

# JONES & BEACH ENGINEERS INC.

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

March 22, 2022

Portsmouth Technical Advisory Committee  
Attn: Peter Stith  
1 Junkins Avenue, Suite 3<sup>rd</sup> Floor  
Portsmouth, NH 03801

**RE: Response Letter 3**  
**668 Middle Street, Portsmouth, NH**  
**Tax Map 147, Lot 18**  
**JBE Project No. 20686**

Dear Mr. Stith,

We are in receipt of comments from Stefanie Casella, City Planner, dated February 28, 2022. Review comments are listed below with our responses in bold.

## **PLANNER COMMENTS:**

1. *Mill and Overlay on Chevrolet Ave needs to be 1.5" thick to match the thickness of the existing pavement.*

**RESPONSE: This comment has been updated on sheet C2.**

2. *MSDOS structure to enter existing pipe via insert a tee, not DMH*

**RESPONSE: This has been revised and shown as a tee on sheet C3.**

3. *Crown in driveway should dissipate as it approaches Chevrolet Ave so that all water reaches rain garden. Remove curb and put sidewalk if required on the uphill side so the stormwater can actually get into the stormwater pond.*

**RESPONSE: The driveway slope has been updated and the curb has been removed to allow water to reach the rain garden.**

4. *TBM is still in wrong datum*

**RESPONSE: The TBM has been updated on sheets C1 and C2.**

5. *Please change Coordinate system to State Plane NAD83.*

**RESPONSE: This has been updated as note 4 on C1 and C2**

6. *The proposed ROW easement is larger than necessary and should not include the rain garden. 5' off edge of pavement is sufficient. Please make sure no part of the rain garden is in the easement.*

**RESPONSE: The ROW easement has been revised and is now shown at approximately 5' off the edge of pavement.**

7. *Rework of the existing invert inside SMH 2395 will be required to allow the new pipe to enter at the proposed elevation required to cross the existing drain. Installer to work with Portsmouth DPW to make connections to their satisfaction.*

**RESPONSE:** This has been added as note 30 on sheet C4.

8. *The sewer profile should include the private portion.*

**RESPONSE:** The sewer profile has been extended to show the private portion of the sewer main.

9. *Keep the City portion of the sewer main under the roadway.*

**RESPONSE:** The sewer manhole has been relocated to the driveway apron within the proposed easement.

10. *2" water lines don't use gate valves. Please relocate main shutoff on 2" line to the driveway apron. 2" waterlines don't use thrust blocks as the pipe bends, there are usually no fittings. It must be clear that the common 2" water line is owned in common between both lots*

**RESPONSE:** The gate valves have been removed, water shutoff has been added within the driveway apron, and a note has been added to sheet A1 as note 13.

11. *If CTS pipe is being proposed for water services, tracing wires need to be installed to DPW standards*

**RESPONSE:** A note has been added to the detail on sheet D2.

12. *There is landscaping proposed along Chevrolet Ave that would block sight distance. Please remove from the plan*

**RESPONSE:** The landscaping plan has been revised.

13. *The hydrant detail shown is not correct for a blow off hydrant*

**RESPONSE:** The hydrant detail has been corrected.

14. *An agreement with Portsmouth water will be required for water system flushing*

**RESPONSE:** Note 31 has been added to sheet C4.

15. *An easement in the private ROW area will be required for valve access and leak detection*

**RESPONSE:** Note 13 has been added on sheet A1 and was moved from sheet C2.

16. *Acquiring the portion of the easement in the portion off site is required for approval*

**RESPONSE:** The easement has been accepted by the abutters and we are currently finalizing them. The draft easement documents are included in this submission.

17. *The carriage house structure must be a condo in the remaining mother parcel in order to allow it to have a separate water service*

**RESPONSE:** See note 11 on sheet CS1.

18. *Please provide architectural plans and all associated data as identified on application checklist.*

**RESPONSE:** Architectural plans have been added to the plan set.

19. Please Identify where the proposed snow storage will be located

**RESPONSE: Proposed snow storage is depicted on sheet C2.**

20. Please correct address on the Drainage Analysis Sediment and Erosion Control Plan

**RESPONSE: This has been corrected and a new cover page will be submitted.**

21. Please update checklist throughout process to properly identify where information is in application and plan set.

**RESPONSE: The checklist has been updated.**

Included with this response letter are the following:

1. One (1) Full Size Plan Set.
2. One (1) Drainage Report.
3. One (1) 11x 17 Architectural Plan Set
4. Draft Easement Documents

Very truly yours,

**JONES & BEACH ENGINEERS, INC.**



Erica Eames  
Project Engineer

cc: Michael Garrepy, Tuck Realty Corporation (via email)  
Tim Phoenix, Attorney (via email)  
Wendy Welton, Art From Architecture (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. The checklist is required to be completed and uploaded to the Site Plan application in the City's online permitting system. 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 Applicant: Tuck Realty Corp. Date Submitted: 12/20/21

Application # (in City's online permitting): \_\_\_\_\_

Site Address: 668 Middle Street, Portsmouth, NH Map: 147 Lot: 18

Application Requirements			
<input checked="" type="checkbox"/>	Required Items for Submittal	Item Location (e.g. Page or Plan Sheet/Note #)	Waiver Requested
<input checked="" type="checkbox"/>	Complete application form submitted via the City's web-based permitting program (2.5.2.1(2.5.2.3A))		N/A
<input checked="" type="checkbox"/>	All application documents, plans, supporting documentation and other materials uploaded to the application form in viewpoint in digital Portable Document Format (PDF). One hard copy of all plans and materials shall be submitted to the Planning Department by the published deadline. (2.5.2.8)		N/A

Site Plan Review Application Required Information			
<input checked="" type="checkbox"/>	Required Items for Submittal	Item Location (e.g. Page/line or Plan Sheet/Note #)	Waiver Requested
<input checked="" type="checkbox"/>	Statement that lists and describes "green" building components and systems. (2.5.3.1B)	Drainage Report & C3	
<input checked="" type="checkbox"/>	Existing and proposed gross floor area and dimensions of all buildings and statement of uses and floor area for each floor. (2.5.3.1C)	Architectural Plans	N/A
<input checked="" type="checkbox"/>	Tax map and lot number, and current zoning of all parcels under Site Plan Review. (2.5.3.1D)	C2, Note 2	N/A



Site Plan Review Application Required Information			
<input checked="" type="checkbox"/>	Required Items for Submittal	Item Location (e.g. Page/line or Plan Sheet/Note #)	Waiver Requested
<input checked="" type="checkbox"/>	Owner's name, address, telephone number, and signature. Name, address, and telephone number of applicant if different from owner. (2.5.3.1E)	LOA or Title Block	N/A
<input checked="" type="checkbox"/>	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. (2.5.3.1F)	C1	N/A
<input checked="" type="checkbox"/>	Names, addresses and telephone numbers of all professionals involved in the site plan design. (2.5.3.1G)	Cover Sheet	N/A
<input checked="" type="checkbox"/>	List of reference plans. (2.5.3.1H)	C1 Plan Reference Note	N/A
<input checked="" type="checkbox"/>	List of names and contact information of all public or private utilities servicing the site. (2.5.3.1I)	Cover Sheet	N/A

Site Plan Specifications			
<input checked="" type="checkbox"/>	Required Items for Submittal	Item Location (e.g. Page/line or Plan Sheet/Note #)	Waiver Requested
<input checked="" type="checkbox"/>	Full size plans shall not be larger than 22 inches by 34 inches with match lines as required, unless approved by the Planning Director.. (2.5.4.1A)	Required on all plan sheets	N/A
<input checked="" type="checkbox"/>	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
<input checked="" type="checkbox"/>	GIS data should be referenced to the coordinate system New Hampshire State Plane, NAD83 (1996), with units in feet. (2.5.4.1C)	C1 Note 4	N/A
<input checked="" type="checkbox"/>	Plans shall be drawn to scale and stamped by a NH licensed civil engineer. (2.5.4.1D)	Required on all plan sheets	N/A
<input checked="" type="checkbox"/>	Wetlands shall be delineated by a NH certified wetlands scientist and so stamped. (2.5.4.1E)	N/A	N/A
<input checked="" type="checkbox"/>	Title (name of development project), north point, scale, legend. (2.5.4.2A)	Cover Sheet & C2	N/A
<input checked="" type="checkbox"/>	Date plans first submitted, date and explanation of revisions. (2.5.4.2B)	Revision Block, All Sheets	N/A
<input checked="" type="checkbox"/>	Individual plan sheet title that clearly describes the information that is displayed. (2.5.4.2C)	Required on all plan sheets	N/A
<input checked="" type="checkbox"/>	Source and date of data displayed on the plan. (2.5.4.2D)	Plan Reference C1, A1 & C2	N/A

### Site Plan Specifications – Required Exhibits and Data

<input checked="" type="checkbox"/>	Required Items for Submittal	Item Location (e.g. Page/line or Plan Sheet/Note #)	Waiver Requested
<input checked="" type="checkbox"/>	<b>1. Existing Conditions: (2.5.4.3A)</b> <ul style="list-style-type: none"> <li>• Surveyed plan of site showing existing natural and built features;</li> <li>• Existing building footprints and gross floor area;</li> <li>• Existing parking areas and number of parking spaces provided;</li> <li>• Zoning district boundaries;</li> <li>• Existing, required, and proposed dimensional zoning requirements including building and open space coverage, yards and/or setbacks, and dwelling units per acre;</li> <li>• Existing impervious and disturbed areas;</li> <li>• Limits and type of existing vegetation;</li> <li>• Wetland delineation, wetland function and value assessment (including vernal pools);</li> <li>• SFHA, 100-year flood elevation line and BFE data, as required.</li> </ul>	Architectural Plans & C1	
<input checked="" type="checkbox"/>	<b>2. Buildings and Structures: (2.5.4.3B)</b> <ul style="list-style-type: none"> <li>• Plan view: Use, size, dimensions, footings, overhangs, 1st fl. elevation;</li> <li>• Elevations: Height, massing, placement, materials, lighting, façade treatments;</li> <li>• Total Floor Area;</li> <li>• Number of Usable Floors;</li> <li>• Gross floor area by floor and use.</li> </ul>	Architectural Plans & C1	
<input checked="" type="checkbox"/>	<b>3. Access and Circulation: (2.5.4.3C)</b> <ul style="list-style-type: none"> <li>• Location/width of access ways within site;</li> <li>• Location of curbing, right of ways, edge of pavement and sidewalks;</li> <li>• Location, type, size and design of traffic signing (pavement markings);</li> <li>• Names/layout of existing abutting streets;</li> <li>• Driveway curb cuts for abutting prop. and public roads;</li> <li>• If subdivision; Names of all roads, right of way lines and easements noted;</li> <li>• AASHTO truck turning templates, description of minimum vehicle allowed being a WB-50 (unless otherwise approved by TAC).</li> </ul>	C2	
<input checked="" type="checkbox"/>	<b>4. Parking and Loading: (2.5.4.3D)</b> <ul style="list-style-type: none"> <li>• Location of off street parking/loading areas, landscaped areas/buffers;</li> <li>• Parking Calculations (# required and the # provided).</li> </ul>	C2	
<input checked="" type="checkbox"/>	<b>5. Water Infrastructure: (2.5.4.3E)</b> <ul style="list-style-type: none"> <li>• Size, type and location of water mains, shut-offs, hydrants &amp; Engineering data;</li> <li>• Location of wells and monitoring wells (include protective radii).</li> </ul>	C1 & C4	
<input checked="" type="checkbox"/>	<b>6. Sewer Infrastructure: (2.5.4.3F)</b> <ul style="list-style-type: none"> <li>• Size, type and location of sanitary sewage facilities &amp; Engineering data, including any onsite temporary facilities during construction period.</li> </ul>	C1 & C4	

<input checked="" type="checkbox"/>	<b>7. Utilities: (2.5.4.3G)</b> <ul style="list-style-type: none"> <li>The size, type and location of all above &amp; below ground utilities;</li> <li>Size type and location of generator pads, transformers and other fixtures.</li> </ul>	C4	
<input checked="" type="checkbox"/>	<b>8. Solid Waste Facilities: (2.5.4.3H)</b> <ul style="list-style-type: none"> <li>The size, type and location of solid waste facilities.</li> </ul>	N/A	
<input checked="" type="checkbox"/>	<b>9. Storm water Management: (2.5.4.3I)</b> <ul style="list-style-type: none"> <li>The location, elevation and layout of all storm-water drainage.</li> <li>The location of onsite snow storage areas and/or proposed off-site snow removal provisions.</li> <li>Location and containment measures for any salt storage facilities</li> <li>Location of proposed temporary and permanent material storage locations and distance from wetlands, water bodies, and stormwater structures.</li> </ul>	C3 & Drainage report	
<input checked="" type="checkbox"/>	<b>10. Outdoor Lighting: (2.5.4.3J)</b> <ul style="list-style-type: none"> <li>Type and placement of all lighting (exterior of building, parking lot and any other areas of the site) and photometric plan.</li> </ul>	L1	
<input checked="" type="checkbox"/>	<b>11. Indicate where dark sky friendly lighting measures have been implemented. (10.1)</b>	L1	
<input checked="" type="checkbox"/>	<b>12. Landscaping: (2.5.4.3K)</b> <ul style="list-style-type: none"> <li>Identify all undisturbed area, existing vegetation and that which is to be retained;</li> <li>Location of any irrigation system and water source.</li> </ul>	L2	
<input checked="" type="checkbox"/>	<b>13. Contours and Elevation: (2.5.4.3L)</b> <ul style="list-style-type: none"> <li>Existing/Proposed contours (2 foot minimum) and finished grade elevations.</li> </ul>	C3	
<input checked="" type="checkbox"/>	<b>14. Open Space: (2.5.4.3M)</b> <ul style="list-style-type: none"> <li>Type, extent and location of all existing/proposed open space.</li> </ul>	C1 Note 2/	
<input checked="" type="checkbox"/>	<b>15. All easements, deed restrictions and non-public rights of ways. (2.5.4.3N)</b>	A1	
<input checked="" type="checkbox"/>	<b>16. Character/Civic District (All following information shall be included): (2.5.4.3P)</b> <ul style="list-style-type: none"> <li>Applicable Building Height (10.5A21.20 &amp; 10.5A43.30);</li> <li>Applicable Special Requirements (10.5A21.30);</li> <li>Proposed building form/type (10.5A43);</li> <li>Proposed community space (10.5A46).</li> </ul>	C2	
<input checked="" type="checkbox"/>	<b>17. Special Flood Hazard Areas (2.5.4.3Q)</b> <ul style="list-style-type: none"> <li>The proposed development is consistent with the need to minimize flood damage;</li> <li>All public utilities and facilities are located and construction to minimize or eliminate flood damage;</li> <li>Adequate drainage is provided so as to reduce exposure to flood hazards.</li> </ul>	C1 Note 3	

Other Required Information			
<input checked="" type="checkbox"/>	Required Items for Submittal	Item Location (e.g. Page/line or Plan Sheet/Note #)	Waiver Requested
<input checked="" type="checkbox"/>	Traffic Impact Study or Trip Generation Report, as required. (3.2.1-2)	N/A	
<input checked="" type="checkbox"/>	Indicate where Low Impact Development Design practices have been incorporated. (7.1)	C3 & Drainage Report	
<input checked="" type="checkbox"/>	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)	N/A	
<input checked="" type="checkbox"/>	Stormwater Management and Erosion Control Plan. (7.4)	Attached	
<input checked="" type="checkbox"/>	Inspection and Maintenance Plan (7.6.5)	N/A	

Final Site Plan Approval Required Information			
<input checked="" type="checkbox"/>	Required Items for Submittal	Item Location (e.g. Page/line or Plan Sheet/Note #)	Waiver Requested
<input type="checkbox"/>	All local approvals, permits, easements and licenses required, including but not limited to: <ul style="list-style-type: none"> <li>• Waivers;</li> <li>• Driveway permits;</li> <li>• Special exceptions;</li> <li>• Variances granted;</li> <li>• Easements;</li> <li>• Licenses.</li> </ul> (2.5.3.2A)		
<input type="checkbox"/>	Exhibits, data, reports or studies that may have been required as part of the approval process, including but not limited to: <ul style="list-style-type: none"> <li>• Calculations relating to stormwater runoff;</li> <li>• Information on composition and quantity of water demand and wastewater generated;</li> <li>• Information on air, water or land pollutants to be discharged, including standards, quantity, treatment and/or controls;</li> <li>• Estimates of traffic generation and counts pre- and post- construction;</li> <li>• Estimates of noise generation;</li> <li>• A Stormwater Management and Erosion Control Plan;</li> <li>• Endangered species and archaeological / historical studies;</li> <li>• Wetland and water body (coastal and inland) delineations;</li> <li>• Environmental impact studies.</li> </ul> (2.5.3.2B)		
<input type="checkbox"/>	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)		

**Final Site Plan Approval Required Information**

<input checked="" type="checkbox"/>	<b>Required Items for Submittal</b>	<b>Item Location (e.g. Page/line or Plan Sheet/Note #)</b>	<b>Waiver Requested</b>
<input type="checkbox"/>	A list of any required state and federal permit applications required for the project and the status of same. (2.5.3.2E)		
<input checked="" type="checkbox"/>	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)		N/A
<input type="checkbox"/>	For site plans that involve land designated as "Special Flood Hazard Areas" (SFHA) by the National Flood Insurance Program (NFIP) confirmation that all necessary permits have been received from those governmental agencies from which approval is required by Federal or State law, including Section 404 of the Federal Water Pollution Control Act Amendments of 1972, 33 U.S.C. 1334. (2.5.4.2F)		
<input checked="" type="checkbox"/>	Plan sheets submitted for recording shall include the following notes: <ul style="list-style-type: none"> <li>a. "This Site Plan shall be recorded in the Rockingham County Registry of Deeds."</li> <li>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."</li> </ul> (2.13.3)		N/A

Applicant's Signature: Joseph Coronati Date: 12/20/21

## AUTHORIZATION

The undersigned, Elizabeth B. Larsen, Trustee of the Elizabeth B. Larsen Trust of 2012("Trust"), owner of the property located at 668Middle Street, Portsmouth, New Hampshire and further identified as Portsmouth Tax Map 147, Lot 18 (the "Property"), hereby authorize Tuck Realty Corporation ("Tuck") and its advisors Jones & Beach Engineers, Inc. and Hoefle, Phoenix, Gormley and Roberts, P.A., to file documents and appear before the Portsmouth Zoning Board of Adjustment, Planning Board, Technical Advisory Committee and/or Conservation Commission in all matters relating to applications by Tuck to the City of Portsmouth to permit the subdivision of and up to eight townhouses or similar structureson the Property.

Dated: January27, 2021

By:

<i>Elizabeth B. Larsen</i>	dotloop verified 01/27/21 2:40 PM EST TGOV-SMJF-LFZY-ERRP
----------------------------	---

Elizabeth B. Larsen, Trustee  
Elizabeth B. Larsen Trust of 2012

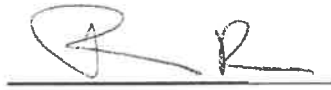
### Letter of Authorization

I, W. Turner Porter, Tuck Realty Corporation, PO Box 190, Exeter, NH 03833, developer of property located in Portsmouth, NH, known as Tax Map 147, Lot 18, 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 668 Middle Street 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



W. Turner Porter  
Tuck Realty Corporation

8/23/21  
Date

065834

**WARRANTY DEED**

KNOW ALL MEN BY THESE PRESENTS that I, **Elizabeth B. Larsen**, unmarried, of 668 Middle Street, Portsmouth, Rockingham County, New Hampshire, 03801,

for consideration paid, grant to **Elizabeth B. Larsen, Trustee of The Elizabeth B. Larsen Trust of 2012** u/d/t dated December 11, 2012, of 668 Middle Street, Portsmouth, Rockingham County, New Hampshire, 03801,

with **WARRANTY COVENANTS** the following described real estate:

**PARCEL I.** A certain parcel of land with the buildings thereon, situate on Middle Street, in said Portsmouth, bounded and described as follows:

BEGINNING on Middle Street at land now or formerly of Blanche B. Lovell and running northwesterly by said Lovell's land seven (7) feet to an angle in the division line; thence turning and running North Eighty (80) degrees West by said Lovell's land, land now or formerly of William Conlon and Annie F. Pierce, land now or formerly of the Heirs of Ellen G. Walsh, land now or formerly of the Heirs of Victor Goss, and land now or formerly of Maurice J. and Elizabeth T. Ham, four hundred sixty-two (462) feet to the center of a stone post; thence turning and running North twenty-six (26) degrees West by land of the City of Portsmouth, formerly of the Frank Jones Brewing Company, one hundred six feet and six inches (106.6") to the center of a stone post; thence turning and running North fifty-nine (59) degrees East by land now or formerly of Coleman and Taccetta, formerly of the Frank Jones Brewing Company, two hundred twenty-seven and one half (227 ½) feet to land now or formerly of Florence Loughton; thence turning and running Southeasterly in a direct line by said Loughton's land four hundred forty-two and one half (442 ½) feet, more or less, to Middle Street; thence turning and running Southwesterly by said Street sixty-nine feet and ten inches (69 ft. 10 in.) more or less, to the place of beginning.

Together with a right of way thirty (30) feet wide across the northwesterly side of land now or formerly of said Loughton, adjoining the land now or formerly of said Coleman and Taccetta, formerly of said Brewing Company, and subject to similar right of way in said Loughton, her heirs and assigns, thirty (30) feet wide across the northwesterly side of the land herein conveyed, adjoining land now or formerly of said Coleman and Taccetta. Said rights of way are more fully

2012 DEC 20 PM 12: 04

ROCKINGHAM COUNTY  
REGISTRY OF DEEDS



limited and defined in deed of William J. Moat to G. Ralph Loughton, dated 10 May, 1980, recorded in Rockingham Registry of Deeds, Book 512, Page 429, and an agreement of G. Ralph Loughton and Harry E. Boynton, dated May 31, 1913 and recorded in said Rockingham Registry of Deeds, Book 674, Page 341, to which reference is hereby made for a more complete description.

Also, those certain parcels of land located on Forest, Central and Elm Streets, Portsmouth, County of Rockingham, State of New Hampshire, bounded and described as follows:

PARCEL 1. BEGINNING at a point in the northeasterly sideline of Forest Street at the northwesterly corner of land now or formerly of DeCoff, being Lot No. 263 on Plan of Jackson Farm and Buckminster Field drawn by John W. Durgin, CE dated February 1955, recorded in Rockingham County Registry of Deeds and running northwesterly by the northeasterly sideline of Forest Street about 256 feet to the southerly corner of Lot No. 267 on said plan; thence turning and running southwesterly about one hundred feet to the point where the southeasterly sideline of Lot 216 on said plan is intersected by the easterly sideline of the property now or formerly of the State of New Hampshire and being the approach to the high level Piscataqua River Bridge; thence turning and running northerly along the easterly sideline of the said bridge approach land now or formerly of the State of New Hampshire to land now or formerly of the Boston & Maine Railroad; thence turning and running easterly by the right of way of the Boston & Maine Railroad to the northwesterly corner of Lot No. 263; thence turning and running southerly by the westerly line of Lot 263 to the point of beginning, said parcel comprising those portions of Lots 216 and 267 not taken by the State of New Hampshire for the approach to the Piscataqua Bridge, together with Lots 264, 265 and 266, and the stub of land on Forest Street westerly of the westerly sideline of Central Street and the stub of Central Street northerly of the northerly sideline of forest.

PARCEL 2. BEGINNING at a point in the northwesterly sideline of Elm Street at the southwesterly corner of Lot No. 237, the property now or formerly of Zamarchi, being the northeasterly corner of the parcel herein described and running southwesterly by said Elm Street 130 feet to a corner at Lot 234, the property now or formerly of the City of Portsmouth; thence turning and running northwesterly by said Lot 234 and Lot 221, the property now or formerly of the City of Portsmouth, 160 feet to the southeasterly side of Central Street; thence turning and running northeasterly by Central Street 101 feet to a corner at Lot No. 218, the property now or formerly of the City of Portsmouth, thence turning and running southeasterly by Lot 218 and Lot 237 to Elm Street and the point of beginning. Comprising Lots 219, 220, 235 and 236 on said Plan of Jackson Farm and Buckminster Field.

PARCEL 3. All my right, title and interest in and to the following streets or portions of streets, namely:

Central Street from the easterly sideline of the Piscataqua River Bridge approach to the southerly sideline of Forest Street.

That portion of Elm Street bounded northerly by Forest Street, southwesterly by land now or formerly of Zamarchi 200 feet, westerly by Elm Street, and northwesterly by Parcel 2 and land of Zamarchi 190 feet.

Forest Street from the westerly side of Cutts Street westerly to a line between the easterly corner of Lot 216 and the southeasterly corner of Lot 217.

These parcels are subject to such rights as the abutting owners and others may have the use thereof for access to their respective properties.

These parcels are also subject to an Easement to Northern Utilities, Inc. dated March 4, 2004, and recorded at Rockingham County Registry of Deeds in Book 4470, Page 2003.

Included in this conveyance is any and all personal property contents of the real estate.

Being the same premises conveyed to the Grantor by deed of The Wyman P. Boynton Revocable Trust of 1994 u/d/t dated September 1, 1994, recorded at Rockingham County Superior Court at Book 3980, Page 0209.

Dated this 11<sup>th</sup> day of December, 2012.

W. W. Woodman Jr.  
Witness

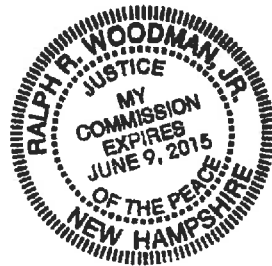
Elizabeth B. Larsen  
Elizabeth B. Larsen

State of New Hampshire  
Rockingham, SS.

December 11, 2012

Personally appeared, before me, the above-named Elizabeth B. Larsen, known to me, or satisfactorily proven, to be the person whose name is subscribed to the foregoing instrument and acknowledged that she executed the same for the purposes therein contained.

W. W. Woodman Jr.  
Notary Public/Justice of the Peace



Return To:  
Legal Department  
City Hall  
1 Junkins Ave.  
Portsmouth, NH 03801

## **ACCESS, UTILITY AND DRAINAGE EASEMENT DEED**

PUBLIC LAND HOLDINGS LLC, a New Hampshire limited liability company with a mailing address of P.O. Box 190, Exeter, New Hampshire 03833 ("Grantor"), for due consideration, hereby grants to the CITY OF PORTSMOUTH, a municipal body politic, having a mailing address of 1 Junkins Avenue, Portsmouth, New Hampshire 30801 ("Grantee"), with QUITCLAIM COVENANTS, the following easements with respect to Grantor's real property situate on Chevrolet Avenue, Portsmouth, Rockingham County, New Hampshire, also identified as Portsmouth Tax Assessor's Map 147, Lot 18 (the "Premises"):

1. **Easement Area:** to construct, use, repair and replace a roadway for ingress and egress by foot and by vehicle by Grantee and members of the public, together with the right to install underground utilities, and storm water flowage under, over and across that area shown as "Proposed Right of Way and Sewer Easement to Benefit the City of Portsmouth and Proposed Lots 1 and 2" (the "Easement Area") on a plan entitled "Subdivision and Lot Line Adjustment Plan, 668 Middle Street, Portsmouth, NH, Sheet A1, dated November 11, 2020 and revised through \_\_\_\_\_, 2022, by Jones & Beach Engineers, Inc., recorded in the Rockingham County Registry of Deeds (the "Registry") as Plan # \_\_\_\_\_ (the "Plan"), which Easement Area is more particularly described as follows:

Beginning at a proposed railroad spike on the easterly side of Chevrolet Ave. and the northeasterly corner of Lot 18 as shown on the above-referenced plan; thence running S 70° 24' 38" E a distance of 22.43 feet to a point; thence turning and running along a curve with a radius of 519.00 feet, S 45° 24' 52" W with an Arc Length of 22.21 feet; thence turning and running along a curve with a radius of 519.00 feet, S 51° 08' 07" W with an Arc Length of 81.43 feet to a point; thence turning and running S 55° 37' 48" W a distance of 0.87 feet to a point; thence turning and running S 55° 37' 42" W a distance of 19.70 feet to a point; thence continuing S 55° 37' 42" W a distance of 5.30 feet to a point; thence turning and running along a curve with a radius of 481.00 feet, S 54° 06' 57" W an Arc Length of 23.79 feet to a point; thence turning and running N 43° 50' 49" E a distance of 118.10 feet to a proposed railroad spike at the point of beginning.

2. **Purpose and Rights:** The Grantee shall have a permanent and non-exclusive easement and right of way in, under, across and over the Easement Area for the purpose of installing, maintaining, inspecting, removing, repairing, and replacing the roadway and

any utility and/or drainage lines and pipes, together with any associated infrastructure, equipment, outfall, swales and storm water flow. The Grantee shall have the right to remove trees, bushes, undergrowth and other obstructions interfering with the activities authorized herein and to take such other actions as may be necessary, useful or convenient for the enjoyment of the easement rights herein granted.

3. **Grantee's Responsibility to Restore:** Disturbed areas within the Easement Area and they shall be restored at the Grantee's expense.
4. **Grantor's Retained Rights:** Grantor retains the right to freely use and enjoy its interest in the Easement Area insofar as the exercise thereof does not endanger or interfere with the purpose of this instrument, including without limitation any rights of the public to safely utilize Chevrolet Avenue as a public way. Grantor shall not, however, erect any fence or other structure within the Easement Area, substantially change the grade or slope, install any pipes, or pave or asphalt the Permanent Easement Area without prior written consent of the Grantee.
5. **Personal Property.** It is agreed that all utility and drainage infrastructure and related facilities installed within the Easement Area, whether fixed to the realty or not, shall be and remain the property of the Grantee.
6. **Easement to Run with Land:** All rights and privileges, obligations and liabilities created by this instrument shall inure to the benefit of, and be binding upon, the heirs, devisees, administrators, executor, successors and assignees of the Grantee and of the Grantor, the parties hereto and all subsequent owners of the Premises and shall run with the land.

MEANING AND INTENDING to describe and convey and easement over a portion of the premises conveyed to Grantor by Elizabeth B. Larsen, Trustee of the Elizabeth B. Larsen Trust of 2012 by deed dated December 21, 2021 and recorded at the Registry at Book 6367, Page 1660.

This is an exempt transfer per RSA 78-B:2(I).

Dated this \_\_\_\_ day of \_\_\_\_\_, 2022.

PUBLIC LAND HOLDINGS LLC

\_\_\_\_\_  
Witness

By: \_\_\_\_\_  
Name:  
Title

STATE OF NEW HAMPSHIRE  
COUNTY OF ROCKINGHAM

This instrument was acknowledged before me on \_\_\_\_\_, 2022, by  
\_\_\_\_\_, duly authorized \_\_\_\_\_ of Public Land Holdings LLC, on behalf  
of said limited liability company.

\_\_\_\_\_  
Notary Public/Justice of the Peace  
My Commission Expires:

### **NO-BUILD AND ACCESS EASEMENT DEED**

KNOW ALL MEN BY THESE PRESENTS THAT PUBLIC LAND HOLDINGS LLC, a New Hampshire limited liability company with a mailing address of P.O. Box 190, Exeter, New Hampshire 03833 ("GRANTOR"), for consideration paid, grants to DAVID MARKOVSKY AND TAMARA LEIBOWITZ, individuals with a mailing address of 30 Aldrich Court, Portsmouth, New Hampshire 03801 and TRYGG ENGEN AND KAITLIN A. KOFFINK, individuals with a mailing address of 39 Aldrich Court, Portsmouth, New Hampshire 03801 (collectively, "GRANTEE"), with QUITCLAIM COVENANTS, the following:

A perpetual and permanent No Build and Access Easement on, across and over a portion of that certain tract or parcel of land situate on Chevrolet Avenue, Portsmouth, Rockingham County, New Hampshire, also identified as Portsmouth Tax Assessor's Map 147, Lot 19-1 (the "Premises"), identified as "Proposed 10' Wide Exclusive Use Easement Area in Favor of Lot 40 and 41" (the "Easement Area") on a plan entitled "Subdivision and Lot Line Adjustment Plan, 668 Middle Street, Portsmouth, NH, Sheet A1, dated November 11, 2020 and revised through \_\_\_\_\_, 2022, by Jones & Beach Engineers, Inc., recorded in the Rockingham County Registry of Deeds (the "Registry") as Plan # \_\_\_\_\_ (the "Plan"), which Easement Area is more particularly described as follows:

Beginning at an iron rod found on the southeasterly corner of Tax Map 147, Lot 18-1 as shown on the above-referenced plan; thence running S 84° 48' 30" W a distance of 119.28 feet to an 8"x8" bound; thence turning and running N 40° 00' 38" W a distance of 12.18 feet to a point; thence turning and running S 78° 55' 48" E a distance of 149.29 feet to a point; thence turning and running S 34° 15' 48" W a distance of 12.95 feet to an iron rod found at the point of beginning.

Grantee shall have the right to access, from Grantee's abutting properties and not via the Premises, and to use the Easement Area for any and all residential uses. Grantee shall bear all costs and liabilities of any kind related to the use, upkeep and maintenance of the Easement Area and shall keep the Easement Area free from any and all liens arising out of any work performed for, materials furnished or obligations incurred by Grantee.

Grantor shall not construct, install, place, plant or store anything whatsoever in the above-described Easement Area that would violate the purpose of the easement. Grantor further agrees that is shall not construct any buildings on the Premises within that area extending twenty (20) feet along the shared property boundary with Grantee, shown as "20' Voluntary Building Setback" on the Plan.

Said easement is perpetual, is binding on successors and assigns of the parties and shall run with the land.

Homestead rights do not apply to this conveyance.

Meaning and intending to describe and convey and easement over a portion of the premises conveyed to Grantor by Elizabeth B. Larsen, Trustee of the Elizabeth B. Larsen Trust of 2012 by deed dated December 21, 2021 and recorded at the Registry at Book 6367, Page 1660.

Executed this \_\_\_\_\_ day of \_\_\_\_\_, 2022.

PUBLIC LAND HOLDINGS LLC

\_\_\_\_\_  
Witness

By: \_\_\_\_\_  
Name:  
Title

STATE OF NEW HAMPSHIRE  
COUNTY OF ROCKINGHAM

This instrument was acknowledged before me on \_\_\_\_\_, 2022, by \_\_\_\_\_, duly authorized \_\_\_\_\_ of Public Land Holdings LLC, on behalf of said limited liability company.

\_\_\_\_\_  
Notary Public/Justice of the Peace  
My Commission Expires:

Return To:  
Legal Department  
City Hall  
1 Junkins Ave.  
Portsmouth, NH 03801

### ACCESS, UTILITY AND DRAINAGE EASEMENT DEED

CATHERINE R. WHELAN, an individual with a mailing address of P.O. Box 235, New Castle, New Hampshire 03801 ("Grantor"), for due consideration, hereby grants to the CITY OF PORTSMOUTH, a municipal body politic, having a mailing address of 1 Junkins Avenue, Portsmouth, New Hampshire 30801 (the "Grantee"), with QUITCLAIM COVENANTS, the following easement with respect to Grantor's real property situate on Chevrolet Avenue, Portsmouth, Rockingham County, New Hampshire, also identified as Portsmouth Tax Assessor's Map 147, Lot 19-1, (the "Premises"):

1. **Easement Area:** to construct, use, repair and replace a roadway for ingress and egress by foot and by vehicle by Grantee and members of the public, together with the right to install underground utilities, and storm water flowage under, over and across that area shown as "Proposed Sewer, Drainage, and Roadwork Easement Upon Tax Map 147, Lot 19-1 to Benefit the City of Portsmouth and Tax Map 147 Lots 18-1 & 19-2" (the "Easement Area") on a plan entitled "Utility Plan, 668 Middle Street, Portsmouth, NH, Sheet C4, dated November 11, 2020 and revised through \_\_\_\_\_, 2022, by Jones & Beach Engineers, Inc., recorded in the Rockingham County Registry of Deeds (the "Registry") as Plan # \_\_\_\_\_ (the "Plan"), which Easement Area is more particularly described as follows:

Beginning at a point on the easterly side of Chevrolet Ave. at a proposed railroad spike at the northwesterly corner of Lot 19-1 as shown on the above-referenced plan; thence running N 43° 50' 49" E a distance of \_\_\_\_\_ feet to a point; thence turning and running S 47° 13' 37" E a distance of 19.33 feet to a point; thence turning and running S 42° 30' 03" W a distance of 51.13 feet to a point; thence turning and running N 70° 24' 38" W a distance of 22.43 feet to a proposed railroad spike at the point of beginning.

2. **Purpose and Rights:** The Grantee shall have a permanent and non-exclusive easement and right of way in, under, across and over the Easement Area for the purpose of installing, maintaining, inspecting, removing, repairing, and replacing the roadway and any utility and/or drainage lines and pipes, together with any associated infrastructure, equipment, outfall, swales and storm water flow. The Grantee shall have the right to remove trees, bushes, undergrowth and other obstructions interfering with the activities authorized herein and to take such other actions as may be necessary, useful or convenient for the enjoyment of the easement rights herein granted.



3. **Grantee's Responsibility to Restore:** Disturbed areas within the Easement Area and they shall be restored at the Grantee's expense.
4. **Grantor's Retained Rights:** Grantor retains the right to freely use and enjoy its interest in the Easement Area insofar as the exercise thereof does not endanger or interfere with the purpose of this instrument, including without limitation any rights of the public to safely utilize Chevrolet Avenue as a public way. Grantor shall not, however, erect any fence or other structure within the Easement Area, substantially change the grade or slope, install any pipes, or pave or asphalt the Permanent Easement Area without prior written consent of the Grantee.
5. **Personal Property.** It is agreed that all utility and drainage infrastructure and related facilities installed within the Easement Area, whether fixed to the realty or not, shall be and remain the property of the Grantee.
6. **Easement to Run with Land:** All rights and privileges, obligations and liabilities created by this instrument shall inure to the benefit of, and be binding upon, the heirs, devisees, administrators, executor, successors and assignees of the Grantee and of the Grantor, the parties hereto and all subsequent owners of the Premises and shall run with the land.

MEANING AND INTENDING to convey an easement over a portion of the premises conveyed to the within Grantor by deed of Charles J. Gaudet dated May 8, 2007, and recorded at the Rockingham County Registry of Deeds (the "Registry") at Book 4798, Page 125.

This is an exempt transfer per RSA 78-B:2(I).

Dated this \_\_\_\_ day of \_\_\_\_\_, 2022.

Witness: \_\_\_\_\_

\_\_\_\_\_  
Catherine R. Whelan

STATE OF NEW HAMPSHIRE  
COUNTY OF \_\_\_\_\_

Personally appeared the above-named Catherine R. Whelan and acknowledged the foregoing instrument to be her free act and deed executed for the purposes contained therein.

\_\_\_\_\_  
Notary Public/Justice of the Peace  
My commission expires: \_\_\_\_\_

**RETURN TO:**

**RECIPROCAL DRIVEWAY EASEMENT**

This Reciprocal Driveway Easement made as of this \_\_\_\_ day of \_\_\_\_\_, 2022 between [TAX MAP 147, LOT 18-1 OWNER] (the "Lot 18-1 Owner") and [TAX MAP 147, LOT 18-2 OWNER] (the "Lot 18-2 Owner") (each an "Owner" and collectively, the "Owners").

**RECITALS:**

WHEREAS, the Lot 18-1 Owner is the owner of that certain property situated in the City of Portsmouth, County of Rockingham and State of New Hampshire, identified as Map 147, Lot 18-1 ("Lot 18-1") on plan entitled "Subdivision and Lot Line Adjustment Plan, 668 Middle Street, Portsmouth, NH, Sheet A1, dated November 11, 2020 and revised through \_\_\_\_\_, 2022, by Jones & Beach Engineers, Inc., recorded in the Rockingham County Registry of Deeds (the "Registry") as Plan # \_\_\_\_\_ (the "Plan");

WHEREAS, the Lot 18-2 Owner is the owner of that certain property situated in the City of Portsmouth, County of Rockingham and State of New Hampshire, identified as Map 147, Lot 18-2 ("Lot 18-2") on the Plan; and

WHEREAS, the Owners desire to grant certain easements upon Lot 18-1 and Lot 18-2 (collectively the "Lots"), which easements are intended to run to the benefit of and bind their respective lots indicated, and the owners from time to time of such lots or any portion thereof.

NOW, THEREFORE, in consideration of the mutual covenants and agreements herein contained, the Owners hereby covenant and agree that the Lots, and all present and future owners and occupants of the Lots shall be and hereby are subject to the terms, easements and conditions hereinafter set forth in this Agreement, so that said Lots shall be maintained, kept, sold and used in full compliance with and subject to this Agreement,

and, in connection therewith, the parties hereto on behalf of themselves and their respective successors and assigns covenant and agree as follows:

1. The Lot 18-1 Owner grants to the Lot 18-2 Owner a perpetual non-exclusive right and easement for vehicular and pedestrian travel over a portion of its property along the common lot line between Lot 18-1 and Lot 18-2 within that area identified on the Plan as "Proposed Shared Driveway Access Easement to Benefit Proposed Lots" which area is more particularly bounded and described as follows:

Beginning at an iron rod on the easterly side of Chevrolet Ave. and the northeasterly corner of Lot 18-1 as shown on the above-referenced plan; thence running S 29° 50' 26" E a distance of 188.06 feet to a point; thence turning and running S 41° 58' 09" W a distance of 6.17 feet to a point; thence turning and running N 31° 44' 31" W a distance of 126.13 feet to a point; thence turning and running along a curve with a radius of 72.50 feet, chord bearing of N 24° 54' 13" W and arc length of 17.31 feet to a point; thence turning and running N 34° 19' 36" W a distance of 22.36 feet to a point; thence turning and running N 55° 37' 42" E a distance of 5.30 feet to an iron rod at the point of beginning.

2. The Lot 18-2 Owner grants to the Lot 18-1 Owner a perpetual non-exclusive right and easement for vehicular and pedestrian travel over a portion of its property along the common lot line between Lot 18-1 and Lot 18-2 within that area identified on the Plan as "Proposed Shared Driveway Access Easement to Benefit Proposed Lots" which area is more particularly bounded and described as follows:

Beginning at an iron rod on the easterly side of Chevrolet Ave. and the northwesterly corner of Lot 18-2 as shown on the above-referenced plan; thence running N 43° 50' 49" E a distance of 21.23 feet; thence turning and running S 34° 19' 36" E a distance of 27.57 feet to a point; thence turning and running along a curve with a radius of 47.50 feet, chord bearing of S 24° 54' 13" E and arc length of 11.34 feet to a point; thence turning and running S 31° 44' 31" E a distance of 126.12 feet to a point; thence turning and running S 41° 58' 09" W a distance of 18.83 feet to a point; thence turning and running N 29° 50' 26" W a distance of 188.06 feet to an iron rod at the point of beginning.

(the areas set forth in paragraphs 1 and 2 above, collectively, the "Driveway Easement Area")

The purposes of these reciprocal easements are to provide ingress and egress over the Driveway Easement Area from to Lot 18-1 and Lot 18-2.

The Owners shall jointly and equally share the burden and cost to maintain the Driveway Easement Area in good order, condition and repair the Driveway Easement Area. Notwithstanding the foregoing, damage by accident or casualty proximately caused by one of the parties hereto, their family, agents, representatives or invitees shall be undertaken at the sole expense of that party. Each Owner shall provide to the other

copies of estimates and proposals, and shall obtain the other's written approval prior to undertaking any activities within the Driveway Easement Area for which that Owner intends to seek monetary contribution from the other. Unless the nature and/or cost of any repair or maintenance is in dispute, each Owner shall reimburse the other within thirty (30) days of documentation of payment for such work.

If either the Lot 18-1 Owner or the Lot 18-2 Owner shall fail to operate, maintain and repair any portion of the Driveway Easement Area in accordance with such Owner's obligations hereunder, and if such failure has not been fully remedied after thirty (30) days prior written notice, the other Owner may perform such operation, maintenance or repair, in such manner as reasonably deemed necessary, for and on the account of the non-performing Owner. In the event of any emergency or other circumstances requiring earlier action (including specifically, but without limitation, failure to perform snow and/or ice removal in a timely fashion), no prior notice shall be required hereunder. In the event of such action, the non-performing Owner shall be required to reimburse the performing Owner, within thirty (30) days, for the actual and reasonable costs incurred in such performance, to the extent that the performing Owner was not financially responsible for such performance.

In the event of a dispute as to the need, nature, or cost of any particular intended expense, the Owners shall attempt to amicably resolve the dispute, failing which each shall be entitled to pursue any and all remedies at law or in equity.

This easement is perpetual, shall run with the land and is binding upon and enforceable by the Owners, and all future owners of the Lots.

IN WITNESS WHEREOF, the parties hereto have caused this Reciprocal Driveway Easement to be executed as of the day and year first above written.

LOT 18-1 OWNER

\_\_\_\_\_  
Witness

\_\_\_\_\_  
[Name]

LOT 18-2 OWNER

\_\_\_\_\_  
Witness

\_\_\_\_\_  
[Name]

The State of New Hampshire  
County of \_\_\_\_\_

\_\_\_\_\_, 202\_\_

Personally appeared the above-named, \_\_\_\_\_, known to me or satisfactorily proven to be the person whose name is subscribed to the above document and acknowledged that he executed the same for the purposes contained therein,

Before me,

\_\_\_\_\_  
Notary Public/Justice of the Peace

Print Name:

My Commission Expires:

The State of New Hampshire  
County of \_\_\_\_\_

\_\_\_\_\_, 202\_\_

Personally appeared the above-named, \_\_\_\_\_, known to me or satisfactorily proven to be the person whose name is subscribed to the above document and acknowledged that she executed the same for the purposes contained therein,

Before me,

\_\_\_\_\_  
Notary Public/Justice of the Peace

Print Name:

My Commission Expires:

**DRAINAGE ANALYSIS**  
**SEDIMENT AND EROSION CONTROL PLAN**

**“Chevrolet Avenue Duplexes”**  
**668 Middle Street**  
**Portsmouth, NH 03801**  
**Tax Map 147, Lots 18**

**Prepared for:**

**Tuck Realty Corporation**  
**P.O. Box 190**  
**Exeter, NH 03833**



**Prepared by:**

**Jones & Beach Engineers, Inc.**  
**85 Portsmouth Avenue**  
**P.O. Box 219**  
**Stratham, NH 03885**  
**(603) 772-4746**  
**December 20, 2021**  
**REVISED February 15, 2022**  
**REVISED March 22, 2022**  
**JBE Project No. 20686**

## EXECUTIVE SUMMARY

Tuck Realty Corporation is proposing to subdivide the existing Map 147 Lot 18 at 668 Middle Street Portsmouth, creating two new lots with frontage on Chevrolet Avenue on which they propose to construct a total of 2 residential duplexes on the proposed parcels. The existing Map 147 Lot 18 has a 3-unit residential dwelling, a carriage house with a garage, and a barn. Much of the rear of the lot is wooded with some lawn area as well.

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 (3.69"), 10 Year – 24 Hour (5.60"), 25 Year – 24 Hour (7.10"), and 50 Year – 24 Hour (8.50") 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 in units of cubic feet per second (cfs) is as follows:

Analysis Point	2 Year		10 Year		25 Year		50 Year	
	Pre	Post	Pre	Post	Pre	Post	Pre	Post
Analysis Point #1	1.35	1.35	3.53	3.13	5.56	4.81	7.55	6.78

A similar summary of the existing and proposed peak volumes in units of acre-feet is as follows:

Analysis Point	2 Year		10 Year		25 Year		50 Year	
	Pre	Post	Pre	Post	Pre	Post	Pre	Post
Analysis Point #1	0.146	0.184	0.343	0.409	0.524	0.607	0.706	0.801

The subject parcel is located in the General Residence A District. The subject parcels currently consist of the aforementioned 3-unit residential dwelling, a carriage house with a garage, and a barn, all of which is proposed to remain, with the expectation of the existing barn which will be demolished. The topography on the site defines two (2) subcatchment, which drains to one (1) analysis point at the north eastern corner of the site.

The proposed site development consists of the aforementioned two new lots with frontage on Chevrolet Avenue with the 2 residential duplexes with associated paved common driveway. 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 treat additional site run-off and mitigate peak flow rates. The proposed site development divides the site into five (5) subcatchments. The proposed stormwater management system for the front of the site consists of a rain garden system and a catch basin control structure to filter runoff.

The City of Portsmouth's only regulation concerning volume is that it shall be reduced to the maximum extent practicable. There are slight increases at the analysis point during the design storms, however although this project will not require an Alteration of Terrain Permit, it meets the Alteration of Terrain (AoT) Bureau's Channel Protection requirement, stipulating that volume may not increase toward any analysis point by more than 0.1 acre-foot during the 2-Year 24-Hour storm event. The volumes from all analyzed storm events do not exceed this 0.1 acre-foot threshold.

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**

## **Executive Summary**

- 1.0 Rainfall Characteristics**
- 2.0 Existing Conditions Analysis**
- 3.0 Proposed Conditions Analysis**
- 4.0 Conclusion**

## **Appendix I Existing Conditions Analysis**

- 2 Year - 24 Hour Summary**
- 10 Year - 24 Hour Complete**
- 25 Year - 24 Hour Summary**
- 50 Year - 24 Hour Complete**

## **Appendix II Proposed Conditions Analysis**

- 2 Year - 24 Hour Summary**
- 10 Year - 24 Hour Complete**
- 25 Year - 24 Hour Summary**
- 50 Year - 24 Hour Complete**

## **Appendix III Test Pit Logs**

## **Appendix IV NRCS Soil Map**

## **Appendix V Extreme Precipitation Estimates**

## **Appendix VI Pre- and Post-Construction Watershed Plans**

## **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 (3.69"), 10 Year – 24 Hour (5.60"), 25 Year – 24 Hour (7.10"), and 50 Year – 24 Hour (8.50") 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**

Based on NRCS Web Soil Survey, the soil type for the entire studied area was found to consist of "Urban land – Canton complex" (Map unit symbol 799). This classifies the soils as Hydrologic Soil Groups (HSG) B.

The existing property feature a main house and a carriage house with porches, a garage, a barn, and two gravel driveways. The site is otherwise covered by both woods and grass. The majority of the site is sloped toward the northeastern corner of the lot. This point where the lot drains to have been designated Analysis Point #1 (AP1). The area draining from the south to this point can be described as two subcatchments, Subcatchments 1S and 2S. Subcatchment 1S consists of existing dwelling units and associated driveways and utilities. Subcatchment 2S consists of woods and grassed areas along with a existing barn structure. This subcatchment experiences some grade change, with the highest elevations being roughly 12' higher than the lowest elevation at AP1.

## **3.0 PROPOSED CONDITIONS ANALYSIS**

The addition of the proposed impervious driveway 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 two residential duplex units with associated paved driveways as well as stormwater management features divide the subject parcel into five (5) subcatchments. Subcatchment 10S is comprised of the unchanged section of the lot, existing houses, gravel driveway, garage, etc. Subcatchment 20S consists of the remainder of 2S left after the placement of the driveway and houses. Subcatchment 21S is comprised of the proposed driveway and sidewalk. The runoff from subcatchment 21S is directed into the proposed rain garden (10P). After receiving treatment in the rain garden system, runoff will be directed into the existing City of Portsmouth drainage network. Subcatchments 22S and 23S consists of the proposed roof areas along with the proposed drip edges (3P and 4P). The roof areas are directed to the drip edges and any overflow will go to the proposed rain garden.

The site will be graded such that runoff from all the proposed impervious areas, will be treated, by way of the rain garden system.

According to the NH Stormwater Manual, bioretention systems (rain gardens) provide a pollutant removal efficiency of 90% for TSS and 65% for nitrogen, and infiltration basins (including subsurface ones) provide a removal efficiency of 90% for TSS and 60% for nitrogen. Runoff from all impervious surfaces with the exception of roofs is being directed toward one of these two types of treatment systems.

## 5.0 CONCLUSION

This proposed site development will have minimal adverse effect on abutting infrastructures and properties by way of stormwater runoff or siltation. Appropriate steps will be taken to eliminate erosion and sedimentation; these will be accomplished through the construction of a drainage system consisting of site grading, multi-stage discharge outlet structure, and rain garden system as well as temporary erosion control measures including but not limited to silt fence and the use of a stabilized construction entrance. 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. Peak rates of runoff from the site will be reduced from the unmanaged post development condition to the analysis point during all storms.

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

Respectfully Submitted,  
**JONES & BEACH ENGINEERS, INC.**

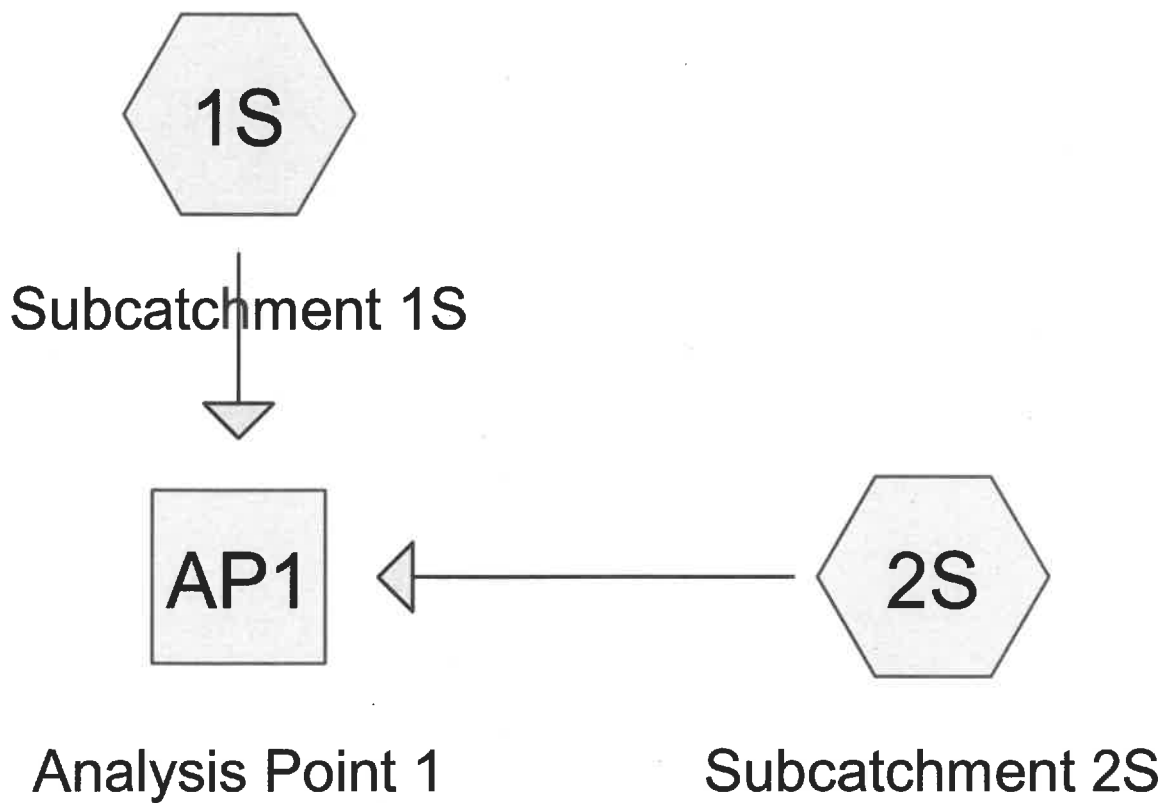
A handwritten signature in blue ink, appearing to read "Michael Kerivan", with a stylized flourish at the end.

Michael Kerivan, P.E.  
Project Engineer

## APPENDIX I

### EXISTING CONDITIONS DRAINAGE ANALYSIS

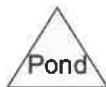
Summary 2 YEAR  
Complete 10 YEAR  
Summary 25 YEAR  
Complete 50 YEAR



Subcat



Reach



Pond



Link

**Routing Diagram for 20686-EXISTING\_3-22-2022\_work**  
Prepared by Jones and Beach Engineers, Inc., Printed 3/22/2022  
HydroCAD® 10.10-5a s/n 10589 © 2020 HydroCAD Software Solutions LLC

**20686-EXISTING\_3-22-2022\_work**

Prepared by Jones and Beach Engineers, Inc.

Printed 3/22/2022

HydroCAD® 10.10-5a s/n 10589 © 2020 HydroCAD Software Solutions LLC

Page 2

**Rainfall Events Listing (selected events)**

Event#	Event Name	Storm Type	Curve	Mode	Duration (hours)	B/B	Depth (inches)	AMC
1	2 Yr 24 Hr (+15%)	Type III 24-hr		Default	24.00	1	3.69	2
2	10 Yr 24 Hr(+15%)	Type III 24-hr		Default	24.00	1	5.60	2

**20686-EXISTING\_3-22-2022\_work**

Prepared by Jones and Beach Engineers, Inc.

HydroCAD® 10.10-5a s/n 10589 © 2020 HydroCAD Software Solutions LLC

Printed 3/22/2022

Page 3

**Area Listing (all nodes)**

Area (acres)	CN	Description (subcatchment-numbers)
0.679	61	>75% Grass cover, Good, HSG B (1S, 2S)
0.198	96	Gravel surface, HSG B (1S)
0.074	98	Paved parking, HSG B (1S, 2S)
0.116	98	Roofs, HSG B (1S, 2S)
0.864	55	Woods, Good, HSG B (1S, 2S)
<b>1.931</b>	<b>66</b>	<b>TOTAL AREA</b>

**20686-EXISTING\_3-22-2022\_work**

Prepared by Jones and Beach Engineers, Inc.

Printed 3/22/2022

HydroCAD® 10.10-5a s/n 10589 © 2020 HydroCAD Software Solutions LLC

Page 4

**Soil Listing (all nodes)**

Area (acres)	Soil Group	Subcatchment Numbers
0.000	HSG A	
1.931	HSG B	1S, 2S
0.000	HSG C	
0.000	HSG D	
0.000	Other	
<b>1.931</b>		<b>TOTAL AREA</b>



Time span=0.00-24.00 hrs, dt=0.05 hrs, 481 points x 3

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN

Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

**Subcatchment 1S: Subcatchment 1S**Runoff Area=44,468 sf 11.24% Impervious Runoff Depth>1.12"  
Flow Length=305' Tc=15.5 min CN=70 Runoff=0.93 cfs 0.096 af**Subcatchment 2S: Subcatchment 2S**Runoff Area=39,659 sf 8.35% Impervious Runoff Depth>0.66"  
Flow Length=235' Tc=8.6 min CN=61 Runoff=0.48 cfs 0.050 af**Reach AP1: Analysis Point 1**Inflow=1.35 cfs 0.146 af  
Outflow=1.35 cfs 0.146 af**Total Runoff Area = 1.931 ac Runoff Volume = 0.146 af Average Runoff Depth = 0.90"**  
**90.12% Pervious = 1.741 ac 9.88% Impervious = 0.191 ac**

Time span=0.00-24.00 hrs, dt=0.05 hrs, 481 points x 3

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN

Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

**Subcatchment 1S: Subcatchment 1S**Runoff Area=44,468 sf 11.24% Impervious Runoff Depth>2.48"  
Flow Length=305' Tc=15.5 min CN=70 Runoff=2.19 cfs 0.211 af**Subcatchment 2S: Subcatchment 2S**Runoff Area=39,659 sf 8.35% Impervious Runoff Depth>1.74"  
Flow Length=235' Tc=8.6 min CN=61 Runoff=1.56 cfs 0.132 af**Reach AP1: Analysis Point 1**Inflow=3.53 cfs 0.343 af  
Outflow=3.53 cfs 0.343 af**Total Runoff Area = 1.931 ac Runoff Volume = 0.343 af Average Runoff Depth = 2.13"**  
**90.12% Pervious = 1.741 ac 9.88% Impervious = 0.191 ac**

**Summary for Subcatchment 1S: Subcatchment 1S**

Runoff = 2.19 cfs @ 12.22 hrs, Volume= 0.211 af, Depth> 2.48"

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 10 Yr 24 Hr(+15%) Rainfall=5.60"

Area (sf)	CN	Description
4,850	98	Roofs, HSG B
147	98	Paved parking, HSG B
8,632	96	Gravel surface, HSG B
14,968	61	>75% Grass cover, Good, HSG B
15,871	55	Woods, Good, HSG B
44,468	70	Weighted Average
39,471		88.76% Pervious Area
4,997		11.24% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
11.5	50	0.0200	0.07		<b>Sheet Flow,</b> Woods: Light underbrush n= 0.400 P2= 3.70"
1.4	60	0.0200	0.71		<b>Shallow Concentrated Flow,</b> Woodland Kv= 5.0 fps
0.5	120	0.0750	4.11		<b>Shallow Concentrated Flow,</b> Grassed Waterway Kv= 15.0 fps
1.9	55	0.0010	0.47		<b>Shallow Concentrated Flow,</b> Grassed Waterway Kv= 15.0 fps
0.2	20	0.0050	1.44		<b>Shallow Concentrated Flow,</b> Paved Kv= 20.3 fps
15.5	305	Total			

**Summary for Subcatchment 2S: Subcatchment 2S**

Runoff = 1.56 cfs @ 12.14 hrs, Volume= 0.132 af, Depth> 1.74"

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=5.60"

Area (sf)	CN	Description
223	98	Roofs, HSG B
3,090	98	Paved parking, HSG B
14,596	61	>75% Grass cover, Good, HSG B
21,750	55	Woods, Good, HSG B
39,659	61	Weighted Average
36,346		91.65% Pervious Area
3,313		8.35% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.7	50	0.0770	0.12		<b>Sheet Flow,</b> Woods: Light underbrush n= 0.400 P2= 3.70"
1.9	185	0.1100	1.66		<b>Shallow Concentrated Flow,</b> Woodland Kv= 5.0 fps
8.6	235	Total			

### Summary for Reach AP1: Analysis Point 1

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

Inflow Area = 1.931 ac, 9.88% Impervious, Inflow Depth > 2.13" for 10 Yr 24 Hr(+15%) event  
 Inflow = 3.53 cfs @ 12.18 hrs, Volume= 0.343 af  
 Outflow = 3.53 cfs @ 12.18 hrs, Volume= 0.343 af, Atten= 0%, Lag= 0.0 min

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

Time span=0.00-24.00 hrs, dt=0.05 hrs, 481 points x 3

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN

Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

**Subcatchment 1S: Subcatchment 1S**

Runoff Area=44,468 sf 11.24% Impervious Runoff Depth>3.69"  
Flow Length=305' Tc=15.5 min CN=70 Runoff=3.29 cfs 0.314 af

**Subcatchment 2S: Subcatchment 2S**

Runoff Area=39,659 sf 8.35% Impervious Runoff Depth>2.77"  
Flow Length=235' Tc=8.6 min CN=61 Runoff=2.58 cfs 0.210 af

**Reach AP1: Analysis Point 1**

Inflow=5.56 cfs 0.524 af  
Outflow=5.56 cfs 0.524 af

**Total Runoff Area = 1.931 ac Runoff Volume = 0.524 af Average Runoff Depth = 3.26"**  
**90.12% Pervious = 1.741 ac 9.88% Impervious = 0.191 ac**

Time span=0.00-24.00 hrs, dt=0.05 hrs, 481 points x 3

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN

Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

**Subcatchment 1S: Subcatchment 1S**

Runoff Area=44,468 sf 11.24% Impervious Runoff Depth>4.88"  
Flow Length=305' Tc=15.5 min CN=70 Runoff=4.37 cfs 0.415 af

**Subcatchment 2S: Subcatchment 2S**

Runoff Area=39,659 sf 8.35% Impervious Runoff Depth>3.82"  
Flow Length=235' Tc=8.6 min CN=61 Runoff=3.62 cfs 0.290 af

**Reach AP1: Analysis Point 1**

Inflow=7.55 cfs 0.706 af  
Outflow=7.55 cfs 0.706 af

**Total Runoff Area = 1.931 ac Runoff Volume = 0.706 af Average Runoff Depth = 4.38"**  
**90.12% Pervious = 1.741 ac 9.88% Impervious = 0.191 ac**

**Summary for Subcatchment 1S: Subcatchment 1S**

Runoff = 4.37 cfs @ 12.21 hrs, Volume= 0.415 af, Depth> 4.88"

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=8.50"

Area (sf)	CN	Description
4,850	98	Roofs, HSG B
147	98	Paved parking, HSG B
8,632	96	Gravel surface, HSG B
14,968	61	>75% Grass cover, Good, HSG B
15,871	55	Woods, Good, HSG B
44,468	70	Weighted Average
39,471		88.76% Pervious Area
4,997		11.24% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
11.5	50	0.0200	0.07		<b>Sheet Flow,</b> Woods: Light underbrush n= 0.400 P2= 3.70"
1.4	60	0.0200	0.71		<b>Shallow Concentrated Flow,</b> Woodland Kv= 5.0 fps
0.5	120	0.0750	4.11		<b>Shallow Concentrated Flow,</b> Grassed Waterway Kv= 15.0 fps
1.9	55	0.0010	0.47		<b>Shallow Concentrated Flow,</b> Grassed Waterway Kv= 15.0 fps
0.2	20	0.0050	1.44		<b>Shallow Concentrated Flow,</b> Paved Kv= 20.3 fps
15.5	305	Total			

**Summary for Subcatchment 2S: Subcatchment 2S**

Runoff = 3.62 cfs @ 12.13 hrs, Volume= 0.290 af, Depth> 3.82"

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=8.50"

Area (sf)	CN	Description
223	98	Roofs, HSG B
3,090	98	Paved parking, HSG B
14,596	61	>75% Grass cover, Good, HSG B
21,750	55	Woods, Good, HSG B
39,659	61	Weighted Average
36,346		91.65% Pervious Area
3,313		8.35% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.7	50	0.0770	0.12		<b>Sheet Flow,</b> Woods: Light underbrush n= 0.400 P2= 3.70"
1.9	185	0.1100	1.66		<b>Shallow Concentrated Flow,</b> Woodland Kv= 5.0 fps
8.6	235	Total			

### Summary for Reach AP1: Analysis Point 1

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

Inflow Area = 1.931 ac, 9.88% Impervious, Inflow Depth > 4.38" for 50 Yr 24 Hr(+15%) event  
 Inflow = 7.55 cfs @ 12.17 hrs, Volume= 0.706 af  
 Outflow = 7.55 cfs @ 12.17 hrs, Volume= 0.706 af, Atten= 0%, Lag= 0.0 min

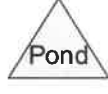
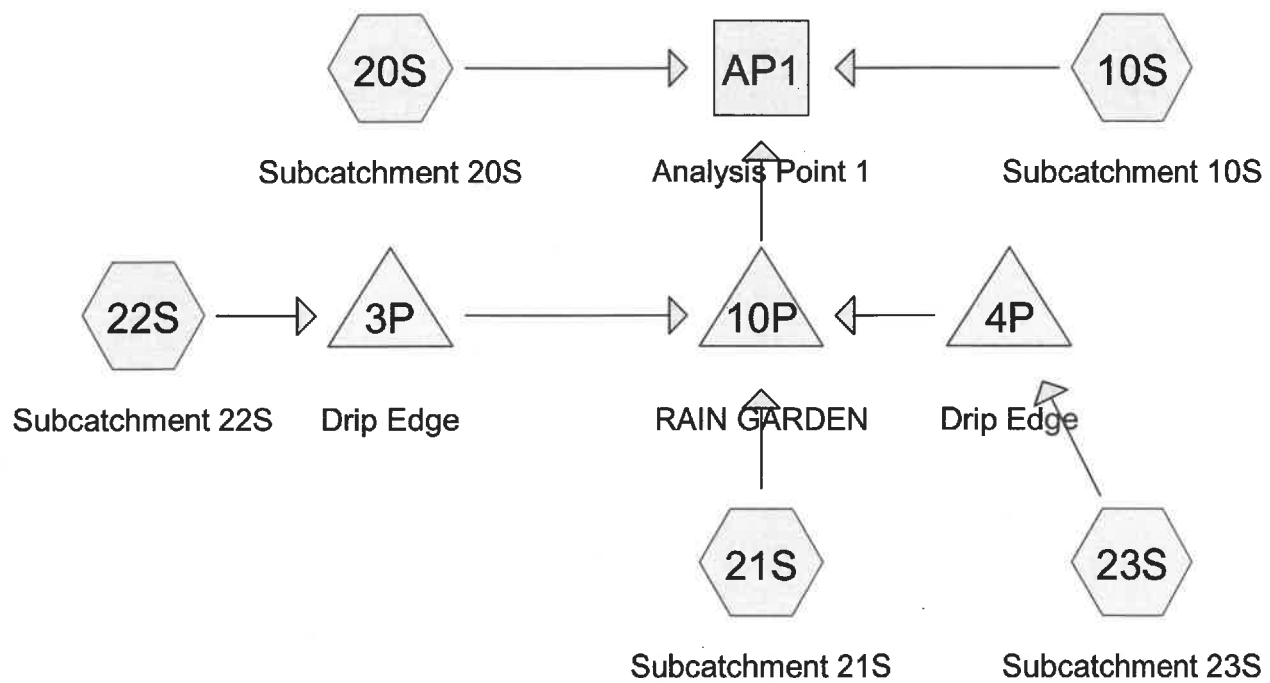
Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs / 3



## APPENDIX II

### PROPOSED CONDITIONS DRAINAGE ANALYSIS

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



**20686-PROPOSED\_3-22-2022\_work**

Prepared by Jones and Beach Engineers, Inc.

Printed 3/22/2022

HydroCAD® 10.10-5a s/n 10589 © 2020 HydroCAD Software Solutions LLC

Page 2

**Rainfall Events Listing (selected events)**

Event#	Event Name	Storm Type	Curve	Mode	Duration (hours)	B/B	Depth (inches)	AMC
1	2 Yr 24 Hr (+15%)	Type III 24-hr		Default	24.00	1	3.69	2
2	10 Yr 24 Hr(+15%)	Type III 24-hr		Default	24.00	1	5.60	2

**20686-PROPOSED\_3-22-2022\_work**

Prepared by Jones and Beach Engineers, Inc.

HydroCAD® 10.10-5a s/n 10589 © 2020 HydroCAD Software Solutions LLC

Printed 3/22/2022

Page 3

**Area Listing (all nodes)**

Area (acres)	CN	Description (subcatchment-numbers)
0.745	61	>75% Grass cover, Good, HSG B (10S, 20S, 21S)
0.197	96	Gravel surface, HSG B (10S)
0.198	98	Paved parking, HSG B (20S, 21S)
0.274	98	Roofs, HSG B (10S, 22S, 23S)
0.035	98	Water Surface, HSG B (22S, 23S)
0.481	55	Woods, Good, HSG B (10S, 20S, 21S)
<b>1.931</b>	<b>73</b>	<b>TOTAL AREA</b>

**20686-PROPOSED\_3-22-2022\_work**

Prepared by Jones and Beach Engineers, Inc.

Printed 3/22/2022

HydroCAD® 10.10-5a s/n 10589 © 2020 HydroCAD Software Solutions LLC

Page 4

**Soil Listing (all nodes)**

Area (acres)	Soil Group	Subcatchment Numbers
0.000	HSG A	
1.931	HSG B	10S, 20S, 21S, 22S, 23S
0.000	HSG C	
0.000	HSG D	
0.000	Other	
<b>1.931</b>		<b>TOTAL AREA</b>

Time span=0.00-24.00 hrs, dt=0.05 hrs, 481 points x 3

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN

Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

**Subcatchment 10S: Subcatchment 10S** Runoff Area=44,468 sf 10.41% Impervious Runoff Depth>1.07"  
Flow Length=305' Tc=15.5 min CN=69 Runoff=0.87 cfs 0.091 af

**Subcatchment 20S: Subcatchment 20S** Runoff Area=14,138 sf 24.01% Impervious Runoff Depth>1.01"  
Flow Length=330' Tc=15.6 min CN=68 Runoff=0.26 cfs 0.027 af

**Subcatchment 21S: Subcatchment 21S** Runoff Area=16,665 sf 31.51% Impervious Runoff Depth>1.25"  
Flow Length=196' Tc=6.0 min CN=72 Runoff=0.53 cfs 0.040 af

**Subcatchment 22S: Subcatchment 22S** Runoff Area=4,415 sf 100.00% Impervious Runoff Depth>3.45"  
Tc=6.0 min CN=98 Runoff=0.36 cfs 0.029 af

**Subcatchment 23S: Subcatchment 23S** Runoff Area=4,434 sf 100.00% Impervious Runoff Depth>3.45"  
Tc=6.0 min CN=98 Runoff=0.36 cfs 0.029 af

**Reach AP1: Analysis Point 1**

Inflow=1.35 cfs 0.184 af

Outflow=1.35 cfs 0.184 af

**Pond 3P: Drip Edge**

Peak Elev=26.00' Storage=1,216 cf Inflow=0.36 cfs 0.029 af

Outflow=0.00 cfs 0.001 af

**Pond 4P: Drip Edge**

Peak Elev=22.00' Storage=1,247 cf Inflow=0.36 cfs 0.029 af

Outflow=0.00 cfs 0.001 af

**Pond 10P: RAIN GARDEN**

Peak Elev=14.50' Storage=1,200 cf Inflow=0.53 cfs 0.042 af

Outflow=0.44 cfs 0.066 af

**Total Runoff Area = 1.931 ac Runoff Volume = 0.216 af Average Runoff Depth = 1.34"**  
**73.70% Pervious = 1.423 ac 26.30% Impervious = 0.508 ac**

Time span=0.00-24.00 hrs, dt=0.05 hrs, 481 points x 3

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN

Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

**Subcatchment 10S: Subcatchment 10S**      Runoff Area=44,468 sf   10.41% Impervious   Runoff Depth>2.40"  
Flow Length=305'   Tc=15.5 min   CN=69   Runoff=2.11 cfs   0.204 af

**Subcatchment 20S: Subcatchment 20S**      Runoff Area=14,138 sf   24.01% Impervious   Runoff Depth>2.31"  
Flow Length=330'   Tc=15.6 min   CN=68   Runoff=0.64 cfs   0.062 af

**Subcatchment 21S: Subcatchment 21S**      Runoff Area=16,665 sf   31.51% Impervious   Runoff Depth>2.67"  
Flow Length=196'   Tc=6.0 min   CN=72   Runoff=1.17 cfs   0.085 af

**Subcatchment 22S: Subcatchment 22S**      Runoff Area=4,415 sf   100.00% Impervious   Runoff Depth>5.36"  
Tc=6.0 min   CN=98   Runoff=0.54 cfs   0.045 af

**Subcatchment 23S: Subcatchment 23S**      Runoff Area=4,434 sf   100.00% Impervious   Runoff Depth>5.36"  
Tc=6.0 min   CN=98   Runoff=0.55 cfs   0.045 af

**Reach AP1: Analysis Point 1**      Inflow=3.13 cfs   0.409 af  
Outflow=3.13 cfs   0.409 af

**Pond 3P: Drip Edge**      Peak Elev=26.01'   Storage=1,226 cf   Inflow=0.54 cfs   0.045 af  
Outflow=0.23 cfs   0.017 af

**Pond 4P: Drip Edge**      Peak Elev=22.01'   Storage=1,257 cf   Inflow=0.55 cfs   0.045 af  
Outflow=0.24 cfs   0.017 af

**Pond 10P: RAIN GARDEN**      Peak Elev=14.53'   Storage=1,217 cf   Inflow=1.17 cfs   0.119 af  
Outflow=0.44 cfs   0.143 af

**Total Runoff Area = 1.931 ac   Runoff Volume = 0.442 af   Average Runoff Depth = 2.75"**  
**73.70% Pervious = 1.423 ac   26.30% Impervious = 0.508 ac**

**Summary for Subcatchment 10S: Subcatchment 10S**

Runoff = 2.11 cfs @ 12.22 hrs, Volume= 0.204 af, Depth> 2.40"

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=5.60"

Area (sf)	CN	Description
4,628	98	Roofs, HSG B
8,595	96	Gravel surface, HSG B
15,374	61	>75% Grass cover, Good, HSG B
15,871	55	Woods, Good, HSG B
44,468	69	Weighted Average
39,840		89.59% Pervious Area
4,628		10.41% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
11.5	50	0.0200	0.07		<b>Sheet Flow,</b> Woods: Light underbrush n= 0.400 P2= 3.70"
1.4	60	0.0200	0.71		<b>Shallow Concentrated Flow,</b> Woodland Kv= 5.0 fps
0.5	120	0.0750	4.11		<b>Shallow Concentrated Flow,</b> Grassed Waterway Kv= 15.0 fps
1.9	55	0.0010	0.47		<b>Shallow Concentrated Flow,</b> Grassed Waterway Kv= 15.0 fps
0.2	20	0.0050	1.44		<b>Shallow Concentrated Flow,</b> Paved Kv= 20.3 fps
15.5	305	Total			

**Summary for Subcatchment 20S: Subcatchment 20S**

Runoff = 0.64 cfs @ 12.22 hrs, Volume= 0.062 af, Depth> 2.31"

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=5.60"

Area (sf)	CN	Description
3,395	98	Paved parking, HSG B
7,455	61	>75% Grass cover, Good, HSG B
3,288	55	Woods, Good, HSG B
14,138	68	Weighted Average
10,743		75.99% Pervious Area
3,395		24.01% Impervious Area



Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.3	20	0.0100	0.05		<b>Sheet Flow,</b> Woods: Light underbrush n= 0.400 P2= 3.70"
4.6	30	0.0100	0.11		<b>Sheet Flow,</b> Grass: Short n= 0.150 P2= 3.70"
1.6	173	0.0630	1.76		<b>Shallow Concentrated Flow,</b> Short Grass Pasture Kv= 7.0 fps
0.2	28	0.0100	2.03		<b>Shallow Concentrated Flow,</b> Paved Kv= 20.3 fps
1.9	79	0.0100	0.70		<b>Shallow Concentrated Flow,</b> Short Grass Pasture Kv= 7.0 fps
15.6	330	Total			

**Summary for Subcatchment 21S: Subcatchment 21S**

Runoff = 1.17 cfs @ 12.09 hrs, Volume= 0.085 af, Depth> 2.67"

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=5.60"

Area (sf)	CN	Description
5,251	98	Paved parking, HSG B
9,631	61	>75% Grass cover, Good, HSG B
1,783	55	Woods, Good, HSG B
16,665	72	Weighted Average
11,414		68.49% Pervious Area
5,251		31.51% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.8	26	0.0850	0.11		<b>Sheet Flow,</b> Woods: Light underbrush n= 0.400 P2= 3.70"
0.1	25	0.2200	3.28		<b>Shallow Concentrated Flow,</b> Short Grass Pasture Kv= 7.0 fps
0.4	145	0.0800	5.74		<b>Shallow Concentrated Flow,</b> Paved Kv= 20.3 fps
4.3	196	Total, Increased to minimum Tc = 6.0 min			

**Summary for Subcatchment 22S: Subcatchment 22S**

Runoff = 0.54 cfs @ 12.09 hrs, Volume= 0.045 af, Depth> 5.36"

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=5.60"

Area (sf)	CN	Description
3,660	98	Roofs, HSG B
755	98	Water Surface, HSG B
4,415	98	Weighted Average
4,415		100.00% Impervious Area

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

**Summary for Subcatchment 23S: Subcatchment 23S**

Runoff = 0.55 cfs @ 12.09 hrs, Volume= 0.045 af, Depth> 5.36"

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=5.60"

Area (sf)	CN	Description
3,660	98	Roofs, HSG B
774	98	Water Surface, HSG B
4,434	98	Weighted Average
4,434		100.00% Impervious Area

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

**Summary for Reach AP1: Analysis Point 1**

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

Inflow Area = 1.931 ac, 26.30% Impervious, Inflow Depth > 2.54" for 10 Yr 24 Hr(+15%) event  
Inflow = 3.13 cfs @ 12.22 hrs, Volume= 0.409 af  
Outflow = 3.13 cfs @ 12.22 hrs, Volume= 0.409 af, Atten= 0%, Lag= 0.0 min

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

**Summary for Pond 3P: Drip Edge**

Inflow Area = 0.101 ac, 100.00% Impervious, Inflow Depth > 5.36" for 10 Yr 24 Hr(+15%) event  
Inflow = 0.54 cfs @ 12.09 hrs, Volume= 0.045 af  
Outflow = 0.23 cfs @ 12.36 hrs, Volume= 0.017 af, Atten= 58%, Lag= 16.7 min  
Primary = 0.23 cfs @ 12.36 hrs, Volume= 0.017 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs / 3  
Peak Elev= 26.01' @ 12.35 hrs Surf.Area= 755 sf Storage= 1,226 cf

Plug-Flow detention time= 337.0 min calculated for 0.017 af (38% of inflow)  
Center-of-Mass det. time= 175.3 min ( 921.1 - 745.8 )

**20686-PROPOSED\_3-22-2022\_work**

Type III 24-hr 10 Yr 24 Hr(+15%) Rainfall=5.60"

Prepared by Jones and Beach Engineers, Inc.

Printed 3/22/2022

HydroCAD® 10.10-5a s/n 10589 © 2020 HydroCAD Software Solutions LLC

Page 10

Volume	Invert	Avail.Storage	Storage Description
#1	21.99'	1,593 cf	<b>Custom Stage Data (Prismatic)</b> Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
21.99	755	0.0	0	0
22.00	755	40.0	3	3
25.99	755	40.0	1,205	1,208
26.00	755	100.0	8	1,216
26.50	755	100.0	378	1,593

Device	Routing	Invert	Outlet Devices
#1	Primary	26.00'	<b>50.0' long x 0.5' breadth Broad-Crested Rectangular Weir</b> Head (feet) 0.20 0.40 0.60 0.80 1.00 Coef. (English) 2.80 2.92 3.08 3.30 3.32

**Primary OutFlow** Max=0.20 cfs @ 12.36 hrs HW=26.01' TW=14.28' (Dynamic Tailwater)

↑1=Broad-Crested Rectangular Weir (Weir Controls 0.20 cfs @ 0.31 fps)

**Summary for Pond 4P: Drip Edge**

Inflow Area = 0.102 ac, 100.00% Impervious, Inflow Depth > 5.36" for 10 Yr 24 Hr(+15%) event  
 Inflow = 0.55 cfs @ 12.09 hrs, Volume= 0.045 af  
 Outflow = 0.24 cfs @ 12.41 hrs, Volume= 0.017 af, Atten= 56%, Lag= 19.2 min  
 Primary = 0.24 cfs @ 12.41 hrs, Volume= 0.017 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs / 3  
 Peak Elev= 22.01' @ 12.40 hrs Surf.Area= 774 sf Storage= 1,257 cf

Plug-Flow detention time= 348.8 min calculated for 0.017 af (37% of inflow)  
 Center-of-Mass det. time= 181.6 min ( 927.4 - 745.8 )

Volume	Invert	Avail.Storage	Storage Description
#1	17.99'	1,633 cf	<b>Custom Stage Data (Prismatic)</b> Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
17.99	774	0.0	0	0
18.00	774	40.0	3	3
21.99	774	40.0	1,235	1,238
22.00	774	100.0	8	1,246
22.50	774	100.0	387	1,633

Device	Routing	Invert	Outlet Devices
#1	Primary	22.00'	<b>50.0' long x 0.5' breadth Broad-Crested Rectangular Weir</b> Head (feet) 0.20 0.40 0.60 0.80 1.00 Coef. (English) 2.80 2.92 3.08 3.30 3.32

**Primary OutFlow** Max=0.22 cfs @ 12.41 hrs HW=22.01' TW=14.38' (Dynamic Tailwater)

↑1=Broad-Crested Rectangular Weir (Weir Controls 0.22 cfs @ 0.33 fps)

**Summary for Pond 10P: RAIN GARDEN**

Inflow Area = 0.586 ac, 55.26% Impervious, Inflow Depth > 2.44" for 10 Yr 24 Hr(+15%) event  
 Inflow = 1.17 cfs @ 12.09 hrs, Volume= 0.119 af  
 Outflow = 0.44 cfs @ 12.55 hrs, Volume= 0.143 af, Atten= 62%, Lag= 27.2 min  
 Primary = 0.44 cfs @ 12.55 hrs, Volume= 0.143 af

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

Starting Elev= 14.50' Surf.Area= 1,327 sf Storage= 1,200 cf

Peak Elev= 14.53' @ 12.55 hrs Surf.Area= 1,327 sf Storage= 1,217 cf (18 cf above start)

Plug-Flow detention time= 45.7 min calculated for 0.115 af (97% of inflow)

Center-of-Mass det. time= (not calculated: outflow precedes inflow)

Volume	Invert	Avail.Storage	Storage Description			
#1	12.24'	4,595 cf	<b>Custom Stage Data (Irregular) Listed below (Recalc)</b>			
Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
12.24	1,327	212.9	0.0	0	0	1,327
12.25	1,327	212.9	40.0	5	5	1,329
15.24	1,327	212.9	40.0	1,587	1,592	1,966
15.25	1,327	212.9	5.0	1	1,593	1,968
15.49	1,327	212.9	5.0	16	1,609	2,019
15.50	1,327	212.9	15.0	2	1,611	2,021
16.99	1,327	212.9	15.0	297	1,908	2,338
17.00	88	55.7	100.0	6	1,913	5,698
18.00	716	193.8	100.0	352	2,265	8,443
19.00	1,325	212.9	100.0	1,005	3,270	9,094
20.00	1,325	0.0	100.0	1,325	4,595	12,702

Device	Routing	Invert	Outlet Devices
#1	Primary	19.00'	<b>95.0' long x 1.0' breadth Broad-Crested Rectangular Weir</b> 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
#2	Primary	12.50'	<b>12.0" Round Culvert</b> L= 25.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 12.50' / 12.00' S= 0.0200 ' S= 0.0200 ' Cc= 0.900 n= 0.009 PVC, smooth interior, Flow Area= 0.79 sf
#3	Device 2	12.50'	<b>3.5" Vert. Orifice/Grate</b> C= 0.600 Limited to weir flow at low heads
#4	Device 2	18.75'	<b>48.0" Horiz. Orifice/Grate</b> C= 0.600 Limited to weir flow at low heads

**Primary OutFlow** Max=0.44 cfs @ 12.55 hrs HW=14.53' TW=0.00' (Dynamic Tailwater)

- 1=Broad-Crested Rectangular Weir ( Controls 0.00 cfs)
- 2=Culvert (Passes 0.44 cfs of 3.70 cfs potential flow)
- 3=Orifice/Grate (Orifice Controls 0.44 cfs @ 6.61 fps)
- 4=Orifice/Grate ( Controls 0.00 cfs)

Time span=0.00-24.00 hrs, dt=0.05 hrs, 481 points x 3  
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN  
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

**Subcatchment 10S: Subcatchment 10S**      Runoff Area=44,468 sf   10.41% Impervious   Runoff Depth>3.59"  
Flow Length=305'   Tc=15.5 min   CN=69   Runoff=3.20 cfs   0.305 af

**Subcatchment 20S: Subcatchment 20S**      Runoff Area=14,138 sf   24.01% Impervious   Runoff Depth>3.48"  
Flow Length=330'   Tc=15.6 min   CN=68   Runoff=0.98 cfs   0.094 af

**Subcatchment 21S: Subcatchment 21S**      Runoff Area=16,665 sf   31.51% Impervious   Runoff Depth>3.91"  
Flow Length=196'   Tc=6.0 min   CN=72   Runoff=1.72 cfs   0.125 af

**Subcatchment 22S: Subcatchment 22S**      Runoff Area=4,415 sf   100.00% Impervious   Runoff Depth>6.86"  
Tc=6.0 min   CN=98   Runoff=0.69 cfs   0.058 af

**Subcatchment 23S: Subcatchment 23S**      Runoff Area=4,434 sf   100.00% Impervious   Runoff Depth>6.86"  
Tc=6.0 min   CN=98   Runoff=0.69 cfs   0.058 af

**Reach AP1: Analysis Point 1**      Inflow=4.81 cfs   0.607 af  
Outflow=4.81 cfs   0.607 af

**Pond 3P: Drip Edge**      Peak Elev=26.03'   Storage=1,241 cf   Inflow=0.69 cfs   0.058 af  
Outflow=0.85 cfs   0.030 af

**Pond 4P: Drip Edge**      Peak Elev=22.04'   Storage=1,273 cf   Inflow=0.69 cfs   0.058 af  
Outflow=0.93 cfs   0.030 af

**Pond 10P: RAIN GARDEN**      Peak Elev=18.04'   Storage=2,296 cf   Inflow=3.18 cfs   0.184 af  
Outflow=0.75 cfs   0.208 af

**Total Runoff Area = 1.931 ac   Runoff Volume = 0.640 af   Average Runoff Depth = 3.98"**  
**73.70% Pervious = 1.423 ac   26.30% Impervious = 0.508 ac**

Time span=0.00-24.00 hrs, dt=0.05 hrs, 481 points x 3

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN

Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

**Subcatchment 10S: Subcatchment 10S**      Runoff Area=44,468 sf   10.41% Impervious   Runoff Depth>4.76"  
Flow Length=305'   Tc=15.5 min   CN=69   Runoff=4.26 cfs   0.405 af

**Subcatchment 20S: Subcatchment 20S**      Runoff Area=14,138 sf   24.01% Impervious   Runoff Depth>4.64"  
Flow Length=330'   Tc=15.6 min   CN=68   Runoff=1.32 cfs   0.126 af

**Subcatchment 21S: Subcatchment 21S**      Runoff Area=16,665 sf   31.51% Impervious   Runoff Depth>5.13"  
Flow Length=196'   Tc=6.0 min   CN=72   Runoff=2.25 cfs   0.164 af

**Subcatchment 22S: Subcatchment 22S**      Runoff Area=4,415 sf   100.00% Impervious   Runoff Depth>8.25"  
Tc=6.0 min   CN=98   Runoff=0.83 cfs   0.070 af

**Subcatchment 23S: Subcatchment 23S**      Runoff Area=4,434 sf   100.00% Impervious   Runoff Depth>8.25"  
Tc=6.0 min   CN=98   Runoff=0.83 cfs   0.070 af

**Reach AP1: Analysis Point 1**

Inflow=6.78 cfs   0.801 af

Outflow=6.78 cfs   0.801 af

**Pond 3P: Drip Edge**

Peak Elev=26.04'   Storage=1,242 cf   Inflow=0.83 cfs   0.070 af

Outflow=0.95 cfs   0.042 af

**Pond 4P: Drip Edge**

Peak Elev=22.04'   Storage=1,275 cf   Inflow=0.83 cfs   0.070 af

Outflow=1.04 cfs   0.041 af

**Pond 10P: RAIN GARDEN**

Peak Elev=18.84'   Storage=3,066 cf   Inflow=4.14 cfs   0.247 af

Outflow=1.88 cfs   0.270 af

**Total Runoff Area = 1.931 ac   Runoff Volume = 0.834 af   Average Runoff Depth = 5.18"**  
**73.70% Pervious = 1.423 ac   26.30% Impervious = 0.508 ac**

**Summary for Subcatchment 10S: Subcatchment 10S**

Runoff = 4.26 cfs @ 12.22 hrs, Volume= 0.405 af, Depth> 4.76"

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=8.50"

Area (sf)	CN	Description
4,628	98	Roofs, HSG B
8,595	96	Gravel surface, HSG B
15,374	61	>75% Grass cover, Good, HSG B
15,871	55	Woods, Good, HSG B
44,468	69	Weighted Average
39,840		89.59% Pervious Area
4,628		10.41% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
11.5	50	0.0200	0.07		<b>Sheet Flow,</b> Woods: Light underbrush n= 0.400 P2= 3.70"
1.4	60	0.0200	0.71		<b>Shallow Concentrated Flow,</b> Woodland Kv= 5.0 fps
0.5	120	0.0750	4.11		<b>Shallow Concentrated Flow,</b> Grassed Waterway Kv= 15.0 fps
1.9	55	0.0010	0.47		<b>Shallow Concentrated Flow,</b> Grassed Waterway Kv= 15.0 fps
0.2	20	0.0050	1.44		<b>Shallow Concentrated Flow,</b> Paved Kv= 20.3 fps
15.5	305	Total			

**Summary for Subcatchment 20S: Subcatchment 20S**

Runoff = 1.32 cfs @ 12.22 hrs, Volume= 0.126 af, Depth> 4.64"

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=8.50"

Area (sf)	CN	Description
3,395	98	Paved parking, HSG B
7,455	61	>75% Grass cover, Good, HSG B
3,288	55	Woods, Good, HSG B
14,138	68	Weighted Average
10,743		75.99% Pervious Area
3,395		24.01% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.3	20	0.0100	0.05		<b>Sheet Flow,</b> Woods: Light underbrush n= 0.400 P2= 3.70"
4.6	30	0.0100	0.11		<b>Sheet Flow,</b> Grass: Short n= 0.150 P2= 3.70"
1.6	173	0.0630	1.76		<b>Shallow Concentrated Flow,</b> Short Grass Pasture Kv= 7.0 fps
0.2	28	0.0100	2.03		<b>Shallow Concentrated Flow,</b> Paved Kv= 20.3 fps
1.9	79	0.0100	0.70		<b>Shallow Concentrated Flow,</b> Short Grass Pasture Kv= 7.0 fps
15.6	330	Total			

**Summary for Subcatchment 21S: Subcatchment 21S**

Runoff = 2.25 cfs @ 12.09 hrs, Volume= 0.164 af, Depth> 5.13"

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=8.50"

Area (sf)	CN	Description
5,251	98	Paved parking, HSG B
9,631	61	>75% Grass cover, Good, HSG B
1,783	55	Woods, Good, HSG B
16,665	72	Weighted Average
11,414		68.49% Pervious Area
5,251		31.51% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.8	26	0.0850	0.11		<b>Sheet Flow,</b> Woods: Light underbrush n= 0.400 P2= 3.70"
0.1	25	0.2200	3.28		<b>Shallow Concentrated Flow,</b> Short Grass Pasture Kv= 7.0 fps
0.4	145	0.0800	5.74		<b>Shallow Concentrated Flow,</b> Paved Kv= 20.3 fps
4.3	196	Total, Increased to minimum Tc = 6.0 min			

**Summary for Subcatchment 22S: Subcatchment 22S**

Runoff = 0.83 cfs @ 12.09 hrs, Volume= 0.070 af, Depth> 8.25"

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 50 Yr 24 Hr(+15%) Rainfall=8.50"



Area (sf)	CN	Description
3,660	98	Roofs, HSG B
755	98	Water Surface, HSG B
4,415	98	Weighted Average
4,415		100.00% Impervious Area

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

### Summary for Subcatchment 23S: Subcatchment 23S

Runoff = 0.83 cfs @ 12.09 hrs, Volume= 0.070 af, Depth> 8.25"

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 50 Yr 24 Hr(+15%) Rainfall=8.50"

Area (sf)	CN	Description
3,660	98	Roofs, HSG B
774	98	Water Surface, HSG B
4,434	98	Weighted Average
4,434		100.00% Impervious Area

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

### Summary for Reach AP1: Analysis Point 1

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

Inflow Area = 1.931 ac, 26.30% Impervious, Inflow Depth > 4.98" for 50 Yr 24 Hr(+15%) event  
Inflow = 6.78 cfs @ 12.29 hrs, Volume= 0.801 af  
Outflow = 6.78 cfs @ 12.29 hrs, Volume= 0.801 af, Atten= 0%, Lag= 0.0 min

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

### Summary for Pond 3P: Drip Edge

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

Inflow Area = 0.101 ac, 100.00% Impervious, Inflow Depth > 8.25" for 50 Yr 24 Hr(+15%) event  
Inflow = 0.83 cfs @ 12.09 hrs, Volume= 0.070 af  
Outflow = 0.95 cfs @ 12.06 hrs, Volume= 0.042 af, Atten= 0%, Lag= 0.0 min  
Primary = 0.95 cfs @ 12.06 hrs, Volume= 0.042 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs / 3  
Peak Elev= 26.04' @ 12.05 hrs Surf.Area= 755 sf Storage= 1,242 cf

Plug-Flow detention time= 221.4 min calculated for 0.042 af (60% of inflow)

Center-of-Mass det. time= 109.7 min ( 849.7 - 740.1 )

Volume	Invert	Avail.Storage	Storage Description
#1	21.99'	1,593 cf	<b>Custom Stage Data (Prismatic)</b> Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
21.99	755	0.0	0	0
22.00	755	40.0	3	3
25.99	755	40.0	1,205	1,208
26.00	755	100.0	8	1,216
26.50	755	100.0	378	1,593

Device	Routing	Invert	Outlet Devices
#1	Primary	26.00'	<b>50.0' long x 0.5' breadth Broad-Crested Rectangular Weir</b> Head (feet) 0.20 0.40 0.60 0.80 1.00 Coef. (English) 2.80 2.92 3.08 3.30 3.32

Primary OutFlow Max=0.86 cfs @ 12.06 hrs HW=26.03' TW=15.36' (Dynamic Tailwater)

↑1=Broad-Crested Rectangular Weir (Weir Controls 0.86 cfs @ 0.51 fps)

**Summary for Pond 4P: Drip Edge**

[90] Warning: Qout&gt;Qin may require smaller dt or Finer Routing

Inflow Area = 0.102 ac, 100.00% Impervious, Inflow Depth > 8.25" for 50 Yr 24 Hr(+15%) event  
 Inflow = 0.83 cfs @ 12.09 hrs, Volume= 0.070 af  
 Outflow = 1.04 cfs @ 12.06 hrs, Volume= 0.041 af, Atten= 0%, Lag= 0.0 min  
 Primary = 1.04 cfs @ 12.06 hrs, Volume= 0.041 af

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

Peak Elev= 22.04' @ 12.05 hrs Surf.Area= 774 sf Storage= 1,275 cf

Plug-Flow detention time= 225.8 min calculated for 0.041 af (59% of inflow)

Center-of-Mass det. time= 111.5 min ( 851.6 - 740.1 )

Volume	Invert	Avail.Storage	Storage Description
#1	17.99'	1,633 cf	<b>Custom Stage Data (Prismatic)</b> Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
17.99	774	0.0	0	0
18.00	774	40.0	3	3
21.99	774	40.0	1,235	1,238
22.00	774	100.0	8	1,246
22.50	774	100.0	387	1,633

Device	Routing	Invert	Outlet Devices
#1	Primary	22.00'	<b>50.0' long x 0.5' breadth Broad-Crested Rectangular Weir</b> Head (feet) 0.20 0.40 0.60 0.80 1.00 Coef. (English) 2.80 2.92 3.08 3.30 3.32

**Primary OutFlow** Max=0.91 cfs @ 12.06 hrs HW=22.03' TW=15.30' (Dynamic Tailwater)

↑ **1=Broad-Crested Rectangular Weir** (Weir Controls 0.91 cfs @ 0.52 fps)

### Summary for Pond 10P: RAIN GARDEN

Inflow Area = 0.586 ac, 55.26% Impervious, Inflow Depth > 5.06" for 50 Yr 24 Hr(+15%) event  
 Inflow = 4.14 cfs @ 12.07 hrs, Volume= 0.247 af  
 Outflow = 1.88 cfs @ 12.31 hrs, Volume= 0.270 af, Atten= 55%, Lag= 14.6 min  
 Primary = 1.88 cfs @ 12.31 hrs, Volume= 0.270 af

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

Starting Elev= 14.50' Surf.Area= 1,327 sf Storage= 1,200 cf

Peak Elev= 18.84' @ 12.31 hrs Surf.Area= 1,215 sf Storage= 3,066 cf (1,866 cf above start)

Plug-Flow detention time= 45.8 min calculated for 0.243 af (98% of inflow)

Center-of-Mass det. time= (not calculated: outflow precedes inflow)

Volume	Invert	Avail.Storage	Storage Description			
#1	12.24'	4,595 cf	<b>Custom Stage Data (Irregular)</b> Listed below (Recalc)			
Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
12.24	1,327	212.9	0.0	0	0	1,327
12.25	1,327	212.9	40.0	5	5	1,329
15.24	1,327	212.9	40.0	1,587	1,592	1,966
15.25	1,327	212.9	5.0	1	1,593	1,968
15.49	1,327	212.9	5.0	16	1,609	2,019
15.50	1,327	212.9	15.0	2	1,611	2,021
16.99	1,327	212.9	15.0	297	1,908	2,338
17.00	88	55.7	100.0	6	1,913	5,698
18.00	716	193.8	100.0	352	2,265	8,443
19.00	1,325	212.9	100.0	1,005	3,270	9,094
20.00	1,325	0.0	100.0	1,325	4,595	12,702

Device	Routing	Invert	Outlet Devices
#1	Primary	19.00'	<b>95.0' long x 1.0' breadth Broad-Crested Rectangular Weir</b> 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
#2	Primary	12.50'	<b>12.0" Round Culvert</b> L= 25.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 12.50' / 12.00' S= 0.0200 '/' Cc= 0.900 n= 0.009 PVC, smooth interior, Flow Area= 0.79 sf
#3	Device 2	12.50'	<b>3.5" Vert. Orifice/Grate</b> C= 0.600 Limited to weir flow at low heads
#4	Device 2	18.75'	<b>48.0" Horiz. Orifice/Grate</b> C= 0.600 Limited to weir flow at low heads

**Primary OutFlow** Max=1.76 cfs @ 12.31 hrs HW=18.83' TW=0.00' (Dynamic Tailwater)

1=Broad-Crested Rectangular Weir ( Controls 0.00 cfs)

2=Culvert (Passes 1.76 cfs of 7.21 cfs potential flow)

3=Orifice/Grate (Orifice Controls 0.80 cfs @ 11.98 fps)

4=Orifice/Grate (Weir Controls 0.96 cfs @ 0.94 fps)

## APPENDIX III

### Test Pit Logs



36 Stage Rd, Nottingham NH 03290  
603.679.1866 C: 603.706.2521  
calbert.env@gmail.com

**TEST PITS  
668 MIDDLE ROAD  
PORTSMOUTH, NEW HAMPSHIRE  
JANUARY 14, 2021**

Performed by: Christopher Albert, SSD #1085

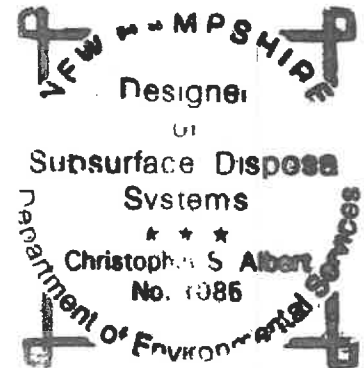
TEST PIT #1 – GRASS MAT

0" - 9"	10YR 3/4	dark yellowish brown fine sandy loam common roots
9" - 20"	10YR 5/6	yellowish brown fine sandy loam common roots
20" - 38"	2.5Y 6/4	Light yellowish brown fine sandy loam Few stones

No H<sub>2</sub>O observed  
SHWT: 28"  
Roots: 28"  
Refusal: 38"  
Perc Rate = 8 min/inch

TEST PIT #2 – GRASS MAT

0" - 7"	10YR 3/4	dark yellowish brown fine sandy loam to loamy sand many roots
7" - 20"	10YR 5/6	yellowish brown fine sandy loam few roots
20" - 46"	2.5Y 5/3	Light yellowish brown fine sandy loam, few stones





36 Stage Rd, Nottingham NH 03290

603.679.1866 C: 603.706.2521

calbert.env@gmail.com

No H2O observed

SHWT: 32"

Roots: 32"

Refusal: 46"

Perc Rate = 8 min/inch

TEST PIT #3 – GRASS MAT

Refusal: 12"

TEST PIT #4 – GRASS MAT

0" - 9"

10YR 3/4 dark yellowish brown  
fine sandy loam to loamy sand  
many roots

9" - 28"

10YR 5/6 yellowish brown  
fine sandy loam  
few roots

28" - 48"

2.5Y 5/3 Light yellowish brown  
fine sandy loam, few stones

No H2O observed

SHWT: 28"

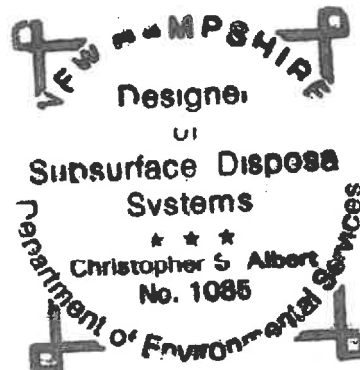
Roots: 28"

Refusal: 48"

Perc Rate = 8 min/inch

TEST PIT #5 – GRASS MAT

Refusal: 18"





36 Stage Rd, Nottingham NH 03290  
603.679.1866 C: 603.706.2521  
calbert.env@gmail.com

#### TEST PIT #6 – FOREST MAT

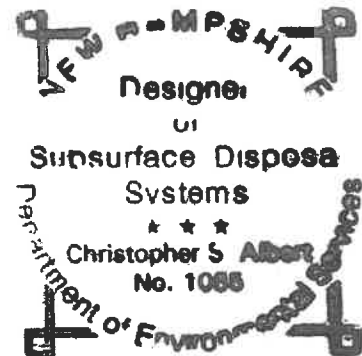
0" – 12"	10YR 3/3	dark brown fine sandy loam few roots
12" - 36"	10YR 4/6	yellowish brown fine sandy loam common roots
36" - 50"	2.5Y 6/4	Light yellowish brown fine sandy loam Few stones

No H2O observed  
SHWT: 40"  
Roots: 36"  
Refusal: 50"  
Perc Rate = 8 min/inch

#### Test Pit #7 – GRASS MAT

0" – 12"	10YR 3/3	dark brown fine sandy loam few roots
12" - 36"	10YR 4/6	yellowish brown fine sandy loam common roots
36" - 72"	2.5Y 5/4	Light Olive brown fine sandy loam Firm, Few stones

No H2O observed  
SHWT: 36"  
Roots: 36"  
Refusal: 72"  
Perc Rate = 8 min/inch







36 Stage Rd, Nottingham NH 03290  
603.679.1966 C: 603.706.2521  
calbert.env@gmail.com

TEST PIT #8 – GRASS MAT

Refusal: 12"

TEST PIT #9 – GRASS MAT

Refusal: 24"

TEST PIT #10 – GRASS MAT

0" - 10"

Crushed Gravel (fill material)

Stabilization Fabric

10" - 24"

2.5Y 5/3

Light olive brown  
Silty clay loam  
Subangular blocky

Encountered 2" electrical  
conduit

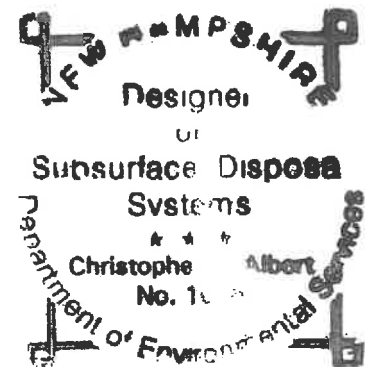
No H<sub>2</sub>O observed

SHWT: 10"

Roots: none

Refusal: none

Perc Rate = 20 min/inch



TEST PIT #11 – EDGE TREE LINE

0" - 20"

10YR 2/2

Very dark brown, FSL  
Few roots

20" - 84"

2.5Y 3/4

Light olive brown  
Silty clay loam  
Subangular blocky



ENVIRONMENTAL CONSULTANTS, LLC  
CLEAN WATER FOR THE PRESENT AND FUTURE

36 Stage Rd, Nottingham NH 03290

603.679.1866 C: 603.706.2521

calbertenv@gmail.com

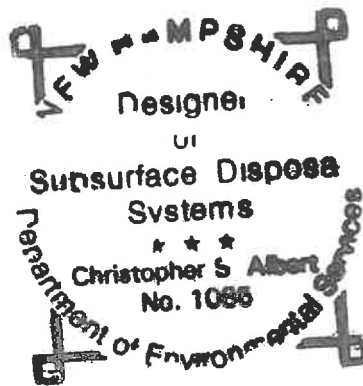
No H2O observed

SHWT: 20"

Roots: 20"

Refusal: none

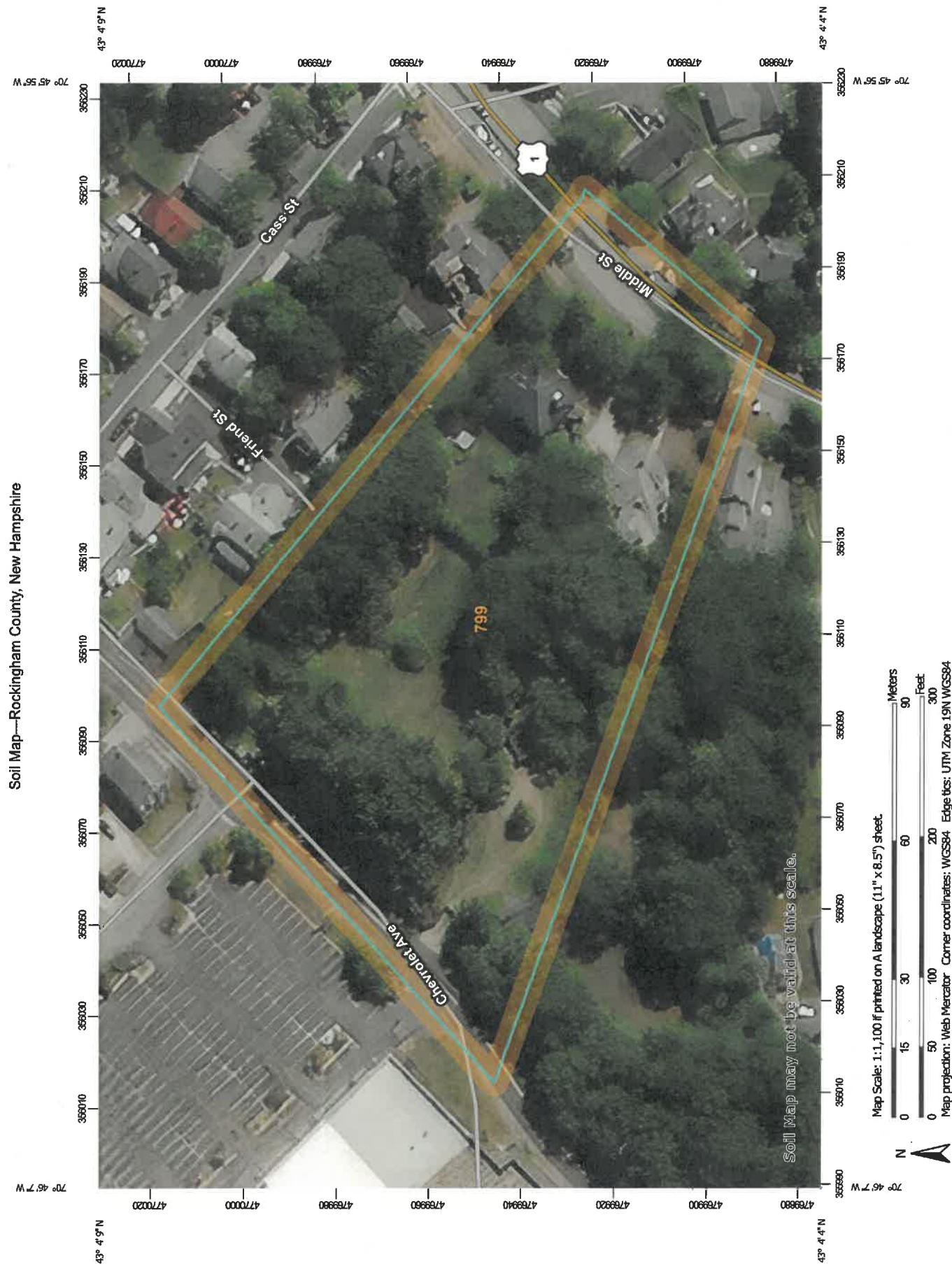
Perc Rate = 20 min/inch






































## APPENDIX IV

### **NRCS Soil Map**

Soil Map—Rockingham County, New Hampshire



## MAP LEGEND

	Area of Interest (AOI)		Area of Interest (AOI)
	Soils		Stony Spot
	Soil Map Unit Polygons		Very Stony Spot
	Soil Map Unit Lines		Wet Spot
	Soil Map Unit Points		Other
	Special Point Features		Special Line Features
	Blowout		Streams and Canals
	Borrow Pit		Transportation
	Clay Spot		Rails
	Closed Depression		Interstate Highways
	Gravel Pit		US Routes
	Gravelly Spot		Major Roads
	Landfill		Local Roads
	Lava Flow		Background
	Marsh or swamp		Aerial Photography
	Mine or Quarry		
	Miscellaneous Water		
	Perennial Water		
	Rock Outcrop		
	Saline Spot		
	Sandy Spot		
	Severely Eroded Spot		
	Sinkhole		
	Slide or Slip		
	Sodic Spot		

## 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 24, Aug 31, 2021

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—Sep 9, 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
799	Urban land-Canton complex, 3 to 15 percent slopes	2.9	100.0%
<b>Totals for Area of Interest</b>		<b>2.9</b>	<b>100.0%</b>

## APPENDIX V

### **Extreme Precipitation Estimates**



# Extreme Precipitation Tables

## Northeast Regional Climate Center

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

Smoothing	Yes
State	New Hampshire
Location	
Longitude	70.767 degrees West
Latitude	43.068 degrees North
Elevation	0 feet
Date/Time	Mon, 13 Dec 2021 08:39:25 -0500

## Extreme Precipitation Estimates

	5min	10min	15min	30min	60min	120min		1hr	2hr	3hr	6hr	12hr	24hr	48hr		1day	2day	4day	7day	10day	
1yr	0.26	0.40	0.50	0.65	0.81	1.04	1yr	0.70	0.98	1.21	1.56	2.03	2.66	2.92	1yr	2.35	2.81	3.22	3.94	4.55	1yr
2yr	0.32	0.50	0.62	0.81	1.02	1.30	2yr	0.88	1.18	1.52	1.94	2.49	3.21	3.57	2yr	2.84	3.43	3.94	4.68	5.33	2yr
5yr	0.37	0.58	0.73	0.97	1.25	1.61	5yr	1.08	1.47	1.89	2.43	3.14	4.07	4.58	5yr	3.60	4.40	5.04	5.94	6.70	5yr
10yr	0.41	0.65	0.82	1.11	1.45	1.89	10yr	1.25	1.72	2.23	2.89	3.75	4.87	5.53	10yr	4.31	5.32	6.08	7.11	7.98	10yr
25yr	0.48	0.76	0.97	1.33	1.77	2.33	25yr	1.53	2.14	2.77	3.63	4.74	6.17	7.10	25yr	5.46	6.83	7.80	9.02	10.05	25yr
50yr	0.53	0.86	1.10	1.53	2.07	2.75	50yr	1.78	2.52	3.28	4.32	5.66	7.39	8.58	50yr	6.54	8.25	9.42	10.81	11.98	50yr
100yr	0.59	0.96	1.24	1.77	2.41	3.25	100yr	2.08	2.97	3.90	5.15	6.77	8.85	10.38	100yr	7.84	9.98	11.38	12.96	14.28	100yr
200yr	0.67	1.10	1.42	2.04	2.82	3.83	200yr	2.43	3.51	4.61	6.12	8.08	10.61	12.55	200yr	9.39	12.07	13.75	15.55	17.03	200yr
500yr	0.80	1.31	1.71	2.48	3.47	4.75	500yr	2.99	4.37	5.75	7.69	10.21	13.49	16.15	500yr	11.93	15.53	17.67	19.78	21.50	500yr

## Lower Confidence Limits

	5min	10min	15min	30min	60min	120min		1hr	2hr	3hr	6hr	12hr	24hr	48hr		1day	2day	4day	7day	10day	
1yr	0.23	0.36	0.44	0.59	0.73	0.88	1yr	0.63	0.86	0.92	1.33	1.68	2.23	2.50	1yr	1.98	2.40	2.86	3.17	3.89	1yr
2yr	0.31	0.49	0.60	0.81	1.00	1.19	2yr	0.86	1.16	1.37	1.82	2.34	3.06	3.45	2yr	2.71	3.32	3.82	4.55	5.08	2yr
5yr	0.35	0.54	0.67	0.92	1.17	1.40	5yr	1.01	1.37	1.61	2.12	2.73	3.79	4.19	5yr	3.35	4.03	4.72	5.54	6.24	5yr
10yr	0.39	0.59	0.73	1.03	1.32	1.60	10yr	1.14	1.56	1.81	2.39	3.06	4.37	4.87	10yr	3.87	4.68	5.45	6.42	7.20	10yr
25yr	0.44	0.67	0.83	1.19	1.56	1.90	25yr	1.35	1.86	2.10	2.76	3.54	4.71	5.90	25yr	4.17	5.68	6.66	7.80	8.69	25yr
50yr	0.48	0.73	0.91	1.31	1.77	2.17	50yr	1.52	2.12	2.35	3.08	3.94	5.32	6.82	50yr	4.71	6.56	7.74	9.06	10.03	50yr
100yr	0.54	0.81	1.01	1.47	2.01	2.47	100yr	1.74	2.41	2.63	3.42	4.36	5.98	7.87	100yr	5.29	7.57	9.00	10.53	11.58	100yr
200yr	0.59	0.89	1.13	1.63	2.28	2.82	200yr	1.97	2.75	2.93	3.79	4.80	6.70	9.09	200yr	5.93	8.74	10.46	12.25	13.39	200yr
500yr	0.69	1.02	1.31	1.91	2.71	3.37	500yr	2.34	3.29	3.41	4.33	5.47	7.79	10.98	500yr	6.89	10.56	12.75	14.99	16.21	500yr

## Upper Confidence Limits

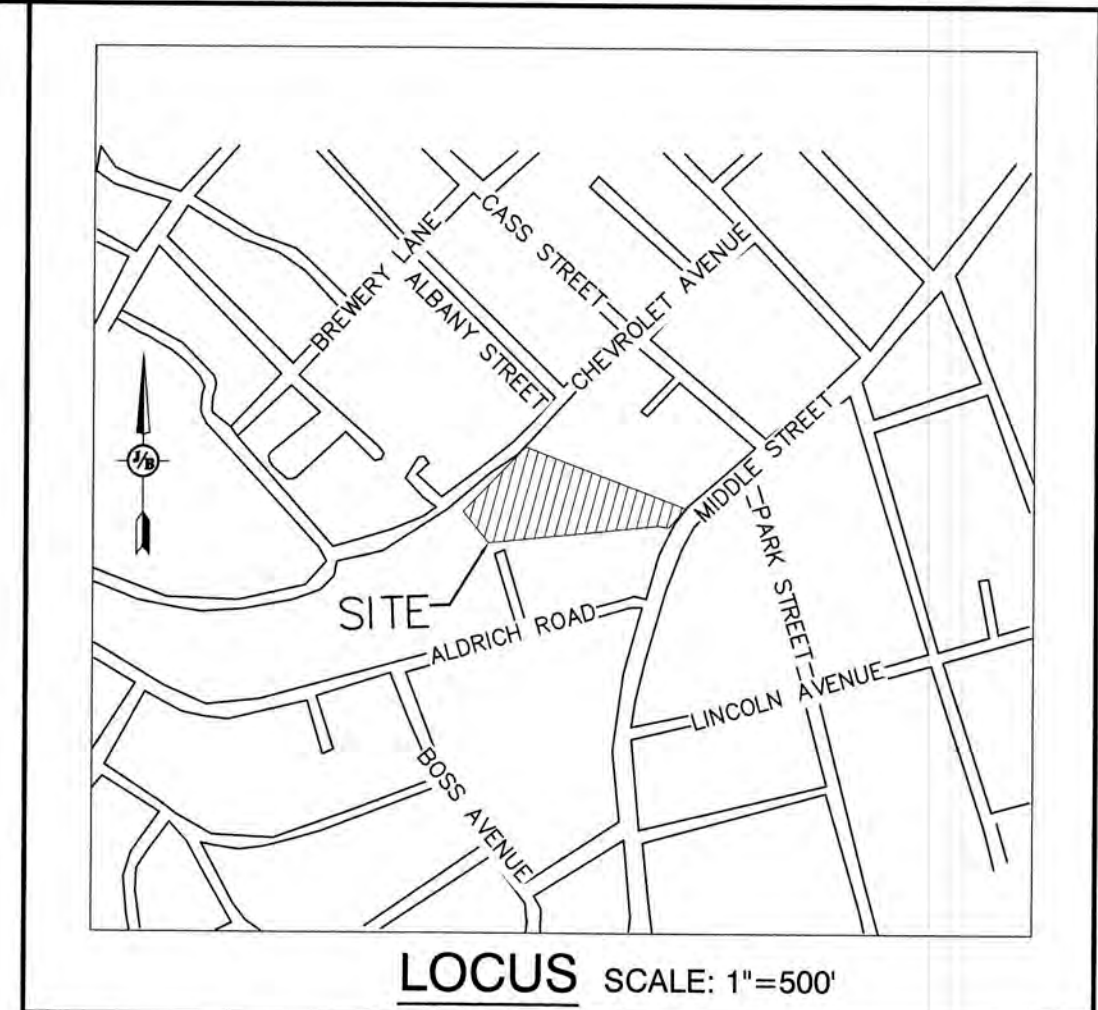
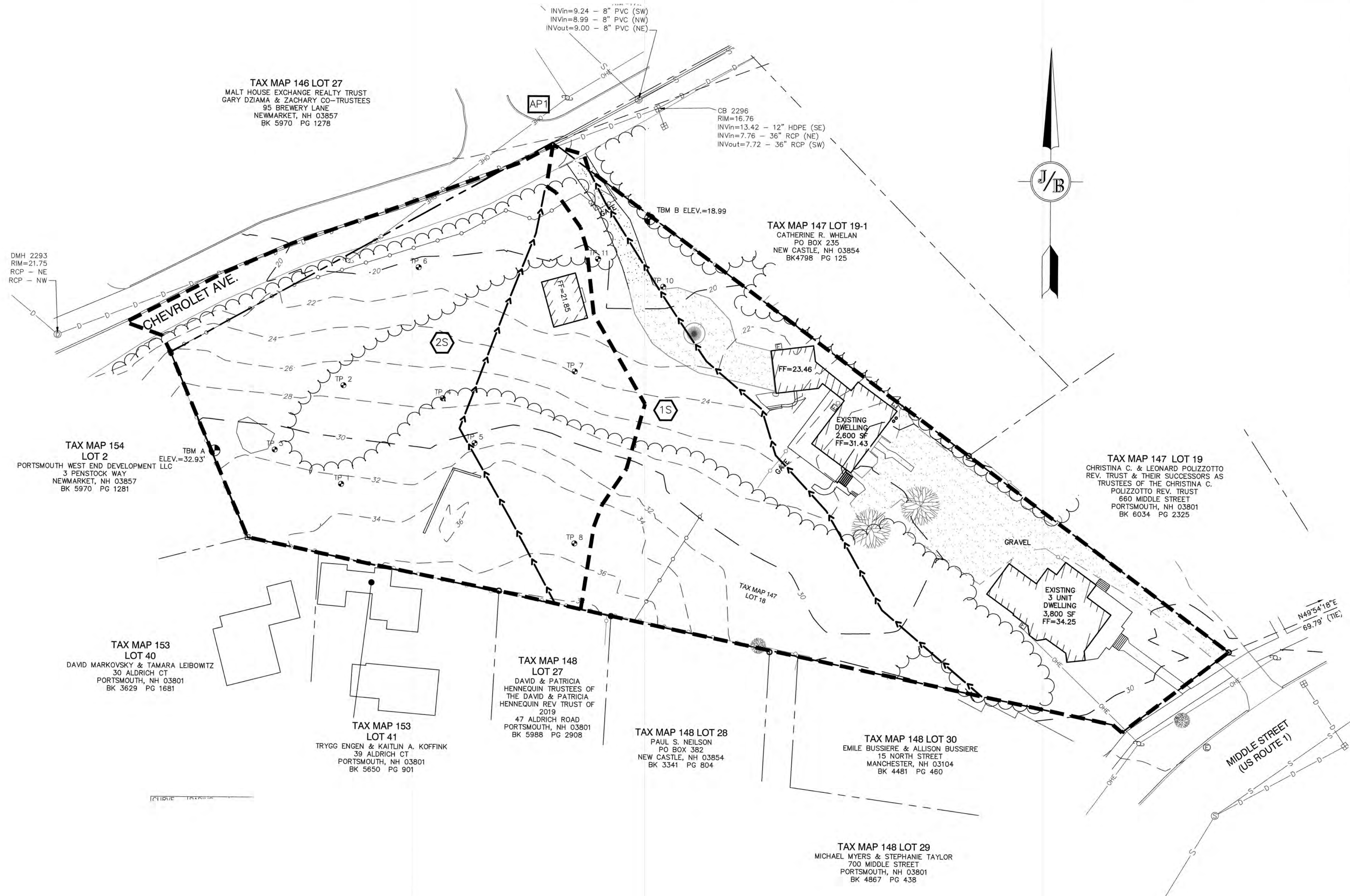
	5min	10min	15min	30min	60min	120min		1hr	2hr	3hr	6hr	12hr	24hr	48hr		1day	2day	4day	7day	10day	
1yr	0.28	0.44	0.54	0.72	0.89	1.08	1yr	0.77	1.06	1.26	1.74	2.21	2.99	3.16	1yr	2.64	3.04	3.58	4.38	5.05	1yr
2yr	0.34	0.52	0.64	0.86	1.07	1.27	2yr	0.92	1.24	1.48	1.96	2.51	3.43	3.70	2yr	3.03	3.56	4.09	4.84	5.63	2yr
5yr	0.40	0.62	0.76	1.05	1.34	1.62	5yr	1.15	1.58	1.88	2.53	3.25	4.34	4.96	5yr	3.84	4.77	5.38	6.37	7.15	5yr
10yr	0.47	0.72	0.89	1.24	1.61	1.97	10yr	1.39	1.93	2.28	3.10	3.95	5.34	6.19	10yr	4.72	5.96	6.81	7.83	8.74	10yr
25yr	0.57	0.87	1.09	1.55	2.04	2.56	25yr	1.76	2.51	2.95	4.07	5.14	7.79	8.33	25yr	6.90	8.01	9.13	10.33	11.40	25yr
50yr	0.67	1.02	1.27	1.82	2.45	3.12	50yr	2.12	3.05	3.59	4.99	6.30	9.76	10.44	50yr	8.64	10.03	11.41	12.71	13.95	50yr
100yr	0.79	1.19	1.49	2.15	2.95	3.80	100yr	2.55	3.72	4.37	6.15	7.74	12.22	13.07	100yr	10.81	12.57	14.25	15.67	17.07	100yr
200yr	0.92	1.39	1.76	2.54	3.55	4.64	200yr	3.06	4.54	5.33	7.57	9.50	15.33	16.40	200yr	13.57	15.77	17.84	19.31	20.90	200yr
500yr	1.14	1.70	2.19	3.18	4.52	6.02	500yr	3.90	5.88	6.91	10.00	12.50	20.72	22.13	500yr	18.34	21.28	24.00	25.46	27.31	500yr



## APPENDIX VI

### **Pre- and Post-Construction Watershed Plans**

F:\CADD\MASTER STANDARD\dwg\JB-LAYOUTS.dwg 3/12/2015 3:27:29 PM EDT



#### LEGEND

SUBCATCHMENT  
BOUNDARY

SUBCATCHMENT

REACH

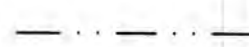
POND

TC PATH

WETLANDS

HISS SOILS

FLOW ARROW



**PROJECT PARCEL**  
CITY OF PORTSMOUTH  
TAX MAP 147, LOT 18

**APPLICANT**  
TUCK REALTY CORPORATION  
PO BOX 190  
EXETER, NH 03833

**TOTAL LOT AREA**  
81,046 SQ. FT.  
1.86 ACRES

Design: JAC    Draft: AJB    Date: 11/11/20  
Checked: JAC    Scale: AS NOTED    Project No.: 20686  
Drawing Name: 20686-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.



REV.	DATE	REVISION	BY
6	3/10/22	REVISED PER TAC COMMENTS	AJB
5	2/15/22	REVISED FOR PLANNING BOARD SUBMISSION	AJB
4	12/20/21	REVISED FOR PLANNING BOARD SUBMISSION	AJB
3	9/30/21	REVISED PER TAC COMMENTS	AJB
2	8/23/21	REVISED FOR PRELIMINARY SUBDIVISION	AJB

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

Plan Name: **EXISTING WATERSHED PLAN**  
Project: **668 MIDDLE STREET  
PORTSMOUTH, NH**  
Owner of Record: **PUBLIC LAND HOLDINGS LLC  
PO BOX 190 EXETER, NH 03833 BK 6367 PG 1660**

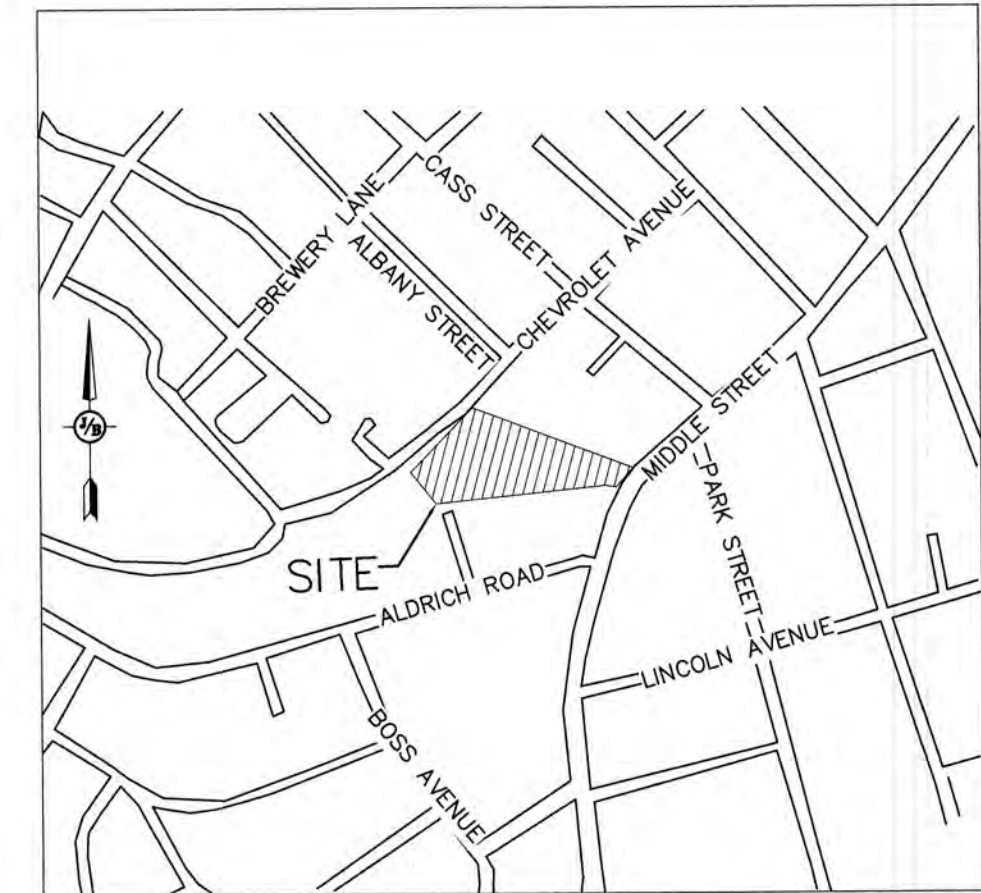
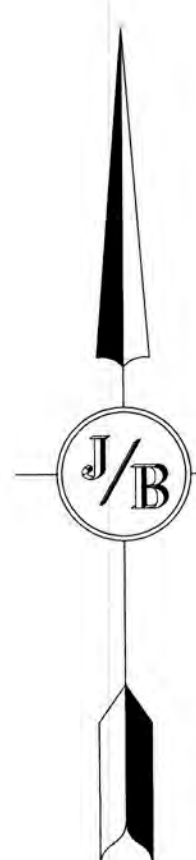
DRAWING No.

**W1**

SHEET 1 OF 2  
JBE PROJECT NO. 20686



F:\CADD MASTER STANDARD\dwg\JB-LAYOUTS.dwg 3/12/2015 3:27:29 PM EDT



LOCUS SCALE: 1"=500'

### LEGEND

SUBCATCHMENT BOUNDARY

SUBCATCHMENT

REACH

POND

TC PATH

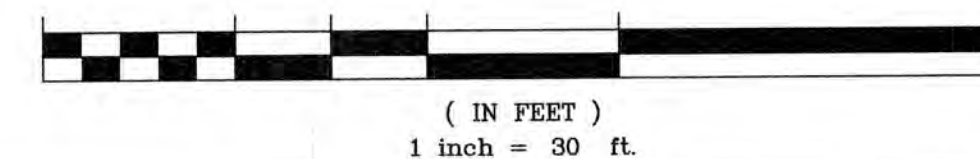
WETLANDS

HISS SOILS

FLOW ARROW



GRAPHIC SCALE



PROJECT PARCEL  
CITY OF PORTSMOUTH  
TAX MAP 147, LOT 18

APPLICANT  
TUCK REALTY CORPORATION  
PO BOX 190  
EXETER, NH 03833

TOTAL LOT AREA  
81,046 SQ. FT.  
1.86 ACRES

Design: JAC	Draft: AJB	Date: 11/11/20
Checked: JAC	Scale: AS NOTED	Project No.: 20686
Drawing Name: 20686-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.		



REV.	DATE	REVISION	BY
6	3/10/22	REVISED PER TAC COMMENTS	AJB
5	2/15/22	REVISED FOR PLANNING BOARD SUBMISSION	AJB
4	12/20/21	REVISED FOR PLANNING BOARD SUBMISSION	AJB
3	9/30/21	REVISED PER TAC COMMENTS	AJB
2	8/23/21	REVISED FOR PRELIMINARY SUBDIVISION	AJB
REV.	DATE	REVISION	BY

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:	668 MIDDLE STREET PORTSMOUTH, NH
Owner of Record:	PUBLIC LAND HOLDINGS LLC PO BOX 190 EXETER, NH 03833 BK 6367 PG 1660

DRAWING No.

**W2**

SHEET 2 OF 2  
JBE PROJECT NO. 20686



**Plan Name TBD**  
Chevrolet Ave, Portsmouth NH (10/8/2021)

©2021 Art Form Architecture, Inc., all rights reserved . You may not build this design without purchasing a license, even if you make changes. This design may have geographic restrictions.

NOTE: To scale as noted only if printed on 11x17 paper with "no scaling" (do not "Fit").

**Dear Builders and Home Buyers,**

In addition to our Terms and Conditions (the "Terms"), please be aware of the following:

This design may not yet have Construction Drawings (as defined in the Terms), and is, therefore, only available as a Design Drawing (as defined in the Terms and together with Construction Drawings, "Drawings"). It is possible that during the conversion of a Design Drawing to a final Construction Drawing, changes may be necessary including, but not limited to, dimensional changes. Please see Plan Data Explained on [www.ArtformHomePlans.com](http://www.ArtformHomePlans.com) to understand room sizes, dimensions and other data provided. We are not responsible for typographical errors.

Artform Home Plans ("Artform") requires that our Drawings be built substantially as designed. Artform will not be obligated by or liable for use of this design with markups as part of any builder agreement. While we attempt to accommodate where possible and reasonable, and where the changes do not denigrate our design, any and all changes to Drawings must be approved in writing by Artform. It is recommended that you have your Drawing updated by Artform prior to attaching any Drawing to any builder agreement. Artform shall not be responsible for the misuse of or unauthorized alterations to any of its Drawings.

**Facade Changes:**

- To maintain design integrity, we pay particular attention to features on the front facade, including but not limited to door surrounds, window casings, finished porch column sizes, and roof friezes. While we may allow builders to add their own flare to aesthetic elements, we don't allow our designs to be stripped of critical details. Any such alterations require the express written consent of Artform.
- Increasing ceiling heights usually requires adjustments to window sizes and other exterior elements.

**Floor plan layout and/or Structural Changes:**

- Structural changes always require the express written consent of Artform
- If you wish to move or remove walls or structural elements (such as removal of posts, increases in house size, ceiling height changes, addition of dormers, etc), please do not assume it can be done without other additional changes (even if the builder or lumber yard says you can).





**Plan Name TBD**  
Chevrolet Ave, Portsmouth NH (10/8/2021)

 **Artform Home Plans**  
**Prelim / Work in Progress** 603-431-9559

©2021 Art Form Architecture, Inc., all rights reserved . You may not build this design without purchasing a license, even if you make changes. This design may have geographic restrictions.

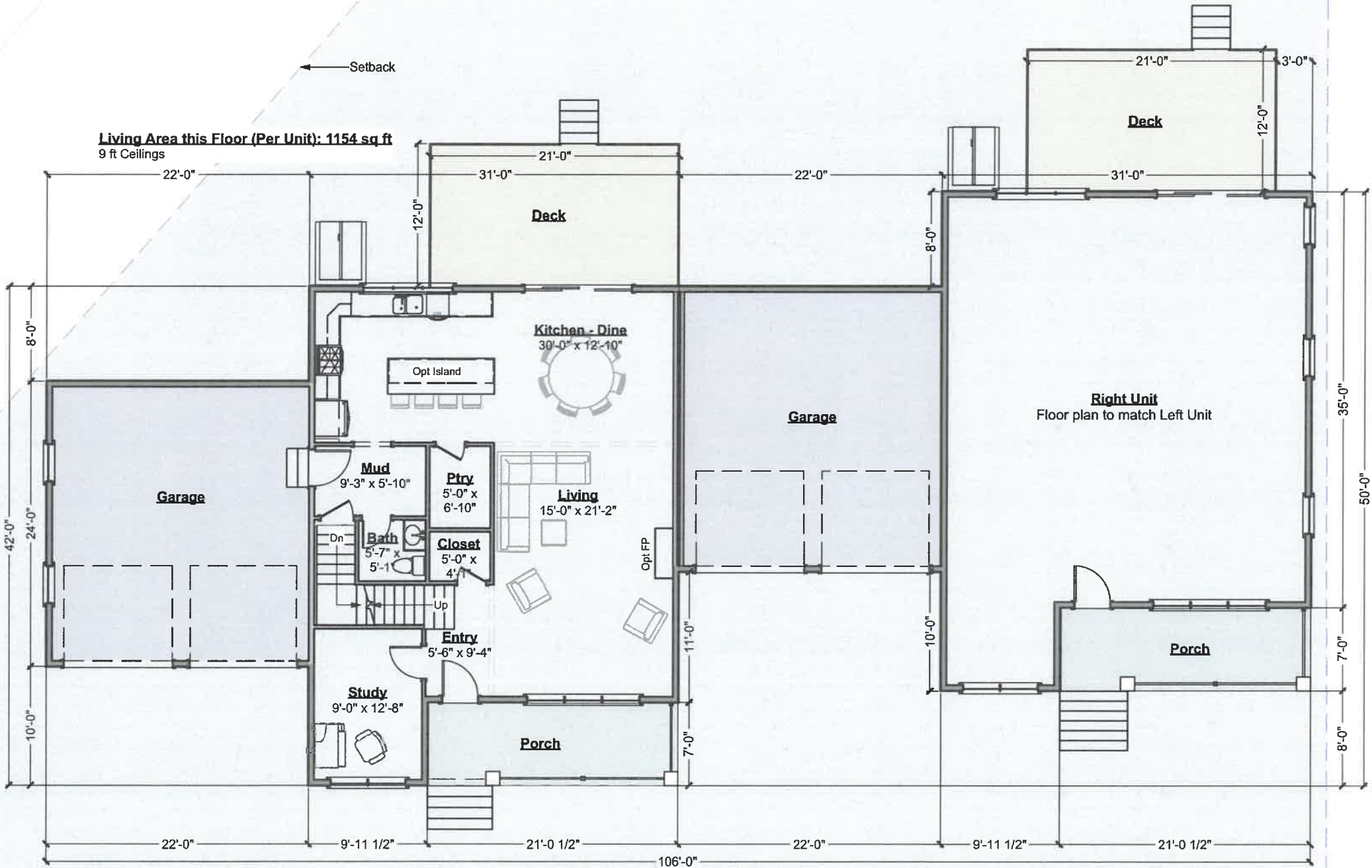
NOTE: To scale as noted only if printed on 11x17 paper with "no scaling" (do not "Fit").



©2021 Art Form Architecture  
TBN - Chevrolet Ave

©2021 Art Form Architecture, Inc., all rights reserved . You may not build this design without purchasing a license, even if you make changes. This design may have geographic restrictions.

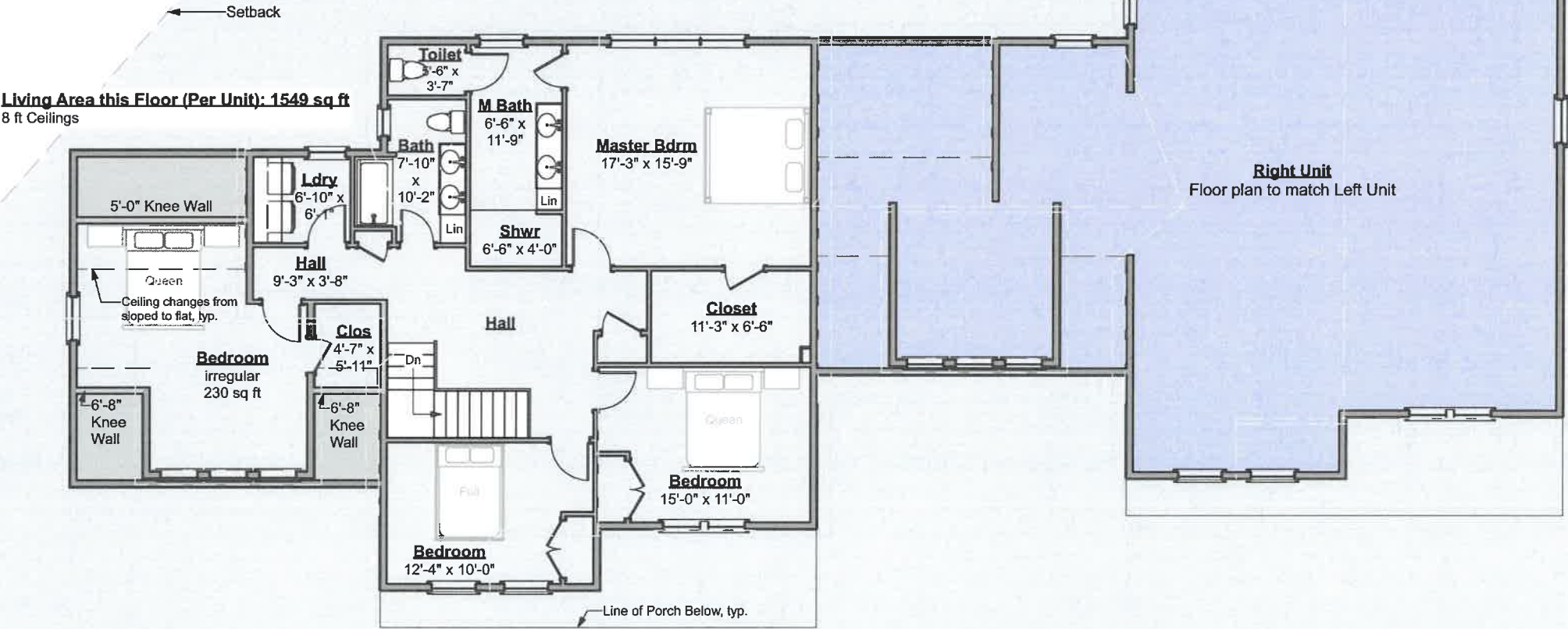
NOTE: To scale as noted only if printed on 11x17 paper with "no scaling" (do not "Fit").



**First Floor Plan**  
Scale: 3/32" = 1'-0"

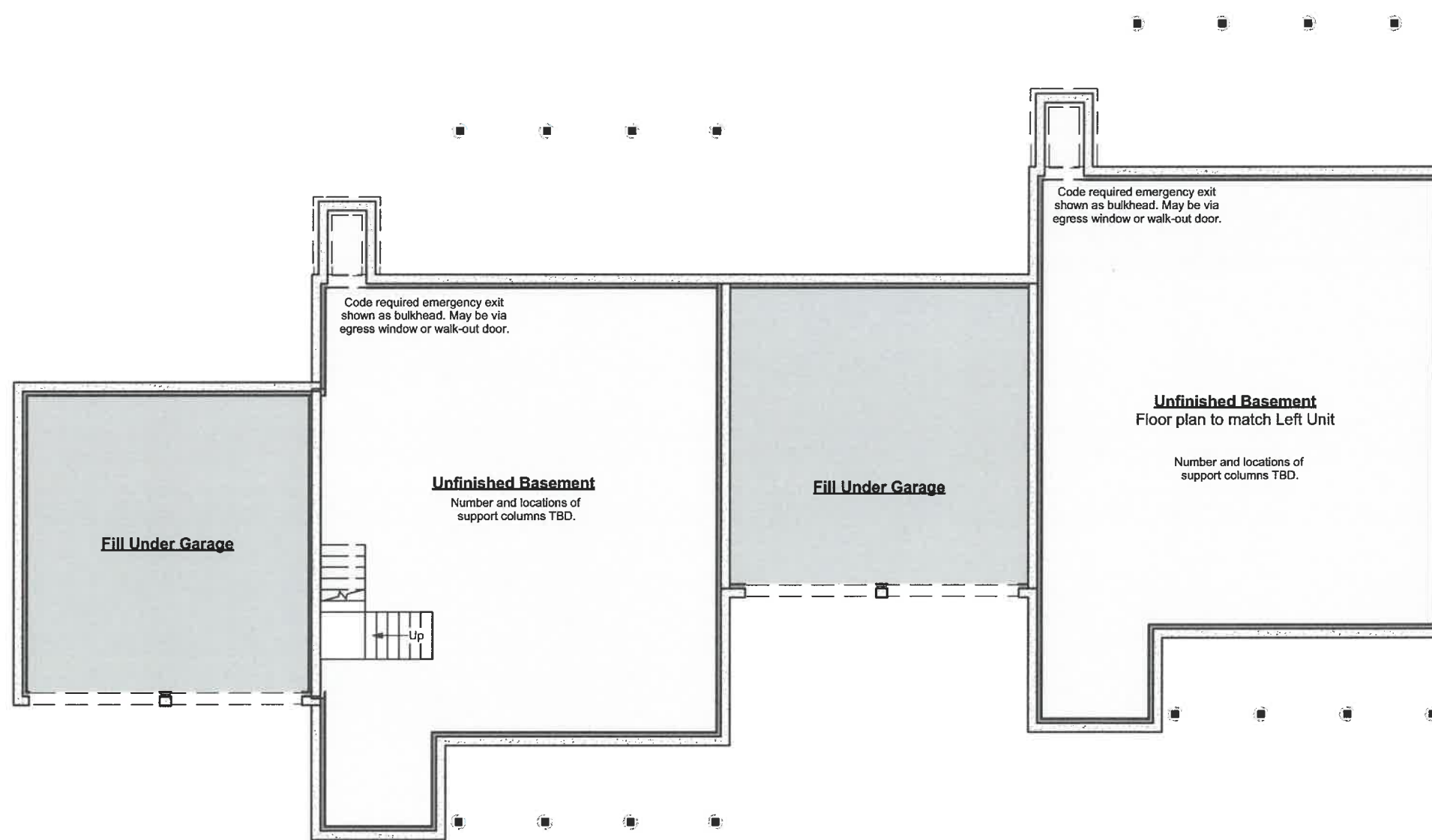


NOTE: To scale as noted only if printed on 11x17 paper with "no scaling" (do not "Fit").



Second Floor Plan  
Scale: 3/32" = 1'-0"

NOTE: To scale as noted only if printed on 11x17 paper with "no scaling" (do not "Fit").



**Foundation Plan**  
Scale: 3/32" = 1'-0"



©2021 Art Form Architecture, Inc., all rights reserved . You may not build this design without purchasing a license, even if you make changes. This design may have geographic restrictions.

NOTE: To scale as noted only if printed on 11x17 paper with "no scaling" (do not "Fit").



**Front Elevation**  
Scale: 1/8" = 1'-0"

Plan Name TBD

Chevrolet Ave, Portsmouth NH (10/8/2021)



Prelim / Work in Progress 603-431-9559

©2021 Art Form Architecture, Inc., all rights reserved . You may not build this design without purchasing a license, even if you make changes. This design may have geographic restrictions.

NOTE: To scale as noted only if printed on 11x17 paper with "no scaling" (do not "Fit").



Right Elevation  
Scale: 1/8" = 1'-0"

©2021 Art Form Architecture, Inc., all rights reserved . You may not build this design without purchasing a license, even if you make changes. This design may have geographic restrictions.

NOTE: To scale as noted only if printed on 11x17 paper with "no scaling" (do not "Fit").



**Rear Elevation**  
Scale: 1/8" = 1'-0"

# Plan Name TBD

Chevrolet Ave, Portsmouth NH (10/8/2021)



**Prelim / Work in Progress** 603-431-9559

©2021 Art Form Architecture, Inc., all rights reserved . You may not build this design without purchasing a license, even if you make changes. This design may have geographic restrictions.

NOTE: To scale as noted only if printed on 11x17 paper with "no scaling" (do not "Fit").



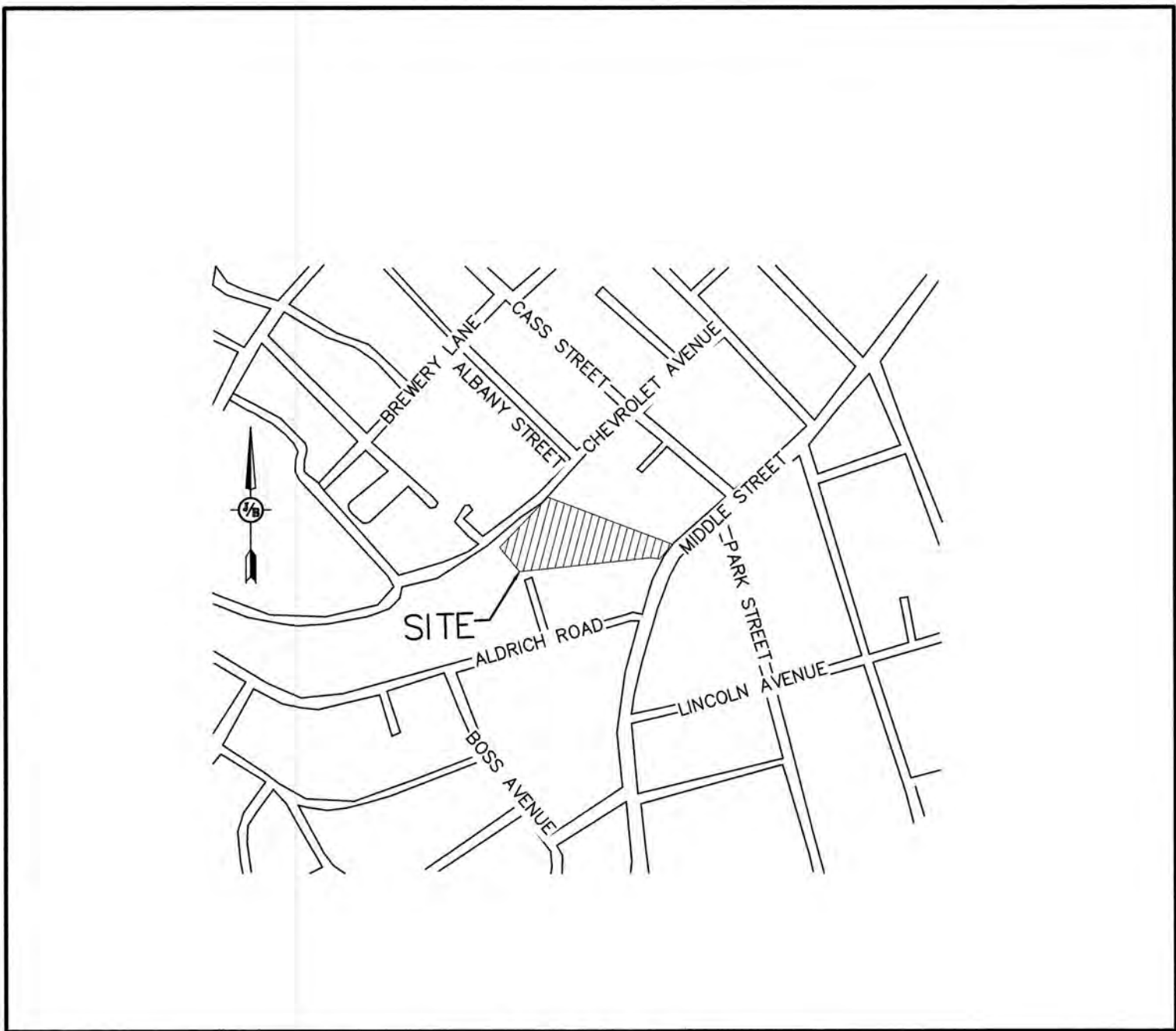
**Left Elevation**  
Scale: 1/8" = 1'-0"



SITE & SUBDIVISION PLAN  
"CHEVROLET AVENUE DUPLEXES"  
TAX MAP 147 LOT 18  
668 MIDDLE STREET, PORTSMOUTH NEW HAMPSHIRE

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
		MAJOR CONTOUR
		MINOR CONTOUR
		EDGE OF PAVEMENT
		VERTICAL GRANITE CURB
		SLOPE GRANITE CURB
		CAPE COD BERM
		POURED CONCRETE CURB
		SILT FENCE
		DRAINAGE LINE
		SEWER LINE
		SEWER FORCE MAIN
		GAS LINE
		WATER LINE
		WATER SERVICE
		OVERHEAD ELECTRIC
		UNDERGROUND ELECTRIC
		GUARDRAIL
		UNDERDRAIN
		FIRE PROTECTION LINE
		THRUST BLOCK
		IRON PIPE/IRON ROD
		DRILL HOLE
		IRON ROD/DRILL HOLE
		STONE/GRANITE BOUND
		SPOT GRADE
		PAVEMENT SPOT GRADE
		CURB SPOT GRADE
		BENCHMARK (TBM)
		DOUBLE POST SIGN
		SINGLE POST SIGN
		TEST PIT
		TREES AND BUSHES
		UTILITY POLE
		LIGHT POLES
		DRAIN MANHOLE
		SEWER MANHOLE
		HYDRANT
		WATER GATE
		WATER SHUT OFF
		REDUCER
		SINGLE GRATE CATCH BASIN
		DOUBLE GRATE CATCH BASIN
		TRANSFORMER
		CULVERT W/STRAIGHT HEADWALL
		STONE CHECK DAM
		DRAINAGE FLOW DIRECTION
		RIPRAP
		STABILIZED CONSTRUCTION
		ENTRANCE
		CONCRETE
		GRAVEL
		SNOW STORAGE
		RETAINING WALL



LOCUS MAP

SCALE 1" = 500'

SHEET INDEX

CS	COVER SHEET
C1	EXISTING CONDITIONS PLAN
A1	SUBDIVISION PLAN
C2	SITE PLAN
CS1	CONDO SITE PLAN
C3	GRADING AND DRAINAGE PLAN
C4	UTILITY PLAN
P1	SEWER PLAN AND PROFILE
L1	LIGHTING PLAN
L2	LANDSCAPING PLAN
D1-D3	DETAIL SHEETS
E1	EROSION AND SEDIMENT CONTROL DETAILS
	ARCHITECTURAL PLANS

CIVIL ENGINEER / SURVEYOR

JONES & BEACH ENGINEERS, INC.  
85 PORTSMOUTH AVENUE  
PO BOX 219  
STRATHAM, NH 03885  
(603) 772-4746  
CONTACT: JOSEPH CORONATI  
EMAIL: JCORONATI@JONESANDBEACH.COM

LIGHTING CONSULTANT

CHARRON, INC.  
P.O BOX 4550  
MANCHESTER, NH 03108  
(603) 945-3500  
CONTACT: KEN SWEENEY  
EMAIL: KSWEENEY@CHARRONINC.COM

LANDSCAPE DESIGNER

LM LAND DESIGN, LLC  
11 SOUTH ROAD  
BRENTWOOD, NH 03833  
(603) 770-7728  
CONTACT: LISE MCNAUGHTON

SOILS CONSULTANT

GOVE ENVIRONMENTAL SERVICES, INC.  
8 CONTINENTAL DRIVE, UNIT H  
PO BOX 219  
EXETER, NH 03833  
(603) 778-0644  
CONTACT: JIM GOVE, CWS, CSS  
JGOVE@GESINC.BIZ

ARCHITECT

ART FORM ARCHITECTURE INC.  
44 LAFAYETTE ROAD  
NORTH HAMPTON, NH 03862  
CONTACT: WENDY WELTON  
(603) 431-9559

WATER

CITY OF PORTSMOUTH  
DEPARTMENT OF PUBLIC WORKS  
WATER DIVISION  
680 PEVERLY HILL ROAD  
PORTSMOUTH, NH 03801  
CONTACT: RAYMOND PEZZULLO  
(603) 427-1530

SEWER

CITY OF PORTSMOUTH  
DEPARTMENT OF PUBLIC WORKS  
SEWER DIVISION  
680 PEVERLY HILL ROAD  
PORTSMOUTH, NH 03801  
CONTACT: TERRY DESMARAI, P.E.  
(603) 766-1421

NATURAL GAS

UNITIL SERVICE CORP.  
114 DRINKWATER ROAD  
KENSINGTON, NH 03833-5602  
(603) 777-5512

ELECTRIC

EVERSOURCE  
74 OLD DOVER ROAD  
ROCHESTER, NH 03867  
(800) 555-5334

TELEPHONE

FAIRPOINT COMMUNICATIONS  
1575 GREENLAND ROAD  
GREENLAND, NH 03840  
(603) 427-5525  
CONTACT: JOE CONSIDINE

CABLE TV

COMCAST COMMUNICATION  
CORPORATION  
334-B CALEF HIGHWAY  
EPPING, NH 03042-2325  
(603) 679-5695

APPROVED – PORTSMOUTH, NH  
PLANNING BOARD

PROJECT PARCEL  
CITY OF PORTSMOUTH  
TAX MAP 147, LOT 18

APPLICANT  
TUCK REALTY CORPORATION  
PO BOX 190  
EXETER, NH 03833

TOTAL LOT AREA  
81,046 SQ. FT.  
1.86 ACRES

DATE:

Design: JAC	Draft: ERE	Date: 03/22/22
Checked: JAC	Scale: AS NOTED	Project No.: 20686
Drawing Name: 20686-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.		



REV.	DATE	REVISION	BY
6	3/22/22	REVISED PER TAC COMMENTS	ERE
5	2/15/22	REVISED FOR PLANNING BOARD SUBMISSION	AJB
4	12/20/21	REVISED FOR PLANNING BOARD SUBMISSION	AJB
3	9/30/21	REVISED PER TAC COMMENTS	AJB
2	8/23/21	REVISED FOR PRELIMINARY SUBDIVISION	AJB

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:	668 MIDDLE STREET PORTSMOUTH, NH
Owner of Record:	PUBLIC LAND HOLDINGS LLC PO BOX 190 EXETER, NH 03833 BK 6367 PG 1660

DRAWING No.

**CS**

SHEET 1 OF 14  
JBE PROJECT NO. 20686



# PLAN REFERENCES:

- "SUBDIVISION PLAN 660 MIDDLE STREET PORTSMOUTH NH OWNER CATHERINE R. WHELAN"; PREPARED BY JAMES VERRA AND ASSOCIATES, INC.; DATED MARCH 30, 2011; RECORDED AT THE ROCKINGHAM COUNTY REGISTRY OF DEEDS AS PLAT D-40400.
- "AMENDED SITE PLAN TAX MAP 154 LOT 2 PREPARED FOR PORTSMOUTH WEST END DEVELOPMENT, LLC"; PREPARED BY AMBIT ENGINEERING, INC.; DATED JUNE 7, 2019; RECORDED AT THE ROCKINGHAM COUNTY REGISTRY OF DEEDS AS PLAT D-41530.
- "EXISTING EASEMENT PLAN & PROPOSED EASEMENT PLAN TAX MAP 154 LOT 2 PREPARED FOR PORTSMOUTH WEST END DEVELOPMENT, LLC"; PREPARED BY AMBIT ENGINEERING, INC.; DATED JUNE 7, 2019; RECORDED AT THE ROCKINGHAM COUNTY REGISTRY OF DEEDS AS PLAT D-41529.
- "LOT LINE RELOCATION PLAN TAX MAP 154 LOT 2 PREPARED FOR PORTSMOUTH WEST END DEVELOPMENT, LLC AND TAX MAP 146 LOT 27 FOR MALT HOUSE EXCHANGE REALTY TRUST"; PREPARED BY AMBIT ENGINEERING, INC.; DATED DECEMBER 21, 2018; RECORDED AT THE ROCKINGHAM COUNTY REGISTRY OF DEEDS AS PLAT D-41238.
- "BOUNDARY LINE AGREEMENT PLAN TAX MAP 147 LOT 30 AND CHEVROLET AVE OWNED BY S&G REALTY AND CITY OF PORTSMOUTH"; PREPARED BY AMBIT ENGINEERING, INC.; DATED SEPTEMBER 28, 2017; RECORDED AT THE ROCKINGHAM COUNTY REGISTRY OF DEEDS AS PLAT D-40400.
- "CONDOMINIUM SITE PLAN 16 CHEVROLET AVE. ASSESSOR'S PARCEL #146-018 PORTSMOUTH, NH FOR CHEVROLET AVE. CONDOMINIUMS"; PREPARED BY JAMES VERRA AND ASSOCIATES, INC.; DATED JUNE 7, 2006; RECORDED AT THE ROCKINGHAM COUNTY REGISTRY OF DEEDS AS PLAT D-33836.
- "PUBLIC WORKS FACILITY 700 ISLINGTON STREET PORTSMOUTH, NH FOR CITY OF PORTSMOUTH"; PREPARED BY JAMES VERRA AND ASSOCIATES, INC.; DATED JUNE 4, 1999; RECORDED AT THE ROCKINGHAM COUNTY REGISTRY OF DEEDS AS PLAT D-27228.
- "STANDARD BOUNDARY SURVEY AT CASS STREET & FRIEND STREET FOR JUDY BROWN 899 MIDDLE STREET PORTSMOUTH, NH"; PREPARED BY EASTERLY SURVEYING; DATED OCTOBER 27, 1997; RECORDED AT THE ROCKINGHAM COUNTY REGISTRY OF DEEDS AS PLAT D-25824.

TAX MAP 146 LOT 27  
MALT HOUSE EXCHANGE REALTY TRUST  
GARY DZIANA & ZACHARY CO-TRUSTEES  
95 BREWERY LANE  
NEWMARKET, NH 03857  
BK 5970 PG 1278

30' PRIVATE RIGHT OF WAY PER  
AGREEMENT BK 674 PG 341  
APPURTENANT TO LOTS 147-18  
AND 147-19 TO BE EXTINGUISHED

DMH 2293  
RIM=21.75  
INVin=7.65 - 36" RCP - NE  
INVout=7.55 - 36" RCP - NW

TAX MAP 154  
LOT 2  
PORTSMOUTH WEST END DEVELOPMENT LLC  
3 PENSTOCK WAY  
NEWMARKET, NH 03857  
BK 5970 PG 1281

TAX MAP 153  
LOT 40  
DAVID MARKOVSKY & TAMARA LEIBOWITZ  
30 ALDRICH CT  
PORTSMOUTH, NH 03801  
BK 3629 PG 1681

TAX MAP 153  
LOT 41  
TRYGG ENGEN & KAITLIN A. KOFFINK  
39 ALDRICH CT  
PORTSMOUTH, NH 03801  
BK 5650 PG 901

TAX MAP 148  
LOT 27  
DAVID & PATRICIA  
HENNEQUIN TRUSTEES OF  
THE DAVID & PATRICIA  
HENNEQUIN REV TRUST OF  
2019  
47 ALDRICH ROAD  
PORTSMOUTH, NH 03801  
BK 5988 PG 2908

TAX MAP 148 LOT 28  
PAUL S. NEILSON  
PO BOX 382  
NEW CASTLE, NH 03854  
BK 3341 PG 804

TAX MAP 148 LOT 29  
MICHAEL MYERS & STEPHANIE TAYLOR  
700 MIDDLE STREET  
PORTSMOUTH, NH 03801  
BK 4867 PG 438

TAX MAP 148 LOT 30  
EMILE BUSSIÈRE & ALLISON BUSSIÈRE  
15 NORTH STREET  
MANCHESTER, NH 03104  
BK 4481 PG 460

TAX MAP 147 LOT 19  
CHRISTINA C. & LEONARD POLIZZOTTO  
REV. TRUST & THEIR SUCCESSORS AS  
TRUSTEES OF THE CHRISTINA C.  
POLIZZOTTO REV. TRUST  
660 MIDDLE STREET  
PORTSMOUTH, NH 03801  
BK 6034 PG 2325

EXISTING  
3 UNIT  
DWELLING  
3,800 SF  
FF=34.25

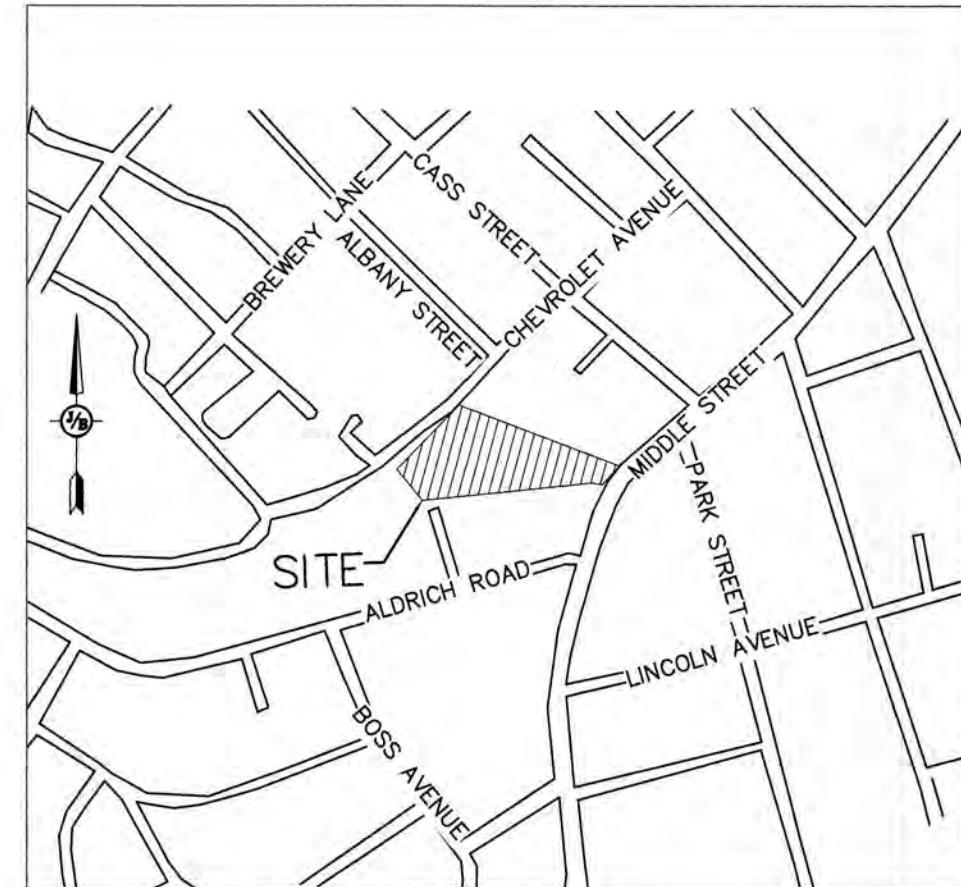
EXISTING  
DWELLING  
UNIT TO  
REMAIN

3/4" IRON REBAR  
0.8' BELOW GRADE

MIDDLE STREET  
(US ROUTE 1)

## GENERAL LEGEND

EXISTING	DESCRIPTION
	PROPERTY LINES
	SETBACK LINES
	CENTERLINE
	FRESHWATER WETLANDS LINE
	TREE LINE
	STONE WALL
	BARBED WIRE
	FENCE
	STOCKADE FENCE
	FLOOD PLAIN LINE
	ZONELINE
	EASEMENT
	MAJOR CONTOUR
	MINOR CONTOUR
	EDGE OF PAVEMENT
	DRAINAGE LINE
	SEWER LINE
	GAS LINE
	WATER LINE
	OVERHEAD ELECTRIC
	UNDERGROUND ELECTRIC
	GUARDRAIL
	IRON PIPE/IRON ROD
	DRILL HOLE
	IRON ROD/DRILL HOLE
	STONE/GRANITE BOUND
	BENCHMARK (TBM)
	DOUBLE POST SIGN
	SINGLE POST SIGN
	WELL
	TREES AND BUSHES
	UTILITY POLE
	LIGHT POLES
	DRAIN MANHOLE
	SEWER MANHOLE
	HYDRANT
	WATER GATE
	WATER SHUT OFF
	REDUCER
	SINGLE GRATE CATCH BASIN
	CONCRETE
	GRAVEL

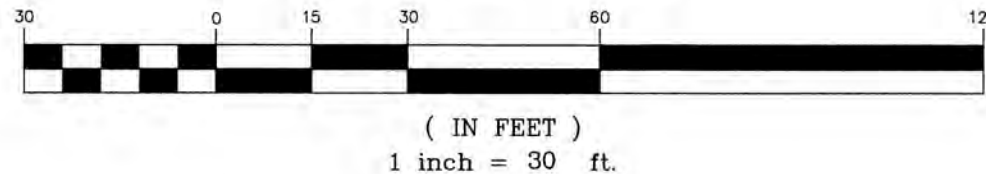


LOCUS SCALE: 1"=500'

## NOTES:

- THE INTENT OF THIS PLAN IS TO SHOW THE EXISTING CONDITIONS OF LOT 18 DEPICTED HEREON TAX MAP 147.
- 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.
- THE SUBJECT PARCEL IS LOCATED WITHIN AN AREA HAVING A ZONE X DESIGNATION BY THE FEDERAL EMERGENCY MANAGEMENT AGENCY (FEMA), ON FLOOD INSURANCE RATE MAP NO. 3301500259F, DATED JANUARY 29, 2021, FOR COMMUNITY PANEL NO. 259 OF 681, IN ROCKINGHAM COUNTY, STATE OF NEW HAMPSHIRE, WHICH IS THE CURRENT FLOOD INSURANCE RATE MAP FOR COMMUNITY IN WHICH SAID PREMISES IS SITUATED.
- BASIS OF BEARING: HORIZONTAL: STATE PLANE NAD83 VERTICAL: NAVD88
- CERTAIN DATA HEREON MAY VARY FROM RECORDED DATA DUE TO DIFFERENCES IN DECLINATION, ORIENTATION, AND METHODS OF MEASUREMENT.
- ALL BOOK AND PAGE NUMBERS REFER TO THE ROCKINGHAM COUNTY REGISTRY OF DEEDS.
- THE TAX MAP AND LOT NUMBERS ARE BASED ON THE CITY OF PORTSMOUTH TAX RECORDS AND ARE SUBJECT TO CHANGE.
- RESEARCH WAS PERFORMED AT THE CITY OF PORTSMOUTH ASSESSOR'S OFFICE AND THE ROCKINGHAM COUNTY REGISTRY OF DEEDS.
- 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.
- 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.
- NO WETLANDS WERE OBSERVED ON THE SUBJECT PREMISES.
- THIS PLAN IS THE RESULT OF A CLOSED TRAVERSE WITH A RAW, UNADJUSTED LINEAR ERROR OF CLOSURE GREATER THAN 1 IN 150,000.
- 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.
- HOUSE LOCATIONS OF ADJOINING PROPERTIES ARE FROM AERIAL PHOTOGRAPHY AND DIGITIZED ON PLAT. BUILDINGS WERE LOCATED ON SUBJECT PARCEL BY CONVENTIONAL SURVEYING METHODS.
- RIGHT OF WAY WENT FROM A 50' IN WIDTH (SEE DEED BK. 512 PG. 429) TO 30' RIGHT OF WAY (SEE DEED BK. 674, PG. 341).
- EXISTING 20' WIDE GAS EASEMENT ON SUBJECT PARCEL SEE DEED BK 4470 PG 2003. LOCATION OF EASEMENT UNDETERMINED AT THIS TIME. EASEMENT SHALL FOLLOW THE ROUTE OF PIPELINES 10 FEET ON EACH SIDE EXTENDED TO PROPERTY LINE.

## GRAPHIC SCALE

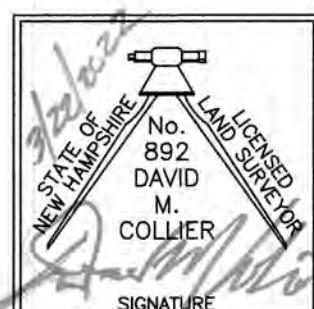


## CERTIFICATION:

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.

THIS SURVEY CONFORMS TO A CATEGORY 1 CONDITION 1 SURVEY AS DEFINED IN SECTION 4.1 OF THE N.H.L.S.A. ETHICS AND STANDARDS.

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.



DAVID M. COLLIER, LLS 892  
ON BEHALF OF JONES & BEACH ENGINEERS, INC.

DATE: 3/22/2022

Design: JAC	Draft: ERE	Date: 03/22/22
Checked: JAC	Scale: AS NOTED	Project No.: 20686
Drawing Name: 20686-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.		



6	3/22/22	REVISED PER TAC COMMENTS	ERE
5	2/15/22	REVISED FOR PLANNING BOARD SUBMISSION	AJB
4	12/20/21	REVISED FOR PLANNING BOARD SUBMISSION	AJB
3	9/30/21	REVISED PER TAC COMMENTS	AJB
2	8/23/21	REVISED FOR PRELIMINARY SUBDIVISION	AJB
REV.	DATE	REVISION	BY

Designed and Produced in NH

**J/B Jones & Beach Engineers, Inc.**

85 Portsmouth Ave. PO Box 219 Stratham, NH 03885

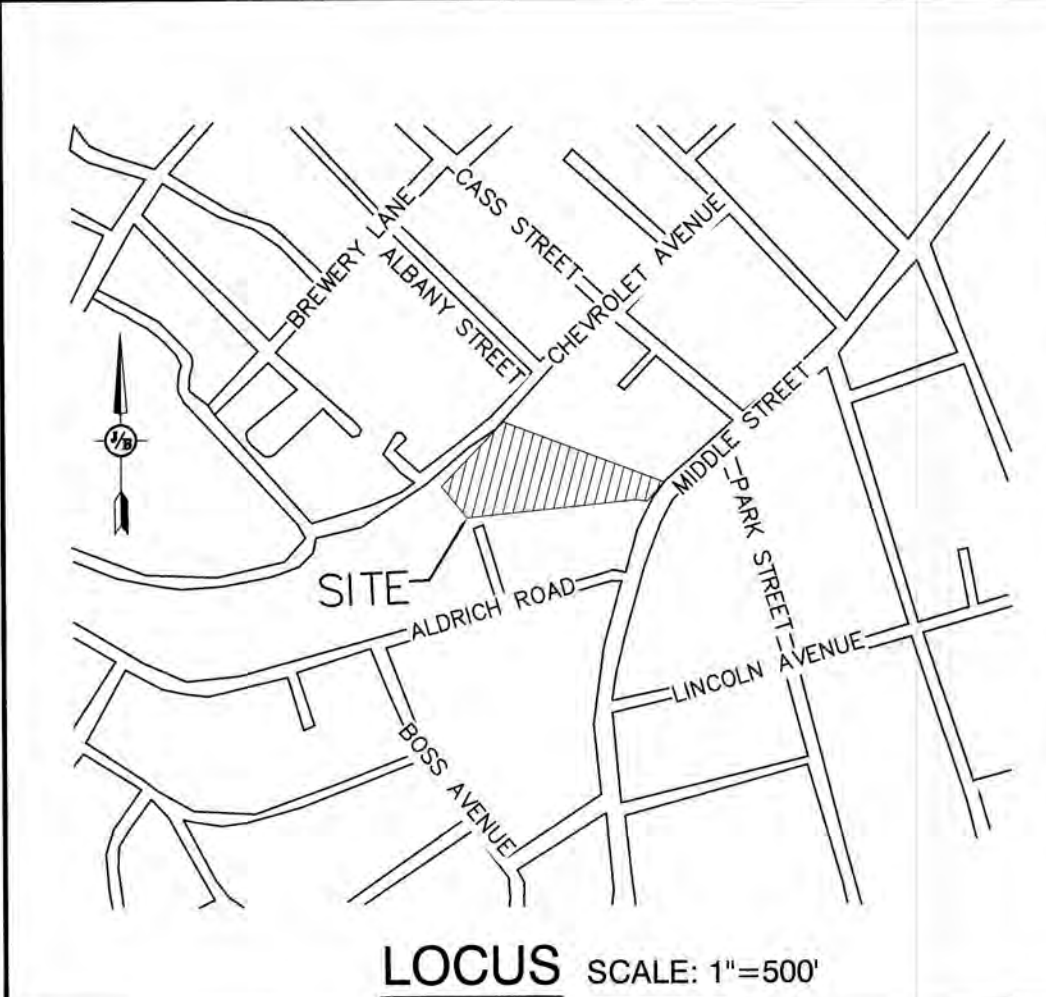
Civil Engineering Services

603-772-4746 FAX: 603-772-0227 E-MAIL: JBE@JONESANDBEACH.COM

Plan Name:	EXISTING CONDITIONS PLAN
Project:	668 MIDDLE STREET PORTSMOUTH, NH
Owner of Record:	PUBLIC LAND HOLDINGS LLC PO BOX 190 EXETER, NH 03833 BK 6367 PG 1660

DRAWING No.	C1
SHEET 2 OF 14	JBE PROJECT NO. 20686

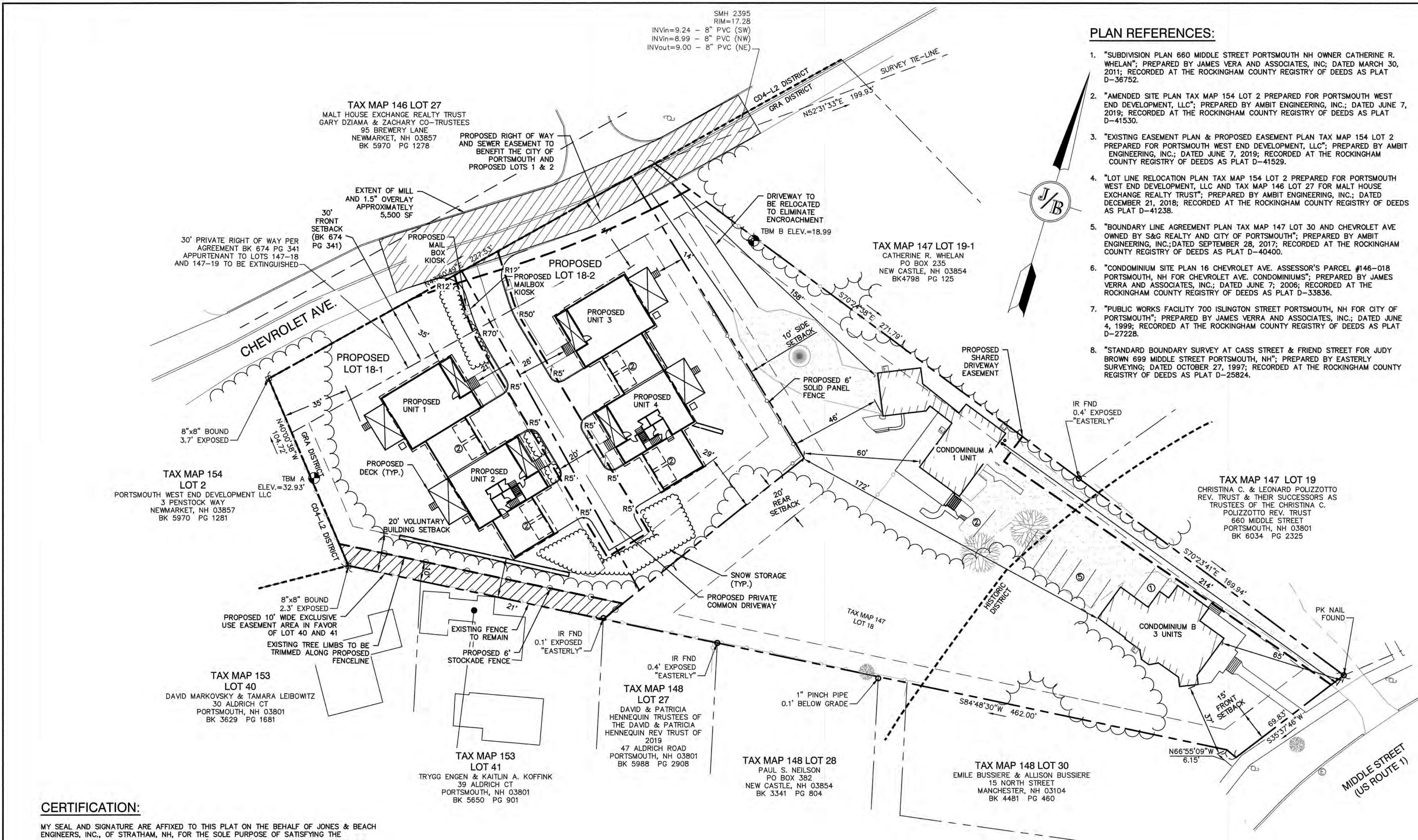




SHEET 3 OF 14  
PROJECT NO. 20686

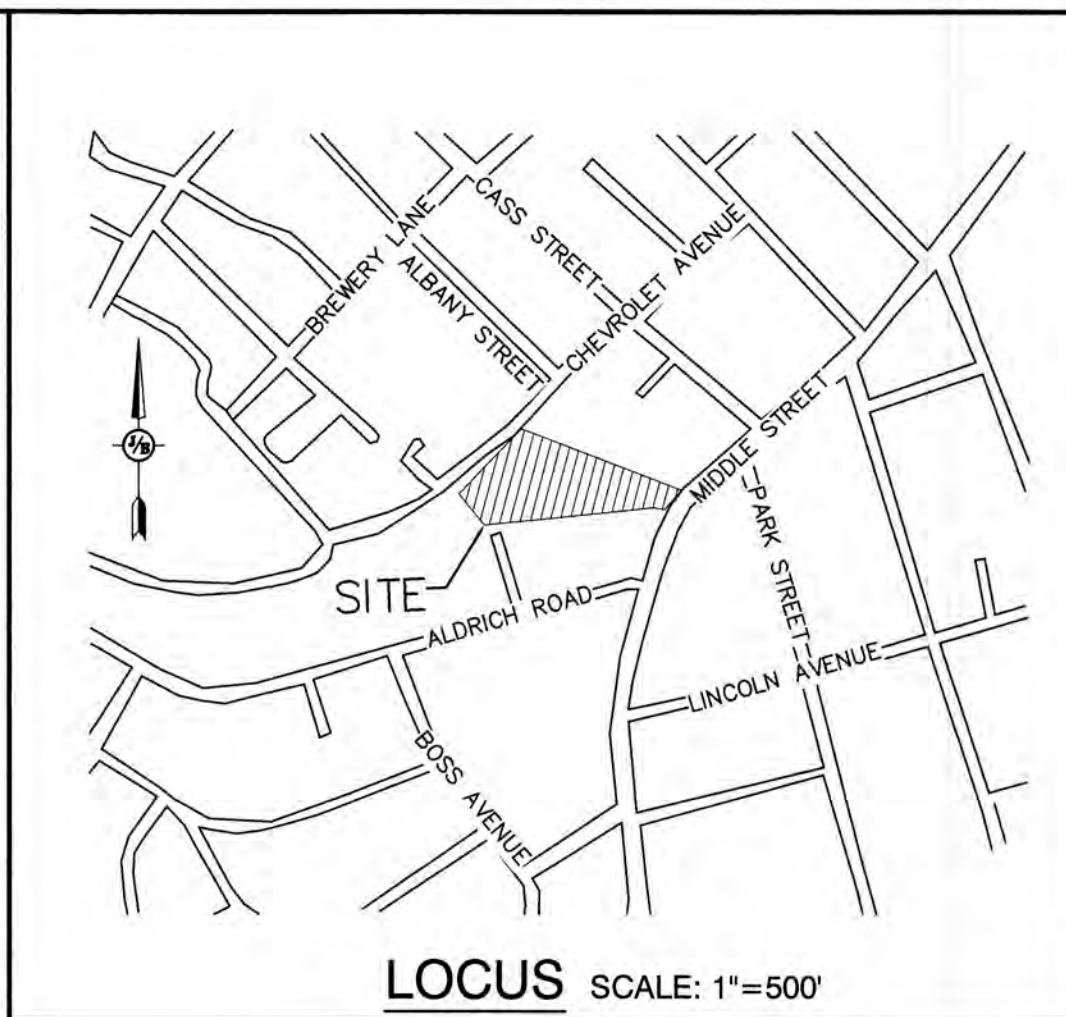
Plan Name:	SUBDIVISION PLAN
Project:	668 MIDDLE STREET PORTSMOUTH, NH
Owner of Record:	PUBLIC LAND HOLDINGS LLC PO BOX 190 EXETER, NH 03833 BK 6367 PG 1660





PLAN REFERENCES:

- "SUBDIVISION PLAN 660 MIDDLE STREET PORTSMOUTH NH OWNER CATHERINE R. WHELAN"; PREPARED BY JAMES VERRA AND ASSOCIATES, INC.; DATED MARCH 30, 2011; RECORDED AT THE ROCKINGHAM COUNTY REGISTRY OF DEEDS AS PLAT D-36752.
- "AMENDED SITE PLAN TAX MAP 154 LOT 2 PREPARED FOR PORTSMOUTH WEST END DEVELOPMENT, LLC"; PREPARED BY AMBIT ENGINEERING, INC.; DATED JUNE 7, 2019; RECORDED AT THE ROCKINGHAM COUNTY REGISTRY OF DEEDS AS PLAT D-41530.
- "EXISTING EASEMENT PLAN & PROPOSED EASEMENT PLAN TAX MAP 154 LOT 2 PREPARED FOR PORTSMOUTH WEST END DEVELOPMENT, LLC"; PREPARED BY AMBIT ENGINEERING, INC.; DATED JUNE 7, 2019; RECORDED AT THE ROCKINGHAM COUNTY REGISTRY OF DEEDS AS PLAT D-41529.
- "LOT LINE RELOCATION PLAN TAX MAP 154 LOT 2 PREPARED FOR PORTSMOUTH WEST END DEVELOPMENT, LLC AND TAX MAP 146 LOT 27 FOR MALT HOUSE EXCHANGE REALTY TRUST"; PREPARED BY AMBIT ENGINEERING, INC.; DATED DECEMBER 21, 2018; RECORDED AT THE ROCKINGHAM COUNTY REGISTRY OF DEEDS AS PLAT D-41238.
- "BOUNDARY LINE AGREEMENT PLAN TAX MAP 147 LOT 30 AND CHEVROLET AVE OWNED BY S&G REALTY AND CITY OF PORTSMOUTH"; PREPARED BY AMBIT ENGINEERING, INC.; DATED SEPTEMBER 28, 2017; RECORDED AT THE ROCKINGHAM COUNTY REGISTRY OF DEEDS AS PLAT D-40400.
- "CONDOMINIUM SITE PLAN 16 CHEVROLET AVE. ASSESSOR'S PARCEL #146-018 PORTSMOUTH, NH FOR CHEVROLET AVE. CONDOMINIUMS"; PREPARED BY JAMES VERRA AND ASSOCIATES, INC.; DATED JUNE 7, 2006; RECORDED AT THE ROCKINGHAM COUNTY REGISTRY OF DEEDS AS PLAT D-33836.
- "PUBLIC WORKS FACILITY 700 ISLINGTON STREET PORTSMOUTH, NH FOR CITY OF PORTSMOUTH"; PREPARED BY JAMES VERRA AND ASSOCIATES, INC.; DATED JUNE 4, 1999; RECORDED AT THE ROCKINGHAM COUNTY REGISTRY OF DEEDS AS PLAT D-27228.
- "STANDARD BOUNDARY SURVEY AT CASS STREET & FRIEND STREET FOR JUDY BROWN 699 MIDDLE STREET PORTSMOUTH, NH"; PREPARED BY EASTERLY SURVEYING; DATED OCTOBER 27, 1997; RECORDED AT THE ROCKINGHAM COUNTY REGISTRY OF DEEDS AS PLAT D-25824.



NOTES:

- THE INTENT OF THIS PLAN IS TO SHOW THE PROPOSED 2 LOT RESIDENTIAL SUBDIVISION WITH FRONTAGE ALONG CHEVROLET AVENUE AND THE PROPOSED DUPLEXES ON THOSE LOTS WITH ASSOCIATED UTILITIES.
- ZONING DISTRICT: GENERAL RESIDENCE A (GRA) LOT AREA MINIMUM = 7,500 S.F. MAX DENSITY = 1 DWELLING UNIT PER 7,500 S.F. LOT AREA DUPLEX LOTS REQUIRE 15,000 SF, LOT FRONTAGE MINIMUM = 100' LOT DEPTH MINIMUM = 70' BUILDING SETBACKS (MINIMUM): FRONT SETBACK = 15' SIDE SETBACK = 10' REAR SETBACK = 20' MAX. BUILDING HEIGHT = 35' WITH SLOPED ROOF, 30' WITH FLAT ROOF MAX. BUILDING COVERAGE = 25% PROPOSED LOT 18-1 = 23.9% PROPOSED LOT 18-2 = 24.4% PROPOSED MAP 147 LOT 18 = 10.6% MIN. OPEN SPACE = 30% PROPOSED LOT 18-1 = 50% PROPOSED LOT 18-2 = 45% PROPOSED MAP 147 LOT 18 = 35% SEALED SURFACE: LOT 18-1=7,250 SF LOT 18-2=7,250 SF DISTURBANCE: LOT 18-1=15,000 SF LOT 18-2=17,750 SF REQUIRED PARKING=1.3 SPACES PER UNIT OVER 750 SF REQUIRED LOT 18-1 = 3 SPACES, 4 PROVIDED REQUIRED LOT 18-2 = 3 SPACES, 4 PROVIDED REQUIRED CONDO A = 2 SPACES, 2 PROVIDED REQUIRED CONDO B = 4 SPACES, 6 PROVIDED
- THE SUBJECT PARCEL IS LOCATED WITHIN AN AREA HAVING A ZONE X DESIGNATION BY THE FEDERAL EMERGENCY MANAGEMENT AGENCY (FEMA), ON FLOOD INSURANCE RATE MAP NO. 33015C0259F, WITH EFFECTIVE DATE OF JANUARY 29, 2021, FOR COMMUNITY PANEL NO. 259 OF 681, IN ROCKINGHAM COUNTY, STATE OF NEW HAMPSHIRE, WHICH IS THE CURRENT FLOOD INSURANCE RATE MAP FOR COMMUNITY IN WHICH SAID PREMISES IS SITUATED.
- BASIS OF BEARING: HORIZONTAL: STATE PLANE NAD83 VERTICAL: NAVD88.
- EACH UNIT SHALL OBTAIN A SEPARATE OCCUPANCY PERMIT FROM THE BUILDING INSPECTOR PRIOR TO BEING SOLD.
- ALL CONSTRUCTION SHALL CONFORM TO TOWN STANDARDS AND REGULATIONS, AND NH07 STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION, WHICHEVER IS MORE STRINGENT.
- LANDOWNERS ARE RESPONSIBLE FOR COMPLYING WITH ALL APPLICABLE LOCAL, STATE AND FEDERAL WETLAND REGULATIONS, INCLUDING PERMITTING REQUIRED UNDER THESE REGULATIONS.
- 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.
- 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.
- 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.
- ALL CONSTRUCTION ACTIVITIES SHALL CONFORM TO LABOR OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION (OSHA) RULES AND REGULATIONS.
- DISTURBANCE OF EXISTING ROADWAY SHALL REQUIRE MILLING AND OVERLAY OF THE FULL ROAD WIDTH TO PORTSMOUTH DEPARTMENT OF PUBLIC WORKS STANDARDS. DISTURBED SIDEWALK SHALL BE REPAIRED OR REPLACED AS DETERMINED BY PORTSMOUTH DEPARTMENT OF PUBLIC WORKS.
- SUBJECT TO PORTSMOUTH DEPARTMENT OF PUBLIC WORKS REVIEW AND APPROVAL, TEMPORARY PAVEMENT SHALL BE REQUIRED AT THE TIME OF CONSTRUCTION. SUCH PAVING SHALL BE TO THE EXISTING PAVEMENT DEPTH AND, AFTER A WINTER SEASON THE STREET SHALL RECEIVE A FULL MILL AND OVERLAY.
- PROPOSED LOTS NEED TO OBTAIN DRIVEWAY PERMITS FOR CHEVROLET AVE.
- \$5,000 PER NEW DWELLING SHALL BE PAID TO THE CITY OF PORTSMOUTH FOR DEVELOPMENT OF SIDEWALKS ON ALBANY STREET/MALT HOUSE DRIVE
- TRASH SHALL BE KEPT INSIDE OF EACH UNIT'S GARAGE.
- FOUNDATION TO BE FULLY WATERPROOFED TO BOTTOM OF FOOTING (APPLY WATERPROOFING COATING ON EXTERIOR)
- FOUNDATION FOOTING CAN'T BE INSTALLED ON CRUSHED STONE TO ISOLATE EXTERIOR WATER & INTERIOR WATER.
- FOOTINGS TO BE BUILT ON VIRGIN GROUND & NO CRUSHED STONE ALLOWED BENEATH FOOTINGS.
- NO EXTERIOR FOUNDATION DRAINS ON FOUNDATIONS BELOW SEASONAL WATER TABLE
- INTERIOR ONLY DRAINS TO SUMP BASIN ON FOUNDATIONS BELOW SEASONAL WATER TABLE

CERTIFICATION:

MY SEAL AND SIGNATURE ARE AFFIXED TO THIS PLAT ON THE BEHALF OF JONES & BEACH ENGINEERS, INC., OF STRATHAM, NH, FOR THE SOLE PURPOSE OF SATISFYING THE REQUIREMENT OF THE TOWN OF PORTSMOUTH'S RECORDATION OF APPROVED SITE PLANS.

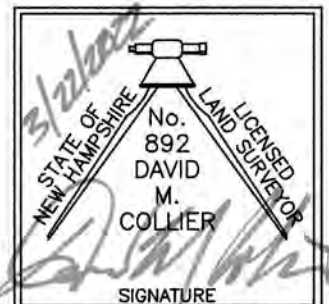
PURSUANT TO RSA 676:18-III AND RSA 672:14

I CERTIFY THAT THIS SURVEY PLAT IS NOT A SUBDIVISION PURSUANT TO THIS TITLE AND THAT THE LINES OF STREETS AND WAYS SHOWN ARE THOSE OF PUBLIC OR PRIVATE STREETS OR WAYS ALREADY ESTABLISHED AND THAT NO NEW WAYS ARE SHOWN.

A COPY OF THIS PLAN HAS BEEN FILED WITH THE TOWN OF PORTSMOUTH PLANNING BOARD RSA 676:18 PAR. IV

LEGEND

EXISTING	PROPOSED	DESCRIPTION
---	---	PROPERTY LINES
---	---	SETBACK LINES
---	---	PRIVACY FENCE
---	---	PICKET FENCE
---	---	EASEMENT
---	---	MAJOR CONTOUR
---	---	MINOR CONTOUR
---	---	EDGE OF PAVEMENT
---	---	DRAINAGE LINE
---	---	SEWER LINE
---	---	GAS LINE
---	---	WATER LINE
---	---	WATER SERVICE
---	---	OVERHEAD ELECTRIC
---	---	UNDERGROUND ELECTRIC



DAVID M. COLLIER, LLS 892  
ON BEHALF OF JONES & BEACH ENGINEERS, INC.

DATE:

Design: JAC	Draft: ERE	Date: 03/22/22
Checked: JAC	Scale: AS NOTED	Project No.: 20686
Drawing Name: 20686-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.		



REV.	DATE	REVISION	BY
6	3/22/22	REVISED PER TAC COMMENTS	ERE
5	2/15/22	REVISED FOR PLANNING BOARD SUBMISSION	AJB
4	12/20/21	REVISED FOR PLANNING BOARD SUBMISSION	AJB
3	9/30/21	REVISED PER TAC COMMENTS	AJB
2	8/23/21	REVISED FOR PRELIMINARY SUBDIVISION	AJB

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

Plan Name:	SITE PLAN
Project:	668 MIDDLE STREET PORTSMOUTH, NH
Owner of Record:	PUBLIC LAND HOLDINGS LLC PO BOX 190 EXETER, NH 03833 BK 6367 PG 1660

DRAWING No.  
**C2**  
SHEET 4 OF 14  
JBE PROJECT NO. 20686

APPROVED - PORTSMOUTH, NH  
CITY OF PORTSMOUTH  
PLANNING BOARD

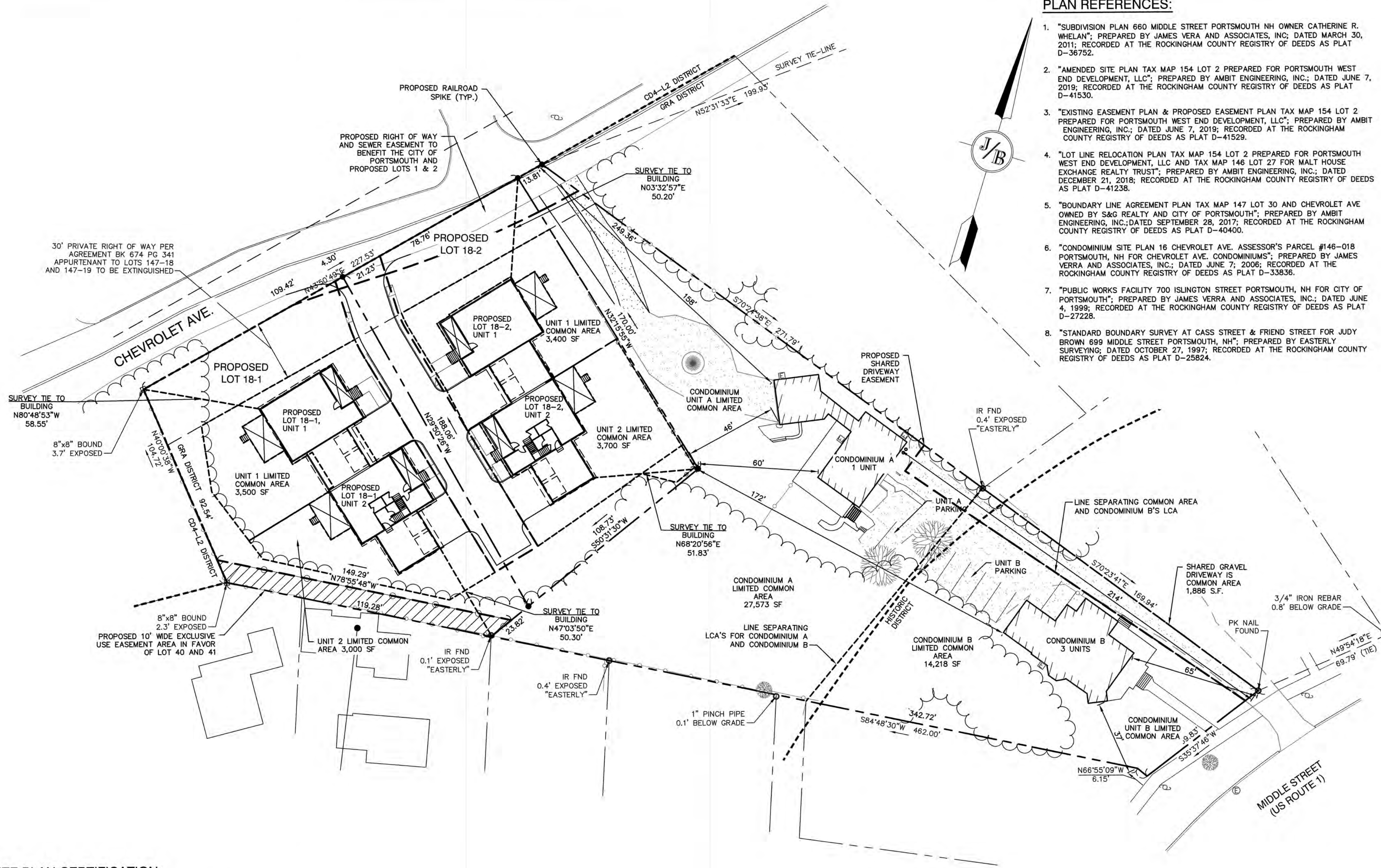
PROJECT PARCEL  
CITY OF PORTSMOUTH  
TAX MAP 147, LOT 18

APPLICANT  
TUCK REALTY CORPORATION  
PO BOX 190  
EXETER, NH 03833

TOTAL LOT AREA  
81,046 SQ. FT.  
1.86 ACRES

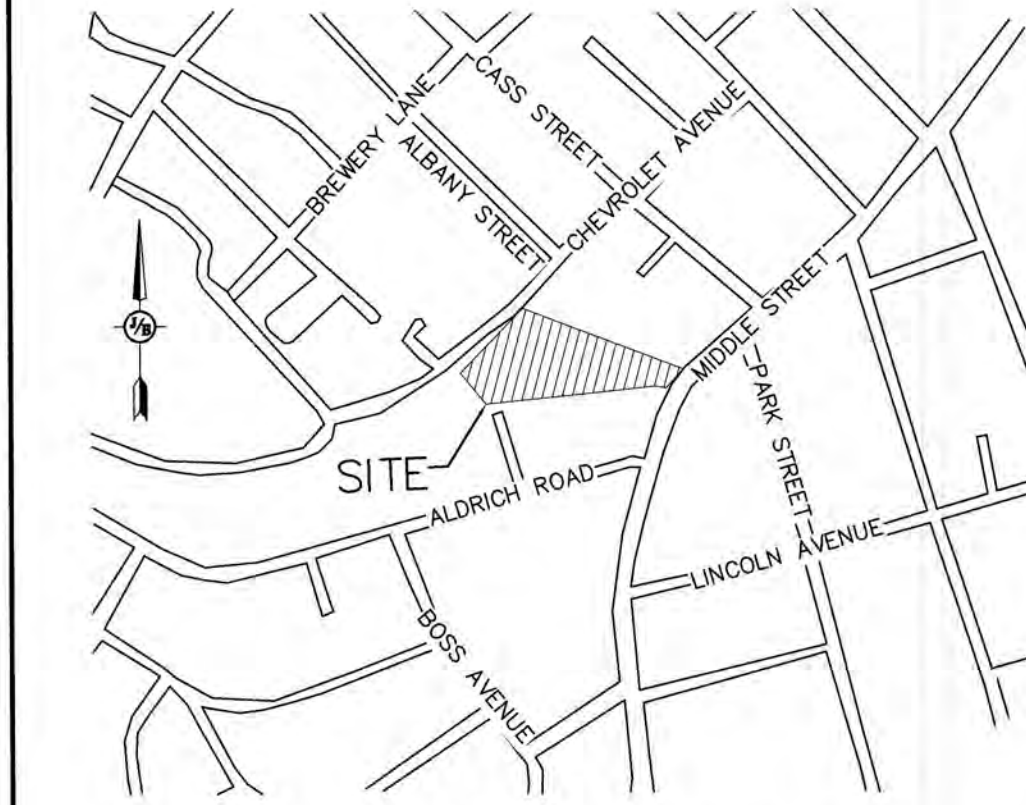
DATE:





PLAN REFERENCES:

- "SUBDIVISION PLAN 660 MIDDLE STREET PORTSMOUTH NH OWNER CATHERINE R. WHELAN"; PREPARED BY JAMES VERA AND ASSOCIATES, INC.; DATED MARCH 30, 2011; RECORDED AT THE ROCKINGHAM COUNTY REGISTRY OF DEEDS AS PLAT D-36752.
- "AMENDED SITE PLAN TAX MAP 154 LOT 2 PREPARED FOR PORTSMOUTH WEST END DEVELOPMENT, LLC"; PREPARED BY AMBIT ENGINEERING, INC.; DATED JUNE 7, 2019; RECORDED AT THE ROCKINGHAM COUNTY REGISTRY OF DEEDS AS PLAT D-41530.
- "EXISTING EASEMENT PLAN & PROPOSED EASEMENT PLAN TAX MAP 154 LOT 2 PREPARED FOR PORTSMOUTH WEST END DEVELOPMENT, LLC"; PREPARED BY AMBIT ENGINEERING, INC.; DATED JUNE 7, 2019; RECORDED AT THE ROCKINGHAM COUNTY REGISTRY OF DEEDS AS PLAT D-41529.
- "LOT LINE RELOCATION PLAN TAX MAP 154 LOT 2 PREPARED FOR PORTSMOUTH WEST END DEVELOPMENT, LLC AND TAX MAP 146 LOT 27 FOR MALT HOUSE EXCHANGE REALTY TRUST"; PREPARED BY AMBIT ENGINEERING, INC.; DATED DECEMBER 21, 2018; RECORDED AT THE ROCKINGHAM COUNTY REGISTRY OF DEEDS AS PLAT D-41238.
- "BOUNDARY LINE AGREEMENT PLAN TAX MAP 147 LOT 30 AND CHEVROLET AVE OWNED BY S&G REALTY AND CITY OF PORTSMOUTH"; PREPARED BY AMBIT ENGINEERING, INC.; DATED SEPTEMBER 28, 2017; RECORDED AT THE ROCKINGHAM COUNTY REGISTRY OF DEEDS AS PLAT D-40400.
- "CONDOMINIUM SITE PLAN 16 CHEVROLET AVE. ASSESSOR'S PARCEL #146-018 PORTSMOUTH, NH FOR CHEVROLET AVE. CONDOMINIUMS"; PREPARED BY JAMES VERRA AND ASSOCIATES, INC.; DATED JUNE 7, 2006; RECORDED AT THE ROCKINGHAM COUNTY REGISTRY OF DEEDS AS PLAT D-33836.
- "PUBLIC WORKS FACILITY 700 ISLINGTON STREET PORTSMOUTH, NH FOR CITY OF PORTSMOUTH"; PREPARED BY JAMES VERRA AND ASSOCIATES, INC.; DATED JUNE 4, 1999; RECORDED AT THE ROCKINGHAM COUNTY REGISTRY OF DEEDS AS PLAT D-27228.
- "STANDARD BOUNDARY SURVEY AT CASS STREET & FRIEND STREET FOR JUDY BROWN 699 MIDDLE STREET PORTSMOUTH, NH"; PREPARED BY EASTERLY SURVEYING; DATED OCTOBER 27, 1997; RECORDED AT THE ROCKINGHAM COUNTY REGISTRY OF DEEDS AS PLAT D-25824.



LOCUS SCALE: 1"=500'

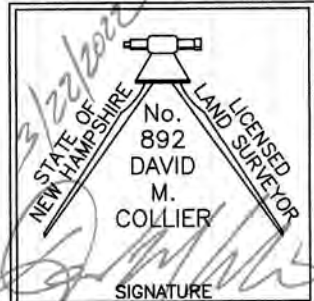
NOTES:

- THE INTENT OF THIS PLAN IS TO SHOW THE PROPOSED CONDOMINIUM CONVERSION OF THE EXISTING RESIDENCES AT 668 MIDDLE STREET.
- ZONING DISTRICT: GENERAL RESIDENCE A (GRA)  
LOT AREA MINIMUM = 7,500 S.F.  
MAX DENSITY = 1 DWELLING UNIT PER 7,500 S.F. LOT AREA  
LOT FRONTAGE MINIMUM = 100'  
LOT DEPTH MINIMUM = 70'  
BUILDING SETBACKS (MINIMUM):  
FRONT SETBACK = 15'  
SIDE SETBACK = 10'  
REAR SETBACK = 20'  
MAX. BUILDING HEIGHT = 35' WITH SLOPED ROOF, 30' WITH FLAT ROOF  
MAX. BUILDING COVERAGE = 25%  
MIN. OPEN SPACE = 30%
- APPROVED VARIANCES:  
1) SECTION 10.521 REQUIRING 100' FRONTAGE ON A FORMALLY ACCEPTED STREET (PROPOSED TAX MAP 147 LOTS 18-1 & 18-2)  
2) SECTION 10.521 REQUIRING 100' FRONTAGE ON A FORMALLY ACCEPTED STREET (TAX MAP 147 LOT 18)  
3) SECTION 10.512 ALLOW CONSTRUCTION A LOT WITH ACCESS TO A PRIVATE WAY (PROPOSED TAX MAP 147 LOTS 18-1 & 18-2)
- THE SUBJECT PARCEL IS LOCATED WITHIN AN AREA HAVING A ZONE X DESIGNATION BY THE FEDERAL EMERGENCY MANAGEMENT AGENCY (FEMA), ON FLOOD INSURANCE RATE MAP NO. 33015C0259F, WITH EFFECTIVE DATE OF JANUARY 29, 2021, FOR COMMUNITY PANEL NO. 259 OF 681, IN ROCKINGHAM COUNTY, STATE OF NEW HAMPSHIRE, WHICH IS THE CURRENT FLOOD INSURANCE RATE MAP FOR COMMUNITY IN WHICH SAID PREMISES IS SITUATED.
- BASIS OF BEARING: HORIZONTAL: ASSUMED. VERTICAL: ASSUMED AT 200.00'.
- EACH UNIT SHALL OBTAIN A SEPARATE OCCUPANCY PERMIT FROM THE BUILDING INSPECTOR PRIOR TO BEING SOLD.
- ALL BOOK AND PAGE NUMBERS REFER TO ROCKINGHAM COUNTY REGISTRY OF DEEDS.
- THE TAX MAP AND LOT NUMBERS ARE BASED ON THE CITY OF PORTSMOUTH TAX RECORDS AND ARE SUBJECT TO CHANGE.
- LOCATION, DEPTH, SIZE, TYPE, EXISTENCE, NONEXISTENCE OF UNDERGROUND UTILITIES AND/OR UNDERGROUND STORAGE TANKS WAS NOT VERIFIED BY THIS SURVEY.
- 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.
- CONDOMINIUM UNIT A IS A SINGLE DWELLING AND CONDOMINIUM UNIT B IS AN EXISTING 3 UNIT APARTMENT BUILDING.
- NEW PROPOSED CONDOMINIUM UNITS 1-4 SHALL HAVE CHEVROLET AVE. STREET ADDRESSES; EXISTING BUILDINGS TO BE CONVERTED INTO CONDOMINIUM UNITS A & B SHALL HAVE MIDDLE STREET ADDRESSES.
- EACH OF CONDOMINIUM UNITS 1-4 SHALL BE A 4-BEDROOM UNIT.
- PROPOSED COMMON DRIVE RIGHT OF WAY SHALL REMAIN A PRIVATE RIGHT OF WAY.
- LCA UNIT A IS ALL AREA NORTHWEST OF THE HISTORIC DISTRICT LINE. LCA UNIT B IS ALL AREA SOUTHEAST OF THE HISTORIC DISTRICT LINE, EXCEPT THE DRIVEWAY FROM MIDDLE STREET TO THE HISTORIC DISTRICT LINE WHICH IS COMMON AREA.

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 EXTENT FEASIBLE, ALL EASEMENTS APPURTENANT THERETO, AND THAT THE UNITS 1-4 DEPICTED HEREON ARE HAVE NOT YET BEGUN. THE UNITS A AND B DEPICTED HEREON ARE HAVE BEEN SUBSTANTIALLY COMPLETE. THIS PLAN COMPLIES WITH NH RSA 356-B20 (I).

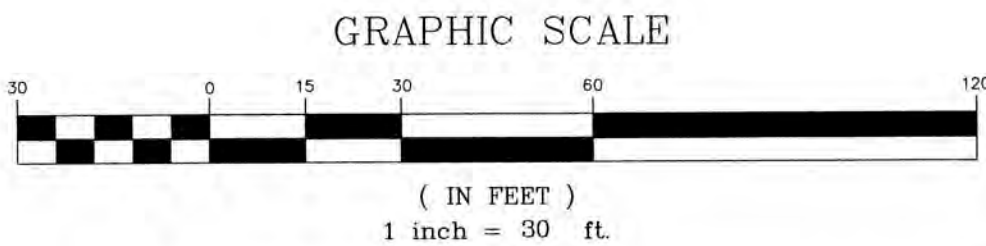
I CERTIFY THAT THIS PLAT WAS PREPARED UNDER MY DIRECT SUPERVISION, THAT IT IS THE RESULT OF A FIELD SURVEY BY THIS OFFICE AND HAS AN UNADJUSTED LINEAR ERROR OF CLOSURE THAT EXCEED BOTH THE MINIMUM OF 1:10,000 AS DEFINED IN SECTION 503.04 OF THE NEW HAMPSHIRE CODE OF ADMINISTRATIVE RULES AND THE MINIMUM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



DAVID M. COLLIER, LLS 892  
ON BEHALF OF JONES & BEACH ENGINEERS, INC.

DATE:

3/22/2022



Design: JAC	Draft: ERE	Date: 03/22/22
Checked: JAC	Scale: AS NOTED	Project No.: 20686
Drawing Name: 20686-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.		



REV.	DATE	REVISION	BY
6	3/22/22	REVISED PER TAC COMMENTS	ERE
5	2/15/22	REVISED FOR PLANNING BOARD SUBMISSION	AJB
4	12/20/21	REVISED FOR PLANNING BOARD SUBMISSION	AJB
3	9/30/21	REVISED PER TAC COMMENTS	AJB
2	8/23/21	REVISED FOR PRELIMINARY SUBDIVISION	AJB

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:	CONDOMINIUM SITE PLAN
Project:	668 MIDDLE STREET PORTSMOUTH, NH
Owner of Record:	PUBLIC LAND HOLDINGS LLC PO BOX 190 EXETER, NH 03833 BK 6367 PG 1660

DRAWING No.

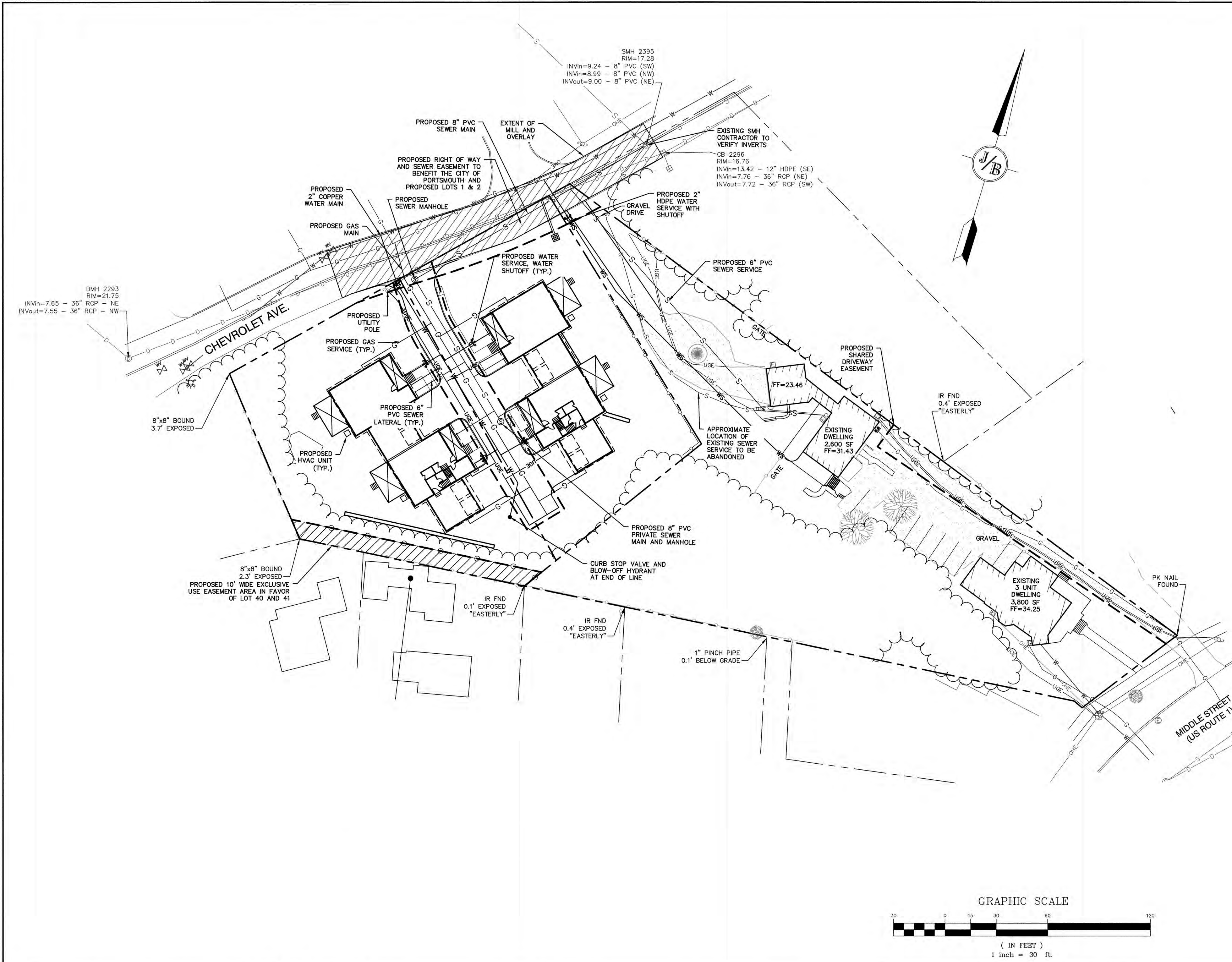
**CS1**

SHEET 5 OF 14  
JBE PROJECT NO. 20686









- UTILITY NOTES:**
- 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.
  - 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.
  - 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).
  - 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.
  - ALL CONSTRUCTION SHALL CONFORM TO THE TOWN STANDARDS AND REGULATIONS, AND NHDES STANDARDS AND SPECIFICATIONS, WHICHEVER ARE MORE STRINGENT, UNLESS OTHERWISE SPECIFIED.
  - ALL CONSTRUCTION ACTIVITIES SHALL CONFORM TO LABOR OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION (OSHA) RULES AND REGULATIONS.
  - BUILDING TO BE SERVED BY UNDERGROUND UTILITIES UNLESS OTHERWISE NOTED.
  - 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.
  - AS-BUILT PLANS SHALL BE SUBMITTED TO DEPARTMENT OF PUBLIC WORKS.
  - 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.
  - 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.
  - CONTRACTOR SHALL PLACE 2" WIDE METAL WIRE IMPREGNATED RED PLASTIC WARNING TAPE OVER ENTIRE LENGTH OF ALL GRAVITY SEWERS, SERVICES, AND FORCE MAINS.
  - SANITARY SEWER FLOW CALCULATIONS:  
4 - FOUR BEDROOM UNITS @ 150 GPD/BEDROOM  
TOTAL FLOW = 2,400 GPD
  - ALL SANITARY STRUCTURE INTERIOR DIAMETERS (4' MIN) SHALL BE DETERMINED BY THE MANUFACTURER BASED ON THE PIPE CONFIGURATIONS SHOWN ON THESE PLANS.
  - 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.
  - ALL WATER SERVICE PIPES SHALL HAVE A MINIMUM 12" VERTICAL AND 24" HORIZONTAL SEPARATION TO MANHOLES, OR CONTRACTOR SHALL INSTALL BOARD INSULATION FOR FREEZING PROTECTION.
  - 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, WHICHEVER 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.
  - 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.
  - THE CONTRACTOR SHALL HAVE THE APPROVAL OF ALL GOVERNING AGENCIES HAVING JURISDICTION OVER FIRE PROTECTION SYSTEM PRIOR TO INSTALLATION.
  - EXISTING UTILITIES SHALL BE DIGSAFED BEFORE CONSTRUCTION.
  - ALL WATER LINES SHOULD HAVE TESTABLE BACKFLOW PREVENTERS AT THE ENTRANCE TO EACH BUILDING.
  - 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.
  - ENV-WQ 704.06 GRAVITY SEWER PIPE TESTING: GRAVITY SEWERS SHALL BE TESTED FOR WATER TIGHTNESS BY USE OF LOW-PRESSURE AIR TESTS CONFORMING WITH ASTM F1417-92(2005) OR UNI-BELL PVC PIPE ASSOCIATION 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 MANREL 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.
  - 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.
  - 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.
  - 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.
  - ALL WATER AND SANITARY LEADS TO BUILDING(S) SHALL END AT RIGHT OF WAY AS SHOWN ON PLANS AND SHALL BE PROVIDED WITH A TEMPORARY PLUG AND WITNESS AT END.
  - LIGHTING CONDUIT SHALL BE SCHEDULE 40 PVC, AND SHALL BE INSTALLED IN CONFORMANCE WITH THE NATIONAL ELECTRIC CODE. CONTRACTOR SHALL PROVIDE EXCAVATION AND BACKFILL.
  - ALL TRENCHING, PIPE LAYING, AND BACKFILLING SHALL BE IN ACCORDANCE WITH FEDERAL OSHA REGULATIONS.
  - REWORK OF THE EXISTING INVERT INSIDE SMH 2395 WILL BE REQUIRED TO ALLOW THE NEW PIPE TO ENTER AT THE PROPOSED ELEVATION REQUIRED TO CROSS THE EXISTING DRAIN. INSTALLER TO WORK WITH PORTSMOUTH DPW TO MAKE CONNECTIONS TO THEIR SATISFACTION.
  - AN AGREEMENT WITH PORTSMOUTH WATER WILL BE REQUIRED FOR WATER SYSTEM FLUSHING.
  - TO PROTECT THE CITY OF PORTSMOUTH, NEW SEWER TREATMENT PLANT, NO DRAINAGE IS TO BE TIED INTO SEWER LINES

APPROVED — PORTSMOUTH, NH PLANNING BOARD	PROJECT PARCEL CITY OF PORTSMOUTH TAX MAP 147, LOT 18
	APPLICANT TUCK REALTY CORPORATION PO BOX 190 EXETER, NH 03833
	TOTAL LOT AREA 81,046 SQ. FT. 1.86 ACRES
DATE: _____	

Design: JAC	Draft: ERE	Date: 03/22/22
Checked: JAC	Scale: AS NOTED	Project No.: 20686
Drawing Name: 20686-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.		



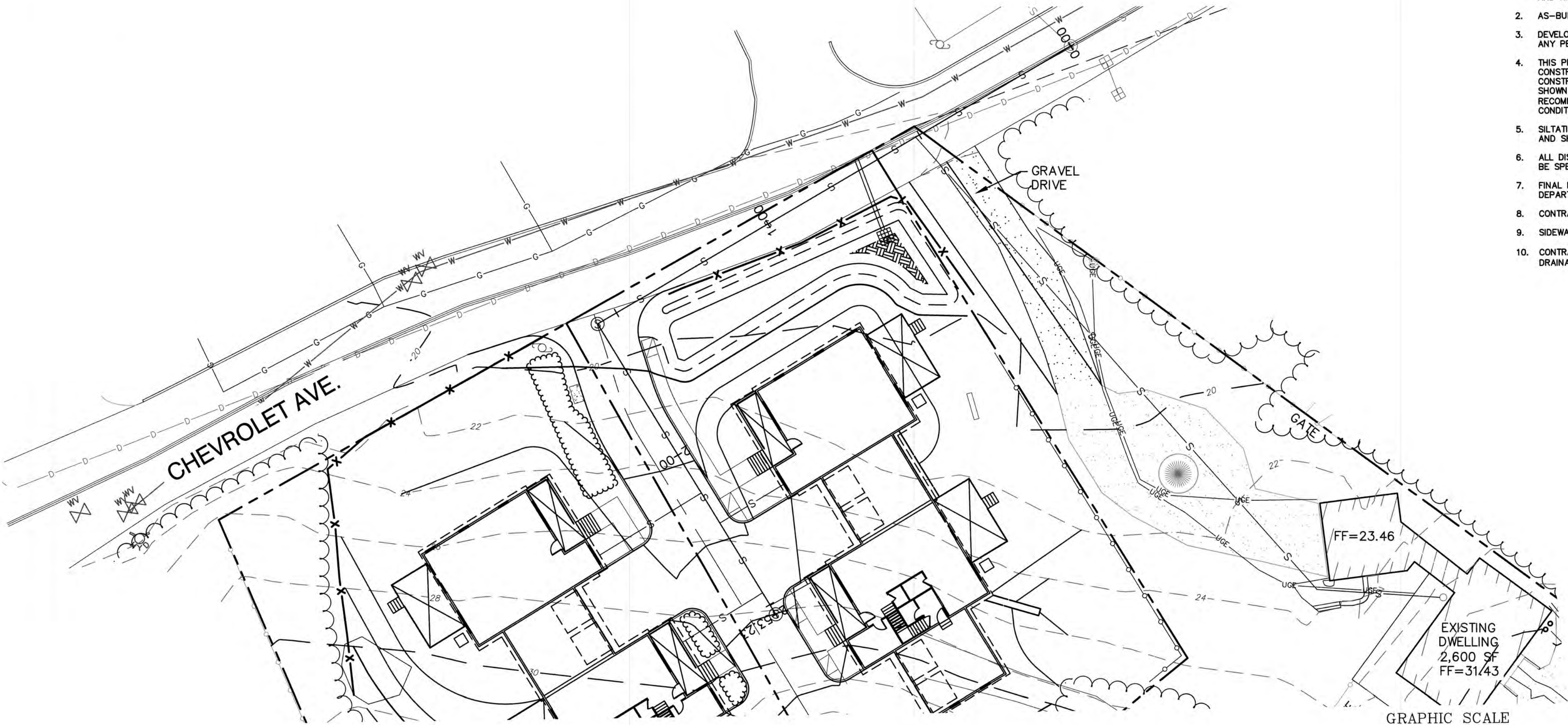
6	3/22/22	REVISED PER TAC COMMENTS	ERE
5	2/15/22	REVISED FOR PLANNING BOARD SUBMISSION	AJB
4	12/20/21	REVISED FOR PLANNING BOARD SUBMISSION	AJB
3	9/30/21	REVISED PER TAC COMMENTS	AJB
2	8/23/21	REVISED FOR PRELIMINARY SUBDIVISION	AJB
REV.	DATE	REVISION	BY

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

Plan Name:	UTILITY PLAN
Project:	668 MIDDLE STREET PORTSMOUTH, NH
Owner of Record:	PUBLIC LAND HOLDINGS LLC PO BOX 190 EXETER, NH 03833 BK 6367 PG 1660

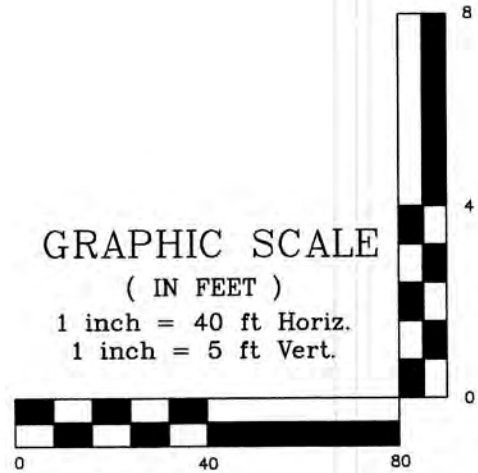
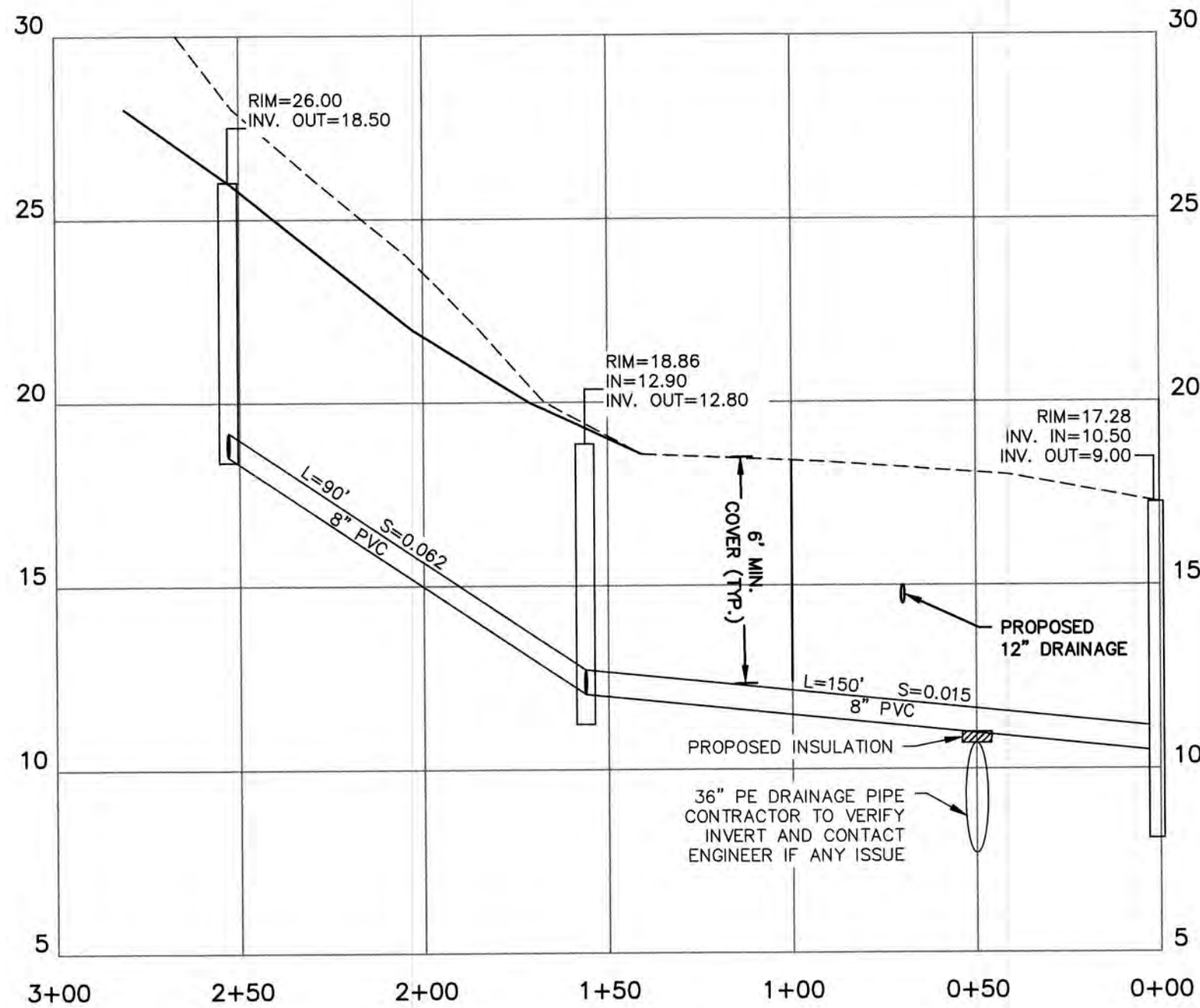
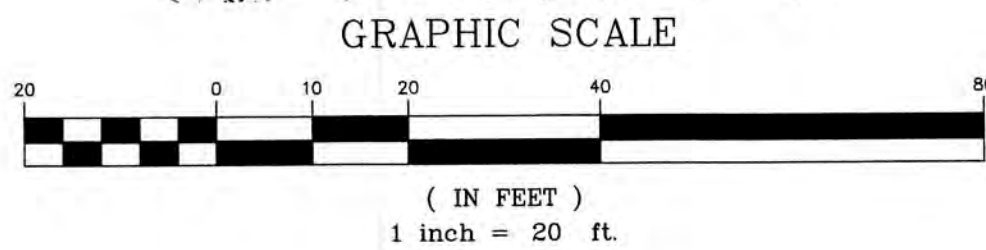
DRAWING No.	C4
SHEET 7 OF 14 JBE PROJECT NO. 20686	





NOTES:

1. ALL ROAD AND DRAINAGE WORK SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS FOR THE TOWN, AND NHDOT SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION, WHICHEVER IS MORE STRINGENT.
2. AS-BUILT PLANS TO BE SUBMITTED TO THE TOWN PRIOR TO ACCEPTANCE OF THE ROADWAY.
3. DEVELOPER IS RESPONSIBLE FOR COMPLYING WITH ALL APPLICABLE LOCAL, STATE AND FEDERAL WETLAND REGULATIONS, INCLUDING ANY PERMITTING AND SETBACK REQUIREMENTS REQUIRED UNDER THESE REGULATIONS.
4. THIS PLAN 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 SHOWN ON THE 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.
5. SILTATION AND EROSION CONTROLS SHALL BE INSTALLED PRIOR TO CONSTRUCTION, SHALL BE MAINTAINED DURING CONSTRUCTION, AND SHALL REMAIN UNTIL SITE HAS BEEN STABILIZED WITH PERMANENT VEGETATION.
6. ALL DISTURBED AREAS NOT STABILIZED BY NOVEMBER 1st SHALL BE COVERED WITH AN EROSION CONTROL BLANKET. PRODUCT TO BE SPECIFIED BY THE ENGINEER.
7. FINAL DRAINAGE, GRADING AND EROSION PROTECTION MEASURES SHALL CONFORM TO REGULATIONS OF THE PUBLIC WORKS DEPARTMENT.
8. CONTRACTOR TO VERIFY EXISTING UTILITIES AND TO NOTIFY ENGINEER OF ANY DISCREPANCY IMMEDIATELY.
9. SIDEWALK TO BE INSTALLED AT TIME OF TOP COURSE PAVING ALONG WITH DRIVEWAY APRONS.
10. CONTRACTOR MUST HAVE A VALID PIPE INSTALLER'S LICENSE FROM THE PUBLIC WORKS DEPARTMENT BEFORE WORKING ON ANY DRAINAGE AND/OR UTILITY CONSTRUCTION.



Design: JAC Draft: ERE Date: 03/22/22  
Checked: JAC Scale: AS NOTED Project No.: 20686  
Drawing Name: 20686-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.



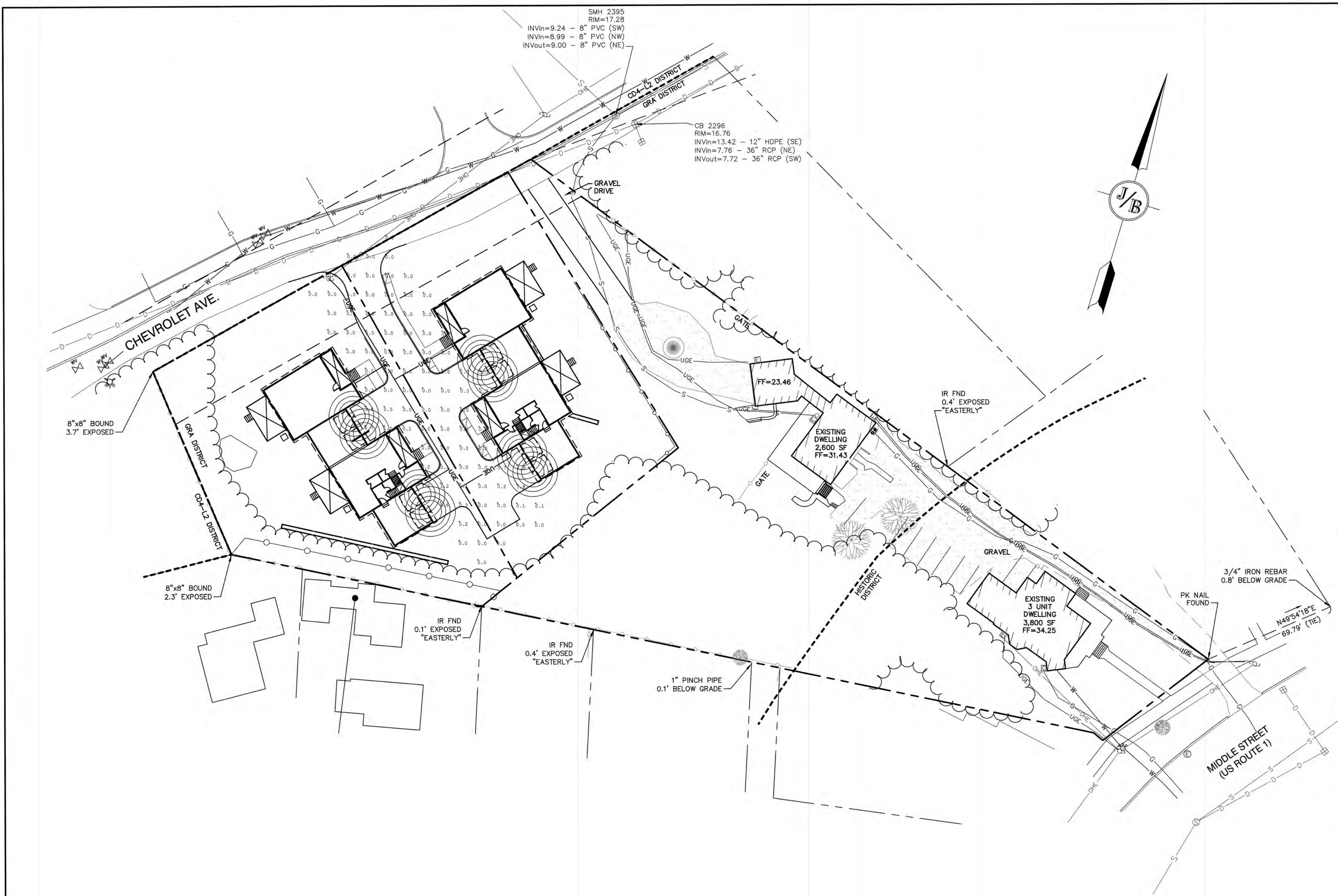
REV.	DATE	REVISION	BY
6	3/22/22	REVISED PER TAC COMMENTS	ERE
5	2/15/22	REVISED FOR PLANNING BOARD SUBMISSION	AJB
4	12/20/21	REVISED FOR PLANNING BOARD SUBMISSION	AJB
3	9/30/21	REVISED PER TAC COMMENTS	AJB
2	8/23/21	REVISED FOR PRELIMINARY SUBDIVISION	AJB

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

Plan Name:	SEWER PLAN AND PROFILE
Project:	668 MIDDLE STREET PORTSMOUTH, NH
Owner of Record:	PUBLIC LAND HOLDINGS LLC PO BOX 190 EXETER, NH 03833 BK 6367 PG 1660


DRAWING No.	P1
SHEET 8 OF 14	JBE PROJECT NO. 20686





- LIGHTING AND ELECTRICAL NOTES:**
1. SITE ELECTRICAL CONTRACTOR SHALL COORDINATE LOCATION OF EASEMENTS, UNDERGROUND UTILITIES AND DRAINAGE BEFORE DRILLING POLE BASES.
  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. NL INDICATES THAT THIS LUMINAIRE SHALL BE ON A NIGHT LIGHT CIRCUIT. FL INDICATES THAT THIS LUMINAIRE SHALL BE A FLOOD LIGHT FIXTURE. MOUNTING BRACKET FOR THIS FL FIXTURE SHALL BE MOUNTED 25' ABOVE BOTTOM OF POLE BASE FOR ALL LIGHT POLES CLOSEST TO STOREFRONT. THESE DESIGNATIONS INDICATE WHAT PHASE LIGHTS ARE WIRED TO (TYP).
  7. 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.

### Calvin Wall



**TMS LIGHTING**  
ESTABLISHED 1923

**Construction**  
High grade spun aluminum, brushed solid copper, or brushed 316L stainless steel reflector, with stainless steel mounting hardware, for indoor and outdoor applications.

**Lamp**  
Operates with Cree™ LED (150W max.), compact fluorescent (42W max.), metal halide (100W max.), or incandescent (150W max.). Specify 3000K, 3500K or 4000K CCT for LED systems. A dimmable, screw-type, 17W LED lamp is also available (PAR 38, E26 base, 120V, 4000K CCT).

Note: LED systems are available with 120-277V supply voltage only. LED modules do not require a socket, and are wired directly to the integral driver. Incandescent and metal halide systems, and those using the 17W LED PAR 38 lamp, use a medium base socket (E26).

**Diffuser**  
Globe: clear and prismatic, elongated, glass globes are available. Lens: the clear, flat lens provides slight diffusion, and protects any components located in the reflector.

Note: G3 is used with 100IN, 32CF, and 15LED max. Only prismatic globes are compatible with LED systems. Globes are not available with the 17W LED PAR 38 lamps.

**Option**  
Wire Guard: a steel, chrome-plated wire guard is available for lamp protection against light projectiles, wildlife, and serves as a vandal deterrent.

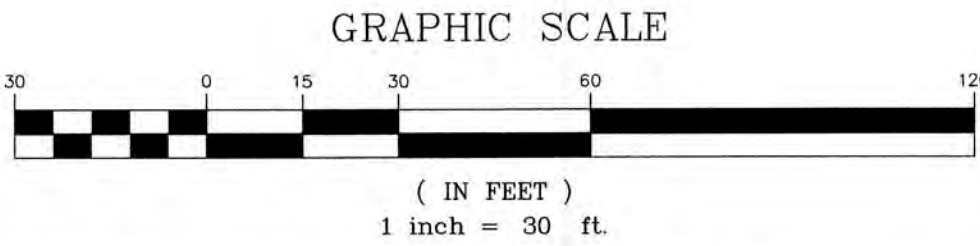
**Ballast/LED Driver**  
Ballasts are efficient with a high power factor greater than 90%, and quiet with an "A" sound rating. The LED source is controlled by an advanced electronic driver that delivers consistent power. Ballast and LED drivers are electronic, and available for integral and remote mounting, indoor or outdoor.

**Features**

- Provides excellent coverage and uniformity with cut-off
- Practical and aesthetic options for application and design flexibility
- Weatherproof construction to withstand the elements
- Quality components combined with the most current technology for high efficiency and reduced lighting costs

**Applications**  
The Calvin wall-mount luminaire is ideal for illuminating areas where localized distribution is necessary, such as doorways and entrances, laneways, patios and could provide adequate night time security lighting. It lends itself to commercial, and industrial applications that could benefit from materials and maintenance cost reductions. Calvin could either augment the existing lighting, or illuminate a small to medium-sized area. Calvin is also available as a pendant-style model.

UL LISTED CE IP23



Design: JAC	Draft: ERE	Date: 03/22/22
Checked: JAC	Scale: AS NOTED	Project No.: 20686
Drawing Name: 20686-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.		



6	3/22/22	REVISED PER TAC COMMENTS	ERE
5	2/15/22	REVISED FOR PLANNING BOARD SUBMISSION	AJB
4	12/20/21	REVISED FOR PLANNING BOARD SUBMISSION	AJB
3	9/30/21	REVISED PER TAC COMMENTS	AJB
2	8/23/21	REVISED FOR PRELIMINARY SUBDIVISION	AJB
REV.	DATE	REVISION	BY

## J/B Jones & Beach Engineers, Inc.

85 Portsmouth Ave.  
PO Box 219  
Stratham, NH 03885

Designed and Produced in NH

Civil Engineering Services

603-772-4746  
FAX: 603-772-0227  
E-MAIL: JBE@JONESANDBEACH.COM

Plan Name:	LIGHTING PLAN
Project:	668 MIDDLE STREET PORTSMOUTH, NH
Owner of Record:	PUBLIC LAND HOLDINGS LLC PO BOX 190 EXETER, NH 03833 BK 6367 PG 1660

DRAWING No.	L1
SHEET 9 OF 14 JBE PROJECT NO. 20686	

PROJECT PARCEL  
CITY OF PORTSMOUTH  
TAX MAP 147, LOT 18

APPLICANT  
TUCK REALTY CORPORATION  
PO BOX 190  
EXETER, NH 03833

TOTAL LOT AREA  
81,046 SQ. FT.  
1.86 ACRES



F:\CADD\MASTER STANDARD\dwg\JB-LAYOUTS.dwg 3/12/2015 3:27:29 PM EDT

Design: JAC	Draft: ERE	Date: 03/22/22
Checked: JAC	Scale: AS NOTED	Project No.: 20686
Drawing Name: 20686-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.		



6	3/22/22	REVISED PER TAC COMMENTS	ERE
5	2/15/22	REVISED FOR PLANNING BOARD SUBMISSION	AJB
4	12/20/21	REVISED FOR PLANNING BOARD SUBMISSION	AJB
3	9/30/21	REVISED PER TAC COMMENTS	AJB
2	8/23/21	REVISED FOR PRELIMINARY SUBDIVISION	AJB
REV.	DATE	REVISION	BY

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

Designed and Produced in NH

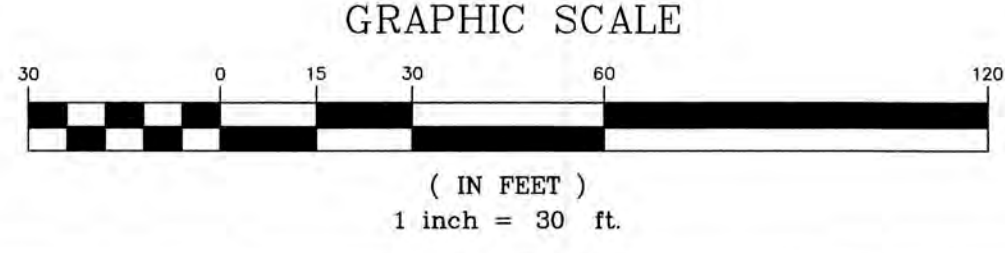
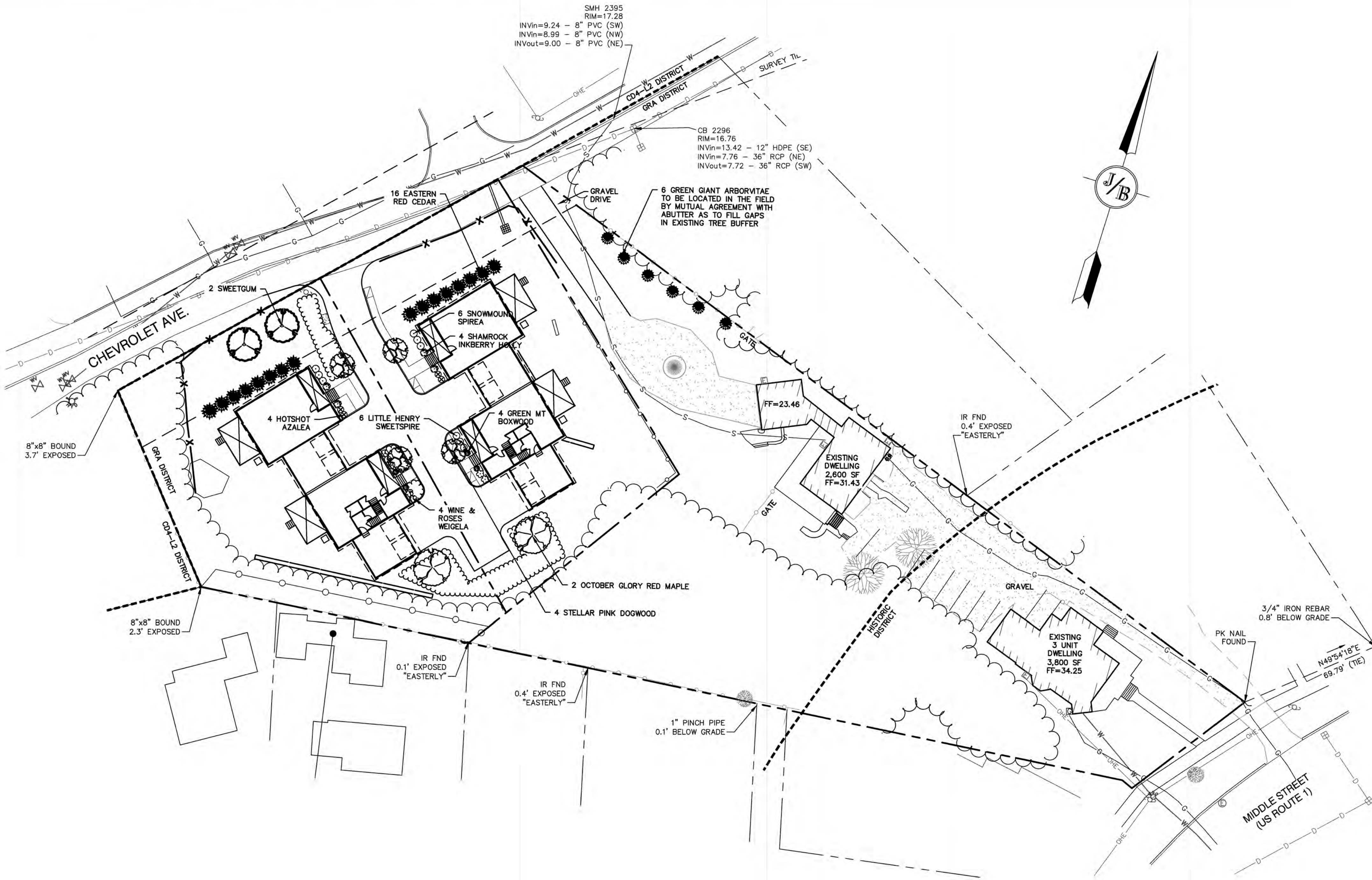
Plan Name:	LANDSCAPE PLAN
Project:	668 MIDDLE STREET PORTSMOUTH, NH
Owner of Record:	PUBLIC LAND HOLDINGS LLC PO BOX 190 EXETER, NH 03833 BK 6367 PG 1660

DRAWING No.  
**L2**  
SHEET 10 OF 14  
JBE PROJECT NO. 20686

LANDSCAPE NOTES:

- THE CONTRACTOR SHALL LOCATE AND VERIFY THE EXISTENCE OF ALL UTILITIES PRIOR TO STARTING WORK.
- THE CONTRACTOR SHALL SUPPLY ALL PLANT MATERIALS IN QUANTITIES SUFFICIENT TO COMPLETE THE PLANTINGS SHOWN ON THE DRAWINGS.
- ALL MATERIAL SHALL CONFORM TO THE GUIDELINES ESTABLISHED BY THE CURRENT AMERICAN STANDARD FOR NURSERY STOCK PUBLISHED BY THE AMERICAN ASSOCIATION OF NURSERYMEN.
- ALL PLANT SUBSTITUTIONS MUST BE APPROVED THE LANDSCAPE ARCHITECT.
- ALL PLANT MATERIALS SHALL BE EXACTLY AS SPECIFIED BY THE LANDSCAPE ARCHITECT. IF PLANT SPECIES CULTIVARS ARE FOUND TO VARY FROM THAT SPECIFIED AT ANY TIME DURING THE GUARANTEE PERIOD, THE LANDSCAPE ARCHITECT RESERVES THE RIGHT TO HAVE THE CONTRACTOR REPLACE THAT PLANT MATERIAL.
- 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.
- 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.
- NO PLANT SHALL BE PUT IN THE GROUND BEFORE GRADING HAS BEEN FINISHED AND APPROVED BY THE LANDSCAPE ARCHITECT.
- ALL WORK AND PLANTS SHALL BE DONE, INSTALLED AND DETAILED IN STRICT ACCORDANCE WITH PROJECT SPECIFICATIONS.
- 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.
- ALL PLANTS SHALL BE GUARANTEED BY THE CONTRACTOR FOR NOT LESS THAN ONE FULL YEAR FROM THE TIME OF PROVISIONAL ACCEPTANCE. DURING THIS TIME, THE OWNER SHALL MAINTAIN ALL PLANT MATERIALS IN THE ABOVE MANNER. IT IS THE CONTRACTOR'S RESPONSIBILITY TO INSPECT THE PLANTS TO ENSURE PROPER CARE. IF THE CONTRACTOR IS DISSATISFIED WITH THE CARE GIVEN, HE SHALL IMMEDIATELY, AND IN SUFFICIENT TIME TO PERMIT THE CONDITION TO BE RECTIFIED, NOTIFY THE LANDSCAPE ARCHITECT IN WRITING OR OTHERWISE FORFEIT HIS CLAIM.
- FINAL ACCEPTANCE BY THE LANDSCAPE ARCHITECT WILL BE MADE UPON THE CONTRACTOR'S REQUEST AFTER ALL CORRECTIVE WORK HAS BEEN COMPLETED.
- BY THE END OF THE GUARANTEE PERIOD, THE CONTRACTOR SHALL HAVE REPLACED ANY PLANT MATERIAL THAT IS MISSING, NOT TRUE TO SIZE AS SPECIFIED, THAT HAS DIED, LOST NATURAL SHAPE DUE TO DEAD BRANCHES, EXCESSIVE PRUNING OR INADEQUATE OR IMPROPER CARE, OR THAT IS, IN THE OPINION OF THE LANDSCAPE ARCHITECT, IN UNHEALTHY OR UNSIGHTLY CONDITION.
- ALL LANDSCAPE AREAS TO BE GRASS COMMON TO REGION, EXCEPT FOR INTERIOR LANDSCAPED ISLANDS OR WHERE OTHER PLANT MATERIAL IS SPECIFIED.
- ALL TREES AND SHRUBS SHALL BE PLANTED IN MULCH BEDS WITH EDGE STRIPS TO SEPARATE TURF GRASS AREAS.
- 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.
- ALL LANDSCAPING SHALL MEET THE TOWN STANDARDS AND REGULATIONS.
- 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.
- 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.
- 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.
- THIS PLAN IS INTENDED FOR LANDSCAPING PURPOSES ONLY. REFER TO CIVIL/SITE DRAWINGS FOR OTHER SITE CONSTRUCTION INFORMATION.

Plants			
Quantity	Botanical Name	Common Name	Size
2	Acer rubrum 'October Glory'	OCTOBER GLORY RED MAPLE	3" Caliper
4	Azalea 'Girards Hotshot'	HOTSHOT AZALEA	3 Gallon
4	Buxus 'Green Mountain'	GREEN MT BOXWOOD	5 Gallon
4	Cornus kousa X C. florida 'Stellar Pink'	STELLAR PINK DOGWOOD	2.5" Caliper
4	Ilex glabra 'Shamrock'	SHAMROCK INKBERRY HOLLY	5 Gallon
6	Itea virginica 'Sprich Little Henry'	LITTLE HENRY SWEETSPIRE	3 Gallon
16	Juniperus virginiana	EASTER RED CEDAR	6-7 Ft. Ht.
6	Thuja plicata 'Green Gaint'	GREEN GIANT ARBORVITAE	10-12 Ft. Ht.
6	Spiraea nipponica 'Snowmound'	SNOWMOUND SPIREA	3 Gallon
2	Liquidambar styraciflua	SWEETGUM	3" Caliper
4	Weigela florida 'Alexandra'	WINE & ROSES WEIGELA	3 Gallon

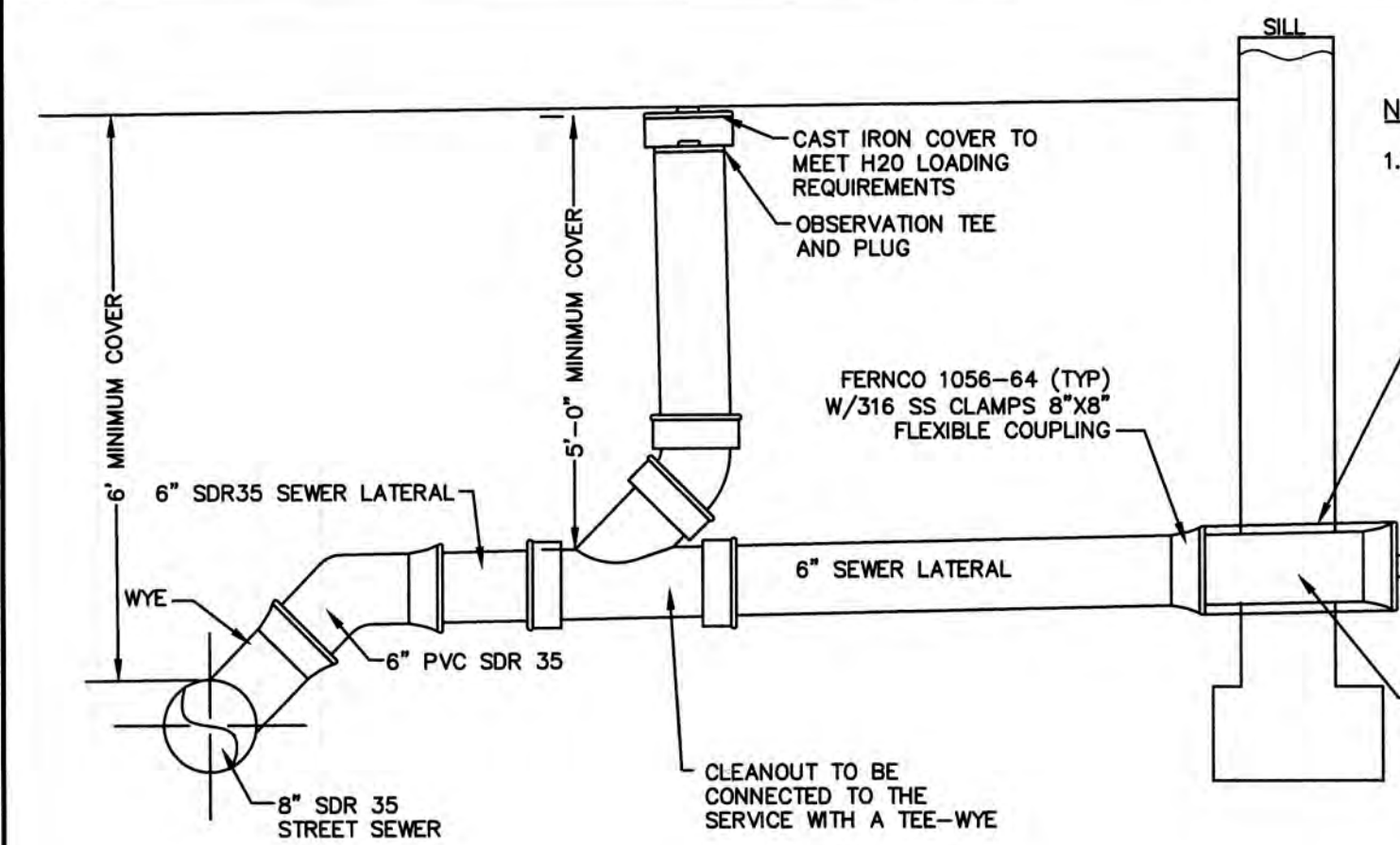


PROJECT PARCEL  
CITY OF PORTSMOUTH  
TAX MAP 147, LOT 18

APPLICANT  
TUCK REALTY CORPORATION  
PO BOX 190  
EXETER, NH 03833

TOTAL LOT AREA  
81,046 SQ. FT.  
1.86 ACRES





HOUSE SEWER SERVICE

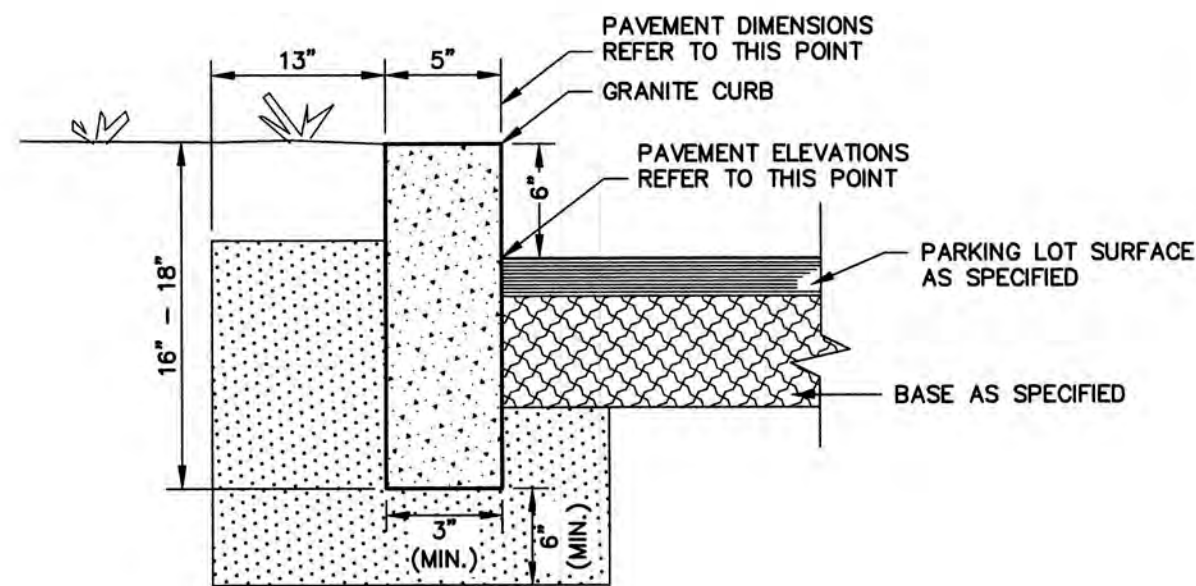
NOT TO SCALE

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.

SEWER LATERAL TO BE SLEEVED THROUGH FOUNDATION WALL. PIPE SLEEVE TO END A MINIMUM OF 1' BEYOND FOUNDATION WALL. SLEEVE MUST BE FITTED WITH RUBBER BOOT ON EXTERIOR.

SEWER SERVICE PER PLAN: MIN. SLOPE=1/8" PER FT.

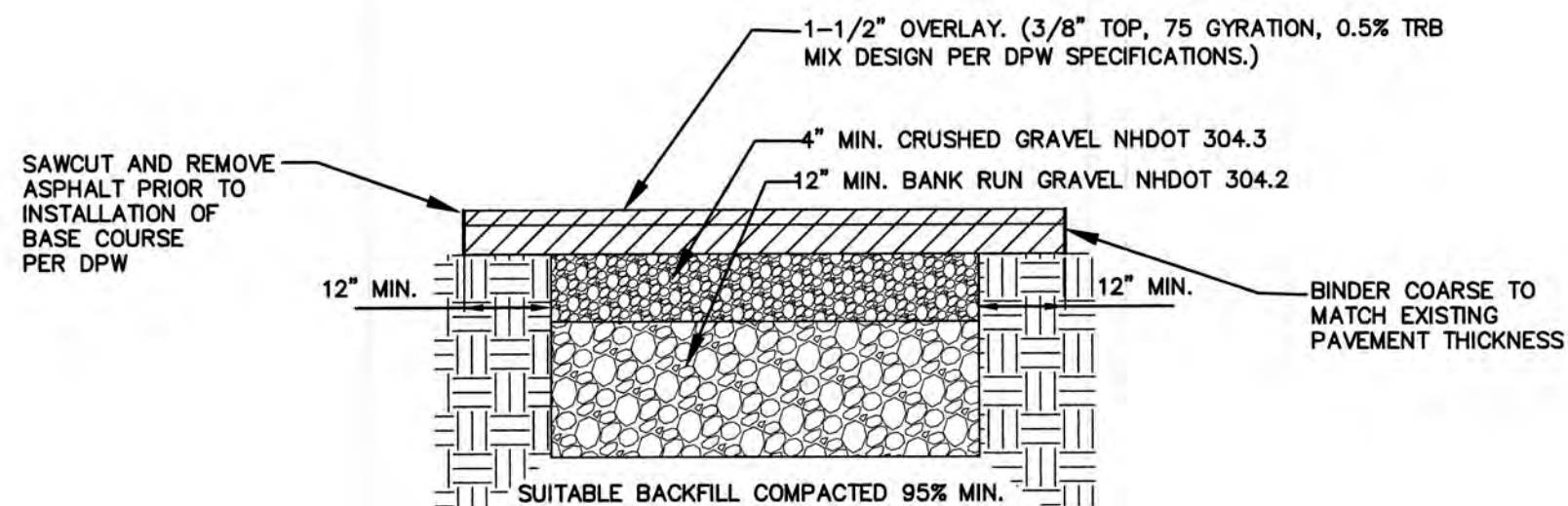


NOTES:

1. EDGING TO BE PLACED PRIOR TO PLACING TOP SURFACE COURSE.
2. JOINTS BETWEEN STONES SHALL BE MORTARED.

VERTICAL GRANITE CURB

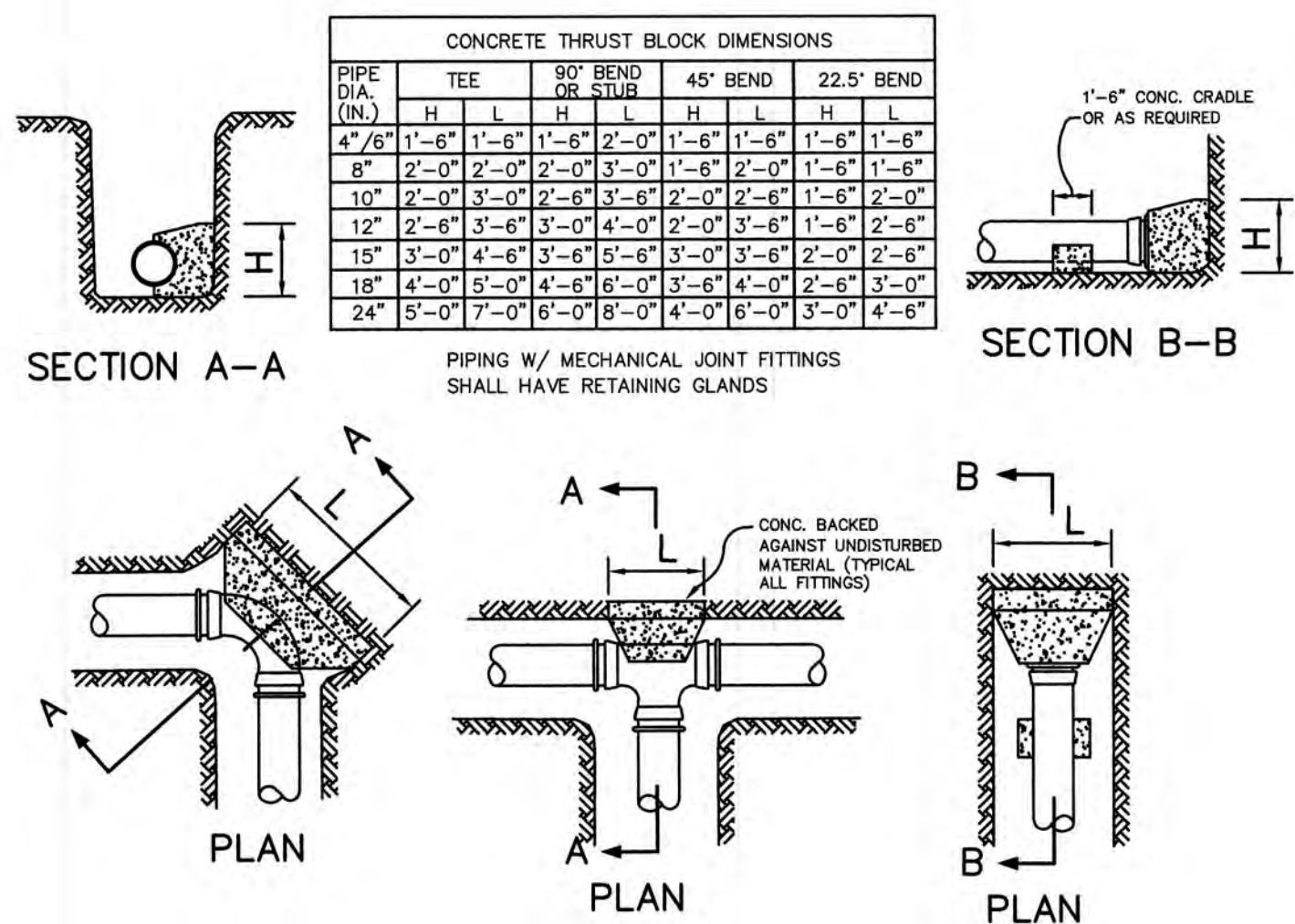
NOT TO SCALE



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.

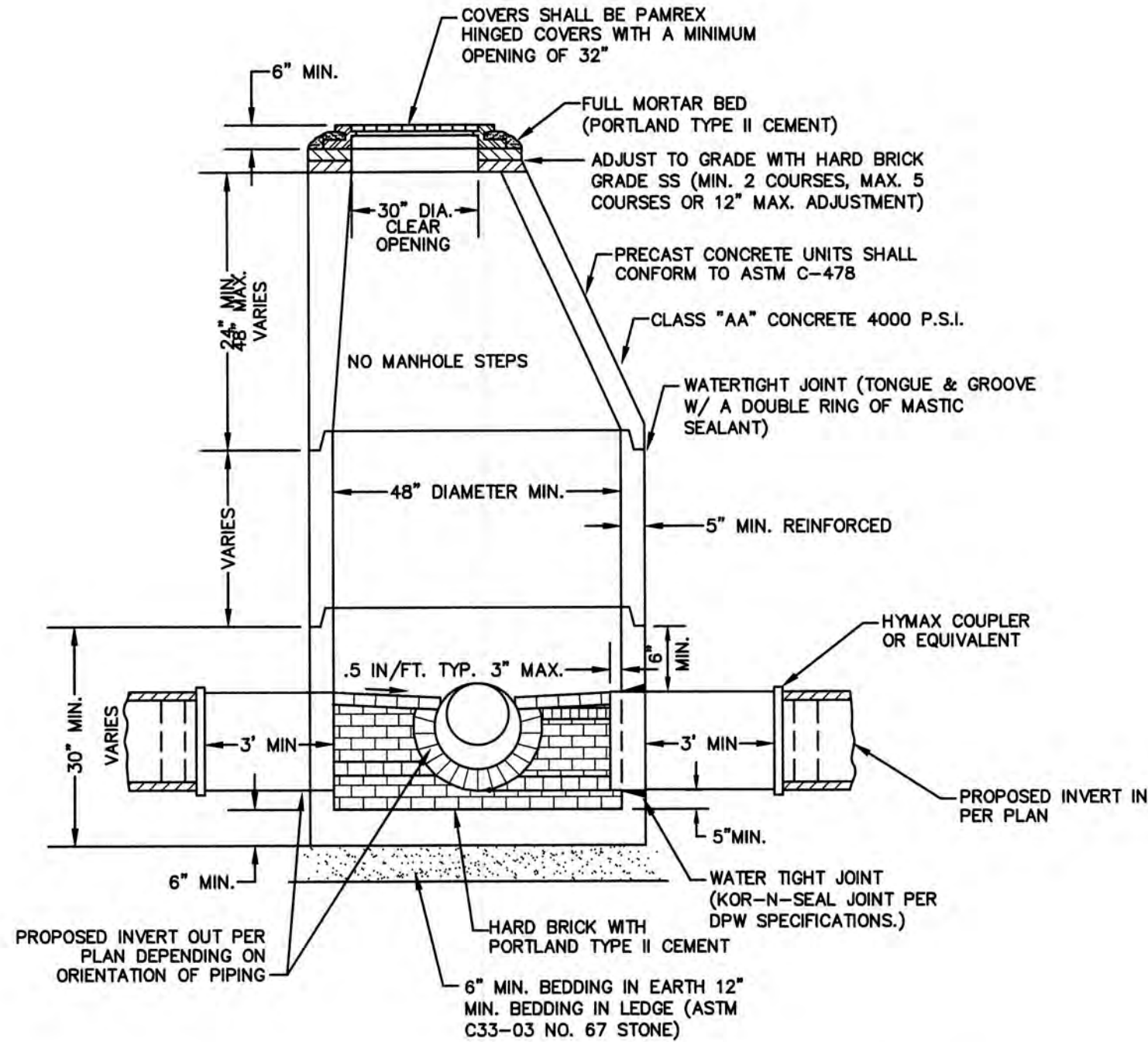
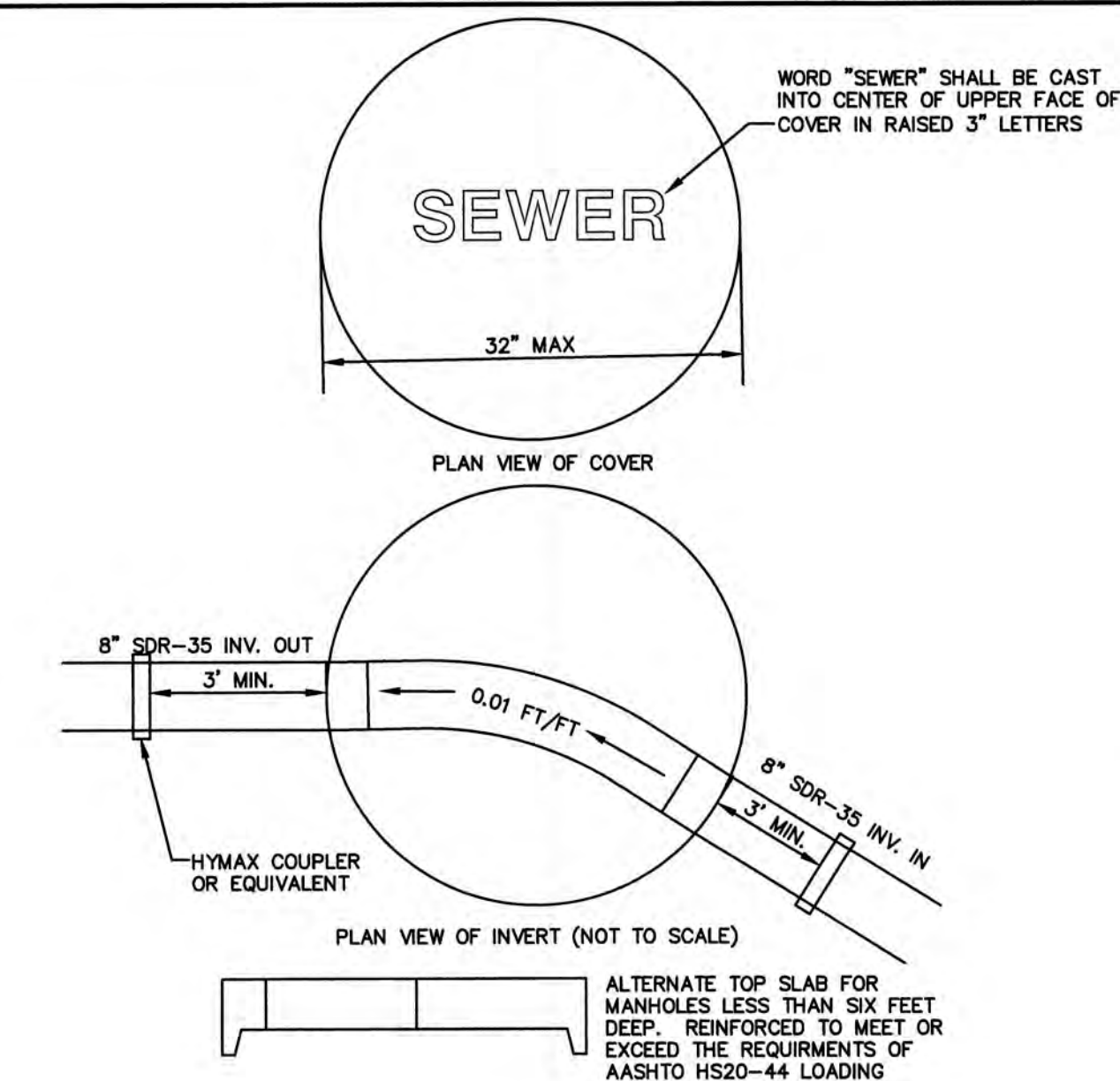
TYPICAL PAVEMENT REPAIR DETAIL

NOT TO SCALE



THRUST BLOCK DETAILS

NOT TO SCALE

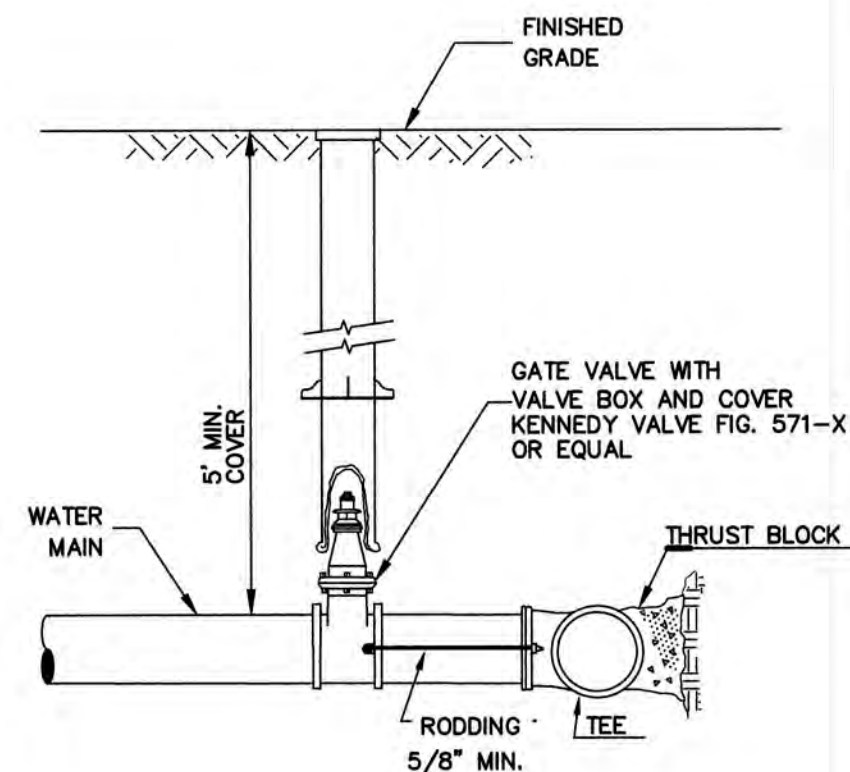


NOTES:

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 THE 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 A448 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 (a).
9. MANHOLE CASTINGS SHALL CONFORM TO ASTM A48 PER ENV-WQ 704.13 (a) (b).

PORTSMOUTH SEWER MANHOLE

NOT TO SCALE



BURIED GATE VALVE DETAIL

NOT TO SCALE

Design: JAC	Draft: ERE	Date: 03/22/22
Checked: JAC	Scale: AS NOTED	Project No.: 20686
Drawing Name: 20686-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.		



REV.	DATE	REVISION	BY
6	3/22/22	REVISED PER TAC COMMENTS	ERE
5	2/15/22	REVISED FOR PLANNING BOARD SUBMISSION	AJB
4	12/20/21	REVISED FOR PLANNING BOARD SUBMISSION	AJB
3	9/30/21	REVISED PER TAC COMMENTS	AJB
2	8/23/21	REVISED FOR PRELIMINARY SUBDIVISION	AJB

Designed and Produced in NH

**J/B Jones & Beach Engineers, Inc.**

85 Portsmouth Ave. PO Box 219 Stratham, NH 03885

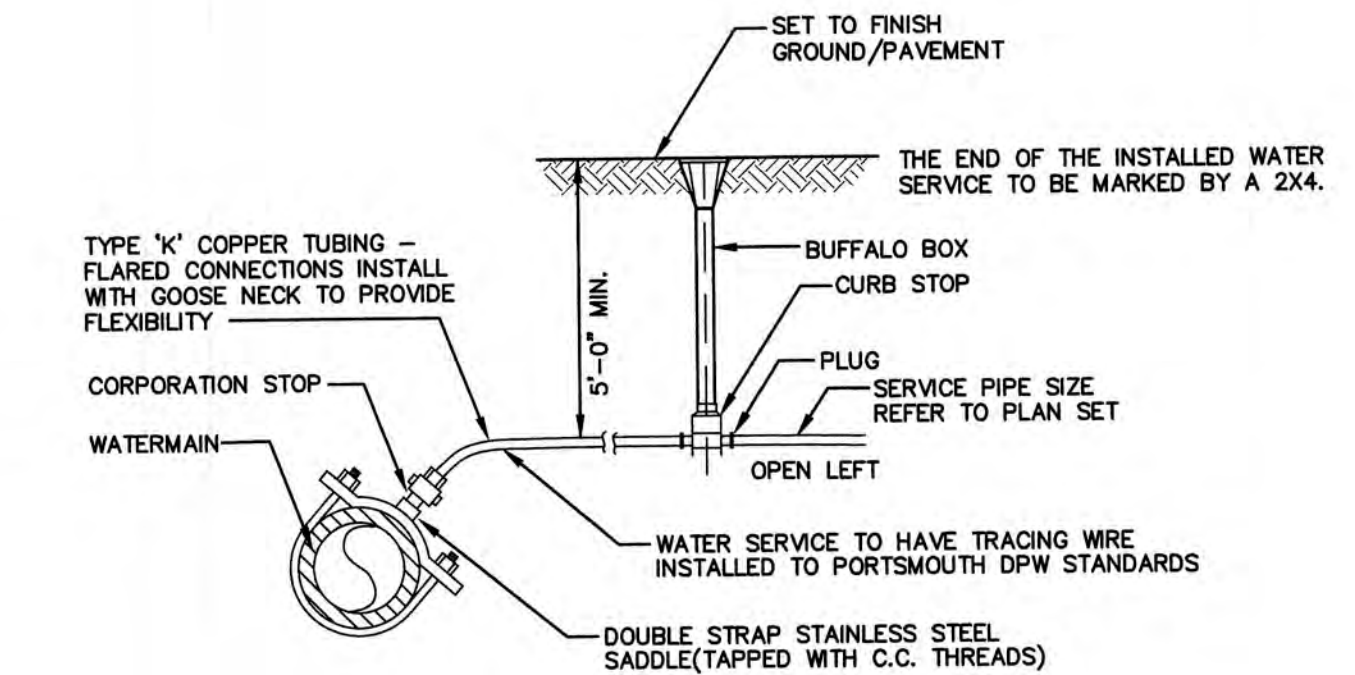
Civil Engineering Services

603-772-4746 FAX: 603-772-0227 E-MAIL: JBE@JONESANDBEACH.COM

Plan Name:	DETAIL SHEET
Project:	668 MIDDLE STREET PORTSMOUTH, NH
Owner of Record:	PUBLIC LAND HOLDINGS LLC PO BOX 190 EXETER, NH 03833 BK 6387 PG 1660

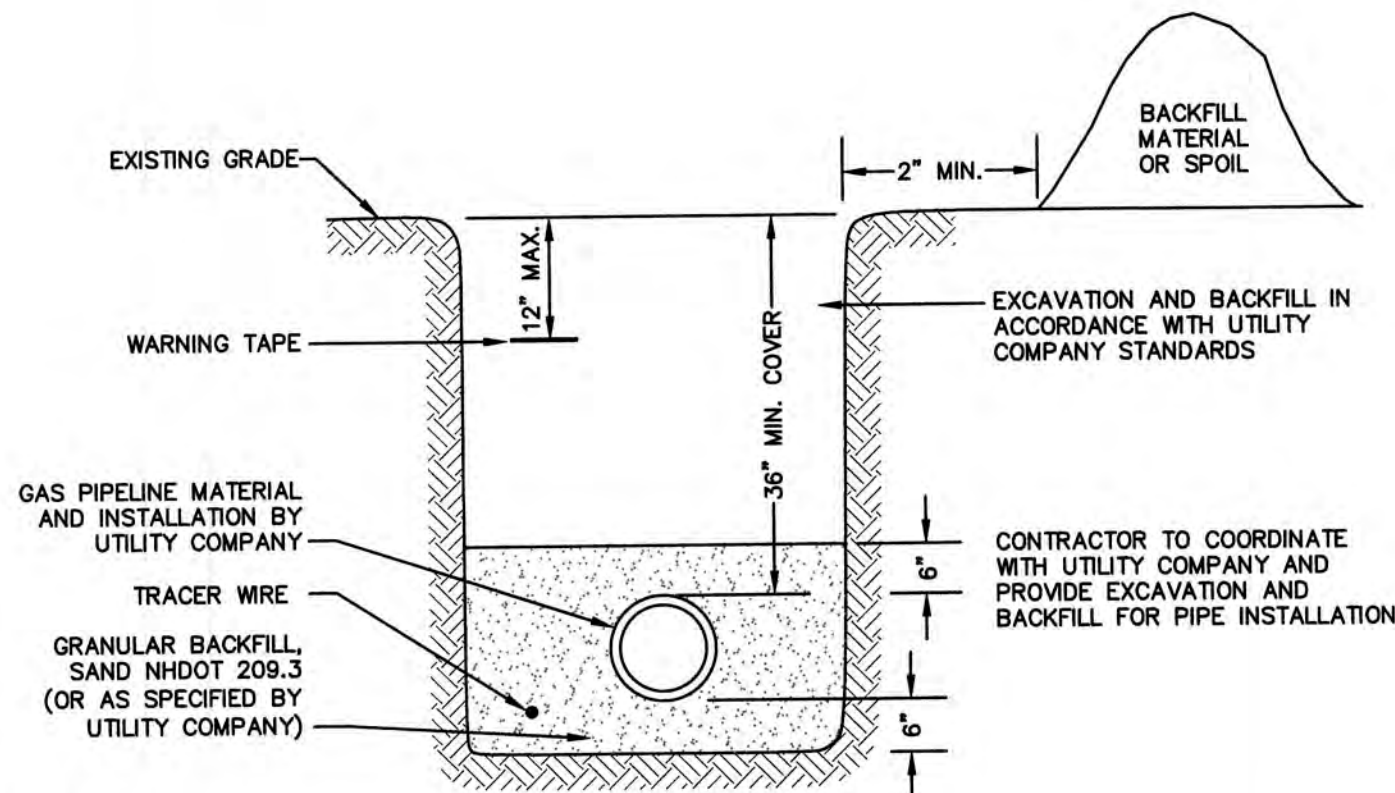
DRAWING No.	D1
SHEET 11 OF 14	JBE PROJECT NO. 20686





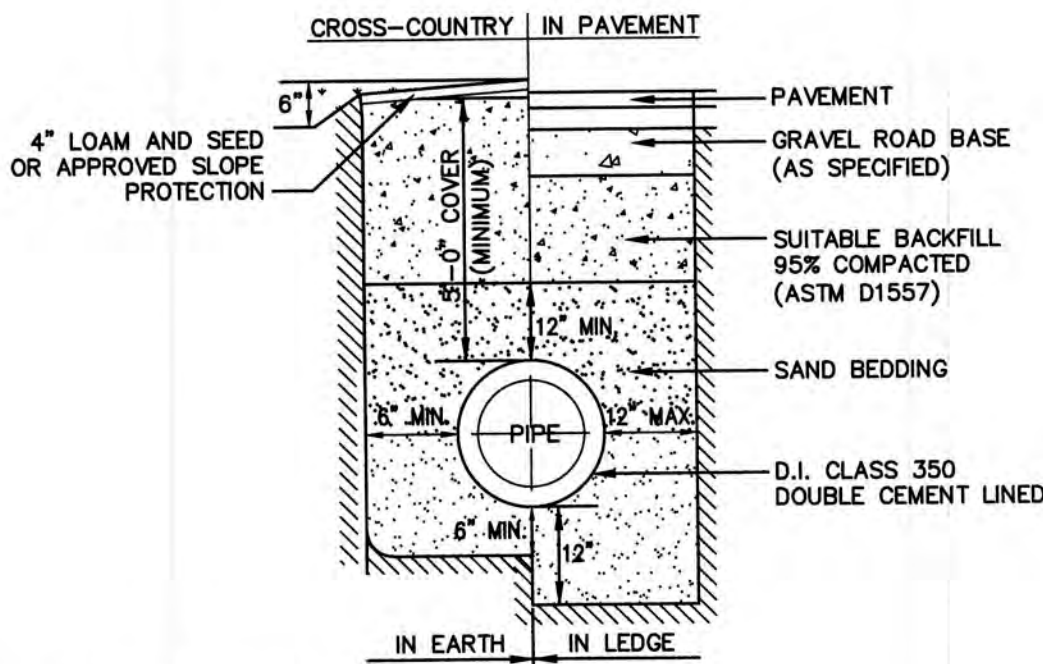
WATER SERVICE CONNECTION-COPPER PIPE

NOT TO SCALE



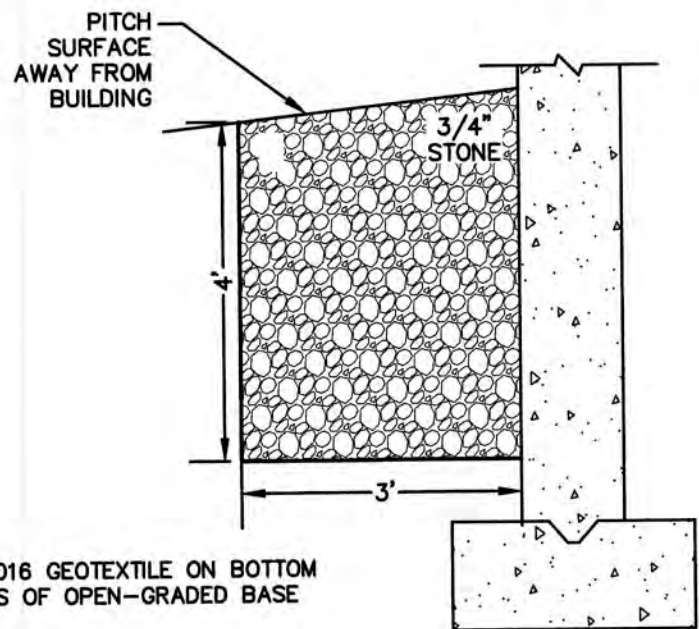
GAS TRENCH

NOT TO SCALE



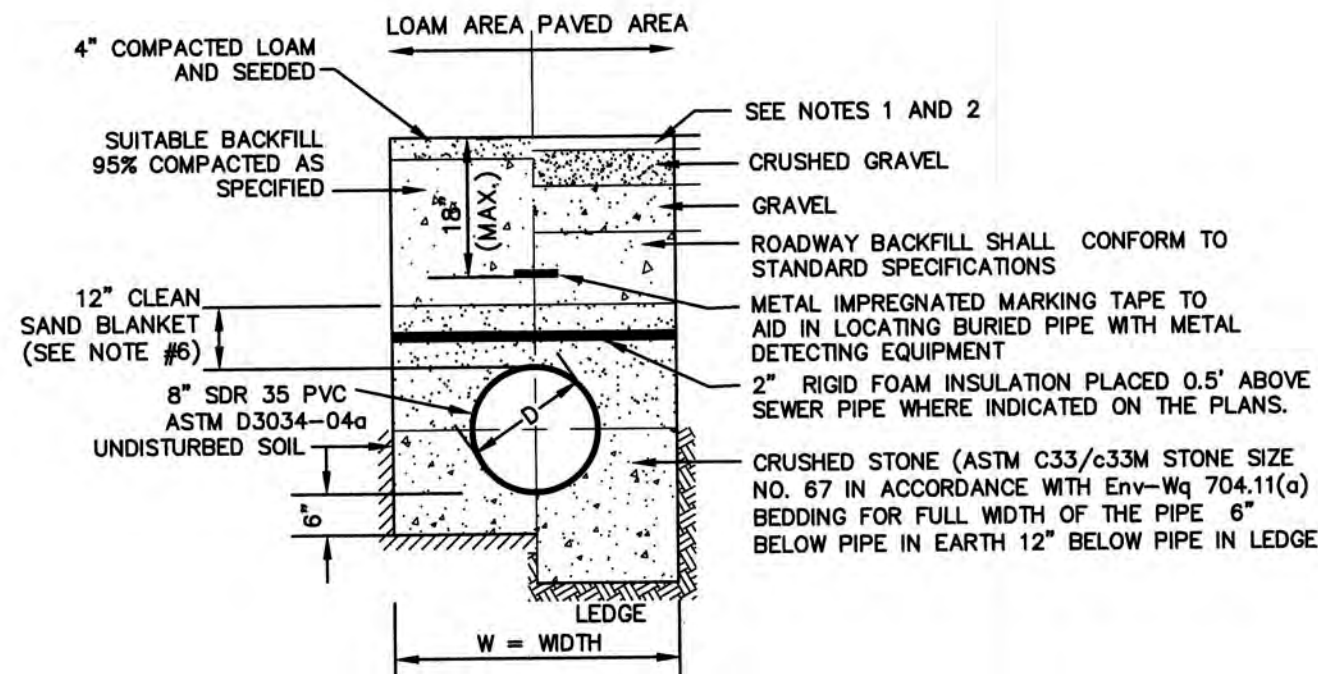
WATER SYSTEM TRENCH

NOT TO SCALE



DRIP EDGE DETAIL

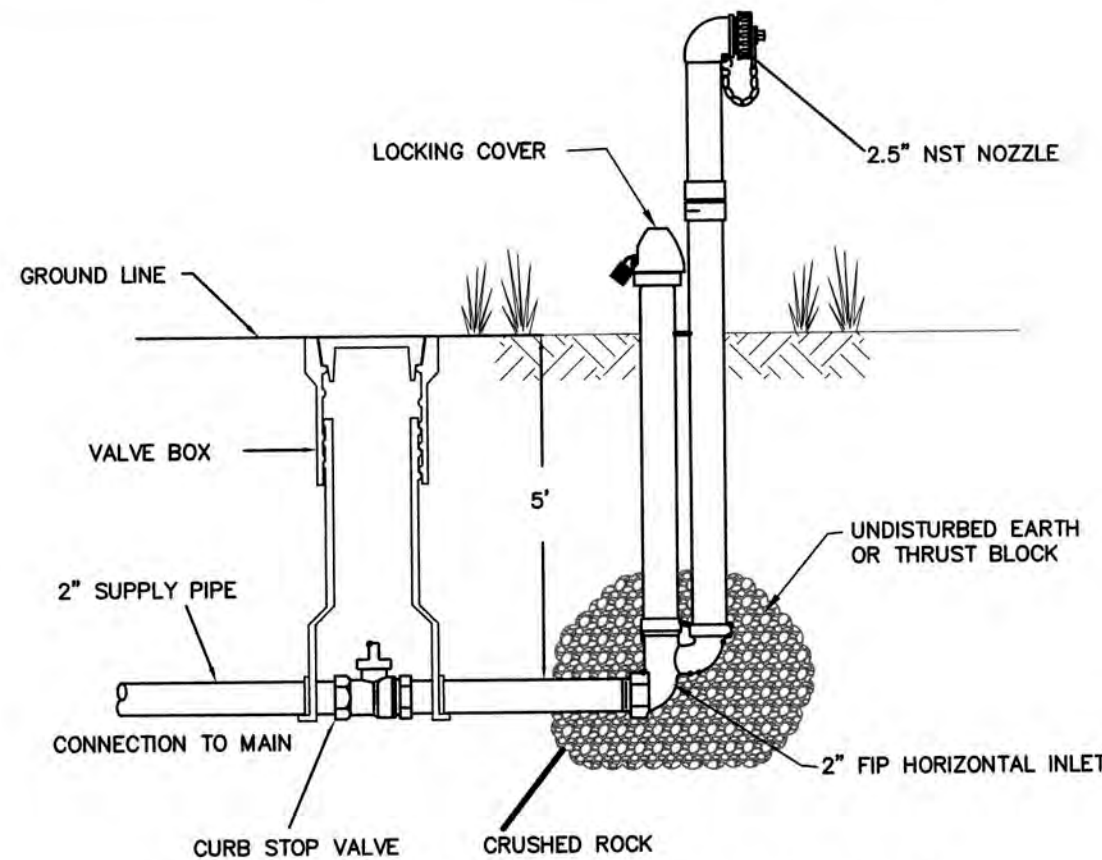
NOT TO SCALE



- 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



POST HYDRANTS SHALL BE NON-FREEZING, SELF DRAINING TYPE WITH A 5' BURY. THESE HYDRANTS WILL BE FURNISHED WITH A 2" FIP HORIZONTAL INLET, A NON-TURNING OPERATING ROD, AND SHALL OPEN LEFT. BRONZE OPERATING MECHANISM AND ALUMINUM PLUNGER, DESIGN, AND BE SERVICABLE FROM ABOVE GRADE WITH NO DIGGING. THE OUTLET SHALL ALSO BE BRONZE AND BE 2-1/2" NST. HYDRANTS SHALL BE LOCKABLE TO PREVENT UNAUTHORIZED USE AS MANUFACTURED BY KUPFERLE FOUNDRY CO., ST. LOUIS, MO, OR APPROVED EQUAL.

INLET PRESSURE (PSI)	FLOW RATE (GPM)
75	675
100	742
125	800
150	856

BLOW-OFF HYDRANT DETAIL

NOT TO SCALE

Design: JAC	Draft: ERE	Date: 03/22/22
Checked: JAC	Scale: AS NOTED	Project No.: 20686
Drawing Name: 20686-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.		



REV.	DATE	REVISION	BY
6	3/22/22	REVISED PER TAC COMMENTS	ERE
5	2/15/22	REVISED FOR PLANNING BOARD SUBMISSION	AJB
4	12/20/21	REVISED FOR PLANNING BOARD SUBMISSION	AJB
3	9/30/21	REVISED PER TAC COMMENTS	AJB
2	8/23/21	REVISED FOR PRELIMINARY SUBDIVISION	AJB
1			

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:	DETAIL SHEET
Project:	668 MIDDLE STREET PORTSMOUTH, NH
Owner of Record:	PUBLIC LAND HOLDINGS LLC PO BOX 190 EXETER, NH 03833 BK 6367 PG 1660

DRAWING No.
<b>D2</b>
SHEET 12 OF14 JBE PROJECT NO. 20686

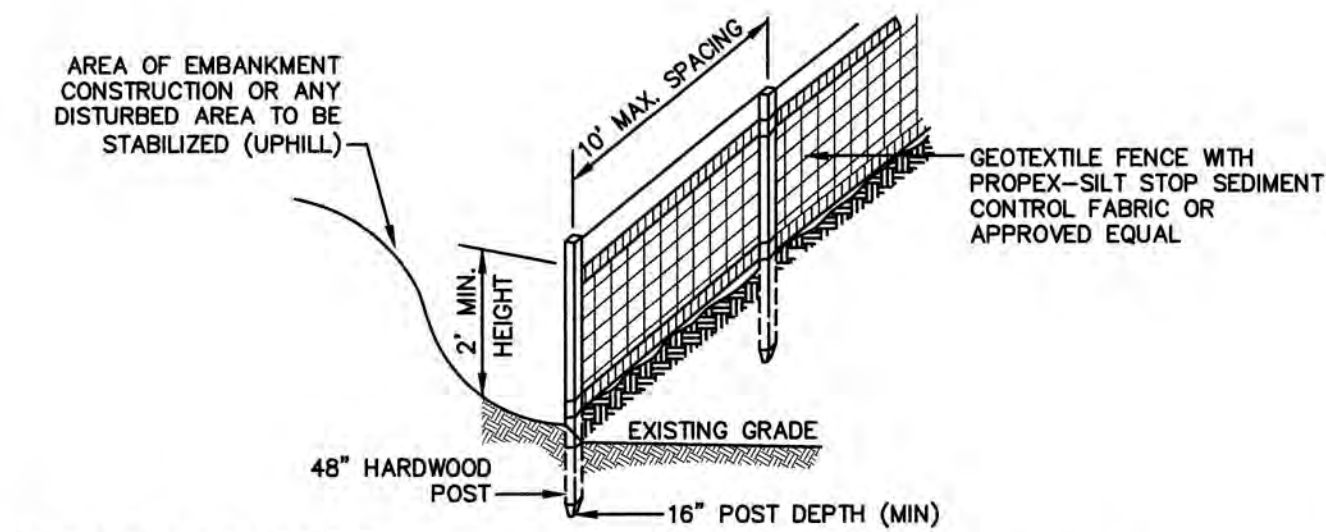






TEMPORARY EROSION CONTROL NOTES

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 OCCURED:
- 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.
12. PRIOR TO BEGINNING CONSTRUCTION, THE CONTRACTOR'S NAME, ADDRESS, AND PHONE NUMBER SHALL BE SUBMITTED TO DES VIA EMAIL (SEE BELOW).
13. PRIOR TO CONSTRUCTION, A PHASING PLAN THAT DELINEATES EACH PHASE OF THE PROJECT SHALL BE SUBMITTED. ALL TEMPORARY SEDIMENT BASINS THAT WILL BE NEEDED FOR DEWATERING WORK AREAS SHALL BE LOCATED AND IDENTIFIED ON THIS PLAN.

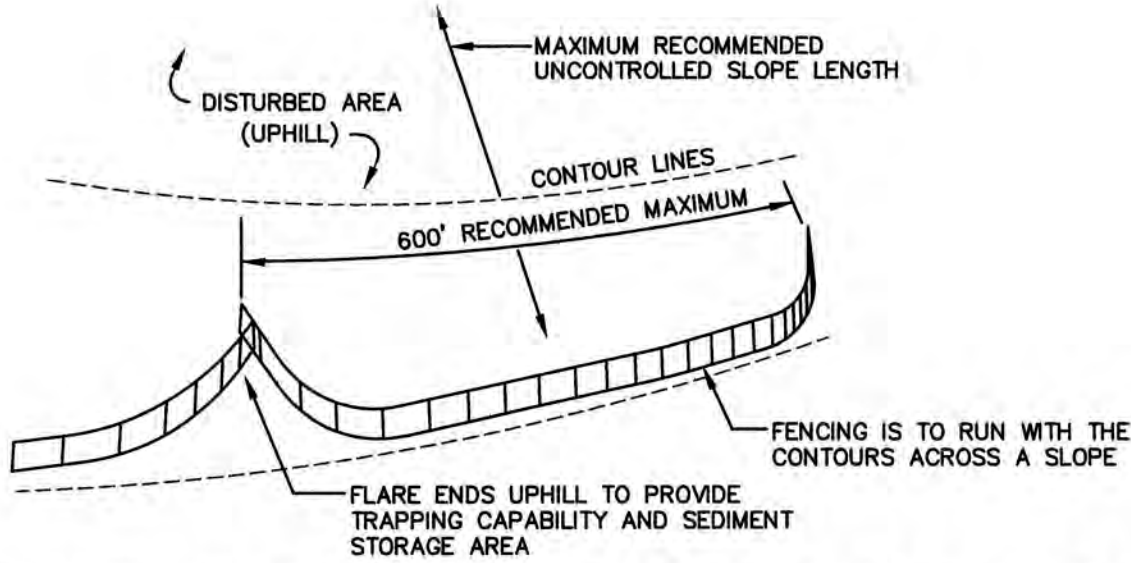


CONSTRUCTION SPECIFICATIONS:

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.

SILT FENCE

NOT TO SCALE



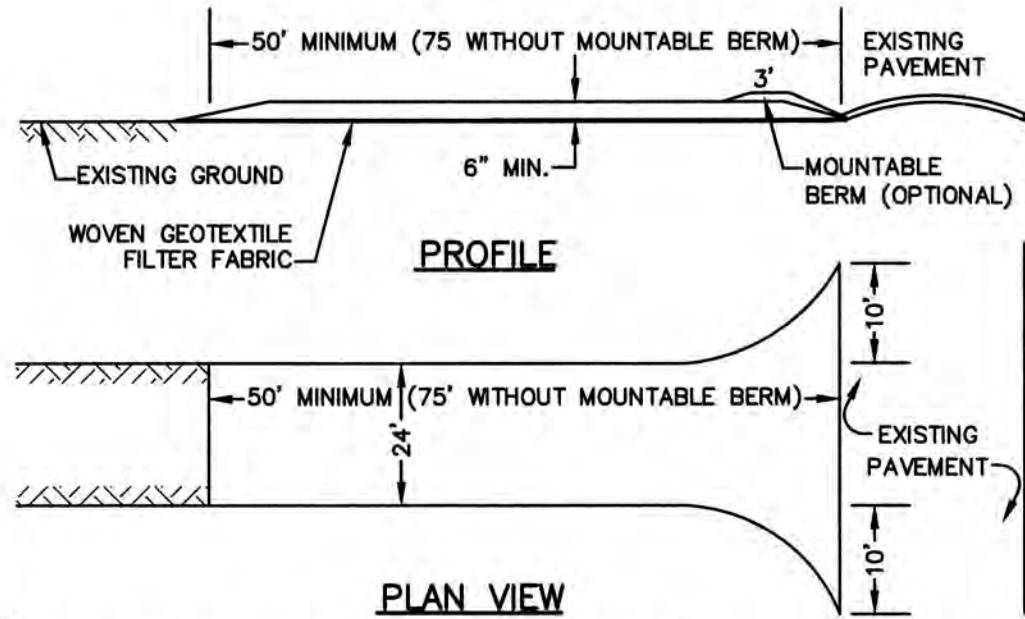
7. SILT FENCES SHALL BE REMOVED WHEN NO LONGER NEEDED AND THE SEDIMENT COLLECTED SHALL BE DISPOSED AS DIRECTED BY THE ENGINEER. THE AREA DISTURBED BY THE REMOVAL SHALL BE SMOOTHED AND REVEGETATED.

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.

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(P2O5), 100 LBS. PER ACRE OR 2.2 LBS. PER 1,000 SQ.FT.  
POTASH(K2O), 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.



NOTES:

1. STONE FOR STABILIZED CONSTRUCTION ENTRANCE SHALL BE 3 INCH STONE, RECLAIMED STONE, OR RECYCLED CONCRETE EQUIVALENT.
2. THE LENGTH OF THE STABILIZED ENTRANCE SHALL NOT BE LESS THAN 50 FEET, 75' WITHOUT A MOUNTABLE BERM, AND 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. CUT AND REMOVE TREES IN CONSTRUCTION AREA AS REQUIRED OR DIRECTED.
2. 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.
3. CLEAR, CUT, GRUB AND DISPOSE OF DEBRIS IN APPROVED FACILITIES. THIS INCLUDES ANY REQUIRED DEMOLITION OF EXISTING STRUCTURES, UTILITIES, ETC.
4. CONSTRUCT AND/OR INSTALL TEMPORARY OR PERMANENT SEDIMENT AND/OR DETENTION BASIN(S) AS REQUIRED. THESE FACILITIES SHALL BE INSTALLED AND STABILIZED PRIOR TO DIRECTING RUN-OFF TO THEM.
5. STRIP LOAM AND PAVEMENT, OR RECLAIM EXISTING PAVEMENT WITHIN LIMITS OF WORK PER THE RECOMMENDATIONS OF THE PROJECT ENGINEER AND STOCKPILE EXCESS MATERIAL. STABILIZE STOCKPILE AS NECESSARY.
6. PERFORM PRELIMINARY SITE GRADING IN ACCORDANCE WITH THE PLANS, INCLUDING THE CONSTRUCTION OF ANY RETAINING WALLS AND SOUND WALLS.
7. PREPARE BUILDING PAD(S) TO ENABLE BUILDING CONSTRUCTION TO BEGIN.
8. 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.
9. INSTALL INLET PROTECTION AT ALL CATCH BASINS AS THEY ARE CONSTRUCTED IN ACCORDANCE WITH DETAILS.
10. ALL SWALES AND DRAINAGE STRUCTURES ARE TO BE CONSTRUCTED AND STABILIZED PRIOR TO HAVING RUN-OFF DIRECTED TO THEM.
11. 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.
12. PERFORM FINAL FINE GRADING, INCLUDING PLACEMENT OF 'SELECT' SUBGRADE MATERIALS.
13. PAVE DRIVEWAYS WITH INITIAL 'BASE COURSE'.
14. PERFORM ALL REMAINING SITE CONSTRUCTION (I.E. BUILDING, CURBING, UTILITY CONNECTIONS, ETC.).
15. LOAM AND SEED ALL DISTURBED AREAS AND INSTALL ANY REQUIRED SEDIMENT AND EROSION CONTROL FACILITIES (I.E. RIP RAP, EROSION CONTROL BLANKETS, ETC.).
16. FINISH PAVING ALL DRIVEWAY WAYS WITH 'FINISH' COURSE.
17. ALL DRIVEWAYS SHALL BE STABILIZED WITHIN 72 HOURS OF ACHIEVING FINISHED GRADE.
18. ALL CUT AND FILL SLOPES SHALL BE SEEDED/LOAMED WITHIN 72 HOURS OF ACHIEVING FINISHED GRADE.
19. COMPLETE PERMANENT SEEDING AND LANDSCAPING.
20. 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.
21. CLEAN SITE AND ALL DRAINAGE STRUCTURES, PIPES AND SUMPS OF ALL SILT AND DEBRIS.
22. 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.

F:\CADD\MASTER STANDARD\dwg\JB-LAYOUTS.dwg 3/12/2015 3:27:29 PM EDT

Design: JAC	Draft: ERE	Date: 03/22/22
Checked: JAC	Scale: AS NOTED	Project No.: 20686
Drawing Name: 20686-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.		



6	3/22/22	REVISED PER TAC COMMENTS	ERE
5	2/15/22	REVISED FOR PLANNING BOARD SUBMISSION	AJB
4	12/20/21	REVISED FOR PLANNING BOARD SUBMISSION	AJB
3	9/30/21	REVISED PER TAC COMMENTS	AJB
2	8/23/21	REVISED FOR PRELIMINARY SUBDIVISION	AJB
REV.	DATE	REVISION	BY

J/B

Jones & Beach Engineers, Inc.

85 Portsmouth Ave.  
PO Box 219  
Stratham, NH 03885

Designed and Produced in NH  
*Civil Engineering Services*  
E-MAIL: JBE@JONESANDBEACH.COM

603-772-4746  
FAX: 603-772-0227

Plan Name:	EROSION AND SEDIMENT CONTROL DETAILS
Project:	668 MIDDLE STREET PORTSMOUTH, NH
Owner of Record:	PUBLIC LAND HOLDINGS LLC PO BOX 190 EXETER, NH 03833 BK 6367 PG 1660

DRAWING No.
E1
SHEET 14 OF 14 JBE PROJECT NO. 20686