WASHVILLE CAR WASH SITE PLAN

SP# 10-25

STAFF REPORT

December 10, 2025

SITE: 9 Morgan Road, Map 156/Lot 016-000

ZONING: Industrial (I)

PURPOSE OF PLAN: to propose a new car wash building with associate parking and customer accessible vacuum machines.

PLAN UNDER REVIEW:

Washville Car Wash SP# 10-25, Map 156 Lot 016, 9 Morgan Road, Hudson, NH; prepared by: Jones & Beach Engineers, 25 Portsmouth Ave, PO Box 219 Stratham, NH 03885; prepared for: Hudson Enterprises, LLC, 69 Atlantic Avenue, North Hampton, NH 03862; consisting of 18 sheets and general notes 1-14 on Sheet 3; dated August 28, 2025, revised October 10, 2025.

ATTACHMENTS:

1) Application with associated waiver requests, received August 28, 2025– Attachment "**A**".
2) Project Narrative – Attachment "**B**"
3) Department Review Comments – Attachment "**C**".
4) Traffic Impact Statement (TIS), prepared by Jones & Beach Engineers (J&B), dated August 22, 2025– Attachment "**D**". (Digital Only)
5) Stormwater Management Report, prepared by J&B, dated August 28, 2025, last revised for AOT Permit October 7, 2025 – Attachment "**E**". (Digital Only)
6) Peer Review, prepared by Fuss & O'Neill, dated November 10, 2025 – Attachment "**F**".
7) Peer Review Response Letter, prepared by J&B dated October 10, 2025 – Attachment "**G**".
8) 120 Derry Road Site Plan HCRD# 39564 & 120 Derry Road Subdivision Plan HCRD# 39726 – Attachment "**H**".
9) Abutter comment – Attachment "**I**".
10) Site Plan dated August 28, 2025, revised October 10, 2025.

APPLICATION TRACKING:

- August 28, 2024 – Site plan application received.
- November 12, 2025 – Public Hearing deferred.
- December 10, 2025 – Public Hearing scheduled.

WAIVERS REQUESTED:

§276-11.1.B.(22) – Green Space Buffer
§276-11.1.B.(.12).(C) – 100-foot Residential Buffer

COMMENTS & RECOMMENDATIONS:

BACKGROUND

The subject site is approximately 4.88 acres in size and is located within the Industrial Zone. This parcel was originally part of the commercial development known as *"120 Derry Road"*, which received Planning Board approval on October 11, 2017, and was recorded at the Hillsborough County Registry of Deeds (HCRD) as Plan #39564. Subsequently, on March 14, 2018, the Planning Board approved a three-lot subdivision, recorded at the HCRD as Plan #39726, which created individual parcels for each approved commercial use while maintaining shared access via a private roadway known as *"Morgan Road."*

Two of these lots have since been developed: the first as a CVS Pharmacy and the second as a Cumberland Farms gas station. The remaining parcel, which is the subject of this application, was originally approved for development as a proposed restaurant. This application now represents a change of the previously approved use.

The site is served by municipal water and sewer services, though it has not yet been connected. No portion of the property lies within a FEMA-designated flood zone. A large utility easement traverses the northerly edge of the site. The applicant is requesting two waivers, as described in the sections below.

Department Comments

Engineering has provided the following comments:

Traffic study and executive memo was getting reworked.

Fire has provided the following comments:

Fire department access conforms.

Existing fire hydrant on site is within separation limits.

Full Comments can be found in **Attachment "C."**

Waivers Requested

As noted above, the Applicant is seeking a total of two waivers:

1. A waiver for **§276-11.1.B.(22) – Green Space Buffer,** to allow for a travel way inside the 50' front setback where it would elsewise not be allowed.

2. **§276-11.1.B.(.12).(C) – 100-foot Residential Buffer**, to allow for development within the 100' residential buffer where it would elsewise not be allowed. The applicant states that their proposal infringes upon the buffer less than the prior approved restaurant.

Traffic Study

As part of their application, the applicant has supplied a traffic impact statement ITE Trip Generation Memorandum dated August 22, 2025, revised September 29, 2025. This statement outlines an approximate doubling of trips compared to the approved restaurant use in line with the revised figured outlined by Fuss & O'Neill in their peer review. Full materials may be found in Attachment "**D**"

STORMWATER MANAGEMENT REPORT

As part of the application, a Stormwater Management Report dated August 28, 2025 has been supplied. Revised materials and additional HydroCAD information were provided as part of the response letter dated October 10, 2025. This report concludes that in in all year categories the peak runoff rates shall be diminished with the proposed construction. (Attachment "**E**")

PEER REVIEW

Fuss & O'Neill completed a review of the proposed plan set and supporting studies/materials on September 18, 2025, for which a response letter has been issued by the applicant. (Attachment "**F**")

RESPONSE LETTER

The applicant has issued a second response letter, dated October 10, 2025. Included with this letter is revised plans and a revised AoT drainage report. (Attachment "**G**")

STAFF COMMENTS

Assuming that the additional waiver requests are granted, staff does not have any remaining concerns with the proposal. The application does not have any outstanding issues that are known at this time.

RECOMMENDATIONS

Staff recommends deliberation and consideration of the site plan and waiver requests prior to potential approval. Staff has not identified any outstanding issues or additional information required for the board to make an appropriate decision on this application.

DRAFT MOTIONS:

TO ACCEPT:

I move to accept the Site Plan Application for Washville Car Wash SP# 10-25, Map 156 / Lot 016-000, 9 Morgan Road, Hudson, New Hampshire 03051.

Motion by: _____Second: _____Carried/Failed: _____

TO CONTINUE:

I move to continue the Site Plan Application for Washville Car Wash SP# 10-25, Map 156 / Lot 016-000, 9 Morgan Road, Hudson, New Hampshire 03051, to date certain _____, 2025.

Motion by: _____Second: _____Carried/Failed: _____

TO DEFER:

I move to defer the Site Plan Application for Washville Car Wash SP# 10-25, Map 156 / Lot 016-000, 9 Morgan Road, Hudson, New Hampshire 03051, to date certain _____, 2025.

Motion by: _____Second: _____Carried/Failed: _____

TO GRANT A WAIVER:

I move to grant a waiver **§276-11.1.B.(22) – Green Space Buffer,** to allow for a travel way inside the 50' front setback where it would elsewise not be allowed, based on the Board's discussion, the testimony of the Applicant's representative, and in accordance with the language included in the submitted Waiver Request Form for said waiver.

Motion by: _____Second: _____Carried/Failed: _____

I move to grant a waiver **§276-11.1.B.(.12).(C) – 100-foot Residential Buffer**, to allow for development within the 100' residential buffer where it would elsewise not be allowed, based on the Board's discussion, the testimony of the Applicant's representative, and in accordance with the language included in the submitted Waiver Request Form for said waiver.

Motion by: _____Second:_____Carried/Failed: _____

TO APPROVE:

I move to approve the Site Plan Application: Washville Car Wash SP# 10-25, Map 156 / Lot 016-000, 9 Morgan Road, Hudson, New Hampshire 03051; prepared by: Jones & Beach Engineers, 25 Portsmouth Ave, PO Box 219 Stratham, NH 03885; prepared for: Hudson Enterprises, LLC, 69 Atlantic Avenue, North Hampton, NH 03862; consisting of 18 sheets and general notes 1-14 on Sheet 3; dated August 28, 2025, revised October 10, 2025; and:

That the Planning Board finds that this application complies with the Zoning Ordinance, and with the Land Use Regulations with consideration of the waivers granted and for the reasons set forth in the written submissions, together with the testimony and factual representations made by the applicant during the public hearing;

Subject to, and revised per, the following stipulations:

1. All stipulations of approval shall be incorporated into the Development Agreement, which shall be recorded at the HCRD, together with the Site-Plan-of-Record.
2. Prior to the issuance of a final certificate of occupancy, an L.L.S. Certified "As-Built" site plan shall be provided to the Town of Hudson Development Services Department, confirming that the site conforms to the Planning Board approved Site Plan.
3. Prior to the Planning Board endorsement of the Plan, it shall be subject to final administrative review by the Town Planner and the Town Engineer.
4. The applicant shall schedule a pre-construction meeting with the Town Engineer prior to beginning work on the site.
5. Construction activities involving the subject lot shall be limited to the hours between 7:00 A.M. and 7:00 P.M., Monday through Saturday. No exterior construction activities shall be allowed on Sundays.
6. Hours of refuse removal shall be exclusive to the hours between 7:00 A.M. and 7:00 P.M., Monday through Friday only.

Motion by: _____Second: _____Carried/Failed: _____

Town of Hudson
12 School Street
Hudson, NH 03501

SITE PLAN APPLICATION

Revised August 2024

The following information must be filed with the Planning Department ***at the time of filing a site plan application***:

1. One (1) original completed application with original signatures.
2. One (1) full plan set *folded* (sheet size: 22" x 34").
3. One (1) original copy of the project narrative.
4. A list of direct abutters and a list of indirect abutters, and two (2) sets of mailing labels for abutter notifications.
5. Site Plan Review Checklist.
6. All of the above application materials, including plans, shall also be submitted in electronic form as a PDF.
7. ***All plans shall be folded*** and all pertinent data shall be attached to the plans with an elastic band or other enclosure.

The following information is required to be filed with the Planning Department ***no later than 10:00 A.M., Tuesday ONE WEEK prior to the scheduled Planning meeting. The purpose of these materials is hardcopy distribution to Planning Board members, not review.***
Any plan revisions that require staff review must be submitted no later than 10:00A.M., Tuesday TWO WEEKS prior to the scheduled Planning meeting. Depending on the complexity of changes, more time may be required for review. Please contact the Town Planner if you have any questions on this matter.

1. Submission of fifteen (15) 11" X 17" plan sets *folded*, revised if applicable.
2. Submission of one (1) full plan set *folded* (sheet size: 22" x 34"), if revised.
3. All of the above application materials, including plans, shall also be submitted in electronic form as a PDF.

Note: Prior to filing an application, it is recommended to schedule an appointment with the Town Planner.

SITE PLAN APPLICATION

Date of Application: 8/28/2025 Tax Map #: 156 Lot #: 16

Site Address: 9 Morgan Road

Name of Project: Washville Car Wash

Zoning District: Industrial General SP#: _____ (For Town Use Only)

Z.B.A. Action: None

PROPERTY OWNER:	DEVELOPER:
Name: Hudson Enterprises, LLC	Jim Waterman, Washville Car Wash
Address: 69 Atlantic Avenue	7 Benedict Place
Address: North Hampton, NH 03862	Greenwich, CT 06830
Telephone # _____	978-337-9660
Email: _____	jim.waterman@washvillecarwash.com

PROJECT ENGINEER:	SURVEYOR:
Name: Erik Poulin, P.E., Jones & Beach Engineers	Matthew Salvucci, LLS Jones & Beach Engineers, Inc.
Address: PO Box 219	PO Box 219
Address: Stratham, NH 03885	Stratham, NH 03885
Telephone # 603-772-4746	603-772-4746
Email: epoulin@jonesandbeach.com	

PURPOSE OF PLAN:

The intent of this project is to propose a new car wash building with associated parking and customer accessible vacuum machines.

(For Town Use Only)

Routing Date: _____ Deadline Date: _____ Meeting Date: _____

_____ I have no comments _____ I have comments (attach to form)

_____ Title: _____ Date: _____
(Initials)

Department:

Zoning: ___ Engineering: ___ Assessor: ___ Police: ___Fire: ___ DPW: ___ Consultant: ___

SITE DATA SHEET

PLAN NAME: Washville Car Wash

PLAN TYPE: SITE PLAN

LEGAL DESCRIPTION: MAP 156 LOT 16

DATE: 8/28/25

Location by Street:	9 Morgan Road
Zoning:	Industrial
Proposed Land Use:	Car Wash
Existing Use:	Vacant Lot
Surrounding Land Use(s):	Commercial/Residential
Number of Lots Occupied:	1
Existing Area Covered by Building:	0
Existing Buildings to be removed:	0
Proposed Area Covered by Building:	4,100
Open Space Proposed:	81.9%
Open Space Required:	68%
Total Area:	S.F.: 212,573 +/- Acres: 4.88 +/-
Area in Wetland:	0 Area Steep Slopes: 0
Required Lot Size:	30,000 S.F.
Existing Frontage:	776.24'
Required Frontage:	150'

Building Setbacks:	Required*	Proposed
Front:	50	138.25
Side:	15	482.60
Rear:	15	98.37

SITE DATA SHEET
(Continued)

Flood Zone Reference: 33011C0514 E

Width of Driveways: 24'

Number of Curb Cuts: 1

Proposed Parking Spaces: 22

Required Parking Spaces: 5

Basis of Required Parking (Use): industrial (Car Wash)

Dates/Case #/Description/Stipulations of ZBA, Conservation Commission, NH Wetlands Board Actions:
(Attach stipulations on separate sheet)

Waiver Requests

Town Code Reference:	*Regulation Description:*
100' Residential Buffer - 296-11.1.B(12)(c)	
Parking in Front Setback - 276-11.1.B (12)	

(For Town Use Only)

Data Sheets Checked By: _____ Date: _____

SITE PLAN APPLICATION AUTHORIZATION

I hereby apply for *Site Plan* Review and acknowledge I will comply with all of the Ordinances of the Town of Hudson, New Hampshire State Laws, as well as any stipulations of the Planning Board, in development and construction of this project. I understand that if any of the items listed under the *Site Plan* specifications or application form are incomplete, the application will be considered rejected.

Pursuant to RSA 674:1-IV, the owner(s) by the filing of this application as indicated above, hereby given permission for any member of the Hudson Planning Board, the Town Planner, the Town Engineer, and such agents or employees of the Town or other persons as the Planning Board may authorize, to enter upon the property which is the subject of this application at all reasonable times for the purpose of such examinations, surveys, tests and inspections as may be appropriate. The owner(s) release(s) any claim to or right he/she (they) may now or hereafter possess against any of the above individuals as a result of any examinations, surveys, tests and/or inspections conducted on his/her (their) property in connection with this applications.

Signature of Owner: _____ Date: _____

Print Name of Owner: _____

- If other than an individual, indicate name of organization and its principal owner, partners, or corporate officers.

Signature of Developer: _____ Date: _____

Print Name of Developer: _____

- The developer/individual in charge must have control over all project work and be available to the Code Enforcement Officer/Building Inspector during the construction phase of the project. The individual in charge of the project must notify the Code Enforcement Officer/Building Inspector within two (2) working days of any change.

WAIVER REQUEST FORM

Name of Subdivision/Site Plan: PROPOSED DEVELOPMENT "WASHVILLE CAR WASH"

Street Address: 9 MORGAN ROAD, HUDSON, NH

I HUDSON ENTERPRISES LLC hereby request that the Planning Board waive the requirements of item 100' BUFFER: 276-11.1.B(12)(C) of the Hudson Land Use Regulations in reference to a plan presented by ERIK POULIN, PE AND MATTHEW SALVUCCI, LLS, JONES AND BEACH ENGINEERS INC. (name of surveyor and engineer) dated 8/28/25 for property tax map(s) 156 and lot(s) 16 in the Town of Hudson, NH.

As the aforementioned applicant, I, herein, acknowledge that this waiver is requested in accordance with the provisions set forth in RSA 674:36, II (n), i.e., without the Planning Board granting said waiver, it would pose an unnecessary hardship upon me (the applicant), and the granting of this waiver would not be contrary to the spirit and intent of the Land Use Regulations.

Hardship reason(s) for granting this waiver (if additional space is needed please attach the appropriate documentation hereto):

PLEASE SEE ATTACHED LETTER.

Reason(s) for granting this waiver, relative to not being contrary to the spirit and intent of the Land Use Regulations: (if additional space is needed please attach the appropriate documentation hereto):

PLEASE SEE ATTACHED LETTER.

Signed: _____

Applicant or Authorized Agent

WAIVER REQUEST FORM

Name of Subdivision/Site Plan: PROPOSED DEVELOPMENT "WASHVILLE CAR WASH"

Street Address: 9 MORGAN ROAD, HUDSON, NH

I HUDSON ENTERPRISES LLC hereby request that the Planning Board waive the requirements of item PARKING IN FRONT SETBACK-276-11.1B(12) of the Hudson Land Use Regulations in reference to a plan presented by ERIK POULIN, PE AND MATTHEW SALVUCCI, LLS, JONES AND BEACH ENGINEERS INC. (name of surveyor and engineer) dated 8/28/25 for property tax map(s) 156 and lot(s) 16 in the Town of Hudson, NH.

As the aforementioned applicant, I, herein, acknowledge that this waiver is requested in accordance with the provisions set forth in RSA 674:36, II (n), i.e., without the Planning Board granting said waiver, it would pose an unnecessary hardship upon me (the applicant), and the granting of this waiver would not be contrary to the spirit and intent of the Land Use Regulations.

Hardship reason(s) for granting this waiver (if additional space is needed please attach the appropriate documentation hereto):

PLEASE SEE ATTACHED LETTER.

Reason(s) for granting this waiver, relative to not being contrary to the spirit and intent of the Land Use Regulations: (if additional space is needed please attach the appropriate documentation hereto):

PLEASE SEE ATTACHED LETTER.

Signed: _____

Applicant or Authorized Agent

SCHEDULE OF FEES

A. REVIEW FEES:

1. Site Plan Use	Project Size/Fee	
Multi-Family	$105.00/unit for 3-50 units $78.50/unit for each additional unit over 50	$_____
Commercial/Semi Public/Civic or Recreational	$157.00/1,000 sq. ft. for first 100,000 sq.ft. (bldg. area): $78.50/1,000 sq.ft. thereafter.	$_____
Industrial	$150.00/1,000 sq.ft for first 100,000 sq.ft. (bldg. area); $78.50/1,000 sq.ft thereafter.	$ 615.00
No Buildings	$30.00 per 1,000 sq.ft. of proposed developed area	$_____

CONSULTANT REVIEW FEE: (Separate Check)

Total 1.72 acres @ $600.00 per acre, or $1,250.00, whichever is greater. $ 1,250.00

This is an estimate for cost of consultant review. The fee is expected to cover the amount. A complex project may require additional funds. A simple project may result in a refund.

LEGAL FEE:

The applicant shall be charged attorney costs billed to the Town for the Town's attorney review of any application plan set documents.

B. POSTAGE:

10	Direct Abutters Applicant, Professionals, etc. as required by RSA 676:4.1.d @$5.58 **(or Current Certified Mail Rate)** $60.80	$ 60.80
6	Indirect Abutters (property owners within 200 feet) @$0.73 **(or Current First Class Rate)** $0.78	$ 4.68

C. TAX MAP UPDATING FEE: (FLAT FEE) $ 275.00

TOTAL $2,205.48

SCHEDULE OF FEES
(Continued)

(For Town Use)			
AMOUNT RECEIVED: $_____		DATE RECEIVED:	_____
RECEIPT NO.:	_____	RECEIVED BY:	_____

NOTE: fees below apply only upon plan approval, not collected at time of application.

D. RECORDING:

*****The applicant shall be responsible for the recording of the approved plan, and all documents as required by an approval, at the Hillsborough County Registry of Deeds (HCRD), located at 19 Temple Street, Nashua, NH 03061. Additional fees associated with recording can be found at HCRD.*****

E. COST ALLOCATION PROCEDURE AMOUNT CONTRIBUTION AND OTHER IMPACT FEE PAYMENTS:

To be determined by the Planning Board at time of plan approval and shall be paid by the applicant at the time of submittal of the Certificate of Occupancy Permit requests.

*****The applicant shall be responsible for all fees incurred by the town for processing and review of the applicant's application, plan and related materials.*****

TOWN OF HUDSON
SITE PLAN REVIEW CHECKLIST

This checklist is intended to help the applicant and staff to ensure application completeness. Please refer to the regulations on the exact language of each requirement.

Key: Y=Yes P =Pending W=Waiver Request

Relevant Regulations:
§ 276-11.1 General Plan Requirements
§§ 275-8 – 275-9 Site Plan Requirements

	Y	P	W		Notes
1.	☒	☐	☐	- A list of the names and addresses of the owner(s) of the property, the applicant(s), and all abutters as indicated in the office of the Town Assessor records not more than five (5) days prior to the day of filing **[§ 276-11.1.A.]**	
2	☒	☐	☐	- Sets of plans and copies as indicated on application.	
3.	☒	☐	☐	- Scale no smaller than 50 feet to the inch (1" = 50') **[§ 276-11.1.B.(2)]**	
4.	☒	☐	☐	- Title block in the lower right-hand corner of the plan, containing: **[§ 276-11.1.B.(3)]**	
5.	☒	☐	☐	- Title, including the term "site plan" or "subdivision plan"	
6.	☒	☐	☐	- The name for whom the plan was prepared	
7.	☒	☐	☐	- Preparer of the plan	
8.	☒	☐	☐	- The scale(s) of the plan	
9.	☒	☐	☐	- Date of the plan	
10.	☒	☐	☐	- Appropriate revision block	
11.	☒	☐	☐	- Approval block (2"x6") located on the lower left corner of each sheet, with the required language and signature line **[§ 276-11.1.B.(4) & § 289-27.A]**	
12.	☒	☐	☐	- Owner's printed name and address and signature **[§ 276-11.1.B.(6)]**	
13.	☒	☐	☐	- Name and address of all abutting property owners **[§ 276-11.1.B.(7)]**	
14.	☒	☐	☐	- A locus plan at one inch equals 1,000 feet (1" = 1,000') **[§ 276-11.1.B.(8)]**	

(Continue next page)

15. [X] [ ] [ ] - Boundary of the entire parcel held in single ownership with boundary dimensions and bearings **[§ 276-11.1.B.(9)]**
16. [X] [ ] [ ] - Error of closure shown and certified by a licensed land surveyor
17. [X] [ ] [ ] - North point arrow
18. [X] [ ] [ ] - Zoning classification note of the tract and location of the zoning district boundaries if the property is located in two or more zoning district **[§ 276-11.1.B.(10)]**
19. [X] [ ] [ ] - The location of all buildings within 50 feet of the tract **[§ 276-11.1.B.(15)]**
20. [X] [ ] [ ] - The location of roadways, driveways, travel areas or parking areas within 200 feet of the tract, in accordance with **§ 276-11.1.B.(16)**
21. [X] [ ] [ ] - Existing topography at two-foot contour intervals of that portion of the tract being proposed for development from a topographic survey and contours on the remainder of the tract from a reliable plan source **[§ 276-11.1.B.(17)]**
22. [X] [ ] [ ] - Proposed topography at two-foot contour intervals **[§ 276-11.1.B.(18)]**
23. [X] [ ] [ ] - A note identifying the Tax Map and Lot Number of the tract **[§ 276-11.1.B.(19)]**
24. [X] [ ] [ ] - The location of all existing buildings (including size and height), driveways, sidewalks, parking spaces, loading area, open spaces, large trees, open drainage courses, signs, exterior lighting, service areas, easements landscaping and other pertinent items. **[§ 276-11.1.B.(20)]**
25. [X] [ ] [ ] - The location of all proposed construction, buildings, structures, pavement, etc. **[§ 276-11.1.B.(21)]**
26. [X] [ ] [ ] - A green area shown between the right-of-way line and any pavement, gravel or structure meeting the required minimum width **[§ 276-11.1.B.(22)]**
29. [ ] [ ] [ ] - Note any pertinent highway projects. **[§ 276-11.1.B.(23)]**

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TOWN OF HUDSON
SITE PLAN REVIEW CHECKLIST

This checklist is intended to help the applicant and staff to ensure application completeness. Please refer to the regulations on the exact language of each requirement.

Key: Y=Yes P =Pending W=Waiver Request NA=Not Applicable (please explain)

	Y	P	W	NA		Notes
30.	☒	☐	☐		- The location of all building setback lines as required by Chapter 334, Zoning, and setback lines as required by **§ 276-11.1.B.(12)**.	
31.	☒	☐	☐		- The location size and character of all signs or a note* stating "All signs are subject to approval by the Hudson Zoning Administrator prior to installation thereof." **[§ 276-11.1.B.(13)]** *The discrepancy on the note language is correct – reference to the Planning Board in the regulations is outdated.	
32.	☒	☐	☐		- The location, detail and character of all exterior lighting or a note stating: "There will be no exterior lighting." **[§ 276-11.1.B.(14)]**	
33.	☒	☐	☐	☐	- Required open space, including the calculation showing the requirement is met **[§ 276-11.1.B.(24)]**	
34.	☒	☐	☐	☐	- Parking space calculation showing and a statement stating the required parking spaces are provided **[§ 275-8.C.(2) & (3)]**	
35.	☒	☐	☐	☐	- Required dimensions for parking space **[§ 275-8.C.(4)]**	
36.	☒	☐	☐	☐	- Required dimensions for aisle/access drive **[§ 275-8.C.(5)]**	
37.	☒	☐	☐	☐	- Required off-street loading spaces **[§ 275-8.C.(6)]**	
38.	☒	☐	☐	☐	- Required landscaping for the parking lot, including calculation shown the planting requirement is met **[§ 275-8.C.(7)]**	
39.	☒	☐	☐	☐	- Required screening for visual separation of incompatible uses **[§ 275-8.C.(8)]**	
40.	☒	☐	☐	☐	- Handicap accessibility provided in accordance with the latest ADA Regulations **[§ 275-8.C.(11)]**	
41.	☒	☐	☐	☐	- Stormwater Management Plan **[§ 275-9.A]**	
42.	☒	☐	☐	☐	- Traffic Study, if required **[§ 275-9.B]**	
43.	☐	☐	☐	☐	- Noise Study, if required **[§ 275-9.C]**	

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TOWN OF HUDSON
SITE PLAN REVIEW CHECKLIST

This checklist is intended to help the applicant and staff to ensure application completeness. Please refer to the regulations on the exact language of each requirement.

Key: Y=Yes P =Pending W=Waiver Request NA=Not Applicable (please explain)

	Y	P	W	NA		Notes
44.	☐	☐	☐	☐	- Fiscal Impact Study, if required [**§ 275-9.D**]	
45.	☐	☐	☐	☐	- Utility Study [**§ 275-9.E**]	
46.	☐	☐	☐	☐	- Copies of any proposed or existing easements, covenants, deed restrictions or any other similar document pertinent to the Site Plan [**§ 275-9.F**]	
47.	☐	☐	☐	☐	- A copy of all applicable Town, state, county or federal approvals or applications [**§ 275-9.G**]	
48.	☐	☐	☐	☐	- Environmental Impact Study, if required [**§ 275-9.I**]	

(End of checklist)

Attachment "A"

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

August 26, 2025

Town of Hudson
Attn: Planning Board
12 School Street
Hudson, NH 03051

RE: Waiver Request Letter
Site Plan Review Application
9 Morgan Road, Hudson, NH
Tax Map 156, Lot 16
JBE Project No. 25082

Dear Board Members,

On behalf of our client, Hudson Enterprises, LLC, Jones & Beach Engineers, Inc. respectfully requests a waivers from the following requirements for Site Plan Review for the above referenced parcel:

Hudson Regulations (HR) 276-11.1.B (12) – Parking/pavement in 50' front setback: Locating all building setback lines as required in HR 304 - Zoning, or as provided in this regulation, whichever is more stringent. No buildings, parking or display areas may be located in this setback.

The current design keeps all parking outside of the 35' Green Space Buffer along Derry Rd. as required under HR 276-11.1.B (22). Travelways are proposed within the front setbacks of Lot 16. It is our opinion that the nature of the travelways in the front setbacks is not detrimental to the overall site layout or intent of the regulation. The green buffer will remain vegetated in the proposed condition.

Hudson Regulations (HR) 276-11.1.B (12)(C) – "In all zoning districts other than the General (G) and the General-One Zoning Districts, where a commercial or industrial use or zoning district abuts a residential use or zoning district, there shall be a one-hundred-foot distance between the residential use or zoning district and any improved part of the nonresidential development."

> Parking and travelways are proposed within the 100' residential buffer setbacks of Lot 16. It is our opinion that the nature of the travelways and parking layout in the 100' setback is not detrimental to the overall site layout. A PSNH powerline easement on Lot 16 covers the majority of the required buffer area. Under the original approval for this site, development was shown closer to abutting properties for parking areas. Under the current proposal, impacts inside the 100' residential buffer are less than those in the proposed restaurant previously approved for Lot 16.

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

Docusign Envelope ID: EA7102A5-13A5-4E00-A2DC-0AFF7D81E77B

Letter of Authorization

I, Jim Waterman, Washville Car Wash, 7 Benedict Place, Greenwich, CT 06830, developer of property located in Hudson, NH, known as Tax Map 156, Lot 16, do hereby authorize Jones & Beach Engineers, Inc., PO Box 219, Stratham, NH, to act on my behalf concerning the previously-mentioned property. The parcel is located on 120 Derry Road in Hudson, 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.

Not Required.	Signed by: D60F80693D33460...	6/20/2025
Witness	Jim Waterman Washville Car Wash	Date

Hudson Enterprise
7 Thornton Street
Seabrook, NH 03874

Book 9093 Page 2237 Page 1 of 19
Register of Deeds, Hillsborough County
Pamela O Caughlin

Attachment "A"

DECLARATION OF COVENANTS AND RECIPROCAL EASEMENT AGREEMENT

THIS DECLARATION OF COVENANTS AND RECIPROCAL EASEMENT AGREEMENT (this "**Agreement**") is made as of the 28th day of June, 2018 by Hudson Enterprises, LLC, a New Hampshire limited liability company (the "**Declarant**").

WITNESSETH:

WHEREAS, Declarant is the Owner (as hereinafter defined) of a tract of land consisting of approximately 2.31+/- acres located in the municipality of Hudson, New Hampshire ("**Lot 15**"), as legally described in **Exhibit A** attached hereto, and depicted and labeled as "Tax Map 156 Lot 15" in the plan entitled "Access Easement Plan, '120 Derry Road,' Derry Road (Rt. 102), Hudson, NH, Map 156, Lot 15 & 16," dated August 16, 2017, prepared by Jones & Beach Engineers, Inc., and attached hereto as **Exhibit B** (the "**Easement Plan**"), both exhibits being hereby incorporated by reference herein; and

WHEREAS, Declarant in its capacity as the Owner of Lot 15 is referred to herein as the "**Lot 15 Owner**"; and

WHEREAS, Declarant is also the Owner of a certain tract of land consisting of approximately 2.36+/- acres, as shown and depicted as the "Tax Map 156 Lot 15-1" on the Easement Plan and legally described in **Exhibit C** attached hereto and incorporated by reference herein (**"Lot 15-1**"); and

WHEREAS, Declarant in its capacity as the Owner of Lot 15-1 is referred to herein as the "**Lot 15-1 Owner**"; and

WHEREAS, Declarant is also the Owner of a certain tract of land consisting of approximately 4.88+/- acres, as shown and depicted as the "Tax Map 156 Lot 16" on the Easement Plan and legally described in **Exhibit D** attached hereto and incorporated by reference herein ("**Lot 16**") (Lot 15, Lot 15-1 and Lot 16 are referred to herein collectively as the "**Tracts**" and individually as a "**Tract**"); and

WHEREAS, the Lot 15 Owner, the Lot 15-1 Owner and the Lot 16 Owner are referred to collectively as the "**Parties**" and individually as a "**Party**"; and

WHEREAS, Lot 15 Owner has constructed a building on Lot 15 for the operation of a retail pharmacy with a drive through, and related uses (the "**Lot 15 Building**"), together with adjacent paved parking and driveway areas, Lot 15-1 Owner is planning to develop Lot 15-1 as a gas station and convenience store, together with adjacent paved parking and driveway areas, and

Attachment "A"

Lot 16 Owner is planning to develop Lot 16 as a full service (for eat in dining) restaurant, together with adjacent paved parking and driveway areas; and

WHEREAS, the Parties desire that each of Lot 15, Lot 15-1 and Lot 16 (hereinafter referred to collectively as the "**Development**") be subject to certain easements, rights, and restrictions as hereinafter set forth.

NOW, THEREFORE, for and in consideration of the premises, easements, restrictions and encumbrances contained herein, and Ten Dollars ($10.00) and other good and valuable consideration, the sufficiency of which is hereby acknowledged, the parties hereto do hereby agree as follows:

1. **DEFINITIONS.**

A. **Owner**: "**Owner**" shall mean the record owner from time to time (whether one or more persons) of title to any Tract, or portion thereof, but excluding those holding security interests for the performance of an obligation. Notwithstanding the foregoing, in the event an entire Tract is ground leased for a term of at least ten (10) years, the ground lessee shall be deemed the Owner in lieu of such record owner subject to the terms and conditions of the ground lease and provided the ground lessee assumes the obligations herein in a recorded memorandum of ground lease or other instrument of record (and to the extent any obligations herein are expressly excluded thereunder the same shall remain the sole responsibility of the fee interest Owner of the Tract), and provided further that the fee Owner shall remain liable hereunder to the extent of its interests in the real estate in the event that any such ground lessee shall breach or fail to perform under this Agreement.

B. **Lot 15 Access Easement Area**: "**Lot 15 Access Easement Area**" shall mean the area of Lot 15 shown as "Proposed Access Easement to Benefit Lot 15-1 & 16, A=9,449 S.F." on the Easement Plan.

C. **Lot 15 Limited Access Easement Area**: "**Lot 15 Limited Access Easement Area**" shall mean the area of Lot 15 shown as "Proposed Access Easement to Benefit Lot 15-1, A=7,126 S.F." on the Easement Plan.

D. **Lot 15-1 Access Easement Area**: "**Lot 15-1 Access Easement Area**" shall mean the area of Lot 15-1 shown as "Proposed Access Easement to Benefit Lot 15 & 16, A=13,707 S.F." on the Easement Plan.

E. **Lot 16 Access Easement Area**: "**Lot 16 Access Easement Area**" shall mean the area of Lot 16 shown as "Proposed Access Easement to Benefit Lot 15 & 15-1, A=5,427 S.F." on the Easement Plan.

F. **Access Easement Areas**: "**Access Easement Areas**" shall mean the Lot 15 Access Easement Area, Lot 15 Limited Access Easement Area, Lot 15-1 Access Easement Area and Lot 16 Access Easement Area.

Attachment "A"

G. **Common Access Roadway**: "**Common Access Roadway**" shall mean the Lot 15 Access Easement Area, Lot 15-1 Access Easement Area and Lot 16 Access Easement Area (i.e., the area including all of the Access Easement Areas but excluding the Lot 15 Limited Access Easement Area.)

H. **Access Facilities**: "**Access Facilities**" shall mean all roadways, access drives, driveways, entrances, walkways, landscaped areas, curbing, curb cuts, lighting, markings, directional signs, pavement and any other structures or improvements used for access and located in the Access Easement Areas.

I. **Laws**: "**Laws**" shall mean all laws, ordinances, requirements, orders, codes, directives, rules and regulations of the federal, state, county and municipal governments and of all other governmental authorities affecting the Development or the appurtenances thereto or any part thereof whether the same are in force at the recording of this Agreement or in the future passed, enacted or directed.

J. **Tract**: "**Tract**" shall mean any parcel of land within the Development, legally existing on this date, and as created from time to time, together with the buildings and improvements located thereon, from time to time.

2. **GRANT OF EASEMENTS.**

A. **Lot 15 Access Easement**: Lot 15 Owner, as the Owner of Lot 15, hereby grants to Lot 15-1 Owner, as the Owner of Lot 15-1 and to Lot 16 Owner, as the Owner of Lot 16, a permanent and non-exclusive right and easement for pedestrian and vehicular (both commercial and non-commercial) passage in, on, over and across the Lot 15 Access Easement Area, for the purpose of providing ingress to and egress from all public roadways (the "**Lot 15 Access Easement**"). The Lot 15 Access Easement shall be transferable with the Lot 15-1 and Lot 16 Tracts, and neither the Lot 15 Access Easement Area nor its points of connection with public roadways and/or Lot 15-1 shall be relocated or modified unless the modified location continues to provide adequate access to and from the Lot 15-1 and Lot 16 Tracts that is of substantially the same grade, width and visibility, and affords substantially the same convenience of access, as the former location.

B. **Lot 15 Limited Access Easement**: Lot 15 Owner, as the Owner of Lot 15, hereby grants to Lot 15-1 Owner, as the Owner of Lot 15-1, a permanent and non-exclusive right and easement for pedestrian and vehicular (both commercial and non-commercial) passage in, on, over and across the Lot 15 Limited Access Easement Area, for the purpose of providing ingress to and egress from all public roadways (the "**Lot 15 Limited Access Easement**"). The Lot 15 Limited Access Easement shall be transferable with the Lot 15-1 Tract, and neither the Lot 15 Limited Access Easement Area nor its points of connection with public roadways and/or Lot 15-1 shall be relocated or modified unless the modified location continues to provide adequate access to and from the Lot 15-1 Tract that is of substantially the same grade, width and visibility, and affords substantially the same convenience of access, as the former location

Attachment "A"

C. **Lot 15-1 Access Easement:** Lot 15-1 Owner, as the Owner of Lot 15-1, hereby grants to Lot 15 Owner, as the Owner of Lot 15 and Lot 16 Owner, as the Owner of Lot 16, a permanent and non-exclusive right and easement for pedestrian and vehicular (both commercial and non-commercial) passage in, on, over and across the Lot 15-1 Access Easement Area, for the purpose of providing ingress to and egress to all public roadways (the "**Lot 15-1 Access Easement**"). The Lot 15-1 Access Easement shall be transferable with the Lot 15 and Lot 16 Tracts, and neither the Lot 15-1 Access Easement Area nor its points of connection with Lot 15, Lot 16 or any public roadways shall be modified unless the modified location continues to provide adequate access to and from the Lot 15 and Lot 16 Tracts that is of substantially the same grade, width and visibility, and affords substantially the same convenience of access, as the former location.

D. **Lot 16 Access Easement:** Lot 16 Owner, as the Owner of Lot 16, hereby grants to Lot 15 Owner, as the Owner of Lot 15 and Lot 15-1 Owner, as the Owner of Lot 15-1, a permanent and non-exclusive right and easement for pedestrian and vehicular (both commercial and non-commercial) passage in, on, over and across the Lot 16 Access Easement Area, for the purpose of providing ingress to and egress to all public roadways (the "**Lot 16 Access Easement**"). The Lot 16 Access Easement shall be transferable with the Lot 15 and Lot 15-1 Tracts, and neither the Lot 16 Access Easement Area nor its points of connection with Lot 15-1 or any public roadways shall be modified unless the modified location continues to provide adequate access to and from the Lot 15 and Lot 15-1 Tracts that is of substantially the same grade, width and visibility, and affords substantially the same convenience of access, as the former location.

E. **Permitted Users**. An Owner may grant the benefit of the easement(s) described in this Agreement to its tenants hereafter occupying any building or any portion thereof on its Tract, for the duration of such tenancy and to the agents, vendors, licensees, customers, employees and invitees of such Owner or tenant (collectively, the "**Permitted Users**"). Notwithstanding the foregoing, nothing in this Section 2(E) shall release an Owner from its obligations and responsibilities contained herein.

F. **Damage or Destruction by Owner.** Any Owner who (or whose Permitted User) disturbs or damages another Owner's Tract, or any portion thereof, or any portion of the Owner's own tract over which any other owner has access rights, in the exercise of any rights or obligations hereunder, shall, in a prompt and workmanlike manner, repair and restore such damage or disturbance as nearly as practicable to the condition that existed prior to such damage or disturbance. Any grading which materially alters the flow of surface water to, or materially alters the drainage of, another Owner's Tract, or of any Access Easement Area, shall likewise be repaired and restored as nearly as practicable to the condition that existed prior to such grading.

3. **PARKING AREAS.**

Nothing in this Agreement shall be construed or deemed to convey any rights to an Owner that would permit parking on another Owner's Tract. All future development of any other Tract, or any portion thereof, shall include the on-site construction of parking sufficient to satisfy the demands of its intended use as well as Laws pertaining to parking areas and parking requirements. No easements or agreements related to parking areas shall be granted or entered

Attachment "A"

into by the Owners to third parties, which may invoke the application of Laws requiring cross parking within the Development.

4. **USE RESTRICTIONS.**

A. No part of the Development other than Lot 15 shall be used for, or in connection with: a drug store, a retail pharmacy, or a pharmacy prescription department; the sale of items requiring dispensing by or through a registered or licensed pharmacist (including where such dispensing is in connection with the operation of a mail order facility); the sale of greeting cards; a gift store; providing or selling photo processing services; a health and beauty aids store; a candy store; a vitamin store or the sale of vitamins; a retail health center; and/or a discount, 99 cents store or "**dollar**" store which sells general merchandise (a "**Dollar Store**"). Examples of a Dollar Store (without limiting such Dollar Stores only to those listed) are stores such as Fred's, Dollar Store, Dollar General, or Family Dollar. "**Pharmacy prescription department**" shall include the dispensing of prescription drugs by physicians, dentists or other health care practitioners or entities such as health maintenance organizations, where such dispensing is for profit; and a "**health and beauty aids store**" shall mean a store which devotes more than five percent (5%) of its retail selling space to the display and sale of health and beauty aids. The phrase "**used for**" appearing in the first sentence of this Section 4 shall include the support or benefit by means of access, parking, utility facilities or other similar operational support services or facilities for a use prohibited pursuant to the terms of this Section 4.

B. No part of the Development other than Lot 15-1 shall be used for, or in connection with: the operation of a retail convenience store (provided a retail drug store shall not be prohibited); the sale of alcohol (beer and wine) for off-premises consumption (provided such sale of alcohol (beer and wine) for off-premises consumption shall be permitted on Lot 15); a Fuel Product dispensing facility; any operation marketing competitive energy supply; any food service facility preparing and selling, for on- or off-premises consumption, brewed coffee, espresso, tea or tea-based drinks, and/or blended beverages processed with ice in a blender or processor, including, without limitation, those containing coffee, espresso, tea, soda, juice and/or fruit. Current examples of such food service facility (without limiting such food service facilities only to those listed) are food service facilities such as Dunkin' Donuts, Starbucks or Tim Horton's. This provision shall not, however, be intended to restrict the sale of any such beverages for on-premises consumption as part of a full-service or full-menu restaurant that may be developed on Lot 16, provided that such restaurant shall not be in the nature of a coffee or breakfast specialty restaurant, in the nature of a Dunkin' Donuts, Starbucks or Tim Horton's, unless the restaurant is a sit-down waitperson seating facility. The term "**Fuel Product**" as used in this Section 4 shall mean gasoline, diesel, and any other energy product, including, without limitation, electricity, natural gas, CNG, LNG, hydrogen, biofuels and ethanol. In any event, this provision shall not be intended to prohibit the use of a retail drug store on Lot 15.

5. **PROHIBITED USES.**

Except as otherwise set forth herein, a Tract shall be used for those uses permitted under the Laws provided, however, that no part of the Development shall be used or occupied for the operation of any of the following: a pinball, video game, or any form of entertainment arcade; a gambling or betting office, other than for the sale of lottery tickets; a massage parlor; a tattoo parlor;

Attachment "A"

a cinema, video store or bookstore selling, renting, or exhibiting primarily material of a pornographic or adult nature; an adult entertainment bar or club; a bowling alley; a roller skating or ice skating rink; a billiards parlor or pool hall; a firearms shooting range or any other use which creates or causes excessive noise; a theater; any type of educational or vocational institution; a flea market; a warehouse; a facility which performs on-site dry cleaning; a facility which performs on-site auto repair; an office except as incidental to a permitted retail use; or drilling for and/or removal of subsurface substances, dumping, disposal, incineration or reduction of garbage or refuse, other than in enclosed receptacles intended for such purposes.

6. **MAINTENANCE.**

A. Maintenance

(1) General Standards. Each Owner shall be responsible for Maintenance, at its own cost, of its respective Tract, subject to Section 6(A)(2) following with respect to the Access Easement Areas, in accordance with Laws and otherwise in a good, clean and sanitary order, free from infestation from insects, rodents, vermin and other pests and otherwise in a condition comparable to other "**first-class**" commercial/retail properties located in Hudson, New Hampshire. For purposes of this Section 6(A)(1), "**Maintenance**" includes (but is not limited to) sweeping, washing and removal of trash, litter and refuse, removal of snow and ice from pavement, parking areas and walkways, painting and striping of parking areas, repair and replacement of paving as necessary, repair and replacement of utilities and drainage exclusively serving such Tract, maintenance of landscaped areas (including replacement and replanting), and maintenance and repair of lighting, fixtures, signage, directional signs, lines and markers. Paved areas shall be maintained in a level, smooth and evenly-covered condition with the type of surfacing material originally installed or such substitute as shall be comparable in quality, use, and durability. Garbage, trash, rubbish and other refuse, will be stored in covered containers or compactors and removed at regular intervals, not less than weekly, at such Owner's expense.

(2) Common Access Roadway Maintenance. Notwithstanding anything to the contrary herein, the fee interest Owner of Lot 15 (for purposes of this Section, the "**Maintaining Owner**") shall be responsible, at the shared cost and expense of the Owners of Lots 15, 15-1 and 16 as hereinafter provided, for the operation, Maintenance and repair of the Access Easement Areas in the condition described in Section 6(A)(1) above. For purposes of this Section 6(A)(2), "**Maintenance**" shall mean, without limitation, the maintenance of the Common Access Roadway and all Access Facilities located therein in a fully operational condition and in a condition comparable with other first class commercial/retail properties in the Hudson, New Hampshire area and to the reasonable satisfaction and requirements of the Owners of each of the Tracts. With respect to maintenance of the Access Easement Areas and all Access Facilities located therein, the term "**Maintenance**" shall include, without limitation, sweeping, washing and removal of trash, litter and refuse, removal of snow and ice from pavement or storage within the storage areas shown on the Easement Plan, painting and striping of any applicable areas, repair and replacement of paving as necessary, maintenance of any landscaped areas, and maintenance and repair of any lighting, fixtures, signage,

directional signs, lines and markers, with paving being maintained in a level, smooth and evenly-covered condition with the type of surfacing material originally installed or such substitute as shall be comparable in quality, use, and durability. Notwithstanding that the Maintaining Owner shall be responsible for the Maintenance and repair of the Access Easement Areas, all costs and expenses for such Maintenance and repair shall be allocated between and shared equally (one-third each) by the Owners of Lots 15, 15-1 and 16 as follows:

i. Each Owner shall reimburse the Maintaining Owner one-third of the actual Maintenance and repair costs within thirty (30) days following receipt of a bill therefor from time to time, but the Maintaining Owner shall send bills not more often than monthly. If an Owner fails to pay such Maintenance and repair costs when due, then interest shall accrue thereon at the rate set for in Section 12(b) below, and the provisions of Section 12 respecting the creation of an equitable charge and continuing lien against the Owner's Tract shall apply hereto as if written out at length herein.

ii. The Maintaining Owner shall keep good and accurate books and records concerning the Maintenance and repair of the Access Easement Areas. In the event of any dispute the Maintaining Owner and its agents shall allow reasonable access to the Owners to inspect and copy such books and records (at the requesting Owner's expense.) In the event an inspection of the Maintaining Owner's records reveals that the Maintaining Owner has overstated any of the Maintaining Owner's Maintenance and repair costs for the Access Easement Areas, the Maintaining Owner shall promptly reimburse the applicable Owner for the amount of any overpayment, plus accrued interest at the rate set forth in Section 12(b) from the date of such overpayment to the date of reimbursement. If any such inspection reveals an understatement of the Maintaining Owner's actual Maintenance and repair costs for the Access Easement Areas, the Owners shall promptly pay to the Maintaining Owner, without interest, one-third of such understatement.

iii. For purposes of clarity, Maintenance and repair costs for the Access Easement Areas, which are billable by the Maintaining Owner to the Owners hereunder, shall include maintenance and repair following initial construction and do not include the costs and expense for the initial permitting, approval and construction of the Common Access Roadway and Lot 15 Limited Access Easement Area or any Access Facilities located therein. Said initial permitting, approval and construction shall be completed by Declarant, pursuant to and in accordance with all necessary and applicable Development Approvals (as hereinafter defined), and at the sole cost and expense of Declarant.

7. **CONSTRUCTION ACTIVITIES.**

Construction activities performed on the Development, or any portions thereof:

Attachment "A"

(a) shall be performed in a good and workmanlike manner and in compliance with all laws, rules, regulations, orders and ordinances of the city, county, state and federal governments, or any department or agency thereof, and each Owner shall obtain all necessary permits, variance, licenses, approvals and the like from any applicable governmental authority prior to commencing any construction or maintenance ("**Development Approvals**"). Such construction or maintenance activities shall not unreasonably interfere with the access to and from, use, occupancy, or enjoyment of any other Owner or their Permitted Users. In all events, any such construction or maintenance activities shall be conducted in the most expeditious manner reasonably possible to minimize interference with the use of the Access Easement Areas and shall be diligently prosecuted to completion so as not to unreasonably disturb the operation of any business conducted upon any Tract, or interfere with the Owner or Permitted Users of any Owner, and once commenced, such work will be diligently pursued to completion; and

(b) any grading which materially alters the flow of surface water or materially modifies the grading or drainage of any of the Access Easement Areas or an adjoining Tract (as currently constructed or as shall be constructed pursuant to applicable Development Approvals) shall be repaired and restored as nearly as practicable to its prior existing condition in a prompt and workmanlike manner; and

(c) once constructed, the Access Easement Areas, Access Facilities, and any portion(s) thereof shall not be materially obstructed during the normal business hours of any Owner except as may be reasonably necessary to perform maintenance, repair and replacement; and

(d) With respect to any construction work to be performed by each Owner hereunder, and at all times until such work is complete, each of the Owners shall maintain, at its own cost and expense, and shall cause each of its construction contractors and each of their subcontractors to maintain, in full force and effect, a policy or policies of public liability insurance meeting the requirements of Section 8 of this Agreement. Additionally, until the completion of such construction work, each Owner shall also maintain, and shall cause each of its construction contractors and each of their subcontractors to maintain, workers, compensation insurance with coverage in at least the minimum amount specified by law; and

(e) The Owners shall at all times reasonably cooperate. Prior to the construction, redevelopment or reconstruction of any building or other structure on a Tract or of any Access Easement Areas or any Access Facilities, the Owner wishing to construct such building or structure or improvements shall (i) submit to the other Owners a duplicate copy of the plans for the proposed construction, and (ii) consult with such other Owner as to the suitability of the project and the manner in which the parties will seek to avoid any interference with the Access Easement Areas and existing business operations. Such other Owners shall have the right to review such plans and consult with the constructing Owner as aforesaid prior to the commencement of the proposed construction, but the constructing Owner shall have the right to proceed with the proposed construction after such consultation, whether or not the other Owners approve

Attachment "A"

such plans so long as the constructing Owner has obtained all necessary permits and approvals to construct the project from the governing authorities.

8. **INDEMNIFICATION/INSURANCE.**

A. Indemnification. Each Owner (the "**Indemnifying Owner**") shall indemnify and save harmless the other Owner(s) (the "**Indemnified Owner**") from and against any and all liabilities, damages, penalties or judgments, any and all actions, suits, proceedings, claims, demands, assessments, costs and expenses, including, without limitation, reasonable legal fees and expenses, incurred in enforcing this indemnity, arising from injury to person or property sustained by anyone in and about the Indemnified Owner's Tract and resulting from any grossly negligent act or omission of the Indemnifying Owner or its Permitted Users in performing, or failing to perform, its obligations under this Agreement. The Indemnifying Owner shall, at its own cost and expense, defend any and all suits or actions, just or unjust, which may be brought against the Indemnified Owner or in which the Indemnified Owner may be impleaded with others upon any such above-mentioned matter, claim or claims, except for those arising from the affirmative acts, omissions, bad faith or negligence of the Indemnified Owner or the affirmative acts, omissions, bad faith or negligence of the Indemnified Owner's Permitted Users.

B. Insurance.

(1) Each Owner at its own expense shall be required to procure and maintain in full force and effect a policy or policies of commercial general liability insurance against any liability or claim for personal liability, wrongful death, property damage or liability for which such party is responsible under this Agreement or under the Laws, with financially responsible insurers authorized to transact business in the State of New Hampshire with a commercially reasonable combined single limit of not less than $1,000,000.00 per occurrence (such amount to be increased over time so as to maintain comparable coverage amounts as dollar values erode with inflation or if reasonably required under then-prevailing industry standards for retail shopping centers).

(2) Policies of insurance required under this paragraph shall name the other Owner(s) (and their mortgagees and/or lessors, if required) as additional named insureds. Each Owner shall provide the other Owner(s) with certificates of such insurance from time to time upon written request to evidence that such insurance is in force. Such insurance policies shall provide an obligation requiring the insurer to provide thirty (30) days written notice to the other Owner(s) and additional named insureds prior to cancellation or termination of the policy (10 days in the case of non-payment).

(3) An Owner or its parent or affiliated entity having a net worth of One Hundred Million Dollars ($100,000,000) or more, or a market capitalization of One Billion Dollars ($1,000,000,000) or more, may self-insure the obligations under this Section 8.

(4) No Owner shall be liable to the other Owners or to any insurance companies (by way of subrogation or otherwise) insuring such other Owners for any loss or damage to their buildings, structures or tangible personal property, even though such loss or damage might have been occasioned by the negligence of such Owner, its agents or employees; provided, however,

that if, by reason of the foregoing waiver, the other Owner shall be unable to obtain any such insurance, such waiver shall be deemed not to have been made by such Owner and, provided, further, that if the other Owner shall be unable to obtain any such insurance without the payment of an additional premium therefor, then, unless the Owner claiming the benefit of such waiver shall agree to pay such other Owner for the cost of such additional premium within thirty (30) days after notice setting forth such requirements, such waiver shall be of no force and effect between such other Owner and such claiming Owner. Each Owner shall require its general contractors and subcontractors performing work on its Tract to provide a waiver to the other Owners in like kind and fashion to that provided for herein for Owners.

9. **EMINENT DOMAIN.**

In the event of the exercise of eminent domain or transfer in lieu thereof of a Tract or any portion thereof (whether or not such taking includes any Access Easement Areas, Access Facilities, or any portion(s) thereof) (the "**Condemned Tract**"), the award attributable to the Condemned Tract shall be payable only to the Owner thereof. No other Owner shall have an interest in any award or payment made in connection with the exercise of eminent domain or transfer in lieu thereof of the Condemned Tract, provided, however, that the other Owner(s) may file collateral claims with the condemning authority for their losses and may receive payment if awarded separately and apart from the award made to the Owner of the Condemned Tract, including any separate award for substantial impairment to the benefits hereunder such as parking, signage, or access.

10. **RIGHTS OF MORTGAGEES.**

No provision of this Agreement shall in any way defeat or render invalid the lien of any mortgage or other security instrument entered into in good faith and for valuable consideration, whether presently in existence or hereafter recorded against any part of the Development, but any such lien shall be subordinate and subject to the provisions of this Agreement but not to any liens created by this Agreement; provided, however, that if any portion of the Development is purchased in connection with a foreclosure of such mortgage or security instrument or is conveyed to the party so secured in lieu of foreclosure, any person so acquiring or purchasing and his successors and assigns shall hold any and all Property so purchased or acquired subject to the provisions of this Agreement. The Parties shall, upon written request, undertake best efforts to obtain, within ten (10) business days, an agreement from the existing holders of such mortgage or other security instrument on their respective Tracts subordinating the terms thereof to the terms of this Agreement.

11. **BINDING EFFECT.**

A. Covenants Run With Land. This Agreement shall be perpetual in nature, shall run with the land and shall benefit and be binding upon the Owners, their heirs, administrators, representatives, successors and assigns. This Agreement shall be recorded with the Hillsborough County Registry of Deeds. Any transferee of any Tract, or any part thereof, shall automatically be deemed, by acceptance of a deed, a leasehold interest satisfying the conditions set forth in Section 1(A) above, or any ownership interest in and to a Tract, or portion thereof, to have assumed all obligations set forth herein, and to have agreed to comply with the provisions hereof.

Attachment "A"

The transferor of any such Tract shall, upon the completion of the transfer, be relieved of all liability hereunder except that which arose during the transferor's period of ownership and which remains unsatisfied on the date transfer.

B. No Dedication To Public; No Implied Easements. Nothing contained in this Agreement shall be deemed to be a gift or dedication of any portion of any Tract to the general public or for any public use or purpose whatsoever, it being the intention of the parties hereto that this Agreement be for the exclusive benefit of the Owners and the Permitted Users and that nothing herein, express or implied, shall confer upon any person, other than the Owners and their heirs, administrators, legal representatives, successors and assigns, any rights or remedies under or by reason of this Agreement. No easements, except those expressly set forth herein shall be implied by this Agreement.

C. No Waiver. No delay or omission of an Owner in the exercise of any right accruing upon default by another Owner shall impair any such right or be construed to be a waiver thereof. A waiver on one occasion by an Owner of a breach or a default of any of the terms and conditions of this Agreement by another Owner shall not be construed to be a waiver of subsequent breaches or defaults or of any other provisions hereof.

12. **REMEDIES AND ENFORCEMENT.**

(a) All Legal and Equitable Remedies Available. In the event of a breach or threatened breach by an Owner of a Tract and/or its Permitted Users (collectively, jointly and severally, the "**Defaulting Owner**") of any of the terms, covenants, restrictions or conditions hereof, the other Owner(s) shall be entitled forthwith to full and adequate relief by injunction and/or all such other available legal and equitable remedies from the consequences of such breach from the Defaulting Owner.

(b) Self-Help. In addition to all other remedies available at law or in equity, upon the failure of a Defaulting Owner to cure a breach of this Agreement within thirty (30) days following written notice thereof by an Owner or its tenants (unless, with respect to any such breach the nature of which cannot reasonably be cured within such 30-day period, the Defaulting Owner commences such cure within such 30-day period and thereafter diligently pursues such cure to completion), any Owner or its tenants shall have the right to perform such obligations contained in this Agreement on behalf of such Defaulting Owner and be reimbursed by such Defaulting Owner upon demand for the reasonable costs thereof together with interest at the Prime Rate charged from time to time by Bank of America (its successors or assigns) as published in the Wall Street Journal plus three percent (3%) per annum (not to exceed the maximum rate of interest allowed by law). Notwithstanding the foregoing, in the event of (i) an emergency (e.g. the failure to timely remove snow, ice, fallen trees, disabled vehicles or other obstructions which impair the use of the Access Easement Area), (ii) material impairment of the easement rights, and/or (iii) the unauthorized parking of vehicles on a Tract, an Owner or its tenants may immediately cure the same, without notice, and be reimbursed by the Defaulting Owner upon demand for the reasonable cost thereof together with interest at the Prime Rate, plus three percent (3%), as above described. In the event the Defaulting Owner fails to pay or reimburse another Owner for any sums due and owing under this Section 12 within thirty (30)

days of demand from such Owner (the "**Delinquent Payment**"), the amount of such Delinquent Payment shall automatically become a lien upon the Delinquent Owner's Tract, which such lien shall be enforced (with interest at the rate set forth herein) in the same manner as a mortgage. Such lien shall automatically attach and take effect upon the recording of a claim of lien in the appropriate recording office in Hillsborough County Registry of Deeds setting forth the name of the Defaulting Owner, the amount of the Delinquent Payment, the date of the non-payment, a description of the tract or portion thereof to which the lien shall attach, and a statement that the lien is claimed pursuant to the provisions of this Agreement; unless within such thirty (30) day period after demand the parties have either reached an agreement regarding such reimbursement or the alleged Delinquent Owner shall have obtained injunctive relief from a court of competent jurisdiction enjoining the placement of such lien.

(c) Attorneys' Fees. In any legal or equitable proceeding to determine the rights of the Owners to enforce or restrain the breach of this Agreement, the losing party or parties, as determined by the court, hearing officer, other tribunal, or arbiter utilized for this purpose, shall pay the reasonable attorneys' fees, legal costs and expenses of the prevailing party or parties.

(d) Remedies Cumulative. The remedies specified herein shall be cumulative and in addition to all other remedies permitted at law or in equity.

(e) No Termination for Breach. Notwithstanding the foregoing to the contrary, no breach hereunder shall entitle any Owner to cancel, rescind, or otherwise terminate this Agreement.

13. **ESTOPPEL CERTIFICATE.**

Each Owner, within fifteen (15) business days of written request from another Owner, shall execute, acknowledge and deliver an estoppel certificate, in a mutually acceptable form, certifying to such requesting Owner or any prospective purchaser, assignee, lessee or mortgagee designated by such requesting Owner, without charge, that: (a) this Agreement is in full force and effect, without modification (or if there have been modifications, identifying the modifications); (b) there are no existing defaults nor does any set of facts exist which with the passage of time or the giving of notice or both would constitute a default (or if so, specifying the nature and extent thereof); (c) there exist no disputes relative to amounts payable by or to such Owner or any unpaid expenses (or if so, setting forth the nature and amount of the dispute); and (d) such other information concerning the status of this Agreement or the performance of the Owners of their respective obligations hereunder as may be reasonably requested.

14. **DURATION.**

Unless otherwise canceled or terminated, all of the easements and rights granted in this Agreement, and the obligations herein (except as otherwise provided herein), shall continue in perpetuity; provided, however, that if any term or provision hereof would otherwise be unlawful and void or voidable for violation of the rule against perpetuities or any other common law or statutory rule pertaining to the duration of such easements and rights, then such term or provision shall be effective only until the date which is twenty-one (21) years after the death of the last surviving descendant, currently living, of the former Presidents of the United States alive on the

date of this Agreement. The restrictions set forth in Sections 4 and 5 shall continue in perpetuity; provided, however, that if such duration would violate any common law or statutory rule pertaining to the duration of restrictions, then such restrictions shall be limited to the shorter of (a) thirty (30) years, and (b) the longest period allowed by law. If the filing of any recorded extensions may prolong the duration of such restrictions, then such extensions shall be recorded at the appropriate time.

15. **DOCUMENT MODIFICATION AND CANCELLATION.**

This Agreement (including exhibits) may be modified or canceled only by mutual agreement of all of the Owners as set forth in a written document and which shall be effective upon recording with the appropriate recording office.

16. **FORCE MAJEURE.**

Any Owner shall be excused from performing any obligation or undertaking provided in this Agreement, except any obligation to pay any sums of money under the applicable provisions hereof, in the event that, and only for as long as, the performance of any such obligation is prevented, delayed, retarded or hindered by Act of God, fire, earthquake, flood, explosion, extraordinary action of the elements, war, invasion, insurrection, terrorism, riot, mob violence, sabotage, inability to procure or general shortage of labor, equipment, facilities, materials or supplies in the open market, failure of transportation, strike, lockout, action of labor unions, condemnation, requisition, Laws, order of government or civil, military or naval authorities, or any other cause, whether similar or dissimilar to the foregoing, not within the reasonable control of such Owner, (the "**Force Majeure Event**"). Such Owner shall provide notice to the other Owner(s) within five (5) business days following the onset of the Force Majeure Event, specifying the cause which prevents such Owner's performance and estimating the period of expected delay.

17. **MISCELLANEOUS.**

A. Severability. If any provision of this Agreement or the application thereof to any person or circumstances shall, to any extent, be held invalid, inoperative or unenforceable, the remainder of this Agreement, or the application of such provision, to any other person or circumstance shall not be affected thereby; the remainder of this Agreement shall be given effect as if such invalid or inoperative portion had not been included.

B. Applicable Law. This Agreement shall be construed in accordance with the laws of the state of New Hampshire.

C. No Partnership or Joint Venture. Nothing in this Agreement shall be construed to make the Parties hereto partners or joint venturers or render any of said Parties liable for the debts or obligations of the others.

D. Notices. All notices, approvals, consents or requests given or made pursuant to this Agreement shall be made in writing and shall be deemed given upon receipt by personal delivery; or United States certified mail, return receipt requested, with postage prepaid; or one

Attachment "A"

(1) day after deposit with a recognized overnight carrier, charges prepaid. Notices shall be addressed as follows until a new address for notices shall be designated by notice in the manner provided in this paragraph to all other Owners and notices shall also be copied to the most recent grantee under any deed conveying the fee interest to a Tract and to the most recent ground lessee of record if a notice of lease has been recorded with respect to any Tract, whether or not notice shall have been provided as required herein:

If to Lot 15 Owner: Hudson Enterprises, LLC
c/o Jeffrey F. Gove
7 Thornton Street
Seabrook, New Hampshire 03874

If to Lot 15-1 Owner: Hudson Enterprises, LLC
c/o Jeffrey F. Gove
7 Thornton Street
Seabrook, New Hampshire 03874

If to Lot 16 Owner: Hudson Enterprises, LLC
c/o Jeffrey F. Gove
7 Thornton Street
Seabrook, New Hampshire 03874

E. Interpretation. Wherever herein the singular number is used, the same shall include the plural, and the masculine gender shall include the feminine and neuter genders, and vice versa, as the context shall require. The section headings used herein are for reference and convenience only, and shall not enter into the interpretation hereof. This Agreement may be executed in several counterparts, each of which shall be an original, but all of which shall constitute one and the same instrument.

F. Entire Agreement. This Agreement and the Exhibits attached hereto set forth the entire agreement between the Parties governing the Development. There are no statements, promises, representations or understandings, oral or written, not herein expressed.

[REMAINDER OF PAGE INTENTIONALLY LEFT BLANK]

Attachment "A"

IN WITNESS WHEREOF, the parties have executed this Agreement the day and year first written above.

Declarant:

Hudson Enterprises, LLC, a New Hampshire limited liability company

By: _____
Name: Jeffrey F. Gove, Member

STATE OF New Hampshire)

COUNTY OF Rockingham)

I, the undersigned authority, a Notary Public in and for said county in said state, hereby certify that Jeffrey F. Gove, whose name is signed to the foregoing instrument, and who is known to me, acknowledged before me on this day that, being informed of the contents of said instrument, he executed the same voluntarily on the day the same bears date.

Given under my hand and official seal this the 2 day of July, 2018.

_____
Notary Public

AFFIX SEAL

My commission expires: 5-18-21

MEGAN E. GAIERO NOTARY PUBLIC EXP. 05/18/2021 NEW HAMPSHIRE

Attachment "A"

EXHIBIT A

Legal Description
Lot 15

A certain lot or tract of land in the Town of Hudson, County of Hillsborough, State of New Hampshire, being the area shown as a Tax Map 156 Lot 15, as shown on a plan entitled, "Subdivision Plan, '120 Derry Road,' (Rt. 102), Hudson, NH, Tax Map 156 Lot 15 & 16," prepared for Hudson Enterprises, LLC, 7 Thornton Street, Seabrook, NH 03874, prepared by Jones & Beach Engineers, Inc., PO Box 219, Stratham, NH 03885, dated April 17, 2018 and recorded in the Hillsborough County Registry of Deeds as Plan No. 39726 and more particularly bounded and described as follows:

Beginning at a point, on the **northerly** sideline of Elm Ave (Route 3A), so-called, said point being the most **southwesterly** corner of the herein described parcel, Map 156 Lot 15 as shown on said plan;

Thence running **N18°45'42"E,** along land now or formerly of RBJK Realty, LLC, a distance of **320.82 feet** to a point, being the **northerly** corner of herein described Tax Map 156 Lot 15;

Thence turning and running **S49°57'50"E,** along the division line of herein described Tax Map 156 Lot 15 and Tax Map 156 Lot 15-1, a distance of **123.43 feet** to a point;

Thence turning and running **S40°02'10"W,** continuing along the division line of herein described Tax Map 156 Lot 15 and Tax Map 156 Lot 15-1, a distance of **21.00 feet** to a point;

Thence turning and running **S49°57'50"E,** continuing along the division line of herein described Tax Map 156 Lot 15 and Tax Map 156 Lot 15-1, a distance of **173.45 feet** to a point;

Thence running **S64°57'50"E,** continuing along the division line of herein described Tax Map 156 Lot 15 and Tax Map 156 Lot 15-1, a distance of **77.55 feet** to a point;

Thence running **N87°53'11"E,** continuing along the division line of herein described Tax Map 156 Lot 15 and Tax Map 156 Lot 15-1, a distance of **58.82 feet** to a point on the **westerly** sideline of Derry Road (NH Route 102);

Thence running **southwesterly**, along a non-tangent curve to the left, by said **westerly** sideline of Derry Road (NH Route 102), having a radius of **1465.50 feet, an included angle of 12°07'10"**, an arc length of **309.99 feet**, a chord of **S 38°43'48"W 309.41** feet to a point;

Thence running **westerly**, along a tangent curve to the right, along the intersection of the **northerly** sideline of Elm Avenue (Route 3A), so-called, as shown on said plan, and the said **westerly** sideline of Derry Road (NH Route 102), having a radius of **14.00 feet, an included angle of 94° 56' 33"**, an arc length of **23.20 feet**, a chord of **S80°08'30"W 20.63** feet to a point;

Thence running **N52°23'13"W,** along the said **northerly** sideline Elm Avenue (Route 3A), a distance of **293.02 feet to the point of beginning.**
Containing 100,725 square feet more or less.

Attachment "A"

EXHIBIT B

Easement Plan

See the Easement Plan recorded herewith.

Attachment "A"

EXHIBIT C

Legal Description
Lot 15-1

A certain lot or tract of land in the Town of Hudson, County of Hillsborough, State of New Hampshire, being the area shown as a Tax Map 156 Lot 15-1, as shown on a plan entitled, "Subdivision Plan, '120 Derry Road,' (Rt. 102), Hudson, NH, Tax Map 156 Lot 15-1," prepared for Hudson Enterprises, LLC, 7 Thornton Street, Seabrook, NH 03874, prepared by Jones & Beach Engineers, Inc., PO Box 219, Stratham, NH 03885", dated April 17, 2018 and recorded in the Hillsborough County Registry of Deeds as Plan No. 39726 and more particularly bounded and described as follows:

Beginning at a point, on the **westerly** sideline of Derry Road (NH Route 102), so-called, as shown on said plan, said point being the most **southerly** corner of herein described Tax Map 156 Lot 15-1, as shown on said plan;

Thence running **S87°53'11"W,** along the division line of herein described Tax Map 156 Lot 15 and Tax Map 156 Lot 15-1, a distance of **58.82 feet** to a point;

Thence running **N64°57'50"W,** a distance of **77.55 feet** to a point;

Thence running **N49°57'50"W,** a distance of **173.45 feet** to a point;

Thence turning and running **N40°02'10"E,** a distance of **21.00 feet** to a monument to be set;

Thence turning and running **N49°57'50"W,** a distance of **123.43 feet** to a point at land now or formerly of RBJK Realty, LLC;

Thence turning and running **N18°45'42"E,** by land of said RBJK Realty, LLC, a distance of **130.10 feet** to a point;

Thence turning and running **S49°57'50"E,** along the division line of Tax Map 156 Lot 16 and herein described parcel, a distance of **103.47 feet** to a point;

Thence turning and running **N40°02'10"E** a distance of **33.31** feet to a point;

Thence running **northeasterly**, along a tangent curve to the right, having a radius of **115.00 feet,** an included angle of **51°29'56"**, an arc length of **103.36 feet**, a chord of **N65°47'08"E 99.92 feet** to a point;

Thence turning and running **S49°57'55"E**, a distance of **343.12 feet** to a point on the westerly sideline of Derry Road, the last two courses being along the division line;

Thence turning and running **S48°25'38"W,** along the westerly sideline of Derry Road (Route 102), a distance of **114.83 feet** to a poiny;

Thence running **southwesterly** along a tangent curve to the left having a radius of **1465.50 feet**, an included angle of **03°38'14"**, an arc length of **93.03 feet**, a chord of **S46°36'31"W**, a distance of **93.02 feet** to the **point of beginning**.

Containing 102,573 square feet more or less.

Attachment "A"

EXHIBIT D

Legal Description
Lot 16

A certain lot or tract of land in the Town of Hudson, County of Hillsborough, State of New Hampshire, being the area shown as a Tax Map 156 Lot 16, as shown on a plan entitled, "Subdivision Plan, '120 Derry Road,' (Rt. 102), Hudson, NH, Tax Map 156 Lot 16," prepared for Hudson Enterprises, LLC, 7 Thornton Street, Seabrook, NH 03874, prepared by Jones & Beach Engineers, Inc., PO Box 219, Stratham, NH 03885", dated April 17, 2018 and recorded in the Hillsborough County Registry of Deeds as Plan No. 39726 and more particularly bounded and described as follows:

Beginning at a point, along the westerly sideline of Derry Road (NH Route 102), so-called, as shown on said plan, said point being the most southerly corner of herein described Tax Map 156 Lot 16, as shown on said plan;

Thence running **N49°57'55"W,** along the division line of Tax Map 156 Lot 15-1, a distance of **343.12 feet** to a point;

Thence running **northeasterly** along a non-tangent curve to the left for a radius of **115.00 feet**, an included angle of **51° 29' 56"**, an arc length of **103.36** feet, a chord of **S65°47'08"W 99.92** feet to a point;

Thence running **S40°02'10"W,** continuing along the division line of Tax Map 156 Lot 15-1, a distance of **33.31 feet** to a point;

Thence running **N49°57'50"W,** along the division line of Tax Map 156 Lot 15-1, a distance of **103.47 feet** to a point;

Thence turning and running **N72°27'52"W**, a distance of **150.00 feet** to a granite bound;

Thence turning and running **N18°45'04"E**, a distance of **190.87 feet** to an iron rod;

Thence turning and running **S79°28'31"E,** a distance of **554.38 feet** to a point;

Thence turning and running N**41°40'46"E,** a distance of **165.80 feet** to a granite bound found;

Thence turning and running **S48°24'14"E,** a distance of **273.97 feet** to a point;

Thence turning and running along Derry Road (Route 102) **S 48° 25' 38" W**, a distance of **433.12 feet to the point of beginning.**

Containing 212,372 square feet more or less.

Attachment "A"

REM_GIS_ID	REM_ALT_PRCL	REM_M	MBLU_BL	MBLU	LOCATION	ST_NUM	ST_NAME	MAD_MAIL_NAME1	MAD_MAIL_NAME2	MAD_MAIL_ADDR1	MAD_MAIL_CIT	MAD_D	MAIL_ZIP
156-034-000	156-034-000	156	34	0	MEGAN DR	0	MEGAN DR	REEDS BROOKS ASSOCIATION	C/O TED COTE	7 MEGAN DR.	HUDSON	NH	3051
156-026-000	156-026-000	156	26	0	2 MEGAN DR	2	MEGAN DR	BOLAND, STEPHANIE C.	BOLAND, TIMOTHY M.	2 MEGAN DRIVE	HUDSON	NH	3051
156-016-000	156-016-000	156	16	0	9 MORGAN RD	9	MORGAN RD	HUDSON ENTERPRISES, LLC		7 THORNTON STREET	SEABROOK	NH	3874
156-013-000	156-013-000	156	13	0	21 ELM AVE	21	ELM AVE	R D F CORP		23 ELM AVENUE	HUDSON	NH	3051
156-012-000	156-012-000	156	12	0	23 ELM AVE	23	ELM AVE	R D F CORP		23 ELM AVENUE	HUDSON	NH	3051
156-014-000	156-014-000	156	14	0	5 ELM AVE	5	ELM AVE	KEAVENY, JAMES		5 ELM AVE	HUDSON	NH	3051
156-015-000	156-015-000	156	15	0	46 MORGAN RD	46	MORGAN RD	HUDSON NH HOLDINGS LLC	C/O MICHAEL PALMER	5 TAYLOR TERRACE	LYNNFIELD	MA	1940
156-018-000	156-018-000	156	18	0	6 & 6B EASY ST	6	EASY ST	BOUFFORD, STEVEN W.	BOUFFORD, KATHERINE L.	6 EASY ST.	HUDSON	NH	3051
156-025-000	156-025-000	156	25	0	127 DERRY RD	127	DERRY RD	REEDS BROOKS ASSOCIATION	C/O TED COTE	7 MEGAN DR.	HUDSON	NH	3051
156-017-000	156-017-000	156	17	0	140 DERRY RD	140	DERRY RD	BOUFFORD, STEVEN W.	BOUFFORD, KATHERINE L.	6 EASY ST.	HUDSON	NH	3051
156-032-000	156-032-000	156	32	0	3 MEGAN DR	3	MEGAN DR	MUGARIRI, MOSES	MUGARIRI, MAUREEN	3 MEGAN DRIVE	HUDSON	NH	3051
156-035-000	156-035-000	156	35	0	123 DERRY RD	123	DERRY RD	THE SANCTUARY	UNITED PENTECOSTAL CHURCH, INC	PO BOX 623	HUDSON	NH	3051
147-029-023	147-029-023	147	29	23	32 BOWES CIR	32	BOWES CIR	ABBIE`S LANDING HOMEOWNERS		32 BOWES CIRCLE	HUDSON	NH	3051
156-015-001	156-015-001	156	15	1	10 MORGAN RD	10	MORGAN RD	HUDSON ENTERPRISES, LLC		7 THORNTON STREET	SEABROOK	NH	3874

Jones & Beach Engineers, Inc. Attn. Erik Poulin, P.E, PO Box 219, Stratham, NH 03833

Jim Waterman, Washville Car Wash, 7 Benedict Place, Greenwich, CT 06830

Direct

In Direct

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Attachment "A"

REEDS BROOK ASSOCIATION
C/O TED COTE
7 MEGAN DR
HUDSON, NH 03051

STEPHANIE & TIMOTHY BOLAND
2 MEGAN DR
HUDSON, NH 03051

HUDSON ENTERPRISES, LLC
7 THORNTON ST
SEABROOK NH 03874

RDF CORP
23 ELM AVE
HUDSON, NH 03051

RDF CORP
23 ELM AVE
HUDSON, NH 03051

JAMES KEAVENY
5 ELM AVE
HUDSON, NH 03051

HUDSON NH HOLDINGS LLC
C/O MICHAEL PALMER
5 TAYLOR TERRACE
LYNNFIELD, MA 01940

STEVEN & KATHERINE BOUFFORD
6 EAST ST
HUDSON, NH 03051

REEDS BROOK ASSOCIATION
C/O TED COTE
7 MEGAN DR
HUDSON, NH 03051

STEVEN & KATHERINE BOUFFORD
6 EAST ST
HUDSON, NH 03051

REEDS BROOK ASSOCIATION
C/O TED COTE
7 MEGAN DR
HUDSON, NH 03051

STEVEN & KATHERINE BOUFFORD
6 EAST ST
HUDSON, NH 03051

STEPHANIE & TIMOTHY BOLAND
2 MEGAN DR
HUDSON, NH 03051

HUDSON ENTERPRISES, LLC
7 THORNTON ST
SEABROOK NH 03874

RDF CORP
23 ELM AVE
HUDSON, NH 03051

RDF CORP
23 ELM AVE
HUDSON, NH 03051

JAMES KEAVENY
5 ELM AVE
HUDSON, NH 03051

HUDSON NH HOLDINGS LLC
C/O MICHAEL PALMER
5 TAYLOR TERRACE
LYNNFIELD, MA 01940

STEVEN & KATHERINE BOUFFORD
6 EAST ST
HUDSON, NH 03051

REEDS BROOK ASSOCIATION
C/O TED COTE
7 MEGAN DR
HUDSON, NH 03051

STEVEN & KATHERINE BOUFFORD
6 EAST ST
HUDSON, NH 03051

Go to avery.com/templates
Use Avery Template 5160

Easy Peel Address Labels
Bend along line to expose Pop-up Edge

AVERY 8460

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Utilisez le Gabarit Avery 5160

Étiquettes d'adresse Easy Peel®
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Attachment "A"

MOSES & MAUREEN MUGARIRI
3 MEGAN DR
HUDSON, NH 03051

THE SANCTUARY
UNITED PENTECOSTAL CHURCH INC
PO BOX 623
HUDSON, NH 03051

ABBIE'S LANDING HOMEOWNERS
32 BOWES CIRCLE
HUDSON, NH 03051

HUDSON ENTERPRISES, LLC
7 THORNTON ST
SEABROOK NH 03874

JONES & BEACH ENGINEERS, INC
ATTN. ERIK POULIN, P.E.
PO BOX 219
STRATHAM, NH 03885

WASHVILLE CAR WASH
ATTN. JIM WATERMAN
7 BENEDICT PLACE
GREENWICH, CT 06830

MOSES & MAUREEN MUGARIRI
3 MEGAN DR
HUDSON, NH 03051

THE SANCTUARY
UNITED PENTECOSTAL CHURCH INC
PO BOX 623
HUDSON, NH 03051

ABBIE'S LANDING HOMEOWNERS
32 BOWES CIRCLE
HUDSON, NH 03051

HUDSON ENTERPRISES, LLC
7 THORNTON ST
SEABROOK NH 03874

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STRATHAM, NH 03885

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GREENWICH, CT 06830

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3 MEGAN DR
HUDSON, NH 03051

THE SANCTUARY
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PO BOX 623
HUDSON, NH 03051

ABBIE'S LANDING HOMEOWNERS
32 BOWES CIRCLE
HUDSON, NH 03051

HUDSON ENTERPRISES, LLC
7 THORNTON ST
SEABROOK NH 03874

JONES & BEACH ENGINEERS, INC
ATTN. ERIK POULIN, P.E.
PO BOX 219
STRATHAM, NH 03885

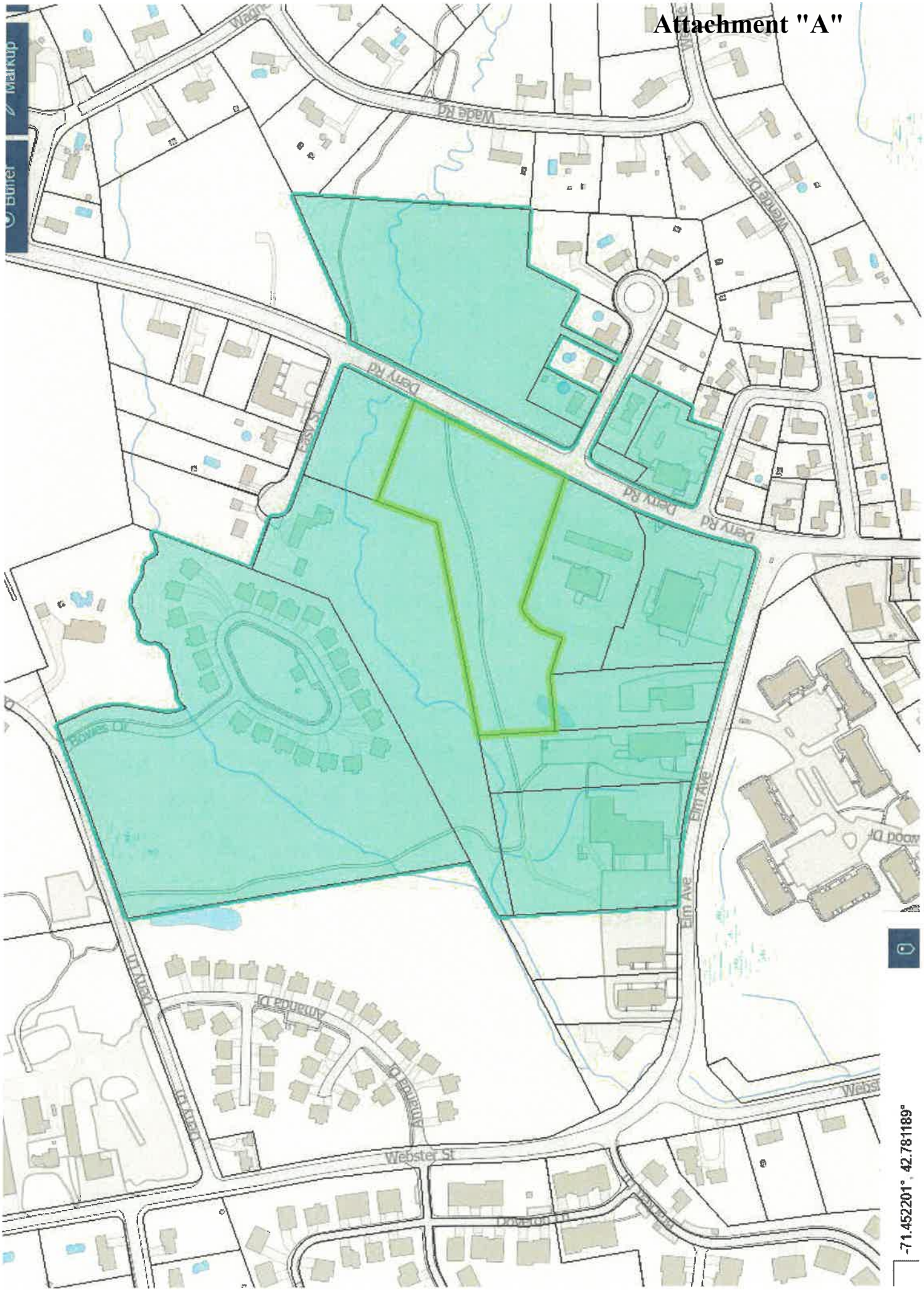
WASHVILLE CAR WASH
ATTN. JIM WATERMAN
7 BENEDICT PLACE
GREENWICH, CT 06830

Go to avery.com/templates
Use Avery Template 5160

Easy Peel® Address Labels
Bend along line to expose Pop-up Edge

AVERY 8460

Attachment "A"



Attachment "B"

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

August 28, 2025

Hudson Planning Board
Attn. Timothy Malley, Chair
12 School Street
Hudson, NH 03051

RE: Site Plan Application
9 Morgan Road, Hudson, NH
Tax Map 156, Lot 16
JBE Project No. 25082

Dear Mr. Malley,

Jones & Beach Engineers, Inc., respectfully submits a Site Plan Application for the above-referenced parcel on behalf of our client, Jim Waterman. The intent of this application is to propose a new carwash building with associated parking and customer accessible vacuum machines.

The following are provided in support of this application with the following items:

1. Site Plan Application with Checklist.
2. Current Deed.
3. Signed Letter of Authorization.
4. Abutters List with Three (3) Sets of Mailing Labels.
5. Traffic Memo.
6. One (1) Drainage Analysis.
7. One (1) Full Size Plan Set (Folded).
8. Fee Check.

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: Jim Waterman, Washville Car Wash (via email)

Attachment - "C"

Planning Board Sign-off

Project Name	SP# 10-25 Washville Carwash	Map/Lot:	156-016-000
Site Address:	9 Morgan Road	Zone:	Industrial
		Due by:	11/25/25

Project Status		Ready for Approval	Awaiting Revisions	Approval with Stipulations
DEPARTMENT	INITIAL			
FUSS & O'NEILL:	DK	✔		
ZONING:	CS	✔		
ASSESSING:	JM	✔		
ENGINEERING:	EZD		✔	
PUBLIC WORKS:	JT	✔		
FIRE:	DRH	✔		
POLICE:	PM	✔		

Comments:

ZONING:
ASSESSING:No Comments
ENGINEERING: Traffic study and executive memo was getting reworked
PUBLIC WORKS:
FIRE:Fire Department access conforms. Existing fire hydrant on site is within separation distance limits.
POLICE:

Attachment - "C"

Planning Board Sign-off

Project Name	SP# 10-25 Washville Carwash	Map/Lot:	156-016-000
Site Address:	9 Morgan Road	Zone:	Industrial
		Due by:	11/25/25

Extended Comments:

Attachment "D"

TRAFFIC IMPACT STATEMENT

ITE TRIP GENERATION MEMORANDUM

Washville Car Wah
9 Morgan Road
Hudson, NH

Prepared for:

Hudson Enterprises, LLC
69 Atlantic Ave
North Hampton, NH

Prepared by:
Jones & Beach Engineers, Inc.
85 Portsmouth Avenue
P.O. Box 219
Stratham, NH 03885
(603) 772-4746
September 29, 2025
JBE Project No. 25082

EXECUTIVE SUMMARY

Our client, Hudson Enterprises, LLC, proposes to construct a car wash on the subject parcel with frontage on NH Route 102 (Derry Road) in Hudson, NH. The subject parcel is north of the intersection between Route 102 and Elm Avenue. The site was originally approved to be a ±5,500 S.F. restaurant with associated parking, but was never constructed. The existing land uses near the subject parcel includes a Cumberland Farms Gas Station and a CVS Pharmacy accessed via Morgan Road that connects to Route 102 and Elm Ave. The proposed development includes the construction of a ±4,100 S.F. car wash with associated parking and drive aisle. The proposed driveway will be located north of the existing pharmacy and gas station and connect to Morgan Road where traffic will utilize the existing drive aisle to access Route 102 or Elm Ave.

Data from the Institute of Transportation Engineers (ITE) Trip Generation Manual, 12th Edition (ITE Manual) were used. The Land Use in the ITE Manual that most nearly matches the originally proposed use is "High-Turnover (Sit-Down) Restaurant" (Land Use 932), defined by the ITE Manual as follows: "This land use consists of sit-down, full-service eating establishments with typical duration of stay of 60 minutes or less. This type of restaurant is usually moderately priced, frequently belongs to a restaurant chain, and is commonly referred to as casual dining. Generally, these restaurants serve lunch and dinner; they may also be open for breakfast and are sometimes open 24 hours a day. These restaurants typically do not accept reservations. A patron commonly waits to be seated, is served by wait staff, orders from a menu, and pays after the meal. Some facilities offer carry-out for a small proportion of its customers. Some facilities within this land use may also contain a bar area for serving food and alcoholic drinks".

The Land Use in the ITE Manual that most nearly matches the use of the proposed building is "Automated Car Wash" (Land Use 948), defined by the ITE Manual as follows: "An automated car wash is a facility that allows for the mechanical cleaning of the exterior of vehicles. Manual cleaning services may also be available at these facilities".

Trip generations from the ITE Manual are based on the gross floor area of each use. The gross floor area of ±5,500 S.F. was used as input for the originally approved use, a restaurant, and the gross floor area of ±4,100 S.F. was used as input for the proposed use, a car wash. For the restaurant, trip generation estimates for the full day on a typical weekday, Friday, Saturday, and Sunday were calculated, as were trip generation estimates for the Peak Hour on a Saturday and Sunday. For weekdays and Fridays, the Peak Hour data was further broken down into Peak Hour AM and Peak Hour PM, corresponding with typical morning and evening commutes, and data for the AM and PM Peak Hour of Adjacent Street Traffic was available for weekdays only during the AM and PM Peak Hours. For the carwash, trip generation estimates for the full day on a weekday, Saturday, and Sunday were available, as were trip generation estimates for the Peak hour on a Saturday and weekday morning and night. Data for the AM and PM Peak Hour of Adjacent Street Traffic was available for weekdays only during the AM and PM Peak Hours.

Attachment "D"

Trip generation estimates are available in the ITE Manual per 1,000 S.F. gross floor area. Where the originally proposed use, a restaurant, has a gross floor area of ±5,500 S.F., average trip generation data per 1,000 S.F. GFA from the ITE manual were multiplied by **5.5** and rounded to the nearest tenth in order to arrive at the below trip generation estimates (both entering and exiting) for the originally approved use.

Existing Average Trip Generation Estimates

	Full Day (Trips/Day)	**Peak Hour Generator (Trips/Hour)**	**Peak Hour Adjacent Street (Trips/Hour)**
Weekday	570.6	--	--
Friday	745.14	--	--
Saturday	575.1	61.1	--
Sunday	904.4	197.9	--
Friday AM	--	54.7	--
Friday PM	--	116.5	--
Weekday AM	--	66.9	49.3
Weekday PM	--	84.9	50.5

Where the currently proposed use has a gross floor area of ±4,100 S.F., average trip generation data per 1,000 S.F. GFA from the ITE manual were multiplied by **4.1** and rounded to the nearest tenth in order to arrive at the below trip generation estimates (both entering and exiting) for the proposed land use.

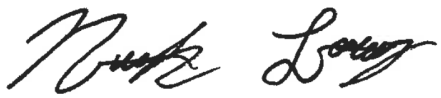
Proposed Average Trip Generation Estimates

	Full Day (Trips/Day)	**Peak Hour Generator (Trips/Hour)**	**Peak Hour Adjacent Street (Trips/Hour)**
Weekday	1039.4	--	--
Saturday	1051.1	131.6	--
Sunday	266.0	--	--
Weekday AM	--	107.6	61.0
Weekday PM	--	101.6	100.0

CONCLUSION

Based on the above tables, under normal circumstances this change of use would generate **469** additional trips on a Weekday, **476** additional trips on a Saturday, and a decrease of **638** trips on a Sunday, **71** additional trips during the Peak Hour on a Saturday, **41** additional trips during the Peak Hour on a Weekday Morning, and **17** additional trips during the Peak Hour on a Weekday Evening. Trip generation estimates during the Peak Hour of Adjacent Street Traffic show an increase of **12** trips on a Weekday Morning and **50** trips on a Weekday Evening. Based on the numbers in the above table, the impact on traffic on Route 102 associated with the proposed change of use is expected to be manageable.

Respectfully submitted,
JONES & BEACH ENGINEERS, INC.



Nicholas Lorenz
Project Engineer

Trip generation estimates used for this analysis were taken from the Trip Generation Manual, 12th Edition, published by the Institute of Traffic Engineers in August 2025.

Land Use: 932
High-Turnover (Sit-Down) Restaurant

Description

This land use consists of sit-down, full-service eating establishments with a typical duration of stay of 60 minutes or less. This type of restaurant is usually moderately priced, frequently belongs to a restaurant chain, and is commonly referred to as casual dining. Generally, these restaurants serve lunch and dinner; they may also be open for breakfast and are sometimes open 24 hours a day. These restaurants typically do not accept reservations. A patron commonly waits to be seated, is served by wait staff, orders from a menu, and pays after the meal. Some facilities offer carry-out for a small proportion of its customers. Some facilities within this land use may also contain a bar area for serving food and alcoholic drinks.

Additional Data

If the restaurant has outdoor seating, its area is not included in the overall gross floor area. For a restaurant that has significant outdoor seating, the number of seats may be more reliable than GFA as an independent variable on which to establish a trip generation rate.

The sites were surveyed in the 1990s, the 2000s, the 2010s, and the 2020s in Arizona, California, Florida, Indiana, Kentucky, Massachusetts, Minnesota, New Hampshire, New Jersey, New York, Oregon, Pennsylvania, South Carolina, South Dakota, Texas, Vermont, and Wisconsin.

Users should exercise caution when applying statistics during the AM peak periods, as the sites contained in the database for this land use may or may not be open for breakfast. In cases where it was confirmed that the sites were not open for breakfast, data for the AM peak hour of the adjacent street traffic were removed from the database.

Source Numbers

338, 340, 341, 358, 384, 432, 437, 438, 444, 507, 555, 577, 589, 617, 618, 728, 868, 884, 885, 903, 927, 939, 944, 961, 962, 1048, 1224, 1267

High-Turnover (Sit-Down) Restaurant (932)

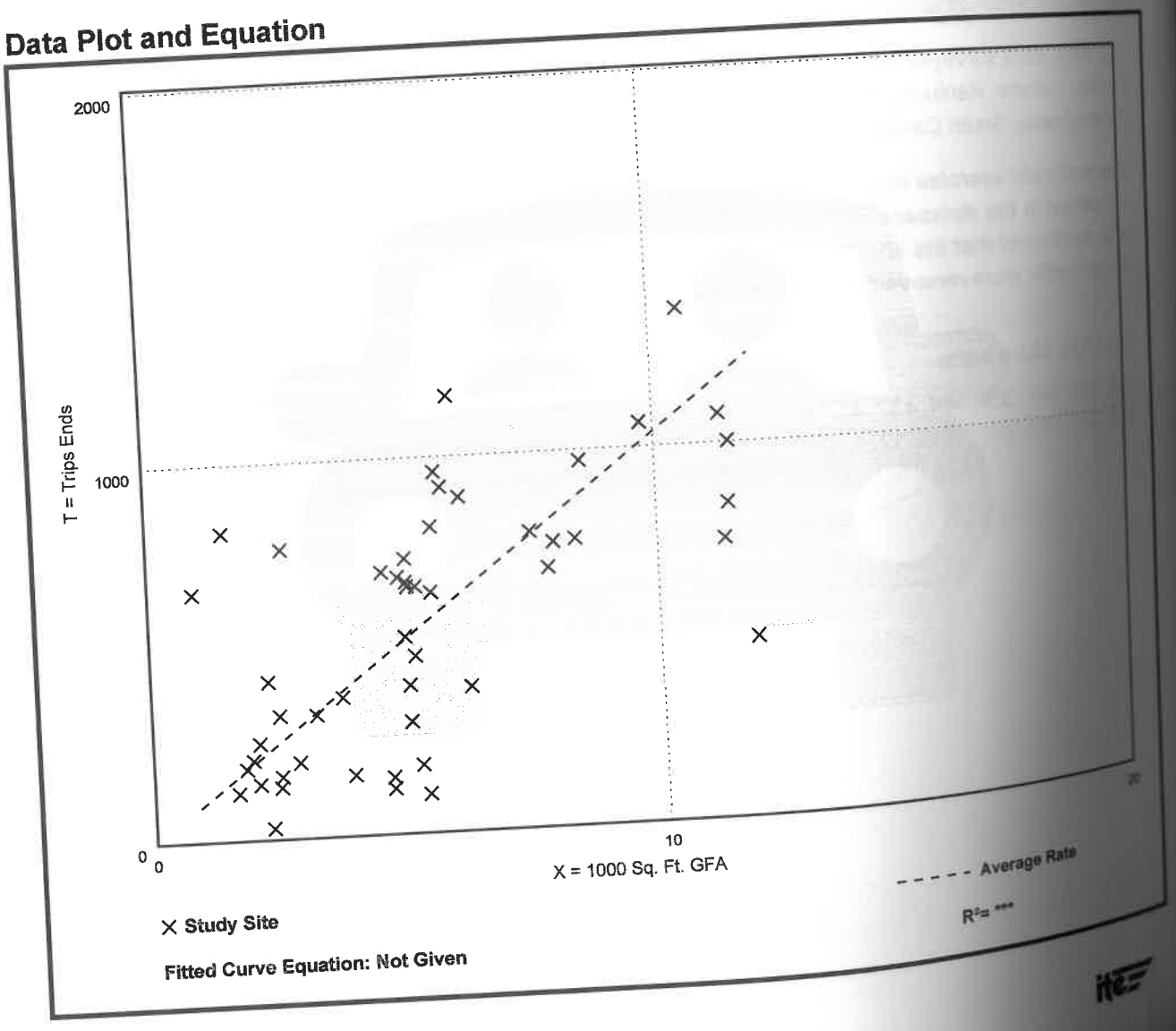
Vehicle Trip Ends vs: 1000 Sq. Ft. GFA
On a: Weekday

Setting/Location: General Urban/Suburban
Number of Studies: 50
Avg. 1000 Sq. Ft. GFA: 5
Directional Distribution: 50% entering, 50% exiting

Vehicle Trip Generation per 1000 Sq. Ft. GFA

Average Rate	Range of Rates	Standard Deviation
103.75	13.04 - 742.41	67.15

Data Plot and Equation



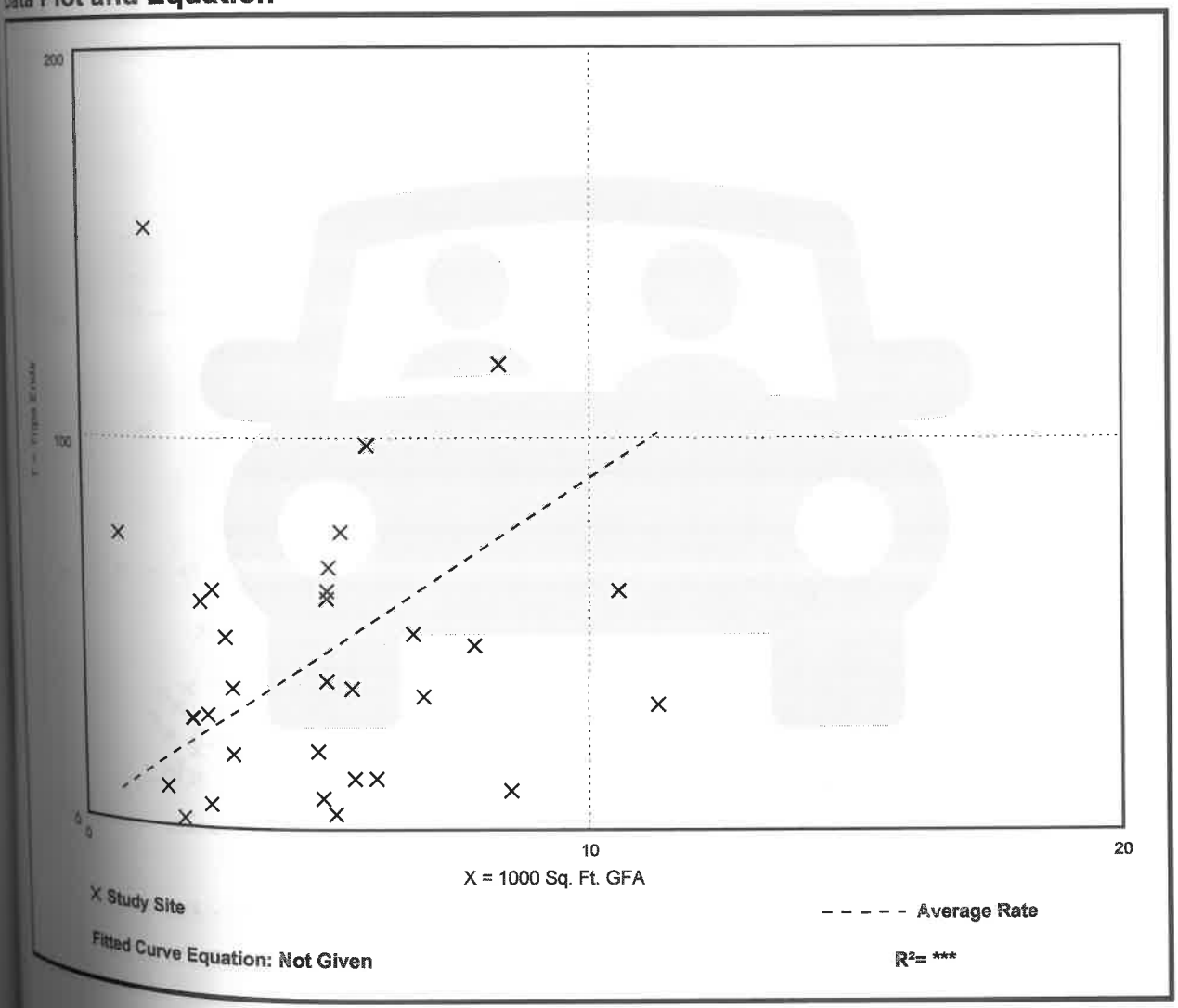
High-Turnover (Sit-Down) Restaurant
(932)

Vehicle Trip Ends vs: **1000 Sq. Ft. GFA**
On a: **Weekday,**
Peak Hour of Adjacent Street Traffic,
One Hour Between 7 and 9 a.m.
Setting/Location: **General Urban/Suburban**
Number of Studies: 32
Avg. 1000 Sq. Ft. GFA: 5
Directional Distribution: 55% entering, 45% exiting

Vehicle Trip Generation per 1000 Sq. Ft. GFA

Average Rate	Range of Rates	Standard Deviation
8.97	0.76 - 102.39	12.35

Data Plot and Equation



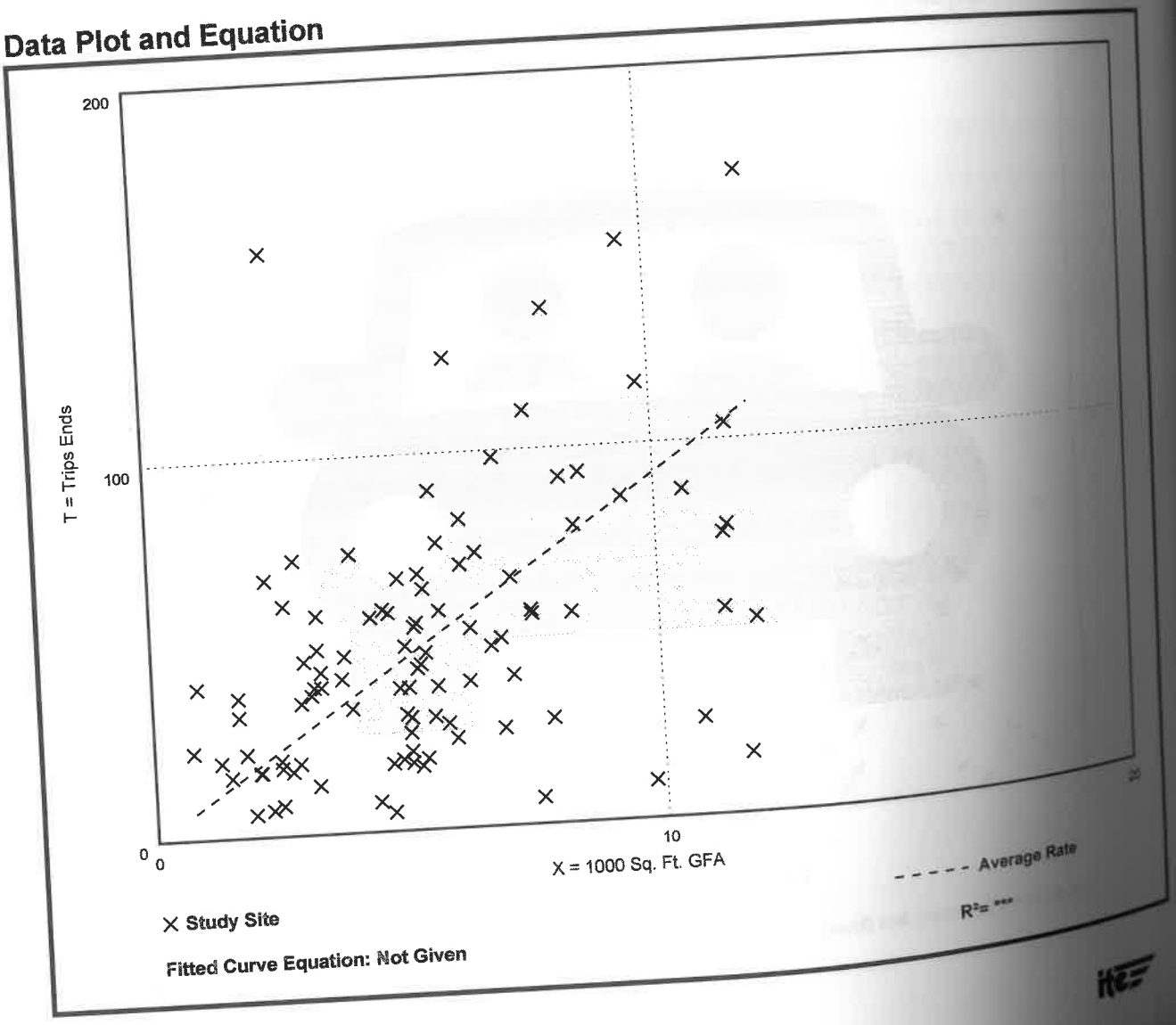
High-Turnover (Sit-Down) Restaurant (932)

Vehicle Trip Ends vs: 1000 Sq. Ft. GFA
On a: Weekday,
Peak Hour of Adjacent Street Traffic,
One Hour Between 4 and 6 p.m.
Setting/Location: General Urban/Suburban
Number of Studies: 100
Avg. 1000 Sq. Ft. GFA: 5
Directional Distribution: 61% entering, 39% exiting

Vehicle Trip Generation per 1000 Sq. Ft. GFA

Average Rate	Range of Rates	Standard Deviation
9.18	0.92 - 62.00	6.36

Data Plot and Equation



High-Turnover (Sit-Down) Restaurant (932)

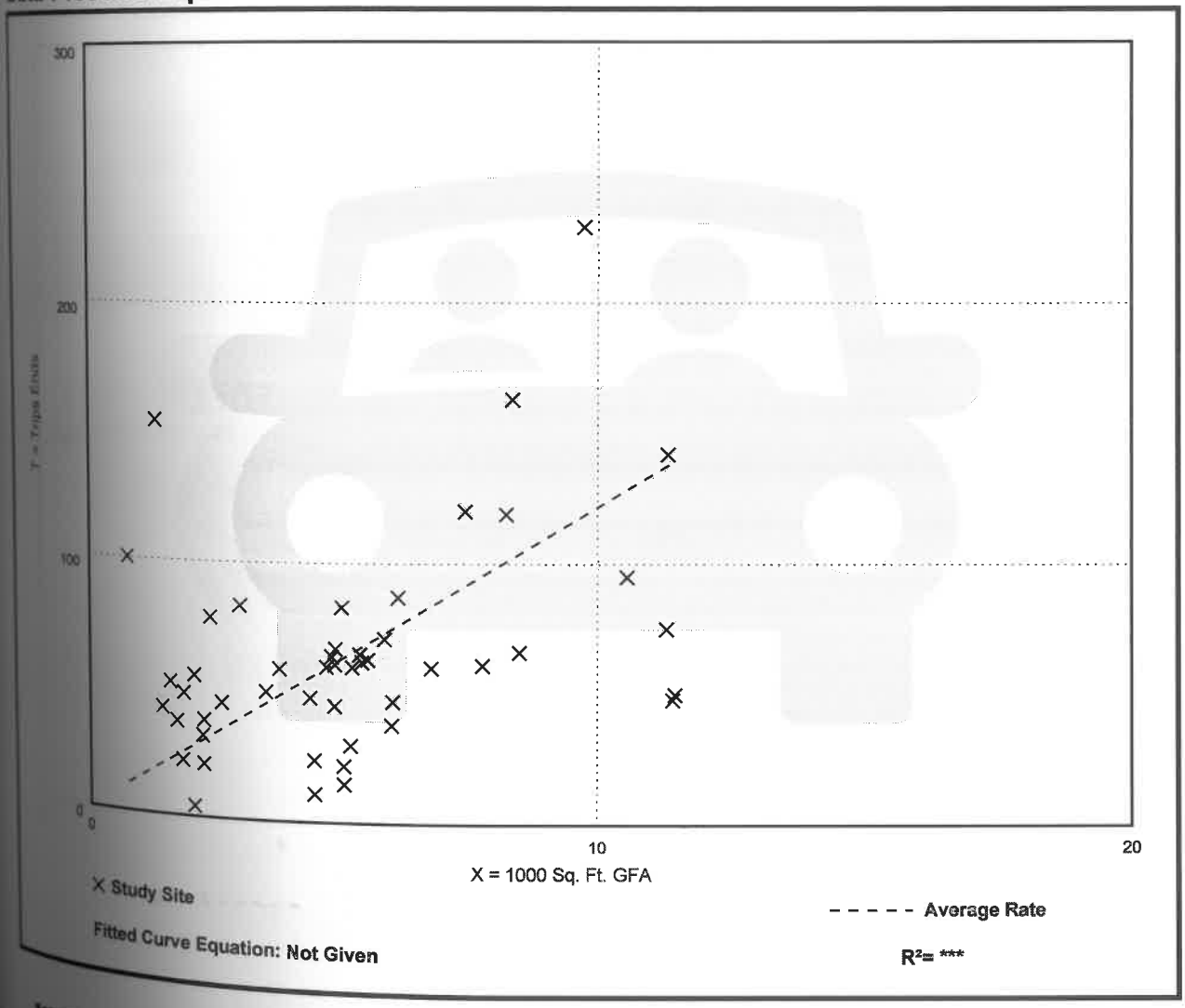
Vehicle Trip Ends vs: 1000 Sq. Ft. GFA
On a: Weekday,
AM Peak Hour of Generator

Setting/Location: General Urban/Suburban
Number of Studies: 49
Avg. 1000 Sq. Ft. GFA: 5
Directional Distribution: 59% entering, 41% exiting

Vehicle Trip Generation per 1000 Sq. Ft. GFA

Average Rate	Range of Rates	Standard Deviation
12.17	1.74 - 112.49	10.98

Data Plot and Equation



High-Turnover (Sit-Down) Restaurant (932)

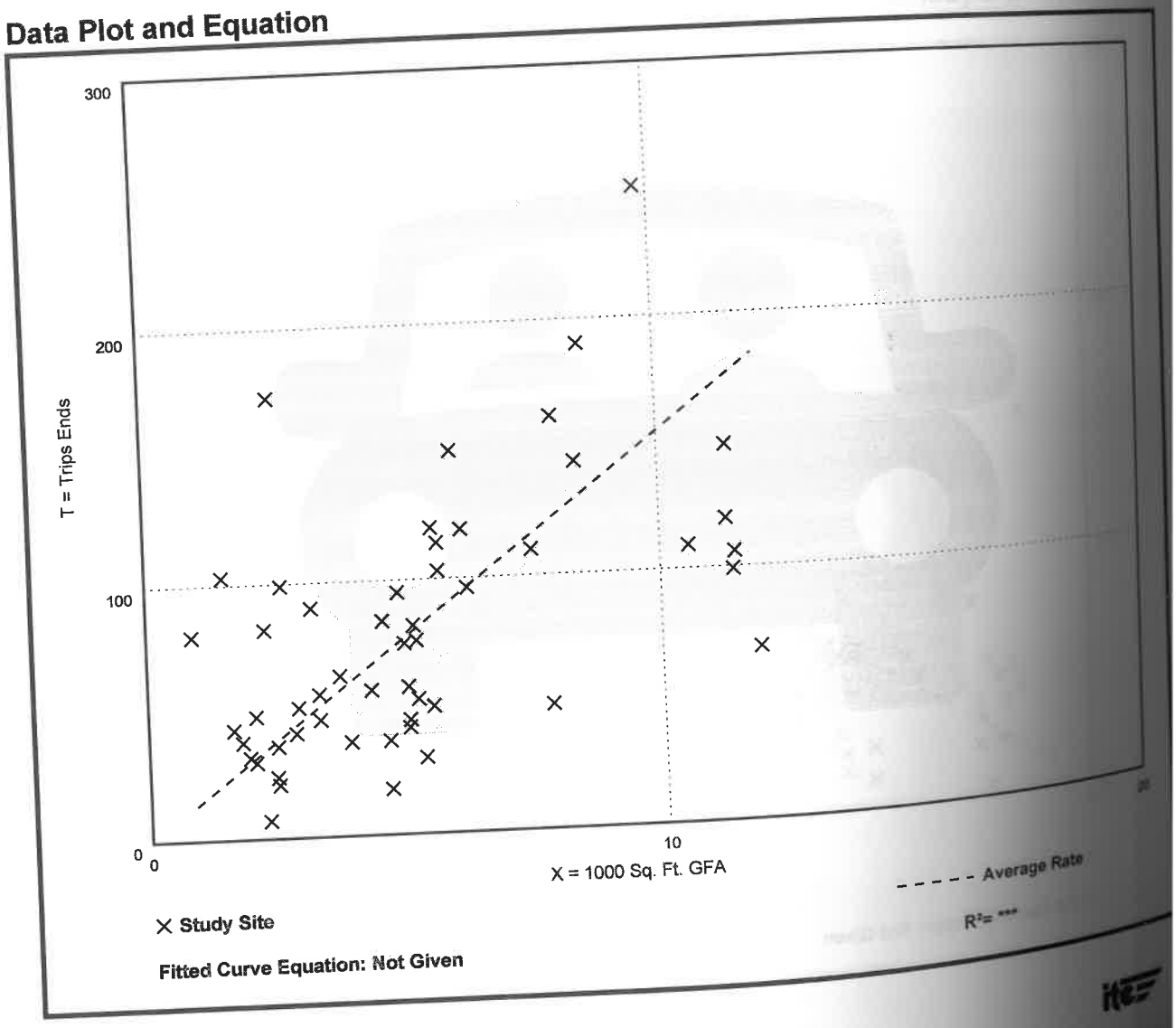
Vehicle Trip Ends vs: 1000 Sq. Ft. GFA
On a: Weekday,
PM Peak Hour of Generator

Setting/Location: General Urban/Suburban
Number of Studies: 53
Avg. 1000 Sq. Ft. GFA: 5
Directional Distribution: 51% entering, 49% exiting

Vehicle Trip Generation per 1000 Sq. Ft. GFA

Average Rate	Range of Rates	Standard Deviation
15.44	3.04 - 89.99	10.31

Data Plot and Equation



High-Turnover (Sit-Down) Restaurant (932)

Vehicle Trip Ends vs: 1000 Sq. Ft. GFA
On a: Friday

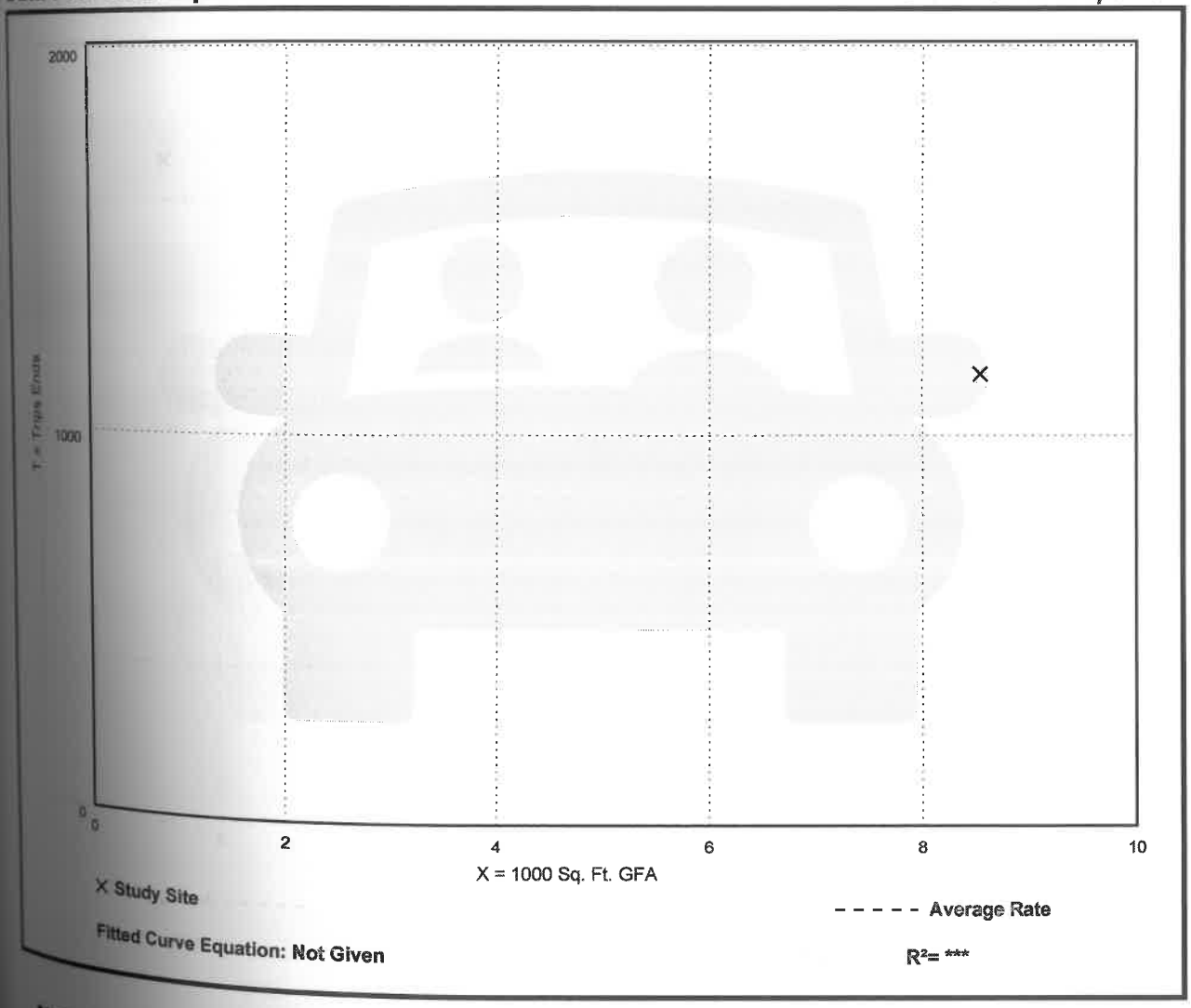
Setting/Location: General Urban/Suburban
Number of Studies: 1
Avg. 1000 Sq. Ft. GFA: 9
Directional Distribution: 50% entering, 50% exiting

Vehicle Trip Generation per 1000 Sq. Ft. GFA

Average Rate	Range of Rates	Standard Deviation
135.48	135.48 - 135.48	***

Data Plot and Equation

Caution – Small Sample Size



Fitted Curve Equation: Not Given

R^2= ***

High-Turnover (Sit-Down) Restaurant (932)

Vehicle Trip Ends vs: 1000 Sq. Ft. GFA
On a: Friday,
AM Peak Hour of Generator

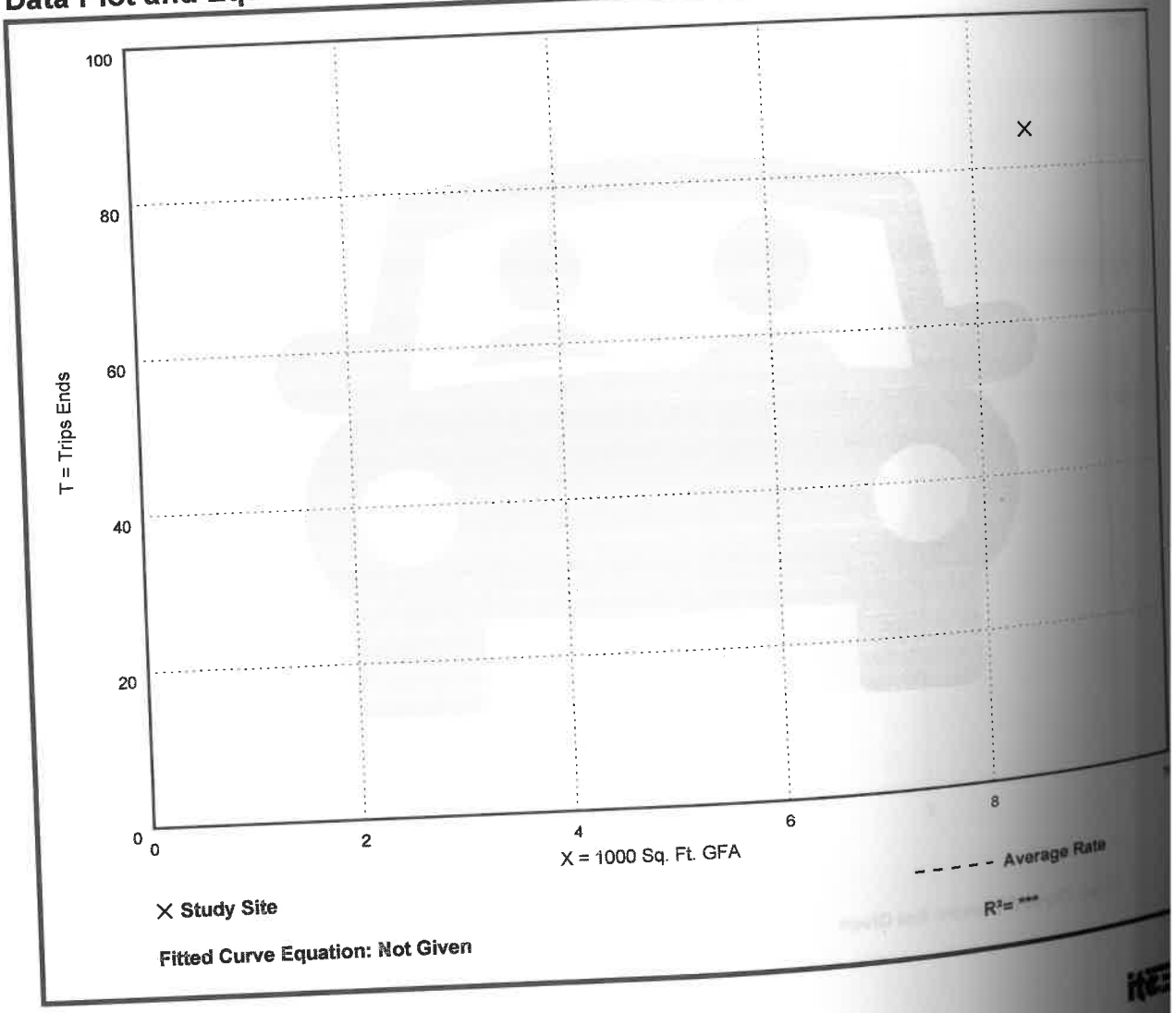
Setting/Location: General Urban/Suburban
Number of Studies: 1
Avg. 1000 Sq. Ft. GFA: 9
Directional Distribution: Not Available

Vehicle Trip Generation per 1000 Sq. Ft. GFA

Average Rate	Range of Rates	Standard Deviation
9.95	9.95 - 9.95	***

Data Plot and Equation

Caution – Small Sample Size



Fitted Curve Equation: Not Given

High-Turnover (Sit-Down) Restaurant (932)

Vehicle Trip Ends vs: 1000 Sq. Ft. GFA
On a: Friday,
PM Peak Hour of Generator

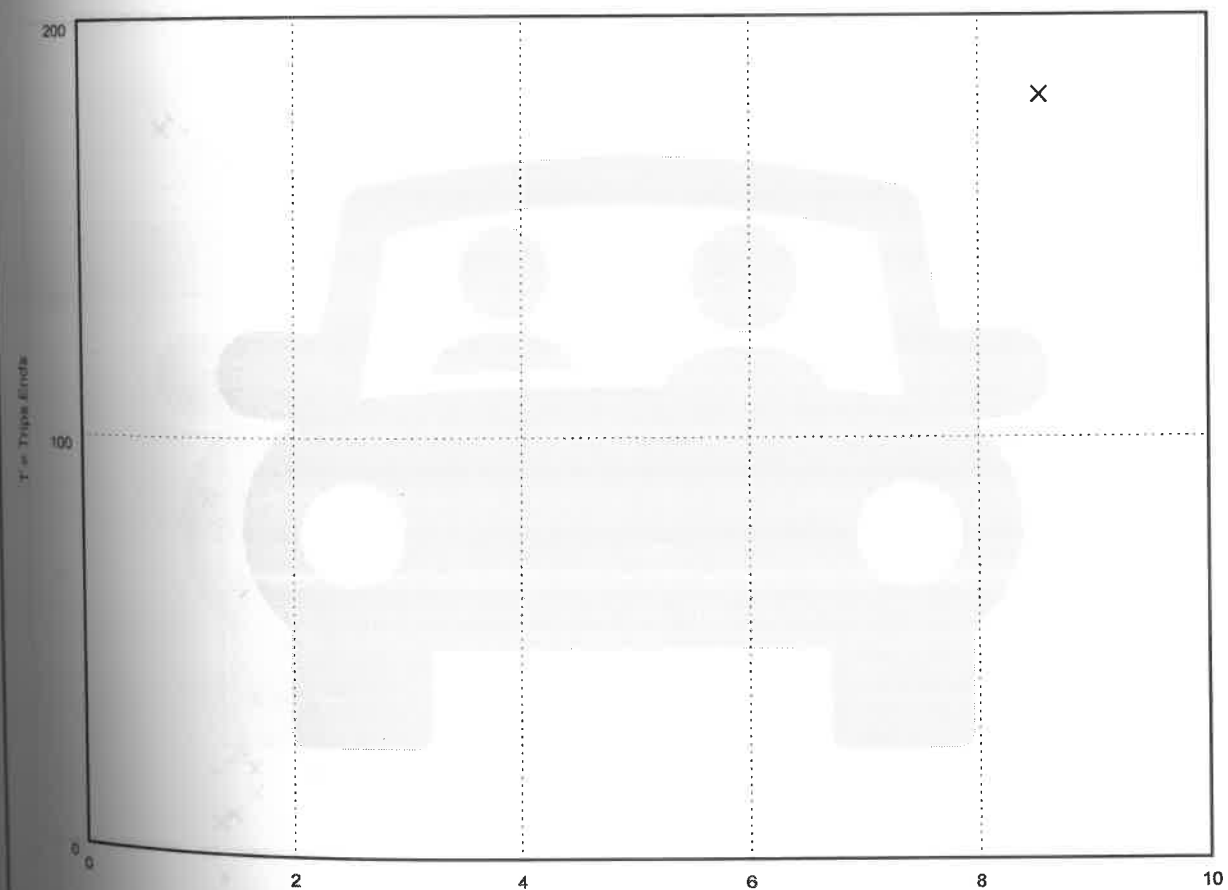
Setting/Location: General Urban/Suburban
Number of Studies: 1
Avg. 1000 Sq. Ft. GFA: 9
Directional Distribution: Not Available

Vehicle Trip Generation per 1000 Sq. Ft. GFA

Average Rate	Range of Rates	Standard Deviation
21.19	21.19 - 21.19	***

Data Plot and Equation

Caution – Small Sample Size



Fitted Curve Equation: Not Given

R^2= ***

High-Turnover (Sit-Down) Restaurant (932)

Vehicle Trip Ends vs: 1000 Sq. Ft. GFA
On a: Saturday

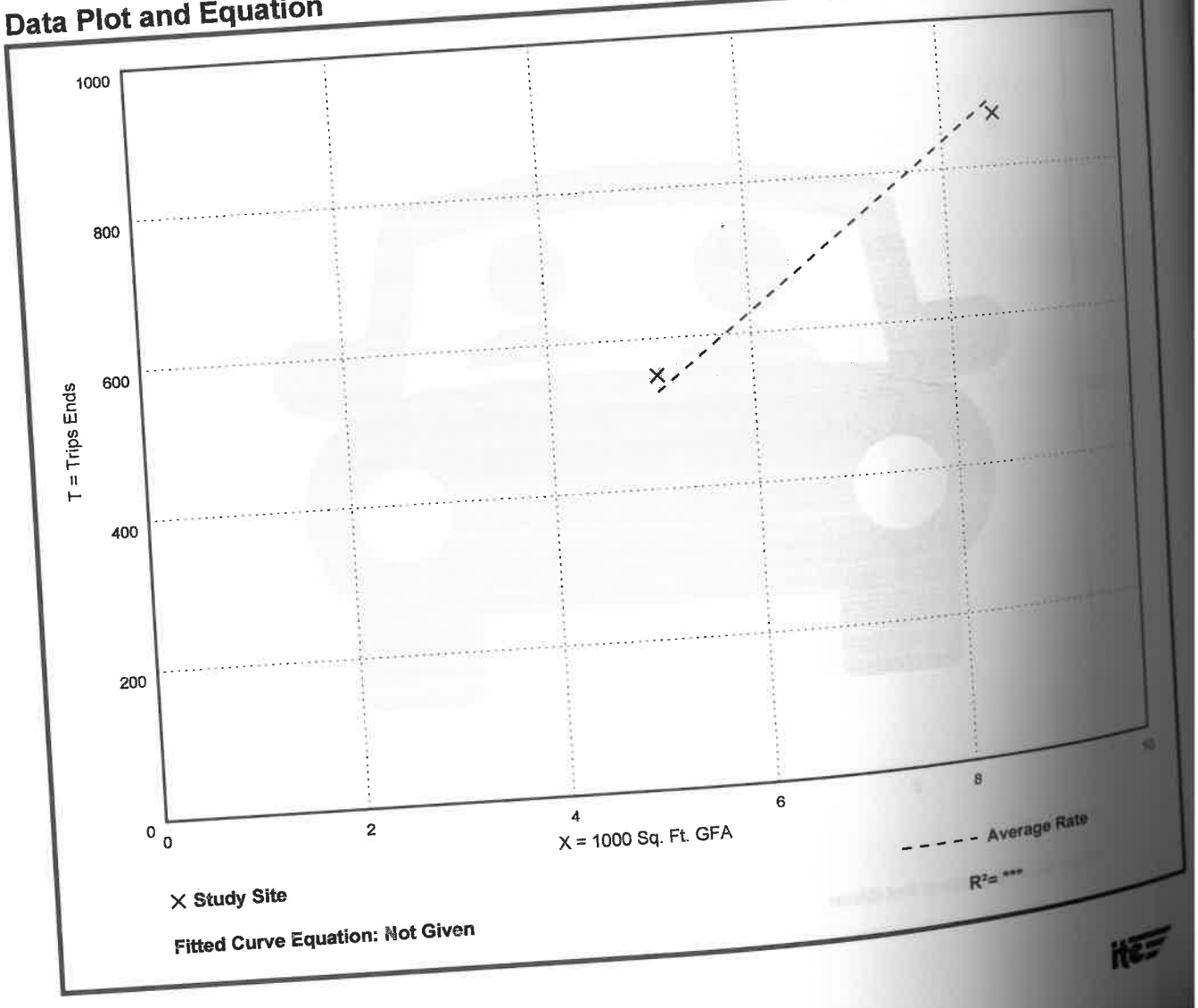
Setting/Location: General Urban/Suburban
Number of Studies: 2
Avg. 1000 Sq. Ft. GFA: 7
Directional Distribution: 50% entering, 50% exiting

Vehicle Trip Generation per 1000 Sq. Ft. GFA

Average Rate	Range of Rates	Standard Deviation
104.56	101.99 - 108.89	***

Caution – Small Sample Size

Data Plot and Equation



Fitted Curve Equation: Not Given

High-Turnover (Sit-Down) Restaurant (932)

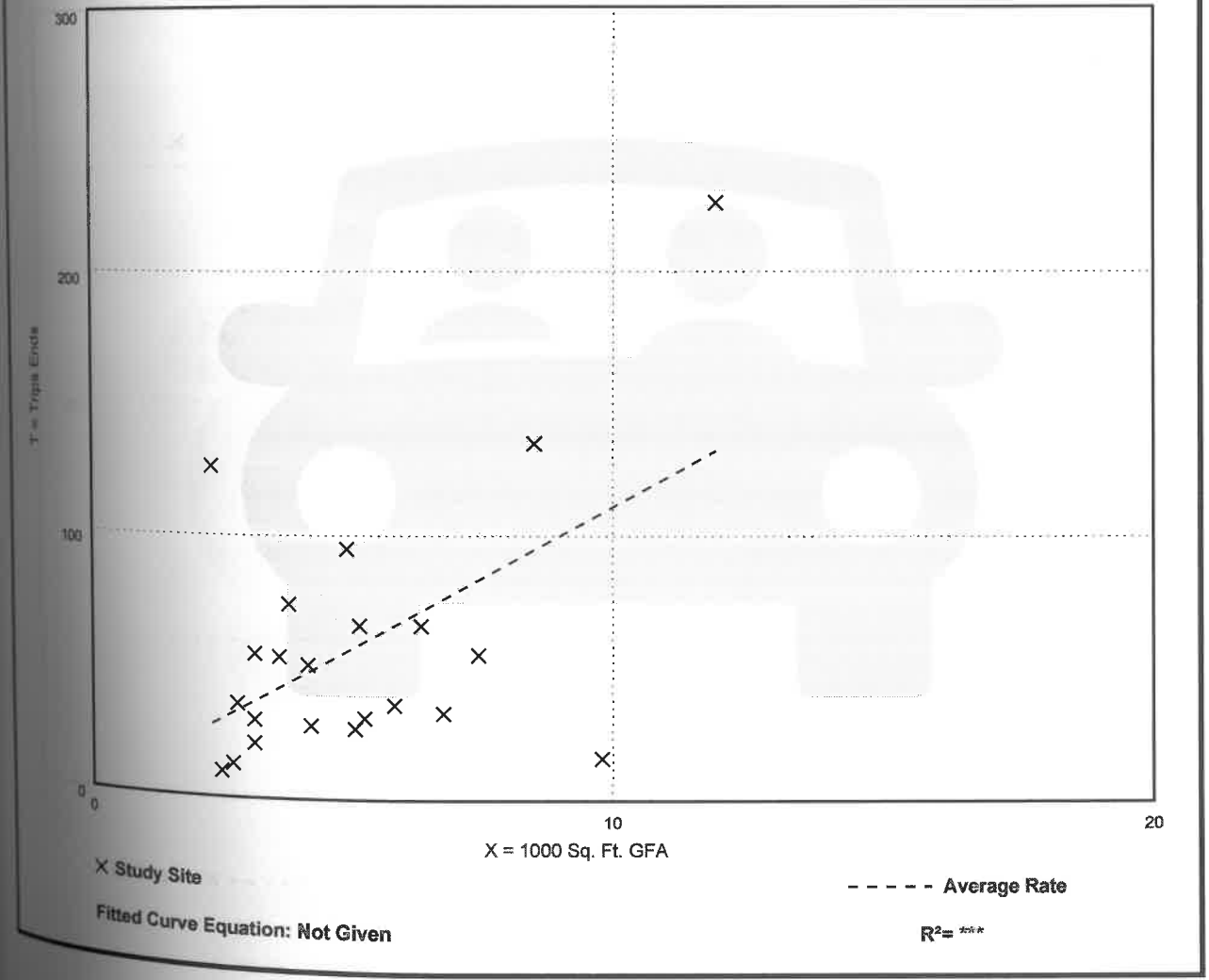
Vehicle Trip Ends vs: 1000 Sq. Ft. GFA
On a: Saturday, Peak Hour of Generator

Setting/Location: General Urban/Suburban
Number of Studies: 22
Avg. 1000 Sq. Ft. GFA: 5
Directional Distribution: 51% entering, 49% exiting

Vehicle Trip Generation per 1000 Sq. Ft. GFA

Average Rate	Range of Rates	Standard Deviation
11.10	1.63 - 50.40	8.34

Data Plot and Equation



High-Turnover (Sit-Down) Restaurant (932)

Vehicle Trip Ends vs: 1000 Sq. Ft. GFA
On a: Sunday

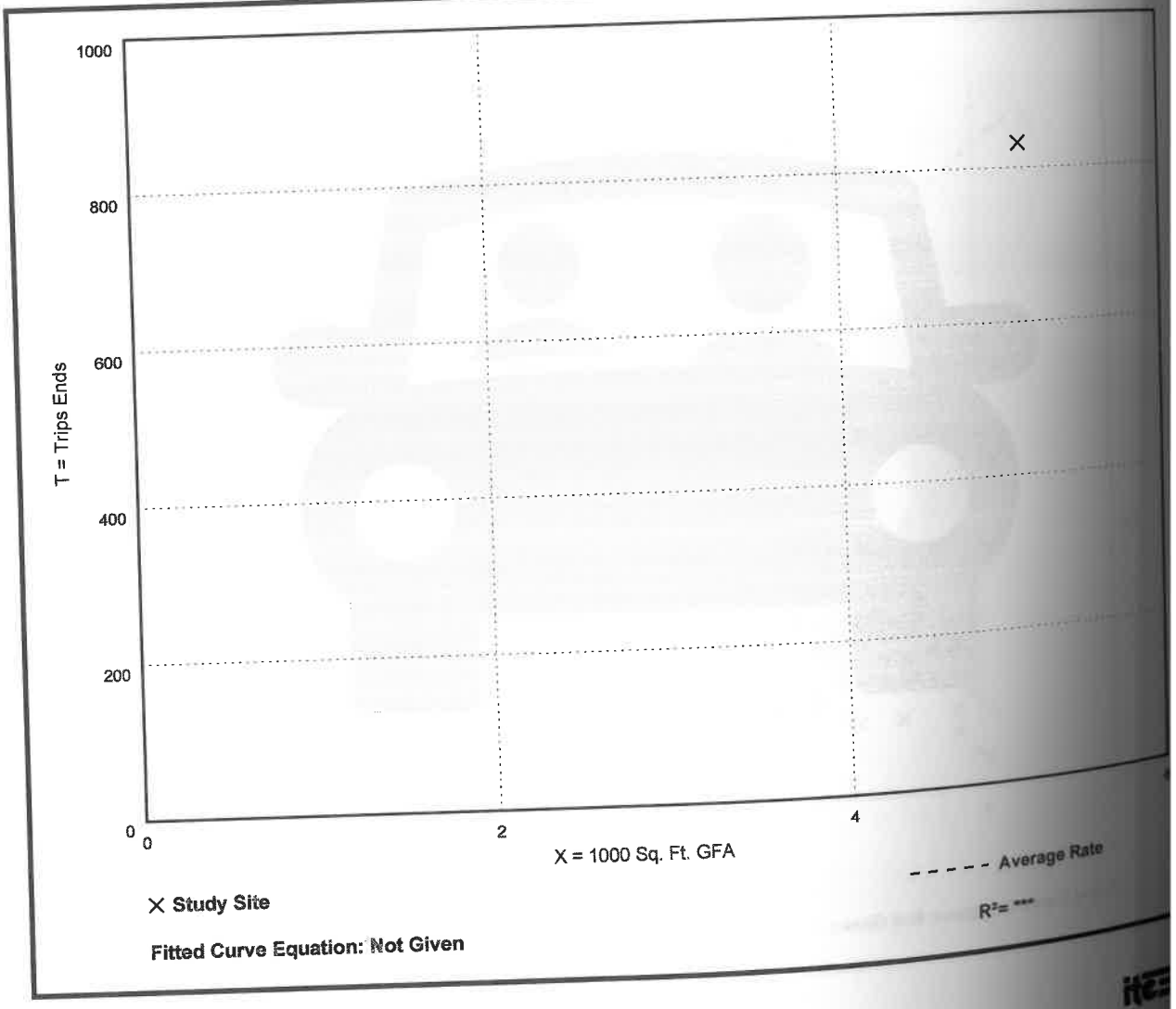
Setting/Location: General Urban/Suburban
Number of Studies: 1
Avg. 1000 Sq. Ft. GFA: 5
Directional Distribution: 50% entering, 50% exiting

Vehicle Trip Generation per 1000 Sq. Ft. GFA

Average Rate	Range of Rates	Standard Deviation
164.43	164.43 - 164.43	***

Data Plot and Equation

Caution – Small Sample Siz



Fitted Curve Equation: Not Given

High-Turnover (Sit-Down) Restaurant (932)

Vehicle Trip Ends vs: 1000 Sq. Ft. GFA
On a: Sunday, Peak Hour of Generator

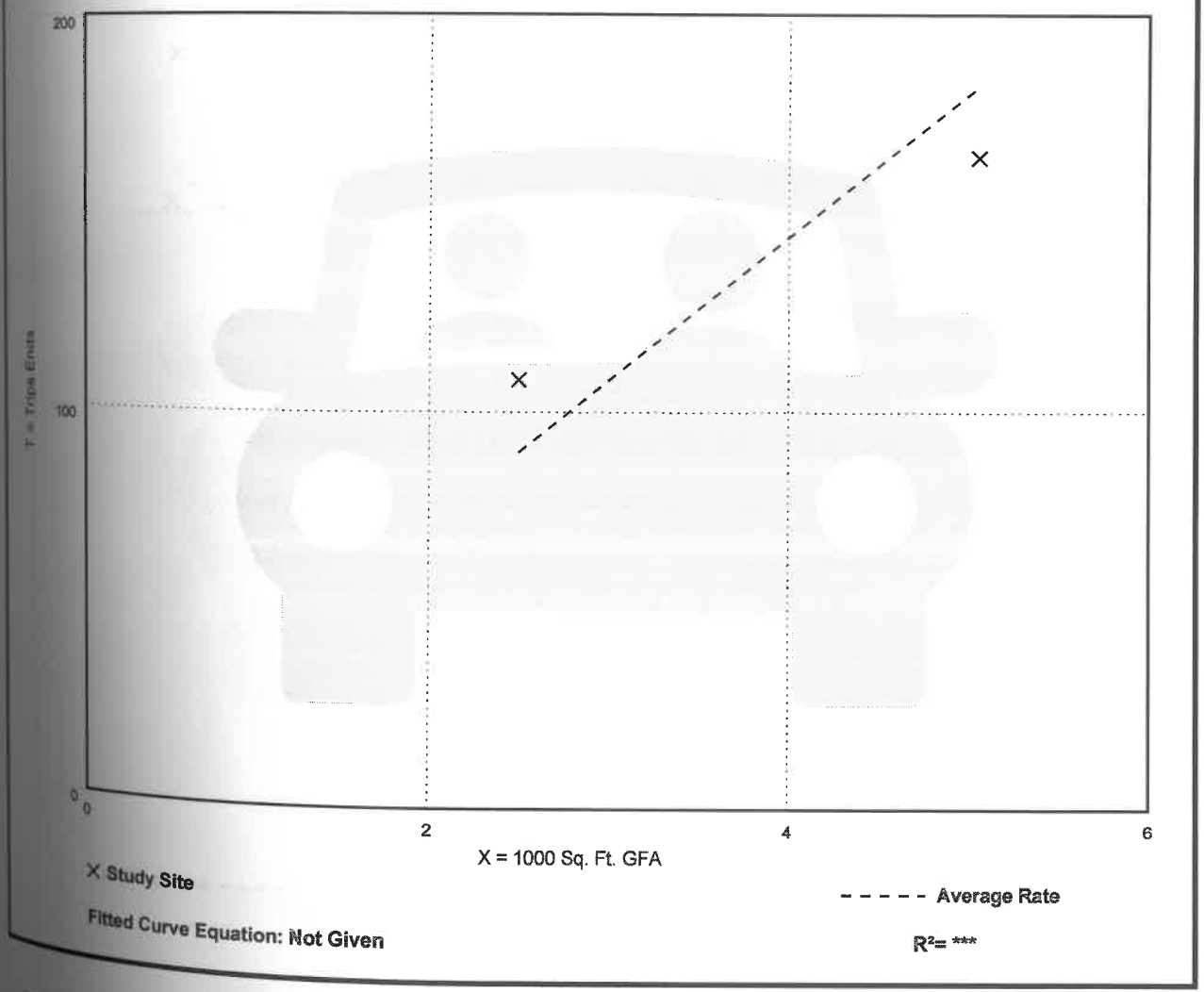
Setting/Location: General Urban/Suburban
Number of Studies: 2
Avg. 1000 Sq. Ft. GFA: 4
Directional Distribution: 55% entering, 45% exiting

Vehicle Trip Generation per 1000 Sq. Ft. GFA

Average Rate	Range of Rates	Standard Deviation
35.98	32.41 - 43.20	***

Data Plot and Equation

Caution – Small Sample Size



Fitted Curve Equation: Not Given

R^2= ***

Land Use: 948
Automated Car Wash

Description

An automated car wash is a facility that allows for the mechanical cleaning of the exterior of vehicles. Manual cleaning services may also be available at the facility.

Additional Data

The sites were surveyed in the 1990s, the 2000s, and the 2020s in California, Colorado, Florida, New Jersey, New York, Pennsylvania, and Washington.

Source Numbers

552, 555, 585, 599, 954, 1208, 1224, 1245, 1256

Automated Car Wash
(948)

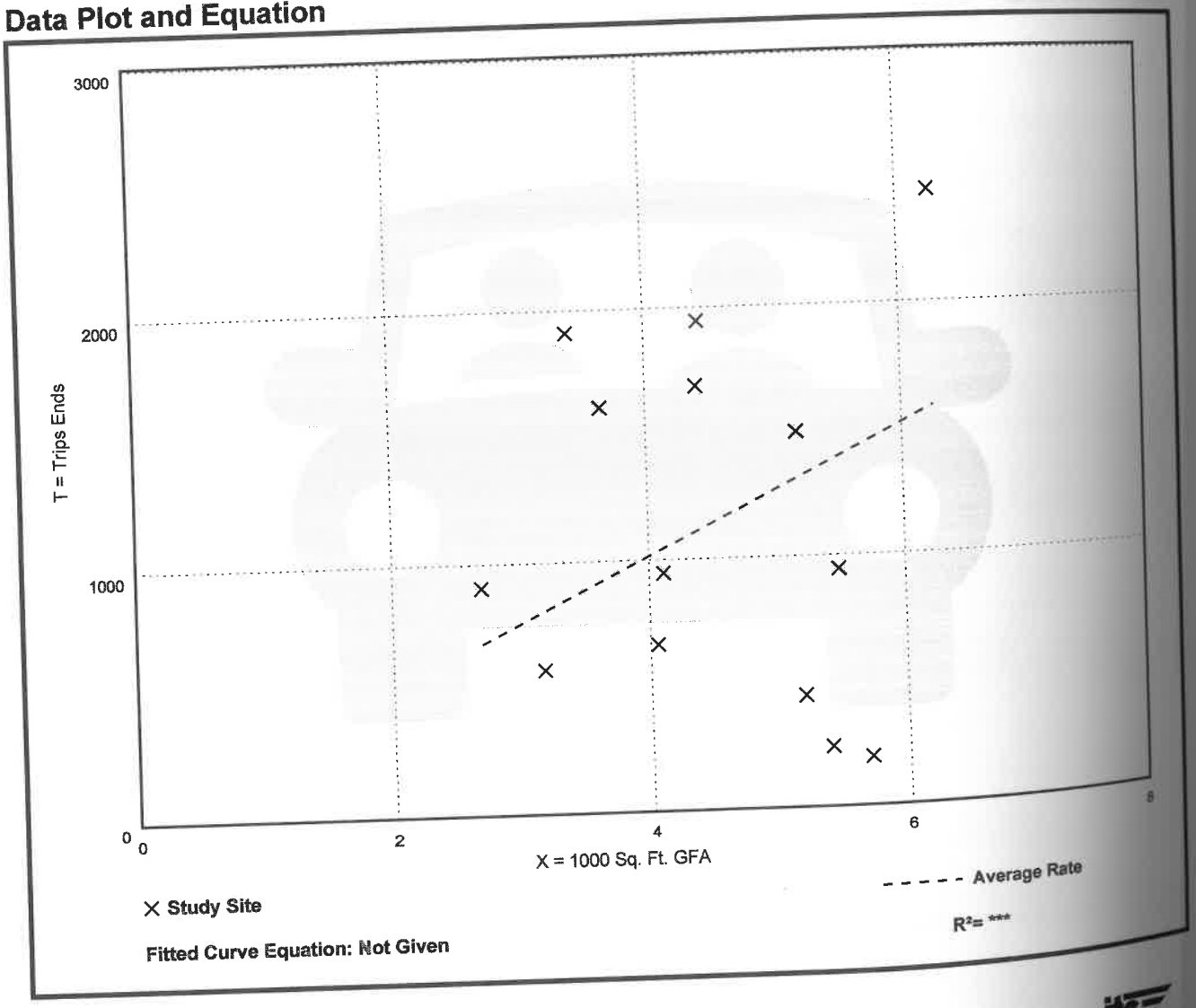
Vehicle Trip Ends vs: 1000 Sq. Ft. GFA
On a: Weekday

Setting/Location: General Urban/Suburban
Number of Studies: 14
Avg. 1000 Sq. Ft. GFA: 5
Directional Distribution: 50% entering, 50% exiting

Vehicle Trip Generation per 1000 Sq. Ft. GFA

Average Rate	Range of Rates	Standard Deviation
253.51	33.68 - 562.06	163.78

Data Plot and Equation



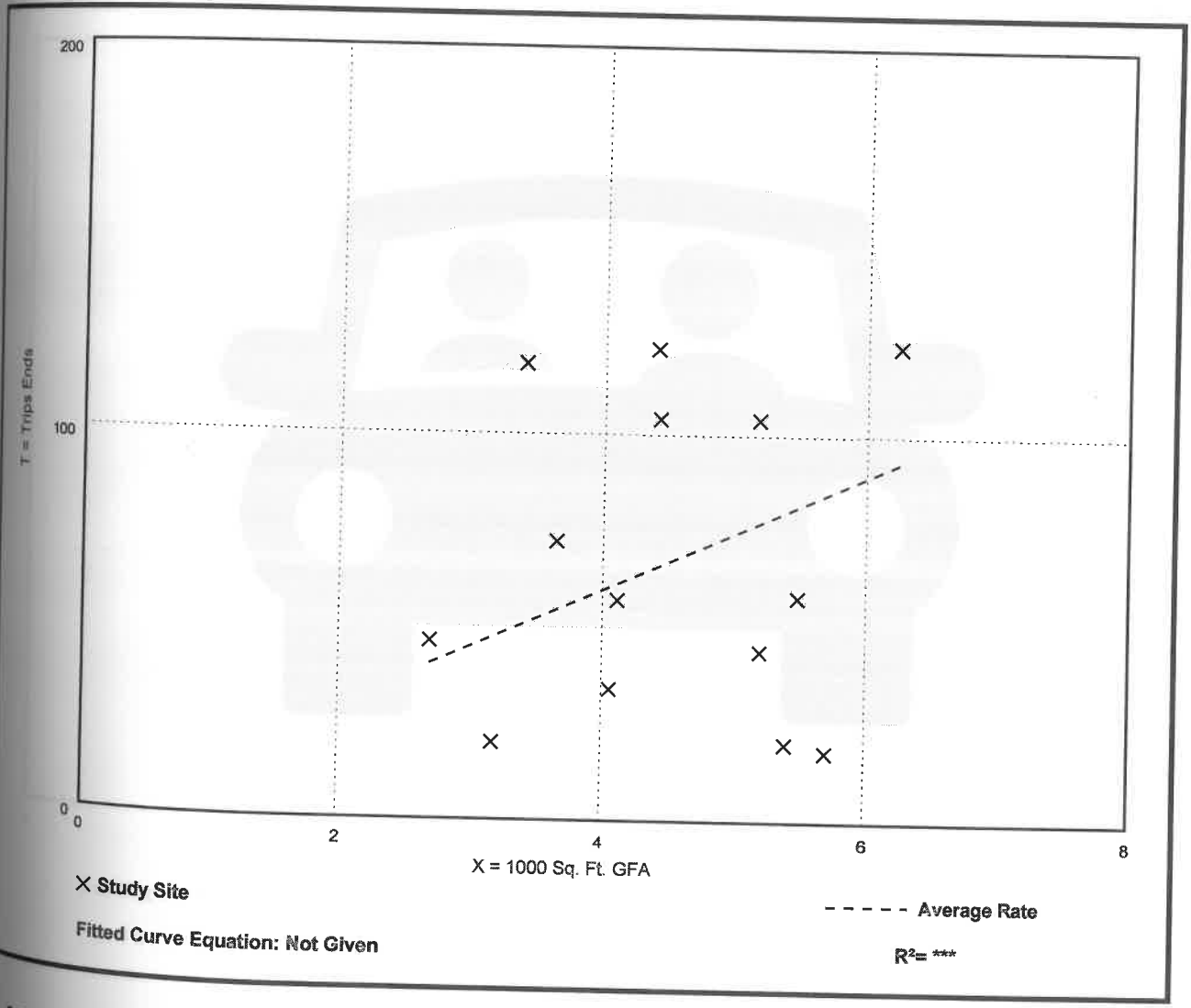
Automated Car Wash
(948)

Vehicle Trip Ends vs: 1000 Sq. Ft. GFA
On a: Weekday,
Peak Hour of Adjacent Street Traffic,
One Hour Between 7 and 9 a.m.
Setting/Location: General Urban/Suburban
Number of Studies: 14
Avg. 1000 Sq. Ft. GFA: 5
Directional Distribution: 55% entering, 45% exiting

Vehicle Trip Generation per 1000 Sq. Ft. GFA

Average Rate	Range of Rates	Standard Deviation
14.89	3.16 - 34.71	9.20

Data Plot and Equation



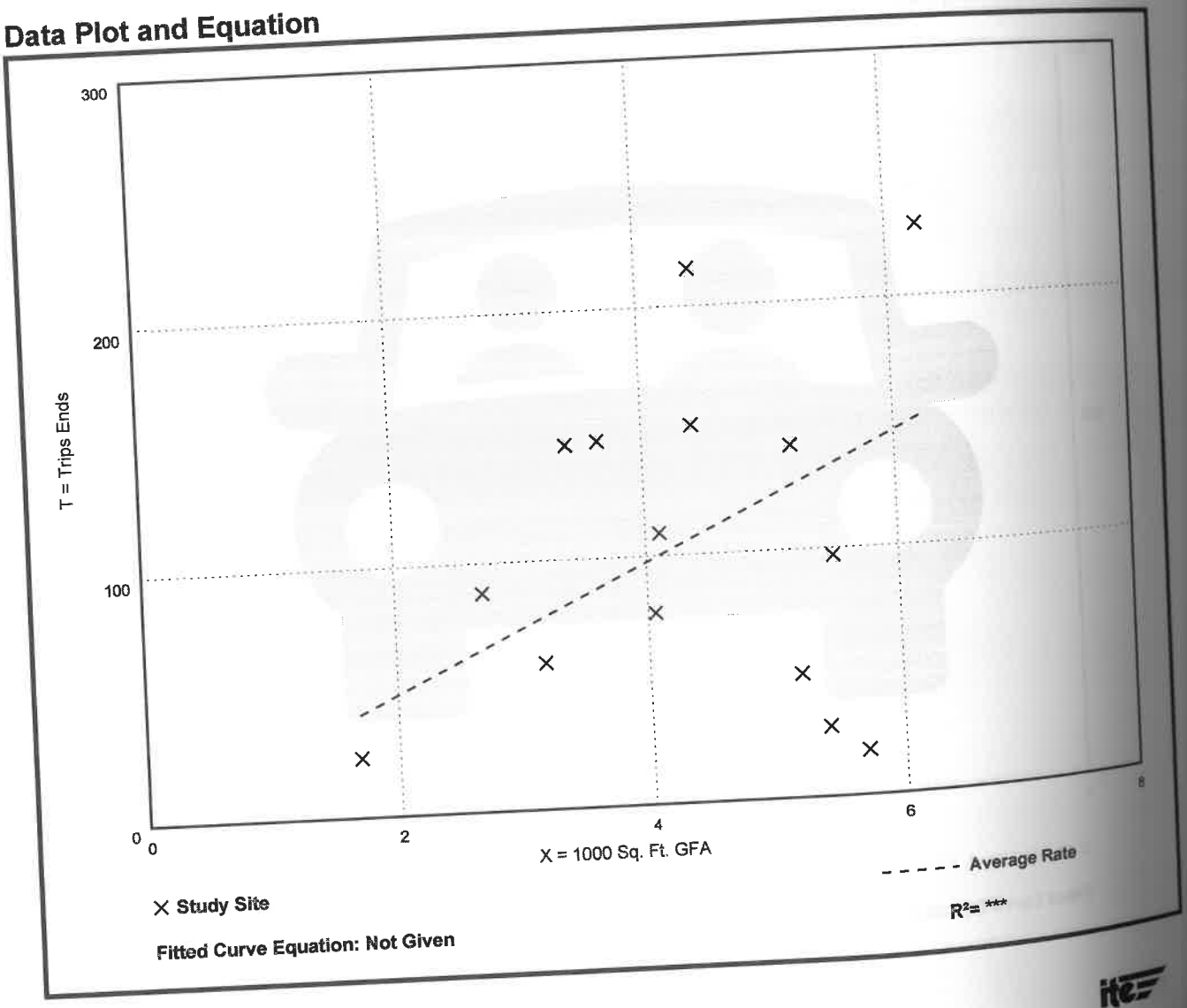
Automated Car Wash
(948)

Vehicle Trip Ends vs: 1000 Sq. Ft. GFA
On a: Weekday,
Peak Hour of Adjacent Street Traffic,
One Hour Between 4 and 6 p.m.
Setting/Location: General Urban/Suburban
Number of Studies: 15
Avg. 1000 Sq. Ft. GFA: 4
Directional Distribution: 49% entering, 51% exiting

Vehicle Trip Generation per 1000 Sq. Ft. GFA

Average Rate	Range of Rates	Standard Deviation
24.40	3.16 - 48.62	14.47

Data Plot and Equation



Automated Car Wash
(948)

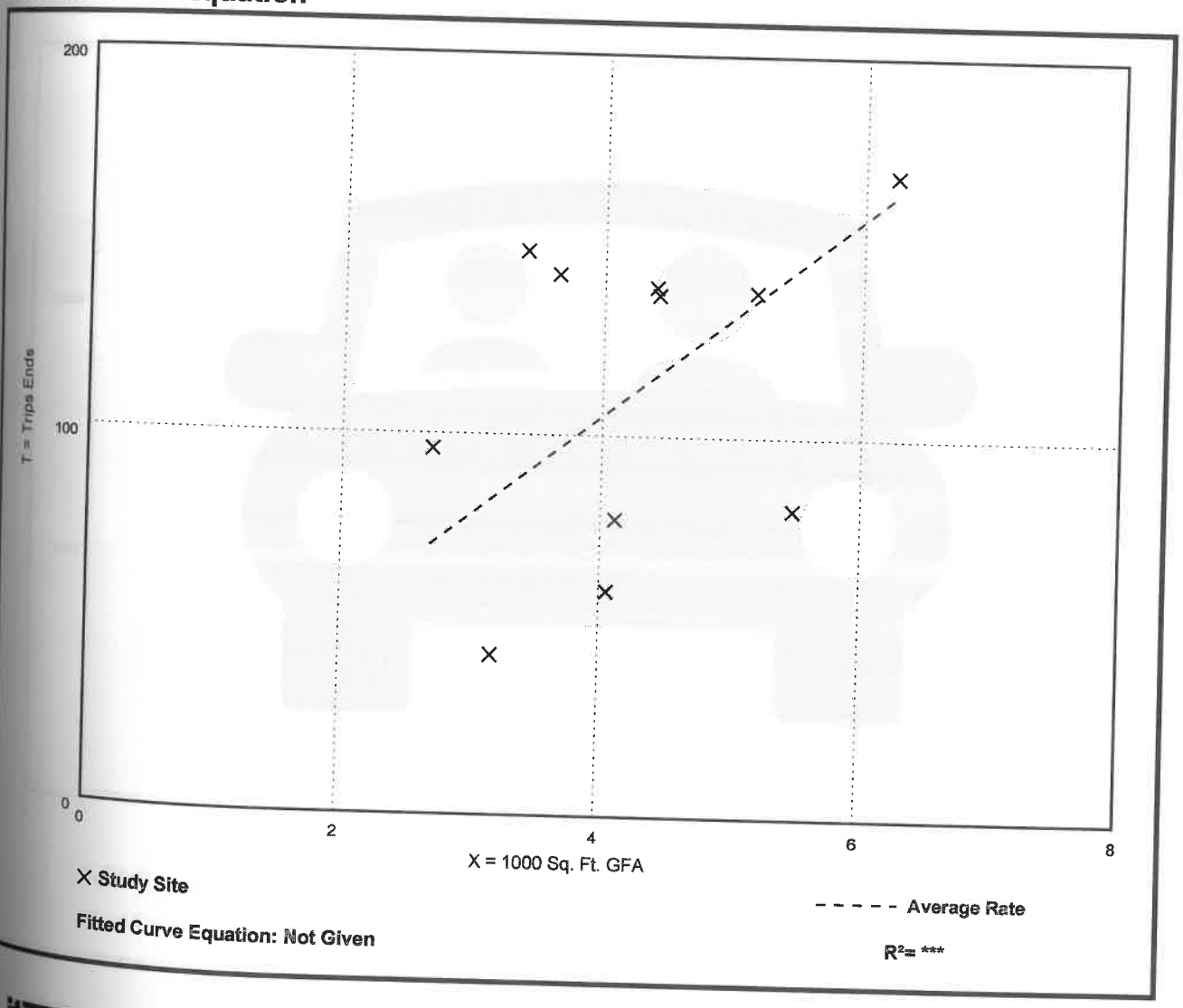
Vehicle Trip Ends vs: 1000 Sq. Ft. GFA
On a: Weekday,
AM Peak Hour of Generator

Setting/Location: General Urban/Suburban
Number of Studies: 11
Avg. 1000 Sq. Ft. GFA: 4
Directional Distribution: 51% entering, 49% exiting

Vehicle Trip Generation per 1000 Sq. Ft. GFA

Average Rate	Range of Rates	Standard Deviation
26.25	13.22 - 43.53	9.82

Data Plot and Equation



Automated Car Wash
(948)

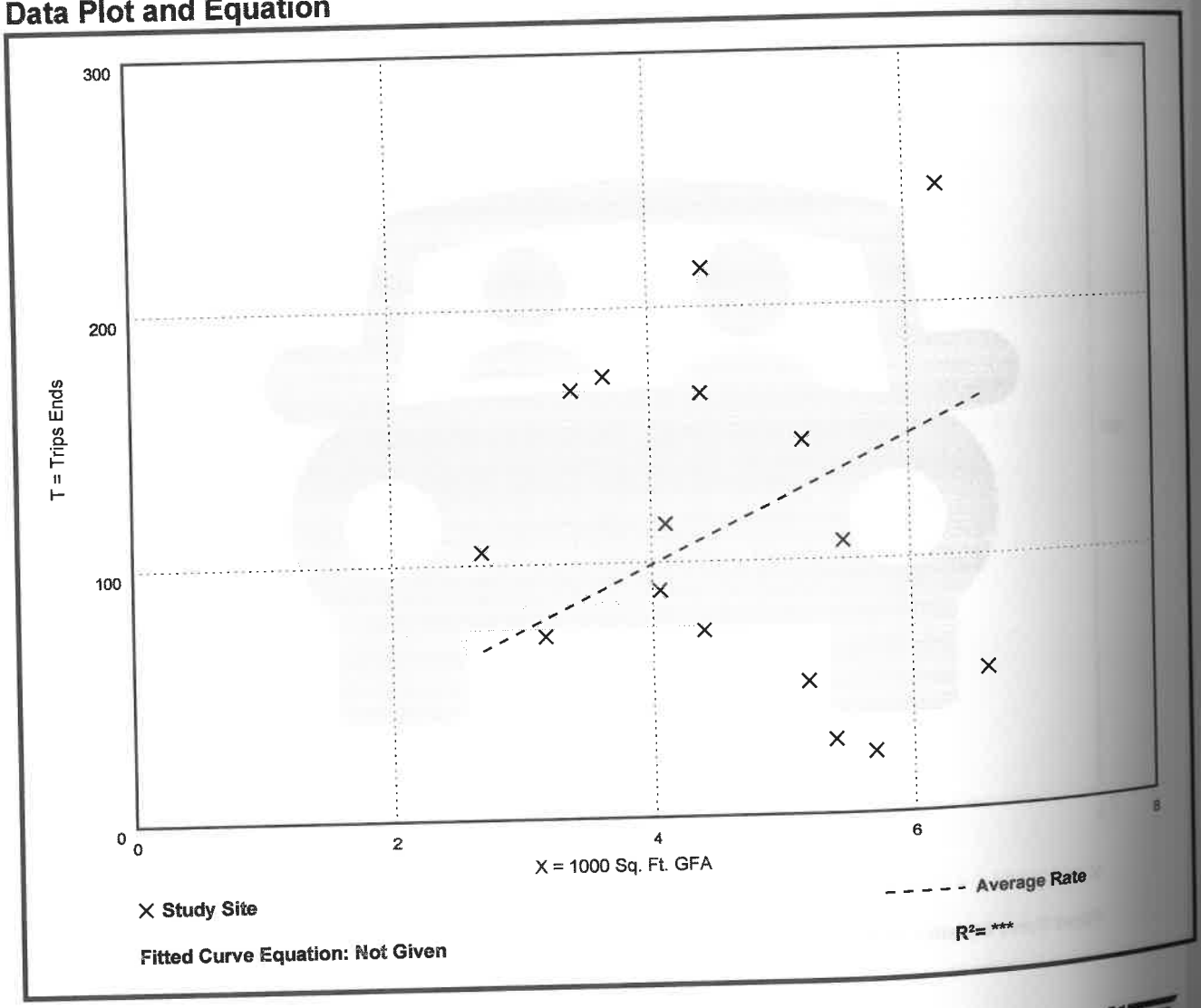
Vehicle Trip Ends vs: 1000 Sq. Ft. GFA
On a: Weekday,
PM Peak Hour of Generator

Setting/Location: General Urban/Suburban
Number of Studies: 16
Avg. 1000 Sq. Ft. GFA: 5
Directional Distribution: 50% entering, 50% exiting

Vehicle Trip Generation per 1000 Sq. Ft. GFA

Average Rate	Range of Rates	Standard Deviation
24.78	4.21 - 49.41	15.65

Data Plot and Equation



Automated Car Wash
(948)

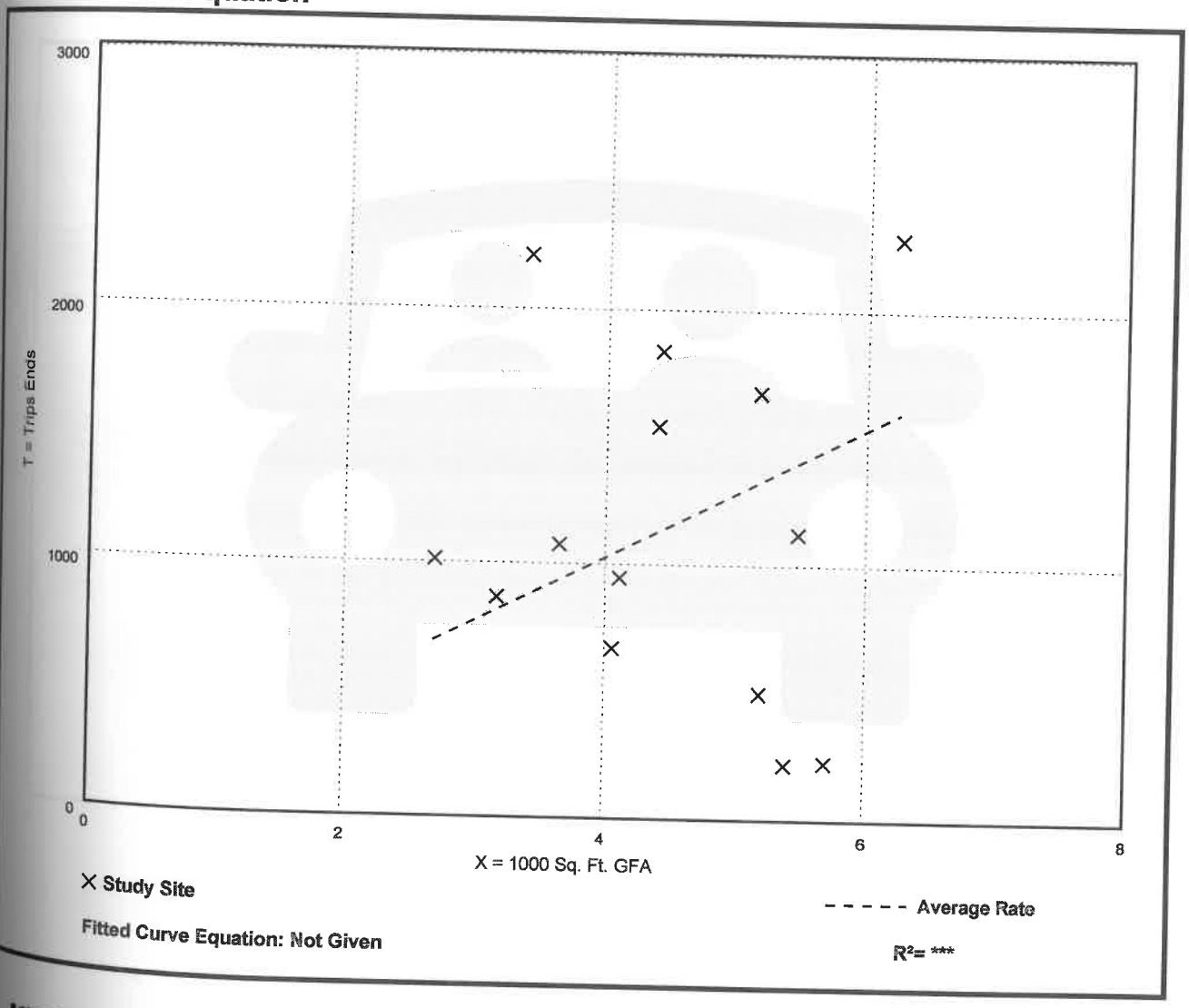
Vehicle Trip Ends vs: 1000 Sq. Ft. GFA
On a: Saturday

Setting/Location: General Urban/Suburban
Number of Studies: 14
Avg. 1000 Sq. Ft. GFA: 5
Directional Distribution: 50% entering, 50% exiting

Vehicle Trip Generation per 1000 Sq. Ft. GFA

Average Rate	Range of Rates	Standard Deviation
256.37	39.65 - 650.00	161.40

Data Plot and Equation



Fitted Curve Equation: Not Given

R^2= ***

Automated Car Wash
(948)

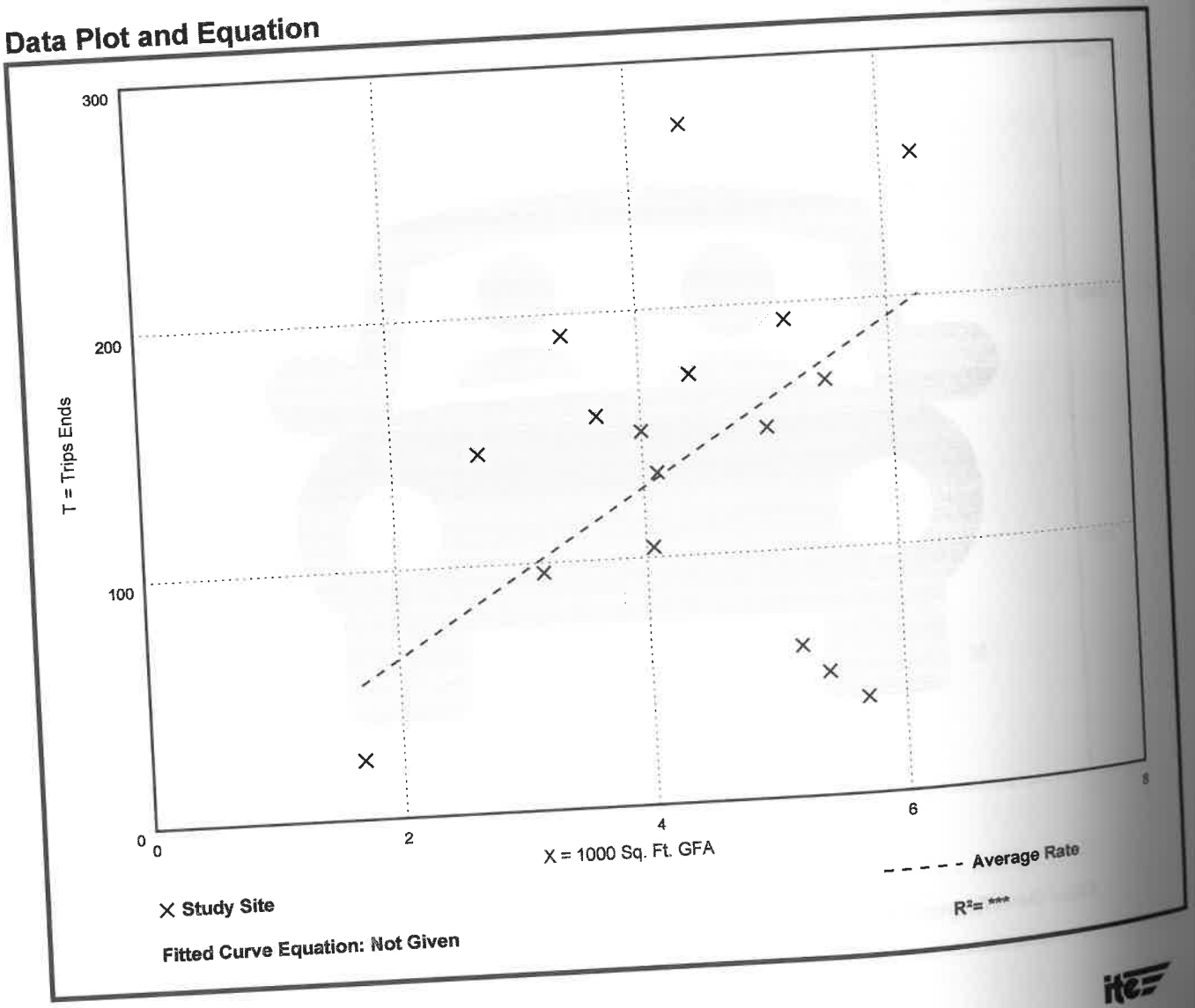
Vehicle Trip Ends vs: 1000 Sq. Ft. GFA
On a: Saturday, Peak Hour of Generator

Setting/Location: General Urban/Suburban
Number of Studies: 17
Avg. 1000 Sq. Ft. GFA: 4
Directional Distribution: 50% entering, 50% exiting

Vehicle Trip Generation per 1000 Sq. Ft. GFA

Average Rate	Range of Rates	Standard Deviation
32.10	6.84 - 61.96	16.11

Data Plot and Equation



Automated Car Wash
(948)

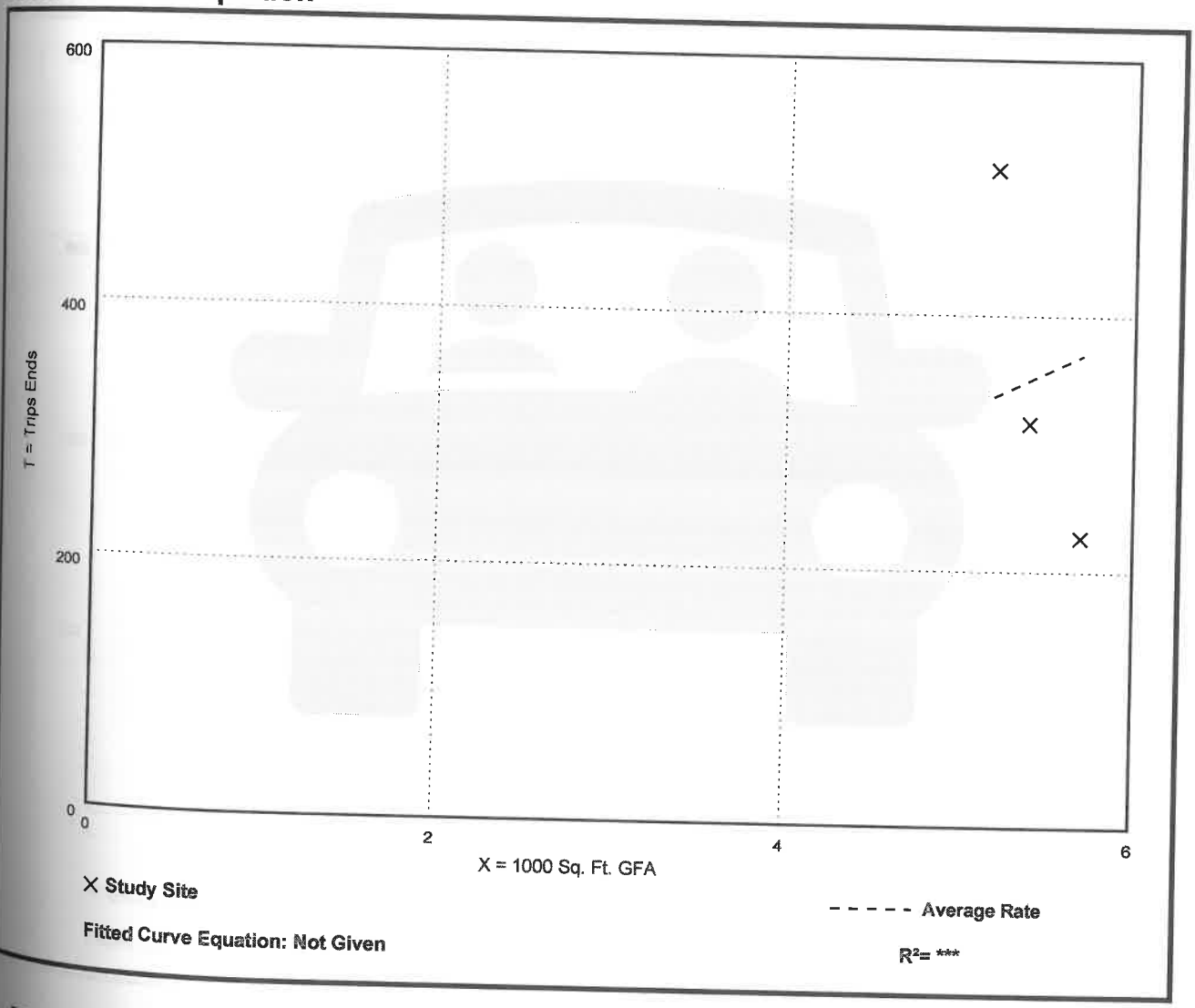
Vehicle Trip Ends vs: 1000 Sq. Ft. GFA
On a: Sunday

Setting/Location: General Urban/Suburban
Number of Studies: 3
Avg. 1000 Sq. Ft. GFA: 5
Directional Distribution: Not Available

Vehicle Trip Generation per 1000 Sq. Ft. GFA

Average Rate	Range of Rates	Standard Deviation
64.87	39.82 - 98.94	30.07

Data Plot and Equation



Fitted Curve Equation: Not Given

R^2= ***

Attachment "E"

JONES & BEACH ENGINEERS INC.

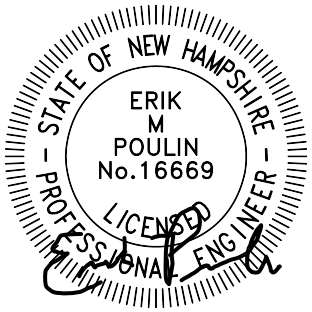
DRAINAGE ANALYSIS

EROSION AND SEDIMENT CONTROL PLAN

Proposed Carwash
Tax Map 156 / Lot 16
9 Morgan Road
Hudson, NH

Prepared for:

Washville Carwash
Attention: Jim Waterman
7 Benedict Place
Greenwich, CT, 06830



10/10/2025

Prepared by:
Jones & Beach Engineers, Inc.
85 Portsmouth Avenue
P.O. Box 219
Stratham, NH 03885
(603) 772-4746
August 28, 2025
Revised: October 7, 2025
JBE Project No. 25082

TABLE OF CONTENTS

Attachment "E"

ALTERATION OF TERRAIN PERMIT APPLICATION

Water Division / Alteration of Terrain Bureau
Land Resources Management Program
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. APPLICANT INFORMATION (INTENDED PERMIT HOLDER)		
Applicant Name: Washville Carwash	Contact Name: Jim Waterman	
Email: jimwaterman@washvillecarwash.com	Daytime Telephone: 978-337-9660	
Mailing Address: 7 Benedict Place		
Town or City: Greenwich	State: CT	ZIP: 06830
2. APPLICANT'S AGENT INFORMATION *If none, check box:* ☐		
Agent's Name: Jones and Beach Engineers, Inc	Contact Name: Erik Poulin, PE	
Email: epoulin@jonesandbeach.com	Daytime Telephone: (603) 772-4746	
Address: 85 Portsmouth Ave		
Town or City: Stratham	State: NH	ZIP: 03885
3. PROPERTY OWNER INFORMATION (IF DIFFERENT FROM APPLICANT) *If more than one, check box:* ☐ *Attach additional sheets as necessary.*		
Owner's Name: Hudson Enterprises, LLC	Contact Name: Jeff Gove	
Email: jeffreygove@yahoo.com	Daytime Telephone: (508) 341-2263	
Mailing Address: 69 Atlantic Ave		
Town or City: North Hampton	State: NH	ZIP: 03862
4. PROPERTY OWNER'S AGENT INFORMATION *If none, check box:* ■		
Business Name: Jones and Beach Engineers, Inc	Contact Name: Erik Poulin, PE	
Email: epoulin@jonesandbeach.com	Daytime Telephone: (603) 772-4746	
Address: 85 Portsmouth Ave		
Town or City: Stratham	State: NH	ZIP: 03885
5. CONSULTANT INFORMATION *If none, check box:* ■		
Engineering Firm:	Contact Name:	
Email:	Daytime Telephone:	
Address:		
Town or City:	State:	ZIP:

Attachment "E"

6. PROJECT TYPE					
☐ Excavation Only	☐ Residential	■ Commercial	☐ Golf Course	☐ School	☐ Municipal
☐ Agricultural	☐ Land Conversion	☐ Other:			

7. PROJECT LOCATION INFORMATION			
Project Name: SP# 10-25 Washville Carwash			
Street or Road Address: 9 Morgan Road			
Town or City: Hudson		County: Hillsborough	
Tax Map: 156	Block: -	Lot Number: 16	Unit: -

Post-development, will the proposed project withdraw from or directly discharge to any of the following?

If yes, identify the purpose.

Stream or Wetland?	☐ Yes ■ No	☐ Withdrawal ☐ Discharge
Purpose:		
Artificial pond created by impounding a stream or wetland?	☐ Yes ☐ No	☐ Withdrawal ☐ Discharge
Purpose:		
Unlined pond dug into the water table?	☐ Yes ☐ No	☐ Withdrawal ☐ Discharge
Purpose:		

Post-development, will the proposed project discharge to:

- Within one-quarter mile of a surface water impaired for phosphorus and/or nitrogen? ■ No ☐ Yes
- Within one-quarter mile of a Class A surface water or within the watershed area of an Outstanding Resource Water? ☐ No ☐ Yes
- Within one-quarter mile of a lake or pond not covered previously? ■ No ☐ Yes

Is the project a high load area? ■ Yes ■ No

If yes, specify the type of high load land use or activity: VEHIUCLE/VEHICLE EQUIPMENT CLEANING FACILITY

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 Proposed hook-up to town water

Is any part of the property within the 100-year floodplain? ☐ Yes ■ No

If yes, cut volume, in cubic feet, within the 100-year floodplain:

Fill volume, in cubic feet, within the 100-year floodplain:

☐ Project *is* within ¼ mile of a designated river	Name of River:

■ Project *is not* within ¼ mile of a designated river.

☐ Project *is* within a Coastal/Great Bay Region community.

■ Project *is not* within a Coastal/Great Bay Region community.

Attachment "E"

8. BRIEF PROJECT DESCRIPTION *(Please do not reply "see attached")*

The purpose of this project is to construct a car wash containing 1 building on Town of Hudson Tax Map 156, Lot 16. The proposed development will contain a 4,100± sq.ft. building with associated parking, drainage, and utilities.

Originally, Lots 16, 15, and 15-1 (Now Cumberland Farms and CVS Pharmacy) were on a common-scheme development plan by Hudson Enterprises, LLC. The subject site proposes development later than sister sites. For simplicity and effectiveness, runoff and subsequent treatment for the subject site is proposed to be self-contained and not interact with collection or treatment systems originally proposed as common scheme.

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

N/A

10. ADDITIONAL REQUIRED INFORMATION

A. Date a copy of the application was sent to the municipality, as required by Env-Wq 1503.05(e) (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).

■ Proof of delivery is attached	Date: 10-9-25

B. Date a copy of the application was sent to the local river advisory committee, if required by Env-Wq 1503.05(e) (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).

☐ Proof of delivery is attached	Date:

C. Type of plan required:

☐ Land Conversion ■ Detailed Development ☐ Excavation, Grading and Reclamation ☐ Steep Slope

D. Additional plans required:

■ Stormwater Drainage and Hydrologic Soil Groups ☐ Source Control ☐ Chloride Management

E. Total area of disturbance in square feet: 75,285 sf

F. Additional impervious cover as a result of the project, in square feet (*use "-"to indicate a net reduction in impervious coverage):* 42,474 sf (20%)

Total final impervious cover, in square feet: 42,474 sf (20%)

G. Total undisturbed cover, in square feet: 212,372 sf - 75,285 sf = 137,087 sf

H. Number of lots proposed: Development of single lot, previously subdivided off after common scheme.

I. Total length of roadway, in linear feet: N/A connect to as-built common scheme access drive/roadway

J. Name(s) of receiving water(s): Reeds Brook > Merrimack River

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

Attachment "E"

Type of Approval	Application Filed?	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	☐	Registration date:
4. UIC Registration (Within Drainage Report)	■ Yes ☐ No ☐ N/A	☒	Approval letter date:
5. Large/Small Community Well Approval	☐ Yes ☐ No ☐ N/A	☐	Permit number:
6. Large Groundwater Withdrawal Permit	☐ Yes ☐ No ☐ N/A	☐	Permit number:
7. Other:	☐ Yes ☐ No		

L. List all species identified as threatened or endangered or of concern: Eastern Box Turtle

M. Using the NHDES OneStop Data Mapper, with the "surface water impairment" layer turned on, list the impairments identified for each receiving water. If no pollutants are listed, enter "N/A."

Reed's Brook: Dissolved O2, Mercury, E. Coli
Merrimack River: Al, Dissolved O2, Misc.

N. Did the applicant or applicant's agent have a pre-application meeting with Alteration of Terrain Bureau staff?

■ Yes ☐ No | If yes, name of staff member: MIKE SCHLOSSER, PE

O. Will blasting of bedrock be required? ☐ Yes ■ No

If yes, estimated quantity of blast rock, in cubic yards:

If yes, standard blasting best management practices notes must be placed on the plans.

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 Alteration of Terrain Bureau staff for additional detail.*

Attachment "E"

11. CHECK ALL APPLICATION ATTACHMENTS THAT APPLY *(Submit with application in the order listed below)*

LOOSE:

- ■ Signed application form, with attached proof(s) of delivery.
- ■ Check for the application fee, calculated using the fee schedule available on the NHDES land development page.
- ■ Color copy of a USGS map with the property boundaries outlined (1" = 2,000' scale).
- ■ If the 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.

BOUND, IN A REPORT, IN THE FOLLOWING ORDER:

- ■ Copy of the signed application form and application checklist.
- ■ 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.
- ■ Printout of NHDES OneStop Mapper with "Surface Water Impairments" layer turned on.
- ■ Printout of NHDES OneStop Mapper with Alteration of Terrain screening layers turned on.
- ■ Printout of the DataCheck Tool results letter and any relevant correspondence with New Hampshire Fish and Game.
- ■ United States Department of Agriculture (USDA) Web Soil Survey Map with project's watershed outlined.
- ■ Aerial photograph (1" = 2,000' scale with the site boundaries outlined).
- ■ Photographs representative of the site.
- ■ Groundwater recharge volume calculations (include one Alteration of Terrain Permitting Best Management Practices Worksheet per permit application).
- ■ Drainage analysis, stamped by a professional engineer (see "Application Checklist" at the end of this document).
- ☐ 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 of the Society of Soil Scientists of Northern New England.
- ■ Infiltration Feasibility Report (example online) [Env-Wq 1503.08(f)(3)].
- ■ Registration and Notification Form for Stormwater Infiltration to Groundwater (Underground Injection Control Registration-for underground systems only, including drywells and trenches).
- ■ 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- and post-development color-coded soil plans on 11" x 17" (see Application Checklist for details).
- ■ Pre- and post-construction 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 Application Checklist (Attachment A) for details.
- ☐ Review application for completeness. Confirm information listed on the application is included with submittal.

12. REQUIRED SIGNATURES

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 641:3.

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

Signature:	Date: 10/09/25
Name (print or type): JIM WATERMAN	Title:

☐ **PROPERTY OWNER** ☒ **PROPERTY OWNER'S AGENT:**

Signature:	Date: 10/09/25
Name (print or type): ERIK POULIN, PE	Title: PROJECT MANAGER

Attachment "E"

ALTERATION OF TERRAIN ATTACHMENT A: PERMIT APPLICATION CHECKLIST

Check each box to indicate the item has been provided or indicate why it does not apply.

DESIGN PLANS

- [x] Plans printed on 34 - 36" by 22 - 24" white paper.
- [x] Professional Engineer stamp.
- [x] Wetland delineation.
- [x] Temporary erosion control measures.
- [x] Treatment for all stormwater runoff from impervious surfaces such as roadways (including gravel roadways), parking areas, and nonresidential roof runoff. Guidance on treatment BMPs can be found in the New Hampshire Stormwater Management Manual.
- [x] Pre-existing 2-foot contours.
- [x] Proposed 2-foot contours.
- [ ] Drainage easements protecting the drainage/treatment structures. ON-SITE TREATMENT
- [ ] Compliance with state statute governing fill and dredge in wetlands, RSA 482- A. Note that artificial detention in wetlands is prohibited. NO DREDGE/FILL OF WETLANDS
- [ ] Compliance with the New Hampshire Shoreland Protection Act, RSA 483-B. NO SHORELAND
- [ ] Benching – 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. NO BENCHING
- [x] Check to see if any proposed ponds require state dam permits.

DETAILS

- [ ] Typical roadway x-section. AS-BUILT SHARED ROADWAY
- [x] Detention basin with inverts noted on the outlet structure.
- [x] Stone berm level spreader.
- [ ] Outlet protection – riprap aprons. JUTE MATTING
- [x] A general installation detail for an erosion control blanket.
- [x] Silt fences or mulch berm.
- [x] 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.
- [x] Stone check dams.
- [x] Gravel construction exit.
- [x] Temporary sediment trap.
- [x] The treatment BMPs proposed.
- [ ] Any innovative BMPs proposed.

CONSTRUCTION SEQUENCE / EROSION CONTROL

Attachment "E"

☐ Note that the project must be managed to meet the requirements and intent of RSA 430:53 and 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 or 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.

☐ 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. Note that although reed canary grass is listed in the Green Book; it 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

Attachment "E"

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

☐ Professional Engineer stamp.

☐ Rainfall amount obtained from the Northeast Regional Climate Center. Include extreme precipitation table as obtained from this source.

☐ 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 or 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 and Grafton counties are Type II, all others Type III).

PRE- AND POST-CONSTRUCTION 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.

Attachment "E"

- [x] Tc lines.
- [x] A clear delineation of the subcatchment boundaries.
- [ ] Roadway station numbers.
- [x] Culverts and other conveyance structures.

PRE- AND POST-CONSTRUCTION COLOR-CODED SOIL PLANS

- [x] 11" × 17" sheets suitable, as long as it is readable.
- [x] Submit these plans separate from the drainage area plans.
- [x] A north arrow.
- [x] A scale.
- [ ] Name of the soil scientist who performed the survey and date the soil survey took place.
- [x] 2-foot contours (5-foot contours if application is for a gravel pit) as well as other surveyed features.
- [x] Delineation of the soil boundaries and wetland boundaries.
- [x] Delineation of the subcatchment boundaries.
- [x] Soil series symbols (e.g., 26).
- [x] A key or legend identifying each soil series symbol and its associated soil series name (for example: 26 = Windsor).
- [x] The hydrologic soil group color coding (A = Green, B = yellow, C= orange, D=red, Water=blue, and Impervious = gray).

Please note that excavation projects (including gravel pits) have similar requirements to those above, with the following common exceptions or additions:

- [ ] Drainage report is not needed if site does not have off-site flow.
- [ ] 5-foot contours are allowed rather than 2-foot.
- [ ] No Professional Engineer stamp is needed on the plans.
- [ ] Add a note to the plans that the applicant must provide NHDES 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.
- [ ] A description of the subsurface conditions to the planned depth of excavation, including the elevation of the location of the Seasonal High Water Table (SHWT), as observed and described by a certified soil scientist, or an individual holding a valid permit as a permitted designer as issued by the department's Subsurface Systems Bureau.

For more resources, refer to the Natural Resources Conservation Service Vegetating New Hampshire Sand and Gravel Pits publication.

Docusign Envelope ID: EA7102A5-13A5-4E00-A2DC-0AFF7D81E77B

Letter of Authorization

I, Jim Waterman, Washville Car Wash, 7 Benedict Place, Greenwich, CT 06830, developer of property located in Hudson, NH, known as Tax Map 156, Lot 16, do hereby authorize Jones & Beach Engineers, Inc., PO Box 219, Stratham, NH, to act on my behalf concerning the previously-mentioned property. The parcel is located on 120 Derry Road in Hudson, 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.

Not Required.	Signed by: D60F80693D33460...	6/20/2025
Witness	Jim Waterman Washville Car Wash	Date

Letter of Authorization

I, Hudson Enterprises, LLC, 69 Atlantic Ave, North Hampton, NH 03862, owner of property located in Hudson, NH, known as Tax Map 156, Lot 16, do hereby authorize Jones & Beach Engineers, Inc., PO Box 219, Stratham, NH, to act on my behalf concerning the previously-mentioned property. The parcel is located on 120 Derry Road in Hudson, 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.

Peggy Hatfield — Witness

Hudson Enterprises, LLC

10-9-25 — Date

BEACH

Attachment "E"

120 Derry Road

Legend

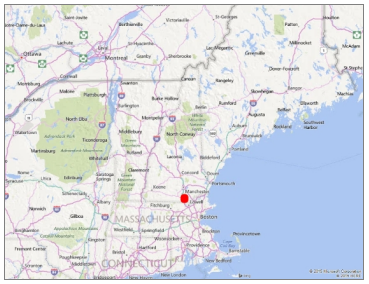
Map Scale

1: 25,000

© NH GRANIT, www.granit.unh.edu

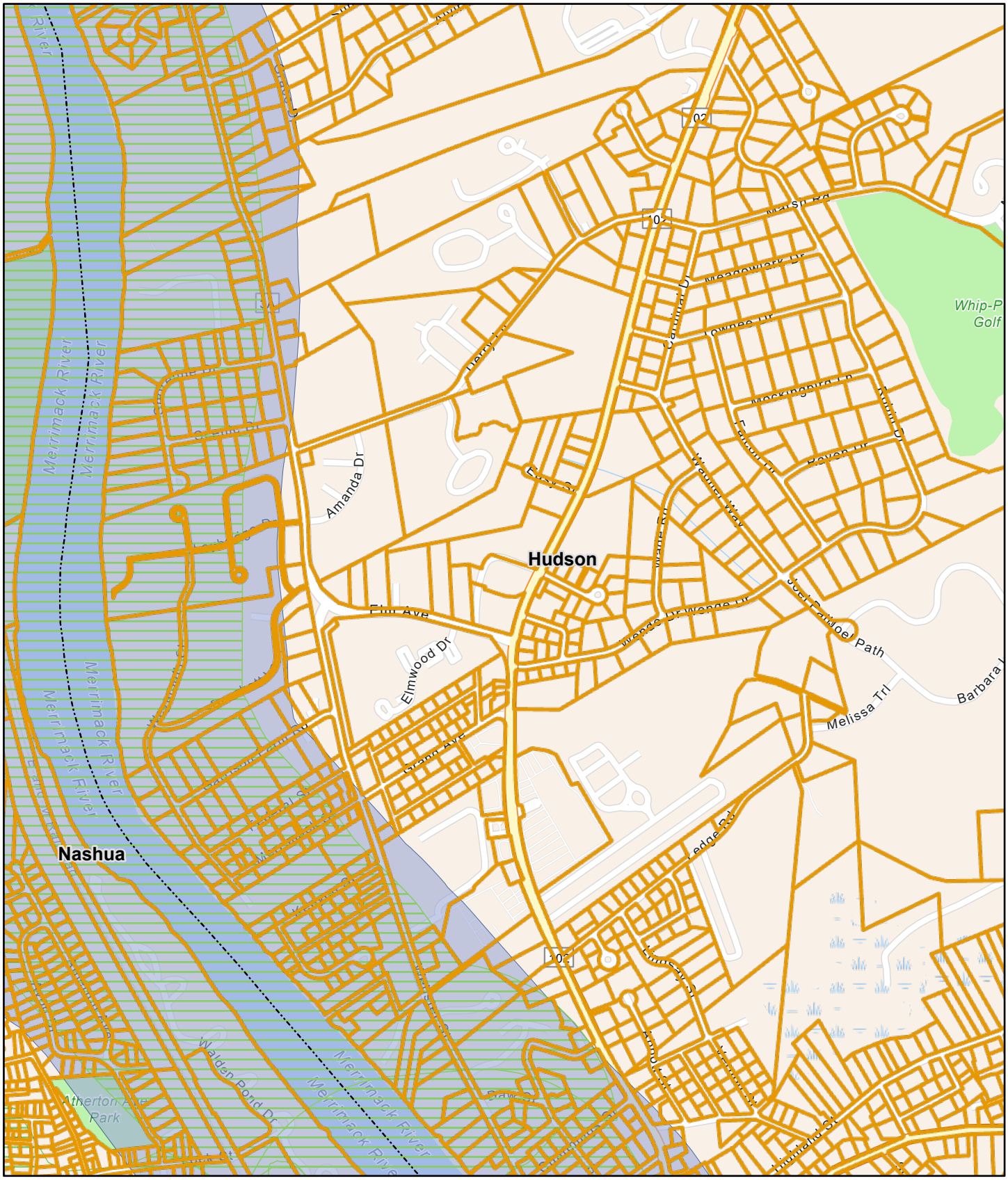
Map Generated: 10/27/2015

Notes



Impaired Waters

Attachment "E"



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1:16,364

0 0.1 0.2 0.4 mi

0 0.15 0.3 0.6 km

City/Town

Parcels

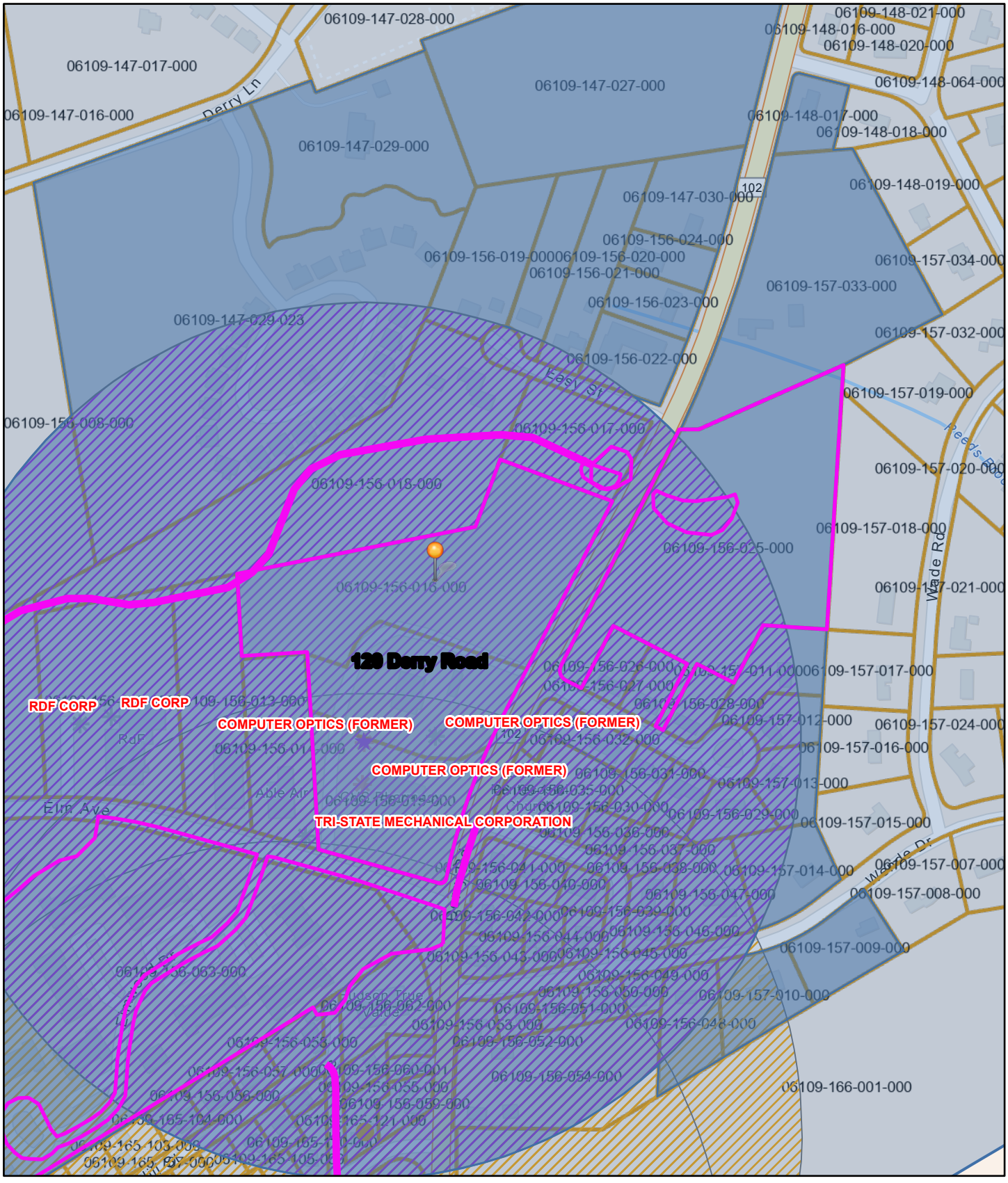
Surface Waters with Impairments with Quarter Mile Buffer

Designated Rivers Quartermile Buffer

Sources: Esri, TomTom, Garmin, FAO, NOAA, USGS, (c) OpenStreetMap contributors, and the GIS User Community, NHDRA, Axiomatic, Inc.

Map by NH DES OneStop Data Mapper

Attachment "E"



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1:4,991

0 0.03 0.06 0.12 mi

0 0.05 0.1 0.2 km

ArcGIS World Geocoding Service

NHDES AOT Permits Issued from 2009 to Present

Expired

Site with PFAS > AGQS 2016

EMD PFAS Groundwater Station Samples with 1000ft Buffer

PFAS > MCL (2020) Groundwater Stations

Remediation Sites

Closed

Other

Parcels

Sources: Esri, TomTom, Garmin, FAO, NOAA, USGS, (c) OpenStreetMap contributors, and the GIS User Community, NHDRA, Axiomatic, Inc.

1. EXECUTIVE SUMMARY

The purpose of this project is to construct a car wash containing 1 building on Town of Hudson Tax Map 156, Lot 16. The proposed development will contain a 4,100± sq.ft. building with associated parking, drainage, and utilities.

Originally, Lots 16, 15, and 15-1 (Now Cumberland Farms and CVS Pharmacy) were on a common-scheme development plan by Hudson Enterprises, LLC. The subject site proposes development later than sister sites. For simplicity and effectiveness, runoff and subsequent treatment for the subject site is proposed to be self-contained and not interact with collection or treatment systems originally proposed as common scheme.

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:

EXECUTIVE SUMMARY TABLE										
AP	2 Year		10 Year		25 Year		50 Year		100 Year	
	Pre	Post	Pre	Post	Pre	Post	Pre	Post	Pre	Post
AP #1	1.29	0.06	2.68	0.19	3.83	0.32	4.93	0.45	6.27	0.62
AP #2	0.70	0.21	2.86	1.12	4.99	3.11	7.20	6.40	10.05	13.26
AP #3	1.35	1.21	5.36	5.26	9.33	9.15	13.49	12.69	18.84	17.41
Total	3.34	1.49	10.9	6.63	18.15	12.65	25.62	19.6	35.16	31.29

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 an underground infiltration basin, two surface infiltration basins, and one rain garden to maintain the peak discharge and infiltrate stormwater.

In addition, the potential for increased erosion and sedimentation is handled by way of erosion control blankets, sedimentation sumps, grease hoods, a level spreader, and inlet and outlet protection. 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.

2. DRAINAGE ANALYSIS

2.1 INTRODUCTION

As stated in the executive summary, the purpose of this project is to construct a car wash containing 1 building on Town of Hudson Tax Map 156, Lot 16. The proposed development will contain a 4,100± sq.ft. building with associated parking, drainage, and utilities.

2.2 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 storm events, corresponding to rainfall events of 2.94", 4.43", 5.59", and 6.68" respectively.

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

2.3 EXISTING CONDITIONS ANALYSIS

The study area consists of the subject property and surrounding paved road surfaces. The contributing area of the parcel contains 9.54 acres located west of Derry Road, north of Elm Avenue. The existing lot consists of wooded, mixed vegetation and grass areas with an existing building and associated parking. The total contributing area due to off-site topography is approximately 9.87 acres.

Existing soil conditions were obtained by Gove Environmental Services, Inc. The existing soils are classified by GES, Inc. as Agawam sandy loam, Canton loamy mantle, Newfields loamy mantle, Udorthents smoothed and Walpole sandy soil. These soils are classified as Hydrologic Group 'B' for Agawam, Canton, Newfields and Udorthents and Hydrologic Group 'C' for Walpole.

The existing topography is such that the existing site drainage is split between three watersheds that generally drain north on the site.

Analysis Point #1 (AP-1) collects runoff from Elm Avenue and grass & paved parking areas in the western corner of the property and discharges west down Elm Avenue and the west property line.

Analysis Point #2 (AP-2) is defined as the toe of slope in the north corner of Lot 16 that collects runoff from areas west and north of the existing building. Runoff contributing to AP-2 consists of paved, grassed, and wooded areas.

Analysis Point #3 (AP-3), described as a portion of the northern property line, receives runoff from grassed & wooded areas east and north of the existing building, including a portion of the existing building, and runoff from Derry Road.

2.4 PROPOSED CONDITIONS ANALYSIS

The proposed site includes the construction of a 4,100± sq.ft. retail service space with associated access drives, parking, drainage, and utilities, as well as the common scheme having a now as-built Cumberland Farms and CVS Pharmacy with associated access drives, parking, drainage, and utilities. 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 an underground infiltration basin to maintain the peak discharge and infiltrate stormwater.

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:

As Jones and Beach Engineers Inc completed the drainage report associated with the development of Lots 15 and 15-1, the original proposed analysis is provided below for original context:

> "The contributing area to Analysis Point #1 (AP-1) has been reduced in the proposed condition to receive a smaller portion of runoff from Elm Ave. and now receives runoff from only a small portion of grassed/wooded and paved areas on-site.
>
> Analysis Point #2 (AP-2) receives runoff from a portion of Elm Ave., a small portion of Derry Rd., paved & grassed areas around the proposed retail building, and a portion of the perimeter access road. Runoff from Elm Ave. and a parking areas south and southeast of the proposed retail building is detained and infiltrated in Rain Garden #1 before discharging to a swale along the eastern property that flows towards AP-2. Pretreatment for Rain Garden #1 consists of gravel forebays. The remaining paved areas around the proposed retail building, a portion of Derry Rd., the roof runoff from the proposed building, and portions of the perimeter access road contribute runoff to the closed drainage system that discharges to Forebay #1 & Infiltration Basin #1. Infiltration Basin #1 discharges to a level spreader prior to runoff reaching AP-2.
>
> The remaining areas on-site, consisting of portions of Derry Rd., paved & grassed areas around the proposed convenience store & fueling station and proposed future restaurant, contribute runoff to Analysis Point #3 (AP-3). A small portion of existing impervious from Derry Rd. contributes runoff to a swale & culvert system flowing north along Derry Rd. towards AP-3. All runoff from the fueling canopy area is collected in a closed drainage system that discharges to two oil/water separators (nodes OW 1 and OW 2) designed to receive the design Water Quality Volume (WQV) prior to discharging to Forebay #2 & Infiltration Basin #2. Runoff from the proposed future restaurant's parking area and a portion of the access road is collected in a closed drainage system before discharging to Forebay #2 & Infiltration Basin #2. Infiltration Basin #2 discharges to a level spreader prior to reaching AP-3. The proposed future restaurant's roof and patio area contribute runoff to Rain Garden #2 for detention and infiltration. Pretreatment for Rain Garden #2 consists of a gravel forebay. Rain Garden #2 discharges towards an existing wetland area considered to be part of AP-3."

In the current design on Lot 16, the proposed car wash is in place of the formerly proposed restaurant. Lot 16 development is treated by an underground infiltration system (Node 3P) which consists of SC-740 chambers with isolator rows. Rain Garden #2 under the PSNH easement is no longer proposed for development.

LID STRATEGIES:

To affect low impact development, several strategies have been used. One of the most significant is to ensure the footprint of the intended use can be compact, maximizing open space and limiting impervious surfaces. The total lot area is just under 5 acres and will mostly remain (80%) as open space and wetlands. Within the active portion of the site itself, pavement has been minimized further through the use of landscaped islands, a central open space area, and perimeter landscaping. Where steep slopes are required, we propose to use jute matting instead of rip-rap to help facilitate a more grassed and natural environment. Finally, grading and watershed plans ensure each micro watershed is directed to a catch basin to be pretreated by an underground infiltration system, so that post-development flows are not increased over the existing conditions.

2.5 CONCLUSION

This 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 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, curbing, catch basins with sedimentation sumps, jute matting, detention ponds, and outlet protection. 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.

A site specific, terrain alteration permit (RSA 485:A-17) is required for this site plan due to the area of disturbance being greater than 100,000 square-feet. The update to Lot 16 will require its own application for a new permit or amendment.

Respectfully Submitted,
JONES & BEACH ENGINEERS, INC.

Erik Poulin, P.E.
Project Manager

DataCheck Results Letter
For NHDES Ecological Review

To: Emma Howard, Jones and Beach
PO Box 219
Stratham, NH 03885
ehoward@jonesandbeach.com

From: Ecological Review Section
NH Department of Environmental Services
Main Contact: Maddie Severance - EcologicalReviews@des.nh.gov

cc: NHFG Review

Date: 08/21/2025 (valid until 08/21/2026)
Re: DataCheck Review by NHDES Ecological Review Section and NH Fish & Game
Permits: MUNICIPAL POR - Hudson, NHDES - Alteration of Terrain Permit

DCT ID: DCT25-2372

Town: Hudson
Location: 120 Derry Rd

Project Description: Construct a carwash where a 5,500 sq ft restaurant was approved but not constructed as part of a larger commercial project. Footprint of the current proposed carwash had earth disturbing activities in support of original project in 2019

Next Steps for Applicant:

NHDES's Ecological Review Section has searched the Natural Heritage Bureau's (NHB) database of rare species and exemplary natural communities. Please carefully read the comments below and the consultation requirements on the following page.

Plant and Natural Community Comments: No comments at this time.

Wildlife Comments: Please refer to NHFG consultation requirements below.

DataCheck Results Letter
For NHDES Ecological Review

Plant and Natural Community Consultation

If this DataCheck letter includes records of rare plants and/or natural communities/systems, please contact the Ecological Review Section and provide any requested supplementary materials by emailing EcologicalReviews@des.nh.gov.

If this DataCheck letter DOES NOT include any records of rare plants and/or natural communities/systems, no further consultation with the Ecological Review Section regarding rare plants and/or natural communities/systems is required.

Wildlife Consultation

If this DataCheck letter DOES NOT include ANY wildlife species records, then, based on the information submitted, no further consultation with the NH Fish and Game Department (NHFG) pursuant to Fis 1004 is required.

If this DataCheck letter includes a record for a threatened (T) or endangered (E) wildlife species, consultation with the New Hampshire Fish and Game Department under Fis 1004 may be required. To review the Fis 1000 rules (effective February 3, 2022), please go to https://www.wildlife.nh.gov/wildlife-and-habitat/nongame-and-endangered-species/environmental-review. All requests for consultation and submittals should be sent via email to NHFGreview@wildlife.nh.gov or can be sent by mail, and must include the DataCheck results letter number and "Fis 1004 consultation request" in the subject line.

If the DataCheck response letter does not include a threatened or endangered wildlife species but includes other wildlife species (e.g., Species of Special Concern), consultation under Fis 1004 is not required; however, some species are protected under other state laws or rules, so coordination with NH Fish & Game is highly recommended or may be required for certain permits. While some permitting processes are exempt from required consultation under Fis 1004 (e.g., *statutory permit by notification, permit by rule, permit by notification, routine roadway registration, docking structure registration, or conditional authorization by rule*), coordination with NH Fish & Game may still be required under the rules governing those specific permitting processes, and it is recommended you contact the applicable permitting agency. For projects not requiring consultation under Fis 1004, but where additional coordination with NH Fish and Game is requested, please email NHFGreview@wildlife.nh.gov, and include the DataCheck results letter number and "review request" in the email subject line.
Contact NH Fish & Game at (603) 271-0467 with questions.

Federal ESA Compliance

This letter does not constitute compliance with the federal Endangered Species Act (ESA). There may be occurrences of federally listed species in New Hampshire that are not included on the NH DataCheck Letter. For compliance with the federal Endangered Species Act (ESA), please visit the US Fish and Wildlife Service's (USFWS) Information for Planning and Consultation website (https://ipac.ecosphere.fws.gov/; IPaC) for an official list of federally listed species that may be present in your project area. If a federal agency is involved in your project through funding, permit, or other authorization, coordinate your IPaC results with your point of contact at the agency for further ESA review. If there is no federal agency nexus to your project, and you determine through IPaC, habitat evaluations, etc. that a project may cause take of a federally listed species, we recommend coordinating with the USFWS' New England Field Office (newengland@fws.gov; 603-223-2541).

DataCheck Results Letter
For NHDES Ecological Review

NHB Database Records:
The following record(s) have been documented in the vicinity of the proposed project. Please refer to this list when coordinating.

Vertebrate species	State[1]	Federal	Notes
Eastern Box Turtle (*Terrapene carolina carolina*)*	E	--	Contact the NH Fish & Game Dept (see above).

[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 20 or more years ago.

For all animal reviews, refer to 'Wildlife Consultation' section above.

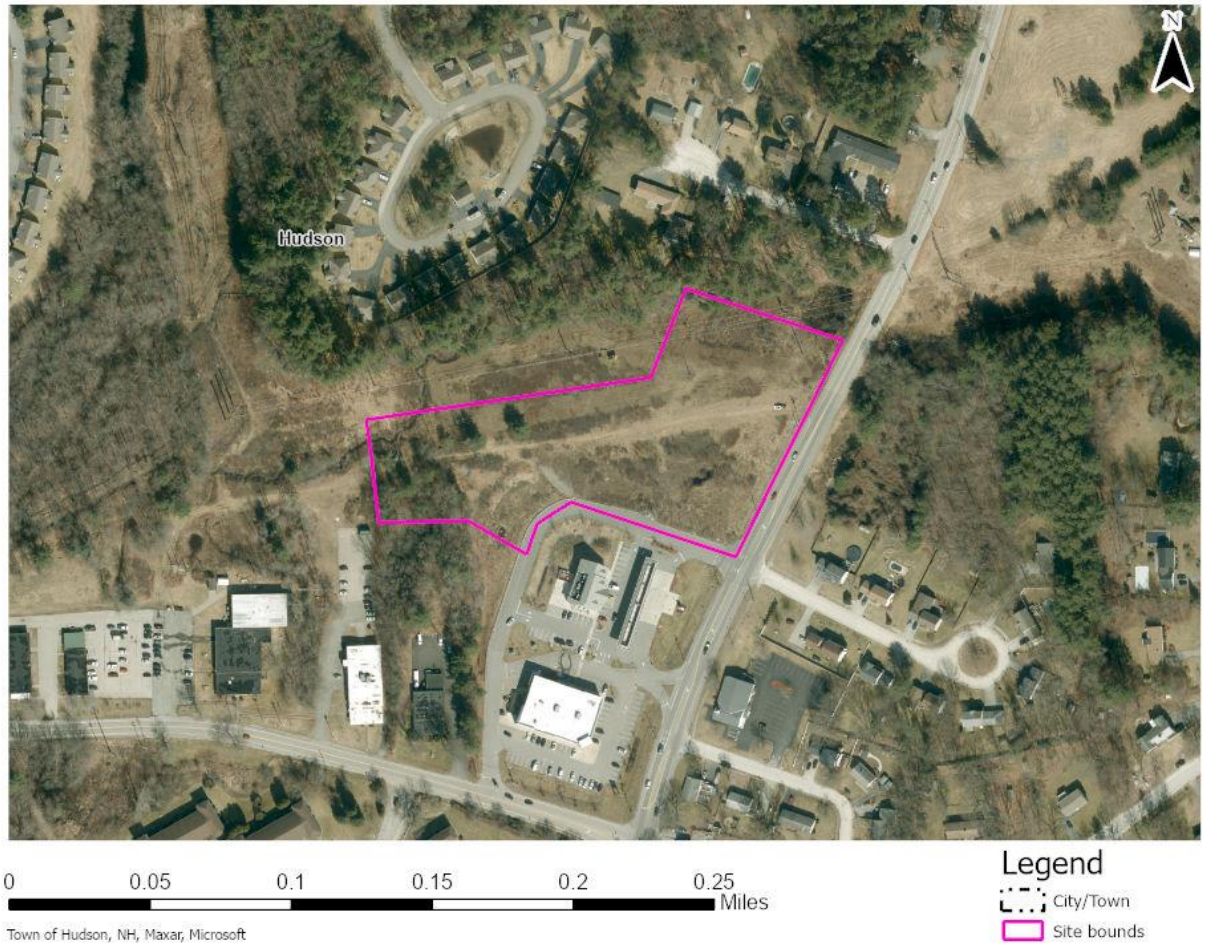
Disclaimer: NHB's database can only tell you of known occurrences that have been reported to NHFG/NHB. Known occurrences are based on information gathered by qualified biologists or members of the public, reported to our offices, and verified by NHB/NHFG.
However, many areas have never been surveyed, or have only been surveyed for certain species.
Surveys are recommended to determine what species/natural communities are present onsite.

DataCheck Results Letter
For NHDES Ecological Review

Please note: Effective June 10th, 2025, DataCheck letters will no longer include specific locations of rare species and exemplary natural communities. Changes to the map have been made to reflect this update.

Important: The list of rare species and exemplary natural communities that may be impacted by the project is included. Please refer to that list when coordinating.

DCT25-2372



Attachment "E"

Grant Partin

From: Sean Moriarty
Sent: Wednesday, October 8, 2025 4:30 PM
To: FGC: NHFG review
Cc: Erik Poulin; Grant Partin; Front Desk
Subject: Fis 1004 Consultation Request: DCT25-2372 - 120 Derry Road, Hudson (25082)
Attachments: 25082_NH F&G Consultation Submittal.pdf

Follow Up Flag: Follow up
Flag Status: Flagged

Dear NHFG Review Team,

Please find attached a consultation request pursuant to Fis 1004 for the above-referenced project.

Thank you, and please let me know if any additional information is needed.

Best regards,

Sean

SEAN P. MORIARTY
Wetland Scientist
JONES&BEACH ENGINEERS, INC.
85 Portsmouth Avenue
PO Box 219
Stratham, NH 03885
(603) 772-4747 (ext. #115)
http://www.jonesandbeach.com

Attachment "E"

Custom Soil Resource Report
Soil Map

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 1:20,000.

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

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

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

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL: http://websoilsurvey.nrcs.usda.gov
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: Hillsborough County, New Hampshire, Eastern Part
Survey Area Data: Version 16, Sep 12, 2014

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

Date(s) aerial images were photographed: Apr 8, 2011—Apr 9, 2011

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

Hillsborough County, New Hampshire, Eastern Part (NH601)			
Map Unit Symbol	**Map Unit Name**	**Acres in AOI**	**Percent of AOI**
Cu	Chocorua mucky peat	3.3	5.5%
DeA	Deerfield loamy fine sand, 0 to 3 percent slopes	6.6	10.9%
NnB	Ninigret very fine sandy loam, 3 to 8 percent slopes	6.5	10.7%
PiA	Pipestone loamy sand, 0 to 3 percent slopes	7.7	12.7%
WdA	Windsor loamy sand, 0 to 3 percent slopes	13.3	22.0%
WdB	Windsor loamy sand, 3 to 8 percent slopes	16.1	26.5%
WdD	Windsor loamy sand, 15 to 35 percent slopes	7.1	11.7%
Totals for Area of Interest		**60.6**	**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.

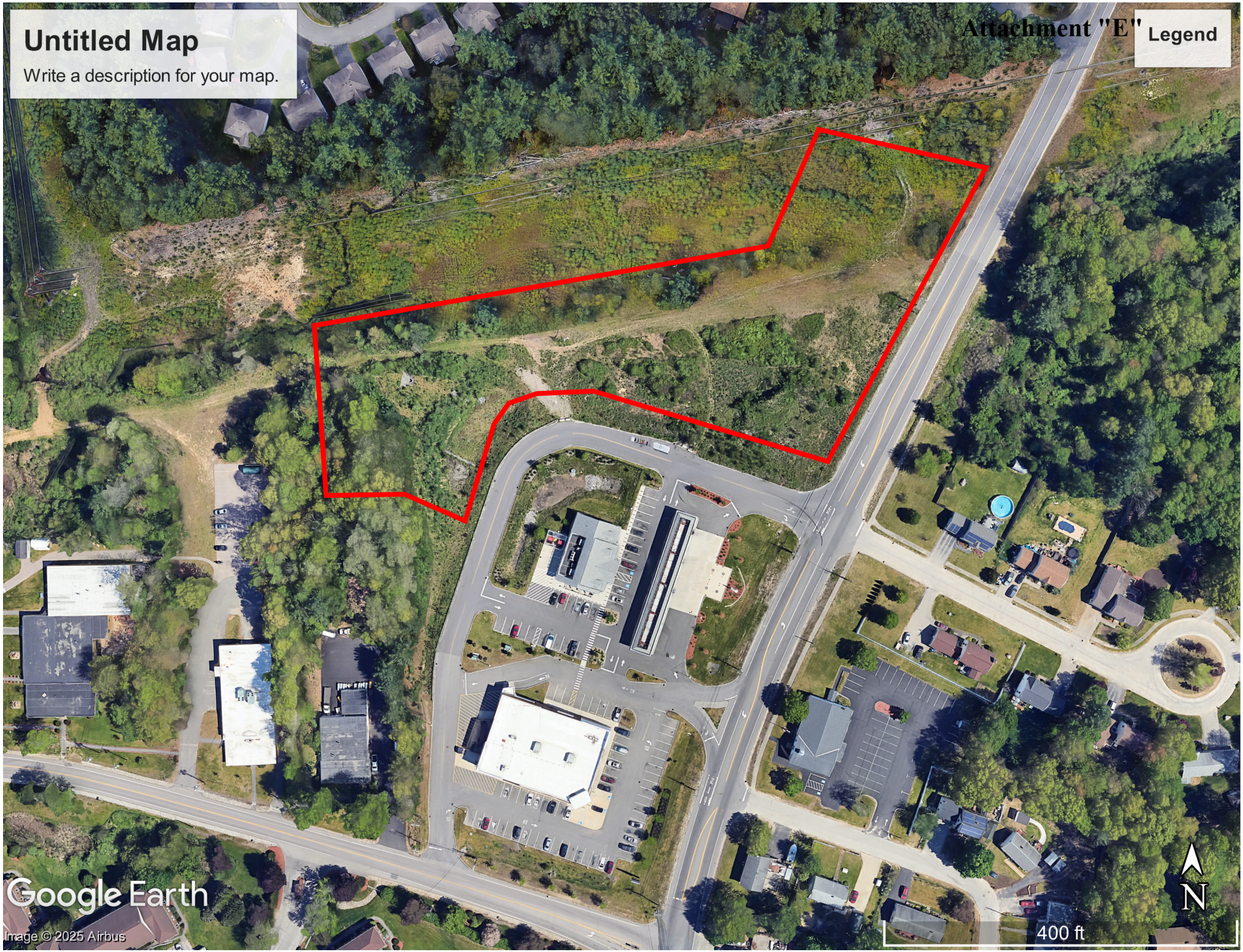
Some map units are made up of two or more major soils or miscellaneous areas. These map units are complexes, associations, or undifferentiated groups.

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.


Untitled Map
Write a description for your map.
Attachment "E"
Legend
Google Earth
Image © 2025 Airbus
N
400 ft

Attachment "E"

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

Shared Driveway Entrance (Morgan Road) as seen from Derry Road

Standing in bend of access drive (Morgan Road) looking back towards Derry Road

Attachment "E"

Looking along Derry Road frontage showing existing swale and site conditions

NEW HAMPSHIRE DEPARTMENT OF Environmental Services

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

-	ac	Area of HSG A soil that was replaced by impervious cover	0.40"
3.00	ac	Area of HSG B soil that was replaced by impervious cover	0.25"
-	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"
0.25	inches	Rd = Weighted groundwater recharge depth	
0.7495	ac-in	GRV = AI * Rd	
2,721	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):

Underround infiltration SC-740 = 3,117 CF PROPOSED

Infiltration Basin #1 = 5,707 CF AS-BUILT FROM COMMON SCHEME

infiltration Basin #2 = 7,153 CF AS-BUILT FROM COMMON SCHEME

Rain Garden #1 = 3,739 CF AS-BUILT FROM COMMON SCHEME

Toal = 19,716 CF

NEW HAMPSHIRE DEPARTMENT OF Environmental Services

INFILTRATION PRACTICE CRITERIA (Env-Wq 1508.06)

Type/Node Name: **Underground Infiltration Chamber System (SC-740) (Node 3P)**

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

Yes		Have you reviewed Env-Wq 1508.06(a) to ensure that infiltration is allowed?	← **yes**
1.11	ac	A = Area draining to the practice	
0.87	ac	A_I = Impervious area draining to the practice	
0.79	decimal	I = Percent impervious area draining to the practice, in decimal form	
0.76	unitless	Rv = Runoff coefficient = 0.05 + (0.9 x I)	
0.84	ac-in	WQV= 1" x Rv x A	
3,043	cf	WQV conversion (ac-in x 43,560 sf/ac x 1ft/12")	
761	cf	25% x WQV (check calc for sediment forebay volume)	
Isolator Row(s)		Method of pretreatment? (not required for clean or roof runoff)	
785	cf	V_{SED} = Sediment forebay volume, if used for pretreatment	≥ **25%WQV**
3,117	cf	V = Volume[1] (attach a stage-storage table)	≥ **WQV**
2,165	sf	A_{SA} = Surface area of the bottom of the pond	
2.00	iph	$Ksat_{DESIGN}$ = Design infiltration rate[2]	
8.4	hours	T_{DRAIN} = Drain time = V / (A_{SA} * I_{DESIGN})	≤ **72-hrs**
156.00	feet	E_{BTM} = Elevation of the bottom of the basin	
149.33	feet	E_{SHWT} = Elevation of SHWT (if none found, enter the lowest elevation of the test pit)	
146.33	feet	E_{ROCK} = Elevation of bedrock (if none found, enter the lowest elevation of the test pit)	
6.67	feet	D_{SHWT} = Separation from SHWT	≥ *[3]
9.7	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**
158.04	ft	Peak elevation of the 10-year storm event (infiltration can be used in analysis)	
158.72	ft	Peak elevation of the 50-year storm event (infiltration can be used in analysis)	
159.00	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 231P: Stormtech #1 - ISO ROW CHECK (continued)

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
156.54	666	413
156.55	666	418
156.56	666	423
156.57	666	428
156.58	666	434
156.59	666	439
156.60	666	444
156.61	666	449
156.62	666	454
156.63	666	459
156.64	666	464
156.65	666	469
156.66	666	474
156.67	666	479
156.68	666	484
156.69	666	489
156.70	666	494
156.71	666	499
156.72	666	504
156.73	666	509
156.74	666	514
156.75	666	519
156.76	666	524
156.77	666	529
156.78	666	534
156.79	666	539
156.80	666	544
156.81	666	549
156.82	666	554
156.83	666	559
156.84	666	564
156.85	666	569
156.86	666	574
156.87	666	579
156.88	666	584
156.89	666	589
156.90	666	593
156.91	666	598
156.92	666	603
156.93	666	608
156.94	666	613
156.95	666	618
156.96	666	623
156.97	666	628
156.98	666	633
156.99	666	637
157.00	666	642
157.01	666	647
157.02	666	652
157.03	666	657
157.04	666	662
157.05	666	666
157.06	666	671
157.07	666	676
157.08	666	681
157.09	666	686
157.10	666	691
157.11	666	695
157.12	666	700
157.13	666	705
157.14	666	710
157.15	666	714
157.16	666	719
157.17	666	724
157.18	666	729
157.19	666	733
157.20	666	
157.21	666	
157.22	666	
157.23	666	
157.24	666	757
157.25	666	762
157.26	666	766
157.27	666	771
157.28	666	776
157.29	666	780
157.30	666	785
157.31	666	790
157.32	666	794
157.33	666	799
157.34	666	803
157.35	666	808
157.36	666	813
157.37	666	817
157.38	666	822
157.39	666	826
157.40	666	831
157.41	666	836
157.42	666	840
157.43	666	845
157.44	666	849
157.45	666	854
157.46	666	858
157.47	666	863
157.48	666	867
157.49	666	872
157.50	666	876
157.51	666	881
157.52	666	885
157.53	666	890
157.54	666	894
157.55	666	898
157.56	666	903
157.57	666	907

Pretreatment Rq'd: 761 cf
Pretreatment Prov'd: 785 cf

Stage-Area-Storage for Pond 3P: Stormtech #1 (continued)

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
156.54	2,393	1,540
156.55	2,393	1,559
156.56	2,393	1,578
156.57	2,393	1,597
156.58	2,393	1,617
156.59	2,393	1,636
156.60	2,393	1,655
156.61	2,393	1,674
156.62	2,393	1,693
156.63	2,393	1,712
156.64	2,393	1,731
156.65	2,393	1,750
156.66	2,393	1,770
156.67	2,393	1,789
156.68	2,393	1,808
156.69	2,393	1,827
156.70	2,393	1,846
156.71	2,393	1,865
156.72	2,393	1,883
156.73	2,393	1,902
156.74	2,393	1,921
156.75	2,393	1,940
156.76	2,393	1,959
156.77	2,393	1,978
156.78	2,393	1,997
156.79	2,393	2,016
156.80	2,393	2,034
156.81	2,393	2,053
156.82	2,393	2,072
156.83	2,393	2,091
156.84	2,393	2,109
156.85	2,393	2,128
156.86	2,393	2,147
156.87	2,393	2,165
156.88	2,393	2,184
156.89	2,393	2,202
156.90	2,393	2,221
156.91	2,393	2,240
156.92	2,393	2,258
156.93	2,393	2,277
156.94	2,393	2,295
156.95	2,393	2,314
156.96	2,393	2,332
156.97	2,393	2,350
156.98	2,393	2,369
156.99	2,393	2,387
157.00	2,393	2,406
157.01	2,393	2,424
157.02	2,393	2,442
157.03	2,393	2,460
157.04	2,393	2,479
157.05	2,393	2,497
157.06	2,393	2,515
157.07	2,393	2,533
157.08	2,393	2,551
157.09	2,393	2,570
157.10	2,393	2,588
157.11	2,393	2,606
157.12	2,393	2,624
157.13	2,393	2,642
157.14	2,393	2,660
157.15	2,393	2,678
157.16	2,393	2,696
157.17	2,393	2,713
157.18	2,393	2,731
157.19	2,393	2,749
157.20	2,393	2,767
157.21	2,393	2,785
157.22	2,393	2,802
157.23	2,393	2,820
157.24	2,393	2,838
157.25	2,393	2,855
157.26	[illegible]	[illegible]
157.27	[illegible]	[illegible]
157.28	[illegible]	[illegible]
157.29	[illegible]	[illegible]
157.30	2,393	2,943
157.31	2,393	2,961
157.32	2,393	2,978
157.33	2,393	2,996
157.34	2,393	3,013
157.35	2,393	3,030
157.36	2,393	3,048
157.37	2,393	3,065
157.38	2,393	3,082
157.39	2,393	3,099
157.40	2,393	3,117
157.41	2,393	3,134
157.42	2,393	3,151
157.43	2,393	3,168
157.44	2,393	3,185
157.45	2,393	3,202
157.46	2,393	3,219
157.47	2,393	3,236
157.48	2,393	3,253
157.49	2,393	3,270
157.50	2,393	3,287
157.51	2,393	3,303
157.52	2,393	3,320
157.53	2,393	3,337
157.54	2,393	3,354
157.55	2,393	3,370
157.56	2,393	3,387
157.57	2,393	3,403

WQV Rq'd: 3,043 cf
WQV Prov'd: 3,117 cf

Attachment "E"

INFILTRATION PRACTICE DESIGN CRITERIA (Env-Wq 1508.05)

Type/Node Name: **Infiltration Basin #1** AS-BUILT/EXISTING

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

Yes		Have you reviewed Env-Wq 1508.05(a) to ensure that infiltration is allowed?	
1.94	ac	A = Area draining to the practice	
1.50	ac	A_I = Impervious area draining to the practice	
0.77	decimal	I = percent impervious area draining to the practice, in decimal form	
0.75	unitless	Rv = Runoff coefficient = 0.05 + (0.9 x I)	
1.45	ac-in	WQV= 1" x Rv x A	
5,253	cf	WQV conversion (ac-in x 43,560 sf/ac x 1ft/12")	
1,313	cf	25% x WQV (check calc for sediment forebay volume)	
Sediment Forebay		Method of pretreatment? (not required for clean or roof runoff)	
1,354	cf	V_{SED} = sediment forebay volume, if used for pretreatment	← ≥ 25%WQV
5,707	cf	V = volume[1] (attach a stage-storage table)	← ≥ WQV
3,227	sf	A_{SA} = surface area of the bottom of the pond	
3.00	iph	I_{DESIGN} = design infiltration rate[2]	
7.1	hours	T_{DRAIN} = drain time = V / (A_{SA} * I_{DESIGN})	← ≤ 72-hrs
151.00	feet	E_{BTM} = elevation of the bottom of the practice	
147.33	feet	E_{SHWT} = elevation of SHWT (if none found, enter the lowest elevation of the test pit)	
144.40	feet	E_{ROCK} = elevation of bedrock (if none found, enter the lowest elevation of the test pit)	
3.67	feet	D_{SHWT} = separation from SHWT[3]	← ≥ *[3]
6.6	feet	D_{ROCK} = separation from bedrock[3]	← ≥ *[3]
	ft	D_T = depth of trench, if trench proposed	← 4 - 10 ft
	Yes/No	If a trench or underground system is proposed, observation well provided	
		If a trench is proposed, material in trench	
Infiltration Media		If a basin is proposed, basin floor material	
Yes	Yes/No	If a basin is proposed, the perimeter should be curvilinear.	
3.0	:1	If a basin is proposed, pond side slopes	← ≥3:1
152.82	ft	Peak elevation of the 10-year storm event (infiltration can be used in analysis)	
153.47	ft	Peak elevation of the 50-year storm event (infiltration can be used in analysis)	
154.00	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?	← 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. See NH Stormwater Manual, Vol.2, Ch.2-4, for guidance on determining the infiltration rate
3. 1' separation if treatment not required; 4' for treatment in GPAs & WSIPAs; & 3' in all other areas.

Designer's Notes:

AS-BUILT/EXISTING

Attachment "E"

Stage-Area-Storage for Pond 2P: FOREBAY #1

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
151.00	648	0
151.05	663	33
151.10	679	66
151.15	694	101
151.20	710	136
151.25	726	172
151.30	742	208
151.35	759	246
151.40	775	284
151.45	792	323
151.50	809	364
151.55	826	404
151.60	843	446
151.65	861	489
151.70	878	532
151.75	896	577
151.80	914	622
151.85	932	668
151.90	951	715
151.95	969	763
152.00	988	812
152.05	1,007	862
152.10	1,025	913
152.15	1,044	964
152.20	1,064	1,017
152.25	1,083	1,071
152.30	1,102	1,125
152.35	1,122	1,181
152.40	1,142	1,238
152.45	1,162	1,295
152.50	1,182	1,354
152.55	1,202	1,413
152.60	1,221	1,474
152.65	1,241	1,536
152.70	1,261	1,598
152.75	1,281	1,662
152.80	1,302	1,726
152.85	1,322	1,792
152.90	1,343	1,859
152.95	1,364	1,926
153.00	1,385	1,995
153.05	1,406	2,065
153.10	1,428	2,136
153.15	1,449	2,207
153.20	1,471	2,280
153.25	1,493	2,355
153.30	1,515	2,430
153.35	1,538	2,506
153.40	1,560	2,584
153.45	1,583	2,662
153.50	1,605	2,742
153.55	1,628	2,823
153.60	1,651	2,905
153.65	1,675	2,988
153.70	1,698	3,072
153.75	1,722	3,158
153.80	1,745	3,244
153.85	1,769	3,332
153.90	1,793	3,421
153.95	1,818	3,511
154.00	**1,842**	**3,603**

BERM ELEVATION
VOL.=1,354 C.F.
WQV REQ'D=1,313 C.F.
WQV PROV'D=1,354 C.F.

AS-BUILT/EXISTING

Attachment "E"

Stage-Area-Storage for Pond 1P: INFILTRATION BASIN #1

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
151.00	3,227	0
151.05	3,264	162
151.10	3,300	326
151.15	3,338	492
151.20	3,375	660
151.25	3,412	830
151.30	3,450	1,001
151.35	3,488	1,175
151.40	3,526	1,350
151.45	3,564	1,527
151.50	3,603	1,707
151.55	3,641	1,888
151.60	3,680	2,071
151.65	3,719	2,256
151.70	3,759	2,443
151.75	3,798	2,632
151.80	3,838	2,822
151.85	3,878	3,015
151.90	3,918	3,210
151.95	3,958	3,407
152.00	3,999	3,606
152.05	4,039	3,807
152.10	4,079	4,010
152.15	4,119	4,215
152.20	4,160	4,422
152.25	4,201	4,631
152.30	4,241	4,842
152.35	4,283	5,055
152.40	4,324	5,270
152.45	4,365	5,487
152.50	10,270	5,707
152.55	10,322	6,001
152.60	10,375	6,298
152.65	10,427	6,598
152.70	10,480	6,900
152.75	10,533	7,205
152.80	10,586	7,513
152.85	10,640	7,823
152.90	10,694	8,136
152.95	10,748	8,452
153.00	10,802	8,770
153.05	10,855	9,091
153.10	10,909	9,415
153.15	10,962	9,742
153.20	11,016	10,071
153.25	11,070	10,402
153.30	11,124	10,737
153.35	11,179	11,074
153.40	11,233	11,414
153.45	11,288	11,757
153.50	11,343	12,102
153.55	11,399	12,450
153.60	11,454	12,801

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
153.65	11,510	13,155
153.70	11,566	13,512
153.75	11,622	13,871
153.80	11,679	14,233
153.85	11,736	14,598
153.90	11,793	14,966
153.95	11,850	15,337
154.00	**11,907**	**15,710**

LOWEST OUTLET INVERT
VOL.=5,707 C.F.
WQV REQ'D=5,253 C.F.
WQV PROV'D=5,707 C.F.

Attachment "E"

INFILTRATION PRACTICE DESIGN CRITERIA (Env-Wq 1508.05)

Type/Node Name: **Infiltration Basin #2** AS-BUILT/EXISTING

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

Yes		Have you reviewed Env-Wq 1508.05(a) to ensure that infiltration is allowed?	
2.52	ac	A = Area draining to the practice	
1.94	ac	A_I = Impervious area draining to the practice	
0.77	decimal	I = percent impervious area draining to the practice, in decimal form	
0.74	unitless	Rv = Runoff coefficient = 0.05 + (0.9 x I)	
1.87	ac-in	WQV= 1" x Rv x A	
6,795	cf	WQV conversion (ac-in x 43,560 sf/ac x 1ft/12")	
1,699	cf	25% x WQV (check calc for sediment forebay volume)	
Sediment Forebay		Method of pretreatment? (not required for clean or roof runoff)	
1,938	cf	V_{SED} = sediment forebay volume, if used for pretreatment	← ≥ 25%WQV
7,153	cf	V = volume[1] (attach a stage-storage table)	← ≥ WQV
2,813	sf	A_{SA} = surface area of the bottom of the pond	
3.00	iph	I_{DESIGN} = design infiltration rate[2]	
10.2	hours	T_{DRAIN} = drain time = V / (A_{SA} * I_{DESIGN})	← ≤ 72-hrs
155.00	feet	E_{BTM} = elevation of the bottom of the practice	
149.90	feet	E_{SHWT} = elevation of SHWT (if none found, enter the lowest elevation of the test pit)	
147.60	feet	E_{ROCK} = elevation of bedrock (if none found, enter the lowest elevation of the test pit)	
5.10	feet	D_{SHWT} = separation from SHWT[3]	← ≥ *[3]
7.4	feet	D_{ROCK} = separation from bedrock[3]	← ≥ *[3]
	ft	D_T = depth of trench, if trench proposed	← 4 - 10 ft
	Yes/No	If a trench or underground system is proposed, observation well provided	
		If a trench is proposed, material in trench	
Infiltration Media		If a basin is proposed, basin floor material	
Yes	Yes/No	If a basin is proposed, the perimeter should be curvilinear.	
3.0	:1	If a basin is proposed, pond side slopes	← ≥3:1
157.39	ft	Peak elevation of the 10-year storm event (infiltration can be used in analysis)	
158.24	ft	Peak elevation of the 50-year storm event (infiltration can be used in analysis)	
162.00	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?	← 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. See NH Stormwater Manual, Vol.2, Ch.2-4, for guidance on determining the infiltration rate
3. 1' separation if treatment not required; 4' for treatment in GPAs & WSIPAs; & 3' in all other areas.

Designer's Notes:

AS-BUILT/EXISTING

Attachment "E"

Stage-Area-Storage for Pond 3P: FOREBAY #2

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
154.50	337	0
154.55	351	17
154.60	366	35
154.65	381	54
154.70	397	73
154.75	412	93
154.80	428	115
154.85	444	136
154.90	461	159
154.95	478	182
155.00	495	207
155.05	511	232
155.10	527	258
155.15	543	285
155.20	560	312
155.25	577	341
155.30	594	370
155.35	611	400
155.40	629	431
155.45	646	463
155.50	665	496
155.55	683	529
155.60	701	564
155.65	720	599
155.70	739	636
155.75	759	673
155.80	778	712
155.85	798	751
155.90	818	792
155.95	838	833
156.00	859	875
156.05	878	919
156.10	897	963
156.15	917	1,009
156.20	937	1,055
156.25	957	1,102
156.30	977	1,151
156.35	997	1,200
156.40	1,018	1,250
156.45	1,038	1,302
156.50	1,059	1,354
156.55	1,081	1,408
156.60	1,102	1,462
156.65	1,124	1,518
156.70	1,146	1,575
156.75	1,168	1,632
156.80	1,190	1,691
156.85	1,212	1,751
156.90	1,235	1,813
156.95	1,258	1,875
157.00	1,281	1,938
157.05	1,303	2,003
157.10	1,325	2,069
157.15	1,347	2,136
157.20	1,369	2,203
157.25	1,392	2,272
157.30	1,415	2,343
157.35	1,437	2,414
157.40	1,461	2,486
157.45	1,484	2,560
157.50	1,507	2,635
157.55	1,531	2,711
157.60	1,555	2,788
157.65	1,579	2,866
157.70	1,603	2,946
157.75	1,627	3,026
157.80	1,652	3,108
157.85	1,677	3,192
157.90	1,702	3,276
157.95	1,727	3,362
158.00	1,752	3,449
158.05	1,777	3,537
158.10	1,802	3,626
158.15	1,827	3,717
158.20	1,852	3,809
158.25	1,877	3,902
158.30	1,903	3,997
158.35	1,929	4,093
158.40	1,954	4,190
158.45	1,981	4,288
158.50	2,007	4,388
158.55	2,033	4,489
158.60	2,060	4,591
158.65	2,087	4,695
158.70	2,114	4,800
158.75	2,141	4,906
158.80	2,168	5,014
158.85	2,196	5,123
158.90	2,223	5,233
158.95	2,251	5,345
159.00	**2,279**	**5,459**

BERM ELEVATION
VOL.=1,938 C.F.
WQV REQ'D=1,699 C.F.
WQV PROV'D=1,938 C.F.

AS-BUILT/EXISTING **Attachment "E"**

Stage-Area-Storage for Pond 6P: INFILTRATION BASIN #2

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
155.00	2,813	0
155.05	2,849	142
155.10	2,885	285
155.15	2,921	430
155.20	2,957	577
155.25	2,994	726
155.30	3,031	876
155.35	3,068	1,029
155.40	3,105	1,183
155.45	3,143	1,339
155.50	3,180	1,497
155.55	3,218	1,657
155.60	3,256	1,819
155.65	3,295	1,983
155.70	3,333	2,149
155.75	3,372	2,316
155.80	3,411	2,486
155.85	3,451	2,657
155.90	3,490	2,831
155.95	3,530	3,006
156.00	3,570	3,184
156.05	3,609	3,363
156.10	3,647	3,545
156.15	3,687	3,728
156.20	3,726	3,914
156.25	3,765	4,101
156.30	3,805	4,290
156.35	3,845	4,481
156.40	3,885	4,675
156.45	3,925	4,870
156.50	3,966	5,067
156.55	4,006	5,266
156.60	4,047	5,468
156.65	4,088	5,671
156.70	4,130	5,877
156.75	4,171	6,084
156.80	4,213	6,294
156.85	4,255	6,505
156.90	4,297	6,719
156.95	4,339	6,935
157.00	10,329	7,153
157.05	10,385	7,452
157.10	10,441	7,753
157.15	10,497	8,058
157.20	10,553	8,365
157.25	10,610	8,675
157.30	10,667	8,988
157.35	10,725	9,303
157.40	10,782	9,622
157.45	10,840	9,943
157.50	10,898	10,268
157.55	10,956	10,595
157.60	11,015	10,925
157.65	11,074	11,258
157.70	11,133	11,594
157.75	11,192	11,933
157.80	11,252	12,275
157.85	11,312	12,620
157.90	11,372	12,968
157.95	11,432	13,319
158.00	11,493	13,673
158.05	11,553	14,030
158.10	11,614	14,391
158.15	11,674	14,754
158.20	11,735	15,120
158.25	11,796	15,489
158.30	11,858	15,861
158.35	11,920	16,237
158.40	11,982	16,615
158.45	12,044	16,997
158.50	12,106	17,381
158.55	12,169	17,769
158.60	12,232	18,160
158.65	12,295	18,554
158.70	12,359	18,951
158.75	12,422	19,352
158.80	12,486	19,755
158.85	12,551	20,162
158.90	12,615	20,572
158.95	12,680	20,985
159.00	**12,745**	**21,402**

LOWEST OUTLET INVERT
VOL.=7,153 C.F.
WQV REQ'D=6,795 C.F.
WQV PROV'D=7,153 C.F.

Attachment "E"

FILTRATION PRACTICE DESIGN CRITERIA (Env-Wq 1508.06)

Type/Node Name: **RAIN GARDEN #1** AS-BUILT/EXISTING

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

Yes		Have you reviewed the restrictions on unlined systems outlined in Env-Wq 1508.06(b)?	
0.68	ac	A = Area draining to the practice[1]	
0.46	ac	A_I = Impervious area draining to the practice	
0.68	decimal	I = percent impervious area draining to the practice, in decimal form	
0.66	unitless	Rv = Runoff coefficient = 0.05 + (0.9 x I)	
0.45	ac-in	WQV= 1" x Rv x A	
1,626	cf	WQV conversion (ac-in x 43,560 sf/ac x 1ft/12")	
407	cf	25% x WQV (check calc for sediment forebay volume)	
1,220	cf	75% x WQV (check calc for surface sand filter volume)	
Gravel Forebays		Method of Pretreatment? (not required for clean or roof runoff)	
-	cf	V_{SED} = sediment forebay volume, if used for pretreatment	← ≥ 25%WQV
3,289	sf	A_{SA} = surface area of the practice	
3.00	iph	I_{DESIGN} = design infiltration rate[2]	
Yes	Yes/No	If I_{DESIGN} is < 0.50 iph, has an underdrain been provided?	
2.0	hours	T_{DRAIN} = drain time = V / (A_{SA} * I_{DESIGN})	← ≤ 72-hrs
157.50	feet	E_{FC} = elevation of the bottom of the filter course material	
156.50	feet	E_{UD} = invert elevation of the underdrain (UD), if applicable	
156.00	feet	E_{BTM} = elevation of the bottom of the practice (i.e., bottom of the stone reservoir).	
159.00	feet	E_{SHWT} = elevation of SHWT (if none found, enter the lowest elevation of the test pit)	
155.75	feet	E_{ROCK} = elevation of bedrock (if none found, enter the lowest elevation of the test pit)	
1.00	feet	$D_{FC\ to\ UD}$ = depth to UD from the bottom of the filter course[3]	← ≥ 1'
1.75	feet	$D_{FC\ to\ ROCK}$ = depth to bedrock from the bottom of the filter course[3]	← ≥ 1'
(1.50)	feet	$D_{FC\ to\ SHWT}$ = depth to SHWT from the bottom of the filter course[3]	← ≥ 1'
(3.00)	feet	$D_{BTM\ to\ SHWT}$ = depth to SHWT from the bottom of the practice[3]	← ≥ 2'
159.53	ft	Peak elevation of the 10-year storm event (infiltration can be used in analysis)	
160.00	ft	Elevation of the top of the practice	
YES		10 peak elevation ≤ Elevation of the top of the practice	← yes

If a surface sand filter is proposed:

YES	ac	Drainage Area check.	← < 10 ac
	cf	V = volume of storage[4, 5] (attach a stage-storage table)	← ≥ 75%WQV
	inches	D_{FC} = filter course thickness	← 18"
Sheet		Note what sheet in the plan set contains the filter course specification	
	Yes/No	Access grate provided?	← yes
		The filter shall not be covered in grass. What is covering the filter?	

If an underground sand filter is proposed:

YES	ac	Drainage Area check.	← < 10 ac
	cf	V = volume of storage[4, 5] (attach a stage-storage table)	← ≥ 75%WQV
	inches	D_{FC} = filter course thickness	← 24"
Sheet		Note what sheet in the plan set contains the filter course specification	
	Yes/No	Access grate provided?	← yes

AS-BUILT/EXISTING **Attachment "E"**

If a bioretention area is proposed:

YES	ac	Drainage Area no larger than 5 ac?	← **yes**
3,739	cf	V = volume of storage[4, 5] (attach a stage-storage table)	← **≥ WQV**
18.0	inches	D_{FC} = filter course thickness	← **18"**
Sheet	D10	Note what sheet in the plan set contains the filter course specification	
3.0	:1	Pond side slopes	← **≥2:1**
Sheet	L1.0	Note what sheet in the plan set contains the planting plans and surface cover	

If porous pavement is proposed:

Asphalt		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"**
Sheet	D5	Note what sheet in the plan set contains the filter course spec.	← **304.1 sand**

1. If the practice is a tree box filter, the drainage area shall be < 0.1 acre

2. Rate of the limiting layer (either the filter course or the underlying soil). See Vol. 2 of the NH Stormwater Manual, Ch. 2-4, for guidance on determining the infiltration rate.

3. If not within a GPA or WSIPA: SHWT/Bedrock must be at least 1 foot below the filter course material (or an underdrain must drain the SHWT to at least one foot below the filter course material). If within a GPA or WSIPA: SHWT must be at least two feet below the bottom of the practice OR the filter course material must be at least twice as thick as required and the SHWT must be at least one foot below the filter course material.

4. Volume without depending on infiltration. The storage above the filter media shall not include the volume above the outlet structure, if any.

5. The volume includes the storage above the filter but below the invert of the outlet structure (if any), the filter media voids, and the pretreatment area.

Designer's Notes:

Per discussion with AoT staff, this rain garden is being proposed with the knowledge that the existing SHWT elevation is approximately located at the proposed ground elevation of the practice. The proposed underdrains will lower the SHWT in post-development condition and collect stormwater prior to infiltration, therefore no infiltration is assumed. Because of the proximity to the SHWT, this rain garden will not be counted for groundwater recharge.

Stage-Area-Storage for Pond 4P: RAIN GARDEN #1

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
156.00	3,289	0
156.05	3,289	66
156.10	3,289	132
156.15	3,289	197
156.20	3,289	263
156.25	3,289	329
156.30	3,289	395
156.35	3,289	460
156.40	3,289	526
156.45	3,289	592
156.50	3,289	658
156.55	3,289	724
156.60	3,289	789
156.65	3,289	855
156.70	3,289	921
156.75	3,289	987
156.80	3,289	1,052
156.85	3,289	1,118
156.90	3,289	1,184
156.95	3,289	1,250
157.00	3,289	1,316
157.05	3,289	1,381
157.10	3,289	1,447
157.15	3,289	1,513
157.20	3,289	1,579
157.25	3,289	1,645
157.30	3,289	1,710
157.35	3,289	1,776
157.40	3,289	1,842
157.45	3,289	1,908
157.50	3,289	1,973
157.55	3,289	2,039
157.60	3,289	2,105
157.65	3,289	2,171
157.70	3,289	2,237
157.75	3,289	2,302
157.80	3,289	2,368
157.85	3,289	2,434
157.90	3,289	2,500
157.95	3,289	2,565
158.00	3,289	2,631
158.05	3,289	2,697
158.10	3,289	2,763
158.15	3,289	2,829
158.20	3,289	2,894
158.25	3,289	2,960
158.30	3,289	3,026
158.35	3,289	3,092
158.40	3,289	3,157
158.45	3,289	3,223
158.50	3,289	3,289
158.55	3,289	3,355
158.60	3,289	3,421
158.65	3,289	3,486
158.70	3,289	3,552
158.75	3,289	3,618
158.80	3,289	3,684
158.85	3,289	3,749
158.90	3,289	3,815
158.95	3,289	3,881
159.00	3,289	3,947
159.05	3,336	4,112
159.10	3,384	4,280
159.15	3,432	4,451
159.20	3,480	4,624
159.25	3,529	4,799
159.30	3,578	4,977
159.35	3,627	5,157
159.40	3,677	5,339
159.45	3,727	5,524
159.50	3,777	5,712
159.55	3,828	5,902
159.60	3,879	6,095
159.65	3,930	6,290
159.70	3,982	6,488
159.75	4,034	6,688
159.80	4,086	6,891
159.85	4,139	7,097
159.90	4,192	7,305
159.95	4,245	7,516
160.00	**4,299**	**7,730**

BOT. STONE

LOWEST OUTLET=159.50
VOL.=5,712 C.F.

BOT. FILTER MEDIA
VOL.=1,973 C.F.
WQV REQ'D=1,626 C.F.
WQV PROV'D=5,712-1,973=3,739
WQV PROV'D=3,739 C.F.

Attachment "E"

14.6 DRAINAGE CALCUALTIONS

PRE-DEVELOPMENT CONDITIONS ANALYSIS

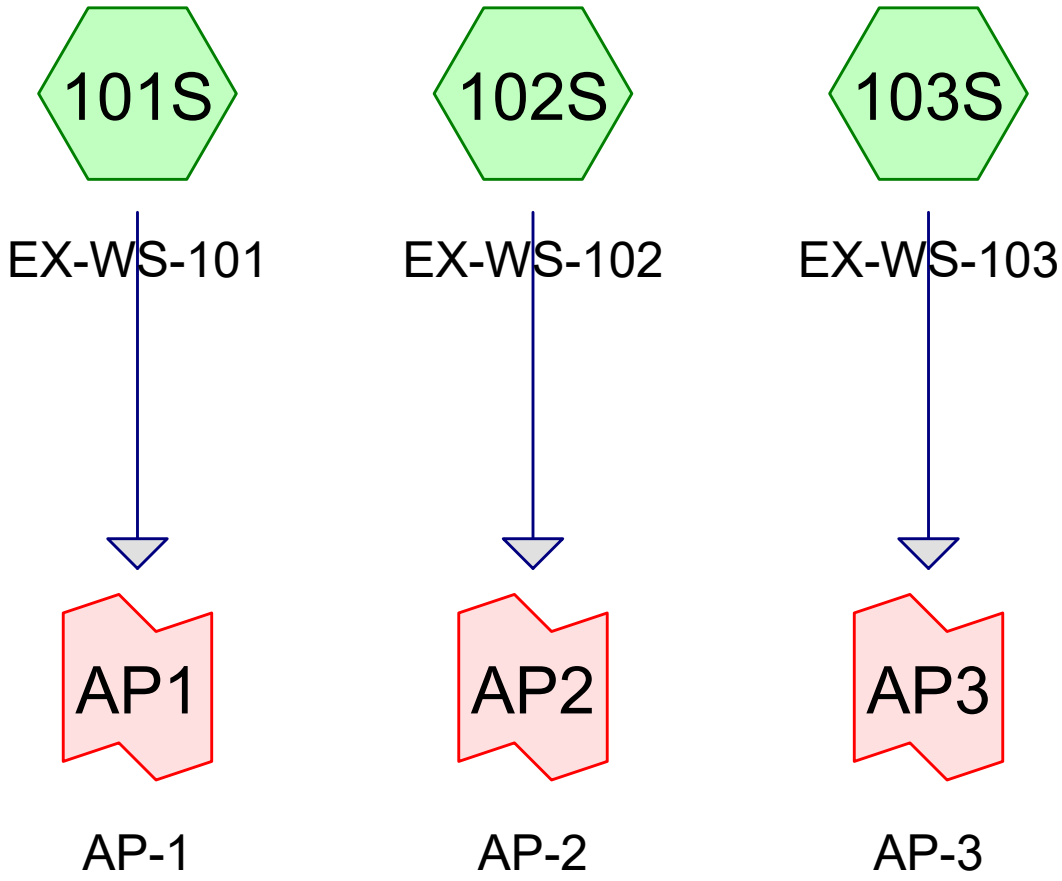
14.7 APPENDIX II

POST-DEVELOPMENT CONDITIONS ANALYSIS

Attachment "E"

2.6 DRAINAGE CALCUALTIONS

PRE-DEVELOPMENT CONDITIONS ANALYSIS



Subcat Reach Pond Link

Routing Diagram for 25082-EXISTING
Prepared by Jones & Beach Engineers Inc, Printed 8/19/2025
HydroCAD® 10.20-6a s/n 00762 © 2024 HydroCAD Software Solutions LLC

Area Listing (all nodes)

Area (acres)	CN	Description (subcatchment-numbers)
3.973	61	>75% Grass cover, Good, HSG B (101S, 102S, 103S)
0.298	74	>75% Grass cover, Good, HSG C (102S, 103S)
1.065	98	Paved parking, HSG B (101S, 102S, 103S)
0.361	98	Roofs, HSG B (102S, 103S)
4.176	55	Woods, Good, HSG B (101S, 102S, 103S)
9.872	**64**	**TOTAL AREA**

Soil Listing (all nodes)

Area (acres)	Soil Group	Subcatchment Numbers
0.000	HSG A	
9.574	HSG B	101S, 102S, 103S
0.298	HSG C	102S, 103S
0.000	HSG D	
0.000	Other	
9.872		**TOTAL AREA**

Time span=2.00-72.00 hrs, dt=0.01 hrs, 7001 points x 3
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment101S: EX-WS-101 Runoff Area=41,414 sf 52.75% Impervious Runoff Depth=1.14"
Tc=5.0 min CN=79 Runoff=1.29 cfs 0.091 af

Subcatchment102S: EX-WS-102 Runoff Area=124,640 sf 13.91% Impervious Runoff Depth=0.41"
Flow Length=467' Tc=11.8 min CN=63 Runoff=0.70 cfs 0.097 af

Subcatchment103S: EX-WS-103 Runoff Area=263,991 sf 8.67% Impervious Runoff Depth=0.41"
Flow Length=901' Tc=16.4 min CN=63 Runoff=1.35 cfs 0.206 af

Link AP1: AP-1 Inflow=1.29 cfs 0.091 af
Primary=1.29 cfs 0.091 af

Link AP2: AP-2 Inflow=0.70 cfs 0.097 af
Primary=0.70 cfs 0.097 af

Link AP3: AP-3 Inflow=1.35 cfs 0.206 af
Primary=1.35 cfs 0.206 af

Total Runoff Area = 9.872 ac Runoff Volume = 0.394 af Average Runoff Depth = 0.48"
85.56% Pervious = 8.447 ac 14.44% Impervious = 1.425 ac

Time span=2.00-72.00 hrs, dt=0.01 hrs, 7001 points x 3
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment101S: EX-WS-101 Runoff Area=41,414 sf 52.75% Impervious Runoff Depth=2.32"
Tc=5.0 min CN=79 Runoff=2.68 cfs 0.184 af

Subcatchment102S: EX-WS-102 Runoff Area=124,640 sf 13.91% Impervious Runoff Depth=1.16"
Flow Length=467' Tc=11.8 min CN=63 Runoff=2.86 cfs 0.277 af

Subcatchment103S: EX-WS-103 Runoff Area=263,991 sf 8.67% Impervious Runoff Depth=1.16"
Flow Length=901' Tc=16.4 min CN=63 Runoff=5.36 cfs 0.586 af

Link AP1: AP-1 Inflow=2.68 cfs 0.184 af
Primary=2.68 cfs 0.184 af

Link AP2: AP-2 Inflow=2.86 cfs 0.277 af
Primary=2.86 cfs 0.277 af

Link AP3: AP-3 Inflow=5.36 cfs 0.586 af
Primary=5.36 cfs 0.586 af

Total Runoff Area = 9.872 ac Runoff Volume = 1.047 af Average Runoff Depth = 1.27"
85.56% Pervious = 8.447 ac 14.44% Impervious = 1.425 ac

Summary for Subcatchment 101S: EX-WS-101

Runoff = 2.68 cfs @ 12.08 hrs, Volume= 0.184 af, Depth= 2.32"
Routed to Link AP1 : AP-1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 2.00-72.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-YR Rainfall=4.43"

Area (sf)	CN	Description
21,844	98	Paved parking, HSG B
12,275	61	>75% Grass cover, Good, HSG B
7,295	55	Woods, Good, HSG B
41,414	79	Weighted Average
19,570		47.25% Pervious Area
21,844		52.75% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry, MIN Tc**

Summary for Subcatchment 102S: EX-WS-102

Runoff = 2.86 cfs @ 12.18 hrs, Volume= 0.277 af, Depth= 1.16"
Routed to Link AP2 : AP-2

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 2.00-72.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-YR Rainfall=4.43"

Area (sf)	CN	Description
9,570	98	Paved parking, HSG B
7,767	98	Roofs, HSG B
30,844	61	>75% Grass cover, Good, HSG B
582	74	>75% Grass cover, Good, HSG C
75,877	55	Woods, Good, HSG B
124,640	63	Weighted Average
107,303		86.09% Pervious Area
17,337		13.91% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.3	34	0.1000	2.02		**Sheet Flow, OVER ROOF** Smooth surfaces n= 0.011 P2= 2.94"
4.4	22	0.0200	0.08		**Sheet Flow, THROUGH GRASS** Grass: Dense n= 0.240 P2= 2.94"
0.6	95	0.0200	2.87		**Shallow Concentrated Flow, OVER PAVEMENT** Paved Kv= 20.3 fps
6.1	291	0.0250	0.79		**Shallow Concentrated Flow, THROUGH WOODS** Woodland Kv= 5.0 fps
0.4	25	0.0250	1.11		**Shallow Concentrated Flow, THROUGH GRASS** Short Grass Pasture Kv= 7.0 fps
11.8	467	Total			

Summary for Subcatchment 103S: EX-WS-103

Runoff = 5.36 cfs @ 12.26 hrs, Volume= 0.586 af, Depth= 1.16"
Routed to Link AP3 : AP-3

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 2.00-72.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-YR Rainfall=4.43"

Area (sf)	CN	Description
14,956	98	Paved parking, HSG B
7,945	98	Roofs, HSG B
129,957	61	>75% Grass cover, Good, HSG B
12,415	74	>75% Grass cover, Good, HSG C
98,718	55	Woods, Good, HSG B
263,991	63	Weighted Average
241,090		91.33% Pervious Area
22,901		8.67% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.6	50	0.0300	1.35		**Sheet Flow, OVER PAVEMENT** Smooth surfaces n= 0.011 P2= 2.94"
6.0	401	0.0250	1.11		**Shallow Concentrated Flow, THROUGH GRASS** Short Grass Pasture Kv= 7.0 fps
7.9	335	0.0200	0.71		**Shallow Concentrated Flow, THROUGH WOODS** Woodland Kv= 5.0 fps
1.9	115	0.0200	0.99		**Shallow Concentrated Flow, THROUGH GRASS** Short Grass Pasture Kv= 7.0 fps
16.4	901	Total			

Summary for Link AP1: AP-1

Inflow Area = 0.951 ac, 52.75% Impervious, Inflow Depth = 2.32" for 10-YR event
Inflow = 2.68 cfs @ 12.08 hrs, Volume= 0.184 af
Primary = 2.68 cfs @ 12.08 hrs, Volume= 0.184 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 2.00-72.00 hrs, dt= 0.01 hrs

Summary for Link AP2: AP-2

Inflow Area = 2.861 ac, 13.91% Impervious, Inflow Depth = 1.16" for 10-YR event
Inflow = 2.86 cfs @ 12.18 hrs, Volume= 0.277 af
Primary = 2.86 cfs @ 12.18 hrs, Volume= 0.277 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 2.00-72.00 hrs, dt= 0.01 hrs

Summary for Link AP3: AP-3

Inflow Area = 6.060 ac, 8.67% Impervious, Inflow Depth = 1.16" for 10-YR event
Inflow = 5.36 cfs @ 12.26 hrs, Volume= 0.586 af
Primary = 5.36 cfs @ 12.26 hrs, Volume= 0.586 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 2.00-72.00 hrs, dt= 0.01 hrs

Time span=2.00-72.00 hrs, dt=0.01 hrs, 7001 points x 3
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment101S: EX-WS-101 Runoff Area=41,414 sf 52.75% Impervious Runoff Depth=3.32"
Tc=5.0 min CN=79 Runoff=3.83 cfs 0.263 af

Subcatchment102S: EX-WS-102 Runoff Area=124,640 sf 13.91% Impervious Runoff Depth=1.89"
Flow Length=467' Tc=11.8 min CN=63 Runoff=4.99 cfs 0.452 af

Subcatchment103S: EX-WS-103 Runoff Area=263,991 sf 8.67% Impervious Runoff Depth=1.89"
Flow Length=901' Tc=16.4 min CN=63 Runoff=9.33 cfs 0.957 af

Link AP1: AP-1 Inflow=3.83 cfs 0.263 af
Primary=3.83 cfs 0.263 af

Link AP2: AP-2 Inflow=4.99 cfs 0.452 af
Primary=4.99 cfs 0.452 af

Link AP3: AP-3 Inflow=9.33 cfs 0.957 af
Primary=9.33 cfs 0.957 af

Total Runoff Area = 9.872 ac Runoff Volume = 1.672 af Average Runoff Depth = 2.03"
85.56% Pervious = 8.447 ac 14.44% Impervious = 1.425 ac

Time span=2.00-72.00 hrs, dt=0.01 hrs, 7001 points x 3
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment101S: EX-WS-101 Runoff Area=41,414 sf 52.75% Impervious Runoff Depth=4.29"
Tc=5.0 min CN=79 Runoff=4.93 cfs 0.340 af

Subcatchment102S: EX-WS-102 Runoff Area=124,640 sf 13.91% Impervious Runoff Depth=2.66"
Flow Length=467' Tc=11.8 min CN=63 Runoff=7.20 cfs 0.635 af

Subcatchment103S: EX-WS-103 Runoff Area=263,991 sf 8.67% Impervious Runoff Depth=2.66"
Flow Length=901' Tc=16.4 min CN=63 Runoff=13.49 cfs 1.345 af

Link AP1: AP-1 Inflow=4.93 cfs 0.340 af
Primary=4.93 cfs 0.340 af

Link AP2: AP-2 Inflow=7.20 cfs 0.635 af
Primary=7.20 cfs 0.635 af

Link AP3: AP-3 Inflow=13.49 cfs 1.345 af
Primary=13.49 cfs 1.345 af

Total Runoff Area = 9.872 ac Runoff Volume = 2.321 af Average Runoff Depth = 2.82"
85.56% Pervious = 8.447 ac 14.44% Impervious = 1.425 ac

Time span=2.00-72.00 hrs, dt=0.01 hrs, 7001 points x 3
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment101S: EX-WS-101 Runoff Area=41,414 sf 52.75% Impervious Runoff Depth=5.50"
Tc=5.0 min CN=79 Runoff=6.27 cfs 18,977 cf

Subcatchment102S: EX-WS-102 Runoff Area=124,640 sf 13.91% Impervious Runoff Depth=3.66"
Flow Length=467' Tc=11.8 min CN=63 Runoff=10.05 cfs 38,023 cf

Subcatchment103S: EX-WS-103 Runoff Area=263,991 sf 8.67% Impervious Runoff Depth=3.66"
Flow Length=901' Tc=16.4 min CN=63 Runoff=18.84 cfs 80,535 cf

Link AP1: AP-1 Inflow=6.27 cfs 18,977 cf
Primary=6.27 cfs 18,977 cf

Link AP2: AP-2 Inflow=10.05 cfs 38,023 cf
Primary=10.05 cfs 38,023 cf

Link AP3: AP-3 Inflow=18.84 cfs 80,535 cf
Primary=18.84 cfs 80,535 cf

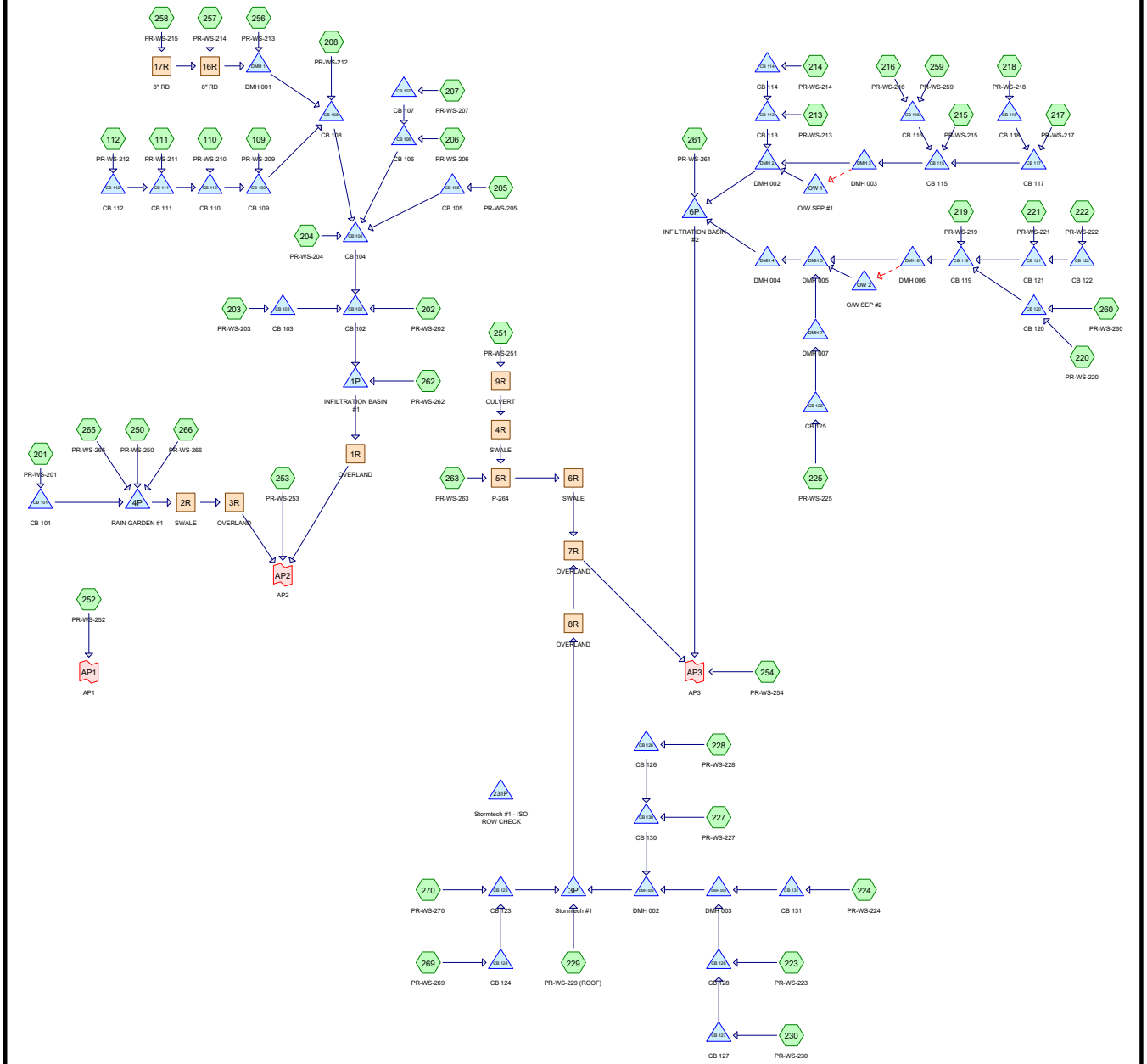
Total Runoff Area = 430,045 sf Runoff Volume = 137,535 cf Average Runoff Depth = 3.84"
85.56% Pervious = 367,963 sf 14.44% Impervious = 62,082 sf

Attachment "E"

2.7 APPENDIX II

POST-DEVELOPMENT CONDITIONS ANALYSIS

Attachment "E"



Routing Diagram for 25082-PROPOSED
Prepared by Jones & Beach Engineers Inc, Printed 10/6/2025
HydroCAD® 10.20-6a s/n 00762 © 2024 HydroCAD Software Solutions LLC

Area Listing (all nodes)

Area (acres)	CN	Description (subcatchment-numbers)
4.979	61	>75% Grass cover, Good, HSG B (109, 110, 111, 112, 202, 204, 206, 208, 213, 214, 215, 216, 217, 219, 221, 222, 223, 224, 225, 227, 228, 250, 251, 252, 253, 254, 261, 262, 263, 269, 270)
0.298	74	>75% Grass cover, Good, HSG C (253, 254)
0.022	85	Gravel roads, HSG B (253)
3.690	98	Paved parking, HSG B (109, 111, 112, 201, 202, 203, 204, 205, 206, 207, 208, 213, 214, 215, 216, 217, 218, 219, 220, 221, 222, 223, 224, 225, 227, 228, 230, 250, 251, 252, 254, 261, 263, 265, 266, 269, 270)
0.640	98	Roofs, HSG B (216, 220, 229, 256, 257, 258, 259, 260, 261)
0.071	98	Water Surface, HSG B (110)
0.172	55	Woods, Good, HSG B (252, 253)
9.872	**78**	**TOTAL AREA**

Soil Listing (all nodes)

Area (acres)	Soil Group	Subcatchment Numbers
0.000	HSG A	
9.574	HSG B	109, 110, 111, 112, 201, 202, 203, 204, 205, 206, 207, 208, 213, 214, 215, 216, 217, 218, 219, 220, 221, 222, 223, 224, 225, 227, 228, 229, 230, 250, 251, 252, 253, 254, 256, 257, 258, 259, 260, 261, 262, 263, 265, 266, 269, 270
0.298	HSG C	253, 254
0.000	HSG D	
0.000	Other	
9.872		**TOTAL AREA**

Time span=2.00-72.00 hrs, dt=0.01 hrs, 7001 points x 3
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment109: PR-WS-209 Runoff Area=2,185 sf 82.47% Impervious Runoff Depth=2.10"
Tc=5.0 min CN=92 Runoff=0.13 cfs 0.009 af

Subcatchment110: PR-WS-210 Runoff Area=3,425 sf 90.74% Impervious Runoff Depth=2.39"
Tc=5.0 min CN=95 Runoff=0.22 cfs 0.016 af

Subcatchment111: PR-WS-211 Runoff Area=1,890 sf 89.37% Impervious Runoff Depth=2.29"
Tc=5.0 min CN=94 Runoff=0.12 cfs 0.008 af

Subcatchment112: PR-WS-212 Runoff Area=11,475 sf 95.98% Impervious Runoff Depth=2.60"
Tc=5.0 min CN=97 Runoff=0.76 cfs 0.057 af

Subcatchment201: PR-WS-201 Runoff Area=3,897 sf 100.00% Impervious Runoff Depth>2.71"
Tc=5.0 min CN=98 Runoff=0.26 cfs 0.020 af

Subcatchment202: PR-WS-202 Runoff Area=5,172 sf 94.62% Impervious Runoff Depth=2.49"
Tc=5.0 min CN=96 Runoff=0.34 cfs 0.025 af

Subcatchment203: PR-WS-203 Runoff Area=3,905 sf 100.00% Impervious Runoff Depth>2.71"
Tc=5.0 min CN=98 Runoff=0.26 cfs 0.020 af

Subcatchment204: PR-WS-204 Runoff Area=11,336 sf 77.03% Impervious Runoff Depth=1.93"
Tc=5.0 min CN=90 Runoff=0.61 cfs 0.042 af

Subcatchment205: PR-WS-205 Runoff Area=3,356 sf 100.00% Impervious Runoff Depth>2.71"
Tc=5.0 min CN=98 Runoff=0.23 cfs 0.017 af

Subcatchment206: PR-WS-206 Runoff Area=5,619 sf 95.59% Impervious Runoff Depth=2.49"
Tc=5.0 min CN=96 Runoff=0.37 cfs 0.027 af

Subcatchment207: PR-WS-207 Runoff Area=1,726 sf 100.00% Impervious Runoff Depth>2.71"
Tc=5.0 min CN=98 Runoff=0.12 cfs 0.009 af

Subcatchment208: PR-WS-212 Runoff Area=8,375 sf 76.94% Impervious Runoff Depth=1.85"
Tc=5.0 min CN=89 Runoff=0.43 cfs 0.030 af

Subcatchment213: PR-WS-213 Runoff Area=4,800 sf 88.10% Impervious Runoff Depth=2.29"
Tc=5.0 min CN=94 Runoff=0.30 cfs 0.021 af

Subcatchment214: PR-WS-214 Runoff Area=4,763 sf 67.94% Impervious Runoff Depth=1.61"
Tc=5.0 min CN=86 Runoff=0.21 cfs 0.015 af

Subcatchment215: PR-WS-215 Runoff Area=2,054 sf 87.20% Impervious Runoff Depth=2.20"
Tc=5.0 min CN=93 Runoff=0.12 cfs 0.009 af

Subcatchment216: PR-WS-216 Runoff Area=5,248 sf 97.73% Impervious Runoff Depth=2.60"
Tc=5.0 min CN=97 Runoff=0.35 cfs 0.026 af

Subcatchment217: PR-WS-217 Runoff Area=1,717 sf 89.05% Impervious Runoff Depth=2.29"
Tc=5.0 min CN=94 Runoff=0.11 cfs 0.008 af

Subcatchment218: PR-WS-218 Runoff Area=3,346 sf 100.00% Impervious Runoff Depth>2.71"
Tc=5.0 min CN=98 Runoff=0.23 cfs 0.017 af

Subcatchment219: PR-WS-219 Runoff Area=2,396 sf 61.89% Impervious Runoff Depth=1.47"
Tc=5.0 min CN=84 Runoff=0.10 cfs 0.007 af

Subcatchment220: PR-WS-220 Runoff Area=5,845 sf 100.00% Impervious Runoff Depth>2.71"
Tc=5.0 min CN=98 Runoff=0.40 cfs 0.030 af

Subcatchment221: PR-WS-221 Runoff Area=6,307 sf 73.82% Impervious Runoff Depth=1.76"
Tc=5.0 min CN=88 Runoff=0.31 cfs 0.021 af

Subcatchment222: PR-WS-222 Runoff Area=4,378 sf 95.68% Impervious Runoff Depth=2.49"
Tc=5.0 min CN=96 Runoff=0.28 cfs 0.021 af

Subcatchment223: PR-WS-223 Runoff Area=3,837 sf 52.70% Impervious Runoff Depth=1.21"
Tc=5.0 min CN=80 Runoff=0.13 cfs 0.009 af

Subcatchment224: PR-WS-224 Runoff Area=3,541 sf 80.18% Impervious Runoff Depth=2.02"
Tc=5.0 min CN=91 Runoff=0.20 cfs 0.014 af

Subcatchment225: PR-WS-225 Runoff Area=3,823 sf 81.87% Impervious Runoff Depth=2.02"
Tc=5.0 min CN=91 Runoff=0.21 cfs 0.015 af

Subcatchment227: PR-WS-227 Runoff Area=17,510 sf 72.49% Impervious Runoff Depth=1.76"
Tc=5.0 min CN=88 Runoff=0.86 cfs 0.059 af

Subcatchment228: PR-WS-228 Runoff Area=9,153 sf 75.26% Impervious Runoff Depth=1.85"
Tc=5.0 min CN=89 Runoff=0.47 cfs 0.032 af

Subcatchment229: PR-WS-229 (ROOF) Runoff Area=4,104 sf 100.00% Impervious Runoff Depth>2.71"
Tc=5.0 min CN=98 Runoff=0.28 cfs 0.021 af

Subcatchment230: PR-WS-230 Runoff Area=1,534 sf 100.00% Impervious Runoff Depth>2.71"
Tc=5.0 min CN=98 Runoff=0.10 cfs 0.008 af

Subcatchment250: PR-WS-250 Runoff Area=13,074 sf 28.39% Impervious Runoff Depth=0.77"
Tc=5.0 min CN=72 Runoff=0.25 cfs 0.019 af

Subcatchment251: PR-WS-251 Runoff Area=15,132 sf 20.61% Impervious Runoff Depth=0.64"
Tc=5.0 min CN=69 Runoff=0.23 cfs 0.018 af

Subcatchment252: PR-WS-252 Runoff Area=5,760 sf 17.12% Impervious Runoff Depth=0.48"
Tc=5.0 min CN=65 Runoff=0.06 cfs 0.005 af

Subcatchment253: PR-WS-253 Runoff Area=48,912 sf 0.00% Impervious Runoff Depth=0.34"
Flow Length=160' Tc=9.7 min CN=61 Runoff=0.21 cfs 0.032 af

Subcatchment254: PR-WS-254 Runoff Area=111,852 sf 14.58% Impervious Runoff Depth=0.60"
Flow Length=545' Tc=21.6 min CN=68 Runoff=0.95 cfs 0.128 af

Subcatchment256: PR-WS-213 Runoff Area=4,952 sf 100.00% Impervious Runoff Depth>2.71"
Tc=5.0 min CN=98 Runoff=0.34 cfs 0.026 af

Subcatchment257: PR-WS-214 Runoff Area=3,400 sf 100.00% Impervious Runoff Depth>2.71"
Tc=5.0 min CN=98 Runoff=0.23 cfs 0.018 af

Subcatchment258: PR-WS-215 Runoff Area=4,882 sf 100.00% Impervious Runoff Depth>2.71"
Tc=5.0 min CN=98 Runoff=0.33 cfs 0.025 af

Subcatchment259: PR-WS-259 Runoff Area=2,064 sf 100.00% Impervious Runoff Depth>2.71"
Tc=5.0 min CN=98 Runoff=0.14 cfs 0.011 af

Subcatchment260: PR-WS-260 Runoff Area=2,064 sf 100.00% Impervious Runoff Depth>2.71"
Tc=5.0 min CN=98 Runoff=0.14 cfs 0.011 af

Subcatchment261: PR-WS-261 Runoff Area=19,487 sf 17.21% Impervious Runoff Depth=0.56"
Tc=5.0 min CN=67 Runoff=0.24 cfs 0.021 af

Subcatchment262: PR-WS-262 Runoff Area=12,770 sf 0.00% Impervious Runoff Depth=0.34"
Tc=5.0 min CN=61 Runoff=0.06 cfs 0.008 af

Subcatchment263: PR-WS-263 Runoff Area=18,005 sf 11.30% Impervious Runoff Depth=0.48"
Tc=5.0 min CN=65 Runoff=0.17 cfs 0.016 af

Subcatchment265: PR-WS-265 Runoff Area=8,482 sf 100.00% Impervious Runoff Depth>2.71"
Tc=5.0 min CN=98 Runoff=0.57 cfs 0.044 af

Subcatchment266: PR-WS-266 Runoff Area=4,042 sf 100.00% Impervious Runoff Depth>2.71"
Tc=5.0 min CN=98 Runoff=0.27 cfs 0.021 af

Subcatchment269: PR-WS-269 Runoff Area=4,203 sf 88.32% Impervious Runoff Depth=2.29"
Tc=5.0 min CN=94 Runoff=0.26 cfs 0.018 af

Subcatchment270: PR-WS-270 Runoff Area=4,247 sf 95.22% Impervious Runoff Depth=2.49"
Tc=5.0 min CN=96 Runoff=0.28 cfs 0.020 af

Reach 1R: OVERLAND Avg. Flow Depth=0.00' Max Vel=0.00 fps Inflow=0.00 cfs 0.000 af
n=0.030 L=45.0' S=0.1556 '/' Capacity=93.87 cfs Outflow=0.00 cfs 0.000 af

Reach 2R: SWALE Avg. Flow Depth=0.00' Max Vel=0.00 fps Inflow=0.00 cfs 0.000 af
n=0.030 L=315.0' S=0.0248 '/' Capacity=49.46 cfs Outflow=0.00 cfs 0.000 af

Reach 3R: OVERLAND Avg. Flow Depth=0.00' Max Vel=0.00 fps Inflow=0.00 cfs 0.000 af
n=0.030 L=37.0' S=0.2703 '/' Capacity=123.74 cfs Outflow=0.00 cfs 0.000 af

Reach 4R: SWALE Avg. Flow Depth=0.05' Max Vel=0.79 fps Inflow=0.23 cfs 0.018 af
n=0.030 L=188.0' S=0.0154 '/' Capacity=46.54 cfs Outflow=0.20 cfs 0.018 af

Reach 5R: P-264 Avg. Flow Depth=0.22' Max Vel=2.17 fps Inflow=0.36 cfs 0.035 af
18.0" Round Pipe n=0.013 L=80.0' S=0.0050 '/' Capacity=7.43 cfs Outflow=0.36 cfs 0.035 af

Reach 6R: SWALE Avg. Flow Depth=0.06' Max Vel=1.04 fps Inflow=0.36 cfs 0.035 af
n=0.030 L=304.0' S=0.0217 '/' Capacity=55.21 cfs Outflow=0.31 cfs 0.035 af

Reach 7R: OVERLAND Avg. Flow Depth=0.05' Max Vel=0.97 fps Inflow=0.31 cfs 0.045 af
n=0.035 L=140.0' S=0.0500 '/' Capacity=45.62 cfs Outflow=0.30 cfs 0.045 af

Reach 8R: OVERLAND Avg. Flow Depth=0.03' Max Vel=0.77 fps Inflow=0.14 cfs 0.010 af
n=0.030 L=80.0' S=0.0375 '/' Capacity=46.09 cfs Outflow=0.14 cfs 0.010 af

Reach 9R: CULVERT Avg. Flow Depth=0.19' Max Vel=2.15 fps Inflow=0.23 cfs 0.018 af
12.0" Round Pipe n=0.013 L=80.0' S=0.0063 '/' Capacity=2.82 cfs Outflow=0.23 cfs 0.018 af

Reach 16R: 8" RD Avg. Flow Depth=0.35' Max Vel=2.99 fps Inflow=0.56 cfs 0.043 af
8.0" Round Pipe n=0.013 L=14.0' S=0.0071 '/' Capacity=1.02 cfs Outflow=0.56 cfs 0.043 af

Reach 17R: 8" RD Avg. Flow Depth=0.27' Max Vel=2.45 fps Inflow=0.33 cfs 0.025 af
8.0" Round Pipe n=0.013 L=58.0' S=0.0060 '/' Capacity=0.94 cfs Outflow=0.33 cfs 0.025 af

Pond 1P: INFILTRATIONBASIN#1 Peak Elev=152.24' Storage=5,669 cf Inflow=4.51 cfs 0.336 af
Discarded=0.37 cfs 0.336 af Primary=0.00 cfs 0.000 af Outflow=0.37 cfs 0.336 af

Pond 3P: Stormtech#1 Peak Elev=157.49' Storage=3,264 cf Inflow=2.56 cfs 0.182 af
Discarded=0.15 cfs 0.172 af Primary=0.14 cfs 0.010 af Outflow=0.29 cfs 0.182 af

Pond 4P: RAIN GARDEN#1 Peak Elev=159.18' Storage=4,547 cf Inflow=1.36 cfs 0.104 af
Outflow=0.00 cfs 0.000 af

Pond 6P: INFILTRATIONBASIN#2 Peak Elev=155.94' Storage=3,778 cf Inflow=3.12 cfs 0.231 af
Discarded=0.30 cfs 0.231 af Primary=0.00 cfs 0.000 af Outflow=0.30 cfs 0.231 af

Pond 231P: Stormtech#1 - ISO ROW CHECK Peak Elev=0.00' Storage=0 cf
Discarded=0.00 cfs 0.000 af Primary=0.00 cfs 0.000 af

Pond CB 101: CB 101 Peak Elev=160.51' Storage=0.000 af Inflow=0.26 cfs 0.020 af
12.0" Round Culvert n=0.013 L=27.0' S=0.0111 '/' Outflow=0.26 cfs 0.020 af

Pond CB 102: CB 102 Peak Elev=152.66' Storage=0.000 af Inflow=4.46 cfs 0.328 af
24.0" Round Culvert n=0.013 L=35.0' S=0.0057 '/' Outflow=4.46 cfs 0.328 af

Pond CB 103: CB 103 Peak Elev=155.26' Storage=0.000 af Inflow=0.26 cfs 0.020 af
12.0" Round Culvert n=0.013 L=28.0' S=0.0107 '/' Outflow=0.26 cfs 0.020 af

Pond CB 104: CB 104 Peak Elev=153.82' Storage=0.000 af Inflow=3.86 cfs 0.283 af
24.0" Round Culvert n=0.013 L=230.0' S=0.0050 '/' Outflow=3.86 cfs 0.283 af

Pond CB 105: CB 105 Peak Elev=154.39' Storage=0.000 af Inflow=0.23 cfs 0.017 af
12.0" Round Culvert n=0.013 L=28.0' S=0.0107 '/' Outflow=0.23 cfs 0.017 af

Pond CB 106: CB 106 Peak Elev=155.20' Storage=0.000 af Inflow=0.48 cfs 0.036 af
12.0" Round Culvert n=0.013 L=182.0' S=0.0052 '/' Outflow=0.48 cfs 0.036 af

Pond CB 107: CB 107 Peak Elev=155.26' Storage=0.000 af Inflow=0.12 cfs 0.009 af
12.0" Round Culvert n=0.013 L=28.0' S=0.0107 '/' Outflow=0.12 cfs 0.009 af

Pond CB 108: CB 108 Peak Elev=154.83' Storage=0.000 af Inflow=2.55 cfs 0.188 af
18.0" Round Culvert n=0.013 L=122.0' S=0.0053 '/' Outflow=2.55 cfs 0.188 af

Pond CB 109: CB 109 Peak Elev=155.42' Storage=0.000 af Inflow=1.22 cfs 0.090 af
12.0" Round Culvert n=0.013 L=42.0' S=0.0060 '/' Outflow=1.22 cfs 0.090 af

Pond CB 110: CB 110 Peak Elev=155.96' Storage=0.000 af Inflow=1.10 cfs 0.081 af
12.0" Round Culvert n=0.013 L=89.0' S=0.0051 '/' Outflow=1.10 cfs 0.081 af

Pond CB 111: CB 111 Peak Elev=156.21' Storage=0.000 af Inflow=0.88 cfs 0.065 af
12.0" Round Culvert n=0.013 L=32.0' S=0.0062 '/' Outflow=0.88 cfs 0.065 af

Pond CB 112: CB 112 Peak Elev=156.74' Storage=0.000 af Inflow=0.76 cfs 0.057 af
12.0" Round Culvert n=0.013 L=95.0' S=0.0053 '/' Outflow=0.76 cfs 0.057 af

Pond CB 113: CB 113 Peak Elev=157.13' Storage=0.000 af Inflow=0.51 cfs 0.036 af
12.0" Round Culvert n=0.013 L=25.0' S=0.0100 '/' Outflow=0.51 cfs 0.036 af

Pond CB 114: CB 114 Peak Elev=157.43' Storage=0.000 af Inflow=0.21 cfs 0.015 af
12.0" Round Culvert n=0.013 L=60.0' S=0.0050 '/' Outflow=0.21 cfs 0.015 af

Pond CB 115: CB 115 Peak Elev=158.38' Storage=0.000 af Inflow=0.94 cfs 0.070 af
12.0" Round Culvert n=0.013 L=20.0' S=0.0050 '/' Outflow=0.94 cfs 0.070 af

Pond CB 116: CB 116 Peak Elev=158.70' Storage=0.000 af Inflow=0.49 cfs 0.037 af
12.0" Round Culvert n=0.013 L=71.0' S=0.0056 '/' Outflow=0.49 cfs 0.037 af

Pond CB 117: CB 117 Peak Elev=158.56' Storage=0.000 af Inflow=0.33 cfs 0.025 af
12.0" Round Culvert n=0.013 L=59.0' S=0.0051 '/' Outflow=0.33 cfs 0.025 af

Pond CB 118: CB 118 Peak Elev=158.89' Storage=0.000 af Inflow=0.23 cfs 0.017 af
12.0" Round Culvert n=0.013 L=67.0' S=0.0052 '/' Outflow=0.23 cfs 0.017 af

Pond CB 119: CB 119 Peak Elev=158.13' Storage=0.000 af Inflow=1.23 cfs 0.090 af
12.0" Round Culvert n=0.013 L=19.0' S=0.0053 '/' Outflow=1.23 cfs 0.090 af

Pond CB 120: CB 120 Peak Elev=158.36' Storage=0.000 af Inflow=0.54 cfs 0.041 af
12.0" Round Culvert n=0.013 L=64.0' S=0.0055 '/' Outflow=0.54 cfs 0.041 af

Pond CB 121: CB 121 Peak Elev=158.31' Storage=0.000 af Inflow=0.59 cfs 0.042 af
12.0" Round Culvert n=0.013 L=45.0' S=0.0056 '/' Outflow=0.59 cfs 0.042 af

Pond CB 122: CB 122 Peak Elev=158.78' Storage=0.000 af Inflow=0.28 cfs 0.021 af
12.0" Round Culvert n=0.013 L=113.0' S=0.0053 '/' Outflow=0.28 cfs 0.021 af

Pond CB 123: CB 123 Peak Elev=157.49' Storage=0.000 af Inflow=0.54 cfs 0.039 af
18.0" Round Culvert n=0.013 L=15.0' S=0.0400 '/' Outflow=0.54 cfs 0.039 af

Pond CB 124: CB 124 Peak Elev=157.95' Storage=0.000 af Inflow=0.26 cfs 0.018 af
12.0" Round Culvert n=0.013 L=100.0' S=0.0100 '/' Outflow=0.26 cfs 0.018 af

Pond CB 125: CB 125 Peak Elev=156.76' Storage=0.000 af Inflow=0.21 cfs 0.015 af
18.0" Round Culvert n=0.013 L=95.0' S=0.0053 '/' Outflow=0.21 cfs 0.015 af

Pond CB 126: CB 126 Peak Elev=158.84' Storage=0.000 af Inflow=0.47 cfs 0.032 af
12.0" Round Culvert n=0.013 L=93.0' S=0.0097 '/' Outflow=0.47 cfs 0.032 af

Pond CB 127: CB 127 Peak Elev=159.04' Storage=3 cf Inflow=0.10 cfs 0.008 af
12.0" Round Culvert n=0.013 L=28.0' S=0.0054 '/' Outflow=0.10 cfs 0.008 af

Pond CB 128: CB 128 Peak Elev=158.97' Storage=5 cf Inflow=0.23 cfs 0.017 af
12.0" Round Culvert n=0.013 L=91.0' S=0.0000 '/' Outflow=0.23 cfs 0.017 af

Pond CB 130: CB 130 Peak Elev=157.49' Storage=8 cf Inflow=1.33 cfs 0.091 af
12.0" Round Culvert n=0.013 L=16.0' S=0.0313 '/' Outflow=1.33 cfs 0.091 af

Pond CB 131: CB 131 Peak Elev=159.02' Storage=3 cf Inflow=0.20 cfs 0.014 af
12.0" Round Culvert n=0.013 L=37.0' S=0.0419 '/' Outflow=0.20 cfs 0.014 af

Pond DMH 002: DMH 002 Peak Elev=157.49' Storage=16 cf Inflow=1.76 cfs 0.122 af
18.0" Round Culvert n=0.013 L=41.0' S=0.0061 '/' Outflow=1.75 cfs 0.122 af

Pond DMH 003: DMH 003 Peak Elev=157.57' Storage=5 cf Inflow=0.43 cfs 0.030 af
12.0" Round Culvert n=0.013 L=158.0' S=0.0051 '/' Outflow=0.43 cfs 0.030 af

Pond DMH 1: DMH 001 Peak Elev=155.31' Storage=0.000 af Inflow=0.89 cfs 0.069 af
12.0" Round Culvert n=0.013 L=41.0' S=0.0061 '/' Outflow=0.89 cfs 0.069 af

Pond DMH 2: DMH 002 Peak Elev=156.62' Storage=0.000 af Inflow=1.45 cfs 0.106 af
18.0" Round Culvert n=0.013 L=100.0' S=0.0050 '/' Outflow=1.45 cfs 0.106 af

Pond DMH 3: DMH 003 Peak Elev=158.15' Storage=0.000 af Inflow=0.94 cfs 0.070 af
Primary=0.42 cfs 0.004 af Secondary=0.52 cfs 0.066 af Outflow=0.94 cfs 0.070 af

Pond DMH 4: DMH 004 Peak Elev=155.94' Storage=0.000 af Inflow=1.44 cfs 0.104 af
18.0" Round Culvert n=0.013 L=20.0' S=0.0050 '/' Outflow=1.43 cfs 0.104 af

Pond DMH 5: DMH 005 Peak Elev=156.39' Storage=0.000 af Inflow=1.44 cfs 0.104 af
18.0" Round Culvert n=0.013 L=130.0' S=0.0050 '/' Outflow=1.44 cfs 0.104 af

Pond DMH 6: DMH 006 Peak Elev=157.89' Storage=0.000 af Inflow=1.23 cfs 0.090 af
Primary=0.67 cfs 0.008 af Secondary=0.56 cfs 0.081 af Outflow=1.23 cfs 0.090 af

Pond DMH 7: DMH 007 Peak Elev=156.40' Storage=0.000 af Inflow=0.21 cfs 0.015 af
18.0" Round Culvert n=0.013 L=10.0' S=0.0050 '/' Outflow=0.21 cfs 0.015 af

Pond OW 1: O/W SEP #1 Inflow=0.52 cfs 0.066 af
Primary=0.52 cfs 0.066 af

Pond OW 2: O/W SEP #2 Inflow=0.56 cfs 0.081 af
Primary=0.56 cfs 0.081 af

Link AP1: AP1 Inflow=0.06 cfs 0.005 af
Primary=0.06 cfs 0.005 af

Link AP2: AP2 Inflow=0.21 cfs 0.032 af
Primary=0.21 cfs 0.032 af

Link AP3: AP3 Inflow=1.21 cfs 0.172 af
Primary=1.21 cfs 0.172 af

Total Runoff Area = 9.872 ac Runoff Volume = 1.053 af Average Runoff Depth = 1.28"
55.41% Pervious = 5.471 ac 44.59% Impervious = 4.402 ac

Time span=2.00-72.00 hrs, dt=0.01 hrs, 7001 points x 3
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment109: PR-WS-209 Runoff Area=2,185 sf 82.47% Impervious Runoff Depth=3.53"
Tc=5.0 min CN=92 Runoff=0.21 cfs 0.015 af

Subcatchment110: PR-WS-210 Runoff Area=3,425 sf 90.74% Impervious Runoff Depth=3.86"
Tc=5.0 min CN=95 Runoff=0.34 cfs 0.025 af

Subcatchment111: PR-WS-211 Runoff Area=1,890 sf 89.37% Impervious Runoff Depth=3.75"
Tc=5.0 min CN=94 Runoff=0.19 cfs 0.014 af

Subcatchment112: PR-WS-212 Runoff Area=11,475 sf 95.98% Impervious Runoff Depth>4.08"
Tc=5.0 min CN=97 Runoff=1.17 cfs 0.090 af

Subcatchment201: PR-WS-201 Runoff Area=3,897 sf 100.00% Impervious Runoff Depth>4.19"
Tc=5.0 min CN=98 Runoff=0.40 cfs 0.031 af

Subcatchment202: PR-WS-202 Runoff Area=5,172 sf 94.62% Impervious Runoff Depth>3.97"
Tc=5.0 min CN=96 Runoff=0.52 cfs 0.039 af

Subcatchment203: PR-WS-203 Runoff Area=3,905 sf 100.00% Impervious Runoff Depth>4.19"
Tc=5.0 min CN=98 Runoff=0.40 cfs 0.031 af

Subcatchment204: PR-WS-204 Runoff Area=11,336 sf 77.03% Impervious Runoff Depth=3.33"
Tc=5.0 min CN=90 Runoff=1.02 cfs 0.072 af

Subcatchment205: PR-WS-205 Runoff Area=3,356 sf 100.00% Impervious Runoff Depth>4.19"
Tc=5.0 min CN=98 Runoff=0.35 cfs 0.027 af

Subcatchment206: PR-WS-206 Runoff Area=5,619 sf 95.59% Impervious Runoff Depth>3.97"
Tc=5.0 min CN=96 Runoff=0.57 cfs 0.043 af

Subcatchment207: PR-WS-207 Runoff Area=1,726 sf 100.00% Impervious Runoff Depth>4.19"
Tc=5.0 min CN=98 Runoff=0.18 cfs 0.014 af

Subcatchment208: PR-WS-212 Runoff Area=8,375 sf 76.94% Impervious Runoff Depth=3.23"
Tc=5.0 min CN=89 Runoff=0.74 cfs 0.052 af

Subcatchment213: PR-WS-213 Runoff Area=4,800 sf 88.10% Impervious Runoff Depth=3.75"
Tc=5.0 min CN=94 Runoff=0.47 cfs 0.034 af

Subcatchment214: PR-WS-214 Runoff Area=4,763 sf 67.94% Impervious Runoff Depth=2.94"
Tc=5.0 min CN=86 Runoff=0.39 cfs 0.027 af

Subcatchment215: PR-WS-215 Runoff Area=2,054 sf 87.20% Impervious Runoff Depth=3.64"
Tc=5.0 min CN=93 Runoff=0.20 cfs 0.014 af

Subcatchment216: PR-WS-216 Runoff Area=5,248 sf 97.73% Impervious Runoff Depth>4.08"
Tc=5.0 min CN=97 Runoff=0.54 cfs 0.041 af

Subcatchment217: PR-WS-217 Runoff Area=1,717 sf 89.05% Impervious Runoff Depth=3.75"
Tc=5.0 min CN=94 Runoff=0.17 cfs 0.012 af

Subcatchment218: PR-WS-218 Runoff Area=3,346 sf 100.00% Impervious Runoff Depth>4.19"
Tc=5.0 min CN=98 Runoff=0.34 cfs 0.027 af

Subcatchment219: PR-WS-219 Runoff Area=2,396 sf 61.89% Impervious Runoff Depth=2.75"
Tc=5.0 min CN=84 Runoff=0.18 cfs 0.013 af

Subcatchment220: PR-WS-220 Runoff Area=5,845 sf 100.00% Impervious Runoff Depth>4.19"
Tc=5.0 min CN=98 Runoff=0.60 cfs 0.047 af

Subcatchment221: PR-WS-221 Runoff Area=6,307 sf 73.82% Impervious Runoff Depth=3.13"
Tc=5.0 min CN=88 Runoff=0.54 cfs 0.038 af

Subcatchment222: PR-WS-222 Runoff Area=4,378 sf 95.68% Impervious Runoff Depth>3.97"
Tc=5.0 min CN=96 Runoff=0.44 cfs 0.033 af

Subcatchment223: PR-WS-223 Runoff Area=3,837 sf 52.70% Impervious Runoff Depth=2.40"
Tc=5.0 min CN=80 Runoff=0.26 cfs 0.018 af

Subcatchment224: PR-WS-224 Runoff Area=3,541 sf 80.18% Impervious Runoff Depth=3.43"
Tc=5.0 min CN=91 Runoff=0.33 cfs 0.023 af

Subcatchment225: PR-WS-225 Runoff Area=3,823 sf 81.87% Impervious Runoff Depth=3.43"
Tc=5.0 min CN=91 Runoff=0.35 cfs 0.025 af

Subcatchment227: PR-WS-227 Runoff Area=17,510 sf 72.49% Impervious Runoff Depth=3.13"
Tc=5.0 min CN=88 Runoff=1.50 cfs 0.105 af

Subcatchment228: PR-WS-228 Runoff Area=9,153 sf 75.26% Impervious Runoff Depth=3.23"
Tc=5.0 min CN=89 Runoff=0.81 cfs 0.057 af

Subcatchment229: PR-WS-229 (ROOF) Runoff Area=4,104 sf 100.00% Impervious Runoff Depth>4.19"
Tc=5.0 min CN=98 Runoff=0.42 cfs 0.033 af

Subcatchment230: PR-WS-230 Runoff Area=1,534 sf 100.00% Impervious Runoff Depth>4.19"
Tc=5.0 min CN=98 Runoff=0.16 cfs 0.012 af

Subcatchment250: PR-WS-250 Runoff Area=13,074 sf 28.39% Impervious Runoff Depth=1.77"
Tc=5.0 min CN=72 Runoff=0.63 cfs 0.044 af

Subcatchment251: PR-WS-251 Runoff Area=15,132 sf 20.61% Impervious Runoff Depth=1.55"
Tc=5.0 min CN=69 Runoff=0.63 cfs 0.045 af

Subcatchment252: PR-WS-252 Runoff Area=5,760 sf 17.12% Impervious Runoff Depth=1.29"
Tc=5.0 min CN=65 Runoff=0.19 cfs 0.014 af

Subcatchment253: PR-WS-253 Runoff Area=48,912 sf 0.00% Impervious Runoff Depth=1.04"
Flow Length=160' Tc=9.7 min CN=61 Runoff=1.04 cfs 0.097 af

Subcatchment254: PR-WS-254 Runoff Area=111,852 sf 14.58% Impervious Runoff Depth=1.49"
Flow Length=545' Tc=21.6 min CN=68 Runoff=2.77 cfs 0.318 af

Subcatchment256: PR-WS-213 Runoff Area=4,952 sf 100.00% Impervious Runoff Depth>4.19"
Tc=5.0 min CN=98 Runoff=0.51 cfs 0.040 af

Subcatchment257: PR-WS-214 Runoff Area=3,400 sf 100.00% Impervious Runoff Depth>4.19"
Tc=5.0 min CN=98 Runoff=0.35 cfs 0.027 af

Subcatchment258: PR-WS-215 Runoff Area=4,882 sf 100.00% Impervious Runoff Depth>4.19"
Tc=5.0 min CN=98 Runoff=0.50 cfs 0.039 af

Subcatchment259: PR-WS-259 Runoff Area=2,064 sf 100.00% Impervious Runoff Depth>4.19"
Tc=5.0 min CN=98 Runoff=0.21 cfs 0.017 af

Subcatchment260: PR-WS-260 Runoff Area=2,064 sf 100.00% Impervious Runoff Depth>4.19"
Tc=5.0 min CN=98 Runoff=0.21 cfs 0.017 af

Subcatchment261: PR-WS-261 Runoff Area=19,487 sf 17.21% Impervious Runoff Depth=1.42"
Tc=5.0 min CN=67 Runoff=0.73 cfs 0.053 af

Subcatchment262: PR-WS-262 Runoff Area=12,770 sf 0.00% Impervious Runoff Depth=1.04"
Tc=5.0 min CN=61 Runoff=0.32 cfs 0.025 af

Subcatchment263: PR-WS-263 Runoff Area=18,005 sf 11.30% Impervious Runoff Depth=1.29"
Tc=5.0 min CN=65 Runoff=0.60 cfs 0.044 af

Subcatchment265: PR-WS-265 Runoff Area=8,482 sf 100.00% Impervious Runoff Depth>4.19"
Tc=5.0 min CN=98 Runoff=0.87 cfs 0.068 af

Subcatchment266: PR-WS-266 Runoff Area=4,042 sf 100.00% Impervious Runoff Depth>4.19"
Tc=5.0 min CN=98 Runoff=0.42 cfs 0.032 af

Subcatchment269: PR-WS-269 Runoff Area=4,203 sf 88.32% Impervious Runoff Depth=3.75"
Tc=5.0 min CN=94 Runoff=0.41 cfs 0.030 af

Subcatchment270: PR-WS-270 Runoff Area=4,247 sf 95.22% Impervious Runoff Depth>3.97"
Tc=5.0 min CN=96 Runoff=0.43 cfs 0.032 af

Reach 1R: OVERLAND Avg. Flow Depth=0.05' Max Vel=1.97 fps Inflow=0.58 cfs 0.036 af
n=0.030 L=45.0' S=0.1556 '/' Capacity=93.87 cfs Outflow=0.58 cfs 0.036 af

Reach 2R: SWALE Avg. Flow Depth=0.03' Max Vel=0.75 fps Inflow=0.11 cfs 0.045 af
n=0.030 L=315.0' S=0.0248 '/' Capacity=49.46 cfs Outflow=0.11 cfs 0.045 af

Reach 3R: OVERLAND Avg. Flow Depth=0.02' Max Vel=1.44 fps Inflow=0.11 cfs 0.045 af
n=0.030 L=37.0' S=0.2703 '/' Capacity=123.74 cfs Outflow=0.11 cfs 0.045 af

Reach 4R: SWALE Avg. Flow Depth=0.09' Max Vel=1.18 fps Inflow=0.63 cfs 0.045 af
n=0.030 L=188.0' S=0.0154 '/' Capacity=46.54 cfs Outflow=0.59 cfs 0.045 af

Reach 5R: P-264 Avg. Flow Depth=0.40' Max Vel=3.06 fps Inflow=1.17 cfs 0.089 af
18.0" Round Pipe n=0.013 L=80.0' S=0.0050 '/' Capacity=7.43 cfs Outflow=1.16 cfs 0.089 af

Reach 6R: SWALE Avg. Flow Depth=0.12' Max Vel=1.64 fps Inflow=1.16 cfs 0.089 af
n=0.030 L=304.0' S=0.0217 '/' Capacity=55.21 cfs Outflow=1.08 cfs 0.089 af

Reach 7R: OVERLAND Avg. Flow Depth=0.14' Max Vel=1.91 fps Inflow=2.73 cfs 0.188 af
n=0.035 L=140.0' S=0.0500 '/' Capacity=45.62 cfs Outflow=2.71 cfs 0.188 af

Reach 8R: OVERLAND Avg. Flow Depth=0.11' Max Vel=1.70 fps Inflow=1.81 cfs 0.099 af
n=0.030 L=80.0' S=0.0375 '/' Capacity=46.09 cfs Outflow=1.81 cfs 0.099 af

Reach 9R: CULVERT Avg. Flow Depth=0.32' Max Vel=2.89 fps Inflow=0.63 cfs 0.045 af
12.0" Round Pipe n=0.013 L=80.0' S=0.0063 '/' Capacity=2.82 cfs Outflow=0.63 cfs 0.045 af

Reach 16R: 8" RD Avg. Flow Depth=0.46' Max Vel=3.27 fps Inflow=0.85 cfs 0.066 af
8.0" Round Pipe n=0.013 L=14.0' S=0.0071 '/' Capacity=1.02 cfs Outflow=0.85 cfs 0.066 af

Reach 17R: 8" RD Avg. Flow Depth=0.35' Max Vel=2.73 fps Inflow=0.50 cfs 0.039 af
8.0" Round Pipe n=0.013 L=58.0' S=0.0060 '/' Capacity=0.94 cfs Outflow=0.50 cfs 0.039 af

Pond 1P: INFILTRATIONBASIN#1 Peak Elev=152.82' Storage=8,995 cf Inflow=7.35 cfs 0.552 af
Discarded=0.82 cfs 0.516 af Primary=0.58 cfs 0.036 af Outflow=1.41 cfs 0.552 af

Pond 3P: Stormtech#1 Peak Elev=158.03' Storage=4,114 cf Inflow=4.22 cfs 0.310 af
Discarded=0.16 cfs 0.211 af Primary=1.81 cfs 0.099 af Outflow=1.98 cfs 0.310 af

Pond 4P: RAIN GARDEN#1 Peak Elev=159.53' Storage=5,831 cf Inflow=2.32 cfs 0.176 af
Outflow=0.11 cfs 0.045 af

Pond 6P: INFILTRATIONBASIN#2 Peak Elev=156.71' Storage=7,505 cf Inflow=5.35 cfs 0.397 af
Discarded=0.37 cfs 0.397 af Primary=0.00 cfs 0.000 af Outflow=0.37 cfs 0.397 af

Pond 231P: Stormtech#1 - ISO ROW CHECK Peak Elev=0.00' Storage=0 cf
Discarded=0.00 cfs 0.000 af Primary=0.00 cfs 0.000 af

Pond CB 101: CB 101 Peak Elev=160.57' Storage=0.000 af Inflow=0.40 cfs 0.031 af
12.0" Round Culvert n=0.013 L=27.0' S=0.0111 '/' Outflow=0.40 cfs 0.031 af

Pond CB 102: CB 102 Peak Elev=152.98' Storage=0.000 af Inflow=7.03 cfs 0.527 af
24.0" Round Culvert n=0.013 L=35.0' S=0.0057 '/' Outflow=7.03 cfs 0.527 af

Pond CB 103: CB 103 Peak Elev=155.33' Storage=0.000 af Inflow=0.40 cfs 0.031 af
12.0" Round Culvert n=0.013 L=28.0' S=0.0107 '/' Outflow=0.40 cfs 0.031 af

Pond CB 104: CB 104 Peak Elev=154.13' Storage=0.000 af Inflow=6.11 cfs 0.456 af
24.0" Round Culvert n=0.013 L=230.0' S=0.0050 '/' Outflow=6.11 cfs 0.456 af

Pond CB 105: CB 105 Peak Elev=154.46' Storage=0.000 af Inflow=0.35 cfs 0.027 af
12.0" Round Culvert n=0.013 L=28.0' S=0.0107 '/' Outflow=0.34 cfs 0.027 af

Pond CB 106: CB 106 Peak Elev=155.30' Storage=0.000 af Inflow=0.74 cfs 0.056 af
12.0" Round Culvert n=0.013 L=182.0' S=0.0052 '/' Outflow=0.74 cfs 0.056 af

Pond CB 107: CB 107 Peak Elev=155.35' Storage=0.000 af Inflow=0.18 cfs 0.014 af
12.0" Round Culvert n=0.013 L=28.0' S=0.0107 '/' Outflow=0.18 cfs 0.014 af

Pond CB 108: CB 108 Peak Elev=155.09' Storage=0.000 af Inflow=4.00 cfs 0.301 af
18.0" Round Culvert n=0.013 L=122.0' S=0.0053 '/' Outflow=4.00 cfs 0.301 af

Pond CB 109: CB 109 Peak Elev=155.64' Storage=0.000 af Inflow=1.90 cfs 0.143 af
12.0" Round Culvert n=0.013 L=42.0' S=0.0060 '/' Outflow=1.90 cfs 0.143 af

Pond CB 110: CB 110 Peak Elev=156.19' Storage=0.000 af Inflow=1.70 cfs 0.128 af
12.0" Round Culvert n=0.013 L=89.0' S=0.0051 '/' Outflow=1.69 cfs 0.128 af

Pond CB 111: CB 111 Peak Elev=156.44' Storage=0.000 af Inflow=1.36 cfs 0.103 af
12.0" Round Culvert n=0.013 L=32.0' S=0.0062 '/' Outflow=1.35 cfs 0.103 af

Pond CB 112: CB 112 Peak Elev=156.92' Storage=0.000 af Inflow=1.17 cfs 0.090 af
12.0" Round Culvert n=0.013 L=95.0' S=0.0053 '/' Outflow=1.17 cfs 0.090 af

Pond CB 113: CB 113 Peak Elev=157.26' Storage=0.000 af Inflow=0.86 cfs 0.061 af
12.0" Round Culvert n=0.013 L=25.0' S=0.0100 '/' Outflow=0.86 cfs 0.061 af

Pond CB 114: CB 114 Peak Elev=157.55' Storage=0.000 af Inflow=0.39 cfs 0.027 af
12.0" Round Culvert n=0.013 L=60.0' S=0.0050 '/' Outflow=0.39 cfs 0.027 af

Pond CB 115: CB 115 Peak Elev=158.53' Storage=0.000 af Inflow=1.46 cfs 0.111 af
12.0" Round Culvert n=0.013 L=20.0' S=0.0050 '/' Outflow=1.46 cfs 0.111 af

Pond CB 116: CB 116 Peak Elev=158.84' Storage=0.000 af Inflow=0.75 cfs 0.057 af
12.0" Round Culvert n=0.013 L=71.0' S=0.0056 '/' Outflow=0.75 cfs 0.057 af

Pond CB 117: CB 117 Peak Elev=158.70' Storage=0.000 af Inflow=0.51 cfs 0.039 af
12.0" Round Culvert n=0.013 L=59.0' S=0.0051 '/' Outflow=0.51 cfs 0.039 af

Pond CB 118: CB 118 Peak Elev=158.98' Storage=0.000 af Inflow=0.34 cfs 0.027 af
12.0" Round Culvert n=0.013 L=67.0' S=0.0052 '/' Outflow=0.34 cfs 0.027 af

Pond CB 119: CB 119 Peak Elev=158.35' Storage=0.000 af Inflow=1.98 cfs 0.147 af
12.0" Round Culvert n=0.013 L=19.0' S=0.0053 '/' Outflow=1.98 cfs 0.147 af

Pond CB 120: CB 120 Peak Elev=158.55' Storage=0.000 af Inflow=0.81 cfs 0.063 af
12.0" Round Culvert n=0.013 L=64.0' S=0.0055 '/' Outflow=0.81 cfs 0.063 af

Pond CB 121: CB 121 Peak Elev=158.53' Storage=0.000 af Inflow=0.98 cfs 0.071 af
12.0" Round Culvert n=0.013 L=45.0' S=0.0056 '/' Outflow=0.98 cfs 0.071 af

Pond CB 122: CB 122 Peak Elev=158.90' Storage=0.000 af Inflow=0.44 cfs 0.033 af
12.0" Round Culvert n=0.013 L=113.0' S=0.0053 '/' Outflow=0.44 cfs 0.033 af

Pond CB 123: CB 123 Peak Elev=158.03' Storage=0.000 af Inflow=0.84 cfs 0.062 af
18.0" Round Culvert n=0.013 L=15.0' S=0.0400 '/' Outflow=0.81 cfs 0.062 af

Pond CB 124: CB 124 Peak Elev=158.12' Storage=0.000 af Inflow=0.41 cfs 0.030 af
12.0" Round Culvert n=0.013 L=100.0' S=0.0100 '/' Outflow=0.41 cfs 0.030 af

Pond CB 125: CB 125 Peak Elev=156.88' Storage=0.000 af Inflow=0.35 cfs 0.025 af
18.0" Round Culvert n=0.013 L=95.0' S=0.0053 '/' Outflow=0.35 cfs 0.025 af

Pond CB 126: CB 126 Peak Elev=158.97' Storage=0.000 af Inflow=0.81 cfs 0.057 af
12.0" Round Culvert n=0.013 L=93.0' S=0.0097 '/' Outflow=0.80 cfs 0.057 af

Pond CB 127: CB 127 Peak Elev=159.15' Storage=4 cf Inflow=0.16 cfs 0.012 af
12.0" Round Culvert n=0.013 L=28.0' S=0.0054 '/' Outflow=0.16 cfs 0.012 af

Pond CB 128: CB 128 Peak Elev=159.10' Storage=7 cf Inflow=0.41 cfs 0.030 af
12.0" Round Culvert n=0.013 L=91.0' S=0.0000 '/' Outflow=0.41 cfs 0.030 af

Pond CB 130: CB 130 Peak Elev=158.20' Storage=17 cf Inflow=2.31 cfs 0.161 af
12.0" Round Culvert n=0.013 L=16.0' S=0.0313 '/' Outflow=2.29 cfs 0.161 af

Pond CB 131: CB 131 Peak Elev=159.08' Storage=4 cf Inflow=0.33 cfs 0.023 af
12.0" Round Culvert n=0.013 L=37.0' S=0.0419 '/' Outflow=0.33 cfs 0.023 af

Pond DMH 002: DMH 002 Peak Elev=158.06' Storage=23 cf Inflow=3.01 cfs 0.215 af
18.0" Round Culvert n=0.013 L=41.0' S=0.0061 '/' Outflow=2.99 cfs 0.215 af

Pond DMH 003: DMH 003 Peak Elev=158.09' Storage=12 cf Inflow=0.74 cfs 0.053 af
12.0" Round Culvert n=0.013 L=158.0' S=0.0051 '/' Outflow=0.73 cfs 0.053 af

Pond DMH 1: DMH 001 Peak Elev=155.48' Storage=0.000 af Inflow=1.36 cfs 0.106 af
12.0" Round Culvert n=0.013 L=41.0' S=0.0061 '/' Outflow=1.36 cfs 0.106 af

Pond DMH 2: DMH 002 Peak Elev=156.80' Storage=0.000 af Inflow=2.31 cfs 0.172 af
18.0" Round Culvert n=0.013 L=100.0' S=0.0050 '/' Outflow=2.31 cfs 0.172 af

Pond DMH 3: DMH 003 Peak Elev=158.22' Storage=0.000 af Inflow=1.46 cfs 0.111 af
Primary=0.91 cfs 0.014 af Secondary=0.55 cfs 0.097 af Outflow=1.46 cfs 0.111 af

Pond DMH 4: DMH 004 Peak Elev=156.71' Storage=0.000 af Inflow=2.32 cfs 0.172 af
18.0" Round Culvert n=0.013 L=20.0' S=0.0050 '/' Outflow=2.31 cfs 0.172 af

Pond DMH 5: DMH 005 Peak Elev=156.71' Storage=0.000 af Inflow=2.33 cfs 0.172 af
18.0" Round Culvert n=0.013 L=130.0' S=0.0050 '/' Outflow=2.32 cfs 0.172 af

Pond DMH 6: DMH 006 Peak Elev=157.97' Storage=0.000 af Inflow=1.98 cfs 0.147 af
Primary=1.35 cfs 0.025 af Secondary=0.63 cfs 0.122 af Outflow=1.98 cfs 0.147 af

Pond DMH 7: DMH 007 Peak Elev=156.71' Storage=0.000 af Inflow=0.35 cfs 0.025 af
18.0" Round Culvert n=0.013 L=10.0' S=0.0050 '/' Outflow=0.35 cfs 0.025 af

Pond OW 1: O/W SEP #1 Inflow=0.55 cfs 0.097 af
Primary=0.55 cfs 0.097 af

Pond OW 2: O/W SEP #2 Inflow=0.63 cfs 0.122 af
Primary=0.63 cfs 0.122 af

Link AP1: AP1 Inflow=0.19 cfs 0.014 af
Primary=0.19 cfs 0.014 af

Link AP2: AP2 Inflow=1.12 cfs 0.178 af
Primary=1.12 cfs 0.178 af

Link AP3: AP3 Inflow=5.25 cfs 0.506 af
Primary=5.25 cfs 0.506 af

Total Runoff Area = 9.872 ac Runoff Volume = 1.953 af Average Runoff Depth = 2.37"
55.41% Pervious = 5.471 ac 44.59% Impervious = 4.402 ac

Summary for Subcatchment 109: PR-WS-209

Runoff = 0.21 cfs @ 12.07 hrs, Volume= 0.015 af, Depth= 3.53"
Routed to Pond CB 109 : CB 109

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 2.00-72.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-YR Rainfall=4.43"

Area (sf)	CN	Description
1,802	98	Paved parking, HSG B
383	61	>75% Grass cover, Good, HSG B
2,185	92	Weighted Average
383		17.53% Pervious Area
1,802		82.47% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry, MIN Tc**

Summary for Subcatchment 110: PR-WS-210

Runoff = 0.34 cfs @ 12.07 hrs, Volume= 0.025 af, Depth= 3.86"
Routed to Pond CB 110 : CB 110

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 2.00-72.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-YR Rainfall=4.43"

Area (sf)	CN	Description
3,108	98	Water Surface, HSG B
317	61	>75% Grass cover, Good, HSG B
3,425	95	Weighted Average
317		9.26% Pervious Area
3,108		90.74% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry, MIN Tc**

Summary for Subcatchment 111: PR-WS-211

Runoff = 0.19 cfs @ 12.07 hrs, Volume= 0.014 af, Depth= 3.75"
Routed to Pond CB 111 : CB 111

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 2.00-72.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-YR Rainfall=4.43"

Area (sf)	CN	Description
1,689	98	Paved parking, HSG B
201	61	>75% Grass cover, Good, HSG B
1,890	94	Weighted Average
201		10.63% Pervious Area
1,689		89.37% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry, MIN Tc**

Summary for Subcatchment 112: PR-WS-212

Runoff = 1.17 cfs @ 12.07 hrs, Volume= 0.090 af, Depth> 4.08"
Routed to Pond CB 112 : CB 112

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 2.00-72.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-YR Rainfall=4.43"

Area (sf)	CN	Description
11,014	98	Paved parking, HSG B
461	61	>75% Grass cover, Good, HSG B
11,475	97	Weighted Average
461		4.02% Pervious Area
11,014		95.98% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry, MIN Tc**

Summary for Subcatchment 201: PR-WS-201

Runoff = 0.40 cfs @ 12.07 hrs, Volume= 0.031 af, Depth> 4.19"
Routed to Pond CB 101 : CB 101

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 2.00-72.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-YR Rainfall=4.43"

Area (sf)	CN	Description
3,897	98	Paved parking, HSG B
3,897		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry, MIN Tc**

Summary for Subcatchment 202: PR-WS-202

Runoff = 0.52 cfs @ 12.07 hrs, Volume= 0.039 af, Depth> 3.97"
Routed to Pond CB 102 : CB 102

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 2.00-72.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-YR Rainfall=4.43"

Area (sf)	CN	Description
4,894	98	Paved parking, HSG B
278	61	>75% Grass cover, Good, HSG B
5,172	96	Weighted Average
278		5.38% Pervious Area
4,894		94.62% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry, MIN Tc**

Summary for Subcatchment 203: PR-WS-203

Runoff = 0.40 cfs @ 12.07 hrs, Volume= 0.031 af, Depth> 4.19"
Routed to Pond CB 103 : CB 103

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 2.00-72.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-YR Rainfall=4.43"

Area (sf)	CN	Description
3,905	98	Paved parking, HSG B
3,905		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry, MIN Tc**

Summary for Subcatchment 204: PR-WS-204

Runoff = 1.02 cfs @ 12.07 hrs, Volume= 0.072 af, Depth= 3.33"
Routed to Pond CB 104 : CB 104

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 2.00-72.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-YR Rainfall=4.43"

Area (sf)	CN	Description
8,732	98	Paved parking, HSG B
2,604	61	>75% Grass cover, Good, HSG B
11,336	90	Weighted Average
2,604		22.97% Pervious Area
8,732		77.03% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry, MIN Tc**

Summary for Subcatchment 205: PR-WS-205

Runoff = 0.35 cfs @ 12.07 hrs, Volume= 0.027 af, Depth> 4.19"
Routed to Pond CB 105 : CB 105

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 2.00-72.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-YR Rainfall=4.43"

Area (sf)	CN	Description
3,356	98	Paved parking, HSG B
3,356		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry, MIN Tc**

Summary for Subcatchment 206: PR-WS-206

Runoff = 0.57 cfs @ 12.07 hrs, Volume= 0.043 af, Depth> 3.97"
Routed to Pond CB 106 : CB 106

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 2.00-72.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-YR Rainfall=4.43"

Area (sf)	CN	Description
5,371	98	Paved parking, HSG B
248	61	>75% Grass cover, Good, HSG B
5,619	96	Weighted Average
248		4.41% Pervious Area
5,371		95.59% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry, MIN Tc**

Summary for Subcatchment 207: PR-WS-207

Runoff = 0.18 cfs @ 12.07 hrs, Volume= 0.014 af, Depth> 4.19"
Routed to Pond CB 107 : CB 107

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 2.00-72.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-YR Rainfall=4.43"

Area (sf)	CN	Description
1,726	98	Paved parking, HSG B
1,726		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry, MIN Tc**

Summary for Subcatchment 208: PR-WS-212

Runoff = 0.74 cfs @ 12.07 hrs, Volume= 0.052 af, Depth= 3.23"
Routed to Pond CB 108 : CB 108

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 2.00-72.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-YR Rainfall=4.43"

Area (sf)	CN	Description
6,444	98	Paved parking, HSG B
1,931	61	>75% Grass cover, Good, HSG B
8,375	89	Weighted Average
1,931		23.06% Pervious Area
6,444		76.94% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry, MIN Tc**

Summary for Subcatchment 213: PR-WS-213

Runoff = 0.47 cfs @ 12.07 hrs, Volume= 0.034 af, Depth= 3.75"
Routed to Pond CB 113 : CB 113

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 2.00-72.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-YR Rainfall=4.43"

Area (sf)	CN	Description
4,229	98	Paved parking, HSG B
571	61	>75% Grass cover, Good, HSG B
4,800	94	Weighted Average
571		11.90% Pervious Area
4,229		88.10% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry, MIN Tc**

Summary for Subcatchment 214: PR-WS-214

Runoff = 0.39 cfs @ 12.07 hrs, Volume= 0.027 af, Depth= 2.94"
Routed to Pond CB 114 : CB 114

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 2.00-72.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-YR Rainfall=4.43"

Area (sf)	CN	Description
3,236	98	Paved parking, HSG B
1,527	61	>75% Grass cover, Good, HSG B
4,763	86	Weighted Average
1,527		32.06% Pervious Area
3,236		67.94% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry, MIN Tc**

Summary for Subcatchment 215: PR-WS-215

Runoff = 0.20 cfs @ 12.07 hrs, Volume= 0.014 af, Depth= 3.64"
Routed to Pond CB 115 : CB 115

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 2.00-72.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-YR Rainfall=4.43"

Area (sf)	CN	Description
1,791	98	Paved parking, HSG B
263	61	>75% Grass cover, Good, HSG B
2,054	93	Weighted Average
263		12.80% Pervious Area
1,791		87.20% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry, MIN Tc**

Summary for Subcatchment 216: PR-WS-216

Runoff = 0.54 cfs @ 12.07 hrs, Volume= 0.041 af, Depth> 4.08"
Routed to Pond CB 116 : CB 116

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 2.00-72.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-YR Rainfall=4.43"

Area (sf)	CN	Description
3,694	98	Paved parking, HSG B
1,435	98	Roofs, HSG B
119	61	>75% Grass cover, Good, HSG B
5,248	97	Weighted Average
119		2.27% Pervious Area
5,129		97.73% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry, MIN Tc**

Summary for Subcatchment 217: PR-WS-217

Runoff = 0.17 cfs @ 12.07 hrs, Volume= 0.012 af, Depth= 3.75"
Routed to Pond CB 117 : CB 117

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 2.00-72.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-YR Rainfall=4.43"

Area (sf)	CN	Description
1,529	98	Paved parking, HSG B
188	61	>75% Grass cover, Good, HSG B
1,717	94	Weighted Average
188		10.95% Pervious Area
1,529		89.05% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry, MIN Tc**

Summary for Subcatchment 218: PR-WS-218

Runoff = 0.34 cfs @ 12.07 hrs, Volume= 0.027 af, Depth> 4.19"
Routed to Pond CB 118 : CB 118

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 2.00-72.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-YR Rainfall=4.43"

Area (sf)	CN	Description
3,346	98	Paved parking, HSG B
3,346		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry, MIN Tc**

Summary for Subcatchment 219: PR-WS-219

Runoff = 0.18 cfs @ 12.07 hrs, Volume= 0.013 af, Depth= 2.75"
Routed to Pond CB 119 : CB 119

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 2.00-72.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-YR Rainfall=4.43"

Area (sf)	CN	Description
1,483	98	Paved parking, HSG B
913	61	>75% Grass cover, Good, HSG B
2,396	84	Weighted Average
913		38.11% Pervious Area
1,483		61.89% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry, MIN Tc**

Summary for Subcatchment 220: PR-WS-220

Runoff = 0.60 cfs @ 12.07 hrs, Volume= 0.047 af, Depth> 4.19"
Routed to Pond CB 120 : CB 120

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 2.00-72.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-YR Rainfall=4.43"

Area (sf)	CN	Description
4,149	98	Paved parking, HSG B
1,696	98	Roofs, HSG B
5,845	98	Weighted Average
5,845		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry, MIN Tc**

Summary for Subcatchment 221: PR-WS-221

Runoff = 0.54 cfs @ 12.07 hrs, Volume= 0.038 af, Depth= 3.13"
Routed to Pond CB 121 : CB 121

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 2.00-72.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-YR Rainfall=4.43"

Area (sf)	CN	Description
4,656	98	Paved parking, HSG B
1,651	61	>75% Grass cover, Good, HSG B
6,307	88	Weighted Average
1,651		26.18% Pervious Area
4,656		73.82% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry, MIN Tc**

Summary for Subcatchment 222: PR-WS-222

Runoff = 0.44 cfs @ 12.07 hrs, Volume= 0.033 af, Depth> 3.97"
Routed to Pond CB 122 : CB 122

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 2.00-72.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-YR Rainfall=4.43"

Area (sf)	CN	Description
4,189	98	Paved parking, HSG B
189	61	>75% Grass cover, Good, HSG B
4,378	96	Weighted Average
189		4.32% Pervious Area
4,189		95.68% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry, MIN Tc**

Summary for Subcatchment 223: PR-WS-223

Runoff = 0.26 cfs @ 12.08 hrs, Volume= 0.018 af, Depth= 2.40"
Routed to Pond CB 128 : CB 128

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 2.00-72.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-YR Rainfall=4.43"

Area (sf)	CN	Description
2,022	98	Paved parking, HSG B
1,815	61	>75% Grass cover, Good, HSG B
3,837	80	Weighted Average
1,815		47.30% Pervious Area
2,022		52.70% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry, MIN Tc**

Summary for Subcatchment 224: PR-WS-224

Runoff = 0.33 cfs @ 12.07 hrs, Volume= 0.023 af, Depth= 3.43"
Routed to Pond CB 131 : CB 131

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 2.00-72.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-YR Rainfall=4.43"

Area (sf)	CN	Description
2,839	98	Paved parking, HSG B
702	61	>75% Grass cover, Good, HSG B
3,541	91	Weighted Average
702		19.82% Pervious Area
2,839		80.18% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry, MIN Tc**

Summary for Subcatchment 225: PR-WS-225

Runoff = 0.35 cfs @ 12.07 hrs, Volume= 0.025 af, Depth= 3.43"
Routed to Pond CB 125 : CB 125

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 2.00-72.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-YR Rainfall=4.43"

Area (sf)	CN	Description
3,130	98	Paved parking, HSG B
693	61	>75% Grass cover, Good, HSG B
3,823	91	Weighted Average
693		18.13% Pervious Area
3,130		81.87% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry, MIN Tc**

Summary for Subcatchment 227: PR-WS-227

Runoff = 1.50 cfs @ 12.07 hrs, Volume= 0.105 af, Depth= 3.13"
Routed to Pond CB 130 : CB 130

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 2.00-72.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-YR Rainfall=4.43"

Area (sf)	CN	Description
12,693	98	Paved parking, HSG B
4,817	61	>75% Grass cover, Good, HSG B
17,510	88	Weighted Average
4,817		27.51% Pervious Area
12,693		72.49% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry, MIN Tc**

Summary for Subcatchment 228: PR-WS-228

Runoff = 0.81 cfs @ 12.07 hrs, Volume= 0.057 af, Depth= 3.23"
Routed to Pond CB 126 : CB 126

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 2.00-72.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-YR Rainfall=4.43"

Area (sf)	CN	Description
6,889	98	Paved parking, HSG B
2,264	61	>75% Grass cover, Good, HSG B
9,153	89	Weighted Average
2,264		24.74% Pervious Area
6,889		75.26% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry, MIN Tc**

Summary for Subcatchment 229: PR-WS-229 (ROOF)

Runoff = 0.42 cfs @ 12.07 hrs, Volume= 0.033 af, Depth> 4.19"
Routed to Pond 3P : Stormtech #1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 2.00-72.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-YR Rainfall=4.43"

Area (sf)	CN	Description
4,104	98	Roofs, HSG B
4,104		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry, MIN Tc**

Summary for Subcatchment 230: PR-WS-230

Runoff = 0.16 cfs @ 12.07 hrs, Volume= 0.012 af, Depth> 4.19"
Routed to Pond CB 127 : CB 127

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 2.00-72.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-YR Rainfall=4.43"

Area (sf)	CN	Description
1,534	98	Paved parking, HSG B
1,534		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry, MIN Tc**

Summary for Subcatchment 250: PR-WS-250

Runoff = 0.63 cfs @ 12.08 hrs, Volume= 0.044 af, Depth= 1.77"
Routed to Pond 4P : RAIN GARDEN #1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 2.00-72.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-YR Rainfall=4.43"

Area (sf)	CN	Description
3,712	98	Paved parking, HSG B
9,362	61	>75% Grass cover, Good, HSG B
13,074	72	Weighted Average
9,362		71.61% Pervious Area
3,712		28.39% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry, MIN Tc**

Summary for Subcatchment 251: PR-WS-251

Runoff = 0.63 cfs @ 12.08 hrs, Volume= 0.045 af, Depth= 1.55"
Routed to Reach 9R : CULVERT

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 2.00-72.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-YR Rainfall=4.43"

Area (sf)	CN	Description
3,118	98	Paved parking, HSG B
12,014	61	>75% Grass cover, Good, HSG B
15,132	69	Weighted Average
12,014		79.39% Pervious Area
3,118		20.61% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry, MIN Tc**

Summary for Subcatchment 252: PR-WS-252

Runoff = 0.19 cfs @ 12.08 hrs, Volume= 0.014 af, Depth= 1.29"
Routed to Link AP1 : AP1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 2.00-72.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-YR Rainfall=4.43"

Area (sf)	CN	Description
986	98	Paved parking, HSG B
2,244	61	>75% Grass cover, Good, HSG B
2,530	55	Woods, Good, HSG B
5,760	65	Weighted Average
4,774		82.88% Pervious Area
986		17.12% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry, MIN Tc**

Summary for Subcatchment 253: PR-WS-253

Runoff = 1.04 cfs @ 12.15 hrs, Volume= 0.097 af, Depth= 1.04"
Routed to Link AP2 : AP2

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 2.00-72.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-YR Rainfall=4.43"

Area (sf)	CN	Description
960	85	Gravel roads, HSG B
42,419	61	>75% Grass cover, Good, HSG B
582	74	>75% Grass cover, Good, HSG C
4,951	55	Woods, Good, HSG B
48,912	61	Weighted Average
48,912		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.6	25	0.3300	0.26		**Sheet Flow, THROUGH GRASS** Grass: Dense n= 0.240 P2= 2.94"
7.3	30	0.0300	0.07		**Sheet Flow, THROUGH WOODS** Woods: Light underbrush n= 0.400 P2= 2.94"
0.5	40	0.0300	1.21		**Shallow Concentrated Flow, THROUGH GRASS** Short Grass Pasture Kv= 7.0 fps
0.3	65	0.3300	4.02		**Shallow Concentrated Flow, THROUGH GRASS** Short Grass Pasture Kv= 7.0 fps
9.7	160	Total			

Summary for Subcatchment 254: PR-WS-254

Runoff = 2.77 cfs @ 12.32 hrs, Volume= 0.318 af, Depth= 1.49"
Routed to Link AP3 : AP3

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 2.00-72.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-YR Rainfall=4.43"

Area (sf)	CN	Description
16,313	98	Paved parking, HSG B
83,124	61	>75% Grass cover, Good, HSG B
12,415	74	>75% Grass cover, Good, HSG C
111,852	68	Weighted Average
95,539		85.42% Pervious Area
16,313		14.58% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.7	100	0.0300	0.13		**Sheet Flow, THROUGH GRASS** Grass: Dense n= 0.240 P2= 2.94"
6.9	325	0.0250	0.79		**Shallow Concentrated Flow, THROUGH TREES** Woodland Kv= 5.0 fps
2.0	120	0.0200	0.99		**Shallow Concentrated Flow, THROUGH GRASS** Short Grass Pasture Kv= 7.0 fps
21.6	545	Total			

Summary for Subcatchment 256: PR-WS-213

Runoff = 0.51 cfs @ 12.07 hrs, Volume= 0.040 af, Depth> 4.19"
Routed to Pond DMH 1 : DMH 001

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 2.00-72.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-YR Rainfall=4.43"

Area (sf)	CN	Description
4,952	98	Roofs, HSG B
4,952		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry, MIN Tc**

Summary for Subcatchment 257: PR-WS-214

Runoff = 0.35 cfs @ 12.07 hrs, Volume= 0.027 af, Depth> 4.19"
Routed to Reach 16R : 8" RD

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 2.00-72.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-YR Rainfall=4.43"

Area (sf)	CN	Description
3,400	98	Roofs, HSG B
3,400		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry, MIN Tc**

Summary for Subcatchment 258: PR-WS-215

Runoff = 0.50 cfs @ 12.07 hrs, Volume= 0.039 af, Depth> 4.19"
Routed to Reach 17R : 8" RD

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 2.00-72.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-YR Rainfall=4.43"

Area (sf)	CN	Description
4,882	98	Roofs, HSG B
4,882		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry, MIN Tc**

Summary for Subcatchment 259: PR-WS-259

Runoff = 0.21 cfs @ 12.07 hrs, Volume= 0.017 af, Depth> 4.19"
Routed to Pond CB 116 : CB 116

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 2.00-72.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-YR Rainfall=4.43"

Area (sf)	CN	Description
2,064	98	Roofs, HSG B
2,064		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry, MIN Tc**

Summary for Subcatchment 260: PR-WS-260

Runoff = 0.21 cfs @ 12.07 hrs, Volume= 0.017 af, Depth> 4.19"
Routed to Pond CB 120 : CB 120

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 2.00-72.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-YR Rainfall=4.43"

Area (sf)	CN	Description
2,064	98	Roofs, HSG B
2,064		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry, MIN Tc**

Summary for Subcatchment 261: PR-WS-261

Runoff = 0.73 cfs @ 12.08 hrs, Volume= 0.053 af, Depth= 1.42"
Routed to Pond 6P : INFILTRATION BASIN #2

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 2.00-72.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-YR Rainfall=4.43"

Area (sf)	CN	Description
74	98	Paved parking, HSG B
3,279	98	Roofs, HSG B
16,134	61	>75% Grass cover, Good, HSG B
19,487	67	Weighted Average
16,134		82.79% Pervious Area
3,353		17.21% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry, MIN Tc**

Summary for Subcatchment 262: PR-WS-262

Runoff = 0.32 cfs @ 12.09 hrs, Volume= 0.025 af, Depth= 1.04"
Routed to Pond 1P : INFILTRATION BASIN #1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 2.00-72.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-YR Rainfall=4.43"

Area (sf)	CN	Description
12,770	61	>75% Grass cover, Good, HSG B
12,770		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry, MIN Tc**

Summary for Subcatchment 263: PR-WS-263

Runoff = 0.60 cfs @ 12.08 hrs, Volume= 0.044 af, Depth= 1.29"
Routed to Reach 5R : P-264

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 2.00-72.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-YR Rainfall=4.43"

Area (sf)	CN	Description
2,035	98	Paved parking, HSG B
15,970	61	>75% Grass cover, Good, HSG B
18,005	65	Weighted Average
15,970		88.70% Pervious Area
2,035		11.30% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry, MIN Tc**

Summary for Subcatchment 265: PR-WS-265

Runoff = 0.87 cfs @ 12.07 hrs, Volume= 0.068 af, Depth> 4.19"
Routed to Pond 4P : RAIN GARDEN #1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 2.00-72.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-YR Rainfall=4.43"

Area (sf)	CN	Description
8,482	98	Paved parking, HSG B
8,482		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry, MIN Tc**

Summary for Subcatchment 266: PR-WS-266

Runoff = 0.42 cfs @ 12.07 hrs, Volume= 0.032 af, Depth> 4.19"
Routed to Pond 4P : RAIN GARDEN #1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 2.00-72.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-YR Rainfall=4.43"

Area (sf)	CN	Description
4,042	98	Paved parking, HSG B
4,042		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry, MIN Tc**

Summary for Subcatchment 269: PR-WS-269

Runoff = 0.41 cfs @ 12.07 hrs, Volume= 0.030 af, Depth= 3.75"
Routed to Pond CB 124 : CB 124

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 2.00-72.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-YR Rainfall=4.43"

Area (sf)	CN	Description
491	61	>75% Grass cover, Good, HSG B
3,712	98	Paved parking, HSG B
4,203	94	Weighted Average
491		11.68% Pervious Area
3,712		88.32% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry, MIN Tc**

Summary for Subcatchment 270: PR-WS-270

Runoff = 0.43 cfs @ 12.07 hrs, Volume= 0.032 af, Depth> 3.97"
Routed to Pond CB 123 : CB 123

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 2.00-72.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-YR Rainfall=4.43"

Area (sf)	CN	Description
203	61	>75% Grass cover, Good, HSG B
4,044	98	Paved parking, HSG B
4,247	96	Weighted Average
203		4.78% Pervious Area
4,044		95.22% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry, MIN Tc**

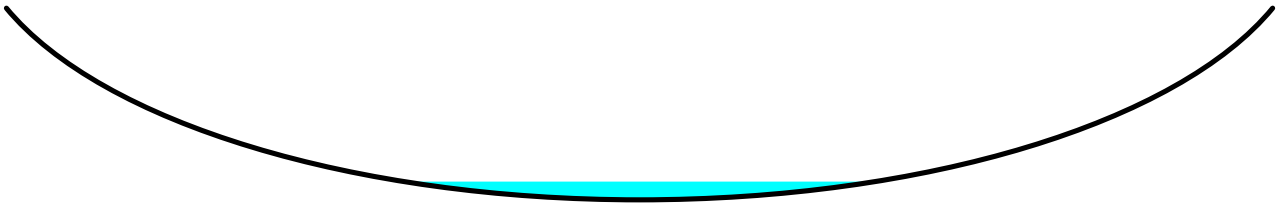
Summary for Reach 1R: OVERLAND

Inflow Area = 1.939 ac, 77.28% Impervious, Inflow Depth = 0.22" for 10-YR event
Inflow = 0.58 cfs @ 12.51 hrs, Volume= 0.036 af
Outflow = 0.58 cfs @ 12.51 hrs, Volume= 0.036 af, Atten= 0%, Lag= 0.3 min
Routed to Link AP2 : AP2

Routing by Dyn-Stor-Ind method, Time Span= 2.00-72.00 hrs, dt= 0.01 hrs / 3
Max. Velocity= 1.97 fps, Min. Travel Time= 0.4 min
Avg. Velocity = 1.35 fps, Avg. Travel Time= 0.6 min

Peak Storage= 13 cf @ 12.51 hrs
Average Depth at Peak Storage= 0.05' , Surface Width= 9.28'
Bank-Full Depth= 0.50' Flow Area= 10.0 sf, Capacity= 93.87 cfs

30.00' x 0.50' deep Parabolic Channel, n= 0.030
Length= 45.0' Slope= 0.1556 '/'
Inlet Invert= 146.00', Outlet Invert= 139.00'



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Summary for Reach 2R: SWALE

Inflow Area = 0.677 ac, 68.26% Impervious, Inflow Depth = 0.79" for 10-YR event
Inflow = 0.11 cfs @ 14.46 hrs, Volume= 0.045 af
Outflow = 0.11 cfs @ 14.56 hrs, Volume= 0.045 af, Atten= 1%, Lag= 5.8 min
Routed to Reach 3R : OVERLAND

Routing by Dyn-Stor-Ind method, Time Span= 2.00-72.00 hrs, dt= 0.01 hrs / 3
Max. Velocity= 0.75 fps, Min. Travel Time= 7.0 min
Avg. Velocity = 0.46 fps, Avg. Travel Time= 11.4 min

Peak Storage= 48 cf @ 14.56 hrs
Average Depth at Peak Storage= 0.03' , Surface Width= 5.18'
Bank-Full Depth= 1.00' Flow Area= 8.0 sf, Capacity= 49.46 cfs

5.00' x 1.00' deep channel, n= 0.030 Earth, grassed & winding
Side Slope Z-value= 3.0 '/' Top Width= 11.00'
Length= 315.0' Slope= 0.0248 '/'
Inlet Invert= 155.80', Outlet Invert= 148.00'

‡

Summary for Reach 3R: OVERLAND

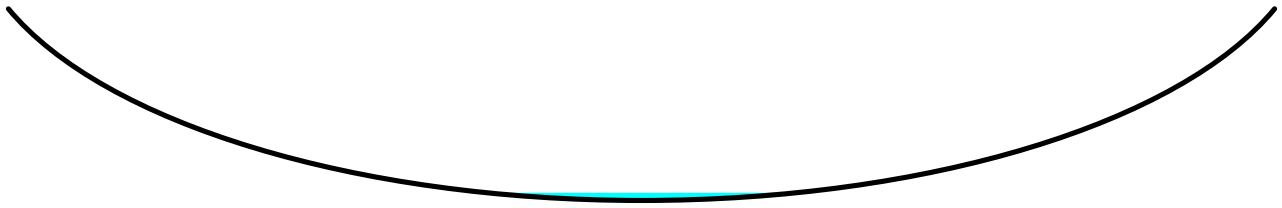
[61] Hint: Exceeded Reach 2R outlet invert by 0.02' @ 14.57 hrs

Inflow Area = 0.677 ac, 68.26% Impervious, Inflow Depth = 0.79" for 10-YR event
Inflow = 0.11 cfs @ 14.56 hrs, Volume= 0.045 af
Outflow = 0.11 cfs @ 14.57 hrs, Volume= 0.045 af, Atten= 0%, Lag= 0.3 min
Routed to Link AP2 : AP2

Routing by Dyn-Stor-Ind method, Time Span= 2.00-72.00 hrs, dt= 0.01 hrs / 3
Max. Velocity= 1.44 fps, Min. Travel Time= 0.4 min
Avg. Velocity = 0.91 fps, Avg. Travel Time= 0.7 min

Peak Storage= 3 cf @ 14.57 hrs
Average Depth at Peak Storage= 0.02' , Surface Width= 5.98'
Bank-Full Depth= 0.50' Flow Area= 10.0 sf, Capacity= 123.74 cfs

30.00' x 0.50' deep Parabolic Channel, n= 0.030 Earth, grassed & winding
Length= 37.0' Slope= 0.2703 '/'
Inlet Invert= 148.00', Outlet Invert= 138.00'



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Summary for Reach 4R: SWALE

[62] Hint: Exceeded Reach 9R OUTLET depth by 0.15' @ 24.43 hrs

Inflow Area = 0.347 ac, 20.61% Impervious, Inflow Depth = 1.55" for 10-YR event
Inflow = 0.63 cfs @ 12.09 hrs, Volume= 0.045 af
Outflow = 0.59 cfs @ 12.11 hrs, Volume= 0.045 af, Atten= 6%, Lag= 1.7 min
Routed to Reach 5R : P-264

Routing by Dyn-Stor-Ind method, Time Span= 2.00-72.00 hrs, dt= 0.01 hrs / 3
Max. Velocity= 1.18 fps, Min. Travel Time= 2.6 min
Avg. Velocity = 0.37 fps, Avg. Travel Time= 8.4 min

Peak Storage= 94 cf @ 12.11 hrs
Average Depth at Peak Storage= 0.09' , Surface Width= 5.92'
Bank-Full Depth= 1.00' Flow Area= 10.0 sf, Capacity= 46.54 cfs

5.00' x 1.00' deep channel, n= 0.030 Earth, grassed & winding
Side Slope Z-value= 5.0 '/' Top Width= 15.00'
Length= 188.0' Slope= 0.0154 '/'
Inlet Invert= 159.90', Outlet Invert= 157.00'

‡

Summary for Reach 5R: P-264

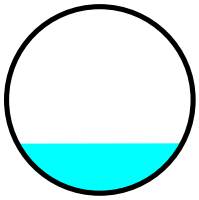
[52] Hint: Inlet/Outlet conditions not evaluated
[62] Hint: Exceeded Reach 4R OUTLET depth by 0.31' @ 12.10 hrs

Inflow Area = 0.761 ac, 15.55% Impervious, Inflow Depth = 1.41" for 10-YR event
Inflow = 1.17 cfs @ 12.10 hrs, Volume= 0.089 af
Outflow = 1.16 cfs @ 12.10 hrs, Volume= 0.089 af, Atten= 0%, Lag= 0.3 min
Routed to Reach 6R : SWALE

Routing by Dyn-Stor-Ind method, Time Span= 2.00-72.00 hrs, dt= 0.01 hrs / 3
Max. Velocity= 3.06 fps, Min. Travel Time= 0.4 min
Avg. Velocity = 1.14 fps, Avg. Travel Time= 1.2 min

Peak Storage= 30 cf @ 12.10 hrs
Average Depth at Peak Storage= 0.40' , Surface Width= 1.33'
Bank-Full Depth= 1.50' Flow Area= 1.8 sf, Capacity= 7.43 cfs

18.0" Round Pipe
n= 0.013
Length= 80.0' Slope= 0.0050 '/'
Inlet Invert= 157.00', Outlet Invert= 156.60'



Summary for Reach 6R: SWALE

[61] Hint: Exceeded Reach 5R outlet invert by 0.12' @ 12.14 hrs

Inflow Area = 0.761 ac, 15.55% Impervious, Inflow Depth = 1.41" for 10-YR event
Inflow = 1.16 cfs @ 12.10 hrs, Volume= 0.089 af
Outflow = 1.08 cfs @ 12.14 hrs, Volume= 0.089 af, Atten= 7%, Lag= 2.0 min
Routed to Reach 7R : OVERLAND

Routing by Dyn-Stor-Ind method, Time Span= 2.00-72.00 hrs, dt= 0.01 hrs / 3
Max. Velocity= 1.64 fps, Min. Travel Time= 3.1 min
Avg. Velocity = 0.52 fps, Avg. Travel Time= 9.8 min

Peak Storage= 201 cf @ 12.14 hrs
Average Depth at Peak Storage= 0.12' , Surface Width= 6.18'
Bank-Full Depth= 1.00' Flow Area= 10.0 sf, Capacity= 55.21 cfs

5.00' x 1.00' deep channel, n= 0.030 Earth, grassed & winding
Side Slope Z-value= 5.0 '/' Top Width= 15.00'
Length= 304.0' Slope= 0.0217 '/'
Inlet Invert= 156.60', Outlet Invert= 150.00'

‡

Summary for Reach 7R: OVERLAND

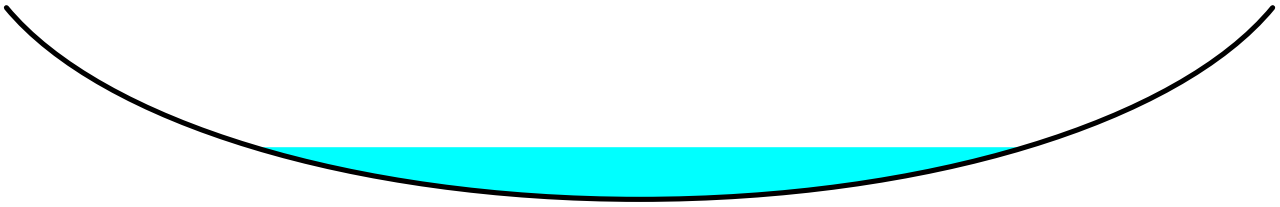
[62] Hint: Exceeded Reach 6R OUTLET depth by 0.04' @ 12.45 hrs
[62] Hint: Exceeded Reach 8R OUTLET depth by 0.07' @ 12.06 hrs

Inflow Area = 1.866 ac, 52.90% Impervious, Inflow Depth = 1.21" for 10-YR event
Inflow = 2.73 cfs @ 12.18 hrs, Volume= 0.188 af
Outflow = 2.71 cfs @ 12.20 hrs, Volume= 0.188 af, Atten= 1%, Lag= 1.2 min
Routed to Link AP3 : AP3

Routing by Dyn-Stor-Ind method, Time Span= 2.00-72.00 hrs, dt= 0.01 hrs / 3
Max. Velocity= 1.91 fps, Min. Travel Time= 1.2 min
Avg. Velocity = 0.57 fps, Avg. Travel Time= 4.1 min

Peak Storage= 198 cf @ 12.20 hrs
Average Depth at Peak Storage= 0.14' , Surface Width= 15.64'
Bank-Full Depth= 0.50' Flow Area= 10.0 sf, Capacity= 45.62 cfs

30.00' x 0.50' deep Parabolic Channel, n= 0.035 Earth, dense weeds
Length= 140.0' Slope= 0.0500 '/'
Inlet Invert= 150.00', Outlet Invert= 143.00'



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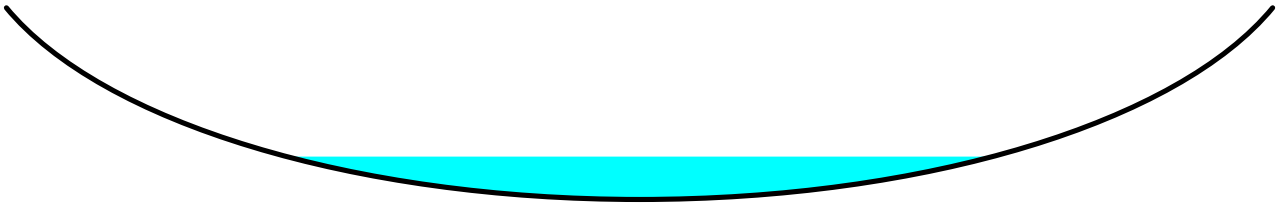
Summary for Reach 8R: OVERLAND

Inflow Area = 1.105 ac, 78.62% Impervious, Inflow Depth = 1.08" for 10-YR event
Inflow = 1.81 cfs @ 12.23 hrs, Volume= 0.099 af
Outflow = 1.81 cfs @ 12.24 hrs, Volume= 0.099 af, Atten= 0%, Lag= 0.6 min
Routed to Reach 7R : OVERLAND

Routing by Dyn-Stor-Ind method, Time Span= 2.00-72.00 hrs, dt= 0.01 hrs / 3
Max. Velocity= 1.70 fps, Min. Travel Time= 0.8 min
Avg. Velocity = 0.73 fps, Avg. Travel Time= 1.8 min

Peak Storage= 85 cf @ 12.24 hrs
Average Depth at Peak Storage= 0.11' , Surface Width= 14.21'
Bank-Full Depth= 0.50' Flow Area= 10.0 sf, Capacity= 46.09 cfs

30.00' x 0.50' deep Parabolic Channel, n= 0.030
Length= 80.0' Slope= 0.0375 '/'
Inlet Invert= 153.00', Outlet Invert= 150.00'



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Summary for Reach 9R: CULVERT

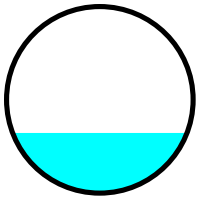
[52] Hint: Inlet/Outlet conditions not evaluated

Inflow Area = 0.347 ac, 20.61% Impervious, Inflow Depth = 1.55" for 10-YR event
Inflow = 0.63 cfs @ 12.08 hrs, Volume= 0.045 af
Outflow = 0.63 cfs @ 12.09 hrs, Volume= 0.045 af, Atten= 0%, Lag= 0.3 min
Routed to Reach 4R : SWALE

Routing by Dyn-Stor-Ind method, Time Span= 2.00-72.00 hrs, dt= 0.01 hrs / 3
Max. Velocity= 2.89 fps, Min. Travel Time= 0.5 min
Avg. Velocity = 1.10 fps, Avg. Travel Time= 1.2 min

Peak Storage= 17 cf @ 12.09 hrs
Average Depth at Peak Storage= 0.32' , Surface Width= 0.93'
Bank-Full Depth= 1.00' Flow Area= 0.8 sf, Capacity= 2.82 cfs

12.0" Round Pipe
n= 0.013
Length= 80.0' Slope= 0.0063 '/'
Inlet Invert= 160.25', Outlet Invert= 159.75'



Summary for Reach 16R: 8" RD

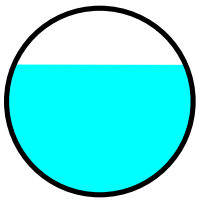
[52] Hint: Inlet/Outlet conditions not evaluated
[82] Warning: Early inflow requires earlier time span
[62] Hint: Exceeded Reach 17R OUTLET depth by 0.12' @ 12.07 hrs

Inflow Area = 0.190 ac,100.00% Impervious, Inflow Depth > 4.19" for 10-YR event
Inflow = 0.85 cfs @ 12.07 hrs, Volume= 0.066 af
Outflow = 0.85 cfs @ 12.07 hrs, Volume= 0.066 af, Atten= 0%, Lag= 0.1 min
Routed to Pond DMH 1 : DMH 001

Routing by Dyn-Stor-Ind method, Time Span= 2.00-72.00 hrs, dt= 0.01 hrs / 3
Max. Velocity= 3.27 fps, Min. Travel Time= 0.1 min
Avg. Velocity = 1.16 fps, Avg. Travel Time= 0.2 min

Peak Storage= 4 cf @ 12.07 hrs
Average Depth at Peak Storage= 0.46' , Surface Width= 0.61'
Bank-Full Depth= 0.67' Flow Area= 0.3 sf, Capacity= 1.02 cfs

8.0" Round Pipe
n= 0.013
Length= 14.0' Slope= 0.0071 '/'
Inlet Invert= 157.35', Outlet Invert= 157.25'



Summary for Reach 17R: 8" RD

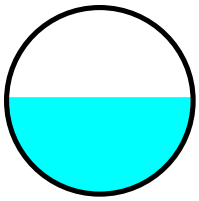
[52] Hint: Inlet/Outlet conditions not evaluated
[82] Warning: Early inflow requires earlier time span

Inflow Area = 0.112 ac,100.00% Impervious, Inflow Depth > 4.19" for 10-YR event
Inflow = 0.50 cfs @ 12.07 hrs, Volume= 0.039 af
Outflow = 0.50 cfs @ 12.07 hrs, Volume= 0.039 af, Atten= 0%, Lag= 0.3 min
Routed to Reach 16R : 8" RD

Routing by Dyn-Stor-Ind method, Time Span= 2.00-72.00 hrs, dt= 0.01 hrs / 3
Max. Velocity= 2.73 fps, Min. Travel Time= 0.4 min
Avg. Velocity = 0.94 fps, Avg. Travel Time= 1.0 min

Peak Storage= 11 cf @ 12.07 hrs
Average Depth at Peak Storage= 0.35' , Surface Width= 0.67'
Bank-Full Depth= 0.67' Flow Area= 0.3 sf, Capacity= 0.94 cfs

8.0" Round Pipe
n= 0.013
Length= 58.0' Slope= 0.0060 '/'
Inlet Invert= 157.70', Outlet Invert= 157.35'



Summary for Pond 1P: INFILTRATION BASIN #1

Inflow Area = 1.939 ac, 77.28% Impervious, Inflow Depth = 3.42" for 10-YR event
Inflow = 7.35 cfs @ 12.07 hrs, Volume= 0.552 af
Outflow = 1.41 cfs @ 12.51 hrs, Volume= 0.552 af, Atten= 81%, Lag= 26.0 min
Discarded = 0.82 cfs @ 12.51 hrs, Volume= 0.516 af
Primary = 0.58 cfs @ 12.51 hrs, Volume= 0.036 af
Routed to Reach 1R : OVERLAND

Routing by Dyn-Stor-Ind method, Time Span= 2.00-72.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 152.82' @ 12.51 hrs Surf.Area= 11,791 sf Storage= 8,995 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 143.6 min (917.3 - 773.7)

Volume	Invert	Avail.Storage	Storage Description
#1	151.00'	1,354 cf	**Forebay (Irregular)** Listed below (Recalc)
#2	151.00'	5,707 cf	**CELL #1 (Irregular)** Listed below (Recalc)
#3	152.50'	10,004 cf	**EXTENDED STORAGE (Irregular)** Listed below (Recalc)
		17,064 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
151.00	648	104.0	0	0	648
152.00	988	123.0	812	812	1,009
152.50	1,182	133.0	542	1,354	1,223

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
151.00	3,227	248.0	0	0	3,227
152.00	3,999	267.0	3,606	3,606	4,047
152.50	4,407	276.0	2,101	5,707	4,459

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
152.50	5,863	350.0	0	0	5,863
153.00	6,395	359.0	3,064	3,064	6,401
154.00	7,500	378.0	6,940	10,004	7,575

Device	Routing	Invert	Outlet Devices
#1	Device 3	152.50'	**12.0" W x 12.0" H Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#2	Device 3	153.50'	**4.0' long Sharp-Crested Vee/Trap Weir** Cv= 2.62 (C= 3.28)
#3	Primary	148.15'	**18.0" Round P-251** L= 85.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 148.15' / 146.50' S= 0.0194 '/' Cc= 0.900 n= 0.013, Flow Area= 1.77 sf
#4	Primary	153.50'	**10.0' long x 5.0' 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 4.00 4.50 5.00 5.50 Coef. (English) 2.34 2.50 2.70 2.68 2.68 2.66 2.65 2.65 2.65 2.65 2.67 2.66 2.68 2.70 2.74 2.79 2.88
#5	Discarded	151.00'	**3.000 in/hr Exfiltration over Surface area** Conductivity to Groundwater Elevation = 0.00'

Discarded OutFlow Max=0.82 cfs @ 12.51 hrs HW=152.82' (Free Discharge)
└**5=Exfiltration** (Controls 0.82 cfs)

Primary OutFlow Max=0.58 cfs @ 12.51 hrs HW=152.82' TW=146.05' (Dynamic Tailwater)
├**3=P-251** (Passes 0.58 cfs of 16.85 cfs potential flow)
│ ├**1=Orifice/Grate** (Orifice Controls 0.58 cfs @ 1.82 fps)
│ └**2=Sharp-Crested Vee/Trap Weir** (Controls 0.00 cfs)
└**4=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Summary for Pond 3P: Stormtech #1

Inflow Area = 1.105 ac, 78.62% Impervious, Inflow Depth > 3.36" for 10-YR event
Inflow = 4.22 cfs @ 12.07 hrs, Volume= 0.310 af
Outflow = 1.98 cfs @ 12.23 hrs, Volume= 0.310 af, Atten= 53%, Lag= 9.3 min
Discarded = 0.16 cfs @ 12.23 hrs, Volume= 0.211 af
Primary = 1.81 cfs @ 12.23 hrs, Volume= 0.099 af
Routed to Reach 8R : OVERLAND

Routing by Dyn-Stor-Ind method, Time Span= 2.00-72.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 158.03' @ 12.23 hrs Surf.Area= 2,393 sf Storage= 4,114 cf
Flood Elev= 159.00' Surf.Area= 2,393 sf Storage= 5,139 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 147.1 min (936.5 - 789.4)

Volume	Invert	Avail.Storage	Storage Description
#1A	155.50'	2,157 cf	**39.50'W x 60.58'L x 3.50'H Field A** 8,375 cf Overall - 2,983 cf Embedded = 5,392 cf x 40.0% Voids
#2A	156.00'	2,983 cf	**ADS_StormTech SC-740 b +Cap** x 64 Inside #1 Effective Size= 44.6"W x 30.0"H => 6.45 sf x 7.12'L = 45.9 cf Overall Size= 51.0"W x 30.0"H x 7.56'L with 0.44' Overlap 64 Chambers in 8 Rows Cap Storage= 2.7 cf x 2 x 8 rows = 42.5 cf
		5,139 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Primary	156.00'	**18.0" Round Culvert** L= 107.0' Ke= 0.500 Inlet / Outlet Invert= 156.00' / 154.00' S= 0.0187 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.77 sf
#2	Device 1	158.30'	**4.0' long Sharp-Crested Rectangular Weir** 2 End Contraction(s)
#3	Device 1	157.40'	**20.0" W x 4.0" H Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#4	Discarded	155.50'	**2.000 in/hr Exfiltration over Surface area** Conductivity to Groundwater Elevation = 150.33'

Discarded OutFlow Max=0.16 cfs @ 12.23 hrs HW=158.03' (Free Discharge)
└**4=Exfiltration** (Controls 0.16 cfs)

Primary OutFlow Max=1.81 cfs @ 12.23 hrs HW=158.03' TW=153.11' (Dynamic Tailwater)
└**1=Culvert** (Passes 1.81 cfs of 9.63 cfs potential flow)
  ├**2=Sharp-Crested Rectangular Weir** (Controls 0.00 cfs)
  └**3=Orifice/Grate** (Orifice Controls 1.81 cfs @ 3.26 fps)

Summary for Pond 4P: RAIN GARDEN #1

[82] Warning: Early inflow requires earlier time span

Inflow Area = 0.677 ac, 68.26% Impervious, Inflow Depth > 3.11" for 10-YR event
Inflow = 2.32 cfs @ 12.07 hrs, Volume= 0.176 af
Outflow = 0.11 cfs @ 14.46 hrs, Volume= 0.045 af, Atten= 95%, Lag= 143.4 min
Primary = 0.11 cfs @ 14.46 hrs, Volume= 0.045 af
Routed to Reach 2R : SWALE

Routing by Dyn-Stor-Ind method, Time Span= 2.00-72.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 159.53' @ 14.46 hrs Surf.Area= 3,809 sf Storage= 5,831 cf

Plug-Flow detention time= 488.8 min calculated for 0.045 af (25% of inflow)
Center-of-Mass det. time= 288.8 min (1,063.9 - 775.1)

Volume	Invert	Avail.Storage	Storage Description
#1	156.00'	7,730 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)
156.00	3,289	387.0	0.0	0	0	3,289
157.50	3,289	387.0	40.0	1,973	1,973	3,870
159.00	3,289	387.0	40.0	1,973	3,947	4,450
160.00	4,299	409.0	100.0	3,783	7,730	5,899

Device	Routing	Invert	Outlet Devices
#1	Device 2	159.50'	**24.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#2	Primary	156.50'	**12.0" Round P-250** L= 195.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 156.50' / 155.50' S= 0.0051 '/' Cc= 0.900 n= 0.013, Flow Area= 0.79 sf

Primary OutFlow Max=0.11 cfs @ 14.46 hrs HW=159.53' TW=155.83' (Dynamic Tailwater)
↑—**2=P-250** (Passes 0.11 cfs of 3.97 cfs potential flow)
↑—**1=Orifice/Grate** (Weir Controls 0.11 cfs @ 0.58 fps)

Summary for Pond 6P: INFILTRATION BASIN #2

[92] Warning: Device #2 is above defined storage
[87] Warning: Oscillations may require smaller dt or Finer Routing (severity=99)

Inflow Area = 1.568 ac, 67.42% Impervious, Inflow Depth = 3.04" for 10-YR event
Inflow = 5.35 cfs @ 12.08 hrs, Volume= 0.397 af
Outflow = 0.37 cfs @ 13.51 hrs, Volume= 0.397 af, Atten= 93%, Lag= 86.2 min
Discarded = 0.37 cfs @ 13.51 hrs, Volume= 0.397 af
Primary = 0.00 cfs @ 2.00 hrs, Volume= 0.000 af
Routed to Link AP3 : AP3

Routing by Dyn-Stor-Ind method, Time Span= 2.00-72.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 156.71' @ 13.51 hrs Surf.Area= 5,288 sf Storage= 7,505 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 200.1 min (987.6 - 787.5)

Volume	Invert	Avail.Storage	Storage Description
#1	154.50'	1,938 cf	**Forebay (Irregular)** Listed below (Recalc)
#2	155.00'	7,153 cf	**CELL #1 (Irregular)** Listed below (Recalc)
#3	157.00'	14,249 cf	**EXTENDED STORAGE (Irregular)** Listed below (Recalc)
		23,340 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
154.50	337	95.0	0	0	337
155.00	495	108.0	207	207	553
156.00	859	130.0	669	875	986
157.00	1,281	148.0	1,063	1,938	1,408

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
155.00	2,813	240.0	0	0	2,813
156.00	3,570	261.0	3,184	3,184	3,687
157.00	4,382	280.0	3,969	7,153	4,548

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
157.00	5,947	376.0	0	0	5,947
158.00	7,111	393.0	6,520	6,520	7,056
159.00	8,363	416.0	7,729	14,249	8,591

Device	Routing	Invert	Outlet Devices
#1	Device 3	157.00'	**12.0" W x 8.0" H Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#2	Device 3	159.00'	**4.0' long Sharp-Crested Vee/Trap Weir** Cv= 2.62 (C= 3.28)
#3	Primary	153.50'	**18.0" Round P-263** L= 230.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 153.50' / 150.00' S= 0.0152 '/' Cc= 0.900 n= 0.013, Flow Area= 1.77 sf
#4	Discarded	154.50'	**3.000 in/hr Exfiltration over Surface area** Conductivity to Groundwater Elevation = 0.00'

Discarded OutFlow Max=0.37 cfs @ 13.51 hrs HW=156.71' (Free Discharge)
└**4=Exfiltration** (Controls 0.37 cfs)

Primary OutFlow Max=0.00 cfs @ 2.00 hrs HW=154.50' TW=0.00' (Dynamic Tailwater)
└**3=P-263** (Passes 0.00 cfs of 4.26 cfs potential flow)
  └**1=Orifice/Grate** (Controls 0.00 cfs)
  └**2=Sharp-Crested Vee/Trap Weir** (Controls 0.00 cfs)

Summary for Pond 231P: Stormtech #1 - ISO ROW CHECK

[43] Hint: Has no inflow (Outflow=Zero)

Volume	Invert	Avail.Storage	Storage Description
#1A	155.50'	635 cf	**11.00'W x 60.58'L x 3.50'H Field A** 2,332 cf Overall - 746 cf Embedded = 1,587 cf x 40.0% Voids
#2A	156.00'	746 cf	**ADS_StormTech SC-740 b +Cap** x 16 Inside #1 Effective Size= 44.6"W x 30.0"H => 6.45 sf x 7.12'L = 45.9 cf Overall Size= 51.0"W x 30.0"H x 7.56'L with 0.44' Overlap 16 Chambers in 2 Rows Cap Storage= 2.7 cf x 2 x 2 rows = 10.6 cf

1,380 cf Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Primary	156.00'	**18.0" Round Culvert** L= 107.0' Ke= 0.500 Inlet / Outlet Invert= 156.00' / 154.00' S= 0.0187 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.77 sf
#2	Device 1	158.30'	**4.0' long Sharp-Crested Rectangular Weir** 2 End Contraction(s)
#3	Device 1	157.40'	**20.0" W x 4.0" H Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#4	Discarded	155.50'	**2.000 in/hr Exfiltration over Surface area** Conductivity to Groundwater Elevation = 146.17'

Discarded OutFlow Max=0.00 cfs @ 2.00 hrs HW=0.00' (Free Discharge)
└**4=Exfiltration** (Controls 0.00 cfs)

Primary OutFlow Max=0.00 cfs @ 2.00 hrs HW=0.00' (Free Discharge)
└**1=Culvert** (Controls 0.00 cfs)
  ├**2=Sharp-Crested Rectangular Weir** (Controls 0.00 cfs)
  └**3=Orifice/Grate** (Controls 0.00 cfs)

Summary for Pond CB 101: CB 101

[82] Warning: Early inflow requires earlier time span

Inflow Area = 0.089 ac,100.00% Impervious, Inflow Depth > 4.19" for 10-YR event
Inflow = 0.40 cfs @ 12.07 hrs, Volume= 0.031 af
Outflow = 0.40 cfs @ 12.07 hrs, Volume= 0.031 af, Atten= 0%, Lag= 0.1 min
Primary = 0.40 cfs @ 12.07 hrs, Volume= 0.031 af
Routed to Pond 4P : RAIN GARDEN #1

Routing by Dyn-Stor-Ind method, Time Span= 2.00-72.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 160.57' @ 12.07 hrs Surf.Area= 0.000 ac Storage= 0.000 af

Plug-Flow detention time= 0.7 min calculated for 0.031 af (100% of inflow)
Center-of-Mass det. time= 0.7 min (751.1 - 750.4)

Volume	Invert	Avail.Storage	Storage Description
#1	160.25'	0.001 af	**4.00'D x 5.00'H Vertical Cone/Cylinder**

Device	Routing	Invert	Outlet Devices
#1	Primary	160.25'	**12.0" Round P-201** L= 27.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 160.25' / 159.95' S= 0.0111 '/' Cc= 0.900 n= 0.013, Flow Area= 0.79 sf

Primary OutFlow Max=0.40 cfs @ 12.07 hrs HW=160.57' TW=158.35' (Dynamic Tailwater)
└**1=P-201** (Barrel Controls 0.40 cfs @ 2.73 fps)

Summary for Pond CB 102: CB 102

Inflow Area = 1.646 ac, 91.04% Impervious, Inflow Depth = 3.84" for 10-YR event
Inflow = 7.03 cfs @ 12.07 hrs, Volume= 0.527 af
Outflow = 7.03 cfs @ 12.07 hrs, Volume= 0.527 af, Atten= 0%, Lag= 0.0 min
Primary = 7.03 cfs @ 12.07 hrs, Volume= 0.527 af
Routed to Pond 1P : INFILTRATION BASIN #1

Routing by Dyn-Stor-Ind method, Time Span= 2.00-72.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 152.98' @ 12.07 hrs Surf.Area= 0.000 ac Storage= 0.000 af

Plug-Flow detention time= 0.3 min calculated for 0.527 af (100% of inflow)
Center-of-Mass det. time= 0.3 min (768.5 - 768.3)

Volume	Invert	Avail.Storage	Storage Description
#1	151.60'	0.003 af	**4.00'D x 9.80'H Vertical Cone/Cylinder**

Device	Routing	Invert	Outlet Devices
#1	Primary	151.60'	**24.0" Round P-202** L= 35.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 151.60' / 151.40' S= 0.0057 '/' Cc= 0.900 n= 0.013, Flow Area= 3.14 sf

Primary OutFlow Max=7.02 cfs @ 12.07 hrs HW=152.98' TW=152.19' (Dynamic Tailwater)
1=P-202 (Barrel Controls 7.02 cfs @ 4.27 fps)

Summary for Pond CB 103: CB 103

[82] Warning: Early inflow requires earlier time span

Inflow Area = 0.090 ac,100.00% Impervious, Inflow Depth > 4.19" for 10-YR event
Inflow = 0.40 cfs @ 12.07 hrs, Volume= 0.031 af
Outflow = 0.40 cfs @ 12.07 hrs, Volume= 0.031 af, Atten= 0%, Lag= 0.1 min
Primary = 0.40 cfs @ 12.07 hrs, Volume= 0.031 af
Routed to Pond CB 102 : CB 102

Routing by Dyn-Stor-Ind method, Time Span= 2.00-72.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 155.33' @ 12.07 hrs Surf.Area= 0.000 ac Storage= 0.000 af

Plug-Flow detention time= 10.0 min calculated for 0.031 af (99% of inflow)
Center-of-Mass det. time= 5.0 min (755.4 - 750.4)

Volume	Invert	Avail.Storage	Storage Description
#1	154.20'	0.002 af	**4.00'D x 5.25'H Vertical Cone/Cylinder**

Device	Routing	Invert	Outlet Devices
#1	Primary	155.00'	**12.0" Round P-203** L= 28.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 155.00' / 154.70' S= 0.0107 '/' Cc= 0.900 n= 0.013, Flow Area= 0.79 sf

Primary OutFlow Max=0.40 cfs @ 12.07 hrs HW=155.32' TW=152.98' (Dynamic Tailwater)
↑—**1=P-203** (Barrel Controls 0.40 cfs @ 2.71 fps)

Summary for Pond CB 104: CB 104

Inflow Area = 1.438 ac, 90.19% Impervious, Inflow Depth = 3.81" for 10-YR event
Inflow = 6.11 cfs @ 12.07 hrs, Volume= 0.456 af
Outflow = 6.11 cfs @ 12.07 hrs, Volume= 0.456 af, Atten= 0%, Lag= 0.0 min
Primary = 6.11 cfs @ 12.07 hrs, Volume= 0.456 af
Routed to Pond CB 102 : CB 102

Routing by Dyn-Stor-Ind method, Time Span= 2.00-72.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 154.13' @ 12.07 hrs Surf.Area= 0.000 ac Storage= 0.000 af

Plug-Flow detention time= 0.2 min calculated for 0.456 af (100% of inflow)
Center-of-Mass det. time= 0.2 min (769.5 - 769.3)

Volume	Invert	Avail.Storage	Storage Description
#1	152.85'	0.002 af	**4.00'D x 8.00'H Vertical Cone/Cylinder**

Device	Routing	Invert	Outlet Devices
#1	Primary	152.85'	**24.0" Round P-204** L= 230.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 152.85' / 151.70' S= 0.0050 '/' Cc= 0.900 n= 0.013, Flow Area= 3.14 sf

Primary OutFlow Max=6.10 cfs @ 12.07 hrs HW=154.13' TW=152.98' (Dynamic Tailwater)
↑—**1=P-204** (Outlet Controls 6.10 cfs @ 4.08 fps)

Summary for Pond CB 105: CB 105

[82] Warning: Early inflow requires earlier time span

Inflow Area = 0.077 ac,100.00% Impervious, Inflow Depth > 4.19" for 10-YR event
Inflow = 0.35 cfs @ 12.07 hrs, Volume= 0.027 af
Outflow = 0.34 cfs @ 12.07 hrs, Volume= 0.027 af, Atten= 0%, Lag= 0.2 min
Primary = 0.34 cfs @ 12.07 hrs, Volume= 0.027 af
Routed to Pond CB 104 : CB 104

Routing by Dyn-Stor-Ind method, Time Span= 2.00-72.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 154.46' @ 12.07 hrs Surf.Area= 0.000 ac Storage= 0.000 af

Plug-Flow detention time= 0.8 min calculated for 0.027 af (100% of inflow)
Center-of-Mass det. time= 0.7 min (751.1 - 750.4)

Volume	Invert	Avail.Storage	Storage Description
#1	154.15'	0.002 af	**4.00'D x 6.70'H Vertical Cone/Cylinder**

Device	Routing	Invert	Outlet Devices
#1	Primary	154.15'	**12.0" Round P-205**

L= 28.0' CPP, square edge headwall, Ke= 0.500
Inlet / Outlet Invert= 154.15' / 153.85' S= 0.0107 '/' Cc= 0.900
n= 0.013, Flow Area= 0.79 sf

Primary OutFlow Max=0.34 cfs @ 12.07 hrs HW=154.46' TW=154.13' (Dynamic Tailwater)
1=P-205 (Outlet Controls 0.34 cfs @ 2.48 fps)

Summary for Pond CB 106: CB 106

Inflow Area = 0.169 ac, 96.62% Impervious, Inflow Depth > 4.02" for 10-YR event
Inflow = 0.74 cfs @ 12.07 hrs, Volume= 0.056 af
Outflow = 0.74 cfs @ 12.07 hrs, Volume= 0.056 af, Atten= 0%, Lag= 0.1 min
Primary = 0.74 cfs @ 12.07 hrs, Volume= 0.056 af
Routed to Pond CB 104 : CB 104

Routing by Dyn-Stor-Ind method, Time Span= 2.00-72.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 155.30' @ 12.07 hrs Surf.Area= 0.000 ac Storage= 0.000 af

Plug-Flow detention time= 0.6 min calculated for 0.056 af (100% of inflow)
Center-of-Mass det. time= 0.6 min (761.9 - 761.3)

Volume	Invert	Avail.Storage	Storage Description
#1	154.80'	0.001 af	**4.00'D x 4.95'H Vertical Cone/Cylinder**

Device	Routing	Invert	Outlet Devices
#1	Primary	154.80'	**12.0" Round P-206** L= 182.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 154.80' / 153.85' S= 0.0052 '/' Cc= 0.900 n= 0.013, Flow Area= 0.79 sf

Primary OutFlow Max=0.74 cfs @ 12.07 hrs HW=155.30' TW=154.13' (Dynamic Tailwater)
1=P-206 (Barrel Controls 0.74 cfs @ 2.77 fps)

Summary for Pond CB 107: CB 107

[82] Warning: Early inflow requires earlier time span

Inflow Area = 0.040 ac,100.00% Impervious, Inflow Depth > 4.19" for 10-YR event
Inflow = 0.18 cfs @ 12.07 hrs, Volume= 0.014 af
Outflow = 0.18 cfs @ 12.07 hrs, Volume= 0.014 af, Atten= 0%, Lag= 0.3 min
Primary = 0.18 cfs @ 12.07 hrs, Volume= 0.014 af
Routed to Pond CB 106 : CB 106

Routing by Dyn-Stor-Ind method, Time Span= 2.00-72.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 155.35' @ 12.07 hrs Surf.Area= 0.000 ac Storage= 0.000 af

Plug-Flow detention time= 1.5 min calculated for 0.014 af (100% of inflow)
Center-of-Mass det. time= 1.3 min (751.7 - 750.4)

Volume	Invert	Avail.Storage	Storage Description
#1	155.00'	0.001 af	**4.00'D x 4.75'H Vertical Cone/Cylinder**

Device	Routing	Invert	Outlet Devices
#1	Primary	155.00'	**12.0" Round P-207** L= 28.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 155.00' / 154.70' S= 0.0107 '/' Cc= 0.900 n= 0.013, Flow Area= 0.79 sf

Primary OutFlow Max=0.18 cfs @ 12.07 hrs HW=155.35' TW=155.30' (Dynamic Tailwater)
↑—**1=P-207** (Outlet Controls 0.18 cfs @ 1.06 fps)

Summary for Pond CB 108: CB 108

Inflow Area = 0.932 ac, 91.89% Impervious, Inflow Depth > 3.87" for 10-YR event
Inflow = 4.00 cfs @ 12.07 hrs, Volume= 0.301 af
Outflow = 4.00 cfs @ 12.07 hrs, Volume= 0.301 af, Atten= 0%, Lag= 0.0 min
Primary = 4.00 cfs @ 12.07 hrs, Volume= 0.301 af
Routed to Pond CB 104 : CB 104

Routing by Dyn-Stor-Ind method, Time Span= 2.00-72.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 155.09' @ 12.07 hrs Surf.Area= 0.000 ac Storage= 0.000 af

Plug-Flow detention time= 0.3 min calculated for 0.301 af (100% of inflow)
Center-of-Mass det. time= 0.2 min (766.4 - 766.2)

Volume	Invert	Avail.Storage	Storage Description
#1	154.00'	0.002 af	**4.00'D x 7.00'H Vertical Cone/Cylinder**

Device	Routing	Invert	Outlet Devices
#1	Primary	154.00'	**18.0" Round P-208** L= 122.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 154.00' / 153.35' S= 0.0053 '/' Cc= 0.900 n= 0.013, Flow Area= 1.77 sf

Primary OutFlow Max=3.99 cfs @ 12.07 hrs HW=155.09' TW=154.13' (Dynamic Tailwater)
↑—**1=P-208** (Barrel Controls 3.99 cfs @ 4.07 fps)

Summary for Pond CB 109: CB 109

Inflow Area = 0.436 ac, 92.82% Impervious, Inflow Depth = 3.94" for 10-YR event
Inflow = 1.90 cfs @ 12.07 hrs, Volume= 0.143 af
Outflow = 1.90 cfs @ 12.07 hrs, Volume= 0.143 af, Atten= 0%, Lag= 0.1 min
Primary = 1.90 cfs @ 12.07 hrs, Volume= 0.143 af
Routed to Pond CB 108 : CB 108

Routing by Dyn-Stor-Ind method, Time Span= 2.00-72.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 155.64' @ 12.07 hrs Surf.Area= 0.000 ac Storage= 0.000 af

Plug-Flow detention time= 0.3 min calculated for 0.143 af (100% of inflow)
Center-of-Mass det. time= 0.3 min (765.8 - 765.5)

Volume	Invert	Avail.Storage	Storage Description
#1	154.75'	0.002 af	**4.00'D x 7.00'H Vertical Cone/Cylinder**

Device	Routing	Invert	Outlet Devices
#1	Primary	154.75'	**12.0" Round P-209** L= 42.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 154.75' / 154.50' S= 0.0060 '/' Cc= 0.900 n= 0.013, Flow Area= 0.79 sf

Primary OutFlow Max=1.90 cfs @ 12.07 hrs HW=155.63' TW=155.09' (Dynamic Tailwater)
↑—**1=P-209** (Barrel Controls 1.90 cfs @ 3.43 fps)

Summary for Pond CB 110: CB 110

Inflow Area = 0.385 ac, 94.17% Impervious, Inflow Depth = 4.00" for 10-YR event
Inflow = 1.70 cfs @ 12.07 hrs, Volume= 0.128 af
Outflow = 1.69 cfs @ 12.07 hrs, Volume= 0.128 af, Atten= 0%, Lag= 0.1 min
Primary = 1.69 cfs @ 12.07 hrs, Volume= 0.128 af
Routed to Pond CB 109 : CB 109

Routing by Dyn-Stor-Ind method, Time Span= 2.00-72.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 156.19' @ 12.07 hrs Surf.Area= 0.000 ac Storage= 0.000 af

Plug-Flow detention time= 0.4 min calculated for 0.128 af (100% of inflow)
Center-of-Mass det. time= 0.4 min (763.2 - 762.8)

Volume	Invert	Avail.Storage	Storage Description
#1	155.30'	0.002 af	**4.00'D x 6.70'H Vertical Cone/Cylinder**

Device	Routing	Invert	Outlet Devices
#1	Primary	155.30'	**12.0" Round P-210** L= 89.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 155.30' / 154.85' S= 0.0051 '/' Cc= 0.900 n= 0.013, Flow Area= 0.79 sf

Primary OutFlow Max=1.69 cfs @ 12.07 hrs HW=156.18' TW=155.63' (Dynamic Tailwater)
↑—**1=P-210** (Outlet Controls 1.69 cfs @ 3.06 fps)

Summary for Pond CB 111: CB 111

Inflow Area = 0.307 ac, 95.05% Impervious, Inflow Depth > 4.03" for 10-YR event
Inflow = 1.36 cfs @ 12.07 hrs, Volume= 0.103 af
Outflow = 1.35 cfs @ 12.07 hrs, Volume= 0.103 af, Atten= 0%, Lag= 0.1 min
Primary = 1.35 cfs @ 12.07 hrs, Volume= 0.103 af
Routed to Pond CB 110 : CB 110

Routing by Dyn-Stor-Ind method, Time Span= 2.00-72.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 156.44' @ 12.07 hrs Surf.Area= 0.000 ac Storage= 0.000 af

Plug-Flow detention time= 0.5 min calculated for 0.103 af (100% of inflow)

Center-of-Mass det. time= 0.4 min (760.9 - 760.5)

Volume	Invert	Avail.Storage	Storage Description
#1	155.60'	0.002 af	**4.00'D x 6.40'H Vertical Cone/Cylinder**

Device	Routing	Invert	Outlet Devices
#1	Primary	155.60'	**12.0" Round P-211** L= 32.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 155.60' / 155.40' S= 0.0062 '/' Cc= 0.900 n= 0.013, Flow Area= 0.79 sf

Primary OutFlow Max=1.35 cfs @ 12.07 hrs HW=156.43' TW=156.18' (Dynamic Tailwater)
1=P-211 (Outlet Controls 1.35 cfs @ 2.62 fps)

Summary for Pond CB 112: CB 112

[82] Warning: Early inflow requires earlier time span

Inflow Area = 0.263 ac, 95.98% Impervious, Inflow Depth > 4.08" for 10-YR event
Inflow = 1.17 cfs @ 12.07 hrs, Volume= 0.090 af
Outflow = 1.17 cfs @ 12.07 hrs, Volume= 0.090 af, Atten= 0%, Lag= 0.1 min
Primary = 1.17 cfs @ 12.07 hrs, Volume= 0.090 af
Routed to Pond CB 111 : CB 111

Routing by Dyn-Stor-Ind method, Time Span= 2.00-72.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 156.92' @ 12.07 hrs Surf.Area= 0.000 ac Storage= 0.000 af

Plug-Flow detention time= 0.7 min calculated for 0.090 af (100% of inflow)
Center-of-Mass det. time= 0.5 min (758.1 - 757.7)

Volume	Invert	Avail.Storage	Storage Description
#1	156.20'	0.001 af	**4.00'D x 4.90'H Vertical Cone/Cylinder**

Device	Routing	Invert	Outlet Devices
#1	Primary	156.20'	**12.0" Round P-212** L= 95.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 156.20' / 155.70' S= 0.0053 '/' Cc= 0.900 n= 0.013, Flow Area= 0.79 sf

Primary OutFlow Max=1.17 cfs @ 12.07 hrs HW=156.92' TW=156.43' (Dynamic Tailwater)
1=P-212 (Outlet Controls 1.17 cfs @ 2.70 fps)

Summary for Pond CB 113: CB 113

Inflow Area = 0.220 ac, 78.06% Impervious, Inflow Depth = 3.34" for 10-YR event
Inflow = 0.86 cfs @ 12.07 hrs, Volume= 0.061 af
Outflow = 0.86 cfs @ 12.07 hrs, Volume= 0.061 af, Atten= 0%, Lag= 0.1 min
Primary = 0.86 cfs @ 12.07 hrs, Volume= 0.061 af
Routed to Pond DMH 2 : DMH 002

Routing by Dyn-Stor-Ind method, Time Span= 2.00-72.00 hrs, dt= 0.01 hrs / 3

Peak Elev= 157.26' @ 12.07 hrs Surf.Area= 0.000 ac Storage= 0.000 af

Plug-Flow detention time= 0.5 min calculated for 0.061 af (100% of inflow)
Center-of-Mass det. time= 0.5 min (790.9 - 790.4)

Volume	Invert	Avail.Storage	Storage Description
#1	156.75'	0.001 af	**4.00'D x 4.50'H Vertical Cone/Cylinder**

Device	Routing	Invert	Outlet Devices
#1	Primary	156.75'	**12.0" Round P-213** L= 25.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 156.75' / 156.50' S= 0.0100 '/' Cc= 0.900 n= 0.013, Flow Area= 0.79 sf

Primary OutFlow Max=0.85 cfs @ 12.07 hrs HW=157.26' TW=156.80' (Dynamic Tailwater)
↑—**1=P-213** (Barrel Controls 0.85 cfs @ 3.11 fps)

Summary for Pond CB 114: CB 114

Inflow Area = 0.109 ac, 67.94% Impervious, Inflow Depth = 2.94" for 10-YR event
Inflow = 0.39 cfs @ 12.07 hrs, Volume= 0.027 af
Outflow = 0.39 cfs @ 12.08 hrs, Volume= 0.027 af, Atten= 0%, Lag= 0.1 min
Primary = 0.39 cfs @ 12.08 hrs, Volume= 0.027 af
Routed to Pond CB 113 : CB 113

Routing by Dyn-Stor-Ind method, Time Span= 2.00-72.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 157.55' @ 12.07 hrs Surf.Area= 0.000 ac Storage= 0.000 af

Plug-Flow detention time= 1.0 min calculated for 0.027 af (100% of inflow)
Center-of-Mass det. time= 0.8 min (808.9 - 808.2)

Volume	Invert	Avail.Storage	Storage Description
#1	157.15'	0.001 af	**4.00'D x 4.05'H Vertical Cone/Cylinder**

Device	Routing	Invert	Outlet Devices
#1	Primary	157.15'	**12.0" Round P-214** L= 60.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 157.15' / 156.85' S= 0.0050 '/' Cc= 0.900 n= 0.013, Flow Area= 0.79 sf

Primary OutFlow Max=0.39 cfs @ 12.08 hrs HW=157.54' TW=157.26' (Dynamic Tailwater)
↑—**1=P-214** (Outlet Controls 0.39 cfs @ 1.99 fps)

Summary for Pond CB 115: CB 115

Inflow Area = 0.331 ac, 96.05% Impervious, Inflow Depth > 4.02" for 10-YR event
Inflow = 1.46 cfs @ 12.07 hrs, Volume= 0.111 af
Outflow = 1.46 cfs @ 12.07 hrs, Volume= 0.111 af, Atten= 0%, Lag= 0.1 min
Primary = 1.46 cfs @ 12.07 hrs, Volume= 0.111 af
Routed to Pond DMH 3 : DMH 003

Routing by Dyn-Stor-Ind method, Time Span= 2.00-72.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 158.53' @ 12.07 hrs Surf.Area= 0.000 ac Storage= 0.000 af

Plug-Flow detention time= 0.4 min calculated for 0.111 af (100% of inflow)
Center-of-Mass det. time= 0.4 min (761.1 - 760.6)

Volume	Invert	Avail.Storage	Storage Description
#1	157.75'	0.001 af	**4.00'D x 4.25'H Vertical Cone/Cylinder**

Device	Routing	Invert	Outlet Devices
#1	Primary	157.75'	**12.0" Round P-215** L= 20.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 157.75' / 157.65' S= 0.0050 '/' Cc= 0.900 n= 0.013, Flow Area= 0.79 sf

Primary OutFlow Max=1.45 cfs @ 12.07 hrs HW=158.53' TW=158.22' (Dynamic Tailwater)
1=P-215 (Barrel Controls 1.45 cfs @ 3.04 fps)

Summary for Pond CB 116: CB 116

[82] Warning: Early inflow requires earlier time span

Inflow Area = 0.168 ac, 98.37% Impervious, Inflow Depth > 4.11" for 10-YR event
Inflow = 0.75 cfs @ 12.07 hrs, Volume= 0.057 af
Outflow = 0.75 cfs @ 12.07 hrs, Volume= 0.057 af, Atten= 0%, Lag= 0.1 min
Primary = 0.75 cfs @ 12.07 hrs, Volume= 0.057 af
Routed to Pond CB 115 : CB 115

Routing by Dyn-Stor-Ind method, Time Span= 2.00-72.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 158.84' @ 12.07 hrs Surf.Area= 0.000 ac Storage= 0.000 af

Plug-Flow detention time= 0.6 min calculated for 0.057 af (100% of inflow)
Center-of-Mass det. time= 0.6 min (756.1 - 755.6)

Volume	Invert	Avail.Storage	Storage Description
#1	158.25'	0.001 af	**4.00'D x 3.60'H Vertical Cone/Cylinder**

Device	Routing	Invert	Outlet Devices
#1	Primary	158.25'	**12.0" Round P-216** L= 71.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 158.25' / 157.85' S= 0.0056 '/' Cc= 0.900 n= 0.013, Flow Area= 0.79 sf

Primary OutFlow Max=0.75 cfs @ 12.07 hrs HW=158.84' TW=158.53' (Dynamic Tailwater)
1=P-216 (Outlet Controls 0.75 cfs @ 2.23 fps)

Summary for Pond CB 117: CB 117

Inflow Area = 0.116 ac, 96.29% Impervious, Inflow Depth > 4.04" for 10-YR event
Inflow = 0.51 cfs @ 12.07 hrs, Volume= 0.039 af
Outflow = 0.51 cfs @ 12.07 hrs, Volume= 0.039 af, Atten= 0%, Lag= 0.2 min
Primary = 0.51 cfs @ 12.07 hrs, Volume= 0.039 af
Routed to Pond CB 115 : CB 115

Routing by Dyn-Stor-Ind method, Time Span= 2.00-72.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 158.70' @ 12.07 hrs Surf.Area= 0.000 ac Storage= 0.000 af

Plug-Flow detention time= 0.9 min calculated for 0.039 af (100% of inflow)
Center-of-Mass det. time= 0.7 min (759.8 - 759.1)

Volume	Invert	Avail.Storage	Storage Description
#1	158.15'	0.001 af	**4.00'D x 3.75'H Vertical Cone/Cylinder**

Device	Routing	Invert	Outlet Devices
#1	Primary	158.15'	**12.0" Round P-217** L= 59.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 158.15' / 157.85' S= 0.0051 '/' Cc= 0.900 n= 0.013, Flow Area= 0.79 sf

Primary OutFlow Max=0.51 cfs @ 12.07 hrs HW=158.70' TW=158.53' (Dynamic Tailwater)
1=P-217 (Outlet Controls 0.51 cfs @ 1.69 fps)

Summary for Pond CB 118: CB 118

[82] Warning: Early inflow requires earlier time span

Inflow Area = 0.077 ac,100.00% Impervious, Inflow Depth > 4.19" for 10-YR event
Inflow = 0.34 cfs @ 12.07 hrs, Volume= 0.027 af
Outflow = 0.34 cfs @ 12.07 hrs, Volume= 0.027 af, Atten= 0%, Lag= 0.2 min
Primary = 0.34 cfs @ 12.07 hrs, Volume= 0.027 af
Routed to Pond CB 117 : CB 117

Routing by Dyn-Stor-Ind method, Time Span= 2.00-72.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 158.98' @ 12.07 hrs Surf.Area= 0.000 ac Storage= 0.000 af

Plug-Flow detention time= 1.1 min calculated for 0.027 af (100% of inflow)
Center-of-Mass det. time= 0.9 min (751.3 - 750.4)

Volume	Invert	Avail.Storage	Storage Description
#1	158.60'	0.001 af	**4.00'D x 3.25'H Vertical Cone/Cylinder**

Device	Routing	Invert	Outlet Devices
#1	Primary	158.60'	**12.0" Round P-218** L= 67.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 158.60' / 158.25' S= 0.0052 '/' Cc= 0.900 n= 0.013, Flow Area= 0.79 sf

Primary OutFlow Max=0.34 cfs @ 12.07 hrs HW=158.98' TW=158.70' (Dynamic Tailwater)
↑—**1=P-218** (Outlet Controls 0.34 cfs @ 1.87 fps)

Summary for Pond CB 119: CB 119

Inflow Area = 0.482 ac, 86.88% Impervious, Inflow Depth > 3.66" for 10-YR event
Inflow = 1.98 cfs @ 12.07 hrs, Volume= 0.147 af
Outflow = 1.98 cfs @ 12.07 hrs, Volume= 0.147 af, Atten= 0%, Lag= 0.1 min
Primary = 1.98 cfs @ 12.07 hrs, Volume= 0.147 af
Routed to Pond DMH 6 : DMH 006

Routing by Dyn-Stor-Ind method, Time Span= 2.00-72.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 158.35' @ 12.07 hrs Surf.Area= 0.000 ac Storage= 0.000 af

Plug-Flow detention time= 0.5 min calculated for 0.147 af (100% of inflow)
Center-of-Mass det. time= 0.4 min (773.2 - 772.8)

Volume	Invert	Avail.Storage	Storage Description
#1	157.40'	0.001 af	**4.00'D x 4.50'H Vertical Cone/Cylinder**

Device	Routing	Invert	Outlet Devices
#1	Primary	157.40'	**12.0" Round P-219** L= 19.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 157.40' / 157.30' S= 0.0053 '/' Cc= 0.900 n= 0.013, Flow Area= 0.79 sf

Primary OutFlow Max=1.97 cfs @ 12.07 hrs HW=158.35' TW=157.97' (Dynamic Tailwater)
↑—**1=P-219** (Barrel Controls 1.97 cfs @ 3.31 fps)

Summary for Pond CB 120: CB 120

[82] Warning: Early inflow requires earlier time span

Inflow Area = 0.182 ac,100.00% Impervious, Inflow Depth > 4.19" for 10-YR event
Inflow = 0.81 cfs @ 12.07 hrs, Volume= 0.063 af
Outflow = 0.81 cfs @ 12.07 hrs, Volume= 0.063 af, Atten= 0%, Lag= 0.2 min
Primary = 0.81 cfs @ 12.07 hrs, Volume= 0.063 af
Routed to Pond CB 119 : CB 119

Routing by Dyn-Stor-Ind method, Time Span= 2.00-72.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 158.55' @ 12.07 hrs Surf.Area= 0.000 ac Storage= 0.000 af

Plug-Flow detention time= 0.6 min calculated for 0.063 af (100% of inflow)
Center-of-Mass det. time= 0.6 min (750.9 - 750.4)

Volume	Invert	Avail.Storage	Storage Description
#1	157.85'	0.001 af	**4.00'D x 4.10'H Vertical Cone/Cylinder**

Device	Routing	Invert	Outlet Devices
#1	Primary	157.85'	**12.0" Round P-220**

L= 64.0' CPP, square edge headwall, Ke= 0.500
Inlet / Outlet Invert= 157.85' / 157.50' S= 0.0055 '/' Cc= 0.900
n= 0.013, Flow Area= 0.79 sf

Primary OutFlow Max=0.81 cfs @ 12.07 hrs HW=158.55' TW=158.35' (Dynamic Tailwater)
1=P-220 (Outlet Controls 0.81 cfs @ 1.95 fps)

Summary for Pond CB 121: CB 121

Inflow Area = 0.245 ac, 82.78% Impervious, Inflow Depth = 3.47" for 10-YR event
Inflow = 0.98 cfs @ 12.07 hrs, Volume= 0.071 af
Outflow = 0.98 cfs @ 12.08 hrs, Volume= 0.071 af, Atten= 0%, Lag= 0.1 min
Primary = 0.98 cfs @ 12.08 hrs, Volume= 0.071 af
Routed to Pond CB 119 : CB 119

Routing by Dyn-Stor-Ind method, Time Span= 2.00-72.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 158.53' @ 12.08 hrs Surf.Area= 0.000 ac Storage= 0.000 af

Plug-Flow detention time= 0.5 min calculated for 0.071 af (100% of inflow)
Center-of-Mass det. time= 0.5 min (784.9 - 784.4)

Volume	Invert	Avail.Storage	Storage Description
#1	157.75'	0.001 af	**4.00'D x 3.85'H Vertical Cone/Cylinder**

Device	Routing	Invert	Outlet Devices
#1	Primary	157.75'	**12.0" Round P-221**
			L= 45.0' CPP, square edge headwall, Ke= 0.500
			Inlet / Outlet Invert= 157.75' / 157.50' S= 0.0056 '/' Cc= 0.900
			n= 0.013, Flow Area= 0.79 sf

Primary OutFlow Max=0.98 cfs @ 12.08 hrs HW=158.53' TW=158.35' (Dynamic Tailwater)
1=P-221 (Outlet Controls 0.98 cfs @ 2.06 fps)

Summary for Pond CB 122: CB 122

Inflow Area = 0.101 ac, 95.68% Impervious, Inflow Depth > 3.97" for 10-YR event
Inflow = 0.44 cfs @ 12.07 hrs, Volume= 0.033 af
Outflow = 0.44 cfs @ 12.07 hrs, Volume= 0.033 af, Atten= 0%, Lag= 0.2 min
Primary = 0.44 cfs @ 12.07 hrs, Volume= 0.033 af
Routed to Pond CB 121 : CB 121

Routing by Dyn-Stor-Ind method, Time Span= 2.00-72.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 158.90' @ 12.07 hrs Surf.Area= 0.000 ac Storage= 0.000 af

Plug-Flow detention time= 1.0 min calculated for 0.033 af (100% of inflow)
Center-of-Mass det. time= 0.8 min (765.2 - 764.4)

Volume	Invert	Avail.Storage	Storage Description
#1	158.45'	0.001 af	**4.00'D x 3.25'H Vertical Cone/Cylinder**

Device	Routing	Invert	Outlet Devices
#1	Primary	158.45'	**12.0" Round P-222** L= 113.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 158.45' / 157.85' S= 0.0053 '/' Cc= 0.900 n= 0.013, Flow Area= 0.79 sf

Primary OutFlow Max=0.44 cfs @ 12.07 hrs HW=158.90' TW=158.53' (Dynamic Tailwater)
↑—**1=P-222** (Outlet Controls 0.44 cfs @ 1.89 fps)

Summary for Pond CB 123: CB 123

Inflow Area = 0.194 ac, 91.79% Impervious, Inflow Depth = 3.86" for 10-YR event
Inflow = 0.84 cfs @ 12.07 hrs, Volume= 0.062 af
Outflow = 0.81 cfs @ 12.07 hrs, Volume= 0.062 af, Atten= 3%, Lag= 0.0 min
Primary = 0.81 cfs @ 12.07 hrs, Volume= 0.062 af
Routed to Pond 3P : Stormtech #1

Routing by Dyn-Stor-Ind method, Time Span= 2.00-72.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 158.03' @ 12.23 hrs Surf.Area= 0.000 ac Storage= 0.000 af
Flood Elev= 162.65' Surf.Area= 0.000 ac Storage= 0.001 af

Plug-Flow detention time= 1.9 min calculated for 0.062 af (100% of inflow)
Center-of-Mass det. time= 1.9 min (772.4 - 770.4)

Volume	Invert	Avail.Storage	Storage Description
#1	156.60'	0.001 af	**4.00'D x 4.55'H Vertical Cone/Cylinder**

Device	Routing	Invert	Outlet Devices
#1	Primary	156.60'	**18.0" Round P-223** L= 15.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 156.60' / 156.00' S= 0.0400 '/' Cc= 0.900 n= 0.013, Flow Area= 1.77 sf

Primary OutFlow Max=0.82 cfs @ 12.07 hrs HW=157.53' TW=157.50' (Dynamic Tailwater)
↑—**1=P-223** (Outlet Controls 0.82 cfs @ 1.01 fps)

Summary for Pond CB 124: CB 124

Inflow Area = 0.096 ac, 88.32% Impervious, Inflow Depth = 3.75" for 10-YR event
Inflow = 0.41 cfs @ 12.07 hrs, Volume= 0.030 af
Outflow = 0.41 cfs @ 12.07 hrs, Volume= 0.030 af, Atten= 1%, Lag= 0.0 min
Primary = 0.41 cfs @ 12.07 hrs, Volume= 0.030 af
Routed to Pond CB 123 : CB 123

Routing by Dyn-Stor-Ind method, Time Span= 2.00-72.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 158.12' @ 12.16 hrs Surf.Area= 0.000 ac Storage= 0.000 af
Flood Elev= 160.70' Surf.Area= 0.000 ac Storage= 0.001 af

Plug-Flow detention time= 0.8 min calculated for 0.030 af (100% of inflow)
Center-of-Mass det. time= 0.8 min (776.8 - 776.1)

Volume	Invert	Avail.Storage	Storage Description
#1	157.70'	0.001 af	**4.00'D x 3.00'H Vertical Cone/Cylinder**

Device	Routing	Invert	Outlet Devices
#1	Primary	157.70'	**12.0" Round P-224** L= 100.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 157.70' / 156.70' S= 0.0100 '/' Cc= 0.900 n= 0.013, Flow Area= 0.79 sf

Primary OutFlow Max=0.41 cfs @ 12.07 hrs HW=158.08' TW=157.54' (Dynamic Tailwater)
1=P-224 (Outlet Controls 0.41 cfs @ 2.23 fps)

Summary for Pond CB 125: CB 125

Inflow Area = 0.088 ac, 81.87% Impervious, Inflow Depth = 3.43" for 10-YR event
Inflow = 0.35 cfs @ 12.07 hrs, Volume= 0.025 af
Outflow = 0.35 cfs @ 12.07 hrs, Volume= 0.025 af, Atten= 0%, Lag= 0.2 min
Primary = 0.35 cfs @ 12.07 hrs, Volume= 0.025 af
Routed to Pond DMH 7 : DMH 007

Routing by Dyn-Stor-Ind method, Time Span= 2.00-72.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 156.88' @ 12.08 hrs Surf.Area= 0.000 ac Storage= 0.000 af

Plug-Flow detention time= 1.2 min calculated for 0.025 af (100% of inflow)
Center-of-Mass det. time= 1.0 min (791.0 - 790.0)

Volume	Invert	Avail.Storage	Storage Description
#1	156.50'	0.001 af	**4.00'D x 5.15'H Vertical Cone/Cylinder**

Device	Routing	Invert	Outlet Devices
#1	Primary	156.50'	**18.0" Round P-225** L= 95.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 156.50' / 156.00' S= 0.0053 '/' Cc= 0.900 n= 0.013, Flow Area= 1.77 sf

Primary OutFlow Max=0.35 cfs @ 12.07 hrs HW=156.88' TW=156.65' (Dynamic Tailwater)
1=P-225 (Outlet Controls 0.35 cfs @ 1.52 fps)

Summary for Pond CB 126: CB 126

Inflow Area = 0.210 ac, 75.26% Impervious, Inflow Depth = 3.23" for 10-YR event
Inflow = 0.81 cfs @ 12.07 hrs, Volume= 0.057 af
Outflow = 0.80 cfs @ 12.07 hrs, Volume= 0.057 af, Atten= 0%, Lag= 0.0 min
Primary = 0.80 cfs @ 12.07 hrs, Volume= 0.057 af
Routed to Pond CB 130 : CB 130

Routing by Dyn-Stor-Ind method, Time Span= 2.00-72.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 158.97' @ 12.09 hrs Surf.Area= 0.000 ac Storage= 0.000 af
Flood Elev= 161.50' Surf.Area= 0.000 ac Storage= 0.001 af

Plug-Flow detention time= 0.7 min calculated for 0.057 af (100% of inflow)

Center-of-Mass det. time= 0.5 min (798.2 - 797.8)

Volume	Invert	Avail.Storage	Storage Description
#1	158.50'	0.001 af	**4.00'D x 3.00'H Vertical Cone/Cylinder**

Device	Routing	Invert	Outlet Devices
#1	Primary	158.50'	**12.0" Round Culvert** L= 93.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 158.50' / 157.60' S= 0.0097 '/' Cc= 0.900 n= 0.013, Flow Area= 0.79 sf

Primary OutFlow Max=0.78 cfs @ 12.07 hrs HW=158.96' TW=158.04' (Dynamic Tailwater)
1=Culvert (Outlet Controls 0.78 cfs @ 3.23 fps)

Summary for Pond CB 127: CB 127

[82] Warning: Early inflow requires earlier time span

Inflow Area = 0.035 ac,100.00% Impervious, Inflow Depth > 4.19" for 10-YR event
Inflow = 0.16 cfs @ 12.07 hrs, Volume= 0.012 af
Outflow = 0.16 cfs @ 12.08 hrs, Volume= 0.012 af, Atten= 0%, Lag= 0.3 min
Primary = 0.16 cfs @ 12.08 hrs, Volume= 0.012 af
Routed to Pond CB 128 : CB 128

Routing by Dyn-Stor-Ind method, Time Span= 2.00-72.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 159.15' @ 12.08 hrs Surf.Area= 13 sf Storage= 4 cf
Flood Elev= 161.80' Surf.Area= 13 sf Storage= 38 cf

Plug-Flow detention time= 1.6 min calculated for 0.012 af (100% of inflow)
Center-of-Mass det. time= 1.4 min (751.8 - 750.4)

Volume	Invert	Avail.Storage	Storage Description
#1	158.80'	38 cf	**4.00'D x 3.00'H Vertical Cone/Cylinder**

Device	Routing	Invert	Outlet Devices
#1	Primary	158.80'	**12.0" Round Culvert** L= 28.0' Ke= 0.500 Inlet / Outlet Invert= 158.80' / 158.65' S= 0.0054 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=0.16 cfs @ 12.08 hrs HW=159.15' TW=159.10' (Dynamic Tailwater)
1=Culvert (Outlet Controls 0.16 cfs @ 0.96 fps)

Summary for Pond CB 128: CB 128

Inflow Area = 0.123 ac, 66.21% Impervious, Inflow Depth = 2.91" for 10-YR event
Inflow = 0.41 cfs @ 12.08 hrs, Volume= 0.030 af
Outflow = 0.41 cfs @ 12.08 hrs, Volume= 0.030 af, Atten= 0%, Lag= 0.1 min
Primary = 0.41 cfs @ 12.08 hrs, Volume= 0.030 af
Routed to Pond DMH 003 : DMH 003

Routing by Dyn-Stor-Ind method, Time Span= 2.00-72.00 hrs, dt= 0.01 hrs / 3

Peak Elev= 159.10' @ 12.08 hrs Surf.Area= 13 sf Storage= 7 cf
Flood Elev= 161.85' Surf.Area= 13 sf Storage= 41 cf

Plug-Flow detention time= 1.7 min calculated for 0.030 af (100% of inflow)
Center-of-Mass det. time= 1.5 min (797.1 - 795.6)

Volume	Invert	Avail.Storage	Storage Description
#1	158.55'	45 cf	**4.00'D x 3.55'H Vertical Cone/Cylinder**

Device	Routing	Invert	Outlet Devices
#1	Primary	158.55'	**12.0" Round Culvert** L= 91.0' Ke= 0.500 Inlet / Outlet Invert= 158.55' / 158.55' S= 0.0000 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=0.41 cfs @ 12.08 hrs HW=159.10' TW=157.93' (Dynamic Tailwater)
1=Culvert (Barrel Controls 0.41 cfs @ 1.35 fps)

Summary for Pond CB 130: CB 130

Inflow Area = 0.612 ac, 73.44% Impervious, Inflow Depth = 3.16" for 10-YR event
Inflow = 2.31 cfs @ 12.07 hrs, Volume= 0.161 af
Outflow = 2.29 cfs @ 12.07 hrs, Volume= 0.161 af, Atten= 1%, Lag= 0.1 min
Primary = 2.29 cfs @ 12.07 hrs, Volume= 0.161 af
Routed to Pond DMH 002 : DMH 002

Routing by Dyn-Stor-Ind method, Time Span= 2.00-72.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 158.20' @ 12.13 hrs Surf.Area= 13 sf Storage= 17 cf
Flood Elev= 160.80' Surf.Area= 13 sf Storage= 50 cf

Plug-Flow detention time= 0.7 min calculated for 0.161 af (100% of inflow)
Center-of-Mass det. time= 0.6 min (800.9 - 800.3)

Volume	Invert	Avail.Storage	Storage Description
#1	156.85'	50 cf	**4.00'D x 3.95'H Vertical Cone/Cylinder**

Device	Routing	Invert	Outlet Devices
#1	Primary	156.85'	**12.0" Round Culvert** L= 16.0' Ke= 0.500 Inlet / Outlet Invert= 156.85' / 156.35' S= 0.0313 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=2.30 cfs @ 12.07 hrs HW=158.05' TW=157.68' (Dynamic Tailwater)
1=Culvert (Inlet Controls 2.30 cfs @ 2.92 fps)

Summary for Pond CB 131: CB 131

Inflow Area = 0.081 ac, 80.18% Impervious, Inflow Depth = 3.43" for 10-YR event
Inflow = 0.33 cfs @ 12.07 hrs, Volume= 0.023 af
Outflow = 0.33 cfs @ 12.07 hrs, Volume= 0.023 af, Atten= 0%, Lag= 0.1 min
Primary = 0.33 cfs @ 12.07 hrs, Volume= 0.023 af
Routed to Pond DMH 003 : DMH 003

Routing by Dyn-Stor-Ind method, Time Span= 2.00-72.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 159.08' @ 12.07 hrs Surf.Area= 13 sf Storage= 4 cf
Flood Elev= 161.80' Surf.Area= 13 sf Storage= 38 cf

Plug-Flow detention time= 0.9 min calculated for 0.023 af (100% of inflow)
Center-of-Mass det. time= 0.7 min (790.6 - 790.0)

Volume	Invert	Avail.Storage	Storage Description
#1	158.80'	38 cf	**4.00'D x 3.00'H Vertical Cone/Cylinder**

Device	Routing	Invert	Outlet Devices
#1	Primary	158.80'	**12.0" Round Culvert** L= 37.0' Ke= 0.500 Inlet / Outlet Invert= 158.80' / 157.25' S= 0.0419 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=0.33 cfs @ 12.07 hrs HW=159.08' TW=157.91' (Dynamic Tailwater)
1=Culvert (Inlet Controls 0.33 cfs @ 1.80 fps)

Summary for Pond DMH 002: DMH 002

Inflow Area = 0.817 ac, 73.02% Impervious, Inflow Depth = 3.15" for 10-YR event
Inflow = 3.01 cfs @ 12.07 hrs, Volume= 0.215 af
Outflow = 2.99 cfs @ 12.07 hrs, Volume= 0.215 af, Atten= 1%, Lag= 0.0 min
Primary = 2.99 cfs @ 12.07 hrs, Volume= 0.215 af
Routed to Pond 3P : Stormtech #1

Routing by Dyn-Stor-Ind method, Time Span= 2.00-72.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 158.06' @ 12.22 hrs Surf.Area= 13 sf Storage= 23 cf
Flood Elev= 160.95' Surf.Area= 13 sf Storage= 59 cf

Plug-Flow detention time= 0.9 min calculated for 0.215 af (100% of inflow)
Center-of-Mass det. time= 0.9 min (800.4 - 799.5)

Volume	Invert	Avail.Storage	Storage Description
#1	156.25'	59 cf	**4.00'D x 4.70'H Vertical Cone/Cylinder**

Device	Routing	Invert	Outlet Devices
#1	Primary	156.25'	**18.0" Round Culvert** L= 41.0' Ke= 0.500 Inlet / Outlet Invert= 156.25' / 156.00' S= 0.0061 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.77 sf

Primary OutFlow Max=2.99 cfs @ 12.07 hrs HW=157.69' TW=157.53' (Dynamic Tailwater)
1=Culvert (Outlet Controls 2.99 cfs @ 2.20 fps)

Summary for Pond DMH 003: DMH 003

Inflow Area = 0.205 ac, 71.76% Impervious, Inflow Depth = 3.12" for 10-YR event
Inflow = 0.74 cfs @ 12.08 hrs, Volume= 0.053 af
Outflow = 0.73 cfs @ 12.08 hrs, Volume= 0.053 af, Atten= 2%, Lag= 0.1 min
Primary = 0.73 cfs @ 12.08 hrs, Volume= 0.053 af
Routed to Pond DMH 002 : DMH 002

Routing by Dyn-Stor-Ind method, Time Span= 2.00-72.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 158.09' @ 12.20 hrs Surf.Area= 13 sf Storage= 12 cf
Flood Elev= 162.00' Surf.Area= 13 sf Storage= 61 cf

Plug-Flow detention time= 1.0 min calculated for 0.053 af (100% of inflow)
Center-of-Mass det. time= 1.0 min (795.3 - 794.3)

Volume	Invert	Avail.Storage	Storage Description
#1	157.15'	61 cf	**4.00'D x 4.85'H Vertical Cone/Cylinder**

Device	Routing	Invert	Outlet Devices
#1	Primary	157.15'	**12.0" Round Culvert** L= 158.0' Ke= 0.500 Inlet / Outlet Invert= 157.15' / 156.35' S= 0.0051 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=0.74 cfs @ 12.08 hrs HW=157.92' TW=157.70' (Dynamic Tailwater)
1=Culvert (Outlet Controls 0.74 cfs @ 1.56 fps)

Summary for Pond DMH 1: DMH 001

[82] Warning: Early inflow requires earlier time span

Inflow Area = 0.304 ac,100.00% Impervious, Inflow Depth > 4.19" for 10-YR event
Inflow = 1.36 cfs @ 12.07 hrs, Volume= 0.106 af
Outflow = 1.36 cfs @ 12.07 hrs, Volume= 0.106 af, Atten= 0%, Lag= 0.1 min
Primary = 1.36 cfs @ 12.07 hrs, Volume= 0.106 af
Routed to Pond CB 108 : CB 108

Routing by Dyn-Stor-Ind method, Time Span= 2.00-72.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 155.48' @ 12.07 hrs Surf.Area= 0.000 ac Storage= 0.000 af

Plug-Flow detention time= 0.6 min calculated for 0.106 af (100% of inflow)
Center-of-Mass det. time= 0.4 min (751.2 - 750.8)

Volume	Invert	Avail.Storage	Storage Description
#1	154.75'	0.002 af	**4.00'D x 7.45'H Vertical Cone/Cylinder**

Device	Routing	Invert	Outlet Devices
#1	Primary	154.75'	**12.0" Round P-252** L= 41.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 154.75' / 154.50' S= 0.0061 '/' Cc= 0.900 n= 0.013, Flow Area= 0.79 sf

Primary OutFlow Max=1.36 cfs @ 12.07 hrs HW=155.48' TW=155.09' (Dynamic Tailwater)
1=P-252 (Outlet Controls 1.36 cfs @ 3.07 fps)

Summary for Pond DMH 2: DMH 002

Inflow Area = 0.551 ac, 88.88% Impervious, Inflow Depth = 3.75" for 10-YR event
Inflow = 2.31 cfs @ 12.07 hrs, Volume= 0.172 af
Outflow = 2.31 cfs @ 12.07 hrs, Volume= 0.172 af, Atten= 0%, Lag= 0.0 min
Primary = 2.31 cfs @ 12.07 hrs, Volume= 0.172 af
Routed to Pond 6P : INFILTRATION BASIN #2

Routing by Dyn-Stor-Ind method, Time Span= 2.00-72.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 156.80' @ 12.07 hrs Surf.Area= 0.000 ac Storage= 0.000 af

Plug-Flow detention time= 0.5 min calculated for 0.172 af (100% of inflow)
Center-of-Mass det. time= 0.5 min (772.9 - 772.4)

Volume	Invert	Avail.Storage	Storage Description
#1	156.00'	0.002 af	**4.00'D x 6.50'H Vertical Cone/Cylinder**

Device	Routing	Invert	Outlet Devices
#1	Primary	156.00'	**18.0" Round P-253** L= 100.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 156.00' / 155.50' S= 0.0050 '/' Cc= 0.900 n= 0.013, Flow Area= 1.77 sf

Primary OutFlow Max=2.31 cfs @ 12.07 hrs HW=156.80' TW=155.90' (Dynamic Tailwater)
1=P-253 (Barrel Controls 2.31 cfs @ 3.48 fps)

Summary for Pond DMH 3: DMH 003

Inflow Area = 0.331 ac, 96.05% Impervious, Inflow Depth = 4.02" for 10-YR event
Inflow = 1.46 cfs @ 12.07 hrs, Volume= 0.111 af
Outflow = 1.46 cfs @ 12.07 hrs, Volume= 0.111 af, Atten= 0%, Lag= 0.0 min
Primary = 0.91 cfs @ 12.07 hrs, Volume= 0.014 af
Routed to Pond DMH 2 : DMH 002
Secondary = 0.55 cfs @ 12.11 hrs, Volume= 0.097 af
Routed to Pond OW 1 : O/W SEP #1

Routing by Dyn-Stor-Ind method, Time Span= 2.00-72.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 158.22' @ 12.07 hrs Surf.Area= 0.000 ac Storage= 0.000 af

Plug-Flow detention time= 1.8 min calculated for 0.111 af (100% of inflow)
Center-of-Mass det. time= 1.1 min (762.1 - 761.1)

Volume	Invert	Avail.Storage	Storage Description
#1	157.15'	0.002 af	**4.00'D x 5.35'H Vertical Cone/Cylinder**

Device	Routing	Invert	Outlet Devices
#1	Secondary	157.55'	**6.0" Round 6" PVC** L= 15.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 157.55' / 157.40' S= 0.0100 '/' Cc= 0.900 n= 0.013, Flow Area= 0.20 sf
#2	Device 3	158.05'	**4.0' long Sharp-Crested Vee/Trap Weir** Cv= 2.62 (C= 3.28)

#3	Primary	157.15'	**18.0" Round P-254** L= 29.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 157.15' / 156.40' S= 0.0259 '/' Cc= 0.900 n= 0.013, Flow Area= 1.77 sf

Primary OutFlow Max=0.91 cfs @ 12.07 hrs HW=158.22' TW=156.80' (Dynamic Tailwater)
↑—**3=P-254** (Passes 0.91 cfs of 4.74 cfs potential flow)
↑—**2=Sharp-Crested Vee/Trap Weir** (Weir Controls 0.91 cfs @ 1.35 fps)

Secondary OutFlow Max=0.55 cfs @ 12.11 hrs HW=158.20' TW=0.00' (Dynamic Tailwater)
↑—**1=6" PVC** (Barrel Controls 0.55 cfs @ 2.81 fps)

Summary for Pond DMH 4: DMH 004

Inflow Area = 0.570 ac, 86.11% Impervious, Inflow Depth = 3.62" for 10-YR event
Inflow = 2.32 cfs @ 12.08 hrs, Volume= 0.172 af
Outflow = 2.31 cfs @ 12.08 hrs, Volume= 0.172 af, Atten= 0%, Lag= 0.0 min
Primary = 2.31 cfs @ 12.08 hrs, Volume= 0.172 af
Routed to Pond 6P : INFILTRATION BASIN #2

Routing by Dyn-Stor-Ind method, Time Span= 2.00-72.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 156.71' @ 13.51 hrs Surf.Area= 0.000 ac Storage= 0.000 af

Plug-Flow detention time= 1.6 min calculated for 0.172 af (100% of inflow)
Center-of-Mass det. time= 1.4 min (779.2 - 777.7)

Volume	Invert	Avail.Storage	Storage Description
#1	155.00'	0.002 af	**4.00'D x 7.00'H Vertical Cone/Cylinder**

Device	Routing	Invert	Outlet Devices
#1	Primary	155.00'	**18.0" Round P-257** L= 20.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 155.00' / 154.90' S= 0.0050 '/' Cc= 0.900 n= 0.013, Flow Area= 1.77 sf

Primary OutFlow Max=2.31 cfs @ 12.08 hrs HW=156.07' TW=155.91' (Dynamic Tailwater)
↑—**1=P-257** (Outlet Controls 2.31 cfs @ 2.40 fps)

Summary for Pond DMH 5: DMH 005

[80] Warning: Exceeded Pond DMH 7 by 0.01' @ 12.36 hrs (0.25 cfs 0.016 af)

Inflow Area = 0.570 ac, 86.11% Impervious, Inflow Depth = 3.62" for 10-YR event
Inflow = 2.33 cfs @ 12.08 hrs, Volume= 0.172 af
Outflow = 2.32 cfs @ 12.08 hrs, Volume= 0.172 af, Atten= 0%, Lag= 0.1 min
Primary = 2.32 cfs @ 12.08 hrs, Volume= 0.172 af
Routed to Pond DMH 4 : DMH 004

Routing by Dyn-Stor-Ind method, Time Span= 2.00-72.00 hrs, dt= 0.01 hrs / 3

Peak Elev= 156.71' @ 13.49 hrs Surf.Area= 0.000 ac Storage= 0.000 af

Plug-Flow detention time= 0.8 min calculated for 0.172 af (100% of inflow)
Center-of-Mass det. time= 0.7 min (777.7 - 777.0)

Volume	Invert	Avail.Storage	Storage Description
#1	155.75'	0.002 af	**4.00'D x 7.25'H Vertical Cone/Cylinder**

Device	Routing	Invert	Outlet Devices
#1	Primary	155.75'	**18.0" Round P-258** L= 130.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 155.75' / 155.10' S= 0.0050 '/' Cc= 0.900 n= 0.013, Flow Area= 1.77 sf

Primary OutFlow Max=2.32 cfs @ 12.08 hrs HW=156.65' TW=156.07' (Dynamic Tailwater)
↑—**1=P-258** (Outlet Controls 2.32 cfs @ 3.01 fps)

Summary for Pond DMH 6: DMH 006

Inflow Area = 0.482 ac, 86.88% Impervious, Inflow Depth = 3.66" for 10-YR event
Inflow = 1.98 cfs @ 12.07 hrs, Volume= 0.147 af
Outflow = 1.98 cfs @ 12.08 hrs, Volume= 0.147 af, Atten= 0%, Lag= 0.0 min
Primary = 1.35 cfs @ 12.08 hrs, Volume= 0.025 af
Routed to Pond DMH 5 : DMH 005
Secondary = 0.63 cfs @ 12.08 hrs, Volume= 0.122 af
Routed to Pond OW 2 : O/W SEP #2

Routing by Dyn-Stor-Ind method, Time Span= 2.00-72.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 157.97' @ 12.08 hrs Surf.Area= 0.000 ac Storage= 0.000 af

Plug-Flow detention time= 1.6 min calculated for 0.147 af (100% of inflow)
Center-of-Mass det. time= 0.9 min (774.1 - 773.2)

Volume	Invert	Avail.Storage	Storage Description
#1	156.80'	0.002 af	**4.00'D x 5.90'H Vertical Cone/Cylinder**

Device	Routing	Invert	Outlet Devices
#1	Secondary	157.20'	**6.0" Round 6" PVC** L= 10.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 157.20' / 157.10' S= 0.0100 '/' Cc= 0.900 n= 0.013, Flow Area= 0.20 sf
#2	Device 3	157.75'	**4.0' long Sharp-Crested Vee/Trap Weir** Cv= 2.62 (C= 3.28)
#3	Primary	156.80'	**18.0" Round P-259** L= 21.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 156.80' / 156.40' S= 0.0190 '/' Cc= 0.900 n= 0.013, Flow Area= 1.77 sf

Primary OutFlow Max=1.34 cfs @ 12.08 hrs HW=157.97' TW=156.65' (Dynamic Tailwater)
└**3=P-259** (Passes 1.34 cfs of 5.28 cfs potential flow)
└**2=Sharp-Crested Vee/Trap Weir** (Weir Controls 1.34 cfs @ 1.53 fps)

Secondary OutFlow Max=0.63 cfs @ 12.08 hrs HW=157.97' TW=0.00' (Dynamic Tailwater)
└**1=6" PVC** (Barrel Controls 0.63 cfs @ 3.22 fps)

Summary for Pond DMH 7: DMH 007

Inflow Area = 0.088 ac, 81.87% Impervious, Inflow Depth = 3.43" for 10-YR event
Inflow = 0.35 cfs @ 12.07 hrs, Volume= 0.025 af
Outflow = 0.35 cfs @ 12.08 hrs, Volume= 0.025 af, Atten= 1%, Lag= 0.3 min
Primary = 0.35 cfs @ 12.08 hrs, Volume= 0.025 af
Routed to Pond DMH 5 : DMH 005

Routing by Dyn-Stor-Ind method, Time Span= 2.00-72.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 156.71' @ 13.50 hrs Surf.Area= 0.000 ac Storage= 0.000 af

Plug-Flow detention time= 3.6 min calculated for 0.025 af (100% of inflow)
Center-of-Mass det. time= 3.3 min (794.3 - 791.0)

Volume	Invert	Avail.Storage	Storage Description
#1	155.90'	0.002 af	**4.00'D x 5.35'H Vertical Cone/Cylinder**

Device	Routing	Invert	Outlet Devices
#1	Primary	155.90'	**18.0" Round P-262** L= 10.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 155.90' / 155.85' S= 0.0050 '/' Cc= 0.900 n= 0.013, Flow Area= 1.77 sf

Primary OutFlow Max=0.12 cfs @ 12.08 hrs HW=156.65' TW=156.65' (Dynamic Tailwater)
└**1=P-262** (Outlet Controls 0.12 cfs @ 0.20 fps)

Summary for Pond OW 1: O/W SEP #1

[40] Hint: Not Described (Outflow=Inflow)

Inflow = 0.55 cfs @ 12.11 hrs, Volume= 0.097 af
Primary = 0.55 cfs @ 12.11 hrs, Volume= 0.097 af, Atten= 0%, Lag= 0.0 min
Routed to Pond DMH 2 : DMH 002

Routing by Dyn-Stor-Ind method, Time Span= 2.00-72.00 hrs, dt= 0.01 hrs / 3

Summary for Pond OW 2: O/W SEP #2

[40] Hint: Not Described (Outflow=Inflow)

Inflow = 0.63 cfs @ 12.08 hrs, Volume= 0.122 af
Primary = 0.63 cfs @ 12.08 hrs, Volume= 0.122 af, Atten= 0%, Lag= 0.0 min
Routed to Pond DMH 5 : DMH 005

Routing by Dyn-Stor-Ind method, Time Span= 2.00-72.00 hrs, dt= 0.01 hrs / 3

Summary for Link AP1: AP1

Inflow Area = 0.132 ac, 17.12% Impervious, Inflow Depth = 1.29" for 10-YR event
Inflow = 0.19 cfs @ 12.08 hrs, Volume= 0.014 af
Primary = 0.19 cfs @ 12.08 hrs, Volume= 0.014 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 2.00-72.00 hrs, dt= 0.01 hrs

Summary for Link AP2: AP2

Inflow Area = 3.739 ac, 52.44% Impervious, Inflow Depth = 0.57" for 10-YR event
Inflow = 1.12 cfs @ 12.40 hrs, Volume= 0.178 af
Primary = 1.12 cfs @ 12.40 hrs, Volume= 0.178 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 2.00-72.00 hrs, dt= 0.01 hrs

Summary for Link AP3: AP3

Inflow Area = 6.001 ac, 40.30% Impervious, Inflow Depth = 1.01" for 10-YR event
Inflow = 5.25 cfs @ 12.27 hrs, Volume= 0.506 af
Primary = 5.25 cfs @ 12.27 hrs, Volume= 0.506 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 2.00-72.00 hrs, dt= 0.01 hrs

Time span=2.00-72.00 hrs, dt=0.01 hrs, 7001 points x 3
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment109: PR-WS-209 Runoff Area=2,185 sf 82.47% Impervious Runoff Depth=4.67"
Tc=5.0 min CN=92 Runoff=0.27 cfs 0.020 af

Subcatchment110: PR-WS-210 Runoff Area=3,425 sf 90.74% Impervious Runoff Depth>5.00"
Tc=5.0 min CN=95 Runoff=0.44 cfs 0.033 af

Subcatchment111: PR-WS-211 Runoff Area=1,890 sf 89.37% Impervious Runoff Depth=4.89"
Tc=5.0 min CN=94 Runoff=0.24 cfs 0.018 af

Subcatchment112: PR-WS-212 Runoff Area=11,475 sf 95.98% Impervious Runoff Depth>5.23"
Tc=5.0 min CN=97 Runoff=1.49 cfs 0.115 af

Subcatchment201: PR-WS-201 Runoff Area=3,897 sf 100.00% Impervious Runoff Depth>5.34"
Tc=5.0 min CN=98 Runoff=0.51 cfs 0.040 af

Subcatchment202: PR-WS-202 Runoff Area=5,172 sf 94.62% Impervious Runoff Depth>5.12"
Tc=5.0 min CN=96 Runoff=0.66 cfs 0.051 af

Subcatchment203: PR-WS-203 Runoff Area=3,905 sf 100.00% Impervious Runoff Depth>5.34"
Tc=5.0 min CN=98 Runoff=0.51 cfs 0.040 af

Subcatchment204: PR-WS-204 Runoff Area=11,336 sf 77.03% Impervious Runoff Depth=4.45"
Tc=5.0 min CN=90 Runoff=1.35 cfs 0.096 af

Subcatchment205: PR-WS-205 Runoff Area=3,356 sf 100.00% Impervious Runoff Depth>5.34"
Tc=5.0 min CN=98 Runoff=0.44 cfs 0.034 af

Subcatchment206: PR-WS-206 Runoff Area=5,619 sf 95.59% Impervious Runoff Depth>5.12"
Tc=5.0 min CN=96 Runoff=0.72 cfs 0.055 af

Subcatchment207: PR-WS-207 Runoff Area=1,726 sf 100.00% Impervious Runoff Depth>5.34"
Tc=5.0 min CN=98 Runoff=0.22 cfs 0.018 af

Subcatchment208: PR-WS-212 Runoff Area=8,375 sf 76.94% Impervious Runoff Depth=4.34"
Tc=5.0 min CN=89 Runoff=0.98 cfs 0.070 af

Subcatchment213: PR-WS-213 Runoff Area=4,800 sf 88.10% Impervious Runoff Depth=4.89"
Tc=5.0 min CN=94 Runoff=0.60 cfs 0.045 af

Subcatchment214: PR-WS-214 Runoff Area=4,763 sf 67.94% Impervious Runoff Depth=4.02"
Tc=5.0 min CN=86 Runoff=0.52 cfs 0.037 af

Subcatchment215: PR-WS-215 Runoff Area=2,054 sf 87.20% Impervious Runoff Depth=4.78"
Tc=5.0 min CN=93 Runoff=0.26 cfs 0.019 af

Subcatchment216: PR-WS-216 Runoff Area=5,248 sf 97.73% Impervious Runoff Depth>5.23"
Tc=5.0 min CN=97 Runoff=0.68 cfs 0.053 af

Subcatchment217: PR-WS-217 Runoff Area=1,717 sf 89.05% Impervious Runoff Depth=4.89"
Tc=5.0 min CN=94 Runoff=0.22 cfs 0.016 af

Subcatchment218: PR-WS-218 Runoff Area=3,346 sf 100.00% Impervious Runoff Depth>5.34"
Tc=5.0 min CN=98 Runoff=0.44 cfs 0.034 af

Subcatchment219: PR-WS-219 Runoff Area=2,396 sf 61.89% Impervious Runoff Depth=3.81"
Tc=5.0 min CN=84 Runoff=0.25 cfs 0.017 af

Subcatchment220: PR-WS-220 Runoff Area=5,845 sf 100.00% Impervious Runoff Depth>5.34"
Tc=5.0 min CN=98 Runoff=0.76 cfs 0.060 af

Subcatchment221: PR-WS-221 Runoff Area=6,307 sf 73.82% Impervious Runoff Depth=4.23"
Tc=5.0 min CN=88 Runoff=0.72 cfs 0.051 af

Subcatchment222: PR-WS-222 Runoff Area=4,378 sf 95.68% Impervious Runoff Depth>5.12"
Tc=5.0 min CN=96 Runoff=0.56 cfs 0.043 af

Subcatchment223: PR-WS-223 Runoff Area=3,837 sf 52.70% Impervious Runoff Depth=3.41"
Tc=5.0 min CN=80 Runoff=0.36 cfs 0.025 af

Subcatchment224: PR-WS-224 Runoff Area=3,541 sf 80.18% Impervious Runoff Depth=4.56"
Tc=5.0 min CN=91 Runoff=0.43 cfs 0.031 af

Subcatchment225: PR-WS-225 Runoff Area=3,823 sf 81.87% Impervious Runoff Depth=4.56"
Tc=5.0 min CN=91 Runoff=0.46 cfs 0.033 af

Subcatchment227: PR-WS-227 Runoff Area=17,510 sf 72.49% Impervious Runoff Depth=4.23"
Tc=5.0 min CN=88 Runoff=2.01 cfs 0.142 af

Subcatchment228: PR-WS-228 Runoff Area=9,153 sf 75.26% Impervious Runoff Depth=4.34"
Tc=5.0 min CN=89 Runoff=1.07 cfs 0.076 af

Subcatchment229: PR-WS-229 (ROOF) Runoff Area=4,104 sf 100.00% Impervious Runoff Depth>5.34"
Tc=5.0 min CN=98 Runoff=0.53 cfs 0.042 af

Subcatchment230: PR-WS-230 Runoff Area=1,534 sf 100.00% Impervious Runoff Depth>5.34"
Tc=5.0 min CN=98 Runoff=0.20 cfs 0.016 af

Subcatchment250: PR-WS-250 Runoff Area=13,074 sf 28.39% Impervious Runoff Depth=2.66"
Tc=5.0 min CN=72 Runoff=0.97 cfs 0.067 af

Subcatchment251: PR-WS-251 Runoff Area=15,132 sf 20.61% Impervious Runoff Depth=2.40"
Tc=5.0 min CN=69 Runoff=1.00 cfs 0.069 af

Subcatchment252: PR-WS-252 Runoff Area=5,760 sf 17.12% Impervious Runoff Depth=2.06"
Tc=5.0 min CN=65 Runoff=0.32 cfs 0.023 af

Subcatchment253: PR-WS-253 Runoff Area=48,912 sf 0.00% Impervious Runoff Depth=1.74"
Flow Length=160' Tc=9.7 min CN=61 Runoff=1.88 cfs 0.162 af

Subcatchment254: PR-WS-254 Runoff Area=111,852 sf 14.58% Impervious Runoff Depth=2.31"
Flow Length=545' Tc=21.6 min CN=68 Runoff=4.45 cfs 0.494 af

Subcatchment256: PR-WS-213 Runoff Area=4,952 sf 100.00% Impervious Runoff Depth>5.34"
Tc=5.0 min CN=98 Runoff=0.64 cfs 0.051 af

Subcatchment257: PR-WS-214 Runoff Area=3,400 sf 100.00% Impervious Runoff Depth>5.34"
Tc=5.0 min CN=98 Runoff=0.44 cfs 0.035 af

Subcatchment258: PR-WS-215 Runoff Area=4,882 sf 100.00% Impervious Runoff Depth>5.34"
Tc=5.0 min CN=98 Runoff=0.64 cfs 0.050 af

Subcatchment259: PR-WS-259 Runoff Area=2,064 sf 100.00% Impervious Runoff Depth>5.34"
Tc=5.0 min CN=98 Runoff=0.27 cfs 0.021 af

Subcatchment260: PR-WS-260 Runoff Area=2,064 sf 100.00% Impervious Runoff Depth>5.34"
Tc=5.0 min CN=98 Runoff=0.27 cfs 0.021 af

Subcatchment261: PR-WS-261 Runoff Area=19,487 sf 17.21% Impervious Runoff Depth=2.23"
Tc=5.0 min CN=67 Runoff=1.19 cfs 0.083 af

Subcatchment262: PR-WS-262 Runoff Area=12,770 sf 0.00% Impervious Runoff Depth=1.74"
Tc=5.0 min CN=61 Runoff=0.58 cfs 0.042 af

Subcatchment263: PR-WS-263 Runoff Area=18,005 sf 11.30% Impervious Runoff Depth=2.06"
Tc=5.0 min CN=65 Runoff=1.00 cfs 0.071 af

Subcatchment265: PR-WS-265 Runoff Area=8,482 sf 100.00% Impervious Runoff Depth>5.34"
Tc=5.0 min CN=98 Runoff=1.10 cfs 0.087 af

Subcatchment266: PR-WS-266 Runoff Area=4,042 sf 100.00% Impervious Runoff Depth>5.34"
Tc=5.0 min CN=98 Runoff=0.53 cfs 0.041 af

Subcatchment269: PR-WS-269 Runoff Area=4,203 sf 88.32% Impervious Runoff Depth=4.89"
Tc=5.0 min CN=94 Runoff=0.53 cfs 0.039 af

Subcatchment270: PR-WS-270 Runoff Area=4,247 sf 95.22% Impervious Runoff Depth>5.12"
Tc=5.0 min CN=96 Runoff=0.55 cfs 0.042 af

Reach 1R: OVERLAND Avg. Flow Depth=0.08' Max Vel=2.77 fps Inflow=1.77 cfs 0.128 af
n=0.030 L=45.0' S=0.1556 '/' Capacity=93.87 cfs Outflow=1.77 cfs 0.128 af

Reach 2R: SWALE Avg. Flow Depth=0.08' Max Vel=1.43 fps Inflow=0.64 cfs 0.103 af
n=0.030 L=315.0' S=0.0248 '/' Capacity=49.46 cfs Outflow=0.61 cfs 0.103 af

Reach 3R: OVERLAND Avg. Flow Depth=0.04' Max Vel=2.42 fps Inflow=0.61 cfs 0.103 af
n=0.030 L=37.0' S=0.2703 '/' Capacity=123.74 cfs Outflow=0.61 cfs 0.103 af

Reach 4R: SWALE Avg. Flow Depth=0.12' Max Vel=1.40 fps Inflow=1.00 cfs 0.069 af
n=0.030 L=188.0' S=0.0154 '/' Capacity=46.54 cfs Outflow=0.95 cfs 0.069 af

Reach 5R: P-264 Avg. Flow Depth=0.52' Max Vel=3.53 fps Inflow=1.92 cfs 0.140 af
18.0" Round Pipe n=0.013 L=80.0' S=0.0050 '/' Capacity=7.43 cfs Outflow=1.92 cfs 0.140 af

Reach 6R: SWALE Avg. Flow Depth=0.16' Max Vel=1.96 fps Inflow=1.92 cfs 0.140 af
n=0.030 L=304.0' S=0.0217 '/' Capacity=55.21 cfs Outflow=1.82 cfs 0.140 af

Reach 7R: OVERLAND Avg. Flow Depth=0.20' Max Vel=2.44 fps Inflow=6.10 cfs 0.318 af
n=0.035 L=140.0' S=0.0500 '/' Capacity=45.62 cfs Outflow=6.00 cfs 0.318 af

Reach 8R: OVERLAND Avg. Flow Depth=0.17' Max Vel=2.22 fps Inflow=4.33 cfs 0.178 af
n=0.030 L=80.0' S=0.0375 '/' Capacity=46.09 cfs Outflow=4.30 cfs 0.178 af

Reach 9R: CULVERT Avg. Flow Depth=0.41' Max Vel=3.28 fps Inflow=1.00 cfs 0.069 af
12.0" Round Pipe n=0.013 L=80.0' S=0.0063 '/' Capacity=2.82 cfs Outflow=1.00 cfs 0.069 af

Reach 16R: 8" RD Avg. Flow Depth=0.59' Max Vel=3.34 fps Inflow=1.08 cfs 0.085 af
8.0" Round Pipe n=0.013 L=14.0' S=0.0071 '/' Capacity=1.02 cfs Outflow=1.08 cfs 0.085 af

Reach 17R: 8" RD Avg. Flow Depth=0.40' Max Vel=2.89 fps Inflow=0.64 cfs 0.050 af
8.0" Round Pipe n=0.013 L=58.0' S=0.0060 '/' Capacity=0.94 cfs Outflow=0.63 cfs 0.050 af

Pond 1P: INFILTRATIONBASIN#1 Peak Elev=153.17' Storage=11,251 cf Inflow=9.59 cfs 0.725 af
Discarded=0.85 cfs 0.597 af Primary=1.77 cfs 0.128 af Outflow=2.63 cfs 0.725 af

Pond 3P: Stormtech#1 Peak Elev=158.56' Storage=4,715 cf Inflow=5.50 cfs 0.412 af
Discarded=0.18 cfs 0.234 af Primary=4.33 cfs 0.178 af Outflow=4.51 cfs 0.412 af

Pond 4P: RAIN GARDEN#1 Peak Elev=159.60' Storage=6,092 cf Inflow=3.10 cfs 0.234 af
Outflow=0.64 cfs 0.103 af

Pond 6P: INFILTRATIONBASIN#2 Peak Elev=157.11' Storage=9,742 cf Inflow=7.15 cfs 0.532 af
Discarded=0.82 cfs 0.527 af Primary=0.11 cfs 0.005 af Outflow=0.93 cfs 0.532 af

Pond 231P: Stormtech#1 - ISO ROW CHECK Peak Elev=0.00' Storage=0 cf
Discarded=0.00 cfs 0.000 af Primary=0.00 cfs 0.000 af

Pond CB 101: CB 101 Peak Elev=160.62' Storage=0.000 af Inflow=0.51 cfs 0.040 af
12.0" Round Culvert n=0.013 L=27.0' S=0.0111 '/' Outflow=0.51 cfs 0.040 af

Pond CB 102: CB 102 Peak Elev=153.26' Storage=0.000 af Inflow=9.02 cfs 0.683 af
24.0" Round Culvert n=0.013 L=35.0' S=0.0057 '/' Outflow=9.01 cfs 0.683 af

Pond CB 103: CB 103 Peak Elev=155.37' Storage=0.000 af Inflow=0.51 cfs 0.040 af
12.0" Round Culvert n=0.013 L=28.0' S=0.0107 '/' Outflow=0.51 cfs 0.040 af

Pond CB 104: CB 104 Peak Elev=154.37' Storage=0.000 af Inflow=7.85 cfs 0.593 af
24.0" Round Culvert n=0.013 L=230.0' S=0.0050 '/' Outflow=7.85 cfs 0.593 af

Pond CB 105: CB 105 Peak Elev=154.56' Storage=0.000 af Inflow=0.44 cfs 0.034 af
12.0" Round Culvert n=0.013 L=28.0' S=0.0107 '/' Outflow=0.44 cfs 0.034 af

Pond CB 106: CB 106 Peak Elev=155.38' Storage=0.000 af Inflow=0.95 cfs 0.073 af
12.0" Round Culvert n=0.013 L=182.0' S=0.0052 '/' Outflow=0.95 cfs 0.073 af

Pond CB 107: CB 107 Peak Elev=155.43' Storage=0.000 af Inflow=0.22 cfs 0.018 af
12.0" Round Culvert n=0.013 L=28.0' S=0.0107 '/' Outflow=0.22 cfs 0.018 af

Pond CB 108: CB 108 Peak Elev=155.30' Storage=0.000 af Inflow=5.12 cfs 0.389 af
18.0" Round Culvert n=0.013 L=122.0' S=0.0053 '/' Outflow=5.12 cfs 0.389 af

Pond CB 109: CB 109 Peak Elev=155.81' Storage=0.000 af Inflow=2.42 cfs 0.185 af
12.0" Round Culvert n=0.013 L=42.0' S=0.0060 '/' Outflow=2.42 cfs 0.185 af

Pond CB 110: CB 110 Peak Elev=156.38' Storage=0.000 af Inflow=2.16 cfs 0.165 af
12.0" Round Culvert n=0.013 L=89.0' S=0.0051 '/' Outflow=2.16 cfs 0.165 af

Pond CB 111: CB 111 Peak Elev=156.63' Storage=0.000 af Inflow=1.72 cfs 0.132 af
12.0" Round Culvert n=0.013 L=32.0' S=0.0062 '/' Outflow=1.72 cfs 0.132 af

Pond CB 112: CB 112 Peak Elev=157.08' Storage=0.000 af Inflow=1.49 cfs 0.115 af
12.0" Round Culvert n=0.013 L=95.0' S=0.0053 '/' Outflow=1.48 cfs 0.115 af

Pond CB 113: CB 113 Peak Elev=157.35' Storage=0.000 af Inflow=1.13 cfs 0.082 af
12.0" Round Culvert n=0.013 L=25.0' S=0.0100 '/' Outflow=1.13 cfs 0.082 af

Pond CB 114: CB 114 Peak Elev=157.63' Storage=0.000 af Inflow=0.52 cfs 0.037 af
12.0" Round Culvert n=0.013 L=60.0' S=0.0050 '/' Outflow=0.52 cfs 0.037 af

Pond CB 115: CB 115 Peak Elev=158.66' Storage=0.000 af Inflow=1.85 cfs 0.143 af
12.0" Round Culvert n=0.013 L=20.0' S=0.0050 '/' Outflow=1.85 cfs 0.143 af

Pond CB 116: CB 116 Peak Elev=158.95' Storage=0.000 af Inflow=0.95 cfs 0.074 af
12.0" Round Culvert n=0.013 L=71.0' S=0.0056 '/' Outflow=0.95 cfs 0.074 af

Pond CB 117: CB 117 Peak Elev=158.81' Storage=0.000 af Inflow=0.65 cfs 0.050 af
12.0" Round Culvert n=0.013 L=59.0' S=0.0051 '/' Outflow=0.65 cfs 0.050 af

Pond CB 118: CB 118 Peak Elev=159.05' Storage=0.000 af Inflow=0.44 cfs 0.034 af
12.0" Round Culvert n=0.013 L=67.0' S=0.0052 '/' Outflow=0.44 cfs 0.034 af

Pond CB 119: CB 119 Peak Elev=158.55' Storage=0.000 af Inflow=2.56 cfs 0.192 af
12.0" Round Culvert n=0.013 L=19.0' S=0.0053 '/' Outflow=2.56 cfs 0.192 af

Pond CB 120: CB 120 Peak Elev=158.72' Storage=0.000 af Inflow=1.03 cfs 0.081 af
12.0" Round Culvert n=0.013 L=64.0' S=0.0055 '/' Outflow=1.03 cfs 0.081 af

Pond CB 121: CB 121 Peak Elev=158.72' Storage=0.000 af Inflow=1.28 cfs 0.094 af
12.0" Round Culvert n=0.013 L=45.0' S=0.0056 '/' Outflow=1.28 cfs 0.094 af

Pond CB 122: CB 122 Peak Elev=159.01' Storage=0.000 af Inflow=0.56 cfs 0.043 af
12.0" Round Culvert n=0.013 L=113.0' S=0.0053 '/' Outflow=0.56 cfs 0.043 af

Pond CB 123: CB 123 Peak Elev=158.57' Storage=0.001 af Inflow=1.05 cfs 0.081 af
18.0" Round Culvert n=0.013 L=15.0' S=0.0400 '/' Outflow=1.02 cfs 0.081 af

Pond CB 124: CB 124 Peak Elev=158.60' Storage=0.000 af Inflow=0.53 cfs 0.039 af
12.0" Round Culvert n=0.013 L=100.0' S=0.0100 '/' Outflow=0.51 cfs 0.039 af

Pond CB 125: CB 125 Peak Elev=157.12' Storage=0.000 af Inflow=0.46 cfs 0.033 af
18.0" Round Culvert n=0.013 L=95.0' S=0.0053 '/' Outflow=0.46 cfs 0.033 af

Pond CB 126: CB 126 Peak Elev=159.40' Storage=0.000 af Inflow=1.07 cfs 0.076 af
12.0" Round Culvert n=0.013 L=93.0' S=0.0097 '/' Outflow=1.05 cfs 0.076 af

Pond CB 127: CB 127 Peak Elev=159.23' Storage=5 cf Inflow=0.20 cfs 0.016 af
12.0" Round Culvert n=0.013 L=28.0' S=0.0054 '/' Outflow=0.20 cfs 0.016 af

Pond CB 128: CB 128 Peak Elev=159.19' Storage=8 cf Inflow=0.56 cfs 0.041 af
12.0" Round Culvert n=0.013 L=91.0' S=0.0000 '/' Outflow=0.56 cfs 0.041 af

Pond CB 130: CB 130 Peak Elev=159.27' Storage=30 cf Inflow=3.06 cfs 0.218 af
12.0" Round Culvert n=0.013 L=16.0' S=0.0313 '/' Outflow=3.02 cfs 0.218 af

Pond CB 131: CB 131 Peak Elev=159.14' Storage=4 cf Inflow=0.43 cfs 0.031 af
12.0" Round Culvert n=0.013 L=37.0' S=0.0419 '/' Outflow=0.43 cfs 0.031 af

Pond DMH 002: DMH 002 Peak Elev=158.72' Storage=31 cf Inflow=3.98 cfs 0.289 af
18.0" Round Culvert n=0.013 L=41.0' S=0.0061 '/' Outflow=3.95 cfs 0.289 af

Pond DMH 003: DMH 003 Peak Elev=158.85' Storage=21 cf Inflow=0.99 cfs 0.072 af
12.0" Round Culvert n=0.013 L=158.0' S=0.0051 '/' Outflow=0.96 cfs 0.072 af

Pond DMH 1: DMH 001 Peak Elev=155.66' Storage=0.000 af Inflow=1.72 cfs 0.135 af
12.0" Round Culvert n=0.013 L=41.0' S=0.0061 '/' Outflow=1.72 cfs 0.135 af

Pond DMH 2: DMH 002 Peak Elev=157.12' Storage=0.000 af Inflow=2.98 cfs 0.224 af
18.0" Round Culvert n=0.013 L=100.0' S=0.0050 '/' Outflow=2.97 cfs 0.224 af

Pond DMH 3: DMH 003 Peak Elev=158.26' Storage=0.000 af Inflow=1.85 cfs 0.143 af
Primary=1.28 cfs 0.023 af Secondary=0.58 cfs 0.119 af Outflow=1.85 cfs 0.142 af

Pond DMH 4: DMH 004 Peak Elev=157.11' Storage=0.001 af Inflow=3.01 cfs 0.225 af
18.0" Round Culvert n=0.013 L=20.0' S=0.0050 '/' Outflow=2.99 cfs 0.225 af

Pond DMH 5: DMH 005 Peak Elev=157.12' Storage=0.000 af Inflow=3.01 cfs 0.225 af
18.0" Round Culvert n=0.013 L=130.0' S=0.0050 '/' Outflow=3.01 cfs 0.225 af

Pond DMH 6: DMH 006 Peak Elev=158.02' Storage=0.000 af Inflow=2.56 cfs 0.192 af
Primary=1.88 cfs 0.041 af Secondary=0.68 cfs 0.151 af Outflow=2.56 cfs 0.192 af

Pond DMH 7: DMH 007 Peak Elev=157.11' Storage=0.000 af Inflow=0.46 cfs 0.033 af
18.0" Round Culvert n=0.013 L=10.0' S=0.0050 '/' Outflow=0.45 cfs 0.033 af

Pond OW 1: O/W SEP #1 Inflow=0.58 cfs 0.119 af
Primary=0.58 cfs 0.119 af

Pond OW 2: O/W SEP #2 Inflow=0.68 cfs 0.151 af
Primary=0.68 cfs 0.151 af

Link AP1: AP1 Inflow=0.32 cfs 0.023 af
Primary=0.32 cfs 0.023 af

Link AP2: AP2 Inflow=3.11 cfs 0.394 af
Primary=3.11 cfs 0.394 af

Link AP3: AP3 Inflow=9.09 cfs 0.818 af
Primary=9.09 cfs 0.818 af

Total Runoff Area = 9.872 ac Runoff Volume = 2.724 af Average Runoff Depth = 3.31"
55.41% Pervious = 5.471 ac 44.59% Impervious = 4.402 ac

Time span=2.00-72.00 hrs, dt=0.01 hrs, 7001 points x 3
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment109: PR-WS-209 Runoff Area=2,185 sf 82.47% Impervious Runoff Depth=5.74"
Tc=5.0 min CN=92 Runoff=0.33 cfs 0.024 af

Subcatchment110: PR-WS-210 Runoff Area=3,425 sf 90.74% Impervious Runoff Depth>6.09"
Tc=5.0 min CN=95 Runoff=0.52 cfs 0.040 af

Subcatchment111: PR-WS-211 Runoff Area=1,890 sf 89.37% Impervious Runoff Depth=5.97"
Tc=5.0 min CN=94 Runoff=0.29 cfs 0.022 af

Subcatchment112: PR-WS-212 Runoff Area=11,475 sf 95.98% Impervious Runoff Depth>6.31"
Tc=5.0 min CN=97 Runoff=1.78 cfs 0.139 af

Subcatchment201: PR-WS-201 Runoff Area=3,897 sf 100.00% Impervious Runoff Depth>6.42"
Tc=5.0 min CN=98 Runoff=0.61 cfs 0.048 af

Subcatchment202: PR-WS-202 Runoff Area=5,172 sf 94.62% Impervious Runoff Depth>6.20"
Tc=5.0 min CN=96 Runoff=0.80 cfs 0.061 af

Subcatchment203: PR-WS-203 Runoff Area=3,905 sf 100.00% Impervious Runoff Depth>6.42"
Tc=5.0 min CN=98 Runoff=0.61 cfs 0.048 af

Subcatchment204: PR-WS-204 Runoff Area=11,336 sf 77.03% Impervious Runoff Depth=5.51"
Tc=5.0 min CN=90 Runoff=1.65 cfs 0.119 af

Subcatchment205: PR-WS-205 Runoff Area=3,356 sf 100.00% Impervious Runoff Depth>6.42"
Tc=5.0 min CN=98 Runoff=0.52 cfs 0.041 af

Subcatchment206: PR-WS-206 Runoff Area=5,619 sf 95.59% Impervious Runoff Depth>6.20"
Tc=5.0 min CN=96 Runoff=0.87 cfs 0.067 af

Subcatchment207: PR-WS-207 Runoff Area=1,726 sf 100.00% Impervious Runoff Depth>6.42"
Tc=5.0 min CN=98 Runoff=0.27 cfs 0.021 af

Subcatchment208: PR-WS-212 Runoff Area=8,375 sf 76.94% Impervious Runoff Depth=5.40"
Tc=5.0 min CN=89 Runoff=1.20 cfs 0.086 af

Subcatchment213: PR-WS-213 Runoff Area=4,800 sf 88.10% Impervious Runoff Depth=5.97"
Tc=5.0 min CN=94 Runoff=0.73 cfs 0.055 af

Subcatchment214: PR-WS-214 Runoff Area=4,763 sf 67.94% Impervious Runoff Depth=5.06"
Tc=5.0 min CN=86 Runoff=0.65 cfs 0.046 af

Subcatchment215: PR-WS-215 Runoff Area=2,054 sf 87.20% Impervious Runoff Depth=5.85"
Tc=5.0 min CN=93 Runoff=0.31 cfs 0.023 af

Subcatchment216: PR-WS-216 Runoff Area=5,248 sf 97.73% Impervious Runoff Depth>6.31"
Tc=5.0 min CN=97 Runoff=0.81 cfs 0.063 af

Subcatchment217: PR-WS-217 Runoff Area=1,717 sf 89.05% Impervious Runoff Depth=5.97"
Tc=5.0 min CN=94 Runoff=0.26 cfs 0.020 af

Subcatchment218: PR-WS-218 Runoff Area=3,346 sf 100.00% Impervious Runoff Depth>6.42"
Tc=5.0 min CN=98 Runoff=0.52 cfs 0.041 af

Subcatchment219: PR-WS-219 Runoff Area=2,396 sf 61.89% Impervious Runoff Depth=4.84"
Tc=5.0 min CN=84 Runoff=0.32 cfs 0.022 af

Subcatchment220: PR-WS-220 Runoff Area=5,845 sf 100.00% Impervious Runoff Depth>6.42"
Tc=5.0 min CN=98 Runoff=0.91 cfs 0.072 af

Subcatchment221: PR-WS-221 Runoff Area=6,307 sf 73.82% Impervious Runoff Depth=5.28"
Tc=5.0 min CN=88 Runoff=0.89 cfs 0.064 af

Subcatchment222: PR-WS-222 Runoff Area=4,378 sf 95.68% Impervious Runoff Depth>6.20"
Tc=5.0 min CN=96 Runoff=0.68 cfs 0.052 af

Subcatchment223: PR-WS-223 Runoff Area=3,837 sf 52.70% Impervious Runoff Depth=4.40"
Tc=5.0 min CN=80 Runoff=0.47 cfs 0.032 af

Subcatchment224: PR-WS-224 Runoff Area=3,541 sf 80.18% Impervious Runoff Depth=5.62"
Tc=5.0 min CN=91 Runoff=0.52 cfs 0.038 af

Subcatchment225: PR-WS-225 Runoff Area=3,823 sf 81.87% Impervious Runoff Depth=5.62"
Tc=5.0 min CN=91 Runoff=0.56 cfs 0.041 af

Subcatchment227: PR-WS-227 Runoff Area=17,510 sf 72.49% Impervious Runoff Depth=5.28"
Tc=5.0 min CN=88 Runoff=2.48 cfs 0.177 af

Subcatchment228: PR-WS-228 Runoff Area=9,153 sf 75.26% Impervious Runoff Depth=5.40"
Tc=5.0 min CN=89 Runoff=1.31 cfs 0.094 af

Subcatchment229: PR-WS-229 (ROOF) Runoff Area=4,104 sf 100.00% Impervious Runoff Depth>6.42"
Tc=5.0 min CN=98 Runoff=0.64 cfs 0.050 af

Subcatchment230: PR-WS-230 Runoff Area=1,534 sf 100.00% Impervious Runoff Depth>6.42"
Tc=5.0 min CN=98 Runoff=0.24 cfs 0.019 af

Subcatchment250: PR-WS-250 Runoff Area=13,074 sf 28.39% Impervious Runoff Depth=3.56"
Tc=5.0 min CN=72 Runoff=1.30 cfs 0.089 af

Subcatchment251: PR-WS-251 Runoff Area=15,132 sf 20.61% Impervious Runoff Depth=3.25"
Tc=5.0 min CN=69 Runoff=1.37 cfs 0.094 af

Subcatchment252: PR-WS-252 Runoff Area=5,760 sf 17.12% Impervious Runoff Depth=2.86"
Tc=5.0 min CN=65 Runoff=0.45 cfs 0.031 af

Subcatchment253: PR-WS-253 Runoff Area=48,912 sf 0.00% Impervious Runoff Depth=2.47"
Flow Length=160' Tc=9.7 min CN=61 Runoff=2.77 cfs 0.231 af

Subcatchment254: PR-WS-254 Runoff Area=111,852 sf 14.58% Impervious Runoff Depth=3.15"
Flow Length=545' Tc=21.6 min CN=68 Runoff=6.16 cfs 0.675 af

Subcatchment256: PR-WS-213 Runoff Area=4,952 sf 100.00% Impervious Runoff Depth>6.42"
Tc=5.0 min CN=98 Runoff=0.77 cfs 0.061 af

Subcatchment257: PR-WS-214 Runoff Area=3,400 sf 100.00% Impervious Runoff Depth>6.42"
Tc=5.0 min CN=98 Runoff=0.53 cfs 0.042 af

Subcatchment258: PR-WS-215 Runoff Area=4,882 sf 100.00% Impervious Runoff Depth>6.42"
Tc=5.0 min CN=98 Runoff=0.76 cfs 0.060 af

Subcatchment259: PR-WS-259 Runoff Area=2,064 sf 100.00% Impervious Runoff Depth>6.42"
Tc=5.0 min CN=98 Runoff=0.32 cfs 0.025 af

Subcatchment260: PR-WS-260 Runoff Area=2,064 sf 100.00% Impervious Runoff Depth>6.42"
Tc=5.0 min CN=98 Runoff=0.32 cfs 0.025 af

Subcatchment261: PR-WS-261 Runoff Area=19,487 sf 17.21% Impervious Runoff Depth=3.05"
Tc=5.0 min CN=67 Runoff=1.65 cfs 0.114 af

Subcatchment262: PR-WS-262 Runoff Area=12,770 sf 0.00% Impervious Runoff Depth=2.47"
Tc=5.0 min CN=61 Runoff=0.86 cfs 0.060 af

Subcatchment263: PR-WS-263 Runoff Area=18,005 sf 11.30% Impervious Runoff Depth=2.86"
Tc=5.0 min CN=65 Runoff=1.42 cfs 0.098 af

Subcatchment265: PR-WS-265 Runoff Area=8,482 sf 100.00% Impervious Runoff Depth>6.42"
Tc=5.0 min CN=98 Runoff=1.32 cfs 0.104 af

Subcatchment266: PR-WS-266 Runoff Area=4,042 sf 100.00% Impervious Runoff Depth>6.42"
Tc=5.0 min CN=98 Runoff=0.63 cfs 0.050 af

Subcatchment269: PR-WS-269 Runoff Area=4,203 sf 88.32% Impervious Runoff Depth=5.97"
Tc=5.0 min CN=94 Runoff=0.64 cfs 0.048 af

Subcatchment270: PR-WS-270 Runoff Area=4,247 sf 95.22% Impervious Runoff Depth>6.20"
Tc=5.0 min CN=96 Runoff=0.66 cfs 0.050 af

Reach 1R: OVERLAND Avg. Flow Depth=0.10' Max Vel=3.28 fps Inflow=3.07 cfs 0.230 af
n=0.030 L=45.0' S=0.1556 '/' Capacity=93.87 cfs Outflow=3.07 cfs 0.230 af

Reach 2R: SWALE Avg. Flow Depth=0.14' Max Vel=2.00 fps Inflow=1.56 cfs 0.159 af
n=0.030 L=315.0' S=0.0248 '/' Capacity=49.46 cfs Outflow=1.53 cfs 0.159 af

Reach 3R: OVERLAND Avg. Flow Depth=0.07' Max Vel=3.21 fps Inflow=1.53 cfs 0.159 af
n=0.030 L=37.0' S=0.2703 '/' Capacity=123.74 cfs Outflow=1.53 cfs 0.159 af

Reach 4R: SWALE Avg. Flow Depth=0.15' Max Vel=1.57 fps Inflow=1.37 cfs 0.094 af
n=0.030 L=188.0' S=0.0154 '/' Capacity=46.54 cfs Outflow=1.32 cfs 0.094 af

Reach 5R: P-264 Avg. Flow Depth=0.62' Max Vel=3.87 fps Inflow=2.70 cfs 0.193 af
18.0" Round Pipe n=0.013 L=80.0' S=0.0050 '/' Capacity=7.43 cfs Outflow=2.69 cfs 0.193 af

Reach 6R: SWALE Avg. Flow Depth=0.19' Max Vel=2.21 fps Inflow=2.69 cfs 0.193 af
n=0.030 L=304.0' S=0.0217 '/' Capacity=55.21 cfs Outflow=2.57 cfs 0.193 af

Reach 7R: OVERLAND Avg. Flow Depth=0.23' Max Vel=2.75 fps Inflow=8.87 cfs 0.449 af
n=0.035 L=140.0' S=0.0500 '/' Capacity=45.62 cfs Outflow=8.79 cfs 0.449 af

Reach 8R: OVERLAND Avg. Flow Depth=0.20' Max Vel=2.50 fps Inflow=6.34 cfs 0.257 af
n=0.030 L=80.0' S=0.0375 '/' Capacity=46.09 cfs Outflow=6.31 cfs 0.257 af

Reach 9R: CULVERT Avg. Flow Depth=0.49' Max Vel=3.56 fps Inflow=1.37 cfs 0.094 af
12.0" Round Pipe n=0.013 L=80.0' S=0.0063 '/' Capacity=2.82 cfs Outflow=1.37 cfs 0.094 af

Reach 16R: 8" RD Avg. Flow Depth=0.67' Max Vel=3.33 fps Inflow=1.29 cfs 0.102 af
8.0" Round Pipe n=0.013 L=14.0' S=0.0071 '/' Capacity=1.02 cfs Outflow=1.08 cfs 0.102 af

Reach 17R: 8" RD Avg. Flow Depth=0.45' Max Vel=2.99 fps Inflow=0.76 cfs 0.060 af
8.0" Round Pipe n=0.013 L=58.0' S=0.0060 '/' Capacity=0.94 cfs Outflow=0.76 cfs 0.060 af

Pond 1P: INFILTRATIONBASIN#1 Peak Elev=153.47' Storage=13,255 cf Inflow=11.37 cfs 0.891 af
Discarded=0.88 cfs 0.661 af Primary=3.07 cfs 0.230 af Outflow=3.95 cfs 0.891 af

Pond 3P: Stormtech#1 Peak Elev=158.72' Storage=4,870 cf Inflow=6.82 cfs 0.509 af
Discarded=0.18 cfs 0.253 af Primary=6.34 cfs 0.257 af Outflow=6.52 cfs 0.509 af

Pond 4P: RAIN GARDEN#1 Peak Elev=159.68' Storage=6,407 cf Inflow=3.85 cfs 0.291 af
Outflow=1.56 cfs 0.159 af

Pond 6P: INFILTRATIONBASIN#2 Peak Elev=157.42' Storage=11,677 cf Inflow=8.85 cfs 0.663 af
Discarded=0.85 cfs 0.602 af Primary=0.87 cfs 0.061 af Outflow=1.71 cfs 0.663 af

Pond 231P: Stormtech#1 - ISO ROW CHECK Peak Elev=0.00' Storage=0 cf
Discarded=0.00 cfs 0.000 af Primary=0.00 cfs 0.000 af

Pond CB 101: CB 101 Peak Elev=160.66' Storage=0.000 af Inflow=0.61 cfs 0.048 af
12.0" Round Culvert n=0.013 L=27.0' S=0.0111 '/' Outflow=0.61 cfs 0.048 af

Pond CB 102: CB 102 Peak Elev=153.59' Storage=0.001 af Inflow=10.53 cfs 0.830 af
24.0" Round Culvert n=0.013 L=35.0' S=0.0057 '/' Outflow=10.51 cfs 0.830 af

Pond CB 103: CB 103 Peak Elev=155.41' Storage=0.000 af Inflow=0.61 cfs 0.048 af
12.0" Round Culvert n=0.013 L=28.0' S=0.0107 '/' Outflow=0.61 cfs 0.048 af

Pond CB 104: CB 104 Peak Elev=154.60' Storage=0.001 af Inflow=9.13 cfs 0.721 af
24.0" Round Culvert n=0.013 L=230.0' S=0.0050 '/' Outflow=9.12 cfs 0.721 af

Pond CB 105: CB 105 Peak Elev=154.70' Storage=0.000 af Inflow=0.52 cfs 0.041 af
12.0" Round Culvert n=0.013 L=28.0' S=0.0107 '/' Outflow=0.52 cfs 0.041 af

Pond CB 106: CB 106 Peak Elev=155.47' Storage=0.000 af Inflow=1.13 cfs 0.088 af
12.0" Round Culvert n=0.013 L=182.0' S=0.0052 '/' Outflow=1.13 cfs 0.088 af

Pond CB 107: CB 107 Peak Elev=155.51' Storage=0.000 af Inflow=0.27 cfs 0.021 af
12.0" Round Culvert n=0.013 L=28.0' S=0.0107 '/' Outflow=0.27 cfs 0.021 af

Pond CB 108: CB 108 Peak Elev=155.47' Storage=0.000 af Inflow=5.85 cfs 0.473 af
18.0" Round Culvert n=0.013 L=122.0' S=0.0053 '/' Outflow=5.84 cfs 0.473 af

Pond CB 109: CB 109 Peak Elev=156.05' Storage=0.000 af Inflow=2.88 cfs 0.224 af
12.0" Round Culvert n=0.013 L=42.0' S=0.0060 '/' Outflow=2.88 cfs 0.224 af

Pond CB 110: CB 110 Peak Elev=156.76' Storage=0.000 af Inflow=2.58 cfs 0.200 af
12.0" Round Culvert n=0.013 L=89.0' S=0.0051 '/' Outflow=2.56 cfs 0.200 af

Pond CB 111: CB 111 Peak Elev=157.09' Storage=0.000 af Inflow=2.06 cfs 0.160 af
12.0" Round Culvert n=0.013 L=32.0' S=0.0062 '/' Outflow=2.07 cfs 0.160 af

Pond CB 112: CB 112 Peak Elev=157.39' Storage=0.000 af Inflow=1.78 cfs 0.139 af
12.0" Round Culvert n=0.013 L=95.0' S=0.0053 '/' Outflow=1.77 cfs 0.139 af

Pond CB 113: CB 113 Peak Elev=157.51' Storage=0.000 af Inflow=1.38 cfs 0.101 af
12.0" Round Culvert n=0.013 L=25.0' S=0.0100 '/' Outflow=1.37 cfs 0.101 af

Pond CB 114: CB 114 Peak Elev=157.72' Storage=0.000 af Inflow=0.65 cfs 0.046 af
12.0" Round Culvert n=0.013 L=60.0' S=0.0050 '/' Outflow=0.65 cfs 0.046 af

Pond CB 115: CB 115 Peak Elev=158.78' Storage=0.000 af Inflow=2.23 cfs 0.172 af
12.0" Round Culvert n=0.013 L=20.0' S=0.0050 '/' Outflow=2.22 cfs 0.172 af

Pond CB 116: CB 116 Peak Elev=159.06' Storage=0.000 af Inflow=1.14 cfs 0.089 af
12.0" Round Culvert n=0.013 L=71.0' S=0.0056 '/' Outflow=1.13 cfs 0.089 af

Pond CB 117: CB 117 Peak Elev=158.92' Storage=0.000 af Inflow=0.78 cfs 0.061 af
12.0" Round Culvert n=0.013 L=59.0' S=0.0051 '/' Outflow=0.78 cfs 0.061 af

Pond CB 118: CB 118 Peak Elev=159.13' Storage=0.000 af Inflow=0.52 cfs 0.041 af
12.0" Round Culvert n=0.013 L=67.0' S=0.0052 '/' Outflow=0.52 cfs 0.041 af

Pond CB 119: CB 119 Peak Elev=158.81' Storage=0.000 af Inflow=3.13 cfs 0.235 af
12.0" Round Culvert n=0.013 L=19.0' S=0.0053 '/' Outflow=3.11 cfs 0.235 af

Pond CB 120: CB 120 Peak Elev=158.96' Storage=0.000 af Inflow=1.23 cfs 0.097 af
12.0" Round Culvert n=0.013 L=64.0' S=0.0055 '/' Outflow=1.24 cfs 0.097 af

Pond CB 121: CB 121 Peak Elev=158.99' Storage=0.000 af Inflow=1.56 cfs 0.116 af
12.0" Round Culvert n=0.013 L=45.0' S=0.0056 '/' Outflow=1.57 cfs 0.116 af

Pond CB 122: CB 122 Peak Elev=159.17' Storage=0.000 af Inflow=0.68 cfs 0.052 af
12.0" Round Culvert n=0.013 L=113.0' S=0.0053 '/' Outflow=0.68 cfs 0.052 af

Pond CB 123: CB 123 Peak Elev=158.74' Storage=0.001 af Inflow=1.28 cfs 0.098 af
18.0" Round Culvert n=0.013 L=15.0' S=0.0400 '/' Outflow=1.27 cfs 0.098 af

Pond CB 124: CB 124 Peak Elev=158.78' Storage=0.000 af Inflow=0.64 cfs 0.048 af
12.0" Round Culvert n=0.013 L=100.0' S=0.0100 '/' Outflow=0.63 cfs 0.048 af

Pond CB 125: CB 125 Peak Elev=157.44' Storage=0.000 af Inflow=0.56 cfs 0.041 af
18.0" Round Culvert n=0.013 L=95.0' S=0.0053 '/' Outflow=0.55 cfs 0.041 af

Pond CB 126: CB 126 Peak Elev=160.19' Storage=0.000 af Inflow=1.31 cfs 0.094 af
12.0" Round Culvert n=0.013 L=93.0' S=0.0097 '/' Outflow=1.29 cfs 0.094 af

Pond CB 127: CB 127 Peak Elev=159.39' Storage=7 cf Inflow=0.24 cfs 0.019 af
12.0" Round Culvert n=0.013 L=28.0' S=0.0054 '/' Outflow=0.23 cfs 0.019 af

Pond CB 128: CB 128 Peak Elev=159.37' Storage=10 cf Inflow=0.70 cfs 0.051 af
12.0" Round Culvert n=0.013 L=91.0' S=0.0000 '/' Outflow=0.69 cfs 0.051 af

Pond CB 130: CB 130 Peak Elev=160.02' Storage=40 cf Inflow=3.77 cfs 0.271 af
12.0" Round Culvert n=0.013 L=16.0' S=0.0313 '/' Outflow=3.75 cfs 0.271 af

Pond CB 131: CB 131 Peak Elev=159.37' Storage=7 cf Inflow=0.52 cfs 0.038 af
12.0" Round Culvert n=0.013 L=37.0' S=0.0419 '/' Outflow=0.51 cfs 0.038 af

Pond DMH 002: DMH 002 Peak Elev=159.04' Storage=35 cf Inflow=4.93 cfs 0.361 af
18.0" Round Culvert n=0.013 L=41.0' S=0.0061 '/' Outflow=4.92 cfs 0.361 af

Pond DMH 003: DMH 003 Peak Elev=159.28' Storage=27 cf Inflow=1.20 cfs 0.089 af
12.0" Round Culvert n=0.013 L=158.0' S=0.0051 '/' Outflow=1.19 cfs 0.089 af

Pond DMH 1: DMH 001 Peak Elev=155.77' Storage=0.000 af Inflow=1.79 cfs 0.162 af
12.0" Round Culvert n=0.013 L=41.0' S=0.0061 '/' Outflow=1.79 cfs 0.162 af

Pond DMH 2: DMH 002 Peak Elev=157.43' Storage=0.000 af Inflow=3.60 cfs 0.273 af
18.0" Round Culvert n=0.013 L=100.0' S=0.0050 '/' Outflow=3.59 cfs 0.273 af

Pond DMH 3: DMH 003 Peak Elev=158.30' Storage=0.000 af Inflow=2.22 cfs 0.172 af
Primary=1.62 cfs 0.033 af Secondary=0.61 cfs 0.139 af Outflow=2.22 cfs 0.172 af

Pond DMH 4: DMH 004 Peak Elev=157.43' Storage=0.001 af Inflow=3.64 cfs 0.276 af
18.0" Round Culvert n=0.013 L=20.0' S=0.0050 '/' Outflow=3.62 cfs 0.276 af

Pond DMH 5: DMH 005 Peak Elev=157.44' Storage=0.000 af Inflow=3.65 cfs 0.276 af
18.0" Round Culvert n=0.013 L=130.0' S=0.0050 '/' Outflow=3.64 cfs 0.276 af

Pond DMH 6: DMH 006 Peak Elev=158.07' Storage=0.000 af Inflow=3.11 cfs 0.235 af
Primary=2.40 cfs 0.056 af Secondary=0.72 cfs 0.179 af Outflow=3.11 cfs 0.235 af

Pond DMH 7: DMH 007 Peak Elev=157.44' Storage=0.000 af Inflow=0.55 cfs 0.041 af
18.0" Round Culvert n=0.013 L=10.0' S=0.0050 '/' Outflow=0.54 cfs 0.041 af

Pond OW 1: O/W SEP #1 Inflow=0.61 cfs 0.139 af
Primary=0.61 cfs 0.139 af

Pond OW 2: O/W SEP #2 Inflow=0.72 cfs 0.179 af
Primary=0.72 cfs 0.179 af

Link AP1: AP1 Inflow=0.45 cfs 0.031 af
Primary=0.45 cfs 0.031 af

Link AP2: AP2 Inflow=6.40 cfs 0.621 af
Primary=6.40 cfs 0.621 af

Link AP3: AP3 Inflow=12.65 cfs 1.185 af
Primary=12.65 cfs 1.185 af

Total Runoff Area = 9.872 ac Runoff Volume = 3.484 af Average Runoff Depth = 4.24"
55.41% Pervious = 5.471 ac 44.59% Impervious = 4.402 ac

Time span=2.00-72.00 hrs, dt=0.01 hrs, 7001 points x 3
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment109: PR-WS-209 Runoff Area=2,185 sf 82.47% Impervious Runoff Depth=7.03"
Tc=5.0 min CN=92 Runoff=0.39 cfs 1,281 cf

Subcatchment110: PR-WS-210 Runoff Area=3,425 sf 90.74% Impervious Runoff Depth>7.39"
Tc=5.0 min CN=95 Runoff=0.63 cfs 2,108 cf

Subcatchment111: PR-WS-211 Runoff Area=1,890 sf 89.37% Impervious Runoff Depth>7.27"
Tc=5.0 min CN=94 Runoff=0.35 cfs 1,145 cf

Subcatchment112: PR-WS-212 Runoff Area=11,475 sf 95.98% Impervious Runoff Depth>7.61"
Tc=5.0 min CN=97 Runoff=2.13 cfs 7,277 cf

Subcatchment201: PR-WS-201 Runoff Area=3,897 sf 100.00% Impervious Runoff Depth>7.71"
Tc=5.0 min CN=98 Runoff=0.73 cfs 2,504 cf

Subcatchment202: PR-WS-202 Runoff Area=5,172 sf 94.62% Impervious Runoff Depth>7.50"
Tc=5.0 min CN=96 Runoff=0.96 cfs 3,233 cf

Subcatchment203: PR-WS-203 Runoff Area=3,905 sf 100.00% Impervious Runoff Depth>7.71"
Tc=5.0 min CN=98 Runoff=0.73 cfs 2,509 cf

Subcatchment204: PR-WS-204 Runoff Area=11,336 sf 77.03% Impervious Runoff Depth=6.80"
Tc=5.0 min CN=90 Runoff=2.01 cfs 6,420 cf

Subcatchment205: PR-WS-205 Runoff Area=3,356 sf 100.00% Impervious Runoff Depth>7.71"
Tc=5.0 min CN=98 Runoff=0.63 cfs 2,156 cf

Subcatchment206: PR-WS-206 Runoff Area=5,619 sf 95.59% Impervious Runoff Depth>7.50"
Tc=5.0 min CN=96 Runoff=1.04 cfs 3,512 cf

Subcatchment207: PR-WS-207 Runoff Area=1,726 sf 100.00% Impervious Runoff Depth>7.71"
Tc=5.0 min CN=98 Runoff=0.32 cfs 1,109 cf

Subcatchment208: PR-WS-212 Runoff Area=8,375 sf 76.94% Impervious Runoff Depth=6.68"
Tc=5.0 min CN=89 Runoff=1.47 cfs 4,660 cf

Subcatchment213: PR-WS-213 Runoff Area=4,800 sf 88.10% Impervious Runoff Depth>7.27"
Tc=5.0 min CN=94 Runoff=0.88 cfs 2,908 cf

Subcatchment214: PR-WS-214 Runoff Area=4,763 sf 67.94% Impervious Runoff Depth=6.32"
Tc=5.0 min CN=86 Runoff=0.81 cfs 2,509 cf

Subcatchment215: PR-WS-215 Runoff Area=2,054 sf 87.20% Impervious Runoff Depth>7.15"
Tc=5.0 min CN=93 Runoff=0.37 cfs 1,224 cf

Subcatchment216: PR-WS-216 Runoff Area=5,248 sf 97.73% Impervious Runoff Depth>7.61"
Tc=5.0 min CN=97 Runoff=0.98 cfs 3,328 cf

Subcatchment217: PR-WS-217 Runoff Area=1,717 sf 89.05% Impervious Runoff Depth>7.27"
Tc=5.0 min CN=94 Runoff=0.31 cfs 1,040 cf

Subcatchment218: PR-WS-218 Runoff Area=3,346 sf 100.00% Impervious Runoff Depth>7.71"
Tc=5.0 min CN=98 Runoff=0.62 cfs 2,150 cf

Subcatchment219: PR-WS-219 Runoff Area=2,396 sf 61.89% Impervious Runoff Depth=6.09"
Tc=5.0 min CN=84 Runoff=0.39 cfs 1,215 cf

Subcatchment220: PR-WS-220 Runoff Area=5,845 sf 100.00% Impervious Runoff Depth>7.71"
Tc=5.0 min CN=98 Runoff=1.09 cfs 3,756 cf

Subcatchment221: PR-WS-221 Runoff Area=6,307 sf 73.82% Impervious Runoff Depth=6.56"
Tc=5.0 min CN=88 Runoff=1.09 cfs 3,447 cf

Subcatchment222: PR-WS-222 Runoff Area=4,378 sf 95.68% Impervious Runoff Depth>7.50"
Tc=5.0 min CN=96 Runoff=0.81 cfs 2,737 cf

Subcatchment223: PR-WS-223 Runoff Area=3,837 sf 52.70% Impervious Runoff Depth=5.62"
Tc=5.0 min CN=80 Runoff=0.59 cfs 1,796 cf

Subcatchment224: PR-WS-224 Runoff Area=3,541 sf 80.18% Impervious Runoff Depth=6.91"
Tc=5.0 min CN=91 Runoff=0.63 cfs 2,040 cf

Subcatchment225: PR-WS-225 Runoff Area=3,823 sf 81.87% Impervious Runoff Depth=6.91"
Tc=5.0 min CN=91 Runoff=0.68 cfs 2,203 cf

Subcatchment227: PR-WS-227 Runoff Area=17,510 sf 72.49% Impervious Runoff Depth=6.56"
Tc=5.0 min CN=88 Runoff=3.04 cfs 9,570 cf

Subcatchment228: PR-WS-228 Runoff Area=9,153 sf 75.26% Impervious Runoff Depth=6.68"
Tc=5.0 min CN=89 Runoff=1.60 cfs 5,093 cf

Subcatchment229: PR-WS-229 (ROOF) Runoff Area=4,104 sf 100.00% Impervious Runoff Depth>7.71"
Tc=5.0 min CN=98 Runoff=0.77 cfs 2,637 cf

Subcatchment230: PR-WS-230 Runoff Area=1,534 sf 100.00% Impervious Runoff Depth>7.71"
Tc=5.0 min CN=98 Runoff=0.29 cfs 986 cf

Subcatchment250: PR-WS-250 Runoff Area=13,074 sf 28.39% Impervious Runoff Depth=4.69"
Tc=5.0 min CN=72 Runoff=1.71 cfs 5,105 cf

Subcatchment251: PR-WS-251 Runoff Area=15,132 sf 20.61% Impervious Runoff Depth=4.34"
Tc=5.0 min CN=69 Runoff=1.83 cfs 5,474 cf

Subcatchment252: PR-WS-252 Runoff Area=5,760 sf 17.12% Impervious Runoff Depth=3.89"
Tc=5.0 min CN=65 Runoff=0.62 cfs 1,865 cf

Subcatchment253: PR-WS-253 Runoff Area=48,912 sf 0.00% Impervious Runoff Depth=3.44"
Flow Length=160' Tc=9.7 min CN=61 Runoff=3.93 cfs 14,009 cf

Subcatchment254: PR-WS-254 Runoff Area=111,852 sf 14.58% Impervious Runoff Depth=4.23"
Flow Length=545' Tc=21.6 min CN=68 Runoff=8.30 cfs 39,399 cf

Subcatchment256: PR-WS-213 Runoff Area=4,952 sf 100.00% Impervious Runoff Depth>7.71"
Tc=5.0 min CN=98 Runoff=0.92 cfs 3,182 cf

Subcatchment257: PR-WS-214 Runoff Area=3,400 sf 100.00% Impervious Runoff Depth>7.71"
Tc=5.0 min CN=98 Runoff=0.63 cfs 2,185 cf

Subcatchment258: PR-WS-215 Runoff Area=4,882 sf 100.00% Impervious Runoff Depth>7.71"
Tc=5.0 min CN=98 Runoff=0.91 cfs 3,137 cf

Subcatchment259: PR-WS-259 Runoff Area=2,064 sf 100.00% Impervious Runoff Depth>7.71"
Tc=5.0 min CN=98 Runoff=0.39 cfs 1,326 cf

Subcatchment260: PR-WS-260 Runoff Area=2,064 sf 100.00% Impervious Runoff Depth>7.71"
Tc=5.0 min CN=98 Runoff=0.39 cfs 1,326 cf

Subcatchment261: PR-WS-261 Runoff Area=19,487 sf 17.21% Impervious Runoff Depth=4.11"
Tc=5.0 min CN=67 Runoff=2.24 cfs 6,679 cf

Subcatchment262: PR-WS-262 Runoff Area=12,770 sf 0.00% Impervious Runoff Depth=3.44"
Tc=5.0 min CN=61 Runoff=1.21 cfs 3,658 cf

Subcatchment263: PR-WS-263 Runoff Area=18,005 sf 11.30% Impervious Runoff Depth=3.89"
Tc=5.0 min CN=65 Runoff=1.95 cfs 5,831 cf

Subcatchment265: PR-WS-265 Runoff Area=8,482 sf 100.00% Impervious Runoff Depth>7.71"
Tc=5.0 min CN=98 Runoff=1.58 cfs 5,450 cf

Subcatchment266: PR-WS-266 Runoff Area=4,042 sf 100.00% Impervious Runoff Depth>7.71"
Tc=5.0 min CN=98 Runoff=0.75 cfs 2,597 cf

Subcatchment269: PR-WS-269 Runoff Area=4,203 sf 88.32% Impervious Runoff Depth>7.27"
Tc=5.0 min CN=94 Runoff=0.77 cfs 2,547 cf

Subcatchment270: PR-WS-270 Runoff Area=4,247 sf 95.22% Impervious Runoff Depth>7.50"
Tc=5.0 min CN=96 Runoff=0.79 cfs 2,655 cf

Reach 1R: OVERLAND Avg. Flow Depth=0.15' Max Vel=4.15 fps Inflow=6.59 cfs 15,780 cf
n=0.030 L=45.0' S=0.1556 '/' Capacity=93.87 cfs Outflow=6.59 cfs 15,780 cf

Reach 2R: SWALE Avg. Flow Depth=0.21' Max Vel=2.58 fps Inflow=3.23 cfs 9,944 cf
n=0.030 L=315.0' S=0.0248 '/' Capacity=49.46 cfs Outflow=3.11 cfs 9,944 cf

Reach 3R: OVERLAND Avg. Flow Depth=0.09' Max Vel=3.99 fps Inflow=3.11 cfs 9,944 cf
n=0.030 L=37.0' S=0.2703 '/' Capacity=123.74 cfs Outflow=3.11 cfs 9,944 cf

Reach 4R: SWALE Avg. Flow Depth=0.17' Max Vel=1.74 fps Inflow=1.83 cfs 5,474 cf
n=0.030 L=188.0' S=0.0154 '/' Capacity=46.54 cfs Outflow=1.77 cfs 5,474 cf

Reach 5R: P-264 Avg. Flow Depth=0.74' Max Vel=4.19 fps Inflow=3.68 cfs 11,305 cf
18.0" Round Pipe n=0.013 L=80.0' S=0.0050 '/' Capacity=7.43 cfs Outflow=3.67 cfs 11,305 cf

Reach 6R: SWALE Avg. Flow Depth=0.23' Max Vel=2.45 fps Inflow=3.67 cfs 11,305 cf
n=0.030 L=304.0' S=0.0217 '/' Capacity=55.21 cfs Outflow=3.53 cfs 11,305 cf

Reach 7R: OVERLAND Avg. Flow Depth=0.26' Max Vel=2.97 fps Inflow=11.45 cfs 26,775 cf
n=0.035 L=140.0' S=0.0500 '/' Capacity=45.62 cfs Outflow=11.37 cfs 26,775 cf

Reach 8R: OVERLAND Avg. Flow Depth=0.22' Max Vel=2.68 fps Inflow=7.97 cfs 15,470 cf
n=0.030 L=80.0' S=0.0375 '/' Capacity=46.09 cfs Outflow=7.95 cfs 15,470 cf

Reach 9R: CULVERT Avg. Flow Depth=0.59' Max Vel=3.82 fps Inflow=1.83 cfs 5,474 cf
12.0" Round Pipe n=0.013 L=80.0' S=0.0063 '/' Capacity=2.82 cfs Outflow=1.83 cfs 5,474 cf

Reach 16R: 8" RD Avg. Flow Depth=0.67' Max Vel=3.34 fps Inflow=1.54 cfs 5,321 cf
8.0" Round Pipe n=0.013 L=14.0' S=0.0071 '/' Capacity=1.02 cfs Outflow=1.10 cfs 5,321 cf

Reach 17R: 8" RD Avg. Flow Depth=0.53' Max Vel=3.06 fps Inflow=0.91 cfs 3,137 cf
8.0" Round Pipe n=0.013 L=58.0' S=0.0060 '/' Capacity=0.94 cfs Outflow=0.91 cfs 3,137 cf

Pond 1P: INFILTRATIONBASIN#1 Peak Elev=153.68' Storage=14,703 cf Inflow=13.58 cfs 47,561 cf
Discarded=0.89 cfs 31,782 cf Primary=6.59 cfs 15,780 cf Outflow=7.48 cfs 47,562 cf

Pond 3P: Stormtech#1 Peak Elev=158.83' Storage=4,980 cf Inflow=8.37 cfs 27,323 cf
Discarded=0.18 cfs 11,853 cf Primary=7.97 cfs 15,470 cf Outflow=8.15 cfs 27,323 cf

Pond 4P: RAIN GARDEN#1 Peak Elev=159.79' Storage=6,855 cf Inflow=4.77 cfs 15,656 cf
Outflow=3.23 cfs 9,944 cf

Pond 6P: INFILTRATIONBASIN#2 Peak Elev=157.74' Storage=13,805 cf Inflow=10.89 cfs 35,836 cf
Discarded=0.87 cfs 29,072 cf Primary=1.98 cfs 6,765 cf Outflow=2.85 cfs 35,836 cf

Pond 231P: Stormtech#1 - ISO ROW CHECK Peak Elev=0.00' Storage=0 cf
Discarded=0.00 cfs 0 cf Primary=0.00 cfs 0 cf

Pond CB 101: CB 101 Peak Elev=160.70' Storage=0.000 af Inflow=0.73 cfs 2,504 cf
12.0" Round Culvert n=0.013 L=27.0' S=0.0111 '/' Outflow=0.73 cfs 2,504 cf

Pond CB 102: CB 102 Peak Elev=154.11' Storage=0.001 af Inflow=12.39 cfs 43,903 cf
24.0" Round Culvert n=0.013 L=35.0' S=0.0057 '/' Outflow=12.37 cfs 43,903 cf

Pond CB 103: CB 103 Peak Elev=155.45' Storage=0.000 af Inflow=0.73 cfs 2,509 cf
12.0" Round Culvert n=0.013 L=28.0' S=0.0107 '/' Outflow=0.73 cfs 2,499 cf

Pond CB 104: CB 104 Peak Elev=154.99' Storage=0.001 af Inflow=10.73 cfs 38,171 cf
24.0" Round Culvert n=0.013 L=230.0' S=0.0050 '/' Outflow=10.72 cfs 38,171 cf

Pond CB 105: CB 105 Peak Elev=155.01' Storage=0.000 af Inflow=0.63 cfs 2,156 cf
12.0" Round Culvert n=0.013 L=28.0' S=0.0107 '/' Outflow=0.62 cfs 2,156 cf

Pond CB 106: CB 106 Peak Elev=155.63' Storage=0.000 af Inflow=1.36 cfs 4,621 cf
12.0" Round Culvert n=0.013 L=182.0' S=0.0052 '/' Outflow=1.35 cfs 4,621 cf

Pond CB 107: CB 107 Peak Elev=155.66' Storage=0.000 af Inflow=0.32 cfs 1,109 cf
12.0" Round Culvert n=0.013 L=28.0' S=0.0107 '/' Outflow=0.32 cfs 1,109 cf

Pond CB 108: CB 108 Peak Elev=155.79' Storage=0.001 af Inflow=6.78 cfs 24,974 cf
18.0" Round Culvert n=0.013 L=122.0' S=0.0053 '/' Outflow=6.78 cfs 24,974 cf

Pond CB 109: CB 109 Peak Elev=156.63' Storage=0.001 af Inflow=3.42 cfs 11,811 cf
12.0" Round Culvert n=0.013 L=42.0' S=0.0060 '/' Outflow=3.42 cfs 11,811 cf

Pond CB 110: CB 110 Peak Elev=157.63' Storage=0.001 af Inflow=3.04 cfs 10,530 cf
12.0" Round Culvert n=0.013 L=89.0' S=0.0051 '/' Outflow=3.04 cfs 10,530 cf

Pond CB 111: CB 111 Peak Elev=158.06' Storage=0.001 af Inflow=2.43 cfs 8,422 cf
12.0" Round Culvert n=0.013 L=32.0' S=0.0062 '/' Outflow=2.43 cfs 8,422 cf

Pond CB 112: CB 112 Peak Elev=158.54' Storage=0.001 af Inflow=2.13 cfs 7,277 cf
12.0" Round Culvert n=0.013 L=95.0' S=0.0053 '/' Outflow=2.09 cfs 7,277 cf

Pond CB 113: CB 113 Peak Elev=157.78' Storage=0.000 af Inflow=1.68 cfs 5,418 cf
12.0" Round Culvert n=0.013 L=25.0' S=0.0100 '/' Outflow=1.67 cfs 5,418 cf

Pond CB 114: CB 114 Peak Elev=157.89' Storage=0.000 af Inflow=0.81 cfs 2,509 cf
12.0" Round Culvert n=0.013 L=60.0' S=0.0050 '/' Outflow=0.80 cfs 2,509 cf

Pond CB 115: CB 115 Peak Elev=158.95' Storage=0.000 af Inflow=2.67 cfs 9,069 cf
12.0" Round Culvert n=0.013 L=20.0' S=0.0050 '/' Outflow=2.67 cfs 9,069 cf

Pond CB 116: CB 116 Peak Elev=159.20' Storage=0.000 af Inflow=1.36 cfs 4,654 cf
12.0" Round Culvert n=0.013 L=71.0' S=0.0056 '/' Outflow=1.36 cfs 4,654 cf

Pond CB 117: CB 117 Peak Elev=159.07' Storage=0.000 af Inflow=0.94 cfs 3,190 cf
12.0" Round Culvert n=0.013 L=59.0' S=0.0051 '/' Outflow=0.94 cfs 3,190 cf

Pond CB 118: CB 118 Peak Elev=159.24' Storage=0.000 af Inflow=0.62 cfs 2,150 cf
12.0" Round Culvert n=0.013 L=67.0' S=0.0052 '/' Outflow=0.62 cfs 2,150 cf

Pond CB 119: CB 119 Peak Elev=159.11' Storage=0.000 af Inflow=3.76 cfs 12,480 cf
12.0" Round Culvert n=0.013 L=19.0' S=0.0053 '/' Outflow=3.75 cfs 12,480 cf

Pond CB 120: CB 120 Peak Elev=159.30' Storage=0.000 af Inflow=1.48 cfs 5,082 cf
12.0" Round Culvert n=0.013 L=64.0' S=0.0055 '/' Outflow=1.47 cfs 5,082 cf

Pond CB 121: CB 121 Peak Elev=159.37' Storage=0.000 af Inflow=1.91 cfs 6,184 cf
12.0" Round Culvert n=0.013 L=45.0' S=0.0056 '/' Outflow=1.90 cfs 6,184 cf

Pond CB 122: CB 122 Peak Elev=159.49' Storage=0.000 af Inflow=0.81 cfs 2,737 cf
12.0" Round Culvert n=0.013 L=113.0' S=0.0053 '/' Outflow=0.81 cfs 2,737 cf

Pond CB 123: CB 123 Peak Elev=158.86' Storage=0.001 af Inflow=1.55 cfs 5,201 cf
18.0" Round Culvert n=0.013 L=15.0' S=0.0400 '/' Outflow=1.54 cfs 5,201 cf

Pond CB 124: CB 124 Peak Elev=158.92' Storage=0.000 af Inflow=0.77 cfs 2,547 cf
12.0" Round Culvert n=0.013 L=100.0' S=0.0100 '/' Outflow=0.76 cfs 2,547 cf

Pond CB 125: CB 125 Peak Elev=157.80' Storage=0.000 af Inflow=0.68 cfs 2,203 cf
18.0" Round Culvert n=0.013 L=95.0' S=0.0053 '/' Outflow=0.66 cfs 2,203 cf

Pond CB 126: CB 126 Peak Elev=161.10' Storage=0.001 af Inflow=1.60 cfs 5,093 cf
12.0" Round Culvert n=0.013 L=93.0' S=0.0097 '/' Outflow=1.60 cfs 5,093 cf

Pond CB 127: CB 127 Peak Elev=159.78' Storage=12 cf Inflow=0.29 cfs 986 cf
12.0" Round Culvert n=0.013 L=28.0' S=0.0054 '/' Outflow=0.29 cfs 986 cf

Pond CB 128: CB 128 Peak Elev=159.77' Storage=15 cf Inflow=0.86 cfs 2,781 cf
12.0" Round Culvert n=0.013 L=91.0' S=0.0000 '/' Outflow=0.87 cfs 2,781 cf

Pond CB 130: CB 130 Peak Elev=160.82' Storage=50 cf Inflow=4.62 cfs 14,663 cf
12.0" Round Culvert n=0.013 L=16.0' S=0.0313 '/' Outflow=4.61 cfs 14,663 cf

Pond CB 131: CB 131 Peak Elev=159.74' Storage=12 cf Inflow=0.63 cfs 2,040 cf
12.0" Round Culvert n=0.013 L=37.0' S=0.0419 '/' Outflow=0.62 cfs 2,040 cf

Pond DMH 002: DMH 002 Peak Elev=159.34' Storage=39 cf Inflow=6.08 cfs 19,484 cf
18.0" Round Culvert n=0.013 L=41.0' S=0.0061 '/' Outflow=6.08 cfs 19,484 cf

Pond DMH 003: DMH 003 Peak Elev=159.70' Storage=32 cf Inflow=1.49 cfs 4,822 cf
12.0" Round Culvert n=0.013 L=158.0' S=0.0051 '/' Outflow=1.49 cfs 4,822 cf

Pond DMH 1: DMH 001 Peak Elev=156.06' Storage=0.000 af Inflow=1.95 cfs 8,503 cf
12.0" Round Culvert n=0.013 L=41.0' S=0.0061 '/' Outflow=1.93 cfs 8,503 cf

Pond DMH 2: DMH 002 Peak Elev=157.76' Storage=0.001 af Inflow=4.34 cfs 14,481 cf
18.0" Round Culvert n=0.013 L=100.0' S=0.0050 '/' Outflow=4.33 cfs 14,481 cf

Pond DMH 3: DMH 003 Peak Elev=158.34' Storage=0.000 af Inflow=2.67 cfs 9,069 cf
Primary=2.03 cfs 1,990 cf Secondary=0.64 cfs 7,073 cf Outflow=2.67 cfs 9,064 cf

Pond DMH 4: DMH 004 Peak Elev=157.76' Storage=0.001 af Inflow=4.36 cfs 14,675 cf
18.0" Round Culvert n=0.013 L=20.0' S=0.0050 '/' Outflow=4.34 cfs 14,675 cf

Pond DMH 5: DMH 005 Peak Elev=157.84' Storage=0.001 af Inflow=4.39 cfs 14,675 cf
18.0" Round Culvert n=0.013 L=130.0' S=0.0050 '/' Outflow=4.36 cfs 14,675 cf

Pond DMH 6: DMH 006 Peak Elev=158.12' Storage=0.000 af Inflow=3.75 cfs 12,480 cf
Primary=3.00 cfs 3,301 cf Secondary=0.75 cfs 9,174 cf Outflow=3.75 cfs 12,475 cf

Pond DMH 7: DMH 007 Peak Elev=157.79' Storage=0.001 af Inflow=0.66 cfs 2,203 cf
18.0" Round Culvert n=0.013 L=10.0' S=0.0050 '/' Outflow=0.64 cfs 2,200 cf

Pond OW 1: O/W SEP #1 Inflow=0.64 cfs 7,073 cf
Primary=0.64 cfs 7,073 cf

Pond OW 2: O/W SEP #2 Inflow=0.75 cfs 9,174 cf
Primary=0.75 cfs 9,174 cf

Link AP1: AP1 Inflow=0.62 cfs 1,865 cf
Primary=0.62 cfs 1,865 cf

Link AP2: AP2 Inflow=13.26 cfs 39,734 cf
Primary=13.26 cfs 39,734 cf

Link AP3: AP3 Inflow=17.41 cfs 72,939 cf
Primary=17.41 cfs 72,939 cf

Total Runoff Area = 430,045 sf Runoff Volume = 192,977 cf Average Runoff Depth = 5.38"
55.41% Pervious = 238,304 sf 44.59% Impervious = 191,741 sf

Attachment "E"

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	71.445 degrees West
Latitude	42.779 degrees North
Elevation	Unknown/Unavailable
Date/Time	Thu, 07 May 2015 15:49:06 -0400

Extreme Precipitation Estimates

	5min	10min	15min	30min	60min	120min		1hr	2hr	3hr	6hr	12hr	24hr	48hr		1day	2day	4day	7day	10day	
1yr	0.27	0.42	0.52	0.68	0.85	1.07	**1yr**	0.74	1.01	1.24	1.56	1.96	2.47	2.71	**1yr**	2.19	2.61	3.03	3.72	4.33	**1yr**
2yr	0.33	0.51	0.63	0.84	1.05	1.32	**2yr**	0.91	1.21	1.53	1.90	2.36	2.94	3.27	**2yr**	2.60	3.14	3.65	4.36	4.96	**2yr**
5yr	0.39	0.61	0.77	1.03	1.31	1.67	**5yr**	1.13	1.51	1.93	2.41	2.99	3.71	4.16	**5yr**	3.28	4.00	4.62	5.48	6.19	**5yr**
10yr	0.44	0.69	0.88	1.19	1.55	1.99	**10yr**	1.34	1.79	2.31	2.89	3.59	4.43	4.99	**10yr**	3.92	4.79	5.54	6.51	7.33	**10yr**
25yr	0.52	0.83	1.06	1.46	1.94	2.50	**25yr**	1.67	2.24	2.92	3.66	4.55	5.59	6.35	**25yr**	4.95	6.11	7.03	8.18	9.16	**25yr**
50yr	0.59	0.94	1.21	1.70	2.30	3.00	**50yr**	1.98	2.66	3.51	4.40	5.45	6.68	7.63	**50yr**	5.91	7.34	8.43	9.73	10.85	**50yr**
100yr	0.68	1.10	1.41	2.00	2.73	3.57	**100yr**	2.35	3.15	4.19	5.27	6.52	7.99	9.17	**100yr**	7.07	8.82	10.10	11.57	12.85	**100yr**
200yr	0.77	1.26	1.63	2.34	3.24	4.27	**200yr**	2.79	3.74	5.02	6.32	7.82	9.55	11.03	**200yr**	8.45	10.60	12.11	13.77	15.23	**200yr**
500yr	0.93	1.53	1.99	2.90	4.06	5.40	**500yr**	3.50	4.69	6.37	8.02	9.92	12.10	14.08	**500yr**	10.71	13.54	15.41	17.33	19.08	**500yr**

Lower Confidence Limits

	5min	10min	15min	30min	60min	120min		1hr	2hr	3hr	6hr	12hr	24hr	48hr		1day	2day	4day	7day	10day	
1yr	0.22	0.35	0.42	0.57	0.70	0.80	**1yr**	0.60	0.78	1.06	1.32	1.67	2.29	2.56	**1yr**	2.03	2.46	2.73	3.15	3.79	**1yr**
2yr	0.31	0.49	0.60	0.81	1.00	1.20	**2yr**	0.86	1.17	1.37	1.78	2.29	2.87	3.19	**2yr**	2.54	3.07	3.56	4.26	4.85	**2yr**
5yr	0.36	0.55	0.69	0.94	1.20	1.41	**5yr**	1.03	1.38	1.62	2.10	2.69	3.48	3.88	**5yr**	3.08	3.73	4.29	5.12	5.79	**5yr**
10yr	0.39	0.60	0.75	1.05	1.35	1.60	**10yr**	1.17	1.56	1.82	2.38	3.03	4.01	4.49	**10yr**	3.55	4.32	4.94	5.88	6.62	**10yr**
25yr	0.45	0.68	0.85	1.21	1.59	1.87	**25yr**	1.37	1.83	2.13	2.80	3.53	4.85	5.46	**25yr**	4.29	5.25	5.97	7.06	7.84	**25yr**
50yr	0.49	0.74	0.92	1.32	1.78	2.12	**50yr**	1.54	2.08	2.41	3.19	3.97	5.61	6.34	**50yr**	4.97	6.09	6.90	8.12	8.93	**50yr**
100yr	0.53	0.80	1.01	1.45	1.99	2.40	**100yr**	1.72	2.35	2.73	3.50	4.47	6.41	7.39	**100yr**	5.68	7.10	7.99	9.34	10.14	**100yr**
200yr	0.58	0.88	1.11	1.61	2.24	2.72	**200yr**	1.94	2.66	3.07	3.96	5.07	7.40	8.61	**200yr**	6.55	8.28	9.25	10.75	11.52	**200yr**
500yr	0.66	0.98	1.27	1.84	2.61	3.22	**500yr**	2.26	3.15	3.61	4.67	6.00	8.96	10.60	**500yr**	7.93	10.19	11.23	12.97	13.64	**500yr**

Upper Confidence Limits

	5min	10min	15min	30min	60min	120min		1hr	2hr	3hr	6hr	12hr	24hr	48hr		1day	2day	4day	7day	10day	
1yr	0.31	0.48	0.58	0.78	0.96	1.12	**1yr**	0.83	1.10	1.27	1.65	2.09	2.62	2.87	**1yr**	2.32	2.76	3.38	4.17	4.73	**1yr**
2yr	0.35	0.54	0.67	0.91	1.12	1.31	**2yr**	0.96	1.28	1.49	1.92	2.46	3.04	3.38	**2yr**	2.69	3.25	3.76	4.48	5.13	**2yr**
5yr	0.44	0.67	0.83	1.14	1.45	1.67	**5yr**	1.26	1.63	1.89	2.42	3.04	4.01	4.49	**5yr**	3.55	4.31	4.96	5.85	6.58	**5yr**
10yr	0.52	0.81	1.00	1.40	1.80	2.03	**10yr**	1.56	1.99	2.30	2.89	3.60	4.96	5.56	**10yr**	4.39	5.35	6.14	7.18	8.01	**10yr**
25yr	0.68	1.03	1.28	1.83	2.40	2.64	**25yr**	2.08	2.58	2.97	3.66	4.49	6.58	7.40	**25yr**	5.83	7.12	8.14	9.39	10.40	**25yr**
50yr	0.82	1.25	1.55	2.23	3.00	3.22	**50yr**	2.59	3.14	3.60	4.38	5.30	8.16	9.19	**50yr**	7.22	8.83	10.07	11.50	12.69	**50yr**
100yr	1.00	1.51	1.89	2.73	3.74	3.92	**100yr**	3.23	3.84	4.38	5.40	6.28	10.10	11.40	**100yr**	8.94	10.96	12.46	14.11	15.49	**100yr**
200yr	1.21	1.83	2.32	3.35	4.68	4.78	**200yr**	4.03	4.68	5.31	6.48	7.43	12.51	14.13	**200yr**	11.08	13.59	15.42	17.32	18.92	**200yr**
500yr	1.59	2.36	3.04	4.41	6.27	6.20	**500yr**	5.41	6.06	6.88	8.26	9.28	16.63	18.77	**500yr**	14.72	18.05	20.44	22.70	24.68	**500yr**

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SITE-SPECIFIC SOIL SURVEY REPORT
Route 102, Hudson

1. MAPPING STANDARDS

Site-Specific Soil Mapping Standards for New Hampshire and Vermont. SSSNNE Special Publication No. 3, Version 4.0, February 2011. This map product is within the technical standards of the National Cooperative Soil Survey. It is a special product, intended for the site specific soil survey. It was produced by a professional soil scientist and is not a product of the USDA Natural Resource Conservation Service.

2. DATE SOIL MAP PRODUCED
May 29, 2015

3. GEOGRAPHIC LOCATION AND SIZE OF SITE
Approximately 9 acres. The site is comprised of open grass and exposed ledge areas, as well as mature forest and wetland. The site is bordered by Elm Street to the west and Route 102 to the south. An existing building and parking area are located on the southeast corner of the lot.

4. PURPOSE OF THE SOIL MAP
The preparation of this map was requested by Jones and Beach Engineers, Inc. The purpose was to meet the subdivision requirements of NH AoT.

5. SOIL IDENTIFICATION LEGEND

SYMBOL	SOIL TAXONOMIC NAME	Hydrologic Soil Group
24	Agawam	B
42	Canton	B
444	Newfields	B
799	Udorthents	D
546	Walpole	C

SOIL MAP UNIT DESCRIPTIONS

24 Agawam soil is nearly level, deep, and well drained. Typically, the surface layer is black fine sandy loam about 1 inch thick. The subsoil is brown fine sandy loam 17 inches thick. The substratum extends to a depth of 60 inches or more. It is brown loamy fine sand to a depth of 28 inches, brown sand between depths of 28 and 41 inches, and brown gravelly sand at a depth of more than 41 inches. The permeability of this Agawam soil is

8 Continental Dr Bldg 2 Unit H, Exeter, NH 03833-7526
Ph (603) 778 0644 / *Fax* (603) 778 0654
info@gesinc.biz
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moderately rapid in the surface layer and upper part of the subsoil, moderately rapid or rapid in the lower part of the subsoil, and rapid in the substratum.

42 The Canton series consists of very deep, well drained soils formed in a loamy mantle underlain by sandy till derived from parent materials that are very low in iron sulfides. They are on nearly level through very steep glaciated plains, hills, and ridges. Slope ranges from 0 through 35 percent.

444 The Newfields series consists of very deep, somewhat poorly 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.

799 Udorthents, smoothed, consists of areas from which soil material has been excavated, and nearby areas in which this material has been deposited. The original soil material is generally excessively drained to moderately well drained, and ranges from nearly level to very steep. The mapped areas are elongated along roads, irregular near shopping centers or factories, and rectangular around athletic fields. They range from 4 to 30 acres in size. Depth of excavation and fill ranges from 2 to 20 feet. Texture generally ranges from sand and gravel to fine sandy loam, but in some places it is silt loam. Udorthents, smoothed, have a level or nearly level central part and strongly sloping to very steep margins. This area applies to those specific locations on the site currently comprised of building and paved areas. While they have the drainage characteristics of an HSG D, based on their impervious nature, the underlying soils are similar to an HSG B of the surrounding soils of Agawam.

546 The Walpole Series consists of very deep, poorly drained sandy soils formed in outwash and stratified drift. They are nearly level to gently sloping soils in low-lying positions on terraces and plains. Slope ranges from 0 to 8 percent. Saturated hydraulic conductivity is moderately high or high in the surface layer and subsoil, and high or very high in the substratum

6. RESPONSIBLE SOIL SCIENTIST

James P. Gove, C.S.S.
Luke D. Hurley, S.S.A.

7. OTHER DISTINGUISHING FEATURES OF SITE

No distinguishing features were noted

8. MAXIMUM SIZE OF LIMITING INCLUSIONS

No limiting inclusions were mapped

9. SPECIAL FEATURE SYMBOLS

No special feature symbols were used.

Attachment "E"

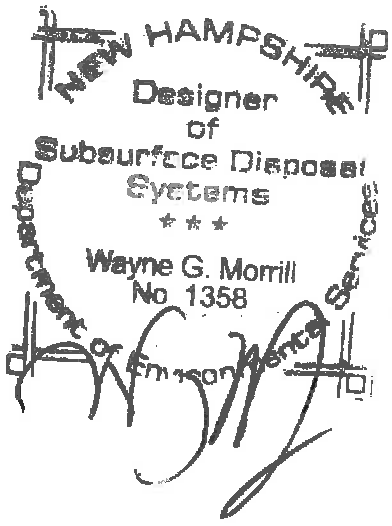
TEST PITS
FOR
ELM AVENUE
HUDSON, NEW HAMPSHIRE
October 8, 2015
JBE Project No. 14053

Performed by: Wayne Morrill, Jones & Beach Engineers, Inc., SSD #1358

Test Pit #1

0"- 10"		topsoil
10"-24"	2.5Y 5/6	light olive brown fine sandy loam granular, friable
24"-60"	2.5Y 5/2	grayish brown loamy sand granular, friable
60"-112"	5Y 6/3	pale olive loamy sand granular, firm cobble

SHWT = 60"
Roots to 60"
No H_2O observed
No Refusal observed
Perc Rate = 8 min/inch



Test Pit #2

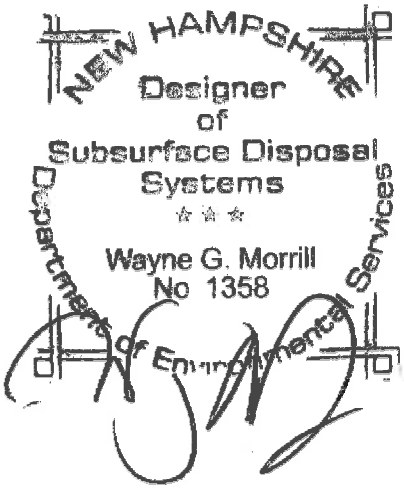
0"- 8"		topsoil
8"-24"	2.5Y 5/6	light olive brown fine sandy loam granular, friable
24"-36"	2.5Y 5/2	grayish brown loamy sand granular, friable
36"-96"	5Y 6/3	pale olive loamy sand granular, firm

SHWT = 36"
Roots to 36"
No H_2O observed
No Refusal observed
Perc Rate = 10 min/inch

Test Pit #3

0"- 8"		topsoil
8"-24"	2.5Y 5/6	light olive brown fine sandy loam granular, friable
24"-36"	2.5Y 5/4	light olive brown loamy sand granular, friable
36"-71"	2.5Y 5/2	grayish brown loamy sand granular, friable
71"-98"	5Y 6/3	pale olive loamy sand granular, firm cobble

SHWT = 71"
Roots to 60"
No H_2O observed
No Refusal observed
Perc Rate = 6 min/inch



Test Pit #4

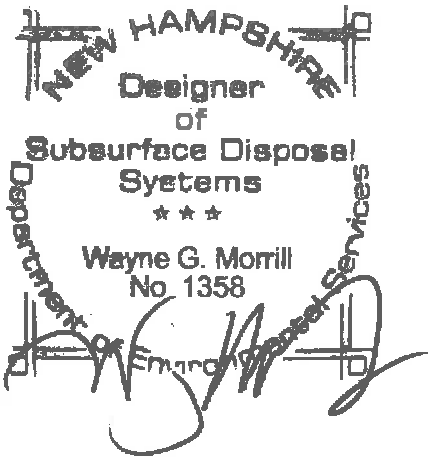
0"- 8"		topsoil
8"-24"	2.5Y 5/6	light olive brown fine sandy loam granular, friable
24"-77"	2.5Y 5/4	light olive brown loamy sand granular, friable
77"-99"	2.5Y 5/3	light olive brown loamy sand granular, friable
99"-105"	2.5Y 5/2	grayish brown loamy sand granular, friable

SHWT = 77"
Roots to 60"
H_2O @ 99"
No Refusal observed
Perc Rate = 2 min/inch

Test Pit #5

0"- 10"		topsoil
10"-24"	2.5Y 5/6	light olive brown fine sandy loam granular, friable
24"-60"	2.5Y 5/2	grayish brown loamy sand granular, friable
60"-95"	5Y 6/3	pale olive loamy sand granular, firm cobble

SHWT = 60"
Roots to 60"
No H_2O observed
No Refusal observed
Perc Rate = 2 min/inch



Test Pit #6

0"- 10"		topsoil
10"-24"	2.5Y 5/6	light olive brown fine sandy loam granular, friable
24"-56"	2.5Y 6/4	light yellowish brown loamy sand granular, friable
56"-78"	2.5Y 5/6	light olive brown loamy sand granular, friable
78"-92"	2.5Y 5/2	grayish brown loamy sand granular, firm cobble

SHWT = 56"
Roots to 58"
No H_2O observed
No Refusal observed
Perc Rate = 2 min/inch

Test Pit #7

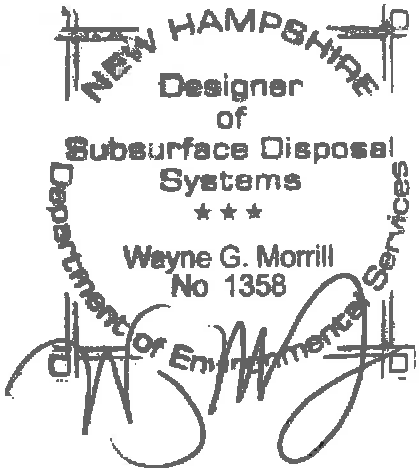
0"- 6"		topsoil
6"-24"	2.5Y 5/6	light olive brown fine sandy loam granular, friable
24"-58"	2.5Y 6/4	light yellowish brown loamy sand granular, friable
58"-73"	2.5Y 5/6	light olive brown loamy sand granular, friable
73"-93"	2.5Y 5/2	grayish brown loamy sand granular, firm

SHWT = 58"
No Roots observed
H_2O @ 73"
No Refusal observed
Perc Rate = 4 min/inch

Test Pit #8

0"- 5"		topsoil
5"-24"	2.5Y 5/6	light olive brown fine sandy loam granular, friable
24"-71"	2.5Y 5/4	light olive brown loamy sand granular, friable
71"-95"	2.5Y 4/4	olive brown loamy sand granular, friable

SHWT = 71"
Roots to 60"
No H_2O observed
No Refusal observed
Perc Rate = 2 min/inch



Test Pit #9

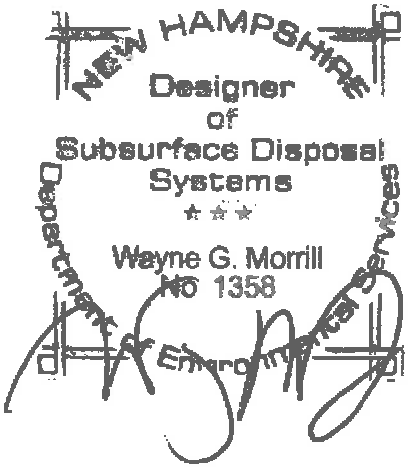
0"- 6"		topsoil
6"-18"	2.5Y 5/6	light olive brown fine sandy loam granular, friable
18"-32"	2.5Y 5/4	light olive brown loamy sand granular, friable
32"-70"	2.5Y 6/3	light yellowish brown single grain sand granular, friable
70"-95"	2.5Y 5/4	light olive brown loamy sand granular, friable

SHWT = 70"
No Roots observed
No H_2O observed
No Refusal observed
Perc Rate = 2 min/inch

Test Pit #10

0"- 6"		topsoil
6"-18"	2.5Y 5/6	light olive brown fine sandy loam granular, friable
18"-55"	2.5Y 6/4	light yellowish brown loamy sand granular, friable
55"-90"	2.5Y 6/3	light yellowish brown loamy sand granular, friable

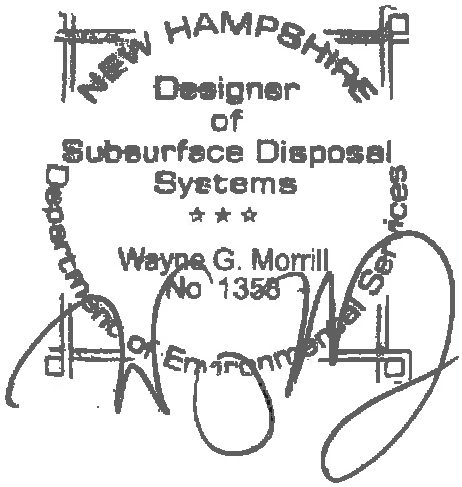
SHWT = 55"
Roots to 18"
No H_2O observed
No Refusal observed
Perc Rate = 2 min/inch



Test Pit #11

0"- 6"		topsoil
6"-24"	2.5Y 5/6	light olive brown fine sandy loam granular, friable
24"-63"	2.5Y 5/3	light olive brown loamy sand granular, friable
63"-90"	2.5Y 6/3	light yellowish brown loamy sand granular, firm cobbles

SHWT = 63"
Roots to 60"
No H_2O observed
No Refusal observed
Perc Rate = 4 min/inch



Attachment "E"

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

SITE EVALUATION and INFILTRATION FEASIBILITY REPORT

Proposed Carwash
Tax Map 156 / Lot 16
120 Derry Road
Hudson, NH

Prepared for:

Washville Carwash
7 Benedict Place
Greenwich, CT, 06830

Prepared by:
Jones & Beach Engineers, Inc.
85 Portsmouth Avenue
P.O. Box 219
Stratham, NH 03885
(603) 772-4746
October 6, 2025
JBE Project No. 25082

TABLE OF CONTENTS

I. Project Summary

The purpose of this project is to construct a car wash containing 1 building on Town of Hudson Tax Map 156, Lot 16. The proposed development will contain a 4,100± sq.ft. building with associated parking, drainage, and utilities.

Originally, Lots 16, 15, and 15-1 (Now Cumberland Farms and CVS Pharmacy) were on a common-scheme development plan by Hudson Enterprises, LLC. The subject site proposes development later than sister sites. For simplicity and effectiveness, runoff and subsequent treatment for the subject site is proposed to be self-contained and not interact with collection or treatment systems originally proposed as common scheme.

Soil information for the site was gathered from a Site-Specific Soil Survey Report, prepared by Gove Environmental, and on-site test pits. Soils were identified as;

Symbol	Soil Taxonomic Name	Hydrologic Soil Group
24	Agawam	B
42	Canton	B
444	Newfields	B
799	Udorthents	D
546	Walpole	C

Groundwater recharge for the subject lot will be accomplished through the utilization of one (1) underground infiltration basin.

II. Location of Practice(s)

Underground Infiltration Basin (Stormtech #1) – The Stormtech system is located under the drive through for the Proposed Car Wash, as seen in attached plans.

III. Existing Topography at the Location of the Practice(s)

Underground Infiltration Basin (Stormtech #1) – Existing topography slopes towards the powerline easement at a 4%± grade. It should be noted that the proposed design raises the elevation of the subject area by 7'±.

III. Test Pit/Boring Location(s)

Underground Infiltration Basin (Stormtech #1) – The footprint of the system is under the 2,500 SF threshold and so one (1) test pit is required. The test pit (TP 6) was performed centrally to the proposed underground chamber system, to the north of the intersection of Morgan Road and Derry Road closest to the subject site.

See Section VII for Grading & Drainage detail plans for test pit locations.

V. Seasonal High Water Table (SHWT) and Bedrock Elevations

The following test pit data was collected on October 8, 2015.
Underground Infiltration Basin (Stormtech #1):

Bottom of System Elevation = 155.50' (Bottom of stone)

TP 6: Existing Surface Elevation of TP = 155.0'
SHWT = 150.33'
Bedrock = N/A
Deepest Elevation of TP = 147.33'

VI. Profile Descriptions

Underground Infiltration Basin (Stormtech #1):

Test Pit #6		
0"- 10"		topsoil
10"-24"	2.5Y 5/6	light olive brown fine sandy loam granular, friable
24"-56"	2.5Y 6/4	light yellowish brown loamy sand granular, friable
56"-78"	2.5Y 5/6	light olive brown loamy sand granular, friable
78"-92"	2.5Y 5/2	grayish brown loamy sand granular, firm cobble

SHWT = 56"
Roots to 58"
No H2O observed
No Refusal observed
Perc Rate = 2 min/inch

VII. Soil Plans in the Area of the Proposed Practice(s)

See attached Grading & Drainage Detail Plans.

VIII. Summary of Field Testing Data Used to Determine Infiltration Rate

Underground Infiltration Basin (Stormtech #1):- the infiltration rate was determined using the Default Values method described in Env-Wq 1504.13.

The basin is located with native material identified in the Soil Series survey as "Agawam drained" soil.

Using the Ksat Values for New Hampshire Soils, Society of Soil Scientist of Northern New England, Special Publication No. 5, September 2009, the lowest value under the basin floor elevation is 10 in/hr.

Due to a permeability test having been performed, the test pit permeability value of 2 in/hr is used to be more conservative.

Attachment "E"

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: Washville Carwash	Daytime Phone: -	
Mailing Address: 7 Benedict Place		
City: Greenwich	State: CT	ZIP: 06830
Contact Person Name: Jim Waterman	Email: jimwaterman@washvillecarwash.com	
Contact Person Phone Number: 978-337-9660	Fax Number: -	

Facility Information

Name: Washville Car Wash		
Address: 9 Morgan Road		
City: Hudson	State: NH	ZIP: 03051
Property Tax Map: 156	Lot Number: 16	
Latitude & Longitude of discharge point(s): 42°46'51.36" N 71°26'37.48" W ±		

Facility Owner Information (complete only if different than applicant)

Owner Name:	Daytime Phone: -	
Mailing Address:		
City/Town:	State:	ZIP:
Contact Person Name:	Email:	
Contact Person Phone Number:	Fax Number: -	

Property Owner (complete only if different then Applicant)

Name: Hudson Enterprises, LLC	Daytime Phone: -	
Mailing Address: 69 Atlantic Ave		
City: North Hampton	State: NH	ZIP: 03862
Contact Person Name: Jeff Gove	Email: jeffreygove@yahoo.com	
Contact Person Phone Number: (508) 341-2263	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).

Attachment "E"

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.
This site was originally designed as a restaurant as part of a common-scheme development. The subject lot is being developed later than sister lots and is now proposed to be developed as a car wash.

Please provide information concerning the location of the infiltration activity, include Locus map (i.e. USGS map).
Please see plans attached to this application.

Please describe the pretreatment system, if any, and capacity of the system.
The SCM proposed is an underground infiltration basin consisting of a 64-chamber SC-740. Pre-treatment for this system is proposed to be two (2) fabric-wrapped isolation rows.

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 structure will consist mainly of plastic chamber units, as well as HDPE pipe and crushed stone.

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).
Please see attached plan set.

Please provide information concerning methods and schedule for periodic inspection and/or maintenance.
An Operation and Maintenance Manual is included with this application.

Attachment "E"

Applicant/Owner Certification Statement and Signature

By signing this application, the signer certifies that the information contained in or otherwise submitted with this application is true, complete and not misleading to the best of the signer's knowledge and belief.

By signing this application, the signer understands that submission of false, incomplete or misleading information is grounds for:

- **Denying the application;**
- **Revoking any application that is granted based on the information; and**
- **If the signer is acting as or on behalf of a listed engineer as defined in Env-C 502.10, debarring the listed engineer from the roster.**

By signing the application, the signer and applicant agree to comply with all applicable rules and conditions of this permit and to not discharge to the holding tank(s) until written permission from the department has been received.

Signature of Facility Owner or Contact	**Date**
	10/7/25

Attachment "E"

STORMWATER MANAGEMENT OPERATION AND MAINTENANCE MANUAL

Prepared for:

Washville Car Wash
Tax Map 156 / Lot 16
120 Derry Road
Hudson, NH

August 18, 2025
JBE Project No. 25802

Inspection and Maintenance of Facilities and Property

A. Maintenance of Common Facilities or Property

1. The owner, future owners and assigns are responsible to perform the maintenance obligations or hire a Professional Engineer to review the site on an annual basis for maintenance and certification of the stormwater system. The owner shall keep receipts and records of all maintenance companies hired throughout the year to submit along with the following form

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. Normal winter roadway and parking lot maintenance including plowing and snow removal. Green Sno Pro techniques are to be used for winter roadway maintenance including plowing and snow removal.

3. Road sweeping at the end of every winter, preferably at the start of the spring rain season.

4. Permanent stormwater and sediment and erosion control facilities to be maintained on the site include, but are not limited to, the following:

   a. Culverts
   b. Erosion
   c. Vegetation and landscaping
   d. Catch basins and drain manholes
   e. Underground Infiltration Basin

5. Maintenance of permanent measures shall follow the following schedule:

   a. **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.

   b. **Erosion: Annual inspection** of the site for erosion, destabilization, settling, and sloughing. Any needed repairs are to be conducted immediately.

   c. **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.

d. **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.

e. **Underground Detention/Infiltraion 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.

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.

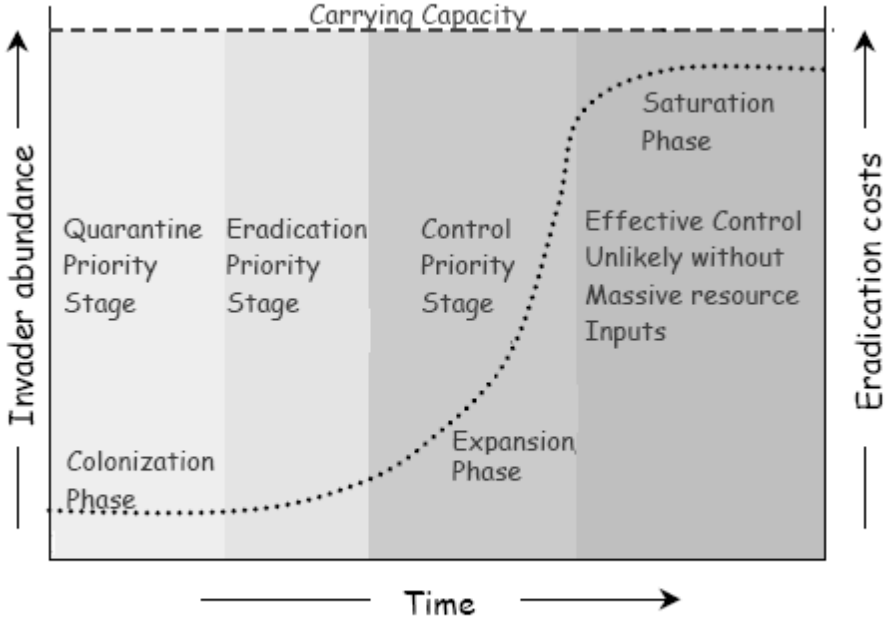


Figure 1. Typical invasive species population curve (from the University of Arizona and USGS Desert Laboratory http://wwwpaztcn.wr.usgs.gov)

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. *f*

- 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

Attachment "E"

STORM WATER POLLUTION PREVENTION PLAN
INSPECTION PERIOD AND CRITERIA
Washville Car Wash
Tax Map 156 / Lot 16
120 Derry Road
Hudson, NH

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.
Underground Infiltration Basin	Bi-annually	Inspect for standing water, sediment/debris collection.

Attachment "E"

STORM WATER OPERATIONS AND MAINTENANCE PLAN
INSPECTION REPORT

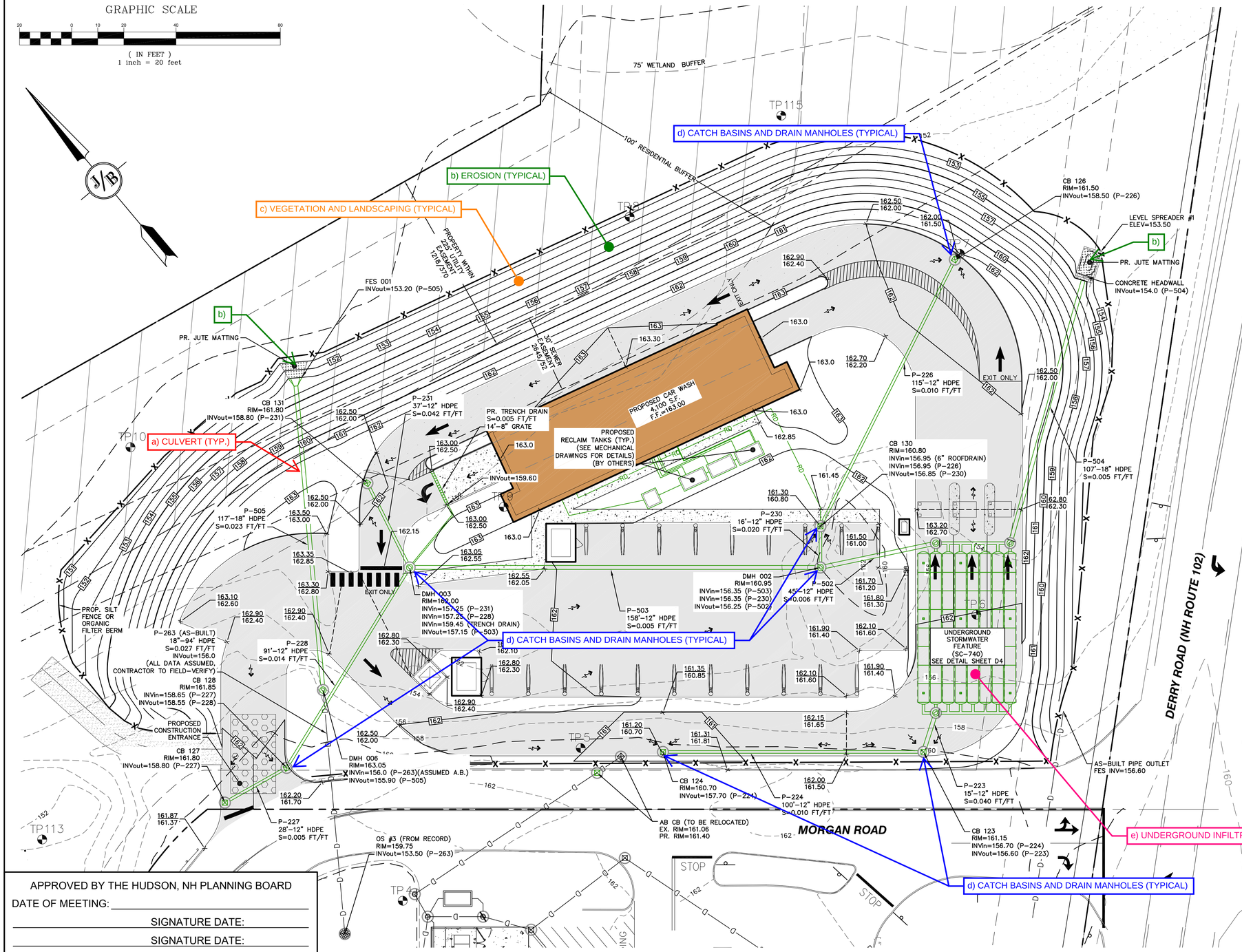
Washville Car Wash
Tax Map 156 / Lot 16
120 Derry Road
Hudson, NH

Yearly Inspection Form			
Inspected Component	**Date of Inspection**	**Inspector**	**Issue Detected / Action Taken**
Culverts			
Erosion			
Vegetation			
Catch Basins and Drain Manholes			
Underground Infiltration Basin			

GRAPHIC SCALE

20 0 10 20 40 80

(IN FEET)
1 inch = 20 feet



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. VERTICAL DATUM: NGVD29. HORIZONTAL DATUM: MAGNETIC 2015.
3. ALL BENCHMARKS AND TOPOGRAPHY SHOULD BE FIELD VERIFIED BY THE CONTRACTOR.
4. SITE GRADING SHALL NOT PROCEED UNTIL EROSION CONTROL MEASURES HAVE BEEN INSTALLED. SEE CONSTRUCTION SEQUENCE ON SHEET E1.
5. 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.
6. 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.
7. ALL SWALES AND DETENTION PONDS ARE TO BE STABILIZED PRIOR TO DIRECTING RUNOFF TO THEM.
8. PROPOSED RIM ELEVATIONS OF DRAINAGE STRUCTURES ARE APPROXIMATE. FINAL ELEVATIONS ARE TO BE SET FLUSH WITH FINISH GRADES.
9. ALL SWALES AND ANY SLOPES GREATER THAN 3:1 SHALL BE STABILIZED WITH NORTH AMERICAN GREEN S75 EROSION CONTROL BLANKETS (OR AN EQUIVALENT APPROVED IN WRITING BY THE ENGINEER), UNLESS OTHERWISE SPECIFIED.
10. 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.
11. ALL DRAINAGE STRUCTURES SHALL BE PRECAST, UNLESS OTHERWISE SPECIFIED. SEE DETAIL SHEETS FOR DRAINAGE STRUCTURE SCHEDULE AND DRAINAGE DETAILS.
12. ALL DRAINAGE STRUCTURES AND STORM SEWER PIPES SHALL MEET HEAVY DUTY TRAFFIC H20 LOADING AND SHALL BE INSTALLED ACCORDINGLY.
13. IMMEDIATELY APPLY AND COMPACT STONE BASE FOR BUILDING PAD TO +/-½" PRIOR TO EXCAVATING INTERIOR AND PERIMETER FOOTINGS.
14. 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.
15. ALL DRAINAGE PIPE SHALL BE NON-PERFORATED ADS N-12 OR APPROVED EQUAL.
16. STONE INLET PROTECTION SHALL BE PLACED AT ALL CATCH BASINS. SEE DETAIL WITHIN THE DETAIL SHEETS.
17. 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.
18. ALL EXPOSED AREAS SHALL BE SEEDED AS SPECIFIED WITHIN 3 DAYS OF FINAL GRADING AND ANYTIME CONSTRUCTION STOPS FOR LONGER THAN 3 DAYS.
19. MAINTAIN EROSION CONTROL MEASURES AFTER EACH RAIN EVENT OF 0.5" OR GREATER IN A 24 HOUR PERIOD AND AT LEAST ONCE A WEEK.
20. THIS PLAN SHALL NOT BE CONSIDERED ALL INCLUSIVE, AS THE GENERAL CONTRACTOR SHALL TAKE ALL NECESSARY PRECAUTIONS TO PREVENT SEDIMENT FROM LEAVING THE SITE.
21. CONSTRUCTION VEHICLES SHALL UTILIZE THE STABILIZED CONSTRUCTION ENTRANCE TO THE EXTENT POSSIBLE THROUGHOUT CONSTRUCTION.
22. IF INSTALLATION OF STORM DRAINAGE SYSTEM SHOULD BE INTERRUPTED BY WEATHER OR NIGHTFALL, THE PIPE ENDS SHALL BE COVERED WITH FILTER FABRIC.
23. THE GENERAL CONTRACTOR SHALL BE RESPONSIBLE TO TAKE WHATEVER MEANS NECESSARY TO ESTABLISH PERMANENT SOIL STABILIZATION.
24. SEDIMENT SHALL BE REMOVED FROM ALL SEDIMENT BASINS BEFORE THEY ARE 25% FULL.
25. ALL WORK SHALL BE DONE IN STRICT ACCORDANCE WITH PROJECT SPECIFICATIONS.
26. ADDITIONAL EROSION AND SEDIMENT CONTROL MEASURES SHALL BE INSTALLED, IF DEEMED NECESSARY BY ON-SITE INSPECTION BY ENGINEER AND/OR REGULATORY OFFICIALS.
27. SEE ALSO EROSION AND SEDIMENT CONTROL SPECIFICATIONS ON SHEET E1 & E2.
28. THE CONTRACTOR SHALL NOT IMPORT ANY FILL OVER TEN CUBIC YARDS PER SOURCE WITHOUT SOILS TESTING VERIFYING THE ABSENCE OF CONSTITUENTS OF CONCERN.

Stormwater Operations and Maintenance Manual Items

a. Culverts
b. Erosion
c. Vegetation and landscaping
d. Catch basins and drain manholes
e. Underground Infiltration Basin

APPROVED BY THE HUDSON, NH PLANNING BOARD

DATE OF MEETING: _____

SIGNATURE DATE: _____

SIGNATURE DATE: _____

SITE PLANS ARE VALID FOR TWO YEARS FROM THE DATE OF PLANNING BOARD MEETING FINAL APPROVAL. FINAL APPROVAL COMMENCES AT THE PLANNING BOARD MEETING DATE AT WHICH THE PLAN RECEIVES FINAL APPROVAL.

PROJECT PARCEL
TOWN OF HUDSON
TAX MAP 156, LOT 16

APPLICANT
GR DEVELOPMENT
7 BENEDICT PLACE
GREENWICH, CT 06830

TOTAL LOT AREA
212,372 SQ. FT.
4.88 ACRES

Design: GAP	Draft: GDR
Checked: EMP	Scale: AS NOTED
Drawing Name: 25082-PLAN.dwg	

Date: 8/28/25
Project No.: 25082

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
0	8/28/25	ISSUED FOR REVIEW	EMP

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

Plan Name: GRADING AND DRAINAGE PLAN

Project: WASHVILLE CAR WASH
9 MORGAN RD, HUDSON, NH

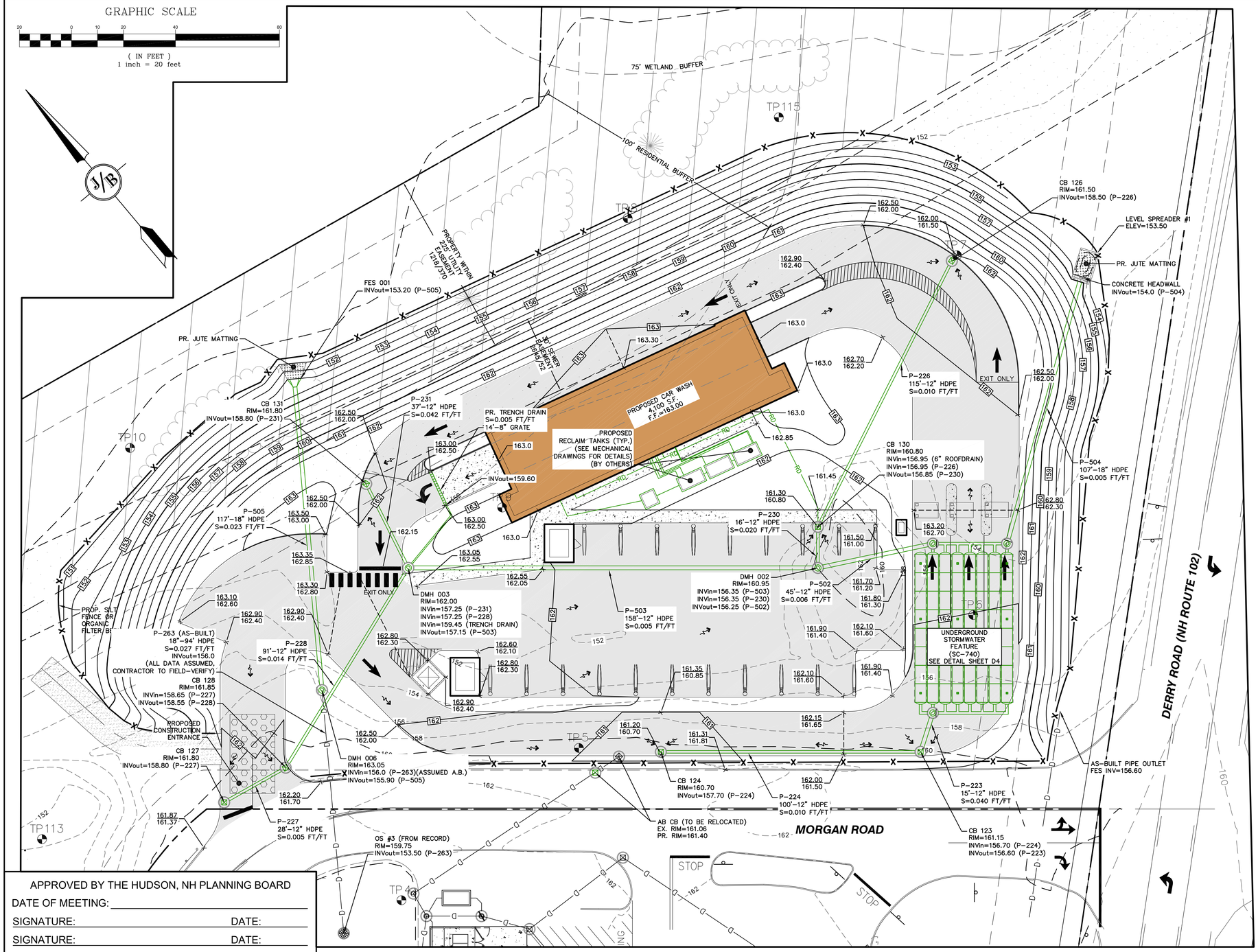
Owner of Record: HUDSON ENTERPRISES, LLC
69 ATLANTIC AVE, NORTH HAMPTON, NH

DRAWING No.
C3
SHEET 6 OF17
JBE PROJECT NO. 25082

GRAPHIC SCALE

20 0 10 20 40 80

(IN FEET)
1 inch = 20 feet



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. VERTICAL DATUM: NGVD29. HORIZONTAL DATUM: MAGNETIC 2015.
3. ALL BENCHMARKS AND TOPOGRAPHY SHOULD BE FIELD VERIFIED BY THE CONTRACTOR.
4. SITE GRADING SHALL NOT PROCEED UNTIL EROSION CONTROL MEASURES HAVE BEEN INSTALLED. SEE CONSTRUCTION SEQUENCE ON SHEET E1.
5. 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.
6. 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.
7. ALL SWALES AND DETENTION PONDS ARE TO BE STABILIZED PRIOR TO DIRECTING RUNOFF TO THEM.
8. PROPOSED RIM ELEVATIONS OF DRAINAGE STRUCTURES ARE APPROXIMATE. FINAL ELEVATIONS ARE TO BE SET FLUSH WITH FINISH GRADES.
9. ALL SWALES AND ANY SLOPES GREATER THAN 3:1 SHALL BE STABILIZED WITH NORTH AMERICAN GREEN S75 EROSION CONTROL BLANKETS (OR AN EQUIVALENT APPROVED IN WRITING BY THE ENGINEER), UNLESS OTHERWISE SPECIFIED.
10. 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.
11. ALL DRAINAGE STRUCTURES SHALL BE PRECAST, UNLESS OTHERWISE SPECIFIED. SEE DETAIL SHEETS FOR DRAINAGE STRUCTURE SCHEDULE AND DRAINAGE DETAILS.
12. ALL DRAINAGE STRUCTURES AND STORM SEWER PIPES SHALL MEET HEAVY DUTY TRAFFIC H20 LOADING AND SHALL BE INSTALLED ACCORDINGLY.
13. IMMEDIATELY APPLY AND COMPACT STONE BASE FOR BUILDING PAD TO +/-½" PRIOR TO EXCAVATING INTERIOR AND PERIMETER FOOTINGS.
14. 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.
15. ALL DRAINAGE PIPE SHALL BE NON-PERFORATED ADS N-12 OR APPROVED EQUAL.
16. STONE INLET PROTECTION SHALL BE PLACED AT ALL CATCH BASINS. SEE DETAIL WITHIN THE DETAIL SHEETS.
17. 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.
18. ALL EXPOSED AREAS SHALL BE SEEDED AS SPECIFIED WITHIN 3 DAYS OF FINAL GRADING AND ANYTIME CONSTRUCTION STOPS FOR LONGER THAN 3 DAYS.
19. MAINTAIN EROSION CONTROL MEASURES AFTER EACH RAIN EVENT OF 0.5" OR GREATER IN A 24 HOUR PERIOD AND AT LEAST ONCE A WEEK.
20. THIS PLAN SHALL NOT BE CONSIDERED ALL INCLUSIVE, AS THE GENERAL CONTRACTOR SHALL TAKE ALL NECESSARY PRECAUTIONS TO PREVENT SEDIMENT FROM LEAVING THE SITE.
21. CONSTRUCTION VEHICLES SHALL UTILIZE THE STABILIZED CONSTRUCTION ENTRANCE TO THE EXTENT POSSIBLE THROUGHOUT CONSTRUCTION.
22. IF INSTALLATION OF STORM DRAINAGE SYSTEM SHOULD BE INTERRUPTED BY WEATHER OR NIGHTFALL, THE PIPE ENDS SHALL BE COVERED WITH FILTER FABRIC.
23. THE GENERAL CONTRACTOR SHALL BE RESPONSIBLE TO TAKE WHATEVER MEANS NECESSARY TO ESTABLISH PERMANENT SOIL STABILIZATION.
24. SEDIMENT SHALL BE REMOVED FROM ALL SEDIMENT BASINS BEFORE THEY ARE 25% FULL.
25. ALL WORK SHALL BE DONE IN STRICT ACCORDANCE WITH PROJECT SPECIFICATIONS.
26. ADDITIONAL EROSION AND SEDIMENT CONTROL MEASURES SHALL BE INSTALLED, IF DEEMED NECESSARY BY ON-SITE INSPECTION BY ENGINEER AND/OR REGULATORY OFFICIALS.
27. SEE ALSO EROSION AND SEDIMENT CONTROL SPECIFICATIONS ON SHEET E1 & E2.
28. THE CONTRACTOR SHALL NOT IMPORT ANY FILL OVER TEN CUBIC YARDS PER SOURCE WITHOUT SOILS TESTING VERIFYING THE ABSENCE OF CONSTITUENTS OF CONCERN.
29. INSTALL INLET PROTECTION AT ALL CATCH BASINS AS THEY ARE CONSTRUCTED IN ACCORDANCE WITH DETAILS.

APPROVED BY THE HUDSON, NH PLANNING BOARD

DATE OF MEETING: _____

SIGNATURE: DATE:

SIGNATURE: DATE:

SITE PLANS ARE VALID FOR TWO YEARS FROM THE DATE OF PLANNING BOARD MEETING FINAL APPROVAL. FINAL APPROVAL COMMENCES AT THE PLANNING BOARD MEETING DATE AT WHICH THE PLAN RECEIVES FINAL APPROVAL.

PROJECT PARCEL
TOWN OF HUDSON
TAX MAP 156, LOT 16

APPLICANT
GR DEVELOPMENT
7 BENEDICT PLACE
GREENWICH, CT 06830

TOTAL LOT AREA
212,372 SQ. FT.
4.88 ACRES

Design: GAP	Draft: GDR
Checked: EMP	Scale: AS NOTED
Drawing Name: 25082-PLAN.dwg	Date: 8/28/25
	Project No.: 25082

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
0	8/28/25	ISSUED FOR REVIEW	EMP

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

Plan Name:	GRADING AND DRAINAGE PLAN
Project:	WASHVILLE CAR WASH 9 MORGAN RD, HUDSON, NH
Owner of Record:	HUDSON ENTERPRISES, LLC 69 ATLANTIC AVE, NORTH HAMPTON, NH

DRAWING No.
C3
SHEET 6 OF17
JBE PROJECT NO. 25082

Attachment "E"

MAP UNIT	SOIL TAXANOMIC NAME	DESCRIPTION
24C	AGAWAM DRAINED	THIS MAP UNIT REPRESENTS AREAS THAT CAN BE CHARACTERIZED BY A SURFACE LAYER OF FINE SANDY LOAM ATOP LOAMY FINE SAND AND GRAVELLY SAND. PERMEABILITY OF THIS MAP UNIT IS MODERATELY RAPID IN THE UPPER LAYERS AND BECOMES MORE RAPID AS THE GRAVELLY SANDS ARE REACHED. SLOPES RANGE FROM 8% TO 15%.
24B	AGAWAM DRAINED	THIS MAP UNIT REPRESENTS AREAS THAT CAN BE CHARACTERIZED BY A SURFACE LAYER OF FINE SANDY LOAM ATOP LOAMY FINE SAND AND GRAVELLY SAND. PERMEABILITY OF THIS MAP UNIT IS MODERATELY RAPID IN THE UPPER LAYERS AND BECOMES MORE RAPID AS THE GRAVELLY SANDS ARE REACHED. SLOPES RANGE FROM 3% TO 8%.
42E	CANTON DRAINED	THIS MAP UNIT REPRESENTS AREAS THAT CAN BE CHARACTERIZED BY LOAMY MANTLE UNDERLAIN BY SANDY TILL. SLOPES RANGE FROM 25% TO 50%.
444C	NEWFILEDS WET	THIS MAP UNIT REPRESENTS AREAS THAT CAN BE CHARACTERIZED BY LOAMY MANTLE UNDERLAIN BY SANDY TILL. SATURATED HYDRAULIC CONDUCTIVITY IS MODERATELY HIGH TO VERY HIGH. SLOPES RANGE FROM 8% TO 15%.
444B	NEWFIELDS WET	THIS MAP UNIT REPRESENTS AREAS THAT CAN BE CHARACTERIZED BY LOAMY MANTLE UNDERLAIN BY SANDY TILL. SATURATED HYDRAULIC CONDUCTIVITY IS MODERATELY HIGH TO VERY HIGH. SLOPES RANGE FROM 3% TO 8%.
799B	UDORTHENTS SMOOTHED	THIS MAP UNIT REPRESENTS AREAS THAT HAVE BEEN EXCAVATED AND NEARBY AREAS IN WHICH THIS MATERIAL HAS BEEN DEPOSITED. ORIGINAL SOIL MATERIAL IS GENERALLY EXCESSIVELY DRAINED TO MODERATELY WELL DRAINED.DEPTH OF EXCAVATION AND FILL RANGES FROM 2 TO 20 FEET. SOIL TEXTURE RANGES FROM SAND AND GRAVEL TO FINE SANDY LOAM, BUT IN SOME PLACE SIT IS SILT LOAM. SLOPES RANGE FROM 3% TO 8%.
546D	WALPOLE WET	THIS MAP UNIT REPRESENTS AREAS THAT CAN BE CHARACTERIZED AS VERY DEEP, POORLY DRAINED SANDY SOILS FORMED IN OUTWASH AND STRATIFIED DRIFT. THIS MAP UNIT IS NEARLY LEVEL TO GENTLY SLOPING SOIL I NLOW-LYING POSITIONS ON TERRACES AND PLAINS. SATURATED HYDRAULIC CONDUCTIVITY IS MODERATELY HIGH OR HIGH IN THE SURFACE LAYER AND SUBSOIL, AND HIGH OR VERY HIGH IN THE SUBSTRATUM. SLOPES RANGE FROM 15% TO 25%.
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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 (X)

REACH (X)

POND (X)

WETLANDS

SITE SPECIFIC SOILS

FLOW ARROW

Design: BWG	Draft: ISM	Date: 7/14/17
Checked: WGM	Scale: AS NOTED	Project No.: 14053
Drawing Name: 14053-WATERSHED.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
1	8/28/17	REVISED PER REVIEW ENGINEER COMMENTS	ISM
0	7/18/17	ISSUED FOR REVIEW	ISM

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

Plan Name:	EXISTING SOIL PLAN
Project:	120 DERRY ROAD DERRY ROAD (RT. 102), HUDSON, NH
Owner of Record:	FIVE N ASSOCIATES, PETER Q. NASH, TRUSTEE 91 AMHERST STREET, NASHUA, NH 03064

DRAWING No.

S1

SHEET 7 OF 2
JBE PROJECT NO. 14053

MAP UNIT	SOIL TAXANOMIC NAME	DESCRIPTION
24C	AGAWAM DRAINED	THIS MAP UNIT REPRESENTS AREAS THAT CAN BE CHARACTERIZED BY A SURFACE LAYER OF FINE SANDY LOAM ATOP LOAMY FINE SAND AND GRAVELLY SAND. PERMEABILITY OF THIS MAP UNIT IS MODERATELY RAPID IN THE UPPER LAYERS AND BECOMES MORE RAPID AS THE GRAVELLY SANDS ARE REACHED. SLOPES RANGE FROM 8% TO 15%.
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HYDROLOGIC SOIL GROUP 'A'

HYDROLOGIC SOIL GROUP 'B'

HYDROLOGIC SOIL GROUP 'C'

HYDROLOGIC SOIL GROUP 'D'

IMPERVIOUS

LEGEND

SUBCATCHMENT BOUNDARY

SUBCATCHMENT

REACH

POND

WETLANDS

SITE SPECIFIC SOILS

FLOW ARROW

Design: GAP	Draft: GDR	Date: 8/28/25
Checked: EMP	Scale: AS NOTED	Project No.: 25082
Drawing Name: 25082-WATERSHEDS.dwg		

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0	7/18/17	ISSUED FOR REVIEW	ISM

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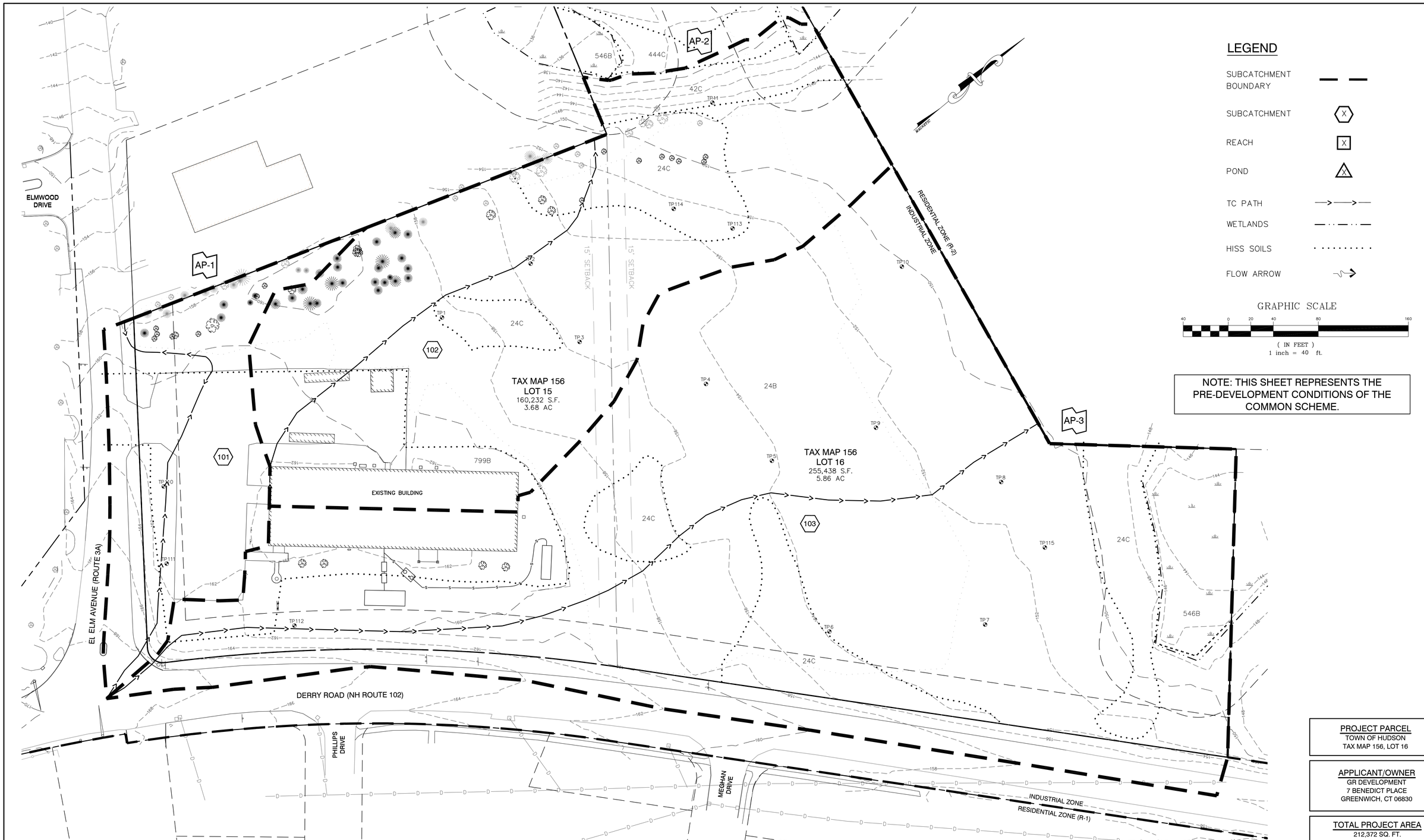
PO Box 219
Stratham, NH 03885
Civil Engineering Services
603-772-4746
FAX: 603-772-0227
E-MAIL: JBE@JONESANDBEACH.COM

Plan Name:	PROPOSED SOIL PLAN
Project:	120 DERRY ROAD DERRY ROAD (RT. 102), HUDSON, NH
Owner of Record:	HUDSON ENTERPRISES, LLC 69 ATLANTIC AVE, NORTH HAMPTON, NH

DRAWING No.
S2
SHEET 7 OF 2
JBE PROJECT NO. 25082



LEGEND

- SUBCATCHMENT BOUNDARY
- SUBCATCHMENT (X)
- REACH (X)
- POND (X)
- TC PATH
- WETLANDS
- HISS SOILS
- FLOW ARROW

GRAPHIC SCALE

40 0 20 40 80 160

(IN FEET)
1 inch = 40 ft.

NOTE: THIS SHEET REPRESENTS THE PRE-DEVELOPMENT CONDITIONS OF THE COMMON SCHEME.

PROJECT PARCEL
TOWN OF HUDSON
TAX MAP 156, LOT 16

APPLICANT/OWNER
GR DEVELOPMENT
7 BENEDICT PLACE
GREENWICH, CT 06830

TOTAL PROJECT AREA
212,372 SQ. FT.
4.88 ACRES

Design: GAP	Draft: GDR	Date: 8/28/25
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Drawing Name: 25082-WATERSHED.dwg		

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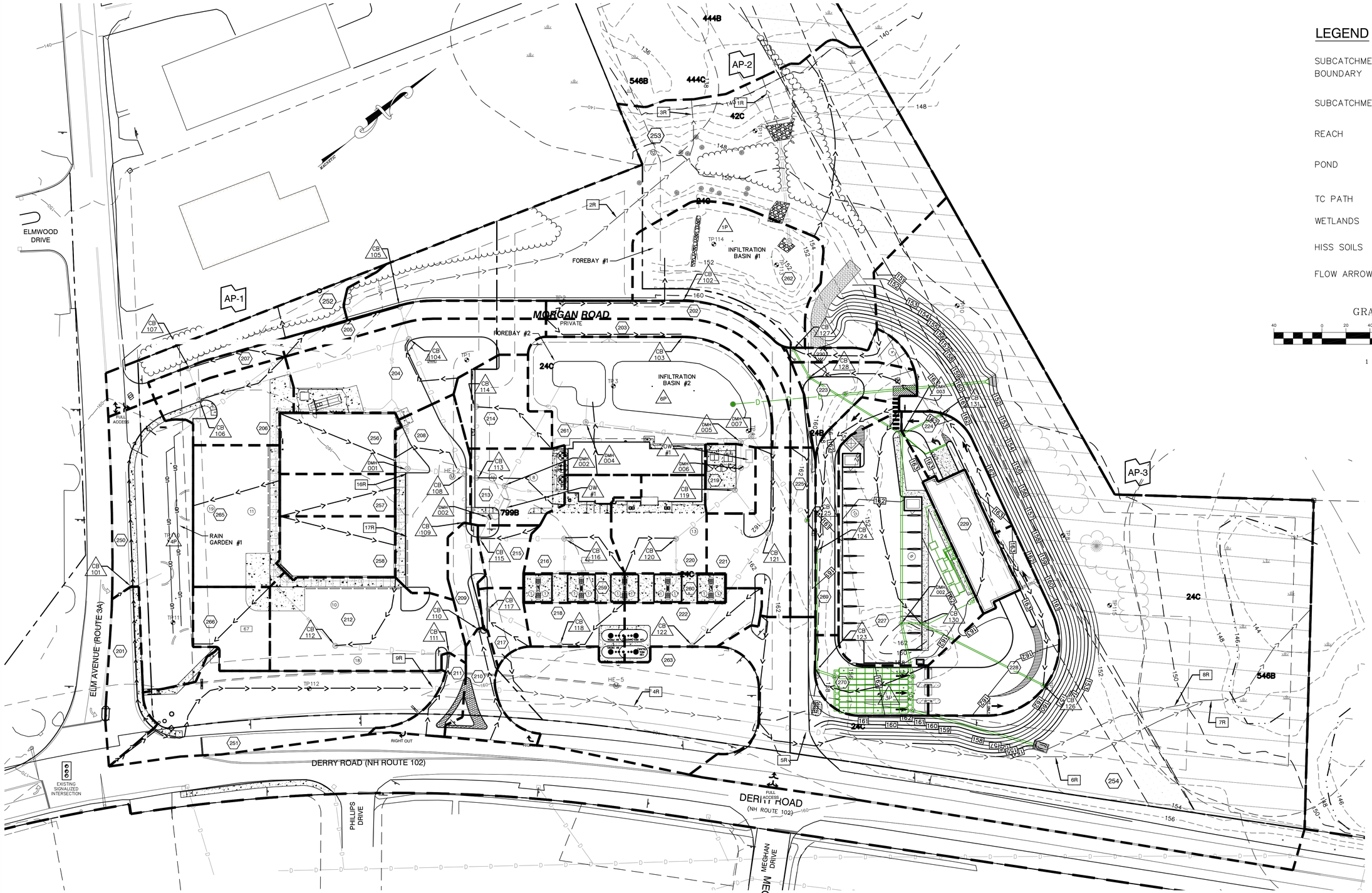
Plan Name:	EXISTING WATERSHED PLAN
Project:	120 DERRY ROAD DERRY ROAD (RT. 102), HUDSON, NH
Owner of Record:	HUDSON ENTERPRISES, LLC 69 ATLANTIC AVE, NORTH HAMPTON, NH

DRAWING No.
W1
SHEET 1 OF 2
JBE PROJECT NO. 25082



LEGEND

- SUBCATCHMENT BOUNDARY
- SUBCATCHMENT (X)
- REACH (X)
- POND (X)
- TC PATH
- WETLANDS
- HISS SOILS
- FLOW ARROW

GRAPHIC SCALE

40 0 20 40 80 160

(IN FEET)
1 inch = 40 ft.

PROJECT PARCEL
TOWN OF HUDSON
TAX MAP 156, LOT 16

APPLICANT
GR DEVELOPMENT
7 BENEDICT PLACE
GREENWICH, CT 06830

TOTAL PROJECT AREA
212,372 SQ. FT.
4.88 ACRES

Design: GAP	Draft: GDR	Date: 8/28/25	
Checked: EMP	Scale: AS NOTED	Project No.: 25082	
Drawing Name: 25082-WATERSHEDS.dwg			

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FAX: 603-772-0227
E-MAIL: JBE@JONESANDBEACH.COM

Plan Name:	PROPOSED WATERSHED PLAN
Project:	120 DERRY ROAD DERRY ROAD (RT. 102), HUDSON, NH
Owner of Record:	HUDSON ENTERPRISES, LLC 69 ATLANTIC AVE, NORTH HAMPTON, NH

DRAWING No.
W2
SHEET 2 OF 2
JBE PROJECT NO. **25082**

Summary for Pond 3P: Stormtech #1

[80] Warning: Exceeded Pond CB 123 by 0.04' @ 24.34 hrs (0.82 cfs 1.840 af)
[80] Warning: Exceeded Pond DMH 002 by 0.04' @ 24.80 hrs (1.09 cfs 3.384 af)

Inflow Area = 1.105 ac, 78.62% Impervious, Inflow Depth > 5.52" for 50-YR event
Inflow = 6.86 cfs @ 12.08 hrs, Volume= 0.509 af
Outflow = 6.64 cfs @ 12.10 hrs, Volume= 0.437 af, Atten= 3%, Lag= 1.2 min
Primary = 6.64 cfs @ 12.10 hrs, Volume= 0.437 af
Routed to Reach 8R : OVERLAND

50-year elevation without infiltration

Routing by Dyn-Stor-Ind method, Time Span= 2.00-72.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 158.74' @ 12.10 hrs Surf.Area= 2,393 sf Storage= 4,891 cf
Flood Elev= 159.00' Surf.Area= 2,393 sf Storage= 5,139 cf

Plug-Flow detention time= 114.1 min calculated for 0.437 af (86% of inflow)
Center-of-Mass det. time= 52.1 min (829.2 - 777.2)

Max elevation permitted = 159.0

Volume	Invert	Avail.Storage	Storage Description
#1A	155.50'	2,157 cf	**39.50'W x 60.58'L x 3.50'H Field A** 8,375 cf Overall - 2,983 cf Embedded = 5,392 cf x 40.0% Voids
#2A	156.00'	2,983 cf	**ADS_StormTech SC-740 b +Cap** x 64 Inside #1 Effective Size= 44.6"W x 30.0"H => 6.45 sf x 7.12'L = 45.9 cf Overall Size= 51.0"W x 30.0"H x 7.56'L with 0.44' Overlap 64 Chambers in 8 Rows Cap Storage= 2.7 cf x 2 x 8 rows = 42.5 cf
		5,139 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Primary	156.00'	**18.0" Round Culvert** L= 107.0' Ke= 0.500 Inlet / Outlet Invert= 156.00' / 154.00' S= 0.0187 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.77 sf
#2	Device 1	158.30'	**4.0' long Sharp-Crested Rectangular Weir** 2 End Contraction(s)
#3	Device 1	157.40'	**20.0" W x 4.0" H Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=6.63 cfs @ 12.10 hrs HW=158.74' TW=153.20' (Dynamic Tailwater)
└─**1=Culvert** (Passes 6.63 cfs of 12.00 cfs potential flow)
  ├─**2=Sharp-Crested Rectangular Weir** (Weir Controls 3.74 cfs @ 2.17 fps)
  └─**3=Orifice/Grate** (Orifice Controls 2.90 cfs @ 5.21 fps)

Infiltration removed from model to simulate frozen conditions

Attachment "F"

FUSS & O'NEILL

MEMORANDUM

TO: File

FROM: Steven W. Reichert, PE

DATE: November 10, 2025

RE: Town of Hudson Planning Board Review
Washville Car Wash Site Plan, 9 Morgan Road
Tax Map 156, Lot 16; Acct. #1350-738
Fuss & O'Neill Reference No. 20030249.254

The following list itemizes the second set of documents reviewed related to the Washville Car Wash Site Plan project located at 9 Morgan Road in Hudson, New Hampshire.

- Emails between the Town of Hudson and Fuss & O'Neill between October 14 and October 28, 2025.

- Email from Jones & Beach Engineers, Inc. to Fuss & O'Neill, received October 28, 2025, including the following:
  1. Copy of *Count Summary*, not dated.
  2. Copy of *Trip Distribution Calcs*, not dated.

- Package from Jones & Beach Engineers, Inc. to Fuss & O'Neill, received October 10, 2025, including the following:
  1. Copy of *Response Letter* from Jones & Beach Engineers, Inc. to the Town of Huson, dated October 10, 2025.
  2. Copy of *Traffic Impact Statement ITE Trip Generation Memorandum*, prepared by Jones & Beach Engineers, Inc., dated September 29, 2025.
  3. Copy of *Drainage Analysis Erosion and Sediment Control Plan*, prepared by Jones & Beach Engineers, Inc., dated August 28, 2025, revised October 7, 2025.
  4. Copy of *Proposed Development "Washville Car Wash" Tax Map 156, Lot 16, 9 Morgan Road, Hudson, NH*, prepared by Jones & Beach Engineers, Inc., dated August 28, 2025, revised October 10, 2025, including the following:
     a. *Cover Sheet,* Sheet 1 of 18.
     b. *Overall Site Plan* Notes*,* Sheet 2 of 18.
     c. *Existing Conditions Plan,* Sheet 3 of 18, with no revisions noted.
     d. *Overall Site Plan,* Sheet 4 of 18.
     e. *Site Plan,* Sheet 5 of 18.
     f. *Grading and Drainage,* Sheet 6 of 18.
     g. *Utility Plan,* Sheet 7 of 18.
     h. *Landscape and Lighting Plan,* Sheet 8 of 18.
     i. *Detail Sheet,* Sheets 9 through 13 of 18.
     j. *Erosion and Sediment Control Details,* Sheets 14 & 15 of 18.
     k. *Exterior Elevations,* Sheets A200 & A201, prepared by Sevan Design Solutions, PC., dared January 17, 2022, revised April 21, 2023.

l. *Gravity Piping Plan,* Sheet P1-1, prepared by Hover Architecture, dated February 21, 2025, with no revisions noted.

SWR:elc

cc: Brooke Dubowik – Town of Hudson
Town of Hudson Engineering Division – File

Attachment "G"

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

October 10, 2025

Hudson Planning Board
Attn. Timothy Malley, Chair
12 School Street
Hudson, NH 03051

RE: Response Letter
9 Morgan Road, Hudson, NH
Tax Map 156, Lot 16
JBE Project No. 25082

Dear Mr. Malley,

We are in receipt of comments from Steven Reichert, P.E., Fuss & O'Neill dated September 18, 2025. Review comments are listed below with our responses in bold.

1. *Site Plan Review Codes (HR 275)*

a. *Hudson Regulation (HR) 275-6.C & T.(1)(b) The applicant has not proposed adding any sidewalks to the site. We note that there are some existing sidewalks on the opposite side of Derry Road.*
RESPONSE: Sidewalks are proposed internal to the site.

b. *HR 275-6.I. The scope of this review does not include the adequacy of any fire protection provisions for the site. We note that no existing or proposed hydrants or a proposed fire service are shown on the plan set.*
RESPONSE: The current hydrant placement follows the original common scheme. Closest hydrant to proposed building is approximately 550'.

c. *HR 275-6.T. The applicant is proposing limited off-site improvements that include utility connections. We note that since this section of Derry Road is controlled by NHDOT the applicant will need a Right of Way Activities Permit for this utility installation from the NHDOT.*
RESPONSE: Permitting will be obtained from NHDOT.

d. *HR 275-8.C.(2)(g) and Zoning Ordinance (ZO) 334-15.A. The applicant has not provided complete parking calculations on the plan set. The applicant has proposed 4 parking spaces and 18 vacuum spaces. The applicant should add parking calculations to the plan set.*
RESPONSE: Note 3 on sheet C2.1 has been expanded for parking calculations.

e. *HR 275-8.C.(6)(b). The applicant has not proposed any loading spaces on the plan set.*
RESPONSE: No "acceptance or distribution of materials or merchandise by vehicles" is proposed on site. Deliveries are infrequent but when needed are done by delivery van and done in a short amount of time. Parking lot configuration deemed suitable for this function.

f. *HR 275-9.C.(11). The applicant has provided one handicapped accessible parking spaces for the site which meets the minimum requirement. The applicant should revise the Handicap Parking detail to match the space width shown on the plan.*
RESPONSE: The Handicap Parking Detail has been revised to match the plans.

g. *HR 275-9.F. The applicant provided copies of the easement agreement between Lots 15, 15-1 and 16. We note that a copy of the utility easement was not provided.*
RESPONSE: A copy of the utility easement will be procured and provided to the Town.

h. *The applicant should add the lot area to the Site Plan & Existing Conditions sheets. We note that it is currently only shown on the Landscaping & Lighting Plan.*
RESPONSE: The lot area is shown on all plan sheets. The lot area block has now been added to Sheet C1.

2. *Administrative Review Codes (HR 276)*

a. *HR 276-7. The applicant should note the waivers requested on the plan set.*
RESPONSE: Waivers requested are now noted on the Cover Sheet.

b. *HR 276-11.B.(4). & 289-27.A. The applicant should add the required approval block on each sheet of the plan set as required.*
RESPONSE: The approval block has been added to the Existing Conditions Sheet and Detail Sheets.

c. *HR 276-11.B.(6). The applicant has not provided the owner's signature on the plan set.*
RESPONSE: A signature block for the owner has been provided on the Cover Sheet.

d. *HR 276-11.1.B.(12). The applicant has requested a waiver to allow parking/pavement within the 50-foot front setback area.*
RESPONSE: The requested waivers are now listed on the Cover Sheet.

e. *HR 276-11.1.B.(12).(c). The applicant has also requested a waver to allow development within the 100-foot residential buffer. We note that the applicant has proposed development approximately 20 feet into the buffer.*
RESPONSE: The requested waivers are now listed on the Cover Sheet.

f. *HR 276-11.1.B.(13). The applicant has provided traffic sign and monument sign locations on the plan. The applicant has not included a detail for the monument sign in the plans.*
RESPONSE: A detail for the monument sign has been added to the plans on Sheet D5.

g. *HR 276-11.1.B.(16). The applicant should show the location of driveways and travel ways within 200 feet of the site.*
RESPONSE: Megan Drive is now shown on Sheet C1, as well as driveways on Megan Drive that are within 200' of the site.

3. *Driveway Review Codes (HR 275-6.B/Chapter 193)*

a. *HR 193.10. The applicant has proposed that the site driveway tie into the existing private way Morgan Road. A new driveway onto Derry Road is not proposed for this site.*
RESPONSE: One of the two Morgan Road driveway stubs from our previous common scheme design is proposed for use with this development.

4. *Traffic (HR 275-9.B)*

a. *HR 275-9B. Fuss & O'Neill has reviewed the Traffic Impact Statement (TIS) ITE Trip Generation Memorandum prepared by Jones & Beach Engineering, Inc., dated August 22, 2025, for the proposed Car Wash, (MAP 156 LOT 16), in Hudson, New Hampshire. The site is located in the northwest quadrant of the intersection of Route 102 (Derry Road) and Morgan Road. The proposed project consists of the construction of an approximately 4,100 square foot (sf) car wash with associated parking and drive aisle. The site was originally approved as an approximate 5,500 sf restaurant with associated parking. The restaurant was never constructed. The summary of our review of the TIS is as follows.*

Existing Traffic Volumes: The TIS does not include the existing traffic volume. As per road geometry the proposed development will be contributing to existing traffic on Route 102 (Derry Road) and Elm Avenue. With that said, an Automatic Recorder count with ID 82229041 which is approximately 0.2 miles southwest of the proposed project can be used to give an approximate Annual Average Daily Traffic.
RESPONSE: A 3rd party traffic engineer has been contacted to assist with analysis of existing traffic volumes. A report will be shared when received.

Existing Conditions/Sight Distances: The TIS does not describe the existing geometric conditions in the site vicinity. Fuss & O'Neill recommends the applicant provide this section to verify the available sight distances to ensure it meets the minimum standard.
RESPONSE: The existing geometric conditions in the site vicinity allows for adequate site distances and is now discussed in the traffic impact statement.

Traffic Generation/Trip Distribution: Land Use Code (LUC) 932 - High-Turnover (Sit-Down) Restaurant was used to estimate the trips for the approved restaurant project. LUC 948 – Automated Car Wash was used for the proposed car wash. Fuss & O'Neill noticed a significant change for the weekday traffic, PM Peak and Saturday traffic generation when comparing the approved restaurant use to the proposed car wash. The TIS used traffic generation data compiled by the Institute of Transportation Engineers (ITE) in their publication entitled Trip Generation Manual (10th edition). It is noted that

the 12th Edition was recently issued. Fuss & O'Neill recommends revising the trip generation projections using the 12th Edition.
RESPONSE: Trip generation estimates have been revised by utilizing the 12th edition of the ITE Manual.

Fuss & O'Neill agrees with the land use codes chosen for the analysis contained in the TIS. A review of the current ITE Trip Generation manual, the recently released 12th Edition, which has more studies, indicates that the proposed development will generate the following traffic:

i. *The proposed project will expect to generate approximately 1,040 vehicle trips (520 vehicles entering and 520 vehicles exiting) on weekdays.*

ii. *There is estimated to be 61 vehicle trips (34 vehicles entering and 27 vehicles exiting) during the weekday AM peak.*

iii. *There is estimated to be 100 vehicle trips (49 vehicles entering and 51 vehicles exiting) during the weekday PM peak hour.*

iv. *On a Saturday, during the Peak Hour of Generator, the site will generate a total of 132 vehicle trips (66 vehicles entering and 66 vehicles exiting).*

Using the ITE 12th Edition for Weekday Daily, weekday AM Peak Hour, weekday PM Peak Hour and Saturday Peak Hour, shows that the car wash will generate twice as many trips during the weekday PM Peak Hour and the Saturday midday Peak Hour as compared to the approved restaurant use. Fuss & O'Neill recommends including the total traffic volumes for both the Weekday and the weekday AM Peak periods, even though the weekday AM Peak traffic is expected to be lower than the weekday PM Peak. Further, it should be noted that not all trips generated by the proposed car wash will be new to the roadway network. Therefore, the TIS should clarify whether this consideration was accounted for in their analysis to make it clearer.
RESPONSE: Total traffic volumes for the Weekday and Weekday AM Peak Hour for the proposed car wash have been included in the revised traffic impact statement. As explained in the traffic impact statement, a restaurant was originally approved but never constructed, indicating that not all trips generated by the proposed car wash will be new to the roadway network.

Additionally, Fuss & O'Neill recommends that the TIS distribute the site generated traffic to the roadway network to illustrate its impact on the existing roadway network.
RESPONSE: A 3rd party traffic engineer has been contacted to assist with this portion of the analysis. A report will be shared when received.

5. *Utility Design/Conflicts*

a. *HR 275-9.E & 276-13. The applicant should provide water installation details in the plan set along with a utility crossing detail.*
RESPONSE: Water installation details and a utility crossing detail have been added to the plans.

b. *HR 275-9.E & 276-13. The applicant should review with the Town to confirm the availability of sufficient water flow to accommodate the car wash use. The applicant*

should also confirm the proposed 2" diameter service line is sufficient for the proposed water flow volumes.
RESPONSE: The 2" diameter line is standard for the Washville Carwash prototype. The as-built stub that was placed for our previous common scheme design is a 6" line that we are proposing to reduce via connection as shown on Sheet C4.

c. *HR 275-.9.E & 276-13. The applicant should provide more information regarding how the car wash will make use of the proposed reclaim tanks. There are no details provided for those tanks.*
RESPONSE: Reclaim tanks are considered a mechanical feature of the carwash and are by others. Reclaim tanks are shown on our plans to ensure that there is sufficient space for placement and connection. A detail sheet has been provided at the end of our plan set to provide additional detail.

d. *HR 275-9.E & 276-13. The applicant has shown a proposed shut-off valve to be installed on the existing 6" ductile iron stub. The applicant should review this and verify if this was meant to be shown on the 2" copper service line instead.*
RESPONSE: The intent of the design is to keep the water shut-off valve within the Town right-of-way as shown.

e. *HR 275-.9.E & 276-13. The applicant should provide more information regarding expected sewer flows from the proposed car wash. We note that a proposed flow of 8,510 gpd was stated without any additional information. We note that the Town of Hudson's sewer discharge is treated by the Nashua Wastewater Treatment Plant and a sewer flow allocation for the proposed site will need to be purchased from the Town. These flow allocations may be limited, therefore all water reduction efforts should be considered.*
RESPONSE: The daily usage has been assessed from the attached Project Water Usage Report (by others). On Page 4 of the report, annual water usage estimate (fresh water) is 3,105,900 GPY = 8,510 GPD.

f. *HR 275-.9.E & 276-13. We note that commercial car wash operations have been included by the EPA in future PFAS regulations. The applicant can expect that the Town of Hudson will likely require the car wash use to be permitted as part of their Industrial Pretreatment Program. This program will eventually require effluent sampling for PFAS and the cost of that sampling will be the burden of the owner.*
RESPONSE: Noted.

g. *The existing SMH to the east of the proposed building has an existing rim of 152± and the applicant has proposed to fill this area to approximately 162±. The applicant should coordinate/confirm with the Town that the proposed increase in structure height is allowed.*
RESPONSE: In order for the client to bring their property to the appropriate finish grade, the subject SMH will need to be raised. Correspondence has occurred with the DPW Director and Town Engineer, and both parties indicated amicability with raising the structure as needed.

h. *The applicant has proposed two-inch rigid foam insulation between the proposed sewer and drain line. The applicant should provide a detail for these crossing locations.*
RESPONSE: Details have been provided on Sheet D5.

6. *Drainage Design/Stormwater Management (HR 275-9.A./Chapter 290)*

a. *HR 275-6.F. The applicant should provide a GRV worksheet within the Stormwater Management Report.*
RESPONSE: A GRV worksheet has been added to the drainage report.

b. *HR 290-5.A.(1). and 290-5.A.(3). The applicant should provide language in the Drainage Analysis Report stating how low impact development (LID) strategies for stormwater runoff were evaluated for this project.*
RESPONSE: Information about the low impact development (LID) strategies for stormwater runoff have been added to the Drainage Analysis within the Proposed Conditions Analysis.

c. *HR 290-5.A.(10). The applicant should ensure that there is a note on Grading and Drainage Plan C3 to call out inlet protection at all CBs.*
RESPONSE: Note #9 from the Construction Sequence Notes on Sheet E1 has been duplicated on Sheet C3 as Note #29.

d. *HR 290-5.A.(12). The applicant should provide a more detailed BMP location plan with the I&M Manual. This will ensure all proposed drainage features are properly maintained, including but not limited to specific locations of individual catch basins and DMHs, subsurface chamber systems, trench drains, isolator rows, rip rap outlets, and closed drainage networks.*
RESPONSE: A location plan has been added to the I&M/O&M Manual.

e. *HR 290-5.A.(12). The applicant should provide project specific information in the I&M Manual, including but not limited to procedures, protocols, frequency, roles, reporting, and responsible parties.*
RESPONSE: A Stormwater Pollution & Prevention Plan (SWPPP Manual) will be created and shared with the Town as part of the EPA Notice of Intent.

f. *HR 290-5.A.(12). Past coordination with NHDES AoT has suggested a color-coded location plan illustrating the features on the plan will ensure all features are maintained.*
RESPONSE: A color-coded location plan has been added illustrating the features on the plan.

g. *HR 290-5.A.(12). We note the I&M Manual references BMP#4, BMP #8, etc. The applicant should coordinate the I&M Manual to specifically apply to this phase of the design, as there is no reference to BMP#s.*
RESPONSE: The BMP's referenced are related to invasive species notes. BMP's 1 through 16 are notes on the best management practices to help prevent invasive species.

h. *HR 290-5.B.(1).b. The applicant should provide support material or calculations showing the required 80% TSS and 50% TP pollutant removals.*
RESPONSE: Table 5-3 is shown from the 2025 NH Stormwater Manual along with Note #6 from the Table, which shows that the selected stormwater control measure has a TSS removal rate of ≥ 90%, and a TP removal rate of ≥ 60%.

Table 5-3. General Suitability of SCMs to Treat Common Stormwater Pollutants[1,6]

	Applicable EPA Performance Curve[2]	Pollutant of Concern				
		TN	TP	TSS	Metals[3]	Bacteria[4]
Nonstructural Source Controls[5]						
Catch Basin Cleaning	--	No	No	No	No	No
Leaf Litter Pickup	--	No	No	No	No	No
Snow and Ice Management	--	No	No	No	No	No
Street Sweeping	--	No	No	No	No	No
Structural Treatment						
Bioretention System (Infiltrating)	Infiltration Basin	Yes	Yes	Yes	Yes	Yes
"Hybrid" Bioretention System	Infiltration Basin	Yes	Yes	Yes	Yes	Yes
Infiltration Basin	Infiltration Basin	Yes	Yes	Yes	Yes	Yes
Infiltration Trench	Infiltration Trench	Yes	Yes	Yes	Yes	Yes
Permeable Pavement (Infiltrating)	Infiltration Trench	Yes	Yes	Yes	Yes	Yes
Subsurface Infiltration Chamber	Infiltration Trench	Yes	Yes	Yes	Yes	Yes
Bioretention System (Filtering)	Biofiltration	No	Yes	Yes	Yes	Yes
Bioretention with ISR (Filtering)	Biofiltration with ISR	Yes	Yes	Yes	Yes	Yes
Permeable Pavement (Filtering)	Porous Pavement	Yes	Yes	Yes	Yes	Yes
Dry Well	Infiltration Trench	Yes	Yes	Yes	Yes	Yes
Gravel Wetland	Gravel Wetland	Yes	Yes	Yes	Yes	Yes
Impervious Area Disconnection	IA Disconnection	Yes	Yes	Yes	Yes	Yes
Leaching Catch Basin	Infiltration Trench	Yes	Yes	Yes	Yes	Yes
Roof Drip Edge (Infiltrating)	Infiltration Trench	Yes	Yes	Yes	Yes	Yes
Roof Drip Edge (Filtering)	Biofiltration	No	Yes	Yes	Yes	Yes
Stormwater Wetland	Gravel Wetland	Yes	Yes	Yes	Yes	Yes
Tree Box Filter (Infiltrating)	Infiltration Trench	Yes	Yes	Yes	Yes	Yes
Tree Box Filter (Filtering)	Biofiltration	No	Yes	Yes	Yes	Yes
Extended Dry Detention Pond	Dry Pond	No	No	No	Yes	Yes
Flow-Through Treatment Swale	Grass Swale	No	No	Yes	No	No
Green Roof	N/A - reduces EIC	No	No	No	No	No
Rain Barrel/ Cistern (with reuse)	IA Disconnection (Storage)	No	No	No	No	No
Sand Filter	Sand Filter	No	Yes	Yes	Yes	Yes
Wet Pond	Wet Pond	No	Yes	Yes	Yes	No

Table 5-3 from 2025 NH Stormwater Manual, p80

[6] SCMs were determined to provide a "significant" reduction in target pollutants as follows for this screening level table:

- **TSS (≥ 90%), TP (≥ 60%), TN (≥ 50%), Metals (≥ 80%)**: The EPA Performance Removal Curves were used with a target runoff depth (RD) from impervious area of approximately 1-inch. Infiltrating SCMs assumed an infiltration rate of 0.17 inches per hour. Zinc was used as an indicator of metals removal.
- **Bacteria**: The EPA Performance Removal Curves do not currently provide data on bacteria removal. Summary statistics from the International BMP Database were used to determine if the SCM provided a statistically significant decrease in bacteria.

Table 5-3, Note 6

i. *HR 290-6.A.(1). Based on previous conversations with NHDES and NH Fish & Game, and due to the location of the proposed matting in relation to the wetland; the applicant should note "approved equal must be all-natural material with no photo-biodegradable content and shall not contain plastic, or multifilament or monofilament polypropylene netting or mesh with an opening of greater than 1/8" inches".*
RESPONSE: Note #15 has been added on Sheet E1 to the Temporary Erosion Control Notes stating the above.

j. *HR 290-6.A.(9). The applicant should ensure the 30-day disturbed area timeframe is listed upon the plan set. Temporary Erosion Control Note #6 on Plan Sheet E1 notes a 45-day time limit.*
RESPONSE: Note #6 on Sheet E1 has been revised as requested.

k. *HR 290-6.A.(12). The applicant should ensure the winter stabilization measures, as described in the NH Stormwater Manual, are referenced upon the plan set.*
RESPONSE: Winter Weather Stabilization Notes have been added to Sheet E1.

l. *HR 290-7.A.(6). The applicant should provide information as to how the stormwater system is designed to account for frozen ground conditions.*
RESPONSE: A stand-alone HydroCAD report sheet is attached that simulates frozen ground conditions by removing infiltration from the model in the 50-year storm event. With no infiltration, the water level is still below the design threshold and the water remains within the system.

m. *HR 290-8.A.(4). and (5). The applicant should ensure a note is upon the plan set stating the requirement to coordinate the need for a Bond or Escrow with the Town Engineer.*
RESPONSE: Miscellaneous Note #1 has been added to Sheet G1 stating the above.

n. *HR 290-10.A. The applicant should keep the Town informed of all communication with NHDES in relation to the required Alteration of Terrain Permit being requested to ensure NHDES comments do not alter drainage design/calculations.*
RESPONSE: Any changes to the design requested by NHDES AoT will be shared with the Town.

o. *HR 290-10.B. The applicant should ensure the Plan set notes the requirement for a SWPPP.*
RESPONSE: Note #17 on Sheet C3 states that the contractor shall adhere to the SWPPP.

p. *Engineering Technical Guidelines and Typical Details (ETGTD) 930.3. The applicant should provide additional information on the existing and proposed drainage crossing south of proposed DMH 006. A note with outer pipe elevations or a crossing detail of the location should be provided to ensure that the proper separation is provided.*
RESPONSE: The proposed drainage is intended to cross over the as-built pipe. Field data is scheduled to be obtained for the as-built pipe, and a crossing detail will be provided once the data is no longer assumed.

q. *ETGTD 930.3. The applicant should provide additional information on the proposed drainage and proposed sewer crossing north of proposed DMH 006. A crossing detail of*

the location should be provided to ensure that the proper separation is provided, and the insulation is provided at the proper elevation.
RESPONSE: Separation for the subject pipe can be seen in the profile added on Sheet D5.

r. *The applicant will be required to comply with all provisions of the Town of Hudson's MS4 permit, including but not limited to annual reporting requirements, construction site stormwater runoff control, and record keeping requirements. The applicant has noted that the project has been designed to meet MS4 requirements.*
RESPONSE: Noted.

s. *Please note that this review was carried out in accordance with applicable regulations and standards in place in New Hampshire at this time. Note that conditions at the site, including average weather conditions, patterns and trends, and design storm characteristics, may change in the future. In addition, future changes in federal, state or local laws, rules or regulations, or in generally accepted scientific or industry information concerning environmental, atmospheric and geotechnical conditions and developments may affect the information and conclusions set forth in this review. In no way shall Fuss & O'Neill be liable for any of these changed conditions that may impact this review, regardless of the source of or reason for such changed conditions. Other than as described herein, no other investigation or analysis has been requested by the Client or performed by Fuss & O'Neill in preparing this review.*
RESPONSE: Noted.

7. *Zoning (ZO 334)*

a. *ZO 334-17 & 334-21. The subject parcel is located within the Industrial (I) zoning district and the applicant has noted this on the plans. The proposed car wash use is allowed within the district.*

b. *ZO 334-33. We note that a portion of the site is located within the Wetlands Conservation District but the applicant has not proposed any development within that district.*

c. *ZO 334-83 and HR 218-4.E. The applicant has noted that the site is not located within a Flood Hazard Area.*

8. *Erosion Control/Wetland Impacts*

a. *The applicant has noted that the Town of Hudson reserves the right to require any additional erosion control measures as needed.*

9. *Landscaping (HR 275-8.C.(7) & 276-11.1.B.(20)) and Lighting (HR 276-11.1.B.(14))*

a. *HR 276-8.C.(8). The applicant has not proposed any screening for the site. We note that there are existing trees on the other side of the utility easement at the rear of the residential lots, but the applicant has proposed no screening of their own. We note that*

since the utility easement is regularly cut by the utility company and with seasonal leaf drops there may be times of year where the site is more visible to abutting residences than others.
RESPONSE: Screening has been revised to consist of a fence and shrubs. Trees were removed after internal review and discussion with the Town Engineer and DPW Director in order to mitigate potential root damage.

b. *HR 276-11.1.B.(14). The applicant has provided a lighting plan. We note that the light pole along the four proposed parking spaces is immediately adjacent to a proposed Green Gables Tupelo tree. The applicant should confirm that the light pole and tree canopy won't conflict when the tree reaches full height.*
RESPONSE: The tree has been shifted as seen on Sheet L1.

c. *The applicant should note the hours of operation for the site and the relationship of those hours to the site lighting.*
RESPONSE: The site will be dark sky compliant, and the lighting will be on a timer after 9pm for security features only. Note #3.1 has been added to Sheet G1 to this effect.

10. State and Local Permits (HR 275-9.G.)

a. *HR 275-9.G. The applicant has listed the required permits and their status on the plan set.*
RESPONSE: Required permits are listed on the Cover Sheet.

b. *HR 275-9.G. The applicant should provide copies of any applicable Town, State or Federal approvals or permits.*
RESPONSE: All permits obtained by the Town, State or Federal agencies will be given to the town.

c. *Additional local and state permitting may be required.*
RESPONSE: Please see response above.

11. Other

a. *The proposed stop sign and stop bar are shown approximately 8 feet from each other. The applicant should review their orientation to each other.*
RESPONSE: The proposed stop sign has been moved closer to the stop bar.

b. *ETGTD Section 565.1.1. The applicant should note on the plans the requirement that the Contractor shall not import any fill over ten cubic yards per source without soils testing verifying the absence of constituents of concern.*
RESPONSE: The above note has been added to the plans on Sheet C3 as Note #28.

Included with this response letter are the following:

1. One (1) Revised Drainage Analysis.
2. One (1) Full Size Plan Set (Folded).
3. Project Water Usage Report
4. Revised JBE ITE Traffic Memo
5. Stand-alone Drainage Report Sheet (re: frozen conditions)

Thank you very much for your time.

Very truly yours,
JONES & BEACH ENGINEERS, INC.

Erik Poulin, P.E.
Associate Principal

cc: Jim Waterman, Washville Car Wash (via email)
Steven Reichert, Fuss & O'Neill (via email)

Attachment "G"

Customer Full Name	**Washville**
Office Address	**1 Carwash Ln**
City, State, Zip Code	**Riverhead NY**
Phone Number	**0**
Email Address	**0**
Site Name, Store #	**Riverhead NY**
Shipping Street Address	**<Enter>**
City, State, Zip Code	**<Enter>**
Site Phone #	**<Enter>**
Date:	

NCS NATIONAL CARWASH SOLUTIONS

SITE INPUT

KPI Input Fields	Data Input	Notes & Recommendations:
Expected Annual Tunnel Volume:	140,000	Typical new site volumes range from 80-150,000 year 1.
Conveyor Speed:	130	This is the average chain speed set in the controller.
Average Length of Vehicle:	17	Range between 15-18, longer lengths increase water use per car.
Average Operating Hours Per Day:	12	Hours of Operation Effect Daily Usage Breakdowns vs Annual Usage Stats.
Water & Sewer Cost Per 1000 Gallons:	$15.00	If Rates Are Unknown, Use Range of $10-17 Per 1000 Gallons.

Regional/Seasonal Market Considerations:	Summer	Fall	Winter	Spring
	40%	20%	30%	10%

Each market varies as to the seaonality of business, these fields allow for adjustments to be made accordingly. If the market knowledge is yet to be determined the standards may be applied which include; climates with snow typically peak in the winter and have lows in the fall, southern climates often peak around bug heavy seasons and coastal climates may be normalized across the seasons.

Water Use Estimate Data Input Fields

Explanatory Information:

The water water use is largely calculated by the backroom support piece capacities because this is where the actual usage is determined. For example: A rain bar may have a capacity of 10 gallons per minute based on the quantity of holes, however if a solenoid or product supply only allows for 7 gallons per minute the actual flow rate of the rain bar will be the lesser amount. For this reason we utilize the asset that provides the more accurate output.

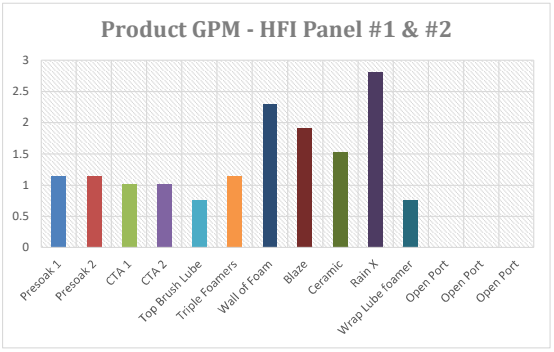
Section 1: Dilution Station - Water Use Estimate Data Input Fields

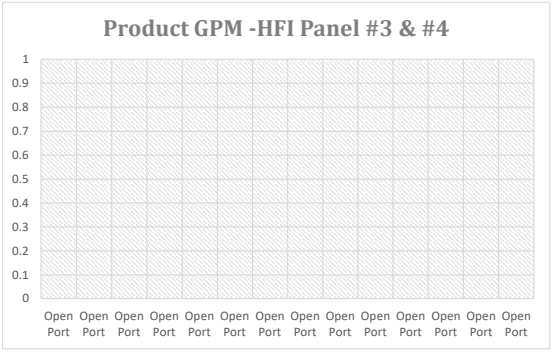
HFI Board #1:	Soft Water		
Solenoid	Application	Injector	GPM
Port 1	Presoak 1	Dark Blue 2.25	2.25
Port 2	Presoak 2	Dark Blue 2.25	2.25
Port 3	CTA 1	Gray 2.0	2
Port 4	CTA 2	Gray 2.0	2
Port 5	Top Brush Lube	Orange 1.50	1.5
Port 6	Triple Foamers	Dark Blue 2.25	2.25
Port 7	Wall of Foam	Purple 4.50	4.5

HFI Board #2:	Hard Water		
Solenoid	Application	Injector	GPM
Port 1	Blaze	Pink 3.75	3.75
Port 2	Ceramic	Light Blue 3.00	3
Port 3	Rain X	Dark Green 5.50	5.5
Port 4	Wrap Lube foamer	Orange 1.50	1.5
Port 5	Open Port	Select	0
Port 6	Open Port	Select	0
Port 7	Open Port	Select	0

HFI Board 3:	Select Water Type:		
Solenoid	Application	Injector	GPM
Port 1	Open Port	Select	0
Port 2	Open Port	Select	0
Port 3	Open Port	Select	0
Port 4	Open Port	Select	0
Port 5	Open Port	Select	0
Port 6	Open Port	Select	0
Port 7	Open Port	Select	0

HFI Board 4:	Select Water Type:		
Solenoid	Application	Injector	GPM
Port 1	Open Port	Select	0
Port 2	Open Port	Select	0
Port 3	Open Port	Select	0
Port 4	Open Port	Select	0
Port 5	Open Port	Select	0
Port 6	Open Port	Select	0
Port 7	Open Port	Select	0





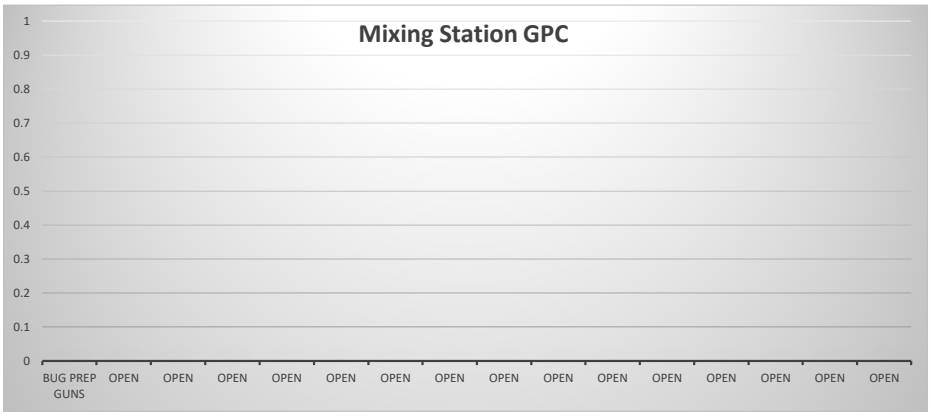
SITE INPUT

Explanatory Information:

Dosatron & Hyrdrominder dilution stations have high flow rates which means bay applicators can have lower flow rates. In this situation the applicator rate should be entered into the right column to reflect the lower usage. *Note: Charts show gallons per car (GPC) usage, not gallons per minute (GPM).*

Mixing Stations: Dosatron & Hydrominder Units

Unit #	Application	Model #	Select Water Type:	Maximum GPM:	Applicator (GPM)
1	Bug Prep Guns	Hydrominder Double	Soft Water	9	0
2	Open	Select Dilution Station:	Select Source:	0	0
3	Open	Select Dilution Station:	Select Source:	0	0
4	Open	Select Dilution Station:	Select Source:	0	0
5	Open	Select Dilution Station:	Select Source:	0	0
6	Open	Select Dilution Station:	Select Source:	0	0
7	Open	Select Dilution Station:	Select Source:	0	0
8	Open	Select Dilution Station:	Select Source:	0	0
9	Open	Select Dilution Station:	Select Source:	0	0
10	Open	Select Dilution Station:	Select Source:	0	0
11	Open	Select Dilution Station:	Select Source:	0	0
12	Open	Select Dilution Station:	Select Source:	0	0
13	Open	Select Dilution Station:	Select Source:	0	0
14	Open	Select Dilution Station:	Select Source:	0	0
15	Open	Select Dilution Station:	Select Source:	0	0
16	Open	Select Dilution Station:	Select Source:	0	0



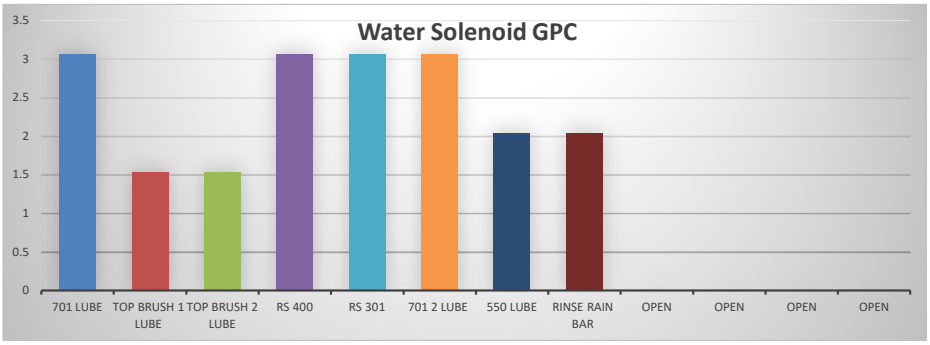
Section 2: Production Units - Water Use Estimate Data Input Fields

Explanatory Information:

Production equipment data is focused on back room pieces that are necessary for the operation of vehicle wash process but are not involved in any chemical application. Water valves are often used with reclaim water to provide additional wetting to vehicle surfaces and are accounted for individually.

Water Solenoid Valve

Unit #	Application	Select Water Type:	Applicator Restriction (GPM)	Unit #	Application	Select Water Type:	Applicator Restriction (GPM)
1	701 Lube	Reclaim	6	7	550 Lube	Reclaim	4
2	Top Brush 1 lube	Reclaim	3	8	Rinse Rain Bar	Hard Water	4
3	Top Brush 2 lube	Hard Water	3	9	Open	Select Source:	0
4	RS 400	Reclaim	6	10	Open	Select Source:	0
5	RS 301	Reclaim	6	11	Open	Select Source:	0
6	701 2 Lube	Reclaim	6	12	Open	Select Source:	0



Attachment "G"

SITE INPUT

Reverse Osmosis System

Explanatory Information:

Reverse Osmosis systems produce RO water and RO Reject Water based on an hourly maximum output. This water is stored in tanks and then pumped to the bay for application. The actual amount of water used is most directly related to the quantity/type of application devices, volume of vehicles washed, chain speed and vehicle length. For this reason the calculation is based on use rather than production capacity. RO Reject water is by-product of the process. Whether the reject water is used during the wash process or goes to drain it is also accounted for in total water usage statistics.

RO System Production Rate	80%
RO System Water Source	Soft Water

**Note: RO Systems range from 50-80% RO production rates, if unsure use 60%.*

Unit #	Application	Applicator Restriction (GPM)
1	Rain Bar #2	4
2	Mirror Rinse #2	2
3	Select RO Applicator:	0
4	Select RO Applicator:	0
5	Select RO Applicator:	0
6	Select RO Applicator:	0

*Note #1: Rain Bars are typical rated between 4-8 GPM, if unsure use 6 GPM
*Note #2: Mirror Rinse Applicaters are typical rated 1-2 GPM, if unsure use 1.5

High Pressure Pumping Stations

Explanatory Information:

Pumping Stations are often supplied by reclaim water with hard city water being an alternate. The pump capacity is restricted by the application equipment in the bay so calculations are based on applicators, volume, chain speed and vehicle length. Applications include undercarriage wash, pre-rinse, side blasters, arches and trench flush systems (choose all that apply).

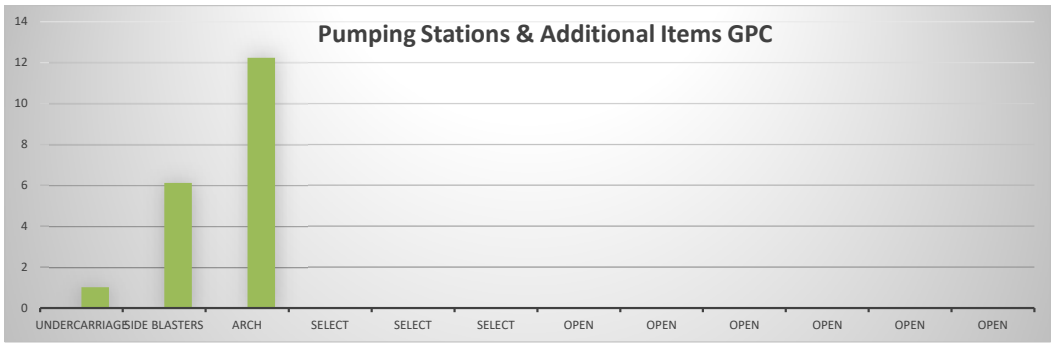
Unit #	Application	Select Water Type:	Pump Designation	Pump GPM (Capcity)	Applicator Restriction (GPM)
1	Undercarriage	Reclaim	#1	5	2
2	Side Blasters	Reclaim	#2	20	12
3	Arch	Reclaim	#3	35	24
4	Select	Select Source:	Select	0	0
5	Select	Select Source:	Select	0	0
6	Select	Select Source:	Select	0	0

Additional Items

Explanatory Information:

Any additonal equipment that has not already been accounted for may be entered into this section. Choose all that apply and use the "Applicator Restriction" column to accurately reflect the GPM capacity in the bay.

Unit #	Application	Select Water Type:	Applicator Restriction (GPM)
1	Open	Select	0
2	Open	Select	0
3	Open	Select	0
4	Open	Select	0
5	Open	Select	0
6	Open	Select	0



STATISTICAL MODELING

KPI Input Fields	Data Input
Expected Annual Tunnel Volume:	140,000
Conveyor Speed:	130
Average Length of Vehicle:	17
Average Operating Hours Per Day:	12
Water & Sewer Cost Per 1000 Gallons:	$15.00

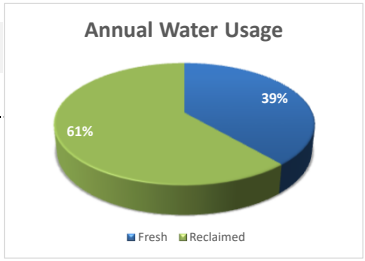
NCS NATIONAL CARWASH SOLUTIONS

CATEGORICAL USAGE STATS

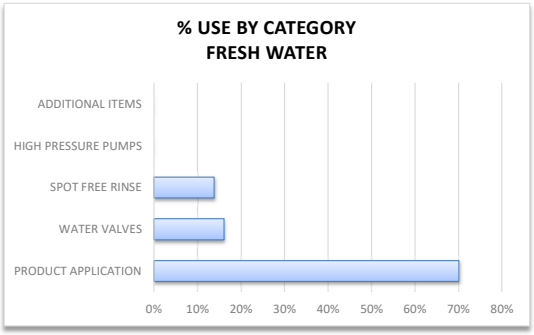
Explanatory Information:

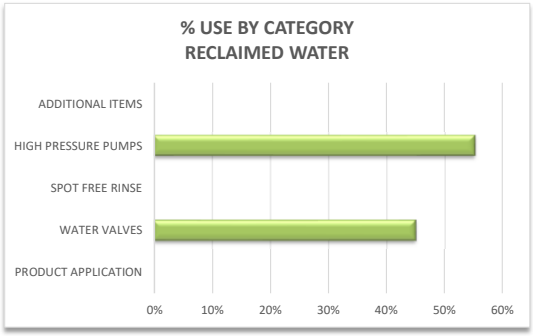
This data is used for many purposes; calculating water tap requirements, satisfying building or water departement requirements, and the sizing of reclamation systems or other equipment. Municipalities requirements account for water usage in gallonage or acre feet so both units are shown here and equivalent. In addition there are views into annual, monthly, daily volumes as well peak demand vs average.

ANNUAL WATER USAGE ESTIMATE	GALLONS	ACRE FEET	%
FRESH WATER - *FROM WATER UTILITY OR WELL	3,105,900	9.53	39%
RECLAIMED WATER - *ONSITE SYSTEM RE-USE	4,926,601	15.12	61%
TOTAL WATER USAGE	8,032,501	24.65	100%
FRESH WATER - *FROM WATER UTILITY OR WELL	3105900		
WATER & SEWER COST PER 1000 GALLONS	$ 15.00		
ANNUAL WATER & SEWER EXPENSE	$ 46,588.51		

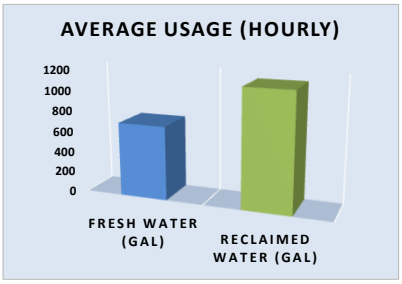


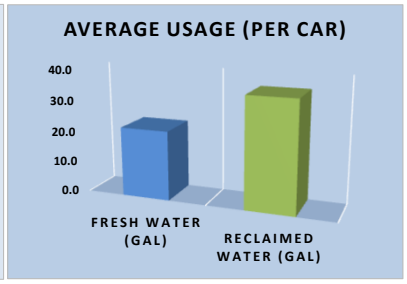
WATER USAGE BY CATEGORY	FRESH (GAL)	RECLAIM (GAL)	%
PRODUCT APPLICATION	2,177,700	-	27%
WATER VALVES	499,800	2,213,400	34%
SPOT FREE RINSE	428,400	-	5%
HIGH PRESSURE PUMPS	-	2,713,200	34%
ADDITIONAL ITEMS	-	-	0%

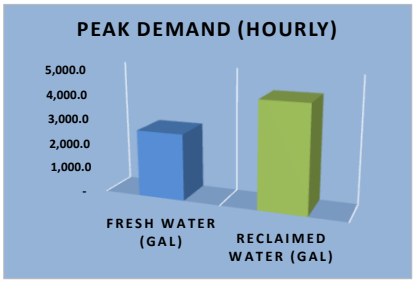




USAGE BREAKDOWN - PERIODIC VIEW







AVG. USAGE (HOURLY) - FRESH	709	AVERAGE USAGE (PER CAR) - FRESH	22	PEAK DEMAND (HOURLY) - FRESH	2,662
AVG. USAGE (HOURLY) - RECLAIMED	1125	AVERAGE USAGE (PER CAR) - RECLAIMED	35	PEAK DEMAND (HOURLY) - RECLAIMED	4,223

NOTES - AVERAGE HOURLY USAGE:
This data is built with the annual volume estimate filtered with hours of operation, water usage statistics and daily volume expectations based on conveyor speed.

NOTES - AVERAGE HOURLY USAGE:
Per car usage incorporates the gallon per minute data with average and gate times. Gate times derive from the conveyor speed and average length of vehicle to determine the amount of time each application will be turned on. This reduces the gallon per minute capacity of each application to the running

NOTES - AVERAGE HOURLY USAGE:
Peak demand shows the full potential of the car wash at maximum possible volume. This reflects the highest possible water requirement which is used for calculating flow rates on water taps, backflow preventors, and other vital system components.

CERTIFICATION:

I CERTIFY THAT EXISTING CONDITIONS SHOWN HEREON IS THE RESULT OF A FIELD SURVEY BY THIS OFFICE THAT HAS AN UNADJUSTED LINEAR ERROR OF CLOSURE WHICH EXCEEDS BOTH THE MINIMUM OF 1:10,000 AS DEFINED IN SECTION 503.04 OF THE NEW HAMPSHIRE CODE OF ADMINISTRATIVE RULES AND THE MINIMUM OF 1:15,000 AS DEFINED IN SECTION 4.2 OF THE N.H.L.S.A. ETHICS AND STANDARDS.

THIS SURVEY CONFORMS TO A CATEGORY 1 CONDITION 1 SURVEY AS DEFINED IN SECTION 4.1 OF THE N.H.L.S.A. ETHICS AND STANDARDS.

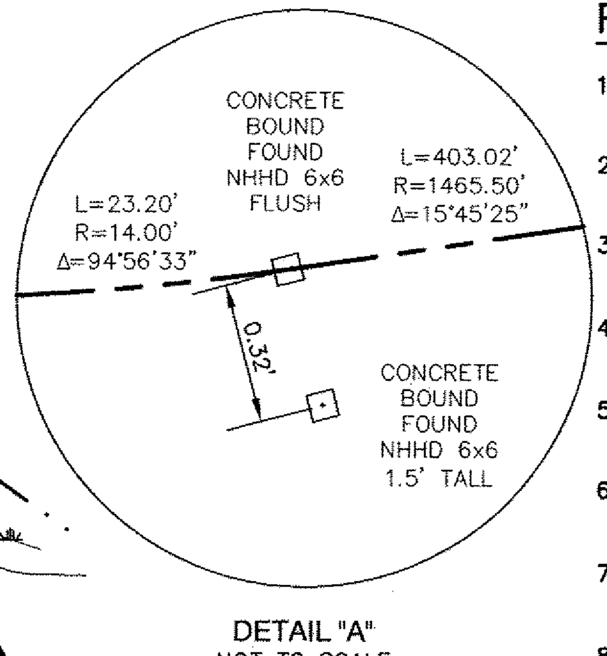
STATE OF NEW HAMPSHIRE LAND SURVEYOR No. 892 DAVID M. COLLIER — 4/18/18

DAVID M. COLLIER, LLS 892 — DATE: 4/18/18

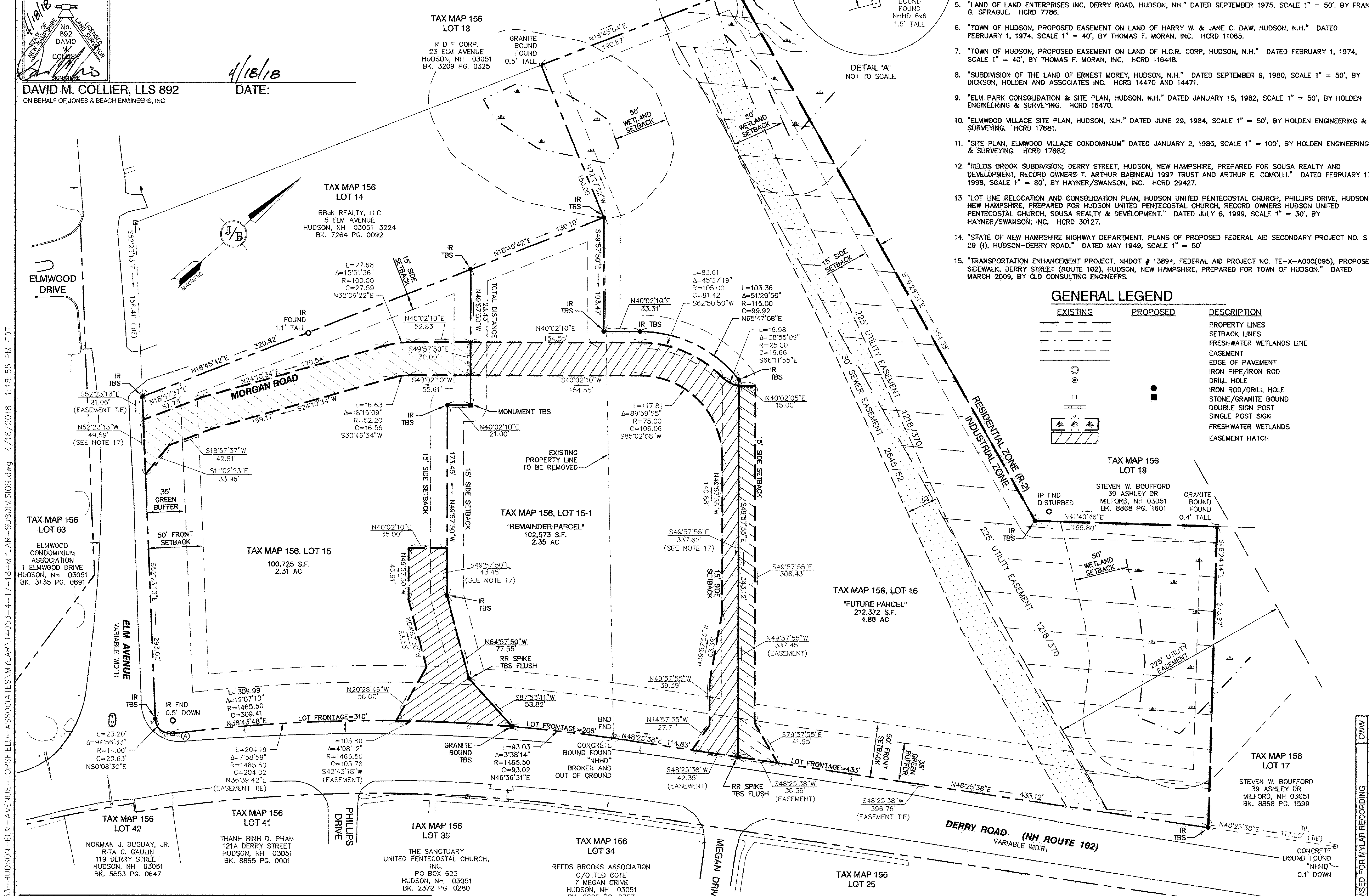
ON BEHALF OF JONES & BEACH ENGINEERS, INC.

LOT AREA CALCULATION TABLE

LOT #	TOTAL AREA	WETLAND AREA	AREA >25% SLOPE	BUILDABLE AREA	FRONTAGE
15	100,725 S.F. (2.31 AC)	N/A	N/A	100,725 S.F.	310'
15-1	102,573 S.F. (2.35 AC)	N/A	N/A	102,573 S.F.	208'
16	212,372 S.F. (4.88 AC)	18,040 S.F.	9,610 S.F.	184,722 S.F.	433'



DETAIL "A"
NOT TO SCALE



TAX MAP 156 LOT 13
R D F CORP. 23 ELM AVENUE HUDSON, NH 03051 BK. 3209 PG. 0325
GRANITE BOUND FOUND 0.5' TALL
IR FOUND LLS 921
50' WETLAND SETBACK
TAX MAP 156 LOT 14
RBJK REALTY, LLC 5 ELM AVENUE HUDSON, NH 03051-3224 BK. 7264 PG. 0092
ELMWOOD DRIVE
MORGAN ROAD
225' UTILITY EASEMENT
30' SEWER EASEMENT
RESIDENTIAL ZONE (R-2)
INDUSTRIAL ZONE
TAX MAP 156 LOT 63
ELMWOOD CONDOMINIUM ASSOCIATION 1 ELMWOOD DRIVE HUDSON, NH 03051 BK. 3135 PG. 0691
35' GREEN BUFFER
50' FRONT SETBACK
TAX MAP 156, LOT 15
100,725 S.F. 2.31 AC
TAX MAP 156, LOT 15-1
"REMAINDER PARCEL" 102,573 S.F. 2.35 AC
EXISTING PROPERTY LINE TO BE REMOVED
MONUMENT TBS
TAX MAP 156, LOT 16
"FUTURE PARCEL" 212,372 S.F. 4.88 AC
TAX MAP 156 LOT 18
STEVEN W. BOUFFORD 39 ASHLEY DR MILFORD, NH 03051 BK. 8868 PG. 1601
IP FND DISTURBED
GRANITE BOUND FOUND 0.4' TALL
ELM AVENUE VARIABLE WIDTH
LOT FRONTAGE=310'
LOT FRONTAGE=208'
LOT FRONTAGE=433'
TAX MAP 156 LOT 17
STEVEN W. BOUFFORD 39 ASHLEY DR MILFORD, NH 03051 BK. 8868 PG. 1599
TAX MAP 156 LOT 42
NORMAN J. DUGUAY, JR. RITA C. GAULIN 119 DERRY STREET HUDSON, NH 03051 BK. 5853 PG. 0647
TAX MAP 156 LOT 41
THANH BINH D. PHAM 121A DERRY STREET HUDSON, NH 03051 BK. 8865 PG. 0001
PHILLIPS DRIVE
TAX MAP 156 LOT 35
THE SANCTUARY UNITED PENTECOSTAL CHURCH, INC. PO BOX 623 HUDSON, NH 03051 BK. 2372 PG. 0280
TAX MAP 156 LOT 34
REEDS BROOKS ASSOCIATION C/O TED COTE 7 MEGAN DRIVE HUDSON, NH 03051 BK. 6025 PG. 0753
MEGAN DRIVE
TAX MAP 156 LOT 25
REEDS BROOKS ASSOCIATION C/O TED COTE 7 MEGAN DRIVE HUDSON, NH 03051 BK. 8103 PG. 1942
DERRY ROAD (NH ROUTE 102) VARIABLE WIDTH
CONCRETE BOUND FOUND "NHHD" BROKEN AND OUT OF GROUND
CONCRETE BOUND FOUND "NHHD" 0.1' DOWN
RR SPIKE TBS FLUSH
GRANITE BOUND TBS

GRAPHIC SCALE

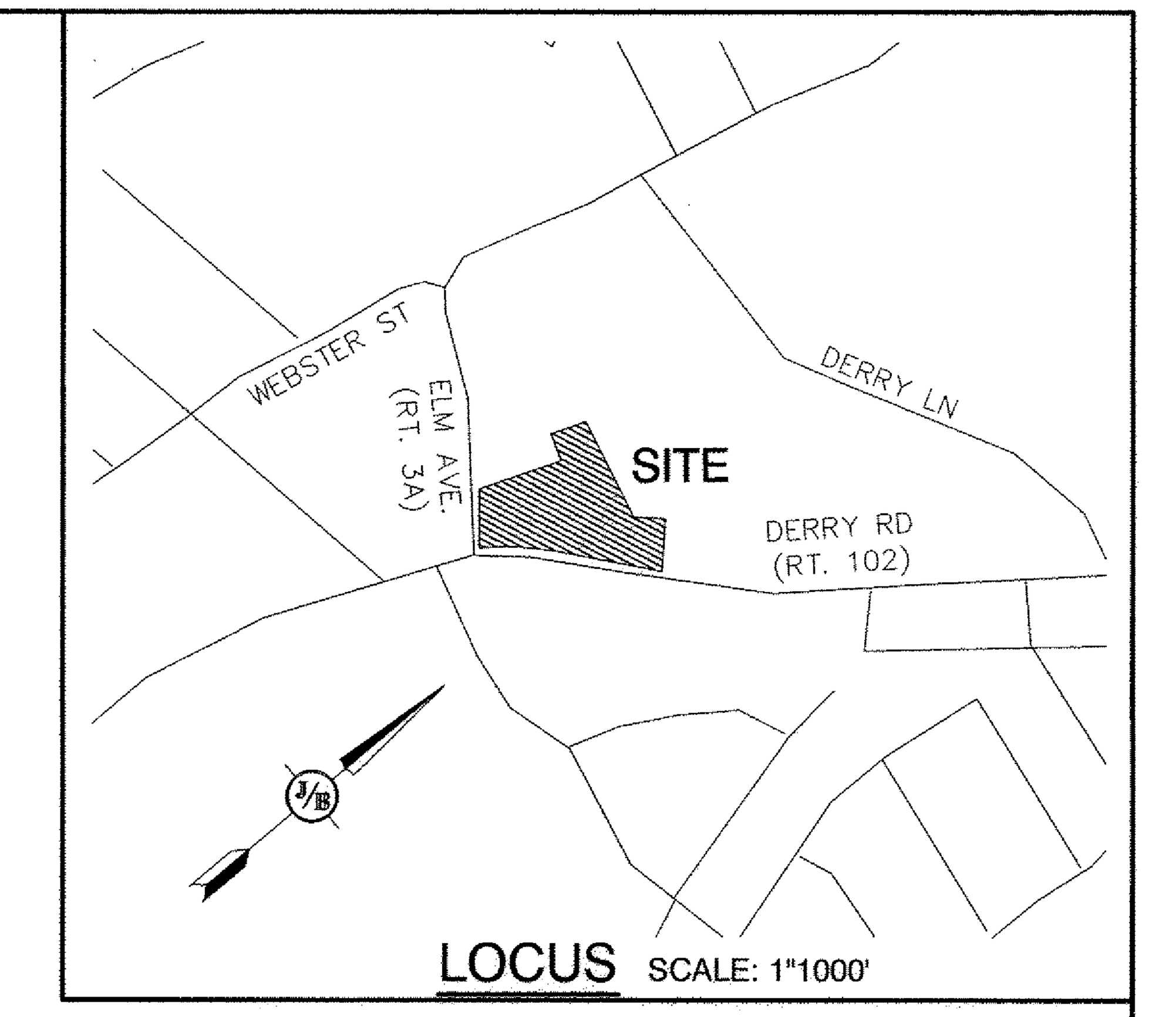
(IN FEET)
1 inch = 50 ft.

PLAN REFERENCES

1. "PLAN OF LAND OF ARTHUR KASHULINES JR., DERRY ROAD, HUDSON, N.H." DATED AUGUST 1955, SUBDIVIDED JULY 1956, BY NED SPAULDING, CIVIL ENGINEER. HCRD 2044.
2. "HUDSON INDUSTRIAL ASSOCIATES ET ALS, ELM AVENUE, HUDSON, N.H." DATED MARCH 1960, SCALE 1" = 50' BY NED SPAULDING, CIVIL ENGINEER. HCRD 1899.
3. "PLAN OF LAND OF ARTHUR J. & IDA E. KASHULINES, DERRY ROAD, HUDSON N.H." DATED JULY 1966, SCALE 1" = 50', BY A. E. MAYNARD CIVIL ENG. HCRD 3372 AND HCRD 3401.
4. "PLAN OF LAND IN HUDSON, N.H. BELONGING TO HAROLD G. & MAUDE E. FRENCH" DATED AUGUST 14, 1969, SCALE 1" = 100', BY HAMILTON ENGINEERING ASSOC. INC. HCRD 4915.
5. "LAND OF LAND ENTERPRISES INC, DERRY ROAD, HUDSON, NH." DATED SEPTEMBER 1975, SCALE 1" = 50', BY FRANK G. SPRAGUE. HCRD 7786.
6. "TOWN OF HUDSON, PROPOSED EASEMENT ON LAND OF HARRY W. & JANE C. DAW, HUDSON, N.H." DATED FEBRUARY 1, 1974, SCALE 1" = 40', BY THOMAS F. MORAN, INC. HCRD 11065.
7. "TOWN OF HUDSON, PROPOSED EASEMENT ON LAND OF H.C.R. CORP, HUDSON, N.H." DATED FEBRUARY 1, 1974, SCALE 1" = 40', BY THOMAS F. MORAN, INC. HCRD 116418.
8. "SUBDIVISION OF THE LAND OF ERNEST MOREY, HUDSON, N.H." DATED SEPTEMBER 9, 1980, SCALE 1" = 50', BY DICKSON, HOLDEN AND ASSOCIATES INC. HCRD 14470 AND 14471.
9. "ELM PARK CONSOLIDATION & SITE PLAN, HUDSON, N.H." DATED JANUARY 15, 1982, SCALE 1" = 50', BY HOLDEN ENGINEERING & SURVEYING. HCRD 16470.
10. "ELMWOOD VILLAGE SITE PLAN, HUDSON, N.H." DATED JUNE 29, 1984, SCALE 1" = 50', BY HOLDEN ENGINEERING & SURVEYING. HCRD 17681.
11. "SITE PLAN, ELMWOOD VILLAGE CONDOMINIUM" DATED JANUARY 2, 1985, SCALE 1" = 100', BY HOLDEN ENGINEERING & SURVEYING. HCRD 17682.
12. "REEDS BROOK SUBDIVISION, DERRY STREET, HUDSON, NEW HAMPSHIRE, PREPARED FOR SOUSA REALTY AND DEVELOPMENT, RECORD OWNERS T. ARTHUR BABINEAU 1997 TRUST AND ARTHUR E. COMOLLI." DATED FEBRUARY 17, 1998, SCALE 1" = 80', BY HAYNER/SWANSON, INC. HCRD 29427.
13. "LOT LINE RELOCATION AND CONSOLIDATION PLAN, HUDSON UNITED PENTECOSTAL CHURCH, PHILLIPS DRIVE, HUDSON, NEW HAMPSHIRE, PREPARED FOR HUDSON UNITED PENTECOSTAL CHURCH, RECORD OWNERS HUDSON UNITED PENTECOSTAL CHURCH, SOUSA REALTY & DEVELOPMENT." DATED JULY 6, 1999, SCALE 1" = 30', BY HAYNER/SWANSON, INC. HCRD 30127.
14. "STATE OF NEW HAMPSHIRE HIGHWAY DEPARTMENT, PLANS OF PROPOSED FEDERAL AID SECONDARY PROJECT NO. S 29 (I), HUDSON-DERRY ROAD." DATED MAY 1949, SCALE 1" = 50'
15. "TRANSPORTATION ENHANCEMENT PROJECT, NHDOT # 13894, FEDERAL AID PROJECT NO. TE-X-A000(095), PROPOSED SIDEWALK, DERRY STREET (ROUTE 102), HUDSON, NEW HAMPSHIRE, PREPARED FOR TOWN OF HUDSON." DATED MARCH 2009, BY CLD CONSULTING ENGINEERS.

GENERAL LEGEND

EXISTING	PROPOSED	DESCRIPTION
		PROPERTY LINES
		SETBACK LINES
		FRESHWATER WETLANDS LINE
		EASEMENT
		EDGE OF PAVEMENT
		IRON PIPE/IRON ROD
		DRILL HOLE
		IRON ROD/DRILL HOLE
		STONE/GRANITE BOUND
		DOUBLE SIGN POST
		SINGLE POST SIGN
		FRESHWATER WETLANDS
		EASEMENT HATCH



LOCUS SCALE: 1"1000'

NOTES:

1. THE INTENT OF THIS PLAN IS TO SHOW THE SUBDIVISION OF HUDSON TAX MAP 156, LOTS 15 AND 16.
2. ZONING DISTRICT: INDUSTRIAL
   LOT AREA MINIMUM = 30,000 SF (W/ WATER & SEWER)
   LOT FRONTAGE MINIMUM = 150'
   BUILDING SETBACKS (MINIMUM):
   FRONT SETBACK = 50' — SIDE SETBACK = 15'
   REAR SETBACK = 15' — WETLAND BUFFER = 50'
3. VERTICAL DATUM NGVD 29. HORIZONTAL DATUM MAGNETIC.
4. DEED REFERENCE: LOT 15 9033/2414 LOT 16 9033/2465.
5. SUBJECT PROPERTY IS NOT LOCATED WITHIN FEDERALLY DESIGNATED FLOOD HAZARD ZONE. REFERENCE FEMA COMMUNITY PANEL NUMBERS 33011C0512D DATED SEPTEMBER 25, 2009 AND 33011C0514E DATED APRIL 18, 2011.
6. IRON RODS WITH SURVEY CAPS TO BE SET AT ALL PROPERTY CORNERS AND ANGLE POINTS, UNLESS OTHERWISE INDICATED. ALL MONUMENTS SET ARE 5/8" IRON RODS WITH ALUMINUM CAPS MARKED "JONES & BEACH ENGINEERS BOUNDARY, DO NOT DISTURB, STRATHAM, N.H." AS SHOWN.
7. GRANITE BOUNDS TO BE SET AT ALL ROADWAY POINTS OF CURVATURE AND TANGENCY.
8. WETLANDS WERE DELINEATED BY CHRISTOPHER ALBERT OF JONES & BEACH DURING SPRING, 2015, IN ACCORDANCE WITH THE FOLLOWING GUIDANCE DOCUMENTS:
   a. THE CORPS OF ENGINEERS FEDERAL MANUAL FOR IDENTIFYING AND DELINEATING JURISDICTIONAL WETLANDS.
   b. THE NORTH CENTRAL & NORTHEAST REGIONAL SUPPLEMENT TO THE FEDERAL MANUAL.
   c. THE CURRENT VERSION OF THE FIELD INDICATORS FOR IDENTIFYING HYDRIC SOILS IN NEW ENGLAND, AS PUBLISHED BY THE NEW ENGLAND INTERSTATE WATER POLLUTION CONTROL COMMISSION AND/OR THE CURRENT VERSION OF THE FIELD INDICATORS OF HYDRIC SOILS IN THE UNITED STATES, AS PUBLISHED BY THE USDA, NRCS, AS APPROPRIATE.
   d. THE CURRENT NATIONAL LIST OF PLANT SPECIES THAT OCCUR IN WETLANDS, AS PUBLISHED BY THE US FISH AND WILDLIFE SERVICE.
9. LANDOWNERS ARE RESPONSIBLE FOR COMPLYING WITH ALL APPLICABLE LOCAL, STATE AND FEDERAL WETLAND REGULATIONS, INCLUDING PERMITTING REQUIRED UNDER THESE REGULATIONS.
10. ALL BOOK AND PAGE NUMBERS REFER TO THE HILLSBOROUGH COUNTY REGISTRY OF DEEDS.
11. THE TAX MAP AND LOT NUMBERS AND ABUTTING OWNERS ARE BASED ON THE TOWN OF HUDSON TAX RECORDS AND ARE SUBJECT TO CHANGE.
12. RESEARCH WAS PERFORMED AT THE TOWN OF HUDSON ASSESSORS OFFICE, THE HILLSBOROUGH COUNTY REGISTRY OF DEEDS, AND THE NEW HAMPSHIRE DEPARTMENT OF TRANSPORTATION DISTRICT 5 OFFICE.
13. THIS SURVEY IS NOT A CERTIFICATION TO OWNERSHIP OR TITLE OF LANDS SHOWN. OWNERSHIP AND ENCUMBRANCES ARE MATTERS OF TITLE EXAMINATION NOT OF A BOUNDARY SURVEY. THE INTENT OF THIS PLAN IS TO RETRACE THE BOUNDARY LINES OF DEEDS REFERENCED HEREON. OWNERSHIP OF ADJOINING PROPERTIES IS ACCORDING TO ASSESSOR'S RECORDS. THIS PLAN MAY OR MAY NOT INDICATE ALL ENCUMBRANCES EXPRESSED, IMPLIED, OR PRESCRIPTIVE.
14. ANY USE OF THIS PLAN AND OR ACCOMPANYING DESCRIPTIONS SHOULD BE DONE WITH LEGAL COUNSEL TO BE CERTAIN THAT TITLES ARE CLEAR, THAT INFORMATION IS CURRENT, AND THAT ANY NECESSARY CERTIFICATES ARE IN PLACE FOR A PARTICULAR CONVEYANCE, OR OTHER USES.
15. CERTAIN DATA HEREON MAY VARY FROM RECORDED DATA DUE TO DIFFERENCES IN DECLINATION, ORIENTATION, AND METHODS OF MEASUREMENT.
16. SURVEY TIE LINES SHOWN HEREON ARE NOT BOUNDARY LINES. THEY SHOULD ONLY BE USED TO LOCATE THE PARCEL SURVEYED FROM THE FOUND MONUMENTS SHOW AND LOCATED BY THIS SURVEY.
17. ALL PROPOSED LOTS ARE SUBJECT TO THE DECLARATION OF COVENANTS AND RECIPROCAL EASEMENT AGREEMENT TO BE FILED WITH THE HILLSBOROUGH COUNTY REGISTRY OF DEEDS.
18. THE BOUNDARY AS SHOWN HEREON IS BASED ON PHYSICAL EVIDENCE FOUND IN THE FIELD, RECORD EVIDENCE AS REFERENCED AND OTHER RECORD EVIDENCE FOUND DURING OUR FIELD AND RESEARCH INVESTIGATIONS AND IS CERTIFIED BY THE SEAL AND CERTIFICATION INDICATED HEREON.

APPROVED BY THE HUDSON, NH PLANNING BOARD

DATE OF MEETING: 3-14-18

SIGNATURE: ______ DATE: 4-25-18

SIGNATURE: ______ DATE: 4/25/18

SUBDIVISIONS ARE VALID FOR TWO YEARS FROM THE DATE OF PLANNING BOARD MEETING FINAL APPROVAL. FOR AN APPLICANT TO GAIN AN EXEMPTION FROM ALL SUBSEQUENT CHANGES IN SUBDIVISION REGULATIONS, SITE PLAN REGULATIONS AND CHANGES TO THE ZONING ORDINANCE, SEE NH RSA 674:39

PURSUANT TO THE SUBDIVISION REGULATIONS OF THE HUDSON PLANNING BOARD, THE SUBDIVISION APPROVAL GRANTED HEREIN EXPIRES TWO YEARS FROM DATE OF APPROVAL.

OWNER

SIGNATURE: ______
FOR HUDSON ENTERPRISES, LLC

DATE: 4-19-2018

REV	DATE	REVISION	BY
2	4/17/18	REVISED FOR MYLAR RECORDING	CWW
1	4/3/18	REVISED PER PLANNING BOARD REVIEW	GDR

SUBDIVISION PLAN

"120 DERRY ROAD"
DERRY ROAD (RT. 102), HUDSON, NH
MAP 156, LOTS 15 & 16
TOTAL PROJECT AREA: 415,670 S.F. (9.54 AC)

Owner of Record:	Applicant:
HUDSON ENTERPRISES, LLC	HUDSON ENTERPRISES, LLC
7 THORNTON STREET, SEABROOK, NH 03874	7 THORNTON STREET, SEABROOK, NH 03874

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

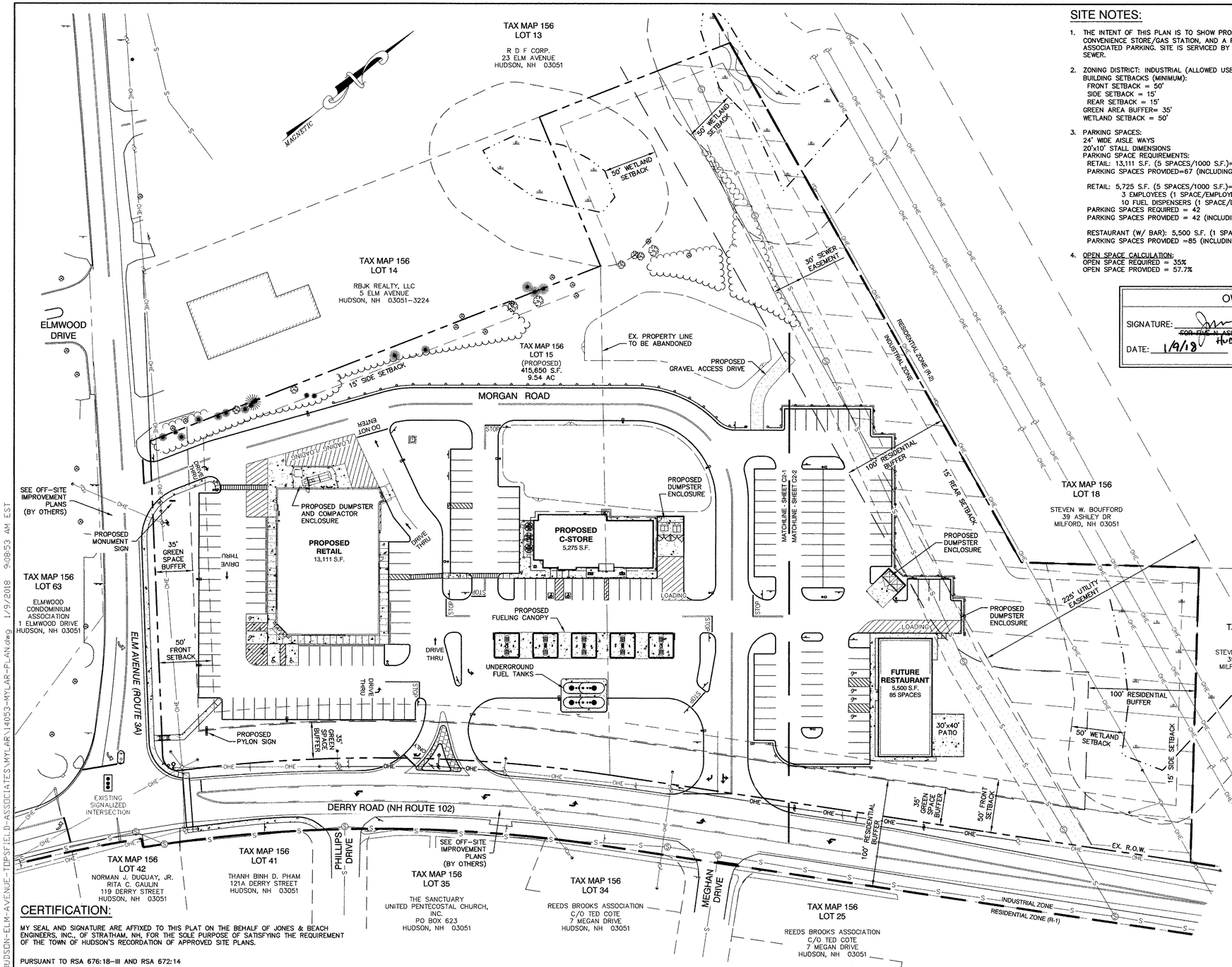
DRAWING NO. S1

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.

DATE: 9/22/17	DESIGN: ISM	DRAFT: ISM	CHECKED: DMC
DRAWING NAME: 14053-SUBDIVISION.dwg			
PROJECT No.: 14053	SCALE: AS NOTED	SHEET 1 OF 1	

F:\Land Projects 3\14053-HUDSON-ELM-AVENUE-TOPSFIELD-ASSOCIATES\MYLAR\14053-4-17-18-MYLAR-SUBDIVISION.dwg 4/18/2018 1:18:55 PM EDT

PLAN # 39726



SITE NOTES:

1. THE INTENT OF THIS PLAN IS TO SHOW PROPOSED A 13,111 S.F. PHARMACY, 5,725 S.F. CONVENIENCE STORE/GAS STATION, AND A FUTURE 5,500 S.F. RESTAURANT WITH ASSOCIATED PARKING. SITE IS SERVICED BY ELECTRIC, GAS, AND MUNICIPAL WATER & SEWER.

2. ZONING DISTRICT: INDUSTRIAL (ALLOWED USE)
   BUILDING SETBACKS (MINIMUM):
   FRONT SETBACK = 50'
   SIDE SETBACK = 15'
   REAR SETBACK = 15'
   GREEN AREA BUFFER= 35'
   WETLAND SETBACK = 50'

3. PARKING SPACES:
   24' WIDE AISLE WAYS
   20'x10' STALL DIMENSIONS
   PARKING SPACE REQUIREMENTS:
   RETAIL: 13,111 S.F. (5 SPACES/1000 S.F.)= 67 SPACES
   PARKING SPACES PROVIDED=67 (INCLUDING 4 HANDICAP)

   RETAIL: 5,725 S.F. (5 SPACES/1000 S.F.)= 29 SPACES
   3 EMPLOYEES (1 SPACE/EMPLOYEE) = 3 SPACES
   10 FUEL DISPENSERS (1 SPACE/DISPENSER) = 10 SPACES
   PARKING SPACES REQUIRED = 42
   PARKING SPACES PROVIDED = 42 (INCLUDING 2 HANDICAP)

   RESTAURANT (W/ BAR): 5,500 S.F. (1 SPACES/100 S.F.)= 55 SPACES
   PARKING SPACES PROVIDED =85 (INCLUDING 4 HANDICAP)

4. OPEN SPACE CALCULATION:
   OPEN SPACE REQUIRED = 35%
   OPEN SPACE PROVIDED = 57.7%

OWNER	
SIGNATURE:	~~FOR FIVE N ASSOCIATES, PETER Q. NASH, TRUSTEE~~ HUDSON ENTERPRISES, LLC
DATE:	1/9/18

5. THIS PLAN SET HAS BEEN PREPARED BY JONES & BEACH ENGINEERS, INC., FOR MUNICIPAL AND STATE APPROVALS AND FOR CONSTRUCTION BASED ON DATA OBTAINED FROM ON-SITE FIELD SURVEY AND EXISTING MUNICIPAL RECORDS. THROUGHOUT THE CONSTRUCTION PROCESS, THE CONTRACTOR SHALL INFORM THE ENGINEER IMMEDIATELY OF ANY FIELD DISCREPANCY FROM DATA AS SHOWN ON THE DESIGN PLANS, INCLUDING ANY UNFORESEEN CONDITIONS, SUBSURFACE OR OTHERWISE, FOR EVALUATION AND RECOMMENDATIONS. ANY CONTRADICTION BETWEEN ITEMS ON THIS PLAN/PLAN SET, OR BETWEEN THE PLANS AND ON-SITE CONDITIONS, MUST BE RESOLVED BEFORE RELATED CONSTRUCTION HAS BEEN INITIATED. CONTRACTOR TO ALWAYS CONTACT DIG SAFE PRIOR TO DIGGING ONSITE OR OFFSITE TO ENSURE SAFETY AND OBEY THE LAW.
6. ALL CONSTRUCTION SHALL CONFORM TO TOWN STANDARDS AND REGULATIONS, AND NHDOT STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION, WHICHEVER IS MORE STRINGENT.
7. SUBJECT PROPERTY IS NOT LOCATED WITHIN FEDERALLY DESIGNATED FLOOD HAZARD ZONE. REFERENCE FEMA COMMUNITY PANEL NUMBERS 33011C0512D DATED SEPTEMBER 25, 2009 AND 33011C0514E DATED APRIL 18, 2011.
8. LANDOWNERS ARE RESPONSIBLE FOR COMPLYING WITH ALL APPLICABLE LOCAL, STATE AND FEDERAL WETLAND REGULATIONS, INCLUDING PERMITTING REQUIRED UNDER THESE REGULATIONS.
9. ALL CONSTRUCTION ACTIVITIES SHALL BE PERFORMED IN ACCORDANCE WITH THE STORMWATER POLLUTION PREVENTION PLAN (S.W.P.P.P.). THIS DOCUMENT IS TO BE KEPT ONSITE AT ALL TIMES AND UPDATED AS REQUIRED.
10. PRIOR TO THE START OF CONSTRUCTION, THE CONTRACTOR SHALL COORDINATE WITH THE ENGINEER, ARCHITECT AND/OR OWNER, IN ORDER TO OBTAIN AND/OR PAY ALL THE NECESSARY LOCAL PERMITS, FEES AND BONDS.
11. ALL PROPOSED SIGNAGE SHALL CONFORM WITH THE TOWN ZONING REGULATIONS, UNLESS A VARIANCE IS OTHERWISE REQUESTED.
12. ALL SIGNAGE AND PAVEMENT MARKINGS SHALL BE IN ACCORDANCE WITH THE LATEST EDITION OF THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (M.U.T.C.D.) AND NHDOT STANDARDS AND SPECIFICATIONS (NON-REFLECTORIZED PAVEMENT MARKINGS), UNLESS OTHERWISE NOTED.
13. ALL PARKING STALLS SHALL BE SEPARATED USING 4" WIDE SOLID STRIPES. STRIPING SHALL HAVE TWO COATS OF PAINT, ALKYD BASIN SYNTHETIC RESIN, FEDERAL SPECIFICATION TTP-115 TYPE 1, IN A COLOR OF WHITE.
14. ALL STOP BARS SHALL BE 18" IN WIDTH IN A COLOR OF WHITE; ALL TRAFFIC ARROWS SHALL BE PAINTED IN A COLOR OF WHITE.
15. ALL BUILDING DIMENSIONS SHALL BE VERIFIED WITH THE ARCHITECTURAL AND STRUCTURAL PLANS PROVIDED BY THE OWNER. ANY DISCREPANCIES SHOULD BE BROUGHT TO THE ATTENTION OF THE ENGINEER AND OWNER PRIOR TO THE START OF CONSTRUCTION. BUILDING DIMENSIONS AND AREAS TO BE TO OUTSIDE OF MASONRY, UNLESS OTHERWISE NOTED.
16. ALL OUTDOOR DISPLAY AREAS SHALL BE MAINTAINED IN A NEAT AND ORDERLY FASHION.
17. ALL OUTDOOR DISPLAY AREAS ALONG SIDEWALK SHALL BE MAINTAINED TO PROVIDE A MINIMUM UNOBSTRUCTED WIDTH OF FIVE (5) FEET ALONG THE ENTIRE LENGTH OF THE SIDEWALK, AND AT EMERGENCY EGRESS DOORS FOR PEDESTRIAN AND EMERGENCY ACCESS AT ALL TIMES.
18. SNOW TO BE STORED AT EDGE OF PAVEMENT AND IN AREAS SHOWN ON THE PLANS, OR TRUCKED OFFSITE TO AN APPROVED SNOW DUMPING LOCATION.
19. HOURS OF REFUSE REMOVAL SHALL BE EXCLUSIVE TO THE HOURS BETWEEN 7:00 A.M. AND 7:00 P.M. MONDAY THROUGH SATURDAY AND PROHIBITED ON SUNDAY.
20. ALL CONSTRUCTION ACTIVITIES SHALL CONFORM TO LABOR OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION (OSHA) RULES AND REGULATIONS.
21. HANDICAP PARKING SPACES, RAMPS AND BUILDING ACCESS SHALL COMPLY WITH ADA REGULATIONS.
22. NO OFF-SITE PARKING AND/OR LOADING PERMITTED FOR THIS PROPOSED SITE DEVELOPMENT.
23. THERE SHALL BE NO OUTSIDE STORAGE OF FLAMMABLE OR HAZARDOUS GASSES, LIQUIDS OR MATERIALS OVER 2,000 GALLONS OR GREATER.
24. THIS PROJECT SHALL BE MANAGED TO MEET THE REQUIREMENTS AND INTENT OF RSA 430:53 AND AGR 3800 RELATIVE TO INVASIVE SPECIES.
25. DUST SHALL BE CONTROLLED I ACCORDANCE WITH ENV-A 1000.
26. A CONDITION OF SITE PLAN APPROVAL BY THE TOWN OF HUDSON PLANNING BOARD WILL BE A SUBDIVISION PLAN DEMONSTRATING THE CONSOLIDATION OF LOTS 15 & 16.
27. THE TOWN OF HUDSON 2006 MASTER PLAN DOES NOT CLASSIFY THE ELM AVE/DERRY ROAD INTERSECTION AS A RECOMMENDED HIGHWAY IMPROVEMENT PROJECT.
28. PER THE TRAFFIC IMPACT STUDY BY VANESSE & ASSOCIATES, INC., DATED JULY 2017, SIGHT DISTANCES AT THE THREE PROPOSED DRIVEWAY LOCATIONS WILL EXCEED 500'.
29. HOURS OF OPERATION: PROPOSED RETAIL: 8am – 9pm
    PROPOSED C-STORE/FUELING STATION: 24 HOURS
    PROPOSED RESTAURANT: 11am – 11pm
30. CONTRACTOR SHALL INSTALL A 6' HIGH WHITE VINYL FENCE ON THE BACKSIDE OF THE PROPOSED GUARDRAIL FOR THE RESTAURANT PARKING LOT. THE FENCE CAN BE MOUNTED DIRECTLY TO THE GUARDRAIL POST OR INSTALLED WITH MIN. 4' EMBEDMENT.

CERTIFICATION:

MY SEAL AND SIGNATURE ARE AFFIXED TO THIS PLAT ON THE BEHALF OF JONES & BEACH ENGINEERS, INC., OF STRATHAM, NH, FOR THE SOLE PURPOSE OF SATISFYING THE REQUIREMENT OF THE TOWN OF HUDSON'S RECORDATION OF APPROVED SITE PLANS.

PURSUANT TO RSA 676:18-III AND RSA 672:14
I CERTIFY THAT THIS SURVEY PLAT IS NOT A SUBDIVISION PURSUANT TO THIS TITLE AND THAT THE LINES OF STREETS AND WAYS SHOWN ARE THOSE OF PUBLIC OR PRIVATE STREETS OR WAYS ALREADY ESTABLISHED AND THAT NO NEW WAYS ARE SHOWN.

1/9/18
STATE OF NEW HAMPSHIRE No. 892 DAVID M. COLLIER LICENSED LAND SURVEYOR
SIGNATURE

DAVID M. COLLIER, LLS 892 — DATE: 1/9/18
ON BEHALF OF JONES & BEACH ENGINEERS, INC.

STATE OF NEW HAMPSHIRE BARRY W. GIER No. 12886 LICENSED PROFESSIONAL ENGINEER

APPROVED BY THE HUDSON, NH PLANNING BOARD	
DATE OF MEETING: 10-11-17	
SIGNATURE: ~~Geraldine Thomas~~ DATE: 1-10-18	
SIGNATURE: ~~Will Collins~~ DATE: 1/10/18	
SITE PLANS ARE VALID FOR ONE YEAR FROM THE DATE OF PLANNING BOARD MEETING FINAL APPROVAL. FINAL APPROVAL COMMENCES AT THE PLANNING BOARD MEETING DATE AT WHICH THE PLAN RECEIVES FINAL APPROVAL.	PURSUANT TO THE SITE REVIEW REGULATIONS OF THE HUDSON PLANNING BOARD, THE SITE PLAN APPROVAL GRANTED HEREIN EXPIRES ONE YEAR FROM DATE OF APPROVAL.

GRAPHIC SCALE
50 0 25 50 100 200
(IN FEET)
1 inch = 50 ft.

REV.	DATE	REVISION	BY
8	1/9/18	ADDED ROAD NAME	MJS
7	12/12/17	REVISED FOR RECORDING	DMC
6	11/17/17	REV. RETAIL PAD SITE DESIGN & DETAILS	ISM
5	11/9/17	MINOR REVISIONS AROUND 13,111 S.F. RETAIL BLDG	ISM
4	10/11/17	REVISED PER AoT COMMENTS	ISM
3	10/5/17	ISSUED TO NHDES FOR SEWER PERMIT	ISM

OVERALL SITE PLAN

"120 DERRY ROAD"
DERRY ROAD (RT. 102), HUDSON, NH
MAP 156, LOTS 15 & 16
TOTAL PROJECT AREA: 415,650 S.F. (9.54 AC)

Owner of Record:	Applicant:
FIVE N ASSOCIATES PETER Q. NASH, TRUSTEE 91 AMHERST STREET NASHUA, NH 03064	HUDSON ENTERPRISES, LLC 7 SWAIN DRIVE, HAMPTON FALLS, NH 03844

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

DRAWING NO. C2

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.

DATE: 8/14/17	DESIGN: BWG	DRAFT: ISM	CHECKED: WGM
DRAWING NAME: 14053-PLAN.dwg			
PROJECT No.: 14053	SCALE: AS NOTED	SHEET 5 OF 32	

Plan # 39564

F:\Land Projects 3\14053-HUDSON-ELM-AVENUE-TOPSFIELD-ASSOCIATES\MYLAR\14053-MYLAR-PLAN.dwg 1/9/2018 9:08:53 AM EST

11/11/25

To the Honorable Members of the Hudson NH Planning Board,

Petition Title: OPPOSE the Proposed Car Wash Development at 9 Morgan Road, Hudson NH, Map 156/Lot 016 due to Excessive Noise, Traffic and Negative Community Impact

We, the undersigned residents and property owners of The Village at Reeds Brook respectfully submit this petition to voice our strong opposition to the proposed construction and operation of a commercial car wash facility at the intersection of 9 Morgan Road next to the Cumberland Farms and CVS.

The proposed development poses significant threats to our neighborhood's quality of life, public health, and property values, primarily due to the anticipated excessive noise pollution, increased traffic congestion, potential increased lighting and extended hours of operation.

The Issue and Its Importance

The proposed location for the car wash is in close proximity to a residential area. Commercial car washes are known to generate significant noise from various sources including high-powered blowers (air dryers), vacuum stations, high-pressure water jets, and customer activities (loud music, conversations, rumbling engines and at some places an area for people to gather and hang out). This constant, persistent mechanical noise daily, especially during evening and night-time hours, will cause significant disruption to the peace and tranquility of our homes

Excessive noise pollution is a public health concern linked to sleep disturbances, stress, and other health issues, all of which compromise our quality of life. A commercial operation of this nature, with potential operating hours extending late into the night or even 24/7, is incompatible with the character and established quiet enjoyment of our 55 plus residential retirement community that was established over 20 years ago.

Supporting Evidence and Arguments

- **Violation of Noise Ordinances:** The operation is likely to exceed the local noise ordinances for a residential boundary line, even with noise-dampening technology, due to the inherent nature of the business.
- **Proximity to Homes:** The developer may be seeking a variance to reduce the standard setback from residential properties. We urge you to enforce existing zoning and setback requirements to protect residents from high level noise and activity.
- **Traffic Concerns:** The increased flow of traffic, including vehicles entering and exiting the facility at all hours, will exacerbate existing congestion and noise.
- **Incompatible Land Use:** This development does not align with the town's noise ordinances especially near residential houses and communities
- **Requested Action**
    - We, the undersigned, formally request that the Hudson NH Planning Board:

1. Deny the application along with that waivers submitted for the proposed car wash development at 9 Morgan Road, Hudson, NH 03051
2. If the Planning board does not deny the applicant then commission an independent, third-party noise study to accurately assess the full impact of the proposed facility on the surrounding residential area before any further consideration of the application.
3. Prioritize the health, well-being, and established quality of life of the residents over commercial interests that are incompatible with multiple elderly communities and family neighborhoods.

Your support in this matter is crucial to preserving the integrity and livability of our community. We urge you to listen to the valid concerns of your constituents.

Respectfully,

The Village at Reeds Brook

RECEIVED
NOV 12 2025
TOWN OF HUDSON
PLANNING DEPT.

Attachment "I"

We the undersigned residents of The Village at Reeds Brook of Amanda Drive, Katherine Court and Madeleine Court in Hudson NH, hereby support the petition to oppose the proposed car wash development at 9 Morgan Road, Hudson, NH 03051.

DATE:11/12/25

	NAME	ADDRESS	SIGNATURE
1	DAVID CROWELL	3 AMANDA DR	David Crowell
2	VERNON BELTZ	17 Amanda DR	Vernon C Beltz
3	Lucille GAGNON	19 AMANDA DR	Lucille Gagnon
4	Barbara Penney	25 Amanda Dr	Barbara J Penney
5	DENNIS HEROUX	26 AMANDA DRIVE	Dena Heroux
6	JOE FAZIO	1 MADELEINE DR.	Joe Fazio
7	Julia Hudon	3 Madeleine Ct	Julia Hudon
8	DAN PELLETIER	7 MADELEINE CT	Dan Pelletier
9	Sandra Pottle	8 Madeleine Ct	Sandra Pottle
10	ROSE BASILE	6 MADELEINE CT	Rose Basile
11	HELEN MARQUIS	4 MADELEINE CT	Helen M. Marquis
12	Judy Johnson	2 Madeleine Ct	Judy Johnson
13	TERESA MCCORMACK	15 AMANDA DR	Teresa McCormack
14	NANCY TOBI	13 AMANDA DR	N Tobi
15	Scott Martin	11 Amanda Dr	Scott Martin
16	Brian Rogers	9 Amanda Dr	Brian Rogers
17	CAROL BURNS	5 Katherine Ct	Carol Burns
18	Bob Rugglerio	1 AMANDA DRIVE	Bob Ruggiero
19	KATHY Moreau	4 Katherine Ct	Kathy Moreau
20	John Gonsalves	2 KATHERINE Ct	John Gonsalves
21	Elaine Cemorelis	6 Amanda Dr	E Cemorelis

Attachment "I"

We the undersigned residents of The Village at Reeds Brook of Amanda Drive, Katherine Court and Madeleine Court in Hudson NH, hereby support the petition to oppose the proposed car wash development at 9 Morgan Road, Hudson, NH 03051.

DATE:11/12/25

	NAME	ADDRESS	SIGNATURE
22	MARIE FERRIGNO	5 AMANDA DR	Marie F. Ferrigno
23			
24			
25			
26			
27			
28			
29			
30			

Attachment "I"

25 Bowes Circle

Hudson, NH 03051

November 10,2025

RECEIVED

NOV 12 2025

TOWN OF HUDSON
PLANNING DEPT.

TO: Town of Hudson Planning Board

ATTN: Bgradert@Hudsonnh.gov

Bdubowik@hudsonnh.gov

RE: Planning Board Meeting November 12, 2025

Subject: Washville Car Wash , Map 156, Lot016, 9 Morgan Rd. Hudson, NH

My name is Linda Patenaude, the current owner of 25 Bowes Circle in Hudson, NH 03051.

Unfortunately, I am unable to attend the Planning Board Meeting on Novemer 12, 2025 but as an abutter I have some concerns.

1) Currently the abutters on Bowes Circles hears all the delivery trucks and trash pick up vehicles that stop on Morgan Rd. that is quite disruptive.
2) I have been informed that no sound studies have been conducted by either the town or Washville Corporation.
   Car wash facilities can exhibit a noise factor between 89-110 decibels.
3) OSHA standards indicate up to 85 decibels for no more than 8 hours in a day.
4) What will be the operating hours for Washville?
5) If open 8 hours a day the operations they will be over OSHA standards.
6) Another aspect is Washville is asking for a waiver to encroach on the 100 foot buffer. Scattered trees will not be a sufficient buffer for the noise levels.

I feel the Planning board should reject the current proposal from Washville. Washville should return with a modified proposal including:

A} A Noise Stufdy
B) Include installation of Noise Barrier Fencing

Respectfully,

Linda Patenaude

Linda Patenaude

PS. A signed copy of this letter is being delivered to Hudson Town Hall Planning Board Department

Attachment "I"

11/11/25

To the Honorable Members of the Hudson NH Planning Board,

Petition Title: OPPOSE the Proposed Car Wash Development at 9 Morgan Road, Hudson NH, Map 156/Lot 016 due to Excessive Noise, Traffic and Negative Community Impact

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The proposed development poses significant threats to our neighborhood's quality of life, public health, and property values, primarily due to the anticipated excessive noise pollution, increased traffic congestion, potential increased lighting and extended hours of operation.

The Issue and Its Importance

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Excessive noise pollution is a public health concern linked to sleep disturbances, stress, and other health issues, all of which compromise our quality of life. A commercial operation of this nature, with potential operating hours extending late into the night or even 24/7, is incompatible with the character and established quiet enjoyment of our 55 plus residential retirement community that was established over 20 years ago.

Supporting Evidence and Arguments

- **Violation of Noise Ordinances:** The operation is likely to exceed the local noise ordinances for a residential boundary line, even with noise-dampening technology, due to the inherent nature of the business.
- **Proximity to Homes:** The developer may be seeking a variance to reduce the standard setback from residential properties. We urge you to enforce existing zoning and setback requirements to protect residents from high level noise and activity.
- **Traffic Concerns:** The increased flow of traffic, including vehicles entering and exiting the facility at all hours, will exacerbate existing congestion and noise.
- **Incompatible Land Use:** This development does not align with the town's noise ordinances especially near residential houses and communities
- **Requested Action**
    - We, the undersigned, formally request that the Hudson NH Planning Board:

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2. If the Planning board does not deny the applicant then commission an independent, third-party noise study to accurately assess the full impact of the proposed facility on the surrounding residential area before any further consideration of the application.
3. Prioritize the health, well-being, and established quality of life of the residents over commercial interests that are incompatible with multiple elderly communities and family neighborhoods.

Your support in this matter is crucial to preserving the integrity and livability of our community. We urge you to listen to the valid concerns of your constituents.

Respectfully,

Abbie's Landing Homeowners Association

RECEIVED
NOV 12 2025
TOWN OF HUDSON
PLANNING DEPT.

Attachment "I"

We the undersigned residents of Abbie's Landing Homeowners Association of Bowes Circle in Hudson NH, hereby support the petition to oppose the proposed car wash development at 9 Morgan Road, Hudson, NH 03051.

DATE:11/11/25

	NAME	ADDRESS	SIGNATURE
1	LAURIE GREER	35 BOWES CIRCLE	Laurie J Greer
2	Dolores Tello	53 Bowes Circle	Dolores M Tello
3	Alan + Sandra Dearborn	47 Bowles Circle	Alan Dearborn
4	Judy Josephson	49 Bowes Cir.	Judith Josephson
5	PETER ZOCCO	55 BOWES CIR	Peter Zocco
6	Barbara Whiting	11 Bowes Circle	Barbara Whiting
7	DAVID HAYES	13 BOWES CIRCLE	David R. Hayes
8	BRENDA SODRE	15 Bowes Circle	Brenda A. Sodre
9	WILLIAM HOOVER	17 BOWES CIRCLE	
10	KAREN R. WISNOSKY	23 BOWES CIRCLE	Karen R. Wisnosky
11	Linda Patenaude	25 Bowes Circle	Linda Patenaude
12	WILLIAM HERMANS	27 BOWES CIR	William Hermans
13	Elaine Chase	29 Bowes Cir	Elaine Chase
14	Lucille Guevin	31 Bowes St	Lucille Guevin
15	Linda Walsh	33 Bowes Circle	Linda S. Walsh
16	ALFRED + DOREEN SALVI	37 Bowes Circle	Alfred & Doreen Salvi
17	Jean Pardee	39 Bowes Circle	Jean Pardee
18	Maurine Costa	51 Bowes Circle	Maurine Costa
19	KATHLEEN + JOHN SHOW	57 BOWES CIRCLE	Kathleen L. Show
20	Lorna Deluca	19 Bowes circle	Lorna Deluca
21	Helen Covine	41 Bowes Circle	Helen Covine

Dubowik, Brooke

From: Hudson New Hampshire <hudson-nh@municodeweb.com>
Sent: Monday, November 10, 2025 4:35 PM
To: Dubowik, Brooke
Subject: Form submission from: Contact a Board or Committee

EXTERNAL: Do not open attachments or click links unless you recognize and trust the sender.

Thank you. Your submission has been received. Submitted on Monday, November 10, 2025 - 4:35pm
Form: Contact a Board or Committee Form ID: 42624 Submission ID: 32368 Your Contact Information
First Name Alan
Last Name Dearborn
Phone Number 6035468886
Email aldearborn1211@gmail.com
Select the Board or Committee you would like to contact Planning Board
Question/Comments you'd like to share
We have just been made aware of an abutter notification for a new car wash with parking and customer accessible vacuum machines near our 55+ development, Abbies Landing, located on Bowes Circle, Hudson, NH. These types of things can be very loud and is only 280 feet from ALHA. We are very concerned about this project getting approved and request that this project NOT receive approval. The number one complaint from people who live near car wash facilities is noise. How much noise can they produce. It seems anywhere from 89 - 110 decibels. To put that in perspective the constant noise of a jack hammer is at 100 decibels and a loud rock band at 110. Although the town does have noise ordinances nothing seems to be outlined for this. OSHA standards say up to 85 decibels for no more than 8 hours. To demonstrate just what can happen when these types of facilities is approved I have two links below showing how wrong this is to be in such close proximity to residential areas such as our. PLEASE do NOT approve this request. Links below are two different videos on the news about people having noise issues with car wash facilities.
Alan Dearborn

https://www.wilx.com/video/2024/06/04/i-team-neighborhood-nuisance-noisy-car-wash-making-life-unbearable-neighbors/

https://www.youtube.com/watch?app=desktop&v=n7nvq4Rmrog