TOWN OF RAYMOND
Planning Board Agenda
March 7, 2024
7 p.m. - Raymond High School
Media Center - 45 Harriman Hill

Public Announcement

*If this meeting is canceled or postponed for any reason the information can be found on our website, posted at Town Hall, Facebook Notification, and RCTV. **

1. **Pledge of Allegiance**

2. **Public Hearing**

   A. **Application # 2022-008 Onyx Warehouse:** A site plan application has been submitted by Wayne Morrill of Jones & Beach Engineers, Inc. on behalf of ONYX Partners LTD. They are proposing to construct a 500,025 S.F. industrial distribution warehouse with associated loading docks, truck parking, and employee vehicle parking. The applicant is also proposing a Special Permit for a wetland impact of approximately 87,117 SF for the construction of 550,025 SF warehouse. The NHDES issued Wetlands Permit 2022-02474 on September 26, 2023. Lastly, the applicant is also proposing a Conditional Use Permit for twenty-four (24) percent of impervious surface within the Groundwater Conservation District where 15% is required per Section 5.2.11.2 of the Town of Raymond Zoning Ordinance. The NHDES issued Alteration of Terrain Permit AoT-2467 on September 28, 2023. The properties are located on Industrial Drive and Raymond Tax Map 22 / Lots 44, 45,46, and 47 and Raymond Tax Map 28-3/Lot 120-1, within Zone D. **(Continued from 11/2/23, 12/7/23, 1/18/2024)**

   B. **Application # 2023-007 Meindl Road Subdivision:** A subdivision application is being submitted by Joseph Falzone and Beals Associates PLLC on behalf of Frances and Raymond Scanlon. The intent of this application is to subdivide a 10 +/- acre lot on Meindl Road into 3 individual lots. The parcel is Map 41/Lot 47, Zone B with associated Zone G lands and located on Meindl Road in Raymond NH. **(Continued from 10/12/23, 11/2/23, 12/7/23, 1/4/2024, and 1/25/2024)**

   C. **Application #2023-012 Autumn Trail Realty:** A Site Plan has been submitted by Brandon Richards of Fieldstone Land Consultants, PLLC on behalf of Autumn Trail Realty, LLC. The applicant is proposing an 8,000 S.F. commercial building. The applicant is also proposing a Conditional Use Permit for exceedance of 15% impervious surface within the Groundwater Conservation District. The property is identified as Raymond Tax Map 32, Lot 72 located 1000 feet south of the Deerfield Rd. and Long Hill Rd. intersection within the Town of Raymond and is within the C1 zoning district. **(Continued from 12/21/2023 and 1/25/2024)**

3. **Public Comment**

4. **Special Public Comment for any questions regarding the Water Tower Rehabilitation Warrant Article**

   A. Water Tank informational video will be played

* Note: If you require personal assistance for audio, visual or other special aid, please contact the Selectmen's Office at least 72 hours prior to the meeting. If this meeting is postponed for any reason, it will be held at a time TBD.

B. PowerPoint presentation will be played

5. Approval of Minutes

A. January 4, 2024

B. February 1, 2024

6. Other Business

- Staff Updates
- Board Member Updates
- Any other business brought before the board.

7. Adjournment (NO LATER THAN 10:00 P.M.)

Planning Board 2024 Submittal and Meeting Dates

Submittal Deadline for Completed Application & Materials	Planning Board Meeting Dates (1st & 3rd Thursdays of the Month)	
Tuesday, February 20, 2024	Thursday, March 21, 2024	#2022-009 Jewett Warehouse (continued from 1-4-24 and 2/15/2024) #2024-001 Scott's Roofing (continued from 2/15/2024) #2024-002 Lamprey Waters, LLC LLA (continued from 2/15/2024)
	Thursday, March 28, 2024	Work Session 6:00 PM Public Hearing for #2023-008 Onway Lake 7:00 PM
Wednesday, March 6, 2024	Thursday, April 4, 2024	#2023-005 Mardon Woods (continued from 12/21/2023, 1/18/2024, & 2/22/2024) #2024-003 Gemini Valve Eversource Long Hill Road Hearing
Wednesday, March 20, 2024	Thursday, April 18, 2024	TBD
Wednesday, April 3, 2024	Thursday, May 2, 2024	TBD
Wednesday, April 17, 2024	Thursday, May 16, 2024	TBD
Wednesday, May 8, 2024	Thursday, June 6, 2024	TBD

* Note: If you require personal assistance for audio, visual or other special aid, please contact the Selectmen's Office at least 72 hours prior to the meeting. If this meeting is postponed for any reason, it will be held at a time TBD.

TOWN OF RAYMOND

Planning Board Agenda

March 7, 2024

7 p.m. - Raymond High School

Media Center - 45 Harriman Hill

Wednesday, May 22, 2024	Thursday, June 20, 2024	TBD
Wednesday, June 12, 2024	Thursday, July 11, 2024	*July 4 is a holiday, no meeting; TBD
Wednesday, June 19, 2024	Saturday, July 27, 2024	TBD
Wednesday, July 3, 2024	Thursday, August 1, 2024	TBD
Wednesday, July 17, 2024	Thursday, August 15, 2024	TBD
Wednesday, August 7, 2024	Thursday, September 5, 2024	TBD
Wednesday, August 21, 2024	Thursday, September 19, 2024	TBD
Wednesday, September 4, 2024	Thursday, October 3, 2024	TBD
Wednesday, September 18, 2024	Thursday, October 17, 2024	TBD
Wednesday, October 9, 2024	Thursday, November 7, 2024	TBD
Wednesday, October 23, 2024	Thursday, November 21, 2024	TBD
Wednesday, November 6, 2024	Thursday, December 5, 2024	TBD
Wednesday, November 20, 2024	Thursday, December 19, 2024	TBD

* Note: If you require personal assistance for audio, visual or other special aid, please contact the Selectmen's Office at least 72 hours prior to the meeting. If this meeting is postponed for any reason, it will be held at a time TBD.

JONES&BEACH
ENGINEERS INC.

85 Portsmouth Avenue, PO Box 219, Stratham, NH 03885
603.772.4746 - JonesandBeach.com

August 18, 2022

Raymond Planning Board
Attn. Brad Reed, Chair
4 Epping Street
Raymond, NH 03077

RE: Site Plan Application
Industrial Drive, Raymond, NH
Tax Map 22, Lots 44, 45, 46 7 47
Tax Map 28, Block 3, Lot 120-1
JBE Project No. 21130

Dear Mr. Reed,

Jones & Beach Engineers, Inc. respectfully submits a Site Plan Application for the above-referenced parcels on behalf of our client, ONYX Partners LTD. The intent of this application is to propose a 500,025 S.F. industrial distribution warehouse with associated loading docks, truck parking, and employee vehicle parking.

The following items are provided in support of this Application:

1. Site Plan Application
2. Waiver Request Letter.
3. Letters of Authorization.
4. Current Deeds.
5. Fee Check in the Amount of $75,898.80.
6. Abutters List & Mailing Labels (3 sets).
7. Tax Map.
8. Three (3) Drainage Analysis.
9. Six (6) Full Size Plan Sets.
10. Ten (10) Half Size Plan Sets.

If you have any questions or need any additional information, please feel free to contact our office. Thank you very much for your time.

Very truly yours,
JONES & BEACH ENGINEERS, INC.

Wayne Morrill
President

cc: Anton Melchionda, ONYX Partners LTD (application and plans via email)
Jeff Adler, DuBois & King (application & plans via email & U.S. Mail)

Map # 22 Lot # 44, 45, 46 & 47
Map 28, Block 3, Lot 120-1

Site Plan Review Application

Town of Raymond, NH

Project Name: Raymond Distribution

Location: Industrial Drive

Project Description: To propose a 500,025 S.F. industrial distribution warehouse

Zone: D New Industrial/Commercial Square Footage: ________ **or** Number of Residential Units: ________

Applicant/Agent Information:

Name: Anton Melchionda

Phone: 617-835-4770 Fax: ________

Company: Onyx Partners, LTD

Address: 200 Reservoir Street, Needham, MA 02494

By signing this application, you are agreeing to all rules and regulations of the Town of Raymond, and are agreeing to allow agents of the Town of Raymond to conduct inspections of your property during normal business hours to ensure compliance with all Raymond Zoning and Site Plan Review Regulations while your application is under consideration and during any construction and operational phases after approval is granted.

Signed*: ________ Date: 8-17-22

*Requires notarized letter of permission

Owner Information:

Name: Anton Melchionda

Phone: 617 835 4770 Fax: ________

Company: Onyx Raymond, LLC

Address: 60 Centre Street, Dover, MA 02030

Signed: ________ Date: 8/9/22

Designers of Record: (Provide Name & License Number for each)

Engineer: Erik Poulin, Jones & Beach Engineers, Inc - #16669

Surveyor: David Collier, Jones & Beach Engineers, Inc. - #892

Soil Scientist: ________

Landscape Architect: ________

Fire Protection Engineer: ________

Other(s): ________

FEES: See attached Fee Schedule

For Office Use Only:

Date Application Received: ________ Total Fees Collected w/Application: ________

Abutters List Received: ________ Plans & Checklist Received: ________

Appendix II

Site Plan Review Fees

Sample Chart Using 180 sf per space	
1	$ 514.80
2	$ 579.60
3	$ 644.40
4	$ 709.20
5	$ 774.00
6	$ 838.80
7	$ 903.60
8	$ 968.40
9	$ 1,183.20
10	$ 1,248.00
11	$ 1,312.80
12	$ 1,377.60
13	$ 1,442.40
14	$ 1,657.20
15	$ 1,722.00
16	$ 1,786.80
17	$ 1,851.60
18	$ 1,916.40
19	$ 2,131.20
20	$ 2,196.00
21	$ 2,260.80
22	$ 2,325.60
23	$ 2,390.40

Base Rate: $ 300.00
(Includes staff wages with a 23 % roll-up rate) 300.00

Variable Costs (per newly created space): $ 0.36

	Units - SF
POV Spaces:	326 × 180
Handicap Accessible Spaces:	320
Tractor Trailer	844 × 600

905,080 × .36
73,828.80

# Spaces	Formula for Calculation of Fees
1 - 8	$ 0.36 per sf + (1.5 x $ 300 base rate)
9 - 13	$ 0.36 per sf + (2.0 x $ 300 base rate)
14 - 18	$ 0.36 per sf + (2.5 x $ 300 base rate)
19 - 23	$ 0.36 per sf + (3.0 x $ 300 base rate)
24 - 50	$ 0.36 per sf + (3.5 x $ 300 base rate)
51 - 75	$ 0.36 per sf + (4.0 x $ 300 base rate)
76 - 100	$ 0.36 per sf + (4.5 x $ 300 base rate)
101 - 150	$ 0.36 per sf + (5.0 x $ 300 base rate)
151 - 200	$ 0.36 per sf + (5.5 x $ 300 base rate)

73,828.80 + (5.5 × 300
= 1650.–

ABUTTERS FEE: $10.00 PER NOTICE x 12 - $120.00

Escrow Deposits for Legal/Engineering/Other Peer Review Expenses[1]	
Minimum Fee (Discretion of the Technical Review Committee):	$ 1,250.00
Disturbed Area[2] - Up to 5 Acres:	$ 2,500.00
Up to 10 Acres	$ 3,250.00
Up to 15 Acres:	$ 4,000.00
Up to 20 Acres:	$ 4,500.00
Over 20 Acres, but less than 30 acres:	$ 5,000.00
Over 30 Acres - To be determined by Town Engineer/Legal Counsel	TBD

[1] Once a balance is reduced to 50% of the original deposit, the applicant shall replenish it to 100%.
[2] Disturbed area is defined as: That portion of the site that is altered due to construction of streets, roadways, parking areas, utilities, buildings or other physical improvements, including earth excavation, removal or altercation.

$75,898.80

Site Plan Review Checklist

TOWN OF RAYMOND, NH

PROJECT NAME Raymond Distribution

MAP# ________ **LOT #**______ **APPLICATION DATE** 8/18/22 ________ **APPLICATION #**________________________
Map 22, Lots 44, 45, 45, & 47 & Map 28, Block 3, Lot 120-1

A copy of all plans and technical reports must be sent to the Town engineer. Proof of submittal must be provided to the Community Development Department at the time of application. If proof of transmittal is not provided, the application may be delayed until the following month's Planning Board meeting. Address is: ***Dubois & King, 15 Constitution Dr. Suite 1L, Bedford NH 03110, ATTN: Ross Tsantoulis.***

SUBMITTED YES	SUBMITTED NO			WAIVED YES	WAIVED NO
X	___	1.	Name of project; names and addresses of owners of record; Tax map and lot number.	___	___
X	___	2.	Name, license number and seal of surveyor or other persons, north arrow, scale and date of plan; signature block.	___	___
X	___	3.	Vicinity sketch and zoning district(s).	___	___
X	___	4.	Abutters and uses of abutting land within 200 feet of the site.	___	___
X	___	5.	Shape, size, height, location and use of existing and proposed structures located on the site and within 200 feet of the site.	___	___
X	___	6.	Boundary lines, dimensions and bearings; lots area in acres And square feet and total disturbed area in square feet.	___	___
X	___	7.	Location, name and widths of any existing and proposed roads on the property and within 200 feet of the site	___	___
X	___	8.	Location of existing and proposed sidewalks and driveways, with indication of travel for both pedestrian and vehicular traffic.	___	___
X	___	9.	Access to the site, sight distance at access point(s), curb cuts and any proposed changes to existing streets; copy of driveway permit.	___	___
X	___	10.	Location and number of parking spaces; loading spaces.	___	___
X	___	11.	Location, type and nature of all existing and proposed Landscaping and screening.	___	___
X	___	12.	Location, type and nature of all existing and proposed exterior lighting.	___	___
X	___	13.	Natural features (streams, ponds, wetlands, etc.)	___	___
X	___	14.	Waste/dumpster locations and snow storage areas	___	___

Site Plan Review Checklist

TOWN OF RAYMOND, NH

SUBMITTED YES	SUBMITTED NO			WAIVED YES	WAIVED NO
X		15.	Existing and proposed grades and contours, including base Flood elevation where appropriate.		
X		16.	Size and location of all existing and proposed water mains, sewers, culverts, and distances to the existing fire hydrants, cisterns and/ or fire ponds.		
X		17.	Copy of certification from septic designer as to sufficiency of system.		
Waiver Request		18.	Location and type of proposed waste water disposal system; Outline of 4,000 sq. ft. area; test pits; record of percolation tests.		
X		19.	Existing and proposed Storm water drainage system.		
X		20.	Location of existing and proposed on-site well (showing required radius on the property.)		
X		21.	Soil survey data (see: requirements for soils and wetlands data)		
X		22.	Location of any existing or proposed easements, deed restrictions, covenants.		
OTHER:					
X		1.	Any federal, state or local permits.		
X		2.	Building elevations and design		
X		3.	Sign location and design		
N/A		4.	Copies of any proposed or existing easements, deed restrictions, covenants, and street deeds.		
X		5.	Such additional studies as may be required.		
X		6.	Six (6) full-size copies of all plans and ten (10) copies of all plans in 11 X 17 format, and digital copy of plans. *		
X		7.	Three (3) copies of all studies*		

FEES

X		1. Application Fees
X		2. Abutters Notice Fees ***(to include three (3) labels per abutter)***
X		3. Engineering and Legal Review Escrow
X		4. Site Review-Administrative Fee

Raymond NH Planning Board Waiver Request Form

Applicable to Site Plan Review and Subdivision Regulations

Project Name & Application Number:

Regulation, Article & Section from which a waiver is being sought:

Site Plan Regulation Section 6.10.04 - Licensed Landscape Architect

Where the Planning Board finds that unnecessary hardship may result from strict compliance with these regulations with respect to a particular tract of land, the Board may modify or waive these regulations so that substantial justice may be done and the public interest is secured, provided that:

Please respond to the criteria below:

a. Explain how the granting of the waiver will not be detrimental to public safety, health, or welfare or injurious to other adjacent property;

This is a private site and we are proposing plantings at the street entrance and around the front of the building. There is no detrimental effect to public safety, health or welfare or injurious to other adjacent property.

b. Explain how granting this waiver shall not have the effect of nullifying the intent and purpose of these regulations, the Zoning Ordinance, Master Plan or Official Zoning Map;

We are requesting a waiver from having a Licensed Landscape Architect draft and stamp the plan as we are in the industrial zone and the project is designed to be out of sight from the adjacent road & abutters.

In granting waivers, the Planning Board may require such conditions as will, in the Board's judgment, secure substantially the objectives of the standards or requirements of these regulations.

A petition for waiver shall be submitted by the applicant at the time when the application is filed for consideration by the Planning Board. All petitions shall be made in writing using the Town's Waiver Request Form. The petition shall state fully the grounds for the waiver and all of the facts relied upon by the petitioner.

Any granted waivers must be noted on the final approved plan.

Letter of Authorization

I, Anton Melchionda, ONYX Partners LTD, 200 Reservoir Street, Needham, MA 02494, developer of property located in Raymond, NH, known as Tax Map 22, Lots 44, 45, 46 & 47 and Tax Map 28, Block 3, Lot 120-1, do hereby authorize Jones & Beach Engineers, Inc., PO Box 219, Stratham, NH, to act on my behalf concerning the previously mentioned property. The parcels are located on Industrial Drive in Raymond, NH.

I hereby appoint Jones & Beach Engineers, Inc., as my agent to act on my behalf in the review process, to include any required signatures.

Witness

Anton Melchionda
ONYX Partners LTD

5/3/22
Date

Personally, appeared the above-named Anton Melchionda, known to me or satisfactorily proven to be the person whose signature appears on this letter of authorization and acknowledged that the facts contained in the letter of authorization are true based upon their knowledge, information, and belief. Before me.

Notary Public/Justice of the Peace

My commission expires 9/26/25

AARON K. HINCHLIFFE
MY COMMISSION EXPIRES SEPTEMBER 26, 2025
NOTARY PUBLIC
COMMONWEALTH OF MASSACHUSETTS

Letter of Authorization

ONYX Raymond LLC. 60 Centre Street. Dover, MA 02030. owner of property located in Raymond, NH, known as Tax Map 22. Lots 44. 45, 46 & 47 and Tax Map 28. Block 3. Lot 120-1. do hereby authorize Jones & Beach Engineers. Inc.. PO Box 219, Stratham, NH. to act on my behalf concerning the previously mentioned property. The parcels are located on Industrial Drive in Raymond. NH.

I hereby appoint Jones & Beach Engineers, Inc., as my agent to act on my behalf in the review process. to include any required signatures.

Witness ONYX Raymond LLC 5/3/22 Date

Personally, appeared the above-named ONYX Raymond LLC. known to me or satisfactorily proven to be the person whose signature appears on this letter of authorization and acknowledged that the facts contained in the letter of authorization are true based upon their knowledge, information, and belief. Before me,

Notary Public/Justice of the Peace

My commission expires 9/26/25

AARON K. HINCHLIFFE
MY COMMISSION EXPIRES SEPTEMBER 26, 2025
NOTARY PUBLIC
COMMONWEALTH OF MASSACHUSETTS

Book:6373 Page:1280

E # 22001646 01/11/2022 09:25:51 AM
Book 6373 Page 1280 Page 1 of 2
Register of Deeds, Rockingham County

LCHIP	ROA603931	25.00
TRANSFER TAX	RO112755	185.00
RECORDING		34.00
SURCHARGE		2.00

Return to:

WARRANTY DEED

KNOW ALL BY THESE PRESENTS, that **STOLI PROPERTIES, LLC**, a New Hampshire limited liability company with an address of P.O. Box 2750, Seabrook, New Hampshire 03874, pursuant to the provisions of NH RSA 304-C:139 for winding up the business of said company, for consideration paid, hereby grant to **ONYX RAYMOND LLC**, a Massachusetts limited liability company with an address of 60 Centre Street, Dover, Massachusetts 02030 with WARRANTY COVENANTS, the following described premises:

A certain piece of wood land situated in Raymond, County of Rockingham, State of New Hampshire, bounded and described as follows:

Commencing at land now or formerly of Aaron G. Whittier running northeast by a cart north 34 rods to a stone wall on the Blake land, so-called; thence northwest by a stone wall 38 rods to land now or formerly of Aaron G. Whittier land by a stone wall southeast 20½ rods to the first bound mentioned; containing two and one half (2½) acres, be the same more or less.

Meaning and intending to convey the same premises conveyed to the Grantor by Warranty Deed of Robert Sinclair and Lorraine Sinclair dated May 16, 2005 and recorded in the Rockingham County Registry of Deeds at Book 4481, Page 108 and being shown on Tax Map 22, Lot 44 on the Town of Raymond tax maps.

This is not homestead property.

Signed this 5 day of January, 2022.

Stoli Properties LLC

By:
Name: Arleigh B. Greene
Title: Manager

E # 22001649 01/11/2022 09:25:52 AM
Book 6373 Page 1282 Page 1 of 2
Register of Deeds, Rockingham County

Return to:

Cathy Ann Stacey

LCHIP ROA602939 25.00
TRANSFER TAX RO112756 15,000.00
RECORDING 14.00
SURCHARGE 2.00

WARRANTY DEED

KNOW ALL BY THESE PRESENTS, that **WEST RIVER ROAD, L.L.C.**, a New Hampshire limited liability company with an address of P.O. Box 2750, Seabrook, New Hampshire 03874, for consideration paid, hereby grant to **ONYX RAYMOND LLC**, a Massachusetts limited liability company with an address of 60 Centre Street, Dover, Massachusetts 02030 with WARRANTY COVENANTS, the following described premises:

A certain tract or parcel of land with any buildings thereon situate northerly of State of N.H. Route 101, a limited access highway in Raymond, Rockingham County, New Hampshire, and shown as Tax Map 22, Lot 45 on a plan entitled "A Survey and Plat of Properties prepared for Hard Rock Development, LLC" dated May 26, 2005, prepared by RSA Layout & Design, Inc. and recorded or to be recorded in the Rockingham County Registry of Deeds, more particularly bounded and described as follows:

Beginning at a steel reinforcing rod on the northerly side of said State of N.H. Route 101 at the westernmost point of Tax Map 23, Lot 24; thence running N 16° 32' 12" E a distance of 566.59 feet to a granite/concrete bound; thence turning and running S 80° 25' 28" E a distance of 166.45 feet to a drill hole in a stone wall; thence running S 77° 51' 08" E a distance of 104.68 feet to a drill hole in a stone wall at land now or formerly of Est. of Josephine F. Welch; thence turning and running N 25° 21' 27" E a distance of 41.75 feet to a drill hole in a stone wall; thence running N 26° 13' 24" E a distance of 236.03 feet to a tree w/wire; thence running N 20° 52' 59" E a distance of 109.97 feet to a drill hole in a stone wall; thence running N 21° 25' 01" E a distance of 65.44 feet to a drill hole in a stone wall; thence running N 24° 23' 29" E a distance of 103.77 feet to a drill hole in a stone wall at land now or formerly of Hard Rock Development, LLC; thence turning and running N 80° 16' 26" W a distance of 195.99 feet to a drill hole in a stone wall; thence running N 79° 24' 32" W a distance of 203.68 feet to a drill hole in a stone wall; thence running N 75° 01' 56" W a distance of 156.10 feet to a drill hole in a stone wall; thence running N 66° 33' 02" W a distance of 18.18 feet to a drill hole in a stone wall at land now or formerly of Robert & Lorraine Sinclair; thence turning and running S 72° 23' 47" W a distance of 521. 89 feet to a drill hole in a stone wall at land now or formerly of the Town of Raymond; thence turning and running S 16° 35' 24" E a distance of 346.11 feet to a steel reinforcing rod at other land now or formerly of the Town of Raymond; thence turning and running S 16° 32' 12" W a distance of 848.67 feet to a point on the northerly side of State of N.H. Route 101; thence turning and running N 69° 40' 56" E a distance of 463.91 feet to a granite/concrete bound; thence turning and running N 78° 16' 37" E a distance of 112.49 feet to a steel reinforcing rod at the point of beginning. Containing 17.8768 acres.

Meaning and intending to convey the same premises conveyed to the Grantor by Warranty Deed of Inez S. Welch dated June 23, 2005 and recorded in the Rockingham County Registry of Deeds at Book 4500, Page 1939.

This is not homestead property.

Signed this 5 day of January, 2022.

West River Road, L.L.C.

By: ____________________
Name: Arleigh B. Greene
Title: Sole Member

STATE OF NEW HAMPSHIRE
COUNTY OF ROCKINGHAM

On this, the 5th day of January, 2022, before me, the undersigned Officer, personally appeared Arleigh B. Greene, as Sole Member of West River Road, L.L.C., known to me, or satisfactorily proven, to be the person whose name is subscribed to the foregoing instrument, and acknowledged that he/she executed the same for the purposes set forth therein.

____
~~Justice of the Peace~~/Notary Public
My commission expires: ____________

KEVIN MICHAEL BAUM
MY COMMISSION EXPIRES FEB. 1, 2022
NOTARY PUBLIC
NEW HAMPSHIRE

E # 22001646 01/11/2022 09:25:49 AM
Book 6373 Page 1273 Page 1 of 3
Register of Deeds, Rockingham County

Cathy Ann Stacey

LCHIP	ROA602936	25.00
TRANSFER TAX	RO112753	773.00
RECORDING		18.00
SURCHARGE		2.00

Return to:

WARRANTY DEED

KNOW ALL BY THESE PRESENTS, that **BBOC DEVELOPMENT, LLC**, a New Hampshire limited liability company with an address of P.O. Box 2750, Seabrook, New Hampshire 03874, for consideration paid, hereby grant to **ONYX RAYMOND LLC,** a Massachusetts limited liability company with an address of 60 Centre Street, Dover, Massachusetts 02030 with WARRANTY COVENANTS, the following described premises:

A certain parcel of land with the buildings thereon situated in Raymond, in the County of Rockingham and State of New Hampshire, identified as Town of Raymond Tax Map 22, Lot 46, bounded and described as follows:

Beginning at an iron monument set into the ground at the end of the Blake passway, so-called, by land of Everett E. Goodwin; thence Westerly by land of the Concord & Portsmouth Railroad 150 rods, more or less, to land formerly of Horatio D. Page; thence turning and running Southwesterly by land formerly of said Page 120 rods; thence Southeasterly by land of Plummer B. Carson 120 rods to land now or formerly of the heirs of Levi Moulton; thence Northeasterly by land of heirs of said Moulton 124 rods to land now or formerly of the Town of Raymond; thence Northwesterly 10 rods, more or less, by land of said Town of Raymond and land now or formerly of Edwin S. Poore to a stone monument; thence Northeasterly by land now or formerly of Edwin S. Poore, land of Stevens, land of Fellows & Abbott, land of heirs of Octavous W. Fellows and land of Everett E. Goodwin to the bound begun at. Containing 112 acres be the same more or less.

Excepting and reserving to the Town of Raymond the right of passing over the land above described or any part thereof which have heretofore been conveyed to said Town which are not to be conveyed or enlarged by this deed. Also a certain other parcel of land situated in said Raymond containing 40 acres be the same more or less, being known as and called the "Bean Land", bounded and described as follows: Southeasterly by land now or formerly of heirs of Daniel Robie; Southwesterly by land now or formerly of Joseph Davis, so-called; Westerly by land now or formerly of heirs of Horatio D. Page; Easterly, so-called, by land now or formerly of Daniel T. Wendell, and Northerly of land of Horatio D. Page.

EXCEPTED from the above-described premises those premises conveyed to Regis Tanning Company, Inc. by deed of Cora P. Falconer dated July 25, 1958 recorded at the Rockingham

County Registry of Deeds at Book 1474, Page 299, more particularly bounded and described as follows:

Two tracts of land with the buildings thereon situated in Raymond, County of Rockingham and State of New Hampshire, bounded and described as follows:

First Tract: Beginning at an iron pipe driven into the ground about 60 feet Westerly from Orchard Street, so-called, in Raymond Village by land now or formerly of the heirs of James L. Jones and land now or formerly of the Concord and Portsmouth Railroad; thence Westerly by land of said Railroad to the end of a stone wall by land now or formerly of Lewis A. Clough; thence Southeasterly by said Clough land to a large oak tree by land now or formerly of Edwin S. Poore; thence Northeasterly by a stone wall by said Poore land and land now or formerly of Fellows and Abbott to land now or formerly of the heirs of Octavous M. Fellows; thence in the same direction by land of the heirs of said Fellows to the bound first mentioned. Containing two acres, more or less.

The grantor also conveys the right of passing on foot and with vehicles for said grantee and his heirs and assigns between the land above described and the highway leading from Packer's Bridge, so-called, and Fremont as heretofore used, over land now or formerly of the Concord and Portsmouth Railroad. Said tract is also subject to rights of passage over a portion of the same for the owners of the land now or formerly of Lewis A. Clough and his assigns to pass from the land of said Clough to said highway as heretofore used by the owners of said land.

Second Tract: Beginning at the Northwest corner of land now or formerly of Aaron G. Whittier; thence North 70 degrees West 12 rods and 50 links to a spotted yellow oak tree; thence North 52 1/2° West 21 rods and 3 links to land now or formerly of the Concord and Portsmouth Railroad; thence by said Railroad Southwesterly 120 rods to land now or formerly of Horatio D. Page; thence turning and running Southwesterly by said Page land 120 rods; thence Southeasterly by land now or formerly of Daniel T. Wendell 120 rods to land now or formerly of Levie Moulton; thence Northeasterly by said Moulton land 124 rods to land now or formerly of said Aaron G. Whittier; thence Northwesterly 10 rods to the bound begun at.

Said premises referenced as contain 110 acres, more or less. There is an unobstructed passage to said tract or lot 2 rods wide agreeable to the reservation in the deed of Sherburne Blake to the Concord and Portsmouth Railroad. Reserving and excepting from said tract about 1 acre of land with the rights of way thereto that has been heretofore deeded to the Town of Raymond for its water works.

Meaning and intending to convey the same premises conveyed to the Grantor by Warranty Deed of the Town of Raymond dated June 30, 2006 and recorded in the Rockingham County Registry of Deeds at Book 4676, Page 1415.

This is not homestead property.

Signed this 5th day of January, 2022.

BBOC Development, LLC

By: ______________________
Name: Arleigh B. Greene
Title: Manager

STATE OF NEW HAMPSHIRE
COUNTY OF ROCKINGHAM

On this, the 5 day of January, 2022, before me, the undersigned Officer, personally appeared Arleigh B. Greene, as Manager of BBOC Development, LLC, known to me, or satisfactorily proven, to be the person whose name is subscribed to the foregoing instrument, and acknowledged that he/she executed the same for the purposes set forth therein.

____
~~Justice of the Pe~~ace/Notary Public
My commission expires: __________

KEVIN MICHAEL BAUM
MY COMMISSION EXPIRES FEB. 1, 2022
NOTARY PUBLIC
NEW HAMPSHIRE

E # 22001647 01/11/2022 09:25:50 AM
Book 6373 Page 1276 Page 1 of 4
Register of Deeds, Rockingham County

Cathy Ann Stacey

LCHIP	ROA602937	25.00
TRANSFER TAX	RO112754	44,040.00
RECORDING		22.00
SURCHARGE		2.00

Return to:

WARRANTY DEED

KNOW ALL BY THESE PRESENTS, that **HARD ROCK DEVELOPMENT, LLC**, a New Hampshire limited liability company with an address of P.O. Box 2750, Seabrook, New Hampshire 03874, for consideration paid, hereby grant to **ONYX RAYMOND LLC,** a Massachusetts limited liability company with an address of 60 Centre Street, Dover, Massachusetts 02030 with WARRANTY COVENANTS, the following described premises:

TRACT 1

A certain tract or parcel of land located off of Old Manchester Road and Industrial Drive in the Town of Raymond, County of Rockingham and State of New Hampshire depicted as "Proposed Lot 120-1" on a plan of land entitled "Subdivision Plan of Land, Tax Map 28-3, Lot 120, Old Manchester Road & Industrial Drive, Raymond, NH" prepared by Eric C. Mitchell & Assoc, Inc. dated July 3, 2007 through revision E dated 4/23/13 recorded at the Rockingham County Registry of Deeds as Plan #D-37834 (hereinafter "Plan"); said parcel is more particularly bounded and described as follows:

Beginning at an iron pin at the southerly boundary of the abandoned railroad bed at the northeasterly corner of land now or formerly of MRCT Realty Co., LLC being the northwesterly corner of the within described premises as shown on said Plan; thence running along said abandoned railroad bed N71°36'16"E a distance of 715.25 feet to an iron pin at Proposed Lot 120 as shown on said Plan; thence turning and running along said Lot 120 S31°13'07"W a distance of 151.62 feet to an iron pin; thence turning and running still along said Lot 120 S58°46'53"E a distance of 273.87 feet to an iron pin; thence continuing along said Lot 120 S77°11'24"E a distance of 1036.64 feet to an iron pipe at Tax Map 28-3, Lot 16 as shown on said Plan; thence turning and running S67°09'04"E a distance of 147.35 feet to a drill hole in a stone wall at Tax Map 23, Lot 25 as shown on said Plan; thence turning and running along said Lot 25 and said stone wall the following eleven (11) courses and distances: S26°10'49"W, 101.34 feet; S24°17'47"W, 184.91 feet; S22°19'55"W, 52.48 feet; S24°22'25"W, 468.12 feet; S24°36'24"W, 337.71 feet; S24°14'00"W, 211.15 feet; S24°38'51"W, 213.98 feet; S33°16'21"W, 113.46 feet; S30°11'49"W, 33.21 feet; S19°03'38"W, 28.80 feet; S15°18'27"W, 14.64 feet to a drill hole at an intersection of stone walls at land now or formerly of West River Road, LLC as shown on said Plan; thence turning and running along said stone wall the following twelve (12) courses and distances:

N80°16'26"W, 195.99 feet; N79°24'32"W, 203.68 feet; N75°01'56"W, 156.10 feet; N66°33'02'W, 18.18 feet; N68°14'32"W, 36.67 feet; N73°57'31"W, 241.16 feet; N87°27'00"W, 39.02 feet; N66°33'27"W, 37.71 feet; N77°46'13"W, 148.15 feet; N79°22'58"W, 112.59 feet; N78°45'03"W, 179.83 feet; N78°45'03"W, 216.16 feet to a stone bound at land now or formerly of MRCT Realty Co., LLC as shown on said Plan; thence turning and running along said MRCT land the following eight (8) courses and distances: N20°24'26"E, 536.20 feet; N17°54'53"E, 108.93 feet; N20°30'13"E, 201.41 feet; N23°40'05"E, 106.20 feet; N21°10'51"E, 168.79 feet; N41°53'34"W, 73.21 feet; N40°25'45"W, 59.21 feet; N38°49'14"W, 146.11 feet to the iron pin at the point of beginning.

Said parcel containing 2,666,114 sq. ft. (61.21 acres), more or less, according to said Plan.

SUBJECT TO AND TOGETHER WITH the burden and benefit of certain rights of the Town of Raymond ("Raymond"), and Hardrock Development, LLC ("Hardrock") and BBOC Development, LLC ("BBOC") (collectively, the "Owners") as set forth in a written Agreement entitled "Second Amendment to Further Agreement re: Exercise of Option and Participation in Clean Up" dated May 2, 2013 and on file with the Raymond Town Clerk's office (the "Agreement"), as follows:

1. License of Raymond to use temporary construction road, to be constructed by the Owners or its assigns upon written notice from Raymond, from Industrial Drive over Lot 120-1 along the old logging road shown on the subdivision plan.

2. The right of Raymond for fifteen (15) years from the date of the Agreement to construct a permanent access road or driveway in a location reasonably and mutually agreed upon and tentatively shown on the Subdivision Plan on Lot 120-1 as "Possible Future Permanent Access Road or Driveway" (See Note 9 on the Plan) and "Proposed 50' Right of Way" on Lot 120 subject to the Reciprocal Option of the Owners or its assigns to upgrade to a Town accepted Road at Owners or its assigns' expense.

The foregoing reserved rights, unless earlier exercised, shall terminate at the earlier of fifteen (15) years from the date of the Agreement or three (3) years after the completion of a municipal waste water treatment facility on Lot 120.

Meaning and intending to convey the same premises conveyed to the Grantor by Warranty Deed of the Town of Raymond dated November 4, 2013 and recorded in the Rockingham County Registry of Deeds at Book 5577, Page 0135 and being shown on Tax Map 28, Block 3, Lot 120-1 on the Town of Raymond tax maps.

TRACT 2

A certain tract of land (with improvements and buildings thereon) located in Raymond, Rockingham County, New Hampshire, described as follows:

All of Lot 52-3 as identified and described on a Plan of Land entitled "Revised Subdivision Plan for Pike Industries, Inc. situated in the town of Raymond" by R.S.L. Layout & Design, Inc., Raymond, New Hampshire dated November 17, 1987 and recorded in the Rockingham County Registry of Deeds as Plan# D-17579, Said Lot 52-3 contains 12.8 acres, more or less.

SUBJECT TO any easements of record and the easements, conditions and restrictions shown and noted on the Plan including, but not limited to the following:

1. Easement to New England Telephone & Telegraph Company dated March 27, 1962, recorded in the Rockingham County Registry of Deeds at Book 1640, Page 39.

2. Easement to New Hampshire Electric Cooperative, Inc. and New England Telephone Company dated May 22, 1974, recorded in said Registry at Book 2227, Page 659.

3. Easement to New Hampshire Electric Cooperative, Inc. and New England Telephone Company dated May 22, 1974, recorded in said Registry at Book 2227, Page 660.

4. Easement to Public Service Company of New Hampshire and New England Telephone and Telegraph Company dated March 29, 1988, recorded in said Registry at Book 2760, Page 2530.

Meaning and intending to convey the same premises conveyed to the Grantor by Warranty Deed of the Town of Raymond dated June 30, 2006 and recorded in the Rockingham County Registry of Deeds at Book 4676, Page 1418 and being shown on Tax Map 22, Lot 47 on the Town of Raymond tax maps.

This is not homestead property.

Signed this 5 day of January, 2022.

Hard Rock Development, LLC

By: ______________________

Name: Arleigh Greene
Title: Manager

STATE OF NEW HAMPSHIRE
COUNTY OF ROCKINGHAM

On this, the 5th day of January, 2022, before me, the undersigned Officer, personally appeared Arleigh Greene, as Manager of Hard Rock Development, LLC, known to me, or satisfactorily proven, to be the person whose name is subscribed to the foregoing instrument, and acknowledged that he/she executed the same for the purposes set forth therein.

J~~ustice of the~~ Peace/Notary Public
My commission expires: ________________

KEVIN MICHAEL BAUM
MY COMMISSION EXPIRES FEB. 1, 2022
NOTARY PUBLIC
NEW HAMPSHIRE

0 foot Abutters List Report

Raymond, NH
July 27, 2022

Subject Properties:

Parcel Number:	022-000-044-000	Mailing Address:	ONYX RAYMOND LLC.
CAMA Number:	022-000-044-000-000		60 CENTRE STREET
Property Address:	INDUSTRIAL DRIVE		DOVER, MA 02030
Parcel Number:	022-000-045-000	Mailing Address:	ONYX RAYMOND LLC.
CAMA Number:	022-000-045-000-000		60 CENTRE STREET
Property Address:	INDUSTRIAL DRIVE		DOVER, MA 02030
Parcel Number:	022-000-046-000	Mailing Address:	ONYX RAYMOND LLC.
CAMA Number:	022-000-046-000-000		60 CENTRE STREET
Property Address:	BATCHELDER ROAD		DOVER, MA 02030
Parcel Number:	022-000-047-000	Mailing Address:	ONYX RAYMOND LLC.
CAMA Number:	022-000-047-000-000		60 CENTRE STREET
Property Address:	INDUSTRIAL DRIVE		DOVER, MA 02030
Parcel Number:	028-003-120-001	Mailing Address:	ONYX RAYMOND LLC.
CAMA Number:	028-003-120-001-000		60 CENTRE STREET
Property Address:	INDUSTRIAL DRIVE		DOVER, MA 02030

Abutters:

Parcel Number:	022-000-043-000	Mailing Address:	MRCT REALTY CO. , LLC
CAMA Number:	022-000-043-000-000		P.O. BOX 449
Property Address:	10 INDUSTRIAL DRIVE		LAWRENCE, MA 01842
Parcel Number:	022-000-048-000	Mailing Address:	RAYMOND AMBULANCE, INC
CAMA Number:	022-000-048-000-000		1 SCRIBNER ROAD
Property Address:	OLD MANCHESTER ROAD		RAYMOND, NH 03077
Parcel Number:	023-000-024-000	Mailing Address:	WELCH, JOAN E
CAMA Number:	023-000-024-000-000		15 NOTTINGHAM ROAD
Property Address:	ROUTE 101		RAYMOND, NH 03077
Parcel Number:	023-000-025-000	Mailing Address:	WELCH,JOSEPH & JOHN & ARDELL &
CAMA Number:	023-000-025-000-000		INEZ BETSY PATTERSON & ROBIN
Property Address:	MAIN STREET		PROULX
			49 RAYMOND ROAD, ROUTE 156
			NOTTINGHAM, NH 03290
Parcel Number:	027-004-032-000	Mailing Address:	BAIN, WARREN
CAMA Number:	027-004-032-000-000		P.O. BOX 123
Property Address:	24 OLD MANCHESTER ROAD		RAYMOND, NH 03077

0 foot Abutters List Report

Raymond, NH
July 27, 2022

Parcel Number:	027-004-033-000	Mailing Address:	RAYMOND SCHOOL DISTRICT
CAMA Number:	027-004-033-000-000		43 HARRIMAN HILL ROAD
Property Address:	OLD MANCHESTER ROAD		RAYMOND, NH 03077
Parcel Number:	028-003-016-000	Mailing Address:	RAYMOND, TOWN OF
CAMA Number:	028-003-016-000-000		4 EPPING STREET
Property Address:	ORCHARD STREET		RAYMOND, NH 03077
Parcel Number:	028-003-043-000	Mailing Address:	RAYMOND, TOWN OF
CAMA Number:	028-003-043-000-000		4 EPPING ST
Property Address:	OLD MANCHESTER ROAD		RAYMOND, NH 03077
Parcel Number:	028-003-120-000	Mailing Address:	RAYMOND, TOWN OF
CAMA Number:	028-003-120-000-000		4 EPPING ST
Property Address:	OLD MANCHESTER ROAD		RAYMOND, NH 03077

STATE OF NEW HAMPSHIRE, DEPT. OF TRANSPORTATION, 7 HAZEN DR, CONCORD, NH 03301

JONES & BEACH ENGINEERS, INC., ATTN. WAYNE MORRILL, PO BOX 219, STRATHAM, NH 03385

ONYX PARTNERS LTD., ATTN. ANTON MELCHIONDA, 200 RESERVOIR ST, NEEDHAM, MA 02494

GOVE ENVIRONMENTAL SERVICES, ATTN. LUKE HURLEY, 8 CONTINENTAL DR, UNIT H, EXETER, NH 03833

BAIN, WARREN
P.O. BOX 123
RAYMOND, NH 03077

MRCT REALTY CO. , LLC
P.O. BOX 449
LAWRENCE, MA 01842

RAYMOND AMBULANCE, INC
1 SCRIBNER ROAD
RAYMOND, NH 03077

RAYMOND SCHOOL DISTRICT
43 HARRIMAN HILL ROAD
RAYMOND, NH 03077

RAYMOND, TOWN OF
4 EPPING ST
RAYMOND, NH 03077

RAYMOND, TOWN OF
4 EPPING STREET
RAYMOND, NH 03077

WELCH, JOAN E
15 NOTTINGHAM ROAD
RAYMOND, NH 03077

WELCH,JOSEPH & JOHN & ARD
BETSY PATTERSON & ROBIN P
49 RAYMOND ROAD, ROUTE 156
NOTTINGHAM, NH 03290

STATE OF NEW HAMPSHIRE
DEPT. OF TRANSPORTATION
7 HAZEN DR
CONCORD, NH 03301

JONES & BEACH ENGINEERS
ATTN. WAYNE MORRILL
PO BOX 219
STRATHAM, NH 03385

ONYX PARTNERS, LTD
ATTN. ANTON MELCHIONDA
200 RESERVOIR ST
NEEDHAM, MA 02494

GOVE ENVIRONMENTAL SERVICES
ATTN. LUKE HURLEY
8 CONTINENTAL DR, UNIT H
EXETER, NH 03833

Raymond, NH

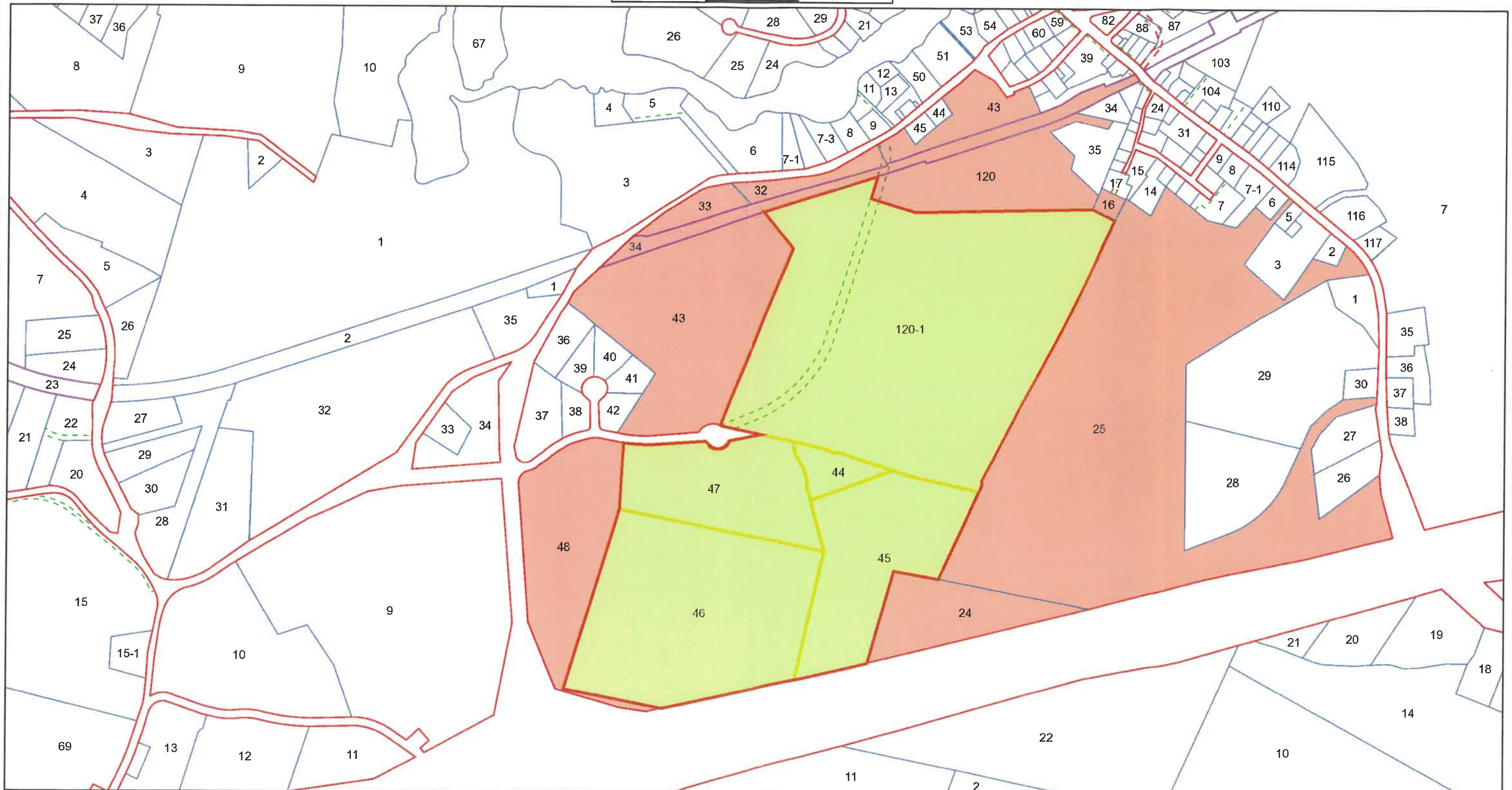
1 inch = 550 Feet

0 550 1101 1652

July 27, 2022

CAI Technologies
Precision Mapping. Geospatial Solutions.

www.cai-tech.com



Data shown on this map is provided for planning and informational purposes only. The municipality and CAI Technologies are not responsible for any use for other purposes or misuse or misrepresentation of this map.

TOWN OF RAYMOND, NEW HAMPSHIRE DEPARTMENT OF PUBLIC WORKS

603-895-7036

DRIVEWAY PERMIT

PERMIT NUMBER: ______________ DATE: 8-17-22

Is this a temporary permit? [ ] Yes [X] No

Pursuant to NH RSA 236:13, pertinent provisions of the TOWN OF RAYMOND, NEW HAMPSHIRE code, regulations and relevant amendments, anyone wishing to move an existing driveway or install a new driveway to access a Town controlled road must secure an approved DRIVEWAY PERMIT from the Department of Public Works.

Applicant Name: Onyx Partners LTD

Fee Paid: ______________

Applicant Address: 60 Center Street, Dover, MA

Map / Lot Number: Map 28, Lot 120-1

Cell Phone: 617-680-9308

Email: anton@onyxpartnersltd.com

PERMIT FEE:	$94.00
TEMPORARY PERMIT FEE:	$16.00

DRIVEWAY INFORMATION:

Driveway Address:

Driveway status? New [ ] Existing [X]

Will this driveway provide access to a residential use? Yes [ ] No [X]

Will driveway serve more than one dwelling unit? Yes [ ] No [X]

Will this driveway provide access to a commercial use? Yes [X] No [ ]

Proposed surface material? Asphalt Pavement [X] Concrete Pavement [ ] Gravel [ ]

Will construction impact? Sidewalk [ ] Curbing [ ] Stonewall [ ] Tree(s) with Town ROW [ ]

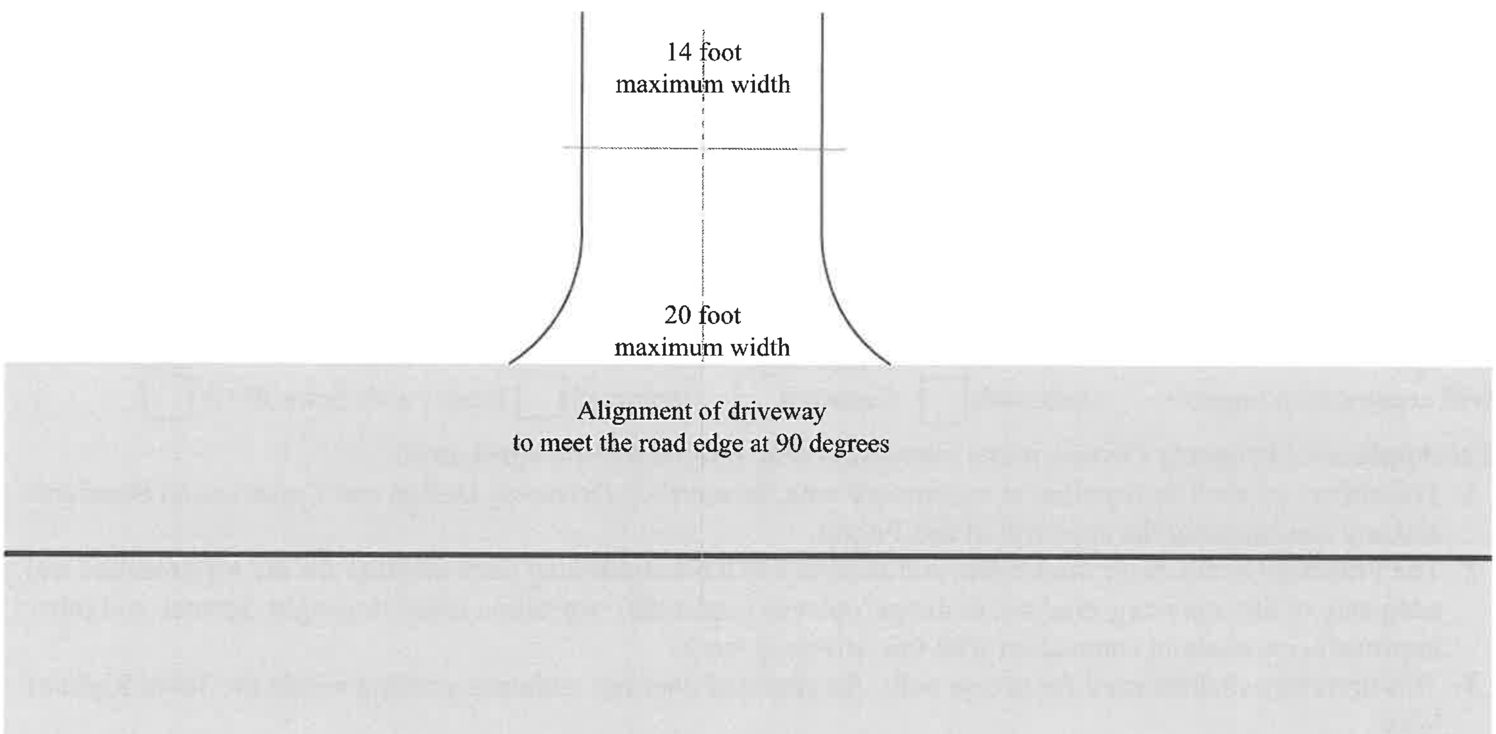
The Applicant / Property Owner, heirs, successors and assigns hereby agree that:

1. This driveway shall be installed in accordance with the attached Driveway Design and Construction Standards and any conditions to the approval of this Permit.
2. The Property Owner, heirs, successors and assigns will have continuing responsibility for the maintenance and adequacy of the driveway, grading, drainage, culvert, headwalls, vegetation impacting sight distance and other improvements made in connection with this driveway work.
3. This driveway shall be used for access only. An approval does not authorize parking within the Town Right of Way.
4. The Property Owner, heirs, successors and assigns shall hold harmless the Town of Raymond, its agents, employees and Boards against any action for injury or damage sustained by reason of exercising this DRIVEWAY PERMIT.
5. This parcel shall have no more than one driveway.
6. The final decision regarding driveway location and construction requirements rest with the Director of Public Works.
7. This Permit will expire in 1 year from the approval date if work is not completed per requirements.

PERMIT NUMBER: ___________

Design and Construction Standards

1. Within 25 feet of the Town road, a driveway shall not exceed 14 feet in width and transition to a maximum of 20 feet. The transition shall include a radius at each sideline of the driveway where it meets the road. The radius shall be a minimum of 8 feet.
2. To protect the road edge, all driveways shall be paved for a minimum distance of 10 feet from the road edge for the full width of the driveway and its radius transitions.
3. Pavement shall consist of bituminous asphalt concrete, concrete or smooth paving stones.
4. The driveway surface may change to gravel or other surface types beyond the required 10 foot paved apron.
5. Driveways shall meet the sideline of the street at 90 degrees.
6. Driveway grading at the driveway apron where it meets the road shall slope back away from the road surface at a minimum of 2% slope. No runoff from the driveway shall flow into the road.



CONTRACTOR: Tom Severino, Severino Trucking Date: 8-17-22

Office Phone Number: 603-483-7002 Cell Phone: 603-234-8502

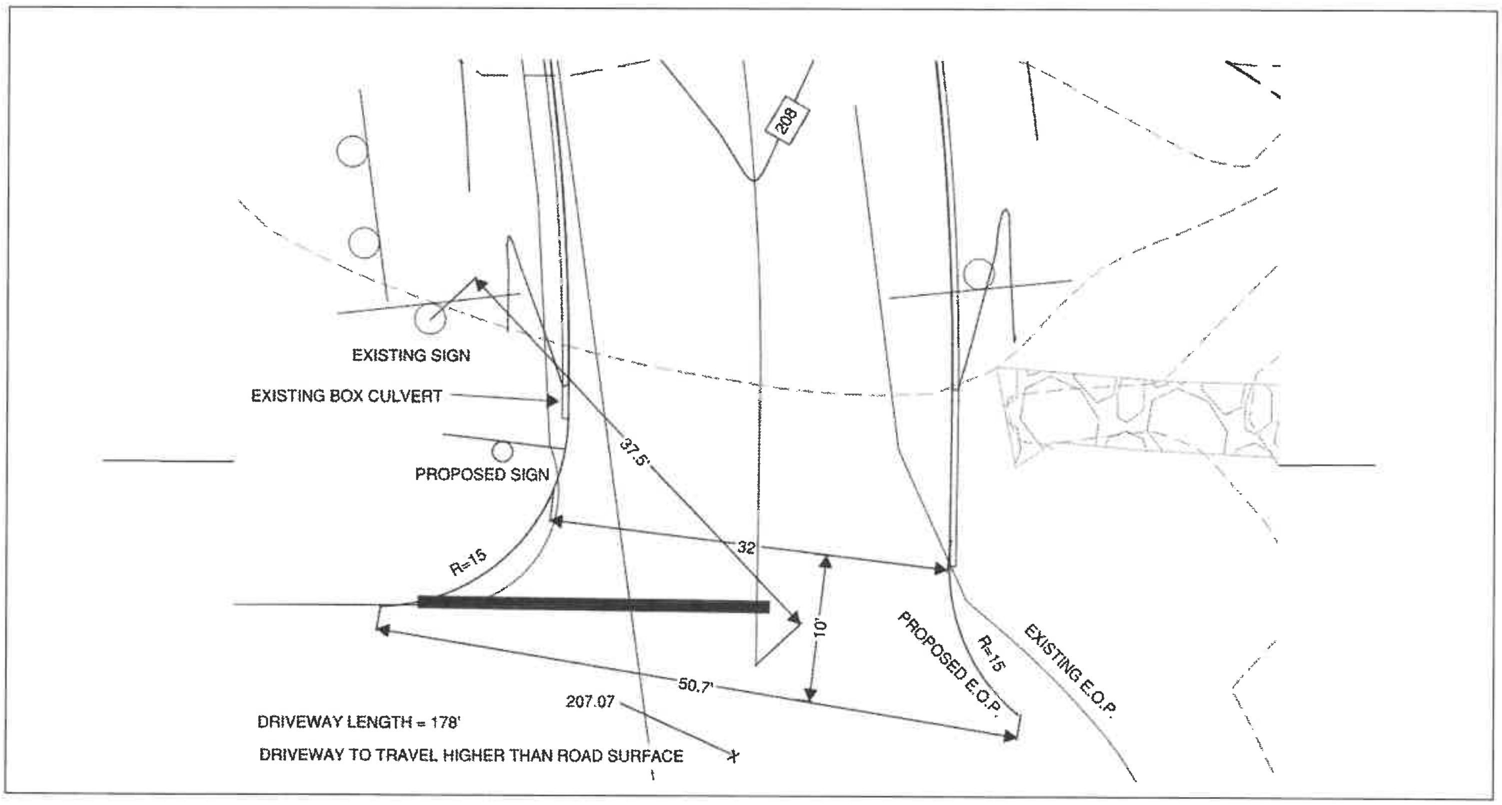
☐ APPROVED ☐ DENIED

DIRECTOR OF PUBLIC WORKS: ______________________ Date: __________

PERMIT NUMBER: ___________

Provide a sketch of the proposed driveway location, dimensional and topographic information.

1. Location information to include horizontal distance from the point where the driveway center line meets the edge of the road to a nearby fixed landmark such as a utility pole.
2. Dimensional information to include driveway width at the street, width at a point 10 feet in from the edge of the road pavement, radius, overall length of driveway.
3. Topographic information to identify whether the driveway profile will travel higher than the road surface or drop below the road surface. Provide information regarding existing road side drainage facilities.



CONDITIONS OF APPROVAL:

JONES&BEACH
ENGINEERS INC.

85 Portsmouth Avenue, PO Box 219, Stratham, NH 03885
603.772.4746 - JonesandBeach.com

October 5, 2022

Raymond Planning Board
Attn. Brad Reed, Chair
4 Epping Street
Raymond, NH 03077

RE: Special Permit Application
Industrial Drive, Raymond, NH
Tax Map 22, Lots 44, 45, 46 7 47
Tax Map 28, Block 3, Lot 120-1
JBE Project No. 21130

Dear Mr. Reed,

Jones & Beach Engineers, Inc. respectfully submits a Special Permit Application for the above-referenced parcels on behalf of our client, ONYX Partners LTD. The intent of this application is to propose a 550,025 S.F. industrial distribution warehouse with associated loading docks, truck parking, and employee vehicle parking which will require wetlands to be filled.

The following items are provided in support of this Application:

1. Special Permit Application
2. Letters of Authorization.
3. Current Deeds.
4. Fee Check in the amount of $220.00.
5. Abutters List & Mailing Labels (3 sets).
6. Tax Map.

If you have any questions or need any additional information, please feel free to contact our office. Thank you very much for your time.

Very truly yours,
JONES & BEACH ENGINEERS, INC.

Wayne Morrill
President

cc: Anton Melchionda, ONYX Partners LTD (application and plans via email)
Jeff Adler, DuBois & King (application & plans via email & U.S. Mail)

Application for Special Permit

Town of Raymond, NH

Site Information

Property Address: Industrial Drive

Map #: 22 Lot #: 44, 45, 46 & 47
Map 28, Block 3, Lot 120-1

Property Owner Information

Name: Onyx Raymond, LLC Phone:

Address: 60 Centre Street, Dover, MA 02030

Address:

Applicant/Agent Information

Name: Anton Melchionda, Onyx Partners, Ltd. Phone: 617-835-4770

Address: 200 Reservoir Street, Needham, MA 02494

Address:

Project Description

To propose a 550,025 S.F. industrial distribution warehouse which will require wetland fill.

Applicant Signature* (see page 2): **Date:** 10-5-22

Submission Checklist

- ***COMPLETED & SIGNED APPLICATION.** If the applicant is NOT the property owner, a notarized letter of permission from the property owner is required to be submitted with this application.

- **LIST OF ABUTTERS.** The list of abutters must include the following information:
  - Name of property owner(s)
  - Address of property owner(s)
  - Name of abutting property owner(s)
  - Address of abutting property owner(s)
  - Tax Map and Lot Numbers for all properties listed
  - Name and Address of any agents authorized by the applicant to represent them and whose professional seal appears on a plat submitted to the Planning Board (i.e. land surveyors, wetland scientists, engineers, etc.)

  (For more information, please refer to NH Revised Statues Annotated 672:3 for a definition of the term "abutter," and RSA 676:4 for legal notice requirements).

- **APPLICATION FEE.** The application fee to the Planning Board for a Special Permit is as follows:
  - $100.00 base application fee, plus;
  - $10.00 per abutter (including the applicant, property owner(s), and any agents authorized to represent the property owner(s))
  - **When writing a check, this amount must be kept separate from the Escrow Account (see below).** Please make checks payable to the Town of Raymond.

- **ESCROW ACCOUNT.** This is a separate account established by the applicant to cover the cost of any additional legal notification, engineering review, legal review, document recording or outside copying incurred by the Town. Any unused funds will be returned to the applicant.
  - $250.00 – Minimum amount required to establish Escrow Account.
  - **When writing a check, this amount must be kept separate from the Application Fee (see above).** Please make checks payable to the Town of Raymond.

- **PLANS.**
  - One (1) 24" x 36" copy of the plan, plus ten (10) 11" x 17" copies shall be provided.

    -OR-

  - If the original plan is smaller than 24" x 36" in size, then one (1) copy of the original plan, plus ten (10) 11" x 17" copies of the plan shall be provided.

Letter of Authorization

I, Anton Melchionda, ONYX Partners LTD, 200 Reservoir Street, Needham, MA 02494, developer of property located in Raymond, NH, known as Tax Map 22, Lots 44, 45, 46 & 47 and Tax Map 28, Block 3, Lot 120-1, do hereby authorize Jones & Beach Engineers, Inc., PO Box 219, Stratham, NH, to act on my behalf concerning the previously mentioned property. The parcels are located on Industrial Drive in Raymond, NH.

I hereby appoint Jones & Beach Engineers, Inc., as my agent to act on my behalf in the review process, to include any required signatures.

Witness

Anton Melchionda
ONYX Partners LTD

5/3/22
Date

Personally, appeared the above-named Anton Melchionda, known to me or satisfactorily proven to be the person whose signature appears on this letter of authorization and acknowledged that the facts contained in the letter of authorization are true based upon their knowledge, information, and belief. Before me,

Notary Public/Justice of the Peace

My commission expires 9/26/25

AARON K. HINCHLIFFE
MY COMMISSION EXPIRES
SEPTEMBER 26, 2025
NOTARY PUBLIC
COMMONWEALTH OF MASSACHUSETTS

Letter of Authorization

ONYX Raymond LLC. 60 Centre Street. Dover, MA 02030. owner of property located in Raymond, NH, known as Tax Map 22. Lots 44. 45, 46 & 47 and Tax Map 28. Block 3, Lot 120-1. do hereby authorize Jones & Beach Engineers. Inc.. PO Box 219, Stratham, NH. to act on my behalf concerning the previously mentioned property. The parcels are located on Industrial Drive in Raymond. NH.

I hereby appoint Jones & Beach Engineers, Inc., as my agent to act on my behalf in the review process. to include any required signatures.

Witness | ONYX Raymond LLC | 5/3/22 Date

Personally, appeared the above-named ONYX Raymond LLC, known to me or satisfactorily proven to be the person whose signature appears on this letter of authorization and acknowledged that the facts contained in the letter of authorization are true based upon their knowledge, information, and belief. Before me,

Notary Public/Justice of the Peace

My commission expires 9/26/25

AARON K. HINCHLIFFE
MY COMMISSION EXPIRES SEPTEMBER 26, 2025
NOTARY PUBLIC
COMMONWEALTH OF MASSACHUSETTS

E # 22001[illegible] 01/11/2022 [illegible] AM
Book 6373 Page 1280 Page 1 of 2
Register of Deeds, Rockingham County

LCHIP [illegible] 25.00
TRANSFER TAX [illegible] [illegible]
RECORDING [illegible]
SURCHARGE 2.00

Return to:

WARRANTY DEED

KNOW ALL BY THESE PRESENTS, that **STOLI PROPERTIES, LLC**, a New Hampshire limited liability company with an address of P.O. Box 2758, Seabrook, New Hampshire 03874, pursuant to the provisions of NH RSA 304-C:139 for winding up the business of said company, for consideration paid, hereby grant to **ONYX RAYMOND LLC**, a Massachusetts limited liability company with an address of 60 Centre Street, Dover, Massachusetts 02030 with WARRANTY COVENANTS, the following described premises:

A certain piece of wood land situated in Raymond, County of Rockingham, State of New Hampshire, bounded and described as follows:

Commencing at land now or formerly of Aaron G. Whittier running northeast by a cart path 34 rods to a stone wall on the Blake land, so-called; thence northwest by a stone wall 38 rods to land now or formerly of Aaron G. Whittier land by a stone wall southeast 20½ rods to the first bound mentioned; containing two and one half (2½) acres, be the same more or less.

Meaning and intending to convey the same premises conveyed to the Grantor by Warranty Deed of Robert Sinclair and Lorraine Sinclair dated May 16, 2005 and recorded in the Rockingham County Registry of Deeds at Book 4481, Page 108 and being shown on Tax Map 22, Lot 44 on the Town of Raymond tax maps.

This is not homestead property.

Signed this 5 day of January, 2022.

Stoli Properties, LLC

By:
Name: Arleigh B. Greene
Title: Manager

E # 22001649 01/11/2022 09:25:52 AM
Book 6373 Page 1282 Page 1 of 2
Register of Deeds, Rockingham County

Cathy Ann Stacey

LCHIP	ROA602939	25.00
TRANSFER TAX	RO112756	15,000.00
RECORDING		14.00
SURCHARGE		2.00

Return to:

WARRANTY DEED

KNOW ALL BY THESE PRESENTS, that **WEST RIVER ROAD, L.L.C.**, a New Hampshire limited liability company with an address of P.O. Box 2750, Seabrook, New Hampshire 03874, for consideration paid, hereby grant to **ONYX RAYMOND LLC**, a Massachusetts limited liability company with an address of 60 Centre Street, Dover, Massachusetts 02030 with WARRANTY COVENANTS, the following described premises:

A certain tract or parcel of land with any buildings thereon situate northerly of State of N.H. Route 101, a limited access highway in Raymond, Rockingham County, New Hampshire, and shown as Tax Map 22, Lot 45 on a plan entitled "A Survey and Plat of Properties prepared for Hard Rock Development, LLC" dated May 26, 2005, prepared by RSA Layout & Design, Inc. and recorded or to be recorded in the Rockingham County Registry of Deeds, more particularly bounded and described as follows:

Beginning at a steel reinforcing rod on the northerly side of said State of N.H. Route 101 at the westernmost point of Tax Map 23, Lot 24; thence running N 16° 32' 12" E a distance of 566.59 feet to a granite/concrete bound; thence turning and running S 80° 25' 28" E a distance of 166.45 feet to a drill hole in a stone wall; thence running S 77° 51' 08" E a distance of 104.68 feet to a drill hole in a stone wall at land now or formerly of Est. of Josephine F. Welch; thence turning and running N 25° 21' 27" E a distance of 41.75 feet to a drill hole in a stone wall; thence running N 26° 13' 24" E a distance of 236.03 feet to a tree w/wire; thence running N 20° 52' 59" E a distance of 109.97 feet to a drill hole in a stone wall; thence running N 21° 25' 01" E a distance of 65.44 feet to a drill hole in a stone wall; thence running N 24° 23' 29" E a distance of 103.77 feet to a drill hole in a stone wall at land now or formerly of Hard Rock Development, LLC; thence turning and running N 80° 16' 26" W a distance of 195.99 feet to a drill hole in a stone wall; thence running N 79° 24' 32" W a distance of 203.68 feet to a drill hole in a stone wall; thence running N 75° 01' 56" W a distance of 156.10 feet to a drill hole in a stone wall; thence running N 66° 33' 02" W a distance of 18.18 feet to a drill hole in a stone wall at land now or formerly of Robert & Lorraine Sinclair; thence turning and running S 72° 23' 47" W a distance of 521. 89 feet to a drill hole in a stone wall at land now or formerly of the Town of Raymond; thence turning and running S 16° 35' 24" E a distance of 346.11 feet to a steel reinforcing rod at other land now or formerly of the Town of Raymond; thence turning and running S 16° 32' 12" W a distance of 848.67 feet to a point on the northerly side of State of N.H. Route 101; thence turning and running N 69° 40' 56" E a distance of 463.91 feet to a granite/concrete bound; thence turning and running N 78° 16' 37" E a distance of 112.49 feet to a steel reinforcing rod at the point of beginning. Containing 17.8768 acres.

Meaning and intending to convey the same premises conveyed to the Grantor by Warranty Deed of Inez S. Welch dated June 23, 2005 and recorded in the Rockingham County Registry of Deeds at Book 4500, Page 1939.

This is not homestead property.

Signed this 5 day of January, 2022.

West River Road, L.L.C.

By: ______________________
Name: Arleigh B. Greene
Title: Sole Member

STATE OF NEW HAMPSHIRE
COUNTY OF ROCKINGHAM

On this, the 5th day of January, 2022, before me, the undersigned Officer, personally appeared Arleigh B. Greene, as Sole Member of West River Road, L.L.C., known to me, or satisfactorily proven, to be the person whose name is subscribed to the foregoing instrument, and acknowledged that he/she executed the same for the purposes set forth therein.

____
~~Justice of the Peace~~/Notary Public
My commission expires: ______

KEVIN MICHAEL BAUM
MY COMMISSION EXPIRES FEB. 1, 2022
NOTARY PUBLIC
NEW HAMPSHIRE

E # 22001646 01/11/2022 09:25:49 AM
Book 6373 Page 1273 Page 1 of 3
Register of Deeds, Rockingham County

Cathy Ann Stacey

LCHIP	ROA602936	25.00
TRANSFER TAX	RO112753	773.00
RECORDING		18.00
SURCHARGE		2.00

Return to:

WARRANTY DEED

KNOW ALL BY THESE PRESENTS, that **BBOC DEVELOPMENT, LLC**, a New Hampshire limited liability company with an address of P.O. Box 2750, Seabrook, New Hampshire 03874, for consideration paid, hereby grant to **ONYX RAYMOND LLC**, a Massachusetts limited liability company with an address of 60 Centre Street, Dover, Massachusetts 02030 with WARRANTY COVENANTS, the following described premises:

A certain parcel of land with the buildings thereon situated in Raymond, in the County of Rockingham and State of New Hampshire, identified as Town of Raymond Tax Map 22, Lot 46, bounded and described as follows:

Beginning at an iron monument set into the ground at the end of the Blake passway, so-called, by land of Everett E. Goodwin; thence Westerly by land of the Concord & Portsmouth Railroad 150 rods, more or less, to land formerly of Horatio D. Page; thence turning and running Southwesterly by land formerly of said Page 120 rods; thence Southeasterly by land of Plummer B. Carson 120 rods to land now or formerly of the heirs of Levi Moulton; thence Northeasterly by land of heirs of said Moulton 124 rods to land now or formerly of the Town of Raymond; thence Northwesterly 10 rods, more or less, by land of said Town of Raymond and land now or formerly of Edwin S. Poore to a stone monument; thence Northeasterly by land now or formerly of Edwin S. Poore, land of Stevens, land of Fellows & Abbott, land of heirs of Octavous W. Fellows and land of Everett E. Goodwin to the bound begun at. Containing 112 acres be the same more or less.

Excepting and reserving to the Town of Raymond the right of passing over the land above described or any part thereof which have heretofore been conveyed to said Town which are not to be conveyed or enlarged by this deed. Also a certain other parcel of land situated in said Raymond containing 40 acres be the same more or less, being known as and called the "Bean Land", bounded and described as follows: Southeasterly by land now or formerly of heirs of Daniel Robie; Southwesterly by land now or formerly of Joseph Davis, so-called; Westerly by land now or formerly of heirs of Horatio D. Page; Easterly, so-called, by land now or formerly of Daniel T. Wendell, and Northerly of land of Horatio D. Page.

EXCEPTED from the above-described premises those premises conveyed to Regis Tanning Company, Inc. by deed of Cora P. Falconer dated July 25, 1958 recorded at the Rockingham

County Registry of Deeds at Book 1474, Page 299, more particularly bounded and described as follows:

Two tracts of land with the buildings thereon situated in Raymond, County of Rockingham and State of New Hampshire, bounded and described as follows:

First Tract: Beginning at an iron pipe driven into the ground about 60 feet Westerly from Orchard Street, so-called, in Raymond Village by land now or formerly of the heirs of James L. Jones and land now or formerly of the Concord and Portsmouth Railroad; thence Westerly by land of said Railroad to the end of a stone wall by land now or formerly of Lewis A. Clough; thence Southeasterly by said Clough land to a large oak tree by land now or formerly of Edwin S. Poore; thence Northeasterly by a stone wall by said Poore land and land now or formerly of Fellows and Abbott to land now or formerly of the heirs of Octavous M. Fellows; thence in the same direction by land of the heirs of said Fellows to the bound first mentioned. Containing two acres, more or less.

The grantor also conveys the right of passing on foot and with vehicles for said grantee and his heirs and assigns between the land above described and the highway leading from Packer's Bridge, so-called, and Fremont as heretofore used, over land now or formerly of the Concord and Portsmouth Railroad. Said tract is also subject to rights of passage over a portion of the same for the owners of the land now or formerly of Lewis A. Clough and his assigns to pass from the land of said Clough to said highway as heretofore used by the owners of said land.

Second Tract: Beginning at the Northwest corner of land now or formerly of Aaron G. Whittier; thence North 70 degrees West 12 rods and 50 links to a spotted yellow oak tree; thence North 52 1/2° West 21 rods and 3 links to land now or formerly of the Concord and Portsmouth Railroad; thence by said Railroad Southwesterly 120 rods to land now or formerly of Horatio D. Page; thence turning and running Southwesterly by said Page land 120 rods; thence Southeasterly by land now or formerly of Daniel T. Wendell 120 rods to land now or formerly of Levie Moulton; thence Northeasterly by said Moulton land 124 rods to land now or formerly of said Aaron G. Whittier; thence Northwesterly 10 rods to the bound begun at.

Said premises referenced as contain 110 acres, more or less. There is an unobstructed passage to said tract or lot 2 rods wide agreeable to the reservation in the deed of Sherburne Blake to the Concord and Portsmouth Railroad. Reserving and excepting from said tract about 1 acre of land with the rights of way thereto that has been heretofore deeded to the Town of Raymond for its water works.

Meaning and intending to convey the same premises conveyed to the Grantor by Warranty Deed of the Town of Raymond dated June 30, 2006 and recorded in the Rockingham County Registry of Deeds at Book 4676, Page 1415.

This is not homestead property.

Signed this 5th day of January, 2022.

BBOC Development, LLC

By: [signature]
Name: Arleigh B. Greene
Title: Manager

STATE OF NEW HAMPSHIRE
COUNTY OF ROCKINGHAM

On this, the 5 day of January, 2022, before me, the undersigned Officer, personally appeared Arleigh B. Greene, as Manager of BBOC Development, LLC, known to me, or satisfactorily proven, to be the person whose name is subscribed to the foregoing instrument, and acknowledged that he/she executed the same for the purposes set forth therein.

[signature]
~~Justice of the Peace~~/Notary Public
My commission expires: ________

KEVIN MICHAEL BAUM
MY COMMISSION EXPIRES FEB. 1, 2022
NOTARY PUBLIC
NEW HAMPSHIRE

E # 22001647 01/11/2022 09:25:50 AM
Book 6373 Page 1276 Page 1 of 4
Register of Deeds, Rockingham County
Cathy Ann Stacey

LCHIP ROA602937 25.00
TRANSFER TAX RO112754 44,040.00
RECORDING 22.00
SURCHARGE 2.00

Return to:

WARRANTY DEED

KNOW ALL BY THESE PRESENTS, that **HARD ROCK DEVELOPMENT, LLC**, a New Hampshire limited liability company with an address of P.O. Box 2750, Seabrook, New Hampshire 03874, for consideration paid, hereby grant to **ONYX RAYMOND LLC**, a Massachusetts limited liability company with an address of 60 Centre Street, Dover, Massachusetts 02030 with WARRANTY COVENANTS, the following described premises:

TRACT 1

A certain tract or parcel of land located off of Old Manchester Road and Industrial Drive in the Town of Raymond, County of Rockingham and State of New Hampshire depicted as "Proposed Lot 120-1" on a plan of land entitled "Subdivision Plan of Land, Tax Map 28-3, Lot 120, Old Manchester Road & Industrial Drive, Raymond, NH" prepared by Eric C. Mitchell & Assoc, Inc. dated July 3, 2007 through revision E dated 4/23/13 recorded at the Rockingham County Registry of Deeds as Plan #D-37834 (hereinafter "Plan"); said parcel is more particularly bounded and described as follows:

Beginning at an iron pin at the southerly boundary of the abandoned railroad bed at the northeasterly corner of land now or formerly of MRCT Realty Co., LLC being the northwesterly corner of the within described premises as shown on said Plan; thence running along said abandoned railroad bed N71°36'16"E a distance of 715.25 feet to an iron pin at Proposed Lot 120 as shown on said Plan; thence turning and running along said Lot 120 S31°13'07"W a distance of 151.62 feet to an iron pin; thence turning and running still along said Lot 120 S58°46'53"E a distance of 273.87 feet to an iron pin; thence continuing along said Lot 120 S77°11'24"E a distance of 1036.64 feet to an iron pipe at Tax Map 28-3, Lot 16 as shown on said Plan; thence turning and running S67°09'04"E a distance of 147.35 feet to a drill hole in a stone wall at Tax Map 23, Lot 25 as shown on said Plan; thence turning and running along said Lot 25 and said stone wall the following eleven (11) courses and distances: S26°10'49"W, 101.34 feet; S24°17'47"W, 184.91 feet; S22°19'55"W, 52.48 feet; S24°22'25"W, 468.12 feet; S24°36'24"W, 337.71 feet; S24°14'00"W, 211.15 feet; S24°38'51"W, 213.98 feet; S33°16'21"W, 113.46 feet; S30°11'49"W, 33.21 feet; S19°03'38"W, 28.80 feet; S15°18'27"W, 14.64 feet to a drill hole at an intersection of stone walls at land now or formerly of West River Road, LLC as shown on said Plan; thence turning and running along said stone wall the following twelve (12) courses and distances:

N80°16'26"W, 195.99 feet; N79°24'32"W, 203.68 feet; N75°01'56"W, 156.10 feet; N66°33'02'W, 18.18 feet; N68°14'32"W, 36.67 feet; N73°57'31"W, 241.16 feet; N87°27'00"W, 39.02 feet; N66°33'27"W, 37.71 feet; N77°46'13"W, 148.15 feet; N79°22'58"W, 112.59 feet; N78°45'03"W, 179.83 feet; N78°45'03"W, 216.16 feet to a stone bound at land now or formerly of MRCT Realty Co., LLC as shown on said Plan; thence turning and running along said MRCT land the following eight (8) courses and distances: N20°24'26"E, 536.20 feet; N17°54'53"E, 108.93 feet; N20°30'13"E, 201.41 feet; N23°40'05"E, 106.20 feet; N21°10'51"E, 168.79 feet; N41°53'34"W, 73.21 feet; N40°25'45"W, 59.21 feet; N38°49'14"W, 146.11 feet to the iron pin at the point of beginning.

Said parcel containing 2,666,114 sq. ft. (61.21 acres), more or less, according to said Plan.

SUBJECT TO AND TOGETHER WITH the burden and benefit of certain rights of the Town of Raymond ("Raymond"), and Hardrock Development, LLC ("Hardrock") and BBOC Development, LLC ("BBOC") (collectively, the "Owners") as set forth in a written Agreement entitled "Second Amendment to Further Agreement re: Exercise of Option and Participation in Clean Up" dated May 2, 2013 and on file with the Raymond Town Clerk's office (the "Agreement"), as follows:

1. License of Raymond to use temporary construction road, to be constructed by the Owners or its assigns upon written notice from Raymond, from Industrial Drive over Lot 120-1 along the old logging road shown on the subdivision plan.

2. The right of Raymond for fifteen (15) years from the date of the Agreement to construct a permanent access road or driveway in a location reasonably and mutually agreed upon and tentatively shown on the Subdivision Plan on Lot 120-1 as "Possible Future Permanent Access Road or Driveway" (See Note 9 on the Plan) and "Proposed 50' Right of Way" on Lot 120 subject to the Reciprocal Option of the Owners or its assigns to upgrade to a Town accepted Road at Owners or its assigns' expense.

The foregoing reserved rights, unless earlier exercised, shall terminate at the earlier of fifteen (15) years from the date of the Agreement or three (3) years after the completion of a municipal waste water treatment facility on Lot 120.

Meaning and intending to convey the same premises conveyed to the Grantor by Warranty Deed of the Town of Raymond dated November 4, 2013 and recorded in the Rockingham County Registry of Deeds at Book 5577, Page 0135 and being shown on Tax Map 28, Block 3, Lot 120-1 on the Town of Raymond tax maps.

TRACT 2

A certain tract of land (with improvements and buildings thereon) located in Raymond, Rockingham County, New Hampshire, described as follows:

All of Lot 52-3 as identified and described on a Plan of Land entitled "Revised Subdivision Plan for Pike Industries, Inc. situated in the town of Raymond" by R.S.L. Layout & Design, Inc., Raymond, New Hampshire dated November 17, 1987 and recorded in the Rockingham County Registry of Deeds as Plan# D-17579, Said Lot 52-3 contains 12.8 acres, more or less.

SUBJECT TO any easements of record and the easements, conditions and restrictions shown and noted on the Plan including, but not limited to the following:

1. Easement to New England Telephone & Telegraph Company dated March 27, 1962, recorded in the Rockingham County Registry of Deeds at Book 1640, Page 39.

2. Easement to New Hampshire Electric Cooperative, Inc. and New England Telephone Company dated May 22, 1974, recorded in said Registry at Book 2227, Page 659.

3. Easement to New Hampshire Electric Cooperative, Inc. and New England Telephone Company dated May 22, 1974, recorded in said Registry at Book 2227, Page 660.

4. Easement to Public Service Company of New Hampshire and New England Telephone and Telegraph Company dated March 29, 1988, recorded in said Registry at Book 2760, Page 2530.

Meaning and intending to convey the same premises conveyed to the Grantor by Warranty Deed of the Town of Raymond dated June 30, 2006 and recorded in the Rockingham County Registry of Deeds at Book 4676, Page 1418 and being shown on Tax Map 22, Lot 47 on the Town of Raymond tax maps.

This is not homestead property.

Signed this 5 day of January, 2022.

Hard Rock Development, LLC

By: ______________________
Name: Arleigh Greene
Title: Manager

STATE OF NEW HAMPSHIRE
COUNTY OF ROCKINGHAM

On this, the 5th day of January, 2022, before me, the undersigned Officer, personally appeared Arleigh Greene, as Manager of Hard Rock Development, LLC, known to me, or satisfactorily proven, to be the person whose name is subscribed to the foregoing instrument, and acknowledged that he/she executed the same for the purposes set forth therein.

J~~ustice of the~~ Peace/Notary Public
My commission expires: ______________

KEVIN MICHAEL BAUM
MY COMMISSION EXPIRES FEB. 1, 2022
NOTARY PUBLIC
NEW HAMPSHIRE

0 foot Abutters List Report

Raymond, NH
October 05, 2022

Subject Properties:

Parcel Number:	022-000-044-000	Mailing Address:	ONYX RAYMOND LLC.
CAMA Number:	022-000-044-000-000		200 RESERVOIR STREET SUITE 306
Property Address:	INDUSTRIAL DRIVE		NEEDHAM, MA 02494
Parcel Number:	022-000-045-000	Mailing Address:	ONYX RAYMOND LLC.
CAMA Number:	022-000-045-000-000		200 RESERVOIR STREET SUITE 306
Property Address:	INDUSTRIAL DRIVE		NEEDHAM, MA 02494
Parcel Number:	022-000-046-000	Mailing Address:	ONYX RAYMOND LLC.
CAMA Number:	022-000-046-000-000		200 RESERVOIR STREET SUITE 306
Property Address:	BATCHELDER ROAD		NEEDHAM, MA 02494
Parcel Number:	022-000-047-000	Mailing Address:	ONYX RAYMOND LLC.
CAMA Number:	022-000-047-000-000		200 RESERVOIR STREET SUITE 306
Property Address:	INDUSTRIAL DRIVE		NEEDHAM, MA 02494
Parcel Number:	028-003-120-001	Mailing Address:	ONYX RAYMOND LLC.
CAMA Number:	028-003-120-001-000		200 RESERVOIR STREET SUITE 306
Property Address:	INDUSTRIAL DRIVE		NEEDHAM, MA 02494

Abutters:

Parcel Number:	022-000-043-000	Mailing Address:	MRCT REALTY CO. , LLC
CAMA Number:	022-000-043-000-000		P.O. BOX 449
Property Address:	10 INDUSTRIAL DRIVE		LAWRENCE, MA 01842
Parcel Number:	022-000-048-000	Mailing Address:	RAYMOND AMBULANCE, INC
CAMA Number:	022-000-048-000-000		1 SCRIBNER ROAD
Property Address:	OLD MANCHESTER ROAD		RAYMOND, NH 03077
Parcel Number:	023-000-024-000	Mailing Address:	TUCK REALTY CORPORATION
CAMA Number:	023-000-024-000-000		P.O. BOX 190
Property Address:	ROUTE 101		EXETER, NH 03833
Parcel Number:	023-000-025-000	Mailing Address:	WELCH,JOSEPH & JOHN & ARDELL &
CAMA Number:	023-000-025-000-000		INEZ BETSY PATTERSON & ROBIN
Property Address:	MAIN STREET		PROULX
			49 RAYMOND ROAD, ROUTE 156
			NOTTINGHAM, NH 03290
Parcel Number:	027-004-032-000	Mailing Address:	BAIN, WARREN
CAMA Number:	027-004-032-000-000		P.O. BOX 123
Property Address:	24 OLD MANCHESTER ROAD		RAYMOND, NH 03077

0 foot Abutters List Report
Raymond, NH
October 05, 2022

Parcel Number:	027-004-033-000	Mailing Address:	RAYMOND SCHOOL DISTRICT
CAMA Number:	027-004-033-000-000		43 HARRIMAN HILL ROAD
Property Address:	OLD MANCHESTER ROAD		RAYMOND, NH 03077
Parcel Number:	028-003-016-000	Mailing Address:	RAYMOND, TOWN OF
CAMA Number:	028-003-016-000-000		4 EPPING STREET
Property Address:	ORCHARD STREET		RAYMOND, NH 03077
Parcel Number:	028-003-043-000	Mailing Address:	RAYMOND, TOWN OF
CAMA Number:	028-003-043-000-000		4 EPPING ST
Property Address:	OLD MANCHESTER ROAD		RAYMOND, NH 03077
Parcel Number:	028-003-120-000	Mailing Address:	RAYMOND, TOWN OF
CAMA Number:	028-003-120-000-000		4 EPPING ST
Property Address:	OLD MANCHESTER ROAD		RAYMOND, NH 03077

STATE OF NEW HAMPSHIRE, DEPT. OF TRANSPORTATION, 7 HAZEN DR, CONCORD, NH 03301

JONES & BEACH ENGINEERS, INC., ATTN. WAYNE MORRILL, PO BOX 219, STRATHAM, NH 03385

ONYX PARTNERS LTD., ATTN. ANTON MELCHIONDA, 200 RESERVOIR ST, NEEDHAM, MA 02494

GOVE ENVIRONMENTAL SERVICES, ATTN. LUKE HURLEY, 8 CONTINENTAL DR, UNIT H, EXETER, NH 03833

BAIN, WARREN
P.O. BOX 123
RAYMOND, NH 03077

STATE OF NEW HAMPSHIRE
DEPT. OF TRANSPORTATION
7 HAZEN DR
CONCORD, NH 03301

MRCT REALTY CO. , LLC
P.O. BOX 449
LAWRENCE, MA 01842

JONES & BEACH ENGINEERS
ATTN. WAYNE MORRILL
PO BOX 219
STRATHAM, NH 03385

RAYMOND AMBULANCE, INC
1 SCRIBNER ROAD
RAYMOND, NH 03077

ONYX PARTNERS, LTD
ATTN. ANTON
MELCHIONDA
200 RESERVOIR ST
NEEDHAM, MA 02494

RAYMOND SCHOOL DISTRICT
43 HARRIMAN HILL ROAD
RAYMOND, NH 03077

GOVE ENVIRONMENTAL SERVICES
ATTN. LUKE HURLEY
8 CONTINENTAL DR, UNIT H
EXETER, NH 03833

RAYMOND, TOWN OF
4 EPPING ST
RAYMOND, NH 03077

RAYMOND, TOWN OF
4 EPPING STREET
RAYMOND, NH 03077

TUCK REALTY CORPORATION
P.O. BOX 190
EXETER, NH 03833

WELCH,JOSEPH & JOHN & ARD
BETSY PATTERSON & ROBIN P
49 RAYMOND ROAD, ROUTE 156
NOTTINGHAM, NH 03290

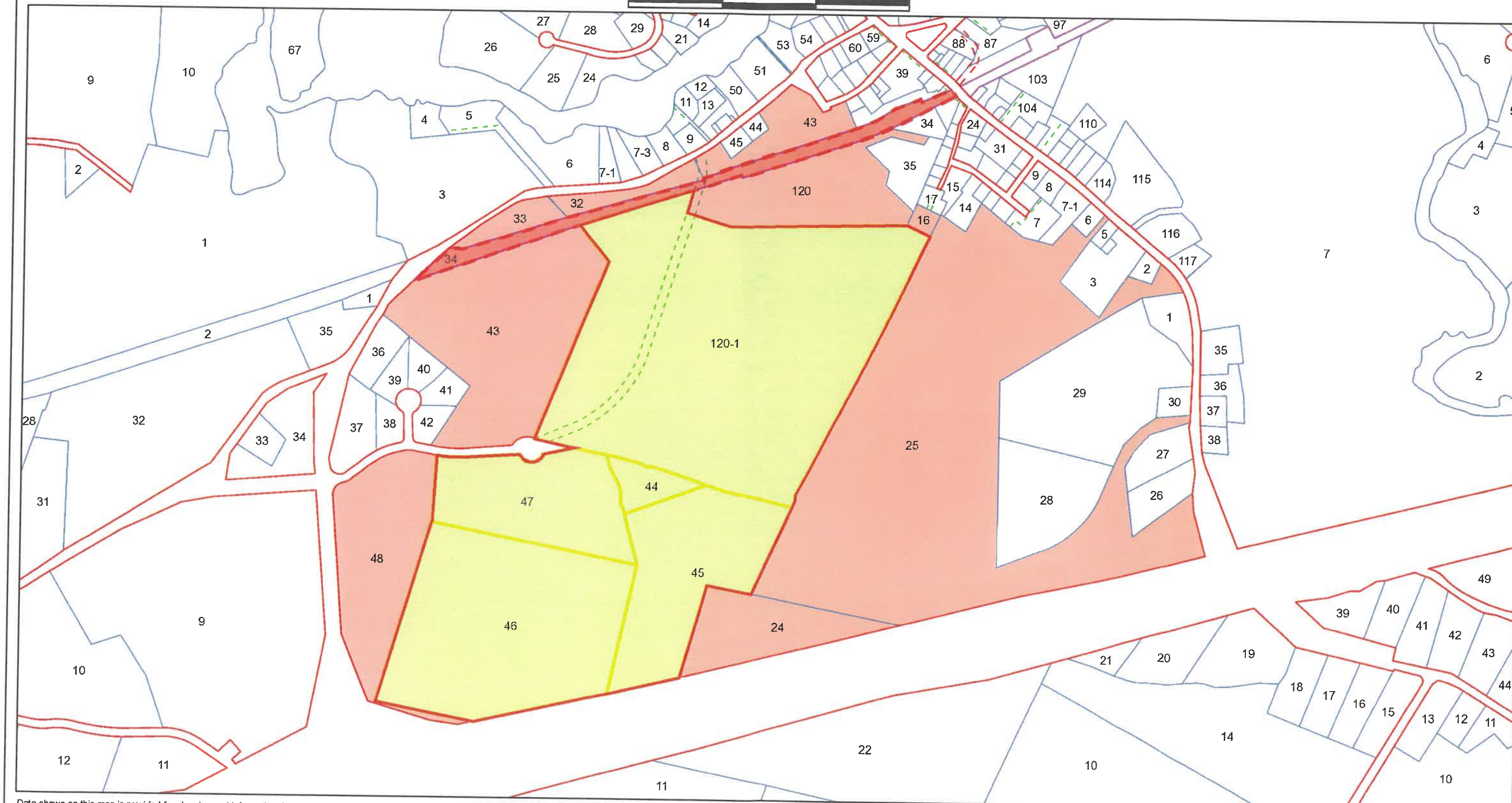
October 5, 2022

Raymond, NH

1 inch = 550 Feet

0 550 1101 1652

www.cai-tech.com



Data shown on this map is provided for planning and informational purposes only. The municipality and CAI Technologies are not responsible for any use for other purposes or misuse or misrepresentation of this map.

JONES&BEACH
ENGINEERS INC.
85 Portsmouth Avenue, PO Box 219, Stratham, NH 03885
603.772.4746 - JonesandBeach.com

October 5, 2022

Raymond Planning Board
Attn. Brad Reed, Chair
4 Epping Street
Raymond, NH 03077

RE: Conditional Use Application
Industrial Drive, Raymond, NH
Tax Map 22, Lots 44, 45, 46 7 47
Tax Map 28, Block 3, Lot 120-1
JBE Project No. 21130

Dear Mr. Reed,

Jones & Beach Engineers, Inc. respectfully submits a Conditional Use Application for the above-referenced parcels on behalf of our client, ONYX Partners LTD. The intent of this application is to propose a 550,025 S.F. industrial distribution warehouse with associated loading docks, truck parking, and employee vehicle parking. The project will have impervious within aquifer per Section 5.2.11.2.

The following items are provided in support of this Application:

1. Conditional Use Application

If you have any questions or need any additional information, please feel free to contact our office. Thank you very much for your time.

Very truly yours,
JONES & BEACH ENGINEERS, INC.

Wayne Morrill
President

cc: Anton Melchionda, ONYX Partners LTD (application and plans via email)
Jeff Adler, DuBois & King (application & plans via email & U.S. Mail)

Application for Conditional Use Permit
Groundwater Conservation Overlay District
Town of Raymond, NH

Conditional Use Permits are Subject to Site Plan Approval by the Planning Board

Raymond Zoning Ordinance, Article 5, Section 5.2

Map 28, Block 3, Lot 120-1
Map # 22 Lot # 44,45, 46 & 47 Application Date 10/5/22 Application #

Project Name: Raymond Distribution

Location: Industrial Drive

Zone: D New Industrial/Commercial Square Footage: ____ or Number of Residential Units: ____

Applicant/Agent Information:

Name: Anton Melchionda Phone: 617-835-4770

Company: Onyx Partners, Ltd. Fax:

Address: 200 Reservoir Street, Needham, MA 02494

Signed*: [signature] Date: 10-5-22

Please Check All that Apply:

5.2.11. CONDITIONAL USES: The issuance of a Conditional Use Permit is subject to Site Plan Approval by the Planning Board. The Planning Board may grant a Conditional Use Permit for a use that is otherwise permitted within the underlying district, if the permitted use is or is involved in one or more of the following:

[ ] 5.2.11.1. Storage, handling, and use of regulated substances in quantities exceeding 100 gallons or 800 pounds dry weight at any one time, provided that an adequate spill prevention, control and countermeasure (SPCC) plan prepared in accordance with Section 5.2.7 by a qualified professional, submitted to the Technical Review Committee for review and approval, with the final plan also submitted to the Raymond Fire Department and the Raymond Community Development Department for its records. The Technical Review Committee may employ the services of a qualified peer review professional to review the plan at the applicant's expense.

[X] 5.2.11.2. Any use that will render impervious more than 15% or 2,500 square feet of any lot, whichever is greater.

5.2.11.3
In granting such approval the Planning Board must first determine that the proposed use is not a prohibited use and will be in compliance with the Performance Standards as well as all applicable local, state and federal requirements. The Planning Board may, at its discretion, require a performance guaranty or bond, in an amount and with surety conditions satisfactory to the Board, to be posted to ensure completion of construction of any facilities required for compliance with the Performance Standards. The amount of this bond shall be in addition to any other bond required by the Board under either the Subdivision or Site Plan Review Regulations.

(Continued)

If you chose 5.2.11.1, above, you must provide a SPCC plan in accordance with the following:

5.2.7 SPILL PREVENTION, CONTROL AND COUNTERMEASURE (SPCC) PLAN: Conditional Uses, as described under Section 5.2.11 of this Ordinance shall submit a spill control and countermeasure (SPCC) plan to the Technical Review Committee (TRC) who shall determine whether the plan will prevent, contain, and minimize releases from ordinary or catastrophic events such as spills, floods or fires that may cause large releases of regulated substances. It shall include:

5.2.7.1 A description of the physical layout and a facility diagram, including all surrounding surface waters and wellhead protection areas;

5.2.7.2 Contact list and phone numbers for the facility response coordinator, cleanup contractors, and all appropriate federal, state, and local agencies who must be contacted in case of a release to the environment;

5.2.7.3 A list of all regulated substances in use and locations of use and storage;

5.2.7.4 A prediction of the direction, rate of flow, and total quantity of regulated substance that could be released where industry experience indicates a potential for equipment failure;

5.2.7.5 A description of containment and/or diversionary structures or equipment to prevent regulated substances from infiltrating into the ground; and

5.2.7.6 Emergency response plan describing and assigning responsibilities and actions to be taken.

NEW HAMPSHIRE DEPARTMENT OF Environmental Services

ALTERATION OF TERRAIN AMENDMENT REQUEST FORM

Water Division / Land Resources Management

Check the status of your application

RSA/ Rule: RSA 485-A:17, Env-Wq 1500

Administrative Use Only	Administrative Use Only	Administrative Use Only	File Number:
			Check No.
			Amount:
			Initials:

1.TYPE OF AMENDMENT REQUESTED [Env-Wq 1503.27(a)]

☐ Permit Transfer [use Section 7] ☐ Time Extension [use Section 8] ☒ Project or Plan Change [use Section 9]

2. PROJECT INFORMATION [Env-Wq 1503.27(b)]

Project Name: Raymond Distribution			
Street/Road Address: Industrial Drive			
Town/City: Raymond		County: Rockingham	
Tax Map: 22 & 28	Block: 3	Lot Number: 44-47, 120-1	Unit: N/A

3. CURRENT PERMIT INFORMATION [Env-Wq 1503.27(c)-(d)]
Please note that expired permits cannot be extended.

Permit No.: AoT-2467	Current Expiration Date: September 28, 2028	
Name of NHDES Signatory: Gloria S. Andrews		
Current Permit Holder Name: Onyx Partners LTD	Contact Name: Anton Melchionda	
Email: anton@onyxpartnersltd.com	Daytime Telephone: 617-835-4770	
Mailing Address: 60 Center Street		
Town/City: Dover	State: MA	ZIP Code: 02030

4. CURRENT PERMIT HOLDER'S AGENT [Env-Wq 1503.27(d)] If none, check here: ☒

Agent's Name: Jones and Beach Engineers Inc.	Contact Name: Erik Poulin	
Email: epoulin@jonesandbeach.com	Daytime Telephone: 603-772-4746	
Mailing Address: 85 Portsmouth Ave		
Town/City: Stratham	State: NH	ZIP Code: 03885

5. CURRENT PROPERTY OWNER INFORMATION (IF DIFFERENT FROM PERMIT HOLDER) [Env-Wq 1503.27(e)]
Check here if more than one property owner, and attach additional sheets as necessary: ☐

Name:	Contact Name:
Email:	Daytime Telephone:

Mailing Address:		
Town/City:	State:	ZIP Code:
6. CURRENT PROPERTY OWNER'S AGENT INFORMATION [Env-Wq 1503.27(e)] If none, check here: ■		
Business Name:	Contact Name:	
Email:	Daytime Telephone:	
Address:		
Town/City:	State:	ZIP Code:
7. COMPLETE THIS SECTION IF THERE IS A CHANGE IN PERMIT HOLDER OR PROPERTY OWNER [Env-Wq 1503.23, Env-Wq 1503.27(f)]		
A. Transferee Information		
Name:	Contact Name:	
Email:	Daytime Telephone:	
Mailing Address:		
Town/City:	State:	ZIP Code:

B. Transferee Signature and Certification

By signing below, I certify that:

- I have received a copy of the permit and all approved plans and specifications;
- I agree to comply with RSA 485-A:17, Env-Wq 1500, the permit, and all conditions contained in the permit, including the requirement for on-going inspection and maintenance of the stormwater management system(s);
- The information contained in or otherwise submitted with this request is true, complete, and not misleading to the best of my knowledge and belief;
- I understand that the submission of false, incomplete, or misleading information constitutes grounds for the department to deny the request, revoke any permit amendment that is granted based on the information, and/or refer the matter to the board of professional engineers established by RSA 310-A:3 if I am a professional engineer; and
- I understand that I am subject to the penalties specified in New Hampshire law for falsification in official matters, currently RSA 641:3.

Transferee:	Print Name Legibly:	Date:

C. Transferor Signature and Certification

By signing below, I certify that:

- I have provided a copy of the permit and all approved plans and specifications to the transferee;
- I am relinquishing all rights to the permit as originally issued;
- The information contained in or otherwise submitted with this request is true, complete, and not misleading to the best of my knowledge and belief; and
- I understand that the submission of false, incomplete, or misleading information constitutes grounds for the department to deny the request, revoke any permit amendment that is granted based on the information, and/or refer the matter to the board of professional engineers established by RSA 310-A:3 if I am a professional engineer.

Transferor:	Print Name Legibly:	Date:

8. COMPLETE THIS SECTION TO REQUEST A TIME EXTENSION [Env-Wq 1503.25, Env-Wq 1503.27(g)]

A. Timing of Request

Is this request being submitted not more than 90 days prior to the permit expiration date? ☐ Yes ☒ No

Any request submitted more than 90 days prior to the permit expiration date will be denied.

B. Activity to Date

Has any terrain alteration occurred to date? ☐ Yes ☐ No

If Yes: Attach the inspection report required by Env-Wq 1503.27(g)

C. Other Changes

Are changes to the project or project plans being made? ☒ Yes ☐ No

If Yes:

Do the changes meet the criteria of Env-Wq 1503.21(d) for deviations allowed without a permit amendment?

☒ Yes ☐ No

If Yes: Submit the plans and narrative required by Env-Wq 1503.21(d)(9)

If No: Submit a request for a permit amendment under Env-Wq 1503.22 in addition to a request for a permit extension.

D. Basis for Request

Why is an extension being requested?

D. PERMIT HOLDER SIGNATURE

By signing below, I certify that:

- The information contained in or otherwise submitted with this request is true, complete, and not misleading to the best of my knowledge and belief;
- I understand that the submission of false, incomplete, or misleading information constitutes grounds for the department to deny the request, revoke any permit amendment that is granted based on the information, and/or refer the matter to the board of professional engineers established by RSA 310-A:3 if I am a professional engineer; and
- I understand that I am subject to the penalties specified in New Hampshire law for falsification in official matters, currently RSA 641:3.

☐ **PERMIT HOLDER** ☐ **PERMIT HOLDER'S AGENT:**

Signature: ______________________ Date:

Name (print or type): Title:

9. COMPLETE THIS SECTION IF THERE IS A CHANGE TO THE PLAN OR PROJECT [See Env-Wq 1503.22 and Env-Wq 1503.27(h)

A. Type and Extent of Proposed Changes

Do the proposed changes meet the criteria of Env-Wq 1503.22(c)? ☒ Yes ☐ No

If No: The changes do not qualify for an amendment and a new application must be filed.

Area of disturbance associated with proposed changes, in square feet:

Are revised calculations needed? ☐ Yes ☒ No

If Yes: Attach the revised calculations.

Is the area proposed to be disturbed outside the area allowed to be disturbed under the original permit?

☐ Yes ☒ No

If Yes: Attach a Natural Heritage Bureau report for the area proposed to be disturbed.

B. Revisions to Plan Sheets

Identify which plan sheets reflect the proposed changes: Changes mainly seen on C3 sheets.

Briefly summarize the plan changes (*do not* attach a separate page):

Gravel infiltration BMP moved to south side of building, CMP detention added to former location of gravel wetland.

Attach the identified revised plan sheets with changes highlighted.

See attached change highlight plan.

C. Fee Calculation

Per RSA 485-A:17, II, Area of disturbance (square feet) × \$0.10/square foot = \$ + \$500 Base Fee = \$ 5,764.00

Fee must be submitted with request.

D. Submission Requirements

Date a copy of the application was sent to the municipality as required by Env-Wq 1503.05(e) ((Env-Wq 1503.22(d)(3) requires proof that a copy of the complete amendment request has been sent or delivered to the governing body of each municipality in which the project is located and, if the project is within ¼ mile of a designated river, to the Local River Advisory Committee): See attached

(Attach proof of delivery)

Date a copy of the application was sent to the local river advisory committee if required by Env-Wq 1503.05(f) (Env-Wq 1503.22(d)(3) requires proof that a copy of the complete amendment request has been sent or delivered to the governing body of each municipality in which the project is located and, if the project is within ¼ mile of a designated river, to the Local River Advisory Committee): See attached

(Attach proof of delivery)

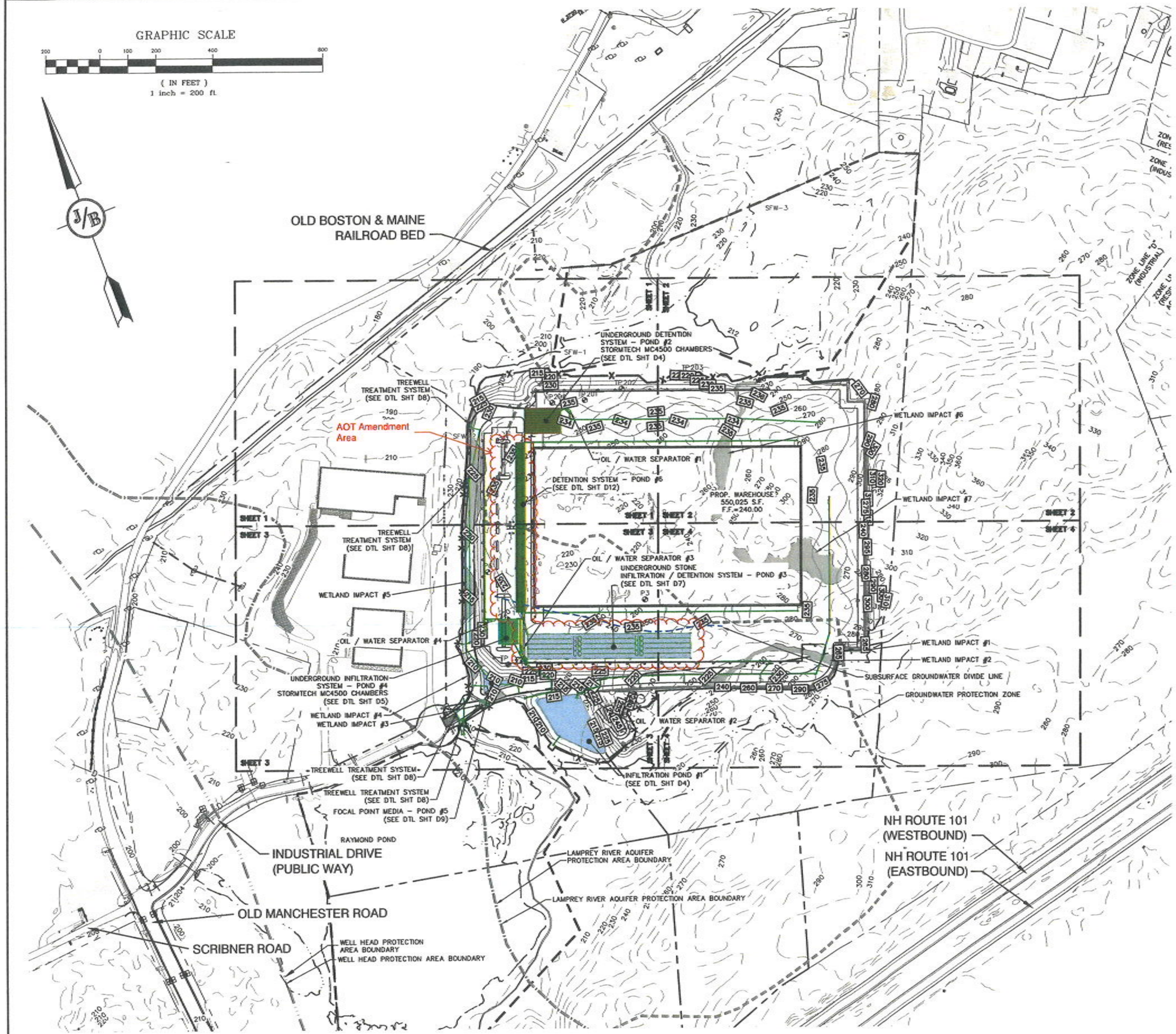
By signing below, I certify that:

- The information contained in or otherwise submitted with this request is true, complete, and not misleading to the best of my knowledge and belief;
- I understand that the submission of false, incomplete, or misleading information constitutes grounds for the department to deny the request, revoke any permit amendment that is granted based on the information, and/or refer the matter to the board of professional engineers established by RSA 310-A:3 if I am a professional engineer; and I understand that I am subject to the penalties specified in New Hampshire law for falsification in official matters, currently RSA 641:3.

☐ **PERMIT HOLDER** ☒ **PERMIT HOLDER'S AGENT:**

Signature: Date: 02/08/24

Name (print or type): Erik Poulin Title: Project Manager, PE



GRADING AND DRAINAGE NOTES:

1. UNDERGROUND FACILITIES, UTILITIES AND STRUCTURES HAVE BEEN PLOTTED FROM FIELD OBSERVATION AND THEIR LOCATION MUST BE CONSIDERED APPROXIMATE ONLY. NEITHER JONES & BEACH ENGINEERS, INC., NOR ANY OF THEIR EMPLOYEES TAKE RESPONSIBILITY FOR THE LOCATION OF ANY UNDERGROUND STRUCTURES AND/OR UTILITIES NOT SHOWN THAT MAY EXIST. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO HAVE ALL UNDERGROUND STRUCTURES AND/OR UTILITIES LOCATED PRIOR TO EXCAVATION WORK BY CALLING 888-DIG-SAFE (888-344-7233).
2. ALL BENCHMARKS AND TOPOGRAPHY SHOULD BE FIELD VERIFIED BY THE CONTRACTOR.
3. SITE GRADING SHALL NOT PROCEED UNTIL EROSION CONTROL MEASURES HAVE BEEN INSTALLED. SEE CONSTRUCTION SEQUENCE ON SHEET E1.
4. PRIOR TO THE START OF CONSTRUCTION, THE CONTRACTOR IS REQUIRED TO HAVE THE PROJECT'S LAND SURVEYOR STAKE OR FLAG CLEARING LIMITS. A MINIMUM OF 48 HOURS NOTICE IS REQUIRED.
5. ALL ROOF DRAINS FROM BUILDING SHALL END 5' OUTSIDE THE BUILDING LIMITS AS SHOWN ON PLAN AND SHALL BE PROVIDED WITH A TEMPORARY PLUG AND WITNESS AT THE END. ALL EXTERIOR ROOF DOWNSPOUTS ARE TO BE INSTALLED WITH OVERFLOW DEVICES.
6. ALL SWALES AND DETENTION PONDS ARE TO BE STABILIZED PRIOR TO DIRECTING RUNOFF TO THEM.
7. PROPOSED RIM ELEVATIONS OF DRAINAGE STRUCTURES ARE APPROXIMATE. FINAL ELEVATIONS ARE TO BE SET FLUSH WITH FINISH GRADES.
8. ALL SWALES AND ANY SLOPES GREATER THAN 3:1 SHALL BE STABILIZED WITH NORTH AMERICAN GREEN S150 EROSION CONTROL BLANKETS (OR AN EQUIVALENT APPROVED IN WRITING BY THE ENGINEER), UNLESS OTHERWISE SPECIFIED.
9. ALL DRAINAGE AND SANITARY STRUCTURE INTERIOR DIAMETERS (4' MIN) SHALL BE DETERMINED BY THE MANUFACTURER BASED ON THE PIPE CONFIGURATIONS SHOWN ON THESE PLANS. CATCH BASINS SHALL HAVE 3' DEEP SUMPS WITH GREASE HOODS, UNLESS OTHERWISE NOTED.
10. ALL DRAINAGE STRUCTURES SHALL BE PRECAST, UNLESS OTHERWISE SPECIFIED. SEE SHEET D2 FOR DRAINAGE STRUCTURE SCHEDULE AND SHEET D4-D9 FOR DRAINAGE DETAILS.
11. ALL DRAINAGE STRUCTURES AND STORM SEWER PIPES SHALL MEET HEAVY DUTY TRAFFIC H20 LOADING AND SHALL BE INSTALLED ACCORDINGLY.
12. IMMEDIATELY APPLY AND COMPACT STONE BASE FOR BUILDING PAD TO +/-½" PRIOR TO EXCAVATING INTERIOR AND PERIMETER FOOTINGS.
13. IN AREAS WHERE CONSTRUCTION IS PROPOSED ADJACENT TO ABUTTING PROPERTIES, THE CONTRACTOR SHALL INSTALL ORANGE CONSTRUCTION FENCING ALONG PROPERTY LINES IN ALL AREAS WHERE SILT FENCING IS NOT REQUIRED.
14. ALL DRAINAGE PIPE SHALL BE NON-PERFORATED ADS N-12 OR APPROVED EQUAL, UNLESS OTHERWISE NOTED.
15. STONE INLET PROTECTION SHALL BE PLACED AT ALL CATCH BASINS. SEE DETAIL WITHIN THE DETAIL SHEETS.
16. LAND DISTURBING ACTIVITIES SHALL NOT COMMENCE UNTIL APPROVAL TO DO SO HAS BEEN RECEIVED BY ALL GOVERNING AUTHORITIES. THE GENERAL CONTRACTOR SHALL STRICTLY ADHERE TO THE EPA SWPPP DURING CONSTRUCTION OPERATIONS.
17. NO LAND CLEARING OR GRADING SHALL BEGIN UNTIL ALL EROSION CONTROL MEASURES HAVE BEEN INSTALLED.
18. ALL EXPOSED AREAS SHALL BE SEEDED AS SPECIFIED WITHIN 3 DAYS OF FINAL GRADING.
19. SHOULD CONSTRUCTION STOP FOR LONGER THAN 3 DAYS, THE SITE SHALL BE SEEDED AS SPECIFIED.
20. MAINTAIN EROSION CONTROL MEASURES AFTER EACH RAIN EVENT OF 0.5" OR GREATER IN A 24 HOUR PERIOD AND AT LEAST ONCE A WEEK.
21. THIS PLAN SHALL NOT BE CONSIDERED ALL INCLUSIVE, AS THE GENERAL CONTRACTOR SHALL TAKE ALL NECESSARY PRECAUTIONS TO PREVENT SEDIMENT FROM LEAVING THE SITE.
22. CONSTRUCTION VEHICLES SHALL UTILIZE THE STABILIZED CONSTRUCTION ENTRANCE TO THE EXTENT POSSIBLE THROUGHOUT CONSTRUCTION.
23. IF INSTALLATION OF STORM DRAINAGE SYSTEM SHOULD BE INTERRUPTED BY WEATHER OR NIGHTFALL, THE PIPE ENDS SHALL BE COVERED WITH FILTER FABRIC.
24. THE GENERAL CONTRACTOR SHALL BE RESPONSIBLE TO TAKE WHATEVER MEANS NECESSARY TO ESTABLISH PERMANENT SOIL STABILIZATION.
25. SEDIMENT SHALL BE REMOVED FROM ALL SEDIMENT BASINS BEFORE THEY ARE 25% FULL.
26. ALL WORK SHALL BE DONE IN STRICT ACCORDANCE WITH PROJECT SPECIFICATIONS.
27. ADDITIONAL EROSION AND SEDIMENT CONTROL MEASURES SHALL BE INSTALLED, IF DEEMED NECESSARY BY ON-SITE INSPECTION BY ENGINEER AND/OR REGULATORY OFFICIALS.
28. SEE ALSO EROSION AND SEDIMENT CONTROL SPECIFICATIONS ON SHEET E1-E2.
29. SOME DRAINAGE STRUCTURES ARE DETAILED ON THE PROFILES SHEETS.
30. IF ANY VISIBLE SIGNS OF CONTAMINATION ARE ENCOUNTERED DURING EARTHWORK ACTIVITIES (I.E. SKINS/HIDES, DISCOLORED SOIL, ODORS ECT.) THE CONTRACTOR SHOULD CONTACT THE PROJECT ENGINEER SO COORDINATION WITH NH DES CAN OCCUR TO REVIEW THE FINDINGS.
31. SEE PLAN & PROFILE SHEETS FOR DRAINAGE STRUCTURES ALONG ROADWAYS.
32. CONTRACTOR SHALL ADHERE TO ANY SITE SPECIFIC PROVISIONS FOUND IN GEOTECHNICAL REPORT BY S.W. COLE ENGINEERS. SOIL PREPARATION SHOULD FOLLOW REQUIREMENTS OF THE GEOTECHNICAL REPORT.

WETLAND IMPACTS

AREA NAME	AREA (S.F.)
IMPACT #1	337 S.F.
IMPACT #2	10,703 S.F.
IMPACT #3	4,029 S.F.
IMPACT #4	2,470 S.F.
IMPACT #5	32,176 S.F.
IMPACT #6	14,024 S.F.
IMPACT #7	23,378 S.F.
TOTAL	87,117 S.F.

PROJECT PARCEL
TOWN OF RAYMOND
TAX MAP 22, LOTS 44, 45, 46, 47
TAX MAP 28, BLOCK 3, LOT 120-1

APPLICANT
ONYX PARTNERS LTD
200 RESERVOIR STREET
NEEDHAM, MA 02494

TOTAL LOT AREA
5,380,531± SQ. FT.
123.52± ACRES

Design: EMP	Draft: GDR	Date: 8/19/21
Checked: WGM	Scale: AS NOTED	Project No.: 21130
Drawing Name: 21130-PLAN.dwg		

REV.	DATE	REVISION	BY
9	02/06/24	REVISED PER DRAINAGE MODIFICATIONS	EMP
8	11/30/23	REVISED FOR SUBMISSION TO TOWN OF RAYMOND	EMP
7	10/11/23	REVISED PER TOWN ENGINEER COMMENTS	EMP
6	05/09/23	REVISED PER PB AND AOT COMMENTS	EMP
5	04/12/23	REVISED PER PLANNING BOARD COMMENTS	EMP

Designed and Produced in NH
Jones & Beach Engineers, Inc.
Civil Engineering Services
85 Portsmouth Ave.
PO Box 219
Stratham, NH 03885
603-772-4746
FAX: 603-772-0227
E-MAIL: JBE@JONESANDBEACH.COM

Plan Name: GRADING AND DRAINAGE PLAN
Project: RAYMOND DISTRIBUTION INDUSTRIAL DRIVE, RAYMOND, NH
Owner of Record: ONYX RAYMOND LLC 60 CENTRE STREET, DOVER, MA 02030

DRAWING No.
C3
SHEET 8 OF 50
JBE PROJECT NO. 21130

JONES&BEACH
ENGINEERS INC.

DRAINAGE ANALYSIS

EROSION AND SEDIMENT CONTROL PLAN

Industrial Building
Tax Map 22, Lots 44, 45, 46, 47
Tax Map 28, Block 3, Lot 120-1
Industrial Drive
Raymond, NH 03077

Prepared for:

ONYX Partners LTD
200 Reservoir Street
Needham, MA 02494

Prepared by:
Jones & Beach Engineers, Inc.
85 Portsmouth Avenue
P.O. Box 219
Stratham, NH 03885
(603) 772-4746
August 18, 2022
Revision #1: September 30, 2022
Revision #2: November 10, 2022
Revision#3: December 15, 2022
Revision #4: January 11, 2023
Revision #5: April 12, 2023
Revision #6: May 8, 2023
Revision #7: October 12, 2023
Revision #8: February 7, 2024
JBE Project No. 21130

STATE OF NEW HAMPSHIRE
ERIK
M
POULIN
No.16669
LICENSED
PROFESSIONAL ENGINEER
02/07/2024

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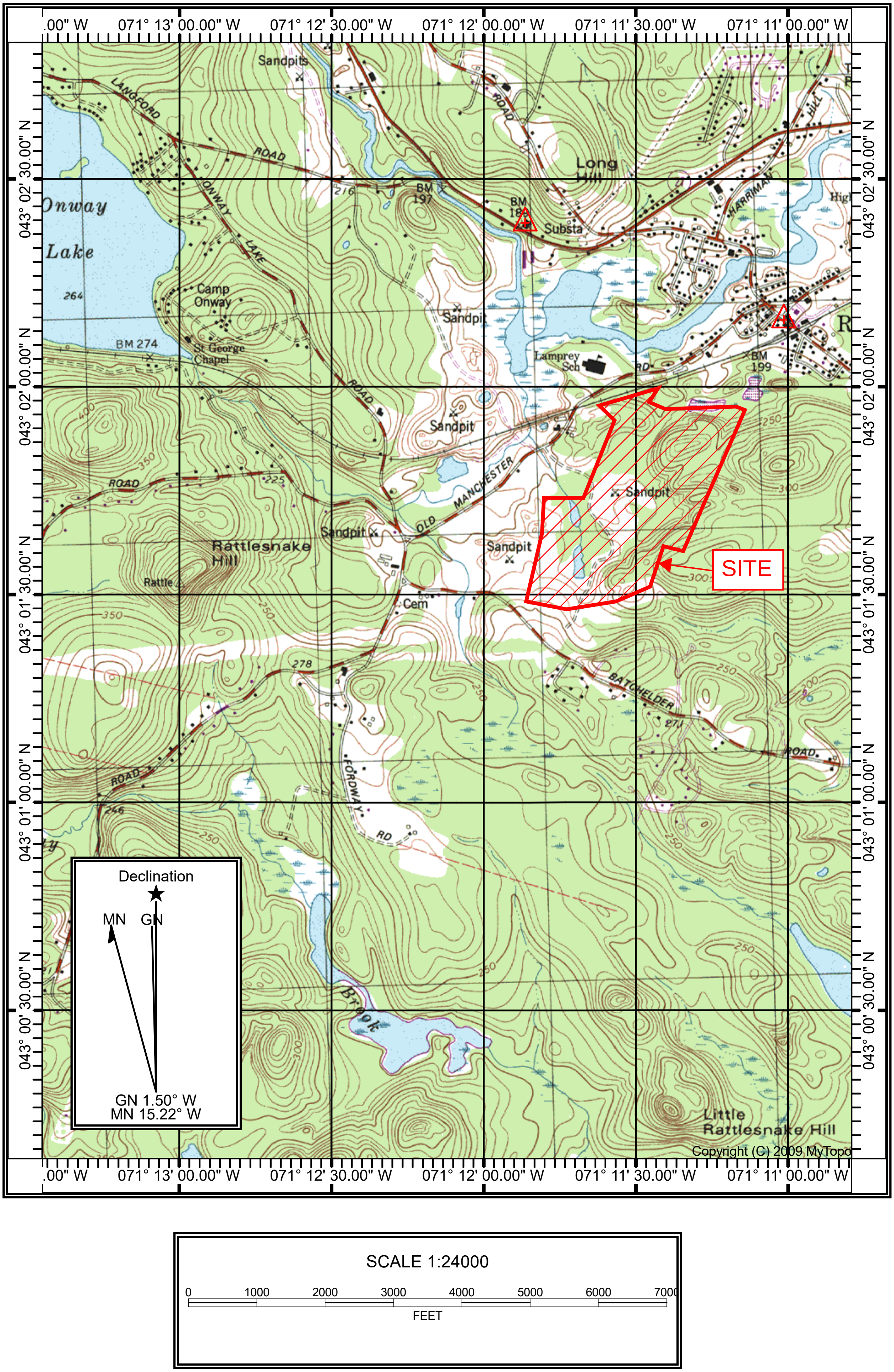
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043° 02' 00.00" N
043° 01' 30.00" N
043° 01' 00.00" N
043° 00' 30.00" N
Sandpits
LANGFORD
ROAD
Long Hill
Onway Lake
264
Camp Onway
BM 274
St George Chapel
BM 197
BM 18
Substa
HARRIMAN
Sandpit
Lamprey Sch
BM 199
ONWAY LAKE ROAD
OLD MANCHESTER
Rattlesnake Hill
Rattle
Cem
SITE
BATCHELDER
ROAD
FORDWAY RD
Brook
Little Rattlesnake Hill
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6000
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FEET

ALTERATION OF TERRAIN PERMIT APPLICATION

Water Division/ Alteration of Terrain Bureau/ Land Resources Management
Check the Status of your Application: www.des.nh.gov/onestop

RSA/ Rule: RSA 485-A:17, Env-Wq 1500

Administrative Use Only	Administrative Use Only	Administrative Use Only	File Number:
			Check No.
			Amount:
			Initials:

1. APPLICANT INFORMATION (INTENDED PERMIT HOLDER)		
Applicant Name: Onyx Partners LTD	Contact Name: Anton Melchionda	
Email: anton@onyxpartnersltd.com	Daytime Telephone: 617-680-9308	
Mailing Address: 60 Center Street		
Town/City: Dover	State: MA	Zip Code: 02030
2. APPLICANT'S AGENT INFORMATION If none, check here: ☒		
Business Name: Jones and Beach Engineers Inc.	Contact Name: Erik Poulin	
Email: epoulin@jonesandbeach.com	Daytime Telephone: (603) 772-4746	
Address: 85 Portsmouth Ave.		
Town/City: Stratham	State: NH	Zip Code: 03885
3. PROPERTY OWNER INFORMATION (IF DIFFERENT FROM APPLICANT)		
Applicant Name: Onyx Partners LTD	Contact Name: Anton Melchionda	
Email: anton@onyxpartnersltd.com	Daytime Telephone: 617-680-9308	
Mailing Address: 60 Center Street		
Town/City: Dover	State: MA	Zip Code: 02030
4. PROPERTY OWNER'S AGENT INFORMATION If none, check here: ☒		
Business Name:	Contact Name:	
Email:	Daytime Telephone:	
Address:		
Town/City:	State:	Zip Code:
5. CONSULTANT INFORMATION If none, check here: ☐		
Engineering Firm: Jones and Beach Engineers Inc.	Contact Name: Wayne Morrill	
Email: wmorrill@Jonesandbeach.com	Daytime Telephone: (603) 772-4746	
Address: 85 Portsmouth Ave.		
Town/City: Stratham	State: NH	Zip Code: 03885

6. PROJECT TYPE

☐ Excavation Only ☐ Residential ☐ Commercial ☐ Golf Course ☐ School ☐ Municipal
☐ Agricultural ☐ Land Conversion ☒ Other: Industrial

7. PROJECT LOCATION INFORMATION

Project Name: Raymond Distribution			
Street/Road Address: Industrial Drive			
Town/City: Raymond		County: Rockingham	
Tax Map: 22 & 28	Block: 3	Lot Number: 44-47, 120-1	Unit: N/A
Location Coordinates: 43.031185, -71.18713	☒ Latitude/Longitude	☐ UTM	☐ State Plane

Post-development, will the proposed project withdraw from or directly discharge to any of the following? If yes, identify the purpose.

1. Stream or Wetland Purpose: Drainage	☒ Yes ☐ No	☐ Withdrawal	☒ Discharge
2. Man-made pond created by impounding a stream or wetland Purpose:	☐ Yes ☒ No	☐ Withdrawal	☐ Discharge
3. Unlined pond dug into the water table Purpose:	☐ Yes ☒ No	☐ Withdrawal	☐ Discharge

Post-development, will the proposed project discharge to:

- A surface water impaired for phosphorus and/or nitrogen? ☒ No ☐ **Yes - include information to demonstrate that project will not cause net increase in phosphorus and/or nitrogen**
- A Class A surface water or Outstanding Resource Water? ☒ No ☐ **Yes - include information to demonstrate that project will not cause net increase in phosphorus and/or nitrogen**
- A lake or pond not covered previously? ☐ No ☒ **Yes - include information to demonstrate that project will not cause net increase in phosphorus in the lake or pond**

Is the project a High Load area? ☒ Yes ☐ No
If yes, specify the type of high load land use or activity: Fleet storage

Is the project within a Water Supply Intake Protection Area (WSIPA)? ☐ Yes ☒ No
Is the project within a Groundwater Protection Area (GPA)? ☒ Yes ☐ No
Will the well setbacks identified in Env-Wq 1508.02 be met? ☒ Yes ☐ No

Note: Guidance document titled "*Using NHDES's OneStop WebGIS to Locate Protection Areas*" is available online. For more details on the restrictions in these areas, read Chapter 3.1 in Volume 2 of the NH Stormwater Manual.

Is any part of the property within the 100-year floodplain? ☐ Yes ☒ No
If yes: Cut volume: ______ cubic feet within the 100-year floodplain
Fill volume: ______ cubic feet within the 100-year floodplain

☒ Project **IS** within **¼ mile of a designated river** Name of River: Lamprey
☐ Project is **NOT** within ¼ mile of a designated river

☐ Project **IS** within **a Coastal/Great Bay Region community** - **include info required by Env-Wq 1503.08(l) if applicable**
☒ Project is **NOT** within a Coastal/Great Bay Region community

8. BRIEF PROJECT DESCRIPTION (PLEASE DO NOT REPLY "SEE ATTACHED")

This project creates a 12 acre building to serve as a distribution center. The distribution center will accommodate 158 loading docks, 244 trailer spaces, and 326 vehicle spaces.

9. IF APPLICABLE, DESCRIBE ANY WORK STARTED PRIOR TO RECEIVING PERMIT

10. ADDITIONAL REQUIRED INFORMATION

A. Date a copy of the application was sent to the municipality as required by Env-Wq 1503.05(e)[1]: 8/2/22.
(Attach proof of delivery)

B. Date a copy of the application was sent to the local river advisory committee if required by Env-Wq 1503.05(e)[2]: 8/22/22.
(Attach proof of delivery)

C. Type of plan required: ☒ Land Conversion ☐ Detailed Development ☐ Excavation, Grading & Reclamation ☐ Steep Slope

D. Additional plans required: ☐ Stormwater Drainage & Hydrologic Soil Groups ☐ Source Control ☐ Chloride Management

E. Total area of disturbance: 1,783,333± square feet

F. Additional impervious cover as a result of the project: 1,324,729 square feet (use the "-" symbol to indicate a net reduction in impervious coverage).
Total final impervious cover: 1,324,729 square feet

G. Total undisturbed cover: 4,055,802 square feet

H. Number of lots proposed: 5 existing lots

I. Total length of roadway: 2,764 linear feet

J. Name(s) of receiving water(s): Lamprey River

K. Identify all other NHDES permits required for the project, and for each indicate whether an application has been filed and is pending, or if the required approval has been issued provide the permit number, registration date, or approval letter number, as applicable.

Type of Approval	Application Filed?	Status	
		Pending	If Issued:
1. Water Supply Approval	☐ Yes ☒ No ☒ N/A	☐	Permit number:
2. Wetlands Permit	☒ Yes ☐ No ☐ N/A	☒	Permit number:
3. Shoreland Permit	☐ Yes ☒ No ☒ N/A	☐	Permit number:
4. UIC Registration	☐ Yes ☒ No ☒ N/A	☐	Registration date:
5. Large/Small Community Well Approval	☐ Yes ☒ No ☒ N/A	☐	Approval letter date:
6. Large Groundwater Withdrawal Permit	☐ Yes ☒ No ☒ N/A	☐	Permit number:
7. Other:	☐ Yes ☐ No	☐	Permit number:

L. List all species identified by the Natural Heritage Bureau as threatened or endangered or of concern: See NHB report

M. Using NHDES's Web GIS OneStop program (www2.des.state.nh.us/gis/onestop/), with the Surface Water Impairment layer turned on, list the impairments identified for each receiving water. If no pollutants are listed, enter "N/A."

N. Did the applicant/applicant's agent have a pre-application meeting with AOT staff? ☒ Yes ☐ No
If yes, name of staff member: Ridgely Mauck

O. Will blasting of bedrock be required? ☒ Yes ☐ No If yes, estimated quantity of blast rock: 750,000 cubic yards
If yes, standard blasting BMP notes must be placed on the plans, available at:
http://des.nh.gov/organization/commissioner/pip/publications/wd/documents/wd-10-12.pdf

NOTE: If greater than 5,000 cubic yards of blast rock will be generated, a groundwater monitoring program must be developed and submitted to NHDES. Contact AOT staff for additional detail.

[1] Env-Wq 1503.05(c)(6), requires proof that a completed application form, checklist, plans and specifications, and all other supporting materials have been sent or delivered to the governing body of each municipality in which the project is proposed.

[2] Env-Wq 1503.05(c)(6), requires proof that a completed application form, checklist, plans and specifications, and all other supporting materials have been sent or delivered to the Local River Advisory Committee, if the project is within ¼ mile of a designated river.

11. CHECK ALL APPLICATION ATTACHMENTS THAT APPLY (SUBMIT WITH APPLICATION IN ORDER LISTED)

LOOSE:

- ☒ Signed application form: des.nh.gov/organization/divisions/water/aot/index.htm (with attached proof(s) of delivery)
- ☒ Check for the application fee: des.nh.gov/organization/divisions/water/aot/fees.htm
- ☒ Color copy of a USGS map with the property boundaries outlined (1" = 2,000' scale)
- ☐ If Applicant is not the property owner, proof that the applicant will have a legal right to undertake the project on the property if a permit is issued to the applicant.

BIND IN A REPORT IN THE FOLLOWING ORDER:

- ☒ Copy of the signed application form & application checklist (des.nh.gov/organization/divisions/water/aot/index.htm)
- ☒ Copy of the check
- ☒ Copy of the USGS map with the property boundaries outlined (1" = 2,000' scale)
- ☒ Narrative of the project with a summary table of the peak discharge rate for the off-site discharge points
- ☒ Web GIS printout with the "Surface Water Impairments" layer turned on - http://www4.des.state.nh.us/onestopdatamapper/onestopmapper.aspx
- ☒ Web GIS printouts with the AOT screening layers turned on - http://www4.des.state.nh.us/onestopdatamapper/onestopmapper.aspx
- ☒ NHB letter using DataCheck Tool – www.nhdfl.org/about-forests-and-lands/bureaus/natural-heritage-bureau/
- ☒ The Web Soil Survey Map with project's watershed outlined – websoilsurvey.nrcs.usda.gov
- ☒ Aerial photograph (1" = 2,000' scale with the site boundaries outlined)
- ☐ Photographs representative of the site
- ☒ Groundwater Recharge Volume calculations (one worksheet for each permit application): des.nh.gov/organization/divisions/water/aot/documents/bmp_worksh.xls
- ☒ BMP worksheets (one worksheet for each treatment system): des.nh.gov/organization/divisions/water/aot/documents/bmp_worksh.xls
- ☒ Drainage analysis, stamped by a professional engineer (see Application Checklist for details)
- ☒ Riprap apron or other energy dissipation or stability calculations
- ☐ Site Specific Soil Survey report, stamped and with a certification note prepared by the soil scientist that the survey was done in accordance with the Site Specific Soil Mapping standards, *Site-Specific Soil Mapping Standards for NH & VT, SSSNNE Special Publication No. 3*.
- ☒ Infiltration Feasibility Report (example online) [Env-Wq 1503.08(f)(3)]
- ☒ Registration and Notification Form for Storm Water Infiltration to Groundwater (UIC Registration-for underground systems only, including drywells and trenches): (http://des.nh.gov/organization/divisions/water/dwgb/dwspp/gw_discharge)
- ☒ Inspection and maintenance manual with, if applicable, long term maintenance agreements [Env-Wq 1503.08(g)]
- ☒ Source control plan

PLANS:

- ☒ One set of design plans on 34 - 36" by 22 - 24" white paper (see Application Checklist for details)
- ☒ Pre & post-development color coded soil plans on 11" x 17" (see Application Checklist for details)
- ☒ Pre & post-development drainage area plans on 34 - 36" by 22 - 24" white paper (see Application Checklist for details)

100-YEAR FLOODPLAIN REPORT:

- ☐ All information required in Env-Wq 1503.09, submitted as a separate report.

ADDITIONAL INFORMATION RE: NUTRIENTS, CLIMATE

- ☐ See Checklist for Details

☒ **REVIEW APPLICATION FOR COMPLETENESS & CONFIRM INFORMATION LISTED ON THE APPLICATION IS INCLUDED WITH SUBMITTAL.**

12. REQUIRED SIGNATURES

AM By initialing here, I acknowledge that I am required by Env-Wq 1503.20(e) to submit a copy of all approved documents to the department in PDF format on a CD within one week after permit approval.

By signing below, I certify that:

- The information contained in or otherwise submitted with this application is true, complete, and not misleading to the best of my knowledge and belief;
- I understand that the submission of false, incomplete, or misleading information constitutes grounds for the department to deny the application, revoke any permit that is granted based on the information, and/or refer the matter to the board of professional engineers established by RSA 310-A:3 if I am a professional engineer; and
- I understand that I am subject to the penalties specified in New Hampshire law for falsification in official matters, currently RSA 641.

☒ **APPLICANT** ☐ **APPLICANT'S AGENT:**

Signature: [signature] Date: 8/9/22

Name (print or type): Anton Melchionda Title: Owner

☒ PROPERTY OWNER ☐ PROPERTY OWNER'S AGENT:

Signature: [signature] Date: 8/9/22

Name (print or type): Anton Melchionda Title: Owner

ATTACHMENT A:
ALTERATION OF TERRAIN PERMIT APPLICATION CHECKLIST

Check the box to indicate the item has been provided or provide an explanation why the item does not apply.

DESIGN PLANS

☒ Plans printed on 34 - 36” by 22 - 24” white paper

☒ PE stamp

☒ Wetland delineation

☒ Temporary erosion control measures

☒ Treatment for all stormwater runoff from impervious surfaces such as roadways (including gravel roadways), parking areas, and non-residential roof runoff. Guidance on treatment BMPs can be found in Volume 2, Chapter 4 of the NH Stormwater Management Manual.

☒ Pre-existing 2-foot contours

☒ Proposed 2-foot contours

☐ Drainage easements protecting the drainage/treatment structures All treatment structures will be owned and operated by land owner.

☒ Compliance with the Wetlands Bureau, RSA 482- A http://des.nh.gov/organization/divisions/water/wetlands/index.htm. Note that artificial detention in wetlands is not allowed.

☒ Compliance with the Comprehensive Shoreland Protection Act, RSA 483-B. http://des.nh.gov/organization/divisions/water/wetlands/cspa

☐ Benches. Benching is needed if you have more than 20 feet change in elevation on a 2:1 slope, 30 feet change in elevation on a 3:1 slope, 40 feet change in elevation on a 4:1 slope.

Proposed engineered slopes to be utilized, cut areas to sides and rear of building are anticipated to be bedrock.

☒ Check to see if any proposed ponds need state Dam permits. http://des.nh.gov/organization/divisions/water/dam/documents/damdef.pdf

DETAILS

☒ Typical roadway x-section

☒ Detention basin with inverts noted on the outlet structure

☒ Stone berm level spreader

☒ Outlet protection – riprap aprons

☒ A general installation detail for an erosion control blanket

☒ Silt fences or mulch berm

☒ Storm drain inlet protection. Note that since hay bales must be embedded 4 inches into the ground, they are not to be used on hard surfaces such as pavement.

☒ Hay bale barriers

☒ Stone check dams

☒ Gravel construction exit

☒ Temporary sediment trap

☒ The treatment BMP’s proposed

☒ Any innovative BMP’s proposed

CONSTRUCTION SEQUENCE/EROSION CONTROL

☒ Note that the project is to be managed in a manner that meets the requirements and intent of RSA 430:53 and Chapter Agr 3800 relative to invasive species.

☒ Note that perimeter controls shall be installed prior to earth moving operations.

☒ Note that temporary water diversion (swales, basins, etc) must be used as necessary until areas are stabilized.

☒ Note that ponds and swales shall be installed early on in the construction sequence (before rough grading the site).

☒ Note that all ditches and swales shall be stabilized prior to directing runoff to them.

☒ Note that all roadways and parking lots shall be stabilized within 72 hours of achieving finished grade.

☒ Note that all cut and fill slopes shall be seeded/loamed within 72 hours of achieving finished grade

☒ Note that all erosion controls shall be inspected weekly AND after every half-inch of rainfall.

☐ Note the limits on the open area allowed, see Env-Wq 1505.02 for detailed information.

Example note: The smallest practical area shall be disturbed during construction, but in no case shall exceed 5 acres at any one time before disturbed areas are stabilized.

Environmental monitoring proposed due to disturbance over 5 acres.

☒ Note the definition of the word "stable"

Example note: An area shall be considered stable if one of the following has occurred:

- Base course gravels have been installed in areas to be paved.
- A minimum of 85 percent vegetated growth has been established.
- A minimum of 3 inches of non-erosive material such stone or riprap has been installed.
- Or, erosion control blankets have been properly installed.

☒ Note the limit of time an area may be exposed
Example note: All areas shall be stabilized within 45 days of initial disturbance.

☒ Provide temporary and permanent seeding specifications. (Reed canary grass is listed in the Green Book; however, this is a problematic species according to the Wetlands Bureau and therefore should not be specified)

☒ Provide winter construction notes that meet or exceed our standards.

Standard Winter Notes:

- All proposed vegetated areas that do not exhibit a minimum of 85 percent vegetative growth by October 15, or which are disturbed after October 15, shall be stabilized by seeding and installing erosion control blankets on slopes greater than 3:1, and seeding and placing 3 to 4 tons of mulch per acre, secured with anchored netting, elsewhere. The installation of erosion control blankets or mulch and netting shall not occur over accumulated snow or on frozen ground and shall be completed in advance of thaw or spring melt events.
- All ditches or swales which do not exhibit a minimum of 85 percent vegetative growth by October 15, or which are disturbed after October 15, shall be stabilized temporarily with stone or erosion control blankets appropriate for the design flow conditions.
- After October 15, incomplete road or parking surfaces, where work has stopped for the winter season, shall be protected with a minimum of 3 inches of crushed gravel per NHDOT item 304.3.

☒ Note at the end of the construction sequence that "Lot disturbance, other than that shown on the approved plans, shall not commence until after the roadway has the base course to design elevation and the associated drainage is complete and stable." – This note is applicable to single/duplex family subdivisions, when lot development is not part of the permit.

DRAINAGE ANALYSES

Please double-side 8 ½” × 11” sheets where possible but, **do not** reduce the text such that more than one page fits on one side.

☒ PE stamp

☒ Rainfall amount obtained from the Northeast Regional Climate Center- http://precip.eas.cornell.edu/. Include extreme precipitation table as obtained from the above referenced website.

☒ Drainage analyses, in the following order:

- Pre-development analysis: Drainage diagram.
- Pre-development analysis: Area Listing and Soil Listing.
- Pre-development analysis: Node listing 1-year (if applicable), 2-year, 10-year and 50-year.
- Pre-development analysis: Full summary of the 10-year storm.
- Post-development analysis: Drainage diagram.
- Post-development analysis: Area Listing and Soil Listing.
- Post-development analysis: Node listing for the 2-year, 10-year and 50-year.
- Post-development analysis: Full summary of the 10-year storm.

☒ Review the Area Listing and Soil Listing reports

- Hydrologic soil groups (HSG) match the HSGs on the soil maps provided.
- There is the same or less HSG A soil area after development (check for each HSG).
- There is the same or less “woods” cover in the post-development.
- Undeveloped land was assumed to be in “good” condition.
- The amount of impervious cover in the analyses is correct.

Note: A good check is to subtract the total impervious area used in the pre analysis from the total impervious area used in the post-analysis. For residential projects without demolition occurring, a good check is to take this change in impervious area, subtract out the roadway and divide the remaining by the number of houses/units proposed. Do these numbers make sense?

☒ Check the storage input used to model the ponds.

☒ Check to see if the artificial berms pass the 50-year storm, i.e., make sure the constructed berms on ponds are not overtopped.

☒ Check the outlet structure proposed and make sure it matches that modeled.

☒ Check to see if the total areas in the pre and post analyses are same.

☒ Confirm the correct NRCS storm type was modeled (Coos, Carroll & Grafton counties are Type II, all others Type III).

.

PRE- AND POST-DEVELOPMENT DRAINAGE AREA PLANS

☒ Plans printed on 34 - 36” by 22 - 24” on white paper.

☒ Submit these plans separate from the soil plans.

☒ A north arrow.

☒ A scale.

☒ Labeled subcatchments, reaches and ponds.

☒ Tc lines.

☒ A clear delineation of the subcatchment boundaries.

☒ Roadway station numbers.

☒ Culverts and other conveyance structures.

PRE AND POST-DEVELOPMENT COLOR-CODED SOIL PLANS

☒ 11” × 17”sheets suitable, as long as it is readable.

☒ Submit these plans separate from the drainage area plans.

☒ A north arrow.

☒ A scale.

☒ Name of the soil scientist who performed the survey and date the soil survey took place.

☒ 2-foot contours (5-foot contours if application is for a gravel pit) as well as other surveyed features.

☒ Delineation of the soil boundaries and wetland boundaries.

☒ Delineation of the subcatchment boundaries.

☒ Soil series symbols (e.g., 26).

☒ A key or legend which identifies each soil series symbol and its associated soil series name (e.g., 26 = Windsor).

☒ The hydrologic soil group color coding (A = Green, B = yellow, C= orange, D=red, Water=blue, & Impervious = gray).

Please note that excavation projects (e.g., gravel pits) have similar requirements to that above, however the following are common exceptions/additions:

☐ Drainage report is not needed if site does not have off-site flow.

☐ 5 foot contours allowed rather than 2 foot.

☐ No PE stamp needed on the plans.

☐ Add a note to the plans that the applicant must submit to the Department of Environmental Services a written update of the project and revised plans documenting the project status every five years from the date of the Alteration of Terrain permit.

☐ Add reclamation notes.

See NRCS publication titled: *Vegetating New Hampshire Sand and Gravel Pits* for a good resource, it is posted online at: http://des.nh.gov/organization/divisions/water/aot/categories/publications.

ADDITIONAL INFORMATION RE: NUTRIENTS, CLIMATE

☐ If project will discharge stormwater to a surface water impaired for phosphorus and/or nitrogen, include information to demonstrate that project will not cause net increase in phosphorus and/or nitrogen.

☐ If project will discharge stormwater to a Class A surface water or Outstanding Resource Water, include information to demonstrate that project will not cause net increase in phosphorus and/or nitrogen.

☐ If project will discharge stormwater to a lake or pond not covered previously, include information to demonstrate that project will not cause net increase in phosphorus in the lake or pond.

☐ If project is within a Coastal/Great Bay Region community, include info required by Env-Wq 1503.08(l) if applicable.

CALMS LLC
60 CENTRE ST
DOVER, MA 02030

1017

53-7353/2113
17234

DATE 8/15/22

PAY TO THE ORDER OF TREASURER STATE OF NEW HAMPSHIRE $ 21,875.00

TWENTY ONE THOUSAND EIGHT HUNDRED SEVENTY FIVE 00/100 DOLLARS

Photo Safe Deposit® Details on back

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FOR AOT PERMIT APPLICATION FEE

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Epping, NH 03042

21130

PS Form 3800, April 2015 PSN 7530-02-000-9047 See Reverse for Instructions

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PS Form 3800, April 2015 PSN 7530-02-000-9047 See Reverse for Instructions

5. EXECUTIVE SUMMARY

This project proposes to construct an industrial building in the Town of Raymond Tax Map 22, Lots 44, 45, 46, 47, and Tax Map 28, Block 3, Lot 120-1. Two models were compiled, one for the area in its existing (pre-development) condition, and a second for its proposed (post-development) condition. The analysis was conducted using the USDA SCS TR-20 method within the HydroCAD Stormwater Modeling System environment. A summary of the existing and proposed conditions peak rates of runoff is as follows:

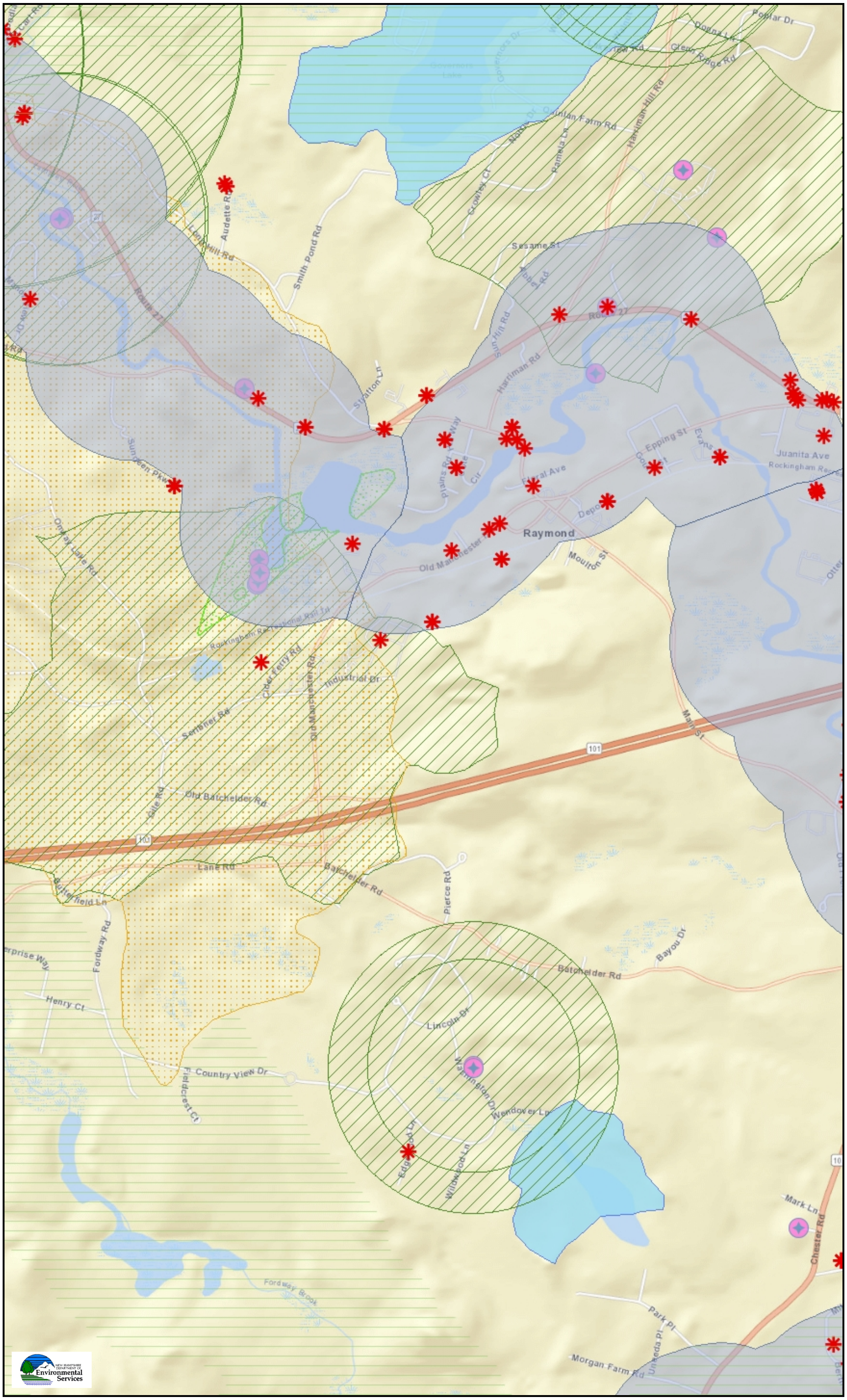
PEAK RATE OF RUNOFF (CUBIC FEET/SECOND)								
Analysis Point	2-Year		10-Year		25-Year		50-Year	
	Pre	Post	Pre	Post	Pre	Post	Pre	Post
AP #1	9.80	5.92	30.56	22.29	50.70	36.78	71.45	53.37
AP #2	4.99	3.80	21.76	16.14	45.37	33.61	73.41	54.80

The drainage design intent for this site is to maintain the post-development peak flow to the pre-development peak flow conditions to the extent practicable and to effectively treat stormwater from the development of this project. This has been accomplished through the use of one (1) above ground infiltration basin. Three (3) Subsurface Infiltration / Detention Systems, and (1) Focal Point Media Pond to maintain the peak discharge.

In addition, the potential for increased erosion and sedimentation is handled by way of erosion control blankets, vegetated swales, sedimentation sumps, and riprap inlet and outlet protection aprons. The use of Best Management Practices per the NHDES Stormwater Manual have been applied to the design of this drainage system and will be observed during all stages of construction. Existing wetlands and abutting property owners will suffer minimal impact resultant from this development.

This project complies with Env-Wq 1507.05 Channel Protection Requirements by meeting criteria 1507.05(b)(1)(a). Per these criteria the 2-year, 24-hour pre-development peak flow rate total (14.79 cfs) is greater than the 2-year, 24-hour post-development peak flow rate (9.70 cfs), and the post-development storm volume (3.833 acre-ft) does not increase over 0.1 acre-ft from the pre-development storm volume (4.454 acre-ft).

JBE21130 AOT Screening Layers



Legend

- Surface Waters with Impairn 2016 with Quarter Mile Buffe
- Remediation Sites
- Coastal and Great Bay Regi Communities
- Designated Rivers Quarterm Buffer
- Public Water Supply Wells
- Groundwater Classification / GA1
- Groundwater Classification / GA2
- Water Supply Intake Protect Areas
- Wellhead Protection Areas
- Class A Lakes with a Quarte Buffer
- Class A - All Features
- All Lakes, with a Quarter Mil Buffer
- Outstanding Resource Wate Watersheds
- Watersheds with Chloride Impairments 2016

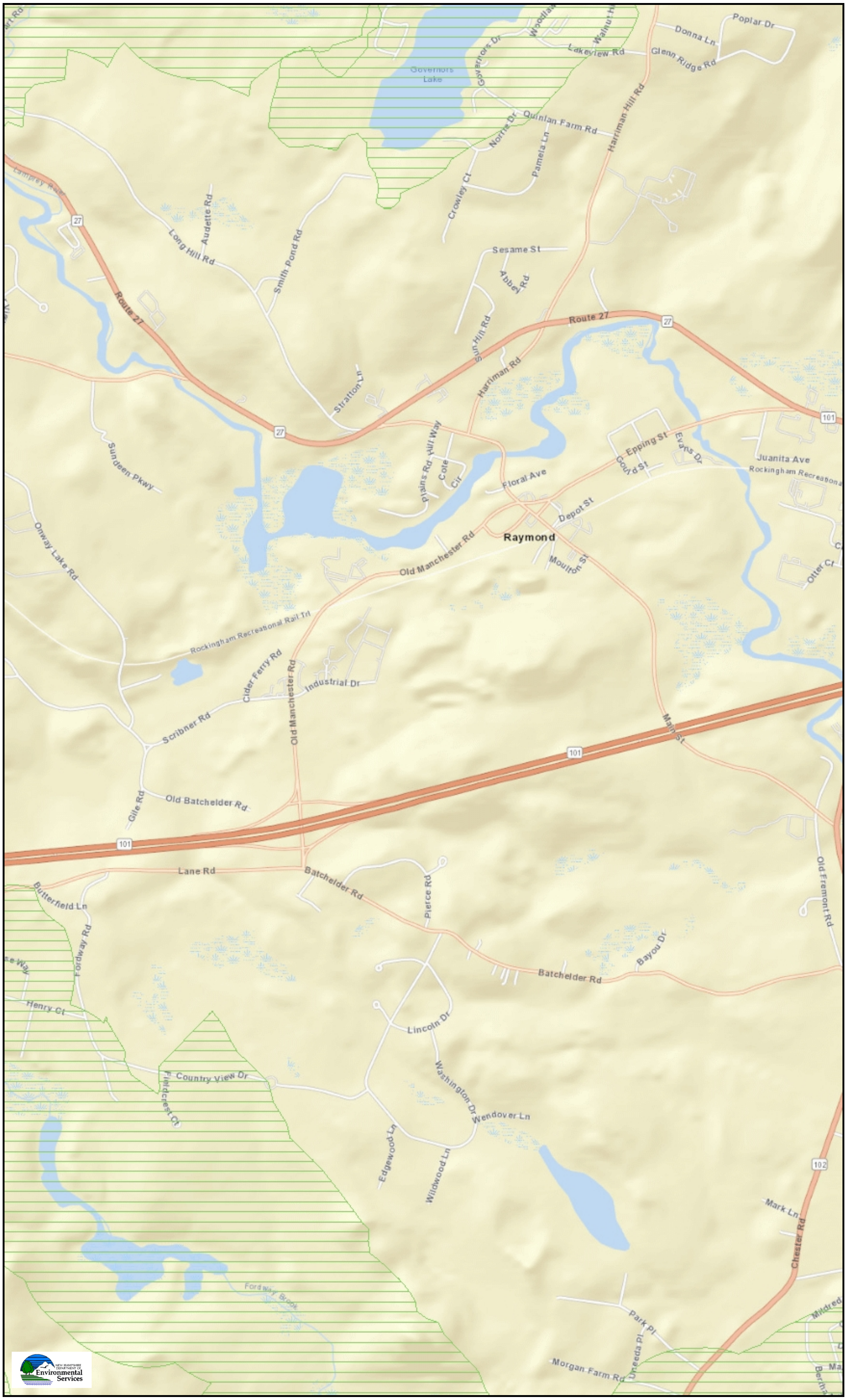
Map Scale

1: 24,000

Map Generated: 8/15/2022

Notes

JBE21130 SW Impairments



Legend

Surface Waters with Impairn
2016 with Quarter Mile Buffe

Map Scale

1: 24,000

© NH DES, http://des.nh.gov

Map Generated: 8/15/2022

Notes

No impairments within project site.

Memo

NH Natural Heritage Bureau
NHB DataCheck Results Letter

Please note: portions of this document are confidential.
Maps and NHB record pages are confidential and should be redacted from public documents.

To: Luke Hurley, Gove Environmental Services, Inc.
8 Continental Drive
Exeter, NH 03833

From: Jessica Bouchard, NH Natural Heritage Bureau
Date: 9/29/2021 (valid until 09/29/2022)
Re: Review by NH Natural Heritage Bureau
Permits: NHDES - Alteration of Terrain Permit, NHDES - Wetland Standard Dredge & Fill - Major

NHB ID: **NHB21-3049** Town: Raymond Location: Industrial Drive
Description: The proposed project is for a warehouse facility with associated access roads/driveways, parking and loading docks.
cc: Kim Tuttle

As requested, I have searched our database for records of rare species and exemplary natural communities, with the following results.

Comments **NHB: No Comments At This Time**
F&G: Please conduct a preliminary vernal pool survey this fall. Please check for evidence of hatched or predated turtle nests in exposed mineral soils before freeze up. Please submit AoT-related documents for NHFG review, AoT review inquiries or wildlife biologist questions to NHFGreview@wildlife.nh.gov. If project related: Include the NHB datacheck results letter number (i.e. NHB21-3049) in the email subject line at a minimum. Not including this number will affect our response time and delays of our review. Please include the NHB number in the title of the assessment along with a date (year,month,day).

Vertebrate species	State[1]	Federal	Notes
Blanding's Turtle (*Emydoidea blandingii*)	E	--	Contact the NH Fish & Game Dept (see below).
Northern Black Racer (*Coluber constrictor constrictor*)	T	--	Contact the NH Fish & Game Dept (see below).
Spotted Turtle (*Clemmys guttata*)	T	--	Contact the NH Fish & Game Dept (see below).
Wood Turtle (*Glyptemys insculpta*)	SC	--	Contact the NH Fish & Game Dept (see below).

[1]Codes: "E" = Endangered, "T" = Threatened, "SC" = Special Concern, "--" = an exemplary natural community, or a rare species tracked by NH Natural Heritage that has not yet been added to the official state list. An asterisk (*) indicates that the most recent report for that occurrence was more than 20 years ago.

Contact for all animal reviews: Kim Tuttle, NH F&G, (603) 271-6544.

Memo

NH Natural Heritage Bureau
NHB DataCheck Results Letter

Please note: portions of this document are confidential.
Maps and NHB record pages are confidential and should be redacted from public documents.

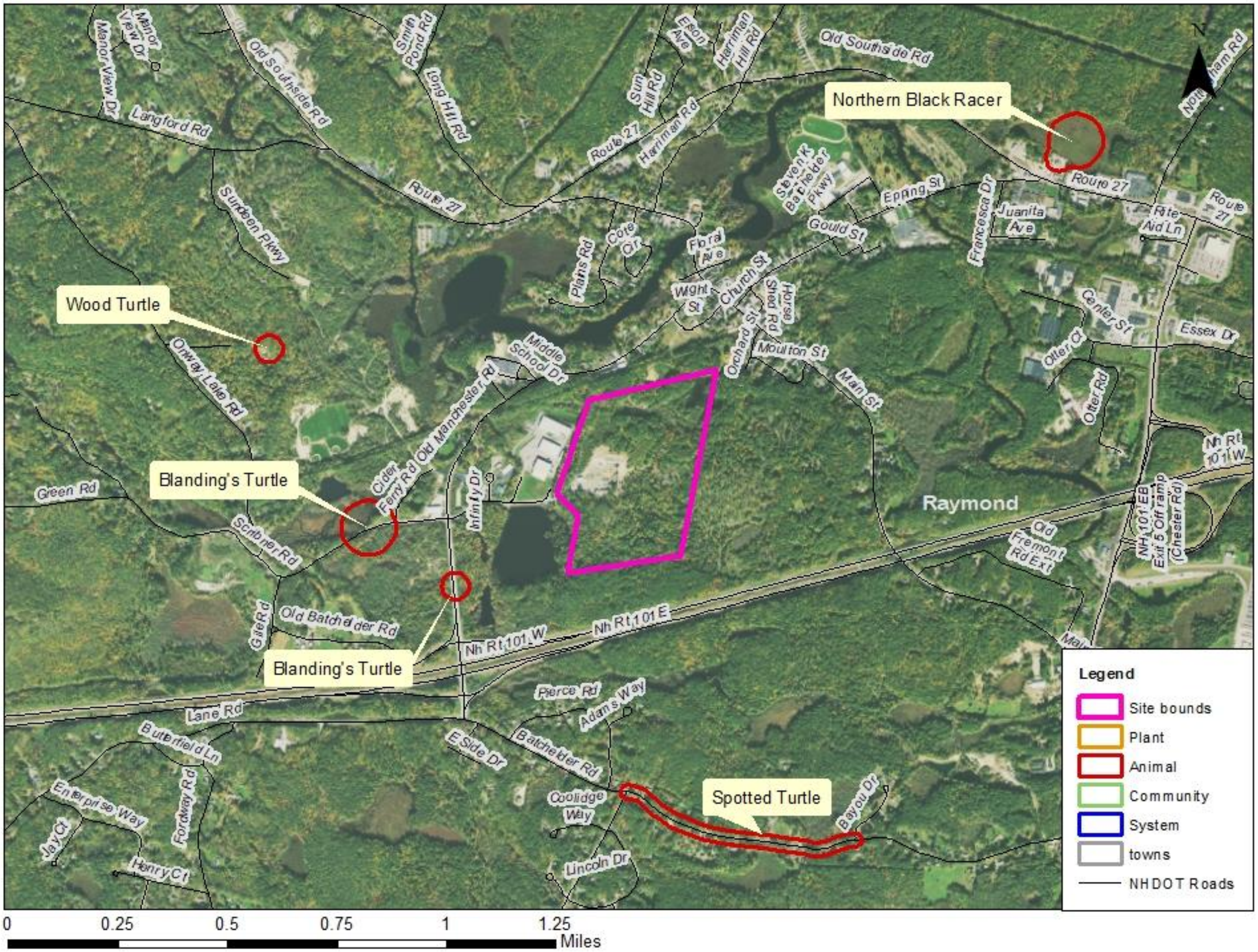
A negative result (no record in our database) does not mean that a sensitive species is not present. Our data can only tell you of known occurrences, based on information gathered by qualified biologists and reported to our office. However, many areas have never been surveyed, or have only been surveyed for certain species. An on-site survey would provide better information on what species and communities are indeed present.

Department of Natural and Cultural Resources
Division of Forests and Lands
(603) 271-2214 fax: 271-6488

DNCR/NHB
172 Pembroke Rd.
Concord, NH 03301

CONFIDENTIAL – NH Dept. of Environmental Services review

NHB21-3049



New Hampshire Natural Heritage Bureau - Animal Record

Blanding's Turtle (*Emydoidea blandingii*)

Legal Status

Federal: Not listed
State: Listed Endangered

Conservation Status

Global: Apparently secure but with cause for concern
State: Critically imperiled due to rarity or vulnerability

Description at this Location

Conservation Rank: Not ranked
Comments on Rank: --

Detailed Description: 2008: Area 11564: 1 adult male seen.
General Area: --
General Comments: --
Management Comments: --

Location

Survey Site Name: Rattlesnake Hill, east of
Managed By:

County: Rockingham
Town(s): Raymond
Size: 7.7 acres
Elevation:

Precision: Within (but not necessarily restricted to) the area indicated on the map.

Directions: 2008: Area 11564: Exit 4 off Route 101. Approx 1/4 mile down Scribner Road, where Lamprey comes close to road.

Dates documented

First reported: 2008-05-20
Last reported: 2008-05-20

The New Hampshire Fish & Game Department has jurisdiction over rare wildlife in New Hampshire. Please contact them at 11 Hazen Drive, Concord, NH 03301 or at (603) 271-2461.

New Hampshire Natural Heritage Bureau - Animal Record

Blanding's Turtle (*Emydoidea blandingii*)

Legal Status		**Conservation Status**	
Federal:	Not listed	Global:	Apparently secure but with cause for concern
State:	Listed Endangered	State:	Critically imperiled due to rarity or vulnerability

Description at this Location

Conservation Rank: Not ranked
Comments on Rank: --

Detailed Description: 2017: Area 14399: 1 adult observed, sex unknown.
General Area: 2017: Area 14399: Roadside. Forest on either side of road.
General Comments: --
Management Comments: --

Location

Survey Site Name: Rattlesnake Hill, east of
Managed By:

County: Rockingham
Town(s): Raymond
Size: 1.9 acres   Elevation:

Precision: Within (but not necessarily restricted to) the area indicated on the map.

Directions: 2017: Area 14399: Old Manchester Road, Raymond, between the Safety Complex and the Exit 4 ramp. Right by the Route 101 sign.

Dates documented

First reported: 2017-05-31   Last reported: 2017-05-31

The New Hampshire Fish & Game Department has jurisdiction over rare wildlife in New Hampshire. Please contact them at 11 Hazen Drive, Concord, NH 03301 or at (603) 271-2461.

New Hampshire Natural Heritage Bureau - Animal Record

Northern Black Racer (*Coluber constrictor constrictor*)

Legal Status		**Conservation Status**	
Federal:	Not listed	Global:	Demonstrably widespread, abundant, and secure
State:	Listed Threatened	State:	Imperiled due to rarity or vulnerability

Description at this Location

Conservation Rank: Not ranked
Comments on Rank: --

Detailed Description: 2012: Area 12799M: 1 adult observed. 2010: Area 12799M: 1 adult observed. 1993: Area 11938M: 2 observed. 1992: Area 11940: 1 observed. 1991: Area 11938M: 6 eggs found and collected. 2 hatched and released at original location on 8/23.

General Area: 2010: Area 12799M: Mixed forest. 1993: Area 11938M: Old sawmill site behind town shed. 1992: Area 11940: Swamp. 1991: Area 11938M: Sunny, sandy conditions adjacent to swamp. Under old plywood.

General Comments: --

Management Comments: --

Location

Survey Site Name: Flint Hill, south of
Managed By:

County: Rockingham
Town(s): Raymond
Size: 10.3 acres   Elevation:

Precision: Within (but not necessarily restricted to) the area indicated on the map.

Directions: 2010: Area 12799M: 8 Sherwood Drive, Raymond. 1992: Area 11940: Swamp behind Raymond town shed. 1991: Area 11938M: Old sawmill site behind Raymond town shed [Rte. 27/107 in Raymond across from intersection with Epping St.]

Dates documented

First reported: 1991-06-26   Last reported: 2012-04-16

The New Hampshire Fish & Game Department has jurisdiction over rare wildlife in New Hampshire. Please contact them at 11 Hazen Drive, Concord, NH 03301 or at (603) 271-2461.

New Hampshire Natural Heritage Bureau - Animal Record

Spotted Turtle (*Clemmys guttata*)

Legal Status		**Conservation Status**	
Federal:	Not listed	Global:	Demonstrably widespread, abundant, and secure
State:	Listed Threatened	State:	Imperiled due to rarity or vulnerability

Description at this Location

Conservation Rank: Fair quality, condition and/or landscape context ('C' on a scale of A-D).
Comments on Rank: --

Detailed Description: 2007: Area 11749: 1 adult female seen, about 5".
General Area: --
General Comments: --
Management Comments: --

Location

Survey Site Name: Batchelder Road, Raymond
Managed By:

County: Rockingham
Town(s): Raymond
Size: 11.4 acres Elevation:

Precision: Within (but not necessarily restricted to) the area indicated on the map.

Directions: 2007: Area 11749: Batchelder Road, unknown exact location.

Dates documented

First reported: 2007-07-22 Last reported: 2007-07-22

The New Hampshire Fish & Game Department has jurisdiction over rare wildlife in New Hampshire. Please contact them at 11 Hazen Drive, Concord, NH 03301 or at (603) 271-2461.

New Hampshire Natural Heritage Bureau - Animal Record

Wood Turtle (*Glyptemys insculpta*)

Legal Status		**Conservation Status**	
Federal:	Not listed	Global:	Rare or uncommon
State:	Special Concern	State:	Rare or uncommon

Description at this Location

Conservation Rank: Not ranked
Comments on Rank: --

Detailed Description: 2021: Area 14704: 1 adult observed, sex unknown.
General Area: 2021: Area 14704: Sports field complex surrounded by forest and wetlands.
General Comments: --
Management Comments: --

Location

Survey Site Name: Lamprey River, Raymond
Managed By:

County: Rockingham
Town(s): Raymond
Size: 1.9 acres
Elevation:

Precision: Within (but not necessarily restricted to) the area indicated on the map.

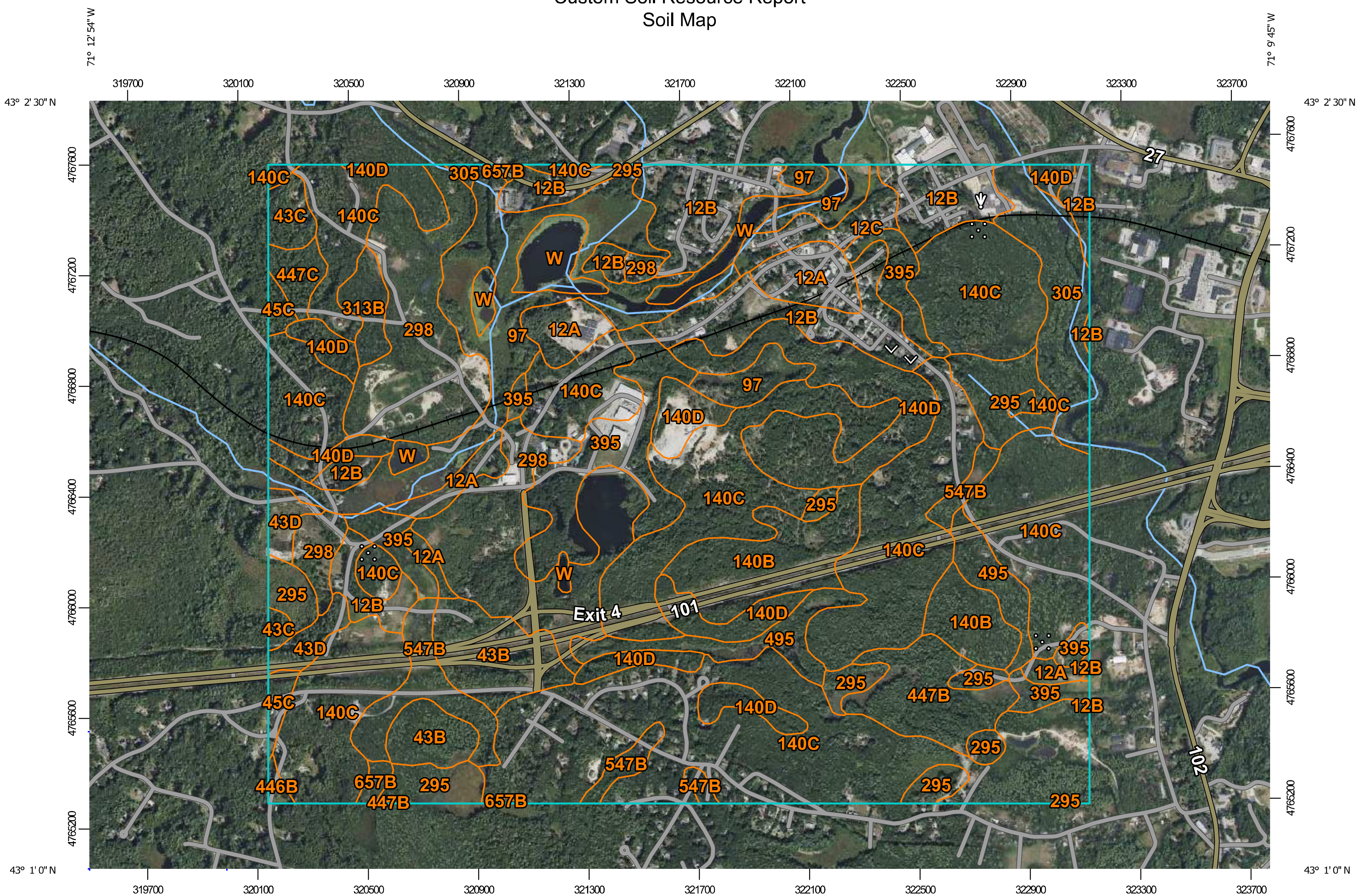
Directions: 2021: Area 14704: Riverside Park, Raymond.

Dates documented

First reported: 2021-05-23 Last reported: 2021-05-23

The New Hampshire Fish & Game Department has jurisdiction over rare wildlife in New Hampshire. Please contact them at 11 Hazen Drive, Concord, NH 03301 or at (603) 271-2461.

Custom Soil Resource Report
Soil Map



Map Scale: 1:19,600 if printed on A landscape (11" x 8.5") sheet.

0 250 500 1000 1500 Meters

0 500 1000 2000 3000 Feet

N

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 19N WGS84

MAP LEGEND

Area of Interest (AOI)
- Area of Interest (AOI)

Soils
- Soil Map Unit Polygons
- Soil Map Unit Lines
- Soil Map Unit Points

Special Point Features
- Blowout
- Borrow Pit
- Clay Spot
- Closed Depression
- Gravel Pit
- Gravelly Spot
- Landfill
- Lava Flow
- Marsh or swamp
- Mine or Quarry
- Miscellaneous Water
- Perennial Water
- Rock Outcrop
- Saline Spot
- Sandy Spot
- Severely Eroded Spot
- Sinkhole
- Slide or Slip
- Sodic Spot
- Spoil Area
- Stony Spot
- Very Stony Spot
- Wet Spot
- Other
- Special Line Features

Water Features
- Streams and Canals

Transportation
- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

Background
- Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:24,000.

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

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

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

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

Soil Survey Area: Rockingham County, New Hampshire
Survey Area Data: Version 22, May 29, 2020

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

Date(s) aerial images were photographed: Aug 13, 2020—Sep 15, 2020

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

Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
12A	Hinckley loamy sand, 0 to 3 percent slopes	47.5	2.8%
12B	Hinckley loamy sand, 3 to 8 percent slopes	136.7	8.0%
12C	Hinckley loamy sand, 8 to 15 percent slopes	16.7	1.0%
43B	Canton fine sandy loam, 0 to 8 percent slopes, very stony	47.7	2.8%
43C	Canton fine sandy loam, 8 to 15 percent slopes, very stony	11.7	0.7%
43D	Canton fine sandy loam, 15 to 25 percent slopes, very stony	15.5	0.9%
45C	Montauk fine sandy loam, 8 to 15 percent slopes, very stony	8.2	0.5%
97	Freetown and Natchaug mucky peats, ponded, 0 to 2 percent slopes	120.0	7.0%
140B	Chatfield-Hollis-Canton complex, 0 to 8 percent slopes, rocky	63.5	3.7%
140C	Chatfield-Hollis-Canton complex, 8 to 15 percent slopes, rocky	588.2	34.5%
140D	Chatfield-Hollis-Canton complex, 15 to 35 percent slopes, rocky	119.0	7.0%
295	Freetown mucky peat, 0 to 2 percent slopes	62.0	3.6%
298	Pits, sand and gravel	167.1	9.8%
305	Lim-Pootatuck complex	44.4	2.6%
313B	Deerfield loamy fine sand, 3 to 8 percent slopes	11.6	0.7%
395	Swansea mucky peat, 0 to 2 percent slopes	80.8	4.7%
446B	Scituate-Newfields complex, 3 to 8 percent slopes	2.2	0.1%
447B	Scituate-Newfields complex, 3 to 8 percent slopes, very stony	36.0	2.1%
447C	Scituate-Newfields complex, 8 to 15 percent slopes, very stony	9.2	0.5%
495	Natchaug mucky peat, 0 to 2 percent slopes	36.0	2.1%

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
547B	Walpole very fine sandy loam, 3 to 8 percent slopes, very stony	40.5	2.4%
657B	Ridgebury fine sandy loam, 3 to 8 percent slopes, very stony	4.4	0.3%
W	Water	36.4	2.1%
Totals for Area of Interest		**1,705.5**	**100.0%**

Map Unit Descriptions

The map units delineated on the detailed soil maps in a soil survey represent the soils or miscellaneous areas in the survey area. The map unit descriptions, along with the maps, can be used to determine the composition and properties of a unit.

A map unit delineation on a soil map represents an area dominated by one or more major kinds of soil or miscellaneous areas. A map unit is identified and named according to the taxonomic classification of the dominant soils. Within a taxonomic class there are precisely defined limits for the properties of the soils. On the landscape, however, the soils are natural phenomena, and they have the characteristic variability of all natural phenomena. Thus, the range of some observed properties may extend beyond the limits defined for a taxonomic class. Areas of soils of a single taxonomic class rarely, if ever, can be mapped without including areas of other taxonomic classes. Consequently, every map unit is made up of the soils or miscellaneous areas for which it is named and some minor components that belong to taxonomic classes other than those of the major soils.

Most minor soils have properties similar to those of the dominant soil or soils in the map unit, and thus they do not affect use and management. These are called noncontrasting, or similar, components. They may or may not be mentioned in a particular map unit description. Other minor components, however, have properties and behavioral characteristics divergent enough to affect use or to require different management. These are called contrasting, or dissimilar, components. They generally are in small areas and could not be mapped separately because of the scale used. Some small areas of strongly contrasting soils or miscellaneous areas are identified by a special symbol on the maps. If included in the database for a given area, the contrasting minor components are identified in the map unit descriptions along with some characteristics of each. A few areas of minor components may not have been observed, and consequently they are not mentioned in the descriptions, especially where the pattern was so complex that it was impractical to make enough observations to identify all the soils and miscellaneous areas on the landscape.

The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The objective of mapping is not to delineate pure taxonomic classes but rather to separate the landscape into landforms or landform segments that have similar use and management requirements. The delineation of such segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, however, onsite investigation is needed to define and locate the soils and miscellaneous areas.

An identifying symbol precedes the map unit name in the map unit descriptions. Each description includes general facts about the unit and gives important soil properties and qualities.

Soils that have profiles that are almost alike make up a *soil series*. Except for differences in texture of the surface layer, all the soils of a series have major horizons that are similar in composition, thickness, and arrangement.

Soils of one series can differ in texture of the surface layer, slope, stoniness, salinity, degree of erosion, and other characteristics that affect their use. On the basis of such differences, a soil series is divided into *soil phases*. Most of the areas shown on the detailed soil maps are phases of soil series. The name of a soil phase commonly indicates a feature that affects use or management. For example, Alpha silt loam, 0 to 2 percent slopes, is a phase of the Alpha series.

Some map units are made up of two or more major soils or miscellaneous areas. These map units are complexes, associations, or undifferentiated groups.

A *complex* consists of two or more soils or miscellaneous areas in such an intricate pattern or in such small areas that they cannot be shown separately on the maps. The pattern and proportion of the soils or miscellaneous areas are somewhat similar in all areas. Alpha-Beta complex, 0 to 6 percent slopes, is an example.

An *association* is made up of two or more geographically associated soils or miscellaneous areas that are shown as one unit on the maps. Because of present or anticipated uses of the map units in the survey area, it was not considered practical or necessary to map the soils or miscellaneous areas separately. The pattern and relative proportion of the soils or miscellaneous areas are somewhat similar. Alpha-Beta association, 0 to 2 percent slopes, is an example.

An *undifferentiated group* is made up of two or more soils or miscellaneous areas that could be mapped individually but are mapped as one unit because similar interpretations can be made for use and management. The pattern and proportion of the soils or miscellaneous areas in a mapped area are not uniform. An area can be made up of only one of the major soils or miscellaneous areas, or it can be made up of all of them. Alpha and Beta soils, 0 to 2 percent slopes, is an example.

Some surveys include *miscellaneous areas*. Such areas have little or no soil material and support little or no vegetation. Rock outcrop is an example.

Google Maps

Imagery ©2022 CNES / Airbus, Landsat / Copernicus, MassGIS, Commonwealth of Massachusetts EOEA, Maxar Technologies, USDA/FPAC/GEO, Map data ©2022

2000 ft

Representative Photographs of Site

Raymond Distribution Center (JBE21130)

Figure 1: View of existing gravel pit

Figure 2: View of site entrance from Industrial Drive, showing Raymond Pond (AP1)

Figure 3: Beaver dam modeled as reach 2

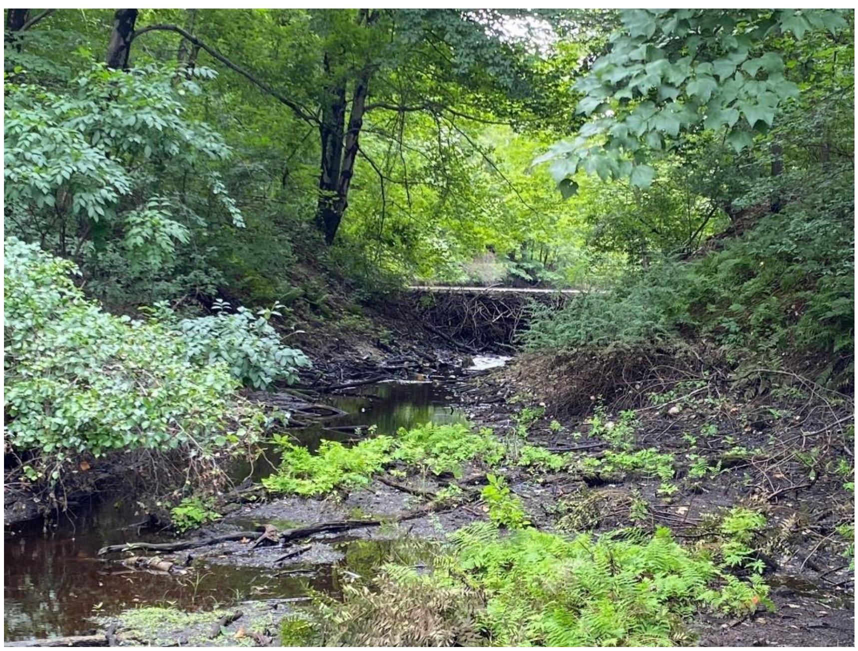


Figure 4: Beaver dam modeled as reach 2

Figure 5: View of analysis point 2 (AP2) adjacent to existing rail trail

Figure 6: Wooded terrain typical of majority of site

GROUNDWATER RECHARGE VOLULME (GRV) CALCULATION
(Env-Wq 1507.04)

8.73	ac	Area of HSG A soil that was replaced by impervious cover	0.40"
14.87	ac	Area of HSG B soil that was replaced by impervious cover	0.25"
7.22	ac	Area of HSG C soil that was replaced by impervious cover	0.10"
-	ac	Area of HSG D soil or impervious cover that was replaced by impervious cover	0.0"
0.26	inches	Rd = Weighted groundwater recharge depth	
7.93	ac-in	GRV = AI * Rd	
28,786	cf	GRV conversion (ac-in x 43,560 sf/ac x 1ft/12”)	

Provide calculations below showing that the project meets the groundwater recharge requirements (Env-Wq 1507.04):

(7.93 ac-in x 43,560 sf / ac x 1ft / 12") = 28,785.90 cf

Infiltration Pond #1 - 19,549 cf

Infiltration Pond #2 - removed

Infiltration Pond #3 - 64,072 cf

Infiltration Pond #4 -18,569 cf

Total - 102,190 cf

INFILTRATION PRACTICE CRITERIA
(Env-Wq 1508.06)

Type/Node Name: **Infiltration Pond #1 (Node P1)**

Enter the type of infiltration practice (e.g., basin, trench) and the node name in the drainage analysis, if applicable.

		Have you reviewed Env-Wq 1508.06(a) to ensure that infiltration is allowed?	← **yes**
8.99	ac	A = Area draining to the practice	
5.38	ac	A_I = Impervious area draining to the practice	
0.60	decimal	I = Percent impervious area draining to the practice, in decimal form	
0.59	unitless	Rv = Runoff coefficient = 0.05 + (0.9 x I)	
5.29	ac-in	WQV= 1" x Rv x A	
19,208	cf	WQV conversion (ac-in x 43,560 sf/ac x 1ft/12")	
4,802	cf	25% x WQV (check calc for sediment forebay volume)	
Forebay		Method of pretreatment? (not required for clean or roof runoff)	
4,837	cf	V_{SED} = Sediment forebay volume, if used for pretreatment	**≥ 25%WQV**
19,549	cf	V = Volume[1] (attach a stage-storage table)	**≥ WQV**
18,761	sf	A_{SA} = Surface area of the bottom of the pond	
5.00	iph	$Ksat_{DESIGN}$ = Design infiltration rate[2]	
2.5	hours	T_{DRAIN} = Drain time = V / (A_{SA} * I_{DESIGN})	**≤ 72-hrs**
212.33	feet	E_{BTM} = Elevation of the bottom of the basin	
208.33	feet	E_{SHWT} = Elevation of SHWT (if none found, enter the lowest elevation of the test pit)	
203.75	feet	E_{ROCK} = Elevation of bedrock (if none found, enter the lowest elevation of the test pit)	
4.00	feet	D_{SHWT} = Separation from SHWT	**≥ *** [3]
8.6	feet	D_{ROCK} = Separation from bedrock	**≥ *** [3]
208.3	ft	D_{amend} = Depth of amended soil, if applicable due high infiltation rate	**≥ 24"**
	ft	D_T = Depth of trench, if trench proposed	**4 - 10 ft**
	Yes/No	If a trench or underground system is proposed, has observation well been provided?	←**yes**
		If a trench is proposed, does materialmeet Env-Wq 1508.06(k)(2) requirements.[4]	← **yes**
yes	Yes/No	If a basin is proposed, Is the perimeter curvilinear, and basin floor flat?	← **yes**
3.0	:1	If a basin is proposed, pond side slopes.	**≥3:1**
214.07	ft	Peak elevation of the 10-year storm event (infiltration can be used in analysis)	
215.13	ft	Peak elevation of the 50-year storm event (infiltration can be used in analysis)	
216.00	ft	Elevation of the top of the practice (if a basin, this is the elevation of the berm)	
YES		10 peak elevation ≤ Elevation of the top of the trench?[5]	← **yes**
YES		If a basin is proposed, 50-year peak elevation ≤ Elevation of berm?	← **yes**

1. Volume below the lowest invert of the outlet structure and excludes forebay volume
2. $Ksat_{DESIGN}$ includes a factor of safety. See Env-Wq 1504.14 for requirements for determining the infiltr. rate
3. 1' separation if treatment not required; 4' for treatment in GPAs & WSIPAs; & 3' in all other areas.
4. Clean, washed well graded diameter of 1.5 to 3 inches above the in-situ soil.
5. If 50-year peak elevation exceeds top of trench, the overflow must be routed in HydroCAD as secondary discharge.

Designer's Notes:

Stage-Area-Storage for Pond P1: INFILTRATION POND #1 (continued)

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)	Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
213.37	19,159	18,974	213.89	20,098	29,180
213.38	19,177	19,166	213.90	20,117	29,381
213.39	19,195	19,357	213.91	20,135	29,582
213.40	19,213	19,549	213.92	20,153	29,784
213.41	19,231	19,742	213.93	20,172	29,985
213.42	19,249	19,934	213.94	20,190	30,187
213.43	19,267	20,127	213.95	20,208	30,389
213.44	19,285	20,319	213.96	20,227	30,591
213.45	19,302	20,512	213.97	20,245	30,794
213.46	19,320	20,705	213.98	20,263	30,996
213.47	19,338	20,899	213.99	20,282	[illegible]
213.48	19,356	21,092	214.00	20,300	[illegible]
213.49	19,374	21,286	214.01	20,318	[illegible]
213.50	19,392	21,480	214.02	20,336	[illegible]
213.51	19,410	21,674	214.03	20,354	32,012
213.52	19,428	21,868	214.04	20,373	32,215
213.53	19,446	22,062	214.05	20,391	32,419
213.54	19,464	22,257	214.06	20,409	32,623
213.55	19,482	22,452	214.07	20,427	32,827
213.56	19,500	22,646	214.08	20,445	33,032
213.57	19,518	22,842	214.09	20,463	33,236
213.58	19,536	23,037	214.10	20,482	33,441
213.59	19,554	23,232	214.11	20,500	33,646
213.60	19,572	23,428	214.12	20,518	33,851
213.61	19,590	23,624	214.13	20,536	34,056
213.62	19,608	23,820	214.14	20,555	34,262
213.63	19,626	24,016	214.15	20,573	34,467
213.64	19,644	24,212	214.16	20,591	34,673
213.65	19,662	24,409	214.17	20,609	34,879
213.66	19,680	24,605	214.18	20,628	35,085
213.67	19,698	24,802	214.19	20,646	35,292
213.68	19,717	24,999	214.20	20,664	35,498
213.69	19,735	25,197	214.21	20,682	35,705
213.70	19,753	25,394	214.22	20,701	35,912
213.71	19,771	25,592	214.23	20,719	36,119
213.72	19,789	25,790	214.24	20,737	36,326
213.73	19,807	25,988	214.25	20,756	36,534
213.74	19,825	26,186	214.26	20,774	36,741
213.75	19,843	26,384	214.27	20,792	36,949
213.76	19,862	26,583	214.28	20,811	37,157
213.77	19,880	26,781	214.29	20,829	37,365
213.78	19,898	26,980	214.30	20,847	37,574
213.79	19,916	27,179	214.31	20,866	37,782
213.80	19,934	27,378	214.32	20,884	37,991
213.81	19,953	27,578	214.33	20,903	38,200
213.82	19,971	27,778	214.34	20,921	38,409
213.83	19,989	27,977	214.35	20,939	38,618
213.84	20,007	28,177	214.36	20,958	38,828
213.85	20,025	28,377	214.37	20,976	39,038
213.86	20,044	28,578	214.38	20,995	39,247
213.87	20,062	28,778	214.39	21,013	39,458
213.88	20,080	28,979	214.40	21,031	39,668

Lowest Inv.=213.40
WQV Req'd=19,208 CF
WQV Prov'd=19,549 CF

Stage-Area-Storage for Pond F1: FOREBAY #1 (continued)

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)	Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
213.37	3,727	3,347	213.89	4,265	5,423
213.38	3,737	3,384	213.90	4,275	5,466
213.39	3,747	3,422	213.91	4,286	5,509
213.40	3,757	3,459	213.92	4,297	5,552
213.41	3,767	3,497	213.93	4,308	5,595
213.42	3,777	3,534	213.94	4,318	5,638
213.43	3,787	3,572	213.95	4,329	5,681
213.44	3,798	3,610	213.96	4,340	5,724
213.45	3,808	3,648	213.97	4,351	5,768
213.46	3,818	3,686	213.98	4,361	5,811
213.47	3,828	3,725	213.99	4,372	5,855
213.48	3,838	3,763	214.00	4,383	5,899
213.49	3,848	3,801	214.01	4,393	5,943
213.50	3,858	3,840	214.02	4,403	5,987
213.51	3,868	3,879	214.03	4,413	6,031
213.52	3,879	3,917	214.04	4,424	6,075
213.53	3,889	3,956	214.05	4,434	6,119
213.54	3,899	3,995	214.06	4,444	6,164
213.55	3,909	4,034	214.07	4,454	6,208
213.56	3,919	4,073	214.08	4,465	6,253
213.57	3,930	4,112	214.09	4,475	6,297
213.58	3,940	4,152	214.10	4,485	6,342
213.59	3,950	4,191	214.11	4,495	6,387
213.60	3,961	4,231	214.12	4,506	6,432
213.61	3,971	4,270	214.13	4,516	6,477
213.62	3,981	4,310	214.14	4,526	6,522
213.63	3,991	4,350	214.15	4,536	[illegible]
213.64	4,002	4,390	214.16	4,547	[illegible]
213.65	4,012	4,430	214.17	4,557	[illegible]
213.66	4,023	4,470	214.18	4,567	[illegible]
213.67	4,033	4,511	214.19	4,578	6,750
213.68	4,043	4,551	214.20	4,588	6,796
213.69	4,054	4,591	214.21	4,599	6,842
213.70	4,064	4,632	214.22	4,609	6,888
213.71	4,075	4,673	214.23	4,619	6,934
213.72	4,085	4,714	214.24	4,630	6,980
213.73	4,095	4,754	214.25	4,640	7,027
213.74	4,106	4,795	214.26	4,651	7,073
213.75	4,116	4,837	214.27	4,661	7,120
213.76	4,127	4,878	214.28	4,672	7,166
213.77	4,137	4,919	214.29	4,682	7,213
213.78	4,148	4,961	214.30	4,693	7,260
213.79	4,159	5,002	214.31	4,703	7,307
213.80	4,169	5,044	214.32	4,714	7,354
213.81	4,180	5,085	214.33	4,724	7,401
213.82	4,190	5,127	214.34	4,735	7,448
213.83	4,201	5,169	214.35	4,745	7,496
213.84	4,211	5,211	214.36	4,756	7,543
213.85	4,222	5,253	214.37	4,766	7,591
213.86	4,233	5,296	214.38	4,777	7,639
213.87	4,243	5,338	214.39	4,788	7,686
213.88	4,254	5,381	214.40	4,798	7,734

Lowest Inv.=213.75
WQV Req'd=4,802 CF
WQV Prov'd=4,837 CF

INFILTRATION PRACTICE CRITERIA
(Env-Wq 1508.06)

NEW HAMPSHIRE DEPARTMENT OF Environmental Services

Type/Node Name: **Infiltration Gravel System - Pond 3 (Node P3)**

Enter the type of infiltration practice (e.g., basin, trench) and the node name in the drainage analysis, if applicable.

		Have you reviewed Env-Wq 1508.06(a) to ensure that infiltration is allowed?	**← yes**
18.77	ac	A = Area draining to the practice	
18.33	ac	A_I = Impervious area draining to the practice	
0.98	decimal	I = Percent impervious area draining to the practice, in decimal form	
0.93	unitless	Rv = Runoff coefficient = 0.05 + (0.9 x I)	
17.44	ac-in	WQV= 1" x Rv x A	
63,291	cf	WQV conversion (ac-in x 43,560 sf/ac x 1ft/12")	
15,823	cf	25% x WQV (check calc for sediment forebay volume)	
Settling Pipe		Method of pretreatment? (not required for clean or roof runoff)	
16,004	cf	V_{SED} = Sediment forebay volume, if used for pretreatment	**≥ 25%WQV**
64,072	cf	V = Volume[1] (attach a stage-storage table)	**≥ WQV**
52,641	sf	A_{SA} = Surface area of the bottom of the pond	
5.00	iph	$Ksat_{DESIGN}$ = Design infiltration rate[2]	
2.9	hours	T_{DRAIN} = Drain time = V / (A_{SA} * I_{DESIGN})	**≤ 72-hrs**
222.00	feet	E_{BTM} = Elevation of the bottom of the basin	
208.33	feet	E_{SHWT} = Elevation of SHWT (if none found, enter the lowest elevation of the test pit)	
216.00	feet	E_{ROCK} = Elevation of bedrock (if none found, enter the lowest elevation of the test pit)	
13.67	feet	D_{SHWT} = Separation from SHWT	**≥ *** [3]
6.0	feet	D_{ROCK} = Separation from bedrock	**≥ *** [3]
	ft	D_{amend} = Depth of amended soil, if applicable due high infiltation rate	**≥ 24"**
	ft	D_T = Depth of trench, if trench proposed	**4 - 10 ft**
	Yes/No	If a trench or underground system is proposed, has observation well been provided?	**←yes**
		If a trench is proposed, does materialmeet Env-Wq 1508.06(k)(2) requirements.[4]	**← yes**
	Yes/No	If a basin is proposed, Is the perimeter curvilinear, and basin floor flat?	**← yes**
	:1	If a basin is proposed, pond side slopes.	**≥3:1**
225.21	ft	Peak elevation of the 10-year storm event (infiltration can be used in analysis)	
227.30	ft	Peak elevation of the 50-year storm event (infiltration can be used in analysis)	
229.25	ft	Elevation of the top of the practice (if a basin, this is the elevation of the berm)	
YES		10 peak elevation ≤ Elevation of the top of the trench?[5]	**← yes**
YES		If a basin is proposed, 50-year peak elevation ≤ Elevation of berm?	**← yes**

1. Volume below the lowest invert of the outlet structure and excludes forebay volume
2. $Ksat_{DESIGN}$ includes a factor of safety. See Env-Wq 1504.14 for requirements for determining the infiltr. rate
3. 1' separation if treatment not required; 4' for treatment in GPAs & WSIPAs; & 3' in all other areas.
4. Clean, washed well graded diameter of 1.5 to 3 inches above the in-situ soil.
5. If 50-year peak elevation exceeds top of trench, the overflow must be routed in HydroCAD as secondary discharge.

Designer's Notes:

Stage-Area-Storage for Pond P3: Gravel Det/Infil Pond #3 (continued)

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)	Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
224.08	52,650	46,762	225.12	52,650	70,142
224.10	52,650	47,211	225.14	52,650	70,592
224.12	52,650	47,661	225.16	52,650	71,042
224.14	52,650	48,111	225.18	52,650	71,491
224.16	52,650	48,560	225.20	52,650	71,941
224.18	52,650	49,010	225.22	52,650	72,391
224.20	52,650	49,459	225.24	52,650	72,840
224.22	52,650	49,909	225.26	52,650	73,290
224.24	52,650	50,359	225.28	52,650	73,739
224.26	52,650	50,808	225.30	52,650	74,189
224.28	52,650	51,258	225.32	52,650	74,639
224.30	52,650	51,708	225.34	52,650	75,088
224.32	52,650	52,157	225.36	52,650	75,538
224.34	52,650	52,607	225.38	52,650	75,988
224.36	52,650	53,056	225.40	52,650	76,437
224.38	52,650	53,506	225.42	52,650	76,887
224.40	52,650	53,956	225.44	52,650	77,337
224.42	52,650	54,405	225.46	52,650	77,786
224.44	52,650	54,855	225.48	52,650	78,236
224.46	52,650	55,305	225.50	52,650	78,685
224.48	52,650	55,754	225.52	52,650	79,135
224.50	52,650	56,204	225.54	52,650	79,585
224.52	52,650	56,654	225.56	52,650	80,034
224.54	52,650	57,103	225.58	52,650	80,484
224.56	52,650	57,553	225.60	52,650	80,934
224.58	52,650	58,002	225.62	52,650	81,383
224.60	52,650	58,452	225.64	52,650	81,833
224.62	52,650	58,902	225.66	52,650	82,282
224.64	52,650	59,351	225.68	52,650	82.732
224.66	52,650	59,801	225.70	52,650	[illegible]
224.68	52,650	60,251	225.72	52,650	[illegible]
224.70	52,650	60,700	225.74	52,650	[illegible]
224.72	52,650	61,150	225.76	52,650	[illegible]
224.74	52,650	61,599	225.78	52,650	84,980
224.76	52,650	62,049	225.80	52,650	85,430
224.78	52,650	62,499	225.82	52,650	85,880
224.80	52,650	62,948	225.84	52,650	86,329
224.82	52,650	63,398	225.86	52,650	86,779
224.84	52,650	63,848	225.88	52,650	87,228
224.86	52,650	64,297	225.90	52,650	87,678
224.88	52,650	64,747	225.92	52,650	88,128
224.90	52,650	65,196	225.94	52,650	88,577
224.92	52,650	65,646	225.96	52,650	89,027
224.94	52,650	66,096	225.98	52,650	89,477
224.96	52,650	66,545	226.00	52,650	89,926
224.98	52,650	66,995	226.02	52,650	90,376
225.00	52,650	67,445	226.04	52,650	90,825
225.02	52,650	67,894	226.06	52,650	91,275
225.04	52,650	68,344	226.08	52,650	91,725
225.06	52,650	68,794	226.10	52,650	92,174
225.08	52,650	69,243	226.12	52,650	92,624
225.10	52,650	69,693	226.14	52,650	93,074

Lowest Inv.=224.85
WQV Req'd=63,291 CF
WQV Prov'd=64,072 CF

Stage-Area-Storage for Pond P6: DETENTION POND #6

Lowest Inv.=223.75
Pretreatment Vol.=10,520 CF

Elevation (feet)	Storage (cubic-feet)	Elevation (feet)	Storage (cubic-feet)	Elevation (feet)	Storage (cubic-feet)
222.65	0	223.17	4,879	223.69	9,808
222.66	94	223.18	4,973	223.70	9,922
222.67	188	223.19	5,067	223.71	10,038
222.68	281	223.20	5,160	223.72	10,156
222.69	375	223.21	5,254	223.73	10,275
222.70	469	223.22	5,348	223.74	10,397
222.71	563	223.23	5,442	223.75	10,520
222.72	657	223.24	5,536	223.76	10,644
222.73	751	223.25	5,629	223.77	10,769
222.74	844	223.26	5,723	223.78	10,896
222.75	938	223.27	5,817	223.79	11,024
222.76	1,032	223.28	5,911	223.80	11,153
222.77	1,126	223.29	6,005	223.81	11,284
222.78	1,220	223.30	6,099	223.82	11,415
[illegible]	[illegible]	223.31	6,192	223.83	11,548
[illegible]	[illegible]	223.32	6,286	223.84	11,681
[illegible]	[illegible]	223.33	6,380	223.85	11,816
222.82	1,595	223.34	6,474	223.86	11,951
222.83	1,689	223.35	6,568	223.87	12,087
222.84	1,783	223.36	6,662	223.88	12,225
222.85	1,876	223.37	6,755	223.89	12,363
222.86	1,970	223.38	6,849	223.90	12,502
222.87	2,064	223.39	6,943	223.91	12,642
222.88	2,158	223.40	7,037	223.92	12,782
222.89	2,252	223.41	7,131	223.93	12,924
222.90	2,346	223.42	7,225	223.94	13,066
222.91	2,439	223.43	7,318	223.95	13,209
222.92	2,533	223.44	7,412	223.96	13,353
222.93	2,627	223.45	7,506	223.97	13,497
222.94	2,721	223.46	7,600	223.98	13,642
222.95	2,815	223.47	7,694	223.99	13,788
222.96	2,909	223.48	7,787	224.00	13,934
222.97	3,002	223.49	7,881	224.01	14,082
222.98	3,096	223.50	7,975	224.02	14,229
222.99	3,190	223.51	8,069	224.03	14,378
223.00	3,284	223.52	8,163	224.04	14,527
223.01	3,378	223.53	8,257	224.05	14,676
223.02	3,472	223.54	8,350	224.06	14,827
223.03	3,565	223.55	8,444	224.07	14,977
223.04	3,659	223.56	8,538	224.08	15,129
223.05	3,753	223.57	8,632	224.09	15,281
223.06	3,847	223.58	8,726	224.10	15,433
223.07	3,941	223.59	8,820	224.11	15,586
223.08	4,034	223.60	8,913	224.12	15,740
223.09	4,128	223.61	9,007	224.13	15,894
223.10	4,222	223.62	9,101	224.14	16,048
223.11	4,316	223.63	9,195	224.15	16,204
223.12	4,410	223.64	9,289	224.16	16,359
223.13	4,504	223.65	9,382	224.17	16,515
223.14	4,597	223.66	9,479	224.18	16,672
223.15	4,691	223.67	9,581	224.19	16,829
223.16	4,785	223.68	9,697	224.20	16,986

Stage-Area-Storage for Pond P2: STORMTECH #2

Elevation (feet)	Storage (cubic-feet)	Elevation (feet)	Storage (cubic-feet)	Elevation (feet)	Storage (cubic-feet)
223.10	0	224.14	6,508	225.18	16,975
223.12	94	224.16	6,713	225.20	17,172
223.14	188	224.18	6,917	225.22	17,369
223.16	283	224.20	7,121	225.24	17,566
223.18	377	224.22	7,326	225.26	17,763
223.20	471	224.24	7,530	225.28	17,959
223.22	565	224.26	7,734	225.30	18,155
223.24	659	224.28	7,937	225.32	18,352
223.26	754	224.30	8,141	225.34	18,547
223.28	848	224.32	8,345	225.36	18,743
223.30	942	224.34	8,548	225.38	18,939
223.32	1,036	224.36	8,752	225.40	19,134
223.34	1,130	224.38	8,955	225.42	19,329
223.36	1,225	224.40	9,158	225.44	19,524
223.38	1,319	224.42	9,361	225.46	19,719
223.40	1,413	224.44	9,564	225.48	19,913
223.42	1,507	224.46	9,767	225.50	20,108
223.44	1,601	224.48	9,970	225.52	20,302
223.46	1,696	224.50	10,172	225.54	20,495
223.48	1,790	224.52	10,375	225.56	20,689
223.50	1,884	224.54	10,577	225.58	20,882
223.52	1,978	224.56	10,779	225.60	21,076
223.54	2,072	224.58	10,981	225.62	21,269
223.56	2,166	224.60	11,183	225.64	21,461
223.58	2,261	224.62	11,385	225.66	21,654
223.60	2,355	224.64	11,586	225.68	21,846
223.62	2,449	224.66	11,788	225.70	22,038
223.64	2,543	224.68	11,989	225.72	22,230
223.66	2,637	224.70	12,191	225.74	22,421
223.68	2,732	224.72	12,392	225.76	22,612
223.70	2,826	224.74	12,593	225.78	22,803
223.72	2,920	224.76	12,794	225.80	22,994
223.74	3,014	224.78	12,994	225.82	23,185
223.76	3,108	224.80	13,195	225.84	23,375
223.78	3,203	224.82	13,395	225.86	23,565
223.80	3,297	224.84	13,596	225.88	23,755
223.82	3,391	224.86	13,796	225.90	23,944
223.84	3,485	224.88	13,996		
223.86	3,635	224.90	14,196		
223.88	3,841	224.92	14,395		
223.90	4,047	224.94	14,595	225.98	24,700
223.92	4,252	224.96	14,794	226.00	24,888
223.94	4,458	224.98	14,993	226.02	25,076
223.96	4,663	225.00	15,192	226.04	25,264
223.98	4,869	225.02	15,391	226.06	25,451
224.00	5,074	225.04	15,589	226.08	25,638
224.02	5,279	225.06	15,788	226.10	25,825
224.04	5,484	225.08	15,986	226.12	26,012
224.06	5,689	225.10	16,184	226.14	26,198
224.08	5,894	225.12	16,382	226.16	26,384
224.10	6,099	225.14	16,580	226.18	26,569
224.12	6,304	225.16	16,778	226.20	26,755

Lowest Inv.=224.04
Pretreatment Vol.=5,484 CF

NEW HAMPSHIRE DEPARTMENT OF Environmental Services

INFILTRATION PRACTICE CRITERIA
(Env-Wq 1508.06)

Type/Node Name: **Stormtech Chamber System - (Node P4)**

Enter the type of infiltration practice (e.g., basin, trench) and the node name in the drainage analysis, if applicable.

Value	Unit	Description	Criteria
		Have you reviewed Env-Wq 1508.06(a) to ensure that infiltration is allowed?	**← yes**
5.82	ac	A = Area draining to the practice	
5.35	ac	A_I = Impervious area draining to the practice	
0.92	decimal	I = Percent impervious area draining to the practice, in decimal form	
0.88	unitless	Rv = Runoff coefficient = 0.05 + (0.9 x I)	
5.11	ac-in	WQV= 1" x Rv x A	
18,535	cf	WQV conversion (ac-in x 43,560 sf/ac x 1ft/12")	
4,634	cf	25% x WQV (check calc for sediment forebay volume)	
Iso Row		Method of pretreatment? (not required for clean or roof runoff)	
7,530	cf	V_{SED} = Sediment forebay volume, if used for pretreatment	**$\geq$ 25%WQV**
18,569	cf	V = Volume[1] (attach a stage-storage table)	**$\geq$ WQV**
6,476	sf	A_{SA} = Surface area of the bottom of the pond	
1.20	iph	$Ksat_{DESIGN}$ = Design infiltration rate[2]	
28.6	hours	T_{DRAIN} = Drain time = V / (A_{SA} * I_{DESIGN})	**$\leq$ 72-hrs**
223.70	feet	E_{BTM} = Elevation of the bottom of the basin	
218.00	feet	E_{SHWT} = Elevation of SHWT (if none found, enter the lowest elevation of the test pit)	
209.08	feet	E_{ROCK} = Elevation of bedrock (if none found, enter the lowest elevation of the test pit)	
5.70	feet	D_{SHWT} = Separation from SHWT	**$\geq$ *[3]**
14.6	feet	D_{ROCK} = Separation from bedrock	**$\geq$ *[3]**
	ft	D_{amend} = Depth of amended soil, if applicable due high infiltation rate	**$\geq$ 24"**
	ft	D_T = Depth of trench, if trench proposed	**4 - 10 ft**
	Yes/No	If a trench or underground system is proposed, has observation well been provided?	**←yes**
		If a trench is proposed, does materialmeet Env-Wq 1508.06(k)(2) requirements.[4]	**← yes**
	Yes/No	If a basin is proposed, Is the perimeter curvilinear, and basin floor flat?	**← yes**
	:1	If a basin is proposed, pond side slopes.	**$\geq$3:1**
229.17	ft	Peak elevation of the 10-year storm event (infiltration can be used in analysis)	
229.70	ft	Peak elevation of the 50-year storm event (infiltration can be used in analysis)	
229.70	ft	Elevation of the top of the practice (if a basin, this is the elevation of the berm)	
YES		10 peak elevation $\leq$ Elevation of the top of the trench?[5]	**← yes**
YES		If a basin is proposed, 50-year peak elevation $\leq$ Elevation of berm?	**← yes**

1. Volume below the lowest invert of the outlet structure and excludes forebay volume
2. $Ksat_{DESIGN}$ includes a factor of safety. See Env-Wq 1504.14 for requirements for determining the infiltr. rate
3. 1' separation if treatment not required; 4' for treatment in GPAs & WSIPAs; & 3' in all other areas.
4. Clean, washed well graded diameter of 1.5 to 3 inches above the in-situ soil.
5. If 50-year peak elevation exceeds top of trench, the overflow must be routed in HydroCAD as secondary discharge.

Designer's Notes:

Stage-Area-Storage for Pond P4: STORMTECH (continued)

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
225.03	6,476	9,259
225.05	6,476	9,366
225.07	6,476	9,473
225.09	6,476	9,581
225.11	6,476	9,688
225.13	6,476	9,795
225.15	6,476	9,901
225.17	6,476	10,008
225.19	6,476	10,115
225.21	6,476	10,221
225.23	6,476	10,328
225.25	6,476	10,434
225.27	6,476	10,540
225.29	6,476	10,646
225.31	6,476	10,752
225.33	6,476	10,858
225.35	6,476	10,964
225.37	6,476	11,070
225.39	6,476	11,175
225.41	6,476	11,281
225.43	6,476	11,386
225.45	6,476	11,491
225.47	6,476	11,596
225.49	6,476	11,701
225.51	6,476	11,806
225.53	6,476	11,911
225.55	6,476	12,015
225.57	6,476	12,120
225.59	6,476	12,224
225.61	6,476	12,328
225.63	6,476	12,432
225.65	6,476	12,536
225.67	6,476	12,640
225.69	6,476	12,743
225.71	6,476	12,847
225.73	6,476	12,950
225.75	6,476	13,053
225.77	6,476	13,156
225.79	6,476	13,259
225.81	6,476	13,362
225.83	6,476	13,465
225.85	6,476	13,567
225.87	6,476	13,670
225.89	6,476	13,772
225.91	6,476	13,874
[illegible]	[illegible]	13,976
[illegible]	[illegible]	14,077
[illegible]	[illegible]	14,179
[illegible]	[illegible]	14,281
[illegible]	[illegible]	14,382
226.03	6,476	14,483
226.05	6,476	14,584
226.07	6,476	14,685
226.09	6,476	14,785
226.11	6,476	14,886
226.13	6,476	14,986
226.15	6,476	15,086
226.17	6,476	15,186
226.19	6,476	15,286
226.21	6,476	15,386
226.23	6,476	15,485
226.25	6,476	15,585
226.27	6,476	15,684
226.29	6,476	15,783
226.31	6,476	15,882
226.33	6,476	15,980
226.35	6,476	16,079
226.37	6,476	16,177
226.39	6,476	16,275
226.41	6,476	16,373
226.43	6,476	16,471
226.45	6,476	16,568
226.47	6,476	16,666
226.49	6,476	16,763
226.51	6,476	16,860
226.53	6,476	16,956
226.55	6,476	17,053
226.57	6,476	17,149
226.59	6,476	17,246
226.61	6,476	17,341
226.63	6,476	17,437
226.65	6,476	17,533
226.67	6,476	17,628
226.69	6,476	17,723
226.71	6,476	17,818
226.73	6,476	17,913
226.75	6,476	18,007
226.77	6,476	18,101
226.79	6,476	18,195
226.81	6,476	18,289
226.83	6,476	18,383
226.85	6,476	18,476
226.87	6,476	18,569
226.89	6,476	18,662
226.91	6,476	18,755
226.93	6,476	18,847
226.95	6,476	18,939
226.97	6,476	19,031
226.99	6,476	19,123
227.01	6,476	19,214
227.03	6,476	19,305
227.05	6,476	19,396
227.07	6,476	19,487
227.09	6,476	19,577

Lowest Inv.=
WQV Req'd=18,535 CF
WQV Prov'd=18,569 CF

Stage-Area-Storage for Pond 1P: ISO ROW CB 114

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)	Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
222.95	**905**	0	228.15	905	3,183
223.05	905	36	228.25	905	3,228
223.15	905	72	228.35	905	3,269
223.25	905	109	228.45	905	3,309
223.35	905	145	228.55	905	3,347
223.45	905	181	228.65	905	3,385
223.55	905	217	228.75	905	3,421
223.65	905	254	228.85	905	3,457
223.75	905	309	228.95	905	3,494
223.85	905	382	229.05	905	3,530
223.95	905	456	229.15	905	3,566
224.05	905	529	229.25	905	3,602
224.15	905	602	229.35	905	3,638
224.25	905	675	229.45	905	3,675
224.35	905	748	229.55	905	3,711
224.45	905	821	229.65	905	**3,747**
224.55	905	893			
224.65	905	965			
224.75	905	1,037			
224.85	905	1,109			
224.95	905	1,180			
225.05	905	1,251			
225.15	905	1,322			
225.25	905	1,392			
225.35	905	1,463			
225.45	905	1,532			
225.55	905	1,602			
225.65	905	1,670			
225.75	905	1,739			
225.85	905	1,807			
225.95	905	1,875			
226.05	905	1,942			
226.15	905	2,008			
226.25	905	2,075			
226.35	905	2,140			
226.45	905	2,205			
226.55	905	2,270			
226.65	905	2,333			
226.75	905	2,397			
226.85	905	2,459			
226.95	905	2,521			
227.05	905	2,582			
227.15	905	2,642			
227.25	905	2,701			
227.35	905	2,759			
227.45	905	2,817			
227.55	905	2,873			
227.65	905	2,928			
227.75	905	2,982			
227.85	905	3,035			
227.95	905	3,086			
228.05	905	3,136			

Weir Elev.=228.01
WQV Req'd=3,109 cf
WQV Prov'd=3,116 cf

Stage-Area-Storage for Pond 1P: ISO ROW DMH 013

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
222.95	**905**	0
223.05	905	36
223.15	905	72
223.25	905	109
223.35	905	145
223.45	905	181
223.55	905	217
223.65	905	254
223.75	905	309
223.85	905	382
223.95	905	456
224.05	905	529
224.15	905	602
224.25	905	675
224.35	905	748
224.45	905	821
224.55	905	893
224.65	905	965
224.75	905	1,037
224.85	905	1,109
224.95	905	1,180
225.05	905	1,251
225.15	905	1,322
225.25	905	1,392
225.35	905	1,463
225.45	905	1,532
225.55	905	1,602
225.65	905	1,670
225.75	905	1,739
225.85	905	1,807
225.95	905	1,875
226.05	905	1,942
226.15	905	2,008
226.25	905	2,075
226.35	905	2,140
226.45	905	2,205
226.55	905	2,270
226.65	905	2,333
226.75	905	2,397
226.85	905	2,459
226.95	905	2,521
227.05	905	2,582
227.15	905	2,642
227.25	905	2,701
227.35	905	2,759
227.45	905	2,817
227.55	905	2,873
227.65	905	2,928
227.75	905	2,982
227.85	905	3,035
227.95	905	3,086
228.05	905	3,136
228.15	905	3,183
228.25	905	3,228
228.35	905	3,269
228.45	905	3,309
228.55	905	3,347
228.65	905	3,385
228.75	905	3,421
228.85	905	3,457
228.95	905	3,494
229.05	905	3,530
229.15	905	3,566
229.25	905	3,602
229.35	905	3,638
229.45	905	3,675
229.55	905	3,711
229.65	905	**3,747**

Weir Inv.=226.75
WQV Req'd=2,353 cf
WQV Prov'd=2,397 cf

GENERAL CALCULATIONS - WQV and WQF
(optional worksheet)

This worksheet may be useful when designing a BMP **that does not fit into one of the specific worksheets already provided** (i.e. for a technology which is not a stormwater wetland, infiltration practice, etc.)

Water Quality Volume (WQV)

3.07	ac	A = Area draining to the practice
2.71	ac	A_I = Impervious area draining to the practice
0.88	decimal	I = Percent impervious area draining to the practice, in decimal form
0.84	unitless	Rv = Runoff coefficient = 0.05 + (0.9 x I)
2.59	ac-in	WQV= 1" x Rv x A
9,411	cf	WQV conversion (ac-in x 43,560 sf/ac x 1ft/12")

Water Quality Flow (WQF)

1	inches	P = Amount of rainfall. For WQF in NH, P = 1".
0.84	inches	Q = Water quality depth. Q = WQV/A
99	unitless	CN = Unit peak discharge curve number. CN =1000/(10+5P+10Q–10*$[Q^2 + 1.25*Q*P]^{0.5}$)
0.1	inches	S = Potential maximum retention. S = (1000/CN) - 10
0.029	inches	Ia = Initial abstraction. Ia = 0.2S
	minutes	T_c = Time of Concentration
	cfs/mi^2/in	q_u is the unit peak discharge. Obtain this value from TR-55 exhibits 4-II and 4-III.
-	cfs	WQF = q_u x WQV. Conversion: to convert "cfs/mi^2/in * ac-in" to "cfs" multiply by 1mi^2/640ac.

Designer's Notes:
Isolocation Row (DMH 013)

9,411 cf * 0.25 = 2,353 cf (Pretreatment Volume)

GENERAL CALCULATIONS - WQV and WQF
(optional worksheet)

This worksheet may be useful when designing a BMP **that does not fit into one of the specific worksheets already provided** (i.e. for a technology which is not a stormwater wetland, infiltration practice, etc.)

Water Quality Volume (WQV)

3.71	ac	A = Area draining to the practice
3.60	ac	A_I = Impervious area draining to the practice
0.97	decimal	I = Percent impervious area draining to the practice, in decimal form
0.92	unitless	Rv = Runoff coefficient = 0.05 + (0.9 x I)
3.43	ac-in	WQV= 1" x Rv x A
12,434	cf	WQV conversion (ac-in x 43,560 sf/ac x 1ft/12")

Water Quality Flow (WQF)

1	inches	P = Amount of rainfall. For WQF in NH, P = 1".
0.92	inches	Q = Water quality depth. Q = WQV/A
99	unitless	CN = Unit peak discharge curve number. CN =1000/(10+5P+10Q–10*[Q^2 + 1.25*Q*P] $^{0.5}$)
0.1	inches	S = Potential maximum retention. S = (1000/CN) - 10
0.013	inches	Ia = Initial abstraction. Ia = 0.2S
	minutes	T_c = Time of Concentration
	cfs/mi^2/in	q_u is the unit peak discharge. Obtain this value from TR-55 exhibits 4-II and 4-III.
-	cfs	WQF = q_u x WQV. Conversion: to convert "cfs/mi^2/in * ac-in" to "cfs" multiply by 1mi^2/640ac.

Designer's Notes:
Isolocation Row (CB 114)

9,411 cf * 0.25 = 3,109 cf (Pretreatment Volume)

NEW HAMPSHIRE DEPARTMENT OF Environmental Services

FILTRATION PRACTICE DESIGN CRITERIA
(Env-Wq 1508.07)

Type/Node Name: **Focal Point Pond #5 (P5)**

Enter the type of filtration practice (e.g., bioretention system) and the node name in the drainage analysis, if applicable.

		Check if you reviewed the restrictions on unlined systems outlined in Env-Wq 1508.07(a).	
2.04	ac	A = Area draining to the practice	
0.62	ac	A_I = Impervious area draining to the practice	
0.30	decimal	I = Percent impervious area draining to the practice, in decimal form	
0.32	unitless	Rv = Runoff coefficient = 0.05 + (0.9 x I)	
0.66	ac-in	WQV= 1" x Rv x A	
2,396	cf	WQV conversion (ac-in x 43,560 sf/ac x 1ft/12")	
599	cf	25% x WQV (check calc for sediment forebay volume)	
1,797	cf	75% x WQV (check calc for surface sand filter volume)	
Baffle		Method of Pretreatment? (not required for clean or roof runoff)	
	cf	V_{SED} = Sediment forebay volume, if used for pretreatment	**≥ 25%WQV**
Calculate time to drain if system IS NOT underdrained:			
1,135	sf	A_{SA} = Surface area of the practice	
100.00	iph	$Ksat_{DESIGN}$ = Design infiltration rate[1]	
	Yes/No	If Ksat (prior to factor of safety) is < 0.50 iph, has an underdrain been provided? (Use the calculations below)	
0.3	hours	T_{DRAIN} = Drain time = V / (A_{SA} * I_{DESIGN})	**≤ 72-hrs**
Calculate time to drain if system IS underdrained:			
208.68	ft	E_{WQV} = Elevation of WQV (attach stage-storage table)	
3.81	cfs	Q_{WQV} = Discharge at the E_{WQV} (attach stage-discharge table)	
0.35	hours	T_{DRAIN} = Drain time = 2WQV/Q_{WQV}	**≤ 72-hrs**
204.92	feet	E_{FC} = Elevation of the bottom of the filter course material[2]	
204.25	feet	E_{UD} = Invert elevation of the underdrain (UD), if applicable	
204.91	feet	E_{SHWT} = Elevation of SHWT (if none found, enter the lowest elevation of the test pit)	
203.48	feet	E_{ROCK} = Elevation of bedrock (if none found, enter the lowest elevation of the test pit)	
0.67	feet	$D_{FC\ to\ UD}$ = Depth to UD from the bottom of the filter course	**≥ 1'**
1.44	feet	$D_{FC\ to\ ROCK}$ = Depth to bedrock from the bottom of the filter course	**≥ 1'**
0.01	feet	$D_{FC\ to\ SHWT}$ = Depth to SHWT from the bottom of the filter course	**≥ 1'**
209.29	ft	Peak elevation of the 50-year storm event (infiltration can be used in analysis)	
211.00	ft	Elevation of the top of the practice	
YES		50 peak elevation ≤ Elevation of the top of the practice	**← yes**
If a surface sand filter or underground sand filter is proposed:			
YES	ac	Drainage Area check.	**< 10 ac**
	cf	V = Volume of storage[3] (attach a stage-storage table)	**≥ 75%WQV**
	inches	D_{FC} = Filter course thickness	**18", or 24" if within GPA**
Sheet		Note what sheet in the plan set contains the filter course specification.	
	Yes/No	Access grate provided?	**← yes**

If a bioretention area is proposed:			
YES	ac	Drainage Area no larger than 5 ac?	**← yes**
2,410	cf	V = Volume of storage[3] (attach a stage-storage table)	**≥ WQV**
27.0	inches	D_{FC} = Filter course thickness	**18", or 24" if within GPA**
Sheet		Note what sheet in the plan set contains the filter course specification	
3.0	:1	Pond side slopes	**≥ 3:1**
Sheet		Note what sheet in the plan set contains the planting plans and surface cover	
If porous pavement is proposed:			
		Type of pavement proposed (Concrete? Asphalt? Pavers? Etc.)	
	acres	A_{SA} = Surface area of the pervious pavement	
	:1	Ratio of the contributing area to the pervious surface area	**≤ 5:1**
	inches	D_{FC} = Filter course thickness	**12", or 18" if within GPA**
Sheet		Note what sheet in the plan set contains the filter course spec.	**mod. 304.1 (see spec)**

1. Rate of the limiting layer (either the filter course or the underlying soil). $Ksat_{design}$ includes factor of safey. See Env-Wq 1504.14 for guidance on determining the infiltration rate.

2. See lines 34, 40 and 48 for required depths of filter media.

3. Volume without depending on infiltration. The volume includes the storage above the filter (but below the invert of the outlet stucture, if any), the filter media voids, and the pretreatment area. The storage above the filter media shall not include the volume above the outlet structure, if any.

Designer's Notes: ______________________________

Stage-Area-Storage for Pond P5: FOCALPOINT POND #5 (continued)

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
207.00	1,135	472
207.02	1,135	477
207.04	1,135	481
207.06	1,135	486
207.08	1,135	490
207.10	1,135	495
207.12	1,135	499
207.14	1,135	504
207.16	1,135	508
207.18	1,135	522
207.20	1,135	545
207.22	1,135	568
207.24	1,135	590
207.26	1,135	613
207.28	1,135	636
207.30	1,135	658
207.32	1,135	681
207.34	1,135	704
207.36	1,135	726
207.38	1,135	749
207.40	1,135	772
207.42	1,135	795
207.44	1,135	817
207.46	1.135	840
		863
		885
		908
		931
207.56	1,135	953
207.58	1,135	976
207.60	1,135	999
207.62	1,135	1,021
207.64	1,135	1,044
207.66	1,135	1,067
207.68	1,135	1,090
207.70	1,135	1,112
207.72	1,135	1,135
207.74	1,135	1,158
207.76	1,135	1,180
207.78	1,135	1,203
207.80	1,135	1,226
207.82	1,135	1,249
207.84	1,135	1,271
207.86	1,135	1,294
207.88	1,135	1,317
207.90	1,135	1,339
207.92	1,135	1,362
207.94	1,135	1,385
207.96	1,135	1,407
207.98	1,135	1,430
208.00	1,135	1,453
208.02	1,135	1,475
208.04	1,135	1,498
208.06	1,135	1,521
208.08	1,135	1,544
208.10	1,135	1,566
208.12	1,135	1,589
208.14	1,135	1,612
208.16	1,135	1,634
208.18	1,135	1,657
208.20	1,135	1,680
208.22	1,135	1,703
208.24	1,135	1,725
208.26	1,135	1,748
208.28	1,135	1,771
208.30	1,135	1,796
208.32	1,135	1,820
208.34	1,135	1,846
208.36	1,135	1,873
208.38	1,135	1,900
208.40	1,135	1,928
208.42	1,135	1,957
208.44	1,135	1,986
208.46	1,135	2,017
208.48	1,135	2,048
208.50	1,135	2,080
208.52	1,135	2,113
208.54	1,135	2,147
208.56	1,135	2,182
208.58	1,135	2,218
208.60	1,135	2,254
208.62	1,135	2,292
208.64	1,135	2,330
208.66	1,135	2,370
208.68	1,135	2,410
208.70	1,135	2,452
208.72	1,135	2,494
208.74	1,135	2,537
208.76	1,135	2,582
208.78	1,135	2,627
208.80	1,135	2,673
208.82	1,135	2,721
208.84	1,135	2,769
208.86	1,135	2,819
208.88	1,135	2,869
208.90	1,135	2,921
208.92	1,135	2,973
208.94	1,135	3,027
208.96	1,135	3,082
208.98	1,135	3,138
209.00	1,135	3,196
209.02	1,135	3,254
209.04	1,135	3,312
209.06	1,135	3,371

Lowest Inv.=208.68
WQV Req'd=2,396 cf
WQV Prov'd=2,410 cf

NEW HAMPSHIRE DEPARTMENT OF Environmental Services

FILTRATION PRACTICE DESIGN CRITERIA
(Env-Wq 1508.07)

Type/Node Name: **Tree Well #1 (Watershed 249)**

Enter the type of filtration practice (e.g., bioretention system) and the node name in the drainage analysis, if applicable.

		Check if you reviewed the restrictions on unlined systems outlined in Env-Wq 1508.07(a).	
0.37	ac	A = Area draining to the practice	
0.23	ac	A_I = Impervious area draining to the practice	
0.62	decimal	I = Percent impervious area draining to the practice, in decimal form	
0.61	unitless	Rv = Runoff coefficient = 0.05 + (0.9 x I)	
0.23	ac-in	WQV= 1” x Rv x A	
819	cf	WQV conversion (ac-in x 43,560 sf/ac x 1ft/12”)	
205	cf	25% x WQV (check calc for sediment forebay volume)	
614	cf	75% x WQV (check calc for surface sand filter volume)	
Deep Sump CB		Method of Pretreatment? (not required for clean or roof runoff)	
NA	cf	V_{SED} = Sediment forebay volume, if used for pretreatment	**≥ 25%WQV**
Calculate time to drain if system IS NOT underdrained:			
32	sf	A_{SA} = Surface area of the practice	
10.00	iph	$Ksat_{DESIGN}$ = Design infiltration rate[1]	
	Yes/No	If Ksat (prior to factor of safety) is < 0.50 iph, has an underdrain been provided? (Use the calculations below)	
30.7	hours	T_{DRAIN} = Drain time = V / (A_{SA} * I_{DESIGN})	**≤ 72-hrs**
Calculate time to drain if system IS underdrained:			
	ft	E_{WQV} = Elevation of WQV (attach stage-storage table)	
	cfs	Q_{WQV} = Discharge at the E_{WQV} (attach stage-discharge table)	
-	hours	T_{DRAIN} = Drain time = 2WQV/Q_{WQV}	**≤ 72-hrs**
205.55	feet	E_{FC} = Elevation of the bottom of the filter course material[2]	
205.55	feet	E_{UD} = Invert elevation of the underdrain (UD), if applicable	
NA	feet	E_{SHWT} = Elevation of SHWT (if none found, enter the lowest elevation of the test pit)	
NA	feet	E_{ROCK} = Elevation of bedrock (if none found, enter the lowest elevation of the test pit)	
-	feet	$D_{FC\ to\ UD}$ = Depth to UD from the bottom of the filter course	**≥ 1'**
#VALUE!	feet	$D_{FC\ to\ ROCK}$ = Depth to bedrock from the bottom of the filter course	**≥ 1'**
#VALUE!	feet	$D_{FC\ to\ SHWT}$ = Depth to SHWT from the bottom of the filter course	**≥ 1'**
	ft	Peak elevation of the 50-year storm event (infiltration can be used in analysis)	
208.55	ft	Elevation of the top of the practice	
-		50 peak elevation ≤ Elevation of the top of the practice	**← yes**
If a surface sand filter or underground sand filter is proposed:			
YES	ac	Drainage Area check.	**< 10 ac**
	cf	V = Volume of storage[3] (attach a stage-storage table)	**≥ 75%WQV**
	inches	D_{FC} = Filter course thickness	**18", or 24" if within GPA**
Sheet		Note what sheet in the plan set contains the filter course specification.	
	Yes/No	Access grate provided?	**← yes**

If a bioretention area is proposed:			
YES	ac	Drainage Area no larger than 5 ac?	**← yes**
	cf	V = Volume of storage[3] (attach a stage-storage table)	**≥ WQV**
	inches	D_{FC} = Filter course thickness	**18", or 24" if within GPA**
Sheet		Note what sheet in the plan set contains the filter course specification	
	:1	Pond side slopes	**≥ 3:1**
Sheet		Note what sheet in the plan set contains the planting plans and surface cover	
If porous pavement is proposed:			
		Type of pavement proposed (Concrete? Asphalt? Pavers? Etc.)	
	acres	A_{SA} = Surface area of the pervious pavement	
	:1	Ratio of the contributing area to the pervious surface area	**≤ 5:1**
	inches	D_{FC} = Filter course thickness	**12", or 18" if within GPA**
Sheet		Note what sheet in the plan set contains the filter course spec.	**mod. 304.1 (see spec)**

1. Rate of the limiting layer (either the filter course or the underlying soil). $Ksat_{design}$ includes factor of safey. See Env-Wq 1504.14 for guidance on determining the infiltration rate.

2. See lines 34, 40 and 48 for required depths of filter media.

3. Volume without depending on infiltration. The volume includes the storage above the filter (but below the invert of the outlet stucture, if any), the filter media voids, and the pretreatment area. The storage above the filter media shall not include the volume above the outlet structure, if any.

Designer's Notes:

Perpritary Filterra Tree Well Treatment System

Watershed Area =0.37 Acres

Tree Box Filter = 8' x 4'

Recommended Contributing Drainage Area = 0.33 Acres - 0.42 Acres

Due to the contrubing drianage area being within the limits of the proposed units, it can be assumed that the sizing of the tree box unit is adequate for the above mentioned watershed.

Outlet pipe is connected to a catch basin (CB 134), this catch basin also will act as a overflow in large storms.

(See attached Filterra Details and Documents for further information)

NEW HAMPSHIRE DEPARTMENT OF Environmental Services

FILTRATION PRACTICE DESIGN CRITERIA
(Env-Wq 1508.07)

Type/Node Name: **Tree Well #1 (Watershed 248)**

Enter the type of filtration practice (e.g., bioretention system) and the node name in the drainage analysis, if applicable.

		Check if you reviewed the restrictions on unlined systems outlined in Env-Wq 1508.07(a).	
0.48	ac	A = Area draining to the practice	
0.32	ac	A_I = Impervious area draining to the practice	
0.66	decimal	I = Percent impervious area draining to the practice, in decimal form	
0.64	unitless	Rv = Runoff coefficient = 0.05 + (0.9 x I)	
0.31	ac-in	WQV= 1" x Rv x A	
1,116	cf	WQV conversion (ac-in x 43,560 sf/ac x 1ft/12")	
279	cf	25% x WQV (check calc for sediment forebay volume)	
837	cf	75% x WQV (check calc for surface sand filter volume)	
Deep Sump CB		Method of Pretreatment? (not required for clean or roof runoff)	
NA	cf	V_{SED} = Sediment forebay volume, if used for pretreatment	**≥ 25%WQV**
Calculate time to drain if system IS NOT underdrained:			
48	sf	A_{SA} = Surface area of the practice	
10.00	iph	$Ksat_{DESIGN}$ = Design infiltration rate[1]	
		If Ksat (prior to factor of safety) is < 0.50 iph, has an underdrain been provided?	
	Yes/No	(Use the calculations below)	
27.9	hours	T_{DRAIN} = Drain time = V / (A_{SA} * I_{DESIGN})	**≤ 72-hrs**
Calculate time to drain if system IS underdrained:			
	ft	E_{WQV} = Elevation of WQV (attach stage-storage table)	
	cfs	Q_{WQV} = Discharge at the E_{WQV} (attach stage-discharge table)	
-	hours	T_{DRAIN} = Drain time = 2WQV/Q_{WQV}	**≤ 72-hrs**
205.55	feet	E_{FC} = Elevation of the bottom of the filter course material[2]	
205.55	feet	E_{UD} = Invert elevation of the underdrain (UD), if applicable	
NA	feet	E_{SHWT} = Elevation of SHWT (if none found, enter the lowest elevation of the test pit)	
NA	feet	E_{ROCK} = Elevation of bedrock (if none found, enter the lowest elevation of the test pit)	
-	feet	$D_{FC\ to\ UD}$ = Depth to UD from the bottom of the filter course	**≥ 1'**
#VALUE!	feet	$D_{FC\ to\ ROCK}$ = Depth to bedrock from the bottom of the filter course	**≥ 1'**
#VALUE!	feet	$D_{FC\ to\ SHWT}$ = Depth to SHWT from the bottom of the filter course	**≥ 1'**
	ft	Peak elevation of the 50-year storm event (infiltration can be used in analysis)	
208.55	ft	Elevation of the top of the practice	
-		50 peak elevation ≤ Elevation of the top of the practice	**← yes**
If a surface sand filter or underground sand filter is proposed:			
YES	ac	Drainage Area check.	**< 10 ac**
	cf	V = Volume of storage[3] (attach a stage-storage table)	**≥ 75%WQV**
	inches	D_{FC} = Filter course thickness	**18", or 24" if within GPA**
Sheet		Note what sheet in the plan set contains the filter course specification.	
	Yes/No	Access grate provided?	**← yes**

If a bioretention area is proposed:			
YES	ac	Drainage Area no larger than 5 ac?	**← yes**
	cf	V = Volume of storage[3] (attach a stage-storage table)	**≥ WQV**
	inches	D_{FC} = Filter course thickness	**18", or 24" if within GPA**
Sheet		Note what sheet in the plan set contains the filter course specification	
	:1	Pond side slopes	**≥ 3:1**
Sheet		Note what sheet in the plan set contains the planting plans and surface cover	
If porous pavement is proposed:			
		Type of pavement proposed (Concrete? Asphalt? Pavers? Etc.)	
	acres	A_{SA} = Surface area of the pervious pavement	
	:1	Ratio of the contributing area to the pervious surface area	**≤ 5:1**
	inches	D_{FC} = Filter course thickness	**12", or 18" if within GPA**
Sheet		Note what sheet in the plan set contains the filter course spec.	**mod. 304.1 (see spec)**

1. Rate of the limiting layer (either the filter course or the underlying soil). $Ksat_{design}$ includes factor of safey. See Env-Wq 1504.14 for guidance on determining the infiltration rate.

2. See lines 34, 40 and 48 for required depths of filter media.

3. Volume without depending on infiltration. The volume includes the storage above the filter (but below the invert of the outlet stucture, if any), the filter media voids, and the pretreatment area. The storage above the filter media shall not include the volume above the outlet structure, if any.

Designer's Notes:

Perpritary Filterra Tree Well Treatment System

Watershed Area =0.48 Acres

Tree Box Filter = 6' x 8'

Recommended Contributing Drainage Area = Up to 0.64 Acres

Due to the contrubing drianage area being within the limits of the proposed units, it can be assumed that the sizing of the tree box unit is adequate for the above mentioned watershed.

Outlet pipe is connected to a catch basin (CB 135), this catch basin also will act as a overflow in large storms.

(See attached Filterra Details and Documents for further information)

NEW HAMPSHIRE DEPARTMENT OF Environmental Services

FILTRATION PRACTICE DESIGN CRITERIA
(Env-Wq 1508.07)

Type/Node Name: **Tree Well #3 (Watershed 253)**

Enter the type of filtration practice (e.g., bioretention system) and the node name in the drainage analysis, if applicable.

		Check if you reviewed the restrictions on unlined systems outlined in Env-Wq 1508.07(a).	
0.22	ac	A = Area draining to the practice	
0.13	ac	A_I = Impervious area draining to the practice	
0.59	decimal	I = Percent impervious area draining to the practice, in decimal form	
0.58	unitless	Rv = Runoff coefficient = 0.05 + (0.9 x I)	
0.13	ac-in	WQV= 1" x Rv x A	
465	cf	WQV conversion (ac-in x 43,560 sf/ac x 1ft/12")	
116	cf	25% x WQV (check calc for sediment forebay volume)	
349	cf	75% x WQV (check calc for surface sand filter volume)	
Deep Sump CB		Method of Pretreatment? (not required for clean or roof runoff)	
NA	cf	V_{SED} = Sediment forebay volume, if used for pretreatment	**≥ 25%WQV**
Calculate time to drain if system IS NOT underdrained:			
24	sf	A_{SA} = Surface area of the practice	
10.00	iph	$Ksat_{DESIGN}$ = Design infiltration rate[1]	
	Yes/No	If Ksat (prior to factor of safety) is < 0.50 iph, has an underdrain been provided? (Use the calculations below)	
23.2	hours	T_{DRAIN} = Drain time = V / (A_{SA} * I_{DESIGN})	**≤ 72-hrs**
Calculate time to drain if system IS underdrained:			
	ft	E_{WQV} = Elevation of WQV (attach stage-storage table)	
	cfs	Q_{WQV} = Discharge at the E_{WQV} (attach stage-discharge table)	
-	hours	T_{DRAIN} = Drain time = 2WQV/Q_{WQV}	**≤ 72-hrs**
220.65	feet	E_{FC} = Elevation of the bottom of the filter course material[2]	
220.65	feet	E_{UD} = Invert elevation of the underdrain (UD), if applicable	
NA	feet	E_{SHWT} = Elevation of SHWT (if none found, enter the lowest elevation of the test pit)	
NA	feet	E_{ROCK} = Elevation of bedrock (if none found, enter the lowest elevation of the test pit)	
-	feet	$D_{FC\ to\ UD}$ = Depth to UD from the bottom of the filter course	**≥ 1'**
#VALUE!	feet	$D_{FC\ to\ ROCK}$ = Depth to bedrock from the bottom of the filter course	**≥ 1'**
#VALUE!	feet	$D_{FC\ to\ SHWT}$ = Depth to SHWT from the bottom of the filter course	**≥ 1'**
	ft	Peak elevation of the 50-year storm event (infiltration can be used in analysis)	
224.65	ft	Elevation of the top of the practice	
-		50 peak elevation ≤ Elevation of the top of the practice	**← yes**
If a surface sand filter or underground sand filter is proposed:			
YES	ac	Drainage Area check.	**< 10 ac**
	cf	V = Volume of storage[3] (attach a stage-storage table)	**≥ 75%WQV**
	inches	D_{FC} = Filter course thickness	**18", or 24" if within GPA**
Sheet		Note what sheet in the plan set contains the filter course specification.	
	Yes/No	Access grate provided?	**← yes**

If a bioretention area is proposed:			
YES	ac	Drainage Area no larger than 5 ac?	**← yes**
	cf	V = Volume of storage[3] (attach a stage-storage table)	**≥ WQV**
	inches	D_{FC} = Filter course thickness	**18", or 24" if within GPA**
Sheet		Note what sheet in the plan set contains the filter course specification	
	:1	Pond side slopes	**≥ 3:1**
Sheet		Note what sheet in the plan set contains the planting plans and surface cover	
If porous pavement is proposed:			
		Type of pavement proposed (Concrete? Asphalt? Pavers? Etc.)	
	acres	A_{SA} = Surface area of the pervious pavement	
	:1	Ratio of the contributing area to the pervious surface area	**≤ 5:1**
	inches	D_{FC} = Filter course thickness	**12", or 18" if within GPA**
Sheet		Note what sheet in the plan set contains the filter course spec.	**mod. 304.1 (see spec)**

1. Rate of the limiting layer (either the filter course or the underlying soil). $Ksat_{design}$ includes factor of safey. See Env-Wq 1504.14 for guidance on determining the infiltration rate.

2. See lines 34, 40 and 48 for required depths of filter media.

3. Volume without depending on infiltration. The volume includes the storage above the filter (but below the invert of the outlet stucture, if any), the filter media voids, and the pretreatment area. The storage above the filter media shall not include the volume above the outlet structure, if any.

Designer's Notes:

Perpritary Filterra Tree Well Treatment System

Watershed Area =0.22 Acres

Tree Box Filter = 6' x 4'

Recommended Contributing Drainage Area = Up to 0.32 Acres

Due to the contrubing drianage area being within the limits of the proposed units, it can be assumed that the sizing of the tree box unit is adequate for the above mentioned watershed.

Outlet pipe is connected to a catch basin (CB 136), this catch basin also will act as a overflow in large storms.

(See attached Filterra Details and Documents for further information)

FILTRATION PRACTICE DESIGN CRITERIA
(Env-Wq 1508.07)

Type/Node Name: **Tree Well #4 (Watershed 255)**

Enter the type of filtration practice (e.g., bioretention system) and the node name in the drainage analysis, if applicable.

		Check if you reviewed the restrictions on unlined systems outlined in Env-Wq 1508.07(a).	
0.32	ac	A = Area draining to the practice	
0.20	ac	A_I = Impervious area draining to the practice	
0.62	decimal	I = Percent impervious area draining to the practice, in decimal form	
0.61	unitless	Rv = Runoff coefficient = 0.05 + (0.9 x I)	
0.19	ac-in	WQV= 1" x Rv x A	
705	cf	WQV conversion (ac-in x 43,560 sf/ac x 1ft/12")	
176	cf	25% x WQV (check calc for sediment forebay volume)	
529	cf	75% x WQV (check calc for surface sand filter volume)	
Deep Sump CB		Method of Pretreatment? (not required for clean or roof runoff)	
NA	cf	V_{SED} = Sediment forebay volume, if used for pretreatment	**≥ 25%WQV**
Calculate time to drain if system IS NOT underdrained:			
32	sf	A_{SA} = Surface area of the practice	
10.00	iph	$Ksat_{DESIGN}$ = Design infiltration rate[1]	
	Yes/No	If Ksat (prior to factor of safety) is < 0.50 iph, has an underdrain been provided? (Use the calculations below)	
26.4	hours	T_{DRAIN} = Drain time = V / (A_{SA} * I_{DESIGN})	**≤ 72-hrs**
Calculate time to drain if system IS underdrained:			
	ft	E_{WQV} = Elevation of WQV (attach stage-storage table)	
	cfs	Q_{WQV} = Discharge at the E_{WQV} (attach stage-discharge table)	
-	hours	T_{DRAIN} = Drain time = 2WQV/Q_{WQV}	**≤ 72-hrs**
224.80	feet	E_{FC} = Elevation of the bottom of the filter course material[2]	
224.80	feet	E_{UD} = Invert elevation of the underdrain (UD), if applicable	
NA	feet	E_{SHWT} = Elevation of SHWT (if none found, enter the lowest elevation of the test pit)	
NA	feet	E_{ROCK} = Elevation of bedrock (if none found, enter the lowest elevation of the test pit)	
-	feet	$D_{FC\ to\ UD}$ = Depth to UD from the bottom of the filter course	**≥ 1'**
#VALUE!	feet	$D_{FC\ to\ ROCK}$ = Depth to bedrock from the bottom of the filter course	**≥ 1'**
#VALUE!	feet	$D_{FC\ to\ SHWT}$ = Depth to SHWT from the bottom of the filter course	**≥ 1'**
	ft	Peak elevation of the 50-year storm event (infiltration can be used in analysis)	
228.80	ft	Elevation of the top of the practice	
-		50 peak elevation ≤ Elevation of the top of the practice	**← yes**
If a surface sand filter or underground sand filter is proposed:			
YES	ac	Drainage Area check.	**< 10 ac**
	cf	V = Volume of storage[3] (attach a stage-storage table)	**≥ 75%WQV**
	inches	D_{FC} = Filter course thickness	**18", or 24" if within GPA**
Sheet		Note what sheet in the plan set contains the filter course specification.	
	Yes/No	Access grate provided?	**← yes**

If a bioretention area is proposed:			
YES	ac	Drainage Area no larger than 5 ac?	**← yes**
	cf	V = Volume of storage[3] (attach a stage-storage table)	**≥ WQV**
	inches	D_{FC} = Filter course thickness	**18", or 24" if within GPA**
Sheet		Note what sheet in the plan set contains the filter course specification	
	:1	Pond side slopes	**≥ 3:1**
Sheet		Note what sheet in the plan set contains the planting plans and surface cover	
If porous pavement is proposed:			
		Type of pavement proposed (Concrete? Asphalt? Pavers? Etc.)	
	acres	A_{SA} = Surface area of the pervious pavement	
	:1	Ratio of the contributing area to the pervious surface area	**≤ 5:1**
	inches	D_{FC} = Filter course thickness	**12", or 18" if within GPA**
Sheet		Note what sheet in the plan set contains the filter course spec.	**mod. 304.1 (see spec)**

1. Rate of the limiting layer (either the filter course or the underlying soil). $Ksat_{design}$ includes factor of safey. See Env-Wq 1504.14 for guidance on determining the infiltration rate.

2. See lines 34, 40 and 48 for required depths of filter media.

3. Volume without depending on infiltration. The volume includes the storage above the filter (but below the invert of the outlet stucture, if any), the filter media voids, and the pretreatment area. The storage above the filter media shall not include the volume above the outlet structure, if any.

Designer's Notes:

Perpritary Filterra Tree Well Treatment System

Watershed Area =0.32 Acres

Tree Box Filter = 8' x 4'

Recommended Contributing Drainage Area = 0.33 Acres to 0.42 Acres

Due to the contrubing drianage area being within the limits of the proposed units, it can be assumed that the sizing of the tree box unit is adequate for the above mentioned watershed.

Outlet pipe is connected to a catch basin (CB 137), this catch basin also will act as a overflow in large storms.

(See attached Filterra Details and Documents for further information)

Summary for Pond 031: DMH 031

Inflow Area = 6.140 ac, 92.95% Impervious, Inflow Depth = 0.03" for .17" OS1 event
Inflow = 0.15 cfs @ 12.11 hrs, Volume= 0.013 af
Outflow = 0.15 cfs @ 12.11 hrs, Volume= 0.013 af, Atten= 0%, Lag= 0.2 min
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Secondary = 0.15 cfs @ 12.11 hrs, Volume= 0.013 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Peak Elev= 224.72' @ 12.11 hrs Surf.Area= 13 sf Storage= 3 cf
Flood Elev= 234.00' Surf.Area= 13 sf Storage= 119 cf

Emergency fuel flow bypass into oil/water sep.

Plug-Flow detention time= 1.0 min calculated for 0.013 af (100% of inflow)
Center-of-Mass det. time= 1.0 min (880.9 - 880.0)

Volume	Invert	Avail.Storage	Storage Description
#1	224.50'	119 cf	**4.00'D x 9.50'H Vertical Cone/Cylinder**

Device	Routing	Invert	Outlet Devices
#1	Primary	224.50'	**36.0" Round 30"** L= 23.0' Ke= 0.500 Inlet / Outlet Invert= 224.50' / 224.15' S= 0.0152 '/' Cc= 0.900 n= 0.012, Flow Area= 7.07 sf
#2	Secondary	224.50'	**12.0" Round 12"** L= 8.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 224.50' / 224.45' S= 0.0063 '/' Cc= 0.900 n= 0.012, Flow Area= 0.79 sf
#3	Device 1	224.75'	**4.0' long Sharp-Crested Rectangular Weir** 2 End Contraction(s)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=224.50' TW=223.90' (Dynamic Tailwater)
└─**1=30"** (Controls 0.00 cfs)
  └─**3=Sharp-Crested Rectangular Weir**(Controls 0.00 cfs)

Secondary OutFlow Max=0.15 cfs @ 12.11 hrs HW=224.72' TW=224.43' (Dynamic Tailwater)
└─**2=12"** (Barrel Controls 0.15 cfs @ 1.77 fps)

Emergency fuel flow assessed at 300 gallons (maximum fuel tank size for a large tracker trailer truck. This would be the result of a catastrophic fuel spill over the timespan of 3 min. This was then calculated into a flow condition in HydroCAD and each Oil/water Separator was designed to contain this flow.

Summary for Pond 033: DMH 033

Inflow Area = 6.580 ac, 67.75% Impervious, Inflow Depth = 0.03" for .26" OS2 event
Inflow = 0.15 cfs @ 12.12 hrs, Volume= 0.014 af
Outflow = 0.15 cfs @ 12.12 hrs, Volume= 0.014 af, Atten= 0%, Lag= 0.3 min
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Secondary = 0.15 cfs @ 12.12 hrs, Volume= 0.014 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Peak Elev= 213.08' @ 12.12 hrs Surf.Area= 20 sf Storage= 7 cf
Flood Elev= 217.00' Surf.Area= 20 sf Storage= 84 cf

Emergency fuel flow bypass into oil/water sep.

Plug-Flow detention time= 5.6 min calculated for 0.014 af (100% of inflow)
Center-of-Mass det. time= 2.8 min (893.4 - 890.6)

Volume	Invert	Avail.Storage	Storage Description
#1	212.70'	84 cf	**5.00'D x 4.30'H Vertical Cone/Cylinder**

Device	Routing	Invert	Outlet Devices
#1	Primary	212.85'	**36.0" Round 36"** L= 23.0' Ke= 0.500 Inlet / Outlet Invert= 212.85' / 212.50' S= 0.0152 '/' Cc= 0.900 n= 0.012, Flow Area= 7.07 sf
#2	Secondary	212.85'	**12.0" Round 12"** L= 11.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 212.85' / 212.80' S= 0.0045 '/' Cc= 0.900 n= 0.012, Flow Area= 0.79 sf
#3	Device 1	213.10'	**5.0' long Sharp-Crested Rectangular Weir** 2 End Contraction(s)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=212.70' TW=212.40' (Dynamic Tailwater)
└─**1=36"** (Controls 0.00 cfs)
  └─**3=Sharp-Crested Rectangular Weir** (Controls 0.00 cfs)

Secondary OutFlow Max=0.15 cfs @ 12.12 hrs HW=213.08' TW=212.78' (Dynamic Tailwater)
└─**2=12"** (Barrel Controls 0.15 cfs @ 1.68 fps)

Emergency fuel flow assessed at 300 gallons (maximum fuel tank size for a large tracker trailer truck. This would be the result of a catastrophic fuel spill over the timespan of 3 min. This was then calculated into a flow condition in HydroCAD and each Oil/water Separator was designed to contain this flow.

Summary for Pond 033: DMH 033

Inflow Area = 6.580 ac, 67.75% Impervious, Inflow Depth = 0.01" for .17" OS3 event
Inflow = 0.05 cfs @ 12.13 hrs, Volume= 0.005 af
Outflow = 0.05 cfs @ 12.13 hrs, Volume= 0.005 af, Atten= 0%, Lag= 0.4 min
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Secondary = 0.05 cfs @ 12.13 hrs, Volume= 0.005 af

Emergency fuel flow bypass into oil/water sep.

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Peak Elev= 212.98' @ 12.13 hrs Surf.Area= 20 sf Storage= 6 cf
Flood Elev= 217.00' Surf.Area= 20 sf Storage= 84 cf

Plug-Flow detention time= 14.3 min calculated for 0.005 af (99% of inflow)
Center-of-Mass det. time= 5.8 min (910.0 - 904.3)

Volume	Invert	Avail.Storage	Storage Description
#1	212.70'	84 cf	**5.00'D x 4.30'H Vertical Cone/Cylinder**

Device	Routing	Invert	Outlet Devices
#1	Primary	212.85'	**36.0" Round 36"** L= 23.0' Ke= 0.500 Inlet / Outlet Invert= 212.85' / 212.50' S= 0.0152 '/' Cc= 0.900 n= 0.012, Flow Area= 7.07 sf
#2	Secondary	212.85'	**12.0" Round 12"** L= 11.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 212.85' / 212.80' S= 0.0045 '/' Cc= 0.900 n= 0.012, Flow Area= 0.79 sf
#3	Device 1	213.10'	**5.0' long Sharp-Crested Rectangular Weir** 2 End Contraction(s)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=212.70' TW=212.40' (Dynamic Tailwater)
1=36" (Controls 0.00 cfs)
3=Sharp-Crested Rectangular Weir (Controls 0.00 cfs)

Secondary OutFlow Max=0.05 cfs @ 12.13 hrs HW=212.98' TW=212.68' (Dynamic Tailwater)
2=12" (Barrel Controls 0.05 cfs @ 1.26 fps)

Emergency fuel flow assessed at 300 gallons (maximum fuel tank size for a large tracker trailer truck. This would be the result of a catastrophic fuel spill over the timespan of 3 min. This was then calculated into a flow condition in HydroCAD and each Oil/water Separator was designed to contain this flow.

Summary for Pond 037: DMH 037

[90] Warning: Qout>Qin may require smaller dt or Finer Routing
[87] Warning: Oscillations may require smaller dt or Finer Routing (severity=4)
[80] Warning: Exceeded Pond 013 by 0.25' @ 12.32 hrs (1.69 cfs 2.797 af)

Inflow Area = 3.032 ac, 87.98% Impervious, Inflow Depth = 0.06" for .36" OS4 event
Inflow = 0.27 cfs @ 12.10 hrs, Volume= 0.014 af
Outflow = 0.29 cfs @ 12.13 hrs, Volume= 0.014 af, Atten= 0%, Lag= 1.8 min
Primary = 0.00 cfs @ 12.34 hrs, Volume= 0.000 af
Secondary = 0.29 cfs @ 12.13 hrs, Volume= 0.014 af

Emergency fuel flow bypass into oil/water sep.

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Peak Elev= 224.21' @ 12.34 hrs Surf.Area= 13 sf Storage= 11 cf
Flood Elev= 232.00' Surf.Area= 13 sf Storage= 109 cf

Plug-Flow detention time= 11.4 min calculated for 0.014 af (99% of inflow)
Center-of-Mass det. time= 4.6 min (902.2 - 897.5)

Volume	Invert	Avail.Storage	Storage Description
#1	223.35'	109 cf	**4.00'D x 8.65'H Vertical Cone/Cylinder**

Device	Routing	Invert	Outlet Devices
#1	Primary	223.35'	**30.0" Round 24"** L= 23.0' Ke= 0.500 Inlet / Outlet Invert= 223.35' / 223.00' S= 0.0152 '/' Cc= 0.900 n= 0.012, Flow Area= 4.91 sf
#2	Secondary	223.35'	**12.0" Round 12"** L= 11.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 223.35' / 223.30' S= 0.0045 '/' Cc= 0.900 n= 0.012, Flow Area= 0.79 sf
#3	Device 1	224.20'	**4.0' long Sharp-Crested Rectangular Weir** 2 End Contraction(s)

Primary OutFlow Max=0.00 cfs @ 12.34 hrs HW=224.20' TW=223.99' (Dynamic Tailwater)
└─**1=24"** (Passes 0.00 cfs of 2.67 cfs potential flow)
  └─**3=Sharp-Crested Rectangular Weir** (Weir Controls 0.00 cfs @ 0.16 fps)

Secondary OutFlow Max=0.00 cfs @ 12.13 hrs HW=224.07' TW=224.37' (Dynamic Tailwater)
└─**2=12"** (Controls 0.00 cfs)

Emergency fuel flow assessed at 300 gallons (maximum fuel tank size for a large tracker trailer truck. This would be the result of a catastrophic fuel spill over the timespan of 3 min. This was then calculated into a flow condition in HydroCAD and each Oil/water Separator was designed to contain this flow.

14. DRAINAGE ANALYSIS

14.1 INTRODUCTION

This project proposes to construct an industrial building in the Town of Raymond Tax Map 22, Lots 44, 45, 46, 47, and Tax Map 28, Block 3, Lot 120-1.

14.2 METHODOLOGY

The existing and proposed watersheds were modeled utilizing HydroCad stormwater software, version 9.10. The watersheds were analyzed utilizing the SCS TR-20 methodology for hydrograph development and the TR-55 methodology for Time of Concentration (Tc) determination. The Dynamic-Storage-Indicating method for reach and pond routing was utilized. Type III, 24-hour hydrographs were developed for the 2-year, 10-year, 25-year, and 50-year corresponding to rainfall events of 3.20”, 4.88” 6.22”, 7.48”, respectively.

Existing topography and site features were obtained through on-ground topography completed by Jones & Beach Engineers. Existing soil conditions were derived from NRCS Web Soil Survey and a soil survey conducted by Gove Environmental Inc.

14.3 EXISTING CONDITIONS ANALYSIS

The study area consists of the subject property and upstream contributing area. The study area consists of 116.330± acres including offsite contributing areas. The existing site is currently partially developed with an active rock quarry, with the remaining area covered by wooded terrain. Half of the site drains North across the site through these wooded areas to the rear of the site to an existing wetland system. The remaining area drains Southwest through an existing wetland system along Southwest side of the rock quarry. Both analysis points drain into the Lamprey River.

Soils on site are described as Hydrological Soils “A”, "B”, “C, and D” soils.

Two (2) Analysis Points (AP) were defined for this project. Analysis Points are described as below:

Analysis Point #1 is an existing pond to the Southwest of the project. This analysis point receives runoff from the south side of the project site, abutting properties, and woodland/grassland areas on site. This analysis point also included the majority of the rock quarry operation. This stormwater drains south though the property to the existing wetland system, this wetland system then discharges to Analysis Point #1. This is assessed as the edge of the existing point.

Analysis Point #2 is an existing box culvert to the Northwest of the project within an old railroad bed. This analysis point receives runoff from a large portion of the project area, abutting properties, and woodland/grassland areas on site. This stormwater drains West though the property to the existing wetland system. This wetland then drains into an existing ponding area. This pond then discharges into another wetland system, down to the existing box culvert.

14.4 PROPOSED CONDITIONS ANALYSIS

This project proposes to construct a 550,025 S.F. industrial building in the Town of Raymond Tax Map 22, Lots 44, 45, 46, 47, and Tax Map 28, Block 3, Lot 120-1.

The addition of the proposed impervious paved areas and buildings causes an increase in the curve number (C_n) and a decrease in the time of concentration (T_c), the net result being a potential increase in peak rates of runoff from the site. To mitigate the potential increase in the peak rate of runoff and to effectively treat the subsequent stormwater runoff the following Best Management Practices (BMP's) have been employed at the Analysis Points as follows:

Analysis Point #1 – Several Drainage systems were added to the proposed design to mitigate peak runoff and provide stormwater treatment to Analysis Point #1. The South and East sides of the truck parking area is directed towards a proposed infiltration pond #1. The area includes pavement and grass areas. Stormwater is collected via a closed drainage system and then discharges into a SAFL Baffle catch basin for pretreatment. This flow is then directed to an oil/water separator and then to a proposed forebay. The stormwater then discharges over a weir to the infiltration basin which then discharges into the existing wetland system.

A section of the driveway on the west side of the project and a section of the driveway on the south side of the project is directed towards a proposed Focal Point Media Pond #5. The area includes pavement and grass areas. Stormwater is collected via a closed drainage system and then discharges into a SAFL Baffle catch basin for pretreatment. The stormwater then discharges to the Focal Point Pond which then discharges into the existing wetland system. This then flows through an existing box culvert under the driveway entrance. This flow then travels through an existing wetland system to Analysis Point #1.

The North and East sides of the truck parking area is directed towards a Storm Tech MC4500 chamber system (Pond #2). The area includes pavement and grass areas. Stormwater is collected via a closed drainage system and then discharges into a SAFL Baffle catch basin for pretreatment. This flow is then directed to an oil/water separator. The stormwater then discharges to an isolation row for pretreatment, which then discharges into the Storm Tech system for detention. This then discharges to Pond #6 for additional detention and pretreatment. This then discharges to Pond #3 for treatment. This flow then travels through an existing wetland system to Analysis Point #1.

The Westerly car parking area and the South side of the truck parking area is directed towards a proposed subsurface infiltration pond #4. This pond is a Storm Tech MC4500 chamber system. The area includes pavement and grass areas. Stormwater is collected via a closed drainage system and then discharges into two SAFL Baffle catch basins, two oil/water separators, and two isolation rows for pretreatment. The stormwater then discharges to the main section of pond #4 for treatment. This then discharges to an existing wetland system to Analysis Point #1.

The roof runoff is directed via a closed drainage system to perforated corrugated metal pipe to provide pretreatment. This flow then discharges towards an Infiltration / Detention Stone Subsurface Pond #3.

This pond will consist of clean crushed stone that will be graded in order to provide 40% void space for detention. Stormwater is collected via a closed drainage system and then discharges into the pond. The stormwater will be distributed though the stone with a network of 12” HDPE perforated pipe. The stormwater then discharges to an existing wetland system to Analysis Point #1.

Tree Wells #1 & #2 are located at the entrance of the project and Tree Wells #3 & #4 are located at the North corner of the development along the access road. Tree Wells #1 & #2 provide treatment to the remaining proposed pavement at the entrance area and then discharge to Analysis Point #1, and Tree Wells #3 & #4 treat sections of the access road and then discharge them south to Analysis Point #1.

Analysis Point #2 – The proposed design does not directly discharge any stormwater to the North towards Analysis Point #2.

14.5 CONCLUSION

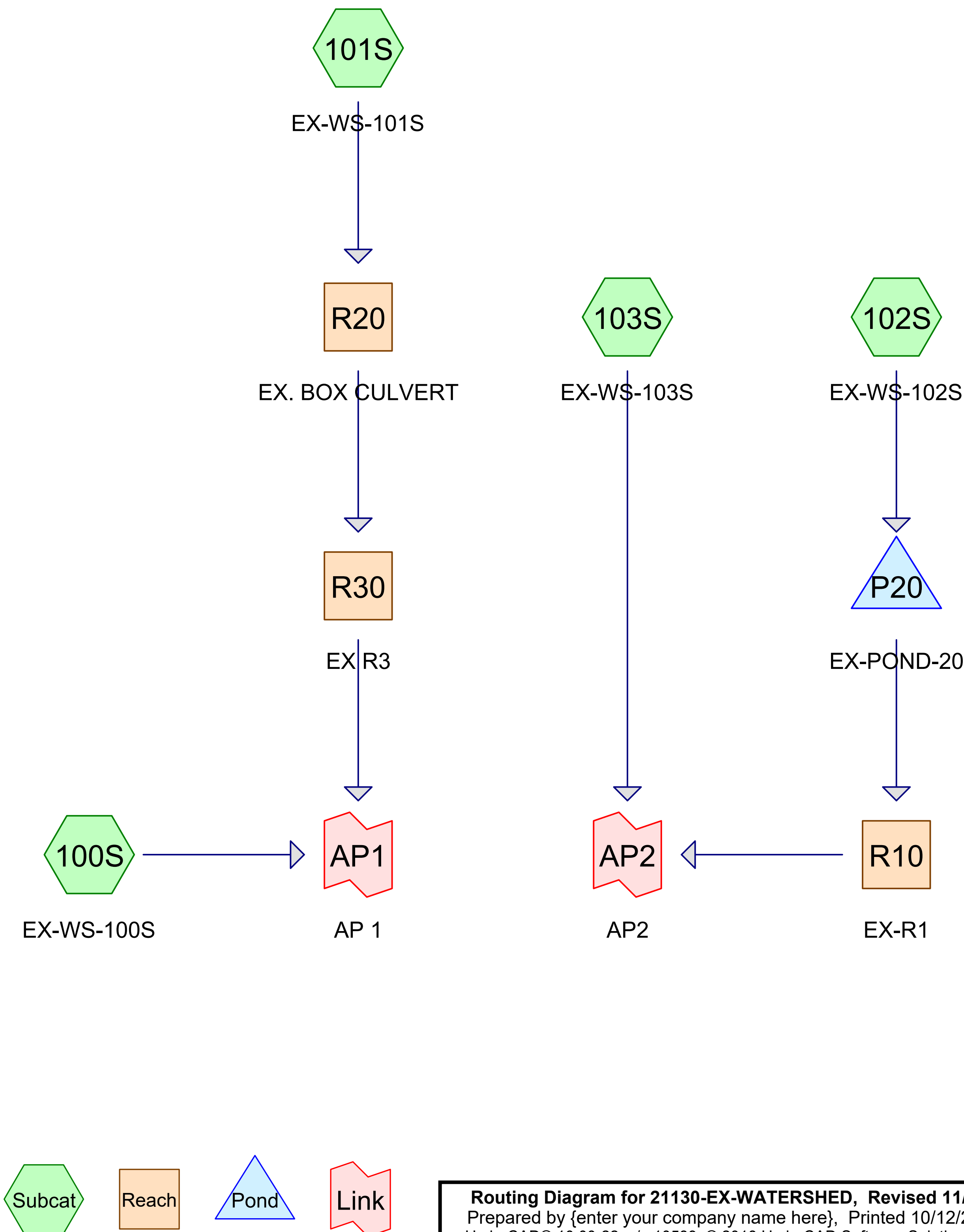
The proposed site development will have minimal adverse effect on abutting infrastructures or properties by way of stormwater runoff or siltation if properly constructed in accordance with this Drainage Analysis and approved project plan set. The post-construction peak rates of runoff for the site will be lower than or equal to the existing conditions for all analyzed storm events. Appropriate steps will be taken to control erosion and sedimentation; these will be accomplished through the construction of a drainage system consisting of site grading, catch basins with sedimentation sumps, jute matting, swales, infiltration basin, and riprap outlet protection aprons. The use of Best Management Practices developed by the State of New Hampshire have been utilized in the design of this system and their application will be enforced with regular inspections throughout the construction process.

Respectfully Submitted,
JONES & BEACH ENGINEERS, INC.

Erik Poulin, P.E.
Project Manager

14.6 APPENDIX I

PRE-DEVELOPMENT CONDITIONS ANALYSIS



Routing Diagram for 21130-EX-WATERSHED, Revised 11/10/22
Prepared by {enter your company name here}, Printed 10/12/2023
HydroCAD® 10.00-22 s/n 10589 © 2018 HydroCAD Software Solutions LLC

Area Listing (all nodes)

Area (acres)	CN	Description (subcatchment-numbers)
0.060	39	>75% Grass cover, Good, HSG A (100S)
0.046	61	>75% Grass cover, Good, HSG B (101S)
0.096	74	>75% Grass cover, Good, HSG C (101S)
0.991	80	>75% Grass cover, Good, HSG D (100S, 101S)
6.082	96	Gravel surface, HSG A (101S, 102S)
0.571	96	Gravel surface, HSG B (101S, 102S)
0.101	98	Paved parking, HSG A (100S, 101S)
0.129	98	Paved parking, HSG B (100S, 101S)
0.007	98	Paved parking, HSG C (100S)
1.168	98	Paved parking, HSG D (100S, 101S)
0.140	98	Roofs, HSG B (101S)
0.406	98	Roofs, HSG D (101S)
3.880	98	Water Surface, HSG D (102S)
6.896	30	Woods, Good, HSG A (101S, 102S, 103S)
66.804	55	Woods, Good, HSG B (100S, 101S, 102S, 103S)
14.293	70	Woods, Good, HSG C (100S, 101S, 102S, 103S)
14.662	77	Woods, Good, HSG D (100S, 101S, 102S, 103S)
116.330	**63**	**TOTAL AREA**

Soil Listing (all nodes)

Area (acres)	Soil Group	Subcatchment Numbers
13.138	HSG A	100S, 101S, 102S, 103S
67.690	HSG B	100S, 101S, 102S, 103S
14.395	HSG C	100S, 101S, 102S, 103S
21.107	HSG D	100S, 101S, 102S, 103S
0.000	Other	
116.330		**TOTAL AREA**

Time span=0.00-72.00 hrs, dt=0.02 hrs, 3601 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment100S: EX-WS-100S Runoff Area=1,162,062 sf 0.72% Impervious Runoff Depth=0.34"
Flow Length=1,665' Tc=43.4 min CN=60 Runoff=3.08 cfs 0.765 af

Subcatchment101S: EX-WS-101S Runoff Area=631,639 sf 12.13% Impervious Runoff Depth=0.93"
Flow Length=1,161' Tc=22.4 min CN=74 Runoff=9.42 cfs 1.121 af

Subcatchment102S: EX-WS-102S Runoff Area=2,605,367 sf 6.49% Impervious Runoff Depth=0.38"
Flow Length=1,329' Tc=25.0 min CN=61 Runoff=10.17 cfs 1.877 af

Subcatchment103S: EX-WS-103S Runoff Area=668,277 sf 0.00% Impervious Runoff Depth=0.56"
Flow Length=1,082' Tc=24.7 min CN=66 Runoff=4.86 cfs 0.715 af

Reach R10: EX-R1 Avg. Flow Depth=0.18' Max Vel=1.74 fps Inflow=2.62 cfs 1.853 af
n=0.030 L=569.9' S=0.0211 '/' Capacity=109.49 cfs Outflow=2.62 cfs 1.853 af

Reach R20: EX. BOX CULVERT Avg. Flow Depth=0.35' Max Vel=4.87 fps Inflow=9.42 cfs 1.121 af
n=0.011 L=49.0' S=0.0061 '/' Capacity=128.21 cfs Outflow=9.42 cfs 1.121 af

Reach R30: EX R3 Avg. Flow Depth=0.47' Max Vel=1.14 fps Inflow=9.42 cfs 1.121 af
n=0.030 L=1,089.0' S=0.0025 '/' Capacity=37.57 cfs Outflow=7.37 cfs 1.121 af

Pond P20: EX-POND-20 Peak Elev=212.24' Storage=25,074 cf Inflow=10.17 cfs 1.877 af
Outflow=2.62 cfs 1.853 af

Link AP1: AP 1 Inflow=9.80 cfs 1.886 af
Primary=9.80 cfs 1.886 af

Link AP2: AP2 Inflow=4.99 cfs 2.568 af
Primary=4.99 cfs 2.568 af

Total Runoff Area = 116.330 ac Runoff Volume = 4.478 af Average Runoff Depth = 0.46"
94.99% Pervious = 110.501 ac 5.01% Impervious = 5.830 ac

Time span=0.00-72.00 hrs, dt=0.02 hrs, 3601 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment100S: EX-WS-100S Runoff Area=1,162,062 sf 0.72% Impervious Runoff Depth=1.07"
Flow Length=1,665' Tc=43.4 min CN=60 Runoff=13.66 cfs 2.376 af

Subcatchment101S: EX-WS-101S Runoff Area=631,639 sf 12.13% Impervious Runoff Depth=2.04"
Flow Length=1,161' Tc=22.4 min CN=74 Runoff=22.05 cfs 2.467 af

Subcatchment102S: EX-WS-102S Runoff Area=2,605,367 sf 6.49% Impervious Runoff Depth=1.13"
Flow Length=1,329' Tc=25.0 min CN=61 Runoff=42.63 cfs 5.631 af

Subcatchment103S: EX-WS-103S Runoff Area=668,277 sf 0.00% Impervious Runoff Depth=1.45"
Flow Length=1,082' Tc=24.7 min CN=66 Runoff=15.14 cfs 1.860 af

Reach R10: EX-R1 Avg. Flow Depth=0.40' Max Vel=2.98 fps Inflow=15.12 cfs 5.607 af
n=0.030 L=569.9' S=0.0211 '/' Capacity=109.49 cfs Outflow=15.10 cfs 5.607 af

Reach R20: EX. BOX CULVERT Avg. Flow Depth=0.61' Max Vel=6.62 fps Inflow=22.05 cfs 2.467 af
n=0.011 L=49.0' S=0.0061 '/' Capacity=128.21 cfs Outflow=22.05 cfs 2.467 af

Reach R30: EX R3 Avg. Flow Depth=0.72' Max Vel=1.52 fps Inflow=22.05 cfs 2.467 af
n=0.030 L=1,089.0' S=0.0025 '/' Capacity=37.57 cfs Outflow=18.71 cfs 2.467 af

Pond P20: EX-POND-20 Peak Elev=212.68' Storage=72,729 cf Inflow=42.63 cfs 5.631 af
Outflow=15.12 cfs 5.607 af

Link AP1: AP 1 Inflow=30.56 cfs 4.843 af
Primary=30.56 cfs 4.843 af

Link AP2: AP2 Inflow=21.76 cfs 7.466 af
Primary=21.76 cfs 7.466 af

Total Runoff Area = 116.330 ac Runoff Volume = 12.334 af Average Runoff Depth = 1.27"
94.99% Pervious = 110.501 ac 5.01% Impervious = 5.830 ac

Summary for Subcatchment 100S: EX-WS-100S

Runoff = 13.66 cfs @ 12.68 hrs, Volume= 2.376 af, Depth= 1.07"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.02 hrs
Type III 24-hr 10-YR Rainfall=4.59"

Area (sf)	CN	Description
1,776	98	Paved parking, HSG A
3,714	98	Paved parking, HSG B
286	98	Paved parking, HSG C
2,561	98	Paved parking, HSG D
2,599	39	>75% Grass cover, Good, HSG A
1,230	80	>75% Grass cover, Good, HSG D
875,465	55	Woods, Good, HSG B
98,598	70	Woods, Good, HSG C
175,833	77	Woods, Good, HSG D
1,162,062	60	Weighted Average
1,153,725		99.28% Pervious Area
8,337		0.72% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.1	100	0.1700	0.18		**Sheet Flow, THROUGH-WOODS-Tc** Woods: Light underbrush n= 0.400 P2= 3.20"
10.1	876	0.0830	1.44		**Shallow Concentrated Flow, THROUGH-WOODS-Tc** Woodland Kv= 5.0 fps
24.2	689	0.0090	0.47		**Shallow Concentrated Flow, THROUGH-WOODS-Tc** Woodland Kv= 5.0 fps
43.4	1,665	Total			

Summary for Subcatchment 101S: EX-WS-101S

Runoff = 22.05 cfs @ 12.32 hrs, Volume= 2.467 af, Depth= 2.04"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.02 hrs
Type III 24-hr 10-YR Rainfall=4.59"

Area (sf)	CN	Description
2,619	98	Paved parking, HSG A
1,920	98	Paved parking, HSG B
48,296	98	Paved parking, HSG D
1,987	61	>75% Grass cover, Good, HSG B
4,169	74	>75% Grass cover, Good, HSG C
41,937	80	>75% Grass cover, Good, HSG D
205,796	96	Gravel surface, HSG A
19,951	96	Gravel surface, HSG B
6,084	98	Roofs, HSG B
17,673	98	Roofs, HSG D
132,958	30	Woods, Good, HSG A
56,161	55	Woods, Good, HSG B
66,553	70	Woods, Good, HSG C
25,535	77	Woods, Good, HSG D
631,639	74	Weighted Average
555,047		87.87% Pervious Area
76,592		12.13% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.1	100	0.3200	0.24		**Sheet Flow, THROUGH-WOODS-Tc** Woods: Light underbrush n= 0.400 P2= 3.20"
6.4	241	0.0080	0.63		**Shallow Concentrated Flow, THROUGH-WOODS-Tc** Short Grass Pasture Kv= 7.0 fps
0.1	43	0.7000	13.47		**Shallow Concentrated Flow, OVER-CLIFF-AREA-Tc** Unpaved Kv= 16.1 fps
6.7	629	0.0095	1.57		**Shallow Concentrated Flow, THROUGH-PIT-Tc** Unpaved Kv= 16.1 fps
2.1	148	0.0540	1.16		**Shallow Concentrated Flow, THROUGH-WOODS-Tc** Woodland Kv= 5.0 fps
22.4	1,161	Total			

Summary for Subcatchment 102S: EX-WS-102S

Runoff = 42.63 cfs @ 12.40 hrs, Volume= 5.631 af, Depth= 1.13"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.02 hrs
Type III 24-hr 10-YR Rainfall=4.59"

Area (sf)	CN	Description
59,138	96	Gravel surface, HSG A
4,922	96	Gravel surface, HSG B
169,013	98	Water Surface, HSG D
139,110	30	Woods, Good, HSG A
1,750,175	55	Woods, Good, HSG B
284,091	70	Woods, Good, HSG C
198,918	77	Woods, Good, HSG D
2,605,367	61	Weighted Average
2,436,354		93.51% Pervious Area
169,013		6.49% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.5	100	0.2800	0.22		**Sheet Flow, THROUGH-WOODS-Tc** Woods: Light underbrush n= 0.400 P2= 3.20"
17.5	1,229	0.0550	1.17		**Shallow Concentrated Flow, THROUGH-WOODS-Tc** Woodland Kv= 5.0 fps
25.0	1,329	Total			

Summary for Subcatchment 103S: EX-WS-103S

Runoff = 15.14 cfs @ 12.38 hrs, Volume= 1.860 af, Depth= 1.45"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.02 hrs
Type III 24-hr 10-YR Rainfall=4.59"

Area (sf)	CN	Description
28,315	30	Woods, Good, HSG A
228,199	55	Woods, Good, HSG B
173,351	70	Woods, Good, HSG C
238,412	77	Woods, Good, HSG D
668,277	66	Weighted Average
668,277		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.5	100	0.2000	0.19		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.20"
3.1	335	0.1300	1.80		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
13.1	647	0.0270	0.82		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
24.7	1,082	Total			

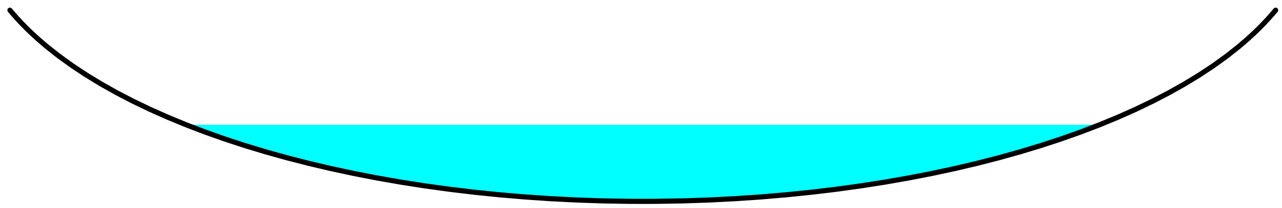
Summary for Reach R10: EX-R1

Inflow Area = 59.811 ac, 6.49% Impervious, Inflow Depth > 1.12" for 10-YR event
Inflow = 15.12 cfs @ 12.99 hrs, Volume= 5.607 af
Outflow = 15.10 cfs @ 13.03 hrs, Volume= 5.607 af, Atten= 0%, Lag= 2.4 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.02 hrs
Max. Velocity= 2.98 fps, Min. Travel Time= 3.2 min
Avg. Velocity = 0.81 fps, Avg. Travel Time= 11.7 min

Peak Storage= 2,889 cf @ 13.03 hrs
Average Depth at Peak Storage= 0.40'
Bank-Full Depth= 1.00' Flow Area= 20.0 sf, Capacity= 109.49 cfs

30.00' x 1.00' deep Parabolic Channel, n= 0.030 Earth, grassed & winding
Length= 569.9' Slope= 0.0211 '/'
Inlet Invert= 212.00', Outlet Invert= 200.00'



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Summary for Reach R20: EX. BOX CULVERT

Inflow Area = 14.500 ac, 12.13% Impervious, Inflow Depth = 2.04" for 10-YR event
Inflow = 22.05 cfs @ 12.32 hrs, Volume= 2.467 af
Outflow = 22.05 cfs @ 12.32 hrs, Volume= 2.467 af, Atten= 0%, Lag= 0.1 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.02 hrs
Max. Velocity= 6.62 fps, Min. Travel Time= 0.1 min
Avg. Velocity = 2.17 fps, Avg. Travel Time= 0.4 min

Peak Storage= 163 cf @ 12.32 hrs
Average Depth at Peak Storage= 0.61'
Bank-Full Depth= 2.00' Flow Area= 11.0 sf, Capacity= 128.21 cfs

5.50' x 2.00' deep channel, n= 0.011 Concrete pipe, straight & clean
Length= 49.0' Slope= 0.0061 '/'
Inlet Invert= 205.00', Outlet Invert= 204.70'

Summary for Reach R30: EX R3

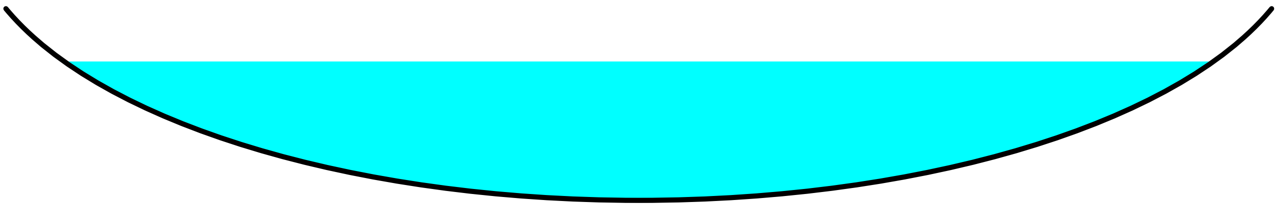
[62] Hint: Exceeded Reach R20 OUTLET depth by 0.27' @ 12.80 hrs

Inflow Area = 14.500 ac, 12.13% Impervious, Inflow Depth = 2.04" for 10-YR event
Inflow = 22.05 cfs @ 12.32 hrs, Volume= 2.467 af
Outflow = 18.71 cfs @ 12.46 hrs, Volume= 2.467 af, Atten= 15%, Lag= 8.6 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.02 hrs
Max. Velocity= 1.52 fps, Min. Travel Time= 12.0 min
Avg. Velocity = 0.31 fps, Avg. Travel Time= 57.8 min

Peak Storage= 13,436 cf @ 12.46 hrs
Average Depth at Peak Storage= 0.72'
Bank-Full Depth= 1.00' Flow Area= 20.0 sf, Capacity= 37.57 cfs

30.00' x 1.00' deep Parabolic Channel, n= 0.030 Stream, clean & straight
Length= 1,089.0' Slope= 0.0025 '/'
Inlet Invert= 204.70', Outlet Invert= 202.00'



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Summary for Pond P20: EX-POND-20

Inflow Area =	59.811 ac,	6.49% Impervious, Inflow Depth =	1.13"	for 10-YR event
Inflow =	42.63 cfs @	12.40 hrs, Volume=	5.631 af	
Outflow =	15.12 cfs @	12.99 hrs, Volume=	5.607 af,	Atten= 65%, Lag= 35.1 min
Primary =	15.12 cfs @	12.99 hrs, Volume=	5.607 af	

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.02 hrs
Peak Elev= 212.68' @ 13.00 hrs Surf.Area= 111,910 sf Storage= 72,729 cf

Plug-Flow detention time= 133.3 min calculated for 5.607 af (100% of inflow)
Center-of-Mass det. time= 130.8 min (1,027.2 - 896.4)

Volume	Invert	Avail.Storage	Storage Description
#1	212.00'	1,102,616 cf	**Custom Stage Data (Irregular)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
212.00	102,870	2,123.6	0	0	102,870
214.00	130,656	2,082.1	232,973	232,973	117,382
216.00	153,355	2,221.0	283,708	516,681	165,140
218.00	459,959	4,942.0	585,935	1,102,616	1,716,163

Device	Routing	Invert	Outlet Devices
#1	Primary	212.00'	**60.0 deg x 10.0' long x 4.00' rise Sharp-Crested Vee/Trap Weir** Cv= 2.53 (C= 3.16)

Primary OutFlow Max=15.11 cfs @ 12.99 hrs HW=212.68' TW=212.40' (Dynamic Tailwater)
↑—**1=Sharp-Crested Vee/Trap Weir** (Weir Controls 15.11 cfs @ 2.15 fps)

Summary for Link AP1: AP 1

Inflow Area =	41.178 ac,	4.73% Impervious, Inflow Depth =	1.41"	for 10-YR event
Inflow =	30.56 cfs @	12.55 hrs, Volume=	4.843 af	
Primary =	30.56 cfs @	12.55 hrs, Volume=	4.843 af,	Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-72.00 hrs, dt= 0.02 hrs

Summary for Link AP2: AP2

Inflow Area =	75.153 ac,	5.16% Impervious,	Inflow Depth > 1.19"	for 10-YR event	
Inflow =	21.76 cfs @	12.66 hrs,	Volume=	7.466 af	
Primary =	21.76 cfs @	12.66 hrs,	Volume=	7.466 af,	Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-72.00 hrs, dt= 0.02 hrs

Time span=0.00-72.00 hrs, dt=0.02 hrs, 3601 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment100S: EX-WS-100S Runoff Area=1,162,062 sf 0.72% Impervious Runoff Depth=1.80"
Flow Length=1,665' Tc=43.4 min CN=60 Runoff=24.80 cfs 3.998 af

Subcatchment101S: EX-WS-101S Runoff Area=631,639 sf 12.13% Impervious Runoff Depth=3.03"
Flow Length=1,161' Tc=22.4 min CN=74 Runoff=33.03 cfs 3.656 af

Subcatchment102S: EX-WS-102S Runoff Area=2,605,367 sf 6.49% Impervious Runoff Depth=1.88"
Flow Length=1,329' Tc=25.0 min CN=61 Runoff=76.11 cfs 9.368 af

Subcatchment103S: EX-WS-103S Runoff Area=668,277 sf 0.00% Impervious Runoff Depth=2.30"
Flow Length=1,082' Tc=24.7 min CN=66 Runoff=24.84 cfs 2.941 af

Reach R10: EX-R1 Avg. Flow Depth=0.57' Max Vel=3.78 fps Inflow=32.96 cfs 9.343 af
n=0.030 L=569.9' S=0.0211 '/' Capacity=109.49 cfs Outflow=32.91 cfs 9.343 af

Reach R20: EX. BOX CULVERT Avg. Flow Depth=0.79' Max Vel=7.62 fps Inflow=33.03 cfs 3.656 af
n=0.011 L=49.0' S=0.0061 '/' Capacity=128.21 cfs Outflow=33.02 cfs 3.656 af

Reach R30: EX R3 Avg. Flow Depth=0.89' Max Vel=1.73 fps Inflow=33.02 cfs 3.656 af
n=0.030 L=1,089.0' S=0.0025 '/' Capacity=37.57 cfs Outflow=28.86 cfs 3.656 af

Pond P20: EX-POND-20 Peak Elev=213.09' Storage=119,971 cf Inflow=76.11 cfs 9.368 af
Outflow=32.96 cfs 9.343 af

Link AP1: AP 1 Inflow=50.70 cfs 7.654 af
Primary=50.70 cfs 7.654 af

Link AP2: AP2 Inflow=45.37 cfs 12.284 af
Primary=45.37 cfs 12.284 af

Total Runoff Area = 116.330 ac Runoff Volume = 19.963 af Average Runoff Depth = 2.06"
94.99% Pervious = 110.501 ac 5.01% Impervious = 5.830 ac

Time span=0.00-72.00 hrs, dt=0.02 hrs, 3601 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment100S: EX-WS-100S Runoff Area=1,162,062 sf 0.72% Impervious Runoff Depth=2.58"
Flow Length=1,665' Tc=43.4 min CN=60 Runoff=36.69 cfs 5.725 af

Subcatchment101S: EX-WS-101S Runoff Area=631,639 sf 12.13% Impervious Runoff Depth=4.01"
Flow Length=1,161' Tc=22.4 min CN=74 Runoff=43.82 cfs 4.842 af

Subcatchment102S: EX-WS-102S Runoff Area=2,605,367 sf 6.49% Impervious Runoff Depth=2.67"
Flow Length=1,329' Tc=25.0 min CN=61 Runoff=111.62 cfs 13.324 af

Subcatchment103S: EX-WS-103S Runoff Area=668,277 sf 0.00% Impervious Runoff Depth=3.17"
Flow Length=1,082' Tc=24.7 min CN=66 Runoff=34.79 cfs 4.057 af

Reach R10: EX-R1 Avg. Flow Depth=0.72' Max Vel=4.42 fps Inflow=54.48 cfs 13.299 af
n=0.030 L=569.9' S=0.0211 '/' Capacity=109.49 cfs Outflow=54.40 cfs 13.298 af

Reach R20: EX. BOX CULVERT Avg. Flow Depth=0.95' Max Vel=8.38 fps Inflow=43.82 cfs 4.842 af
n=0.011 L=49.0' S=0.0061 '/' Capacity=128.21 cfs Outflow=43.81 cfs 4.842 af

Reach R30: EX R3 Avg. Flow Depth=1.02' Max Vel=1.90 fps Inflow=43.81 cfs 4.842 af
n=0.030 L=1,089.0' S=0.0025 '/' Capacity=37.57 cfs Outflow=38.98 cfs 4.842 af

Pond P20: EX-POND-20 Peak Elev=213.48' Storage=167,161 cf Inflow=111.62 cfs 13.324 af
Outflow=54.48 cfs 13.299 af

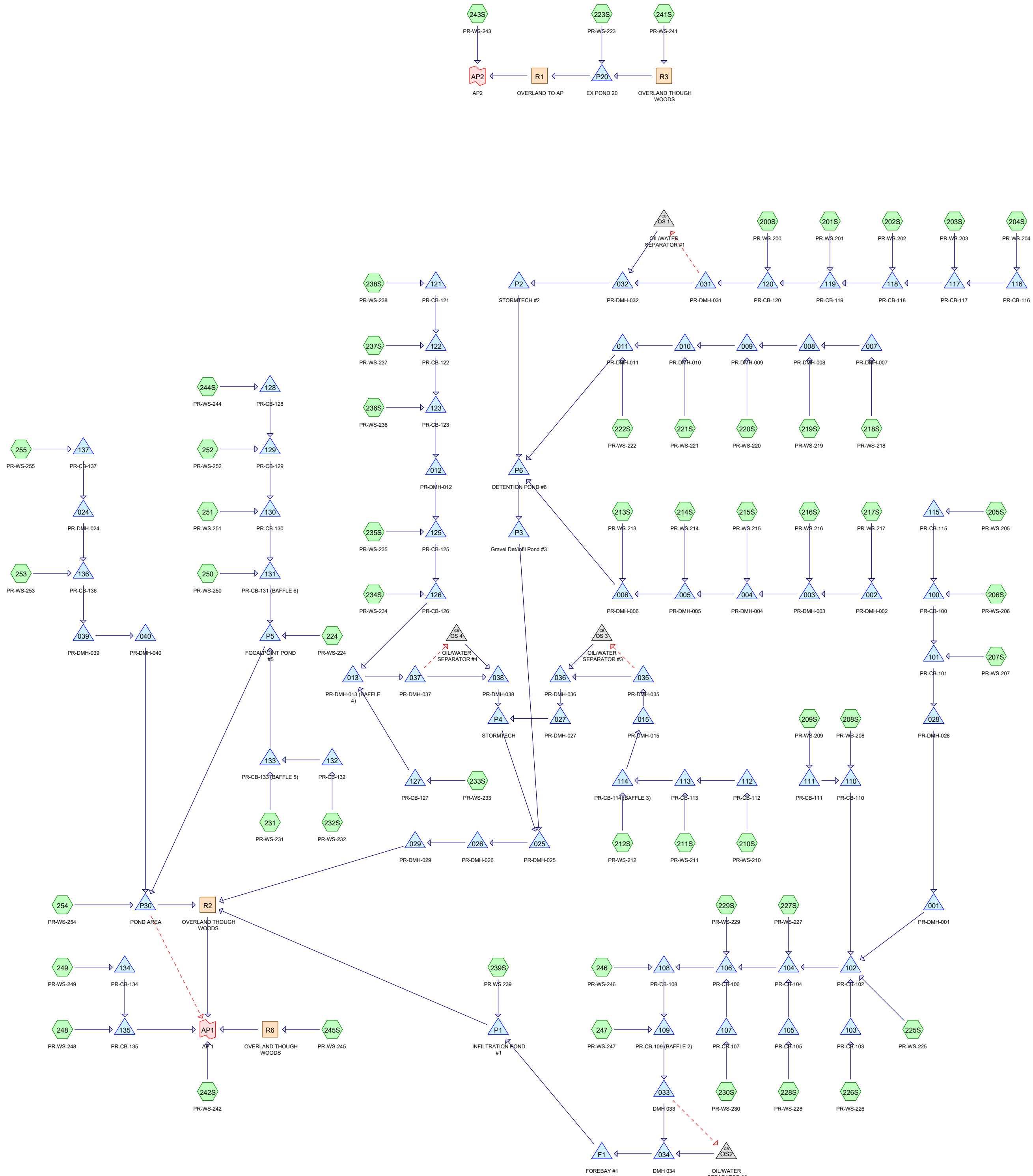
Link AP1: AP 1 Inflow=71.45 cfs 10.567 af
Primary=71.45 cfs 10.567 af

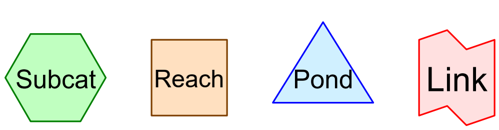
Link AP2: AP2 Inflow=73.41 cfs 17.355 af
Primary=73.41 cfs 17.355 af

Total Runoff Area = 116.330 ac Runoff Volume = 27.948 af Average Runoff Depth = 2.88"
94.99% Pervious = 110.501 ac 5.01% Impervious = 5.830 ac

14.7 APPENDIX II

POST-DEVELOPMENT CONDITIONS ANALYSIS





Routing Diagram for 21130-PR-WATERSHED, Revised 11/9/22
Prepared by {enter your company name here}, Printed 2/7/2024
HydroCAD® 10.00-22 s/n 10589 © 2018 HydroCAD Software Solutions LLC

Area Listing (all nodes)

Area (acres)	CN	Description (subcatchment-numbers)
0.542	39	>75% Grass cover, Good, HSG A (212S, 224, 233S, 234S, 237S, 249, 254)
6.736	61	>75% Grass cover, Good, HSG B (204S, 212S, 223S, 224, 225S, 226S, 227S, 228S, 229S, 230S, 231, 232S, 233S, 236S, 237S, 238S, 239S, 242S, 243S, 244S, 245S, 246, 247, 248, 249, 250, 251, 252, 253, 254, 255)
1.930	74	>75% Grass cover, Good, HSG C (200S, 223S, 224, 225S, 227S, 229S, 232S, 233S, 234S, 235S, 236S, 237S, 238S, 239S, 242S, 243S, 244S, 245S, 248, 249, 250, 251, 252, 253, 254, 255)
1.111	80	>75% Grass cover, Good, HSG D (223S, 242S, 243S, 249, 254)
1.358	96	Gravel surface, HSG A (223S)
0.113	96	Gravel surface, HSG B (223S)
2.016	98	Paved parking, HSG A (209S, 210S, 211S, 212S, 233S, 234S, 235S, 236S, 237S, 249, 254)
10.994	98	Paved parking, HSG B (200S, 201S, 202S, 203S, 204S, 205S, 206S, 207S, 208S, 209S, 210S, 211S, 212S, 225S, 226S, 227S, 228S, 229S, 230S, 231, 232S, 233S, 234S, 235S, 236S, 237S, 238S, 242S, 246, 247, 248, 249, 250, 251, 252, 253, 254, 255)
4.814	98	Paved parking, HSG C (200S, 201S, 202S, 203S, 204S, 205S, 206S, 207S, 208S, 209S, 210S, 229S, 231, 232S, 233S, 234S, 235S, 236S, 237S, 238S, 244S, 248, 249, 250, 251, 252, 253, 255)
1.171	98	Paved parking, HSG D (242S, 249, 254)
6.671	98	Roofs, HSG A (213S, 214S, 215S, 216S, 219S, 220S, 221S, 222S)
3.700	98	Roofs, HSG B (216S, 217S, 218S, 219S, 220S, 254)
2.396	98	Roofs, HSG C (215S, 216S, 217S, 219S, 220S, 221S, 222S)
0.406	98	Roofs, HSG D (254)
3.880	98	Water Surface, HSG D (223S)
2.552	30	Woods, Good, HSG A (223S, 254)
46.147	55	Woods, Good, HSG B (204S, 206S, 207S, 223S, 226S, 239S, 241S, 242S, 243S, 245S, 254)
5.255	70	Woods, Good, HSG C (204S, 205S, 206S, 207S, 223S, 241S, 242S, 243S, 245S, 254)
14.539	77	Woods, Good, HSG D (223S, 242S, 243S, 254)
116.330	**73**	**TOTAL AREA**

Soil Listing (all nodes)

Area (acres)	Soil Group	Subcatchment Numbers
13.138	HSG A	209S, 210S, 211S, 212S, 213S, 214S, 215S, 216S, 219S, 220S, 221S, 222S, 223S, 224, 233S, 234S, 235S, 236S, 237S, 249, 254
67.690	HSG B	200S, 201S, 202S, 203S, 204S, 205S, 206S, 207S, 208S, 209S, 210S, 211S, 212S, 216S, 217S, 218S, 219S, 220S, 223S, 224, 225S, 226S, 227S, 228S, 229S, 230S, 231, 232S, 233S, 234S, 235S, 236S, 237S, 238S, 239S, 241S, 242S, 243S, 244S, 245S, 246, 247, 248, 249, 250, 251, 252, 253, 254, 255
14.395	HSG C	200S, 201S, 202S, 203S, 204S, 205S, 206S, 207S, 208S, 209S, 210S, 215S, 216S, 217S, 219S, 220S, 221S, 222S, 223S, 224, 225S, 227S, 229S, 231, 232S, 233S, 234S, 235S, 236S, 237S, 238S, 239S, 241S, 242S, 243S, 244S, 245S, 248, 249, 250, 251, 252, 253, 254, 255
21.107	HSG D	223S, 242S, 243S, 249, 254
0.000	Other	
116.330		**TOTAL AREA**

Time span=0.00-72.00 hrs, dt=0.01 hrs, 7201 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment200S: PR-WS-200 Runoff Area=54,993 sf 91.28% Impervious Runoff Depth=2.58"
Tc=6.0 min CN=96 Runoff=3.57 cfs 0.272 af

Subcatchment201S: PR-WS-201 Runoff Area=40,063 sf 100.00% Impervious Runoff Depth=2.80"
Tc=6.0 min CN=98 Runoff=2.70 cfs 0.214 af

Subcatchment202S: PR-WS-202 Runoff Area=39,991 sf 100.00% Impervious Runoff Depth=2.80"
Tc=6.0 min CN=98 Runoff=2.70 cfs 0.214 af

Subcatchment203S: PR-WS-203 Runoff Area=40,000 sf 100.00% Impervious Runoff Depth=2.80"
Tc=6.0 min CN=98 Runoff=2.70 cfs 0.214 af

Subcatchment204S: PR-WS-204 Runoff Area=92,399 sf 84.78% Impervious Runoff Depth=2.19"
Tc=6.0 min CN=92 Runoff=5.33 cfs 0.387 af

Subcatchment205S: PR-WS-205 Runoff Area=48,766 sf 82.03% Impervious Runoff Depth=2.28"
Tc=6.0 min CN=93 Runoff=2.91 cfs 0.213 af

Subcatchment206S: PR-WS-206 Runoff Area=48,599 sf 82.63% Impervious Runoff Depth=2.19"
Tc=6.0 min CN=92 Runoff=2.81 cfs 0.204 af

Subcatchment207S: PR-WS-207 Runoff Area=49,476 sf 90.49% Impervious Runoff Depth=2.48"
Tc=6.0 min CN=95 Runoff=3.13 cfs 0.235 af

Subcatchment208S: PR-WS-208 Runoff Area=41,144 sf 100.00% Impervious Runoff Depth=2.80"
Tc=6.0 min CN=98 Runoff=2.77 cfs 0.220 af

Subcatchment209S: PR-WS-209 Runoff Area=40,000 sf 100.00% Impervious Runoff Depth=2.80"
Tc=6.0 min CN=98 Runoff=2.70 cfs 0.214 af

Subcatchment210S: PR-WS-210 Runoff Area=40,000 sf 100.00% Impervious Runoff Depth=2.80"
Tc=6.0 min CN=98 Runoff=2.70 cfs 0.214 af

Subcatchment211S: PR-WS-211 Runoff Area=40,000 sf 100.00% Impervious Runoff Depth=2.80"
Tc=6.0 min CN=98 Runoff=2.70 cfs 0.214 af

Subcatchment212S: PR-WS-212 Runoff Area=41,505 sf 88.57% Impervious Runoff Depth=2.10"
Tc=6.0 min CN=91 Runoff=2.31 cfs 0.167 af

Subcatchment213S: PR-WS-213 Runoff Area=33,855 sf 100.00% Impervious Runoff Depth=2.80"
Tc=6.0 min CN=98 Runoff=2.28 cfs 0.181 af

Subcatchment214S: PR-WS-214 Runoff Area=67,711 sf 100.00% Impervious Runoff Depth=2.80"
Tc=6.0 min CN=98 Runoff=4.57 cfs 0.362 af

Subcatchment215S: PR-WS-215 Runoff Area=67,711 sf 100.00% Impervious Runoff Depth=2.80"
Tc=6.0 min CN=98 Runoff=4.57 cfs 0.362 af

Subcatchment216S: PR-WS-216 Runoff Area=67,711 sf 100.00% Impervious Runoff Depth=2.80"
Tc=6.0 min CN=98 Runoff=4.57 cfs 0.362 af

Subcatchment217S: PR-WS-217 Runoff Area=38,056 sf 100.00% Impervious Runoff Depth=2.80"
Tc=6.0 min CN=98 Runoff=2.57 cfs 0.204 af

Subcatchment218S: PR-WS-218 Runoff Area=37,994 sf 100.00% Impervious Runoff Depth=2.80"
Tc=6.0 min CN=98 Runoff=2.56 cfs 0.203 af

Subcatchment219S: PR-WS-219 Runoff Area=67,711 sf 100.00% Impervious Runoff Depth=2.80"
Tc=6.0 min CN=98 Runoff=4.57 cfs 0.362 af

Subcatchment220S: PR-WS-220 Runoff Area=67,711 sf 100.00% Impervious Runoff Depth=2.80"
Tc=6.0 min CN=98 Runoff=4.57 cfs 0.362 af

Subcatchment221S: PR-WS-221 Runoff Area=67,711 sf 100.00% Impervious Runoff Depth=2.80"
Tc=6.0 min CN=98 Runoff=4.57 cfs 0.362 af

Subcatchment222S: PR-WS-222 Runoff Area=33,855 sf 100.00% Impervious Runoff Depth=2.80"
Tc=6.0 min CN=98 Runoff=2.28 cfs 0.181 af

Subcatchment223S: PR-WS-223 Runoff Area=1,866,795 sf 9.05% Impervious Runoff Depth=0.41"
Flow Length=997' Tc=20.1 min CN=62 Runoff=8.96 cfs 1.465 af

Subcatchment224: PR-WS-224 Runoff Area=14,288 sf 0.00% Impervious Runoff Depth=0.03"
Tc=6.0 min CN=45 Runoff=0.00 cfs 0.001 af

Subcatchment225S: PR-WS-225 Runoff Area=19,269 sf 28.51% Impervious Runoff Depth=0.83"
Tc=6.0 min CN=72 Runoff=0.39 cfs 0.030 af

Subcatchment226S: PR-WS-226 Runoff Area=19,830 sf 27.44% Impervious Runoff Depth=0.78"
Tc=6.0 min CN=71 Runoff=0.37 cfs 0.030 af

Subcatchment227S: PR-WS-227 Runoff Area=16,653 sf 24.76% Impervious Runoff Depth=0.78"
Tc=6.0 min CN=71 Runoff=0.31 cfs 0.025 af

Subcatchment228S: PR-WS-228 Runoff Area=11,178 sf 36.88% Impervious Runoff Depth=0.98"
Tc=6.0 min CN=75 Runoff=0.28 cfs 0.021 af

Subcatchment229S: PR-WS-229 Runoff Area=9,737 sf 25.24% Impervious Runoff Depth=0.88"
Tc=6.0 min CN=73 Runoff=0.21 cfs 0.016 af

Subcatchment230S: PR-WS-230 Runoff Area=7,265 sf 33.56% Impervious Runoff Depth=0.88"
Tc=6.0 min CN=73 Runoff=0.16 cfs 0.012 af

Subcatchment231: PR-WS-231 Runoff Area=22,919 sf 19.61% Impervious Runoff Depth=0.64"
Tc=6.0 min CN=68 Runoff=0.33 cfs 0.028 af

Subcatchment232S: PR-WS-232 Runoff Area=8,930 sf 49.97% Impervious Runoff Depth=1.34"
Tc=6.0 min CN=81 Runoff=0.32 cfs 0.023 af

Subcatchment233S: PR-WS-233 Runoff Area=39,444 sf 82.88% Impervious Runoff Depth=2.01"
Tc=6.0 min CN=90 Runoff=2.12 cfs 0.152 af

Subcatchment234S: PR-WS-234 Runoff Area=22,893 sf 86.59% Impervious Runoff Depth=2.10"
Tc=6.0 min CN=91 Runoff=1.28 cfs 0.092 af

Subcatchment235S: PR-WS-235 Runoff Area=12,940 sf 97.32% Impervious Runoff Depth=2.69"
Tc=6.0 min CN=97 Runoff=0.86 cfs 0.067 af

Subcatchment236S: PR-WS-236 Runoff Area=10,360 sf 96.72% Impervious Runoff Depth=2.69"
Tc=6.0 min CN=97 Runoff=0.69 cfs 0.053 af

Subcatchment237S: PR-WS-237 Runoff Area=20,311 sf 91.25% Impervious Runoff Depth=2.38"
Tc=6.0 min CN=94 Runoff=1.25 cfs 0.092 af

Subcatchment238S: PR-WS-238 Runoff Area=26,147 sf 86.27% Impervious Runoff Depth=2.38"
Tc=6.0 min CN=94 Runoff=1.61 cfs 0.119 af

Subcatchment239S: PR WS 239 Runoff Area=64,953 sf 0.00% Impervious Runoff Depth=0.48"
Tc=6.0 min CN=64 Runoff=0.59 cfs 0.060 af

Subcatchment241S: PR-WS-241 Runoff Area=110,908 sf 0.00% Impervious Runoff Depth=0.38"
Flow Length=622' Tc=9.5 min CN=61 Runoff=0.55 cfs 0.080 af

Subcatchment242S: PR-WS-242 Runoff Area=821,557 sf 0.78% Impervious Runoff Depth=0.38"
Flow Length=1,847' Tc=45.3 min CN=61 Runoff=2.47 cfs 0.592 af

Subcatchment243S: PR-WS-243 Runoff Area=395,402 sf 0.00% Impervious Runoff Depth=0.64"
Flow Length=842' Tc=21.5 min CN=68 Runoff=3.70 cfs 0.486 af

Subcatchment244S: PR-WS-244 Runoff Area=9,698 sf 46.65% Impervious Runoff Depth=1.54"
Flow Length=689' Tc=6.0 min CN=84 Runoff=0.40 cfs 0.029 af

Subcatchment245S: PR-WS-245 Runoff Area=74,363 sf 0.00% Impervious Runoff Depth=0.31"
Flow Length=796' Tc=16.3 min CN=59 Runoff=0.24 cfs 0.045 af

Subcatchment246: PR-WS-246 Runoff Area=9,183 sf 22.13% Impervious Runoff Depth=0.69"
Tc=6.0 min CN=69 Runoff=0.14 cfs 0.012 af

Subcatchment247: PR-WS-247 Runoff Area=5,530 sf 36.42% Impervious Runoff Depth=0.93"
Tc=6.0 min CN=74 Runoff=0.13 cfs 0.010 af

Subcatchment248: PR-WS-248 Runoff Area=4,776 sf 75.02% Impervious Runoff Depth=2.10"
Tc=6.0 min CN=91 Runoff=0.27 cfs 0.019 af

Subcatchment249: PR-WS-249 Runoff Area=16,271 sf 62.39% Impervious Runoff Depth=1.47"
Tc=6.0 min CN=83 Runoff=0.64 cfs 0.046 af

Subcatchment250: PR-WS-250 Runoff Area=11,042 sf 41.11% Impervious Runoff Depth=1.09"
Tc=6.0 min CN=77 Runoff=0.31 cfs 0.023 af

Subcatchment251: PR-WS-251 Runoff Area=11,006 sf 40.88% Impervious Runoff Depth=1.15"
Tc=6.0 min CN=78 Runoff=0.33 cfs 0.024 af

Subcatchment252: PR-WS-252 Runoff Area=10,963 sf 41.27% Impervious Runoff Depth=1.15"
Tc=6.0 min CN=78 Runoff=0.33 cfs 0.024 af

Subcatchment253: PR-WS-253 Runoff Area=9,609 sf 58.93% Impervious Runoff Depth=1.69"
Tc=6.0 min CN=86 Runoff=0.44 cfs 0.031 af

Subcatchment254: PR-WS-254 Runoff Area=202,242 sf 36.55% Impervious Runoff Depth=1.47"
Flow Length=761' Tc=24.3 min CN=83 Runoff=4.95 cfs 0.569 af

Subcatchment255: PR-WS-255 Runoff Area=13,921 sf 61.91% Impervious Runoff Depth=1.54"
Tc=6.0 min CN=84 Runoff=0.58 cfs 0.041 af

Reach R1: OVERLAND TO AP Avg. Flow Depth=0.16' Max Vel=1.62 fps Inflow=2.08 cfs 1.522 af
n=0.030 L=569.9' S=0.0211 '/' Capacity=109.49 cfs Outflow=2.08 cfs 1.522 af

Reach R2: OVERLAND THOUGH Avg. Flow Depth=0.28' Max Vel=0.80 fps Inflow=2.95 cfs 0.736 af
n=0.030 L=1,089.0' S=0.0025 '/' Capacity=37.50 cfs Outflow=2.35 cfs 0.736 af

Reach R3: OVERLAND THOUGH Avg. Flow Depth=0.05' Max Vel=2.52 fps Inflow=0.55 cfs 0.080 af
n=0.030 L=228.0' S=0.2456 '/' Capacity=373.94 cfs Outflow=0.55 cfs 0.080 af

Reach R6: OVERLAND THOUGH Avg. Flow Depth=0.04' Max Vel=0.78 fps Inflow=0.24 cfs 0.045 af
n=0.030 L=2,009.0' S=0.0329 '/' Capacity=136.76 cfs Outflow=0.12 cfs 0.045 af

Pond 001: PR-DMH-001 Peak Elev=227.45' Storage=18 cf Inflow=8.84 cfs 0.651 af
30.0" Round Culvert n=0.012 L=201.0' S=0.0060 '/' Outflow=8.83 cfs 0.651 af

Pond 002: PR-DMH-002 Peak Elev=233.93' Storage=12 cf Inflow=2.57 cfs 0.204 af
18.0" Round Culvert n=0.012 L=237.0' S=0.0051 '/' Outflow=2.56 cfs 0.204 af

Pond 003: PR-DMH-003 Peak Elev=233.10' Storage=18 cf Inflow=7.13 cfs 0.566 af
24.0" Round Culvert n=0.012 L=237.0' S=0.0051 '/' Outflow=7.13 cfs 0.566 af

Pond 004: PR-DMH-004 Peak Elev=232.01' Storage=20 cf Inflow=11.69 cfs 0.929 af
30.0" Round Culvert n=0.012 L=237.0' S=0.0051 '/' Outflow=11.69 cfs 0.929 af

Pond 005: PR-DMH-005 Peak Elev=230.69' Storage=20 cf Inflow=16.26 cfs 1.291 af
36.0" Round Culvert n=0.012 L=237.0' S=0.0101 '/' Outflow=16.26 cfs 1.291 af

Pond 006: PR-DMH-006 Peak Elev=228.31' Storage=21 cf Inflow=18.54 cfs 1.472 af
36.0" Round Culvert n=0.012 L=32.0' S=0.0922 '/' Outflow=18.54 cfs 1.472 af

Pond 007: PR-DMH-007 Peak Elev=232.90' Storage=18 cf Inflow=2.56 cfs 0.203 af
18.0" Round Culvert n=0.012 L=237.0' S=0.0051 '/' Outflow=2.56 cfs 0.203 af

Pond 008: PR-DMH-008 Peak Elev=231.97' Storage=16 cf Inflow=7.12 cfs 0.566 af
30.0" Round Culvert n=0.012 L=237.0' S=0.0051 '/' Outflow=7.12 cfs 0.566 af

Pond 009: PR-DMH-009 Peak Elev=230.94' Storage=19 cf Inflow=11.69 cfs 0.928 af
36.0" Round Culvert n=0.012 L=237.0' S=0.0051 '/' Outflow=11.69 cfs 0.928 af

Pond 010: PR-DMH-010 Peak Elev=229.80' Storage=21 cf Inflow=16.25 cfs 1.291 af
36.0" Round Culvert n=0.012 L=237.0' S=0.0063 '/' Outflow=16.25 cfs 1.291 af

Pond 011: PR-DMH-011 Peak Elev=228.21' Storage=21 cf Inflow=18.53 cfs 1.472 af
36.0" Round Culvert n=0.012 L=32.0' S=0.0469 '/' Outflow=18.53 cfs 1.472 af

Pond 012: PR-DMH-012 Peak Elev=228.12' Storage=20 cf Inflow=3.54 cfs 0.265 af
24.0" Round Culvert n=0.012 L=127.0' S=0.0051 '/' Outflow=3.54 cfs 0.265 af

Pond 013: PR-DMH-013 (BAFFLE 4) Peak Elev=228.11' Storage=45 cf Inflow=7.76 cfs 0.576 af
30.0" Round Culvert n=0.012 L=9.0' S=0.0056 '/' Outflow=7.74 cfs 0.577 af

Pond 015: PR-DMH-015 Peak Elev=228.34' Storage=16 cf Inflow=7.70 cfs 0.595 af
30.0" Round Culvert n=0.012 L=48.0' S=0.0077 '/' Outflow=7.70 cfs 0.595 af

Pond 024: PR-DMH-024 Peak Elev=219.35' Storage=5 cf Inflow=0.58 cfs 0.041 af
15.0" Round Culvert n=0.012 L=196.0' S=0.0051 '/' Outflow=0.58 cfs 0.041 af

Pond 025: PR-DMH-025 Peak Elev=222.42' Storage=11 cf Inflow=2.79 cfs 0.363 af
36.0" Round Culvert n=0.012 L=111.0' S=0.1063 '/' Outflow=2.79 cfs 0.363 af

Pond 026: PR-DMH-026 Peak Elev=210.52' Storage=12 cf Inflow=2.79 cfs 0.363 af
36.0" Round Culvert n=0.012 L=42.0' S=0.0190 '/' Outflow=2.79 cfs 0.363 af

Pond 027: PR-DMH-027 Peak Elev=228.10' Storage=53 cf Inflow=7.69 cfs 0.595 af
30.0" Round Culvert n=0.012 L=12.0' S=0.0083 '/' Outflow=7.65 cfs 0.594 af

Pond 028: PR-DMH-028 Peak Elev=228.48' Storage=19 cf Inflow=8.84 cfs 0.651 af
24.0" Round Culvert n=0.012 L=154.0' S=0.0052 '/' Outflow=8.84 cfs 0.651 af

Pond 029: PR-DMH-029 Peak Elev=209.62' Storage=8 cf Inflow=2.79 cfs 0.363 af
36.0" Round Culvert n=0.012 L=101.0' S=0.0099 '/' Outflow=2.79 cfs 0.363 af

Pond 031: PR-DMH-031 Peak Elev=226.52' Storage=25 cf Inflow=16.97 cfs 1.301 af
Primary=15.13 cfs 0.837 af Secondary=1.94 cfs 0.464 af Outflow=16.96 cfs 1.301 af

Pond 032: PR-DMH-032 Peak Elev=226.26' Storage=30 cf Inflow=16.96 cfs 1.301 af
36.0" Round Culvert n=0.012 L=16.0' S=0.0062 '/' Outflow=16.97 cfs 1.301 af

Pond 033: DMH 033 Peak Elev=214.96' Storage=44 cf Inflow=16.23 cfs 1.241 af
Primary=14.54 cfs 0.944 af Secondary=1.74 cfs 0.297 af Outflow=16.22 cfs 1.241 af

Pond 034: DMH 034 Peak Elev=214.59' Storage=28 cf Inflow=16.22 cfs 1.241 af
36.0" Round Culvert n=0.012 L=15.0' S=0.0047 '/' Outflow=16.22 cfs 1.240 af

Pond 035: PR-DMH-035 Peak Elev=228.12' Storage=19 cf Inflow=7.70 cfs 0.595 af
Primary=5.89 cfs 0.335 af Secondary=1.87 cfs 0.259 af Outflow=7.69 cfs 0.595 af

Pond 036: PR-DMH-036 Peak Elev=228.11' Storage=25 cf Inflow=7.69 cfs 0.595 af
30.0" Round Culvert n=0.012 L=96.0' S=0.0224 '/' Outflow=7.69 cfs 0.595 af

Pond 037: PR-DMH-037 Peak Elev=228.11' Storage=47 cf Inflow=7.74 cfs 0.577 af
Primary=6.45 cfs 0.358 af Secondary=2.90 cfs 0.218 af Outflow=7.71 cfs 0.577 af

Pond 038: PR-DMH-038 Peak Elev=228.10' Storage=53 cf Inflow=7.71 cfs 0.577 af
30.0" Round Culvert n=0.012 L=16.0' S=0.0062 '/' Outflow=7.67 cfs 0.576 af

Pond 039: PR-DMH-039 Peak Elev=212.23' Storage=0.000 af Inflow=1.01 cfs 0.072 af
15.0" Round Culvert n=0.012 L=274.0' S=0.0201 '/' Outflow=1.01 cfs 0.072 af

Pond 040: PR-DMH-040 Peak Elev=206.67' Storage=0.000 af Inflow=1.01 cfs 0.072 af
15.0" Round Culvert n=0.012 L=33.0' S=0.0076 '/' Outflow=1.01 cfs 0.072 af

Pond 100: PR-CB-100 Peak Elev=229.95' Storage=16 cf Inflow=5.71 cfs 0.417 af
24.0" Round Culvert n=0.012 L=206.0' S=0.0051 '/' Outflow=5.71 cfs 0.417 af

Pond 101: PR-CB-101 Peak Elev=229.14' Storage=21 cf Inflow=8.84 cfs 0.651 af
24.0" Round Culvert n=0.012 L=83.0' S=0.0054 '/' Outflow=8.84 cfs 0.651 af

Pond 102: PR-CB-102 Peak Elev=226.40' Storage=21 cf Inflow=15.05 cfs 1.145 af
30.0" Round Culvert n=0.012 L=275.0' S=0.0200 '/' Outflow=15.05 cfs 1.145 af

Pond 103: PR-CB-103 Peak Elev=226.41' Storage=16 cf Inflow=0.37 cfs 0.030 af
12.0" Round Culvert n=0.012 L=28.0' S=0.0089 '/' Outflow=0.37 cfs 0.030 af

Pond 104: PR-CB-104 Peak Elev=220.84' Storage=21 cf Inflow=15.63 cfs 1.191 af
30.0" Round Culvert n=0.012 L=162.0' S=0.0179 '/' Outflow=15.63 cfs 1.191 af

Pond 105: PR-CB-105 Peak Elev=220.85' Storage=17 cf Inflow=0.28 cfs 0.021 af
12.0" Round Culvert n=0.012 L=28.0' S=0.0089 '/' Outflow=0.28 cfs 0.021 af

Pond 106: PR-CB-106 Peak Elev=217.86' Storage=22 cf Inflow=15.99 cfs 1.220 af
30.0" Round Culvert n=0.012 L=135.0' S=0.0189 '/' Outflow=15.99 cfs 1.220 af

Pond 107: PR-CB-107 Peak Elev=217.87' Storage=17 cf Inflow=0.16 cfs 0.012 af
12.0" Round Culvert n=0.012 L=28.0' S=0.0089 '/' Outflow=0.16 cfs 0.012 af

Pond 108: PR-CB-108 Peak Elev=215.80' Storage=45 cf Inflow=16.13 cfs 1.232 af
36.0" Round Culvert n=0.012 L=28.0' S=0.0054 '/' Outflow=16.11 cfs 1.232 af

Pond 109: PR-CB-109 (BAFFLE 2) Peak Elev=215.43' Storage=43 cf Inflow=16.24 cfs 1.241 af
36.0" Round Culvert n=0.012 L=64.0' S=0.0047 '/' Outflow=16.23 cfs 1.241 af

Pond 110: PR-CB-110 Peak Elev=228.46' Storage=15 cf Inflow=5.47 cfs 0.434 af
24.0" Round Culvert n=0.012 L=59.0' S=0.0051 '/' Outflow=5.47 cfs 0.434 af

Pond 111: PR-CB-111 Peak Elev=229.33' Storage=12 cf Inflow=2.70 cfs 0.214 af
18.0" Round Culvert n=0.012 L=193.0' S=0.0052 '/' Outflow=2.70 cfs 0.214 af

Pond 112: PR-CB-112 Peak Elev=230.61' Storage=11 cf Inflow=2.70 cfs 0.214 af
24.0" Round Culvert n=0.012 L=201.0' S=0.0050 '/' Outflow=2.70 cfs 0.214 af

Pond 113: PR-CB-113 Peak Elev=229.86' Storage=15 cf Inflow=5.39 cfs 0.428 af
24.0" Round Culvert n=0.012 L=198.0' S=0.0051 '/' Outflow=5.39 cfs 0.428 af

Pond 114: PR-CB-114 (BAFFLE 3) Peak Elev=228.92' Storage=17 cf Inflow=7.70 cfs 0.595 af
30.0" Round Culvert n=0.012 L=80.0' S=0.0050 '/' Outflow=7.70 cfs 0.595 af

Pond 115: PR-CB-115 Peak Elev=230.65' Storage=11 cf Inflow=2.91 cfs 0.213 af
24.0" Round Culvert n=0.012 L=201.0' S=0.0050 '/' Outflow=2.91 cfs 0.213 af

Pond 116: PR-CB-116 Peak Elev=230.66' Storage=13 cf Inflow=5.33 cfs 0.387 af
30.0" Round Culvert n=0.012 L=294.0' S=0.0051 '/' Outflow=5.33 cfs 0.387 af

Pond 117: PR-CB-117 Peak Elev=229.42' Storage=18 cf Inflow=8.03 cfs 0.601 af
30.0" Round Culvert n=0.012 L=200.0' S=0.0050 '/' Outflow=8.02 cfs 0.601 af

Pond 118: PR-CB-118 Peak Elev=228.61' Storage=21 cf Inflow=10.72 cfs 0.815 af
30.0" Round Culvert n=0.012 L=200.0' S=0.0050 '/' Outflow=10.71 cfs 0.815 af

Pond 119: PR-CB-119 Peak Elev=227.79' Storage=25 cf Inflow=13.42 cfs 1.030 af
30.0" Round Culvert n=0.012 L=201.0' S=0.0050 '/' Outflow=13.41 cfs 1.030 af

Pond 120: PR-CB-120 Peak Elev=226.95' Storage=28 cf Inflow=16.98 cfs 1.301 af
36.0" Round Culvert n=0.012 L=22.0' S=0.0045 '/' Outflow=16.97 cfs 1.301 af

Pond 121: PR-CB-121 Peak Elev=229.31' Storage=9 cf Inflow=1.61 cfs 0.119 af
18.0" Round Culvert n=0.012 L=113.0' S=0.0053 '/' Outflow=1.61 cfs 0.119 af

Pond 122: PR-CB-122 Peak Elev=228.82' Storage=12 cf Inflow=2.86 cfs 0.211 af
18.0" Round Culvert n=0.012 L=113.0' S=0.0053 '/' Outflow=2.86 cfs 0.211 af

Pond 123: PR-CB-123 Peak Elev=228.14' Storage=12 cf Inflow=3.54 cfs 0.265 af
24.0" Round Culvert n=0.012 L=113.0' S=0.0053 '/' Outflow=3.54 cfs 0.265 af

Pond 125: PR-CB-125 Peak Elev=228.12' Storage=30 cf Inflow=4.39 cfs 0.331 af
24.0" Round Culvert n=0.012 L=127.0' S=0.0051 '/' Outflow=4.38 cfs 0.332 af

Pond 126: PR-CB-126 Peak Elev=228.11' Storage=39 cf Inflow=5.66 cfs 0.424 af
24.0" Round Culvert n=0.012 L=74.0' S=0.0047 '/' Outflow=5.64 cfs 0.424 af

Pond 127: PR-CB-127 Peak Elev=228.22' Storage=9 cf Inflow=2.12 cfs 0.152 af
15.0" Round Culvert n=0.012 L=54.0' S=0.0528 '/' Outflow=2.12 cfs 0.152 af

Pond 128: PR-CB-128 Peak Elev=217.41' Storage=4 cf Inflow=0.40 cfs 0.029 af
12.0" Round Culvert n=0.012 L=150.0' S=0.0233 '/' Outflow=0.40 cfs 0.029 af

Pond 129: PR-CB-129 Peak Elev=213.93' Storage=5 cf Inflow=0.73 cfs 0.053 af
12.0" Round Culvert n=0.012 L=150.0' S=0.0207 '/' Outflow=0.73 cfs 0.053 af

Pond 130: PR-CB-130 Peak Elev=210.83' Storage=7 cf Inflow=1.06 cfs 0.077 af
12.0" Round Culvert n=0.012 L=147.0' S=0.0163 '/' Outflow=1.06 cfs 0.077 af

Pond 131: PR-CB-131 (BAFFLE 6) Peak Elev=208.43' Storage=13 cf Inflow=1.38 cfs 0.100 af
15.0" Round Culvert n=0.012 L=129.0' S=0.0049 '/' Outflow=1.38 cfs 0.100 af

Pond 132: PR-CB-132 Peak Elev=209.04' Storage=4 cf Inflow=0.32 cfs 0.023 af
12.0" Round Culvert n=0.012 L=28.0' S=0.0054 '/' Outflow=0.32 cfs 0.023 af

Pond 133: PR-CB-133 (BAFFLE 5) Peak Elev=208.85' Storage=5 cf Inflow=0.64 cfs 0.051 af
12.0" Round Culvert n=0.012 L=67.0' S=0.0269 '/' Outflow=0.64 cfs 0.051 af

Pond 134: PR-CB-134 Peak Elev=204.87' Storage=6 cf Inflow=0.64 cfs 0.046 af
12.0" Round Culvert n=0.012 L=28.0' S=0.0054 '/' Outflow=0.64 cfs 0.046 af

Pond 135: PR-CB-135 Peak Elev=204.60' Storage=6 cf Inflow=0.91 cfs 0.065 af
15.0" Round Culvert n=0.012 L=62.0' S=0.0185 '/' Outflow=0.91 cfs 0.065 af

Pond 136: PR-CB-136 Peak Elev=218.33' Storage=6 cf Inflow=1.01 cfs 0.072 af
15.0" Round Culvert n=0.012 L=300.0' S=0.0200 '/' Outflow=1.01 cfs 0.072 af

Pond 137: PR-CB-137 Peak Elev=224.53' Storage=5 cf Inflow=0.58 cfs 0.041 af
12.0" Round Culvert n=0.012 L=30.0' S=0.0483 '/' Outflow=0.58 cfs 0.041 af

Pond F1: FOREBAY #1 Peak Elev=214.20' Storage=6,781 cf Inflow=16.22 cfs 1.240 af
Outflow=15.59 cfs 1.129 af

Pond OS 1: OIL/WATER SEPARATOR #1 Peak Elev=226.30' Inflow=1.94 cfs 0.464 af
12.0" Round Culvert n=0.012 L=11.0' S=0.0045 '/' Outflow=1.94 cfs 0.464 af

Pond OS 3: OIL/WATER SEPARATOR #3 Peak Elev=228.40' Inflow=1.87 cfs 0.259 af
12.0" Round Culvert n=0.012 L=11.0' S=0.0045 '/' Outflow=1.87 cfs 0.259 af

Pond OS 4: OIL/WATER SEPARATOR #4 Peak Elev=229.06' Inflow=2.90 cfs 0.218 af
12.0" Round Culvert n=0.012 L=20.0' S=0.0050 '/' Outflow=2.90 cfs 0.218 af

Pond OS2: OIL/WATER SEPARATOR #2 Peak Elev=214.78' Inflow=1.74 cfs 0.297 af
12.0" Round Culvert n=0.012 L=11.0' S=0.0045 '/' Outflow=1.74 cfs 0.297 af

Pond P1: INFILTRATION POND #1 Peak Elev=213.24' Storage=16,491 cf Inflow=16.18 cfs 1.189 af
Discarded=2.67 cfs 1.189 af Primary=0.00 cfs 0.000 af Outflow=2.67 cfs 1.189 af

Pond P2: STORMTECH #2 Peak Elev=226.23' Storage=27,068 cf Inflow=16.97 cfs 1.301 af
Outflow=4.21 cfs 1.172 af

Pond P20: EX POND 20 Peak Elev=212.21' Storage=21,966 cf Inflow=9.44 cfs 1.545 af
Outflow=2.08 cfs 1.522 af

Pond P3: Gravel Det/Infil Pond #3 Peak Elev=223.73' Storage=38,874 cf Inflow=23.88 cfs 3.875 af
Discarded=6.86 cfs 3.875 af Primary=0.00 cfs 0.000 af Outflow=6.86 cfs 3.875 af

Pond P30: POND AREA Peak Elev=206.10' Storage=17,109 cf Inflow=6.30 cfs 0.793 af
Primary=0.17 cfs 0.374 af Secondary=1.03 cfs 0.390 af Outflow=1.20 cfs 0.764 af

Pond P4: STORMTECH Peak Elev=228.10' Storage=23,697 cf Inflow=15.32 cfs 1.171 af
Discarded=0.37 cfs 0.808 af Primary=2.79 cfs 0.363 af Outflow=3.16 cfs 1.171 af

Pond P5: FOCALPOINT POND #5 Peak Elev=204.92' Storage=0 cf Inflow=2.02 cfs 0.152 af
Outflow=2.02 cfs 0.152 af

Pond P6: DETENTION POND #6 Peak Elev=225.40' Storage=37,629 cf Inflow=39.23 cfs 4.117 af
Outflow=23.88 cfs 3.875 af

Link AP1: AP 1 Inflow=5.92 cfs 1.827 af
Primary=5.92 cfs 1.827 af

Link AP2: AP2 Inflow=3.80 cfs 2.007 af
Primary=3.80 cfs 2.007 af

Total Runoff Area = 116.330 ac Runoff Volume = 10.242 af Average Runoff Depth = 1.06"
69.01% Pervious = 80.283 ac 30.99% Impervious = 36.047 ac

Time span=0.00-72.00 hrs, dt=0.01 hrs, 7201 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment200S: PR-WS-200 Runoff Area=54,993 sf 91.28% Impervious Runoff Depth=4.13"
Tc=6.0 min CN=96 Runoff=5.56 cfs 0.434 af

Subcatchment201S: PR-WS-201 Runoff Area=40,063 sf 100.00% Impervious Runoff Depth=4.35"
Tc=6.0 min CN=98 Runoff=4.13 cfs 0.334 af

Subcatchment202S: PR-WS-202 Runoff Area=39,991 sf 100.00% Impervious Runoff Depth=4.35"
Tc=6.0 min CN=98 Runoff=4.12 cfs 0.333 af

Subcatchment203S: PR-WS-203 Runoff Area=40,000 sf 100.00% Impervious Runoff Depth=4.35"
Tc=6.0 min CN=98 Runoff=4.12 cfs 0.333 af

Subcatchment204S: PR-WS-204 Runoff Area=92,399 sf 84.78% Impervious Runoff Depth=3.69"
Tc=6.0 min CN=92 Runoff=8.76 cfs 0.652 af

Subcatchment205S: PR-WS-205 Runoff Area=48,766 sf 82.03% Impervious Runoff Depth=3.80"
Tc=6.0 min CN=93 Runoff=4.71 cfs 0.354 af

Subcatchment206S: PR-WS-206 Runoff Area=48,599 sf 82.63% Impervious Runoff Depth=3.69"
Tc=6.0 min CN=92 Runoff=4.61 cfs 0.343 af

Subcatchment207S: PR-WS-207 Runoff Area=49,476 sf 90.49% Impervious Runoff Depth=4.01"
Tc=6.0 min CN=95 Runoff=4.93 cfs 0.380 af

Subcatchment208S: PR-WS-208 Runoff Area=41,144 sf 100.00% Impervious Runoff Depth=4.35"
Tc=6.0 min CN=98 Runoff=4.24 cfs 0.343 af

Subcatchment209S: PR-WS-209 Runoff Area=40,000 sf 100.00% Impervious Runoff Depth=4.35"
Tc=6.0 min CN=98 Runoff=4.12 cfs 0.333 af

Subcatchment210S: PR-WS-210 Runoff Area=40,000 sf 100.00% Impervious Runoff Depth=4.35"
Tc=6.0 min CN=98 Runoff=4.12 cfs 0.333 af

Subcatchment211S: PR-WS-211 Runoff Area=40,000 sf 100.00% Impervious Runoff Depth=4.35"
Tc=6.0 min CN=98 Runoff=4.12 cfs 0.333 af

Subcatchment212S: PR-WS-212 Runoff Area=41,505 sf 88.57% Impervious Runoff Depth=3.58"
Tc=6.0 min CN=91 Runoff=3.86 cfs 0.285 af

Subcatchment213S: PR-WS-213 Runoff Area=33,855 sf 100.00% Impervious Runoff Depth=4.35"
Tc=6.0 min CN=98 Runoff=3.49 cfs 0.282 af

Subcatchment214S: PR-WS-214 Runoff Area=67,711 sf 100.00% Impervious Runoff Depth=4.35"
Tc=6.0 min CN=98 Runoff=6.97 cfs 0.564 af

Subcatchment215S: PR-WS-215 Runoff Area=67,711 sf 100.00% Impervious Runoff Depth=4.35"
Tc=6.0 min CN=98 Runoff=6.97 cfs 0.564 af

Subcatchment216S: PR-WS-216 Runoff Area=67,711 sf 100.00% Impervious Runoff Depth=4.35"
Tc=6.0 min CN=98 Runoff=6.97 cfs 0.564 af

Subcatchment217S: PR-WS-217 Runoff Area=38,056 sf 100.00% Impervious Runoff Depth=4.35"
Tc=6.0 min CN=98 Runoff=3.92 cfs 0.317 af

Subcatchment218S: PR-WS-218 Runoff Area=37,994 sf 100.00% Impervious Runoff Depth=4.35"
Tc=6.0 min CN=98 Runoff=3.91 cfs 0.316 af

Subcatchment219S: PR-WS-219 Runoff Area=67,711 sf 100.00% Impervious Runoff Depth=4.35"
Tc=6.0 min CN=98 Runoff=6.97 cfs 0.564 af

Subcatchment220S: PR-WS-220 Runoff Area=67,711 sf 100.00% Impervious Runoff Depth=4.35"
Tc=6.0 min CN=98 Runoff=6.97 cfs 0.564 af

Subcatchment221S: PR-WS-221 Runoff Area=67,711 sf 100.00% Impervious Runoff Depth=4.35"
Tc=6.0 min CN=98 Runoff=6.97 cfs 0.564 af

Subcatchment222S: PR-WS-222 Runoff Area=33,855 sf 100.00% Impervious Runoff Depth=4.35"
Tc=6.0 min CN=98 Runoff=3.49 cfs 0.282 af

Subcatchment223S: PR-WS-223 Runoff Area=1,866,795 sf 9.05% Impervious Runoff Depth=1.19"
Flow Length=997' Tc=20.1 min CN=62 Runoff=35.82 cfs 4.258 af

Subcatchment224: PR-WS-224 Runoff Area=14,288 sf 0.00% Impervious Runoff Depth=0.32"
Tc=6.0 min CN=45 Runoff=0.04 cfs 0.009 af

Subcatchment225S: PR-WS-225 Runoff Area=19,269 sf 28.51% Impervious Runoff Depth=1.89"
Tc=6.0 min CN=72 Runoff=0.96 cfs 0.070 af

Subcatchment226S: PR-WS-226 Runoff Area=19,830 sf 27.44% Impervious Runoff Depth=1.81"
Tc=6.0 min CN=71 Runoff=0.95 cfs 0.069 af

Subcatchment227S: PR-WS-227 Runoff Area=16,653 sf 24.76% Impervious Runoff Depth=1.81"
Tc=6.0 min CN=71 Runoff=0.79 cfs 0.058 af

Subcatchment228S: PR-WS-228 Runoff Area=11,178 sf 36.88% Impervious Runoff Depth=2.12"
Tc=6.0 min CN=75 Runoff=0.63 cfs 0.045 af

Subcatchment229S: PR-WS-229 Runoff Area=9,737 sf 25.24% Impervious Runoff Depth=1.96"
Tc=6.0 min CN=73 Runoff=0.51 cfs 0.037 af

Subcatchment230S: PR-WS-230 Runoff Area=7,265 sf 33.56% Impervious Runoff Depth=1.96"
Tc=6.0 min CN=73 Runoff=0.38 cfs 0.027 af

Subcatchment231: PR-WS-231 Runoff Area=22,919 sf 19.61% Impervious Runoff Depth=1.59"
Tc=6.0 min CN=68 Runoff=0.94 cfs 0.070 af

Subcatchment232S: PR-WS-232 Runoff Area=8,930 sf 49.97% Impervious Runoff Depth=2.63"
Tc=6.0 min CN=81 Runoff=0.63 cfs 0.045 af

Subcatchment233S: PR-WS-233 Runoff Area=39,444 sf 82.88% Impervious Runoff Depth=3.48"
Tc=6.0 min CN=90 Runoff=3.59 cfs 0.263 af

Subcatchment234S: PR-WS-234 Runoff Area=22,893 sf 86.59% Impervious Runoff Depth=3.58"
Tc=6.0 min CN=91 Runoff=2.13 cfs 0.157 af

Subcatchment235S: PR-WS-235 Runoff Area=12,940 sf 97.32% Impervious Runoff Depth=4.24"
Tc=6.0 min CN=97 Runoff=1.32 cfs 0.105 af

Subcatchment236S: PR-WS-236 Runoff Area=10,360 sf 96.72% Impervious Runoff Depth=4.24"
Tc=6.0 min CN=97 Runoff=1.06 cfs 0.084 af

Subcatchment237S: PR-WS-237 Runoff Area=20,311 sf 91.25% Impervious Runoff Depth=3.90"
Tc=6.0 min CN=94 Runoff=2.00 cfs 0.152 af

Subcatchment238S: PR-WS-238 Runoff Area=26,147 sf 86.27% Impervious Runoff Depth=3.90"
Tc=6.0 min CN=94 Runoff=2.57 cfs 0.195 af

Subcatchment239S: PR WS 239 Runoff Area=64,953 sf 0.00% Impervious Runoff Depth=1.32"
Tc=6.0 min CN=64 Runoff=2.13 cfs 0.164 af

Subcatchment241S: PR-WS-241 Runoff Area=110,908 sf 0.00% Impervious Runoff Depth=1.13"
Flow Length=622' Tc=9.5 min CN=61 Runoff=2.62 cfs 0.240 af

Subcatchment242S: PR-WS-242 Runoff Area=821,557 sf 0.78% Impervious Runoff Depth=1.13"
Flow Length=1,847' Tc=45.3 min CN=61 Runoff=10.13 cfs 1.776 af

Subcatchment243S: PR-WS-243 Runoff Area=395,402 sf 0.00% Impervious Runoff Depth=1.59"
Flow Length=842' Tc=21.5 min CN=68 Runoff=10.58 cfs 1.205 af

Subcatchment244S: PR-WS-244 Runoff Area=9,698 sf 46.65% Impervious Runoff Depth=2.90"
Flow Length=689' Tc=6.0 min CN=84 Runoff=0.75 cfs 0.054 af

Subcatchment245S: PR-WS-245 Runoff Area=74,363 sf 0.00% Impervious Runoff Depth=1.01"
Flow Length=796' Tc=16.3 min CN=59 Runoff=1.23 cfs 0.144 af

Subcatchment246: PR-WS-246 Runoff Area=9,183 sf 22.13% Impervious Runoff Depth=1.67"
Tc=6.0 min CN=69 Runoff=0.40 cfs 0.029 af

Subcatchment247: PR-WS-247 Runoff Area=5,530 sf 36.42% Impervious Runoff Depth=2.04"
Tc=6.0 min CN=74 Runoff=0.30 cfs 0.022 af

Subcatchment248: PR-WS-248 Runoff Area=4,776 sf 75.02% Impervious Runoff Depth=3.58"
Tc=6.0 min CN=91 Runoff=0.44 cfs 0.033 af

Subcatchment249: PR-WS-249 Runoff Area=16,271 sf 62.39% Impervious Runoff Depth=2.81"
Tc=6.0 min CN=83 Runoff=1.23 cfs 0.087 af

Subcatchment250: PR-WS-250 Runoff Area=11,042 sf 41.11% Impervious Runoff Depth=2.28"
Tc=6.0 min CN=77 Runoff=0.68 cfs 0.048 af

Subcatchment251: PR-WS-251 Runoff Area=11,006 sf 40.88% Impervious Runoff Depth=2.37"
Tc=6.0 min CN=78 Runoff=0.70 cfs 0.050 af

Subcatchment252: PR-WS-252 Runoff Area=10,963 sf 41.27% Impervious Runoff Depth=2.37"
Tc=6.0 min CN=78 Runoff=0.70 cfs 0.050 af

Subcatchment253: PR-WS-253 Runoff Area=9,609 sf 58.93% Impervious Runoff Depth=3.09"
Tc=6.0 min CN=86 Runoff=0.79 cfs 0.057 af

Subcatchment254: PR-WS-254 Runoff Area=202,242 sf 36.55% Impervious Runoff Depth=2.81"
Flow Length=761' Tc=24.3 min CN=83 Runoff=9.49 cfs 1.086 af

Subcatchment255: PR-WS-255 Runoff Area=13,921 sf 61.91% Impervious Runoff Depth=2.90"
Tc=6.0 min CN=84 Runoff=1.08 cfs 0.077 af

Reach R1: OVERLAND TO AP Avg. Flow Depth=0.35' Max Vel=2.75 fps Inflow=11.64 cfs 4.473 af
n=0.030 L=569.9' S=0.0211 '/' Capacity=109.49 cfs Outflow=11.62 cfs 4.473 af

Reach R2: OVERLAND THOUGH Avg. Flow Depth=0.57' Max Vel=1.30 fps Inflow=21.22 cfs 1.572 af
n=0.030 L=1,089.0' S=0.0025 '/' Capacity=37.50 cfs Outflow=11.24 cfs 1.572 af

Reach R3: OVERLAND THOUGH Avg. Flow Depth=0.10' Max Vel=4.06 fps Inflow=2.62 cfs 0.240 af
n=0.030 L=228.0' S=0.2456 '/' Capacity=373.94 cfs Outflow=2.60 cfs 0.240 af

Reach R6: OVERLAND THOUGH Avg. Flow Depth=0.09' Max Vel=1.39 fps Inflow=1.23 cfs 0.144 af
n=0.030 L=2,009.0' S=0.0329 '/' Capacity=136.76 cfs Outflow=0.76 cfs 0.144 af

Pond 001: PR-DMH-001 Peak Elev=228.03' Storage=25 cf Inflow=14.19 cfs 1.077 af
30.0" Round Culvert n=0.012 L=201.0' S=0.0060 '/' Outflow=14.19 cfs 1.077 af

Pond 002: PR-DMH-002 Peak Elev=234.31' Storage=17 cf Inflow=3.92 cfs 0.317 af
18.0" Round Culvert n=0.012 L=237.0' S=0.0051 '/' Outflow=3.91 cfs 0.317 af

Pond 003: PR-DMH-003 Peak Elev=233.61' Storage=24 cf Inflow=10.89 cfs 0.881 af
24.0" Round Culvert n=0.012 L=237.0' S=0.0051 '/' Outflow=10.88 cfs 0.881 af

Pond 004: PR-DMH-004 Peak Elev=232.52' Storage=27 cf Inflow=17.85 cfs 1.445 af
30.0" Round Culvert n=0.012 L=237.0' S=0.0051 '/' Outflow=17.85 cfs 1.445 af

Pond 005: PR-DMH-005 Peak Elev=231.14' Storage=26 cf Inflow=24.82 cfs 2.009 af
36.0" Round Culvert n=0.012 L=237.0' S=0.0101 '/' Outflow=24.82 cfs 2.009 af

Pond 006: PR-DMH-006 Peak Elev=228.81' Storage=28 cf Inflow=28.31 cfs 2.291 af
36.0" Round Culvert n=0.012 L=32.0' S=0.0922 '/' Outflow=28.31 cfs 2.291 af

Pond 007: PR-DMH-007 Peak Elev=233.23' Storage=24 cf Inflow=3.91 cfs 0.316 af
18.0" Round Culvert n=0.012 L=237.0' S=0.0051 '/' Outflow=3.91 cfs 0.316 af

Pond 008: PR-DMH-008 Peak Elev=232.40' Storage=21 cf Inflow=10.88 cfs 0.880 af
30.0" Round Culvert n=0.012 L=237.0' S=0.0051 '/' Outflow=10.87 cfs 0.880 af

Pond 009: PR-DMH-009 Peak Elev=231.44' Storage=26 cf Inflow=17.85 cfs 1.444 af
36.0" Round Culvert n=0.012 L=237.0' S=0.0051 '/' Outflow=17.84 cfs 1.444 af

Pond 010: PR-DMH-010 Peak Elev=230.34' Storage=28 cf Inflow=24.82 cfs 2.008 af
36.0" Round Culvert n=0.012 L=237.0' S=0.0063 '/' Outflow=24.81 cfs 2.008 af

Pond 011: PR-DMH-011 Peak Elev=228.71' Storage=28 cf Inflow=28.30 cfs 2.290 af
36.0" Round Culvert n=0.012 L=32.0' S=0.0469 '/' Outflow=28.30 cfs 2.290 af

Pond 012: PR-DMH-012 Peak Elev=230.19' Storage=46 cf Inflow=5.51 cfs 0.431 af
24.0" Round Culvert n=0.012 L=127.0' S=0.0051 '/' Outflow=5.42 cfs 0.431 af

Pond 013: PR-DMH-013 (BAFFLE 4) Peak Elev=229.74' Storage=65 cf Inflow=12.20 cfs 0.957 af
30.0" Round Culvert n=0.012 L=9.0' S=0.0056 '/' Outflow=12.13 cfs 0.957 af

Pond 015: PR-DMH-015 Peak Elev=229.89' Storage=35 cf Inflow=12.05 cfs 0.951 af
30.0" Round Culvert n=0.012 L=48.0' S=0.0077 '/' Outflow=12.00 cfs 0.951 af

Pond 024: PR-DMH-024 Peak Elev=219.51' Storage=7 cf Inflow=1.08 cfs 0.077 af
15.0" Round Culvert n=0.012 L=196.0' S=0.0051 '/' Outflow=1.08 cfs 0.077 af

Pond 025: PR-DMH-025 Peak Elev=223.64' Storage=35 cf Inflow=21.09 cfs 1.037 af
36.0" Round Culvert n=0.012 L=111.0' S=0.1063 '/' Outflow=21.09 cfs 1.037 af

Pond 026: PR-DMH-026 Peak Elev=211.86' Storage=39 cf Inflow=21.09 cfs 1.037 af
36.0" Round Culvert n=0.012 L=42.0' S=0.0190 '/' Outflow=21.07 cfs 1.037 af

Pond 027: PR-DMH-027 Peak Elev=229.37' Storage=69 cf Inflow=11.86 cfs 0.951 af
30.0" Round Culvert n=0.012 L=12.0' S=0.0083 '/' Outflow=11.82 cfs 0.951 af

Pond 028: PR-DMH-028 Peak Elev=229.14' Storage=28 cf Inflow=14.21 cfs 1.077 af
24.0" Round Culvert n=0.012 L=154.0' S=0.0052 '/' Outflow=14.19 cfs 1.077 af

Pond 029: PR-DMH-029 Peak Elev=210.85' Storage=23 cf Inflow=21.07 cfs 1.037 af
36.0" Round Culvert n=0.012 L=101.0' S=0.0099 '/' Outflow=21.07 cfs 1.037 af

Pond 031: PR-DMH-031 Peak Elev=227.49' Storage=38 cf Inflow=26.58 cfs 2.086 af
Primary=24.47 cfs 1.528 af Secondary=3.75 cfs 0.558 af Outflow=26.55 cfs 2.086 af

Pond 032: PR-DMH-032 Peak Elev=227.43' Storage=44 cf Inflow=26.55 cfs 2.086 af
36.0" Round Culvert n=0.012 L=16.0' S=0.0062 '/' Outflow=26.53 cfs 2.086 af

Pond 033: DMH 033 Peak Elev=215.66' Storage=58 cf Inflow=27.36 cfs 2.109 af
Primary=25.26 cfs 1.680 af Secondary=2.14 cfs 0.429 af Outflow=27.35 cfs 2.108 af

Pond 034: DMH 034 Peak Elev=215.09' Storage=34 cf Inflow=27.35 cfs 2.108 af
36.0" Round Culvert n=0.012 L=15.0' S=0.0047 '/' Outflow=27.34 cfs 2.108 af

Pond 035: PR-DMH-035 Peak Elev=229.71' Storage=39 cf Inflow=12.00 cfs 0.951 af
Primary=10.27 cfs 0.638 af Secondary=2.44 cfs 0.313 af Outflow=11.92 cfs 0.951 af

Pond 036: PR-DMH-036 Peak Elev=229.56' Storage=43 cf Inflow=11.92 cfs 0.951 af
30.0" Round Culvert n=0.012 L=96.0' S=0.0224 '/' Outflow=11.86 cfs 0.951 af

Pond 037: PR-DMH-037 Peak Elev=229.54' Storage=65 cf Inflow=12.13 cfs 0.957 af
Primary=10.49 cfs 0.662 af Secondary=3.44 cfs 0.295 af Outflow=12.07 cfs 0.957 af

Pond 038: PR-DMH-038 Peak Elev=229.38' Storage=69 cf Inflow=12.07 cfs 0.957 af
30.0" Round Culvert n=0.012 L=16.0' S=0.0062 '/' Outflow=12.03 cfs 0.957 af

Pond 039: PR-DMH-039 Peak Elev=212.42' Storage=0.000 af Inflow=1.87 cfs 0.134 af
15.0" Round Culvert n=0.012 L=274.0' S=0.0201 '/' Outflow=1.87 cfs 0.134 af

Pond 040: PR-DMH-040 Peak Elev=206.89' Storage=0.000 af Inflow=1.87 cfs 0.134 af
15.0" Round Culvert n=0.012 L=33.0' S=0.0076 '/' Outflow=1.87 cfs 0.134 af

Pond 100: PR-CB-100 Peak Elev=230.65' Storage=25 cf Inflow=9.31 cfs 0.697 af
24.0" Round Culvert n=0.012 L=206.0' S=0.0051 '/' Outflow=9.29 cfs 0.697 af

Pond 101: PR-CB-101 Peak Elev=230.00' Storage=31 cf Inflow=14.22 cfs 1.077 af
24.0" Round Culvert n=0.012 L=83.0' S=0.0054 '/' Outflow=14.21 cfs 1.077 af

Pond 102: PR-CB-102 Peak Elev=227.05' Storage=29 cf Inflow=24.43 cfs 1.891 af
30.0" Round Culvert n=0.012 L=275.0' S=0.0200 '/' Outflow=24.43 cfs 1.891 af

Pond 103: PR-CB-103 Peak Elev=227.12' Storage=25 cf Inflow=0.95 cfs 0.069 af
12.0" Round Culvert n=0.012 L=28.0' S=0.0089 '/' Outflow=0.95 cfs 0.069 af

Pond 104: PR-CB-104 Peak Elev=221.58' Storage=31 cf Inflow=25.84 cfs 1.994 af
30.0" Round Culvert n=0.012 L=162.0' S=0.0179 '/' Outflow=25.84 cfs 1.994 af

Pond 105: PR-CB-105 Peak Elev=221.61' Storage=26 cf Inflow=0.63 cfs 0.045 af
12.0" Round Culvert n=0.012 L=28.0' S=0.0089 '/' Outflow=0.64 cfs 0.045 af

Pond 106: PR-CB-106 Peak Elev=218.68' Storage=32 cf Inflow=26.71 cfs 2.058 af
30.0" Round Culvert n=0.012 L=135.0' S=0.0189 '/' Outflow=26.71 cfs 2.058 af

Pond 107: PR-CB-107 Peak Elev=218.69' Storage=27 cf Inflow=0.38 cfs 0.027 af
12.0" Round Culvert n=0.012 L=28.0' S=0.0089 '/' Outflow=0.40 cfs 0.027 af

Pond 108: PR-CB-108 Peak Elev=216.88' Storage=66 cf Inflow=27.11 cfs 2.087 af
36.0" Round Culvert n=0.012 L=28.0' S=0.0054 '/' Outflow=27.08 cfs 2.087 af

Pond 109: PR-CB-109 (BAFFLE 2) Peak Elev=216.28' Storage=60 cf Inflow=27.38 cfs 2.109 af
36.0" Round Culvert n=0.012 L=64.0' S=0.0047 '/' Outflow=27.36 cfs 2.109 af

Pond 110: PR-CB-110 Peak Elev=228.80' Storage=19 cf Inflow=8.35 cfs 0.676 af
24.0" Round Culvert n=0.012 L=59.0' S=0.0051 '/' Outflow=8.35 cfs 0.676 af

Pond 111: PR-CB-111 Peak Elev=229.64' Storage=16 cf Inflow=4.12 cfs 0.333 af
18.0" Round Culvert n=0.012 L=193.0' S=0.0052 '/' Outflow=4.12 cfs 0.333 af

Pond 112: PR-CB-112 Peak Elev=230.94' Storage=15 cf Inflow=4.12 cfs 0.333 af
24.0" Round Culvert n=0.012 L=201.0' S=0.0050 '/' Outflow=4.11 cfs 0.333 af

Pond 113: PR-CB-113 Peak Elev=230.49' Storage=23 cf Inflow=8.23 cfs 0.666 af
24.0" Round Culvert n=0.012 L=198.0' S=0.0051 '/' Outflow=8.22 cfs 0.666 af

Pond 114: PR-CB-114 (BAFFLE 3) Peak Elev=230.07' Storage=31 cf Inflow=12.07 cfs 0.951 af
30.0" Round Culvert n=0.012 L=80.0' S=0.0050 '/' Outflow=12.05 cfs 0.951 af

Pond 115: PR-CB-115 Peak Elev=231.10' Storage=17 cf Inflow=4.71 cfs 0.354 af
24.0" Round Culvert n=0.012 L=201.0' S=0.0050 '/' Outflow=4.70 cfs 0.354 af

Pond 116: PR-CB-116 Peak Elev=231.10' Storage=19 cf Inflow=8.76 cfs 0.652 af
30.0" Round Culvert n=0.012 L=294.0' S=0.0051 '/' Outflow=8.75 cfs 0.652 af

Pond 117: PR-CB-117 Peak Elev=230.10' Storage=26 cf Inflow=12.87 cfs 0.985 af
30.0" Round Culvert n=0.012 L=200.0' S=0.0050 '/' Outflow=12.86 cfs 0.985 af

Pond 118: PR-CB-118 Peak Elev=229.47' Storage=32 cf Inflow=16.97 cfs 1.318 af
30.0" Round Culvert n=0.012 L=200.0' S=0.0050 '/' Outflow=16.95 cfs 1.318 af

Pond 119: PR-CB-119 Peak Elev=228.79' Storage=38 cf Inflow=21.08 cfs 1.652 af
30.0" Round Culvert n=0.012 L=201.0' S=0.0050 '/' Outflow=21.05 cfs 1.652 af

Pond 120: PR-CB-120 Peak Elev=228.01' Storage=42 cf Inflow=26.61 cfs 2.086 af
36.0" Round Culvert n=0.012 L=22.0' S=0.0045 '/' Outflow=26.58 cfs 2.086 af

Pond 121: PR-CB-121 Peak Elev=230.46' Storage=23 cf Inflow=2.57 cfs 0.195 af
18.0" Round Culvert n=0.012 L=113.0' S=0.0053 '/' Outflow=2.55 cfs 0.195 af

Pond 122: PR-CB-122 Peak Elev=230.42' Storage=32 cf Inflow=4.55 cfs 0.347 af
18.0" Round Culvert n=0.012 L=113.0' S=0.0053 '/' Outflow=4.51 cfs 0.347 af

Pond 123: PR-CB-123 Peak Elev=230.26' Storage=38 cf Inflow=5.57 cfs 0.431 af
24.0" Round Culvert n=0.012 L=113.0' S=0.0053 '/' Outflow=5.51 cfs 0.431 af

Pond 125: PR-CB-125 Peak Elev=230.11' Storage=55 cf Inflow=6.74 cfs 0.536 af
24.0" Round Culvert n=0.012 L=127.0' S=0.0051 '/' Outflow=6.66 cfs 0.537 af

Pond 126: PR-CB-126 Peak Elev=229.97' Storage=62 cf Inflow=8.78 cfs 0.694 af
24.0" Round Culvert n=0.012 L=74.0' S=0.0047 '/' Outflow=8.70 cfs 0.694 af

Pond 127: PR-CB-127 Peak Elev=230.00' Storage=31 cf Inflow=3.59 cfs 0.263 af
15.0" Round Culvert n=0.012 L=54.0' S=0.0528 '/' Outflow=3.50 cfs 0.263 af

Pond 128: PR-CB-128 Peak Elev=217.54' Storage=6 cf Inflow=0.75 cfs 0.054 af
12.0" Round Culvert n=0.012 L=150.0' S=0.0233 '/' Outflow=0.75 cfs 0.054 af

Pond 129: PR-CB-129 Peak Elev=214.14' Storage=8 cf Inflow=1.45 cfs 0.103 af
12.0" Round Culvert n=0.012 L=150.0' S=0.0207 '/' Outflow=1.45 cfs 0.103 af

Pond 130: PR-CB-130 Peak Elev=211.13' Storage=10 cf Inflow=2.15 cfs 0.153 af
12.0" Round Culvert n=0.012 L=147.0' S=0.0163 '/' Outflow=2.15 cfs 0.153 af

Pond 131: PR-CB-131 (BAFFLE 6) Peak Elev=208.76' Storage=17 cf Inflow=2.83 cfs 0.202 af
15.0" Round Culvert n=0.012 L=129.0' S=0.0049 '/' Outflow=2.83 cfs 0.201 af

Pond 132: PR-CB-132 Peak Elev=209.27' Storage=7 cf Inflow=0.63 cfs 0.045 af
12.0" Round Culvert n=0.012 L=28.0' S=0.0054 '/' Outflow=0.63 cfs 0.045 af

Pond 133: PR-CB-133 (BAFFLE 5) Peak Elev=209.12' Storage=8 cf Inflow=1.57 cfs 0.115 af
12.0" Round Culvert n=0.012 L=67.0' S=0.0269 '/' Outflow=1.57 cfs 0.115 af

Pond 134: PR-CB-134 Peak Elev=205.09' Storage=9 cf Inflow=1.23 cfs 0.087 af
12.0" Round Culvert n=0.012 L=28.0' S=0.0054 '/' Outflow=1.23 cfs 0.087 af

Pond 135: PR-CB-135 Peak Elev=204.78' Storage=8 cf Inflow=1.67 cfs 0.120 af
15.0" Round Culvert n=0.012 L=62.0' S=0.0185 '/' Outflow=1.67 cfs 0.120 af

Pond 136: PR-CB-136 Peak Elev=218.52' Storage=8 cf Inflow=1.87 cfs 0.134 af
15.0" Round Culvert n=0.012 L=300.0' S=0.0200 '/' Outflow=1.87 cfs 0.134 af

Pond 137: PR-CB-137 Peak Elev=224.69' Storage=7 cf Inflow=1.08 cfs 0.077 af
12.0" Round Culvert n=0.012 L=30.0' S=0.0483 '/' Outflow=1.08 cfs 0.077 af

Pond F1: FOREBAY #1 Peak Elev=214.39' Storage=7,672 cf Inflow=27.34 cfs 2.108 af
Outflow=26.52 cfs 1.997 af

Pond OS 1: OIL/WATER SEPARATOR #1 Peak Elev=228.19' Inflow=3.75 cfs 0.558 af
12.0" Round Culvert n=0.012 L=11.0' S=0.0045 '/' Outflow=3.75 cfs 0.558 af

Pond OS 3: OIL/WATER SEPARATOR #3 Peak Elev=229.64' Inflow=2.44 cfs 0.313 af
12.0" Round Culvert n=0.012 L=11.0' S=0.0045 '/' Outflow=2.44 cfs 0.313 af

Pond OS 4: OIL/WATER SEPARATOR #4 Peak Elev=229.46' Inflow=3.44 cfs 0.295 af
12.0" Round Culvert n=0.012 L=20.0' S=0.0050 '/' Outflow=3.44 cfs 0.295 af

Pond OS2: OIL/WATER SEPARATOR #2 Peak Elev=215.38' Inflow=2.14 cfs 0.429 af
12.0" Round Culvert n=0.012 L=11.0' S=0.0045 '/' Outflow=2.14 cfs 0.429 af

Pond P1: INFILTRATION POND #1 Peak Elev=214.07' Storage=32,796 cf Inflow=28.63 cfs 2.161 af
Discarded=3.30 cfs 2.036 af Primary=0.97 cfs 0.126 af Outflow=4.27 cfs 2.161 af

Pond P2: STORMTECH #2 Peak Elev=227.37' Storage=36,961 cf Inflow=26.53 cfs 2.086 af
Outflow=8.36 cfs 1.957 af

Pond P20: EX POND 20 Peak Elev=212.58' Storage=61,708 cf Inflow=37.66 cfs 4.497 af
Outflow=11.64 cfs 4.473 af

Pond P3: Gravel Det/Infil Pond #3 Peak Elev=225.21' Storage=72,263 cf Inflow=40.61 cfs 6.297 af
Discarded=7.53 cfs 6.273 af Primary=0.19 cfs 0.024 af Outflow=7.71 cfs 6.297 af

Pond P30: POND AREA Peak Elev=206.54' Storage=30,215 cf Inflow=12.21 cfs 1.544 af
Primary=0.19 cfs 0.410 af Secondary=3.66 cfs 1.105 af Outflow=3.84 cfs 1.515 af

Pond P4: STORMTECH Peak Elev=229.17' Storage=26,685 cf Inflow=23.85 cfs 1.908 af
Discarded=0.41 cfs 0.895 af Primary=21.09 cfs 1.013 af Outflow=21.49 cfs 1.908 af

Pond P5: FOCALPOINT POND #5 Peak Elev=204.93' Storage=2 cf Inflow=4.41 cfs 0.325 af
Outflow=4.41 cfs 0.325 af

Pond P6: DETENTION POND #6 Peak Elev=226.02' Storage=48,070 cf Inflow=60.36 cfs 6.539 af
Outflow=40.61 cfs 6.297 af

Link AP1: AP 1 Inflow=22.29 cfs 4.717 af
Primary=22.29 cfs 4.717 af

Link AP2: AP2 Inflow=16.14 cfs 5.679 af
Primary=16.14 cfs 5.679 af

Total Runoff Area = 116.330 ac Runoff Volume = 20.134 af Average Runoff Depth = 2.08"
69.01% Pervious = 80.283 ac 30.99% Impervious = 36.047 ac

Summary for Subcatchment 200S: PR-WS-200

Runoff = 5.56 cfs @ 12.08 hrs, Volume= 0.434 af, Depth= 4.13"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-YR Rainfall=4.59"

Area (sf)	CN	Description
8,476	98	Paved parking, HSG B
41,722	98	Paved parking, HSG C
4,795	74	>75% Grass cover, Good, HSG C
54,993	96	Weighted Average
4,795		8.72% Pervious Area
50,198		91.28% Impervious Area

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

Summary for Subcatchment 201S: PR-WS-201

Runoff = 4.13 cfs @ 12.08 hrs, Volume= 0.334 af, Depth= 4.35"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-YR Rainfall=4.59"

Area (sf)	CN	Description
22,149	98	Paved parking, HSG B
17,914	98	Paved parking, HSG C
40,063	98	Weighted Average
40,063		100.00% Impervious Area

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

Summary for Subcatchment 202S: PR-WS-202

Runoff = 4.12 cfs @ 12.08 hrs, Volume= 0.333 af, Depth= 4.35"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-YR Rainfall=4.59"

Area (sf)	CN	Description
36,936	98	Paved parking, HSG B
3,055	98	Paved parking, HSG C
39,991	98	Weighted Average
39,991		100.00% Impervious Area

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

Summary for Subcatchment 203S: PR-WS-203

Runoff = 4.12 cfs @ 12.08 hrs, Volume= 0.333 af, Depth= 4.35"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-YR Rainfall=4.59"

Area (sf)	CN	Description
34,789	98	Paved parking, HSG B
5,211	98	Paved parking, HSG C
40,000	98	Weighted Average
40,000		100.00% Impervious Area

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

Summary for Subcatchment 204S: PR-WS-204

Runoff = 8.76 cfs @ 12.08 hrs, Volume= 0.652 af, Depth= 3.69"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-YR Rainfall=4.59"

Area (sf)	CN	Description
78,172	98	Paved parking, HSG B
165	98	Paved parking, HSG C
1,405	61	>75% Grass cover, Good, HSG B
9,377	55	Woods, Good, HSG B
3,280	70	Woods, Good, HSG C
92,399	92	Weighted Average
14,062		15.22% Pervious Area
78,337		84.78% Impervious Area

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

Summary for Subcatchment 205S: PR-WS-205

Runoff = 4.71 cfs @ 12.08 hrs, Volume= 0.354 af, Depth= 3.80"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-YR Rainfall=4.59"

Area (sf)	CN	Description
34,807	98	Paved parking, HSG B
5,196	98	Paved parking, HSG C
8,763	70	Woods, Good, HSG C
48,766	93	Weighted Average
8,763		17.97% Pervious Area
40,003		82.03% Impervious Area

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

Summary for Subcatchment 206S: PR-WS-206

Runoff = 4.61 cfs @ 12.08 hrs, Volume= 0.343 af, Depth= 3.69"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-YR Rainfall=4.59"

Area (sf)	CN	Description
28,996	98	Paved parking, HSG B
11,163	98	Paved parking, HSG C
5,299	55	Woods, Good, HSG B
3,141	70	Woods, Good, HSG C
48,599	92	Weighted Average
8,440		17.37% Pervious Area
40,159		82.63% Impervious Area

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

Summary for Subcatchment 207S: PR-WS-207

Runoff = 4.93 cfs @ 12.08 hrs, Volume= 0.380 af, Depth= 4.01"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-YR Rainfall=4.59"

Area (sf)	CN	Description
29,981	98	Paved parking, HSG B
14,790	98	Paved parking, HSG C
590	55	Woods, Good, HSG B
4,115	70	Woods, Good, HSG C
49,476	95	Weighted Average
4,705		9.51% Pervious Area
44,771		90.49% Impervious Area

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

Summary for Subcatchment 208S: PR-WS-208

Runoff = 4.24 cfs @ 12.08 hrs, Volume= 0.343 af, Depth= 4.35"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-YR Rainfall=4.59"

Area (sf)	CN	Description
31,272	98	Paved parking, HSG B
9,872	98	Paved parking, HSG C
41,144	98	Weighted Average
41,144		100.00% Impervious Area

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

Summary for Subcatchment 209S: PR-WS-209

Runoff = 4.12 cfs @ 12.08 hrs, Volume= 0.333 af, Depth= 4.35"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-YR Rainfall=4.59"

Area (sf)	CN	Description
7	98	Paved parking, HSG A
16,959	98	Paved parking, HSG B
23,034	98	Paved parking, HSG C
40,000	98	Weighted Average
40,000		100.00% Impervious Area

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

Summary for Subcatchment 210S: PR-WS-210

Runoff = 4.12 cfs @ 12.08 hrs, Volume= 0.333 af, Depth= 4.35"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-YR Rainfall=4.59"

Area (sf)	CN	Description
19,065	98	Paved parking, HSG A
20,748	98	Paved parking, HSG B
187	98	Paved parking, HSG C
40,000	98	Weighted Average
40,000		100.00% Impervious Area

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

Summary for Subcatchment 211S: PR-WS-211

Runoff = 4.12 cfs @ 12.08 hrs, Volume= 0.333 af, Depth= 4.35"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-YR Rainfall=4.59"

Area (sf)	CN	Description
13,156	98	Paved parking, HSG A
26,844	98	Paved parking, HSG B
40,000	98	Weighted Average
40,000		100.00% Impervious Area

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

Summary for Subcatchment 212S: PR-WS-212

Runoff = 3.86 cfs @ 12.08 hrs, Volume= 0.285 af, Depth= 3.58"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-YR Rainfall=4.59"

Area (sf)	CN	Description
26,465	98	Paved parking, HSG A
10,298	98	Paved parking, HSG B
4,732	39	>75% Grass cover, Good, HSG A
10	61	>75% Grass cover, Good, HSG B
41,505	91	Weighted Average
4,742		11.43% Pervious Area
36,763		88.57% Impervious Area

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

Summary for Subcatchment 213S: PR-WS-213

Runoff = 3.49 cfs @ 12.08 hrs, Volume= 0.282 af, Depth= 4.35"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-YR Rainfall=4.59"

Area (sf)	CN	Description
33,855	98	Roofs, HSG A
33,855		100.00% Impervious Area

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

Summary for Subcatchment 214S: PR-WS-214

Runoff = 6.97 cfs @ 12.08 hrs, Volume= 0.564 af, Depth= 4.35"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-YR Rainfall=4.59"

Area (sf)	CN	Description
67,711	98	Roofs, HSG A
67,711		100.00% Impervious Area

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

Summary for Subcatchment 215S: PR-WS-215

Runoff = 6.97 cfs @ 12.08 hrs, Volume= 0.564 af, Depth= 4.35"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-YR Rainfall=4.59"

Area (sf)	CN	Description
66,879	98	Roofs, HSG A
832	98	Roofs, HSG C
67,711	98	Weighted Average
67,711		100.00% Impervious Area

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

Summary for Subcatchment 216S: PR-WS-216

Runoff = 6.97 cfs @ 12.08 hrs, Volume= 0.564 af, Depth= 4.35"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-YR Rainfall=4.59"

Area (sf)	CN	Description
6,121	98	Roofs, HSG A
28,555	98	Roofs, HSG B
33,035	98	Roofs, HSG C
67,711	98	Weighted Average
67,711		100.00% Impervious Area

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

Summary for Subcatchment 217S: PR-WS-217

Runoff = 3.92 cfs @ 12.08 hrs, Volume= 0.317 af, Depth= 4.35"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-YR Rainfall=4.59"

Area (sf)	CN	Description
21,918	98	Roofs, HSG B
16,138	98	Roofs, HSG C
38,056	98	Weighted Average
38,056		100.00% Impervious Area

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

Summary for Subcatchment 218S: PR-WS-218

Runoff = 3.91 cfs @ 12.08 hrs, Volume= 0.316 af, Depth= 4.35"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-YR Rainfall=4.59"

Area (sf)	CN	Description
37,994	98	Roofs, HSG B
37,994		100.00% Impervious Area

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

Summary for Subcatchment 219S: PR-WS-219

Runoff = 6.97 cfs @ 12.08 hrs, Volume= 0.564 af, Depth= 4.35"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-YR Rainfall=4.59"

Area (sf)	CN	Description
929	98	Roofs, HSG A
56,673	98	Roofs, HSG B
10,109	98	Roofs, HSG C
67,711	98	Weighted Average
67,711		100.00% Impervious Area

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

Summary for Subcatchment 220S: PR-WS-220

Runoff = 6.97 cfs @ 12.08 hrs, Volume= 0.564 af, Depth= 4.35"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-YR Rainfall=4.59"

Area (sf)	CN	Description
49,321	98	Roofs, HSG A
9,953	98	Roofs, HSG B
8,437	98	Roofs, HSG C
67,711	98	Weighted Average
67,711		100.00% Impervious Area

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

Summary for Subcatchment 221S: PR-WS-221

Runoff = 6.97 cfs @ 12.08 hrs, Volume= 0.564 af, Depth= 4.35"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-YR Rainfall=4.59"

Area (sf)	CN	Description
50,232	98	Roofs, HSG A
17,479	98	Roofs, HSG C
67,711	98	Weighted Average
67,711		100.00% Impervious Area

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

Summary for Subcatchment 222S: PR-WS-222

Runoff = 3.49 cfs @ 12.08 hrs, Volume= 0.282 af, Depth= 4.35"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-YR Rainfall=4.59"

Area (sf)	CN	Description
15,526	98	Roofs, HSG A
18,329	98	Roofs, HSG C
33,855	98	Weighted Average
33,855		100.00% Impervious Area

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

Summary for Subcatchment 223S: PR-WS-223

Runoff = 35.82 cfs @ 12.31 hrs, Volume= 4.258 af, Depth= 1.19"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-YR Rainfall=4.59"

Area (sf)	CN	Description
59,524	61	>75% Grass cover, Good, HSG B
13,632	74	>75% Grass cover, Good, HSG C
923	80	>75% Grass cover, Good, HSG D
59,141	96	Gravel surface, HSG A
4,922	96	Gravel surface, HSG B
169,013	98	Water Surface, HSG D
111,109	30	Woods, Good, HSG A
1,163,401	55	Woods, Good, HSG B
86,598	70	Woods, Good, HSG C
198,532	77	Woods, Good, HSG D
1,866,795	62	Weighted Average
1,697,782		90.95% Pervious Area
169,013		9.05% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
11.8	100	0.0900	0.14		**Sheet Flow, 100' sheet flow** Woods: Light underbrush n= 0.400 P2= 3.20"
8.3	897	0.1300	1.80		**Shallow Concentrated Flow, Moderate grade** Woodland Kv= 5.0 fps
20.1	997	Total			

Summary for Subcatchment 224: PR-WS-224

Runoff = 0.04 cfs @ 12.36 hrs, Volume= 0.009 af, Depth= 0.32"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-YR Rainfall=4.59"

Area (sf)	CN	Description
10,564	39	>75% Grass cover, Good, HSG A
3,504	61	>75% Grass cover, Good, HSG B
220	74	>75% Grass cover, Good, HSG C
14,288	45	Weighted Average
14,288		100.00% Pervious Area

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

Summary for Subcatchment 225S: PR-WS-225

Runoff = 0.96 cfs @ 12.09 hrs, Volume= 0.070 af, Depth= 1.89"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-YR Rainfall=4.59"

Area (sf)	CN	Description
5,494	98	Paved parking, HSG B
13,245	61	>75% Grass cover, Good, HSG B
530	74	>75% Grass cover, Good, HSG C
19,269	72	Weighted Average
13,775		71.49% Pervious Area
5,494		28.51% Impervious Area

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

Summary for Subcatchment 226S: PR-WS-226

Runoff = 0.95 cfs @ 12.09 hrs, Volume= 0.069 af, Depth= 1.81"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-YR Rainfall=4.59"

Area (sf)	CN	Description
5,442	98	Paved parking, HSG B
14,313	61	>75% Grass cover, Good, HSG B
75	55	Woods, Good, HSG B
19,830	71	Weighted Average
14,388		72.56% Pervious Area
5,442		27.44% Impervious Area

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

Summary for Subcatchment 227S: PR-WS-227

Runoff = 0.79 cfs @ 12.09 hrs, Volume= 0.058 af, Depth= 1.81"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-YR Rainfall=4.59"

Area (sf)	CN	Description
4,124	98	Paved parking, HSG B
11,243	61	>75% Grass cover, Good, HSG B
1,286	74	>75% Grass cover, Good, HSG C
16,653	71	Weighted Average
12,529		75.24% Pervious Area
4,124		24.76% Impervious Area

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

Summary for Subcatchment 228S: PR-WS-228

Runoff = 0.63 cfs @ 12.09 hrs, Volume= 0.045 af, Depth= 2.12"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-YR Rainfall=4.59"

Area (sf)	CN	Description
4,123	98	Paved parking, HSG B
7,055	61	>75% Grass cover, Good, HSG B
11,178	75	Weighted Average
7,055		63.12% Pervious Area
4,123		36.88% Impervious Area

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

Summary for Subcatchment 229S: PR-WS-229

Runoff = 0.51 cfs @ 12.09 hrs, Volume= 0.037 af, Depth= 1.96"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-YR Rainfall=4.59"

Area (sf)	CN	Description
2,406	98	Paved parking, HSG B
52	98	Paved parking, HSG C
5,111	61	>75% Grass cover, Good, HSG B
2,168	74	>75% Grass cover, Good, HSG C
9,737	73	Weighted Average
7,279		74.76% Pervious Area
2,458		25.24% Impervious Area

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

Summary for Subcatchment 230S: PR-WS-230

Runoff = 0.38 cfs @ 12.09 hrs, Volume= 0.027 af, Depth= 1.96"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-YR Rainfall=4.59"

Area (sf)	CN	Description
2,438	98	Paved parking, HSG B
4,827	61	>75% Grass cover, Good, HSG B
7,265	73	Weighted Average
4,827		66.44% Pervious Area
2,438		33.56% Impervious Area

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

Summary for Subcatchment 231: PR-WS-231

Runoff = 0.94 cfs @ 12.09 hrs, Volume= 0.070 af, Depth= 1.59"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-YR Rainfall=4.59"

Area (sf)	CN	Description
4,137	98	Paved parking, HSG B
357	98	Paved parking, HSG C
18,425	61	>75% Grass cover, Good, HSG B
22,919	68	Weighted Average
18,425		80.39% Pervious Area
4,494		19.61% Impervious Area

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

Summary for Subcatchment 232S: PR-WS-232

Runoff = 0.63 cfs @ 12.09 hrs, Volume= 0.045 af, Depth= 2.63"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-YR Rainfall=4.59"

Area (sf)	CN	Description
3,523	98	Paved parking, HSG B
939	98	Paved parking, HSG C
3,477	61	>75% Grass cover, Good, HSG B
991	74	>75% Grass cover, Good, HSG C
8,930	81	Weighted Average
4,468		50.03% Pervious Area
4,462		49.97% Impervious Area

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

Summary for Subcatchment 233S: PR-WS-233

Runoff = 3.59 cfs @ 12.09 hrs, Volume= 0.263 af, Depth= 3.48"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-YR Rainfall=4.59"

Area (sf)	CN	Description
17,976	98	Paved parking, HSG A
7,253	98	Paved parking, HSG B
7,461	98	Paved parking, HSG C
3,461	39	>75% Grass cover, Good, HSG A
1,782	61	>75% Grass cover, Good, HSG B
1,511	74	>75% Grass cover, Good, HSG C
39,444	90	Weighted Average
6,754		17.12% Pervious Area
32,690		82.88% Impervious Area

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

Summary for Subcatchment 234S: PR-WS-234

Runoff = 2.13 cfs @ 12.08 hrs, Volume= 0.157 af, Depth= 3.58"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-YR Rainfall=4.59"

Area (sf)	CN	Description
4,252	98	Paved parking, HSG A
3,068	98	Paved parking, HSG B
12,504	98	Paved parking, HSG C
2,607	39	>75% Grass cover, Good, HSG A
462	74	>75% Grass cover, Good, HSG C
22,893	91	Weighted Average
3,069		13.41% Pervious Area
19,824		86.59% Impervious Area

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

Summary for Subcatchment 235S: PR-WS-235

Runoff = 1.32 cfs @ 12.08 hrs, Volume= 0.105 af, Depth= 4.24"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-YR Rainfall=4.59"

Area (sf)	CN	Description
1,101	98	Paved parking, HSG A
3,303	98	Paved parking, HSG B
8,189	98	Paved parking, HSG C
347	74	>75% Grass cover, Good, HSG C
12,940	97	Weighted Average
347		2.68% Pervious Area
12,593		97.32% Impervious Area

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

Summary for Subcatchment 236S: PR-WS-236

Runoff = 1.06 cfs @ 12.08 hrs, Volume= 0.084 af, Depth= 4.24"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-YR Rainfall=4.59"

Area (sf)	CN	Description
411	98	Paved parking, HSG A
4,295	98	Paved parking, HSG B
5,314	98	Paved parking, HSG C
156	61	>75% Grass cover, Good, HSG B
184	74	>75% Grass cover, Good, HSG C
10,360	97	Weighted Average
340		3.28% Pervious Area
10,020		96.72% Impervious Area

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

Summary for Subcatchment 237S: PR-WS-237

Runoff = 2.00 cfs @ 12.08 hrs, Volume= 0.152 af, Depth= 3.90"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-YR Rainfall=4.59"

Area (sf)	CN	Description
2,002	98	Paved parking, HSG A
5,519	98	Paved parking, HSG B
11,012	98	Paved parking, HSG C
823	39	>75% Grass cover, Good, HSG A
238	61	>75% Grass cover, Good, HSG B
717	74	>75% Grass cover, Good, HSG C
20,311	94	Weighted Average
1,778		8.75% Pervious Area
18,533		91.25% Impervious Area

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

Summary for Subcatchment 238S: PR-WS-238

Runoff = 2.57 cfs @ 12.08 hrs, Volume= 0.195 af, Depth= 3.90"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-YR Rainfall=4.59"

Area (sf)	CN	Description
14,935	98	Paved parking, HSG B
7,621	98	Paved parking, HSG C
2,297	61	>75% Grass cover, Good, HSG B
1,294	74	>75% Grass cover, Good, HSG C
26,147	94	Weighted Average
3,591		13.73% Pervious Area
22,556		86.27% Impervious Area

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

Summary for Subcatchment 239S: PR WS 239

Runoff = 2.13 cfs @ 12.10 hrs, Volume= 0.164 af, Depth= 1.32"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-YR Rainfall=4.59"

Area (sf)	CN	Description
44,950	61	>75% Grass cover, Good, HSG B
17,956	74	>75% Grass cover, Good, HSG C
2,047	55	Woods, Good, HSG B
64,953	64	Weighted Average
64,953		100.00% Pervious Area

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

Summary for Subcatchment 241S: PR-WS-241

Runoff = 2.62 cfs @ 12.15 hrs, Volume= 0.240 af, Depth= 1.13"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-YR Rainfall=4.59"

Area (sf)	CN	Description
67,629	55	Woods, Good, HSG B
43,279	70	Woods, Good, HSG C
110,908	61	Weighted Average
110,908		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.6	100	0.3800	0.25		**Sheet Flow, 100' sheet flow** Woods: Light underbrush n= 0.400 P2= 3.20"
2.6	311	0.1570	1.98		**Shallow Concentrated Flow, Moderate grade** Woodland Kv= 5.0 fps
0.3	211	0.1000	11.15	55.75	**Trap/Vee/Rect Channel Flow,** Bot.W=2.00' D=1.00' Z= 3.0 '/' Top.W=8.00' n= 0.030 Stream, clean & straight
9.5	622	Total			

Summary for Subcatchment 242S: PR-WS-242

Runoff = 10.13 cfs @ 12.69 hrs, Volume= 1.776 af, Depth= 1.13"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-YR Rainfall=4.59"

Area (sf)	CN	Description
3,605	98	Paved parking, HSG B
2,825	98	Paved parking, HSG D
23,915	61	>75% Grass cover, Good, HSG B
5,506	74	>75% Grass cover, Good, HSG C
2,388	80	>75% Grass cover, Good, HSG D
577,508	55	Woods, Good, HSG B
31,399	70	Woods, Good, HSG C
174,411	77	Woods, Good, HSG D
821,557	61	Weighted Average
815,127		99.22% Pervious Area
6,430		0.78% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.7	100	0.1900	0.19		**Sheet Flow, 100' sheet flow** Woods: Light underbrush n= 0.400 P2= 3.20"
10.3	773	0.0630	1.25		**Shallow Concentrated Flow, Moderate grade** Woodland Kv= 5.0 fps
1.0	144	0.2100	2.29		**Shallow Concentrated Flow, Steep grade** Woodland Kv= 5.0 fps
25.3	830	0.0120	0.55		**Shallow Concentrated Flow, Shallow grade** Woodland Kv= 5.0 fps
45.3	1,847	Total			

Summary for Subcatchment 243S: PR-WS-243

Runoff = 10.58 cfs @ 12.31 hrs, Volume= 1.205 af, Depth= 1.59"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-YR Rainfall=4.59"

Area (sf)	CN	Description
31,059	61	>75% Grass cover, Good, HSG B
4,619	74	>75% Grass cover, Good, HSG C
2,627	80	>75% Grass cover, Good, HSG D
128,128	55	Woods, Good, HSG B
8,616	70	Woods, Good, HSG C
220,353	77	Woods, Good, HSG D
395,402	68	Weighted Average
395,402		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.7	100	0.2600	0.22		**Sheet Flow, 100' Sheet flow** Woods: Light underbrush n= 0.400 P2= 3.20"
13.8	742	0.0320	0.89		**Shallow Concentrated Flow, THOUGH WOODS** Woodland Kv= 5.0 fps
21.5	842	Total			

Summary for Subcatchment 244S: PR-WS-244

Runoff = 0.75 cfs @ 12.09 hrs, Volume= 0.054 af, Depth= 2.90"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-YR Rainfall=4.59"

Area (sf)	CN	Description
4,524	98	Paved parking, HSG C
1,079	61	>75% Grass cover, Good, HSG B
4,095	74	>75% Grass cover, Good, HSG C
9,698	84	Weighted Average
5,174		53.35% Pervious Area
4,524		46.65% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0	689		1.91		**Direct Entry, Min. Tc**

Summary for Subcatchment 245S: PR-WS-245

Runoff = 1.23 cfs @ 12.26 hrs, Volume= 0.144 af, Depth= 1.01"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-YR Rainfall=4.59"

Area (sf)	CN	Description
4,097	61	>75% Grass cover, Good, HSG B
8,722	74	>75% Grass cover, Good, HSG C
53,138	55	Woods, Good, HSG B
8,406	70	Woods, Good, HSG C
74,363	59	Weighted Average
74,363		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.5	100	0.1200	0.16		**Sheet Flow, 100' Sheet flow** Woods: Light underbrush n= 0.400 P2= 3.20"
5.1	480	0.1000	1.58		**Shallow Concentrated Flow, Steep grade along cliff** Woodland Kv= 5.0 fps
0.7	216	0.0100	4.81	24.04	**Trap/Vee/Rect Channel Flow,** Bot.W=2.00' D=1.00' Z= 3.0 '/' Top.W=8.00' n= 0.022 Earth, clean & straight
16.3	796	Total			

Summary for Subcatchment 246: PR-WS-246

Runoff = 0.40 cfs @ 12.09 hrs, Volume= 0.029 af, Depth= 1.67"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-YR Rainfall=4.59"

Area (sf)	CN	Description
2,032	98	Paved parking, HSG B
7,151	61	>75% Grass cover, Good, HSG B
9,183	69	Weighted Average
7,151		77.87% Pervious Area
2,032		22.13% Impervious Area

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

Summary for Subcatchment 247: PR-WS-247

Runoff = 0.30 cfs @ 12.09 hrs, Volume= 0.022 af, Depth= 2.04"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-YR Rainfall=4.59"

Area (sf)	CN	Description
2,014	98	Paved parking, HSG B
3,516	61	>75% Grass cover, Good, HSG B
5,530	74	Weighted Average
3,516		63.58% Pervious Area
2,014		36.42% Impervious Area

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

Summary for Subcatchment 248: PR-WS-248

Runoff = 0.44 cfs @ 12.08 hrs, Volume= 0.033 af, Depth= 3.58"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-YR Rainfall=4.59"

Area (sf)	CN	Description
1,185	98	Paved parking, HSG B
2,398	98	Paved parking, HSG C
420	61	>75% Grass cover, Good, HSG B
773	74	>75% Grass cover, Good, HSG C
4,776	91	Weighted Average
1,193		24.98% Pervious Area
3,583		75.02% Impervious Area

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

Summary for Subcatchment 249: PR-WS-249

Runoff = 1.23 cfs @ 12.09 hrs, Volume= 0.087 af, Depth= 2.81"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-YR Rainfall=4.59"

Area (sf)	CN	Description
3,331	98	Paved parking, HSG A
4,270	98	Paved parking, HSG B
2,544	98	Paved parking, HSG C
6	98	Paved parking, HSG D
992	39	>75% Grass cover, Good, HSG A
4,548	61	>75% Grass cover, Good, HSG B
572	74	>75% Grass cover, Good, HSG C
8	80	>75% Grass cover, Good, HSG D
16,271	83	Weighted Average
6,120		37.61% Pervious Area
10,151		62.39% Impervious Area

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

Summary for Subcatchment 250: PR-WS-250

Runoff = 0.68 cfs @ 12.09 hrs, Volume= 0.048 af, Depth= 2.28"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-YR Rainfall=4.59"

Area (sf)	CN	Description
3,317	98	Paved parking, HSG B
1,222	98	Paved parking, HSG C
6,149	61	>75% Grass cover, Good, HSG B
354	74	>75% Grass cover, Good, HSG C
11,042	77	Weighted Average
6,503		58.89% Pervious Area
4,539		41.11% Impervious Area

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

Summary for Subcatchment 251: PR-WS-251

Runoff = 0.70 cfs @ 12.09 hrs, Volume= 0.050 af, Depth= 2.37"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-YR Rainfall=4.59"

Area (sf)	CN	Description
453	98	Paved parking, HSG B
4,046	98	Paved parking, HSG C
4,926	61	>75% Grass cover, Good, HSG B
1,581	74	>75% Grass cover, Good, HSG C
11,006	78	Weighted Average
6,507		59.12% Pervious Area
4,499		40.88% Impervious Area

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

Summary for Subcatchment 252: PR-WS-252

Runoff = 0.70 cfs @ 12.09 hrs, Volume= 0.050 af, Depth= 2.37"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-YR Rainfall=4.59"

Area (sf)	CN	Description
667	98	Paved parking, HSG B
3,857	98	Paved parking, HSG C
4,592	61	>75% Grass cover, Good, HSG B
1,847	74	>75% Grass cover, Good, HSG C
10,963	78	Weighted Average
6,439		58.73% Pervious Area
4,524		41.27% Impervious Area

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

Summary for Subcatchment 253: PR-WS-253

Runoff = 0.79 cfs @ 12.09 hrs, Volume= 0.057 af, Depth= 3.09"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-YR Rainfall=4.59"

Area (sf)	CN	Description
775	98	Paved parking, HSG B
4,888	98	Paved parking, HSG C
1,310	61	>75% Grass cover, Good, HSG B
2,636	74	>75% Grass cover, Good, HSG C
9,609	86	Weighted Average
3,946		41.07% Pervious Area
5,663		58.93% Impervious Area

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

Summary for Subcatchment 254: PR-WS-254

Runoff = 9.49 cfs @ 12.34 hrs, Volume= 1.086 af, Depth= 2.81"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-YR Rainfall=4.59"

Area (sf)	CN	Description
44	98	Paved parking, HSG A
1,920	98	Paved parking, HSG B
48,190	98	Paved parking, HSG D
434	39	>75% Grass cover, Good, HSG A
3,888	61	>75% Grass cover, Good, HSG B
7,198	74	>75% Grass cover, Good, HSG C
42,456	80	>75% Grass cover, Good, HSG D
6,084	98	Roofs, HSG B
17,673	98	Roofs, HSG D
64	30	Woods, Good, HSG A
2,977	55	Woods, Good, HSG B
31,311	70	Woods, Good, HSG C
40,003	77	Woods, Good, HSG D
202,242	83	Weighted Average
128,331		63.45% Pervious Area
73,911		36.55% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.7	100	0.1900	0.19		**Sheet Flow, 100' Sheet flow**
					Woods: Light underbrush n= 0.400 P2= 3.20"
15.6	661	0.0200	0.71		**Shallow Concentrated Flow, 661' to ex. culvert**
					Woodland Kv= 5.0 fps
24.3	761	Total			

Summary for Subcatchment 255: PR-WS-255

Runoff = 1.08 cfs @ 12.09 hrs, Volume= 0.077 af, Depth= 2.90"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-YR Rainfall=4.59"

Area (sf)	CN	Description
8,165	98	Paved parking, HSG B
453	98	Paved parking, HSG C
5,208	61	>75% Grass cover, Good, HSG B
95	74	>75% Grass cover, Good, HSG C
13,921	84	Weighted Average
5,303		38.09% Pervious Area
8,618		61.91% Impervious Area

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

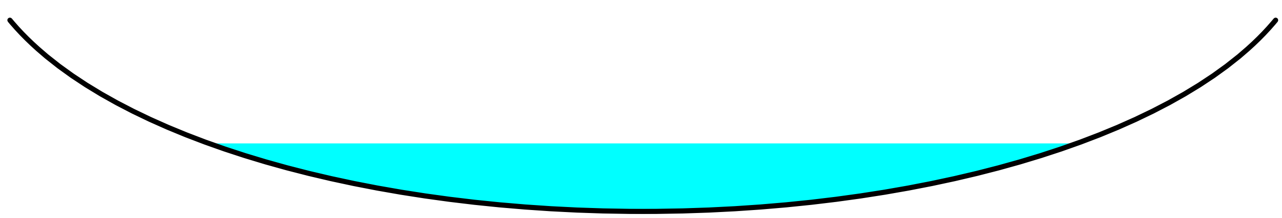
Summary for Reach R1: OVERLAND TO AP

Inflow Area = 45.402 ac, 8.55% Impervious, Inflow Depth > 1.18" for 10-YR event
Inflow = 11.64 cfs @ 12.90 hrs, Volume= 4.473 af
Outflow = 11.62 cfs @ 12.94 hrs, Volume= 4.473 af, Atten= 0%, Lag= 2.7 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Max. Velocity= 2.75 fps, Min. Travel Time= 3.5 min
Avg. Velocity = 0.78 fps, Avg. Travel Time= 12.2 min

Peak Storage= 2,410 cf @ 12.94 hrs
Average Depth at Peak Storage= 0.35'
Bank-Full Depth= 1.00' Flow Area= 20.0 sf, Capacity= 109.49 cfs

30.00' x 1.00' deep Parabolic Channel, n= 0.030 Earth, grassed & winding
Length= 569.9' Slope= 0.0211 '/'
Inlet Invert= 212.00', Outlet Invert= 200.00'



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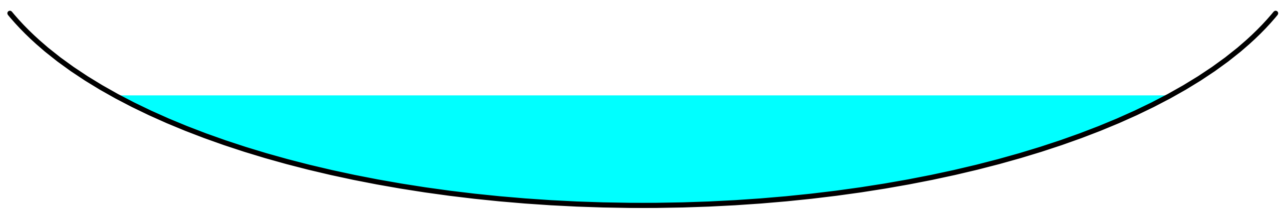
Summary for Reach R2: OVERLAND THOUGH WOODS

Inflow Area = 40.801 ac, 77.71% Impervious, Inflow Depth = 0.46" for 10-YR event
Inflow = 21.22 cfs @ 12.13 hrs, Volume= 1.572 af
Outflow = 11.24 cfs @ 12.31 hrs, Volume= 1.572 af, Atten= 47%, Lag= 11.2 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Max. Velocity= 1.30 fps, Min. Travel Time= 14.0 min
Avg. Velocity = 0.29 fps, Avg. Travel Time= 62.4 min

Peak Storage= 9,454 cf @ 12.31 hrs
Average Depth at Peak Storage= 0.57'
Bank-Full Depth= 1.00' Flow Area= 20.0 sf, Capacity= 37.50 cfs

30.00' x 1.00' deep Parabolic Channel, n= 0.030 Stream, clean & straight
Length= 1,089.0' Slope= 0.0025 '/'
Inlet Invert= 204.69', Outlet Invert= 202.00'



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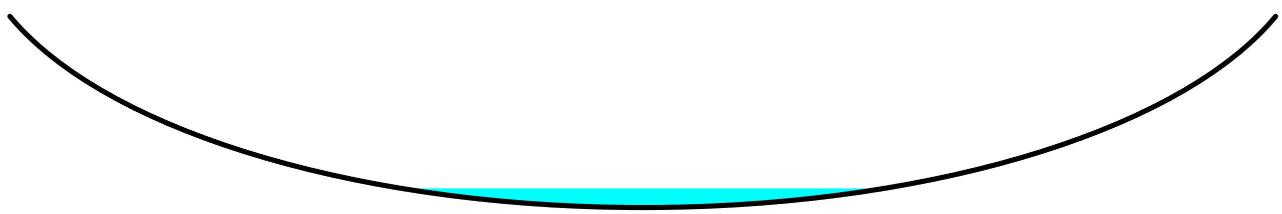
Summary for Reach R3: OVERLAND THOUGH WOODS

Inflow Area = 2.546 ac, 0.00% Impervious, Inflow Depth = 1.13" for 10-YR event
Inflow = 2.62 cfs @ 12.15 hrs, Volume= 0.240 af
Outflow = 2.60 cfs @ 12.16 hrs, Volume= 0.240 af, Atten= 1%, Lag= 0.7 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Max. Velocity= 4.06 fps, Min. Travel Time= 0.9 min
Avg. Velocity = 1.69 fps, Avg. Travel Time= 2.2 min

Peak Storage= 146 cf @ 12.16 hrs
Average Depth at Peak Storage= 0.10'
Bank-Full Depth= 1.00' Flow Area= 20.0 sf, Capacity= 373.94 cfs

30.00' x 1.00' deep Parabolic Channel, n= 0.030 Earth, grassed & winding
Length= 228.0' Slope= 0.2456 '/'
Inlet Invert= 268.00', Outlet Invert= 212.00'



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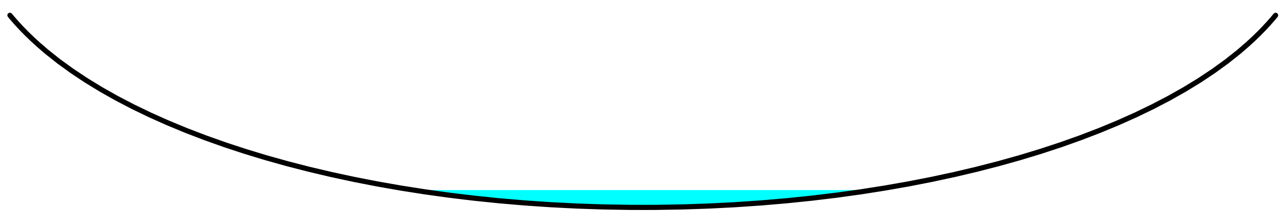
Summary for Reach R6: OVERLAND THOUGH WOODS

Inflow Area = 1.707 ac, 0.00% Impervious, Inflow Depth = 1.01" for 10-YR event
Inflow = 1.23 cfs @ 12.26 hrs, Volume= 0.144 af
Outflow = 0.76 cfs @ 12.56 hrs, Volume= 0.144 af, Atten= 38%, Lag= 18.2 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Max. Velocity= 1.39 fps, Min. Travel Time= 24.1 min
Avg. Velocity = 0.56 fps, Avg. Travel Time= 60.0 min

Peak Storage= 1,102 cf @ 12.56 hrs
Average Depth at Peak Storage= 0.09'
Bank-Full Depth= 1.00' Flow Area= 20.0 sf, Capacity= 136.76 cfs

30.00' x 1.00' deep Parabolic Channel, n= 0.030 Stream, clean & straight
Length= 2,009.0' Slope= 0.0329 '/'
Inlet Invert= 268.00', Outlet Invert= 202.00'



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Summary for Pond 001: PR-DMH-001

Inflow Area = 3.371 ac, 85.08% Impervious, Inflow Depth = 3.83" for 10-YR event
Inflow = 14.19 cfs @ 12.09 hrs, Volume= 1.077 af
Outflow = 14.19 cfs @ 12.09 hrs, Volume= 1.077 af, Atten= 0%, Lag= 0.0 min
Primary = 14.19 cfs @ 12.09 hrs, Volume= 1.077 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Peak Elev= 228.03' @ 12.09 hrs Surf.Area= 13 sf Storage= 25 cf
Flood Elev= 232.85' Surf.Area= 13 sf Storage= 83 cf

Plug-Flow detention time= 0.1 min calculated for 1.077 af (100% of inflow)
Center-of-Mass det. time= 0.1 min (779.1 - 779.0)

Volume	Invert	Avail.Storage	Storage Description
#1	226.05'	83 cf	**4.00'D x 6.64'H Vertical Cone/Cylinder**

Device	Routing	Invert	Outlet Devices
#1	Primary	226.05'	**30.0" Round Culvert** L= 201.0' Ke= 0.500 Inlet / Outlet Invert= 226.05' / 224.85' S= 0.0060 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 4.91 sf

Primary OutFlow Max=14.05 cfs @ 12.09 hrs HW=228.02' TW=227.05' (Dynamic Tailwater)
└─**1=Culvert** (Outlet Controls 14.05 cfs @ 4.65 fps)

Summary for Pond 002: PR-DMH-002

Inflow Area = 0.874 ac,100.00% Impervious, Inflow Depth = 4.35" for 10-YR event
Inflow = 3.92 cfs @ 12.08 hrs, Volume= 0.317 af
Outflow = 3.91 cfs @ 12.08 hrs, Volume= 0.317 af, Atten= 0%, Lag= 0.1 min
Primary = 3.91 cfs @ 12.08 hrs, Volume= 0.317 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Peak Elev= 234.31' @ 12.09 hrs Surf.Area= 13 sf Storage= 17 cf
Flood Elev= 235.50' Surf.Area= 13 sf Storage= 31 cf

Plug-Flow detention time= 0.2 min calculated for 0.317 af (100% of inflow)
Center-of-Mass det. time= 0.2 min (749.7 - 749.5)

Volume	Invert	Avail.Storage	Storage Description
#1	233.00'	31 cf	**4.00'D x 2.50'H Vertical Cone/Cylinder**

Device	Routing	Invert	Outlet Devices
#1	Primary	233.00'	**18.0" Round Culvert** L= 237.0' CPP, end-section conforming to fill, Ke= 0.500 Inlet / Outlet Invert= 233.00' / 231.80' S= 0.0051 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 1.77 sf

Primary OutFlow Max=3.84 cfs @ 12.08 hrs HW=234.31' TW=233.61' (Dynamic Tailwater)
└─**1=Culvert** (Outlet Controls 3.84 cfs @ 3.14 fps)

Summary for Pond 003: PR-DMH-003

Inflow Area = 2.428 ac,100.00% Impervious, Inflow Depth = 4.35" for 10-YR event
Inflow = 10.89 cfs @ 12.08 hrs, Volume= 0.881 af
Outflow = 10.88 cfs @ 12.08 hrs, Volume= 0.881 af, Atten= 0%, Lag= 0.0 min
Primary = 10.88 cfs @ 12.08 hrs, Volume= 0.881 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Peak Elev= 233.61' @ 12.09 hrs Surf.Area= 13 sf Storage= 24 cf
Flood Elev= 235.50' Surf.Area= 13 sf Storage= 48 cf

Plug-Flow detention time= 0.1 min calculated for 0.881 af (100% of inflow)
Center-of-Mass det. time= 0.1 min (749.7 - 749.5)

Volume	Invert	Avail.Storage	Storage Description
#1	231.70'	48 cf	**4.00'D x 3.80'H Vertical Cone/Cylinder**

Device	Routing	Invert	Outlet Devices
#1	Primary	231.70'	**24.0" Round Culvert** L= 237.0' CPP, end-section conforming to fill, Ke= 0.500 Inlet / Outlet Invert= 231.70' / 230.50' S= 0.0051 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 3.14 sf

Primary OutFlow Max=10.77 cfs @ 12.08 hrs HW=233.61' TW=232.52' (Dynamic Tailwater)
└─**1=Culvert** (Outlet Controls 10.77 cfs @ 4.48 fps)

Summary for Pond 004: PR-DMH-004

Inflow Area = 3.983 ac,100.00% Impervious, Inflow Depth = 4.35" for 10-YR event
Inflow = 17.85 cfs @ 12.08 hrs, Volume= 1.445 af
Outflow = 17.85 cfs @ 12.08 hrs, Volume= 1.445 af, Atten= 0%, Lag= 0.0 min
Primary = 17.85 cfs @ 12.08 hrs, Volume= 1.445 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Peak Elev= 232.52' @ 12.09 hrs Surf.Area= 13 sf Storage= 27 cf
Flood Elev= 235.50' Surf.Area= 13 sf Storage= 64 cf

Plug-Flow detention time= 0.2 min calculated for 1.445 af (100% of inflow)
Center-of-Mass det. time= 0.1 min (749.7 - 749.6)

Volume	Invert	Avail.Storage	Storage Description
#1	230.40'	64 cf	**4.00'D x 5.10'H Vertical Cone/Cylinder**

Device	Routing	Invert	Outlet Devices
#1	Primary	230.40'	**30.0" Round Culvert** L= 237.0' CPP, end-section conforming to fill, Ke= 0.500 Inlet / Outlet Invert= 230.40' / 229.20' S= 0.0051 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 4.91 sf

Primary OutFlow Max=17.76 cfs @ 12.08 hrs HW=232.52' TW=231.13' (Dynamic Tailwater)
↑—**1=Culvert** (Outlet Controls 17.76 cfs @ 5.39 fps)

Summary for Pond 005: PR-DMH-005

Inflow Area = 5.537 ac,100.00% Impervious, Inflow Depth = 4.35" for 10-YR event
Inflow = 24.82 cfs @ 12.08 hrs, Volume= 2.009 af
Outflow = 24.82 cfs @ 12.08 hrs, Volume= 2.009 af, Atten= 0%, Lag= 0.0 min
Primary = 24.82 cfs @ 12.08 hrs, Volume= 2.009 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Peak Elev= 231.14' @ 12.08 hrs Surf.Area= 13 sf Storage= 26 cf
Flood Elev= 235.50' Surf.Area= 13 sf Storage= 80 cf

Plug-Flow detention time= 0.1 min calculated for 2.009 af (100% of inflow)
Center-of-Mass det. time= 0.1 min (749.7 - 749.6)

Volume	Invert	Avail.Storage	Storage Description
#1	229.10'	80 cf	**4.00'D x 6.40'H Vertical Cone/Cylinder**

Device	Routing	Invert	Outlet Devices
#1	Primary	229.10'	**36.0" Round Culvert** L= 237.0' CPP, end-section conforming to fill, Ke= 0.500 Inlet / Outlet Invert= 229.10' / 226.70' S= 0.0101 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 7.07 sf

Primary OutFlow Max=24.78 cfs @ 12.08 hrs HW=231.13' TW=228.81' (Dynamic Tailwater)
↑—**1=Culvert** (Inlet Controls 24.78 cfs @ 4.86 fps)

Summary for Pond 006: PR-DMH-006

Inflow Area = 6.314 ac,100.00% Impervious, Inflow Depth = 4.35" for 10-YR event
Inflow = 28.31 cfs @ 12.08 hrs, Volume= 2.291 af
Outflow = 28.31 cfs @ 12.08 hrs, Volume= 2.291 af, Atten= 0%, Lag= 0.0 min
Primary = 28.31 cfs @ 12.08 hrs, Volume= 2.291 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Peak Elev= 228.81' @ 12.08 hrs Surf.Area= 13 sf Storage= 28 cf
Flood Elev= 236.75' Surf.Area= 13 sf Storage= 128 cf

Plug-Flow detention time= 0.1 min calculated for 2.291 af (100% of inflow)
Center-of-Mass det. time= 0.1 min (749.7 - 749.7)

Volume	Invert	Avail.Storage	Storage Description
#1	226.60'	128 cf	**4.00'D x 10.15'H Vertical Cone/Cylinder**

Device	Routing	Invert	Outlet Devices
#1	Primary	226.60'	**36.0" Round Culvert** L= 32.0' CPP, end-section conforming to fill, Ke= 0.500 Inlet / Outlet Invert= 226.60' / 223.65' S= 0.0922 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 7.07 sf

Primary OutFlow Max=28.26 cfs @ 12.08 hrs HW=228.81' TW=225.69' (Dynamic Tailwater)
└─**1=Culvert** (Inlet Controls 28.26 cfs @ 5.06 fps)

Summary for Pond 007: PR-DMH-007

Inflow Area = 0.872 ac,100.00% Impervious, Inflow Depth = 4.35" for 10-YR event
Inflow = 3.91 cfs @ 12.08 hrs, Volume= 0.316 af
Outflow = 3.91 cfs @ 12.08 hrs, Volume= 0.316 af, Atten= 0%, Lag= 0.1 min
Primary = 3.91 cfs @ 12.08 hrs, Volume= 0.316 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Peak Elev= 233.23' @ 12.09 hrs Surf.Area= 20 sf Storage= 24 cf
Flood Elev= 235.50' Surf.Area= 20 sf Storage= 69 cf

Plug-Flow detention time= 0.5 min calculated for 0.316 af (100% of inflow)
Center-of-Mass det. time= 0.3 min (749.8 - 749.5)

Volume	Invert	Avail.Storage	Storage Description
#1	232.00'	69 cf	**5.00'D x 3.50'H Vertical Cone/Cylinder**

Device	Routing	Invert	Outlet Devices
#1	Primary	232.00'	**18.0" Round Culvert** L= 237.0' CPP, end-section conforming to fill, Ke= 0.500 Inlet / Outlet Invert= 232.00' / 230.80' S= 0.0051 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 1.77 sf

Primary OutFlow Max=3.85 cfs @ 12.08 hrs HW=233.23' TW=232.39' (Dynamic Tailwater)
└─**1=Culvert** (Outlet Controls 3.85 cfs @ 3.39 fps)

Summary for Pond 008: PR-DMH-008

Inflow Area = 2.427 ac,100.00% Impervious, Inflow Depth = 4.35" for 10-YR event
Inflow = 10.88 cfs @ 12.08 hrs, Volume= 0.880 af
Outflow = 10.87 cfs @ 12.08 hrs, Volume= 0.880 af, Atten= 0%, Lag= 0.0 min
Primary = 10.87 cfs @ 12.08 hrs, Volume= 0.880 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Peak Elev= 232.40' @ 12.09 hrs Surf.Area= 13 sf Storage= 21 cf
Flood Elev= 235.50' Surf.Area= 13 sf Storage= 60 cf

Plug-Flow detention time= 0.1 min calculated for 0.880 af (100% of inflow)
Center-of-Mass det. time= 0.1 min (749.7 - 749.6)

Volume	Invert	Avail.Storage	Storage Description
#1	230.70'	60 cf	**4.00'D x 4.80'H Vertical Cone/Cylinder**

Device	Routing	Invert	Outlet Devices
#1	Primary	230.70'	**30.0" Round Culvert** L= 237.0' CPP, end-section conforming to fill, Ke= 0.500 Inlet / Outlet Invert= 230.70' / 229.50' S= 0.0051 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 4.91 sf

Primary OutFlow Max=10.73 cfs @ 12.08 hrs HW=232.39' TW=231.43' (Dynamic Tailwater)
└**1=Culvert** (Outlet Controls 10.73 cfs @ 4.29 fps)

Summary for Pond 009: PR-DMH-009

Inflow Area = 3.981 ac,100.00% Impervious, Inflow Depth = 4.35" for 10-YR event
Inflow = 17.85 cfs @ 12.08 hrs, Volume= 1.444 af
Outflow = 17.84 cfs @ 12.08 hrs, Volume= 1.444 af, Atten= 0%, Lag= 0.0 min
Primary = 17.84 cfs @ 12.08 hrs, Volume= 1.444 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Peak Elev= 231.44' @ 12.09 hrs Surf.Area= 13 sf Storage= 26 cf
Flood Elev= 235.50' Surf.Area= 13 sf Storage= 77 cf

Plug-Flow detention time= 0.1 min calculated for 1.444 af (100% of inflow)
Center-of-Mass det. time= 0.1 min (749.7 - 749.6)

Volume	Invert	Avail.Storage	Storage Description
#1	229.40'	77 cf	**4.00'D x 6.10'H Vertical Cone/Cylinder**

Device	Routing	Invert	Outlet Devices
#1	Primary	229.40'	**36.0" Round Culvert** L= 237.0' CPP, end-section conforming to fill, Ke= 0.500 Inlet / Outlet Invert= 229.40' / 228.20' S= 0.0051 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 7.07 sf

Primary OutFlow Max=17.66 cfs @ 12.08 hrs HW=231.43' TW=230.34' (Dynamic Tailwater)
└**1=Culvert** (Outlet Controls 17.66 cfs @ 4.90 fps)

Summary for Pond 010: PR-DMH-010

Inflow Area = 5.536 ac,100.00% Impervious, Inflow Depth = 4.35" for 10-YR event
Inflow = 24.82 cfs @ 12.08 hrs, Volume= 2.008 af
Outflow = 24.81 cfs @ 12.08 hrs, Volume= 2.008 af, Atten= 0%, Lag= 0.0 min
Primary = 24.81 cfs @ 12.08 hrs, Volume= 2.008 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Peak Elev= 230.34' @ 12.09 hrs Surf.Area= 13 sf Storage= 28 cf
Flood Elev= 235.50' Surf.Area= 13 sf Storage= 93 cf

Plug-Flow detention time= 0.1 min calculated for 2.008 af (100% of inflow)
Center-of-Mass det. time= 0.1 min (749.7 - 749.6)

Volume	Invert	Avail.Storage	Storage Description
#1	228.10'	93 cf	**4.00'D x 7.40'H Vertical Cone/Cylinder**

Device	Routing	Invert	Outlet Devices
#1	Primary	228.10'	**36.0" Round Culvert** L= 237.0' CPP, end-section conforming to fill, Ke= 0.500 Inlet / Outlet Invert= 228.10' / 226.60' S= 0.0063 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 7.07 sf

Primary OutFlow Max=24.69 cfs @ 12.08 hrs HW=230.34' TW=228.71' (Dynamic Tailwater)
└─**1=Culvert** (Outlet Controls 24.69 cfs @ 6.07 fps)

Summary for Pond 011: PR-DMH-011

Inflow Area = 6.313 ac,100.00% Impervious, Inflow Depth = 4.35" for 10-YR event
Inflow = 28.30 cfs @ 12.08 hrs, Volume= 2.290 af
Outflow = 28.30 cfs @ 12.08 hrs, Volume= 2.290 af, Atten= 0%, Lag= 0.0 min
Primary = 28.30 cfs @ 12.08 hrs, Volume= 2.290 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Peak Elev= 228.71' @ 12.08 hrs Surf.Area= 13 sf Storage= 28 cf
Flood Elev= 236.50' Surf.Area= 13 sf Storage= 126 cf

Plug-Flow detention time= 0.1 min calculated for 2.290 af (100% of inflow)
Center-of-Mass det. time= 0.1 min (749.7 - 749.7)

Volume	Invert	Avail.Storage	Storage Description
#1	226.50'	126 cf	**4.00'D x 10.00'H Vertical Cone/Cylinder**

Device	Routing	Invert	Outlet Devices
#1	Primary	226.50'	**36.0" Round Culvert** L= 32.0' CPP, end-section conforming to fill, Ke= 0.500 Inlet / Outlet Invert= 226.50' / 225.00' S= 0.0469 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 7.07 sf

Primary OutFlow Max=28.25 cfs @ 12.08 hrs HW=228.71' TW=225.69' (Dynamic Tailwater)
└─**1=Culvert** (Inlet Controls 28.25 cfs @ 5.06 fps)

Summary for Pond 012: PR-DMH-012

Inflow Area = 1.304 ac, 89.95% Impervious, Inflow Depth = 3.96" for 10-YR event
Inflow = 5.51 cfs @ 12.08 hrs, Volume= 0.431 af
Outflow = 5.42 cfs @ 12.08 hrs, Volume= 0.431 af, Atten= 2%, Lag= 0.0 min
Primary = 5.42 cfs @ 12.08 hrs, Volume= 0.431 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Peak Elev= 230.19' @ 12.15 hrs Surf.Area= 13 sf Storage= 46 cf
Flood Elev= 236.00' Surf.Area= 13 sf Storage= 119 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 0.3 min (773.2 - 772.9)

Volume	Invert	Avail.Storage	Storage Description
#1	226.50'	119 cf	**4.00'D x 9.50'H Vertical Cone/Cylinder**

Device	Routing	Invert	Outlet Devices
#1	Primary	226.50'	**24.0" Round Culvert** L= 127.0' Ke= 0.500 Inlet / Outlet Invert= 226.50' / 225.85' S= 0.0051 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 3.14 sf

Primary OutFlow Max=0.00 cfs @ 12.08 hrs HW=229.17' TW=229.28' (Dynamic Tailwater)
↑—**1=Culvert** (Controls 0.00 cfs)

Summary for Pond 013: PR-DMH-013 (BAFFLE 4)

Inflow Area = 3.032 ac, 87.98% Impervious, Inflow Depth = 3.79" for 10-YR event
Inflow = 12.20 cfs @ 12.08 hrs, Volume= 0.957 af
Outflow = 12.13 cfs @ 12.09 hrs, Volume= 0.957 af, Atten= 1%, Lag= 0.1 min
Primary = 12.13 cfs @ 12.09 hrs, Volume= 0.957 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Peak Elev= 229.74' @ 12.13 hrs Surf.Area= 13 sf Storage= 65 cf
Flood Elev= 231.85' Surf.Area= 13 sf Storage= 92 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 0.6 min (781.7 - 781.1)

Volume	Invert	Avail.Storage	Storage Description
#1	224.55'	94 cf	**4.00'D x 7.45'H Vertical Cone/Cylinder**

Device	Routing	Invert	Outlet Devices
#1	Primary	224.55'	**30.0" Round Culvert** L= 9.0' Ke= 0.500 Inlet / Outlet Invert= 224.55' / 224.50' S= 0.0056 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 4.91 sf

Primary OutFlow Max=6.59 cfs @ 12.09 hrs HW=229.28' TW=229.20' (Dynamic Tailwater)
↑—**1=Culvert** (Inlet Controls 6.59 cfs @ 1.34 fps)

Summary for Pond 015: PR-DMH-015

Inflow Area = 2.789 ac, 96.10% Impervious, Inflow Depth = 4.09" for 10-YR event
Inflow = 12.05 cfs @ 12.08 hrs, Volume= 0.951 af
Outflow = 12.00 cfs @ 12.08 hrs, Volume= 0.951 af, Atten= 0%, Lag= 0.0 min
Primary = 12.00 cfs @ 12.08 hrs, Volume= 0.951 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Peak Elev= 229.89' @ 12.14 hrs Surf.Area= 13 sf Storage= 35 cf
Flood Elev= 235.50' Surf.Area= 13 sf Storage= 75 cf

Plug-Flow detention time= 0.1 min calculated for 0.951 af (100% of inflow)
Center-of-Mass det. time= 0.1 min (761.9 - 761.8)

Volume	Invert	Avail.Storage	Storage Description
#1	227.07'	75 cf	**4.00'D x 5.93'H Vertical Cone/Cylinder**

Device	Routing	Invert	Outlet Devices
#1	Primary	227.07'	**30.0" Round Culvert** L= 48.0' CPP, end-section conforming to fill, Ke= 0.500 Inlet / Outlet Invert= 227.07' / 226.70' S= 0.0077 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 4.91 sf

Primary OutFlow Max=7.24 cfs @ 12.08 hrs HW=229.33' TW=229.22' (Dynamic Tailwater)
└─**1=Culvert** (Outlet Controls 7.24 cfs @ 2.04 fps)

Summary for Pond 024: PR-DMH-024

Inflow Area = 0.320 ac, 61.91% Impervious, Inflow Depth = 2.90" for 10-YR event
Inflow = 1.08 cfs @ 12.09 hrs, Volume= 0.077 af
Outflow = 1.08 cfs @ 12.09 hrs, Volume= 0.077 af, Atten= 0%, Lag= 0.1 min
Primary = 1.08 cfs @ 12.09 hrs, Volume= 0.077 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Peak Elev= 219.51' @ 12.09 hrs Surf.Area= 13 sf Storage= 7 cf
Flood Elev= 228.84' Surf.Area= 13 sf Storage= 124 cf

Plug-Flow detention time= 0.5 min calculated for 0.077 af (100% of inflow)
Center-of-Mass det. time= 0.4 min (814.7 - 814.3)

Volume	Invert	Avail.Storage	Storage Description
#1	218.95'	124 cf	**4.00'D x 9.89'H Vertical Cone/Cylinder**

Device	Routing	Invert	Outlet Devices
#1	Primary	218.95'	**15.0" Round Culvert** L= 196.0' Ke= 0.500 Inlet / Outlet Invert= 218.95' / 217.95' S= 0.0051 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=1.08 cfs @ 12.09 hrs HW=219.51' TW=218.52' (Dynamic Tailwater)
└─**1=Culvert** (Outlet Controls 1.08 cfs @ 2.97 fps)

Summary for Pond 025: PR-DMH-025

Inflow Area = 24.588 ac, 96.31% Impervious, Inflow Depth = 0.51" for 10-YR event
Inflow = 21.09 cfs @ 12.13 hrs, Volume= 1.037 af
Outflow = 21.09 cfs @ 12.13 hrs, Volume= 1.037 af, Atten= 0%, Lag= 0.0 min
Primary = 21.09 cfs @ 12.13 hrs, Volume= 1.037 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Peak Elev= 223.64' @ 12.13 hrs Surf.Area= 20 sf Storage= 35 cf
Flood Elev= 234.00' Surf.Area= 20 sf Storage= 239 cf

Plug-Flow detention time= 0.1 min calculated for 1.037 af (100% of inflow)
Center-of-Mass det. time= 0.1 min (795.8 - 795.8)

Volume	Invert	Avail.Storage	Storage Description
#1	221.85'	239 cf	**5.00'D x 12.15'H Vertical Cone/Cylinder**

Device	Routing	Invert	Outlet Devices
#1	Primary	221.80'	**36.0" Round Culvert** L= 111.0' Ke= 0.500 Inlet / Outlet Invert= 221.80' / 210.00' S= 0.1063 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 7.07 sf

Primary OutFlow Max=21.06 cfs @ 12.13 hrs HW=223.64' TW=211.86' (Dynamic Tailwater)
└─**1=Culvert** (Inlet Controls 21.06 cfs @ 4.62 fps)

Summary for Pond 026: PR-DMH-026

Inflow Area = 24.588 ac, 96.31% Impervious, Inflow Depth = 0.51" for 10-YR event
Inflow = 21.09 cfs @ 12.13 hrs, Volume= 1.037 af
Outflow = 21.07 cfs @ 12.13 hrs, Volume= 1.037 af, Atten= 0%, Lag= 0.0 min
Primary = 21.07 cfs @ 12.13 hrs, Volume= 1.037 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Peak Elev= 211.86' @ 12.13 hrs Surf.Area= 20 sf Storage= 39 cf
Flood Elev= 212.50' Surf.Area= 20 sf Storage= 51 cf

Plug-Flow detention time= 0.3 min calculated for 1.037 af (100% of inflow)
Center-of-Mass det. time= 0.1 min (795.9 - 795.8)

Volume	Invert	Avail.Storage	Storage Description
#1	209.90'	100 cf	**5.00'D x 5.10'H Vertical Cone/Cylinder**

Device	Routing	Invert	Outlet Devices
#1	Primary	209.90'	**36.0" Round Culvert** L= 42.0' Ke= 0.500 Inlet / Outlet Invert= 209.90' / 209.10' S= 0.0190 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 7.07 sf

Primary OutFlow Max=20.93 cfs @ 12.13 hrs HW=211.86' TW=210.85' (Dynamic Tailwater)
└─**1=Culvert** (Outlet Controls 20.93 cfs @ 6.08 fps)

Summary for Pond 027: PR-DMH-027

Inflow Area = 2.789 ac, 96.10% Impervious, Inflow Depth = 4.09" for 10-YR event
Inflow = 11.86 cfs @ 12.08 hrs, Volume= 0.951 af
Outflow = 11.82 cfs @ 12.09 hrs, Volume= 0.951 af, Atten= 0%, Lag= 0.1 min
Primary = 11.82 cfs @ 12.09 hrs, Volume= 0.951 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Peak Elev= 229.37' @ 12.13 hrs Surf.Area= 13 sf Storage= 69 cf
Flood Elev= 235.00' Surf.Area= 13 sf Storage= 139 cf

Plug-Flow detention time= 1.2 min calculated for 0.950 af (100% of inflow)
Center-of-Mass det. time= 1.0 min (763.3 - 762.4)

Volume	Invert	Avail.Storage	Storage Description
#1	223.90'	139 cf	**4.00'D x 11.10'H Vertical Cone/Cylinder**

Device	Routing	Invert	Outlet Devices
#1	Primary	223.90'	**30.0" Round Culvert** L= 12.0' Ke= 0.500 Inlet / Outlet Invert= 223.90' / 223.80' S= 0.0083 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 4.91 sf

Primary OutFlow Max=8.98 cfs @ 12.09 hrs HW=229.15' TW=229.01' (Dynamic Tailwater)
1=Culvert (Inlet Controls 8.98 cfs @ 1.83 fps)

Summary for Pond 028: PR-DMH-028

Inflow Area = 3.371 ac, 85.08% Impervious, Inflow Depth = 3.83" for 10-YR event
Inflow = 14.21 cfs @ 12.08 hrs, Volume= 1.077 af
Outflow = 14.19 cfs @ 12.09 hrs, Volume= 1.077 af, Atten= 0%, Lag= 0.0 min
Primary = 14.19 cfs @ 12.09 hrs, Volume= 1.077 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Peak Elev= 229.14' @ 12.09 hrs Surf.Area= 13 sf Storage= 28 cf
Flood Elev= 234.22' Surf.Area= 13 sf Storage= 91 cf

Plug-Flow detention time= 0.1 min calculated for 1.077 af (100% of inflow)
Center-of-Mass det. time= 0.1 min (779.0 - 778.9)

Volume	Invert	Avail.Storage	Storage Description
#1	226.95'	91 cf	**4.00'D x 7.27'H Vertical Cone/Cylinder**

Device	Routing	Invert	Outlet Devices
#1	Primary	226.95'	**24.0" Round Culvert** L= 154.0' Ke= 0.500 Inlet / Outlet Invert= 226.95' / 226.15' S= 0.0052 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 3.14 sf

Primary OutFlow Max=14.00 cfs @ 12.09 hrs HW=229.13' TW=228.02' (Dynamic Tailwater)
1=Culvert (Outlet Controls 14.00 cfs @ 5.09 fps)

Summary for Pond 029: PR-DMH-029

Inflow Area = 24.588 ac, 96.31% Impervious, Inflow Depth = 0.51" for 10-YR event
Inflow = 21.07 cfs @ 12.13 hrs, Volume= 1.037 af
Outflow = 21.07 cfs @ 12.13 hrs, Volume= 1.037 af, Atten= 0%, Lag= 0.0 min
Primary = 21.07 cfs @ 12.13 hrs, Volume= 1.037 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Peak Elev= 210.85' @ 12.13 hrs Surf.Area= 13 sf Storage= 23 cf
Flood Elev= 215.00' Surf.Area= 13 sf Storage= 75 cf

Plug-Flow detention time= 0.2 min calculated for 1.037 af (100% of inflow)
Center-of-Mass det. time= 0.1 min (796.0 - 795.9)

Volume	Invert	Avail.Storage	Storage Description
#1	209.00'	75 cf	**4.00'D x 6.00'H Vertical Cone/Cylinder**

Device	Routing	Invert	Outlet Devices
#1	Primary	209.00'	**36.0" Round Culvert** L= 101.0' Ke= 0.500 Inlet / Outlet Invert= 209.00' / 208.00' S= 0.0099 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 7.07 sf

Primary OutFlow Max=21.05 cfs @ 12.13 hrs HW=210.85' TW=205.07' (Dynamic Tailwater)
└─**1=Culvert** (Barrel Controls 21.05 cfs @ 6.59 fps)

Summary for Pond 031: PR-DMH-031

Inflow Area = 6.140 ac, 92.95% Impervious, Inflow Depth = 4.08" for 10-YR event
Inflow = 26.58 cfs @ 12.08 hrs, Volume= 2.086 af
Outflow = 26.55 cfs @ 12.08 hrs, Volume= 2.086 af, Atten= 0%, Lag= 0.0 min
Primary = 24.47 cfs @ 12.09 hrs, Volume= 1.528 af
Secondary = 3.75 cfs @ 12.70 hrs, Volume= 0.558 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Peak Elev= 227.49' @ 12.12 hrs Surf.Area= 13 sf Storage= 38 cf
Flood Elev= 234.00' Surf.Area= 13 sf Storage= 119 cf

Plug-Flow detention time= 0.1 min calculated for 2.086 af (100% of inflow)
Center-of-Mass det. time= 0.1 min (764.2 - 764.1)

Volume	Invert	Avail.Storage	Storage Description
#1	224.50'	119 cf	**4.00'D x 9.50'H Vertical Cone/Cylinder**

Device	Routing	Invert	Outlet Devices
#1	Primary	224.50'	**36.0" Round 30"** L= 23.0' Ke= 0.500 Inlet / Outlet Invert= 224.50' / 224.15' S= 0.0152 '/' Cc= 0.900 n= 0.012, Flow Area= 7.07 sf
#2	Secondary	224.50'	**12.0" Round 12"** L= 8.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 224.50' / 224.45' S= 0.0063 '/' Cc= 0.900 n= 0.012, Flow Area= 0.79 sf
#3	Device 1	224.75'	**4.0' long Sharp-Crested Rectangular Weir** 2 End Contraction(s)

Primary OutFlow Max=22.67 cfs @ 12.09 hrs HW=227.37' TW=226.92' (Dynamic Tailwater)
↑—**1=30"** (Inlet Controls 22.67 cfs @ 3.25 fps)
↑—**3=Sharp-Crested Rectangular Weir** (Passes 22.67 cfs of 28.29 cfs potential flow)

Secondary OutFlow Max=0.00 cfs @ 12.70 hrs HW=226.06' TW=227.99' (Dynamic Tailwater)
↑—**2=12"** (Controls 0.00 cfs)

Summary for Pond 032: PR-DMH-032

Inflow Area = 6.140 ac, 92.95% Impervious, Inflow Depth = 4.08" for 10-YR event
Inflow = 26.55 cfs @ 12.08 hrs, Volume= 2.086 af
Outflow = 26.53 cfs @ 12.09 hrs, Volume= 2.086 af, Atten= 0%, Lag= 0.0 min
Primary = 26.53 cfs @ 12.09 hrs, Volume= 2.086 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Peak Elev= 227.43' @ 12.37 hrs Surf.Area= 13 sf Storage= 44 cf
Flood Elev= 234.30' Surf.Area= 13 sf Storage= 131 cf

Plug-Flow detention time= 0.2 min calculated for 2.086 af (100% of inflow)
Center-of-Mass det. time= 0.1 min (764.4 - 764.2)

Volume	Invert	Avail.Storage	Storage Description
#1	223.90'	138 cf	**4.00'D x 10.95'H Vertical Cone/Cylinder**

Device	Routing	Invert	Outlet Devices
#1	Primary	224.10'	**36.0" Round Culvert** L= 16.0' Ke= 0.500 Inlet / Outlet Invert= 224.10' / 224.00' S= 0.0062 '/' Cc= 0.900 n= 0.012, Flow Area= 7.07 sf

Primary OutFlow Max=24.57 cfs @ 12.09 hrs HW=226.91' TW=226.36' (Dynamic Tailwater)
↑—**1=Culvert** (Inlet Controls 24.57 cfs @ 3.57 fps)

Summary for Pond 033: DMH 033

Inflow Area = 7.498 ac, 71.70% Impervious, Inflow Depth = 3.37" for 10-YR event
Inflow = 27.36 cfs @ 12.09 hrs, Volume= 2.109 af
Outflow = 27.35 cfs @ 12.09 hrs, Volume= 2.108 af, Atten= 0%, Lag= 0.0 min
Primary = 25.26 cfs @ 12.09 hrs, Volume= 1.680 af
Secondary = 2.14 cfs @ 12.06 hrs, Volume= 0.429 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Peak Elev= 215.66' @ 12.10 hrs Surf.Area= 20 sf Storage= 58 cf
Flood Elev= 217.00' Surf.Area= 20 sf Storage= 84 cf

Plug-Flow detention time= 0.3 min calculated for 2.108 af (100% of inflow)
Center-of-Mass det. time= 0.1 min (781.7 - 781.6)

Volume	Invert	Avail.Storage	Storage Description
#1	212.70'	84 cf	**5.00'D x 4.30'H Vertical Cone/Cylinder**

Device	Routing	Invert	Outlet Devices
#1	Primary	212.85'	**36.0" Round 36"** L= 23.0' Ke= 0.500 Inlet / Outlet Invert= 212.85' / 212.50' S= 0.0152 '/' Cc= 0.900 n= 0.012, Flow Area= 7.07 sf
#2	Secondary	212.85'	**12.0" Round 12"** L= 11.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 212.85' / 212.80' S= 0.0045 '/' Cc= 0.900 n= 0.012, Flow Area= 0.79 sf
#3	Device 1	213.10'	**5.0' long Sharp-Crested Rectangular Weir** 2 End Contraction(s)

Primary OutFlow Max=24.81 cfs @ 12.09 hrs HW=215.65' TW=215.08' (Dynamic Tailwater)
└─**1=36"** (Inlet Controls 24.81 cfs @ 3.62 fps)
  └─**3=Sharp-Crested Rectangular Weir** (Passes 24.81 cfs of 38.17 cfs potential flow)

Secondary OutFlow Max=1.88 cfs @ 12.06 hrs HW=215.50' TW=215.25' (Dynamic Tailwater)
└─**2=12"** (Inlet Controls 1.88 cfs @ 2.40 fps)

Summary for Pond 034: DMH 034

Inflow Area = 7.498 ac, 71.70% Impervious, Inflow Depth = 3.37" for 10-YR event
Inflow = 27.35 cfs @ 12.09 hrs, Volume= 2.108 af
Outflow = 27.34 cfs @ 12.09 hrs, Volume= 2.108 af, Atten= 0%, Lag= 0.0 min
Primary = 27.34 cfs @ 12.09 hrs, Volume= 2.108 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Peak Elev= 215.09' @ 12.10 hrs Surf.Area= 13 sf Storage= 34 cf
Flood Elev= 217.00' Surf.Area= 13 sf Storage= 58 cf

Plug-Flow detention time= 0.2 min calculated for 2.108 af (100% of inflow)
Center-of-Mass det. time= 0.1 min (781.8 - 781.7)

Volume	Invert	Avail.Storage	Storage Description
#1	212.40'	58 cf	**4.00'D x 4.60'H Vertical Cone/Cylinder**

Device	Routing	Invert	Outlet Devices
#1	Primary	212.40'	**36.0" Round Culvert** L= 15.0' Ke= 0.500 Inlet / Outlet Invert= 212.40' / 212.33' S= 0.0047 '/' Cc= 0.900 n= 0.012, Flow Area= 7.07 sf

Primary OutFlow Max=27.06 cfs @ 12.09 hrs HW=215.08' TW=214.37' (Dynamic Tailwater)
└─**1=Culvert** (Inlet Controls 27.06 cfs @ 4.06 fps)

Summary for Pond 035: PR-DMH-035

Inflow Area = 2.789 ac, 96.10% Impervious, Inflow Depth = 4.09" for 10-YR event
Inflow = 12.00 cfs @ 12.08 hrs, Volume= 0.951 af
Outflow = 11.92 cfs @ 12.08 hrs, Volume= 0.951 af, Atten= 1%, Lag= 0.1 min
Primary = 10.27 cfs @ 12.09 hrs, Volume= 0.638 af
Secondary = 2.44 cfs @ 12.56 hrs, Volume= 0.313 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Peak Elev= 229.71' @ 12.13 hrs Surf.Area= 13 sf Storage= 39 cf
Flood Elev= 233.80' Surf.Area= 13 sf Storage= 90 cf

Plug-Flow detention time= 0.2 min calculated for 0.951 af (100% of inflow)
Center-of-Mass det. time= 0.2 min (762.1 - 761.9)

Volume	Invert	Avail.Storage	Storage Description
#1	226.60'	93 cf	**4.00'D x 7.40'H Vertical Cone/Cylinder**

Device	Routing	Invert	Outlet Devices
#1	Primary	226.60'	**30.0" Round 30"** L= 23.0' Ke= 0.500 Inlet / Outlet Invert= 226.60' / 226.25' S= 0.0152 '/' Cc= 0.900 n= 0.012, Flow Area= 4.91 sf
#2	Secondary	226.60'	**12.0" Round 12"** L= 11.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 226.60' / 226.55' S= 0.0045 '/' Cc= 0.900 n= 0.012, Flow Area= 0.79 sf
#3	Device 1	226.85'	**4.0' long Sharp-Crested Rectangular Weir** 2 End Contraction(s)

Primary OutFlow Max=3.58 cfs @ 12.09 hrs HW=229.35' TW=229.32' (Dynamic Tailwater)
└─**1=30"** (Inlet Controls 3.58 cfs @ 0.73 fps)
  └─**3=Sharp-Crested Rectangular Weir** (Passes 3.58 cfs of 8.67 cfs potential flow)

Secondary OutFlow Max=0.00 cfs @ 12.56 hrs HW=227.71' TW=228.84' (Dynamic Tailwater)
└─**2=12"** (Controls 0.00 cfs)

Summary for Pond 036: PR-DMH-036

Inflow Area = 2.789 ac, 96.10% Impervious, Inflow Depth = 4.09" for 10-YR event
Inflow = 11.92 cfs @ 12.08 hrs, Volume= 0.951 af
Outflow = 11.86 cfs @ 12.08 hrs, Volume= 0.951 af, Atten= 0%, Lag= 0.0 min
Primary = 11.86 cfs @ 12.08 hrs, Volume= 0.951 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Peak Elev= 229.56' @ 12.13 hrs Surf.Area= 13 sf Storage= 43 cf
Flood Elev= 234.00' Surf.Area= 13 sf Storage= 99 cf

Plug-Flow detention time= 0.3 min calculated for 0.951 af (100% of inflow)
Center-of-Mass det. time= 0.3 min (762.4 - 762.1)

Volume	Invert	Avail.Storage	Storage Description
#1	226.15'	99 cf	**4.00'D x 7.85'H Vertical Cone/Cylinder**

Device	Routing	Invert	Outlet Devices
#1	Primary	226.15'	**30.0" Round Culvert** L= 96.0' Ke= 0.500 Inlet / Outlet Invert= 226.15' / 224.00' S= 0.0224 '/' Cc= 0.900 n= 0.012, Flow Area= 4.91 sf

Primary OutFlow Max=7.70 cfs @ 12.08 hrs HW=229.24' TW=229.14' (Dynamic Tailwater)
└─**1=Culvert** (Inlet Controls 7.70 cfs @ 1.57 fps)

Summary for Pond 037: PR-DMH-037

Inflow Area = 3.032 ac, 87.98% Impervious, Inflow Depth = 3.79" for 10-YR event
Inflow = 12.13 cfs @ 12.09 hrs, Volume= 0.957 af
Outflow = 12.07 cfs @ 12.09 hrs, Volume= 0.957 af, Atten= 0%, Lag= 0.0 min
Primary = 10.49 cfs @ 12.09 hrs, Volume= 0.662 af
Secondary = 3.44 cfs @ 13.16 hrs, Volume= 0.295 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Peak Elev= 229.54' @ 12.13 hrs Surf.Area= 13 sf Storage= 65 cf
Flood Elev= 232.00' Surf.Area= 13 sf Storage= 96 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 1.0 min (782.7 - 781.7)

Volume	Invert	Avail.Storage	Storage Description
#1	224.40'	96 cf	**4.00'D x 7.60'H Vertical Cone/Cylinder**

Device	Routing	Invert	Outlet Devices
#1	Primary	224.40'	**30.0" Round 24"** L= 32.0' Ke= 0.500 Inlet / Outlet Invert= 224.40' / 224.00' S= 0.0125 '/' Cc= 0.900 n= 0.012, Flow Area= 4.91 sf
#2	Secondary	224.40'	**12.0" Round 12"** L= 11.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 224.40' / 224.35' S= 0.0045 '/' Cc= 0.900 n= 0.012, Flow Area= 0.79 sf
#3	Device 1	224.50'	**4.0' long Sharp-Crested Rectangular Weir** 2 End Contraction(s)

Primary OutFlow Max=7.01 cfs @ 12.09 hrs HW=229.34' TW=229.25' (Dynamic Tailwater)
└─**1=24"** (Inlet Controls 7.01 cfs @ 1.43 fps)
  └─**3=Sharp-Crested Rectangular Weir** (Passes 7.01 cfs of 26.31 cfs potential flow)

Secondary OutFlow Max=0.00 cfs @ 13.16 hrs HW=225.89' TW=228.72' (Dynamic Tailwater)
└─**2=12"** (Controls 0.00 cfs)

Summary for Pond 038: PR-DMH-038

Inflow Area = 3.032 ac, 87.98% Impervious, Inflow Depth = 3.79" for 10-YR event
Inflow = 12.07 cfs @ 12.09 hrs, Volume= 0.957 af
Outflow = 12.03 cfs @ 12.09 hrs, Volume= 0.957 af, Atten= 0%, Lag= 0.1 min
Primary = 12.03 cfs @ 12.09 hrs, Volume= 0.957 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Peak Elev= 229.38' @ 12.13 hrs Surf.Area= 13 sf Storage= 69 cf
Flood Elev= 232.68' Surf.Area= 13 sf Storage= 110 cf

Plug-Flow detention time= 1.7 min calculated for 0.957 af (100% of inflow)
Center-of-Mass det. time= 1.0 min (783.7 - 782.7)

Volume	Invert	Avail.Storage	Storage Description
#1	223.90'	110 cf	**4.00'D x 8.78'H Vertical Cone/Cylinder**

Device	Routing	Invert	Outlet Devices
#1	Primary	223.90'	**30.0" Round Culvert** L= 16.0' Ke= 0.500 Inlet / Outlet Invert= 223.90' / 223.80' S= 0.0062 '/' Cc= 0.900 n= 0.012, Flow Area= 4.91 sf

Primary OutFlow Max=9.38 cfs @ 12.09 hrs HW=229.18' TW=229.02' (Dynamic Tailwater)
└─**1=Culvert** (Inlet Controls 9.38 cfs @ 1.91 fps)

Summary for Pond 039: PR-DMH-039

Inflow Area = 0.540 ac, 60.69% Impervious, Inflow Depth = 2.97" for 10-YR event
Inflow = 1.87 cfs @ 12.09 hrs, Volume= 0.134 af
Outflow = 1.87 cfs @ 12.09 hrs, Volume= 0.134 af, Atten= 0%, Lag= 0.0 min
Primary = 1.87 cfs @ 12.09 hrs, Volume= 0.134 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Peak Elev= 212.42' @ 12.09 hrs Surf.Area= 0.000 ac Storage= 0.000 af

Plug-Flow detention time= 0.3 min calculated for 0.134 af (100% of inflow)
Center-of-Mass det. time= 0.3 min (812.3 - 812.0)

Volume	Invert	Avail.Storage	Storage Description
#1	211.75'	0.002 af	**4.00'D x 5.75'H Vertical Cone/Cylinder**

Device	Routing	Invert	Outlet Devices
#1	Primary	211.75'	**15.0" Round Culvert** L= 274.0' Ke= 0.500 Inlet / Outlet Invert= 211.75' / 206.25' S= 0.0201 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=1.87 cfs @ 12.09 hrs HW=212.42' TW=206.89' (Dynamic Tailwater)
└─**1=Culvert** (Inlet Controls 1.87 cfs @ 2.79 fps)

Summary for Pond 040: PR-DMH-040

Inflow Area = 0.540 ac, 60.69% Impervious, Inflow Depth = 2.97" for 10-YR event
Inflow = 1.87 cfs @ 12.09 hrs, Volume= 0.134 af
Outflow = 1.87 cfs @ 12.09 hrs, Volume= 0.134 af, Atten= 0%, Lag= 0.0 min
Primary = 1.87 cfs @ 12.09 hrs, Volume= 0.134 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Peak Elev= 206.89' @ 12.09 hrs Surf.Area= 0.000 ac Storage= 0.000 af

Plug-Flow detention time= 0.4 min calculated for 0.134 af (100% of inflow)
Center-of-Mass det. time= 0.3 min (812.6 - 812.3)

Volume	Invert	Avail.Storage	Storage Description
#1	206.15'	0.002 af	**4.00'D x 5.35'H Vertical Cone/Cylinder**

Device	Routing	Invert	Outlet Devices
#1	Primary	206.15'	**15.0" Round Culvert** L= 33.0' Ke= 0.500 Inlet / Outlet Invert= 206.15' / 205.90' S= 0.0076 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=1.87 cfs @ 12.09 hrs HW=206.89' TW=205.89' (Dynamic Tailwater)
└─**1=Culvert** (Barrel Controls 1.87 cfs @ 3.55 fps)

Summary for Pond 100: PR-CB-100

Inflow Area = 2.235 ac, 82.33% Impervious, Inflow Depth = 3.74" for 10-YR event
Inflow = 9.31 cfs @ 12.08 hrs, Volume= 0.697 af
Outflow = 9.29 cfs @ 12.09 hrs, Volume= 0.697 af, Atten= 0%, Lag= 0.1 min
Primary = 9.29 cfs @ 12.09 hrs, Volume= 0.697 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Peak Elev= 230.65' @ 12.10 hrs Surf.Area= 13 sf Storage= 25 cf
Flood Elev= 233.78' Surf.Area= 13 sf Storage= 64 cf

Plug-Flow detention time= 0.1 min calculated for 0.697 af (100% of inflow)
Center-of-Mass det. time= 0.1 min (783.3 - 783.2)

Volume	Invert	Avail.Storage	Storage Description
#1	228.65'	64 cf	**4.00'D x 5.13'H Vertical Cone/Cylinder**

Device	Routing	Invert	Outlet Devices
#1	Primary	228.65'	**24.0" Round Culvert** L= 206.0' CPP, end-section conforming to fill, Ke= 0.500 Inlet / Outlet Invert= 228.65' / 227.60' S= 0.0051 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 3.14 sf

Primary OutFlow Max=8.82 cfs @ 12.09 hrs HW=230.61' TW=229.98' (Dynamic Tailwater)
└─**1=Culvert** (Outlet Controls 8.82 cfs @ 3.56 fps)

Summary for Pond 101: PR-CB-101

Inflow Area = 3.371 ac, 85.08% Impervious, Inflow Depth = 3.83" for 10-YR event
Inflow = 14.22 cfs @ 12.09 hrs, Volume= 1.077 af
Outflow = 14.21 cfs @ 12.08 hrs, Volume= 1.077 af, Atten= 0%, Lag= 0.0 min
Primary = 14.21 cfs @ 12.08 hrs, Volume= 1.077 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Peak Elev= 230.00' @ 12.10 hrs Surf.Area= 13 sf Storage= 31 cf
Flood Elev= 233.39' Surf.Area= 13 sf Storage= 74 cf

Plug-Flow detention time= 0.2 min calculated for 1.077 af (100% of inflow)
Center-of-Mass det. time= 0.1 min (778.9 - 778.8)

Volume	Invert	Avail.Storage	Storage Description
#1	227.50'	80 cf	**4.00'D x 6.34'H Vertical Cone/Cylinder**

Device	Routing	Invert	Outlet Devices
#1	Primary	227.50'	**24.0" Round Culvert** L= 83.0' CPP, end-section conforming to fill, Ke= 0.500 Inlet / Outlet Invert= 227.50' / 227.05' S= 0.0054 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 3.14 sf

Primary OutFlow Max=13.89 cfs @ 12.08 hrs HW=229.97' TW=229.13' (Dynamic Tailwater)
└─**1=Culvert** (Inlet Controls 13.89 cfs @ 4.42 fps)

Summary for Pond 102: PR-CB-102

Inflow Area = 6.131 ac, 81.25% Impervious, Inflow Depth = 3.70" for 10-YR event
Inflow = 24.43 cfs @ 12.09 hrs, Volume= 1.891 af
Outflow = 24.43 cfs @ 12.09 hrs, Volume= 1.891 af, Atten= 0%, Lag= 0.0 min
Primary = 24.43 cfs @ 12.09 hrs, Volume= 1.891 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Peak Elev= 227.05' @ 12.09 hrs Surf.Area= 13 sf Storage= 29 cf
Flood Elev= 228.75' Surf.Area= 13 sf Storage= 48 cf

Plug-Flow detention time= 0.1 min calculated for 1.891 af (100% of inflow)
Center-of-Mass det. time= 0.1 min (773.7 - 773.7)

Volume	Invert	Avail.Storage	Storage Description
#1	224.75'	48 cf	**4.00'D x 3.80'H Vertical Cone/Cylinder**

Device	Routing	Invert	Outlet Devices
#1	Primary	224.75'	**30.0" Round Culvert** L= 275.0' CPP, end-section conforming to fill, Ke= 0.500 Inlet / Outlet Invert= 224.75' / 219.25' S= 0.0200 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 4.91 sf

Primary OutFlow Max=24.39 cfs @ 12.09 hrs HW=227.05' TW=221.58' (Dynamic Tailwater)
└─**1=Culvert** (Inlet Controls 24.39 cfs @ 5.16 fps)

Summary for Pond 103: PR-CB-103

Inflow Area = 0.455 ac, 27.44% Impervious, Inflow Depth = 1.81" for 10-YR event
Inflow = 0.95 cfs @ 12.09 hrs, Volume= 0.069 af
Outflow = 0.95 cfs @ 12.10 hrs, Volume= 0.069 af, Atten= 0%, Lag= 0.4 min
Primary = 0.95 cfs @ 12.10 hrs, Volume= 0.069 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Peak Elev= 227.12' @ 12.10 hrs Surf.Area= 13 sf Storage= 25 cf
Flood Elev= 228.75' Surf.Area= 13 sf Storage= 46 cf

Plug-Flow detention time= 0.8 min calculated for 0.069 af (100% of inflow)
Center-of-Mass det. time= 0.6 min (850.3 - 849.7)

Volume	Invert	Avail.Storage	Storage Description
#1	225.10'	46 cf	**4.00'D x 3.65'H Vertical Cone/Cylinder**

Device	Routing	Invert	Outlet Devices
#1	Primary	225.10'	**12.0" Round Culvert** L= 28.0' Ke= 0.500 Inlet / Outlet Invert= 225.10' / 224.85' S= 0.0089 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=1.11 cfs @ 12.10 hrs HW=227.11' TW=227.03' (Dynamic Tailwater)
└─**1=Culvert** (Inlet Controls 1.11 cfs @ 1.41 fps)

Summary for Pond 104: PR-CB-104

Inflow Area = 6.770 ac, 76.38% Impervious, Inflow Depth = 3.53" for 10-YR event
Inflow = 25.84 cfs @ 12.09 hrs, Volume= 1.994 af
Outflow = 25.84 cfs @ 12.09 hrs, Volume= 1.994 af, Atten= 0%, Lag= 0.0 min
Primary = 25.84 cfs @ 12.09 hrs, Volume= 1.994 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Peak Elev= 221.58' @ 12.09 hrs Surf.Area= 13 sf Storage= 31 cf
Flood Elev= 223.15' Surf.Area= 13 sf Storage= 50 cf

Plug-Flow detention time= 0.1 min calculated for 1.994 af (100% of inflow)
Center-of-Mass det. time= 0.1 min (777.5 - 777.5)

Volume	Invert	Avail.Storage	Storage Description
#1	219.15'	51 cf	**4.00'D x 4.08'H Vertical Cone/Cylinder**

Device	Routing	Invert	Outlet Devices
#1	Primary	219.15'	**30.0" Round Culvert** L= 162.0' CPP, end-section conforming to fill, Ke= 0.500 Inlet / Outlet Invert= 219.15' / 216.25' S= 0.0179 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 4.91 sf

Primary OutFlow Max=25.81 cfs @ 12.09 hrs HW=221.58' TW=218.67' (Dynamic Tailwater)
└─**1=Culvert** (Inlet Controls 25.81 cfs @ 5.30 fps)

Summary for Pond 105: PR-CB-105

Inflow Area = 0.257 ac, 36.88% Impervious, Inflow Depth = 2.12" for 10-YR event
Inflow = 0.63 cfs @ 12.09 hrs, Volume= 0.045 af
Outflow = 0.64 cfs @ 12.10 hrs, Volume= 0.045 af, Atten= 0%, Lag= 0.7 min
Primary = 0.64 cfs @ 12.10 hrs, Volume= 0.045 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Peak Elev= 221.61' @ 12.10 hrs Surf.Area= 13 sf Storage= 26 cf
Flood Elev= 223.15' Surf.Area= 13 sf Storage= 46 cf

Plug-Flow detention time= 1.1 min calculated for 0.045 af (100% of inflow)
Center-of-Mass det. time= 0.9 min (840.0 - 839.1)

Volume	Invert	Avail.Storage	Storage Description
#1	219.50'	47 cf	**4.00'D x 3.72'H Vertical Cone/Cylinder**

Device	Routing	Invert	Outlet Devices
#1	Primary	219.50'	**12.0" Round Culvert** L= 28.0' Ke= 0.500 Inlet / Outlet Invert= 219.50' / 219.25' S= 0.0089 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=0.94 cfs @ 12.10 hrs HW=221.60' TW=221.54' (Dynamic Tailwater)
└─**1=Culvert** (Inlet Controls 0.94 cfs @ 1.20 fps)

Summary for Pond 106: PR-CB-106

Inflow Area = 7.161 ac, 73.79% Impervious, Inflow Depth = 3.45" for 10-YR event
Inflow = 26.71 cfs @ 12.09 hrs, Volume= 2.058 af
Outflow = 26.71 cfs @ 12.09 hrs, Volume= 2.058 af, Atten= 0%, Lag= 0.0 min
Primary = 26.71 cfs @ 12.09 hrs, Volume= 2.058 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Peak Elev= 218.68' @ 12.09 hrs Surf.Area= 13 sf Storage= 32 cf
Flood Elev= 220.15' Surf.Area= 13 sf Storage= 50 cf

Plug-Flow detention time= 0.1 min calculated for 2.058 af (100% of inflow)
Center-of-Mass det. time= 0.1 min (779.7 - 779.6)

Volume	Invert	Avail.Storage	Storage Description
#1	216.15'	50 cf	**4.00'D x 3.94'H Vertical Cone/Cylinder**

Device	Routing	Invert	Outlet Devices
#1	Primary	216.15'	**30.0" Round Culvert** L= 135.0' CPP, end-section conforming to fill, Ke= 0.500 Inlet / Outlet Invert= 216.15' / 213.60' S= 0.0189 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 4.91 sf

Primary OutFlow Max=26.69 cfs @ 12.09 hrs HW=218.68' TW=216.84' (Dynamic Tailwater)
└─**1=Culvert** (Inlet Controls 26.69 cfs @ 5.44 fps)

Summary for Pond 107: PR-CB-107

Inflow Area = 0.167 ac, 33.56% Impervious, Inflow Depth = 1.96" for 10-YR event
Inflow = 0.38 cfs @ 12.09 hrs, Volume= 0.027 af
Outflow = 0.40 cfs @ 12.12 hrs, Volume= 0.027 af, Atten= 0%, Lag= 1.6 min
Primary = 0.40 cfs @ 12.12 hrs, Volume= 0.027 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Peak Elev= 218.69' @ 12.10 hrs Surf.Area= 13 sf Storage= 27 cf
Flood Elev= 220.15' Surf.Area= 13 sf Storage= 45 cf

Plug-Flow detention time= 1.6 min calculated for 0.027 af (100% of inflow)
Center-of-Mass det. time= 1.4 min (845.8 - 844.4)

Volume	Invert	Avail.Storage	Storage Description
#1	216.50'	45 cf	**4.00'D x 3.60'H Vertical Cone/Cylinder**

Device	Routing	Invert	Outlet Devices
#1	Primary	216.50'	**12.0" Round Culvert** L= 28.0' Ke= 0.500 Inlet / Outlet Invert= 216.50' / 216.25' S= 0.0089 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=1.08 cfs @ 12.12 hrs HW=218.61' TW=218.53' (Dynamic Tailwater)
└─**1=Culvert** (Inlet Controls 1.08 cfs @ 1.37 fps)

Summary for Pond 108: PR-CB-108

Inflow Area = 7.371 ac, 72.31% Impervious, Inflow Depth = 3.40" for 10-YR event
Inflow = 27.11 cfs @ 12.09 hrs, Volume= 2.087 af
Outflow = 27.08 cfs @ 12.09 hrs, Volume= 2.087 af, Atten= 0%, Lag= 0.0 min
Primary = 27.08 cfs @ 12.09 hrs, Volume= 2.087 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Peak Elev= 216.88' @ 12.10 hrs Surf.Area= 20 sf Storage= 66 cf
Flood Elev= 217.53' Surf.Area= 20 sf Storage= 79 cf

Plug-Flow detention time= 0.3 min calculated for 2.087 af (100% of inflow)
Center-of-Mass det. time= 0.1 min (780.8 - 780.7)

Volume	Invert	Avail.Storage	Storage Description
#1	213.50'	79 cf	**5.00'D x 4.03'H Vertical Cone/Cylinder**

Device	Routing	Invert	Outlet Devices
#1	Primary	213.50'	**36.0" Round Culvert** L= 28.0' CPP, end-section conforming to fill, Ke= 0.500 Inlet / Outlet Invert= 213.50' / 213.35' S= 0.0054 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 7.07 sf

Primary OutFlow Max=26.09 cfs @ 12.09 hrs HW=216.84' TW=216.25' (Dynamic Tailwater)
└─**1=Culvert** (Inlet Controls 26.09 cfs @ 3.69 fps)

Summary for Pond 109: PR-CB-109 (BAFFLE 2)

Inflow Area = 7.498 ac, 71.70% Impervious, Inflow Depth = 3.38" for 10-YR event
Inflow = 27.38 cfs @ 12.09 hrs, Volume= 2.109 af
Outflow = 27.36 cfs @ 12.09 hrs, Volume= 2.109 af, Atten= 0%, Lag= 0.0 min
Primary = 27.36 cfs @ 12.09 hrs, Volume= 2.109 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Peak Elev= 216.28' @ 12.10 hrs Surf.Area= 20 sf Storage= 60 cf
Flood Elev= 217.25' Surf.Area= 20 sf Storage= 79 cf

Plug-Flow detention time= 0.4 min calculated for 2.109 af (100% of inflow)
Center-of-Mass det. time= 0.1 min (781.6 - 781.5)

Volume	Invert	Avail.Storage	Storage Description
#1	213.25'	79 cf	**5.00'D x 4.00'H Vertical Cone/Cylinder**

Device	Routing	Invert	Outlet Devices
#1	Primary	213.25'	**36.0" Round Culvert** L= 64.0' CPP, end-section conforming to fill, Ke= 0.500 Inlet / Outlet Invert= 213.25' / 212.95' S= 0.0047 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 7.07 sf

Primary OutFlow Max=26.57 cfs @ 12.09 hrs HW=216.26' TW=215.65' (Dynamic Tailwater)
└─**1=Culvert** (Outlet Controls 26.57 cfs @ 4.66 fps)

Summary for Pond 110: PR-CB-110

Inflow Area = 1.863 ac,100.00% Impervious, Inflow Depth = 4.35" for 10-YR event
Inflow = 8.35 cfs @ 12.08 hrs, Volume= 0.676 af
Outflow = 8.35 cfs @ 12.08 hrs, Volume= 0.676 af, Atten= 0%, Lag= 0.0 min
Primary = 8.35 cfs @ 12.08 hrs, Volume= 0.676 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Peak Elev= 228.80' @ 12.08 hrs Surf.Area= 13 sf Storage= 19 cf
Flood Elev= 233.77' Surf.Area= 13 sf Storage= 58 cf

Plug-Flow detention time= 0.3 min calculated for 0.676 af (100% of inflow)
Center-of-Mass det. time= 0.1 min (749.7 - 749.6)

Volume	Invert	Avail.Storage	Storage Description
#1	227.30'	58 cf	**4.00'D x 4.60'H Vertical Cone/Cylinder**

Device	Routing	Invert	Outlet Devices
#1	Primary	227.30'	**24.0" Round Culvert** L= 59.0' Ke= 0.500 Inlet / Outlet Invert= 227.30' / 227.00' S= 0.0051 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 3.14 sf

Primary OutFlow Max=8.34 cfs @ 12.08 hrs HW=228.80' TW=227.05' (Dynamic Tailwater)
└─**1=Culvert** (Barrel Controls 8.34 cfs @ 4.58 fps)

Summary for Pond 111: PR-CB-111

Inflow Area = 0.918 ac,100.00% Impervious, Inflow Depth = 4.35" for 10-YR event
Inflow = 4.12 cfs @ 12.08 hrs, Volume= 0.333 af
Outflow = 4.12 cfs @ 12.08 hrs, Volume= 0.333 af, Atten= 0%, Lag= 0.0 min
Primary = 4.12 cfs @ 12.08 hrs, Volume= 0.333 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Peak Elev= 229.64' @ 12.09 hrs Surf.Area= 13 sf Storage= 16 cf
Flood Elev= 233.80' Surf.Area= 13 sf Storage= 44 cf

Plug-Flow detention time= 0.2 min calculated for 0.333 af (100% of inflow)
Center-of-Mass det. time= 0.2 min (749.7 - 749.5)

Volume	Invert	Avail.Storage	Storage Description
#1	228.40'	44 cf	**4.00'D x 3.50'H Vertical Cone/Cylinder**

Device	Routing	Invert	Outlet Devices
#1	Primary	228.40'	**18.0" Round Culvert** L= 193.0' CPP, mitered to conform to fill, Ke= 0.700 Inlet / Outlet Invert= 228.40' / 227.40' S= 0.0052 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 1.77 sf

Primary OutFlow Max=4.09 cfs @ 12.08 hrs HW=229.64' TW=228.80' (Dynamic Tailwater)
└─**1=Culvert** (Outlet Controls 4.09 cfs @ 3.56 fps)

Summary for Pond 112: PR-CB-112

Inflow Area = 0.918 ac,100.00% Impervious, Inflow Depth = 4.35" for 10-YR event
Inflow = 4.12 cfs @ 12.08 hrs, Volume= 0.333 af
Outflow = 4.11 cfs @ 12.08 hrs, Volume= 0.333 af, Atten= 0%, Lag= 0.0 min
Primary = 4.11 cfs @ 12.08 hrs, Volume= 0.333 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Peak Elev= 230.94' @ 12.10 hrs Surf.Area= 13 sf Storage= 15 cf
Flood Elev= 233.80' Surf.Area= 13 sf Storage= 27 cf

Plug-Flow detention time= 0.2 min calculated for 0.333 af (100% of inflow)
Center-of-Mass det. time= 0.2 min (749.7 - 749.5)

Volume	Invert	Avail.Storage	Storage Description
#1	229.77'	27 cf	**4.00'D x 2.13'H Vertical Cone/Cylinder**

Device	Routing	Invert	Outlet Devices
#1	Primary	229.77'	**24.0" Round Culvert** L= 201.0' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 229.77' / 228.77' S= 0.0050 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 3.14 sf

Primary OutFlow Max=3.96 cfs @ 12.08 hrs HW=230.92' TW=230.35' (Dynamic Tailwater)
└─**1=Culvert** (Outlet Controls 3.96 cfs @ 3.05 fps)

Summary for Pond 113: PR-CB-113

Inflow Area = 1.837 ac,100.00% Impervious, Inflow Depth = 4.35" for 10-YR event
Inflow = 8.23 cfs @ 12.08 hrs, Volume= 0.666 af
Outflow = 8.22 cfs @ 12.08 hrs, Volume= 0.666 af, Atten= 0%, Lag= 0.0 min
Primary = 8.22 cfs @ 12.08 hrs, Volume= 0.666 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Peak Elev= 230.49' @ 12.14 hrs Surf.Area= 13 sf Storage= 23 cf
Flood Elev= 233.80' Surf.Area= 13 sf Storage= 41 cf

Plug-Flow detention time= 0.3 min calculated for 0.666 af (100% of inflow)

Center-of-Mass det. time= 0.1 min (749.7 - 749.6)

Volume	Invert	Avail.Storage	Storage Description
#1	228.67'	41 cf	**4.00'D x 3.23'H Vertical Cone/Cylinder**

Device	Routing	Invert	Outlet Devices
#1	Primary	228.67'	**24.0" Round Culvert** L= 198.0' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 228.67' / 227.67' S= 0.0051 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 3.14 sf

Primary OutFlow Max=7.77 cfs @ 12.08 hrs HW=230.35' TW=229.65' (Dynamic Tailwater)
└─**1=Culvert** (Outlet Controls 7.77 cfs @ 3.72 fps)

Summary for Pond 114: PR-CB-114 (BAFFLE 3)

Inflow Area = 2.789 ac, 96.10% Impervious, Inflow Depth = 4.09" for 10-YR event
Inflow = 12.07 cfs @ 12.08 hrs, Volume= 0.951 af
Outflow = 12.05 cfs @ 12.08 hrs, Volume= 0.951 af, Atten= 0%, Lag= 0.0 min
Primary = 12.05 cfs @ 12.08 hrs, Volume= 0.951 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Peak Elev= 230.07' @ 12.14 hrs Surf.Area= 13 sf Storage= 31 cf
Flood Elev= 233.80' Surf.Area= 13 sf Storage= 54 cf

Plug-Flow detention time= 0.2 min calculated for 0.951 af (100% of inflow)
Center-of-Mass det. time= 0.1 min (761.8 - 761.7)

Volume	Invert	Avail.Storage	Storage Description
#1	227.57'	54 cf	**4.00'D x 4.33'H Vertical Cone/Cylinder**

Device	Routing	Invert	Outlet Devices
#1	Primary	227.57'	**30.0" Round Culvert** L= 80.0' Ke= 0.500 Inlet / Outlet Invert= 227.57' / 227.17' S= 0.0050 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 4.91 sf

Primary OutFlow Max=9.99 cfs @ 12.08 hrs HW=229.65' TW=229.35' (Dynamic Tailwater)
└─**1=Culvert** (Outlet Controls 9.99 cfs @ 3.10 fps)

Summary for Pond 115: PR-CB-115

Inflow Area = 1.120 ac, 82.03% Impervious, Inflow Depth = 3.80" for 10-YR event
Inflow = 4.71 cfs @ 12.08 hrs, Volume= 0.354 af
Outflow = 4.70 cfs @ 12.08 hrs, Volume= 0.354 af, Atten= 0%, Lag= 0.0 min
Primary = 4.70 cfs @ 12.08 hrs, Volume= 0.354 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Peak Elev= 231.10' @ 12.10 hrs Surf.Area= 13 sf Storage= 17 cf
Flood Elev= 233.77' Surf.Area= 13 sf Storage= 51 cf

Plug-Flow detention time= 0.4 min calculated for 0.354 af (100% of inflow)

Center-of-Mass det. time= 0.2 min (781.1 - 780.9)

Volume	Invert	Avail.Storage	Storage Description
#1	229.75'	51 cf	**4.00'D x 4.03'H Vertical Cone/Cylinder**

Device	Routing	Invert	Outlet Devices
#1	Primary	229.75'	**24.0" Round Culvert** L= 201.0' CPP, end-section conforming to fill, Ke= 0.500 Inlet / Outlet Invert= 229.75' / 228.75' S= 0.0050 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 3.14 sf

Primary OutFlow Max=4.37 cfs @ 12.08 hrs HW=231.06' TW=230.60' (Dynamic Tailwater)
↑—**1=Culvert** (Outlet Controls 4.37 cfs @ 2.84 fps)

Summary for Pond 116: PR-CB-116

Inflow Area = 2.121 ac, 84.78% Impervious, Inflow Depth = 3.69" for 10-YR event
Inflow = 8.76 cfs @ 12.08 hrs, Volume= 0.652 af
Outflow = 8.75 cfs @ 12.09 hrs, Volume= 0.652 af, Atten= 0%, Lag= 0.0 min
Primary = 8.75 cfs @ 12.09 hrs, Volume= 0.652 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Peak Elev= 231.10' @ 12.10 hrs Surf.Area= 13 sf Storage= 19 cf
Flood Elev= 233.80' Surf.Area= 13 sf Storage= 44 cf

Plug-Flow detention time= 0.3 min calculated for 0.652 af (100% of inflow)
Center-of-Mass det. time= 0.1 min (785.6 - 785.4)

Volume	Invert	Avail.Storage	Storage Description
#1	229.60'	44 cf	**4.00'D x 3.50'H Vertical Cone/Cylinder**

Device	Routing	Invert	Outlet Devices
#1	Primary	229.60'	**30.0" Round Culvert** L= 294.0' CPP, end-section conforming to fill, Ke= 0.500 Inlet / Outlet Invert= 229.60' / 228.10' S= 0.0051 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 4.91 sf

Primary OutFlow Max=8.53 cfs @ 12.09 hrs HW=231.08' TW=230.05' (Dynamic Tailwater)
↑—**1=Culvert** (Outlet Controls 8.53 cfs @ 4.04 fps)

Summary for Pond 117: PR-CB-117

Inflow Area = 3.039 ac, 89.38% Impervious, Inflow Depth = 3.89" for 10-YR event
Inflow = 12.87 cfs @ 12.08 hrs, Volume= 0.985 af
Outflow = 12.86 cfs @ 12.08 hrs, Volume= 0.985 af, Atten= 0%, Lag= 0.0 min
Primary = 12.86 cfs @ 12.08 hrs, Volume= 0.985 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Peak Elev= 230.10' @ 12.10 hrs Surf.Area= 13 sf Storage= 26 cf
Flood Elev= 233.80' Surf.Area= 13 sf Storage= 73 cf

Plug-Flow detention time= 0.2 min calculated for 0.985 af (100% of inflow)
Center-of-Mass det. time= 0.1 min (773.5 - 773.4)

Volume	Invert	Avail.Storage	Storage Description
#1	228.00'	73 cf	**4.00'D x 5.78'H Vertical Cone/Cylinder**

Device	Routing	Invert	Outlet Devices
#1	Primary	228.00'	**30.0" Round Culvert** L= 200.0' CPP, end-section conforming to fill, Ke= 0.500 Inlet / Outlet Invert= 228.00' / 227.00' S= 0.0050 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 4.91 sf

Primary OutFlow Max=12.19 cfs @ 12.08 hrs HW=230.05' TW=229.40' (Dynamic Tailwater)
└─**1=Culvert** (Outlet Controls 12.19 cfs @ 3.84 fps)

Summary for Pond 118: PR-CB-118

Inflow Area = 3.958 ac, 91.84% Impervious, Inflow Depth = 4.00" for 10-YR event
Inflow = 16.97 cfs @ 12.08 hrs, Volume= 1.318 af
Outflow = 16.95 cfs @ 12.08 hrs, Volume= 1.318 af, Atten= 0%, Lag= 0.0 min
Primary = 16.95 cfs @ 12.08 hrs, Volume= 1.318 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Peak Elev= 229.47' @ 12.10 hrs Surf.Area= 13 sf Storage= 32 cf
Flood Elev= 233.80' Surf.Area= 13 sf Storage= 86 cf

Plug-Flow detention time= 0.2 min calculated for 1.318 af (100% of inflow)
Center-of-Mass det. time= 0.1 min (767.5 - 767.4)

Volume	Invert	Avail.Storage	Storage Description
#1	226.90'	86 cf	**4.00'D x 6.88'H Vertical Cone/Cylinder**

Device	Routing	Invert	Outlet Devices
#1	Primary	226.90'	**30.0" Round Culvert** L= 200.0' CPP, end-section conforming to fill, Ke= 0.500 Inlet / Outlet Invert= 226.90' / 225.90' S= 0.0050 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 4.91 sf

Primary OutFlow Max=15.94 cfs @ 12.08 hrs HW=229.40' TW=228.71' (Dynamic Tailwater)
└─**1=Culvert** (Outlet Controls 15.94 cfs @ 4.04 fps)

Summary for Pond 119: PR-CB-119

Inflow Area = 4.877 ac, 93.38% Impervious, Inflow Depth = 4.06" for 10-YR event
Inflow = 21.08 cfs @ 12.08 hrs, Volume= 1.652 af
Outflow = 21.05 cfs @ 12.08 hrs, Volume= 1.652 af, Atten= 0%, Lag= 0.0 min
Primary = 21.05 cfs @ 12.08 hrs, Volume= 1.652 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs

Peak Elev= 228.79' @ 12.11 hrs Surf.Area= 13 sf Storage= 38 cf
Flood Elev= 233.78' Surf.Area= 13 sf Storage= 100 cf

Plug-Flow detention time= 0.2 min calculated for 1.652 af (100% of inflow)
Center-of-Mass det. time= 0.1 min (763.9 - 763.8)

Volume	Invert	Avail.Storage	Storage Description
#1	225.80'	100 cf	**4.00'D x 7.98'H Vertical Cone/Cylinder**

Device	Routing	Invert	Outlet Devices
#1	Primary	225.80'	**30.0" Round Culvert** L= 201.0' CPP, end-section conforming to fill, Ke= 0.500 Inlet / Outlet Invert= 225.80' / 224.80' S= 0.0050 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 4.91 sf

Primary OutFlow Max=19.92 cfs @ 12.08 hrs HW=228.71' TW=227.90' (Dynamic Tailwater)
└─**1=Culvert** (Outlet Controls 19.92 cfs @ 4.38 fps)

Summary for Pond 120: PR-CB-120

Inflow Area = 6.140 ac, 92.95% Impervious, Inflow Depth = 4.08" for 10-YR event
Inflow = 26.61 cfs @ 12.08 hrs, Volume= 2.086 af
Outflow = 26.58 cfs @ 12.08 hrs, Volume= 2.086 af, Atten= 0%, Lag= 0.0 min
Primary = 26.58 cfs @ 12.08 hrs, Volume= 2.086 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Peak Elev= 228.01' @ 12.11 hrs Surf.Area= 13 sf Storage= 42 cf
Flood Elev= 233.80' Surf.Area= 13 sf Storage= 114 cf

Plug-Flow detention time= 0.2 min calculated for 2.086 af (100% of inflow)
Center-of-Mass det. time= 0.1 min (764.1 - 764.0)

Volume	Invert	Avail.Storage	Storage Description
#1	224.70'	114 cf	**4.00'D x 9.10'H Vertical Cone/Cylinder**

Device	Routing	Invert	Outlet Devices
#1	Primary	224.70'	**36.0" Round Culvert** L= 22.0' CPP, end-section conforming to fill, Ke= 0.500 Inlet / Outlet Invert= 224.70' / 224.60' S= 0.0045 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 7.07 sf

Primary OutFlow Max=24.84 cfs @ 12.08 hrs HW=227.90' TW=227.36' (Dynamic Tailwater)
└─**1=Culvert** (Inlet Controls 24.84 cfs @ 3.51 fps)

Summary for Pond 121: PR-CB-121

Inflow Area = 0.600 ac, 86.27% Impervious, Inflow Depth = 3.90" for 10-YR event
Inflow = 2.57 cfs @ 12.08 hrs, Volume= 0.195 af
Outflow = 2.55 cfs @ 12.08 hrs, Volume= 0.195 af, Atten= 1%, Lag= 0.0 min
Primary = 2.55 cfs @ 12.08 hrs, Volume= 0.195 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Peak Elev= 230.46' @ 12.17 hrs Surf.Area= 13 sf Storage= 23 cf
Flood Elev= 231.50' Surf.Area= 13 sf Storage= 36 cf

Plug-Flow detention time= 0.3 min calculated for 0.195 af (100% of inflow)
Center-of-Mass det. time= 0.3 min (776.2 - 775.9)

Volume	Invert	Avail.Storage	Storage Description
#1	228.60'	36 cf	**4.00'D x 2.90'H Vertical Cone/Cylinder**

Device	Routing	Invert	Outlet Devices
#1	Primary	228.60'	**18.0" Round Culvert** L= 113.0' Ke= 0.500 Inlet / Outlet Invert= 228.60' / 228.00' S= 0.0053 '/' Cc= 0.900 n= 0.012 Concrete pipe, finished, Flow Area= 1.77 sf

Primary OutFlow Max=2.17 cfs @ 12.08 hrs HW=229.67' TW=229.42' (Dynamic Tailwater)
└─**1=Culvert** (Outlet Controls 2.17 cfs @ 2.26 fps)

Summary for Pond 122: PR-CB-122

Inflow Area =	1.067 ac,	88.44% Impervious, Inflow Depth =	3.90"	for 10-YR event
Inflow =	4.55 cfs @	12.08 hrs, Volume=	0.347 af	
Outflow =	4.51 cfs @	12.08 hrs, Volume=	0.347 af,	Atten= 1%, Lag= 0.0 min
Primary =	4.51 cfs @	12.08 hrs, Volume=	0.347 af	

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Peak Elev= 230.42' @ 12.16 hrs Surf.Area= 13 sf Storage= 32 cf
Flood Elev= 233.00' Surf.Area= 13 sf Storage= 64 cf

Plug-Flow detention time= 0.3 min calculated for 0.347 af (100% of inflow)
Center-of-Mass det. time= 0.2 min (776.3 - 776.1)

Volume	Invert	Avail.Storage	Storage Description
#1	227.90'	64 cf	**4.00'D x 5.10'H Vertical Cone/Cylinder**

Device	Routing	Invert	Outlet Devices
#1	Primary	227.90'	**18.0" Round Culvert** L= 113.0' Ke= 0.500 Inlet / Outlet Invert= 227.90' / 227.30' S= 0.0053 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 1.77 sf

Primary OutFlow Max=3.49 cfs @ 12.08 hrs HW=229.41' TW=229.15' (Dynamic Tailwater)
└─**1=Culvert** (Outlet Controls 3.49 cfs @ 2.43 fps)

Summary for Pond 123: PR-CB-123

Inflow Area =	1.304 ac,	89.95% Impervious, Inflow Depth =	3.96"	for 10-YR event
Inflow =	5.57 cfs @	12.08 hrs, Volume=	0.431 af	
Outflow =	5.51 cfs @	12.08 hrs, Volume=	0.431 af,	Atten= 1%, Lag= 0.0 min
Primary =	5.51 cfs @	12.08 hrs, Volume=	0.431 af	

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs

Peak Elev= 230.26' @ 12.16 hrs Surf.Area= 13 sf Storage= 38 cf
Flood Elev= 234.60' Surf.Area= 13 sf Storage= 93 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 0.2 min (772.9 - 772.7)

Volume	Invert	Avail.Storage	Storage Description
#1	227.20'	93 cf	**4.00'D x 7.40'H Vertical Cone/Cylinder**

Device	Routing	Invert	Outlet Devices
#1	Primary	227.20'	**24.0" Round Culvert** L= 113.0' Ke= 0.500 Inlet / Outlet Invert= 227.20' / 226.60' S= 0.0053 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 3.14 sf

Primary OutFlow Max=0.00 cfs @ 12.08 hrs HW=229.13' TW=229.17' (Dynamic Tailwater)
└─**1=Culvert** (Controls 0.00 cfs)

Summary for Pond 125: PR-CB-125

Inflow Area = 1.601 ac, 91.32% Impervious, Inflow Depth = 4.02" for 10-YR event
Inflow = 6.74 cfs @ 12.08 hrs, Volume= 0.536 af
Outflow = 6.66 cfs @ 12.08 hrs, Volume= 0.537 af, Atten= 1%, Lag= 0.0 min
Primary = 6.66 cfs @ 12.08 hrs, Volume= 0.537 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Peak Elev= 230.11' @ 12.14 hrs Surf.Area= 13 sf Storage= 55 cf
Flood Elev= 234.20' Surf.Area= 13 sf Storage= 106 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 1.1 min (771.2 - 770.1)

Volume	Invert	Avail.Storage	Storage Description
#1	225.75'	106 cf	**4.00'D x 8.45'H Vertical Cone/Cylinder**

Device	Routing	Invert	Outlet Devices
#1	Primary	225.75'	**24.0" Round Culvert** L= 127.0' Ke= 0.500 Inlet / Outlet Invert= 225.75' / 225.10' S= 0.0051 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 3.14 sf

Primary OutFlow Max=0.00 cfs @ 12.08 hrs HW=229.29' TW=229.33' (Dynamic Tailwater)
└─**1=Culvert** (Controls 0.00 cfs)

Summary for Pond 126: PR-CB-126

Inflow Area = 2.127 ac, 90.15% Impervious, Inflow Depth = 3.91" for 10-YR event
Inflow = 8.78 cfs @ 12.08 hrs, Volume= 0.694 af
Outflow = 8.70 cfs @ 12.08 hrs, Volume= 0.694 af, Atten= 1%, Lag= 0.0 min
Primary = 8.70 cfs @ 12.08 hrs, Volume= 0.694 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs

Peak Elev= 229.97' @ 12.14 hrs Surf.Area= 13 sf Storage= 62 cf
Flood Elev= 232.85' Surf.Area= 13 sf Storage= 99 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 0.8 min (776.2 - 775.4)

Volume	Invert	Avail.Storage	Storage Description
#1	225.00'	99 cf	**4.00'D x 7.85'H Vertical Cone/Cylinder**

Device	Routing	Invert	Outlet Devices
#1	Primary	225.00'	**24.0" Round Culvert** L= 74.0' Ke= 0.500 Inlet / Outlet Invert= 225.00' / 224.65' S= 0.0047 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 3.14 sf

Primary OutFlow Max=4.96 cfs @ 12.08 hrs HW=229.35' TW=229.24' (Dynamic Tailwater)
└─**1=Culvert** (Inlet Controls 4.96 cfs @ 1.58 fps)

Summary for Pond 127: PR-CB-127

Inflow Area = 0.906 ac, 82.88% Impervious, Inflow Depth = 3.48" for 10-YR event
Inflow = 3.59 cfs @ 12.09 hrs, Volume= 0.263 af
Outflow = 3.50 cfs @ 12.09 hrs, Volume= 0.263 af, Atten= 2%, Lag= 0.1 min
Primary = 3.50 cfs @ 12.09 hrs, Volume= 0.263 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Peak Elev= 230.00' @ 12.13 hrs Surf.Area= 13 sf Storage= 31 cf
Flood Elev= 231.50' Surf.Area= 13 sf Storage= 50 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 0.2 min (793.9 - 793.7)

Volume	Invert	Avail.Storage	Storage Description
#1	227.50'	50 cf	**4.00'D x 4.00'H Vertical Cone/Cylinder**

Device	Routing	Invert	Outlet Devices
#1	Primary	227.50'	**15.0" Round Culvert** L= 54.0' Ke= 0.500 Inlet / Outlet Invert= 227.50' / 224.65' S= 0.0528 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=2.20 cfs @ 12.09 hrs HW=229.46' TW=229.32' (Dynamic Tailwater)
└─**1=Culvert** (Inlet Controls 2.20 cfs @ 1.79 fps)

Summary for Pond 128: PR-CB-128

Inflow Area = 0.223 ac, 46.65% Impervious, Inflow Depth = 2.90" for 10-YR event
Inflow = 0.75 cfs @ 12.09 hrs, Volume= 0.054 af
Outflow = 0.75 cfs @ 12.09 hrs, Volume= 0.054 af, Atten= 0%, Lag= 0.1 min
Primary = 0.75 cfs @ 12.09 hrs, Volume= 0.054 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs

Peak Elev= 217.54' @ 12.09 hrs Surf.Area= 13 sf Storage= 6 cf
Flood Elev= 220.54' Surf.Area= 13 sf Storage= 43 cf

Plug-Flow detention time= 0.6 min calculated for 0.054 af (100% of inflow)
Center-of-Mass det. time= 0.4 min (814.4 - 814.0)

Volume	Invert	Avail.Storage	Storage Description
#1	217.10'	43 cf	**4.00'D x 3.44'H Vertical Cone/Cylinder**

Device	Routing	Invert	Outlet Devices
#1	Primary	217.10'	**12.0" Round Culvert** L= 150.0' Ke= 0.500 Inlet / Outlet Invert= 217.10' / 213.60' S= 0.0233 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=0.75 cfs @ 12.09 hrs HW=217.54' TW=214.14' (Dynamic Tailwater)
└─**1=Culvert** (Inlet Controls 0.75 cfs @ 2.26 fps)

Summary for Pond 129: PR-CB-129

Inflow Area = 0.474 ac, 43.79% Impervious, Inflow Depth = 2.62" for 10-YR event
Inflow = 1.45 cfs @ 12.09 hrs, Volume= 0.103 af
Outflow = 1.45 cfs @ 12.09 hrs, Volume= 0.103 af, Atten= 0%, Lag= 0.1 min
Primary = 1.45 cfs @ 12.09 hrs, Volume= 0.103 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Peak Elev= 214.14' @ 12.09 hrs Surf.Area= 13 sf Storage= 8 cf
Flood Elev= 217.19' Surf.Area= 13 sf Storage= 46 cf

Plug-Flow detention time= 0.3 min calculated for 0.103 af (100% of inflow)
Center-of-Mass det. time= 0.3 min (822.7 - 822.4)

Volume	Invert	Avail.Storage	Storage Description
#1	213.50'	46 cf	**4.00'D x 3.69'H Vertical Cone/Cylinder**

Device	Routing	Invert	Outlet Devices
#1	Primary	213.50'	**12.0" Round Culvert** L= 150.0' Ke= 0.500 Inlet / Outlet Invert= 213.50' / 210.40' S= 0.0207 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=1.45 cfs @ 12.09 hrs HW=214.14' TW=211.13' (Dynamic Tailwater)
└─**1=Culvert** (Inlet Controls 1.45 cfs @ 2.73 fps)

Summary for Pond 130: PR-CB-130

Inflow Area = 0.727 ac, 42.78% Impervious, Inflow Depth = 2.53" for 10-YR event
Inflow = 2.15 cfs @ 12.09 hrs, Volume= 0.153 af
Outflow = 2.15 cfs @ 12.09 hrs, Volume= 0.153 af, Atten= 0%, Lag= 0.1 min
Primary = 2.15 cfs @ 12.09 hrs, Volume= 0.153 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs

Peak Elev= 211.13' @ 12.09 hrs Surf.Area= 13 sf Storage= 10 cf
Flood Elev= 213.83' Surf.Area= 13 sf Storage= 44 cf

Plug-Flow detention time= 0.4 min calculated for 0.153 af (100% of inflow)
Center-of-Mass det. time= 0.2 min (825.6 - 825.4)

Volume	Invert	Avail.Storage	Storage Description
#1	210.30'	44 cf	**4.00'D x 3.53'H Vertical Cone/Cylinder**

Device	Routing	Invert	Outlet Devices
#1	Primary	210.30'	**12.0" Round Culvert** L= 147.0' Ke= 0.500 Inlet / Outlet Invert= 210.30' / 207.90' S= 0.0163 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=2.15 cfs @ 12.09 hrs HW=211.13' TW=208.76' (Dynamic Tailwater)
└─**1=Culvert** (Inlet Controls 2.15 cfs @ 3.10 fps)

Summary for Pond 131: PR-CB-131 (BAFFLE 6)

Inflow Area = 0.980 ac, 42.35% Impervious, Inflow Depth = 2.47" for 10-YR event
Inflow = 2.83 cfs @ 12.09 hrs, Volume= 0.202 af
Outflow = 2.83 cfs @ 12.09 hrs, Volume= 0.201 af, Atten= 0%, Lag= 0.0 min
Primary = 2.83 cfs @ 12.09 hrs, Volume= 0.201 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Peak Elev= 208.76' @ 12.09 hrs Surf.Area= 13 sf Storage= 17 cf
Flood Elev= 210.59' Surf.Area= 13 sf Storage= 40 cf

Plug-Flow detention time= 1.0 min calculated for 0.201 af (100% of inflow)
Center-of-Mass det. time= 0.4 min (828.0 - 827.6)

Volume	Invert	Avail.Storage	Storage Description
#1	207.40'	40 cf	**4.00'D x 3.20'H Vertical Cone/Cylinder**

Device	Routing	Invert	Outlet Devices
#1	Primary	207.80'	**15.0" Round Culvert** L= 129.0' CPP, end-section conforming to fill, Ke= 0.500 Inlet / Outlet Invert= 207.80' / 207.17' S= 0.0049 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=2.83 cfs @ 12.09 hrs HW=208.76' TW=204.93' (Dynamic Tailwater)
└─**1=Culvert** (Barrel Controls 2.83 cfs @ 3.85 fps)

Summary for Pond 132: PR-CB-132

Inflow Area = 0.205 ac, 49.97% Impervious, Inflow Depth = 2.63" for 10-YR event
Inflow = 0.63 cfs @ 12.09 hrs, Volume= 0.045 af
Outflow = 0.63 cfs @ 12.09 hrs, Volume= 0.045 af, Atten= 0%, Lag= 0.1 min
Primary = 0.63 cfs @ 12.09 hrs, Volume= 0.045 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs

Peak Elev= 209.27' @ 12.10 hrs Surf.Area= 13 sf Storage= 7 cf
Flood Elev= 211.30' Surf.Area= 13 sf Storage= 33 cf

Plug-Flow detention time= 0.7 min calculated for 0.045 af (100% of inflow)
Center-of-Mass det. time= 0.6 min (823.3 - 822.7)

Volume	Invert	Avail.Storage	Storage Description
#1	208.70'	38 cf	**4.00'D x 3.02'H Vertical Cone/Cylinder**

Device	Routing	Invert	Outlet Devices
#1	Primary	208.70'	**12.0" Round Culvert** L= 28.0' Ke= 0.500 Inlet / Outlet Invert= 208.70' / 208.55' S= 0.0054 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=0.62 cfs @ 12.09 hrs HW=209.26' TW=209.12' (Dynamic Tailwater)
└─**1=Culvert** (Outlet Controls 0.62 cfs @ 1.95 fps)

Summary for Pond 133: PR-CB-133 (BAFFLE 5)

Inflow Area = 0.731 ac, 28.12% Impervious, Inflow Depth = 1.88" for 10-YR event
Inflow = 1.57 cfs @ 12.09 hrs, Volume= 0.115 af
Outflow = 1.57 cfs @ 12.09 hrs, Volume= 0.115 af, Atten= 0%, Lag= 0.1 min
Primary = 1.57 cfs @ 12.09 hrs, Volume= 0.115 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Peak Elev= 209.12' @ 12.09 hrs Surf.Area= 13 sf Storage= 8 cf
Flood Elev= 211.30' Surf.Area= 13 sf Storage= 36 cf

Plug-Flow detention time= 0.4 min calculated for 0.115 af (100% of inflow)
Center-of-Mass det. time= 0.3 min (844.6 - 844.3)

Volume	Invert	Avail.Storage	Storage Description
#1	208.45'	41 cf	**4.00'D x 3.27'H Vertical Cone/Cylinder**

Device	Routing	Invert	Outlet Devices
#1	Primary	208.45'	**12.0" Round Culvert** L= 67.0' CMP, end-section conforming to fill, Ke= 0.500 Inlet / Outlet Invert= 208.45' / 206.65' S= 0.0269 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=1.57 cfs @ 12.09 hrs HW=209.12' TW=204.93' (Dynamic Tailwater)
└─**1=Culvert** (Inlet Controls 1.57 cfs @ 2.79 fps)

Summary for Pond 134: PR-CB-134

Inflow Area = 0.374 ac, 62.39% Impervious, Inflow Depth = 2.81" for 10-YR event
Inflow = 1.23 cfs @ 12.09 hrs, Volume= 0.087 af
Outflow = 1.23 cfs @ 12.09 hrs, Volume= 0.087 af, Atten= 0%, Lag= 0.1 min
Primary = 1.23 cfs @ 12.09 hrs, Volume= 0.087 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs

Peak Elev= 205.09' @ 12.09 hrs Surf.Area= 13 sf Storage= 9 cf
Flood Elev= 208.00' Surf.Area= 13 sf Storage= 39 cf

Plug-Flow detention time= 0.6 min calculated for 0.087 af (100% of inflow)
Center-of-Mass det. time= 0.4 min (817.4 - 817.0)

Volume	Invert	Avail.Storage	Storage Description
#1	204.40'	39 cf	**4.00'D x 3.07'H Vertical Cone/Cylinder**

Device	Routing	Invert	Outlet Devices
#1	Primary	204.40'	**12.0" Round Culvert** L= 28.0' Ke= 0.500 Inlet / Outlet Invert= 204.40' / 204.25' S= 0.0054 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=1.22 cfs @ 12.09 hrs HW=205.09' TW=204.78' (Dynamic Tailwater)
└─**1=Culvert** (Outlet Controls 1.22 cfs @ 2.99 fps)

Summary for Pond 135: PR-CB-135

Inflow Area = 0.483 ac, 65.25% Impervious, Inflow Depth = 2.98" for 10-YR event
Inflow = 1.67 cfs @ 12.09 hrs, Volume= 0.120 af
Outflow = 1.67 cfs @ 12.09 hrs, Volume= 0.120 af, Atten= 0%, Lag= 0.0 min
Primary = 1.67 cfs @ 12.09 hrs, Volume= 0.120 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Peak Elev= 204.78' @ 12.09 hrs Surf.Area= 13 sf Storage= 8 cf
Flood Elev= 208.01' Surf.Area= 13 sf Storage= 42 cf

Plug-Flow detention time= 0.4 min calculated for 0.120 af (100% of inflow)
Center-of-Mass det. time= 0.3 min (810.1 - 809.8)

Volume	Invert	Avail.Storage	Storage Description
#1	204.15'	42 cf	**4.00'D x 3.32'H Vertical Cone/Cylinder**

Device	Routing	Invert	Outlet Devices
#1	Primary	204.15'	**15.0" Round Culvert** L= 62.0' Ke= 0.500 Inlet / Outlet Invert= 204.15' / 203.00' S= 0.0185 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=1.67 cfs @ 12.09 hrs HW=204.78' TW=0.00' (Dynamic Tailwater)
└─**1=Culvert** (Inlet Controls 1.67 cfs @ 2.70 fps)

Summary for Pond 136: PR-CB-136

Inflow Area = 0.540 ac, 60.69% Impervious, Inflow Depth = 2.97" for 10-YR event
Inflow = 1.87 cfs @ 12.09 hrs, Volume= 0.134 af
Outflow = 1.87 cfs @ 12.09 hrs, Volume= 0.134 af, Atten= 0%, Lag= 0.0 min
Primary = 1.87 cfs @ 12.09 hrs, Volume= 0.134 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs

Peak Elev= 218.52' @ 12.09 hrs Surf.Area= 13 sf Storage= 8 cf
Flood Elev= 223.89' Surf.Area= 13 sf Storage= 76 cf

Plug-Flow detention time= 0.3 min calculated for 0.134 af (100% of inflow)
Center-of-Mass det. time= 0.3 min (812.0 - 811.7)

Volume	Invert	Avail.Storage	Storage Description
#1	217.85'	77 cf	**4.00'D x 6.15'H Vertical Cone/Cylinder**

Device	Routing	Invert	Outlet Devices
#1	Primary	217.85'	**15.0" Round Culvert** L= 300.0' Ke= 0.500 Inlet / Outlet Invert= 217.85' / 211.85' S= 0.0200 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=1.87 cfs @ 12.09 hrs HW=218.52' TW=212.42' (Dynamic Tailwater)
└─**1=Culvert** (Inlet Controls 1.87 cfs @ 2.79 fps)

Summary for Pond 137: PR-CB-137

Inflow Area = 0.320 ac, 61.91% Impervious, Inflow Depth = 2.90" for 10-YR event
Inflow = 1.08 cfs @ 12.09 hrs, Volume= 0.077 af
Outflow = 1.08 cfs @ 12.09 hrs, Volume= 0.077 af, Atten= 0%, Lag= 0.1 min
Primary = 1.08 cfs @ 12.09 hrs, Volume= 0.077 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Peak Elev= 224.69' @ 12.09 hrs Surf.Area= 13 sf Storage= 7 cf
Flood Elev= 228.60' Surf.Area= 13 sf Storage= 56 cf

Plug-Flow detention time= 0.3 min calculated for 0.077 af (100% of inflow)
Center-of-Mass det. time= 0.4 min (814.3 - 814.0)

Volume	Invert	Avail.Storage	Storage Description
#1	224.15'	56 cf	**4.00'D x 4.45'H Vertical Cone/Cylinder**

Device	Routing	Invert	Outlet Devices
#1	Primary	224.15'	**12.0" Round Culvert** L= 30.0' Ke= 0.500 Inlet / Outlet Invert= 224.15' / 222.70' S= 0.0483 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=1.08 cfs @ 12.09 hrs HW=224.69' TW=219.51' (Dynamic Tailwater)
└─**1=Culvert** (Inlet Controls 1.08 cfs @ 2.50 fps)

Summary for Pond F1: FOREBAY #1

Inflow Area = 7.498 ac, 71.70% Impervious, Inflow Depth = 3.37" for 10-YR event
Inflow = 27.34 cfs @ 12.09 hrs, Volume= 2.108 af
Outflow = 26.52 cfs @ 12.11 hrs, Volume= 1.997 af, Atten= 3%, Lag= 1.3 min
Primary = 26.52 cfs @ 12.11 hrs, Volume= 1.997 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs

Peak Elev= 214.39' @ 12.11 hrs Surf.Area= 4,784 sf Storage= 7,672 cf
Flood Elev= 215.00' Surf.Area= 5,456 sf Storage= 10,809 cf

Plug-Flow detention time= 55.8 min calculated for 1.997 af (95% of inflow)
Center-of-Mass det. time= 25.8 min (807.6 - 781.8)

Volume	Invert	Avail.Storage	Storage Description
#1	212.33'	10,809 cf	**Custom Stage Data (Irregular)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
212.33	2,719	316.0	0	0	2,719
213.00	3,367	329.0	2,035	2,035	3,420
214.00	4,383	348.0	3,864	5,899	4,498
215.00	5,456	366.0	4,910	10,809	5,582

Device	Routing	Invert	Outlet Devices
#1	Primary	213.75'	**20.0' long x 2.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 Coef. (English) 2.54 2.61 2.61 2.60 2.66 2.70 2.77 2.89 2.88 2.85 3.07 3.20 3.32

Primary OutFlow Max=26.50 cfs @ 12.11 hrs HW=214.39' TW=213.24' (Dynamic Tailwater)
↑—**1=Broad-Crested Rectangular Weir** (Weir Controls 26.50 cfs @ 2.08 fps)

Summary for Pond OS 1: OIL/WATER SEPARATOR #1

Inflow	=	3.75 cfs @	12.70 hrs,	Volume=	0.558 af
Outflow	=	3.75 cfs @	12.70 hrs,	Volume=	0.558 af, Atten= 0%, Lag= 0.0 min
Primary	=	3.75 cfs @	12.70 hrs,	Volume=	0.558 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Peak Elev= 228.19' @ 12.70 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	224.20'	**12.0" Round Culvert** L= 11.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 224.20' / 224.15' S= 0.0045 '/' Cc= 0.900 n= 0.012, Flow Area= 0.79 sf

Primary OutFlow Max=3.77 cfs @ 12.70 hrs HW=227.99' TW=226.99' (Dynamic Tailwater)
↑—**1=Culvert** (Inlet Controls 3.77 cfs @ 4.80 fps)

Summary for Pond OS 3: OIL/WATER SEPARATOR #3

Inflow	=	2.44 cfs @	12.56 hrs,	Volume=	0.313 af
Outflow	=	2.44 cfs @	12.56 hrs,	Volume=	0.313 af, Atten= 0%, Lag= 0.0 min
Primary	=	2.44 cfs @	12.56 hrs,	Volume=	0.313 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs

Peak Elev= 229.64' @ 12.13 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	226.30'	**12.0" Round Culvert** L= 11.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 226.30' / 226.25' S= 0.0045 '/' Cc= 0.900 n= 0.012, Flow Area= 0.79 sf

Primary OutFlow Max=2.47 cfs @ 12.56 hrs HW=228.84' TW=228.42' (Dynamic Tailwater)
└─**1=Culvert** (Inlet Controls 2.47 cfs @ 3.14 fps)

Summary for Pond OS 4: OIL/WATER SEPARATOR #4

Inflow	=	3.44 cfs @	13.16 hrs, Volume=	0.295 af
Outflow	=	3.44 cfs @	13.16 hrs, Volume=	0.295 af, Atten= 0%, Lag= 0.0 min
Primary	=	3.44 cfs @	13.16 hrs, Volume=	0.295 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Peak Elev= 229.46' @ 12.13 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	224.10'	**12.0" Round Culvert** L= 20.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 224.10' / 224.00' S= 0.0050 '/' Cc= 0.900 n= 0.012, Flow Area= 0.79 sf

Primary OutFlow Max=3.42 cfs @ 13.16 hrs HW=228.72' TW=227.90' (Dynamic Tailwater)
└─**1=Culvert** (Inlet Controls 3.42 cfs @ 4.36 fps)

Summary for Pond OS2: OIL/WATER SEPARATOR #2

Inflow	=	2.14 cfs @	12.06 hrs, Volume=	0.429 af
Outflow	=	2.14 cfs @	12.06 hrs, Volume=	0.429 af, Atten= 0%, Lag= 0.0 min
Primary	=	2.14 cfs @	12.06 hrs, Volume=	0.429 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Peak Elev= 215.38' @ 12.10 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	212.55'	**12.0" Round 12"** L= 11.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 212.55' / 212.50' S= 0.0045 '/' Cc= 0.900 n= 0.012, Flow Area= 0.79 sf

Primary OutFlow Max=1.93 cfs @ 12.06 hrs HW=215.25' TW=214.99' (Dynamic Tailwater)
└─**1=12"** (Inlet Controls 1.93 cfs @ 2.46 fps)

Summary for Pond P1: INFILTRATION POND #1

Inflow Area = 8.990 ac, 59.81% Impervious, Inflow Depth = 2.88" for 10-YR event
Inflow = 28.63 cfs @ 12.11 hrs, Volume= 2.161 af
Outflow = 4.27 cfs @ 12.62 hrs, Volume= 2.161 af, Atten= 85%, Lag= 30.6 min
Discarded = 3.30 cfs @ 12.62 hrs, Volume= 2.036 af
Primary = 0.97 cfs @ 12.62 hrs, Volume= 0.126 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Peak Elev= 214.07' @ 12.62 hrs Surf.Area= 20,424 sf Storage= 32,796 cf
Flood Elev= 216.00' Surf.Area= 30,421 sf Storage= 78,800 cf

Plug-Flow detention time= 77.5 min calculated for 2.161 af (100% of inflow)
Center-of-Mass det. time= 77.5 min (889.8 - 812.3)

Volume	Invert	Avail.Storage	Storage Description
#1	212.33'	78,800 cf	**Custom Stage Data (Irregular)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
212.33	17,341	577.0	0	0	17,341
213.00	18,505	589.0	12,006	12,006	18,521
214.00	20,300	607.0	19,396	31,402	20,335
215.00	22,153	626.0	21,220	52,622	22,299
216.00	30,421	743.0	26,178	78,800	35,064

Device	Routing	Invert	Outlet Devices
#1	Primary	215.00'	**10.0' long x 8.0' breadth Emergency Overflow** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50 Coef. (English) 2.43 2.54 2.70 2.69 2.68 2.68 2.66 2.64 2.64 2.64 2.65 2.65 2.66 2.66 2.68 2.70 2.74
#2	Primary	212.33'	**24.0" Round Culvert** L= 38.0' CPP, end-section conforming to fill, Ke= 0.500 Inlet / Outlet Invert= 212.33' / 209.00' S= 0.0876 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 3.14 sf
#3	Device 2	213.40'	**8.0" Vert. Orifice/Grate** C= 0.600
#4	Device 2	214.75'	**4.0' long Sharp-Crested Rectangular Weir** 2 End Contraction(s)
#5	Discarded	212.33'	**5.000 in/hr Exfiltration over Surface area** Conductivity to Groundwater Elevation = 208.33' Phase-In= 0.01'
#6	Device 2	215.75'	**48.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads

Discarded OutFlow Max=3.30 cfs @ 12.62 hrs HW=214.07' (Free Discharge)
└─**5=Exfiltration** (Controls 3.30 cfs)

Primary OutFlow Max=0.97 cfs @ 12.62 hrs HW=214.07' TW=205.17' (Dynamic Tailwater)
├─**1=Emergency Overflow** (Controls 0.00 cfs)
└─**2=Culvert** (Passes 0.97 cfs of 13.02 cfs potential flow)
  ├─**3=Orifice/Grate** (Orifice Controls 0.97 cfs @ 2.79 fps)
  ├─**4=Sharp-Crested Rectangular Weir** (Controls 0.00 cfs)
  └─**6=Orifice/Grate** (Controls 0.00 cfs)

Summary for Pond P2: STORMTECH #2

Inflow Area = 6.140 ac, 92.95% Impervious, Inflow Depth = 4.08" for 10-YR event
Inflow = 26.53 cfs @ 12.09 hrs, Volume= 2.086 af
Outflow = 8.36 cfs @ 12.44 hrs, Volume= 1.957 af, Atten= 68%, Lag= 21.5 min
Primary = 8.36 cfs @ 12.44 hrs, Volume= 1.957 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Peak Elev= 227.37' @ 12.39 hrs Surf.Area= 11,774 sf Storage= 36,961 cf
Flood Elev= 229.85' Surf.Area= 11,774 sf Storage= 51,388 cf

Plug-Flow detention time= 158.1 min calculated for 1.957 af (94% of inflow)
Center-of-Mass det. time= 124.1 min (888.5 - 764.4)

Volume	Invert	Avail.Storage	Storage Description
#1A	223.10'	18,726 cf	**92.08'W x 127.87'L x 6.75'H Field A** 79,477 cf Overall - 32,661 cf Embedded = 46,816 cf x 40.0% Voids
#2A	223.85'	32,661 cf	**ADS_StormTech MC-4500 +Cap** x 300 Inside #1 Effective Size= 90.4"W x 60.0"H => 26.46 sf x 4.03'L = 106.5 cf Overall Size= 100.0"W x 60.0"H x 4.33'L with 0.31' Overlap 10 Rows of 30 Chambers Cap Storage= +35.7 cf x 2 x 10 rows = 714.0 cf
		51,388 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Primary	223.85'	**36.0" Round Culvert** L= 36.0' Ke= 0.500 Inlet / Outlet Invert= 223.85' / 223.65' S= 0.0056 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 7.07 sf
#2	Device 1	228.50'	**5.0' long Sharp-Crested Rectangular Weir** 2 End Contraction(s)
#3	Device 1	224.04'	**12.0" Vert. Orifice/Grate** C= 0.600
#4	Device 1	226.00'	**12.0" Vert. Orifice/Grate** C= 0.600

Primary OutFlow Max=8.38 cfs @ 12.44 hrs HW=227.35' TW=225.67' (Dynamic Tailwater)
└─**1=Culvert** (Passes 8.38 cfs of 42.18 cfs potential flow)
  ├─**2=Sharp-Crested Rectangular Weir** (Controls 0.00 cfs)
  ├─**3=Orifice/Grate** (Orifice Controls 4.90 cfs @ 6.24 fps)
  └─**4=Orifice/Grate** (Orifice Controls 3.49 cfs @ 4.44 fps)

Summary for Pond P20: EX POND 20

Inflow Area = 45.402 ac, 8.55% Impervious, Inflow Depth = 1.19" for 10-YR event
Inflow = 37.66 cfs @ 12.31 hrs, Volume= 4.497 af
Outflow = 11.64 cfs @ 12.90 hrs, Volume= 4.473 af, Atten= 69%, Lag= 35.3 min
Primary = 11.64 cfs @ 12.90 hrs, Volume= 4.473 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Peak Elev= 212.58' @ 12.91 hrs Surf.Area= 110,564 sf Storage= 61,708 cf

Plug-Flow detention time= 147.1 min calculated for 4.473 af (99% of inflow)
Center-of-Mass det. time= 144.5 min (1,032.8 - 888.3)

Volume	Invert	Avail.Storage	Storage Description
#1	212.00'	1,102,616 cf	**Custom Stage Data (Irregular)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
212.00	102,870	2,123.6	0	0	102,870
214.00	130,656	2,082.1	232,973	232,973	117,382
216.00	153,355	2,221.0	283,708	516,681	165,140
218.00	459,959	4,942.0	585,935	1,102,616	1,716,163

Device	Routing	Invert	Outlet Devices
#1	Primary	212.00'	**60.0 deg x 10.0' long x 4.00' rise Sharp-Crested Vee/Trap Weir** Cv= 2.53 (C= 3.16)

Primary OutFlow Max=11.64 cfs @ 12.90 hrs HW=212.58' TW=212.35' (Dynamic Tailwater)
└─**1=Sharp-Crested Vee/Trap Weir** (Weir Controls 11.64 cfs @ 1.95 fps)

Summary for Pond P3: Gravel Det/Infil Pond #3

Inflow Area = 18.767 ac, 97.69% Impervious, Inflow Depth = 4.03" for 10-YR event
Inflow = 40.61 cfs @ 12.19 hrs, Volume= 6.297 af
Outflow = 7.71 cfs @ 13.43 hrs, Volume= 6.297 af, Atten= 81%, Lag= 74.3 min
Discarded = 7.53 cfs @ 13.43 hrs, Volume= 6.273 af
Primary = 0.19 cfs @ 13.43 hrs, Volume= 0.024 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Peak Elev= 225.21' @ 13.43 hrs Surf.Area= 52,650 sf Storage= 72,263 cf
Flood Elev= 229.25' Surf.Area= 52,650 sf Storage= 162,991 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 84.6 min (935.3 - 850.7)

Volume	Invert	Avail.Storage	Storage Description
#1	222.00'	162,991 cf	**Custom Stage Data (Irregular)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
222.00	52,650	1,350.0	0.0	0	0	52,650
229.25	52,650	1,350.0	42.7	162,991	162,991	62,438

Device	Routing	Invert	Outlet Devices
#1	Primary	222.00'	**36.0" Round Culvert** L= 18.0' Ke= 0.500 Inlet / Outlet Invert= 222.00' / 221.90' S= 0.0056 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 7.07 sf
#2	Discarded	222.00'	**5.000 in/hr Exfiltration over Surface area** Conductivity to Groundwater Elevation = 208.33'
#3	Device 1	224.85'	**4.0" Vert. Orifice/Grate** C= 0.600
#4	Device 1	227.30'	**16.0" W x 3.0" H Vert. Orifice/Grate** C= 0.600
#5	Device 1	228.19'	**4.0' long Sharp-Crested Rectangular Weir** 2 End Contraction(s)

Discarded OutFlow Max=7.53 cfs @ 13.43 hrs HW=225.21' (Free Discharge)
└─**2=Exfiltration** (Controls 7.53 cfs)

Primary OutFlow Max=0.19 cfs @ 13.43 hrs HW=225.21' TW=222.34' (Dynamic Tailwater)
└─**1=Culvert** (Passes 0.19 cfs of 36.88 cfs potential flow)
  ├─**3=Orifice/Grate** (Orifice Controls 0.19 cfs @ 2.14 fps)
  ├─**4=Orifice/Grate** (Controls 0.00 cfs)
  └─**5=Sharp-Crested Rectangular Weir** (Controls 0.00 cfs)

Summary for Pond P30: POND AREA

Inflow Area = 7.223 ac, 36.63% Impervious, Inflow Depth = 2.57" for 10-YR event
Inflow = 12.21 cfs @ 12.29 hrs, Volume= 1.544 af
Outflow = 3.84 cfs @ 12.87 hrs, Volume= 1.515 af, Atten= 69%, Lag= 34.7 min
Primary = 0.19 cfs @ 13.10 hrs, Volume= 0.410 af
Secondary = 3.66 cfs @ 12.87 hrs, Volume= 1.105 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Peak Elev= 206.54' @ 12.87 hrs Surf.Area= 38,540 sf Storage= 30,215 cf
Flood Elev= 207.00' Surf.Area= 59,963 sf Storage= 52,900 cf

Plug-Flow detention time= 303.3 min calculated for 1.515 af (98% of inflow)
Center-of-Mass det. time= 292.1 min (1,124.9 - 832.8)

Volume	Invert	Avail.Storage	Storage Description
#1	204.00'	52,900 cf	**Custom Stage Data (Irregular)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
204.00	288	67.0	0	0	288
206.00	19,682	1,312.0	14,901	14,901	136,918
207.00	59,963	1,555.0	38,000	52,900	192,377

Device	Routing	Invert	Outlet Devices
#1	Primary	204.70'	**5.6" W x 2.0" H Box Culvert** L= 85.0' Ke= 0.500 Inlet / Outlet Invert= 204.70' / 204.69' S= 0.0001 '/' Cc= 0.900

			n= 0.012 Concrete pipe, finished, Flow Area= 0.08 sf
#2	Secondary	205.65'	**24.0" Round Culvert** L= 126.0' Ke= 0.500 Inlet / Outlet Invert= 205.65' / 205.00' S= 0.0052 '/' Cc= 0.900 n= 0.012 Concrete pipe, finished, Flow Area= 3.14 sf

Primary OutFlow Max=0.19 cfs @ 13.10 hrs HW=206.52' TW=205.06' (Dynamic Tailwater)
└─**1=Culvert** (Outlet Controls 0.19 cfs @ 2.41 fps)

Secondary OutFlow Max=3.66 cfs @ 12.87 hrs HW=206.54' TW=0.00' (Dynamic Tailwater)
└─**2=Culvert** (Barrel Controls 3.66 cfs @ 4.01 fps)

Summary for Pond P4: STORMTECH

Inflow Area = 5.822 ac, 91.87% Impervious, Inflow Depth = 3.93" for 10-YR event
Inflow = 23.85 cfs @ 12.09 hrs, Volume= 1.908 af
Outflow = 21.49 cfs @ 12.13 hrs, Volume= 1.908 af, Atten= 10%, Lag= 2.5 min
Discarded = 0.41 cfs @ 12.13 hrs, Volume= 0.895 af
Primary = 21.09 cfs @ 12.13 hrs, Volume= 1.013 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Peak Elev= 229.17' @ 12.13 hrs Surf.Area= 6,476 sf Storage= 26,685 cf
Flood Elev= 229.70' Surf.Area= 6,476 sf Storage= 28,052 cf

Plug-Flow detention time= 312.7 min calculated for 1.908 af (100% of inflow)
Center-of-Mass det. time= 312.7 min (1,086.3 - 773.5)

Volume	Invert	Avail.Storage	Storage Description
#1A	222.95'	10,442 cf	**73.92'W x 87.62'L x 6.75'H Field A** 43,715 cf Overall - 17,610 cf Embedded = 26,106 cf x 40.0% Voids
#2A	223.70'	17,610 cf	**ADS_StormTech MC-4500 +Cap** x 160 Inside #1 Effective Size= 90.4"W x 60.0"H => 26.46 sf x 4.03'L = 106.5 cf Overall Size= 100.0"W x 60.0"H x 4.33'L with 0.31' Overlap 8 Rows of 20 Chambers Cap Storage= +35.7 cf x 2 x 8 rows = 571.2 cf
		28,052 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Primary	223.60'	**30.0" Round Culvert** L= 79.0' Ke= 0.500 Inlet / Outlet Invert= 223.60' / 221.90' S= 0.0215 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 4.91 sf
#2	Device 1	226.87'	**20.0" W x 3.0" H Vert. Orifice/Grate** C= 0.600
#3	Device 1	227.32'	**6.0" Vert. Orifice/Grate** C= 0.600
#4	Device 1	228.15'	**5.0' long Sharp-Crested Vee/Trap Weir** Cv= 2.62 (C= 3.28)
#5	Discarded	222.95'	**1.200 in/hr Exfiltration over Surface area** Conductivity to Groundwater Elevation = 218.00' Phase-In= 0.01'

Discarded OutFlow Max=0.41 cfs @ 12.13 hrs HW=229.17' (Free Discharge)
└─**5=Exfiltration** (Controls 0.41 cfs)

Primary OutFlow Max=21.06 cfs @ 12.13 hrs HW=229.17' TW=223.64' (Dynamic Tailwater)
└─**1=Culvert** (Passes 21.06 cfs of 49.13 cfs potential flow)
  ├─**2=Orifice/Grate** (Orifice Controls 2.96 cfs @ 7.10 fps)
  ├─**3=Orifice/Grate** (Orifice Controls 1.20 cfs @ 6.09 fps)
  └─**4=Sharp-Crested Vee/Trap Weir** (Weir Controls 16.90 cfs @ 3.31 fps)

Summary for Pond P5: FOCALPOINT POND #5

Inflow Area = 2.040 ac, 30.44% Impervious, Inflow Depth = 1.91" for 10-YR event
Inflow = 4.41 cfs @ 12.09 hrs, Volume= 0.325 af
Outflow = 4.41 cfs @ 12.09 hrs, Volume= 0.325 af, Atten= 0%, Lag= 0.0 min
Primary = 4.41 cfs @ 12.09 hrs, Volume= 0.325 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Peak Elev= 204.93' @ 12.09 hrs Surf.Area= 1,135 sf Storage= 2 cf
Flood Elev= 211.00' Surf.Area= 1,135 sf Storage= 11,123 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 0.0 min (837.6 - 837.6)

Volume	Invert	Avail.Storage	Storage Description
#1	207.17'	10,612 cf	**Custom Stage Data (Irregular)** Listed below (Recalc) -Impervious
#2	204.92'	511 cf	**Custom Stage Data (Irregular)** Listed below (Recalc)
		11,123 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
207.17	1,135	161.0	0	0	1,135
208.25	1,135	1,965.0	1,226	1,226	306,341
209.00	2,890	320.0	1,459	2,685	605,460
210.00	3,935	359.0	3,399	6,084	607,594
211.00	5,149	412.0	4,528	10,612	610,869

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
204.92	1,135	161.0	0.0	0	0	1,135
207.17	1,135	161.0	20.0	511	511	1,497

Device	Routing	Invert	Outlet Devices
#1	Primary	204.92'	**12.0" Round Culvert** L= 54.0' Ke= 0.500 Inlet / Outlet Invert= 204.92' / 204.65' S= 0.0050 '/' Cc= 0.900 n= 0.012 Concrete pipe, finished, Flow Area= 0.79 sf
#2	Primary	204.92'	**100.000 in/hr Exfiltration over Surface area** Conductivity to Groundwater Elevation = 204.91'
#3	Device 1	208.68'	**12.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=4.40 cfs @ 12.09 hrs HW=204.93' TW=205.90' (Dynamic Tailwater)
—**1=Culvert** (Controls 0.00 cfs)
—**3=Orifice/Grate** (Controls 0.00 cfs)
—**2=Exfiltration** (Controls 4.40 cfs)

Summary for Pond P6: DETENTION POND #6

Inflow Area = 18.767 ac, 97.69% Impervious, Inflow Depth = 4.18" for 10-YR event
Inflow = 60.36 cfs @ 12.09 hrs, Volume= 6.539 af
Outflow = 40.61 cfs @ 12.19 hrs, Volume= 6.297 af, Atten= 33%, Lag= 6.0 min
Primary = 40.61 cfs @ 12.19 hrs, Volume= 6.297 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Peak Elev= 226.02' @ 12.19 hrs Surf.Area= 21,973 sf Storage= 48,070 cf
Flood Elev= 227.65' Surf.Area= 21,973 sf Storage= 66,354 cf

Plug-Flow detention time= 85.4 min calculated for 6.297 af (96% of inflow)
Center-of-Mass det. time= 59.5 min (850.7 - 791.3)

Volume	Invert	Avail.Storage	Storage Description
#1A	222.65'	32,425 cf	**36.50'W x 602.00'L x 5.00'H Field A**
			109,865 cf Overall - 33,929 cf Embedded = 75,936 cf x 42.7% Voids
#2A	223.65'	33,929 cf	**CMP Round 36** x 240 Inside #1
			Effective Size= 36.0"W x 36.0"H => 7.07 sf x 20.00'L = 141.4 cf
			Overall Size= 36.0"W x 36.0"H x 20.00'L
			8 Rows of 30 Chambers
		66,354 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Primary	223.65'	**48.0" Round Culvert** L= 80.0' Ke= 0.500
			Inlet / Outlet Invert= 223.65' / 222.50' S= 0.0144 '/' Cc= 0.900
			n= 0.012 Corrugated PP, smooth interior, Flow Area= 12.57 sf
#2	Device 1	223.75'	**5.0' long Sharp-Crested Rectangular Weir** 2 End Contraction(s)

Primary OutFlow Max=40.59 cfs @ 12.19 hrs HW=226.02' TW=223.12' (Dynamic Tailwater)
—**1=Culvert** (Inlet Controls 40.59 cfs @ 5.24 fps)
—**2=Sharp-Crested Rectangular Weir**(Passes 40.59 cfs of 50.79 cfs potential flow)

Summary for Link AP1: AP 1

Inflow Area = 61.851 ac, 52.01% Impervious, Inflow Depth = 0.92" for 10-YR event
Inflow = 22.29 cfs @ 12.54 hrs, Volume= 4.717 af
Primary = 22.29 cfs @ 12.54 hrs, Volume= 4.717 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs

Summary for Link AP2: AP2

Inflow Area = 54.479 ac, 7.12% Impervious, Inflow Depth > 1.25" for 10-YR event
Inflow = 16.14 cfs @ 12.60 hrs, Volume= 5.679 af
Primary = 16.14 cfs @ 12.60 hrs, Volume= 5.679 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs

Time span=0.00-72.00 hrs, dt=0.01 hrs, 7201 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment200S: PR-WS-200 Runoff Area=54,993 sf 91.28% Impervious Runoff Depth=5.34"
Tc=6.0 min CN=96 Runoff=7.10 cfs 0.562 af

Subcatchment201S: PR-WS-201 Runoff Area=40,063 sf 100.00% Impervious Runoff Depth=5.57"
Tc=6.0 min CN=98 Runoff=5.24 cfs 0.427 af

Subcatchment202S: PR-WS-202 Runoff Area=39,991 sf 100.00% Impervious Runoff Depth=5.57"
Tc=6.0 min CN=98 Runoff=5.23 cfs 0.426 af

Subcatchment203S: PR-WS-203 Runoff Area=40,000 sf 100.00% Impervious Runoff Depth=5.57"
Tc=6.0 min CN=98 Runoff=5.23 cfs 0.426 af

Subcatchment204S: PR-WS-204 Runoff Area=92,399 sf 84.78% Impervious Runoff Depth=4.88"
Tc=6.0 min CN=92 Runoff=11.41 cfs 0.863 af

Subcatchment205S: PR-WS-205 Runoff Area=48,766 sf 82.03% Impervious Runoff Depth=5.00"
Tc=6.0 min CN=93 Runoff=6.10 cfs 0.466 af

Subcatchment206S: PR-WS-206 Runoff Area=48,599 sf 82.63% Impervious Runoff Depth=4.88"
Tc=6.0 min CN=92 Runoff=6.00 cfs 0.454 af

Subcatchment207S: PR-WS-207 Runoff Area=49,476 sf 90.49% Impervious Runoff Depth=5.22"
Tc=6.0 min CN=95 Runoff=6.33 cfs 0.494 af

Subcatchment208S: PR-WS-208 Runoff Area=41,144 sf 100.00% Impervious Runoff Depth=5.57"
Tc=6.0 min CN=98 Runoff=5.38 cfs 0.439 af

Subcatchment209S: PR-WS-209 Runoff Area=40,000 sf 100.00% Impervious Runoff Depth=5.57"
Tc=6.0 min CN=98 Runoff=5.23 cfs 0.426 af

Subcatchment210S: PR-WS-210 Runoff Area=40,000 sf 100.00% Impervious Runoff Depth=5.57"
Tc=6.0 min CN=98 Runoff=5.23 cfs 0.426 af

Subcatchment211S: PR-WS-211 Runoff Area=40,000 sf 100.00% Impervious Runoff Depth=5.57"
Tc=6.0 min CN=98 Runoff=5.23 cfs 0.426 af

Subcatchment212S: PR-WS-212 Runoff Area=41,505 sf 88.57% Impervious Runoff Depth=4.77"
Tc=6.0 min CN=91 Runoff=5.05 cfs 0.379 af

Subcatchment213S: PR-WS-213 Runoff Area=33,855 sf 100.00% Impervious Runoff Depth=5.57"
Tc=6.0 min CN=98 Runoff=4.42 cfs 0.361 af

Subcatchment214S: PR-WS-214 Runoff Area=67,711 sf 100.00% Impervious Runoff Depth=5.57"
Tc=6.0 min CN=98 Runoff=8.85 cfs 0.722 af

Subcatchment215S: PR-WS-215 Runoff Area=67,711 sf 100.00% Impervious Runoff Depth=5.57"
Tc=6.0 min CN=98 Runoff=8.85 cfs 0.722 af

Subcatchment216S: PR-WS-216 Runoff Area=67,711 sf 100.00% Impervious Runoff Depth=5.57"
Tc=6.0 min CN=98 Runoff=8.85 cfs 0.722 af

Subcatchment217S: PR-WS-217 Runoff Area=38,056 sf 100.00% Impervious Runoff Depth=5.57"
Tc=6.0 min CN=98 Runoff=4.97 cfs 0.406 af

Subcatchment218S: PR-WS-218 Runoff Area=37,994 sf 100.00% Impervious Runoff Depth=5.57"
Tc=6.0 min CN=98 Runoff=4.97 cfs 0.405 af

Subcatchment219S: PR-WS-219 Runoff Area=67,711 sf 100.00% Impervious Runoff Depth=5.57"
Tc=6.0 min CN=98 Runoff=8.85 cfs 0.722 af

Subcatchment220S: PR-WS-220 Runoff Area=67,711 sf 100.00% Impervious Runoff Depth=5.57"
Tc=6.0 min CN=98 Runoff=8.85 cfs 0.722 af

Subcatchment221S: PR-WS-221 Runoff Area=67,711 sf 100.00% Impervious Runoff Depth=5.57"
Tc=6.0 min CN=98 Runoff=8.85 cfs 0.722 af

Subcatchment222S: PR-WS-222 Runoff Area=33,855 sf 100.00% Impervious Runoff Depth=5.57"
Tc=6.0 min CN=98 Runoff=4.42 cfs 0.361 af

Subcatchment223S: PR-WS-223 Runoff Area=1,866,795 sf 9.05% Impervious Runoff Depth=1.96"
Flow Length=997' Tc=20.1 min CN=62 Runoff=62.90 cfs 7.005 af

Subcatchment224: PR-WS-224 Runoff Area=14,288 sf 0.00% Impervious Runoff Depth=0.73"
Tc=6.0 min CN=45 Runoff=0.16 cfs 0.020 af

Subcatchment225S: PR-WS-225 Runoff Area=19,269 sf 28.51% Impervious Runoff Depth=2.84"
Tc=6.0 min CN=72 Runoff=1.47 cfs 0.105 af

Subcatchment226S: PR-WS-226 Runoff Area=19,830 sf 27.44% Impervious Runoff Depth=2.75"
Tc=6.0 min CN=71 Runoff=1.46 cfs 0.104 af

Subcatchment227S: PR-WS-227 Runoff Area=16,653 sf 24.76% Impervious Runoff Depth=2.75"
Tc=6.0 min CN=71 Runoff=1.23 cfs 0.087 af

Subcatchment228S: PR-WS-228 Runoff Area=11,178 sf 36.88% Impervious Runoff Depth=3.12"
Tc=6.0 min CN=75 Runoff=0.94 cfs 0.067 af

Subcatchment229S: PR-WS-229 Runoff Area=9,737 sf 25.24% Impervious Runoff Depth=2.93"
Tc=6.0 min CN=73 Runoff=0.77 cfs 0.055 af

Subcatchment230S: PR-WS-230 Runoff Area=7,265 sf 33.56% Impervious Runoff Depth=2.93"
Tc=6.0 min CN=73 Runoff=0.57 cfs 0.041 af

Subcatchment231: PR-WS-231 Runoff Area=22,919 sf 19.61% Impervious Runoff Depth=2.48"
Tc=6.0 min CN=68 Runoff=1.51 cfs 0.109 af

Subcatchment232S: PR-WS-232 Runoff Area=8,930 sf 49.97% Impervious Runoff Depth=3.71"
Tc=6.0 min CN=81 Runoff=0.89 cfs 0.063 af

Subcatchment233S: PR-WS-233 Runoff Area=39,444 sf 82.88% Impervious Runoff Depth=4.66"
Tc=6.0 min CN=90 Runoff=4.73 cfs 0.352 af

Subcatchment234S: PR-WS-234 Runoff Area=22,893 sf 86.59% Impervious Runoff Depth=4.77"
Tc=6.0 min CN=91 Runoff=2.79 cfs 0.209 af

Subcatchment235S: PR-WS-235 Runoff Area=12,940 sf 97.32% Impervious Runoff Depth=5.45"
Tc=6.0 min CN=97 Runoff=1.68 cfs 0.135 af

Subcatchment236S: PR-WS-236 Runoff Area=10,360 sf 96.72% Impervious Runoff Depth=5.45"
Tc=6.0 min CN=97 Runoff=1.35 cfs 0.108 af

Subcatchment237S: PR-WS-237 Runoff Area=20,311 sf 91.25% Impervious Runoff Depth=5.11"
Tc=6.0 min CN=94 Runoff=2.57 cfs 0.198 af

Subcatchment238S: PR-WS-238 Runoff Area=26,147 sf 86.27% Impervious Runoff Depth=5.11"
Tc=6.0 min CN=94 Runoff=3.31 cfs 0.256 af

Subcatchment239S: PR WS 239 Runoff Area=64,953 sf 0.00% Impervious Runoff Depth=2.13"
Tc=6.0 min CN=64 Runoff=3.61 cfs 0.265 af

Subcatchment241S: PR-WS-241 Runoff Area=110,908 sf 0.00% Impervious Runoff Depth=1.88"
Flow Length=622' Tc=9.5 min CN=61 Runoff=4.69 cfs 0.399 af

Subcatchment242S: PR-WS-242 Runoff Area=821,557 sf 0.78% Impervious Runoff Depth=1.88"
Flow Length=1,847' Tc=45.3 min CN=61 Runoff=18.08 cfs 2.954 af

Subcatchment243S: PR-WS-243 Runoff Area=395,402 sf 0.00% Impervious Runoff Depth=2.48"
Flow Length=842' Tc=21.5 min CN=68 Runoff=16.96 cfs 1.873 af

Subcatchment244S: PR-WS-244 Runoff Area=9,698 sf 46.65% Impervious Runoff Depth=4.02"
Flow Length=689' Tc=6.0 min CN=84 Runoff=1.03 cfs 0.075 af

Subcatchment245S: PR-WS-245 Runoff Area=74,363 sf 0.00% Impervious Runoff Depth=1.72"
Flow Length=796' Tc=16.3 min CN=59 Runoff=2.32 cfs 0.244 af

Subcatchment246: PR-WS-246 Runoff Area=9,183 sf 22.13% Impervious Runoff Depth=2.57"
Tc=6.0 min CN=69 Runoff=0.63 cfs 0.045 af

Subcatchment247: PR-WS-247 Runoff Area=5,530 sf 36.42% Impervious Runoff Depth=3.03"
Tc=6.0 min CN=74 Runoff=0.45 cfs 0.032 af

Subcatchment248: PR-WS-248 Runoff Area=4,776 sf 75.02% Impervious Runoff Depth=4.77"
Tc=6.0 min CN=91 Runoff=0.58 cfs 0.044 af

Subcatchment249: PR-WS-249 Runoff Area=16,271 sf 62.39% Impervious Runoff Depth=3.92"
Tc=6.0 min CN=83 Runoff=1.70 cfs 0.122 af

Subcatchment250: PR-WS-250 Runoff Area=11,042 sf 41.11% Impervious Runoff Depth=3.31"
Tc=6.0 min CN=77 Runoff=0.99 cfs 0.070 af

Subcatchment251: PR-WS-251 Runoff Area=11,006 sf 40.88% Impervious Runoff Depth=3.41"
Tc=6.0 min CN=78 Runoff=1.01 cfs 0.072 af

Subcatchment252: PR-WS-252 Runoff Area=10,963 sf 41.27% Impervious Runoff Depth=3.41"
Tc=6.0 min CN=78 Runoff=1.01 cfs 0.072 af

Subcatchment253: PR-WS-253 Runoff Area=9,609 sf 58.93% Impervious Runoff Depth=4.23"
Tc=6.0 min CN=86 Runoff=1.07 cfs 0.078 af

Subcatchment254: PR-WS-254 Runoff Area=202,242 sf 36.55% Impervious Runoff Depth=3.92"
Flow Length=761' Tc=24.3 min CN=83 Runoff=13.16 cfs 1.515 af

Subcatchment255: PR-WS-255 Runoff Area=13,921 sf 61.91% Impervious Runoff Depth=4.02"
Tc=6.0 min CN=84 Runoff=1.49 cfs 0.107 af

Reach R1: OVERLAND TO AP Avg. Flow Depth=0.51' Max Vel=3.49 fps Inflow=25.36 cfs 7.380 af
n=0.030 L=569.9' S=0.0211 '/' Capacity=109.49 cfs Outflow=25.31 cfs 7.380 af

Reach R2: OVERLAND THOUGH Avg. Flow Depth=0.75' Max Vel=1.55 fps Inflow=29.95 cfs 2.491 af
n=0.030 L=1,089.0' S=0.0025 '/' Capacity=37.50 cfs Outflow=20.03 cfs 2.490 af

Reach R3: OVERLAND THOUGH Avg. Flow Depth=0.13' Max Vel=4.86 fps Inflow=4.69 cfs 0.399 af
n=0.030 L=228.0' S=0.2456 '/' Capacity=373.94 cfs Outflow=4.68 cfs 0.399 af

Reach R6: OVERLAND THOUGH Avg. Flow Depth=0.13' Max Vel=1.73 fps Inflow=2.32 cfs 0.244 af
n=0.030 L=2,009.0' S=0.0329 '/' Capacity=136.76 cfs Outflow=1.57 cfs 0.244 af

Pond 001: PR-DMH-001 Peak Elev=228.62' Storage=32 cf Inflow=18.15 cfs 1.414 af
30.0" Round Culvert n=0.012 L=201.0' S=0.0060 '/' Outflow=18.14 cfs 1.414 af

Pond 002: PR-DMH-002 Peak Elev=234.71' Storage=22 cf Inflow=4.97 cfs 0.406 af
18.0" Round Culvert n=0.012 L=237.0' S=0.0051 '/' Outflow=4.96 cfs 0.406 af

Pond 003: PR-DMH-003 Peak Elev=234.09' Storage=30 cf Inflow=13.81 cfs 1.127 af
24.0" Round Culvert n=0.012 L=237.0' S=0.0051 '/' Outflow=13.80 cfs 1.127 af

Pond 004: PR-DMH-004 Peak Elev=232.93' Storage=32 cf Inflow=22.65 cfs 1.849 af
30.0" Round Culvert n=0.012 L=237.0' S=0.0051 '/' Outflow=22.64 cfs 1.849 af

Pond 005: PR-DMH-005 Peak Elev=231.47' Storage=30 cf Inflow=31.49 cfs 2.571 af
36.0" Round Culvert n=0.012 L=237.0' S=0.0101 '/' Outflow=31.49 cfs 2.571 af

Pond 006: PR-DMH-006 Peak Elev=229.21' Storage=33 cf Inflow=35.91 cfs 2.932 af
36.0" Round Culvert n=0.012 L=32.0' S=0.0922 '/' Outflow=35.91 cfs 2.932 af

Pond 007: PR-DMH-007 Peak Elev=233.52' Storage=30 cf Inflow=4.97 cfs 0.405 af
18.0" Round Culvert n=0.012 L=237.0' S=0.0051 '/' Outflow=4.95 cfs 0.405 af

Pond 008: PR-DMH-008 Peak Elev=232.74' Storage=26 cf Inflow=13.80 cfs 1.127 af
30.0" Round Culvert n=0.012 L=237.0' S=0.0051 '/' Outflow=13.79 cfs 1.127 af

Pond 009: PR-DMH-009 Peak Elev=231.83' Storage=31 cf Inflow=22.64 cfs 1.849 af
36.0" Round Culvert n=0.012 L=237.0' S=0.0051 '/' Outflow=22.64 cfs 1.849 af

Pond 010: PR-DMH-010 Peak Elev=230.76' Storage=33 cf Inflow=31.48 cfs 2.570 af
36.0" Round Culvert n=0.012 L=237.0' S=0.0063 '/' Outflow=31.48 cfs 2.570 af

Pond 011: PR-DMH-011 Peak Elev=229.11' Storage=33 cf Inflow=35.90 cfs 2.931 af
36.0" Round Culvert n=0.012 L=32.0' S=0.0469 '/' Outflow=35.90 cfs 2.931 af

Pond 012: PR-DMH-012 Peak Elev=231.60' Storage=64 cf Inflow=6.95 cfs 0.562 af
24.0" Round Culvert n=0.012 L=127.0' S=0.0051 '/' Outflow=6.88 cfs 0.562 af

Pond 013: PR-DMH-013 (BAFFLE 4) Peak Elev=230.64' Storage=77 cf Inflow=15.90 cfs 1.258 af
30.0" Round Culvert n=0.012 L=9.0' S=0.0056 '/' Outflow=15.87 cfs 1.258 af

Pond 015: PR-DMH-015 Peak Elev=230.90' Storage=48 cf Inflow=15.31 cfs 1.232 af
30.0" Round Culvert n=0.012 L=48.0' S=0.0077 '/' Outflow=15.27 cfs 1.232 af

Pond 024: PR-DMH-024 Peak Elev=219.63' Storage=9 cf Inflow=1.49 cfs 0.107 af
15.0" Round Culvert n=0.012 L=196.0' S=0.0051 '/' Outflow=1.48 cfs 0.107 af

Pond 025: PR-DMH-025 Peak Elev=224.07' Storage=44 cf Inflow=29.49 cfs 1.703 af
36.0" Round Culvert n=0.012 L=111.0' S=0.1063 '/' Outflow=29.49 cfs 1.703 af

Pond 026: PR-DMH-026 Peak Elev=212.38' Storage=49 cf Inflow=29.49 cfs 1.703 af
36.0" Round Culvert n=0.012 L=42.0' S=0.0190 '/' Outflow=29.48 cfs 1.703 af

Pond 027: PR-DMH-027 Peak Elev=229.85' Storage=75 cf Inflow=15.20 cfs 1.232 af
30.0" Round Culvert n=0.012 L=12.0' S=0.0083 '/' Outflow=15.19 cfs 1.231 af

Pond 028: PR-DMH-028 Peak Elev=230.21' Storage=41 cf Inflow=18.18 cfs 1.414 af
24.0" Round Culvert n=0.012 L=154.0' S=0.0052 '/' Outflow=18.15 cfs 1.414 af

Pond 029: PR-DMH-029 Peak Elev=211.30' Storage=29 cf Inflow=29.48 cfs 1.703 af
36.0" Round Culvert n=0.012 L=101.0' S=0.0099 '/' Outflow=29.48 cfs 1.703 af

Pond 031: PR-DMH-031 Peak Elev=228.85' Storage=55 cf Inflow=33.72 cfs 2.704 af
Primary=31.03 cfs 2.032 af Secondary=5.64 cfs 0.673 af Outflow=33.66 cfs 2.704 af

Pond 032: PR-DMH-032 Peak Elev=228.57' Storage=59 cf Inflow=33.66 cfs 2.704 af
36.0" Round Culvert n=0.012 L=16.0' S=0.0062 '/' Outflow=33.62 cfs 2.704 af

Pond 033: DMH 033 Peak Elev=216.56' Storage=76 cf Inflow=36.21 cfs 2.815 af
Primary=33.50 cfs 2.324 af Secondary=2.71 cfs 0.490 af Outflow=36.18 cfs 2.814 af

Pond 034: DMH 034 Peak Elev=215.62' Storage=40 cf Inflow=36.18 cfs 2.814 af
36.0" Round Culvert n=0.012 L=15.0' S=0.0047 '/' Outflow=36.15 cfs 2.814 af

Pond 035: PR-DMH-035 Peak Elev=230.53' Storage=49 cf Inflow=15.27 cfs 1.232 af
Primary=13.49 cfs 0.859 af Secondary=1.83 cfs 0.373 af Outflow=15.23 cfs 1.232 af

Pond 036: PR-DMH-036 Peak Elev=230.23' Storage=51 cf Inflow=15.23 cfs 1.232 af
30.0" Round Culvert n=0.012 L=96.0' S=0.0224 '/' Outflow=15.20 cfs 1.232 af

Pond 037: PR-DMH-037 Peak Elev=230.23' Storage=73 cf Inflow=15.87 cfs 1.258 af
Primary=14.12 cfs 0.907 af Secondary=5.48 cfs 0.352 af Outflow=15.85 cfs 1.259 af

Pond 038: PR-DMH-038 Peak Elev=229.90' Storage=75 cf Inflow=15.85 cfs 1.259 af
30.0" Round Culvert n=0.012 L=16.0' S=0.0062 '/' Outflow=15.84 cfs 1.258 af

Pond 039: PR-DMH-039 Peak Elev=212.56' Storage=0.000 af Inflow=2.55 cfs 0.185 af
15.0" Round Culvert n=0.012 L=274.0' S=0.0201 '/' Outflow=2.55 cfs 0.185 af

Pond 040: PR-DMH-040 Peak Elev=207.05' Storage=0.000 af Inflow=2.55 cfs 0.185 af
15.0" Round Culvert n=0.012 L=33.0' S=0.0076 '/' Outflow=2.55 cfs 0.185 af

Pond 100: PR-CB-100 Peak Elev=232.39' Storage=47 cf Inflow=11.98 cfs 0.920 af
24.0" Round Culvert n=0.012 L=206.0' S=0.0051 '/' Outflow=11.88 cfs 0.920 af

Pond 101: PR-CB-101 Peak Elev=231.62' Storage=52 cf Inflow=18.21 cfs 1.414 af
24.0" Round Culvert n=0.012 L=83.0' S=0.0054 '/' Outflow=18.18 cfs 1.414 af

Pond 102: PR-CB-102 Peak Elev=227.79' Storage=38 cf Inflow=31.64 cfs 2.488 af
30.0" Round Culvert n=0.012 L=275.0' S=0.0200 '/' Outflow=31.64 cfs 2.488 af

Pond 103: PR-CB-103 Peak Elev=227.94' Storage=36 cf Inflow=1.46 cfs 0.104 af
12.0" Round Culvert n=0.012 L=28.0' S=0.0089 '/' Outflow=1.45 cfs 0.104 af

Pond 104: PR-CB-104 Peak Elev=222.61' Storage=43 cf Inflow=33.79 cfs 2.642 af
30.0" Round Culvert n=0.012 L=162.0' S=0.0179 '/' Outflow=33.78 cfs 2.642 af

Pond 105: PR-CB-105 Peak Elev=222.66' Storage=40 cf Inflow=0.94 cfs 0.067 af
12.0" Round Culvert n=0.012 L=28.0' S=0.0089 '/' Outflow=0.96 cfs 0.067 af

Pond 106: PR-CB-106 Peak Elev=220.73' Storage=50 cf Inflow=35.00 cfs 2.738 af
30.0" Round Culvert n=0.012 L=135.0' S=0.0189 '/' Outflow=35.11 cfs 2.738 af

Pond 107: PR-CB-107 Peak Elev=220.76' Storage=45 cf Inflow=0.57 cfs 0.041 af
12.0" Round Culvert n=0.012 L=28.0' S=0.0089 '/' Outflow=0.79 cfs 0.041 af

Pond 108: PR-CB-108 Peak Elev=218.68' Storage=79 cf Inflow=35.74 cfs 2.783 af
36.0" Round Culvert n=0.012 L=28.0' S=0.0054 '/' Outflow=35.87 cfs 2.783 af

Pond 109: PR-CB-109 (BAFFLE 2) Peak Elev=217.64' Storage=79 cf Inflow=36.32 cfs 2.815 af
36.0" Round Culvert n=0.012 L=64.0' S=0.0047 '/' Outflow=36.21 cfs 2.815 af

Pond 110: PR-CB-110 Peak Elev=229.05' Storage=22 cf Inflow=10.60 cfs 0.865 af
24.0" Round Culvert n=0.012 L=59.0' S=0.0051 '/' Outflow=10.60 cfs 0.865 af

Pond 111: PR-CB-111 Peak Elev=229.90' Storage=19 cf Inflow=5.23 cfs 0.426 af
18.0" Round Culvert n=0.012 L=193.0' S=0.0052 '/' Outflow=5.22 cfs 0.426 af

Pond 112: PR-CB-112 Peak Elev=231.89' Storage=27 cf Inflow=5.23 cfs 0.426 af
24.0" Round Culvert n=0.012 L=201.0' S=0.0050 '/' Outflow=5.18 cfs 0.426 af

Pond 113: PR-CB-113 Peak Elev=231.74' Storage=39 cf Inflow=10.41 cfs 0.853 af
24.0" Round Culvert n=0.012 L=198.0' S=0.0051 '/' Outflow=10.34 cfs 0.853 af

Pond 114: PR-CB-114 (BAFFLE 3) Peak Elev=231.25' Storage=46 cf Inflow=15.39 cfs 1.232 af
30.0" Round Culvert n=0.012 L=80.0' S=0.0050 '/' Outflow=15.31 cfs 1.232 af

Pond 115: PR-CB-115 Peak Elev=232.57' Storage=35 cf Inflow=6.10 cfs 0.466 af
24.0" Round Culvert n=0.012 L=201.0' S=0.0050 '/' Outflow=5.98 cfs 0.466 af

Pond 116: PR-CB-116 Peak Elev=232.45' Storage=36 cf Inflow=11.41 cfs 0.863 af
30.0" Round Culvert n=0.012 L=294.0' S=0.0051 '/' Outflow=11.34 cfs 0.863 af

Pond 117: PR-CB-117 Peak Elev=232.19' Storage=53 cf Inflow=16.57 cfs 1.289 af
30.0" Round Culvert n=0.012 L=200.0' S=0.0050 '/' Outflow=16.41 cfs 1.289 af

Pond 118: PR-CB-118 Peak Elev=231.75' Storage=61 cf Inflow=21.63 cfs 1.716 af
30.0" Round Culvert n=0.012 L=200.0' S=0.0050 '/' Outflow=21.52 cfs 1.716 af

Pond 119: PR-CB-119 Peak Elev=230.94' Storage=65 cf Inflow=26.75 cfs 2.143 af
30.0" Round Culvert n=0.012 L=201.0' S=0.0050 '/' Outflow=26.69 cfs 2.143 af

Pond 120: PR-CB-120 Peak Elev=229.68' Storage=63 cf Inflow=33.79 cfs 2.704 af
36.0" Round Culvert n=0.012 L=22.0' S=0.0045 '/' Outflow=33.72 cfs 2.704 af

Pond 121: PR-CB-121 Peak Elev=232.23' Storage=36 cf Inflow=3.31 cfs 0.256 af
18.0" Round Culvert n=0.012 L=113.0' S=0.0053 '/' Outflow=3.25 cfs 0.256 af

Pond 122: PR-CB-122 Peak Elev=232.12' Storage=53 cf Inflow=5.78 cfs 0.454 af
18.0" Round Culvert n=0.012 L=113.0' S=0.0053 '/' Outflow=5.69 cfs 0.454 af

Pond 123: PR-CB-123 Peak Elev=231.76' Storage=57 cf Inflow=7.05 cfs 0.562 af
24.0" Round Culvert n=0.012 L=113.0' S=0.0053 '/' Outflow=6.95 cfs 0.562 af

Pond 125: PR-CB-125 Peak Elev=231.42' Storage=71 cf Inflow=8.57 cfs 0.697 af
24.0" Round Culvert n=0.012 L=127.0' S=0.0051 '/' Outflow=8.49 cfs 0.698 af

Pond 126: PR-CB-126 Peak Elev=231.14' Storage=77 cf Inflow=11.27 cfs 0.906 af
24.0" Round Culvert n=0.012 L=74.0' S=0.0047 '/' Outflow=11.23 cfs 0.906 af

Pond 127: PR-CB-127 Peak Elev=231.19' Storage=46 cf Inflow=4.73 cfs 0.352 af
15.0" Round Culvert n=0.012 L=54.0' S=0.0528 '/' Outflow=4.68 cfs 0.352 af

Pond 128: PR-CB-128 Peak Elev=217.63' Storage=7 cf Inflow=1.03 cfs 0.075 af
12.0" Round Culvert n=0.012 L=150.0' S=0.0233 '/' Outflow=1.03 cfs 0.075 af

Pond 129: PR-CB-129 Peak Elev=214.30' Storage=10 cf Inflow=2.04 cfs 0.146 af
12.0" Round Culvert n=0.012 L=150.0' S=0.0207 '/' Outflow=2.04 cfs 0.146 af

Pond 130: PR-CB-130 Peak Elev=211.45' Storage=14 cf Inflow=3.05 cfs 0.218 af
12.0" Round Culvert n=0.012 L=147.0' S=0.0163 '/' Outflow=3.05 cfs 0.218 af

Pond 131: PR-CB-131 (BAFFLE 6) Peak Elev=209.03' Storage=21 cf Inflow=4.04 cfs 0.288 af
15.0" Round Culvert n=0.012 L=129.0' S=0.0049 '/' Outflow=4.04 cfs 0.288 af

Pond 132: PR-CB-132 Peak Elev=209.47' Storage=10 cf Inflow=0.89 cfs 0.063 af
12.0" Round Culvert n=0.012 L=28.0' S=0.0054 '/' Outflow=0.88 cfs 0.063 af

Pond 133: PR-CB-133 (BAFFLE 5) Peak Elev=209.35' Storage=11 cf Inflow=2.39 cfs 0.172 af
12.0" Round Culvert n=0.012 L=67.0' S=0.0269 '/' Outflow=2.39 cfs 0.172 af

Pond 134: PR-CB-134 Peak Elev=205.25' Storage=11 cf Inflow=1.70 cfs 0.122 af
12.0" Round Culvert n=0.012 L=28.0' S=0.0054 '/' Outflow=1.70 cfs 0.122 af

Pond 135: PR-CB-135 Peak Elev=204.90' Storage=9 cf Inflow=2.28 cfs 0.165 af
15.0" Round Culvert n=0.012 L=62.0' S=0.0185 '/' Outflow=2.28 cfs 0.165 af

Pond 136: PR-CB-136 Peak Elev=218.66' Storage=10 cf Inflow=2.55 cfs 0.185 af
15.0" Round Culvert n=0.012 L=300.0' S=0.0200 '/' Outflow=2.55 cfs 0.185 af

Pond 137: PR-CB-137 Peak Elev=224.80' Storage=8 cf Inflow=1.49 cfs 0.107 af
12.0" Round Culvert n=0.012 L=30.0' S=0.0483 '/' Outflow=1.49 cfs 0.107 af

Pond F1: FOREBAY #1 Peak Elev=214.65' Storage=8,979 cf Inflow=36.15 cfs 2.814 af
Outflow=35.07 cfs 2.703 af

Pond OS 1: OIL/WATER SEPARATOR #1 Peak Elev=230.65' Inflow=5.64 cfs 0.673 af
12.0" Round Culvert n=0.012 L=11.0' S=0.0045 '/' Outflow=5.64 cfs 0.673 af

Pond OS 3: OIL/WATER SEPARATOR #3 Peak Elev=230.39' Inflow=1.83 cfs 0.373 af
12.0" Round Culvert n=0.012 L=11.0' S=0.0045 '/' Outflow=1.83 cfs 0.373 af

Pond OS 4: OIL/WATER SEPARATOR #4 Peak Elev=230.80' Inflow=5.48 cfs 0.352 af
12.0" Round Culvert n=0.012 L=20.0' S=0.0050 '/' Outflow=5.48 cfs 0.352 af

Pond OS2: OIL/WATER SEPARATOR #2 Peak Elev=216.11' Inflow=2.71 cfs 0.490 af
12.0" Round Culvert n=0.012 L=11.0' S=0.0045 '/' Outflow=2.71 cfs 0.490 af

Pond P1: INFILTRATION POND #1 Peak Elev=214.65' Storage=44,994 cf Inflow=38.61 cfs 2.967 af
Discarded=3.77 cfs 2.611 af Primary=1.61 cfs 0.356 af Outflow=5.38 cfs 2.967 af

Pond P2: STORMTECH #2 Peak Elev=228.46' Storage=44,706 cf Inflow=33.62 cfs 2.704 af
Outflow=11.02 cfs 2.576 af

Pond P20: EX POND 20 Peak Elev=212.93' Storage=101,204 cf Inflow=66.05 cfs 7.404 af
Outflow=25.36 cfs 7.380 af

Pond P3: Gravel Det/Infil Pond #3 Peak Elev=226.24' Storage=95,308 cf Inflow=55.17 cfs 8.197 af
Discarded=7.98 cfs 8.051 af Primary=0.46 cfs 0.147 af Outflow=8.45 cfs 8.198 af

Pond P30: POND AREA Peak Elev=206.79' Storage=41,541 cf Inflow=17.07 cfs 2.179 af
Primary=0.20 cfs 0.432 af Secondary=5.73 cfs 1.719 af Outflow=5.92 cfs 2.150 af

Pond P4: STORMTECH Peak Elev=229.48' Storage=27,473 cf Inflow=31.01 cfs 2.490 af
Discarded=0.42 cfs 0.933 af Primary=29.49 cfs 1.557 af Outflow=29.90 cfs 2.490 af

Pond P5: FOCALPOINT POND #5 Peak Elev=204.93' Storage=3 cf Inflow=6.57 cfs 0.480 af
Outflow=6.57 cfs 0.480 af

Pond P6: DETENTION POND #6 Peak Elev=226.50' Storage=55,250 cf Inflow=78.51 cfs 8.439 af
Outflow=55.17 cfs 8.197 af

Link AP1: AP 1 Inflow=36.78 cfs 7.573 af
Primary=36.78 cfs 7.573 af

Link AP2: AP2 Inflow=33.61 cfs 9.252 af
Primary=33.61 cfs 9.252 af

Total Runoff Area = 116.330 ac Runoff Volume = 28.957 af Average Runoff Depth = 2.99"
69.01% Pervious = 80.283 ac 30.99% Impervious = 36.047 ac

Time span=0.00-72.00 hrs, dt=0.01 hrs, 7201 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment200S: PR-WS-200 Runoff Area=54,993 sf 91.28% Impervious Runoff Depth=6.48"
Tc=6.0 min CN=96 Runoff=8.54 cfs 0.682 af

Subcatchment201S: PR-WS-201 Runoff Area=40,063 sf 100.00% Impervious Runoff Depth=6.72"
Tc=6.0 min CN=98 Runoff=6.28 cfs 0.515 af

Subcatchment202S: PR-WS-202 Runoff Area=39,991 sf 100.00% Impervious Runoff Depth=6.72"
Tc=6.0 min CN=98 Runoff=6.27 cfs 0.514 af

Subcatchment203S: PR-WS-203 Runoff Area=40,000 sf 100.00% Impervious Runoff Depth=6.72"
Tc=6.0 min CN=98 Runoff=6.27 cfs 0.514 af

Subcatchment204S: PR-WS-204 Runoff Area=92,399 sf 84.78% Impervious Runoff Depth=6.02"
Tc=6.0 min CN=92 Runoff=13.89 cfs 1.063 af

Subcatchment205S: PR-WS-205 Runoff Area=48,766 sf 82.03% Impervious Runoff Depth=6.13"
Tc=6.0 min CN=93 Runoff=7.40 cfs 0.572 af

Subcatchment206S: PR-WS-206 Runoff Area=48,599 sf 82.63% Impervious Runoff Depth=6.02"
Tc=6.0 min CN=92 Runoff=7.30 cfs 0.559 af

Subcatchment207S: PR-WS-207 Runoff Area=49,476 sf 90.49% Impervious Runoff Depth=6.37"
Tc=6.0 min CN=95 Runoff=7.64 cfs 0.603 af

Subcatchment208S: PR-WS-208 Runoff Area=41,144 sf 100.00% Impervious Runoff Depth=6.72"
Tc=6.0 min CN=98 Runoff=6.45 cfs 0.529 af

Subcatchment209S: PR-WS-209 Runoff Area=40,000 sf 100.00% Impervious Runoff Depth=6.72"
Tc=6.0 min CN=98 Runoff=6.27 cfs 0.514 af

Subcatchment210S: PR-WS-210 Runoff Area=40,000 sf 100.00% Impervious Runoff Depth=6.72"
Tc=6.0 min CN=98 Runoff=6.27 cfs 0.514 af

Subcatchment211S: PR-WS-211 Runoff Area=40,000 sf 100.00% Impervious Runoff Depth=6.72"
Tc=6.0 min CN=98 Runoff=6.27 cfs 0.514 af

Subcatchment212S: PR-WS-212 Runoff Area=41,505 sf 88.57% Impervious Runoff Depth=5.90"
Tc=6.0 min CN=91 Runoff=6.17 cfs 0.468 af

Subcatchment213S: PR-WS-213 Runoff Area=33,855 sf 100.00% Impervious Runoff Depth=6.72"
Tc=6.0 min CN=98 Runoff=5.31 cfs 0.435 af

Subcatchment214S: PR-WS-214 Runoff Area=67,711 sf 100.00% Impervious Runoff Depth=6.72"
Tc=6.0 min CN=98 Runoff=10.61 cfs 0.871 af

Subcatchment215S: PR-WS-215 Runoff Area=67,711 sf 100.00% Impervious Runoff Depth=6.72"
Tc=6.0 min CN=98 Runoff=10.61 cfs 0.871 af

Subcatchment216S: PR-WS-216 Runoff Area=67,711 sf 100.00% Impervious Runoff Depth=6.72"
Tc=6.0 min CN=98 Runoff=10.61 cfs 0.871 af

Subcatchment217S: PR-WS-217 Runoff Area=38,056 sf 100.00% Impervious Runoff Depth=6.72"
Tc=6.0 min CN=98 Runoff=5.97 cfs 0.489 af

Subcatchment218S: PR-WS-218 Runoff Area=37,994 sf 100.00% Impervious Runoff Depth=6.72"
Tc=6.0 min CN=98 Runoff=5.96 cfs 0.489 af

Subcatchment219S: PR-WS-219 Runoff Area=67,711 sf 100.00% Impervious Runoff Depth=6.72"
Tc=6.0 min CN=98 Runoff=10.61 cfs 0.871 af

Subcatchment220S: PR-WS-220 Runoff Area=67,711 sf 100.00% Impervious Runoff Depth=6.72"
Tc=6.0 min CN=98 Runoff=10.61 cfs 0.871 af

Subcatchment221S: PR-WS-221 Runoff Area=67,711 sf 100.00% Impervious Runoff Depth=6.72"
Tc=6.0 min CN=98 Runoff=10.61 cfs 0.871 af

Subcatchment222S: PR-WS-222 Runoff Area=33,855 sf 100.00% Impervious Runoff Depth=6.72"
Tc=6.0 min CN=98 Runoff=5.31 cfs 0.435 af

Subcatchment223S: PR-WS-223 Runoff Area=1,866,795 sf 9.05% Impervious Runoff Depth=2.77"
Flow Length=997' Tc=20.1 min CN=62 Runoff=91.23 cfs 9.899 af

Subcatchment224: PR-WS-224 Runoff Area=14,288 sf 0.00% Impervious Runoff Depth=1.22"
Tc=6.0 min CN=45 Runoff=0.35 cfs 0.033 af

Subcatchment225S: PR-WS-225 Runoff Area=19,269 sf 28.51% Impervious Runoff Depth=3.80"
Tc=6.0 min CN=72 Runoff=1.97 cfs 0.140 af

Subcatchment226S: PR-WS-226 Runoff Area=19,830 sf 27.44% Impervious Runoff Depth=3.69"
Tc=6.0 min CN=71 Runoff=1.97 cfs 0.140 af

Subcatchment227S: PR-WS-227 Runoff Area=16,653 sf 24.76% Impervious Runoff Depth=3.69"
Tc=6.0 min CN=71 Runoff=1.65 cfs 0.118 af

Subcatchment228S: PR-WS-228 Runoff Area=11,178 sf 36.88% Impervious Runoff Depth=4.11"
Tc=6.0 min CN=75 Runoff=1.24 cfs 0.088 af

Subcatchment229S: PR-WS-229 Runoff Area=9,737 sf 25.24% Impervious Runoff Depth=3.90"
Tc=6.0 min CN=73 Runoff=1.02 cfs 0.073 af

Subcatchment230S: PR-WS-230 Runoff Area=7,265 sf 33.56% Impervious Runoff Depth=3.90"
Tc=6.0 min CN=73 Runoff=0.76 cfs 0.054 af

Subcatchment231: PR-WS-231 Runoff Area=22,919 sf 19.61% Impervious Runoff Depth=3.38"
Tc=6.0 min CN=68 Runoff=2.08 cfs 0.148 af

Subcatchment232S: PR-WS-232 Runoff Area=8,930 sf 49.97% Impervious Runoff Depth=4.77"
Tc=6.0 min CN=81 Runoff=1.13 cfs 0.081 af

Subcatchment233S: PR-WS-233 Runoff Area=39,444 sf 82.88% Impervious Runoff Depth=5.78"
Tc=6.0 min CN=90 Runoff=5.79 cfs 0.436 af

Subcatchment234S: PR-WS-234 Runoff Area=22,893 sf 86.59% Impervious Runoff Depth=5.90"
Tc=6.0 min CN=91 Runoff=3.40 cfs 0.258 af

Subcatchment235S: PR-WS-235 Runoff Area=12,940 sf 97.32% Impervious Runoff Depth=6.60"
Tc=6.0 min CN=97 Runoff=2.02 cfs 0.163 af

Subcatchment236S: PR-WS-236 Runoff Area=10,360 sf 96.72% Impervious Runoff Depth=6.60"
Tc=6.0 min CN=97 Runoff=1.62 cfs 0.131 af

Subcatchment237S: PR-WS-237 Runoff Area=20,311 sf 91.25% Impervious Runoff Depth=6.25"
Tc=6.0 min CN=94 Runoff=3.11 cfs 0.243 af

Subcatchment238S: PR-WS-238 Runoff Area=26,147 sf 86.27% Impervious Runoff Depth=6.25"
Tc=6.0 min CN=94 Runoff=4.00 cfs 0.313 af

Subcatchment239S: PR WS 239 Runoff Area=64,953 sf 0.00% Impervious Runoff Depth=2.97"
Tc=6.0 min CN=64 Runoff=5.13 cfs 0.369 af

Subcatchment241S: PR-WS-241 Runoff Area=110,908 sf 0.00% Impervious Runoff Depth=2.67"
Flow Length=622' Tc=9.5 min CN=61 Runoff=6.88 cfs 0.567 af

Subcatchment242S: PR-WS-242 Runoff Area=821,557 sf 0.78% Impervious Runoff Depth=2.67"
Flow Length=1,847' Tc=45.3 min CN=61 Runoff=26.51 cfs 4.201 af

Subcatchment243S: PR-WS-243 Runoff Area=395,402 sf 0.00% Impervious Runoff Depth=3.38"
Flow Length=842' Tc=21.5 min CN=68 Runoff=23.42 cfs 2.555 af

Subcatchment244S: PR-WS-244 Runoff Area=9,698 sf 46.65% Impervious Runoff Depth=5.10"
Flow Length=689' Tc=6.0 min CN=84 Runoff=1.30 cfs 0.095 af

Subcatchment245S: PR-WS-245 Runoff Area=74,363 sf 0.00% Impervious Runoff Depth=2.48"
Flow Length=796' Tc=16.3 min CN=59 Runoff=3.48 cfs 0.353 af

Subcatchment246: PR-WS-246 Runoff Area=9,183 sf 22.13% Impervious Runoff Depth=3.48"
Tc=6.0 min CN=69 Runoff=0.86 cfs 0.061 af

Subcatchment247: PR-WS-247 Runoff Area=5,530 sf 36.42% Impervious Runoff Depth=4.01"
Tc=6.0 min CN=74 Runoff=0.60 cfs 0.042 af

Subcatchment248: PR-WS-248 Runoff Area=4,776 sf 75.02% Impervious Runoff Depth=5.90"
Tc=6.0 min CN=91 Runoff=0.71 cfs 0.054 af

Subcatchment249: PR-WS-249 Runoff Area=16,271 sf 62.39% Impervious Runoff Depth=4.99"
Tc=6.0 min CN=83 Runoff=2.14 cfs 0.155 af

Subcatchment250: PR-WS-250 Runoff Area=11,042 sf 41.11% Impervious Runoff Depth=4.33"
Tc=6.0 min CN=77 Runoff=1.28 cfs 0.091 af

Subcatchment251: PR-WS-251 Runoff Area=11,006 sf 40.88% Impervious Runoff Depth=4.44"
Tc=6.0 min CN=78 Runoff=1.31 cfs 0.093 af

Subcatchment252: PR-WS-252 Runoff Area=10,963 sf 41.27% Impervious Runoff Depth=4.44"
Tc=6.0 min CN=78 Runoff=1.30 cfs 0.093 af

Subcatchment253: PR-WS-253 Runoff Area=9,609 sf 58.93% Impervious Runoff Depth=5.33"
Tc=6.0 min CN=86 Runoff=1.33 cfs 0.098 af

Subcatchment254: PR-WS-254 Runoff Area=202,242 sf 36.55% Impervious Runoff Depth=4.99"
Flow Length=761' Tc=24.3 min CN=83 Runoff=16.63 cfs 1.931 af

Subcatchment255: PR-WS-255 Runoff Area=13,921 sf 61.91% Impervious Runoff Depth=5.10"
Tc=6.0 min CN=84 Runoff=1.87 cfs 0.136 af

Reach R1: OVERLAND TO AP Avg. Flow Depth=0.64' Max Vel=4.08 fps Inflow=41.96 cfs 10.441 af
n=0.030 L=569.9' S=0.0211 '/' Capacity=109.49 cfs Outflow=41.88 cfs 10.441 af

Reach R2: OVERLAND THOUGH Avg. Flow Depth=0.86' Max Vel=1.69 fps Inflow=37.41 cfs 3.518 af
n=0.030 L=1,089.0' S=0.0025 '/' Capacity=37.50 cfs Outflow=26.94 cfs 3.518 af

Reach R3: OVERLAND THOUGH Avg. Flow Depth=0.16' Max Vel=5.47 fps Inflow=6.88 cfs 0.567 af
n=0.030 L=228.0' S=0.2456 '/' Capacity=373.94 cfs Outflow=6.86 cfs 0.567 af

Reach R6: OVERLAND THOUGH Avg. Flow Depth=0.16' Max Vel=2.00 fps Inflow=3.48 cfs 0.353 af
n=0.030 L=2,009.0' S=0.0329 '/' Capacity=136.76 cfs Outflow=2.50 cfs 0.353 af

Pond 001: PR-DMH-001 Peak Elev=230.69' Storage=58 cf Inflow=22.21 cfs 1.734 af
30.0" Round Culvert n=0.012 L=201.0' S=0.0060 '/' Outflow=22.21 cfs 1.734 af

Pond 002: PR-DMH-002 Peak Elev=236.01' Storage=31 cf Inflow=5.97 cfs 0.489 af
18.0" Round Culvert n=0.012 L=237.0' S=0.0051 '/' Outflow=6.07 cfs 0.489 af

Pond 003: PR-DMH-003 Peak Elev=235.10' Storage=43 cf Inflow=16.68 cfs 1.360 af
24.0" Round Culvert n=0.012 L=237.0' S=0.0051 '/' Outflow=16.59 cfs 1.360 af

Pond 004: PR-DMH-004 Peak Elev=233.41' Storage=38 cf Inflow=27.20 cfs 2.231 af
30.0" Round Culvert n=0.012 L=237.0' S=0.0051 '/' Outflow=27.19 cfs 2.231 af

Pond 005: PR-DMH-005 Peak Elev=231.87' Storage=35 cf Inflow=37.80 cfs 3.101 af
36.0" Round Culvert n=0.012 L=237.0' S=0.0101 '/' Outflow=37.80 cfs 3.101 af

Pond 006: PR-DMH-006 Peak Elev=229.70' Storage=39 cf Inflow=43.10 cfs 3.536 af
36.0" Round Culvert n=0.012 L=32.0' S=0.0922 '/' Outflow=43.11 cfs 3.536 af

Pond 007: PR-DMH-007 Peak Elev=233.90' Storage=37 cf Inflow=5.96 cfs 0.489 af
18.0" Round Culvert n=0.012 L=237.0' S=0.0051 '/' Outflow=5.93 cfs 0.489 af

Pond 008: PR-DMH-008 Peak Elev=233.10' Storage=30 cf Inflow=16.54 cfs 1.359 af
30.0" Round Culvert n=0.012 L=237.0' S=0.0051 '/' Outflow=16.53 cfs 1.359 af

Pond 009: PR-DMH-009 Peak Elev=232.26' Storage=36 cf Inflow=27.14 cfs 2.230 af
36.0" Round Culvert n=0.012 L=237.0' S=0.0051 '/' Outflow=27.13 cfs 2.230 af

Pond 010: PR-DMH-010 Peak Elev=231.23' Storage=39 cf Inflow=37.74 cfs 3.100 af
36.0" Round Culvert n=0.012 L=237.0' S=0.0063 '/' Outflow=37.73 cfs 3.100 af

Pond 011: PR-DMH-011 Peak Elev=229.60' Storage=39 cf Inflow=43.04 cfs 3.536 af
36.0" Round Culvert n=0.012 L=32.0' S=0.0469 '/' Outflow=43.04 cfs 3.536 af

Pond 012: PR-DMH-012 Peak Elev=232.90' Storage=80 cf Inflow=8.51 cfs 0.686 af
24.0" Round Culvert n=0.012 L=127.0' S=0.0051 '/' Outflow=8.40 cfs 0.686 af

Pond 013: PR-DMH-013 (BAFFLE 4) Peak Elev=231.46' Storage=87 cf Inflow=19.46 cfs 1.545 af
30.0" Round Culvert n=0.012 L=9.0' S=0.0056 '/' Outflow=19.40 cfs 1.545 af

Pond 015: PR-DMH-015 Peak Elev=231.83' Storage=60 cf Inflow=18.70 cfs 1.497 af
30.0" Round Culvert n=0.012 L=48.0' S=0.0077 '/' Outflow=18.64 cfs 1.497 af

Pond 024: PR-DMH-024 Peak Elev=219.73' Storage=10 cf Inflow=1.87 cfs 0.136 af
15.0" Round Culvert n=0.012 L=196.0' S=0.0051 '/' Outflow=1.87 cfs 0.136 af

Pond 025: PR-DMH-025 Peak Elev=224.42' Storage=51 cf Inflow=36.14 cfs 2.368 af
36.0" Round Culvert n=0.012 L=111.0' S=0.1063 '/' Outflow=36.14 cfs 2.368 af

Pond 026: PR-DMH-026 Peak Elev=212.79' Storage=57 cf Inflow=36.14 cfs 2.368 af
36.0" Round Culvert n=0.012 L=42.0' S=0.0190 '/' Outflow=36.13 cfs 2.368 af

Pond 027: PR-DMH-027 Peak Elev=230.26' Storage=80 cf Inflow=18.56 cfs 1.497 af
30.0" Round Culvert n=0.012 L=12.0' S=0.0083 '/' Outflow=18.54 cfs 1.497 af

Pond 028: PR-DMH-028 Peak Elev=232.59' Storage=71 cf Inflow=22.35 cfs 1.734 af
24.0" Round Culvert n=0.012 L=154.0' S=0.0052 '/' Outflow=22.21 cfs 1.734 af

Pond 029: PR-DMH-029 Peak Elev=211.64' Storage=33 cf Inflow=36.13 cfs 2.368 af
36.0" Round Culvert n=0.012 L=101.0' S=0.0099 '/' Outflow=36.13 cfs 2.368 af

Pond 031: PR-DMH-031 Peak Elev=230.35' Storage=74 cf Inflow=41.21 cfs 3.289 af
Primary=37.90 cfs 2.607 af Secondary=4.20 cfs 0.682 af Outflow=41.12 cfs 3.289 af

Pond 032: PR-DMH-032 Peak Elev=229.62' Storage=72 cf Inflow=41.12 cfs 3.289 af
36.0" Round Culvert n=0.012 L=16.0' S=0.0062 '/' Outflow=41.03 cfs 3.289 af

Pond 033: DMH 033 Peak Elev=217.79' Storage=84 cf Inflow=44.99 cfs 3.493 af
Primary=41.65 cfs 2.952 af Secondary=3.47 cfs 0.540 af Outflow=45.06 cfs 3.492 af

Pond 034: DMH 034 Peak Elev=216.35' Storage=50 cf Inflow=45.06 cfs 3.492 af
36.0" Round Culvert n=0.012 L=15.0' S=0.0047 '/' Outflow=45.03 cfs 3.492 af

Pond 035: PR-DMH-035 Peak Elev=231.29' Storage=59 cf Inflow=18.64 cfs 1.497 af
Primary=16.49 cfs 1.074 af Secondary=3.22 cfs 0.423 af Outflow=18.59 cfs 1.497 af

Pond 036: PR-DMH-036 Peak Elev=230.84' Storage=59 cf Inflow=18.59 cfs 1.497 af
30.0" Round Culvert n=0.012 L=96.0' S=0.0224 '/' Outflow=18.56 cfs 1.497 af

Pond 037: PR-DMH-037 Peak Elev=230.84' Storage=81 cf Inflow=19.40 cfs 1.545 af
Primary=17.32 cfs 1.152 af Secondary=4.68 cfs 0.393 af Outflow=19.38 cfs 1.546 af

Pond 038: PR-DMH-038 Peak Elev=230.33' Storage=81 cf Inflow=19.38 cfs 1.546 af
30.0" Round Culvert n=0.012 L=16.0' S=0.0062 '/' Outflow=19.34 cfs 1.545 af

Pond 039: PR-DMH-039 Peak Elev=212.68' Storage=0.000 af Inflow=3.20 cfs 0.234 af
15.0" Round Culvert n=0.012 L=274.0' S=0.0201 '/' Outflow=3.20 cfs 0.234 af

Pond 040: PR-DMH-040 Peak Elev=207.19' Storage=0.000 af Inflow=3.20 cfs 0.234 af
15.0" Round Culvert n=0.012 L=33.0' S=0.0076 '/' Outflow=3.20 cfs 0.234 af

Pond 100: PR-CB-100 Peak Elev=235.13' Storage=64 cf Inflow=14.88 cfs 1.131 af
24.0" Round Culvert n=0.012 L=206.0' S=0.0051 '/' Outflow=14.90 cfs 1.131 af

Pond 101: PR-CB-101 Peak Elev=234.18' Storage=80 cf Inflow=22.52 cfs 1.734 af
24.0" Round Culvert n=0.012 L=83.0' S=0.0054 '/' Outflow=22.35 cfs 1.734 af

Pond 102: PR-CB-102 Peak Elev=229.87' Storage=48 cf Inflow=38.85 cfs 3.057 af
30.0" Round Culvert n=0.012 L=275.0' S=0.0200 '/' Outflow=38.85 cfs 3.057 af

Pond 103: PR-CB-103 Peak Elev=230.10' Storage=46 cf Inflow=1.97 cfs 0.140 af
12.0" Round Culvert n=0.012 L=28.0' S=0.0089 '/' Outflow=2.01 cfs 0.140 af

Pond 104: PR-CB-104 Peak Elev=226.76' Storage=51 cf Inflow=41.63 cfs 3.263 af
30.0" Round Culvert n=0.012 L=162.0' S=0.0179 '/' Outflow=41.80 cfs 3.263 af

Pond 105: PR-CB-105 Peak Elev=226.87' Storage=47 cf Inflow=1.24 cfs 0.088 af
12.0" Round Culvert n=0.012 L=28.0' S=0.0089 '/' Outflow=1.35 cfs 0.088 af

Pond 106: PR-CB-106 Peak Elev=224.05' Storage=50 cf Inflow=43.55 cfs 3.389 af
30.0" Round Culvert n=0.012 L=135.0' S=0.0189 '/' Outflow=43.58 cfs 3.389 af

Pond 107: PR-CB-107 Peak Elev=224.09' Storage=45 cf Inflow=0.76 cfs 0.054 af
12.0" Round Culvert n=0.012 L=28.0' S=0.0089 '/' Outflow=0.79 cfs 0.054 af

Pond 108: PR-CB-108 Peak Elev=221.00' Storage=79 cf Inflow=44.44 cfs 3.451 af
36.0" Round Culvert n=0.012 L=28.0' S=0.0054 '/' Outflow=44.22 cfs 3.451 af

Pond 109: PR-CB-109 (BAFFLE 2) Peak Elev=219.42' Storage=79 cf Inflow=44.81 cfs 3.493 af
36.0" Round Culvert n=0.012 L=64.0' S=0.0047 '/' Outflow=44.99 cfs 3.493 af

Pond 110: PR-CB-110 Peak Elev=230.44' Storage=40 cf Inflow=12.71 cfs 1.043 af
24.0" Round Culvert n=0.012 L=59.0' S=0.0051 '/' Outflow=12.70 cfs 1.043 af

Pond 111: PR-CB-111 Peak Elev=231.13' Storage=34 cf Inflow=6.27 cfs 0.514 af
18.0" Round Culvert n=0.012 L=193.0' S=0.0052 '/' Outflow=6.26 cfs 0.514 af

Pond 112: PR-CB-112 Peak Elev=233.26' Storage=27 cf Inflow=6.27 cfs 0.514 af
24.0" Round Culvert n=0.012 L=201.0' S=0.0050 '/' Outflow=6.31 cfs 0.514 af

Pond 113: PR-CB-113 Peak Elev=233.09' Storage=41 cf Inflow=12.57 cfs 1.029 af
24.0" Round Culvert n=0.012 L=198.0' S=0.0051 '/' Outflow=12.58 cfs 1.029 af

Pond 114: PR-CB-114 (BAFFLE 3) Peak Elev=232.36' Storage=54 cf Inflow=18.75 cfs 1.497 af
30.0" Round Culvert n=0.012 L=80.0' S=0.0050 '/' Outflow=18.70 cfs 1.497 af

Pond 115: PR-CB-115 Peak Elev=235.37' Storage=51 cf Inflow=7.40 cfs 0.572 af
24.0" Round Culvert n=0.012 L=201.0' S=0.0050 '/' Outflow=7.59 cfs 0.572 af

Pond 116: PR-CB-116 Peak Elev=235.68' Storage=44 cf Inflow=13.89 cfs 1.063 af
30.0" Round Culvert n=0.012 L=294.0' S=0.0051 '/' Outflow=13.95 cfs 1.063 af

Pond 117: PR-CB-117 Peak Elev=235.31' Storage=73 cf Inflow=20.21 cfs 1.578 af
30.0" Round Culvert n=0.012 L=200.0' S=0.0050 '/' Outflow=20.34 cfs 1.578 af

Pond 118: PR-CB-118 Peak Elev=234.67' Storage=86 cf Inflow=26.60 cfs 2.092 af
30.0" Round Culvert n=0.012 L=200.0' S=0.0050 '/' Outflow=26.69 cfs 2.092 af

Pond 119: PR-CB-119 Peak Elev=233.49' Storage=97 cf Inflow=32.95 cfs 2.607 af
30.0" Round Culvert n=0.012 L=201.0' S=0.0050 '/' Outflow=32.81 cfs 2.607 af

Pond 120: PR-CB-120 Peak Elev=231.63' Storage=87 cf Inflow=41.33 cfs 3.289 af
36.0" Round Culvert n=0.012 L=22.0' S=0.0045 '/' Outflow=41.21 cfs 3.289 af

Pond 121: PR-CB-121 Peak Elev=233.84' Storage=36 cf Inflow=4.00 cfs 0.313 af
18.0" Round Culvert n=0.012 L=113.0' S=0.0053 '/' Outflow=4.10 cfs 0.313 af

Pond 122: PR-CB-122 Peak Elev=233.69' Storage=64 cf Inflow=7.21 cfs 0.555 af
18.0" Round Culvert n=0.012 L=113.0' S=0.0053 '/' Outflow=7.02 cfs 0.555 af

Pond 123: PR-CB-123 Peak Elev=233.14' Storage=75 cf Inflow=8.64 cfs 0.686 af
24.0" Round Culvert n=0.012 L=113.0' S=0.0053 '/' Outflow=8.51 cfs 0.686 af

Pond 125: PR-CB-125 Peak Elev=232.63' Storage=86 cf Inflow=10.42 cfs 0.850 af
24.0" Round Culvert n=0.012 L=127.0' S=0.0051 '/' Outflow=10.33 cfs 0.850 af

Pond 126: PR-CB-126 Peak Elev=232.21' Storage=91 cf Inflow=13.72 cfs 1.108 af
24.0" Round Culvert n=0.012 L=74.0' S=0.0047 '/' Outflow=13.66 cfs 1.108 af

Pond 127: PR-CB-127 Peak Elev=232.31' Storage=50 cf Inflow=5.79 cfs 0.436 af
15.0" Round Culvert n=0.012 L=54.0' S=0.0528 '/' Outflow=5.81 cfs 0.436 af

Pond 128: PR-CB-128 Peak Elev=217.70' Storage=8 cf Inflow=1.30 cfs 0.095 af
12.0" Round Culvert n=0.012 L=150.0' S=0.0233 '/' Outflow=1.30 cfs 0.095 af

Pond 129: PR-CB-129 Peak Elev=214.47' Storage=12 cf Inflow=2.60 cfs 0.188 af
12.0" Round Culvert n=0.012 L=150.0' S=0.0207 '/' Outflow=2.60 cfs 0.188 af

Pond 130: PR-CB-130 Peak Elev=211.87' Storage=20 cf Inflow=3.91 cfs 0.281 af
12.0" Round Culvert n=0.012 L=147.0' S=0.0163 '/' Outflow=3.91 cfs 0.281 af

Pond 131: PR-CB-131 (BAFFLE 6) Peak Elev=209.55' Storage=27 cf Inflow=5.19 cfs 0.373 af
15.0" Round Culvert n=0.012 L=129.0' S=0.0049 '/' Outflow=5.20 cfs 0.373 af

Pond 132: PR-CB-132 Peak Elev=209.76' Storage=13 cf Inflow=1.13 cfs 0.081 af
12.0" Round Culvert n=0.012 L=28.0' S=0.0054 '/' Outflow=1.12 cfs 0.081 af

Pond 133: PR-CB-133 (BAFFLE 5) Peak Elev=209.67' Storage=15 cf Inflow=3.20 cfs 0.230 af
12.0" Round Culvert n=0.012 L=67.0' S=0.0269 '/' Outflow=3.20 cfs 0.230 af

Pond 134: PR-CB-134 Peak Elev=205.39' Storage=12 cf Inflow=2.14 cfs 0.155 af
12.0" Round Culvert n=0.012 L=28.0' S=0.0054 '/' Outflow=2.14 cfs 0.155 af

Pond 135: PR-CB-135 Peak Elev=205.01' Storage=11 cf Inflow=2.85 cfs 0.209 af
15.0" Round Culvert n=0.012 L=62.0' S=0.0185 '/' Outflow=2.85 cfs 0.209 af

Pond 136: PR-CB-136 Peak Elev=218.78' Storage=12 cf Inflow=3.20 cfs 0.234 af
15.0" Round Culvert n=0.012 L=300.0' S=0.0200 '/' Outflow=3.20 cfs 0.234 af

Pond 137: PR-CB-137 Peak Elev=224.90' Storage=9 cf Inflow=1.87 cfs 0.136 af
12.0" Round Culvert n=0.012 L=30.0' S=0.0483 '/' Outflow=1.87 cfs 0.136 af

Pond F1: FOREBAY #1 Peak Elev=215.14' Storage=10,809 cf Inflow=45.03 cfs 3.492 af
Outflow=41.99 cfs 3.381 af

Pond OS 1: OIL/WATER SEPARATOR #1 Peak Elev=229.86' Inflow=4.20 cfs 0.682 af
12.0" Round Culvert n=0.012 L=11.0' S=0.0045 '/' Outflow=4.20 cfs 0.682 af

Pond OS 3: OIL/WATER SEPARATOR #3 Peak Elev=231.07' Inflow=3.22 cfs 0.423 af
12.0" Round Culvert n=0.012 L=11.0' S=0.0045 '/' Outflow=3.22 cfs 0.423 af

Pond OS 4: OIL/WATER SEPARATOR #4 Peak Elev=230.59' Inflow=4.68 cfs 0.393 af
12.0" Round Culvert n=0.012 L=20.0' S=0.0050 '/' Outflow=4.68 cfs 0.393 af

Pond OS2: OIL/WATER SEPARATOR #2 Peak Elev=217.08' Inflow=3.47 cfs 0.540 af
12.0" Round Culvert n=0.012 L=11.0' S=0.0045 '/' Outflow=3.47 cfs 0.540 af

Pond P1: INFILTRATION POND #1 Peak Elev=215.13' Storage=55,646 cf Inflow=47.11 cfs 3.750 af
Discarded=4.25 cfs 3.049 af Primary=6.22 cfs 0.701 af Outflow=10.47 cfs 3.750 af

Pond P2: STORMTECH #2 Peak Elev=229.21' Storage=48,366 cf Inflow=41.03 cfs 3.289 af
Outflow=20.66 cfs 3.160 af

Pond P20: EX POND 20 Peak Elev=213.26' Storage=140,577 cf Inflow=95.81 cfs 10.466 af
Outflow=41.96 cfs 10.441 af

Pond P3: Gravel Det/Infil Pond #3 Peak Elev=227.30' Storage=119,246 cf Inflow=72.27 cfs 9.990 af
Discarded=8.46 cfs 9.706 af Primary=0.64 cfs 0.284 af Outflow=9.09 cfs 9.991 af

Pond P30: POND AREA Peak Elev=206.99' Storage=52,572 cf Inflow=21.73 cfs 2.800 af
Primary=0.21 cfs 0.449 af Secondary=7.52 cfs 2.322 af Outflow=7.72 cfs 2.771 af

Pond P4: STORMTECH Peak Elev=229.70' Storage=28,041 cf Inflow=37.87 cfs 3.043 af
Discarded=0.43 cfs 0.958 af Primary=36.14 cfs 2.084 af Outflow=36.57 cfs 3.043 af

Pond P5: FOCALPOINT POND #5 Peak Elev=204.94' Storage=5 cf Inflow=8.74 cfs 0.635 af
Outflow=8.73 cfs 0.635 af

Pond P6: DETENTION POND #6 Peak Elev=227.33' Storage=63,360 cf Inflow=94.69 cfs 10.232 af
Outflow=72.27 cfs 9.990 af

Link AP1: AP 1 Inflow=53.37 cfs 10.603 af
Primary=53.37 cfs 10.603 af

Link AP2: AP2 Inflow=54.40 cfs 12.996 af
Primary=54.40 cfs 12.996 af

Total Runoff Area = 116.330 ac Runoff Volume = 37.849 af Average Runoff Depth = 3.90"
69.01% Pervious = 80.283 ac 30.99% Impervious = 36.047 ac

Extreme Precipitation Tables

Northeast Regional Climate Center

Data represents point estimates calculated from partial duration series. All precipitation amounts are displayed in inches.

Smoothing	Yes
State	New Hampshire
Location	
Longitude	71.189 degrees West
Latitude	43.030 degrees North
Elevation	0 feet
Date/Time	Thu, 18 Aug 2022 07:25:29 -0400

Extreme Precipitation Estimates

	5min	10min	15min	30min	60min	120min		1hr	2hr	3hr	6hr	12hr	24hr	48hr		1day	2day	4day	7day	10day	
1yr	0.26	0.40	0.50	0.65	0.82	1.03	**1yr**	0.71	0.98	1.20	1.53	1.97	2.54	2.74	**1yr**	2.24	2.64	3.05	3.74	4.34	**1yr**
2yr	0.32	0.49	0.61	0.81	1.02	1.29	**2yr**	0.88	1.17	1.49	1.89	2.39	3.03	3.37	**2yr**	2.68	3.24	3.75	4.45	5.08	**2yr**
5yr	0.38	0.58	0.73	0.98	1.26	1.61	**5yr**	1.09	1.46	1.88	2.38	3.02	3.84	4.32	**5yr**	3.40	4.15	4.77	5.65	6.38	**5yr**
10yr	0.42	0.66	0.83	1.13	1.48	1.91	**10yr**	1.27	1.73	2.24	2.85	3.62	4.59	5.21	**10yr**	4.06	5.01	5.72	6.77	7.60	**10yr**
25yr	0.49	0.78	1.00	1.38	1.83	2.38	**25yr**	1.58	2.16	2.81	3.60	4.59	5.81	6.68	**25yr**	5.14	6.42	7.28	8.61	9.56	**25yr**
50yr	0.56	0.89	1.14	1.60	2.15	2.83	**50yr**	1.86	2.55	3.35	4.31	5.49	6.96	8.06	**50yr**	6.16	7.75	8.75	10.33	11.39	**50yr**
100yr	0.63	1.01	1.31	1.86	2.53	3.37	**100yr**	2.19	3.02	4.00	5.15	6.58	8.33	9.74	**100yr**	7.37	9.37	10.51	12.41	13.58	**100yr**
200yr	0.72	1.17	1.51	2.17	2.99	4.00	**200yr**	2.58	3.58	4.76	6.15	7.87	9.98	11.77	**200yr**	8.83	11.32	12.63	14.91	16.20	**200yr**
500yr	0.85	1.40	1.82	2.65	3.71	5.02	**500yr**	3.21	4.48	6.00	7.79	9.99	12.67	15.13	**500yr**	11.22	14.55	16.11	19.03	20.47	**500yr**

Lower Confidence Limits

	5min	10min	15min	30min	60min	120min		1hr	2hr	3hr	6hr	12hr	24hr	48hr		1day	2day	4day	7day	10day	
1yr	0.23	0.35	0.43	0.58	0.71	0.88	**1yr**	0.61	0.86	1.01	1.31	1.56	2.12	2.53	**1yr**	1.88	2.43	2.82	3.44	3.84	**1yr**
2yr	0.31	0.48	0.59	0.80	0.99	1.17	**2yr**	0.86	1.15	1.34	1.78	2.28	2.93	3.23	**2yr**	2.60	3.10	3.61	4.26	4.87	**2yr**
5yr	0.35	0.55	0.68	0.93	1.18	1.40	**5yr**	1.02	1.37	1.59	2.08	2.67	3.48	3.86	**5yr**	3.08	3.71	4.27	5.27	5.79	**5yr**
10yr	0.39	0.60	0.75	1.04	1.35	1.60	**10yr**	1.16	1.56	1.80	2.34	3.00	3.94	4.39	**10yr**	3.49	4.22	4.85	6.13	6.53	**10yr**
25yr	0.45	0.69	0.85	1.22	1.61	1.90	**25yr**	1.39	1.86	2.11	2.72	3.50	4.61	5.20	**25yr**	4.08	5.00	5.73	7.47	8.25	**25yr**
50yr	0.50	0.76	0.95	1.36	1.83	2.16	**50yr**	1.58	2.12	2.38	3.06	3.93	5.18	5.87	**50yr**	4.58	5.65	6.48	8.68	9.46	**50yr**
100yr	0.56	0.85	1.06	1.54	2.11	2.47	**100yr**	1.82	2.42	2.69	3.43	4.41	5.81	6.63	**100yr**	5.14	6.37	7.34	10.09	10.85	**100yr**
200yr	0.63	0.94	1.20	1.73	2.42	2.81	**200yr**	2.08	2.75	3.02	3.85	4.96	6.49	8.69	**200yr**	5.74	8.36	8.32	11.75	12.44	**200yr**
500yr	0.73	1.09	1.41	2.04	2.90	3.35	**500yr**	2.51	3.28	3.55	4.48	5.81	7.48	10.52	**500yr**	6.62	10.11	9.78	14.38	14.88	**500yr**

Upper Confidence Limits

	5min	10min	15min	30min	60min	120min		1hr	2hr	3hr	6hr	12hr	24hr	48hr		1day	2day	4day	7day	10day	
1yr	0.29	0.45	0.54	0.73	0.90	1.08	**1yr**	0.78	1.05	1.24	1.66	2.09	2.77	3.12	**1yr**	2.45	3.00	3.45	4.05	4.79	**1yr**
2yr	0.33	0.51	0.63	0.85	1.05	1.25	**2yr**	0.91	1.23	1.44	1.90	2.42	3.20	3.55	**2yr**	2.83	3.42	3.95	4.66	5.37	**2yr**
5yr	0.41	0.63	0.78	1.06	1.35	1.60	**5yr**	1.17	1.56	1.84	2.40	3.07	4.22	4.84	**5yr**	3.73	4.66	5.30	6.05	7.05	**5yr**
10yr	0.48	0.74	0.92	1.29	1.66	1.95	**10yr**	1.43	1.91	2.23	2.90	3.68	5.25	6.15	**10yr**	4.65	5.92	6.66	7.48	8.78	**10yr**
25yr	0.61	0.92	1.15	1.64	2.16	2.53	**25yr**	1.86	2.48	2.88	3.71	4.67	7.03	8.48	**25yr**	6.22	8.16	9.01	9.90	10.93	**25yr**
50yr	0.72	1.09	1.36	1.95	2.63	3.09	**50yr**	2.27	3.02	3.50	4.49	5.61	8.77	10.85	**50yr**	7.76	10.43	11.33	12.24	13.41	**50yr**
100yr	0.86	1.30	1.63	2.35	3.22	3.76	**100yr**	2.78	3.67	4.25	5.43	6.76	10.95	13.86	**100yr**	9.69	13.33	14.26	15.16	16.50	**100yr**
200yr	1.02	1.53	1.94	2.81	3.93	4.59	**200yr**	3.39	4.49	5.18	6.57	8.12	13.71	15.51	**200yr**	12.13	14.91	17.96	18.77	20.31	**200yr**
500yr	1.29	1.92	2.47	3.59	5.11	5.97	**500yr**	4.41	5.84	6.71	8.46	10.39	18.47	20.97	**500yr**	16.35	20.16	24.36	24.93	26.78	**500yr**

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Northeast Regional Climate Center

Project Name:	Raymond Distribution Center	JBE #:	21130
Town/City:	Raymond, NH	Date:	2/7/2024

Rip Rap Outlet Protection Calculation

Outlet Designation: P-274 (DMH 34)
Pipe Size (Do): 36 in. = 3 ft
Q25 (cfs): 36.15 cfs
Tailwater Elevation (TW): 0.25 (FT) if TW = 0, assume 3"/0.25'

Apron Length (La):

TW<Do YES La = 1.8Q/Do^1.5 + 7Do
La = 33.52 ft

TW>Do No La = 3.0Q/Do^1.5 + 7Do
La =

Apron Width (W_2)

TW<Do W_2 = 3Do + La
W_2 = 42.52 ft.

TW>Do W_2 = 3Do + .4La
W_2 = ft.

Rip-Rap Diameter (D_{50}):

D_{50}: D_{50} = 0.02Q^1.3/TW*Do
D_{50} = 2.83 ft. 33.94 in.

Use 3" minimum D_{50} ==> D50 = 33.94 in.

Rip-Rap Thickness (T):

T = 2.5*D_{50}
T = 84.84588 in.

Apron Width (W_1):

W_1 = 3*Do
W_1 = 9 ft.

Project Name:	Raymond Distribution Center	JBE #:	21130
Town/City:	Raymond, NH	Date:	2/7/2024

Rip Rap Outlet Protection Calculation

Outlet Designation:	P-244			
Pipe Size (Do):	24 in.	=	2 ft	
Q25 (cfs):		1.61	cfs	
Tailwater Elevation (TW):		0.25	(FT) if TW = 0, assume 3"/0.25'	

Apron Length (La):

TW<Do YES $La = 1.8Q/Do^{1.5} + 7Do$

La = 15.02 ft

TW>Do No $La = 3.0Q/Do^{1.5} + 7Do$

La =

Apron Width (W_2)

TW<Do $W_2 = 3Do + La$

W_2 = 21.02 ft.

TW>Do $W_2 = 3Do + .4La$

W_2 = ft.

Rip-Rap Diameter (D_{50}):

D_{50}: $D_{50} = 0.02Q^{1.3}/TW*Do$

D_{50} = 0.07 ft. 0.89 in.

Use 3" minimum D_{50} ==> D50 = 3 in.

Rip-Rap Thickness (T):

$T = 2.5*D_{50}$

T = 7.5 in.

Apron Width (W_1):

$W_1 = 3*Do$

W_1 = 6 ft.

Project Name:	Raymond Distribution Center	JBE #:	21130
Town/City:	Raymond, NH	Date:	2/7/2024

Rip Rap Outlet Protection Calculation

Outlet Designation:	P-257 (CB 133)		
Pipe Size (Do):	12 in.	=	1 ft
Q25 (cfs):	2.39 cfs		
Tailwater Elevation (TW):	0.25 (FT) if TW = 0, assume 3"/0.25'		

Apron Length (La):

TW<Do	YES	La = 1.8Q/Do^1.5 + 7Do
		La = 11.30 ft
TW>Do	No	La = 3.0Q/Do^1.5 + 7Do
		La =

Apron Width (W_2)

TW<Do	W_2 = 3Do + La
	W_2 = 14.30 ft.
TW>Do	W_2 = 3Do + .4La
	W_2 = ft.

Rip-Rap Diameter (D_{50}):

D_{50}: D_{50} = 0.02Q^1.3/TW*Do

D_{50} = 0.25 ft. 2.98 in.

Use 3" minimum D_{50} ==> D50 = 3 in.

Rip-Rap Thickness (T):

T = 2.5*D_{50}

T = 7.5 in.

Apron Width (W_1):

W_1 = 3*Do

W_1 = 3 ft.

Project Name:	Raymond Distribution Center	JBE #:	21130
Town/City:	Raymond, NH	Date:	2/7/2024

Rip Rap Outlet Protection Calculation

Outlet Designation:	P-253			
Pipe Size (Do):	15	in. =	1.25	ft
Q25 (cfs):		2.28	cfs	
Tailwater Elevation (TW):		0.25	(FT) if TW = 0, assume 3"/0.25'	

Apron Length (La):

TW<Do YES La = 1.8Q/Do^1.5 + 7Do

La = 11.69 ft

TW>Do No La = 3.0Q/Do^1.5 + 7Do

La =

Apron Width (W_2)

TW<Do W_2 = 3Do + La

W_2 = 15.44 ft.

TW>Do W_2 = 3Do + .4La

W_2 = ft.

Rip-Rap Diameter (D_{50}):

D_{50}: D_{50} = 0.02Q^1.3/TW*Do

D_{50} = 0.19 ft. 2.24 in.

Use 3" minimum D_{50} ==> D50 = 3 in.

Rip-Rap Thickness (T):

T = 2.5*D_{50}

T = 7.5 in.

Apron Width (W_1):

W_1 = 3*Do

W_1 = 3.75 ft.

Project Name:	Raymond Distribution Center	JBE #:	21130
Town/City:	Raymond, NH	Date:	2/7/2024

Rip Rap Outlet Protection Calculation

Outlet Designation:	P-241 (Culvert)		
Pipe Size (Do):	24 in.	=	2 ft
Q25 (cfs):	5.73	cfs	
Tailwater Elevation (TW):	0.25	(FT) if TW = 0, assume 3"/0.25'	

Apron Length (La):

TW<Do	YES	La = 1.8Q/Do^1.5 + 7Do	
		La =	17.65 ft
TW>Do	No	La = 3.0Q/Do^1.5 + 7Do	
		La =	

Apron Width (W_2)

TW<Do	W_2 = 3Do + La	
	W_2 =	23.65 ft.
TW>Do	W_2 = 3Do + .4La	
	W_2 =	ft.

Rip-Rap Diameter (D_{50}):

D_{50}: D_{50} = 0.02Q^1.3/TW*Do

D_{50} = 0.39 ft. 4.64 in.

Use 3" minimum D_{50} ==> D50 = 4.643 in.

Rip-Rap Thickness (T):

T = 2.5*D_{50}

T = 11.60866 in.

Apron Width (W_1):

W_1 = 3*Do

W_1 = 6 ft.

Project Name:	Raymond Distribution Center	JBE #:	21130
Town/City:	Raymond, NH	Date:	2/7/2024

Rip Rap Outlet Protection Calculation

Outlet Designation: P-255 (Pond 5 Outlet)

Pipe Size (Do): 12 in. = 1 ft

Q25 (cfs): 6.57 cfs

Tailwater Elevation (TW): 0.25 (FT) if TW = 0, assume 3"/0.25'

Apron Length (La):

TW<Do YES $La = 1.8Q/Do^{1.5} + 7Do$

La = 18.83 ft

TW>Do No $La = 3.0Q/Do^{1.5} + 7Do$

La =

Apron Width (W_2)

TW<Do $W_2 = 3Do + La$

W_2 = 21.83 ft.

TW>Do $W_2 = 3Do + .4La$

W_2 = ft.

Rip-Rap Diameter (D_{50}):

D_{50}: $D_{50} = 0.02Q^{1.3}/TW*Do$

D_{50} = 0.92 ft. 11.09 in.

Use 3" minimum D_{50} ==> D50 = 11.09 in.

Rip-Rap Thickness (T):

$T = 2.5*D_{50}$

T = 27.73615 in.

Apron Width (W_1):

$W_1 = 3*Do$

W_1 = 3 ft.

Project Name:	Raymond Distribution Center	JBE #:	21130
Town/City:	Raymond, NH	Date:	2/7/2024

Rip Rap Outlet Protection Calculation

Outlet Designation: P-245 (DMH 40)

Pipe Size (Do): 12 in. = 1 ft

Q25 (cfs): 2.55 cfs

Tailwater Elevation (TW): 0.25 (FT) if TW = 0, assume 3"/0.25'

Apron Length (La):

TW<Do YES La = 1.8Q/Do^1.5 + 7Do

La = 11.59 ft

TW>Do No La = 3.0Q/Do^1.5 + 7Do

La =

Apron Width (W_2)

TW<Do W_2 = 3Do + La

W_2 = 14.59 ft.

TW>Do W_2 = 3Do + .4La

W_2 = ft.

Rip-Rap Diameter (D_{50}):

D_{50}: D_{50} = 0.02Q^1.3/TW*Do

D_{50} = 0.27 ft. 3.24 in.

Use 3" minimum D_{50} ==> D50 = 3.242 in.

Rip-Rap Thickness (T):

T = 2.5*D_{50}

T = 8.104262 in.

Apron Width (W_1):

W_1 = 3*Do

W_1 = 3 ft.

SITE-SPECIFIC SOIL SURVEY REPORT
For
Industrial Drive, Raymond

1. MAPPING STANDARDS
   Site-Specific Soil Mapping Standards for New Hampshire and Vermont. SSSNNE Special Publication No. 3, Version 5.0, December 2017. This map product is within the technical standards of the National Cooperative Soil Survey. It is a special product, intended for the submission to NH DES Alteration of Terrain. It was produced by a professional soil scientist and is not a product of the USDA Natural Resource Conservation Service.

   Hydrologic Soil Group was determined using SSSNNE Special Publication No. 5.
   Scale of soil map:
   Approximately 1" equals
   Contours:
   Intervals of 2 feet

2. DATE SOIL MAP PRODUCED
   Date(s) of on-site field work: 5/11/22
   Date(s) of test pits: 12/20/21
   Test pits recorded by: Wayne Morrill, JBE, Inc..

3. GEOGRAPHIC LOCATION AND SIZE OF SITE
   City or town where soil mapping was conducted: Raymond
   Location: Industrial Drive
   Size of area: approximately 80 acres
   Was the map for the entire lot? Yes
   If no, where was the mapping conducted on the parcel:

4. PURPOSE OF THE SOIL MAP
   Was the map prepared to meet the requirement of Alteration of Terrain? Yes
   If no, what was the purpose of the map? NHAoT
   Who was the map prepared for? JBE Inc.

5. SOIL IDENTIFICATION LEGEND

SSSM SYM.	SSS MAP NAME	HISS SYM.	HYDROLOGIC SOIL GRP.
42	Canton	221	B
135	Chatfield Variant Newfields Comp	328	B
444/445	Newfields/Newfields v Stony	321/328	B
447	Scituate Newfields Complex	323	C
86	Hollis	224	C
400hafde	Udorthents sandy/gravelly	766	A/C
656/P	Walpole Poorly Drained	523	C
115/VP	Ridgebury Poorly Drained V Stony	528	C

SLOPE PHASE:
0-8% B 8-15% C 15-25% D 25%+ E

6. SOIL MAP UNIT DESCRIPTIONS HISS Hydrologic Soil Group

42	Canton	221	B

The Canton series consists of very deep, well drained soils formed in a loamy mantle underlain by sandy till. They are on nearly level to very steep moraines, hills, and ridges. Slope ranges from 0 to 45 percent. Saturated hydraulic conductivity is moderately high or high in the solum and high or very high in the substratum. These soils are found on site in the higher reaches on the southern side of the existing quarry in sporadic areas. These soils are dominated by sandy loam in the upper layers and underlain by sand and gravel in the lower layers. No ESHWT was encountered within 40", nor was any significant ledge encountered.

135	Chatfield Variant Newfields Complex	328	B

The Chatfield Variant Newfields complex series consists of moderately well drained soils formed in loamy melt-out till. They are moderately deep to bedrock. They are nearly level to very steep soils on bedrock-controlled hills and ridges. Slope ranges from 0 to 70 percent. Crystalline bedrock is at depths of 50 to 100 cm. Saturated hydraulic conductivity is moderately high or high in the mineral soil. The Newfields component of this complex represents well drained soils with sandy loam material and an ESHWT between 15-40 inches. These soils are found on the rear portion of the site on the side slopes.

444/445	Newfields/Newfields V Stony	321	B

The Newfields series consists of very deep, moderately well drained soils formed in a loamy mantle underlain by sandy till on upland hills, moraines, till plains, and mountain side slopes. Saturated hydraulic conductivity is moderately high to very high. These soils are found on the site on the low lying areas of the site on both the east and western sides of the site. These are in the lower and mid slopes. ESHWT is between 15-40" and no significant ledge was encountered. However significant stones were found through the stony phase areas..

447	Scituate-Newfields Complex	323	C

The Scituate series consists of moderately well drained soils formed in a loamy eolian influenced mantle of till underlain by sandy lodgement till. The soils are very deep to bedrock and moderately deep to a densic contact. They are nearly level through moderately steep soils on glaciated uplands. Saturated hydraulic conductivity is moderately high or high in the solum and moderately low or moderately high in the substratum. The Newfields series consists of very deep, moderately well drained soils formed in a loamy mantle underlain by sandy till on upland hills, moraines, till plains, and mountain side slopes. Saturated hydraulic conductivity is moderately high to very high. Slope ranges from 0 through 25 percent. The scituate soil type is the driving factor in this complex. These soils have a mineral restrictive layer in the C layer. These soils are found over all on the site in the lower areas along the edge of the pit with an ESHWT between 15-40"

86	Hollis	223	C

The Hollis series consists of well drained and somewhat excessively drained soils formed in a thin mantle of till. They are shallow to bedrock. They are nearly level to very steep upland soils on bedrock-controlled hills and ridges. Slope ranges from 0 through 60 percent. Saturated hydraulic conductivity is moderately high or high. These soils have a typical profile of fine sandy loam over gravelly sand. Bedrock is present within 20 inches of the soil surface.

400hafde Udorthents sandy/gravelly 766 A/C
These soils are found in the area of the open quarry. These soils represent areas of active quarry excavation and open level, flat and/or excavated areas. Some areas are open and have an HSG of c because of their shallow depth to ESHWT and other areas are HSG a, as they are higher, excavated areas with no ESHWT encountered.

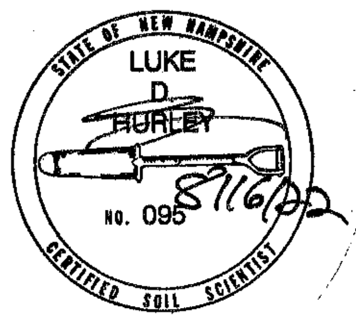
514/P Leicester Poorly Drained 521 C
The Leicester series consists of very deep, poorly drained soils formed in coarse-loamy till. They are nearly level or gently sloping soils in drainageways and low-lying positions on hills. Slope ranges from 0 to 8 percent. Permeability is moderate or moderately rapid in the surface layer and subsoil and moderate to rapid in the substratum. These soils are found in the smaller, poorly drained wetlands on site.

115/VP Scarboro Very Poorly Drained V Stony 528 C
The Scarboro series consists of very deep, very poorly drained soils in sandy glaciofluvial deposits on outwash plains, deltas, and terraces. They are nearly level soils in depressions. Slope ranges from 0 through 3 percent. Saturated hydraulic conductivity is high or very high. These are in the larger very poorly drained wetlands on site to the rear and front of the site.

7. RESPONSIBLE SOIL SCIENTIST
Name: Luke Hurley
Certified Soil Scientist Number: 095

8. OTHER DISTINGUISHING FEATURES OF SITE
Is the site in a natural condition? No

If no, what is the nature of the disturbance? Open active quarry



JONES & BEACH ENGINEERS INC.
85 Portsmouth Avenue, PO Box 219, Stratham, NH 03885
603.772.4746 - JonesandBeach.com

SITE EVALUATION and INFILTRATION FEASIBILITY REPORT

Raymond Distribution Center
Tax Map 22, Lots 44, 45, 46, 47
Tax Map 28, Block 3, Lot 120-1
Industrial Drive
Raymond, NH 03077

Prepared for:

Onyx Partners LTD
200 Reservoir Street
Needham, MA 02494

August 18, 2022
JBE Project No. 21130

TABLE OF CONTENTS

I. Project Summary

This project proposes to construct a one building distribution center in the Town of Raymond, Tax Map 22, Lots 44, 45, 46, & 47, and Tax Map 28, Block 3, Lot 120-1.

The project site is located in the Industrial Zone. Soil information for the site was gathered from Web Soil Survey, Site Specific Soil Analysis, and on-site test pits. Soils were identified as:

Symbol	Soil Taxonomic Name	Hydrologic Soil Group
44	Newfields	B
86	Hollis well drained	C
135	Chatfield Variant	B
40	Chatfield Hollis Canton	B
42	Canton	B
400	Udorthents, sandy gravelly	A/C
514/P	Licester	C
115VP	Scarboro	D
89	Chatfield	B
445	Newfields, very stony	B
447	Scituate-Newfields Complex	C
97	Greenwood & Ossipee ponded	D
12B	Hinckley	A

Groundwater recharge will be accomplished through the utilization of one (1) underground infiltration basin and (3) sub-surface infiltration basins.

II. Location of Practice(s)

Infiltration Basin 1 (Pond #1) - Infiltration Basin 1 is located outside the drive lane near the southwest corner of the building.

Underground Gravel Infiltration Pond (Pond #3) – The gravel infiltration pond is located in front of the west side of the building underneath the parking lot.

Stormtech (Pond #4) – This system is located on the south side of the gravel infiltration pond, near the southwest corner of the building.

III. Existing Topography at the Location of the Practice(s)

Infiltration Basin 1 (Pond #1) – The topography contributing to the proposed pond Infiltration Basin 1 is currently forested woodland with a moderate grade.

Underground Gravel Infiltration Pond (Pond #3) – The topography within the area contributing to the proposed gravel infiltration pond is currently a combination of forested woodland with a moderate grade, and an existing sand/gravel pit.

Stormtech (Pond #4) – The topography within the area contributing to the proposed system is currently a combination of forested woodland with a moderate grade, and an existing sand/gravel pit.

IV. Test Pit/Boring Location(s)

Infiltration Basin 1 (Pond #1) – The infiltration practice is approximately 32,680 S.F. in area. Two test pits were dug for the system. Test pits were done on August 3, 2022 & December 21, 2021. Test pit log information is included with this report.

Underground Gravel Infiltration Pond (Pond #3) – The infiltration practice is approximately 68,154 S.F. in area. One test pit was dug for the system. Test pit was done on August 3, 2022. Test pit log information is included with this report.

Stormtech (Pond #4) – The infiltration practice is approximately 9,768 S.F. in area. One test pit was dug for the system. Test pit was done on December 21, 2021. Test pit log information is included with this report.

See Section VII for Grading & Drainage detail plans for test pit locations.

V. Seasonal High Water Table (SHWT) and Bedrock Elevations

Infiltration Basin (Pond #1):

Bottom of System Elevation = 211.50

TP 3
Existing Surface Elevation of Pond: 212.0
Estimated Seasonal High-Water Table: 44” (208.33)
Bedrock = NA
Deepest Elevation = 203.25

TP 206
Existing Surface Elevation of Pond: 212.50
Estimated Seasonal High-Water Table: 54” (208.0)
Bedrock = NA
Deepest Elevation = 206.91

Underground Gravel Infiltration Pond (Pond #3):
Bottom of System Elevation = 223.0

TP 2	Existing Surface Elevation of Pond: 214.0 Estimated Seasonal High-Water Table: None. Bedrock = NA Deepest Elevation =208.33

Stormtech (Pond #4):
Bottom of System Elevation = 223.70

TP 1	Existing Surface Elevation of Pond: 215.0 Estimated Seasonal High-Water Table: None. Bedrock = NA Deepest Elevation = 209.83

Infiltration Basin (Pond #5):
Bottom of System Elevation = 208.00

TP 205	Existing Surface Elevation of Pond: 208.74 Estimated Seasonal High-Water Table: 46" (204.90) Bedrock = NA Deepest Elevation = 203.49

VI. Profile Descriptions

Test Pit #1

0"-20"		fill
20"-62"	10YR 5/4	yellowish brown fine sandy loam boulders

SHWT = None
Roots to 48"
NO H_2O
Refusal = 62"

Test Pit #2

0"-22"		fill
22"-42"	2.5Y 4/3	olive brown fine sandy loam

42”-68”	2.5Y 5/6	light olive brown single grain sand

SHWT = None
Roots to 42”
NO H_2O
No Refusal observed

Test Pit #3

0”-8”		top soil
8”-24”	10YR 4/6	dark yellowish brown coarse sand
24”-44”	2.5Y 6/3	light yellowish brown loamy sand
44”-105”	2.5Y 5/3	light olive brown fine sand

SHWT = 44”
Roots to 62”
NO H_2O
No Refusal observed

Test Pit #4

0”- 11”		top soil
11”- 28”	2.5Y 5/6	light olive brown fine sandy loam
28”- 74”	2.5Y 5/3	light olive brown loamy sand cobbles

SHWT = 75”

Roots to 75”
NO H_2O
No Refusal observed

Test Pit #5

0”-12”		top soil
12”-70”	2.5Y 6/6	olive yellow loamy sand

SHWT = None
No Refusal observed

Test Pit #201

loamy sand

SHWT = 43”
Bottom = 60”

Test Pit #202

fine sand

SHWT = 55”
Bottom = 68”

Test Pit #203

fine sand

SHWT = 50”
Bottom = 96”

Test Pit #204

0”- 4”		top soil
4”- 26”	10YR 5/6	yellowish brown loamy sand granular, friable
26”- 60”	10YR 3/6	dark yellowish brown fine sandy loam granular, friable cobbles

SHWT = None
Roots to 60”
NO H_2O
Refusal = 60”

Test Pit #205

sand

SHWT = 46”
Bottom = 63”
No Refusal observed

Test Pit #206

sand

SHWT = 54”
Bottom = 67”

VII. Soil Plans in the Area of the Proposed Practice(s)

See attached Grading & Drainage Detail Plans.

VIII. Amoozemeter Testing Report

See attached amoozemeter report.

JONES&BEACH
ENGINEERS INC.
85 Portsmouth Avenue, PO Box 219, Stratham, NH 03885
603.772.4746 - JonesandBeach.com

November 15, 2021

New Hampshire Department of Environmental Services
Alteration of Terrain Bureau
29 Hazen Drive, PO Box 95
Concord, NH 03302-0095

RE: Alteration of Terrain Application
Sippican Warehouse Site Plan
Industrial Drive, Raymond, NH
Tax Map 22, Lot 47
Contract No. 2

To whom it may concern,

The following remarks summarize the results of permeability testing of soils for saturated hydraulic conductivity (Ksat) at the above-referenced location, as conducted on November 15, 2021 using a Compact Constant Head Permeameter (CCHP).

The project site is 124 acres. The site has a large portion of the site is undisturbed wood land, and the remaining area is an active gravel pit. Soils on the entire property were mapped by New England Environmental, Inc. and the predominant soil in the area was found to be sandy textures that have been excavated down to at or below the water table. The majority of the site consist of B type soils including Chatfield and Newfields, which are found to have moderate saturated hydraulic conductivity. The remaining major soil groups are Hollis C/D type soils.

Ksat

On November 15, 2021, seven (6) backhoe soil test pits were excavated and three (3) Ksat tests were performed in each pit. The test was conducted at various depths within the B & Cs horizons. Please refer to the attached sketch for the location of the various tests.

The results of the permeability testing is summarized below. Please note that due to the very coarse nature of the soils, the CCHP was unable to reach a steady state condition in some of the tests.

Testing Summary Table			
	Mean Ksat (cm/hr)	Mean Ksat (in/hr)	Depth (in)
Pit #1, Test #1	8.98	3.54	26.4
Pit #1, Test #2	NA*	NA*	32.4
Pit #1, Test #3	NA*	NA*	24
Pit #2, Test #1	NA*	NA*	15.6
Pit #2, Test #2	NA*	NA*	15.6
Pit #2, Test #3	NA*	NA*	16.8
Pit #3, Test #1	NA*	NA*	30
Pit #3, Test #2	7.33	2.89	30
Pit #3, Test #3	16.49	6.49	36
Pit #4, Test #1	2.15	0.85	8
Pit #4, Test #2	2.00	0.79	8
Pit #4, Test #3	7.32	2.88	10
Pit #5, Test #1	2.05	0.81	12
Pit #5, Test #2	2.96	1.16	8
Pit #5, Test #3	7.86	3.10	12
Pit #6, Test #1	10.28	4.04	14
Pit #6, Test #2	3.50	1.38	14
Pit #6, Test #3	4.45	1.75	14

*Due to the very coarse nature of the soils, the CCHP was unable to reach a steady state condition in these tests.

Ksat Average Table		
Test Pit	Ksat Average (in/hr)	Ksat Average (in/hr)(*0.5)
Pit #1	14.51	7.26
Pit #2	20.00	10.00
Pit #3	9.79	4.89
Pit #4	1.51	0.75
Pit #5	1.69	0.85
Pit #6	2.39	1.20

The design has been based off of In situ soils done by New England Environmental, Inc. which shows a majority of the site as Chatfield and Newfields, the remaining soils are Hollis. According to "Ksat Values for New Hampshire Soils" sponsored by the Society of Soil Scientists of Northern New England SSSNNE Special Publication No. 5, the Ksat value for all of these soil types is .6 inches/hour within the B or C horizon. This infiltration rate has been replaced with the onsite soil testing reflected in this report.

If you have any questions, please feel free to contact our office. Thank you for your time.

Very truly yours,
JONES & BEACH ENGINEERS, INC.

Erik Poulin
Project Engineer

NHDES-W-03-135

NEW HAMPSHIRE DEPARTMENT OF Environmental Services

REGISTRATION AND NOTIFICATION FORM FOR STORMWATER INFILTRATION TO GROUNDWATER (5H1)

Groundwater Discharge Program

RSA/Rule: RSA 485-A:6, VII; 485:3, X; Env-Wq 402

Applicant Information

Name: Jones and Beach Engineers	Daytime Phone: 603-772-4746	
Mailing Address: PO BOX 219		
City: Stratham	State: NH	ZIP: 03885
Contact Person Name: Erik Poulin	Email: epoulin@jonesandbeach.com	
Contact Person Phone Number: 603-772-4746	Fax Number:	

Facility Information

Name: Raymond Distribution Center		
Address: Industrial Drive, Raymond		
City: Raymond	State: NH	ZIP: 03077
Property Tax Map: 22 & 28	Lot Number: 44, 45, 46, & 47, 120-1	
Latitude & Longitude of discharge point(s):		

Facility Owner Information (complete only if different than applicant)

Owner Name: Anton Melchionda	Daytime Phone: 617-835-4770	
Mailing Address: 200 Reservoir St.		
City/Town: Needham	State: MA	ZIP: 02494
Contact Person Name:	Email: investments@onyxpartnersltd.com	
Contact Person Phone Number:	Fax Number:	

Property Owner (complete only if different then Applicant)

Name:	Daytime Phone:	
Mailing Address:		
City:	State:	ZIP:
Contact Person Name:	Email:	
Contact Person Phone Number:	Fax Number:	

Facility Operator's Information (complete only if different than applicant)

Facility Operator Name:	Daytime Phone:	
Mailing Address:		
City:	State:	ZIP:

Complete this form if you are using a drywell or other subsurface infiltration structures to recharge stormwater to the ground or groundwater. If a completed Underground Injection Control (UIC) registration form was submitted to the Alteration of Terrain Bureau for this project, then one is not required to be sent directly to the Drinking Water and Groundwater Bureau (DWGB).

REGISTRATION AND NOTIFICATION FORM FOR STORMWATER INFILTRATION TO GROUNDWATER (attach additional sheets, as necessary, for responses to questions below)

Please provide a complete description of the facility including historic uses, any former contamination and/or ongoing remedial action at the site.
A portion of the existing site was previously a sand and gravel pit, with the majority of the site being standing forest. There are no listed contaminations or remedial actions for the property.

Please provide information concerning the location of the infiltration activity, include Locus map (i.e. USGS map).
The basins are located on the west side of the distribution building, please see attached plans, USGS, and google image for site location.

Please describe the pretreatment system, if any, and capacity of the system.
Underground stone detention/infiltration pond #3 only treats clean roof runoff and therefore does not require pre-treatment. The MC4500 Stormtech system utilizes an isolation row.

Please describe the materials and products used for the subsurface infiltration structure (i.e., pipe and stone leachfield, plastic chamber units, concrete drywell, etc.).
The MC4500 Stormtech Chamber is to be constructed with off the shelf plastic chamber components. The underground gravel infiltration pond will be constructed with AASHTO #4 crushed stone and HDPE perforated pipe.

Please describe the disposal method and location. Include a site plan showing: the infiltration structure, any other on-site infiltration structures, dimensions, depth to groundwater (if known), adjacent septic system(s), and drinking water source(s).
Infiltration discharges to the North of the proposed project and then flows into the Lamprey River. The seasonal high water table (SHWT) was located at 209.83, which is 13.12’ below elevation 222.92, the bottom of the proposed Stormtech system. The SHWT was found at elevation 218.00, which is 5’ below elevation 223.00, the bottom of the gravel infiltration pond. Please see attached plans for additional information.

Please provide information concerning methods and schedule for periodic inspection and/or maintenance.
An operation and maintenance manual has been prepared for the project including information on the inspection and maintenance of the chamber systems.

STORMWATER MANAGEMENT OPERATION AND MAINTENANCE MANUAL

Raymond Distribution Center
Tax Map 22, Lots 44, 45, 46, 47
Tax Map 28, Block 3, Lot 120-1
Industrial Drive
Raymond, NH 03077

Prepared for:

Onyx Partners LTD
200 Reservoir Street
Needham, MA 02494

Prepared by:
Jones & Beach Engineers, Inc.
85 Portsmouth Avenue
P.O. Box 219
Stratham, NH 03885
(603) 772-4746
August 18, 2022
Rev #1: October 21, 2022
Rev #2: November 10, 2022
Rev #3: May 8, 2023
JBE Project No. 21130

Inspection and Maintenance of Facilities and Property

A. Maintenance of Common Facilities or Property

1. The Property Owner (Onyx Partners LTD) is responsible for maintenance of all stormwater infrastructure associated with this site, until such time as maintenance is assumed by the new property owner. This includes all temporary and permanent stormwater and erosion control facilities both during and after construction.

B. General Inspection and Maintenance Requirements

1. The Owner shall perform all inspections and maintenance with greater than annual frequency as required by this report.

2. Inspection reports must be provided to the DES upon request.

3. During the inspections, a photograph should be taken of each BMP.

4. Permanent stormwater and sediment and erosion control facilities to be maintained on the site include, but are not limited to, the following:

   a. Catch basins and drain manholes
   b. Culverts
   c. Erosion
   d. Aboveground infiltration basin
   e. Underground detention/infiltration basin
   f. Vegetation and landscaping
   g. Riprap inlet and outlet protection aprons
   h. Tree Box Filters
   i. Oil/water Separators

3. Maintenance of permanent measures shall follow the following schedule:

   a. **Catch basins and Drain Manholes: Annual inspection** of catch basins and drain manholes to determine if they need to be cleaned. Catch basins are to be cleaned if the depth of deposits is greater than one-third the depth from the basin bottom to the invert of the lowest pipe or opening into or out of the basin. If a catch basin significantly exceeds the one-third depth standard during the inspection, then it should be cleaned more frequently. If woody debris or trash accumulates in a catch basin, then it should be cleaned on a weekly basis. Manholes should be cleaned of any material upon inspection. Catch basins and manholes can be cleaned either manually or by specially designed equipment including, but not limited to, bucket loaders and vacuum pumps. Before any materials can be disposed, it is necessary to perform a detailed chemical analysis to determine if the materials meet the EPA criteria for hazardous waste. This will help determine how the materials should be stored, treated, and disposed.

   b. **Culverts: Inspection** of culvert inlets and outlets at least **once per month** during the rainy season (March to November). Any debris is to be removed and disposed of properly.

   c. **Erosion: Annual inspection** of the site for erosion, destabilization, settling, and sloughing. Any needed repairs are to be conducted immediately.

   d. **Vegetation and Landscaping: Annual inspection** of site's vegetation and landscaping. Any areas that are bare shall be reseeded and mulched with hay or, if the case is extreme, loamed and seeded or sodded to ensure adequate vegetative cover. Landscape specimens shall be replaced in kind, if they are found to be dead or dying.

   e. **Catch basins and Drain Manholes: Annual inspection** of catch basins and drain manholes to determine if they need to be cleaned. Catch basins are to be cleaned if the depth of deposits is greater than one-third the depth from the basin bottom to the invert of the lowest pipe or opening into or out of the basin. If a catch basin significantly exceeds the one-third depth standard during the inspection, then it should be cleaned more frequently. If woody debris or trash accumulates in a catch basin, then it should be cleaned on a weekly basis. Manholes should be cleaned of any material upon inspection. Catch basins and manholes can be cleaned either manually or by specially designed equipment including, but not limited to, bucket loaders and vacuum pumps. Before any materials can be disposed, it is necessary to perform a detailed chemical analysis to determine if the materials meet the EPA criteria for hazardous waste. This will help determine how the materials should be stored, treated, and disposed.

f. **Riprap**: Rock riprap should be **inspected annually** and after every major storm event in order to ensure that it has not been displaced, undermined, or otherwise damaged. Displaced rock should be replaced, or additional rock added in order to maintain the structure(s) in their undamaged state. Woody vegetation should not be allowed to become established in riprap areas, and/or any debris removed from the void spaces between the rocks. If the riprap is adjacent to a stream or other waterbody, the water should be kept clear of obstructions, debris, and sediment deposits.

g. **Tree Box Filter**:

- Each correctly installed Filterra® unit is to be maintained by the Supplier, or a Supplier approved contractor for a minimum period of 1 year. The cost of this service is to be included in the price of each Filterra® unit. Extended maintenance contracts are available at extra cost upon request.
- Annual included maintenance consists of a maximum of (2) scheduled visits. The visits are scheduled seasonally; the spring visit aims to clean up after winter loads that may include salts and sands. The fall visit helps the system by removing excessive leaf litter.
- Each Included Maintenance visit consists of the following tasks.
    1. Filterra® unit inspection
    2. Foreign debris, silt, mulch & trash removal
    3. Filter media evaluation and recharge as necessary
    4. Plant health evaluation and pruning or replacement as necessary
    5. Replacement of mulch
    6. Disposal of all maintenance refuse items
    7. Maintenance records updated and stored (reports available upon request)
- The beginning and ending date of Supplier's obligation to maintain the installed system shall be determined by the Supplier at the time the system is activated. Owners must promptly notify the Supplier of any damage to the plant(s), which constitute(s) an integral part of the bioretention technology.

h. **Underground Detention Basin**: Basins should be inspected twice annually and after every rainfall event of 2.5" or greater within a 24-hour period at a minimum. The underground detention basin areas designed to collect stormwater will need only minimal maintenance. Traffic over the basin areas should be kept to a minimum prior to construction to prevent compaction of the soil reducing infiltration.

Basins shall be inspected for effectiveness at a minimum of twice annually. If basin has not completely drained 72-hours after a rainfall event, the existing clogged layer of soil shall be removed and replaced with new material as specified within the design plans.

i. Oil/Water Separators:
Oil/Grit Separators should be inspected twice annually after the first year of service. Separators should be inspected every 3 months and after every rainfall event in excess of 2.5” in a 24-hour period during the first year of service.

Sediment shall be removed once sediment depth reaches 1’ in depth. Separator shall be vacuumed if a oil/fuel sheen is noted on the surface of the water within the separator.

C. Invasive Species

An invasive plant is a non-native plant that is able to persist and proliferate outside of cultivation, resulting in ecological and/or economic harm. These plants readily colonize disturbed areas and habitat edges, such as transportation and river corridors. Once established in these areas, invasive plants often continue to spread to adjacent habitats. All invasive plant species are aggressive competitors with the ability to significantly reduce diversity of native plant and animal species.

For additional information refer to the "New Hampshire Department of Transportation: *Best Management Practices for Roadside Invasive Plants*"

1. Invasive Plant Prevention:

Invasive plants spread by a variety of mechanisms, including birds, wind, and water. Human activities are also a major factor in the spread of these plants, from gardening and transport of nursery stock to erosion control and wildlife plantings. Routine maintenance and construction activities along transportation corridors can also play a significant role in the spread of invasive plants by dispersing or introducing seeds and other viable plant materials.

Eliminating or reducing the spread and establishment of invasive plants requires a proactive approach, in which there are two key elements. First, new introductions, especially those that occur due to human activities, must be avoided to the maximum extent possible. Second, there must be an emphasis on early detection and eradication of new populations. Control measures are far more likely to be successful, as well as significantly less expensive, on small, young populations rather than on larger, more established populations, as shown in Figure 1.

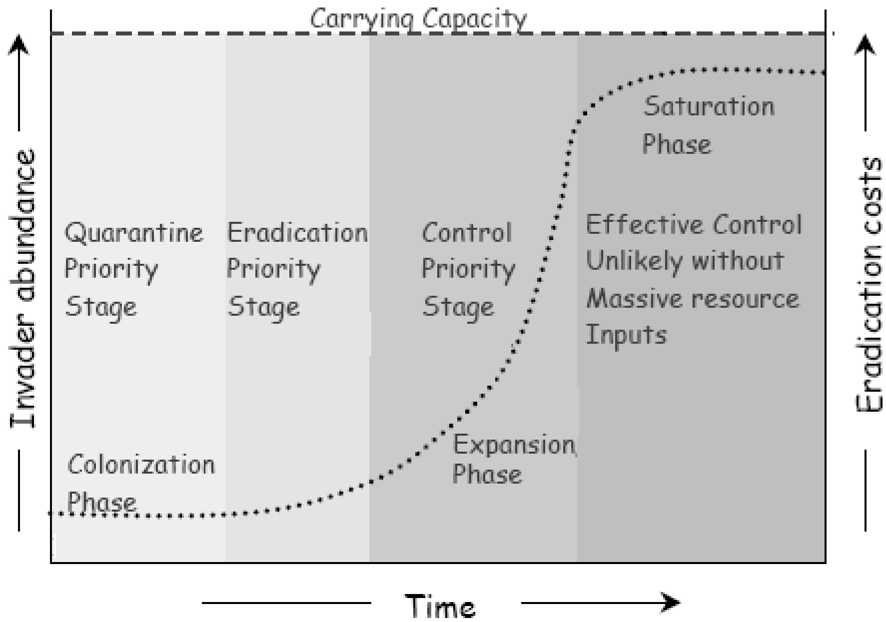


Figure 1. Typical invasive species population curve (from the University of Arizona and USGS Desert Laboratory http://wwwpaztcn.wr.usgs.gov)

2. Best Management Practices

Soil Disturbance and Stabilization:

• BMP #1: Minimize soil disturbance whenever possible. Invasive plants readily colonize areas of disturbed soil. Monitor recent work sites for the emergence of invasive plants for a minimum of two years after project completion.

• BMP #2: Stabilize disturbed soils as soon as possible by seeding and/or using mulch, hay, rip-rap, or gravel that is free of invasive plant material. Seeds of native species should be used whenever possible. Species on the prohibited invasive plant list should never be planted.

• BMP #3: Materials such as fill, loam, mulch, hay, rip-rap, and gravel should not be brought into project areas from sites where invasive plants are known to occur. If the absence of invasive plant parts in these materials cannot be guaranteed, recent work sites should be monitored for the emergence of invasive plants for a minimum of two years after project completion.

Movement and Maintenance of Equipment:

• BMP #4: If work in areas containing invasive plants cannot be avoided, then the movement of maintenance and construction equipment should be from areas not infested by invasive plants to areas infested by invasive plants whenever possible. This is especially important during ditch cleaning and shoulder scraping activities.

• BMP #5: Locate and use staging areas that are free of invasive plants to avoid spreading seeds and other viable plant parts.

• BMP #6: If equipment must be used in areas where invasive plants occur, all equipment, machinery, and hand tools should be cleaned of all visible soil and plant material before leaving the project site. Equipment should be cleaned at the site of infestation. Acceptable methods of cleaning include, but are not limited to: ƒ Portable wash station that contains runoff from washing equipment (containment must be in compliance with wastewater discharge regulations); ƒ High pressure air; Brush, broom, or other hand tools (used without water).

• BMP #7: If equipment must be used in areas containing Japanese knotweed, phragmites, or purple loosestrife, aboveground plant material should be cut and properly disposed of (see BMP #11) prior to the start of work. If excavation occurs in these areas, see BMPs #13-16.

Mowing:

• BMP #8: These invasive plants have the ability to sprout from stem and root fragments: purple loosestrife, phragmites, and Japanese knotweed. Mowing these plants should be avoided whenever possible. Staking roadside populations of these plants as "do not mow" is one way to accomplish this. If these plants are cut, all plant material must be rendered nonviable and extra care should be taken to avoid spreading plant fragments (see BMP #11).

• BMP #9: In areas where invasive plants occur and the plants listed in BMP #8 (purple loosestrife, phragmites, and Japanese knotweed) are not present, an attempt should be made to mow the right-of-way prior to seed maturation (approximately August 1st). This could be accomplished by identifying specific roads that are either heavily infested with invasive plants or roads that are in sensitive habitat areas, and making those roads a priority in the mowing schedule.

• BMP #10: Mowing equipment should be cleaned at least daily, as well as prior to transport (see BMP #6). This is particularly important if mowing occurs after seed maturation (after August 1st).

Disposal of Plants:

• BMP #11: When invasive plants are cut or removed for roadside maintenance, construction, or control of plants, the spread of viable plant material must be avoided by rendering plant material nonviable. The following methods can be used to destroy plant material:

- Drying/Liquefying: For large amounts of plant material or for plants with rigid stems, place the material on asphalt, tarps, or heavy plastic, and cover with tarps or heavy plastic to prevent the material from blowing away. For smaller amounts of plant material or for plants with pliable stems, bag the material in heavyduty (3-mil or thicker) garbage bags. Keep plant material covered or bagged for at least one month. Material is nonviable when it is partially decomposed, very slimy, or brittle. Once material is nonviable, it can be disposed of in a landfill or brush pile. Recommended for: Japanese knotweed, purple loosestrife, phragmites.
- Brush Piles: Plant material from most invasive plants can be piled on site to dry out. However, when piling purple loosestrife, phragmites, and Japanese knotweed, care must be taken to pile stems so that cut surfaces are not in contact with the soil. Recommended for: Woody shrubs, trees, and vines; spotted knapweed; large quantities of purple loosestrife, phragmites, and Japanese knotweed. NOT recommended for: any invasive plant with seeds or fruit attached, unless plants can be piled within the limits of the infestation.
- Burying: Plant material from most invasive plants can be buried a minimum of three feet below grade. This method is best used on a job site that already has disturbed soils. Recommended for: any invasive plant. NOT recommended for: Japanese knotweed, unless other options are not feasible and knotweed can be buried at the site of infestation at least five feet below grade. *ƒ*
- Burning: Plant material should be taken to a designated burn pile. (All necessary permits must be obtained before burning.) Recommended for: any invasive plant, especially purple loosestrife, phragmites, Japanese knotweed.
- Herbicide: Herbicide applications must be carried out by a licensed applicator with a permit from the NH Department of Agriculture Division of Pesticide Control. Recommended for: any invasive plant, especially purple loosestrife, phragmites, Japanese knotweed.

• BMP #12: Invasive plant material must be covered during transport.

Excavated Material:

• BMP #13: Excavated material taken from sites that contain invasive plants cannot be used away from the site of infestation until all viable plant material is destroyed. Excavated material from areas containing invasive plants may be reused within the exact limits of the infestation.

• BMP #14: Any excavated material that contains viable plant material and is not reused within the limits of the infestation must be stockpiled on an impervious surface until viable plant material is destroyed OR the material must be disposed of by burying a minimum of three feet below grade. Japanese knotweed must be buried at least five feet below grade.

• BMP #15: Whenever possible, excavation should be avoided in areas containing Japanese knotweed, purple loosestrife, and phragmites. If excavation does occur in these areas, the BMPs described in Section II must be followed.

• BMP #16: Soil and other materials containing invasive plants must be covered during transport.

See attached sample forms as a guideline.

Any inquiries in regards to the design, function, and/or maintenance of any one of the above mentioned facilities or tasks shall be directed to the project engineer:

Jones & Beach Engineers, Inc.
85 Portsmouth Avenue
P.O. Box 219
Stratham, NH 03885

T#: (603) 772-4746
F#: (603) 772-0227

STORM WATER POLLUTION PREVENTION PLAN
INSPECTION PERIOD AND CRITERIA
Raymond Distribution Center
Tax Map 22, Lots 44, 45, 46, 47
Tax Map 28, Block 3, Lot 120-1
Industrial Drive
Raymond, NH 03077

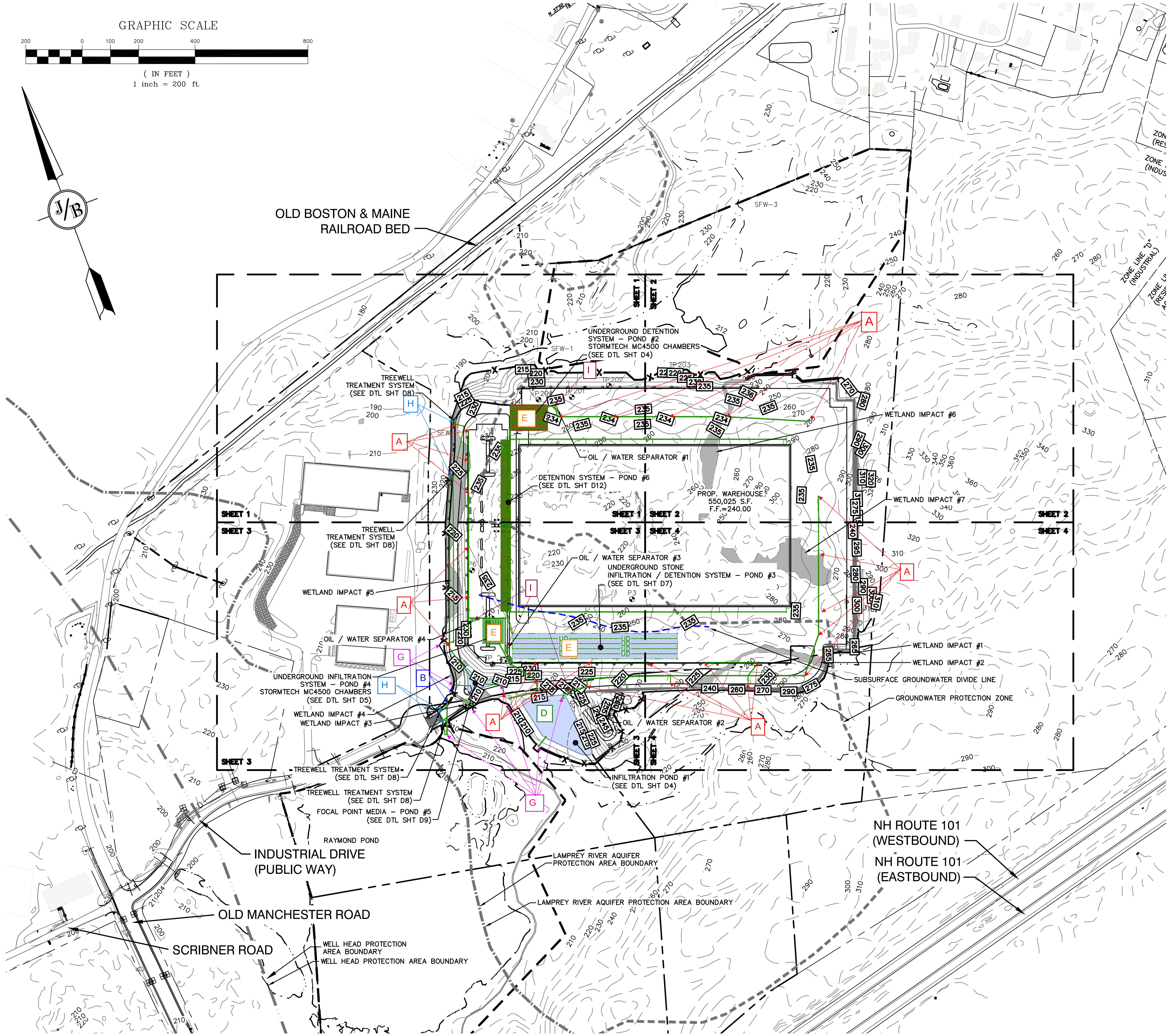
Stormwater Component	**Inspection Period**	**Inspection Criteria/Methods**
Culverts	Once per month	Inspect inlet/outlet. Remove debris.
Erosion	Annually	Repair site erosion.
Vegetation	Annually	Repair bare unvegetated areas.
Catch Basins and Drain Manholes	Annually (or more as required)	Remove trash and debris. Inspect for sediment. Remove if sediment greater than 1/3 sump depth.
Riprap	Annually	Relocate displaced rocks, remove woody vegetation and debris
Detention Basin	Bi-annually	Inspect for standing water, sediment/debris collection, see item f.
Underground Detention Basin	Bi-annually	Inspect for standing water, sediment/debris collection, see item h.
Tree Box Filter	Bi-annually	Inspection for sediment/debris, inspect for erosion, inspection for invasives.
Oil/water Separators	Bi-annually	Inspect for oil/fuel sheen, sediment/debris collection

STORM WATER OPERATIONS AND MAINTENANCE PLAN
INSPECTION REPORT
Raymond Distribution Center
Tax Map 22, Lots 44, 45, 46, 47
Tax Map 28, Block 3, Lot 120-1
Industrial Drive
Raymond, NH 03077

Yearly Inspection Form

Inspected Component	Date of Inspection	Inspector	Issue Detected / Action Taken
Culverts			
Erosion			
Vegetation			
Catch Basins and Drain Manholes			
Riprap			
Detention Basins			
Underground detention Basins			
Tree Box Filter			
Oil/water Separators			

STORM WATER OPERATIONS AND MAINTENANCE PLAN
INSPECTION REPORT
Raymond Distribution Center
Tax Map 22, Lots 44, 45, 46, 47
Tax Map 28, Block 3, Lot 120-1
Industrial Drive
Raymond, NH 03077



GRADING AND DRAINAGE NOTES:

1. UNDERGROUND FACILITIES, UTILITIES AND STRUCTURES HAVE BEEN PLOTTED FROM FIELD OBSERVATION AND THEIR LOCATION MUST BE CONSIDERED APPROXIMATE ONLY. NEITHER JONES & BEACH ENGINEERS, INC., NOR ANY OF THEIR EMPLOYEES TAKE RESPONSIBILITY FOR THE LOCATION OF ANY UNDERGROUND STRUCTURES AND/OR UTILITIES NOT SHOWN THAT MAY EXIST. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO HAVE ALL UNDERGROUND STRUCTURES AND/OR UTILITIES LOCATED PRIOR TO EXCAVATION WORK BY CALLING 888–DIG–SAFE (888–344–7233).
2. ALL BENCHMARKS AND TOPOGRAPHY SHOULD BE FIELD VERIFIED BY THE CONTRACTOR.
3. SITE GRADING SHALL NOT PROCEED UNTIL EROSION CONTROL MEASURES HAVE BEEN INSTALLED. SEE CONSTRUCTION SEQUENCE ON SHEET E1.
4. PRIOR TO THE START OF CONSTRUCTION, THE CONTRACTOR IS REQUIRED TO HAVE THE PROJECT'S LAND SURVEYOR STAKE OR FLAG CLEARING LIMITS. A MINIMUM OF 48 HOURS NOTICE IS REQUIRED.
5. ALL ROOF DRAINS FROM BUILDING SHALL END 5' OUTSIDE THE BUILDING LIMITS AS SHOWN ON PLAN AND SHALL BE PROVIDED WITH A TEMPORARY PLUG AND WITNESS AT THE END. ALL EXTERIOR ROOF DOWNSPOUTS ARE TO BE INSTALLED WITH OVERFLOW DEVICES.
6. ALL SWALES AND DETENTION PONDS ARE TO BE STABILIZED PRIOR TO DIRECTING RUNOFF TO THEM.
7. PROPOSED RIM ELEVATIONS OF DRAINAGE STRUCTURES ARE APPROXIMATE. FINAL ELEVATIONS ARE TO BE SET FLUSH WITH FINISH GRADES.
8. ALL SWALES AND ANY SLOPES GREATER THAN 3:1 SHALL BE STABILIZED WITH NORTH AMERICAN GREEN S150 EROSION CONTROL BLANKETS (OR AN EQUIVALENT APPROVED IN WRITING BY THE ENGINEER), UNLESS OTHERWISE SPECIFIED.
9. ALL DRAINAGE AND SANITARY STRUCTURE INTERIOR DIAMETERS (4' MIN) SHALL BE DETERMINED BY THE MANUFACTURER BASED ON THE PIPE CONFIGURATIONS SHOWN ON THESE PLANS. CATCH BASINS SHALL HAVE 3' DEEP SUMPS WITH GREASE HOODS, UNLESS OTHERWISE NOTED.
10. ALL DRAINAGE STRUCTURES SHALL BE PRECAST, UNLESS OTHERWISE SPECIFIED. SEE SHEET D2 FOR DRAINAGE STRUCTURE SCHEDULE AND SHEET D4–D9 FOR DRAINAGE DETAILS.
11. ALL DRAINAGE STRUCTURES AND STORM SEWER PIPES SHALL MEET HEAVY DUTY TRAFFIC H20 LOADING AND SHALL BE INSTALLED ACCORDINGLY.
12. IMMEDIATELY APPLY AND COMPACT STONE BASE FOR BUILDING PAD TO +/–½" PRIOR TO EXCAVATING INTERIOR AND PERIMETER FOOTINGS.
13. IN AREAS WHERE CONSTRUCTION IS PROPOSED ADJACENT TO ABUTTING PROPERTIES, THE CONTRACTOR SHALL INSTALL ORANGE CONSTRUCTION FENCING ALONG PROPERTY LINES IN ALL AREAS WHERE SILT FENCING IS NOT REQUIRED.
14. ALL DRAINAGE PIPE SHALL BE NON–PERFORATED ADS N–12 OR APPROVED EQUAL, UNLESS OTHERWISE NOTED.
15. STONE INLET PROTECTION SHALL BE PLACED AT ALL CATCH BASINS. SEE DETAIL WITHIN THE DETAIL SHEETS.
16. LAND DISTURBING ACTIVITIES SHALL NOT COMMENCE UNTIL APPROVAL TO DO SO HAS BEEN RECEIVED BY ALL GOVERNING AUTHORITIES. THE GENERAL CONTRACTOR SHALL STRICTLY ADHERE TO THE EPA SWPPP DURING CONSTRUCTION OPERATIONS.
17. NO LAND CLEARING OR GRADING SHALL BEGIN UNTIL ALL EROSION CONTROL MEASURES HAVE BEEN INSTALLED.
18. ALL EXPOSED AREAS SHALL BE SEEDED AS SPECIFIED WITHIN 3 DAYS OF FINAL GRADING.
19. SHOULD CONSTRUCTION STOP FOR LONGER THAN 3 DAYS, THE SITE SHALL BE SEEDED AS SPECIFIED.
20. MAINTAIN EROSION CONTROL MEASURES AFTER EACH RAIN EVENT OF 0.5" OR GREATER IN A 24 HOUR PERIOD AND AT LEAST ONCE A WEEK.
21. THIS PLAN SHALL NOT BE CONSIDERED ALL INCLUSIVE, AS THE GENERAL CONTRACTOR SHALL TAKE ALL NECESSARY PRECAUTIONS TO PREVENT SEDIMENT FROM LEAVING THE SITE.
22. CONSTRUCTION VEHICLES SHALL UTILIZE THE STABILIZED CONSTRUCTION ENTRANCE TO THE EXTENT POSSIBLE THROUGHOUT CONSTRUCTION.
23. IF INSTALLATION OF STORM DRAINAGE SYSTEM SHOULD BE INTERRUPTED BY WEATHER OR NIGHTFALL, THE PIPE ENDS SHALL BE COVERED WITH FILTER FABRIC.
24. THE GENERAL CONTRACTOR SHALL BE RESPONSIBLE TO TAKE WHATEVER MEANS NECESSARY TO ESTABLISH PERMANENT SOIL STABILIZATION.
25. SEDIMENT SHALL BE REMOVED FROM ALL SEDIMENT BASINS BEFORE THEY ARE 25% FULL.
26. ALL WORK SHALL BE DONE IN STRICT ACCORDANCE WITH PROJECT SPECIFICATIONS.
27. ADDITIONAL EROSION AND SEDIMENT CONTROL MEASURES SHALL BE INSTALLED, IF DEEMED NECESSARY BY ON–SITE INSPECTION BY ENGINEER AND/OR REGULATORY OFFICIALS.
28. SEE ALSO EROSION AND SEDIMENT CONTROL SPECIFICATIONS ON SHEET E1–E2.
29. SOME DRAINAGE STRUCTURES ARE DETAILED ON THE PROFILES SHEETS.
30. IF ANY VISIBLE SIGNS OF CONTAMINATION ARE ENCOUNTERED DURING EARTHWORK ACTIVITIES (I.E. SKINS/HIDES, DISCOLORED SOIL, ODORS ECT.) THE CONTRACTOR SHOULD CONTACT THE PROJECT ENGINEER SO COORDINATION WITH NH DES CAN OCCUR TO REVIEW THE FINDINGS.
31. SEE PLAN & PROFILE SHEETS FOR DRAINAGE STRUCTURES ALONG ROADWAYS.
32. CONTRACTOR SHALL ADHERE TO ANY SITE SPECIFIC PROVISIONS FOUND IN GEOTECHNICAL REPORT BY S.W. COLE ENGINEERS. SOIL PREPARATION SHOULD FOLLOW REQUIREMENTS OF THE GEOTECHNICAL REPORT.

WETLAND IMPACTS

AREA NAME	AREA (S.F.)
IMPACT #1	337 S.F.
IMPACT #2	10,703 S.F.
IMPACT #3	4,029 S.F.
IMPACT #4	2,470 S.F.
IMPACT #5	32,176 S.F.
IMPACT #6	14,024 S.F.
IMPACT #7	23,378 S.F.
TOTAL	87,117 S.F.

PROJECT PARCEL
TOWN OF RAYMOND
TAX MAP 22, LOTS 44, 45, 46, 47
TAX MAP 28, BLOCK 3, LOT 120-1

APPLICANT
ONYX PARTNERS LTD
200 RESERVOIR STREET
NEEDHAM, MA 02494

TOTAL LOT AREA
5,380,531± SQ. FT.
123.52± ACRES

Design: EMP	Draft: GDR	Date: 8/19/21			
Checked: WGM	Scale: AS NOTED	Project No.: 21130			
Drawing Name: 21130-PLAN.dwg					

REV.	DATE	REVISION	BY
9	02/06/24	REVISED PER DRAINAGE MODIFICATIONS	EMP
8	11/30/23	REVISED FOR SUBMISSION TO TOWN OF RAYMOND	EMP
7	10/11/23	REVISED PER TOWN ENGINEER COMMENTS	EMP
6	05/09/23	REVISED PER PB AND AOT COMMENTS	EMP
5	04/12/23	REVISED PER PLANNING BOARD COMMENTS	EMP

Designed and Produced in NH
J/B Jones & Beach Engineers, Inc.
Civil Engineering Services
85 Portsmouth Ave.
PO Box 219
Stratham, NH 03885
603-772-4746
FAX: 603-772-0227
E-MAIL: JBE@JONESANDBEACH.COM

Plan Name: GRADING AND DRAINAGE PLAN
Project: RAYMOND DISTRIBUTION INDUSTRIAL DRIVE, RAYMOND, NH
Owner of Record: ONYX RAYMOND LLC 60 CENTRE STREET, DOVER, MA 02030

DRAWING No.
C3
SHEET 8 OF 50
JBE PROJECT NO. 21130

22. Attachments:

TEST PITS
FOR
INDUSTRIAL DRIVE
RAYMOND, NEW HAMPSHIRE
Date?
JBE Project No. 21130

Performed by: Wayne Morrill, Jones & Beach Engineers, Inc., SSD #1358
Witnessed by:

Test Pit #1

0"-20"		fill
20"-62"	10YR 5/4	yellowish brown fine sandy loam boulders

SHWT = None
Roots to 48"
NO H_2O
Refusal = 62"

Test Pit #2

0"-22"		fill
22"-42"	2.5Y 4/3	olive brown fine sandy loam
42"-68"	2.5Y 5/6	light olive brown single grain sand

SHWT = None
Roots to 42"
NO H_2O
No Refusal observed

Test Pit #3

0"-8"		top soil
8"-24"	10YR 4/6	dark yellowish brown coarse sand
24"-44"	2.5Y 6/3	light yellowish brown loamy sand
44"-105"	2.5Y 5/3	light olive brown fine sand

SHWT = 44"
Roots to 62"
NO H_2O
No Refusal observed

Test Pit #4

0"- 11"		top soil
11"- 28"	2.5Y 5/6	light olive brown fine sandy loam
28"- 74"	2.5Y 5/3	light olive brown loamy sand cobbles

SHWT = 75"
Roots to 75"
NO H_2O
No Refusal observed

Test Pit #5

0"-12"		top soil
12"-70"	2.5Y 6/6	olive yellow loamy sand

SHWT = None
No Refusal observed

TEST PITS
FOR
INDUSTRIAL DRIVE
RAYMOND, NEW HAMPSHIRE
August 3, 2022
JBE Project No. 21130

Performed by: Wayne Morrill, Jones & Beach Engineers, Inc., SSD #1358
Witnessed by:

Test Pit #201

loamy sand

SHWT = 43”
Bottom = 60”

Test Pit #202

fine sand

SHWT = 55”
Bottom = 68”

Test Pit #203

fine sand

SHWT = 50”
Bottom = 96”

Test Pit #204

0”- 4”		top soil
4”- 26”	10YR 5/6	yellowish brown loamy sand granular, friable
26”- 60”	10YR 3/6	dark yellowish brown fine sandy loam granular, friable cobbles

SHWT = None
Roots to 60”
NO H_2O
Refusal = 60”

Test Pit #205

sand

SHWT = 46”
Bottom = 63”
No Refusal observed

Test Pit #206

sand

SHWT = 54”
Bottom = 67”

Table 1: Filterra® Quick Sizing Table (Northeast Region - v04)

Available Filterra® Box Sizes (feet)	Recommended Commercial Contributing Drainage Area (acres) where C = 0.85	Outlet Pipe
4x6 or 6x4	up to 0.32	4” SDR-35 PVC
4x8 or 8x4	0.33 to 0.42	4” SDR-35 PVC
Standard 6x6	0.43 to 0.47	4” SDR-35 PVC
6x8 or 8x6 or 4x12 or 12x4	0.48 to 0.64	4” SDR-35 PVC
6x10 or 10x6	0.65 to 0.79	6” SDR-35 PVC
6x12 or 12x6	0.80 to 0.95	6” SDR-35 PVC
7x13 or 13x7	0.96 to 1.20	6” SDR-35 PVC

Available Filterra® Box Sizes (feet)	Recommended Residential Contributing Drainage Area (acres) where C = 0.50	Outlet Pipe
4x6 or 6x4	up to 0.54	4” SDR-35 PVC
4x8 or 8x4	0.56 to 0.72	4” SDR-35 PVC
Standard 6x6	0.73 to 0.80	4” SDR-35 PVC
6x8 or 8x6 or 4x12 or 12x4	0.81 to 1.08	4” SDR-35 PVC
6x10 or 10x6	1.09 to 1.34	6” SDR-35 PVC
6x12 or 12x6	1.35 to 1.62	6” SDR-35 PVC
7x13 or 13x7	1.63 to 2.04	6” SDR-35 PVC

Notes:

1. All boxes are a standard 3.5 feet depth (INV to TC)
2. A standard SDR-35 PVC pipe coupling is cast into the wall for easy connection to discharge drain
3. Dimensions shown are internal. Please add 1’ to each external dimensions (using 6” walls)
4. In line with TR55 data, for Commercial Developments a minimum (runoff coefficient) C factor of 0.85 is recommended. For Residential Developments, use of C factors less than 0.5 require individual site review by Filterra.
5. Please ask for Sizing Tables for other target treatment goals, e.g. 0.3 in/hr
6. This sizing table is valid for MA (treating 90% of annual runoff) and typical for the Northeast region.

Filterra Vault Configuration Plant List - Northeast Atlantic Region
(States of CT, MA, ME, NH, NY, RI, VT)

Common Name	Latin Name	Plant Type	Sun	Hardy Range	Height	Spread	Sizing	Region Availability
Buttonbush	*Cephalanthus occidentalis*	Deciduous	Partial Shade to Full Sun	4A – 10A	4' – 6'	6' – 10'	L	MA, NE, NW, SE, SC
Chokeberry, Black	*Aronia melanocarpa*	Deciduous	Full Shade to Full Sun	3B – 8B	3' – 6'	4' – 6'	M	GL, MA, NE, NW, SE, NoCA, SoCA
Chokeberry, Red	*Aronia arbutifolia*	Deciduous	Partial Shade to Full Sun	4B – 9A	6' – 10'	4' – 6'	M	GL, MA, NE, NW, SE, NoCA, SoCA
Crabapple, American	*Malus coronaria*	Deciduous	Full Sun	3B - 8A	15' - 25'	10' - 25'	Tree	GL, MA, NE, NW, SE, NoCA, SoCA
Dogwood, Chinese	*Cornus kousa*	Deciduous	Partial Shade to Full Sun	4B - 8A	15' - 25'	20' - 30'	Tree	GL, MA, NE, NW, SE
Dogwood, Cornelian Cherry	*Cornus mas*	Deciduous	Partial Shade to Full Sun	4B - 8A	15' - 20'	15' - 20'	Tree	GL, MA, NE, NW, SE
Franklin Tree	*Franklinia alatamaha*	Deciduous	Partial Shade to Full Sun	5A - 8A	15' - 25'	10' - 15'	Tree	GL, MA, NE, NW, SC, SE
Fringe Tree, Chinese	*Chionanthus retusus*	Deciduous	Full Shade to Full Sun	5B - 9A	15' - 25'	10' - 15'	Tree	GL, MA, NW, NE, SC, SE, NoCA, SoCA
Fringe Tree, White	*Chionanthus virginicus*	Deciduous	Full Shade to Full Sun	4A - 9A	12' - 20'	10' - 15'	Tree	GL, MA, NE, NW, SC, SE
Lilac, Dwarf	*Syringa meyeri*	Deciduous	Full Sun	3B – 8A	5' – 8'	8' – 10'	L	GL, MA, NE, NW, SC, SE, NoCA, SoCA
Lilac, Japanese Tree	*Syringa reticulata*	Deciduous	Full Sun	3A - 7A	15' - 25'	10' - 15'	XL	GL, MA, NE, NW, SC, SE
Maackia, Amur	*Maackia amurensis*	Deciduous	Full sun	4A - 7A	15' - 25'	15' - 25'	Tree	GL, MA, NE, NW, SE, SC
Magnolia, Galaxy	*Magnolia x 'Galaxy'*	Deciduous	Partial Shade to Full Sun	5A - 8B	15' - 20'	15' - 25'	Tree	GL, MA, NE, NW, SC, SE, NoCA, SoCA
Magnolia, Saucer	*Magnolia x soulangiana*	Deciduous	Partial Shade to Full Sun	5A - 9A	15' - 25'	15' - 25'	Tree	MA, NE, NW, SC, SE, NoCA, SoCA
Magnolia, Star	*Magnolia stellata*	Deciduous	Partial Shade to Full Sun	4A - 8B	10' - 20'	10' - 15'	XL	GL, MA, NE, NW, SC, SE
Northern Bayberry	*Myrica pensylvanica*	Deciduous	Partial Shade to Full Sun	3A – 7A	10' – 15'	6' – 10'	L	GL, MA, NE, SE
Redbud, Eastern	*Cercis canadensis*	Deciduous	Partial Shade to Full Sun	4B - 9A	15' - 25'	15' - 25'	Tree	GL, GP, MA, NE, NW, SE, NoCA, SoCA
Serviceberry	*Amelanchier x grandiflora*	Deciduous	Partial Shade to Full Sun	4A - 7A	15' - 25'	15' - 25'	Tree	GL, MA, NE, NW, SC, SE
Smoketree, American	*Cotinus obovatus*	Deciduous	Partial Shade to Full Sun	4B - 8A	20' - 25'	20' – 25'	Tree	GL, MA, NE, NW, SC, SE
Viburnum, American Cranberrybush	*Viburnum trilobum*	Deciduous	Partial Shade to Full Sun	2A - 7B	8' - 12'	8' - 15'	XL	MA, NE, SE
Viburnum, Arrowwood	*Viburnum dentatum*	Deciduous	Full Shade to Full Sun	2B – 8B	5' – 15'	5' – 12'	L	GL, MA, NE, NW, SC, SE
Viburnum, Blackhaw	*Viburnum prunifolium*	Deciduous	Full Shade to Full Sun	3B – 9A	12' – 15'	15' – 20'	Tree	GL, MA, NE, NW, SE
Holly, Chinese	*Ilex cornuta*	Evergreen	Partial Shade to Full Sun	7A - 9A	15' - 25'	15' - 25'	Tree	MA, NE, NW, SE, NoCA, SoCA
Holly, Foster's	*Ilex x attenuata 'Fosteri'*	Evergreen	Partial Shade to Full Sun	6A - 9A	20' - 25'	6' - 10'	L	MA, NE, NW, SC, SE, NoCA, SoCA
Holly, Nellie Stevens	*Ilex x*	Evergreen	Partial Shade to Full Sun	6A - 9A	15' - 25'	6' - 10'	L	MA, NE, NW, SC, SE, NoCA, SoCA

Common Name	Latin Name	Plant Type	Sun	Hardy Range	Height	Spread	Sizing	Region Availability
Magnolia, Sweetbay or Swamp	*Magnolia virginiana*	Evergreen	Full Shade to Full Sun	5A - 10A	12' - 20'	15' - 25'	Tree	MA, NE, NW, SE
Spruce, Blue Totem	*Picea pungens Fastiglata Wells ' Blue Totem'*	Evergreen	Partial Shade to Full Sun	3A - 7A	12' - 15'	2' - 3'	S	GP, NE
Spruce, Dwarf Bakeri	*Picea pungens*	Evergreen	Partial Shade to Full Sun	3A - 7A	12'	6'	M	GP, NE

Notes:

1. The species listed are drought tolerant and have applicability to bioretention due to shallow root zones.

2. The plants highlighted in green are typically more readily available in the noted regions as the listed species or another similar cultivar.

3. This list is subject to availability and Contech reserves the right to make appropriate substitutions when necessary.

4. For species not listed, please contact Contech for suitability.

NOTES TO USERS

This map is for use in administering the National Flood Insurance Program. It does not necessarily identify all areas subject to flooding, particularly from local drainage sources of small size. The **community map repository** should be consulted for possible updated or additional flood hazard information.

To obtain more detailed information in areas where **Base Flood Elevations** (BFEs) and/or **floodways** have been determined, users are encouraged to consult the Flood Profiles, Floodway Data and/or Summary of Stillwater Elevations tables contained within the Flood Insurance Study (FIS) report that accompanies this FIRM. Users should be aware that BFEs shown on the FIRM represent rounded whole–foot elevations. These BFEs are intended for flood insurance rating purposes only and should not be used as the sole source of flood elevation information. Accordingly, flood elevation data presented in the FIS report should be utilized in conjunction with the FIRM for purposes of construction and/or floodplain management.

Coastal Base Flood Elevations shown on this map apply only landward of 0.0' National Geodetic Vertical Datum of 1929 (NGVD 29). Users of this FIRM should be aware that coastal flood elevations are also provided in the Summary of Stillwater Elevations tables in the Flood Insurance Study report for this jurisdiction. Elevations shown in the Summary of Stillwater Elevations tables should be used for construction and/or floodplain management purposes when they are higher than the elevations shown on this FIRM.

Boundaries of the **floodways** were computed at cross sections and interpolated between cross sections. The floodways were based on hydraulic considerations with regard to requirements of the National Flood Insurance Program. Floodway widths and other pertinent floodway data are provided in the Flood Insurance Study report for this jurisdiction.

Certain areas not in Special Flood Hazard Areas may be protected by **flood control structures.** Refer to Section 2.4 "Flood Protection Measures" of the Flood Insurance Study report for information on flood control structures in this jurisdiction.

The **projection** used in the preparation of this map was New Hampshire State Plane, FIPSZONE 2800. The **horizontal datum** was NAD 83, GRS80 spheroid. Differences in datum, spheroid, projection or State Plane zones used in the production of FIRMs for adjacent jurisdictions may result in slight positional differences in map features across jurisdiction boundaries. These differences do not affect the accuracy of this FIRM.

Flood elevations on this map are referenced to the National Geodetic Vertical Datum of 1929. These flood elevations must be compared to structure and ground elevations referenced to the same **vertical datum**. For information regarding conversion between the National Geodetic Vertical Datum of 1929 and the North American Vertical Datum of 1988, visit the National Geodetic Survey website at www.ngs.noaa.gov or contact the National Geodetic Survey at the following address:

Spatial Reference System Division
National Geodetic Survey, NOAA
Silver Spring Metro Center
1315 East–West Highway
Silver Spring, Maryland 20910
(301) 713–3191

To obtain current elevation, description, and/or location information for **bench marks** shown on this map, please contact the Information Services Branch of the National Geodetic Survey at **(301) 713-3242**, or visit their website at www.ngs.noaa.gov.

Base map information shown on this FIRM was derived from U.S. Geological Survey Digital Orthophoto Quadrangles (DOQs) produced at a scale of 1:12,000 from photography dated 1998 or later.

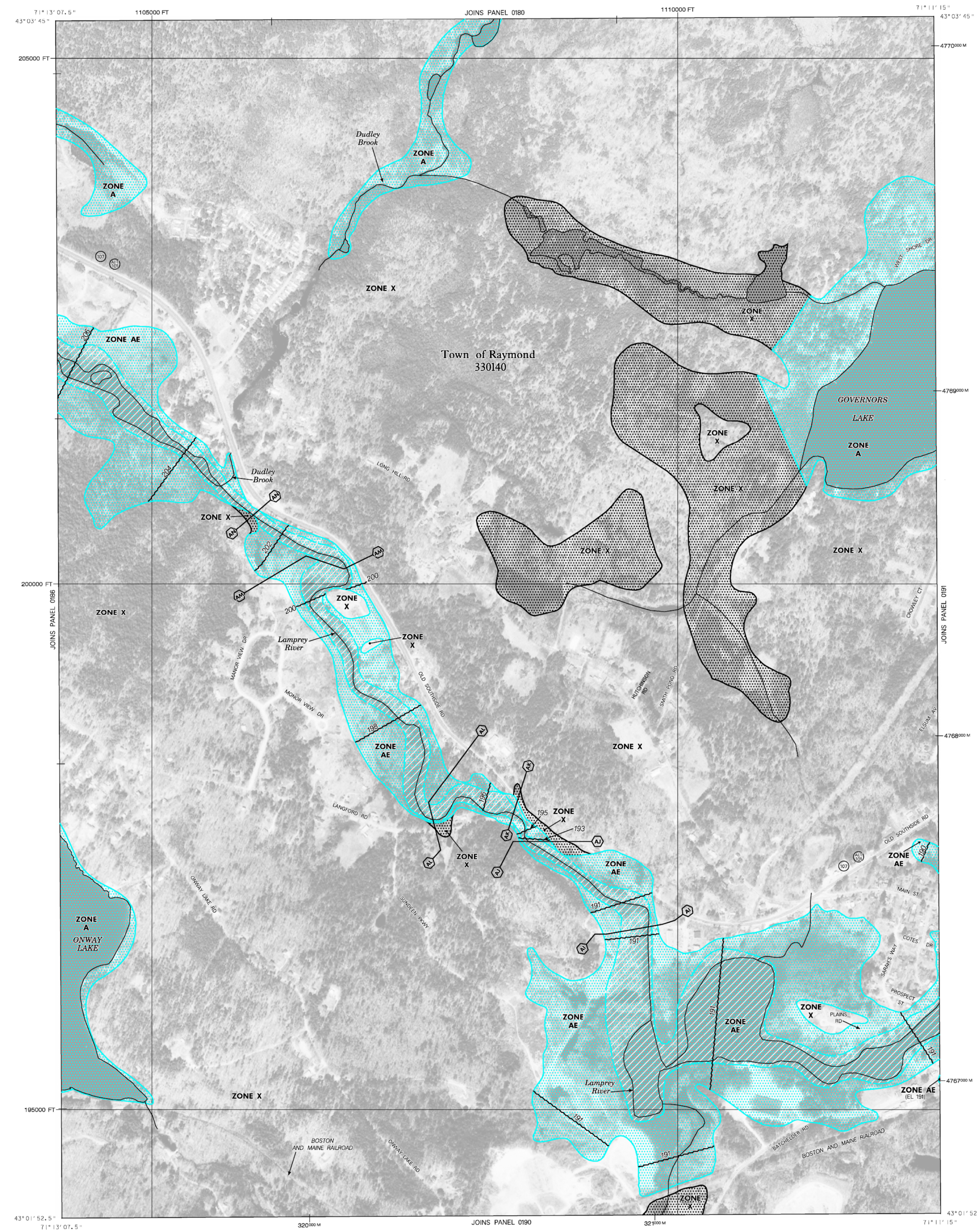
This map reflects more detailed and up–to–date **stream channel configurations** than those shown on the previous FIRM for this jurisdiction. The floodplains and floodways that were transferred from the previous FIRM may have been adjusted to conform to these new stream channel configurations. As a result, the Flood Profiles and Floodway Data tables in the Flood Insurance Study report (which contains authoritative hydraulic data) may reflect stream channel distances that differ from what is shown on this map.

Corporate limits shown on this map are based on the best data available at the time of publication. Because changes due to annexations or de–annexations may have occurred after this map was published, map users should contact appropriate community officials to verify current corporate limit locations.

Please refer to the separately printed **Map Index** for an overview map of the county showing the layout of map panels; community map repository addresses; and a Listing of Communities table containing National Flood Insurance Program dates for each community as well as a listing of the panels on which each community is located.

Contact the **FEMA Map Service Center** at 1–800–358–9616 for information on available products associated with this FIRM. Available products may include previously issued Letters of Map Change, a Flood Insurance Study report, and/or digital versions of this map. The FEMA Map Service Center may also be reached by Fax at 1–800–358–9620 and their website at www.fema.gov/msc.

If you have **questions about this map** or questions concerning the National Flood Insurance Program in general, please call **1-877-FEMA MAP** (1–877–336–2627) or visit the FEMA website at www.fema.gov.



LEGEND

SPECIAL FLOOD HAZARD AREAS (SFHAs) SUBJECT TO INUNDATION BY THE 1% ANNUAL CHANCE FLOOD

The 1% annual chance flood (100–year flood), also known as the base flood, is the flood that has a 1% chance of being equaled or exceeded in any given year. The Special Flood Hazard Area is the area subject to flooding by the 1% annual chance flood. Areas of Special Flood Hazard include Zones A, AE, AH, AO, AR, A99, V, and VE. The Base Flood Elevation is the water–surface elevation of the 1% annual chance flood.

ZONE A	No Base Flood Elevations determined.
ZONE AE	Base Flood Elevations determined.
ZONE AH	Flood depths of 1 to 3 feet (usually areas of ponding); Base Flood Elevations determined.
ZONE AO	Flood depths of 1 to 3 feet (usually sheet flow on sloping terrain); average depths determined. For areas of alluvial fan flooding, velocities also determined.
ZONE AR	Special Flood Hazard Area formerly protected from the 1% annual chance flood by a flood control system that was subsequently decertified. Zone AR indicates that the former flood control system is being restored to provide protection from the 1% annual chance or greater flood.
ZONE A99	Area to be protected from 1% annual chance flood by a Federal flood protection system under construction; no Base Flood Elevations determined.
ZONE V	Coastal flood zone with velocity hazard (wave action); no Base Flood Elevations determined.
ZONE VE	Coastal flood zone with velocity hazard (wave action); Base Flood Elevations determined.

FLOODWAY AREAS IN ZONE AE

The floodway is the channel of a stream plus any adjacent floodplain areas that must be kept free of encroachment so that the 1% annual chance flood can be carried without substantial increases in flood heights.

OTHER FLOOD AREAS

ZONE X	Areas of 0.2% annual chance flood; areas of 1% annual chance flood with average depths of less than 1 foot or with drainage areas less than 1 square mile; and areas protected by levees from 1% annual chance flood.

OTHER AREAS

ZONE X	Areas determined to be outside the 0.2% annual chance floodplain.
ZONE D	Areas in which flood hazards are undetermined, but possible.

COASTAL BARRIER RESOURCES SYSTEM (CBRS) AREAS

OTHERWISE PROTECTED AREAS (OPAs)

CBRS areas and OPAs are normally located within or adjacent to Special Flood Hazard Areas.

1% annual chance floodplain boundary
0.2% annual chance floodplain boundary
Floodway boundary
Zone D boundary
CBRS and OPA boundary
Boundary dividing Special Flood Hazard Areas of different Base Flood Elevations, flood depths or flood velocities.

513	Base Flood Elevation line and value; elevation in feet*
(EL 987)	Base Flood Elevation value where uniform within zone; elevation in feet*

*Referenced to the National Geodetic Vertical Datum of 1929

A — A	Cross section line
23 - - - 23	Transect line
97° 07′ 30″, 32° 22′ 30″	Geographic coordinates referenced to the North American Datum of 1983 (NAD 83)
4276000 M	1000–meter Universal Transverse Mercator grid tick values, zone 19
600000 FT	5000–foot grid: New Hampshire State Plane coordinate system, (FIPSZONE 2800), Transverse Mercator projection.
DX5510 ×	Bench mark (see explanation in Notes to Users section of this FIRM panel)
● M1.5	River Mile

MAP REPOSITORY
Refer to listing of Map Repositories on Map Index

EFFECTIVE DATE OF COUNTYWIDE
FLOOD INSURANCE RATE MAP
MAY 17, 2005

EFFECTIVE DATE(S) OF REVISION(S) TO THIS PANEL

For community map revision history prior to countywide mapping, refer to the Community Map History table located in the Flood Insurance Study report for this jurisdiction.

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

MAP SCALE 1" = 500'

250 0 500 1000 FEET

150 0 150 300 METERS

NFIP

NATIONAL FLOOD INSURANCE PROGRAM

PANEL 0187E

FIRM
FLOOD INSURANCE RATE MAP
ROCKINGHAM COUNTY,
NEW HAMPSHIRE
(ALL JURISDICTIONS)

PANEL 187 OF 681

(SEE MAP INDEX FOR FIRM PANEL LAYOUT)

CONTAINS:

COMMUNITY	NUMBER	PANEL	SUFFIX
RAYMOND, TOWN OF	330140	0187	E

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

MAP NUMBER
33015C0187E

EFFECTIVE DATE
MAY 17, 2005

Federal Emergency Management Agency

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To obtain more detailed information in areas where **Base Flood Elevations** (BFEs) and/or **floodways** have been determined, users are encouraged to consult the Flood Profiles, Floodway Data and/or Summary of Stillwater Elevations tables contained within the Flood Insurance Study (FIS) report that accompanies this FIRM. Users should be aware that BFEs shown on the FIRM represent rounded whole–foot elevations. These BFEs are intended for flood insurance rating purposes only and should not be used as the sole source of flood elevation information. Accordingly, flood elevation data presented in the FIS report should be utilized in conjunction with the FIRM for purposes of construction and/or floodplain management.

Coastal Base Flood Elevations shown on this map apply only landward of 0.0' National Geodetic Vertical Datum of 1929 (NGVD 29). Users of this FIRM should be aware that coastal flood elevations are also provided in the Summary of Stillwater Elevations tables in the Flood Insurance Study report for this jurisdiction. Elevations shown in the Summary of Stillwater Elevations tables should be used for construction and/or floodplain management purposes when they are higher than the elevations shown on this FIRM.

Boundaries of the **floodways** were computed at cross sections and interpolated between cross sections. The floodways were based on hydraulic considerations with regard to requirements of the National Flood Insurance Program. Floodway widths and other pertinent floodway data are provided in the Flood Insurance Study report for this jurisdiction.

Certain areas not in Special Flood Hazard Areas may be protected by **flood control structures.** Refer to Section 2.4 "Flood Protection Measures" of the Flood Insurance Study report for information on flood control structures in this jurisdiction.

The **projection** used in the preparation of this map was New Hampshire State Plane, FIPSZONE 2800. The **horizontal datum** was NAD 83, GRS80 spheroid. Differences in datum, spheroid, projection or State Plane zones used in the production of FIRMs for adjacent jurisdictions may result in slight positional differences in map features across jurisdiction boundaries. These differences do not affect the accuracy of this FIRM.

Flood elevations on this map are referenced to the National Geodetic Vertical Datum of 1929. These flood elevations must be compared to structure and ground elevations referenced to the same **vertical datum**. For information regarding conversion between the National Geodetic Vertical Datum of 1929 and the North American Vertical Datum of 1988, visit the National Geodetic Survey website at www.ngs.noaa.gov or contact the National Geodetic Survey at the following address:

Spatial Reference System Division
National Geodetic Survey, NOAA
Silver Spring Metro Center
1315 East–West Highway
Silver Spring, Maryland 20910
(301) 713–3191

To obtain current elevation, description, and/or location information for **bench marks** shown on this map, please contact the Information Services Branch of the National Geodetic Survey at **(301) 713-3242**, or visit their website at www.ngs.noaa.gov.

Base map information shown on this FIRM was derived from U.S. Geological Survey Digital Orthophoto Quadrangles (DOQs) produced at a scale of 1:12,000 from photography dated 1998 or later.

This map reflects more detailed and up–to–date **stream channel configurations** than those shown on the previous FIRM for this jurisdiction. The floodplains and floodways that were transferred from the previous FIRM may have been adjusted to conform to these new stream channel configurations. As a result, the Flood Profiles and Floodway Data tables in the Flood Insurance Study report (which contains authoritative hydraulic data) may reflect stream channel distances that differ from what is shown on this map.

Corporate limits shown on this map are based on the best data available at the time of publication. Because changes due to annexations or de–annexations may have occurred after this map was published, map users should contact appropriate community officials to verify current corporate limit locations.

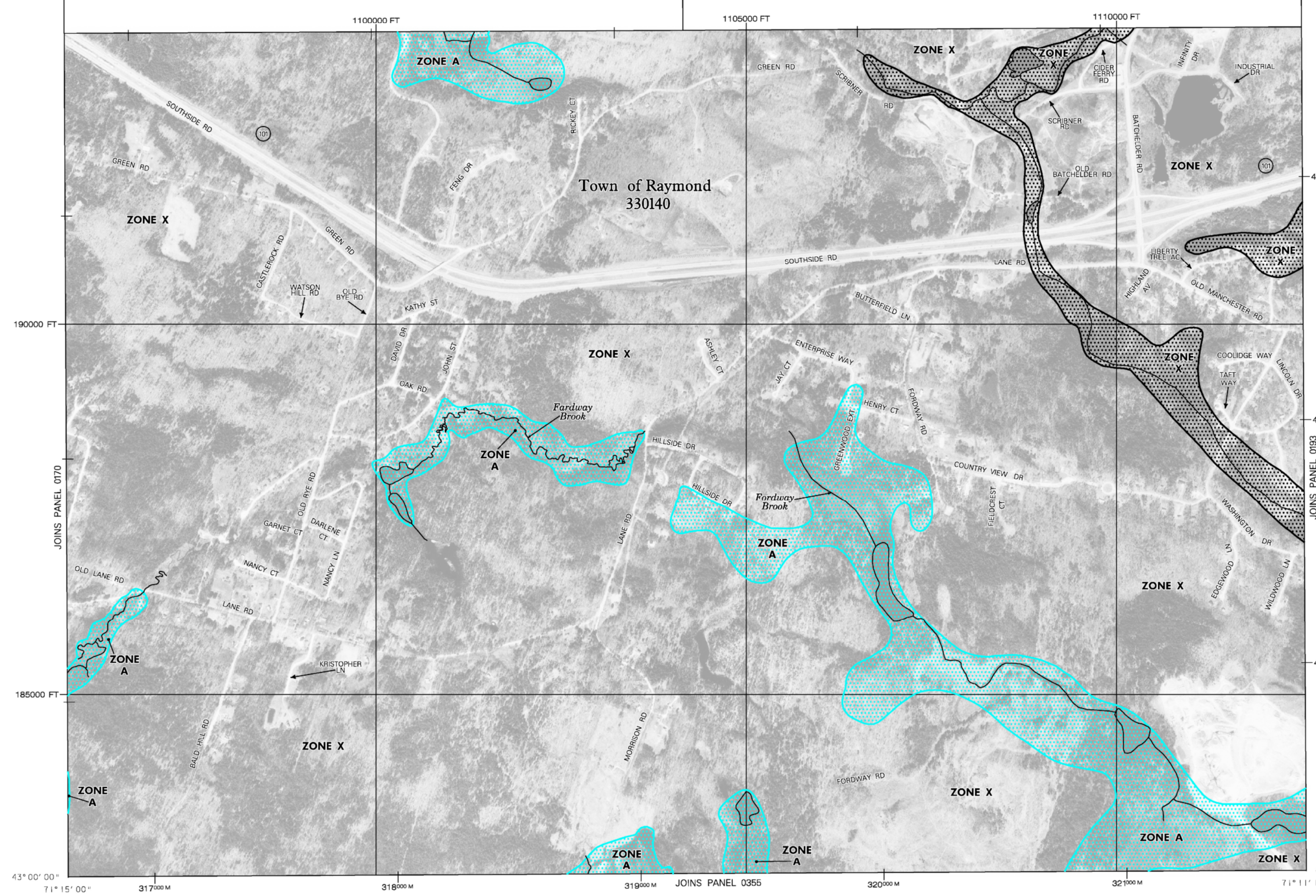
Please refer to the separately printed **Map Index** for an overview map of the county showing the layout of map panels; community map repository addresses; and a Listing of Communities table containing National Flood Insurance Program dates for each community as well as a listing of the panels on which each community is located.

Contact the **FEMA Map Service Center** at 1–800–358–9616 for information on available products associated with this FIRM. Available products may include previously issued Letters of Map Change, a Flood Insurance Study report, and/or digital versions of this map. The FEMA Map Service Center may also be reached by Fax at 1–800–358–9620 and their website at www.fema.gov/msc.

If you have **questions about this map** or questions concerning the National Flood Insurance Program in general, please call **1-877-FEMA MAP** (1–877–336–2627) or visit the FEMA website at www.fema.gov.

THIS AREA SHOWN AT A SCALE OF 1" = 500'
ON MAP NUMBER 33015C0186

THIS AREA SHOWN AT A SCALE OF 1" = 500'
ON MAP NUMBER 33015C0187



LEGEND

SPECIAL FLOOD HAZARD AREAS (SFHAs) SUBJECT TO INUNDATION BY THE 1% ANNUAL CHANCE FLOOD

The 1% annual chance flood (100–year flood), also known as the base flood, is the flood that has a 1% chance of being equaled or exceeded in any given year. The Special Flood Hazard Area is the area subject to flooding by the 1% annual chance flood. Areas of Special Flood Hazard include Zones A, AE, AH, AO, AR, A99, V, and VE. The Base Flood Elevation is the water–surface elevation of the 1% annual chance flood.

ZONE A	No Base Flood Elevations determined.
ZONE AE	Base Flood Elevations determined.
ZONE AH	Flood depths of 1 to 3 feet (usually areas of ponding); Base Flood Elevations determined.
ZONE AO	Flood depths of 1 to 3 feet (usually sheet flow on sloping terrain); average depths determined. For areas of alluvial fan flooding, velocities also determined.
ZONE AR	Special Flood Hazard Area formerly protected from the 1% annual chance flood by a flood control system that was subsequently decertified. Zone AR indicates that the former flood control system is being restored to provide protection from the 1% annual chance or greater flood.
ZONE A99	Area to be protected from 1% annual chance flood by a Federal flood protection system under construction; no Base Flood Elevations determined.
ZONE V	Coastal flood zone with velocity hazard (wave action); no Base Flood Elevations determined.
ZONE VE	Coastal flood zone with velocity hazard (wave action); Base Flood Elevations determined.

FLOODWAY AREAS IN ZONE AE

The floodway is the channel of a stream plus any adjacent floodplain areas that must be kept free of encroachment so that the 1% annual chance flood can be carried without substantial increases in flood heights.

OTHER FLOOD AREAS

ZONE X	Areas of 0.2% annual chance flood; areas of 1% annual chance flood with average depths of less than 1 foot or with drainage areas less than 1 square mile; and areas protected by levees from 1% annual chance flood.

OTHER AREAS

ZONE X	Areas determined to be outside the 0.2% annual chance floodplain.
ZONE D	Areas in which flood hazards are undetermined, but possible.

COASTAL BARRIER RESOURCES SYSTEM (CBRS) AREAS

OTHERWISE PROTECTED AREAS (OPAs)

CBRS areas and OPAs are normally located within or adjacent to Special Flood Hazard Areas.

1% annual chance floodplain boundary
0.2% annual chance floodplain boundary
Floodway boundary
Zone D boundary
CBRS and OPA boundary
Boundary dividing Special Flood Hazard Areas of different Base Flood Elevations, flood depths or flood velocities.

513	Base Flood Elevation line and value; elevation in feet*
(EL 987)	Base Flood Elevation value where uniform within zone; elevation in feet*

*Referenced to the National Geodetic Vertical Datum of 1929

(A)——(A)	Cross section line
(23)- - - -(23)	Transect line
97° 07' 30", 32° 22' 30"	Geographic coordinates referenced to the North American Datum of 1983 (NAD 83)
4276000 M	1000–meter Universal Transverse Mercator grid tick values, zone 19
600000 FT	5000–foot grid: New Hampshire State Plane coordinate system, (FIPSZONE 2800), Transverse Mercator projection.
DX5510 X	Bench mark (see explanation in Notes to Users section of this FIRM panel)
● M1.5	River Mile

MAP REPOSITORY
Refer to listing of Map Repositories on Map Index

EFFECTIVE DATE OF COUNTYWIDE
FLOOD INSURANCE RATE MAP
MAY 17, 2005

EFFECTIVE DATE(S) OF REVISION(S) TO THIS PANEL

For community map revision history prior to countywide mapping, refer to the Community Map History table located in the Flood Insurance Study report for this jurisdiction.

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

N

MAP SCALE 1" = 1000'

500 0 1000 2000 FEET

300 0 300 600 METERS

NFIP

NATIONAL FLOOD INSURANCE PROGRAM

PANEL 0190E

FIRM
FLOOD INSURANCE RATE MAP
ROCKINGHAM COUNTY,
NEW HAMPSHIRE
(ALL JURISDICTIONS)

PANEL 190 OF 681

(SEE MAP INDEX FOR FIRM PANEL LAYOUT)

CONTAINS:

COMMUNITY	NUMBER	PANEL	SUFFIX
RAYMOND, TOWN OF	330140	0190	E

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

MAP NUMBER
33015C0190E

EFFECTIVE DATE
MAY 17, 2005

Federal Emergency Management Agency

S.W.COLE ENGINEERING, INC.

Bulk Density and Void Content of Aggregate

PROJECT NAME:	Candia, NH - 2011 Laboratory Testing	**PROJ. NO:**	11-0052 M
CLIENT:	Severino Trucking Co., Inc.	**DATE:**	3/10/2011
		TESTED BY:	S. Benoit

LAB ID: 8163S
SAMPLE DESCRIPTION: 1 1/2-inch Crushed Stone (screened in lab over #4 sieve)
SAMPLE SOURCE Route 11 - Rochester, NH

Dry Rodded Weight

Mold & Agg	31.25	30.8	31.9
Mold Wt.	6.45		
Volume of Mold	0.25		

Unit Wt. (pcf)	*99.2*	*97.4*	*101.8*
AVE	**99.5**		

Bulk Specific Density

Agg Dry Wt.	25.5
Weight in H2O	20.3
Tare in H2O	4.0
Gsb	*2.79*

Combined Test Results

Bulk Specific Density **173.7 pcf**
Bulk Density **99.5 pcf**
Void Content **42.7 %**

Water Volume Per Cubic Foot (Gals) **3.2**
Per Cubic Yard (Gals) **86.4**

S. W. COLE ENGINEERING, INC.
*10 Centre Road, Somersworth, New Hampshire 03878-2926 * Tel (603) 692-0088 * Fax (603) 692-0044 * www.swcole.com*

LOCUS SCALE: 1"=2000'

LEGEND

SUBCATCHMENT BOUNDARY	
SUBCATCHMENT	X
REACH	X
POND	X
TC PATH	
WETLANDS	
HISS SOILS	
FLOW ARROW	

PROJECT PARCEL
TOWN OF RAYMOND
TAX MAP 22, LOTS 44, 45, 46, 47
TAX MAP 28, BLOCK 3, LOT 120-1

APPLICANT
ONYX PARTNERS LTD
200 RESERVOIR STREET
NEEDHAM, MA 02494

TOTAL LOT AREA
5,380,531± SQ. FT.
123.52± ACRES

GRAPHIC SCALE
200 0 100 200 400 800
(IN FEET)
1 inch = 200 ft.

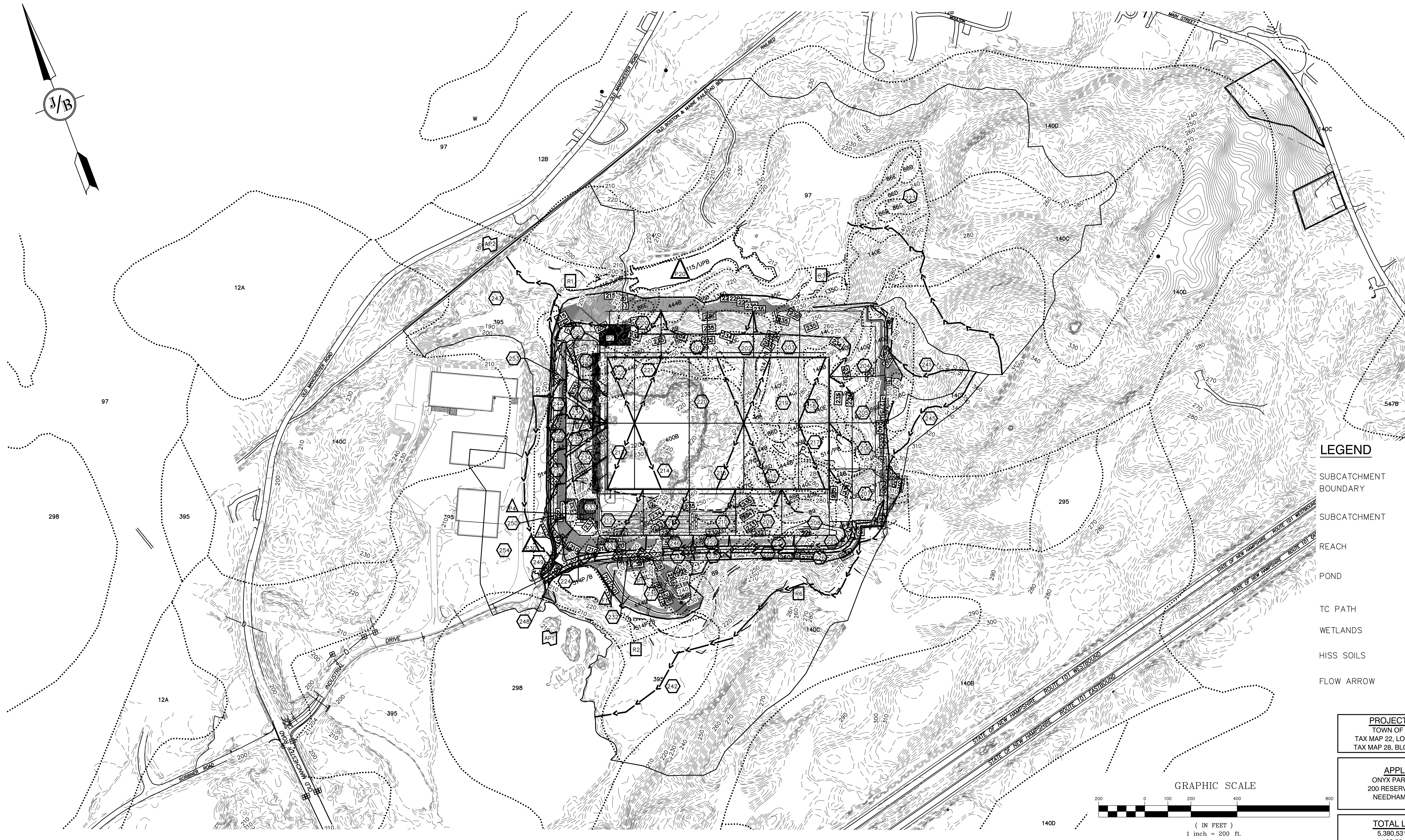
Design: EJP	Draft: GAP	Date: 08/12/22			
Checked: WJM	Scale: AS NOTED	Project No.: 21130			
Drawing Name: 21130-WATERSHEDS.dwg					

REV.	DATE	REVISION	BY
3	02/07/24	REVISED PER DRAINAGE MODIFICATIONS	EMP
2	04/12/23	REVISED PER PB COMMENTS	EMP
1	11/10/22	REVISED PER AOT/TRC/TOWN ENGINEER COMMENTS	EMP
0	8/12/22	ISSUED FOR REVIEW	GAP

Designed and Produced in NH
Jones & Beach Engineers, Inc.
Civil Engineering Services
85 Portsmouth Ave.
PO Box 219
Stratham, NH 03885
603-772-4746
FAX: 603-772-0227
E-MAIL: JBE@JONESANDBEACH.COM

Plan Name: EXISTING WATERSHED PLAN
Project: RAYMOND DISTRIBUTION INDUSTRIAL DRIVE, RAYMOND, NH
Owner of Record: ONYX RAYMOND LLC 60 CENTRE STREET, DOVER, MA 02030

DRAWING No.
W1
SHEET 1 OF 6
JBE PROJECT NO. 21130



LEGEND

SUBCATCHMENT BOUNDARY	
SUBCATCHMENT	X
REACH	X
POND	X
TC PATH	
WETLANDS	
HISS SOILS	
FLOW ARROW	

GRAPHIC SCALE

200 0 100 200 400 800

(IN FEET)
1 inch = 200 ft.

PROJECT PARCEL
TOWN OF RAYMOND
TAX MAP 22, LOTS 44, 45, 46, 47
TAX MAP 28, BLOCK 3, LOT 120-1

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TOTAL LOT AREA
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DRAWING No.
W2-0
SHEET 2 OF 6
JBE PROJECT NO. 21130

PROJECT PARCEL
TOWN OF RAYMOND
TAX MAP 22, LOTS 44, 45, 46, 47
TAX MAP 28, BLOCK 3, LOT 120-1

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200 RESERVOIR STREET
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DRAWING No.
W2-1
SHEET 3 OF 6
JBE PROJECT NO. 21130

GRAPHIC SCALE

(IN FEET)
1 inch = 50 ft.

PROJECT PARCEL
TOWN OF RAYMOND
TAX MAP 22, LOTS 44, 45, 46, 47
TAX MAP 28, BLOCK 3, LOT 120-1

APPLICANT
ONYX PARTNERS LTD
200 RESERVOIR STREET
NEEDHAM, MA 02494

TOTAL LOT AREA
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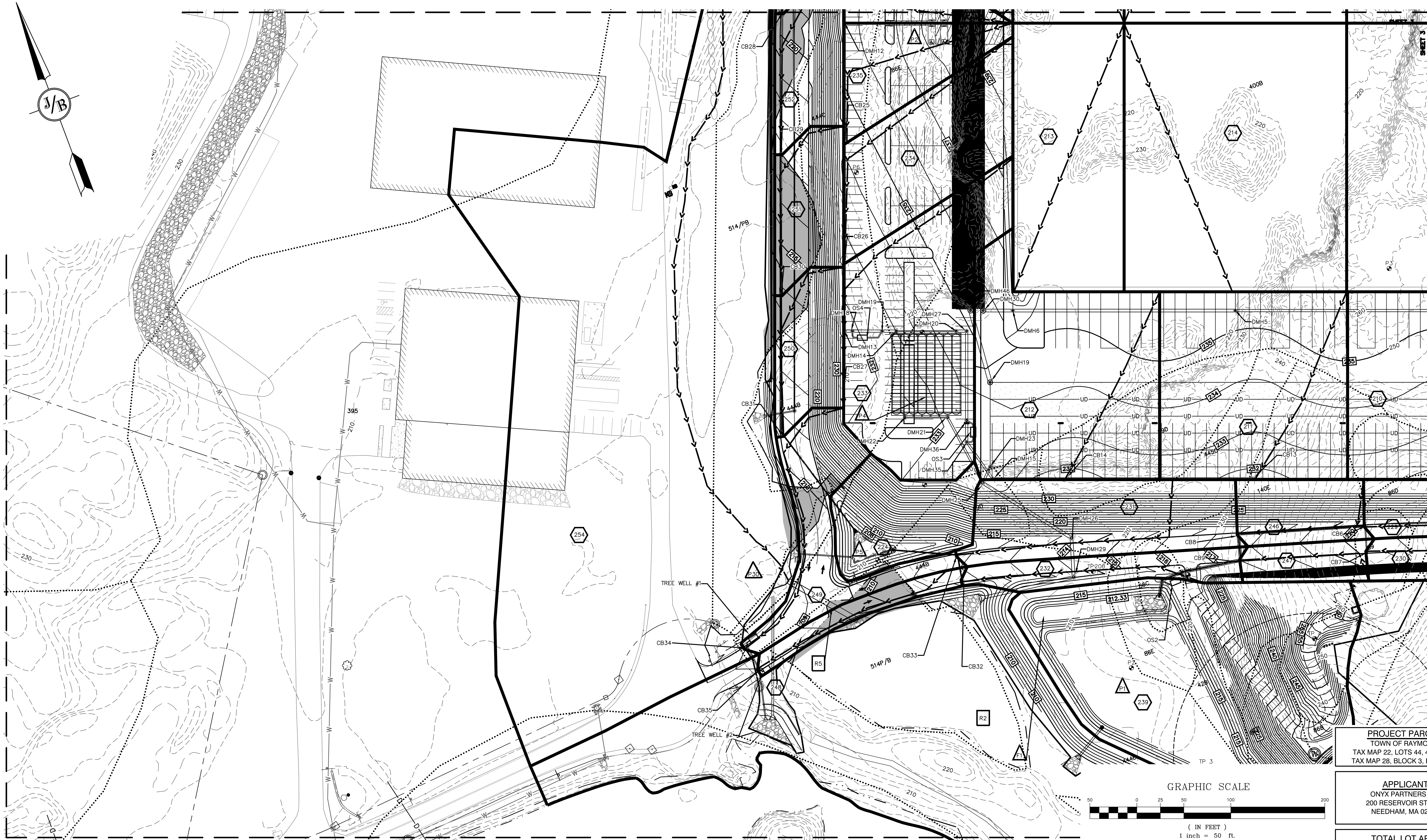
Owner of Record:	ONYX RAYMOND LLC 60 CENTRE STREET, DOVER, MA 02030

DRAWING No.

W2-2

SHEET 4 OF 6
JBE PROJECT NO. 21130



PROJECT PARCEL
TOWN OF RAYMOND
TAX MAP 22, LOTS 44, 45, 46, 47
TAX MAP 28, BLOCK 3, LOT 120-1

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DRAWING No.
W2-3
SHEET 5 OF 6
JBE PROJECT NO. 21130

PROJECT PARCEL
TOWN OF RAYMOND
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TAX MAP 28, BLOCK 3, LOT 120-1

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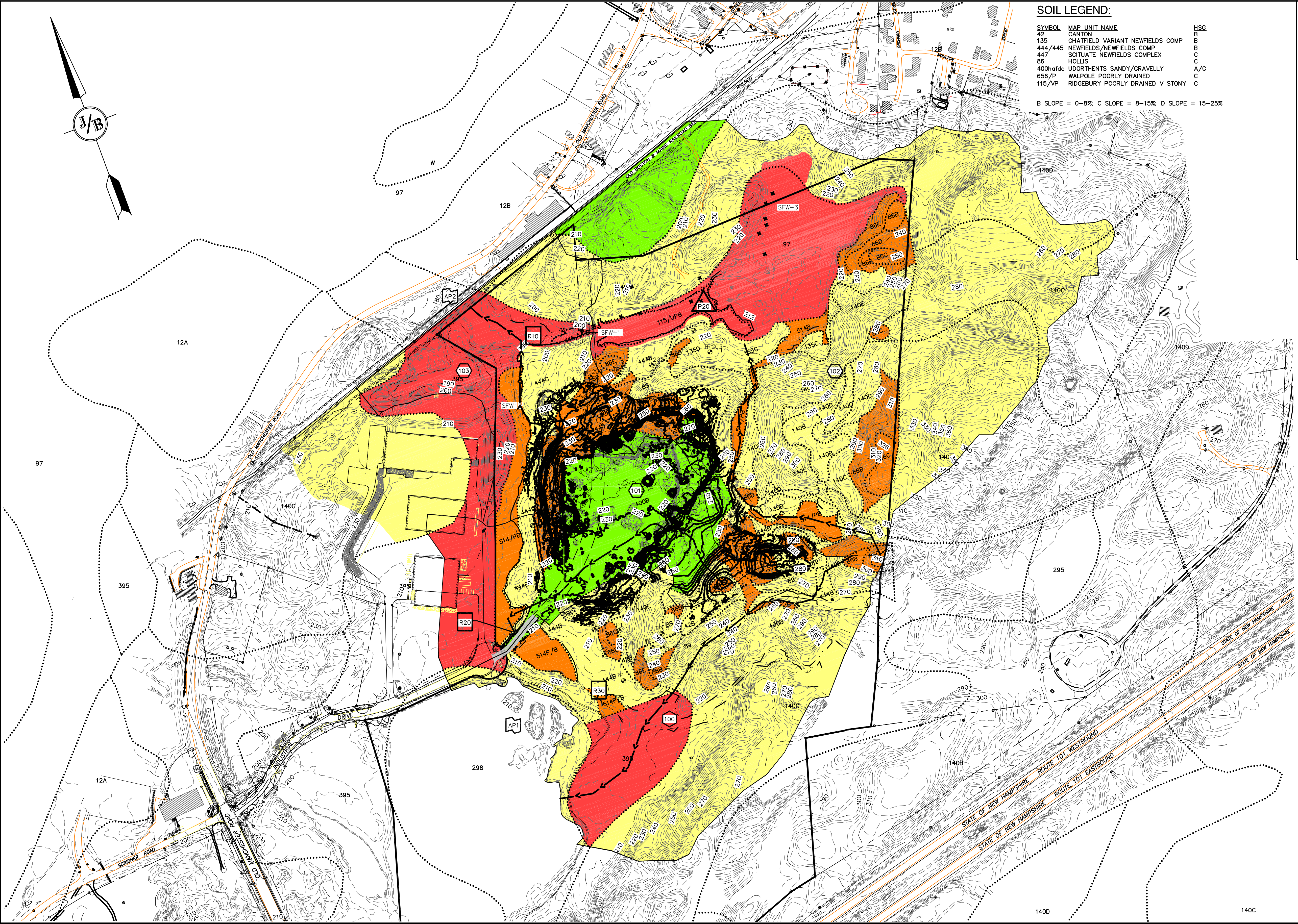
Plan Name: PROPOSED WATERSHED PLAN

Project: RAYMOND DISTRIBUTION
INDUSTRIAL DRIVE, RAYMOND, NH

Owner of Record: ONYX RAYMOND LLC
60 CENTRE STREET, DOVER, MA 02030

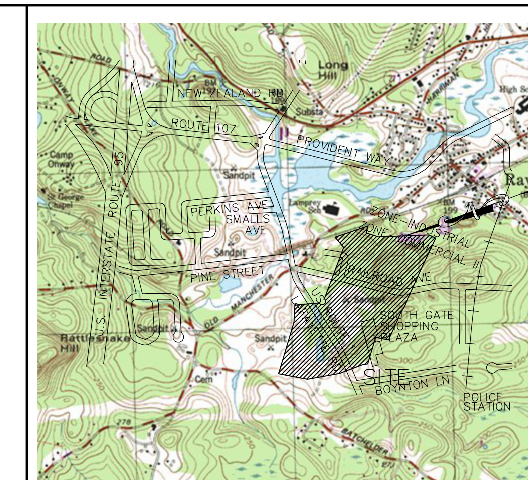
DRAWING No.
W2-4
SHEET 6 OF 6
JBE PROJECT NO. 21130



SOIL LEGEND:

SYMBOL	MAP UNIT NAME	HSG
42	CANTON	B
135	CHATFIELD VARIANT NEWFIELDS COMP	B
444/445	NEWFIELDS/NEWFIELDS COMP	B
447	SCITUATE NEWFIELDS COMPLEX	C
86	HOLLIS	C
400hafdc	UDORTHENTS SANDY/GRAVELLY	A/C
656/P	WALPOLE POORLY DRAINED	C
115/VP	RIDGEBURY POORLY DRAINED V STONY	C

B SLOPE = 0–8%; C SLOPE = 8–15%; D SLOPE = 15–25%



LOCUS SCALE: 1"=2000'

SLOPE PHASES

ALPHA SLOPE SYMBOL	RANGE
A	0–3%
B	3–8%
C	8–15%
D	15–25%
E	25–50%
F	>50%

HYDROLOGIC SOIL GROUP 'A'

HYDROLOGIC SOIL GROUP 'B'

HYDROLOGIC SOIL GROUP 'C'

HYDROLOGIC SOIL GROUP 'D'

IMPERVIOUS

LEGEND

SUBCATCHMENT BOUNDARY

SUBCATCHMENT

REACH

POND

TC PATH

WETLANDS

SITE SPECIFIC SOILS

FLOW ARROW

GRAPHIC SCALE

200 0 100 200 400 800

(IN FEET)
1" = 200'

Design: EJP	Draft: GAP	Date: 08/12/22
Checked: WJM	Scale: AS NOTED	Project No.: 21130
Drawing Name: 21130-WATERSHEDS.dwg		

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Plan Name: EXISTING SOIL PLAN

Project: RAYMOND DISTRIBUTION INDUSTRIAL DRIVE, RAYMOND, NH

Owner of Record: ONYX RAYMOND LLC 60 CENTRE STREET, DOVER, MA 02030

DRAWING No.

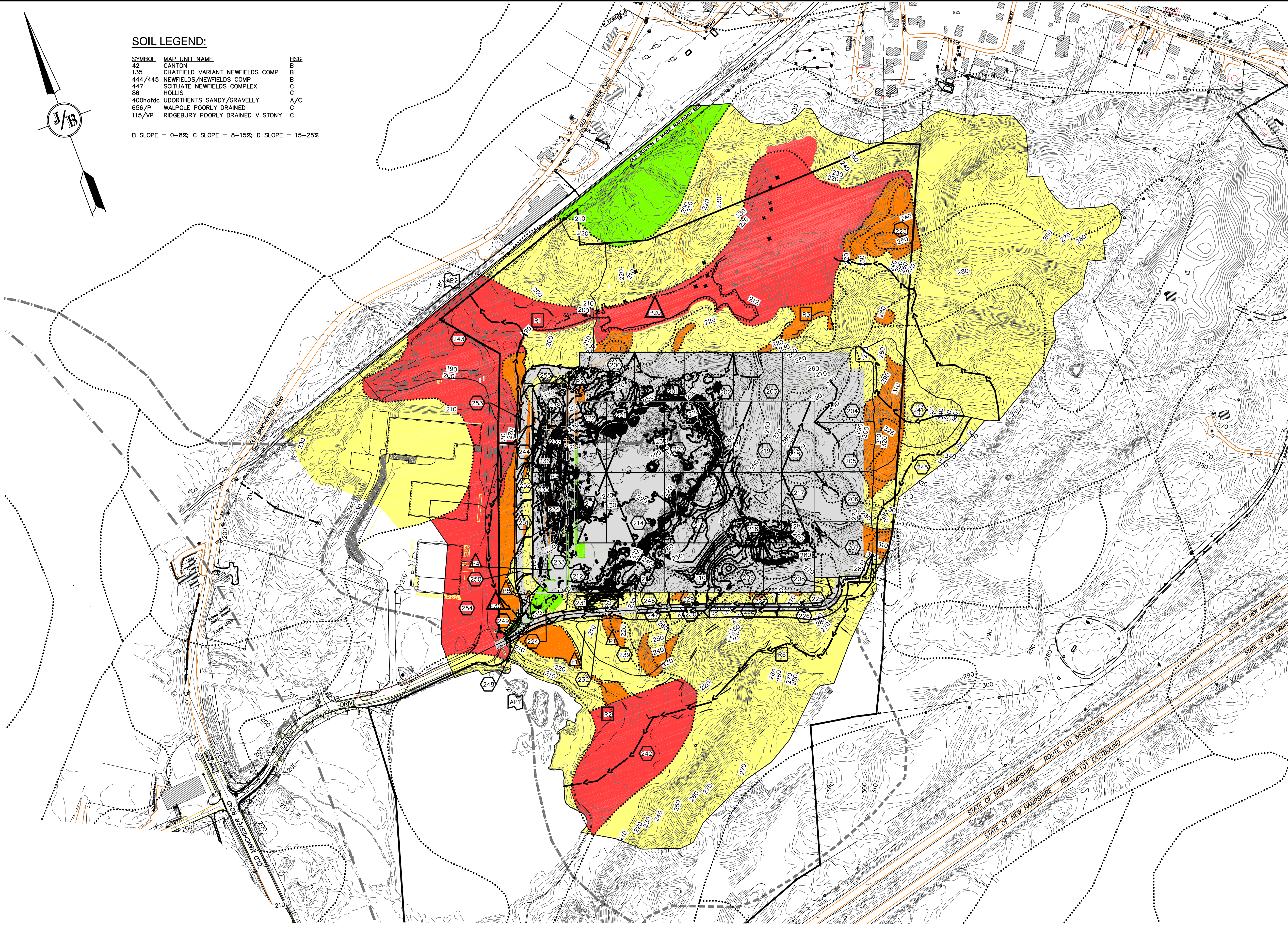
S1

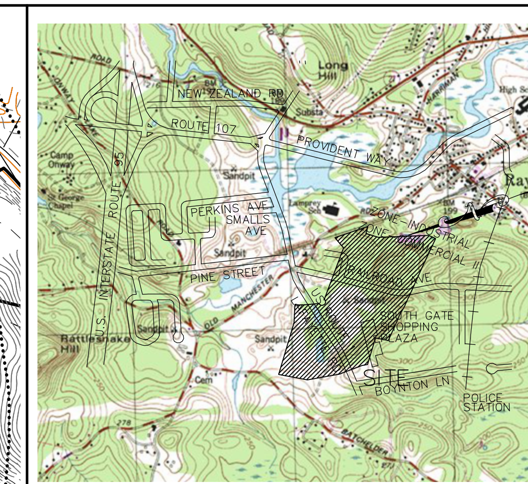
SHEET 1 OF 2
JBE PROJECT NO. 21130

SOIL LEGEND:

SYMBOL	MAP UNIT NAME	HSG
42	CANTON	B
135	CHATFIELD VARIANT NEWFIELDS COMP	B
444/445	NEWFIELDS/NEWFIELDS COMP	B
447	SCITUATE NEWFIELDS COMPLEX	C
86	HOLLIS	C
400hafdc	UDORTHENTS SANDY/GRAVELLY	A/C
656/P	WALPOLE POORLY DRAINED	C
115/VP	RIDGEBURY POORLY DRAINED V STONY	C

B SLOPE = 0–8%; C SLOPE = 8–15%; D SLOPE = 15–25%





LOCUS SCALE: 1"=2000'

HYDROLOGIC SOIL GROUP 'A'

HYDROLOGIC SOIL GROUP 'B'

HYDROLOGIC SOIL GROUP 'C'

HYDROLOGIC SOIL GROUP 'D'

IMPERVIOUS

LEGEND

SUBCATCHMENT BOUNDARY

SUBCATCHMENT

REACH

POND

TC PATH

WETLANDS

SITE SPECIFIC SOILS

FLOW ARROW

GRAPHIC SCALE

100 0 50 100 200 400

(IN FEET)
1"=100'

Design: EJP	Draft: GAP	Date: 08/12/22	
Checked: WJM	Scale: AS NOTED	Project No.: 21130	
Drawing Name: 21130-WATERSHEDS.dwg			

THIS PLAN SHALL NOT BE MODIFIED WITHOUT WRITTEN PERMISSION FROM JONES & BEACH ENGINEERS, INC. (JBE). ANY ALTERATIONS, AUTHORIZED OR OTHERWISE, SHALL BE AT THE USER'S SOLE RISK AND WITHOUT LIABILITY TO JBE.

REV.	DATE	REVISION	BY
3	02/07/24	REVISED PER DRAINAGE MODIFICATIONS	EMP
2	04/12/23	REVISED PER PB COMMENTS	EMP
1	11/10/22	REVISED PER AOT/TRC/TOWN ENGINEER COMMENTS	EMP
0	8/12/22	ISSUED FOR REVIEW	GAP

Designed and Produced in NH
Jones & Beach Engineers, Inc.
Civil Engineering Services
85 Portsmouth Ave.
PO Box 219
Stratham, NH 03885
603-772-4746
FAX: 603-772-0227
E-MAIL: JBE@JONESANDBEACH.COM

Plan Name: PROPOSED SOIL PLAN

Project: RAYMOND DISTRIBUTION INDUSTRIAL DRIVE, RAYMOND, NH

Owner of Record: ONYX RAYMOND LLC 60 CENTRE STREET, DOVER, MA 02030

DRAWING No.

S2

SHEET 2 OF 2
JBE PROJECT NO. 21130

JONES&BEACH
ENGINEERS INC.
85 Portsmouth Avenue, PO Box 219, Stratham, NH 03885
603.772.4746 - JonesandBeach.com

February 7, 2024

Raymond Planning
Attn. Christine Aiello
4 Epping Street
Raymond, NH 03077

RE: Excavation Report
Industrial Drive, Raymond, NH
Tax Map 22, Lots 44, 45, 46, & 47
Tax Map 28, Block 3, Lot 120-1
JBE Project No. 21130
Planning Board Case: 2022-10

Dear Ms. Aiello,

We have assembled these books to provide you with the information regarding our excavation progress from January 11, 2024 to February 02, 2024.

With regard to the board's concern with the removal of "already processed materials", we found it necessary to inform the board that no material was removed from the Raymond, NH pit site during this timeline.

Please contact me if you have any questions. Thank you very much for your time.

Very truly yours,
JONES & BEACH ENGINEERS, INC.

Wayne G. Morrill
Vice President

cc: Douglas Richardson, Onyx Partners, Ltd (via email)

Stormwater Construction Site Inspection Report

General Information			
Project Name	**Raymond Distribution**		
NPDES Tracking No.	**NHR1001GN**	**Location**	**Raymond, NH**
Date of Inspection	**1/11/2024**	**Project #**	**21130**
Inspector's Name(s)	**Daniel Page, E.I.T.**		
Inspector's Title(s)	**Project Engineer**		
Inspector's Contact Information	**Jones & Beach Engineers, Inc., 85 Portsmouth Avenue, PO Box 219 Stratham, NH 03885 (603) 772-4746**		
Owner's Name	**Hard Rock Development**		
Operator's Name	**Anton Melchionda**		
Copied To			
Describe present phase of construction	**Filter berm at perimeter continuous and maintained. No unwanted off-site discharge found. BMPs functioning properly.**		
Type of Inspection ❑ **Regular** ❑ **Pre-storm event** ❑ **During storm event** ■ **Post-storm event**			
Weather Information			
Has it rained since the last inspection? ■Yes ❑ No **If yes, provide:** **Storm Start Date & Time: 1/9 Storm Duration (hrs): 18 hrs** **Approximate Rainfall (in): 0.60"**			
Weather at time of this inspection **Cloudy, 39° F**			
Do you suspect that discharges may have occurred since the last inspection? ❑Yes ☒No			
Are there any discharges at the time of inspection? ❑Yes ☒No			

Site-specific BMPs

Structural and non-structural BMPs requiring inspection. If any of these are not installed on the project sit, mark them as "N/A." This list will help ensure that you are inspecting all required BMPs at your site.

	BMP Description	BMP Installed and Operating Properly?	Corrective Action Needed	Date for corrective action/responsible person
1	Drainage Swales	❑Yes ❑No	n/a	
2	Riprap Lined Swales	❑Yes ❑No	n/a	
3	Vegetated Treatment Swales	❑Yes ❑No	n/a	
4	Vegetated Cover	❑Yes ❑No	n/a	
5	Sediment Traps/Ponds	❑Yes ❑No	n/a	
6	Plunge Pools	☒Yes ❑No		
7	Erosion Control Blankets	❑Yes ❑No	n/a	
9	Culvert Inlet Protection	☒Yes ❑No		
10	Catch Basin Inlet Protection	❑Yes ❑No	n/a	
11	Silt Fence	☒Yes ❑No	Mulch Berm	
13	Stone Check Dams	☒Yes ❑No		
14	Outlet Protection Aprons	☒Yes ❑No		
15	Level Spreaders	❑Yes ❑No	n/a	

	BMP Description	BMP Installed and Operating Properly?	Corrective Action Needed	Date for corrective action/responsible person
16	Filter Strips	❑Yes ❑No	n/a	
17	Construction Entrances	☒Yes ❑No		
18	Dumpsters	❑Yes ❑No	n/a	
19	Porta-john	❑Yes ❑No	n/a	
20	Lay-down/Staging Areas	❑Yes ❑No	n/a	
21	Hazardous Material Storage	❑Yes ❑No	n/a	
22	Washout Area	❑Yes ❑No	n/a	
23	Vehicle Leaks/Maintenance	❑Yes ❑No	n/a	
24	Equipment Refueling Area	☒Yes ❑No		
25	Mulching	❑Yes ❑No	n/a	
26	Stormwater Ponds	❑Yes ❑No	n/a	
28	Rain Gardens	❑Yes ❑No	n/a	
29	Curbing	❑Yes ❑No	n/a	
31	Vehicle Washing Area	❑Yes ❑No	n/a	
32	Environmental Dust Control	❑Yes ❑No	n/a	
33	Non-stormwater Discharges	❑Yes ❑No	n/a	

Below are some general site issues that should be assessed during inspections. Please customize this list as needed for conditions at your site.

Overall Site Issues

	BMP/activity	Implemented?	Maintained?	Corrective Action	Date for corrective action/responsible person
1	Are all slopes and disturbed areas not actively being worked properly stabilized?	☒Yes ❑No	☒Yes ❑No		
2	Are natural resource areas (e.g., streams, wetlands, mature trees, etc.) protected with barriers or similar BMPs?	☒Yes ❑No	☒Yes ❑No		
3	Are perimeter controls and sediment barriers adequately installed (keyed into substrate) and maintained?	☒Yes ❑No	☒Yes ❑No		
4	Are discharge points and receiving waters free of sediment deposits?	☒Yes ❑No	☒Yes ❑No		
5	Are storm drain inlets properly protected?	❑Yes ❑No	❑Yes ❑No	n/a	
6	Is there evidence of sediment being tracked into the street?	❑Yes ☒No	☒Yes ❑No		

	BMP/activity	Implemented?	Maintained?	Corrective Action	Date for corrective action/responsible person
7	Is trash/litter from work areas collected and placed in covered dumpsters?	☒Yes ❑No	☒Yes ❑No		
8	Are washout facilities (e.g., paint, stucco, concrete) available, clearly marked, and maintained?	❑Yes ❑No	❑Yes ❑No	n/a	
9	Are vehicle and equipment fueling, cleaning, and maintenance areas free of spills, leaks, or any other deleterious material?	☒Yes ❑No	☒Yes ❑No		
10	Are materials that are potential stormwater contaminants stored inside or under cover?	❑Yes ❑No	❑Yes ❑No	n/a	
11	Are non-stormwater discharges (e.g., wash water, dewatering) properly controlled?	❑Yes ❑No	❑Yes ❑No	n/a	

Recommendations:

None at this time.

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

Print name: ______Daniel Page____

Signature: ____________Daniel Page__________ Date: ______1/11/2024___________

Site entrance

Check dams at site entrance

Double filter berm at low point

Northern edge of disturbance

Stabilized slope at wetland pocket

Silt contained to base of stockpile

Stormwater Construction Site Inspection Report

General Information			
Project Name	**Raymond Distribution**		
NPDES Tracking No.	**NHR1001GN**	**Location**	**Raymond, NH**
Date of Inspection	**1/19/2024**	**Project #**	**21130**
Inspector's Name(s)	**Grant Partin**		
Inspector's Title(s)	**Project Engineer**		
Inspector's Contact Information	**Jones & Beach Engineers, Inc., 85 Portsmouth Avenue, PO Box 219 Stratham, NH 03885 (603) 772-4746**		
Owner's Name	**Hard Rock Development**		
Operator's Name	**Anton Melchionda**		
Copied To			
Describe present phase of construction	**Filter berm at perimeter continuous and maintained. No unwanted off-site discharge found. BMPs functioning properly.**		
Type of Inspection ■ **Regular** ❑ **Pre-storm event** ❑ **During storm event** ❑ **Post-storm event**			
Weather Information			
Has it rained since the last inspection? ❑Yes ■ No **If yes, provide:** **Storm Start Date & Time:** **Storm Duration (hrs):** **Approximate Rainfall (in):**			
Weather at time of this inspection **Cloudy, 20° F**			
Do you suspect that discharges may have occurred since the last inspection? ❑Yes ☒No			
Are there any discharges at the time of inspection? ❑Yes ☒No			

Site-specific BMPs

Structural and non-structural BMPs requiring inspection. If any of these are not installed on the project sit, mark them as "N/A." This list will help ensure that you are inspecting all required BMPs at your site.

	BMP Description	BMP Installed and Operating Properly?	Corrective Action Needed	Date for corrective action/responsible person
1	Drainage Swales	❑Yes ❑No	n/a	
2	Riprap Lined Swales	❑Yes ❑No	n/a	
3	Vegetated Treatment Swales	❑Yes ❑No	n/a	
4	Vegetated Cover	❑Yes ❑No	n/a	
5	Sediment Traps/Ponds	❑Yes ❑No	n/a	
6	Plunge Pools	☒Yes ❑No		
7	Erosion Control Blankets	❑Yes ❑No	n/a	
9	Culvert Inlet Protection	☒Yes ❑No		
10	Catch Basin Inlet Protection	❑Yes ❑No	n/a	
11	Silt Fence	☒Yes ❑No	Mulch Berm	
13	Stone Check Dams	☒Yes ❑No		
14	Outlet Protection Aprons	☒Yes ❑No		
15	Level Spreaders	❑Yes ❑No	n/a	

	BMP Description	BMP Installed and Operating Properly?	Corrective Action Needed	Date for corrective action/responsible person
16	Filter Strips	❑Yes ❑No	n/a	
17	Construction Entrances	☒Yes ❑No		
18	Dumpsters	❑Yes ❑No	n/a	
19	Porta-john	❑Yes ❑No	n/a	
20	Lay-down/Staging Areas	❑Yes ❑No	n/a	
21	Hazardous Material Storage	❑Yes ❑No	n/a	
22	Washout Area	❑Yes ❑No	n/a	
23	Vehicle Leaks/Maintenance	❑Yes ❑No	n/a	
24	Equipment Refueling Area	☒Yes ❑No		
25	Mulching	❑Yes ❑No	n/a	
26	Stormwater Ponds	❑Yes ❑No	n/a	
28	Rain Gardens	❑Yes ❑No	n/a	
29	Curbing	❑Yes ❑No	n/a	
31	Vehicle Washing Area	❑Yes ❑No	n/a	
32	Environmental Dust Control	❑Yes ❑No	n/a	
33	Non-stormwater Discharges	❑Yes ❑No	n/a	

Below are some general site issues that should be assessed during inspections. Please customize this list as needed for conditions at your site.

Overall Site Issues

	BMP/activity	Implemented?	Maintained?	Corrective Action	Date for corrective action/responsible person
1	Are all slopes and disturbed areas not actively being worked properly stabilized?	☒Yes ❑No	☒Yes ❑No		
2	Are natural resource areas (e.g., streams, wetlands, mature trees, etc.) protected with barriers or similar BMPs?	☒Yes ❑No	☒Yes ❑No		
3	Are perimeter controls and sediment barriers adequately installed (keyed into substrate) and maintained?	☒Yes ❑No	☒Yes ❑No		
4	Are discharge points and receiving waters free of sediment deposits?	☒Yes ❑No	☒Yes ❑No		
5	Are storm drain inlets properly protected?	❑Yes ❑No	❑Yes ❑No	n/a	
6	Is there evidence of sediment being tracked into the street?	❑Yes ☒No	☒Yes ❑No		

	BMP/activity	Implemented?	Maintained?	Corrective Action	Date for corrective action/responsible person
7	Is trash/litter from work areas collected and placed in covered dumpsters?	☒Yes ☐No	☒Yes ☐No		
8	Are washout facilities (e.g., paint, stucco, concrete) available, clearly marked, and maintained?	☐Yes ☐No	☐Yes ☐No	n/a	
9	Are vehicle and equipment fueling, cleaning, and maintenance areas free of spills, leaks, or any other deleterious material?	☒Yes ☐No	☒Yes ☐No		
10	Are materials that are potential stormwater contaminants stored inside or under cover?	☐Yes ☐No	☐Yes ☐No	n/a	
11	Are non-stormwater discharges (e.g., wash water, dewatering) properly controlled?	☐Yes ☐No	☐Yes ☐No	n/a	

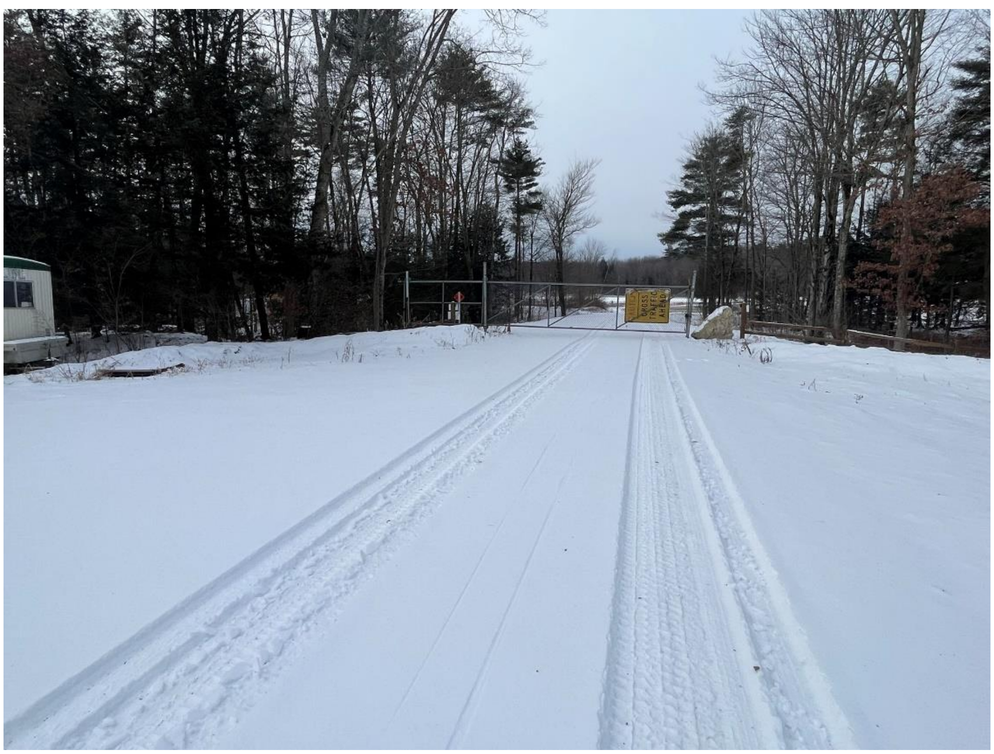
Recommendations:

None at this time.

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

Print name: ______Grant Partin____

Signature: _____*Grant Partin*__________________ Date: ______1/19/2024__________



Site entrance

Typical site conditions in gravel pit

Wetland crossing – filter berms maintained

Rip-rap and filter berm maintained at wetland crossing culvert

Frozen wetland protected by filter berm

Stormwater Construction Site Inspection Report

General Information			
Project Name	**Raymond Distribution**		
NPDES Tracking No.	**NHR1001GN**	**Location**	**Raymond, NH**
Date of Inspection	**1/26/2024**	**Project #**	**21130**
Inspector's Name(s)	**Grant Partin**		
Inspector's Title(s)	**Project Engineer**		
Inspector's Contact Information	**Jones & Beach Engineers, Inc., 85 Portsmouth Avenue, PO Box 219 Stratham, NH 03885 (603) 772-4746**		
Owner's Name	**Hard Rock Development**		
Operator's Name	**Anton Melchionda**		
Copied To			
Describe present phase of construction	**Filter berm at perimeter continuous and maintained. No unwanted off-site discharge found. BMPs functioning properly.**		

Type of Inspection
❑ Regular ❑ Pre-storm event ■ During storm event ❑ Post-storm event

Weather Information

Has it rained since the last inspection?
❑Yes ■ No
If yes, provide:
Storm Start Date & Time: **Storm Duration (hrs):**
Approximate Rainfall (in):

Weather at time of this inspection
Light rain, 34° F

Do you suspect that discharges may have occurred since the last inspection?
❑Yes ☒No

Are there any discharges at the time of inspection?
❑Yes ☒No

Site-specific BMPs
Structural and non-structural BMPs requiring inspection. If any of these are not installed on the project sit, mark them as "N/A." This list will help ensure that you are inspecting all required BMPs at your site.

	BMP Description	**BMP Installed and Operating Properly?**	**Corrective Action Needed**	**Date for corrective action/responsible person**
1	Drainage Swales	❑Yes ❑No	n/a	
2	Riprap Lined Swales	❑Yes ❑No	n/a	
3	Vegetated Treatment Swales	❑Yes ❑No	n/a	
4	Vegetated Cover	❑Yes ❑No	n/a	
5	Sediment Traps/Ponds	❑Yes ❑No	n/a	
6	Plunge Pools	☒Yes ❑No		
7	Erosion Control Blankets	❑Yes ❑No	n/a	
9	Culvert Inlet Protection	☒Yes ❑No		
10	Catch Basin Inlet Protection	❑Yes ❑No	n/a	
11	Silt Fence	☒Yes ❑No	Mulch Berm	
13	Stone Check Dams	☒Yes ❑No		
14	Outlet Protection Aprons	☒Yes ❑No		
15	Level Spreaders	❑Yes ❑No	n/a	

	BMP Description	BMP Installed and Operating Properly?	Corrective Action Needed	Date for corrective action/responsible person
16	Filter Strips	❑Yes ❑No	n/a	
17	Construction Entrances	☒Yes ❑No		
18	Dumpsters	❑Yes ❑No	n/a	
19	Porta-john	❑Yes ❑No	n/a	
20	Lay-down/Staging Areas	❑Yes ❑No	n/a	
21	Hazardous Material Storage	❑Yes ❑No	n/a	
22	Washout Area	❑Yes ❑No	n/a	
23	Vehicle Leaks/Maintenance	❑Yes ❑No	n/a	
24	Equipment Refueling Area	☒Yes ❑No		
25	Mulching	❑Yes ❑No	n/a	
26	Stormwater Ponds	❑Yes ❑No	n/a	
28	Rain Gardens	❑Yes ❑No	n/a	
29	Curbing	❑Yes ❑No	n/a	
31	Vehicle Washing Area	❑Yes ❑No	n/a	
32	Environmental Dust Control	❑Yes ❑No	n/a	
33	Non-stormwater Discharges	❑Yes ❑No	n/a	

Below are some general site issues that should be assessed during inspections. Please customize this list as needed for conditions at your site.

Overall Site Issues

	BMP/activity	Implemented?	Maintained?	Corrective Action	Date for corrective action/responsible person
1	Are all slopes and disturbed areas not actively being worked properly stabilized?	☒Yes ❑No	☒Yes ❑No		
2	Are natural resource areas (e.g., streams, wetlands, mature trees, etc.) protected with barriers or similar BMPs?	☒Yes ❑No	☒Yes ❑No		
3	Are perimeter controls and sediment barriers adequately installed (keyed into substrate) and maintained?	☒Yes ❑No	☒Yes ❑No		
4	Are discharge points and receiving waters free of sediment deposits?	☒Yes ❑No	☒Yes ❑No		
5	Are storm drain inlets properly protected?	❑Yes ❑No	❑Yes ❑No	n/a	
6	Is there evidence of sediment being tracked into the street?	❑Yes ☒No	☒Yes ❑No		

	BMP/activity	Implemented?	Maintained?	Corrective Action	Date for corrective action/responsible person
7	Is trash/litter from work areas collected and placed in covered dumpsters?	☒Yes ❑No	☒Yes ❑No		
8	Are washout facilities (e.g., paint, stucco, concrete) available, clearly marked, and maintained?	❑Yes ❑No	❑Yes ❑No	n/a	
9	Are vehicle and equipment fueling, cleaning, and maintenance areas free of spills, leaks, or any other deleterious material?	☒Yes ❑No	☒Yes ❑No		
10	Are materials that are potential stormwater contaminants stored inside or under cover?	❑Yes ❑No	❑Yes ❑No	n/a	
11	Are non-stormwater discharges (e.g., wash water, dewatering) properly controlled?	❑Yes ❑No	❑Yes ❑No	n/a	

Recommendations:

None at this time.

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

Print name: ______Grant Partin____

Signature: ______*Grant Partin*____________________ Date: ______1/26/2024__________

Site entrance

Typical site conditions in gravel pit

Wetland crossing – filter berms maintained

Rip-rap and filter berm maintained at wetland crossing culvert

Frozen wetland protected by filter berm

Site overview

Stormwater Construction Site Inspection Report

General Information			
Project Name	**Raymond Distribution**		
NPDES Tracking No.	**NHR1001GN**	**Location**	**Raymond, NH**
Date of Inspection	**2/02/2024**	**Project #**	**21130**
Inspector's Name(s)	**Grant Partin**		
Inspector's Title(s)	**Project Engineer**		
Inspector's Contact Information	**Jones & Beach Engineers, Inc., 85 Portsmouth Avenue, PO Box 219 Stratham, NH 03885 (603) 772-4746**		
Owner's Name	**Hard Rock Development**		
Operator's Name	**Anton Melchionda**		
Copied To			
Describe present phase of construction	**Filter berm at perimeter continuous and maintained. No unwanted off-site discharge found. BMPs functioning properly.**		
Type of Inspection ■ **Regular** ❑ **Pre-storm event** ❑ **During storm event** ❑ **Post-storm event**			
Weather Information			
Has it rained since the last inspection? ❑Yes ■ No **If yes, provide:** **Storm Start Date & Time:** **Storm Duration (hrs):** **Approximate Rainfall (in):**			
Weather at time of this inspection **Overcast, 35° F**			
Do you suspect that discharges may have occurred since the last inspection? ❑Yes ☒No			
Are there any discharges at the time of inspection? ❑Yes ☒No			

Site-specific BMPs

Structural and non-structural BMPs requiring inspection. If any of these are not installed on the project sit, mark them as "N/A." This list will help ensure that you are inspecting all required BMPs at your site.

	BMP Description	BMP Installed and Operating Properly?	Corrective Action Needed	Date for corrective action/responsible person
1	Drainage Swales	❑Yes ❑No	n/a	
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3	Vegetated Treatment Swales	❑Yes ❑No	n/a	
4	Vegetated Cover	❑Yes ❑No	n/a	
5	Sediment Traps/Ponds	❑Yes ❑No	n/a	
6	Plunge Pools	☒Yes ❑No		
7	Erosion Control Blankets	❑Yes ❑No	n/a	
9	Culvert Inlet Protection	☒Yes ❑No		
10	Catch Basin Inlet Protection	❑Yes ❑No	n/a	
11	Silt Fence	☒Yes ❑No	Mulch Berm	
13	Stone Check Dams	☒Yes ❑No		
14	Outlet Protection Aprons	☒Yes ❑No		
15	Level Spreaders	❑Yes ❑No	n/a	

	BMP Description	BMP Installed and Operating Properly?	Corrective Action Needed	Date for corrective action/responsible person
16	Filter Strips	❑Yes ❑No	n/a	
17	Construction Entrances	☒Yes ❑No		
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19	Porta-john	❑Yes ❑No	n/a	
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23	Vehicle Leaks/Maintenance	❑Yes ❑No	n/a	
24	Equipment Refueling Area	☒Yes ❑No		
25	Mulching	❑Yes ❑No	n/a	
26	Stormwater Ponds	❑Yes ❑No	n/a	
28	Rain Gardens	❑Yes ❑No	n/a	
29	Curbing	❑Yes ❑No	n/a	
31	Vehicle Washing Area	❑Yes ❑No	n/a	
32	Environmental Dust Control	❑Yes ❑No	n/a	
33	Non-stormwater Discharges	❑Yes ❑No	n/a	

Below are some general site issues that should be assessed during inspections. Please customize this list as needed for conditions at your site.

Overall Site Issues

	BMP/activity	Implemented?	Maintained?	Corrective Action	Date for corrective action/responsible person
1	Are all slopes and disturbed areas not actively being worked properly stabilized?	☒Yes ❑No	☒Yes ❑No		
2	Are natural resource areas (e.g., streams, wetlands, mature trees, etc.) protected with barriers or similar BMPs?	☒Yes ❑No	☒Yes ❑No		
3	Are perimeter controls and sediment barriers adequately installed (keyed into substrate) and maintained?	☒Yes ❑No	☒Yes ❑No		
4	Are discharge points and receiving waters free of sediment deposits?	☒Yes ❑No	☒Yes ❑No		
5	Are storm drain inlets properly protected?	❑Yes ❑No	❑Yes ❑No	n/a	
6	Is there evidence of sediment being tracked into the street?	❑Yes ☒No	☒Yes ❑No		

	BMP/activity	Implemented?	Maintained?	Corrective Action	Date for corrective action/responsible person
7	Is trash/litter from work areas collected and placed in covered dumpsters?	☒Yes ❑No	☒Yes ❑No		
8	Are washout facilities (e.g., paint, stucco, concrete) available, clearly marked, and maintained?	❑Yes ❑No	❑Yes ❑No	n/a	
9	Are vehicle and equipment fueling, cleaning, and maintenance areas free of spills, leaks, or any other deleterious material?	☒Yes ❑No	☒Yes ❑No		
10	Are materials that are potential stormwater contaminants stored inside or under cover?	❑Yes ❑No	❑Yes ❑No	n/a	
11	Are non-stormwater discharges (e.g., wash water, dewatering) properly controlled?	❑Yes ❑No	❑Yes ❑No	n/a	

Recommendations:

None at this time.

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

Print name: Grant Partin

Signature: Grant Partin Date: 2/02/2024

Site entrance

Typical site conditions in gravel pit

Wetland crossing – filter berms maintained

Rip-rap and filter berm maintained at wetland crossing culvert

Frozen wetland protected by filter berm

Filter berms maintained