Project Narrative and Drainage Report

For

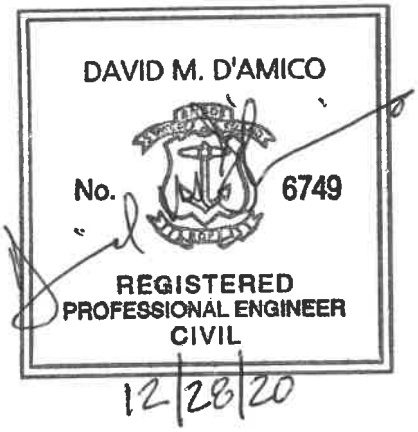
A Proposed

NORTH SMITHFIELD AUTO BODY SITE IMPROVEMENTS MAJOR LAND DEVELOPMENT PROJECT

770 & 784 Eddie Dowling Highway (RI Rt. 146)
AP 13, Lots 38 and 117, AP 17, Lot 71
North Smithfield, RI

Prepared for:

TW Enterprises, LLC
770 Eddie Dowling Highway
North Smithfield, RI 02876



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"Improve Your World"

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TABLE OF CONTENTS

1 INTRODUCTION

D'Amico Engineering Technology, Inc. (DEtec) has prepared the following project narrative as required to provide information associated with the site improvements on Assessor's Plat 13, Lots 38 and 117, AP 17, Lot 71, located at 770 & 784 Eddie Dowling Highway (RI Rt. 146) in North Smithfield, Rhode Island. DEtec has conducted a review of existing site conditions, site design requirements and permit requirements with the Town and State. DEtec also has visited the site and reviewed available information from the owner, client, RIDEM and Town records.

North Smithfield Auto Body is proposing to expand its business by constructing a new main building on the lot that abuts to the south of its existing location to #784 Eddie Dowling Highway. The new building will be 14,300 sf that will include office and waiting room space along with assessment bays all at the highway grade level. The building will drop off in the rear and on the north side to take advantage of the natural sloping of the property which will accommodate twelve (12) new service bays. The new building will be set 50' parallel to the existing service building and will be within all required zoning setbacks. In order to fit the new building on the lot and within the setbacks, Lot 38 will be merged with Lot 71. An administrative subdivision will be required for the lot merger along with the adjustment of the property line between lots 17 and 117.

The site will provide for all required parking per current zoning regulations. The building will be serviced with water by a new well, with sewer to be collected via an on-site wastewater treatment system (OWTS) along the easterly property line. A subsurface drainage system will attenuate the stormwater runoff from the site in the rear parking lot which will be primarily a fill area. A retaining wall will be constructed along the north side of the rear driveway area to avert from going close to the wetland edge and the existing disturbance area along the existing tree line. Wetland area restoration will be conducted as part of this project on the east side of the new retaining wall to remove rip rap that was placed in this area. The area will be revegetated in accordance with RIDEM regulations.

The curb cut for the site has been reconfigured to work with both the current condition of the highway and will accommodate the new construction of Rt. 146 in the near future. The new construction will add a new frontage lane along the entire northbound section of Rt. 146 that will include the frontage of both properties. The proposed egress/regress for the new site will work harmoniously with both highway layouts. The project will require RIDOT and RIDEM approval for to proceed to construction, notwithstanding Town approval. With the design of the highway expansion at an early stage along with continued wetland restoration in the rear of the site, it is requested that Preliminary Plan approval be contingent on the receipt of the mentioned State approvals.

2 SITE LOCATION AND PHYSICAL DESCRIPTION

The subject property is located on the northbound side of Eddie Dowling Highway (RI Route 146) (See Figure 1 – Locus Map) in North Smithfield, Rhode Island. Eddie Dowling Highway is a State-owned limited access highway with the exception of the stretch of highway from Old Great Road in the south to the Rt. 146/146A split in the north section which has private curb cuts onto the highway. The subject parcels have been identified on the Town's assessors map as Plat 13, Lots

38 and 117, AP 17, Lot 71. A class I survey has been performed on the parcels and it was determined that the area is 106,766 s.f. +/- or 2.45 acres of land in total. There was a single-family home with outbuildings on Lot 17 which has been demolished over the past year. Lot 117 and 38 is occupied by the current auto body building and operation. A forested wetland and stream < 10' in width has been identified along the northern and easterly property lines. A National Grid power line right-of-way abuts the easterly property lines of all parcels.

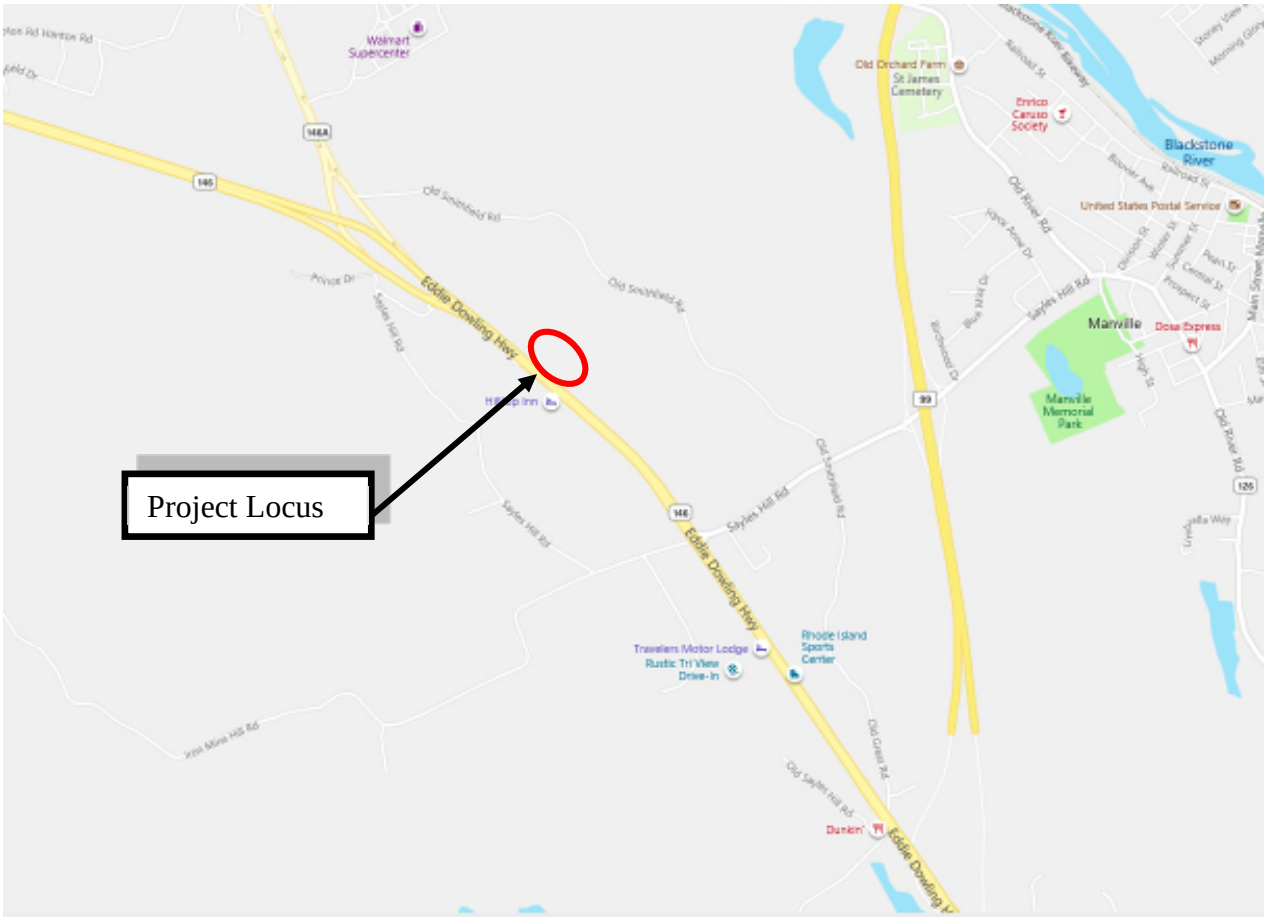


Figure 1. Locus Map

2.1 Existing Conditions

The following is a general description of current site conditions of the property. The subject property is AP13, Lots 38 and 117, AP 17, Lot 71 with the primary lot of development as AP 17, Lot 71. The property is located on the northbound and east side of Rt. 146 and has a curb cut for lots 117 and 71. The properties can only exit to the right in the northbound direction on the highway and must use the Rt. 146/Rt. 146A split interchange to go south on the highway. In the area of the existing home which has been demolished, the area is mainly grass area with a forested wetland with perimeter wetland in its eastern portion. Lot 117 is the location of the existing auto body operation which has a bituminous parking area with the perimeter wetland to the east and a riverbank wetland to the north. An active National Grid power line right-of-way abuts to the east

of the site. The westerly portion of the lots are relatively flat, with a dramatic slope drop off at the wetland edges in the east of the site with a change in elevation of 40' +/-.

Figure 2 – Aerial photograph

Utilities

2.1.1 Water

Public water is not available for the site and wells currently serves both properties.

2.1.2 Sewer

Public sewers are not available for the site, with both lots serviced by on-site wastewater treatment systems (OWTS).

2.1.3 Electric

The electric and communication services that is available along the highway. National Grid will determine the location and will design the power requirements for the new building.

2.1.4 Gas

Gas is not available for the site.

2.1.5 Drainage

There is no drainage system associated with the properties. All stormwater runoff on site sheet flows to the wetland complex in the east and north of the site. Rt. 146 has a closed drainage system within its limits with a major outfall of roadway runoff to the north of the existing site that contributes to the stream to the north.

2.2 Zoning

According to the Town of North Smithfield Zoning Maps the site is currently zoned Business Highway (BH). As defined in the Town of North Smithfield Zoning Ordinance, the zoning use of an auto body shop would require a Special Use Permit. The project will not need a dimensional variance for the project

The following are the dimensional requirements for current zoning classification for an A-10 District:

Requirement	**BH**
Minimum Lot Area	None
Minimum Distance to Residential	25 ft
Minimum Front Yard	25 ft
Minimum Side Yard	15 ft
Minimum Rear Yard	30 ft
Maximum Building Height	35 ft
Maximum Building Coverage	25%

The surrounding properties are Business Highway (BH) and Rural Estate Agricultural (REA). A single-family home does exist to the south of the property and will follow the required setbacks.

2.3 Soil Classification

According to the *Soil Survey of Rhode Island*, prepared by the US Department of Agriculture, Soil Conservation Service, soils on the site (Figure 3) consist of CeC – Canton and Charlton-Fine Sandy Loams, 0 to 45 percent slopes, very stony which is located on the site. The Canton series consists of very deep, well drained soils formed in a loamy mantle underlain by sandy till. The Charlton series consists of very deep, well drained soils formed in loamy melt-out till. In the most easterly side of the site the soils consist of Rf – Ridgebury, Leicester and Whitman soils. The Rf soils are not impacted by the proposed site work. The CeC soil type is listed in the hydrologic B group as having a moderately low runoff potential when thoroughly wet.

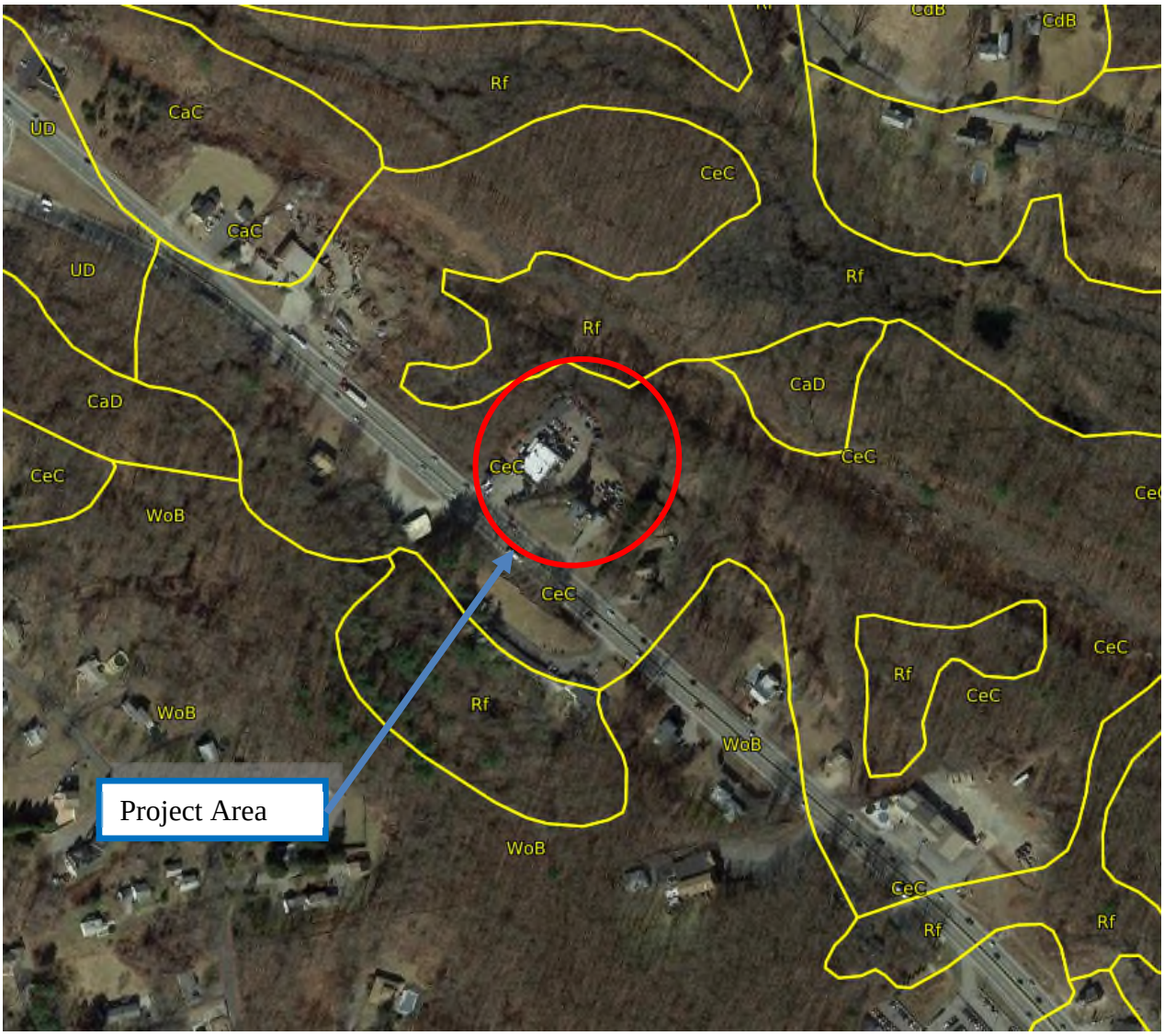


Figure 3 – Soil Map

Test pits and soil evaluations have been completed by Marc N. Nyberg Associates and reviewed by RIDEM OWTS in the vicinity of the proposed subsurface drainage system and OWTS which have determine the seasonal high groundwater elevation is at least 48" below the original surface grade in the area.

2.4 Wetland Resources

In the eastern portion of the site a forested wetland along with the wetland perimeter has been identified and flagged in the field by Natural Resources, Inc. A stream has been located to the north of the site along with the riverbank wetland which has little impact on the property with the exception of the most northeasterly corner of lot 117.

2.5 Flood Zone Classification

The site is located on the Flood Insurance Rate Map for the Town of North Smithfield; Community–Panel Number 44007 C0178 G dated March 2, 2009. Based on the current map, the property lies in Zone X and outside the 100 year floodplain.

3 PERMIT REQUIREMENTS

3.1 Local Permit Requirements

3.1.1 Town Council

The project will not need approval from the Town Council.

3.1.2 Zoning

The Zoning Board has approved the application for a Special Use Permit to operate an Auto Body business on the site. The Zoning Board decision was recorded on June 26, 2020.

3.1.3 Planning

Planning Board review and approval is required. The project has received Master Plan approval for the site and received a positive recommendation for the Special Use Permit application. Preliminary and Final site plan approval will be required.

3.1.4 Building Permit

A review and approval from the local building official is required to obtain a Building Permit for the proposed construction. In addition, the Fire Department will review the Site Plans for accessibility and fire protection requirements.

3.2 State Permit Requirements

3.2.1 Rhode Island Department of Environmental Management

The project will require a Freshwater Wetland permit because of the presence of wetland on the property along with a RIPDES permit with the total disturbance area over 1 acre (62,490 SF or 1.43 ac.) and an Underground Injection Control (UIC) permit for the subsurface infiltration system.

3.2.2 Rhode Island Department of Transportation

This project will require a RIDOT Physical Alteration Permit Application for the project.

4 DRAINAGE ANALYSIS

4.1. METHODOLOGY

Hydrological analysis will be performed at the preliminary stage using the Technical Release 20 (TR-20) and the peak runoff rate for the water quality volume (WQv), 1, 10 and 100-year storm event was modeled for a 24-hour, Type III storm. The peak runoff rates for the mentioned year

storm events and routing of the storm events through the proposed drainage facilities was modeled utilizing the HydroCad® 10.0-25, 2018 by HydroCad Software Solutions LLC.

Hydrological and Hydraulic analyses will be performed in conformance with the current State of Rhode Island, Stormwater Design and Installation Standards Manual 2015, and RIDEM Underground Injection Control Program, Rules and Regulations.

4.2. EXISTING CONDITIONS

The existing watershed for the site consists of two watersheds designated as 1-EW and 2-EW on the watershed map in Appendix D. The 1-EW watershed is the major watershed of the site and encompasses all the lots to the east of the highway right-of-way. The watershed consists of the existing auto body site and the single-family home site in the southern portion of the area. The runoff from this sub-watershed area flows to the east and the wetland complex at the bottom of the slope (DP-1). A small sub-watershed area flows to the State's highway closed drainage system in the easterly gutter line. The soil type is CeC – Canton-Charlton-Fine Sandy Loams over the property and is in hydrologic group B. The pre-development peak runoff rates are tabulated below for reference and the calculations can be found in Appendix B.

Pre-Developed Peak Runoff Rates:

Watershed Area ID	Area (sf)	CN	TC (min)	Rainfall	1-year (cfs)	10-year (cfs)	100-year (cfs)
1-EW (DP-1)	70,723	84	7.7	2.7/4.8/8.7	2.27	5.51	11.72
2-EW (DP-2)	5,970	75	8.9	2.7/4.8/8.7	0.10	0.33	0.82

4.3. PROPOSED CONDITIONS

In the proposed condition the site drainage will collect in three (3) watershed areas as seen on the proposed watershed map in Appendix D. Watershed area 3-PW is all within the highway right-of-way which is impacted by the construction of the new egress/regress driveways. This sub-watershed will flow directly to the State's closed drainage system in Rt. 146 (DP-2). The existing auto body facility is located in sub-watershed 4-PW. This watershed consists of the existing building structure along with the existing parking area for the site and flows via sheet flow to the existing wetland complex to the east of the site (DP-1).

Watershed 5-PW is the proposed new building structure, new parking areas and driveways which is collected via one deep sump CB and transported to the proposed subsurface stormwater management system (6-SI). 6-SI will have and outlet to the system and will infiltrate a portion of the runoff from this watershed.

The post-development runoff rates are shown in the following tables and for reference and the calculations can be found in Appendix B.

Post-Developed Peak Runoff Rates:

Watershed Area ID	*Area (sf)*	*CN*	*TC (min)*	*Rainfall*	*1-year (cfs)*	*10-year (cfs)*	*100-year (cfs)*
3-PW	6,587	75	6.4	2.7/4.8/8.7	0.12	0.40	0.99
4-PW	33,824	95	6	2.7/4.8/8.7	1.88	3.54	6.57
5-PW	40,564	93	6	2.7/4.8/8.7	2.10	4.12	7.79

4.4. OVERBANK FLOOD PROTECTION

To mitigate the increase in impervious pavement to DP-1 and provided water quality best management practices (BMP) a Subsurface Stormwater Management Systems (SMS-1) has been proposed to collect runoff from the new building and parking areas. The pavement area runoff will collect via six (6) new CB's with deep sumps which only three (3) will be considered as qualifying BMP with oil/water separator in the manhole that connects the to the subsurface systems. The building roof runoff will collect via roof drains and outfall to DMH-1 and enter SMS-1.

The post-development runoff will enter SMS-1 in two (2) WQv pre-treatment areas which is the isolator row type Subsurface Water Quality Volume BMP. Two (2) deep sump DMH's outfall into SMS-1 with the wrapped chambers will provide more than the required 25% WQv pre-treatment. The isolator rows will treat 100% of the WQv from the new building and parking areas as a total (see Section 4.5).

From the pre-treatment and isolator row sections of twelve (12) Cultec 902HD chambers, the treated stormwater runoff will flow into the recharge area of the SMS-1. This recharge section BMP is made up of seventy-six (76) Cultec 902HD chambers in SMS-1 embedded in washed crushed stone with filter wrap around the entire system for site recharge and overbank protection.

Pre verses Post-Development Peak Runoff Rates to DP-1:

Development Condition	*1-year (cfs)*	*10-year (cfs)*	*100-year (cfs)*
Pre – 1-EW	2.27	5.51	11.72
Post – 7-DP-1	1.88	3.54	11.24
Difference	-0.39	-1.97	-0.48

Utilizing the infiltration rate of 1.02 in/hr based on the soil strata detected in the test hole, SMS-1 will attenuate the proposed peak runoff to equal to or less than the pre-development runoff as shown in the calculations in the Appendix B. This reduction in runoff to the wetland complex to the east will compensate for the minor increase to the flow to the wetland to the north from the closed drainage system in Rt. 146. (See Table below)

Pre verses Post-Development Peak Runoff Rates to DP-2:

Development Condition	*1-year (cfs)*	*10-year (cfs)*	*100-year (cfs)*
Pre – 2-EW	0.10	0.33	0.82
Post – 3-PW	0.12	0.40	0.99
Difference	0.02	0.07	0.17

Pre verses Post-Development Peak Runoff Rates to Globe Total:

Development Condition	*1-year (cfs)*	*10-year (cfs)*	*100-year (cfs)*
DP-1 Difference	-0.39	-1.97	-0.48
DP-2 Difference	0.02	0.07	0.17
Over-all Difference	-0.37	-1.90	-0.31

The stormwater design for the site shows a reduction in the runoff to the wetland complex to the east of the site, with negligible fractional increases to the closed drainage system in Rt. 146 that equates to a slight reduction in overall runoff from the site.

4.5. WATER QUALITY VOLUMES (WQv)

With the configuration of the SMS-1, 45% treatment of the total WQv can be provided in the pre-treatment area. It can be said that 100% of the WQv will pass through the isolator rows thus providing treatment. This is accomplished by installing the deep sump CB and isolator row to treat the runoff from the new building roof and parking areas. Only 25% WQv is generally required for this BMP type, but all runoff flow will enter the isolator row before infiltrating into the recharge areas. In accordance with the Rhode Island Stormwater Design and Installations Standards Manual 2010, Amended 2015, the water quality volume has been calculated using the following equation:

Water Quality Volume (WQv) (5-PW) = 33,009 sf or 0.758 acres x 43,560 ft^2/acres x 1" x 1'/12" = **2,750.75 ft^3**

25% Pre-treatment of WQv = 2,750.75 ft^3 x 0.25 = **687.69** ft^3

WQv pre-treatment will be provided as follows:

Two (2) Isolator row of six (6) Cultec Recharger 902HD Chambers w/stone = 12 x 101.69 ft^3 = 1,220.28 ft^3

3 - 4' dia. CB w/4' sump = πr^2 x h = 3.141 x 2^2 x 3 = 37.71 ft^3

Total Pre-treatment provided = **1,257.99 ft^3**

4.6. GROUNDWATER RECHARGE (Rev)

The project provides exceptional groundwater recharge by utilizing subsurface infiltration for the roof runoff and parking area. In this calculation the roof area will be included.

Required REv = 1" x 0.6 x 0.758 ac/12 = 0.0379 ac-ft. < 0.105 ac-ft provided in SMS-1.

4.7. CONVEYANCE AND NATURAL CHANNEL PROTECTION

The following is a capacity check for the critical pipes that will convey the storm water runoff to and from the storm water management system:

DMH-1 to SMS-1 – 15" ADS HDPE Pipe, S=0.01 '/, n=0.011 Q_{100} = 7.79 cfs
Q_{max} = 8.20 cfs > Q_{100}

CB-6 to SMS-1 – 12" ADS HDPE Pipe, S=0.01 '/, n=0.011 Q_{100} = 4.10 cfs
Q_{max} = 4.52 cfs > Q_{100}

DMH-3 to Flared End – 12" ADS HDPE Pipe, S=0.21 '/, n=0.011 Q_{100} = 5.34 cfs
Q_{max} = 37.6 cfs > Q_{100}

This calculation shows that the internal site pipe conveyance system is adequate for the stormwater flow collection to the SMS-1 along with the outlet pipe.

4.8. DRAINAGE STUDY CONCLUSIONS

This drainage report in combination with the plan set provides a design that conforms to the new State of Rhode Island Stormwater Design and Installation Standards Manual 2010, Amended 2015, as well as the Rhode Island Soil Erosion and Sedimentation Control Handbook. The proposed building parking lot have been designed in order to avoid any increase in peak runoff rates. The new design now provides for recharge to the groundwater along with pre-treatment and treatment of 100% of the WQv for the new impervious areas. The proposed new impervious area will be directed to a new subsurface storm water management system to provide infiltration and storage for the 1, 10 and 100-year frequency storms.

5 IMPACT AVOIDANCE AND MINIMIZATION STATEMENTS

Wetland impact avoidance and minimization has been considered throughout the planning and design process in accordance with the Rules and Regulations Governing the Administration and Enforcement of the Freshwater Wetland Acts, Rule 250-RICR-150-15-1 and as outlined in Section 1.9 B, 1.d. (1) & (2) of the Regulations.

5.1 Impact Avoidance (Rule 1.9 B, d (1))

AA) Proposed construction activities are not water dependent and do not require access to freshwater wetlands as a central element of its primary purpose. The project is proposing to utilize previous disturbed areas for the new site.

BB) There are no other areas within the property or other properties owned by the applicant that could be used to achieve the same project purpose. The layout of the site as proposed will avoid the wetland area to the east to the greatest extent possible and will not alter the natural character of the freshwater wetland.

CC) There are currently no other properties reasonably available that could match the minimal cost to this owner for development of this site development.

DD) The proposed layout is the minimum design possible that will provide the desired build out without permanently encroaching within the wetland edge that have not been disturbed previously. The design does not maximize the use of all the land with no development in the disturbed slope area beyond the proposed.

EE) The proposed project will provide a minimal amount of temporary disturbance along the wetland edge with is the bottom of slope.

FF) There are no other alternatives that would result in less impact to wetland features while still obtaining project goals. No direct impact to the forested wetland edge is proposed and will have no adverse effect on the public health safety and welfare along with the environment.

5.2 Impact Minimization (Rule 1.9 B, d (2))

AA) The proposed project has been minimized to the maximum extent possible to avoid impacts to the forested wetland while still addressing the needs of the applicant for the proposed auto body facility.

BB) Based on the existing conditions, there is no alternative location available which could be used to achieve the same primary project purpose while resulting in less impact and utilizing the abutting lot for the modernized auto body facility.

CC) There are no other alternative designs, layouts, or technologies that are feasible, and which would result in less impact to the wetland and still achieve the project purpose.

Soil Erosion and Sedimentation Control Practices have been employed to avoid and minimize impacts to adjacent wetland resources. Detailed notes have been included in the plans to ensure effective implementation of erosion and sedimentation controls. The soil erosion and sedimentation control measures will be installed prior to the initiation of construction activities and maintained throughout construction. Silt fence and straw waddles are proposed between the reservoir buffer and the limits of disturbance. Once

established, these measures will be monitored daily until construction activities are complete. The silt fence line will serve as the strict limits of disturbance for the project within or adjacent to regulated freshwater wetland areas. No alterations, including vegetative clearing or surface disturbance, will occur beyond this silt fence line. The limits of clearing, grading, and disturbance will be kept to a minimum within the proposed area of construction. All areas outside of these limits, as depicted on the project site plans, will be totally undisturbed, to remain in a completely natural condition.

All referenced soil erosion and sedimentation controls including materials used and the installation procedures will be performed per the "Rhode Island Soil Erosion and Sediment Control Handbook", Issued 1989 (Revised 2014).

DD) The reduction in the scale or the relocation of the proposed project to minimize the impact to the wetland will not result in adverse consequences to public health, safety or the environment. However, the project as proposed will not adversely impact the forested wetland. The disturbance areas proposed are for construction activities outside the wetland areas and within the limit of disturbance of the project.

6. CONCLUSIONS

As illustrated in the above tables and appendices, the proposed site activities have been designed in order to avoid any increase in peak runoff rates, incorporate water quality pre-treatment and provide re-charge to the groundwater in the area. The analysis shows that the project has utilized best management practices for stormwater management to the maximum extent possible.

Construction of the project is anticipated in the late Spring of 2021.

APPENDIX A

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

PROJECT NAME **Proposed North Smithfield Auto Body Site Improvements**	**(RIDEM USE ONLY)** **STW/WQC File #:** **Date Received:**
CITY **North Smithfield**	
BRIEF PROJECT DESCRIPTION: The proposed project includes the construction of a 14,300 sf building for the expansion of the existing auto body business at #770 Eddy Dowling Hwy. A parking lot will be constructed along with an OWTS and subsurface drainage system.	

Stormwater Management Plan (SMP) Elements – Minimum Standards

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 submit 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.) See Guidance to identify receiving waters.

☒ **Groundwater**	☐ **Surface Water**	☒ **MS4**
☐ GAA	☒ Isolated Wetland	☒ RIDOT
☒ GA	☐ Named Waterbody	☐ RIDOT Alteration Permit is Approved
☐ GB	☐ Unnamed Waterbody Connected to Named Waterbody	☐ City
		☐ 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: Spring Brook	☐ Coldwater	☒ Warmwater	☐ Unassessed
☒ Waterbody ID: RI0001004R-02	☐ 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: Enterococcus	☐ Contributes to shellfishing grounds		

PROJECT HISTORY		
☐ RIDEM Pre- Application Meeting	Meeting Date:	☐ Minutes Attached
☐ Municipal Master Plan Approval	Approval Date:	☐ Minutes Attached
☐ Subdivision Suitability Required	Approval #:	
☒ 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 WASTE MANAGEMENT (OWM)			
NA	☐ 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:**
NA	☐ 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)		
NA	☐ 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 OWM 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:			
NA	☐ 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**	
NA	☐ 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		
	☐ Total Pre-Construction Impervious Area (**TIA**)	
	☐ Total Site Area (**TSA**)	
	☐ Jurisdictional Wetlands (**JW**)	
	☐ Conservation Land (**CL**)	
☐ Calculate the Site Size (defined as contiguous properties under same ownership)		
	☐ Site Size (**SS**) = (**TSA**) – (**JW**) – (**CL**)	
	☐ (**TIA**) / (**SS**) =	☐ (**TIA**) / (**SS**) >**0.4**?
☐ 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	**IF NOT IMPLEMENTED, EXPLAIN HERE**
☒ Sensitive resource areas and site constraints are identified (required) ☒ Local development regulations have been reviewed (required) ☐ All vegetated buffers and coastal and freshwater wetlands will be protected during and 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	The size of the project is low impact in itself and would not required additional assessment under this standard.

B) LOCATE DEVELOPMENT IN LESS SENSITIVE AREAS AND WORK WITH THE NATURAL LANDSCAPE CONDITIONS, HYDROLOGY, AND SOILS ☐ Development sites and building envelopes have been appropriately distanced from wetlands and waterbodies ☐ Development and 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	

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 Office of Waste Management 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)**	**Recharge Required by Remaining BMPs (cu ft)**	**Recharge Provided by BMPs (cu ft)**
			Portion of Re_v directed to a QPA (cu ft)		
DP-1: 7-DP-1	33,009	1,650.92	1,650.92		4,573.8
DP-2:					
DP-3:					
DP-4:					
TOTALS:					

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.

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

Project Narrative and Drainage Report for North Smithfield Auto Body Improvements Major Land Development Project – Section 4.6 Groundwater Recharge (Rev)

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)
DP-1: 7-DP-1	33,009	687.69	2,750.75		1,257.99
DP-2:					
DP-3:					
DP-4:					
TOTALS:					

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.

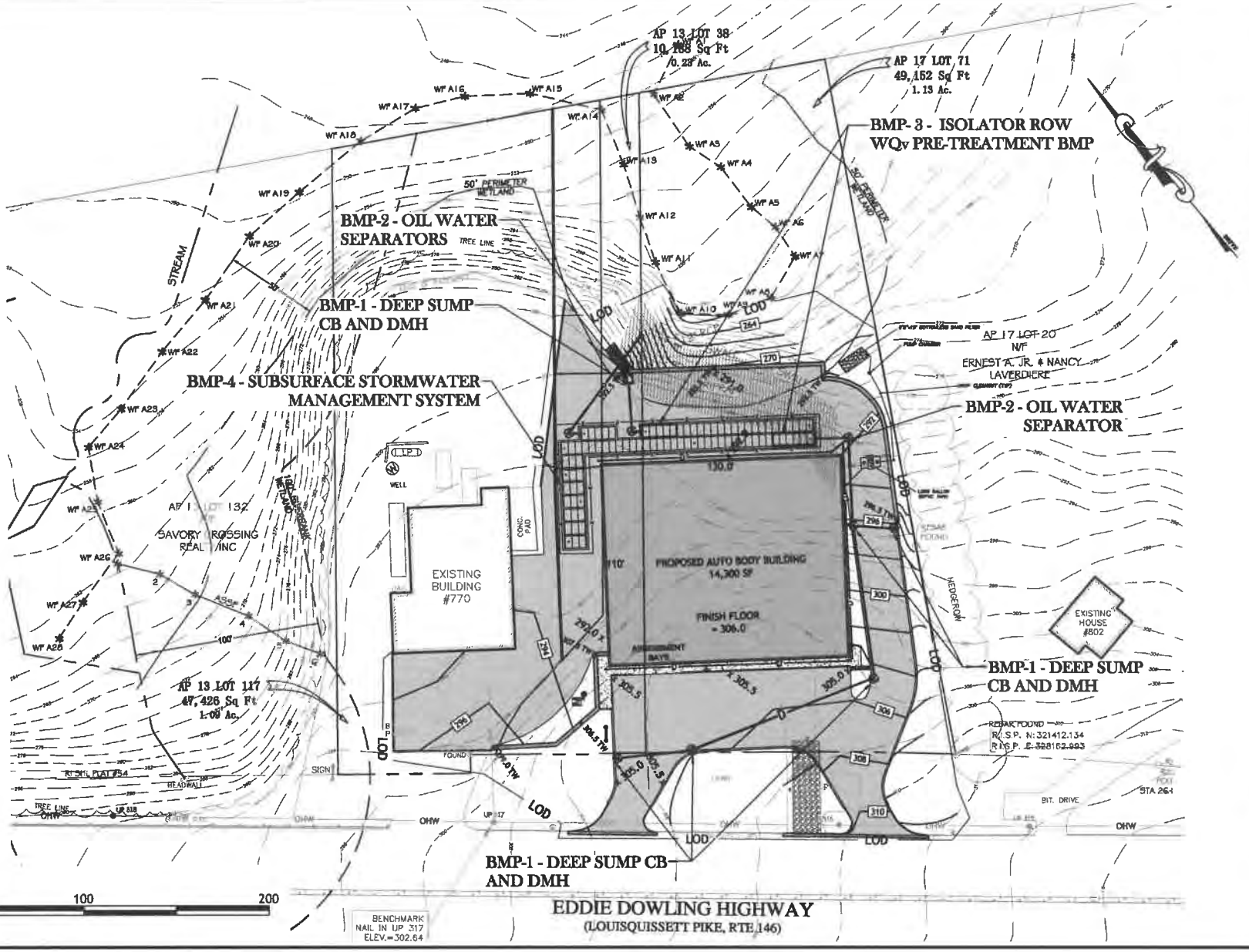
☒ YES ☐ NO	This project has met the setback requirements for each BMP. If "No," please explain:

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

Project Narrative and Drainage Report for Project Narrative and Drainage Report for North Smithfield Auto Body Improvements Major Land Development Project – Section 4.5 Water Quality Volumes (WQv)

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 directs 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:

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)**
DP-1: SMS-1	Subsurface Infiltration System	n			
DP-2:					
DP-3:					
DP-4:					
TOTALS:					
Note: The Channel Protection Volume Standard must be met in each waterbody ID.					
☒ YES ☐ NO	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	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.). Project Narrative and Drainage Report for Project Narrative and Drainage Report for North Smithfield Auto Body Improvements Major Land Development Project – Section 4.7 Conveyance and Natural Channel Protection					



D'AMICO ENGINEERING TECHNOLOGY, INC.

PROPOSED NORTH SMITHFIELD
AUTO BODY SITE IMPROVEMENTS
770 EDDIE DOWLING HIGHWAY (RI ROUTE 146)
NORTH SMITHFIELD, RHODE ISLAND
AP 13, LOTS 38, 117 AND AP 17, LOT 71

REVISIONS:
NO. DATE DESCRIPTION

DESIGNED BY: DMD
DRAWN BY:
CHECKED BY:
DATE:
PROJECT NO.:

PERMIT PLAN, NOT FOR CONSTRUCTION

BMP MAP

SHEET
1 OF 1

OVERBANK FLOOD PROTECTION (RICR 8.11) AND OTHER POTENTIAL HIGH FLOWS – MINIMUM STANDARD 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:	
		☐	Area of disturbance within the sub-watershed (areas)
		☐	Impervious cover (%)
☐	☒	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)
DP-1: 7-DP-1	0.87	0.78	2.27	1.88	5.51	3.54	11.72	11.24
DP-2:	0.03	0.03	0.10	0.12	0.33	0.40	0.82	0.99
DP-3:								
DP-4:								
TOTALS:	0.90	0.91	2.37	2.00	5.84	3.94	12.54	12.23

** 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.	Project Narrative and Drainage Report for Project Narrative and Drainage Report for North Smithfield Auto Body Improvements Major Land Development Project – Appendix B
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.	Appendix B
Final sizing calculations for structural stormwater BMPs, including contributing drainage area, storage, and outlet configuration.	Appendix B
Stage-storage, inflow and outflow hydrographs for storage facilities (e.g., detention, retention, or infiltration facilities).	Appendix B

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
1	1	SMS-1	y	y	y	y	y	na	y		
		TOTALS:									

Table 5.3 Summary of Soils to Evaluate Each BMP									
DP #	**BMP ID**	**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					
1	1	SMS-1	1		282.0	285.1	3.1’	B	1.02
		TOTALS:							

* 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

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:

☐	☒	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.
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).
☒	☐	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).

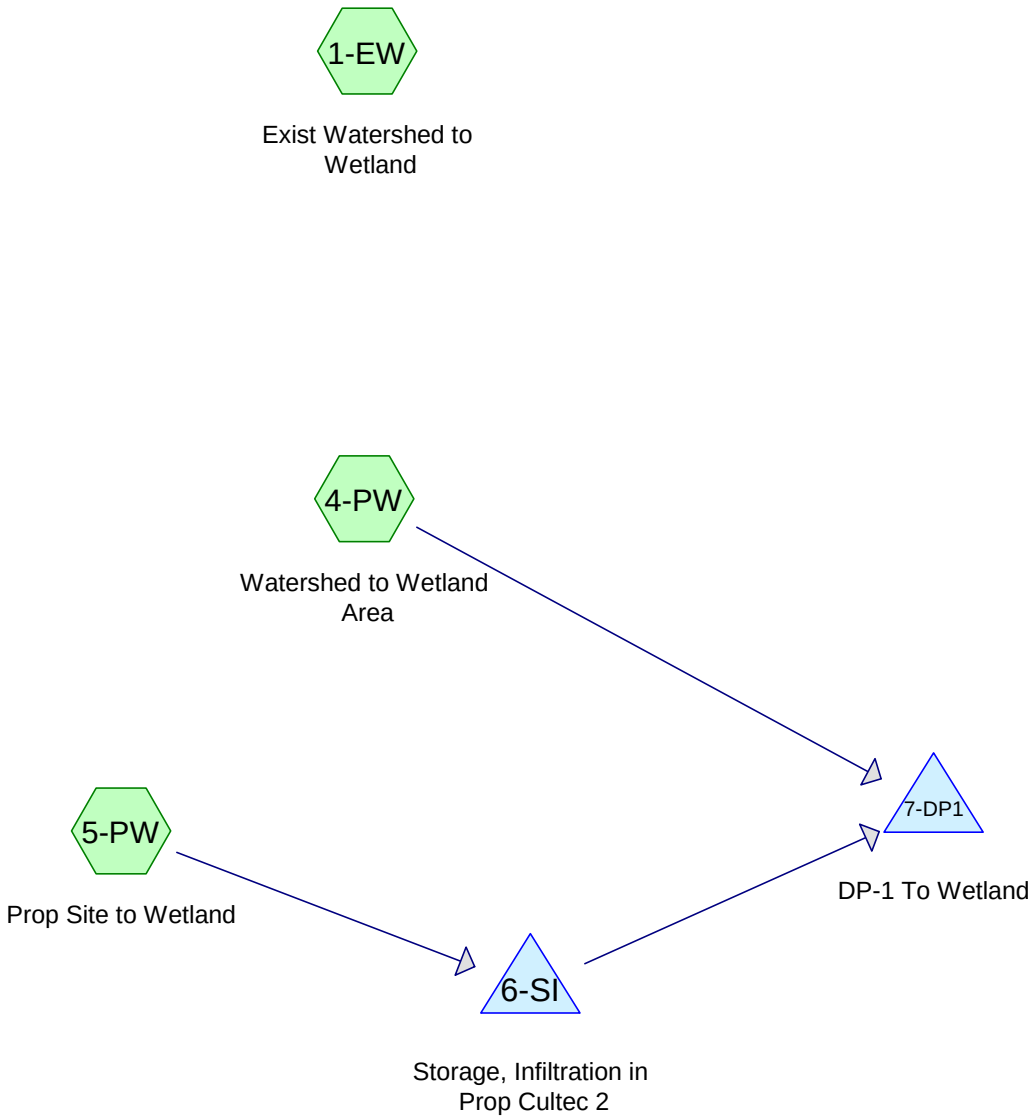
PART 4. SUBWATERSHED MAPPING AND SITE-PLAN DETAILS

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
☒	☐		Soils were logged by a:
		☒	DEM-licensed Class IV soil evaluator Name: Marc N. Nyberg Associates, Inc. – Marc Nyberg
		☐	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)**
DP-1: (see Drainage Report)				
DP-2:				
DP-3:				
DP-4:				
TOTALS:				

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 OWM-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



"Improve Your World"

Subcat Reach Pond Link

Routing Diagram for North Smithfield AutoBody DRAINAGE SYSTEM
Prepared by D'Amico Engineering Technology, Inc., Printed 12/21/2020

Summary for Subcatchment 1-EW: Exist Watershed to Wetland

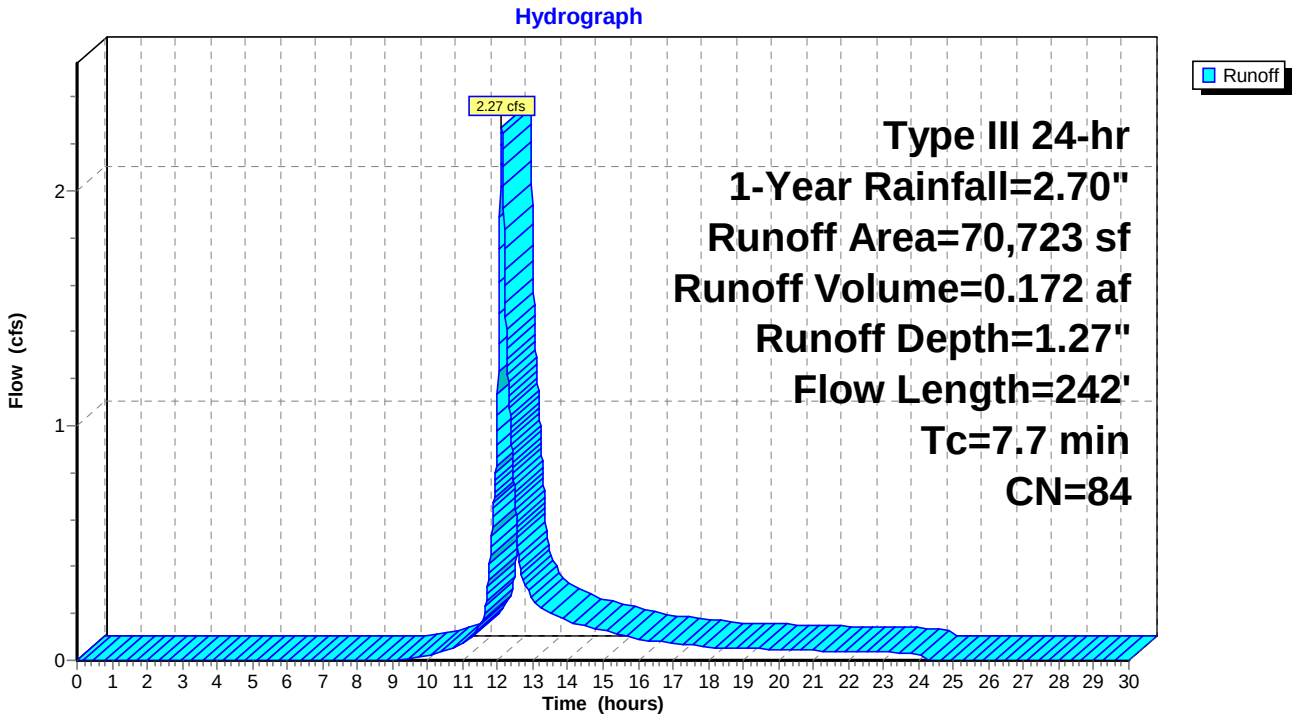
Runoff = 2.27 cfs @ 12.11 hrs, Volume= 0.172 af, Depth= 1.27"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Type III 24-hr 1-Year Rainfall=2.70"

Area (sf)	CN	Description
6,652	98	Roofs, HSG B
30,006	98	Paved parking, HSG B
34,065	69	50-75% Grass cover, Fair, HSG B
70,723	84	Weighted Average
34,065		48.17% Pervious Area
36,658		51.83% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.6	127	0.0830	0.32		**Sheet Flow, Grass** Grass: Short n= 0.150 P2= 3.30"
1.1	115	0.0320	1.73		**Sheet Flow, Pavement** Smooth surfaces n= 0.011 P2= 3.30"
7.7	242	Total			

Subcatchment 1-EW: Exist Watershed to Wetland



Summary for Subcatchment 2-EW: Exist Watershed to Highway

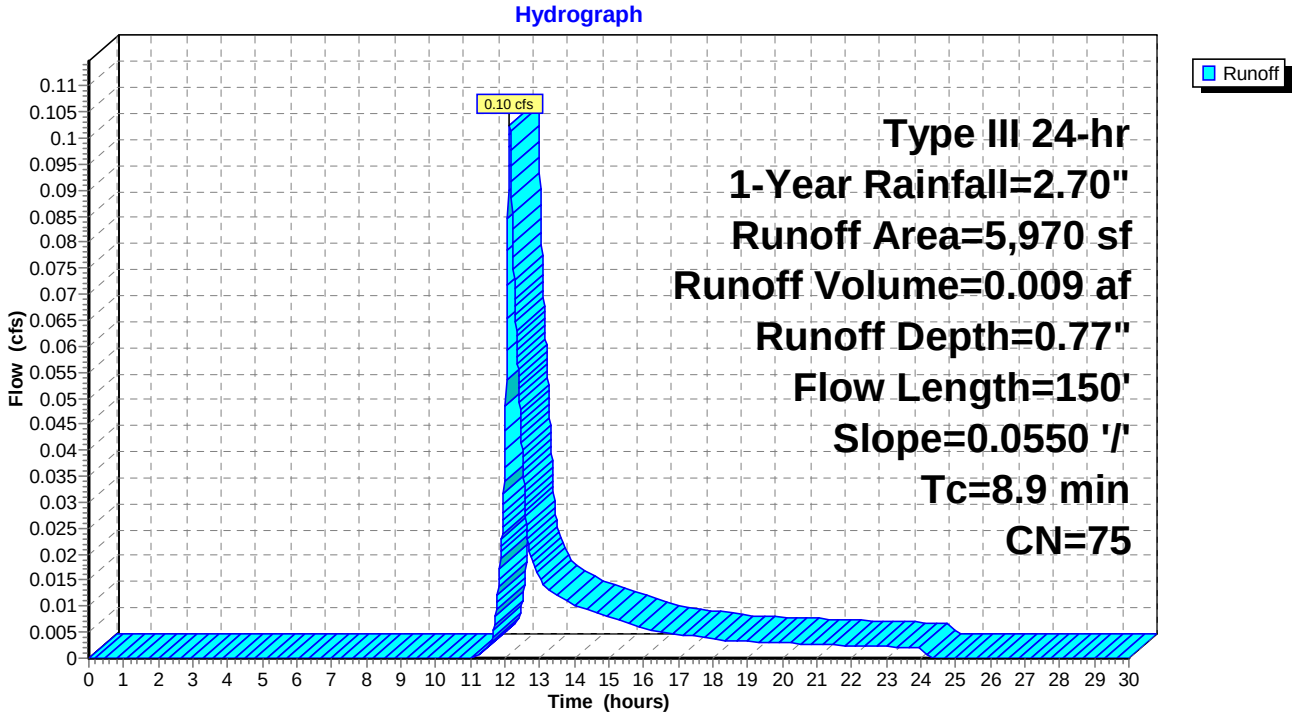
Runoff = 0.10 cfs @ 12.14 hrs, Volume= 0.009 af, Depth= 0.77"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Type III 24-hr 1-Year Rainfall=2.70"

Area (sf)	CN	Description
1,145	98	Paved parking, HSG B
4,825	69	50-75% Grass cover, Fair, HSG B
5,970	75	Weighted Average
4,825		80.82% Pervious Area
1,145		19.18% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.9	150	0.0550	0.28		**Sheet Flow, Grass** Grass: Short n= 0.150 P2= 3.30"

Subcatchment 2-EW: Exist Watershed to Highway



Summary for Subcatchment 3-PW: Post Watershed to Highway

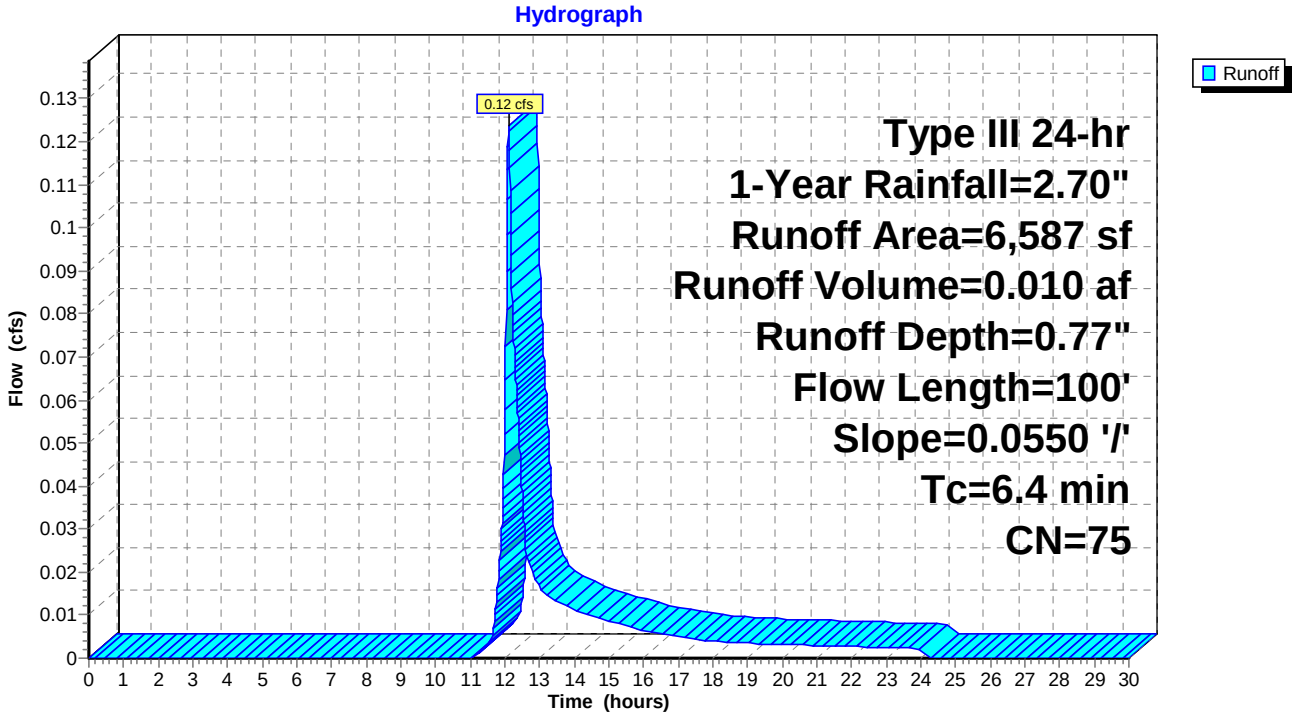
Runoff = 0.12 cfs @ 12.10 hrs, Volume= 0.010 af, Depth= 0.77"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Type III 24-hr 1-Year Rainfall=2.70"

Area (sf)	CN	Description
1,263	98	Paved parking, HSG B
5,324	69	50-75% Grass cover, Fair, HSG B
6,587	75	Weighted Average
5,324		80.83% Pervious Area
1,263		19.17% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.4	100	0.0550	0.26		**Sheet Flow, Grass to Highway** Grass: Short n= 0.150 P2= 3.30"

Subcatchment 3-PW: Post Watershed to Highway



Summary for Subcatchment 4-PW: Watershed to Wetland Area

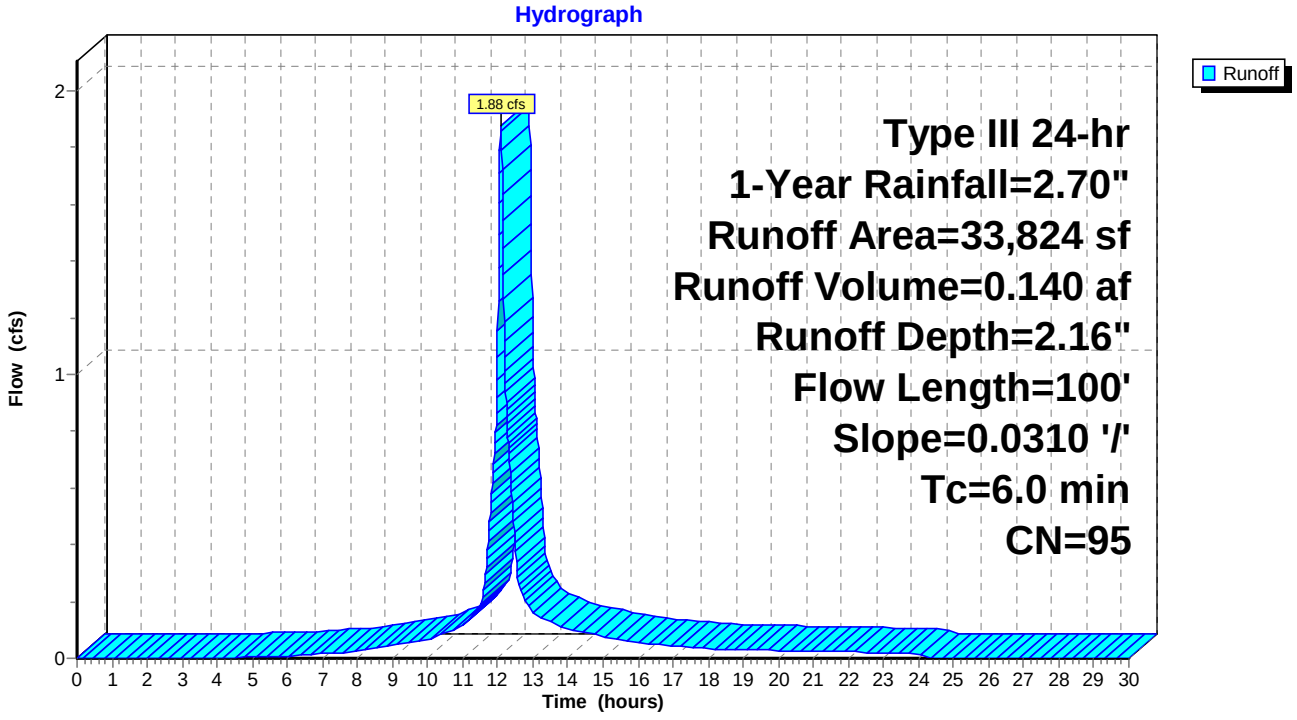
Runoff = 1.88 cfs @ 12.08 hrs, Volume= 0.140 af, Depth= 2.16"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Type III 24-hr 1-Year Rainfall=2.70"

Area (sf)	CN	Description
4,815	98	Roofs, HSG B
26,060	98	Paved parking, HSG B
2,949	69	50-75% Grass cover, Fair, HSG B
33,824	95	Weighted Average
2,949		8.72% Pervious Area
30,875		91.28% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.0	100	0.0310	1.66		**Sheet Flow, Parking Area** Smooth surfaces n= 0.011 P2= 3.30"
1.0	100	Total, Increased to minimum Tc = 6.0 min			

Subcatchment 4-PW: Watershed to Wetland Area



Summary for Subcatchment 5-PW: Prop Site to Wetland

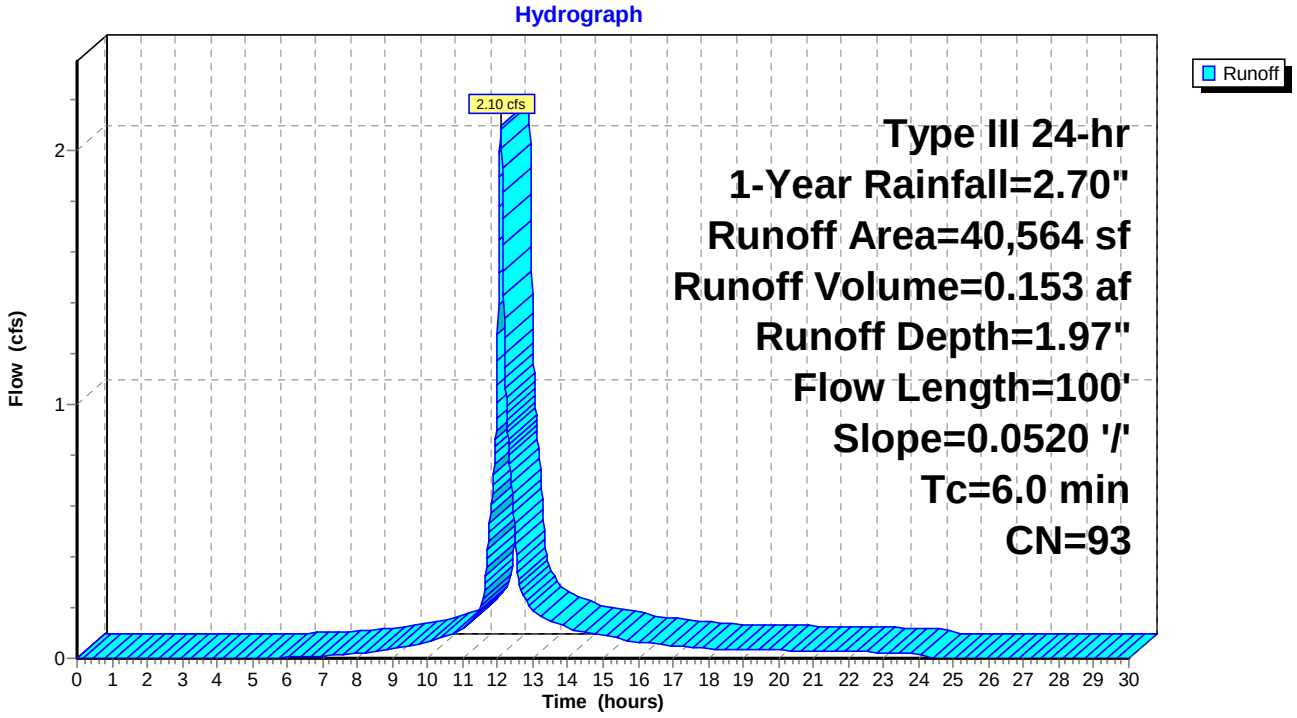
Runoff = 2.10 cfs @ 12.09 hrs, Volume= 0.153 af, Depth= 1.97"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Type III 24-hr 1-Year Rainfall=2.70"

Area (sf)	CN	Description
18,709	98	Paved parking, HSG B
7,555	69	50-75% Grass cover, Fair, HSG B
14,300	98	Roofs, HSG B
40,564	93	Weighted Average
7,555		18.62% Pervious Area
33,009		81.38% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.8	100	0.0520	2.05		**Sheet Flow, Driveway to System** Smooth surfaces n= 0.011 P2= 3.30"
0.8	100	Total, Increased to minimum Tc = 6.0 min			

Subcatchment 5-PW: Prop Site to Wetland



Summary for Pond 6-SI: Storage, Infiltration in Prop Cultec 2

Inflow Area = 0.931 ac, 81.38% Impervious, Inflow Depth = 1.97" for 1-Year event
Inflow = 2.10 cfs @ 12.09 hrs, Volume= 0.153 af
Outflow = 0.06 cfs @ 10.39 hrs, Volume= 0.105 af, Atten= 97%, Lag= 0.0 min
Discarded = 0.06 cfs @ 10.39 hrs, Volume= 0.105 af
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 287.57' @ 16.30 hrs Surf.Area= 2,515 sf Storage= 4,077 cf

Plug-Flow detention time= 452.3 min calculated for 0.105 af (69% of inflow)
Center-of-Mass det. time= 358.1 min (1,156.8 - 798.7)

Volume	Invert	Avail.Storage	Storage Description
#1A	285.10'	2,909 cf	**23.00'W x 109.37'L x 5.75'H Field A** 14,464 cf Overall - 5,649 cf Embedded = 8,815 cf x 33.0% Voids
#2A	285.85'	5,649 cf	**Cultec R-902HD** x 87 Inside #1 Effective Size= 69.8"W x 48.0"H => 17.65 sf x 3.67'L = 64.7 cf Overall Size= 78.0"W x 48.0"H x 4.10'L with 0.44' Overlap 87 Chambers in 3 Rows Cap Storage= +2.8 cf x 2 x 3 rows = 16.6 cf
		8,558 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Discarded	285.10'	**1.020 in/hr Exfiltration over Horizontal area** Phase-In= 0.10'
#2	Primary	288.30'	**12.0" Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads

Discarded OutFlow Max=0.06 cfs @ 10.39 hrs HW=285.22' (Free Discharge)
↑—**1=Exfiltration** (Exfiltration Controls 0.06 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=285.10' TW=0.00' (Dynamic Tailwater)
↑—**2=Orifice/Grate** (Controls 0.00 cfs)

Pond 6-SI: Storage, Infiltration in Prop Cultec 2 - Chamber Wizard Field A

Chamber Model = Cultec R-902HD (Cultec Recharger® 902HD)
Effective Size= 69.8"W x 48.0"H => 17.65 sf x 3.67'L = 64.7 cf
Overall Size= 78.0"W x 48.0"H x 4.10'L with 0.44' Overlap
Cap Storage= +2.8 cf x 2 x 3 rows = 16.6 cf

78.0" Wide + 9.0" Spacing = 87.0" C-C Row Spacing

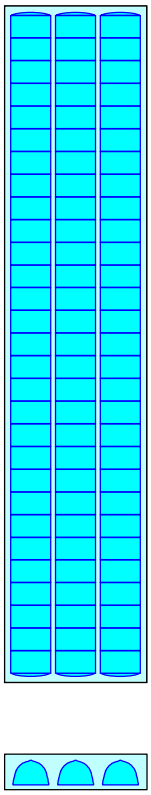
29 Chambers/Row x 3.67' Long +0.52' Cap Length x 2 = 107.37' Row Length +12.0" End Stone x 2 = 109.37' Base Length
3 Rows x 78.0" Wide + 9.0" Spacing x 2 + 12.0" Side Stone x 2 = 23.00' Base Width
9.0" Stone Base + 48.0" Chamber Height + 12.0" Stone Cover = 5.75' Field Height

87 Chambers x 64.7 cf + 2.8 cf Cap Volume x 2 x 3 Rows = 5,648.5 cf Chamber Storage

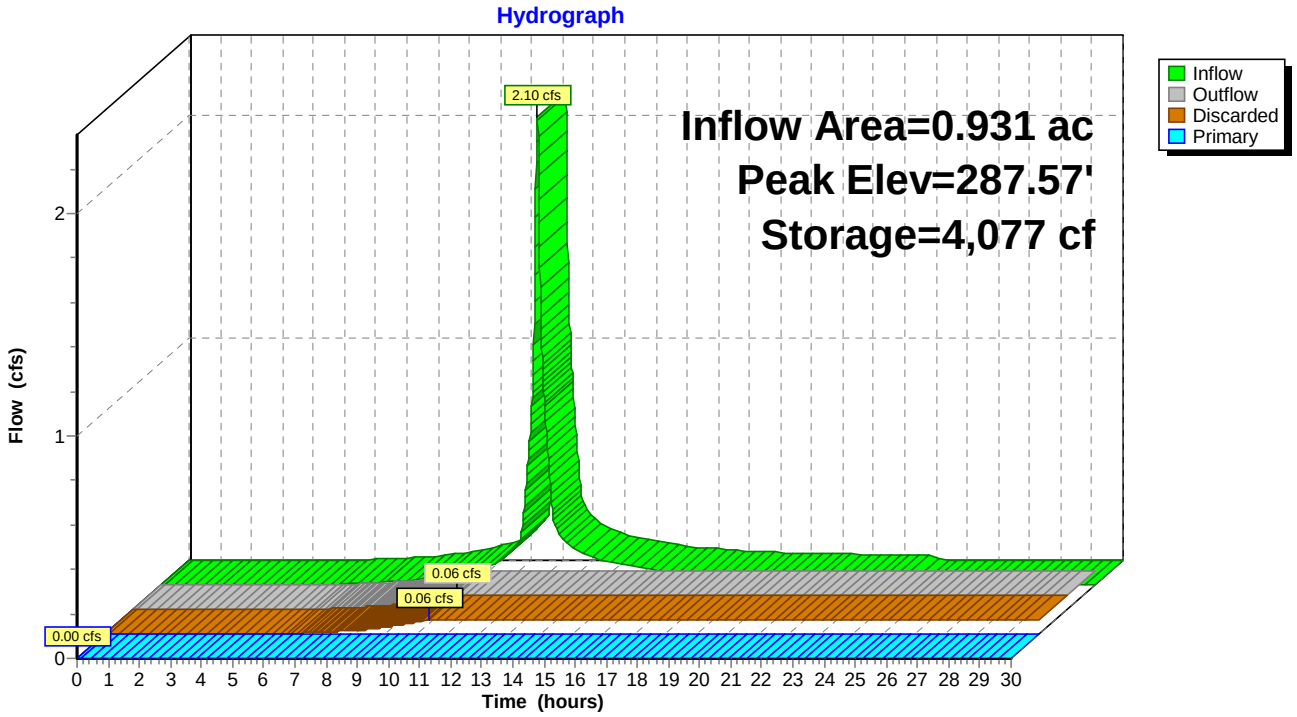
14,463.7 cf Field - 5,648.5 cf Chambers = 8,815.2 cf Stone x 33.0% Voids = 2,909.0 cf Stone Storage

Chamber Storage + Stone Storage = 8,557.5 cf = 0.196 af
Overall Storage Efficiency = 59.2%
Overall System Size = 109.37' x 23.00' x 5.75'

87 Chambers
535.7 cy Field
326.5 cy Stone



Pond 6-SI: Storage, Infiltration in Prop Cultec 2

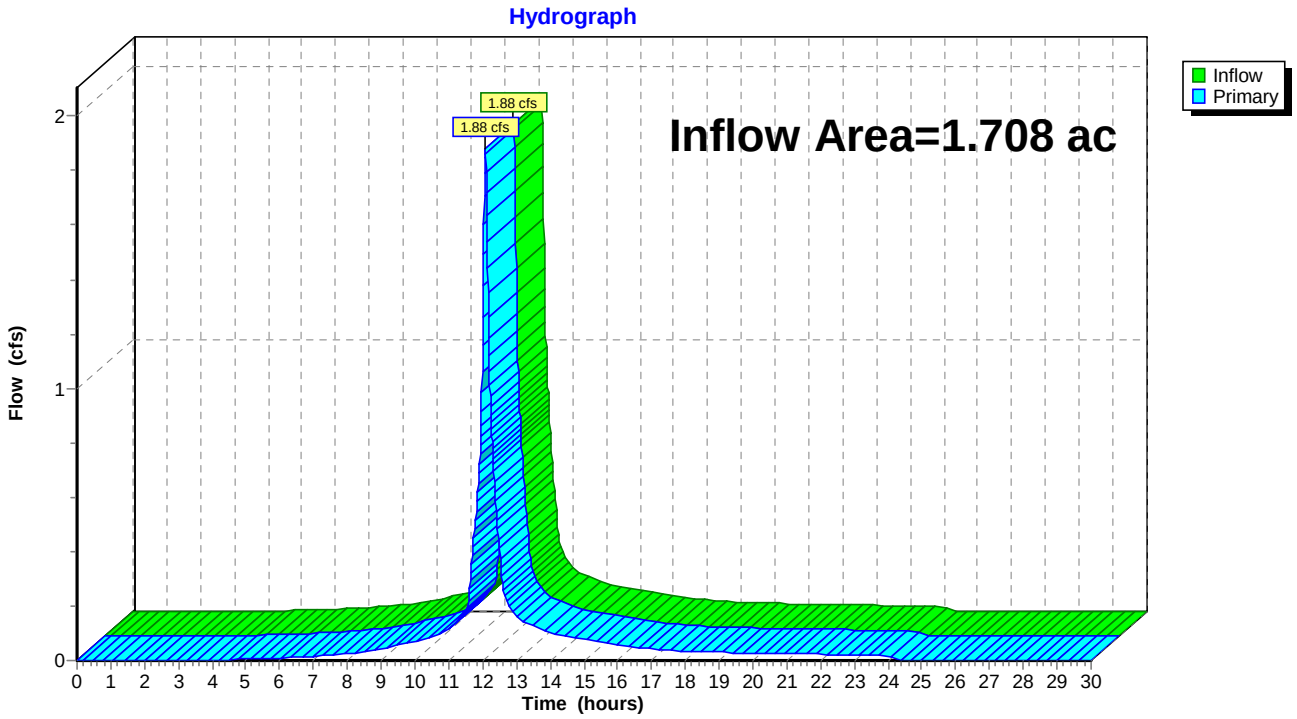


Summary for Pond 7-DP1: DP-1 To Wetland

Inflow Area = 1.708 ac, 85.88% Impervious, Inflow Depth = 0.98" for 1-Year event
Inflow = 1.88 cfs @ 12.08 hrs, Volume= 0.140 af
Primary = 1.88 cfs @ 12.08 hrs, Volume= 0.140 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs / 3

Pond 7-DP1: DP-1 To Wetland



Summary for Subcatchment 1-EW: Exist Watershed to Wetland

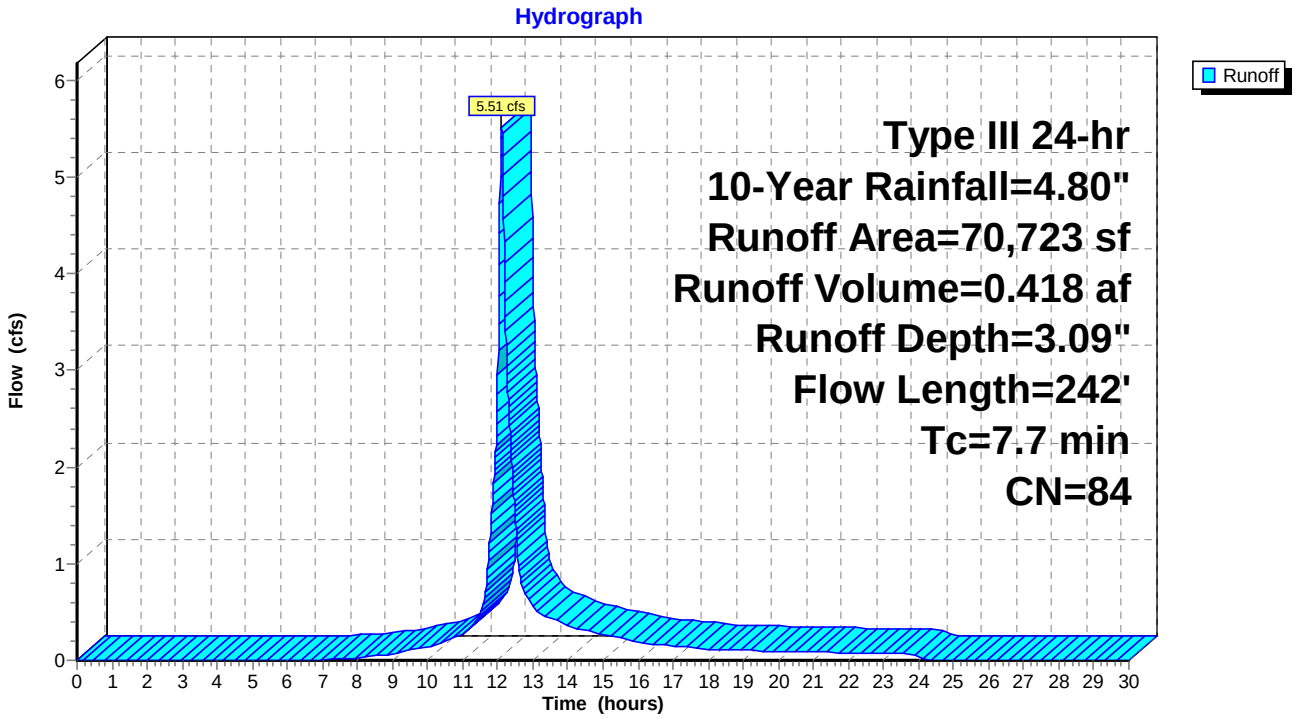
Runoff = 5.51 cfs @ 12.11 hrs, Volume= 0.418 af, Depth= 3.09"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-Year Rainfall=4.80"

Area (sf)	CN	Description
6,652	98	Roofs, HSG B
30,006	98	Paved parking, HSG B
34,065	69	50-75% Grass cover, Fair, HSG B
70,723	84	Weighted Average
34,065		48.17% Pervious Area
36,658		51.83% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.6	127	0.0830	0.32		**Sheet Flow, Grass** Grass: Short n= 0.150 P2= 3.30"
1.1	115	0.0320	1.73		**Sheet Flow, Pavement** Smooth surfaces n= 0.011 P2= 3.30"
7.7	242	Total			

Subcatchment 1-EW: Exist Watershed to Wetland



Summary for Subcatchment 2-EW: Exist Watershed to Highway

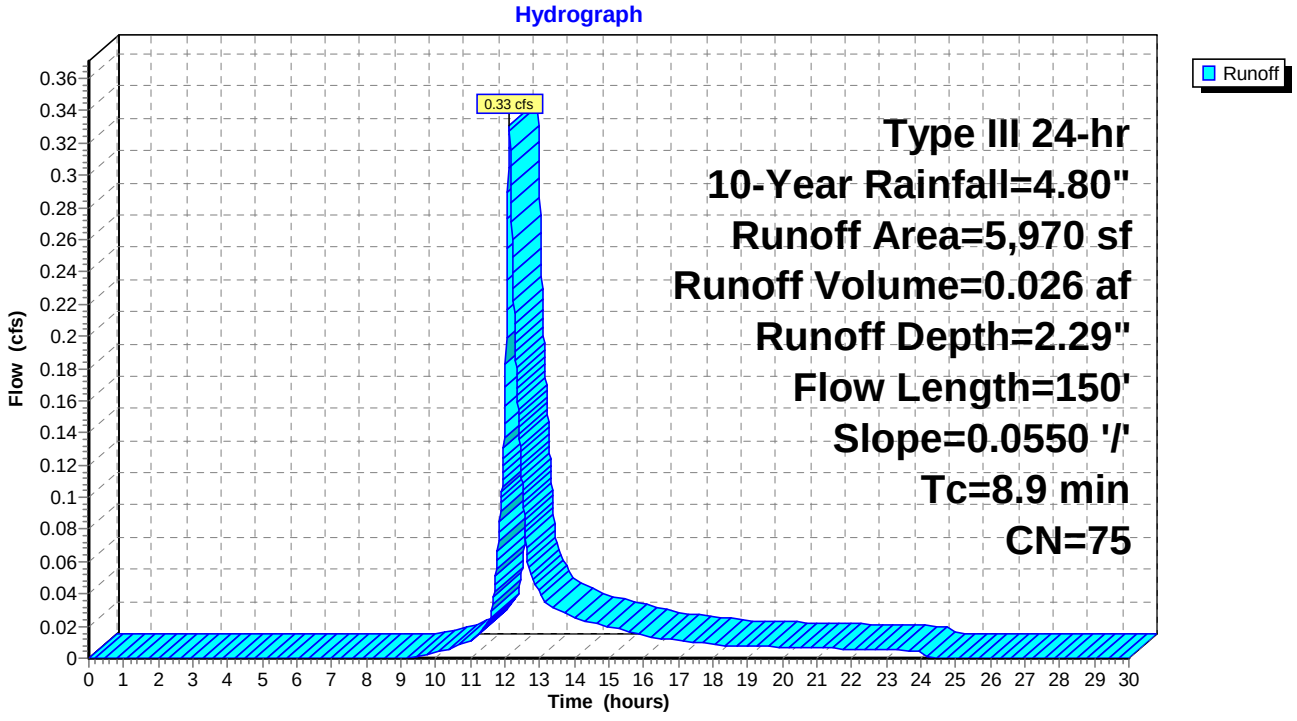
Runoff = 0.33 cfs @ 12.13 hrs, Volume= 0.026 af, Depth= 2.29"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-Year Rainfall=4.80"

Area (sf)	CN	Description
1,145	98	Paved parking, HSG B
4,825	69	50-75% Grass cover, Fair, HSG B
5,970	75	Weighted Average
4,825		80.82% Pervious Area
1,145		19.18% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.9	150	0.0550	0.28		**Sheet Flow, Grass** Grass: Short n= 0.150 P2= 3.30"

Subcatchment 2-EW: Exist Watershed to Highway



Summary for Subcatchment 3-PW: Post Watershed to Highway

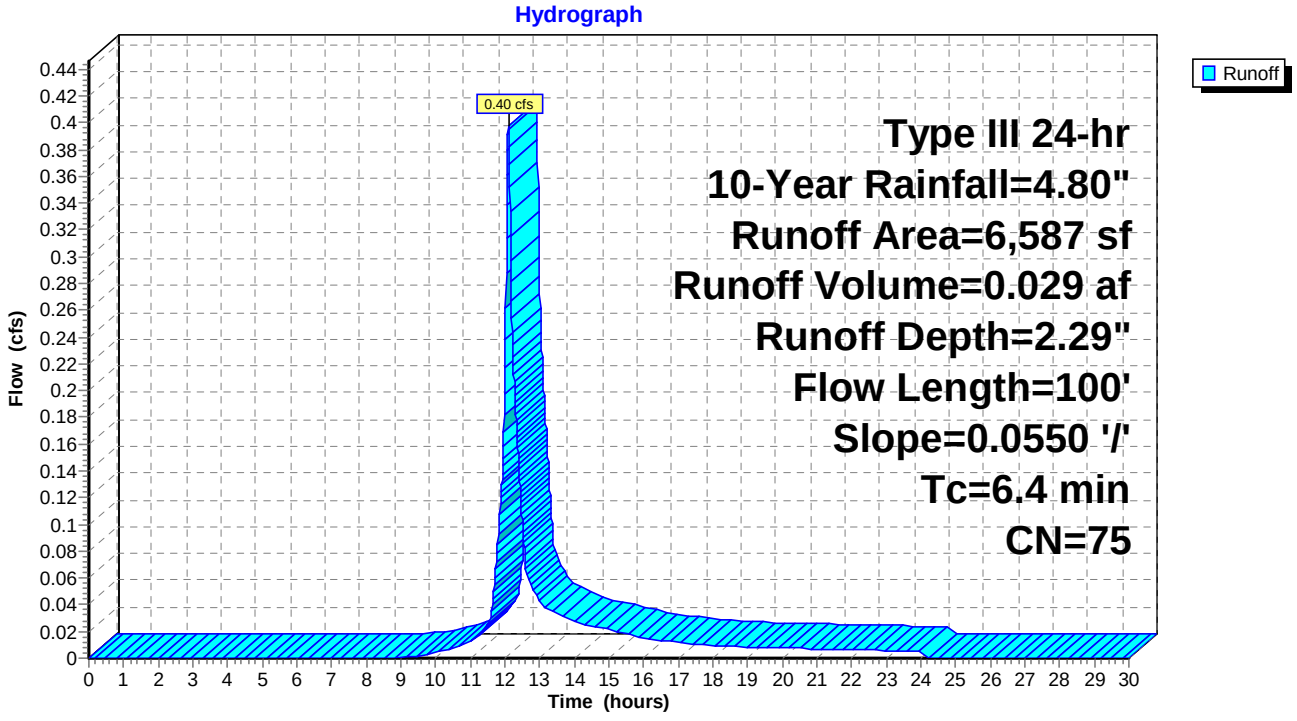
Runoff = 0.40 cfs @ 12.10 hrs, Volume= 0.029 af, Depth= 2.29"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-Year Rainfall=4.80"

Area (sf)	CN	Description
1,263	98	Paved parking, HSG B
5,324	69	50-75% Grass cover, Fair, HSG B
6,587	75	Weighted Average
5,324		80.83% Pervious Area
1,263		19.17% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.4	100	0.0550	0.26		**Sheet Flow, Grass to Highway** Grass: Short n= 0.150 P2= 3.30"

Subcatchment 3-PW: Post Watershed to Highway



Summary for Subcatchment 4-PW: Watershed to Wetland Area

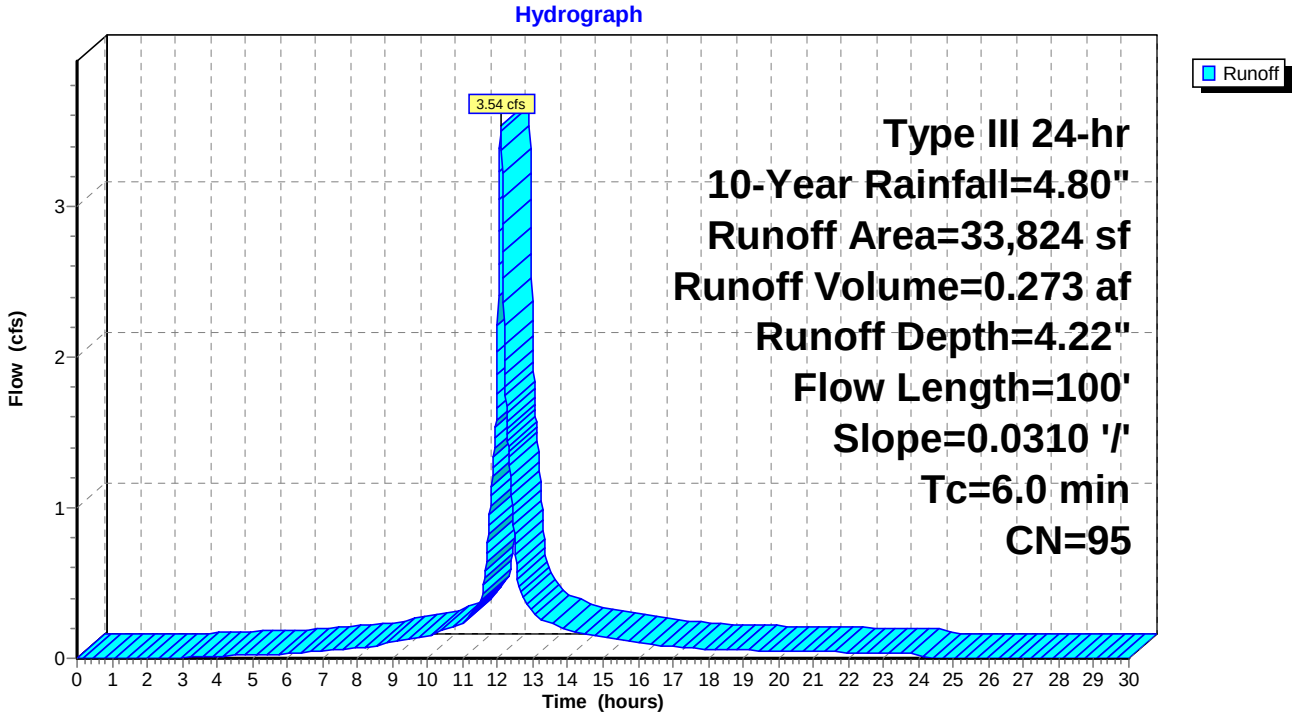
Runoff = 3.54 cfs @ 12.08 hrs, Volume= 0.273 af, Depth= 4.22"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-Year Rainfall=4.80"

Area (sf)	CN	Description
4,815	98	Roofs, HSG B
26,060	98	Paved parking, HSG B
2,949	69	50-75% Grass cover, Fair, HSG B
33,824	95	Weighted Average
2,949		8.72% Pervious Area
30,875		91.28% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.0	100	0.0310	1.66		**Sheet Flow, Parking Area** Smooth surfaces n= 0.011 P2= 3.30"
1.0	100	Total, Increased to minimum Tc = 6.0 min			

Subcatchment 4-PW: Watershed to Wetland Area



Summary for Subcatchment 5-PW: Prop Site to Wetland

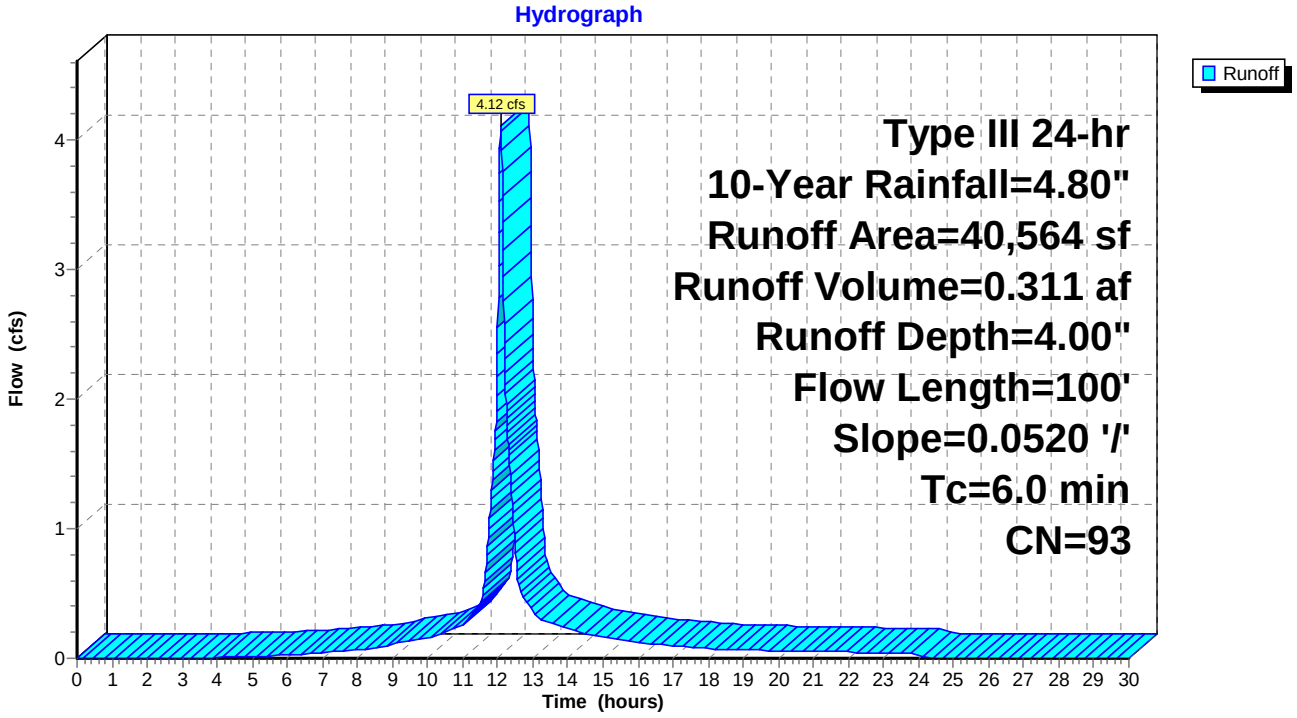
Runoff = 4.12 cfs @ 12.08 hrs, Volume= 0.311 af, Depth= 4.00"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-Year Rainfall=4.80"

Area (sf)	CN	Description
18,709	98	Paved parking, HSG B
7,555	69	50-75% Grass cover, Fair, HSG B
14,300	98	Roofs, HSG B
40,564	93	Weighted Average
7,555		18.62% Pervious Area
33,009		81.38% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.8	100	0.0520	2.05		**Sheet Flow, Driveway to System** Smooth surfaces n= 0.011 P2= 3.30"
0.8	100	Total, Increased to minimum Tc = 6.0 min			

Subcatchment 5-PW: Prop Site to Wetland



Summary for Pond 6-SI: Storage, Infiltration in Prop Cultec 2

Inflow Area = 0.931 ac, 81.38% Impervious, Inflow Depth = 4.00" for 10-Year event
Inflow = 4.12 cfs @ 12.08 hrs, Volume= 0.311 af
Outflow = 1.14 cfs @ 12.43 hrs, Volume= 0.217 af, Atten= 72%, Lag= 20.6 min
Discarded = 0.06 cfs @ 8.38 hrs, Volume= 0.116 af
Primary = 1.08 cfs @ 12.43 hrs, Volume= 0.101 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 288.84' @ 12.43 hrs Surf.Area= 2,515 sf Storage= 6,391 cf

Plug-Flow detention time= 278.4 min calculated for 0.217 af (70% of inflow)
Center-of-Mass det. time= 186.6 min (966.2 - 779.5)

Volume	Invert	Avail.Storage	Storage Description
#1A	285.10'	2,909 cf	**23.00'W x 109.37'L x 5.75'H Field A** 14,464 cf Overall - 5,649 cf Embedded = 8,815 cf x 33.0% Voids
#2A	285.85'	5,649 cf	**Cultec R-902HD** x 87 Inside #1 Effective Size= 69.8"W x 48.0"H => 17.65 sf x 3.67'L = 64.7 cf Overall Size= 78.0"W x 48.0"H x 4.10'L with 0.44' Overlap 87 Chambers in 3 Rows Cap Storage= +2.8 cf x 2 x 3 rows = 16.6 cf
		8,558 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Discarded	285.10'	**1.020 in/hr Exfiltration over Horizontal area** Phase-In= 0.10'
#2	Primary	288.30'	**12.0" Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads

Discarded OutFlow Max=0.06 cfs @ 8.38 hrs HW=285.22' (Free Discharge)
↑—**1=Exfiltration** (Exfiltration Controls 0.06 cfs)

Primary OutFlow Max=1.08 cfs @ 12.43 hrs HW=288.84' TW=0.00' (Dynamic Tailwater)
↑—**2=Orifice/Grate** (Orifice Controls 1.08 cfs @ 2.50 fps)

Pond 6-SI: Storage, Infiltration in Prop Cultec 2 - Chamber Wizard Field A

Chamber Model = Cultec R-902HD (Cultec Recharger® 902HD)
Effective Size= 69.8"W x 48.0"H => 17.65 sf x 3.67'L = 64.7 cf
Overall Size= 78.0"W x 48.0"H x 4.10'L with 0.44' Overlap
Cap Storage= +2.8 cf x 2 x 3 rows = 16.6 cf

78.0" Wide + 9.0" Spacing = 87.0" C-C Row Spacing

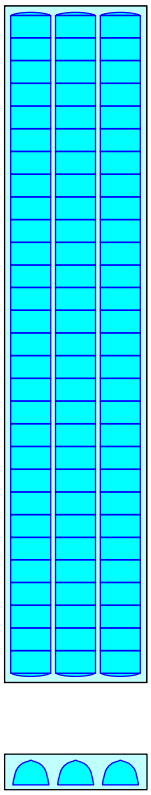
29 Chambers/Row x 3.67' Long +0.52' Cap Length x 2 = 107.37' Row Length +12.0" End Stone x 2 = 109.37' Base Length
3 Rows x 78.0" Wide + 9.0" Spacing x 2 + 12.0" Side Stone x 2 = 23.00' Base Width
9.0" Stone Base + 48.0" Chamber Height + 12.0" Stone Cover = 5.75' Field Height

87 Chambers x 64.7 cf + 2.8 cf Cap Volume x 2 x 3 Rows = 5,648.5 cf Chamber Storage

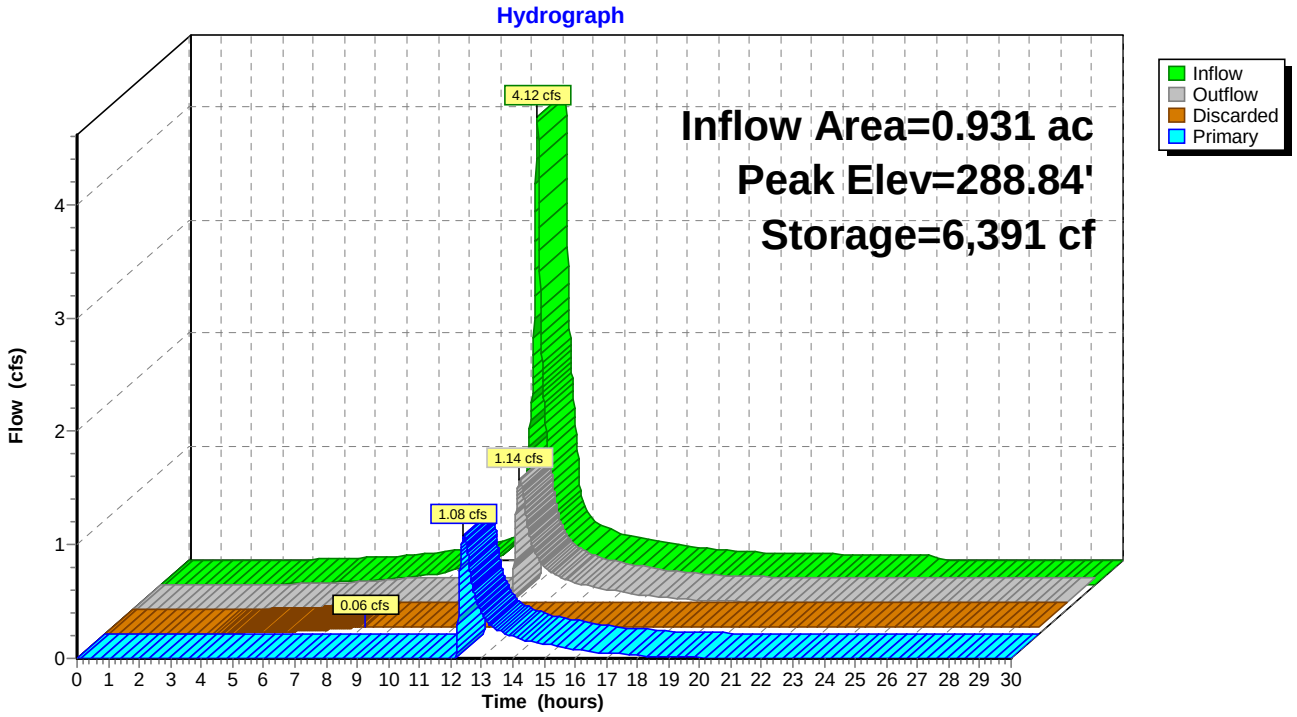
14,463.7 cf Field - 5,648.5 cf Chambers = 8,815.2 cf Stone x 33.0% Voids = 2,909.0 cf Stone Storage

Chamber Storage + Stone Storage = 8,557.5 cf = 0.196 af
Overall Storage Efficiency = 59.2%
Overall System Size = 109.37' x 23.00' x 5.75'

87 Chambers
535.7 cy Field
326.5 cy Stone



Pond 6-SI: Storage, Infiltration in Prop Cultec 2

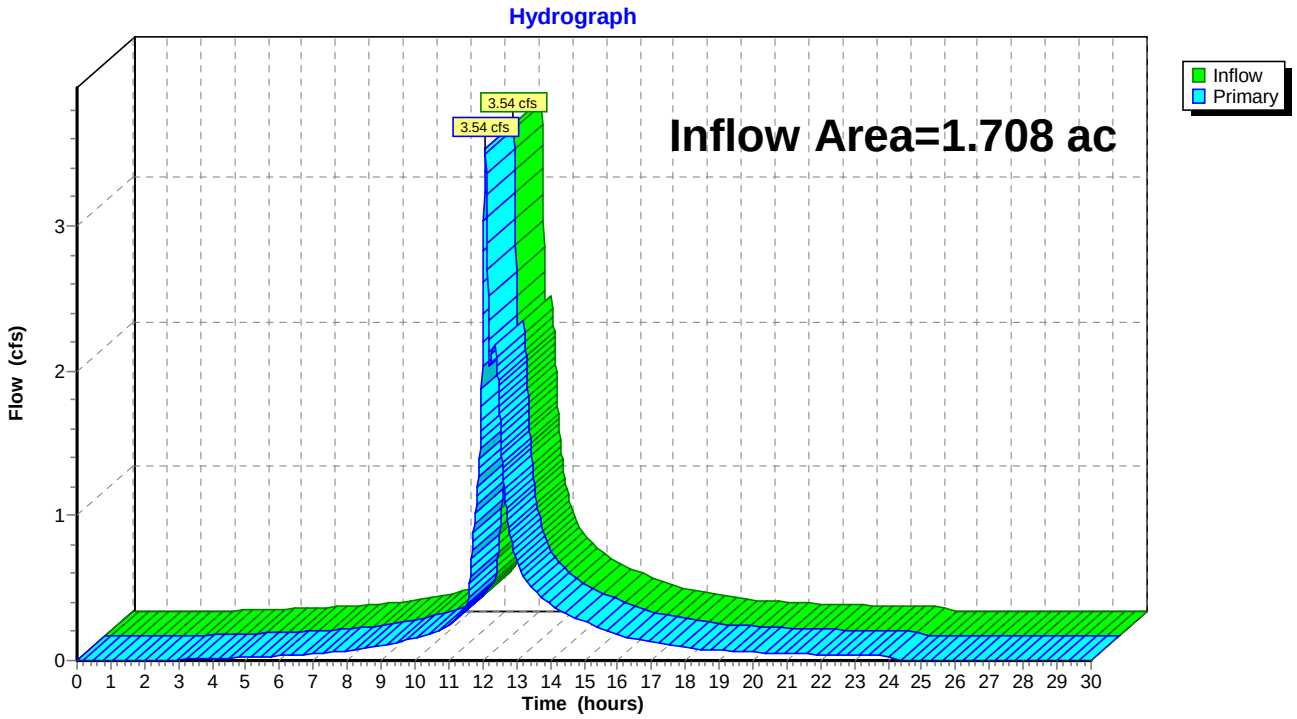


Summary for Pond 7-DP1: DP-1 To Wetland

Inflow Area = 1.708 ac, 85.88% Impervious, Inflow Depth = 2.63" for 10-Year event
Inflow = 3.54 cfs @ 12.08 hrs, Volume= 0.374 af
Primary = 3.54 cfs @ 12.08 hrs, Volume= 0.374 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs / 3

Pond 7-DP1: DP-1 To Wetland



Summary for Subcatchment 1-EW: Exist Watershed to Wetland

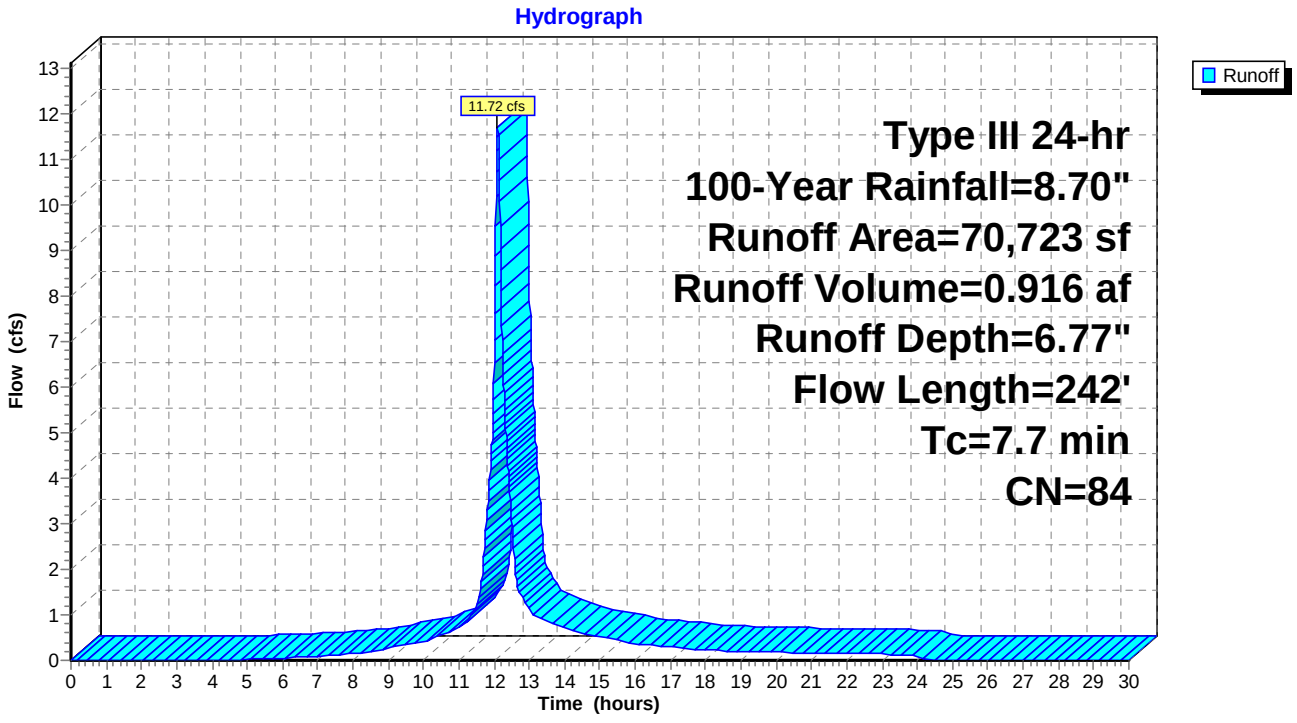
Runoff = 11.72 cfs @ 12.11 hrs, Volume= 0.916 af, Depth= 6.77"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Type III 24-hr 100-Year Rainfall=8.70"

Area (sf)	CN	Description
6,652	98	Roofs, HSG B
30,006	98	Paved parking, HSG B
34,065	69	50-75% Grass cover, Fair, HSG B
70,723	84	Weighted Average
34,065		48.17% Pervious Area
36,658		51.83% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.6	127	0.0830	0.32		**Sheet Flow, Grass** Grass: Short n= 0.150 P2= 3.30"
1.1	115	0.0320	1.73		**Sheet Flow, Pavement** Smooth surfaces n= 0.011 P2= 3.30"
7.7	242	Total			

Subcatchment 1-EW: Exist Watershed to Wetland



Summary for Subcatchment 2-EW: Exist Watershed to Highway

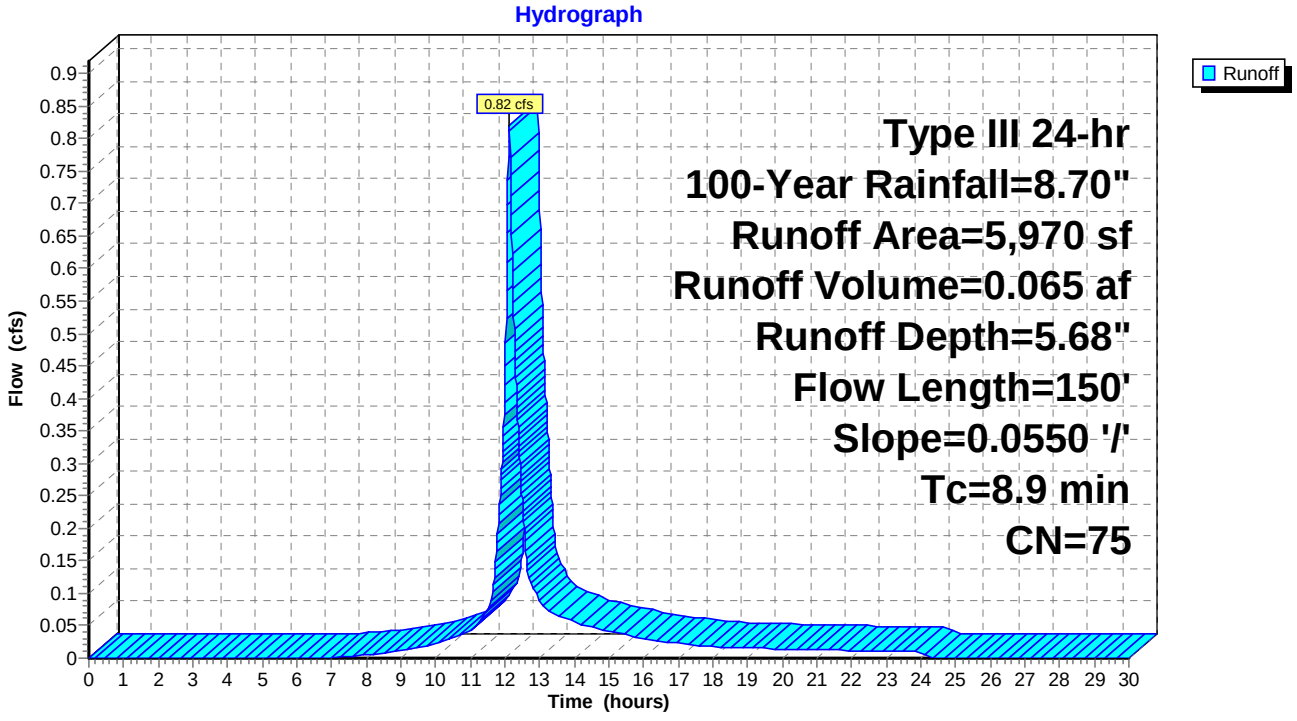
Runoff = 0.82 cfs @ 12.12 hrs, Volume= 0.065 af, Depth= 5.68"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Type III 24-hr 100-Year Rainfall=8.70"

Area (sf)	CN	Description
1,145	98	Paved parking, HSG B
4,825	69	50-75% Grass cover, Fair, HSG B
5,970	75	Weighted Average
4,825		80.82% Pervious Area
1,145		19.18% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.9	150	0.0550	0.28		**Sheet Flow, Grass** Grass: Short n= 0.150 P2= 3.30"

Subcatchment 2-EW: Exist Watershed to Highway



Summary for Subcatchment 3-PW: Post Watershed to Highway

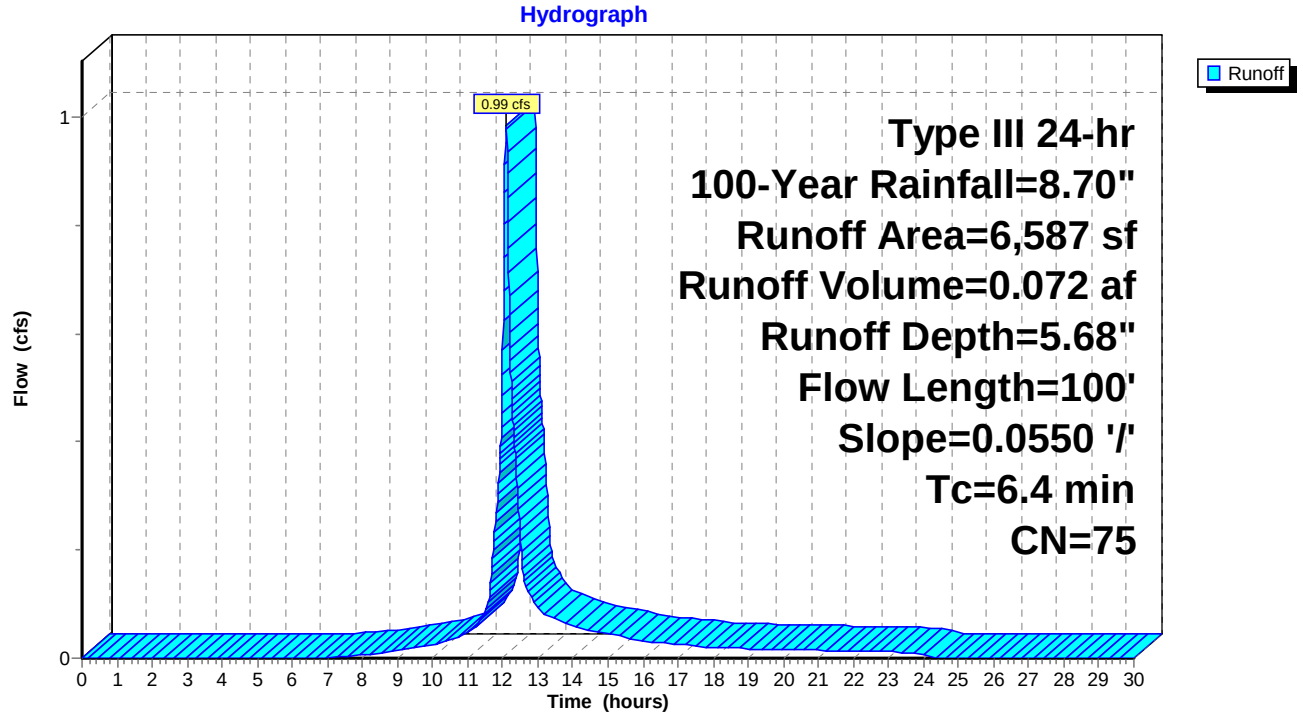
Runoff = 0.99 cfs @ 12.09 hrs, Volume= 0.072 af, Depth= 5.68"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Type III 24-hr 100-Year Rainfall=8.70"

Area (sf)	CN	Description
1,263	98	Paved parking, HSG B
5,324	69	50-75% Grass cover, Fair, HSG B
6,587	75	Weighted Average
5,324		80.83% Pervious Area
1,263		19.17% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.4	100	0.0550	0.26		**Sheet Flow, Grass to Highway** Grass: Short n= 0.150 P2= 3.30"

Subcatchment 3-PW: Post Watershed to Highway



Summary for Subcatchment 4-PW: Watershed to Wetland Area

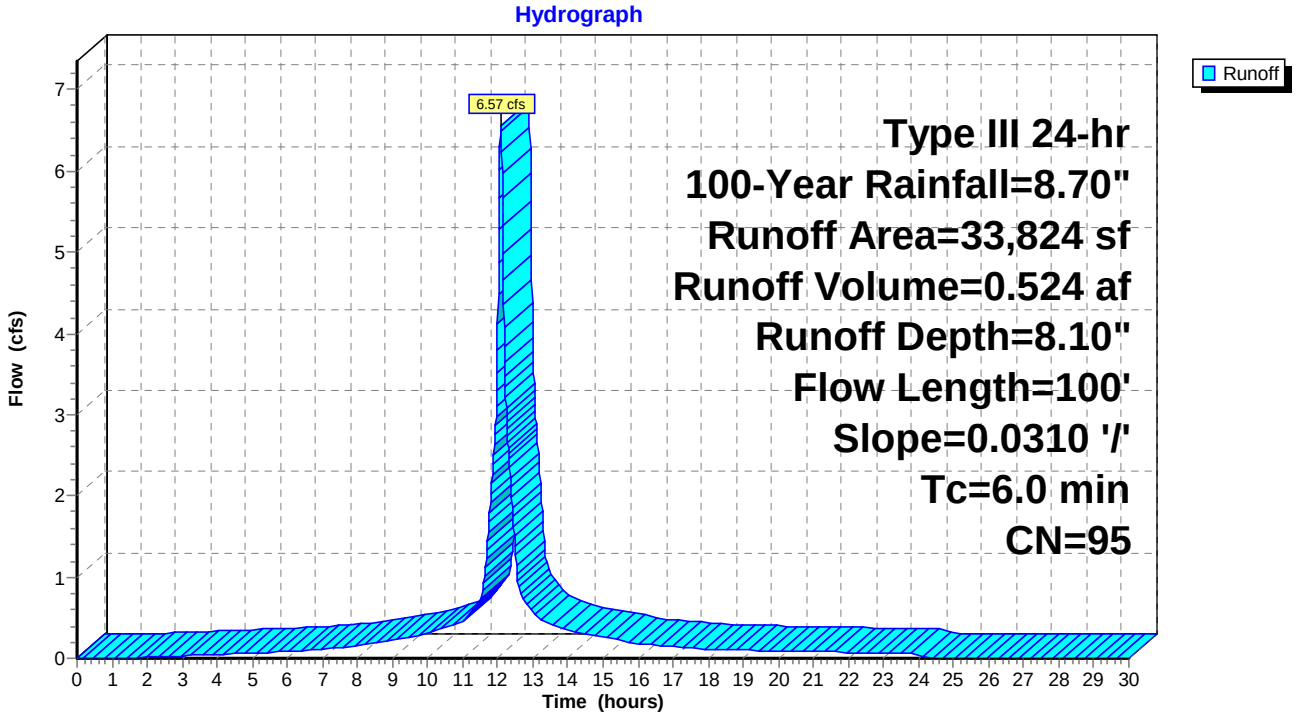
Runoff = 6.57 cfs @ 12.08 hrs, Volume= 0.524 af, Depth= 8.10"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Type III 24-hr 100-Year Rainfall=8.70"

Area (sf)	CN	Description
4,815	98	Roofs, HSG B
26,060	98	Paved parking, HSG B
2,949	69	50-75% Grass cover, Fair, HSG B
33,824	95	Weighted Average
2,949		8.72% Pervious Area
30,875		91.28% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.0	100	0.0310	1.66		**Sheet Flow, Parking Area** Smooth surfaces n= 0.011 P2= 3.30"
1.0	100	Total, Increased to minimum Tc = 6.0 min			

Subcatchment 4-PW: Watershed to Wetland Area



Summary for Subcatchment 5-PW: Prop Site to Wetland

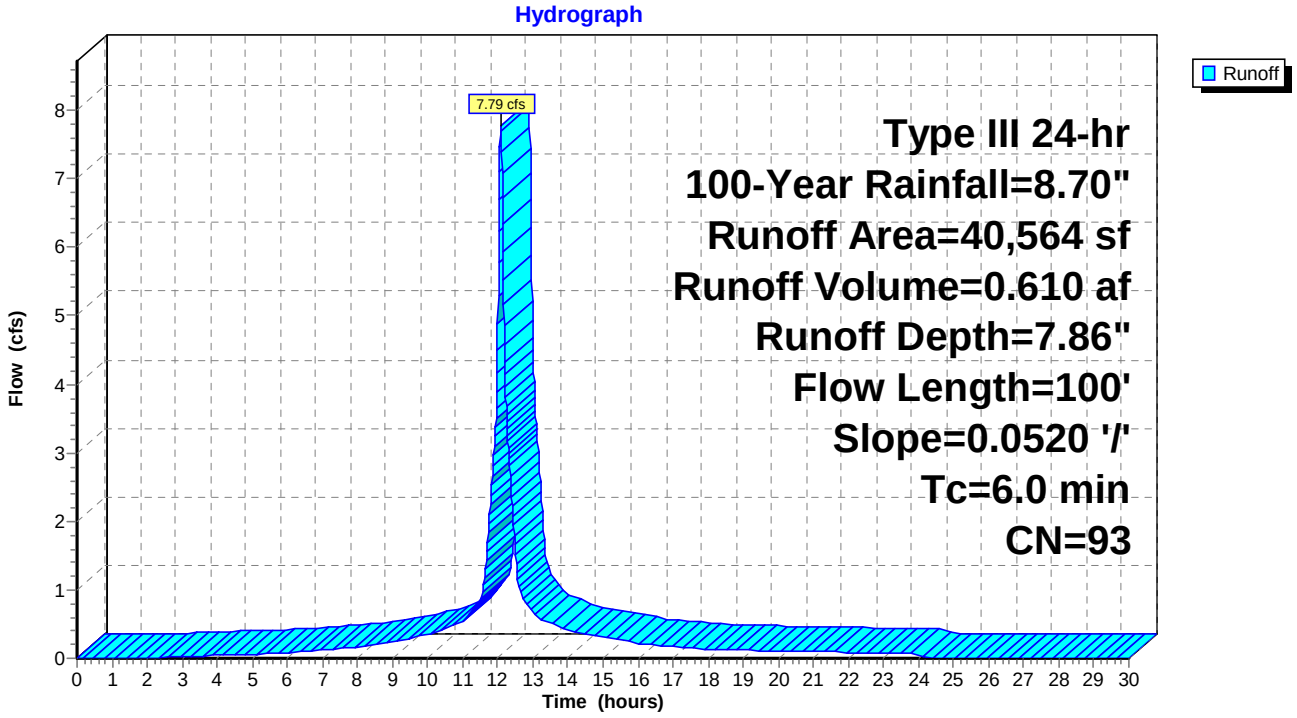
Runoff = 7.79 cfs @ 12.08 hrs, Volume= 0.610 af, Depth= 7.86"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Type III 24-hr 100-Year Rainfall=8.70"

Area (sf)	CN	Description
18,709	98	Paved parking, HSG B
7,555	69	50-75% Grass cover, Fair, HSG B
14,300	98	Roofs, HSG B
40,564	93	Weighted Average
7,555		18.62% Pervious Area
33,009		81.38% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.8	100	0.0520	2.05		**Sheet Flow, Driveway to System** Smooth surfaces n= 0.011 P2= 3.30"
0.8	100	Total, Increased to minimum Tc = 6.0 min			

Subcatchment 5-PW: Prop Site to Wetland



Summary for Pond 6-SI: Storage, Infiltration in Prop Cultec 2

Inflow Area = 0.931 ac, 81.38% Impervious, Inflow Depth = 7.86" for 100-Year event
Inflow = 7.79 cfs @ 12.08 hrs, Volume= 0.610 af
Outflow = 5.40 cfs @ 12.16 hrs, Volume= 0.511 af, Atten= 31%, Lag= 4.8 min
Discarded = 0.06 cfs @ 5.65 hrs, Volume= 0.129 af
Primary = 5.34 cfs @ 12.16 hrs, Volume= 0.383 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 290.80' @ 12.16 hrs Surf.Area= 2,515 sf Storage= 8,514 cf

Plug-Flow detention time= 164.2 min calculated for 0.511 af (84% of inflow)
Center-of-Mass det. time= 97.1 min (860.4 - 763.3)

Volume	Invert	Avail.Storage	Storage Description
#1A	285.10'	2,909 cf	**23.00'W x 109.37'L x 5.75'H Field A** 14,464 cf Overall - 5,649 cf Embedded = 8,815 cf x 33.0% Voids
#2A	285.85'	5,649 cf	**Cultec R-902HD** x 87 Inside #1 Effective Size= 69.8"W x 48.0"H => 17.65 sf x 3.67'L = 64.7 cf Overall Size= 78.0"W x 48.0"H x 4.10'L with 0.44' Overlap 87 Chambers in 3 Rows Cap Storage= +2.8 cf x 2 x 3 rows = 16.6 cf
		8,558 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Discarded	285.10'	**1.020 in/hr Exfiltration over Horizontal area** Phase-In= 0.10'
#2	Primary	288.30'	**12.0" Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads

Discarded OutFlow Max=0.06 cfs @ 5.65 hrs HW=285.22' (Free Discharge)
↑—**1=Exfiltration** (Exfiltration Controls 0.06 cfs)

Primary OutFlow Max=5.34 cfs @ 12.16 hrs HW=290.80' TW=0.00' (Dynamic Tailwater)
↑—**2=Orifice/Grate** (Orifice Controls 5.34 cfs @ 6.80 fps)

Pond 6-SI: Storage, Infiltration in Prop Cultec 2 - Chamber Wizard Field A

Chamber Model = Cultec R-902HD (Cultec Recharger® 902HD)
Effective Size= 69.8"W x 48.0"H => 17.65 sf x 3.67'L = 64.7 cf
Overall Size= 78.0"W x 48.0"H x 4.10'L with 0.44' Overlap
Cap Storage= +2.8 cf x 2 x 3 rows = 16.6 cf

78.0" Wide + 9.0" Spacing = 87.0" C-C Row Spacing

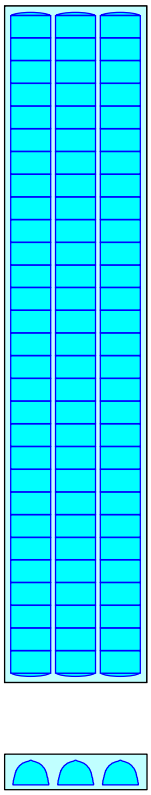
29 Chambers/Row x 3.67' Long +0.52' Cap Length x 2 = 107.37' Row Length +12.0" End Stone x 2 = 109.37' Base Length
3 Rows x 78.0" Wide + 9.0" Spacing x 2 + 12.0" Side Stone x 2 = 23.00' Base Width
9.0" Stone Base + 48.0" Chamber Height + 12.0" Stone Cover = 5.75' Field Height

87 Chambers x 64.7 cf + 2.8 cf Cap Volume x 2 x 3 Rows = 5,648.5 cf Chamber Storage

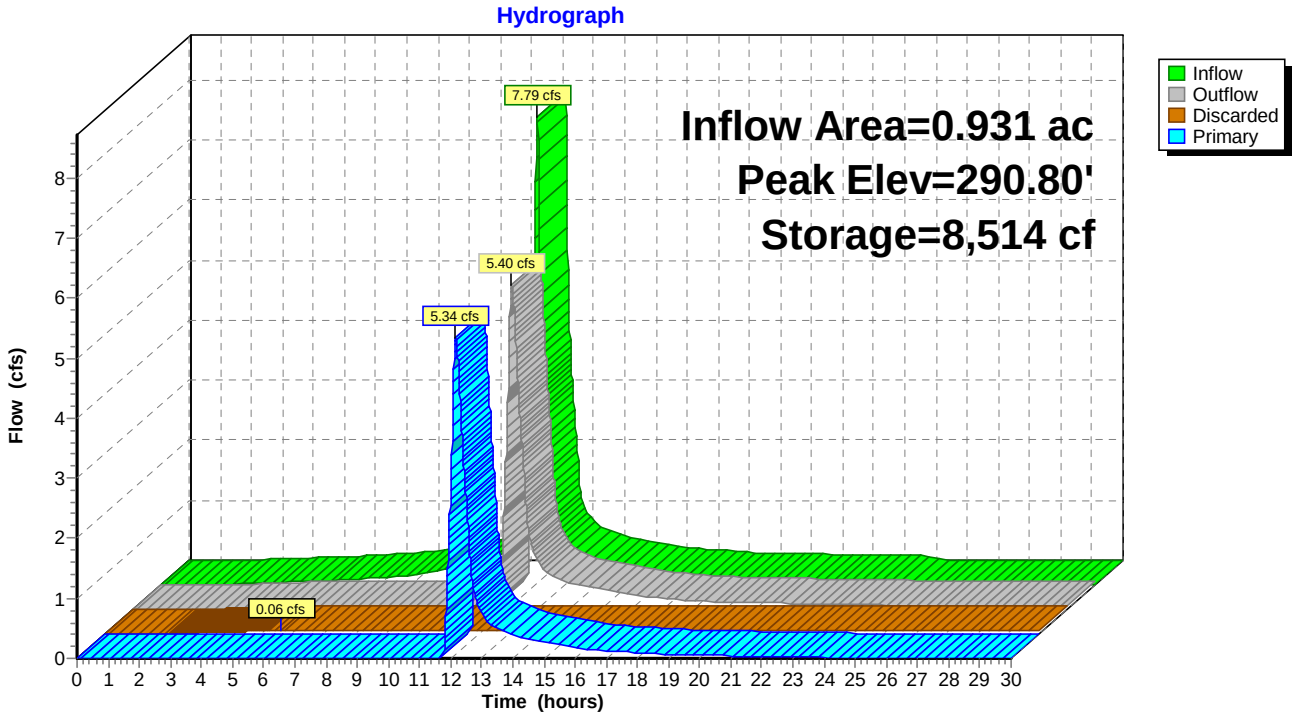
14,463.7 cf Field - 5,648.5 cf Chambers = 8,815.2 cf Stone x 33.0% Voids = 2,909.0 cf Stone Storage

Chamber Storage + Stone Storage = 8,557.5 cf = 0.196 af
Overall Storage Efficiency = 59.2%
Overall System Size = 109.37' x 23.00' x 5.75'

87 Chambers
535.7 cy Field
326.5 cy Stone



Pond 6-SI: Storage, Infiltration in Prop Cultec 2

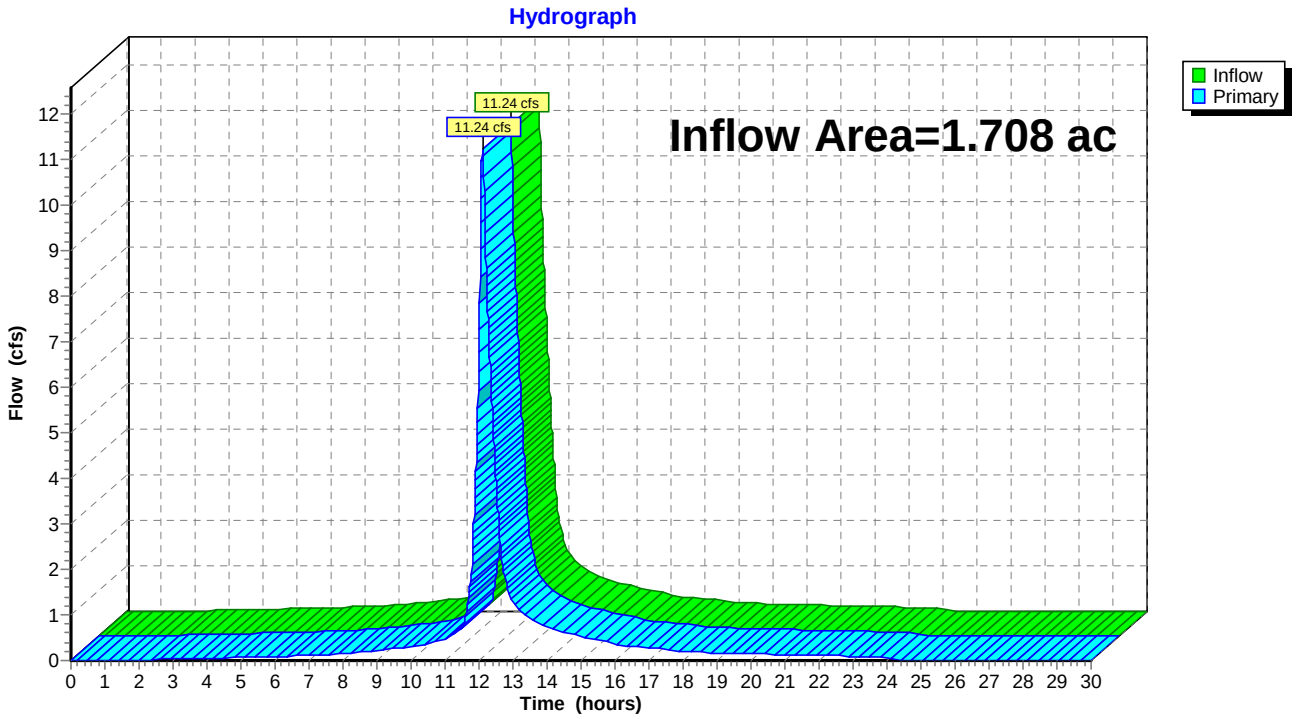


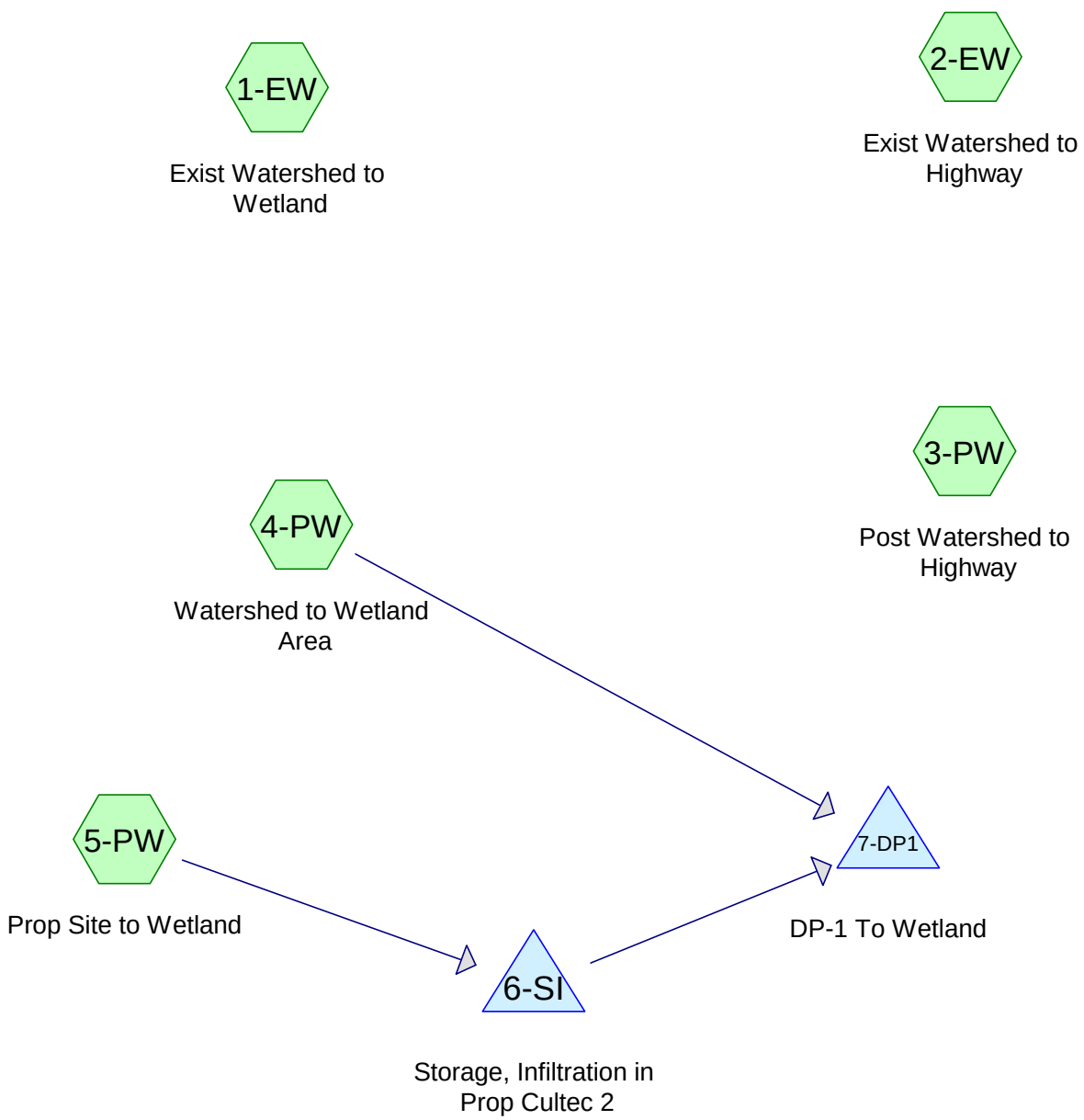
Summary for Pond 7-DP1: DP-1 To Wetland

Inflow Area = 1.708 ac, 85.88% Impervious, Inflow Depth = 6.37" for 100-Year event
Inflow = 11.24 cfs @ 12.10 hrs, Volume= 0.907 af
Primary = 11.24 cfs @ 12.10 hrs, Volume= 0.907 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs / 3

Pond 7-DP1: DP-1 To Wetland





"Improve Your World"

Subcat Reach Pond Link

Routing Diagram for North Smithfield AutoBody DRAINAGE SYSTEM - WQv

Prepared by D'Amico Engineering Technology, Inc., Printed 12/21/2020

Summary for Subcatchment 1-EW: Exist Watershed to Wetland

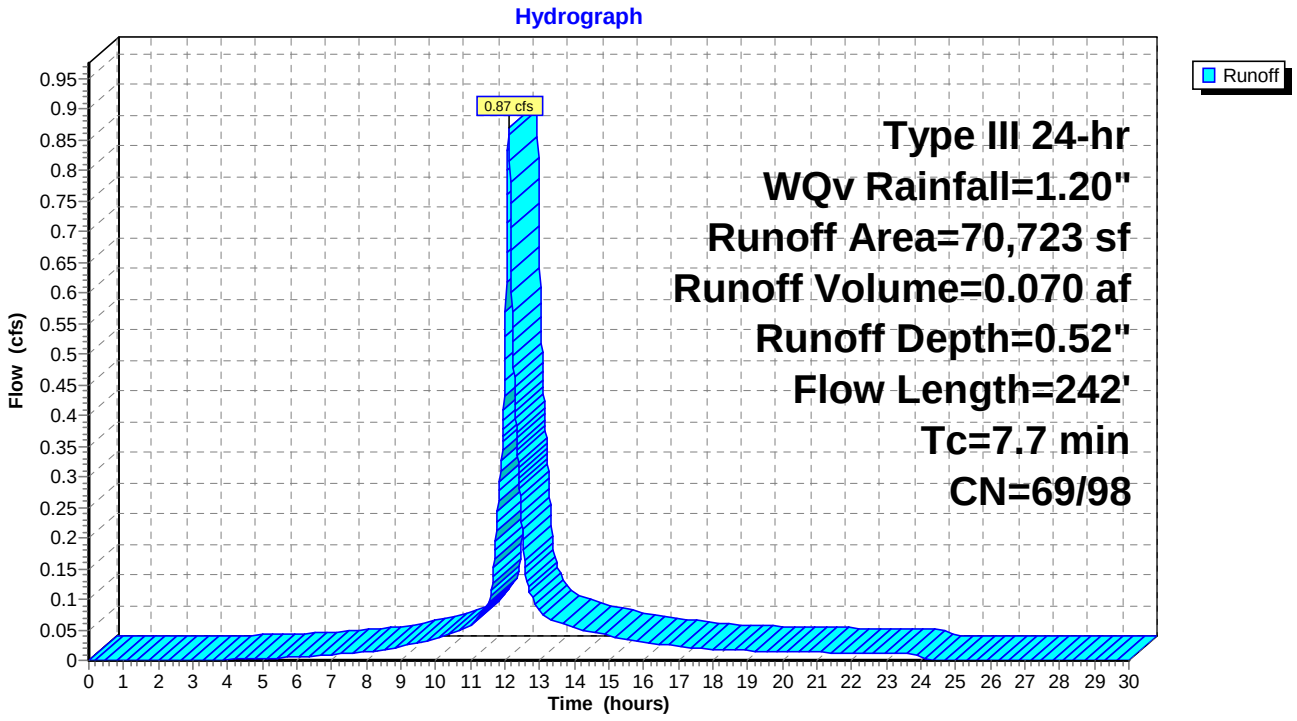
Runoff = 0.87 cfs @ 12.11 hrs, Volume= 0.070 af, Depth= 0.52"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Type III 24-hr WQv Rainfall=1.20"

Area (sf)	CN	Description
6,652	98	Roofs, HSG B
30,006	98	Paved parking, HSG B
34,065	69	50-75% Grass cover, Fair, HSG B
70,723	84	Weighted Average
34,065	69	48.17% Pervious Area
36,658	98	51.83% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.6	127	0.0830	0.32		**Sheet Flow, Grass** Grass: Short n= 0.150 P2= 3.30"
1.1	115	0.0320	1.73		**Sheet Flow, Pavement** Smooth surfaces n= 0.011 P2= 3.30"
7.7	242	Total			

Subcatchment 1-EW: Exist Watershed to Wetland



Summary for Subcatchment 2-EW: Exist Watershed to Highway

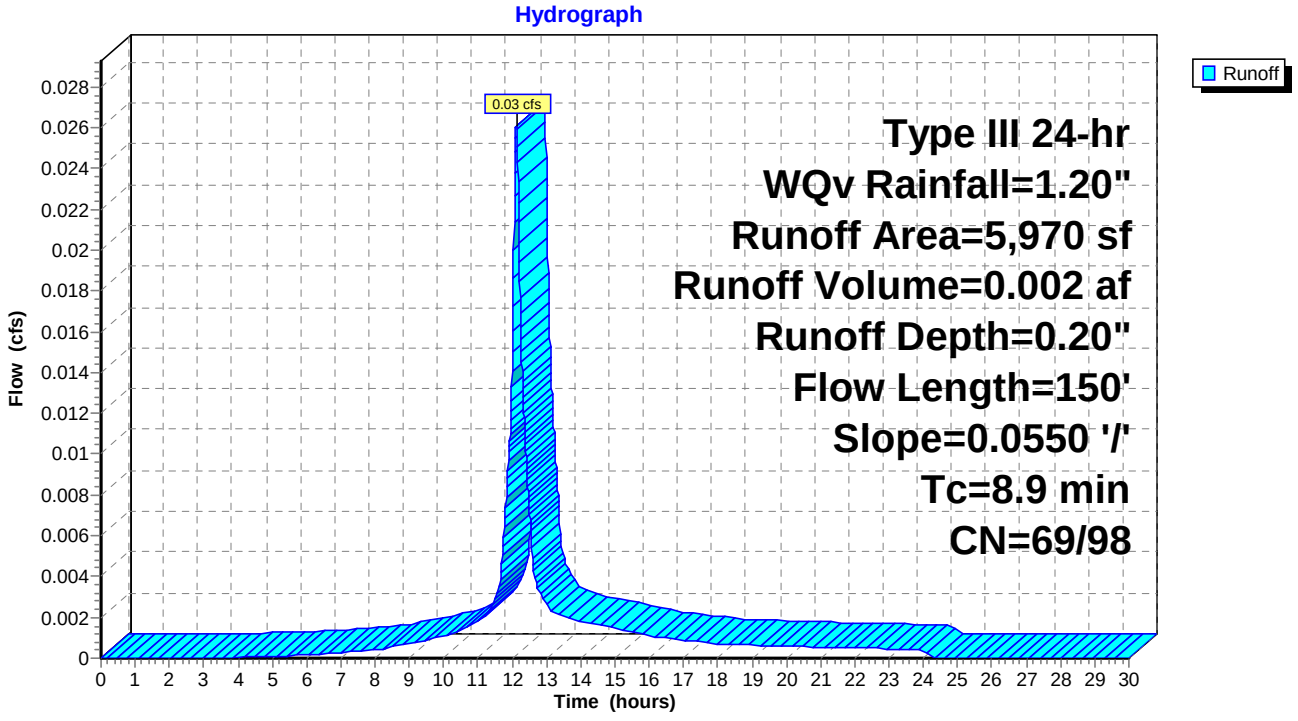
Runoff = 0.03 cfs @ 12.12 hrs, Volume= 0.002 af, Depth= 0.20"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Type III 24-hr WQv Rainfall=1.20"

Area (sf)	CN	Description
1,145	98	Paved parking, HSG B
4,825	69	50-75% Grass cover, Fair, HSG B
5,970	75	Weighted Average
4,825	69	80.82% Pervious Area
1,145	98	19.18% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.9	150	0.0550	0.28		**Sheet Flow, Grass** Grass: Short n= 0.150 P2= 3.30"

Subcatchment 2-EW: Exist Watershed to Highway



Summary for Subcatchment 3-PW: Post Watershed to Highway

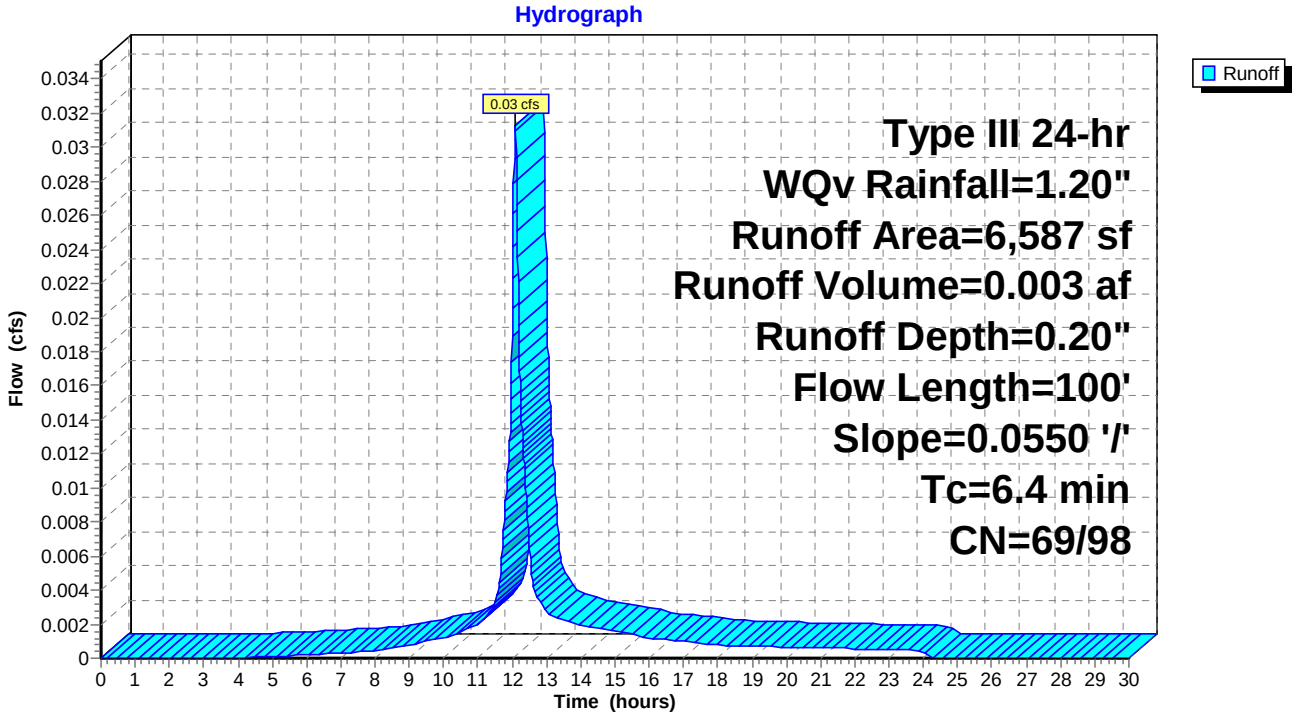
Runoff = 0.03 cfs @ 12.09 hrs, Volume= 0.003 af, Depth= 0.20"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Type III 24-hr WQv Rainfall=1.20"

Area (sf)	CN	Description
1,263	98	Paved parking, HSG B
5,324	69	50-75% Grass cover, Fair, HSG B
6,587	75	Weighted Average
5,324	69	80.83% Pervious Area
1,263	98	19.17% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.4	100	0.0550	0.26		**Sheet Flow, Grass to Highway** Grass: Short n= 0.150 P2= 3.30"

Subcatchment 3-PW: Post Watershed to Highway



Summary for Subcatchment 4-PW: Watershed to Wetland Area

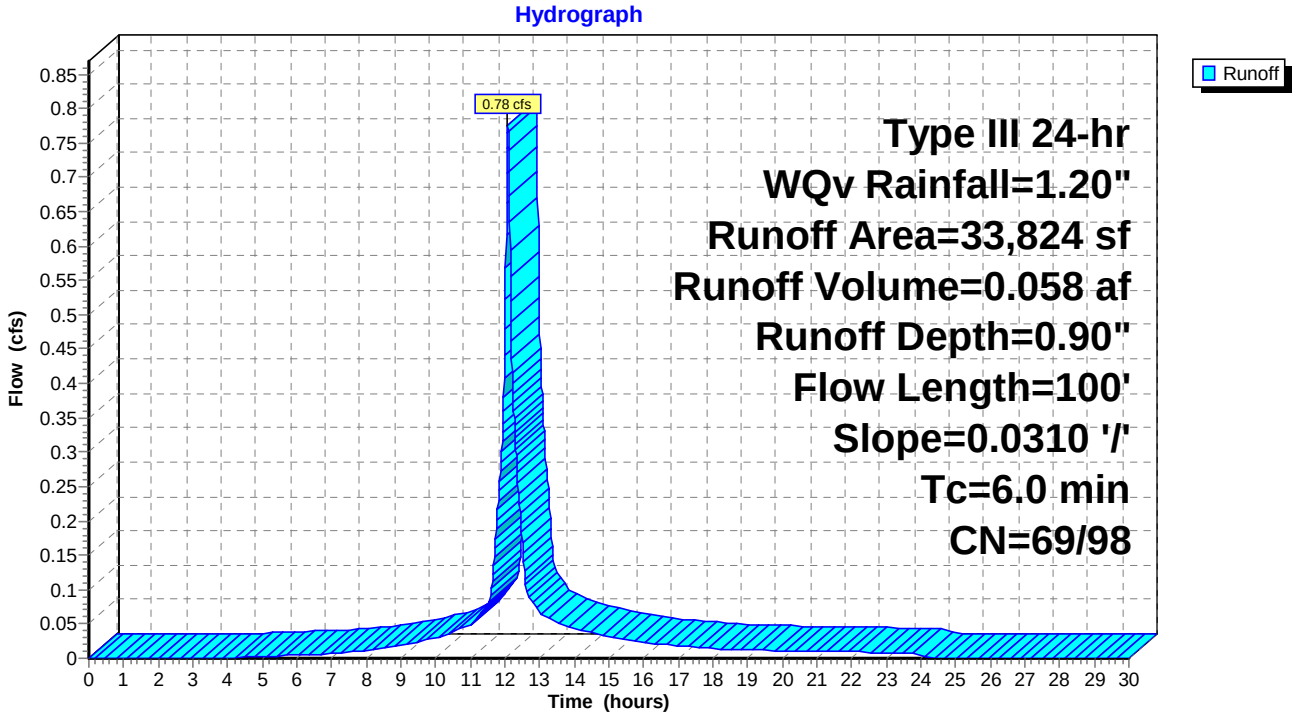
Runoff = 0.78 cfs @ 12.08 hrs, Volume= 0.058 af, Depth= 0.90"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Type III 24-hr WQv Rainfall=1.20"

Area (sf)	CN	Description
4,815	98	Roofs, HSG B
26,060	98	Paved parking, HSG B
2,949	69	50-75% Grass cover, Fair, HSG B
33,824	95	Weighted Average
2,949	69	8.72% Pervious Area
30,875	98	91.28% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.0	100	0.0310	1.66		**Sheet Flow, Parking Area** Smooth surfaces n= 0.011 P2= 3.30"
1.0	100	Total, Increased to minimum Tc = 6.0 min			

Subcatchment 4-PW: Watershed to Wetland Area



Summary for Subcatchment 5-PW: Prop Site to Wetland

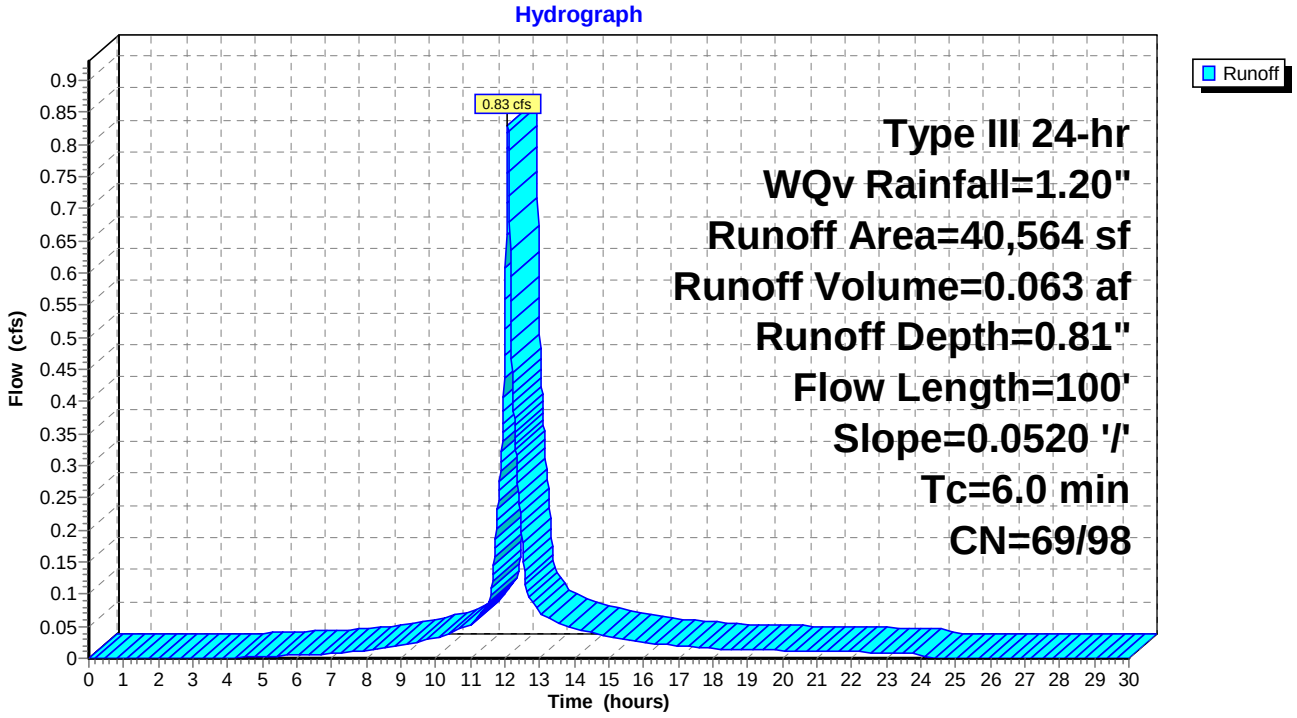
Runoff = 0.83 cfs @ 12.08 hrs, Volume= 0.063 af, Depth= 0.81"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Type III 24-hr WQv Rainfall=1.20"

Area (sf)	CN	Description
18,709	98	Paved parking, HSG B
7,555	69	50-75% Grass cover, Fair, HSG B
14,300	98	Roofs, HSG B
40,564	93	Weighted Average
7,555	69	18.62% Pervious Area
33,009	98	81.38% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.8	100	0.0520	2.05		**Sheet Flow, Driveway to System** Smooth surfaces n= 0.011 P2= 3.30"
0.8	100	Total, Increased to minimum Tc = 6.0 min			

Subcatchment 5-PW: Prop Site to Wetland



Summary for Pond 6-SI: Storage, Infiltration in Prop Cultec 2

Inflow Area = 0.931 ac, 81.38% Impervious, Inflow Depth = 0.81" for WQv event
Inflow = 0.83 cfs @ 12.08 hrs, Volume= 0.063 af
Outflow = 0.06 cfs @ 11.57 hrs, Volume= 0.063 af, Atten= 93%, Lag= 0.0 min
Discarded = 0.06 cfs @ 11.57 hrs, Volume= 0.063 af
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 286.11' @ 13.34 hrs Surf.Area= 2,515 sf Storage= 1,159 cf

Plug-Flow detention time= 167.3 min calculated for 0.062 af (100% of inflow)
Center-of-Mass det. time= 167.3 min (950.6 - 783.4)

Volume	Invert	Avail.Storage	Storage Description
#1A	285.10'	2,909 cf	**23.00'W x 109.37'L x 5.75'H Field A** 14,464 cf Overall - 5,649 cf Embedded = 8,815 cf x 33.0% Voids
#2A	285.85'	5,649 cf	**Cultec R-902HD** x 87 Inside #1 Effective Size= 69.8"W x 48.0"H => 17.65 sf x 3.67'L = 64.7 cf Overall Size= 78.0"W x 48.0"H x 4.10'L with 0.44' Overlap 87 Chambers in 3 Rows Cap Storage= +2.8 cf x 2 x 3 rows = 16.6 cf
		8,558 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Discarded	285.10'	**1.020 in/hr Exfiltration over Horizontal area** Phase-In= 0.10'
#2	Primary	288.30'	**12.0" Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads

Discarded OutFlow Max=0.06 cfs @ 11.57 hrs HW=285.22' (Free Discharge)
↑—**1=Exfiltration** (Exfiltration Controls 0.06 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=285.10' TW=0.00' (Dynamic Tailwater)
↑—**2=Orifice/Grate** (Controls 0.00 cfs)

Pond 6-SI: Storage, Infiltration in Prop Cultec 2 - Chamber Wizard Field A

Chamber Model = Cultec R-902HD (Cultec Recharger® 902HD)
Effective Size= 69.8"W x 48.0"H => 17.65 sf x 3.67'L = 64.7 cf
Overall Size= 78.0"W x 48.0"H x 4.10'L with 0.44' Overlap
Cap Storage= +2.8 cf x 2 x 3 rows = 16.6 cf

78.0" Wide + 9.0" Spacing = 87.0" C-C Row Spacing

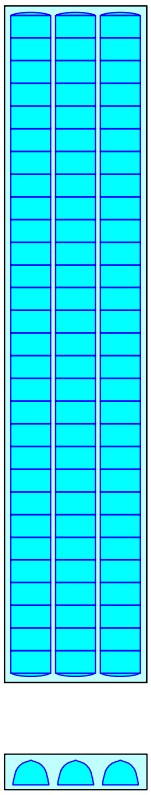
29 Chambers/Row x 3.67' Long +0.52' Cap Length x 2 = 107.37' Row Length +12.0" End Stone x 2 = 109.37' Base Length
3 Rows x 78.0" Wide + 9.0" Spacing x 2 + 12.0" Side Stone x 2 = 23.00' Base Width
9.0" Stone Base + 48.0" Chamber Height + 12.0" Stone Cover = 5.75' Field Height

87 Chambers x 64.7 cf + 2.8 cf Cap Volume x 2 x 3 Rows = 5,648.5 cf Chamber Storage

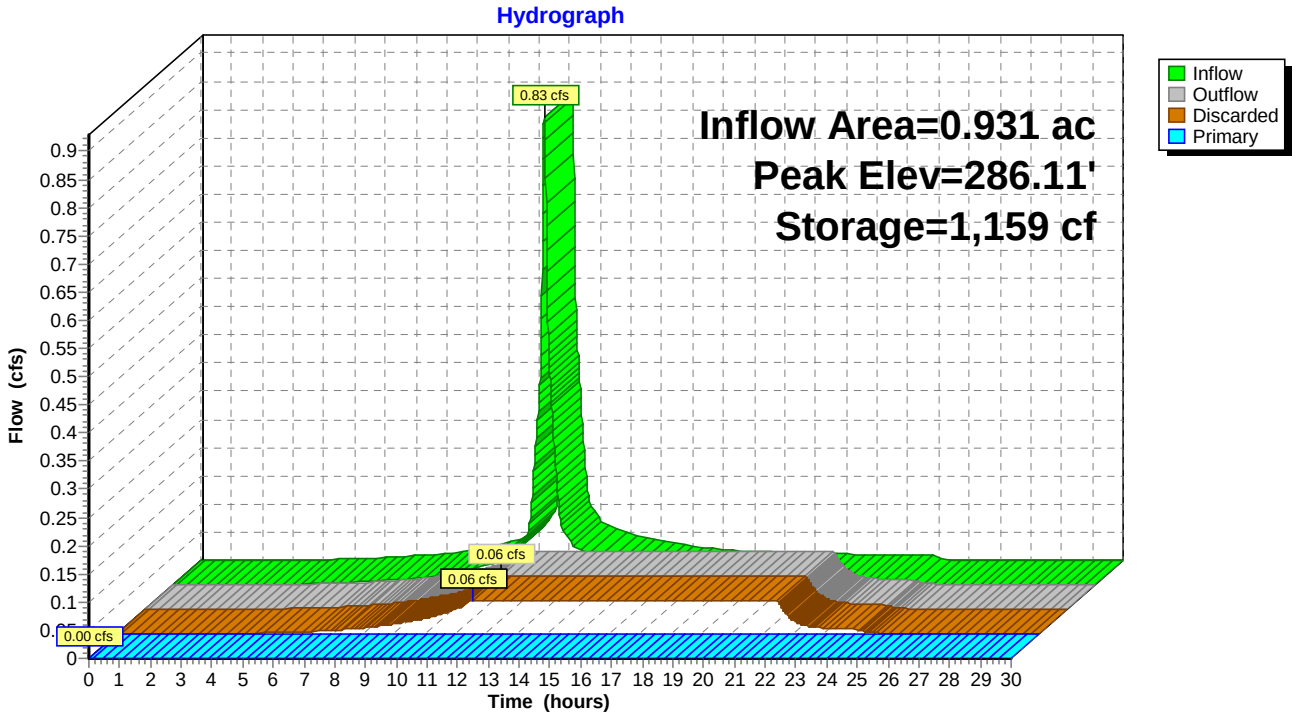
14,463.7 cf Field - 5,648.5 cf Chambers = 8,815.2 cf Stone x 33.0% Voids = 2,909.0 cf Stone Storage

Chamber Storage + Stone Storage = 8,557.5 cf = 0.196 af
Overall Storage Efficiency = 59.2%
Overall System Size = 109.37' x 23.00' x 5.75'

87 Chambers
535.7 cy Field
326.5 cy Stone



Pond 6-SI: Storage, Infiltration in Prop Cultec 2

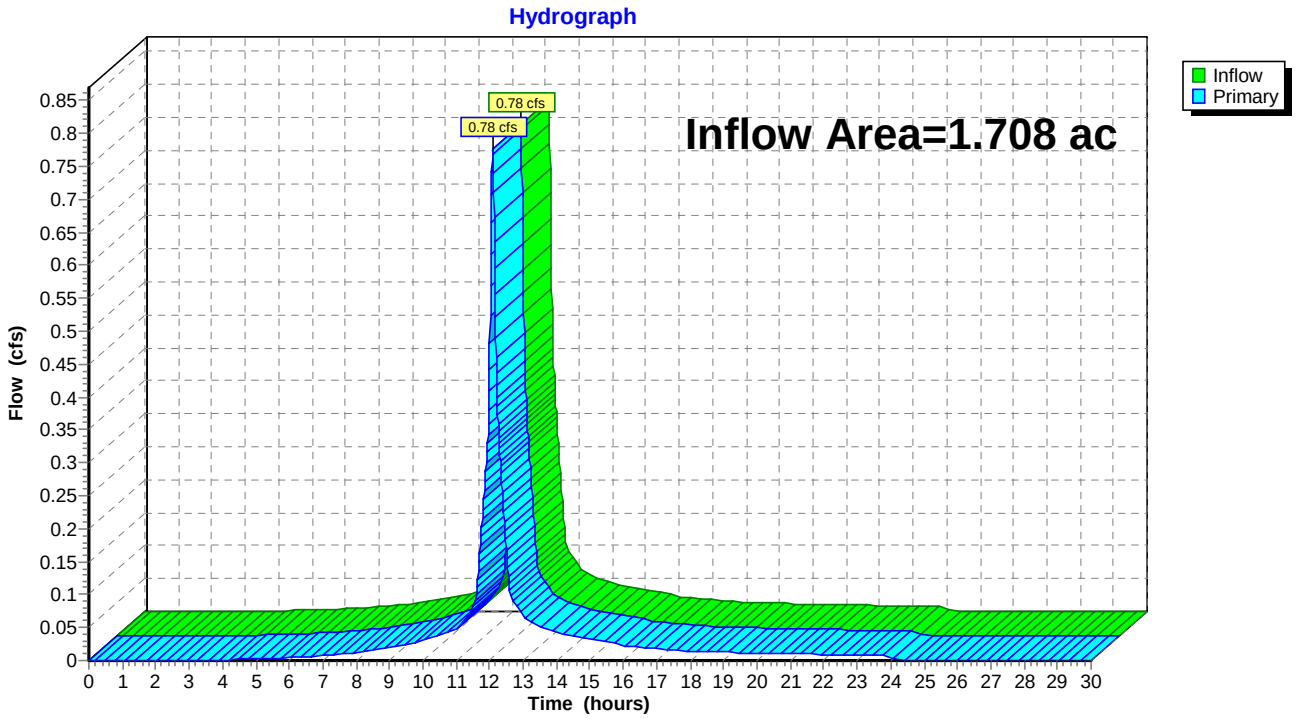


Summary for Pond 7-DP1: DP-1 To Wetland

Inflow Area = 1.708 ac, 85.88% Impervious, Inflow Depth = 0.41" for WQv event
Inflow = 0.78 cfs @ 12.08 hrs, Volume= 0.058 af
Primary = 0.78 cfs @ 12.08 hrs, Volume= 0.058 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs / 3

Pond 7-DP1: DP-1 To Wetland



APPENDIX C

STATE OF RHODE ISLAND AND PROVIDENCE PLANTATIONS
Department of Environmental Management
Office of Water Resources
Onsite Wastewater Treatment System Program

Site Evaluation Form
Part A – Soil Profile Description **Application Number** 1825-0675

Property Owner: TOM WHALEN N. SMITH AUTO BODY
Property Location: EDDIE DOWLING HGWY
Date of Test Hole: 10-2-18
Soil Evaluator: MARC N NYBERG License Number: D4043
Weather: CLOUDY 55° Shaded: Yes ☒ No ☐ Time: 9:30

TH 1 Horizon	Depth	Horizon Boundaries: Dist	Horizon Boundaries: Topo	Soil Colors: Matrix	Soil Colors: Re-Dox Features	Re-Dox: Ab. S. Contr.	Texture	Structure	Consistence	Soil Category
A	0-6	CL	WY	10YR 3/3			SL	GRAN	FRI	3
Bw	6-24	CL	WY	10YR 4/6			SL	SBK	FRI	3
C	W END 24-48			2.5Y 4/4			29,6 SL	O-M	FRI	6
	E END 24-64									

TH ____ Horizon	Depth	Horizon Boundaries: Dist	Horizon Boundaries: Topo	Soil Colors: Matrix	Soil Colors: Re-Dox Features	Re-Dox: Ab. S. Contr.	Texture	Structure	Consistence	Soil Category

TH 1 Soil Class ABLATION Total Depth W 48"-64" E Impervious/Limiting Layer Depth W 48-64" E (og) GW Seepage Depth NONE SHWT W 48"-64" E (og)

TH _____ Soil Class _____ Total Depth _____ Impervious/Limiting Layer Depth _____ (og) GW Seepage Depth _____ SHWT _____ (og)

Comments: _____

Revised 1/31/14

Part B

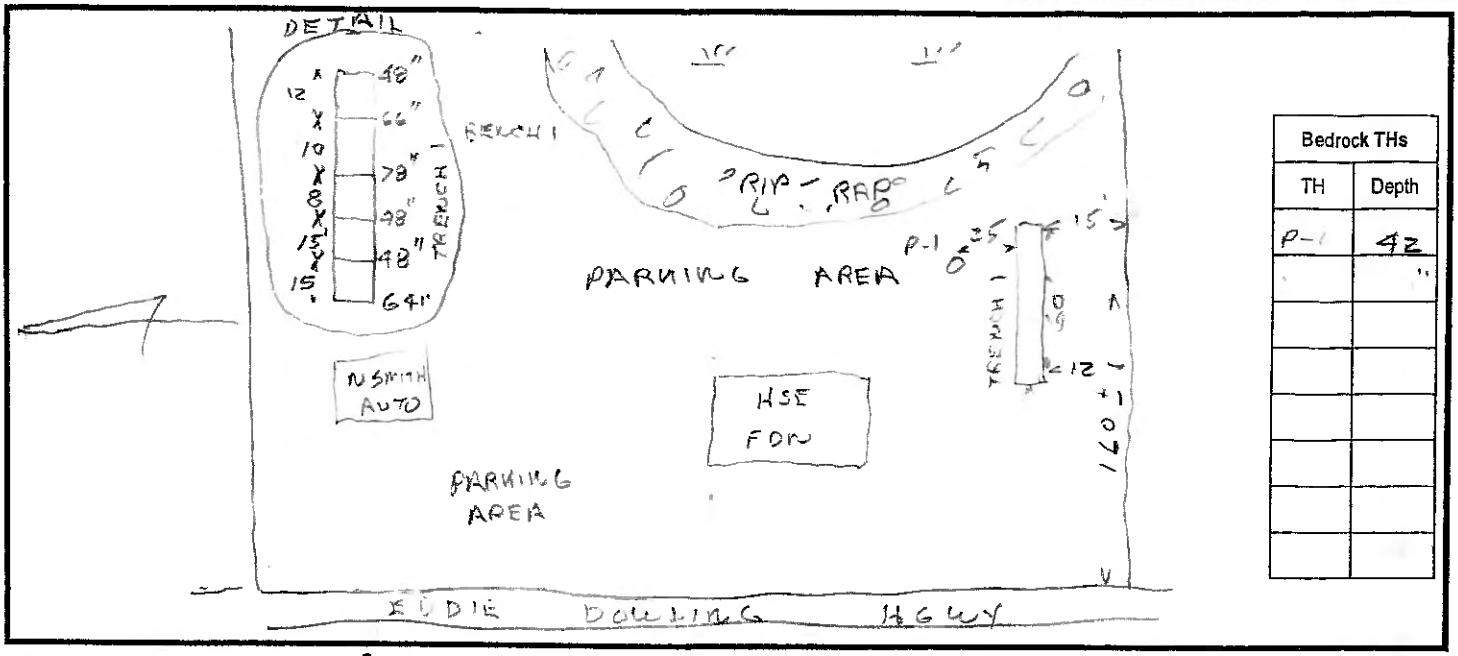
Site Evaluation – to be completed by Soil Evaluator or Class II or III Designer

Please use the area below to locate:

1. Test holes and bedrock test holes,
2. Approximate direction of due north,
3. Offsets from all test holes to fixed points such as street, utility pole, or other permanent, marked object.*

***OFFSETS MUST BE SHOWN**

Key:
- Approximate location of test holes
- Approximate location of bedrock test holes
- x% Estimated gradient and direction of slope
- N Approximate direction of due north



Bedrock THs	
TH	Depth
P-1	42

1. Relief and Slope: 5- 8 %
2. Presence of any watercourse, wetlands or surface water bodies, within 200 feet of test holes? If yes, locate on above sketch. NO ☐ YES ☒
3. Restrictive Layer or Bedrock within 4' below original ground within 25 feet of test hole? Provide all test hole locations & depths above. NO ☐ YES ☐
4. Presence of existing or proposed private drinking water wells within 200 feet of test holes? If yes, locate on above sketch. NO ☐ YES ☒
5. Public drinking water wells within 500 feet of test holes? If yes, locate on above sketch. NO ☒ YES ☐
6. Is site within the watershed of a public drinking water reservoir or other critical area defined in Rule 38? NO ☒ YES ☐
7. Has soil been excavated from or fill deposited on site? If yes, locate on above sketch. NO ☐ YES ☐
8. Site's potential for flooding or ponding: NONE ☒ SLIGHT ☐ MODERATE ☐ SEVERE ☐
9. Landscape position: S BACK SLOPE
10. Vegetation: GRASS
11. Indicate approximate location of property lines and roadways.
12. Additional comments, site constraints or additional information regarding site: _____

Certification

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.

Part A prepared by: Marc N Nyberg D4043 (Signature / License #) Part B prepared by: Marc N Nyberg D4043 (Signature / License #)

DO NOT WRITE IN THIS SPACE

Witnessed Soil Evaluation Decision: Concur ☐ Inconclusive ☐ Disclaim ☐

Unwitnessed Soil Evaluations Decision: Accept ☐ Inconclusive ☐ Disclaim ☐

Wet Season Determination required ☐ **Additional Field Review Required** ☐

Explanation: _____

Signature Authorized Agent _____ Date _____

Revised 1/31/14

Rhode Island Department of Environmental Management

Onsite Wastewater Treatment System Program

Phone: 401-222-6820
Fax: 401-222-6177

INSPECTION REPORT

APPLICATION NUMBER: 1825-0675

STREET: 770 Eddie Dowling Highway

CITY/TOWN: North Smithfield

PLAT/LOT: 13 117 POLE NO:

OWTS INSTALLER: No Installer/Unknown XXXXX Designer: D4043

PHONE NO: INSPECTION NUMBER: 0

INSPECTOR: Pittman

INSPECTION DATE: 10/03/2018

ARRIVAL TIME: 11-

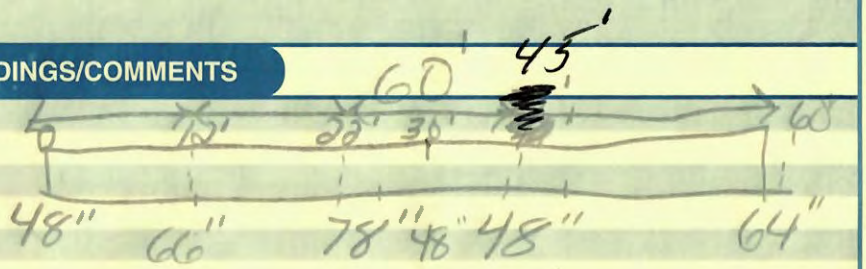
WEATHER CONDITIONS: R

TYPE OF INSPECTION: Dry Season Inspection for Alteration

SCHEDULED @ 11;30 AM

FINDINGS/COMMENTS

TRENCH 1 (W→E)



P-1 (25' Probe)
42"

CONCUR TRENCH 1 dry to ledge

* Wetlands to East

RESULTS OF INSPECTION/ACTION REQUIRED

❑ **CONSTRUCTION - DESIGNER MUST INSPECT/APPROVE PRIOR TO DEM INSPECTION**

- ❑ Bottom inspected
- ❑ Cover inspected
- ❑ Correct items listed
- ❑ (RFA) Address items listed and call for re-inspection.
- ❑ (ASB) Designer must submit As-Builts
- ❑ (RPREQ) Redesign required. Submit new application.
- ❑ (RFAD) Stop Construction. Contact OWTS office. DO NOT CONTINUE.
- ❑ (COC) Designer submit COC
- ❑ (O&M) O&M agreement and permit must be recorded in Land Evidence Records.
- ❑ (Fee) A $100.00 fee is required before re-inspection.
- ❑ Inspection waived

❑ **SITE TESTING**

- ❑ Soil Evaluation - Concur
- ❑ Soil Evaluation - Do not concur
- ❑ Soil Evaluation - Inconclusive
- ❑ Alteration Test Hole - Verified
- ❑ Alteration Test Hole - Unacceptable
- ❑ Ledge Test
- ❑ Fill Tests
- ❑ Repair Test Hole

Signature of Inspector _____

DESIGNER COPY

INSPECT FRM REV. 2/10

APPENDIX D

LEGEND

EXISTING PROPERTY LINE

EXISTING WATERSHED AREA

DRAINAGE FLOW PATH

SOIL TYPE DELINEATION LINE

1-EW WATERSHED SUBAREA ID

Rf - Ridgebury, Leicester and Whitman Soils

CeC - Canton and Charlton Fine Sandy Loam
HYDROLOGIC GROUP B

AP 13 LOT 38
10,188 Sq Ft
0.23 Ac.

AP 17 LOT 71
49,152 Sq Ft
1.13 Ac.

AP 13 LOT 117
47,426 Sq Ft
1.09 Ac.

AP 13 LOT 132
N/F
SAVORY CROSSING REALTY INC

AP 17 LOT 20
N/F
ERNEST A. JR. & NANCY LAVERDIERE

DP-1 (2-DP1)

DP-2 (4-DP2)

Tc

1-EW

2-EW

ASSF

STREAM

ZONING SETBACK LINE (TYP.)

50'

100'

EXISTING BUILDING #770

EXISTING HOUSE #784

EXISTING HOUSE #802

EXIST. GAR

SHED

WELL

LP

CONC. PAD

BIT. PARKING

BIT. DRIVE

LAWN

HEDGEROW

TREE LINE

EDGE OF PAVEMENT

SWALE

RIPRAP

24" RCP

HEADWALL

GUARD RAIL

GRANITE CURB

CONC.POST

REBAR FOUND

R.I.S.P. N: 321412.134
R.I.S.P. E: 328162.993

RI SHL PLAT #54

RI SHL RIHB FOUND STA 26+32.7

I.R. SPIKE FOUND

BENCHMARK
NAIL IN UP 317
ELEV.=302.64

EDDIE DOWLING HIGHWAY
(LOUISQUISSETT PIKE, RTE.146)

WF A1 WF A2 WF A3 WF A4 WF A5 WF A6 WF A7 WF A8 WF A9 WF A10 WF A11 WF A12 WF A13 WF A14 WF A15 WF A16 WF A17 WF A18 WF A19 WF A20 WF A21 WF A22 WF A23 WF A24 WF A25 WF A26 WF A27

S60°13'57"E 101.80'
123.21'
S60°13'56"E 147.02'
N39°31'04"E 338.51'
S39°31'04"W 278.64'
S39°31'04"W 357.03'
S39°31'04"W 382.06'
S39°31'04"W 114.99'
N82°31'04"E 65.00'
N72°31'04"E 16.96'
N82°31'04"E 15.00'
N50°28'56"W 71.47'
N50°28'56"W 81.00'
N50°28'56"W 153.84'
72.84'
N50°28'56"W 13.53'
S39°31'04"W 10.01'
L=94.16 R=2307.66 Δ=2°20'16"
L=109.24 R=2307.66 Δ=2°42'44"

UP 318 UP 317 UP 316 UP 315

OHW

SCALE (FEET)

0 25 50 100 200

1 INCH =50 FT

N:\15-0001 Merc N Nyberg\14 North Smithfield Auto Body\Plans\NS AutoBody Permit Watershed Plans 1-28-20.dwg Dec. 21, 2020 2:12pm

DEtec.
D'AMICO ENGINEERING TECHNOLOGY, INC.
Civil - Transportation - Land Use
2080 Mineral Spring Ave., North Providence, RI 02911
(401) 822-1470 (401) 353-1190 fax www.dengineeringtec.com

PROPOSED NORTH SMITHFIELD AUTO BODY SITE IMPROVEMENTS

770 EDDIE DOWLING HIGHWAY (RI ROUTE 146)
NORTH SMITHFIELD, RHODE ISLAND
AP 13, LOTS 38, 117 AND AP 17, LOT 71

REVISIONS:	
NO.	DATE.

DESIGNED BY:	DMD
DRAWN BY:	-
CHECKED BY:	-
DATE:	FEB., 2020
PROJECT NO:	15-0001-14

PERMIT PLAN, NOT FOR CONSTRUCTION

EXISTING WATERSHED MAP

SHEET 1 OF 2

LEGEND

EXISTING PROPERTY LINE

PROPOSED WATERSHED AREA

DRAINAGE FLOW PATH

SOIL TYPE DELINEATION LINE

1-PW WATERSHED SUBAREA ID

Rf - Ridgebury, Leicester and Whitman Soils

CeC - Canton and Charlton Fine Sandy Loam
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AP 13 LOT 132
N/F
SAVORY CROSSING REALTY INC

AP 17 LOT 20
N/F
ERNEST A. JR. & NANCY LAVERDIERE

DP-1 (7-DP1)

DP-2

6-SI

4-PW
EXISTING BUILDING #770

5-PW
PROPOSED AUTO BODY BUILDING
14,300 SF
FINISH FLOOR = 306.0
ASSESSMENT BAYS

3-PW

50' PERIMETER WETLAND

100' RIVERBANK WETLAND

STREAM

LOD

TREE LINE

EDGE OF PAVEMENT

SWALE

6'8"x15' BOTTOMLESS SAND FILTER

PUMP CHAMBER

DROP CLEANOUT (TYP)

1,500 GALLON SEPTIC TANK

REBAR FOUND

EXISTING HOUSE #802

HEDGEROW

RI SHL PLAT #54

BENCHMARK
NAIL IN UP 317
ELEV.=302.64

EDDIE DOWLING HIGHWAY
(LOUISQUISSETT PIKE, RTE 146)

SCALE (FEET)
0 25 50 100 200
1 INCH =50 FT

N:\15-0001 Marc N Nyberg\14 North Smithfield Auto Body\Plans\NS AutoBody Permit Watershed Plans 1-28-20.dwg Dec. 21, 2020 2:10pm

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PROPOSED NORTH SMITHFIELD AUTO BODY SITE IMPROVEMENTS

770 EDDIE DOWLING HIGHWAY (RI ROUTE 146)
NORTH SMITHFIELD, RHODE ISLAND
AP 13, LOTS 38, 117 AND AP 17, LOT 71

REVISIONS:
NO. DATE. DESCRIPTION

DESIGNED BY: DMD
DRAWN BY: -
CHECKED BY: -
DATE: FEB., 2020
PROJECT NO: 15-0001-14

PERMIT PLAN, NOT FOR CONSTRUCTION

PROPOSED WATERSHED MAP

SHEET 2 OF 2