STORMWATER MANAGEMENT
NARRATIVE REPORT

FOR

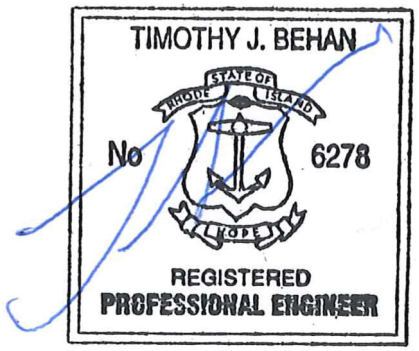
PICOZZI PLAT MINOR SUBDIVISION
A.P. 89 LOT 9
COVENTRY, RI

OWNER/APPLICANT:

DOMENIC A. PICOZZI

506 HOPE FURNACE ROAD

HOPE, RI 02831



PREPARED BY:

COMMONWEALTH
ENGINEERS & CONSULTANTS, INC.
400 Smith Street
Providence, RI 02908
Tel. (401) 273-6600, Fax (401) 273-6674
www.commonwealth-eng.com

MAY 2026

CE&C PROJECT NO. 25088.00

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INTRODUCTION

On behalf of Domenic A. Picozzi, Commonwealth Engineers & Consultants, Inc. (CE&C) has prepared the following Stormwater Management Narrative Report for the Picozzi Plat Minor Subdivision. This report has been prepared in accordance with the requirements of and guidance provided in the following:

- Rhode Island Stormwater Management Design and Installation Rules, 250-RICR-150-10-8 (hereinafter referred to as the "SMDIR"),
- Rhode Island Stormwater Design and Installation Standards Manual, issued March 2015 (hereinafter referred to as the "RISDISM"),
- RIPDES Construction General Permit, issued in the fall of 2025,
- RISDISM Stormwater Management Checklist (hereinafter referred to as the "Checklist")

I – GENERAL INFORMATION

The following general information is provided in accordance with the Checklist:

I-A - Standard Information Form

The required checklist has been completed, and is attached hereto.

I-B - Site Plan / Stormwater Management Designer

Commonwealth Engineers & Consultants, Inc.
400 Smith Street
Providence, RI 02908
Project Manager: Timothy Behan, P.E.
Stormwater Management Designer: Michael Zavalia, P.E.
(401) 632-4650 Phone (401) 273-6674 Fax

I-C - Proposed Land Use

The proposed land use will be for residential single-family dwellings; the zoning of the subject parcel is Rural Residence 2 (RR-2) District.

LUHPPL status: No portion of this project falls directly under any of the five (5) qualifying land uses or activities (as listed in Table 3-2) for the project area to be classified as a LUHPPL.

- The first land use is areas within an industrial site if the site is subject to a RIPDES Multi-Sector General Permit; there are no industrial sites subject to a RIPDES MSGP within the project area.
- The second land use is auto fueling facilities; there are no fueling facilities within the project area.
- The third land use or activity is exterior vehicle service, maintenance and equipment cleaning areas; there are no exterior vehicle service, maintenance or equipment cleaning areas within the project area.
- The fourth activity is road salt storage; there is no road salt storage within the project area.
- The fifth activity is outdoor storage and loading/unloading of hazardous substances; there is no known outdoor storage or loading/unloading of hazardous substances within the project area.

Therefore, this project area is not classified as a LUHPPL.

I-D - General Project Narrative

The following are a general description of the existing conditions on and near the subject parcel, and a detailed description of the proposed development within same.

Existing Conditions

The subject property, Assessor's Plat 89 Lot 9, is located west of Read School House Road in Coventry; more specifically, the lot has frontage on the existing driveway for the Washington Oak Elementary School. The lot is owned by Domenic A. Picozzi, while the driveway is owned by the Town of Coventry School Department. The area of the lot is 170,780 SF/3.92 acres.

The lot is currently undeveloped; ground cover across the majority of the lot consists of good condition woods. The overall watershed contains a significant off-parcel area to the northeast, upgradient of the site, which contributes an appreciable amount of runoff to and through the through the proposed development area.

The lot generally slopes in a southwesterly direction, from a high elevation of 413-414± in the eastern corner to a low elevation of 377± in the southwestern corner. The significant majority of the topography is mild to moderate (0-8%) slopes, although there are isolated areas of moderately steep (8-15%) slopes and even smaller areas of steep (15-25%) slopes. The entirety of the project area runoff is shed westerly off of Lot 9 into Poor Farm Brook, a portion of which crosses the western corner of the lot. There are wetlands and associated buffers & jurisdictional limits around the stream. There is also an isolated wetland and associated 50' buffer in the extreme eastern corner of the lot.

Per the USDA Web soil survey, the lot and its tributary watershed are underlain by a combination of soil types, consisting of:

- Narragansett silt loam, 0-3% slopes (NaA), HSG B
- Narragansett extremely stony silt loam, 3-15% slopes (NcC), HSG B
- Ridgebury, Leicester and Whitman soils, 0-8% slopes (Rf), HSG D

The significant majority (93%) of underlying soils beneath the lot itself are the Narragansett soils; the Rf soils are mapped beneath the wetlands associated with Poor Farm Brook, and not within the proposed development area. The Narragansett soils are considered suitable for development due to their moderate permeability and relatively deep groundwater tables; the use of exfiltrating stormwater management practices is generally feasible. On-site soil evaluations performed have verified the presence of underlying fine sandy loams in the upper soil profile underlain by loamy sands, with groundwater tables between 4-8' deep throughout most of the lot.

Project Area Land Use(s)

The parcel is located in zoning district Rural Residential 2 (RR-2), in which residential uses are allowed.

Proposed Conditions

The proposed land development consists of:

- The subdivision of the existing lot into four (4) individual house lots and a right-of-way;
- A short driveway and cul-de-sac from the Washington Oak Elementary School driveway, both paved and within the created right-of-way;
- Four (4) single-family residential dwellings;
- Individual paved driveways to each unit;

- Private wells and individual on-site wastewater treatment systems (OWTS's) for each dwelling;
- Stormwater management measures within the created right-of-way and on the individual lots;
- Other site features and landscape elements.

Overall stormwater management for the development will be provided by a combination of structural and non-structural (low-impact development, or LID) best management practices (BMP's), consisting of:

- Qualifying Pervious Areas (QPA's) for groundwater recharge and water quality credits;
- An underground chamber sand filter system to provide groundwater recharge and water quality treatment for impervious areas not discharged to a QPA;
- Pre-treatment of flows to the sand filter via a deep-sump catch basin and isolator row within the sand filter system;
- A dry extended detention basin to collect and detain off-site runoff from the north before it enters the development area;
- An infiltration basin, which in conjunction with the sand filter and dry extended detention basin shall provide Channel Protection Volume storage and Overbank Flood Protection (peak flow rate mitigation).

All stormwater management elements shall be located on/within Lot 9, and there will be no connections to or impacts on the school's stormwater management infrastructure within the existing school driveway.

Vegetative clearing and topographic alterations shall consist of those that are necessary for the construction of the various proposed improvements; the site grading as proposed will require appreciable volumes of fill within the development area lot to provide reasonable lot grading and adequate clearance between the proposed stormwater management features and the groundwater table.

Design Standards

The SMDIS/RISDISM have been used for stormwater management/mitigation design, as applicable.

I-E – RISDISM Project Type

The project is classified as a *new development* project. For new development projects, all eleven Minimum Standards of the SMDIR/RISDISM must be addressed.

II – MINIMUM STANDARDS NARRATIVE

The following narrative provides general information about each of the individual Minimum Standards from Chapter 3, and as listed in Section A.1.3 of the Checklist. As stated above, the project is classified as new development, so all eleven (11) Minimum Standards must be addressed. Detailed information about Minimum Standards 2-5 is presented in later sections of this report.

Standard 1 – LID Design

This standard has been met; various strategies in the LID Checklist are applicable to this project.

Standard 2 – Groundwater Recharge (Re_v)

This standard has been met; runoff from the proposed impervious areas, including the paved roadway, paved driveways and dwelling roofs that is not routed to/across a QPA shall be captured, directed to and infiltrated by the proposed underground chamber sand filter system. The sand filter system will exfiltrate in excess of the required Groundwater Recharge volume.

Standard 3 – Water Quality (WQ_v)
This standard has been met; runoff from the proposed impervious areas, including the paved roadway, paved driveways and dwelling roofs that is not routed to/across a QPA shall be captured, directed to and infiltrated by the proposed underground chamber sand filter system. The sand filter system shall exfiltrate the entirety of the required Water Quality volume.

Standard 4 – Conveyance and Natural Channel Protection (CP_v)
This standard has been met; the stormwater collection and conveyance system has been designed to receive and safely convey the entirety of runoff during the twenty-five (25) year storm without surcharging, which exceeds the requirement for conveyance of the peak runoff during the ten (10) year event. In addition, the Channel Protection volume and its associated maximum 1-year discharge flow rate have been calculated in accordance with the RISDISM Guidance for Natural Channel Protection. The combination of the detention basin, sand filter and infiltration basin will result in a maximum 1-year discharge flow rate from the infiltration basin of 0.12 cfs, which is less than the allowable maximum discharge flow rate of 0.324 cfs; this satisfies the Natural Channel Protection requirement.

Standard 5 – Overbank Flood Protection
This standard has been met. The existing conditions peak ten (10) and 100-year runoff flow rates were determined, and the stormwater management system shall provide flow rate mitigation for the increases in runoff peak flow rates that will occur under proposed conditions during both the ten (10) and 100-year events.

Standard 6 – Redevelopment & Infill Projects
This standard is not applicable to new development projects.

Standard 7 – Pollution Prevention
This standard has been met; a detailed draft *Soil Erosion and Sediment Control Plan (SESC)*, prepared in accordance with guidance provided in Appendix G of the RISDISM, is included in **Appendix B**.

Standard 8 – LUHPPL's
This standard has been met. As stated earlier, no portion of the site falls under any of the five (5) qualifying land uses (as listed in Table 3-2) for the project area to be classified as a LUHPPL.

Standard 9 – Illicit Discharges
This standard has been met. The property owner asserts that there are not, nor shall there be allowed in the future, any known existing or anticipated illicit discharges from the site.

Standard 10 – Construction Soil Erosion and Sedimentation Control
This standard has been met; soil erosion and sedimentation control (SESC) measures have been incorporated into the project design plans, and a detailed *Soil Erosion and Sediment Control Plan*, prepared in accordance with the "Rhode Island Soil Erosion and Sediment Control Handbook," is included in **Appendix B** of this report.

Standard 11 – Stormwater Management System Operation and Maintenance
This standard has been met; a detailed *Stormwater Management System Long-Term Operation and Maintenance Plan*, prepared in accordance with guidance provided in Appendix E of the RISDISM, is included in **Appendix C** of this report.

III – LID STORMWATER CREDIT

As noted in Part 2 – Minimum Standard 1 of the Stormwater Checklist (Appendix A), this project offers limited opportunities to incorporate LID strategies into the design while still achieving the project goals and design requirements for the project:

- The site layout had been developed to conform, to the extent practicable, to the existing topography of the lot;
- The proposed runoff flow paths to and across the lot shall be generally consistent with the existing flow paths;
- Small-scale stormwater Recharge/WQ BMP's are proposed on site as close to the runoff sources as possible.
- Numerous QPA's are proposed for the majority of roof runoff from the four (4) proposed dwellings, as well as the entirety of three (3) of the proposed individual driveways.
- Development is proposed in less sensitive areas, outside of wetlands & wetland buffers and in areas underlain by HSG B soils.

Incorporation of these LID measures will reduce the impacts that the development will have on stormwater runoff patterns from the site.

IV- BEST MANAGEMENT PRACTICES

Please refer to **Appendix A**, which contains the Stormwater BMP Summary Table. This table contains information about each of the BMP's that will be implemented as part of the project to provide stormwater management for the site.

IV-1 – Hydrologic and Hydraulic Analysis & Design

The following hydrologic and hydraulic analysis of the project has been prepared in accordance with the guidance provided in Appendix K of the RISDISM.

IV-1.1 Site Parameters

IV-1.1.1 Flood Zone

Please refer to the FEMA flood zone map in **Appendix H**. According to FEMA Flood Insurance Rate Map (FIRM) Panel 44003C0101G, effective 12/3/2010, the entirety of the parcel is located in Zone X – Area of Minimal Flood Hazard.

IV-1.1.2 Soil Classifications

Please refer to the soils map in **Appendix H**. According to the USDA Web Soil Survey, the parcel and tributary watershed area are underlain predominantly by:

- Narragansett silt loam, 0-3% slopes (NaA), HSG B
- Narragansett extremely stony silt loam, 3-15% slopes (NcC), HSG B
- Ridgebury, Leicester and Whitman soils, 0-8% slopes (Rf), HSG D

IV-1.1.3 Existing Impervious Areas/Stormwater Project Type

For the purpose of determining the project type, it was assumed that there are no existing impervious areas within the project area; the project has therefore been classified as New Development in the context of the SMDIR/RISDISM.

IV-1.2 Proposed Conditions & Stormwater Design

The proposed development will incorporate a combination of LID and structural measures, including an off-line deep-sump catch basin in the collection & conveyance system, an underground chamber sand filter system (with pretreatment within), a dry extended detention basin and an infiltration basin. Stormwater treatment BMP selection was based on a variety of factors, including available land area, topography, underlying soil characteristics and groundwater proximity.

The proposed conditions hydrologic analysis was performed using the Soil Conservation Service Technical Release 55 (SCS TR-55) methodology, using HydroCAD Version 10.00. The 1, 10 and 100-year storm events were modeled for a 24-hour, Type III storm. The following rainfall amounts for Kent County, Rhode Island were used for each analyzed storm event, based on the RISDISM:

1-Year Storm:	2.7 inches
10-Year Storm:	4.8 inches
100-Year Storm:	8.7 inches

The tabulations for stormwater design minimum standards 2-5 (2 – Groundwater Recharge (Re_v), 3 – Water Quality Volume (WQv), and 5 – Overbank Flood Protection (Qp)) are presented in the Stormwater Checklist in Appendix A.

IV-1.3 Stormwater Diagrams

The existing and proposed conditions node diagrams of the site is included in **Appendix F-1** of this report. As stated previously, the node diagrams were produced by HydroCAD Release 10.00-25, which is the hydrologic/hydraulic modeling software that was used in the stormwater analysis for this project.

IV-1.4 Stormwater Analysis Input & Output Data

Stormwater (HydroCAD) analysis input and output data are located in **Appendices F-2, F-3 & F-4** of this report.

IV-2 – Project Area Watershed Area Maps

Existing and proposed conditions watershed maps of the site have been prepared in accordance with the guidance provided in Appendix K of the RISDISM, and are located in **Appendix G** of this report.

IV-3 – BMP Cross-Section & Profile Drawings

Detailed plans for each proposed structural stormwater BMP, including plan & profile views, have been prepared in accordance with the guidance provided in Appendix K of the RISDISM, and are included on Sheet 8 – Stormwater Management Plan. Those plan sheets are not incorporated directly into this report.

IV-4 – BMP Planting Plans

This section is not applicable, as there are no BMP's that require plantings (or planting plans) proposed as part of this project.

IV-5 – Structural Calculations

This section is not applicable, as there are no structural BMP's proposed as part of this project for which structural calculations would be required.

IV-6 – Construction Specifications

The RIDOT Standard Specifications for Road & Bridge Construction shall be generally applicable to the proposed features to be constructed for this project (clearing, earthwork, materials, etc.). There are no stormwater management BMP's proposed as part of the project for which specialized (i.e. non-RIDOT standard) construction specifications would be required, so none are included herein.

IV-7 – Anticipated Permits

State-level permits required consist of a RIDEM Freshwater Wetlands General Permit, a RIPDES NOI Authorization and an OWTS Subdivision Suitability Determination. Local permits required consist of a Preliminary Submission approval from the Coventry Planning Board.

IV-8 – Stormwater Legal Agreements (Easements/Land Acquisition)

The stormwater management system is located entirely on and within the subdivision parcel (A.P. 89 Lot 9); however, portions of the stormwater management features shall be located on/within the individual parcels to be created by the subdivision of lot 9. Therefore, easements over the portions of the lots containing stormwater management features granted to the Homeowner's Association (HOA) created for the development shall be required. These easements are or shall be written such that the HOA, its agents, heirs and assigns shall have the perpetual and irrevocable right to enter upon the individual parcels to operate, maintain, repair and replace the stormwater management system.

V - CONCLUSION

The Picozzi Plat Minor Subdivision, located off Read Schoolhouse Road in Coventry, is the development of A.P. 89 Lot 9 as a residential minor subdivision, which shall consist of four (4) lots/single-family residential dwellings and the transportation and utility infrastructure needed to service and support it. The development has been designed to avoid any adverse impacts to the adjacent driveway, public and/or private parcels and nearby environmental resources.

The site & stormwater management design for the development has been developed in compliance with the SMDIR/RISDISM; specifically, the design incorporates low-impact design (LID) measures, which will reduce the number of structural stormwater management BMP's required and minimize the alterations to the existing stormwater patterns of the site. All eleven (11) Minimum Standards have been addressed as required and applicable.

APPENDICES

APPENDIX A STORMWATER MANAGEMENT CHECKLIST

APPENDIX A: STORMWATER MANAGEMENT PLAN CHECKLIST AND LID PLANNING REPORT – STORMWATER DESIGN SUMMARY

PROJECT NAME Picozzi Plat Minor Subdivision	
TOWN Coventry	
BRIEF PROJECT DESCRIPTION: Residential minor subdivision located off of the existing driveway for the Washington Oaks Elementary School, off of Read Schoolhouse Road. Four (4) single-family dwellings are proposed, with associated site improvements (driveways, lawns and retaining walls). The dwellings will be serviced by private wells, on-site wastewater treatment systems (OWTS's), electric & telecommunications. On-site stormwater management shall also be provided.	

Stormwater Management Plan (SMP) Elements – Minimum Standards

When submitting a SMP,[1] submit four separately bound documents: Appendix A Checklist; Stormwater Site Planning, Analysis and Design Report with Plan Set/Drawings; Soil Erosion and Sediment Control (SESC) Plan, and Post Construction Operations and Maintenance (O&M) Plan. Please refer to Suggestions to Promote Brevity.

Note: **All stormwater construction projects must create a Stormwater Management Plan (SMP). However, not every element listed below is required per the RIDEM Stormwater Rules and the RIPDES Construction General Permit (CGP). This checklist will help identify the required elements to be submitted with an Application for Stormwater Construction Permit & Water Quality Certification.**

PART 1. PROJECT AND SITE INFORMATION

PROJECT TYPE (Check all that apply)

☒ Residential	☐ Commercial	☐ Federal	☐ Retrofit	☐ Restoration
☐ Road	☐ Utility	☐ Fill	☐ Dredge	☐ Mine
☐ Other (specify):				

SITE INFORMATION

☒ Vicinity Map

INITIAL DISCHARGE LOCATION(S): The WQv discharges to: (You may choose more than one answer if several discharge points are associated with the project.)

☒ **Groundwater**	☐ **Surface Water**	☐ **MS4**
☐ GAA	☐ Isolated Wetland	☐ RIDOT
☒ GA	☐ Named Waterbody	☐ RIDOT Alteration Permit is Approved
☐ GB	☐ Unnamed Waterbody Connected to Named Waterbody	☐ Town
		☐ Other (specify):

ULTIMATE RECEIVING WATERBODY LOCATION(S): Include pertinent information that applies to both WQ_v and flow from larger storm events including overflows. Choose all that apply, and repeat table for each waterbody.

☒ Groundwater or Disconnected Wetland	☐ SRWP		
☒ Waterbody Name: Poor Farm Brook	☐ Coldwater	☐ Warmwater	☒ Unassessed
☒ Waterbody ID: RI0006013R-07	☐ 4th order stream of pond 50 acres or more		
☐ TMDL for:	☐ Watershed of flood prone river (e.g., Pocasset River)		
☐ Contributes to a priority outfall listed in the TMDL	☐ Contributes stormwater to a public beach		
☐ 303(d) list – Impairment(s) for:	☐ Contributes to shellfishing grounds		

[1] Applications for a Construction General Permit that do not require any other permits from RIDEM and will disturb less than 5 acres over the entire course of the project do not need to submit a SMP. The Appendix A checklist must still be submitted.

PROJECT HISTORY		
☐ RIDEM Pre- Application Meeting	Meeting Date:	☐ Minutes Attached
☐ Municipal Master Plan Approval	Approval Date:	☐ Minutes Attached
☒ Subdivision Suitability Required	Approval #: **TBD**	
☐ Previous Enforcement Action has been taken on the property	Enforcement #:	

FLOODPLAIN & FLOODWAY See Guidance Pertaining to Floodplain and Floodways	
☐ Riverine 100-year floodplain: **FEMA FLOODPLAIN FIRMETTE** has been reviewed and the 100-year floodplain is on site	
☐ Delineated from FEMA Maps	
NOTE: Per Rule 250-RICR-150-10-8-1.1(B)(5)(d)(3), provide volumetric floodplain compensation calculations for cut and fill/displacement calculated by qualified professional	
☐ Calculated by Professional Engineer	
☐ Calculations are provided for cut vs. fill/displacement volumes proposed within the 100-year floodplain	Amount of Fill (CY):
	Amount of Cut (CY):
☐ Restrictions or modifications are proposed to the flow path or velocities in a floodway	
☐ Floodplain storage capacity is impacted	
☒ Project area is not within 100-year floodplain as defined by RIDEM	

CRMC JURISDICTION
☐ CRMC Assent required
☐ Property subject to a Special Area Management Plan (SAMP). If so, specify which SAMP:
☐ Sea level rise mitigation has been designed into this project

LUHPPL IDENTIFICATION - MINIMUM STANDARD 8:		
1. OFFICE OF Land Revitalization and Sustainable Materials Management (OLRSMM)		
	☐ Known or suspected releases of HAZARDOUS MATERIAL are present at the site (Hazardous Material is defined in Rule 1.4(A)(33) of 250-140-30-1 of the RIDEM Rules and Regulations for Investigation and Remediation of Hazardous Materials (the Remediation Regulations))	**RIDEM CONTACT:**
	☐ Known or suspected releases of PETROLEUM PRODUCT are present at the site (Petroleum Product as defined in Rule 1.5(A)(84) of 250-140-25-1 of the RIDEM Rules and Regulations for Underground Storage Facilities Used for Regulated Substances and Hazardous Materials)	
	☐ This site is identified on the RIDEM Environmental Resources Map as one of the following regulated facilities	**SITE ID#:**
	☐ CERCLIS/Superfund (NPL)	
	☐ State Hazardous Waste Site (SHWS)	
	☐ Environmental Land Usage Restriction (ELUR)	
	☐ Leaking Underground Storage Tank (LUST)	
	☐ Closed Landfill	
Note: If any boxes in 1 above are checked, the applicant must contact the RIDEM OLRSMM Project Manager associated with the Site to determine if subsurface infiltration of stormwater is allowable for the project. Indicate if the infiltration corresponds to "Red," "Yellow" or "Green" as described in Section 3.2.8 of the RISDISM Guidance (Subsurface Contamination Guidance). Also, note and reference approval in PART 3, Minimum Standard 2: Groundwater Recharge/Infiltration**.**		
2. PER MINIMUM STANDARD 8 of RICR 8.14.C.1-6 "LUHPPLS," THE SITE IS/HAS:		
	☐ Industrial Site with RIPDES MSGP, except where No Exposure Certification exists. http://www.dem.ri.gov/programs/water/permits/ripdes/stormwater/status.php	
	☐ Auto Fueling Facility (e.g., gas station)	
	☐ Exterior Vehicles Service, Maintenance, or Equipment Cleaning Area	
	☐ Road Salt Storage and Loading Areas (exposed to rainwater)	
	☐ Outdoor Storage and Loading/Unloading of Hazardous Substances	

3. STORMWATER INDUSTRIAL PERMITTING		
	☐ The site is associated with existing or proposed activities that are considered Land Uses with Higher Potential Pollutant Loads (LUHPPLS) (see RICR 8.14.C)	Activities: Sector:
	☐ Construction is proposed on a site that is subject to THE MULTI-SECTOR GENERAL PERMIT (MSGP) UNDER RULE 31(B)15 OF THE RIPDES REGULATIONS.	MSGP permit #
	☐ Additional stormwater treatment is required by the MSGP Explain:	

REDEVELOPMENT STANDARD – MINIMUM STANDARD 6		
☒ Pre Construction Impervious Area		
0.00 ac	☒ Total Pre-Construction Impervious Area (**TIA**)	
3.92 ac	☒ Total Site Area (**TSA**)	
	☐ Jurisdictional Wetlands (**JW**)	
	☐ Conservation Land (**CL**)	
☒ Calculate the Site Size (defined as contiguous properties under same ownership)		
3.92 ac	☒ Site Size (**SS**) = (**TSA**) – (**JW**) – (**CL**)	
0.00	☐ (**TIA**) / (**SS**) =	☒ (**TIA**) / (**SS**) >**0.4**? NO
☐ YES, Redevelopment		

PART 2. LOW IMPACT DEVELOPMENT ASSESSMENT – MINIMUM STANDARD 1

(NOT REQUIRED FOR REDEVELOPMENT OR RETROFITS)

This section may be deleted if not required.

Note: A written description must be provided specifying why each method is not being used or is not applicable at the Site. Appropriate answers may include:

- Town requires … (state the specific local requirement)
- Meets Town's dimensional requirement of …
- Not practical for site because …
- Applying for waiver/variance to achieve this (pending/approved/denied)
- Applying for wavier/variance to seek relief from this (pending/approved/denied)

A) PRESERVATION OF UNDISTURBED AREAS, BUFFERS, AND FLOODPLAINS ☒ Sensitive resource areas and site constraints are identified (required) ☒ Local development regulations have been reviewed (required) ☒ All vegetated buffers and coastal & freshwater wetlands will be protected during/after construction ☐ Conservation Development or another site design technique has been incorporated to protect open space and pre-development hydrology. **Note:** If Conservation Development has been used, check box and skip to Subpart C. ☒ As much natural vegetation and pre-development hydrology as possible has been maintained	**IF NOT IMP-LEMENTED, EXPLAIN HERE**
B) LOCATE DEVELOPMENT IN LESS SENSITIVE AREAS AND WORK WITH THE NATURAL LANDSCAPE CONDITIONS, HYDROLOGY, AND SOILS ☒ Development sites & building envelopes have been appropriately distanced from wetlands & waterbodies ☒ Development & stormwater systems have been located in areas with greatest infiltration capacity (e.g., soil groups A and B) ☒ Plans show measures to prevent soil compaction in areas designated as Qualified Pervious Areas (QPA's) ☒ Development sites and building envelopes have been positioned outside of floodplains ☒ Site design positions buildings, roadways and parking areas in a manner that avoids impacts to surface water features ☒ Development sites and building envelopes have been located to minimize impacts to steep slopes (≥15%) ☒ Other (describe):	

C) MINIMIZE CLEARING AND GRADING ☒ Site clearing has been restricted to minimum area needed for building footprints, development activities, construction access, and safety. ☒ Site has been designed to position buildings, roadways, and parking areas in a manner that minimizes grading (cut and fill quantities) ☐ Protection for stands of trees and individual trees and their root zones to be preserved has been specified, and such protection extends at least to the tree canopy drip line(s) ☐ Plan notes specify that public trees removed or damaged during construction shall be replaced with equivalent	
D) REDUCE IMPERVIOUS COVER ☒ Reduced roadway widths (≤22 feet for ADT ≤ 400; ≤ 26 feet for ADT 400 - 2,000) ☐ Reduced driveway areas (length minimized via reduced ROW width (≤ 45 ft.) and/or reduced (or absolute minimum) front yard setback; width minimized to ≤ 9 ft. wide one lane; ≤ 18 ft. wide two lanes; shared driveways; pervious surface) ☐ Reduced building footprint (Explain approach): ☒ Reduced sidewalk area (≤ 4 ft. wide; one side of the street; unpaved path; pervious surface) ☐ Reduced cul-de-sacs (radius < 45 ft; vegetated island; alternative turn-around) ☐ Reduced parking lot area: Explain approach ☐ Use of pervious surfaces for driveways, sidewalks, parking areas/overflow parking areas, etc. ☐ Minimized impervious surfaces (project meets or is less than maximum specified by Zoning Ordinance) ☐ Other (describe):	
E) DISCONNECT IMPERVIOUS AREA ☒ Impervious surfaces have been disconnected, and runoff has been diverted to QPAs to the maximum extent possible ☐ Residential street edges allow side-of-the-road drainage into vegetated open swales ☐ Parking lot landscaping breaks up impervious expanse AND accepts runoff ☐ Other (describe):	
F) MITIGATE RUNOFF AT THE POINT OF GENERATION ☒ Small-scale BMPs have been designated to treat runoff as close as possible to the source	
G) PROVIDE LOW-MAINTENANCE NATIVE VEGETATION ☒ Low-maintenance landscaping has been proposed using native species and cultivars ☐ Plantings of native trees and shrubs in areas previously cleared of native vegetation are shown on site plan ☒ Lawn areas have been limited/minimized, and yards have been kept undisturbed to the maximum extent practicable on residential lots	
H) RESTORE STREAMS/WETLANDS ☐ Historic drainage patterns have been restored by removing closed drainage systems, daylighting buried streams, and/or restoring degraded stream channels and/or wetlands ☐ Removal of invasive species ☐ Other	N/A – There are no altered or degraded environmental features within the project area that could be restored.

PART 3. SUMMARY OF REMAINING STANDARDS

GROUNDWATER RECHARGE – MINIMUM STANDARD 2

YES	NO	
☒	☐	The project has been designed to meet the groundwater recharge standard.
☐	☐	If "No," the justification for groundwater recharge criterion waiver has been explained in the Narrative (e.g., threat of groundwater contamination or physical limitation), if applicable (see RICR 8.8.D);
☐	☐	Your waiver request has been explained in the Narrative, if applicable.
☐	☒	Is this site identified as a Regulated Facility in Part 1, Minimum Standard 8: LUHPPL Identification?
☐	☐	If "Yes," has approval for infiltration by the OLRSMM Site Project Manager, per Part 1, Minimum Standard 8, been requested?

TABLE 2-1: Summary of Recharge (see RISDISM Section 3.3.2)
(Add or Subtract Rows as Necessary)

Design Point	Impervious Area Treated (sq ft)	Total Re_v Required (cu ft)	LID Stormwater Credits (see RISDISM Section 4.6.1) Portion of Re_v directed to a QPA (cu ft)	Recharge Required by Remaining BMPs (cu ft)	Recharge Provided by BMPs (cu ft)
Total Site	34,552	1,008	560	448	448
TOTALS:	34,552*	1,008	560	448	448

Notes:
1. Only BMPs listed in RISDISM Table 3-5 "List of BMPs Acceptable for Recharge" may be used to meet the recharge requirement.
2. Recharge requirement must be satisfied for each waterbody ID.

* Does not include existing off-site impervious areas that shall shed to/across the development area; this is just the proposed new impervious area (34,552 s.f.) that shall be created by the development.

☒ Indicate where the pertinent calculations and/or information for the above items are provided (i.e., name of report/document, page numbers, appendices, etc.): **Stormwater Management Narrative Report, Appendix D**

WATER QUALITY – MINIMUM STANDARD 3		
YES	**NO**	
☒	☐	Does this project meet or exceed the required water quality volume WQv (see RICR 8.9.E-I)?
☒	☐	Is the proposed final impervious cover greater than 20% of the disturbed area (see RICR 8.9.E-I)?
☒	☐	If "Yes," either the Modified Curve Number Method or the Split Pervious/Impervious method in Hydro-CAD was used to calculate WQv; or,
☒	☐	If "Yes," either TR-55 or TR-20 was used to calculate WQv; and,
☐	☐	If "No," the project meets the minimum WQv of 0.2 watershed inches over the entire disturbed area.
☐	☐	Not Applicable
☒	☐	Does this project meet or exceed the ability to treat required water quality flow WQf (see RICR 8.9.I.1-3)?
☒	☐	Does this project propose an increase of impervious cover to a receiving water body with impairments? If "Yes," please indicate below the method that was used to address the water quality requirements of no further degradation to a low-quality water.
☐	☒	RICR 8.36. A Pollutant Loading Analysis is needed and has been completed.
☒	☐	The Water Quality Guidance Document (Water Quality Goals and Pollutant Loading Analysis Guidance for Discharges to Impaired Waters) has been followed as applicable.
☐	☒	BMPs are proposed that are on the approved technology list . If "Yes," please provide all required worksheets from the manufacturer.
☐	☒	Additional pollutant-specific requirements and/or pollutant removal efficiencies are applicable to the site as the result of a TMDL, SAMP, or other watershed-specific requirements. If "Yes," please describe:

TABLE 3-1: Summary of Water Quality (see RICR 8.9)

Design Point and WB ID	Impervious area treated (sq ft)	Total WQ_v Required (cu ft)	LID Stormwater Credits (see RICR 8.18) WQv directed to a QPA (cu ft)	Water Quality Treatment Remaining (cu ft)	Water Quality Provided by BMPs (cu ft)
SF East	34,552	2,879	1,600	1,279	1,279
TOTALS:	34,552*	2,879	1,600	1,279	1,279

Notes:
1. Only BMPs listed in RICR 8.20 and 8.25 or the Approved Technologies List of BMPs is Acceptable for Water Quality treatment.
2. For each Design Point, the Water Quality Volume Standard must be met for each Waterbody ID.

*Does not include existing off-site impervious areas that shall shed to/across the development area; this is just the proposed new impervious area (11,281 s.f.) that shall be created by the development.

☒ YES ☐ NO	This project has met the setback requirements for each BMP. If "No," please explain:

☒ Indicate where the pertinent calculations and/or information for the above items are provided (i.e., name of report/document, page numbers, appendices, etc.): **Stormwater Management Narrative Report, Appendix D**

CONVEYANCE AND NATURAL CHANNEL PROTECTION (RICR 8.10) – MINIMUM STANDARD 4			
YES	**NO**		
☒	☐	Is this standard waived? If "Yes," please indicate one or more of the reasons below:	
		☐	The project directs discharge to a large river (i.e., 4th-order stream or larger. See RISDISM Appendix I for State-wide list and map of stream orders), bodies of water >50.0 acres in surface area (i.e., lakes, ponds, reservoirs), or tidal waters.
		☒	The project is a small facility with impervious cover of less than or equal to 1 acre.
		☐	The project has a post-development peak discharge rate from the facility that is less than 2 cfs for the 1-year, 24-hour Type III design storm event (prior to any attenuation). (Note: LID design strategies can greatly reduce the peak discharge rate).
☒	☐	Conveyance and natural channel protection for the site have been met. If "No,' explain why: **N/A – Standard Waived**	

TABLE 4-1: Summary of Channel Protection Volumes (see RICR 8.10)

Design Point	Receiving Water Body Name	Coldwater Fishery? (Y/N)	Total CPv Required (cu ft)	Total CPv Provided (cu ft)	Average Release Rate Modeled in the 1-yr storm (cfs)
N/A – Standard Waived					

Note: The Channel Protection Volume Standard must be met in each waterbody ID.

☐ YES ☐ NO ☒ N/A	The CPv is released at roughly a uniform rate over a 24-hour duration (see examples of sizing calculations in Appendix D of the RISDISM).
☐ YES ☐ NO ☒ N/A	Do additional design restrictions apply resulting from any discharge to cold-water fisheries; If "Yes," please indicate restrictions and solutions below.

☒ Indicate below where the pertinent calculations and/or information for the above items are provided (i.e., name of report/document, page numbers, appendices, etc.). **N/A – Standard Waived**

OVERBANK FLOOD PROTECTION (RICR 8.11) AND OTHER POTENTIAL HIGH FLOWS – MINIMUM STD. 5			
YES	**NO**		
☐	☒	Is this standard waived? If yes, please indicate one or more of the reasons below:	
		☐	The project directs discharge to a large river (i.e., 4th-order stream or larger. See Appendix I for state-wide list and map of stream orders), bodies of water >50.0 acres in surface area (i.e., lakes, ponds, reservoirs), or tidal waters.
		☐	A Downstream Analysis (see RICR 8.11.D and E) indicates that peak discharge control would not be beneficial or would exacerbate peak flows in a downstream tributary of a particular site (e.g., through coincident peaks).
☐	☒	Does the project flow to an MS4 system or subject to other stormwater requirements? If "Yes," indicate as follows:	
		☐	RIDOT
		☐	Other (specify):

Note: The project could be approved by RIDEM but not meet RIDOT or Town standards. RIDOT's regulations indicate that post-volumes must be **less** than pre-volumes for the 10-yr storm at the design point entering the RIDOT system. If you have not already received approval for the discharge to an MS4, please explain below your strategy to comply with RIDEM and the MS4.

Indicate below which model was used for your analysis.

☒ TR-55 ☐ TR-20 ☒ HydroCAD ☐ Bentley/Haestad ☐ Intellisolve

☐ Other (Specify):

YES	NO		
☒	☐	Does the drainage design demonstrate that flows from the 100-year storm event through a BMP will safely manage and convey the 100-year storm? If "No," please explain briefly below and reference where in the application further documentation can be found (i.e., name of report/document, page numbers, appendices, etc.):	
☒	☐	Do off-site areas contribute to the sub-watersheds and design points? If "Yes,"	
☒	☐	Are the areas modeled as "present condition" for both pre- and post-development analysis?	
☒	☐	Are the off-site areas shown on the subwatershed maps?	
☒	☐	Does the drainage design confirm safe passage of the 100-year flow through the site for off-site runoff?	
☐	☒	Is a Downstream Analysis required (see RICR 8.11.E.1)?	
☐	☐	Calculate the following:	
3.92 ac		☒	Area of disturbance within the sub-watershed (areas) **170,782 sf**
20.2%		☒	Impervious cover (%) **34,552 sf/170,792 sf = 0.202 = 20.2%**
☐	☒	Is a dam breach analysis required (earthen embankments over six (6) feet in height, or a capacity of 15 acre-feet or more, and contributes to a significant or high hazard dam)?	
☒	☐	Does this project meet the overbank flood protection standard?	

Table 5-1 Hydraulic Analysis Summary

Subwatershed (Design Point)	**1.2" Peak Flow** (cfs) **		**1-yr Peak Flow** (cfs)		**10-yr Peak Flow** (cfs)		**100-yr Peak Flow** (cfs)	
	Pre (cfs)	Post (cfs)	Pre (cfs)	Post (cfs)	Pre (cfs)	Post (cfs)	Pre (cfs)	Post (cfs)
L (EX & PR)	0.06	0.07	1.08	1.48	9.37	8.85	36.45	34.30
TOTALS:	0.06	0.07	1.08	1.48	9.37	8.85	36.45	34.30

** Utilize modified curve number method or split pervious /impervious method in HydroCAD.

Note: The hydraulic analysis must demonstrate no impact to each individual subwatershed DP unless each DP discharges to the same wetland or water resource.

Indicate as follows where the pertinent calculations and/or information for the items above are provided	**Name of report/document, page numbers, appendices, etc.**
Existing conditions analysis for each subwatershed, including curve numbers, times of concentration, runoff rates, volumes, and water surface elevations showing methodologies used and supporting calculations.	**Stormwater Management Narrative Report, Appendices D & F**
Proposed conditions analysis for each subwatershed, including curve numbers, times of concentration, runoff rates, volumes, water surface elevations, and routing showing the methodologies used and supporting calculations.	**Stormwater Management Narrative Report, Appendices D & F**
Final sizing calculations for structural stormwater BMPs, including contributing drainage area, storage, and outlet configuration.	**Stormwater Management Narrative Report, Appendices D & F**
Stage-storage, inflow and outflow hydrographs for storage facilities (e.g., detention, retention, or infiltration facilities).	**Stormwater Management Narrative Report, Appendices D & F**

Table 5-2 Summary of Best Management Practices											
BMP ID	**DP #**	**BMP Type** (e.g., bioretention, tree filter)	**BMP Functions**					**Bypass Type**	**Horizontal Setback Criteria are met per RICR 8.21.B.10, 8.22.D.11, and 8.35.B.4**		
			Pre-Treatment (Y/N/ NA)	Re_v	WQ_v	CP_v (Y/N/ NA)	Overbank Flood Reduction (Y/N/NA)	External (E) Internal (I) or NA	Yes/ No	Technical Justification (Design Report page number)	Distance Provided
BASIN MID-NORTH	P MID -N	Dry Extended Detention Basin	N	N	N	NA	Y	NA	Y	NA	NA
BARRACUDA S3	SF-PT	Hydro-dynamic Separator	Y	N	N	N	N	E	Y	NA	NA
SAND FILTER DC-780	P SF	Under-ground Chamber Sand Filter	N	Y	Y	NA	N	E	Y	NA	Conforms to 8.35.B.4
INF BASIN MID-WEST	P-MID -W	Infiltration Basin	N	N	N	NA	Y	NA	Y	NA	Conforms to 8.21.B.10

Table 5.3 Summary of Soils to Evaluate Each BMP									
BMP ID	**DP #**	**BMP Type** (e.g., bioretention, tree filter)	**Soils Analysis for Each BMP**						
			Test Pit ID# and Ground Elevation		SHWT Elevation (ft)**	Bottom of Practice Elevation* (ft)	Separation Distance Provided (ft)	Hydrologic Soil Group (A, B, C, D)	Exfiltration Rate Applied (in/hr)
			Primary	Secondary					
BASIN MID-NORTH	P MID-N	Dry Extended Detention Basin	Assumed (60”)		389.8	390.0	0.20	B	NA
SAND FILTER DC-780	P SF	Underground Chamber Sand Filter	Assumed (60”)		385.2	388.25	3.05	B	2.41
INF BASIN MID-WEST	P MID-W	Infiltration Basin	SEV-7		381.1	383.5	2.40	B	2.41

* For underground infiltration systems (UICs) bottom equals bottom of stone, for surface infiltration basins bottom equals bottom of basin, for filters bottom equals interface of storage and top of filter layer

** SHWT at worst case scenario within practice footprint

LAND USES WITH HIGHER POTENTIAL POLLUTANTS LOADS (LUHPPLs) – MINIMUM STANDARD 8			
YES	**NO**	**N/A**	
☐	☐	☒	Describe any LUHPPLs identified in Part 1, Minimum Standard 8, Section 2. If not applicable, continue to Minimum Standard 9.
☐	☐	☒	Are these activities already covered under an MSGP? If “No,” please explain if you have applied for an MSGP or intend to do so?

☐	☐	☒	List the specific BMPs that are proposed for this project that receive stormwater from LUHPPL drainage areas. These BMP types must be listed in RISDISM Table 3-3, "Acceptable BMPs for Use at LUHPPLs." Please list BMPs:
☐	☐	☒	Additional BMPs, or additional pretreatment BMP's if any, that meet RIPDES MSGP requirements; Please list BMPs:
			Indicate below where the pertinent calculations and/or information for the above items are provided (i.e., name of report/document, page numbers, appendices, etc.).

ILLICIT DISCHARGES – MINIMUM STANDARD 9

Illicit discharges are defined as unpermitted discharges to Waters of the State that do not consist entirely of stormwater or uncontaminated groundwater, except for certain discharges identified in the RIPDES Phase II Stormwater General Permit.

YES	NO	N/A	
☒	☐	☐	Have you checked for illicit discharges?
☐	☒	☐	Have any been found and/or corrected? If "Yes," please identify.
☐	☐	☒	Does your report explain preventative measures that keep non-stormwater discharges out of the Waters of the State (during and after construction)?

SOIL EROSION AND SEDIMENT CONTROL (SESC) – MINIMUM STANDARD 10

YES	NO	N/A		
☒	☐	☐	Have you included a Soil Erosion and Sediment Control Plan Set and/or Complete Construction Plan Set?	
☒	☐	☐	Have you provided a **separately-bound** document based upon the SESC Template? If yes, proceed to Minimum Standard 11 (the following items can be assumed to be addressed).	
			If "No," include a document with your submittal that addresses the following elements of an SESC Plan:	
			☐	Soil Erosion and Sediment Control Plan Project Narrative, including a description of how the fifteen (15) Performance Criteria have been met:
			☐	Provide Natural Buffers and Maintain Existing Vegetation
			☐	Minimize Area of Disturbance
			☐	Minimize the Disturbance of Steep Slopes
			☐	Preserve Topsoil
			☐	Stabilize Soils
			☐	Protect Storm Drain Inlets
			☐	Protect Storm Drain Outlets
			☐	Establish Temporary Controls for the Protection of Post-Construction Stormwater Control Measures
			☐	Establish Perimeter Controls and Sediment Barriers
			☐	Divert or Manage Run-On from Up-Gradient Areas
			☐	Properly Design Constructed Stormwater Conveyance Channels
			☐	Retain Sediment On-Site
			☐	Control Temporary Increases in Stormwater Velocity, Volume, and Peak Flows
			☐	Apply Construction Activity Pollution Prevention Control Measures
			☐	Install, Inspect, and Maintain Control Measures and Take Corrective Actions
			☐	Qualified SESC Plan Preparer's Information and Certification
			☐	Operator's Information and Certification; if not known at the time of application, the Operator must certify the SESC Plan upon selection and prior to initiating site activities
			☐	Description of Control Measures, such as Temporary Sediment Trapping and Conveyance Practices, including design calculations and supporting documentation, as required

STORMWATER MANAGEMENT SYSTEM OPERATION, MAINTENANCE, AND POLLUTION PREVENTION PLAN – MINIMUM STANDARDS 7 AND 9

Operation and Maintenance Section

YES	NO	
☒	☐	Have you minimized all sources of pollutant contact with stormwater runoff, to the maximum extent practicable?
☒	☐	Have you provided a **separately-bound** Operation and Maintenance Plan for the site and for all of the BMPs, and does it address each element of RICR 8.17 and RISDISM Appendix C and E?
☒	☐	Lawn, Garden, and Landscape Management meet the requirements of RISDISM Section G.7? If "No," why not?

☒	☐	Is the property owner or homeowner's association responsible for the stormwater maintenance of all BMP's? If "No," you must provide a legally binding and enforceable maintenance agreement (see RISDISM Appendix E, page 26) that identifies the entity that will be responsible for maintenance of the stormwater. Indicate where this agreement can be found in your report (i.e., name of report/document, page numbers, appendices, etc.).
☐	☒	Do you anticipate that you will need legal agreements related to the stormwater structures? (e.g. off-site easements, deed restrictions, covenants, or ELUR per the Remediation Regulations). If "Yes," have you obtained them? Or please explain your plan to obtain them: **N/A**
☒	☐	Is stormwater being directed from public areas to private property? If "Yes," note the following: Note: This is not allowed unless a funding mechanism is in place to provide the finances for the long-term maintenance of the BMP and drainage, or a funding mechanism is demonstrated that can guarantee the long-term maintenance of a stormwater BMP by an individual homeowner. **See above.**
Pollution Prevention Section		
☒	☐	Designated snow stockpile locations?
☐	☒	Trash racks to prevent floatables, trash, and debris from discharging to Waters of the State?
☒	☐	Asphalt-only based sealants?
☐	☒	Pet waste stations? (Note: If a receiving water has a bacterial impairment, and the project involves housing units, then this could be an important part of your pollution prevention plan). N/A
☒	☐	Regular sweeping? Please describe:
☐	☒	De-icing specifications, in accordance with RISDISM Appendix G. (NOTE: If the groundwater is GAA, or this area contributes to a drinking water supply, then this could be an important part of your pollution prevention plan).
☐	☒	A prohibition of phosphate-based fertilizers? (Note: If the site discharges to a phosphorus impaired waterbody, then this could be an important part of your pollution prevention plan).

PART 4. SUBWATERSHED MAPPING AND SITE-PLAN DETAILS

Existing and Proposed Subwatershed Mapping (REQUIRED)

YES	NO		
☒	☐		Existing and proposed drainage area delineations
☒	☐		Locations of all streams and drainage swales
☒	☐		Drainage flow paths, mapped according to the DEM *Guidance for Preparation of Drainage Area Maps* (included in RISDISM Appendix K)
☒	☐		Complete drainage area boundaries; include off-site areas in both mapping and analyses, as applicable
☒	☐		Logs of borings and/or test pit investigations along with supporting soils/geotechnical report
☒	☐		Mapped seasonal high-water-table test pit locations
☒	☐		Mapped locations of the site-specific borings and/or test pits and soils information from the test pits at the locations of the BMPs
☒	☐		Mapped locations of the BMPs, with the BMPs consistently identified on the Site Construction Plans
☐	☐		Mapped bedrock outcrops adjacent to any infiltration BMP **N/A**
☒	☐		Soils were logged by a:
		☒	DEM-licensed Class IV soil evaluator Name: Amber Hardy, M.S., D4098
		☐	RI-registered P.E. Name:

Subwatershed and Impervious Area Summary				
Subwatershed (area to each design point)	**First Receiving Water ID or MS4**	**Area Disturbed (units)**	**Existing Impervious (units)**	**Proposed Impervious (units)**
West (206,851 sf)	RI0006013R-07	18,568 SF	3,377 SF	4,230 SF
Mid-West (92,556 sf)	Groundwater	77,578 SF	12,460 SF	12,087 SF
Mid-North (324,967 sf)	Groundwater	37,074 SF		4,872 SF
Mid-South (34,893 sf)	Groundwater	27,419 SF		15,345 SF
South (61,010 sf)	RI0006013R-07	7,488 SF	25,665 sf	11,518 SF
East (51,511 sf)	RI0006013R-07	2,654 SF		25,665 SF
TOTALS:		170,781 SF/3.92 AC	41,502 SF/0.953 AC	73,717 SF/1.692 AC

Site Construction Plans (Indicate that the following applicable specifications are provided)		
YES	**NO**	
☒	☐	Existing and proposed plans (scale not greater than 1" = 40') with North arrow
☒	☐	Existing and proposed site topography (with 1 or 2-foot contours); 10-foot contours accepted for off-site areas
☒	☐	Boundaries of existing predominant vegetation and proposed limits of clearing
☒	☐	Site Location clarification
☒	☐	Location and field-verified boundaries of resource protection areas such as: ▸ freshwater and coastal wetlands, including lakes and ponds ▸ coastal shoreline features Perennial and intermittent streams, in addition to Areas Subject to Storm Flowage (ASSFs)
☒	☐	All required setbacks (e.g., buffers, water-supply wells, septic systems)
☒	☐	Representative cross-section and profile drawings, and notes and details of structural stormwater management practices and conveyances (i.e., storm drains, open channels, swales, etc.), which include: ▸ Location and size of the stormwater treatment practices (type of practice, depth, area). Stormwater treatment practices (BMPs) must have labels that correspond to RISDISM Table 5-2; ▸ Design water surface elevations (applicable storms); ▸ Structural details of outlet structures, embankments, spillways, stilling basins, grade-control structures, conveyance channels, etc.; ▸ Existing and proposed structural elevations (e.g., inverts of pipes, manholes, etc.); ▸ Location of floodplain and, if applicable, floodway limits and relationship of site to upstream and downstream properties or drainage that could be affected by work in the floodplain; ▸ Planting plans for structural stormwater BMPs, including species, size, planting methods, and maintenance requirements of proposed planting
☒	☐	Logs of borings and/or test pit investigations along with supporting soils/geotechnical report and corresponding water tables
☐	☒	Mapping of any OLRSMM-approved remedial actions/systems (including ELURs)
☒	☐	Location of existing and proposed roads, buildings, and other structures including limits of disturbance; ▸ Existing and proposed utilities (e.g., water, sewer, gas, electric) and easements; ▸ Location of existing and proposed conveyance systems, such as grass channels, swales, and storm drains, and location(s) of final discharge point(s) (wetland, waterbody, etc.); ▸ Cross sections of roadways, with edge details such as curbs and sidewalks; ▸ Location and dimensions of channel modifications, such as bridge or culvert crossings
☐	☒	Locations, cross sections, and profiles of all stream or wetland crossings and their method of stabilization

APPENDIX B SOIL EROSION AND SEDIMENT CONTROL (SESC) PLAN

Soil Erosion and Sediment Control Plan for:

Picozzi Plat Minor Subdivision

Read School House Road
Coventry, RI
Assessor's Plat 89, Lot 9

Owner:	Domenico A. Picozzi 506 Hope Furnace Road Hope, RI 02831 (401) 640-9185 dapicozzi3@icloud.com
Operator:	TBD
Estimated Project Dates:	Start Date: TBD Completion Date: TBD
SESC Plan Prepared By:	Commonwealth Engineers & Consultants, Inc. 400 Smith Street Providence, RI 02903 (401) 632-4650 Michael Zavalia, P.E. – Project Engineer MZavalia@Commonwealth-Eng.com
SESC Plan Preparation Date:	May 2026
SESC Plan Execution Date:	

OWNER CERTIFICATION

I certify under penalty of law that this document and all attachments were prepared under the direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete.

I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations. I am aware that it is the responsibility of the site owner and operator to implement and amend the Soil Erosion and Sediment Control Plan as appropriate in accordance with the requirements of the RIPDES Construction General Permit.

_____

Owner Signature: Date

Owner Name: _____

Owner Title: _____

Company Name:

Address: 506 Hope Furnace Road
Hope, RI 02831

Phone Number: (401) 640-9185

E-Mail Address: dapicozzi3@icloud.com

OPERATOR CERTIFICATION

I certify under penalty of law that this document and all attachments were prepared under the direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete.

I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations. I am aware that it is the responsibility of the owner/operator to implement and amend the Soil Erosion and Sediment Control Plan as appropriate in accordance with the requirements of the RIPDES Construction General Permit.

_____

Operator Signature: Date

Contractor Representative: Name

Contractor Title: Title

Contractor Company Name: Company Name (if applicable)

Address: Mailing Address

Phone Number: Phone Number

Email Address: Email

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INTRODUCTION

This Construction Site Soil Erosion and Sediment Control Plan (SESC Plan) has been prepared for Domenico A. Picozzi for the Picozzi Plat Minor Subdivision project. This SESC Plan provides guidance for complying with the terms and conditions of the RIPDES Construction General Permit and Minimum Standard 10 of the RI Stormwater Design and Installation Standards Manual. In addition, this SESC Plan is also consistent with Part D of the *RI SESC Handbook* entitled "Soil Erosion and Sediment Control Plans". This document does not negate or eliminate the need to understand and adhere to all applicable RIPDES regulations.

The purpose of erosion, runoff, and sedimentation control measures is to prevent pollutants from leaving the construction site and entering waterways or environmentally sensitive areas during and after construction. This SESC Plan has been prepared prior to the initiation of construction activities to address anticipated worksite conditions. The control measures depicted on the site plan and described in this narrative should be considered the minimum measures required to control erosion, sedimentation, and stormwater runoff at the site. Since construction is a dynamic process with changing site conditions, it is the operator's responsibility to manage the site during each construction phase so as to prevent pollutants from leaving the site. This may require the operator to revise and amend the SESC Plan during construction to address varying site and/or weather conditions, such as by adding or realigning erosion or sediment controls to ensure the SESC Plan remains compliant with the RIPDES Construction General Permit. Records of these changes must be added to the amendment log attached to the SESC Plan, and to the site plans as "red-lined" drawings. Please Note: **Even if practices are correctly installed on a site according to the approved plan, the site is only in compliance when erosion, runoff, and sedimentation are effectively controlled throughout the entire site.**

It is the responsibility of the site owner and the site operator to maintain the SESC Plan at the site, including all attachments, amendments, and inspection records, and to make all records available for inspection by RIDEM during and after construction. (RIPDES CGP - Part III.G)

The site owner, the site operator, and the designated site inspector are required to review the SESC Plan and sign the Party Certification pages (Section 8). The primary contractor (if different) and all subcontractors (if applicable) involved in earthwork or exterior construction activities are also required to review the SESC Plan and sign the certification pages before construction begins.

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ADDITIONAL RESOURCES

Rhode Island Department of Environmental Management
Office of Water Resources
RIPDES Permitting Program
235 Promenade Street
Providence, RI 02908-5767
phone: 401-222-4700
email: waterresources@dem.ri.gov

RIDEM Office of Water Resources website
http://www.dem.state.ri.us/programs/benviron/water/index.htm

RIDEM RIPDES website
http://www.dem.state.ri.us/programs/benviron/water/permits/ripdes/index.htm

RIDEM Water Quality website (for 303(d) and TMDL listings)
http://www.dem.ri.gov/programs/benviron/water/quality/index.htm

RIDEM Rhode Island Natural Heritage Program
http://www.dem.ri.gov/programs/bpoladm/plandev/heritage/index.htm

RIDEM Geographic Data Viewer – Environmental Resource Map
http://www.dem.ri.gov/maps/index.htm

RIDEM *RI Stormwater Design and Installation Standards Manual* (RISDISM) (as amended)
http://www.dem.state.ri.us/programs/benviron/water/permits/ripdes/stwater/t4guide/desman.htm

RIDEM, USDA Soil Conservation Service, and RI State Conservation Committee *Soil Erosion and Sediment Control Handbook* (as amended)
http://www.dot.ri.gov/documents/enviro/stormwater/Soil_Erosion_Sediment_Control_Handbook.pdf

Rhode Island Department of Transportation *Standard Specifications for Road and Bridge Design and Other Specifications* and *Standard Details*
http://www.dot.ri.gov/engineering/standards/index.asp

Natural Resources Conservation Service - Rhode Island Soil Survey Program
http://www.ri.nrcs.usda.gov/technical/soils.html

EPA NPDES Stormwater Pollution Prevention Plan Guidance website
http://cfpub.epa.gov/npdes/stormwater/SWPPP.cfm#guide

EPA National Menu of Stormwater Best Management Practices
http://cfpub.epa.gov/npdes/stormwater/menuofbmps

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SECTION 1: SITE DESCRIPTION

1.1 Project/Site Information

Project/Site Name:

- Picozzi Plat Minor Subdivision
- The subject parcel is located in Coventry near Read School House Road, off of the driveway to the Washington Oak Elementary School. The project proposes the construction of a cul-de-sac within a portion of the undeveloped parcel, subdivision of the remaining land into four (4) lots, and the development of each subdivided lot with a single-family residential dwelling, including associated individual septic systems, private wells, stormwater management features and other site improvements. The parcel is located within the Rural Residential 2 (RR-2) Zone.

Project Street/Location:

- Off of Read School House Road, Coventry, RI
- Assessor's Plat 89, Lot 9

The following are estimates of the construction site area:

- Total Project Area 170,780 s.f./3.92 acres
- Total Project Area to be Disturbed 170,780 s.f./3.92 acres

1.2 Receiving Waters

RIPDES CGP - Parts IV.A.7 & IV.A.8

List/description of separate storm sewer systems or drainage systems that may be impacted during construction and the water bodies that receive discharges from each storm sewer or drainage system:

- Groundwater, Wetlands, Poor Farm Brook

List/description of receiving waters that may be impacted during construction:

- Ultimate Receiving Water Body: Poor Farm Brook (RI0006013R-07)

Are any of the receiving waters in the vicinity of the proposed construction project listed as being impaired or subject to a TMDL?

☐ Yes ☒ No

If yes, List/provide description of 303(d)/TMDL waters and applicable TMDL requirements that must be addressed during construction: **N/A**

1.3 Natural Heritage Area Information

RIPDES CGP - Part III.H

Are there any Natural Heritage Areas being disturbed by the construction activity or will discharges be directed to the Natural Heritage Area as a result of the construction activity?

☐ Yes ☒ No

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If yes, describe or refer to documentation which determines the likelihood of an impact on this area and the steps that will be taken to address any impacts. **N/A**

1.4 Historic Preservation/Cultural Resources

Are there any historic properties, historic cemeteries or cultural resources on or near the construction site?

☐ Yes ☒ No

Describe how this determination was made and summarize state or tribal review comments:

- According to RIDEM RIGIS mapping, the site does not have any historic properties, historic cemeteries or cultural resources located within or near the development area.

If yes, describe or refer to documentation which determines the likelihood of an impact on this historic property, historic cemetery or cultural resource and the steps taken to address that impact including any conditions or mitigation measures that were approved by other parties. **N/A**

1.5 Site Features and Constraints

List All Site Constraints and Sensitive Areas that require avoidance and protection through the implementation of control measures:

- Poor Farm Brook runs along/across the western corner of the parcel; additionally, there are associated freshwater wetlands and variable-width buffers adjacent to the brook.
- There is a portion of an isolated wetland on the eastern corner of the parcel, as well as an associated fifty (50) foot buffer.

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SECTION 2: EROSION, RUNOFF, AND SEDIMENT CONTROL

RIPDES Construction General Permit – Part III.J.1

The purpose of erosion controls is to prevent sediment from being detached and moved by wind or the action of raindrop, sheet, rill, gully, and channel erosion. Properly installed and maintained erosion controls are the primary defense against sediment pollution.

Runoff controls are used to slow the velocity of concentrated water flows. By intercepting and diverting stormwater runoff to a stabilized outlet or treatment practice or by converting concentrated flows to sheet flow erosion and sedimentation are reduced.

Sediment controls are the last line of defense against moving sediment. The purpose is to prevent sediment from leaving the construction site and entering environmentally sensitive areas.

This section describes the set of control measures that will be installed before and during the construction project to avoid, mitigate, and reduce impacts associated with construction activity. Specific control measures and their applicability are contained in Section Four: Erosion Control Measures, Section Five: Runoff Control Measures, and Section Six: Sediment Control Measures of the *RI SESC Handbook*. The *RI SESC Handbook* can be found at the following address:

https://dem.ri.gov/sites/g/files/xkgbur861/files/programs/bnatres/water/pdf/riesc-handbook16.pdf

2.1 Avoid and Protect Sensitive Areas and Natural Features

Areas of existing and remaining vegetation and areas that are to be protected as identified in Section 1.5 of the SESC Plan must be clearly identified on the SESC Site Plans for each phase of construction. Prior to any land disturbance activities commencing on the site, the Contractor shall physically mark limits of disturbance (LOD) on the site and any areas to be protected within the site, so that workers can clearly identify the areas to be protected.

Feature Requiring Protection	Construction Phase #	Method of Protection	Sheet #
Site perimeter	All	Flagged stakes, construction fencing	7, 13

2.2 Minimize Area of Disturbance

Will >5 acres be disturbed in order to complete this project?

☐ Yes ☒ No

Will <5 acres be disturbed or will disturbance activities be completed within a six (6) month window?

☒ Yes ☐ No

Based on the answers to the above questions, will phasing be required for this project?

☐ Yes ☒ No

2.3 Minimize the Disturbance of Steep Slopes

Are steep slopes (>15%) present within the proposed project area?

☒ Yes ☐ No

There are isolated areas of land with slopes in excess of 15%; the proposed development avoids these areas to the extent possible, and proper earthwork and soil management techniques shall be employed for the steep-slope areas that must be disturbed by the construction.

2.4 Preserve Topsoil

Site owners and operators must preserve existing topsoil on the construction site to the maximum extent feasible and as necessary to support healthy vegetation, promote soil stabilization, and increase stormwater infiltration rates in the post-construction phase of the project.

Will existing topsoil be preserved at the site?

☒ Yes ☐ No

It is anticipated that topsoil areas to be disturbed shall be stockpiled on-site and/or hauled off-site. The contractor shall determine the appropriate stockpile locations. Stockpiles of topsoil and earth materials shall not be located near waterways. They shall have side slopes no greater than thirty percent (30%), shall also be seeded and/or stabilized and shall be completely encircled with staked straw bales and/or silt fence. The seed mix shall be inoculated within 24-hours before mixing and planting, with appropriate inoculum for each variety. The design mix utilized in all disturbed areas to be seeded shall be comprised of the following:

Type	Percent by Weight
Creeping Red Fescue	70
Astoria Bentgrass	5
Birdfoot Treefoil	15
Perennial Ryegrass	10
Application Rate	100 lb/acre

Please refer to the stockpile detail and the SESC notes on Sheet 13.

Soil compaction must be minimized by maintaining limits of disturbance throughout construction. In instances where site soils are compacted, the site owner and operator must restore infiltration capacity of the compacted soils by tilling or scarifying compacted soils and amending soils as necessary to ensure a minimum depth of topsoil is available in these areas. In areas where infiltrating stormwater treatment practices are located compacted soils must be amended such that they will comply the design infiltration rates established in the *RI Stormwater Design and Installation Standards Manual*.

It is anticipated that any required topsoil will be processed on-site. The topsoil shall have a sandy loam texture relatively free of subsoil material, stones, roots, lumps of soil, tree limbs, trash or construction debris and shall conform with Rhode Island Standard Specification M.18.02.

2.5 Stabilize Soils

Upon completion and acceptance of site preparation and initial installation of erosion, runoff, and sediment controls and temporary pollution prevention measures, the operator shall initiate appropriate temporary or permanent stabilization practices during all phases of construction on all disturbed areas as soon as possible, but not more than fourteen (14) days after the construction activity in that area has temporarily or permanently ceased.

Any disturbed areas that will not have active construction activity occurring within 14 days must be stabilized using the control measures depicted in the SESC Site Plans, in accordance with the *RI SESC Handbook*, and per manufacturer product specifications.

Only areas that can be reasonably expected to have active construction work being performed within 14 days of disturbance will be cleared/grubbed at any one time. It is NOT acceptable to clear and grub the entire construction site if portions will not be active within the 14-day time frame. Proper phasing of clearing

and grubbing activities shall include temporary stabilization techniques for areas cleared and grubbed that will not be active within the 14-day time frame.

All disturbed soils exposed prior to October 15 of any calendar year shall be seeded by that date if vegetative measures are the intended soil stabilization method. Any such areas that do not have adequate vegetative stabilization, as determined by the site operator or designated inspector, by November 15, must be stabilized through the use of non-vegetative erosion control measures. If work continues within any of these areas during the period from October 15 through April 15, care must be taken to ensure that only the area required for that day's work is exposed, and all erodible soil must be restabilized within 5 working days. In limited circumstances, stabilization may not be required if the intended function of a specific area of the site necessitates that it remain disturbed (i.e. construction of a motocross track).

Temporary Vegetative Control Measures

- All disturbed areas shall be permanently stabilized with approved ground cover prior to the completion of the project. Areas exposed for extended periods are to be completely covered with spread straw mulch.
- Stabilization of one form or another as described above shall be achieved within fifteen (15) days of final grading.
- All disturbed areas must be seeded, planted, or rip rapped within the construction season.
- Temporary seeding must be completed within one (1) month after disturbance.
- All disturbed areas must be permanently seeded, planted or riprapped before October 1st'; if not, they must be temporarily seeded.
- See notes and details on Sheet 13.

Temporary Non-Vegetative Control Measures

- A continuous line of silt socks, staked straw bales or silt fence must be installed in all locations shown on the approved site plans and where otherwise necessary to prevent sediment from entering downstream waterways and stormwater drainage systems.
- Areas exposed for extended periods are to be completely covered with spread straw mulch.
- Catch basins shall be protected with straw bale filters throughout the construction period and until all disturbed areas are thoroughly stabilized. Sumps are to be cleaned out immediately following installation of permanent pavement.
- Outfalls shall be protected by straw bale filters until disturbed areas are permanently stabilized with approved ground cover.
- On both steep and long slopes, considering should be given to "crimping" or "tracking" to tack down mulch applications.
- All control measures shall be maintained in effective condition throughout the construction period.
- Sheet 5 shows the location of soil erosion and sediment control measures for the site.
- See Sheet 13 for notes and details.

Permanent Vegetative Control Measures

- All proposed plantings and placement of riprap must be accomplished as early as possible upon completion of grading and construction, and at least prior to any on-site occupancy.
- All proposed plantings must be maintained by the responsible party to ensure survival.
- Should any or all the proposed plants fail to survive at least one (1) full growing season from the time they have been planted, the contractor shall be fully responsible for replacing and maintaining the same plant species for one (1) additional growing season.
- See notes on Sheet 13.

Permanent Non-Vegetative Control Measures

- Riprap shall be placed wherever it is called for on the plans.
- All other non-vegetative control measures are permanent impervious surfaces, such as asphalt and concrete.
- See notes and details on Sheet 13.

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2.6 Protect Storm Drain Outlets

Temporary or permanent outlet protection must be used to prevent scour and erosion at discharge points through the protection of the soil surface, reduction in discharge velocities, and through the promotion of infiltration. Outlets often have high velocity, high volume flows, and require strong materials that will withstand the forces of stormwater. Storm drain outlet control measures also offer a last line of protection against sediment entering environmentally sensitive areas.

All stormwater outlets that may discharge sediment-laden stormwater flow from the construction site must be protected using the control practices depicted on the approved plan set and in accordance with the *RI SESC Handbook*.

Will temporary or permanent point source discharges be generated at the site as the result of construction of sediment traps or basins, diversions, and conveyance channels?

☒ Yes ☐ No

- Compost filter socks will be placed to protect discharges from point source locations until site stabilization is complete.
- As depicted on the drawings, riprap will be placed to mitigate the velocity of flows from of outfalls.

2.7 Establish Temporary Controls for the Protection of Post-Construction Stormwater Treatment Practices

Temporary measures shall be installed to protect permanent or long-term stormwater control and treatment measures as they are installed and throughout the construction phase of the project so that they will function properly when they are brought online.

Will long-term stormwater treatment practices be installed at the site?

☒ Yes ☐ No

The following stormwater best management practices (BMPs) are proposed for the site:

- Underground Chamber Sand Filter System
- Dry Extended Detention Basin
- Infiltration Basin

For all BMPs, compost filter socks and/or inlet protection shall be utilized. Construction vehicles shall not be allowed to drive over the BMP's during construction. If the area becomes compacted, soil must be suitably amended, tilled, and revegetated once construction is complete to restore the infiltration capacity. This note can be found on Sheet 13.

2.8 Divert or Manage Run-on from Up-gradient Areas

Is stormwater from off-site areas anticipated to flow onto the project area or onto areas where soils will be disturbed?

☒ Yes ☐ No

- Stormwater entering the site from off-site areas is coming from predominantly wooded areas. If required, compost filter socks shall be utilized to protect the site from off-site stormwater run-on.

Existing and Proposed Conditions watershed maps are included in Appendix G of the Stormwater Management Narrative Report.

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Structural control measures will be used to limit stormwater flow from coming onto the project area, and to divert and slow on-site stormwater flow that is expected to impact exposed soils for the purpose of minimizing erosion, runoff, and the discharge of pollutants from the site.

Control measures shall be installed as depicted on the approved plan set and in accordance with the *RI SESC Handbook* or the *RI Department of Transportation Standard Specifications for Road and Bridge Construction*. **Run-on and Run-off Management**				
Construction Phase #	On-site or Off-site Run-on?	Control measure	Identified on Sheet #	Detail(s) is/are on Sheet #
All	Off - Site	Compost filter sock	7	13

2.9 Retain Sediment Onsite through Structural and Non-Structural Practices

SEDIMENT BARRIERS must be installed along the perimeter areas of the site that will receive stormwater from disturbed areas. This also may include the use of sediment barriers along the contour of disturbed slopes to maintain sheet flow and minimize rill and gully erosion during construction. Installation and maintenance of sediment barriers must be completed in accordance with the maintenance requirements specified by the product manufacturer or the *RI SESC Handbook*.

Will sediment barriers be utilized at the toe of slopes and other downgradient areas subject to stormwater impacts and erosion during construction?

☒ Yes ☐ No

Will sediment barriers be utilized along the contour of slopes to maintain sheet flow and minimize rill and gully erosion during construction?

☒ Yes ☐ No

SEDIMENT BARRIERS			
Construction Phase #	Sediment Barrier Type	Sediment Barrier is Labeled on Sheet #	Detail is on Sheet #
All	Compost filter sock	7	13

INLET PROTECTION will be utilized to prevent soil and debris from entering storm drain inlets. These measures are usually temporary and are implemented before a site is disturbed. ALL stormwater inlets and/or catch basins that are operational during construction and have the potential to receive sediment-laden stormwater flow from the construction site must be protected using control measures outlined in the *RI SESC Handbook*.

For more information on inlet protection refer to the *RI SESC Handbook*, Inlet Protection control measure.

Maintenance

The operator must clean, or remove and replace the inlet protection measures as sediment accumulates, the filter becomes clogged, and/or as performance is compromised. Accumulated sediment adjacent to the inlet protection measures should be removed by the end of the same workday in which it is found or by the end of the following work day if removal by the same work day is not feasible.

Do inlets exist adjacent to or within the project area that require temporary protection?

☒ Yes ☐ No

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INLET PROTECTION MEASURES			
Construction Phase #	Sediment Barrier Type	**Sediment Barrier is Labeled on Sheet #**	**Detail is on Sheet #**
All	Silt sack	7	13

CONSTRUCTION ENTRANCES will be used in conjunction with the stabilization of construction roads to reduce the amount of sediment tracking off the project. This project has avoided placing construction entrances on poorly drained soils where possible. Where poorly drained soils could not be eliminated, the detail includes subsurface drainage.

Any construction site access point must employ the control measures on the approved SESC site plans and in accordance with the *RI SESC Handbook*. Construction entrances shall be used in conjunction with the stabilization of construction roads to reduce the amount of mud picked up by construction vehicles. All construction access roads shall be constructed prior to any roadway accepting construction traffic.

The site owner and operator must:

1. Restrict vehicle use to properly designated exit points.
2. Use properly designed and constructed construction entrances at all points that exit onto paved roads so that sediment removal occurs prior to vehicle exit.
3. When and where necessary, use additional controls to remove sediment from vehicle tires prior to exit (i.e. wheel washing racks, rumble strips, and rattle plates).
4. Where sediment has been tracked out from the construction site onto the surface of off-site streets, other paved areas, and sidewalks, the deposited sediment must be removed by the end of the same workday in which the track out occurs. Track-out must be removed by sweeping, shoveling, or vacuuming these surfaces, or by using other similarly effective means of sediment removal.

Will construction entrances be utilized at the proposed construction site?

☒ Yes ☐ No

CONSTRUCTION ENTRANCE			
Construction Phase #	Soil Type at the Entrance	Entrance is located on Sheet #	Detail is on Sheet #
All	RI Standard 9.9.0	7	13

STOCKPILE CONTAINMENT will be used onsite to minimize or eliminate the discharge of soil, topsoil, base material or rubble, from entering drainage systems or surface waters. All stockpiles must be located within the limit of disturbance, protected from run-on with the use of temporary sediment barriers and provided with cover or stabilization to avoid contact with precipitation and wind where and when practical.

Stockpile management consists of procedures and practices designed to minimize or eliminate the discharge of stockpiled material (soil, topsoil, base material, rubble) from entering drainage systems or surface waters.

For any stockpiles or land clearing debris composed, in whole or in part, of sediment or soil, you must comply with the following requirements:

1. Locate piles within the designated limits of disturbance.
2. Protect from contact with stormwater (including run-on) using a temporary perimeter sediment barrier.
3. Where practicable, provide cover or appropriate temporary vegetative or structural stabilization to avoid direct contact with precipitation or to minimize sediment discharge.

4. NEVER hose down or sweep soil or sediment accumulated on pavement or other impervious surfaces into any stormwater conveyance, storm drain inlet, or surface water.
5. To the maximum extent practicable, contain and securely protect from wind.

STOCKPILE CONTAINMENT				
Construction Phase #	Run-on measures necessary? (yes/no)	Stabilization or Cover Type	Stockpile Containment Measure	Sheet #
All	No	Topsoil	Stockpile detail & notes	7, 13
All	No	Rock / Gravel	Stockpile detail & notes	7, 13

CONSTRUCTED SEDIMENT STRUCTURES

Are temporary sediment traps required at the site?

☐ Yes ☒ No

TEMPORARY SEDIMENT BASIN(S) shall be utilized onsite as appropriate. Every effort must be made to prevent erosion and control it near the source.

Are temporary sediment basins required at the site?

☐ Yes ☒ No

2.10 Properly Design Constructed Stormwater Conveyance Channels

Are temporary stormwater conveyance practices required in order to properly manage runoff within the proposed construction project?

☐ Yes ☒ No

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2.11 Erosion, Runoff, and Sediment Control Measure List

This table and corresponding Inspection Reports shall be amended as needed throughout the construction project as control measures are added or modified.

Phase No. #		
Location/Station	**Control Measure Description/Reference**	**Maintenance Requirement**
Site perimeter and proposed BMP areas	Straw bales, silt sock barriers / Chapter Five, Section F, RI Soil Erosion and Sediment Control Handbook	Inspection should be made after each storm event or 1/week and repair or replacement should be made promptly as needed. Cleanout of accumulated sediment behind the wattle if sediment accumulates to at least ½ the original height of the barrier.
Construction entrance	Stabilized construction entrance / stone stabilized pad / Chapter Five, Section I, RI Soil Erosion and Sediment Control Handbook	The entrance shall be maintained in a condition which will prevent tracking or flowing of sediment onto pave surfaces. Provide periodic top dressing with additional stone or additional length as conditions demand. Roads adjacent to entrance shall be clean at the end of each day. If maintenance alone is not enough to prevent excessive track out, increase length of entrance, modify construction access road surface, or install washrack or mudrack.

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SECTION 3: CONSTRUCTION ACTIVITY POLLUTION PREVENTION

The purpose of construction activity pollution prevention is to prevent day to day construction activities from causing pollution.

This section describes the key pollution prevention measures that must be implemented to avoid and reduce the discharge of pollutants in stormwater. Example control measures include the proper management of waste, material handling and storage, and equipment/vehicle fueling/washing/maintenance operations.

Where applicable, include *RI SESC Handbook* or the *RI Department of Transportation Standard Specifications for Road and Bridge Construction* (as amended) specifications.

3.1 Existing Data of Known Discharges from Site

Are there known discharges from the project area?

☐ Yes ☒ No

Describe how this determination was made:

- The property is currently undeveloped.

If yes, list discharges and locations: **N/A**

Is there existing data on the quality of the known discharges?

☐ Yes ☒ No

If yes, provide data: **N/A**

3.2 Prohibited Discharges

The following discharges are prohibited at the construction site:

- Contaminated groundwater, unless specifically authorized by the DEM. These types of discharges may only be authorized under a separate DEM RIPDES permit.
- Wastewater from washout of concrete, unless the discharge is contained and managed by appropriate control measures.
- Wastewater from washout and cleanout of stucco, paint, form release oils, curing compounds, and other construction materials.
- Fuels, oils, or other pollutants used in vehicle and equipment operation and maintenance. Proper storage and spill prevention practices must be utilized at all construction sites.
- Soaps or solvents used in vehicle and equipment washing.
- Toxic or hazardous substances from a spill or other release.

All types of waste generated at the site shall be disposed of in a manner consistent with State Law and/or regulations.

Will any of the above listed prohibited discharges be generated at the site?

☐ Yes ☒ No

Construction will be consistent with typical residential construction.

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3.3 Proper Waste Disposal

Building materials and other construction site wastes must be properly managed and disposed of in a manner consistent with State Law and/or regulations.

- A waste collection area shall be designated on the site that does not receive a substantial amount of runoff from upland areas and does not drain directly to a waterbody or storm drain.
- All waste containers shall be covered to avoid contact with wind and precipitation.
- Waste collection shall be scheduled frequently enough to prevent containers from overfilling.
- All construction site wastes shall be collected, removed, and disposed of in accordance with applicable regulatory requirements and only at authorized disposal sites.
- Equipment and containers shall be checked for leaks, corrosion, support or foundation failure, or other signs of deterioration. Those that are found to be defective shall be immediately repaired or replaced.

Is waste disposal a significant element of the proposed project?

☐ Yes ☒ No

Construction will be consistent with typical residential construction.

3.4 Spill Prevention and Control

All chemicals and/or hazardous waste material must be stored properly and legally in covered areas, with containment systems constructed in or around the storage areas. Areas must be designated for materials delivery and storage. All areas where potential spills can occur and their accompanying drainage points must be described. The owner and operator must establish spill prevention and control measures to reduce the chance of spills, stop the source of spills, contain and clean-up spills, and dispose of materials contaminated by spills. The operator must establish and make highly visible location(s) for the storage of spill prevention and control equipment and provide training for personnel responsible for spill prevention and control on the construction site.

Are spill prevention and control measures required for this particular project?

☐ Yes ☒ No

Construction is consistent with typical roadway and residential construction. Additionally, reference is made to the Stormwater System Operation and Maintenance (O&M) plan.

3.5 Control of Allowable Non-Stormwater Discharges

Are there allowable non-Stormwater discharges present on or near the project area?

☐ Yes ☒ No

List of allowable non-stormwater discharge(s) and the associated control measure(s):

- N/A

Are there any known or proposed contaminated discharges, including anticipated contaminated dewatering operations, planned on or near the project area?

☐ Yes ☒ No

If yes, list the discharge types and the RIPDES individual permit number(s) or RIPDES Remediation General Permit Authorization number(s) associated with these discharges. **N/A**

3.6 Control Dewatering Practices

Site owners and operators are prohibited from discharging groundwater or accumulated stormwater that is removed from excavations, trenches, foundations, vaults, or other similar points of accumulation, unless such waters are first effectively managed by appropriate control measures.

Examples of appropriate control measures include, but are not limited to, temporary sediment basins or sediment traps, sediment socks, dewatering tanks and bags, or filtration systems (e.g. bag or sand filters) that are designed to remove sediment. Uncontaminated, non-turbid dewatering water can be discharged without being routed to a control.

At a minimum the following discharge requirements must be met for dewatering activities:

1. Do not discharge visible floating solids or foam.

2. To the extent feasible, utilize vegetated, upland areas of the site to infiltrate dewatering water before discharge. In no case will surface waters be considered part of the treatment area.

3. At all points where dewatering water is discharged, utilize velocity dissipation devices.

4. With filter backwash water, either haul it away for disposal or return it to the beginning of the treatment process.

5. Replace and clean the filter media used in dewatering devices when the pressure differential equals or exceeds the manufacturer's specifications.

6. Dewatering practices must involve the implementation of appropriate control measures as applicable (i.e. containment areas for dewatering earth materials, portable sediment tanks and bags, pumping settling basins, and pump intake protection.)

Is it at all likely that the site operator will need to implement construction dewatering in order to complete the proposed project?

☒ Yes ☐ No

- The on-site soil evaluations performed located groundwater at depths/elevations that may be exposed during construction, and the observed on-site soils have limited exfiltration capacity that will mandate the need to dewater groundwater-inundated excavations. If required, dewatering basins shall be installed and maintained by the Contractor at appropriate locations to accommodate their dewatering operations.

3.7 Establish Proper Building Material Staging Areas

All construction materials that have the potential to contaminate stormwater must be stored properly and legally in covered areas, with containment systems constructed in or around the storage areas. Areas must be designated for materials delivery and storage. Designated areas shall be approved by the site owner/engineer. Minimization of exposure is not required in cases where the exposure to precipitation and to stormwater will not result in the discharge of pollutants, or where exposure of a specific material or product poses little risk of stormwater contamination (such as final products and materials intended for outdoor use).

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The following materials or substances will potentially be present on-site during construction:

- Fertilizers
- Petroleum Based Products (Gasoline, Diesel Fuel, Motor Oil)
- Cleaning Solvents
- Bituminous Concrete Asphalt
- Cement Concrete
- Detergents
- Wood
- Liquid Asphalt/Tar

3.8 Minimize Dust

Dust control procedures and practices shall be used to suppress dust on a construction site during the construction process, as applicable. Precipitation, temperature, humidity, wind velocity and direction will determine amount and frequency of applications. However, the best method of controlling dust is to prevent dust production. This can best be accomplished by limiting the amount of bare soil exposed at one time. Dust Control measures outlined in the *RI SESC Handbook* shall be followed. Other dust control methods include watering, chemical application, surface roughening, wind barriers, walls, and covers.

- Water shall be used to moisten exposed soil surfaces periodically. An adequate amount should be used to control dust. Refer to Notes and Details on Sheet 13.

3.9 Designate Washout Areas

At no time shall any material (concrete, paint, chemicals) be washed into storm drains, open ditches, streets, streams, wetlands, or any environmentally sensitive area. The site operator must ensure that construction waste is properly disposed of, to avoid exposure to precipitation, at the end of each working day.

Will washout areas be required for the proposed project?

☒ Yes ☐ No

- The contractor shall determine concrete washout locations.

3.10 Establish Proper Equipment/Vehicle Fueling and Maintenance Practices

Vehicle fueling shall not take place within regulated wetlands or buffer zone areas, or within 50-feet of the storm drain system. Designated areas shall be depicted on the SESC Site Plans, or shall be approved by the site owner.

Vehicle maintenance and washing shall occur off-site, or in designated areas depicted on the SESC Site Plans or approved of by the site owner. Maintenance or washing areas shall not be within regulated wetlands or buffer zone areas, or within 50-feet of the storm drain system. Maintenance areas shall be clearly designated, and barriers shall be used around the perimeter of the maintenance area to prevent stormwater contamination.

Construction vehicles shall be inspected frequently for leaks. Repairs shall take place immediately. Disposal of all used oil, antifreeze, solvents and other automotive-related chemicals shall be according to applicable regulations; at no time shall any material be washed down the storm drain or into any environmentally sensitive area.

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3.11 Chemical Treatment for Erosion and Sediment Control

Chemical stabilizers, polymers, and flocculants are readily available on the market and can be easily applied to construction sites for the purposes of enhancing the control of erosion, runoff, and sedimentation. The following guidelines should be adhered to for construction sites that plan to use treatment chemicals as part of their overall erosion, runoff, and sedimentation control strategy.

The U.S. Environmental Protection Agency has conducted research into the relative toxicity of chemicals commonly used for the treatment of construction stormwater discharges. The research conducted by the EPA focused on different formulations of chitosan, a cationic compound, and both cationic and anionic polyacrylamide (PAM). In summary, the studies found significant toxicity resulting from the use of chitosan and cationic PAM in laboratory conditions, and significantly less toxicity associated with using anionic PAM. EPA's research has led to the conclusion that the use of treatment chemicals for erosion, runoff, and sedimentation control requires proper operator training and appropriate usage to avoid risk to aquatic species. In the case of cationic treatment chemicals additional safeguards may be necessary.

Application/Installation Minimum Requirements

If a site operator plans to use polymers, flocculants, or other treatment chemicals during construction the SESC plan must address the following:

1. Treatment chemicals shall not be applied directly to or within 100 feet of any surface water body, wetland, or storm drain inlet.
2. Use conventional erosion, runoff, and sedimentation controls prior to and after the application of treatment chemicals. Use conventional erosion, runoff, and sedimentation controls prior to chemical addition to ensure effective treatment. Chemicals may only be applied where treated stormwater is directed to a sediment control (e.g. temporary sediment basin, temporary sediment trap or sediment barrier) prior to discharge.
3. Sites shall be stabilized as soon as possible using conventional measures to minimize the need to use chemical treatment.
4. Select appropriate treatment chemicals. Chemicals must be selected that are appropriately suited to the types of soils likely to be exposed during construction and to the expected turbidity, pH, and flow rate of stormwater flowing into the chemical treatment system or treatment area. **Soil testing is essential. Using the wrong form of chemical treatment will result in some form of performance failure and unnecessary environmental risk.**
5. Minimize discharge risk from stored chemicals. Store all treatment chemicals in leak-proof containers that are kept under storm-resistant cover and surrounded by secondary containment structures (e.g., spill berms, decks, spill containment pallets), or provide equivalent measures, designed and maintained to minimize the potential discharge of treatment chemicals in stormwater or by any other means (e.g., storing chemicals in covered areas or having a spill kit available on site).
6. Use chemicals in accordance with good engineering practices and specifications of the chemical provider/supplier. You must also use treatment chemicals and chemical treatment systems in accordance with good engineering practices, and with dosing specifications and sediment removal design specifications provided by the supplier of the applicable chemicals, or document specific departures from these practices or specifications and how they reflect good engineering practice.

Will chemical stabilizers, polymers, flocculants or other treatment chemicals be utilized on the proposed construction project?

☐ Yes ☒ No

3.12 Construction Activity Pollution Prevention Control Measure List

Phase No. #		
Location/Station	**Control Measure Description/Reference**	**Maintenance Requirement**
TO BE COMPLETED BY CONTRACTOR, AS NECESSARY	TO BE COMPLETED BY CONTRACTOR, AS NECESSARY	TO BE COMPLETED BY CONTRACTOR, AS NECESSARY

This table shall be amended as needed throughout the construction project.

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SECTION 4: CONTROL MEASURE INSTALLATION, INSPECTION, and MAINTENANCE

1.1 Installation

Complete the installation of temporary erosion, runoff, sediment, and pollution prevention control measures by the time each phase of earth-disturbance has begun. All stormwater control measures must be installed in accordance with good judgment, including applicable design and manufacturer specifications. Installation techniques and maintenance requirements may be found in manufacturer specifications and/or the *RI SESC Handbook*.

Please refer to SESC details on Sheet 13.

1.2 Monitoring Weather Conditions

Anticipating Weather Events - Care will be taken to the best of the operator's ability to avoid disturbing large areas prior to anticipated precipitation events. Weather forecasts must be routinely checked, and in the case of an expected precipitation event of over 0.25-inches over a 24-hour period, it is highly recommended that all control measures should be evaluated and maintained as necessary, prior to the weather event. In the case of an extreme weather forecast (greater than one-inch of rain over a 24-hour period), additional erosion/sediment controls may need to be installed.

Storm Event Monitoring for Inspections - At a minimum, storm events must be monitored and tracked in order to determine when post-storm event inspections must be conducted. Inspections must be conducted and documented at least once every seven (7) calendar days and within twenty-four (24) hours after any storm event, which generates at least 0.25 inches of rainfall per twenty-four (24) hour period and/or after a significant amount of runoff or snowmelt.

The weather gauge station and website that will be utilized to monitor weather conditions on the construction site is as follows:

Arkwright Village, Coventry RI - KRICOVEN40

https://www.wunderground.com/weather/us/ri/hope

1.3 Inspections

Minimum Frequency - Each of the following areas must be inspected by or under the supervision of the owner and operator at least once every seven (7) calendar days and within twenty-four (24) hours after any storm event, which generates at least 0.25 inches of rainfall per twenty-four (24) hour period and/or after a significant amount of runoff or snowmelt:

a. All areas that have been cleared, graded, or excavated and where permanent stabilization has not been achieved;

b. All stormwater erosion, runoff, and sediment control measures (including pollution prevention control measures) installed at the site;

c. Construction material, unstabilized soil stockpiles, waste, borrow, or equipment storage, and maintenance areas that are covered by this permit and are exposed to precipitation;

d. All areas where stormwater typically flows within the site, including temporary drainage ways designed to divert, convey, and/or treat stormwater;

e. All points of discharge from the site;

f. All locations where temporary soil stabilization measures have been implemented;

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g. All locations where vehicles enter or exit the site.

Reductions in Inspection Frequency - If earth disturbing activities are suspended due to frozen conditions, inspections may be reduced to a frequency of once per month. The owner and operator must document the beginning and ending dates of these periods in an inspection report.

Qualified Personnel – The site owner and operator are responsible for designating personnel to conduct inspections and for ensuring that the personnel who are responsible for conducting the inspections are "qualified" to do so. A "qualified person" is a person knowledgeable in the principles and practices of erosion, runoff, sediment, and pollution prevention controls, who possesses the skills to assess conditions at the construction site that could impact stormwater quality, and the skills to assess the effectiveness of any stormwater controls selected and installed to meet the requirements of the permit.

Recordkeeping Requirements - All records of inspections, including records of maintenance and corrective actions must be maintained with the SESC Plan. Inspection records must include the date and time of the inspection, and the inspector's name, signature, and contact information.

General Notes

- A separate inspection report will be prepared for each inspection.
- The Inspection Reference Number shall be a combination of the RIPDES Construction General Permit No - consecutively numbered inspections. ex/ Inspection reference number for the **4**th inspection of a project would be: RIR10#####-**4**
- Each report will be signed and dated by the Inspector and must be kept onsite.
- Each report will be signed and dated by the Site Operator.
- The corrective action log contained in each inspection report must be completed, signed, and dated by the site operator once all necessary repairs have been completed.
- It is the responsibility of the site operator to maintain a copy of the SESC Plan, copies of all completed inspection reports, and amendments as part of the SESC Plan documentation at the site during construction.

Failure to make and provide documentation of inspections and corrective actions under this part constitutes a violation of your permit and enforcement actions under 46-12 of R.I. General Laws may result.

1.4 Maintenance

Maintenance procedures for erosion and sedimentation controls and stormwater management structures/facilities are described on the SESC Site Plans and in the *RI SESC Handbook*.

Site owners and operators must ensure that all erosion, runoff, sediment, and pollution prevention controls remain in effective operating condition and are protected from activities that would reduce their effectiveness. Erosion, runoff, sedimentation, and pollution prevention control measures must be maintained throughout the course of the project.

Note: It is recommended that the site operator designates a full-time, on-site contact person responsible for working with the site owner to resolve SESC Plan-related issues.

1.5 Corrective Actions

If, in the opinion of the designated site inspector, corrective action is required, the inspector shall note it on the inspection report and shall inform the site operator that corrective action is necessary. The site operator must make all necessary repairs whenever maintenance of any of the control measures instituted at the site is required.

In accordance with the *RI SESC Handbook*, the site operator shall initiate work to fix the problem immediately after its discovery, and complete such work by the close of the next work day, if the problem does not require significant repair or replacement, or if the problem can be corrected through routine maintenance.

When installation of a new control or a significant repair is needed, site owners and operators must ensure that the new or modified control measure is installed and made operational by no later than seven (7) calendar days from the time of discovery where feasible. If it is infeasible to complete the installation or repair within seven (7) calendar days, the reasons why it is infeasible must be documented in the SESC Plan along with the schedule for installing the control measures and making it operational as soon as practicable after the 7-day timeframe. Such documentation of these maintenance procedures and timeframes should be described in the inspection report in which the issue was first documented. If these actions result in changes to any of the control measures outlined in the SESC Plan, site owners and operators must also modify the SESC Plan accordingly within seven (7) calendar days of completing this work.

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SECTION 5: AMENDMENTS

This SESC Plan is intended to be a working document. It is expected that amendments will be required throughout the active construction phase of the project. **Even if practices are installed on a site according to the approved plan, the site is only in compliance when erosion, runoff, and sedimentation are effectively controlled throughout the entire site for the entire duration of the project.**

The SESC Plan shall be amended within seven (7) days whenever there is a change in design, construction, operation, maintenance or other procedure which has a significant effect on the potential for the discharge of pollutants, or if the SESC Plan proves to be ineffective in achieving its objectives (i.e. the selected control measures are not effective in controlling erosion or sedimentation).

In addition, the SESC Plan shall be amended to identify any new operator that will implement a component of the SESC Plan.

All revisions must be recorded in the Record of Amendments Log Sheet, which is contained in Attachment G of this SESC Plan, and dated red-lined drawings and/or a detailed written description must be appended to the SESC Plan. Inspection Forms must be revised to reflect all amendments. Update the Revision Date and the Version # in the footer of the Report to reflect amendments made.

All SESC Plan Amendments, except minor non-technical revisions, must be approved by the site owner and operator. Any amendments to control measures that involve the practice of engineering must be reviewed, signed, and stamped by a Professional Engineer registered in the State of RI.

The amended SESC plan must be kept on file at the site while construction is ongoing and any modifications must be documented.

Attach a copy of the Amendment Log.

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SECTION 6: RECORDKEEPING

RIPDES Construction General Permit – Parts III.D, III.G, III.J.3.b.iii, & V.O

It is the site owner and site operator's responsibility to have the following documents available at the construction site and immediately available for RIDEM review upon request:

- A copy of the fully signed and dated SESC Plan, which includes:
  - A copy of the General Location Map
    INCLUDED AS ATTACHMENT A
  - A copy of all SESC Site Plans
    INCLUDED AS ATTACHMENT B
  - A copy of any regulatory permits (Town of Coventry Planning Approval, etc.)
    INCLUDED AS ATTACHMENT D
  - Completed Inspection Reports w/Completed Corrective Action Logs
    INCLUDED AS ATTACHMENT F
  - SESC Plan Amendment Log
    INCLUDED AS ATTACHMENT G

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SECTION 7: PARTY CERTIFICATIONS

RIPDES Construction General Permit – Part V.G

All parties working at the project site are required to comply with the Soil Erosion and Sediment Control Plan (SESC Plan including SESC Site Plans) for any work that is performed on-site. The site owner, site operator, contractors and sub-contractors are encouraged to advise all employees working on this project of the requirements of the SESC Plan. A copy of the SESC Plan is available for your review at the following location: Insert Onsite Location Here, or may be obtained by contacting the site owner or site operator.

The site owner and site operator and each subcontractor engaged in activities at the construction site that could impact stormwater must be identified and sign the following certification statement.

I acknowledge that I have read and understand the terms and conditions of the Soil Erosion and Sediment Control (SESC) Plan for the above designated project and agree to follow the control measures described in the SESC Plan and SESC Site Plans.

Site Owner:
Domenic A. Picozzi
506 Hope Furnace Road
Hope, RI 02831
(401) 640-9185

_____
signature/date

Site Operator: TBD
Insert Company or Organization Name
Insert Name & Title
Insert Address
Insert City, State, Zip Code
Insert Telephone Number, Insert Fax/Email

_____
signature/date

Designated Site Inspector: TBD
Insert Company or Organization Name
Insert Name & Title
Insert Address
Insert City, State, Zip Code
Insert Telephone Number, Insert Fax/Email

_____
signature/date

Subcontractor SESC Plan Contact:
Insert Company or Organization Name
Insert Name & Title
Insert Address
Insert City, State, Zip Code
Insert Telephone Number, Insert Fax/Email

_____
signature/date

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LIST OF ATTACHMENTS

Attachment A – General Location Map

Attachment B – SESC Site Plans

Attachment C – Copy of RIPDES Construction General Permit

Attachment D – Copy of Other Regulatory Permits

Attachment E – Copy of RIPDES NOI

Attachment F – Inspection Reports w/ Corrective Action Log

Attachment G - SESC Plan Amendment Log

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Attachment A - General Location Map

Picozzi Plat Minor Subdivision

Figure I-1 - Vicinity Map



Attachment B – SESC Site Plans

The RIDEM-approved set of project construction plans shall serve as the SESCP site maps, and are not included herein. Please refer to the RIDEM-approved plan set, which shall be kept on-site at all times for the duration of the project.

Attachment C - Copy of RIPDES Construction General Permit

The RIPDES Construction General Permit may be accessed, viewed and printed from the RIDEM web site, at the following address:

http://www.dem.ri.gov/pubs/regs/regs/water/ripdesca.pdf

A hard copy of the RIPDES CGP is not included herein.

Attachment D - Copy of Other Regulatory Permits

- RIDEM Freshwater Wetlands Permit ###-#### (includes RIPDES NOI authorization RIR #######)

Attachment E - Copy of RIPDES NOI

Refer to the Freshwater Wetlands Permit in Attachment D, which includes the RIPDES NOI authorization. There is no separate RIPDES NOI authorization for this project.

Attachment F - Inspection Reports w/ Corrective Action Log

This Attachment contains copies of all project stormwater inspection reports and corrective action logs performed in accordance with Section 5 – Maintenance and Inspection of this SESCP. Reports are presented in chronological order from most recent to oldest.

SESC Plan Inspection Report Instructions

For all projects with at least one (1) acre of soil disturbance, the site owner and operator are required to develop and comply with a site specific Soil Erosion and Sediment Control Plan (SESC Plan) in order to remain in compliance with the Rhode Island Pollutant Discharge Elimination System (RIPDES) General Permit for Stormwater Discharges Associated with Construction Activity (RIPDES Construction General Permit).

This inspection report template has been provided by RIDEM for use by the site operator and designated inspector to document the erosion, runoff, and sediment control conditions at the construction site. It should be customized to meet the requirements in the RIPDES Construction General Permit and the site specific SESC Plan.

Using the Inspection Report

This inspection report is designed to be customized according to the control measures and conditions at the site. On a copy of the site plan, number all stormwater control measures and areas of the site that will be inspected. Include both structural (basins, outlet protection, swales, etc.) and non-structural (construction entrances, perimeter barriers, trash areas, etc.) control measures and areas that will be inspected. Also, identify all point source discharges/outfalls, areas of highly erosive soils, and the priority natural resource areas (i.e. streams, wetlands, mature trees, etc). List each control measure or area to be inspected separately in the site-specific control measure section of the inspection report.

Complete any items that will remain constant, such as the project information and control measure locations and descriptions. Then, print out multiple copies of this customized inspection report to use during the inspections.

When conducting the inspection, walk the site by following the site map and numbered control measure locations for inspection. Also note whether the overall site issues have been addressed. Customize this list according to the conditions at the site.

Minimum Monitoring and Reporting Requirements

All stormwater control measures, disturbed areas, areas used for the storage of materials that are exposed to precipitation (including unstabilized soil stockpiles), discharge locations, and locations where vehicles enter or exit the site must be inspected at least once every seven (7) calendar days and within twenty-four (24) hours after any storm event, which generates at least 0.25-inches of precipitation per twenty four (24) hour period and/or after a significant amount of runoff or snowmelt. An appropriate rain gauge (as may be found on www.wunderground.com or www.nws.noaa.gov (or similar sites)) must be identified and utilized for the determination of the storm events.

Revision Date: 01/09/2014

General Notes

- A separate inspection report will be prepared for each inspection.
- The Inspection Reference Number shall be a combination of the RIPDES Permit Authorization Number - consecutively numbered inspections. ex/ Inspection reference number for the **4**th inspection of a project would be: RIR10####-**4**
- Each report will be signed and dated by the inspector and forwarded to the site operator within 24 hours of the inspection.
- Each report will be signed and dated by the site operator and returned to the inspector within 24 hours of receipt.
- It is the responsibility of the site operator to maintain a copy of the SESC Plan, copies of all completed inspection reports, and amendments as part of the SESC Plan documentation at the site during construction.

Corrective Actions

If the SESC Plan Inspection determines that corrective actions are necessary to install or repair control measures, the resultant actions taken must be documented by the site operator. The actions must be recorded in the Corrective Action Log attached to each SESC Plan inspection form. If the site operator disagrees with the corrective action recommendations, it must be documented, with justifiable reasons, in the Corrective Action Log, as well.

Amendments

All SESC Plan Amendments, except minor non-technical revisions, must be approved by the site owner and site operator. The revision must be recorded in the Record of Amendments Log Sheet within the SESC Plan, and dated red-line drawings and/or a detailed written description of the revision must be appended to the SESC Plan. Inspection forms must be revised to reflect all amendments. Update the *Revision Date* and the *Version* # in the footer of the report to reflect amendments made.

The SESC Plan shall be amended whenever there is a change in design, construction, operation, maintenance or other procedure, which has a significant effect on the potential for the discharge of pollutants, or if the SESC Plan proves to be ineffective in achieving its objectives.

******Remember that the regulations are performance-oriented. Even if best management practices are installed on a site according to the approved plan, the site is only in compliance when erosion, runoff, sedimentation, and pollution are effectively controlled.******

SESC Plan Inspection Report

Project Information			
Name			
Location			
DEM Permit No.			
Site Owner	**Name**	**Phone**	**Email**
Site Operator	**Name**	**Phone**	**Email**

Inspection Information			
Inspector Name	**Name**	**Phone**	**Email**
Inspection Date		**Start/End Time**	
Inspection Type **q Weekly q Pre-storm event q During storm event q Post-storm event q Other**			

Weather Information
Last Rain Event **Date: Duration (hrs): Approximate Rainfall (in):**
Rain Gauge Location & Source:
Weather at time of this inspection:

Check statement that applies then sign and date below:

¨ I, as the designated Inspector, certify that this site has been inspected and is in compliance with the site SESC Plan and the RIPDES Construction General Permit.

¨ I, as the designated Inspector, certify that this site has been inspected and I have made the determination that the site requires corrective actions before it will be compliant with the site SESC Plan and the RIPDES Construction General Permit. The required corrective actions are noted within this inspection report.

	Print Name	Signature	Date
Inspector:			

The Site Operator (identified in the permit application) acknowledges the receipt of this SESC Plan inspection report, and understands the requirements set forth in the RIPDES Construction General Permit regarding the implementation and maintenance of erosion, runoff, and sedimentation controls and pollution prevention measures.

	Print Name	Signature	Date
Operator:			

Site-specific Control Measures

Number the structural and non-structural stormwater control measures identified in the SESC Plan on the site map and list them below (add as necessary). Bring a copy of this inspection form and numbered site map with you during your inspections. This list will help ensure that you are inspecting all required control measures at your site.
FILL THIS TABLE USING THE SESC PLAN TABLES 2.13 & 3.14.

	Location/Station	Control Measure Description	Installed & Operating Properly?	Assoc. Photo/ Figure #	Corrective Action Needed (Yes or No; if 'Yes', please detail action required)
1			q Yes q No		
2			q Yes q No		
3			q Yes q No		
4			q Yes q No		
5			q Yes q No		
6			q Yes q No		
7			q Yes q No		
8			q Yes q No		
9			q Yes q No		
10			q Yes q No		
11			q Yes q No		
12			q Yes q No		
13			q Yes q No		
14			q Yes q No		
15			q Yes q No		

	Location/Station	Control Measure Description	Installed & Operating Properly?	Assoc. Photo/ Figure #	Corrective Action Needed (Yes or No; if 'Yes', please detail action required)
16			q Yes q No		
17			q Yes q No		
18			q Yes q No		
19			q Yes q No		
20			q Yes q No		
21			q Yes q No		
22			q Yes q No		
23			q Yes q No		
24			q Yes q No		
25			q Yes q No		
26			q Yes q No		
27			q Yes q No		
28			q Yes q No		
29			q Yes q No		
30			q Yes q No		

(add more as necessary)

Overall Site Issues

Below are some general site issues that should be assessed during inspections. Please customize this list as needed for conditions at the site. If item is not applicable, please note why.

	Location/Station		Assoc. Photo/ Figure #	Corrective Action Needed (If 'Yes', please detail action required and include location/station)
1	Have Limits of Disturbance been properly marked and maintained?	q Yes q No q N/A		
2	Have perimeter controls and sediment barriers been adequately installed and maintained?	q Yes q No q N/A		
3	Are storm drain inlets properly protected?	q Yes q No q N/A		
4	Are natural resource areas (e.g., streams, wetlands, trees, etc.) protected with barriers or similar best management practices (BMPs)?	q Yes q No q N/A		
5	Have graveled access entrance and exit drives and parking areas been installed and maintained?	q Yes q No q N/A		
6	Have sediment controls been installed on all steep side slopes and down slopes that are disturbed, especially those adjacent to property lines, drainage conveyances/inlets or water bodies?	q Yes q No q N/A		
7	Are all steep slopes and disturbed areas not actively being worked properly stabilized?	q Yes q No q N/A		
8	Have soils been stabilized where final grading is complete and land disturbance activities have permanently ceased?	q Yes q No q N/A		
9	Have soils been stabilized where land disturbance activities have been halted temporarily and are not planned to resume within the next fourteen (14) days?	q Yes q No q N/A		
10	Have soil/gravel stockpiles been stabilized or isolated?	q Yes q No q N/A		
11	Are building materials which possess an elevated pollution potential stored inside or under cover?	q Yes q No q N/A		
12	Are stockpiles of construction wastes properly covered or disposed of to reduce exposure?	q Yes q No q N/A		
13	Are washout facilities (e.g. paint, concrete) available, clearly marked, and maintained?	q Yes q No q N/A		

	Location/Station		Assoc. Photo/ Figure #	Corrective Action Needed (If 'Yes', please detail action required and include location/station)
14	Are vehicle and equipment fueling, cleaning, and maintenance areas free of spills, leaks, or any other deleterious material?	q Yes q No q N/A		
15	Are hazardous materials spill kits in place and are there enough materials as prescribed in the SESC Plan to adequately prevent spills from entering any stormwater drainage systems?	q Yes q No q N/A		
16	Have provisions been made for wind erosion and dust control?	q Yes q No q N/A		
17	Have areas of obvious erosion/channelization been repaired?	q Yes q No q N/A		
18	Are receiving conveyance systems and receiving waters at discharge points free of sediment deposition?	q Yes q No q N/A		
19	Is there evidence of sediment being tracked into the street or off-site?	q Yes q No q N/A		
20	Are non-stormwater discharges (e.g., wash water, dewatering) properly controlled?	q Yes q No q N/A		
21	Are post-construction stormwater practices protected from sedimentation prior to final stabilization and bringing them online?	q Yes q No q N/A		
22	Are infiltrating stormwater practices and qualifying pervious areas protected during construction activities to avoid compacting soil?	q Yes q No q N/A		
23	(Other)	q Yes q No q N/A		

(add more as necessary)

General Field Comments:

Photos:

(Associated photos – each photo should be dated and have a unique identification # and written description indicating where it is located within the project area. If a close up photo is required, it should be preceded with a photo including both the detail area and some type of visible fixed reference point. Photos should be annotated with Station numbers and other identifying information where needed.)

Photo #:	Station:
(insert Photo here)	Description:

Photo #:	Station:
(insert Photo here)	Description:

Photo #:	Station:
(insert Photo here)	Description:

Photo #:	Station:
(insert Photo here)	Description:

Photo #:	Station:
(insert Photo here)	Description:

Photo #:	Station:
(insert Photo here)	Description:

(add more as necessary)

Corrective Action Log

TO BE FILLED OUT BY SITE OPERATOR

Describe repair, replacement, and maintenance of control measures, actions taken, date completed, and note the person that completed the work.

	Location/Station	Corrective Action	Date Completed	Person Responsible
Operator Signature:			**Date:**	

Attachment G – SESC Plan Amendment Log

This Attachment contains the log of all amendments made to the original SESCP during the construction phase of this project, in accordance with Section 6 – Amendments of this SESCP.

PROJECT:

Amendment Log

TO BE FILLED OUT BY SITE OPERATOR

Describe amendment(s) to be made to the SESC Plan, the date, and the person/title making the amendment. ALL amendments must be approved by the Site Owner.

#	Date	Description of Amendment	Amended by: Person/Title	Site Owner Must Initial
1				
2				
3				
4				
5				
6				
7				
8				
9				
10				

Add more lines/pages as necessary

APPENDIX C STORMWATER SYSTEM LONG-TERM OPERATION AND MAINTENANCE (O&M) PLAN

STORMWATER SYSTEM
OPERATION & MANAGEMENT PLAN

FOR

PICOZZI PLAT MINOR SUBDIVISION
COVENTRY, RI

PREPARED FOR:

DOMENICO A. PICOZZI

506 HOPE FURNACE ROAD

HOPE, RI 02831

PREPARED BY:

COMMONWEALTH
ENGINEERS & CONSULTANTS, INC.
400 Smith Street
Providence, RI 02908
Tel. (401) 273-6600, Fax (401) 273-6674
www.commonwealth-eng.com

MAY 2026

CEC PROJECT NO. 25088.00

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INTRODUCTION

The following is the Stormwater Management System Operation and Maintenance (O&M) Plan for the proposed Picozzi Plat Minor Subdivision project. This plan has been prepared in accordance with the guidance provided in the Rhode Island Stormwater Design and Installation Standards Manual (hereafter referred to as the "RISDIDM"), 2015 issue date.

I – GENERAL INFORMATION

The following general information is provided in accordance with Appendix Section A.1.1 of the RISDISM:

I-A - Owner
Domenico A. Picozzi
506 Hope Furnace Road
Hope, RI 02831

I-B – Site/Stormwater Management Designer
Commonwealth Engineers & Consultants, Inc.
400 Smith Street
Providence, RI 02903
Project Engineer: Michael Zavalia, P.E.
(401) 632-4650 Phone (401) 273-6674 Fax

I-C - Address of Site
Off of Read School House Road, Plat 89 Lot 9, Coventry, RI

I-D - Vicinity Map
Refer to Figure I-1 – Vicinity Map.

II – STORMWATER MANAGEMENT SYSTEM SUMMARY

The stormwater management system developed for the Picozzi Plat Minor Subdivision consists of the following components that shall require routine inspection and periodic maintenance:

Stormwater Collection & Conveyance	Stormwater Mitigation and Treatment
Deep-Sump Catch Basin	Qualifying Previous Areas (QPA's)
Drain Manholes	Barracuda Max S3 Water Quality Unit
Drain Pipes	Underground Chamber Sand Filter
	Dry Extended Detention Basin
	Infiltration Basin

There are four (4) structural stormwater management (mitigation and treatment) measures within the development, as well as numerous non-structural QPA's. The structural measures are fed by a drainage collection and conveyance system consisting of connected pipes and drain structures of various shapes, sizes, and material types.

The system has been designed to conform to the applicable requirements of the RISDISM (for environmental and stormwater quality elements). The implementation of this O&M plan will have significant bearing on the proper function and overall life cycles of the stormwater management system, and the plan must be adhered to in its entirety to ensure that the system will operate as intended.

III - OPERATION AND MAINTENANCE PLAN

All components of the stormwater management system within the project area shall be owned by Domenico Picozzi. (Owner), and shall be the responsibility of the Owner, its heirs, assigns or duly authorized agents to operate and maintain. It is anticipated that responsibility for the shared stormwater management system shall ultimately be transferred to a homeowners' association (HOA), which will be comprised of the individual subdivided lot owners and formed at such time as the individual lots are sold. **The members of**

Picozzi Plat Minor Subdivision

Figure I-1 - Vicinity Map



the HOA must be apprised of this document and the obligations associated herewith. For the purposes of this document, only the HOA shall be referenced herein as the owner.

The following summarizes the actions specific to be undertaken for the stormwater management infrastructure.

III-A GENERAL:

III-A.1 Inspections

Inspections shall assess the following for all components of the stormwater management system:

Structural Elements – The condition of all elements of the particular component being inspected shall be assessed, and if deemed to be deficient or compromised by routine wear and deterioration, shall be scheduled for repair or replacement as soon as possible.

Accumulated Materials – The volume and nature of accumulated materials shall be noted during all inspections. The accumulation of excessive levels of materials (sediments, trash and other debris) and/or the presence of atypical materials or contaminants within the structure shall be cause for further inspection of the stormwater system and/or the land area tributary thereto, to locate and identify the source of the excessive or atypical material and to correct the cause of same.

An inspection form shall be completed for each structure inspected; completed sheets shall be kept in a binder to be managed by the maintenance provider. Blank inspection forms for each type of component in the stormwater system are included herein.

III-A.2 Cleaning

Cleaning shall include completely removing all accumulated material (e.g. sediments, trash, debris, and organic material) by means appropriate to the particular component of the stormwater system and legally disposing of the material at an off-site location.

In the case of atypical materials or contaminants in the stormwater system, said materials may require additional sampling, testing and analysis to determine the nature of the contamination and the appropriate methods of handling and disposal for same.

III-A.3 Access & Safety

Access to the stormwater management systems for inspections and cleaning shall be made at the designated locations for same, and shall be made in a manner that avoids or minimizes interference with the access to and operation of the site and the stormwater management system.

Inspections and cleaning of all elements of the stormwater management system shall be performed by properly-trained personnel using appropriate tools and equipment, and shall at all times be performed in a manner which prioritizes safety for both the personnel performing the inspections and/or cleaning, as well as the general public using the site.

In instances where impacts to the site or the stormwater management system cannot be avoided during inspections and/or cleaning, all reasonable measures and precautions shall be taken to protect the personnel performing the inspections and/or cleaning as well as the general public using the site. Such measures may include, but not be limited to:

Site Impacts: Warning signage, barriers

Stormwater Management System Impacts: Temporary flow diversion, bypass pumping

III-B EASEMENTS:
The stormwater management system is located entirely on and within the subdivision parcel (A.P. 89 Lot 9); however, portions of the stormwater management features shall be located on/within the individual parcels to be created by the subdivision of lot 9. Therefore, easements to the HOA over the portions of the lots containing stormwater management features shall be required. These easements are or shall be written such that the HOA, its agents, heirs and assigns shall have the perpetual and irrevocable right to enter upon the individual parcels to operate, maintain, repair and replace the stormwater management system.

If a condition arises where a form of agreement or access easement is required to allow the HOA, its agents, heirs and assigns to access other private properties not owned by them for the purpose of operating and maintaining the stormwater management system, said agreement(s)/easement(s) shall be promptly developed and executed between the HOA and the property owner(s) of said other private properties.

III-C FUNDING SOURCE:
As stated above, the work described herein shall be performed by the Owner and/or its designated agents, and funding or other in-house resources necessary for same shall be provided by the Owner in whatever form(s) are deemed appropriate by them.

It is anticipated that the typical annual operation and maintenance cost in FY2027 will be $4,000.

- Annual Inspections: $1,200
- Annual Maintenance/Cleaning: $2,800

The Owner shall be responsible for ensuring that adequate funds are allocated and reserved for use in the proper implementation of this plan each year, and shall adjust its annual budget accordingly to reflect any changes in the costs/expenses associated with same.

III-D SPECIFIC COMPONENTS:

III-D.1 Collection & Conveyance System Components

III-D.1.1 – Catch Basins

Inspections: Catch basins shall be inspected a minimum of two (2) times per year, preferably once in the spring and once in the fall.

Scheduled Maintenance: Catch basins shall be cleaned a minimum of one (1) time per year (preferably in the spring), regardless of the depth of accumulated material in the Catch basins at the time of the cleaning.

Corrective Maintenance: If at any time the depth of accumulated material within the catch basin is greater than or equal to one (1) foot, all accumulated material shall be removed from the catch basin and legally disposed of at an off-site location.

III-D.1.2 – Drain Manholes

Inspections: Drain manholes shall be inspected a minimum of two (2) times per year, typically simultaneously with the inspection of catch basins.
Scheduled Maintenance: Drain manholes shall be cleaned a minimum of one (1) time per year (preferably in the spring), regardless of the depth of accumulated material in the manholes at the time of the cleaning.

Corrective Maintenance: Any sediments or accumulated material (e.g. trash, debris, and organic material) discovered in drain manholes shall be immediately removed and legally disposed of at an off-site location. In addition, the source of the sediments or materials shall be located and repaired or otherwise corrected.

III-D.1.3 – Drain Pipes

Inspections: Drain pipes shall not be routinely inspected, but shall be inspected whenever there are reports of flooding or some other failure of the stormwater management system that could be the result of a drain pipe blockage.

Scheduled Maintenance: Drain pipes do not typically require routine cleaning when used in conjunction with off-line Catch basins, assuming that the Catch basins are maintained properly.

Corrective Maintenance: Any sediments or accumulated material (e.g. trash, debris, and organic material) discovered in drain pipes shall be immediately flushed, collected, removed and legally disposed of at an off-site location. In addition, the source of the sediments or materials shall be located and repaired or otherwise corrected.

III-D.2 Mitigation & Treatment Components

Where referenced herein, the one (1) year storm event is equivalent to 2.7 inches of rainfall in a twenty-four (24) hour period.

III-D.2.1 – Qualifying Pervious Areas (QPA's)

Inspections: QPA's shall be inspected a minimum of one (1) time per year, preferably in the spring. Inspections shall assess the following for each QPA:

Structural Elements – This item is not applicable, as there are no structural components or elements of the QPA.

Accumulated Materials – The volume and nature of accumulated materials within the QPA shall be noted during all inspections. The accumulation of excessive levels of materials (sediments, trash and other debris) and/or the presence of atypical materials or contaminants within the QPA shall be cause for further inspection of the land area tributary thereto, to locate and identify the source of the excessive or atypical material and to correct the cause of same.

Vegetative Conditions – The general condition of the vegetation in the QPA shall be evaluated.

- For QPA's consisting of or containing naturally open areas (field, meadows), the inspection shall assess the coverage and condition of the vegetative ground cover, and shall identify any areas where said ground cover appears to have been adversely impacted by the routing

of stormwater flow to and across it (e.g. dead or dying meadow grass; significant bare areas, areas where erosion has occurred as a result of stormwater runoff).

- For QPA's consisting of or containing naturally wooded/vegetated areas, the inspection shall assess the coverage and condition of the vegetation (trees, shrubs, etc.), within the QPA, as well as the vegetative understory, and shall identify any areas where said vegetation appears to have been adversely impacted by the routing of stormwater flow to and across it (e.g. dead or dying trees or shrubs; significant bare areas within the vegetative understory, areas where erosion has occurred as a result of stormwater runoff).

Cleaning – Cleaning shall include completely removing all accumulated material (e.g. sediments, trash, debris, and organic material) from the QPA and legally disposing of the material at an off-site location. Removal of accumulated materials from the QPA shall be achieved by means appropriate to avoid:

- Disturbance of or damage to the vegetation within the QPA, and
- Compaction of the soils within the QPA by heavy vehicles and/or equipment.

In the case of atypical materials or contaminants in the QPA, said materials may require additional sampling, testing and analysis to determine the nature of the contamination and the appropriate methods of handling and disposal for same.

Alterations - In the event that future conditions on the site require that the designated QPA or any portion thereof be developed, said development shall not take place unless and until either:

- An appropriately sized, configured and located alternative QPA is designated to replace the original QPA (or the portion thereof) that will be developed, or
- Adequate structural stormwater best management practices (BMP's) are constructed to provide equivalent stormwater management/treatment to that which will be lost as a result of the development of the QPA.

III-D.2.2 – Barracuda Water Quality Units (WQU's)

Inspections: WQU's shall be inspected a minimum of two (2) times per year, preferably once in the spring and once in the fall.

Scheduled Maintenance: WQU sediment shall be cleaned a minimum of one (1) time per year (preferably in the spring), regardless of the depth of accumulated material in the sediment chamber at the time of the cleaning. Oil and other floatable materials in the floatable chamber shall also be removed.

Corrective Maintenance:

- If at any time the depth of accumulated material within the WQU sediment chamber is greater than or equal to one half the chamber depth, all accumulated material shall be removed from the WQU to the bottom of the chamber and legally disposed of at an off-site location.

- Deficiencies in any structural components of the WQU (chambers, inflow and outflow pipes, access risers, frames & covers, etc.), shall be promptly repaired, or the deficient component replaced in-kind.

III-D.2.3 – Underground Chamber Sand Filters

Inspections: During the six months immediately after construction, filter practices shall be inspected following at least the first two (2) precipitation events of at least 1.0 inch to ensure that the system is functioning properly. Thereafter, sand filter shall be inspected a minimum of one (1) time per year, preferably in the spring. In addition, sand filter shall be inspected after any storm greater than or equal to the 1-year storm event.

Scheduled Maintenance:

- Open access port covers of the sand filter and make a visual inspection to determine the extents of maintenance necessary to refresh the sand filter to its original condition. Silt/sediment shall be removed from the sand filter bed when the accumulation exceeds one (1) inch in any location.

- Proceed with the following if the depth of accumulated sediment/materials in the flow diffuser chambers reaches half the total depth of the chambers:

  - Pump out all stormwater within the underground sand filter by means of a vactor truck.
  - Remove all oil, sludge, sediment, solids, trash, debris and floatable material from all diffuser chambers and the visible surface of the sand filter.
- Internal cleanout shall be accomplished via vactor truck. After cleaning, the covers are to be reset, and all collected waste including oil, sludge, sediment, and water shall be properly disposed of in accordance with all applicable federal and local regulations.

- The area of the sand filter shall at all times be protected from excessive vehicle loadings; inspection/maintenance vehicles and equipment shall not be driven or operated over the filter field.

III-D.2.3 – Dry Extended Detention Basin

Inspections: Dry extended detention basin should be inspected a minimum of one (1) time per year, preferably in the spring. In addition, basin shall be inspected after any storm greater than or equal to the 1-year storm event.

Scheduled Maintenance:

- Sediment, trash or other debris in extended detention basin shall be cleaned a minimum of one (1) time per year (preferably in the spring), regardless of the depth of accumulated material in the basin at the time of the cleaning.

- Mow all vegetated basin slopes at least four (4) times annually during the growing season (typically April-November); maintain grass at a height of 4-6". Remove and dispose of any and all other vegetation (bushes, shrubs, trees) that may begin to grow within the basin before it becomes established.

- All rip rap pads shall be refreshed as required to maintain void space and flow diffusion effectiveness; this shall consist of the removal of accumulated sediments within the rip rap voids and restoration of the rip rap stone to original limits and grades.

Corrective Maintenance:

- If erosion or gullying of the basin slopes is observed, the affected slopes shall be promptly filled with the original material (or suitable replacement material), re-loamed to original grade, re-seeded and maintained until the affected area has sufficiently stabilized. Supplemental slope stabilization (rip rap or geotextile slope reinforcement) shall be installed in locations demonstrating repetitive erosion or gullying; if necessary in severe cases, flow redirection away from the affected area shall be implemented.

- Any blockages of outlet devices/structures shall be promptly removed, and the device/structure capacity restored.

- Deficiencies in any structural components of the basin (inlet & outlet structures, weirs & orifices, walls, spillways, etc.) shall be promptly repaired to original condition or replaced in-kind.

III-D.2.4 – Infiltration Basin

Inspections: Infiltration basin should be inspected a minimum of one (1) time per year, preferably in the spring. In addition, basin shall be inspected after any storm greater than or equal to the 1-year storm event.

Scheduled Maintenance:

- Sediment, trash or other debris in infiltration basin shall be cleaned a minimum of one (1) time per year (preferably in the spring), regardless of the depth of accumulated material in the basin at the time of the cleaning.

- Mow all vegetated basin slopes at least four (4) times annually during the growing season (typically April-November); maintain grass at a height of 4-6". Remove and dispose of any and all other vegetation (bushes, shrubs, trees) that may begin to grow within the basin before it becomes established.

- Use only small, light hand-operated equipment to perform basin maintenance; passage of large motorized vehicles and equipment shall be avoided at all times, as said vehicles/equipment can overcompact the underlying soils within the basin, reducing the infiltrative capacity of same and compromising the proper function of the basin.

- Inspect the basin for signs of wetness or damage to structures, and note any eroded areas.

- All rip rap pads shall be refreshed as required to maintain void space and flow diffusion effectiveness; this shall consist of the removal of accumulated sediments within the rip rap voids and restoration of the rip rap stone to original limits and grades.

Corrective Maintenance:

- Inspect at least once annually immediately after a rain event, or if dead or dying grass on the bottom is observed, to ensure that the design infiltration rate is being met, and the basin is fully drained within seventy-two (72) hours after the end of the rain event. If sediment/organic

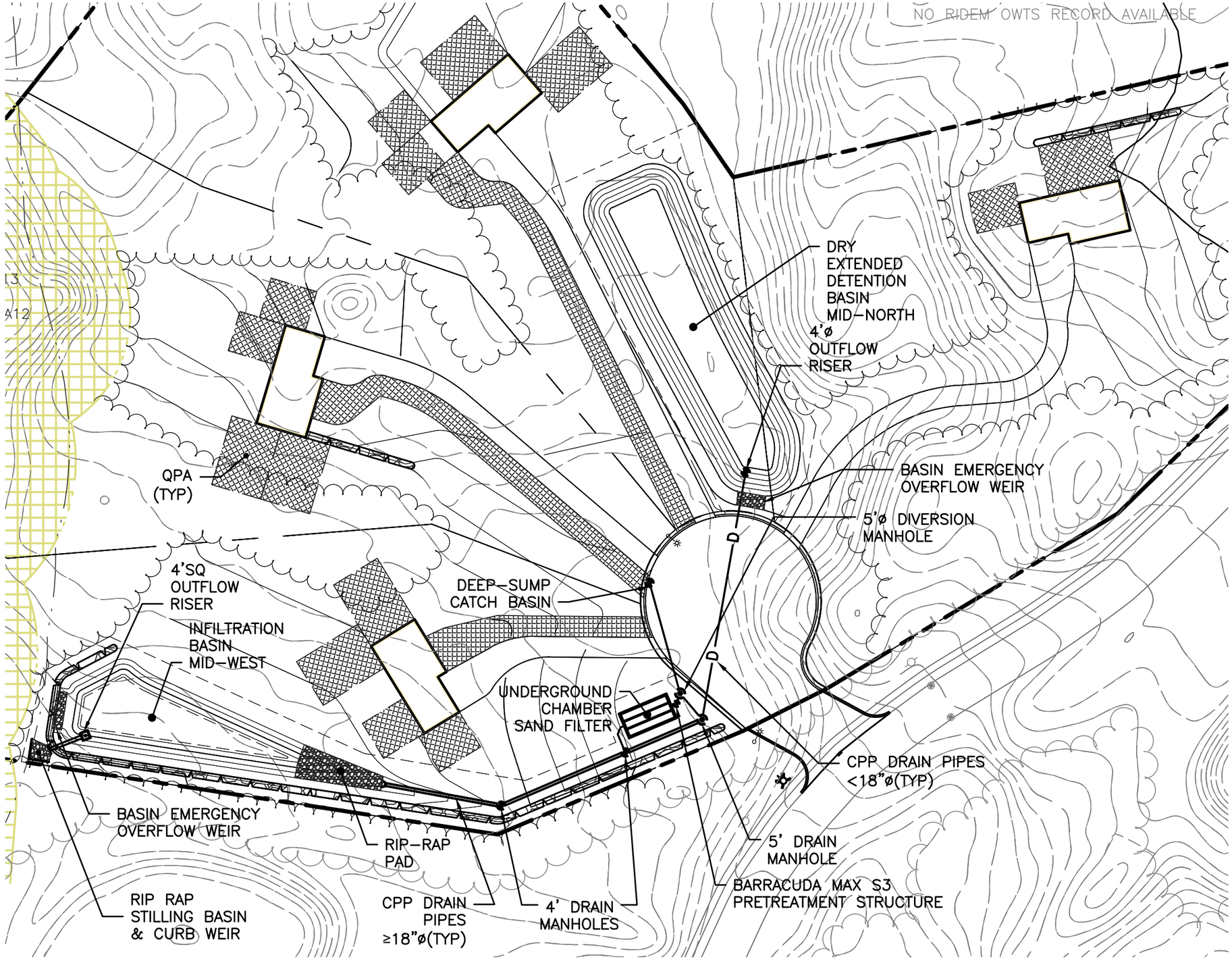
debris build-up or overcompaction of underlying soils has reduced the infiltration capabilities to below the design rate (i.e. the basin fails to fully drain within seventy-two (72) hours), the top 6 inches of loam shall be removed and stockpiled, and the surface rototilled to a depth of 12 inches. The loam shall then be replaced to its original depth (supplemented with new loam, if necessary), and the basin bottom shall then be restored according to original design specifications. Disconnections from inlet structures and temporary stormwater bypass measures required shall be properly implemented for the duration of the restorative work.

- If erosion or gullying of the basin slopes is observed, the affected slopes shall be promptly filled with the original material (or suitable replacement material), re-loamed to original grade, re-seeded and maintained until the affected area has sufficiently stabilized. Supplemental slope stabilization (rip rap or geotextile slope reinforcement) shall be installed in locations demonstrating repetitive erosion or gullying; if necessary in severe cases, flow redirection away from the affected area shall be implemented.

- Any blockages of outlet devices/structures shall be promptly removed and the device/structure capacity restored.

- Deficiencies in any structural components of the basin (inlet & outlet structures, weirs & orifices, walls, spillways, etc.) shall be promptly repaired to original condition or replaced in-kind.

O&M Appendix A
BMP Key Plan



OWNER/APPLICANT:
DOMENICO A. PICOZZI
506 HOPE FURNACE RD
HOPE, RI 02831

COMMONWEALTH
ENGINEERS & CONSULTANTS, INC.
400 SMITH STREET
PROVIDENCE, RI 02908
401-273-6600

STORMWATER O&M KEY PLAN

PICOZZI PLAT
MINOR SUBDIVISION
COVENTRY, RI

SCALE: 1"=60'	SHEET NO: O&M KEY	
DRAWN BY: MCZ	DESIGN BY: –	CHECKED BY: TJB
DATE: MAY 2026	PROJECT NO.: 25088.00	

O&M Appendix B
Inspection Logs

COMMONWEALTH
ENGINEERS & CONSULTANTS, INC.
400 Smith Street
Providence, RI 02908
Tel. (401) 273-6600, Fax (401) 273-6674
www.commonwealth-eng.com

Stormwater Management System
Best Management Practice (BMP)
Operation & Maintenance Matrix

GENERAL INFORMATION

SYSTEM LOCATION (STREET NAME):	PICOZZI PLAT MINOR SUBDIVISION
SYSTEM LOCATION (MUNICIPALITY):	COVENTRY

STORMWATER SYSTEM COMPONENT:	Annual Inspection Frequency	Scheduled Maintenance	Corrective Maintenance
Deep-Sump Catch Basin	2 (Spring & Fall)	Cleaning	Cleaning
Drain Manholes	2 (Spring & Fall)	N/A	Cleaning, Additional System Inspection
Drain Pipes	N/A	N/A	Flushing, Additional System Inspection
Qualifying Pervious Areas (QPA's)	1 (Spring)	Sediment/Debris Cleaning	Cleaning, Reseeding (Grass Areas Only), Vegetative Replanting
ADS Barracuda Water Quality Unit	2 (Spring & Fall)	Vactor Cleaning Sediment & Floatable Chambers	Repairing/Replacing Structural Components
Underground Chamber Sand Filter	1 (Spring); After 1-Year Storms in First 6 Months of Operation	Vactor Cleaning Interior	Replacing Filter Sand/Reservoir Stone, Repairing/Replacing Structural Components
Dry Extended Detention Basin	1 (Spring); After 1-Year Storms	Sediment/Debris Cleaning Grass Mowing Refresh Rip Rap Pads	Slope Erosion Repairs Repairing/Replacing Structural Components
Infiltration Basin	1 (Spring); After 1-Year Storms	Sediment/Debris Cleaning Grass Mowing Refresh Rip Rap Pads	Slope Erosion Repairs Repairing/Replacing Structural Components

Stormwater Management System
Best Management Practice (BMP)

Operation & Maintenance Inspection Sheet
Catch Basins/Drain Manholes

LOCATION (STREET ADDRESS / POLE #): _____

MUNICIPALITY: _____

DATE & TIME: _____

INSPECTOR/AGENCY:

MAINTENANCE ITEM	SATIS-FACTORY	UNSATIS-FACTORY	COMMENTS
1. Structural Condition			
Frame & Grate/Cover			
Brick & Mortar Leveling			
Steps			
Walls & Section Joints			
Pipes & Outlet Hood			
2. Sediment Cleaning			
Accumulated Sediment in Sump			
Greater than 50% of storage volume remaining			
No evidence of contaminated material/stormwater			

Comments:

Actions to be Taken:

Stormwater Management System
Best Management Practice (BMP)

Operation & Maintenance Inspection Sheet
Qualifying Pervious Area (QPA)

LOCATION (STREET ADDRESS / POLE #): _____

MUNICIPALITY: _____

DATE & TIME: _____

INSPECTOR/AGENCY:

MAINTENANCE ITEM	SATIS-FACTORY	UNSATIS-FACTORY	COMMENTS
1. Debris Cleanout			
Contributing areas clean of debris			
QPA clean of debris			
2. Vegetation			
QPA area is stabilized, ground cover is predominantly vegetated			
Vegetation within QPA is healthy			
3. Sediment Deposition			
No excessive accumulated sediment is observed in any location within the QPA			
4. Concentration of Runoff/Erosion			
No evidence of concentrated flows to QPA			
No evidence of erosion/gullying within QPA			

Comments:

Actions to be Taken:

Stormwater Management System
Best Management Practice (BMP)

Operation & Maintenance Inspection Sheet
Water Quality Unit

LOCATION (STREET ADDRESS / POLE #): _____

MUNICIPALITY: _____

DATE & TIME: _____

INSPECTOR/AGENCY:

MAINTENANCE ITEM	SATIS-FACTORY	UNSATIS-FACTORY	COMMENTS
1. Structural Condition			
Access Risers & Covers			
Pipes & Outlet Hood			
2. Sediment Cleaning			
Accumulated Sediment in Sump			
Greater than 50% of storage volume remaining			
Oil/trash in Floatables Chamber			
No evidence of contaminated material/stormwater			

Comments:

Actions to be Taken:

Stormwater Management System
Best Management Practice (BMP)

Operation & Maintenance Inspection Sheet
Underground Chamber Sand Filter

LOCATION (STREET ADDRESS / POLE #): _____

MUNICIPALITY: _____

DATE & TIME: _____

INSPECTOR/AGENCY:

MAINTENANCE ITEM	SATIS-FACTORY	UNSATIS-FACTORY	COMMENTS
1. Debris Cleanout			
Contributing areas clean of debris			
Filtration facility clean of debris			
Inlet and outlets clear of debris			
2. Oil and Grease			
No evidence of filter surface clogging			
Activities in drainage area minimize oil and grease entry			
3. Vegetation			
Contributing drainage area stabilized			
No evidence of erosion			
Area mowed and clippings removed			
4. Water Retention Where Required			
Water holding chambers at normal pool			
No evidence of leakage			
5. Sediment Deposition			
Filter chamber free of sediments			
Sedimentation chamber not more than half full of sediments			
6. Structural Components			
No evidence of structural deterioration			
Any grates are in good condition			
No evidence of spalling or cracking of structural parts			
7. Outlet/Overflow Spillway			
Good condition, no need for repairs			
No evidence of erosion (if draining into natural channel)			
8. Overall Function of Facility			
Evidence of flow bypassing facility			

Comments:

Actions to be Taken:

Stormwater Management System
Best Management Practice (BMP)

Operation & Maintenance Inspection Sheet
Dry Extended Detention Basin

LOCATION (STREET ADDRESS / POLE #): _____

MUNICIPALITY: _____

DATE & TIME: _____

INSPECTOR/AGENCY:

MAINTENANCE ITEM	SATIS-FACTORY	UNSATIS-FACTORY	COMMENTS
1. Debris Cleanout			
Contributing areas clean of debris			
Inlet and outlets clear of debris			
2. Vegetation			
Contributing drainage area stabilized			
No evidence of slope erosion/gullying			
Area mowed (4-6"H) and clippings removed			
3. Sediment Deposition			
Voids between rip rap pad stones >50% clear			
Basin storage area not more than half full of sediments/debris			
4. Structural Components			
No evidence of structural deterioration			
Grates are in good condition (if applicable)			
No evidence of structural spalling or cracking			
5. Outlets/Overflow Spillways			
Outlets/overflows in good condition			
Outlet devices (orifices, weirs) free of blockages/obstructions			
No evidence of erosion @ outlets			
6. Overall Function of Facility			
No evidence of outlet structure overflow activation during smalll to moderate storms			
No evidence of flow bypassing facility			

Comments:

Actions to be Taken:

Stormwater Management System
Best Management Practice (BMP)

Operation & Maintenance Inspection Sheet
Infiltration Basin

LOCATION (STREET ADDRESS / POLE #): _____

MUNICIPALITY: _____

DATE & TIME: _____

INSPECTOR/AGENCY:

MAINTENANCE ITEM	SATIS-FACTORY	UNSATIS-FACTORY	COMMENTS
1. Debris Cleanout			
Contributing areas clean of debris			
Inlet and outlets clear of debris			
2. Vegetation			
Contributing drainage area stabilized			
No evidence of slope erosion/gullying			
Area mowed (4-6"H) and clippings removed			
3. Sediment Deposition			
Voids between rip rap pad stones >50% clear			
Basin storage area not more than half full of sediments/debris			
4. Structural Components			
No evidence of structural deterioration			
Grates are in good condition (if applicable)			
No evidence of structural spalling or cracking			
5. Outlets/Overflow Spillways			
Outlets/overflows in good condition			
Outlet devices (orifices, weirs) free of blockages/obstructions			
No evidence of erosion @ outlets			
6. Overall Function of Facility			
No evidence of outlet structure overflow activation during smalll to moderate storms			
No evidence of flow bypassing facility			

Comments:

Actions to be Taken:

APPENDIX D STORMWATER WORKSHEETS

D-1 RISDISM CALCULATION WORKSHEETS

COMMONWEALTH
ENGINEERS & CONSULTANTS, INC.
400 Smith Street
Providence, RI 02908
Tel. (401) 273-6600, Fax (401) 273-6674
www.commonwealth-eng.com

GENERAL INFORMATION

PROJECT #:	25088
PROJECT NAME:	PICOZZI PLAT
PROJECT LOCATION (MUNICIPALITY):	COVENTRY
PROJECT LOCATION (COUNTY):	KENT
CALCULATED BY:	MICHAEL ZAVALIA
DATE:	5/14/2026
SUBWATERSHED/BMP NAME/NUMBER:	TOTAL SITE
RECEIVING WATER BODY/TYPE:	WETLAND
COLD-WATER FISHERY (Y/N)	N

SOILS

Predominant Underlying Soil Type:	Narragansett silt loams (NaA, NbB, NcC)
Hydrologic Soil Group (A,B,C,D):	B

AREA TABULATION	Subwatershed A		Subwatershed B		Total	
	S.F.	ACRES	S.F.	ACRES	S.F.	ACRES
Total Subwatershed Area (A_{SW}):	452,449	10.387	319,377	7.332	771,826	17.719
Existing Impervious Area:	0	0.000	0	0.000	0	0.000
Existing Impervious Area to Pervious Area:	0	0.000	0	0.000	0	0.000
Existing Impervious Area to Remain (I_X):	0	0.000	0	0.000	0	0.000
Ex. Impervious Area Percentage (I_X/A_{SW}):	N/A		N/A		N/A	
New Impervious Area (I_P):	15,346	0.352	0	0.000	15,346	0.352
Total Impervious Area (I_T):	15,346	0.352	0	0.000	15,346	0.352
Prop. Impervious Area Percentage (I_T/A_{SW}):	3.4%		N/A		2.0%	

PROJECT CLASSIFICATION: New Development (<40% Imp.) or Redevelopment (>=40% Imp.)

NEW DEVELOPMENT

DESIGN RAINFALL	24-Hour Type III Rainfall Amount (inches)						
County	1	2	5	10	25	50	100
Kent	2.7	3.3	4.1	4.8	6.2	7.3	8.7

STORMWATER EXISTING CONDITIONS PEAK FLOW RATES & VOLUMES

STORM EVENT	1	2	5	10	25	50	100
FLOW RATE (CFS)	1.08			9.37	18.08		36.45
VOLUME (CF)	14,049			71,696	125,018		237,584

STORMWATER POST-DEV. PRE-BMP PEAK FLOW RATES & VOLUMES

STORM EVENT	1	2	5	10	25	50	100
FLOW RATE (CFS)	2.32			14.51	26.35		50.60
VOLUME (CF)	19,292			84,076	141,520		260,231

STORMWATER POST-DEV. POST-BMP PEAK FLOW RATES & VOLUMES
RUNOFF TO WETLAND (NODE L)

STORM EVENT	1	2	5	10	25	50	100
FLOW RATE (CFS)	1.48			8.85	16.39		34.30
NET CHANGE FROM EX.	0.4			-0.52	-1.69		-2.15
VOLUME (CF)	11,308			67,780	122,470		239,159
NET CHANGE FROM EX.	-2,741			-3,916	-2,548		1,575

TOTAL EXFILTRATION VOLUME FROM SAND FILTER (NODE P-SF PRIMARY)

STORM EVENT	1	2	5	10	25	50	100
VOLUME (CF)	1,899			2,914	3,278		3,710

TOTAL EXFILTRATION VOLUME FROM INF BASIN (NODE P-MID-W TERTIARY)

STORM EVENT	1	2	5	10	25	50	100
VOLUME (CF)	6,050			14,736	17,706		20,065

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STANDARD 2 - GROUNDWATER RECHARGE (Re_v)

SUBWATERSHED/BMP NAME/NUMBER:	TOTAL SITE
SOILS	
Predominant Underlying Soil Type:	Narragansett silt loams (NaA, NbB, NcC)
Hydrologic Soil Group:	B
RECHARGE FACTOR "F"	0.35

PROJECT CLASSIFICATION — New Development (<40% Imp.) or Redevelopment (>=40% Imp.)

NEW DEVELOPMENT

AREA TABULATION	S.F.	ACRES
Ex. Impervious Area to Remain (I_X):	0	0.000
50% Ex. Impervious Area to Remain (I_{X50}):	0	0.000
New Impervious Area (I_P):	15,346	0.352
Total Impervious Area (I_T):	15,346	0.352
Recharge Impervious Area ($I_R = I_{X50} + I_P$)*:	15,346	0.352

RECHARGE VOL. ($Re_v = (1")(F)(I_R)/12$)		ACRE-FEET	C.F.
F (unitless) =	0.35	0.010	447.6
I_R (acres) =	0.352	Rounded Total:	448

* Sum of 50% of Existing Imp. Area to Remain and New Impervious Area (for Redevelopment)

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STANDARD 3 - WATER QUALITY (WQ_v)

SUBWATERSHED/BMP NAME/NUMBER:	TOTAL SITE

PROJECT CLASSIFICATION — New Development (<40% Imp.) or Redevelopment (>=40% Imp.)

NEW DEVELOPMENT

AREA TABULATION	S.F.	ACRES
Total Subwatershed Area (A_{SW}):	771,826	17.719
Ex. Impervious Area to Remain (I_X):	0	0.000
New Impervious Area (I_P):	15,346	0.352
Total Impervious Area (I_T):	15,346	0.352

WQ VOLUME ($WQ_v = (1")((I_X \times 0.5)+(I_P))/12$)		ACRE-FEET	C.F.
I_X (acres) =	0.000	0.029	1,278.8
I_P(acres) =	0.352	Rounded Total:	1,279

DESIGN WQ_V

1,279 C.F.

MODIFIED CN (FOR 1.2" WQ_V DETERMINATION) - SECTION 3.3.3.2

$CN_{Mod} = 1000 / [10 + 5P + 10Q - 10(Q^2 + 1.25QP)^{1/2}]$

P = Rainfall (inches)	1.20
Watershed Area Tributary to WQ BMP (Subwatershed A Total Area) (s.f.)	452,449
*Q = Runoff Volume, (Watershed Inches ($WQ_{v\ (c.f.)}$)/Total BMP Tributary Watershed Area (s.f.) x 12	0.034

CN_{Mod} = 71.133

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STANDARD 4 - CHANNEL & CONVEYANCE PROTECTION (CP_v)

SUBWATERSHED/BMP NAME/NUMBER:	TOTAL SITE
RECEIVING WATER BODY/TYPE:	WETLAND
COLD-WATER FISHERY (Y/N)	N

STORMWATER POST-DEVELOPMENT 1-YEAR STORM VOLUME (V_r)

19,292 C.F.

REQUIRED CHANNEL PROTECTION VOLUME ($CP_V = V_r \times 0.65$)

12,540 C.F. TO BE DETAINED & RELEASED OVER 24 HOURS

ALLOWABLE AVERAGE RELEASE RATE (CP_{QAVG})

CP_{QAVG} = 12,540 /(24 HRS * 3,600 SEC/HR) = 0.145 CFS

ALLOWABLE MAXIMUM RELEASE RATE (CP_{QMAX})

CP_{QMAX} = 0.145 x 2 = 0.290 CFS

PEAK 1-YEAR FLOW RATE LEAVING INFILTRATION BASIN (CP_{Q1YR}, NODE P-MID-W)

CP_{Q1YR} 0.11 CFS LESS THAN OR EQUAL TO CP_{QMAX}? Y

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STANDARD 5 - OVERBANK FLOOD PROTECTION

STORMWATER POST-DEVELOPMENT FLOW RATES (C.F.S.)

10-YEAR			100-YEAR		
Q_{10X}	Q_{10P}	Δ	Q_{100X}	Q_{100P}	Δ
9.37	14.51	5.14	36.45	50.60	14.15

10-YEAR MITIGATION REQUIRED:	YES
100-YEAR MITIGATION REQUIRED:	YES

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SAND FILTER SIZING CALCULATIONS

SUBWATERSHED/BMP NAME/NUMBER: TOTAL SITE

DESIGN WQ_V

1,279 C.F.

REQUIRED FILTER BED SURFACE AREA

A_f = Minimum Surface Area of Filter Bed (s.f.)

d_f	1.5	Filter Bed Depth (ft)
k	3.5	Coefficient of Permeability of Filter Media (ft/day) (Typ. 3.5 for Sand)
h_f	0.19	Avg. Height of Water Above Surface of Practice During WQ Storm (ft)
t_f	2.0	Design Filter Bed Drain Time (days)

$A_f = (WQ_V)(d_f)/[(k)(h_f+d_f)(t_f)]$

A_f= 163 s.f. (Rounded to nearest 1 s.f.)

FILTER BED SURFACE AREA CHECK

Proposed Sand Filter Area

Total Area: 480 s.f.

Provided Area > Required Area? Y

SAND FILTER SYSTEM REQUIRED STORAGE VOLUME

MIMIMUM PRACTICE STORAGE VOLUME Vs = 75% OF WQ_V

REQUIRED SAND FILTER STORAGE VOLUME (WQv x 0.75)

959 C.F.

Sump Storage in Off-Line Deep-Sump CB's (1 @ 50.2 CF EA):	50	
Sand Filter Volume (Top of Sand Elev. 388.25):	180	C.F.
Sand Filter Basin Storage Volume (Top of Overflow Pipe 391.0)	784	
Total Storage Volume Provided by BMP:	1,014	C.F.

Provided Volume > Required Volume? Y

APPENDIX E SOIL EVALUATION LOGS

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SERVICES INC

February 4, 2026

Timothy Behan, P.E.
Commonwealth Engineers & Consultants, Inc.
tbehan@commonwealth-eng.com

RE: Soil evaluation | A.P. 89 Lot 9, Hope Furnace Road, Coventry, Rhode Island

Dear Mr. Behan,

On January 21, 2026, Amber Hardy, M.S., license #D4098, on behalf of Avizinis Environmental Services, Inc., (AES), visited the above referenced property to evaluate the soil resources on the lot, specifically to assess the site for the possible installation of an OWTS.

Septic systems, or on-site wastewater treatment systems (OWTS) in Rhode Island are regulated by the Department of Environmental Management (DEM). The DEM requires soil evaluations for any planned OWTS installations that are typically witnessed by DEM staff but does not require the evaluations to be witnessed when evaluating the site for drainage potential. This evaluation was performed in preparation for the application for an OWTS design approval and was therefore witnessed by a DEM representative.

The results of the evaluation have been submitted to the DEM via their online portal on 2 February 2026 and have been assigned IA #0000019411. In addition, the evaluation results have been attached along with maps showing the conditions and GPS data gathered at the site.

Please do not hesitate to contact AES if you would like to discuss this further.

Sincerely,

Amber Hardy, M.S. | Senior Soil Scientist

RHODE ISLAND DEPARTMENT OF ENVIRONMENTAL MANAGEMENT

OFFICE OF WATER RESOURCES

Onsite Wastewater Treatment Systems Program

235 Promenade Street, Providence, RI 02908-5767
Tel. (401) 222-3961;
Email: DEM.OWTS@dem.ri.gov www.dem.ri.gov/septic

Site Evaluation Form

Property Owner: Domenico Picozzi **Application No.** IA-0000019411

Property Location: OWR - 254085

Date of Test Hole: 01/21/2026 **License No.** D4098

Soil Evaluator: Amber Hardy

Weather: SU **Shaded:** No **Time:** 9:00 AM

Site Address: Hope Furnace Road, Coventry, Rhode Island, 02816 **Pole Number:**

Plat Number	Lot Number	Block Number
89	9	

Site Evaluation Test Holes

Test Hole Number	Soil Class	Total Depth	Impervious/Limiting Layer Depth(og)(in inches)	GW Seepage Depth	SHWT(og)(in inches)
11	Supraglacial flow/Ice Contact	72	72	73	36
12	Supraglacial flow/Ice Contact	36	36	37	36
1	Supraglacial flow/Ice Contact	108	108	109	84
2	Supraglacial flow/Ice Contact	60	60	61	60
3	Supraglacial flow/Ice Contact	54	54	55	54
4	Supraglacial flow/Ice Contact	120	121	121	96
5	Supraglacial flow/Ice Contact	120	121	121	96
6	Supraglacial flow/Ice Contact	120	121	121	96
7	Supraglacial flow/Ice Contact	120	121	96	60
8	Supraglacial flow/Ice Contact	120	121	108	72
9	Supraglacial flow/Ice Contact	120	121	120	84
10	Supraglacial flow/Ice Contact	108	84	109	72

Comments	TD+1=none. Color values of 2.5 are represented by 2 in this form. Impervious depth is shallowest depth of ledge, sometimes TD is deeper.

Site Evaluation Description

TH Number	TH_Horlzon	Depth	Horlzon Boundarles		Soil Colors		Re-Dox	Texture	Structure	Consistence	Soll Category
			Dist	Topo	Matrix	Re-Dox Features	Ab. S. Contr.				

1	Ap	0-9"	A	S	10YR 4/3	/		None/SL	1 GR	FR	3
1	Bw	9-16"	C	W	10YR 5/6	/		None/SL	1 SBK	FR	3
1	C	16-108"	A	W	2.5Y 5/3	/		GR;VCB; VST/LS	0 SG	L	1m
1	R	108-108"			/	/		/			
10	A	0-4"	A	S	2.5YR 2/1	/		None/FSL	1 GR	FR	4
10	Bw	4-38"	C	W	7.5YR 5/8	/		None/FSL	1 SBK	FR	4
10	2C1	38-66"	A	S	10YR 5/4	/		None/COS	0 SG	L	1
10	2C2	66-84"	A	W	2.5Y 5/3	/		GR;CB;ST ;BY/LS	0 SG	L	1m
10	R	84-84"			/	/		/			
11	A	0-4"	A	S	2.5YR 2/1	/		None/FSL	1 GR	FR	4
11	Bw	4-24"	C	W	7.5YR 5/8	/		None/FSL	1 SBK	FR	4
11	2C	24-72"	A	W	2.5Y 5/3	/		GR;CB;ST ;BY/LS	0 SG	L	1m
11	R	72-72"			/	/		/			
12	A	0-4"	A	S	2.5YR 2/1	/		None/FSL	1 GR	FR	4
12	Bw	4-36"	A	W	7.5YR 5/6	/		None/FSL	1 SBK	FR	4
12	R	36-36"			/	/		/			
2	Ap	0-9"	A	S	10YR 3/2	/		None/SL	1 GR	FR	3
2	Bw	9-30"	C	W	7.5YR 5/6	/		None/SL	1 SBK	FR	3
2	C	30-60"	A	W	2.5Y 5/3	/		GR;VCB; ST;BY/LS	0 SG	L	1m

2	R	60-60"			/	/		/			
3	Ap	0-8"	A	S	10YR 4/3	/		None/SL	1 GR	FR	3
3	Bw	8-24"	C	W	10YR 5/6	/		None/SL	1 SBK	FR	3
3	C	24-54"	A	W	2.5Y 5/3	/		GR;CB;ST;BY/LS	0 SG	L	1m
3	R	54-54"			/	/		/			
4	Ap	0-6"	A	S	10YR 4/3	/		None/FSL	1 GR	FR	4
4	Bw	6-36"	C	W	10YR 5/6	/		None/FSL	1 SBK	FR	4
4	2C	36-108"			2.5Y 5/3	/		GR;VCB;VST;BY/LS	0 SG	L	1m
5	Ap	0-6"	A	S	10YR 4/3	/		None/FSL	1 GR	FR	4
5	Bw	6-32"	C	W	10YR 5/6	/		None/FSL	1 SBK	FR	4
5	2C	32-120"			2.5Y 5/3	/		GR;VCB;VST;BY/LS	0 SG	L	1m
6	Ap	0-6"	A	S	10YR 4/3	/		None/FSL	1 GR	FR	4
6	Bw	6-21"	A	W	10YR 5/6	/		None/FSL	1 SBK	FR	4
6	2C1	21-92"	C	W	2.5Y 5/3	/		GR;VCB;VST;BY/LS	0 SG	L	1m
6	2C2	92-120"			10YR 5/3	/		None/S	0 SG	L	1
7	Ap	0-8"	A	S	10YR 4/3	/		None/FSL	1 GR	FR	4
7	Bw	8-28"	C	W	10YR 5/6	/		None/FSL	1 SBK	FR	4
7	2C1	28-84"	C	W	2.5Y 5/3	/		GR;VCB;VST;BY/LS	0 SG	L	1m

7	2C2	84-120"			10YR 5/3	/		None/S	0 SG	L	1
8	Ap	0-8"	A	S	10YR 4/3	/		None/FSL	1 GR	FR	4
8	Bw	8-30"	C	W	10YR 5/6	/		None/FSL	1 SBK	FR	4
8	2C	30-120"			2.5Y 5/3	/		GR;VCB;ST;BY/LS	0 SG	L	1m
9	Ap	0-6"	A	S	10YR 4/3	/		None/FSL	1 GR	FR	4
9	Bw	6-24"	C	W	10YR 5/6	/		None/FSL	1 SBK	FR	4
9	2C	24-120"			2.5Y 5/3	/		GR;CB;ST;BY/LS	0 SG	L	1m

Site Evaluation Questions

1. Relief and Slope: 3-15%
2. Presence of any watercourse, wetlands or surface water bodies, within 200 feet of test holes: No
3. Restrictive Layer or Bedrock within 4' below original ground within 25 feet of test hole: Yes
4. Presence of existing or proposed private drinking water wells within 200 feet of test holes: Yes
5. Public drinking water wells within 500 feet of test holes: No
6. Is site within the watershed of a public drinking water reservoir or other critical area defined in Rule 38: No
7. Has soil been excavated from or fill deposited on site: No
8. Site's potential for flooding or ponding: None
9. Landscape Position: Var. Some SU/SH, some BS
10. Vegetation: Mixed coniferous woodland
11. Indicate approximate location of property lines and roadways: false
12. Additional comments, site constraints or additional information regarding site: none

Application Preparer's Attestation

The undersigned hereby certifies that all information on this application and accompanying forms, submittals and sketches are true and accurate and that I have been authorized by the owner(s) to conduct these necessary field investigations and submit this request.



Application Preparer's Name	Amber Hardy
Date	02/02/2026
Date of Decision	02/03/2026

Internal Review [FOR RIDEM USE ONLY]

Site Evaluation Elected Witness	Witnessed Soil Evaluation Decision
Decision	Concur
Wet Season Determination Required	No
Additional Field Review Required	No
Explanation	TH 2, 3 11 & 12 WILL REQUIRE LEDGE PROBES DUE TO TOTAL DEPTH
DEM Authorized Agent	David Duranleau



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2025 AERIAL MAP
A.P. 89, Lot 9 | Hope Furnace Road
Coventry, Rhode Island

LEGEND

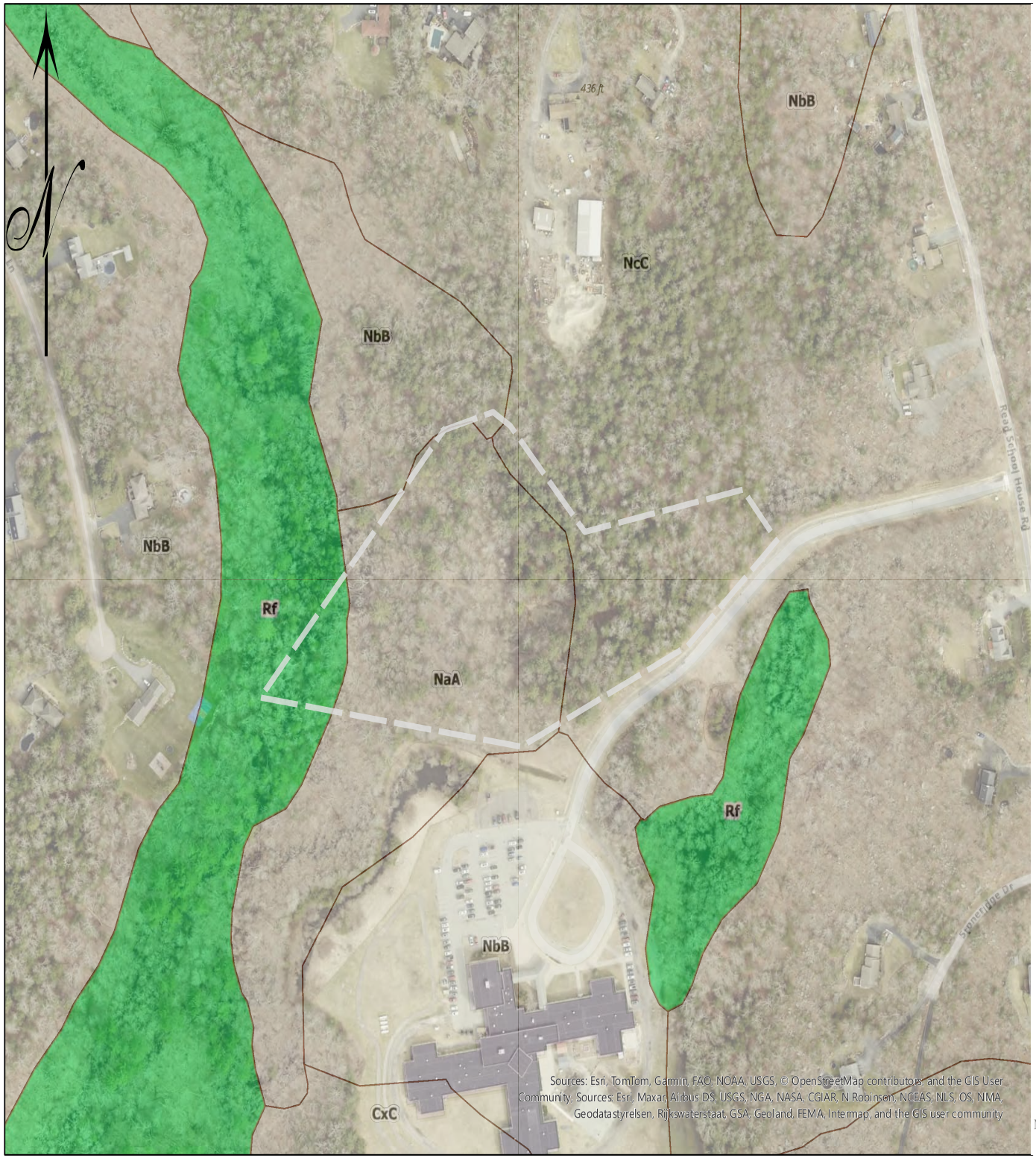
PROPERTY LINE

200 100 0 200 400
Feet

General Notes:
1. This map should not be interpreted as a survey quality graphic. It is designed for preliminary planning purposes only. AES recommends consultation with a Professional Land Surveyor for accurate site feature locations.
2. Property lines as depicted on this map have been approximated from plat maps available from the town assessor's online database.
3. Aerial photograph base map and other data layers acquired from the RI DEM and RIGIS database.

Map created by: Patrick J. Loveland, GIS Specialist 10/27/2025

25-368



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USDA - NRCS SOIL SURVEY MAP
A.P. 89, Lot 9 | Hope Furnace Road
Coventry, Rhode Island

LEGEND

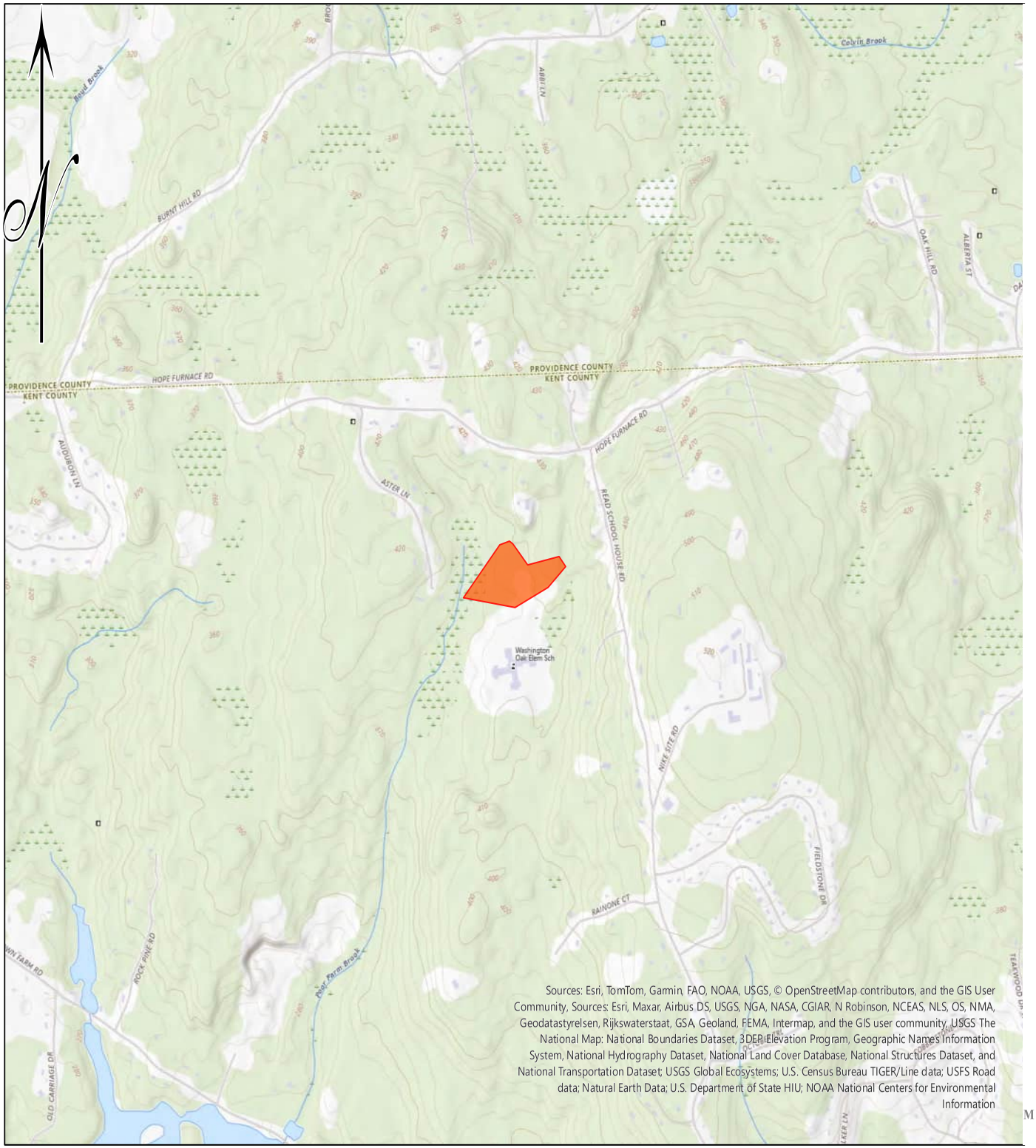
Cxc - Canton fine sandy loam, 3 to 15 percent slopes, extremely bouldery
NaA - Narragansett silt loam, 0 to 3 percent slopes
NbB - Narragansett very stony silt loam, 0 to 8 percent slopes
NcC - Narragansett extremely stony silt loam, 3 to 15 percent slopes
Rf - Ridgebury, Leicester, and Whitman soils, 0 to 8 percent slopes, extremely stony

200 100 0 200 400 600 Feet

General Notes:
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2. Property lines as depicted on this map have been approximated from plat maps available from the town assessor's online database.
3. Aerial photograph base map and other data layers acquired from the RI DEM and RIGIS database.

Map created by: Patrick J. Loveland, GIS Specialist 10/27/2025

25-368



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USGS TOPOGRAPHIC MAP
A.P. 89, Lot 9 | Hope Furnace Road
Coventry, Rhode Island

LEGEND

PROPERTY LINE

1,000 500 0 1,000 2,000 3,000
Feet

General Notes:
1. This map should not be interpreted as a survey quality graphic. It is designed for preliminary planning purposes only. AES recommends consultation with a Professional Land Surveyor for accurate site feature locations.
2. Property lines as depicted on this map have been approximated from plat maps available from the town assessor's online database.
3. Aerial photograph base map and other data layers acquired from the RI DEM and RIGIS database.

Map created by: Patrick J. Loveland, GIS Specialist 10/27/2025

25-368



AVIZINIS
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2025 SOIL EVALUATION MAP
A.P. 89, Lot 9 | Hope Furnace Road
Coventry, Rhode Island

LEGEND

PROPERTY LINE

SOIL EVALUATION JAN 2026

150 75 0 150 300 Feet

General Notes:
1. This map should not be interpreted as a survey quality graphic. It is designed for preliminary planning purposes only. AES recommends consultation with a Professional Land Surveyor for an accurate site plan.
2. Property lines as depicted on this map have been approximated from plat maps available from the town assessor's online database.
3. Aerial photograph base map and other data layers acquired from the RI DEM and RIGIS database.
4. Site features located with a Juniper Geode Submetric GNSS receiver with SWmaps data collection software. Non-delineated wetland edges have not been field verified and are depicted for graphic purposes only. Wetland regulatory setbacks are not depicted on this map.

Action	Staff	Signed	Dated
Map Prepared By:	Patrick J. Loveland		01/30/26
Performed By:	Amber K. Hardy, M.S., D4098		01/21/26

25-368

AVIZINIS
ENVIRONMENTAL
SERVICES INC

April 27, 2026

Timothy Behan, P.E.
Commonwealth Engineers & Consultants, Inc.
tbehan@commonwealth-eng.com

RE: Soil evaluation | A.P. 89 Lot 9, Hope Furnace Road, Coventry, Rhode Island

Dear Mr. Behan,

On April 7, 2026, Amber Hardy, M.S., license #D4098, on behalf of Avizinis Environmental Services, Inc., (AES), visited the above referenced property to evaluate the soil resources on the lot, specifically to assess the site for the possible installation of an OWTS.

Septic systems, or on-site wastewater treatment systems (OWTS) in Rhode Island are regulated by the Department of Environmental Management (DEM). The DEM requires soil evaluations for any planned OWTS installations that are typically witnessed by DEM staff but does not require the evaluations to be witnessed when evaluating the site for drainage potential. This evaluation was performed in preparation for the application for an OWTS design approval and was therefore witnessed by a DEM representative.

The results of the evaluation have been submitted to the DEM via their online portal on April 20, 2026 and have been assigned IA #0000022357. In addition, the evaluation results have been attached along with maps showing the conditions and GPS data gathered at the site.

Please do not hesitate to contact AES if you would like to discuss this further.

Sincerely,

Amber Hardy, M.S. | Senior Soil Scientist

RHODE ISLAND DEPARTMENT OF ENVIRONMENTAL MANAGEMENT

OFFICE OF WATER RESOURCES

Onsite Wastewater Treatment Systems Program

235 Promenade Street, Providence, RI 02908-5767
Tel. (401) 222-3961;
Email: DEM.OWTS@dem.ri.gov www.dem.ri.gov/septic

Site Evaluation Form

Property Owner: Domenico Picozzi **Application No.** IA-0000022357

Property Location: OWR - 254085

Date of Test Hole: 04/07/2026 **License No.** _____

Soil Evaluator: Amber Hardy

Weather: OV **Shaded:** No **Time:** 9:00 AM

Site Address: Hope Furnace Road, Coventry, Rhode Island, 02816 **Pole Number:** _____

Plat Number	Lot Number	Block Number
89	9	

Site Evaluation Test Holes

Test Hole Number	Soil Class	Total Depth	Impervious/Limiting Layer Depth(og)(in inches)	GW Seepage Depth	SHWT(og)(in inches)
1B	Supraglacial flow/Ice Contact	114	115	115	57
2B	Supraglacial flow/Ice Contact	114	115	115	63
10B	Ablation Till	72	72	73	73
11B	Ablation Till	72	72	73	73
12B	Ablation Till	75	75	76	76

Comments	TD+1=none

Site Evaluation Description

TH Number	TH_Horlzon	Depth	Horlzon Boundarles		Soil Colors		Re-Dox	Texture	Structure	Consistence	Soll Category
			Dist	Topo	Matrix	Re-Dox Features	Ab. S. Contr.				
10B	A/E	0-3"	A	S	5YR 3/1	/		None/VFSL	1 GR	VFR	5
10B	Bw	3-45"	A	W	10YR 5/6	/		None/SIL	1 SBK	FR	5
10B	2C	45-72"	A	W	2.5Y 5/3	/		GR;CB/LS	0 M	FR	6m
10B	R	72-72"			/	/		/			
11B	A/E	0-3"	A	S	5YR 3/1	/		None/VFSL	1 GR	VFR	5
11B	Bw	3-35"	A	W	10YR 5/6	/		None/VFSL	1 SBK	FR	5
11B	2C	35-72"	A	W	2.5Y 5/3	/		GR;CB/S	0 M	FR	6m
11B	R	72-72"			/	/		/			
12B	AE	0-3"	A	S	5YR 4/1	/		None/VFSL	1 GR	VFR	5

12B	Bw	3-28"	A	W	10YR 5/6	/		None/VFSL	1 SBK	FR	5
12B	2C	28-75"	A	W	2.5Y 5/3	/		GR;CB/LS	0 M	FR	6m
12B	R	75-75"			/	/		/			
1B	Ap	0-6"	A	W	10YR 4/3	/		None/VFSL	1 GR	VFR	5
1B	Bw	6-35"	A	W	10YR 5/6	/		None/VFSL	1 SBK	FR	5
1B	2C	35-114"	A	W	10YR 4/4	2.5Y 5/2	F 2 D	VGR;ST/LS	0 SG	L	1m
2B	Ap	0-6"	A	W	10YR 4/3	/		None/VFSL	1 GR	VFR	5
2B	Bw	6-26"	A	W	10YR 5/6	/		None/SIL	1 SBK	FR	5
2B	2C	26-114"			10YR 4/4	2.5Y 5/2	F 2 P	GR;ST/LS	0 SG	L	1m

Site Evaluation Questions

1. Relief and Slope: 3-15%
2. Presence of any watercourse, wetlands or surface water bodies, within 200 feet of test holes: No
3. Restrictive Layer or Bedrock within 4' below original ground within 25 feet of test hole: No
4. Presence of existing or proposed private drinking water wells within 200 feet of test holes: No
5. Public drinking water wells within 500 feet of test holes: No
6. Is site within the watershed of a public drinking water reservoir or other critical area defined in Rule 38: No
7. Has soil been excavated from or fill deposited on site: No
8. Site's potential for flooding or ponding: None
9. Landscape Position: BS
10. Vegetation: coniferous woodland
11. Indicate approximate location of property lines and roadways: false
12. Additional comments, site constraints or additional information regarding site: Results in addition to those in IA19411

Application Preparer's Attestation

The undersigned hereby certifies that all information on this application and accompanying forms, submittals and sketches are true and accurate and that I have been authorized by the owner(s) to conduct these necessary field investigations and submit this request.

Application Preparer's Name	Amber Hardy
Date	04/20/2026
Date of Decision	04/22/2026

Internal Review [FOR RIDEM USE ONLY]

Site Evaluation Elected Witness	Witnessed Soil Evaluation Decision
Decision	Concur
Wet Season Determination Required	No
Additional Field Review Required	No
Explanation	TH 1B ESHWT = 57", TH 2B ESHWT = 63", TH 10B & 11B TD = 72", TH 12B TD = 75"
DEM Authorized Agent	David Duranleau



AVIZINIS
ENVIRONMENTAL
SERVICES INC

2025 AERIAL MAP
A.P. 89, Lot 9 | Hope Furnace Road
Coventry, Rhode Island

LEGEND

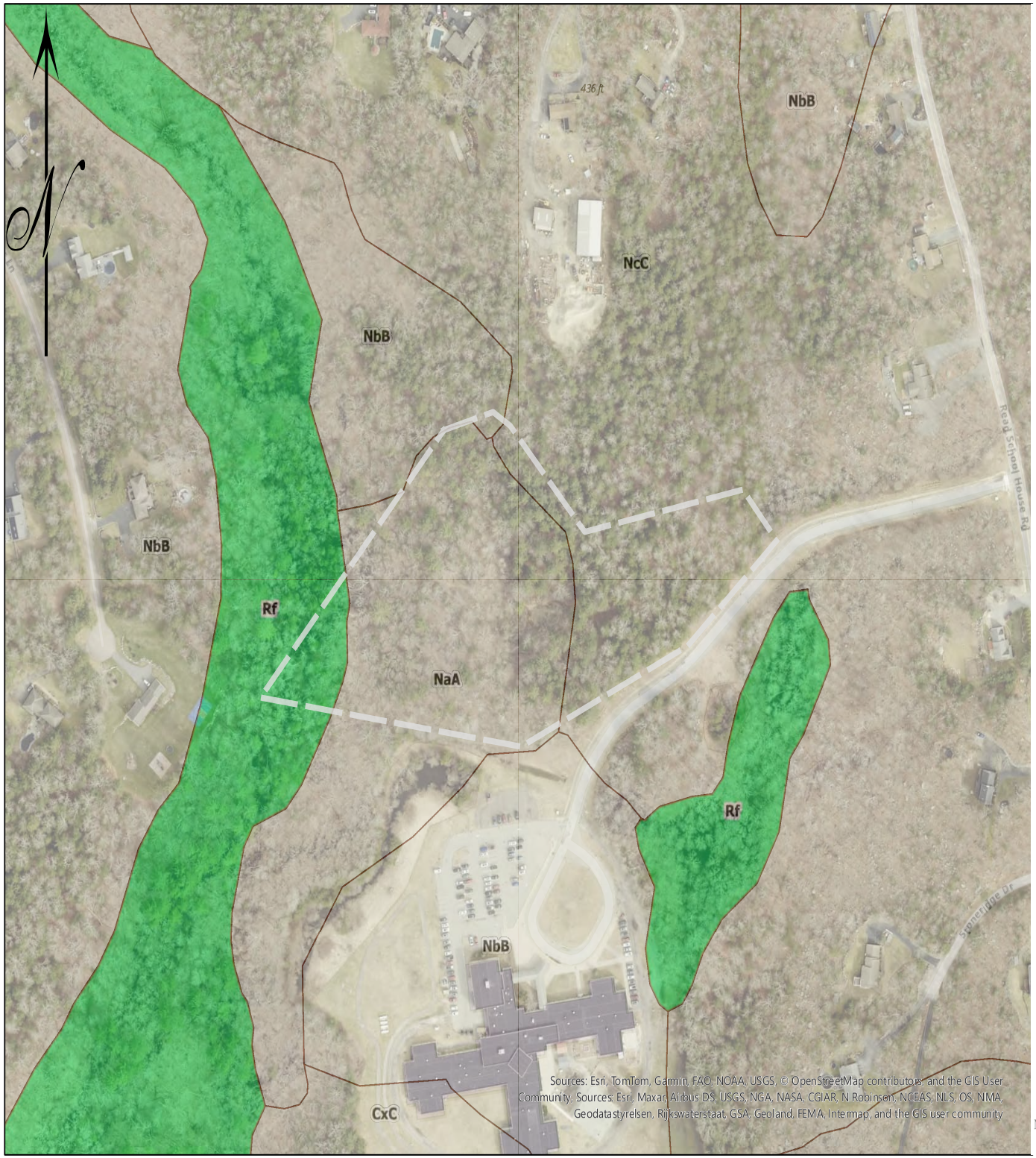
PROPERTY LINE

200 100 0 200 400
Feet

General Notes:
1. This map should not be interpreted as a survey quality graphic. It is designed for preliminary planning purposes only. AES recommends consultation with a Professional Land Surveyor for accurate site feature locations.
2. Property lines as depicted on this map have been approximated from plat maps available from the town assessor's online database.
3. Aerial photograph base map and other data layers acquired from the RI DEM and RIGIS database.

Map created by: Patrick J. Loveland, GIS Specialist 10/27/2025

25-368



AVIZINIS
ENVIRONMENTAL
SERVICES INC

USDA - NRCS SOIL SURVEY MAP
A.P. 89, Lot 9 | Hope Furnace Road
Coventry, Rhode Island

LEGEND

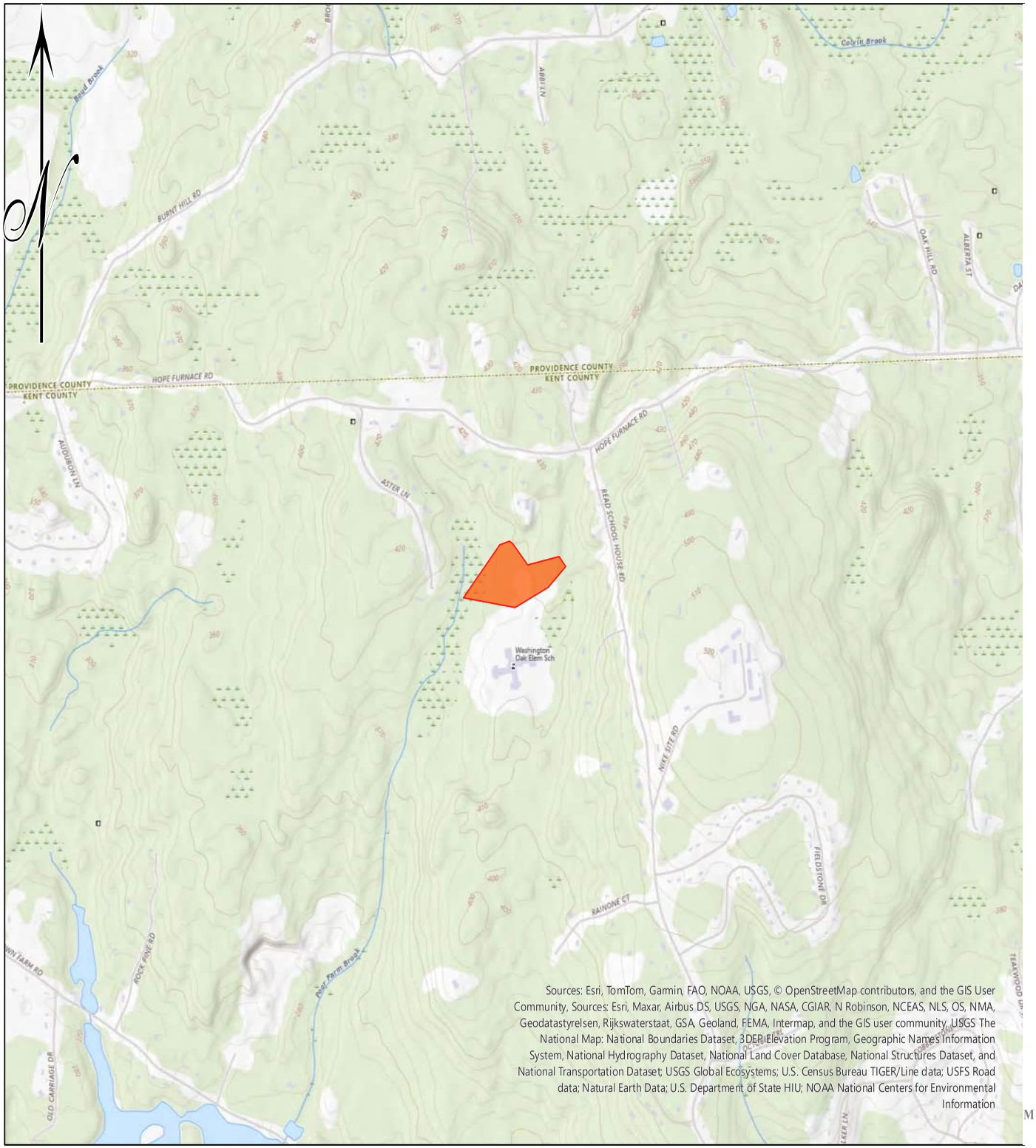
Cxc - Canton fine sandy loam, 3 to 15 percent slopes, extremely bouldery
NaA - Narragansett silt loam, 0 to 3 percent slopes
NbB - Narragansett very stony silt loam, 0 to 8 percent slopes
NcC - Narragansett extremely stony silt loam, 3 to 15 percent slopes
Rf - Ridgebury, Leicester, and Whitman soils, 0 to 8 percent slopes, extremely stony

200 100 0 200 400 600 Feet

General Notes:
1. This map should not be interpreted as a survey quality graphic. It is designed for preliminary planning purposes only. AES recommends consultation with a Professional Land Surveyor for accurate site feature locations.
2. Property lines as depicted on this map have been approximated from plat maps available from the town assessor's online database.
3. Aerial photograph base map and other data layers acquired from the RI DEM and RIGIS database.

Map created by: Patrick J. Loveland, GIS Specialist 10/27/2025

25-368



Sources: Esri, TomTom, Garmin, FAO, NOAA, USGS, © OpenStreetMap contributors, and the GIS User Community, Sources: Esri, Maxar, Airbus DS, USGS, NGA, NASA, CGIAR, N Robinson, NCEAS, NLS, OS, NMA, Geodatastyrelsen, Rijkswaterstaat, GSA, Geoland, FEMA, Intermap, and the GIS user community, USGS The National Map: National Boundaries Dataset, 3DEP Elevation Program, Geographic Names Information System, National Hydrography Dataset, National Land Cover Database, National Structures Dataset, and National Transportation Dataset; USGS Global Ecosystems; U.S. Census Bureau TIGER/Line data; USFS Road data; Natural Earth Data; U.S. Department of State HIU; NOAA National Centers for Environmental Information

AVIZINIS
ENVIRONMENTAL
SERVICES INC

USGS TOPOGRAPHIC MAP
A.P. 89, Lot 9 | Hope Furnace Road
Coventry, Rhode Island

LEGEND

PROPERTY LINE

1,000 500 0 1,000 2,000 3,000
Feet

General Notes:
1. This map should not be interpreted as a survey quality graphic. It is designed for preliminary planning purposes only. AES recommends consultation with a Professional Land Surveyor for accurate site feature locations.
2. Property lines as depicted on this map have been approximated from plat maps available from the town assessor's online database.
3. Aerial photograph base map and other data layers acquired from the RI DEM and RIGIS database.

Map created by: Patrick J. Loveland, GIS Specialist 10/27/2025

25-368



AVIZINIS
ENVIRONMENTAL SERVICES INC

2025 SOIL EVALUATION MAP
A.P. 89, Lot 9 | Hope Furnace Road
Coventry, Rhode Island

LEGEND

- PROPERTY LINE
- AES WETLAND FLAG
- BENCHMARKS
- SOIL EVALUATION APRIL 2026
- SWING TIES

150 75 0 150 300 Feet

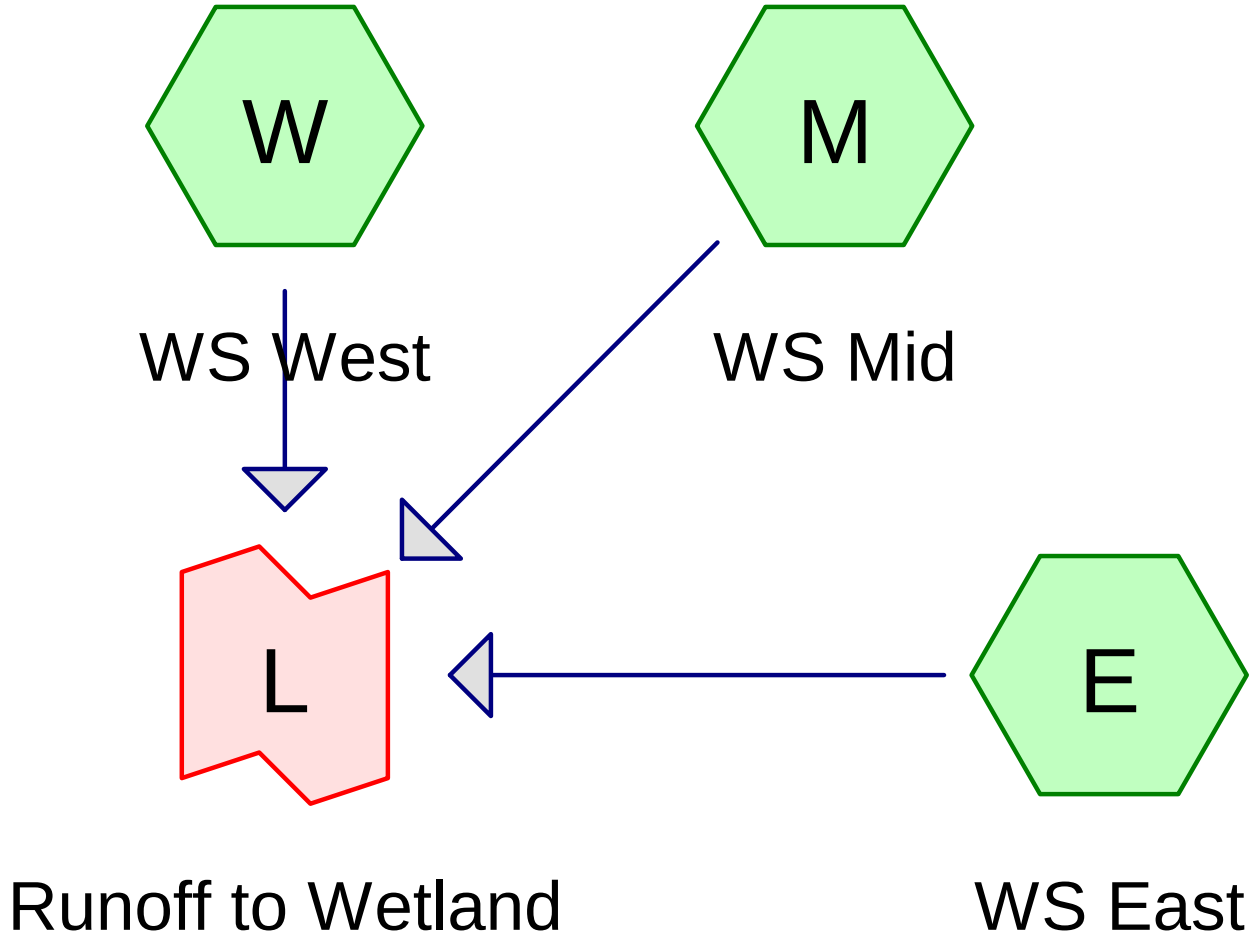
General Notes:
1. This map should not be interpreted as a survey quality graphic. It is designed for preliminary planning purposes only. AES recommends consultation with a Professional Land Surveyor for an accurate site plan.
2. Property lines as depicted on this map have been approximated from plat maps available from the town assessor's online database.
3. Aerial photograph base map and other data layers acquired from the RI DEM and RIGIS database.
4. Site features located with a Juniper Geode Submetric GNSS receiver with SWmaps data collection software. Non-delineated wetland edges have not been field verified and are depicted for graphic purposes only. Wetland regulatory setbacks are not depicted on this map.

Action	Staff	Signed	Dated
Map Prepared By:	Patrick J. Loveland		01/30/26
Performed By:	Amber K. Hardy, M.S., D4098		01/21/26

25-368

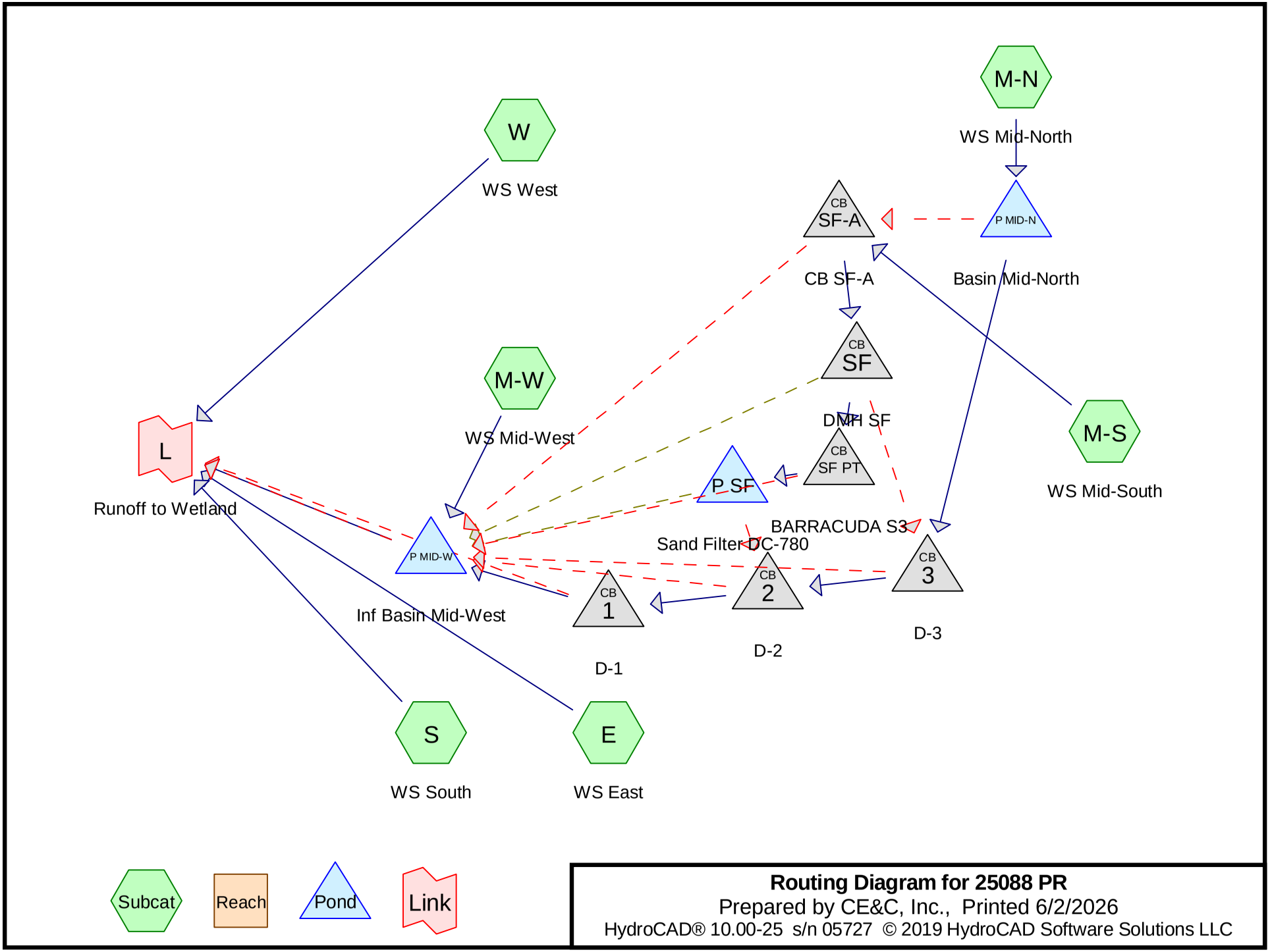
APPENDIX F DRAINAGE DIAGRAMS/ANALYSIS INPUT & OUTPUT DATA

F-1 HYDROCAD DIAGRAMS



Subcat Reach Pond Link

Routing Diagram for 25088 EX
Prepared by CE&C, Inc., Printed 6/2/2026
HydroCAD® 10.00-25 s/n 05727 © 2019 HydroCAD Software Solutions LLC


W
WS West
M-N
WS Mid-North
CB
SF-A
P MID-N
CB SF-A
Basin Mid-North
CB
SF
M-W
WS Mid-West
DMH SF
M-S
WS Mid-South
L
Runoff to Wetland
CB
SF PT
P SF
BARRACUDA S3
Sand Filter DC-780
P MID-W
CB
3
CB
2
CB
1
Inf Basin Mid-West
D-3
D-2
D-1
S
E
WS South
WS East
Subcat
Reach
Pond
Link
Routing Diagram for 25088 PR
Prepared by CE&C, Inc., Printed 6/2/2026
HydroCAD® 10.00-25 s/n 05727 © 2019 HydroCAD Software Solutions LLC

F-2 HYDROCAD PRINTOUTS – EXISTING CONDITIONS

1-YR. STORM

Time span=0.00-32.00 hrs, dt=0.05 hrs, 641 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment E: WS East Runoff Area=51,521 sf 49.81% Impervious Runoff Depth=0.92"
Flow Length=335' Tc=9.5 min CN=78 Runoff=1.07 cfs 3,952 cf

Subcatchment M: WS Mid Runoff Area=497,740 sf 2.50% Impervious Runoff Depth=0.16"
Flow Length=1,650' Tc=36.3 min CN=57 Runoff=0.40 cfs 6,738 cf

Subcatchment W: WS West Runoff Area=218,520 sf 1.55% Impervious Runoff Depth=0.18"
Flow Length=872' Tc=17.1 min CN=58 Runoff=0.30 cfs 3,359 cf

Link L: Runoff to Wetland Inflow=1.08 cfs 14,049 cf
Primary=1.08 cfs 14,049 cf

Total Runoff Area = 767,781 sf Runoff Volume = 14,049 cf Average Runoff Depth = 0.22"
94.59% Pervious = 726,279 sf 5.41% Impervious = 41,502 sf

Summary for Subcatchment E: WS East

Runoff = 1.07 cfs @ 12.15 hrs, Volume= 3,952 cf, Depth= 0.92"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-32.00 hrs, dt= 0.05 hrs
Type III 24-hr 1-YR Rainfall=2.70"

Area (sf)	CN	Description
25,665	98	Paved parking, HSG B
14,255	55	Woods, Good, HSG B
11,601	61	>75% Grass cover, Good, HSG B
51,521	78	Weighted Average
25,856		50.19% Pervious Area
25,665		49.81% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.3	40	0.0650	0.11		**Sheet Flow, Woods** Woods: Light underbrush n= 0.400 P2= 3.30"
1.9	31	0.1129	0.27		**Sheet Flow, Grass** Grass: Short n= 0.150 P2= 3.30"
1.3	264	0.0300	3.52		**Shallow Concentrated Flow, Gutter** Paved Kv= 20.3 fps
9.5	335	Total			

Summary for Subcatchment M: WS Mid

Runoff = 0.40 cfs @ 12.87 hrs, Volume= 6,738 cf, Depth= 0.16"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-32.00 hrs, dt= 0.05 hrs
Type III 24-hr 1-YR Rainfall=2.70"

Area (sf)	CN	Description
9,846	98	Paved parking, HSG B
2,614	98	Roofs, HSG B
11,817	79	<50% Grass cover, Poor, HSG B
20,805	61	>75% Grass cover, Good, HSG B
452,658	55	Woods, Good, HSG B
497,740	57	Weighted Average
485,280		97.50% Pervious Area
12,460		2.50% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.1	95	0.0734	0.13		**Sheet Flow, Woods** Woods: Light underbrush n= 0.400 P2= 3.30"
23.6	1,340	0.0359	0.95		**Shallow Concentrated Flow, Woods** Woodland Kv= 5.0 fps
0.6	215	0.0228	5.83	128.17	**Channel Flow, Grassed Swale** Area= 22.0 sf Perim= 32.0' r= 0.69' n= 0.030 Earth, grassed & winding
36.3	1,650	Total			

Summary for Subcatchment W: WS West

Runoff = 0.30 cfs @ 12.53 hrs, Volume= 3,359 cf, Depth= 0.18"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-32.00 hrs, dt= 0.05 hrs
Type III 24-hr 1-YR Rainfall=2.70"

Area (sf)	CN	Description
3,377	98	Roofs, HSG B
21,569	79	<50% Grass cover, Poor, HSG B
1,628	61	>75% Grass cover, Good, HSG B
191,946	55	Woods, Good, HSG B
218,520	58	Weighted Average
215,143		98.45% Pervious Area
3,377		1.55% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.9	86	0.1280	0.16		**Sheet Flow, Woods** Woods: Light underbrush n= 0.400 P2= 3.30"
0.8	144	0.0319	2.88		**Shallow Concentrated Flow, Gravel Lot** Unpaved Kv= 16.1 fps
0.6	93	0.0688	2.62		**Shallow Concentrated Flow, Non-Wood Open** Nearly Bare & Untilled Kv= 10.0 fps
6.8	549	0.0719	1.34		**Shallow Concentrated Flow, Woods** Woodland Kv= 5.0 fps
17.1	872	Total			

Summary for Link L: Runoff to Wetland

Inflow Area = 767,781 sf, 5.41% Impervious, Inflow Depth = 0.22" for 1-YR event
Inflow = 1.08 cfs @ 12.15 hrs, Volume= 14,049 cf
Primary = 1.08 cfs @ 12.15 hrs, Volume= 14,049 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-32.00 hrs, dt= 0.05 hrs

10 & 100-YR STORMS

Time span=0.00-32.00 hrs, dt=0.05 hrs, 641 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment E: WS East Runoff Area=51,521 sf 49.81% Impervious Runoff Depth=2.54"
Flow Length=335' Tc=9.5 min CN=78 Runoff=3.08 cfs 10,917 cf

Subcatchment M: WS Mid Runoff Area=497,740 sf 2.50% Impervious Runoff Depth=1.00"
Flow Length=1,650' Tc=36.3 min CN=57 Runoff=5.76 cfs 41,467 cf

Subcatchment W: WS West Runoff Area=218,520 sf 1.55% Impervious Runoff Depth=1.06"
Flow Length=872' Tc=17.1 min CN=58 Runoff=3.72 cfs 19,312 cf

Link L: Runoff to Wetland Inflow=9.37 cfs 71,696 cf
Primary=9.37 cfs 71,696 cf

Total Runoff Area = 767,781 sf Runoff Volume = 71,696 cf Average Runoff Depth = 1.12"
94.59% Pervious = 726,279 sf 5.41% Impervious = 41,502 sf

Summary for Subcatchment E: WS East

Runoff = 3.08 cfs @ 12.14 hrs, Volume= 10,917 cf, Depth= 2.54"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-32.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-YR Rainfall=4.80"

Area (sf)	CN	Description
25,665	98	Paved parking, HSG B
14,255	55	Woods, Good, HSG B
11,601	61	>75% Grass cover, Good, HSG B
51,521	78	Weighted Average
25,856		50.19% Pervious Area
25,665		49.81% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.3	40	0.0650	0.11		**Sheet Flow, Woods** Woods: Light underbrush n= 0.400 P2= 3.30"
1.9	31	0.1129	0.27		**Sheet Flow, Grass** Grass: Short n= 0.150 P2= 3.30"
1.3	264	0.0300	3.52		**Shallow Concentrated Flow, Gutter** Paved Kv= 20.3 fps
9.5	335	Total			

Summary for Subcatchment M: WS Mid

Runoff = 5.76 cfs @ 12.59 hrs, Volume= 41,467 cf, Depth= 1.00"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-32.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-YR Rainfall=4.80"

Area (sf)	CN	Description
9,846	98	Paved parking, HSG B
2,614	98	Roofs, HSG B
11,817	79	<50% Grass cover, Poor, HSG B
20,805	61	>75% Grass cover, Good, HSG B
452,658	55	Woods, Good, HSG B
497,740	57	Weighted Average
485,280		97.50% Pervious Area
12,460		2.50% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.1	95	0.0734	0.13		**Sheet Flow, Woods** Woods: Light underbrush n= 0.400 P2= 3.30"
23.6	1,340	0.0359	0.95		**Shallow Concentrated Flow, Woods** Woodland Kv= 5.0 fps
0.6	215	0.0228	5.83	128.17	**Channel Flow, Grassed Swale** Area= 22.0 sf Perim= 32.0' r= 0.69' n= 0.030 Earth, grassed & winding
36.3	1,650	Total			

Summary for Subcatchment W: WS West

Runoff = 3.72 cfs @ 12.28 hrs, Volume= 19,312 cf, Depth= 1.06"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-32.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-YR Rainfall=4.80"

Area (sf)	CN	Description
3,377	98	Roofs, HSG B
21,569	79	<50% Grass cover, Poor, HSG B
1,628	61	>75% Grass cover, Good, HSG B
191,946	55	Woods, Good, HSG B
218,520	58	Weighted Average
215,143		98.45% Pervious Area
3,377		1.55% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.9	86	0.1280	0.16		**Sheet Flow, Woods** Woods: Light underbrush n= 0.400 P2= 3.30"
0.8	144	0.0319	2.88		**Shallow Concentrated Flow, Gravel Lot** Unpaved Kv= 16.1 fps
0.6	93	0.0688	2.62		**Shallow Concentrated Flow, Non-Wood Open** Nearly Bare & Untilled Kv= 10.0 fps
6.8	549	0.0719	1.34		**Shallow Concentrated Flow, Woods** Woodland Kv= 5.0 fps
17.1	872	Total			

Summary for Link L: Runoff to Wetland

Inflow Area = 767,781 sf, 5.41% Impervious, Inflow Depth = 1.12" for 10-YR event
Inflow = 9.37 cfs @ 12.46 hrs, Volume= 71,696 cf
Primary = 9.37 cfs @ 12.46 hrs, Volume= 71,696 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-32.00 hrs, dt= 0.05 hrs

Time span=0.00-32.00 hrs, dt=0.05 hrs, 641 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment E: WS East Runoff Area=51,521 sf 49.81% Impervious Runoff Depth=6.04"
Flow Length=335' Tc=9.5 min CN=78 Runoff=7.22 cfs 25,939 cf

Subcatchment M: WS Mid Runoff Area=497,740 sf 2.50% Impervious Runoff Depth=3.51"
Flow Length=1,650' Tc=36.3 min CN=57 Runoff=23.73 cfs 145,571 cf

Subcatchment W: WS West Runoff Area=218,520 sf 1.55% Impervious Runoff Depth=3.63"
Flow Length=872' Tc=17.1 min CN=58 Runoff=14.96 cfs 66,074 cf

Link L: Runoff to Wetland Inflow=36.45 cfs 237,584 cf
Primary=36.45 cfs 237,584 cf

Total Runoff Area = 767,781 sf Runoff Volume = 237,584 cf Average Runoff Depth = 3.71"
94.59% Pervious = 726,279 sf 5.41% Impervious = 41,502 sf

Summary for Subcatchment E: WS East

Runoff = 7.22 cfs @ 12.13 hrs, Volume= 25,939 cf, Depth= 6.04"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-32.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-YR Rainfall=8.70"

Area (sf)	CN	Description
25,665	98	Paved parking, HSG B
14,255	55	Woods, Good, HSG B
11,601	61	>75% Grass cover, Good, HSG B
51,521	78	Weighted Average
25,856		50.19% Pervious Area
25,665		49.81% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.3	40	0.0650	0.11		**Sheet Flow, Woods** Woods: Light underbrush n= 0.400 P2= 3.30"
1.9	31	0.1129	0.27		**Sheet Flow, Grass** Grass: Short n= 0.150 P2= 3.30"
1.3	264	0.0300	3.52		**Shallow Concentrated Flow, Gutter** Paved Kv= 20.3 fps
9.5	335	Total			

Summary for Subcatchment M: WS Mid

Runoff = 23.73 cfs @ 12.53 hrs, Volume= 145,571 cf, Depth= 3.51"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-32.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-YR Rainfall=8.70"

Area (sf)	CN	Description
9,846	98	Paved parking, HSG B
2,614	98	Roofs, HSG B
11,817	79	<50% Grass cover, Poor, HSG B
20,805	61	>75% Grass cover, Good, HSG B
452,658	55	Woods, Good, HSG B
497,740	57	Weighted Average
485,280		97.50% Pervious Area
12,460		2.50% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.1	95	0.0734	0.13		**Sheet Flow, Woods** Woods: Light underbrush n= 0.400 P2= 3.30"
23.6	1,340	0.0359	0.95		**Shallow Concentrated Flow, Woods** Woodland Kv= 5.0 fps
0.6	215	0.0228	5.83	128.17	**Channel Flow, Grassed Swale** Area= 22.0 sf Perim= 32.0' r= 0.69' n= 0.030 Earth, grassed & winding
36.3	1,650	Total			

Summary for Subcatchment W: WS West

Runoff = 14.96 cfs @ 12.25 hrs, Volume= 66,074 cf, Depth= 3.63"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-32.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-YR Rainfall=8.70"

Area (sf)	CN	Description
3,377	98	Roofs, HSG B
21,569	79	<50% Grass cover, Poor, HSG B
1,628	61	>75% Grass cover, Good, HSG B
191,946	55	Woods, Good, HSG B
218,520	58	Weighted Average
215,143		98.45% Pervious Area
3,377		1.55% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.9	86	0.1280	0.16		**Sheet Flow, Woods** Woods: Light underbrush n= 0.400 P2= 3.30"
0.8	144	0.0319	2.88		**Shallow Concentrated Flow, Gravel Lot** Unpaved Kv= 16.1 fps
0.6	93	0.0688	2.62		**Shallow Concentrated Flow, Non-Wood Open** Nearly Bare & Untilled Kv= 10.0 fps
6.8	549	0.0719	1.34		**Shallow Concentrated Flow, Woods** Woodland Kv= 5.0 fps
17.1	872	Total			

Summary for Link L: Runoff to Wetland

Inflow Area = 767,781 sf, 5.41% Impervious, Inflow Depth = 3.71" for 100-YR event
Inflow = 36.45 cfs @ 12.40 hrs, Volume= 237,584 cf
Primary = 36.45 cfs @ 12.40 hrs, Volume= 237,584 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-32.00 hrs, dt= 0.05 hrs

F-3 HYDROCAD PRINTOUTS – PROPOSED CONDITIONS

1-YR. STORM

Time span=0.00-96.00 hrs, dt=0.01 hrs, 9601 points x 2
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment E: WS East Runoff Area=51,511 sf 49.82% Impervious Runoff Depth=0.92"
Flow Length=335' Tc=9.5 min CN=78 Runoff=1.08 cfs 3,951 cf

Subcatchment M-N: WS Mid-North Runoff Area=324,967 sf 1.50% Impervious Runoff Depth=0.16"
Flow Length=941' Tc=26.3 min CN=57 Runoff=0.30 cfs 4,399 cf

Subcatchment M-S: WS Mid-South Runoff Area=34,893 sf 43.98% Impervious Runoff Depth=0.82"
Flow Length=418' Tc=7.8 min CN=76 Runoff=0.67 cfs 2,380 cf

Subcatchment M-W: WS Mid-West Runoff Area=92,586 sf 13.05% Impervious Runoff Depth=0.38"
Flow Length=390' Tc=17.0 min CN=65 Runoff=0.43 cfs 2,900 cf

Subcatchment S: WS South Runoff Area=61,010 sf 18.88% Impervious Runoff Depth=0.41"
Flow Length=601' Tc=10.6 min UI Adjusted CN=66 Runoff=0.38 cfs 2,078 cf

Subcatchment W: WS West Runoff Area=206,851 sf 2.04% Impervious Runoff Depth=0.21"
Flow Length=872' Tc=17.1 min CN=59 Runoff=0.35 cfs 3,583 cf

Pond 1: D-1 Peak Elev=386.67' Inflow=0.23 cfs 4,846 cf
Primary=0.23 cfs 4,846 cf Secondary=0.00 cfs 0 cf Outflow=0.23 cfs 4,846 cf

Pond 2: D-2 Peak Elev=387.06' Inflow=0.23 cfs 4,846 cf
Primary=0.23 cfs 4,846 cf Secondary=0.00 cfs 0 cf Outflow=0.23 cfs 4,846 cf

Pond 3: D-3 Peak Elev=387.52' Inflow=0.23 cfs 4,846 cf
Primary=0.23 cfs 4,846 cf Secondary=0.00 cfs 0 cf Outflow=0.23 cfs 4,846 cf

Pond P MID-N: Basin Mid-North Peak Elev=390.31' Storage=1,475 cf Inflow=0.30 cfs 4,399 cf
Primary=0.10 cfs 4,364 cf Secondary=0.00 cfs 0 cf Outflow=0.10 cfs 4,364 cf

Pond P MID-W: Inf Basin Mid-West Peak Elev=383.75' Storage=571 cf Inflow=0.65 cfs 7,746 cf
Primary=0.21 cfs 1,696 cf Secondary=0.00 cfs 0 cf Tertiary=0.13 cfs 6,050 cf Outflow=0.34 cfs 7,746 cf

Pond P SF: Sand Filter DC-780 Peak Elev=389.76' Storage=577 cf Inflow=0.44 cfs 1,899 cf
Primary=0.05 cfs 1,899 cf Secondary=0.00 cfs 0 cf Tertiary=0.00 cfs 0 cf Outflow=0.05 cfs 1,899 cf

Pond SF: DMH SF Peak Elev=389.76' Inflow=0.67 cfs 2,380 cf
Primary=0.44 cfs 1,899 cf Secondary=0.23 cfs 482 cf Tertiary=0.00 cfs 0 cf Outflow=0.67 cfs 2,380 cf

Pond SF PT: BARRACUDA S3 Peak Elev=389.76' Inflow=0.44 cfs 1,899 cf
Primary=0.44 cfs 1,899 cf Secondary=0.00 cfs 0 cf Outflow=0.44 cfs 1,899 cf

Pond SF-A: CB SF-A Peak Elev=390.09' Inflow=0.67 cfs 2,380 cf
Primary=0.67 cfs 2,380 cf Secondary=0.00 cfs 0 cf Outflow=0.67 cfs 2,380 cf

Link L: Runoff to Wetland Inflow=1.48 cfs 11,308 cf
Primary=1.48 cfs 11,308 cf

Total Runoff Area = 771,818 sf Runoff Volume = 19,292 cf Average Runoff Depth = 0.30"
90.45% Pervious = 698,101 sf 9.55% Impervious = 73,717 sf

Summary for Subcatchment E: WS East

Runoff = 1.08 cfs @ 12.14 hrs, Volume= 3,951 cf, Depth= 0.92"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs
Type III 24-hr 1-YR Rainfall=2.70"

Area (sf)	CN	Description
25,665	98	Paved parking, HSG B
11,000	55	Woods, Good, HSG B
14,846	61	>75% Grass cover, Good, HSG B
51,511	78	Weighted Average
25,846		50.18% Pervious Area
25,665		49.82% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.3	40	0.0650	0.11		**Sheet Flow, Woods** Woods: Light underbrush n= 0.400 P2= 3.30"
1.9	31	0.1129	0.27		**Sheet Flow, Grass** Grass: Short n= 0.150 P2= 3.30"
1.3	264	0.0300	3.52		**Shallow Concentrated Flow, Gutter** Paved Kv= 20.3 fps
9.5	335	Total			

Summary for Subcatchment M-N: WS Mid-North

Runoff = 0.30 cfs @ 12.71 hrs, Volume= 4,399 cf, Depth= 0.16"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs
Type III 24-hr 1-YR Rainfall=2.70"

	Area (sf)	CN	Description
	4,522	98	Roofs, HSG B
*	350	98	Unconnected ret wall, HSG B
	6,898	79	<50% Grass cover, Poor, HSG B
	40,565	61	>75% Grass cover, Good, HSG B
	272,632	55	Woods, Good, HSG B
	324,967	57	Weighted Average
	320,095		98.50% Pervious Area
	4,872		1.50% Impervious Area
	350		7.18% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.1	95	0.0734	0.13		**Sheet Flow, Woods** Woods: Light underbrush n= 0.400 P2= 3.30"
13.4	787	0.0385	0.98		**Shallow Concentrated Flow, Woods** Woodland Kv= 5.0 fps
0.8	59	0.0288	1.19		**Shallow Concentrated Flow, Lawn** Short Grass Pasture Kv= 7.0 fps
26.3	941	Total			

Summary for Subcatchment M-S: WS Mid-South

Runoff = 0.67 cfs @ 12.12 hrs, Volume= 2,380 cf, Depth= 0.82"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs
Type III 24-hr 1-YR Rainfall=2.70"

	Area (sf)	CN	Description
	828	98	Roofs, HSG B
*	10,851	98	Paved Cul-deSac, HSG B
*	3,666	98	Paved driveway, HSG B
	12,990	61	>75% Grass cover, Good, HSG B
	6,558	55	Woods, Good, HSG B
	34,893	76	Weighted Average
	19,548		56.02% Pervious Area
	15,345		43.98% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.4	67	0.0253	0.18		**Sheet Flow, Lawn** Grass: Short n= 0.150 P2= 3.30"
0.8	251	0.0655	5.20		**Shallow Concentrated Flow, Driveway** Paved Kv= 20.3 fps
0.6	100	0.0170	2.65		**Shallow Concentrated Flow, Cul-de-Sac** Paved Kv= 20.3 fps
7.8	418	Total			

Summary for Subcatchment M-W: WS Mid-West

Runoff = 0.43 cfs @ 12.34 hrs, Volume= 2,900 cf, Depth= 0.38"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs
Type III 24-hr 1-YR Rainfall=2.70"

	Area (sf)	CN	Description
	3,312	98	Roofs, HSG B
	8,513	98	Paved parking, HSG B
*	262	98	Unconnected ret wall, HSG B
	66,761	61	>75% Grass cover, Good, HSG B
	13,738	55	Woods, Good, HSG B
	92,586	65	Weighted Average
	80,499		86.95% Pervious Area
	12,087		13.05% Impervious Area
	262		2.17% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.4	28	0.0210	1.10		**Sheet Flow, Driveway**
					Smooth surfaces n= 0.011 P2= 3.30"
2.2	17	0.0235	0.13		**Sheet Flow, Lawn**
					Grass: Short n= 0.150 P2= 3.30"
9.1	35	0.0200	0.06		**Sheet Flow, Woods**
					Woods: Light underbrush n= 0.400 P2= 3.30"
1.1	41	0.0146	0.60		**Shallow Concentrated Flow, Woods Lot 2**
					Woodland Kv= 5.0 fps
1.5	108	0.0287	1.19		**Shallow Concentrated Flow, Lawn Lot 2**
					Short Grass Pasture Kv= 7.0 fps
1.5	74	0.0257	0.80		**Shallow Concentrated Flow, Woods Lot 1**
					Woodland Kv= 5.0 fps
1.2	87	0.0276	1.16		**Shallow Concentrated Flow, Lawn Lot 1**
					Short Grass Pasture Kv= 7.0 fps
17.0	390	Total			

Summary for Subcatchment S: WS South

Runoff = 0.38 cfs @ 12.19 hrs, Volume= 2,078 cf, Depth= 0.41"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs
Type III 24-hr 1-YR Rainfall=2.70"

	Area (sf)	CN	Adj	Description
	9,846	98		Paved parking, HSG B
*	1,672	98		Unconnected ret walls, HSG B
	4,918	79		<50% Grass cover, Poor, HSG B
	18,971	61		>75% Grass cover, Good, HSG B
	25,603	55		Woods, Good, HSG B
	61,010	67	66	Weighted Average, UI Adjusted
	49,492			81.12% Pervious Area
	11,518			18.88% Impervious Area
	1,672			14.52% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.9	97	0.0800	0.21		**Sheet Flow, Dense Vegetation**
					Grass: Dense n= 0.240 P2= 3.30"
1.4	89	0.0224	1.05		**Shallow Concentrated Flow, Woods**
					Short Grass Pasture Kv= 7.0 fps
1.3	415	0.0193	5.36	117.93	**Channel Flow, Grassed Swale**
					Area= 22.0 sf Perim= 32.0' r= 0.69'
					n= 0.030 Earth, grassed & winding
10.6	601	Total			

Summary for Subcatchment W: WS West

Runoff = 0.35 cfs @ 12.51 hrs, Volume= 3,583 cf, Depth= 0.21"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs
Type III 24-hr 1-YR Rainfall=2.70"

Area (sf)	CN	Description
3,952	98	Roofs, HSG B
278	98	Unconnected pavement, HSG B
21,569	79	<50% Grass cover, Poor, HSG B
20,665	61	>75% Grass cover, Good, HSG B
160,387	55	Woods, Good, HSG B
206,851	59	Weighted Average
202,621		97.96% Pervious Area
4,230		2.04% Impervious Area
278		6.57% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.9	86	0.1280	0.16		**Sheet Flow, Woods** Woods: Light underbrush n= 0.400 P2= 3.30"
0.8	144	0.0319	2.88		**Shallow Concentrated Flow, Gravel Lot** Unpaved Kv= 16.1 fps
0.6	93	0.0688	2.62		**Shallow Concentrated Flow, Non-Wood Open** Nearly Bare & Untilled Kv= 10.0 fps
6.8	549	0.0719	1.34		**Shallow Concentrated Flow, Woods** Woodland Kv= 5.0 fps
17.1	872	Total			

Summary for Pond 1: D-1

Inflow Area = 324,967 sf, 1.50% Impervious, Inflow Depth > 0.18" for 1-YR event
Inflow = 0.23 cfs @ 12.44 hrs, Volume= 4,846 cf
Outflow = 0.23 cfs @ 12.44 hrs, Volume= 4,846 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.23 cfs @ 12.44 hrs, Volume= 4,846 cf
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs / 2
Peak Elev= 386.67' @ 12.44 hrs
Flood Elev= 390.00'

Device	Routing	Invert	Outlet Devices
#1	Primary	386.40'	**18.0" Round 18" CPP** L= 67.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 386.40' / 386.20' S= 0.0030 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.77 sf
#2	Secondary	390.00'	**32.0" Horiz. MH Surcharge** C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=0.23 cfs @ 12.44 hrs HW=386.67' TW=383.69' (Dynamic Tailwater)
1=18" CPP (Barrel Controls 0.23 cfs @ 1.61 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=386.40' TW=0.00' (Dynamic Tailwater)
2=MH Surcharge (Controls 0.00 cfs)

Summary for Pond 2: D-2

Inflow Area = 324,967 sf, 1.50% Impervious, Inflow Depth > 0.18" for 1-YR event
Inflow = 0.23 cfs @ 12.44 hrs, Volume= 4,846 cf
Outflow = 0.23 cfs @ 12.44 hrs, Volume= 4,846 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.23 cfs @ 12.44 hrs, Volume= 4,846 cf
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs / 2
Peak Elev= 387.06' @ 12.44 hrs
Flood Elev= 393.40'

Device	Routing	Invert	Outlet Devices
#1	Primary	386.80'	**18.0" Round 18" CPP** L= 75.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 386.80' / 386.50' S= 0.0040 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.77 sf
#2	Secondary	393.40'	**32.0" Horiz. MH Surcharge** C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=0.23 cfs @ 12.44 hrs HW=387.06' TW=386.67' (Dynamic Tailwater)
1=18" CPP (Barrel Controls 0.23 cfs @ 1.74 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=386.80' TW=383.50' (Dynamic Tailwater)
2=MH Surcharge (Controls 0.00 cfs)

Summary for Pond 3: D-3

Inflow Area = 324,967 sf, 1.50% Impervious, Inflow Depth > 0.18" for 1-YR event
Inflow = 0.23 cfs @ 12.44 hrs, Volume= 4,846 cf
Outflow = 0.23 cfs @ 12.44 hrs, Volume= 4,846 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.23 cfs @ 12.44 hrs, Volume= 4,846 cf
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs / 2
Peak Elev= 387.52' @ 12.44 hrs
Flood Elev= 393.60'

Device	Routing	Invert	Outlet Devices
#1	Primary	387.30'	**18.0" Round 18" CPP** L= 44.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 387.30' / 386.90' S= 0.0091 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.77 sf
#2	Secondary	393.60'	**32.0" Horiz. MH Surcharge** C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=0.23 cfs @ 12.44 hrs HW=387.52' TW=387.06' (Dynamic Tailwater)
1=18" CPP (Barrel Controls 0.23 cfs @ 2.21 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=387.30' TW=383.50' (Dynamic Tailwater)
2=MH Surcharge (Controls 0.00 cfs)

Summary for Pond P MID-N: Basin Mid-North

Inflow Area = 324,967 sf, 1.50% Impervious, Inflow Depth = 0.16" for 1-YR event
Inflow = 0.30 cfs @ 12.71 hrs, Volume= 4,399 cf
Outflow = 0.10 cfs @ 16.62 hrs, Volume= 4,364 cf, Atten= 65%, Lag= 235.1 min
Primary = 0.10 cfs @ 16.62 hrs, Volume= 4,364 cf
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs / 2
Peak Elev= 390.31' @ 16.62 hrs Surf.Area= 4,896 sf Storage= 1,475 cf
Flood Elev= 394.50' Surf.Area= 10,443 sf Storage= 33,250 cf

Plug-Flow detention time= 280.3 min calculated for 4,364 cf (99% of inflow)

Center-of-Mass det. time= 276.9 min (1,271.9 - 995.0)

Volume	Invert	Avail.Storage	Storage Description
#1	390.00'	44,241 cf	**Basin Contours (Irregular)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
390.00	4,531	396.0	0	0	4,531
391.00	5,747	415.0	5,127	5,127	5,823
392.00	7,020	434.0	6,373	11,500	7,175
393.00	8,348	452.0	7,674	19,174	8,519
394.00	9,734	471.0	9,032	28,206	9,989
395.00	11,176	490.0	10,447	38,653	11,519
395.50	11,176	490.0	5,588	44,241	11,764

Device	Routing	Invert	Outlet Devices
#1	Primary	389.90'	**15.0" Round 15" CPP** L= 143.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 389.90' / 389.16' S= 0.0052 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf
#2	Device 1	390.00'	**11.0" Vert. 11" Plug Orifice** C= 0.600
#3	Device 2	390.00'	**3.0" Vert. 3" Low-Flow Orifice** C= 0.600
#4	Device 2	392.70'	**12.6' long x 0.5' breadth Outflow Riser** Head (feet) 0.20 0.40 0.60 0.80 1.00 Coef. (English) 2.80 2.92 3.08 3.30 3.32
#5	Secondary	394.50'	**16.0' long x 8.0' breadth Emergency Overflow Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50 Coef. (English) 2.43 2.54 2.70 2.69 2.68 2.68 2.66 2.64 2.64 2.64 2.65 2.65 2.66 2.66 2.68 2.70 2.74

Primary OutFlow Max=0.10 cfs @ 16.62 hrs HW=390.31' TW=387.45' (Dynamic Tailwater)
- **1=15" CPP** (Passes 0.10 cfs of 0.59 cfs potential flow)
  - **2=11" Plug Orifice** (Passes 0.10 cfs of 0.38 cfs potential flow)
    - **3=3" Low-Flow Orifice** (Orifice Controls 0.10 cfs @ 2.09 fps)
    - **4=Outflow Riser** (Controls 0.00 cfs)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=390.00' TW=389.61' (Dynamic Tailwater)
- **5=Emergency Overflow Weir** (Controls 0.00 cfs)

Summary for Pond P MID-W: Inf Basin Mid-West

Inflow Area = 417,553 sf, 4.06% Impervious, Inflow Depth > 0.22" for 1-YR event
Inflow = 0.65 cfs @ 12.43 hrs, Volume= 7,746 cf
Outflow = 0.34 cfs @ 12.69 hrs, Volume= 7,746 cf, Atten= 48%, Lag= 15.4 min
Primary = 0.21 cfs @ 12.69 hrs, Volume= 1,696 cf
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf
Tertiary = 0.13 cfs @ 12.69 hrs, Volume= 6,050 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs / 2
Peak Elev= 383.75' @ 12.69 hrs Surf.Area= 2,348 sf Storage= 571 cf
Flood Elev= 386.30' Surf.Area= 5,261 sf Storage= 9,989 cf

Plug-Flow detention time= 15.3 min calculated for 7,746 cf (100% of inflow)
Center-of-Mass det. time= 15.3 min (1,125.2 - 1,110.0)

Volume	Invert	Avail.Storage	Storage Description
#1	383.50'	15,865 cf	**Basin Contours (Irregular)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
383.50	2,132	274.0	0	0	2,132
384.00	2,566	294.0	1,173	1,173	3,047
385.00	3,585	348.0	3,061	4,234	5,824
386.00	4,909	422.0	4,230	8,464	10,375
387.00	6,128	439.0	5,507	13,971	11,617
387.30	6,503	444.0	1,894	15,865	11,992

Device	Routing	Invert	Outlet Devices
#1	Primary	383.50'	**12.0" Round Twin 12" CPP X 2.00** L= 15.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 383.50' / 383.40' S= 0.0067 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf
#2	Device 1	383.50'	**6.0" W x 4.0" H Vert. 3" Low-Flow Orifice** C= 0.600
#3	Device 1	385.30'	**16.0' long x 0.5' breadth Outflow Riser** Head (feet) 0.20 0.40 0.60 0.80 1.00 Coef. (English) 2.80 2.92 3.08 3.30 3.32
#4	Secondary	386.30'	**22.0' long x 6.0' breadth Emergency Overflow Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50 Coef. (English) 2.37 2.51 2.70 2.68 2.68 2.67 2.65 2.65 2.65 2.65 2.66 2.66 2.67 2.69 2.72 2.76 2.83
#5	Tertiary	383.50'	**2.410 in/hr Exfiltration over Surface area** Phase-In= 0.01'

Primary OutFlow Max=0.21 cfs @ 12.69 hrs HW=383.75' TW=0.00' (Dynamic Tailwater)
1=Twin 12" CPP (Passes 0.21 cfs of 0.38 cfs potential flow)
2=3" Low-Flow Orifice (Orifice Controls 0.21 cfs @ 1.62 fps)
3=Outflow Riser (Controls 0.00 cfs)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=383.50' TW=0.00' (Dynamic Tailwater)
4=Emergency Overflow Weir (Controls 0.00 cfs)

Tertiary OutFlow Max=0.13 cfs @ 12.69 hrs HW=383.75' (Free Discharge)
5=Exfiltration (Exfiltration Controls 0.13 cfs)

Summary for Pond P SF: Sand Filter DC-780

Inflow Area = 34,893 sf, 43.98% Impervious, Inflow Depth = 0.65" for 1-YR event
Inflow = 0.44 cfs @ 12.13 hrs, Volume= 1,899 cf
Outflow = 0.05 cfs @ 12.06 hrs, Volume= 1,899 cf, Atten= 88%, Lag= 0.0 min
Primary = 0.05 cfs @ 12.06 hrs, Volume= 1,899 cf
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf
Tertiary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs / 2
Peak Elev= 389.76' @ 12.44 hrs Surf.Area= 960 sf Storage= 577 cf
Flood Elev= 393.50' Surf.Area= 960 sf Storage= 1,147 cf

Plug-Flow detention time= 118.4 min calculated for 1,898 cf (100% of inflow)

Center-of-Mass det. time= 118.4 min (1,014.1 - 895.7)

Volume	Invert	Avail.Storage	Storage Description
#1	386.75'	180 cf	**Sand Filter (Irregular)** Listed below (Recalc) 720 cf Overall x 25.0% Voids
#2	388.25'	411 cf	**Crushed Stone Surround (Irregular)** Listed below (Recalc) 1,800 cf Overall - 555 cf Embedded = 1,245 cf x 33.0% Voids
#3	389.00'	555 cf	**ADS_StormTech DC-780 +Cap** x 12 Inside #2 Effective Size= 45.4"W x 30.0"H => 6.49 sf x 7.12'L = 46.2 cf Overall Size= 51.0"W x 30.0"H x 7.56'L with 0.44' Overlap 12 Chambers in 3 Rows
#4	392.00'	1 cf	**0.50'D x 1.50'H Cleanout Risers** x 3 -Impervious
		1,147 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
386.75	480	92.0	0	0	480
388.25	480	92.0	720	720	618

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
388.25	480	92.0	0	0	480
392.00	480	92.0	1,800	1,800	825

Device	Routing	Invert	Outlet Devices
#1	Primary	386.75'	**2.410 in/hr EXFILTRATION over Surface area** Phase-In= 0.01'
#2	Secondary	391.00'	**4.0" Round 4" INSP PORT OVERFLOW** L= 26.0' CPP, mitered to conform to fill, Ke= 0.700 Inlet / Outlet Invert= 391.00' / 390.00' S= 0.0385 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.09 sf
#3	Tertiary	393.49'	**6.0" Horiz. CO SURCHARGE 393.5 X 3.00** C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=0.05 cfs @ 12.06 hrs HW=388.33' (Free Discharge)
↑—**1=EXFILTRATION** (Exfiltration Controls 0.05 cfs)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=386.75' TW=386.80' (Dynamic Tailwater)
↑—**2=4" INSP PORT OVERFLOW** (Controls 0.00 cfs)

Tertiary OutFlow Max=0.00 cfs @ 0.00 hrs HW=386.75' TW=383.50' (Dynamic Tailwater)
↑—**3=CO SURCHARGE 393.5** (Controls 0.00 cfs)

Summary for Pond SF: DMH SF

Inflow Area = 34,893 sf, 43.98% Impervious, Inflow Depth = 0.82" for 1-YR event
Inflow = 0.67 cfs @ 12.12 hrs, Volume= 2,380 cf
Outflow = 0.67 cfs @ 12.12 hrs, Volume= 2,380 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.44 cfs @ 12.13 hrs, Volume= 1,899 cf
Secondary = 0.23 cfs @ 12.44 hrs, Volume= 482 cf
Tertiary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs / 2

Peak Elev= 389.76' @ 12.44 hrs
Flood Elev= 394.40'

Device	Routing	Invert	Outlet Devices
#1	Primary	389.30'	**10.0" Round 10" CPP TO SF** L= 3.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 389.30' / 389.25' S= 0.0167 '/' Cc= 0.900 n= 0.011 Corrugated PE, smooth interior, Flow Area= 0.55 sf
#2	Secondary	387.91'	**15.0" Round 15" CPP BYPASS** L= 18.7' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 387.91' / 387.80' S= 0.0059 '/' Cc= 0.900 n= 0.011 Corrugated PE, smooth interior, Flow Area= 1.23 sf
#3	Device 2	389.70'	**5.0' long x 0.5' breadth OVERFLOW WEIR** Head (feet) 0.20 0.40 0.60 0.80 1.00 Coef. (English) 2.80 2.92 3.08 3.30 3.32
#4	Tertiary	394.40'	**32.0" Horiz. DMH SURCHARGE** C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=0.45 cfs @ 12.13 hrs HW=389.76' TW=389.66' (Dynamic Tailwater)
1=10" CPP TO SF (Outlet Controls 0.45 cfs @ 2.07 fps)

Secondary OutFlow Max=0.23 cfs @ 12.44 hrs HW=389.76' TW=387.52' (Dynamic Tailwater)
2=15" CPP BYPASS (Passes 0.23 cfs of 6.19 cfs potential flow)
3=OVERFLOW WEIR (Weir Controls 0.23 cfs @ 0.71 fps)

Tertiary OutFlow Max=0.00 cfs @ 0.00 hrs HW=387.97' TW=383.50' (Dynamic Tailwater)
4=DMH SURCHARGE (Controls 0.00 cfs)

Summary for Pond SF PT: BARRACUDA S3

Inflow Area = 34,893 sf, 43.98% Impervious, Inflow Depth = 0.65" for 1-YR event
Inflow = 0.44 cfs @ 12.13 hrs, Volume= 1,899 cf
Outflow = 0.44 cfs @ 12.13 hrs, Volume= 1,899 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.44 cfs @ 12.13 hrs, Volume= 1,899 cf
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs / 2
Peak Elev= 389.76' @ 12.43 hrs
Flood Elev= 393.40'

Device	Routing	Invert	Outlet Devices
#1	Primary	389.25'	**10.0" Round 10" CPP TO SF** L= 3.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 389.25' / 389.20' S= 0.0167 '/' Cc= 0.900 n= 0.011 Corrugated PE, smooth interior, Flow Area= 0.55 sf
#2	Secondary	393.40'	**24.0" Horiz. DMH SURCHARGE** C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=0.44 cfs @ 12.13 hrs HW=389.66' TW=388.92' (Dynamic Tailwater)
1=10" CPP TO SF (Barrel Controls 0.44 cfs @ 2.46 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=389.25' TW=383.50' (Dynamic Tailwater)
2=DMH SURCHARGE (Controls 0.00 cfs)

Summary for Pond SF-A: CB SF-A

Inflow Area = 34,893 sf, 43.98% Impervious, Inflow Depth = 0.82" for 1-YR event
Inflow = 0.67 cfs @ 12.12 hrs, Volume= 2,380 cf
Outflow = 0.67 cfs @ 12.12 hrs, Volume= 2,380 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.67 cfs @ 12.12 hrs, Volume= 2,380 cf
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs / 2
Peak Elev= 390.09' @ 12.12 hrs
Flood Elev= 392.80'

Device	Routing	Invert	Outlet Devices
#1	Primary	389.61'	**15.0" Round 15" CPP** L= 58.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 389.61' / 389.40' S= 0.0036 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf
#2	Secondary	392.80'	**2.5" x 2.5" Horiz. CB Surcharge X 6.00 columns** X 6 rows C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=0.67 cfs @ 12.12 hrs HW=390.09' TW=389.76' (Dynamic Tailwater)
1=15" CPP (Outlet Controls 0.67 cfs @ 2.32 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=389.61' TW=383.50' (Dynamic Tailwater)
2=CB Surcharge (Controls 0.00 cfs)

Summary for Link L: Runoff to Wetland

Inflow Area = 736,925 sf, 7.92% Impervious, Inflow Depth = 0.18" for 1-YR event
Inflow = 1.48 cfs @ 12.16 hrs, Volume= 11,308 cf
Primary = 1.48 cfs @ 12.16 hrs, Volume= 11,308 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs

10 & 100-YR STORMS

Time span=0.00-96.00 hrs, dt=0.01 hrs, 9601 points x 2
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment E: WS East Runoff Area=51,511 sf 49.82% Impervious Runoff Depth=2.54"
Flow Length=335' Tc=9.5 min CN=78 Runoff=3.13 cfs 10,915 cf

Subcatchment M-N: WS Mid-North Runoff Area=324,967 sf 1.50% Impervious Runoff Depth=1.00"
Flow Length=941' Tc=26.3 min CN=57 Runoff=4.34 cfs 27,073 cf

Subcatchment M-S: WS Mid-South Runoff Area=34,893 sf 43.98% Impervious Runoff Depth=2.37"
Flow Length=418' Tc=7.8 min CN=76 Runoff=2.09 cfs 6,896 cf

Subcatchment M-W: WS Mid-West Runoff Area=92,586 sf 13.05% Impervious Runoff Depth=1.52"
Flow Length=390' Tc=17.0 min CN=65 Runoff=2.56 cfs 11,742 cf

Subcatchment S: WS South Runoff Area=61,010 sf 18.88% Impervious Runoff Depth=1.59"
Flow Length=601' Tc=10.6 min UI Adjusted CN=66 Runoff=2.12 cfs 8,099 cf

Subcatchment W: WS West Runoff Area=206,851 sf 2.04% Impervious Runoff Depth=1.12"
Flow Length=872' Tc=17.1 min CN=59 Runoff=3.83 cfs 19,351 cf

Pond 1: D-1 Peak Elev=387.23' Inflow=2.08 cfs 32,409 cf
Primary=2.08 cfs 32,409 cf Secondary=0.00 cfs 0 cf Outflow=2.08 cfs 32,409 cf

Pond 2: D-2 Peak Elev=387.64' Inflow=2.08 cfs 32,409 cf
Primary=2.08 cfs 32,409 cf Secondary=0.00 cfs 0 cf Outflow=2.08 cfs 32,409 cf

Pond 3: D-3 Peak Elev=388.07' Inflow=2.08 cfs 32,077 cf
Primary=2.08 cfs 32,077 cf Secondary=0.00 cfs 0 cf Outflow=2.08 cfs 32,077 cf

Pond P MID-N: Basin Mid-North Peak Elev=392.49' Storage=15,085 cf Inflow=4.34 cfs 27,073 cf
Primary=0.36 cfs 27,029 cf Secondary=0.00 cfs 0 cf Outflow=0.36 cfs 27,029 cf

Pond P MID-W: Inf Basin Mid-West Peak Elev=385.25' Storage=5,175 cf Inflow=4.02 cfs 44,152 cf
Primary=1.01 cfs 29,416 cf Secondary=0.00 cfs 0 cf Tertiary=0.22 cfs 14,736 cf Outflow=1.23 cfs 44,152 cf

Pond P SF: Sand Filter DC-780 Peak Elev=391.22' Storage=1,016 cf Inflow=0.72 cfs 3,246 cf
Primary=0.05 cfs 2,914 cf Secondary=0.09 cfs 332 cf Tertiary=0.00 cfs 0 cf Outflow=0.14 cfs 3,246 cf

Pond SF: DMH SF Peak Elev=389.97' Inflow=2.09 cfs 6,896 cf
Primary=0.72 cfs 3,246 cf Secondary=2.04 cfs 5,048 cf Tertiary=0.00 cfs 0 cf Outflow=2.09 cfs 6,896 cf

Pond SF PT: BARRACUDA S3 Peak Elev=391.21' Inflow=0.72 cfs 3,246 cf
Primary=0.72 cfs 3,246 cf Secondary=0.00 cfs 0 cf Outflow=0.72 cfs 3,246 cf

Pond SF-A: CB SF-A Peak Elev=390.49' Inflow=2.09 cfs 6,896 cf
Primary=2.09 cfs 6,896 cf Secondary=0.00 cfs 0 cf Outflow=2.09 cfs 6,896 cf

Link L: Runoff to Wetland Inflow=8.85 cfs 67,780 cf
Primary=8.85 cfs 67,780 cf

Total Runoff Area = 771,818 sf Runoff Volume = 84,076 cf Average Runoff Depth = 1.31"
90.45% Pervious = 698,101 sf 9.55% Impervious = 73,717 sf

Summary for Subcatchment E: WS East

Runoff = 3.13 cfs @ 12.13 hrs, Volume= 10,915 cf, Depth= 2.54"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-YR Rainfall=4.80"

Area (sf)	CN	Description
25,665	98	Paved parking, HSG B
11,000	55	Woods, Good, HSG B
14,846	61	>75% Grass cover, Good, HSG B
51,511	78	Weighted Average
25,846		50.18% Pervious Area
25,665		49.82% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.3	40	0.0650	0.11		**Sheet Flow, Woods** Woods: Light underbrush n= 0.400 P2= 3.30"
1.9	31	0.1129	0.27		**Sheet Flow, Grass** Grass: Short n= 0.150 P2= 3.30"
1.3	264	0.0300	3.52		**Shallow Concentrated Flow, Gutter** Paved Kv= 20.3 fps
9.5	335	Total			

Summary for Subcatchment M-N: WS Mid-North

Runoff = 4.34 cfs @ 12.44 hrs, Volume= 27,073 cf, Depth= 1.00"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-YR Rainfall=4.80"

	Area (sf)	CN	Description
	4,522	98	Roofs, HSG B
*	350	98	Unconnected ret wall, HSG B
	6,898	79	<50% Grass cover, Poor, HSG B
	40,565	61	>75% Grass cover, Good, HSG B
	272,632	55	Woods, Good, HSG B
	324,967	57	Weighted Average
	320,095		98.50% Pervious Area
	4,872		1.50% Impervious Area
	350		7.18% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.1	95	0.0734	0.13		**Sheet Flow, Woods** Woods: Light underbrush n= 0.400 P2= 3.30"
13.4	787	0.0385	0.98		**Shallow Concentrated Flow, Woods** Woodland Kv= 5.0 fps
0.8	59	0.0288	1.19		**Shallow Concentrated Flow, Lawn** Short Grass Pasture Kv= 7.0 fps
26.3	941	Total			

Summary for Subcatchment M-S: WS Mid-South

Runoff = 2.09 cfs @ 12.11 hrs, Volume= 6,896 cf, Depth= 2.37"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-YR Rainfall=4.80"

	Area (sf)	CN	Description
	828	98	Roofs, HSG B
*	10,851	98	Paved Cul-deSac, HSG B
*	3,666	98	Paved driveway, HSG B
	12,990	61	>75% Grass cover, Good, HSG B
	6,558	55	Woods, Good, HSG B
	34,893	76	Weighted Average
	19,548		56.02% Pervious Area
	15,345		43.98% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.4	67	0.0253	0.18		**Sheet Flow, Lawn** Grass: Short n= 0.150 P2= 3.30"
0.8	251	0.0655	5.20		**Shallow Concentrated Flow, Driveway** Paved Kv= 20.3 fps
0.6	100	0.0170	2.65		**Shallow Concentrated Flow, Cul-de-Sac** Paved Kv= 20.3 fps
7.8	418	Total			

Summary for Subcatchment M-W: WS Mid-West

Runoff = 2.56 cfs @ 12.26 hrs, Volume= 11,742 cf, Depth= 1.52"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-YR Rainfall=4.80"

	Area (sf)	CN	Description
	3,312	98	Roofs, HSG B
	8,513	98	Paved parking, HSG B
*	262	98	Unconnected ret wall, HSG B
	66,761	61	>75% Grass cover, Good, HSG B
	13,738	55	Woods, Good, HSG B
	92,586	65	Weighted Average
	80,499		86.95% Pervious Area
	12,087		13.05% Impervious Area
	262		2.17% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.4	28	0.0210	1.10		**Sheet Flow, Driveway**
					Smooth surfaces n= 0.011 P2= 3.30"
2.2	17	0.0235	0.13		**Sheet Flow, Lawn**
					Grass: Short n= 0.150 P2= 3.30"
9.1	35	0.0200	0.06		**Sheet Flow, Woods**
					Woods: Light underbrush n= 0.400 P2= 3.30"
1.1	41	0.0146	0.60		**Shallow Concentrated Flow, Woods Lot 2**
					Woodland Kv= 5.0 fps
1.5	108	0.0287	1.19		**Shallow Concentrated Flow, Lawn Lot 2**
					Short Grass Pasture Kv= 7.0 fps
1.5	74	0.0257	0.80		**Shallow Concentrated Flow, Woods Lot 1**
					Woodland Kv= 5.0 fps
1.2	87	0.0276	1.16		**Shallow Concentrated Flow, Lawn Lot 1**
					Short Grass Pasture Kv= 7.0 fps
17.0	390	Total			

Summary for Subcatchment S: WS South

Runoff = 2.12 cfs @ 12.16 hrs, Volume= 8,099 cf, Depth= 1.59"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-YR Rainfall=4.80"

	Area (sf)	CN	Adj	Description
	9,846	98		Paved parking, HSG B
*	1,672	98		Unconnected ret walls, HSG B
	4,918	79		<50% Grass cover, Poor, HSG B
	18,971	61		>75% Grass cover, Good, HSG B
	25,603	55		Woods, Good, HSG B
	61,010	67	66	Weighted Average, UI Adjusted
	49,492			81.12% Pervious Area
	11,518			18.88% Impervious Area
	1,672			14.52% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.9	97	0.0800	0.21		**Sheet Flow, Dense Vegetation**
					Grass: Dense n= 0.240 P2= 3.30"
1.4	89	0.0224	1.05		**Shallow Concentrated Flow, Woods**
					Short Grass Pasture Kv= 7.0 fps
1.3	415	0.0193	5.36	117.93	**Channel Flow, Grassed Swale**
					Area= 22.0 sf Perim= 32.0' r= 0.69'
					n= 0.030 Earth, grassed & winding
10.6	601	Total			

Summary for Subcatchment W: WS West

Runoff = 3.83 cfs @ 12.27 hrs, Volume= 19,351 cf, Depth= 1.12"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-YR Rainfall=4.80"

Area (sf)	CN	Description
3,952	98	Roofs, HSG B
278	98	Unconnected pavement, HSG B
21,569	79	<50% Grass cover, Poor, HSG B
20,665	61	>75% Grass cover, Good, HSG B
160,387	55	Woods, Good, HSG B
206,851	59	Weighted Average
202,621		97.96% Pervious Area
4,230		2.04% Impervious Area
278		6.57% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.9	86	0.1280	0.16		**Sheet Flow, Woods** Woods: Light underbrush n= 0.400 P2= 3.30"
0.8	144	0.0319	2.88		**Shallow Concentrated Flow, Gravel Lot** Unpaved Kv= 16.1 fps
0.6	93	0.0688	2.62		**Shallow Concentrated Flow, Non-Wood Open** Nearly Bare & Untilled Kv= 10.0 fps
6.8	549	0.0719	1.34		**Shallow Concentrated Flow, Woods** Woodland Kv= 5.0 fps
17.1	872	Total			

Summary for Pond 1: D-1

Inflow Area = 324,967 sf, 1.50% Impervious, Inflow Depth > 1.20" for 10-YR event
Inflow = 2.08 cfs @ 12.13 hrs, Volume= 32,409 cf
Outflow = 2.08 cfs @ 12.13 hrs, Volume= 32,409 cf, Atten= 0%, Lag= 0.0 min
Primary = 2.08 cfs @ 12.13 hrs, Volume= 32,409 cf
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs / 2
Peak Elev= 387.23' @ 12.13 hrs
Flood Elev= 390.00'

Device	Routing	Invert	Outlet Devices
#1	Primary	386.40'	**18.0" Round 18" CPP** L= 67.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 386.40' / 386.20' S= 0.0030 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.77 sf
#2	Secondary	390.00'	**32.0" Horiz. MH Surcharge** C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=2.06 cfs @ 12.13 hrs HW=387.23' TW=384.13' (Dynamic Tailwater)
1=18" CPP (Barrel Controls 2.06 cfs @ 2.98 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=386.40' TW=0.00' (Dynamic Tailwater)
2=MH Surcharge (Controls 0.00 cfs)

Summary for Pond 2: D-2

Inflow Area = 324,967 sf, 1.50% Impervious, Inflow Depth > 1.20" for 10-YR event
Inflow = 2.08 cfs @ 12.13 hrs, Volume= 32,409 cf
Outflow = 2.08 cfs @ 12.13 hrs, Volume= 32,409 cf, Atten= 0%, Lag= 0.0 min
Primary = 2.08 cfs @ 12.13 hrs, Volume= 32,409 cf
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs / 2
Peak Elev= 387.64' @ 12.12 hrs
Flood Elev= 393.40'

Device	Routing	Invert	Outlet Devices
#1	Primary	386.80'	**18.0" Round 18" CPP** L= 75.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 386.80' / 386.50' S= 0.0040 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.77 sf
#2	Secondary	393.40'	**32.0" Horiz. MH Surcharge** C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=2.06 cfs @ 12.13 hrs HW=387.64' TW=387.23' (Dynamic Tailwater)
1=18" CPP (Outlet Controls 2.06 cfs @ 2.92 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=386.80' TW=383.50' (Dynamic Tailwater)
2=MH Surcharge (Controls 0.00 cfs)

Summary for Pond 3: D-3

Inflow Area = 324,967 sf, 1.50% Impervious, Inflow Depth > 1.18" for 10-YR event
Inflow = 2.08 cfs @ 12.13 hrs, Volume= 32,077 cf
Outflow = 2.08 cfs @ 12.13 hrs, Volume= 32,077 cf, Atten= 0%, Lag= 0.0 min
Primary = 2.08 cfs @ 12.13 hrs, Volume= 32,077 cf
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs / 2
Peak Elev= 388.07' @ 12.13 hrs
Flood Elev= 393.60'

Device	Routing	Invert	Outlet Devices
#1	Primary	387.30'	**18.0" Round 18" CPP** L= 44.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 387.30' / 386.90' S= 0.0091 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.77 sf
#2	Secondary	393.60'	**32.0" Horiz. MH Surcharge** C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=2.05 cfs @ 12.13 hrs HW=388.07' TW=387.64' (Dynamic Tailwater)
1=18" CPP (Outlet Controls 2.05 cfs @ 3.29 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=387.30' TW=383.50' (Dynamic Tailwater)
2=MH Surcharge (Controls 0.00 cfs)

Summary for Pond P MID-N: Basin Mid-North

Inflow Area = 324,967 sf, 1.50% Impervious, Inflow Depth = 1.00" for 10-YR event
Inflow = 4.34 cfs @ 12.44 hrs, Volume= 27,073 cf
Outflow = 0.36 cfs @ 17.35 hrs, Volume= 27,029 cf, Atten= 92%, Lag= 294.8 min
Primary = 0.36 cfs @ 17.35 hrs, Volume= 27,029 cf
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs / 2
Peak Elev= 392.49' @ 17.35 hrs Surf.Area= 7,655 sf Storage= 15,085 cf
Flood Elev= 394.50' Surf.Area= 10,443 sf Storage= 33,250 cf

Plug-Flow detention time= 547.4 min calculated for 27,029 cf (100% of inflow)

Center-of-Mass det. time= 546.5 min (1,454.2 - 907.7)

Volume	Invert	Avail.Storage	Storage Description
#1	390.00'	44,241 cf	**Basin Contours (Irregular)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
390.00	4,531	396.0	0	0	4,531
391.00	5,747	415.0	5,127	5,127	5,823
392.00	7,020	434.0	6,373	11,500	7,175
393.00	8,348	452.0	7,674	19,174	8,519
394.00	9,734	471.0	9,032	28,206	9,989
395.00	11,176	490.0	10,447	38,653	11,519
395.50	11,176	490.0	5,588	44,241	11,764

Device	Routing	Invert	Outlet Devices
#1	Primary	389.90'	**15.0" Round 15" CPP** L= 143.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 389.90' / 389.16' S= 0.0052 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf
#2	Device 1	390.00'	**11.0" Vert. 11" Plug Orifice** C= 0.600
#3	Device 2	390.00'	**3.0" Vert. 3" Low-Flow Orifice** C= 0.600
#4	Device 2	392.70'	**12.6' long x 0.5' breadth Outflow Riser** Head (feet) 0.20 0.40 0.60 0.80 1.00 Coef. (English) 2.80 2.92 3.08 3.30 3.32
#5	Secondary	394.50'	**16.0' long x 8.0' breadth Emergency Overflow Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50 Coef. (English) 2.43 2.54 2.70 2.69 2.68 2.68 2.66 2.64 2.64 2.64 2.65 2.65 2.66 2.66 2.68 2.70 2.74

Primary OutFlow Max=0.36 cfs @ 17.35 hrs HW=392.49' TW=387.60' (Dynamic Tailwater)
- **1=15" CPP** (Passes 0.36 cfs of 6.21 cfs potential flow)
  - **2=11" Plug Orifice** (Passes 0.36 cfs of 4.53 cfs potential flow)
    - **3=3" Low-Flow Orifice** (Orifice Controls 0.36 cfs @ 7.40 fps)
    - **4=Outflow Riser** (Controls 0.00 cfs)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=390.00' TW=389.61' (Dynamic Tailwater)
- **5=Emergency Overflow Weir** (Controls 0.00 cfs)

Summary for Pond P MID-W: Inf Basin Mid-West

Inflow Area =	417,553 sf,	4.06% Impervious,	Inflow Depth =	1.27"	for 10-YR event
Inflow =	4.02 cfs @	12.18 hrs,	Volume=	44,152 cf	
Outflow =	1.23 cfs @	12.93 hrs,	Volume=	44,152 cf,	Atten= 69%, Lag= 44.7 min
Primary =	1.01 cfs @	12.93 hrs,	Volume=	29,416 cf	
Secondary =	0.00 cfs @	0.00 hrs,	Volume=	0 cf	
Tertiary =	0.22 cfs @	12.93 hrs,	Volume=	14,736 cf	

Routing by Dyn-Stor-Ind method, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs / 2
Peak Elev= 385.25' @ 12.93 hrs Surf.Area= 3,899 sf Storage= 5,175 cf
Flood Elev= 386.30' Surf.Area= 5,261 sf Storage= 9,989 cf

Plug-Flow detention time= 38.8 min calculated for 44,152 cf (100% of inflow)
Center-of-Mass det. time= 38.8 min (1,262.1 - 1,223.3)

Volume	Invert	Avail.Storage	Storage Description
#1	383.50'	15,865 cf	**Basin Contours (Irregular)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
383.50	2,132	274.0	0	0	2,132
384.00	2,566	294.0	1,173	1,173	3,047
385.00	3,585	348.0	3,061	4,234	5,824
386.00	4,909	422.0	4,230	8,464	10,375
387.00	6,128	439.0	5,507	13,971	11,617
387.30	6,503	444.0	1,894	15,865	11,992

Device	Routing	Invert	Outlet Devices
#1	Primary	383.50'	**12.0" Round Twin 12" CPP X 2.00** L= 15.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 383.50' / 383.40' S= 0.0067 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf
#2	Device 1	383.50'	**6.0" W x 4.0" H Vert. 3" Low-Flow Orifice** C= 0.600
#3	Device 1	385.30'	**16.0' long x 0.5' breadth Outflow Riser** Head (feet) 0.20 0.40 0.60 0.80 1.00 Coef. (English) 2.80 2.92 3.08 3.30 3.32
#4	Secondary	386.30'	**22.0' long x 6.0' breadth Emergency Overflow Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50 Coef. (English) 2.37 2.51 2.70 2.68 2.68 2.67 2.65 2.65 2.65 2.65 2.66 2.66 2.67 2.69 2.72 2.76 2.83
#5	Tertiary	383.50'	**2.410 in/hr Exfiltration over Surface area** Phase-In= 0.01'

Primary OutFlow Max=1.01 cfs @ 12.93 hrs HW=385.25' TW=0.00' (Dynamic Tailwater)
└─**1=Twin 12" CPP** (Passes 1.01 cfs of 6.68 cfs potential flow)
  ├─**2=3" Low-Flow Orifice** (Orifice Controls 1.01 cfs @ 6.06 fps)
  └─**3=Outflow Riser** (Controls 0.00 cfs)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=383.50' TW=0.00' (Dynamic Tailwater)
└─**4=Emergency Overflow Weir** (Controls 0.00 cfs)

Tertiary OutFlow Max=0.22 cfs @ 12.93 hrs HW=385.25' (Free Discharge)
└─**5=Exfiltration** (Exfiltration Controls 0.22 cfs)

Summary for Pond P SF: Sand Filter DC-780

Inflow Area = 34,893 sf, 43.98% Impervious, Inflow Depth = 1.12" for 10-YR event
Inflow = 0.72 cfs @ 12.21 hrs, Volume= 3,246 cf
Outflow = 0.14 cfs @ 12.82 hrs, Volume= 3,246 cf, Atten= 81%, Lag= 36.6 min
Primary = 0.05 cfs @ 11.44 hrs, Volume= 2,914 cf
Secondary = 0.09 cfs @ 12.82 hrs, Volume= 332 cf
Tertiary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs / 2
Peak Elev= 391.22' @ 12.82 hrs Surf.Area= 960 sf Storage= 1,016 cf
Flood Elev= 393.50' Surf.Area= 960 sf Storage= 1,147 cf

Plug-Flow detention time= 173.5 min calculated for 3,246 cf (100% of inflow)

Center-of-Mass det. time= 173.5 min (1,052.3 - 878.8)

Volume	Invert	Avail.Storage	Storage Description
#1	386.75'	180 cf	**Sand Filter (Irregular)** Listed below (Recalc) 720 cf Overall x 25.0% Voids
#2	388.25'	411 cf	**Crushed Stone Surround (Irregular)** Listed below (Recalc) 1,800 cf Overall - 555 cf Embedded = 1,245 cf x 33.0% Voids
#3	389.00'	555 cf	**ADS_StormTech DC-780 +Cap** x 12 Inside #2 Effective Size= 45.4"W x 30.0"H => 6.49 sf x 7.12'L = 46.2 cf Overall Size= 51.0"W x 30.0"H x 7.56'L with 0.44' Overlap 12 Chambers in 3 Rows
#4	392.00'	1 cf	**0.50'D x 1.50'H Cleanout Risers** x 3 -Impervious
		1,147 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
386.75	480	92.0	0	0	480
388.25	480	92.0	720	720	618

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
388.25	480	92.0	0	0	480
392.00	480	92.0	1,800	1,800	825

Device	Routing	Invert	Outlet Devices
#1	Primary	386.75'	**2.410 in/hr EXFILTRATION over Surface area** Phase-In= 0.01'
#2	Secondary	391.00'	**4.0" Round 4" INSP PORT OVERFLOW** L= 26.0' CPP, mitered to conform to fill, Ke= 0.700 Inlet / Outlet Invert= 391.00' / 390.00' S= 0.0385 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.09 sf
#3	Tertiary	393.49'	**6.0" Horiz. CO SURCHARGE 393.5 X 3.00** C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=0.05 cfs @ 11.44 hrs HW=388.27' (Free Discharge)
1=EXFILTRATION (Exfiltration Controls 0.05 cfs)

Secondary OutFlow Max=0.09 cfs @ 12.82 hrs HW=391.22' TW=387.24' (Dynamic Tailwater)
2=4" INSP PORT OVERFLOW (Inlet Controls 0.09 cfs @ 1.41 fps)

Tertiary OutFlow Max=0.00 cfs @ 0.00 hrs HW=386.75' TW=383.50' (Dynamic Tailwater)
3=CO SURCHARGE 393.5 (Controls 0.00 cfs)

Summary for Pond SF: DMH SF

Inflow Area = 34,893 sf, 43.98% Impervious, Inflow Depth = 2.37" for 10-YR event
Inflow = 2.09 cfs @ 12.11 hrs, Volume= 6,896 cf
Outflow = 2.09 cfs @ 12.11 hrs, Volume= 6,896 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.72 cfs @ 12.21 hrs, Volume= 3,246 cf
Secondary = 2.04 cfs @ 12.12 hrs, Volume= 5,048 cf
Tertiary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs / 2

Peak Elev= 389.97' @ 12.12 hrs
Flood Elev= 394.40'

Device	Routing	Invert	Outlet Devices
#1	Primary	389.30'	**10.0" Round 10" CPP TO SF** L= 3.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 389.30' / 389.25' S= 0.0167 '/' Cc= 0.900 n= 0.011 Corrugated PE, smooth interior, Flow Area= 0.55 sf
#2	Secondary	387.91'	**15.0" Round 15" CPP BYPASS** L= 18.7' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 387.91' / 387.80' S= 0.0059 '/' Cc= 0.900 n= 0.011 Corrugated PE, smooth interior, Flow Area= 1.23 sf
#3	Device 2	389.70'	**5.0' long x 0.5' breadth OVERFLOW WEIR** Head (feet) 0.20 0.40 0.60 0.80 1.00 Coef. (English) 2.80 2.92 3.08 3.30 3.32
#4	Tertiary	394.40'	**32.0" Horiz. DMH SURCHARGE** C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=0.00 cfs @ 12.21 hrs HW=389.84' TW=390.03' (Dynamic Tailwater)
1=10" CPP TO SF (Controls 0.00 cfs)

Secondary OutFlow Max=2.04 cfs @ 12.12 hrs HW=389.97' TW=388.07' (Dynamic Tailwater)
2=15" CPP BYPASS (Passes 2.04 cfs of 7.03 cfs potential flow)
3=OVERFLOW WEIR (Weir Controls 2.04 cfs @ 1.49 fps)

Tertiary OutFlow Max=0.00 cfs @ 0.00 hrs HW=387.97' TW=383.50' (Dynamic Tailwater)
4=DMH SURCHARGE (Controls 0.00 cfs)

Summary for Pond SF PT: BARRACUDA S3

Inflow Area = 34,893 sf, 43.98% Impervious, Inflow Depth = 1.12" for 10-YR event
Inflow = 0.72 cfs @ 12.21 hrs, Volume= 3,246 cf
Outflow = 0.72 cfs @ 12.21 hrs, Volume= 3,246 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.72 cfs @ 12.21 hrs, Volume= 3,246 cf
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs / 2
Peak Elev= 391.21' @ 12.83 hrs
Flood Elev= 393.40'

Device	Routing	Invert	Outlet Devices
#1	Primary	389.25'	**10.0" Round 10" CPP TO SF** L= 3.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 389.25' / 389.20' S= 0.0167 '/' Cc= 0.900 n= 0.011 Corrugated PE, smooth interior, Flow Area= 0.55 sf
#2	Secondary	393.40'	**24.0" Horiz. DMH SURCHARGE** C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=0.52 cfs @ 12.21 hrs HW=390.03' TW=389.99' (Dynamic Tailwater)
1=10" CPP TO SF (Inlet Controls 0.52 cfs @ 0.98 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=389.25' TW=383.50' (Dynamic Tailwater)
2=DMH SURCHARGE (Controls 0.00 cfs)

Summary for Pond SF-A: CB SF-A

Inflow Area = 34,893 sf, 43.98% Impervious, Inflow Depth = 2.37" for 10-YR event
Inflow = 2.09 cfs @ 12.11 hrs, Volume= 6,896 cf
Outflow = 2.09 cfs @ 12.11 hrs, Volume= 6,896 cf, Atten= 0%, Lag= 0.0 min
Primary = 2.09 cfs @ 12.11 hrs, Volume= 6,896 cf
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs / 2
Peak Elev= 390.49' @ 12.11 hrs
Flood Elev= 392.80'

Device	Routing	Invert	Outlet Devices
#1	Primary	389.61'	**15.0" Round 15" CPP** L= 58.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 389.61' / 389.40' S= 0.0036 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf
#2	Secondary	392.80'	**2.5" x 2.5" Horiz. CB Surcharge X 6.00 columns** X 6 rows C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=2.08 cfs @ 12.11 hrs HW=390.49' TW=389.97' (Dynamic Tailwater)
1=15" CPP (Barrel Controls 2.08 cfs @ 3.15 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=389.61' TW=383.50' (Dynamic Tailwater)
2=CB Surcharge (Controls 0.00 cfs)

Summary for Link L: Runoff to Wetland

Inflow Area = 736,925 sf, 7.92% Impervious, Inflow Depth = 1.10" for 10-YR event
Inflow = 8.85 cfs @ 12.19 hrs, Volume= 67,780 cf
Primary = 8.85 cfs @ 12.19 hrs, Volume= 67,780 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs

Time span=0.00-96.00 hrs, dt=0.01 hrs, 9601 points x 2
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment E: WS East Runoff Area=51,511 sf 49.82% Impervious Runoff Depth=6.04"
Flow Length=335' Tc=9.5 min CN=78 Runoff=7.35 cfs 25,934 cf

Subcatchment M-N: WS Mid-North Runoff Area=324,967 sf 1.50% Impervious Runoff Depth=3.51"
Flow Length=941' Tc=26.3 min CN=57 Runoff=17.99 cfs 95,041 cf

Subcatchment M-S: WS Mid-South Runoff Area=34,893 sf 43.98% Impervious Runoff Depth=5.80"
Flow Length=418' Tc=7.8 min CN=76 Runoff=5.08 cfs 16,862 cf

Subcatchment M-W: WS Mid-West Runoff Area=92,586 sf 13.05% Impervious Runoff Depth=4.47"
Flow Length=390' Tc=17.0 min CN=65 Runoff=8.00 cfs 34,469 cf

Subcatchment S: WS South Runoff Area=61,010 sf 18.88% Impervious Runoff Depth=4.59"
Flow Length=601' Tc=10.6 min UI Adjusted CN=66 Runoff=6.45 cfs 23,326 cf

Subcatchment W: WS West Runoff Area=206,851 sf 2.04% Impervious Runoff Depth=3.75"
Flow Length=872' Tc=17.1 min CN=59 Runoff=14.75 cfs 64,600 cf

Pond 1: D-1 Peak Elev=388.46' Inflow=7.49 cfs 110,895 cf
Primary=7.49 cfs 110,895 cf Secondary=0.00 cfs 0 cf Outflow=7.49 cfs 110,895 cf

Pond 2: D-2 Peak Elev=389.26' Inflow=7.49 cfs 110,895 cf
Primary=7.49 cfs 110,895 cf Secondary=0.00 cfs 0 cf Outflow=7.49 cfs 110,895 cf

Pond 3: D-3 Peak Elev=389.76' Inflow=7.17 cfs 108,964 cf
Primary=7.17 cfs 108,964 cf Secondary=0.00 cfs 0 cf Outflow=7.17 cfs 108,964 cf

Pond P MID-N: Basin Mid-North Peak Elev=394.45' Storage=32,738 cf Inflow=17.99 cfs 95,041 cf
Primary=6.35 cfs 94,994 cf Secondary=0.00 cfs 0 cf Outflow=6.35 cfs 94,994 cf

Pond P MID-W: Inf Basin Mid-West Peak Elev=386.39' Storage=10,485 cf Inflow=13.86 cfs 145,364 cf
Primary=9.24 cfs 124,225 cf Secondary=1.49 cfs 1,074 cf Tertiary=0.30 cfs 20,065 cf Outflow=11.02 cfs 145,364 cf

Pond P SF: Sand Filter DC-780 Peak Elev=392.62' Storage=1,146 cf Inflow=1.32 cfs 5,641 cf
Primary=0.05 cfs 3,710 cf Secondary=0.44 cfs 1,931 cf Tertiary=0.00 cfs 0 cf Outflow=0.49 cfs 5,641 cf

Pond SF: DMH SF Peak Elev=390.19' Inflow=5.08 cfs 16,862 cf
Primary=1.32 cfs 5,641 cf Secondary=5.05 cfs 13,971 cf Tertiary=0.00 cfs 0 cf Outflow=5.08 cfs 16,862 cf

Pond SF PT: BARRACUDA S3 Peak Elev=392.57' Inflow=1.32 cfs 5,641 cf
Primary=1.32 cfs 5,641 cf Secondary=0.00 cfs 0 cf Outflow=1.32 cfs 5,641 cf

Pond SF-A: CB SF-A Peak Elev=391.41' Inflow=5.08 cfs 16,862 cf
Primary=5.08 cfs 16,862 cf Secondary=0.00 cfs 0 cf Outflow=5.08 cfs 16,862 cf

Link L: Runoff to Wetland Inflow=34.30 cfs 239,159 cf
Primary=34.30 cfs 239,159 cf

Total Runoff Area = 771,818 sf Runoff Volume = 260,231 cf Average Runoff Depth = 4.05"
90.45% Pervious = 698,101 sf 9.55% Impervious = 73,717 sf

Summary for Subcatchment E: WS East

Runoff = 7.35 cfs @ 12.13 hrs, Volume= 25,934 cf, Depth= 6.04"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs
Type III 24-hr 100-YR Rainfall=8.70"

Area (sf)	CN	Description
25,665	98	Paved parking, HSG B
11,000	55	Woods, Good, HSG B
14,846	61	>75% Grass cover, Good, HSG B
51,511	78	Weighted Average
25,846		50.18% Pervious Area
25,665		49.82% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.3	40	0.0650	0.11		**Sheet Flow, Woods** Woods: Light underbrush n= 0.400 P2= 3.30"
1.9	31	0.1129	0.27		**Sheet Flow, Grass** Grass: Short n= 0.150 P2= 3.30"
1.3	264	0.0300	3.52		**Shallow Concentrated Flow, Gutter** Paved Kv= 20.3 fps
9.5	335	Total			

Summary for Subcatchment M-N: WS Mid-North

Runoff = 17.99 cfs @ 12.38 hrs, Volume= 95,041 cf, Depth= 3.51"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs
Type III 24-hr 100-YR Rainfall=8.70"

	Area (sf)	CN	Description
	4,522	98	Roofs, HSG B
*	350	98	Unconnected ret wall, HSG B
	6,898	79	<50% Grass cover, Poor, HSG B
	40,565	61	>75% Grass cover, Good, HSG B
	272,632	55	Woods, Good, HSG B
	324,967	57	Weighted Average
	320,095		98.50% Pervious Area
	4,872		1.50% Impervious Area
	350		7.18% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.1	95	0.0734	0.13		**Sheet Flow, Woods** Woods: Light underbrush n= 0.400 P2= 3.30"
13.4	787	0.0385	0.98		**Shallow Concentrated Flow, Woods** Woodland Kv= 5.0 fps
0.8	59	0.0288	1.19		**Shallow Concentrated Flow, Lawn** Short Grass Pasture Kv= 7.0 fps
26.3	941	Total			

Summary for Subcatchment M-S: WS Mid-South

Runoff = 5.08 cfs @ 12.11 hrs, Volume= 16,862 cf, Depth= 5.80"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs
Type III 24-hr 100-YR Rainfall=8.70"

	Area (sf)	CN	Description
	828	98	Roofs, HSG B
*	10,851	98	Paved Cul-deSac, HSG B
*	3,666	98	Paved driveway, HSG B
	12,990	61	>75% Grass cover, Good, HSG B
	6,558	55	Woods, Good, HSG B
	34,893	76	Weighted Average
	19,548		56.02% Pervious Area
	15,345		43.98% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.4	67	0.0253	0.18		**Sheet Flow, Lawn** Grass: Short n= 0.150 P2= 3.30"
0.8	251	0.0655	5.20		**Shallow Concentrated Flow, Driveway** Paved Kv= 20.3 fps
0.6	100	0.0170	2.65		**Shallow Concentrated Flow, Cul-de-Sac** Paved Kv= 20.3 fps
7.8	418	Total			

Summary for Subcatchment M-W: WS Mid-West

Runoff = 8.00 cfs @ 12.23 hrs, Volume= 34,469 cf, Depth= 4.47"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs
Type III 24-hr 100-YR Rainfall=8.70"

	Area (sf)	CN	Description
	3,312	98	Roofs, HSG B
	8,513	98	Paved parking, HSG B
*	262	98	Unconnected ret wall, HSG B
	66,761	61	>75% Grass cover, Good, HSG B
	13,738	55	Woods, Good, HSG B
	92,586	65	Weighted Average
	80,499		86.95% Pervious Area
	12,087		13.05% Impervious Area
	262		2.17% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.4	28	0.0210	1.10		**Sheet Flow, Driveway**
					Smooth surfaces n= 0.011 P2= 3.30"
2.2	17	0.0235	0.13		**Sheet Flow, Lawn**
					Grass: Short n= 0.150 P2= 3.30"
9.1	35	0.0200	0.06		**Sheet Flow, Woods**
					Woods: Light underbrush n= 0.400 P2= 3.30"
1.1	41	0.0146	0.60		**Shallow Concentrated Flow, Woods Lot 2**
					Woodland Kv= 5.0 fps
1.5	108	0.0287	1.19		**Shallow Concentrated Flow, Lawn Lot 2**
					Short Grass Pasture Kv= 7.0 fps
1.5	74	0.0257	0.80		**Shallow Concentrated Flow, Woods Lot 1**
					Woodland Kv= 5.0 fps
1.2	87	0.0276	1.16		**Shallow Concentrated Flow, Lawn Lot 1**
					Short Grass Pasture Kv= 7.0 fps
17.0	390	Total			

Summary for Subcatchment S: WS South

Runoff = 6.45 cfs @ 12.15 hrs, Volume= 23,326 cf, Depth= 4.59"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs
Type III 24-hr 100-YR Rainfall=8.70"

	Area (sf)	CN	Adj	Description
	9,846	98		Paved parking, HSG B
*	1,672	98		Unconnected ret walls, HSG B
	4,918	79		<50% Grass cover, Poor, HSG B
	18,971	61		>75% Grass cover, Good, HSG B
	25,603	55		Woods, Good, HSG B
	61,010	67	66	Weighted Average, UI Adjusted
	49,492			81.12% Pervious Area
	11,518			18.88% Impervious Area
	1,672			14.52% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.9	97	0.0800	0.21		**Sheet Flow, Dense Vegetation**
					Grass: Dense n= 0.240 P2= 3.30"
1.4	89	0.0224	1.05		**Shallow Concentrated Flow, Woods**
					Short Grass Pasture Kv= 7.0 fps
1.3	415	0.0193	5.36	117.93	**Channel Flow, Grassed Swale**
					Area= 22.0 sf Perim= 32.0' r= 0.69'
					n= 0.030 Earth, grassed & winding
10.6	601	Total			

Summary for Subcatchment W: WS West

Runoff = 14.75 cfs @ 12.25 hrs, Volume= 64,600 cf, Depth= 3.75"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs
Type III 24-hr 100-YR Rainfall=8.70"

Area (sf)	CN	Description
3,952	98	Roofs, HSG B
278	98	Unconnected pavement, HSG B
21,569	79	<50% Grass cover, Poor, HSG B
20,665	61	>75% Grass cover, Good, HSG B
160,387	55	Woods, Good, HSG B
206,851	59	Weighted Average
202,621		97.96% Pervious Area
4,230		2.04% Impervious Area
278		6.57% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.9	86	0.1280	0.16		**Sheet Flow, Woods** Woods: Light underbrush n= 0.400 P2= 3.30"
0.8	144	0.0319	2.88		**Shallow Concentrated Flow, Gravel Lot** Unpaved Kv= 16.1 fps
0.6	93	0.0688	2.62		**Shallow Concentrated Flow, Non-Wood Open** Nearly Bare & Untilled Kv= 10.0 fps
6.8	549	0.0719	1.34		**Shallow Concentrated Flow, Woods** Woodland Kv= 5.0 fps
17.1	872	Total			

Summary for Pond 1: D-1

Inflow Area = 324,967 sf, 1.50% Impervious, Inflow Depth = 4.10" for 100-YR event
Inflow = 7.49 cfs @ 12.51 hrs, Volume= 110,895 cf
Outflow = 7.49 cfs @ 12.51 hrs, Volume= 110,895 cf, Atten= 0%, Lag= 0.0 min
Primary = 7.49 cfs @ 12.51 hrs, Volume= 110,895 cf
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs / 2
Peak Elev= 388.46' @ 12.51 hrs
Flood Elev= 390.00'

Device	Routing	Invert	Outlet Devices
#1	Primary	386.40'	**18.0" Round 18" CPP** L= 67.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 386.40' / 386.20' S= 0.0030 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.77 sf
#2	Secondary	390.00'	**32.0" Horiz. MH Surcharge** C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=7.49 cfs @ 12.51 hrs HW=388.46' TW=386.38' (Dynamic Tailwater)
↑—**1=18" CPP** (Barrel Controls 7.49 cfs @ 4.24 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=386.40' TW=0.00' (Dynamic Tailwater)
↑—**2=MH Surcharge** (Controls 0.00 cfs)

Summary for Pond 2: D-2

Inflow Area = 324,967 sf, 1.50% Impervious, Inflow Depth = 4.10" for 100-YR event
Inflow = 7.49 cfs @ 12.51 hrs, Volume= 110,895 cf
Outflow = 7.49 cfs @ 12.51 hrs, Volume= 110,895 cf, Atten= 0%, Lag= 0.0 min
Primary = 7.49 cfs @ 12.51 hrs, Volume= 110,895 cf
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs / 2
Peak Elev= 389.26' @ 12.51 hrs
Flood Elev= 393.40'

Device	Routing	Invert	Outlet Devices
#1	Primary	386.80'	**18.0" Round 18" CPP** L= 75.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 386.80' / 386.50' S= 0.0040 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.77 sf
#2	Secondary	393.40'	**32.0" Horiz. MH Surcharge** C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=7.50 cfs @ 12.51 hrs HW=389.26' TW=388.46' (Dynamic Tailwater)
1=18" CPP (Outlet Controls 7.50 cfs @ 4.24 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=386.80' TW=383.50' (Dynamic Tailwater)
2=MH Surcharge (Controls 0.00 cfs)

Summary for Pond 3: D-3

Inflow Area = 324,967 sf, 1.50% Impervious, Inflow Depth = 4.02" for 100-YR event
Inflow = 7.17 cfs @ 12.37 hrs, Volume= 108,964 cf
Outflow = 7.17 cfs @ 12.37 hrs, Volume= 108,964 cf, Atten= 0%, Lag= 0.0 min
Primary = 7.17 cfs @ 12.37 hrs, Volume= 108,964 cf
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs / 2
Peak Elev= 389.76' @ 12.44 hrs
Flood Elev= 393.60'

Device	Routing	Invert	Outlet Devices
#1	Primary	387.30'	**18.0" Round 18" CPP** L= 44.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 387.30' / 386.90' S= 0.0091 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.77 sf
#2	Secondary	393.60'	**32.0" Horiz. MH Surcharge** C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=5.23 cfs @ 12.37 hrs HW=389.61' TW=389.23' (Dynamic Tailwater)
1=18" CPP (Inlet Controls 5.23 cfs @ 2.96 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=387.30' TW=383.50' (Dynamic Tailwater)
2=MH Surcharge (Controls 0.00 cfs)

Summary for Pond P MID-N: Basin Mid-North

Inflow Area = 324,967 sf, 1.50% Impervious, Inflow Depth = 3.51" for 100-YR event
Inflow = 17.99 cfs @ 12.38 hrs, Volume= 95,041 cf
Outflow = 6.35 cfs @ 12.94 hrs, Volume= 94,994 cf, Atten= 65%, Lag= 33.4 min
Primary = 6.35 cfs @ 12.94 hrs, Volume= 94,994 cf
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs / 2
Peak Elev= 394.45' @ 12.94 hrs Surf.Area= 10,372 sf Storage= 32,738 cf
Flood Elev= 394.50' Surf.Area= 10,443 sf Storage= 33,250 cf

Plug-Flow detention time= 234.8 min calculated for 94,994 cf (100% of inflow)

Center-of-Mass det. time= 234.5 min (1,101.6 - 867.1)

Volume	Invert	Avail.Storage	Storage Description
#1	390.00'	44,241 cf	**Basin Contours (Irregular)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
390.00	4,531	396.0	0	0	4,531
391.00	5,747	415.0	5,127	5,127	5,823
392.00	7,020	434.0	6,373	11,500	7,175
393.00	8,348	452.0	7,674	19,174	8,519
394.00	9,734	471.0	9,032	28,206	9,989
395.00	11,176	490.0	10,447	38,653	11,519
395.50	11,176	490.0	5,588	44,241	11,764

Device	Routing	Invert	Outlet Devices
#1	Primary	389.90'	**15.0" Round 15" CPP** L= 143.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 389.90' / 389.16' S= 0.0052 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf
#2	Device 1	390.00'	**11.0" Vert. 11" Plug Orifice** C= 0.600
#3	Device 2	390.00'	**3.0" Vert. 3" Low-Flow Orifice** C= 0.600
#4	Device 2	392.70'	**12.6' long x 0.5' breadth Outflow Riser** Head (feet) 0.20 0.40 0.60 0.80 1.00 Coef. (English) 2.80 2.92 3.08 3.30 3.32
#5	Secondary	394.50'	**16.0' long x 8.0' breadth Emergency Overflow Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50 Coef. (English) 2.43 2.54 2.70 2.69 2.68 2.68 2.66 2.64 2.64 2.64 2.65 2.65 2.66 2.66 2.68 2.70 2.74

Primary OutFlow Max=6.35 cfs @ 12.94 hrs HW=394.45' TW=389.55' (Dynamic Tailwater)
- **1=15" CPP** (Passes 6.35 cfs of 8.65 cfs potential flow)
  - **2=11" Plug Orifice** (Orifice Controls 6.35 cfs @ 9.62 fps)
    - **3=3" Low-Flow Orifice** (Passes < 0.49 cfs potential flow)
    - **4=Outflow Riser** (Passes < 96.91 cfs potential flow)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=390.00' TW=389.61' (Dynamic Tailwater)
- **5=Emergency Overflow Weir** (Controls 0.00 cfs)

Summary for Pond P MID-W: Inf Basin Mid-West

Inflow Area = 417,553 sf, 4.06% Impervious, Inflow Depth = 4.18" for 100-YR event
Inflow = 13.86 cfs @ 12.37 hrs, Volume= 145,364 cf
Outflow = 11.02 cfs @ 12.55 hrs, Volume= 145,364 cf, Atten= 20%, Lag= 11.1 min
Primary = 9.24 cfs @ 12.55 hrs, Volume= 124,225 cf
Secondary = 1.49 cfs @ 12.55 hrs, Volume= 1,074 cf
Tertiary = 0.30 cfs @ 12.55 hrs, Volume= 20,065 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs / 2
Peak Elev= 386.39' @ 12.55 hrs Surf.Area= 5,372 sf Storage= 10,485 cf
Flood Elev= 386.30' Surf.Area= 5,261 sf Storage= 9,989 cf

Plug-Flow detention time= 29.6 min calculated for 145,348 cf (100% of inflow)
Center-of-Mass det. time= 29.6 min (1,040.5 - 1,010.9)

Volume	Invert	Avail.Storage	Storage Description
#1	383.50'	15,865 cf	**Basin Contours (Irregular)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
383.50	2,132	274.0	0	0	2,132
384.00	2,566	294.0	1,173	1,173	3,047
385.00	3,585	348.0	3,061	4,234	5,824
386.00	4,909	422.0	4,230	8,464	10,375
387.00	6,128	439.0	5,507	13,971	11,617
387.30	6,503	444.0	1,894	15,865	11,992

Device	Routing	Invert	Outlet Devices
#1	Primary	383.50'	**12.0" Round Twin 12" CPP X 2.00** L= 15.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 383.50' / 383.40' S= 0.0067 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf
#2	Device 1	383.50'	**6.0" W x 4.0" H Vert. 3" Low-Flow Orifice** C= 0.600
#3	Device 1	385.30'	**16.0' long x 0.5' breadth Outflow Riser** Head (feet) 0.20 0.40 0.60 0.80 1.00 Coef. (English) 2.80 2.92 3.08 3.30 3.32
#4	Secondary	386.30'	**22.0' long x 6.0' breadth Emergency Overflow Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50 Coef. (English) 2.37 2.51 2.70 2.68 2.68 2.67 2.65 2.65 2.65 2.65 2.66 2.66 2.67 2.69 2.72 2.76 2.83
#5	Tertiary	383.50'	**2.410 in/hr Exfiltration over Surface area** Phase-In= 0.01'

Primary OutFlow Max=9.24 cfs @ 12.55 hrs HW=386.39' TW=0.00' (Dynamic Tailwater)
└─**1=Twin 12" CPP** (Inlet Controls 9.24 cfs @ 5.88 fps)
  └─**2=3" Low-Flow Orifice** (Passes < 1.32 cfs potential flow)
  └─**3=Outflow Riser** (Passes < 60.72 cfs potential flow)

Secondary OutFlow Max=1.48 cfs @ 12.55 hrs HW=386.39' TW=0.00' (Dynamic Tailwater)
└─**4=Emergency Overflow Weir** (Weir Controls 1.48 cfs @ 0.72 fps)

Tertiary OutFlow Max=0.30 cfs @ 12.55 hrs HW=386.39' (Free Discharge)
└─**5=Exfiltration** (Exfiltration Controls 0.30 cfs)

Summary for Pond P SF: Sand Filter DC-780

Inflow Area = 34,893 sf, 43.98% Impervious, Inflow Depth = 1.94" for 100-YR event
Inflow = 1.32 cfs @ 12.14 hrs, Volume= 5,641 cf
Outflow = 0.49 cfs @ 12.51 hrs, Volume= 5,641 cf, Atten= 62%, Lag= 22.2 min
Primary = 0.05 cfs @ 9.42 hrs, Volume= 3,710 cf
Secondary = 0.44 cfs @ 12.51 hrs, Volume= 1,931 cf
Tertiary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs / 2
Peak Elev= 392.62' @ 12.51 hrs Surf.Area= 960 sf Storage= 1,146 cf
Flood Elev= 393.50' Surf.Area= 960 sf Storage= 1,147 cf

Plug-Flow detention time= 146.5 min calculated for 5,640 cf (100% of inflow)

Center-of-Mass det. time= 146.5 min (987.1 - 840.6)

Volume	Invert	Avail.Storage	Storage Description
#1	386.75'	180 cf	**Sand Filter (Irregular)** Listed below (Recalc) 720 cf Overall x 25.0% Voids
#2	388.25'	411 cf	**Crushed Stone Surround (Irregular)** Listed below (Recalc) 1,800 cf Overall - 555 cf Embedded = 1,245 cf x 33.0% Voids
#3	389.00'	555 cf	**ADS_StormTech DC-780 +Cap** x 12 Inside #2 Effective Size= 45.4"W x 30.0"H => 6.49 sf x 7.12'L = 46.2 cf Overall Size= 51.0"W x 30.0"H x 7.56'L with 0.44' Overlap 12 Chambers in 3 Rows
#4	392.00'	1 cf	**0.50'D x 1.50'H Cleanout Risers** x 3 -Impervious
		1,147 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
386.75	480	92.0	0	0	480
388.25	480	92.0	720	720	618

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
388.25	480	92.0	0	0	480
392.00	480	92.0	1,800	1,800	825

Device	Routing	Invert	Outlet Devices
#1	Primary	386.75'	**2.410 in/hr EXFILTRATION over Surface area** Phase-In= 0.01'
#2	Secondary	391.00'	**4.0" Round 4" INSP PORT OVERFLOW** L= 26.0' CPP, mitered to conform to fill, Ke= 0.700 Inlet / Outlet Invert= 391.00' / 390.00' S= 0.0385 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.09 sf
#3	Tertiary	393.49'	**6.0" Horiz. CO SURCHARGE 393.5 X 3.00** C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=0.05 cfs @ 9.42 hrs HW=388.26' (Free Discharge)
1=EXFILTRATION (Exfiltration Controls 0.05 cfs)

Secondary OutFlow Max=0.44 cfs @ 12.51 hrs HW=392.58' TW=389.26' (Dynamic Tailwater)
2=4" INSP PORT OVERFLOW (Inlet Controls 0.44 cfs @ 5.06 fps)

Tertiary OutFlow Max=0.00 cfs @ 0.00 hrs HW=386.75' TW=383.50' (Dynamic Tailwater)
3=CO SURCHARGE 393.5 (Controls 0.00 cfs)

Summary for Pond SF: DMH SF

Inflow Area = 34,893 sf, 43.98% Impervious, Inflow Depth = 5.80" for 100-YR event
Inflow = 5.08 cfs @ 12.11 hrs, Volume= 16,862 cf
Outflow = 5.08 cfs @ 12.11 hrs, Volume= 16,862 cf, Atten= 0%, Lag= 0.0 min
Primary = 1.32 cfs @ 12.14 hrs, Volume= 5,641 cf
Secondary = 5.05 cfs @ 12.11 hrs, Volume= 13,971 cf
Tertiary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs / 2

Peak Elev= 390.19' @ 12.11 hrs
Flood Elev= 394.40'

Device	Routing	Invert	Outlet Devices
#1	Primary	389.30'	**10.0" Round 10" CPP TO SF** L= 3.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 389.30' / 389.25' S= 0.0167 '/' Cc= 0.900 n= 0.011 Corrugated PE, smooth interior, Flow Area= 0.55 sf
#2	Secondary	387.91'	**15.0" Round 15" CPP BYPASS** L= 18.7' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 387.91' / 387.80' S= 0.0059 '/' Cc= 0.900 n= 0.011 Corrugated PE, smooth interior, Flow Area= 1.23 sf
#3	Device 2	389.70'	**5.0' long x 0.5' breadth OVERFLOW WEIR** Head (feet) 0.20 0.40 0.60 0.80 1.00 Coef. (English) 2.80 2.92 3.08 3.30 3.32
#4	Tertiary	394.40'	**32.0" Horiz. DMH SURCHARGE** C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=0.00 cfs @ 12.14 hrs HW=390.09' TW=390.46' (Dynamic Tailwater)
1=10" CPP TO SF (Controls 0.00 cfs)

Secondary OutFlow Max=5.02 cfs @ 12.11 hrs HW=390.18' TW=388.80' (Dynamic Tailwater)
2=15" CPP BYPASS (Passes 5.02 cfs of 6.94 cfs potential flow)
3=OVERFLOW WEIR (Weir Controls 5.02 cfs @ 2.08 fps)

Tertiary OutFlow Max=0.00 cfs @ 0.00 hrs HW=387.97' TW=383.50' (Dynamic Tailwater)
4=DMH SURCHARGE (Controls 0.00 cfs)

Summary for Pond SF PT: BARRACUDA S3

Inflow Area = 34,893 sf, 43.98% Impervious, Inflow Depth = 1.94" for 100-YR event
Inflow = 1.32 cfs @ 12.14 hrs, Volume= 5,641 cf
Outflow = 1.32 cfs @ 12.14 hrs, Volume= 5,641 cf, Atten= 0%, Lag= 0.0 min
Primary = 1.32 cfs @ 12.14 hrs, Volume= 5,641 cf
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs / 2
Peak Elev= 392.57' @ 12.51 hrs
Flood Elev= 393.40'

Device	Routing	Invert	Outlet Devices
#1	Primary	389.25'	**10.0" Round 10" CPP TO SF** L= 3.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 389.25' / 389.20' S= 0.0167 '/' Cc= 0.900 n= 0.011 Corrugated PE, smooth interior, Flow Area= 0.55 sf
#2	Secondary	393.40'	**24.0" Horiz. DMH SURCHARGE** C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=1.09 cfs @ 12.14 hrs HW=390.46' TW=390.29' (Dynamic Tailwater)
1=10" CPP TO SF (Inlet Controls 1.09 cfs @ 1.99 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=389.25' TW=383.50' (Dynamic Tailwater)
2=DMH SURCHARGE (Controls 0.00 cfs)

Summary for Pond SF-A: CB SF-A

Inflow Area = 34,893 sf, 43.98% Impervious, Inflow Depth = 5.80" for 100-YR event
Inflow = 5.08 cfs @ 12.11 hrs, Volume= 16,862 cf
Outflow = 5.08 cfs @ 12.11 hrs, Volume= 16,862 cf, Atten= 0%, Lag= 0.0 min
Primary = 5.08 cfs @ 12.11 hrs, Volume= 16,862 cf
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs / 2
Peak Elev= 391.41' @ 12.11 hrs
Flood Elev= 392.80'

Device	Routing	Invert	Outlet Devices
#1	Primary	389.61'	**15.0" Round 15" CPP** L= 58.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 389.61' / 389.40' S= 0.0036 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf
#2	Secondary	392.80'	**2.5" x 2.5" Horiz. CB Surcharge X 6.00 columns** X 6 rows C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=5.08 cfs @ 12.11 hrs HW=391.41' TW=390.18' (Dynamic Tailwater)
1=15" CPP (Barrel Controls 5.08 cfs @ 4.14 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=389.61' TW=383.50' (Dynamic Tailwater)
2=CB Surcharge (Controls 0.00 cfs)

Summary for Link L: Runoff to Wetland

Inflow Area = 736,925 sf, 7.92% Impervious, Inflow Depth = 3.89" for 100-YR event
Inflow = 34.30 cfs @ 12.18 hrs, Volume= 239,159 cf
Primary = 34.30 cfs @ 12.18 hrs, Volume= 239,159 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs

F-4 HYDROCAD PRINTOUTS – 1.2” (WQV) STORM

Time span=0.00-96.00 hrs, dt=0.01 hrs, 9601 points x 2
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment E: WS East Runoff Area=51,511 sf 49.82% Impervious Runoff Depth=0.12"
Flow Length=335' Tc=9.5 min CN=78.154 Runoff=0.07 cfs 513 cf

Subcatchment M-N: WS Mid-North Runoff Area=324,967 sf 1.50% Impervious Runoff Depth=0.00"
Flow Length=941' Tc=26.3 min UI Adjusted CN=56.881 Runoff=0.00 cfs 0 cf

Subcatchment M-S: WS Mid-South Runoff Area=34,891 sf 0.00% Impervious Runoff Depth=0.44"
Flow Length=418' Tc=7.8 min CN=89.595 Runoff=0.38 cfs 1,279 cf

Subcatchment M-W: WS Mid-West Runoff Area=92,586 sf 13.05% Impervious Runoff Depth=0.00"
Flow Length=390' Tc=17.0 min UI Adjusted CN=64.886 Runoff=0.00 cfs 19 cf

Subcatchment S: WS South Runoff Area=61,010 sf 18.88% Impervious Runoff Depth=0.01"
Flow Length=601' Tc=10.6 min UI Adjusted CN=66.393 Runoff=0.00 cfs 34 cf

Subcatchment W: WS West Runoff Area=206,851 sf 2.04% Impervious Runoff Depth=0.00"
Flow Length=872' Tc=17.1 min UI Adjusted CN=58.955 Runoff=0.00 cfs 0 cf

Pond 1: D-1 Peak Elev=386.47' Inflow=0.01 cfs 2 cf
Primary=0.01 cfs 2 cf Secondary=0.00 cfs 0 cf Outflow=0.01 cfs 2 cf

Pond 2: D-2 Peak Elev=386.87' Inflow=0.01 cfs 2 cf
Primary=0.01 cfs 2 cf Secondary=0.00 cfs 0 cf Outflow=0.01 cfs 2 cf

Pond 3: D-3 Peak Elev=387.36' Inflow=0.01 cfs 2 cf
Primary=0.01 cfs 2 cf Secondary=0.00 cfs 0 cf Outflow=0.01 cfs 2 cf

Pond P MID-N: Basin Mid-North Peak Elev=390.00' Storage=0 cf Inflow=0.00 cfs 0 cf
Primary=0.00 cfs 0 cf Secondary=0.00 cfs 0 cf Outflow=0.00 cfs 0 cf

Pond P MID-W: Inf Basin Mid-West Peak Elev=383.50' Storage=1 cf Inflow=0.01 cfs 22 cf
Discarded=0.01 cfs 22 cf Primary=0.00 cfs 0 cf Secondary=0.00 cfs 0 cf Outflow=0.01 cfs 22 cf

Pond P SF: Sand Filter DC-780 Peak Elev=389.37' Storage=435 cf Inflow=0.36 cfs 1,277 cf
Primary=0.05 cfs 1,277 cf Secondary=0.00 cfs 0 cf Tertiary=0.00 cfs 0 cf Outflow=0.05 cfs 1,277 cf

Pond SF: DMH SF Peak Elev=389.71' Inflow=0.38 cfs 1,279 cf
Primary=0.36 cfs 1,277 cf Secondary=0.01 cfs 2 cf Tertiary=0.00 cfs 0 cf Outflow=0.38 cfs 1,279 cf

Pond SF PT: BARRACUDA S3 Peak Elev=389.61' Inflow=0.36 cfs 1,277 cf
Primary=0.36 cfs 1,277 cf Secondary=0.00 cfs 0 cf Outflow=0.36 cfs 1,277 cf

Pond SF-A: CB SF-A Peak Elev=389.97' Inflow=0.38 cfs 1,279 cf
Primary=0.38 cfs 1,279 cf Secondary=0.00 cfs 0 cf Outflow=0.38 cfs 1,279 cf

Link L: Runoff to Wetland Inflow=0.07 cfs 547 cf
Primary=0.07 cfs 547 cf

Total Runoff Area = 771,816 sf Runoff Volume = 1,846 cf Average Runoff Depth = 0.03"
92.44% Pervious = 713,444 sf 7.56% Impervious = 58,372 sf

Summary for Subcatchment E: WS East

Runoff = 0.07 cfs @ 12.32 hrs, Volume= 513 cf, Depth= 0.12"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs
Type III 24-hr WQ STORM Rainfall=1.20"

Area (sf)	CN	Description
25,665	98.000	Paved parking, HSG B
11,000	55.000	Woods, Good, HSG B
14,846	61.000	>75% Grass cover, Good, HSG B
51,511	78.154	Weighted Average
25,846		50.18% Pervious Area
25,665		49.82% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.3	40	0.0650	0.11		**Sheet Flow, Woods** Woods: Light underbrush n= 0.400 P2= 3.30"
1.9	31	0.1129	0.27		**Sheet Flow, Grass** Grass: Short n= 0.150 P2= 3.30"
1.3	264	0.0300	3.52		**Shallow Concentrated Flow, Gutter** Paved Kv= 20.3 fps
9.5	335	Total			

Summary for Subcatchment M-N: WS Mid-North

Runoff = 0.00 cfs @ 0.00 hrs, Volume= 0 cf, Depth= 0.00"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs
Type III 24-hr WQ STORM Rainfall=1.20"

	Area (sf)	CN	Adj	Description
	4,522	98.000		Roofs, HSG B
*	350	98.000		Unconnected ret wall, HSG B
	6,898	79.000		<50% Grass cover, Poor, HSG B
	40,565	61.000		>75% Grass cover, Good, HSG B
	272,632	55.000		Woods, Good, HSG B
	324,967	56.903	56.881	Weighted Average, UI Adjusted
	320,095			98.50% Pervious Area
	4,872			1.50% Impervious Area
	350			7.18% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.1	95	0.0734	0.13		**Sheet Flow, Woods** Woods: Light underbrush n= 0.400 P2= 3.30"
13.4	787	0.0385	0.98		**Shallow Concentrated Flow, Woods** Woodland Kv= 5.0 fps
0.8	59	0.0288	1.19		**Shallow Concentrated Flow, Lawn** Short Grass Pasture Kv= 7.0 fps
26.3	941	Total			

Summary for Subcatchment M-S: WS Mid-South

Runoff = 0.38 cfs @ 12.12 hrs, Volume= 1,279 cf, Depth= 0.44"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs
Type III 24-hr WQ STORM Rainfall=1.20"

	Area (sf)	CN	Description
*	34,891	89.595	Modified CN for WQ Storm
	34,891		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.4	67	0.0253	0.18		**Sheet Flow, Lawn** Grass: Short n= 0.150 P2= 3.30"
0.8	251	0.0655	5.20		**Shallow Concentrated Flow, Driveway** Paved Kv= 20.3 fps
0.6	100	0.0170	2.65		**Shallow Concentrated Flow, Cul-de-Sac** Paved Kv= 20.3 fps
7.8	418	Total			

Summary for Subcatchment M-W: WS Mid-West

Runoff = 0.00 cfs @ 22.95 hrs, Volume= 19 cf, Depth= 0.00"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs
Type III 24-hr WQ STORM Rainfall=1.20"

	Area (sf)	CN	Adj	Description
	3,312	98.000		Roofs, HSG B
	8,513	98.000		Paved parking, HSG B
*	262	98.000		Unconnected ret wall, HSG B
	66,761	61.000		>75% Grass cover, Good, HSG B
	13,738	55.000		Woods, Good, HSG B
	92,586	64.940	64.886	Weighted Average, UI Adjusted
	80,499			86.95% Pervious Area
	12,087			13.05% Impervious Area
	262			2.17% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.4	28	0.0210	1.10		**Sheet Flow, Driveway**
					Smooth surfaces n= 0.011 P2= 3.30"
2.2	17	0.0235	0.13		**Sheet Flow, Lawn**
					Grass: Short n= 0.150 P2= 3.30"
9.1	35	0.0200	0.06		**Sheet Flow, Woods**
					Woods: Light underbrush n= 0.400 P2= 3.30"
1.1	41	0.0146	0.60		**Shallow Concentrated Flow, Woods Lot 2**
					Woodland Kv= 5.0 fps
1.5	108	0.0287	1.19		**Shallow Concentrated Flow, Lawn Lot 2**
					Short Grass Pasture Kv= 7.0 fps
1.5	74	0.0257	0.80		**Shallow Concentrated Flow, Woods Lot 1**
					Woodland Kv= 5.0 fps
1.2	87	0.0276	1.16		**Shallow Concentrated Flow, Lawn Lot 1**
					Short Grass Pasture Kv= 7.0 fps
17.0	390	Total			

Summary for Subcatchment S: WS South

Runoff = 0.00 cfs @ 21.00 hrs, Volume= 34 cf, Depth= 0.01"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs
Type III 24-hr WQ STORM Rainfall=1.20"

	Area (sf)	CN	Adj	Description
	9,846	98.000		Paved parking, HSG B
*	1,672	98.000		Unconnected ret walls, HSG B
	4,918	79.000		<50% Grass cover, Poor, HSG B
	18,971	61.000		>75% Grass cover, Good, HSG B
	25,603	55.000		Woods, Good, HSG B
	61,010	66.918	66.393	Weighted Average, UI Adjusted
	49,492			81.12% Pervious Area
	11,518			18.88% Impervious Area
	1,672			14.52% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.9	97	0.0800	0.21		**Sheet Flow, Dense Vegetation**
					Grass: Dense n= 0.240 P2= 3.30"
1.4	89	0.0224	1.05		**Shallow Concentrated Flow, Woods**
					Short Grass Pasture Kv= 7.0 fps
1.3	415	0.0193	5.36	117.93	**Channel Flow, Grassed Swale**
					Area= 22.0 sf Perim= 32.0' r= 0.69'
					n= 0.030 Earth, grassed & winding
10.6	601	Total			

Summary for Subcatchment W: WS West

Runoff = 0.00 cfs @ 0.00 hrs, Volume= 0 cf, Depth= 0.00"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs
Type III 24-hr WQ STORM Rainfall=1.20"

Area (sf)	CN	Adj	Description
3,952	98.000		Roofs, HSG B
278	98.000		Unconnected pavement, HSG B
21,569	79.000		<50% Grass cover, Poor, HSG B
20,665	61.000		>75% Grass cover, Good, HSG B
160,387	55.000		Woods, Good, HSG B
206,851	58.981	58.955	Weighted Average, UI Adjusted
202,621			97.96% Pervious Area
4,230			2.04% Impervious Area
278			6.57% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.9	86	0.1280	0.16		**Sheet Flow, Woods**
					Woods: Light underbrush n= 0.400 P2= 3.30"
0.8	144	0.0319	2.88		**Shallow Concentrated Flow, Gravel Lot**
					Unpaved Kv= 16.1 fps
0.6	93	0.0688	2.62		**Shallow Concentrated Flow, Non-Wood Open**
					Nearly Bare & Untilled Kv= 10.0 fps
6.8	549	0.0719	1.34		**Shallow Concentrated Flow, Woods**
					Woodland Kv= 5.0 fps
17.1	872	Total			

Summary for Pond 1: D-1

Inflow Area = 324,967 sf, 1.50% Impervious, Inflow Depth = 0.00" for WQ STORM event
Inflow = 0.01 cfs @ 12.12 hrs, Volume= 2 cf
Outflow = 0.01 cfs @ 12.12 hrs, Volume= 2 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.01 cfs @ 12.12 hrs, Volume= 2 cf
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs / 2
Peak Elev= 386.47' @ 12.12 hrs
Flood Elev= 390.00'

Device	Routing	Invert	Outlet Devices
#1	Primary	386.40'	**18.0" Round 18" CPP** L= 67.0' CPP, square edge headwall, Ke= 0.500
			Inlet / Outlet Invert= 386.40' / 386.20' S= 0.0030 '/' Cc= 0.900
			n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.77 sf
#2	Secondary	390.00'	**32.0" Horiz. MH Surcharge** C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=0.01 cfs @ 12.12 hrs HW=386.47' TW=383.50' (Dynamic Tailwater)
1=18" CPP (Barrel Controls 0.01 cfs @ 0.68 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=386.40' TW=0.00' (Dynamic Tailwater)
2=MH Surcharge (Controls 0.00 cfs)

Summary for Pond 2: D-2

Inflow Area = 324,967 sf, 1.50% Impervious, Inflow Depth = 0.00" for WQ STORM event
Inflow = 0.01 cfs @ 12.12 hrs, Volume= 2 cf
Outflow = 0.01 cfs @ 12.12 hrs, Volume= 2 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.01 cfs @ 12.12 hrs, Volume= 2 cf
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs / 2
Peak Elev= 386.87' @ 12.12 hrs
Flood Elev= 393.40'

Device	Routing	Invert	Outlet Devices
#1	Primary	386.80'	**18.0" Round 18" CPP** L= 75.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 386.80' / 386.50' S= 0.0040 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.77 sf
#2	Secondary	393.40'	**32.0" Horiz. MH Surcharge** C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=0.01 cfs @ 12.12 hrs HW=386.87' TW=386.47' (Dynamic Tailwater)
1=18" CPP (Barrel Controls 0.01 cfs @ 0.74 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=386.80' TW=383.50' (Dynamic Tailwater)
2=MH Surcharge (Controls 0.00 cfs)

Summary for Pond 3: D-3

Inflow Area = 324,967 sf, 1.50% Impervious, Inflow Depth = 0.00" for WQ STORM event
Inflow = 0.01 cfs @ 12.12 hrs, Volume= 2 cf
Outflow = 0.01 cfs @ 12.12 hrs, Volume= 2 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.01 cfs @ 12.12 hrs, Volume= 2 cf
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs / 2
Peak Elev= 387.36' @ 12.12 hrs
Flood Elev= 393.60'

Device	Routing	Invert	Outlet Devices
#1	Primary	387.30'	**18.0" Round 18" CPP** L= 44.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 387.30' / 386.90' S= 0.0091 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.77 sf
#2	Secondary	393.60'	**32.0" Horiz. MH Surcharge** C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=0.01 cfs @ 12.12 hrs HW=387.36' TW=386.87' (Dynamic Tailwater)
1=18" CPP (Barrel Controls 0.01 cfs @ 0.98 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=387.30' TW=383.50' (Dynamic Tailwater)
2=MH Surcharge (Controls 0.00 cfs)

Summary for Pond P MID-N: Basin Mid-North

Inflow Area = 324,967 sf, 1.50% Impervious, Inflow Depth = 0.00" for WQ STORM event
Inflow = 0.00 cfs @ 0.00 hrs, Volume= 0 cf
Outflow = 0.00 cfs @ 0.00 hrs, Volume= 0 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs / 2
Peak Elev= 390.00' @ 0.00 hrs Surf.Area= 4,531 sf Storage= 0 cf
Flood Elev= 395.00' Surf.Area= 11,176 sf Storage= 38,653 cf

Plug-Flow detention time= (not calculated: initial storage exceeds outflow)

Center-of-Mass det. time= (not calculated: no inflow)

Volume	Invert	Avail.Storage	Storage Description
#1	390.00'	44,241 cf	**Basin Contours (Irregular)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
390.00	4,531	396.0	0	0	4,531
391.00	5,747	415.0	5,127	5,127	5,823
392.00	7,020	434.0	6,373	11,500	7,175
393.00	8,348	452.0	7,674	19,174	8,519
394.00	9,734	471.0	9,032	28,206	9,989
395.00	11,176	490.0	10,447	38,653	11,519
395.50	11,176	490.0	5,588	44,241	11,764

Device	Routing	Invert	Outlet Devices
#1	Primary	389.90'	**15.0" Round 15" CPP** L= 143.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 389.90' / 389.16' S= 0.0052 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf
#2	Device 1	390.00'	**10.0" Vert. Plug Orifice** C= 0.600
#3	Device 2	390.00'	**3.0" Vert. 3" Low-Flow Orifice** C= 0.600
#4	Device 2	392.70'	**12.6' long x 0.5' breadth Outflow Riser** Head (feet) 0.20 0.40 0.60 0.80 1.00 Coef. (English) 2.80 2.92 3.08 3.30 3.32
#5	Secondary	394.50'	**10.0' long x 8.0' breadth Emergency Overflow Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50 Coef. (English) 2.43 2.54 2.70 2.69 2.68 2.68 2.66 2.64 2.64 2.64 2.65 2.65 2.66 2.66 2.68 2.70 2.74

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=390.00' TW=387.30' (Dynamic Tailwater)
- **1=15" CPP** (Passes 0.00 cfs of 0.03 cfs potential flow)
  - **2=Plug Orifice** (Controls 0.00 cfs)
    - **3=3" Low-Flow Orifice** (Controls 0.00 cfs)
    - **4=Outflow Riser** (Controls 0.00 cfs)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=390.00' TW=389.61' (Dynamic Tailwater)
- **5=Emergency Overflow Weir** (Controls 0.00 cfs)

Summary for Pond P MID-W: Inf Basin Mid-West

Inflow Area = 417,553 sf, 4.06% Impervious, Inflow Depth = 0.00" for WQ STORM event
Inflow = 0.01 cfs @ 12.12 hrs, Volume= 22 cf
Outflow = 0.01 cfs @ 12.14 hrs, Volume= 22 cf, Atten= 49%, Lag= 1.4 min
Discarded = 0.01 cfs @ 12.14 hrs, Volume= 22 cf
Primary = 0.00 cfs @ 12.14 hrs, Volume= 0 cf
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs / 2
Peak Elev= 383.50' @ 12.14 hrs Surf.Area= 2,132 sf Storage= 1 cf
Flood Elev= 387.00' Surf.Area= 6,128 sf Storage= 13,971 cf

Plug-Flow detention time= 3.0 min calculated for 22 cf (100% of inflow)
Center-of-Mass det. time= 3.0 min (1,222.1 - 1,219.1)

Volume	Invert	Avail.Storage	Storage Description
#1	383.50'	15,865 cf	**Basin Contours (Irregular)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
383.50	2,132	274.0	0	0	2,132
384.00	2,566	294.0	1,173	1,173	3,047
385.00	3,585	348.0	3,061	4,234	5,824
386.00	4,909	422.0	4,230	8,464	10,375
387.00	6,128	439.0	5,507	13,971	11,617
387.30	6,503	444.0	1,894	15,865	11,992

Device	Routing	Invert	Outlet Devices
#1	Primary	383.50'	**12.0" Round Twin 12" CPP X 2.00** L= 15.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 383.50' / 383.40' S= 0.0067 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf
#2	Device 1	383.50'	**3.0" Vert. 3" Low-Flow Orifice** C= 0.600
#3	Device 1	385.00'	**16.0' long x 0.5' breadth Outflow Riser** Head (feet) 0.20 0.40 0.60 0.80 1.00 Coef. (English) 2.80 2.92 3.08 3.30 3.32
#4	Secondary	386.30'	**9.0' long x 9.5' breadth Emergency Overflow Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 Coef. (English) 2.48 2.55 2.70 2.69 2.68 2.69 2.67 2.64 2.64 2.64 2.64 2.64 2.64 2.65 2.65 2.66
#5	Discarded	383.50'	**2.410 in/hr Exfiltration over Surface area** Phase-In= 0.01'

Discarded OutFlow Max=0.01 cfs @ 12.14 hrs HW=383.50' (Free Discharge)
└**5=Exfiltration** (Exfiltration Controls 0.01 cfs)

Primary OutFlow Max=0.00 cfs @ 12.14 hrs HW=383.50' TW=0.00' (Dynamic Tailwater)
└**1=Twin 12" CPP** (Passes 0.00 cfs of 0.00 cfs potential flow)
  ├**2=3" Low-Flow Orifice** (Orifice Controls 0.00 cfs @ 0.08 fps)
  └**3=Outflow Riser** (Controls 0.00 cfs)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=383.50' TW=0.00' (Dynamic Tailwater)
└**4=Emergency Overflow Weir** (Controls 0.00 cfs)

Summary for Pond P SF: Sand Filter DC-780

Inflow Area = 34,891 sf, 0.00% Impervious, Inflow Depth = 0.44" for WQ STORM event
Inflow = 0.36 cfs @ 12.12 hrs, Volume= 1,277 cf
Outflow = 0.05 cfs @ 12.12 hrs, Volume= 1,277 cf, Atten= 85%, Lag= 0.0 min
Primary = 0.05 cfs @ 12.12 hrs, Volume= 1,277 cf
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf
Tertiary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs / 2
Peak Elev= 389.37' @ 12.89 hrs Surf.Area= 960 sf Storage= 435 cf
Flood Elev= 393.50' Surf.Area= 960 sf Storage= 1,147 cf

Plug-Flow detention time= 78.0 min calculated for 1,277 cf (100% of inflow)

Center-of-Mass det. time= 78.0 min (934.3 - 856.3)

Volume	Invert	Avail.Storage	Storage Description
#1	386.75'	180 cf	**Sand Filter (Irregular)** Listed below (Recalc) 720 cf Overall x 25.0% Voids
#2	388.25'	411 cf	**Crushed Stone Surround (Irregular)** Listed below (Recalc) 1,800 cf Overall - 555 cf Embedded = 1,245 cf x 33.0% Voids
#3	389.00'	555 cf	**ADS_StormTech DC-780 +Cap** x 12 Inside #2 Effective Size= 45.4"W x 30.0"H => 6.49 sf x 7.12'L = 46.2 cf Overall Size= 51.0"W x 30.0"H x 7.56'L with 0.44' Overlap 12 Chambers in 3 Rows
#4	392.00'	1 cf	**0.50'D x 1.50'H Cleanout Risers** x 3 -Impervious
		1,147 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
386.75	480	92.0	0	0	480
388.25	480	92.0	720	720	618

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
388.25	480	92.0	0	0	480
392.00	480	92.0	1,800	1,800	825

Device	Routing	Invert	Outlet Devices
#1	Primary	386.75'	**2.410 in/hr EXFILTRATION over Surface area** Phase-In= 0.01'
#2	Secondary	391.00'	**6.0" Round 6" OVERFLOW** L= 26.0' CPP, mitered to conform to fill, Ke= 0.700 Inlet / Outlet Invert= 391.00' / 390.00' S= 0.0385 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.20 sf
#3	Tertiary	393.49'	**6.0" Horiz. CO SURCHARGE 393.5 X 3.00** C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=0.05 cfs @ 12.12 hrs HW=388.25' (Free Discharge)
1=EXFILTRATION (Exfiltration Controls 0.05 cfs)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=386.75' TW=386.80' (Dynamic Tailwater)
2=6" OVERFLOW (Controls 0.00 cfs)

Tertiary OutFlow Max=0.00 cfs @ 0.00 hrs HW=386.75' TW=383.50' (Dynamic Tailwater)
3=CO SURCHARGE 393.5 (Controls 0.00 cfs)

Summary for Pond SF: DMH SF

Inflow Area = 34,891 sf, 0.00% Impervious, Inflow Depth = 0.44" for WQ STORM event
Inflow = 0.38 cfs @ 12.12 hrs, Volume= 1,279 cf
Outflow = 0.38 cfs @ 12.12 hrs, Volume= 1,279 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.36 cfs @ 12.12 hrs, Volume= 1,277 cf
Secondary = 0.01 cfs @ 12.12 hrs, Volume= 2 cf
Tertiary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs / 2

Peak Elev= 389.71' @ 12.12 hrs
Flood Elev= 394.40'

Device	Routing	Invert	Outlet Devices
#1	Primary	389.30'	**10.0" Round 10" CPP TO SF** L= 3.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 389.30' / 389.25' S= 0.0167 '/' Cc= 0.900 n= 0.011 Corrugated PE, smooth interior, Flow Area= 0.55 sf
#2	Secondary	387.91'	**15.0" Round 15" CPP BYPASS** L= 18.7' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 387.91' / 387.80' S= 0.0059 '/' Cc= 0.900 n= 0.011 Corrugated PE, smooth interior, Flow Area= 1.23 sf
#3	Device 2	389.70'	**5.0' long x 0.5' breadth OVERFLOW WEIR** Head (feet) 0.20 0.40 0.60 0.80 1.00 Coef. (English) 2.80 2.92 3.08 3.30 3.32
#4	Tertiary	394.40'	**32.0" Horiz. DMH SURCHARGE** C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=0.36 cfs @ 12.12 hrs HW=389.71' TW=389.61' (Dynamic Tailwater)
1=10" CPP TO SF (Outlet Controls 0.36 cfs @ 1.98 fps)

Secondary OutFlow Max=0.01 cfs @ 12.12 hrs HW=389.71' TW=387.36' (Dynamic Tailwater)
2=15" CPP BYPASS (Passes 0.01 cfs of 5.94 cfs potential flow)
3=OVERFLOW WEIR (Weir Controls 0.01 cfs @ 0.28 fps)

Tertiary OutFlow Max=0.00 cfs @ 0.00 hrs HW=387.97' TW=383.50' (Dynamic Tailwater)
4=DMH SURCHARGE (Controls 0.00 cfs)

Summary for Pond SF PT: BARRACUDA S3

Inflow Area = 34,891 sf, 0.00% Impervious, Inflow Depth = 0.44" for WQ STORM event
Inflow = 0.36 cfs @ 12.12 hrs, Volume= 1,277 cf
Outflow = 0.36 cfs @ 12.12 hrs, Volume= 1,277 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.36 cfs @ 12.12 hrs, Volume= 1,277 cf
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs / 2
Peak Elev= 389.61' @ 12.12 hrs
Flood Elev= 393.40'

Device	Routing	Invert	Outlet Devices
#1	Primary	389.25'	**10.0" Round 10" CPP TO SF** L= 3.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 389.25' / 389.20' S= 0.0167 '/' Cc= 0.900 n= 0.011 Corrugated PE, smooth interior, Flow Area= 0.55 sf
#2	Secondary	393.40'	**24.0" Horiz. DMH SURCHARGE** C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=0.36 cfs @ 12.12 hrs HW=389.61' TW=388.25' (Dynamic Tailwater)
1=10" CPP TO SF (Barrel Controls 0.36 cfs @ 2.35 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=389.25' TW=383.50' (Dynamic Tailwater)
2=DMH SURCHARGE (Controls 0.00 cfs)

Summary for Pond SF-A: CB SF-A

Inflow Area = 34,891 sf, 0.00% Impervious, Inflow Depth = 0.44" for WQ STORM event
Inflow = 0.38 cfs @ 12.12 hrs, Volume= 1,279 cf
Outflow = 0.38 cfs @ 12.12 hrs, Volume= 1,279 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.38 cfs @ 12.12 hrs, Volume= 1,279 cf
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs / 2
Peak Elev= 389.97' @ 12.12 hrs
Flood Elev= 392.80'

Device	Routing	Invert	Outlet Devices
#1	Primary	389.61'	**15.0" Round 15" CPP** L= 58.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 389.61' / 389.40' S= 0.0036 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf
#2	Secondary	392.80'	**2.5" x 2.5" Horiz. CB Surcharge X 6.00 columns** X 6 rows C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=0.37 cfs @ 12.12 hrs HW=389.97' TW=389.71' (Dynamic Tailwater)
1=15" CPP (Outlet Controls 0.37 cfs @ 1.89 fps)

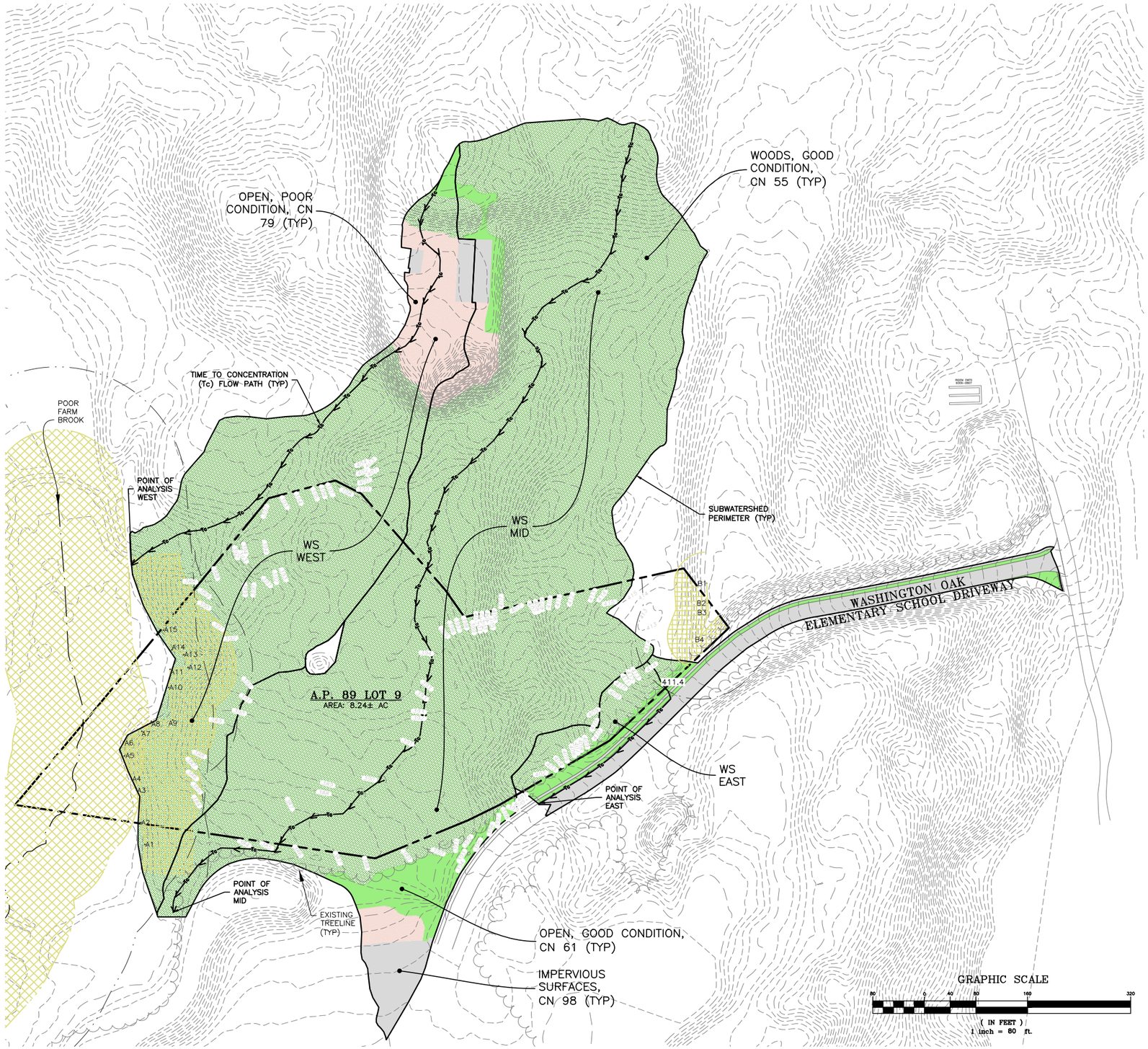
Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=389.61' TW=383.50' (Dynamic Tailwater)
2=CB Surcharge (Controls 0.00 cfs)

Summary for Link L: Runoff to Wetland

Inflow Area = 736,925 sf, 7.92% Impervious, Inflow Depth = 0.01" for WQ STORM event
Inflow = 0.07 cfs @ 12.32 hrs, Volume= 547 cf
Primary = 0.07 cfs @ 12.32 hrs, Volume= 547 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs

APPENDIX G WATERSHED/IMPERVIOUS AREA MAPS



PLAN VIEW

SITE SOIL NOTES:

1. SUBJECT PARCEL IS UNDERLAIN PREDOMINANTLY BY:
   - NARRAGANSETT SILT LOAM, 0–3% (NaA), HSG B
   - NARRAGANSETT SILT LOAM, VERY STONY, 0–8% (NbB), HSG B
   - NARRAGANSETT SILT LOAM, EXTREMELY STONY, 3–15% (NcC), HSG B

   THE NARRAGANSETT SILT LOAM SOILS BENEATH THE DEVELOPMENT AREA ARE GENERALLY SUITABLE FOR THE TYPE OF DEVELOPMENT PROPOSED ON THE PARCEL, AND ARE NOT SUBJECT TO ANY OF THE FOLLOWING CONSTRAINTS: HYDRIC SOILS, HIGH WATER TABLES, SLOW–PERMEABILITY SOILS, SHALLOW LEDGE/BEDROCK, EXCESSIVELY ERODIBLE SOILS.
2. ON–SITE WATERSHED CURVE NUMBER (CN) VALUES WERE DETERMINED BASED ON HSG B SOILS.

SUBWATERSHED SUMMARY:

NAME	AREA (SF)	COMPOSITE CN	Tc	NOTES
WS WEST	218,520	58	17.1	SHEDS TO WETLAND COMPLEX "A"
WS MID	497,740	57	36.3	SHEDS TO WETLAND COMPLEX "A"
WS EAST	51,521	78	9.5	SHEDS TO SCHOOL DRAINAGE SYSTEM

TOTAL WATERSHED DEVELOPMENT AREA = 767,781± SF/17.626± AC

OWNER/APPLICANT:
DOMENICO A. PICOZZI
506 HOPE FURNACE RD
HOPE, RI 02831

DRAWING ISSUE:

- ☐ CONCEPT/PRE–APP
- ☐ CUSTOMER APPROVAL
- ☒ PERMITTING
- ☐ CONSTRUCTION
- ☐ AS–BUILT
- ☐ OTHER

ONLY PLANS ISSUED FOR CONSTRUCTION SHALL BE USED FOR CONSTRUCTION

TIMOTHY J. BEHAN No 6278 REGISTERED PROFESSIONAL ENGINEER

COMMONWEALTH
ENGINEERS & CONSULTANTS, INC.
400 SMITH STREET
PROVIDENCE, RHODE ISLAND 02908
(401) 273–6600

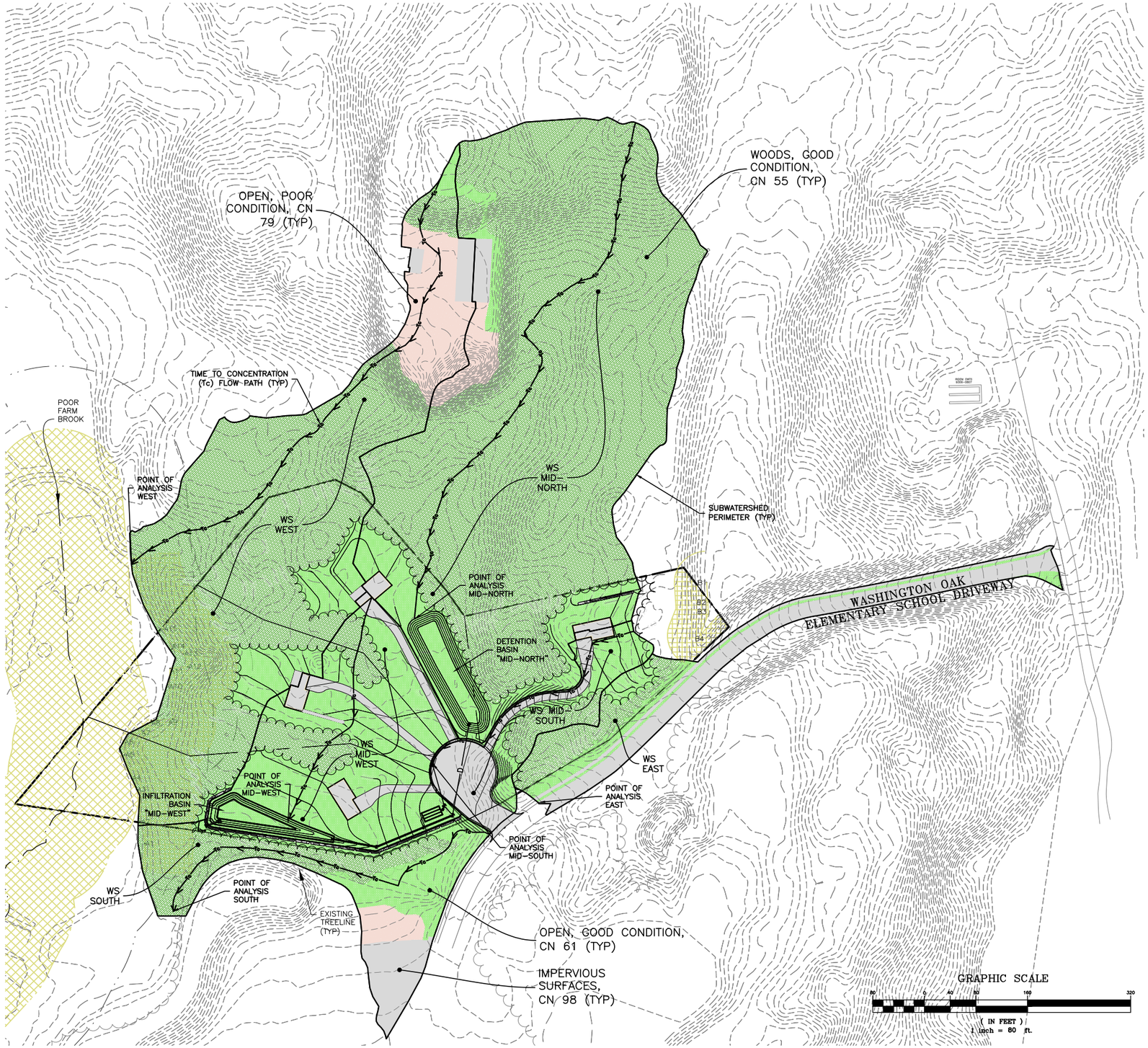
REVISIONS

No.	DATE	DRWN	CHKD

PRELIMINARY SUBMISSION
FOR THE
"PICOZZI PLAT MINOR SUBDIVISION"
A.P. 89 LOT 9
COVENTRY, RI

EXISTING WATERSHED MAP

SCALE: 1"=80'		SHEET NO: WS EX
DRAWN BY: MCZ	DESIGN BY: MCZ	CHECKED BY: TJB
DATE: MAY 2026		PROJECT NO.: 25088.00



PLAN VIEW

SITE SOIL NOTES:

1. SUBJECT PARCEL IS UNDERLAIN PREDOMINANTLY BY:
   - NARRAGANSETT SILT LOAM, 0–3% (NaA), HSG B
   - NARRAGANSETT SILT LOAM, VERY STONY, 0–8% (NbB), HSG B
   - NARRAGANSETT SILT LOAM, EXTREMELY STONY, 3–15% (NcC), HSG B

   THE NARRAGANSETT SILT LOAM SOILS BENEATH THE DEVELOPMENT AREA ARE GENERALLY SUITABLE FOR THE TYPE OF DEVELOPMENT PROPOSED ON THE PARCEL, AND ARE NOT SUBJECT TO ANY OF THE FOLLOWING CONSTRAINTS: HYDRIC SOILS, HIGH WATER TABLES, SLOW–PERMEABILITY SOILS, SHALLOW LEDGE/BEDROCK, EXCESSIVELY ERODIBLE SOILS.
2. ON–SITE WATERSHED CURVE NUMBER (CN) VALUES WERE DETERMINED BASED ON HSG B SOILS.

SUBWATERSHED SUMMARY:

NAME	AREA (SF)	COMPOSITE CN	Tc	NOTES
WS WEST	206,851	59	17.1	SHEDS TO WETLAND COMPLEX "A"
WS MID–WEST	92,566	65	17.0	SHEDS TO INFILTRATION BASIN "MID–WEST"
WS MID–NORTH	324,967	57	26.3	SHEDS TO DETENTION BASIN "MID–NORTH"
WS MID–SOUTH	34,893	76	7.8	SHEDS TO CATCH BASIN "SF–A"
WS SOUTH	61,010	67	10.6	SHEDS TO SCHOOL DRAINAGE SYSTEM
WS EAST	51,511	78	9.5	SHEDS TO SCHOOL DRAINAGE SYSTEM

TOTAL WATERSHED DEVELOPMENT AREA = 771,798± SF/17.718± AC

OWNER/APPLICANT:
DOMENICO A. PICOZZI
506 HOPE FURNACE RD
HOPE, RI 02831

DRAWING ISSUE:
- ☐ CONCEPT/PRE–APP
- ☐ CUSTOMER APPROVAL
- ☒ PERMITTING
- ☐ CONSTRUCTION
- ☐ AS–BUILT
- ☐ OTHER

ONLY PLANS ISSUED FOR CONSTRUCTION SHALL BE USED FOR CONSTRUCTION

TIMOTHY J. BEHAN No 6278 REGISTERED PROFESSIONAL ENGINEER

REVISIONS

No.	DATE	DRWN	CHKD

COMMONWEALTH
ENGINEERS & CONSULTANTS, INC.
400 SMITH STREET
PROVIDENCE, RHODE ISLAND 02908
(401) 273–6600

PRELIMINARY SUBMISSION
FOR THE
"PICOZZI PLAT MINOR SUBDIVISION"
A.P. 89 LOT 9
COVENTRY, RI

PROPOSED WATERSHED MAP

SCALE: 1"=80'		SHEET NO: WS PR
DRAWN BY: MCZ	DESIGN BY: MCZ	CHECKED BY: TJB
DATE: MAY 2026		PROJECT NO.: 25088.00

APPENDIX H MAPS

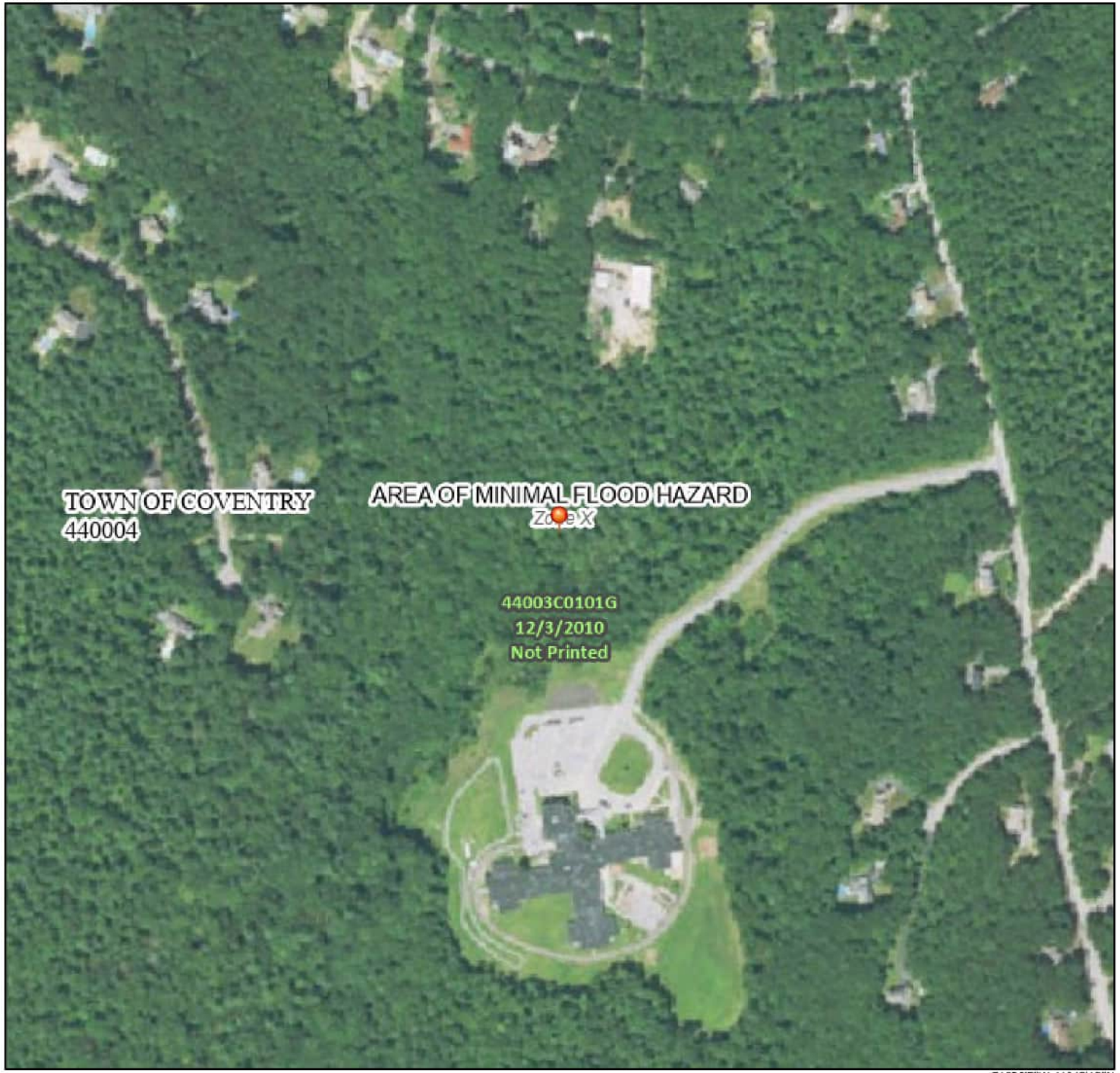
FLOOD INSURANCE RATE MAP

USDA SOILS MAP

National Flood Hazard Layer FIRMette

FEMA

71°36'43"W 41°43'39"N



71°36'5"W 41°43'12"N

0 250 500 1,000 1,500 2,000 Feet

1:6,000

Basemap Imagery Source: USGS National Map 2023

Legend

SEE FIS REPORT FOR DETAILED LEGEND AND INDEX MAP FOR FIRM PANEL LAYOUT

SPECIAL FLOOD HAZARD AREAS
- Without Base Flood Elevation (BFE) *Zone A, V, A99*
- With BFE or Depth *Zone AE, AO, AH, VE, AR*
- Regulatory Floodway

OTHER AREAS OF FLOOD HAZARD
- 0.2% Annual Chance Flood Hazard, Areas of 1% annual chance flood with average depth less than one foot or with drainage areas of less than one square mile *Zone X*
- Future Conditions 1% Annual Chance Flood Hazard *Zone X*
- Area with Reduced Flood Risk due to Levee. See Notes. *Zone X*
- Area with Flood Risk due to Levee *Zone D*

OTHER AREAS
- NO SCREEN Area of Minimal Flood Hazard *Zone X*
- Effective LOMRs
- Area of Undetermined Flood Hazard *Zone D*

GENERAL STRUCTURES
- Channel, Culvert, or Storm Sewer
- Levee, Dike, or Floodwall

OTHER FEATURES
- 20.2 / 17.5 Cross Sections with 1% Annual Chance / Water Surface Elevation
- Coastal Transect
- Base Flood Elevation Line (BFE)
- Limit of Study
- Jurisdiction Boundary
- Coastal Transect Baseline
- Profile Baseline
- Hydrographic Feature

MAP PANELS
- Digital Data Available
- No Digital Data Available
- Unmapped

N

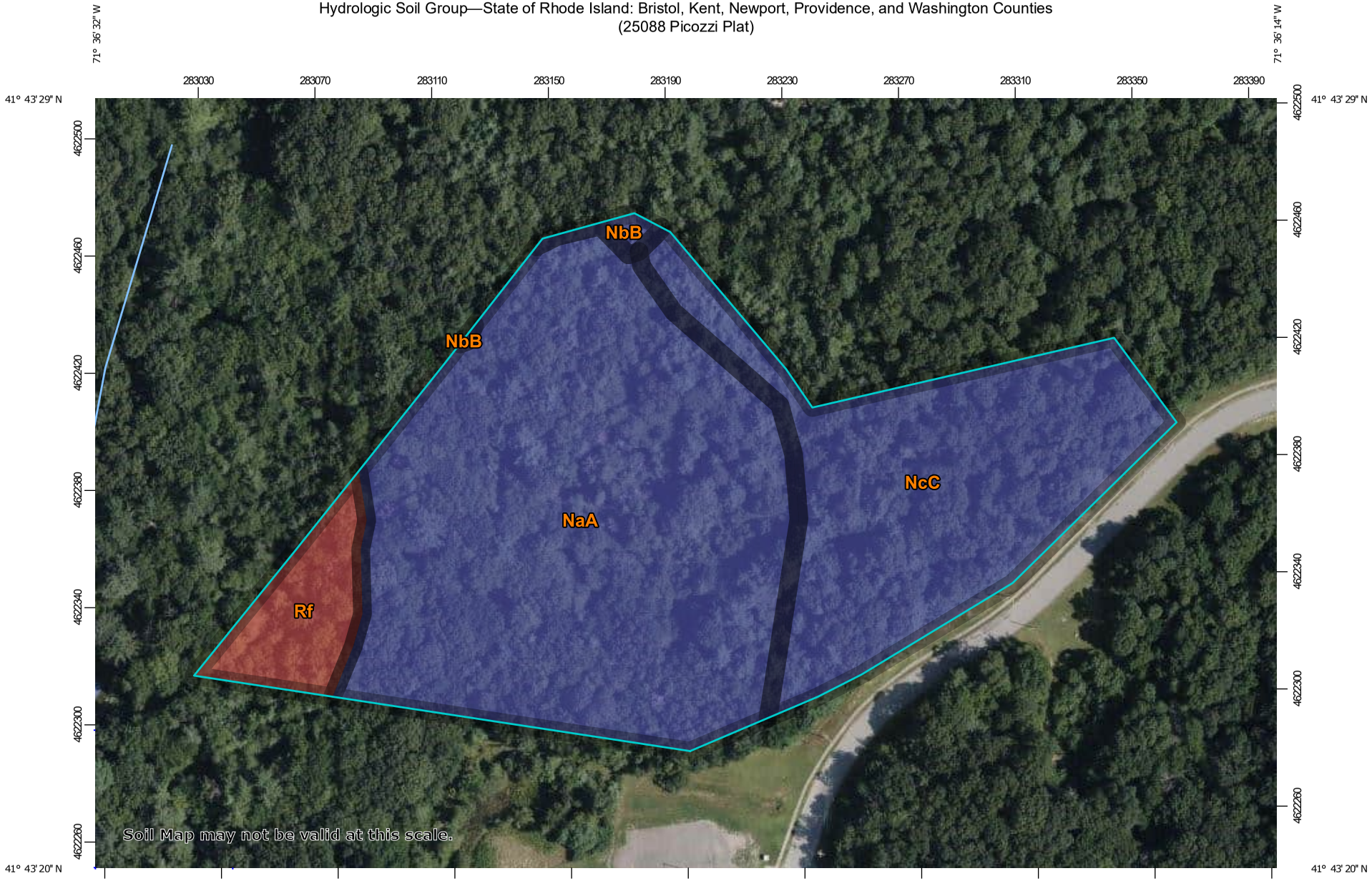
The pin displayed on the map is an approximate point selected by the user and does not represent an authoritative property location.

This map complies with FEMA's standards for the use of digital flood maps if it is not void as described below. The basemap shown complies with FEMA's basemap accuracy standards

The flood hazard information is derived directly from the authoritative NFHL web services provided by FEMA. This map was exported on 5/20/2026 at 12:39 PM and does not reflect changes or amendments subsequent to this date and time. The NFHL and effective information may change or become superseded by new data over time.

This map image is void if the one or more of the following map elements do not appear: basemap imagery, flood zone labels, legend, scale bar, map creation date, community identifiers, FIRM panel number, and FIRM effective date. Map images for unmapped and unmodernized areas cannot be used for regulatory purposes.

Hydrologic Soil Group—State of Rhode Island: Bristol, Kent, Newport, Providence, and Washington Counties
(25088 Picozzi Plat)



Map Scale: 1:1,850 if printed on A landscape (11" x 8.5") sheet.

N

Meters
0 25 50 100 150

Feet
0 50 100 200 300

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 19N 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.

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

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

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

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

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

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

Soil Survey Area: State of Rhode Island: Bristol, Kent, Newport, Providence, and Washington Counties
Survey Area Data: Version 25, Sep 3, 2025

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

Date(s) aerial images were photographed: Mar 1, 2024—Jul 1, 2024

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
NaA	Narragansett silt loam, 0 to 3 percent slopes	B	5.0	60.7%
NbB	Narragansett very stony silt loam, 0 to 8 percent slopes	B	0.0	0.6%
NcC	Narragansett extremely stony silt loam, 3 to 15 percent slopes	B	2.7	32.2%
Rf	Ridgebury, Leicester, and Whitman soils, 0 to 8 percent slopes, extremely stony	D	0.5	6.5%
Totals for Area of Interest			**8.2**	**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.

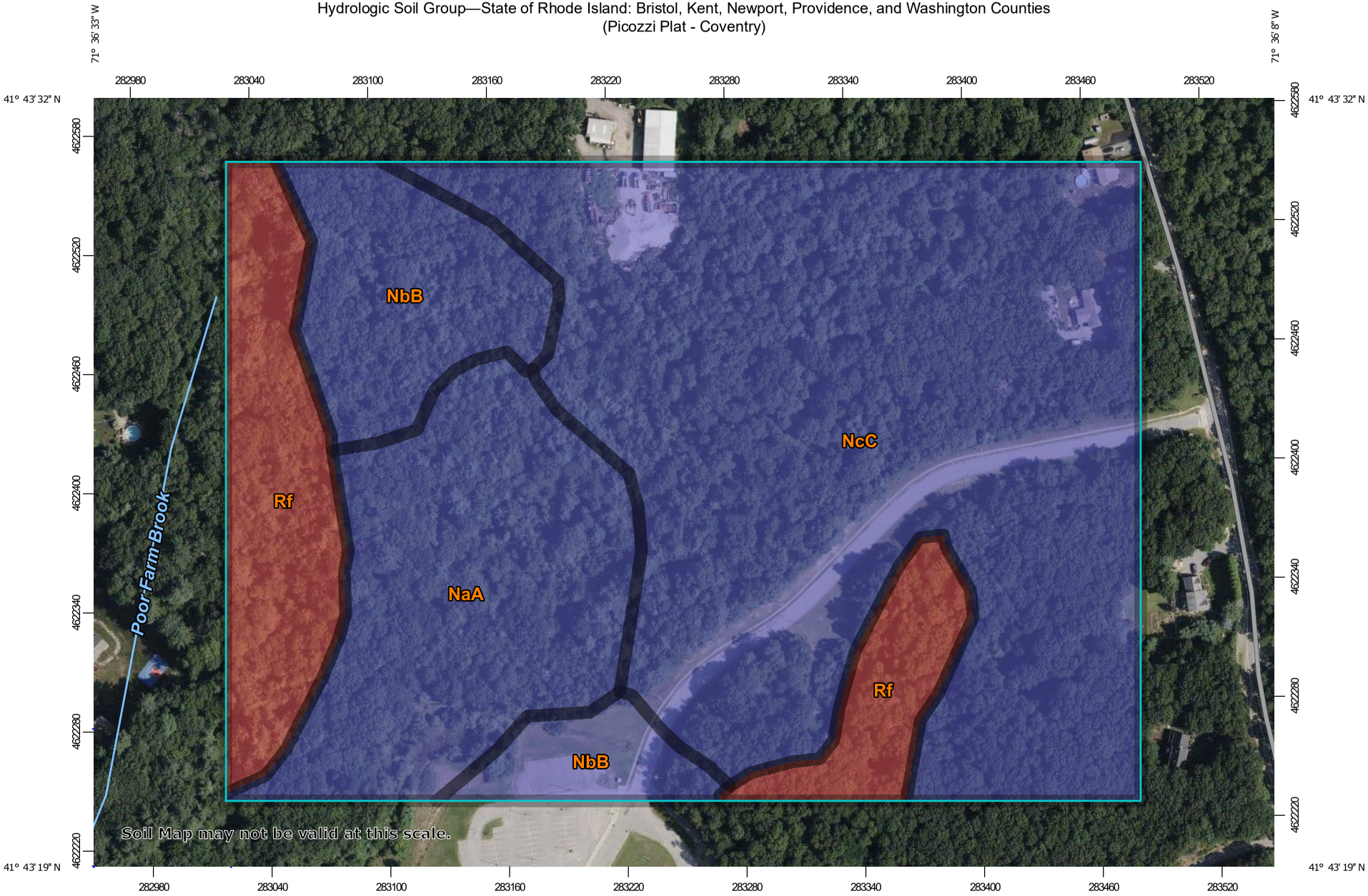
Rating Options

Aggregation Method: Dominant Condition

Component Percent Cutoff: None Specified

Tie-break Rule: Higher

Hydrologic Soil Group—State of Rhode Island: Bristol, Kent, Newport, Providence, and Washington Counties
(Picozzi Plat - Coventry)



Map Scale: 1:2,730 if printed on A landscape (11" x 8.5") sheet.

N

Meters: 0 40 80 160 240

Feet: 0 100 200 400 600

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 19N 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

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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: State of Rhode Island: Bristol, Kent, Newport, Providence, and Washington Counties
Survey Area Data: Version 25, Sep 3, 2025

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

Date(s) aerial images were photographed: Mar 1, 2024—Jul 1, 2024

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
NaA	Narragansett silt loam, 0 to 3 percent slopes	B	6.8	18.4%
NbB	Narragansett very stony silt loam, 0 to 8 percent slopes	B	4.4	12.0%
NcC	Narragansett extremely stony silt loam, 3 to 15 percent slopes	B	20.5	55.6%
Rf	Ridgebury, Leicester, and Whitman soils, 0 to 8 percent slopes, extremely stony	D	5.2	14.0%
Totals for Area of Interest			**36.9**	**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:

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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