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

September 27, 2023

Portsmouth Planning Board
Attn: Rick Chellman, Chairman
1 Junkins Avenue, Suite 3rd Floor
Portsmouth, NH 03801

RE: Amended Subdivision Application
Prior Case # LU-22-150
201 Kearsarge Way, Portsmouth, NH
Tax Map 218, Lot 5
JBE Project No. 23152

Dear Mr. Chellman,

Jones & Beach Engineers, Inc., on behalf of our client, Green & Company, are submitting an amended subdivision application as our client requests some changes to the plans relative to the grading and drainage that was approved. The original design incorporated a large retaining wall and Stormtech chambered drainage infrastructure. The new owners would like to simplify these structures and remove the wall and go with a more natural style of stormwater with a rain garden that infiltrates stormwater, no retaining wall necessary.

We have dug test pits on the property and performed an Amoozemeter test to determine soil permeability. This change in the drainage design makes it a more natural design and simplifies the future maintenance responsibility of the homeowners with the elimination of the retaining wall and Stormtech systems.

We have included one copy of the revised grading and drainage design for your review along with a drainage analysis and have uploaded all of this to the portal. If you have any questions or need any additional information, please feel free to contact our office. Thank you very much for your time.

Included with this submission is the following:

1. Completed Amended Subdivision Application (submitted online) and Checklist.
2. Letter of Authorization.
3. Current Deed.
4. One (1) Full Size Plan (Folded).

Very truly yours,
JONES & BEACH ENGINEERS, INC.

Joseph Coronati
Vice President

cc: Green & Company (via email)

GREEN&CO.
REAL ESTATE
development • commercial • residential • brokerage

September 20, 2023

Peter Britz, Planning Director
City of Portsmouth Planning Dept
1 Junkins Ave
Portsmouth, NH 03801

Re: 201 Kearsarge Way Modification to Conditions of Approval

Dear Mr Britz,

Per our discussions, the Administrative Approval we have submitted for modifications to the drainage system of the approved subdivision 201 Kearsarge Way will require some of the Planning Board Conditions of Approval to be removed. I have attached to this letter the Planning Board Approval dated October 27, 2022 and the Planning Board Approval dated March 02, 2020, referenced in the October 27, 2022 letter. Due to the drainage system modifications we are seeking from the approved Stormtech drainage system to a more simplified natural rain garden drainage system, the following Conditions of Approval would need to be removed,

October 22, 2022 Letter:

2.5. 1) The drainage for lots 2 and 3 shall be incorporated into the back yard areas where they can be maintained without impacting the portion of the property designated to be a conservation area along with the following conditions:

2.5 1-a) Maintenance responsibilities for the storm-tech systems by the homeowners shall be addressed through a maintenance document that outlines the requirements to keep the system functional at all times. That document shall be recorded as part of the conservation easement deed;

2.5. 1-c) System installation shall be witnessed by the City DPW during installation. The City will review the subsoils under the system to guarantee any ledge is removed to a point 24" under the system and will review all the functional parts of the system as a whole to verify the systems will work as designed.

March 02, 2020 Letter (referenced in the October 22, 2022 Letter):

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1) The drainage for the houses shall be incorporated into the back yard areas where they can be maintained without impacting the portion of the property designated to be a conservation area along with the following conditions.

I have attached to this letter the (2) approval letters, with the items detailed above highlighted. Should you have any questions, please do not hesitate to reach out to me directly at 603-501-8455 or jenna@greenandcompany.com

Thank you for your consideration,

Jenna Green
Green & Company

Cc: Joe Coronati, Jones and Beach Engineers.
John Chagnon, Ambit Engineering
Richard Fusegni

CITY OF PORTSMOUTH

Planning Department
1 Junkins Avenue
Portsmouth, New
Hampshire 03801
(603) 610-7216

PLANNING BOARD

October 27, 2022

Richard Fusegni
201 Kearsarge Way
Portsmouth , New Hampshire 03801

RE: Request for Preliminary and Final Subdivision approval property located at 201 Kearsarge Way (LU-22-150)

Dear Mr. Fusegni:

The Planning Board, at its regularly scheduled meeting of Thursday, October 20, 2022, considered your application for Preliminary and Final Subdivision approval to subdivide a lot with an area of 52,253 s.f. and 205' of continuous street frontage into three (3) lots as follows: proposed Lot 1 with an area of 17,125 s.f. and 100' of continuous street frontage; proposed Lot 2 with an area of 17,406 s.f. and 100.2' of continuous street frontage; and Proposed Lot 3 with an area of 17,723 s.f. and 82.84' of continuous street frontage. Said property is shown on Assessor Map 218 Lot 5 and lies within the Single Residence B (SRB) District. As a result of said consideration, the Board voted 1) to find that the Subdivision application meets the standards and requirements set forth in the Subdivision Rules and Regulations to adopt the findings of fact as presented, and 2) to **grant** preliminary and final subdivision approval with the following **conditions**:

2.1) Property monuments shall be set as required by the Department of Public Works prior to the filing of the plat; the corners will need to be in place and evident prior to the issuance of a CO.
2.2) GIS data shall be provided to the Department of Public Works in the form as required by the City.
2.3) The final plat, easements and restrictive covenants shall be recorded concurrently at the Registry of Deeds by the City or as deemed appropriate by the Planning Department.
2.4) Any site development (new or redevelopment) resulting in 15,000 square feet or greater ground disturbance will require the submittal of a Land Use Development Tracking Form through the Pollutant Tracking and Accounting Program (PTAP) online portal. For more information visit https://www.cityofportsmouth.com/publicworks/stormwater/ptap
2.5) Conditions as listed in the February 27, 2020 letter of decision.
2.5.1) The drainage for lots 2 and 3 shall be incorporated into the back yard areas where they can be maintained without impacting the portion of the property designated to be a conservation area along with the following ***conditions****:*
2.5.1-a) Maintenance responsibilities for the storm-tech systems by the homeowners shall be addressed through a maintenance document that outlines the requirements to keep the system functional at all times. That document shall be recorded as part of the conservation easement deed;
2.5.1-b) Plans shall be updated to note stabilized construction entrances shall be installed for all 3 lots; and
2.5.1-c) System installation shall be witnessed by the City DPW during installation. The City

will review the subsoils under the system to guarantee any ledge is removed to a point 24" under the system and will review all the functional parts of the system as a whole to verify the systems will work as designed.
2.5.2) All materials used in the reconstruction of the road shall meet city standards.
2.5.3) The plans shall note that during construction, access will be provided to all existing properties located on Birch Street.

The Board's decision may be appealed up to thirty (30) days after the vote. Any action taken by the applicant pursuant to the Board's decision during this appeal period shall be at the applicant's risk. Please contact the Planning Department for more details about the appeals process.

All conditions of subdivision approval, including recording of the plat as required by the Planning Department, shall be completed within six (6) months of the date of approval, unless an extension is granted by the Planning Director or the Planning Board in accordance with Section III.E of the Subdivision Rules and Regulations. If all conditions have not been completed within the required time period, the Planning Board's approval shall be deemed null and void.

This subdivision approval is not final until the Planning Director has certified that the applicant has complied with the conditions of approval imposed by the Planning Board.

The Findings of Fact associated with this decision are available: attached here or as an attachment in the Viewpoint project record associated with this application and on the Planning Board Meeting website:

https://www.cityofportsmouth.com/planportsmouth/planning-board/planning-board-archived-meetings-and-material

The minutes and audio recording of this meeting are available by contacting the Planning Department.

Very truly yours,

Rick Chellman, Chairman of the Planning Board

cc: Rosann Maurice-Lentz, City Assessor

Christopher Mulligan, Bosen & Associates, PLLC
John Chagnon, Ambit Engineering

DISCUSSION AND DECISION OF THE BOARD

Vice Chairman Moreau moved to grant the request, seconded by Mr. Gamester with the following stipulations:

1) The drainage for the houses shall be incorporated into the backyard areas where they can be maintained without impacting the portion of the property designated to be a conservation area along with the following conditions:

    a. Drainage easements shall be provided across lot 3 for lot 2 and 1 drainage and across lot 2 for lot 1 drainage. Maintenance responsibilities for the storm-tech systems shall be included in the easement language or otherwise addressed through a maintenance agreement;

    b. Plans shall be updated and approved by the Department of Public Works to show grading around Catch Basin 1;

    c. Plans shall be updated to note stabilized construction entrances shall be installed for all 3 lots;

    d. Department of Public Works final review and approval shall confirm that the drainage across Birch Street will not increase flow onto the abutting properties.

2) Birch Street shall be reclaimed and reconstructed to City standards after installation of utilities and plans shall be updated to include a cross-section for review and approval by Department of Public Works, which shall also confirm if any additional modifications are required to improve drainage;

3) The plans shall note that during construction, access will be provided to all existing properties located on Birch Street;

4) Owner shall provide an easement to allow the City to turn around in the driveway of Lot 5-2 for the purpose of snow plowing and the easement shall be reviewed and approved by the Planning and Legal Departments prior to acceptance by the City Council;

5) The location of gas, electric, and communication lines shall be added to the subdivision plans; 5-1) For underground electric and communication lines, the sidewalk from Birch Street to the driveway of Lot 5-2 shall be widened to provide 5.5' clear.

6) Sheets C2 and C3 shall be reviewed and approved by Department of Public Works for confirmation of stormwater, grading and utility updates and standard details;

7) Lot numbers as determined by the Assessor shall be added to the final plat;

8) Property monuments shall be set as required by the Department of Public Works prior to the filing of the plan;

9) GIS data shall be provided to the Department of Public Works in the form as required by the City;

10) The final plat shall be recorded at the Registry of Deeds by the City or as deemed appropriate by the Planning Department.

The motion passed unanimously.

E. The request of **Vaughan Street Hotel, LLC and Stone Creek Realty, LLC, Owners** and **XXS Hotels, LLC, Applicant,** for properties located at **299 Vaughan Street and 53 Green Street** for Design Review for the construction of a 5-story hotel with community space. Said properties are shown on Assessor Map 124 Lot 10 and Assessor Map 119 Lot 2 and lie within in the Character District 5 (CD5) District.

SPEAKING TO THE APPLICATION

Patrick Crimmins from Tighe and Bond and Jeff Johnston spoke to the application. Mr. Johnston noted that there was a question relative to hotel demand at the last presentation. There is a strong demand. Another hotel will not enter the market for another 2-3 years. This hotel is 77 rooms, which is half the size of the other hotels in the downtown.

Mr. Crimmins commented that they have met with TAC and provided supplemental information in the package. The site plan included shared parking calculations and a narrative was added to explain it further. The trip generation analysis shows they are not anticipating significant impact. The project will entail a lot line revision and the construction of boutique hotel with 5 stories. The community space provided will allow for the additional story. The parking plan was revised based on feedback. The community space exhibit was updated to show the original AC Hotel project with the park that was deeded to the city of Portsmouth, wide sidewalks and the gateway to the North Mill Pond Trail. The portions counted toward this project was continuing the wide sidewalk and providing another connection out to the greenway. The exhibit shows that the plan exceeds the requirement of 30%. The intent is to not touch any of the banked community space. There will be a deeded 7-foot easement for a future connection to the parkway. TAC provided feedback on the parking. The existing parking does not meet the dimensional requirements. This plan realigns the parking to be all within the property and meet the dimensional requirements. The edge of the pavement will be pulled back and the area around the dumpsters will be cleaned up. There will be fire access to the rear of the building. The entryway was cleaned up to create a clear line of access for the Fire Department. The hotel will have a valet service with a drop off area. There will be parallel and tandem spaces along the side of the building. It will be managed by the parking facility. The Downtown Overlay District requires 73 spaces total. The spaces meet the dimensional requirements and it will be shared parking between the lots.

Chairman Legg questioned if they were providing all 177 spaces on this lot or if they were using the AC Hotel as well. Mr. Crimmins responded that 118 spaces would be on the AC Hotel lot. The balance for 173 spaces will be provided on this lot. It meets the Downtown Overlay parking requirements. Chairman Legg questioned if anything approved for the AC Hotel was being taken away to provide space for this new hotel. Mr. Crimmins responded that they were combining two hotels and office space. There will be 80 rooms in the proposed hotel and 156 rooms in AC Hotel. That would require 177 spaces. The office space does not require parking. They anticipate minimal impact to traffic. This application went to the Historic District Commission for a work session. It still needs to go through the HDC process, but renderings were

CITY OF PORTSMOUTH

Planning Department
1 Junkins Avenue
Portsmouth, New
Hampshire 03801

(603) 610-7216

PLANNING BOARD

March 02, 2020

Richard Fusegni
201 Kearsarge Way
Portsmouth, NH 03801

RE: Preliminary and Final Subdivision approval for property located at 201 Kearsarge Way

Dear Mr. Fusegni:

The Planning Board, at its regularly scheduled meeting of Thursday, February 27, 2020, considered your application for Preliminary and Final Subdivision approval to demolish the existing single family home and subdivide a lot with an area of 47,062 s.f. and 205' of continuous street frontage into three (3) lots as follows: proposed Lot 1 with an area of 15,482 s.f. and 100' of continuous street frontage; proposed Lot 2 with an area of 15,856 s.f. and 100.2' of continuous street frontage; and Proposed Lot 3 with an area of 15,723 s.f. and 82.84' of continuous street frontage . Said property is shown on Assessor Map 218 Lot 5 and lies within the Single Residence B (SRB) District. As a result of said consideration, the Board voted to determine that the application is complete according to the Subdivision Rules and Regulations and accept the application for consideration and to **grant** Preliminary and Final Subdivision approval with the following stipulations:

1) The drainage for the houses shall be incorporated into the back yard areas where they can be maintained without impacting the portion of the property designated to be a conservation area along with the following conditions:
1-1) Drainage easements shall be provided across lot 3 for lot 2 and 1 drainage and across lot 2 for lot 1 drainage. Maintenance responsibilities for the storm-tech systems shall be included in the easement language or otherwise addressed through a maintenance agreement;
1-2) Plans shall be updated and approved by the Department of Public Works to show grading around Catch Basin 1;
1-3) Plans shall be updated to note stabilized construction entrances shall be installed for all 3 lots;
1-4) Department of Public Works final review and approval shall confirm that the drainage across Birch Street will not increase flow onto the abutting properties.

2) Birch Street shall be reclaimed and reconstructed to City standards after installation of utilities and plans shall be updated to include a cross-section for review and approval by Department of Public Works, which shall also confirm if any additional modifications are required to improve drainage;
3) The plans shall note that during construction, access will be provided to all existing properties located on Birch Street;
4) Owner shall provide an easement to allow the City to turn around in the driveway of Lot 5-2 for the purpose of snow plowing and the easement shall be reviewed and approved by the Planning and Legal Departments prior to acceptance by the City Council;

5) The location of gas, electric, and communication lines shall be added to the subdivision plans;
5-1) For underground electric and communication lines, the sidewalk from Birch Street to the driveway of Lot 5-2 shall be widened to provide 5.5' clear.

6) Sheets C2 and C3 shall be reviewed and approved by Department of Public Works for confirmation of stormwater, grading and utility updates and standard details;
7) Lot numbers as determined by the Assessor shall be added to the final plat;
8) Property monuments shall be set as required by the Department of Public Works prior to the filing of the plat;
9) GIS data shall be provided to the Department of Public Works in the form as required by the City;
10) The final plat shall be recorded at the Registry of Deeds by the City or as deemed appropriate by the Planning Department.

The Board's decision may be appealed up to thirty (30) days after the vote. Any action taken by the applicant pursuant to the Board's decision during this appeal period shall be at the applicant's risk. Please contact the Planning Department for more details about the appeals process.

All stipulations of subdivision approval, including recording of the plat as required by the Planning Department, shall be completed within six (6) months of the date of approval, unless an extension is granted by the Planning Director or the Planning Board in accordance with Section III.D of the Subdivision Rules and Regulations. If all stipulations have not been completed within the required time period, the Planning Board’s approval shall be deemed null and void.

This subdivision approval is not final until the Planning Director has certified that the applicant has complied with the conditions of approval imposed by the Planning Board.

The minutes and audio recording of this meeting are available by contacting the Planning Department.

Very truly yours,

Dexter R. Legg, Chairman of the Planning Board

cc: Rosann Maurice-Lentz, City Assessor
Bernie Pelech, Bosen & Associates

FEE SCHEDULE
Planning Department
Effective 07/01/23 – 06/30/24

PLANNING BOARD

Subdivision:

Subdivision
- Residential .....$600.00 plus $200.00 per lot
- Non-Residential.....$800.00 plus $300.00 per lot

Subdivision Amendment:
- Administrative approval $200.00
- TAC or Planning Board approval.....$500.00 $500.00

Lot line revision/verification $250.00

Lot Line Revision Amendment
- Administrative approval $200.00
- TAC or Planning Board approval.....$250.00

Lot Consolidation – No Subdivision.....$175.00

Restoration of Involuntarily Merged Lots $300.00

Preliminary Conceptual Consultation $200.00

Design Review.....$500.00

Site Plan Review:

All developments.....$600.00
plus $5.00 per $1,000 of site costs only
plus $10.00 per 1,000 s.f. of site development area

Total fee not to exceed (cap).....$20,000.00

Site Plan Minor Amendment:
- Administrative approval $400.00
- Administrative approval after work has been done $500.00
- TAC or Planning Board approval.....$800.00

Preliminary Conceptual Consultation $200.00

Design Review.....$500.00

Wetlands Conditional Use Permit:

Area of disturbance in wetland or wetland buffer:
- Up to 250 sq. ft. $100.00
- Up to 1,000 sq. ft. $500.00
- Greater than 1,000 sq. ft. $1,300.00

Conditional Use Permit (Non-Wetland):

Conditional Use Permit (Non-Wetland) $500.00

Courier Fees:

Mylar Recording $150.00
Deed Recording $100.00

BOARD OF ADJUSTMENT

Residential Applications
1-2 dwelling units $200.00
3-4 dwelling units ..... $300.00 plus $50.00 for each unit over 4
Total fee not to exceed (cap) $3,000.00

Residential accessory structure only $50.00

Non-Residential Applications ..... $400.00 plus $5.00 per $1,000 of valuation of new construction
Total fee not to exceed (cap) $3,000.00

Signs $200.00

Appeal of Administrative Decision $50.00

HISTORIC DISTRICT COMMISSION

Work Session (prior to application for approval) ..... $200.00 per work session

Residential Applications
1 dwelling unit $100.00
2 dwelling units $100.00
3 dwelling units $250.00
4 dwelling units and over ..... $400.00 plus $100.00 for each unit over 4
Total fee not to exceed (cap) $5,000.00

Accessory structure, mechanical equipment or replacement of doors/windows only $100.00

Non-Residential Applications ..... $500.00 plus $5.00 per $1,000 of valuation of new construction

Total fee not to exceed (cap)..... $5,000.00

Accessory structure, mechanical equipment or replacement of doors/windows only $100.00

Signs $100.00

Amendment to Certificate of Approval:

Administrative approval $100.00
Administrative approval after work has been done..... $500.00
Commission approval $800.00

ZONING PERMITS

Certificate of conformity $50.00

Letter of interpretation..... $100.00

Please note: Costs associated with third party review and technical assistance may apply, including but not limited to costs associated with review and recordation of documents at the registry.

City of Portsmouth, New Hampshire

Subdivision Application Checklist

This subdivision application checklist is a tool designed to assist the applicant in the planning process and for preparing the application for Planning Board review. A pre-application conference with a member of the planning department is strongly encouraged as additional project information may be required depending on the size and scope. The applicant is cautioned that this checklist is only a guide and is not intended to be a complete list of all subdivision review requirements. Please refer to the Subdivision review regulations for full details.

Applicant Responsibilities (Section III.C): Applicable fees are due upon application submittal along with required number of copies of the Preliminary or final plat and supporting documents and studies. Please consult with Planning staff for submittal requirements.

Owner: Richard Fusegni Date Submitted: 9/27/23

Applicant: Green & Company

Phone Number: 603-765-6515 E-mail: mgreen@greenabdcompany.com

Site Address 1: 201 Kearsarge Way Map: 218 Lot: 5

Site Address 2: _____ Map: _____ Lot: 5

Application Requirements			
☑	**Required Items for Submittal**	**Item Location (e.g. Page or Plan Sheet/Note #)**	**Waiver Requested**
☑	Completed Application form. **(III.C.2-3)**		N/A
☑	All application documents, plans, supporting documentation and other materials provided in digital Portable Document Format (PDF) on compact disc, DVD or flash drive. **(III.C.4)**		N/A

Requirements for Preliminary/Final Plat				
☑	**Required Items for Submittal**	**Item Location (e.g. Page/line or Plan Sheet/Note #)**	**Required for Preliminary / Final Plat**	**Waiver Requested**
☑	Name and address of record owner, any option holders, descriptive name of subdivision, engineer and/or surveyor or name of person who prepared the plat. **(Section IV.1/V.1)**		☑ Preliminary Plat ☑ Final Plat	N/A

Requirements for Preliminary/Final Plat				
☑	**Required Items for Submittal**	**Item Location (e.g. Page/line or Plan Sheet/Note #)**	**Required for Preliminary / Final Plat**	**Waiver Requested**
☑	**Preliminary Plat** Names and addresses of all adjoining property owners. **(Section IV.2)** **Final Plat** Names and addresses of all abutting property owners, locations of buildings within one hundred (100) feet of the parcel, and any new house numbers within the subdivision. **(Section V.2)**		☑ Preliminary Plat ☑ Final Plat	N/A
☑	North point, date, and bar scale. **(Section IV.3/V3)**	Required on all Plan Sheets	☑ Preliminary Plat ☑ Final Plat	N/A
☑	Zoning classification and minimum yard dimensions required. **(Section IV.4/V.4)**		☑ Preliminary Plat ☑ Final Plat	N/A
☑	**Preliminary Plat** Scale (not to be smaller than one hundred (100) feet = 1 inch) and location map (at a scale of 1" = 1000'). **(Section IV.5)** **Final Plat** Scale (not to be smaller than 1"=100'), Location map (at a scale of 1"=1,000') showing the property being subdivided and its relation to the surrounding area within a radius of 2,000 feet. Said location map shall delineate all streets and other major physical features that my either affect or be affected by the proposed development. **(Section V.5)**		☑ Preliminary Plat ☑ Final Plat	N/A
☑	Location and approximate dimensions of all existing and proposed property lines including the entire area proposed to be subdivided, the areas of proposed lots, and any adjacent parcels in the same ownership. **(Section IV.6)**		☑ Preliminary Plat ☑ Final Plat	
☑	Dimensions and areas of all lots and any and all property to be dedicated or reserved for schools, parks, playgrounds, or other public purpose. Dimensions shall include radii and length of all arcs and calculated bearing for all straight lines. **(Section V.6/ IV.7)**		☑ Preliminary Plat ☑ Final Plat	N/A
☑	Location, names, and present widths of all adjacent streets, with a designation as to whether public or private and approximate location of existing utilities to be used. Curbs and sidewalks shall be shown. **(Section IV.8/V.7)**		☑ Preliminary Plat ☑ Final Plat	

Requirements for Preliminary/Final Plat				
☑	**Required Items for Submittal**	**Item Location (e.g. Page/line or Plan Sheet/Note #)**	**Required for Preliminary / Final Plat**	**Waiver Requested**
☑	Location of significant physical features, including bodies of water, watercourses, wetlands, railroads, important vegetation, stone walls and soils types that my influence the design of the subdivision. **(Section IV.9/V.8)**		☑ Preliminary Plat ☑ Final Plat	
☑	**Preliminary Plat** Proposed locations, widths and other dimensions of all new streets and utilities, including water mains, storm and sanitary sewer mains, catch basins and culverts, street lights, fire hydrants, sewerage pump stations, etc. **(Section IV.10)** **Final Plat** Proposed locations and profiles of all proposed streets and utilities, including water mains, storm and sanitary sewer mains, catchbasins and culverts, together with typical cross sections. Profiles shall be drawn to a horizontal scale of 1"=50' and a vertical scale of 1"=5', showing existing centerline grade, existing left and right sideline grades, and proposed centerline grade. **(Section V.9)**		☑ Preliminary Plat ☑ Final Plat	
☐	When required by the Board, the plat shall be accompanied by profiles of proposed street grades, including extensions for a reasonable distance beyond the subject land; also grades and sizes of proposed utilities. **(Section IV.10)**	N/A	☑ Preliminary Plat ☑ Final Plat	
☑	Base flood elevation (BFE) for subdivisions involving greater than five (5) acres or fifty (50) lots. **(Section IV.11)**		☑ Preliminary Plat ☑ Final Plat	
☑	For subdivisions of five (5) lots or more, or at the discretion of the Board otherwise, the preliminary plat shall show contours at intervals no greater than two (2) feet. Contours shall be shown in dotted lines for existing natural surface and in solid lines for proposed final grade, together with the final grade elevations shown in figures at all lot corners. If existing grades are not to be changed, then the contours in these areas shall be solid lines. **(Section IV.12/ V.12)**		☑ Preliminary Plat ☑ Final Plat	

Requirements for Preliminary/Final Plat				
☑	Required Items for Submittal	Item Location (e.g. Page/line or Plan Sheet/Note #)	Required for Preliminary / Final Plat	Waiver Requested
☐	Dates and permit numbers of all necessary permits from governmental agencies from which approval is required by Federal or State law. **(Section V.10)**	N/A	☐ Preliminary Plat ☑ Final Plat	
☑	For subdivisions involving greater than five (5) acres or fifty (50) lots, the final plat shall show hazard zones and shall include elevation data for flood hazard zones. **(Section V.11)**		☐ Preliminary Plat ☑ Final Plat	
☑	Location of all permanent monuments. **(Section V.12)**		☐ Preliminary Plat ☑ Final Plat	

General Requirements[1]			
☑	**Required Items for Submittal**	**Item Location (e.g. Page/line or Plan Sheet/Note #)**	**Waiver Requested**
☐	**1. Basic Requirements: (VI.1)**		
☒	a. Conformity to Official Plan or Map		
☒	b. Hazards		
☒	c. Relation to Topography		
☐	d. Planned Unit Development		
☐	**2. Lots: (VI.2)**		
☒	a. Lot Arrangement	SEE ONS' PLANS	
☒	b. Lot sizes		
☐	c. Commercial and Industrial Lots		
☒	**3. Streets: (VI.3)**		
☐	a. Relation to adjoining Street System	SEE original PLANS THAT WERE APPROVED.	
☐	b. Street Rights-of-Way		
☐	c. Access		
☐	d. Parallel Service Roads		
☐	e. Street Intersection Angles		
☐	f. Merging Streets		
☐	g. Street Deflections and Vertical Alignment		
☐	h. Marginal Access Streets		
☐	i. Cul-de-Sacs		
☐	j. Rounding Street Corners		
☐	k. Street Name Signs		
☐	l. Street Names		
☐	m. Block Lengths		
☐	n. Block Widths		
☐	o. Grade of Streets		
☐	p. Grass Strips		
☐	**4. Curbing: (VI.4)**	N/A	
☒	**5. Driveways: (VI.5)**		
☒	**6. Drainage Improvements: (VI.6)**		
☒	**7. Municipal Water Service: (VI.7)**		
☒	**8. Municipal Sewer Service: (VI.8)**		
☒	**9. Installation of Utilities: (VI.9)**		
☒	a. All Districts		
☒	b. Indicator Tape		
☐	**10. On-Site Water Supply: (VI.10)**	N/A	
☐	**11. On-Site Sewage Disposal Systems: (VI.11)**	N/A	
☐	**12. Open Space: (VI.12)**		
☐	a. Natural Features	N/A	
☐	b. Buffer Strips		
☐	c. Parks		
☐	d. Tree Planting		
☐	**13. Flood Hazard Areas: (VI.13)**		
☐	a. Permits	N/A	
☐	b. Minimization of Flood Damage		
☐	c. Elevation and Flood-Proofing Records		
☐	d. Alteration of Watercourses		
☒	**14. Erosion and Sedimentation Control (VI.14)**		

☑	Required Items for Submittal	Item Location (e.g. Page/line or Plan Sheet/Note #)	Waiver Requested
☐	**15. Easements (VI.15)**		
☐	a. Utilities		
☒	b. Drainage		
☐	**16. Monuments: (VI.16)**	ORIG. PLANS	
☐	**17. Benchmarks: (VI.17)**	"	
☐	**18. House Numbers (VI.18)**	"	

	Design Standards		
	Required Items for Submittal	**Indicate compliance and/or provide explanation as to alternative design**	**Waiver Requested**
☐	**1. Streets have been designed according to the design standards required under Section (VII.1).** a. Clearing b. Excavation c. Rough Grade and Preparation of Sub-Grade d. Base Course e. Street Paving f. Side Slopes g. Approval Specifications h. Curbing i. Sidewalks j. Inspection and Methods	N/A	
☒	**2. Storm water Sewers and Other Drainage Appurtenances have been designed according to the design standards required under Section (VII.2).** a. Design b. Standards of Construction		
☒	**3. Sanitary Sewers have been designed according to the design standards required under Section (VII.3).** a. Design b. Lift Stations c. Materials d. Construction Standards		
☒	**4. Water Mains and Fire Hydrants have been designed according to the design standards required under Section (VII.4).** a. Connections to Lots b. Design and Construction c. Materials d. Notification Prior to Construction		

Applicant's/Representative's Signature: _____ **Date:** 9/27/23

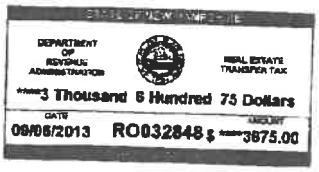
[1] See City of Portsmouth, NH Subdivision Rules and Regulations for details.

Letter of Authorization

I/We, Richard P Fusegni of 201 Kearsarge Way, Portsmouth, NH as owner of certain real property situated in Portsmouth, NH further described as 1.1996+/- acres of land with approvals for a 3 lot subdivision, as shown on Tax Assessors Map 218, Lot 5, and further defined by legal description found at the Rockingham County Registry of Deeds Book 5476 Page 2662, dated 10/26/2016 do hereby authorize Green & Company Building and Development Corp. and its Affiliates, Agents, Assigns and Engineers to act on my/our behalf and to appear before the the planning board of said city/town and/or any of its boards or commissions, in my/our behalf for the purpose of seeking any regulatory relief that may be requested by the person I/we have above authorized, including variances, special exceptions, dimensional waivers, site plan approval, lot line adjustment approval and subdivision approval, hereby ratifying any actions taken by him/her/them to obtain any such relief, and that I have reviewed and approved any modifications to the previously approved plan(s)I/We authorize Green & Company Building and Development Corp. and its Affiliates, Agents, Assigns and Engineers to act in my/our behalf in all matters concerning the development and approval process, without limitation, for the above stated property, to include any required signatures.

I/We shall cooperate fully with Green & Company Building and Development Corp. and its Affiliates, Agents, Assigns and Engineers in seeking timely public approvals and for the completion of the sale contemplated herein. I/We agree to use my/our good faith efforts to provide any assistance I/we reasonably can to Green & Company Building and Development Corp. and its Affiliates, Agents, Assigns and Engineers throughout the development process, including but not limited to signing permit applications as needed.

Michelle Tobey	Richard P. Fusegni	7-12-2023
Witness	Owner:	Date
Witness	Owner:	Date



WARRANTY DEED

KNOW ALL PERSONS BY THESE PRESENTS that I, **Elda Fusegni**, having an address of 1365 U.S. Route 1, Cape Neddick, Maine 03902

for consideration paid, hereby grant to **Richard P. Fusegni** of 6 Spring Lane, Eliot, Maine 03903

with WARRANTY COVENANTS the following described premises:

A certain parcel of land, with the buildings thereon, situate in Portsmouth, County of Rockingham and State of New Hampshire, herein described as one parcel:

BEGINNING at the northeasterly corner of the intersection of Birch and Kearsarge Streets and at the easterly corner of lot number 90 as shown on a plan of Buckminster Field recorded in the Rockingham County Registry of Deeds, Plat 7, Page 12; thence running South 79° 24' West by said Birch Street 113.0 feet and South 43° 50' West also by said Street 39.6 feet to lot number 92 as shown on said plan; thence turning and running North 43° 31' West by said lot number 92 87.06 feet and North 45° 48' West by lot number 98 ninety-four (94) feet to Oak Street as shown on said plan; thence turning and running North 34° 55' East by said Oak Street 158 feet to a corner; thence turning and running South 46° 58' East by lot number 102 on said plan 100.8 feet to a corner; thence turning and running North 27° 06' 30" East by land now or formerly of Sprague-Nelson-Hartford 137.7 feet to Mangrove Street; thence turning and running South 50° 09' East by said Mangrove Street 97.52 feet to a granite bound at Kearsarge Street; thence turning and running by the arc of a curve to the left having a radius of three hundred thirty (330) feet a distance of 206.6 feet to the point of beginning.

Meaning and intending to convey **Lots 87, 88, 89, 90, 91, 99, 100** and **101** on said plan EXCEPT a strip of land acquired by the United States of America for street purposes.

Meaning and intending to convey the same premises conveyed to Joseph O. Fusegni and Elda Fusegni, as joint tenants with rights of survivorship, by Warranty Deed of Joseph O. Fusegni dated October 19, 1968 and recorded in the Rockingham County Registry of Deeds at Book 1940, Page 36. Joseph O. Fusegni died on May 13, 1987, leaving Elda Fusegni as the surviving joint tenant.

ALSO a certain parcel of land, with improvements thereon, located on Oak Street in Portsmouth, County of Rockingham and State of New Hampshire, and more particularly bounded and described as follows:

BEGINNING at the northwesterly corner of the premises conveyed herein at a point in the southeasterly sideline of Oak Street; thence running N 34° 55' E by said street 50 feet; thence turning and running S 46° 41 E a distance of 93.86 feet to a point; thence turning and running S 27° 06' 30" W a distance of 51.0 feet; thence turning and running N 46° 58' W a distance of 100.78 to the point of beginning. The third course herein, running S 27° 06' 30" W, was previously erroneously identified as running S 27° 06' 30" E; said scrivener's error being corrected herein.

Containing 4,793 square feet, more or less.

Meaning and intending to convey **Lot No. 102** as shown on a plan of Buckminster Field recorded in the Rockingham County Registry of Deeds, Plat 7, Page 12.

Meaning and intending to convey the same premises conveyed to Joseph O. Fusegni and Elda Fusegni, as joint tenants with rights of survivorship, by Warranty Deed of Joseph O. Fusegni dated October 19, 1968 and recorded in the Rockingham County Registry of Deeds at Book 1940, Page 37. Joseph O. Fusegni died on May 13, 1987, leaving Elda Fusegni as the surviving joint tenant.

This is not homestead property.

Signed this 5th day of September, 2013.

Elda Fusegni by Sylvia A. Peterlin

Elda Fusegni
also known as Elda Mary Fusegni
by Sylvia Anne Peterlin, attorney-in-fact

STATE OF NEW HAMPSHIRE
COUNTY OF ROCKINGHAM

September 5, 2013

Personally appeared Sylvia Anne Peterlin, as attorney-in-fact for Elda Fusegni, a/k/a Elda Mary Fusegni, known to me, or satisfactorily proven, to be the person whose name is subscribed to the foregoing instrument, and acknowledged that she executed the same for the purposes set forth therein. Before me,

Mary Driscoll

Notary Public
My commission expires _____

MARY C. DRISCOLL
MY COMMISSION EXPIRES OCT. 26, 2016
NOTARY PUBLIC
NEW HAMPSHIRE

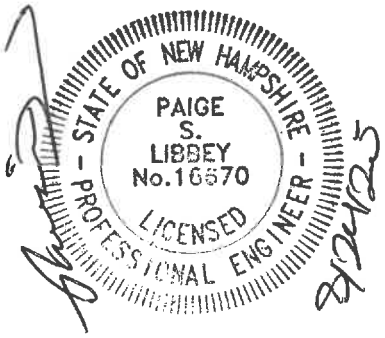
DRAINAGE ANALYSIS

SEDIMENT AND EROSION CONTROL PLAN

Site Design Amendment
201 Kearsarge Way
Portsmouth, NH 03801
Tax Map 218, Lot 5

Prepared for:

Green & Company
P.O. Box 1297
North Hampton, NH 03862



Prepared by:
Jones & Beach Engineers, Inc.
85 Portsmouth Avenue
P.O. Box 219
Stratham, NH 03885
(603) 772-4746
August 24, 2023
JBE Project No. 23152

EXECUTIVE SUMMARY

Our client, Green and Company, proposes to amend the previously approved grading and drainage design for the three (3) homes that were recently approved at 201 Kearsarge Way. In the existing condition, the lot contains a large residential structure as well as accessory structures and an associated driveway, and otherwise lawn and wooded area in the rear of the property.

Per the previously approved design done by Ambit Engineering, two of the three proposed homes had associated underground detention systems (Stormtechs) and a retaining wall close to the backs of the units in order to conserve as much woodland as possible in the rear of the property. Green and Company felt that it was prudent to slightly change the unit footprints and to get rid of the retaining wall in order to provide more backyard space for the units. They also wanted to see if the stormtechs were necessary or if we could provide adequate drainage mitigation using a rain garden instead. They talked to the property owner who agreed to this change as long as the trees in the back of the subject parcel were still conserved. Jones and Beach Engineers, Inc was hired to perform this redesign of the drainage system.

A drainage analysis of the subject parcel and upstream was conducted for the purpose of estimating the peak rate of stormwater runoff and to subsequently design adequate drainage structures. Two models were compiled, one for the area in its existing (pre-construction) condition, and a second for its proposed (post-construction) condition. The analysis was conducted using data for the 2 Year – 24 Hour (3.68"), 10 Year – 24 Hour (5.58"), 25 Year – 24 Hour (7.07"), and 50 Year – 24 Hour (8.46") storm events using the USDA SCS TR-20 method within the HydroCAD Stormwater Modeling System environment. This data was taken from the Extreme Precipitation Tables developed by the Northeast Regional Climate Center (NRCC), and extreme precipitation values were increased by 15% due to this project being located in a Coastal/Great Bay community. A summary of the existing and proposed conditions peak rates of runoff in units of cubic feet per second (cfs) is as follows:

Analysis Point	2 Year		10 Year		25 Year		50 Year	
	Pre	Post	Pre	Post	Pre	Post	Pre	Post
Analysis Point #1	0.64	0.59	1.21	1.02	1.68	1.36	2.12	1.67
Analysis Point #2	1.07	1.05	2.40	2.38	3.54	3.41	4.64	4.56
Analysis Point #3	0.21	0.21	0.42	0.38	0.59	0.50	0.76	0.62

The subject parcel is located in the Single Residence B (SRB) Zoning District. The topography of the site as well as offsite contributing watershed areas is such that the study area is divided into three subcatchments, draining toward three analysis points. Runoff from subcatchments 1S-3S flows over land to analysis points AP1-AP3, respectively. A more detailed breakdown of the existing conditions is contained within the existing conditions analysis within this report.

The approved site development consists of the demolition of one existing structure and the proposed aforementioned three (3) houses with associated paved driveways. 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. A stormwater management system was designed in order to mitigate this possibility. The proposed site development divides the site into six (6) subcatchments. The intent of this project is simply to build three single-family homes with associated paved driveways, and the drainage design intent is to meet or reduce peak flows toward the three analysis points during extreme storm events. The approved

design done by Ambit consisted of two Stormtech systems to attenuate runoff from parts of two of the three roofs. The new proposed design consists of a single rain garden that is designed to do the same. This removes the retaining wall that was previously proposed and creates more usable backyard space for the future residents, and continues to ensure that peak flow rates will be reduced in the proposed condition compared with the existing condition.

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. All land disturbed during construction will be stabilized within thirty days of groundbreaking and abutting property owners will suffer minimal adversity resultant of this development.

TABLE OF CONTENTS

1.0 RAINFALL CHARACTERISTICS

Two models were compiled, one for the area in its existing (pre-construction) condition, and a second for its proposed (post-construction) condition. The analysis was conducted using data for the 2 Year – 24 Hour (3.68"), 10 Year – 24 Hour (5.58"), 25 Year – 24 Hour (7.07"), and 50 Year – 24 Hour (8.46") storm events using the USDA SCS TR-20 method within the HydroCAD Stormwater Modeling System environment. This data was taken from the Extreme Precipitation Tables developed by the Northeast Regional Climate Center (NRCC), and extreme precipitation values were increased by 15% due to this project being located in a Coastal/Great Bay community.

The peak rates of runoff will be reduced from the existing condition, thereby minimizing the potential for a negative impact on abutting properties or downstream waterbodies.

2.0 EXISTING CONDITIONS ANALYSIS

The impervious areas of the subject parcel consist of a large residential structure as well as accessory structures and an associated driveway in the existing condition. Otherwise, the subject parcel is mostly covered by grass and woods.

In the existing condition, the topography of the subject parcel as well as offsite contributing watershed area is such that the study area is split into 3 subcatchments draining toward 3 Analysis Points. The original existing conditions drainage study done by Ambit was reviewed by Jones and Beach Engineers. We utilized largely the same assumptions in our own existing conditions analysis, except that Ambit used the Lag/CN method for estimating time of concentration. Jones and Beach typically uses 100' of sheet flow followed by shallow concentrated flow broken out into appropriate slope and ground cover categories, as recommended by TR-55. We used this method for our analysis and came up with slightly lower and therefore more conservative existing peak flow rates.

Subcatchment 1S consists of the southwest corner of the subject parcel and drains directly toward the Birch Street right of way, represented as Analysis Point 1. Subcatchment 2S drains toward the rear of the property, represented as Analysis Point 2, and contains the majority of the study area. Finally, Subcatchment 3S consists of the southeast corner of the subject parcel and drains toward Map 218, Lot 5-1, which is represented as Analysis Point 3.

Per the NRCS Web Soil Survey, the entire subject parcel consists of the "Urban land-Canton complex" soil type (Map Unit 799). Ambit Engineering stated in their drainage analysis that they assumed the site to fall under Hydrologic Soil Group "C" due to the presence of ledge in some areas of the site. We performed three test pits as shown on the plans with a mini-excavator in order to confirm in situ soil conditions. Test pit logs are located in Appendix VI/ We concur with their finding and also modelled the site as HSG C.

As this is an urban land soil type, field infiltration testing was required in order to determine the saturated hydraulic conductivity (Ksat) of the soil. Infiltration testing was performed on site by JBE using a Compact Constant Head Permeameter (CCHP, also known as an amoozemeter) on August 10, 2023. Three infiltration tests were performed in a shallow hole that was dug using a mini-excavator. The testing was performed in the footprint of the proposed rain garden, further discussed in the proposed conditions analysis.

Standard size auger holes, 4 cm in diameter were dug within each pit to the depth of the bottom of the practice to obtain an accurate permeability reading below the bottom of the proposed system. Water was then discharged through the soil and the drop in water level on the tube in which the water was stored before being discharged was recorded at several time intervals. The comparison between the drop in water level and the elapsed time from the start of the test was used to calculate the Ksat value. For example, if the water level dropped 3 cm after 5 minutes and 5 cm after 10 minutes, these data were recorded and used as data to calculate the Ksat using the formulas listed in the data spreadsheets in Appendix VI. The Ksat values from each time increment were then averaged to determine the mean Ksat for the test. Three tests were performed and the three mean Ksat values were averaged, then the final number divided by a factor of safety of two to determine the saturated hydraulic conductivity to use for design purposes.

The results of the permeability testing are as summarized below:

Test	Ksat (in/hr)
Test #1	0.78
Test #2	0.35
Test #3	0.67
Mean Ksat	**0.60**

A further breakdown of the data and calculations is included in Appendix VI.

The mean Ksat of all three tests was utilized and divided by a factor of safety of two to arrive at a design Ksat of **0.30 in/hr**. This is below the raw result of the most conservative test (Test #2), so we find this result to be valid for design purposes.

3.0 PROPOSED CONDITIONS ANALYSIS

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. A stormwater management system was designed in order to mitigate this potential. The proposed redesign of the approved site development, consisting of the aforementioned three (3) proposed houses and associated driveways as well as stormwater management features, divides the same study area from the existing conditions analysis into four (4) subcatchments, all still draining toward the same three analysis points.

Subcatchments 1S-3S will continue to drain directly toward Analysis Points AP1-AP3. These represent peripheral areas of the site that were determined to not require stormwater mitigation in order to reduce peak rates of offsite runoff in the proposed condition. A rain garden, modelled in HydroCAD as Pond 1P, is proposed in order to attenuate peak flows. Subcatchments 4S represents the area that will drain toward the rain garden, consisting of the majority of the roofs on Lots 2&3 as well as side and backyard areas. We have designed the rain garden to let out flows at such a rate that the post-construction peak rate of runoff will be almost equal to, but slightly less than the pre-construction peak rate of runoff, and we are utilizing the infiltration capacity of the existing subgrade soil in order to meet this goal. Any overflow from the rain garden then follows reach 1R, representing the flow path through subcatchment 2S toward Analysis Point 2.

Because the approved development is for three single-family houses, not all impervious areas are required to be treated, but runoff needs to be attenuated to ensure that peak rates of runoff are lower in the proposed condition compared with the existing condition. Ambit's approved design consisted of two underground detention vaults for roof runoff, whereas runoff from some of the proposed roof area and driveway area was allowed to flow off as peak rates of runoff would be reduced regardless. We employed the same approach except that we are instead using a rain garden for stormwater management in accordance with Green and Company's request. Peak rates of runoff toward analysis point 2 are being reduced in the post construction condition due to the proposed rain garden, while peak rates of runoff toward analysis points 1&3 are being reduced in the post construction condition simply because they are being made smaller due to site grading.

5.0 CONCLUSION

This proposed site development will have minimal adverse effect on abutting infrastructures and properties by way of stormwater runoff or siltation. Appropriate steps will be taken to eliminate erosion and sedimentation; these will be accomplished through the construction of a drainage system consisting of site grading and a rain garden, as well as temporary erosion control measures including but not limited to the use of silt soxx around the perimeter of the construction area. The peak rate of runoff will be reduced toward all analysis points during all analyzed storm events in the post-construction condition. 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 throughout the construction process.

This project disturbs less than 100,000 S.F. and does not require a NHDES Alteration of Terrain Permit.

Respectfully Submitted,
JONES & BEACH ENGINEERS, INC.

Daniel Meditz, E.I.T
Lead Design Engineer

APPENDIX I

EXISTING CONDITIONS DRAINAGE ANALYSIS

Summary 2 YEAR
Complete 10 YEAR
Summary 25 YEAR
Complete 50 YEAR

Subcatchment 1S

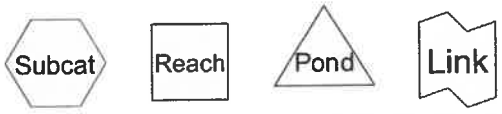
Analysis Point 1

Subcatchment 2S

Analysis Point 2

Subcatchment 3S

Analysis Point 3



Area Listing (all nodes)

Area (acres)	CN	Description (subcatchment-numbers)
0.365	74	>75% Grass cover, Good, HSG C (1S, 2S, 3S)
0.069	98	Paved parking, HSG C (1S, 3S)
0.099	98	Roofs, HSG C (1S, 2S, 3S)
0.927	70	Woods, Good, HSG C (1S, 2S, 3S)
1.459	**74**	**TOTAL AREA**

Soil Listing (all nodes)

Area (acres)	Soil Group	Subcatchment Numbers
0.000	HSG A	
0.000	HSG B	
1.459	HSG C	1S, 2S, 3S
0.000	HSG D	
0.000	Other	
1.459		**TOTAL AREA**

Time span=0.00-24.00 hrs, dt=0.05 hrs, 481 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

Subcatchment1S: Subcatchment1S Runoff Area=13,564 sf 28.45% Impervious Runoff Depth>1.78"
Flow Length=93' Slope=0.0645 '/' Tc=6.0 min CN=80 Runoff=0.64 cfs 0.046 af

Subcatchment2S: Subcatchment2S Runoff Area=45,007 sf 5.33% Impervious Runoff Depth>1.24"
Flow Length=200' Tc=15.1 min CN=72 Runoff=1.07 cfs 0.106 af

Subcatchment3S: Subcatchment3S Runoff Area=4,999 sf 20.58% Impervious Runoff Depth>1.63"
Flow Length=40' Slope=0.0875 '/' Tc=6.0 min CN=78 Runoff=0.21 cfs 0.016 af

Reach AP1: Analysis Point 1 Inflow=0.64 cfs 0.046 af
Outflow=0.64 cfs 0.046 af

Reach AP2: Analysis Point 2 Inflow=1.07 cfs 0.106 af
Outflow=1.07 cfs 0.106 af

Reach AP3: Analysis Point 3 Inflow=0.21 cfs 0.016 af
Outflow=0.21 cfs 0.016 af

Total Runoff Area = 1.459 ac Runoff Volume = 0.168 af Average Runoff Depth = 1.38"
88.54% Pervious = 1.292 ac 11.46% Impervious = 0.167 ac

Time span=0.00-24.00 hrs, dt=0.05 hrs, 481 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

Subcatchment1S: Subcatchment1S Runoff Area=13,564 sf 28.45% Impervious Runoff Depth>3.40"
Flow Length=93' Slope=0.0645 '/' Tc=6.0 min CN=80 Runoff=1.21 cfs 0.088 af

Subcatchment2S: Subcatchment2S Runoff Area=45,007 sf 5.33% Impervious Runoff Depth>2.65"
Flow Length=200' Tc=15.1 min CN=72 Runoff=2.40 cfs 0.228 af

Subcatchment3S: Subcatchment3S Runoff Area=4,999 sf 20.58% Impervious Runoff Depth>3.21"
Flow Length=40' Slope=0.0875 '/' Tc=6.0 min CN=78 Runoff=0.42 cfs 0.031 af

Reach AP1: Analysis Point 1 Inflow=1.21 cfs 0.088 af
Outflow=1.21 cfs 0.088 af

Reach AP2: Analysis Point 2 Inflow=2.40 cfs 0.228 af
Outflow=2.40 cfs 0.228 af

Reach AP3: Analysis Point 3 Inflow=0.42 cfs 0.031 af
Outflow=0.42 cfs 0.031 af

Total Runoff Area = 1.459 ac Runoff Volume = 0.347 af Average Runoff Depth = 2.85"
88.54% Pervious = 1.292 ac 11.46% Impervious = 0.167 ac

Summary for Subcatchment 1S: Subcatchment 1S

Runoff = 1.21 cfs @ 12.09 hrs, Volume= 0.088 af, Depth> 3.40"
Routed to Reach AP1 : Analysis Point 1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 10 Yr 24 Hr Rainfall=5.58"

Area (sf)	CN	Description
6,342	74	>75% Grass cover, Good, HSG C
3,363	70	Woods, Good, HSG C
2,952	98	Paved parking, HSG C
907	98	Roofs, HSG C
13,564	80	Weighted Average
9,705		71.55% Pervious Area
3,859		28.45% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.4	93	0.0645	0.29		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.68"
5.4	93	Total, Increased to minimum Tc = 6.0 min			

Summary for Subcatchment 2S: Subcatchment 2S

Runoff = 2.40 cfs @ 12.21 hrs, Volume= 0.228 af, Depth> 2.65"
Routed to Reach AP2 : Analysis Point 2

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 10 Yr 24 Hr Rainfall=5.58"

Area (sf)	CN	Description
36,240	70	Woods, Good, HSG C
2,400	98	Roofs, HSG C
6,367	74	>75% Grass cover, Good, HSG C
45,007	72	Weighted Average
42,607		94.67% Pervious Area
2,400		5.33% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.2	78	0.0860	0.14		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.68"
4.3	22	0.0450	0.09		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.68"
1.6	100	0.0450	1.06		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
15.1	200	Total			

Summary for Subcatchment 3S: Subcatchment 3S

Runoff = 0.42 cfs @ 12.09 hrs, Volume= 0.031 af, Depth> 3.21"
Routed to Reach AP3 : Analysis Point 3

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 10 Yr 24 Hr Rainfall=5.58"

Area (sf)	CN	Description
3,195	74	>75% Grass cover, Good, HSG C
775	70	Woods, Good, HSG C
44	98	Paved parking, HSG C
985	98	Roofs, HSG C
4,999	78	Weighted Average
3,970		79.42% Pervious Area
1,029		20.58% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
2.4	40	0.0875	0.27		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.68"
2.4	40	Total, Increased to minimum Tc = 6.0 min			

Summary for Reach AP1: Analysis Point 1

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 0.311 ac, 28.45% Impervious, Inflow Depth > 3.40" for 10 Yr 24 Hr event
Inflow = 1.21 cfs @ 12.09 hrs, Volume= 0.088 af
Outflow = 1.21 cfs @ 12.09 hrs, Volume= 0.088 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs / 3

Summary for Reach AP2: Analysis Point 2

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 1.033 ac, 5.33% Impervious, Inflow Depth > 2.65" for 10 Yr 24 Hr event
Inflow = 2.40 cfs @ 12.21 hrs, Volume= 0.228 af
Outflow = 2.40 cfs @ 12.21 hrs, Volume= 0.228 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs / 3

Summary for Reach AP3: Analysis Point 3

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 0.115 ac, 20.58% Impervious, Inflow Depth > 3.21" for 10 Yr 24 Hr event
Inflow = 0.42 cfs @ 12.09 hrs, Volume= 0.031 af
Outflow = 0.42 cfs @ 12.09 hrs, Volume= 0.031 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs / 3

Time span=0.00-24.00 hrs, dt=0.05 hrs, 481 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

Subcatchment1S: Subcatchment1S Runoff Area=13,564 sf 28.45% Impervious Runoff Depth>4.76"
Flow Length=93' Slope=0.0645 '/' Tc=6.0 min CN=80 Runoff=1.68 cfs 0.123 af

Subcatchment2S: Subcatchment2S Runoff Area=45,007 sf 5.33% Impervious Runoff Depth>3.88"
Flow Length=200' Tc=15.1 min CN=72 Runoff=3.54 cfs 0.334 af

Subcatchment3S: Subcatchment3S Runoff Area=4,999 sf 20.58% Impervious Runoff Depth>4.53"
Flow Length=40' Slope=0.0875 '/' Tc=6.0 min CN=78 Runoff=0.59 cfs 0.043 af

Reach AP1: Analysis Point 1 Inflow=1.68 cfs 0.123 af
Outflow=1.68 cfs 0.123 af

Reach AP2: Analysis Point 2 Inflow=3.54 cfs 0.334 af
Outflow=3.54 cfs 0.334 af

Reach AP3: Analysis Point 3 Inflow=0.59 cfs 0.043 af
Outflow=0.59 cfs 0.043 af

Total Runoff Area = 1.459 ac Runoff Volume = 0.501 af Average Runoff Depth = 4.12"
88.54% Pervious = 1.292 ac 11.46% Impervious = 0.167 ac

Time span=0.00-24.00 hrs, dt=0.05 hrs, 481 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

Subcatchment1S: Subcatchment1S Runoff Area=13,564 sf 28.45% Impervious Runoff Depth>6.05"
Flow Length=93' Slope=0.0645 '/' Tc=6.0 min CN=80 Runoff=2.12 cfs 0.157 af

Subcatchment2S: Subcatchment2S Runoff Area=45,007 sf 5.33% Impervious Runoff Depth>5.09"
Flow Length=200' Tc=15.1 min CN=72 Runoff=4.64 cfs 0.438 af

Subcatchment3S: Subcatchment3S Runoff Area=4,999 sf 20.58% Impervious Runoff Depth>5.81"
Flow Length=40' Slope=0.0875 '/' Tc=6.0 min CN=78 Runoff=0.76 cfs 0.056 af

Reach AP1: Analysis Point 1 Inflow=2.12 cfs 0.157 af
Outflow=2.12 cfs 0.157 af

Reach AP2: Analysis Point 2 Inflow=4.64 cfs 0.438 af
Outflow=4.64 cfs 0.438 af

Reach AP3: Analysis Point 3 Inflow=0.76 cfs 0.056 af
Outflow=0.76 cfs 0.056 af

Total Runoff Area = 1.459 ac Runoff Volume = 0.651 af Average Runoff Depth = 5.35"
88.54% Pervious = 1.292 ac 11.46% Impervious = 0.167 ac

Summary for Subcatchment 1S: Subcatchment 1S

Runoff = 2.12 cfs @ 12.09 hrs, Volume= 0.157 af, Depth> 6.05"
Routed to Reach AP1 : Analysis Point 1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 50 Yr 24 Hr Rainfall=8.46"

Area (sf)	CN	Description
6,342	74	>75% Grass cover, Good, HSG C
3,363	70	Woods, Good, HSG C
2,952	98	Paved parking, HSG C
907	98	Roofs, HSG C
13,564	80	Weighted Average
9,705		71.55% Pervious Area
3,859		28.45% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.4	93	0.0645	0.29		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.68"
5.4	93	Total, Increased to minimum Tc = 6.0 min			

Summary for Subcatchment 2S: Subcatchment 2S

Runoff = 4.64 cfs @ 12.21 hrs, Volume= 0.438 af, Depth> 5.09"
Routed to Reach AP2 : Analysis Point 2

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 50 Yr 24 Hr Rainfall=8.46"

Area (sf)	CN	Description
36,240	70	Woods, Good, HSG C
2,400	98	Roofs, HSG C
6,367	74	>75% Grass cover, Good, HSG C
45,007	72	Weighted Average
42,607		94.67% Pervious Area
2,400		5.33% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.2	78	0.0860	0.14		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.68"
4.3	22	0.0450	0.09		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.68"
1.6	100	0.0450	1.06		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
15.1	200	Total			

Summary for Subcatchment 3S: Subcatchment 3S

Runoff = 0.76 cfs @ 12.09 hrs, Volume= 0.056 af, Depth> 5.81"
Routed to Reach AP3 : Analysis Point 3

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 50 Yr 24 Hr Rainfall=8.46"

Area (sf)	CN	Description
3,195	74	>75% Grass cover, Good, HSG C
775	70	Woods, Good, HSG C
44	98	Paved parking, HSG C
985	98	Roofs, HSG C
4,999	78	Weighted Average
3,970		79.42% Pervious Area
1,029		20.58% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
2.4	40	0.0875	0.27		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.68"
2.4	40	Total, Increased to minimum Tc = 6.0 min			

Summary for Reach AP1: Analysis Point 1

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 0.311 ac, 28.45% Impervious, Inflow Depth > 6.05" for 50 Yr 24 Hr event
Inflow = 2.12 cfs @ 12.09 hrs, Volume= 0.157 af
Outflow = 2.12 cfs @ 12.09 hrs, Volume= 0.157 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs / 3

Summary for Reach AP2: Analysis Point 2

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 1.033 ac, 5.33% Impervious, Inflow Depth > 5.09" for 50 Yr 24 Hr event
Inflow = 4.64 cfs @ 12.21 hrs, Volume= 0.438 af
Outflow = 4.64 cfs @ 12.21 hrs, Volume= 0.438 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs / 3

Summary for Reach AP3: Analysis Point 3

[40] Hint: Not Described (Outflow=Inflow)

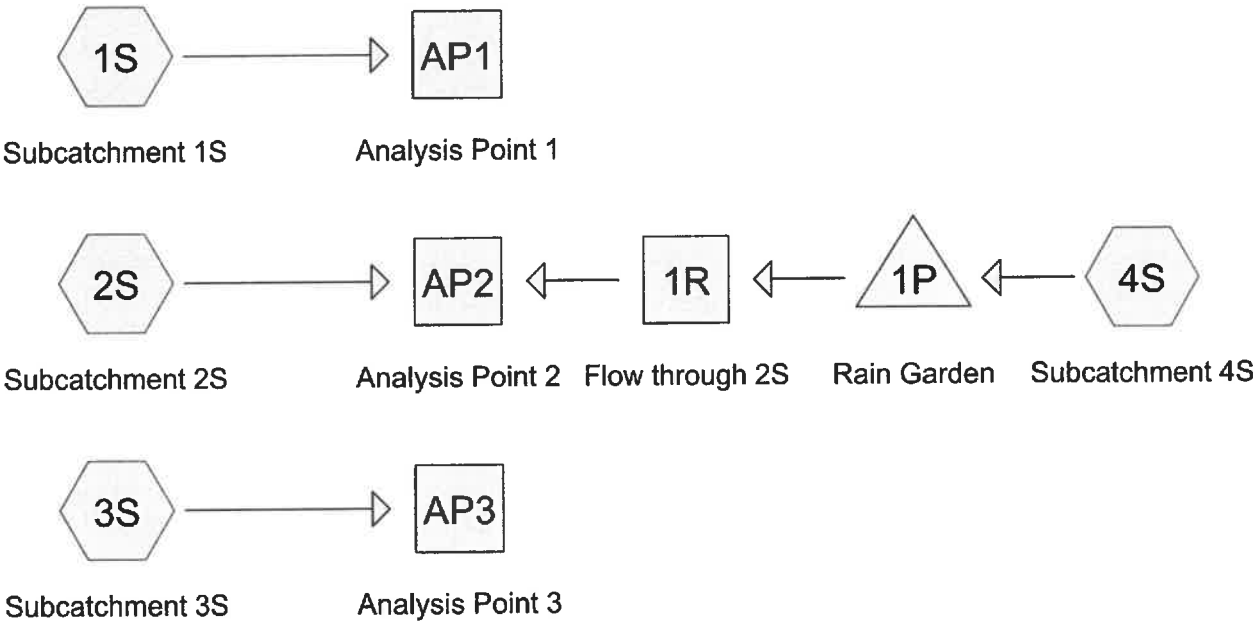
Inflow Area = 0.115 ac, 20.58% Impervious, Inflow Depth > 5.81" for 50 Yr 24 Hr event
Inflow = 0.76 cfs @ 12.09 hrs, Volume= 0.056 af
Outflow = 0.76 cfs @ 12.09 hrs, Volume= 0.056 af, Atten= 0%, Lag= 0.0 min

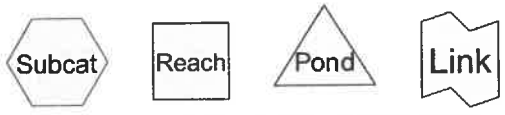
Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs / 3

APPENDIX II

PROPOSED CONDITIONS DRAINAGE ANALYSIS

Summary 2 YEAR
Complete 10 YEAR
Summary 25 YEAR
Complete 50 YEAR





Routing Diagram for 23152-PROPOSED
Prepared by Jones & Beach Engineers Inc, Printed 8/24/2023

Area Listing (all nodes)

Area (acres)	CN	Description (subcatchment-numbers)
0.665	74	>75% Grass cover, Good, HSG C (1S, 2S, 3S, 4S)
0.098	98	Paved parking, HSG C (1S, 3S)
0.222	98	Roofs, HSG C (1S, 2S, 3S, 4S)
0.474	70	Woods, Good, HSG C (2S)
1.459	**78**	**TOTAL AREA**

Soil Listing (all nodes)

Area (acres)	Soil Group	Subcatchment Numbers
0.000	HSG A	
0.000	HSG B	
1.459	HSG C	1S, 2S, 3S, 4S
0.000	HSG D	
0.000	Other	
1.459		**TOTAL AREA**

Time span=0.00-24.00 hrs, dt=0.05 hrs, 481 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

Subcatchment1S: Subcatchment1S Runoff Area=9,667 sf 52.55% Impervious Runoff Depth>2.34"
Flow Length=59' Tc=6.0 min CN=87 Runoff=0.59 cfs 0.043 af

Subcatchment2S: Subcatchment2S Runoff Area=33,204 sf 7.97% Impervious Runoff Depth>1.30"
Flow Length=200' Tc=15.1 min CN=73 Runoff=0.84 cfs 0.082 af

Subcatchment3S: Subcatchment3S Runoff Area=3,702 sf 46.52% Impervious Runoff Depth>2.17"
Flow Length=59' Slope=0.0820 '/' Tc=6.0 min CN=85 Runoff=0.21 cfs 0.015 af

Subcatchment4S: Subcatchment4S Runoff Area=16,985 sf 26.34% Impervious Runoff Depth>1.78"
Flow Length=144' Slope=0.0260 '/' Tc=6.0 min CN=80 Runoff=0.80 cfs 0.058 af

Reach 1R: Flow through 2S Avg. Flow Depth=0.01' Max Vel=0.49 fps Inflow=0.22 cfs 0.025 af
n=0.022 L=27.0' S=0.0185 '/' Capacity=113.22 cfs Outflow=0.22 cfs 0.025 af

Reach AP1: Analysis Point 1 Inflow=0.59 cfs 0.043 af
Outflow=0.59 cfs 0.043 af

Reach AP2: Analysis Point 2 Inflow=1.05 cfs 0.107 af
Outflow=1.05 cfs 0.107 af

Reach AP3: Analysis Point 3 Inflow=0.21 cfs 0.015 af
Outflow=0.21 cfs 0.015 af

Pond 1P: Rain Garden Peak Elev=64.09' Storage=709 cf Inflow=0.80 cfs 0.058 af
Discarded=0.08 cfs 0.031 af Primary=0.22 cfs 0.025 af Outflow=0.29 cfs 0.056 af

Total Runoff Area = 1.459 ac Runoff Volume = 0.199 af Average Runoff Depth = 1.64"
78.10% Pervious = 1.140 ac 21.90% Impervious = 0.320 ac

Time span=0.00-24.00 hrs, dt=0.05 hrs, 481 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

Subcatchment1S: Subcatchment1S Runoff Area=9,667 sf 52.55% Impervious Runoff Depth>4.11"
Flow Length=59' Tc=6.0 min CN=87 Runoff=1.02 cfs 0.076 af

Subcatchment2S: Subcatchment2S Runoff Area=33,204 sf 7.97% Impervious Runoff Depth>2.74"
Flow Length=200' Tc=15.1 min CN=73 Runoff=1.84 cfs 0.174 af

Subcatchment3S: Subcatchment3S Runoff Area=3,702 sf 46.52% Impervious Runoff Depth>3.90"
Flow Length=59' Slope=0.0820 '/' Tc=6.0 min CN=85 Runoff=0.38 cfs 0.028 af

Subcatchment4S: Subcatchment4S Runoff Area=16,985 sf 26.34% Impervious Runoff Depth>3.40"
Flow Length=144' Slope=0.0260 '/' Tc=6.0 min CN=80 Runoff=1.52 cfs 0.111 af

Reach 1R: Flow through 2S Avg. Flow Depth=0.02' Max Vel=0.71 fps Inflow=0.56 cfs 0.063 af
n=0.022 L=27.0' S=0.0185 '/' Capacity=113.22 cfs Outflow=0.56 cfs 0.063 af

Reach AP1: Analysis Point 1 Inflow=1.02 cfs 0.076 af
Outflow=1.02 cfs 0.076 af

Reach AP2: Analysis Point 2 Inflow=2.38 cfs 0.237 af
Outflow=2.38 cfs 0.237 af

Reach AP3: Analysis Point 3 Inflow=0.38 cfs 0.028 af
Outflow=0.38 cfs 0.028 af

Pond 1P: Rain Garden Peak Elev=64.70' Storage=1,278 cf Inflow=1.52 cfs 0.111 af
Discarded=0.10 cfs 0.044 af Primary=0.56 cfs 0.063 af Outflow=0.66 cfs 0.107 af

Total Runoff Area = 1.459 ac Runoff Volume = 0.388 af Average Runoff Depth = 3.19"
78.10% Pervious = 1.140 ac 21.90% Impervious = 0.320 ac

Summary for Subcatchment 1S: Subcatchment 1S

Runoff = 1.02 cfs @ 12.09 hrs, Volume= 0.076 af, Depth> 4.11"
Routed to Reach AP1 : Analysis Point 1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 10 Yr 24 Hr Rainfall=5.58"

Area (sf)	CN	Description
4,587	74	>75% Grass cover, Good, HSG C
3,034	98	Paved parking, HSG C
2,046	98	Roofs, HSG C
9,667	87	Weighted Average
4,587		47.45% Pervious Area
5,080		52.55% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
2.8	23	0.0200	0.14		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.68"
2.0	36	0.1110	0.30		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.68"
4.8	59	Total, Increased to minimum Tc = 6.0 min			

Summary for Subcatchment 2S: Subcatchment 2S

Runoff = 1.84 cfs @ 12.21 hrs, Volume= 0.174 af, Depth> 2.74"
Routed to Reach AP2 : Analysis Point 2

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 10 Yr 24 Hr Rainfall=5.58"

Area (sf)	CN	Description
20,651	70	Woods, Good, HSG C
2,645	98	Roofs, HSG C
9,908	74	>75% Grass cover, Good, HSG C
33,204	73	Weighted Average
30,559		92.03% Pervious Area
2,645		7.97% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.2	78	0.0860	0.14		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.68"
4.3	22	0.0450	0.09		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.68"
1.6	100	0.0450	1.06		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
15.1	200	Total			

Summary for Subcatchment 3S: Subcatchment 3S

Runoff = 0.38 cfs @ 12.09 hrs, Volume= 0.028 af, Depth> 3.90"
Routed to Reach AP3 : Analysis Point 3

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 10 Yr 24 Hr Rainfall=5.58"

Area (sf)	CN	Description
1,980	74	>75% Grass cover, Good, HSG C
1,222	98	Paved parking, HSG C
500	98	Roofs, HSG C
3,702	85	Weighted Average
1,980		53.48% Pervious Area
1,722		46.52% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.4	59	0.0820	0.29		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.68"
3.4	59	Total, Increased to minimum Tc = 6.0 min			

Summary for Subcatchment 4S: Subcatchment 4S

Runoff = 1.52 cfs @ 12.09 hrs, Volume= 0.111 af, Depth> 3.40"
Routed to Pond 1P : Rain Garden

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 10 Yr 24 Hr Rainfall=5.58"

Area (sf)	CN	Description
4,474	98	Roofs, HSG C
12,511	74	>75% Grass cover, Good, HSG C
16,985	80	Weighted Average
12,511		73.66% Pervious Area
4,474		26.34% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.3	144	0.0260	7.75	38.77	**Trap/Vee/Rect Channel Flow,** Bot.W=2.00' D=1.00' Z= 3.0 '/' Top.W=8.00' n= 0.022 Earth, clean & straight
0.3	144	Total, Increased to minimum Tc = 6.0 min			

Summary for Reach 1R: Flow through 2S

Inflow Area = 0.390 ac, 26.34% Impervious, Inflow Depth = 1.95" for 10 Yr 24 Hr event
Inflow = 0.56 cfs @ 12.31 hrs, Volume= 0.063 af
Outflow = 0.56 cfs @ 12.31 hrs, Volume= 0.063 af, Atten= 0%, Lag= 0.2 min
Routed to Reach AP2 : Analysis Point 2

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs / 3
Max. Velocity= 0.71 fps, Min. Travel Time= 0.6 min
Avg. Velocity = 0.35 fps, Avg. Travel Time= 1.3 min

Peak Storage= 21 cf @ 12.31 hrs
Average Depth at Peak Storage= 0.02' , Surface Width= 36.65'
Bank-Full Depth= 0.50' Flow Area= 21.8 sf, Capacity= 113.22 cfs

36.00' x 0.50' deep channel, n= 0.022 Earth, clean & straight
Side Slope Z-value= 15.0 '/' Top Width= 51.00'
Length= 27.0' Slope= 0.0185 '/'
Inlet Invert= 62.50', Outlet Invert= 62.00'

‡

Summary for Reach AP1: Analysis Point 1

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 0.222 ac, 52.55% Impervious, Inflow Depth > 4.11" for 10 Yr 24 Hr event
Inflow = 1.02 cfs @ 12.09 hrs, Volume= 0.076 af
Outflow = 1.02 cfs @ 12.09 hrs, Volume= 0.076 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs / 3

Summary for Reach AP2: Analysis Point 2

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 1.152 ac, 14.18% Impervious, Inflow Depth > 2.47" for 10 Yr 24 Hr event
Inflow = 2.38 cfs @ 12.22 hrs, Volume= 0.237 af
Outflow = 2.38 cfs @ 12.22 hrs, Volume= 0.237 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs / 3

Summary for Reach AP3: Analysis Point 3

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 0.085 ac, 46.52% Impervious, Inflow Depth > 3.90" for 10 Yr 24 Hr event
Inflow = 0.38 cfs @ 12.09 hrs, Volume= 0.028 af
Outflow = 0.38 cfs @ 12.09 hrs, Volume= 0.028 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs / 3

Summary for Pond 1P: Rain Garden

Inflow Area = 0.390 ac, 26.34% Impervious, Inflow Depth > 3.40" for 10 Yr 24 Hr event
Inflow = 1.52 cfs @ 12.09 hrs, Volume= 0.111 af
Outflow = 0.66 cfs @ 12.31 hrs, Volume= 0.107 af, Atten= 57%, Lag= 13.0 min
Discarded = 0.10 cfs @ 12.31 hrs, Volume= 0.044 af
Primary = 0.56 cfs @ 12.31 hrs, Volume= 0.063 af
Routed to Reach 1R : Flow through 2S

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs / 3
Peak Elev= 64.70' @ 12.31 hrs Surf.Area= 1,051 sf Storage= 1,278 cf

Plug-Flow detention time= 53.9 min calculated for 0.107 af (97% of inflow)
Center-of-Mass det. time= 36.0 min (852.6 - 816.6)

Volume	Invert	Avail.Storage	Storage Description
#1	61.99'	3,325 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
61.99	787	0.0	0	0
62.00	787	40.0	3	3
63.99	787	40.0	626	630
64.00	787	100.0	8	637
65.00	1,165	100.0	976	1,613
66.00	1,599	100.0	1,382	2,995
66.20	1,693	100.0	329	3,325

Device	Routing	Invert	Outlet Devices
#1	Primary	62.70'	**12.0" Round Culvert** L= 16.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 62.70' / 62.50' S= 0.0125 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf
#2	Device 1	62.70'	**2.7" Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#3	Device 1	64.20'	**4.5" Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#4	Device 1	65.30'	**24.0" W x 1.2" H Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#5	Device 1	65.60'	**48.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#6	Primary	65.70'	**6.0' long x 4.0' 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) 2.38 2.54 2.69 2.68 2.67 2.67 2.65 2.66 2.66
2.68 2.72 2.73 2.76 2.79 2.88 3.07 3.32

#7	Discarded	61.99'	**0.300 in/hr Exfiltration over Surface area** Conductivity to Groundwater Elevation = 61.83' Phase-In= 0.10'

Discarded OutFlow Max=0.10 cfs @ 12.31 hrs HW=64.70' (Free Discharge)
└─**7=Exfiltration** (Controls 0.10 cfs)

Primary OutFlow Max=0.56 cfs @ 12.31 hrs HW=64.70' TW=62.52' (Dynamic Tailwater)
├─**1=Culvert** (Passes 0.56 cfs of 3.65 cfs potential flow)
│ ├─**2=Orifice/Grate** (Orifice Controls 0.26 cfs @ 6.61 fps)
│ ├─**3=Orifice/Grate** (Orifice Controls 0.30 cfs @ 2.68 fps)
│ ├─**4=Orifice/Grate** (Controls 0.00 cfs)
│ └─**5=Orifice/Grate** (Controls 0.00 cfs)
└─**6=Broad-Crested Rectangular Weir**(Controls 0.00 cfs)

Time span=0.00-24.00 hrs, dt=0.05 hrs, 481 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

Subcatchment1S: Subcatchment1S Runoff Area=9,667 sf 52.55% Impervious Runoff Depth>5.54"
Flow Length=59' Tc=6.0 min CN=87 Runoff=1.36 cfs 0.103 af

Subcatchment2S: Subcatchment2S Runoff Area=33,204 sf 7.97% Impervious Runoff Depth>3.98"
Flow Length=200' Tc=15.1 min CN=73 Runoff=2.68 cfs 0.253 af

Subcatchment3S: Subcatchment3S Runoff Area=3,702 sf 46.52% Impervious Runoff Depth>5.32"
Flow Length=59' Slope=0.0820 '/' Tc=6.0 min CN=85 Runoff=0.50 cfs 0.038 af

Subcatchment4S: Subcatchment4S Runoff Area=16,985 sf 26.34% Impervious Runoff Depth>4.76"
Flow Length=144' Slope=0.0260 '/' Tc=6.0 min CN=80 Runoff=2.11 cfs 0.155 af

Reach 1R: Flow through 2S Avg. Flow Depth=0.03' Max Vel=0.80 fps Inflow=0.75 cfs 0.098 af
n=0.022 L=27.0' S=0.0185 '/' Capacity=113.22 cfs Outflow=0.75 cfs 0.098 af

Reach AP1: Analysis Point 1 Inflow=1.36 cfs 0.103 af
Outflow=1.36 cfs 0.103 af

Reach AP2: Analysis Point 2 Inflow=3.41 cfs 0.351 af
Outflow=3.41 cfs 0.351 af

Reach AP3: Analysis Point 3 Inflow=0.50 cfs 0.038 af
Outflow=0.50 cfs 0.038 af

Pond 1P: Rain Garden Peak Elev=65.12' Storage=1,757 cf Inflow=2.11 cfs 0.155 af
Discarded=0.12 cfs 0.052 af Primary=0.75 cfs 0.098 af Outflow=0.86 cfs 0.150 af

Total Runoff Area = 1.459 ac Runoff Volume = 0.548 af Average Runoff Depth = 4.51"
78.10% Pervious = 1.140 ac 21.90% Impervious = 0.320 ac

Time span=0.00-24.00 hrs, dt=0.05 hrs, 481 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

Subcatchment1S: Subcatchment1S Runoff Area=9,667 sf 52.55% Impervious Runoff Depth>6.89"
Flow Length=59' Tc=6.0 min CN=87 Runoff=1.67 cfs 0.127 af

Subcatchment2S: Subcatchment2S Runoff Area=33,204 sf 7.97% Impervious Runoff Depth>5.21"
Flow Length=200' Tc=15.1 min CN=73 Runoff=3.50 cfs 0.331 af

Subcatchment3S: Subcatchment3S Runoff Area=3,702 sf 46.52% Impervious Runoff Depth>6.65"
Flow Length=59' Slope=0.0820 '/' Tc=6.0 min CN=85 Runoff=0.62 cfs 0.047 af

Subcatchment4S: Subcatchment4S Runoff Area=16,985 sf 26.34% Impervious Runoff Depth>6.05"
Flow Length=144' Slope=0.0260 '/' Tc=6.0 min CN=80 Runoff=2.66 cfs 0.197 af

Reach 1R: Flow through 2S Avg. Flow Depth=0.03' Max Vel=0.94 fps Inflow=1.13 cfs 0.134 af
n=0.022 L=27.0' S=0.0185 '/' Capacity=113.22 cfs Outflow=1.14 cfs 0.134 af

Reach AP1: Analysis Point 1 Inflow=1.67 cfs 0.127 af
Outflow=1.67 cfs 0.127 af

Reach AP2: Analysis Point 2 Inflow=4.56 cfs 0.465 af
Outflow=4.56 cfs 0.465 af

Reach AP3: Analysis Point 3 Inflow=0.62 cfs 0.047 af
Outflow=0.62 cfs 0.047 af

Pond 1P: Rain Garden Peak Elev=65.43' Storage=2,158 cf Inflow=2.66 cfs 0.197 af
Discarded=0.13 cfs 0.058 af Primary=1.13 cfs 0.134 af Outflow=1.25 cfs 0.192 af

Total Runoff Area = 1.459 ac Runoff Volume = 0.702 af Average Runoff Depth = 5.77"
78.10% Pervious = 1.140 ac 21.90% Impervious = 0.320 ac

Summary for Subcatchment 1S: Subcatchment 1S

Runoff = 1.67 cfs @ 12.09 hrs, Volume= 0.127 af, Depth> 6.89"
Routed to Reach AP1 : Analysis Point 1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 50 Yr 24 Hr Rainfall=8.46"

Area (sf)	CN	Description
4,587	74	>75% Grass cover, Good, HSG C
3,034	98	Paved parking, HSG C
2,046	98	Roofs, HSG C
9,667	87	Weighted Average
4,587		47.45% Pervious Area
5,080		52.55% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
2.8	23	0.0200	0.14		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.68"
2.0	36	0.1110	0.30		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.68"
4.8	59	Total, Increased to minimum Tc = 6.0 min			

Summary for Subcatchment 2S: Subcatchment 2S

Runoff = 3.50 cfs @ 12.21 hrs, Volume= 0.331 af, Depth> 5.21"
Routed to Reach AP2 : Analysis Point 2

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 50 Yr 24 Hr Rainfall=8.46"

Area (sf)	CN	Description
20,651	70	Woods, Good, HSG C
2,645	98	Roofs, HSG C
9,908	74	>75% Grass cover, Good, HSG C
33,204	73	Weighted Average
30,559		92.03% Pervious Area
2,645		7.97% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.2	78	0.0860	0.14		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.68"
4.3	22	0.0450	0.09		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.68"
1.6	100	0.0450	1.06		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
15.1	200	Total			

Summary for Subcatchment 3S: Subcatchment 3S

Runoff = 0.62 cfs @ 12.09 hrs, Volume= 0.047 af, Depth> 6.65"
Routed to Reach AP3 : Analysis Point 3

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 50 Yr 24 Hr Rainfall=8.46"

Area (sf)	CN	Description
1,980	74	>75% Grass cover, Good, HSG C
1,222	98	Paved parking, HSG C
500	98	Roofs, HSG C
3,702	85	Weighted Average
1,980		53.48% Pervious Area
1,722		46.52% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.4	59	0.0820	0.29		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.68"
3.4	59	Total, Increased to minimum Tc = 6.0 min			

Summary for Subcatchment 4S: Subcatchment 4S

Runoff = 2.66 cfs @ 12.09 hrs, Volume= 0.197 af, Depth> 6.05"
Routed to Pond 1P : Rain Garden

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 50 Yr 24 Hr Rainfall=8.46"

Area (sf)	CN	Description
4,474	98	Roofs, HSG C
12,511	74	>75% Grass cover, Good, HSG C
16,985	80	Weighted Average
12,511		73.66% Pervious Area
4,474		26.34% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.3	144	0.0260	7.75	38.77	**Trap/Vee/Rect Channel Flow,** Bot.W=2.00' D=1.00' Z= 3.0 '/' Top.W=8.00' n= 0.022 Earth, clean & straight
0.3	144	Total, Increased to minimum Tc = 6.0 min			

Summary for Reach 1R: Flow through 2S

[90] Warning: Qout>Qin may require smaller dt or Finer Routing

Inflow Area = 0.390 ac, 26.34% Impervious, Inflow Depth = 4.12" for 50 Yr 24 Hr event
Inflow = 1.13 cfs @ 12.27 hrs, Volume= 0.134 af
Outflow = 1.14 cfs @ 12.26 hrs, Volume= 0.134 af, Atten= 0%, Lag= 0.0 min
Routed to Reach AP2 : Analysis Point 2

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs / 3
Max. Velocity= 0.94 fps, Min. Travel Time= 0.5 min
Avg. Velocity = 0.35 fps, Avg. Travel Time= 1.3 min

Peak Storage= 33 cf @ 12.26 hrs
Average Depth at Peak Storage= 0.03' , Surface Width= 37.00'
Bank-Full Depth= 0.50' Flow Area= 21.8 sf, Capacity= 113.22 cfs

36.00' x 0.50' deep channel, n= 0.022 Earth, clean & straight
Side Slope Z-value= 15.0 '/' Top Width= 51.00'
Length= 27.0' Slope= 0.0185 '/'
Inlet Invert= 62.50', Outlet Invert= 62.00'

‡

Summary for Reach AP1: Analysis Point 1

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 0.222 ac, 52.55% Impervious, Inflow Depth > 6.89" for 50 Yr 24 Hr event
Inflow = 1.67 cfs @ 12.09 hrs, Volume= 0.127 af
Outflow = 1.67 cfs @ 12.09 hrs, Volume= 0.127 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs / 3

Summary for Reach AP2: Analysis Point 2

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 1.152 ac, 14.18% Impervious, Inflow Depth > 4.84" for 50 Yr 24 Hr event
Inflow = 4.56 cfs @ 12.22 hrs, Volume= 0.465 af
Outflow = 4.56 cfs @ 12.22 hrs, Volume= 0.465 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs / 3

Summary for Reach AP3: Analysis Point 3

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 0.085 ac, 46.52% Impervious, Inflow Depth > 6.65" for 50 Yr 24 Hr event
Inflow = 0.62 cfs @ 12.09 hrs, Volume= 0.047 af
Outflow = 0.62 cfs @ 12.09 hrs, Volume= 0.047 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs / 3

Summary for Pond 1P: Rain Garden

Inflow Area = 0.390 ac, 26.34% Impervious, Inflow Depth > 6.05" for 50 Yr 24 Hr event
Inflow = 2.66 cfs @ 12.09 hrs, Volume= 0.197 af
Outflow = 1.25 cfs @ 12.27 hrs, Volume= 0.192 af, Atten= 53%, Lag= 10.8 min
Discarded = 0.13 cfs @ 12.27 hrs, Volume= 0.058 af
Primary = 1.13 cfs @ 12.27 hrs, Volume= 0.134 af
Routed to Reach 1R : Flow through 2S

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs / 3
Peak Elev= 65.43' @ 12.27 hrs Surf.Area= 1,353 sf Storage= 2,158 cf

Plug-Flow detention time= 44.5 min calculated for 0.191 af (97% of inflow)
Center-of-Mass det. time= 29.2 min (829.5 - 800.3)

Volume	Invert	Avail.Storage	Storage Description
#1	61.99'	3,325 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
61.99	787	0.0	0	0
62.00	787	40.0	3	3
63.99	787	40.0	626	630
64.00	787	100.0	8	637
65.00	1,165	100.0	976	1,613
66.00	1,599	100.0	1,382	2,995
66.20	1,693	100.0	329	3,325

Device	Routing	Invert	Outlet Devices
#1	Primary	62.70'	**12.0" Round Culvert** L= 16.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 62.70' / 62.50' S= 0.0125 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf
#2	Device 1	62.70'	**2.7" Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#3	Device 1	64.20'	**4.5" Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#4	Device 1	65.30'	**24.0" W x 1.2" H Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#5	Device 1	65.60'	**48.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#6	Primary	65.70'	**6.0' long x 4.0' 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) 2.38 2.54 2.69 2.68 2.67 2.67 2.65 2.66 2.66
2.68 2.72 2.73 2.76 2.79 2.88 3.07 3.32

#7	Discarded	61.99'	**0.300 in/hr Exfiltration over Surface area**
			Conductivity to Groundwater Elevation = 61.83' Phase-In= 0.10'

Discarded OutFlow Max=0.13 cfs @ 12.27 hrs HW=65.43' (Free Discharge)
└─**7=Exfiltration** (Controls 0.13 cfs)

Primary OutFlow Max=1.12 cfs @ 12.27 hrs HW=65.43' TW=62.53' (Dynamic Tailwater)
├─**1=Culvert** (Passes 1.12 cfs of 4.46 cfs potential flow)
│ ├─**2=Orifice/Grate** (Orifice Controls 0.31 cfs @ 7.79 fps)
│ ├─**3=Orifice/Grate** (Orifice Controls 0.54 cfs @ 4.91 fps)
│ ├─**4=Orifice/Grate** (Orifice Controls 0.27 cfs @ 1.33 fps)
│ └─**5=Orifice/Grate** (Controls 0.00 cfs)
└─**6=Broad-Crested Rectangular Weir**(Controls 0.00 cfs)

APPENDIX III

Extreme Precipitation Estimates

Extreme Precipitation in New York & New England

An Interactive Web Tool for Extreme Precipitation Analysis

About this Project | **Data & Products** | **Daily Monitoring** | **Documentation**

Select Product

- Extreme Precipitation Tables - HTML
- Extreme Precipitation Tables - Text/CSV
- Partial Duration Series - by Point
- Partial Duration Series - by Station
- Distribution Curves - Graphical
- Distribution Curves - Text/TBL
- Intensity Frequency Duration Graphs
- Precipitation Frequency Duration Graphs
- GIS Data Files
- Regional/State Maps

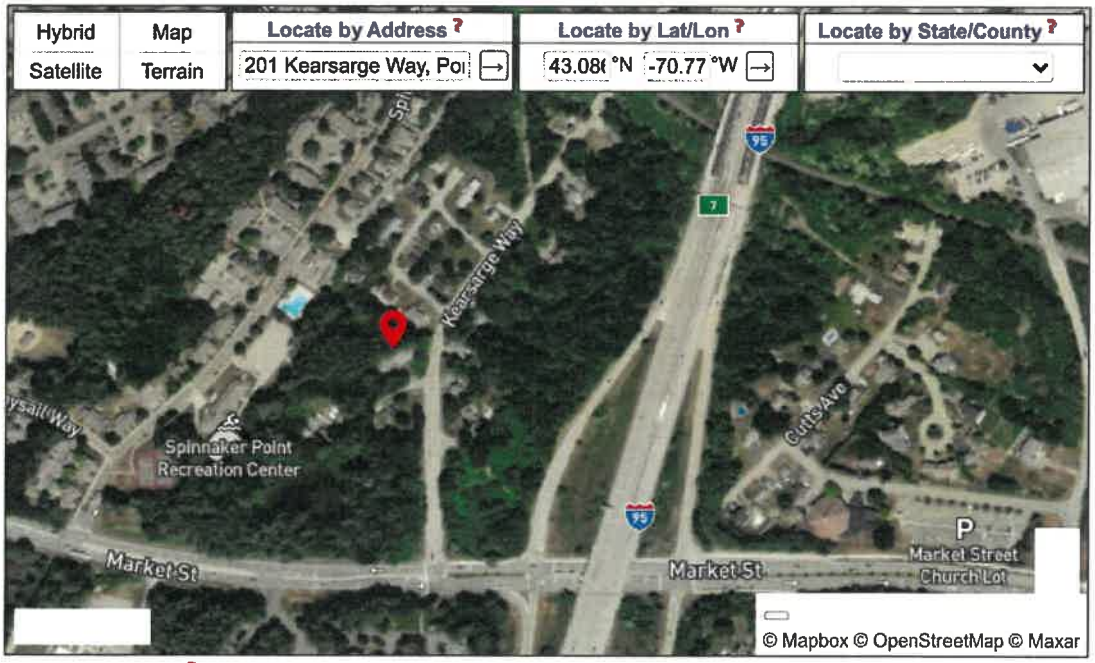
Select Location *Double-click map to place a marker, or enter address or latitude/longitude.*

Hybrid | Map | Satellite | Terrain

Locate by Address: 201 Kearsarge Way, Po

Locate by Lat/Lon: 43.08(°N -70.77 °W

Locate by State/County:



Select Options

Smoothing: Yes

Delivery: Popup

Submit

Extreme Precipitation Tables

Northeast Regional Climate Center

Data represents point estimates calculated from partial duration series. All precipitation amounts are displayed in inches.

Metadata for Point

Smoothing	Yes
State	
Location	
Latitude	43.086 degrees North
Longitude	70.776 degrees West
Elevation	10 feet
Date/Time	Mon Aug 07 2023 11:00:02 GMT-0400 (Eastern Daylight Time)

Precipitation amounts increased by 15% as subject parcel is located in a Coastal/Great Bay Community.

2-YEAR: 3.20*1.15 = 3.68"
10-YEAR: 4.85*1.15 = 5.58"
25-YEAR: 6.15*1.15 = 7.07"
50-YEAR: 7.36*1.15 = 8.46"

Extreme Precipitation Estimates

	5min	10min	15min	30min	60min	120min		1hr	2hr	3hr	6hr	12hr	24hr	48hr		1day	2day	4day	7day	10day	
1yr	0.26	0.40	0.50	0.65	0.81	1.04	**1yr**	0.70	0.98	1.21	1.56	2.02	2.65	2.91	**1yr**	2.35	2.80	3.21	3.93	4.53	**1yr**
2yr	0.32	0.50	0.62	0.81	1.02	1.30	**2yr**	0.88	1.18	1.51	1.93	2.48	3.20	3.56	**2yr**	2.83	3.42	3.92	4.66	5.31	**2yr**
5yr	0.37	0.58	0.73	0.97	1.24	1.60	**5yr**	1.07	1.46	1.88	2.42	3.13	4.05	4.56	**5yr**	3.59	4.39	5.02	5.91	6.68	**5yr**
10yr	0.41	0.65	0.82	1.11	1.44	1.88	**10yr**	1.25	1.72	2.22	2.88	3.74	4.85	5.51	**10yr**	4.29	5.30	6.06	7.08	7.95	**10yr**
25yr	0.48	0.76	0.96	1.33	1.76	2.32	**25yr**	1.52	2.13	2.76	3.61	4.72	6.15	7.07	**25yr**	5.44	6.80	7.76	8.98	10.01	**25yr**
50yr	0.53	0.85	1.09	1.53	2.06	2.74	**50yr**	1.77	2.51	3.27	4.30	5.63	7.36	8.55	**50yr**	6.51	8.22	9.37	10.76	11.93	**50yr**
100yr	0.60	0.97	1.25	1.76	2.40	3.22	**100yr**	2.07	2.96	3.86	5.11	6.72	8.82	10.34	**100yr**	7.80	9.94	11.31	12.89	14.22	**100yr**
200yr	0.67	1.09	1.41	2.03	2.80	3.80	**200yr**	2.41	3.49	4.58	6.09	8.04	10.56	12.50	**200yr**	9.35	12.02	13.66	15.46	16.95	**200yr**
500yr	0.79	1.30	1.69	2.46	3.44	4.72	**500yr**	2.97	4.34	5.71	7.64	10.16	13.42	16.08	**500yr**	11.88	15.46	17.53	19.66	21.41	**500yr**

Lower Confidence Limits

	5min	10min	15min	30min	60min	120min		1hr	2hr	3hr	6hr	12hr	24hr	48hr		1day	2day	4day	7day	10day	
1yr	0.23	0.36	0.44	0.59	0.73	0.88	1yr	0.63	0.87	0.92	1.32	1.67	2.21	2.48	1yr	1.96	2.39	2.85	3.16	3.86	1yr
2yr	0.31	0.49	0.60	0.81	1.00	1.19	2yr	0.86	1.16	1.37	1.82	2.34	3.05	3.44	2yr	2.70	3.31	3.81	4.53	5.06	2yr
5yr	0.35	0.54	0.67	0.92	1.17	1.40	5yr	1.01	1.37	1.61	2.12	2.74	3.78	4.17	5yr	3.34	4.01	4.70	5.51	6.22	5yr
10yr	0.38	0.59	0.73	1.02	1.32	1.60	10yr	1.14	1.56	1.81	2.40	3.07	4.36	4.84	10yr	3.86	4.66	5.41	6.38	7.16	10yr
25yr	0.44	0.67	0.83	1.18	1.56	1.90	25yr	1.34	1.86	2.10	2.77	3.55	4.67	5.87	25yr	4.13	5.64	6.61	7.75	8.64	25yr
50yr	0.48	0.73	0.91	1.31	1.76	2.16	50yr	1.52	2.12	2.35	3.09	3.95	5.27	6.77	50yr	4.66	6.51	7.67	8.99	9.97	50yr
100yr	0.53	0.81	1.01	1.46	2.00	2.47	100yr	1.73	2.41	2.62	3.44	4.38	5.91	7.82	100yr	5.23	7.52	8.91	10.43	11.50	100yr
200yr	0.59	0.89	1.12	1.63	2.27	2.81	200yr	1.96	2.75	2.93	3.81	4.83	6.61	9.02	200yr	5.85	8.67	10.34	12.13	13.28	200yr
500yr	0.68	1.02	1.31	1.90	2.70	3.36	500yr	2.33	3.29	3.40	4.36	5.51	7.66	10.89	500yr	6.78	10.47	12.58	14.82	16.06	500yr

Upper Confidence Limits

	5min	10min	15min	30min	60min	120min		1hr	2hr	3hr	6hr	12hr	24hr	48hr		1day	2day	4day	7day	10day	
1yr	0.28	0.44	0.54	0.72	0.89	1.08	1yr	0.77	1.06	1.25	1.74	2.21	2.98	3.15	1yr	2.64	3.03	3.57	4.37	5.03	1yr

APPENDIX IV

Test Pit Logs

JBE# 23152
Date: 8\10\23

TEST PIT # 1 LOG

Logged by: A. Jones
Witnessed by: —

ESHWT 36 RESTRICTIVE — REFUSAL 46" H_2O — ROOTS 39

Layer 1	Hue	Value	Chroma	Texture	Structure	Consistency	Redox	Roots	Note
	10YR	2	1	FS	Massive	Loose	None	None	
	7.5YR	3	2	S	S.G.	V. Friable	F.F.		
	2.5Y	4	3	LS	Granular	Friable	C.F.	Many	
0-8	5Y	5	4	FSL	Blocky	Firm	M.F.	Com.	
		6	6	SL	Ang. B.	V. Firm	F.D.	Few	
		7	8	SIL	Platey	Soft Rock	C.D.		
		8		SCL		Bedrock	M.D.		

Layer 2	Hue	Value	Chroma	Texture	Structure	Consistency	Redox	Roots	Note
	10YR	2	1	FS	Massive	Loose	None	None	
	7.5YR	3	2	S	S.G.	V. Friable	F.F.		
	2.5Y	4	3	LS	Granular	Friable	C.F.	Many	
8-16	5Y	5	4	FSL	Blocky	Firm	M.F.	Com.	
		6	6	SL	Ang. B.	V. Firm	F.D.	Few	
		7	8	SIL	Platey	Soft Rock	C.D.		
		8		SCL		Bedrock	M.D.		

Layer 3	Hue	Value	Chroma	Texture	Structure	Consistency	Redox	Roots	Note
	10YR	2	1	FS	Massive	Loose	None	None	
	7.5YR	3	2	S	S.G.	V. Friable	F.F.		
	2.5Y	4	3	LS	Granular	Friable	C.F.	Many	
16-	5Y	5	4	FSL	Blocky	Firm	M.F.	Com.	
		6	6	SL	Ang. B.	V. Firm	F.D.	Few	
		7	8	SIL	Platey	Soft Rock	C.D.		
		8		SCL		Bedrock	M.D.		

Layer 4	Hue	Value	Chroma	Texture	Structure	Consistency	Redox	Roots	Note
	10YR	2	1	FS	Massive	Loose	None	None	
	7.5YR	3	2	S	S.G.	V. Friable	F.F.		
	2.5Y	4	3	LS	Granular	Friable	C.F.	Many	
	5Y	5	4	FSL	Blocky	Firm	M.F.	Com.	
		6	6	SL	Ang. B.	V. Firm	F.D.	Few	
		7	8	SIL	Platey	Soft Rock	C.D.		
		8		SCL		Bedrock	M.D.		

Layer 5	Hue	Value	Chroma	Texture	Structure	Consistency	Redox	Roots	Note
	10YR	2	1	FS	Massive	Loose	None	None	
	7.5YR	3	2	S	S.G.	V. Friable	F.F.		
	2.5Y	4	3	LS	Granular	Friable	C.F.	Many	
	5Y	5	4	FSL	Blocky	Firm	M.F.	Com.	
		6	6	SL	Ang. B.	V. Firm	F.D.	Few	
		7	8	SIL	Platey	Soft Rock	C.D.		
		8		SCL		Bedrock	M.D.		

Estimated Percolation Rate:

Drainage Class:

JBE#
Date: \ \

TEST PIT # 2 LOG

Logged by:
Witnessed by:

ESHWT 38 RESTRICTIVE — REFUSAL — H_2O — ROOTS 38

Layer 1	Hue	Value	Chroma	Texture	Structure	Consistency	Redox	Roots	Note
	10YR	2	1	FS	Massive	Loose	None	None	
	7.5YR	3	2	S	S.G.	V. Friable	F.F.		
	2.5Y	4	3	LS	Granular	Friable	C.F.	Many	
0 - 14	5Y	5	4	FSL	Blocky	Firm	M.F.	Com.	
		6	6	SL	Ang. B.	V. Firm	F.D.	Few	
		7	8	SIL	Platey	Soft Rock	C.D.		
		8		SCL		Bedrock	M.D.		

Layer 2	Hue	Value	Chroma	Texture	Structure	Consistency	Redox	Roots	Note
	10YR	2	1	FS	Massive	Loose	None	None	
	7.5YR	3	2	S	S.G.	V. Friable	F.F.		
	2.5Y	4	3	LS	Granular	Friable	C.F.	Many	
14 - 38	5Y	5	4	FSL	Blocky	Firm	M.F.	Com.	
		6	6	SL	Ang. B.	V. Firm	F.D.	Few	
		7	8	SIL	Platey	Soft Rock	C.D.		
		8		SCL		Bedrock	M.D.		

Layer 3	Hue	Value	Chroma	Texture	Structure	Consistency	Redox	Roots	Note
	10YR	2	1	FS	Massive	Loose	None	None	
	7.5YR	3	2	S	S.G.	V. Friable	F.F.		
	2.5Y	4	3	LS	Granular	Friable	C.F.	Many	
38 - 60	5Y	5	4	FSL	Blocky	Firm	M.F.	Com.	
		6	6	SL	Ang. B.	V. Firm	F.D.	Few	
		7	8	SIL	Platey	Soft Rock	C.D.		
		8		SCL		Bedrock	M.D.		

Layer 4	Hue	Value	Chroma	Texture	Structure	Consistency	Redox	Roots	Note
	10YR	2	1	FS	Massive	Loose	None	None	
	7.5YR	3	2	S	S.G.	V. Friable	F.F.		
	2.5Y	4	3	LS	Granular	Friable	C.F.	Many	
	5Y	5	4	FSL	Blocky	Firm	M.F.	Com.	
		6	6	SL	Ang. B.	V. Firm	F.D.	Few	
		7	8	SIL	Platey	Soft Rock	C.D.		
		8		SCL		Bedrock	M.D.		

Layer 5	Hue	Value	Chroma	Texture	Structure	Consistency	Redox	Roots	Note
	10YR	2	1	FS	Massive	Loose	None	None	
	7.5YR	3	2	S	S.G.	V. Friable	F.F.		
	2.5Y	4	3	LS	Granular	Friable	C.F.	Many	
	5Y	5	4	FSL	Blocky	Firm	M.F.	Com.	
		6	6	SL	Ang. B.	V. Firm	F.D.	Few	
		7	8	SIL	Platey	Soft Rock	C.D.		
		8		SCL		Bedrock	M.D.		

Estimated Percolation Rate:

Drainage Class:

JBE#
Date: \ \

TEST PIT # 3 LOG

Logged by:
Witnessed by:

ESHWT 46 RESTRICTIVE — REFUSAL — H_2O — ROOTS 46

Layer 1	Hue	Value	Chroma	Texture	Structure	Consistency	Redox	Roots	Note
	10YR	2	1	FS	Massive	Loose	None	None	
	7.5YR	3	2	S	S.G.	V. Friable	F.F.		
	2.5Y	4	3	LS	Granular	Friable	C.F.	Many	
0-6	5Y	5	4	FSL	Blocky	Firm	M.F.	Com.	
		6	6	SL	Ang. B.	V. Firm	F.D.	Few	
		7	8	SIL	Platey	Soft Rock	C.D.		
		8		SCL		Bedrock	M.D.		

Layer 2	Hue	Value	Chroma	Texture	Structure	Consistency	Redox	Roots	Note
	10YR	2	1	FS	Massive	Loose	None	None	
	7.5YR	3	2	S	S.G.	V. Friable	F.F.		
	2.5Y	4	3	LS	Granular	Friable	C.F.	Many	
6-46	5Y	5	4	FSL	Blocky	Firm	M.F.	Com.	FILL
		6	6	SL	Ang. B.	V. Firm	F.D.	Few	
		7	8	SIL	Platey	Soft Rock	C.D.		
		8		SCL		Bedrock	M.D.		

Layer 3	Hue	Value	Chroma	Texture	Structure	Consistency	Redox	Roots	Note
	10YR	2	1	FS	Massive	Loose	None	None	
	7.5YR	3	2	S	S.G.	V. Friable	F.F.		
	2.5Y	4	3	LS	Granular	Friable	C.F.	Many	
46-55	5Y	5	4	FSL	Blocky	Firm	M.F.	Com.	
		6	6	SL	Ang. B.	V. Firm	F.D.	Few	
		7	8	SIL	Platey	Soft Rock	C.D.		
		8		SCL		Bedrock	M.D.		

Layer 4	Hue	Value	Chroma	Texture	Structure	Consistency	Redox	Roots	Note
	10YR	2	1	FS	Massive	Loose	None	None	
	7.5YR	3	2	S	S.G.	V. Friable	F.F.		
	2.5Y	4	3	LS	Granular	Friable	C.F.	Many	
55-70	5Y	5	4	FSL	Blocky	Firm	M.F.	Com.	
		6	6	SL	Ang. B.	V. Firm	F.D.	Few	
		7	8	SIL	Platey	Soft Rock	C.D.		
		8		SCL		Bedrock	M.D.		

Layer 5	Hue	Value	Chroma	Texture	Structure	Consistency	Redox	Roots	Note
	10YR	2	1	FS	Massive	Loose	None	None	
	7.5YR	3	2	S	S.G.	V. Friable	F.F.		
	2.5Y	4	3	LS	Granular	Friable	C.F.	Many	
	5Y	5	4	FSL	Blocky	Firm	M.F.	Com.	
		6	6	SL	Ang. B.	V. Firm	F.D.	Few	
		7	8	SIL	Platey	Soft Rock	C.D.		
		8		SCL		Bedrock	M.D.		

Estimated Percolation Rate:

Drainage Class:

APPENDIX V

NRCS Web Soil Survey

Soil Map—Rockingham County, New Hampshire
(201 Kearsarge Way Soil Map)

Map Scale: 1:1,050 if printed on A portrait (8.5" x 11") sheet.

N

Meters: 0 15 30 60 90

Feet: 0 50 100 200 300

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

MAP LEGEND

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

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

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

Water Features
- Streams and Canals

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

Background
- Aerial Photography

MAP INFORMATION

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

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

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

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

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

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

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

Soil Survey Area: Rockingham County, New Hampshire
Survey Area Data: Version 25, Sep 12, 2022

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

Date(s) aerial images were photographed: Jun 19, 2020—Sep 20, 2020

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

Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
799	Urban land-Canton complex, 3 to 15 percent slopes	3.5	100.0%
Totals for Area of Interest		**3.5**	**100.0%**

APPENDIX VI

Amoozemeter Test Results

Test #1

Height	Constant	Time		Outflow	Rate (K_{sat})	
cm	cm^2	Minutes	Hours	cm^3/hr	cm/hr	in/hr
0						
1.9	20	1	0.016667	2280.0	2.3524	0.9261
3.1	20	2	0.033333	1860.0	1.9191	0.7555
5	20	3	0.05	2000.0	2.0635	0.8124
6	20	4	0.066667	1800.0	1.8572	0.7312
7	20	5	0.083333	1680.0	1.7334	0.6824

Mean	**0.7815**
σ (Std. Dev.)	**0.0835**

Constant	20	cm^2
Glover Coefficient:	0.001032	$1/cm^2$

Calculations:

Constant = 20 cm^2 for one tube, 105 cm^2 for two tubes (one tube used)

Hours = Minutes / 60

Outflow = (Height*Constant)/Hours

Ksat = Outflow*Glover Coefficient Mean Ksat = 0.6 in/hr

Test #2

Height	Constant	Time		Outflow	Rate (K_{sat})	
cm	cm^2	Minutes	Hours	cm^3/hr	cm/hr	in/hr
0						
1.1	20	1	0.016667	1320.0	1.3939	0.5488
1.7	20	2	0.033333	1020.0	1.0771	0.4241
2.1	20	3	0.05	840.0	0.8870	0.3492
2.5	20	4	0.066667	750.0	0.7920	0.3118
2.9	20	5	0.083333	696.0	0.7350	0.2894
3.3	20	6	0.1	660.0	0.6970	0.2744
3.8	20	7	0.116667	651.4	0.6879	0.2708

Mean	**0.3526**
σ (Std. Dev.)	**0.0942**

Constant	20	cm^2
Glover Coefficient:	0.001056	$1/cm^2$

Calculations:

Constant = 20 cm^2 for one tube, 105 cm^2 for two tubes (one tube used)

Hours = Minutes / 60

Outflow = (Height*Constant)/Hours

Ksat = Outflow*Glover Coefficient Mean Ksat = 0.6 in/hr

Test #3

Height	Constant	Time		Outflow	Rate (K_{sat})	
cm	cm^2	Minutes	Hours	cm^3/hr	cm/hr	in/hr
0						
1.6	20	1	0.016667	1920.0	2.0275	0.7982
2.9	20	2	0.033333	1740.0	1.8374	0.7234
4	20	3	0.05	1600.0	1.6896	0.6652
5	20	4	0.066667	1500.0	1.5840	0.6236
5.4	20	5	0.083333	1296.0	1.3686	0.5388

Mean	0.6699
σ (Std. Dev.)	0.0880

Constant	20	cm^2
Glover Coefficient:	0.001056	$1/cm^2$

Calculations:

Constant = 20 cm^2 for one tube, 105 cm^2 for two tubes one tube used)

Hours = Minutes / 60

Outflow = (Height*Constant)/Hours

Ksat = Outflow*Glover Coefficient Mean Ksat = 0.6 in/hr

APPENDIX VII

Rip Rap Design Calculations

RIP RAP CALCULATIONS
Site Design Amendment
201 Kearsarge Way
Portsmouth, NH 03801

Jones & Beach Engineers, Inc.
P.O. Box 219
Stratham, NH 03885
11-Aug-23

Rip Rap equations were obtained from the *Stormwater Management and Erosion Control Handbook for Urban and Developing Areas in New Hampshire.*
Aprons are sized for the 25-Year storm event.

TAILWATER < HALF THE D_o

$L_a = (1.8 \times Q) / D_0^{3/2} + (7 \times D_o)$
$W = L_a + (3 \times D_o)$ or defined channel width
$d_{50} = (0.02 \times Q^{4/3}) / (T_w \times D_0)$

Culvert or Catch Basin (Sta. No.)	Tailwater (Feet) T_w	Discharge (C.F.S.) Q	Diameter of Pipe D_o	Length of Rip Rap L_a (feet)	Width of Rip Rap W (feet)	d_{50}-Median Stone Rip Rap d50 (feet)
12" HDPE (Pond 1P)	0.28	0.75	1	8.4	11	0.05

TAILWATER > HALF THE D_o

$L_a = (3.0 \times Q) / D_0^{3/2} + (7 \times D_o)$
$W = (0.4 \times L_a) + (3 \times D_o)$ or defined channel width
$d_{50} = (0.02 \times Q^{4/3}) / (T_w \times D_0)$

Culvert or Catch Basin (Sta. No.)	Tailwater (Feet) T_w	Discharge (C.F.S.) Q	Diameter of Pipe D_o	Length of Rip Rap L_a (feet)	Width of Rip Rap W (feet)	d_{50}-Median Stone Rip Rap d50 (feet)
				#DIV/0!	#DIV/0!	#DIV/0!

Table 7-24 -- Recommended Rip Rap Gradation Ranges				
d_{50} Size =	0.25	Feet	3	Inches
% of Weight Smaller		Size of Stone (Inches)		
Than the Given d_{50} Size		From		To
100%		5		6
85%		4		5
50%		3		5
15%		1		2

Table 7-24 -- Recommended Rip Rap Gradation Ranges				
d_{50} Size =	0.5	Feet	6	Inches
% of Weight Smaller		Size of Stone (Inches)		
Than the Given d_{50} Size		From		To
100%		9		12
85%		8		11
50%		6		9
15%		2		3

APPENDIX VIII

Stormwater Operations and Maintenance Manual

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

STORMWATER MANAGEMENT OPERATIONS AND MAINTENANCE MANUAL

201 Kearsarge Way
Portsmouth, NH 03801
Tax Map 218, Lot 5

Prepared for:

Green & Company
P.O. Box 1297
North Hampton, NH 03862

Prepared by:
Jones & Beach Engineers, Inc.
85 Portsmouth Avenue
P.O. Box 219
Stratham, NH 03885
(603) 772-4746
August 7, 2023
JBE Project No. 23152

Inspection and Maintenance of Facilities and Property

A. Maintenance of Common Facilities or Property

1. The land owner for each lot, 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 aforementioned parties 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. Permanent stormwater and sediment and erosion control facilities to be maintained on the site include, but are not limited to, the following:

    a. Driveways
    b. Vegetation and landscaping
    c. Bioretention systems
    d. Swales
    e. Culvert Outlets
    f. Rip Rap Outlet Protection Aprons

2. Maintenance of permanent measures shall follow the following schedule:

    a. Normal winter driveway maintenance including plowing and snow removal.

    b. **Annual inspection** of the site for erosion, destabilization, settling, and sloughing. Any needed repairs are to be conducted immediately. **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.

    c. Rain Gardens:

        - Visually inspect monthly and repair erosion. Use small stones to stabilize erosion along drainage paths.
        - Check the pH once a year if grass is not surviving. Apply an alkaline product, such as limestone, if needed.
        - Re-seed any bare areas by hand as needed.
        - Immediately after the completion of cell construction, water grass for 14 consecutive days unless there is sufficient natural rainfall.
        - Once a month (more frequently in the summer), the land owner shall visually inspect vegetation for disease or pest problems and treat as required.
        - During times of extended drought, look for physical features of stress. Water in the early morning as needed.

- Weed regularly, if needed.
- After rainstorms, inspect the cell and make sure that drainage paths are clear and that ponding water dissipates over 4-6 hours. (Water may pond for longer times during the winter and early spring.)
- Twice annually, inspect the outlet control structures to ensure that they are not clogged and correct any clogging found as needed.
- Any debris and sediment accumulations shall be removed from the outlet structures, overflow risers, and emergency spillways and disposed of properly.
- Inspect outlet structure for deterioration and or clogging.
- If erosion is evident on the berm or emergency spillway, stabilize the affected area by seeding. Trees must not be allowed to grow in these areas.
- KEEP IN MIND, THE BIORETENTION CELL IS NOT A POND. IT SHALL NOT PROVIDE A BREEDING GROUND FOR MOSQUITOES. MOSQUITOES NEED AT LEAST FOUR (4) DAYS OF STANDING WATER TO DEVELOP AS LARVA.

d. **Inspection** of culvert outlets at least **once per month** during the rainy season (March to November). Any debris is to be removed and disposed of properly.

e. Rock riprap shall be **inspected annually** in order to ensure that it has not been displaced, undermined, or otherwise damaged. Displaced rock shall be replaced, or additional rock added in order to maintain the structure(s) in their undamaged state. Woody vegetation must not be allowed to become established in riprap areas, and/or any debris removed from the void spaces between the rocks. If the riprap is adjacent to a stream or other waterbody, the water shall be kept clear of obstructions, debris, and sediment deposits

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

Commitment to maintenance requirements

I agree to complete and/or observe all of the required maintenance practices and their respective schedules as outlined above.

_____

Signature

_____

Print Name

_____

Title

_____

Date

Annual Operations and Maintenance Report

The land owner for each lot, 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 aforementioned parties shall keep receipts and records of all maintenance companies hired throughout the year to submit along with the following form.

Construction Activity	Date of Inspection	Who Inspected	Findings of Inspector
Driveways			
Vegetation and Landscaping			
Rain Gardens			
Culvert Outlets			
Rip Rap Outlet Protection			
Other (please note):			

Regular Inspection and Maintenance Guidance for Rain Gardens

Maintenance of rain gardens can typically be performed as part of standard landscaping. Regular inspection and maintenance is critical to the effective operation of rain gardens to insure they remain clear of leaves and debris and free draining. This page provides guidance on maintenance activities that are typically required for these systems, along with the suggested frequency for each activity. Individual systems may have more, or less, frequent maintenance needs, depending on a variety of factors including the occurrence of large storm events, overly wet or dry (I.E., drought), regional hydrologic conditions, and the upstream land use.

ACTIVITIES

The most common maintenance activity is the removal of leaves from the system and bypass structure. Visual inspections are routine for system maintenance. This includes looking for standing water, accumulated leaves, holes, signs of plant distress, and debris and sediment accumulation in the system. Mulch and/or vegetation coverage is integral to the performance of the system, including infiltration rate and nutrient uptake. Vegetation care is important to system productivity and health.

ACTIVITY	FREQUENCY
A record should be kept of the time to drain for the system completely after a storm event. The system should drain completely within 72 hours.	After every major storm in the first few months, then biannually.
Check to ensure the surface remains well draining after storm event. **Remedy**: If stone is clogged, draining poorly, or standing water covers more than 15% of the surface 48 hours after a precipitation event, then remove top few inches of discolored material. Till or rake remaining material as needed.	
Check inlets and outlets for leaves and debris. **Remedy**: Rake in and around the system to clear it of debris. Also, clear the inlet and overflow if obstructed.	Quarterly initially, biannually, frequency adjusted as needed after 3 inspections
Check for animal burrows and short circuiting in the system **Remedy**: Soil erosion from short circuiting or animal boroughs should be repaired when they occur. The holes should be filled and lightly compacted.	
Check to ensure the stone area does not contain more than 2 inches accumulated material **Remedy**: Remove sediment as necessary. If 2 inches or more of pea stone has been removed, replace in kind.	
During extended periods without rainfall, inspect plants for signs of distress. **Remedy**: Plants should be watered until established (typical only for first few months) or as needed thereafter.	
Inspect inlets and outlets to ensure good condition and no evidence of deterioration. Check to see if high-flow bypass is functioning. **Remedy**: Repair or replace any damaged structural parts, inlets, outlets, sidewalls.	Annually
Check for robust vegetation coverage throughout the system. **Remedy**: If at least 50% vegetation coverage is not established after 2 years, reinforcement planting should be performed.	
Check for dead or dying plants, and general long term plant health. **Remedy**: This vegetation should be cut and removed from the system. If woody vegetation is present, care should be taken to remove dead or decaying plant Material. Separation of Herbaceous vegetation rootstock should occur when overcrowding is observed.	As needed

1/15/2011, University of New Hampshire Stormwater Center

JONES&BEACH ENGINEERS INC.

CHECKLIST FOR INSPECTION OF RAIN GARDENS

Location: Inspector:

Date: Time: Site Conditions:

Date Since Last Rain Event:

Inspection Items	Satisfactory (S) or Unsatisfactory (U)		Comments/Corrective Action
1. Initial Inspection After Planting and Mulching			
Plants are stable, roots not exposed	S	U	
Surface is at design level, typically 4" below overpass	S	U	
Overflow bypass / inlet (if available) is functional	S	U	
2. Debris Cleanup (2 times a year minimum, Spring & Fall)			
Litter, leaves, and dead vegetation removed from the system	S	U	
Prune perennial vegetation	S	U	
3. Standing Water (1 time a year, After large storm events)			
No evidence of standing water after 72 hours	S	U	
4. Short Circuiting & Erosion (1 time a year, After large storm events)			
No evidence of animal burrows or other holes	S	U	
No evidence of erosion	S	U	
5. Drought Conditions (As needed)			
Water grass as needed	S	U	
6. Overflow Bypass / Inlet Inspection (1 time a year, After large storm events)			
No evidence of blockage or accumulated leaves	S	U	
Good condition, no need for repair	S	U	
7. Vegetation Coverage (once a year)			
50% coverage established throughout system by first year	S	U	
Robust coverage by year 2 or later	S	U	
8. Mulch Depth (if applicable)(once every 2 years)			
Mulch at original design depth after tilling or replacement	S	U	
9. Vegetation Health (once every 3 years)			
Dead or decaying plants removed from the system	S	U	
10. Tree Pruning (once every 3 years)			
Prune dead, diseased, or crossing branches	S	U	

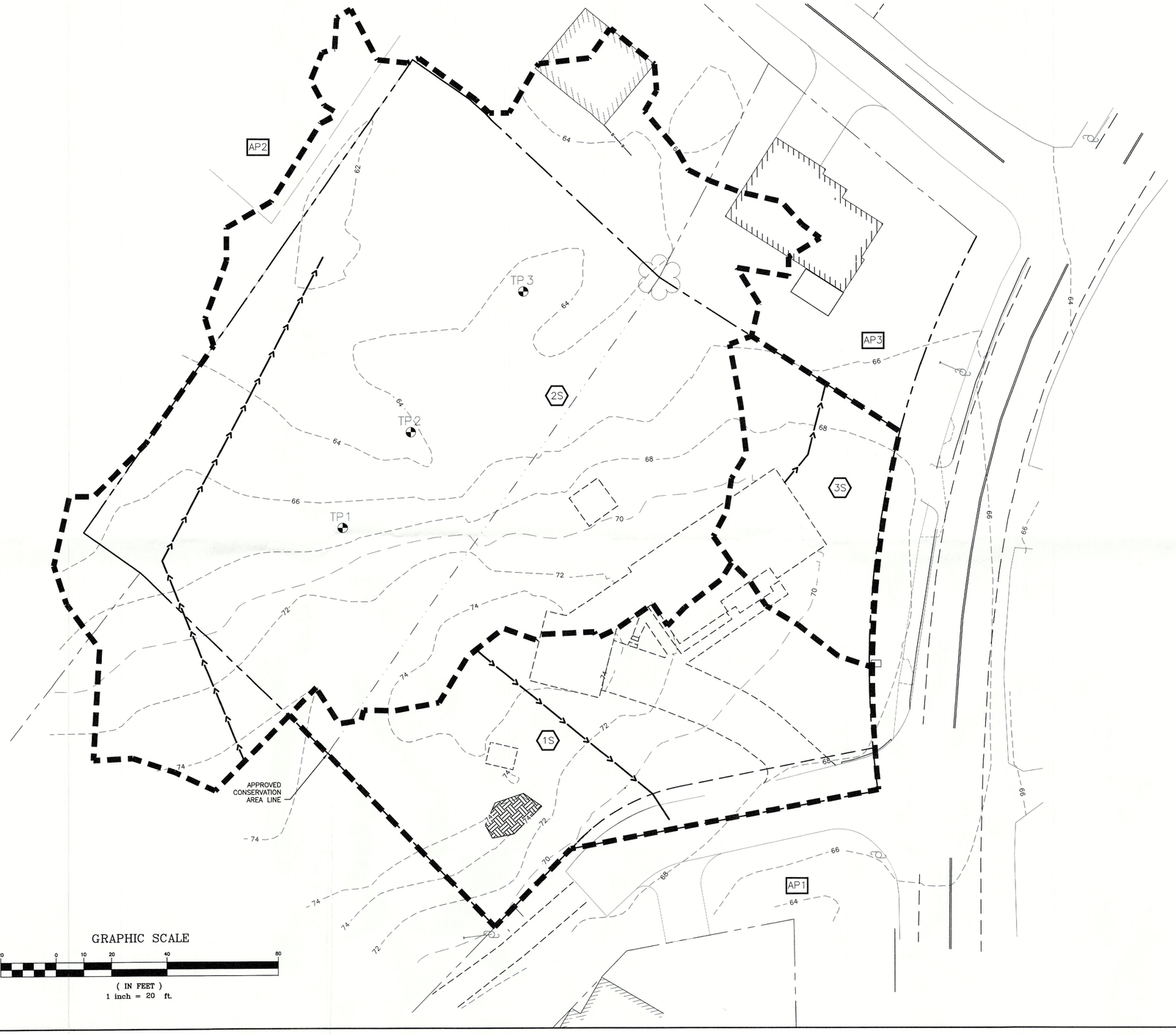
Corrective Action Needed	Due Date
1.	
2.	
3.	

1/15/2011, University of New Hampshire Stormwater Center

JONES&BEACH ENGINEERS INC.

APPENDIX IX

Pre- and Post-Construction Watershed Plans



GRAPHIC SCALE

20 0 10 20 40 80

(IN FEET)
1 inch = 20 ft.

LEGEND

- SUBCATCHMENT BOUNDARY
- SUBCATCHMENT (X)
- REACH (X)
- POND (X)
- TC PATH
- WETLANDS
- HISS SOILS
- FLOW ARROW

PROJECT PARCEL
TOWN OF PORTSMOUTH
TAX MAP 218, LOT 5

APPLICANT
GREEN & COMPANY
PO BOX 1297
NORTH HAMPTON, NH 03862

TOTAL LOT AREA
52,253 SQ. FT.
1.20 ACRES

Design: DJM	Draft: DJM	Date: 8/1/23
Checked: PSL	Scale: AS NOTED	Project No.:23152
Drawing Name: 23152-WATERSHED.dwg		

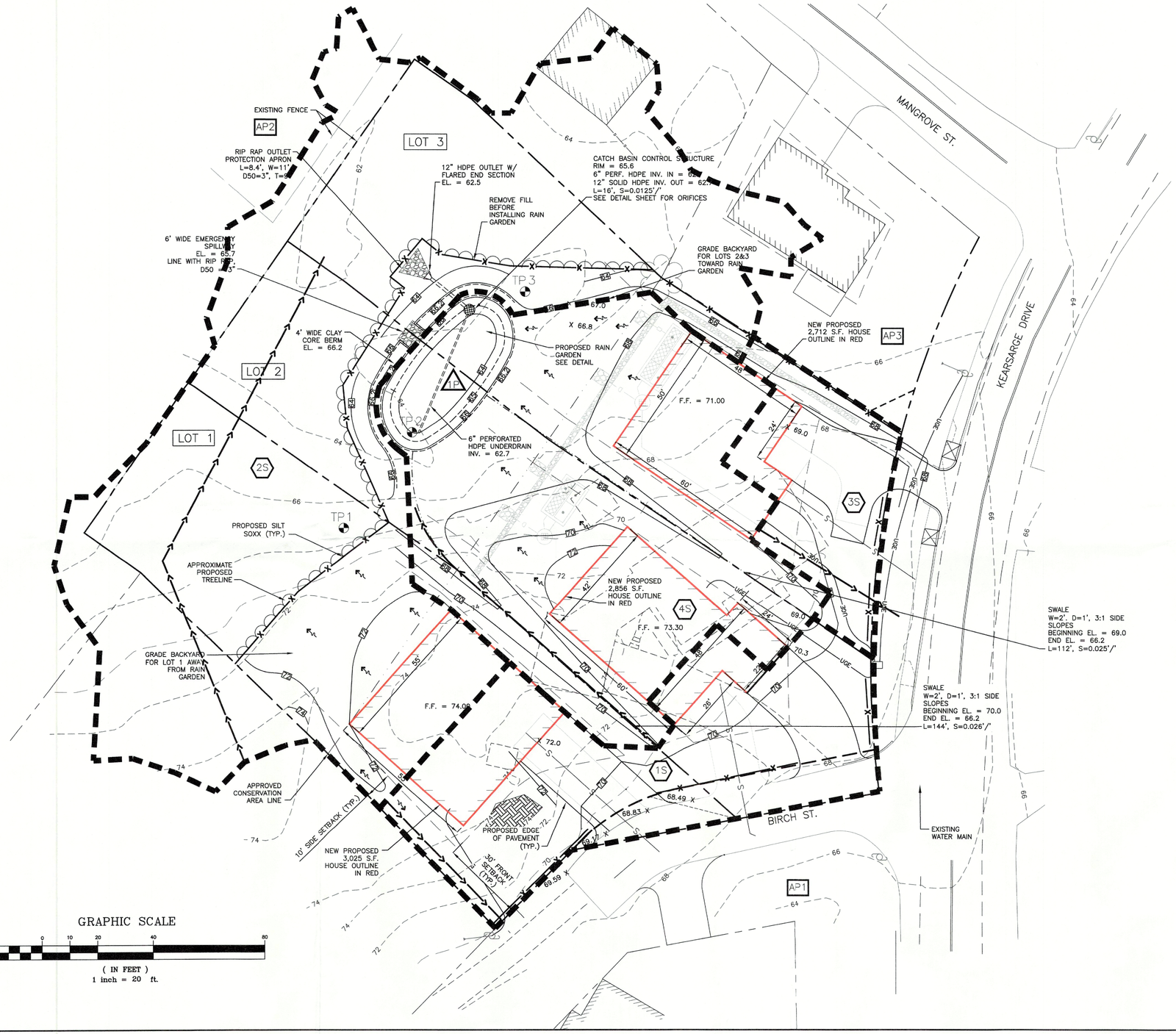
STATE OF NEW HAMPSHIRE · PAIGE S. LIBBEY No.16670 · LICENSED PROFESSIONAL ENGINEER

REV.	DATE	REVISION	BY
0	8/24/23	ISSUED FOR REVIEW	DJM

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 WATERSHED PLAN
Project:	SITE DESIGN AMENDMENT 201 KEARSARGE WAY, PORTSMOUTH, NH
Owner of Record:	RICHARD P. FUSEGNI 201 KEARSARGE WAY, PORTSMOUTH, NH 03801 BK 5476 PG 2661

DRAWING No.
W1
SHEET 1 OF 2
JBE PROJECT NO. 23152



LEGEND

- SUBCATCHMENT BOUNDARY
- SUBCATCHMENT (X)
- REACH [X]
- POND
- TC PATH
- WETLANDS
- HISS SOILS
- FLOW ARROW

PROJECT PARCEL
TOWN OF PORTSMOUTH
TAX MAP 218, LOT 5

APPLICANT
GREEN & COMPANY
PO BOX 1297
NORTH HAMPTON, NH 03862

TOTAL LOT AREA
52,253 SQ. FT.
1.20 ACRES

Design: DJM	Draft: DJM	Date: 8/1/23
Checked: PSL	Scale: AS NOTED	Project No.: 23152
Drawing Name: 23152-WATERSHED.dwg		

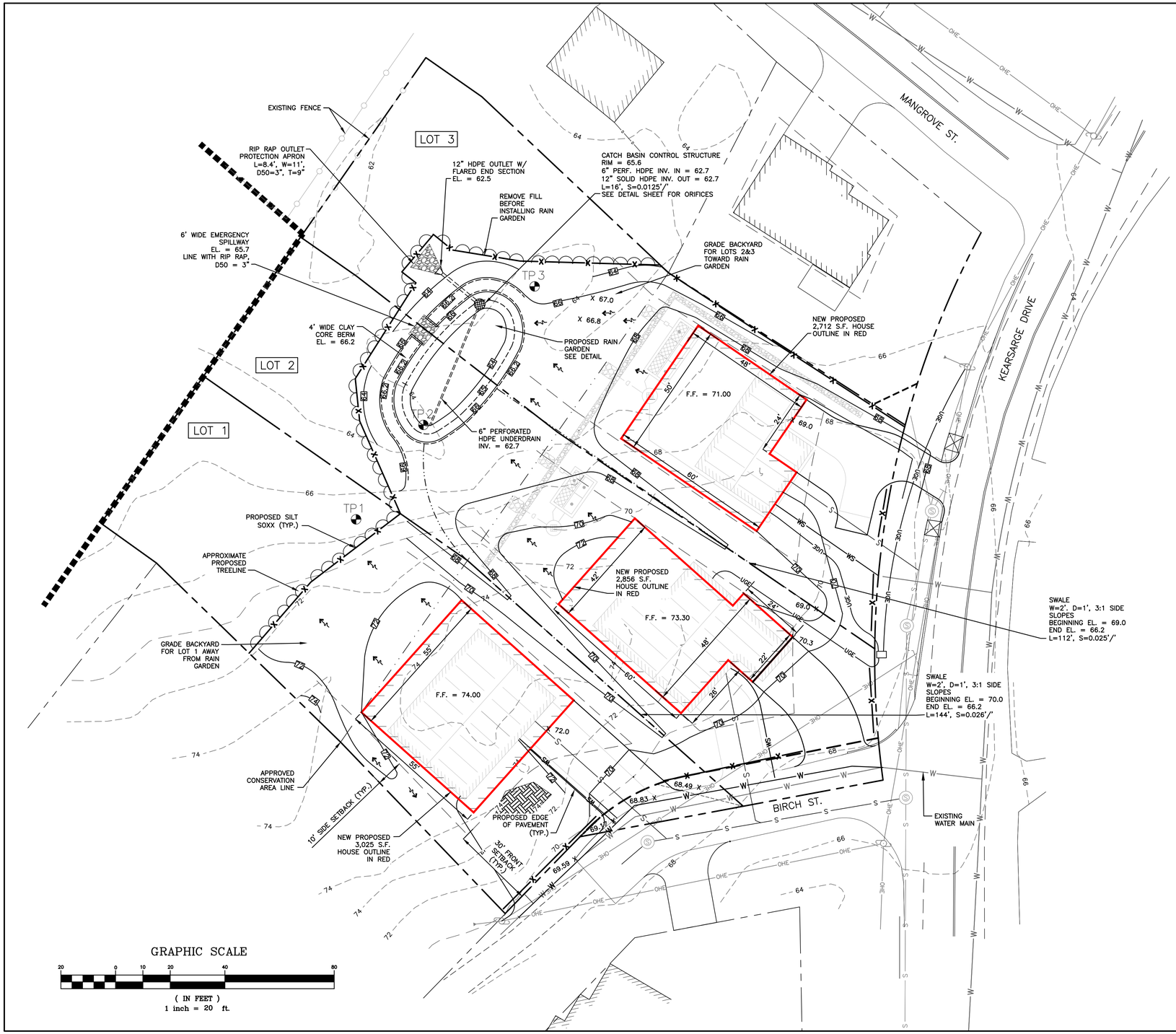
STATE OF NEW HAMPSHIRE – PAIGE S. LIBBEY No.16670 – LICENSED PROFESSIONAL ENGINEER – 8/24/23

REV.	DATE	REVISION	BY
0	8/24/23	ISSUED FOR REVIEW	DJM

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:	PROPOSED WATERSHED PLAN
Project:	SITE DESIGN AMENDMENT 201 KEARSARGE WAY, PORTSMOUTH, NH
Owner of Record:	RICHARD P. FUSEGNI 201 KEARSARGE WAY, PORTSMOUTH, NH 03801 BK 5476 PG 2661

DRAWING No.
W2
SHEET 2 OF 2
JBE PROJECT NO. 23152



GRADING AND DRAINAGE NOTES:

1. UNDERGROUND FACILITIES, UTILITIES AND STRUCTURES HAVE BEEN PLOTTED FROM FIELD OBSERVATION AND THEIR LOCATION MUST BE CONSIDERED APPROXIMATE ONLY. NEITHER JONES & BEACH ENGINEERS, INC., NOR ANY OF THEIR EMPLOYEES TAKE RESPONSIBILITY FOR THE LOCATION OF ANY UNDERGROUND STRUCTURES AND/OR UTILITIES NOT SHOWN THAT MAY EXIST. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO HAVE ALL UNDERGROUND STRUCTURES AND/OR UTILITIES LOCATED PRIOR TO EXCAVATION WORK BY CALLING 888-DIG-SAFE (888-344-7233).
2. ALL BENCHMARKS AND TOPOGRAPHY SHALL BE FIELD VERIFIED BY THE CONTRACTOR.
3. SITE GRADING SHALL NOT PROCEED UNTIL EROSION CONTROL MEASURES HAVE BEEN INSTALLED.
4. PRIOR TO THE START OF CONSTRUCTION, THE CONTRACTOR IS REQUIRED TO HAVE THE PROJECT'S LAND SURVEYOR STAKE OR FLAG CLEARING LIMITS. A MINIMUM OF 48 HOURS NOTICE IS REQUIRED.
5. ALL ROOF DRAINS FROM BUILDING SHALL END 5' OUTSIDE THE BUILDING LIMITS AS SHOWN ON PLAN AND SHALL BE PROVIDED WITH A TEMPORARY PLUG AND WITNESS AT THE END. ALL EXTERIOR ROOF DOWNSPOUTS ARE TO BE INSTALLED WITH OVERFLOW DEVICES.
6. ALL SWALES AND DETENTION PONDS ARE TO BE STABILIZED PRIOR TO DIRECTING RUNOFF TO THEM.
7. PROPOSED RIM ELEVATIONS OF DRAINAGE STRUCTURES ARE APPROXIMATE. FINAL ELEVATIONS ARE TO BE SET FLUSH WITH FINISH GRADES.
8. ALL DRAINAGE STRUCTURES AND STORMWATER PIPES SHALL MEET HEAVY DUTY TRAFFIC H20 LOADING AND SHALL BE INSTALLED ACCORDINGLY.
9. IMMEDIATELY APPLY AND COMPACT STONE BASE FOR BUILDING PAD TO +/-½" PRIOR TO EXCAVATING INTERIOR AND PERIMETER FOOTINGS.
10. 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.
11. ALL DRAINAGE PIPE SHALL BE NON-PERFORATED ADS N-12 OR APPROVED EQUAL.
12. STONE INLET PROTECTION SHALL BE PLACED AT ALL CATCH BASINS. SEE DETAIL WITHIN THE DETAIL SHEETS.
13. LAND DISTURBING ACTIVITIES SHALL NOT COMMENCE UNTIL APPROVAL TO DO SO HAS BEEN RECEIVED BY ALL GOVERNING AUTHORITIES.
14. ALL EXPOSED AREAS SHALL BE SEEDED AS SPECIFIED WITHIN 3 DAYS OF FINAL GRADING AND ANYTIME CONSTRUCTION STOPS FOR LONGER THAN 3 DAYS.
15. MAINTAIN EROSION CONTROL MEASURES AFTER EACH RAIN EVENT OF 0.5" OR GREATER IN A 24 HOUR PERIOD AND AT LEAST ONCE A WEEK.
16. THIS PLAN SHALL NOT BE CONSIDERED ALL INCLUSIVE, AS THE GENERAL CONTRACTOR SHALL TAKE ALL NECESSARY PRECAUTIONS TO PREVENT SEDIMENT FROM LEAVING THE SITE.
17. CONSTRUCTION VEHICLES SHALL UTILIZE THE STABILIZED CONSTRUCTION ENTRANCE TO THE EXTENT POSSIBLE THROUGHOUT CONSTRUCTION.
18. IF INSTALLATION OF STORM DRAINAGE SYSTEM SHOULD BE INTERRUPTED BY WEATHER OR NIGHTFALL, THE PIPE ENDS SHALL BE COVERED WITH FILTER FABRIC.
19. THE GENERAL CONTRACTOR SHALL BE RESPONSIBLE TO TAKE WHATEVER MEANS NECESSARY TO ESTABLISH PERMANENT SOIL STABILIZATION.
20. SEDIMENT SHALL BE REMOVED FROM ALL SEDIMENT BASINS BEFORE THEY ARE 25% FULL.
21. ALL WORK SHALL BE DONE IN STRICT ACCORDANCE WITH PROJECT SPECIFICATIONS.
22. ADDITIONAL EROSION AND SEDIMENT CONTROL MEASURES SHALL BE INSTALLED, IF DEEMED NECESSARY BY ON-SITE INSPECTION BY ENGINEER AND/OR REGULATORY OFFICIALS.
23. SEE ALSO EROSION AND SEDIMENT CONTROL SPECIFICATIONS.

PROJECT PARCEL
TOWN OF PORTSMOUTH
TAX MAP 218, LOT 5

APPLICANT
GREEN & COMPANY
PO BOX 1297
NORTH HAMPTON, NH 03862

TOTAL LOT AREA
52,253 SQ. FT.
1.20 ACRES

Design: DJM	Draft: DJM	Date: 8/1/23
Checked: JAC	Scale: AS NOTED	Project No.: 23152
Drawing Name: 23152-PLAN.dwg		

STATE OF NEW HAMPSHIRE — PAIGE S. LIBBEY No. 16670 — PROFESSIONAL ENGINEER — LICENSED — 08/24/2023

REV.	DATE	REVISION	BY
2	8/24/23	MINOR REVISIONS	DJM
1	8/11/23	REVISED PER TEST PIT DATA	DJM
0	8/4/23	ISSUED FOR REVIEW	DJM

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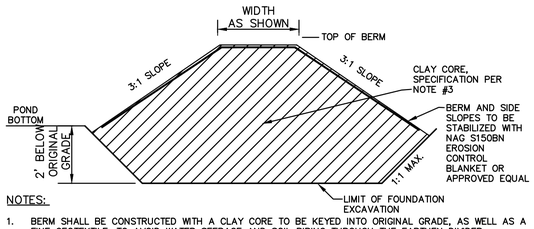
Plan Name: AMENDED GRADING AND DRAINAGE PLAN
Project: SITE DESIGN AMENDMENT
201 KEARSARGE WAY, PORTSMOUTH, NH
Owner of Record: RICHARD P. FUSEGNI
201 KEARSARGE WAY, PORTSMOUTH, NH 03801 BK 5476 PG 2661

DRAWING No.
C1
SHEET 1 OF 2
JBE PROJECT NO. 23152



NOTES:

1. BERM SHALL BE CONSTRUCTED WITH A CLAY CORE TO BE KEYED INTO ORIGINAL GRADE, AS WELL AS A FINE GEOTEXTILE, TO AVOID WATER SEEPAGE AND SOIL PIPING THROUGH THE EARTHEN DIVIDER.
2. THE ENTIRE EMBANKMENT AREA OF THE POND AREAS SHALL BE EXCAVATED TO 2' BELOW ORIGINAL GRADE, STRIPPED OF ALL ORGANIC MATERIALS, COMPACTED TO AT LEAST 92% OF ASTM D-1557, AND SCARIFIED PRIOR TO THE PLACEMENT OF THE EMBANKMENT MATERIAL. PLACEMENT AND COMPACTION SHOULD OCCUR AT A MOISTURE CONTENT OF OPTIMUM PLUS OR MINUS 3%, AND NO FROZEN OR ORGANIC MATERIAL SHOULD BE PLACED FOR ANY REASON.
3. CLAY CORE MATERIAL SHALL BE CLEAN SILTY-CLAY BORROW FREE OF ROOTS, ORGANIC MATTER, AND OTHER DELETERIOUS SUBSTANCES, AND SHALL CONTAIN NO ROCKS OR LUMPS OVER THREE INCHES (3") IN DIAMETER. THIS MATERIAL SHALL BE INSTALLED IN 6" LIFTS COMPACTED TO 92% OF ASTM D-1557, AND SHALL MEET THE FOLLOWING SPECIFICATIONS: 6" PASSING 100%, #4 SIEVE 95-100%, #40 SIEVE 60-90%, #100 SIEVE 40-60%, #200 SIEVE 25-45% (OF THE FRACTION PASSING THE #4 SIEVE). THE CLAY COMPONENT SHALL HAVE A PLASTICITY INDEX OF AT LEAST 8 AND A HYDRAULIC CONDUCTIVITY OF 10 TO THE -6 CM/SEC.
4. COMPACTION AND MATERIALS TESTING SERVICES SHALL BE PERFORMED BY AN INDEPENDENT GEOTECHNICAL ENGINEER RETAINED BY THE OWNER.

POND BERM WITH CLAY CORE

NOT TO SCALE

RESIDENTIAL RAIN GARDEN ELEVATIONS					
RAIN GARDEN	SIZE OF BOTTOM (S.F.)	ELEV. A	ELEV. B	ELEV. C	ELEV. D
1	787	66.20	64.00	63.75	62.00

PEA GRAVEL SPECIFICATION

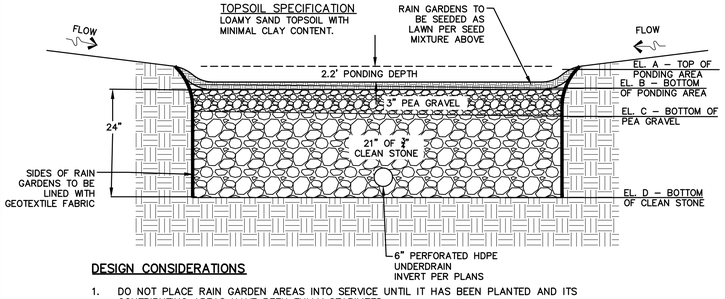
SIEVE SIZE	% BY WEIGHT
1"	100
3/4"	85-100
#4	10-30
#8	0-10
#16	0-15

COARSE GRAVEL SPECIFICATION

SIEVE SIZE	% BY WEIGHT
1"	90-100
3/4"	75-100
#4	50-100
#20	15-80
#50	0-15
#200	0-5

SEED MIXTURE

20%	PENN RK4 TALL FESCUE
20%	REBEL XLR TALL FESCUE
20%	REBEL V TALL FESCUE
15%	SOPRANO PERENNIAL RYEGRASS
15%	BLUE BONNET KENTUCKY BLUEGRASS
10%	ORACLE RED FESCUE



DESIGN CONSIDERATIONS

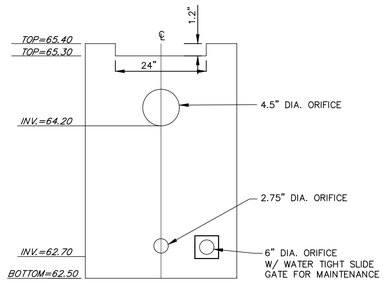
1. DO NOT PLACE RAIN GARDEN AREAS INTO SERVICE UNTIL IT HAS BEEN PLANTED AND ITS CONTRIBUTING AREAS HAVE BEEN FULLY STABILIZED.
2. DO NOT DISCHARGE SEDIMENT-LADEN WATERS FROM CONSTRUCTION ACTIVITIES (RUN-OFF, WATER FROM EXCAVATIONS) TO THE RAIN GARDEN AREA DURING ANY STAGE OF CONSTRUCTION.
3. DO NOT TRAFFIC EXPOSED SOIL SURFACE WITH CONSTRUCTION EQUIPMENT. IF FEASIBLE, PERFORM EXCAVATIONS WITH EQUIPMENT OUTSIDE THE LIMITS OF THE RAIN GARDEN COMPONENTS OF THE SYSTEM.

MAINTENANCE REQUIREMENTS:

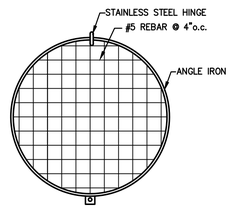
4. HOMEOWNERS SHALL INSPECT THE RAIN GARDEN AFTER LARGE STORMS TO ENSURE THAT NO CHANNELS HAVE FORMED AND THAT ANY PLANTINGS ARE HEALTHY. TRASH AND DEBRIS SHALL BE REMOVED AT EACH INSPECTION.
5. RAIN GARDEN AREAS TO REMAIN AS LAWN AREAS AND SHALL MOWED REGULARLY.
6. NO BUSHES OR TREES SHOULD BE PLANTED IN THIS AREA. AREA TO REMAIN AS GRASS.

RESIDENTIAL RAIN GARDEN DETAIL

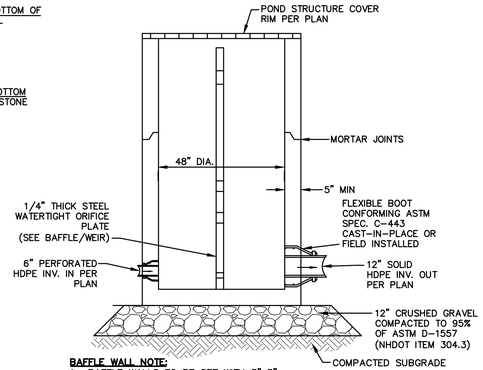
NOT TO SCALE



BAFFLE/WEIR



POND STRUCTURE COVER

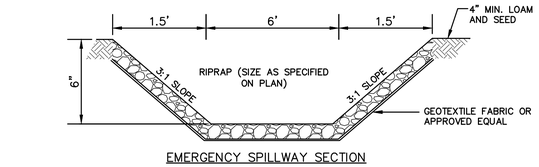


BAFFLE WALL NOTE:

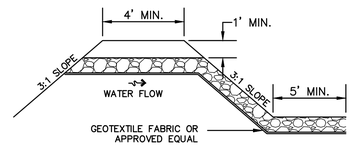
1. BAFFLE WALLS TO BE SET WITH 3"x3" ALUMINUM ANGLES W/ 3/8" WEDGE ANCHORS.
2. WALL TO BE SEALED WITH SIKAFLEX WATERPROOFING ON SIDES & CONSEAL ON BOTTOM.

CATCH BASIN CONTROL STRUCTURE

NOT TO SCALE



EMERGENCY SPILLWAY SECTION



EMERGENCY SPILLWAY PROFILE

EMERGENCY SPILLWAY

NOT TO SCALE

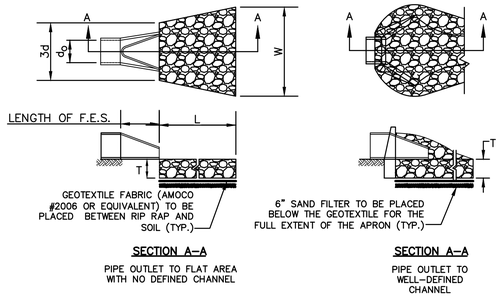


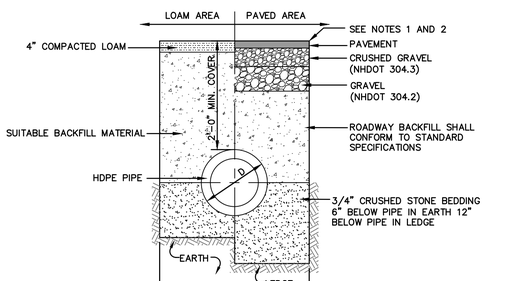
TABLE 7-24--RECOMMENDED RIP RAP GRADATION RANGES		
THICKNESS OF RIP RAP = 0.75 FEET		
d50 SIZE= 0.25 FEET 3 INCHES		
% OF WEIGHT SMALLER THAN THE GIVEN d50 SIZE	SIZE OF STONE (INCHES) FROM	TO
100%	5	5
85%	4	5
50%	3	5
15%	1	2

NOTES:

1. THE SUBGRADE FOR THE GEOTEXTILE FABRIC AND RIP RAP SHALL BE PREPARED TO THE LINES AND GRADES SHOWN ON THE PLANS.
2. THE RIP RAP SHALL CONFORM TO THE SPECIFIED GRADATION.
3. GEOTEXTILE FABRICS SHALL BE PROTECTED FROM PUNCTURE OR TEARING DURING THE PLACEMENT OF THE ROCK RIP. DAMAGED AREAS IN THE FABRIC SHALL BE REPAIRED BY PLACING A PIECE OF FABRIC OVER THE DAMAGED AREA OR BY COMPLETE REPLACEMENT OF THE FABRIC. ALL OVERLAPS REQUIRED FOR REPAIRS OR JOINING TWO PIECES OF FABRIC SHALL BE A MINIMUM OF 12 INCHES.
4. STONE FOR THE RIP RAP MAY BE PLACED BY EQUIPMENT AND SHALL BE CONSTRUCTED TO THE FULL LAYER THICKNESS IN ONE OPERATION AND IN SUCH A MANNER AS TO PREVENT SEGREGATION OF THE STONE SIZES.
5. OUTLETS TO A DEFINED CHANNEL SHALL HAVE 2:1 OR FLATTER SIDE SLOPES AND SHOULD BEGIN AT THE TOP OF THE CULVERT AND TAPER DOWN TO THE CHANNEL BOTTOM THROUGH THE LENGTH OF THE APRON.
6. MAINTENANCE: THE OUTLET PROTECTION SHOULD BE CHECKED AT LEAST ANNUALLY AND AFTER EVERY MAJOR STORM. IF THE RIP RAP HAS BEEN DISPLACED, UNDERMINED OR DAMAGED, IT SHOULD BE REPAIRED IMMEDIATELY. THE CHANNEL IMMEDIATELY BELOW THE OUTLET SHOULD BE CHECKED TO SEE THAT EROSION IS NOT OCCURRING. THE DOWNSTREAM CHANNEL SHOULD BE KEPT CLEAR OF OBSTRUCTIONS SUCH AS FALLEN TREES, DEBRIS, AND SEDIMENT THAT COULD CHANGE FLOW PATTERNS AND/OR TAILWATER DEPTHS ON THE PIPES. REPAIRS MUST BE CARRIED OUT IMMEDIATELY TO AVOID ADDITIONAL DAMAGE TO OUTLET PROTECTION.

RIP RAP OUTLET PROTECTION APRON

NOT TO SCALE

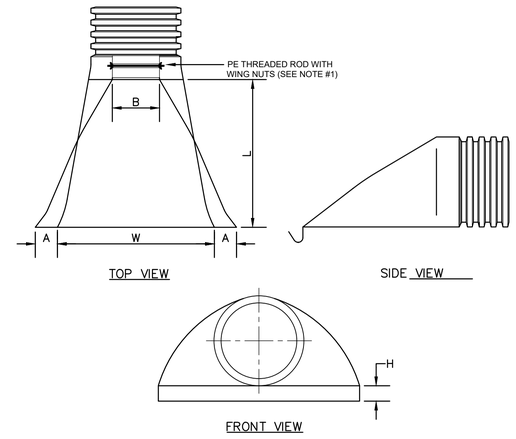


NOTES:

1. PAVEMENT REPAIR IN EXISTING ROADWAYS SHALL CONFORM TO STREET OPENING REGULATIONS.
2. NEW ROADWAY CONSTRUCTION SHALL CONFORM WITH PROJECT AND TOWN SPECIFICATIONS.
3. ALL MATERIALS ARE TO BE COMPACTED TO 95% OF ASTM D-1557.

DRAINAGE TRENCH

NOT TO SCALE



PART NO.	PIPE SIZE	A	B (MAX)	H	L	W
1210-NP	12"	6.5"	10"	6.5"	25"	29"
1510-NP	15"	6.5"	10"	6.5"	25"	29"
1810-NP	18"	7.5"	15"	6.5"	32"	35"
2410-NP	24"	7.5"	18"	6.5"	36"	45"
3010-NP	30"	10.5"	N/A	7.0"	53"	68"
3610-NP	36"	10.5"	N/A	7.0"	53"	68"

NOTES:

1. PE THREADED ROD WITH WING NUTS PROVIDED FOR END SECTIONS 12"-24". 30" AND 36" END SECTIONS TO BE WELDED PER MANUFACTURER'S RECOMMENDATIONS.
2. ALL DIMENSIONS ARE NOMINAL.

ADS N-12 FLARED END SECTION

NOT TO SCALE

Design: DJM	Draft: DJM	Date: 8/1/23
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STATE OF NEW HAMPSHIRE - PAIGE S. LIBBEY No.16670 - PROFESSIONAL ENGINEER - LICENSED

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Plan Name:	DETAIL SHEET
Project:	SITE DESIGN AMENDMENT 201 KEARSARGE WAY, PORTSMOUTH, NH
Owner of Record:	RICHARD P. FUSEGNI 201 KEARSARGE WAY, PORTSMOUTH, NH 03801 BK 5476 PG 2661

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SHEET 2 OF 2
JBE PROJECT NO. 23152