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HAMPS AT リ**ク**゛ Designer Subsurface Disposal Systems Nicholas P. Oberti No. 1909



NH STATE PARKS

Campground Expansion Project PII Mollidgewock State Park

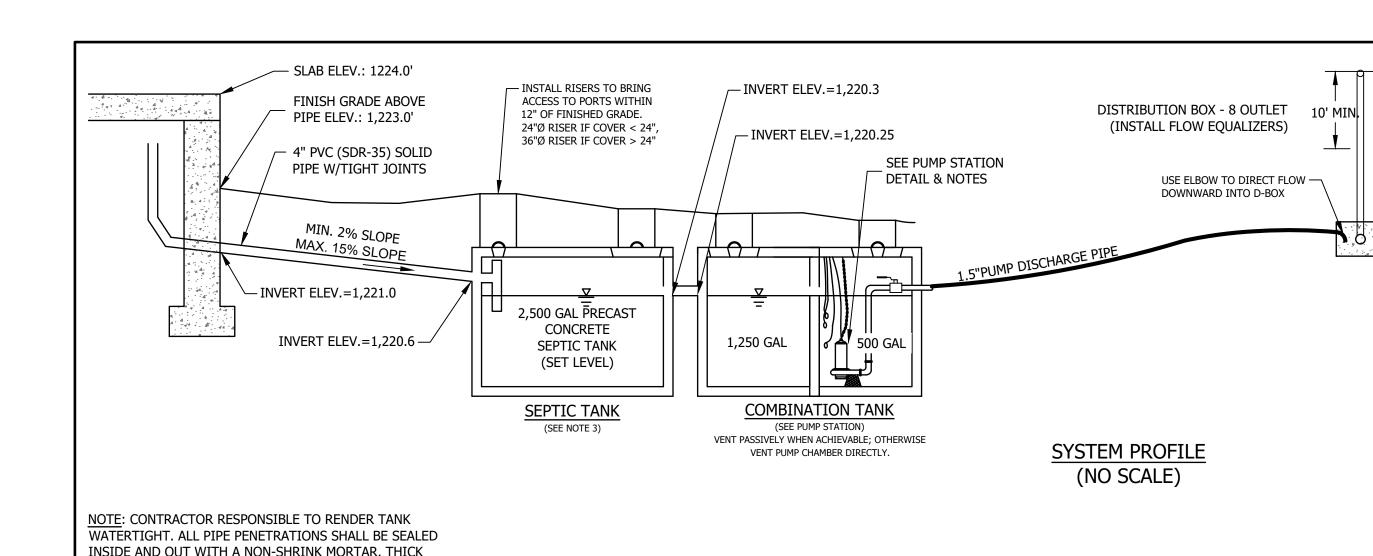
100% CONSTRUCTION

No.	Description	Date	
1	REVISED PER NHDES	05/03/24	
			,

INDIVIDUAL SEWAGE DISPOSAL SYSTEM

C4.01

Project Number: 23045001 File: 220838 - x-site_03septic.dwg



ENVIRO-SEPTIC MULTI-LEVEL PUMPED SYSTEM Low Vent 6" Vent Pipe Low Vent to be connected to end of each -EXTENSION -section of Enviro-Septic ALL SIDES Enviro-Septic Pipe to be Laid Leve -RAISED STRAIGH CONNECTION FINISHED GRADE MIN 4" TOPSOIL ON ALL SURFACES. SEED AND MULCH WITH DRY HAY OR MIN 6" OF BARK MULCH System Sand REMOVE TOPSOIL (SEE GENERAL NOTE 8)

SAND FILL SPECIFICATIONS SIZE OF 0.25 TO 2.0 MM, NO GREATER THAN 5% PASSING THE #200 SIEVE AND NO PARTICLE SIZE LARGER THAN 3/4".

> ALTERNATIVELY, MATERIAL MEETING THE ASTM C-3 SPECIFICATION. FILL SHALL BE CLEAN BANK RUN SAND, FREE

OF TOPSOIL, HUMUS, DREDGING, STONES, OR ORGANIC

(TYP) TOP AND BOTTOM EXISTING GRADE REMOVE ALL ORGANICS AND THE **EDA CROSS SECTION** "A" HORIZON (SEE TEST PIT LOG) BEFORE PLACING SYSTEM SAND OR SAND FILL

SAND FILE

PRESBY SYSTEM SAND SPECIFICATIONS % RETAINED ON SIEVE (BY WEIGHT) #10 (2 MM) #35 (0.5 MM) NOTE: NOT MORE THAN 3% ALLOWED TO PASS THE #200 SIEVE

(VERIFIED BY WASHING SAMPLE PER REQUIREMENTS OF ASTM C-117)

SYSTEM SAND ACCEPTABLE ALTERNATIVE: ASTM C-33 (CONCRETE SAND), NATURAL OR MANUFACTURED SAND, WITH NOT MORE THAN 3% PASSING THE #200 SIEVE (VERIFIED BY WASHING THE SAMPLE PER THE REQUIREMENTS OF ASTM C-117 AS NOTED IN THE ASTM C-33 SPECIFICATION) MAY BE USED AS AN ACCEPTABLE ALTERNATE MATERIAL

IF SUPPLIER IS UNFAMILIAR WITH PRESBY ENVIRO-SEPTIC SAND SPECIFICATIONS, IT IS RECOMMENDED TO CONFIRM SPECIFICATION WITH

PRESSURE TREATED

4" X 4" POST

NH STATE PARKS

Campground Expansion Project Pl

100% CONSTRUCTION

Mollidgewock State Park

1437 Berlin Road

Berlin, NH

03579

Civil and Structural Engineering

Land Surveying and Environmental Consulting

MAINE • NEW HAMPSHIRE • VERMONT

176 Newport Road, Suite 8; New London NH 03255

www.horizonsengineering.com

Designer

Subsurface Disposal

Systems

Nicholas P. Oberti

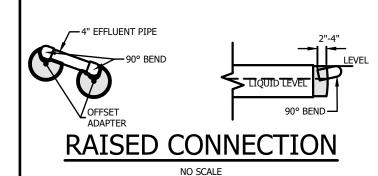
No. 1909

HAMPSI-

MAY ALSO USE POLYLOCK" SEALS ON PIPE OPENINGS. SEPTIC TANK & SEPTAGE PUMP TRUCK ACCESSIBILITY

PLASTIC CEMENT, OR OTHER SEALANTS. CONTRACTOR

PRIOR TO CONSTRUCTION, INSTALLER SHALL DETERMINE IF FINAL GRADING OF SITE WILL ALLOW FOR THE REQUIREMENT OF ENV-WO ENV-1010.05(f) (15' MAX VERTICAL SEPARATION BETWEEN BOTTOM OF SEPTIC TANK AND SEPTAGE PUMPING TRUCK PARKING AREA) TO BE MET WITHOUT USE OF EJECTOR PUMP IN THE BASEMENT IF EJECTOR PUMP IS UNNECESSARY. THE MINIMUM SEPTIC TANK SIZE TO BE USED SHALL BE 1,250 GALLONS. EXCLUSIVE OF PUMP CHAMBER. IF LOCATION OF INSTALLED SEPTIC TANK IS DIFFERENT THAN WHAT IS SHOWN INSTALLER WILL CONTACT HORIZONS ENGINEERING TO PERFORM AS-BUILT FOR SEPTIC TANK.



ALL PVC JOINTS SHALL BE GLUED

OR MECHANICALLY FASTENED.

GENERAL CONSTRUCTION NOTES

Enviro-Septic wastewater treatment systems are approved by NHDES as an Innovative/Alternative Technology (ITA) accordance with Part Env-Wq 1024 (ITA approval 2008-03-01). Advanced Enviro-Septic wastewater treatment systems are approved by NHDES as an Innovative/Alternative Technology (ITA) accordance with Part Env-Wq 1024 (ITA approval 2010-07-01). The system is designed in accordance with the Presby Wastewater Treatment System, New Hampshire Design and Installation Manual for Advanced Enviro-Septic, Enviro-Septic & Simple Septic Wastewater Treatment Systems dated June 2019.

1. This subsurface disposal system has been designed in accordance with the rules, regulations, standards, and practices of the New Hampshire Department of Environmental Services (NHDES) and municipal regulations. Installation shall be done in accordance with this set of plans and any conditions listed on the NHDES Construction Approval. EDA =

Effluent Disposal Area . SEWER PIPE, EFFLUENT PIPE AND PUMP DISCHARGE PIPE

A. Sewer pipe, effluent pipe, pump discharge pipe and fittings shall be as specified in

Design Data. B. Unless otherwise noted, minimum depth of cover of sewer and effluent pipes shall be 12". Where beneath an area to be clear of snow, pipes shall be protected from freezing by placement of 2" by 24" closed cell rigid board insulation centered on top of the pipe. C. Pump discharge pipes shall be installed with a minimum uninsulated depth of cover of 6' to finish grade. In no situation, other than rise to Pump Chamber and D-box, shall pipes be installed at less than 36" depth of cover and shall be protected from freezing by placement of 4" by 24" closed cell rigid board insulation centered on top of the pipe. D. Sewer or effluent pipe located within 75' of surface water, open drainage or private

on-site well shall be SDR 26 or equivalent E. Where sewer pipes, effluent pipes or pump discharge pipes cross electric/communication cables or wetlands, pipes shall be sleeved in larger diameter schedule 40 PVC pipe; sleeves shall be made watertight by plastic solvent welded joints and sealing sleeve ends with a flexible rubber sealant. Sleeve ends' locations shall be recorded for future reference. Sleeve lengths for crossings shall be a minimum of 10' beyond both sides of the crossing.

. <u>SEPTIC TANKS, PUMP CHAMBERS AND DISTRIBUTION BOXES (D-BOX)</u>

A. Unless noted otherwise, all septic tanks, pump chambers and d-boxes are to be watertight pre-cast concrete or high molecular weight HDPE and are to be set on firmly compacted ground to prevent differential settling with inlet and outlet inverts at elevations indicated.

B. Septic tank, pump chamber and distribution box shall have appropriate inlet and outlet baffles constructed from 4"Ø plastic tees secured to the pipe using stainless steel screws. The inlet baffles shall be constructed to divert incoming sewage and effluent downward. Use of 6"Ø inlet baffle riser is recommended. Access to each compartment and baffle shall be through a removable cover set directly on the tank or through a riser. At grade covers shall be protected against unauthorized opening by

either locking, mechanically fasteners or constructed of cast iron or weight equivalent C. Connections between a septic tank and the inlet and outlet shall be sealed with a

Date: 5/7/2024 DATE OF PRINT eCA2024050719MAY 03 2024 IF rights reserved HORIZONS ENGINEERING

INSTALLATION. CONTRACTOR IS RESPONSIBLE TO VERIFY ALL UTILITY

AND CONSTRUCTION.

OCATIONS PRIOR TO DEMOLITION

ENVIRONMENTAL DATE: 18 SEPTEMBER 2023 SOILS TYPE: 77D MARLOW FINE SANDY LOAM, 15-20% SLOPES, V. STONEY REFERENCE: NRCS WEB SOIL SURVEY, COOS COUNTY, NH PERCOLATION TEST RATE: 8 MIN./INCH

DOCUMENTS:

HEMIC ORGANIC MATERIALS, WEAK 10YR 2/1 FINE GRANULAR, V. FRIABLE FINE SANDY LOAM, WEAK 10YR 3/1 MEDIUM GRANULAR, V. FRIABLE FINE SANDY LOAM, MODERATE MEDIUM 7.5YR 2.5/2 GRANULAR, V. FRIABLE FINE SANDY LOAM, MODERATE MEDIUM 10YR 3/4 GRANULAR, FRIABLE FINE SANDY LOAM, STRONG MED. SUBANG. BLOCKY, FRIABLE, COMMON PREDOMINENT 2.5Y 4/3 5YR3/4 REDOXIMORPHIC CONCENTRATIONS FINE SANDY LOAM & LOAMY FINE SAND, 2.5Y 4/2 MASSIVE, FRIABLE & FIRM, COMMON PROMINENT 5YR3/4 REDOXIMORPHIC CONCENTRATIONS, COMMON PROMINENT 10Y4/1 REDOXIMORPHIC DEPLETIONS

JUNCTION BOX -WIRING CONDUITS TO CONTROL PANFI LOCATED AT DISCRETION OF OWNER, SEAL CONDUIT AT CONTROL PANEL TO PREVENT SEWER GASSES PASSING INTO SECTION INLE 1,250 GALLON SEPTIC TANK WITH 500 GALLON PUMP CHAMBER (10.667 G/IN) AG PUMP OF EQUIVALENT TO AJ FOSS, COVER CHAMBER TOP AND SIDES TO A DEPTH OF 6 FEET WITH RIGID BOARD INSULATION TO PREVENT FREEZING. PUMP ON SET FLOAT SWITCHES TO PROVIDE 192 GALLONS PER DOSE PUMP OFF ELEV. 1215.9 FLOOR OF TANK PUMP STATION DETAIL

SEPARATE ELECTRIC CIRCUITS SHALL BE PROVIDED FOR PUMP AND ALARM SYSTEM

EACH PUMP SHALL HAVE AN ALARM THAT SIGNALS IF THE PUMP FAILS FOR ANY REASON.

PUMP CALCULATIONS D-BOX INLET: 1239.6 - PUMP OFF: 1215.9 = 23.7' 5"Ø, 245' LONG (INCLUDES EOUIVALENT LENGTH OF 15') FRICTIONAL HEAD: TOTAL HEAD 3.55 X 20.8 = 34.2' 140 X 1.5^{2.6} = 10.5' FITTINGS' HEAD: EQUIVALENT LENGTH METHOD USED USE PUMP EQUIVALENT TO MYERS ME45.

DESIGN INTENT: THE INVERT OF THE LOWER LEVEL OF ENVIRO-SEPTIC PIPE IS APPROXIMATELY 0.8 FEET

(ABOVE) EXISTING GRADE AT THE HIGH CONTOUR OF THE DESIGNED EFFLUENT DISPOSAL AREA.

A2

1240.3

1239.8

1239.3

1238.3

1238.9

1237.4

1236.4

1235.9

1237.0

1239.9

1239.4

1238.9

1237.9

1238.5

1237.0

1236.0

1235.5

1236.6

1239.5

1239.0

1238.5

1237.5

1238.1

1236.6

1235.6

1235.1

1236.2

1239.1

1238.6

1238.1

1237.1

1237.7

1236.2

1235.2

1234.7

1235.8

1238.7

1238.2

1237.7

1236.7

1237.3

1235.8

1234.8

1234.3

1235.4

1238.3

1237.8

1237.3

1236.3

1236.9

1235.4

1234.4

1233.9

1235.0

1237.9

1237.4

1236.9

1235.9

1236.5

1235.0

1234.0

1233.5

1234.6

ORIGINAL GROUND ELEVATION AT THE HIGH CONTOUR: 1,236.0

BOTTOM OF ENVIRO-SEPTIC PIPE ELEVATION: 1,236.8 (@ A4)

1240.7

1240.2

1239.7

1238.7

1239.3

1237.8

1236.8

1236.3

1237.4

1234.3

1236.0

1239.5

1239.6

OPERATING POINT = 20.8 GPM AT 34.2' TDH. ACTUAL PUMP TIME: 9 MIN., 14 SEC.

PUMP CHAMBER REQUIREMENTS NRCS SOIL TYPE AT EDA: 723B PERU-PILLSBURY ASSOCIATION, - 1.5"Ø SCH 40 PVC OR GALVANIZED PIPE/FITTINGS FOR INTERNAL PLUMBING 0 TO 8 PERCENT SLOPES, VERY STONY (1) PUMP EQUIVALENT TO MYERS X

INDIVIDUAL SEWAGE DISPOSAL SYSTEM DESIGN DATA

TEST PIT PERC RATE: 8 MINUTES/INCH TEST PIT DEPTH TO ESHWT: 20"

(A) SEWER PIPE REQUIREMENTS USE 4"Ø SCHEDULE 40 PVC OR SDR 26 PLASTIC PIPE

TEST PIT DEPTH TO LEDGE: NONE OBSERVED

B <u>SEPTIC T</u>ANK REQUIREMENTS REQUIRED -2,000 GAL + 70% DAILY FLOW = 3,323 GAL

(ENV. WQ 1010.02(C)) PROVIDED - 2,500 GAL & 1,250 GAL TANKS W/ PUMP CHAMBER USE 1 2,500 GALLON TANK AND A 1,250/500 GALLON COMBINATION DUAL COMPARTMENT TANK

- NEMA 4X NON-CORROSIVE PVC JUNCTION BOX - 1.5"Ø DISCONNECT FOUTVALENT TO CAMPBELL/MARTINSON - 1.5"Ø FLEXIBLE DISCHARGE PIPE (160 PSI RATED MIN) (D) EFFLUENT PIPE REQUIREMENTS - 1.5"Ø FLEXIBLE DISCHARGE PIPE (160 PSI RATED MIN) **EDA REQUIREMENTS** E MIN. 8 OUTLET D-BOX EQUIVALENT TO AJ FOSS LOW VENT HIGH VENT F PRESBY ENVIRONMENTAL, INC'S "THE PRESBY WASTEWATER TREATMENT SYSTEM, NEW (IF SHOWN) HAMPSHIRE DESIGN AND INSTALLATION MANUAL..." (06/2019) CAMP SITES SERVED: 42 REQUIRED SEWAGE LOADING: 42 SITES X 45 GPD/SITE = 1,890 GPD 322 SQ FT STORE SPACE: 322 SQ FT/100 X 5 GPD/100 SQ FT =16.1

116 SQ FT OFFICE SPACE: 116/100 X 5 GPD/100 SQ FT = 5.8 4 EMPLOYEES= 40 GPD 1,890+16.1+5.8+40=1951.9 GPD DESIGN SEWAGE LOADING = 1952 GPD PERCOLATION RATE: 8 MINS / INCH 61LF/100GPI ENVIRO-SEPTIC REQUIRED = 1,190 LF 1,952GPD / 100 X 61' = 1,191 LF REQUIRED 20 ROWS AT 60 FEET OF ENVIRO-SEPTIC = 1,200 LF PROPOSED

1237.5

1237.0

1236.5

1235.5

1236.1

1234.6

1233.6

1233.1

1234.2

1237.1

1236.6

1236.1

1235.1

1235.7

1234.2

1233.2

1232.7

1233.8

CONTROL PANEL EQUIVALENT TO SJE-RHOMBUS EZ SIMPLEX

FLOAT SWITCHES EQUIVALENT SJE-RHOMBUS PUMPMASTER

WITH 3/4" CRUSHED STONE **VENT ANCHOR DETAIL**

VENT FROM D-BOX

BACKFILL RISER ANCHOR

USE WHERE VENT CANNOT BE ANCHORED TO TREE OR STRUCTURE VENT REQUIREMENTS AND PLACEMENT WHERE SHOWN, LOW AND HIGH VENTS ARE REQUIRED TO ENSURE THAT AIR IS DRAWN COMPLETELY THROUGH THE ENTIRE SYSTEM. NO ADDITIONAL VENTS MAY BE LOCATED BETWEEN THE HIGH VENT AND LOW VENT. HIGH VENTS MUST PROVIDE AT LEAST THE SAME FLOW CAPACITY AS LOW VENTS: CONNECTIONS WITHIN THE SYSTEM MUST ALSO HAVE SIMILAR CAPACITIES. THE OPENING OF THE HIGH VENT MUST BE AT LEAST 10 FEET ABOVE THE

LOW VENTS ARE INSTALLED THROUGH AN OFFSET ADAPTER AT THE END OF EACH SERIAL SYSTEM OR BED.

VENT LOCATIONS SHOWN ARE APPROXIMATE AND CAN BE RELOCATED SO LONG AS THEY ARE LAID LEVEL OR PITCHED BACK TO THE EDA. VENTS SHOULD BE PLACED IN LOCATIONS WHERE AESTHETIC IMPACT IS MINIMAL. AS NECESSARY, ADD SHRUBS OR OTHER VEGETATION TO SCREEN VENTS. "CANDY CANE" STYLE VENT COVERS ARE NOT PREFERRED; USE "MUSHROOM" STYLE VENT COVERS OR VENT COVERS THAT CAMOUFLAGE THE EDA VENT.

TO ENSURE PROPER VENTILATION OF THE SYSTEM, NO EFFLUENT FILTER <u>SHALL BE INSTALLED IN THE SYSTEM. PRIOR TO BACKFILLING THE SYSTEM</u> ONTRACTOR SHALL PERFORM A SMOKE TEST AT THE D-BOX AND LOW VEN <u>O ENSURE THAT AIR CAN CIRCULATE THROUGH THE EDA, SEPTIC TANK AND</u> HOUSE VENT. IF NO CLEAR SIGNS OF AIR FLOW ARE OBSERVED, CONTRACTOR SHALL CONTACT DESIGNER OR SYSTEM MANUFACTURER BEFORE BACKFILLING

WAIVER REQUEST

OPENING OF THE LOW VENT.

WAIVER REQUESTED FOR RELIEF FROM ENV. WQ. 1008 - REQUIRED 7 SEPARATION FROM VERY POORLY DRAINED JURISDICTIONAL WETLANDS.

BENCHMARKS USED FOR TIE POINTS TO BE LEFT IN PLACE AND VISIBLE UNTIL THE NHDES INSPECTION HAS BEEN COMPLETED AND APPROVED. NO OPEN WATER, WELLS OR ABUTTING FOUNDATIONS WITHIN 75' OF THE PROPOSED EFFLUENT DISPOSAL AREA.

Scale: N/A

Date: April 24, 2024

Drawn By: NO

Checked By: ML

ENVIRO-SEPTIC SYSTEM SLOPED, IN-GROUND BED CAMPGROUND DESIGN (1,890 GPD)

NEW HAMPSHIRE 172 PEMBROKE ROAD CONCORD, NH 03301

DPMT OF NATURAL & CULTURAL RESOURCES

PREVIOUS APPROVAL #: NONE MOLLIDGEWOCK STATE PARK ERROL, NEW HAMPSHIRE TAX MAP: R-6, PARCEL: 14

COUNTY: COOS SUBDIVISION NAME: n/a SUBDIVISION APPROVAL: EXCEPT >5AC

Description

REVISED PER NHDES

Date

INDIVIDUAL SEWAGE DISPOSAL SYSTEM **DETAILS**

Sheet Number:

C4.02

Project Number: 23045001 File: 220838 - x-site_03septic.dwg

watertight, flexible joint connector that will accommodate normal movement of the septic tank without leaking or breaking. D. All distribution boxes that are used to divide flow shall use flow equalizers to ensure COMMITTEE FOR HYDRIC SOILS. equal outlet distribution. . EFFLUENT DISPOSAL AREA (EDA) A. All topsoil, roots and organic matter shall be removed from the area beneath the EDA within the limit of fill extension with care taken not to compact or smear the parent soil during construction. B. The EDA must be protected from storm waters during construction. C. For raised systems, the fill beneath the EDA shall be "Sand Fill" as specified on this D. "Enviro-Septic" pipe shall be installed in location shown on plan on this plan and and WATER OBSERVED: NONE laid level on the prepared sand bed to ensure proper distribution of effluent. Installer RESTRICTIVE SOIL: 28 LEDGE ENCOUNTERED: NONE OBSERVED shall familiarize himself with the manufacturer's installation specifications prior to INSPECTED BY: ADAM DOIRON, DOIRON 5. The installer shall contact HORIZONS ENGINEERING prior to and/or during construction if any deviations between the site and this plan are noted or if any construction changes are required. 6. NHDES construction approvals expire 4 years from the date of issue. REVIEWED APPROVED sumes no control over installation practices or the end use IN ACCORDANCE WIFFHS THE Stem therefore cannot guarantee the proper operation of REOUREMENTS OF THE lisposal sy tem life expectancy. NH DEPT OF ENVIRONMENTAL SERVICES WATER DIVISION TILITIES LOCATED NEAR THE EDA FIELD MUST BE RELOCATED BY THE INSTALLER/CONTRACTOR PRIOR ALL TREES WITHIN 10 FEET OF

Schedule of Elevations

Groundwater Elevation

Depth to Groundwater, (in)

Proposed Surface Grade

Top of sand

Top of pipe

Bottom of pipe

Offset Adaptor

D-Box outlet

D-Box inlet

Top of pipe

Bottom of pipe

Bottom of sand

Offset Adaptor

Existing grade at EDA high contour

Schedule of elevations, Level 2, (blue)

REPORT Y-87-1." 2. U.S. ARMY CORPS OF ENGINEERS. 2009. "REGIONAL SUPPLEMENT TO THE CORPS OF ENGINEERS WETLAND DELINEATION MANUAL: NORTHCENTRAL AND NORTHEAST REGION. U.S. ARMY CORPS OF ENGINEERS RESEARCH AND DEVELOPMENT CENTER. ENVIRONMENTAL

WETLAND NOTES

STATE AND FEDERAL JURISDICTIONAL WETLANDS WERE DELINEATED BY N.H. CERTIFIED WETLAND

SCIENTIST, ELI BUZZELL IN MAY 2023. WETLANDS MAPPING WAS DONE BY N.H. LICENSED LAND

SURVEYORS, HORIZONS ENGINEERING, INC. IN ACCORDANCE WITH THE FOLLOWING GUIDANCE

1. N.H. CODE OF ADMINISTRATIVE RULES (ENV-WT 301.01) WITH THE TECHNIQUES OUTLINED IN

THE 1987 "U.S. ARMY CORPS OF ENGINEERS WETLAND DELINEATION MANUAL, TECHNICAL

LABORATORY ERDC/EL TR-09-19." 3. U.S. ARMY CORPS OF ENGINEERS. 2012. "NATIONAL LIST OF PLANT SPECIES THAT OCCUR IN WETLANDS: NORTHEAST REGION, U.S. ARMY CORPS OF ENGINEERS RESEARCH AND

DEVELOPMENT CENTER, ENVIRONMENTAL LABORATORY. 4. N.H. CODE OF ADMINISTRATIVE RULES (ENV-WT 301.02) WITH THE U.S. FISH AND WILDLIFE SERVICE MANUAL FWS/OBS-79/31 ENTITLED "CLASSIFICATION OF WETLANDS AND DEEPWATER

HABITATS OF THE UNITED STATES, COWARDIN ET AL, 1979." 5. NEW ENGLAND HYDRIC SOILS TECHNICAL COMMITTEE. 2004. 3RD ED., "FIELD INDICATORS FOR IDENTIFYING HYDRIC SOILS IN NEW ENGLAND." NEW ENGLAND INTERSTATE WATER

POLLUTION CONTROL COMMISSION, LOWELL, MA. 6. U.S. DEPARTMENT OF AGRICULTURE, NATURAL RESOURCE CONSERVATION SERVICE. 2010. "FIELD INDICATORS OF HYDRIC SOILS IN THE UNITED STATES, VERSION 7.0." L.M. VASILAS, G.W. HURT, AND C.V. NOBLE (EDS.). USDA, NRCS, IN COOPERATION WITH THE NATIONAL TECHNICAL

TEST PIT #1

ROUND - FOREST FLOOR

PROPOSED EDA TO BE REMOVED

AND DISPOSED OF OFF SITE BY

THE INSTALLER/CONTRACTOR.