

- NOTES:**
- 1) THIS PLAN DOES NOT SHOW ANY UNRECORDED OR UNWRITTEN EASEMENTS WHICH MAY EXIST. A REASONABLE AND DILIGENT ATTEMPT HAS BEEN MADE TO OBSERVE ANY APPARENT VISIBLE USES OF THE LAND; HOWEVER, THIS DOES NOT CONSTITUTE A GUARANTEE THAT NO SUCH EASEMENTS EXIST.
 - 2) THIS PARCEL LIES PARTIALLY WITHIN AN AE (ELEVATION 9) FLOOD ZONE, SEE F.I.R.M. COMMUNITY PANEL 33015C 0259 E DATE MAY 17, 2005.
 - 3) ELEVATIONS SHOWN HEREON ARE BASED ON THE N.G.V.D. 1929.

PLAN REFERENCE

"PLAN OF LAND FOR WILLIAM M. & LOIS CYNEWSKI, DOROTHEA E. MARCONI, ROLAND ROUTHIER & MARY ANN MARCONI AND EDWARD F. & LOUISE D. SMITH BRACKETT ROAD / NEWCASTLE AVE"
 SCALE: 1"=40 DATE: JANUARY 27, 1988
 BY: RICHARD P. MILLETTE AND ASSOCIATES D-17724

RECORD OWNERS

(207 70)
 JACOB SULLIVAN & MARGARET GOODLANDER
 86 NEWCASTLE AVENUE
 PORTSMOUTH, NH 03801
 BK. 5960 PG. 2666

37,536 S.F.
 0.86 ACRES
 AREA WITHIN OLD PAPER STREET
 7,000 S.F.
 0.16 ACRES
 EXISTING SEALED SURFACE
 4,258 S.F.
 9.5%

LOCUS MAP
 NOT TO SCALE

ZONING DISTRICT

SRB

MINIMUM REQUIREMENTS

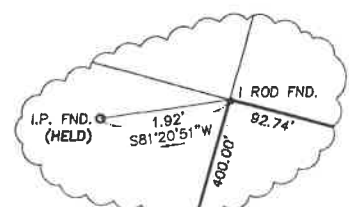
AREA	15,000 S.F.
MIN. LOT AREA/DWELLING UNIT	15,000 S.F.
MIN. OPEN SPACE	40%
MAX. BUILDING COVERAGE	20%
MAX. HEIGHT	35'/30'
FRONTAGE	100'

BUILDING SETBACKS

FRONT	30'*
SIDE	10'*
REAR	30'*

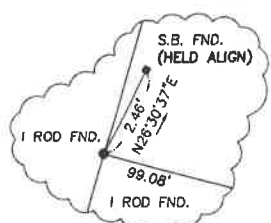
* AS PER THE CITY OF PORTSMOUTH THIS LOT (MAP 207, LOT 70) DOES NOT HAVE FRONTAGE ON AN ACCEPTED STREET OR RIGHT OF WAY AND THEREFOR IS SUBJECT TO SIDE YARD SETBACKS ON ALL SIDES.

RIGHT OF WAY NOTE:
 AS PER THE CITY OF PORTSMOUTH - "IT DOES NOT APPEAR THAT THE PAPER STREET WAS EVER ACCEPTED. IT WAS SUBDIVIDED 1914 (PLAN D-0188). THEN IN THE D-7855 PLAN, THE LOTS ACROSS THE PAPER STREET CLAIM TO THE MIDDLE OF THE STREET. OWNERSHIP BY REVERSION OF THE UNDEVELOPED STREET"

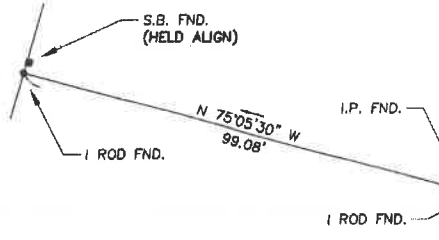


DETAIL
 NOT TO SCALE

(207 71)
 N/F
 TIMOTHY & ALEXANDRA LIETO
 50 NEWCASTLE AVE
 PORTSMOUTH, NH 03801
 BK. 5901 PG. 2097



DETAIL
 NOT TO SCALE



LEGEND

- S.B. STONE BOUND
- I.P. IRON PIPE
- I ROD IRON ROD FOUND
- ASSESSORS MAP AND PARCEL
- UTILITY POLE
- UNDERGROUND ELECTRIC (APPROXIMATE LOCATION)
- CHAIN LINK FENCE
- W1 WETLAND FLAG
- WETLAND
- H.O.T.L. HIGHEST OBSERVABLE TIDE LINE

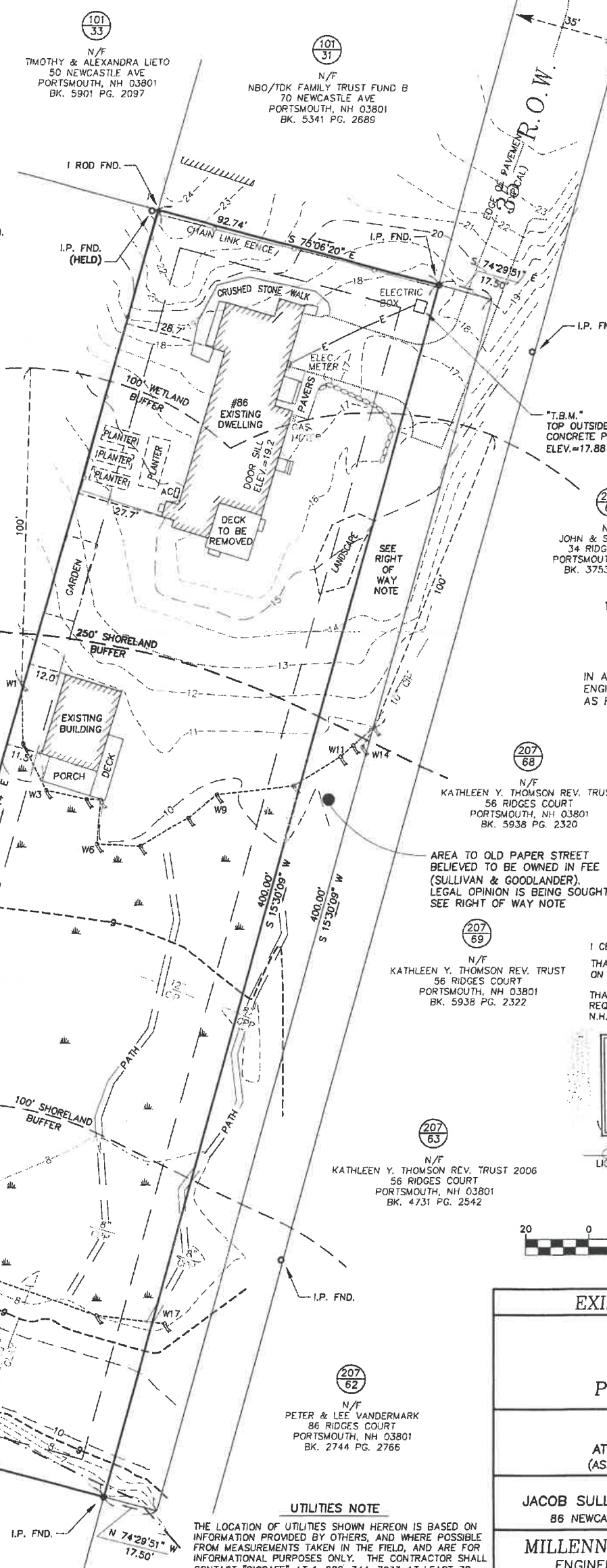
EXISTING OPEN SPACE 90.4%
 EXISTING BUILDING COVERAGE 5.9%

AVERAGE GRADE ELEV.=17.4
 RIDGE ELEV.=37.9
 EAVE ELEV.=25.8
 MEAN ROOF ELEV.=31.8
 EXISTING MEAN ROOF HEIGHT = 14.4'

NEWCASTLE AVENUE

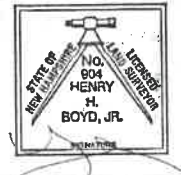
BRACKETT ROAD

PISCATAQUA RIVER

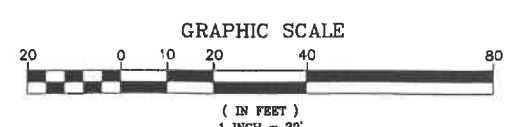


WETLANDS DELINEATION BY WEST ENVIRONMENTAL 48 STEVENS HILLROAD NOTTINGHAM, NH 03290
 IN ACCORDANCE WITH THE 1987 CORPS OF ENGINEERS WETLANDS DELINEATION MANUAL, AS REQUIRED BY THE DES WETLANDS BUREAU.

I CERTIFY:
 THAT THIS ACTUAL SURVEY WAS MADE ON THE GROUND IN JANUARY OF 2019.
 THAT THIS SURVEY CONFORMS TO THE REQUIREMENTS FOR ACCURACY FOR N.H. URBAN SURVEY.



LICENSED LAND SURVEYOR
 DATE 03-27-2019

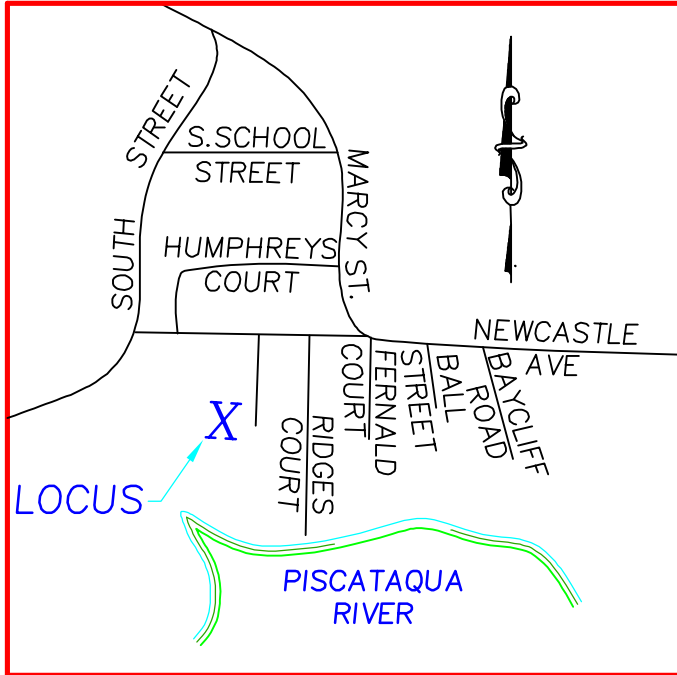


EXISTING CONDITIONS		
PLAT OF LAND IN PORTSMOUTH, NH		
SHOWING EXISTING CONDITIONS AT 86 NEWCASTLE AVENUE (ASSESSORS MAP 207 LOT 70)		
RECORD OWNERS JACOB SULLIVAN & MARGARET GOODLANDER 86 NEWCASTLE AVENUE PORTSMOUTH, NH 03801		
MILLENNIUM ENGINEERING INC. ENGINEERS AND LAND SURVEYORS P.O. BOX 745 13 HAMPTON ROAD EXETER, NH 03833 PHONE:(603)778-0528 FAX:(603)772-0689 WWW.MEI-NH.COM		
SCALE: 1"=20'	DRWN. BY: P.D.B.	PROJECT: E192257
DATE: MAR. 27, 2019	CHKD. BY: H.H.B.	

UTILITIES NOTE
 THE LOCATION OF UTILITIES SHOWN HEREON IS BASED ON INFORMATION PROVIDED BY OTHERS, AND WHERE POSSIBLE FROM MEASUREMENTS TAKEN IN THE FIELD, AND ARE FOR INFORMATIONAL PURPOSES ONLY. THE CONTRACTOR SHALL CONTACT "DIGSAFE" AT 1-888-344-7233 AT LEAST 72 HOURS PRIOR TO ANY EXCAVATION TO REQUEST MARKING OF UNDERGROUND UTILITIES. MILLENNIUM ENGINEERING, INC., ASSUMES NO RESPONSIBILITY FOR ANY DAMAGES INCURRED DIRECTLY OR INDIRECTLY RESULTING THEREFROM.

MAR 27 2019

D-17724



**WETLANDS DELINEATION BY WEST ENVIRONMENTAL
48 STEVENS HILLROAD
NOTTINGHAM, NH 03290**

IN ACCORDANCE WITH THE 1987 CORPS OF ENGINEERS WETLANDS DELINEATION MANUAL, AS REQUIRED BY THE DES WETLANDS BUREAU.

RECORD OWNERS

207
70
JACOB SULLIVAN & MARGARET GOODLANDER
86 NEWCASTLE AVENUE
PORTSMOUTH, NH 03801
BK. 5960 PG. 2666
37,536 S.F.
0.86 ACRES
AREA WITHIN OLD PAPER STREET
7,000 S.F.
0.16 ACRES
EXISTING SEALED SURFACE
4,258 S.F.
9.5%

EXISTING OPEN SPACE 90.4%
EXISTING BUILDING COVERAGE 5.9%
AVERAGE GRADE ELEV.=17.4
RIDGE ELEV.=37.9
EAVE ELEV.=25.8
MEAN ROOF ELEV.=31.8
EXISTING MEAN ROOF HEIGHT = 14.4'

LOCUS MAP
NOT TO SCALE

ZONING DISTRICT

SRB

MINIMUM REQUIREMENTS

AREA 15,000 S.F.
MIN. LOT AREA/DWELLING UNIT 15,000 S.F.
MIN. OPEN SPACE 40%
MAX. BUILDING COVERAGE 20%
MAX. HEIGHT 35'/30'
FRONTAGE 100'

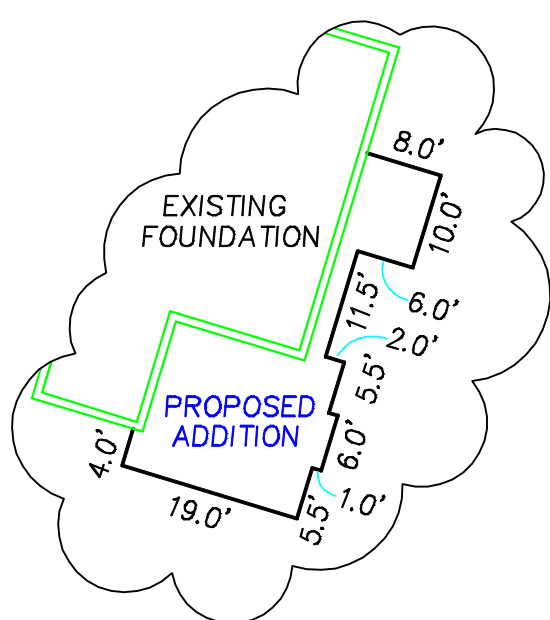
BUILDING SETBACKS

FRONT 30'
SIDE 10'
REAR 30'

*AS PER THE CITY OF PORTSMOUTH
THIS LOT (MAP 207, LOT 70) DOES NOT HAVE FRONTAGE ON AN ACCEPTED STREET OR RIGHT OF WAY AND THEREFOR IS SUBJECT TO SIDE YARD SETBACKS ON ALL SIDES.

RIGHT OF WAY NOTE:

AS PER THE CITY OF PORTSMOUTH - "IT DOESN'T APPEAR THAT THE PAPER STREET WAS EVER ACCEPTED. IT WAS SUBDIVIDED 1914 (PLAN D-0188). THEN IN THE D-7855 PLAN, THE LOTS ACROSS THE PAPER STREET CLAIM TO THE MIDDLE OF THE STREET. OWNERSHIP BY REVERSION OF THE UNDEVELOPED STREET"

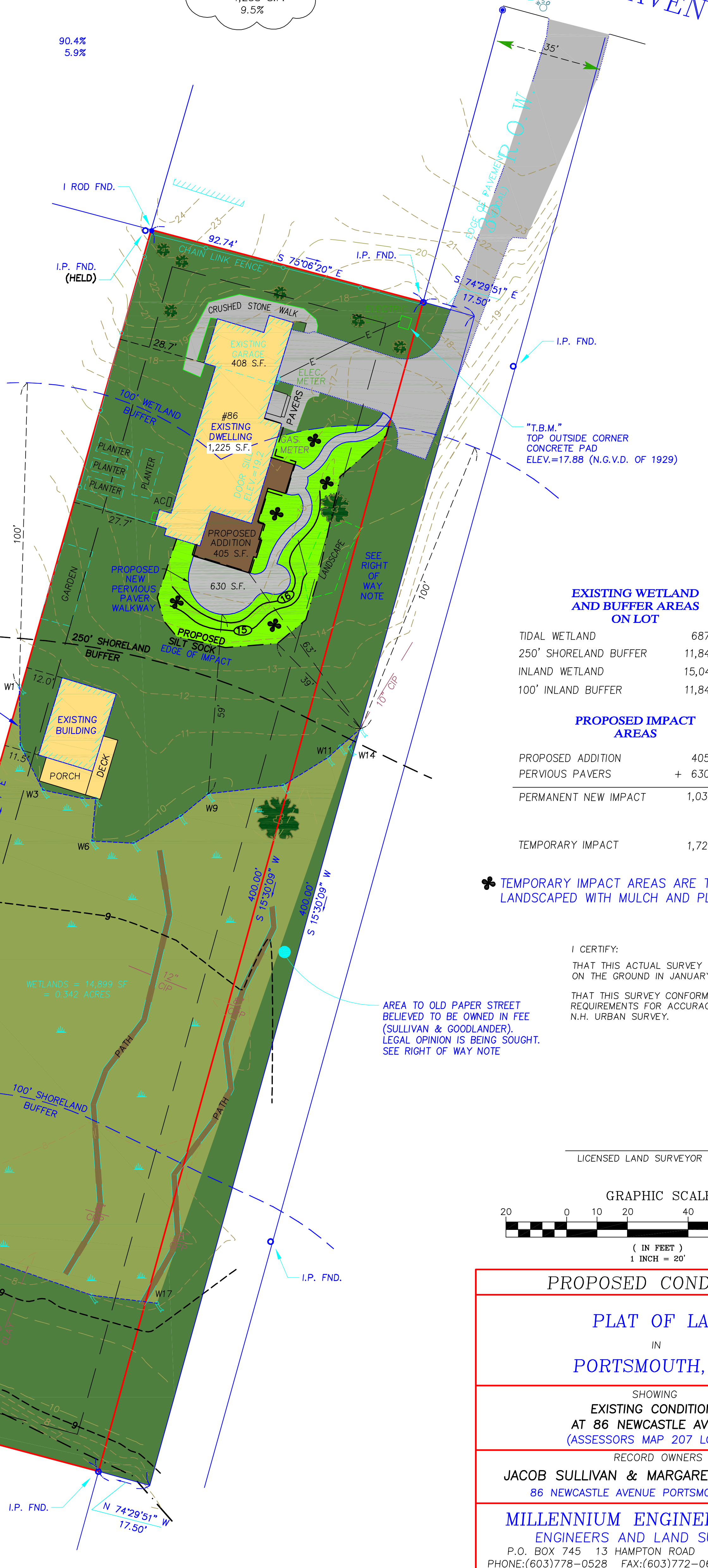


PROPOSED ADDITION
DIMENSION DETAIL

BRACKETT ROAD

NEWCASTLE AVENUE

PISCATAQUA RIVER



EXISTING WETLAND AND BUFFER AREAS ON LOT

TIDAL WETLAND	687 S.F.
250' SHORELAND BUFFER	11,844 S.F.
INLAND WETLAND	15,044 S.F.
100' INLAND BUFFER	11,844 S.F.

PROPOSED IMPACT AREAS

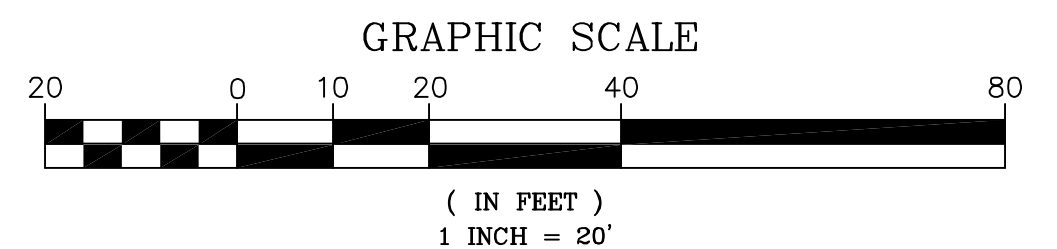
PROPOSED ADDITION	405 S.F.
PERVIOUS PAVERS	+ 630 S.F.
PERMANENT NEW IMPACT	1,035 S.F.

TEMPORARY IMPACT 1,729 S.F.

TEMPORARY IMPACT AREAS ARE TO BE LANDSCAPED WITH MULCH AND PLANTINGS.

I CERTIFY:
THAT THIS ACTUAL SURVEY WAS MADE ON THE GROUND IN JANUARY OF 2019.
THAT THIS SURVEY CONFORMS TO THE REQUIREMENTS FOR ACCURACY FOR N.H. URBAN SURVEY.

LICENSED LAND SURVEYOR DATE



LEGEND

- S.B. STONE BOUND
- I.P. IRON PIPE
- I ROD IRON ROD
- FND. FOUND
- ASSESSORS MAP AND PARCEL
- UTILITY POLE
- E UNDERGROUND ELECTRIC (APPROXIMATE LOCATION)
- CHAIN LINK FENCE
- W1 WETLAND FLAG
- WETLAND
- H.O.T.L. HIGHEST OBSERVABLE TIDE LINE
- TEMPORARY IMPACT AREA

PROPOSED CONDITIONS

PLAT OF LAND
IN
PORTSMOUTH, NH

SHOWING
EXISTING CONDITIONS
AT 86 NEWCASTLE AVENUE
(ASSESSORS MAP 207 LOT 70)

RECORD OWNERS
JACOB SULLIVAN & MARGARET GOODLANDER
86 NEWCASTLE AVENUE PORTSMOUTH, NH 03801

MILLENNIUM ENGINEERING INC.
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SCALE: 1"=20'	DRWN. BY: P.D.B.	PROJECT: E192257
DATE: MAR. 27, 2019	CHKD. BY: H.H.B.	SHEET: 2 OF 2

D-17724

PERMEABLE PAVERS

DRIVEWAYS, PERMEABLE DRIVEWAYS & PATIOS



PHYSICAL AND GEOMETRICAL CHARACTERISTICS - PAVERS

CHARACTERISTICS	CSA A231.2	TECHO-BLOC
Compressive strength	50 MPa (7200 psi) min.	50 MPa (7200 psi) min.
Absorption	-	5 % max.
Freeze-thaw durability with use of de-icing salt	Mass loss (max.): 225 g/m ² at 28 cycles 500 g/m ² at 49 cycles	Mass loss (max.): 225 g/m ² at 28 cycles 500 g/m ² at 49 cycles
Dimensional tolerance	Length and Width: 1.0 mm (0.039 in.) to +2.0 mm (0.079 in.) Thickness: ±0.5 mm (0.118 in.)	Length and Width: ±1.0 mm (0.039 in.) to +2.0 mm (0.079 in.) Thickness: ±0.5 mm (0.118 in.)

Notes: Dimensional tolerances prior to the application of architectural finishes.

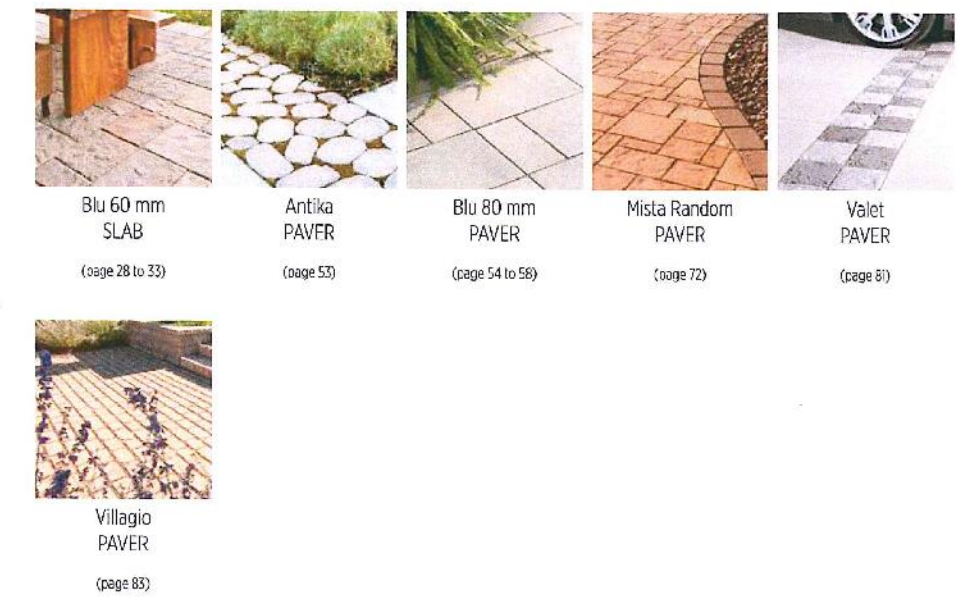
Installation guide TYPICAL APPLICATION USAGE

SECTOR	TRAFFIC TYPE & APPLICATIONS	PERMEABLE PAVERS
RESIDENTIAL	1. Light traffic Cars and occasional light service trucks (ex. residential driveways)	- Antika - Blu 80 mm - Infillo - Mistla Random - Pure - Valet - Victorian 60 mm permeable - Villagio
	2. Pedestrian Pedestrian only and at all times (ex. patios)	- Antika - Blu 80 mm - Blu 60 mm - Infillo - Mistla Random - Pure - Valet - Victorian 60 mm permeable - Villagio
	3. Road traffic Cars, heavy trucks, buses (ex. boulevards, main or secondary streets, pedestrian crossings, industrial, ports and airport areas)	- Infillo
ICI (Industrial, Commercial and Institutional)	4. Light traffic Cars and occasional light service trucks (ex. parking lots, sidewalks)	- Infillo - Pure
	5. Pedestrian Pedestrian only and at all times, without cars or trucks or other mobile equipment (ex. terraces, parks, pedestrian walkways)	- Infillo - Pure - Valet

Installation guide INFILTRATION CHART

PERMEABLE PAVERS	PERCENT OF SURFACE OPENING (%)	JOINT WIDTH (mm)	INFILTRATION RATE ¹ (mm/h)
ANTIKAP	Variable	Variable	993 in./hr (25 227 mm/hr)
BLU 80 mm	3.0	3/8" (7 mm)	870 in./hr (22 147 mm/hr)
INFILO	3.8	3/8" (7 mm)	837 in./hr (21 267 mm/hr)
MISTLA random	6.8	3/8" (7 mm)	610 in./hr (15 505 mm/hr)
PURE	6.8	3/8" (7 mm)	728 in./hr (18 440 mm/hr)
VALET	5.9	3/8" (7 mm)	to come
VICTORIAN 60 mm permeable	9.6	3/8" (7 mm)	909 in./hr (23 086 mm/hr)
VILLAGIO	8.0	3/8" (7 mm)	896 in./hr (22 750 mm/hr)
PERMEABLE SLAB	PERCENT OF SURFACE OPENING (%)	JOINT WIDTH (mm)	INFILTRATION RATE (mm/h)
BLU 60 mm	3.0	3/8" (7 mm)	870 in./hr (22 147 mm/hr)

OTHER PERMEABLE POSSIBILITIES



Installation guide SEGMENTAL PERMEABLE PAVEMENT

INSTALLATION OUTLINE

01 DATA COLLECTION

- Determine the size, shape, and intended use of finished areas (i.e. residential driveway, secondary commercial parking, etc.).
- Classify sub-grade soils.
- Document all existing conditions (i.e. fixed points, existing grades, site contours, etc.).
- Document soil type, location, and elevation of below grade and overhead utilities both public and private.
- Ensure public utilities are marked through the use of a locating service.
- Determine the cross section design of the system based on soil type and application, showing proposed sub-grade and finished grade elevations and all geotextiles and drainage pipes needed for the construction.
- Establish the type, location, and elevation of relief structures if required (i.e. overflow pipe discharging to rain garden, etc.).
- Determine the curb or edge restraint type, elevation, and location.
- Choose a pattern appropriate to the application (traffic type and load).

02 EXCAVATION

- Before digging, contact the concerned companies if wires or pipes are located in the area to be excavated.
 - Excavation depth is determined from the foundation thickness according to the project specifications (foundation thickness is determined by a qualified engineer based on structural and hydrological analysis).
 - Although the slope of the sub-grade will depend on the drainage design and infiltration type, a minimum slope of 0.5% (1/4" per ft. or 5 mm per meter) is recommended.
 - The distance that the excavated area should extend beyond the area to be paved should be one to 1.5 times the thickness of the foundation. This extra space will ensure the stability of the pavers near the edge and the edge restraints.
 - Level the bottom of the excavated area with a rake.
- Compaction will reduce the permeability of the sub-grade and it should be executed according to the project specifications. If compaction is not specified, care should be taken to maintain undisturbed soil infiltration during excavation and construction. Stabilization of the sub-grade may be required with weak, continually saturated soils, or when subject to high traffic conditions. If the compaction or stabilization of sub-grade is necessary, reduced infiltration may require drainage pipes within the sub-base to conform to storm water drainage requirements.

03 GEOTEXTILE, IMPERMEABLE LINERS, AND DRAIN PIPES

- Use the geotextile specified and install it according to project specifications. The use of a woven geotextile with bi-val strength that meets design criteria is recommended.
- Place the geotextile on the bottom and sides of the soil sub-grade. Eliminate wrinkles in the geotextile and ensure it is not damaged during construction.
- Overlap of geotextile should be a minimum of 2' (600 mm) in the direction of drainage. Overlapping should be "shingle" style with respect to any slope direction and base stone distribution direction. Keep properly tensioned, eliminate wrinkles, and avoid damaging fabric (no spikes).
- If impermeable liners are required, install them according to project specifications and manufacturer's instructions. Impermeable liners are used when full exfiltration from the reservoir (sub-base and base) into the underlying sub-grade is not allowed (no infiltration design). Perforated drainage pipes are usually required in no infiltration and partial infiltration designs.
- If drainage pipes are required, install them according to project specifications. The aggregate cover over drainage pipes should be at least 12" (300 mm) to protect them from damage during sub-base and cover compaction.

Installation guide SEGMENTAL PERMEABLE PAVEMENT

04 SUB-BASE

- For residential pedestrian applications, the sub-base may not be required and then only ASTM No. 57 (CSA 5-28) aggregate base layer with a minimum thickness of 6" (150 mm) can be used (use a thicker base for additional water storage). Refer to Base (see below 06).
- When traffic load, soil conditions, and climate require greater than 12" (300 mm) of base or volume requirements for detention are higher, a sub-base may be required. Use sub-base ASTM No. 2 or No. 3 (CSA 40-80) meeting the following requirements:
- 90% fractured symmetrical particles
 - Less than 5% passing the 200 sieve
 - Industry hardness tested
- Moisten, spread and compact the ASTM No. 2 (CSA 40-80) aggregate sub-base in minimum 6" (150 mm) lifts (without distorting or damaging the geotextile) according to the project specifications.
 - Make at least two passes in the vibratory mode followed by at least two passes in the static mode with a minimum 10 ton (9 metric ton) vibratory roller, until there is no visible movement of the aggregate. Alternatively, a 13,500 lbf (60 kN) plate compactor can be used to compact the ASTM No. 2 (CSA 40-80) aggregate sub-base.
 - Do not allow the compactor to crush the aggregate.
 - Surface tolerance of the ASTM No. 2 (CSA 40-80) sub-base should be 1/2" (12 mm) over 10' (3 m).

05 EDGE RESTRAINT

- Install edge restraint according to project specifications.
- Depending on the design, the top of the edge restraint can be hidden or exposed.
- Install Avignon, Belgis, Pietra, Tundra or Universal edge units. Cast-in-place concrete or precast concrete curbs should be considered in vehicular use applications (commercial/industrial driveways, parking lots or streets).
- Edge restraint may rest on an open-graded or dense-graded aggregate base.

06 BASE

- Moisten, spread and compact the ASTM No. 57 (CSA 5-28) aggregate base layer in one 4" (100 mm) thick lift.
- Make a minimum of two passes in vibratory mode followed by at least two in static mode with a minimum 10 ton (9 metric ton) vibratory roller, until there is no visible movement of the aggregate. Alternatively, a 13,500 lbf (60 kN) plate compactor can be used to compact the ASTM No. 57 (CSA 5-28) aggregate base.
- Do not allow the compactor to crush the aggregate.
- Surface tolerance of the ASTM No. 57 (CSA 5-28) base should be 1/2" (12 mm) over 10' (3 m). Verify prior to setting bed installation.

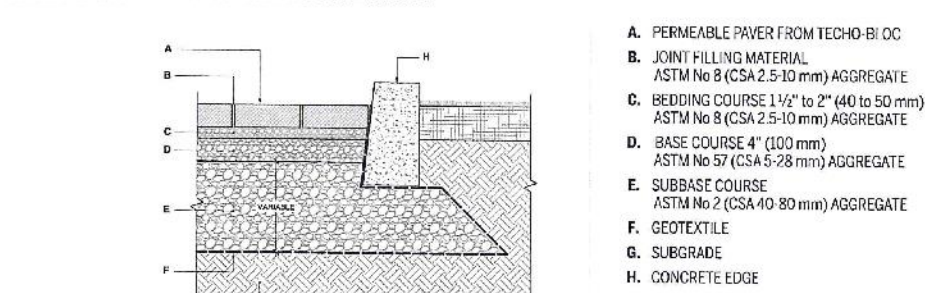
07 BEDDING COURSE

- Moisten, spread and screed the ASTM No. 8 (CSA 2.5-10) aggregate bedding layer in one 2" (50 mm) thick lift.
- Surface tolerance of the ASTM No. 8 (CSA 2.5-10) bedding course should be 1/4" (10 mm) over 10' (3 m).
- Construction equipment and pedestrian traffic on the screeded bedding course should not be permitted.

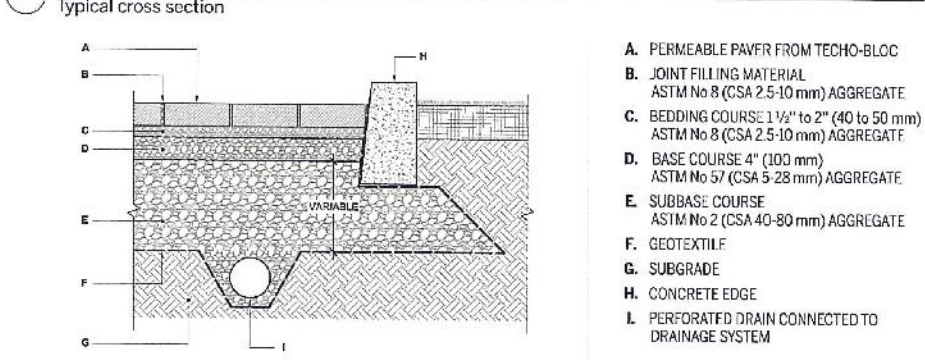
08 PAVER

- Pavers should be placed in the pattern shown on the drawings. Lay units hand tight to designated laying patterns. Units have lips to maintain consistent joint width.
- In sloped conditions, it is preferable to start laying from the bottom in an uphill direction.
- The minimum slope recommended for permeable pavement surface is 1%.
- Infillo pavers can be installed with the TBIDIOSI (Techo-Bloc mechanical tool) to expedite installation.
- When subject to vehicular traffic, cut units should not be smaller than 1/2 of a whole paver. When using cut pieces, maintain joint.
- In vehicular applications, pattern strength will increase if laying pattern is perpendicular to traffic flow.

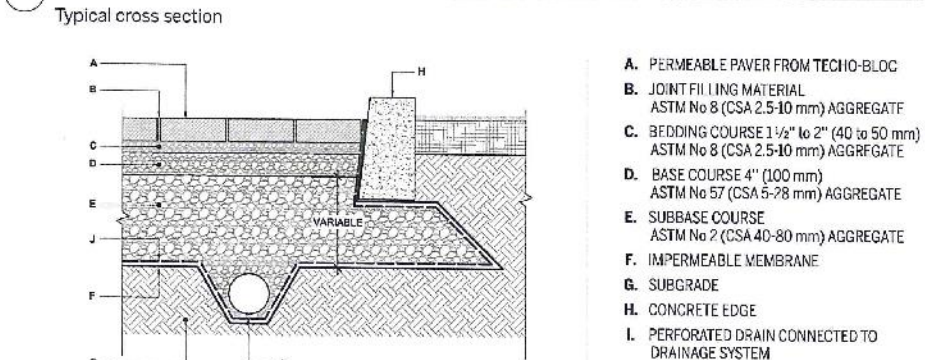
Installation guide SEGMENTAL PERMEABLE PAVEMENT



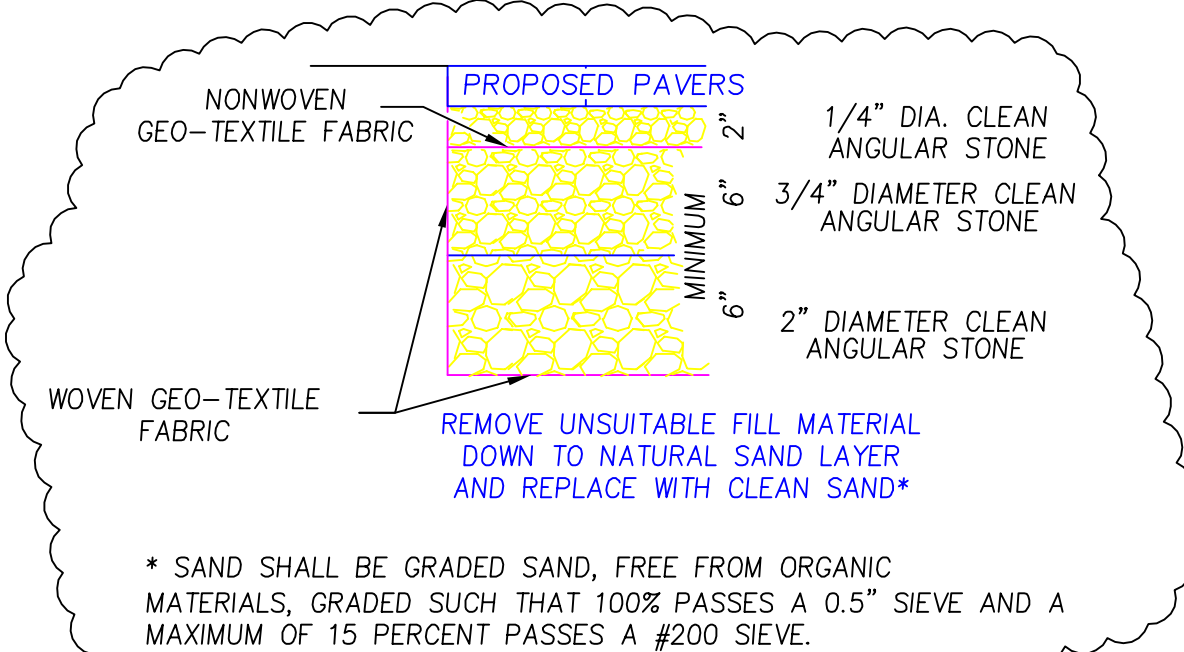
SEGMENTAL PERMEABLE PAVEMENT - FULL INFILTRATION



SEGMENTAL PERMEABLE PAVEMENT - PARTIAL INFILTRATION



SEGMENTAL PERMEABLE PAVEMENT - NO INFILTRATION



"TECHO-BLOC" PERVIOUS PAVES DETAIL NOT TO SCALE

* "TECHO-BLOC" PAVERS. REFER TO MANUFACTURERS SPECIFICATIONS AND INSTALLATION GUIDELINES PROVIDED HERewith.

PAVER MAINTENANCE NOTE

REGULAR CLEANING WILL HELP MAINTAIN A HIGH ENOUGH SURFACE INFILTRATION RATE TO SOAK THROUGH THE JOINTS. AT LEAST ONE INSPECTION AND CLEANING SHOULD BE PERFORMED DURING THE FIRST YEAR OF SERVICE AND THEREAFTER AS REQUIRED. CLEANING IS RECOMMENDED WHEN THE SURFACE INFILTRATION RATE IS LESS THAN 9.8"/HR OR 99% CLEANING CAN BE DONE WITH A VACUUM ADJUSTED TO MINIMIZE THE REMOVAL OF JOINT MATERIAL. IN WINTER, SNOW REMOVAL CAN BE DONE AS FOR ANY OTHER TYPE OF PAVING, BUT IT IS STILL RECOMMENDED THAT SNOW REMOVAL BLADES BE COVERED WITH A PROTECTIVE COATING AND RAISED 1". SEGMENTAL PERMEABLE PAVEMENT REQUIRE LESS DE-ICING MATERIAL THAN CONVENTIONAL PAVEMENT. SINCE MELTED WATER DOES NOT ACCUMULATE, IT WILL NOT RE-FREEZE ON THE SURFACE. IT IS NOT RECOMMENDED TO SPREAD SAND FOR TRACTION, AS THIS MAY CLOG THE JOINTS; INSTEAD, SPREAD THE SAME AGGREGATE USED FOR FILLING JOINTS.

PERMEABLE PAVER

PLAT OF LAND
IN
PORTSMOUTH, NH

SHOWING
EXISTING CONDITIONS
AT 86 NEWCASTLE AVENUE
(ASSESSORS MAP 207 LOT 70)

RECORD OWNERS
JACOB SULLIVAN & MARGARET GOODLANDER
86 NEWCASTLE AVENUE PORTSMOUTH, NH 03801

MILLENNIUM ENGINEERING INC.
ENGINEERS AND LAND SURVEYORS
P.O. BOX 745 13 HAMPTON ROAD EXETER, NH 03833
PHONE: (603) 778-0528 FAX: (603) 772-0689 WWW.MEI-NH.COM

SCALE: 1"=20'	DRWN. BY: P.D.B.	PROJECT: E192257
DATE: APRIL, 09, 2019	CHKD. BY: H.H.B.	SHEET: 3 OF 3



Maggie Goodlander and Jake Sullivan
86 New Castle Avenue
Portsmouth, New Hampshire
03801

March 26, 2019

To Whom It May Concern,

We hereby authorize West Environmental to act as our agent for this application.

Respectfully,

A handwritten signature in black ink, appearing to read "Jake Sullivan".

Jake Sullivan

A handwritten signature in black ink, appearing to read "Maggie Goodlander".

Maggie Goodlander

Jake Sullivan
86 New Castle Ave
Portsmouth, NH 03801

March 27, 2019

RE: Wetland Conditional Use Permit for 86 New Castle Ave Portsmouth, NH

SUBJ: Wetland Impact Assessment Report

Dear Jake:

West Environmental, Inc. flagged the inland and tidal wetland boundaries on your property on January 15, 2019 with no snow cover. A follow-up inspection was conducted on March 20th to photo document the site and conduct a wetland evaluation. The wetlands were delineated according to the following standards:

- **US Army Corps of Engineers Wetlands Delineation Manual, Technical Report Y-87-1 (January 1987).**
- **Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Northcentral and Northeast Region (2012).**
- **National List of Plant Species That Occur in Wetlands: Northeast (Region 1). U.S. Fish and Wildlife Service (May 1988).**
- **Code of Administrative Rules. Wetlands Board, State of New Hampshire (Current).**

We evaluated soil probes and plant communities to determine the edge of wetland. The inland wetland is a ditched wet meadow with areas of scrub-shrub that drains into the tidal wetland through a culvert under a berm. This area was dominated by wetland dependent plant species and hydric soils. There are paths with culverts through this wetland to the berm. There is some invasive purple loosestrife present but the wet meadow is dominated by grasses, sedges and wildflowers. Shrub species observed include silky dogwood, buttonbush, and northern arrowwood. There are a few invasive multiflora rose present in this wetland. The soils are silt loams under-laid by clay. There is a very small pond in the wetland that drains into the ditch system.

We have attached photo documentation of the wetlands and the inland upland buffer zone where the proposed addition and patio are planned.

Wetland Function

The wetland was evaluated utilizing a wetland assessment methodology developed by the US Army Corps of Engineers New England Divisions Highway Methodology Workbook Supplement. This evaluation is based on collection of data on the physical characteristics of the wetland through field inspections, research of existing information and best professional judgment. This methodology provides a better understanding of the physical characteristics of each wetland for both its functions and values.

Wetland Conditional Use Permit for 86 New Castle Ave Portsmouth, NH Page 2

The physical features were evaluated to determine if a function is present. The wetland is then evaluated to determine if the function present is a principal function of that wetland based on comparison to other wetlands in the region and using professional judgment. This assessment evaluated the following wetland functions:

- **Groundwater Recharge/Discharge** – *This function includes the ability of a wetland to provide recharge of surface water into the ground and/or discharge groundwater into surface waters.*

This wetland has dense soils that do not allow for groundwater recharge.

- **Flood-flow Alteration** – *This function considers the effectiveness of the wetland in reducing flood damage by attenuation of floodwaters for prolonged periods following precipitation events.*

This wetland provides some flood storage, but the ditching reduces the effectiveness of this function.

Sediment/Toxicant/Pathogen Retention – *The presence of this function reduces or prevents degradation of water quality because the wetland acts as a trap for sediments, toxicants or pathogens.*

This wetland provides some of this function, but the ditching reduces the resident time of stormwater in this wetland.

- **Nutrient Removal/Retention Transformation** – *This function relates to the effectiveness of the wetland to prevent adverse effects of excess nutrients entering surface waters or aquifers.*

The lack of organic soils and shallow or deep marsh habitat limit this function.

- **Product Export** – *This function relates to the effectiveness of the wetland to produce food or usable products for human or other living organisms.*

This function is provided to a small degree by the fruit bearing shrubs in this wetland

- **Sediment/Shoreline Stabilization** – *This function relates to the effectiveness of a wetland to stabilize stream banks and shorelines against erosion.*

This function is present in the form of stable wet meadow banks along the ditched stream.

- **Wildlife Habitat** – *This function considers the effectiveness of the wetland to provide habitat for various types and populations of animals typically associated with the wetland and the wetland edge (includes resident and migratory species).*

Due to the location in a residential setting this function is moderate to low. The presence of the small stream and proximity to tidal wetlands prevent it from lower function.

Restoration Stabilization Potential – *This assessment includes evaluating the restoration potential of wetlands that have ecological deterioration due to human activity. This includes water quality impacts, invasive species, ditching and fill from erosion or human disturbance.*

There is an opportunity to restore some function by removing the culverts in this wetland and replacing them with small wooden bridges.

Wetland Impacts

There are no direct wetland impacts associated with this project. The impacts to 100-foot inland wetland buffer include 405 SF of house addition most of which is located over an existing deck and 630 SF of pervious pavers for a patio and walk ways located over lawn and landscaped areas. There are 1,729 SF of temporary impacts to lawn and landscaped areas most of which will be planted with native flowers and shrubs.

The closest temporary impacts are 39 feet away from the wetland. The closest permanent impacts are 59 feet away for the pervious patio and 63 feet for the addition. The proposed landscaping plan will re establish a vegetated buffer to the wetland in addition to the trees and shrubs that will remain in the buffer. These activities will not have a significant impact to the functions of the wetland due to the nature of the landscaped impact areas and the distance to the resource area.

Mitigation

The proposed landscaping will help mitigate wetland buffer impacts and the applicant can also remove the culverts in the ditched stream to provide unrestricted flow. We have contacted the NHDES staff and Peter Britz and both agree that this is a good restoration plan to mitigate buffer zone impacts.

This completes our report and we hope that it meets your needs. Please call our office if you have any questions or require additional information.

Sincerely,
West Environmental, Inc.



Mark C. West,
NH Certified Wetland Scientist #10



1. Looking south towards the wetland from the proposed terrace location with the studio on the right.



2. Looking north towards the house from the edge of the inland wetland.



3. Looking west at the deck where the addition is proposed. The temporary impacts will start on the other side of this landscape bed.



4. Looking north at the deck where the addition will go and the lawn area where the patio will go in front of the addition.



5. Looking south down the path through the wetland towards the tidal wetland.



6. This is a view of one of the culverts to be removed.



7. This is a view of the berm between the inland wetland and the tidal wetland on the left.



8. Looking north across the inland wetland from the berm with house in background.



86 New Castle Ave

April 2013

86 New Castle Ave

Legend

86 New Castle Ave

Google Earth

100 ft





48 Stevens Hill Road, Nottingham, NH 03290
603-734-4298 ♦ mark@westenv.net

Landscaping Plant Species for 86 New Castle Road, Portsmouth 3-27-19

Below is a list of species to be planted in the temporary impact areas within the inland wetland buffer zone. Existing plants and shrubs should be salvaged prior to construction if possible.

Shrubs

Arrowwood Viburnum
Azalea
Bigleaf Hydrangea
Highbush Blueberry
Lowbush Blueberry
Inkberry
Large Cranberry
Northern Bayberry
Rhododendron
Shrubby Cinqufoil
Sweet Pepperbush
Virginia Rose

Perennials and Annuals

Asters
Goldenrods
Lavender and other herbs
Anemone
Milkweed
Bachelors button
Carolina Lupine
Trillium
And many others

Wetland Restoration Notes

The culverts will be removed during low flow-dry conditions mostly by hand tools except for the concrete pipe. All exposed soils will be seeded with a native wetland seed mix and straw mulched to prevent erosion.