trails of Woods Creek - Algonquin

Date: December 5, 2019
Revised: July 6, 2020
By: ARF

STORMWATER MANAGEMENT FACILITY 07
PROPOSED CONDITIONS

ELEV.	AREA (S.F.)	AREA (AC.)	INCREM. VOLUME (AC. Ft.)	**CUMULATIVE VOLUME (Ac-Ft)**	
878.9	12980	0.298	0.000	**0.000**	
879.0	13530	0.311	0.030	**0.030**	
880.0	15810	0.363	0.337	**0.367**	
881.0	18210	0.418	0.390	**0.758**	
882.0	20740	0.476	0.447	**1.205**	
882.7	22710	0.521	0.349	**1.554**	HWL
883.0	23380	0.537	0.159	**1.713**	
883.5	24750	0.568	0.276	**1.989**	

STORMWATER MANAGEMENT FACILITY 07
STORAGE BELOW NWL

ELEV.	AREA (S.F.)	AREA (AC.)	INCREM. VOLUME (AC. Ft.)	**CUMULATIVE VOLUME (Ac-Ft)**
877.0	2200	0.051	0.000	**0.000**
878.0	9610	0.221	0.136	**0.136**
878.9	12980	0.298	0.233	**0.369**

RETENTION STORAGE CALCULATIONS

Proposed Impervious Area:	1.33	Ac.
Depth of Rainfall for Calc:	1.00	Inches
Retention Volume Required:	**0.111**	Ac.-ft.
Retention Volume Provided:	**0.369**	Ac.-ft.

Job #:	402.136	Date:	December 5, 2019
Project:	Trails of Woods Creek - Algonquin	Revised:	July 6, 2020
		By:	ARF

STORMWATER MANAGEMENT FACILITY 08

PROPOSED CONDITIONS

ELEV.	AREA (S.F.)	AREA (AC.)	INCREM. VOLUME (AC. Ft.)	**CUMULATIVE VOLUME (Ac-Ft)**	
879.5	22200	0.510	0.000	**0.000**	
880.0	24940	0.573	0.271	**0.271**	
881.0	29070	0.667	0.620	**0.890**	
882.0	33490	0.769	0.718	**1.609**	
883.0	37500	0.861	0.815	**2.423**	
884.0	41640	0.956	0.908	**3.332**	
884.5	43740	1.004	0.490	**3.822**	HWL
885.0	60920	1.399	0.601	**4.423**	
885.5	63120	1.449	0.712	**5.134**	

STORMWATER MANAGEMENT FACILITY 08

STORAGE BELOW NWL

ELEV.	AREA (S.F.)	AREA (AC.)	INCREM. VOLUME (AC. Ft.)	**CUMULATIVE VOLUME (Ac-Ft)**
878.0	11530	0.265	0.000	**0.000**
879.0	14100	0.324	0.294	**0.294**
879.5	22200	0.510	0.208	**0.503**

RETENTION STORAGE CALCULATIONS

Proposed Impervious Area:	2.09	Ac.
Depth of Rainfall for Calc:	1.00	Inches
Retention Volume Required:	**0.174**	Ac.-ft.
Retention Volume Provided:	**0.503**	Ac.-ft.

Job #:	402.136		Date:	December 5, 2019
Project:	Trails of Woods Creek - Algonquin		Revised:	July 6, 2020
			By:	ARF

STORMWATER MANAGEMENT FACILITY 09

PROPOSED CONDITIONS

ELEV.	AREA (S.F.)	AREA (AC.)	INCREM. VOLUME (AC. Ft.)	**CUMULATIVE VOLUME (Ac-Ft)**	
883.0	59020	1.355	0.000	**0.000**	
884.0	64510	1.481	1.418	**1.418**	
885.0	70100	1.609	1.545	**2.963**	
886.0	84610	1.942	1.776	**4.739**	
887.0	91760	2.107	2.024	**6.763**	
888.0	98580	2.263	2.185	**8.948**	HWL
889.0	105510	2.422	2.343	**11.291**	
890.0	112540	2.584	2.503	**13.794**	

STORMWATER MANAGEMENT FACILITY 09

STORAGE BELOW NWL

ELEV.	AREA (S.F.)	AREA (AC.)	INCREM. VOLUME (AC. Ft.)	**CUMULATIVE VOLUME (Ac-Ft)**
881.5	48100	1.104	0.000	**0.000**
882.0	53340	1.225	0.582	**0.582**
883.0	59020	1.355	1.290	**1.872**

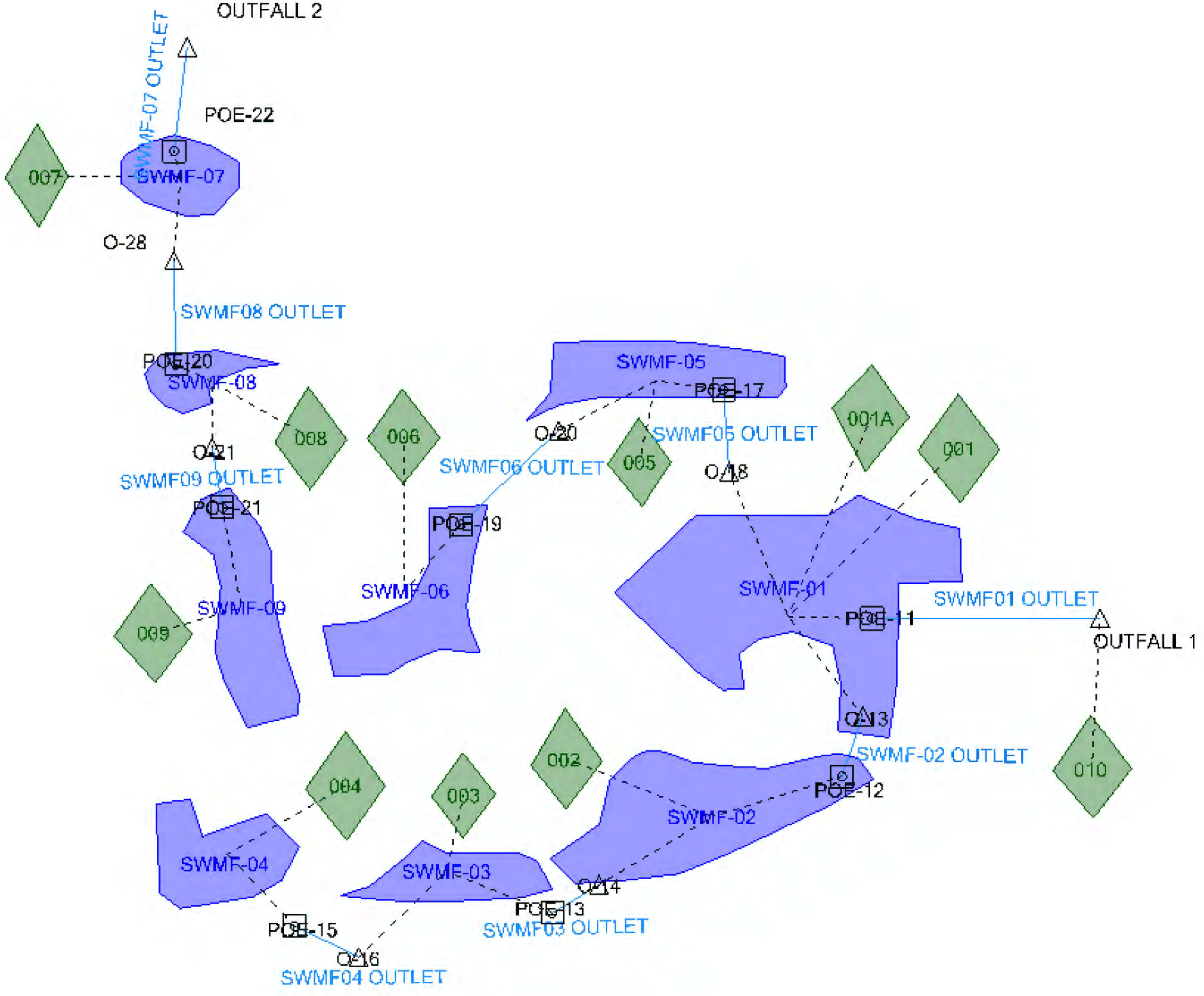
RETENTION STORAGE CALCULATIONS

Proposed Impervious Area:	10.93	Ac.
Depth of Rainfall for Calc:	1.00	Inches
Retention Volume Required:	**0.911**	Ac.-ft.
Retention Volume Provided:	**1.872**	Ac.-ft.

“PRE-ONSITE” PONDPACK

MODEL & RESULTS

Onsite Only Pondpack Model Map: Trails of Woods Creek



Scenario Calculation Summary

Scenario Summary

ID	1
Label	100Yr 24Hr
Notes	
Active Topology	Base Active Topology
Hydrology	Base Hydrology
Rainfall Runoff	100YEAR24HOUR
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	Base Calculation Options

Output Summary

Output Increment	0.050 hours	Duration	36.000 hours

Rainfall Summary

Return Event Tag	100	Rainfall Type	Time-Depth Curve
Total Depth	8.6 in	Storm Event	100Yt-24Hr

ICPM Output Summary

Target Convergence	0.00 ft³/s	ICPM Time Step	0.050 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)
001	100Yr 24Hr	100	None	13.083	15.600	20.13	(N/A)	(N/A)
001A	100Yr 24Hr	100	None	2.940	15.600	4.85	(N/A)	(N/A)
002	100Yr 24Hr	100	None	11.291	15.600	17.71	(N/A)	(N/A)
003	100Yr 24Hr	100	None	6.855	15.600	10.97	(N/A)	(N/A)
004	100Yr 24Hr	100	None	5.127	15.600	8.26	(N/A)	(N/A)
005	100Yr 24Hr	100	None	10.304	15.600	16.14	(N/A)	(N/A)
006	100Yr 24Hr	100	None	6.240	15.600	9.87	(N/A)	(N/A)
007	100Yr 24Hr	100	None	1.534	15.600	2.43	(N/A)	(N/A)
008	100Yr 24Hr	100	None	2.414	15.550	3.82	(N/A)	(N/A)
009	100Yr 24Hr	100	None	12.383	15.600	19.82	(N/A)	(N/A)
010	100Yr 24Hr	100	None	0.421	15.600	0.71	(N/A)	(N/A)
OUTFALL 1	100Yr 24Hr	100	None	18.083	24.000	9.69	(N/A)	(N/A)
OUTFALL 2	100Yr 24Hr	100	None	6.052	24.200	2.97	(N/A)	(N/A)
SWMF-01 (IN)	100Yr 24Hr	100	None	28.558	15.600	29.99	(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-01 (OUT)	100Yr 24Hr	100	None	17.662	24.200	9.53	879.57	13.729
SWMF-02 (IN)	100Yr 24Hr	100	None	18.780	15.600	21.24	(N/A)	(N/A)
SWMF-02 (OUT)	100Yr 24Hr	100	None	6.536	28.350	3.37	882.32	12.399
SWMF-03 (IN)	100Yr 24Hr	100	None	10.335	15.600	12.43	(N/A)	(N/A)
SWMF-03 (OUT)	100Yr 24Hr	100	None	7.489	19.350	3.72	886.02	4.621
SWMF-04 (IN)	100Yr 24Hr	100	None	5.127	15.600	8.26	(N/A)	(N/A)
SWMF-04 (OUT)	100Yr 24Hr	100	None	3.481	19.200	1.64	886.48	3.013
SWMF-05 (IN)	100Yr 24Hr	100	None	11.997	15.550	15.86	(N/A)	(N/A)
SWMF-05 (OUT)	100Yr 24Hr	100	None	5.999	24.300	2.67	889.10	7.407
SWMF-06 (IN)	100Yr 24Hr	100	None	6.240	15.600	9.87	(N/A)	(N/A)
SWMF-06 (OUT)	100Yr 24Hr	100	None	1.733	27.150	1.20	889.11	5.602
SWMF-06 (Reverse)	100Yr 24Hr	100	None	-0.041	15.950	-0.43	(N/A)	(N/A)
SWMF-07 (IN)	100Yr 24Hr	100	None	7.390	15.600	4.60	(N/A)	(N/A)
SWMF-07 (OUT)	100Yr 24Hr	100	None	6.052	24.200	2.97	882.42	1.416
SWMF-08 (IN)	100Yr 24Hr	100	None	8.312	15.600	6.32	(N/A)	(N/A)
SWMF-08 (OUT)	100Yr 24Hr	100	None	5.856	27.100	2.88	883.22	2.626
SWMF-09 (IN)	100Yr 24Hr	100	None	12.383	15.600	19.82	(N/A)	(N/A)
SWMF-09 (OUT)	100Yr 24Hr	100	None	5.898	20.300	2.86	888.05	9.065

Executive Summary (Links)

Label	Type	Location	Hydrograph Volume (ac-ft)	Peak Time (hours)	Peak Flow (ft³/s)	End Point	Node Flow Direction
SWMF-02 OUTLET	Pond Outlet	Upstream	18.780	15.600	21.24	SWMF-02	Pond Inflow
SWMF-02 OUTLET	Pond Outlet	Outflow	6.536	28.350	3.37	SWMF-02	Pond Outflow

Scenario Calculation Summary

Executive Summary (Links)

Label	Type	Location	Hydrograph Volume (ac-ft)	Peak Time (hours)	Peak Flow (ft³/s)	End Point	Node Flow Direction
SWMF-02 OUTLET	Pond Outlet	Link	6.536	28.350	3.37		
SWMF-02 OUTLET	Pond Outlet	Downstream	28.558	15.600	29.99	SWMF-01	
SWMF-07 OUTLET	Pond Outlet	Upstream	7.390	15.600	4.60	SWMF-07	Pond Inflow
SWMF-07 OUTLET	Pond Outlet	Outflow	6.052	24.200	2.97	SWMF-07	Pond Outflow
SWMF-07 OUTLET	Pond Outlet	Link	6.052	24.200	2.97		
SWMF-07 OUTLET	Pond Outlet	Downstream	6.052	24.200	2.97	OUTFALL 2	
SWMF01 OUTLET	Pond Outlet	Upstream	28.558	15.600	29.99	SWMF-01	Pond Inflow
SWMF01 OUTLET	Pond Outlet	Outflow	17.662	24.200	9.53	SWMF-01	Pond Outflow
SWMF01 OUTLET	Pond Outlet	Link	17.662	24.200	9.53		
SWMF01 OUTLET	Pond Outlet	Downstream	18.083	24.000	9.69	OUTFALL 1	
SWMF03 OUTLET	Pond Outlet	Upstream	10.335	15.600	12.43	SWMF-03	Pond Inflow
SWMF03 OUTLET	Pond Outlet	Outflow	7.489	19.350	3.72	SWMF-03	Pond Outflow
SWMF03 OUTLET	Pond Outlet	Link	7.489	19.350	3.72		
SWMF03 OUTLET	Pond Outlet	Downstream	18.780	15.600	21.24	SWMF-02	
SWMF04 OUTLET	Pond Outlet	Upstream	5.127	15.600	8.26	SWMF-04	Pond Inflow
SWMF04 OUTLET	Pond Outlet	Outflow	3.481	19.200	1.64	SWMF-04	Pond Outflow
SWMF04 OUTLET	Pond Outlet	Link	3.481	19.200	1.64		
SWMF04 OUTLET	Pond Outlet	Downstream	10.335	15.600	12.43	SWMF-03	
SWMF05 OUTLET	Pond Outlet	Upstream	11.997	15.550	15.86	SWMF-05	Pond Inflow
SWMF05 OUTLET	Pond Outlet	Outflow	5.999	24.300	2.67	SWMF-05	Pond Outflow
SWMF05 OUTLET	Pond Outlet	Link	5.999	24.300	2.67		
SWMF05 OUTLET	Pond Outlet	Downstream	28.558	15.600	29.99	SWMF-01	
SWMF06 OUTLET	Pond Outlet	Upstream	6.240	15.600	9.87	SWMF-06	Pond Inflow
SWMF06 OUTLET	Pond Outlet	Outflow	1.733	27.150	1.20	SWMF-06	Pond Outflow

Scenario Calculation Summary

Executive Summary (Links)

Label	Type	Location	Hydrograph Volume (ac-ft)	Peak Time (hours)	Peak Flow (ft³/s)	End Point	Node Flow Direction
SWMF06 OUTLET	Negative Flow	Outflow	-0.041	15.950	-0.43	SWMF-06	Pond Outflow
SWMF06 OUTLET	Pond Outlet	Link	1.733	27.150	1.20		
SWMF06 OUTLET	Negative Flow	Link	-0.041	15.950	-0.43		
SWMF06 OUTLET	Pond Outlet	Downstream	11.997	15.550	15.86	SWMF-05	
SWMF08 OUTLET	Pond Outlet	Upstream	8.312	15.600	6.32	SWMF-08	Pond Inflow
SWMF08 OUTLET	Pond Outlet	Outflow	5.856	27.100	2.88	SWMF-08	Pond Outflow
SWMF08 OUTLET	Pond Outlet	Link	5.856	27.100	2.88		
SWMF08 OUTLET	Pond Outlet	Downstream	7.390	15.600	4.60	SWMF-07	
SWMF09 OUTLET	Pond Outlet	Upstream	12.383	15.600	19.82	SWMF-09	Pond Inflow
SWMF09 OUTLET	Pond Outlet	Outflow	5.898	20.300	2.86	SWMF-09	Pond Outflow
SWMF09 OUTLET	Pond Outlet	Link	5.898	20.300	2.86		
SWMF09 OUTLET	Pond Outlet	Downstream	8.312	15.600	6.32	SWMF-08	

Messages

Message Id	39
Scenario	100Yr 24Hr
Element Type	Composite Outlet Structure
Element Id	195
Label	PROP SWMF-02
Time	(N/A)
Message	Reverse flow conditions encountered for one or more headwater elevations. Calculated reverse flows may be approximate.
Source	Warning
Message Id	39
Scenario	100Yr 24Hr
Element Type	Composite Outlet Structure
Element Id	197
Label	PROP SWMF-03
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	222
Label	100Yr-48Hr
Notes	
Active Topology	<I> Base Active Topology
Hydrology	<I> Base Hydrology
Rainfall Runoff	100YEAR48HOUR
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	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	9.3 in	Storm Event	100Yr-48Hr

ICPM Output Summary

Target Convergence	0.00 ft³/s	ICPM Time Step	0.050 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)
001	100Yr-48Hr	100	None	14.380	40.800	10.88	(N/A)	(N/A)
001A	100Yr-48Hr	100	None	3.265	40.800	2.66	(N/A)	(N/A)
002	100Yr-48Hr	100	None	12.441	40.800	9.60	(N/A)	(N/A)
003	100Yr-48Hr	100	None	7.573	40.800	5.96	(N/A)	(N/A)
004	100Yr-48Hr	100	None	5.672	40.800	4.51	(N/A)	(N/A)
005	100Yr-48Hr	100	None	11.354	40.800	8.76	(N/A)	(N/A)
006	100Yr-48Hr	100	None	6.884	40.800	5.36	(N/A)	(N/A)
007	100Yr-48Hr	100	None	1.692	40.800	1.32	(N/A)	(N/A)
008	100Yr-48Hr	100	None	2.663	40.800	2.08	(N/A)	(N/A)
009	100Yr-48Hr	100	None	13.680	40.800	10.77	(N/A)	(N/A)
010	100Yr-48Hr	100	None	0.469	40.800	0.39	(N/A)	(N/A)
OUTFALL 1	100Yr-48Hr	100	None	31.666	48.000	10.07	(N/A)	(N/A)
OUTFALL 2	100Yr-48Hr	100	None	10.965	48.200	2.97	(N/A)	(N/A)
SWMF-01 (IN)	100Yr-48Hr	100	None	40.402	40.800	18.73	(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-01 (OUT)	100Yr-48Hr	100	None	31.197	48.250	9.84	879.69	14.536
SWMF-02 (IN)	100Yr-48Hr	100	None	23.837	40.800	12.63	(N/A)	(N/A)
SWMF-02 (OUT)	100Yr-48Hr	100	None	12.190	48.650	3.47	882.45	13.279
SWMF-03 (IN)	100Yr-48Hr	100	None	12.739	40.800	7.27	(N/A)	(N/A)
SWMF-03 (OUT)	100Yr-48Hr	100	None	11.395	48.100	3.42	885.68	4.198
SWMF-04 (IN)	100Yr-48Hr	100	None	5.672	40.800	4.51	(N/A)	(N/A)
SWMF-04 (OUT)	100Yr-48Hr	100	None	5.166	47.400	1.53	886.09	2.673
SWMF-05 (IN)	100Yr-48Hr	100	None	14.931	40.800	9.06	(N/A)	(N/A)
SWMF-05 (OUT)	100Yr-48Hr	100	None	10.566	48.300	2.64	888.99	7.095
SWMF-06 (IN)	100Yr-48Hr	100	None	6.884	40.800	5.36	(N/A)	(N/A)
SWMF-06 (OUT)	100Yr-48Hr	100	None	3.577	50.850	1.14	889.00	5.356
SWMF-06 (Reverse)	100Yr-48Hr	100	None	0.000	5.600	0.00	(N/A)	(N/A)
SWMF-07 (IN)	100Yr-48Hr	100	None	12.129	43.200	3.70	(N/A)	(N/A)
SWMF-07 (OUT)	100Yr-48Hr	100	None	10.965	48.200	2.97	882.42	1.416
SWMF-08 (IN)	100Yr-48Hr	100	None	12.486	43.200	4.59	(N/A)	(N/A)
SWMF-08 (OUT)	100Yr-48Hr	100	None	10.437	51.700	2.85	883.19	2.595
SWMF-09 (IN)	100Yr-48Hr	100	None	13.680	40.800	10.77	(N/A)	(N/A)
SWMF-09 (OUT)	100Yr-48Hr	100	None	9.823	48.100	2.79	887.87	8.657

Executive Summary (Links)

Label	Type	Location	Hydrograph Volume (ac-ft)	Peak Time (hours)	Peak Flow (ft³/s)	End Point	Node Flow Direction
SWMF-02 OUTLET	Pond Outlet	Upstream	23.837	40.800	12.63	SWMF-02	Pond Inflow
SWMF-02 OUTLET	Pond Outlet	Outflow	12.190	48.650	3.47	SWMF-02	Pond Outflow

Scenario Calculation Summary

Executive Summary (Links)

Label	Type	Location	Hydrograph Volume (ac-ft)	Peak Time (hours)	Peak Flow (ft³/s)	End Point	Node Flow Direction
SWMF-02 OUTLET	Pond Outlet	Link	12.190	48.650	3.47		
SWMF-02 OUTLET	Pond Outlet	Downstream	40.402	40.800	18.73	SWMF-01	
SWMF-07 OUTLET	Pond Outlet	Upstream	12.129	43.200	3.70	SWMF-07	Pond Inflow
SWMF-07 OUTLET	Pond Outlet	Outflow	10.965	48.200	2.97	SWMF-07	Pond Outflow
SWMF-07 OUTLET	Pond Outlet	Link	10.965	48.200	2.97		
SWMF-07 OUTLET	Pond Outlet	Downstream	10.965	48.200	2.97	OUTFALL 2	
SWMF01 OUTLET	Pond Outlet	Upstream	40.402	40.800	18.73	SWMF-01	Pond Inflow
SWMF01 OUTLET	Pond Outlet	Outflow	31.197	48.250	9.84	SWMF-01	Pond Outflow
SWMF01 OUTLET	Pond Outlet	Link	31.197	48.250	9.84		
SWMF01 OUTLET	Pond Outlet	Downstream	31.666	48.000	10.07	OUTFALL 1	
SWMF03 OUTLET	Pond Outlet	Upstream	12.739	40.800	7.27	SWMF-03	Pond Inflow
SWMF03 OUTLET	Pond Outlet	Outflow	11.395	48.100	3.42	SWMF-03	Pond Outflow
SWMF03 OUTLET	Pond Outlet	Link	11.395	48.100	3.42		
SWMF03 OUTLET	Pond Outlet	Downstream	23.837	40.800	12.63	SWMF-02	
SWMF04 OUTLET	Pond Outlet	Upstream	5.672	40.800	4.51	SWMF-04	Pond Inflow
SWMF04 OUTLET	Pond Outlet	Outflow	5.166	47.400	1.53	SWMF-04	Pond Outflow
SWMF04 OUTLET	Pond Outlet	Link	5.166	47.400	1.53		
SWMF04 OUTLET	Pond Outlet	Downstream	12.739	40.800	7.27	SWMF-03	
SWMF05 OUTLET	Pond Outlet	Upstream	14.931	40.800	9.06	SWMF-05	Pond Inflow
SWMF05 OUTLET	Pond Outlet	Outflow	10.566	48.300	2.64	SWMF-05	Pond Outflow
SWMF05 OUTLET	Pond Outlet	Link	10.557	48.300	2.64		
SWMF05 OUTLET	Pond Outlet	Downstream	40.402	40.800	18.73	SWMF-01	
SWMF06 OUTLET	Pond Outlet	Upstream	6.884	40.800	5.36	SWMF-06	Pond Inflow
SWMF06 OUTLET	Pond Outlet	Outflow	3.577	50.850	1.14	SWMF-06	Pond Outflow

Scenario Calculation Summary

Executive Summary (Links)

Label	Type	Location	Hydrograph Volume (ac-ft)	Peak Time (hours)	Peak Flow (ft³/s)	End Point	Node Flow Direction
SWMF06 OUTLET	Negative Flow	Outflow	0.000	5.600	0.00	SWMF-06	Pond Outflow
SWMF06 OUTLET	Pond Outlet	Link	3.577	50.850	1.14		
SWMF06 OUTLET	Pond Outlet	Downstream	14.931	40.800	9.06	SWMF-05	
SWMF08 OUTLET	Pond Outlet	Upstream	12.486	43.200	4.59	SWMF-08	Pond Inflow
SWMF08 OUTLET	Pond Outlet	Outflow	10.437	51.700	2.85	SWMF-08	Pond Outflow
SWMF08 OUTLET	Pond Outlet	Link	10.437	51.700	2.85		
SWMF08 OUTLET	Pond Outlet	Downstream	12.129	43.200	3.70	SWMF-07	
SWMF09 OUTLET	Pond Outlet	Upstream	13.680	40.800	10.77	SWMF-09	Pond Inflow
SWMF09 OUTLET	Pond Outlet	Outflow	9.823	48.100	2.79	SWMF-09	Pond Outflow
SWMF09 OUTLET	Pond Outlet	Link	9.814	48.100	2.79		
SWMF09 OUTLET	Pond Outlet	Downstream	12.486	43.200	4.59	SWMF-08	

Messages

Message Id	39
Scenario	100Yr 24Hr
Element Type	Composite Outlet Structure
Element Id	195
Label	PROP SWMF-02
Time	(N/A)
Message	Reverse flow conditions encountered for one or more headwater elevations. Calculated reverse flows may be approximate.
Source	Warning

Message Id	39
Scenario	100Yr 24Hr
Element Type	Composite Outlet Structure
Element Id	197
Label	PROP SWMF-03
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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Time-Depth Curve: 100Yt-24Hr	
Label	100Yt-24Hr
Start Time	0.000 hours
Increment	1.200 hours
End Time	24.000 hours
Return Event	100 years

CUMULATIVE RAINFALL (in)
Output Time Increment = 1.200 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	0.3	0.5	0.8	1.0
6.000	1.3	1.6	2.0	2.3	2.7
12.000	3.3	3.9	4.9	6.0	6.8
18.000	7.3	7.6	7.9	8.1	8.3
24.000	8.6	(N/A)	(N/A)	(N/A)	(N/A)

Storm Event	100Yt-24Hr
Return Event	100 years
Duration	36.000 hours
Depth	8.6 in
Time of Concentration (Composite)	0.260 hours
Area (User Defined)	22.410 acres

Computational Time Increment	0.035 hours
Time to Peak (Computed)	15.600 hours
Flow (Peak, Computed)	20.13 ft³/s
Output Increment	0.050 hours
Time to Flow (Peak Interpolated Output)	15.600 hours
Flow (Peak Interpolated Output)	20.13 ft³/s

Drainage Area

SCS CN (Composite)	87.000
Area (User Defined)	22.410 acres
Maximum Retention (Pervious)	1.5 in
Maximum Retention (Pervious, 20 percent)	0.3 in

Cumulative Runoff

Cumulative Runoff Depth (Pervious)	7.0 in
Runoff Volume (Pervious)	13.083 ac-ft

Hydrograph Volume (Area under Hydrograph curve)

Volume	13.083 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	97.66 ft³/s
Unit peak time, Tp	0.173 hours

Subsection: Unit Hydrograph Summary
Label: 001

Return Event: 100 years
Storm Event: 100Yt-24Hr

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

Storm Event	100Yt-24Hr
Return Event	100 years
Duration	36.000 hours
Depth	8.6 in
Time of Concentration (Composite)	0.500 hours
Area (User Defined)	5.840 acres

Computational Time Increment	0.067 hours
Time to Peak (Computed)	15.600 hours
Flow (Peak, Computed)	4.85 ft³/s
Output Increment	0.050 hours
Time to Flow (Peak Interpolated Output)	15.600 hours
Flow (Peak Interpolated Output)	4.85 ft³/s

Drainage Area

SCS CN (Composite)	79.000
Area (User Defined)	5.840 acres
Maximum Retention (Pervious)	2.7 in
Maximum Retention (Pervious, 20 percent)	0.5 in

Cumulative Runoff

Cumulative Runoff Depth (Pervious)	6.0 in
Runoff Volume (Pervious)	2.940 ac-ft

Hydrograph Volume (Area under Hydrograph curve)

Volume	2.940 ac-ft

SCS Unit Hydrograph Parameters

Time of Concentration (Composite)	0.500 hours
Computational Time Increment	0.067 hours
Unit Hydrograph Shape Factor	483.432
K Factor	0.749
Receding/Rising, Tr/Tp	1.670
Unit peak, qp	13.23 ft³/s
Unit peak time, Tp	0.333 hours

SCS Unit Hydrograph Parameters	
Unit receding limb, Tr	1.333 hours
Total unit time, Tb	1.667 hours

Storm Event	100Yt-24Hr
Return Event	100 years
Duration	36.000 hours
Depth	8.6 in
Time of Concentration (Composite)	0.300 hours
Area (User Defined)	20.030 acres

Computational Time Increment	0.040 hours
Time to Peak (Computed)	15.600 hours
Flow (Peak, Computed)	17.71 ft³/s
Output Increment	0.050 hours
Time to Flow (Peak Interpolated Output)	15.600 hours
Flow (Peak Interpolated Output)	17.71 ft³/s

Drainage Area

SCS CN (Composite)	85.000
Area (User Defined)	20.030 acres
Maximum Retention (Pervious)	1.8 in
Maximum Retention (Pervious, 20 percent)	0.4 in

Cumulative Runoff

Cumulative Runoff Depth (Pervious)	6.8 in
Runoff Volume (Pervious)	11.291 ac-ft

Hydrograph Volume (Area under Hydrograph curve)

Volume	11.291 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	75.65 ft³/s
Unit peak time, Tp	0.200 hours

Subsection: Unit Hydrograph Summary
Label: 002

Return Event: 100 years
Storm Event: 100Yt-24Hr

SCS Unit Hydrograph Parameters	
Unit receding limb, Tr	0.800 hours
Total unit time, Tb	1.000 hours

Storm Event	100Yt-24Hr
Return Event	100 years
Duration	36.000 hours
Depth	8.6 in
Time of Concentration (Composite)	0.260 hours
Area (User Defined)	12.610 acres

Computational Time Increment	0.035 hours
Time to Peak (Computed)	15.600 hours
Flow (Peak, Computed)	10.97 ft³/s
Output Increment	0.050 hours
Time to Flow (Peak Interpolated Output)	15.600 hours
Flow (Peak Interpolated Output)	10.97 ft³/s

Drainage Area

SCS CN (Composite)	83.000
Area (User Defined)	12.610 acres
Maximum Retention (Pervious)	2.0 in
Maximum Retention (Pervious, 20 percent)	0.4 in

Cumulative Runoff

Cumulative Runoff Depth (Pervious)	6.5 in
Runoff Volume (Pervious)	6.855 ac-ft

Hydrograph Volume (Area under Hydrograph curve)

Volume	6.855 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	54.95 ft³/s
Unit peak time, Tp	0.173 hours

Subsection: Unit Hydrograph Summary
Label: 003

Return Event: 100 years
Storm Event: 100Yt-24Hr

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

Storm Event	100Yt-24Hr
Return Event	100 years
Duration	36.000 hours
Depth	8.6 in
Time of Concentration (Composite)	0.310 hours
Area (User Defined)	9.610 acres

Computational Time Increment	0.041 hours
Time to Peak (Computed)	15.583 hours
Flow (Peak, Computed)	8.27 ft³/s
Output Increment	0.050 hours
Time to Flow (Peak Interpolated Output)	15.600 hours
Flow (Peak Interpolated Output)	8.26 ft³/s

Drainage Area

SCS CN (Composite)	82.000
Area (User Defined)	9.610 acres
Maximum Retention (Pervious)	2.2 in
Maximum Retention (Pervious, 20 percent)	0.4 in

Cumulative Runoff

Cumulative Runoff Depth (Pervious)	6.4 in
Runoff Volume (Pervious)	5.127 ac-ft

Hydrograph Volume (Area under Hydrograph curve)

Volume	5.127 ac-ft

SCS Unit Hydrograph Parameters

Time of Concentration (Composite)	0.310 hours
Computational Time Increment	0.041 hours
Unit Hydrograph Shape Factor	483.432
K Factor	0.749
Receding/Rising, Tr/Tp	1.670
Unit peak, qp	35.12 ft³/s
Unit peak time, Tp	0.207 hours

SCS Unit Hydrograph Parameters	
Unit receding limb, Tr	0.827 hours
Total unit time, Tb	1.033 hours

Storm Event	100Yt-24Hr
Return Event	100 years
Duration	36.000 hours
Depth	8.6 in
Time of Concentration (Composite)	0.380 hours
Area (User Defined)	18.280 acres

Computational Time Increment	0.051 hours
Time to Peak (Computed)	15.605 hours
Flow (Peak, Computed)	16.14 ft³/s
Output Increment	0.050 hours
Time to Flow (Peak Interpolated Output)	15.600 hours
Flow (Peak Interpolated Output)	16.14 ft³/s

Drainage Area

SCS CN (Composite)	85.000
Area (User Defined)	18.280 acres
Maximum Retention (Pervious)	1.8 in
Maximum Retention (Pervious, 20 percent)	0.4 in

Cumulative Runoff

Cumulative Runoff Depth (Pervious)	6.8 in
Runoff Volume (Pervious)	10.304 ac-ft

Hydrograph Volume (Area under Hydrograph curve)

Volume	10.304 ac-ft

SCS Unit Hydrograph Parameters

Time of Concentration (Composite)	0.380 hours
Computational Time Increment	0.051 hours
Unit Hydrograph Shape Factor	483.432
K Factor	0.749
Receding/Rising, Tr/Tp	1.670
Unit peak, qp	54.51 ft³/s
Unit peak time, Tp	0.253 hours

SCS Unit Hydrograph Parameters	
Unit receding limb, Tr	1.013 hours
Total unit time, Tb	1.267 hours

Storm Event	100Yt-24Hr
Return Event	100 years
Duration	36.000 hours
Depth	8.6 in
Time of Concentration (Composite)	0.360 hours
Area (User Defined)	11.270 acres

Computational Time Increment	0.048 hours
Time to Peak (Computed)	15.600 hours
Flow (Peak, Computed)	9.87 ft³/s
Output Increment	0.050 hours
Time to Flow (Peak Interpolated Output)	15.600 hours
Flow (Peak Interpolated Output)	9.87 ft³/s

Drainage Area

SCS CN (Composite)	84.000
Area (User Defined)	11.270 acres
Maximum Retention (Pervious)	1.9 in
Maximum Retention (Pervious, 20 percent)	0.4 in

Cumulative Runoff

Cumulative Runoff Depth (Pervious)	6.6 in
Runoff Volume (Pervious)	6.240 ac-ft

Hydrograph Volume (Area under Hydrograph curve)

Volume	6.240 ac-ft

SCS Unit Hydrograph Parameters

Time of Concentration (Composite)	0.360 hours
Computational Time Increment	0.048 hours
Unit Hydrograph Shape Factor	483.432
K Factor	0.749
Receding/Rising, Tr/Tp	1.670
Unit peak, qp	35.47 ft³/s
Unit peak time, Tp	0.240 hours

SCS Unit Hydrograph Parameters	
Unit receding limb, Tr	0.960 hours
Total unit time, Tb	1.200 hours

Storm Event	100Yt-24Hr
Return Event	100 years
Duration	36.000 hours
Depth	8.6 in
Time of Concentration (Composite)	0.210 hours
Area (User Defined)	2.770 acres

Computational Time Increment	0.028 hours
Time to Peak (Computed)	15.596 hours
Flow (Peak, Computed)	2.43 ft³/s
Output Increment	0.050 hours
Time to Flow (Peak Interpolated Output)	15.600 hours
Flow (Peak Interpolated Output)	2.43 ft³/s

Drainage Area

SCS CN (Composite)	84.000
Area (User Defined)	2.770 acres
Maximum Retention (Pervious)	1.9 in
Maximum Retention (Pervious, 20 percent)	0.4 in

Cumulative Runoff

Cumulative Runoff Depth (Pervious)	6.6 in
Runoff Volume (Pervious)	1.534 ac-ft

Hydrograph Volume (Area under Hydrograph curve)

Volume	1.534 ac-ft

SCS Unit Hydrograph Parameters

Time of Concentration (Composite)	0.210 hours
Computational Time Increment	0.028 hours
Unit Hydrograph Shape Factor	483.432
K Factor	0.749
Receding/Rising, Tr/Tp	1.670
Unit peak, qp	14.95 ft³/s
Unit peak time, Tp	0.140 hours

SCS Unit Hydrograph Parameters	
Unit receding limb, Tr	0.560 hours
Total unit time, Tb	0.700 hours

Storm Event	100Yt-24Hr
Return Event	100 years
Duration	36.000 hours
Depth	8.6 in
Time of Concentration (Composite)	0.290 hours
Area (User Defined)	4.360 acres

Computational Time Increment	0.039 hours
Time to Peak (Computed)	15.583 hours
Flow (Peak, Computed)	3.82 ft³/s
Output Increment	0.050 hours
Time to Flow (Peak Interpolated Output)	15.550 hours
Flow (Peak Interpolated Output)	3.82 ft³/s

Drainage Area

SCS CN (Composite)	84.000
Area (User Defined)	4.360 acres
Maximum Retention (Pervious)	1.9 in
Maximum Retention (Pervious, 20 percent)	0.4 in

Cumulative Runoff

Cumulative Runoff Depth (Pervious)	6.6 in
Runoff Volume (Pervious)	2.414 ac-ft

Hydrograph Volume (Area under Hydrograph curve)

Volume	2.414 ac-ft

SCS Unit Hydrograph Parameters

Time of Concentration (Composite)	0.290 hours
Computational Time Increment	0.039 hours
Unit Hydrograph Shape Factor	483.432
K Factor	0.749
Receding/Rising, Tr/Tp	1.670
Unit peak, qp	17.03 ft³/s
Unit peak time, Tp	0.193 hours

SCS Unit Hydrograph Parameters	
Unit receding limb, Tr	0.773 hours
Total unit time, Tb	0.967 hours

Storm Event	100Yt-24Hr
Return Event	100 years
Duration	36.000 hours
Depth	8.6 in
Time of Concentration (Composite)	0.250 hours
Area (User Defined)	22.780 acres

Computational Time Increment	0.033 hours
Time to Peak (Computed)	15.600 hours
Flow (Peak, Computed)	19.82 ft³/s
Output Increment	0.050 hours
Time to Flow (Peak Interpolated Output)	15.600 hours
Flow (Peak Interpolated Output)	19.82 ft³/s

Drainage Area

SCS CN (Composite)	83.000
Area (User Defined)	22.780 acres
Maximum Retention (Pervious)	2.0 in
Maximum Retention (Pervious, 20 percent)	0.4 in

Cumulative Runoff

Cumulative Runoff Depth (Pervious)	6.5 in
Runoff Volume (Pervious)	12.383 ac-ft

Hydrograph Volume (Area under Hydrograph curve)

Volume	12.383 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	103.24 ft³/s
Unit peak time, Tp	0.167 hours

SCS Unit Hydrograph Parameters	
Unit receding limb, Tr	0.667 hours
Total unit time, Tb	0.833 hours

Storm Event	100Yt-24Hr
Return Event	100 years
Duration	36.000 hours
Depth	8.6 in
Time of Concentration (Composite)	0.250 hours
Area (User Defined)	0.880 acres

Computational Time Increment	0.033 hours
Time to Peak (Computed)	15.600 hours
Flow (Peak, Computed)	0.71 ft³/s
Output Increment	0.050 hours
Time to Flow (Peak Interpolated Output)	15.600 hours
Flow (Peak Interpolated Output)	0.71 ft³/s

Drainage Area

SCS CN (Composite)	76.500
Area (User Defined)	0.880 acres
Maximum Retention (Pervious)	3.1 in
Maximum Retention (Pervious, 20 percent)	0.6 in

Cumulative Runoff

Cumulative Runoff Depth (Pervious)	5.7 in
Runoff Volume (Pervious)	0.421 ac-ft

Hydrograph Volume (Area under Hydrograph curve)

Volume	0.421 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	3.99 ft³/s
Unit peak time, Tp	0.167 hours

Subsection: Unit Hydrograph Summary

Return Event: 100 years

Label: 010

Storm Event: 100Yt-24Hr

SCS Unit Hydrograph Parameters	
Unit receding limb, Tr	0.667 hours
Total unit time, Tb	0.833 hours

Elevation-Volume

Pond Elevation (ft)	Pond Volume (ac-ft)
877.00	0.000
878.00	4.399
879.00	10.056
880.00	16.547
881.00	23.432
882.00	30.617
883.00	38.107
884.00	45.905

Elevation-Volume

Pond Elevation (ft)	Pond Volume (ac-ft)
880.00	0.000
881.00	4.104
882.00	10.081
883.00	17.242
884.00	24.877
885.00	32.932
885.50	37.119
886.00	41.412
886.50	45.813

Elevation-Volume

Pond Elevation (ft)	Pond Volume (ac-ft)
881.00	0.000
882.00	0.583
883.00	1.342
884.00	2.265
885.00	3.347
886.00	4.595
886.50	5.284
887.00	6.019
887.50	6.800

Elevation-Volume

Pond Elevation (ft)	Pond Volume (ac-ft)
882.00	0.000
883.00	0.440
884.00	1.048
885.00	1.779
886.00	2.591
886.50	3.030
887.00	3.493
887.50	3.981

Elevation-Volume

Pond Elevation (ft)	Pond Volume (ac-ft)
886.00	0.000
887.00	2.026
888.00	4.436
889.00	7.122
890.00	10.017
891.00	13.118
892.00	16.689

Elevation-Volume

Pond Elevation (ft)	Pond Volume (ac-ft)
886.00	0.000
887.00	1.524
888.00	3.324
889.00	5.356
890.00	7.554
891.00	9.947
892.00	12.807

Elevation-Volume

Pond Elevation (ft)	Pond Volume (ac-ft)
878.90	0.000
879.00	0.030
880.00	0.367
881.00	0.758
882.00	1.205
882.70	1.554
883.00	1.713
883.50	1.989
884.50	2.595

Elevation-Volume

Pond Elevation (ft)	Pond Volume (ac-ft)
879.50	0.000
880.00	0.271
881.00	0.890
882.00	1.609
883.00	2.423
884.00	3.332
884.50	3.822
885.00	4.423
885.50	5.134

Elevation-Volume

Pond Elevation (ft)	Pond Volume (ac-ft)
883.00	0.000
884.00	1.418
885.00	2.963
886.00	4.739
887.00	6.763
888.00	8.948
889.00	11.291
890.00	13.794

Requested Pond Water Surface Elevations	
Minimum (Headwater)	877.00 ft
Increment (Headwater)	0.10 ft
Maximum (Headwater)	884.00 ft

Outlet Connectivity

Structure Type	Outlet ID	Direction	Outfall	E1 (ft)	E2 (ft)
Orifice-Circular	Restrictor	Forward	TW	877.00	884.00
Tailwater Settings	Tailwater			(N/A)	(N/A)

Structure ID: Restrictor Structure Type: Orifice-Circular	
Number of Openings	1
Elevation	877.00 ft
Orifice Diameter	16.3 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 ft³/s
Flow Tolerance (Maximum)	10.000 ft³/s

Requested Pond Water Surface Elevations	
Minimum (Headwater)	880.00 ft
Increment (Headwater)	0.10 ft
Maximum (Headwater)	886.50 ft

Outlet Connectivity

Structure Type	Outlet ID	Direction	Outfall	E1 (ft)	E2 (ft)
Orifice-Circular	Restrictor	Forward + Reverse	TW	880.01	886.50
Tailwater Settings	Tailwater			(N/A)	(N/A)

Structure ID: Restrictor
Structure Type: Orifice-Circular

Number of Openings	1
Elevation	879.90 ft
Orifice Diameter	9.5 in
Orifice Coefficient	0.600

Requested Pond Water Surface Elevations	
Minimum (Headwater)	881.00 ft
Increment (Headwater)	0.10 ft
Maximum (Headwater)	887.50 ft

Outlet Connectivity

Structure Type	Outlet ID	Direction	Outfall	E1 (ft)	E2 (ft)
Orifice-Circular	Restrictor	Forward + Reverse	TW	882.01	887.50
Tailwater Settings	Tailwater			(N/A)	(N/A)

Structure ID: Restrictor
Structure Type: Orifice-Circular

Number of Openings	1
Elevation	880.85 ft
Orifice Diameter	8.5 in
Orifice Coefficient	0.600

Requested Pond Water Surface Elevations	
Minimum (Headwater)	882.00 ft
Increment (Headwater)	0.10 ft
Maximum (Headwater)	887.50 ft

Outlet Connectivity

Structure Type	Outlet ID	Direction	Outfall	E1 (ft)	E2 (ft)
Orifice-Circular	Restrictor	Forward + Reverse	TW	882.01	887.50
Tailwater Settings	Tailwater			(N/A)	(N/A)

Structure ID: Restrictor
Structure Type: Orifice-Circular

Number of Openings	1
Elevation	881.90 ft
Orifice Diameter	9.5 in
Orifice Coefficient	0.600

Requested Pond Water Surface Elevations	
Minimum (Headwater)	886.00 ft
Increment (Headwater)	0.10 ft
Maximum (Headwater)	892.00 ft

Outlet Connectivity

Structure Type	Outlet ID	Direction	Outfall	E1 (ft)	E2 (ft)
Orifice-Circular	Restrictor	Forward + Reverse	TW	886.01	892.00
Tailwater Settings	Tailwater			(N/A)	(N/A)

Structure ID: Restrictor
Structure Type: Orifice-Circular

Number of Openings	1
Elevation	884.50 ft
Orifice Diameter	7.0 in
Orifice Coefficient	0.600

Requested Pond Water Surface Elevations	
Minimum (Headwater)	886.00 ft
Increment (Headwater)	0.10 ft
Maximum (Headwater)	892.00 ft

Outlet Connectivity

Structure Type	Outlet ID	Direction	Outfall	E1 (ft)	E2 (ft)
Culvert-Circular	Equalizer Pipe	Forward + Reverse	TW	886.00	892.00
Tailwater Settings	Tailwater			(N/A)	(N/A)

Structure ID: Equalizer Pipe
Structure Type: Culvert-Circular

Number of Barrels	1
Diameter	30.0 in
Length	376.00 ft
Length (Computed Barrel)	376.00 ft
Slope (Computed)	0.000 ft/ft

Outlet Control Data

Manning's n	0.013
Ke	0.200
Kb	0.009
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	888.74 ft	T1 Flow	27.16 ft³/s
T2 Elevation	888.99 ft	T2 Flow	31.05 ft³/s

Subsection: Outlet Input Data
Label: PROP SWMF-07

Return Event: 100 years
Storm Event: 100Yt-24Hr

Requested Pond Water Surface Elevations	
Minimum (Headwater)	878.90 ft
Increment (Headwater)	0.10 ft
Maximum (Headwater)	884.50 ft

Outlet Connectivity

Structure Type	Outlet ID	Direction	Outfall	E1 (ft)	E2 (ft)
Orifice-Circular	Restrictor	Forward	TW	878.91	884.50
Tailwater Settings	Tailwater			(N/A)	(N/A)

Structure ID: Restrictor
Structure Type: Orifice-Circular

Number of Openings	1
Elevation	878.80 ft
Orifice Diameter	7.9 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 ft³/s
Flow Tolerance (Maximum)	10.000 ft³/s

Requested Pond Water Surface Elevations	
Minimum (Headwater)	879.50 ft
Increment (Headwater)	0.10 ft
Maximum (Headwater)	885.50 ft

Outlet Connectivity

Structure Type	Outlet ID	Direction	Outfall	E1 (ft)	E2 (ft)
Orifice-Circular	Restrictor	Forward + Reverse	TW	879.50	885.50
Tailwater Settings	Tailwater			(N/A)	(N/A)

Structure ID: Restrictor
Structure Type: Orifice-Circular

Number of Openings	1
Elevation	879.50 ft
Orifice Diameter	11.0 in
Orifice Coefficient	0.600

Requested Pond Water Surface Elevations	
Minimum (Headwater)	883.00 ft
Increment (Headwater)	0.10 ft
Maximum (Headwater)	890.00 ft

Outlet Connectivity

Structure Type	Outlet ID	Direction	Outfall	E1 (ft)	E2 (ft)
Orifice-Circular	Orifice - 1	Forward + Reverse	TW	883.01	890.00
Tailwater Settings	Tailwater			(N/A)	(N/A)

Structure ID: Orifice - 1
Structure Type: Orifice-Circular

Number of Openings	1
Elevation	882.62 ft
Orifice Diameter	7.0 in
Orifice Coefficient	0.600

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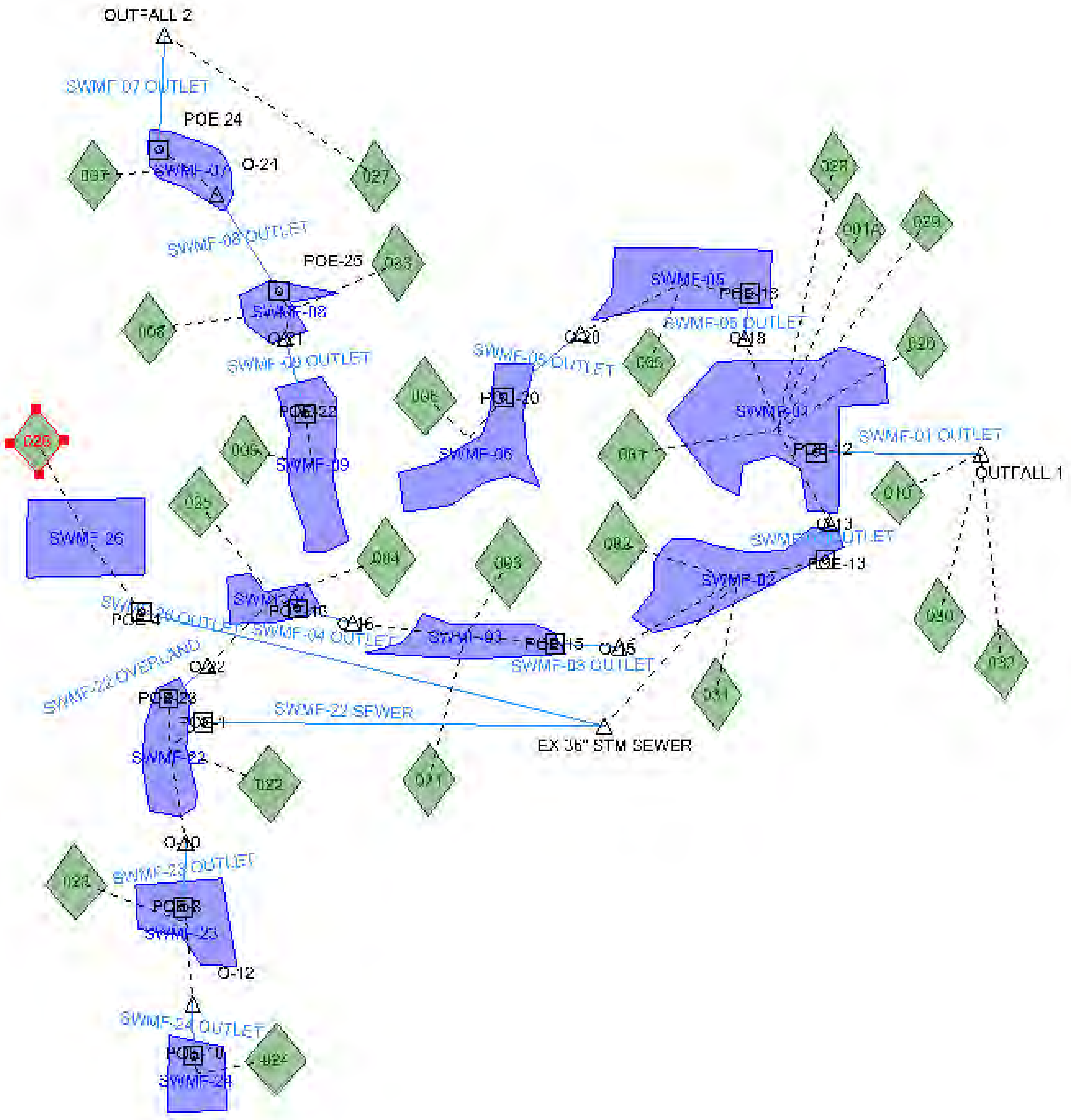
“PROP” PONDPACK MODEL

& RESULTS

Proposed Pondpack Model Map: Trails of Woods Creek



Scenario Calculation Summary

Scenario Summary

ID	1
Label	100Yr 24Hr
Notes	
Active Topology	Base Active Topology
Hydrology	Base Hydrology
Rainfall Runoff	100YEAR24HOUR
Physical	100 -YEAR TAILWATER
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	120.000 hours

Rainfall Summary

Return Event Tag	100	Rainfall Type	Time-Depth Curve
Total Depth	8.6 in	Storm Event	100Yt-24Hr

ICPM Output Summary

Target Convergence	0.00 ft³/s	ICPM Time Step	0.050 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)
001	100Yr 24Hr	100	None	13.083	15.600	20.13	(N/A)	(N/A)
001A	100Yr 24Hr	100	None	2.940	15.600	4.84	(N/A)	(N/A)
002	100Yr 24Hr	100	None	11.291	15.600	17.71	(N/A)	(N/A)
003	100Yr 24Hr	100	None	6.855	15.600	10.97	(N/A)	(N/A)
004	100Yr 24Hr	100	None	5.127	15.600	8.26	(N/A)	(N/A)
005	100Yr 24Hr	100	None	10.304	15.600	16.14	(N/A)	(N/A)
006	100Yr 24Hr	100	None	6.240	15.600	9.87	(N/A)	(N/A)
007	100Yr 24Hr	100	None	5.157	15.550	7.76	(N/A)	(N/A)
008	100Yr 24Hr	100	None	2.414	15.550	3.82	(N/A)	(N/A)
009	100Yr 24Hr	100	None	12.383	15.600	19.82	(N/A)	(N/A)
010	100Yr 24Hr	100	None	0.483	15.600	0.82	(N/A)	(N/A)
020	100Yr 24Hr	100	None	0.091	15.600	0.16	(N/A)	(N/A)
021	100Yr 24Hr	100	None	1.802	15.600	2.96	(N/A)	(N/A)
022	100Yr 24Hr	100	None	38.662	15.600	63.08	(N/A)	(N/A)
023	100Yr 24Hr	100	None	34.353	15.600	57.31	(N/A)	(N/A)
024	100Yr 24Hr	100	None	13.197	15.600	21.97	(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)
025	100Yr 24Hr	100	None	1.792	15.600	2.94	(N/A)	(N/A)
026	100Yr 24Hr	100	None	16.966	15.600	27.54	(N/A)	(N/A)
027	100Yr 24Hr	100	None	1.717	15.600	2.84	(N/A)	(N/A)
028	100Yr 24Hr	100	None	1.837	15.600	2.99	(N/A)	(N/A)
029	100Yr 24Hr	100	None	1.454	15.600	2.24	(N/A)	(N/A)
030	100Yr 24Hr	100	None	1.329	15.600	2.21	(N/A)	(N/A)
031	100Yr 24Hr	100	None	4.278	15.600	7.28	(N/A)	(N/A)
032	100Yr 24Hr	100	None	0.276	15.600	0.48	(N/A)	(N/A)
033	100Yr 24Hr	100	None	1.737	15.600	3.02	(N/A)	(N/A)
OUTFALL 1	100Yr 24Hr	100	None	141.137	24.000	30.58	(N/A)	(N/A)
OUTFALL 2	100Yr 24Hr	100	None	22.689	15.650	8.78	(N/A)	(N/A)
SWMF-01 (IN)	100Yr 24Hr	100	None	150.007	15.600	55.07	(N/A)	(N/A)
SWMF-01 (OUT)	100Yr 24Hr	100	None	139.049	32.800	30.46	881.67	28.217
SWMF-02 (IN)	100Yr 24Hr	100	None	128.620	15.600	71.85	(N/A)	(N/A)
SWMF-02 (OUT)	100Yr 24Hr	100	None	126.457	26.600	31.06	885.27	35.185
SWMF-03 (IN)	100Yr 24Hr	100	None	15.574	15.600	17.35	(N/A)	(N/A)
SWMF-03 (OUT)	100Yr 24Hr	100	None	15.555	15.850	7.57	885.88	4.442
SWMF-04 (IN)	100Yr 24Hr	100	None	6.919	15.600	11.21	(N/A)	(N/A)
SWMF-04 (OUT)	100Yr 24Hr	100	None	6.917	16.950	3.63	886.33	2.880
SWMF-05 (IN)	100Yr 24Hr	100	None	11.215	15.450	15.05	(N/A)	(N/A)
SWMF-05 (OUT)	100Yr 24Hr	100	None	4.145	24.450	0.47	889.69	9.107
SWMF-06 (IN)	100Yr 24Hr	100	None	6.240	15.600	9.87	(N/A)	(N/A)
SWMF-06 (OUT)	100Yr 24Hr	100	None	1.530	36.300	0.20	889.68	6.859
SWMF-06 (Reverse)	100Yr 24Hr	100	None	-0.619	15.950	-1.22	(N/A)	(N/A)
SWMF-07 (IN)	100Yr 24Hr	100	None	21.086	15.600	9.15	(N/A)	(N/A)
SWMF-07 (OUT)	100Yr 24Hr	100	None	20.973	17.000	6.20	882.37	1.389
SWMF-08 (IN)	100Yr 24Hr	100	None	16.155	15.600	8.43	(N/A)	(N/A)
SWMF-08 (OUT)	100Yr 24Hr	100	None	15.929	28.150	2.88	884.40	3.719

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-09 (IN)	100Yr 24Hr	100	None	12.383	15.600	19.82	(N/A)	(N/A)
SWMF-09 (OUT)	100Yr 24Hr	100	None	12.003	39.800	1.73	888.60	10.353
SWMF-22 (IN)	100Yr 24Hr	100	None	80.678	15.600	45.07	(N/A)	(N/A)
SWMF-22 (OUT)	100Yr 24Hr	100	None	80.530	15.700	35.48	888.44	6.325
SWMF-23 (IN)	100Yr 24Hr	100	None	46.958	15.600	60.01	(N/A)	(N/A)
SWMF-23 (OUT)	100Yr 24Hr	100	None	48.078	26.500	20.58	888.66	36.604
SWMF-23 (Reverse)	100Yr 24Hr	100	None	-6.063	15.750	-18.14	(N/A)	(N/A)
SWMF-24 (IN)	100Yr 24Hr	100	None	13.197	15.600	21.97	(N/A)	(N/A)
SWMF-24 (OUT)	100Yr 24Hr	100	None	12.604	24.150	4.05	888.91	9.355
SWMF-26 (IN)	100Yr 24Hr	100	None	16.966	15.600	27.54	(N/A)	(N/A)
SWMF-26 (OUT)	100Yr 24Hr	100	None	16.966	24.250	4.45	894.84	11.366

Executive Summary (Links)

Label	Type	Location	Hydrograph Volume (ac-ft)	Peak Time (hours)	Peak Flow (ft³/s)	End Point	Node Flow Direction
SWMF-01 OUTLET	Pond Outlet	Upstream	150.007	15.600	55.07	SWMF-01	Pond Inflow
SWMF-01 OUTLET	Pond Outlet	Outflow	139.049	32.800	30.46	SWMF-01	Pond Outflow
SWMF-01 OUTLET	Pond Outlet	Link	139.049	32.800	30.46		
SWMF-01 OUTLET	Pond Outlet	Downstream	141.137	24.000	30.58	OUTFALL 1	
SWMF-02 OUTLET	Pond Outlet	Upstream	128.620	15.600	71.85	SWMF-02	Pond Inflow
SWMF-02 OUTLET	Pond Outlet	Outflow	126.457	26.600	31.06	SWMF-02	Pond Outflow
SWMF-02 OUTLET	Pond Outlet	Link	126.457	26.600	31.06		
SWMF-02 OUTLET	Pond Outlet	Downstream	150.007	15.600	55.07	SWMF-01	
SWMF-03 OUTLET	Pond Outlet	Upstream	15.574	15.600	17.35	SWMF-03	Pond Inflow

Scenario Calculation Summary

Executive Summary (Links)

Label	Type	Location	Hydrograph Volume (ac-ft)	Peak Time (hours)	Peak Flow (ft³/s)	End Point	Node Flow Direction
SWMF-03 OUTLET	Pond Outlet	Outflow	15.555	15.850	7.57	SWMF-03	Pond Outflow
SWMF-03 OUTLET	Pond Outlet	Link	15.555	15.850	7.57		
SWMF-03 OUTLET	Pond Outlet	Downstream	128.620	15.600	71.85	SWMF-02	
SWMF-04 OUTLET	Pond Outlet	Upstream	6.919	15.600	11.21	SWMF-04	Pond Inflow
SWMF-04 OUTLET	Pond Outlet	Outflow	6.917	16.950	3.63	SWMF-04	Pond Outflow
SWMF-04 OUTLET	Pond Outlet	Link	6.917	16.950	3.63		
SWMF-04 OUTLET	Pond Outlet	Downstream	15.574	15.600	17.35	SWMF-03	
SWMF-05 OUTLET	Pond Outlet	Upstream	11.215	15.450	15.05	SWMF-05	Pond Inflow
SWMF-05 OUTLET	Pond Outlet	Outflow	4.145	24.450	0.47	SWMF-05	Pond Outflow
SWMF-05 OUTLET	Pond Outlet	Link	4.145	24.450	0.47		
SWMF-05 OUTLET	Pond Outlet	Downstream	150.007	15.600	55.07	SWMF-01	
SWMF-06 OUTLET	Pond Outlet	Upstream	6.240	15.600	9.87	SWMF-06	Pond Inflow
SWMF-06 OUTLET	Pond Outlet	Outflow	1.530	36.300	0.20	SWMF-06	Pond Outflow
SWMF-06 OUTLET	Negative Flow	Outflow	-0.619	15.950	-1.22	SWMF-06	Pond Outflow
SWMF-06 OUTLET	Pond Outlet	Link	1.529	36.300	0.20		
SWMF-06 OUTLET	Negative Flow	Link	-0.619	15.950	-1.22		
SWMF-06 OUTLET	Pond Outlet	Downstream	11.215	15.450	15.05	SWMF-05	
SWMF-07 OUTLET	Pond Outlet	Upstream	21.086	15.600	9.15	SWMF-07	Pond Inflow
SWMF-07 OUTLET	Pond Outlet	Outflow	20.973	17.000	6.20	SWMF-07	Pond Outflow
SWMF-07 OUTLET	Pond Outlet	Link	20.973	17.000	6.20		
SWMF-07 OUTLET	Pond Outlet	Downstream	22.689	15.650	8.78	OUTFALL 2	
SWMF-08 OUTLET	Pond Outlet	Upstream	16.155	15.600	8.43	SWMF-08	Pond Inflow
SWMF-08 OUTLET	Pond Outlet	Outflow	15.929	28.150	2.88	SWMF-08	Pond Outflow
SWMF-08 OUTLET	Pond Outlet	Link	15.927	28.150	2.88		

Scenario Calculation Summary

Executive Summary (Links)

Label	Type	Location	Hydrograph Volume (ac-ft)	Peak Time (hours)	Peak Flow (ft³/s)	End Point	Node Flow Direction
SWMF-08 OUTLET	Pond Outlet	Downstream	21.086	15.600	9.15	SWMF-07	
SWMF-09 OUTLET	Pond Outlet	Upstream	12.383	15.600	19.82	SWMF-09	Pond Inflow
SWMF-09 OUTLET	Pond Outlet	Outflow	12.003	39.800	1.73	SWMF-09	Pond Outflow
SWMF-09 OUTLET	Pond Outlet	Link	12.001	39.800	1.73		
SWMF-09 OUTLET	Pond Outlet	Downstream	16.155	15.600	8.43	SWMF-08	
SWMF-22 OVERLAND	Pond Outlet	Upstream	80.678	15.600	45.07	SWMF-22	Pond Inflow
SWMF-22 OVERLAND	Pond Outlet	Outflow	80.530	15.700	35.48	SWMF-22	Pond Outflow
SWMF-22 OVERLAND	Pond Outlet	Link	0.000	0.000	0.00		
SWMF-22 OVERLAND	Pond Outlet	Downstream	6.919	15.600	11.21	SWMF-04	
SWMF-22 SEWER	Pond Outlet	Upstream	80.678	15.600	45.07	SWMF-22	Pond Inflow
SWMF-22 SEWER	Pond Outlet	Outflow	80.530	15.700	35.48	SWMF-22	Pond Outflow
SWMF-22 SEWER	Pond Outlet	Link	80.530	15.700	35.48		
SWMF-22 SEWER	Pond Outlet	Downstream	128.620	15.600	71.85	SWMF-02	
SWMF-23 OUTLET	Pond Outlet	Upstream	46.958	15.600	60.01	SWMF-23	Pond Inflow
SWMF-23 OUTLET	Pond Outlet	Outflow	48.078	26.500	20.58	SWMF-23	Pond Outflow
SWMF-23 OUTLET	Negative Flow	Outflow	-6.063	15.750	-18.14	SWMF-23	Pond Outflow
SWMF-23 OUTLET	Pond Outlet	Link	48.075	26.500	20.58		
SWMF-23 OUTLET	Negative Flow	Link	-6.063	15.750	-18.14		
SWMF-23 OUTLET	Pond Outlet	Downstream	80.678	15.600	45.07	SWMF-22	
SWMF-24 OUTLET	Pond Outlet	Upstream	13.197	15.600	21.97	SWMF-24	Pond Inflow
SWMF-24 OUTLET	Pond Outlet	Outflow	12.604	24.150	4.05	SWMF-24	Pond Outflow
SWMF-24 OUTLET	Pond Outlet	Link	12.604	24.150	4.05		
SWMF-24 OUTLET	Pond Outlet	Downstream	46.958	15.600	60.01	SWMF-23	
SWMF-26 OUTLET	Pond Outlet	Upstream	16.966	15.600	27.54	SWMF-26	Pond Inflow

Scenario Calculation Summary

Executive Summary (Links)

Label	Type	Location	Hydrograph Volume (ac-ft)	Peak Time (hours)	Peak Flow (ft³/s)	End Point	Node Flow Direction
SWMF-26 OUTLET	Pond Outlet	Outflow	16.966	24.250	4.45	SWMF-26	Pond Outflow
SWMF-26 OUTLET	Pond Outlet	Link	16.966	24.250	4.45		
SWMF-26 OUTLET	Pond Outlet	Downstream	128.620	15.600	71.85	SWMF-02	

Messages

Message Id	6
Scenario	(N/A)
Element Type	(N/A)
Element Id	-2
Label	(N/A)
Time	(N/A)
Message	There are user notifications available. Double-click this message to load these messages.
Source	Project File

Scenario Calculation Summary

Scenario Summary

ID	238
Label	100Yr-48Hr
Notes	
Active Topology	<I> Base Active Topology
Hydrology	<I> Base Hydrology
Rainfall Runoff	100YEAR48HOUR
Physical	<I> 100 -YEAR TAILWATER
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	72Hr

Output Summary

Output Increment	0.050 hours	Duration	120.000 hours

Rainfall Summary

Return Event Tag	100	Rainfall Type	Time-Depth Curve
Total Depth	9.3 in	Storm Event	100Yr-48Hr

ICPM Output Summary

Target Convergence	0.00 ft³/s	ICPM Time Step	0.050 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)
001	100Yr-48Hr	100	None	14.380	40.800	10.88	(N/A)	(N/A)
001A	100Yr-48Hr	100	None	3.265	40.800	2.66	(N/A)	(N/A)
002	100Yr-48Hr	100	None	12.441	40.800	9.60	(N/A)	(N/A)
003	100Yr-48Hr	100	None	7.573	40.800	5.96	(N/A)	(N/A)
004	100Yr-48Hr	100	None	5.672	40.800	4.51	(N/A)	(N/A)
005	100Yr-48Hr	100	None	11.354	40.800	8.76	(N/A)	(N/A)
006	100Yr-48Hr	100	None	6.884	40.800	5.36	(N/A)	(N/A)
007	100Yr-48Hr	100	None	5.655	40.750	4.19	(N/A)	(N/A)
008	100Yr-48Hr	100	None	2.663	40.800	2.08	(N/A)	(N/A)
009	100Yr-48Hr	100	None	13.680	40.800	10.77	(N/A)	(N/A)
010	100Yr-48Hr	100	None	0.538	40.800	0.45	(N/A)	(N/A)
020	100Yr-48Hr	100	None	0.101	40.800	0.09	(N/A)	(N/A)
021	100Yr-48Hr	100	None	1.999	40.800	1.62	(N/A)	(N/A)
022	100Yr-48Hr	100	None	42.884	40.800	34.65	(N/A)	(N/A)
023	100Yr-48Hr	100	None	38.266	40.850	31.74	(N/A)	(N/A)
024	100Yr-48Hr	100	None	14.679	40.800	12.09	(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 (ft³/s)	Maximum Water Surface Elevation (ft)	Maximum Pond Storage (ac-ft)
025	100Yr-48Hr	100	None	1.988	40.800	1.61	(N/A)	(N/A)
026	100Yr-48Hr	100	None	18.793	40.800	15.06	(N/A)	(N/A)
027	100Yr-48Hr	100	None	1.907	40.800	1.56	(N/A)	(N/A)
028	100Yr-48Hr	100	None	2.035	40.800	1.63	(N/A)	(N/A)
029	100Yr-48Hr	100	None	1.598	40.800	1.21	(N/A)	(N/A)
030	100Yr-48Hr	100	None	1.476	40.800	1.21	(N/A)	(N/A)
031	100Yr-48Hr	100	None	4.773	40.800	4.01	(N/A)	(N/A)
032	100Yr-48Hr	100	None	0.309	40.800	0.26	(N/A)	(N/A)
033	100Yr-48Hr	100	None	1.947	40.800	1.68	(N/A)	(N/A)
OUTFALL 1	100Yr-48Hr	100	None	154.215	48.000	32.57	(N/A)	(N/A)
OUTFALL 2	100Yr-48Hr	100	None	23.453	43.200	6.78	(N/A)	(N/A)
SWMF-01 (IN)	100Yr-48Hr	100	None	163.030	43.200	43.53	(N/A)	(N/A)
SWMF-01 (OUT)	100Yr-48Hr	100	None	151.891	48.400	31.44	881.83	29.394
SWMF-02 (IN)	100Yr-48Hr	100	None	140.893	42.750	54.76	(N/A)	(N/A)
SWMF-02 (OUT)	100Yr-48Hr	100	None	137.862	52.600	30.42	885.30	35.468
SWMF-03 (IN)	100Yr-48Hr	100	None	17.222	40.800	10.18	(N/A)	(N/A)
SWMF-03 (OUT)	100Yr-48Hr	100	None	17.171	42.850	5.72	885.85	4.404
SWMF-04 (IN)	100Yr-48Hr	100	None	7.659	40.800	6.12	(N/A)	(N/A)
SWMF-04 (OUT)	100Yr-48Hr	100	None	7.650	43.450	2.76	886.10	2.682
SWMF-05 (IN)	100Yr-48Hr	100	None	12.024	40.850	8.22	(N/A)	(N/A)
SWMF-05 (OUT)	100Yr-48Hr	100	None	3.788	48.500	0.49	889.94	9.833
SWMF-06 (IN)	100Yr-48Hr	100	None	6.884	40.800	5.36	(N/A)	(N/A)
SWMF-06 (OUT)	100Yr-48Hr	100	None	1.190	53.500	0.21	889.93	7.404
SWMF-06 (Reverse)	100Yr-48Hr	100	None	-0.520	41.100	-0.55	(N/A)	(N/A)
SWMF-07 (IN)	100Yr-48Hr	100	None	21.721	40.800	6.05	(N/A)	(N/A)
SWMF-07 (OUT)	100Yr-48Hr	100	None	21.547	43.450	5.32	881.55	1.005
SWMF-08 (IN)	100Yr-48Hr	100	None	16.498	40.800	5.34	(N/A)	(N/A)
SWMF-08 (OUT)	100Yr-48Hr	100	None	16.066	52.800	2.83	884.25	3.580

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-09 (IN)	100Yr-48Hr	100	None	13.680	40.800	10.77	(N/A)	(N/A)
SWMF-09 (OUT)	100Yr-48Hr	100	None	11.888	62.950	1.74	888.57	10.290
SWMF-22 (IN)	100Yr-48Hr	100	None	88.058	43.000	37.82	(N/A)	(N/A)
SWMF-22 (OUT)	100Yr-48Hr	100	None	87.715	42.450	32.23	888.64	6.788
SWMF-23 (IN)	100Yr-48Hr	100	None	51.894	40.700	34.50	(N/A)	(N/A)
SWMF-23 (OUT)	100Yr-48Hr	100	None	45.818	50.800	21.19	888.78	38.139
SWMF-23 (Reverse)	100Yr-48Hr	100	None	-0.643	39.600	-2.81	(N/A)	(N/A)
SWMF-24 (IN)	100Yr-48Hr	100	None	14.679	40.800	12.09	(N/A)	(N/A)
SWMF-24 (OUT)	100Yr-48Hr	100	None	13.628	53.800	4.01	888.99	9.647
SWMF-26 (IN)	100Yr-48Hr	100	None	18.793	40.800	15.06	(N/A)	(N/A)
SWMF-26 (OUT)	100Yr-48Hr	100	None	18.793	48.350	4.33	894.46	10.260

Executive Summary (Links)

Label	Type	Location	Hydrograph Volume (ac-ft)	Peak Time (hours)	Peak Flow (ft³/s)	End Point	Node Flow Direction
SWMF-01 OUTLET	Pond Outlet	Upstream	163.030	43.200	43.53	SWMF-01	Pond Inflow
SWMF-01 OUTLET	Pond Outlet	Outflow	151.891	48.400	31.44	SWMF-01	Pond Outflow
SWMF-01 OUTLET	Pond Outlet	Link	151.891	48.400	31.44		
SWMF-01 OUTLET	Pond Outlet	Downstream	154.215	48.000	32.57	OUTFALL 1	
SWMF-02 OUTLET	Pond Outlet	Upstream	140.893	42.750	54.76	SWMF-02	Pond Inflow
SWMF-02 OUTLET	Pond Outlet	Outflow	137.862	52.600	30.42	SWMF-02	Pond Outflow
SWMF-02 OUTLET	Pond Outlet	Link	137.853	52.600	30.42		
SWMF-02 OUTLET	Pond Outlet	Downstream	163.030	43.200	43.53	SWMF-01	
SWMF-03 OUTLET	Pond Outlet	Upstream	17.222	40.800	10.18	SWMF-03	Pond Inflow

Scenario Calculation Summary

Executive Summary (Links)

Label	Type	Location	Hydrograph Volume (ac-ft)	Peak Time (hours)	Peak Flow (ft³/s)	End Point	Node Flow Direction
SWMF-03 OUTLET	Pond Outlet	Outflow	17.171	42.850	5.72	SWMF-03	Pond Outflow
SWMF-03 OUTLET	Pond Outlet	Link	17.170	42.850	5.72		
SWMF-03 OUTLET	Pond Outlet	Downstream	140.893	42.750	54.76	SWMF-02	
SWMF-04 OUTLET	Pond Outlet	Upstream	7.659	40.800	6.12	SWMF-04	Pond Inflow
SWMF-04 OUTLET	Pond Outlet	Outflow	7.650	43.450	2.76	SWMF-04	Pond Outflow
SWMF-04 OUTLET	Pond Outlet	Link	7.650	43.450	2.76		
SWMF-04 OUTLET	Pond Outlet	Downstream	17.222	40.800	10.18	SWMF-03	
SWMF-05 OUTLET	Pond Outlet	Upstream	12.024	40.850	8.22	SWMF-05	Pond Inflow
SWMF-05 OUTLET	Pond Outlet	Outflow	3.788	48.500	0.49	SWMF-05	Pond Outflow
SWMF-05 OUTLET	Pond Outlet	Link	3.786	48.500	0.49		
SWMF-05 OUTLET	Pond Outlet	Downstream	163.030	43.200	43.53	SWMF-01	
SWMF-06 OUTLET	Pond Outlet	Upstream	6.884	40.800	5.36	SWMF-06	Pond Inflow
SWMF-06 OUTLET	Pond Outlet	Outflow	1.190	53.500	0.21	SWMF-06	Pond Outflow
SWMF-06 OUTLET	Negative Flow	Outflow	-0.520	41.100	-0.55	SWMF-06	Pond Outflow
SWMF-06 OUTLET	Pond Outlet	Link	1.189	53.500	0.21		
SWMF-06 OUTLET	Negative Flow	Link	-0.520	41.100	-0.55		
SWMF-06 OUTLET	Pond Outlet	Downstream	12.024	40.850	8.22	SWMF-05	
SWMF-07 OUTLET	Pond Outlet	Upstream	21.721	40.800	6.05	SWMF-07	Pond Inflow
SWMF-07 OUTLET	Pond Outlet	Outflow	21.547	43.450	5.32	SWMF-07	Pond Outflow
SWMF-07 OUTLET	Pond Outlet	Link	21.547	43.450	5.32		
SWMF-07 OUTLET	Pond Outlet	Downstream	23.453	43.200	6.78	OUTFALL 2	
SWMF-08 OUTLET	Pond Outlet	Upstream	16.498	40.800	5.34	SWMF-08	Pond Inflow
SWMF-08 OUTLET	Pond Outlet	Outflow	16.066	52.800	2.83	SWMF-08	Pond Outflow
SWMF-08 OUTLET	Pond Outlet	Link	16.066	52.800	2.83		

Scenario Calculation Summary

Executive Summary (Links)

Label	Type	Location	Hydrograph Volume (ac-ft)	Peak Time (hours)	Peak Flow (ft³/s)	End Point	Node Flow Direction
SWMF-08 OUTLET	Pond Outlet	Downstream	21.721	40.800	6.05	SWMF-07	
SWMF-09 OUTLET	Pond Outlet	Upstream	13.680	40.800	10.77	SWMF-09	Pond Inflow
SWMF-09 OUTLET	Pond Outlet	Outflow	11.888	62.950	1.74	SWMF-09	Pond Outflow
SWMF-09 OUTLET	Pond Outlet	Link	11.884	62.950	1.74		
SWMF-09 OUTLET	Pond Outlet	Downstream	16.498	40.800	5.34	SWMF-08	
SWMF-22 OVERLAND	Pond Outlet	Upstream	88.058	43.000	37.82	SWMF-22	Pond Inflow
SWMF-22 OVERLAND	Pond Outlet	Outflow	87.715	42.450	32.23	SWMF-22	Pond Outflow
SWMF-22 OVERLAND	Pond Outlet	Link	0.000	0.000	0.00		
SWMF-22 OVERLAND	Pond Outlet	Downstream	7.659	40.800	6.12	SWMF-04	
SWMF-22 SEWER	Pond Outlet	Upstream	88.058	43.000	37.82	SWMF-22	Pond Inflow
SWMF-22 SEWER	Pond Outlet	Outflow	87.715	42.450	32.23	SWMF-22	Pond Outflow
SWMF-22 SEWER	Pond Outlet	Link	87.709	42.450	32.23		
SWMF-22 SEWER	Pond Outlet	Downstream	140.893	42.750	54.76	SWMF-02	
SWMF-23 OUTLET	Pond Outlet	Upstream	51.894	40.700	34.50	SWMF-23	Pond Inflow
SWMF-23 OUTLET	Pond Outlet	Outflow	45.818	50.800	21.19	SWMF-23	Pond Outflow
SWMF-23 OUTLET	Negative Flow	Outflow	-0.643	39.600	-2.81	SWMF-23	Pond Outflow
SWMF-23 OUTLET	Pond Outlet	Link	45.812	50.800	21.19		
SWMF-23 OUTLET	Negative Flow	Link	-0.643	39.600	-2.81		
SWMF-23 OUTLET	Pond Outlet	Downstream	88.058	43.000	37.82	SWMF-22	
SWMF-24 OUTLET	Pond Outlet	Upstream	14.679	40.800	12.09	SWMF-24	Pond Inflow
SWMF-24 OUTLET	Pond Outlet	Outflow	13.628	53.800	4.01	SWMF-24	Pond Outflow
SWMF-24 OUTLET	Pond Outlet	Link	13.628	53.800	4.01		
SWMF-24 OUTLET	Pond Outlet	Downstream	51.894	40.700	34.50	SWMF-23	
SWMF-26 OUTLET	Pond Outlet	Upstream	18.793	40.800	15.06	SWMF-26	Pond Inflow

Scenario Calculation Summary

Executive Summary (Links)

Label	Type	Location	Hydrograph Volume (ac-ft)	Peak Time (hours)	Peak Flow (ft³/s)	End Point	Node Flow Direction
SWMF-26 OUTLET	Pond Outlet	Outflow	18.793	48.350	4.33	SWMF-26	Pond Outflow
SWMF-26 OUTLET	Pond Outlet	Link	18.793	48.350	4.33		
SWMF-26 OUTLET	Pond Outlet	Downstream	140.893	42.750	54.76	SWMF-02	

Messages

Message Id	6
Scenario	(N/A)
Element Type	(N/A)
Element Id	-2
Label	(N/A)
Time	(N/A)
Message	There are user notifications available. Double-click this message to load these messages.
Source	Project File

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Time-Depth Curve: 100Yt-24Hr	
Label	100Yt-24Hr
Start Time	0.000 hours
Increment	1.200 hours
End Time	24.000 hours
Return Event	100 years

CUMULATIVE RAINFALL (in)
Output Time Increment = 1.200 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	0.3	0.5	0.8	1.0
6.000	1.3	1.6	2.0	2.3	2.7
12.000	3.3	3.9	4.9	6.0	6.8
18.000	7.3	7.6	7.9	8.1	8.3
24.000	8.6	(N/A)	(N/A)	(N/A)	(N/A)

Storm Event	100Yt-24Hr
Return Event	100 years
Duration	120.000 hours
Depth	8.6 in
Time of Concentration (Composite)	0.260 hours
Area (User Defined)	22.410 acres

Computational Time Increment	0.035 hours
Time to Peak (Computed)	15.600 hours
Flow (Peak, Computed)	20.13 ft³/s
Output Increment	0.050 hours
Time to Flow (Peak Interpolated Output)	15.600 hours
Flow (Peak Interpolated Output)	20.13 ft³/s

Drainage Area

SCS CN (Composite)	87.000
Area (User Defined)	22.410 acres
Maximum Retention (Pervious)	1.5 in
Maximum Retention (Pervious, 20 percent)	0.3 in

Cumulative Runoff

Cumulative Runoff Depth (Pervious)	7.0 in
Runoff Volume (Pervious)	13.083 ac-ft

Hydrograph Volume (Area under Hydrograph curve)

Volume	13.083 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	97.66 ft³/s
Unit peak time, Tp	0.173 hours

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

Storm Event	100Yt-24Hr
Return Event	100 years
Duration	120.000 hours
Depth	8.6 in
Time of Concentration (Composite)	0.510 hours
Area (User Defined)	5.840 acres

Computational Time Increment	0.068 hours
Time to Peak (Computed)	15.572 hours
Flow (Peak, Computed)	4.84 ft³/s
Output Increment	0.050 hours
Time to Flow (Peak Interpolated Output)	15.600 hours
Flow (Peak Interpolated Output)	4.84 ft³/s

Drainage Area

SCS CN (Composite)	79.000
Area (User Defined)	5.840 acres
Maximum Retention (Pervious)	2.7 in
Maximum Retention (Pervious, 20 percent)	0.5 in

Cumulative Runoff

Cumulative Runoff Depth (Pervious)	6.0 in
Runoff Volume (Pervious)	2.940 ac-ft

Hydrograph Volume (Area under Hydrograph curve)

Volume	2.940 ac-ft

SCS Unit Hydrograph Parameters

Time of Concentration (Composite)	0.510 hours
Computational Time Increment	0.068 hours
Unit Hydrograph Shape Factor	483.432
K Factor	0.749
Receding/Rising, Tr/Tp	1.670
Unit peak, qp	12.97 ft³/s
Unit peak time, Tp	0.340 hours

SCS Unit Hydrograph Parameters	
Unit receding limb, Tr	1.360 hours
Total unit time, Tb	1.700 hours

Storm Event	100Yt-24Hr
Return Event	100 years
Duration	120.000 hours
Depth	8.6 in
Time of Concentration (Composite)	0.300 hours
Area (User Defined)	20.030 acres

Computational Time Increment	0.040 hours
Time to Peak (Computed)	15.600 hours
Flow (Peak, Computed)	17.71 ft³/s
Output Increment	0.050 hours
Time to Flow (Peak Interpolated Output)	15.600 hours
Flow (Peak Interpolated Output)	17.71 ft³/s

Drainage Area

SCS CN (Composite)	85.000
Area (User Defined)	20.030 acres
Maximum Retention (Pervious)	1.8 in
Maximum Retention (Pervious, 20 percent)	0.4 in

Cumulative Runoff

Cumulative Runoff Depth (Pervious)	6.8 in
Runoff Volume (Pervious)	11.291 ac-ft

Hydrograph Volume (Area under Hydrograph curve)

Volume	11.291 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	75.65 ft³/s
Unit peak time, Tp	0.200 hours

SCS Unit Hydrograph Parameters	
Unit receding limb, Tr	0.800 hours
Total unit time, Tb	1.000 hours

Storm Event	100Yt-24Hr
Return Event	100 years
Duration	120.000 hours
Depth	8.6 in
Time of Concentration (Composite)	0.260 hours
Area (User Defined)	12.610 acres

Computational Time Increment	0.035 hours
Time to Peak (Computed)	15.600 hours
Flow (Peak, Computed)	10.97 ft³/s
Output Increment	0.050 hours
Time to Flow (Peak Interpolated Output)	15.600 hours
Flow (Peak Interpolated Output)	10.97 ft³/s

Drainage Area

SCS CN (Composite)	83.000
Area (User Defined)	12.610 acres
Maximum Retention (Pervious)	2.0 in
Maximum Retention (Pervious, 20 percent)	0.4 in

Cumulative Runoff

Cumulative Runoff Depth (Pervious)	6.5 in
Runoff Volume (Pervious)	6.855 ac-ft

Hydrograph Volume (Area under Hydrograph curve)

Volume	6.855 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	54.95 ft³/s
Unit peak time, Tp	0.173 hours

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

Storm Event	100Yt-24Hr
Return Event	100 years
Duration	120.000 hours
Depth	8.6 in
Time of Concentration (Composite)	0.310 hours
Area (User Defined)	9.610 acres

Computational Time Increment	0.041 hours
Time to Peak (Computed)	15.583 hours
Flow (Peak, Computed)	8.27 ft³/s
Output Increment	0.050 hours
Time to Flow (Peak Interpolated Output)	15.600 hours
Flow (Peak Interpolated Output)	8.26 ft³/s

Drainage Area

SCS CN (Composite)	82.000
Area (User Defined)	9.610 acres
Maximum Retention (Pervious)	2.2 in
Maximum Retention (Pervious, 20 percent)	0.4 in

Cumulative Runoff

Cumulative Runoff Depth (Pervious)	6.4 in
Runoff Volume (Pervious)	5.127 ac-ft

Hydrograph Volume (Area under Hydrograph curve)

Volume	5.127 ac-ft

SCS Unit Hydrograph Parameters

Time of Concentration (Composite)	0.310 hours
Computational Time Increment	0.041 hours
Unit Hydrograph Shape Factor	483.432
K Factor	0.749
Receding/Rising, Tr/Tp	1.670
Unit peak, qp	35.12 ft³/s
Unit peak time, Tp	0.207 hours

SCS Unit Hydrograph Parameters	
Unit receding limb, Tr	0.827 hours
Total unit time, Tb	1.033 hours

Storm Event	100Yt-24Hr
Return Event	100 years
Duration	120.000 hours
Depth	8.6 in
Time of Concentration (Composite)	0.380 hours
Area (User Defined)	18.280 acres

Computational Time Increment	0.051 hours
Time to Peak (Computed)	15.605 hours
Flow (Peak, Computed)	16.14 ft³/s
Output Increment	0.050 hours
Time to Flow (Peak Interpolated Output)	15.600 hours
Flow (Peak Interpolated Output)	16.14 ft³/s

Drainage Area

SCS CN (Composite)	85.000
Area (User Defined)	18.280 acres
Maximum Retention (Pervious)	1.8 in
Maximum Retention (Pervious, 20 percent)	0.4 in

Cumulative Runoff

Cumulative Runoff Depth (Pervious)	6.8 in
Runoff Volume (Pervious)	10.304 ac-ft

Hydrograph Volume (Area under Hydrograph curve)

Volume	10.304 ac-ft

SCS Unit Hydrograph Parameters

Time of Concentration (Composite)	0.380 hours
Computational Time Increment	0.051 hours
Unit Hydrograph Shape Factor	483.432
K Factor	0.749
Receding/Rising, Tr/Tp	1.670
Unit peak, qp	54.51 ft³/s
Unit peak time, Tp	0.253 hours

Subsection: Unit Hydrograph Summary
Label: 005

Return Event: 100 years
Storm Event: 100Yt-24Hr

SCS Unit Hydrograph Parameters	
Unit receding limb, Tr	1.013 hours
Total unit time, Tb	1.267 hours

Storm Event	100Yt-24Hr
Return Event	100 years
Duration	120.000 hours
Depth	8.6 in
Time of Concentration (Composite)	0.360 hours
Area (User Defined)	11.270 acres

Computational Time Increment	0.048 hours
Time to Peak (Computed)	15.600 hours
Flow (Peak, Computed)	9.87 ft³/s
Output Increment	0.050 hours
Time to Flow (Peak Interpolated Output)	15.600 hours
Flow (Peak Interpolated Output)	9.87 ft³/s

Drainage Area

SCS CN (Composite)	84.000
Area (User Defined)	11.270 acres
Maximum Retention (Pervious)	1.9 in
Maximum Retention (Pervious, 20 percent)	0.4 in

Cumulative Runoff

Cumulative Runoff Depth (Pervious)	6.6 in
Runoff Volume (Pervious)	6.240 ac-ft

Hydrograph Volume (Area under Hydrograph curve)

Volume	6.240 ac-ft

SCS Unit Hydrograph Parameters

Time of Concentration (Composite)	0.360 hours
Computational Time Increment	0.048 hours
Unit Hydrograph Shape Factor	483.432
K Factor	0.749
Receding/Rising, Tr/Tp	1.670
Unit peak, qp	35.47 ft³/s
Unit peak time, Tp	0.240 hours

Subsection: Unit Hydrograph Summary
Label: 006

Return Event: 100 years
Storm Event: 100Yt-24Hr

SCS Unit Hydrograph Parameters	
Unit receding limb, Tr	0.960 hours
Total unit time, Tb	1.200 hours

Storm Event	100Yt-24Hr
Return Event	100 years
Duration	120.000 hours
Depth	8.6 in
Time of Concentration (Composite)	0.330 hours
Area (User Defined)	8.540 acres

Computational Time Increment	0.044 hours
Time to Peak (Computed)	15.576 hours
Flow (Peak, Computed)	7.77 ft³/s
Output Increment	0.050 hours
Time to Flow (Peak Interpolated Output)	15.550 hours
Flow (Peak Interpolated Output)	7.76 ft³/s

Drainage Area

SCS CN (Composite)	89.000
Area (User Defined)	8.540 acres
Maximum Retention (Pervious)	1.2 in
Maximum Retention (Pervious, 20 percent)	0.2 in

Cumulative Runoff

Cumulative Runoff Depth (Pervious)	7.2 in
Runoff Volume (Pervious)	5.157 ac-ft

Hydrograph Volume (Area under Hydrograph curve)

Volume	5.157 ac-ft

SCS Unit Hydrograph Parameters

Time of Concentration (Composite)	0.330 hours
Computational Time Increment	0.044 hours
Unit Hydrograph Shape Factor	483.432
K Factor	0.749
Receding/Rising, Tr/Tp	1.670
Unit peak, qp	29.32 ft³/s
Unit peak time, Tp	0.220 hours

Subsection: Unit Hydrograph Summary
Label: 007

Return Event: 100 years
Storm Event: 100Yt-24Hr

SCS Unit Hydrograph Parameters	
Unit receding limb, Tr	0.880 hours
Total unit time, Tb	1.100 hours

Storm Event	100Yt-24Hr
Return Event	100 years
Duration	120.000 hours
Depth	8.6 in
Time of Concentration (Composite)	0.290 hours
Area (User Defined)	4.360 acres

Computational Time Increment	0.039 hours
Time to Peak (Computed)	15.583 hours
Flow (Peak, Computed)	3.82 ft³/s
Output Increment	0.050 hours
Time to Flow (Peak Interpolated Output)	15.550 hours
Flow (Peak Interpolated Output)	3.82 ft³/s

Drainage Area

SCS CN (Composite)	84.000
Area (User Defined)	4.360 acres
Maximum Retention (Pervious)	1.9 in
Maximum Retention (Pervious, 20 percent)	0.4 in

Cumulative Runoff

Cumulative Runoff Depth (Pervious)	6.6 in
Runoff Volume (Pervious)	2.414 ac-ft

Hydrograph Volume (Area under Hydrograph curve)

Volume	2.414 ac-ft

SCS Unit Hydrograph Parameters

Time of Concentration (Composite)	0.290 hours
Computational Time Increment	0.039 hours
Unit Hydrograph Shape Factor	483.432
K Factor	0.749
Receding/Rising, Tr/Tp	1.670
Unit peak, qp	17.03 ft³/s
Unit peak time, Tp	0.193 hours

SCS Unit Hydrograph Parameters	
Unit receding limb, Tr	0.773 hours
Total unit time, Tb	0.967 hours

Storm Event	100Yt-24Hr
Return Event	100 years
Duration	120.000 hours
Depth	8.6 in
Time of Concentration (Composite)	0.250 hours
Area (User Defined)	22.780 acres

Computational Time Increment	0.033 hours
Time to Peak (Computed)	15.600 hours
Flow (Peak, Computed)	19.82 ft³/s
Output Increment	0.050 hours
Time to Flow (Peak Interpolated Output)	15.600 hours
Flow (Peak Interpolated Output)	19.82 ft³/s

Drainage Area

SCS CN (Composite)	83.000
Area (User Defined)	22.780 acres
Maximum Retention (Pervious)	2.0 in
Maximum Retention (Pervious, 20 percent)	0.4 in

Cumulative Runoff

Cumulative Runoff Depth (Pervious)	6.5 in
Runoff Volume (Pervious)	12.383 ac-ft

Hydrograph Volume (Area under Hydrograph curve)

Volume	12.383 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	103.24 ft³/s
Unit peak time, Tp	0.167 hours

SCS Unit Hydrograph Parameters	
Unit receding limb, Tr	0.667 hours
Total unit time, Tb	0.833 hours

Storm Event	100Yt-24Hr
Return Event	100 years
Duration	120.000 hours
Depth	8.6 in
Time of Concentration (Composite)	0.250 hours
Area (User Defined)	1.020 acres

Computational Time Increment	0.033 hours
Time to Peak (Computed)	15.600 hours
Flow (Peak, Computed)	0.82 ft³/s
Output Increment	0.050 hours
Time to Flow (Peak Interpolated Output)	15.600 hours
Flow (Peak Interpolated Output)	0.82 ft³/s

Drainage Area

SCS CN (Composite)	76.000
Area (User Defined)	1.020 acres
Maximum Retention (Pervious)	3.2 in
Maximum Retention (Pervious, 20 percent)	0.6 in

Cumulative Runoff

Cumulative Runoff Depth (Pervious)	5.7 in
Runoff Volume (Pervious)	0.483 ac-ft

Hydrograph Volume (Area under Hydrograph curve)

Volume	0.483 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	4.62 ft³/s
Unit peak time, Tp	0.167 hours

SCS Unit Hydrograph Parameters	
Unit receding limb, Tr	0.667 hours
Total unit time, Tb	0.833 hours

Storm Event	100Yt-24Hr
Return Event	100 years
Duration	120.000 hours
Depth	8.6 in
Time of Concentration (Composite)	0.200 hours
Area (User Defined)	0.200 acres

Computational Time Increment	0.027 hours
Time to Peak (Computed)	15.600 hours
Flow (Peak, Computed)	0.16 ft³/s
Output Increment	0.050 hours
Time to Flow (Peak Interpolated Output)	15.600 hours
Flow (Peak Interpolated Output)	0.16 ft³/s

Drainage Area

SCS CN (Composite)	74.000
Area (User Defined)	0.200 acres
Maximum Retention (Pervious)	3.5 in
Maximum Retention (Pervious, 20 percent)	0.7 in

Cumulative Runoff

Cumulative Runoff Depth (Pervious)	5.4 in
Runoff Volume (Pervious)	0.091 ac-ft

Hydrograph Volume (Area under Hydrograph curve)

Volume	0.091 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	1.13 ft³/s
Unit peak time, Tp	0.133 hours

SCS Unit Hydrograph Parameters	
Unit receding limb, Tr	0.533 hours
Total unit time, Tb	0.667 hours

Storm Event	100Yt-24Hr
Return Event	100 years
Duration	120.000 hours
Depth	8.6 in
Time of Concentration (Composite)	0.330 hours
Area (User Defined)	3.510 acres

Computational Time Increment	0.044 hours
Time to Peak (Computed)	15.576 hours
Flow (Peak, Computed)	2.96 ft³/s
Output Increment	0.050 hours
Time to Flow (Peak Interpolated Output)	15.600 hours
Flow (Peak Interpolated Output)	2.96 ft³/s

Drainage Area

SCS CN (Composite)	80.000
Area (User Defined)	3.510 acres
Maximum Retention (Pervious)	2.5 in
Maximum Retention (Pervious, 20 percent)	0.5 in

Cumulative Runoff

Cumulative Runoff Depth (Pervious)	6.2 in
Runoff Volume (Pervious)	1.802 ac-ft

Hydrograph Volume (Area under Hydrograph curve)

Volume	1.802 ac-ft

SCS Unit Hydrograph Parameters

Time of Concentration (Composite)	0.330 hours
Computational Time Increment	0.044 hours
Unit Hydrograph Shape Factor	483.432
K Factor	0.749
Receding/Rising, Tr/Tp	1.670
Unit peak, qp	12.05 ft³/s
Unit peak time, Tp	0.220 hours

SCS Unit Hydrograph Parameters	
Unit receding limb, Tr	0.880 hours
Total unit time, Tb	1.100 hours

Storm Event	100Yt-24Hr
Return Event	100 years
Duration	120.000 hours
Depth	8.6 in
Time of Concentration (Composite)	0.530 hours
Area (User Defined)	75.300 acres

Computational Time Increment	0.071 hours
Time to Peak (Computed)	15.617 hours
Flow (Peak, Computed)	63.10 ft³/s
Output Increment	0.050 hours
Time to Flow (Peak Interpolated Output)	15.600 hours
Flow (Peak Interpolated Output)	63.08 ft³/s

Drainage Area	
SCS CN (Composite)	80.000
Area (User Defined)	75.300 acres
Maximum Retention (Pervious)	2.5 in
Maximum Retention (Pervious, 20 percent)	0.5 in

Cumulative Runoff	
Cumulative Runoff Depth (Pervious)	6.2 in
Runoff Volume (Pervious)	38.662 ac-ft

Hydrograph Volume (Area under Hydrograph curve)	
Volume	38.662 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	160.98 ft³/s
Unit peak time, Tp	0.353 hours

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

Storm Event	100Yt-24Hr
Return Event	100 years
Duration	120.000 hours
Depth	8.6 in
Time of Concentration (Composite)	0.600 hours
Area (User Defined)	71.080 acres

Computational Time Increment	0.080 hours
Time to Peak (Computed)	15.600 hours
Flow (Peak, Computed)	57.31 ft³/s
Output Increment	0.050 hours
Time to Flow (Peak Interpolated Output)	15.600 hours
Flow (Peak Interpolated Output)	57.31 ft³/s

Drainage Area

SCS CN (Composite)	77.000
Area (User Defined)	71.080 acres
Maximum Retention (Pervious)	3.0 in
Maximum Retention (Pervious, 20 percent)	0.6 in

Cumulative Runoff

Cumulative Runoff Depth (Pervious)	5.8 in
Runoff Volume (Pervious)	34.353 ac-ft

Hydrograph Volume (Area under Hydrograph curve)

Volume	34.353 ac-ft

SCS Unit Hydrograph Parameters

Time of Concentration (Composite)	0.600 hours
Computational Time Increment	0.080 hours
Unit Hydrograph Shape Factor	483.432
K Factor	0.749
Receding/Rising, Tr/Tp	1.670
Unit peak, qp	134.23 ft³/s
Unit peak time, Tp	0.400 hours

Subsection: Unit Hydrograph Summary
Label: 023

Return Event: 100 years
Storm Event: 100Yt-24Hr

SCS Unit Hydrograph Parameters	
Unit receding limb, Tr	1.600 hours
Total unit time, Tb	2.000 hours

Storm Event	100Yt-24Hr
Return Event	100 years
Duration	120.000 hours
Depth	8.6 in
Time of Concentration (Composite)	0.440 hours
Area (User Defined)	26.750 acres

Computational Time Increment	0.059 hours
Time to Peak (Computed)	15.605 hours
Flow (Peak, Computed)	21.98 ft³/s
Output Increment	0.050 hours
Time to Flow (Peak Interpolated Output)	15.600 hours
Flow (Peak Interpolated Output)	21.97 ft³/s

Drainage Area

SCS CN (Composite)	78.000
Area (User Defined)	26.750 acres
Maximum Retention (Pervious)	2.8 in
Maximum Retention (Pervious, 20 percent)	0.6 in

Cumulative Runoff

Cumulative Runoff Depth (Pervious)	5.9 in
Runoff Volume (Pervious)	13.197 ac-ft

Hydrograph Volume (Area under Hydrograph curve)

Volume	13.197 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	68.88 ft³/s
Unit peak time, Tp	0.293 hours

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

Storm Event	100Yt-24Hr
Return Event	100 years
Duration	120.000 hours
Depth	8.6 in
Time of Concentration (Composite)	0.270 hours
Area (User Defined)	3.490 acres

Computational Time Increment	0.036 hours
Time to Peak (Computed)	15.588 hours
Flow (Peak, Computed)	2.95 ft³/s
Output Increment	0.050 hours
Time to Flow (Peak Interpolated Output)	15.600 hours
Flow (Peak Interpolated Output)	2.94 ft³/s

Drainage Area

SCS CN (Composite)	80.000
Area (User Defined)	3.490 acres
Maximum Retention (Pervious)	2.5 in
Maximum Retention (Pervious, 20 percent)	0.5 in

Cumulative Runoff

Cumulative Runoff Depth (Pervious)	6.2 in
Runoff Volume (Pervious)	1.792 ac-ft

Hydrograph Volume (Area under Hydrograph curve)

Volume	1.792 ac-ft

SCS Unit Hydrograph Parameters

Time of Concentration (Composite)	0.270 hours
Computational Time Increment	0.036 hours
Unit Hydrograph Shape Factor	483.432
K Factor	0.749
Receding/Rising, Tr/Tp	1.670
Unit peak, qp	14.65 ft³/s
Unit peak time, Tp	0.180 hours

SCS Unit Hydrograph Parameters	
Unit receding limb, Tr	0.720 hours
Total unit time, Tb	0.900 hours

Storm Event	100Yt-24Hr
Return Event	100 years
Duration	120.000 hours
Depth	8.6 in
Time of Concentration (Composite)	0.450 hours
Area (User Defined)	32.410 acres

Computational Time Increment	0.060 hours
Time to Peak (Computed)	15.600 hours
Flow (Peak, Computed)	27.54 ft³/s
Output Increment	0.050 hours
Time to Flow (Peak Interpolated Output)	15.600 hours
Flow (Peak Interpolated Output)	27.54 ft³/s

Drainage Area

SCS CN (Composite)	81.000
Area (User Defined)	32.410 acres
Maximum Retention (Pervious)	2.3 in
Maximum Retention (Pervious, 20 percent)	0.5 in

Cumulative Runoff

Cumulative Runoff Depth (Pervious)	6.3 in
Runoff Volume (Pervious)	16.966 ac-ft

Hydrograph Volume (Area under Hydrograph curve)

Volume	16.966 ac-ft

SCS Unit Hydrograph Parameters

Time of Concentration (Composite)	0.450 hours
Computational Time Increment	0.060 hours
Unit Hydrograph Shape Factor	483.432
K Factor	0.749
Receding/Rising, Tr/Tp	1.670
Unit peak, qp	81.60 ft³/s
Unit peak time, Tp	0.300 hours

SCS Unit Hydrograph Parameters	
Unit receding limb, Tr	1.200 hours
Total unit time, Tb	1.500 hours

Storm Event	100Yt-24Hr
Return Event	100 years
Duration	120.000 hours
Depth	8.6 in
Time of Concentration (Composite)	0.340 hours
Area (User Defined)	3.410 acres

Computational Time Increment	0.045 hours
Time to Peak (Computed)	15.595 hours
Flow (Peak, Computed)	2.84 ft³/s
Output Increment	0.050 hours
Time to Flow (Peak Interpolated Output)	15.600 hours
Flow (Peak Interpolated Output)	2.84 ft³/s

Drainage Area

SCS CN (Composite)	79.000
Area (User Defined)	3.410 acres
Maximum Retention (Pervious)	2.7 in
Maximum Retention (Pervious, 20 percent)	0.5 in

Cumulative Runoff

Cumulative Runoff Depth (Pervious)	6.0 in
Runoff Volume (Pervious)	1.717 ac-ft

Hydrograph Volume (Area under Hydrograph curve)

Volume	1.717 ac-ft

SCS Unit Hydrograph Parameters

Time of Concentration (Composite)	0.340 hours
Computational Time Increment	0.045 hours
Unit Hydrograph Shape Factor	483.432
K Factor	0.749
Receding/Rising, Tr/Tp	1.670
Unit peak, qp	11.36 ft³/s
Unit peak time, Tp	0.227 hours

SCS Unit Hydrograph Parameters	
Unit receding limb, Tr	0.907 hours
Total unit time, Tb	1.133 hours

Storm Event	100Yt-24Hr
Return Event	100 years
Duration	120.000 hours
Depth	8.6 in
Time of Concentration (Composite)	0.300 hours
Area (User Defined)	3.510 acres

Computational Time Increment	0.040 hours
Time to Peak (Computed)	15.600 hours
Flow (Peak, Computed)	2.99 ft³/s
Output Increment	0.050 hours
Time to Flow (Peak Interpolated Output)	15.600 hours
Flow (Peak Interpolated Output)	2.99 ft³/s

Drainage Area

SCS CN (Composite)	81.000
Area (User Defined)	3.510 acres
Maximum Retention (Pervious)	2.3 in
Maximum Retention (Pervious, 20 percent)	0.5 in

Cumulative Runoff

Cumulative Runoff Depth (Pervious)	6.3 in
Runoff Volume (Pervious)	1.837 ac-ft

Hydrograph Volume (Area under Hydrograph curve)

Volume	1.837 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	13.26 ft³/s
Unit peak time, Tp	0.200 hours

SCS Unit Hydrograph Parameters	
Unit receding limb, Tr	0.800 hours
Total unit time, Tb	1.000 hours

Storm Event	100Yt-24Hr
Return Event	100 years
Duration	120.000 hours
Depth	8.6 in
Time of Concentration (Composite)	0.100 hours
Area (User Defined)	2.490 acres

Computational Time Increment	0.013 hours
Time to Peak (Computed)	15.600 hours
Flow (Peak, Computed)	2.24 ft³/s
Output Increment	0.050 hours
Time to Flow (Peak Interpolated Output)	15.600 hours
Flow (Peak Interpolated Output)	2.24 ft³/s

Drainage Area

SCS CN (Composite)	87.000
Area (User Defined)	2.490 acres
Maximum Retention (Pervious)	1.5 in
Maximum Retention (Pervious, 20 percent)	0.3 in

Cumulative Runoff

Cumulative Runoff Depth (Pervious)	7.0 in
Runoff Volume (Pervious)	1.454 ac-ft

Hydrograph Volume (Area under Hydrograph curve)

Volume	1.454 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	28.21 ft³/s
Unit peak time, Tp	0.067 hours

Subsection: Unit Hydrograph Summary
Label: 029

Return Event: 100 years
Storm Event: 100Yt-24Hr

SCS Unit Hydrograph Parameters	
Unit receding limb, Tr	0.267 hours
Total unit time, Tb	0.333 hours

Subsection: Unit Hydrograph Summary
Label: 030

Return Event: 100 years
Storm Event: 100Yt-24Hr

Storm Event	100Yt-24Hr
Return Event	100 years
Duration	120.000 hours
Depth	8.6 in
Time of Concentration (Composite)	0.200 hours
Area (User Defined)	2.640 acres

Computational Time Increment	0.027 hours
Time to Peak (Computed)	15.600 hours
Flow (Peak, Computed)	2.21 ft³/s
Output Increment	0.050 hours
Time to Flow (Peak Interpolated Output)	15.600 hours
Flow (Peak Interpolated Output)	2.21 ft³/s

Drainage Area

SCS CN (Composite)	79.000
Area (User Defined)	2.640 acres
Maximum Retention (Pervious)	2.7 in
Maximum Retention (Pervious, 20 percent)	0.5 in

Cumulative Runoff

Cumulative Runoff Depth (Pervious)	6.0 in
Runoff Volume (Pervious)	1.329 ac-ft

Hydrograph Volume (Area under Hydrograph curve)

Volume	1.329 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	14.96 ft³/s
Unit peak time, Tp	0.133 hours

SCS Unit Hydrograph Parameters	
Unit receding limb, Tr	0.533 hours
Total unit time, Tb	0.667 hours

Storm Event	100Yt-24Hr
Return Event	100 years
Duration	120.000 hours
Depth	8.6 in
Time of Concentration (Composite)	0.240 hours
Area (User Defined)	9.040 acres

Computational Time Increment	0.032 hours
Time to Peak (Computed)	15.584 hours
Flow (Peak, Computed)	7.29 ft³/s
Output Increment	0.050 hours
Time to Flow (Peak Interpolated Output)	15.600 hours
Flow (Peak Interpolated Output)	7.28 ft³/s

Drainage Area

SCS CN (Composite)	76.000
Area (User Defined)	9.040 acres
Maximum Retention (Pervious)	3.2 in
Maximum Retention (Pervious, 20 percent)	0.6 in

Cumulative Runoff

Cumulative Runoff Depth (Pervious)	5.7 in
Runoff Volume (Pervious)	4.278 ac-ft

Hydrograph Volume (Area under Hydrograph curve)

Volume	4.278 ac-ft

SCS Unit Hydrograph Parameters

Time of Concentration (Composite)	0.240 hours
Computational Time Increment	0.032 hours
Unit Hydrograph Shape Factor	483.432
K Factor	0.749
Receding/Rising, Tr/Tp	1.670
Unit peak, qp	42.68 ft³/s
Unit peak time, Tp	0.160 hours

SCS Unit Hydrograph Parameters	
Unit receding limb, Tr	0.640 hours
Total unit time, Tb	0.800 hours

Storm Event	100Yt-24Hr
Return Event	100 years
Duration	120.000 hours
Depth	8.6 in
Time of Concentration (Composite)	0.200 hours
Area (User Defined)	0.610 acres

Computational Time Increment	0.027 hours
Time to Peak (Computed)	15.600 hours
Flow (Peak, Computed)	0.48 ft³/s
Output Increment	0.050 hours
Time to Flow (Peak Interpolated Output)	15.600 hours
Flow (Peak Interpolated Output)	0.48 ft³/s

Drainage Area

SCS CN (Composite)	74.000
Area (User Defined)	0.610 acres
Maximum Retention (Pervious)	3.5 in
Maximum Retention (Pervious, 20 percent)	0.7 in

Cumulative Runoff

Cumulative Runoff Depth (Pervious)	5.4 in
Runoff Volume (Pervious)	0.276 ac-ft

Hydrograph Volume (Area under Hydrograph curve)

Volume	0.276 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	3.46 ft³/s
Unit peak time, Tp	0.133 hours

Subsection: Unit Hydrograph Summary
Label: 032

Return Event: 100 years
Storm Event: 100Yt-24Hr

SCS Unit Hydrograph Parameters	
Unit receding limb, Tr	0.533 hours
Total unit time, Tb	0.667 hours

Storm Event	100Yt-24Hr
Return Event	100 years
Duration	120.000 hours
Depth	8.6 in
Time of Concentration (Composite)	0.330 hours
Area (User Defined)	3.920 acres

Computational Time Increment	0.044 hours
Time to Peak (Computed)	15.576 hours
Flow (Peak, Computed)	3.02 ft³/s
Output Increment	0.050 hours
Time to Flow (Peak Interpolated Output)	15.600 hours
Flow (Peak Interpolated Output)	3.02 ft³/s

Drainage Area

SCS CN (Composite)	73.000
Area (User Defined)	3.920 acres
Maximum Retention (Pervious)	3.7 in
Maximum Retention (Pervious, 20 percent)	0.7 in

Cumulative Runoff

Cumulative Runoff Depth (Pervious)	5.3 in
Runoff Volume (Pervious)	1.737 ac-ft

Hydrograph Volume (Area under Hydrograph curve)

Volume	1.737 ac-ft

SCS Unit Hydrograph Parameters

Time of Concentration (Composite)	0.330 hours
Computational Time Increment	0.044 hours
Unit Hydrograph Shape Factor	483.432
K Factor	0.749
Receding/Rising, Tr/Tp	1.670
Unit peak, qp	13.46 ft³/s
Unit peak time, Tp	0.220 hours

SCS Unit Hydrograph Parameters	
Unit receding limb, Tr	0.880 hours
Total unit time, Tb	1.100 hours

Elevation-Volume

Pond Elevation (ft)	Pond Volume (ac-ft)
877.00	0.000
878.00	4.399
879.00	10.056
880.00	16.547
881.00	23.432
882.00	30.617
883.00	38.107
884.00	45.905

Elevation-Volume

Pond Elevation (ft)	Pond Volume (ac-ft)
880.00	0.000
881.00	4.104
882.00	10.081
883.00	17.242
884.00	24.877
885.00	32.932
885.50	37.119
886.00	41.412
886.50	45.813

Subsection: Elevation vs. Volume Curve
Label: SWMF-03

Return Event: 100 years
Storm Event: 100Yt-24Hr

Elevation-Volume

Pond Elevation (ft)	Pond Volume (ac-ft)
881.00	0.000
882.00	0.583
883.00	1.342
884.00	2.265
885.00	3.347
886.00	4.595
886.50	5.284
887.00	6.019
887.50	6.800

Elevation-Volume

Pond Elevation (ft)	Pond Volume (ac-ft)
882.00	0.000
883.00	0.440
884.00	1.048
885.00	1.779
886.00	2.591
886.50	3.030
887.00	3.493
887.50	3.981

Elevation-Volume

Pond Elevation (ft)	Pond Volume (ac-ft)
886.00	0.000
887.00	2.026
888.00	4.436
889.00	7.122
890.00	10.017
891.00	13.118
892.00	16.689
893.00	20.858

Elevation-Volume

Pond Elevation (ft)	Pond Volume (ac-ft)
886.00	0.000
887.00	1.524
888.00	3.324
889.00	5.356
890.00	7.554
891.00	9.947
892.00	12.807
893.00	16.458

Subsection: Elevation vs. Volume Curve
Label: SWMF-07

Return Event: 100 years
Storm Event: 100Yt-24Hr

Elevation-Volume

Pond Elevation (ft)	Pond Volume (ac-ft)
878.90	0.000
879.00	0.030
880.00	0.367
881.00	0.758
882.00	1.205
882.70	1.554
883.00	1.710
883.50	1.986

Elevation-Volume

Pond Elevation (ft)	Pond Volume (ac-ft)
879.50	0.000
880.00	0.271
881.00	0.890
882.00	1.609
883.00	2.423
884.00	3.332
884.50	3.822
885.00	4.423
885.50	5.134

Elevation-Volume

Pond Elevation (ft)	Pond Volume (ac-ft)
883.00	0.000
884.00	1.418
885.00	2.963
886.00	4.739
887.00	6.763
888.00	8.948
889.00	11.291
890.00	13.794

Elevation-Volume

Pond Elevation (ft)	Pond Volume (ac-ft)
885.60	0.000
886.00	0.828
887.00	2.983
888.00	5.259
889.00	7.660
890.00	10.187
891.00	12.843

Elevation-Volume

Pond Elevation (ft)	Pond Volume (ac-ft)
885.60	0.000
886.00	2.638
887.00	15.139
888.00	27.932
889.00	41.021
890.00	54.408
891.00	68.098

Subsection: Elevation vs. Volume Curve
Label: SWMF-24

Return Event: 100 years
Storm Event: 100Yt-24Hr

Elevation-Volume

Pond Elevation (ft)	Pond Volume (ac-ft)
886.00	0.000
887.00	3.086
888.00	6.309
889.00	9.672
890.00	13.926
891.00	19.123
892.00	24.488

Elevation-Volume

Pond Elevation (ft)	Pond Volume (ac-ft)
887.50	0.000
888.00	0.034
889.00	0.361
890.00	1.070
891.00	2.267
892.00	4.061
893.00	6.318
894.00	8.902
894.80	11.250
895.00	11.883
896.00	15.328

Requested Pond Water Surface Elevations	
Minimum (Headwater)	885.60 ft
Increment (Headwater)	0.10 ft
Maximum (Headwater)	891.00 ft

Outlet Connectivity

Structure Type	Outlet ID	Direction	Outfall	E1 (ft)	E2 (ft)
Irregular Weir	Overflow Weir	Forward + Reverse	TW	890.60	891.00
Tailwater Settings	Tailwater			(N/A)	(N/A)

Structure ID: Overflow Weir
Structure Type: Irregular Weir

Station (ft)	Elevation (ft)
0.00	891.00
8.00	890.60
28.00	890.60
36.00	891.00

Lowest Elevation	890.60 ft
Weir Coefficient	3.00 (ft^0.5)/s

Subsection: Outlet Input Data
Label: EXIST SWMF-22 SEWER

Return Event: 100 years
Storm Event: 100Yt-24Hr

Requested Pond Water Surface Elevations	
Minimum (Headwater)	885.60 ft
Increment (Headwater)	0.10 ft
Maximum (Headwater)	891.00 ft

Outlet Connectivity

Structure Type	Outlet ID	Direction	Outfall	E1 (ft)	E2 (ft)
Culvert-Circular	36" RCP	Forward + Reverse	TW	885.61	891.00
Tailwater Settings	Tailwater			(N/A)	(N/A)

Structure ID: 36" RCP
Structure Type: Culvert-Circular

Number of Barrels	1
Diameter	36.0 in
Length	1,660.00 ft
Length (Computed Barrel)	1,660.01 ft
Slope (Computed)	0.003 ft/ft

Outlet Control Data

Manning's n	0.013
Ke	0.200
Kb	0.007
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	888.50 ft	T1 Flow	42.85 ft³/s
T2 Elevation	888.81 ft	T2 Flow	48.97 ft³/s

Subsection: Outlet Input Data
Label: EXIST SWMF-23

Return Event: 100 years
Storm Event: 100Yt-24Hr

Requested Pond Water Surface Elevations	
Minimum (Headwater)	885.60 ft
Increment (Headwater)	0.10 ft
Maximum (Headwater)	891.00 ft

Outlet Connectivity

Structure Type	Outlet ID	Direction	Outfall	E1 (ft)	E2 (ft)
Culvert-Circular	36" RCP	Forward + Reverse	TW	885.60	891.00
Irregular Weir	Overland Weir	Forward + Reverse	TW	890.60	891.00
Tailwater Settings	Tailwater			(N/A)	(N/A)

Structure ID: Overland Weir
Structure Type: Irregular Weir

Station (ft)	Elevation (ft)
0.00	891.00
8.00	890.60
28.00	890.60
36.00	891.00

Lowest Elevation	890.60 ft
Weir Coefficient	3.00 (ft^0.5)/s

Structure ID: 36" RCP
Structure Type: Culvert-Circular

Number of Barrels	1
Diameter	36.0 in
Length	370.00 ft
Length (Computed Barrel)	370.00 ft
Slope (Computed)	0.000 ft/ft

Outlet Control Data

Manning's n	0.013
Ke	0.200
Kb	0.007
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...

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	888.89 ft	T1 Flow	42.85 ft³/s
T2 Elevation	889.19 ft	T2 Flow	48.97 ft³/s

Requested Pond Water Surface Elevations	
Minimum (Headwater)	886.00 ft
Increment (Headwater)	0.10 ft
Maximum (Headwater)	892.00 ft

Outlet Connectivity

Structure Type	Outlet ID	Direction	Outfall	E1 (ft)	E2 (ft)
Culvert-Circular	42" RCP	Forward + Reverse	TW	886.01	892.00
Rectangular Weir	Overland Weir	Forward + Reverse	TW	891.00	892.00
Tailwater Settings	Tailwater			(N/A)	(N/A)

Structure ID: 42" RCP
Structure Type: Culvert-Circular

Number of Barrels	1
Diameter	18.0 in
Length	100.00 ft
Length (Computed Barrel)	100.00 ft
Slope (Computed)	0.000 ft/ft

Outlet Control Data

Manning's n	0.013
Ke	0.200
Kb	0.018
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	886.64 ft	T1 Flow	7.58 ft³/s
T2 Elevation	886.80 ft	T2 Flow	8.66 ft³/s

Structure ID: Overland Weir
Structure Type: Rectangular Weir

Number of Openings	1
Elevation	891.00 ft
Weir Length	40.00 ft
Weir Coefficient	3.00 (ft^0.5)/s

Requested Pond Water Surface Elevations	
Minimum (Headwater)	887.50 ft
Increment (Headwater)	0.10 ft
Maximum (Headwater)	896.00 ft

Outlet Connectivity

Structure Type	Outlet ID	Direction	Outfall	E1 (ft)	E2 (ft)
Orifice-Circular	8" Restrictor	Forward + Reverse	TW	887.50	896.00
Rectangular Weir	Overland Weir	Forward + Reverse	TW	895.00	896.00
Tailwater Settings	Tailwater			(N/A)	(N/A)

Structure ID: 8" Restrictor
Structure Type: Orifice-Circular

Number of Openings	1
Elevation	887.50 ft
Orifice Diameter	8.0 in
Orifice Coefficient	0.600

Structure ID: Overland Weir
Structure Type: Rectangular Weir

Number of Openings	1
Elevation	895.00 ft
Weir Length	15.00 ft
Weir Coefficient	3.00 (ft^0.5)/s

Requested Pond Water Surface Elevations	
Minimum (Headwater)	879.50 ft
Increment (Headwater)	0.10 ft
Maximum (Headwater)	885.50 ft

Outlet Connectivity

Structure Type	Outlet ID	Direction	Outfall	E1 (ft)	E2 (ft)
Orifice-Circular	Orifice - 1	Forward + Reverse	TW	879.51	885.50
Rectangular Weir	Weir - 1	Forward + Reverse	TW	884.50	885.50
Tailwater Settings	Tailwater			(N/A)	(N/A)

Structure ID: Orifice - 1
Structure Type: Orifice-Circular

Number of Openings	1
Elevation	879.40 ft
Orifice Diameter	7.5 in
Orifice Coefficient	0.600

Structure ID: Weir - 1
Structure Type: Rectangular Weir

Number of Openings	1
Elevation	884.50 ft
Weir Length	10.00 ft
Weir Coefficient	3.00 (ft^0.5)/s

Requested Pond Water Surface Elevations	
Minimum (Headwater)	877.00 ft
Increment (Headwater)	0.10 ft
Maximum (Headwater)	884.00 ft

Outlet Connectivity

Structure Type	Outlet ID	Direction	Outfall	E1 (ft)	E2 (ft)
Culvert-Circular	Culvert - 1	Forward	TW	877.00	884.00
Irregular Weir	Road Overflow	Forward + Reverse	TW	883.60	884.00
Tailwater Settings	Tailwater			(N/A)	(N/A)

Structure ID: Culvert - 1
Structure Type: Culvert-Circular

Number of Barrels	1
Diameter	24.0 in
Length	42.00 ft
Length (Computed Barrel)	42.00 ft
Slope (Computed)	0.002 ft/ft

Outlet Control Data

Manning's n	0.013
Ke	0.200
Kb	0.012
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	879.19 ft	T1 Flow	15.55 ft³/s
T2 Elevation	879.39 ft	T2 Flow	17.77 ft³/s

Structure ID: Road Overflow
Structure Type: Irregular Weir

Station (ft)	Elevation (ft)
0.00	884.00
58.90	883.60
109.10	883.60
148.70	883.80
171.40	884.00

Lowest Elevation	883.60 ft
Weir Coefficient	3.00 (ft^0.5)/s

Requested Pond Water Surface Elevations	
Minimum (Headwater)	880.00 ft
Increment (Headwater)	0.10 ft
Maximum (Headwater)	886.50 ft

Outlet Connectivity

Structure Type	Outlet ID	Direction	Outfall	E1 (ft)	E2 (ft)
Culvert-Circular	Culvert - 1	Forward + Reverse	TW	880.00	886.50
Rectangular Weir	Overflow Weir	Forward + Reverse	TW	885.50	886.50
Tailwater Settings	Tailwater			(N/A)	(N/A)

Structure ID: Culvert - 1
Structure Type: Culvert-Circular

Number of Barrels	1
Diameter	24.0 in
Length	97.00 ft
Length (Computed Barrel)	97.05 ft
Slope (Computed)	0.031 ft/ft

Outlet Control Data

Manning's n	0.013
Ke	0.200
Kb	0.012
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)	1.080
T2 ratio (HW/D)	1.182
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	882.16 ft	T1 Flow	15.55 ft³/s
T2 Elevation	882.36 ft	T2 Flow	17.77 ft³/s

Structure ID: Overflow Weir
Structure Type: Rectangular Weir

Number of Openings	1
Elevation	885.50 ft
Weir Length	20.00 ft
Weir Coefficient	3.00 (ft^0.5)/s

Requested Pond Water Surface Elevations	
Minimum (Headwater)	881.00 ft
Increment (Headwater)	0.10 ft
Maximum (Headwater)	887.50 ft

Outlet Connectivity

Structure Type	Outlet ID	Direction	Outfall	E1 (ft)	E2 (ft)
Culvert-Circular	Culvert - 1	Forward + Reverse	TW	881.00	887.50
Rectangular Weir	Overflow Weir	Forward + Reverse	TW	886.50	887.50
Tailwater Settings	Tailwater			(N/A)	(N/A)

Structure ID: Culvert - 1
Structure Type: Culvert-Circular

Number of Barrels	1
Diameter	15.0 in
Length	75.00 ft
Length (Computed Barrel)	75.01 ft
Slope (Computed)	0.013 ft/ft

Outlet Control Data

Manning's n	0.013
Ke	0.200
Kb	0.023
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)	1.089
T2 ratio (HW/D)	1.191
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	882.36 ft	T1 Flow	4.80 ft³/s
T2 Elevation	882.49 ft	T2 Flow	5.49 ft³/s

Structure ID: Overflow Weir
Structure Type: Rectangular Weir

Number of Openings	1
Elevation	886.50 ft
Weir Length	48.00 ft
Weir Coefficient	3.00 (ft^0.5)/s

Requested Pond Water Surface Elevations	
Minimum (Headwater)	882.00 ft
Increment (Headwater)	0.10 ft
Maximum (Headwater)	887.50 ft

Outlet Connectivity

Structure Type	Outlet ID	Direction	Outfall	E1 (ft)	E2 (ft)
Culvert-Circular	Culvert - 1	Forward + Reverse	TW	882.00	887.50
Rectangular Weir	Overflow Weir	Forward + Reverse	TW	886.80	887.50
Tailwater Settings	Tailwater			(N/A)	(N/A)

Structure ID: Culvert - 1
Structure Type: Culvert-Circular

Number of Barrels	1
Diameter	18.0 in
Length	428.00 ft
Length (Computed Barrel)	428.00 ft
Slope (Computed)	0.002 ft/ft

Outlet Control Data

Manning's n	0.013
Ke	0.200
Kb	0.018
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)	1.094
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	883.64 ft	T1 Flow	7.58 ft³/s
T2 Elevation	883.79 ft	T2 Flow	8.66 ft³/s

Structure ID: Overflow Weir
Structure Type: Rectangular Weir

Number of Openings	1
Elevation	886.80 ft
Weir Length	25.00 ft
Weir Coefficient	3.00 (ft^0.5)/s

Requested Pond Water Surface Elevations	
Minimum (Headwater)	886.00 ft
Increment (Headwater)	0.10 ft
Maximum (Headwater)	893.00 ft

Outlet Connectivity

Structure Type	Outlet ID	Direction	Outfall	E1 (ft)	E2 (ft)
Orifice-Circular	Restrictor	Forward + Reverse	TW	886.01	893.00
Vnotch Weir	Weir - 1	Forward + Reverse	TW	892.20	893.00
Tailwater Settings	Tailwater			(N/A)	(N/A)

Structure ID: Restrictor
Structure Type: Orifice-Circular

Number of Openings	1
Elevation	885.53 ft
Orifice Diameter	3.0 in
Orifice Coefficient	0.600

Structure ID: Weir - 1
Structure Type: Vnotch Weir

Number of Openings	1
Elevation	892.20 ft
V-Notch Angle	45.00 degrees
Weir Coefficient	3.00 (ft^0.5)/s

Requested Pond Water Surface Elevations	
Minimum (Headwater)	886.00 ft
Increment (Headwater)	0.10 ft
Maximum (Headwater)	893.00 ft

Outlet Connectivity

Structure Type	Outlet ID	Direction	Outfall	E1 (ft)	E2 (ft)
Culvert-Circular	Equalizer Pipe	Forward + Reverse	TW	886.00	893.00
Vnotch Weir	Overflow Weir	Forward + Reverse	TW	891.70	893.00
Tailwater Settings	Tailwater			(N/A)	(N/A)

Structure ID: Equalizer Pipe
Structure Type: Culvert-Circular

Number of Barrels	1
Diameter	24.0 in
Length	376.00 ft
Length (Computed Barrel)	376.00 ft
Slope (Computed)	0.000 ft/ft

Outlet Control Data

Manning's n	0.013
Ke	0.200
Kb	0.012
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	888.19 ft	T1 Flow	15.55 ft³/s
T2 Elevation	888.39 ft	T2 Flow	17.77 ft³/s

Structure ID: Overflow Weir
Structure Type: Vnotch Weir

Number of Openings	1
Elevation	891.70 ft
V-Notch Angle	45.00 degrees
Weir Coefficient	3.00 (ft^0.5)/s

Requested Pond Water Surface Elevations	
Minimum (Headwater)	878.90 ft
Increment (Headwater)	0.10 ft
Maximum (Headwater)	883.50 ft

Outlet Connectivity

Structure Type	Outlet ID	Direction	Outfall	E1 (ft)	E2 (ft)
Orifice-Circular	Orifice - 1	Forward	TW	878.91	883.50
Rectangular Weir	Overflow Weir	Forward	TW	882.70	883.50
Tailwater Settings	Tailwater			(N/A)	(N/A)

Structure ID: Overflow Weir
Structure Type: Rectangular Weir

Number of Openings	1
Elevation	882.70 ft
Weir Length	16.00 ft
Weir Coefficient	3.00 (ft^0.5)/s

Structure ID: Orifice - 1
Structure Type: Orifice-Circular

Number of Openings	1
Elevation	878.80 ft
Orifice Diameter	11.6 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 ft³/s
Flow Tolerance (Maximum)	10.000 ft³/s

Requested Pond Water Surface Elevations	
Minimum (Headwater)	883.00 ft
Increment (Headwater)	0.10 ft
Maximum (Headwater)	890.00 ft

Outlet Connectivity

Structure Type	Outlet ID	Direction	Outfall	E1 (ft)	E2 (ft)
Orifice-Circular	Orifice - 1	Forward + Reverse	TW	883.01	890.00
Vnotch Weir	Overflow Weir	Forward + Reverse	TW	889.10	890.00
Tailwater Settings	Tailwater			(N/A)	(N/A)

Structure ID: Overflow Weir Structure Type: Vnotch Weir	
Number of Openings	1
Elevation	889.10 ft
V-Notch Angle	45.00 degrees
Weir Coefficient	3.00 (ft^0.5)/s

Structure ID: Orifice - 1 Structure Type: Orifice-Circular	
Number of Openings	1
Elevation	882.62 ft
Orifice Diameter	5.5 in
Orifice Coefficient	0.600

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PROJECT: TRAILS OF WOODS CREEK - ALGONQUIN, IL
PREPARED BY: CEMCON, Ltd.

Job No.: 402.136
By: ARF
Date: 4-Dec-19
Rev: 7-Jul-20

Allowable Release Calculations: Critical Duration Analysis Outfall 1
PRELIMINARY DESIGN - 100 YEAR CRITICAL DURATION ANALYSIS WITH 2 YEAR, 24 HOUR EVENT

100YR Storm:	**0.5**	**1**	**2**	**3**	**6**	**12**	**18**	**24**	**48**	**2Yr-24Hr**
Onsite Allowable Release Rate (cfs/Ac.):	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	-
Development Area (Ac.):	101.07	101.07	101.07	101.07	101.07	101.07	101.07	101.07	101.07	-
Onsite Allowable Release (cfs):	10.11	10.11	10.11	10.11	10.11	10.11	10.11	10.11	10.11	-
Bypass Flow, SWMF-22 (cfs):	35.78	41.51	42.02	42.04	41.41	41.07	38.08	35.49	32.28	-
Bypass Flow, SWMF-26 (cfs):	3.32	3.66	3.95	4.09	4.25	4.40	4.46	4.45	4.33	-
Bypass Flow, Subarea 020 (cfs):	0.54	0.56	0.47	0.38	0.28	0.21	0.19	0.16	0.09	-
Bypass Flow, Subarea 021 (cfs):	10.51	11.02	9.61	7.99	5.92	4.15	3.65	2.96	1.62	-
Bypass Flow, Subarea 025 (cfs):	11.52	11.77	9.93	8.07	6.20	4.15	3.64	2.94	1.61	-
Bypass Flow, Subarea 028 (cfs):	11.55	11.95	10.16	8.34	6.34	4.24	3.69	2.99	1.63	-
Bypass Flow, Subarea 029 (cfs):	17.15	14.18	11.80	9.78	6.88	3.37	2.78	2.24	1.21	-
Bypass Flow, Subarea 030 (cfs):	9.44	9.33	7.48	6.02	4.79	3.10	2.72	2.21	1.21	-
Bypass Flow, Subarea 031 (cfs):	25.57	26.23	22.46	18.29	13.55	9.95	8.94	7.28	4.01	-
Bypass Flow, Subarea 032 (cfs):	1.64	1.70	1.43	1.16	0.85	0.65	0.59	0.48	0.26	-
Total Bypass Flow To Outfall 1 (cfs):	127.02	131.91	119.31	106.16	90.47	75.29	68.74	61.20	48.25	-
Total Allowable Release Plus By-Pass (cfs):	**137.13**	**142.02**	**129.42**	**116.27**	**100.58**	**85.40**	**78.85**	**71.31**	**58.36**	**-**
Total Proposed Release to Outfall 1 (cfs):	**13.63**	**13.96**	**18.79**	**21.14**	**25.16**	**28.09**	**29.43**	**30.58**	**32.57**	**11.37**
(SWMF-01 + Subarea 010, 030, 032)										
Existing Release to Outfall 1 (cfs):	**28.66**	**32.46**	**35.89**	**37.22**	**38.89**	**40.31**	**40.78**	**40.40**	**39.30**	**20.75**

										Design HWL:
SWMF-01:	879.36	879.68	880.11	880.36	880.87	881.29	881.50	881.67	881.83	883.00
SWMF-02:	881.89	882.36	882.92	883.27	883.96	884.68	885.02	885.27	885.30	885.50
SWMF-03:	883.57	884.36	885.04	885.28	885.5	885.84	885.95	885.88	885.85	886.50
SWMF-04:	884.41	885.23	885.93	886.14	886.21	886.51	886.48	886.33	886.10	886.80
SWMF-05:	887.2	887.62	888.08	88.32	888.75	889.22	889.48	889.69	889.94	891.00
SWMF-06:	887.14	887.57	888.06	888.31	888.75	889.22	889.48	889.68	889.93	891.00

PROJECT: TRAILS OF WOODS CREEK - ALGONQUIN, IL
PREPARED BY: CEMCON, Ltd.

Job No.: 402.136
By: ARF
Date: 4-Dec-19
Rev: 7-Jul-20

Allowable Release Calculations: Critical Duration Analysis Outfall 2
PROPOSED DESIGN - 100 YEAR CRITICAL DURATION ANALYSIS WITH 2 YEAR, 24 HOUR EVENT

100YR Storm:	**0.5**	**1**	**2**	**3**	**6**	**12**	**18**	**24**	**48**	**2Yr-24Hr**
Onsite Allowable Release Rate (cfs/Ac.):	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	-
Development Area (Ac.):	29.91	29.91	29.91	29.91	29.91	29.91	29.91	29.91	29.91	-
Onsite Allowable Release (cfs):	2.99	2.99	2.99	2.99	2.99	2.99	2.99	2.99	2.99	-
Bypass Flow, Subarea 027 (cfs):	9.43	10.14	8.95	7.47	5.40	3.94	3.50	2.84	1.56	-
Bypass Flow, Subarea 033 (cfs):	7.92	8.85	8.13	6.95	4.74	4.04	3.69	3.02	1.68	-
Total Bypass Flow To Outfall 2 (cfs):	17.35	18.99	17.08	14.42	10.14	7.98	7.19	5.86	3.24	-
Total Allowable Release Plus By-Pass (cfs):	**20.34**	**21.98**	**20.07**	**17.41**	**13.13**	**10.97**	**10.18**	**8.85**	**6.23**	**-**
Total Proposed Release to Outfall 2 (cfs):	**13.68**	**14.77**	**13.95**	**12.73**	**10.54**	**9.91**	**9.57**	**8.78**	**6.18**	**3.78**
(SWMF-07 + Subarea 027)										
Existing Release to Outfall 2 (cfs):	**57.38**	**66.35**	**65.94**	**59.36**	**43.51**	**36.00**	**32.20**	**26.43**	**14.65**	**6.88**

										Design HWL:
SWMF-07:	881.83	882.50	882.74	882.74	882.61	882.65	882.64	882.37	881.55	882.70
SWMF-08:	881.33	882.08	882.83	883.21	883.78	884.22	884.39	884.40	884.25	884.50
SWMF-09:	884.98	885.73	886.49	886.88	887.49	888.12	888.43	888.60	888.57	888.60

PROJECT: TRAILS OF WOODS CREEK - ALGONQUIN, IL
PREPARED BY: CEMCON, Ltd.

Job No.: 402.136
By: ARF
Date: 4-Dec-19
Rev: 7-Jul-20

Allowable Release Calculations: Critical Duration Analysis Outfall 1
PRELIMINARY DESIGN - 10 YEAR CRITICAL DURATION ANALYSIS

10YR Storm:	0.5	1	2	3	6	12	18	24	48
Total Proposed Release to Outfall 1 (cfs):	4.57	5.01	7.71	9.71	13.23	16.95	18.92	20.39	22.45
(SWMF-01 + Subarea 010, 030, 032)									
Existing Release to Outfall 1 (cfs):	16.27	21.28	26.40	28.38	29.38	30.48	30.98	30.68	29.56

PROJECT: TRAILS OF WOODS CREEK - ALGONQUIN, IL
PREPARED BY: CEMCON, Ltd.

Job No.: 402.136
By: ARF
Date: 4-Dec-19
Rev: 7-Jul-20

Allowable Release Calculations: Critical Duration Analysis Outfall 2
PRELIMINARY DESIGN - 10 YEAR CRITICAL DURATION ANALYSIS

100YR Storm:	0.5	1	2	3	6	12	18	24	48
Total Proposed Release to Outfall 2 (cfs):	6.22	7.03	7.13	6.81	6.07	6.09	6.09	5.65	4.46
(SWMF-08 + Subarea 027)									
Existing Release to Outfall 2 (cfs):	12.55	14.58	14.04	12.64	10.05	9.35	8.93	7.65	5.01

“BLOCKED” PONDPACK MODEL

& RESULTS

Scenario Calculation Summary

Scenario Summary

ID	65
Label	100Yr 01Hr
Notes	
Active Topology	<I> Base Active Topology
Hydrology	<I> Base Hydrology
Rainfall Runoff	100YEAR01HOUR
Physical	<I> 100 -YEAR TAILWATER
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> Base Calculation Options

Output Summary

Output Increment	0.050 hours	Duration	36.000 hours

Rainfall Summary

Return Event Tag	100	Rainfall Type	Time-Depth Curve
Total Depth	4.0 in	Storm Event	100Yr-1Hr

ICPM Output Summary

Target Convergence	0.00 ft³/s	ICPM Time Step	0.050 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)
001	100Yr 01Hr	100	None	4.975	0.350	103.69	(N/A)	(N/A)
001A	100Yr 01Hr	100	None	0.967	0.600	14.54	(N/A)	(N/A)
002	100Yr 01Hr	100	None	4.148	0.400	80.98	(N/A)	(N/A)
003	100Yr 01Hr	100	None	2.430	0.350	48.96	(N/A)	(N/A)
004	100Yr 01Hr	100	None	1.785	0.400	33.59	(N/A)	(N/A)
005	100Yr 01Hr	100	None	3.784	0.450	66.93	(N/A)	(N/A)
006	100Yr 01Hr	100	None	2.249	0.450	40.39	(N/A)	(N/A)
007	100Yr 01Hr	100	None	2.031	0.400	39.22	(N/A)	(N/A)
008	100Yr 01Hr	100	None	0.871	0.400	17.04	(N/A)	(N/A)
009	100Yr 01Hr	100	None	4.390	0.350	89.58	(N/A)	(N/A)
010	100Yr 01Hr	100	None	0.150	0.400	2.94	(N/A)	(N/A)
020	100Yr 01Hr	100	None	0.027	0.350	0.56	(N/A)	(N/A)
021	100Yr 01Hr	100	None	0.605	0.450	11.02	(N/A)	(N/A)
022	100Yr 01Hr	100	None	12.968	0.600	191.66	(N/A)	(N/A)
023	100Yr 01Hr	100	None	10.872	0.650	149.38	(N/A)	(N/A)
024	100Yr 01Hr	100	None	4.260	0.550	68.17	(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 (ft³/s)	Maximum Water Surface Elevation (ft)	Maximum Pond Storage (ac-ft)
025	100Yr 01Hr	100	None	0.601	0.400	11.77	(N/A)	(N/A)
026	100Yr 01Hr	100	None	5.799	0.550	93.18	(N/A)	(N/A)
027	100Yr 01Hr	100	None	0.565	0.450	10.14	(N/A)	(N/A)
028	100Yr 01Hr	100	None	0.628	0.400	11.95	(N/A)	(N/A)
029	100Yr 01Hr	100	None	0.552	0.200	14.18	(N/A)	(N/A)
030	100Yr 01Hr	100	None	0.437	0.350	9.33	(N/A)	(N/A)
031	100Yr 01Hr	100	None	1.327	0.400	26.23	(N/A)	(N/A)
032	100Yr 01Hr	100	None	0.082	0.350	1.70	(N/A)	(N/A)
033	100Yr 01Hr	100	None	0.506	0.500	8.85	(N/A)	(N/A)
OUTFALL 1	100Yr 01Hr	100	None	0.669	0.350	13.88	(N/A)	(N/A)
OUTFALL 2	100Yr 01Hr	100	None	1.042	1.100	12.69	(N/A)	(N/A)
SWMF-01 (IN)	100Yr 01Hr	100	None	7.150	0.350	134.13	(N/A)	(N/A)
SWMF-01 (OUT)	100Yr 01Hr	100	None	0.000	0.000	0.00	878.49	7.149
SWMF-02 (IN)	100Yr 01Hr	100	None	29.414	0.400	114.48	(N/A)	(N/A)
SWMF-02 (OUT)	100Yr 01Hr	100	None	0.000	0.000	0.00	884.56	29.414
SWMF-03 (IN)	100Yr 01Hr	100	None	3.035	0.400	59.32	(N/A)	(N/A)
SWMF-03 (OUT)	100Yr 01Hr	100	None	0.000	0.000	0.00	884.71	3.035
SWMF-04 (IN)	100Yr 01Hr	100	None	2.386	0.400	45.36	(N/A)	(N/A)
SWMF-04 (OUT)	100Yr 01Hr	100	None	0.000	0.000	0.00	885.75	2.386
SWMF-05 (IN)	100Yr 01Hr	100	None	3.784	0.450	66.93	(N/A)	(N/A)
SWMF-05 (OUT)	100Yr 01Hr	100	None	0.000	0.000	0.00	887.73	3.784
SWMF-06 (IN)	100Yr 01Hr	100	None	2.249	0.450	40.39	(N/A)	(N/A)
SWMF-06 (OUT)	100Yr 01Hr	100	None	0.000	0.000	0.00	887.40	2.249
SWMF-07 (IN)	100Yr 01Hr	100	None	2.031	0.400	39.22	(N/A)	(N/A)
SWMF-07 (OUT)	100Yr 01Hr	100	None	0.477	1.150	9.22	883.03	1.730
SWMF-08 (IN)	100Yr 01Hr	100	None	1.378	0.400	25.35	(N/A)	(N/A)
SWMF-08 (OUT)	100Yr 01Hr	100	None	0.000	0.000	0.00	881.68	1.378
SWMF-09 (IN)	100Yr 01Hr	100	None	4.390	0.350	89.58	(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-09 (OUT)	100Yr 01Hr	100	None	0.000	0.000	0.00	885.80	4.390
SWMF-22 (IN)	100Yr 01Hr	100	None	19.960	0.600	184.82	(N/A)	(N/A)
SWMF-22 (Reverse)	100Yr 01Hr	100	None	-1.277	1.850	-17.22	(N/A)	(N/A)
SWMF-22 (OUT)	100Yr 01Hr	100	None	18.142	1.250	41.51	889.08	7.870
SWMF-23 (IN)	100Yr 01Hr	100	None	13.753	0.650	154.67	(N/A)	(N/A)
SWMF-23 (OUT)	100Yr 01Hr	100	None	9.398	4.550	5.68	887.02	15.457
SWMF-23 (Reverse)	100Yr 01Hr	100	None	-3.682	1.300	-31.55	(N/A)	(N/A)
SWMF-24 (IN)	100Yr 01Hr	100	None	4.260	0.550	68.17	(N/A)	(N/A)
SWMF-24 (OUT)	100Yr 01Hr	100	None	2.881	1.000	6.21	887.17	3.641
SWMF-26 (IN)	100Yr 01Hr	100	None	5.799	0.550	93.18	(N/A)	(N/A)
SWMF-26 (OUT)	100Yr 01Hr	100	None	5.798	1.650	3.66	892.58	5.370

Executive Summary (Links)

Label	Type	Location	Hydrograph Volume (ac-ft)	Peak Time (hours)	Peak Flow (ft³/s)	End Point	Node Flow Direction
SWMF-01 OUTLET	Pond Outlet	Upstream	7.150	0.350	134.13	SWMF-01	Pond Inflow
SWMF-01 OUTLET	Pond Outlet	Outflow	0.000	0.000	0.00	SWMF-01	Pond Outflow
SWMF-01 OUTLET	Pond Outlet	Link	0.000	0.000	0.00		
SWMF-01 OUTLET	Pond Outlet	Downstream	0.669	0.350	13.88	OUTFALL 1	
SWMF-02 OUTLET	Pond Outlet	Upstream	29.414	0.400	114.48	SWMF-02	Pond Inflow
SWMF-02 OUTLET	Pond Outlet	Outflow	0.000	0.000	0.00	SWMF-02	Pond Outflow
SWMF-02 OUTLET	Pond Outlet	Link	0.000	0.000	0.00		
SWMF-02 OUTLET	Pond Outlet	Downstream	7.150	0.350	134.13	SWMF-01	
SWMF-03 OUTLET	Pond Outlet	Upstream	3.035	0.400	59.32	SWMF-03	Pond Inflow

Scenario Calculation Summary

Executive Summary (Links)

Label	Type	Location	Hydrograph Volume (ac-ft)	Peak Time (hours)	Peak Flow (ft³/s)	End Point	Node Flow Direction
SWMF-03 OUTLET	Pond Outlet	Outflow	0.000	0.000	0.00	SWMF-03	Pond Outflow
SWMF-03 OUTLET	Pond Outlet	Link	0.000	0.000	0.00		
SWMF-03 OUTLET	Pond Outlet	Downstream	29.414	0.400	114.48	SWMF-02	
SWMF-04 OUTLET	Pond Outlet	Upstream	2.386	0.400	45.36	SWMF-04	Pond Inflow
SWMF-04 OUTLET	Pond Outlet	Outflow	0.000	0.000	0.00	SWMF-04	Pond Outflow
SWMF-04 OUTLET	Pond Outlet	Link	0.000	0.000	0.00		
SWMF-04 OUTLET	Pond Outlet	Downstream	3.035	0.400	59.32	SWMF-03	
SWMF-05 OUTLET	Pond Outlet	Upstream	3.784	0.450	66.93	SWMF-05	Pond Inflow
SWMF-05 OUTLET	Pond Outlet	Outflow	0.000	0.000	0.00	SWMF-05	Pond Outflow
SWMF-05 OUTLET	Pond Outlet	Link	0.000	0.000	0.00		
SWMF-05 OUTLET	Pond Outlet	Downstream	7.150	0.350	134.13	SWMF-01	
SWMF-06 OUTLET	Pond Outlet	Upstream	2.249	0.450	40.39	SWMF-06	Pond Inflow
SWMF-06 OUTLET	Pond Outlet	Outflow	0.000	0.000	0.00	SWMF-06	Pond Outflow
SWMF-06 OUTLET	Pond Outlet	Link	0.000	0.000	0.00		
SWMF-06 OUTLET	Pond Outlet	Downstream	3.784	0.450	66.93	SWMF-05	
SWMF-07 OUTLET	Pond Outlet	Upstream	2.031	0.400	39.22	SWMF-07	Pond Inflow
SWMF-07 OUTLET	Pond Outlet	Outflow	0.477	1.150	9.22	SWMF-07	Pond Outflow
SWMF-07 OUTLET	Pond Outlet	Link	0.477	1.150	9.22		
SWMF-07 OUTLET	Pond Outlet	Downstream	1.042	1.100	12.69	OUTFALL 2	
SWMF-08 OUTLET	Pond Outlet	Upstream	1.378	0.400	25.35	SWMF-08	Pond Inflow
SWMF-08 OUTLET	Pond Outlet	Outflow	0.000	0.000	0.00	SWMF-08	Pond Outflow
SWMF-08 OUTLET	Pond Outlet	Link	0.000	0.000	0.00		
SWMF-08 OUTLET	Pond Outlet	Downstream	2.031	0.400	39.22	SWMF-07	
SWMF-09 OUTLET	Pond Outlet	Upstream	4.390	0.350	89.58	SWMF-09	Pond Inflow

Scenario Calculation Summary

Executive Summary (Links)

Label	Type	Location	Hydrograph Volume (ac-ft)	Peak Time (hours)	Peak Flow (ft³/s)	End Point	Node Flow Direction
SWMF-09 OUTLET	Pond Outlet	Outflow	0.000	0.000	0.00	SWMF-09	Pond Outflow
SWMF-09 OUTLET	Pond Outlet	Link	0.000	0.000	0.00		
SWMF-09 OUTLET	Pond Outlet	Downstream	1.378	0.400	25.35	SWMF-08	
SWMF-22 OVERLAND	Pond Outlet	Upstream	19.960	0.600	184.82	SWMF-22	Pond Inflow
SWMF-22 OVERLAND	Negative Flow	Upstream	-1.277	1.850	-17.22	SWMF-22	Pond Inflow
SWMF-22 OVERLAND	Pond Outlet	Outflow	18.142	1.250	41.51	SWMF-22	Pond Outflow
SWMF-22 OVERLAND	Pond Outlet	Link	0.000	0.000	0.00		
SWMF-22 OVERLAND	Pond Outlet	Downstream	2.386	0.400	45.36	SWMF-04	
SWMF-22 SEWER	Pond Outlet	Upstream	19.960	0.600	184.82	SWMF-22	Pond Inflow
SWMF-22 SEWER	Negative Flow	Upstream	-1.277	1.850	-17.22	SWMF-22	Pond Inflow
SWMF-22 SEWER	Pond Outlet	Outflow	18.142	1.250	41.51	SWMF-22	Pond Outflow
SWMF-22 SEWER	Pond Outlet	Link	18.142	1.250	41.51		
SWMF-22 SEWER	Pond Outlet	Downstream	29.414	0.400	114.48	SWMF-02	
SWMF-23 OUTLET	Pond Outlet	Upstream	13.753	0.650	154.67	SWMF-23	Pond Inflow
SWMF-23 OUTLET	Pond Outlet	Outflow	9.398	4.550	5.68	SWMF-23	Pond Outflow
SWMF-23 OUTLET	Negative Flow	Outflow	-3.682	1.300	-31.55	SWMF-23	Pond Outflow
SWMF-23 OUTLET	Pond Outlet	Link	9.390	4.550	5.68		
SWMF-23 OUTLET	Negative Flow	Link	-3.682	1.300	-31.55		
SWMF-23 OUTLET	Pond Outlet	Downstream	19.960	0.600	184.82	SWMF-22	
SWMF-23 OUTLET	Negative Flow	Downstream	-1.277	1.850	-17.22	SWMF-22	
SWMF-24 OUTLET	Pond Outlet	Upstream	4.260	0.550	68.17	SWMF-24	Pond Inflow
SWMF-24 OUTLET	Pond Outlet	Outflow	2.881	1.000	6.21	SWMF-24	Pond Outflow
SWMF-24 OUTLET	Pond Outlet	Link	2.881	1.000	6.21		
SWMF-24 OUTLET	Pond Outlet	Downstream	13.753	0.650	154.67	SWMF-23	

Scenario Calculation Summary

Executive Summary (Links)

Label	Type	Location	Hydrograph Volume (ac-ft)	Peak Time (hours)	Peak Flow (ft³/s)	End Point	Node Flow Direction
SWMF-26 OUTLET	Pond Outlet	Upstream	5.799	0.550	93.18	SWMF-26	Pond Inflow
SWMF-26 OUTLET	Pond Outlet	Outflow	5.798	1.650	3.66	SWMF-26	Pond Outflow
SWMF-26 OUTLET	Pond Outlet	Link	5.798	1.650	3.66		
SWMF-26 OUTLET	Pond Outlet	Downstream	29.414	0.400	114.48	SWMF-02	

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Time-Depth Curve: 100Yr-1Hr	
Label	100Yr-1Hr
Start Time	0.000 hours
Increment	0.050 hours
End Time	1.000 hours
Return Event	100 years

CUMULATIVE RAINFALL (in)
Output Time Increment = 0.050 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	0.6	1.3	1.7	2.1
0.250	2.4	2.7	2.9	3.0	3.2
0.500	3.3	3.4	3.5	3.6	3.6
0.750	3.7	3.8	3.9	3.9	4.0
1.000	4.0	(N/A)	(N/A)	(N/A)	(N/A)

Storm Event	100Yr-1Hr
Return Event	100 years
Duration	36.000 hours
Depth	4.0 in
Time of Concentration (Composite)	0.260 hours
Area (User Defined)	22.410 acres

Computational Time Increment	0.035 hours
Time to Peak (Computed)	0.347 hours
Flow (Peak, Computed)	103.83 ft³/s
Output Increment	0.050 hours
Time to Flow (Peak Interpolated Output)	0.350 hours
Flow (Peak Interpolated Output)	103.69 ft³/s

Drainage Area

SCS CN (Composite)	87.000
Area (User Defined)	22.410 acres
Maximum Retention (Pervious)	1.5 in
Maximum Retention (Pervious, 20 percent)	0.3 in

Cumulative Runoff

Cumulative Runoff Depth (Pervious)	2.7 in
Runoff Volume (Pervious)	4.975 ac-ft

Hydrograph Volume (Area under Hydrograph curve)

Volume	4.975 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	97.66 ft³/s
Unit peak time, Tp	0.173 hours

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

Storm Event	100Yr-1Hr
Return Event	100 years
Duration	36.000 hours
Depth	4.0 in
Time of Concentration (Composite)	0.510 hours
Area (User Defined)	5.840 acres

Computational Time Increment	0.068 hours
Time to Peak (Computed)	0.612 hours
Flow (Peak, Computed)	14.57 ft³/s
Output Increment	0.050 hours
Time to Flow (Peak Interpolated Output)	0.600 hours
Flow (Peak Interpolated Output)	14.54 ft³/s

Drainage Area

SCS CN (Composite)	79.000
Area (User Defined)	5.840 acres
Maximum Retention (Pervious)	2.7 in
Maximum Retention (Pervious, 20 percent)	0.5 in

Cumulative Runoff

Cumulative Runoff Depth (Pervious)	2.0 in
Runoff Volume (Pervious)	0.967 ac-ft

Hydrograph Volume (Area under Hydrograph curve)

Volume	0.967 ac-ft

SCS Unit Hydrograph Parameters

Time of Concentration (Composite)	0.510 hours
Computational Time Increment	0.068 hours
Unit Hydrograph Shape Factor	483.432
K Factor	0.749
Receding/Rising, Tr/Tp	1.670
Unit peak, qp	12.97 ft³/s
Unit peak time, Tp	0.340 hours

SCS Unit Hydrograph Parameters	
Unit receding limb, Tr	1.360 hours
Total unit time, Tb	1.700 hours

Storm Event	100Yr-1Hr
Return Event	100 years
Duration	36.000 hours
Depth	4.0 in
Time of Concentration (Composite)	0.300 hours
Area (User Defined)	20.030 acres

Computational Time Increment	0.040 hours
Time to Peak (Computed)	0.400 hours
Flow (Peak, Computed)	80.98 ft³/s
Output Increment	0.050 hours
Time to Flow (Peak Interpolated Output)	0.400 hours
Flow (Peak Interpolated Output)	80.98 ft³/s

Drainage Area

SCS CN (Composite)	85.000
Area (User Defined)	20.030 acres
Maximum Retention (Pervious)	1.8 in
Maximum Retention (Pervious, 20 percent)	0.4 in

Cumulative Runoff

Cumulative Runoff Depth (Pervious)	2.5 in
Runoff Volume (Pervious)	4.147 ac-ft

Hydrograph Volume (Area under Hydrograph curve)

Volume	4.148 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	75.65 ft³/s
Unit peak time, Tp	0.200 hours

SCS Unit Hydrograph Parameters	
Unit receding limb, Tr	0.800 hours
Total unit time, Tb	1.000 hours

Storm Event	100Yr-1Hr
Return Event	100 years
Duration	36.000 hours
Depth	4.0 in
Time of Concentration (Composite)	0.260 hours
Area (User Defined)	12.610 acres

Computational Time Increment	0.035 hours
Time to Peak (Computed)	0.381 hours
Flow (Peak, Computed)	49.15 ft³/s
Output Increment	0.050 hours
Time to Flow (Peak Interpolated Output)	0.350 hours
Flow (Peak Interpolated Output)	48.96 ft³/s

Drainage Area

SCS CN (Composite)	83.000
Area (User Defined)	12.610 acres
Maximum Retention (Pervious)	2.0 in
Maximum Retention (Pervious, 20 percent)	0.4 in

Cumulative Runoff

Cumulative Runoff Depth (Pervious)	2.3 in
Runoff Volume (Pervious)	2.430 ac-ft

Hydrograph Volume (Area under Hydrograph curve)

Volume	2.430 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	54.95 ft³/s
Unit peak time, Tp	0.173 hours

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

Storm Event	100Yr-1Hr
Return Event	100 years
Duration	36.000 hours
Depth	4.0 in
Time of Concentration (Composite)	0.310 hours
Area (User Defined)	9.610 acres

Computational Time Increment	0.041 hours
Time to Peak (Computed)	0.413 hours
Flow (Peak, Computed)	33.82 ft³/s
Output Increment	0.050 hours
Time to Flow (Peak Interpolated Output)	0.400 hours
Flow (Peak Interpolated Output)	33.59 ft³/s

Drainage Area

SCS CN (Composite)	82.000
Area (User Defined)	9.610 acres
Maximum Retention (Pervious)	2.2 in
Maximum Retention (Pervious, 20 percent)	0.4 in

Cumulative Runoff

Cumulative Runoff Depth (Pervious)	2.2 in
Runoff Volume (Pervious)	1.785 ac-ft

Hydrograph Volume (Area under Hydrograph curve)

Volume	1.785 ac-ft

SCS Unit Hydrograph Parameters

Time of Concentration (Composite)	0.310 hours
Computational Time Increment	0.041 hours
Unit Hydrograph Shape Factor	483.432
K Factor	0.749
Receding/Rising, Tr/Tp	1.670
Unit peak, qp	35.12 ft³/s
Unit peak time, Tp	0.207 hours

SCS Unit Hydrograph Parameters	
Unit receding limb, Tr	0.827 hours
Total unit time, Tb	1.033 hours

Storm Event	100Yr-1Hr
Return Event	100 years
Duration	36.000 hours
Depth	4.0 in
Time of Concentration (Composite)	0.380 hours
Area (User Defined)	18.280 acres

Computational Time Increment	0.051 hours
Time to Peak (Computed)	0.456 hours
Flow (Peak, Computed)	67.15 ft³/s
Output Increment	0.050 hours
Time to Flow (Peak Interpolated Output)	0.450 hours
Flow (Peak Interpolated Output)	66.93 ft³/s

Drainage Area

SCS CN (Composite)	85.000
Area (User Defined)	18.280 acres
Maximum Retention (Pervious)	1.8 in
Maximum Retention (Pervious, 20 percent)	0.4 in

Cumulative Runoff

Cumulative Runoff Depth (Pervious)	2.5 in
Runoff Volume (Pervious)	3.785 ac-ft

Hydrograph Volume (Area under Hydrograph curve)

Volume	3.784 ac-ft

SCS Unit Hydrograph Parameters

Time of Concentration (Composite)	0.380 hours
Computational Time Increment	0.051 hours
Unit Hydrograph Shape Factor	483.432
K Factor	0.749
Receding/Rising, Tr/Tp	1.670
Unit peak, qp	54.51 ft³/s
Unit peak time, Tp	0.253 hours

SCS Unit Hydrograph Parameters	
Unit receding limb, Tr	1.013 hours
Total unit time, Tb	1.267 hours

Storm Event	100Yr-1Hr
Return Event	100 years
Duration	36.000 hours
Depth	4.0 in
Time of Concentration (Composite)	0.360 hours
Area (User Defined)	11.270 acres

Computational Time Increment	0.048 hours
Time to Peak (Computed)	0.432 hours
Flow (Peak, Computed)	40.56 ft³/s
Output Increment	0.050 hours
Time to Flow (Peak Interpolated Output)	0.450 hours
Flow (Peak Interpolated Output)	40.39 ft³/s

Drainage Area

SCS CN (Composite)	84.000
Area (User Defined)	11.270 acres
Maximum Retention (Pervious)	1.9 in
Maximum Retention (Pervious, 20 percent)	0.4 in

Cumulative Runoff

Cumulative Runoff Depth (Pervious)	2.4 in
Runoff Volume (Pervious)	2.252 ac-ft

Hydrograph Volume (Area under Hydrograph curve)

Volume	2.249 ac-ft

SCS Unit Hydrograph Parameters

Time of Concentration (Composite)	0.360 hours
Computational Time Increment	0.048 hours
Unit Hydrograph Shape Factor	483.432
K Factor	0.749
Receding/Rising, Tr/Tp	1.670
Unit peak, qp	35.47 ft³/s
Unit peak time, Tp	0.240 hours

SCS Unit Hydrograph Parameters	
Unit receding limb, Tr	0.960 hours
Total unit time, Tb	1.200 hours

Storm Event	100Yr-1Hr
Return Event	100 years
Duration	36.000 hours
Depth	4.0 in
Time of Concentration (Composite)	0.330 hours
Area (User Defined)	8.540 acres

Computational Time Increment	0.044 hours
Time to Peak (Computed)	0.396 hours
Flow (Peak, Computed)	39.29 ft³/s
Output Increment	0.050 hours
Time to Flow (Peak Interpolated Output)	0.400 hours
Flow (Peak Interpolated Output)	39.22 ft³/s

Drainage Area

SCS CN (Composite)	89.000
Area (User Defined)	8.540 acres
Maximum Retention (Pervious)	1.2 in
Maximum Retention (Pervious, 20 percent)	0.2 in

Cumulative Runoff

Cumulative Runoff Depth (Pervious)	2.9 in
Runoff Volume (Pervious)	2.029 ac-ft

Hydrograph Volume (Area under Hydrograph curve)

Volume	2.031 ac-ft

SCS Unit Hydrograph Parameters

Time of Concentration (Composite)	0.330 hours
Computational Time Increment	0.044 hours
Unit Hydrograph Shape Factor	483.432
K Factor	0.749
Receding/Rising, Tr/Tp	1.670
Unit peak, qp	29.32 ft³/s
Unit peak time, Tp	0.220 hours

SCS Unit Hydrograph Parameters	
Unit receding limb, Tr	0.880 hours
Total unit time, Tb	1.100 hours

Storm Event	100Yr-1Hr
Return Event	100 years
Duration	36.000 hours
Depth	4.0 in
Time of Concentration (Composite)	0.290 hours
Area (User Defined)	4.360 acres

Computational Time Increment	0.039 hours
Time to Peak (Computed)	0.387 hours
Flow (Peak, Computed)	17.14 ft³/s
Output Increment	0.050 hours
Time to Flow (Peak Interpolated Output)	0.400 hours
Flow (Peak Interpolated Output)	17.04 ft³/s

Drainage Area

SCS CN (Composite)	84.000
Area (User Defined)	4.360 acres
Maximum Retention (Pervious)	1.9 in
Maximum Retention (Pervious, 20 percent)	0.4 in

Cumulative Runoff

Cumulative Runoff Depth (Pervious)	2.4 in
Runoff Volume (Pervious)	0.871 ac-ft

Hydrograph Volume (Area under Hydrograph curve)

Volume	0.871 ac-ft

SCS Unit Hydrograph Parameters

Time of Concentration (Composite)	0.290 hours
Computational Time Increment	0.039 hours
Unit Hydrograph Shape Factor	483.432
K Factor	0.749
Receding/Rising, Tr/Tp	1.670
Unit peak, qp	17.03 ft³/s
Unit peak time, Tp	0.193 hours

SCS Unit Hydrograph Parameters	
Unit receding limb, Tr	0.773 hours
Total unit time, Tb	0.967 hours

Storm Event	100Yr-1Hr
Return Event	100 years
Duration	36.000 hours
Depth	4.0 in
Time of Concentration (Composite)	0.250 hours
Area (User Defined)	22.780 acres

Computational Time Increment	0.033 hours
Time to Peak (Computed)	0.367 hours
Flow (Peak, Computed)	90.09 ft³/s
Output Increment	0.050 hours
Time to Flow (Peak Interpolated Output)	0.350 hours
Flow (Peak Interpolated Output)	89.58 ft³/s

Drainage Area

SCS CN (Composite)	83.000
Area (User Defined)	22.780 acres
Maximum Retention (Pervious)	2.0 in
Maximum Retention (Pervious, 20 percent)	0.4 in

Cumulative Runoff

Cumulative Runoff Depth (Pervious)	2.3 in
Runoff Volume (Pervious)	4.389 ac-ft

Hydrograph Volume (Area under Hydrograph curve)

Volume	4.390 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	103.24 ft³/s
Unit peak time, Tp	0.167 hours

SCS Unit Hydrograph Parameters	
Unit receding limb, Tr	0.667 hours
Total unit time, Tb	0.833 hours

Storm Event	100Yr-1Hr
Return Event	100 years
Duration	36.000 hours
Depth	4.0 in
Time of Concentration (Composite)	0.250 hours
Area (User Defined)	1.020 acres

Computational Time Increment	0.033 hours
Time to Peak (Computed)	0.400 hours
Flow (Peak, Computed)	2.94 ft³/s
Output Increment	0.050 hours
Time to Flow (Peak Interpolated Output)	0.400 hours
Flow (Peak Interpolated Output)	2.94 ft³/s

Drainage Area

SCS CN (Composite)	76.000
Area (User Defined)	1.020 acres
Maximum Retention (Pervious)	3.2 in
Maximum Retention (Pervious, 20 percent)	0.6 in

Cumulative Runoff

Cumulative Runoff Depth (Pervious)	1.8 in
Runoff Volume (Pervious)	0.150 ac-ft

Hydrograph Volume (Area under Hydrograph curve)

Volume	0.150 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	4.62 ft³/s
Unit peak time, Tp	0.167 hours

Subsection: Unit Hydrograph Summary

Label: 010

Return Event: 100 years

Storm Event: 100Yr-1Hr

SCS Unit Hydrograph Parameters	
Unit receding limb, Tr	0.667 hours
Total unit time, Tb	0.833 hours

Storm Event	100Yr-1Hr
Return Event	100 years
Duration	36.000 hours
Depth	4.0 in
Time of Concentration (Composite)	0.200 hours
Area (User Defined)	0.200 acres

Computational Time Increment	0.027 hours
Time to Peak (Computed)	0.347 hours
Flow (Peak, Computed)	0.56 ft³/s
Output Increment	0.050 hours
Time to Flow (Peak Interpolated Output)	0.350 hours
Flow (Peak Interpolated Output)	0.56 ft³/s

Drainage Area

SCS CN (Composite)	74.000
Area (User Defined)	0.200 acres
Maximum Retention (Pervious)	3.5 in
Maximum Retention (Pervious, 20 percent)	0.7 in

Cumulative Runoff

Cumulative Runoff Depth (Pervious)	1.6 in
Runoff Volume (Pervious)	0.027 ac-ft

Hydrograph Volume (Area under Hydrograph curve)

Volume	0.027 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	1.13 ft³/s
Unit peak time, Tp	0.133 hours

SCS Unit Hydrograph Parameters	
Unit receding limb, Tr	0.533 hours
Total unit time, Tb	0.667 hours

Storm Event	100Yr-1Hr
Return Event	100 years
Duration	36.000 hours
Depth	4.0 in
Time of Concentration (Composite)	0.330 hours
Area (User Defined)	3.510 acres

Computational Time Increment	0.044 hours
Time to Peak (Computed)	0.440 hours
Flow (Peak, Computed)	11.07 ft³/s
Output Increment	0.050 hours
Time to Flow (Peak Interpolated Output)	0.450 hours
Flow (Peak Interpolated Output)	11.02 ft³/s

Drainage Area

SCS CN (Composite)	80.000
Area (User Defined)	3.510 acres
Maximum Retention (Pervious)	2.5 in
Maximum Retention (Pervious, 20 percent)	0.5 in

Cumulative Runoff

Cumulative Runoff Depth (Pervious)	2.1 in
Runoff Volume (Pervious)	0.604 ac-ft

Hydrograph Volume (Area under Hydrograph curve)

Volume	0.605 ac-ft

SCS Unit Hydrograph Parameters

Time of Concentration (Composite)	0.330 hours
Computational Time Increment	0.044 hours
Unit Hydrograph Shape Factor	483.432
K Factor	0.749
Receding/Rising, Tr/Tp	1.670
Unit peak, qp	12.05 ft³/s
Unit peak time, Tp	0.220 hours

SCS Unit Hydrograph Parameters	
Unit receding limb, Tr	0.880 hours
Total unit time, Tb	1.100 hours

Storm Event	100Yr-1Hr
Return Event	100 years
Duration	36.000 hours
Depth	4.0 in
Time of Concentration (Composite)	0.530 hours
Area (User Defined)	75.300 acres

Computational Time Increment	0.071 hours
Time to Peak (Computed)	0.565 hours
Flow (Peak, Computed)	191.74 ft³/s
Output Increment	0.050 hours
Time to Flow (Peak Interpolated Output)	0.600 hours
Flow (Peak Interpolated Output)	191.66 ft³/s

Drainage Area

SCS CN (Composite)	80.000
Area (User Defined)	75.300 acres
Maximum Retention (Pervious)	2.5 in
Maximum Retention (Pervious, 20 percent)	0.5 in

Cumulative Runoff

Cumulative Runoff Depth (Pervious)	2.1 in
Runoff Volume (Pervious)	12.967 ac-ft

Hydrograph Volume (Area under Hydrograph curve)

Volume	12.968 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	160.98 ft³/s
Unit peak time, Tp	0.353 hours

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

Storm Event	100Yr-1Hr
Return Event	100 years
Duration	36.000 hours
Depth	4.0 in
Time of Concentration (Composite)	0.600 hours
Area (User Defined)	71.080 acres

Computational Time Increment	0.080 hours
Time to Peak (Computed)	0.640 hours
Flow (Peak, Computed)	149.54 ft³/s
Output Increment	0.050 hours
Time to Flow (Peak Interpolated Output)	0.650 hours
Flow (Peak Interpolated Output)	149.38 ft³/s

Drainage Area

SCS CN (Composite)	77.000
Area (User Defined)	71.080 acres
Maximum Retention (Pervious)	3.0 in
Maximum Retention (Pervious, 20 percent)	0.6 in

Cumulative Runoff

Cumulative Runoff Depth (Pervious)	1.8 in
Runoff Volume (Pervious)	10.872 ac-ft

Hydrograph Volume (Area under Hydrograph curve)

Volume	10.872 ac-ft

SCS Unit Hydrograph Parameters

Time of Concentration (Composite)	0.600 hours
Computational Time Increment	0.080 hours
Unit Hydrograph Shape Factor	483.432
K Factor	0.749
Receding/Rising, Tr/Tp	1.670
Unit peak, qp	134.23 ft³/s
Unit peak time, Tp	0.400 hours

SCS Unit Hydrograph Parameters	
Unit receding limb, Tr	1.600 hours
Total unit time, Tb	2.000 hours

Storm Event	100Yr-1Hr
Return Event	100 years
Duration	36.000 hours
Depth	4.0 in
Time of Concentration (Composite)	0.440 hours
Area (User Defined)	26.750 acres

Computational Time Increment	0.059 hours
Time to Peak (Computed)	0.528 hours
Flow (Peak, Computed)	68.60 ft³/s
Output Increment	0.050 hours
Time to Flow (Peak Interpolated Output)	0.550 hours
Flow (Peak Interpolated Output)	68.17 ft³/s

Drainage Area

SCS CN (Composite)	78.000
Area (User Defined)	26.750 acres
Maximum Retention (Pervious)	2.8 in
Maximum Retention (Pervious, 20 percent)	0.6 in

Cumulative Runoff

Cumulative Runoff Depth (Pervious)	1.9 in
Runoff Volume (Pervious)	4.260 ac-ft

Hydrograph Volume (Area under Hydrograph curve)

Volume	4.260 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	68.88 ft³/s
Unit peak time, Tp	0.293 hours

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

Storm Event	100Yr-1Hr
Return Event	100 years
Duration	36.000 hours
Depth	4.0 in
Time of Concentration (Composite)	0.270 hours
Area (User Defined)	3.490 acres

Computational Time Increment	0.036 hours
Time to Peak (Computed)	0.396 hours
Flow (Peak, Computed)	11.79 ft³/s
Output Increment	0.050 hours
Time to Flow (Peak Interpolated Output)	0.400 hours
Flow (Peak Interpolated Output)	11.77 ft³/s

Drainage Area

SCS CN (Composite)	80.000
Area (User Defined)	3.490 acres
Maximum Retention (Pervious)	2.5 in
Maximum Retention (Pervious, 20 percent)	0.5 in

Cumulative Runoff

Cumulative Runoff Depth (Pervious)	2.1 in
Runoff Volume (Pervious)	0.601 ac-ft

Hydrograph Volume (Area under Hydrograph curve)

Volume	0.601 ac-ft

SCS Unit Hydrograph Parameters

Time of Concentration (Composite)	0.270 hours
Computational Time Increment	0.036 hours
Unit Hydrograph Shape Factor	483.432
K Factor	0.749
Receding/Rising, Tr/Tp	1.670
Unit peak, qp	14.65 ft³/s
Unit peak time, Tp	0.180 hours

SCS Unit Hydrograph Parameters	
Unit receding limb, Tr	0.720 hours
Total unit time, Tb	0.900 hours

Storm Event	100Yr-1Hr
Return Event	100 years
Duration	36.000 hours
Depth	4.0 in
Time of Concentration (Composite)	0.450 hours
Area (User Defined)	32.410 acres

Computational Time Increment	0.060 hours
Time to Peak (Computed)	0.540 hours
Flow (Peak, Computed)	93.70 ft³/s
Output Increment	0.050 hours
Time to Flow (Peak Interpolated Output)	0.550 hours
Flow (Peak Interpolated Output)	93.18 ft³/s

Drainage Area

SCS CN (Composite)	81.000
Area (User Defined)	32.410 acres
Maximum Retention (Pervious)	2.3 in
Maximum Retention (Pervious, 20 percent)	0.5 in

Cumulative Runoff

Cumulative Runoff Depth (Pervious)	2.1 in
Runoff Volume (Pervious)	5.798 ac-ft

Hydrograph Volume (Area under Hydrograph curve)

Volume	5.799 ac-ft

SCS Unit Hydrograph Parameters

Time of Concentration (Composite)	0.450 hours
Computational Time Increment	0.060 hours
Unit Hydrograph Shape Factor	483.432
K Factor	0.749
Receding/Rising, Tr/Tp	1.670
Unit peak, qp	81.60 ft³/s
Unit peak time, Tp	0.300 hours

SCS Unit Hydrograph Parameters	
Unit receding limb, Tr	1.200 hours
Total unit time, Tb	1.500 hours

Storm Event	100Yr-1Hr
Return Event	100 years
Duration	36.000 hours
Depth	4.0 in
Time of Concentration (Composite)	0.340 hours
Area (User Defined)	3.410 acres

Computational Time Increment	0.045 hours
Time to Peak (Computed)	0.453 hours
Flow (Peak, Computed)	10.16 ft³/s
Output Increment	0.050 hours
Time to Flow (Peak Interpolated Output)	0.450 hours
Flow (Peak Interpolated Output)	10.14 ft³/s

Drainage Area	
SCS CN (Composite)	79.000
Area (User Defined)	3.410 acres
Maximum Retention (Pervious)	2.7 in
Maximum Retention (Pervious, 20 percent)	0.5 in

Cumulative Runoff	
Cumulative Runoff Depth (Pervious)	2.0 in
Runoff Volume (Pervious)	0.565 ac-ft

Hydrograph Volume (Area under Hydrograph curve)	
Volume	0.565 ac-ft

SCS Unit Hydrograph Parameters	
Time of Concentration (Composite)	0.340 hours
Computational Time Increment	0.045 hours
Unit Hydrograph Shape Factor	483.432
K Factor	0.749
Receding/Rising, Tr/Tp	1.670
Unit peak, qp	11.36 ft³/s
Unit peak time, Tp	0.227 hours

SCS Unit Hydrograph Parameters	
Unit receding limb, Tr	0.907 hours
Total unit time, Tb	1.133 hours

Storm Event	100Yr-1Hr
Return Event	100 years
Duration	36.000 hours
Depth	4.0 in
Time of Concentration (Composite)	0.300 hours
Area (User Defined)	3.510 acres

Computational Time Increment	0.040 hours
Time to Peak (Computed)	0.400 hours
Flow (Peak, Computed)	11.95 ft³/s
Output Increment	0.050 hours
Time to Flow (Peak Interpolated Output)	0.400 hours
Flow (Peak Interpolated Output)	11.95 ft³/s

Drainage Area

SCS CN (Composite)	81.000
Area (User Defined)	3.510 acres
Maximum Retention (Pervious)	2.3 in
Maximum Retention (Pervious, 20 percent)	0.5 in

Cumulative Runoff

Cumulative Runoff Depth (Pervious)	2.1 in
Runoff Volume (Pervious)	0.628 ac-ft

Hydrograph Volume (Area under Hydrograph curve)

Volume	0.628 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	13.26 ft³/s
Unit peak time, Tp	0.200 hours

SCS Unit Hydrograph Parameters	
Unit receding limb, Tr	0.800 hours
Total unit time, Tb	1.000 hours

Storm Event	100Yr-1Hr
Return Event	100 years
Duration	36.000 hours
Depth	4.0 in
Time of Concentration (Composite)	0.100 hours
Area (User Defined)	2.490 acres

Computational Time Increment	0.013 hours
Time to Peak (Computed)	0.213 hours
Flow (Peak, Computed)	14.19 ft³/s
Output Increment	0.050 hours
Time to Flow (Peak Interpolated Output)	0.200 hours
Flow (Peak Interpolated Output)	14.18 ft³/s

Drainage Area

SCS CN (Composite)	87.000
Area (User Defined)	2.490 acres
Maximum Retention (Pervious)	1.5 in
Maximum Retention (Pervious, 20 percent)	0.3 in

Cumulative Runoff

Cumulative Runoff Depth (Pervious)	2.7 in
Runoff Volume (Pervious)	0.553 ac-ft

Hydrograph Volume (Area under Hydrograph curve)

Volume	0.552 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	28.21 ft³/s
Unit peak time, Tp	0.067 hours

SCS Unit Hydrograph Parameters	
Unit receding limb, Tr	0.267 hours
Total unit time, Tb	0.333 hours

Storm Event	100Yr-1Hr
Return Event	100 years
Duration	36.000 hours
Depth	4.0 in
Time of Concentration (Composite)	0.200 hours
Area (User Defined)	2.640 acres

Computational Time Increment	0.027 hours
Time to Peak (Computed)	0.347 hours
Flow (Peak, Computed)	9.36 ft³/s
Output Increment	0.050 hours
Time to Flow (Peak Interpolated Output)	0.350 hours
Flow (Peak Interpolated Output)	9.33 ft³/s

Drainage Area

SCS CN (Composite)	79.000
Area (User Defined)	2.640 acres
Maximum Retention (Pervious)	2.7 in
Maximum Retention (Pervious, 20 percent)	0.5 in

Cumulative Runoff

Cumulative Runoff Depth (Pervious)	2.0 in
Runoff Volume (Pervious)	0.437 ac-ft

Hydrograph Volume (Area under Hydrograph curve)

Volume	0.437 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	14.96 ft³/s
Unit peak time, Tp	0.133 hours

Subsection: Unit Hydrograph Summary
Label: 030

Return Event: 100 years
Storm Event: 100Yr-1Hr

SCS Unit Hydrograph Parameters	
Unit receding limb, Tr	0.533 hours
Total unit time, Tb	0.667 hours

Storm Event	100Yr-1Hr
Return Event	100 years
Duration	36.000 hours
Depth	4.0 in
Time of Concentration (Composite)	0.240 hours
Area (User Defined)	9.040 acres

Computational Time Increment	0.032 hours
Time to Peak (Computed)	0.384 hours
Flow (Peak, Computed)	26.41 ft³/s
Output Increment	0.050 hours
Time to Flow (Peak Interpolated Output)	0.400 hours
Flow (Peak Interpolated Output)	26.23 ft³/s

Drainage Area

SCS CN (Composite)	76.000
Area (User Defined)	9.040 acres
Maximum Retention (Pervious)	3.2 in
Maximum Retention (Pervious, 20 percent)	0.6 in

Cumulative Runoff

Cumulative Runoff Depth (Pervious)	1.8 in
Runoff Volume (Pervious)	1.327 ac-ft

Hydrograph Volume (Area under Hydrograph curve)

Volume	1.327 ac-ft

SCS Unit Hydrograph Parameters

Time of Concentration (Composite)	0.240 hours
Computational Time Increment	0.032 hours
Unit Hydrograph Shape Factor	483.432
K Factor	0.749
Receding/Rising, Tr/Tp	1.670
Unit peak, qp	42.68 ft³/s
Unit peak time, Tp	0.160 hours

SCS Unit Hydrograph Parameters	
Unit receding limb, Tr	0.640 hours
Total unit time, Tb	0.800 hours

Storm Event	100Yr-1Hr
Return Event	100 years
Duration	36.000 hours
Depth	4.0 in
Time of Concentration (Composite)	0.200 hours
Area (User Defined)	0.610 acres

Computational Time Increment	0.027 hours
Time to Peak (Computed)	0.347 hours
Flow (Peak, Computed)	1.70 ft³/s
Output Increment	0.050 hours
Time to Flow (Peak Interpolated Output)	0.350 hours
Flow (Peak Interpolated Output)	1.70 ft³/s

Drainage Area

SCS CN (Composite)	74.000
Area (User Defined)	0.610 acres
Maximum Retention (Pervious)	3.5 in
Maximum Retention (Pervious, 20 percent)	0.7 in

Cumulative Runoff

Cumulative Runoff Depth (Pervious)	1.6 in
Runoff Volume (Pervious)	0.082 ac-ft

Hydrograph Volume (Area under Hydrograph curve)

Volume	0.082 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	3.46 ft³/s
Unit peak time, Tp	0.133 hours

SCS Unit Hydrograph Parameters	
Unit receding limb, Tr	0.533 hours
Total unit time, Tb	0.667 hours

Storm Event	100Yr-1Hr
Return Event	100 years
Duration	36.000 hours
Depth	4.0 in
Time of Concentration (Composite)	0.330 hours
Area (User Defined)	3.920 acres

Computational Time Increment	0.044 hours
Time to Peak (Computed)	0.484 hours
Flow (Peak, Computed)	8.92 ft³/s
Output Increment	0.050 hours
Time to Flow (Peak Interpolated Output)	0.500 hours
Flow (Peak Interpolated Output)	8.85 ft³/s

Drainage Area

SCS CN (Composite)	73.000
Area (User Defined)	3.920 acres
Maximum Retention (Pervious)	3.7 in
Maximum Retention (Pervious, 20 percent)	0.7 in

Cumulative Runoff

Cumulative Runoff Depth (Pervious)	1.5 in
Runoff Volume (Pervious)	0.506 ac-ft

Hydrograph Volume (Area under Hydrograph curve)

Volume	0.506 ac-ft

SCS Unit Hydrograph Parameters

Time of Concentration (Composite)	0.330 hours
Computational Time Increment	0.044 hours
Unit Hydrograph Shape Factor	483.432
K Factor	0.749
Receding/Rising, Tr/Tp	1.670
Unit peak, qp	13.46 ft³/s
Unit peak time, Tp	0.220 hours

SCS Unit Hydrograph Parameters	
Unit receding limb, Tr	0.880 hours
Total unit time, Tb	1.100 hours

Elevation-Volume

Pond Elevation (ft)	Pond Volume (ac-ft)
877.00	0.000
878.00	4.399
879.00	10.056
880.00	16.547
881.00	23.432
882.00	30.617
883.00	38.107
884.00	45.905

Elevation-Volume

Pond Elevation (ft)	Pond Volume (ac-ft)
880.00	0.000
881.00	4.104
882.00	10.081
883.00	17.242
884.00	24.877
885.00	32.932
885.50	37.119
886.00	41.412
886.50	45.813

Elevation-Volume

Pond Elevation (ft)	Pond Volume (ac-ft)
881.00	0.000
882.00	0.583
883.00	1.342
884.00	2.265
885.00	3.347
886.00	4.595
886.50	5.284
887.00	6.019
887.50	6.800

Elevation-Volume

Pond Elevation (ft)	Pond Volume (ac-ft)
882.00	0.000
883.00	0.440
884.00	1.048
885.00	1.779
886.00	2.591
886.50	3.030
887.00	3.493
887.50	3.981

Elevation-Volume

Pond Elevation (ft)	Pond Volume (ac-ft)
886.00	0.000
887.00	2.026
888.00	4.436
889.00	7.122
890.00	10.017
891.00	13.118
892.00	16.689
893.00	21.325

Elevation-Volume

Pond Elevation (ft)	Pond Volume (ac-ft)
886.00	0.000
887.00	1.524
888.00	3.324
889.00	5.356
890.00	7.554
891.00	9.947
892.00	12.807

Elevation-Volume

Pond Elevation (ft)	Pond Volume (ac-ft)
878.90	0.000
879.00	0.030
880.00	0.367
881.00	0.758
882.00	1.205
882.70	1.554
883.00	1.713
883.50	1.989

Elevation-Volume

Pond Elevation (ft)	Pond Volume (ac-ft)
879.50	0.000
880.00	0.271
881.00	0.890
882.00	1.609
883.00	2.423
884.00	3.332
884.50	3.822
885.00	4.423
885.50	5.134

Elevation-Volume

Pond Elevation (ft)	Pond Volume (ac-ft)
883.00	0.000
884.00	1.418
885.00	2.963
886.00	4.739
887.00	6.763
888.00	8.948
889.00	11.291
890.00	13.794

Elevation-Volume

Pond Elevation (ft)	Pond Volume (ac-ft)
885.60	0.000
886.00	0.828
887.00	2.983
888.00	5.259
889.00	7.660
890.00	10.187
891.00	12.843

Elevation-Volume

Pond Elevation (ft)	Pond Volume (ac-ft)
885.60	0.000
886.00	2.638
887.00	15.139
888.00	27.932
889.00	41.021
890.00	54.408
891.00	68.098

Elevation-Volume

Pond Elevation (ft)	Pond Volume (ac-ft)
886.00	0.000
887.00	3.086
888.00	6.309
889.00	9.672
890.00	13.926
891.00	19.123
892.00	24.488

Elevation-Volume

Pond Elevation (ft)	Pond Volume (ac-ft)
887.50	0.000
888.00	0.034
889.00	0.361
890.00	1.070
891.00	2.267
892.00	4.061
893.00	6.318
894.00	8.902
894.80	11.250
895.00	11.883
896.00	15.328

Subsection: Outlet Input Data
Label: EXIST SWMF-22 OVERLAND

Return Event: 100 years
Storm Event: 100Yr-1Hr

Requested Pond Water Surface Elevations	
Minimum (Headwater)	885.60 ft
Increment (Headwater)	0.10 ft
Maximum (Headwater)	891.00 ft

Outlet Connectivity

Structure Type	Outlet ID	Direction	Outfall	E1 (ft)	E2 (ft)
Irregular Weir	Overflow Weir	Forward + Reverse	TW	890.60	891.00
Tailwater Settings	Tailwater			(N/A)	(N/A)

Structure ID: Overflow Weir
Structure Type: Irregular Weir

Station (ft)	Elevation (ft)
0.00	891.00
8.00	890.60
28.00	890.60
36.00	891.00

Lowest Elevation	890.60 ft
Weir Coefficient	3.00 (ft^0.5)/s

Requested Pond Water Surface Elevations	
Minimum (Headwater)	885.60 ft
Increment (Headwater)	0.10 ft
Maximum (Headwater)	891.00 ft

Outlet Connectivity

Structure Type	Outlet ID	Direction	Outfall	E1 (ft)	E2 (ft)
Culvert-Circular	36" RCP	Forward + Reverse	TW	885.61	891.00
Tailwater Settings	Tailwater			(N/A)	(N/A)

Structure ID: 36" RCP
Structure Type: Culvert-Circular

Number of Barrels	1
Diameter	36.0 in
Length	1,660.00 ft
Length (Computed Barrel)	1,660.01 ft
Slope (Computed)	0.003 ft/ft

Outlet Control Data

Manning's n	0.013
Ke	0.200
Kb	0.007
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	888.50 ft	T1 Flow	42.85 ft³/s
T2 Elevation	888.81 ft	T2 Flow	48.97 ft³/s

Requested Pond Water Surface Elevations	
Minimum (Headwater)	885.60 ft
Increment (Headwater)	0.10 ft
Maximum (Headwater)	891.00 ft

Outlet Connectivity

Structure Type	Outlet ID	Direction	Outfall	E1 (ft)	E2 (ft)
Culvert-Circular	36" RCP	Forward + Reverse	TW	885.60	891.00
Irregular Weir	Overland Weir	Forward + Reverse	TW	890.60	891.00
Tailwater Settings	Tailwater			(N/A)	(N/A)

Structure ID: Overland Weir
Structure Type: Irregular Weir

Station (ft)	Elevation (ft)
0.00	891.00
8.00	890.60
28.00	890.60
36.00	891.00

Lowest Elevation	890.60 ft
Weir Coefficient	3.00 (ft^0.5)/s

Structure ID: 36" RCP
Structure Type: Culvert-Circular

Number of Barrels	1
Diameter	36.0 in
Length	370.00 ft
Length (Computed Barrel)	370.00 ft
Slope (Computed)	0.000 ft/ft

Outlet Control Data

Manning's n	0.013
Ke	0.200
Kb	0.007
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...

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	888.89 ft	T1 Flow	42.85 ft³/s
T2 Elevation	889.19 ft	T2 Flow	48.97 ft³/s

Requested Pond Water Surface Elevations	
Minimum (Headwater)	886.00 ft
Increment (Headwater)	0.10 ft
Maximum (Headwater)	892.00 ft

Outlet Connectivity

Structure Type	Outlet ID	Direction	Outfall	E1 (ft)	E2 (ft)
Culvert-Circular	42" RCP	Forward + Reverse	TW	886.01	892.00
Rectangular Weir	Overland Weir	Forward + Reverse	TW	891.00	892.00
Tailwater Settings	Tailwater			(N/A)	(N/A)

Structure ID: 42" RCP
Structure Type: Culvert-Circular

Number of Barrels	1
Diameter	18.0 in
Length	100.00 ft
Length (Computed Barrel)	100.00 ft
Slope (Computed)	0.000 ft/ft

Outlet Control Data

Manning's n	0.013
Ke	0.200
Kb	0.018
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	886.64 ft	T1 Flow	7.58 ft³/s
T2 Elevation	886.80 ft	T2 Flow	8.66 ft³/s

Structure ID: Overland Weir
Structure Type: Rectangular Weir

Number of Openings	1
Elevation	891.00 ft
Weir Length	40.00 ft
Weir Coefficient	3.00 (ft^0.5)/s

Requested Pond Water Surface Elevations	
Minimum (Headwater)	887.50 ft
Increment (Headwater)	0.10 ft
Maximum (Headwater)	896.00 ft

Outlet Connectivity

Structure Type	Outlet ID	Direction	Outfall	E1 (ft)	E2 (ft)
Orifice-Circular	8" Restrictor	Forward + Reverse	TW	887.50	896.00
Rectangular Weir	Overland Weir	Forward + Reverse	TW	895.00	896.00
Tailwater Settings	Tailwater			(N/A)	(N/A)

Subsection: Outlet Input Data | Return Event: 100 years
Label: EXIST SWMF-26 | Storm Event: 100Yr-1Hr

Structure ID: 8" Restrictor
Structure Type: Orifice-Circular

Number of Openings	1
Elevation	887.50 ft
Orifice Diameter	8.0 in
Orifice Coefficient	0.600

Structure ID: Overland Weir
Structure Type: Rectangular Weir

Number of Openings	1
Elevation	895.00 ft
Weir Length	15.00 ft
Weir Coefficient	3.00 (ft^0.5)/s

Requested Pond Water Surface Elevations	
Minimum (Headwater)	879.50 ft
Increment (Headwater)	0.10 ft
Maximum (Headwater)	885.50 ft

Outlet Connectivity

Structure Type	Outlet ID	Direction	Outfall	E1 (ft)	E2 (ft)
Rectangular Weir	Weir - 1	Forward + Reverse	TW	884.50	885.50
Tailwater Settings	Tailwater			(N/A)	(N/A)

Structure ID: Weir - 1
Structure Type: Rectangular Weir

Number of Openings	1
Elevation	884.50 ft
Weir Length	10.00 ft
Weir Coefficient	3.00 (ft^0.5)/s

Requested Pond Water Surface Elevations	
Minimum (Headwater)	877.00 ft
Increment (Headwater)	0.10 ft
Maximum (Headwater)	884.00 ft

Outlet Connectivity

Structure Type	Outlet ID	Direction	Outfall	E1 (ft)	E2 (ft)
Irregular Weir	Road Overflow	Forward + Reverse	TW	883.60	884.00
Tailwater Settings	Tailwater			(N/A)	(N/A)

Structure ID: Road Overflow
Structure Type: Irregular Weir

Station (ft)	Elevation (ft)
0.00	884.00
58.90	883.60
109.10	883.60
148.70	883.80
171.40	884.00

Lowest Elevation	883.60 ft
Weir Coefficient	3.00 (ft^0.5)/s

Requested Pond Water Surface Elevations	
Minimum (Headwater)	880.00 ft
Increment (Headwater)	0.10 ft
Maximum (Headwater)	886.50 ft

Outlet Connectivity

Structure Type	Outlet ID	Direction	Outfall	E1 (ft)	E2 (ft)
Rectangular Weir	Overflow Weir	Forward + Reverse	TW	885.50	886.50
Tailwater Settings	Tailwater			(N/A)	(N/A)

Structure ID: Overflow Weir
Structure Type: Rectangular Weir

Number of Openings	1
Elevation	885.50 ft
Weir Length	20.00 ft
Weir Coefficient	3.00 (ft^0.5)/s

Requested Pond Water Surface Elevations	
Minimum (Headwater)	881.00 ft
Increment (Headwater)	0.10 ft
Maximum (Headwater)	887.50 ft

Outlet Connectivity

Structure Type	Outlet ID	Direction	Outfall	E1 (ft)	E2 (ft)
Rectangular Weir	Overflow Weir	Forward + Reverse	TW	886.50	887.50
Tailwater Settings	Tailwater			(N/A)	(N/A)

Structure ID: Overflow Weir
Structure Type: Rectangular Weir

Number of Openings	1
Elevation	886.50 ft
Weir Length	48.00 ft
Weir Coefficient	3.00 (ft^0.5)/s

Requested Pond Water Surface Elevations	
Minimum (Headwater)	882.00 ft
Increment (Headwater)	0.10 ft
Maximum (Headwater)	887.50 ft

Outlet Connectivity

Structure Type	Outlet ID	Direction	Outfall	E1 (ft)	E2 (ft)
Rectangular Weir	Overflow Weir	Forward + Reverse	TW	886.80	887.50
Tailwater Settings	Tailwater			(N/A)	(N/A)

Structure ID: Overflow Weir
Structure Type: Rectangular Weir

Number of Openings	1
Elevation	886.80 ft
Weir Length	25.00 ft
Weir Coefficient	3.00 (ft^0.5)/s

Subsection: Outlet Input Data
Label: PROP SWMF-05

Return Event: 100 years
Storm Event: 100Yr-1Hr

Requested Pond Water Surface Elevations	
Minimum (Headwater)	886.00 ft
Increment (Headwater)	0.10 ft
Maximum (Headwater)	893.00 ft

Outlet Connectivity

Structure Type	Outlet ID	Direction	Outfall	E1 (ft)	E2 (ft)
Vnotch Weir	Weir - 1	Forward + Reverse	TW	892.20	893.00
Tailwater Settings	Tailwater			(N/A)	(N/A)

Subsection: Outlet Input Data
Label: PROP SWMF-05

Return Event: 100 years
Storm Event: 100Yr-1Hr

Structure ID: Weir - 1
Structure Type: Vnotch Weir

Number of Openings	1
Elevation	892.20 ft
V-Notch Angle	45.00 degrees
Weir Coefficient	3.00 (ft^0.5)/s

Requested Pond Water Surface Elevations	
Minimum (Headwater)	886.00 ft
Increment (Headwater)	0.10 ft
Maximum (Headwater)	892.00 ft

Outlet Connectivity

Structure Type	Outlet ID	Direction	Outfall	E1 (ft)	E2 (ft)
Vnotch Weir	Overflow Weir	Forward + Reverse	TW	891.70	892.00
Tailwater Settings	Tailwater			(N/A)	(N/A)

Structure ID: Overflow Weir
Structure Type: Vnotch Weir

Number of Openings	1
Elevation	891.70 ft
V-Notch Angle	45.00 degrees
Weir Coefficient	3.00 (ft^0.5)/s

Requested Pond Water Surface Elevations	
Minimum (Headwater)	878.90 ft
Increment (Headwater)	0.10 ft
Maximum (Headwater)	883.50 ft

Outlet Connectivity

Structure Type	Outlet ID	Direction	Outfall	E1 (ft)	E2 (ft)
Rectangular Weir	Overflow Weir	Forward + Reverse	TW	882.70	883.50
Tailwater Settings	Tailwater			(N/A)	(N/A)

Structure ID: Overflow Weir
Structure Type: Rectangular Weir

Number of Openings	1
Elevation	882.70 ft
Weir Length	16.00 ft
Weir Coefficient	3.00 (ft^0.5)/s

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EXHIBIT 2J

STORMWATER ANALYSIS

STORMWATER SUPPORTING DOCUMENTS AND CALCULATIONS

Project TRAILS OF WOODS CREEK By JMH Date 7/7/2020
Location ALGONQUIN, IL Checked Date

Check one: ☐ Present ☑ Developed
Check one: ☑ Tc ☐ Tt

INLET 56

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)

	Segment ID				
1. Surface Description (Table 3-1)		Grass			
2. Manning's roughness coeff., n (Table 3-1)		0.24			
3. Flow length, L (total L $\leq$ 300 ft)	ft	100			
4. Two-yr 24-hr rainfall, P_2	in	3.34			
5. Land slope, s	ft/ft	0.02			
6. $Tc = \frac{0.007\ (nL)^{0.8}}{P_2^{0.5}\ s^{0.4}}$	hr	0.233	+	=	0.233

Shallow Concentrated Flow

	Segment ID				
7. Surface description (paved or unpaved)		unpaved			
8. Flow length, L		170			
9. Watercourse slope, s		0.065			
10. Average velocity, V (figure 3-1)		4.17			
11. $T_t = \frac{L}{3600\ V}$	hr	0.011		=	0.011

Channel Flow

	Segment ID				
12. Cross sectional flow area, a	ft^2				
13. Wetted perimeter, pw	ft				
14. Hydraulic radius, r= a/pw compute r	ft				
15. Channel Slope, s	ft/ft				
16. Manning's roughness coeff., n					
17. $V = 1.49\ r^{2/3}\ s^{1/2} / n$	ft/s	2.5			
18. Flow length, L	ft				
19. $T_t = \frac{L}{3600\ V}$	hr		+	=	

20. Watershed or subarea T_c or T_t (add T_t in steps 6, 11, and 19) hr 0.244

min 15

L:\402136\HYDRO\PROP\STORM\PROP Tc - STORM STRUCTURES.xls
Tab: 56

Project TRAILS OF WOODS CREEK By JMH Date 7/7/2020
Location ALGONQUIN, IL Checked Date

Check one: ☐ Present ☑ Developed INLET 72
Check one: ☑ Tc ☐ Tt

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)

	Segment ID				
1. Surface Description (Table 3-1)		Grass			
2. Manning's roughness coeff., n (Table 3-1)		0.24			
3. Flow length, L (total L $\leq$ 300 ft)	ft	100			
4. Two-yr 24-hr rainfall, P_2	in	3.34			
5. Land slope, s	ft/ft	0.015			
6. $Tc = \frac{0.007\ (nL)^{0.8}}{P_2^{0.5}\ s^{0.4}}$	hr	0.261 +		=	0.261

Shallow Concentrated Flow

	Segment ID				
7. Surface description (paved or unpaved)		unpaved			
8. Flow length, L		350			
9. Watercourse slope, s		0.015			
10. Average velocity, V (figure 3-1)		1.99			
11. $T_t = \frac{L}{3600\ V}$	hr	0.049		=	0.049

Channel Flow

	Segment ID				
12. Cross sectional flow area, a	ft^2				
13. Wetted perimeter, pw	ft				
14. Hydraulic radius, r= a/pw compute r	ft				
15. Channel Slope, s	ft/ft				
16. Manning's roughness coeff., n					
17. $V = 1.49\ r^{2/3}\ s^{1/2} / n$	ft/s	2.5			
18. Flow length, L	ft				
19. $T_t = \frac{L}{3600\ V}$	hr	+		=	

20. Watershed or subarea T_c or T_t (add T_t in steps 6, 11, and 19)	hr	0.310
	min	19

Project TRAILS OF WOODS CREEK By JMH Date 7/7/2020
Location ALGONQUIN, IL Checked Date

Check one: ☐ Present ☑ Developed
Check one: ☑ Tc ☐ Tt

INLET 77

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.

<u>Sheet Flow</u> (Applicable to Tc only)

Segment ID					
1. Surface Description (Table 3-1)		Grass			
2. Manning's roughness coeff., n (Table 3-1)		0.24			
3. Flow length, L (total L $\leq$ 300 ft)	ft	100			
4. Two-yr 24-hr rainfall, P_2	in	3.34			
5. Land slope, s	ft/ft	0.02			
6. $Tc = \frac{0.007\ (nL)^{0.8}}{P_2^{0.5}\ s^{0.4}}$	hr	0.233	+	=	0.233

<u>Shallow Concentrated Flow</u>

Segment ID					
7. Surface description (paved or unpaved)		unpaved	unpaved		
8. Flow length, L		115	165		
9. Watercourse slope, s		0.02	0.1		
10. Average velocity, V (figure 3-1)		2.30	5.17		
11. $T_t = \frac{L}{3600\ V}$	hr	0.014	0.009	=	0.023

<u>Channel Flow</u>

Segment ID					
12. Cross sectional flow area, a	ft^2				
13. Wetted perimeter, pw	ft				
14. Hydraulic radius, r= a/pw compute r	ft				
15. Channel Slope, s	ft/ft				
16. Manning's roughness coeff., n					
17. $V= 1.49\ r^{2/3}\ s^{1/2} / n$	ft/s	2.5			
18. Flow length, L	ft				
19. $T_t = \frac{L}{3600\ V}$	hr		+	=	

20. Watershed or subarea T_c or T_t (add T_t in steps 6, 11, and 19) hr 0.256

min 15

Project TRAILS OF WOODS CREEK By JMH Date 7/7/2020
Location ALGONQUIN, IL Checked Date

Check one: ☐ Present ☑ Developed INLET 308
Check one: ☑ Tc ☐ Tt

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.

<u>Sheet Flow</u> (Applicable to Tc only)

	Segment ID				
1. Surface Description (Table 3-1)		Grass			
2. Manning's roughness coeff., n (Table 3-1)		0.24			
3. Flow length, L (total L $\leq$ 300 ft)	ft	100			
4. Two-yr 24-hr rainfall, P_2	in	3.34			
5. Land slope, s	ft/ft	0.02			
6. $Tc = \frac{0.007 (nL)^{0.8}}{P_2^{0.5} s^{0.4}}$	hr	0.233	+	=	0.233

<u>Shallow Concentrated Flow</u>

	Segment ID				
7. Surface description (paved or unpaved)		unpaved			
8. Flow length, L		200			
9. Watercourse slope, s		0.022			
10. Average velocity, V (figure 3-1)		2.42			
11. $T_t = \frac{L}{3600 V}$	hr	0.023		=	0.023

<u>Channel Flow</u>

	Segment ID				
12. Cross sectional flow area, a	ft^2				
13. Wetted perimeter, pw	ft				
14. Hydraulic radius, r= a/pw compute r	ft				
15. Channel Slope, s	ft/ft				
16. Manning's roughness coeff., n					
17. $V= 1.49 r^{2/3} s^{1/2} / n$	ft/s	2.5			
18. Flow length, L	ft				
19. $T_t = \frac{L}{3600 V}$	hr		+	=	

20. Watershed or subarea T_c or T_t (add T_t in steps 6, 11, and 19) hr 0.256

min 15

Worksheet: Runoff Coefficient

Project Trails of Woods Creek
By JMH
Date 7/6/2020
Location Algonquin, IL
Checked
Date

Circle one: Present [✓ Developed]

Preliminary Proposed Conditions
C Coefficient Calc - Typ. Lot Type 1

1. Runoff coefficient (C)

		C[1/]			Area	
Soil Name and Hydroogic Group	Cover Description (cover type, treatment, and hydrologic condition; percent impervious; unconnected/connected impervious area ratio)	Table 2-2	Fig. 2-3	Fig. 2-4	_X_ acres __mi2 __%	Product of C x Area
C	Pervious Area - Lot (50% of lot area)	0.35			0.080	0.028
C	Impervious Area - Lot (50% of lot area)	0.9			0.080	0.072
C	Pervious Area - Right of Way (40.9% of ROW)	0.35			0.017	0.00595
C	Impervious Area - Right of Way (59.1% of ROW)	0.9			0.025	0.0225
				Totals =	0.20	0.128

1/ Use only one C source per line.

$$C \text{ (weighted)} = \frac{\text{Total Product}}{\text{Total Area}} = \frac{0.128}{0.202} = 0.636$$

Use C = 0.64

Worksheet: Runoff Coefficient

Project Trails of Woods Creek By JMH Date 7/6/2020
Location Algonquin, IL Checked Date

Circle one: Present [✓ Developed]

Preliminary Proposed Conditions
C Coefficient Calc - Typ. Lot Type 2

1. Runoff coefficient (C)

		C [1/]			Area	
Soil Name and Hydroogic Group	Cover Description (cover type, treatment, and hydrologic condition; percent impervious; unconnected/connected impervious area ratio)	Table 2-2	Fig. 2-3	Fig. 2-4	_X_ acres __mi2 __%	Product of C x Area
C	Pervious Area - Lot (50% of lot area)	0.35			0.112	0.0392
C	Impervious Area - Lot (50% of lot area)	0.9			0.112	0.1008
C	Pervious Area - Right of Way (40.9% of ROW)	0.35			0.023	0.00805
C	Impervious Area - Right of Way (59.1% of ROW)	0.9			0.034	0.0306
				Totals =	0.28	0.179

1/ Use only one C source per line.

$$C \text{ (weighted)} = \frac{\text{Total Product}}{\text{Total Area}} = \frac{0.179}{0.281} = 0.636$$

Use C = 0.64

Worksheet: Runoff Coefficient

Project Trails of Woods Creek By JMH Date 7/6/2020
Location Algonquin, IL Checked Date

Circle one: Present [✓ Developed]

Preliminary Proposed Conditions
C Coefficient Calc - Typ. Lot Type 3

1. Runoff coefficient (C)

Soil Name and Hydroogic Group	Cover Description (cover type, treatment, and hydrologic condition; percent impervious; unconnected/connected impervious area ratio)	C 1/			Area	Product of C x Area
		Table 2-2	Fig. 2-3	Fig. 2-4	_X_ acres __mi2 __%	
C	Pervious Area - Lot (50% of lot area)	0.35			0.085	0.02975
C	Impervious Area - Lot (50% of lot area)	0.9			0.085	0.0765
C	Pervious Area - Right of Way (40.9% of ROW)	0.35			0.017	0.00595
C	Impervious Area - Right of Way (59.1% of ROW)	0.9			0.025	0.0225
				Totals =	0.21	0.135

1/ Use only one C source per line.

C (weighted) = Total Product / Total Area = 0.135 / 0.212 = 0.635

Use C = 0.64

Worksheet: Runoff Coefficient

Project Trails of Woods Creek By JMH Date 7/6/2020
Location Algonquin, IL Checked Date

Circle one: Present [✓ Developed]

Preliminary Proposed Conditions
C Coefficient Calc - Typical

1. Runoff coefficient (C)

		C 1/			Area	
Soil Name and Hydroogic Group	Cover Description (cover type, treatment, and hydrologic condition; percent impervious; unconnected/connected impervious area ratio)	Table 2-2	Fig. 2-3	Fig. 2-4	_X_ acres __mi2 __%	Product of C x Area
C	Pervious Area - Lot (50% of lot area)	0.35			0.2775	0.097125
C	Impervious Area - Lot (50% of lot area)	0.9			0.2775	0.24975
C	Pervious Area - Right of Way (40.9% of ROW)	0.35			0.0576	0.02016
C	Impervious Area - Right of Way (59.1% of ROW)	0.9			0.0833	0.07497
				Totals =	0.70	0.442

1/ Use only one C source per line.

$$C\ (\text{weighted}) = \frac{\text{Total Product}}{\text{Total Area}} = \frac{0.442}{0.696} = 0.635$$

Use C = 0.64

Worksheet: Runoff Coefficient

Project Trails of Woods Creek By JMH Date 7/7/2020
Location Algonquin, IL Checked ________ Date ________

Circle one: Present [✓ Developed]

Preliminary Proposed Conditions
C Coefficient Calc - Inlet 56

1. Runoff coefficient (C)

		C 1/			Area	
Soil Name and Hydroogic Group	Cover Description (cover type, treatment, and hydrologic condition; percent impervious; unconnected/connected impervious area ratio)	Table 2-2	Fig. 2-3	Fig. 2-4	_X_ acres __mi2 __%	Product of C x Area
C	Pervious Area	0.35			0.630	0.2205
C	Impervious Area	0.9				
				Totals =	0.63	0.221

1/ Use only one C source per line.

C (weighted) = Total Product / Total Area = 0.221 / 0.630 = 0.350

Use C = 0.35

Worksheet: Runoff Coefficient

Project Trails of Woods Creek
By JMH
Date 7/7/2020
Location Algonquin, IL
Checked
Date

Circle one: Present [✓ Developed]

Preliminary Proposed Conditions
C Coefficient Calc - Inlet 72

1. Runoff coefficient (C)

		C 1/			Area	
Soil Name and Hydroogic Group	Cover Description (cover type, treatment, and hydrologic condition; percent impervious; unconnected/connected impervious area ratio)	Table 2-2	Fig. 2-3	Fig. 2-4	_X_ acres __mi2 __%	Product of C x Area
C	Pervious Area	0.35			2.93	1.0255
C	Impervious Area	0.9			1.11	0.999
			Totals =		4.04	2.025

1/ Use only one C source per line.

$$C\ (\text{weighted}) = \frac{\text{Total Product}}{\text{Total Area}} = \frac{2.025}{4.040} = 0.501$$

Use C = 0.50

Worksheet: Runoff Coefficient

Project Trails of Woods Creek By JMH Date 7/7/2020
Location Algonquin, IL Checked ______ Date ______

Circle one: Present [✓ Developed]

Preliminary Proposed Conditions
C Coefficient Calc - Inlet 77

1. Runoff coefficient (C)

		C 1/			Area	
Soil Name and Hydroogic Group	Cover Description (cover type, treatment, and hydrologic condition; percent impervious; unconnected/connected impervious area ratio)	Table 2-2	Fig. 2-3	Fig. 2-4	_X_ acres __mi2 __%	Product of C x Area
C	Pervious Area	0.35			0.725	0.25375
C	Impervious Area	0.9			0.125	0.1125
				Totals =	0.85	0.366

1/ Use only one C source per line.

C (weighted) = Total Product / Total Area = 0.366 / 0.850 = 0.431

Use C = 0.43

Worksheet: Runoff Coefficient

Project Trails of Woods Creek By JMH Date 7/7/2020
Location Algonquin, IL Checked Date

Circle one: Present [✓ Developed]

Preliminary Proposed Conditions
C Coefficient Calc - Inlet 308

1. Runoff coefficient (C)

		C 1/			Area	
Soil Name and Hydroogic Group	Cover Description (cover type, treatment, and hydrologic condition; percent impervious; unconnected/connected impervious area ratio)	Table 2-2	Fig. 2-3	Fig. 2-4	_X_ acres __mi2 __%	Product of C x Area
C	Pervious Area	0.35			0.710	0.2485
C	Impervious Area	0.9			0.030	0.027
				Totals =	0.74	0.276

1/ Use only one C source per line.

$$C \text{ (weighted)} = \frac{\text{Total Product}}{\text{Total Area}} = \frac{0.276}{0.740} = 0.372$$

Use C = 0.37

PROJECT: Trails of Woods Creek
JOB NO.: 402.136

STORM SEWER CALCULATIONS
(10 Year Critical Duration Storm)

BY: ARF
DATE: 07-09-2020
REVISED:

Upstream Node Number	Downstream Node Number	Length (ft)	Inlet Area (acres)	Runoff Coefficient	Inlet CA (acres)	Total CA (acres)	TC (min)	Sys Flow Time (min)	I (in/hr)	Q (cfs)	Size (inch)	S (%)	Capacity (cfs)	Velocity (ft/s)	Upstream Rim (ft)	Upstream HGL (ft)	Upstream Invert (ft)	Downstream Rim (ft)	Downstream HGL (ft)	Downstream Invert (ft)
FES 4																				
6	5	100	0.34	0.64	0.22	0.22	10.00	10.00	6.78	1.49	15	0.35	3.82	2.92	885.50	883.17	882.30	885.50	883.13	881.95
5	4	34	0.29	0.64	0.19	0.40	10.00	10.57	6.64	2.70	15	0.35	3.84	3.39	885.50	883.13	881.95	887.10	883.08	881.83
FES 10																				
14	13	29	0.66	0.64	0.42	0.42	10.00	10.00	6.78	2.89	12	1.00	3.56	5.05	901.50	898.53	897.80	901.50	898.19	897.51
17	16	30	1.07	0.64	0.68	0.68	10.00	10.00	6.78	4.68	15	1.00	6.46	5.74	895.90	893.08	892.20	895.90	892.98	891.90
13	12	94	0.75	0.64	0.48	0.90	10.00	10.10	6.76	6.15	15	2.23	9.65	8.34	901.50	895.70	894.70	895.80	893.32	892.60
16	15	139	0.61	0.64	0.39	1.08	10.00	10.09	6.76	7.33	15	1.36	7.53	6.99	895.90	892.98	891.90	896.70	891.00	890.01
12	11	53	N/A	N/A	N/A	0.90	N/A	10.28	6.71	6.10	15	1.00	6.46	5.99	895.80	893.60	892.60	895.70	893.04	892.07
15	11	112	N/A	N/A	N/A	1.08	N/A	10.42	6.68	7.24	15	1.30	7.38	6.85	896.70	891.08	890.01	895.70	889.55	888.55
11	10	71	N/A	N/A	N/A	1.98	N/A	10.69	6.61	13.18	18	2.03	14.96	9.55	895.70	888.80	887.44	890.00	887.50	886.00
FES 18																				
20	19	34	0.42	0.64	0.27	0.27	10.00	10.00	6.78	1.84	12	1.00	3.56	4.57	892.60	889.48	888.90	892.60	889.07	888.56
19	18	68	0.46	0.64	0.29	0.56	10.00	10.12	6.75	3.83	12	3.00	6.17	8.28	892.60	882.37	881.54	883.00	880.50	879.50
FES 94																				
100	99	29	0.69	0.64	0.44	0.44	10.00	10.00	6.78	3.02	15	0.93	6.23	5.04	891.80	888.80	888.10	891.80	888.85	887.83
99	98	27	0.79	0.64	0.51	0.95	10.00	10.10	6.76	6.45	15	1.07	6.69	6.21	891.80	888.85	887.83	892.50	888.53	887.54
98	97	129	N/A	N/A	N/A	0.95	N/A	10.17	6.74	6.43	15	1.02	6.51	6.05	892.50	888.56	887.54	892.40	887.46	886.23
97	94	23	N/A	N/A	N/A	0.95	N/A	10.52	6.65	6.35	15	1.00	6.46	6.00	892.40	887.46	886.23	891.20	887.25	886.00
FES 112																				
130	129	61	0.28	0.64	0.18	0.18	10.00	10.00	6.78	1.22	12	0.51	2.54	3.20	897.80	895.09	894.60	901.10	894.83	894.29
129	128	78	N/A	N/A	N/A	0.18	N/A	10.32	6.70	1.21	12	0.50	2.52	3.18	901.10	894.83	894.29	897.50	894.76	893.90
128	127	31	0.31	0.64	0.20	0.38	10.00	10.73	6.60	2.51	12	0.52	2.56	3.71	897.50	894.76	893.90	897.40	894.63	893.74
127	126	73	0.33	0.64	0.21	0.59	10.00	10.87	6.57	3.90	15	0.51	4.60	4.20	897.40	894.63	893.74	897.40	894.34	893.37
126	125	65	0.13	0.64	0.08	0.67	10.00	11.16	6.50	4.40	15	0.51	4.60	4.27	897.40	894.34	893.37	897.40	893.95	893.04
123	122	29	0.22	0.64	0.14	0.14	10.00	10.00	6.78	0.96	12	1.38	4.18	4.33	895.30	892.01	891.60	895.30	892.05	891.20
125	124	25	0.08	0.64	0.05	0.72	10.00	11.41	6.44	4.69	15	0.68	5.33	4.90	897.40	893.95	893.04	898.10	893.81	892.87
122	121	26	0.46	0.64	0.29	0.44	10.00	10.11	6.75	2.96	15	0.88	6.08	4.92	895.30	892.05	891.20	896.30	892.05	890.97
124	121	122	N/A	N/A	N/A	0.72	N/A	11.49	6.42	4.68	15	0.63	5.13	4.74	898.10	893.81	892.87	896.30	892.98	892.10
121	120	24	N/A	N/A	N/A	1.16	N/A	11.92	6.31	7.37	15	1.50	7.91	7.32	896.30	892.05	890.97	896.10	891.75	890.61
120	119	29	0.29	0.64	0.19	1.34	10.00	11.98	6.30	8.53	15	2.00	9.14	8.46	896.10	891.75	890.61	896.10	891.28	890.03
117	116	96	0.12	0.64	0.08	0.08	10.00	10.00	6.78	0.52	12	1.06	3.67	3.32	898.40	895.50	895.20	897.60	894.68	894.18
119	118	27	0.50	0.64	0.32	1.66	10.00	12.03	6.28	10.54	18	1.11	11.07	7.13	896.10	891.28	890.03	896.60	890.90	889.73
116	115	178	0.21	0.64	0.13	0.21	10.00	10.48	6.66	1.42	12	1.00	3.56	4.28	897.60	894.68	894.18	895.60	892.84	892.40
118	115	132	N/A	N/A	N/A	1.66	N/A	12.10	6.27	10.51	18	1.02	10.62	6.85	896.60	890.98	889.73	895.60	889.78	888.38
115	114	152	0.33	0.64	0.21	2.09	10.00	12.42	6.19	13.02	21	0.71	13.36	6.33	895.60	889.78	888.38	893.60	888.73	887.30
114	113	163	0.33	0.64	0.21	2.30	10.00	12.82	6.09	14.11	21	0.80	14.15	6.71	893.60	888.73	887.30	891.50	887.40	886.00
113	112	77	0.29	0.64	0.19	2.48	10.00	13.22	5.99	15.00	21	1.51	19.45	8.92	891.50	884.60	883.16	886.00	883.75	882.00
FES 131																				
136	135	91	0.61	0.64	0.39	0.39	10.00	10.00	6.78	2.67	15	1.32	7.42	5.55	894.10	891.06	890.40	892.90	890.30	889.20
135	134	105	1.24	0.64	0.79	1.18	10.00	10.27	6.71	8.01	18	1.00	10.50	6.54	892.90	890.30	889.20	892.00	889.28	888.15
134	133	75	0.15	0.64	0.10	1.28	10.00	10.54	6.65	8.58	18	1.00	10.50	6.63	892.00	889.28	888.15	892.20	888.68	887.40
133	132	65	0.79	0.64	0.51	1.79	10.00	10.73	6.60	11.88	21	0.80	14.17	6.60	892.20	888.68	887.40	892.70	888.19	886.88
132	131	100	0.15	0.64	0.10	1.88	10.00	10.89	6.56	12.45	21	0.88	14.86	6.92	892.70	888.19	886.88	890.00	887.75	886.00
FES 137																				
143	142	31	0.48	0.64	0.31	0.31	10.00	10.00	6.78	2.10	12	1.00	3.56	4.72	894.60	892.02	891.40	894.50	891.96	891.09
142	141	21	0.49	0.64	0.31	0.62	10.00	10.11	6.75	4.23	12	1.52	4.40	6.38	894.50	891.96	891.09	895.20	891.56	890.77
141	138	117	N/A	N/A	N/A	0.62	N/A	10.16	6.74	4.22	12	1.50	4.37	6.34	895.20	891.64	890.77	895.40	889.80	889.01
138	137	38	N/A	N/A	N/A	0.62	N/A	10.47	6.66	4.17	12	2.00	5.04	7.17	895.40	887.62	886.76	888.00	887.00	886.00
FES 144																				
153	152	100	1.01	0.64	0.65	0.65	10.00	10.00	6.78	4.42	15	0.75	5.59	5.05	892.70	890.35	889.50	892.70	889.84	888.75
152	151	100	0.83	0.64	0.53	1.18	10.00	10.33	6.70	7.95	18	0.75	9.10	5.80	892.70	889.84	888.75	892.70	889.23	888.00
157	156	29	1.04	0.64	0.67	0.67	10.00	10.00	6.78	4.55	15	1.00	6.46	5.70	892.80	890.46	889.60	892.80	890.41	889.31
151	149	100	0.42	0.64	0.27	1.45	10.00	10.62	6.63	9.67	18	0.85	9.68	6.25	892.70	889.23	888.00	892.70	888.44	887.15
156	155	26	0.81	0.64	0.52	1.18	10.00	10.08	6.76	8.07	18	1.00	10.50	6.55	892.80	890.41	889.31	893.30	890.05	889.05
311	312	29	0.34	0.64	0.22	0.22	10.00	10.00	6.78	1.49	12	1.00	3.56	4.33	894.40	891.22	890.70	894.40	891.28	890.41
149	148	104	0.43	0.64	0.28	1.72	10.00	10.88	6.56	11.39	21	0.64	12.72	5.98	892.70	888.44	887.15	892.60	887.74	886.48
155	148	145	N/A	N/A	N/A	1.18	N/A	10.15	6.74	8.05	18	1.08	10.93	6.76	893.30	890.15	889.05	892.60	888.44	887.48
312	148	186	0.63	0.64	0.40	0.62	10.00	10.11	6.75	4.23	12	1.58	4.47	6.48	894.40	891.28	890.41	892.60	888.25	887.48
148	147	21	N/A	N/A	N/A	3.53	N/A	11.17	6.49	23.08	27	1.00	30.97	8.54	892.60	887.66	885.98	892.00	887.54	885.77
147	146	29	0.62	0.64	0.40	3.92	10.00	11.21	6.48	25.64	27	1.00	30.97	8.71	892.00	887.54	885.77	892.00	887.37	885.48
146	145	155	1.03	0.64	0.66	4.58	10.00	11.27	6.47	29.89	27	1.00	30.97	8.87	892.00	887.37	885.48	889.40	885.71	883.93
145	144	60	N/A	N/A	N/A	4.58	N/A	11.56	6.40	29.56	27	1.00	30.97	8.87	889.40	883.70	881.60	885.00	883.25	881.00
FES 159																				
319	163	73	1.10	0.64	0.70	0.70	10.00	10.00	6.78	4.81	24	0.14	8.54	1.53	880.50	880.33	877.83	880.50	880.30	877.73
164	163	65	0.90	0.64	0.58	0.58	10.00	10.00	6.78	3.94	24	0.16	9.05	1.25	880.50	880.32	877.83	880.50	880.30	877.73
163	162	15	0.90	0.64	0.58	1.86	10.00	10.86	6.57	12.29	24	0.16	9.05	3.91	880.50	880.30	877.73	881.10	880.26	877.70

STORM SEWER CALCULATIONS
(10 Year Critical Duration Storm)

Upstream Node Number	Downstream Node Number	Length (ft)	Inlet Area (acres)	Runoff Coefficient	Inlet CA (acres)	Total CA (acres)	TC (min)	Sys Flow Time (min)	I (in/hr)	Q (cfs)	Size (inch)	S (%)	Capacity (cfs)	Velocity (ft/s)	Upstream Rim (ft)	Upstream HGL (ft)	Upstream Invert (ft)	Downstream Rim (ft)	Downstream HGL (ft)	Downstream Invert (ft)
162	161	212	N/A	N/A	N/A	1.86	N/A	10.93	6.55	12.26	24	0.16	9.05	3.90	881.10	880.26	877.70	883.60	879.63	877.36
161	160	165	N/A	N/A	N/A	1.86	N/A	11.83	6.33	11.85	24	0.16	9.05	3.77	883.60	879.63	877.36	881.60	879.18	877.10
160	159	67	0.38	0.64	0.24	2.10	10.00	12.56	6.15	13.02	24	0.21	10.30	4.15	881.60	879.18	877.10	883.40	878.96	876.96
FES 167																				
172	171	29	0.78	0.64	0.50	0.50	10.00	10.00	6.78	3.41	12	1.00	3.56	5.16	891.20	888.29	887.50	891.20	888.10	887.21
171	170	61	0.28	0.64	0.18	0.68	10.00	10.09	6.76	4.62	12	1.80	4.78	6.94	891.20	888.10	887.21	890.90	887.03	886.11
170	169	86	0.12	0.64	0.08	0.76	10.00	10.24	6.72	5.12	15	0.79	5.74	5.29	890.90	887.03	886.11	890.60	886.39	885.43
169	168	143	0.14	0.64	0.09	0.84	10.00	10.51	6.66	5.67	15	1.00	6.46	5.94	890.60	886.39	885.43	891.00	885.20	884.00
173	168	156	0.97	0.64	0.62	0.62	10.00	10.00	6.78	4.24	12	1.50	4.36	6.33	891.20	888.37	887.50	891.00	885.96	885.16
168	167	56	N/A	N/A	N/A	1.47	N/A	10.91	6.56	9.69	18	1.79	14.04	8.57	891.00	885.20	884.00	887.00	884.50	883.00
FES 174																				
176	175	39	0.96	0.64	0.61	0.61	10.00	10.00	6.78	4.20	12	2.00	5.04	7.18	888.30	885.46	884.60	888.30	884.53	883.82
175	174	70	0.61	0.64	0.39	1.00	10.00	10.09	6.76	6.84	15	2.86	10.92	9.39	888.30	881.95	880.90	883.00	880.15	878.90
FES 217																				
229	228	29	0.66	0.64	0.42	0.42	10.00	10.00	6.78	2.89	12	1.00	3.56	5.05	894.50	891.53	890.80	894.50	891.30	890.51
228	227	21	0.19	0.64	0.12	0.54	10.00	10.10	6.76	3.71	15	0.62	5.08	4.52	894.50	891.30	890.51	895.10	891.16	890.38
227	226	108	N/A	N/A	N/A	0.54	N/A	10.17	6.74	3.69	15	0.66	5.24	4.63	895.10	891.16	890.38	898.20	890.51	889.67
226	225	24	N/A	N/A	N/A	0.54	N/A	10.56	6.64	3.64	15	0.62	5.11	4.52	898.20	890.51	889.67	893.80	890.47	889.52
225	224	47	0.13	0.64	0.08	0.63	10.00	10.65	6.62	4.19	15	0.51	4.62	4.26	893.80	890.47	889.52	892.30	890.27	889.28
224	223	56	0.19	0.64	0.12	0.75	10.00	10.83	6.58	4.96	15	0.68	5.32	4.93	892.30	890.27	889.28	892.30	890.01	888.90
223	222	57	0.21	0.64	0.13	0.88	10.00	11.02	6.53	5.81	18	0.33	6.06	3.91	892.30	890.01	888.90	892.30	889.67	888.71
222	221	24	0.11	0.64	0.07	0.95	10.00	11.27	6.47	6.22	18	1.00	10.50	6.19	892.30	889.67	888.71	893.00	889.66	888.47
221	220	125	N/A	N/A	N/A	0.95	N/A	11.33	6.46	6.20	18	0.35	6.23	4.02	893.00	889.66	888.47	895.50	889.10	888.03
220	219	55	0.39	0.64	0.25	1.20	10.00	11.85	6.33	7.68	18	0.76	9.18	5.82	895.50	889.10	888.03	894.90	888.84	887.61
219	218	152	0.52	0.64	0.33	1.54	10.00	12.01	6.29	9.74	18	0.86	9.75	6.29	894.90	888.84	887.61	892.30	887.73	886.30
218	217	32	N/A	N/A	N/A	1.54	N/A	12.41	6.19	9.59	18	0.94	10.17	6.55	892.30	887.73	886.30	890.00	887.50	886.00
FES 239																				
242	241	53	0.30	0.64	0.19	0.19	10.00	10.00	6.78	1.31	12	1.00	3.56	4.19	892.10	888.88	888.40	891.80	888.29	887.87
243	241	53	0.58	0.64	0.37	0.37	10.00	10.00	6.78	2.54	12	1.00	3.56	4.93	892.10	889.08	888.40	891.80	888.49	887.87
241	240	151	0.76	0.64	0.49	1.05	10.00	10.21	6.73	7.12	15	1.50	7.92	7.30	891.80	883.34	882.27	884.40	880.93	880.00
240	239	31	N/A	N/A	N/A	1.05	N/A	10.56	6.64	7.03	15	2.00	9.14	8.21	884.40	878.68	877.62	881.00	878.25	877.00
FES 246																				
253	252	29	0.22	0.64	0.14	0.14	10.00	10.00	6.78	0.96	12	1.00	3.56	3.85	892.70	889.56	889.00	892.70	889.57	888.71
252	251	124	0.64	0.64	0.41	0.55	10.00	10.13	6.75	3.74	15	0.50	4.57	4.15	892.70	889.57	888.71	892.10	889.02	888.09
251	250	103	0.51	0.64	0.33	0.88	10.00	10.62	6.63	5.86	18	0.65	8.47	5.17	892.10	889.02	888.09	892.00	888.62	887.42
250	249	58	0.39	0.64	0.25	1.13	10.00	10.95	6.55	7.43	18	0.66	8.50	5.42	892.00	888.62	887.42	892.00	888.43	887.04
249	248	60	0.16	0.64	0.10	1.23	10.00	11.13	6.50	8.06	18	0.70	8.79	5.64	892.00	888.43	887.04	892.00	888.13	886.62
248	247	72	0.14	0.64	0.09	1.32	10.00	11.31	6.46	8.59	21	0.39	9.88	4.63	892.00	888.13	886.62	892.90	887.96	886.34
247	246	85	N/A	N/A	N/A	1.32	N/A	11.57	6.40	8.50	21	0.40	10.02	4.68	892.90	887.96	886.34	890.00	887.75	886.00
FES 261																				
268	267	73	0.17	0.64	0.11	0.11	10.00	10.00	6.78	0.74	12	1.64	4.57	4.28	895.80	892.96	892.60	894.60	891.94	891.40
267	266	79	0.21	0.64	0.13	0.24	10.00	10.28	6.71	1.65	12	1.14	3.80	4.67	894.60	891.94	891.40	893.70	891.24	890.50
266	265	95	0.32	0.64	0.20	0.45	10.00	10.57	6.64	3.00	12	1.06	3.67	5.22	893.70	891.24	890.50	893.20	890.18	889.49
265	264	95	N/A	N/A	N/A	0.45	N/A	10.87	6.57	2.97	12	1.06	3.67	5.21	893.20	890.23	889.49	892.50	889.16	888.48
264	263	24	N/A	N/A	N/A	0.45	N/A	11.17	6.49	2.93	15	2.00	9.14	6.63	892.50	889.17	888.48	891.70	889.11	888.00
263	262	29	1.18	0.64	0.76	1.20	10.00	11.23	6.48	7.86	15	2.00	9.14	8.37	891.70	889.11	888.00	891.70	888.35	887.42
262	261	75	1.47	0.64	0.94	2.14	10.00	11.29	6.46	13.97	18	2.00	14.85	9.56	891.70	884.88	883.50	886.00	883.50	882.00
FES 269																				
282	281	29	0.62	0.64	0.40	0.40	10.00	10.00	6.78	2.71	12	1.00	3.56	4.99	894.00	891.07	890.30	894.00	891.00	890.01
280	279	67	0.21	0.64	0.13	0.13	10.00	10.00	6.78	0.92	12	1.79	4.77	4.69	895.50	892.70	892.30	895.00	891.40	891.10
281	279	149	0.56	0.64	0.36	0.76	10.00	10.10	6.76	5.14	15	0.68	5.32	4.94	894.00	891.00	890.01	895.00	890.12	889.00
283	279	70	0.35	0.64	0.22	0.22	10.00	10.00	6.78	1.53	12	1.00	3.56	4.36	895.00	892.32	891.80	895.00	891.56	891.10
279	278	92	0.19	0.64	0.12	1.24	10.00	10.60	6.63	8.26	18	0.75	9.10	5.83	895.00	890.12	889.00	895.00	889.53	888.31
276	275	29	0.64	0.64	0.41	0.41	10.00	10.00	6.78	2.80	12	1.00	3.56	5.02	893.90	890.92	890.20	893.90	890.80	889.91
278	277	81	0.44	0.64	0.28	1.52	10.00	10.86	6.57	10.04	18	1.15	11.25	7.20	895.00	889.53	888.31	895.00	888.63	887.38
275	274	25	0.47	0.64	0.30	0.71	10.00	10.10	6.76	4.84	15	1.28	7.31	6.37	893.90	890.80	889.91	894.70	890.35	889.59
277	273	73	0.13	0.64	0.08	1.60	10.00	11.05	6.52	10.52	18	1.15	11.27	7.25	895.00	888.63	887.38	895.90	887.98	886.54
274	273	127	N/A	N/A	N/A	0.71	N/A	10.16	6.74	4.83	15	1.00	6.46	5.77	894.70	890.48	889.59	895.90	889.13	888.32
273	272	22	N/A	N/A	N/A	2.31	N/A	11.22	6.48	15.10	21	1.00	15.84	7.50	895.90	887.98	886.54	895.30	887.83	886.32
272	271	31	0.43	0.64	0.28	2.59	10.00	11.27	6.47	16.86	21	1.19	17.31	8.20	895.30	887.83	886.32	895.20	887.52	885.95
271	270	148	0.52	0.64	0.33	2.92	10.00	11.33	6.46	18.99	21	1.50	19.41	9.20	895.20	887.52	885.95	891.90	885.13	883.73
270	269	60	N/A	N/A	N/A	2.92	N/A	11.60	6.39	18.80	21	1.75	20.96	9.86	891.90	882.62	881.05	884.00	881.75	880.00
FES 284																				
290	289	59	0.24	0.64	0.15	0.15	10.00	10.00	6.78	1.05	12	0.51	2.54	3.08	895.60	892.85	892.40	895.30	892.66	892.10
289	288	76	0.11	0.64	0.07	0.22	10.00	10.32	6.70	1.51	12	0.50	2.52	3.35	895.30	892.66	892.10	896.00	892.29	891.72

PROJECT: Trails of Woods Creek
JOB NO.: 402.136

STORM SEWER CALCULATIONS
(10 Year Critical Duration Storm)

BY: ARF
DATE: 07-09-2020
REVISED:

Upstream Node Number	Downstream Node Number	Length (ft)	Inlet Area (acres)	Runoff Coefficient	Inlet CA (acres)	Total CA (acres)	TC (min)	Sys Flow Time (min)	I (in/hr)	Q (cfs)	Size (inch)	S (%)	Capacity (cfs)	Velocity (ft/s)	Upstream Rim (ft)	Upstream HGL (ft)	Upstream Invert (ft)	Downstream Rim (ft)	Downstream HGL (ft)	Downstream Invert (ft)
288	287	38	N/A	N/A	N/A	0.22	N/A	10.70	6.61	1.49	12	0.50	2.52	3.34	896.00	892.29	891.72	894.30	892.21	891.53
287	286	58	0.25	0.64	0.16	0.38	10.00	10.89	6.56	2.54	12	0.83	3.24	4.57	894.30	892.21	891.53	894.70	891.88	891.05
286	285	29	0.31	0.64	0.20	0.58	10.00	11.10	6.51	3.82	12	1.17	3.86	5.60	894.70	891.88	891.05	894.70	891.52	890.71
285	284	207	0.45	0.64	0.29	0.87	10.00	11.18	6.49	5.69	12	2.98	6.15	8.89	894.70	887.12	886.17	882.00	881.00	880.00
FES 291																				
295	294	29	0.64	0.64	0.41	0.41	10.00	10.00	6.78	2.80	15	1.34	7.49	5.66	891.70	888.67	888.00	891.70	888.65	887.61
294	293	21	0.88	0.64	0.56	0.97	10.00	10.09	6.76	6.63	15	1.57	8.10	7.36	891.70	888.65	887.61	892.30	888.39	887.28
293	292	62	N/A	N/A	N/A	0.97	N/A	10.13	6.75	6.62	18	0.50	7.43	4.75	892.30	888.39	887.28	892.80	888.12	886.97
292	291	194	N/A	N/A	N/A	0.97	N/A	10.35	6.69	6.56	18	0.50	7.43	4.75	892.80	888.12	886.97	890.00	887.50	886.00
FES 296																				
310	309	115	0.29	0.64	0.19	0.19	10.00	10.00	6.78	1.27	12	3.48	6.64	6.52	896.40	893.68	893.20	892.40	889.96	889.20
309	308	96	0.43	0.64	0.28	0.46	10.00	10.29	6.71	3.12	12	1.56	4.45	6.13	892.40	889.96	889.20	890.90	888.52	887.70
308	307	44	0.74	0.37	0.27	0.73	10.00	15.00	5.56	4.12	15	1.14	6.89	5.86	890.90	888.52	887.70	890.50	888.13	887.20
307	306	100	0.26	0.64	0.17	0.90	10.00	15.13	5.55	5.04	15	0.75	5.59	5.16	890.50	888.13	887.20	890.50	887.56	886.45
306	305	100	0.33	0.64	0.21	1.11	10.00	15.45	5.51	6.18	18	0.50	7.43	4.70	890.50	887.56	886.45	890.50	887.29	885.95
305	304	100	0.34	0.64	0.22	1.33	10.00	15.80	5.47	7.33	18	0.50	7.43	4.79	890.50	887.29	885.95	890.50	886.89	885.45
304	303	96	0.49	0.64	0.31	1.64	10.00	16.15	5.43	8.99	21	0.32	9.00	4.27	890.50	886.89	885.45	890.50	886.59	885.14
303	302	125	0.27	0.64	0.17	1.82	10.00	16.53	5.38	9.85	24	0.25	11.27	4.04	890.50	886.59	885.14	890.10	886.27	884.83
301	300	53	0.28	0.64	0.18	0.18	10.00	10.00	6.78	1.22	15	0.36	3.87	2.80	888.50	886.02	884.80	888.50	886.01	884.61
302	299	130	N/A	N/A	N/A	1.82	N/A	17.04	5.32	9.75	24	0.25	11.40	4.08	890.10	886.27	884.83	889.80	885.97	884.50
300	299	16	1.10	0.64	0.70	0.88	10.00	10.32	6.70	5.97	18	0.50	7.43	4.67	888.50	886.01	884.61	889.80	885.97	884.53
299	298	40	N/A	N/A	N/A	2.70	N/A	17.57	5.26	14.32	24	0.50	16.00	5.76	889.80	885.97	884.50	889.50	885.74	884.30
298	297	29	0.46	0.64	0.29	2.99	10.00	17.69	5.25	15.84	24	0.66	18.31	6.56	889.50	885.74	884.30	889.50	885.60	884.11
297	296	64	0.35	0.64	0.22	3.22	10.00	17.76	5.24	16.99	24	1.73	29.79	9.79	889.50	885.60	884.11	885.00	885.00	883.00
FES 180																				
190	189	62	0.06	0.64	0.04	0.04	10.00	10.00	6.78	0.26	12	1.61	4.52	3.14	906.60	903.61	903.40	905.60	902.91	902.40
189	188	112	0.28	0.64	0.18	0.22	10.00	10.33	6.70	1.47	12	1.00	3.56	4.32	905.60	902.91	902.40	904.50	901.94	901.28
188	187	112	0.22	0.64	0.14	0.36	10.00	10.76	6.59	2.38	12	3.29	6.46	7.60	904.50	901.94	901.28	900.80	898.40	897.60
187	186	112	0.28	0.64	0.18	0.54	10.00	11.01	6.53	3.54	12	3.04	6.21	8.16	900.80	898.40	897.60	897.40	895.09	894.20
186	185	112	0.25	0.64	0.16	0.70	10.00	11.24	6.48	4.56	12	2.77	5.93	8.32	897.40	895.09	894.20	894.30	892.03	891.10
185	184	112	0.20	0.64	0.13	0.83	10.00	11.46	6.42	5.35	12	2.41	5.53	8.02	894.30	892.03	891.10	891.60	889.40	888.40
184	183	66	0.19	0.64	0.12	0.95	10.00	11.69	6.37	6.08	15	3.79	12.57	10.16	891.60	889.40	888.40	889.10	886.52	885.90
191	183	62	N/A	N/A	N/A	0.00	N/A	0.00	0.00	0.00	12	0.50	2.52	0.00	885.00	882.42	881.74	889.10	882.42	881.43
183	181	132	N/A	N/A	N/A	0.95	N/A	11.80	6.34	6.05	15	1.10	6.77	6.24	889.10	882.42	881.43	886.70	880.90	879.98
181	180	44	N/A	N/A	N/A	0.95	N/A	12.15	6.25	5.97	15	1.09	6.75	6.21	886.70	880.97	879.98	883.00	880.75	879.50
FES 254																				
258	257	29	1.25	0.64	0.80	0.80	10.00	10.00	6.78	5.47	15	1.00	6.46	5.90	890.30	887.55	886.60	890.30	887.19	886.31
257	255	144	1.27	0.64	0.81	1.61	10.00	10.08	6.76	10.99	18	1.50	12.86	8.18	890.30	886.93	885.66	889.10	884.57	883.50
255	254	32	N/A	N/A	N/A	1.61	N/A	10.38	6.69	10.87	18	1.56	13.13	8.30	889.10	884.76	883.50	887.00	884.50	883.00
FES 231																				
237	236	29	0.50	0.64	0.32	0.32	10.00	10.00	6.78	2.19	12	1.52	4.39	5.58	903.70	900.63	900.00	903.70	900.45	899.56
236	235	23	0.53	0.64	0.34	0.66	10.00	10.09	6.76	4.49	12	2.43	5.56	7.88	903.70	900.45	899.56	902.80	899.71	899.00
235	234	123	N/A	N/A	N/A	0.66	N/A	10.14	6.75	4.48	12	2.85	6.01	8.39	902.80	899.89	899.00	898.70	896.14	895.50
234	233	100	N/A	N/A	N/A	0.66	N/A	10.38	6.69	4.44	15	1.00	6.46	5.67	898.70	896.35	895.50	898.60	895.26	894.50
233	232	82	N/A	N/A	N/A	0.66	N/A	10.67	6.62	4.40	15	1.00	6.46	5.66	898.60	895.35	894.50	897.60	894.44	893.68
232	231	51	N/A	N/A	N/A	0.66	N/A	10.91	6.56	4.36	15	3.00	11.19	8.55	897.60	888.38	887.53	890.00	887.25	886.00
FES 82																				
90	89	29	1.02	0.64	0.65	0.65	10.00	10.00	6.78	4.46	12	2.00	5.04	7.24	891.60	888.78	887.90	891.60	888.07	887.32
89	88	156	0.64	0.64	0.41	1.06	10.00	10.07	6.76	7.24	15	2.00	9.14	8.26	891.60	884.49	883.42	884.50	881.14	880.30
88	83	17	N/A	N/A	N/A	1.06	N/A	10.38	6.69	7.16	15	2.35	9.91	8.79	884.50	881.37	880.30	884.10	880.76	879.90
83	82	38	N/A	N/A	N/A	1.06	N/A	10.41	6.68	7.15	15	2.00	9.14	8.24	884.10	878.83	877.76	881.00	878.25	877.00
FES 205																				
215	210	63	0.25	0.64	0.16	0.16	10.00	10.00	6.78	1.09	12	0.51	2.54	3.11	893.60	890.86	890.40	893.60	890.67	890.08
211	212	50	0.08	0.64	0.05	0.05	10.00	10.00	6.78	0.35	24	0.36	13.57	1.85	890.70	889.13	887.50	890.70	889.13	887.32
195	196	147	0.41	0.64	0.26	0.26	10.00	10.00	6.78	1.79	15	0.35	3.84	3.08	892.60	889.50	888.90	893.60	889.26	888.38
210	196	61	0.13	0.64	0.08	0.24	10.00	10.34	6.70	1.64	12	0.51	2.54	3.44	893.60	890.67	890.08	893.60	890.31	889.77
212	197	105	0.14	0.64	0.09	0.14	10.00	10.45	6.67	0.95	27	0.35	18.38	2.43	890.70	889.13	887.32	893.60	889.13	886.95
196	197	65	0.13	0.64	0.08	0.59	10.00	10.80	6.59	3.91	15	0.66	5.25	4.69	893.60	889.26	888.38	893.60	889.13	887.95
209	317	38	0.14	0.64	0.09	0.09	10.00	10.00	6.78	0.61	12	1.00	3.56	3.39	894.00	891.13	890.80	894.00	890.86	890.42
197	198	45	0.13	0.64	0.08	0.81	10.00	11.17	6.49	5.32	27	0.24	15.31	3.50	893.60	889.13	886.95	893.60	889.11	886.84
317	208	57	0.11	0.64	0.07	0.16	10.00	10.19	6.73	1.09	12	1.00	3.56	3.98	894.00	890.86	890.42	894.00	890.23	889.85
198	199	87	0.09	0.64	0.06	0.87	10.00	11.39	6.44	5.65	30	0.20	18.13	3.26	893.60	889.11	886.84	893.70	889.10	886.67
208	199	38	0.00	0.64	0.00	0.16	10.00	10.43	6.68	1.08	12	1.00	3.56	3.97	894.00	890.29	889.85	893.70	889.85	889.47
199	200	137	N/A	N/A	N/A	1.03	N/A	11.83	6.33	6.58	36	0.20	29.61	3.37	893.70	889.10	886.67	893.10	889.09	886.40
52	51	112	0.16	0.64	0.10	0.10	10.00	10.00	6.78	0.70	12	0.80	3.19	3.26	893.20	890.35	890.00	892.30	889.57	889.10
200	201	25	N/A	N/A	N/A	1.03	N/A	12.51	6.17	6.41	36	0.20	29.83	3.36	893.10	889.09	886.40	892.40	889.09	886.35
207	206	29	0.45	0.64	0.29	0.29	10.00	10.00	6.78	1.97	12	1.00	3.56	4.65	892.40	889.30	888.70	892.40	889.27	888.41
51	50	149	0.20	0.64	0.13	0.23	10.00	10.57	6.64	1.54	18	0.80	9.39	3.92	892.30	889.57	889.10	892.50	889.41	887.91
201	202	29	0.68	0.64	0.44	1.47	10.00	12.63	6.14	9.07	36	0.52	47.97	5.21	892.40	889.09	886.35	892.40	889.09	886.20
206	205	27	0.20	0.64	0.13	0.42	10.00	10.10	6.75	2.83	15	0.37	3.93	3.49	892.40	889.27	888.41	893.30	889.21	888.31
50	48	29	1.03	0.64	0.66	0.89	10.00	11.21	6.49	5.82	24	1.00	22.62	6.03	892.50	889.41	887.91	892.40	889.41	887.62
202	203	21	0.40	0.64	0.26	1.72	10.00	12.72	6.12	10.61	36	0.10	20.58	2.93	892.40	889.09	886.20	893.30	889.08	886.18

Upstream Node Number	Downstream Node Number	Length (ft)	Inlet Area (acres)	Runoff Coefficient	Inlet CA (acres)	Total CA (acres)	TC (min)	Sys Flow Time (min)	I (in/hr)	Q (cfs)	Size (inch)	S (%)	Capacity (cfs)	Velocity (ft/s)	Upstream Rim (ft)	Upstream HGL (ft)	Upstream Invert (ft)	Downstream Rim (ft)	Downstream HGL (ft)	Downstream Invert (ft)
205	203	94	N/A	N/A	N/A	0.42	N/A	10.23	6.72	2.82	15	0.51	4.62	3.95	893.30	889.21	888.31	893.30	889.08	887.83
48	47	140	1.00	0.64	0.64	1.53	10.00	11.29	6.47	9.97	24	0.20	10.12	3.67	892.40	889.41	887.62	893.00	889.18	887.34
203	313	144	N/A	N/A	N/A	2.14	N/A	12.84	6.09	13.11	36	0.10	20.80	3.11	893.30	889.08	886.18	891.40	889.03	886.04
47	313	96	N/A	N/A	N/A	1.53	N/A	11.92	6.31	9.73	24	0.20	10.06	3.65	893.00	889.18	887.34	891.40	889.03	887.15
313	205	32	N/A	N/A	N/A	3.67	N/A	13.61	5.90	21.80	36	0.12	23.58	3.79	891.40	889.03	886.04	891.00	889.00	886.00
FES 21																				
26	25	63	0.00	0.64	0.00	0.00	10.00	10.00	0.00	2.11	15	0.14	2.44	1.72	885.00	880.69	879.40	886.40	880.62	879.31
25	24	80	N/A	N/A	N/A	0.00	N/A	10.61	0.00	2.11	15	0.14	2.40	1.72	886.40	880.62	879.31	886.60	880.53	879.20
24	23	66	0.09	0.64	0.06	0.06	10.00	11.39	6.44	2.48	18	0.14	3.88	2.33	886.60	880.53	879.20	886.70	880.50	879.11
23	22	104	0.11	0.64	0.07	0.13	10.00	11.86	6.33	2.93	18	0.13	3.85	2.40	886.70	880.50	879.11	890.10	880.43	878.97
22	21	49	N/A	N/A	N/A	0.13	N/A	12.58	6.15	2.90	18	0.14	3.97	2.45	890.10	880.43	878.97	882.90	880.40	878.90
FES 102																				
104	103	69	1.38	0.64	0.88	0.88	10.00	10.00	6.78	6.04	15	2.00	9.14	7.95	890.80	888.09	887.10	890.20	886.46	885.72
103	102	154	N/A	N/A	N/A	0.88	N/A	10.14	6.74	6.00	15	2.00	9.14	7.94	890.20	882.86	881.87	885.30	880.04	878.79
FES 36																				
77	320	40	0.85	0.43	0.37	0.37	15.00	15.00	5.56	2.05	18	0.91	10.03	1.16	883.50	883.19	880.50	883.50	883.17	880.14
320	72	32	3.78	0.64	2.42	2.78	10.00	15.58	5.49	15.42	27	0.24	15.19	3.88	883.50	883.17	879.47	883.50	883.09	879.39
72	71	89	0.22	0.50	0.11	2.89	10.00	19.00	5.10	14.87	27	0.25	15.50	3.74	883.50	883.09	879.39	883.30	882.89	879.17
71	70	90	0.24	0.64	0.15	3.05	10.00	19.40	5.05	15.52	30	0.25	20.51	3.16	883.30	882.89	879.17	883.30	882.76	878.95
70	69	90	0.40	0.64	0.26	3.30	10.00	19.87	4.99	16.64	30	0.25	20.51	3.39	883.30	882.76	878.95	883.00	882.61	878.72
69	68	90	0.37	0.64	0.24	3.54	10.00	20.31	4.94	17.65	30	0.26	20.73	3.59	883.00	882.61	878.72	883.00	882.45	878.49
68	67	90	0.38	0.64	0.24	3.78	10.00	20.73	4.90	18.67	30	0.24	20.28	3.80	883.00	882.45	878.49	883.00	882.26	878.27
67	66	90	0.39	0.64	0.25	4.03	10.00	21.13	4.85	19.72	30	0.25	20.51	4.02	883.00	882.26	878.27	883.00	882.05	878.05
66	65	90	0.37	0.64	0.24	4.27	10.00	21.50	4.81	20.69	36	0.25	33.35	2.93	883.00	882.05	878.05	883.00	881.96	877.82
65	60	89	0.51	0.64	0.33	4.60	10.00	22.01	4.75	22.00	36	0.10	20.97	3.11	883.00	881.96	877.82	895.60	881.87	877.73
60	59	142	N/A	N/A	N/A	4.60	N/A	22.49	4.69	21.74	36	0.10	21.09	3.08	895.60	881.87	877.73	882.00	881.72	877.59
213	214	68	N/A	N/A	N/A	0.00	N/A	0.00	0.00	0.00	12	0.50	2.52	0.00	890.70	882.43	881.50	890.70	882.43	881.16
59	58	90	0.64	0.64	0.41	5.01	10.00	23.26	4.60	23.23	36	0.10	21.09	3.29	882.00	881.72	877.59	882.00	881.61	877.50
214	216	209	0.24	0.64	0.15	0.15	10.00	10.00	6.78	1.05	12	0.50	2.53	1.34	890.70	882.43	881.16	893.60	882.25	880.11
58	57	90	0.32	0.64	0.20	5.21	10.00	23.71	4.55	30.96	48	0.08	40.06	2.46	882.00	881.61	877.50	882.00	881.57	877.43
216	55	138	0.25	0.64	0.16	0.31	10.00	12.61	6.14	1.94	12	0.50	2.52	2.47	893.60	882.25	880.11	892.30	881.84	879.42
57	56	90	0.22	0.64	0.14	5.35	10.00	24.32	4.48	31.22	48	0.04	28.73	2.48	882.00	881.57	877.43	882.00	881.52	877.39
55	318	57	0.24	0.64	0.15	0.47	10.00	13.54	5.92	2.79	12	0.60	2.75	3.55	892.30	881.84	879.42	892.60	881.49	879.08
56	318	67	0.63	0.35	0.22	5.57	10.00	24.93	4.41	31.82	48	0.04	28.30	2.53	882.00	881.52	877.39	892.60	881.49	877.37
318	316	125	N/A	N/A	N/A	6.04	N/A	25.37	4.36	33.59	48	0.04	28.73	2.67	892.60	881.49	877.37	893.10	881.42	877.32
316	315	72	N/A	N/A	N/A	6.04	N/A	26.15	4.27	33.04	48	0.04	28.83	2.63	893.10	881.42	877.32	893.20	881.38	877.29
81	80	47	0.00	0.64	0.00	0.00	10.00	10.00	0.00	0.38	12	1.00	3.56	2.96	892.00	886.25	886.00	892.00	885.75	885.53
315	314	125	N/A	N/A	N/A	6.04	N/A	26.60	4.21	32.72	48	0.04	28.73	2.60	893.20	881.38	877.29	893.00	881.32	877.24
80	46	50	N/A	N/A	N/A	0.00	N/A	10.27	0.00	0.38	12	1.00	3.56	2.96	892.00	885.78	885.53	891.20	885.25	885.03
314	46	219	N/A	N/A	N/A	6.04	N/A	27.40	4.12	32.15	48	0.04	28.79	2.56	893.00	881.32	877.24	891.20	881.21	877.15
46	45	100	N/A	N/A	N/A	6.04	N/A	28.83	3.96	31.52	48	0.04	28.73	2.51	891.20	881.21	877.15	891.20	881.16	877.11
45	44	65	0.16	0.64	0.10	6.14	10.00	29.49	3.88	31.45	48	0.04	28.73	2.50	891.20	881.16	877.11	891.80	881.13	877.09
44	43	28	0.76	0.64	0.49	6.63	10.00	29.93	3.83	33.02	48	0.04	28.47	2.63	891.80	881.13	877.09	891.80	881.11	877.07
43	37	154	1.17	0.64	0.75	7.38	10.00	30.10	3.82	35.81	48	0.04	28.82	2.85	891.80	881.11	877.07	884.40	881.02	877.01
37	36	31	N/A	N/A	N/A	7.38	N/A	31.01	3.77	35.50	48	0.04	28.26	2.83	884.40	881.02	877.01	882.00	881.00	877.00

Upstream Node Number	Downstream Node Number	Length (ft)	Inlet Area (acres)	Runoff Coefficient	Inlet CA (acres)	Total CA (acres)	TC (min)	Sys Flow Time (min)	I (in/hr)	Q (cfs)	Size (inch)	S (%)	Capacity (cfs)	Velocity (ft/s)	Upstream Rim (ft)	Upstream HGL (ft)	Upstream Invert (ft)	Downstream Rim (ft)	Downstream HGL (ft)	Downstream Invert (ft)
FES 36																				
318	316	125	N/A	N/A	N/A	6.04	N/A	22.64	7.78	64.54	48	0.04	28.73	5.14	892.60	882.91	877.37	893.10	882.65	877.32
316	315	72	N/A	N/A	N/A	6.04	N/A	23.04	7.70	64.05	48	0.04	28.83	5.10	893.10	882.65	877.32	893.20	882.51	877.29
315	314	125	N/A	N/A	N/A	6.04	N/A	23.28	7.66	63.77	48	0.04	28.73	5.08	893.20	882.51	877.29	893.00	882.26	877.24
314	46	219	N/A	N/A	N/A	6.04	N/A	23.69	7.58	63.28	48	0.04	28.79	5.04	893.00	882.26	877.24	891.20	881.84	877.15
46	45	100	N/A	N/A	N/A	6.04	N/A	24.41	7.44	62.80	48	0.04	28.73	5.00	891.20	881.84	877.15	891.20	881.65	877.11
45	44	65	0.16	0.64	0.10	6.14	10.00	24.75	7.37	63.16	48	0.04	28.73	5.03	891.20	881.65	877.11	891.80	881.52	877.09
44	43	28	0.76	0.64	0.49	6.63	10.00	24.96	7.33	66.49	48	0.04	28.47	5.29	891.80	881.52	877.09	891.80	881.46	877.07
43	37	154	1.17	0.64	0.75	7.38	10.00	25.05	7.31	71.89	48	0.04	28.82	5.72	891.80	881.46	877.07	884.40	881.08	877.01
37	36	31	N/A	N/A	N/A	7.38	N/A	25.50	7.22	71.24	48	0.04	28.26	5.67	884.40	881.08	877.01	882.00	881.00	877.00

Inlet Capacities per IDOT Design Manual

Curb Inlet 300 ; A = 1.38 Ac. ; C = 0.64

Type 7010 M1

0.9 = Free open area of grate (sq. ft.)
4.6 = Weir Perimeter of grate (ft.)

Ponding	Capacity Calculation			Weir/Orifice ratio	Flow Type
	Weir Equation	Orifice Equation	Net Capacity		
0.04	0.11	0.97	0.11	0.11	Weir Flow
0.09	0.37	1.45	0.37	0.26	Weir Flow
0.14	0.72	1.81	0.72	0.40	Weir Flow
0.19	1.14	2.11	1.14	0.54	Weir Flow
0.24	1.62	2.37	1.60	0.68	Transition Flow
0.29	2.16	2.61	1.90	0.83	Transition Flow
0.34	2.74	2.82	2.22	0.97	Transition Flow
0.39	3.36	3.02	2.55	1.11	Transition Flow
0.44	4.03	3.21	2.90	1.25	Transition Flow
0.49	4.73	3.39	3.25	1.40	Transition Flow
0.54	5.48	3.56	3.56	1.54	Orifice Flow
0.59	6.25	3.72	3.72	1.68	Orifice Flow
0.64	7.07	3.87	3.87	1.83	Orifice Flow
0.69	7.91	4.02	4.02	1.97	Orifice Flow
0.74	8.78	4.16	4.16	2.11	Orifice Flow
0.79	9.69	4.30	4.30	2.25	Orifice Flow
0.84	10.62	4.44	4.44	2.40	Orifice Flow
0.89	11.59	4.57	4.57	2.54	Orifice Flow
0.94	12.58	4.69	4.69	2.68	Orifice Flow
0.99	13.59	4.81	4.81	2.82	Orifice Flow
1.04	14.64	4.93	4.93	2.97	Orifice Flow
1.09	15.70	5.05	5.05	3.11	Orifice Flow
1.14	16.80	5.17	5.17	3.25	Orifice Flow
1.19	17.91	5.28	5.28	3.39	Orifice Flow
1.24	19.06	5.39	5.39	3.54	Orifice Flow
1.29	20.22	5.50	5.50	3.68	Orifice Flow
1.34	21.41	5.60	5.60	3.82	Orifice Flow

Notes:

Equations used:

Q=0.67A(2gh)^0.5	Orifice equation
Q=3P(h)^1.5	Weir equation

where:
A= free open area of grate
P= weir perimeter
h= feet of head (ponding depth)
g= 32.2 feet per sec/sec
Q=capacity of grate in CFS

Net total flow is the lower of the two equations except where the the ratio of the two solutions is between 0.667 and 1.5. In the latter case the net flow is 80% of the average of the two solutions as an approximation of transitional flow.

Inlet Capacities per IDOT Design Manual

Backyard Inlet 153 ; A = 1.01 Ac. ; C = 0.64

Type 6527

1.1 = Free open area of grate (sq. ft.)
6.0 = Weir Perimeter of grate (ft.)

Ponding	Capacity Calculation			Weir/Orifice ratio	Flow Type
	Weir Equation	Orifice Equation	Net Capacity		
0.01	0.02	0.59	0.02	0.03	Weir Flow
0.06	0.26	1.45	0.26	0.18	Weir Flow
0.11	0.66	1.96	0.66	0.33	Weir Flow
0.16	1.15	2.37	1.15	0.49	Weir Flow
0.21	1.73	2.71	1.73	0.64	Weir Flow
0.26	2.39	3.02	2.16	0.79	Transition Flow
0.31	3.11	3.29	2.56	0.94	Transition Flow
0.36	3.89	3.55	2.97	1.10	Transition Flow
0.41	4.73	3.79	3.41	1.25	Transition Flow
0.46	5.62	4.01	3.85	1.40	Transition Flow
0.51	6.56	4.22	4.22	1.55	Orifice Flow
0.56	7.54	4.43	4.43	1.70	Orifice Flow
0.61	8.58	4.62	4.62	1.86	Orifice Flow
0.66	9.65	4.80	4.80	2.01	Orifice Flow
0.71	10.77	4.98	4.98	2.16	Orifice Flow
0.76	11.93	5.16	5.16	2.31	Orifice Flow
0.81	13.12	5.32	5.32	2.47	Orifice Flow
0.86	14.36	5.48	5.48	2.62	Orifice Flow
0.91	15.63	5.64	5.64	2.77	Orifice Flow
0.96	16.93	5.79	5.79	2.92	Orifice Flow
1.01	18.27	5.94	5.94	3.07	Orifice Flow
1.06	19.64	6.09	6.09	3.23	Orifice Flow
1.11	21.05	6.23	6.23	3.38	Orifice Flow
1.16	22.49	6.37	6.37	3.53	Orifice Flow
1.21	23.96	6.51	6.51	3.68	Orifice Flow
1.26	25.46	6.64	6.64	3.83	Orifice Flow
1.31	26.99	6.77	6.77	3.99	Orifice Flow

Notes:

Equations used:

Q=0.67A(2gh)^0.5	Orifice equation
Q=3P(h)^1.5	Weir equation

where:
A= free open area of grate
P= weir perimeter
h= feet of head (ponding depth)
g= 32.2 feet per sec/sec
Q=capacity of grate in CFS

Net total flow is the lower of the two equations except where the the ratio of the two solutions is between 0.667 and 1.5. In the latter case the net flow is 80% of the average of the two solutions as an approximation of transitional flow.

OVERLAND FLOOD ROUTE

CALCULATIONS

Project Trails of Wood Creek
Location Algonquin, IL

By JMH Date 7/10/2020
Checked ARF Date 7/11/2020

Check one: ☐ Present ☑ Developed
Check one: ☑ Tc ☐ Tt

A-A Lots 103-94

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)

	Segment ID				
1. Surface Description (Table 3-1)		dense grass			
2. Manning's roughness coeff., n (Table 3-1)		0.24			
3. Flow length, L (total L ≤ 300 ft)	ft	100			
4. Two-yr 24-hr rainfall, P_2	in	3.34			
5. Land slope, s	ft/ft	0.011			
6. $Tc = \frac{0.007\ (nL)^{0.8}}{P_2^{0.5}\ s^{0.4}}$	hr	0.296	+	=	0.296

Shallow Concentrated Flow

	Segment ID				
7. Surface description (paved or unpaved)		Unpaved	Paved		
8. Flow length, L		298	238		
9. Watercourse slope, s		0.01	0.006		
10. Average velocity, V (figure 3-1)		1.63	1.61		
11. $T_t = \frac{L}{3600\ V}$	hr	0.051	+ 0.04	=	0.092

Channel Flow

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

20. Watershed or subarea T_c or T_t (add T_t in steps 6, 11, and 19) hr 0.388 min 24

Determine Height Of Water For The Overland Flood Route At V-Notch Weir Location

Assumption: 100 year event used for intensity

Governing Equations:

Flow:
Q=ciA where: Q is rate of flow (cfs)
c is runoff coefficient
i is intensity (in/hr); i=Tc
A is area (Acres)

Flow Through A V-Notched Weir:

Q=(DC)*(H^(5/2))*(TAN(Theta/2))

where: DC is the discharge coefficient

H is the depth of 100 year high water level measured from the v-notch

Theta is the angle of the v-notched weir

Constants:

Runoff Coefficient:	0.64
Discharge Coefficient At Weir:	3.00
Distance From T/F To F/G:	0.7
Intensity - I=Tc:	6.57
Offsite Peak Flow from PondPack:	

Calculations:

Lot No.	T/F	F/G	Side Setback	Weir Elev.	Trib. Area (Acres)	Q (cfs)	Tan Mu (deg.)	Angle (deg.)	Theta (deg.)	Tan 1/2 Theta (deg.)	F/G and Weir Diff.	Depth	100 Year HWL
103	892.8	892.1	42.4	891.0	4.52	19.00	38.545	88.51	176.46	32.37	1.1	0.521	891.5
94	893.8	893.1	58.6				27.905	87.95			2.1		

Project Trails of Wood Creek
Location Algonquin, IL

By JMH Date 7/10/2020
Checked ARF Date 7/11/2020

Check one: ☐ Present ☑ Developed
Check one: ☑ Tc ☐ Tt

B-B Lot 95-96 Sideyard

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)

	Segment ID				
1. Surface Description (Table 3-1)		dense grass			
2. Manning's roughness coeff., n (Table 3-1)		0.24			
3. Flow length, L (total L ≤ 300 ft)	ft	100			
4. Two-yr 24-hr rainfall, P_2	in	3.34			
5. Land slope, s	ft/ft	0.011			
6. $Tc = \frac{0.007\ (nL)^{0.8}}{P_2^{0.5}\ s^{0.4}}$	hr	0.296	+	=	0.296

Shallow Concentrated Flow

	Segment ID				
7. Surface description (paved or unpaved)		Unpaved	Paved		
8. Flow length, L		63			
9. Watercourse slope, s		0.0063			
10. Average velocity, V (figure 3-1)		1.29			
11. $T_t = \frac{L}{3600\ V}$	hr	0.014	+	=	0.014

Channel Flow

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

20. Watershed or subarea T_c or T_t (add T_t in steps 6, 11, and 19) hr 0.309
min 19

Determine Height Of Water For The Overland Flood Route At V-Notch Weir Location

Assumption: 100 year event used for intensity

Governing Equations:

Flow:

Q=ciA where: Q is rate of flow (cfs)
c is runoff coefficient
i is intensity (in/hr); i=Tc
A is area (Acres)

Flow Through A V-Notched Weir:

Q=(DC)*(H^(5/2))*(TAN(Theta/2))

where: DC is the discharge coefficient

H is the depth of 100 year high water level measured from the v-notch

Theta is the angle of the v-notched weir

Constants:

Runoff Coefficient:	0.64
Discharge Coefficient At Weir:	3.00
Distance From T/F To F/G:	0.7
Intensity - I=Tc:	7.37
Offsite Peak Flow from PondPack:	

Cover Type	Runoff Coef.	Area	Weighted Avg.
Pervious	0.35	0.37	0.48
Impervious	0.9	0.12	

Calculations:

Lot No.	T/F	F/G	Side Setback	Weir Elev.	Trib. Area (Acres)	Q (cfs)	Tan Mu (deg.)	Angle (deg.)	Theta (deg.)	Tan 1/2 Theta (deg.)	F/G and Weir Diff.	Depth	100 Year HWL
Wall		893.3	8.0	892.9	0.49	2.31	20.000	87.14	176.17	29.95	0.4	0.231	893.1
95	894.2	893.5	35.7				59.500	89.04			0.6		

Project Trails of Wood Creek
Location Algonquin, IL

By JMH Date 7/10/2020
Checked ARF Date 7/11/2020

Check one: ☐ Present ☑ Developed
Check one: ☑ Tc ☐ Tt

C-C lot 53

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)

	Segment ID				
1. Surface Description (Table 3-1)		dense grass			
2. Manning's roughness coeff., n (Table 3-1)		0.24			
3. Flow length, L (total L < 300 ft)	ft	100			
4. Two-yr 24-hr rainfall, P2	in	3.34			
5. Land slope, s	ft/ft	0.005			
6. $Tc = \frac{0.007\ (nL)0.8}{P20.5\ s0.4}$	hr	0.405	+	=	0.405

Shallow Concentrated Flow

	Segment ID				
7. Surface description (paved or unpaved)		Unpaved			
8. Flow length, L		248			
9. Watercourse slope, s		0.003			
10. Average velocity, V (figure 3-1)		0.89			
11. $Tt= \frac{L}{3600\ V}$	hr	0.078	+	=	0.078

Channel Flow

	Segment ID				
12. Cross sectional flow area, a	ft2				
13. Wetted perimeter, pw	ft				
14. Hydraulic radius, r= a/pw compute r	ft				
15. Channel Slope, s	ft/ft				
16. Manning's roughness coeff., n					
17. V= 1.49 r2/3 s1/2 / n	ft/s				
18. Flow length, L	ft				
19. $Tt= \frac{L}{3600\ V}$	hr		+	=	

20. Watershed or subarea Tc or Tt (add Tt in steps 6, 11, and 19) hr 0.483 min 29

Determine Height Of Water For The Overland Flood Route At Trapezoid Weir Location

Assumption: 100 year event used for intensity

Governing Equations:

Flow:
Q=ciA where: Q is rate of flow (cfs)
c is runoff coefficient
i is intensity (in/hr); i=Tc
A is area (Acres)

Flow Through A Trapeziod Weir:

Q=(DC)*(L*(H^(3/2))+(Z*(H^(5/2))))

where: DC is the discharge coefficient
H is the depth of 100 year high water level measured from the bottom of the notch
Z is Tan(Theta/2)
L is the length of notch at bottom, ft.

Constants:

Runoff Coefficient:	0.64
Discharge Coefficient At Weir:	3.00
Distance From T/F To F/G:	0.7
Intensity - I=Tc:	5.76
Offsite Peak Flow from PondPack:	

Calculations:

Lot No.	T/F	F/G	Side Setback	Weir Elev.	Notch Length	Trib. Area (Acres)	Q (cfs)	Tan Mu (deg.)	Angle (deg.)	Theta (deg.)	Tan 1/2 Theta (deg.)	F/G and Weir Diff.	Depth	100 Year HWL
59	896.0	895.3	22.4	894.6	13	1.25	4.61	32.000	88.21	177.61	47.97	0.7	0.180	894.8
BERM		895.4	76.6					95.750	89.40			0.8		

H	H^(3/2)	H^(5/2)	Q
0.18	0.076	0.014	4.957

Project	Trails of Wood Creek	By	JMH	Date	7/10/2020
Location	Algonquin, IL	Checked	ARF	Date	7/11/2020

Check one: ☐ Present ☑ Developed

Check one: ☑ Tc ☐ Tt

D-D Lot 195 sideyard

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)

Segment ID				
1. Surface Description (Table 3-1)		dense grass		
2. Manning's roughness coeff., n (Table 3-1)		0.24		
3. Flow length, L (total L $\leq$ 300 ft)	ft	100		
4. Two-yr 24-hr rainfall, P_2	in	3.34		
5. Land slope, s	ft/ft	0.008		
6. $Tc = \frac{0.007\,(nL)^{0.8}}{P_2^{0.5}\,s^{0.4}}$	hr	0.336	+	= 0.336

Shallow Concentrated Flow

Segment ID				
7. Surface description (paved or unpaved)		Unpaved		
8. Flow length, L		110		
9. Watercourse slope, s		0.0036		
10. Average velocity, V (figure 3-1)		0.97		
11. $T_t = \frac{L}{3600\ V}$	hr	0.031	+	= 0.031

Channel Flow

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

20. Watershed or subarea T_c or T_t (add T_t in steps 6, 11, and 19) hr 0.367 min 23

Determine Height Of Water For The Overland Flood Route At V-Notch Weir Location

Assumption: 100 year event used for intensity

Governing Equations:

Flow:

Q=ciA where: Q is rate of flow (cfs)
c is runoff coefficient
i is intensity (in/hr); i=Tc
A is area (Acres)

Flow Through A V-Notched Weir:

Q=(DC)*(H^(5/2))*(TAN(Theta/2))

where: DC is the discharge coefficient

H is the depth of 100 year high water level measured from the v-notch

Theta is the angle of the v-notched weir

Constants:

Runoff Coefficient:	0.64
Discharge Coefficient At Weir:	3.00
Distance From T/F To F/G:	0.7
Intensity - I=Tc:	6.73
Offsite Peak Flow from PondPack:	

Calculations:

Lot No.	T/F	F/G	Side Setback	Weir Elev.	Trib. Area (Acres)	Q (cfs)	Tan Mu (deg.)	Angle (deg.)	Theta (deg.)	Tan 1/2 Theta (deg.)	F/G and Weir Diff.	Depth	100 Year HWL
195	896.1	895.4	29.0	894.7	0.40	1.72	41.429	88.62	178.16	62.32	0.7	0.153	894.9
BERM		895.4	88.0				125.714	89.54			0.7		

Project Trails of Wood Creek
Location Algonquin, IL

By JMH Date 7/10/2020
Checked ARF Date 7/11/2020

Check one: ☐ Present ☑ Developed
Check one: ☑ Tc ☐ Tt

E-E Lot 128-129 Sideyard

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)

	Segment ID			
1. Surface Description (Table 3-1)		dense grass		
2. Manning's roughness coeff., n (Table 3-1)		0.24		
3. Flow length, L (total L $\leq$ 300 ft)	ft	100		
4. Two-yr 24-hr rainfall, P_2	in	3.34		
5. Land slope, s	ft/ft	0.02		
6. $Tc = \frac{0.007 (nL)^{0.8}}{P_2^{0.5} s^{0.4}}$	hr	0.233	+	= 0.233

Shallow Concentrated Flow

	Segment ID			
7. Surface description (paved or unpaved)		Unpaved	Paved	
8. Flow length, L		154		
9. Watercourse slope, s		0.02		
10. Average velocity, V (figure 3-1)		2.30		
11. $T_t = \frac{L}{3600 V}$	hr	0.019	+	= 0.019

Channel Flow

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

20. Watershed or subarea T_c or T_t (add T_t in steps 6, 11, and 19) hr 0.251
min 16

Determine Height Of Water For The Overland Flood Route At V-Notch Weir Location

Assumption: 100 year event used for intensity

Governing Equations:

Flow:
Q=ciA where: Q is rate of flow (cfs)
c is runoff coefficient
i is intensity (in/hr); i=Tc
A is area (Acres)

Flow Through A V-Notched Weir:

Q=(DC)*(H^(5/2))*(TAN(Theta/2))

where: DC is the discharge coefficient

H is the depth of 100 year high water level measured from the v-notch

Theta is the angle of the v-notched weir

Constants:

Runoff Coefficient:	0.64
Discharge Coefficient At Weir:	3.00
Distance From T/F To F/G:	0.7
Intensity - I=Tc:	7.86
Offsite Peak Flow from PondPack:	

Calculations:

Lot No.	T/F	F/G	Side Setback	Weir Elev.	Trib. Area (Acres)	Q (cfs)	Tan Mu (deg.)	Angle (deg.)	Theta (deg.)	Tan 1/2 Theta (deg.)	F/G and Weir Diff.	Depth	100 Year HWL
128	896.8	896.1	29.0	895.3	0.59	2.97	36.250	88.42	177.94	55.69	0.8	0.199	895.5
129	899.3	895.7	48.0				120.000	89.52			0.4		

Project Trails of Wood Creek
Location Algonquin, IL

By JMH Date 7/10/2020
Checked ARF Date 7/11/2020

Check one: ☐ Present ☑ Developed
Check one: ☑ Tc ☐ Tt

F-F Lot 136-137 Sideyard

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)

	Segment ID				
1. Surface Description (Table 3-1)		dense grass			
2. Manning's roughness coeff., n (Table 3-1)		0.24			
3. Flow length, L (total L $\leq$ 300 ft)	ft	100			
4. Two-yr 24-hr rainfall, P_2	in	3.34			
5. Land slope, s	ft/ft	0.012			
6. $Tc = \frac{0.007 (nL)^{0.8}}{P_2^{0.5} s^{0.4}}$	hr	0.286	+	=	0.286

Shallow Concentrated Flow

	Segment ID				
7. Surface description (paved or unpaved)		Unpaved	Paved		
8. Flow length, L		157.5			
9. Watercourse slope, s		0.0032			
10. Average velocity, V (figure 3-1)		0.92			
11. $T_t = \frac{L}{3600 V}$	hr	0.048	+	=	0.048

Channel Flow

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

20. Watershed or subarea T_c or T_t (add T_t in steps 6, 11, and 19) hr 0.333
min 20

Determine Height Of Water For The Overland Flood Route At V-Notch Weir Location

Assumption: 100 year event used for intensity

Governing Equations:

Flow:
Q=ciA where: Q is rate of flow (cfs)
c is runoff coefficient
i is intensity (in/hr); i=Tc
A is area (Acres)

Flow Through A V-Notched Weir:

Q=(DC)*(H^(5/2))*(TAN(Theta/2))

where: DC is the discharge coefficient
H is the depth of 100 year high water level measured from the v-notch
Theta is the angle of the v-notched weir

Constants:

Runoff Coefficient:	0.64
Discharge Coefficient At Weir:	3.00
Distance From T/F To F/G:	0.7
Intensity - I=Tc:	7.21
Offsite Peak Flow from PondPack:	

Calculations:

Lot No.	T/F	F/G	Side Setback	Weir Elev.	Trib. Area (Acres)	Q (cfs)	Tan Mu (deg.)	Angle (deg.)	Theta (deg.)	Tan 1/2 Theta (deg.)	F/G and Weir Diff.	Depth	100 Year HWL
137	897.7	897.0	24.0	896.0	1.32	6.09	24.000	87.61	175.47	25.26	1.0	0.365	896.4
136	897.6	896.9	24.0				26.667	87.85			0.9		

Project Trails of Wood Creek By JMH Date 7/10/2020
Location Algonquin, IL Checked ARF Date 7/11/2020

Check one: ☐ Present ☑ Developed
Check one: ☑ Tc ☐ Tt

G-G Lot 155-154 Sideyard

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)

	Segment ID				
1. Surface Description (Table 3-1)		dense grass			
2. Manning's roughness coeff., n (Table 3-1)		0.24			
3. Flow length, L (total L $\leq$ 300 ft)	ft	100			
4. Two-yr 24-hr rainfall, P_2	in	3.34			
5. Land slope, s	ft/ft	0.012			
6. $Tc = \frac{0.007\ (nL)^{0.8}}{P_2^{0.5}\ s^{0.4}}$	hr	0.286	+	=	0.286

Shallow Concentrated Flow

	Segment ID				
7. Surface description (paved or unpaved)		Unpaved	Paved		
8. Flow length, L		237.5	372		
9. Watercourse slope, s		0.02	0.0022		
10. Average velocity, V (figure 3-1)		2.30	0.98		
11. $T_t = \frac{L}{3600\ V}$	hr	0.029	+ 0.11	=	0.134

Channel Flow

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

20. Watershed or subarea T_c or T_t (add T_t in steps 6, 11, and 19) hr 0.420 min 26

Determine Height Of Water For The Overland Flood Route At V-Notch Weir Location

Assumption: 100 year event used for intensity

Governing Equations:

Flow:
Q=ciA where: Q is rate of flow (cfs)
c is runoff coefficient
i is intensity (in/hr); i=Tc
A is area (Acres)

Flow Through A V-Notched Weir:

Q=(DC)*(H^(5/2))*(TAN(Theta/2))

where: DC is the discharge coefficient

H is the depth of 100 year high water level measured from the v-notch

Theta is the angle of the v-notched weir

Constants:

Runoff Coefficient:	0.64
Discharge Coefficient At Weir:	3.00
Distance From T/F To F/G:	0.7
Intensity - I=Tc:	6.25
Offsite Peak Flow from PondPack:	

Calculations:

Lot No.	T/F	F/G	Side Setback	Weir Elev.	Trib. Area (Acres)	Q (cfs)	Tan Mu (deg.)	Angle (deg.)	Theta (deg.)	Tan 1/2 Theta (deg.)	F/G and Weir Diff.	Depth	100 Year HWL
155	895.6	894.9	42.0	893.5	4.34	17.35	30.000	88.09	174.96	22.71	1.4	0.579	894.1
154	896.5	895.8	42.0				18.261	86.87			2.3		

Project Trails of Wood Creek

Location Algonquin, IL

By JMH Date 7/10/2020

Checked ARF Date 7/11/2020

Check one: ☐ Present ☑ Developed

Check one: ☑ Tc ☐ Tt

H-H Lot 222-223 Sideyard

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)

	Segment ID				
1. Surface Description (Table 3-1)		dense grass			
2. Manning's roughness coeff., n (Table 3-1)		0.24			
3. Flow length, L (total L ≤ 300 ft)	ft	35			
4. Two-yr 24-hr rainfall, P_2	in	3.34			
5. Land slope, s	ft/ft	0.02			
6. $Tc = \frac{0.007\ (nL)^{0.8}}{P_2^{0.5}\ s^{0.4}}$	hr	0.101	+	=	0.101

Shallow Concentrated Flow

	Segment ID				
7. Surface description (paved or unpaved)		Paved			
8. Flow length, L		342			
9. Watercourse slope, s		0.02			
10. Average velocity, V (figure 3-1)		2.93			
11. $T_t = \frac{L}{3600\ V}$	hr	0.032	+	=	0.032

Channel Flow

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

20. Watershed or subarea T_c or T_t (add T_t in steps 6, 11, and 19) hr 0.133 min 8

Determine Height Of Water For The Overland Flood Route At V-Notch Weir Location

Assumption: 100 year event used for intensity

Governing Equations:

Flow:

Q=ciA where: Q is rate of flow (cfs)
c is runoff coefficient
i is intensity (in/hr); i=Tc
A is area (Acres)

Flow Through A V-Notched Weir:

Q=(DC)*(H^(5/2))*(TAN(Theta/2))

where: DC is the discharge coefficient

H is the depth of 100 year high water level measured from the v-notch

Theta is the angle of the v-notched weir

Constants:

Runoff Coefficient:	0.64
Discharge Coefficient At Weir:	3.00
Distance From T/F To F/G:	0.7
Intensity - I=Tc:	10.38
Offsite Peak Flow from PondPack:	

Calculations:

Lot No.	T/F	F/G	Side Setback	Weir Elev.	Trib. Area (Acres)	Q (cfs)	Tan Mu (deg.)	Angle (deg.)	Theta (deg.)	Tan 1/2 Theta (deg.)	F/G and Weir Diff.	Depth	100 Year HWL
222	894.4	893.7	42.0	892.3	2.73	18.14	30.000	88.09	176.18	30.00	1.4	0.527	892.8
223	894.4	893.7	42.0				30.000	88.09			1.4		

Project Trails of Wood Creek
Location Algonquin, IL

By JMH Date 7/10/2020
Checked ARF Date 7/11/2020

Check one: ☐ Present ☑ Developed
Check one: ☑ Tc ☐ Tt

I-I Lot 229-230 Sideyard

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)

	Segment ID				
1. Surface Description (Table 3-1)		dense grass			
2. Manning's roughness coeff., n (Table 3-1)		0.24			
3. Flow length, L (total L ≤ 300 ft)	ft	35			
4. Two-yr 24-hr rainfall, P_2	in	3.34			
5. Land slope, s	ft/ft	0.02			
6. $Tc = \frac{0.007\ (nL)^{0.8}}{P_2^{0.5}\ s^{0.4}}$	hr	0.101	+	=	0.101

Shallow Concentrated Flow

	Segment ID				
7. Surface description (paved or unpaved)		Paved			
8. Flow length, L		342			
9. Watercourse slope, s		0.02			
10. Average velocity, V (figure 3-1)		2.93			
11. $T_t = \frac{L}{3600\ V}$	hr	0.032	+	=	0.032

Channel Flow

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

20. Watershed or subarea T_c or T_t (add T_t in steps 6, 11, and 19) hr 0.133
min 8

Determine Height Of Water For The Overland Flood Route At V-Notch Weir Location

Assumption: 100 year event used for intensity

Governing Equations:

Flow:
Q=ciA where: Q is rate of flow (cfs)
c is runoff coefficient
i is intensity (in/hr); i=Tc
A is area (Acres)

Flow Through A V-Notched Weir:

Q=(DC)*(H^(5/2))*(TAN(Theta/2))

where: DC is the discharge coefficient

H is the depth of 100 year high water level measured from the v-notch

Theta is the angle of the v-notched weir

Constants:

Runoff Coefficient:	0.64
Discharge Coefficient At Weir:	3.00
Distance From T/F To F/G:	0.7
Intensity - I=Tc:	10.38
Offsite Peak Flow from PondPack:	

Calculations:

Lot No.	T/F	F/G	Side Setback	Weir Elev.	Trib. Area (Acres)	Q (cfs)	Tan Mu (deg.)	Angle (deg.)	Theta (deg.)	Tan 1/2 Theta (deg.)	F/G and Weir Diff.	Depth	100 Year HWL
229	893.5	892.8	42.0	891.2	1.96	13.02	26.250	87.82	176.18	30.00	1.6	0.461	891.7
230	893.1	892.4	42.0				35.000	88.36			1.2		

Project Trails of Wood Creek — By JMH — Date 7/10/2020
Location Algonquin, IL — Checked — Date

Check one: ☐ Present ☑ Developed
Check one: ☑ Tc ☐ Tt

A1-A1 SWMF 07 Northern Overflow

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)

	Segment ID				
1. Surface Description (Table 3-1)		dense grass			
2. Manning's roughness coeff., n (Table 3-1)		0.24			
3. Flow length, L (total L ≤ 300 ft)	ft				
4. Two-yr 24-hr rainfall, P_2	in	3.04			
5. Land slope, s	ft/ft				
6. $T_c = \frac{0.007\,(nL)^{0.8}}{P_2^{0.5}\, s^{0.4}}$	hr		+	=	

Shallow Concentrated Flow

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

Channel Flow

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

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

Determine Height Of Water For The Overland Flood Route At Trapezoid Weir Location

Assumption: 1 CFS per acre

Governing Equations:

Flow:
Q=ciA where: Q is rate of flow (cfs)
c is runoff coefficient
i is intensity (in/hr); i=Tc
A is area (Acres)

Flow Through A Trapeziod Weir:

Q=(DC)*(L*(H^(3/2))+(Z*(H^(5/2))))

where: DC is the discharge coefficient

H is the depth of 100 year high water level measured from the bottom of the notch

Z is Tan(Theta/2)
L is the length of notch at bottom, ft.

Constants:

Runoff Coefficient:	
Discharge Coefficient At Weir:	3.00
Distance From T/F To F/G:	
Intensity - I=Tc:	FALSE
Offsite Peak Flow from PondPack:	

Calculations:

Lot No.	T/F	F/G	Side Setback	Weir Elev.	Notch Length	Trib. Area (Acres)	Q (cfs)	Tan Mu (deg.)	Angle (deg.)	Theta (deg.)	Tan 1/2 Theta (deg.)	F/G and Weir Diff.	Depth	100 Year HWL
BERM		883.5	11.0	882.7	16	33.83	33.83	13.750	85.84	171.68	13.75	0.8	0.610	883.3
BERM		883.5	11.0					13.750	85.84			0.8		

*side setback based on 7.5% slope

H	H^(3/2)	H^(5/2)	Q
0.61	0.476	0.291	34.86

Project Trails of Wood Creek
Location Algonquin, IL

By JMH Date 7/10/2020
Checked Date

Check one: ☐ Present ☑ Developed
Check one: ☑ Tc ☐ Tt

B1-B1 SWMF 09

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)

	Segment ID			
1. Surface Description (Table 3-1)		dense grass		
2. Manning's roughness coeff., n (Table 3-1)		0.24		
3. Flow length, L (total L $\leq$ 300 ft)	ft			
4. Two-yr 24-hr rainfall, P_2	in	3.04		
5. Land slope, s	ft/ft			
6. $Tc = \frac{0.007\ (nL)^{0.8}}{P_2^{0.5}\ s^{0.4}}$	hr		+	=

Shallow Concentrated Flow

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

Channel Flow

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

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

Determine Height Of Water For The Overland Flood Route At Trapezoid Weir Location

Assumption: 1 CFS per acre

Governing Equations:

Flow:
Q=ciA where: Q is rate of flow (cfs)
c is runoff coefficient
i is intensity (in/hr); i=Tc
A is area (Acres)

Flow Through A Trapeziod Weir:

Q=(DC)*(L*(H^(3/2))+(Z*(H^(5/2))))

where: DC is the discharge coefficient

H is the depth of 100 year high water level measured from the bottom of the notch

Z is Tan(Theta/2)
L is the length of notch at bottom, ft.

Constants:

Runoff Coefficient:	
Discharge Coefficient At Weir:	3.00
Distance From T/F To F/G:	
Intensity - I=Tc:	FALSE
Offsite Peak Flow from PondPack:	

Calculations:

Lot No.	T/F	F/G	Side Setback	Weir Elev.	Notch Length	Trib. Area (Acres)	Q (cfs)	Tan Mu (deg.)	Angle (deg.)	Theta (deg.)	Tan 1/2 Theta (deg.)	F/G and Weir Diff.	Depth	100 Year HWL
6	891.1	890.4	22.0	889.2	7	22.78	22.78	18.333	86.88	174.68	21.51	1.2	0.549	889.7
		889.7	13.0					26.000	87.80			0.5		

H	H^(3/2)	H^(5/2)	Q
0.55	0.407	0.223	22.95

Project Trails of Wood Creek
Location Algonquin, IL

By JMH Date 7/10/2020
Checked ARF Date 7/11/2020

Check one: ☐ Present ☑ Developed
Check one: ☑ Tc ☐ Tt

C1-C1 SWMF 05

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)

	Segment ID				
1. Surface Description (Table 3-1)		dense grass			
2. Manning's roughness coeff., n (Table 3-1)		0.24			
3. Flow length, L (total L ≤ 300 ft)	ft				
4. Two-yr 24-hr rainfall, P_2	in	3.04			
5. Land slope, s	ft/ft				
6. $Tc = \frac{0.007\,(nL)^{0.8}}{P_2^{0.5}\,s^{0.4}}$	hr		+	=	

Shallow Concentrated Flow

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

Channel Flow

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

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

Determine Height Of Water For The Overland Flood Route At Trapezoid Weir Location

Assumption: 1 CFS per acre

Governing Equations:

Flow:
Q=ciA where: Q is rate of flow (cfs)
c is runoff coefficient
i is intensity (in/hr); i=Tc
A is area (Acres)

Flow Through A Trapeziod Weir:

Q=(DC)*(L*(H^(3/2))+(Z*(H^(5/2))))

where: DC is the discharge coefficient

H is the depth of 100 year high water level measured from the bottom of the notch

Z is Tan(Theta/2)
L is the length of notch at bottom, ft.

Constants:

Runoff Coefficient:	
Discharge Coefficient At Weir:	3.00
Distance From T/F To F/G:	
Intensity - I=Tc:	FALSE
Offsite Peak Flow from PondPack:	

Calculations:

Lot No.	T/F	F/G	Side Setback	Weir Elev.	Notch Length	Trib. Area (Acres)	Q (cfs)	Tan Mu (deg.)	Angle (deg.)	Theta (deg.)	Tan 1/2 Theta (deg.)	F/G and Weir Diff.	Depth	100 Year HWL
190	894.9	894.2	25.0	892.2	9	29.55	29.55	12.500	85.43	172.81	15.91	2.0	0.649	892.8
192	895.5	893.8	35.0					21.875	87.38			1.6		

H	H^(3/2)	H^(5/2)	Q
0.65	0.523	0.339	30.32

Project Trails of Wood Creek
Location Algonquin, IL

By JMH Date 7/10/2020
Checked ARF Date 7/11/2020

Check one: ☐ Present ☑ Developed
Check one: ☑ Tc ☐ Tt

D1-D1 Lot 204-205 Sideyard

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)

	Segment ID				
1. Surface Description (Table 3-1)		dense grass			
2. Manning's roughness coeff., n (Table 3-1)		0.24			
3. Flow length, L (total L < 300 ft)	ft	100			
4. Two-yr 24-hr rainfall, P2	in	3.34			
5. Land slope, s	ft/ft	0.02			
6. Tc = 0.007 (nL)0.8 / P20.5 s0.4	hr	0.233 +		=	0.233

Shallow Concentrated Flow

	Segment ID				
7. Surface description (paved or unpaved)		paved			
8. Flow length, L		80			
9. Watercourse slope, s		0.02			
10. Average velocity, V (figure 3-1)		2.93			
11. Tt= L / 3600 V	hr	0.008 +		=	0.008

Channel Flow

	Segment ID				
12. Cross sectional flow area, a	ft2				
13. Wetted perimeter, pw	ft				
14. Hydraulic radius, r= a/pw compute r	ft				
15. Channel Slope, s	ft/ft				
16. Manning's roughness coeff., n					
17. V= 1.49 r2/3 s1/2 / n	ft/s				
18. Flow length, L	ft				
19. Tt= L / 3600 V	hr	+		=	

20. Watershed or subarea Tc or Tt (add Tt in steps 6, 11, and 19) hr 0.240
min 15

Determine Height Of Water For The Overland Flood Route At Trapezoid Weir Location

Assumption: 100 year event used for intensity

Governing Equations:

Flow:
Q=ciA where: Q is rate of flow (cfs)
c is runoff coefficient
i is intensity (in/hr); i=Tc
A is area (Acres)

Flow Through A Trapeziod Weir:

Q=(DC)*(L*(H^(3/2))+(Z*(H^(5/2))))

where: DC is the discharge coefficient
H is the depth of 100 year high water level measured from the bottom of the notch
Z is Tan(Theta/2)
L is the length of notch at bottom, ft.

Constants:

Runoff Coefficient:	0.64
Discharge Coefficient At Weir:	3.00
Distance From T/F To F/G:	0.7
Intensity - I=Tc:	8.02
Offsite Peak Flow from PondPack:	

Calculations:

Lot No.	T/F	F/G	Side Setback	Weir Elev.	Notch Length	Trib. Area (Acres)	Q (cfs)	Tan Mu (deg.)	Angle (deg.)	Theta (deg.)	Tan 1/2 Theta (deg.)	F/G and Weir Diff.	Depth	100 Year HWL
204	894.4	893.7	42.0	892.2	10	6.41	32.90	28.000	87.95	173.60	17.88	1.5	0.640	892.8
205	894.4	895.4	42.0					13.125	85.64			3.2		

H	H^(3/2)	H^(5/2)	Q
0.64	0.512	0.328	32.94

Project Trails of Wood Creek
Location Algonquin, IL

By JMH Date 7/10/2020
Checked ARF Date 7/11/2020

Check one: ☐ Present ☑ Developed
Check one: ☑ Tc ☐ Tt

E1-E1 SWMF 06 Southeastern Overflow

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)

	Segment ID				
1. Surface Description (Table 3-1)		dense grass			
2. Manning's roughness coeff., n (Table 3-1)		0.24			
3. Flow length, L (total L $\leq$ 300 ft)	ft				
4. Two-yr 24-hr rainfall, P_2	in	3.04			
5. Land slope, s	ft/ft				
6. $Tc = \frac{0.007\,(nL)^{0.8}}{P_2^{0.5}\,s^{0.4}}$	hr	0.213	+	=	0.213

Shallow Concentrated Flow

	Segment ID				
7. Surface description (paved or unpaved)		Unpaved			
8. Flow length, L					
9. Watercourse slope, s					
10. Average velocity, V (figure 3-1)		1.33			
11. $T_t = \frac{L}{3600\,V}$	hr	0.016	+	=	0.016

Channel Flow

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

20. Watershed or subarea T_c or T_t (add T_t in steps 6, 11, and 19) hr 0.229
min 14

Determine Height Of Water For The Overland Flood Route At V-Notch Weir Location

Assumption: 1 CFS per acre

Governing Equations:

Flow:
Q=ciA where: Q is rate of flow (cfs)
c is runoff coefficient
i is intensity (in/hr); i=Tc
A is area (Acres)

Flow Through A V-Notched Weir:

Q=(DC)*(H^(5/2))*(TAN(Theta/2))

where: DC is the discharge coefficient

H is the depth of 100 year high water level measured from the v-notch

Theta is the angle of the v-notched weir

Constants:

Runoff Coefficient:	
Discharge Coefficient At Weir:	3.00
Distance From T/F To F/G:	0.7
Intensity - I=Tc:	
Offsite Peak Flow from PondPack:	

Calculations:

Lot No.	T/F	F/G	Side Setback	Weir Elev.	Trib. Area (Acres)	Q (cfs)	Tan Mu (deg.)	Angle (deg.)	Theta (deg.)	Tan 1/2 Theta (deg.)	F/G and Weir Diff.	Depth	100 Year HWL
77	908.7	895.0	23.0	891.7	11.27	11.27	6.970	81.84	85.61	0.93	3.3	1.751	893.5
177	895.0	894.3	59.0				0.066	3.77			894.3		

Project Trails of Wood Creek
Location Algonquin, IL

By JMH Date 7/10/2020
Checked ARF Date 7/11/2020

Check one: ☐ Present ☑ Developed
Check one: ☑ Tc ☐ Tt

F1-F1 SWMF 02 Northeastern Overflow

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)

	Segment ID			
1. Surface Description (Table 3-1)		dense grass		
2. Manning's roughness coeff., n (Table 3-1)		0.24		
3. Flow length, L (total L $\leq$ 300 ft)	ft			
4. Two-yr 24-hr rainfall, P_2	in	3.04		
5. Land slope, s	ft/ft			
6. $Tc = \frac{0.007\ (nL)^{0.8}}{P_2^{0.5}\ s^{0.4}}$	hr		+	=

Shallow Concentrated Flow

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

Channel Flow

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

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

Determine Height Of Water For The Overland Flood Route At Trapezoid Weir Location

Assumption: 1 CFS per acre

Governing Equations:

Flow:
Q=ciA where: Q is rate of flow (cfs)
c is runoff coefficient
i is intensity (in/hr); i=Tc
A is area (Acres)

Flow Through A Trapeziod Weir:

Q=(DC)*(L*(H^(3/2))+(Z*(H^(5/2))))

where: DC is the discharge coefficient

H is the depth of 100 year high water level measured from the bottom of the notch

Z is Tan(Theta/2)
L is the length of notch at bottom, ft.

Constants:

Runoff Coefficient:	
Discharge Coefficient At Weir:	3.00
Distance From T/F To F/G:	
Intensity - I=Tc:	FALSE
Offsite Peak Flow from PondPack:	

Calculations:

Lot No.	T/F	F/G	Side Setback	Weir Elev.	Notch Length	Trib. Area (Acres)	Q (cfs)	Tan Mu (deg.)	Angle (deg.)	Theta (deg.)	Tan 1/2 Theta (deg.)	F/G and Weir Diff.	Depth	100 Year HWL
BERM		887.0	35.0	885.5	70	263.83	263.83	23.333	87.55	175.09	23.33	1.5	0.969	886.5
BERM		887.0	35.0					23.333	87.55			1.5		

H	H^(3/2)	H^(5/2)	Q
0.97	0.954	0.924	265

Project Trails of Wood Creek
Location Algonquin, IL

By JMH Date 7/10/2020
Checked ARF Date 7/11/2020

Check one: ☐ Present ☑ Developed
Check one: ☑ Tc ☐ Tt

G1-G1 SWMF 01 Northeastern Overflow

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)

Segment ID				
1. Surface Description (Table 3-1)		dense grass		
2. Manning's roughness coeff., n (Table 3-1)		0.24		
3. Flow length, L (total L $\leq$ 300 ft)	ft			
4. Two-yr 24-hr rainfall, P_2	in	3.04		
5. Land slope, s	ft/ft			
6. $Tc = \frac{0.007\,(nL)^{0.8}}{P_2^{0.5}\, s^{0.4}}$	hr		+	=

Shallow Concentrated Flow

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

Channel Flow

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

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

Determine Height Of Water For The Overland Flood Route At Trapezoid Weir Location

Assumption: 1 CFS per acre

Governing Equations:

Flow:
Q=ciA where: Q is rate of flow (cfs)
c is runoff coefficient
i is intensity (in/hr); i=Tc
A is area (Acres)

Flow Through A Trapeziod Weir:

Q=(DC)*(L*(H^(3/2))+(Z*(H^(5/2))))

where: DC is the discharge coefficient

H is the depth of 100 year high water level measured from the bottom of the notch

Z is Tan(Theta/2)
L is the length of notch at bottom, ft.

Constants:

Runoff Coefficient:	
Discharge Coefficient At Weir:	3.00
Distance From T/F To F/G:	
Intensity - I=Tc:	FALSE
Offsite Peak Flow from PondPack:	

Calculations:

Lot No.	T/F	F/G	Side Setback	Weir Elev.	Notch Length	Trib. Area (Acres)	Q (cfs)	Tan Mu (deg.)	Angle (deg.)	Theta (deg.)	Tan 1/2 Theta (deg.)	F/G and Weir Diff.	Depth	100 Year HWL
BERM		884.8	40.0	883.5	80	315.99	315.99	30.769	88.14	176.82	35.99	1.3	0.949	884.4
BERM		885.0	65.0					43.333	88.68			1.5		

H	H^(3/2)	H^(5/2)	Q
0.95	0.924	0.877	316.6

Project Trails of Wood Creek By JMH Date 7/10/2020
Location Algonquin, IL Checked ARF Date 7/11/2020

Check one: ☐ Present ☑ Developed H1-H1 SWMF 03 Eastern Overflow
Check one: ☑ Tc ☐ Tt

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)

		Segment ID			
1.	Surface Description (Table 3-1)		dense grass		
2.	Manning's roughness coeff., n (Table 3-1)		0.24		
3.	Flow length, L (total L ≤ 300 ft)	ft			
4.	Two-yr 24-hr rainfall, P_2	in	3.04		
5.	Land slope, s	ft/ft			
6.	$Tc = \frac{0.007\ (nL)^{0.8}}{P_2^{0.5}\ s^{0.4}}$	hr		+	=

Shallow Concentrated Flow

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

Channel Flow

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

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

Determine Height Of Water For The Overland Flood Route At Trapezoid Weir Location

Assumption: 1 CFS per acre

Governing Equations:

Flow:
Q=ciA where: Q is rate of flow (cfs)
c is runoff coefficient
i is intensity (in/hr); i=Tc
A is area (Acres)

Flow Through A Trapeziod Weir:

Q=(DC)*(L*(H^(3/2))+(Z*(H^(5/2))))

where: DC is the discharge coefficient

H is the depth of 100 year high water level measured from the bottom of the notch

Z is Tan(Theta/2)
L is the length of notch at bottom, ft.

Constants:

Runoff Coefficient:	
Discharge Coefficient At Weir:	3.00
Distance From T/F To F/G:	
Intensity - I=Tc:	FALSE
Offsite Peak Flow from PondPack:	

Calculations:

Lot No.	T/F	F/G	Side Setback	Weir Elev.	Notch Length	Trib. Area (Acres)	Q (cfs)	Tan Mu (deg.)	Angle (deg.)	Theta (deg.)	Tan 1/2 Theta (deg.)	F/G and Weir Diff.	Depth	100 Year HWL
BERM		888.0	45.0	886.5	60	234.76	234.76	30.000	88.09	175.64	26.25	1.5	0.948	887.4
BERM		888.0	35.0					23.333	87.55			1.5		

H	H^(3/2)	H^(5/2)	Q
0.95	0.923	0.875	235.1

Project	Trails of Wood Creek	By	JMH	Date	7/10/2020
Location	Algonquin, IL	Checked	ARF	Date	7/11/2020

Check one: ☐ Present ☑ Developed

Check one: ☑ Tc ☐ Tt

I1-I1 SWMF 04 Eastern Overflow

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)

	Segment ID			
1. Surface Description (Table 3-1)		dense grass		
2. Manning's roughness coeff., n (Table 3-1)		0.24		
3. Flow length, L (total L $\leq$ 300 ft)	ft			
4. Two-yr 24-hr rainfall, P_2	in	3.04		
5. Land slope, s	ft/ft			
6. $Tc = \frac{0.007\,(nL)^{0.8}}{P_2^{0.5}\,s^{0.4}}$	hr		+	=

Shallow Concentrated Flow

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

Channel Flow

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

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

Determine Height Of Water For The Overland Flood Route At Trapezoid Weir Location

Assumption: 1 CFS per acre

Governing Equations:

Flow:

Q=ciA where: Q is rate of flow (cfs)
c is runoff coefficient
i is intensity (in/hr); i=Tc
A is area (Acres)

Flow Through A Trapezoid Weir:

Q=(DC)*(L*(H^(3/2))+(Z*(H^(5/2))))

where: DC is the discharge coefficient

H is the depth of 100 year high water level measured from the bottom of the notch

Z is Tan(Theta/2)
L is the length of notch at bottom, ft.

Constants:

Runoff Coefficient:	
Discharge Coefficient At Weir:	3.00
Distance From T/F To F/G:	
Intensity - I=Tc:	FALSE
Offsite Peak Flow from PondPack:	

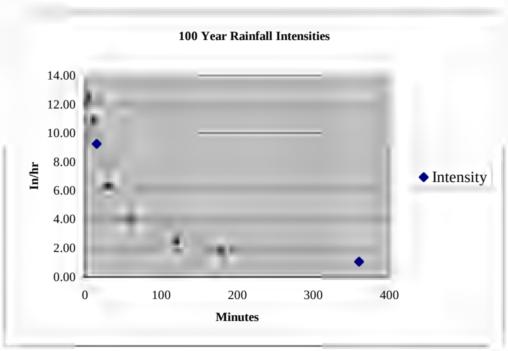
Calculations:

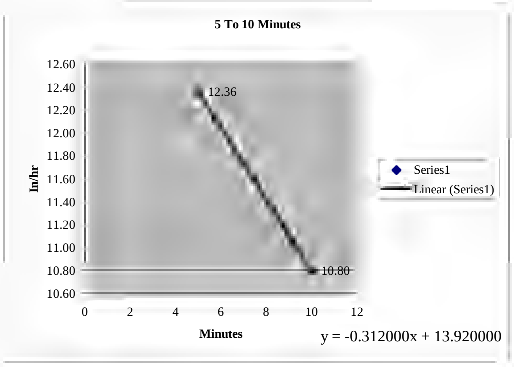
Lot No.	T/F	F/G	Side Setback	Weir Elev.	Notch Length	Trib. Area (Acres)	Q (cfs)	Tan Mu (deg.)	Angle (deg.)	Theta (deg.)	Tan 1/2 Theta (deg.)	F/G and Weir Diff.	Depth	100 Year HWL
BERM		887.8	105.0	886.8	50	218.64	218.64	105.000	89.45	178.91	105.00	1.0	0.710	887.5
BERM		887.8	105.0					105.000	89.45			1.0		

*side setback based on 1.05% slope

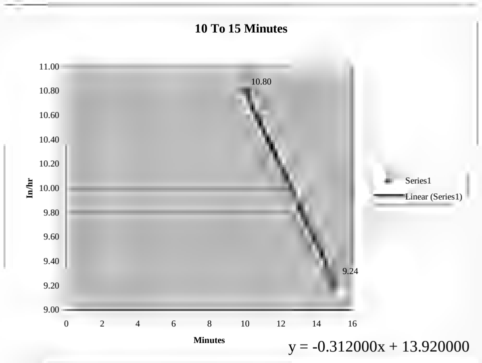
H	H^(3/2)	H^(5/2)	Q
0.71	0.598	0.425	223.5

Duration (min)	100 Year Intensity (in/hr)
5	12.36
10	10.80
15	9.24
30	6.34
60	4.03
120	2.49
180	1.83
360	1.07

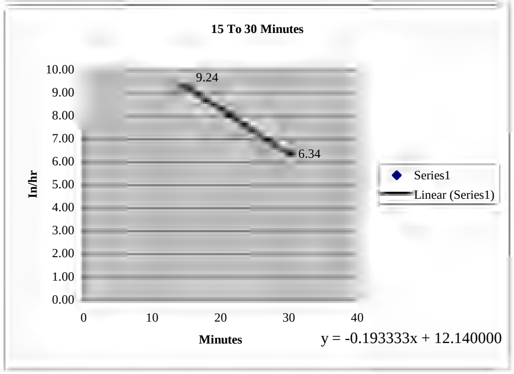

100 Year Rainfall Intensities


5 To 10 Minutes

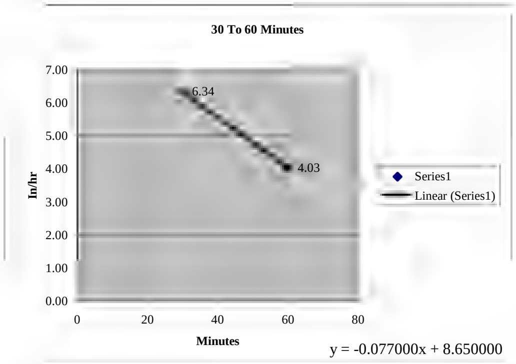
y = -0.312000x + 13.920000


10 To 15 Minutes

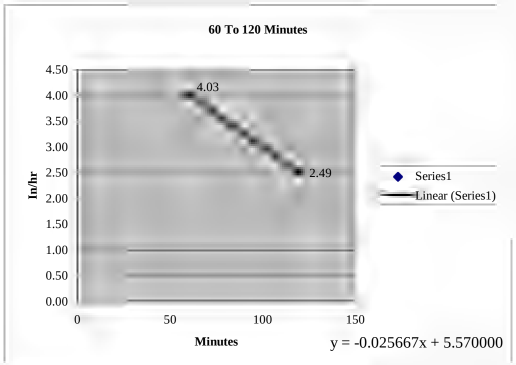
y = -0.312000x + 13.920000


15 To 30 Minutes

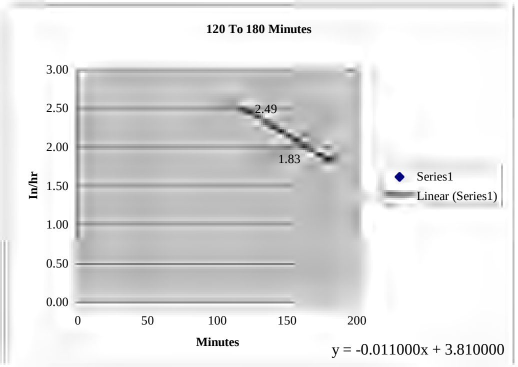
y = -0.193333x + 12.140000


30 To 60 Minutes

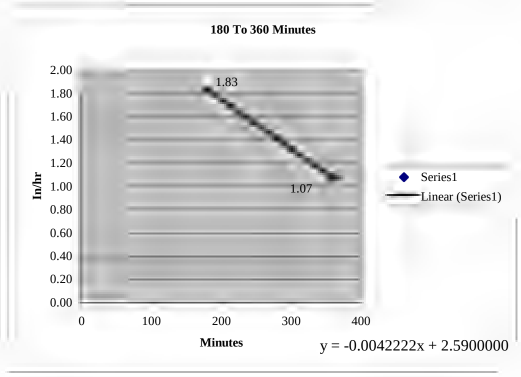
y = -0.077000x + 8.650000


60 To 120 Minutes

y = -0.025667x + 5.570000


120 To 180 Minutes

y = -0.011000x + 3.810000


180 To 360 Minutes

y = -0.0042222x + 2.5900000

TAB 3

FLOODPLAIN SUBMITTAL

EXHIBIT 3K

FLOODPLAIN FILL CALCULATIONS

Job #: 402.136
Project: Trails of Woods Creek - Algonquin

Date: December 3, 2019
Revised: March 18, 2020
By: CAB

FLOODPLAIN FILL CALCULATIONS

EXIST SWMF-01

ELEV.	AREA (S.F.)	AREA (AC.)	INCREM. VOLUME (AC. Ft.)	**CUMULATIVE VOLUME (Ac-Ft)**	
877.0	17700	0.406	0.000	**0.000**	
878.0	19720	0.453	0.430	**0.430**	
879.0	44760	1.028	0.740	**1.170**	
880.0	68690	1.577	1.302	**2.472**	
880.3	85250	1.957	0.530	**3.002**	<- Ex. 10-yr BFE
881.0	123900	2.844	1.680	**4.682**	
882.0	208620	4.789	3.817	**8.499**	
882.1	218390	5.014	0.490	**8.989**	<- Ex. 100-yr BFE

Job #:	402.136	Date:	March 9, 2020
Project:	Trails of Woods Creek - Algonquin	Revised:	
		By:	CAB

FLOODPLAIN FILL CALCULATIONS

EXIST SWMF-04

ELEV.	AREA (S.F.)	AREA (AC.)	INCREM. VOLUME (AC. Ft.)	**CUMULATIVE VOLUME (Ac-Ft)**	
887.0	0	0.000	0.000	**0.000**	
887.8	0	0.000	0.000	**0.000**	<- Ex. 10-yr BFE
888.0	0	0.000	0.000	**0.000**	
888.5	150	0.003	0.001	**0.001**	
889.0	1810	0.042	0.011	**0.012**	
889.4	8300	0.191	0.046	**0.059**	<- Ex. 100-yr BFE

Job #: 402.136
Project: Trails of Woods Creek - Algonquin

Date: February 11, 2020
Revised: March 6, 2020
By: CAB

FLOODPLAIN FILL CALCULATIONS

EXIST SWMF-07

ELEV.	AREA (S.F.)	AREA (AC.)	INCREM. VOLUME (AC. Ft.)	**CUMULATIVE VOLUME (Ac-Ft)**	
882.0	100	0.002	0.000	**0.000**	
882.6	320	0.007	0.003	**0.003**	<- Ex. 10-yr BFE
882.8	400	0.009	0.002	**0.005**	<- Ex. 100-yr BFE

Job #: 402.136
Project: Trails of Woods Creek - Algonquin

Date: March 6, 2020
Revised:
By: CAB

FLOODPLAIN FILL CALCULATIONS

EXIST SWMF-08

ELEV.	AREA (S.F.)	AREA (AC.)	INCREM. VOLUME (AC. Ft.)	**CUMULATIVE VOLUME (Ac-Ft)**	
885.0	1060	0.024	0.000	**0.000**	
886.0	4380	0.101	0.062	**0.062**	
886.5	2060	0.047	0.037	**0.099**	<- Ex. 10-yr BFE
886.8	1110	0.025	0.011	**0.110**	<- Ex. 100-yr BFE

Job #: 402.136
Project: Trails of Woods Creek - Algonquin

Date: March 18, 2020
Revised:
By: CAB

FLOODPLAIN CALCULATIONS

PROP SWMF-01 FLOODPLAIN STORAGE

ELEV.	AREA (S.F.)	AREA (AC.)	INCREM. VOLUME (AC. Ft.)	**CUMULATIVE VOLUME (Ac-Ft)**	
879.7	287010	6.589	0.000	**0.000**	<- Onsite HWL
880.0	293410	6.736	1.999	**1.999**	
880.3	297300	6.825	2.034	**4.033**	<- Ex. 10-yr BFE
881.0	306380	7.034	4.851	**8.883**	
882.0	319580	7.337	7.185	**16.068**	
882.1	322250	7.398	0.737	**16.805**	<- Ex. 100-yr BFE

Job #: 402.136
Project: Trails of Woods Creek - Algonquin

Date: March 18, 2020
Revised:
By: CAB

FLOODPLAIN CALCULATIONS

PROP SWMF-02 FLOODPLAIN STORAGE

ELEV.	AREA (S.F.)	AREA (AC.)	INCREM. VOLUME (AC. Ft.)	**CUMULATIVE VOLUME (Ac-Ft)**	
882.5	311920	7.161	0.000	**0.000**	<- Onsite HWL
883.0	323450	7.425	3.647	**3.647**	
884.0	341720	7.845	7.635	**11.282**	
885.0	360090	8.267	8.056	**19.337**	
886.0	378680	8.693	8.480	**27.817**	
886.5	388060	8.909	4.400	**32.218**	<- Ex. 10-yr BFE
886.8	397440	9.124	2.705	**34.923**	<- Ex. 100-yr BFE

Job #: 402.136
Project: Trails of Woods Creek - Algonquin

Date: March 18, 2020
Revised:
By: CAB

FLOODPLAIN CALCULATIONS

PROP SWMF-04 FLOODPLAIN STORAGE

ELEV.	AREA (S.F.)	AREA (AC.)	INCREM. VOLUME (AC. Ft.)	**CUMULATIVE VOLUME (Ac-Ft)**	
886.1	37390	0.858	0.000	**0.000**	<- Onsite HWL
887.0	41430	0.951	0.814	**0.814**	
887.8	55110	1.265	0.887	**1.701**	<- Ex. 10-yr BFE
888.0	56890	1.306	0.257	**1.958**	
889.0	67780	1.556	1.431	**3.389**	
889.4	76270	1.751	0.661	**4.050**	<- Ex. 100-yr BFE

Job #: 402.136
Project: Trails of Woods Creek - Algonquin

Date: March 18, 2020
By: CAB

Floodplain Compensatory Storage Summary - Trails of Woods Creek

	10-Year WSEL	Event	**0-10 Vol. Filled (Ac-ft)**	100-Year WSEL	Event	**10-100 Vol. Filled (Ac-ft)**	Prop. Onsite HWL	Event	**0-10 Vol Provided (Ac-ft)**	**10-100 Vol Provided (Ac-ft)**
Exist - SWMF-01	880.3	18 Hr	**3.002**	882.1	18 Hr	**5.987**	-	-		
Exist - SWMF-07	882.6	18 Hr	**0.003**	882.8	18 Hr	**0.002**	-	-		
Prop - SWMF-01	-	-		-	-		879.7	48 Hr	**4.033**	**12.772**
Exist - SWMF-08	886.5	18 Hr	**0.099**	886.8	18 Hr	**0.011**	-	-		
Prop - SWMF-02	-	-		-	-		882.5	48 Hr	**32.218**	**2.705**
Exist - SWMF-04	887.8	18 Hr	**0.000**	889.4	18 Hr	**0.059**	-	-		
Prop - SWMF-04	-	-		-	-		886.1	48 Hr	**1.701**	**2.35**

Total 0-10 Floodplain Fill from Project (Ac-ft):	**3.104 Ac-ft**
Total 10-100 Floodplain Fill from Project (Ac-ft):	**6.059 Ac-ft**
Total 100-Year Floodplain Fill from Project (Ac-ft):	**9.163 Ac-ft**
Total 0-10 Proposed Floodplain Storage Above Detention (Ac-ft):	**37.952 Ac-ft**
Total 10-100 Proposed Floodplain Storage Above Detention (Ac-ft):	**17.827 Ac-ft**
Total 100-Year Floodplain Storage Above Detention Project (Ac-ft):	**55.779 Ac-ft**
0-10 Year Cut/Fill Ratio Required:	**1.0**
0-10 Year Cut/Fill Ratio Provided:	**12.2**
10-100 Year Cut/Fill Ratio Required:	**1.0**
10-100 Year Cut/Fill Ratio Provided:	**2.9**
Total 100-Year Cut/Fill Ratio Required:	**1.0**
Total 100-Year Cut/Fill Ratio Provided:	**6.1**

TAB 4

WETLAND SUBMITTAL

(UNDER SEPARATE COVER BY
V3 COMPANIES OF ILLINOIS, LTD)

TAB 5

PLAN SET SUBMITTAL

(FINAL ENGINEERING PLAN UNDER SEPARATE COVER BY CEMCON, LTD.)

TAB 6

SECURITY SET SUBMITTAL
(TO BE SUBMITTED WITH
FINAL ENGINEERING)

EXHIBIT 6L

ENGINEER’S OPINION OF PROBABLE CONSTRUCTION COST

EXHIBIT 6M

RIGHT TO DRAW FORM 10

FORM 10

DEVELOPER'S STATEMENT

Right to Draw on Securities
Section 1201.1 (c & d) & 1202.1.b

I, Pulte Home Company, LLC (Developers Name), do hereby grant to the Administrator of Kane (County/Municipality) The right to draw on performance security posted in accordance with the Storm Water Permit ________________ (Number/Description) for the purpose of completing any and all Stormwater Facilities and completing or maintaining Sediment and Erosion Control Measures included in the referenced permit. The decision to draw on the security shall be at the discretion of the Administrator. I further grant the right to enter the property for the purpose of performing the work to whoever the Administrator designates and agree to identify Kane (County/Community) against any increased costs attributable to concurrent activities or conflicts between the Administrators design's and any other contractors on site. I further warrant that I am a duly authorized representative of the developer with the authority to make this statement, and that this statement shall remain binding until final inspection and acceptance of all permitted Stormwater Facilities.

STATEMENT FOR: Pulte Home Company, LLC
Developer

BY: Ty Morris
Name and Signature

TITLE: Director of Land Development- Illinois Division

RELEASED BY FINAL ACCEPTANCE

FOR: ________________
County/Community

BY: ________________
Administrator

DATE: ________________

ELECTRONIC SUBMITTAL OF
PONDPACK RESULTS AND REPORT

FINAL STORMWATER MANAGEMENT REPORT
FOR
TRAILS OF WOODS CREEK
ALGONQUIN, ILLINOIS

REVISED JULY 13, 2020
REVISED FEBRUARY 13, 2020
DECEMBER 5, 2019

VOLUME II
402.136

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 COMPANY, LLC BY CEMCON, LTD. UNDER MY PERSONAL DIRECTION.

DATED THIS____________ DAY OF ______________________________, AD, 2020

____
ILLINOIS LICENSED PROFESSIONAL ENGINEER NO. 062-055788
MY LICENSE EXPIRES ON NOVEMBER 30, 2021

PROFESSIONAL DESIGN FIRM LICENSE NO. 184-002937, EXPIRATION DATE IS APRIL 30, 2021

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
SUITE 100
AURORA, IL 60504-9675

630-862-2100

FINAL STORMWATER MANAGEMENT REPORT

FOR

TRAILS OF WOODS CREEK

ALGONQUIN, ILLINOIS

EXHIBITS – VOLUME II

TAB 7 OVERSIZE EXHIBITS

N. TOPOGRAPHIC MAP FOR TRAILS OF WOODS CREEK
O. DRAIN TILE SURVEY FOR TERRACE HILL GOLF COURSE
P. EXISTING CONDITIONS WATERSHED EXHIBIT
Q. PROPOSED CONDITIONS WATERSHED EXHIBIT
R. CATCHMENT EXHIBIT

TAB 7

OVERSIZE EXHIBITS

EXHIBIT 7N

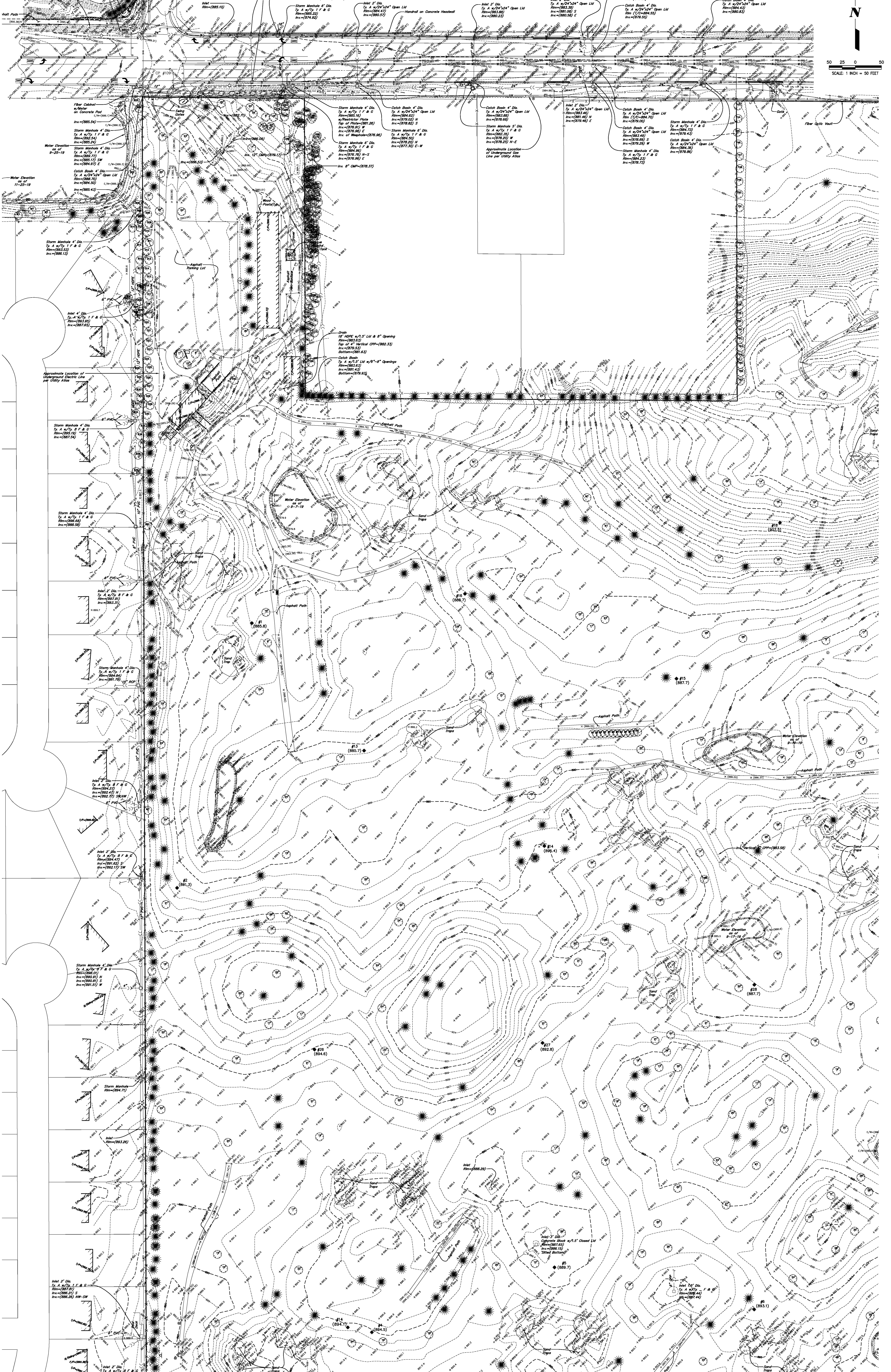
TOPOGRAPHIC MAP FOR TRAILS OF WOODS CREEK

TOPOGRAPHIC MAP

TRAILS OF WOODS CREEK

ALGONQUIN, IL

SHEET 1 OF 2



PREPARED BY:

CEMCON, Ltd.
Consulting Engineers, Land Surveyors & Planners
2280 White Oak Circle, Suite 100 Aurora, Illinois
60502-9675 PH: 630.862.2100 FAX: 630.862.2199
E-Mail: cadd@cemcon.com Website: www.cemcon.com

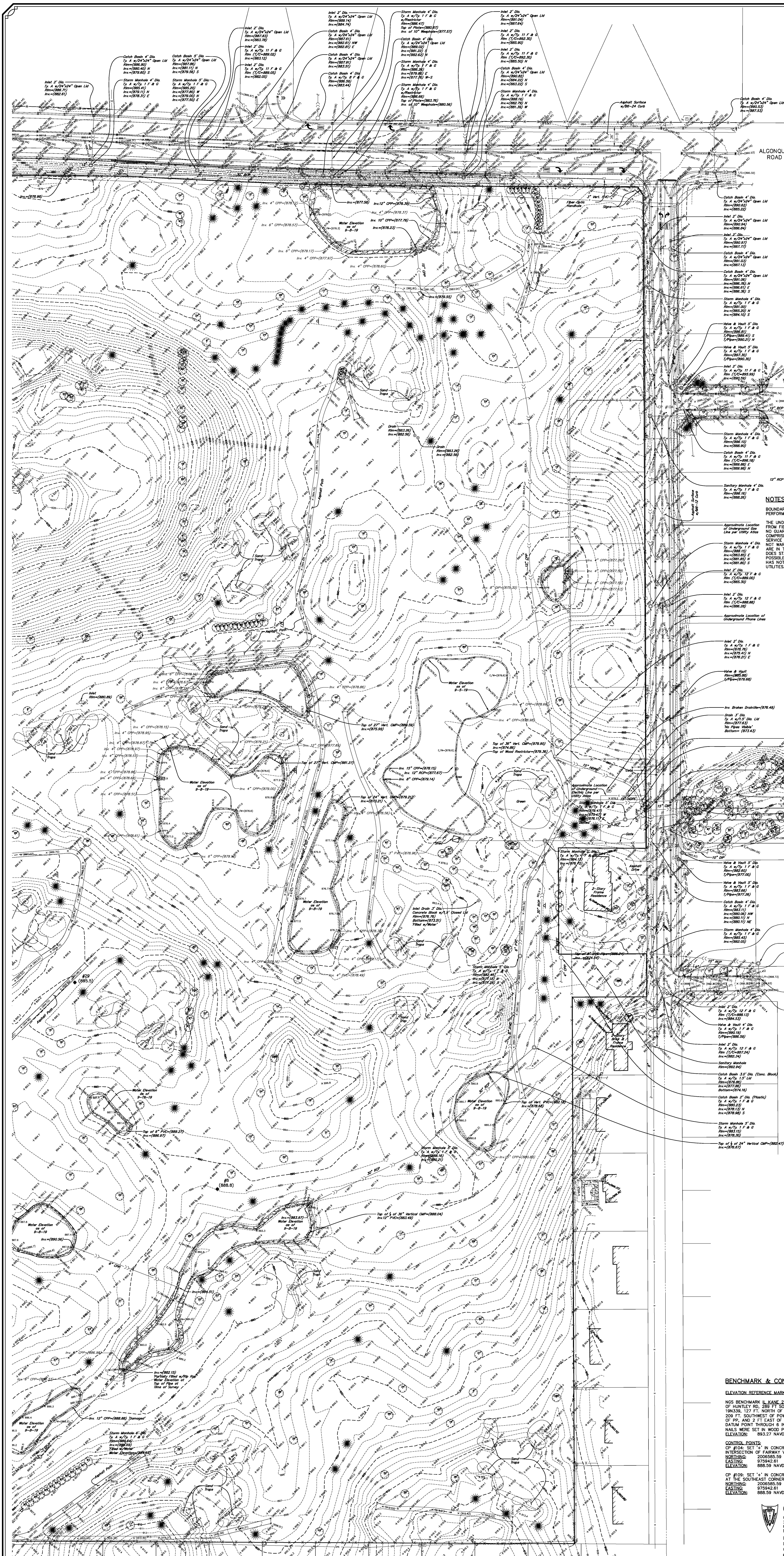
DISC NO.: 402136 FILE NAME: TOPO
DRAWN BY: AJB FLD. BK. / PG. NO.: D83\51-54
COMPLETION DATE: 09-30-19 JOB NO.: 402.136
REVISED: 10-23-19/LAL EAST BNDRY LINE PER ALTA
REVISED: 12-10-19/AJB ADDED ADDITIONAL OFFSITE TOPO
REVISED: 12-16-19/AJB ADDED ADDITIONAL OFFSITE TOPO

SHEET 2 OF 2

N

50 25 0 50

SCALE: 1 INCH = 50 FEET



NOTES

BOUNDARY INFORMATION BASED ON BOUNDARY SURVEY PERFORMED BY CEMCON, LTD. ON SEPTEMBER 27, 2019.

THE UNDERGROUND UTILITIES SHOWN HAVE BEEN LOCATED FROM FIELD SURVEY INFORMATION. THE SURVEYOR MAKES NO GUARANTEE THAT THE UNDERGROUND UTILITIES SHOWN COMPRISE ALL SUCH UTILITIES IN THE AREA, EITHER IN SERVICE OR ABANDONED. THE SURVEYOR FURTHER DOES NOT WARRANT THAT THE UNDERGROUND UTILITIES SHOWN ARE IN THE EXACT LOCATION INDICATED ALTHOUGH HE DOES STATE THAT THEY ARE LOCATED AS ACCURATELY AS POSSIBLE FROM INFORMATION AVAILABLE. THE SURVEYOR HAS NOT PHYSICALLY LOCATED THE UNDERGROUND UTILITIES.

LINE/SYMBOL/ABBREVIATION LEGEND

━━━	BOUNDARY LIMITS
───	ADJACENT PROPERTY OR R.O.W. LINE
– – – –	EASEMENT LIMITS
— OHW —	OVERHEAD WIRES
— G —	UNDERGROUND GAS LINE
—((—	UNDERGROUND STORM LINE
—(—	UNDERGROUND SANITARY LINE
— W —	UNDERGROUND WATER LINE
— E —	UNDERGROUND ELECTRIC LINE
— P —	UNDERGROUND PHONE LINE
— CPE —	UNDERGROUND CABLE, PHONE AND ELECTRIC
—X—	FENCE
⌒⌒⌒	BRUSH/TREE LINE
o——o——o	GUARDRAIL
AC	AIR CONDITIONER
B	BOLLARD
C	CABLE TV PEDESTAL
○	CATCH BASIN
D	DRAIN
DT	DRAIN TILE
⧄	HAND HOLE
EJB	ELECTRIC JUNCTION BOX
E	ELECTRIC MANHOLE
EM	ELECTRIC METER
E	ELECTRIC PEDESTAL
T	ELECTRIC TRANSFORMER
▻	FLARED END SECTION
▷	FIBER OPTIC MARKER POST
FOCB	FIBER OPTIC CONTROL BOX
♉	FIRE HYDRANT
GM	GAS METER
GV	GAS VALVE
▷	GAS MARKER POST
□	INLET
⌖	LIGHT STANDARD
▼	LANDSCAPE LIGHT
ICB	IRRIGATION CONTROL BOX
MB	MAILBOX
⬡	SANITARY CLEANOUT
◎	SANITARY MANHOLE
◎	STORM MANHOLE
ST	SEPTIC TANK
ᑫ	SIGN
RP	REFLECTOR POST
SLCB	STREET LIGHT CONTROL BOX
PJB	TELEPHONE JUNCTION BOX
P	TELEPHONE MANHOLE
P	TELEPHONE PEDESTAL
◁○▷	TRAFFIC SIGNAL POLE
▽—▽——o	TRAFFIC SIGNAL POLE W/MAST
SB	TRAFFIC SIGNAL CONTROL BOX
⊡	UTILITY POLE
— —o	GUY WIRE
U	UTILITY PEDESTAL CLUSTER W/NUMBER
⊕	WATER VALVE
⊕	VALVE VAULT
SH	SPRINKLER HEAD
W	WELL HEAD
▨	CONCRETE SURFACE
R.O.W.	RIGHT OF WAY
B–B	BACK–TO–BACK
✹	CONIFEROUS TREE w/TRUNK DIAM.
12"	DECIDUOUS TREE w/TRUNK DIAM.
═xxx═	DEPRESSED CURB

BENCHMARK & CONTROL POINTS

ELEVATION REFERENCE MARK

NGS BENCHMARK IL KANE 2-42-7 (PID AJ2940): STATION IS LOCATED 0.3 MI SOUTH OF HUNTLEY RD, 289 FT SOUTH OF CENTERLINE OF AGGREGATE DRIVEWAY ADDRESS 19N339, 127 FT. NORTH OF CENTERLINE OF AGGREGATE DRIVEWAY ADDRESS 19N241, 209 FT. SOUTHWEST OF POWERPOLE (PP), 105 FT SOUTHWEST OF PP, 63.5 FT. WEST OF PP, AND 2 FT EAST OF ORANGE FIBERGLASS WITNESS POST. NOTE: ACCESS TO DATUM POINT THROUGH 6 INCH LOGO CAP. DATUM POINT IS 0.3 FT BELOW CAP. PK NAILS WERE SET IN WOOD PHYSICAL TIES. (WB)
ELEVATION: 893.27 NAVD88

CONTROL POINTS:
CP #104: SET '+' IN CONCRETE CURB ON WEST SIDE OF FAIRWAY VIEW DRIVE AT THE INTERSECTION OF FAIRWAY VIEW AND NOTTINGHAM DRIVES.
NORTHING: 2006585.59
EASTING: 975942.61
ELEVATION: 888.59 NAVD88

CP #109: SET '+' IN CONCRETE FRAME AROUND TRAFFIC SIGNAL HANDHOLE LOCATED AT THE SOUTHEAST CORNER OF ALGONQUIN AND FRANK ROADS.
NORTHING: 2006585.59
EASTING: 975942.61
ELEVATION: 888.59 NAVD88

PREPARED BY:

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DISC NO.: 402136 FILE NAME: TOPO
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COMPLETION DATE: 09-30-19 JOB NO.: 402.136
REVISED: 10-23-19/LAL EAST BNDRY LINE PER ALTA
REVISED: 12-10-19/AJB ADDED ADDITIONAL OFFSITE TOPO

EXHIBIT 7O

DRAIN TILE SURVEY FOR
TERRACE HILL GOLF COURSE

EXISTING AGRICULTURAL DRAIN TILE INVESTIGATION PLAN

TERRACE HILL GOLF COARSE

PREPARED FOR PULTE HOMES

SECTION NO.26, GRAFTON TWP., McHENRY CO., IL.

EXISTING SUBSURFACE AGRICULTURAL DRAIN TILE INVESTIGATION REPORT

TERRACE HILL GOLF COARSE

PULTE HOMES

TERRACE HILL GOLF COARSE / PULTE HOMES , FIELD FILE NO. 7-6-25 , DATE: 1/30/20 .
IN ACCORDANCE WITH MCHENRY COUNTY EXISTING DRAIN TILE INVESTIGATION AND LOCATION STANDARDS

DESCRIPTION CHART NO. 1A : INVESTIGATION SLIT TRENCH LOCATIONS

ID NO.	SZ.	TYPE / QUALITY	FLOW %	SILT %	DEPTH GRD/INV	FIELD NOTES:
A1	3"	CLAY / GOOD	FLOODED	SLIGHT	40"	RESTRICTED FLOW AND SURCHARGED
B	---	NO DRAIN TILES	---	---	---	NO DRAIN TILE LOCATED
C	---	NO DRAIN TILES	---	---	---	NO DRAIN TILE LOCATED
D	---	NO DRAIN TILES	---	---	---	NO DRAIN TILE LOCATED
E	---	NO DRAIN TILES	---	---	---	NO DRAIN TILE LOCATED
F1	3"	CLAY / GOOD	NONE	95%	27"	SILT RESTRICTED / OUTFALL ABANDONED
G	---	NO DRAIN TILES	---	---	---	NO DRAIN TILE LOCATED
H	---	NO DRAIN TILES	---	---	---	NO DRAIN TILE LOCATED
I	---	NO DRAIN TILES	---	---	---	NO DRAIN TILE LOCATED
J1	15"	CONC. / GOOD	FLOODED	CLEAN	85"	RESTRICTED FLOW AND SURCHARGED
K	---	NO DRAIN TILES	---	----	---	NO DRAIN TILE LOCATED
L	---	NO DRAIN TILES	---	---	---	NO DRAIN TILE LOCATED
M	---	NO DRAIN TILES	---	---	---	NO DRAIN TILE LOCATED
N1	15"	CONC. / GOOD	10%	SLIGHT	49"	ACTIVE FLOW RATE AND CAPACITY
O1	15"	CONC. / GOOD	10%	SLIGHT	51"	ACTIVE FLOW RATE AND CAPACITY
O2	6"	CONC. / GOOD	10%	SLIGHT	51"	ACTIVE FLOW RATE AND CAPACITY
P	---	NO DRAIN TILES	---	---	---	NO DRAIN TILE LOCATED
Q	---	NO DRAIN TILES	---	---	---	NO DRAIN TILE LOCATED
R1	4"	CLAY / GOOD	10%	50%	63"	ACTIVE FLOW RATE AND CAPACITY
S	---	NO DRAIN TILES	---	---	---	NO DRAIN TILE LOCATED
T1	3"	CLAY / GOOD	FLOODED	70%	54"	SILT RESTRICTED / PARTIAL CAPACITY
U1	5"	CLAY / GOOD	10%	80%	58"	SILT RESTRICTED / PARTIAL CAPACITY
U2	6"	POLY / GOOD	10%	CLEAN	68"	ACTIVE FLOW RATE AND CAPACITY
V	---	NO DRAIN TILES	---	---	---	NO DRAIN TILE LOCATED
W1	5"	CLAY / GOOD	10%	50%	42"	SILT RESTRICTED / PARTIAL CAPACITY
X	---	NO DRAIN TILES	---	---	---	NO DRAIN TILE LOCATED
Y	---	NO DRAIN TILES	---	---	---	NO DRAIN TILE LOCATED

DESCRIPTION CHART NO. 1B : SURVEY DATA POINT LOCATIONS

DATA POINT	SZ.	TYPE / QUALITY	FLOW %	SILT %	DEPTH HUB/INV	FIELD NOTES:
1	3"	CLAY / GOOD	FLOODED	SLIGHT	39"	LATERAL AT PROPERTY INGRESS
2	5"	CLAY / GOOD	10%	50%	44"	LATERAL AT PROPERTY INGRESS
3	5"	CLAY / GOOD	FLOODED	80%	44"	LATERAL AT PROPERTY EGRESS
4	6"	POLY / GOOD	10%	CLEAN	55"	LATERAL AT PROPERTY EGRESS
5	5"	CLAY / GOOD	10%	80%	52"	LATERAL AT PROPERTY EGRESS
6	6"	POLY / GOOD	10%	CLEAN	74"	LATERAL AT PROPERTY INGRESS
7	3"	CLAY / GOOD	FLOODED	70%	54"	LATERAL AT PROPERTY EGRESS
8	4"	CLAY / GOOD	10%	50%	77"	LATERAL AT PROPERTY INGRESS
9	15"	CONC. / GOOD	10%	SLIGHT	75"	MAINLINE AT PROPERTY EGRESS
10	6"	CONC. / GOOD	10%	SLIGHT	52"	LATERAL AT PROPERTY INGRESS
11	15"	CONC. / GOOD	10%	SLIGHT	53"	MAINLINE AT PROPERTY INGRESS
12	15"	CONC. / GOOD	10%	SLIGHT	58"	MAINLINE AT PROPERTY EGRESS
13	15"	CONC. / GOOD	FLOODED	CLEAN	86"	MAINLINE AT MIDPOINT

SITE LOCATION

SECTION NO.26, GRAFTON TWP., McHENRY CO., IL.

MAP LEGEND :

<<<FLOW<<<	EXISTING DRAIN TILE FLOW DIRECTION
	EX. POLYETHYLENE MAINLINE OR SYSTEM PART
	EX. CLAY DRAIN TILE MAINLINE OR SYSTEM PARTS
	EX. CONCRETE DRAIN TILE MAINLINE OR SYSTEM PART
	EXISTING DRAIN TILE CONTINUES TO UPLAND WATERSHED
	EXISTING DRAIN TILE OUTLETS TO SURFACE
1-○ 2-●	EXIST. DRAIN TILE (1) INSPECTION STRUCTURE / (2) CATCH BASIN
1- END 2- END	EXIST. DRAIN TILE (1) LOCATED END / (2) ASSUMED END
	EXISTING DRAIN TILE CONTINUES TO OFF-SITE OUTLET SYSTEM
	EXISTING DRAIN TILE FAILURE /FLOW SURCHARGE TO SURFACE
	EXISTING DRAIN TILE MAPPED BY SPECULATION AND ASSUMPTION
X X X X X	EXISTING DRAIN TILE ABANDONED (NOT FUNCTIONAL)
	EXISTING DRAIN TILE "BLOWOUT" OR FAILURE
	HAND PROBE OR ELECTRONIC SCAN FOR DRAIN TILE LOCATION
	INVESTIGATION SLIT TRENCH FOR INVESTIGATION
	SPECIFIC PIT EXCAVATION FOR INVESTIGATION
	SURVEY DATA POINTS
M1	REPORT IDENTIFICATION NUMBER

REPORT LEGEND :

ID NO.	POINT OF EXCAVATION FOR SPECIFIC DRAIN TILE INVESTIGATION.
SZ. (SIZE)........................	DRAIN TILE INTERNAL DIAMETER IN INCHES.
MATERIAL / QUALITY......	TYPE OF TILE MATERIALS, PIPE QUALITY - GOOD, FAIR & POOR.
FLOW %	PERCENTAGE OF TILE DIAMETER OCCUPIED BY ACTIVE FLOW.
Ⓡ	RESTRICTED OR BACKED UP FLOW, SURCHARGED CONDITION
SILT %	PERCENTAGE OF TILE DIAMETER OCCUPIED BY RESTRICTIVE SILT.
Ⓐ	ABANDONED, FILLED WITH SILT BLOCKAGE, NO FLOW POTENTIAL
DEPTH	MEASUREMENT FROM EXISTING GROUND LEVEL TO PIPE INVERT.

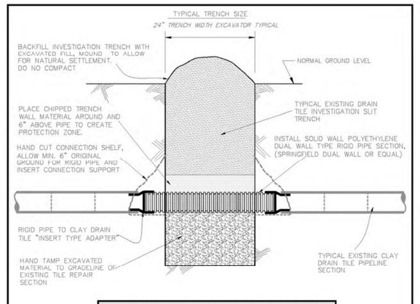
(GENERAL NOTES)

MAINLINE TILE	TRUNK LINE OR MUTUAL DRAIN, COLLECTOR OF SUB-SYSTEMS.
SUB-MAIN TILE...........	SECONDARY TRUNK LINE OR RANDOM SYSTEM COLLECTOR.
LATERAL TILE	FEEDER LINE, SERVICE TILE OR SYSTEM SPUR.
"BLOWOUT"	EXISTING SYSTEM PIPE FAILURE OR RESTRICTION.
DRAIN TILE ENDS	MAINLINE, SUB-MAIN OR LATERAL PLANNED TERMINATION.
SLIT TRENCH	INVESTIGATION TRENCH, TYPICAL 2'- 0" WIDE x 6'- 0" DEPTH.

SPECIAL NOTES :

- *ALL EXISTING AGRICULTURAL DRAIN TILES LOCATED DURING THIS INVESTIGATION SURVEY HAVE BEEN IDENTIFIED ON THIS PLAN AND FIELD STAKED AT < 50' INTERVALS, IN SOME OCCASIONS CERTAIN EXISTING LOCAL DRAIN TILE SECTIONS MAY BE SPECULATED AND CONSIDERED AS AN ASSUMED ROUTE WHICH SHALL BE DELINEATED ON THIS PLAN.*
- *ALL EXISTING DRAIN TILES DAMAGED DURING THE INVESTIGATION PROCESS SHALL BE REPAIRED TO THEIR ORIGINAL STATE IN ACCORDANCE WITH NATURAL RESOURCE CONSERVATION SERVICE STANDARDS FOR DRAIN TILE INSTALLATION AND REPAIR.* *(HUDDLESTON DRAINAGE (62A) TYPICAL STANDARD "A")*
- *ALL EXISTING DRAIN TILE LOCATION DIMENSIONS HAVE BEEN SURVEYED BY AGRICULTURAL GRADE GPS SURVEY SYSTEMS AND INCLUDE SUB METER ACCURACY, ALL LOCATIONS PERTINENT TO FINAL DESIGN SHALL BE VERIFIED BY THE PROJECT SURVEYOR.*
- *THIS DRAIN TILE INVESTIGATION REPORT IS INTENDED TO IDENTIFY EXISTING DRAIN TILE MAINLINE SYSTEMS ONLY WITH ADDITIONAL PRIORITY ON DRAIN TILES WHICH MAY SERVICE THE UPLAND PROPERTY OF OTHERS OR WITH MUTUAL DRAINAGE STATUS.*
- *THIS DRAIN TILE INVESTIGATION REPORT SHALL BE FILED WITH HUDDLESTON DRAINAGE LAND DRAINAGE CO., AND WILL BE REPRODUCED AND DISBURSED ONLY BY PERMISSION OF THE CONTRACT PRINCIPALS.*

TOM HUDDLESTON, HUDDLESTON-McBRIDE DRAINAGE CO.



EXISTING CLAY DRAIN TILE REPAIR SECTION
FOR DRAINAGE INVESTIGATION PROJECTS
EXISTING CLAY AGRICULTURAL DRAIN TILE INVESTIGATION TRENCH STRIKE
TYPICAL REPAIR SECTION FOR DRAIN TILES DAMAGED BY SLIT TRENCHING
HUDDLESTON DRAINAGE TYPICAL SECTION NO. 62A

TYPICAL CONSTRUCTION SECTION [A].

THESE SYMBOLS REPRESENT SURVEY DATA POINTS WHICH HAVE BEEN STAKED IN THE FIELD FOR THE SPECIFIC PURPOSE OF ELECTRONIC LOCATION AND ELEVATION DETERMINATION BY THE PROJECT SURVEYOR.
THESE DATA POINTS CONSIST OF A 2" X 2" GROUND HUB AND A 3'-0" ON-LINE LOCATION STAKE WHICH INCLUDES DATA POINT IDENTIFICATION NUMBER, SEPARATION MEASUREMENT FROM HUB TO PIPE INVERT, AND PIPE SIZE.
ALL EXISTING DRAIN TILE ROUTES HAVE BEEN FIELD STAKED WITH "EXISTING DRAIN TILE" PIN FLAGS AT 50' INTERVALS AND DOUBLE FLAGS AT INTERSECTIONS.

PROJECT CLIENT:

PULTE HOMES

Ty Morris , PROJECT MANAGER
1900 E. GOLF RD., SUITE 300, SCHAUMBURG, IL., 60173

APPROVED BY AND DATE:	TOM HUDDLESTON 1/30/20
ACKNOWLEDGMENTS:	HUDDLESTON DRAINAGE MAP and ARCHIVE SYSTEMS
DRAWN BY AND DATE:	TOM HUDDLESTON 1/30/20
PROJECT DATE:	1/30/20
FIELD FILE NO.:	7-6-25
DRAWING NO.	7-6-25_R1
WEATHER CONDITIONS:	SUNNY/ WARM - 25o
DRAWING SCALE:	1" TO 200'
SHEET NO.	ONE OF ONE

REVISIONS

DATE:	BY:	DESCRIPTION:

1976 HUDDLESTON-McBRIDE CO. 44TH Anniversary 2020 AGRICULTURAL DRAINAGE CONTRACTOR

ILLINOIS FARM BUREAU MEMBER

811 Know what's below. Call before you dig. X-0010052

NORTH

TERRACE HILL GOLF COARSE

HUDDLESTON McBRIDE
PROFESSIONAL LAND DRAINAGE SERVICES
9504 FOWLER RD., ROCHELLE, ILLINOIS PHONE 815-562-6007

COORDINATE SYSTEM: ILLINOIS STATE PLANE EAST NAD 83

M:\1 HUDDMAC ACTIVE FILES\1 AUTOCAD DRAWINGS\ACTIVE CADD\7-6-25@PULTE ALGOQUIN GOLF\7-6-25_R1.dwg, HUDDMAC, 2/2/2020 8:35:09 AM, Tom, DWG To PDF.pc3, ARCH full bleed D (24.00 x 36.00 Inches), 1:200

EXHIBIT 7P

EXISTING CONDITIONS

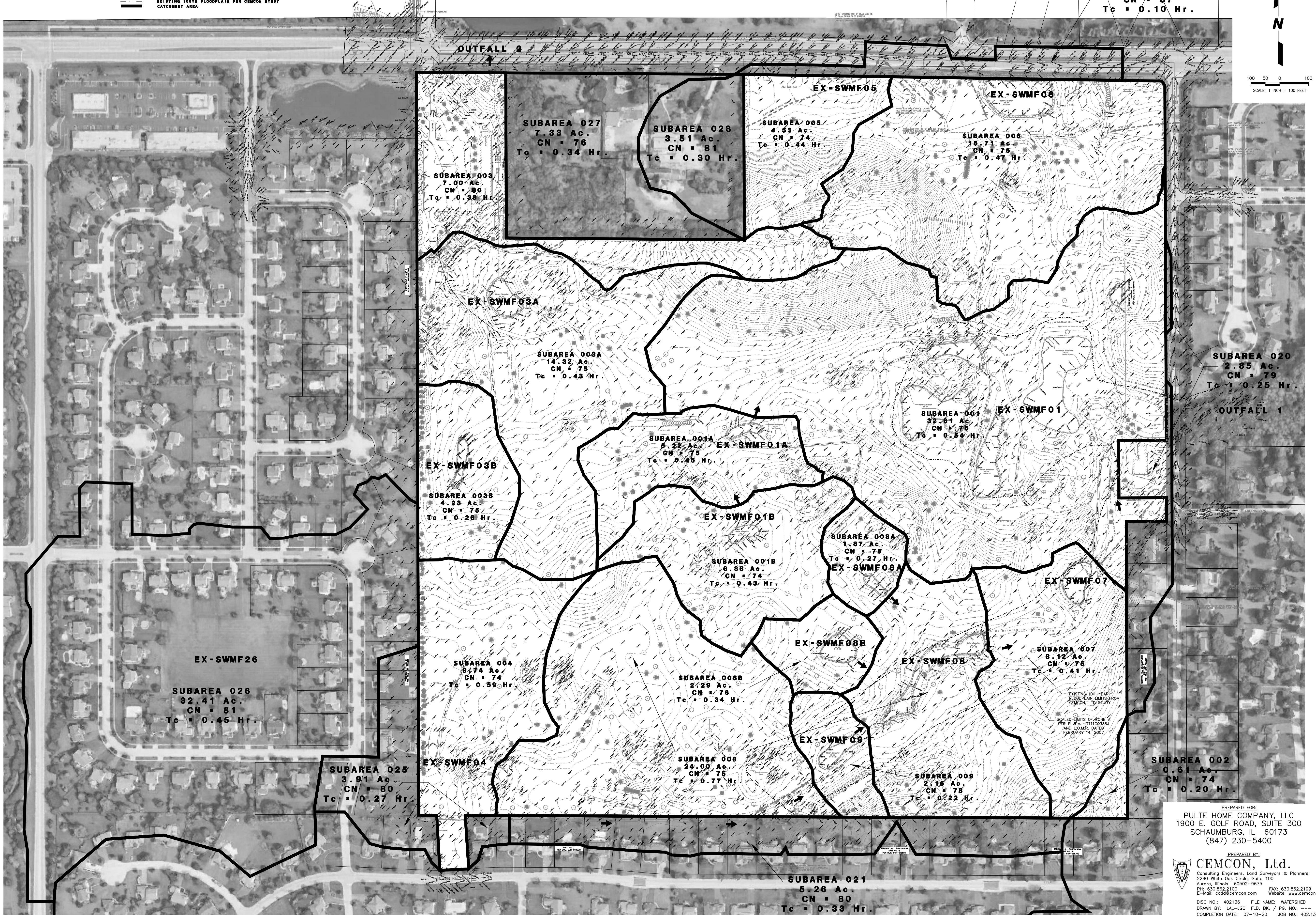
WATERSHED EXHIBIT

EXISTING CONDITIONS WATERSHED EXHIBIT

FOR

TRAILS OF WOODS CREEK

SHEET 1 OF 2



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 60502-9675
PH: 630.862.2100 FAX: 630.862.2199
E-Mail: cadd@cemcon.com Website: www.cemcon.com

DISC NO.: 402136 FILE NAME: WATERSHED
DRAWN BY: LAL-JGC FLD. BK. / PG. NO.: ---
COMPLETION DATE: 07-10-20 JOB NO.: 402.136
XREF:OVERALL, TOPO PROJECT MANAGER: CRM

TAB: EXIST 01

EXISTING CONDITIONS WATERSHED EXHIBIT
TRAILS OF WOODS CREEK
SHEET 2 OF 2

LEGEND

▬ CATCHMENT AREA

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DISC NO.: 402136 FILE NAME: WATERSHED
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COMPLETION DATE: 07-10-20 JOB NO.: 402.136
XREF: OVERALL, TOPO PROJECT MANAGER: CRM

TAB: EXIST 02

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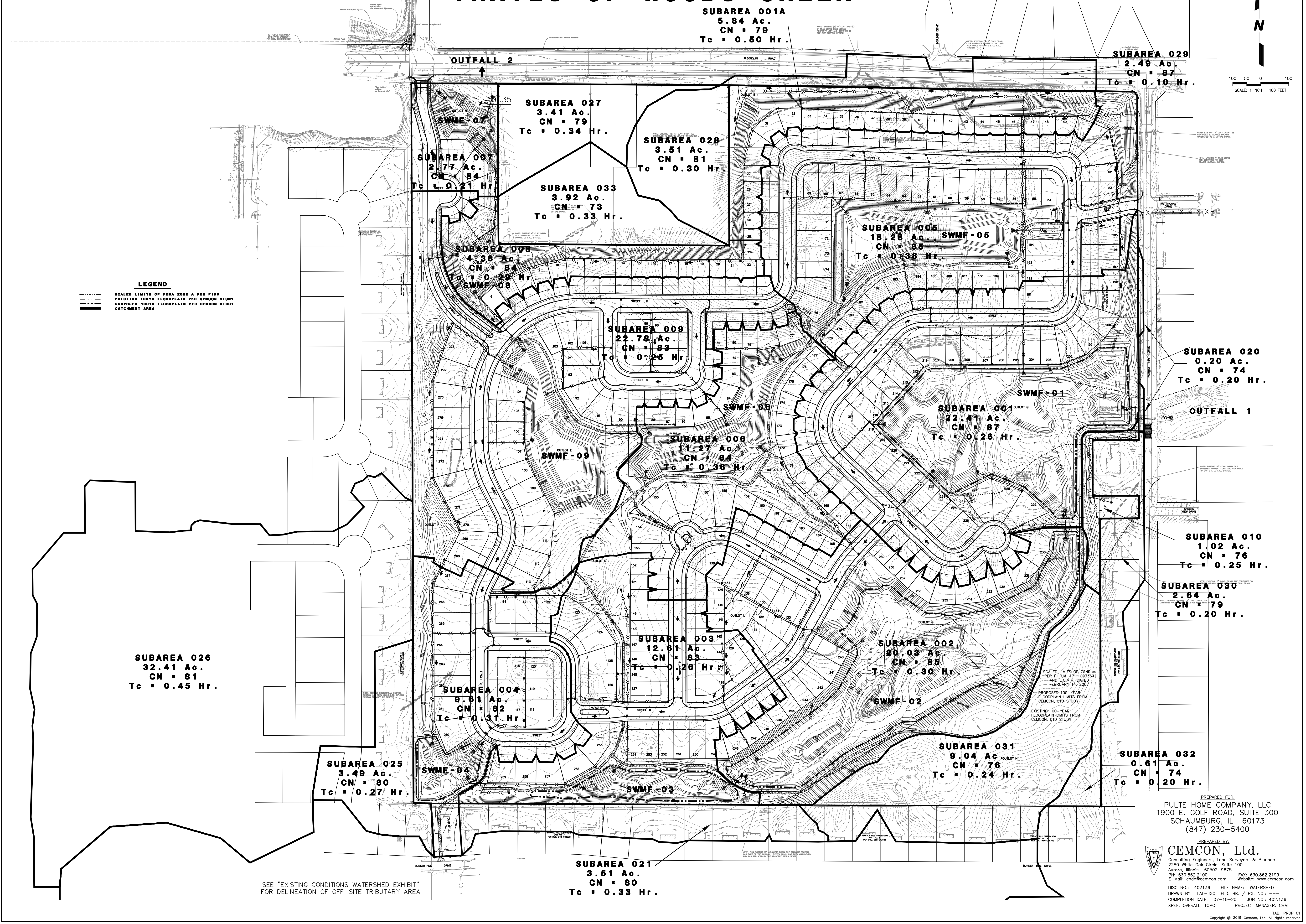
EXHIBIT 7Q

PROPOSED CONDITIONS
WATERSHED EXHIBIT

SHEET 1 OF 1

PROPOSED CONDITIONS WATERSHED EXHIBIT
FOR
TRAILS OF WOODS CREEK



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DISC NO.: 402136 FILE NAME: WATERSHED
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COMPLETION DATE: 07-10-20 JOB NO.: 402.136
XREF: OVERALL, TOPO PROJECT MANAGER: CRM

TAB: PROP 01

EXHIBIT 7R

CATCHMENT EXHIBIT

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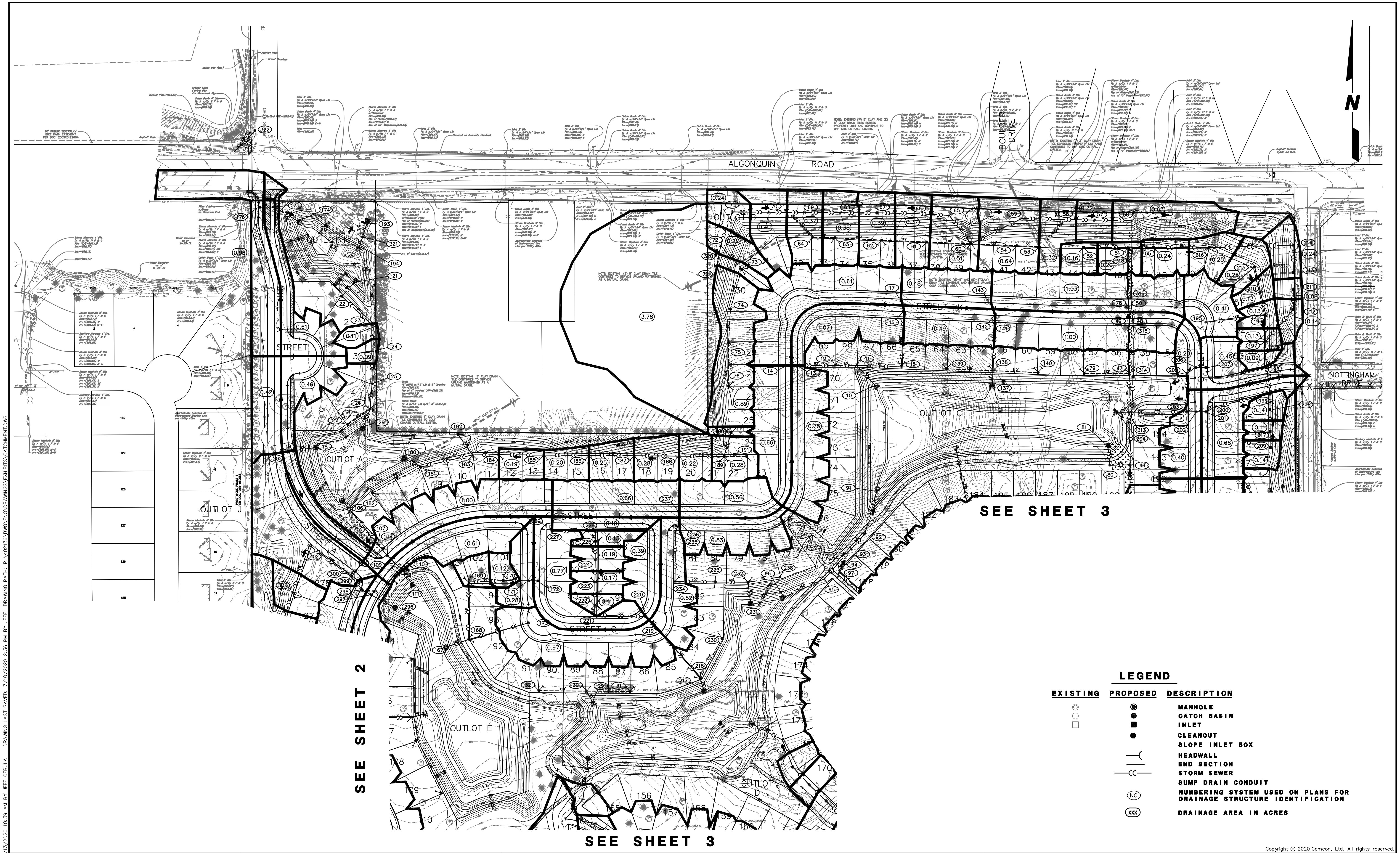

LEGEND

EXISTING	PROPOSED	DESCRIPTION
◎	◉	MANHOLE
○	●	CATCH BASIN
□	■	INLET
	⬢	CLEANOUT
		SLOPE INLET BOX
	─(	HEADWALL
	─	END SECTION
	──<<──	STORM SEWER
		SUMP DRAIN CONDUIT
	(NO.)	NUMBERING SYSTEM USED ON PLANS FOR DRAINAGE STRUCTURE IDENTIFICATION
	(XXX)	DRAINAGE AREA IN ACRES

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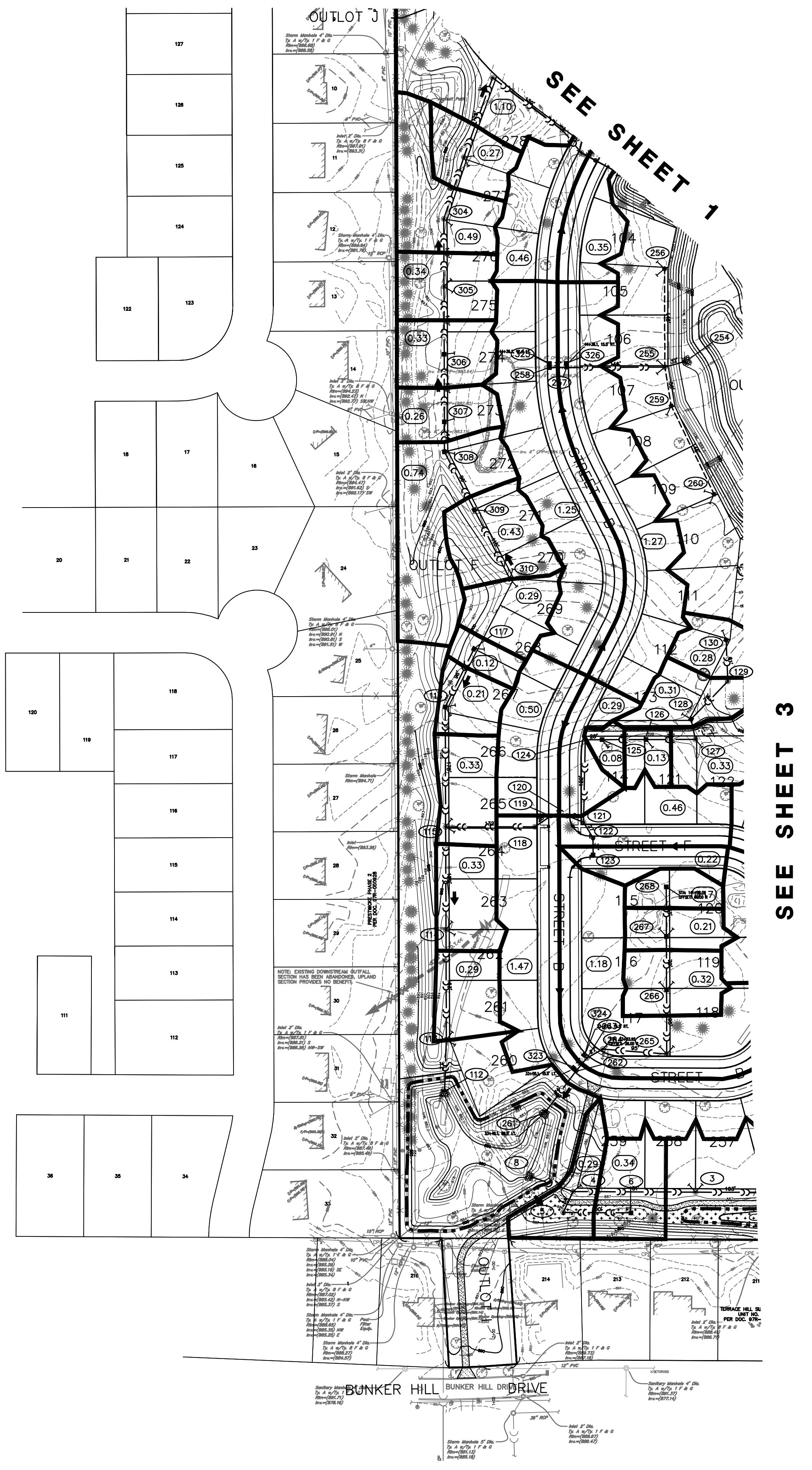
REVISIONS

NO.	DATE	DESCRIPTION	NO.	DATE	DESCRIPTION

CATCHMENT EXHIBIT

TRAILS OF WOODS CREEK – PHASE 1 & 2

FILE NAME: CATCHMENT	DSGN. BY: CRM	JOB NO.: 402.136	FLD. BK./PG.: ---	SHEET NO.
DIR: 402136	DRN. BY: LAL	DATE: 07-10-20	SCALE: 1" = 100'	1 of 3



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	(XXX)	DRAINAGE AREA IN ACRES

NO.	DATE	DESCRIPTION

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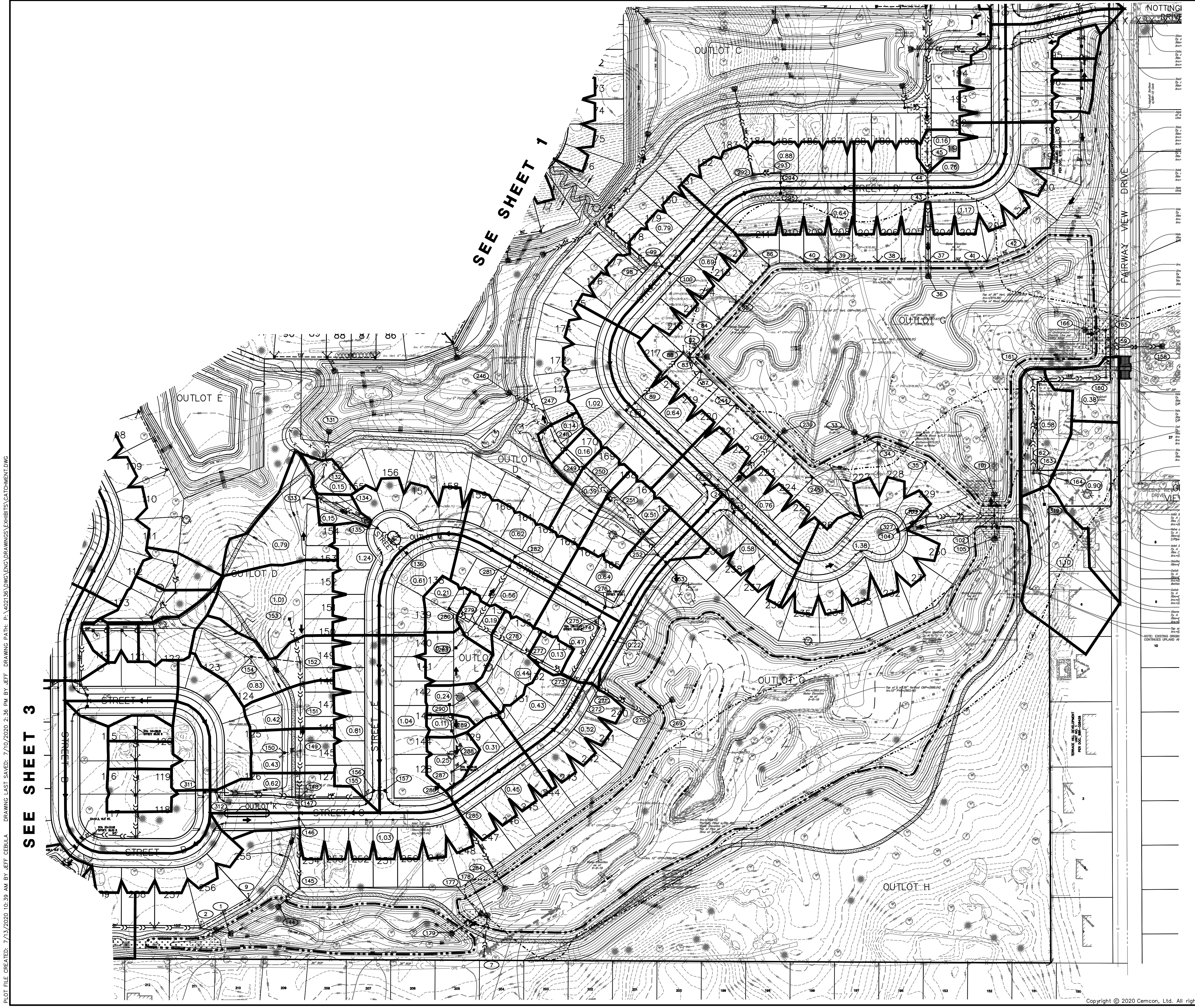
CATCHMENT EXHIBIT

TRAILS OF WOODS CREEK – PHASE 1 & 2

JOB NO.: 402.136	DATE: 07-10-20	SHEET NO.
DSGN. BY: CRM	DRN. BY: LAL	
FILE NAME: CATCHMENT	FLD. BK./PG.: ---	2 of 3
DIR: 402136	SCALE: 1" = 100'	

PLOT FILE CREATED: 7/13/2020 10:39 AM BY JEFF CEBULA DRAWING LAST SAVED: 7/10/2020 2:36 PM BY JEFF DRAWING PATH: P:\402136\DWG\ENG\DRAWINGS\EXHIBITS\CATCHMENT.DWG



LEGEND

EXISTING	PROPOSED	DESCRIPTION
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TRAILS OF WOODS CREEK – PHASE 1 & 2

JOB NO.: 402.136	DATE: 07-10-20	SHEET NO.
DSGN. BY: CRM	DRN. BY: LAL	3 of 3
FILE NAME: CATCHMENT	FLD. BK./PG.: ---	
DIR: 402136	SCALE: 1" = 100'	