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

August 23, 2021

Portsmouth Planning Board
Attn: Dexter Legg
1 Junkins Avenue, Suite 3rd Floor
Portsmouth, NH 03801

RE: Site Plan Application
1169 & 1171 Sagamore Avenue, Portsmouth, NH
Tax Map 224, Lots 14 & 15
JBE Project No. 21047

Dear Mr. Legg,

Jones & Beach Engineers, Inc., respectfully submits a Site Plan Application on behalf of the applicant, The Sagamore Group, LLC. The intent of this application is to remove existing structures as shown on Sheet C1 and construct a 10-unit condominium complex. The units are 2 duplex style homes with 6 single-family homes. All units will have a 2-car garage with space for 2 cars in the driveways. The private driveway is proposed as one-way traffic and will be 20' wide. This site will be served by underground electric, municipal water & sewer. Gas will be from on-site propane tanks.

The following items are provided in support of this Application:

1. Completed Site Plan Application (submitted online).
2. Site Plan Application Checklist.
3. Letters of Authorization.
4. Test Pits.
5. Current Deeds.
6. Abutters List and Three (3) Mailing Labels Each.
7. Tax Map.
8. Architectural Plans.
9. Two (2) Full Size Plan Sets Folded.
10. One (1) Half Size Plan Set Folded.
11. Six (6) Drainage Analysis Reports.
12. One (1) Traffic Impact Statement.

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

Very truly yours,
JONES & BEACH ENGINEERS, INC.

Joseph A. Coronati
Vice President

cc: Michael Garrepy, (via email)
Mick Khavari (via email)
Michael Fecteau (via email)
Tim Phoenix, Hoefle, Phoenix & Gormley & Roberts (via email)

City of Portsmouth, New Hampshire

Site Plan Application Checklist

This site plan 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 site plan review requirements. Please refer to the Site Plan review regulations for full details.

Applicant Responsibilities (Section 2.5.2): Applicable fees are due upon application submittal along with required attachments. The application shall be complete as submitted and provide adequate information for evaluation of the proposed site development. Waiver requests must be submitted in writing with appropriate justification.

Name of Owner/Applicant: __The Sagamore Group, LLC_____ Date Submitted: __08/23/2021_____

Phone Number: _603-944-7530_____ E-mail: __mgarrepy@gmail.com_____

Site Address: _1169 & 1171 Sagamore Ave_____ Map: _224_ Lot: _14 & 15__

Zoning District: _Mixed Residential / Office_____ Lot area: _79,292_____ sq. ft.

Application Requirements			
☑	**Required Items for Submittal**	**Item Location (e.g. Page or Plan Sheet/Note #)**	**Waiver Requested**
☒	Fully executed and signed Application form. **(2.5.2.3)**		N/A
☒	All application documents, plans, supporting documentation and other materials provided in digital Portable Document Format (PDF). **(2.5.2.8)**		N/A

Site Plan Review Application Required Information			
☑	**Required Items for Submittal**	**Item Location (e.g. Page/line or Plan Sheet/Note #)**	**Waiver Requested**
☒	Statement that lists and describes "green" building components and systems. **(2.5.3.1A)**	PENDING	
☒	Gross floor area and dimensions of all buildings and statement of uses and floor area for each floor. **(2.5.3.1B)**	ENCLOSED	N/A
☒	Tax map and lot number, and current zoning of all parcels under Site Plan Review. **(2.5.3.1C)**	C1 & C2	N/A
☒	Owner's name, address, telephone number, and signature. Name, address, and telephone number of applicant if different from owner. **(2.5.3.1D)**	APPLICATION	N/A

Site Plan Review Application Required Information			
☑	**Required Items for Submittal**	**Item Location (e.g. Page/line or Plan Sheet/Note #)**	**Waiver Requested**
☒	Names and addresses (including Tax Map and Lot number and zoning districts) of all direct abutting property owners (including properties located across abutting streets) and holders of existing conservation, preservation or agricultural preservation restrictions affecting the subject property. **(2.5.3.1E)**	C1 & C2	N/A
☒	Names, addresses and telephone numbers of all professionals involved in the site plan design. **(2.5.3.1F)**	COVER SHEET	N/A
☒	List of reference plans. **(2.5.3.1G)**	C1 & C2	N/A
☒	List of names and contact information of all public or private utilities servicing the site. **(2.5.3.1H)**	COVER SHEET	N/A

Site Plan Specifications			
☑	**Required Items for Submittal**	**Item Location (e.g. Page/line or Plan Sheet/Note #)**	**Waiver Requested**
☒	Full size plans shall not be larger than 22 inches by 34 inches with match lines as required, unless approved by the Planning Director. Submittals shall be a minimum of 11 inches by 17 inches as specified by Planning Dept. staff. **(2.5.4.1A)**	Required on all plan sheets	N/A
☒	Scale: Not less than 1 inch = 60 feet and a graphic bar scale shall be included on all plans. **(2.5.4.1B)**	Required on all plan sheets	N/A
☒	GIS data should be referenced to the coordinate system New Hampshire State Plane, NAD83 (1996), with units in feet. **(2.5.4.1C)**	C1	N/A
☒	Plans shall be drawn to scale. **(2.5.4.1D)**	Required on all plan sheets	N/A
☒	Plans shall be prepared and stamped by a NH licensed civil engineer. **(2.5.4.1D)**	ALL SHEETS	N/A
☒	Wetlands shall be delineated by a NH certified wetlands scientist and so stamped. **(2.5.4.1E)**	C1	N/A
☒	Title (name of development project), north point, scale, legend. **(2.5.4.2A)**	COVER SHEET	N/A
☒	Date plans first submitted, date and explanation of revisions. **(2.5.4.2B)**	ALL SHEETS	N/A
☒	Individual plan sheet title that clearly describes the information that is displayed. **(2.5.4.2C)**	Required on all plan sheets	N/A
☒	Source and date of data displayed on the plan. **(2.5.4.2D)**	C1	N/A

Site Plan Specifications			
☑	**Required Items for Submittal**	**Item Location (e.g. Page/line or Plan Sheet/Note #)**	**Waiver Requested**
☒	A note shall be provided on the Site Plan stating: "All conditions on this Plan shall remain in effect in perpetuity pursuant to the requirements of the Site Plan Review Regulations." **(2.5.4.2E)**	C2 NOTE #19	N/A
☒	Plan sheets submitted for recording shall include the following notes: a. "This Site Plan shall be recorded in the Rockingham County Registry of Deeds." b. "All improvements shown on this Site Plan shall be constructed and maintained in accordance with the Plan by the property owner and all future property owners. No changes shall be made to this Site Plan without the express approval of the Portsmouth Planning Director." **(2.13.3)**	C2 NOTES # 20 & #21	N/A
☒	Plan sheets showing landscaping and screening shall also include the following additional notes: a. "The property owner and all future property owners shall be responsible for the maintenance, repair and replacement of all required screening and landscape materials." b. "All required plant materials shall be tended and maintained in a healthy growing condition, replaced when necessary, and kept free of refuse and debris. All required fences and walls shall be maintained in good repair." c. "The property owner shall be responsible to remove and replace dead or diseased plant materials immediately with the same type, size and quantity of plant materials as originally installed, unless alternative plantings are requested, justified and approved by the Planning Board or Planning Director." **(2.13.4)**	L1 NOTES # 18-20	N/A

Site Plan Specifications – Required Exhibits and Data			
☑	**Required Items for Submittal**	**Item Location (e.g. Page/line or Plan Sheet/Note #)**	**Waiver Requested**
	1. Existing Conditions: (2.5.4.3A)	C1	
☒	a. Surveyed plan of site showing existing natural and built features;	C1	
☒	b. Zoning boundaries;	C1	
☒	c. Dimensional Regulations;	C1	
☒	d. Wetland delineation, wetland function and value assessment;	C1	
☒	e. SFHA, 100-year flood elevation line and BFE data.	C1 NOTE #4	
	2. Buildings and Structures: (2.5.4.3B)		
☒	a. Plan view: Use, size, dimensions, footings, overhangs, 1st fl. elevation;	ARCHITECTURAL PLANS	
☒	b. Elevations: Height, massing, placement, materials, lighting, façade treatments;	ARCHITECTURAL PLANS	
☒	c. Total Floor Area;	ARCHITECTURAL PLANS	
☒	d. Number of Usable Floors;	ARCHITECTURAL PLANS	
☒	e. Gross floor area by floor and use.	ARCHITECTURAL PLANS	
	3. Access and Circulation: (2.5.4.3C)		
☒	a. Location/width of access ways within site;	C2	
☒	b. Location of curbing, right of ways, edge of pavement and sidewalks;	C2	
☒	c. Location, type, size and design of traffic signing (pavement markings);	C2	
☒	d. Names/layout of existing abutting streets;	C1 & C2	
☒	e. Driveway curb cuts for abutting prop. and public roads;	C2	
☐	f. If subdivision; Names of all roads, right of way lines and easements noted;	N/A	
☒	g. AASHTO truck turning templates, description of minimum vehicle allowed being a WB-50 (unless otherwise approved by TAC).	T1-T2	
	4. Parking and Loading: (2.5.4.3D)		
☒	a. Location of off street parking/loading areas, landscaped areas/buffers;	C2 & L1	
☒	b. Parking Calculations (# required and the # provided).	C2	
	5. Water Infrastructure: (2.5.4.3E)		
☒	a. Size, type and location of water mains, shut-offs, hydrants & Engineering data;	C5	
☐	b. Location of wells and monitoring wells (include protective radii).		
	6. Sewer Infrastructure: (2.5.4.3F)		
☒	a. Size, type and location of sanitary sewage facilities & Engineering data.	C5 & P1	
	7. Utilities: (2.5.4.3G)		
☒	a. The size, type and location of all above & below ground utilities;	C5	
☒	b. Size type and location of generator pads, transformers and other fixtures.	C5	

Site Plan Specifications – Required Exhibits and Data			
☑	**Required Items for Submittal**	**Item Location (e.g. Page/line or Plan Sheet/Note #)**	**Waiver Requested**
☒	**8. Solid Waste Facilities: (2.5.4.3H)**		
☒	a. The size, type and location of solid waste facilities.	N/A	
	9. Storm water Management: (2.5.4.3I)		
☒	a. The location, elevation and layout of all storm-water drainage.	C3	
	10. Outdoor Lighting: (2.5.4.3J)		
☒	a. Type and placement of all lighting (exterior of building, parking lot and any other areas of the site) and; b. photometric plan.	L2	
☒	**11.** Indicate where dark sky friendly lighting measures have been implemented. **(10.1)**	L2	
	12. Landscaping: (2.5.4.3K)		
☒	a. Identify all undisturbed area, existing vegetation and that which is to be retained;	DM-1, C2 & L1	
☒	**b.** Location of any irrigation system and water source.	TBD	
	13. Contours and Elevation: (2.5.4.3L)		
☒	a. Existing/Proposed contours (2 foot minimum) and finished grade elevations.	C1 & C3	
	14. Open Space: (2.5.4.3M)		
☒	a. Type, extent and location of all existing/proposed open space.	C2	
☐	**15. All easements, deed restrictions and non-public rights of ways. (2.5.4.3N)**	N/A	
☒	**16. Location of snow storage areas and/or off-site snow removal. (2.5.4.3O)**	C2	
☐	**17. Character/Civic District (All following information shall be included): (2.5.4.3Q)**	N/A	
	a. Applicable Building Height (10.5A21.20 & 10.5A43.30);		
	b. Applicable Special Requirements (10.5A21.30);		
	c. Proposed building form/type (10.5A43);		
	d. Proposed community space (10.5A46).		

Other Required Information			
☑	**Required Items for Submittal**	**Item Location (e.g. Page/line or Plan Sheet/Note #)**	**Waiver Requested**
☒	Traffic Impact Study or Trip Generation Report, as required. *(Four (4) hardcopies of the full study/report and Six (6) summaries to be submitted with the Site Plan Application)* **(3.2.1-2)**	ENCLOSED	
☒	Indicate where Low Impact Development Design practices have been incorporated. **(7.1)**	C3	
☒	Indicate whether the proposed development is located in a wellhead protection or aquifer protection area. Such determination shall be approved by the Director of the Dept. of Public Works. **(7.3.1)**	NOT IN EITHER	
☒	Indicate where measures to minimize impervious surfaces have been implemented. **(7.4.3)**	C2	
☒	Calculation of the maximum effective impervious surface as a percentage of the site. **(7.4.3.2)**	C2	
☒	Stormwater Management and Erosion Control Plan. *(Four (4) hardcopies of the full plan/report and Six (6) summaries to be submitted with the Site Plan Application)* **(7.4.4.1)**	ENCLOSED	

Final Site Plan Approval Required Information			
☑	**Required Items for Submittal**	**Item Location (e.g. Page/line or Plan Sheet/Note #)**	**Waiver Requested**
☒	All local approvals, permits, easements and licenses required, including but not limited to: a. Waivers; b. Driveway permits; c. Special exceptions; d. Variances granted; e. Easements; f. Licenses. **(2.5.3.2A)**		
☒	Exhibits, data, reports or studies that may have been required as part of the approval process, including but not limited to: a. Calculations relating to stormwater runoff; b. Information on composition and quantity of water demand and wastewater generated; c. Information on air, water or land pollutants to be discharged, including standards, quantity, treatment and/or controls; d. Estimates of traffic generation and counts pre- and post-construction; e. Estimates of noise generation; f. A Stormwater Management and Erosion Control Plan; g. Endangered species and archaeological / historical studies; h. Wetland and water body (coastal and inland) delineations; i. Environmental impact studies. **(2.5.3.2B)**	ENCLOSED	

Final Site Plan Approval Required Information			
☑	**Required Items for Submittal**	**Item Location (e.g. Page/line or Plan Sheet/Note #)**	**Waiver Requested**
☐	A document from each of the required private utility service providers indicating approval of the proposed site plan and indicating an ability to provide all required private utilities to the site. **(2.5.3.2D)**	PENDING	
☒	A list of any required state and federal permit applications required for the project and the status of same. **(2.5.3.2E)**	LISTED ON SHEET C2 NOTE #5, PERMITS PENDING	

Applicant's Signature: _____ **Date:** 8/22/21

Letter of Authorization

The Sagamore Group, LLC, 4 Merrill Industrial Drive, Hampton, NH, 03842, USA, developer of property located in Portsmouth, NH, known as Tax Map 224, Lots 14 & 15, do hereby authorize Jones & Beach Engineers, Inc., PO Box 219, Stratham, NH, to act on our behalf concerning the subject properties. The parcels are located at 1169 & 1171 Sagamore Avenue in Portsmouth, NH.

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

The Sagamore Group, LLC

Daniel Jackson, Member
Duly authorized

5/4/21
Date

dotloop signature verification:

Letter of Authorization

We, John & Colleen Hebert, 54 Pioneer Road, Rye, NH 03870, owners of property located in Portsmouth, NH, known as Tax Map 224, Lot 15, do hereby authorize Jones & Beach Engineers, Inc., PO Box 219, Stratham, NH, to act on my behalf concerning the previously-mentioned property. The parcel is located on 1169 Sagamore Avenue in Portsmouth, NH.

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

Witness	John Hebert dotloop verified 05/04/21 2:47 PM EDT 5E1O-MUAR-1SWP-P2NG	Date
Witness	Colleen Hebert dotloop verified 05/04/21 2:49 PM EDT QIBG-ZMLM-FUFK-BAEX	Date

dotloop signature verification:

Letter of Authorization

I, Colleen Hebert, 54 Pioneer Road, Rye, NH 03870, owner of property located in Portsmouth, NH, known as Tax Map 224, Lot 14, do hereby authorize Jones & Beach Engineers, Inc., PO Box 219, Stratham, NH, to act on my behalf concerning the previously-mentioned property. The parcel is located on 1171 Sagamore Avenue in Portsmouth, NH.

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

Witness

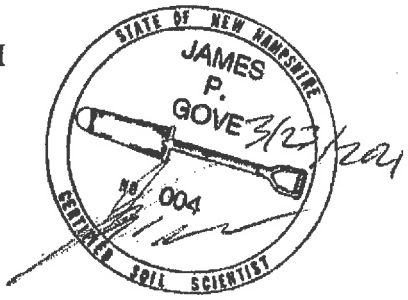
Colleen Hebert

dotloop verified
05/04/21 2:49 PM EDT
RLSS-SIAZ-YMEJ-YUBD

Date

GOVE ENVIRONMENTAL SERVICES, INC.

TEST PIT DATA



Project	1169 &1171 Sagamore Avenue, Portsmouth, NH
Client	Garrepy Planning Consultants, LLC
GES Project No.	2021039
MM/DD/YY Staff	03-23-2021 JP Gove, CSS # 004

Test Pit No.	**1**	Lot No.:	
ESHWT:	None Observed	WSPCD Group:	
Termination @	60"	Roots to:	
Refusal:	Yes	SCS Soil:	
Obs. Water:	none	HIS Type:	

Depth	Color	Texture	Structure	Consistence	Redox
Fill – 0-12"	10YR3/2	SL	Gr	Fr	None
Fill – 12-35"	10YR3/3	SL	Gr	Fr	None
Apb – 35-45"	10YR3/2	SL	Gr	Fr	None
Bwb – 45-60"	10YR4/3	SL	Om	Fr	None
Bedrock – 60"					

Test Pit No.	**2**	Lot No.:	
ESHWT:	None Observed	WSPCD Group:	
Termination @	55"	Roots to:	
Refusal:	Yes	SCS Soil:	
Obs. Water:	none	HIS Type:	

Depth	Color	Texture	Structure	Consistence	Redox
Ap – 0-10"	10YR3/2	SL	Gr	Fr	None
Bw – 10-55"	7.5YR3/4	SL	Gr	Fr	None
Rippable Bedrock – 55"					

Test Pit No.	**3**	Lot No.:	
ESHWT:	31"	WSPCD Group:	
Termination @	51"	Roots to:	
Refusal:	Yes	SCS Soil:	
Obs. Water:	none	HIS Type:	

Depth	Color	Texture	Structure	Consistence	Redox
Ap – 0-11"	10YR3/3	SL	Gr	Fr	None
Bw – 11-31"	10YR4/4	GRLS	Gr	Fr	None
Bw2 – 31-51"	7.5YR5/4	CBSL	Om	Fr	Yes
Rippable Bedrock – 51"					

8 Continental Dr Bldg 2 Unit H, Exeter, NH 03833-7526
Ph (603) 778 0644 / *Fax* (603) 778 0654
info@gesinc.biz
www.gesinc.biz

Test Pit No.	4	Lot No.:	
ESHWT:	None Observed	WSPCD Group:	
Termination @	33"	Roots to:	
Refusal:	Yes	SCS Soil:	
Obs. Water:	none	HIS Type:	

Depth	Color	Texture	Structure	Consistence	Redox
Ap - 0-11"	10YR3/2	SL	Gr	Fr	None
Bw – 11-33"	10YR4/4	CBSL	Gr	Fr	None
Bedrock – 33"					

Test Pit No.	5	Lot No.:	
ESHWT:	None Observed	WSPCD Group:	
Termination @	22"	Roots to:	
Refusal:	Yes	SCS Soil:	
Obs. Water:	none	HIS Type:	

Depth	Color	Texture	Structure	Consistence	Redox
Ap – 0-10"	10YR3/3	SL	Gr	Fr	None
Bw – 10-22"	10YR4/4	CBSL	Gr	Fr	None
Bedrock – 22"					

Test Pit No.	6	Lot No.:	
ESHWT:	None Observed	WSPCD Group:	
Termination @	2"	Roots to:	
Refusal:	Yes	SCS Soil:	
Obs. Water:	none	HIS Type:	

Depth	Color	Texture	Structure	Consistence	Redox
A – 0-2"	10YR3/2	CBSL	Gr	Fr	None
Bedrock 2"					

Test Pit No.	7	Lot No.:	
ESHWT:	None Observed	WSPCD Group:	
Termination @	21"	Roots to:	
Refusal:	Yes	SCS Soil:	
Obs. Water:	none	HIS Type:	

Depth	Color	Texture	Structure	Consistence	Redox
A – 0-21"	10YR3/3	CBSL	Gr	Fr	None
Bedrock – 21"					

Test Pit No.	**8**	Lot No.:	
ESHWT:	None Observed	WSPCD Group:	
Termination @	31"	Roots to:	
Refusal:	Yes	SCS Soil:	
Obs. Water:	none	HIS Type:	

Depth	Color	Texture	Structure	Consistence	Redox
Ap – 0-10"	10YR3/2	SL	Gr	Fr	None
Bw – 10-31"	10YR4/6	CBSL	Gr	Fr	None
Bedrock – 31"					

Legend:
GRLS = gravelly loamy sand
CBSL = cobbly sandy loam
SL= sandy loam
Gr = granular
Fr = friable
Om = massive
Ap = top soil
Bw = subsoil
Apb = buried topsoil
Bwb = buried subsoil

Jul 29 2 55 PM '82 14291

KNOW ALL MEN BY THESE PRESENTS. That Norman J. Smith, of P.O. Box 95, Portsmouth, County of Rockingham and State of New Hampshire,

2418 P0173

for consideration paid, grant to Colleen M. Hebert of 1169 Sagamore Avenue, Portsmouth, County of Rockingham and State of New Hampshire,

with **warranty covenants**

A certain parcel of land, together with the buildings thereon, situate on the Westerly side of Sagamore Avenue, so-called, in Portsmouth in the County of Rockingham and State of New Hampshire, more particularly bounded and described as follows:

Beginning in the Westerly sideline of the Avenue at land now or formerly of Haven L. Joy; thence running Westerly by other land of Joy, Two Hundred Ninety-three and Five Tenths (293.5) feet to land now or formerly of Ralph W. Junkins Est. et als; thence turning and running Norterly by other land of Junkins et als One Hundred Twenty-six and Thirty-two Hundredths (126.32) feet to a point at other land now or formerly of John J. and Harriet Scammon; thence turning and running Easterly by other land of Scammon Three Hundred (300) feet, more or less, to the Westerly sideline of the avenue, thence running Southerly by the sideline Forty-seven and Sixty-five Hundredths (47.65) feet to a point, thence running Southeasterly by the sideline Forty-nine and Eight Hundredths (49.08) feet to land of Joy which is the point of beginning.

Being the same premises conveyed to Norman J. Smith and Janet S. Smith by deed of John J. Scammon et al dated July 24, 1954 and recorded in the Rockingham County Registry of Deeds in Book 1323 Page 324.

STATE OF NEW HAMPSHIRE
TAX ON TRANSFER OF REAL PROPERTY
STATE TAX COMMISSION
RD. 10665 JUL 29'82
325.00

Norman J. Smith, being single . husband xxxxxxxxxxxxxxx do hereby release and quitclaim all rights of curtesy dower and homestead and other interests therein

Witness. my hand xxxxxxx this 29th day of July A.D. 82.

Witness
Judith A. Gile

Norman J. Smith L.S.

L.S.

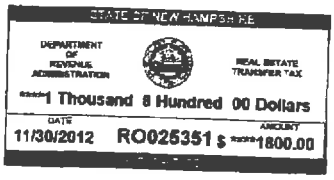
L.S.

State of New Hampshire
Rockingham ss.: July 29 A.D. 82

Personally appeared Norman J. Smith.

known to me, or satisfactorily proven to be the person whose name subscribed to the foregoing instrument and acknowledged that he executed the same for the purposes therein contained

Before me, Judith A. Gile
Justice of the Peace



061594

2012 NOV 30 PM 1:45

ROCKINGHAM COUNTY
REGISTRY OF DEEDS

WARRANTY DEED

KNOW ALL PERSONS BY THESE PRESENTS THAT I, ROBERT F. SCAMMON, JR., single and not a party to a civil union, of 1169 Sagamore Avenue, Portsmouth, New Hampshire, 03801

For consideration paid, grant to **JOHN J. HEBERT AND COLLEEN HEBERT,** husband and wife, of 54 Pioneer Road, Rye, New Hampshire, 03870, as joint tenants with rights of survivorship,

With Warranty Covenants, the following described premises situate in Portsmouth, Rockingham County, New Hampshire:

A certain lot or parcel of land with the buildings thereon situate on Sagamore Avenue, City of Portsmouth, County Rockingham and State of New Hampshire, bounded and described as follows:

Beginning at the concrete bound at the Northeasterly corner of the within described lot, the said bound being Four Hundred Seventy-nine (479) feet southerly along said Sagamore Avenue from the southeasterly corner of land now or formerly of Charles F. Moody; thence running Southerly twenty-four (24) degrees thirty-four (34) minutes west along said Sagamore Avenue one hundred (100) feet to a stake in the stone wall at other land now or formerly of Allen B. Keen; thence turning and running N 83° 43' W by other land of said Keen 300 feet to a stake; thence turning and running N 24° 30' E 100 feet by land now or formerly of Frank E. Brooks, etals; thence turning and running S 83° 43' E by land of said Brooks and other 300 feet to Sagamore Avenue and being the point of beginning.

Also a parcel of land situated on Sagamore Avenue in said Portsmouth adjoining and lying on the northerly side of the above described parcel and bounded and described as follows: Beginning at a concrete bound at the southeasterly corner of these premises at land described above, said bound being 479 feet southerly along said Sagamore Avenue from the southeasterly corner of land now or formerly of Charles F. Moody; thence running N 83° 43' W by the above described parcel 300 feet to a point of land now or formerly of Frank E Brooks et als; thence turning and running N 24° 30' E by other land of said Brooks and others 300 feet, more or less to

said Sagamore Avenue; thence turning and running southerly along said Sagamore Avenue 50 feet to said concrete bound and being the point of beginning.

Also a parcel of land situated on Sagamore Avenue in said Portsmouth and bounded and described as follows: Beginning at the northeasterly corner of the herein described parcel at the intersection of the westerly sideline of said Sagamore Avenue and land now or formerly of Allen B. Keen, said point being 100 feet S 24° 34' W along said Sagamore Avenue from the concrete bound aforementioned; thence running southerly along said Avenue 25 feet to land now or formerly of Frank E .Brooks, et als; thence turning and running N 83° 43' W by land now or formerly Frank E. Brooks, et als 300 feet, more or less, to a point; thence turning and running N 24° 30' E 25 feet by land of said Brooks, et als, to a stake at other land now or formerly of Allen B. Keen; thence turning and running Southeast 83° 43' E by other land of said Keen 300 feet to Sagamore Avenue and being the point of beginning. This parcel adjoining and lying on the southerly side of the first described parcel herein.

Being the same premises conveyed to the within Grantor by deed of Barbara Scammon dated April 25, 1995, recorded in Rockingham County Registry of Deeds, Book 3097, Page 1715.

Signed this 30th day of November, 2012.

Robert F. Scammon, Jr.

STATE OF NEW HAMPSHIRE
ROCKINGHAM COUNTY

Personally appeared this 30th day of November, 2012, Robert F. Scammon, Jr., who acknowledged that he/she/they executed the foregoing instrument as his/her/their free act and deed for the purposes contained herein.

Before me,

Lori Hebert, Notary Public

My commission expires: 05/09/2017

LORI HEBERT NOTARY PUBLIC HAMPSHIRE

ABUTTERS LIST (200 FEET)
AS OF
AUGUST 19, 2021
FOR
1169 & 1171 SAGAMORE AVENUE, PORTSMOUTH, NH
JBE PROJECT No. 21047

OWNERS OF RECORD:

TAX MAP 224/LOT 15
JOHN J & COLLEEN HEBERT
54 PIONEER RD
RYE, NH 03870
BK 5383/PG 0219 (11/30/12)

TAX MAP 224/LOT 14
COLLEEN HEBERT
54 PIONEER RD
RYE, NH 03870
2418/0173

APPLICANT:

THE SAGAMORE GROUP, LLC
4 MERRILL INDUSTRIAL DR
HAMPTON, NH 03842

ABUTTERS:

224/16
SIMONE ROCCO
1167 SAGAMORE AVE
PORTSMOUTH, NH 03801

224/17
CHINBURG DEVELOPMENT, LLC
3 PENSTOCK WAY
NEWMARKET, NH 03857

224/10-1
KEVIN SLOVER
20 ODIORNE POINT RD
PORTSMOUTH, NH 03801

224/17-1
ANTHONY WISE
DANICA THOMPSON
1163 SAGAMORE AVE, UNIT 10
PORTSMOUTH, NH 03801

224/17-2
TIMOTHY & CHRISTINE WHITAKER
1163 SAGAMORE AVE, UNIT 20
PORTSMOUTH, NH 03801

224/17-3
SUCHARIT S JOSHI REVOC TRUST
TORAL G JOSHI REVOC TRUST
1163 SAGAMORE AVE, UNIT 30
PORTSMOUTH, NH 03801

224/17-4
BOWEN 1999 FAMILY TRUST
WILLIAM G & SUSAN G BOWEN TRUSTEES
1163 SAGAMORE AVE, UNIT 40
PORTSMOUTH, NH 03801

224/17-9
GERALD F. & NINA CARON
1163 SAGAMORE AVE, UNIT 75
PORTSMOUTH, NH 03801

224/17-8
JOHN PAPPAS REVOCABLE TRUST (1/2 INT)
MARY B PAPPAS REVOCABLE TRUST (1/2 INT)
1163 SAGAMORE AVE, UNIT 80
PORTSMOUTH, NH 03801

224/17-5
LIAM MCCLENNON
1163 SAGAMORE AVE, UNIT 50
PORTSMOUTH, NH 03801

224/17-6
JLJJ REALTY TRUST
JOSEPH J & LAURA E HARDING TRUSTEES
1163 SAGAMORE AVE, UNIT 60
PORTSMOUTH, NH 03801

224/17-10
ANTHONY J & LISA A VIVINETTO
1163 SAGAMORE AVE, UNIT 65
PORTSMOUTH, NH 03801

224/17-7
DIMITRIUS & SARAH C GEORGAKOPOULOS
20 PORTSMOUTH AVE, SUITE 1 #1038
STRATHAM, NH 03885

224/13
WESTWIND TOWNHOMES OF PORTSMOUTH
1177 SAGAMORE AVE
PORTSMOUTH, NH 03801

224/13-1
JOHN K BARRY
KATHLEEN MASON
1177 SAGAMORE AVE #1
PORTSMOUTH, NH 03801

224/13-2
HENDERSON FAMILY REVOC TRUST
HAROLD & TAMARA HENDERSON TRUSTEES
1177 SAGAMORE AVE, UNIT 2
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CATHERINE R SWANSON TRUSTEE
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224/13-7
CAMERON FAMILY REVOCABLE TRUST
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201/26
CITY OF PORTSMOUTH CONSERVATION COMMISSION
PO BOX 6697
PORTSMOUTH, NH 03802

223/25B
CITY OF PORTSMOUTH
1 JUNKINS AVE
PORTSMOUTH, NH 03801

ENGINEERS/SURVEYORS:

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STRATHAM, NH 03885

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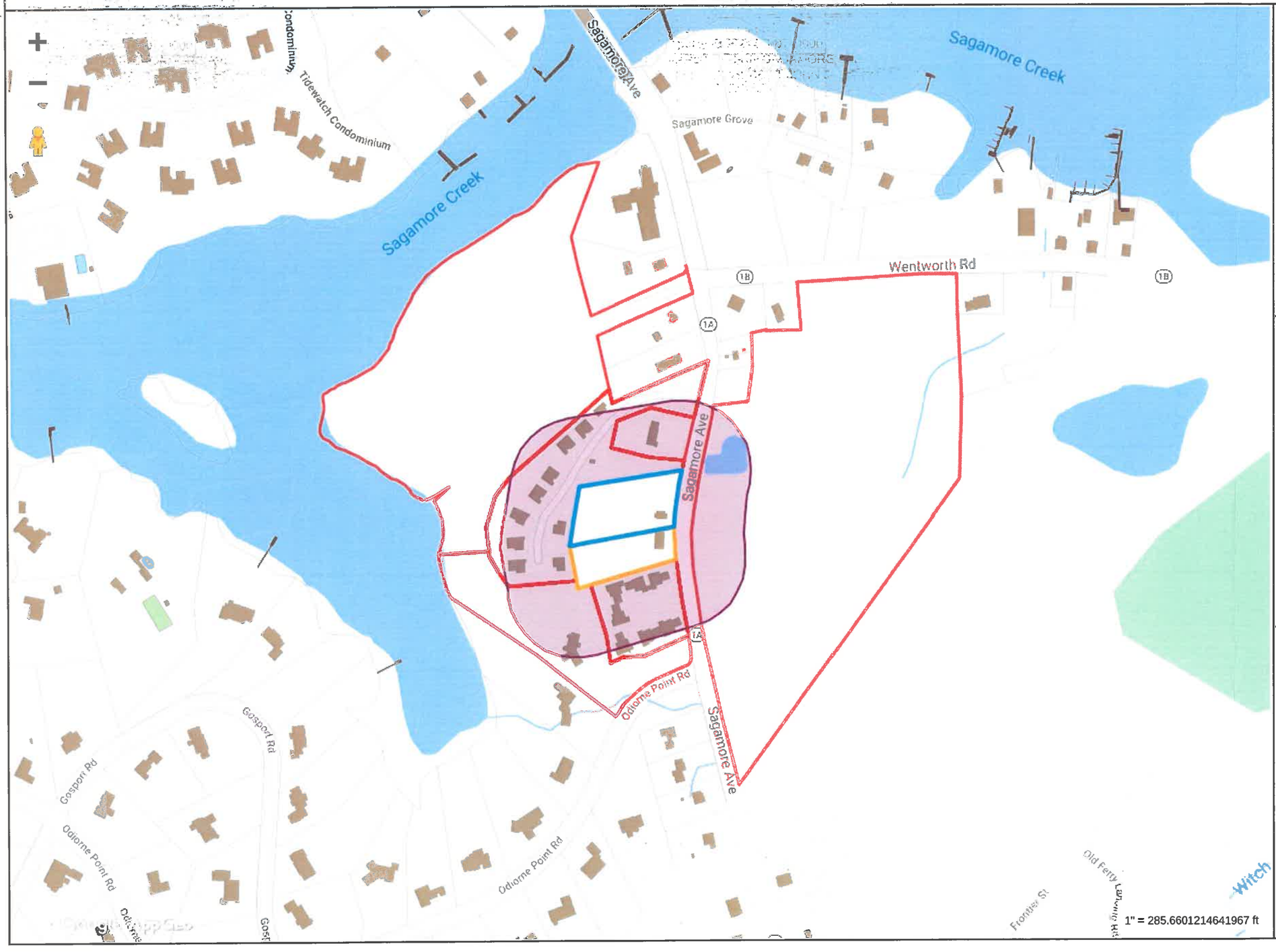


Property Information

Property ID 0224-0015-0000
Location 1169 SAGAMORE AVE
Owner HEBERT JOHN J

MAP FOR REFERENCE ONLY
NOT A LEGAL DOCUMENT

City of Portsmouth, NH makes no claims and no warranties, expressed or implied, concerning the validity or accuracy of the GIS data presented on this map.

Geometry updated 4/1/2019
Data updated 7/17/2019

Print map scale is approximate. Critical layout or measurement activities should not be done using this resource.

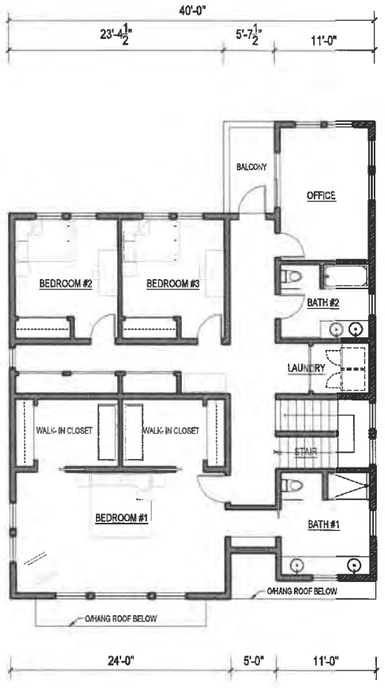
1" = 285.6601214641967 ft

SINGLE DETATCHED - TYPE A

TYPE MAY MIRROR

1 FIRST FLOOR CONCEPT PLAN

1/8" = 1'-0" TYPE A - EXAMPLE UNIT



2 SECOND FLOOR CONCEPT PLAN

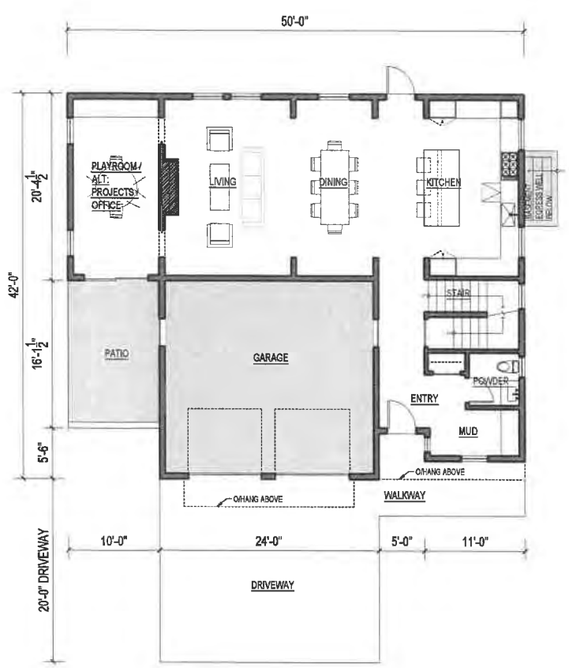
1/8" = 1'-0" TYPE A - EXAMPLE UNIT

EXAMPLE UNIT GROSS FLOOR AREA	
FIRST FLOOR:	1,246 SF
SECOND FLOOR:	1,703 SF
TOTAL	2,949 SF

(UNFINISHED PARTIAL BASEMENT NOT SHOWN)

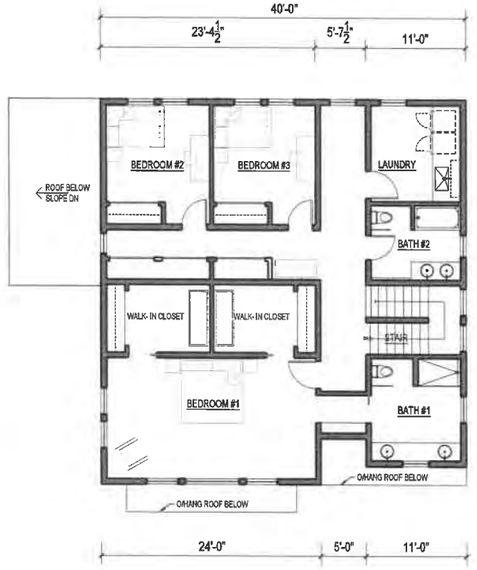
SINGLE DETATCHED - TYPE B

TYPE MAY MIRROR



1 FIRST FLOOR CONCEPT PLAN

1/8" = 1'-0" TYPE B - EXAMPLE UNIT



2 SECOND FLOOR CONCEPT PLAN

1/8" = 1'-0" TYPE B - EXAMPLE UNIT

EXAMPLE UNIT GROSS FLOOR AREA	
FIRST FLOOR:	1,283 SF
SECOND FLOOR:	1,593 SF
TOTAL	2,876 SF

(UNFINISHED PARTIAL BASEMENT NOT SHOWN)

0 4' 8' 16'

SCALE: 1/8" = 1'-0"

KHAVARI ARCHITECTS

40 HARRISON AVENUE
PORTSMOUTH, NH 03801

603 502 0985
KHAVARI.COM

PRELIMINARY

SINGLE FAMILY UNITS

1169 & 1171 SAGAMORE RD

PORTSMOUTH, NH 03801

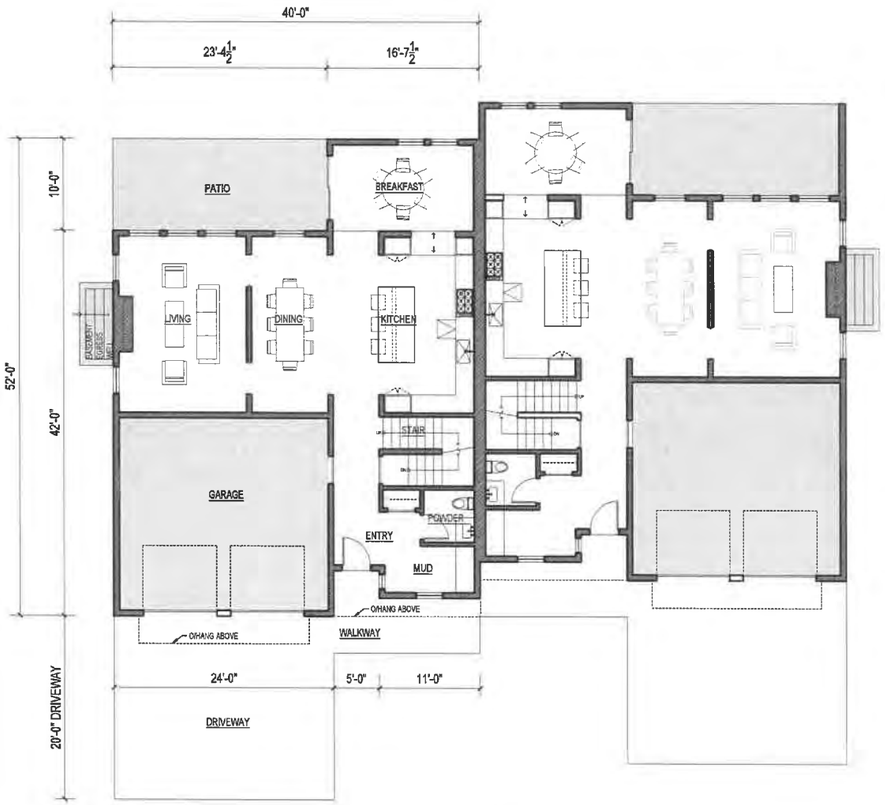
CONCEPT

ISSUE:

FOR REVIEW	06.23.2021
FOR REVIEW	08.23.2021

FLOOR PLANS - SINGLE FAMILY UNIT TYPES A&B

A-01



1 FIRST FLOOR CONCEPT PLAN
1/8" = 1'-0" EXAMPLE UNIT

FIRST FLOOR CONCEPT PLAN
1/8" = 1'-0" MIRRORED ADJ. UNIT

2 SECOND FLOOR CONCEPT PLAN
1/8" = 1'-0" EXAMPLE UNIT

SECOND FLOOR CONCEPT PLAN
1/8" = 1'-0" MIRRORED ADJ. UNIT

EXAMPLE UNIT GROSS FLOOR AREA	
FIRST FLOOR:	1,246 SF
SECOND FLOOR:	1,673 SF
TOTAL	2,919 SF

{ UNFINISHED PARTIAL BASEMENT NOT SHOWN }

0 4' 8' 16'
SCALE: 1/8" = 1'-0"

KHAVARI
ARCHITECTS

40 HARRISON AVENUE
PORTSMOUTH, NH 03801

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PRELIMINARY
DUPLEX UNITS
1169 & 1171 SAGAMORE RD
PORTSMOUTH, NH 03801

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FLOOR PLANS - DUPLEX UNITS

A-02

1 SINGLE FAMILY UNIT
EXTERIOR RENDERING

2 DUPLEX UNITS
EXTERIOR RENDERING

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ARCHITECTS

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PORTSMOUTH, NH 03801

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PRELIMINARY
EXTERIOR RENDERING

1169 & 1171 SAGAMORE RD
PORTSMOUTH, NH 03801

CONCEPT

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EXTERIOR RENDERING - EXAMPLE SINGLE & DUPLEX UNITS

A-03

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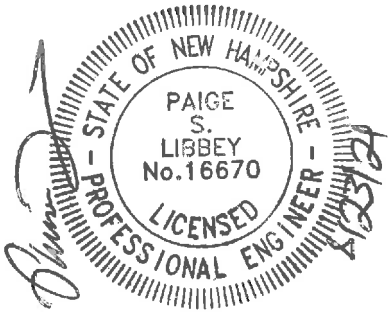
DRAINAGE ANALYSIS

SEDIMENT AND EROSION CONTROL PLAN

Sagamore Avenue Condominiums
1169 & 1171 Sagamore Ave.
Portsmouth, NH 03801
Tax Map 224, Lots 14 & 15

Prepared for:

The Sagamore Group, LLC
P.O. Box 430
Hampton, NH 03842



Prepared by:
Jones & Beach Engineers, Inc.
85 Portsmouth Avenue
P.O. Box 219
Stratham, NH 03885
(603) 772-4746
August 23, 2021
JBE Project No. 21047

EXECUTIVE SUMMARY

The Sagamore Group, LLC proposes to construct ten (10) residential condominium units on a 1.83-acre parcel of land located at 1169 & 1171 Sagamore Avenue in Portsmouth, NH. In the existing condition, the two lots to be consolidated are home to single-family residences with multiple sheds and paved driveways, a pool, and a gravel driveway running through the lots.

A drainage analysis of the entire site 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 (3.70"), 10 Year – 24 Hour (5.61"), 25 Year – 24 Hour (7.12"), and 50 Year – 24 Hour (8.53") 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 the values have been increased by 15% due to the project being within the Coastal/Great Bay Region. A summary of the existing and proposed conditions peak rates of runoff is as follows:

Analysis Point	2 Year		10 Year		25 Year		50 Year	
	Pre	Post	Pre	Post	Pre	Post	Pre	Post
Analysis Point #1	1.07	0.76	2.19	2.18	3.14	3.09	4.03	3.97
Analysis Point #2	0.56	0.20	0.99	0.36	1.33	0.49	1.65	0.61
Analysis Point #3	0.93	0.04	2.12	0.13	3.16	0.22	4.17	0.31
Analysis Point #4	0.22	0.21	0.44	0.41	0.62	0.57	0.79	0.72

The subject parcels are located in the Mixed Residential / Office (MRO) Zoning District. The subject parcel currently consists of the aforementioned single-family residences with associated driveways, sheds, and a pool, all of which is proposed to be demolished. The topography and ledge outcrops on the site define four (4) subcatchments, which drain into four (4) analysis points, respectively. The neighboring "Westwind Townhomes of Portsmouth" site to the south stands topographically prominent to this parcel, so some runoff from this property reaches the southeast corner of the subject parcel. This runoff then continues south along Sagamore Avenue. Only contributions from the two subject parcels were considered in this analysis. The majority of the site drains to the north in the existing condition, reaching either the abutting "Sea Star Cove Condominium" detention pond or the adjacent isolated wetland.

The proposed site development consists of the aforementioned ten (10) condominium units with associated paved roadway and individual 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 eight (8) subcatchments, representing the periphery of the site that will continue its existing flow pattern toward the aforementioned analysis points as well as the developed portions that will be routed into the site's stormwater management system for treatment and reduction of peak flows. The proposed stormwater management system consists of four (4) underdrained bioretention rain gardens to filter runoff and a downstream concrete galley field that will detain runoff and release it slowly, allowing for peak flow rates to be reduced. Through the use of

these practices, the peak rate of runoff is reduced for all analyzed storm events, and runoff from all impervious surfaces except for the patios in the rear of some of the houses is treated.

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

This drainage report includes an existing conditions analysis of the area involved in the proposed development, as well as a proposed condition, or post-construction analysis, of the same location. These analyses were accomplished using the USDA SCS TR-20 Method within the HydroCAD Stormwater Modeling System. The curve numbers were developed using the SCS TR-55 Runoff Curve numbers for Urban Areas. A Type III SCS 24-hour rainfall distribution was utilized in analyzing the data for the 2 Year – 24 Hour (3.70"), 10 Year – 24 Hour (5.61"), 25 Year – 24 Hour (7.12"), and 50 Year – 24 Hour (8.53") storm events. This data was taken from the Extreme Precipitation Tables developed by the Northeast Regional Climate Center (NRCC), and the values have been increased by 15% due to the project being within the Coastal/Great Bay Region.

The peak rates of runoff will be reduced from the existing condition, thereby minimizing any potential for a negative impact on abutting properties or erosion of the wetland system. This is accomplished through treatment of stormwater runoff and attenuation of peak flows resulting from storm events.

2.0 EXISTING CONDITIONS ANALYSIS

The two existing single-family residential properties feature three houses, two sheds, a pool, two paved driveways and a gravel driveway running through the site in addition to a paved island in the center of the site. The site is otherwise covered by both woods and grass, with sporadic ledge outcrops. A small section of the southern part of the site is sloped toward the south, while the majority of it is sloped toward the north.

The area draining toward the north is split into two subcatchments, Subcatchment 1S and Subcatchment 3S. Subcatchment 1S drains into an Analysis Point #1 (AP1), representing an isolated wetland near the northeast corner of the site. Subcatchment 3S drains into Analysis Point #3 (AP3) representing the abutting condominium property's private detention pond. The peak rates of runoff toward these two features are approximately equal in the existing condition.

Two additional subcatchments were defined for the area draining toward the south, Subcatchment 2S and Subcatchment 4S. Subcatchment 2S is directed toward Analysis Point #2 (AP2), representing the shoulder of Sagamore Avenue. Runoff in this direction combines with runoff from the edge of the abutting property and continues south. Subcatchment 4S, which is separated from 3S by a ledge outcrop, a building roof, and otherwise a subtle inflection in the surface topography, is located in the southwestern corner of the property and this small area drains directly into the Sea Star Cove Condiminium property, represented by Analysis Point #4 (AP4).

Existing soil types were determined through a High Intensity Soil Survey HISS conducted by a Certified Soil Scientist. A Site-Specific Soil Map (SSSM) conversion table was provided along with the report that was generated based on the results of the HISS. These soils are categorized into Hydrologic Soil Groups (HSG) B and D. Areas surrounding ledge outcrops are categorized into HSG D while the remainder of the upland area of the site is mostly categorized into HSG B.

3.0 PROPOSED CONDITIONS ANALYSIS

The addition of the proposed impervious parking areas and the buildings causes an increase in the curve number (C_n) and a decrease in the time of concentration (T_c), the result being a potential increase in peak rates of runoff from the site. The proposed development, consisting of the aforementioned ten (10) condominium units with associated paved roadway and driveways as well as stormwater management features divide the subject parcel into eight (8) subcatchments. Subcatchments 1S-4S drain directly into their respective Analysis Points, AP1-AP4, as previously outlined. Subcatchments 5S-8S will drain into four rain gardens in different corners of the site, and after receiving treatment in the rain gardens, runoff will be piped into concrete "Galley" chambers for underground detention. After passing through these features, treated and attenuated runoff will be gradually drained toward AP1, representing the isolated wetland in the northeast corner of the site. The peak rates of runoff toward AP3, representing the abutter's detention pond, and AP2, representing the shoulder of Sagamore Avenue, will be greatly reduced, while the peak rates of runoff toward AP1 and AP4 will stay approximately the same but will be reduced in all storms nonetheless.

The site will be graded such that runoff from all impervious areas, with the exception of the small patios in the rear of some of the proposed houses, will drain into the four aforementioned rain gardens. Due to the presence of ledge on the site, the potential for infiltration is unknown, so the rain gardens will be underdrained. However, they will not be lined as the bottom of the gravel underneath the filter media is above the seasonal high water table. The design intent is to allow infiltration if possible while not relying on it as a design feature. The concrete "Galley" chambers will be lined and underdrained.

By drastically reducing the rate of stormwater runoff toward the neighbor's detention pond, the functioning of the overall drainage system between the two properties is improved resultant to this development. The outfall is in an optimal location as the treated and attenuated runoff will be released toward an existing wetland, and a rip rap outlet protection apron is proposed in order to dissipate any concentrated flows that result.

According to the NH Stormwater Manual, bioretention systems provide a pollutant removal efficiency of 90% for TSS and 65% for nitrogen. The City of Portsmouth Site Plan Review Regulations stipulate that stormwater BMPs should either be designed for 80% TSS removal and 50% nitrogen removal, OR to retain and treat the Water Quality Volume. This plan exceeds the requirements for pollutant removal because bioretention systems (rain gardens) are used and the Water Quality Volume is retained and treated by the rain gardens.

5.0 CONCLUSION

This proposed site development will have minimal adverse effect on abutting infrastructures, properties, and wetlands 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, rain gardens, concrete "Galley" chambers, and rip rap outlet protection as well as temporary erosion control measures including but not limited to silt fence and the use of a stabilized construction entrance. The drainage outfall is in its optimal location and the rate of runoff reaching the abutter's detention pond from the subject site will be greatly reduced. 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 will disturb less than 100,000 S.F. and will not require a NHDES Alteration of Terrain Permit.

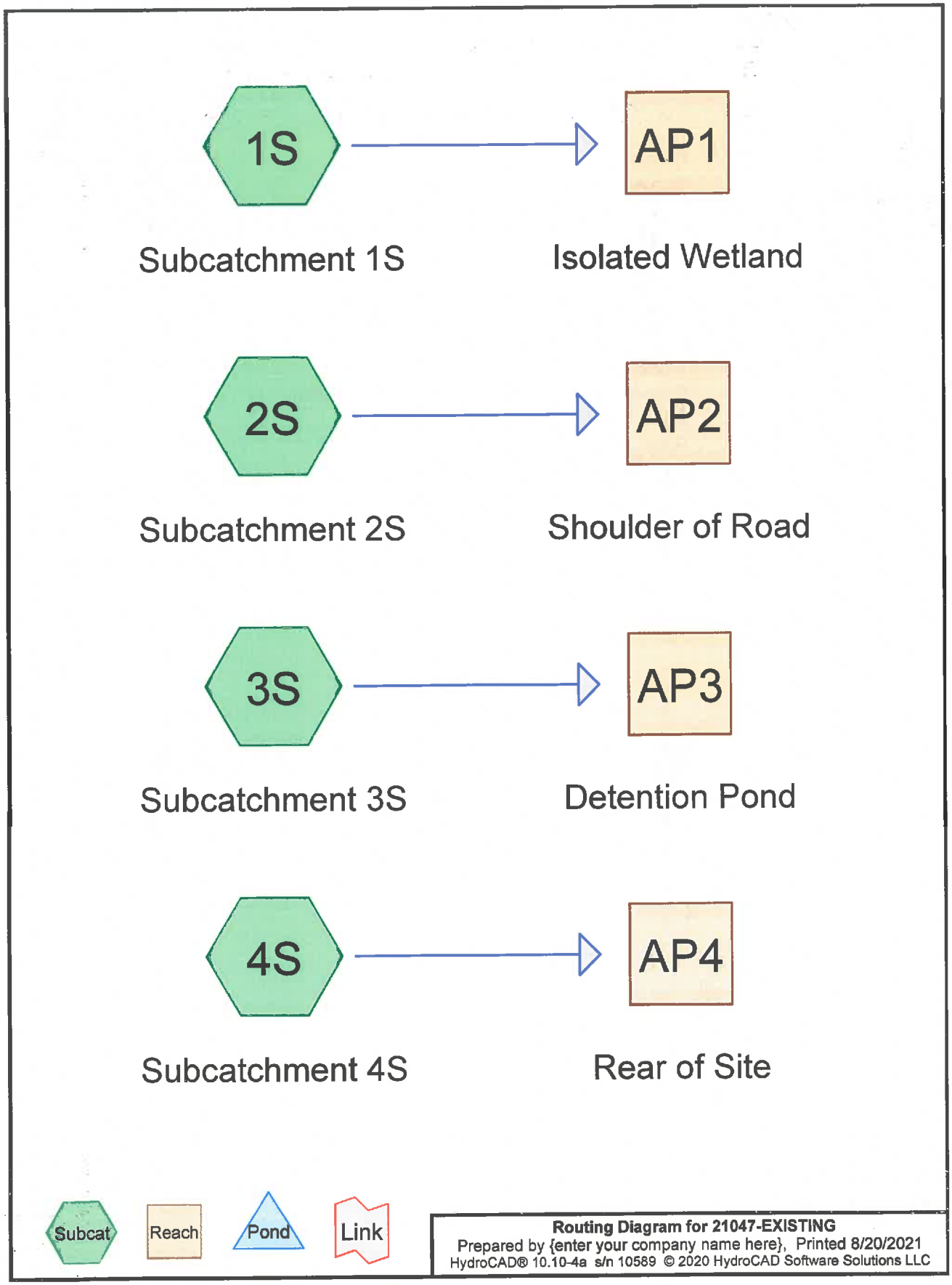
Respectfully Submitted,
JONES & BEACH ENGINEERS, INC.

Daniel Meditz, E.I.T
Project Engineer

APPENDIX I

EXISTING CONDITIONS DRAINAGE ANALYSIS

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


1S
AP1
Subcatchment 1S
Isolated Wetland
2S
AP2
Subcatchment 2S
Shoulder of Road
3S
AP3
Subcatchment 3S
Detention Pond
4S
AP4
Subcatchment 4S
Rear of Site
Subcat
Reach
Pond
Link
Routing Diagram for 21047-EXISTING
Prepared by {enter your company name here}, Printed 8/20/2021
HydroCAD® 10.10-4a s/n 10589 © 2020 HydroCAD Software Solutions LLC

Area Listing (all nodes)

Area (acres)	CN	Description (subcatchment-numbers)
0.514	61	>75% Grass cover, Good, HSG B (1S, 3S, 4S)
0.340	80	>75% Grass cover, Good, HSG D (1S, 2S, 3S, 4S)
0.135	96	Gravel surface, HSG B (1S, 3S)
0.107	96	Gravel surface, HSG D (1S, 2S, 3S, 4S)
0.156	98	Ledge Outcrop, HSG D (1S, 2S, 3S, 4S)
0.020	98	Paved parking, HSG B (3S)
0.047	98	Paved roads w/curbs & sewers, HSG B (1S)
0.038	98	Paved roads w/curbs & sewers, HSG D (1S, 2S)
0.062	98	Roofs, HSG B (1S, 3S, 4S)
0.040	98	Roofs, HSG D (1S, 2S, 3S, 4S)
0.421	55	Woods, Good, HSG B (1S, 3S, 4S)
0.079	77	Woods, Good, HSG D (1S, 3S, 4S)
1.958	**75**	**TOTAL AREA**

Soil Listing (all nodes)

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

Time span=0.00-24.00 hrs, dt=0.05 hrs, 481 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment1S: Subcatchment1S Runoff Area=32,077 sf 20.76% Impervious Runoff Depth>1.51"
Flow Length=207' Tc=11.3 min CN=76 Runoff=1.07 cfs 0.093 af

Subcatchment2S: Subcatchment2S Runoff Area=9,730 sf 11.40% Impervious Runoff Depth>2.19"
Flow Length=143' Tc=6.0 min CN=85 Runoff=0.56 cfs 0.041 af

Subcatchment3S: Subcatchment3S Runoff Area=37,179 sf 13.16% Impervious Runoff Depth>1.19"
Flow Length=284' Tc=11.6 min CN=71 Runoff=0.93 cfs 0.085 af

Subcatchment4S: Subcatchment4S Runoff Area=6,291 sf 49.28% Impervious Runoff Depth>1.65"
Flow Length=68' Slope=0.0290 '/' Tc=12.6 min CN=78 Runoff=0.22 cfs 0.020 af

Reach AP1: Isolated Wetland Inflow=1.07 cfs 0.093 af
Outflow=1.07 cfs 0.093 af

Reach AP2: Shoulder of Road Inflow=0.56 cfs 0.041 af
Outflow=0.56 cfs 0.041 af

Reach AP3: Detention Pond Inflow=0.93 cfs 0.085 af
Outflow=0.93 cfs 0.085 af

Reach AP4: Rear of Site Inflow=0.22 cfs 0.020 af
Outflow=0.22 cfs 0.020 af

Total Runoff Area = 1.958 ac Runoff Volume = 0.238 af Average Runoff Depth = 1.46"
81.52% Pervious = 1.596 ac 18.48% Impervious = 0.362 ac

Time span=0.00-24.00 hrs, dt=0.05 hrs, 481 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment1S: Subcatchment1S Runoff Area=32,077 sf 20.76% Impervious Runoff Depth>3.04"
Flow Length=207' Tc=11.3 min CN=76 Runoff=2.19 cfs 0.187 af

Subcatchment2S: Subcatchment2S Runoff Area=9,730 sf 11.40% Impervious Runoff Depth>3.93"
Flow Length=143' Tc=6.0 min CN=85 Runoff=0.99 cfs 0.073 af

Subcatchment3S: Subcatchment3S Runoff Area=37,179 sf 13.16% Impervious Runoff Depth>2.58"
Flow Length=284' Tc=11.6 min CN=71 Runoff=2.12 cfs 0.184 af

Subcatchment4S: Subcatchment4S Runoff Area=6,291 sf 49.28% Impervious Runoff Depth>3.23"
Flow Length=68' Slope=0.0290 '/' Tc=12.6 min CN=78 Runoff=0.44 cfs 0.039 af

Reach AP1: Isolated Wetland Inflow=2.19 cfs 0.187 af
Outflow=2.19 cfs 0.187 af

Reach AP2: Shoulder of Road Inflow=0.99 cfs 0.073 af
Outflow=0.99 cfs 0.073 af

Reach AP3: Detention Pond Inflow=2.12 cfs 0.184 af
Outflow=2.12 cfs 0.184 af

Reach AP4: Rear of Site Inflow=0.44 cfs 0.039 af
Outflow=0.44 cfs 0.039 af

Total Runoff Area = 1.958 ac Runoff Volume = 0.482 af Average Runoff Depth = 2.96"
81.52% Pervious = 1.596 ac 18.48% Impervious = 0.362 ac

Summary for Subcatchment 1S: Subcatchment 1S

Runoff = 2.19 cfs @ 12.16 hrs, Volume= 0.187 af, Depth> 3.04"

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(+15%) Rainfall=5.61"

	Area (sf)	CN	Description
	9,900	61	>75% Grass cover, Good, HSG B
	4,049	96	Gravel surface, HSG B
	2,032	98	Paved roads w/curbs & sewers, HSG B
	5,450	55	Woods, Good, HSG B
	745	98	Roofs, HSG B
*	1,274	98	Ledge Outcrop, HSG D
	1,500	77	Woods, Good, HSG D
	666	96	Gravel surface, HSG D
	3,854	80	>75% Grass cover, Good, HSG D
	1,144	98	Paved roads w/curbs & sewers, HSG D
	1,463	98	Roofs, HSG D
	32,077	76	Weighted Average
	25,419		79.24% Pervious Area
	6,658		20.76% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.4	79	0.0300	0.21		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.70"
3.6	22	0.0100	0.10		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.70"
0.5	22	0.0100	0.70		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
0.2	20	0.0100	1.61		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
0.4	38	0.0650	1.78		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
0.2	26	0.1700	2.89		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
11.3	207	Total			

Summary for Subcatchment 2S: Subcatchment 2S

Runoff = 0.99 cfs @ 12.09 hrs, Volume= 0.073 af, Depth> 3.93"

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(+15%) Rainfall=5.61"

	Area (sf)	CN	Description
*	401	98	Ledge Outcrop, HSG D
	1,855	96	Gravel surface, HSG D
	6,766	80	>75% Grass cover, Good, HSG D
	500	98	Paved roads w/curbs & sewers, HSG D
	208	98	Roofs, HSG D
	9,730	85	Weighted Average
	8,621		88.60% Pervious Area
	1,109		11.40% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.6	45	0.0400	0.21		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.70"
0.7	55	0.0200	1.31		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 3.70"
0.3	43	0.0200	2.28		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
4.6	143	Total, Increased to minimum Tc = 6.0 min			

Summary for Subcatchment 3S: Subcatchment 3S

Runoff = 2.12 cfs @ 12.17 hrs, Volume= 0.184 af, Depth> 2.58"

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(+15%) Rainfall=5.61"

	Area (sf)	CN	Description
*	2,560	98	Ledge Outcrop, HSG D
	2,102	96	Gravel surface, HSG D
	59	98	Roofs, HSG D
	1,829	77	Woods, Good, HSG D
	4,021	80	>75% Grass cover, Good, HSG D
	1,422	98	Roofs, HSG B
	852	98	Paved parking, HSG B
	1,842	96	Gravel surface, HSG B
	12,103	61	>75% Grass cover, Good, HSG B
	10,389	55	Woods, Good, HSG B
	37,179	71	Weighted Average
	32,286		86.84% Pervious Area
	4,893		13.16% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.7	6	0.0500	0.15		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.70"
0.2	15	0.0200	1.01		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 3.70"
3.8	31	0.0167	0.13		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.70"
0.9	14	0.1400	0.27		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.70"
2.4	34	0.0676	0.24		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.70"
0.1	13	0.0100	1.61		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
0.5	20	0.0100	0.70		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
0.4	31	0.0710	1.33		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
2.6	120	0.0230	0.76		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
11.6	284	Total			

Summary for Subcatchment 4S: Subcatchment 4S

Runoff = 0.44 cfs @ 12.17 hrs, Volume= 0.039 af, Depth> 3.23"

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(+15%) Rainfall=5.61"

	Area (sf)	CN	Description
*	2,545	98	Ledge Outcrop, HSG D
	27	96	Gravel surface, HSG D
	21	98	Roofs, HSG D
	111	77	Woods, Good, HSG D
	174	80	>75% Grass cover, Good, HSG D
	534	98	Roofs, HSG B
	372	61	>75% Grass cover, Good, HSG B
	2,507	55	Woods, Good, HSG B
	6,291	78	Weighted Average
	3,191		50.72% Pervious Area
	3,100		49.28% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.6	68	0.0290	0.09		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.70"

Summary for Reach AP1: Isolated Wetland

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

Inflow Area = 0.736 ac, 20.76% Impervious, Inflow Depth > 3.04" for 10 Yr 24 Hr(+15%) event
Inflow = 2.19 cfs @ 12.16 hrs, Volume= 0.187 af
Outflow = 2.19 cfs @ 12.16 hrs, Volume= 0.187 af, Atten= 0%, Lag= 0.0 min

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

Summary for Reach AP2: Shoulder of Road

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

Inflow Area = 0.223 ac, 11.40% Impervious, Inflow Depth > 3.93" for 10 Yr 24 Hr(+15%) event
Inflow = 0.99 cfs @ 12.09 hrs, Volume= 0.073 af
Outflow = 0.99 cfs @ 12.09 hrs, Volume= 0.073 af, Atten= 0%, Lag= 0.0 min

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

Summary for Reach AP3: Detention Pond

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

Inflow Area = 0.854 ac, 13.16% Impervious, Inflow Depth > 2.58" for 10 Yr 24 Hr(+15%) event
Inflow = 2.12 cfs @ 12.17 hrs, Volume= 0.184 af
Outflow = 2.12 cfs @ 12.17 hrs, Volume= 0.184 af, Atten= 0%, Lag= 0.0 min

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

Summary for Reach AP4: Rear of Site

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

Inflow Area = 0.144 ac, 49.28% Impervious, Inflow Depth > 3.23" for 10 Yr 24 Hr(+15%) event
Inflow = 0.44 cfs @ 12.17 hrs, Volume= 0.039 af
Outflow = 0.44 cfs @ 12.17 hrs, Volume= 0.039 af, Atten= 0%, Lag= 0.0 min

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

Time span=0.00-24.00 hrs, dt=0.05 hrs, 481 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment1S: Subcatchment1S Runoff Area=32,077 sf 20.76% Impervious Runoff Depth>4.36"
Flow Length=207' Tc=11.3 min CN=76 Runoff=3.14 cfs 0.267 af

Subcatchment2S: Subcatchment2S Runoff Area=9,730 sf 11.40% Impervious Runoff Depth>5.36"
Flow Length=143' Tc=6.0 min CN=85 Runoff=1.33 cfs 0.100 af

Subcatchment3S: Subcatchment3S Runoff Area=37,179 sf 13.16% Impervious Runoff Depth>3.82"
Flow Length=284' Tc=11.6 min CN=71 Runoff=3.16 cfs 0.271 af

Subcatchment4S: Subcatchment4S Runoff Area=6,291 sf 49.28% Impervious Runoff Depth>4.57"
Flow Length=68' Slope=0.0290 '/' Tc=12.6 min CN=78 Runoff=0.62 cfs 0.055 af

Reach AP1: Isolated Wetland Inflow=3.14 cfs 0.267 af
Outflow=3.14 cfs 0.267 af

Reach AP2: Shoulder of Road Inflow=1.33 cfs 0.100 af
Outflow=1.33 cfs 0.100 af

Reach AP3: Detention Pond Inflow=3.16 cfs 0.271 af
Outflow=3.16 cfs 0.271 af

Reach AP4: Rear of Site Inflow=0.62 cfs 0.055 af
Outflow=0.62 cfs 0.055 af

Total Runoff Area = 1.958 ac Runoff Volume = 0.694 af Average Runoff Depth = 4.25"
81.52% Pervious = 1.596 ac 18.48% Impervious = 0.362 ac

Time span=0.00-24.00 hrs, dt=0.05 hrs, 481 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment1S: Subcatchment1S Runoff Area=32,077 sf 20.76% Impervious Runoff Depth>5.63"
Flow Length=207' Tc=11.3 min CN=76 Runoff=4.03 cfs 0.346 af

Subcatchment2S: Subcatchment2S Runoff Area=9,730 sf 11.40% Impervious Runoff Depth>6.72"
Flow Length=143' Tc=6.0 min CN=85 Runoff=1.65 cfs 0.125 af

Subcatchment3S: Subcatchment3S Runoff Area=37,179 sf 13.16% Impervious Runoff Depth>5.03"
Flow Length=284' Tc=11.6 min CN=71 Runoff=4.17 cfs 0.358 af

Subcatchment4S: Subcatchment4S Runoff Area=6,291 sf 49.28% Impervious Runoff Depth>5.87"
Flow Length=68' Slope=0.0290 '/' Tc=12.6 min CN=78 Runoff=0.79 cfs 0.071 af

Reach AP1: Isolated Wetland Inflow=4.03 cfs 0.346 af
Outflow=4.03 cfs 0.346 af

Reach AP2: Shoulder of Road Inflow=1.65 cfs 0.125 af
Outflow=1.65 cfs 0.125 af

Reach AP3: Detention Pond Inflow=4.17 cfs 0.358 af
Outflow=4.17 cfs 0.358 af

Reach AP4: Rear of Site Inflow=0.79 cfs 0.071 af
Outflow=0.79 cfs 0.071 af

Total Runoff Area = 1.958 ac Runoff Volume = 0.899 af Average Runoff Depth = 5.51"
81.52% Pervious = 1.596 ac 18.48% Impervious = 0.362 ac

Summary for Subcatchment 1S: Subcatchment 1S

Runoff = 4.03 cfs @ 12.16 hrs, Volume= 0.346 af, Depth> 5.63"

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(+15%) Rainfall=8.53"

	Area (sf)	CN	Description
	9,900	61	>75% Grass cover, Good, HSG B
	4,049	96	Gravel surface, HSG B
	2,032	98	Paved roads w/curbs & sewers, HSG B
	5,450	55	Woods, Good, HSG B
	745	98	Roofs, HSG B
*	1,274	98	Ledge Outcrop, HSG D
	1,500	77	Woods, Good, HSG D
	666	96	Gravel surface, HSG D
	3,854	80	>75% Grass cover, Good, HSG D
	1,144	98	Paved roads w/curbs & sewers, HSG D
	1,463	98	Roofs, HSG D
	32,077	76	Weighted Average
	25,419		79.24% Pervious Area
	6,658		20.76% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.4	79	0.0300	0.21		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.70"
3.6	22	0.0100	0.10		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.70"
0.5	22	0.0100	0.70		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
0.2	20	0.0100	1.61		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
0.4	38	0.0650	1.78		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
0.2	26	0.1700	2.89		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
11.3	207	Total			

Summary for Subcatchment 2S: Subcatchment 2S

Runoff = 1.65 cfs @ 12.09 hrs, Volume= 0.125 af, Depth> 6.72"

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(+15%) Rainfall=8.53"

	Area (sf)	CN	Description
*	401	98	Ledge Outcrop, HSG D
	1,855	96	Gravel surface, HSG D
	6,766	80	>75% Grass cover, Good, HSG D
	500	98	Paved roads w/curbs & sewers, HSG D
	208	98	Roofs, HSG D
	9,730	85	Weighted Average
	8,621		88.60% Pervious Area
	1,109		11.40% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.6	45	0.0400	0.21		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.70"
0.7	55	0.0200	1.31		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 3.70"
0.3	43	0.0200	2.28		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
4.6	143	Total, Increased to minimum Tc = 6.0 min			

Summary for Subcatchment 3S: Subcatchment 3S

Runoff = 4.17 cfs @ 12.16 hrs, Volume= 0.358 af, Depth> 5.03"

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(+15%) Rainfall=8.53"

	Area (sf)	CN	Description
*	2,560	98	Ledge Outcrop, HSG D
	2,102	96	Gravel surface, HSG D
	59	98	Roofs, HSG D
	1,829	77	Woods, Good, HSG D
	4,021	80	>75% Grass cover, Good, HSG D
	1,422	98	Roofs, HSG B
	852	98	Paved parking, HSG B
	1,842	96	Gravel surface, HSG B
	12,103	61	>75% Grass cover, Good, HSG B
	10,389	55	Woods, Good, HSG B
	37,179	71	Weighted Average
	32,286		86.84% Pervious Area
	4,893		13.16% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.7	6	0.0500	0.15		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.70"
0.2	15	0.0200	1.01		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 3.70"
3.8	31	0.0167	0.13		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.70"
0.9	14	0.1400	0.27		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.70"
2.4	34	0.0676	0.24		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.70"
0.1	13	0.0100	1.61		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
0.5	20	0.0100	0.70		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
0.4	31	0.0710	1.33		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
2.6	120	0.0230	0.76		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
11.6	284	Total			

Summary for Subcatchment 4S: Subcatchment 4S

Runoff = 0.79 cfs @ 12.17 hrs, Volume= 0.071 af, Depth> 5.87"

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(+15%) Rainfall=8.53"

	Area (sf)	CN	Description
*	2,545	98	Ledge Outcrop, HSG D
	27	96	Gravel surface, HSG D
	21	98	Roofs, HSG D
	111	77	Woods, Good, HSG D
	174	80	>75% Grass cover, Good, HSG D
	534	98	Roofs, HSG B
	372	61	>75% Grass cover, Good, HSG B
	2,507	55	Woods, Good, HSG B
	6,291	78	Weighted Average
	3,191		50.72% Pervious Area
	3,100		49.28% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.6	68	0.0290	0.09		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.70"

Summary for Reach AP1: Isolated Wetland

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

Inflow Area = 0.736 ac, 20.76% Impervious, Inflow Depth > 5.63" for 50 Yr 24 Hr(+15%) event
Inflow = 4.03 cfs @ 12.16 hrs, Volume= 0.346 af
Outflow = 4.03 cfs @ 12.16 hrs, Volume= 0.346 af, Atten= 0%, Lag= 0.0 min

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

Summary for Reach AP2: Shoulder of Road

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

Inflow Area = 0.223 ac, 11.40% Impervious, Inflow Depth > 6.72" for 50 Yr 24 Hr(+15%) event
Inflow = 1.65 cfs @ 12.09 hrs, Volume= 0.125 af
Outflow = 1.65 cfs @ 12.09 hrs, Volume= 0.125 af, Atten= 0%, Lag= 0.0 min

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

Summary for Reach AP3: Detention Pond

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

Inflow Area = 0.854 ac, 13.16% Impervious, Inflow Depth > 5.03" for 50 Yr 24 Hr(+15%) event
Inflow = 4.17 cfs @ 12.16 hrs, Volume= 0.358 af
Outflow = 4.17 cfs @ 12.16 hrs, Volume= 0.358 af, Atten= 0%, Lag= 0.0 min

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

Summary for Reach AP4: Rear of Site

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

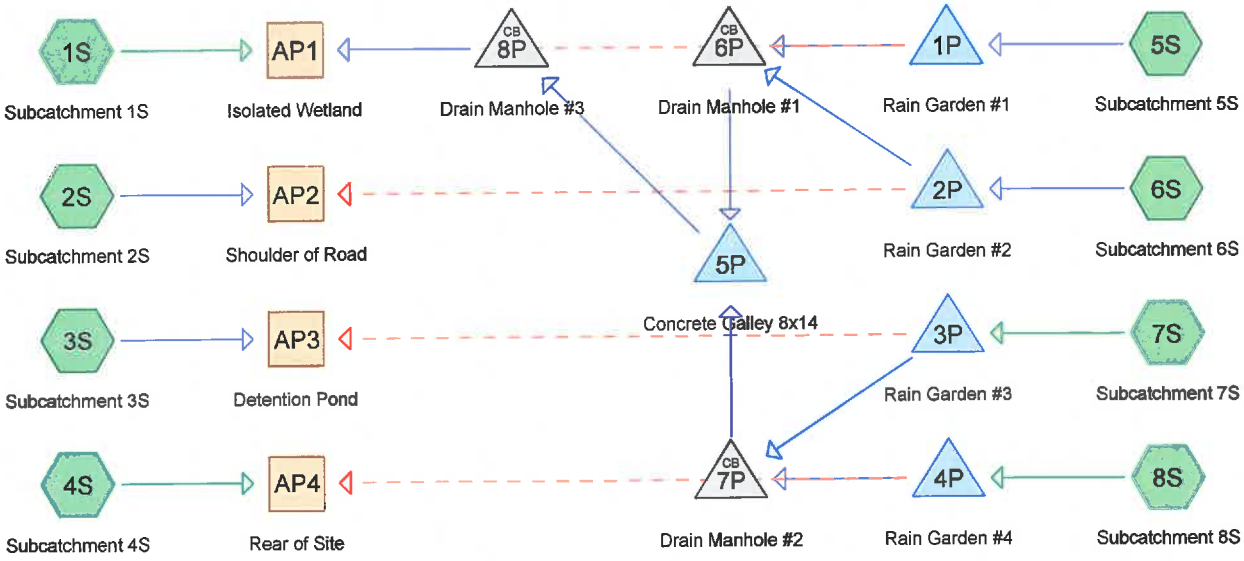
Inflow Area = 0.144 ac, 49.28% Impervious, Inflow Depth > 5.87" for 50 Yr 24 Hr(+15%) event
Inflow = 0.79 cfs @ 12.17 hrs, Volume= 0.071 af
Outflow = 0.79 cfs @ 12.17 hrs, Volume= 0.071 af, Atten= 0%, Lag= 0.0 min

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

APPENDIX II

PROPOSED CONDITIONS DRAINAGE ANALYSIS

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



Subcat Reach Pond Link

Routing Diagram for 21047-PROPOSED
Prepared by {enter your company name here}, Printed 8/20/2021
HydroCAD® 10.10-4a s/n 10589 © 2020 HydroCAD Software Solutions LLC

Area Listing (all nodes)

Area (acres)	CN	Description (subcatchment-numbers)
0.548	61	>75% Grass cover, Good, HSG B (1S, 3S, 4S, 5S, 6S, 7S, 8S)
0.293	80	>75% Grass cover, Good, HSG D (1S, 2S, 6S, 7S, 8S)
0.095	98	Ledge Outcrop, HSG D (4S, 8S)
0.280	98	Paved parking, HSG B (5S, 6S, 7S, 8S)
0.121	98	Paved parking, HSG D (5S, 6S, 7S, 8S)
0.063	98	Paved roads w/curbs & sewers, HSG B (1S)
0.021	98	Paved roads w/curbs & sewers, HSG D (1S, 2S)
0.251	98	Roofs, HSG B (1S, 5S, 7S, 8S)
0.224	98	Roofs, HSG D (1S, 2S, 6S, 7S, 8S)
0.056	55	Woods, Good, HSG B (1S, 3S, 4S)
0.006	77	Woods, Good, HSG D (1S, 4S)
1.958	**84**	**TOTAL AREA**

Soil Listing (all nodes)

Area (acres)	Soil Group	Subcatchment Numbers
0.000	HSG A	
1.198	HSG B	1S, 3S, 4S, 5S, 6S, 7S, 8S
0.000	HSG C	
0.759	HSG D	1S, 2S, 4S, 5S, 6S, 7S, 8S
0.000	Other	
1.958		**TOTAL AREA**

Time span=0.00-24.00 hrs, dt=0.05 hrs, 481 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment1S: Subcatchment1S Runoff Area=10,824 sf 39.50% Impervious Runoff Depth>1.51"
Flow Length=95' Tc=12.2 min CN=76 Runoff=0.35 cfs 0.031 af

Subcatchment2S: Subcatchment2S Runoff Area=3,963 sf 13.95% Impervious Runoff Depth>2.03"
Flow Length=113' Slope=0.0250 '/' Tc=8.5 min CN=83 Runoff=0.20 cfs 0.015 af

Subcatchment3S: Subcatchment3S Runoff Area=3,090 sf 0.00% Impervious Runoff Depth>0.66"
Tc=6.0 min CN=61 Runoff=0.04 cfs 0.004 af

Subcatchment4S: Subcatchment4S Runoff Area=4,656 sf 50.32% Impervious Runoff Depth>1.72"
Tc=6.0 min CN=79 Runoff=0.21 cfs 0.015 af

Subcatchment5S: Subcatchment5S Runoff Area=8,151 sf 72.09% Impervious Runoff Depth>2.45"
Tc=6.0 min CN=88 Runoff=0.52 cfs 0.038 af

Subcatchment6S: Subcatchment6S Runoff Area=12,632 sf 63.84% Impervious Runoff Depth>2.63"
Flow Length=127' Slope=0.0200 '/' Tc=7.2 min CN=90 Runoff=0.83 cfs 0.064 af

Subcatchment7S: Subcatchment7S Runoff Area=21,545 sf 57.22% Impervious Runoff Depth>2.11"
Flow Length=122' Tc=9.0 min CN=84 Runoff=1.08 cfs 0.087 af

Subcatchment8S: Subcatchment8S Runoff Area=20,413 sf 61.20% Impervious Runoff Depth>2.36"
Flow Length=181' Tc=11.5 min CN=87 Runoff=1.07 cfs 0.092 af

Reach AP1: Isolated Wetland Inflow=0.76 cfs 0.304 af
Outflow=0.76 cfs 0.304 af

Reach AP2: Shoulder of Road Inflow=0.20 cfs 0.015 af
Outflow=0.20 cfs 0.015 af

Reach AP3: Detention Pond Inflow=0.04 cfs 0.004 af
Outflow=0.04 cfs 0.004 af

Reach AP4: Rear of Site Inflow=0.21 cfs 0.015 af
Outflow=0.21 cfs 0.015 af

Pond 1P: Rain Garden #1 Peak Elev=37.18' Storage=651 cf Inflow=0.52 cfs 0.038 af
Primary=0.08 cfs 0.038 af Secondary=0.00 cfs 0.000 af Outflow=0.08 cfs 0.038 af

Pond 2P: Rain Garden #2 Peak Elev=37.39' Storage=1,127 cf Inflow=0.83 cfs 0.064 af
Primary=0.11 cfs 0.063 af Secondary=0.00 cfs 0.000 af Outflow=0.11 cfs 0.063 af

Pond 3P: Rain Garden #3 Peak Elev=36.57' Storage=1,466 cf Inflow=1.08 cfs 0.087 af
Primary=0.17 cfs 0.083 af Secondary=0.00 cfs 0.000 af Outflow=0.17 cfs 0.083 af

Pond 4P: Rain Garden #4 Peak Elev=37.35' Storage=1,632 cf Inflow=1.07 cfs 0.092 af
Primary=0.15 cfs 0.090 af Secondary=0.00 cfs 0.000 af Outflow=0.15 cfs 0.090 af

Pond 5P: Concrete Galley 8x14 Peak Elev=32.30' Storage=0.000 af Inflow=0.50 cfs 0.273 af
Outflow=0.50 cfs 0.273 af

Pond 6P: Drain Manhole #1 Peak Elev=33.14' Inflow=0.19 cfs 0.100 af
12.0" Round Culvert n=0.013 L=46.0' S=0.0065 '/' Outflow=0.19 cfs 0.100 af

Pond 7P: Drain Manhole #2 Peak Elev=33.12' Inflow=0.32 cfs 0.173 af
12.0" Round Culvert n=0.013 L=48.0' S=0.0062 '/' Outflow=0.32 cfs 0.173 af

Pond 8P: Drain Manhole #3 Peak Elev=31.41' Inflow=0.50 cfs 0.273 af
12.0" Round Culvert n=0.013 L=85.0' S=0.0059 '/' Outflow=0.50 cfs 0.273 af

Total Runoff Area = 1.958 ac Runoff Volume = 0.347 af Average Runoff Depth = 2.12"
46.14% Pervious = 0.903 ac 53.86% Impervious = 1.054 ac

Time span=0.00-24.00 hrs, dt=0.05 hrs, 481 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment1S: Subcatchment1S Runoff Area=10,824 sf 39.50% Impervious Runoff Depth>3.04"
Flow Length=95' Tc=12.2 min CN=76 Runoff=0.72 cfs 0.063 af

Subcatchment2S: Subcatchment2S Runoff Area=3,963 sf 13.95% Impervious Runoff Depth>3.73"
Flow Length=113' Slope=0.0250 '/' Tc=8.5 min CN=83 Runoff=0.36 cfs 0.028 af

Subcatchment3S: Subcatchment3S Runoff Area=3,090 sf 0.00% Impervious Runoff Depth>1.75"
Tc=6.0 min CN=61 Runoff=0.13 cfs 0.010 af

Subcatchment4S: Subcatchment4S Runoff Area=4,656 sf 50.32% Impervious Runoff Depth>3.33"
Tc=6.0 min CN=79 Runoff=0.41 cfs 0.030 af

Subcatchment5S: Subcatchment5S Runoff Area=8,151 sf 72.09% Impervious Runoff Depth>4.25"
Tc=6.0 min CN=88 Runoff=0.88 cfs 0.066 af

Subcatchment6S: Subcatchment6S Runoff Area=12,632 sf 63.84% Impervious Runoff Depth>4.46"
Flow Length=127' Slope=0.0200 '/' Tc=7.2 min CN=90 Runoff=1.38 cfs 0.108 af

Subcatchment7S: Subcatchment7S Runoff Area=21,545 sf 57.22% Impervious Runoff Depth>3.83"
Flow Length=122' Tc=9.0 min CN=84 Runoff=1.94 cfs 0.158 af

Subcatchment8S: Subcatchment8S Runoff Area=20,413 sf 61.20% Impervious Runoff Depth>4.14"
Flow Length=181' Tc=11.5 min CN=87 Runoff=1.85 cfs 0.162 af

Reach AP1: Isolated Wetland Inflow=2.18 cfs 0.549 af
Outflow=2.18 cfs 0.549 af

Reach AP2: Shoulder of Road Inflow=0.36 cfs 0.028 af
Outflow=0.36 cfs 0.028 af

Reach AP3: Detention Pond Inflow=0.13 cfs 0.010 af
Outflow=0.13 cfs 0.010 af

Reach AP4: Rear of Site Inflow=0.41 cfs 0.030 af
Outflow=0.41 cfs 0.030 af

Pond 1P: Rain Garden #1 Peak Elev=37.41' Storage=819 cf Inflow=0.88 cfs 0.066 af
Primary=0.78 cfs 0.066 af Secondary=0.00 cfs 0.000 af Outflow=0.78 cfs 0.066 af

Pond 2P: Rain Garden #2 Peak Elev=37.63' Storage=1,368 cf Inflow=1.38 cfs 0.108 af
Primary=1.04 cfs 0.107 af Secondary=0.00 cfs 0.000 af Outflow=1.04 cfs 0.107 af

Pond 3P: Rain Garden #3 Peak Elev=37.44' Storage=2,920 cf Inflow=1.94 cfs 0.158 af
Primary=0.22 cfs 0.154 af Secondary=0.00 cfs 0.000 af Outflow=0.22 cfs 0.154 af

Pond 4P: Rain Garden #4 Peak Elev=37.65' Storage=2,040 cf Inflow=1.85 cfs 0.162 af
Primary=1.32 cfs 0.159 af Secondary=0.00 cfs 0.000 af Outflow=1.32 cfs 0.159 af

Pond 5P: Concrete Galley 8x14 Peak Elev=32.96' Storage=0.018 af Inflow=2.74 cfs 0.486 af
Outflow=1.77 cfs 0.486 af

Pond 6P: Drain Manhole #1 Peak Elev=33.73' Inflow=1.65 cfs 0.172 af
12.0" Round Culvert n=0.013 L=46.0' S=0.0065 '/' Outflow=1.65 cfs 0.172 af

Pond 7P: Drain Manhole #2 Peak Elev=33.59' Inflow=1.52 cfs 0.313 af
12.0" Round Culvert n=0.013 L=48.0' S=0.0062 '/' Outflow=1.52 cfs 0.313 af

Pond 8P: Drain Manhole #3 Peak Elev=31.85' Inflow=1.77 cfs 0.486 af
12.0" Round Culvert n=0.013 L=85.0' S=0.0059 '/' Outflow=1.77 cfs 0.486 af

Total Runoff Area = 1.958 ac Runoff Volume = 0.625 af Average Runoff Depth = 3.83"
46.14% Pervious = 0.903 ac 53.86% Impervious = 1.054 ac

Summary for Subcatchment 1S: Subcatchment 1S

Runoff = 0.72 cfs @ 12.17 hrs, Volume= 0.063 af, Depth> 3.04"

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(+15%) Rainfall=5.61"

Area (sf)	CN	Description
576	98	Paved roads w/curbs & sewers, HSG D
2,763	98	Paved roads w/curbs & sewers, HSG B
1,389	55	Woods, Good, HSG B
4,343	61	>75% Grass cover, Good, HSG B
637	80	>75% Grass cover, Good, HSG D
180	77	Woods, Good, HSG D
779	98	Roofs, HSG B
157	98	Roofs, HSG D
10,824	76	Weighted Average
6,549		60.50% Pervious Area
4,275		39.50% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.1	43	0.0070	0.10		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.70"
1.7	20	0.0500	0.19		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.70"
0.2	3	0.2300	0.24		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.70"
1.4	11	0.1800	0.13		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.70"
1.8	18	0.2830	0.17		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.70"
12.2	95	Total			

Summary for Subcatchment 2S: Subcatchment 2S

Runoff = 0.36 cfs @ 12.12 hrs, Volume= 0.028 af, Depth> 3.73"

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(+15%) Rainfall=5.61"

Area (sf)	CN	Description
3,410	80	>75% Grass cover, Good, HSG D
319	98	Paved roads w/curbs & sewers, HSG D
234	98	Roofs, HSG D
3,963	83	Weighted Average
3,410		86.05% Pervious Area
553		13.95% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.3	100	0.0250	0.20		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.70"
0.2	13	0.0250	1.11		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
8.5	113	Total			

Summary for Subcatchment 3S: Subcatchment 3S

Runoff = 0.13 cfs @ 12.10 hrs, Volume= 0.010 af, Depth> 1.75"

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(+15%) Rainfall=5.61"

Area (sf)	CN	Description
2,947	61	>75% Grass cover, Good, HSG B
143	55	Woods, Good, HSG B
3,090	61	Weighted Average
3,090		100.00% Pervious Area

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

Summary for Subcatchment 4S: Subcatchment 4S

Runoff = 0.41 cfs @ 12.09 hrs, Volume= 0.030 af, Depth> 3.33"

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(+15%) Rainfall=5.61"

	Area (sf)	CN	Description
*	2,343	98	Ledge Outcrop, HSG D
	73	77	Woods, Good, HSG D
	917	55	Woods, Good, HSG B
	1,323	61	>75% Grass cover, Good, HSG B
	4,656	79	Weighted Average
	2,313		49.68% Pervious Area
	2,343		50.32% Impervious Area

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

Summary for Subcatchment 5S: Subcatchment 5S

Runoff = 0.88 cfs @ 12.09 hrs, Volume= 0.066 af, Depth> 4.25"

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(+15%) Rainfall=5.61"

Area (sf)	CN	Description
2,275	61	>75% Grass cover, Good, HSG B
14	98	Paved parking, HSG D
3,348	98	Paved parking, HSG B
2,514	98	Roofs, HSG B
8,151	88	Weighted Average
2,275		27.91% Pervious Area
5,876		72.09% Impervious Area

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

Summary for Subcatchment 6S: Subcatchment 6S

Runoff = 1.38 cfs @ 12.10 hrs, Volume= 0.108 af, Depth> 4.46"

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(+15%) Rainfall=5.61"

Area (sf)	CN	Description
1,171	61	>75% Grass cover, Good, HSG B
1,414	98	Paved parking, HSG B
2,723	98	Paved parking, HSG D
3,397	80	>75% Grass cover, Good, HSG D
3,927	98	Roofs, HSG D
12,632	90	Weighted Average
4,568		36.16% Pervious Area
8,064		63.84% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.5	65	0.0200	0.17		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.70"
0.5	35	0.0200	1.20		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 3.70"
0.2	27	0.0200	2.87		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
7.2	127	Total			

Summary for Subcatchment 7S: Subcatchment 7S

Runoff = 1.94 cfs @ 12.13 hrs, Volume= 0.158 af, Depth> 3.83"

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(+15%) Rainfall=5.61"

Area (sf)	CN	Description
5,466	98	Roofs, HSG B
2,932	98	Paved parking, HSG B
7,537	61	>75% Grass cover, Good, HSG B
1,448	98	Roofs, HSG D
2,481	98	Paved parking, HSG D
1,681	80	>75% Grass cover, Good, HSG D
21,545	84	Weighted Average
9,218		42.78% Pervious Area
12,327		57.22% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.6	90	0.0189	0.18		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.70"
0.2	10	0.0100	0.71		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 3.70"
0.2	22	0.0100	2.03		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
9.0	122	Total			

Summary for Subcatchment 8S: Subcatchment 8S

Runoff = 1.85 cfs @ 12.16 hrs, Volume= 0.162 af, Depth> 4.14"

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(+15%) Rainfall=5.61"

	Area (sf)	CN	Description
	4,269	61	>75% Grass cover, Good, HSG B
	4,487	98	Paved parking, HSG B
	2,180	98	Roofs, HSG B
	3,652	80	>75% Grass cover, Good, HSG D
*	1,794	98	Ledge Outcrop, HSG D
	39	98	Paved parking, HSG D
	3,992	98	Roofs, HSG D
	20,413	87	Weighted Average
	7,921		38.80% Pervious Area
	12,492		61.20% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.7	42	0.0330	0.19		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.70"
6.8	58	0.0140	0.14		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.70"
0.6	28	0.0140	0.83		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
0.4	53	0.0100	2.03		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
11.5	181	Total			

Summary for Reach AP1: Isolated Wetland

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

Inflow Area = 1.689 ac, 58.50% Impervious, Inflow Depth > 3.90" for 10 Yr 24 Hr(+15%) event
Inflow = 2.18 cfs @ 12.35 hrs, Volume= 0.549 af
Outflow = 2.18 cfs @ 12.35 hrs, Volume= 0.549 af, Atten= 0%, Lag= 0.0 min

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

Summary for Reach AP2: Shoulder of Road

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

Inflow Area = 0.091 ac, 13.95% Impervious, Inflow Depth > 3.73" for 10 Yr 24 Hr(+15%) event
Inflow = 0.36 cfs @ 12.12 hrs, Volume= 0.028 af
Outflow = 0.36 cfs @ 12.12 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

Summary for Reach AP3: Detention Pond

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

Inflow Area = 0.071 ac, 0.00% Impervious, Inflow Depth > 1.75" for 10 Yr 24 Hr(+15%) event
Inflow = 0.13 cfs @ 12.10 hrs, Volume= 0.010 af
Outflow = 0.13 cfs @ 12.10 hrs, Volume= 0.010 af, Atten= 0%, Lag= 0.0 min

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

Summary for Reach AP4: Rear of Site

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

Inflow Area = 0.107 ac, 50.32% Impervious, Inflow Depth > 3.33" for 10 Yr 24 Hr(+15%) event
Inflow = 0.41 cfs @ 12.09 hrs, Volume= 0.030 af
Outflow = 0.41 cfs @ 12.09 hrs, Volume= 0.030 af, Atten= 0%, Lag= 0.0 min

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

Summary for Pond 1P: Rain Garden #1

Inflow Area = 0.187 ac, 72.09% Impervious, Inflow Depth > 4.25" for 10 Yr 24 Hr(+15%) event
Inflow = 0.88 cfs @ 12.09 hrs, Volume= 0.066 af
Outflow = 0.78 cfs @ 12.17 hrs, Volume= 0.066 af, Atten= 12%, Lag= 4.6 min
Primary = 0.78 cfs @ 12.17 hrs, Volume= 0.066 af
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 37.41' @ 12.17 hrs Surf.Area= 780 sf Storage= 819 cf

Plug-Flow detention time= 85.8 min calculated for 0.066 af (99% of inflow)
Center-of-Mass det. time= 80.3 min (873.6 - 793.3)

Volume	Invert	Avail.Storage	Storage Description
#1	33.49'	902 cf	**Custom Stage Data (Prismatic)**Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
33.49	209	0.0	0	0
33.50	209	40.0	1	1
34.49	209	40.0	83	84
34.50	209	15.0	0	84
35.99	209	15.0	47	131
36.00	209	100.0	2	133
37.00	602	100.0	406	538
37.50	821	100.0	356	894
37.51	821	100.0	8	902

Device	Routing	Invert	Outlet Devices
#1	Primary	33.58'	**8.0" Round Culvert** L= 40.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 33.58' / 33.23' S= 0.0088 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.35 sf
#2	Device 1	33.75'	**6.0" Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#3	Device 2	33.49'	**5.000 in/hr Exfiltration over Surface area** Phase-In= 0.10'
#4	Device 1	37.30'	**24.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#5	Secondary	37.50'	**31.0' 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

Primary OutFlow Max=0.70 cfs @ 12.17 hrs HW=37.40' TW=33.69' (Dynamic Tailwater)
└─**1=Culvert** (Passes 0.70 cfs of 2.48 cfs potential flow)
  └─**2=Orifice/Grate** (Passes 0.09 cfs of 1.74 cfs potential flow)
    └─**3=Exfiltration** (Exfiltration Controls 0.09 cfs)
  └─**4=Orifice/Grate** (Weir Controls 0.61 cfs @ 1.01 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=33.49' TW=0.00' (Dynamic Tailwater)
└─**5=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Summary for Pond 2P: Rain Garden #2

[92] Warning: Device #5 is above defined storage

Inflow Area =	0.290 ac, 63.84% Impervious, Inflow Depth >	4.46"	for 10 Yr 24 Hr(+15%) event	
Inflow =	1.38 cfs @	12.10 hrs, Volume=	0.108 af	
Outflow =	1.04 cfs @	12.20 hrs, Volume=	0.107 af, Atten= 24%, Lag= 6.1 min	
Primary =	1.04 cfs @	12.20 hrs, Volume=	0.107 af	
Secondary =	0.00 cfs @	0.00 hrs, Volume=	0.000 af	

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 37.63' @ 12.20 hrs Surf.Area= 1,080 sf Storage= 1,368 cf

Plug-Flow detention time= 101.3 min calculated for 0.107 af (99% of inflow)
Center-of-Mass det. time= 94.9 min (882.3 - 787.4)

Volume	Invert	Avail.Storage	Storage Description
#1	33.49'	1,809 cf	**Custom Stage Data (Prismatic)**Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
33.49	369	0.0	0	0
33.50	369	40.0	1	1
34.49	369	40.0	146	148
34.50	369	15.0	1	148
35.99	369	15.0	82	231
36.00	369	100.0	4	234
37.00	752	100.0	561	795
38.00	1,276	100.0	1,014	1,809

Device	Routing	Invert	Outlet Devices
#1	Primary	33.58'	**8.0" Round Culvert** L= 32.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 33.58' / 33.23' S= 0.0109 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.35 sf
#2	Device 1	33.75'	**6.0" Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#3	Device 2	33.49'	**5.000 in/hr Exfiltration over Surface area** Phase-In= 0.10'
#4	Device 1	37.50'	**24.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#5	Secondary	38.00'	**13.0' 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

Primary OutFlow Max=1.02 cfs @ 12.20 hrs HW=37.62' TW=33.71' (Dynamic Tailwater)
└─**1=Culvert** (Passes 1.02 cfs of 2.56 cfs potential flow)
  └─**2=Orifice/Grate** (Passes 0.12 cfs of 1.80 cfs potential flow)
    └─**3=Exfiltration** (Exfiltration Controls 0.12 cfs)
  └─**4=Orifice/Grate** (Weir Controls 0.90 cfs @ 1.15 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=33.49' TW=0.00' (Dynamic Tailwater)
└─**5=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Summary for Pond 3P: Rain Garden #3

[92] Warning: Device #5 is above defined storage

Inflow Area =	0.495 ac,	57.22% Impervious,	Inflow Depth >	3.83" for 10 Yr 24 Hr(+15%) event
Inflow =	1.94 cfs @	12.13 hrs,	Volume=	0.158 af
Outflow =	0.22 cfs @	12.96 hrs,	Volume=	0.154 af, Atten= 89%, Lag= 50.1 min
Primary =	0.22 cfs @	12.96 hrs,	Volume=	0.154 af
Secondary =	0.00 cfs @	0.00 hrs,	Volume=	0.000 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 37.44' @ 12.96 hrs Surf.Area= 1,916 sf Storage= 2,920 cf

Plug-Flow detention time= 143.8 min calculated for 0.154 af (98% of inflow)
Center-of-Mass det. time= 130.2 min (938.1 - 808.0)

Volume	Invert	Avail.Storage	Storage Description
#1	33.49'	4,092 cf	**Custom Stage Data (Prismatic)**Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
33.49	1,151	0.0	0	0
33.50	1,151	40.0	5	5
34.49	1,151	40.0	456	460
34.50	1,151	15.0	2	462
35.99	1,151	15.0	257	719
36.00	1,151	100.0	12	731
37.00	1,666	100.0	1,409	2,139
38.00	2,240	100.0	1,953	4,092

Device	Routing	Invert	Outlet Devices
#1	Primary	33.58'	**8.0" Round Culvert** L= 60.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 33.58' / 33.23' S= 0.0058 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.35 sf
#2	Device 1	33.75'	**6.0" Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#3	Device 2	33.49'	**5.000 in/hr Exfiltration over Surface area** Phase-In= 0.10'
#4	Device 1	37.50'	**24.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#5	Secondary	38.00'	**90.0' 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

Primary OutFlow Max=0.22 cfs @ 12.96 hrs HW=37.44' TW=33.20' (Dynamic Tailwater)
- **1=Culvert** (Passes 0.22 cfs of 2.33 cfs potential flow)
  - **2=Orifice/Grate** (Passes 0.22 cfs of 1.75 cfs potential flow)
    - **3=Exfiltration** (Exfiltration Controls 0.22 cfs)
  - **4=Orifice/Grate** (Controls 0.00 cfs)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=33.49' TW=0.00' (Dynamic Tailwater)
- **5=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Summary for Pond 4P: Rain Garden #4

Inflow Area =	0.469 ac, 61.20% Impervious, Inflow Depth >	4.14"	for 10 Yr 24 Hr(+15%) event	
Inflow =	1.85 cfs @	12.16 hrs, Volume=	0.162 af	
Outflow =	1.32 cfs @	12.30 hrs, Volume=	0.159 af, Atten= 29%, Lag= 8.5 min	
Primary =	1.32 cfs @	12.30 hrs, Volume=	0.159 af	
Secondary =	0.00 cfs @	0.00 hrs, Volume=	0.000 af	

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 37.65' @ 12.30 hrs Surf.Area= 1,431 sf Storage= 2,040 cf

Plug-Flow detention time= 105.1 min calculated for 0.159 af (98% of inflow)
Center-of-Mass det. time= 95.8 min (896.8 - 801.0)

Volume	Invert	Avail.Storage	Storage Description
#1	33.74'	2,592 cf	**Custom Stage Data (Prismatic)**Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
33.74	790	0.0	0	0
33.75	790	40.0	3	3
34.74	790	40.0	313	316
34.75	790	15.0	1	317
36.24	790	15.0	177	494
36.25	790	100.0	8	502
37.00	1,116	100.0	715	1,216
38.00	1,603	100.0	1,360	2,576
38.01	1,622	100.0	16	2,592

Device	Routing	Invert	Outlet Devices
#1	Primary	33.50'	**12.0" Round Culvert** L= 95.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 33.50' / 32.90' S= 0.0063 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf
#2	Device 1	34.00'	**6.0" Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#3	Device 2	33.74'	**5.000 in/hr Exfiltration over Surface area** Phase-In= 0.10'
#4	Device 1	37.50'	**24.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads

#5	Secondary	38.00'	**25.0' 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

Primary OutFlow Max=1.32 cfs @ 12.30 hrs HW=37.65' TW=33.59' (Dynamic Tailwater)
- **1=Culvert** (Passes 1.32 cfs of 5.52 cfs potential flow)
  - **2=Orifice/Grate** (Passes 0.17 cfs of 1.74 cfs potential flow)
    - **3=Exfiltration** (Exfiltration Controls 0.17 cfs)
  - **4=Orifice/Grate** (Weir Controls 1.15 cfs @ 1.25 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=33.74' TW=0.00' (Dynamic Tailwater)
- **5=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Summary for Pond 5P: Concrete Galley 8x14

[44] Hint: Outlet device #1 is below defined storage
[92] Warning: Device #2 is above defined storage
[87] Warning: Oscillations may require smaller dt or Finer Routing (severity=108)

Inflow Area =	1.440 ac, 61.78% Impervious, Inflow Depth > 4.05"	for 10 Yr 24 Hr(+15%) event		
Inflow =	2.74 cfs @ 12.27 hrs, Volume=	0.486 af		
Outflow =	1.77 cfs @ 12.45 hrs, Volume=	0.486 af, Atten= 35%, Lag= 10.9 min		
Primary =	1.77 cfs @ 12.45 hrs, Volume=	0.486 af		

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 32.96' @ 12.46 hrs Surf.Area= 0.031 ac Storage= 0.018 af

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 1.2 min (904.8 - 903.6)

Volume	Invert	Avail.Storage	Storage Description
#1A	32.30'	0.000 af	**24.00'W x 56.00'L x 5.67'H Field A** 0.175 af Overall - 0.175 af Embedded = 0.000 af x 40.0% Voids
#2A	32.30'	0.138 af	**Shea Leaching Chamber 8x14x5.7** x 12 Inside #1 Inside= 84.0"W x 60.0"H => 38.46 sf x 13.00'L = 500.0 cf Outside= 96.0"W x 68.0"H => 45.36 sf x 14.00'L = 635.0 cf 12 Chambers in 3 Rows
		0.138 af	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Primary	31.47'	**8.0" Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#2	Primary	39.00'	**160.0' long x 1.0' 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 Coef. (English) 2.69 2.72 2.75 2.85 2.98 3.08 3.20 3.28 3.31 3.30 3.31 3.32

Primary OutFlow Max=1.77 cfs @ 12.45 hrs HW=32.96' TW=31.85' (Dynamic Tailwater)
└─**1=Orifice/Grate** (Orifice Controls 1.77 cfs @ 5.06 fps)
└─**2=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Summary for Pond 6P: Drain Manhole #1

Inflow Area = 0.477 ac, 67.07% Impervious, Inflow Depth > 4.34" for 10 Yr 24 Hr(+15%) event
Inflow = 1.65 cfs @ 12.19 hrs, Volume= 0.172 af
Outflow = 1.65 cfs @ 12.19 hrs, Volume= 0.172 af, Atten= 0%, Lag= 0.0 min
Primary = 1.65 cfs @ 12.19 hrs, Volume= 0.172 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 33.73' @ 12.19 hrs
Flood Elev= 38.90'

Device	Routing	Invert	Outlet Devices
#1	Primary	32.90'	**12.0" Round Culvert** L= 46.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 32.90' / 32.60' S= 0.0065 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=1.61 cfs @ 12.19 hrs HW=33.71' TW=32.42' (Dynamic Tailwater)
└─**1=Culvert** (Barrel Controls 1.61 cfs @ 3.21 fps)

Summary for Pond 7P: Drain Manhole #2

Inflow Area = 0.963 ac, 59.15% Impervious, Inflow Depth > 3.90" for 10 Yr 24 Hr(+15%) event
Inflow = 1.52 cfs @ 12.30 hrs, Volume= 0.313 af
Outflow = 1.52 cfs @ 12.30 hrs, Volume= 0.313 af, Atten= 0%, Lag= 0.0 min
Primary = 1.52 cfs @ 12.30 hrs, Volume= 0.313 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 33.59' @ 12.30 hrs
Flood Elev= 39.60'

Device	Routing	Invert	Outlet Devices
#1	Primary	32.80'	**12.0" Round Culvert** L= 48.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 32.80' / 32.50' S= 0.0062 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=1.52 cfs @ 12.30 hrs HW=33.59' TW=32.75' (Dynamic Tailwater)
└─**1=Culvert** (Barrel Controls 1.52 cfs @ 3.15 fps)

Summary for Pond 8P: Drain Manhole #3

Inflow Area = 1.440 ac, 61.78% Impervious, Inflow Depth > 4.05" for 10 Yr 24 Hr(+15%) event
Inflow = 1.77 cfs @ 12.45 hrs, Volume= 0.486 af
Outflow = 1.77 cfs @ 12.45 hrs, Volume= 0.486 af, Atten= 0%, Lag= 0.0 min
Primary = 1.77 cfs @ 12.45 hrs, Volume= 0.486 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 31.85' @ 12.45 hrs
Flood Elev= 39.90'

Device	Routing	Invert	Outlet Devices
#1	Primary	31.00'	**12.0" Round Culvert** L= 85.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 31.00' / 30.50' S= 0.0059 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=1.77 cfs @ 12.45 hrs HW=31.85' TW=0.00' (Dynamic Tailwater)
↑—**1=Culvert** (Barrel Controls 1.77 cfs @ 3.34 fps)

Time span=0.00-24.00 hrs, dt=0.05 hrs, 481 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment1S: Subcatchment1S Runoff Area=10,824 sf 39.50% Impervious Runoff Depth>4.36"
Flow Length=95' Tc=12.2 min CN=76 Runoff=1.03 cfs 0.090 af

Subcatchment2S: Subcatchment2S Runoff Area=3,963 sf 13.95% Impervious Runoff Depth>5.13"
Flow Length=113' Slope=0.0250 '/' Tc=8.5 min CN=83 Runoff=0.49 cfs 0.039 af

Subcatchment3S: Subcatchment3S Runoff Area=3,090 sf 0.00% Impervious Runoff Depth>2.79"
Tc=6.0 min CN=61 Runoff=0.22 cfs 0.016 af

Subcatchment4S: Subcatchment4S Runoff Area=4,656 sf 50.32% Impervious Runoff Depth>4.69"
Tc=6.0 min CN=79 Runoff=0.57 cfs 0.042 af

Subcatchment5S: Subcatchment5S Runoff Area=8,151 sf 72.09% Impervious Runoff Depth>5.71"
Tc=6.0 min CN=88 Runoff=1.17 cfs 0.089 af

Subcatchment6S: Subcatchment6S Runoff Area=12,632 sf 63.84% Impervious Runoff Depth>5.94"
Flow Length=127' Slope=0.0200 '/' Tc=7.2 min CN=90 Runoff=1.80 cfs 0.143 af

Subcatchment7S: Subcatchment7S Runoff Area=21,545 sf 57.22% Impervious Runoff Depth>5.25"
Flow Length=122' Tc=9.0 min CN=84 Runoff=2.65 cfs 0.216 af

Subcatchment8S: Subcatchment8S Runoff Area=20,413 sf 61.20% Impervious Runoff Depth>5.59"
Flow Length=181' Tc=11.5 min CN=87 Runoff=2.46 cfs 0.218 af

Reach AP1: Isolated Wetland Inflow=3.09 cfs 0.749 af
Outflow=3.09 cfs 0.749 af

Reach AP2: Shoulder of Road Inflow=0.49 cfs 0.039 af
Outflow=0.49 cfs 0.039 af

Reach AP3: Detention Pond Inflow=0.22 cfs 0.016 af
Outflow=0.22 cfs 0.016 af

Reach AP4: Rear of Site Inflow=0.57 cfs 0.042 af
Outflow=0.57 cfs 0.042 af

Pond 1P: Rain Garden #1 Peak Elev=37.44' Storage=845 cf Inflow=1.17 cfs 0.089 af
Primary=1.16 cfs 0.088 af Secondary=0.00 cfs 0.000 af Outflow=1.16 cfs 0.088 af

Pond 2P: Rain Garden #2 Peak Elev=37.68' Storage=1,429 cf Inflow=1.80 cfs 0.143 af
Primary=1.72 cfs 0.142 af Secondary=0.00 cfs 0.000 af Outflow=1.72 cfs 0.142 af

Pond 3P: Rain Garden #3 Peak Elev=37.63' Storage=3,307 cf Inflow=2.65 cfs 0.216 af
Primary=1.22 cfs 0.212 af Secondary=0.00 cfs 0.000 af Outflow=1.22 cfs 0.212 af

Pond 4P: Rain Garden #4 Peak Elev=37.72' Storage=2,152 cf Inflow=2.46 cfs 0.218 af
Primary=2.35 cfs 0.216 af Secondary=0.00 cfs 0.000 af Outflow=2.35 cfs 0.216 af

Pond 5P: Concrete Galley 8x14 Peak Elev=34.60' Storage=0.063 af Inflow=5.02 cfs 0.659 af
Outflow=2.58 cfs 0.659 af

Pond 6P: Drain Manhole #1 Peak Elev=34.64' Inflow=2.91 cfs 0.231 af
12.0" Round Culvert n=0.013 L=46.0' S=0.0065 '/' Outflow=2.91 cfs 0.231 af

Pond 7P: Drain Manhole #2 Peak Elev=34.97' Inflow=2.77 cfs 0.428 af
12.0" Round Culvert n=0.013 L=48.0' S=0.0062 '/' Outflow=2.77 cfs 0.428 af

Pond 8P: Drain Manhole #3 Peak Elev=32.25' Inflow=2.58 cfs 0.659 af
12.0" Round Culvert n=0.013 L=85.0' S=0.0059 '/' Outflow=2.58 cfs 0.659 af

Total Runoff Area = 1.958 ac Runoff Volume = 0.854 af Average Runoff Depth = 5.24"
46.14% Pervious = 0.903 ac 53.86% Impervious = 1.054 ac

Time span=0.00-24.00 hrs, dt=0.05 hrs, 481 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment1S: Subcatchment1S Runoff Area=10,824 sf 39.50% Impervious Runoff Depth>5.63"
Flow Length=95' Tc=12.2 min CN=76 Runoff=1.33 cfs 0.117 af

Subcatchment2S: Subcatchment2S Runoff Area=3,963 sf 13.95% Impervious Runoff Depth>6.48"
Flow Length=113' Slope=0.0250 '/' Tc=8.5 min CN=83 Runoff=0.61 cfs 0.049 af

Subcatchment3S: Subcatchment3S Runoff Area=3,090 sf 0.00% Impervious Runoff Depth>3.85"
Tc=6.0 min CN=61 Runoff=0.31 cfs 0.023 af

Subcatchment4S: Subcatchment4S Runoff Area=4,656 sf 50.32% Impervious Runoff Depth>6.00"
Tc=6.0 min CN=79 Runoff=0.72 cfs 0.053 af

Subcatchment5S: Subcatchment5S Runoff Area=8,151 sf 72.09% Impervious Runoff Depth>7.08"
Tc=6.0 min CN=88 Runoff=1.43 cfs 0.110 af

Subcatchment6S: Subcatchment6S Runoff Area=12,632 sf 63.84% Impervious Runoff Depth>7.32"
Flow Length=127' Slope=0.0200 '/' Tc=7.2 min CN=90 Runoff=2.20 cfs 0.177 af

Subcatchment7S: Subcatchment7S Runoff Area=21,545 sf 57.22% Impervious Runoff Depth>6.60"
Flow Length=122' Tc=9.0 min CN=84 Runoff=3.29 cfs 0.272 af

Subcatchment8S: Subcatchment8S Runoff Area=20,413 sf 61.20% Impervious Runoff Depth>6.96"
Flow Length=181' Tc=11.5 min CN=87 Runoff=3.02 cfs 0.272 af

Reach AP1: Isolated Wetland Inflow=3.97 cfs 0.936 af
Outflow=3.97 cfs 0.936 af

Reach AP2: Shoulder of Road Inflow=0.61 cfs 0.049 af
Outflow=0.61 cfs 0.049 af

Reach AP3: Detention Pond Inflow=0.31 cfs 0.023 af
Outflow=0.31 cfs 0.023 af

Reach AP4: Rear of Site Inflow=0.72 cfs 0.053 af
Outflow=0.72 cfs 0.053 af

Pond 1P: Rain Garden #1 Peak Elev=37.46' Storage=861 cf Inflow=1.43 cfs 0.110 af
Primary=1.41 cfs 0.109 af Secondary=0.00 cfs 0.000 af Outflow=1.41 cfs 0.109 af

Pond 2P: Rain Garden #2 Peak Elev=37.71' Storage=1,462 cf Inflow=2.20 cfs 0.177 af
Primary=2.11 cfs 0.174 af Secondary=0.00 cfs 0.000 af Outflow=2.11 cfs 0.174 af

Pond 3P: Rain Garden #3 Peak Elev=37.84' Storage=3,731 cf Inflow=3.29 cfs 0.272 af
Primary=2.12 cfs 0.268 af Secondary=0.00 cfs 0.000 af Outflow=2.12 cfs 0.268 af

Pond 4P: Rain Garden #4 Peak Elev=37.76' Storage=2,209 cf Inflow=3.02 cfs 0.272 af
Primary=2.93 cfs 0.269 af Secondary=0.00 cfs 0.000 af Outflow=2.93 cfs 0.269 af

Pond 5P: Concrete Galley 8x14 Peak Elev=36.26' Storage=0.109 af Inflow=7.63 cfs 0.820 af
Outflow=3.19 cfs 0.820 af

Pond 6P: Drain Manhole #1 Peak Elev=36.32' Inflow=3.51 cfs 0.283 af
12.0" Round Culvert n=0.013 L=46.0' S=0.0065 '/' Outflow=3.51 cfs 0.283 af

Pond 7P: Drain Manhole #2 Peak Elev=36.86' Inflow=5.02 cfs 0.537 af
12.0" Round Culvert n=0.013 L=48.0' S=0.0062 '/' Outflow=5.02 cfs 0.537 af

Pond 8P: Drain Manhole #3 Peak Elev=32.67' Inflow=3.19 cfs 0.820 af
12.0" Round Culvert n=0.013 L=85.0' S=0.0059 '/' Outflow=3.19 cfs 0.820 af

Total Runoff Area = 1.958 ac Runoff Volume = 1.073 af Average Runoff Depth = 6.58"
46.14% Pervious = 0.903 ac 53.86% Impervious = 1.054 ac

Summary for Subcatchment 1S: Subcatchment 1S

Runoff = 1.33 cfs @ 12.17 hrs, Volume= 0.117 af, Depth> 5.63"

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(+15%) Rainfall=8.53"

Area (sf)	CN	Description
576	98	Paved roads w/curbs & sewers, HSG D
2,763	98	Paved roads w/curbs & sewers, HSG B
1,389	55	Woods, Good, HSG B
4,343	61	>75% Grass cover, Good, HSG B
637	80	>75% Grass cover, Good, HSG D
180	77	Woods, Good, HSG D
779	98	Roofs, HSG B
157	98	Roofs, HSG D
10,824	76	Weighted Average
6,549		60.50% Pervious Area
4,275		39.50% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.1	43	0.0070	0.10		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.70"
1.7	20	0.0500	0.19		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.70"
0.2	3	0.2300	0.24		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.70"
1.4	11	0.1800	0.13		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.70"
1.8	18	0.2830	0.17		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.70"
12.2	95	Total			

Summary for Subcatchment 2S: Subcatchment 2S

Runoff = 0.61 cfs @ 12.12 hrs, Volume= 0.049 af, Depth> 6.48"

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(+15%) Rainfall=8.53"

Area (sf)	CN	Description
3,410	80	>75% Grass cover, Good, HSG D
319	98	Paved roads w/curbs & sewers, HSG D
234	98	Roofs, HSG D
3,963	83	Weighted Average
3,410		86.05% Pervious Area
553		13.95% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.3	100	0.0250	0.20		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.70"
0.2	13	0.0250	1.11		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
8.5	113	Total			

Summary for Subcatchment 3S: Subcatchment 3S

Runoff = 0.31 cfs @ 12.10 hrs, Volume= 0.023 af, Depth> 3.85"

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(+15%) Rainfall=8.53"

Area (sf)	CN	Description
2,947	61	>75% Grass cover, Good, HSG B
143	55	Woods, Good, HSG B
3,090	61	Weighted Average
3,090		100.00% Pervious Area

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

Summary for Subcatchment 4S: Subcatchment 4S

Runoff = 0.72 cfs @ 12.09 hrs, Volume= 0.053 af, Depth> 6.00"

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(+15%) Rainfall=8.53"

	Area (sf)	CN	Description
*	2,343	98	Ledge Outcrop, HSG D
	73	77	Woods, Good, HSG D
	917	55	Woods, Good, HSG B
	1,323	61	>75% Grass cover, Good, HSG B
	4,656	79	Weighted Average
	2,313		49.68% Pervious Area
	2,343		50.32% Impervious Area

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

Summary for Subcatchment 5S: Subcatchment 5S

Runoff = 1.43 cfs @ 12.09 hrs, Volume= 0.110 af, Depth> 7.08"

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(+15%) Rainfall=8.53"

Area (sf)	CN	Description
2,275	61	>75% Grass cover, Good, HSG B
14	98	Paved parking, HSG D
3,348	98	Paved parking, HSG B
2,514	98	Roofs, HSG B
8,151	88	Weighted Average
2,275		27.91% Pervious Area
5,876		72.09% Impervious Area

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

Summary for Subcatchment 6S: Subcatchment 6S

Runoff = 2.20 cfs @ 12.10 hrs, Volume= 0.177 af, Depth> 7.32"

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(+15%) Rainfall=8.53"

Area (sf)	CN	Description
1,171	61	>75% Grass cover, Good, HSG B
1,414	98	Paved parking, HSG B
2,723	98	Paved parking, HSG D
3,397	80	>75% Grass cover, Good, HSG D
3,927	98	Roofs, HSG D
12,632	90	Weighted Average
4,568		36.16% Pervious Area
8,064		63.84% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.5	65	0.0200	0.17		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.70"
0.5	35	0.0200	1.20		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 3.70"
0.2	27	0.0200	2.87		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
7.2	127	Total			

Summary for Subcatchment 7S: Subcatchment 7S

Runoff = 3.29 cfs @ 12.12 hrs, Volume= 0.272 af, Depth> 6.60"

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(+15%) Rainfall=8.53"

Area (sf)	CN	Description
5,466	98	Roofs, HSG B
2,932	98	Paved parking, HSG B
7,537	61	>75% Grass cover, Good, HSG B
1,448	98	Roofs, HSG D
2,481	98	Paved parking, HSG D
1,681	80	>75% Grass cover, Good, HSG D
21,545	84	Weighted Average
9,218		42.78% Pervious Area
12,327		57.22% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.6	90	0.0189	0.18		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.70"
0.2	10	0.0100	0.71		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 3.70"
0.2	22	0.0100	2.03		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
9.0	122	Total			

Summary for Subcatchment 8S: Subcatchment 8S

Runoff = 3.02 cfs @ 12.16 hrs, Volume= 0.272 af, Depth> 6.96"

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(+15%) Rainfall=8.53"

	Area (sf)	CN	Description
	4,269	61	>75% Grass cover, Good, HSG B
	4,487	98	Paved parking, HSG B
	2,180	98	Roofs, HSG B
	3,652	80	>75% Grass cover, Good, HSG D
*	1,794	98	Ledge Outcrop, HSG D
	39	98	Paved parking, HSG D
	3,992	98	Roofs, HSG D
	20,413	87	Weighted Average
	7,921		38.80% Pervious Area
	12,492		61.20% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.7	42	0.0330	0.19		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.70"
6.8	58	0.0140	0.14		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.70"
0.6	28	0.0140	0.83		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
0.4	53	0.0100	2.03		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
11.5	181	Total			

Summary for Reach AP1: Isolated Wetland

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

Inflow Area = 1.689 ac, 58.50% Impervious, Inflow Depth > 6.65" for 50 Yr 24 Hr(+15%) event
Inflow = 3.97 cfs @ 12.25 hrs, Volume= 0.936 af
Outflow = 3.97 cfs @ 12.25 hrs, Volume= 0.936 af, Atten= 0%, Lag= 0.0 min

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

Summary for Reach AP2: Shoulder of Road

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

Inflow Area = 0.091 ac, 13.95% Impervious, Inflow Depth > 6.48" for 50 Yr 24 Hr(+15%) event
Inflow = 0.61 cfs @ 12.12 hrs, Volume= 0.049 af
Outflow = 0.61 cfs @ 12.12 hrs, Volume= 0.049 af, Atten= 0%, Lag= 0.0 min

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

Summary for Reach AP3: Detention Pond

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

Inflow Area = 0.071 ac, 0.00% Impervious, Inflow Depth > 3.85" for 50 Yr 24 Hr(+15%) event
Inflow = 0.31 cfs @ 12.10 hrs, Volume= 0.023 af
Outflow = 0.31 cfs @ 12.10 hrs, Volume= 0.023 af, Atten= 0%, Lag= 0.0 min

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

Summary for Reach AP4: Rear of Site

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

Inflow Area = 0.107 ac, 50.32% Impervious, Inflow Depth > 6.00" for 50 Yr 24 Hr(+15%) event
Inflow = 0.72 cfs @ 12.09 hrs, Volume= 0.053 af
Outflow = 0.72 cfs @ 12.09 hrs, Volume= 0.053 af, Atten= 0%, Lag= 0.0 min

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

Summary for Pond 1P: Rain Garden #1

Inflow Area = 0.187 ac, 72.09% Impervious, Inflow Depth > 7.08" for 50 Yr 24 Hr(+15%) event
Inflow = 1.43 cfs @ 12.09 hrs, Volume= 0.110 af
Outflow = 1.41 cfs @ 12.11 hrs, Volume= 0.109 af, Atten= 2%, Lag= 1.1 min
Primary = 1.41 cfs @ 12.11 hrs, Volume= 0.109 af
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 37.46' @ 12.11 hrs Surf.Area= 803 sf Storage= 861 cf

Plug-Flow detention time= 72.6 min calculated for 0.109 af (99% of inflow)
Center-of-Mass det. time= 64.3 min (844.0 - 779.6)

Volume	Invert	Avail.Storage	Storage Description
#1	33.49'	902 cf	**Custom Stage Data (Prismatic)**Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
33.49	209	0.0	0	0
33.50	209	40.0	1	1
34.49	209	40.0	83	84
34.50	209	15.0	0	84
35.99	209	15.0	47	131
36.00	209	100.0	2	133
37.00	602	100.0	406	538
37.50	821	100.0	356	894
37.51	821	100.0	8	902

Device	Routing	Invert	Outlet Devices
#1	Primary	33.58'	**8.0" Round Culvert** L= 40.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 33.58' / 33.23' S= 0.0088 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.35 sf
#2	Device 1	33.75'	**6.0" Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#3	Device 2	33.49'	**5.000 in/hr Exfiltration over Surface area** Phase-In= 0.10'
#4	Device 1	37.30'	**24.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#5	Secondary	37.50'	**31.0' 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

Primary OutFlow Max=1.38 cfs @ 12.11 hrs HW=37.46' TW=34.73' (Dynamic Tailwater)
└─**1=Culvert** (Passes 1.38 cfs of 2.19 cfs potential flow)
  └─**2=Orifice/Grate** (Passes 0.09 cfs of 1.56 cfs potential flow)
    └─**3=Exfiltration** (Exfiltration Controls 0.09 cfs)
  └─**4=Orifice/Grate** (Weir Controls 1.29 cfs @ 1.30 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=33.49' TW=0.00' (Dynamic Tailwater)
└─**5=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Summary for Pond 2P: Rain Garden #2

[92] Warning: Device #5 is above defined storage

Inflow Area =	0.290 ac, 63.84% Impervious, Inflow Depth > 7.32"	for 50 Yr 24 Hr(+15%) event		
Inflow =	2.20 cfs @ 12.10 hrs, Volume=	0.177 af		
Outflow =	2.11 cfs @ 12.12 hrs, Volume=	0.174 af, Atten= 4%, Lag= 1.4 min		
Primary =	2.11 cfs @ 12.12 hrs, Volume=	0.174 af		
Secondary =	0.00 cfs @ 0.00 hrs, Volume=	0.000 af		

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 37.71' @ 12.12 hrs Surf.Area= 1,124 sf Storage= 1,462 cf

Plug-Flow detention time= 84.4 min calculated for 0.174 af (98% of inflow)
Center-of-Mass det. time= 73.0 min (847.6 - 774.6)

Volume	Invert	Avail.Storage	Storage Description
#1	33.49'	1,809 cf	**Custom Stage Data (Prismatic)**Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
33.49	369	0.0	0	0
33.50	369	40.0	1	1
34.49	369	40.0	146	148
34.50	369	15.0	1	148
35.99	369	15.0	82	231
36.00	369	100.0	4	234
37.00	752	100.0	561	795
38.00	1,276	100.0	1,014	1,809

Device	Routing	Invert	Outlet Devices
#1	Primary	33.58'	**8.0" Round Culvert** L= 32.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 33.58' / 33.23' S= 0.0109 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.35 sf
#2	Device 1	33.75'	**6.0" Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#3	Device 2	33.49'	**5.000 in/hr Exfiltration over Surface area** Phase-In= 0.10'
#4	Device 1	37.50'	**24.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#5	Secondary	38.00'	**13.0' 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

Primary OutFlow Max=2.06 cfs @ 12.12 hrs HW=37.71' TW=34.69' (Dynamic Tailwater)
- **1=Culvert** (Passes 2.06 cfs of 2.31 cfs potential flow)
  - **2=Orifice/Grate** (Passes 0.13 cfs of 1.64 cfs potential flow)
    - **3=Exfiltration** (Exfiltration Controls 0.13 cfs)
  - **4=Orifice/Grate** (Weir Controls 1.93 cfs @ 1.49 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=33.49' TW=0.00' (Dynamic Tailwater)
- **5=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Summary for Pond 3P: Rain Garden #3

[92] Warning: Device #5 is above defined storage
[87] Warning: Oscillations may require smaller dt or Finer Routing (severity=1)

Inflow Area =	0.495 ac, 57.22% Impervious, Inflow Depth >	6.60"	for 50 Yr 24 Hr(+15%) event	
Inflow =	3.29 cfs @	12.12 hrs, Volume=	0.272 af	
Outflow =	2.12 cfs @	12.21 hrs, Volume=	0.268 af, Atten= 36%, Lag= 5.1 min	
Primary =	2.12 cfs @	12.21 hrs, Volume=	0.268 af	
Secondary =	0.00 cfs @	0.00 hrs, Volume=	0.000 af	

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 37.84' @ 12.41 hrs Surf.Area= 2,145 sf Storage= 3,731 cf

Plug-Flow detention time= 117.6 min calculated for 0.267 af (98% of inflow)
Center-of-Mass det. time= 108.7 min (901.6 - 792.9)

Volume	Invert	Avail.Storage	Storage Description
#1	33.49'	4,092 cf	**Custom Stage Data (Prismatic)**Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
33.49	1,151	0.0	0	0
33.50	1,151	40.0	5	5
34.49	1,151	40.0	456	460
34.50	1,151	15.0	2	462
35.99	1,151	15.0	257	719
36.00	1,151	100.0	12	731
37.00	1,666	100.0	1,409	2,139
38.00	2,240	100.0	1,953	4,092

Device	Routing	Invert	Outlet Devices
#1	Primary	33.58'	**8.0" Round Culvert** L= 60.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 33.58' / 33.23' S= 0.0058 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.35 sf
#2	Device 1	33.75'	**6.0" Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#3	Device 2	33.49'	**5.000 in/hr Exfiltration over Surface area** Phase-In= 0.10'
#4	Device 1	37.50'	**24.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads

#5	Secondary	38.00'	**90.0' 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

Primary OutFlow Max=1.31 cfs @ 12.21 hrs HW=37.71' TW=36.59' (Dynamic Tailwater)
- **1=Culvert** (Outlet Controls 1.31 cfs @ 3.74 fps)
  - **2=Orifice/Grate** (Passes < 1.00 cfs potential flow)
    - **3=Exfiltration** (Passes < 0.24 cfs potential flow)
  - **4=Orifice/Grate** (Passes < 1.98 cfs potential flow)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=33.49' TW=0.00' (Dynamic Tailwater)
- **5=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Summary for Pond 4P: Rain Garden #4

Inflow Area =	0.469 ac,	61.20% Impervious,	Inflow Depth >	6.96" for 50 Yr 24 Hr(+15%) event
Inflow =	3.02 cfs @	12.16 hrs,	Volume=	0.272 af
Outflow =	2.93 cfs @	12.19 hrs,	Volume=	0.269 af, Atten= 3%, Lag= 1.8 min
Primary =	2.93 cfs @	12.19 hrs,	Volume=	0.269 af
Secondary =	0.00 cfs @	0.00 hrs,	Volume=	0.000 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 37.76' @ 12.19 hrs Surf.Area= 1,487 sf Storage= 2,209 cf

Plug-Flow detention time= 84.4 min calculated for 0.268 af (99% of inflow)
Center-of-Mass det. time= 78.1 min (865.1 - 787.0)

Volume	Invert	Avail.Storage	Storage Description
#1	33.74'	2,592 cf	**Custom Stage Data (Prismatic)**Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
33.74	790	0.0	0	0
33.75	790	40.0	3	3
34.74	790	40.0	313	316
34.75	790	15.0	1	317
36.24	790	15.0	177	494
36.25	790	100.0	8	502
37.00	1,116	100.0	715	1,216
38.00	1,603	100.0	1,360	2,576
38.01	1,622	100.0	16	2,592

Device	Routing	Invert	Outlet Devices
#1	Primary	33.50'	**12.0" Round Culvert** L= 95.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 33.50' / 32.90' S= 0.0063 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf
#2	Device 1	34.00'	**6.0" Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#3	Device 2	33.74'	**5.000 in/hr Exfiltration over Surface area** Phase-In= 0.10'
#4	Device 1	37.50'	**24.0" Horiz. Orifice/Grate** C= 0.600

			Limited to weir flow at low heads
#5	Secondary	38.00'	**25.0' 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

Primary OutFlow Max=2.89 cfs @ 12.19 hrs HW=37.76' TW=36.05' (Dynamic Tailwater)
└─**1=Culvert** (Passes 2.89 cfs of 3.73 cfs potential flow)
  └─**2=Orifice/Grate** (Passes 0.17 cfs of 1.24 cfs potential flow)
    └─**3=Exfiltration** (Exfiltration Controls 0.17 cfs)
  └─**4=Orifice/Grate** (Weir Controls 2.72 cfs @ 1.67 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=33.74' TW=0.00' (Dynamic Tailwater)
└─**5=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Summary for Pond 5P: Concrete Galley 8x14

[44] Hint: Outlet device #1 is below defined storage
[92] Warning: Device #2 is above defined storage
[87] Warning: Oscillations may require smaller dt or Finer Routing (severity=99)
[80] Warning: Exceeded Pond 6P by 0.14' @ 12.25 hrs (1.11 cfs 0.013 af)

Inflow Area =	1.440 ac,	61.78% Impervious,	Inflow Depth >	6.83"	for 50 Yr 24 Hr(+15%) event
Inflow =	7.63 cfs @	12.19 hrs,	Volume=	0.820 af	
Outflow =	3.19 cfs @	12.51 hrs,	Volume=	0.820 af,	Atten= 58%, Lag= 19.1 min
Primary =	3.19 cfs @	12.51 hrs,	Volume=	0.820 af	

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 36.26' @ 12.52 hrs Surf.Area= 0.031 ac Storage= 0.109 af

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 7.5 min (878.1 - 870.5)

Volume	Invert	Avail.Storage	Storage Description
#1A	32.30'	0.000 af	**24.00'W x 56.00'L x 5.67'H Field A** 0.175 af Overall - 0.175 af Embedded = 0.000 af x 40.0% Voids
#2A	32.30'	0.138 af	**Shea Leaching Chamber 8x14x5.7** x 12 Inside #1 Inside= 84.0"W x 60.0"H => 38.46 sf x 13.00'L = 500.0 cf Outside= 96.0"W x 68.0"H => 45.36 sf x 14.00'L = 635.0 cf 12 Chambers in 3 Rows
		0.138 af	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Primary	31.47'	**8.0" Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#2	Primary	39.00'	**160.0' long x 1.0' 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 Coef. (English) 2.69 2.72 2.75 2.85 2.98 3.08 3.20 3.28 3.31 3.30 3.31 3.32

Primary OutFlow Max=3.18 cfs @ 12.51 hrs HW=36.25' TW=32.67' (Dynamic Tailwater)
↑—**1=Orifice/Grate** (Orifice Controls 3.18 cfs @ 9.12 fps)
└—**2=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Summary for Pond 6P: Drain Manhole #1

Inflow Area = 0.477 ac, 67.07% Impervious, Inflow Depth > 7.11" for 50 Yr 24 Hr(+15%) event
Inflow = 3.51 cfs @ 12.12 hrs, Volume= 0.283 af
Outflow = 3.51 cfs @ 12.12 hrs, Volume= 0.283 af, Atten= 0%, Lag= 0.0 min
Primary = 3.51 cfs @ 12.12 hrs, Volume= 0.283 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 36.32' @ 12.55 hrs
Flood Elev= 38.90'

Device	Routing	Invert	Outlet Devices
#1	Primary	32.90'	**12.0" Round Culvert** L= 46.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 32.90' / 32.60' S= 0.0065 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=3.37 cfs @ 12.12 hrs HW=34.71' TW=33.43' (Dynamic Tailwater)
↑—**1=Culvert** (Inlet Controls 3.37 cfs @ 4.29 fps)

Summary for Pond 7P: Drain Manhole #2

Inflow Area = 0.963 ac, 59.15% Impervious, Inflow Depth > 6.69" for 50 Yr 24 Hr(+15%) event
Inflow = 5.02 cfs @ 12.21 hrs, Volume= 0.537 af
Outflow = 5.02 cfs @ 12.21 hrs, Volume= 0.537 af, Atten= 0%, Lag= 0.0 min
Primary = 5.02 cfs @ 12.21 hrs, Volume= 0.537 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 36.86' @ 12.48 hrs
Flood Elev= 39.60'

Device	Routing	Invert	Outlet Devices
#1	Primary	32.80'	**12.0" Round Culvert** L= 48.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 32.80' / 32.50' S= 0.0062 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=4.23 cfs @ 12.21 hrs HW=36.62' TW=34.61' (Dynamic Tailwater)
↑—**1=Culvert** (Inlet Controls 4.23 cfs @ 5.38 fps)

Summary for Pond 8P: Drain Manhole #3

Inflow Area = 1.440 ac, 61.78% Impervious, Inflow Depth > 6.83" for 50 Yr 24 Hr(+15%) event
Inflow = 3.19 cfs @ 12.51 hrs, Volume= 0.820 af
Outflow = 3.19 cfs @ 12.51 hrs, Volume= 0.820 af, Atten= 0%, Lag= 0.0 min
Primary = 3.19 cfs @ 12.51 hrs, Volume= 0.820 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 32.67' @ 12.51 hrs
Flood Elev= 39.90'

Device	Routing	Invert	Outlet Devices
#1	Primary	31.00'	**12.0" Round Culvert** L= 85.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 31.00' / 30.50' S= 0.0059 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

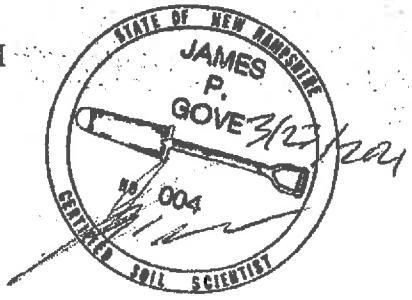
Primary OutFlow Max=3.19 cfs @ 12.51 hrs HW=32.67' TW=0.00' (Dynamic Tailwater)
↑—**1=Culvert** (Barrel Controls 3.19 cfs @ 4.06 fps)

APPENDIX III

Test Pit Logs

GOVE ENVIRONMENTAL SERVICES, INC.

TEST PIT DATA



Project: 1169 &1171 Sagamore Avenue, Portsmouth, NH
Client: Garrepy Planning Consultants, LLC
GES Project No.: 2021039
MM/DD/YY Staff: 03-23-2021 JP Gove, CSS # 004

Test Pit No.	**1**	Lot No.:	
ESHWT:	None Observed	WSPCD Group:	
Termination @	60"	Roots to:	
Refusal:	Yes	SCS Soil:	
Obs. Water:	none	HIS Type:	

Depth	Color	Texture	Structure	Consistence	Redox
Fill – 0-12"	10YR3/2	SL	Gr	Fr	None
Fill – 12-35"	10YR3/3	SL	Gr	Fr	None
Apb – 35-45"	10YR3/2	SL	Gr	Fr	None
Bwb – 45-60"	10YR4/3	SL	Om	Fr	None
Bedrock – 60"					

Test Pit No.	**2**	Lot No.:	
ESHWT:	None Observed	WSPCD Group:	
Termination @	55"	Roots to:	
Refusal:	Yes	SCS Soil:	
Obs. Water:	none	HIS Type:	

Depth	Color	Texture	Structure	Consistence	Redox
Ap – 0-10"	10YR3/2	SL	Gr	Fr	None
Bw – 10-55"	7.5YR3/4	SL	Gr	Fr	None
Rippable Bedrock – 55"					

Test Pit No.	**3**	Lot No.:	
ESHWT:	31"	WSPCD Group:	
Termination @	51"	Roots to:	
Refusal:	Yes	SCS Soil:	
Obs. Water:	none	HIS Type:	

Depth	Color	Texture	Structure	Consistence	Redox
Ap – 0-11"	10YR3/3	SL	Gr	Fr	None
Bw – 11-31"	10YR4/4	GRLS	Gr	Fr	None
Bw2 – 31-51"	7.5YR5/4	CBSL	Om	Fr	Yes
Rippable Bedrock – 51"					

8 Continental Dr Bldg 2 Unit H, Exeter, NH 03833-7526
Ph (603) 778 0644 / *Fax* (603) 778 0654
info@gesinc.biz
www.gesinc.biz

Test Pit No.	**4**	Lot No.:	
ESHWT:	None Observed	WSPCD Group:	
Termination @	33"	Roots to:	
Refusal:	Yes	SCS Soil:	
Obs. Water:	none	HIS Type:	

Depth	Color	Texture	Structure	Consistence	Redox
Ap - 0-11"	10YR3/2	SL	Gr	Fr	None
Bw – 11-33"	10YR4/4	CBSL	Gr	Fr	None
Bedrock – 33"					

Test Pit No.	**5**	Lot No.:	
ESHWT:	None Observed	WSPCD Group:	
Termination @	22"	Roots to:	
Refusal:	Yes	SCS Soil:	
Obs. Water:	none	HIS Type:	

Depth	Color	Texture	Structure	Consistence	Redox
Ap – 0-10"	10YR3/3	SL	Gr	Fr	None
Bw – 10-22"	10YR4/4	CBSL	Gr	Fr	None
Bedrock – 22"					

Test Pit No.	**6**	Lot No.:	
ESHWT:	None Observed	WSPCD Group:	
Termination @	2"	Roots to:	
Refusal:	Yes	SCS Soil:	
Obs. Water:	none	HIS Type:	

Depth	Color	Texture	Structure	Consistence	Redox
A – 0-2"	10YR3/2	CBSL	Gr	Fr	None
Bedrock 2"					

Test Pit No.	**7**	Lot No.:	
ESHWT:	None Observed	WSPCD Group:	
Termination @	21"	Roots to:	
Refusal:	Yes	SCS Soil:	
Obs. Water:	none	HIS Type:	

Depth	Color	Texture	Structure	Consistence	Redox
A – 0-21"	10YR3/3	CBSL	Gr	Fr	None
Bedrock – 21"					

Test Pit No.	**8**	Lot No.:	
ESHWT:	None Observed	WSPCD Group:	
Termination @	31"	Roots to:	
Refusal:	Yes	SCS Soil:	
Obs. Water:	none	HIS Type:	

Depth	Color	Texture	Structure	Consistence	Redox
Ap – 0-10"	10YR3/2	SL	Gr	Fr	None
Bw – 10-31"	10YR4/6	CBSL	Gr	Fr	None
Bedrock – 31"					

Legend:
GRLS = gravelly loamy sand
CBSL = cobbly sandy loam
SL= sandy loam
Gr = granular
Fr = friable
Om = massive
Ap = top soil
Bw = subsoil
Apb = buried topsoil
Bwb = buried subsoil

APPENDIX IV

HISS Soil Note and Map

This soil map was prepared by a professional soil scientist and meets the technical standards of the SSSNNE Publication No. 1, High Intensity Soil Maps for NH, December 2017. Soil map was prepared on 4 April 2021. Soil map site was 1169 &1171 Sagamore Avenue, Portsmouth, NH.

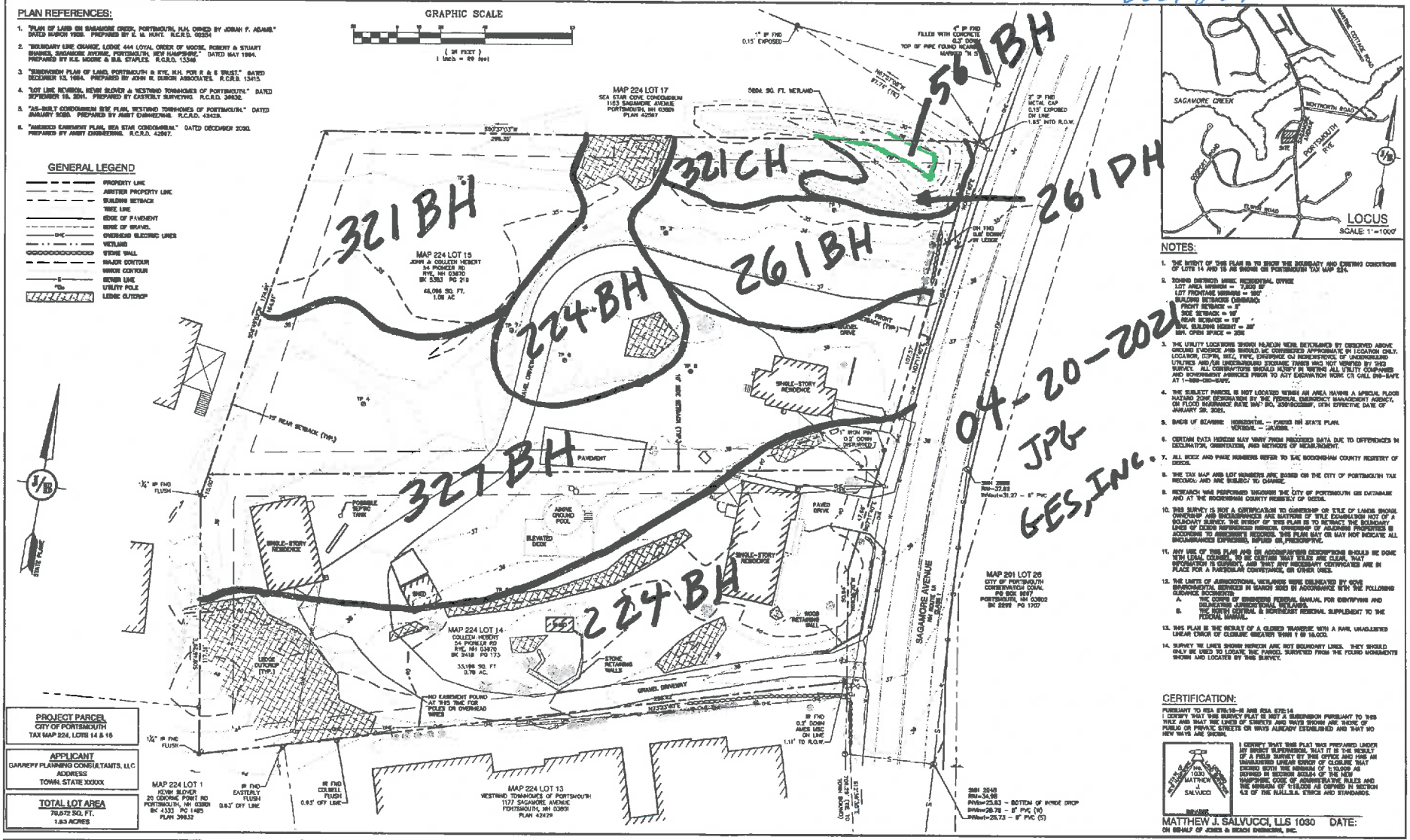
Soil Map Units were identified using the Key to Soil Types. The conversion of High Intensity Soil Map Unit to NRCS Soil Map Unit Name was based upon the observed soil profiles, as was hydrologic soil group, as taken from SSSNNE Special Publication No. 5.

Soil mapping was performed by James Gove, CSS # 004.

HISS Soil Map Unit	Soil Map Unit Name	Hydrologic Soil Group
224 (slope) H	Hollis-Rock Outcrop Complex	D
261 (slope) H	Made land – similar to Canton	B
321 (slope) H	Newfields	B
327 (slope) H	Chatfield Variant	B
561 (slope) H	Made land- similar to Walpole	C

B slope = 0-8%, C slope = 8-15%, D slope = 15-25%

2021039



Design: JAC	Draft: DJM
Checked: JAC	Scale: 1" = 20'
Drawing Name: 21047-PLAN.dwg	Date: 3/25/21
	Project No.: 21047

THIS PLAN SHALL NOT BE MODIFIED WITHOUT WRITTEN PERMISSION FROM JONES & BEACH ENGINEERS, INC. (JBE) ANY ALTERATIONS, AUTHORIZED OR OTHERWISE, SHALL BE AT THE USER'S SOLE RISK AND WITHOUT LIABILITY TO JBE

REV.	DATE	REVISION	BY
0	4/9/21	ISSUED FOR REVIEW	DJM

Designed and Produced in NH
J/B 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

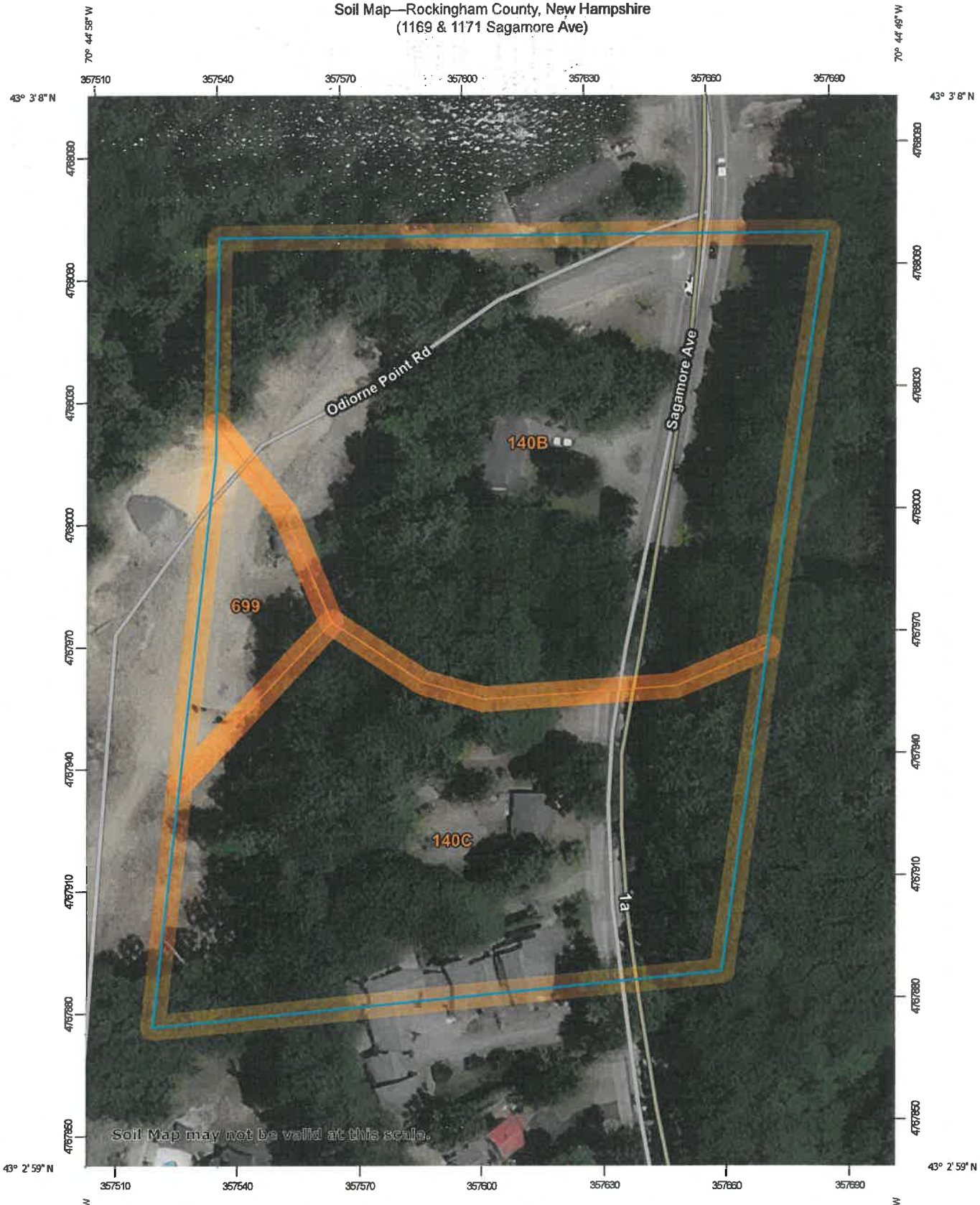
Plan Name:	EXISTING CONDITIONS PLAN
Project:	1169 & 1171 SAGAMORE AVENUE PORTSMOUTH, NEW HAMPSHIRE
Owner of Record:	LOT 14: COLLEEN HEBERT, 54 PIONEER RD, RYE, NH 03870 BK 5418 PG 173 — LOT 15: JOHN & COLLEEN HEBERT, 54 PIONEER RD, RYE, NH 03870 BK 5383 PG 219

DRAWING No.
C1
SHEET 2 OF 16
JBE PROJECT NO. 21047

APPENDIX V

NRCS Soil Map

Soil Map—Rockingham County, New Hampshire
(1169 & 1171 Sagamore Ave)



Map Scale: 1:1,280 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 22, May 29, 2020

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

Date(s) aerial images were photographed: Dec 31, 2009—Jun 14, 2017

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
140B	Chatfield-Hollis-Canton complex, 0 to 8 percent slopes, rocky	3.5	53.7%
140C	Chatfield-Hollis-Canton complex, 8 to 15 percent slopes, rocky	2.7	40.6%
699	Urban land	0.4	5.7%
Totals for Area of Interest		**6.6**	**100.0%**

APPENDIX VI

Extreme Precipitation Estimates

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 the map to place a marker, or enter address or latitude/longitude.

Locate by Address	Locate by Lat/Lon	Locate by State/County
1169 sagamore ave., po →	°N °W →	

Select Options

Smoothing	Delivery
Yes	Popup

Submit

Version 1.12 Copyright 2010-2021.
This project is a joint collaboration between:
Northeast Regional Climate Center (NRCC) Cornell University
Natural Resources Conservation Service (NRCS) USDA NRCS

Contact: precip@cornell.edu

Extreme Precipitation Tables

Northeast Regional Climate Center

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

Smoothing	Yes
State	
Location	
Longitude	70.748 degrees West
Latitude	43.051 degrees North
Elevation	0 feet
Date/Time	Wed, 16 Jun 2021 12:03:11 -0400

Extreme Precipitation Estimates

+15%

	5min	10min	15min	30min	60min	120min		1hr	2hr	3hr	6hr	12hr	24hr	48hr		1day	2day	4day	7day	10day	
1yr	0.26	0.40	0.50	0.65	0.82	1.04	**1yr**	0.70	0.98	1.21	1.56	2.03	2.67	2.94	**1yr**	2.36	2.82	3.24	3.96	4.57	**1yr**
2yr	0.32	0.50	0.62	0.82	1.03	1.30	**2yr**	0.89	1.18	1.52	1.94	2.49	3.22	3.58	**2yr**	2.85	3.45	3.95	4.70	5.35	**2yr**
5yr	0.37	0.58	0.73	0.98	1.25	1.61	**5yr**	1.08	1.47	1.89	2.44	3.15	4.08	4.60	**5yr**	3.61	4.42	5.07	5.96	6.73	**5yr**
10yr	0.41	0.65	0.82	1.12	1.46	1.90	**10yr**	1.26	1.73	2.24	2.91	3.76	4.88	5.55	**10yr**	4.32	5.34	6.12	7.14	8.01	**10yr**
25yr	0.48	0.77	0.97	1.34	1.78	2.35	**25yr**	1.54	2.15	2.79	3.65	4.76	6.19	7.13	**25yr**	5.48	6.85	7.85	9.07	10.09	**25yr**
50yr	0.54	0.87	1.11	1.55	2.09	2.78	**50yr**	1.80	2.54	3.31	4.35	5.69	7.42	8.62	**50yr**	6.56	8.29	9.48	10.87	12.02	**50yr**
100yr	0.60	0.97	1.26	1.79	2.44	3.28	**100yr**	2.10	3.00	3.93	5.19	6.80	8.88	10.42	**100yr**	7.86	10.02	11.46	13.03	14.33	**100yr**
200yr	0.68	1.11	1.44	2.07	2.85	3.87	**200yr**	2.46	3.54	4.65	6.17	8.12	10.65	12.60	**200yr**	9.42	12.11	13.85	15.63	17.08	**200yr**
500yr	0.81	1.33	1.73	2.51	3.52	4.81	**500yr**	3.03	4.42	5.82	7.76	10.28	13.53	16.20	**500yr**	11.97	15.58	17.81	19.89	21.57	**500yr**

3.70

5.61

7.12

8.53

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	0.72	0.88	**1yr**	0.62	0.86	0.93	1.34	1.69	2.26	2.50	**1yr**	2.00	2.41	2.88	3.21	3.94	**1yr**
2yr	0.31	0.49	0.60	0.81	1.00	1.19	**2yr**	0.86	1.16	1.37	1.81	2.33	3.07	3.47	**2yr**	2.72	3.33	3.84	4.56	5.11	**2yr**
5yr	0.35	0.54	0.67	0.92	1.17	1.40	**5yr**	1.01	1.37	1.61	2.11	2.72	3.80	4.20	**5yr**	3.36	4.04	4.74	5.56	6.26	**5yr**
10yr	0.39	0.59	0.74	1.03	1.33	1.60	**10yr**	1.15	1.57	1.80	2.38	3.05	4.38	4.88	**10yr**	3.88	4.69	5.47	6.44	7.22	**10yr**
25yr	0.44	0.67	0.83	1.19	1.56	1.90	**25yr**	1.35	1.86	2.10	2.74	3.52	4.78	5.91	**25yr**	4.23	5.68	6.69	7.83	8.72	**25yr**
50yr	0.48	0.73	0.91	1.31	1.77	2.17	**50yr**	1.53	2.12	2.35	3.05	3.91	5.41	6.82	**50yr**	4.79	6.56	7.77	9.10	10.06	**50yr**
100yr	0.54	0.81	1.02	1.47	2.02	2.47	**100yr**	1.74	2.41	2.63	3.39	4.31	6.10	7.87	**100yr**	5.40	7.57	9.04	10.58	11.63	**100yr**
200yr	0.59	0.89	1.13	1.64	2.28	2.81	**200yr**	1.97	2.75	2.94	3.74	4.74	6.86	9.09	**200yr**	6.07	8.74	10.50	12.32	13.45	**200yr**
500yr	0.69	1.02	1.31	1.91	2.72	3.36	**500yr**	2.34	3.29	3.42	4.26	5.39	8.01	10.98	**500yr**	7.09	10.56	12.80	15.09	16.30	**500yr**

Upper Confidence Limits

	5min	10min	15min	30min	60min	120min		1hr	2hr	3hr	6hr	12hr	24hr	48hr		1day	2day	4day	7day	10day	
1yr	0.29	0.44	0.54	0.72	0.89	1.09	**1yr**	0.77	1.06	1.26	1.74	2.20	2.98	3.18	**1yr**	2.64	3.06	3.59	4.38	5.05	**1yr**
2yr	0.34	0.52	0.64	0.87	1.07	1.27	**2yr**	0.92	1.24	1.48	1.96	2.52	3.43	3.72	**2yr**	3.03	3.58	4.11	4.86	5.64	**2yr**
5yr	0.40	0.62	0.77	1.05	1.34	1.63	**5yr**	1.16	1.59	1.89	2.54	3.26	4.36	4.98	**5yr**	3.85	4.79	5.40	6.40	7.18	**5yr**
10yr	0.47	0.72	0.89	1.25	1.62	1.99	**10yr**	1.39	1.94	2.29	3.11	3.97	5.36	6.23	**10yr**	4.74	5.99	6.85	7.87	8.79	**10yr**
25yr	0.58	0.88	1.10	1.57	2.06	2.59	**25yr**	1.78	2.53	2.97	4.08	5.18	7.75	8.38	**25yr**	6.86	8.05	9.20	10.38	11.45	**25yr**
50yr	0.68	1.03	1.28	1.84	2.48	3.15	**50yr**	2.14	3.08	3.61	5.02	6.36	9.69	10.50	**50yr**	8.57	10.10	11.51	12.78	14.01	**50yr**
100yr	0.80	1.20	1.51	2.18	2.99	3.84	**100yr**	2.58	3.76	4.40	6.19	7.83	12.11	13.16	**100yr**	10.71	12.65	14.40	15.76	17.15	**100yr**
200yr	0.93	1.41	1.78	2.58	3.60	4.70	**200yr**	3.10	4.59	5.37	7.63	9.63	15.17	16.51	**200yr**	13.43	15.87	18.04	19.43	20.98	**200yr**
500yr	1.16	1.73	2.22	3.23	4.59	6.11	**500yr**	3.96	5.97	6.97	10.10	12.71	20.46	22.28	**500yr**	18.11	21.43	24.31	25.62	27.41	**500yr**

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Northeast Regional Climate Center

APPENDIX VII

Rip Rap Calculations

RIP RAP CALCULATIONS
Sagamore Avenue Condominiums
1169 & 1171 Sagamore Avenue
Portsmouth, NH 03801

Jones & Beach Engineers, Inc.
P.O. Box 219
Stratham, NH 03885
11-Aug-21

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)
				#DIV/0!	#DIV/0!	#DIV/0!
				#DIV/0!	#DIV/0!	#DIV/0!

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)
12" HDPE (Pond 8P)	0.77	2.58	1	14.7	9	0.09

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

BMP Worksheets

NEW HAMPSHIRE DEPARTMENT OF Environmental Services

FILTRATION PRACTICE DESIGN CRITERIA (Env-Wq 1508.07)

Type/Node Name: **Rain Garden #1 (1P)**

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

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

If a bioretention area is proposed:			
YES	ac	Drainage Area no larger than 5 ac?	**← yes**
647	cf	V = Volume of storage[3] (attach a stage-storage table)	**≥ WQV**
18.0	inches	D_{FC} = Filter course thickness	**18", or 24" if within GPA**
Sheet	D5	Note what sheet in the plan set contains the filter course specification	
3.0	:1	Pond side slopes	**≥ 3:1**
Sheet	L1	Note what sheet in the plan set contains the planting plans and surface cover	
If porous pavement is proposed:			
		Type of pavement proposed (Concrete? Asphalt? Pavers? Etc.)	
	acres	A_{SA} = Surface area of the pervious pavement	
	:1	Ratio of the contributing area to the pervious surface area	**≤ 5:1**
	inches	D_{FC} = Filter course thickness	**12", or 18" if within GPA mod. 304.1 (see spec)**
Sheet		Note what sheet in the plan set contains the filter course spec.	

1. Rate of the limiting layer (either the filter course or the underlying soil). $Ksat_{design}$ includes factor of safey. See Env-Wq 1504.14 for guidance on determining the infiltration rate.
2. See lines 34, 40 and 48 for required depths of filter media.
3. Volume without depending on infiltration. The volume includes the storage above the filter (but below the invert of the outlet stucture, if any), the filter media voids, and the pretreatment area. The storage above the filter media shall not include the volume above the outlet structure, if any.

Designer's Notes:

Stage-Area-Storage for Pond 1P: Rain Garden #1

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
33.49	209	0
33.54	209	4
33.59	209	8
33.64	209	13
33.69	209	17
33.74	209	21
33.79	209	25
33.84	209	29
33.89	209	33
33.94	209	38
33.99	209	42
34.04	209	46
34.09	209	50
34.14	209	54
34.19	209	59
34.24	209	63
34.29	209	67
34.34	209	71
34.39	209	75
34.44	209	79
34.49	209	84
34.54	209	85
34.59	209	87
34.64	209	88
34.69	209	90
34.74	209	91
34.79	209	93
34.84	209	95
34.89	209	96
34.94	209	98
34.99	209	99
35.04	209	101
35.09	209	102
35.14	209	104
35.19	209	106
35.24	209	107
35.29	209	109
35.34	209	110
35.39	209	112
35.44	209	113
35.49	209	115
35.54	209	117
35.59	209	118
35.64	209	120
35.69	209	121
35.74	209	123
35.79	209	124
35.84	209	126
35.89	209	127
35.94	209	129
35.99	209	131
36.04	225	141
36.09	244	153
36.14	264	166
36.19	284	180
36.24	303	194
36.29	323	210
36.34	343	226
36.39	362	244
36.44	382	263
36.49	402	282
36.54	421	303
36.59	441	324
36.64	461	347
36.69	480	370
36.74	500	395
36.79	519	420
36.84	539	447
36.89	559	474
36.94	578	503
36.99	598	532
37.04	620	563
37.09	641	594
37.14	663	627
37.19	685	661
37.24	707	695
37.29	729	731
37.34	751	768
37.39	773	806
37.44	795	845
37.49	**817**	**886**

stone filter media

CBCS 0.5 elevation

731
- 84
647 > 474 ✓

NEW HAMPSHIRE DEPARTMENT OF Environmental Services

FILTRATION PRACTICE DESIGN CRITERIA (Env-Wq 1508.07)

Type/Node Name: **Rain Garden #2 (2P)**

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

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

If a bioretention area is proposed:			
YES	ac	Drainage Area no larger than 5 ac?	← yes
1,078	cf	V = Volume of storage[3] (attach a stage-storage table)	≥ WQV
18.0	inches	D_{FC} = Filter course thickness	18", or 24" if within GPA
Sheet	D5	Note what sheet in the plan set contains the filter course specification	
3.0	:1	Pond side slopes	≥ 3:1
Sheet	L1	Note what sheet in the plan set contains the planting plans and surface cover	
If porous pavement is proposed:			
		Type of pavement proposed (Concrete? Asphalt? Pavers? Etc.)	
	acres	A_{SA} = Surface area of the pervious pavement	
	:1	Ratio of the contributing area to the pervious surface area	≤ 5:1
	inches	D_{FC} = Filter course thickness	12", or 18" if within GPA mod. 304.1 (see spec)
Sheet		Note what sheet in the plan set contains the filter course spec.	

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

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

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

Designer's Notes:

Stage-Area-Storage for Pond 2P: Rain Garden #2

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
33.49	369	0
33.54	369	7
33.59	369	15
33.64	369	22
33.69	369	30
33.74	369	37
33.79	369	44
33.84	369	52
33.89	369	59
33.94	369	66
33.99	369	74
34.04	369	81
34.09	369	89
34.14	369	96
34.19	369	103
34.24	369	111
34.29	369	118
34.34	369	125
34.39	369	133
34.44	369	140
34.49	369	148
34.54	369	150
34.59	369	153
34.64	369	156
34.69	369	159
34.74	369	161
34.79	369	164
34.84	369	167
34.89	369	170
34.94	369	173
34.99	369	175
35.04	369	178
35.09	369	181
35.14	369	184
35.19	369	186
35.24	369	189
35.29	369	192
35.34	369	195
35.39	369	197
35.44	369	200
35.49	369	203
35.54	369	206
35.59	369	208
35.64	369	211
35.69	369	214
35.74	369	217
35.79	369	220
35.84	369	222
35.89	369	225
35.94	369	228
35.99	369	231
36.04	384	249

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
36.09	403	269
36.14	423	290
36.19	442	311
36.24	461	334
36.29	480	357
36.34	499	382
36.39	518	407
36.44	538	434
36.49	557	461
36.54	576	489
36.59	595	519
36.64	614	549
36.69	633	580
36.74	652	612
36.79	672	645
36.84	691	679
36.89	710	714
36.94	729	750
36.99	748	787
37.04	773	825
37.09	799	865
37.14	825	905
37.19	852	947
37.24	878	990
37.29	904	1,035
37.34	930	1,081
37.39	956	1,128
37.44	983	1,176
37.49	1,009	1,226
37.54	1,035	1,277
37.59	1,061	1,330
37.64	1,087	1,383
37.69	1,114	1,438
37.74	1,140	1,495
37.79	1,166	1,552
37.84	1,192	1,611
37.89	1,218	1,672
37.94	1,245	1,733
37.99	**1,271**	**1,796**

1226
− 148
1078 > 657 ✓

NEW HAMPSHIRE DEPARTMENT OF Environmental Services

FILTRATION PRACTICE DESIGN CRITERIA (Env-Wq 1508.07)

Type/Node Name: **Rain Garden #3 (3P)**

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

		Check if you reviewed the restrictions on unlined systems outlined in Env-Wq 1508.07(a).	
0.50	ac	A = Area draining to the practice	
0.28	ac	A_I = Impervious area draining to the practice	
0.57	decimal	I = Percent impervious area draining to the practice, in decimal form	
0.56	unitless	Rv = Runoff coefficient = 0.05 + (0.9 x I)	
0.28	ac-in	WQV= 1" x Rv x A	
1,014	cf	WQV conversion (ac-in x 43,560 sf/ac x 1ft/12")	
254	cf	25% x WQV (check calc for sediment forebay volume)	
761	cf	75% x WQV (check calc for surface sand filter volume)	
		Method of Pretreatment? (not required for clean or roof runoff)	
	cf	V_{SED} = Sediment forebay volume, if used for pretreatment	≥ 25%WQV
Calculate time to drain if system IS NOT underdrained:			
	sf	A_{SA} = Surface area of the practice	
	iph	$Ksat_{DESIGN}$ = Design infiltration rate[1]	
		If Ksat (prior to factor of safety) is < 0.50 iph, has an underdrain been provided?	
	Yes/No	(Use the calculations below)	
-	hours	T_{DRAIN} = Drain time = V / (A_{SA} * I_{DESIGN})	≤ 72-hrs
Calculate time to drain if system IS underdrained:			
	ft	E_{WQV} = Elevation of WQV (attach stage-storage table)	
	cfs	Q_{WQV} = Discharge at the E_{WQV} (attach stage-discharge table)	
-	hours	T_{DRAIN} = Drain time = 2WQV/Q_{WQV}	≤ 72-hrs
	feet	E_{FC} = Elevation of the bottom of the filter course material[2]	
	feet	E_{UD} = Invert elevation of the underdrain (UD), if applicable	
	feet	E_{SHWT} = Elevation of SHWT (if none found, enter the lowest elevation of the test pit)	
	feet	E_{ROCK} = Elevation of bedrock (if none found, enter the lowest elevation of the test pit)	
-	feet	$D_{FC\ to\ UD}$ = Depth to UD from the bottom of the filter course	≥ 1'
-	feet	$D_{FC\ to\ ROCK}$ = Depth to bedrock from the bottom of the filter course	≥ 1'
-	feet	$D_{FC\ to\ SHWT}$ = Depth to SHWT from the bottom of the filter course	≥ 1'
	ft	Peak elevation of the 50-year storm event (infiltration can be used in analysis)	
	ft	Elevation of the top of the practice	
-		50 peak elevation ≤ Elevation of the top of the practice	← yes
If a surface sand filter or underground sand filter is proposed:			
YES	ac	Drainage Area check.	< 10 ac
	cf	V = Volume of storage[3] (attach a stage-storage table)	≥ 75%WQV
	inches	D_{FC} = Filter course thickness	18", or 24" if within GPA
Sheet		Note what sheet in the plan set contains the filter course specification.	
	Yes/No	Access grate provided?	← yes

If a bioretention area is proposed:			
YES	ac	Drainage Area no larger than 5 ac?	← yes
2,565	cf	V = Volume of storage[3] (attach a stage-storage table)	≥ WQV
18.0	inches	D_{FC} = Filter course thickness	18", or 24" if within GPA
Sheet	D5	Note what sheet in the plan set contains the filter course specification	
3.0	:1	Pond side slopes	≥ 3:1
Sheet	L1	Note what sheet in the plan set contains the planting plans and surface cover	
If porous pavement is proposed:			
		Type of pavement proposed (Concrete? Asphalt? Pavers? Etc.)	
	acres	A_{SA} = Surface area of the pervious pavement	
	:1	Ratio of the contributing area to the pervious surface area	≤ 5:1
	inches	D_{FC} = Filter course thickness	12", or 18" if within GPA mod. 304.1 (see spec)
Sheet		Note what sheet in the plan set contains the filter course spec.	

1. Rate of the limiting layer (either the filter course or the underlying soil). $Ksat_{design}$ includes factor of safey. See Env-Wq 1504.14 for guidance on determining the infiltration rate.
2. See lines 34, 40 and 48 for required depths of filter media.
3. Volume without depending on infiltration. The volume includes the storage above the filter (but below the invert of the outlet stucture, if any), the filter media voids, and the pretreatment area. The storage above the filter media shall not include the volume above the outlet structure, if any.

Designer's Notes:

Stage-Area-Storage for Pond 3P: Rain Garden #3

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
33.49	1,151	0
33.54	1,151	23
33.59	1,151	46
33.64	1,151	69
33.69	1,151	92
33.74	1,151	115
33.79	1,151	138
33.84	1,151	161
33.89	1,151	184
33.94	1,151	207
33.99	1,151	230
34.04	1,151	253
34.09	1,151	276
34.14	1,151	299
34.19	1,151	322
34.24	1,151	345
34.29	1,151	368
34.34	1,151	391
34.39	1,151	414
34.44	1,151	437
34.49	1,151	460
34.54	1,151	469
34.59	1,151	478
34.64	1,151	486
34.69	1,151	495
34.74	1,151	504
34.79	1,151	512
34.84	1,151	521
34.89	1,151	529
34.94	1,151	538
34.99	1,151	547
35.04	1,151	555
35.09	1,151	564
35.14	1,151	573
35.19	1,151	581
35.24	1,151	590
35.29	1,151	599
35.34	1,151	607
35.39	1,151	616
35.44	1,151	624
35.49	1,151	633
35.54	1,151	642
35.59	1,151	650
35.64	1,151	659
35.69	1,151	668
35.74	1,151	676
35.79	1,151	685
35.84	1,151	693
35.89	1,151	702
35.94	1,151	711
35.99	1,151	719
36.04	1,172	777

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
36.09	1,197	837
36.14	1,223	897
36.19	1,249	959
36.24	1,275	1,022
36.29	1,300	1,086
36.34	1,326	1,152
36.39	1,352	1,219
36.44	1,378	1,287
36.49	1,403	1,357
36.54	1,429	1,428
36.59	1,455	1,500
36.64	1,481	1,573
36.69	1,506	1,648
36.74	1,532	1,724
36.79	1,558	1,801
36.84	1,584	1,879
36.89	1,609	1,959
36.94	1,635	2,040
36.99	1,661	2,123
37.04	1,689	2,206
37.09	1,718	2,292
37.14	1,746	2,378
37.19	1,775	2,466
37.24	1,804	2,556
37.29	1,832	2,647
37.34	1,861	2,739
37.39	1,890	2,833
37.44	1,919	2,928
37.49	1,947	3,025
37.54	1,976	3,123
37.59	2,005	3,222
37.64	2,033	3,323
37.69	2,062	3,426
37.74	2,091	3,529
37.79	2,119	3,635
37.84	2,148	3,741
37.89	2,177	3,849
37.94	2,206	3,959
37.99	**2,234**	**4,070**

3025
- 460
2565 > 1014 ✓

NEW HAMPSHIRE DEPARTMENT OF Environmental Services

FILTRATION PRACTICE DESIGN CRITERIA (Env-Wq 1508.07)

Type/Node Name: Rain Garden #4 (4P)

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

		Check if you reviewed the restrictions on unlined systems outlined in Env-Wq 1508.07(a).	
0.47	ac	A = Area draining to the practice	
0.29	ac	A_I = Impervious area draining to the practice	
0.61	decimal	I = Percent impervious area draining to the practice, in decimal form	
0.60	unitless	Rv = Runoff coefficient = 0.05 + (0.9 x I)	
0.28	ac-in	WQV= 1" x Rv x A	
1,023	cf	WQV conversion (ac-in x 43,560 sf/ac x 1ft/12")	
256	cf	25% x WQV (check calc for sediment forebay volume)	
767	cf	75% x WQV (check calc for surface sand filter volume)	
		Method of Pretreatment? (not required for clean or roof runoff)	
	cf	V_{SED} = Sediment forebay volume, if used for pretreatment	≥ 25%WQV
Calculate time to drain if system IS NOT underdrained:			
	sf	A_{SA} = Surface area of the practice	
	iph	$Ksat_{DESIGN}$ = Design infiltration rate[1]	
		If Ksat (prior to factor of safety) is < 0.50 iph, has an underdrain been provided?	
	Yes/No	(Use the calculations below)	
-	hours	T_{DRAIN} = Drain time = V / (A_{SA} * I_{DESIGN})	≤ 72-hrs
Calculate time to drain if system IS underdrained:			
	ft	E_{WQV} = Elevation of WQV (attach stage-storage table)	
	cfs	Q_{WQV} = Discharge at the E_{WQV} (attach stage-discharge table)	
-	hours	T_{DRAIN} = Drain time = 2WQV/Q_{WQV}	≤ 72-hrs
	feet	E_{FC} = Elevation of the bottom of the filter course material[2]	
	feet	E_{UD} = Invert elevation of the underdrain (UD), if applicable	
	feet	E_{SHWT} = Elevation of SHWT (if none found, enter the lowest elevation of the test pit)	
	feet	E_{ROCK} = Elevation of bedrock (if none found, enter the lowest elevation of the test pit)	
-	feet	$D_{FC\ to\ UD}$ = Depth to UD from the bottom of the filter course	≥ 1'
-	feet	$D_{FC\ to\ ROCK}$ = Depth to bedrock from the bottom of the filter course	≥ 1'
-	feet	$D_{FC\ to\ SHWT}$ = Depth to SHWT from the bottom of the filter course	≥ 1'
	ft	Peak elevation of the 50-year storm event (infiltration can be used in analysis)	
	ft	Elevation of the top of the practice	
-		50 peak elevation ≤ Elevation of the top of the practice	← yes
If a surface sand filter or underground sand filter is proposed:			
YES	ac	Drainage Area check.	< 10 ac
	cf	V = Volume of storage[3] (attach a stage-storage table)	≥ 75%WQV
	inches	D_{FC} = Filter course thickness	18", or 24" if within GPA
Sheet		Note what sheet in the plan set contains the filter course specification.	
	Yes/No	Access grate provided?	← yes

If a bioretention area is proposed:			
YES	ac	Drainage Area no larger than 5 ac?	← yes
1,506	cf	V = Volume of storage[3] (attach a stage-storage table)	≥ WQV
18.0	inches	D_{FC} = Filter course thickness	18", or 24" if within GPA
Sheet	D5	Note what sheet in the plan set contains the filter course specification	
3.0	:1	Pond side slopes	≥ 3:1
Sheet	L1	Note what sheet in the plan set contains the planting plans and surface cover	
If porous pavement is proposed:			
		Type of pavement proposed (Concrete? Asphalt? Pavers? Etc.)	
	acres	A_{SA} = Surface area of the pervious pavement	
	:1	Ratio of the contributing area to the pervious surface area	≤ 5:1
	inches	D_{FC} = Filter course thickness	12", or 18" if within GPA mod. 304.1 (see spec)
Sheet		Note what sheet in the plan set contains the filter course spec.	

1. Rate of the limiting layer (either the filter course or the underlying soil). $Ksat_{design}$ includes factor of safey. See Env-Wq 1504.14 for guidance on determining the infiltration rate.
2. See lines 34, 40 and 48 for required depths of filter media.
3. Volume without depending on infiltration. The volume includes the storage above the filter (but below the invert of the outlet stucture, if any), the filter media voids, and the pretreatment area. The storage above the filter media shall not include the volume above the outlet structure, if any.

Designer's Notes:

Stage-Area-Storage for Pond 4P: Rain Garden #4

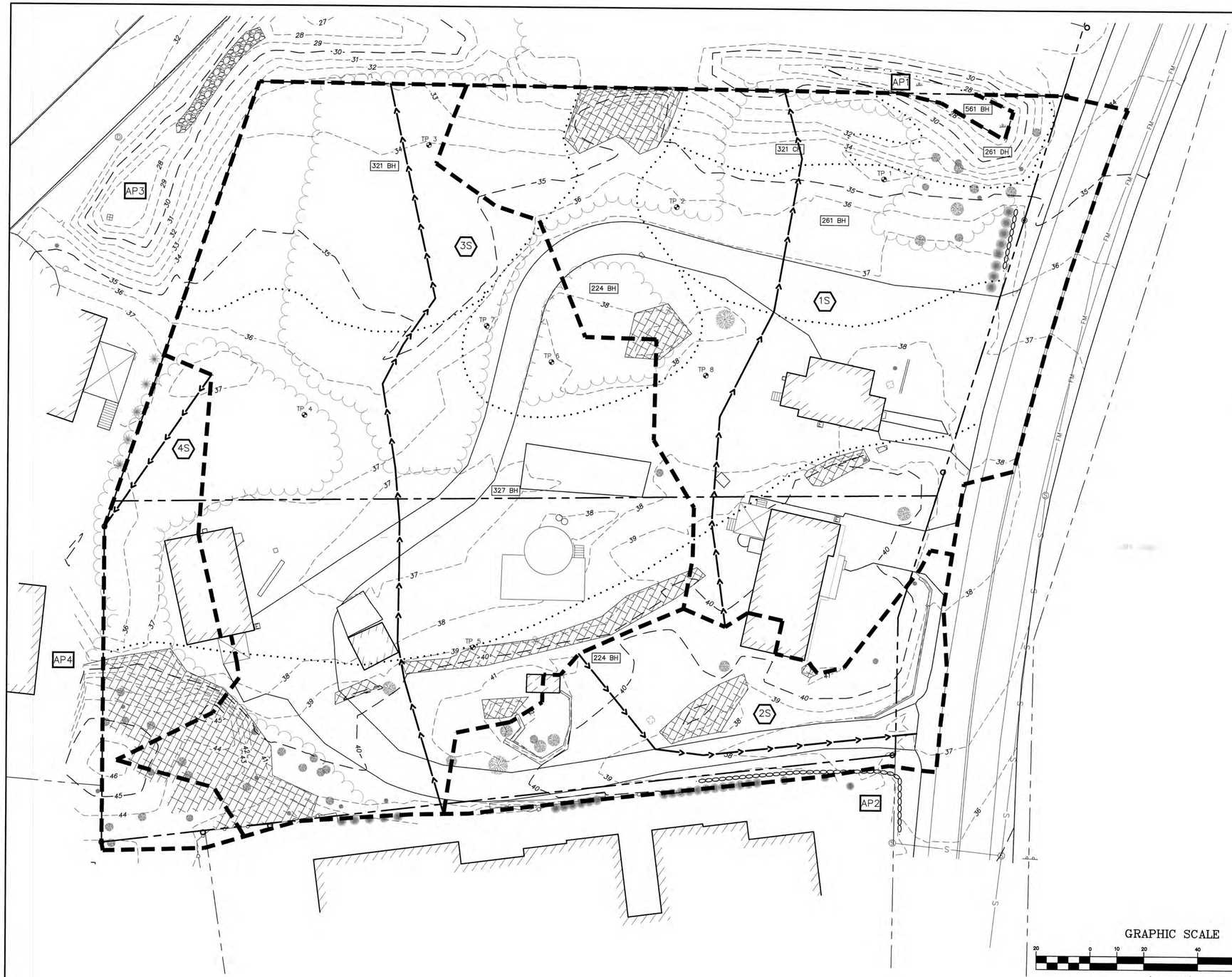
Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
33.74	790	0
33.79	790	16
33.84	790	32
33.89	790	47
33.94	790	63
33.99	790	79
34.04	790	95
34.09	790	111
34.14	790	126
34.19	790	142
34.24	790	158
34.29	790	174
34.34	790	190
34.39	790	205
34.44	790	221
34.49	790	237
34.54	790	253
34.59	790	269
34.64	790	284
34.69	790	300
34.74	790	316
34.79	790	322
34.84	790	328
34.89	790	334
34.94	790	340
34.99	790	346
35.04	790	352
35.09	790	357
35.14	790	363
35.19	790	369
35.24	790	375
35.29	790	381
35.34	790	387
35.39	790	393
35.44	790	399
35.49	790	405
35.54	790	411
35.59	790	417
35.64	790	423
35.69	790	429
35.74	790	435
35.79	790	440
35.84	790	446
35.89	790	452
35.94	790	458
35.99	790	464
36.04	790	470
36.09	790	476
36.14	790	482
36.19	790	488
36.24	790	494
36.29	807	534

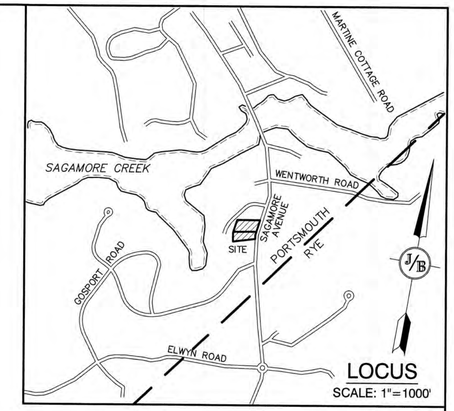
Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
36.34	829	575
36.39	851	617
36.44	873	660
36.49	894	704
36.54	916	749
36.59	938	795
36.64	960	843
36.69	981	891
36.74	1,003	941
36.79	1,025	992
36.84	1,046	1,043
36.89	1,068	1,096
36.94	1,090	1,150
36.99	1,112	1,205
37.04	1,135	1,261
37.09	1,160	1,319
37.14	1,184	1,377
37.19	1,209	1,437
37.24	1,233	1,498
37.29	1,257	1,561
37.34	1,282	1,624
37.39	1,306	1,689
37.44	1,330	1,755
37.49	1,355	1,822
37.54	1,379	1,890
37.59	1,403	1,960
37.64	1,428	2,030
37.69	1,452	2,102
37.74	1,476	2,176
37.79	1,501	2,250
37.84	1,525	2,326
37.89	1,549	2,403
37.94	1,574	2,481
37.99	**1,598**	**2,560**

1822
− 316
1506 > 1023 ✓

APPENDIX IX

Pre- and Post-Construction Watershed Plans





LEGEND

- SUBCATCHMENT BOUNDARY
- SUBCATCHMENT (X)
- REACH [X]
- POND (X)
- TC PATH
- WETLANDS
- HISS SOILS 224BH
- FLOW ARROW

GRAPHIC SCALE

20 0 10 20 40 80

(IN FEET)
1 inch = 20 ft.

PROJECT PARCEL
CITY OF PORTSMOUTH
TAX MAP 224, LOTS 14 & 15

APPLICANT
THE SAGAMORE GROUP, LLC
PO BOX 430
HAMPTON, NH 03842

TOTAL LOT AREA
79,292 SQ. FT.
1.83 ACRES

Design: DJM	Draft: DJM
Checked: PSL	Scale: 1" = 20'
Drawing Name: 21047-PLAN.dwg	

Date: 3/25/21
Project No.: 21047

THIS PLAN SHALL NOT BE MODIFIED WITHOUT WRITTEN PERMISSION FROM JONES & BEACH ENGINEERS, INC. (JBE). ANY ALTERATIONS, AUTHORIZED OR OTHERWISE, SHALL BE AT THE USER'S SOLE RISK AND WITHOUT LIABILITY TO JBE.

STATE OF NEW HAMPSHIRE — PAIGE S. LIBBEY No.16870 — LICENSED PROFESSIONAL ENGINEER

REV.	DATE	REVISION	BY
0	8/23/21	ISSUED FOR REVIEW	DJM

Designed and Produced in NH
J/B 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: SAGAMORE AVENUE CONDOMINIUMS
1169 & 1171 SAGAMORE AVENUE, PORTSMOUTH, NEW HAMPSHIRE

Owner of Record: LOT 14: COLLEEN HEBERT, 54 PIONEER RD, RYE, NH 03870 BK 2418 PG 173; LOT 15: JOHN J. & COLLEEN HEBERT, 54 PIONEER RD, RYE, NH 03870 BK 5383 PG 219

DRAWING No.
W1
SHEET 1 OF 2
JBE PROJECT NO. 21047

LEGEND

- SUBCATCHMENT BOUNDARY
- SUBCATCHMENT (X)
- REACH [X]
- POND (X)
- TC PATH
- WETLANDS
- HISS SOILS 224BH
- FLOW ARROW

GRAPHIC SCALE

20 0 10 20 40 80

(IN FEET)
1 inch = 20 ft.

PROJECT PARCEL
CITY OF PORTSMOUTH
TAX MAP 224, LOTS 14 & 15

APPLICANT
THE SAGAMORE GROUP, LLC
PO BOX 430
HAMPTON, NH 03842

TOTAL LOT AREA
79,292 SQ. FT.
1.83 ACRES

Design: DJM	Draft: DJM	Date: 3/25/21
Checked: PSL	Scale: 1" = 20'	Project No.: 21047
Drawing Name: 21047-PLAN.dwg		

THIS PLAN SHALL NOT BE MODIFIED WITHOUT WRITTEN PERMISSION FROM JONES & BEACH ENGINEERS, INC. (JBE). ANY ALTERATIONS, AUTHORIZED OR OTHERWISE, SHALL BE AT THE USER'S SOLE RISK AND WITHOUT LIABILITY TO JBE.

STATE OF NEW HAMPSHIRE
PAIGE S. LIBBEY
No. 16670
LICENSED PROFESSIONAL ENGINEER
6/8/21

REV.	DATE	REVISION	BY
0	8/23/21	ISSUED FOR REVIEW	DJM

Designed and Produced in NH
J/B 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: SAGAMORE AVENUE CONDOMINIUMS
1169 & 1171 SAGAMORE AVENUE, PORTSMOUTH, NEW HAMPSHIRE

Owner of Record: LOT 14: COLLEEN HEBERT, 54 PIONEER RD, RYE, NH 03870 BK 2418 PG 173; LOT 15: JOHN J. & COLLEEN HEBERT, 54 PIONEER RD, RYE, NH 03870 BK 5383 PG 219

DRAWING No.
W2
SHEET 2 OF 2
JBE PROJECT NO. 21047

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

STORMWATER MANAGEMENT OPERATION AND MAINTENANCE MANUAL

"Sagamore Avenue Condominiums
1169 & 1171 Sagamore Ave.
Portsmouth, NH 03801
Tax Map 224, Lots 14 & 15

Prepared for:

The Sagamore Group, LLC
P.O. Box 430
Hampton, NH 03842

Prepared by:
Jones & Beach Engineers, Inc.
85 Portsmouth Avenue
P.O. Box 219
Stratham, NH 03885
(603) 772-4746
August 23, 2021
JBE Project No. 21047

Inspection and Maintenance of Facilities and Property

A. Maintenance of Common Facilities or Property

1. The Condominium Association, 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 Association 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. Roadway and driveways
    b. Vegetation and landscaping
    c. Rain Gardens (Bio-retention systems)
    d. Drain Manholes
    e. Culverts
    f. Rip-Rap Outlet Protection Aprons
    g. Shea Concrete Galley Chambers

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

    a. Normal winter roadway maintenance including plowing and snow removal. Road sweeping at the end of every winter, preferably at the start of the spring rain season.

    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. Raingarden - Bioretention Cells:

        - 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-mulch any void areas by hand as needed.
        - Every 6 months, in the spring and fall, add a fresh mulch layer.
        - Once every 2 to 3 years, in the spring, remove old mulch layer before applying new one.

- 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), residents are encouraged to 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.
- KEEP IN MIND, THE BIORETENTION CELL IS NOT A POND. IT SHOULD NOT PROVIDE A BREEDING GROUND FOR MOSQUITOES. MOSQUITOES NEED AT LEAST FOUR (4) DAYS OF STANDING WATER TO DEVELOP AS LARVA.

d. **Annual inspection** of drain manholes to determine if they need to be cleaned. Manholes should be cleaned of any material upon inspection. Manholes can be cleaned either manually or by specially designed equipment including, but not limited to, bucket loaders and vacuum pumps. Before any materials can be disposed, it is necessary to perform a detailed chemical analysis to determine if the materials meet the EPA criteria for hazardous waste. This will help determine how the materials should be stored, treated, and disposed.

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

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

g. Shea Concrete Galley Chambers: Once annually, open the inspection ports and visually inspect the condition of the stone base. If more than 12" of sediment is observed, plug the outlet and flush the system thoroughly. Pump water into system until at least 1" of standing water covers the system bottom. Repeat at both inspection ports and pump out back-flush water. Capture sediment-laden water for proper disposal according to local state, and EPA regulation. Additionally, vacuum all adjacent manhole structures.

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 Condominium Association, 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 Association 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
Roadway and Driveways			
Vegetation and Landscaping			
Rain Garden #1			
Rain Garden #2			
Rain Garden #3			

Rain Garden #4			
Drain Manhole #1			
Drain Manhole #2			
Drain Manhole #3			
Culvert Outlet and Rip-Rap Outlet Protection Apron			
Shea Concrete Galley Chambers			

Other			

Regular Inspection and Maintenance Guidance for Bioretention Systems / Tree Filters

Maintenance of bioretention systems and tree filters can typically be performed as part of standard landscaping. Regular inspection and maintenance is critical to the effective operation of bioretention systems and tree filters 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 in the soil media, 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 insure the filter surface remains well draining after storm event. **Remedy:** If filter bed 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 insure the filter bed does not contain more than 2 inches accumulated material **Remedy**: Remove sediment as necessary. If 2 inches or more of filter bed has been removed, replace media with either mulch or a (50% sand, 20% woodchips, 20% compost, 10% soil) mixture.	
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

JONES&BEACH ENGINEERS INC.

CHECKLIST FOR INSPECTION OF BIORETENTION SYSTEM / TREE FILTERS

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 plants as needed	S	U	
Dead or dying plants			
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.

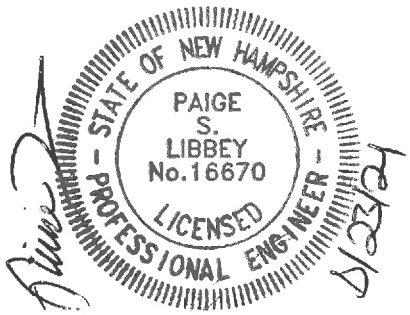
TRAFFIC IMPACT STATEMENT

ITE TRIP GENERATION ESTIMATES

Sagamore Avenue Condominiums
1169 & 1171 Sagamore Ave.
Portsmouth, NH 03801
Tax Map 224, Lots 14 & 15

Prepared for:

The Sagamore Group, LLC
P.O. Box 430
Hampton, NH 03842



Prepared by:
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Stratham, NH 03885
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August 23, 2021
JBE Project No. 21047

EXECUTIVE SUMMARY

The Sagamore Group, LLC proposes to construct ten (10) residential condominium units on a 1.83-acre parcel of land located at 1169 & 1171 Sagamore Avenue in Portsmouth, NH. In the existing condition, the two lots to be consolidated are in a single-family residential use, with three individual homes between the two lots.

Data from the Institute of Transportation Engineers (ITE) Trip Generation Manual, 10th Edition (ITE Manual) were used. The existing use for the lot was assumed to be "Single-Family Detached Housing", defined by the ITE Manual as "All single-family detached homes on individual lots". This is the closest provided description to the existing use of the two lots. The existing analysis was conducted for three (3) dwelling units, as there are three single-family homes between the two lots.

The proposed use for the lot was assumed to be "Multi-Family Housing (Low-Rise)", defined by the ITE Manual as "Apartments, townhouses, and condominiums located within the same building with at least three other dwelling units and that have one or two levels (floors)." This is again the closest provided description to the proposed use for the lot. The proposed analysis was conducted for ten (10) dwelling units.

Trip generation estimates for the full day on a typical weekday, Saturday, and Sunday were calculated for the existing and proposed scenarios, as were trip generation estimates for the Peak Hour of Generator on a weekday, Saturday, and Sunday. For weekdays, the peak hour data was further broken down into peak hour AM and peak hour PM, corresponding with typical morning and evening commutes, and data for the Peak Hour on an Adjacent Street was also available.

Per-dwelling unit trip generation estimates for each of the aforementioned scenarios are included in the appendix, with a range of data presented. In all scenarios, single-family detached housing is a use that creates more traffic per dwelling unit than multi-family housing (low rise). The Average Rate value for each scenario under the existing and proposed use was used for this analysis. In the following table, the single-family average rate estimates have been multiplied by three (3) and the multifamily average rate estimates by ten (10) to arrive at the true trip generation estimate for the existing and proposed uses.

Average Estimate

	Full Day (Trips/Day)		**Peak Hour Generator (Trips/Hour)**		**Peak Hour Adjacent Street (Trips/Hour)**	
	Existing	Proposed	Existing	Proposed	Existing	Proposed
Weekday	28.3	73.2				
Saturday	28.6	81.4	2.8	7.0		
Sunday	25.7	62.8	2.6	6.7		
Weekday AM			2.3	5.6	2.2	4.6
Weekday PM			3.0	6.7	3.0	5.6

CONCLUSION

Based on the above table, under normal circumstances this development would generate **45** additional trips on a weekday, **53** additional trips on a Saturday, and **37** additional trips on a Sunday. Peak hour estimates vary but in general they all show an increase of **3-4** additional trips during the peak hour of the generator and **2-3** additional trips during the peak hour of adjacent street under normal circumstances. Sagamore Avenue is a state highway that sees a moderate volume of traffic. There are two existing condominium developments directly abutting the subject parcel; Westwind Townhomes of Portsmouth and Sea Star Cove Condominiums, respectively, as well as residential and commercial developments in either direction. The majority of traffic will be in the form of commuters using passenger cars or pick-up trucks. It is unlikely that this development alone will substantially impact the existing traffic on Sagamore Avenue.

Respectfully submitted,
JONES & BEACH ENGINEERS, INC.

Daniel Meditz, E.I.T
Project Engineer

Trip generation estimates used for this analysis were taken from the Trip Generation Manual, 10th Edition, published by the Institute of Traffic Engineers in September 2017.

Single-Family Detached Housing
(210)

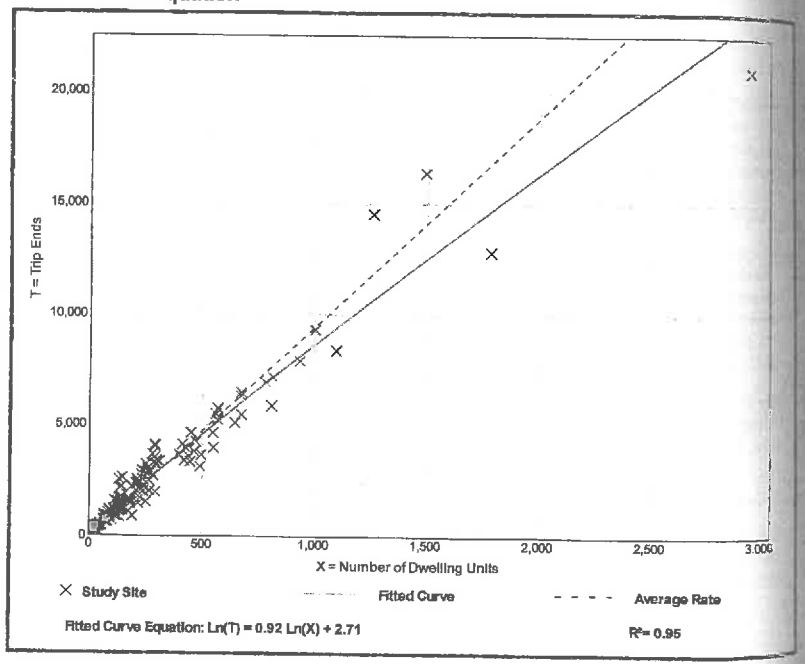
Vehicle Trip Ends vs: Dwelling Units
On a: Weekday

Setting/Location: General Urban/Suburban
Number of Studies: 159
Avg. Num. of Dwelling Units: 264
Directional Distribution: 50% entering, 50% exiting

Vehicle Trip Generation per Dwelling Unit

Average Rate	Range of Rates	Standard Deviation
9.44	4.81 - 19.39	2.10

Data Plot and Equation



Single-Family Detached Housing
(210)

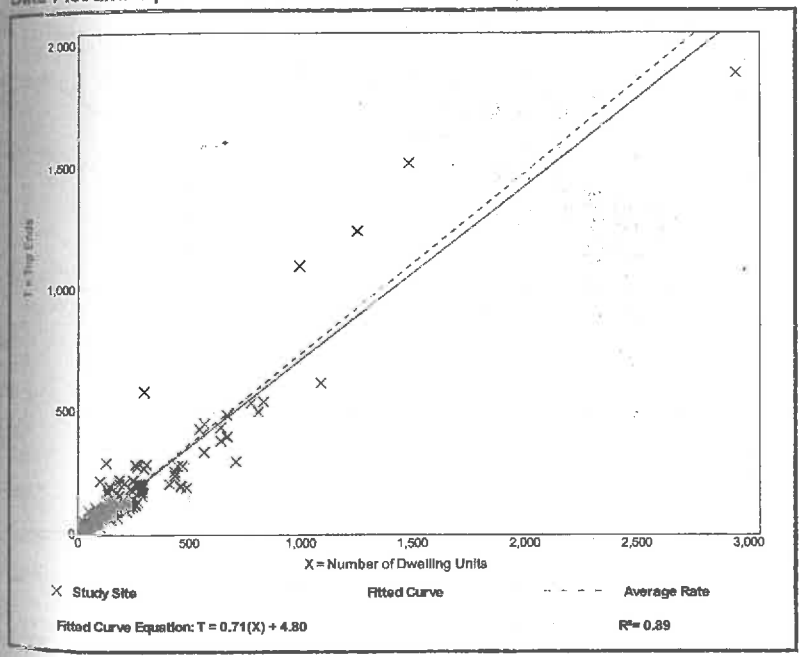
Vehicle Trip Ends vs: Dwelling Units
On a: Weekday,
Peak Hour of Adjacent Street Traffic,
One Hour Between 7 and 9 a.m.

Setting/Location: General Urban/Suburban
Number of Studies: 173
Avg. Num. of Dwelling Units: 219
Directional Distribution: 25% entering, 75% exiting

Vehicle Trip Generation per Dwelling Unit

Average Rate	Range of Rates	Standard Deviation
0.74	0.33 - 2.27	0.27

Data Plot and Equation



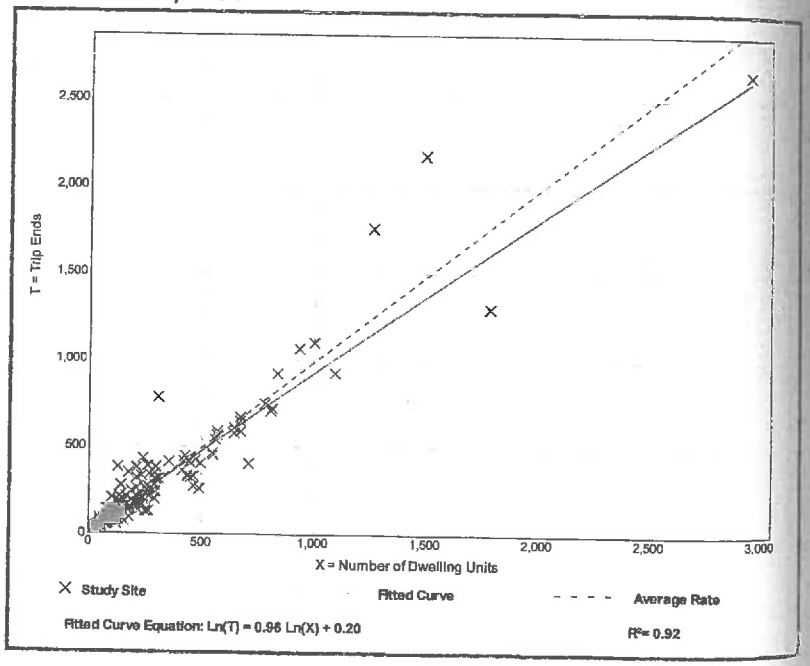
Single-Family Detached Housing
(210)

Vehicle Trip Ends vs: Dwelling Units
On a: Weekday,
Peak Hour of Adjacent Street Traffic,
One Hour Between 4 and 6 p.m.
Setting/Location: General Urban/Suburban
Number of Studies: 190
Avg. Num. of Dwelling Units: 242
Directional Distribution: 63% entering, 37% exiting

Vehicle Trip Generation per Dwelling Unit

Average Rate	Range of Rates	Standard Deviation
0.99	0.44 - 2.98	0.31

Data Plot and Equation



Single-Family Detached Housing
(210)

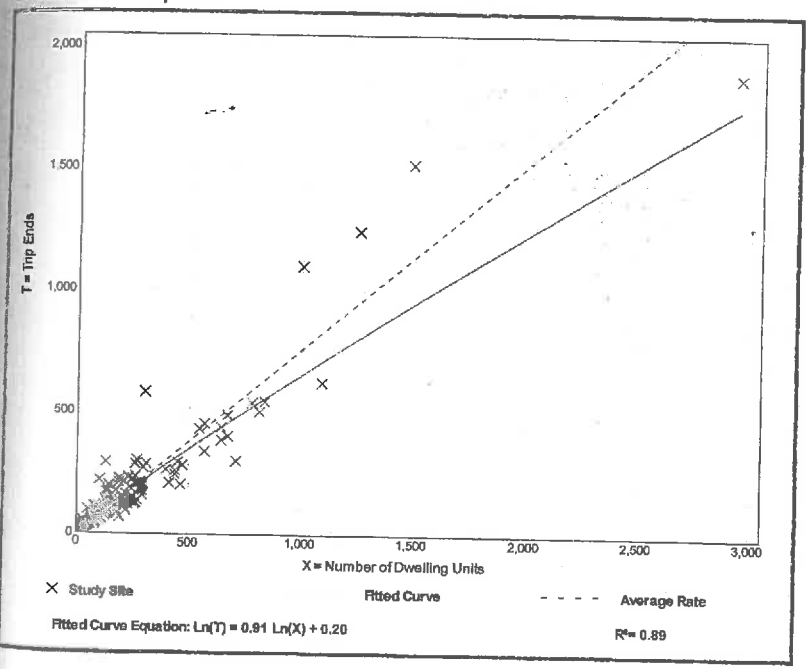
Vehicle Trip Ends vs: Dwelling Units
On a: Weekday,
AM Peak Hour of Generator

Setting/Location: General Urban/Suburban
Number of Studies: 157
Avg. Num. of Dwelling Units: 231
Directional Distribution: 26% entering, 74% exiting

Vehicle Trip Generation per Dwelling Unit

Average Rate	Range of Rates	Standard Deviation
0.76	0.36 - 2.27	0.26

Data Plot and Equation



Single-Family Detached Housing
(210)

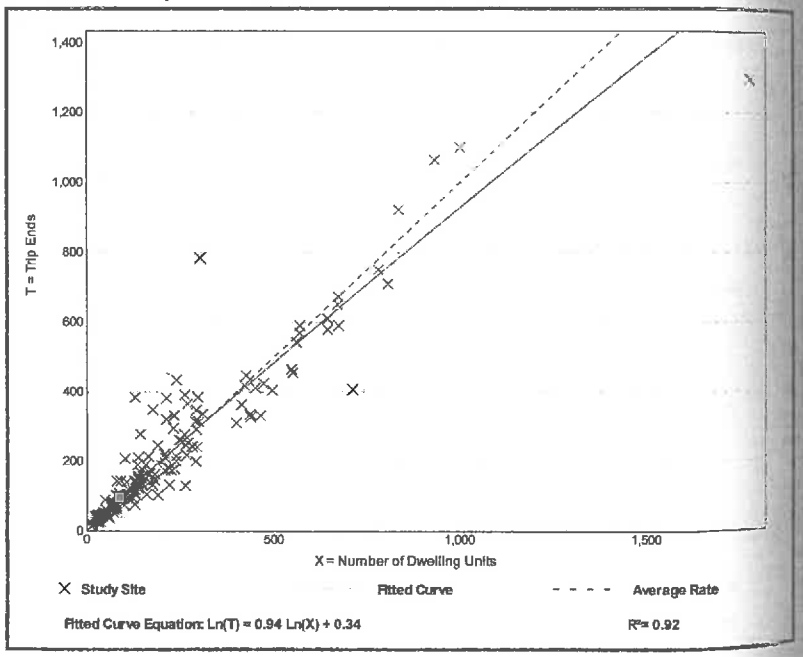
Vehicle Trip Ends vs: Dwelling Units
On a: Weekday,
PM Peak Hour of Generator

Setting/Location: General Urban/Suburban
Number of Studies: 165
Avg. Num. of Dwelling Units: 217
Directional Distribution: 64% entering, 36% exiting

Vehicle Trip Generation per Dwelling Unit

Average Rate	Range of Rates	Standard Deviation
1.00	0.49 - 2.98	0.31

Data Plot and Equation



Single-Family Detached Housing
(210)

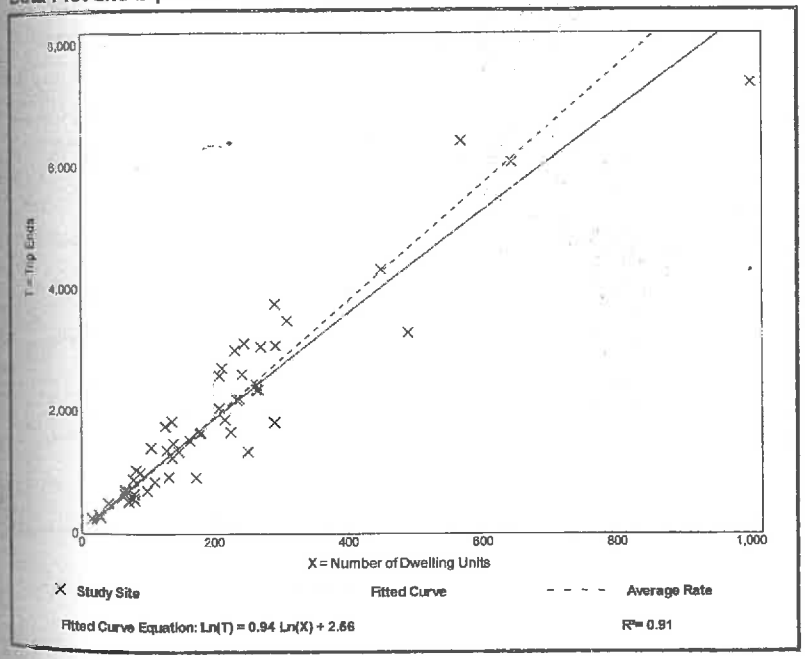
Vehicle Trip Ends vs: Dwelling Units
On a: Saturday

Setting/Location: General Urban/Suburban
Number of Studies: 52
Avg. Num. of Dwelling Units: 207
Directional Distribution: 50% entering, 50% exiting

Vehicle Trip Generation per Dwelling Unit

Average Rate	Range of Rates	Standard Deviation
9.54	5.32 - 15.25	2.17

Data Plot and Equation



Single-Family Detached Housing
(210)

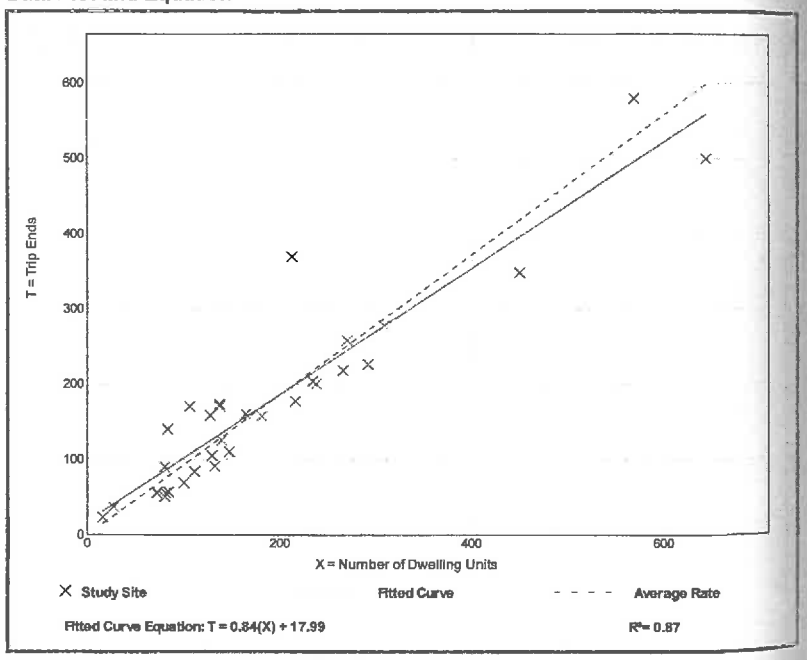
Vehicle Trip Ends vs: Dwelling Units
On a: Saturday, Peak Hour of Generator

Setting/Location: General Urban/Suburban
Number of Studies: 31
Avg. Num. of Dwelling Units: 188
Directional Distribution: 54% entering, 46% exiting

Vehicle Trip Generation per Dwelling Unit

Average Rate	Range of Rates	Standard Deviation
0.93	0.64 - 1.75	0.26

Data Plot and Equation



Single-Family Detached Housing
(210)

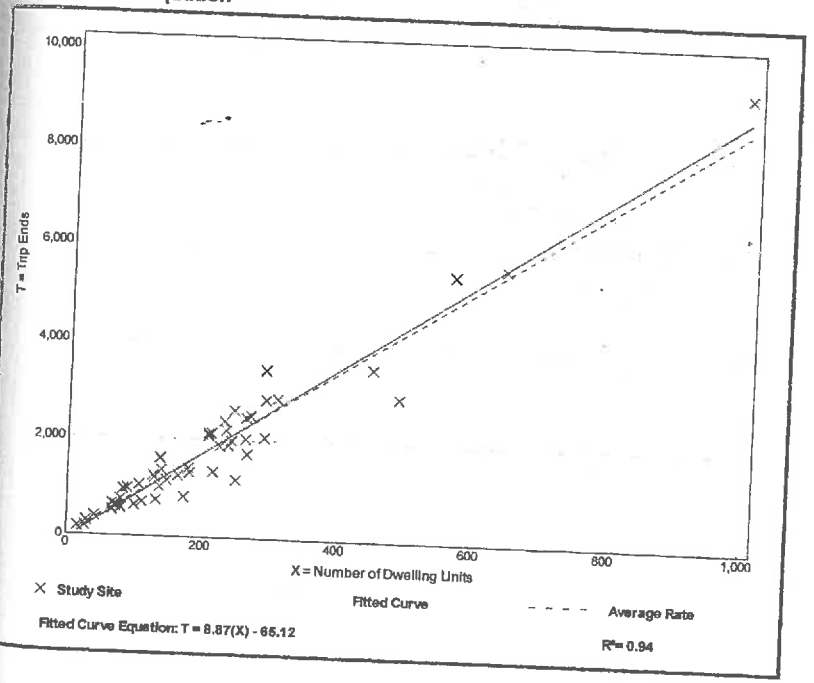
Vehicle Trip Ends vs: Dwelling Units
On a: Sunday

Setting/Location: General Urban/Suburban
Number of Studies: 51
Avg. Num. of Dwelling Units: 209
Directional Distribution: 50% entering, 50% exiting

Vehicle Trip Generation per Dwelling Unit

Average Rate	Range of Rates	Standard Deviation
8.55	4.74 - 11.82	1.65

Data Plot and Equation



Single-Family Detached Housing
(210)

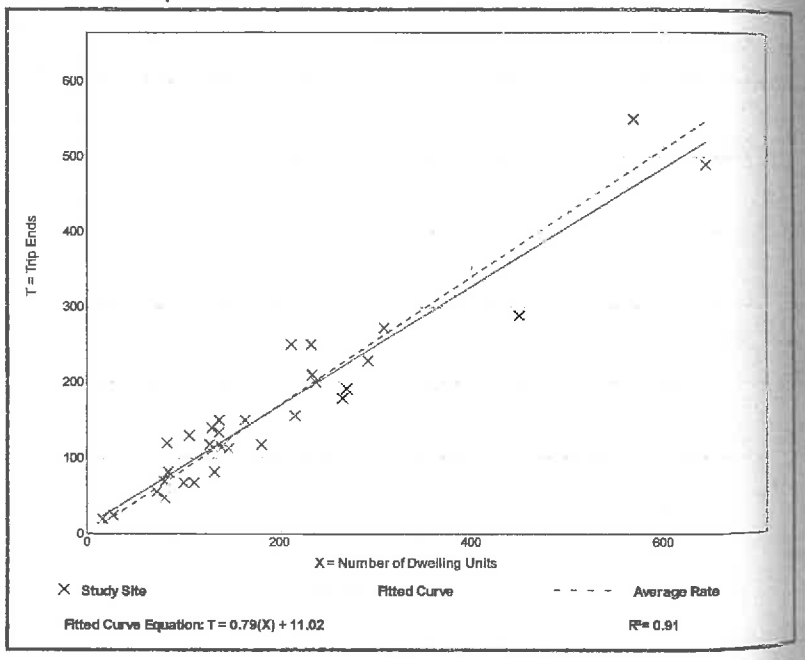
Vehicle Trip Ends vs: Dwelling Units
On a: Sunday, Peak Hour of Generator

Setting/Location: General Urban/Suburban
Number of Studies: 31
Avg. Num. of Dwelling Units: 193
Directional Distribution: 53% entering, 47% exiting

Vehicle Trip Generation per Dwelling Unit

Average Rate	Range of Rates	Standard Deviation
0.85	0.60 - 1.45	0.18

Data Plot and Equation



Single-Family Detached Housing
(210)

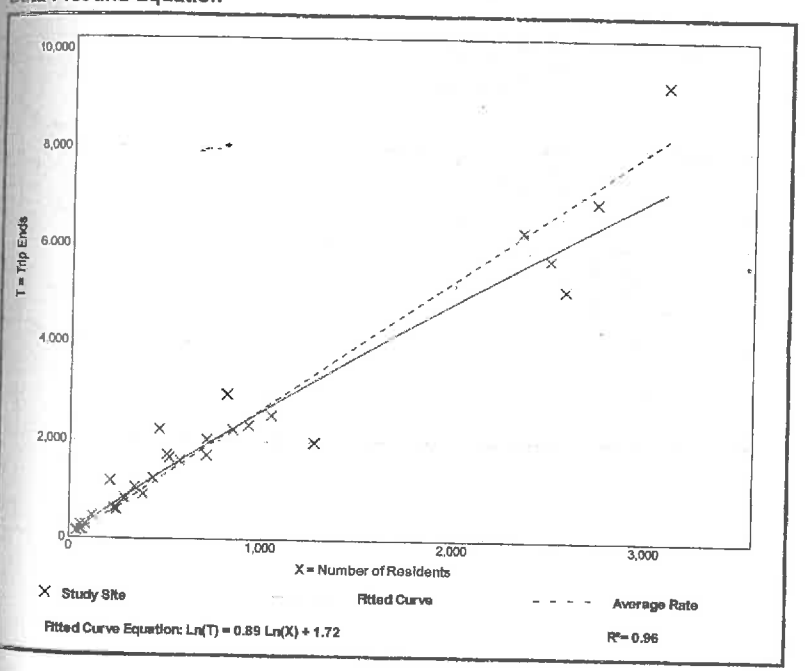
Vehicle Trip Ends vs: Residents
On a: Weekday

Setting/Location: General Urban/Suburban
Number of Studies: 30
Avg. Num. of Residents: 810
Directional Distribution: 50% entering, 50% exiting

Vehicle Trip Generation per Resident

Average Rate	Range of Rates	Standard Deviation
2.65	1.56 - 5.62	0.64

Data Plot and Equation



The sites were surveyed in the 1980s, the 1990s, the 2000s, and the 2010s in British Columbia (CAN), California, District of Columbia, Florida, Georgia, Illinois, Indiana, Maine, Maryland, Minnesota, New Jersey, New York, Ontario, Oregon, Pennsylvania, South Dakota, Tennessee, Texas, Utah, Virginia, and Washington.

It is expected that the number of bedrooms and number of residents are likely correlated to the number of trips generated by a residential site. Many of the studies included in this land use did not indicate the total number of bedrooms. To assist in the future analysis of this land use, it is important that this information be collected and included in trip generation data submissions.

Source Numbers

168, 187, 188, 204, 211, 300, 305, 306, 319, 320, 321, 357, 390, 412, 418, 525, 530, 571, 579, 583, 864, 868, 869, 870, 896, 903, 918, 946, 947, 948, 951

Multifamily Housing (Low-Rise)
(220)

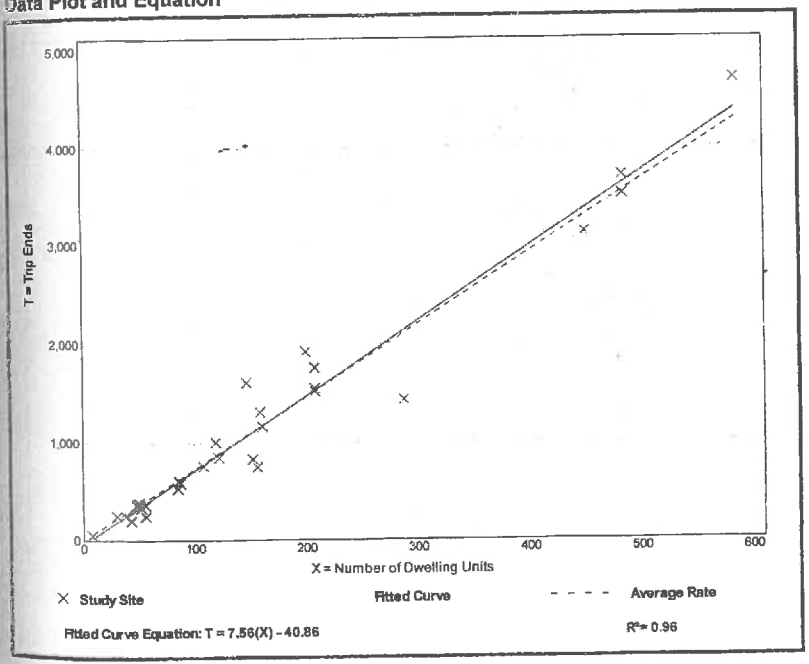
Vehicle Trip Ends vs: **Dwelling Units**
On a: **Weekday**

Setting/Location: **General Urban/Suburban**
Number of Studies: 29
Avg. Num. of Dwelling Units: 168
Directional Distribution: 50% entering, 50% exiting

Vehicle Trip Generation per Dwelling Unit

Average Rate	Range of Rates	Standard Deviation
7.32	4.45 - 10.97	1.31

Data Plot and Equation



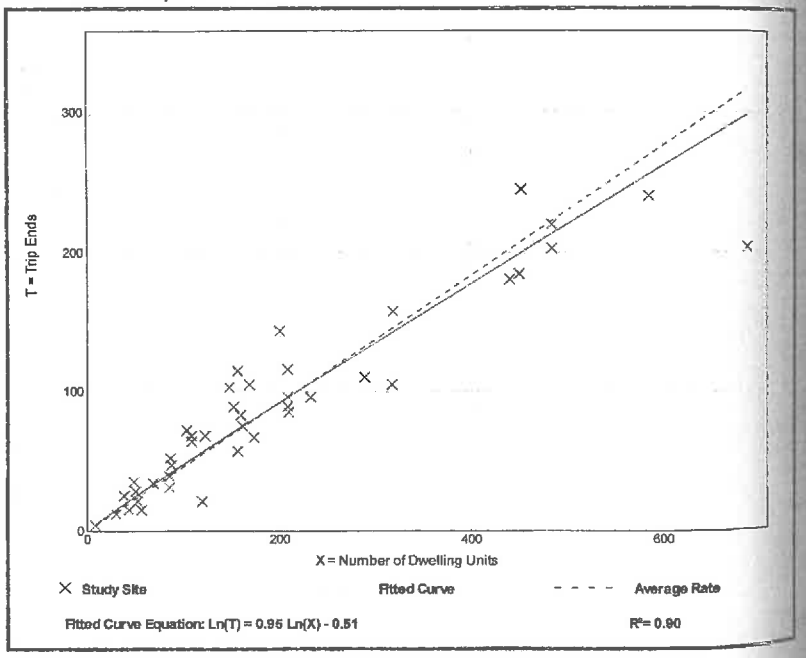
Multifamily Housing (Low-Rise)
(220)

Vehicle Trip Ends vs: Dwelling Units
On a: Weekday,
Peak Hour of Adjacent Street Traffic,
One Hour Between 7 and 9 a.m.
Setting/Location: General Urban/Suburban
Number of Studies: 42
Avg. Num. of Dwelling Units: 199
Directional Distribution: 23% entering, 77% exiting

Vehicle Trip Generation per Dwelling Unit

Average Rate	Range of Rates	Standard Deviation
0.46	0.18 - 0.74	0.12

Data Plot and Equation



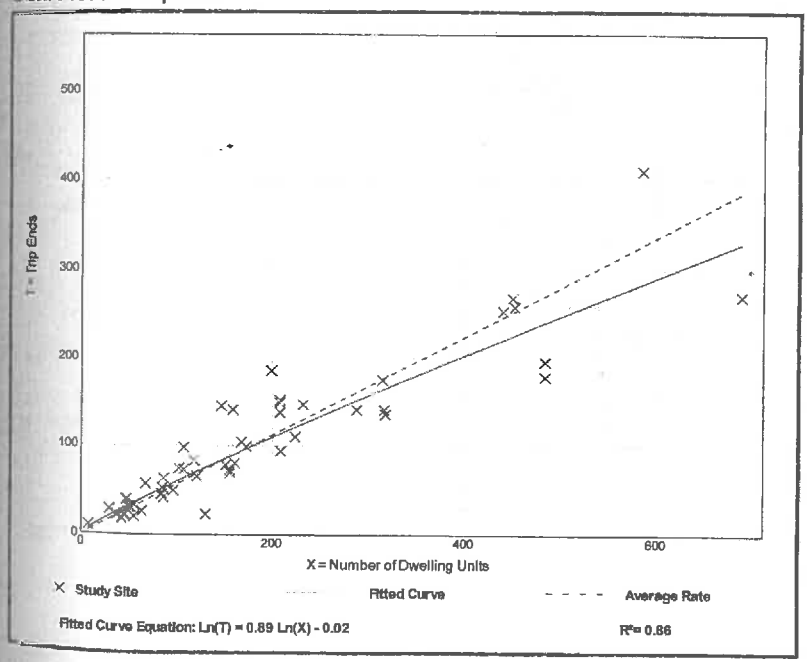
Multifamily Housing (Low-Rise)
(220)

Vehicle Trip Ends vs: Dwelling Units
On a: Weekday,
Peak Hour of Adjacent Street Traffic,
One Hour Between 4 and 6 p.m.
Setting/Location: General Urban/Suburban
Number of Studies: 50
Avg. Num. of Dwelling Units: 187
Directional Distribution: 63% entering, 37% exiting

Vehicle Trip Generation per Dwelling Unit

Average Rate	Range of Rates	Standard Deviation
0.56	0.18 - 1.25	0.16

Data Plot and Equation



Multifamily Housing (Low-Rise)
(220)

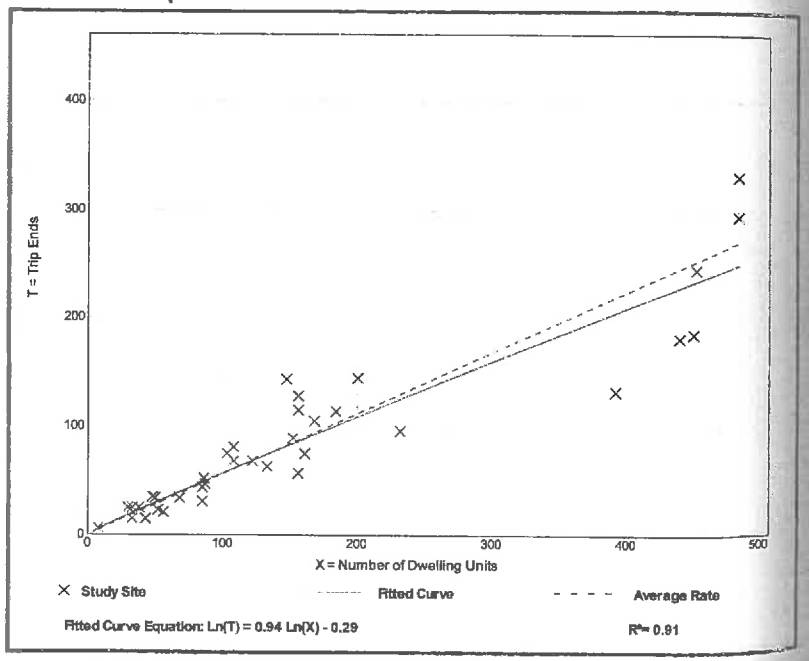
Vehicle Trip Ends vs: Dwelling Units
On a: Weekday,
AM Peak Hour of Generator

Setting/Location: General Urban/Suburban
Number of Studies: 36
Avg. Num. of Dwelling Units: 161
Directional Distribution: 28% entering, 72% exiting

Vehicle Trip Generation per Dwelling Unit

Average Rate	Range of Rates	Standard Deviation
0.56	0.34 - 0.97	0.15

Data Plot and Equation



Multifamily Housing (Low-Rise)
(220)

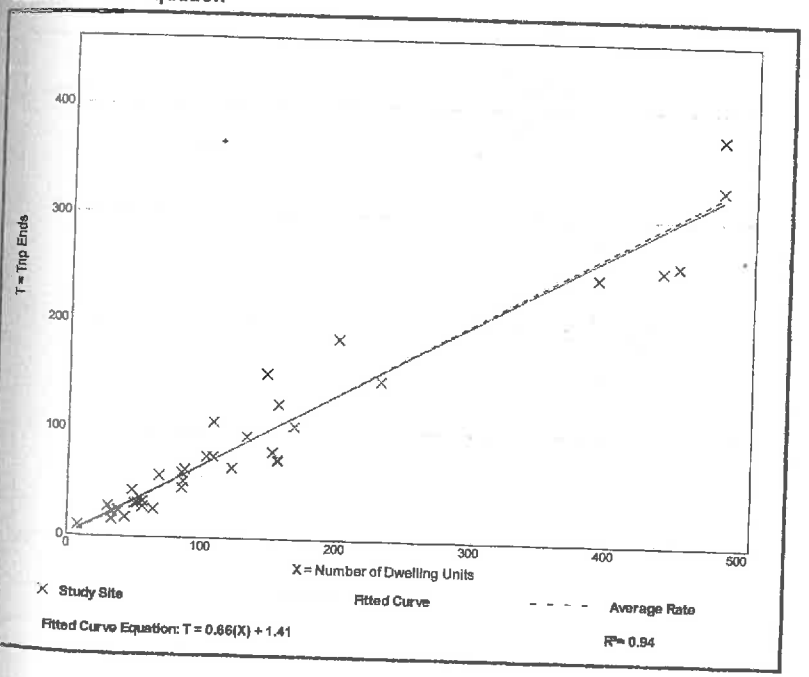
Vehicle Trip Ends vs: Dwelling Units
On a: Weekday,
PM Peak Hour of Generator

Setting/Location: General Urban/Suburban
Number of Studies: 35
Avg. Num. of Dwelling Units: 146
Directional Distribution: 59% entering, 41% exiting

Vehicle Trip Generation per Dwelling Unit

Average Rate	Range of Rates	Standard Deviation
0.67	0.41 - 1.25	0.14

Data Plot and Equation



Multifamily Housing (Low-Rise)
(220)

Vehicle Trip Ends vs: Dwelling Units
On a: Saturday

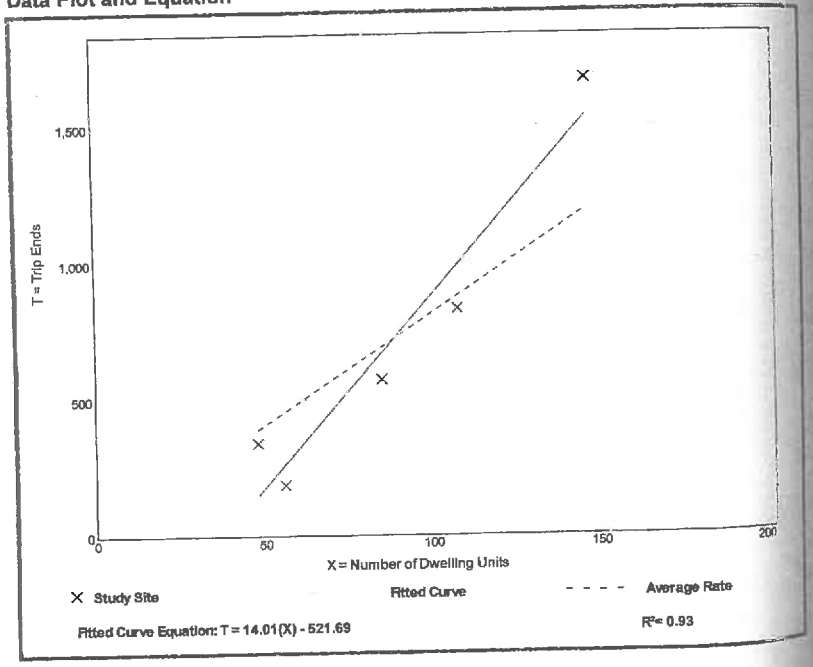
Setting/Location: General Urban/Suburban
Number of Studies: 5
Avg. Num. of Dwelling Units: 89
Directional Distribution: 50% entering, 50% exiting

Vehicle Trip Generation per Dwelling Unit

Average Rate	Range of Rates	Standard Deviation
8.14	3.36 - 11.40	2.94

Data Plot and Equation

Caution – Small Sample Size



Fitted Curve Equation: T = 14.01(X) - 521.69

R^2 = 0.93

Multifamily Housing (Low-Rise)
(220)

Vehicle Trip Ends vs: Dwelling Units
On a: Saturday, Peak Hour of Generator

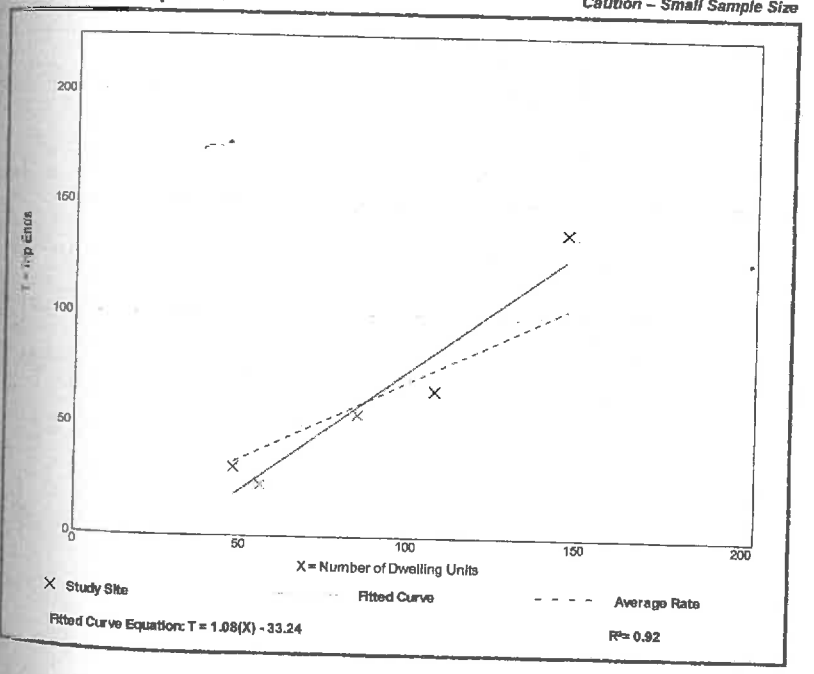
Setting/Location: General Urban/Suburban
Number of Studies: 5
Avg. Num. of Dwelling Units: 89
Directional Distribution: Not Available

Vehicle Trip Generation per Dwelling Unit

Average Rate	Range of Rates	Standard Deviation
0.70	0.41 - 0.93	0.20

Data Plot and Equation

Caution – Small Sample Size



Fitted Curve Equation: T = 1.08(X) - 33.24

R^2 = 0.92

Multifamily Housing (Low-Rise)
(220)

Vehicle Trip Ends vs: Dwelling Units
On a: Sunday

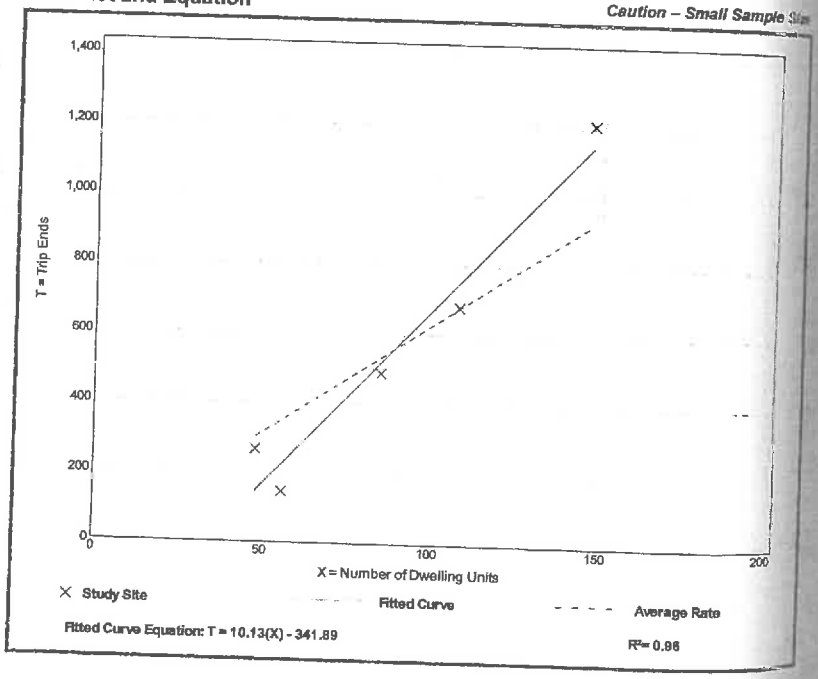
Setting/Location: General Urban/Suburban
Number of Studies: 5
Avg. Num. of Dwelling Units: 89
Directional Distribution: 50% entering, 50% exiting

Vehicle Trip Generation per Dwelling Unit

Average Rate	Range of Rates	Standard Deviation
6.28	2.61 - 8.22	1.96

Data Plot and Equation

Caution – Small Sample Size



Fitted Curve Equation: T = 10.13(X) - 341.89

R^2 = 0.98

Multifamily Housing (Low-Rise)
(220)

Vehicle Trip Ends vs: Dwelling Units
On a: Sunday, Peak Hour of Generator

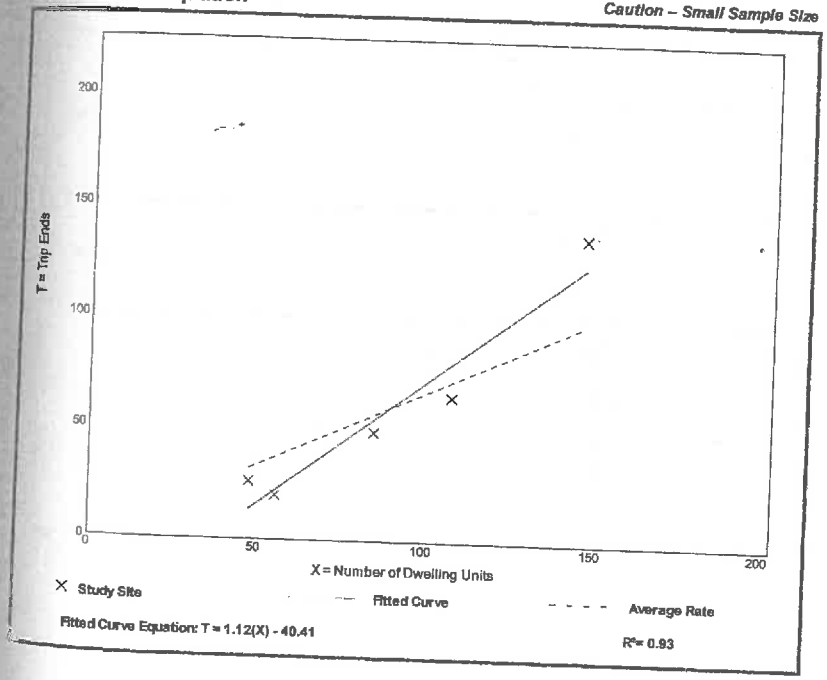
Setting/Location: General Urban/Suburban
Number of Studies: 5
Avg. Num. of Dwelling Units: 89
Directional Distribution: Not Available

Vehicle Trip Generation per Dwelling Unit

Average Rate	Range of Rates	Standard Deviation
0.67	0.36 - 0.93	0.22

Data Plot and Equation

Caution – Small Sample Size



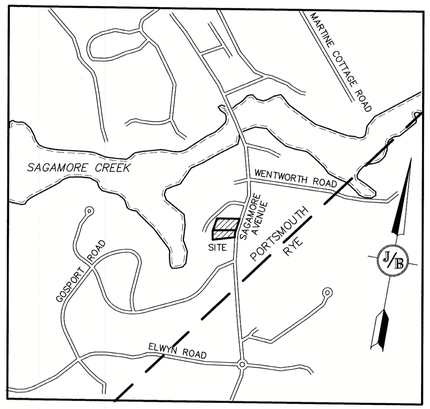
Fitted Curve Equation: T = 1.12(X) - 40.41

R^2 = 0.93

CONDOMINIUM SITE PLAN
"SAGAMORE AVENUE CONDOMINIUMS"
TAX MAP 224, LOTS 14 & 15
1169 & 1171 SAGAMORE AVENUE, PORTSMOUTH, NH

GENERAL LEGEND

EXISTING	PROPOSED	DESCRIPTION
		PROPERTY LINES
		SETBACK LINES
		CENTERLINE
		FRESHWATER WETLANDS LINE
		TIDAL WETLANDS LINE
		STREAM CHANNEL
		TREE LINE
		STONEWALL
		BARBED WIRE
		FENCE
		STOCKADE FENCE
		SOIL BOUNDARY
		AQUIFER PROTECTION LINE
		FLOOD PLAIN LINE
		ZONELINE
		EASEMENT
100	100	MAJOR CONTOUR
98	98	MINOR CONTOUR
VGC	VGC	EDGE OF PAVEMENT
SGC	SGC	VERTICAL GRANITE CURB
CCB	CCB	SLOPE GRANITE CURB
PCC	PCC	CAPE COD BERM
X	X	POURED CONCRETE CURB
D		SILT FENCE
S	S	DRAINAGE LINE
FM	FM	SEWER LINE
G	G	SEWER FORCE MAIN
W	W	GAS LINE
WS	WS	WATER LINE
OHE	OHE	WATER SERVICE
UGE	UGE	OVERHEAD ELECTRIC
		UNDERGROUND ELECTRIC
UD	UD	GUARDRAIL
F	F	UNDERDRAIN
	W	FIRE PROTECTION LINE
		THRUST BLOCK
		IRON PIPE/IRON ROD
		DRILL HOLE
		IRON ROD/DRILL HOLE
		STONE/GRANITE BOUND
100x0 100.00	100x0 100.00	SPOT GRADE
100.00 99.50	100.00 99.50	PAVEMENT SPOT GRADE
		CURB SPOT GRADE
		BENCHMARK (TBM)
		DOUBLE POST SIGN
		SINGLE POST SIGN
		WELL
TP1		TEST PIT
		FAILED TEST PIT
M	M	MONITORING WELL
		PERC TEST
1		PHOTO LOCATION
		TREES AND BUSHES
		UTILITY POLE
		LIGHT POLES
D	D	DRAIN MANHOLE
S	S	SEWER MANHOLE
		HYDRANT
		WATER GATE
		WATER SHUT OFF
		REDUCER
		SINGLE GRATE CATCH BASIN
		DOUBLE GRATE CATCH BASIN
T	T	TRANSFORMER
		CULVERT W/WINGWALLS
		CULVERT W/FLARED END SECTION
		CULVERT W/STRAIGHT HEADWALL
		STONE CHECK DAM
		DRAINAGE FLOW DIRECTION
		4K SEPTIC AREA
		WETLAND IMPACT
		VEGETATED FILTER STRIP
		RIPRAP
		OPEN WATER
		FRESHWATER WETLANDS
		TIDAL WETLANDS
		STABILIZED CONSTRUCTION ENTRANCE
		CONCRETE
		GRAVEL
		SNOW STORAGE
		RETAINING WALL



LOCUS MAP
SCALE 1" = 1000'

SHEET INDEX

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EPPING, NH 03042-2325
(603) 679-5695

APPROVED – PORTSMOUTH, NH
PLANNING BOARD

DATE:

PROJECT PARCEL
CITY OF PORTSMOUTH
TAX MAP 224, LOTS 14 & 15

APPLICANT
THE SAGAMORE GROUP, LLC
PO BOX 430
HAMPTON, NH 03842

TOTAL LOT AREA
79,292 SQ. FT.
1.83 ACRES

Design: JAC	Draft: DJM	Date: 3/25/21
Checked: JAC	Scale: AS NOTED	Project No.: 21047
Drawing Name: 21047-PLAN.dwg		

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

REV.	DATE	REVISION	BY
5	8/23/21	ISSUED FOR REVIEW	DJM
4	6/23/21	ISSUED FOR CONCEPTUAL REVIEW	DJM
3	6/1/21	REVISED BUILDING LAYOUT	AJB
2	4/28/21	MINOR REVISION	DJM
1	4/20/21	REVISED LAYOUT	DJM

Designed and Produced in NH
J/B 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:	COVER SHEET
Project:	SAGAMORE AVENUE CONDOMINIUMS 1169 & 1171 SAGAMORE AVE., PORTSMOUTH, NEW HAMPSHIRE
Owner of Record:	LOT 14: COLLEEN HEBERT, 54 PIONEER RD, RYE, NH 03870 BK 2418 PG 173 LOT 15: JOHN J. & COLLEEN HEBERT, 54 PIONEER RD, RYE, NH 03870 BK 5383 PG 219

DRAWING No.
CS
SHEET 1 OF 18
JBE PROJECT NO. 21047

"SAGAMORE AVENUE CONDOMINIUMS" - PORTSMOUTH, NH
JBE # 21047 REVISION 5, 8/23/21

PLAN REFERENCES:

1. "PLAN OF LAND ON SAGAMORE CREEK, PORTSMOUTH, N.H. OWNED BY JOSIAH F. ADAMS." DATED MARCH 1908. PREPARED BY E. M. HUNT. R.C.R.D. 00254
2. "BOUNDARY LINE CHANGE, LODGE 444 LOYAL ORDER OF MOOSE, ROBERT & STUART SHAINES, SAGAMORE AVENUE, PORTSMOUTH, NEW HAMPSHIRE." DATED MAY 1984. PREPARED BY K.E. MOORE & B.G. STAPLES. R.C.R.D. 13349.
3. "SUBDIVISION PLAN OF LAND, PORTSMOUTH & RYE, N.H. FOR R & S TRUST." DATED DECEMBER 13, 1984. PREPARED BY JOHN W. DURGIN ASSOCIATES. R.C.R.D. 13415.
4. "LOT LINE REVISION, KEVIN SLOVER & WESTWIND TOWNHOMES OF PORTSMOUTH." DATED SEPTEMBER 16, 2011. PREPARED BY EASTERLY SURVEYING. R.C.R.D. 39932.
5. "AS-BUILT CONDOMINIUM SITE PLAN, WESTWIND TOWNHOMES OF PORTSMOUTH." DATED JANUARY 2020. PREPARED BY AMBIT ENGINEERING. R.C.R.D. 42429.
6. "AMENDED EASEMENT PLAN, SEA STAR CONDOMINIUM." DATED DECEMBER 2020. PREPARED BY AMBIT ENGINEERING. R.C.R.D. 42567.

GENERAL LEGEND

- PROPERTY LINE
- ABUTTER PROPERTY LINE
- BUILDING SETBACK
- TREE LINE
- EDGE OF PAVEMENT
- EDGE OF GRAVEL
- OVERHEAD ELECTRIC LINES
- WETLAND
- STONE WALL
- MAJOR CONTOUR
- MINOR CONTOUR
- SEWER LINE
- UTILITY POLE
- LEDGE OUTCROP

GRAPHIC SCALE

20 0 10 20 40 80

(IN FEET)
1 inch = 20 feet

MAP 224 LOT 16
SIMONE ROCCO
1167 SAGAMORE AVE.
PORTSMOUTH, NH 03801
BK 2253 PG 0986

1" IP FND
0.15' EXPOSED

4" IP FND
FILLED WITH CONCRETE
0.3' DOWN
TOP OF PIPE FOUND NEARBY
MARKED "N S"

N67°57'08"W
97.74' (TIE)

MAP 224 LOT 17
SEA STAR COVE CONDOMINIUM
1163 SAGAMORE AVENUE
PORTSMOUTH, NH 03801
PLAN 42567

520± SQ. FT. WETLAND

S80°37'03"W
298.35'

MAP 224 LOT 15
JOHN & COLLEEN HEBERT
54 PIONEER RD
RYE, NH 03870
BK 5383 PG 219

46,096 SQ. FT.
1.06 AC

S08°49'29"W
174.91'
164.91'

15' REAR SETBACK (TYP.)

5' FRONT SETBACK (TYP.)

10' SIDE SETBACK (TYP.)

GRAVEL DRIVEWAY

GRAVEL DRIVE

SINGLE-STORY RESIDENCE

PAVEMENT

N79°16'50"E
305.92'

1¼" IP FND
FLUSH

POSSIBLE SEPTIC TANK

ABOVE GROUND POOL

ELEVATED DECK

SHED

SINGLE-STORY RESIDENCE

PAVED DRIVE

LEDGE OUTCROP (TYP.)

S09°46'29"E
117.31'

STONE RETAINING WALLS

GRAVEL DRIVEWAY

N73°23'40"E
296.83'

NO EASEMENT FOUND AT THIS TIME FOR POLES OR OVERHEAD WIRES

MAP 224 LOT 14
COLLEEN HEBERT
54 PIONEER RD
RYE, NH 03870
BK 2418 PG 173

33,196 SQ. FT.
0.76 AC.

MAP 224 LOT 13
WESTWIND TOWNHOMES OF PORTSMOUTH
1177 SAGAMORE AVENUE
PORTSMOUTH, NH 03801
PLAN 42429

MAP 224 LOT 10-1
KEVIN SLOVER
20 ODIORNE POINT RD
PORTSMOUTH, NH 03801
BK 4333 PG 1485
PLAN 39932

IR FND
EASTERLY
FLUSH
0.63' OFF LINE

IR FND
COLWELL
FLUSH
0.93' OFF LINE

IR FND
0.2' DOWN
AMES MSC
ON LINE
1.11' TO R.O.W.

1" IRON PIN
0.2' DOWN
DISTURBED

EXISTING WATER SERVICE WITH SHUTOFF

EXISTING UTILITY POLE (TYP.)

EXISTING WATER SERVICE WITH SHUTOFF

EXISTING GATE VALVE AND FIRE HYDRANT

SAGAMORE AVENUE
NH ROUTE 1A
CLASS I

RIGHT OF WAY PER PLAN REF. 1

2" IP FND
METAL CAP
0.15' EXPOSED
ON LINE
1.65' INTO R.O.W.

DH FND
0.8' DOWN
IN LEDGE

SMH 2088
RIM=37.62
EX. 3" & 4" FM INV. IN UNKNOWN
INVout=31.27 – 8" PVC

SMH 2048
RIM=34.98
INVin=25.83 – BOTTOM OF INSIDE DROP
INVin=25.78 – 8" PVC (W)
INVout=25.73 – 8" PVC (S)

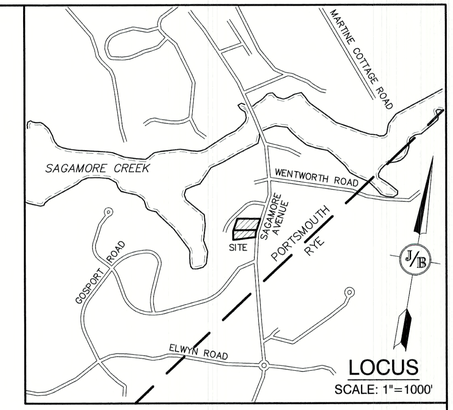
S15°55'37"E
706.29' (TIE TO TWIN BOUND)

MAP 201 LOT 26
CITY OF PORTSMOUTH
CONSERVATION COMM.
PO BOX 6697
PORTSMOUTH, NH 03802
BK 2299 PG 1707

PROJECT PARCEL
CITY OF PORTSMOUTH
TAX MAP 224, LOTS 14 & 15

APPLICANT
THE SAGAMORE GROUP, LLC
PO BOX 430
HAMPTON, NH 03842

TOTAL LOT AREA
79,292 SQ. FT.
1.83 ACRES



LOCUS
SCALE: 1"=1000'

NOTES:

1. THE INTENT OF THIS PLAN IS TO SHOW THE BOUNDARY AND EXISTING CONDITIONS OF LOTS 14 AND 15 AS SHOWN ON PORTSMOUTH TAX MAP 224.
2. ZONING DISTRICT: MIXED RESIDENTIAL OFFICE
   LOT AREA MINIMUM = 7,500 SF
   LOT FRONTAGE MINIMUM = 100'
   BUILDING SETBACKS (MINIMUM):
   FRONT SETBACK = 5'
   SIDE SETBACK = 10'
   REAR SETBACK = 15'
   WETLAND BUFFER = 100' FROM WETLANDS > 10,000 S.F. IN AREA
   MAX. BUILDING HEIGHT = 35'
   MIN. OPEN SPACE = 25%
3. THE UTILITY LOCATIONS SHOWN HEREON WERE DETERMINED BY OBSERVED ABOVE GROUND EVIDENCE AND SHOULD BE CONSIDERED APPROXIMATE IN LOCATION ONLY. LOCATION, DEPTH, SIZE, TYPE, EXISTENCE OR NONEXISTENCE OF UNDERGROUND UTILITIES AND/OR UNDERGROUND STORAGE TANKS WAS NOT VERIFIED BY THIS SURVEY. ALL CONTRACTORS SHOULD NOTIFY IN WRITING ALL UTILITY COMPANIES AND GOVERNMENT AGENCIES PRIOR TO ANY EXCAVATION WORK OR CALL DIG-SAFE AT 1-888-DIG-SAFE.
4. THE SUBJECT PARCEL IS NOT LOCATED WITHIN AN AREA HAVING A SPECIAL FLOOD HAZARD ZONE DESIGNATION BY THE FEDERAL EMERGENCY MANAGEMENT AGENCY, ON FLOOD INSURANCE RATE MAP NO. 33015C0286F, WITH EFFECTIVE DATE OF JANUARY 29, 2021.
5. BASIS OF BEARING:
   HORIZONTAL – NAD83 NH STATE PLANE.
   VERTICAL – NAVD88.
6. CERTAIN DATA HEREON MAY VARY FROM RECORDED DATA DUE TO DIFFERENCES IN DECLINATION, ORIENTATION, AND METHODS OF MEASUREMENT.
7. ALL BOOK AND PAGE NUMBERS REFER TO THE ROCKINGHAM COUNTY REGISTRY OF DEEDS.
8. THE TAX MAP AND LOT NUMBERS ARE BASED ON THE CITY OF PORTSMOUTH TAX RECORDS AND ARE SUBJECT TO CHANGE.
9. RESEARCH WAS PERFORMED THROUGH THE CITY OF PORTSMOUTH GIS DATABASE AND AT THE ROCKINGHAM COUNTY REGISTRY OF DEEDS.
10. THIS SURVEY IS NOT A CERTIFICATION TO OWNERSHIP OR TITLE OF LANDS SHOWN. OWNERSHIP AND ENCUMBRANCES ARE MATTERS OF TITLE EXAMINATION NOT OF A BOUNDARY SURVEY. THE INTENT OF THIS PLAN IS TO RETRACE THE BOUNDARY LINES OF DEEDS REFERENCED HEREON. OWNERSHIP OF ADJOINING PROPERTIES IS ACCORDING TO ASSESSOR'S RECORDS. THIS PLAN MAY OR MAY NOT INDICATE ALL ENCUMBRANCES EXPRESSED, IMPLIED OR PRESCRIPTIVE.
11. ANY USE OF THIS PLAN AND OR ACCOMPANYING DESCRIPTIONS SHOULD BE DONE WITH LEGAL COUNSEL, TO BE CERTAIN THAT TITLES ARE CLEAR, THAT INFORMATION IS CURRENT, AND THAT ANY NECESSARY CERTIFICATES ARE IN PLACE FOR A PARTICULAR CONVEYANCE, OR OTHER USES.
12. THE LIMITS OF JURISDICTIONAL WETLANDS WERE DELINEATED BY GOVE ENVIRONMENTAL SERVICES IN MARCH 2021 IN ACCORDANCE WITH THE FOLLOWING GUIDANCE DOCUMENTS:
    A. THE CORPS OF ENGINEERS FEDERAL MANUAL FOR IDENTIFYING AND DELINEATING JURISDICTIONAL WETLANDS.
    B. THE NORTH CENTRAL & NORTHEAST REGIONAL SUPPLEMENT TO THE FEDERAL MANUAL.
13. THIS PLAN IS THE RESULT OF A CLOSED TRAVERSE WITH A RAW, UNADJUSTED LINEAR ERROR OF CLOSURE GREATER THAN 1 IN 15,000.
14. SURVEY TIE LINES SHOWN HEREON ARE NOT BOUNDARY LINES. THEY SHOULD ONLY BE USED TO LOCATE THE PARCEL SURVEYED FROM THE FOUND MONUMENTS SHOWN AND LOCATED BY THIS SURVEY.

HISS SOIL NOTE

THIS SOIL MAP WAS PREPARED BY A PROFESSIONAL SOIL SCIENTIST AND MEETS THE TECHNICAL STANDARDS OF THE SSSNNE PUBLICATION NO. 1, HIGH INTENSITY SOIL MAPS FOR NH, DECEMBER 2017. SOIL MAP WAS PREPARED ON 4 APRIL 2021. SOIL MAP SITE WAS 1169 &1171 SAGAMORE AVENUE, PORTSMOUTH, NH.

SOIL MAP UNITS WERE IDENTIFIED USING THE KEY TO SOIL TYPES. THE CONVERSION OF HIGH INTENSITY SOIL MAP UNIT TO NRCS SOIL MAP UNIT NAME WAS BASED UPON THE OBSERVED SOIL PROFILES, AS WAS HYDROLOGIC SOIL GROUP, AS TAKEN FROM SSSNNE SPECIAL PUBLICATION NO. 5.

SOIL MAPPING WAS PERFORMED BY JAMES GOVE, CSS # 004.

HISS SOIL MAP UNIT	SOIL MAP UNIT NAME	HYDROLOGIC SOIL GROUP
224 (SLOPE) H	HOLLIS-ROCK OUTCROP COMPLEX	D
261 (SLOPE) H	MADE LAND – SIMILAR TO CANTON	B
321 (SLOPE) H	NEWFIELDS	B
327 (SLOPE) H	CHATFIELD VARIANT	B
561 (SLOPE) H	MADE LAND– SIMILAR TO WALPOLE	C

B SLOPE = 0-8%, C SLOPE = 8-15%, D SLOPE = 15-25%

CERTIFICATION:

PURSUANT TO RSA 676:18-III AND RSA 672:14
I CERTIFY THAT THIS SURVEY PLAT IS NOT A SUBDIVISION PURSUANT TO THIS TITLE AND THAT THE LINES OF STREETS AND WAYS SHOWN ARE THOSE OF PUBLIC OR PRIVATE STREETS OR WAYS ALREADY ESTABLISHED AND THAT NO NEW WAYS ARE SHOWN.

STATE OF NEW HAMPSHIRE
JAMES P. GOVE
No. 0051
CERTIFIED WETLAND SCIENTIST
8/23/21

I CERTIFY THAT THIS PLAT WAS PREPARED UNDER MY DIRECT SUPERVISION, THAT IT IS THE RESULT OF A FIELD SURVEY BY THIS OFFICE AND HAS AN UNADJUSTED LINEAR ERROR OF CLOSURE THAT EXCEED BOTH THE MINIMUM OF 1:10,000 AS DEFINED IN SECTION 503.04 OF THE NEW HAMPSHIRE CODE OF ADMINISTRATIVE RULES AND THE MINIMUM OF 1:15,000 AS DEFINED IN SECTION 4.2 OF THE N.H.L.S.A. ETHICS AND STANDARDS.

STATE OF NEW HAMPSHIRE
No. 1030
MATTHEW J. SALVUCCI
LICENSED LAND SURVEYOR
SIGNATURE

8/23/21

MATTHEW J. SALVUCCI, LLS 1030 DATE:
ON BEHALF OF JONES & BEACH ENGINEERS, INC.

Design: JAC	Draft: DJM
Checked: JAC	Scale: 1" = 20'
Date: 3/25/21	Project No.: 21047
Drawing Name: 21047-PLAN.dwg	

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STATE OF NEW HAMPSHIRE
PAIGE S. LIBBEY
No. 16670
LICENSED PROFESSIONAL ENGINEER
8/23/21

REV.	DATE	REVISION	BY
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1	4/20/21	REVISED LAYOUT	DJM

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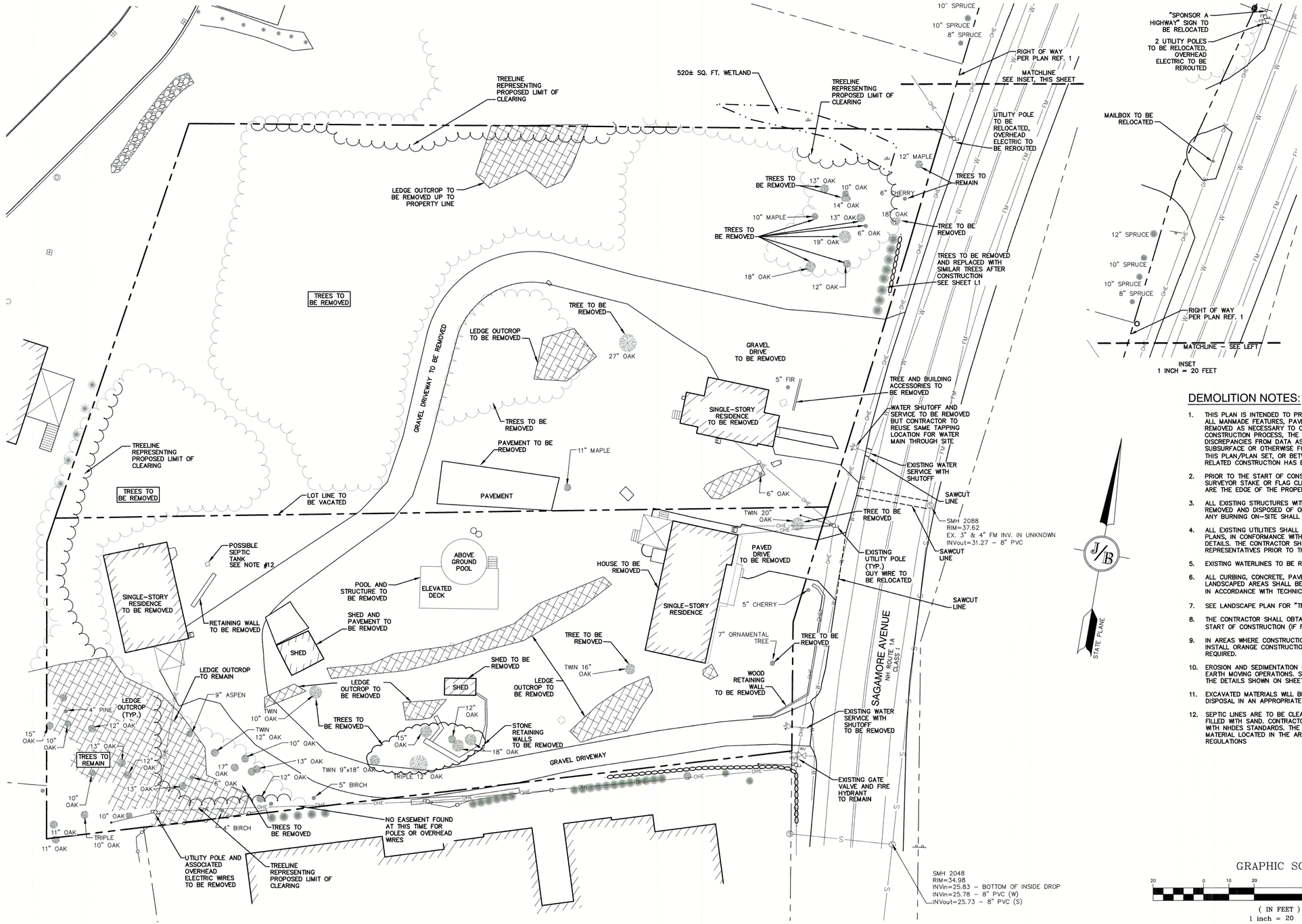
85 Portsmouth Ave.
PO Box 219
Stratham, NH 03885
Civil Engineering Services
603-772-4746
FAX: 603-772-0227
E-MAIL: JBE@JONESANDBEACH.COM

Plan Name: EXISTING CONDITIONS PLAN

Project: SAGAMORE AVENUE CONDOMINIUMS
1169 & 1171 SAGAMORE AVE., PORTSMOUTH, NEW HAMPSHIRE

Owner of Record: LOT 14: COLLEEN HEBERT, 54 PIONEER RD, RYE, NH 03870 BK 2418 PG 173; LOT 15: JOHN J. & COLLEEN HEBERT, 54 PIONEER RD, RYE, NH 03870 BK 5383 PG 219

DRAWING No.
C1
SHEET 2 OF 18
JBE PROJECT NO. 21047



DEMOLITION NOTES:

1. THIS PLAN IS INTENDED TO PROVIDE MINIMUM GUIDELINES FOR SITE DEMOLITION. IT SHOULD BE NOTED THAT ALL MANMADE FEATURES, PAVEMENT, SIGNS, POLES, CURBING, CONCRETE WALKS, UTILITIES, ETC., SHALL BE REMOVED AS NECESSARY TO CONSTRUCT WORK, UNLESS OTHERWISE NOTED TO REMAIN. THROUGHOUT THE CONSTRUCTION PROCESS, THE CONTRACTOR SHALL INFORM THE ENGINEER IMMEDIATELY OF ANY FIELD DISCREPANCIES FROM DATA AS SHOWN ON DESIGN PLANS. THIS INCLUDES ANY UNFORESEEN CONDITIONS, SUBSURFACE OR OTHERWISE FOR EVALUATION AND RECOMMENDATIONS. ANY CONTRADICTION BETWEEN ITEMS OF THIS PLAN/PLAN SET, OR BETWEEN THE PLANS AND ON-SITE CONDITIONS MUST BE RESOLVED BEFORE RELATED CONSTRUCTION HAS BEEN INITIATED.
2. PRIOR TO THE START OF CONSTRUCTION, THE CONTRACTOR IS REQUIRED TO HAVE THE PROJECT LAND SURVEYOR STAKE OR FLAG CLEARING LIMITS. A MINIMUM OF 48 HOURS NOTICE IS REQUIRED. CLEARING LIMITS ARE THE EDGE OF THE PROPERTY AND THE LIMITS OF WORK.
3. ALL EXISTING STRUCTURES WITHIN THE CONSTRUCTION AREA, UNLESS OTHERWISE NOTED TO REMAIN, SHALL BE REMOVED AND DISPOSED OF OFF-SITE IN ACCORDANCE WITH ALL LOCAL, STATE AND FEDERAL GUIDELINES. ANY BURNING ON-SITE SHALL BE SUBJECT TO LOCAL ORDINANCES.
4. ALL EXISTING UTILITIES SHALL BE TERMINATED AT THE PROPERTY LINE, UNLESS OTHERWISE NOTED ON THE PLANS, IN CONFORMANCE WITH LOCAL, STATE AND UTILITY COMPANY STANDARDS, SPECIFICATIONS AND DETAILS. THE CONTRACTOR SHALL COORDINATE UTILITY SERVICE DISCONNECTS WITH THE UTILITY REPRESENTATIVES PRIOR TO THE START OF WORK.
5. EXISTING WATERLINES TO BE REMOVED SHALL BE CAPPED AT EXISTING WATERMAIN.
6. ALL CURBING, CONCRETE, PAVEMENT, BUILDINGS AND SUBBASE MATERIALS LOCATED WITHIN PROPOSED LANDSCAPED AREAS SHALL BE REMOVED AND REPLACED WITH LOAM MATERIALS SUITABLE FOR LANDSCAPING IN ACCORDANCE WITH TECHNICAL SPECIFICATIONS. (SEE ALSO LANDSCAPE PLAN).
7. SEE LANDSCAPE PLAN FOR "TREES TO BE SAVED" AND DETAILS ASSOCIATED WITH LANDSCAPED AREAS.
8. THE CONTRACTOR SHALL OBTAIN TREE CLEARING PERMIT FROM LOCAL AND STATE AUTHORITIES PRIOR TO START OF CONSTRUCTION (IF REQUIRED).
9. 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.
10. EROSION AND SEDIMENTATION CONTROL MEASURES SHALL BE INSTALLED PRIOR TO CONSTRUCTION AND ANY EARTH MOVING OPERATIONS. SILT FENCE SHALL BE INSTALLED AT THE LIMITS OF IMPACT AREAS ACCORDING TO THE DETAILS SHOWN ON SHEET E1.
11. EXCAVATED MATERIALS WILL BE PLACED WITHIN UPLAND AREAS AS FILL MATERIAL OR HAULED OFF-SITE FOR DISPOSAL IN AN APPROPRIATE UPLAND LOCATION.
12. SEPTIC LINES ARE TO BE CLEANED OUT AND REMOVED. SEPTIC TANK IS TO BE PUMPED, PUNCTURED, AND FILLED WITH SAND. CONTRACTOR TO LOCATE EXISTING LEACH FIELD AND ABANDON IN PLACE IN ACCORDANCE WITH NHDES STANDARDS. THE CONTRACTOR SHALL REMOVE AND PROPERLY DISPOSE OF ALL CONTAMINATED MATERIAL LOCATED IN THE AREA OF EXISTING LEACHFIELDS IN ACCORDANCE WITH LOCAL AND STATE REGULATIONS

GRAPHIC SCALE

20 0 10 20 40 80

(IN FEET)
1 inch = 20 ft.

PROJECT PARCEL
CITY OF PORTSMOUTH
TAX MAP 224, LOTS 14 & 15

APPLICANT
THE SAGAMORE GROUP, LLC
PO BOX 430
HAMPTON, NH 03842

TOTAL LOT AREA
79,292 SQ. FT.
1.83 ACRES

Design: JAC	Draft: DJM
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STATE OF NEW HAMPSHIRE · PAIGE S. LIBBEY No.16670 · LICENSED PROFESSIONAL ENGINEER · 3-25-21

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Plan Name: **DEMOLITION PLAN**

Project: SAGAMORE AVENUE CONDOMINIUMS
1169 & 1171 SAGAMORE AVE., PORTSMOUTH, NEW HAMPSHIRE

Owner of Record: LOT 14: COLLEEN HEBERT, 54 PIONEER RD, RYE, NH 03870 BK 2418 PG 173; LOT 15: JOHN J. & COLLEEN HEBERT, 54 PIONEER RD, RYE, NH 03870 BK 5383 PG 219

DRAWING No.
DM-1
SHEET 3 OF 18
JBE PROJECT NO. 21047

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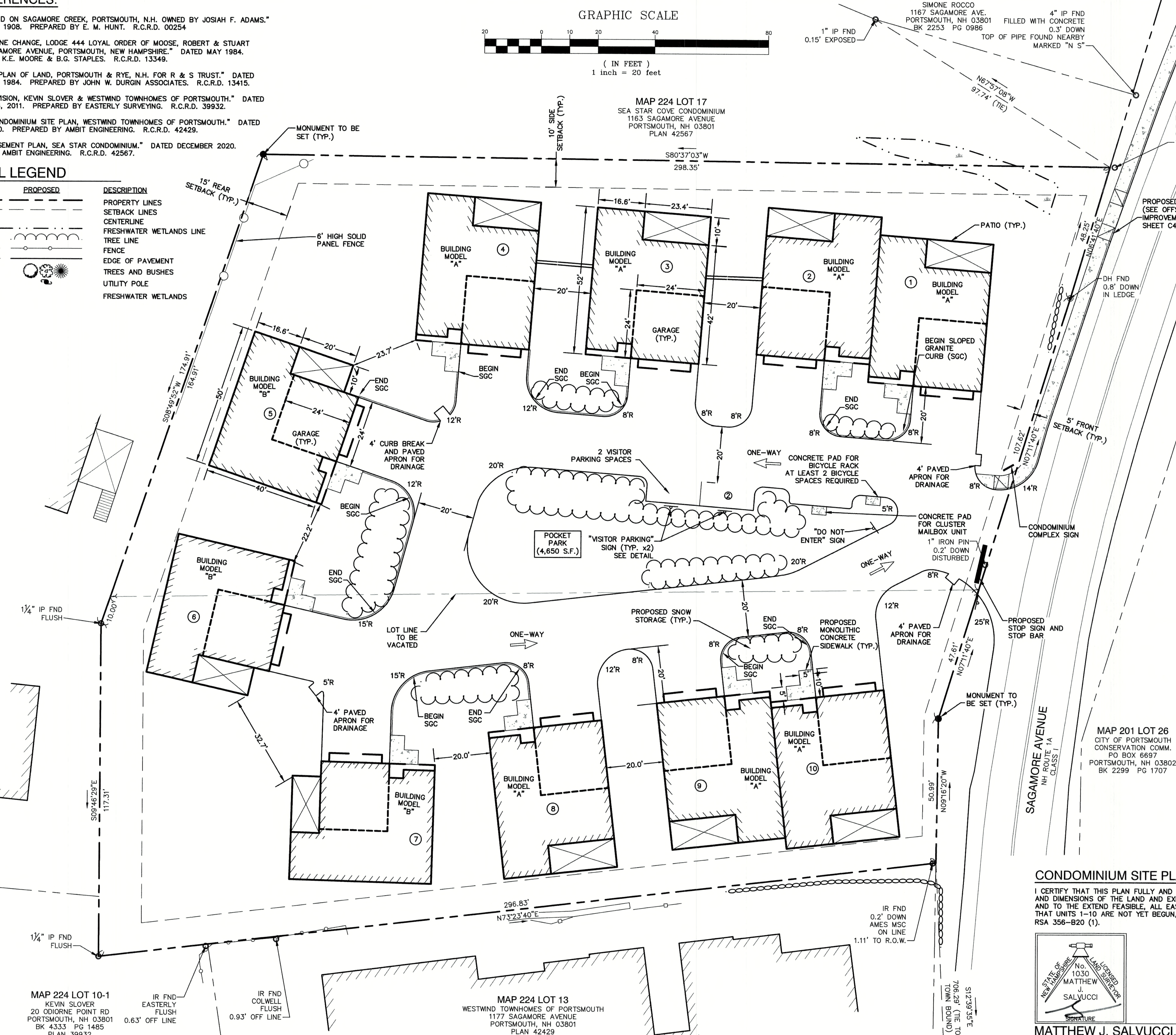
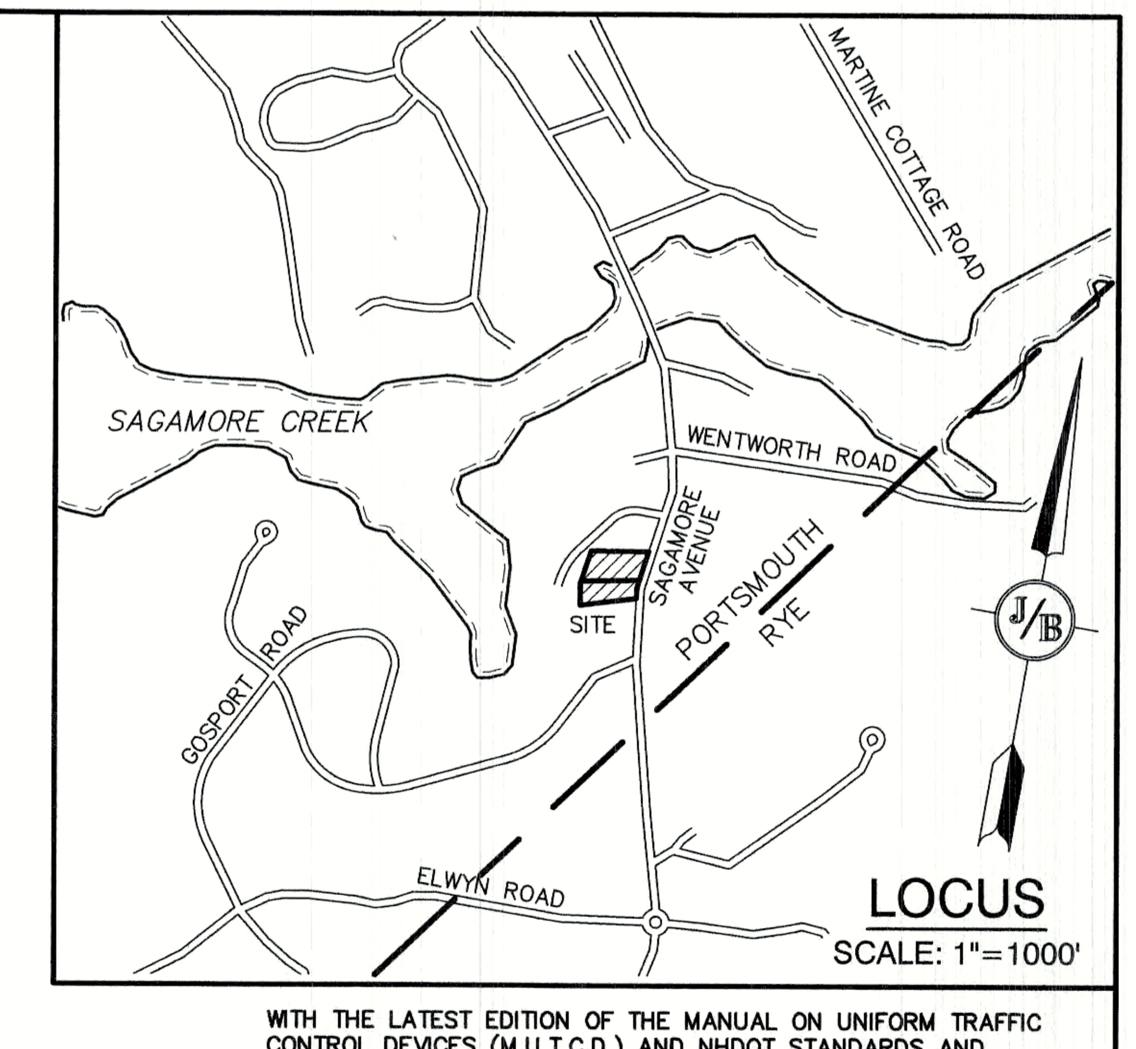
6. "AMENDED EASEMENT PLAN, SEA STAR CONDOMINIUM." DATED DECEMBER 2020. PREPARED BY AMBIT ENGINEERING. R.C.R.D. 42567.

GENERAL LEGEND

EXISTING	PROPOSED	DESCRIPTION
		PROPERTY LINES
		SETBACK LINES
		CENTERLINE
		FRESHWATER WETLANDS LINE
		TREE LINE
		FENCE
		EDGE OF PAVEMENT
		TREES AND BUSHES
		UTILITY POLE
		FRESHWATER WETLANDS





SITE NOTES:

1. THE INTENT OF THIS PLAN IS TO REMOVE EXISTING STRUCTURES AS SHOWN ON SHT. C1 AND CONSTRUCT AN 10-UNIT CONDOMINIUM COMPLEX. PROJECT TO BE SERVED BY ELECTRIC, MUNICIPAL SEWER & PUBLIC WATER.
2. ZONING DISTRICT: MIXED RESIDENTIAL OFFICE
   LOT AREA MINIMUM = 7,500 SF
   LOT FRONTAGE MINIMUM = 100'
   BUILDING SETBACKS (MINIMUM):
   FRONT SETBACK = 5'
   SIDE SETBACK = 10'
   REAR SETBACK = 15'
   WETLAND BUFFER = 100' FROM WETLANDS > 10,000 S.F. IN AREA
   MAX. BUILDING HEIGHT = 35'
   MIN. OPEN SPACE = 25%
   MIN. LOT AREA PER DWELLING UNIT = 7,500 S.F.
   OPEN SPACE PROVIDED = 40,800 S.F. = 51.4%
3. DENSITY CALCULATION:
   LOT AREA = 79,292 S.F., 10 UNITS PROPOSED
   7,929 S.F. PER DWELLING UNIT PROVIDED > 7,500 S.F.
   PER DWELLING UNIT REQUIRED
4. PARKING CALCULATIONS:
   1.3 SPACES PER UNIT AND 1 VISITOR SPACE PER 5 UNITS REQUIRED
   1.3 SPACES * 10 UNITS + 1 SPACES * (10 UNITS / 5) =
   15 SPACES REQUIRED
   2 SPACES PROVIDED IN EACH GARAGE
   22 SPACES PROVIDED INCLUDING 2 VISITOR SPACES
5. NHDES SEWER CONNECTION PERMIT NO. , DATED .
   NHDOT DRIVEWAY PERMIT NO. , DATED .
6. THIS PLAN SET HAS BEEN PREPARED BY JONES & BEACH ENGINEERS, INC., FOR MUNICIPAL AND STATE APPROVALS AND FOR CONSTRUCTION BASED ON DATA OBTAINED FROM ON-SITE FIELD SURVEY AND EXISTING MUNICIPAL RECORDS. THROUGHOUT THE CONSTRUCTION PROCESS, THE CONTRACTOR SHALL INFORM THE ENGINEER IMMEDIATELY OF ANY FIELD DISCREPANCY FROM DATA AS SHOWN ON THE DESIGN PLANS, INCLUDING ANY UNFORESEEN CONDITIONS, SUBSURFACE OR OTHERWISE, FOR EVALUATION AND RECOMMENDATIONS. ANY CONTRADICTION BETWEEN ITEMS ON THIS PLAN/PLAN SET, OR BETWEEN THE PLANS AND ON-SITE CONDITIONS, MUST BE RESOLVED BEFORE RELATED CONSTRUCTION HAS BEEN INITIATED. CONTRACTOR TO ALWAYS CONTACT DIG SAFE PRIOR TO DIGGING ONSITE OR OFFSITE TO ENSURE SAFETY AND OBEY THE LAW.
7. ALL CONSTRUCTION SHALL CONFORM TO TOWN STANDARDS AND REGULATIONS, AND NHDOT STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION, WHICHEVER IS MORE STRINGENT.
8. THE SUBJECT PARCEL IS NOT LOCATED WITHIN AN AREA HAVING A SPECIAL FLOOD HAZARD ZONE DESIGNATION BY THE FEDERAL EMERGENCY MANAGEMENT AGENCY, ON FLOOD INSURANCE RATE MAP NO. 33015C0286F, WITH EFFECTIVE DATE OF JANUARY 29, 2021.
9. LANDOWNERS ARE RESPONSIBLE FOR COMPLYING WITH ALL APPLICABLE LOCAL, STATE AND FEDERAL WETLAND REGULATIONS, INCLUDING PERMITTING REQUIRED UNDER THESE REGULATIONS.
10. ALL CONSTRUCTION ACTIVITIES SHALL BE PERFORMED IN ACCORDANCE WITH THE STORMWATER POLLUTION PREVENTION PLAN (S.W.P.P.P.). THIS DOCUMENT IS TO BE KEPT ONSITE AT ALL TIMES AND UPDATED AS REQUIRED.
11. PRIOR TO THE START OF CONSTRUCTION, THE CONTRACTOR SHALL COORDINATE WITH THE ENGINEER, ARCHITECT AND/OR OWNER, IN ORDER TO OBTAIN AND/OR PAY ALL THE NECESSARY LOCAL PERMITS, FEES AND BONDS.
12. ALL PROPOSED SIGNAGE SHALL CONFORM WITH THE TOWN ZONING REGULATIONS, UNLESS A VARIANCE IS OTHERWISE REQUESTED.
13. ALL SIGNAGE AND PAVEMENT MARKINGS SHALL BE IN ACCORDANCE WITH THE LATEST EDITION OF THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (M.U.T.C.D.) AND NHDOT STANDARDS AND SPECIFICATIONS (NON-REFLECTORIZED PAVEMENT MARKINGS), UNLESS OTHERWISE NOTED.
14. ALL STOP BARS SHALL BE 18" IN WIDTH IN A COLOR OF WHITE; ALL TRAFFIC ARROWS SHALL BE PAINTED IN A COLOR OF WHITE.
15. ALL BUILDING DIMENSIONS SHALL BE VERIFIED WITH THE ARCHITECTURAL AND STRUCTURAL PLANS PROVIDED BY THE OWNER. ANY DISCREPANCIES SHOULD BE BROUGHT TO THE ATTENTION OF THE ENGINEER AND OWNER PRIOR TO THE START OF CONSTRUCTION. BUILDING DIMENSIONS AND AREAS TO BE TO OUTSIDE OF MASONRY, UNLESS OTHERWISE NOTED.
16. SNOW TO BE STORED AT EDGE OF PAVEMENT AND IN AREAS SHOWN ON THE PLANS, OR TRUCKED OFFSITE TO AN APPROVED SNOW DUMPING LOCATION.
17. ALL ARCHITECTURAL BLOCK RETAINING WALLS ARE TO BE DESIGNED AND STAMPED BY THE MANUFACTURER'S STRUCTURAL ENGINEER. CONTRACTOR TO COORDINATE WITH APPROVED MANUFACTURER PRIOR TO INSTALLATION.
18. ALL CONSTRUCTION ACTIVITIES SHALL CONFORM TO LABOR OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION (OSHA) RULES AND REGULATIONS.
19. ALL CONDITIONS ON THIS PLAN SHALL REMAIN IN EFFECT IN PERPETUITY PURSUANT TO THE REQUIREMENTS OF THE SITE PLAN REVIEW REGULATIONS.
20. THIS SITE PLAN SHALL BE RECORDED IN THE ROCKINGHAM COUNTY REGISTRY OF DEEDS.
21. ALL IMPROVEMENTS SHOWN ON THIS SITE PLAN SHALL BE CONSTRUCTED AND MAINTAINED IN ACCORDANCE WITH THE PLAN BY THE PROPERTY OWNER AND ALL FUTURE PROPERTY OWNERS. NO CHANGES SHALL BE MADE TO THE SITE PLAN WITHOUT THE EXPRESS APPROVAL OF THE PORTSMOUTH PLANNING DIRECTOR.
22. THE OWNER OF EACH UNIT SHALL STORE TRASH IN THEIR GARAGE. TRASH WILL BE PICKED UP BY A PRIVATE HAULER.
23. THE UTILITY LOCATIONS SHOWN HEREON WERE DETERMINED BY OBSERVED ABOVE GROUND EVIDENCE AND SHOULD BE CONSIDERED APPROXIMATE IN LOCATION ONLY. LOCATION, DEPTH, SIZE, TYPE, EXISTENCE OR NONEXISTENCE OF UNDERGROUND UTILITIES AND/OR UNDERGROUND STORAGE TANKS WAS NOT VERIFIED BY THIS SURVEY. ALL CONTRACTORS SHOULD NOTIFY IN WRITING ALL UTILITY COMPANIES AND GOVERNMENT AGENCIES PRIOR TO ANY EXCAVATION WORK OR CALL DIG-SAFE AT 1-888-DIG-SAFE.
24. BASIS OF BEARING: HORIZONTAL – NH STATE PLANE. VERTICAL – NAVD88.
25. THE TAX MAP AND LOT NUMBERS ARE BASED ON THE CITY OF PORTSMOUTH TAX RECORDS AND ARE SUBJECT TO CHANGE.
26. THIS SURVEY IS NOT A CERTIFICATION TO OWNERSHIP OR TITLE OF LANDS SHOWN. OWNERSHIP AND ENCUMBRANCES ARE MATTERS OF TITLE EXAMINATION NOT OF A BOUNDARY SURVEY. THE INTENT OF THIS PLAN IS TO RETRACE THE BOUNDARY LINES OF DEEDS REFERENCED HEREON. OWNERSHIP OF ADJOINING PROPERTIES IS ACCORDING TO ASSESSOR'S RECORDS. THIS PLAN MAY OR MAY NOT INDICATE ALL ENCUMBRANCES EXPRESSED, IMPLIED OR PRESCRIPTIVE.
27. THE LIMITS OF JURISDICTIONAL WETLANDS WERE DELINEATED BY GOVE ENVIRONMENTAL SERVICES IN MARCH 2021 IN ACCORDANCE WITH THE FOLLOWING GUIDANCE DOCUMENTS:
   A. THE CORPS OF ENGINEERS FEDERAL MANUAL FOR IDENTIFYING AND DELINEATING JURISDICTIONAL WETLANDS.
   B. THE NORTH CENTRAL & NORTHEAST REGIONAL SUPPLEMENT TO THE FEDERAL MANUAL.
32. SURVEY TIE LINES SHOWN HEREON ARE NOT BOUNDARY LINES. THEY SHOULD ONLY BE USED TO LOCATE THE PARCEL SURVEYED FROM THE FOUND MONUMENTS SHOWN AND LOCATED BY THIS SURVEY.
33. THIS PLAN IS THE RESULT OF A CLOSED TRAVERSE WITH A RAW, UNADJUSTED LINEAR ERROR OF CLOSURE GREATER THAN 1 IN 15,000.

CONDOMINIUM SITE PLAN CERTIFICATION:

I CERTIFY THAT THIS PLAN FULLY AND ACCURATELY DEPICTS THE LOCATION AND DIMENSIONS OF THE LAND AND EXISTING IMPROVEMENTS SHOWN THEREON AND TO THE EXTEND FEASIBLE, ALL EASEMENTS APPURTENANT THERETO, THAT UNITS 1-10 ARE NOT YET BEGUN, AND THIS PLAN COMPLIES WITH NH RSA 356-B20 (1).

STATE OF NEW HAMPSHIRE LICENSED LAND SURVEYOR No. 1030 MATTHEW J. SALVUCCI

MATTHEW J. SALVUCCI, LLS 1030 DATE: 8/23/21

ON BEHALF OF JONES & BEACH ENGINEERS, INC.

APPROVED – PORTSMOUTH, NH PLANNING BOARD

DATE:

PROJECT PARCEL
CITY OF PORTSMOUTH
TAX MAP 224, LOTS 14 & 15

APPLICANT
THE SAGAMORE GROUP, LLC
PO BOX 430
HAMPTON, NH 03842

TOTAL LOT AREA
79,292 SQ. FT.
1.83 ACRES

Design: JAC	Draft: DJM	Date: 3/25/21
Checked: JAC	Scale: 1" = 20'	Project No.: 21047
Drawing Name: 21047-PLAN.dwg		

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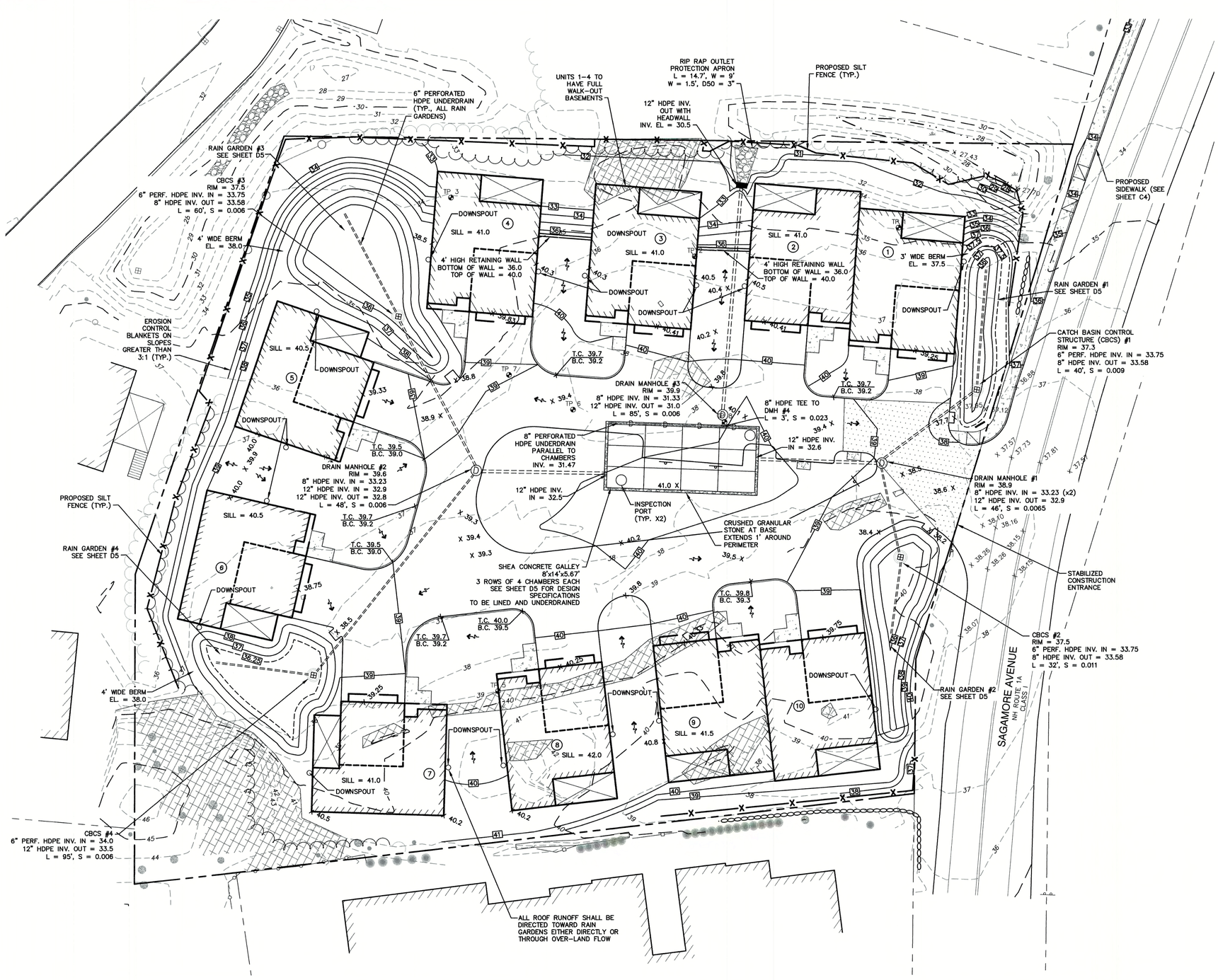
STATE OF NEW HAMPSHIRE PAIGE S. LIBBEY No.16670 LICENSED PROFESSIONAL ENGINEER 8/23/21

REV.	DATE	REVISION	BY
5	8/23/21	ISSUED FOR REVIEW	DJM
4	6/23/21	ISSUED FOR CONCEPTUAL REVIEW	DJM
3	6/1/21	REVISED BUILDING LAYOUT	AJB
2	4/28/21	MINOR REVISION	DJM
1	4/20/21	REVISED LAYOUT	DJM

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

Plan Name:	CONDOMINIUM SITE PLAN
Project:	SAGAMORE AVENUE CONDOMINIUMS 1169 & 1171 SAGAMORE AVE., PORTSMOUTH, NEW HAMPSHIRE
Owner of Record:	LOT 14: COLLEEN HEBERT 54 PIONEER RD, RYE, NH 03870 BK 2418 PG 173 LOT 15: JOHN J. & COLLEEN HEBERT 54 PIONEER RD, RYE, NH 03870 BK 5383 PG 219

DRAWING No.
C2
SHEET 4 OF 18
JBE PROJECT NO. 21047



GRADING AND DRAINAGE NOTES:

1. UNDERGROUND FACILITIES, UTILITIES AND STRUCTURES HAVE BEEN PLOTTED FROM FIELD OBSERVATION AND THEIR LOCATION MUST BE CONSIDERED APPROXIMATE ONLY. NEITHER JONES & BEACH ENGINEERS, INC., NOR ANY OF THEIR EMPLOYEES TAKE RESPONSIBILITY FOR THE LOCATION OF ANY UNDERGROUND STRUCTURES AND/OR UTILITIES NOT SHOWN THAT MAY EXIST. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO HAVE ALL UNDERGROUND STRUCTURES AND/OR UTILITIES LOCATED PRIOR TO EXCAVATION WORK BY CALLING 888–DIG–SAFE (888–344–7233).
2. ALL BENCHMARKS AND TOPOGRAPHY SHOULD BE FIELD VERIFIED BY THE CONTRACTOR.
3. SITE GRADING SHALL NOT PROCEED UNTIL EROSION CONTROL MEASURES HAVE BEEN INSTALLED. SEE CONSTRUCTION SEQUENCE ON SHEET E1.
4. PRIOR TO THE START OF CONSTRUCTION, THE CONTRACTOR IS REQUIRED TO HAVE THE PROJECT'S LAND SURVEYOR STAKE OR FLAG CLEARING LIMITS. A MINIMUM OF 48 HOURS NOTICE IS REQUIRED.
5. ALL SWALES AND RAIN GARDENS ARE TO BE STABILIZED PRIOR TO DIRECTING RUNOFF TO THEM.
6. PROPOSED RIM ELEVATIONS OF DRAINAGE STRUCTURES ARE APPROXIMATE. FINAL ELEVATIONS ARE TO BE SET FLUSH WITH FINISH GRADES.
7. ALL SWALES AND ANY SLOPES GREATER THAN 3:1 SHALL BE STABILIZED WITH NORTH AMERICAN GREEN S75 EROSION CONTROL BLANKETS (OR AN EQUIVALENT APPROVED IN WRITING BY THE ENGINEER), UNLESS OTHERWISE SPECIFIED.
8. ALL DRAINAGE AND SANITARY STRUCTURE INTERIOR DIAMETERS (4' MIN) SHALL BE DETERMINED BY THE MANUFACTURER BASED ON THE PIPE CONFIGURATIONS SHOWN ON THESE PLANS.
9. ALL DRAINAGE STRUCTURES SHALL BE PRECAST, UNLESS OTHERWISE SPECIFIED. SEE SHEETS D4–D6 FOR DRAINAGE DETAILS.
10. ALL DRAINAGE STRUCTURES AND STORMWATER PIPES SHALL MEET HEAVY DUTY TRAFFIC H20 LOADING AND SHALL BE INSTALLED ACCORDINGLY.
11. IMMEDIATELY APPLY AND COMPACT STONE BASE FOR BUILDING PADS TO +/–½" PRIOR TO EXCAVATING INTERIOR AND PERIMETER FOOTINGS.
12. 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.
13. ALL DRAINAGE PIPE SHALL BE NON–PERFORATED ADS N–12 OR APPROVED EQUAL, UNLESS OTHERWISE NOTED.
14. LAND DISTURBING ACTIVITIES SHALL NOT COMMENCE UNTIL APPROVAL TO DO SO HAS BEEN RECEIVED BY ALL GOVERNING AUTHORITIES. THE GENERAL CONTRACTOR SHALL STRICTLY ADHERE TO THE EPA SWPPP DURING CONSTRUCTION OPERATIONS.
15. NO LAND CLEARING OR GRADING SHALL BEGIN UNTIL ALL EROSION CONTROL MEASURES HAVE BEEN INSTALLED.
16. ALL EXPOSED AREAS SHALL BE SEEDED AS SPECIFIED WITHIN 3 DAYS OF FINAL GRADING.
17. SHOULD CONSTRUCTION STOP FOR LONGER THAN 3 DAYS, THE SITE SHALL BE SEEDED AS SPECIFIED.
18. MAINTAIN EROSION CONTROL MEASURES AFTER EACH RAIN EVENT OF 0.5" OR GREATER IN A 24 HOUR PERIOD AND AT LEAST ONCE A WEEK.
19. THIS PLAN SHALL NOT BE CONSIDERED ALL INCLUSIVE, AS THE GENERAL CONTRACTOR SHALL TAKE ALL NECESSARY PRECAUTIONS TO PREVENT SEDIMENT FROM LEAVING THE SITE.
20. CONSTRUCTION VEHICLES SHALL UTILIZE THE STABILIZED CONSTRUCTION ENTRANCE TO THE EXTENT POSSIBLE THROUGHOUT CONSTRUCTION.
21. IF INSTALLATION OF STORM DRAINAGE SYSTEM SHOULD BE INTERRUPTED BY WEATHER OR NIGHTFALL, THE PIPE ENDS SHALL BE COVERED WITH FILTER FABRIC.
22. THE GENERAL CONTRACTOR SHALL BE RESPONSIBLE TO TAKE WHATEVER MEANS NECESSARY TO ESTABLISH PERMANENT SOIL STABILIZATION.
23. SEDIMENT SHALL BE REMOVED FROM ALL SEDIMENT BASINS BEFORE THEY ARE 25% FULL.
24. ALL WORK SHALL BE DONE IN STRICT ACCORDANCE WITH PROJECT SPECIFICATIONS.
25. ADDITIONAL EROSION AND SEDIMENT CONTROL MEASURES SHALL BE INSTALLED, IF DEEMED NECESSARY BY ON–SITE INSPECTION BY ENGINEER AND/OR REGULATORY OFFICIALS.
26. SEE ALSO EROSION AND SEDIMENT CONTROL SPECIFICATIONS ON SHEET E1.

GRAPHIC SCALE

20 0 10 20 40 80

(IN FEET)
1 inch = 20 feet

PROJECT PARCEL
CITY OF PORTSMOUTH
TAX MAP 224, LOTS 14 & 15

APPLICANT
THE SAGAMORE GROUP, LLC
PO BOX 430
HAMPTON, NH 03842

TOTAL LOT AREA
79,292 SQ. FT.
1.83 ACRES

Design: JAC	Draft: DJM
Checked: JAC	Scale: 1" = 20'
Drawing Name: 21047-PLAN.dwg	

Date: 3/25/21
Project No.: 21047

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STATE OF NEW HAMPSHIRE PAIGE S. LIBBEY No.16670 LICENSED PROFESSIONAL ENGINEER 3/25/21

REV.	DATE	REVISION	BY
5	8/23/21	ISSUED FOR REVIEW	DJM
4	6/23/21	ISSUED FOR CONCEPTUAL REVIEW	DJM
3	6/1/21	REVISED BUILDING LAYOUT	AJB
2	4/28/21	MINOR REVISION	DJM
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FAX: 603-772-0227
E-MAIL: JBE@JONESANDBEACH.COM

Plan Name: GRADING AND DRAINAGE PLAN

Project: SAGAMORE AVENUE CONDOMINIUMS
1169 & 1171 SAGAMORE AVE., PORTSMOUTH, NEW HAMPSHIRE

Owner of Record:
LOT 14: COLLEEN HEBERT
54 PIONEER RD, RYE, NH 03870 BK 2418 PG 173
LOT 15: JOHN J. & COLLEEN HEBERT
54 PIONEER RD, RYE, NH 03870 BK 5383 PG 219

DRAWING No.
C3
SHEET 5 OF 18
JBE PROJECT NO. 21047

STATE PLANE

APPROXIMATE ABUTTER PROPERTY LINE (TYP.)

CLEAR TREES IN RIGHT OF WAY AS NECESSARY FOR SIDEWALK AND OVERHEAD ELECTRIC (TYP.)

EXISTING UTILITY POLES AND OVERHEAD ELECTRIC FOR REFERENCE

PROPOSED RELOCATED UTILITY POLE AND REROUTED OVERHEAD ELECTRIC (TYP. x3)

TIP DOWN WITH TRUNCATED DOME AT STREET INTERSECTION

COORDINATE WITH PROPERTY OWNER PRIOR TO REWIRING

PROPOSED 5' WIDE PAINTED CROSSWALK

TIP DOWN FOR DRAINAGE

5' CONCRETE SIDEWALK WITH VERTICAL GRANITE CURB

PROPOSED RELOCATED MAILBOX

TIP DOWN, NO TRUNCATED DOME

TIP DOWN, NO TRUNCATED DOME

B.C. 34.2 ± T.C. 34.7 ±

B.C. 33.7 ± T.C. 34.2 ±

B.C. 33.3 ± T.C. 33.8 ±

B.C. 33.2 ± T.C. 33.7 ±

B.C. 33.6 ± T.C. 34.1 ±

3%

2%

SIDEWALK SHALL BE AT TOP OF CURB, 6" ABOVE GRADE OF ROAD AND BE SLOPED 1% TO DRAIN AWAY FROM ROAD (TYP.)

PROPOSED RELOCATED "SPONSOR A HIGHWAY" SIGN

SAGAMORE AVENUE
NH ROUTE 1A
CLASS I

GRAPHIC SCALE

20 0 10 20 40 80

(IN FEET)
1 inch = 20 feet

PROJECT PARCEL
CITY OF PORTSMOUTH
TAX MAP 224, LOTS 14 & 15

APPLICANT
THE SAGAMORE GROUP, LLC
PO BOX 430
HAMPTON, NH 03842

TOTAL LOT AREA
79,292 SQ. FT.
1.83 ACRES

Design: JAC	Draft: DJM	Date: 3/25/21	
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Drawing Name: 21047-PLAN.dwg			

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STATE OF NEW HAMPSHIRE
PAIGE S. LIBBEY
No. 16670
LICENSED
PROFESSIONAL ENGINEER
3/25/21

REV.	DATE	REVISION	BY
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1	4/20/21	REVISED LAYOUT	DJM

Designed and Produced in NH
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PO Box 219
Stratham, NH 03885
Civil Engineering Services
603-772-4746
FAX: 603-772-0227
E-MAIL: JBE@JONESANDBEACH.COM

Plan Name: **OFFSITE IMPROVEMENTS PLAN**

Project: SAGAMORE AVENUE CONDOMINIUMS
1169 & 1171 SAGAMORE AVE., PORTSMOUTH, NEW HAMPSHIRE

Owner of Record: LOT 14: COLLEEN HEBERT, 54 PIONEER RD, RYE, NH 03870 BK 2418 PG 173; LOT 15: JOHN J. & COLLEEN HEBERT, 54 PIONEER RD, RYE, NH 03870 BK 5383 PG 219

DRAWING No.
C4
SHEET 6 OF 18
JBE PROJECT NO. 21047

UTILITY NOTES:

1. PRIOR TO THE START OF CONSTRUCTION, THE CONTRACTOR SHALL COORDINATE WITH THE ENGINEER, ARCHITECT AND/OR OWNER, IN ORDER TO OBTAIN AND/OR PAY ALL THE NECESSARY LOCAL PERMITS, CONNECTION FEES AND BONDS.
2. THE CONTRACTOR SHALL PROVIDE A MINIMUM NOTICE OF FOURTEEN (14) DAYS TO ALL CORPORATIONS, COMPANIES AND/OR LOCAL AUTHORITIES OWNING OR HAVING A JURISDICTION OVER UTILITIES RUNNING TO, THROUGH OR ACROSS PROJECT AREAS PRIOR TO DEMOLITION AND/OR CONSTRUCTION ACTIVITIES.
3. THE LOCATION, SIZE, DEPTH AND SPECIFICATIONS FOR CONSTRUCTION OF PROPOSED PRIVATE UTILITY SERVICES SHALL BE TO THE STANDARDS AND REQUIREMENTS OF THE RESPECTIVE UTILITY COMPANY (ELECTRIC, TELEPHONE, CABLE TELEVISION, FIRE ALARM, GAS, WATER, AND SEWER).
4. A PRECONSTRUCTION MEETING SHALL BE HELD WITH THE OWNER, ENGINEER, ARCHITECT, CONTRACTOR, LOCAL OFFICIALS, AND ALL PROJECT-RELATED UTILITY COMPANIES (PUBLIC AND PRIVATE) PRIOR TO START OF CONSTRUCTION.
5. ALL CONSTRUCTION SHALL CONFORM TO THE CITY STANDARDS AND REGULATIONS, AND NHDES STANDARDS AND SPECIFICATIONS, WHICHEVER ARE MORE STRINGENT, UNLESS OTHERWISE SPECIFIED.
6. ALL CONSTRUCTION ACTIVITIES SHALL CONFORM TO LABOR OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION (OSHA) RULES AND REGULATIONS.
7. BUILDINGS TO BE SERVICED BY UNDERGROUND UTILITIES UNLESS OTHERWISE NOTED.
8. THE CONTRACTOR IS TO VERIFY LOCATION AND DEPTH OF ALL EXISTING UTILITY STUBS PRIOR TO CONSTRUCTION AND DISCONNECT ALL EXISTING SERVICE CONNECTIONS AT THEIR RESPECTIVE MAINS IN ACCORDANCE WITH THE RESPECTIVE UTILITY COMPANY'S STANDARDS AND SPECIFICATIONS. ENGINEER TO BE NOTIFIED.
9. AS-BUILT PLANS SHALL BE SUBMITTED TO DEPARTMENT OF PUBLIC WORKS.
10. INVERTS AND SHELVES: MANHOLES SHALL HAVE A BRICK PAVED SHELF AND INVERT, CONSTRUCTED TO CONFORM TO THE SIZE OF PIPE AND FLOW AT CHANGES IN DIRECTION. THE INVERTS SHALL BE LAID OUT IN CURVES OF THE LONGEST RADIUS POSSIBLE TANGENT TO THE CENTER LINE OF THE SEWER PIPES. SHELVES SHALL BE CONSTRUCTED TO THE ELEVATION OF THE THROUGH CHANNEL UNDERLAYMENT OF INVERT, AND SHELF SHALL CONSIST OF BRICK MASONRY.
11. FRAMES AND COVERS: MANHOLE FRAMES AND COVERS SHALL BE OF HEAVY DUTY DESIGN AND PROVIDE A 30 INCH DIA, CLEAR OPENING. THE WORD "SEWER" OR "DRAIN" SHALL BE CAST INTO THE CENTER OF THE UPPER FACE OF EACH COVER WITH RAISED, 3" LETTERS.
12. SHALLOW MANHOLE: IN LIEU OF A CONE SECTION, WHEN MANHOLE DEPTH IS LESS THAN 6 FEET, A REINFORCED CONCRETE SLAB COVER MAY BE USED HAVING AN ECCENTRIC ENTRANCE OPENING AND CAPABLE OF SUPPORTING H20 LOADS.
13. CONTRACTOR SHALL PLACE 2" WIDE METAL WIRE IMPREGNATED RED PLASTIC WARNING TAPE OVER ENTIRE LENGTH OF ALL GRAVITY SEWERS, SERVICES, AND FORCE MAINS.
14. SANITARY SEWER FLOW CALCULATIONS:
    10 - THREE BEDROOM UNITS @ 150 GPD/BEDROOM = 4,500 GPD
15. ALL SANITARY STRUCTURE INTERIOR DIAMETERS (4' MIN) SHALL BE DETERMINED BY THE MANUFACTURER BASED ON THE PIPE CONFIGURATIONS SHOWN ON THESE PLANS.
16. PROPOSED RIM ELEVATIONS OF DRAINAGE AND SANITARY MANHOLES ARE APPROXIMATE. FINAL ELEVATIONS ARE TO BE SET FLUSH WITH FINISH GRADES. ADJUST ALL OTHER RIM ELEVATIONS OF MANHOLES, WATER GATES, GAS GATES AND OTHER UTILITIES TO FINISH GRADE AS SHOWN ON THE GRADING AND DRAINAGE PLAN.
17. ALL WATER MAINS AND SERVICE PIPES SHALL HAVE A MINIMUM 12" VERTICAL AND 24" HORIZONTAL SEPARATION TO MANHOLES, OR CONTRACTOR SHALL INSTALL BOARD INSULATION FOR FREEZING PROTECTION.
18. WATER MAINS SHALL BE HYDROSTATICALLY PRESSURE TESTED FOR LEAKAGE PRIOR TO ACCEPTANCE. WATERMAINS SHALL BE TESTED AT 1.5 TIMES THE WORKING PRESSURE OR 150 PSI, WHICH EVER IS GREATER. TESTING SHALL BE CONDUCTED IN ACCORDANCE WITH SECTION 4 OF AWWA STANDARD C 600. WATERMAINS SHALL BE DISINFECTED AFTER THE ACCEPTANCE OF THE PRESSURE AND LEAKAGE TESTS ACCORDING TO AWWA STANDARD C 651.
19. ALL WATER AND SANITARY LEADS TO BUILDING(S) SHALL END 5' OUTSIDE THE BUILDING LIMITS AS SHOWN ON PLANS AND SHALL BE PROVIDED WITH A TEMPORARY PLUG AND WITNESS AT END.
20. THRUST BLOCKS SHALL BE PROVIDED AT ALL BENDS, TEES, MECHANICAL JOINTS AND HYDRANTS.
21. DIMENSIONS ARE SHOWN TO CENTERLINE OF PIPE OR FITTING.
22. CONTRACTOR TO FURNISH SHOP DRAWINGS FOR UTILITY RELATED ITEMS TO ENSURE CONFORMANCE WITH THE PLANS AND SPECIFICATIONS. SHOP DRAWINGS SHOULD BE SENT IN TRIPLICATE TO THE DESIGN ENGINEER FOR REVIEW AND APPROVAL PRIOR TO INSTALLATION.
23. EXISTING UTILITIES SHALL BE DIGSAFED BEFORE CONSTRUCTION.
24. ALL WATER LINES SHOULD HAVE TESTABLE BACKFLOW PREVENTERS AT THE ENTRANCE TO EACH BUILDING.
25. ALL GRAVITY SEWER PIPE, MANHOLES, AND FORCE MAINS SHALL BE TESTED ACCORDING TO NHDES STANDARDS OF DESIGN AND CONSTRUCTION FOR SEWAGE AND WASTEWATER TREATMENT FACILITIES, CHAPTER ENV-WQ 700, ADOPTED ON 10-15-14.
26. ENV-WQ 704.08 GRAVITY SEWER PIPE TESTING: GRAVITY SEWERS SHALL BE TESTED FOR WATER TIGHTNESS BY USE OF LOW-PRESSURE AIR TESTS CONFORMING WITH ASTM F1417-92(2006) OR UNI-B-6, LINES SHALL BE CLEANED AND VISUALLY INSPECTED AND TRUE TO LINE AND GRADE. DEFLECTION TESTS SHALL TAKE PLACE AFTER 30 DAYS FOLLOWING INSTALLATION AND THE MAXIMUM ALLOWABLE DEFLECTION OF FLEXIBLE SEWER PIPE SHALL BE 5% OF AVERAGE INSIDE DIAMETER. A RIGID BALL OR MANDREL WITH A DIAMETER OF AT LEAST 95% OF THE AVERAGE INSIDE PIPE DIAMETER SHALL BE USED FOR TESTING PIPE DEFLECTION. THE DEFLECTION TEST SHALL BE CONDUCTED WITHOUT MECHANICAL PULLING DEVICES.
27. ENV-WQ 704.17 SEWER MANHOLE TESTING: SHALL BE TESTED FOR LEAKAGE USING A VACUUM TEST PRIOR TO BACKFILLING AND PLACEMENT OF SHELVES AND INVERTS.
28. SANITARY SEWER LINES SHALL BE LOCATED AT LEAST TEN (10) FEET HORIZONTALLY FROM AN EXISTING OR PROPOSED WATER LINE. WHEN A SEWER LINE CROSSES UNDER A WATER LINE, THE SEWER PIPE JOINTS SHALL BE LOCATED AT LEAST 6 FEET HORIZONTALLY FROM THE WATERMAIN. THE SEWER LINE SHALL ALSO MAINTAIN A VERTICAL SEPARATION OF NOT LESS THAN 18 INCHES UNLESS 2 INCHES OF R-10 FOAM BOARD INSULATION IS PROVIDED.
29. SEWERS SHALL BE BURIED TO A MINIMUM DEPTH OF 6 FEET BELOW GRADE IN ALL ROADWAY LOCATIONS, AND TO A MINIMUM DEPTH OF 4 FEET BELOW GRADE IN ALL CROSS-COUNTRY LOCATIONS. PROVIDE TWO-INCHES OF R-10 FOAM BOARD INSULATION 2-FOOT WIDE TO BE INSTALLED 6-INCHES OVER SEWER PIPE IN AREAS WHERE DEPTH IS NOT ACHIEVED. A WAIVER FROM THE DEPARTMENT OF ENVIRONMENTAL SERVICES WASTEWATER ENGINEERING BUREAU IS REQUIRED PRIOR TO INSTALLING SEWER AT LESS THAN MINIMUM COVER.
30. THE CONTRACTOR SHALL MINIMIZE THE DISRUPTIONS TO THE EXISTING SEWER FLOWS AND THOSE INTERRUPTIONS SHALL BE LIMITED TO FOUR (4) HOURS OR LESS AS DESIGNATED BY THE CITY SEWER DEPARTMENT.
31. LIGHTING CONDUIT SHALL BE SCHEDULE 40 PVC, AND SHALL BE INSTALLED IN CONFORMANCE WITH THE NATIONAL ELECTRIC CODE. CONTRACTOR SHALL PROVIDE EXCAVATION AND BACKFILL.
32. ALL TRENCHING, PIPE LAYING, AND BACKFILLING SHALL BE IN ACCORDANCE WITH FEDERAL OSHA REGULATIONS.
25. AN AS-BUILT PLAN OF THE WATER LINE IS TO BE PREPARED AND SUBMITTED TO THE CITY OF PORTSMOUTH WATER DEPARTMENT.
26. WATER LINE TO BE CONSTRUCTED PER CITY OF PORTSMOUTH SPECIFICATIONS.
27. SHOP DRAWINGS TO BE SUBMITTED TO CITY OF PORTSMOUTH FOR REVIEW AND APPROVAL.
28. NEW DUCTILE IRON WATER LINE SHALL BE WRAPPED WITH A WATER TIGHT POLYETHYLENE WRAPPING FOR THE FULL LENGTH.
29. ALL WATER LINE JOINTS SHALL HAVE THREE (3) BRASS WEDGES PER JOINT.
30. CONTRACTOR SHALL CONTACT CITY OF PORTSMOUTH WATER DEPARTMENT (JIM TOW AT 603-766-1439) PRIOR TO WATER LINE INSTALLATION.
31. SIZE OF EXISTING WATER SERVICE TO EXISTING HOUSE IS TO BE VERIFIED DURING CONSTRUCTION AND UPGRADED IF REQUIRED BY THE CITY OF PORTSMOUTH WATER DEPARTMENT.
32. AN ACCESS EASEMENT SHALL BE GRANTED TO THE CITY OF PORTSMOUTH FOR ACCESS AND LEAK DETECTION OF THE WATER MAIN, SHUTOFFS, AND METERS ON THE PROPERTY. EASEMENT DESCRIPTION MUST BE APPROVED BY THE CITY'S LEGAL DEPARTMENT AND ACCEPTED BY THE CITY COUNCIL.
33. IF IRRIGATION IS TO BE USED, THE PIPING SYSTEM SHALL BE REVIEWED AND APPROVED BY THE PORTSMOUTH CITY PLANNER, CITY ENGINEER, AND THE WATER DEPARTMENT PRIOR TO INSTALLATION.

GRAPHIC SCALE

20 0 10 20 40 80

(IN FEET)
1 inch = 20 feet

Design: JAC	Draft: DJM	Date: 3/25/21
Checked: JAC	Scale: 1" = 20'	Project No.: 21047
Drawing Name: 21047-PLAN.dwg		

THIS PLAN SHALL NOT BE MODIFIED WITHOUT WRITTEN PERMISSION FROM JONES & BEACH ENGINEERS, INC. (JBE). ANY ALTERATIONS, AUTHORIZED OR OTHERWISE, SHALL BE AT THE USER'S SOLE RISK AND WITHOUT LIABILITY TO JBE.

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

REV.	DATE	REVISION	BY
5	8/23/21	ISSUED FOR REVIEW	DJM
4	6/23/21	ISSUED FOR CONCEPTUAL REVIEW	DJM
3	6/1/21	REVISED BUILDING LAYOUT	AJB
2	4/28/21	MINOR REVISION	DJM
1	4/20/21	REVISED LAYOUT	DJM

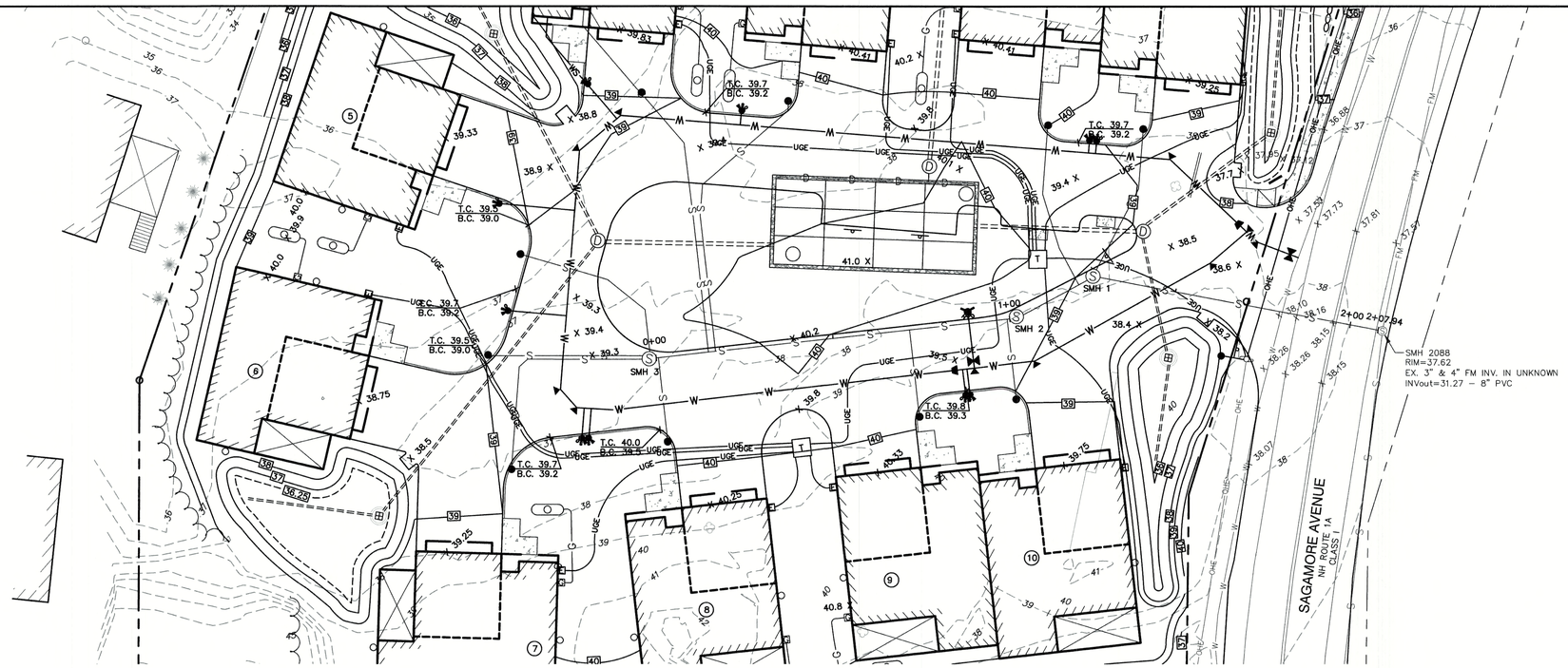
Designed and Produced in NH
J/B Jones & Beach Engineers, Inc.
85 Portsmouth Ave. PO Box 219 Stratham, NH 03885
Civil Engineering Services
603-772-4746 FAX: 603-772-0227
E-MAIL: JBE@JONESANDBEACH.COM

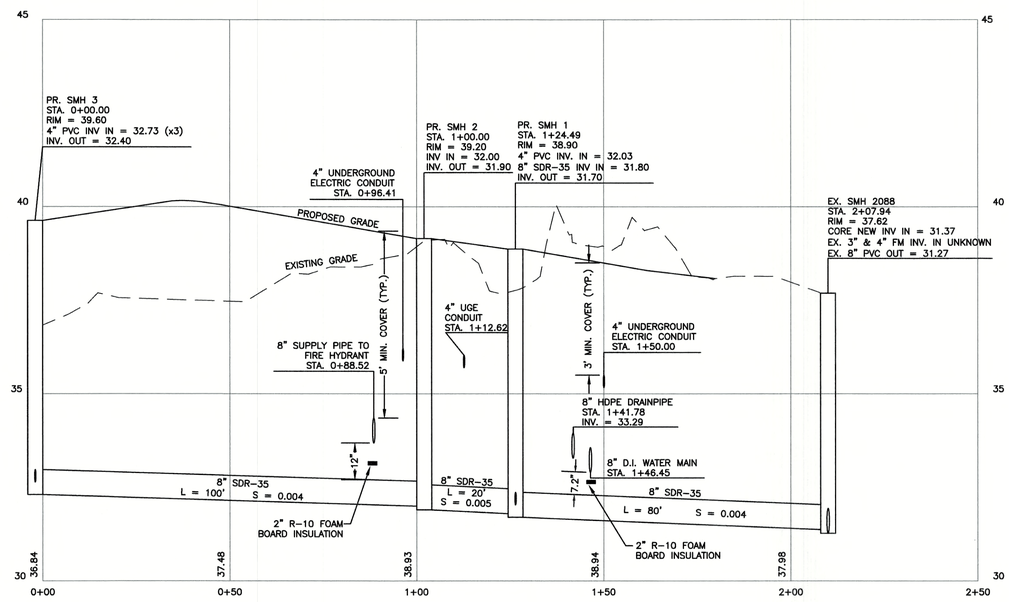
Plan Name: UTILITY PLAN

Project: SAGAMORE AVENUE CONDOMINIUMS
1169 & 1171 SAGAMORE AVE., PORTSMOUTH, NEW HAMPSHIRE

Owner of Record: LOT 14: COLLEEN HEBERT, 54 PIONEER RD, RYE, NH 03870 BK 2418 PG 173; LOT 15: JOHN J. & COLLEEN HEBERT, 54 PIONEER RD, RYE, NH 03870 BK 5383 PG 219

DRAWING No.
C5
SHEET 7 OF 18
JBE PROJECT NO. 21047





GRAPHIC SCALE
(IN FEET)
1 inch = 20 ft Horiz.
1 inch = 2 ft Vert.

Design: JAC	Draft: DJM	Date: 3/25/21
Checked: JAC	Scale: 1" = 20'	Project No.: 21047
Drawing Name: 21047-PLAN.dwg		

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STATE OF NEW HAMPSHIRE - PAIGE S. LIBBEY No. 16670 - LICENSED PROFESSIONAL ENGINEER - 3/25/21

REV.	DATE	REVISION	BY
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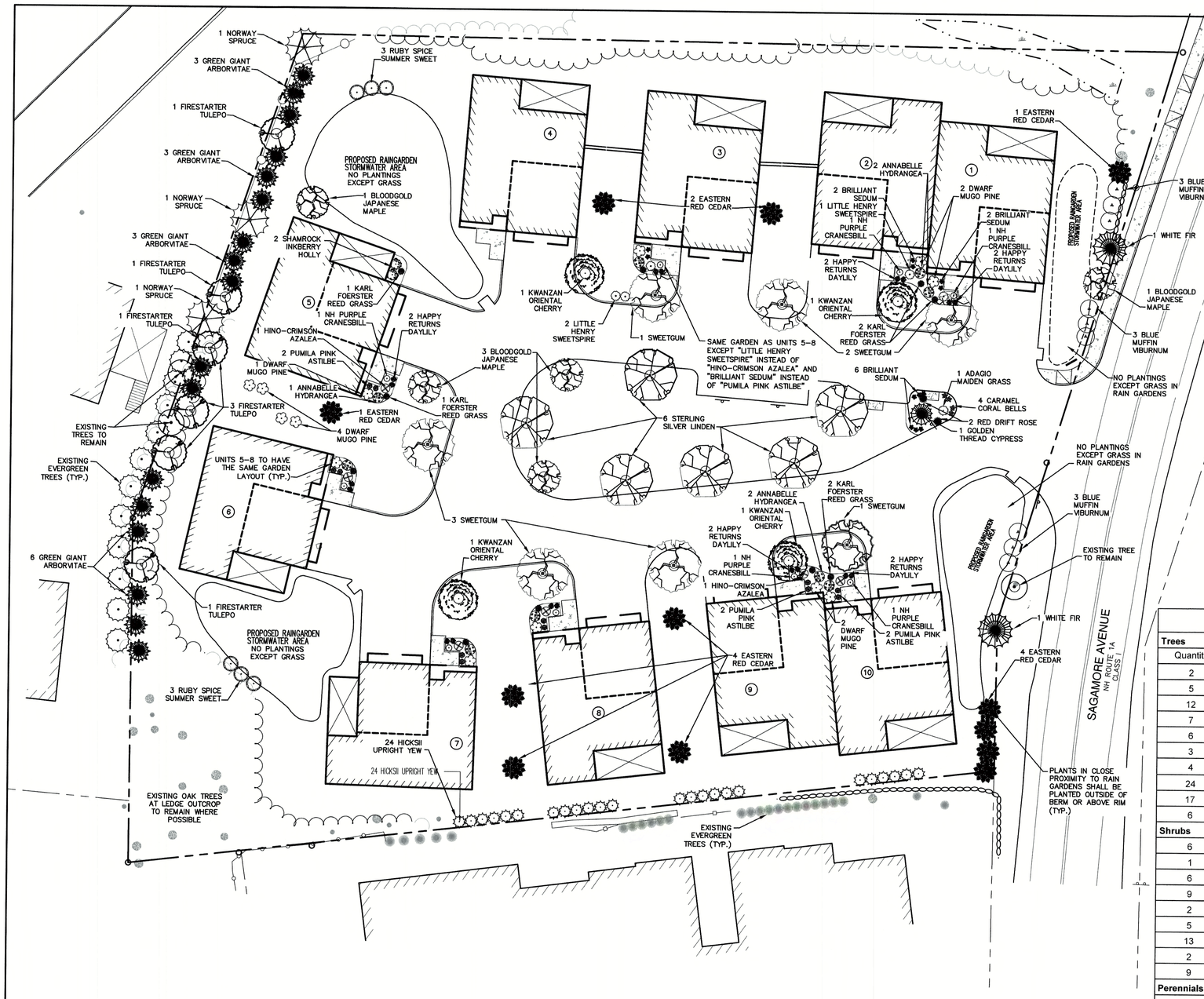
85 Portsmouth Ave.
PO Box 219
Stratham, NH 03885
Civil Engineering Services
603-772-4746
FAX: 603-772-0227
E-MAIL: JBE@JONESANDBEACH.COM

Plan Name:	PLAN AND SEWER PROFILE
Project:	SAGAMORE AVENUE CONDOMINIUMS 1169 & 1171 SAGAMORE AVE., PORTSMOUTH, NEW HAMPSHIRE
Owner of Record:	LOT 14: COLLEEN HEBERT 54 PIONEER RD, RYE, NH 03870 BK 2418 PG 173 LOT 15: JOHN J. & COLLEEN HEBERT 54 PIONEER RD, RYE, NH 03870 BK 5383 PG 219

DRAWING No.
P1
SHEET 8 OF 18
JBE PROJECT NO. 21047



GRAPHIC SCALE

20 0 10 20 40 80

(IN FEET)
1 inch = 20 feet

LANDSCAPE NOTES:

1. THE CONTRACTOR SHALL LOCATE AND VERIFY THE EXISTENCE OF ALL UTILITIES PRIOR TO STARTING WORK.
2. THE CONTRACTOR SHALL SUPPLY ALL PLANT MATERIALS IN QUANTITIES SUFFICIENT TO COMPLETE THE PLANTINGS SHOWN ON THE DRAWINGS.
3. ALL MATERIAL SHALL CONFORM TO THE GUIDELINES ESTABLISHED BY THE CURRENT AMERICAN STANDARD FOR NURSERY STOCK PUBLISHED BY THE AMERICAN ASSOCIATION OF NURSERYMEN.
4. PLANTS SHALL BE SUBJECT TO INSPECTION AND APPROVAL AT THE PLACE OF GROWTH, UPON DELIVERY OR AT THE JOB SITE WHILE WORK IS ON-GOING FOR CONFORMITY TO SPECIFIED QUALITY, SIZE AND VARIETY.
5. PLANTS FURNISHED IN CONTAINERS SHALL HAVE THE ROOTS WELL ESTABLISHED IN THE SOIL MASS AND SHALL HAVE AT LEAST ONE (1) GROWING SEASON. ROOT-BOUND PLANTS OR INADEQUATELY SIZED CONTAINERS TO SUPPORT THE PLANT MAY BE DEEMED UNACCEPTABLE.
6. ALL WORK AND PLANTS SHALL BE DONE, INSTALLED AND DETAILED IN STRICT ACCORDANCE WITH PROJECT SPECIFICATIONS.
7. ALL PLANTS SHALL BE WATERED THOROUGHLY TWICE DURING THE FIRST 24-HOUR PERIOD AFTER PLANTING. ALL PLANTS SHALL BE WATERED WEEKLY, OR MORE OFTEN IF NECESSARY, DURING THE FIRST GROWING SEASON.
8. ALL LANDSCAPE AREAS TO BE GRASS COMMON TO REGION, EXCEPT FOR INTERIOR LANDSCAPED ISLANDS OR WHERE OTHER PLANT MATERIAL IS SPECIFIED.
9. ALL TREES AND SHRUBS SHALL BE PLANTED IN MULCH BEDS WITH EDGE STRIPS TO SEPARATE TURF GRASS AREAS.
10. THE CONTRACTOR SHALL REMOVE WEEDS, ROCKS, CONSTRUCTION ITEMS, ETC. FROM ANY LANDSCAPE AREA SO DESIGNATED TO REMAIN, WHETHER ON OR OFF-SITE. GRASS SEED OR PINE BARK MULCH SHALL BE APPLIED AS DEPICTED ON PLANS.
11. FINISHED GRADES IN LANDSCAPED ISLANDS SHALL BE INSTALLED SO THAT THEY ARE 1" HIGHER THAN THE TOP OF THE SURROUNDING CURB.
12. ALL LANDSCAPING SHALL MEET THE CITY OF PORTSMOUTH STANDARDS AND REGULATIONS.
13. EXISTING TREES TO REMAIN SHALL BE PROTECTED WITH TEMPORARY SNOW FENCING AT THE DRIPLINE OF THE TREE. THE CONTRACTOR SHALL NOT STORE VEHICLES OR MATERIALS WITHIN THE LANDSCAPED AREAS. ANY DAMAGE TO EXISTING TREES, SHRUBS OR LAWN SHALL BE REPAIRED BY THE CONTRACTOR AT NO ADDITIONAL COST TO THE OWNER.
14. ALL MULCH AREAS SHALL RECEIVE A 3" LAYER OF SHREDDED PINE BARK MULCH OVER A 10 MIL WEED MAT EQUAL TO "WEEDBLOCK" BY EASY GARDENER OR DEWITT WEED BARRIER.
15. ALL LANDSCAPED AREAS SHALL HAVE SELECT MATERIALS REMOVED TO A DEPTH OF AT LEAST 9" BELOW FINISH GRADE. THE RESULTING VOID IS TO BE FILLED WITH A MINIMUM OF 9" HIGH-QUALITY SCREENED LOAM AMENDED WITH 3" OF AGED ORGANIC COMPOST.
16. THIS PLAN IS INTENDED FOR LANDSCAPING PURPOSES ONLY. REFER TO CIVIL/SITE DRAWINGS FOR OTHER SITE CONSTRUCTION INFORMATION.
17. IRRIGATION PIPING SYSTEM SHALL BE REVIEWED AND APPROVED BY OWNER AND ENGINEER PRIOR TO INSTALLATION.
18. THE PROPERTY OWNER AND ALL FUTURE PROPERTY OWNERS SHALL BE RESPONSIBLE FOR THE MAINTENANCE, REPAIR, AND REPLACEMENT OF ALL REQUIRED SCREENING AND LANDSCAPE MATERIALS.
19. ALL REQUIRED PLANT MATERIALS SHALL BE TENDED AND MAINTAINED IN A HEALTHY GROWING CONDITION, REPLACED WHEN NECESSARY, AND KEPT FREE OF REFUSE AND DEBRIS. ALL REQUIRED FENCES AND WALLS SHALL BE MAINTAINED IN GOOD REPAIR.
20. THE PROPERTY OWNER SHALL BE RESPONSIBLE TO REMOVE AND REPLACE DEAD OR DISEASED PLANT MATERIALS IMMEDIATELY WITH THE SAME TYPE, SIZE, AND QUANTITY OF PLANT MATERIALS AS ORIGINALLY INSTALLED, UNLESS ALTERNATIVE PLANTINGS ARE REQUESTED, JUSTIFIED, AND APPROVED BY THE PLANNING BOARD OR PLANNING DIRECTOR.
21. SEE TYPICAL PLANTING DETAILS ON SHEET D4.

PLANTING LIST

Trees			
Quantity	Botanical Name	Common Name	Size
2	Abies concolor	WHITE FIR	7-8 ft. ht.
5	Acer palmatum 'Bloodgood'	BLOODGOOD JAPANESE MAPLE	15 Gallon
12	Juniperus virginiana	EASTERN RED CEDAR	7-8 ft. ht.
7	Liquidambar styraciflua	SWEETGUM	2.5" Caliper
6	Nyssa sylvatica 'Firestarter'	FIRESTARTER TUPELO	4.5" Caliper
3	Picea abies	NORWAY SPRUCE	10-12 ft. ht.
4	Prunus serrulata 'Kwanzan'	KWANZAN ORIENTAL CHERRY	2" Caliper
24	Taxus x media 'Hicksii'	HICKSII UPRIGHT YEW	6-7 ft. ht.
17	Thuja plicata 'Green Giant'	GREEN GIANT ARBORVITAE	10-12 ft. ht.
6	Tilia tomentosa 'Sterling'	STERLING SILVER LINDEN	3" Caliper
Shrubs			
6	Azalea indicum 'Hino Crimson'	HINO CRIMSON AZALEA	3 Gallon
1	Chamaecyparis pisifera 'Aurea'	GOLDEN THREAD CYPRESS	7 Gallon
6	Clethra alnifolia 'Ruby Spice'	RUBY SPICE SUMMER SWEET	5 Gallon
9	Hydrangea arborescens 'Annabelle'	ANNABELLE HYDRANGEA	5 Gallon
2	Ilex glabra 'Shamrock'	SHAMROCK INKBERRY HOLLY	5 Gallon
5	Itea virginica 'Sprich Little Henry'	LITTLE HENRY SWEETSPIRE	3 Gallon
13	Pinus mugo 'Compacta'	DWARF MUGO PINE	5 Gallon
2	Rosa 'Red Drift'	RED DRIFT ROSE	3 Gallon
9	Viburnum dentatum 'Christom'	BLUE MUFFIN VIBURNUM	5 Gallon
Perennials			
12	Astilbe chinensis pumila	PUMILA PINK ASTILBE	1 Gallon
10	Calamagrostis x acutiflora 'Karl Foerster'	KARL FOERSTER REED GRASS	2 Gallon
9	Geranium sanguineum 'New Hampshire Purple'	NH PURPLE CRANESBILL	1 Gallon
18	Hemerocallis 'Happy Returns'	HAPPY RETURNS DAYLILY	1 Gallon
4	Heuchera micrantha 'Caramel'	CARAMEL CORALBELLS	1 Gallon
1	Miscanthus sinensis 'Adagio'	ADAGIO MAIDEN GRASS	2 Gallon
12	Sedum spectabile 'Brilliant'	BRILLIANT SEDUM	1 Gallon

PROJECT PARCEL
CITY OF PORTSMOUTH
TAX MAP 224, LOTS 14 & 15

APPLICANT
THE SAGAMORE GROUP, LLC
PO BOX 430
HAMPTON, NH 03842

TOTAL LOT AREA
79,292 SQ. FT.
1.83 ACRES

Design: JAC	Draft: DJM	Date: 3/25/21
Checked: JAC	Scale: 1" = 20'	Project No.: 21047
Drawing Name: 21047-PLAN.dwg		

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

REV.	DATE	REVISION	BY
5	8/23/21	ISSUED FOR REVIEW	DJM
4	6/23/21	ISSUED FOR CONCEPTUAL REVIEW	DJM
3	6/1/21	REVISED BUILDING LAYOUT	AJB
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1	4/20/21	REVISED LAYOUT	DJM

Designed and Produced in NH
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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: LANDSCAPE PLAN

Project: SAGAMORE AVENUE CONDOMINIUMS
1169 & 1171 SAGAMORE AVE., PORTSMOUTH, NEW HAMPSHIRE

Owner of Record: LOT 14: COLLEEN HEBERT, 54 PIONEER RD, RYE, NH 03870 BK 2418 PG 173; LOT 15: JOHN J. & COLLEEN HEBERT, 54 PIONEER RD, RYE, NH 03870 BK 5383 PG 219

DRAWING No.
L1
SHEET 9 OF 18
JBE PROJECT NO. 21047

LIGHTING AND ELECTRICAL NOTES:

1. ALL OUTDOOR LIGHTING SYSTEMS SHALL BE EQUIPPED WITH TIMERS TO REDUCE ILLUMINATION LEVELS TO NON-OPERATIONAL VALUES PER TOWN REGULATIONS.
2. LIGHTING CONDUIT SHALL BE SCHEDULE 40 PVC, AND SHALL BE INSTALLED IN CONFORMANCE WITH THE NATIONAL ELECTRICAL CODE. CONTRACTOR SHALL PROVIDE EXCAVATION AND BACKFILL.
3. ILLUMINATION READINGS SHOWN ARE BASED ON A TOTAL LLF OF 0.75 AT GRADE. ILLUMINATION READINGS SHOWN ARE IN UNITS OF FOOT-CANDLES.
4. LIGHTING CALCULATIONS SHOWN ARE NOT A SUBSTITUTE FOR INDEPENDENT ENGINEERING ANALYSIS OF LIGHTING SYSTEM AND SAFETY.
5. ALL LIGHTING FIXTURES SHALL BE FULL CUT-OFF DARK-SKY COMPLIANT, UNLESS OTHERWISE NOTED.
6. THE PROPOSED LIGHTING CALCULATIONS AND DESIGN WAS PERFORMED BY CHARRON, INC., P.O. BOX 4550, MANCHESTER, NH 03108, ATTENTION KEN SWEENEY. ALL LIGHTS SHOULD BE PURCHASED FROM THIS COMPANY, OR AN EQUAL LIGHTING DESIGN SHOULD BE SUBMITTED FOR REVIEW IF EQUAL SUBSTITUTIONS ARE PROPOSED BY THE CONTRACTOR OR OWNER.

LED wall luminaire - partially shielded **BEGA**

Type:
BEGA Product:
Project:
Modified:

Application
This LED wall luminaire has a partially shielded light source and is designed for the down lighting of interior and exterior locations with glare-free illumination.

Materials
Luminaire housing constructed of die-cast and spun marine grade, copper free (≤0.3% copper content) A360.0 aluminum alloy
Three-ply opal glass
High temperature silicone gasket

NRTL listed to North American Standards, suitable for wet locations
Protection class IP44
Weight: 4.0 lbs

Electrical

Operating voltage	120-277VAC
Minimum start temperature	-20° C
LED module wattage	8.9W
System wattage	12W
Controllability	0-10V dimmable
Color rendering index	Ra > 90
Luminaire lumens	724 lumens (3000K)
Lifetime at Ta = 15° C	500,000 h (L70)
Lifetime at Ta = 40° C	268,000 h (L70)

LED color temperature
☐ 4000K - Product number + **K4**
☐ 3500K - Product number + **K35**
☐ 3000K - Product number + **K3**
☐ 2700K - Product number + **K27**

BEGA can supply you with suitable LED replacement modules for up to 20 years after the purchase of LED luminaires - see website for details

Finish
All BEGA standard finishes are matte, textured polyester powder coat with minimum 3 mil thickness.
Available colors ☐ Black (BLK) ☐ White (WHT) ☐ RAL:
☐ Bronze (BRZ) ☐ Silver (SLV) ☐ CUS:

LED wall luminaire - partially shielded

	LED	A	B	C	D
66411	8.9W	12⅛	14½	13½	4⅝

BEGA 1000 BEGA Way, Carpinteria, CA 93013 (805)684-0533 info@bega-us.com

Due to the dynamic nature of lighting products and the associated technologies, luminaire data on this sheet is subject to change at the discretion of BEGA North America. For the most current technical data, please refer to bega-us.com
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Updated 08/14/18

Luminaire Schedule				
Symbol	Qty	Label	Arrangement	Description
⊕	10	W	SINGLE	66411/ WALL MTD 9' AFG

GRAPHIC SCALE
20 0 10 20 40 80
(IN FEET)
1 inch = 20 feet

PROJECT PARCEL
CITY OF PORTSMOUTH
TAX MAP 224, LOTS 14 & 15

APPLICANT
THE SAGAMORE GROUP, LLC
PO BOX 430
HAMPTON, NH 03842

TOTAL LOT AREA
79,292 SQ. FT.
1.83 ACRES

Design: JAC	Draft: DJM	Date: 3/25/21
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Drawing Name: 21047-PLAN.dwg		

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

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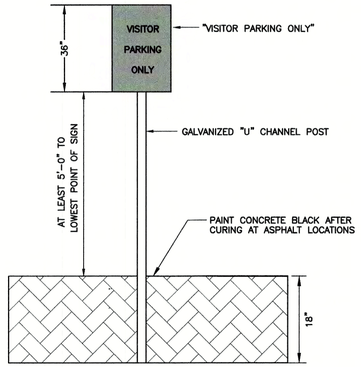
Civil Engineering Services
603-772-4746
FAX: 603-772-0227
E-MAIL: JBE@JONESANDBEACH.COM

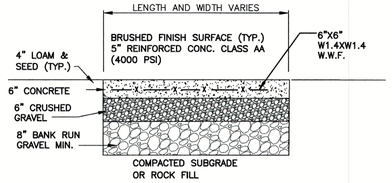
Plan Name: **LIGHTING PLAN**
Project: SAGAMORE AVENUE CONDOMINIUMS
1169 & 1171 SAGAMORE AVE., PORTSMOUTH, NEW HAMPSHIRE
Owner of Record: LOT 14: COLLEEN HEBERT, 54 PIONEER RD, RYE, NH 03870 BK 2418 PG 173; LOT 15: JOHN J. & COLLEEN HEBERT, 54 PIONEER RD, RYE, NH 03870 BK 5383 PG 219

DRAWING No.
L2
SHEET 10 OF 18
JBE PROJECT NO. 21047



VISITOR PARKING SIGN

NOT TO SCALE



CONCRETE PAD DETAIL

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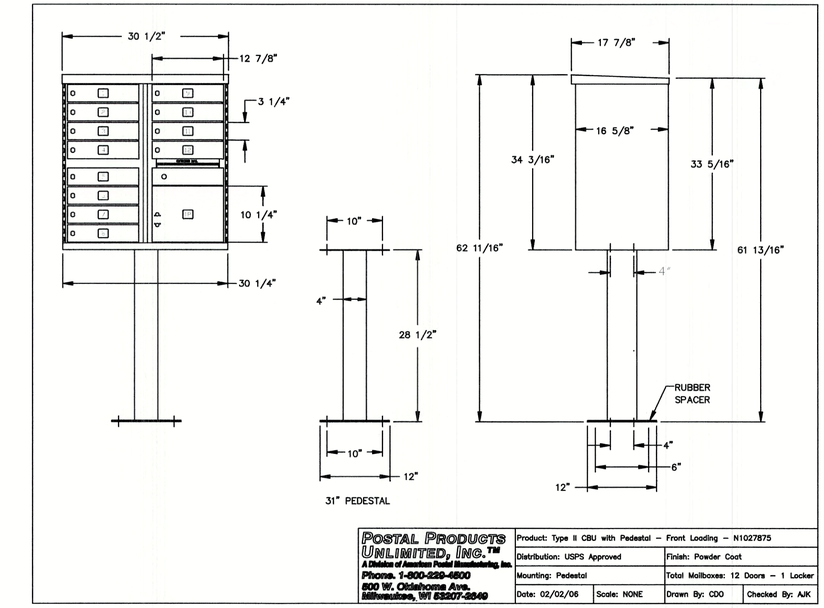
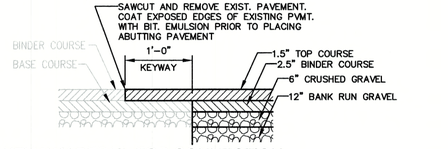


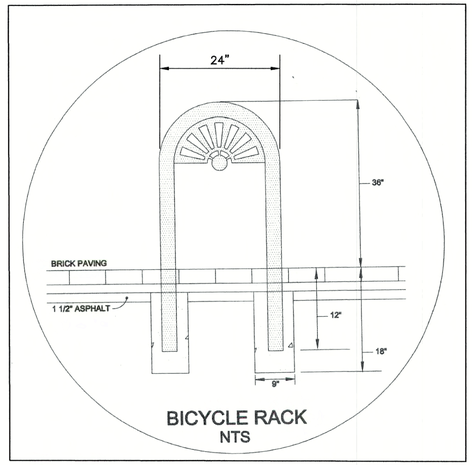
CLUSTER MAILBOX UNIT DETAIL

NOT TO SCALE



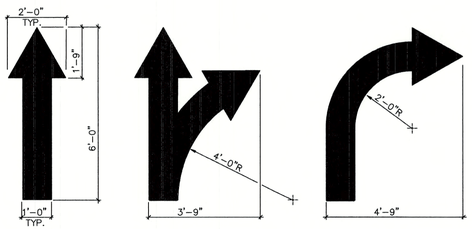
KEYWAY DETAIL FOR CONNECTION TO EXISTING PAVEMENT

NOT TO SCALE



BICYCLE RACK

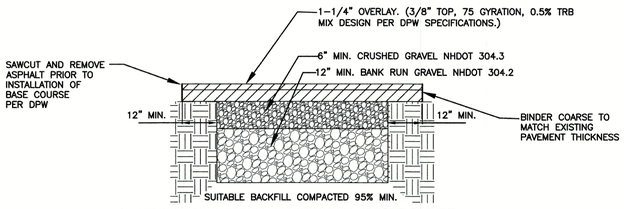
NOT TO SCALE



NOTES:
1. ALL FLOW ARROWS TO BE SOLID YELLOW REFLECTIVE TRAFFIC PAINT AS PER DIMENSIONS ABOVE.
2. REVERSE ARROWS FOR OPPOSITE DIRECTION OF FLOW.

PAINTED TRAFFIC ARROWS

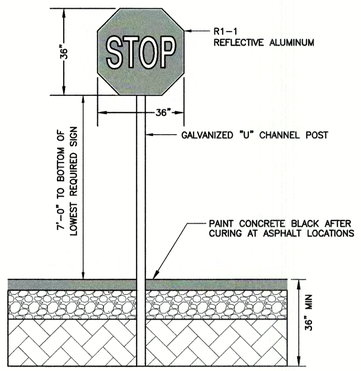
NOT TO SCALE



1. AFTER PROPER BACKFILLING AND COMPACTION, ADJACENT PAVEMENT MUST BE "SAW CUT" (STRAIGHT CUTS) A MINIMUM OF ONE FOOT (1') AROUND THE PERIMETER OF THE EXCAVATION. PAVEMENT MUST BE REMOVED.
2. INSTALL BASE COURSE LEAVING A REVEAL FOR SURFACE COURSE.
3. INSTALL SURFACE COURSE OF ASPHALT PAVING.
4. APPLY EMULSION SEALANT AT PERIMETER OF JOINT OVERLAPPING BASE COURSE. INSTALL WEARING COURSE OF ASPHALT TO GRADE. APPLY LIGHT SAND TO ABSORB EXCESS JOINT SEALANT.
5. GRAVEL COMPACTIONS TO MEET 95% MINIMUM.

TYPICAL PAVEMENT REPAIR DETAIL

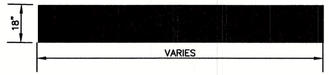
NOT TO SCALE



STOP SIGN (R1-1)

NOT TO SCALE

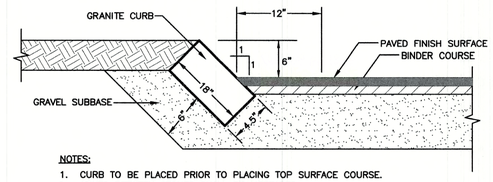
NOTES:
1. ALL SIGNAGE SHALL BE TO THE MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES (MUTCD) STANDARDS AND NHDOT STANDARDS.
2. SIGN, HARDWARE, AND INSTALLATION TO CONFORM TO 2016 NHDOT STANDARD SPECIFICATION, SECTION 615 – TRAFFIC SIGNS.
3. THE CONTRACTOR SHALL PROVIDE SHOP DRAWINGS/CATALOG CUTS TO THE ENGINEER FOR REVIEW AND APPROVAL PRIOR TO ERECTING SIGNS.
4. THE LOCATION OF THE SIGNS SHALL BE AS INDICATED ON THE DRAWINGS AND/OR AS DIRECTED BY THE CITY OF PORTSMOUTH DEPARTMENT OF PUBLIC WORKS.



NOTES:
1. ALL STOP BARS TO BE SOLID WHITE REFLECTIVE TRAFFIC PAINT AS PER DIMENSIONS ABOVE.

STOP BAR

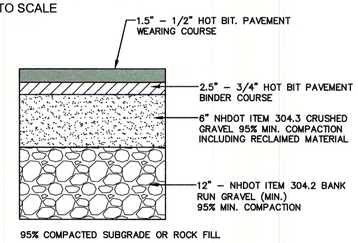
NOT TO SCALE



NOTES:
1. CURB TO BE PLACED PRIOR TO PLACING TOP SURFACE COURSE.
2. JOINTS BETWEEN STONES SHALL BE MORTARED.

SLOPED GRANITE CURB

NOT TO SCALE



TYPICAL BITUMINOUS PAVEMENT

NOT TO SCALE

Design: JAC	Draft: DJM	Date: 3/25/21	
Checked: JAC	Scale: AS NOTED	Project No.: 21047	
Drawing Name: 21047-PLAN.dwg			

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STATE OF NEW HAMPSHIRE – PAIGE S. LIBBEY No.16670 – LICENSED PROFESSIONAL ENGINEER – 2021

REV.	DATE	REVISION	BY
5	8/23/21	ISSUED FOR REVIEW	DJM
4	6/23/21	ISSUED FOR CONCEPTUAL REVIEW	DJM
3	6/1/21	REVISED BUILDING LAYOUT	AJB
2	4/28/21	MINOR REVISION	DJM
1	4/20/21	REVISED LAYOUT	DJM

Designed and Produced in NH
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Stratham, NH 03885
Civil Engineering Services
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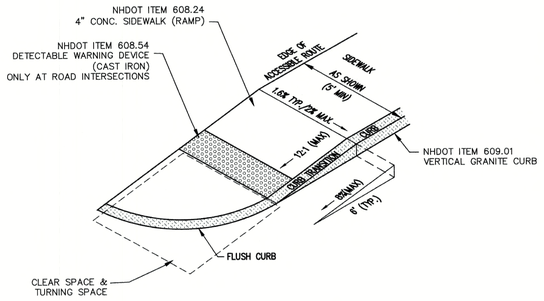
FAX: 603-772-0227
E-MAIL: JBE@JONESANDBEACH.COM

Plan Name: DETAIL SHEET

Project: SAGAMORE AVENUE CONDOMINIUMS
1169 & 1171 SAGAMORE AVE., PORTSMOUTH, NEW HAMPSHIRE

Owner of Record: LOT 14: COLLEEN HEBERT, 54 PIONEER RD, RYE, NH 03870 BK 2418 PG 173; LOT 15: JOHN J. & COLLEEN HEBERT, 54 PIONEER RD, RYE, NH 03870 BK 5383 PG 219

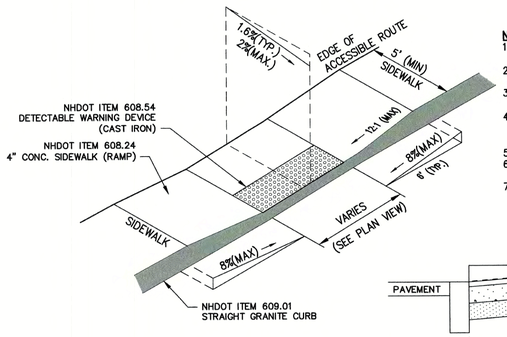
DRAWING No.
D1
SHEET 11 OF 18
JBE PROJECT NO. 21047



NOTES:
1. THE MAXIMUM ALLOWABLE CROSS SLOPE OF ACCESSIBLE ROUTE (SIDEWALK) AND CURB SHALL BE 1.5%.
2. THE MAXIMUM ALLOWABLE SLOPE OF ACCESSIBLE ROUTE EXCLUDING CURB RAMPS SHALL BE 5%.
3. THE MAXIMUM ALLOWABLE SLOPE OF ACCESSIBLE ROUTE (SIDEWALK) CURB RAMPS SHALL BE 8.3%.
4. A MINIMUM OF 4 FEET CLEAR SHALL BE MAINTAINED AT ANY PERMANENT OBSTACLE IN ACCESSIBLE ROUTE (i.e., HYDRANTS, UTILITY POLES, TREE WELLS, SIGNS, ETC.).
5. CURB TREATMENT VARIES, SEE PLANS FOR CURB TYPE.
6. BASE OF RAMP SHALL BE GRADED TO PREVENT PONDING.
7. SEE TYPICAL SECTION FOR RAMP CONSTRUCTION.
8. WHERE A CHANGE IN DIRECTION IS REQUIRED TO UTILIZE A CURB RAMP, A TURNING SPACE SHALL BE PROVIDED AT THE BASE AND/OR THE TOP OF THE CURB RAMP. TURNING SPACES SHALL BE PERMITTED TO OVERLAP CLEAR SPACES.
9. TURNING SPACE MAXIMUM CROSS SLOPE IS 2% IN ANY DIRECTION.
10. BEYOND THE BOTTOM GRADE BREAK, A CLEAR SPACE OF 4'X4' MINIMUM SHALL BE PROVIDED WITHIN THE WIDTH OF THE PEDESTRIAN CROSSWALK, AND OUTSIDE THE PARALLEL VEHICLE TRAVEL LANE. THE CLEAR SPACE MAY OVERLAP TURNING SPACES, DETECTABLE WARNING SURFACES AND DROP CURBS.

ACCESSIBLE CURB RAMP (NHDOT TYPE 1)

NOT TO SCALE



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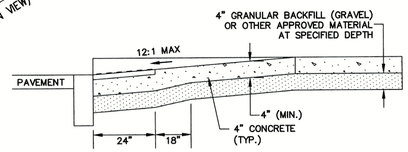
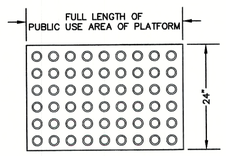
6. BASE OF RAMP SHALL BE GRADED TO PREVENT PONDING.
7. SEE TYPICAL SECTION FOR RAMP CONSTRUCTION.



ACCESSIBLE CURB RAMP (TYPE `A')

NOT TO SCALE

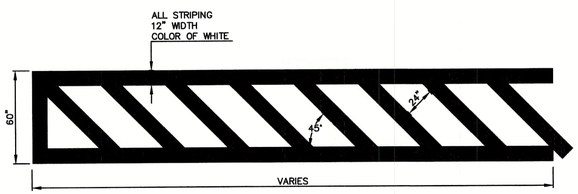


DETECTABLE WARNINGS SHALL CONSIST OF A SURFACE OF TRUNCATED DOMES AND SHALL COMPLY WITH THE FOLLOWING:
A. TRUNCATED DOMES SHALL HAVE A BASE DIAMETER OF 0.9" (MIN.) AND 1.4" (MAX.), A TOP DIAMETER OF 50% OF THE BASE DIAMETER MINIMUM TO 65% OF THE BASE DIAMETER MAXIMUM, AND A HEIGHT OF 0.2".
B. TRUNCATED DOMES SHALL HAVE A CENTER-TO-CENTER SPACING OF 1.6" MINIMUM AND 2.4" MAXIMUM, AND A BASE-TO-BASE SPACING OF .65" MINIMUM, MEASURED BETWEEN THE MOST ADJACENT DOMES ON A SQUARE GRID.
C. DETECTABLE WARNING SURFACES SHALL CONTRAST VISUALLY WITH ADJACENT WALKING SURFACES EITHER LIGHT-ON-DARK OR DARK-ON-LIGHT.

TRUNCATED DOMES TO BE PLACED IN SIDEWALK BASE IN PUBLIC TRAFFIC AREAS.

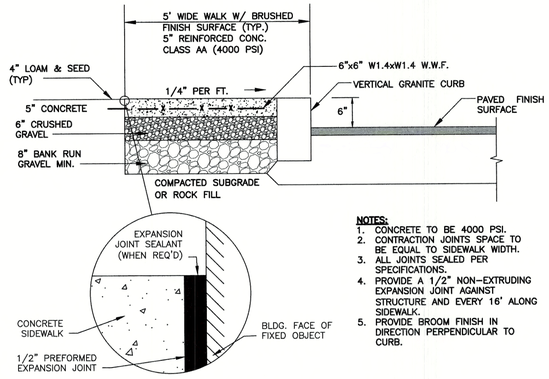
ACCESSIBLE CURB RAMP TRUNCATED DOMES

NOT TO SCALE



PAINTED CROSSWALK DETAIL

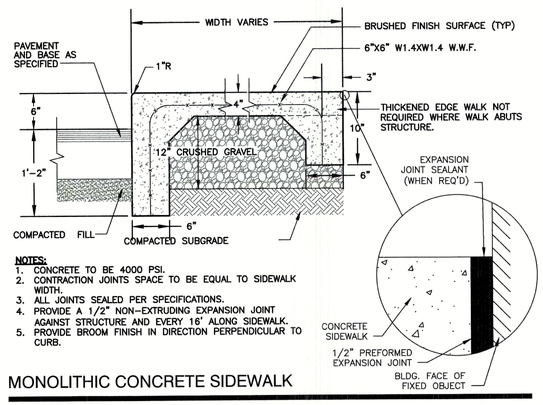
NOT TO SCALE



NOTES:
1. CONCRETE TO BE 4000 PSI.
2. CONTRACTION JOINTS SPACE TO BE EQUAL TO SIDEWALK WIDTH.
3. ALL JOINTS SEALED PER SPECIFICATIONS.
4. PROVIDE A 1/2" NON-EXTRUDING EXPANSION JOINT AGAINST STRUCTURE AND EVERY 16' ALONG SIDEWALK.
5. PROVIDE BROOM FINISH IN DIRECTION PERPENDICULAR TO CURB.

CONCRETE SIDEWALK W/ VERTICAL GRANITE CURB

NOT TO SCALE



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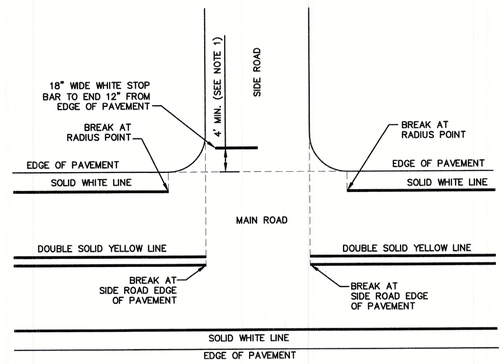
4. PROVIDE A 1/2" NON-EXTRUDING EXPANSION JOINT AGAINST STRUCTURE AND EVERY 16' ALONG SIDEWALK.
5. PROVIDE BROOM FINISH IN DIRECTION PERPENDICULAR TO CURB.

MONOLITHIC CONCRETE SIDEWALK

NOT TO SCALE



NOTES:
1. LOCATION OF STOP BAR MAY VARY DUE TO INTERSECTION SIGHT DISTANCE AND VEHICLE TURNING RADIUS AND MAY NOT ALWAYS COINCIDE WITH THE LOCATION OF THE STOP SIGN.
2. END STOP BAR 12" FROM EDGE OF PAVEMENT.
3. STOP BARS, WORDS, LANE LINES, SYMBOLS AND ARROWS SHALL BE THERMOPLASTIC.

NHDOT PAVEMENT MARKINGS STANDARD

NOT TO SCALE

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Checked: JAC	Scale: AS NOTED
Drawing Name: 21047-PLAN.dwg	Date: 3/25/21
	Project No.: 21047

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

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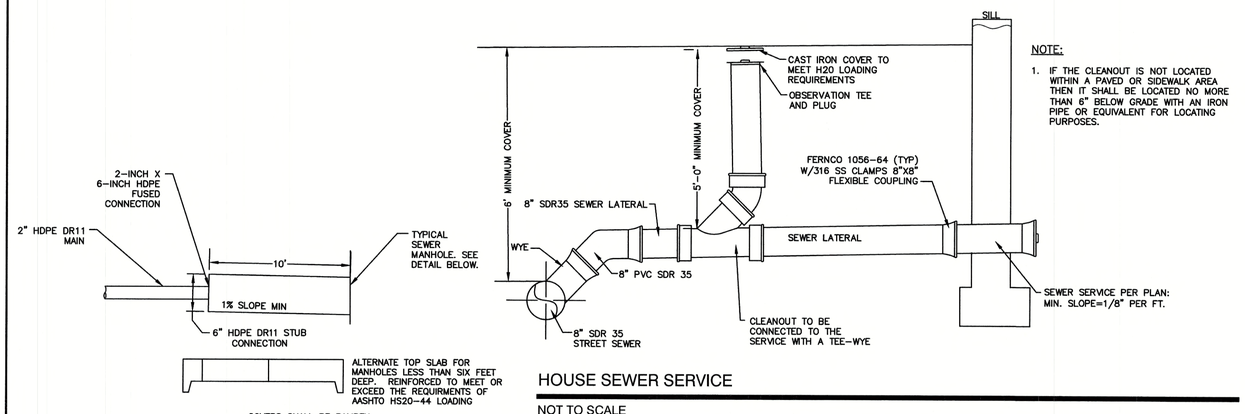
DRAWING No.
D2
SHEET 12 OF 18
JBE PROJECT NO. 21047

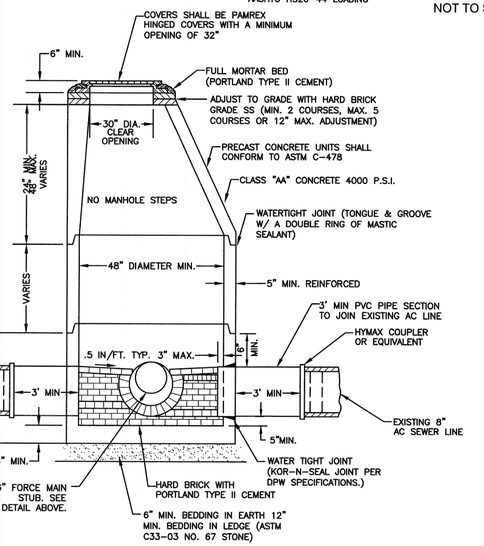


NOTE:

1. IF THE CLEANOUT IS NOT LOCATED WITHIN A PAVED OR SIDEWALK AREA THEN IT SHALL BE LOCATED NO MORE THAN 6" BELOW GRADE WITH AN IRON PIPE OR EQUIVALENT FOR LOCATING PURPOSES.

HOUSE SEWER SERVICE

NOT TO SCALE

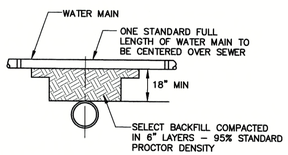


NOTES:

1. PER NHDES ENV-WQ 704.13(C), THE MORTAR SPECIFICATION SHALL BE AS FOLLOWS:
   1. MORTAR SHALL BE COMPOSED OF PORTLAND CEMENT AND SAND WITH OR WITHOUT HYDRATED LIME ADDITION;
   2. PROPORTIONS IN MORTAR OF PARTS BY VOLUMES SHALL BE:
      A. 4.5 PARTS SAND AND 1.5 PARTS CEMENT; OR
      B. 4.5 PARTS SAND, ONE PART CEMENT AND 0.5 PART HYDRATED LIME;
   3. CEMENT SHALL BE TYPE II PORTLAND CEMENT CONFORMING TO ASTM C150-05;
   4. HYDRATED LIME SHALL BE TYPE S CONFORMING TO THE ASTM C207-06 'STANDARD SPECIFICATIONS FOR HYDRATED LIME FOR MASONRY PURPOSES';
   5. SAND SHALL CONSIST OF INERT NATURAL SAND CONFORMING TO THE ASTM C33-03 'STANDARD SPECIFICATIONS FOR CONCRETE, FINE AGGREGATES';
2. SHELVES SHALL BE CONSTRUCTED TO THE ELEVATION OF THE HIGHEST PIPE CROWN AND SLOPED TO DRAIN TOWARD THE FLOWING THROUGH CHANNEL IN ACCORDANCE WITH ENV-WQ 704.12 (K).
3. ALL MANHOLES SHALL BE TESTED FOR LEAKAGE IN ACCORDANCE WITH ENV-WQ 704.17 (a) THROUGH (e).
4. SEWER MANHOLE COVERS SHALL CONFORM TO ASTM A48 WITH A CASTING EQUAL TO CLASS 30 IN ACCORDANCE WITH ENV-WQ 704.13 (a).
5. ALL ASBESTOS CONTAINING WASTE MATERIALS MUST BE PROPERLY IDENTIFIED, PACKAGED AND DELIVERED TO A LANDFILL LICENCED BY THE NHDES SOLID WASTE MANAGEMENT PROGRAM FOR DISPOSAL. CALL (603) 271-2925 FOR MORE INFORMATION.
6. PORTSMOUTH STANDARD SEWER MANHOLE SHALL BE USED.
7. CONTRACTOR TO PURCHASE SEWER MANHOLE COVERS FROM THE CITY OF PORTSMOUTH DIRECTLY.
8. MANHOLE BASE SECTIONS SHALL BE MONOLITHIC TO A POINT AT LEAST 6" ABOVE THE HIGHEST INCOMING SEWER PIPE PER ENV-WQ 704.12 (e).
9. MANHOLE CASTINGS SHALL CONFORM TO ASTM A48 PER ENV-WQ 704.13 (a) (8).

PORTSMOUTH SEWER MANHOLE

NOT TO SCALE

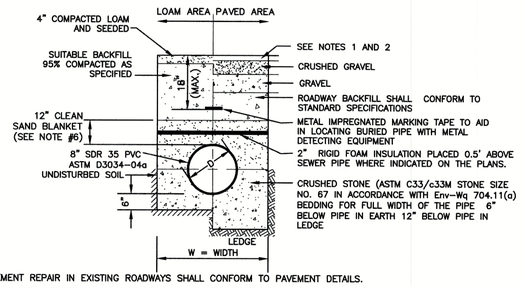


SEPARATION NOTES:

1. WATER MAINS SHALL BE LAID AT LEAST 10 FEET HORIZONTALLY FROM ANY EXISTING OR PROPOSED SEWERS. THE DISTANCE SHALL BE MEASURED EDGE TO EDGE.
2. WATER MAINS CROSSING SEWERS SHALL BE LAID TO PROVIDE A MINIMUM VERTICAL DISTANCE OF 18 INCHES BETWEEN PIPES. SEWER PIPE JOINTS SHALL BE LOCATED AT LEAST 6 FEET HORIZONTALLLY FROM THE WATER MAIN.

TYPICAL WATER / SEWER SEPARATION

NOT TO SCALE



NOTES:

1. PAVEMENT REPAIR IN EXISTING ROADWAYS SHALL CONFORM TO PAVEMENT DETAILS.
2. NEW ROADWAY CONSTRUCTION SHALL CONFORM TO SUBDIVISION SPECIFICATIONS.
3. TRENCH BACKFILL SHALL CONFORM WITH ENV. Wq 704.11(h) AND BE FREE OF DEBRIS, PAVEMENT, ORGANIC MATTER, TOP SOIL, WET OR SOFT MUCK, PEAT OR CLAY, EXCAVATED LEDGE OR ROCKS OVER SIX INCHES.
4. W= MAXIMUM ALLOWABLE TRENCH WIDTH TO A PLANE 12" INCHES ABOVE THE PIPE. FOR PIPES 15 INCHES NOMINAL DIAMETER OR LESS, WIDTH SHALL BE NO MORE THAN 36"; FOR PIPES GREATER THAN 15 INCHES NOMINAL DIAMETER, WIDTH SHALL BE 24 INCHES PLUS PIPE O.D. WIDTH SHALL ALSO BE THE PAYMENT WIDTH FOR LEDGE EXCAVATION AND FOR ORDERED EXCAVATION BELOW GRADE.
5. RIGID FOAM INSULATION TO BE PROVIDED WHERE COVER IN THE ROADWAY IS LESS THAN 6' AND CROSS COUNTRY IS LESS THAN 4', PURSUANT TO DES WAIVER BEING ISSUED.
6. PIPE SAND BLANKET MATERIAL SHALL BE GRADED SAND, FREE FROM ORGANIC MATERIALS, GRADED SUCH THAT 100% PASSES A 1/2 " SIEVE AND A MAXIMUM OF 15% PASSES A #200 SIEVE IN ACCORDANCE WITH Env-Wq 704.11(b).
7. JOINT SEALS FOR PVC PIPE SHALL BE OIL RESISTANT COMPRESSION RINGS OF ELASTOMERIC MATERIAL AND CERTIFIED BY THE MANUFACTURER AS CONFORMING TO THE ASTM D3212 STANDARD IN EFFECT WHEN THE JOINT SEALS WERE MANUFACTURED, AND SHALL BE PUSH-ON, BELL-AND-SPIGOT TYPE PER Env-Wq 704.05 (e).

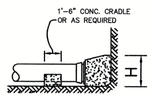
SEWER TRENCH

NOT TO SCALE

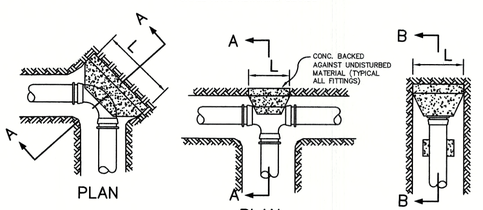
SECTION A-A

CONCRETE THRUST BLOCK DIMENSIONS								
PIPE DIA. (IN.)	TEE		90° BEND OR STUB		45° BEND		22.5° BEND	
	H	L	H	L	H	L	H	L
4"/6"	1'-6"	1'-6"	1'-6"	2'-0"	1'-6"	1'-6"	1'-6"	1'-6"
8"	2'-0"	2'-0"	2'-0"	3'-0"	1'-6"	2'-0"	1'-6"	1'-6"
10"	2'-6"	3'-0"	2'-6"	3'-6"	2'-0"	2'-6"	1'-6"	2'-0"
12"	2'-6"	3'-6"	3'-0"	4'-0"	2'-0"	3'-6"	1'-6"	2'-6"
15"	3'-0"	4'-6"	3'-6"	5'-6"	3'-0"	3'-6"	2'-0"	2'-6"
18"	4'-0"	5'-0"	4'-6"	6'-0"	3'-6"	4'-0"	2'-6"	3'-0"
24"	5'-0"	7'-0"	6'-0"	8'-0"	4'-0"	6'-0"	3'-0"	4'-6"

PIPING W/ MECHANICAL JOINT FITTINGS SHALL HAVE RETAINING GLANDS

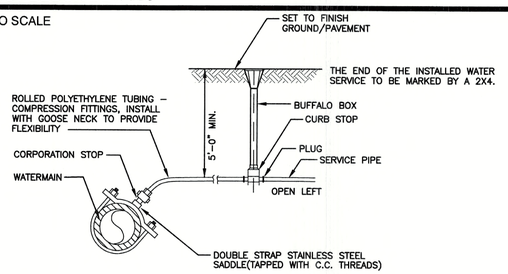


SECTION B-B



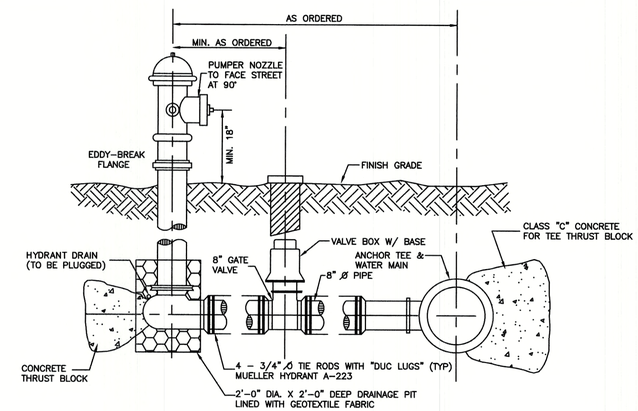
THRUST BLOCK DETAILS

NOT TO SCALE



WATER SERVICE CONNECTION-POLYETHYLENE

NOT TO SCALE



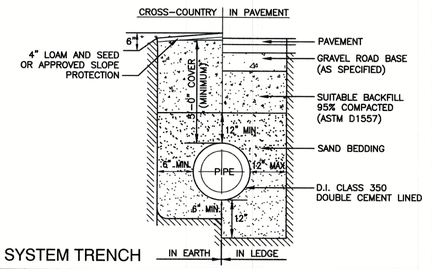
PORTSTMOUTH WATER DEPARTMENT SPECS.

NOTES

1. ALL PIPE FITTINGS TO BE D.I. PRESSURE CLASS 350, THICKNESS CLASS 52.
2. HYDRANT TO BE PAINTED RED WITH WHITE "REFLECTOR" PAINT ON BONNET.
3. MECHANICAL JOINTS SHALL HAVE MEGALUG RETAINING GLANDS AS MADE BY EBBA OR APPROVED EQUAL.
4. STEAMER NOZZLE TO BE "STORCH" TYPE.
5. NATIONAL STANDARD THREAD.

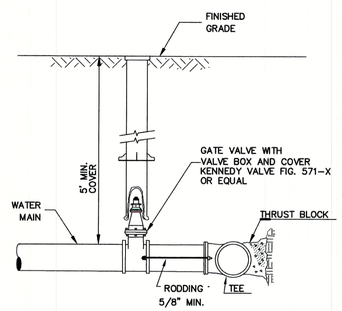
HYDRANT INSTALLATION

NOT TO SCALE



WATER SYSTEM TRENCH

NOT TO SCALE



BURIED GATE VALVE DETAIL

NOT TO SCALE

Design: JAC	Draft: DJM
Checked: JAC	Scale: AS NOTED
Drawing Name: 21047-PLAN.dwg	Date: 3/25/21
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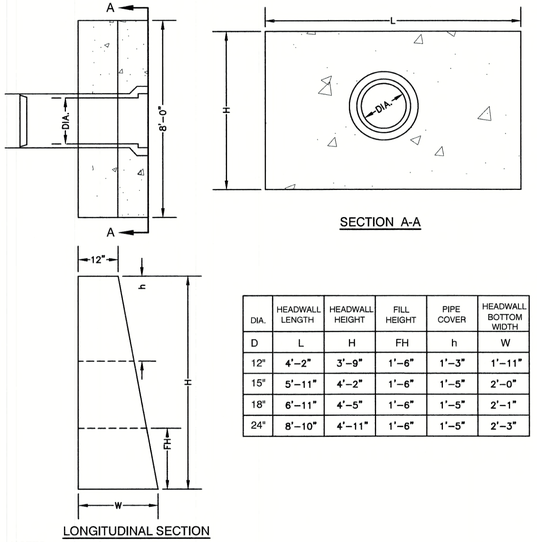
DRAWING No. D3

SHEET 13 OF 18
JBE PROJECT NO. 21047



SECTION A-A

LONGITUDINAL SECTION

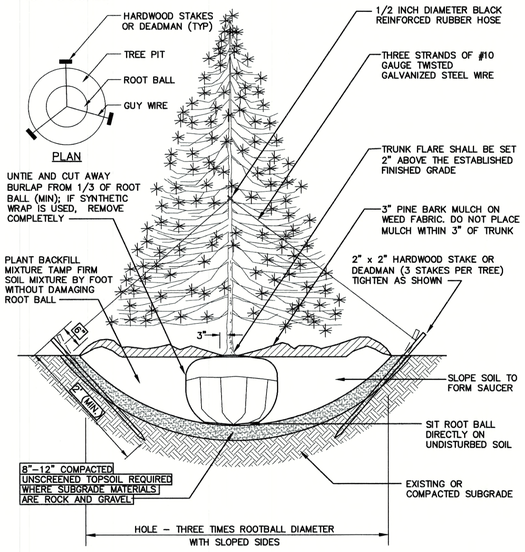
DIA.	HEADWALL LENGTH	HEADWALL HEIGHT	FILL HEIGHT	PIPE COVER	HEADWALL BOTTOM WIDTH
D	L	H	FH	h	W
12"	4'-2"	3'-9"	1'-6"	1'-3"	1'-11"
15"	5'-11"	4'-2"	1'-6"	1'-5"	2'-0"
18"	6'-11"	4'-5"	1'-6"	1'-5"	2'-1"
24"	8'-10"	4'-11"	1'-6"	1'-5"	2'-3"

NOTES:

1. ALL DIMENSIONS GIVEN IN FEET & INCHES.
2. PROVIDE BELL END AT INLET HEADWALL, AND SPIGOT END AT OUTLET END HEADWALL.
3. CONCRETE: 5,000 PSI MINIMUM AFTER 28 DAYS. CEMENT TO BE TYPE III PER ASTM C-150. REINFORCING TO MEET OR EXCEED ASTM A-615 GRADE 60 DEFORMED BARS.
4. 1" THREADED INSERTS PROVED FOR FINAL ATTACHMENT IN FIELD BY OTHERS.

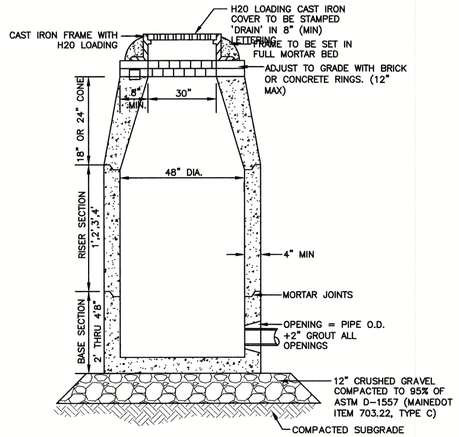
PRECAST CONCRETE HEADWALL

NOT TO SCALE



EVERGREEN PLANTING

NOT TO SCALE

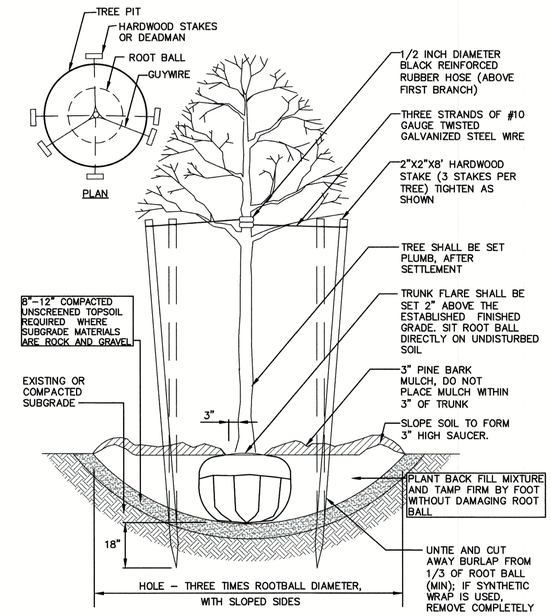


NOTES:

1. BASE SECTION SHALL BE MONOLITHIC WITH 48" INSIDE DIAMETER.
2. ALL SECTIONS SHALL BE DESIGNED FOR H20 LOADING.
3. CONCRETE SHALL BE COMPRESSIVE STRENGTH 4000 PSI, TYPE II CEMENT.
4. FRAMES AND GRATES SHALL BE HEAVY DUTY AND DESIGNED FOR H20 LOADING.
5. PROVIDE "V" KNOCKOUTS FOR PIPES WITH 2" MAX. CLEARANCE TO OUTSIDE OF PIPE. MORTAR ALL PIPE CONNECTIONS SO AS TO BE WATERTIGHT.
6. JOINT SEALANT BETWEEN PRECAST SECTIONS SHALL BE BUTYL RUBBER.
7. ALL DRAIN MANHOLE FRAMES AND GRATES SHALL BE NEENAH R-1798 OR APPROVED EQUAL (30" DIA. TYPICAL).
8. STANDARD FRAME(S) AND GRATE(S) SHALL BE SET IN FULL MORTAR BED. ADJUST TO GRADE WITH CLAY BRICK AND MORTAR (2 BRICK COURSES TYPICALLY, 5 BRICK COURSES MAXIMUM, BUT NO MORE THAN 12"), OR PRECAST CONCRETE 'DONUTS'.

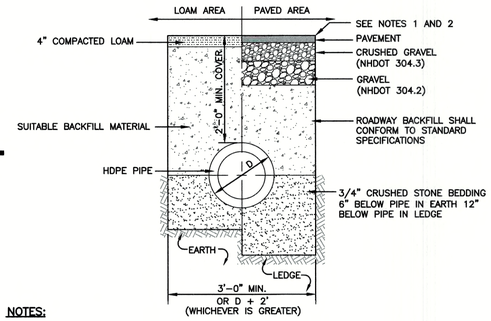
DRAIN MANHOLE (4' DIAM.)

NOT TO SCALE



TREE PLANTING (FOR TREES UNDER 4" CALIPER)

NOT TO SCALE

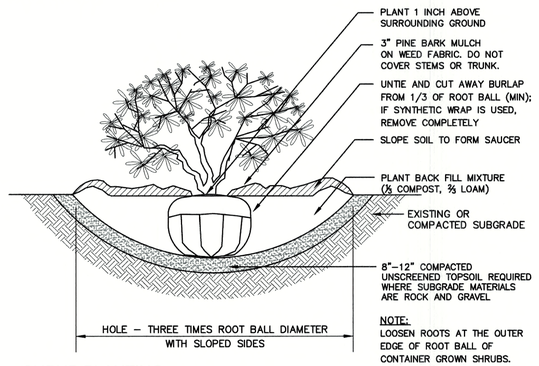


NOTES:

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

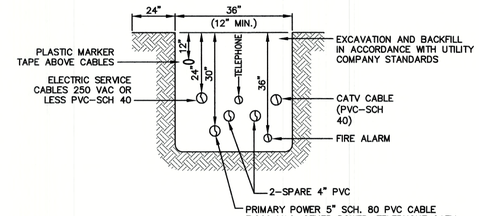
NOT TO SCALE



NOTE:
LOOSEN ROOTS AT THE OUTER EDGE OF ROOT BALL OF CONTAINER GROWN SHRUBS.

SHRUB PLANTING

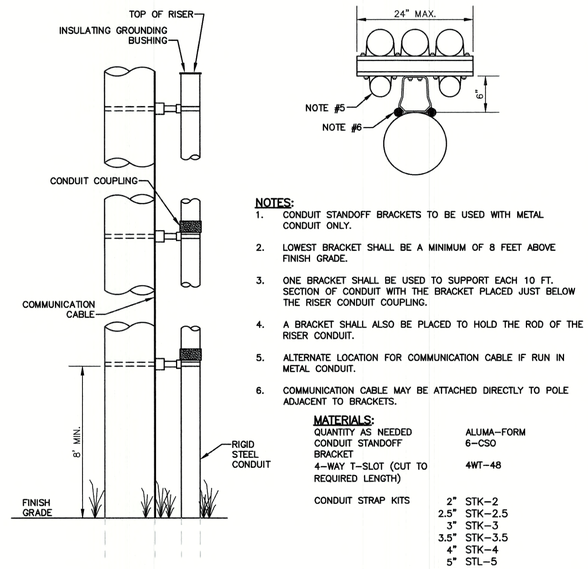
NOT TO SCALE



NOTE: ALL UTILITIES SHALL BE REVIEWED AND APPROVED BY APPROPRIATE UTILITY COMPANY.

UTILITY TRENCH

NOT TO SCALE



NOTES:

1. CONDUIT STANDOFF BRACKETS TO BE USED WITH METAL CONDUIT ONLY.
2. LOWEST BRACKET SHALL BE A MINIMUM OF 8 FEET ABOVE FINISH GRADE.
3. ONE BRACKET SHALL BE USED TO SUPPORT EACH 10 FT. SECTION OF CONDUIT WITH THE BRACKET PLACED JUST BELOW THE RISER CONDUIT COUPLING.
4. A BRACKET SHALL ALSO BE PLACED TO HOLD THE ROD OF THE RISER CONDUIT.
5. ALTERNATE LOCATION FOR COMMUNICATION CABLE IF RUN IN METAL CONDUIT.
6. COMMUNICATION CABLE MAY BE ATTACHED DIRECTLY TO POLE ADJACENT TO BRACKETS.

MATERIALS:

QUANTITY AS NEEDED CONDUIT STANDOFF BRACKET	ALUMA-FORM 6-CSO
4-WAY T-SLOT (CUT TO REQUIRED LENGTH)	4WT-48
CONDUIT STRAP KITS	2" STK-2 2.5" STK-2.5 3" STK-3 3.5" STK-3.5 4" STK-4 5" STL-5 6" STK-6

UTILITY POLE RISER DETAIL

NOT TO SCALE

Design: JAC	Draft: DJM
Checked: JAC	Scale: AS NOTED
Drawing Name: 21047-PLAN.dwg	Date: 3/25/21
	Project No.: 21047

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

REV.	DATE	REVISION	BY
5	8/23/21	ISSUED FOR REVIEW	DJM
4	6/23/21	ISSUED FOR CONCEPTUAL REVIEW	DJM
3	6/1/21	REVISED BUILDING LAYOUT	AJB
2	4/28/21	MINOR REVISION	DJM
1	4/20/21	REVISED LAYOUT	DJM

Designed and Produced in NH
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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:	DETAIL SHEET
Project:	SAGAMORE AVENUE CONDOMINIUMS 1169 & 1171 SAGAMORE AVE., PORTSMOUTH, NEW HAMPSHIRE
Owner of Record:	LOT 14: COLLEEN HEBERT, 54 PIONEER RD, RYE, NH 03870 BK 2418 PG 173 LOT 15: JOHN J. & COLLEEN HEBERT, 54 PIONEER RD, RYE, NH 03870 BK 5383 PG 219

DRAWING No.
D4
SHEET 14 OF 18
JBE PROJECT NO. 21047

RAIN GARDEN ELEVATIONS

RAIN GARDEN	SIZE OF BOTTOM (S.F.)	ELEV. A	ELEV. B	ELEV. C	ELEV. D	ELEV. E	ELEV. F	ELEV. G	SHWT	LEDGE
1	209	37.50	37.30	36.00	34.50	34.25	33.75	33.50	NONE	VARIABLE
2	369	38.00	37.50	36.00	34.50	34.25	33.75	33.50	NONE	NEAR OUTCROP
3	1,150	38.00	37.50	36.00	34.50	34.25	33.75	33.50	32.42	30.75
4	790	38.00	37.50	36.25	34.75	34.50	34.00	33.75	NONE	36.17

SAND SPECIFICATION

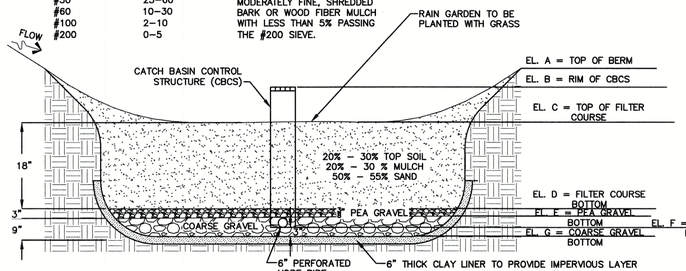
SIEVE SIZE	% BY WEIGHT
3"	100
#4	95–100
#8	80–100
#16	50–85
#30	25–60
#60	10–30
#100	2–10
#200	0–5

TOPSOIL SPECIFICATION

LOAMY SAND TOPSOIL WITH MINIMAL CLAY CONTENT AND BETWEEN 15 TO 25% FINES PASSING THE #200 SIEVE.

MULCH SPECIFICATION

MODERATELY FINE, SHREDDED BARK OR WOOD FIBER MULCH WITH LESS THAN 5% PASSING THE #200 SIEVE.



DESIGN CONSIDERATIONS

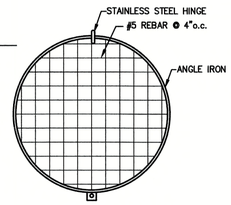
1. DO NOT PLACE BIORETENTION SYSTEMS INTO SERVICE UNTIL THE BMP HAS BEEN PLANTED AND ITS CONTRIBUTING AREAS HAVE BEEN FULLY STABILIZED.
2. DO NOT DISCHARGE SEDIMENT–LADEN WATERS FROM CONSTRUCTION ACTIVITIES (RUN–OFF, WATER FROM EXCAVATIONS) TO THE BIORETENTION AREA DURING ANY STAGE OF CONSTRUCTION.
3.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

MAINTENANCE REQUIREMENTS:

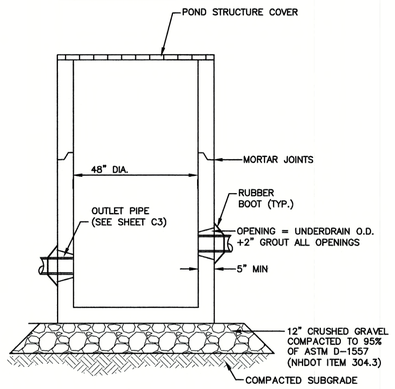
1. SYSTEMS SHOULD BE INSPECTED AT LEAST TWICE ANNUALLY, AND FOLLOWING ANY RAINFALL EVENT EXCEEDING 2.5 INCHES IN A 24 HOUR PERIOD, WITH MAINTENANCE OR REHABILITATION CONDUCTED AS WARRANTED BY SUCH INSPECTION.
2. PRETREATMENT MEASURES SHOULD BE INSPECTED AT LEAST TWICE ANNUALLY, AND CLEANED OF ACCUMULATED SEDIMENT AS WARRANTED BY INSPECTION, BUT NO LESS THAN ONCE ANNUALLY.
3. TRASH AND DEBRIS SHOULD BE REMOVED AT EACH INSPECTION.
4. AT LEAST ONCE ANNUALLY, SYSTEM SHOULD BE INSPECTED FOR DRAWDOWN TIME. IF BIORETENTION SYSTEM DOES NOT DRAIN WITHIN 72 HOURS FOLLOWING A RAINFALL EVENT, THEN A QUALIFIED PROFESSIONAL SHOULD ASSESS THE CONDITION OF THE FACILITY TO DETERMINE MEASURES REQUIRED TO RESTORE FILTRATION FUNCTION OR INFILTRATION FUNCTION (AS APPLICABLE), INCLUDING BUT NOT LIMITED TO REMOVAL OF ACCUMULATED SEDIMENTS OR RECONSTRUCTION OF THE FILTER MEDIA.
5. VEGETATION SHOULD BE INSPECTED AT LEAST ANNUALLY, AND MAINTAINED IN HEALTHY CONDITION, INCLUDING PRUNING, REMOVAL AND REPLACEMENT OF DEAD OR DISEASED VEGETATION, AND REMOVAL OF INVASIVE SPECIES.
6. CLAY LINER 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.
7. SYSTEMS TO BE LINED AND UNDERDRAINED DUE TO PRESENCE OF LEDGE THROUGHOUT THE SITE, AND LINED ONLY IF LEDGE OR SHWT IS ENCOUNTERED ABOVE BOTTOM OF GRAVEL.
8. COMPACTION AND MATERIALS TESTING SERVICES SHALL BE PERFORMED BY AN INDEPENDENT GEOTECHNICAL ENGINEER RETAINED BY THE OWNER.

BIORETENTION RAIN GARDEN WITH UNDERDRAIN

NOT TO SCALE



POND STRUCTURE COVER



CATCH BASIN CONTROL STRUCTURE (CBCS)

NOT TO SCALE

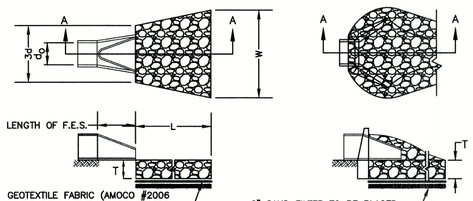


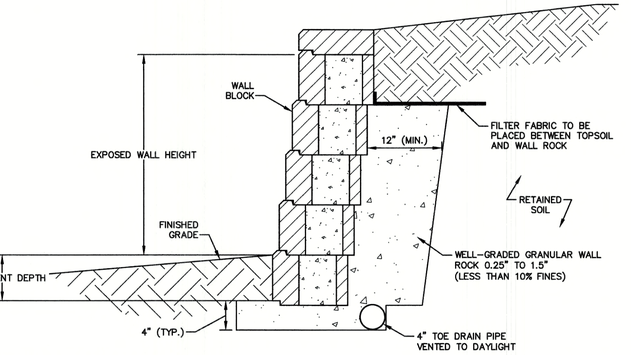
TABLE 7–24––RECOMMENDED RIP RAP GRADATION RANGES		
THICKNESS OF RIP RAP = 1.5 FEET		
d50 SIZE= 0.50 FEET 6 INCHES		
% OF WEIGHT SMALLER THAN THE GIVEN d50 SIZE	SIZE OF STONE (INCHES) FROM	TO
100%	9	12
85%	8	11
50%	6	9
15%	2	3

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.

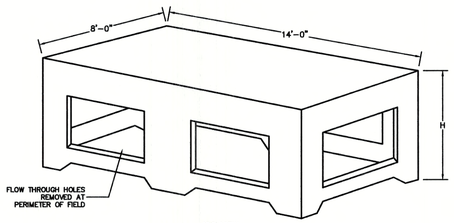
RIP RAP OUTLET PROTECTION APRON

NOT TO SCALE

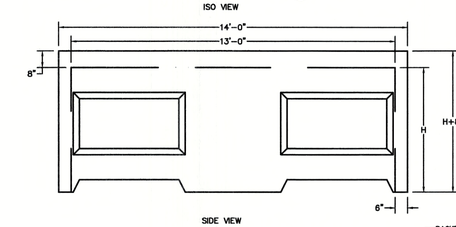


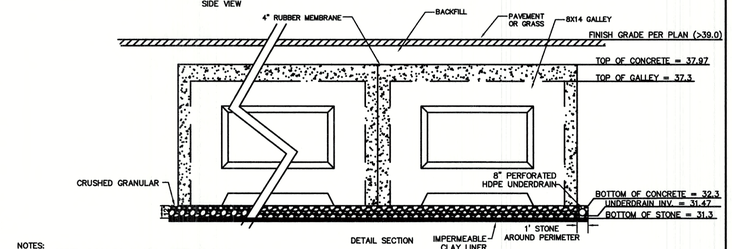
TYPICAL GRAVITY WALL DETAIL

NOT TO SCALE



HEIGHT(H)	VOLUME(EA)	WEIGHT
2'–0"	200CF	14, 900#
3'–0"	300CF	16, 600#
4'–0"	400CF	18, 300#
5'–0"	500CF	20, 000#





NOTES:

1. CONCRETE: 5,000 PSI MINIMUM AFTER 28 DAYS.
2. DESIGNED FOR AASHTO HS–20 LOAD, 0 TO 5FT COVER. CAN BE DESIGNED FOR ADDITIONAL COVER IF REQUIRED.
3. STANDARD SLAB DESIGN WITHSTANDS 40KIP OUTRIGGER LOAD ON A 24" SQUARE PAD WITH 24" COVER OVER SLAB.
4. END & SIDE UNITS DO NOT HAVE FLOW–THRU OPENINGS.
5. CONTRACTOR TO PLACE 5' MODULE AND EXTEND LINER UP TO SEASONAL HIGH WATER TABLE IF FOUND AFTER LEDGE REMOVAL.

SHEA CONCRETE PRODUCTS "GALLEY 8x14"

NOT TO SCALE

Design: JAC	Draft: DJM	Date: 3/25/21
Checked: JAC	Scale: AS NOTED	Project No.: 21047
Drawing Name: 21047-PLAN.dwg		

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STATE OF NEW HAMPSHIRE – PAIGE S. LIBBEY No.16670 – LICENSED PROFESSIONAL ENGINEER – 7/23/21

REV.	DATE	REVISION	BY
5	8/23/21	ISSUED FOR REVIEW	DJM
4	6/23/21	ISSUED FOR CONCEPTUAL REVIEW	DJM
3	6/1/21	REVISED BUILDING LAYOUT	AJB
2	4/28/21	MINOR REVISION	DJM
1	4/20/21	REVISED LAYOUT	DJM

Designed and Produced in NH
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PO Box 219
Stratham, NH 03885
Civil Engineering Services
603-772-4746
FAX: 603-772-0227
E-MAIL: JBE@JONESANDBEACH.COM

Plan Name: DETAIL SHEET

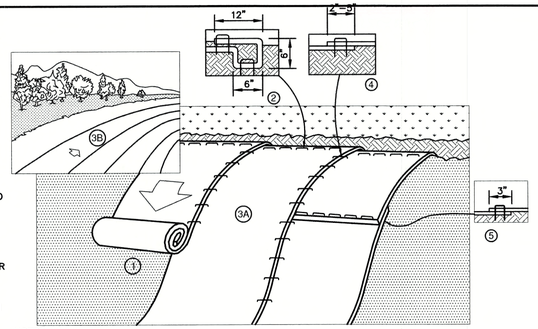
Project: SAGAMORE AVENUE CONDOMINIUMS
1169 & 1171 SAGAMORE AVE., PORTSMOUTH, NEW HAMPSHIRE

Owner of Record: LOT 14: COLLEEN HEBERT, 54 PIONEER RD, RYE, NH 03870 BK 2418 PG 173; LOT 15: JOHN J. & COLLEEN HEBERT, 54 PIONEER RD, RYE, NH 03870 BK 5383 PG 219

DRAWING No.
D5
SHEET 15 OF 18
JBE PROJECT NO. 21047

TEMPORARY EROSION CONTROL NOTES

1. THE SMALLEST PRACTICAL AREA OF LAND SHALL BE EXPOSED AT ANY ONE TIME. AT NO TIME SHALL AN AREA IN EXCESS OF 5 ACRES BE EXPOSED AT ANY ONE TIME BEFORE DISTURBED AREAS ARE STABILIZED.
2. EROSION, SEDIMENT AND DETENTION MEASURES SHALL BE INSTALLED AS SHOWN ON THE PLANS AND AT LOCATIONS AS REQUIRED, DIRECTED BY THE ENGINEER.
3. ALL DISTURBED AREAS (INCLUDING POND AREAS BELOW THE PROPOSED WATERLINE) SHALL BE RETURNED TO PROPOSED GRADES AND ELEVATIONS. DISTURBED AREAS SHALL BE LOAMED WITH A MINIMUM OF 6" OF SCREENED ORGANIC LOAM AND SEEDED WITH SEED MIXTURE 'C' AT A RATE NOT LESS THAN 1.10 POUNDS OF SEED PER 1,000 S.F. OF AREA (48 LBS. / ACRE).
4. SILT FENCES AND OTHER BARRIERS SHALL BE INSPECTED EVERY SEVEN CALENDAR DAYS AND WITHIN 24 HOURS OF A RAINFALL OF 0.5" OR GREATER. ALL DAMAGED AREAS SHALL BE REPAIRED, AND SEDIMENT DEPOSITS SHALL PERIODICALLY BE REMOVED AND DISPOSED OF.
5. AFTER ALL DISTURBED AREAS HAVE BEEN STABILIZED, THE TEMPORARY EROSION CONTROL MEASURES SHALL BE REMOVED AND THE AREA DISTURBED BY THE REMOVAL SMOOTHED AND RE-VEGETATED.
6. AREAS MUST BE SEEDED AND MULCHED OR OTHERWISE PERMANENTLY STABILIZED WITHIN 3 DAYS OF FINAL GRADING, OR TEMPORARILY STABILIZED WITHIN 14 DAYS OF THE INITIAL DISTURBANCE OF SOIL. ALL AREAS SHALL BE STABILIZED WITHIN 45 DAYS OF INITIAL DISTURBANCE.
7. ALL PROPOSED VEGETATED AREAS THAT DO NOT EXHIBIT A MINIMUM OF 85 PERCENT VEGETATIVE GROWTH BY OCTOBER 15, OR WHICH ARE DISTURBED AFTER OCTOBER 15, SHALL BE STABILIZED BY SEEDING AND INSTALLING NORTH AMERICAN GREEN S75 EROSION CONTROL BLANKETS (OR AN EQUIVALENT APPROVED IN WRITING BY THE ENGINEER) ON SLOPES GREATER THAN 3:1, AND SEEDING AND PLACING 3 TO 4 TONS OF MULCH PER ACRE, SECURED WITH ANCHORED NETTING, ELSEWHERE. THE INSTALLATION OF EROSION CONTROL BLANKETS OR MULCH AND NETTING SHALL NOT OCCUR OVER ACCUMULATED SNOW OR ON FROZEN GROUND AND SHALL BE COMPLETED IN ADVANCE OF THAW OR SPRING MELT EVENTS.
8. ALL DITCHES OR SWALES WHICH DO NOT EXHIBIT A MINIMUM OF 85 PERCENT VEGETATIVE GROWTH BY OCTOBER 15, OR WHICH ARE DISTURBED AFTER OCTOBER 15, SHALL BE STABILIZED TEMPORARILY WITH STONE OR EROSION CONTROL BLANKETS APPROPRIATE FOR THE DESIGN FLOW CONDITIONS.
9. AFTER OCTOBER 15th, INCOMPLETE ROAD OR PARKING SURFACES, WHERE WORK HAS STOPPED FOR THE WINTER SEASON, SHALL BE PROTECTED WITH A MINIMUM OF 3" OF CRUSHED GRAVEL PER NHDOT ITEM 304.3.
10. AN AREA SHALL BE CONSIDERED STABLE IF ONE OF THE FOLLOWING HAS OCCURRED:
    a. BASE COURSE GRAVELS HAVE BEEN INSTALLED IN AREAS TO BE PAVED;
    b. A MINIMUM OF 85% VEGETATED GROWTH HAS BEEN ESTABLISHED;
    c. A MINIMUM OF 3" OF NON-EROSIVE MATERIAL SUCH STONE OR RIPRAP HAS BEEN INSTALLED; OR
    d. EROSION CONTROL BLANKETS HAVE BEEN PROPERLY INSTALLED.
11. FUGITIVE DUST CONTROL IS REQUIRED TO BE CONTROLLED IN ACCORDANCE WITH ENV-A 1000, AND THE PROJECT IS TO MEET THE REQUIREMENTS AND INTENT OF RSA 430:53 AND AGR 3800 RELATIVE TO INVASIVE SPECIES.



NOTES:

1. PREPARE SOIL BEFORE INSTALLING BLANKETS, INCLUDING ANY NECESSARY APPLICATION OF LIME, FERTILIZER, AND SEED. NOTE: WHEN USING CELL-O-SEED DO NOT SEED PREPARED AREA. CELL-O-SEED MUST BE INSTALLED WITH PAPER SIDE DOWN.
2. BEGIN AT THE TOP OF THE SLOPE BY ANCHORING THE BLANKET IN A 6" DEEP BY 6" WIDE TRENCH WITH APPROXIMATELY 12" OF BLANKET EXTENDED BEYOND THE UP-SLOPE PORTION OF THE TRENCH. ANCHOR THE BLANKET WITH A ROW OF STAPLES/STAKES APPROXIMATELY 12" APART IN THE BOTTOM OF THE TRENCH. BACKFILL AND COMPACT THE TRENCH AFTER STAPLING. APPLY SEED TO COMPACTED SOIL AND FOLD REMAINING 12" PORTION OF BLANKET BACK OVER SEED AND COMPACTED SOIL. SECURE BLANKET OVER COMPACTED SOIL WITH A ROW OF STAPLES/STAKES SPACED APPROXIMATELY 12" APART ACROSS THE WIDTH OF THE BLANKET.
3. ROLL THE BLANKETS (A) DOWN OR (B) HORIZONTALLY ACROSS THE SLOPE. BLANKETS WILL UNROLL WITH APPROPRIATE SIDE AGAINST THE SOIL SURFACE. ALL BLANKETS MUST BE SECURELY FASTENED TO SOIL SURFACE BY PLACING STAPLES/STAKES IN APPROPRIATE LOCATIONS AS SHOWN IN THE STAPLE PATTERN GUIDE. WHEN USING OPTIONAL DOT SYSTEM™ STAPLES/STAKES SHOULD BE PLACED THROUGH EACH OF THE COLORED DOTS CORRESPONDING TO THE APPROPRIATE STAPLE PATTERN.
4. THE EDGES OF PARALLEL BLANKETS MUST BE STAPLED WITH APPROXIMATELY 2"-5" OVERLAP DEPENDING ON BLANKET TYPE. TO ENSURE PROPER SEAM ALIGNMENT, PLACE THE EDGE OF THE OVERLAPPING BLANKET (BLANKET BEING INSTALLED ON TOP) EVEN WITH THE COLORED SEAM STITCH ON THE PREVIOUSLY INSTALLED BLANKET.
5. CONSECUTIVE BLANKETS SPLICED DOWN THE SLOPE MUST BE PLACED END OVER END (SHINGLE STYLE) WITH AN APPROXIMATE 3" OVERLAP. STAPLE THROUGH OVERLAPPED AREA, APPROXIMATELY 12" APART ACROSS ENTIRE BLANKET WIDTH. NOTE: IN LOOSE SOIL CONDITIONS, THE USE OF STAPLE OR STAKE LENGTHS GREATER THAN 6" MAY BE NECESSARY TO PROPERLY SECURE THE BLANKETS.

NORTH AMERICAN GREEN
14649 HIGHWAY 41 NORTH
EVANSVILLE, INDIANA 47725
1-800-772-2040

EROSION CONTROL BLANKET SLOPE INSTALLATION
NORTH AMERICAN GREEN (800) 772-2040

NOT TO SCALE

SEEDING SPECIFICATIONS

1. GRADING AND SHAPING
   A. SLOPES SHALL NOT BE STEEPER THAN 2:1 WITHOUT APPROPRIATE EROSION CONTROL MEASURES AS SPECIFIED ON THE PLANS (3:1 SLOPES OR FLATTER ARE PREFERRED).
   B. WHERE MOWING WILL BE DONE, 3:1 SLOPES OR FLATTER ARE RECOMMENDED.
2. SEEDBED PREPARATION
   A. SURFACE AND SEEPAGE WATER SHOULD BE DRAINED OR DIVERTED FROM THE SITE TO PREVENT DROWNING OR WINTER KILLING OF THE PLANTS.
   B. STONES LARGER THAN 4 INCHES AND TRASH SHOULD BE REMOVED BECAUSE THEY INTERFERE WITH SEEDING AND FUTURE MAINTENANCE OF THE AREA. WHERE FEASIBLE, THE SOIL SHOULD BE TILLED TO A DEPTH OF ABOUT 4 INCHES TO PREPARE A SEEDBED AND FERTILIZER AND LIME MIXED INTO THE SOIL. THE SEEDBED SHOULD BE LEFT IN A REASONABLY FIRM AND SMOOTH CONDITION. THE LAST TILLAGE OPERATION SHOULD BE PERFORMED ACROSS THE SLOPE WHEREVER PRACTICAL.
3. ESTABLISHING A STAND
   A. LIME AND FERTILIZER SHOULD BE APPLIED PRIOR TO OR AT THE TIME OF SEEDING AND INCORPORATED INTO THE SOIL. TYPES AND AMOUNTS OF LIME AND FERTILIZER SHOULD BE BASED ON AN EVALUATION OF SOIL TESTS. WHEN A SOIL TEST IS NOT AVAILABLE, THE FOLLOWING MINIMUM AMOUNTS SHOULD BE APPLIED:
      AGRICULTURAL LIMESTONE, 2 TONS PER ACRE OR 100 LBS. PER 1,000 SQ.FT.
      NITROGEN(N), 50 LBS. PER ACRE OR 1.1 LBS. PER 1,000 SQ.FT.
      PHOSPHATE(P205), 100 LBS. PER ACRE OR 2.2 LBS. PER 1,000 SQ.FT.
      POTASH(K20), 100 LBS. PER ACRE OR 2.2 LBS. PER 1,000 SQ.FT.
      (NOTE: THIS IS THE EQUIVALENT OF 500 LBS. PER ACRE OF 10-20-20 FERTILIZER OR 1,000 LBS. PER ACRE OF 5-10-10.)
   B. SEED SHOULD BE SPREAD UNIFORMLY BY THE METHOD MOST APPROPRIATE FOR THE SITE. METHODS INCLUDE BROADCASTING, DRILLING AND HYDROSEEDING. WHERE BROADCASTING IS USED, COVER SEED WITH .25 INCH OF SOIL OR LESS, BY CULTIPACKING OR RAKING.
   C. REFER TO THE 'SEEDING GUIDE' AND 'SEEDING RATES' TABLES ON THIS SHEET FOR APPROPRIATE SEED MIXTURES AND RATES OF SEEDING. ALL LEGUMES (CROWNVETCH, BIRDSFOOT, TREFOIL AND FLATPEA) MUST BE INOCULATED WITH THEIR SPECIFIC INOCULANT PRIOR TO THEIR INTRODUCTION TO THE SITE.
   D. WHEN SEEDED AREAS ARE MULCHED, PLANTINGS MAY BE MADE FROM EARLY SPRING TO EARLY OCTOBER. WHEN SEEDED AREAS ARE NOT MULCHED, PLANTINGS SHOULD BE MADE FROM EARLY SPRING TO MAY 20th OR FROM AUGUST 10th TO SEPTEMBER 1st.
4. MULCH
   A. HAY, STRAW, OR OTHER MULCH, WHEN NEEDED, SHOULD BE APPLIED IMMEDIATELY AFTER SEEDING.
   B. MULCH WILL BE HELD IN PLACE USING APPROPRIATE TECHNIQUES FROM THE BEST MANAGEMENT PRACTICE FOR MULCHING. HAY OR STRAW MULCH SHALL BE PLACED AT A RATE OF 90 LBS PER 1000 S.F.
5. MAINTENANCE TO ESTABLISH A STAND
   A. PLANTED AREAS SHOULD BE PROTECTED FROM DAMAGE BY FIRE, GRAZING, TRAFFIC, AND DENSE WEED GROWTH.
   B. FERTILIZATION NEEDS SHOULD BE DETERMINED BY ONSITE INSPECTIONS. SUPPLEMENTAL FERTILIZER IS USUALLY THE KEY TO FULLY COMPLETE THE ESTABLISHMENT OF THE STAND BECAUSE MOST PERENNIALS TAKE 2 TO 3 YEARS TO BECOME FULLY ESTABLISHED.
   C. IN WATERWAYS, CHANNELS, OR SWALES WHERE UNIFORM FLOW CONDITIONS ARE ANTICIPATED, ANNUAL MOWING MAY BE NECESSARY TO CONTROL GROWTH OF WOODY VEGETATION.

USE	SEEDING MIXTURE 1/	DROUGHTY	WELL DRAINED	MODERATELY WELL DRAINED	POORLY DRAINED
STEEP CUTS AND FILLS, BORROW AND DISPOSAL AREAS	A	FAIR	GOOD	GOOD	FAIR
	B	POOR	GOOD	FAIR	FAIR
	C	POOR	GOOD	EXCELLENT	GOOD
	D	FAIR	EXCELLENT	EXCELLENT	POOR
WATERWAYS, EMERGENCY SPILLWAYS, AND OTHER CHANNELS WITH FLOWING WATER.	A	GOOD	GOOD	GOOD	FAIR
	C	GOOD	EXCELLENT	EXCELLENT	FAIR
LIGHTLY USED PARKING LOTS, ODD AREAS, UNUSED LANDS, AND LOW INTENSITY USE RECREATION SITES.	A	GOOD	GOOD	GOOD	FAIR
	B	GOOD	GOOD	FAIR	POOR
	C	GOOD	EXCELLENT	EXCELLENT	FAIR
PLAY AREAS AND ATHLETIC FIELDS. (TOPSOIL IS ESSENTIAL FOR GOOD TURF.)	E	FAIR	EXCELLENT	EXCELLENT	2/
	F	FAIR	EXCELLENT	EXCELLENT	2/

GRAVEL PIT, SEE NH-PM-24 IN APPENDIX FOR RECOMMENDATION REGARDING RECLAMATION OF SAND AND GRAVEL PITS.

1/ REFER TO SEEDING MIXTURES AND RATES IN TABLE BELOW.
2/ POORLY DRAINED SOILS ARE NOT DESIRABLE FOR USE AS PLAYING AREA AND ATHLETIC FIELDS.

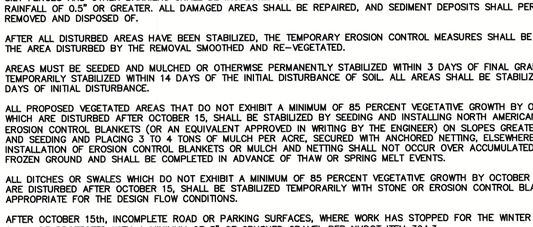
NOTE: TEMPORARY SEED MIX FOR STABILIZATION OF TURF SHALL BE WINTER RYE OR OATS AT A RATE OF 2.5 LBS. PER 1000 S.F. AND SHALL BE PLACED PRIOR TO OCTOBER 15th, IF PERMANENT SEEDING NOT YET COMPLETE.

SEEDING GUIDE

MIXTURE	POUNDS PER ACRE	POUNDS PER 1,000 Sq. Ft.
A. TALL FESCUE	20	0.45
CREEPING RED FESCUE	20	0.45
RED TOP	2	0.05
TOTAL	42	0.95
B. TALL FESCUE	15	0.35
CREEPING RED FESCUE	10	0.25
CROWN VETCH	15	0.35
OR		
FLAT PEA	30	0.75
TOTAL	40 OR 55	0.95 OR 1.35
* C. TALL FESCUE	20	0.45
CREEPING RED FESCUE	20	0.45
BIRDS FOOT TREFOIL	8	0.20
TOTAL	48	1.10
D. TALL FESCUE	20	0.45
FLAT PEA	30	0.75
TOTAL	50	1.20
E. CREEPING RED FESCUE 1/	50	1.15
KENTUCKY BLUEGRASS 1/	50	1.15
TOTAL	100	2.30
F. TALL FESCUE 1	150	3.60

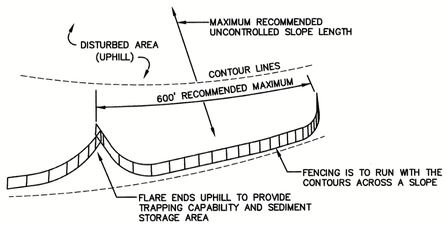
1/ FOR HEAVY USE ATHLETIC FIELDS CONSULT THE UNIVERSITY OF NEW HAMPSHIRE COOPERATIVE EXTENSION TURF SPECIALIST FOR CURRENT VARIETIES AND SEEDING RATES.

SEEDING RATES



CONSTRUCTION SPECIFICATIONS:

1. WOVEN FABRIC FENCE TO BE FASTENED SECURELY TO FENCE POSTS WITH WIRE TIES OR STAPLES. FILTER CLOTH SHALL BE FASTENED TO WOVEN WIRE EVERY 24" AT TOP, MID AND BOTTOM AND EMBEDDED IN THE GROUND A MINIMUM OF 8" AND THEN COVERED WITH SOIL.
2. THE FENCE POSTS SHALL BE A MINIMUM OF 48" LONG, SPACED A MAXIMUM 10' APART, AND DRIVEN A MINIMUM OF 16" INTO THE GROUND.
3. WHEN TWO SECTIONS OF FILTER CLOTH ADJOIN EACH OTHER, THE ENDS OF THE FABRIC SHALL BE OVERLAPPED 6", FOLDED AND STAPLED TO PREVENT SEDIMENT FROM BY-PASSING.
4. MAINTENANCE SHALL BE PERFORMED AS NEEDED AND SEDIMENT REMOVED AND PROPERLY DISPOSED OF WHEN IT IS 6" DEEP OR VISIBLE 'BULGES' DEVELOP IN THE SILT FENCE.
5. PLACE THE ENDS OF THE SILT FENCE UP CONTOUR TO PROVIDE FOR SEDIMENT STORAGE.
6. SILT FENCE SHALL REMAIN IN PLACE FOR 24 MONTHS.



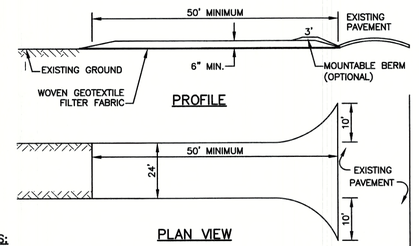
7. SILT FENCES SHALL BE REMOVED WHEN NO LONGER NEEDED AND THE SEDIMENT COLLECTED SHALL BE DISPOSED AS DIRECTED BY THE ENGINEER. THE AREA DISTURBED BY THE REMOVAL SHALL BE SMOOTHED AND REVEGETATED.

MAINTENANCE:

1. SILT FENCES SHALL BE INSPECTED IMMEDIATELY AFTER EACH RAINFALL AND AT LEAST DAILY DURING PROLONGED RAINFALL. ANY REPAIRS THAT ARE REQUIRED SHALL BE DONE IMMEDIATELY.
2. IF THE FABRIC ON A SILT FENCE SHOULD DECOMPOSE OR BECOME INEFFECTIVE DURING THE EXPECTED LIFE OF THE FENCE, THE FABRIC SHALL BE REPLACED PROMPTLY.
3. SEDIMENT DEPOSITS SHOULD BE INSPECTED AFTER EVERY STORM EVENT. THE DEPOSITS SHOULD BE REMOVED WHEN THEY REACH APPROXIMATELY ONE HALF THE HEIGHT OF THE BARRIER.
4. SEDIMENT DEPOSITS THAT ARE REMOVED, OR LEFT IN PLACE AFTER THE FABRIC HAS BEEN REMOVED, SHALL BE GRADED TO CONFORM WITH THE EXISTING TOPOGRAPHY AND VEGETATED.

SILT FENCE

NOT TO SCALE



NOTES:

1. STONE FOR STABILIZED CONSTRUCTION ENTRANCE SHALL BE 1 TO 2 INCH STONE, RECLAIMED STONE, OR RECYCLED CONCRETE EQUIVALENT.
2. THE LENGTH OF THE STABILIZED ENTRANCE SHALL NOT BE LESS THAN 50 FEET, EXCEPT FOR A SINGLE RESIDENTIAL LOT WHERE A 30 FOOT MINIMUM LENGTH WOULD APPLY.
3. THICKNESS OF THE STONE FOR THE STABILIZED ENTRANCE SHALL NOT BE LESS THAN 6 INCHES.
4. THE WIDTH OF THE ENTRANCE SHALL NOT BE LESS THAN THE FULL WIDTH OF THE ENTRANCE WHERE INGRESS OR EGRESS OCCURS, OR 10 FEET, WHICHEVER IS GREATER.
5. GEOTEXTILE FILTER FABRIC SHALL BE PLACED OVER THE ENTIRE AREA PRIOR TO PLACING THE STONE. FILTER FABRIC IS NOT REQUIRED FOR A SINGLE FAMILY RESIDENTIAL LOT.
6. ALL SURFACE WATER THAT IS FLOWING TO OR DIVERTED TOWARD THE CONSTRUCTION ENTRANCE SHALL BE PIPED BENEATH THE ENTRANCE. IF PIPING IS IMPRACTICAL, A STONE BERM WITH 5:1 SLOPES THAT CAN BE CROSSED BY VEHICLES MAY BE SUBSTITUTED FOR THE PIPE.
7. THE ENTRANCE SHALL BE MAINTAINED IN A CONDITION THAT WILL PREVENT TRACKING OR FLOWING OF SEDIMENT ONTO THE PUBLIC RIGHT-OF-WAY. THIS MAY REQUIRE PERIODIC TOP DRESSING WITH ADDITIONAL STONE AS CONDITIONS DEMAND AND REPAIR AND/OR CLEAN OUT OF ANY MEASURES USED TO TRAP SEDIMENT. ALL SEDIMENT SPILLED, WASHED, OR TRACKED ONTO THE PUBLIC RIGHT-OF-WAY MUST BE REMOVED PROMPTLY.

STABILIZED CONSTRUCTION ENTRANCE

NOT TO SCALE

CONSTRUCTION SEQUENCE

1. PRIOR TO THE START OF ANY ACTIVITY, IT IS THE RESPONSIBILITY OF THE SITE'S SITE DEVELOPER (OR OWNER) TO FILE A NOTICE OF INTENT (NOI) FORM WITH THE ENVIRONMENTAL PROTECTION AGENCY (EPA) IN ORDER TO GAIN COVERAGE UNDER THE NPDES GENERAL PERMIT FOR STORM WATER DISCHARGES FROM CONSTRUCTION ACTIVITIES. A PRE CONSTRUCTION MEETING IS TO BE HELD WITH ALL DEPARTMENT HEADS PRIOR TO THE START OF CONSTRUCTION.
2. WETLAND BOUNDARIES ARE TO BE CLEARLY MARKED PRIOR TO THE START OF CONSTRUCTION.
3. CUT AND REMOVE TREES IN CONSTRUCTION AREA AS REQUIRED OR DIRECTED.
4. INSTALL SILT FENCING, HAY BALES AND CONSTRUCTION ENTRANCES PRIOR TO THE START OF CONSTRUCTION. THESE ARE TO BE MAINTAINED UNTIL THE FINAL PAVEMENT SURFACING AND LANDSCAPING AREAS ARE ESTABLISHED.
5. CLEAR, CUT, GRUB AND DISPOSE OF DEBRIS IN APPROVED FACILITIES. THIS INCLUDES ANY REQUIRED DEMOLITION OF EXISTING STRUCTURES, UTILITIES, ETC.
6. CONSTRUCT AND/OR INSTALL TEMPORARY OR PERMANENT SEDIMENT AND/OR DETENTION BASIN(S) (INCLUDING RAIN GARDENS AND UNDERGROUND DETENTION SYSTEM) AS REQUIRED. THESE FACILITIES SHALL BE INSTALLED AND STABILIZED PRIOR TO DIRECTING RUN-OFF TO THEM.
7. STRIP LOAM AND PAVEMENT PER THE RECOMMENDATIONS OF THE PROJECT ENGINEER AND STOCKPILE EXCESS MATERIAL. STABILIZE STOCKPILE AS NECESSARY.
8. PERFORM PRELIMINARY SITE GRADING IN ACCORDANCE WITH THE PLANS.
9. PREPARE BUILDING PADS TO ENABLE BUILDING CONSTRUCTION TO BEGIN.
10. INSTALL THE SEWER AND DRAINAGE SYSTEMS FIRST, THEN ANY OTHER UTILITIES IN ACCORDANCE WITH THE PLAN AND DETAILS. ANY CONFLICTS BETWEEN UTILITIES ARE TO BE RESOLVED WITH THE INVOLVEMENT AND APPROVAL OF THE ENGINEER.
11. ALL SWALES AND DRAINAGE STRUCTURES ARE TO BE CONSTRUCTED AND STABILIZED PRIOR TO HAVING RUN-OFF DIRECTED TO THEM.
12. DAILY, OR AS REQUIRED, CONSTRUCT TEMPORARY BERMS, DRAINAGE DITCHES, CHECK DAMS, SEDIMENT TRAPS, ETC., TO PREVENT EROSION ON THE SITE AND PREVENT ANY SILTATION OF ABUTTING WATERS AND/OR PROPERTY.
13. PERFORM FINAL FINE GRADING, INCLUDING PLACEMENT OF 'SELECT' SUBGRADE MATERIALS.
14. PAVE DRIVEWAYS AND ROADWAY WITH INITIAL 'BASE COURSE'.
15. PERFORM ALL REMAINING SITE CONSTRUCTION (i.e. BUILDING, CURBING, UTILITY CONNECTIONS, ETC.).
16. LOAM AND SEED ALL DISTURBED AREAS AND INSTALL ANY REQUIRED SEDIMENT AND EROSION CONTROL FACILITIES (i.e. RIP RAP, EROSION CONTROL BLANKETS, ETC.).
17. FINISH PAVING ALL DRIVEWAYS AND ROADWAY WITH 'FINISH' COURSE.
18. DRIVEWAYS AND ROADWAY SHALL BE STABILIZED WITHIN 72 HOURS OF ACHIEVING FINISHED GRADE.
19. ALL CUT AND FILL SLOPES SHALL BE SEEDED/LOAMED WITHIN 72 HOURS OF ACHIEVING FINISHED GRADE.
20. COMPLETE PERMANENT SEEDING AND LANDSCAPING.
21. REMOVE TEMPORARY EROSION CONTROL MEASURES AFTER SEEDING AREAS HAVE BEEN 75%-85% ESTABLISHED AND SITE IMPROVEMENTS ARE COMPLETE. SMOOTH AND RE-VEGETATE ALL DISTURBED AREAS.
22. CLEAN SITE AND ALL DRAINAGE STRUCTURES, PIPES AND SUMPS OF ALL SILT AND DEBRIS.
23. INSTALL ALL PAINTED PAVEMENT MARKINGS AND SIGNAGE PER THE PLANS AND DETAILS.
24. ALL EROSION CONTROLS SHALL BE INSPECTED WEEKLY AND AFTER EVERY HALF-INCH OF RAINFALL.
25. UPON COMPLETION OF CONSTRUCTION, IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO NOTIFY ANY RELEVANT PERMITTING AGENCIES THAT THE CONSTRUCTION HAS BEEN FINISHED IN A SATISFACTORY MANNER.

Design: JAC	Draft: DJM	Date: 3/25/21
Checked: JAC	Scale: AS NOTED	Project No.: 21047
Drawing Name: 21047-PLAN.dwg		

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

REV.	DATE	REVISION	BY
5	8/23/21	ISSUED FOR REVIEW	DJM
4	6/23/21	ISSUED FOR CONCEPTUAL REVIEW	DJM
3	6/1/21	REVISED BUILDING LAYOUT	AJB
2	4/28/21	MINOR REVISION	DJM
1	4/20/21	REVISED LAYOUT	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: EROSION AND SEDIMENT CONTROL DETAILS

Project: SAGAMORE AVENUE CONDOMINIUMS
1169 & 1171 SAGAMORE AVE., PORTSMOUTH, NEW HAMPSHIRE

Owner of Record: LOT 14: COLLEEN HEBERT, 54 PIONEER RD, RYE, NH 03870 BK 2418 PG 173; LOT 15: JOHN J. & COLLEEN HEBERT, 54 PIONEER RD, RYE, NH 03870 BK 5383 PG 219

DRAWING No.
E1
SHEET 16 OF 18
JBE PROJECT NO. 21047

GRAPHIC SCALE

20 0 10 20 40 80

(IN FEET)
1 inch = 20 feet

Portsmouth Fire Truck

	feet
Width	: 8.50
Track	: 6.91
Lock to Lock Time	: 6.0
Steering Angle	: 38.7

LEGEND:

= VEHICLE BODY

= FRONT WHEELS

= REAR WHEELS

PROJECT PARCEL
CITY OF PORTSMOUTH
TAX MAP 224, LOTS 14 & 15

APPLICANT
THE SAGAMORE GROUP, LLC
PO BOX 430
HAMPTON, NH 03842

TOTAL LOT AREA
79,292 SQ. FT.
1.83 ACRES

Design: JAC	Draft: DJM	Date: 3/25/21
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Stratham, NH 03885
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Plan Name: TRUCK TURNING PLAN

Project: SAGAMORE AVENUE CONDOMINIUMS
1169 & 1171 SAGAMORE AVE., PORTSMOUTH, NEW HAMPSHIRE

Owner of Record: LOT 14: COLLEEN HEBERT, 54 PIONEER RD, RYE, NH 03870 BK 2418 PG 173; LOT 15: JOHN J. & COLLEEN HEBERT, 54 PIONEER RD, RYE, NH 03870 BK 5383 PG 219

DRAWING No.
T1
SHEET 17 OF 18
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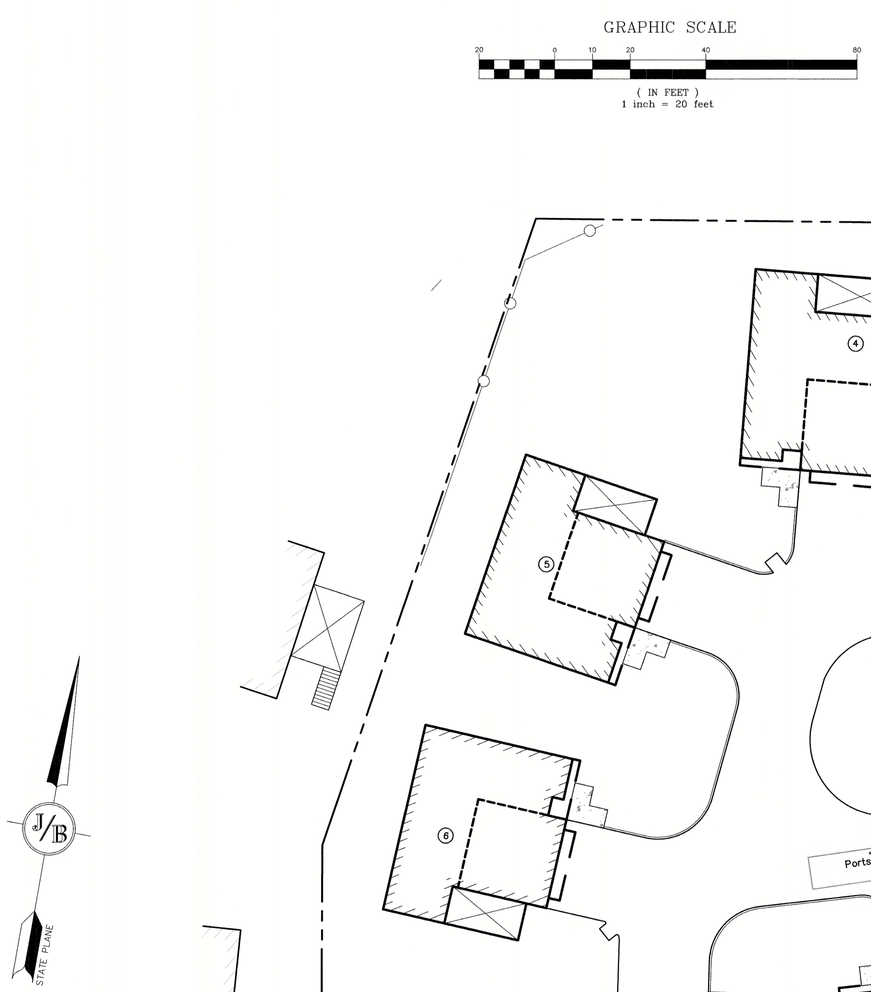

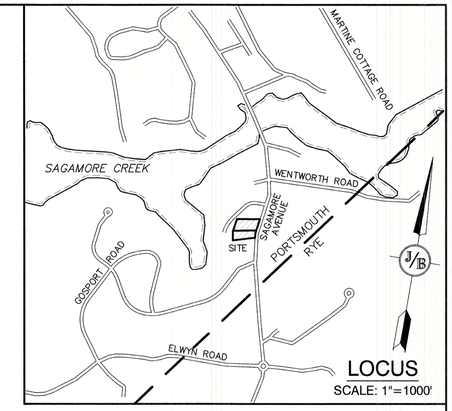

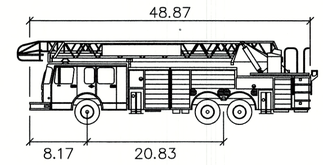

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CITY OF PORTSMOUTH
TAX MAP 224, LOTS 14 & 15

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DRAWING No.
T2
SHEET 18 OF 18
JBE PROJECT NO. 21047