

**Civil
Site Planning
Environmental
Engineering**

133 Court Street
Portsmouth, NH
03801-4413

August 25, 2021

Peter Britz, Environmental Planner
City of Portsmouth Municipal Complex
Planning Department
1 Junkins Avenue
Portsmouth, New Hampshire 03801

Re: **Conditional Use Permit Application**
Assessor's Map 204, Lot 16
Curriers Cove
P5247

Dear Peter;

Thank you for meeting at Curriers Cove earlier today. As discussed, the Curriers Cove Homeowners Association recently contacted Altus Engineering, Inc. regarding the sink hole adjacent to the cross culvert in their private roadway.

Currier Cove is a private road owned and maintained by the Currier Cove Homeowners Association. The development was designed and constructed in the early 1980's. There is a 36-inch diameter corrugated metal culvert that conveys intermittent stormwater from the area upslope to the west of the roadway including the South Street Cemetery as well as portions of Sagamore Avenue. The discharge from the culvert flows through a channel discharging into Little Harbor.

A sink hole was recently found in the roadway shoulder by the residents. They contacted Altus and Severino Trucking. We visited the site and found that the bottom of the pipe is corroded, and water is running through the subgrade material eroding the granular backfill around the pipe.

This is creating a life safety issue as the culvert could collapse under the weight of a passenger, commercial service, or an emergency services vehicle.

Most of the low flow runoff is being conveyed through the pipe subgrade material. This is allowing for the migration of the fill material around and below the pipe, creating voids and sink holes. At present, we are not certain as to the structural integrity of the roadway system above the pipe.

The proposed culvert replacement will occur within the City's jurisdictional wetlands and wetland buffer, which requires a Conditional Use Permit from the Planning Board and review by the Conservation Commission. This is a fastmoving project as it involves life safety issues for access to the lots on Curriers Cove.

At present, we have mapped the wetlands. The topographic survey will be completed early next week. We are in the process of filing a NHDES Shoreland Permit-By-Notification and a NHDES Culvert Repair-Replacement Notification Statutory Permit-By-Notification.

Peter Britz, Environmental Planner
August 25, 2021
Page 2

The project is in Zone X which is outside the 100-year flood plain. We have completed the NHB datacheck and there were no hits at the site or within the vicinity. NHB identification number is 21-2754.

We are proposing to replace the corrugated metal culvert with a 36-inch diameter reinforced concrete culvert (RCP) to extend the service life of the culvert and to provide a better roughness factor than a smooth wall plastic pipe.

The pipe will be shortened by approximately 4-feet on each end to allow for the construction of a concrete headwall. We are proposing to armor velocity reduction stone at the outlet to eliminate the free drop and to reduce erosion at the outfall. We are also proposing to install loose riprap at the inlet to fortify the area which will allow the area to revegetate. The non-paved areas between the pavement and headwalls will be loamed and seeded to match the surrounding area. The disturbed areas below the headwalls will be seeded with conservation seed mix.

There are no opportunities to lower the pipe or to partially submerge the culvert as both the sewer and water services for the development are below the pipe. Separation needs to be provided to ensure that the integrity of both services is maintained.

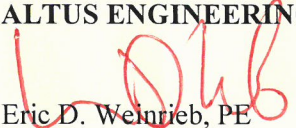
There is an Eversource transformer pad within the work limits. The electrical and tele-communications conduits are presumed to be installed over the existing culvert. There are some overgrown arborvitaes adjacent to the transformer pad. We propose to remove the trees and plant three rhododendron. Removal of other trees will be kept to a minimum possible to safely complete the work.

Once the survey is complete, Altus will provide final design documents to the City for their review prior to attending the Planning Board hearing. Attached for your consideration is a marked up copy of the 1980 design drawing which depicts our intent.

Please call me if you have any questions or need any additional information.

Sincerely,

ALTUS ENGINEERING, INC.



Eric D. Weinrieb, PE
President

wde/5247 cover ltr.doc

Enclosure

Ecopsy: Currier Cove Homeowners Association
Bernie Lee, Severino Trucking

ROUTINE ROADWAY MAINTENANCE BMP'S

1. CULVERT SIZE IS TO REMAIN THE SAME AS THERE IS NO EVIDENCE OF UP GRADIENT OR DOWN GRADIENT FLOODING OR SIGNIFICANT HEAD WATER ISSUES. FLOW STAINING IN THE CULVERT INDICATES THE STRUCTURE RARELY FLOWS MORE THAN HALF FULL.
2. INCREASING THE SIZE OF THE STRUCTURE IS NOT VIABLE DUE TO THE EXISTING UTILITIES UNDER THE STRUCTURE AND THE PROXIMITY OF THE EXISTING TRANSFORMER PAD.
3. EXISTING CMP IS DETERIORATED. FLOW IS RUNNING THROUGH THE SUBGRADE MATERIAL. REPLACEMENT WITH A LONGER LASTING RCP MAINTAINS THE ROUGHNESS TO ALLOW PASSAGE OF AQUATIC LIFE.
4. THERE ARE NO HEADWALLS. THE CULVERT PROJECTS FROM THE SIDE SLOPE. INSTALLATION OF CONCRETE HEADWALLS ALLOWS FOR THE CULVERT TO BE MOVED AWAY FROM THE WETLANDS.
5. IF POSSIBLE, THE WORK WILL OCCUR DURING A LOW FLOW PERIOD, PRIOR TO OCTOBER 1, 2021.
6. CONSERVATION SEED MIX WILL BE VOID OF INVASIVE SPECIES AND WILL BE INSTALLED IN ALL ADJACENT NATURAL AREAS THAT WILL BE IMPACTED BY THE CONSTRUCTION ACTIVITIES.
7. NO NEW FLOWS WILL BE DIRECTED TO THE CULVERT.
8. NO RARE, ENDANGERED OR THREATENED SPECIES HAVE BEEN IDENTIFIED IN THE PROJECT AREA.
9. WORK SHALL BE COMPLETED FROM THE ROAD SIDE OF THE SITE. NO EQUIPMENT WILL BE PLACED IN THE WETLANDS.
10. EROSION CONTROL MEASURES WILL BE IN PLACE PRIOR TO COMMENCING SITEWORK ACTIVITIES.
11. ALL DREDGED/EXCAVATED MATERIALS NOT SCHEDULED TO BE REUSED IN THE TRENCH SHALL BE REMOVED FROM THE SITE.
12. WITHIN THREE OF DAYS OF COMPLETING THE CULVERT INSTALLATION, THE DISTURBED AREAS SHALL BE LOAMED AND SEEDED.
13. WORK SHALL NOT EXTEND MORE THAN 20'-FEET BEYOND THE HEADWALLS.
14. BEST MANAGEMENT PRACTICES INCLUDE: STAKED FILTER SOCK, TEMPORARY COFFERDAM, INLET AND OUTLET PROTECTION, PERMANENT MULCHING AND VEGETATION.

CURRIERS COVE (A PRIVATE WAY)

TBM "B"
TOP FLANGE BOLT
ON HYDRANT
ELEV=102.89

WETLANDS IMPACT ±180 S.F.
FOR OUTLET PROTECTION

INSTALL PLUNGE POOL
OUTLET; D50=18" (MIN.);
DEPTH=40" (MIN.);

CONDUIT LAID ON SURFACE TO
BE BURIED UNDERGROUND IN
THE WORK LIMITS IF DIRECTED
BY UTILITY PROVIDER

INSTALL 36" RCP, L=±48 L.F.,
S=0.02'/'± (TO MATCH EXISTING GRADE)

REMOVE EXISTING 36" CMP CULVERT,
L=63 L.F. (IN STATE OF FAILURE)

INSTALL CONCRETE HEADWALL;
TOP OF WALL ELEV. 100'

INSTALL INLET PROTECTION
D50=12" (MIN.); DEPTH=27" (MIN.);
MIX WITH ON-SITE LOAM TO
ENCOURAGE VEGETATED CHANNEL

WETLANDS IMPACT ±12 S.F.
FOR CULVERT REMOVAL

INSTALL TUBULAR
SEDIMENTATION BARRIER, TYP.

TBM "A"
CUT SQUARE SET
ON SW CORNER
OF TRANSFORMER PAD
ELEV=99.76

APPROX. LOCATION OF
EXISTING SINK HOLE;
SEE PHOTO #2

INV. IN=92.6'

INV. OUT=91.6'

INSTALL CONCRETE HEADWALL 6" MIN.
ABOVE EXISTING GRADE ON UPSLOPE SIDE

PRESERVE AND PROTECT ALL
EXISTING UTILITIES, TYP.

CUT ARBORVITIES AT GROUND LEVEL,
LEAVING ROOTS AND STUMP IN-PLACE

PLANT RHODODENDRON, TYP. (5 TOTAL)

CITY OF PORTSMOUTH BUFFER AND
WETLANDS IMPACT AREA 1,400 S.F.

APPROX. LIMITS OF PAVEMENT REMOVAL;
MEET AND MATCH TO EXIST. PAVEMENT

EXIST. FORCE MAIN AND WATER LINE
REPORTED TO BE INSTALLED BELOW CULVERT

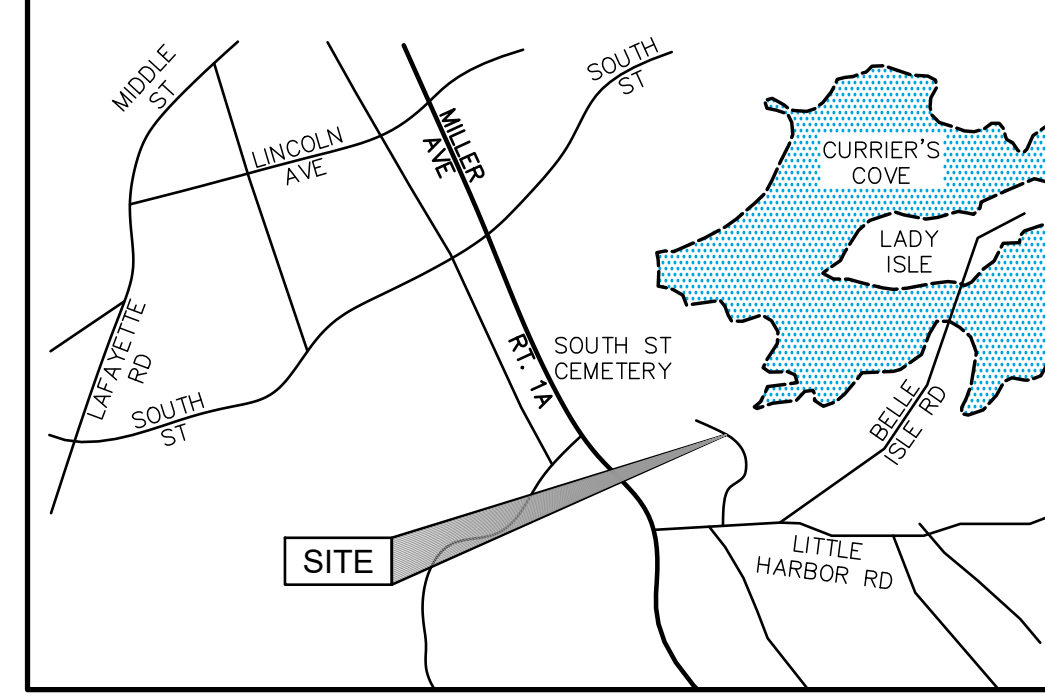
SURVEY NOTES:

1. PLAN BASED ON:
 - SURVEY BY JAMES VERRA AND ASSOCIATED ON AUGUST 27, 2021.
 - "SUBDIVISION PLANS AND PROFILES, J. PAUL GRIFFIN, OFF LITTLE HARBOR ROAD, PORTSMOUTH, NH", REV. DATE 10/26/81, BY RICHARD P. MILLETTE AND ASSOCIATES.
2. THIS IS NOT A RIGHT OF WAY SURVEY. THE RIGHT OF WAY SHOWN HEREON IS APPROXIMATE ONLY.
3. THE LOCATION OF ALL UNDERGROUND UTILITIES SHOWN HEREON ARE APPROXIMATE AND ARE BASED UPON THE FIELD LOCATION OF ALL VISIBLE STRUCTURES (IE CATCH BASINS, MANHOLES, WATER GATES ETC.) AND INFORMATION COMPILED FROM PLANS PROVIDED BY UTILITY COMPANIES AND GOVERNMENTAL AGENCIES.
4. HORIZONTAL DATUM: MAGNETIC OBSERVED ON 8-26-2021 VERTICAL DATUM: SITE ASSUMED. NOT RELATED TO ANY KNOWN DATUMS.

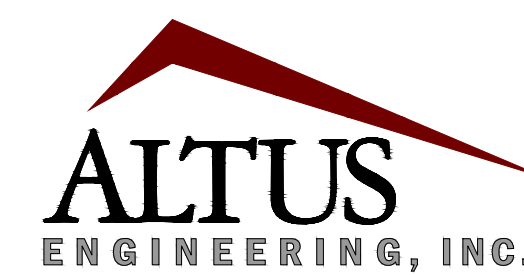
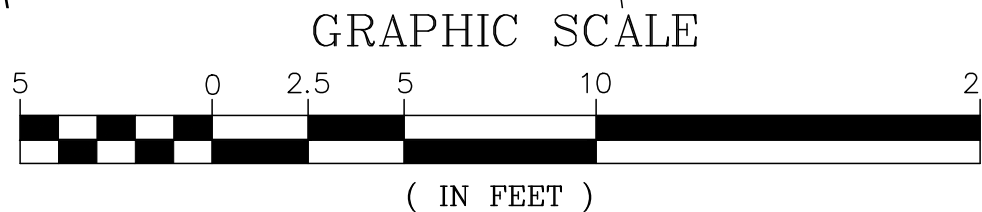
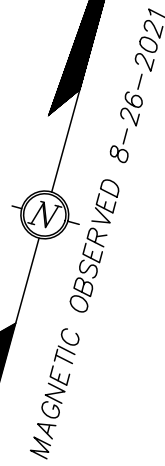
APPROVED BY THE PORTSMOUTH PLANNING BOARD

CHAIRMAN

DATE



LOCUS PLAN
NOT TO SCALE



133 Court Street
(603) 433-2335
Portsmouth, NH 03801
www.altus-eng.com



ISSUED FOR:

APPROVAL

ISSUE DATE:

AUGUST 31, 2021

REVISIONS

NO.	DESCRIPTION	BY	DATE
0	INITIAL SUBMISSION	EDW	08/31/21

DRAWN BY:

RMB

APPROVED BY:

EDW

DRAWING FILE:

5247SITE.DWG

SCALE:

(22"x34") 1" = 5'
(11"x17") 1" = 10'

OWNER/APPLICANT:

CURRIER'S COVE
HOMEOWNERS ASSOCIATION
c/o CHASE BAILEY

3 CURRIERS COVE
PORTSMOUTH, NH 03801

PROJECT:

CULVERT
REPLACEMENT
PROJECT

TAX MAP 204, LOT 16
CURRIERS COVE
PORTSMOUTH, NH

TITLE:

SITE PLAN

SHEET NUMBER:

C - 1

P5247

SITE NOTES

1. CLEAN AND COAT VERTICAL FACE OF EXISTING PAVEMENT AT SAWCUT LINES WITH RS-1 IMMEDIATELY PRIOR TO PLACING NEW BITUMINOUS CONCRETE.

GRADING AND DRAINAGE NOTES

1. DO NOT BEGIN CONSTRUCTION UNTIL ALL STATE AND LOCAL PERMITS HAVE BEEN APPLIED FOR AND RECEIVED.
2. CONTRACTOR SHALL OBTAIN A "DIGSAFE" NUMBER AT LEAST 72 HOURS PRIOR TO COMMENCING CONSTRUCTION.
3. ALL CONSTRUCTION SHALL MEET THE MINIMUM CONSTRUCTION STANDARDS OF THE CITY OF PORTSMOUTH AND NHDOT STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION, LATEST EDITION. THE MORE STRINGENT SPECIFICATION SHALL GOVERN.
4. ALL BENCHMARKS AND TOPOGRAPHY SHALL BE FIELD VERIFIED BY THE CONTRACTOR PRIOR TO INITIATING CONSTRUCTION.
5. UNLESS OTHERWISE AGREED IN WRITING, THE CONTRACTOR SHALL BE RESPONSIBLE FOR ESTABLISHING AND MAINTAINING TEMPORARY BENCHMARKS (TBMS) AND PERFORMING ALL CONSTRUCTION SURVEY LAYOUT.
6. PRIOR TO CONSTRUCTION, FIELD VERIFY JUNCTIONS, LOCATIONS AND ELEVATIONS/INVERTS OF ALL EXISTING STORMWATER AND UTILITY LINES. PRESERVE AND PROTECT LINES TO BE RETAINED.
7. PERIMETER SEDIMENT CONTROLS AND CULVERT AND CATCH BASIN INLET PROTECTION MEASURES SHALL BE INSTALLED AFTER TREE CLEARING OPERATIONS HAVE CEASED AND BEFORE ANY STUMPING, GRUBBING OR OTHER EARTH DISTURBANCE.
8. NO EARTHWORK SHALL COMMENCE UNTIL ALL APPROPRIATE SEDIMENT AND EROSION CONTROL MEASURES HAVE BEEN INSTALLED. ALL SEDIMENT AND EROSION CONTROL MEASURES SHALL BE PROPERLY MAINTAINED IN GOOD WORKING ORDER FOR THE DURATION OF CONSTRUCTION AND THE SITE IS STABILIZED.
9. ALL EROSION AND SEDIMENT CONTROL MEASURES SHALL BE INSTALLED IN ACCORDANCE WITH THE DESIGN STANDARDS AND SPECIFICATIONS SET FORTH BY THE NEW HAMPSHIRE DEPARTMENT OF ENVIRONMENTAL SERVICES.
10. CONTRACTOR SHALL TAKE WHATEVER MEANS NECESSARY TO PREVENT EROSION, PREVENT SEDIMENT FROM LEAVING THE SITE AND/OR ENTERING WETLANDS AND ENSURE PERMANENT SOIL STABILIZATION.
11. PROTECTION OF SUBGRADE: THE CONTRACTOR SHALL BE REQUIRED TO MAINTAIN STABLE, DEWATERED SUBGRADES FOR FOUNDATIONS, PAVEMENT AREAS, UTILITY TRENCHES, AND OTHER AREAS DURING CONSTRUCTION. SUBGRADE DISTURBANCE MAY BE INFLUENCED BY EXCAVATION METHODS, MOISTURE, PRECIPITATION, GROUNDWATER CONTROL, AND CONSTRUCTION ACTIVITIES. THE CONTRACTOR SHALL TAKE PRECAUTIONS TO PREVENT SUBGRADE DISTURBANCE. SUCH PRECAUTIONS MAY INCLUDE DIVERTING STORMWATER RUNOFF AWAY FROM CONSTRUCTION AREAS, REDUCING TRAFFIC IN SENSITIVE AREAS, AND MAINTAINING AN EFFECTIVE DEWATERING PROGRAM. SOILS EXHIBITING HEAVING OR INSTABILITY SHALL BE OVER EXCAVATED TO MORE COMPETENT BEARING SOIL AND REPLACED WITH FREE DRAINING STRUCTURAL FILL. IF THE EARTHWORK IS PERFORMED DURING FREEZING WEATHER, EXPOSED SUBGRADES ARE SUSCEPTIBLE TO FROST. NO FILL OR UTILITIES SHALL BE PLACED ON FROZEN GROUND. THIS WILL LIKELY REQUIRE REMOVAL OF A FROZEN SOIL CRUST AT THE COMMENCEMENT OF EACH DAY'S OPERATIONS. THE FINAL SUBGRADE ELEVATION WOULD ALSO REQUIRE AN APPROPRIATE DEGREE OF INSULATION AGAINST FREEZING.
12. ALL DISTURBED AREAS NOT TO BE PAVED OR OTHERWISE TREATED SHALL RECEIVE SIX (6") INCHES OF LOAM, LIMESTONE, FERTILIZER, SEED, AND MULCH USING APPROPRIATE SOIL STABILIZATION TECHNIQUES. MATCH TO EXISTING SEED MIXTURE.
13. ALL SWALES, STORMWATER PONDS AND THEIR CONTRIBUTING AREAS SHALL BE STABILIZED PRIOR TO DIRECTING RUNOFF TO THEM.
14. UPON COMPLETION OF CONSTRUCTION, ALL DRAINAGE INFRASTRUCTURE SHALL BE CLEANED OF ALL DEBRIS AND SEDIMENT.
15. AREA OF DISTURBANCE DOES NOT EXCEED 43,560 S.F., COVERAGE UNDER EPA NPDES PHASE II CONSTRUCTION GENERAL PERMIT REQUIRED, NO(S) NOT REQUIRED.

UTILITY NOTES

1. THE LOCATION OF ALL EXISTING UNDERGROUND UTILITIES SHOWN HEREON ARE APPROXIMATE AND ARE BASED UPON THE FIELD LOCATION OF ALL VISIBLE STRUCTURES (IE. CATCH BASINS, MANHOLES, WATER GATES, ETC.) AND INFORMATION COMPILED FROM PLANS PROVIDED BY UTILITY PROVIDERS AND GOVERNMENTAL AGENCIES. AS SUCH, THEY ARE NOT INCLUSIVE AS OTHER UTILITIES AND UNDERGROUND STRUCTURES THAT ARE NOT SHOWN ON THE PLANS MAY EXIST. THE ENGINEER, SURVEYOR AND OWNER ACCEPT NO RESPONSIBILITY FOR POTENTIAL INACCURACIES IN THE PLAN AND/OR UNFORESEEN CONDITIONS. THE CONTRACTOR SHALL NOTIFY, IN WRITING, SAID AGENCIES, UTILITY PROVIDERS, CITY OF PORTSMOUTH DPW AND OWNER'S AUTHORIZED REPRESENTATIVE AND CALL DIG SAFE AT 1 (800) DIG-SAFE AT LEAST SEVENTY-TWO (72) HOURS PRIOR TO ANY EXCAVATION WORK.
2. PRIOR TO CONSTRUCTION, IT IS THE CONTRACTOR'S RESPONSIBILITY TO LOCATE AND FIELD VERIFY JUNCTIONS, LOCATIONS AND ELEVATIONS/INVERTS OF ALL EXISTING AND PROPOSED STORMWATER AND UTILITY LINES. CONFLICTS SHALL BE ANTICIPATED AND ALL EXISTING LINES TO BE RETAINED SHALL BE PROTECTED. ANY DAMAGE DONE TO EXISTING UTILITIES SHALL BE REPAIRED AND, IF NECESSARY, EXISTING UTILITIES SHALL BE RELOCATED AT NO EXTRA COST TO THE OWNER. ALL CONFLICTS SHALL BE RESOLVED WITH THE INVOLVEMENT OF THE ENGINEER, DPW AND APPROPRIATE UTILITIES.
3. ALL ROAD/LANE CLOSURES OR OTHER TRAFFIC INTERRUPTIONS, IF REQUIRED, SHALL BE COORDINATED WITH THE PORTSMOUTH POLICE DEPT. AND FIRE DEPT., DPW AND HOMEOWNERS ASSOCIATION AT LEAST TWO WEEKS PRIOR TO COMMENCING RELATED CONSTRUCTION.
4. CONTRACTOR SHALL BE RESPONSIBLE FOR ALL TRENCHING, BEDDING, BACKFILL & COMPACTION FOR ALL UTILITY TRENCHING IN ADDITION TO ALL CONDUIT INSTALLATION AND COORDINATION OF ALL REQUIRED INSPECTIONS.
5. ALL TRENCHING, PIPE LAYING AND BACKFILLING SHALL CONFORM TO FEDERAL OSHA AND CITY REGULATIONS.
6. DETECTABLE WARNING TAPE SHALL BE PLACED OVER THE ENTIRE LENGTH OF ALL BURIED UTILITIES, COLORS PER THE RESPECTIVE UTILITY PROVIDERS.
7. WHERE WATER AND SEWER LINES CROSS, RUN ADJACENT TO OR ARE WITHIN 5' OF STORM DRAINAGE PIPES OR STRUCTURES, 2"-THICK CLOSED CELL RIGID BOARD INSULATION SHALL BE INSTALLED FOR FROST PROTECTION.
8. CONTACT JAMES TOW @ PORTSMOUTH DPW (TEL. 603-812-9174), PRIOR TO COMMENCING CONSTRUCTION.

SEDIMENT AND EROSION CONTROL NOTES

PROJECT NAME AND LOCATION

CULVERT REPLACEMENT
CURRIER'S COVE
PORTSMOUTH, NEW HAMPSHIRE
TAX MAP 204 LOT 16

LATITUDE: 043° 03' 43" N
LONGITUDE: 070° 45' 05" W

DESCRIPTION

The project consists of replacing a 36" CMP culvert in failure with new 36" RCP culvert.

DISTURBED AREA

The total area to be disturbed for the development is approximately ±1,700 S.F. (±0.04 acres).

PROJECT PHASING

The proposed culvert replacement will be completed in one phase.

NAME OF RECEIVING WATER

The site drains over land to unnamed wetlands.

SEQUENCE OF MAJOR ACTIVITIES

1. Install temporary erosion control measures including perimeter controls, stabilized construction entrance and inlet sediment filters as noted on the plan. All temporary erosion control measures shall be maintained in good working condition for the duration of the project.
2. Remove existing CMP culvert.
3. Rough grade site including placement of borrow materials.
4. Construct drainage culverts.
5. Install base course paving.
6. Install top course paving.
7. Loam (6" min) and seed all disturbed areas not paved or otherwise stabilized.
8. When all construction activity is complete and site is stabilized, remove all temporary erosion control measures and any sediment that has been trapped by these devices.

TEMPORARY EROSION & SEDIMENT CONTROL AND STABILIZATION PRACTICES

All work shall be in accordance with state and local permits. Work shall conform to the practices described in the "New Hampshire Stormwater Manual, Volumes 1 - 3", issued December 2008, as amended. As indicated in the sequence of Major Activities, perimeter controls shall be installed prior to commencing any clearing or grading of the site. Structural controls shall be installed concurrently with the applicable activity. Once construction activity ceases permanently in an area and permanent measures are established, perimeter controls shall be removed.

During construction, runoff will be diverted around the site with stabilized channels where possible. Sheet runoff from the site shall be filtered through appropriate perimeter controls. All storm drain inlets shall be provided with inlet protection measures.

Temporary and permanent vegetation and mulching is an integral component of the erosion and sedimentation control plan. All areas shall be inspected and maintained until vegetative cover is established. These control measures are essential to erosion prevention and also reduce costly rework of graded and shaped areas.

Temporary vegetation shall be maintained in these areas until permanent seeding is applied. Additionally, erosion and sediment control measures shall be maintained until permanent vegetation is established.

INSTALLATION, MAINTENANCE AND INSPECTION PROCEDURES FOR TEMPORARY EROSION AND SEDIMENT CONTROL MEASURES

A. GENERAL

These are general inspection and maintenance practices that shall be used to implement the plan:

1. The smallest practical portion of the site shall be denuded at one time.
2. All control measures shall be inspected at least once each week and following any storm event of 0.5 inches or greater.
3. All measures shall be maintained in good working order; if a repair is necessary, it will be initiated within 24 hours.
4. Built-up sediment shall be removed from perimeter barriers when it has reached one-third the height of the barrier or when "bulges" occur.
5. All diversion dikes shall be inspected and any breaches promptly repaired.
6. Temporary seeding and planting shall be inspected for bare spots, washouts, and unhealthy growth.
7. The owner's authorized engineer shall inspect the site on a periodic basis to review compliance with the Plans.
8. An area shall be considered stable if one of the following has occurred:
 - a. Base coarse gravels have been installed in areas to be paved;
 - b. A minimum of 85% vegetated growth as been established;
 - c. A minimum of 3 inches of non-erosive material such as stone of riprap has been installed; - or -
 - d. Erosion control blankets have been properly installed.
9. The length of time of exposure of area disturbed during construction shall not exceed 45 days.

B. MULCHING

Mulch shall be used on highly erodible soils, on critically eroding areas, on areas where conservation of moisture will facilitate plant establishment, and where shown on the plans.

1. Timing - In order for mulch to be effective, it must be in place prior to major storm events. There are two (2) types of standards which shall be used to assure this:
 - a. Apply mulch prior to any storm event. This is applicable when working within 100 feet of wetlands. It will be necessary to closely monitor weather predictions, usually by contacting the National Weather Service in Concord, to have adequate warning of significant storms.
 - b. Required Mulching within a specified time period. The time period can range from 21 to 28 days of inactivity on a area, the length of time varying with site conditions. Professional judgment shall be used to evaluate the interaction of site conditions (soil erodibility, season of year, extent of disturbance, proximity to sensitive resources, etc.) and the potential impact of erosion on adjacent areas to choose an appropriate time restriction.

Type	Rate per 1,000 s.f.	Use and Comments
Hay or Straw	70 to 90 lbs.	Must be dry and free from mold. May be used with plantings.
Wood Chips or Bark Mulch	460 to 920 lbs.	Used mostly with trees and shrub plantings.

INSTALLATION, MAINTENANCE AND INSPECTION PROCEDURES FOR TEMPORARY EROSION AND SEDIMENT CONTROL MEASURES (CONTINUED)

Jute and Fibrous Matting (Erosion Blanket)	As per manufacturer Specifications	Used in slope areas, water courses and other Control areas.
Crushed Stone 1/4" to 1-1/2" dia.	Spread more than 1/2" thick	Effective in controlling wind and water erosion.
Erosion Control Mix	2" thick (min)	* The organic matter content is between 80 and 100%, dry weight basis. * Particle size by weight is 100% passing a 6" screen and a minimum of 70 % maximum of 85% passing a 0.75" screen. *The organic portion needs to be fibrous and elongated. *Large portions of silts, clays or fine sands are not acceptable in the mix. * Soluble salts content is less than 4.0 mmhos/cm. *The pH should fall between 5.0 and 8.0.

3. Maintenance - All mulches must be inspected periodically, in particular after rainstorms, to check for rill erosion. If less than 90% of the soil surface is covered by mulch, additional mulch shall be immediately applied.

C. PERMANENT SEEDING -

1. Bedding - stones larger than 1 1/2", trash, roots, and other debris that will interfere with seeding and future maintenance of the area should be removed. Where feasible, the soil should be tilled to a depth of 5" to prepare a seedbed and mix fertilizer into the soil.
2. Fertilizer - lime and fertilizer should be applied evenly over the area prior to or at the time of seeding and incorporated into the soil. Kinds and amounts of lime and organic 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 @ 100 lbs. per 1,000 s.f.
10-20-20 organic fertilizer @ 12 lbs. per 1,000 s.f.

3. Seed Mixture (recommended):

Type	Lbs. / Acre	Lbs. / 1,000 sf
Tall Fescue	24	0.55
Creeping Red Fescue	24	0.55
Total	48	1.10

Seed Mixture (For slope embankments):

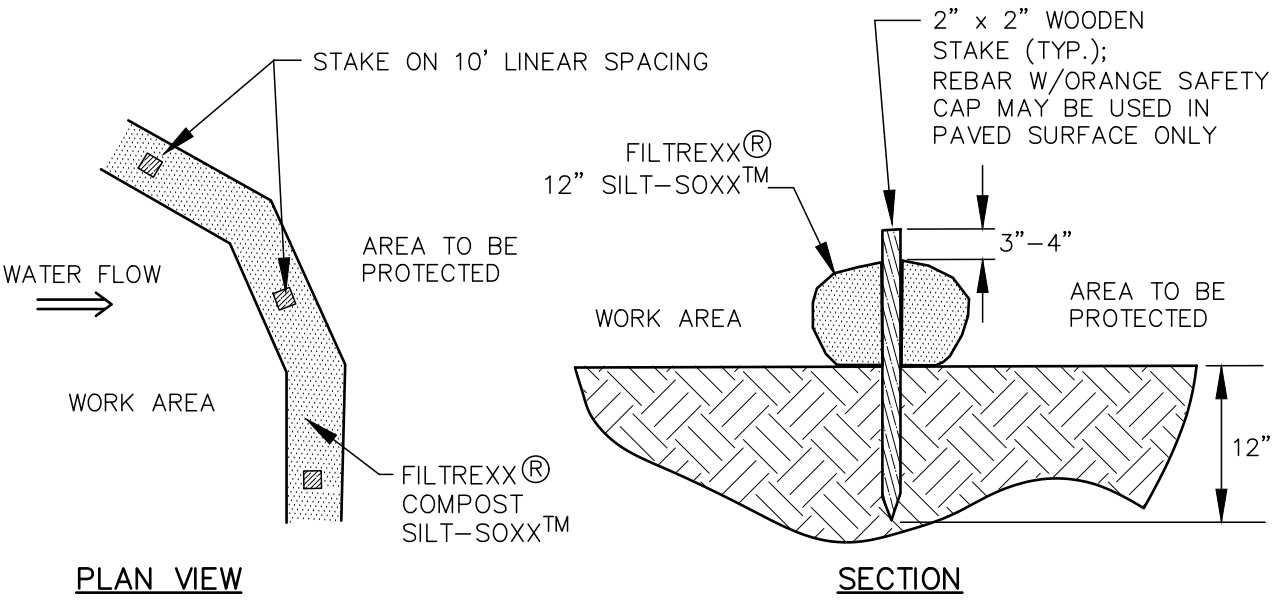
Grass Seed: Provide fresh, clean, new-crop seed complying with tolerance for purity and germination established by Official Seed Analysts of North America. Provide seed mixture composed of grass species, proportions and minimum percentages of purity, germination, and maximum percentage of weed seed, as specified:

Type	Min. Purity (%)	Min. Germination (%)	Kg./Hectare (Lbs./Acre)
Creeping Red Fescue (c)	96	85	45 (40)
Perennial Rye Grass (a)	98	90	35 (30)
Redtop	95	80	5 (5)
Alsike Clover	97	90(e)	5 (5)
			Total 90 (80)

- a. Ryegrass shall be a certified fine-textured variety such as Pennfine, Fiesta, Yorktown, Diplomat, or equal.
- b. Fescue varieties shall include - Creeping Red and/or Hard Reliant, Scaldis, Koket, or Jamestown.
4. Sodding - sodding is done where it is desirable to rapidly establish cover on a disturbed area. Sodding on area may be substituted for permanent seeding procedures anywhere on site. Bed preparation, fertilizing, and placement of sod shall be performed according to the S.O.S. Handbook. Sodding is recommended for steep sloped areas, areas immediately adjacent to sensitive water courses, easily erodible soils (fine sand/silt), etc.

WINTER CONSTRUCTION NOTES

1. All proposed vegetated areas which do not exhibit a minimum of 85% vegetative growth by October 15th, or which are disturbed after October 15th, shall be stabilized by seeding and installing erosion control blankets on slopes greater than 3:1, and elsewhere seeding and placing 3 to 4 tons of mulch per acre, secured with anchored netting. 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;
2. All ditches or swales which do not exhibit a minimum of 85% vegetative growth by October 15th, or which are disturbed after October 15th, shall be stabilized temporarily with stone or erosion control blankets appropriate for the design flow conditions; and
3. After November 15th, incomplete road or parking surfaces where work has stopped for the winter season shall be protected with a minimum of 3 inches of crushed gravel per NHDOT item 304.3.



PLAN VIEW

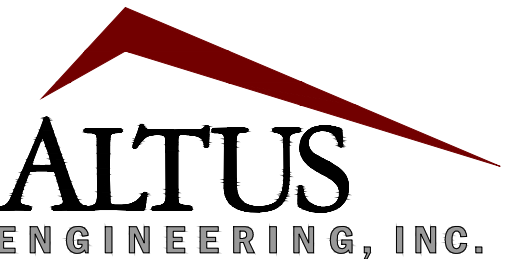
SECTION

NOTES:

1. SILT/SOXX MAY BY USED IN PLACE OF SILT FENCE OR OTHER SEDIMENT BARRIERS.
2. ALL MATERIAL TO MEET FILTREXX SPECIFICATIONS.
3. SILT/SOXX COMPOST/SOIL/ROCK/SEED FILL MATERIAL SHALL BE ADJUSTED AS NECESSARY TO MEET THE REQUIREMENTS OF THE SPECIFIC APPLICATION.
4. ALL SEDIMENT TRAPPED BY SILT/SOXX SHALL BE DISPOSED OF PROPERLY.

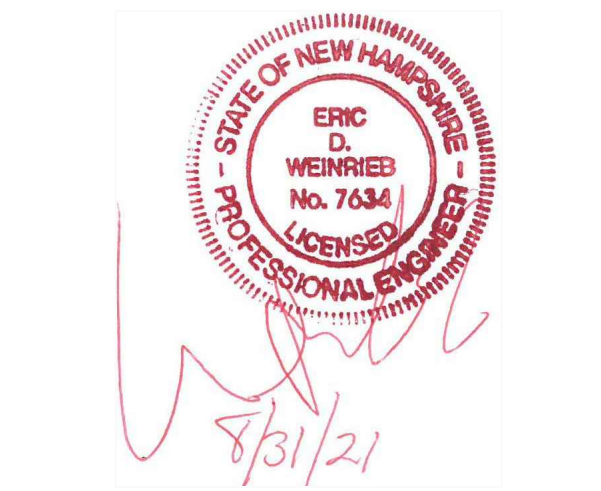
TUBULAR SEDIMENT BARRIER

NOT TO SCALE



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(603) 433-2335

Portsmouth, NH 03801
www.altus-eng.com



ISSUED FOR:

APPROVAL

ISSUE DATE:

AUGUST 31, 2021

REVISIONS

NO.	DESCRIPTION	BY	DATE
0	INITIAL SUBMISSION	EDW	08/31/21

DRAWN BY: RMB

APPROVED BY: EDW

DRAWING FILE: 5247SITE.DWG

SCALE:

NOT TO SCALE

OWNER/APPLICANT:

CURRIER'S COVE
HOMEOWNERS ASSOCIATION
c/o CHASE BAILEY

3 CURRIERS COVE
PORTSMOUTH, NH 03801

PROJECT:

CULVERT
REPLACEMENT
PROJECT

TAX MAP 204, LOT 16
CURRIERS COVE
PORTSMOUTH, NH

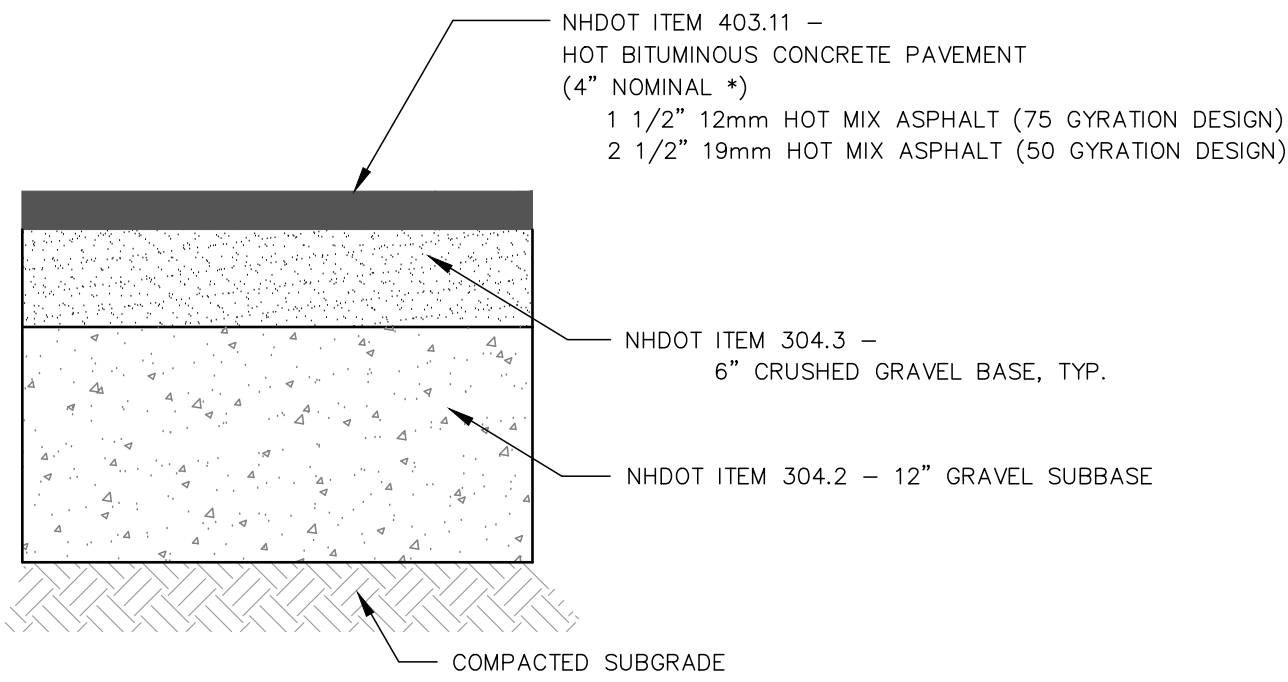
TITLE:

DETAIL SHEET

SHEET NUMBER:

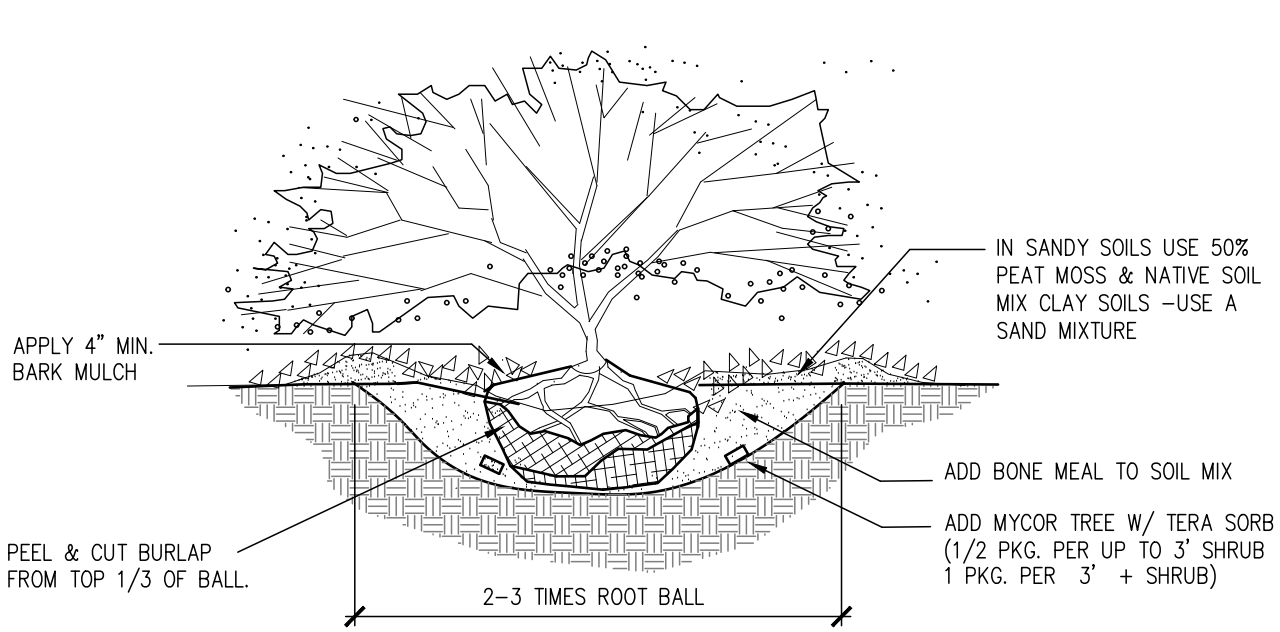
C - 2

P5247



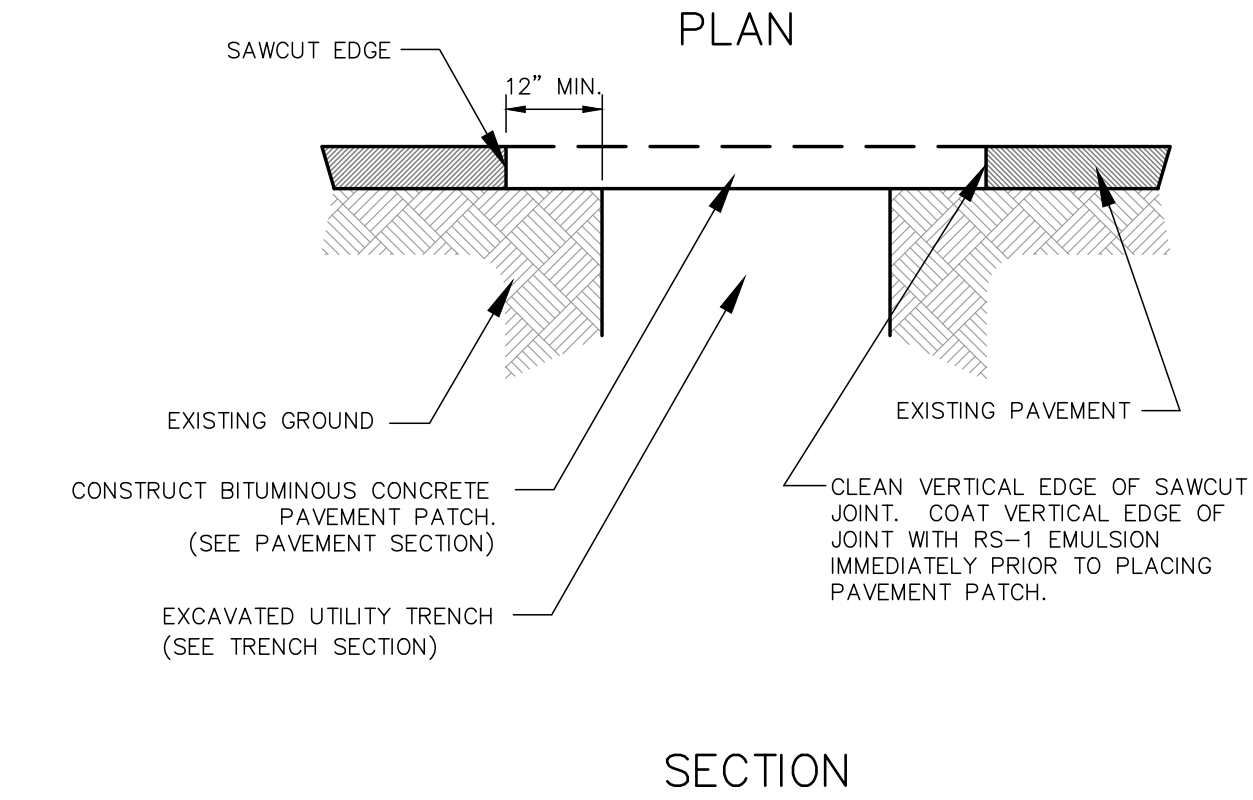
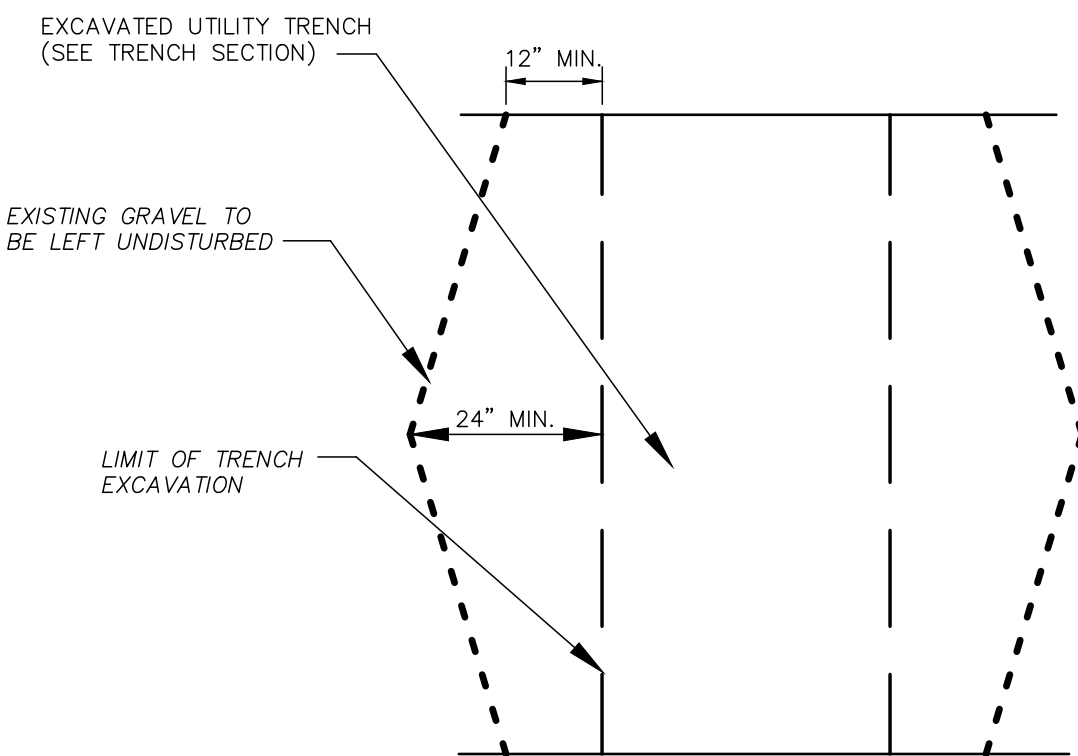
BITUMINOUS PAVEMENT

NOT TO SCALE



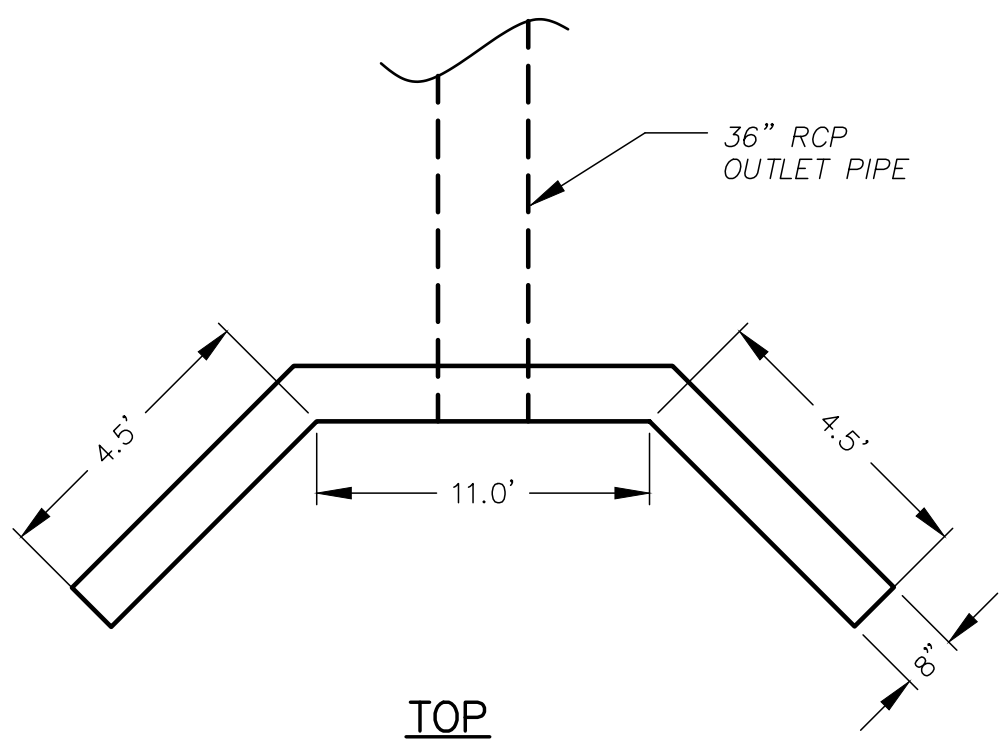
PLANTING DETAIL

NOT TO SCALE



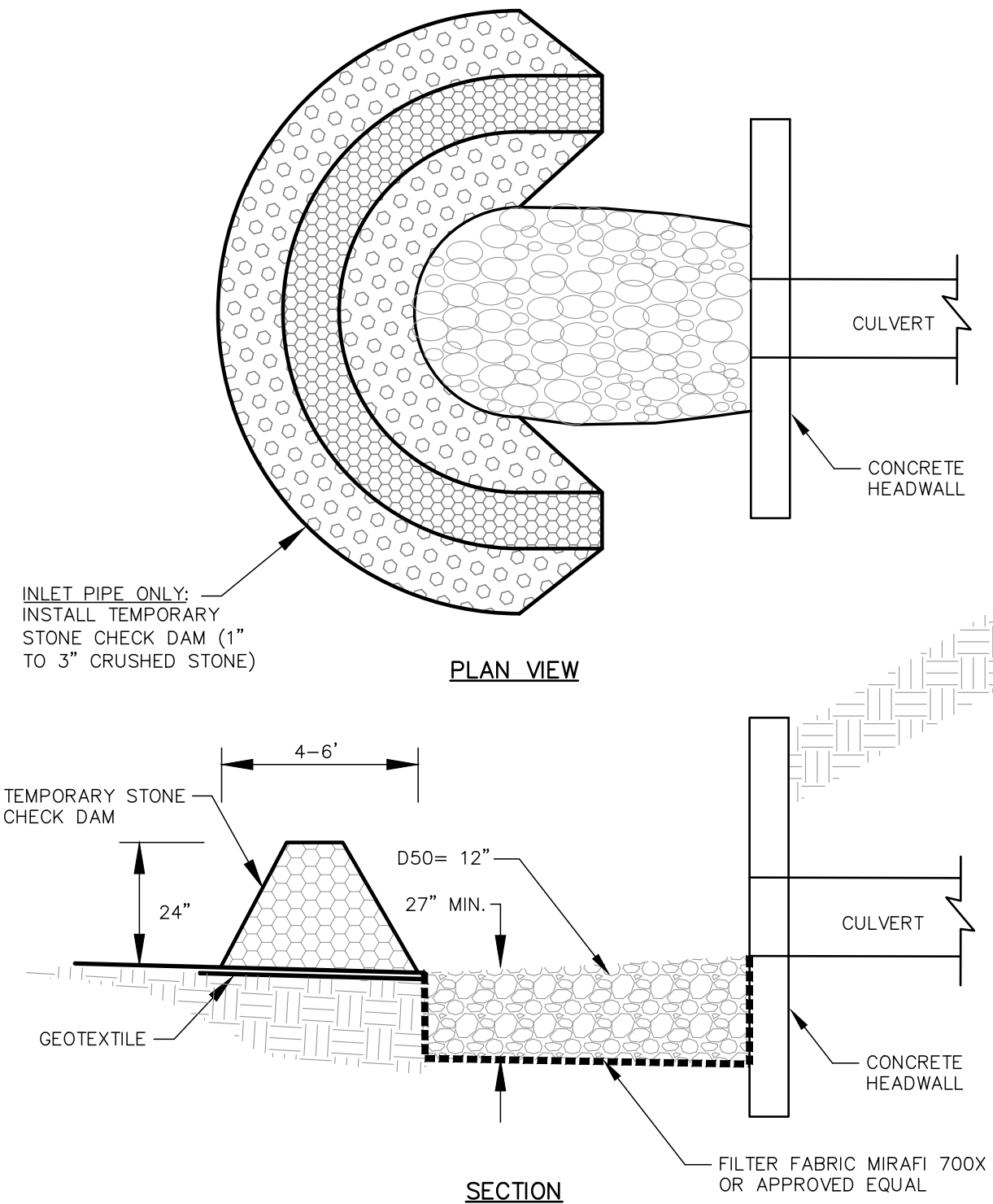
TRENCH PATCH

NOT TO SCALE



CONCRETE HEADWALL

NOT TO SCALE



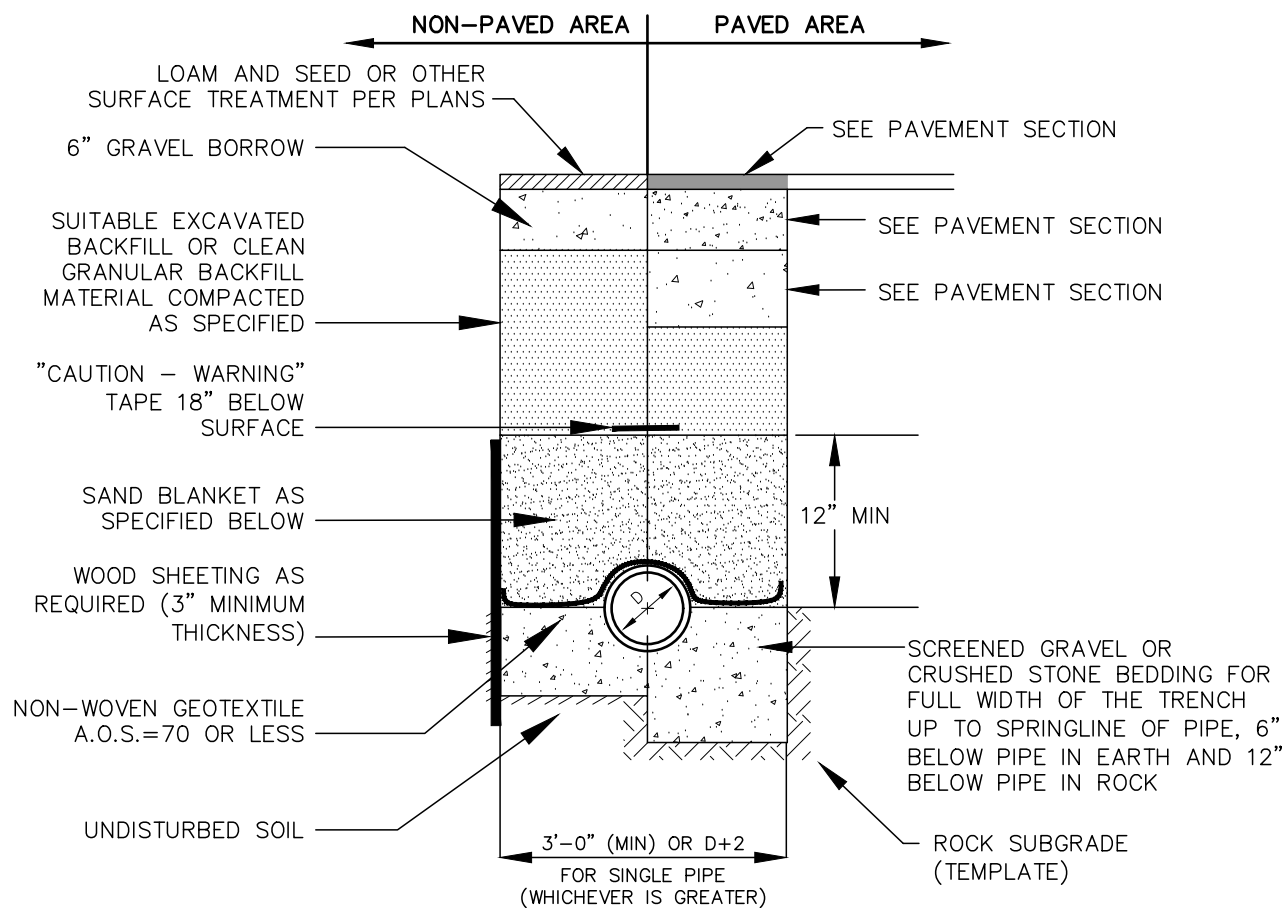
PIPE INLET PROTECTION

NOT TO SCALE

- CONSTRUCTION SPECIFICATIONS:
1. THE SUBGRADE FOR THE FILTER MATERIAL, GEOTEXTILE FABRIC, AND RIPRAP SHALL BE PREPARED TO THE LINES AND GRADES SHOWN ON THE PLANS.
 2. THE ROCK OR GRAVEL USED FOR FILTER OR RIPRAP SHALL CONFORM TO THE SPECIFIED GRADATION.
 3. GEOTEXTILE FABRICS SHALL BE PROTECTED FROM PUNCTURE OR TEARING DURING THE PLACEMENT OF THE ROCK RIPRAP. DAMAGED AREAS IN THE FABRIC SHALL BE REPAIRED BY PLACING A PIECE OF FABRIC OVER THE DAMAGED AREA OR BY COMPLETE REPLACEMENT OF THE FABRIC. ALL OVERLAPS REQUIRED FOR JOINING TWO PIECES OF FABRIC SHALL BE A MINIMUM OF 12 INCHES.
 4. STONE FOR THE RIP RAP MAY BE PLACED BY EQUIPMENT AND SHALL BE CONSTRUCTED TO THE FULL LAYER THICKNESS IN ONE OPERATION AND IN SUCH A MANNER AS TO PREVENT SEGREGATION OF THE STONE SIZES.

PLUNGE POOL

NOT TO SCALE



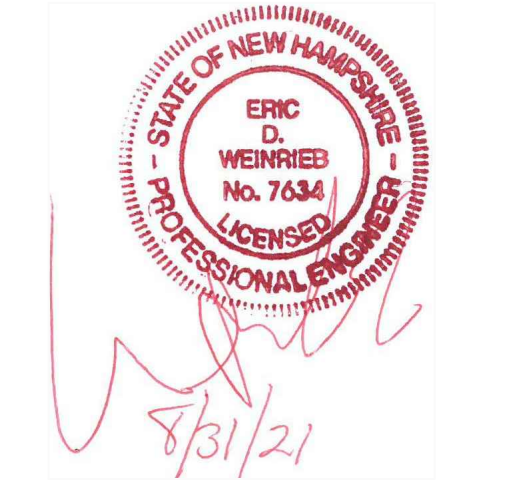
- NOTES
1. BACKFILL MATERIAL BELOW PAVED OR CONCRETE AREAS, BEDDING MATERIAL, AND SAND BLANKET SHALL BE COMPACTED TO NOT LESS THAN 95% OF AASHTO T 99, METHOD C. SUITABLE BACKFILL MATERIAL BELOW LOAM AREAS SHALL BE COMPACTED TO NOT LESS THAN 90% OF AASHTO T 99, METHOD C.
 2. INSULATE GRAVITY SEWER AND FORCEMAINS WHERE THERE IS LESS THAN 5'-0" OF COVER WITH 2" THICK CLOSED CELL RIGID BOARD INSULATION, 18" ON EACH SIDE OF PIPE.
 3. MAINTAIN 12" MINIMUM HORIZONTAL SEPARATION AND WIDEN TRENCH ACCORDINGLY IF MULTIPLE PIPES ARE IN TRENCH.

SAND BLANKET/BARRIER		SCREENED GRAVEL OR CRUSHED STONE BEDDING*	
SIEVE SIZE	% FINER BY WEIGHT	SIEVE SIZE	% PASSING BY WEIGHT
1/2"	90 - 100	1"	100
200	0 - 15	3/4"	90 - 100
		3/8"	20 - 55
		# 4	0 - 10
		# 8	0 - 5

* EQUIVALENT TO STANDARD STONE SIZE #67 - SECTION 703 OF NHDOT STANDARD SPECIFICATIONS

DRAINAGE TRENCH

NOT TO SCALE



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PORTSMOUTH, NH

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DETAIL SHEET

SHEET NUMBER:

C - 3



PHOTO 1 - AUGUST 2021
INLET



PHOTO 2 - AUGUST 2021
SINK HOLE



PHOTO 3 - AUGUST 2021
OUTLET

PHOTO 3a - AUGUST 2021
FAILED OUTLET

