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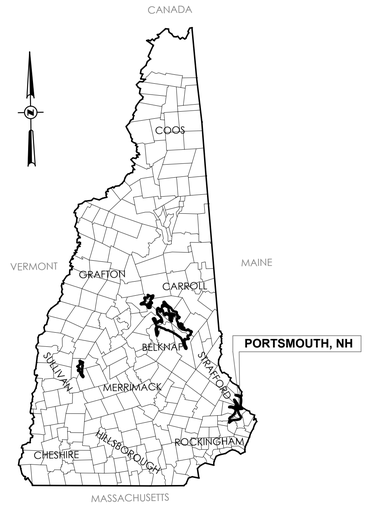
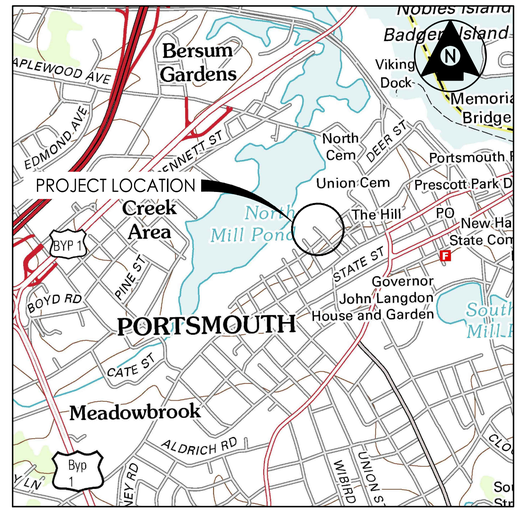
CITY OF PORTSMOUTH
DEPARTMENT OF PUBLIC WORKS
BREWSTER STREET DRAINAGE IMPROVEMENTS

MAY 2015

Project Number: 195112923



LOCATION MAP



VICINITY MAP
NOT TO SCALE

INDEX OF SHEETS

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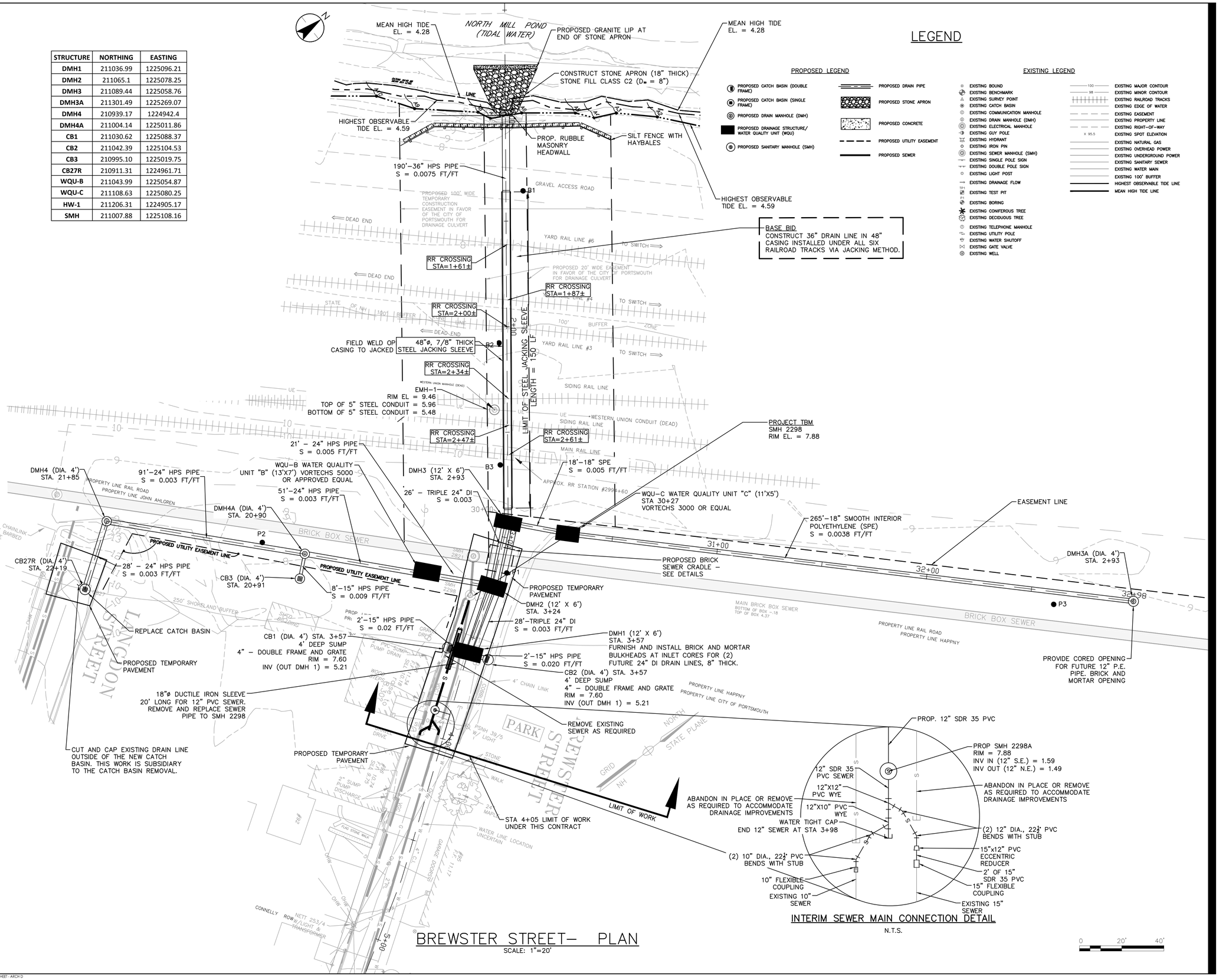
	COVER SHEET
2	GENERAL PLANS
3	STORM DRAINAGE PROFILE
4	BID ALTERNATE 1
5	WETLAND MITIGATION PLAN
6 -10	CONSTRUCTION DETAILS

Set No.

STRUCTURE	NORTHING	EASTING
DMH1	211036.99	1225096.21
DMH2	211065.1	1225078.25
DMH3	211089.44	1225058.76
DMH3A	211301.49	1225269.07
DMH4	210939.17	1224942.4
DMH4A	211004.14	1225011.86
CB1	211030.62	1225088.37
CB2	211042.39	1225104.53
CB3	210995.10	1225019.75
CB27R	210911.31	1224961.71
WQU-B	211043.99	1225054.87
WQU-C	211108.63	1225080.25
HW-1	211206.31	1224905.17
SMH	211007.88	1225108.16



LEGEND

PROPOSED LEGEND

- PROPOSED CATCH BASIN (DOUBLE FRAME)
- PROPOSED CATCH BASIN (SINGLE FRAME)
- PROPOSED DRAIN MANHOLE (DMH)
- PROPOSED DRAINAGE STRUCTURE/ WATER QUALITY UNIT (WQU)
- PROPOSED SANITARY MANHOLE (SMH)
- PROPOSED DRAIN PIPE
- PROPOSED STONE APRON
- PROPOSED CONCRETE
- PROPOSED UTILITY EASEMENT
- PROPOSED SEWER

EXISTING LEGEND

- EXISTING BOUND
- EXISTING BENCHMARK
- EXISTING SURVEY POINT
- EXISTING CATCH BASIN
- EXISTING COMMUNICATION MANHOLE
- EXISTING DRAIN MANHOLE (DMH)
- EXISTING ELECTRICAL MANHOLE
- EXISTING GUY POLE
- EXISTING HYDRANT
- EXISTING IRON PIN
- EXISTING SEWER MANHOLE (SMH)
- EXISTING SINGLE POLE SIGN
- EXISTING DOUBLE POLE SIGN
- EXISTING LIGHT POST
- EXISTING DRAINAGE FLOW
- EXISTING TEST PIT
- EXISTING BORING
- EXISTING CONIFEROUS TREE
- EXISTING DECIDUOUS TREE
- EXISTING TELEPHONE MANHOLE
- EXISTING UTILITY POLE
- EXISTING WATER SHUTOFF
- EXISTING GATE VALVE
- EXISTING WELL
- EXISTING MAJOR CONTOUR
- EXISTING MINOR CONTOUR
- EXISTING RAILROAD TRACKS
- EXISTING EDGE OF WATER
- EXISTING EASEMENT
- EXISTING PROPERTY LINE
- EXISTING RIGHT-OF-WAY
- EXISTING SPOT ELEVATION
- EXISTING NATURAL GAS
- EXISTING OVERHEAD POWER
- EXISTING UNDERGROUND POWER
- EXISTING SANITARY SEWER
- EXISTING WATER MAIN
- EXISTING 100' BUFFER
- HIGHEST OBSERVABLE TIDE LINE
- MEAN HIGH TIDE LINE

BASE BID
CONSTRUCT 36" DRAIN LINE IN 48" CASING INSTALLED UNDER ALL SIX RAILROAD TRACKS VIA JACKING METHOD.

PROJECT TBM
SMH 2298
RIM EL. = 7.88

BREWSTER STREET- PLAN

SCALE: 1"=20'

INTERIM SEWER MAIN CONNECTION DETAIL

N.T.S.

0 20' 40'

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Legend

Notes

Revision	By	Appd.	YY.MM.DD

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File Name: 12923-C101 P101 FOR REBID.dwg
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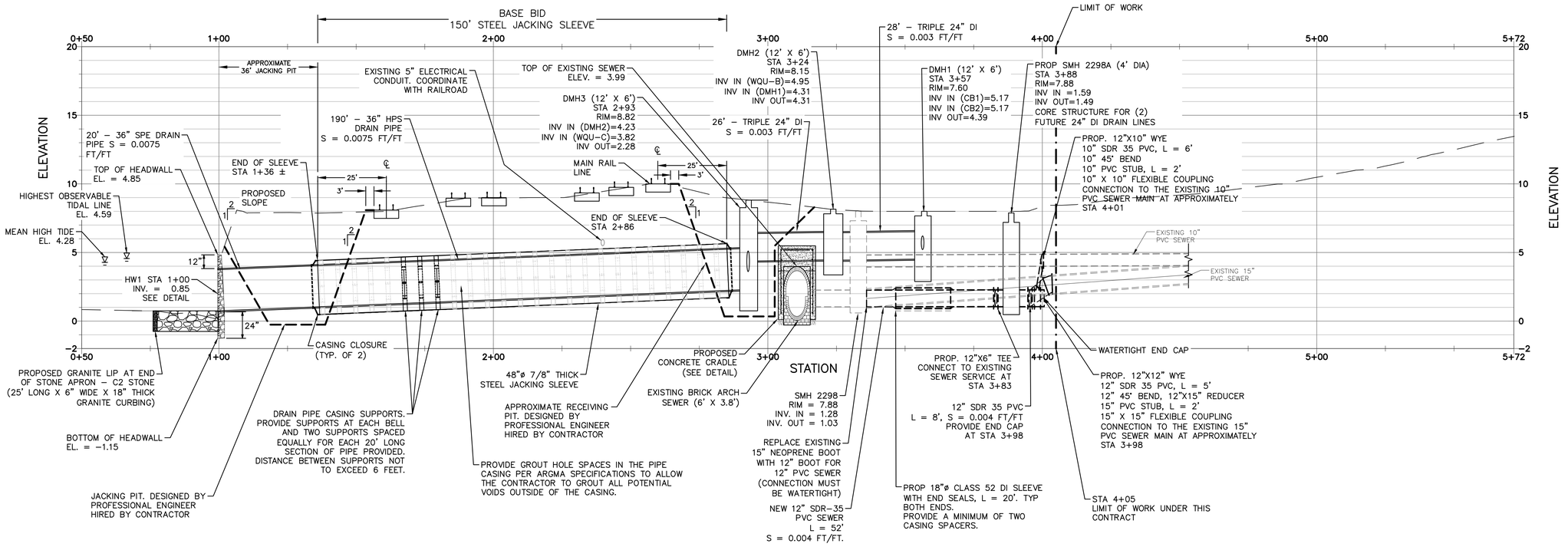
Permit-Seal

Client/Project
CITY OF PORTSMOUTH
DEPARTMENT OF PUBLIC WORKS

BREWSTER STREET
DRAINAGE IMPROVEMENTS
PORTSMOUTH, NH

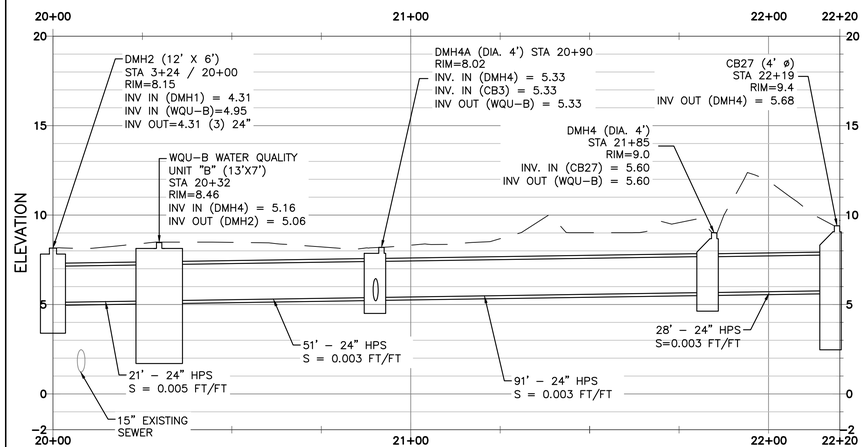
Title
BREWSTER STREET DRAINAGE PLAN

Project No.	Scale	
195112923	AS NOTED	
Drawing No.	Sheet	Revision
C-101	2 of 10	0



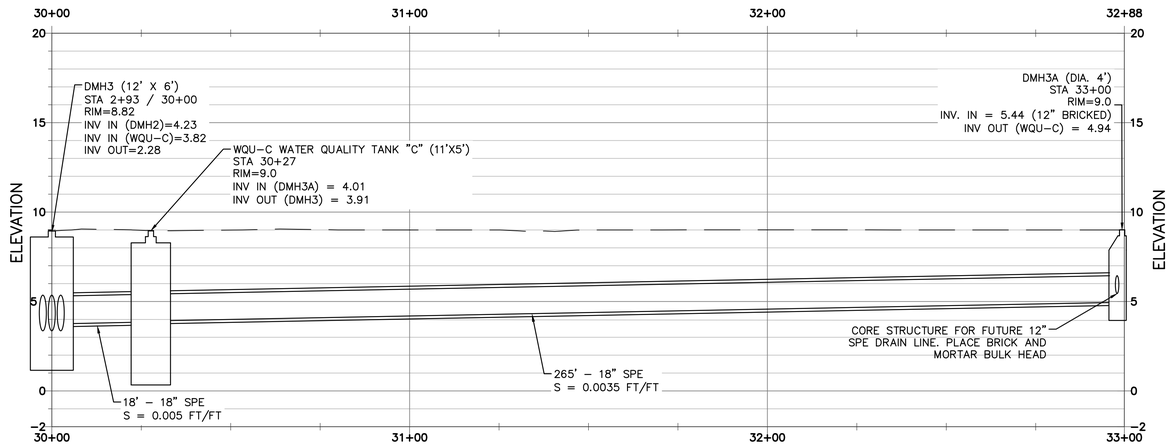
DRAINAGE PROFILE – BREWSTER ST

SCALE: HORZ. 1" = 20'
VERT. 1" = 4'



DRAINAGE PROFILE – WESTERLY REACH

SCALE: HORZ. 1" = 20'
VERT. 1" = 4'



DRAINAGE PROFILE – EASTERLY REACH

SCALE: HORZ. 1" = 20'
VERT. 1" = 4'

0 20' 40'

ORIGINAL SHEET - ARCH D

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PORTSMOUTH, NH

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Project No.	Scale	
195112923	AS NOTED	
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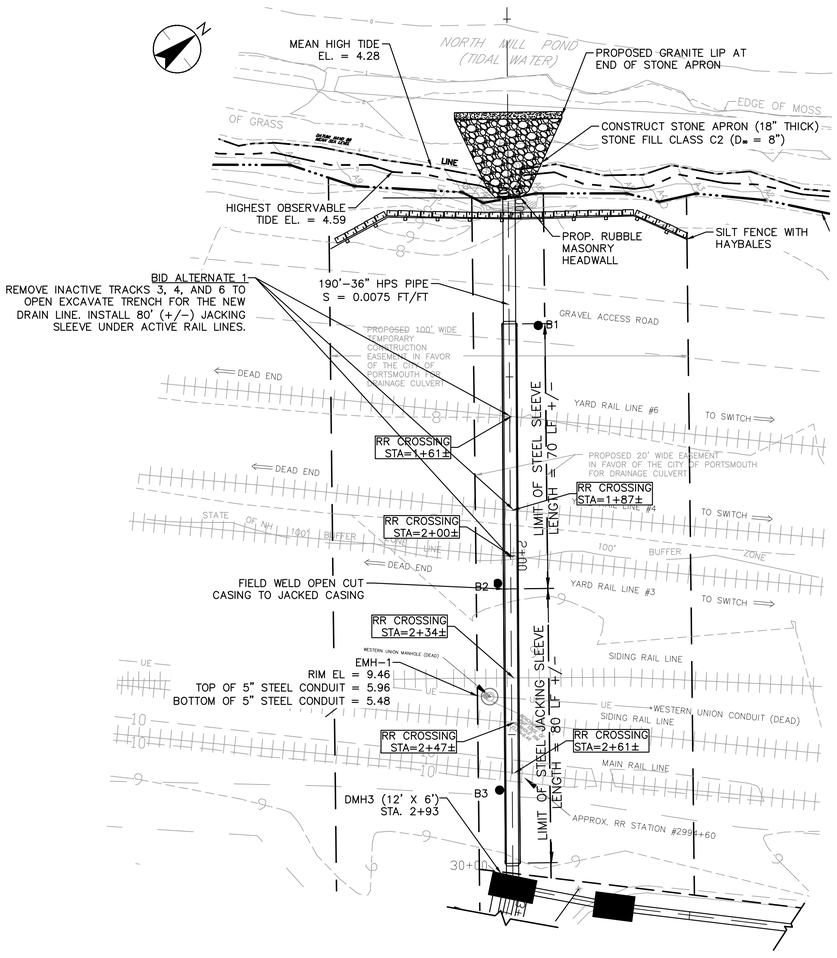
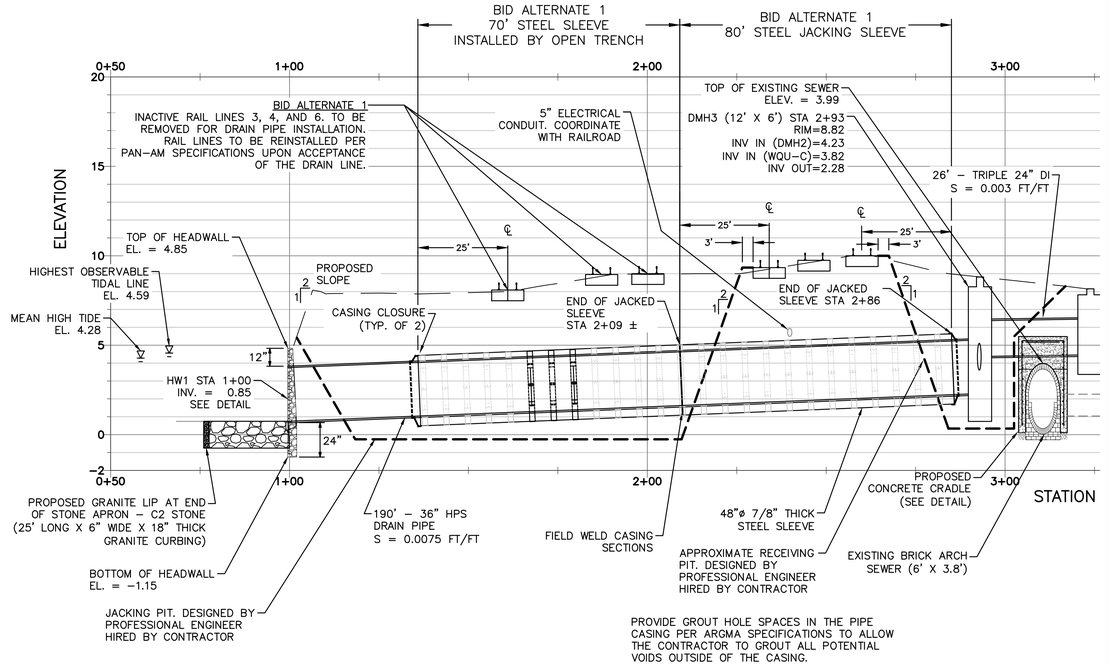


BID ALTERNATE 1 – REMOVE / REINSTALL INACTIVE RR TRACKS

SCALE: 1" = 20'



DRAINAGE PROFILE UNDER RR TRACKS – BID ALT 1

SCALE: HORZ. 1" = 20'
VERT. 1" = 4'

NOTES:

1. REMOVE INACTIVE RAILROAD TRACKS TO THE CLOSEST RAIL SPLICE TO ALLOW EXCAVATION AND INSTALLATION OF THE NEW DRAIN LINE AND JACKING SLEEVE. RAILS AND TIES THAT ARE REMOVED ARE TO BE SAVED FOR RE-INSTALLATION. THE REMOVED MATERIALS WILL BE INSPECTED BY A PAN-AM REPRESENTATIVE TO DETERMINE SUITABILITY FOR RE-USE. IF THE REMOVED MATERIALS ARE DETERMINED TO BE UNSUITABLE FOR RE-USE, REPLACEMENT MATERIALS (RAILS AND TIES) WILL BE PROVIDED TO THE CONTRACTOR.
2. SLEEVE SECTION TO BE INSTALLED BY OPEN TRENCH EXCAVATION IS TO BE WELDED TO THE JACKED SLEEVE PRIOR TO BACKFILLING THE TRENCH. SEE SPECIFICATION.
3. ALL WORK REGARDING TRACK REMOVAL AND EXCAVATION IS TO OCCUR WITHIN THE 100' CONSTRUCTION EASEMENT AS NOTED ON THE PLANS.

0 20' 40'

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DEPARTMENT OF PUBLIC WORKS

BREWSTER STREET
DRAINAGE IMPROVEMENTS
PORTSMOUTH, NH

Title
BREWSTER STREET DRAINAGE
BID ALTERNATE 1

Project No.	Scale	
195112923	AS NOTED	
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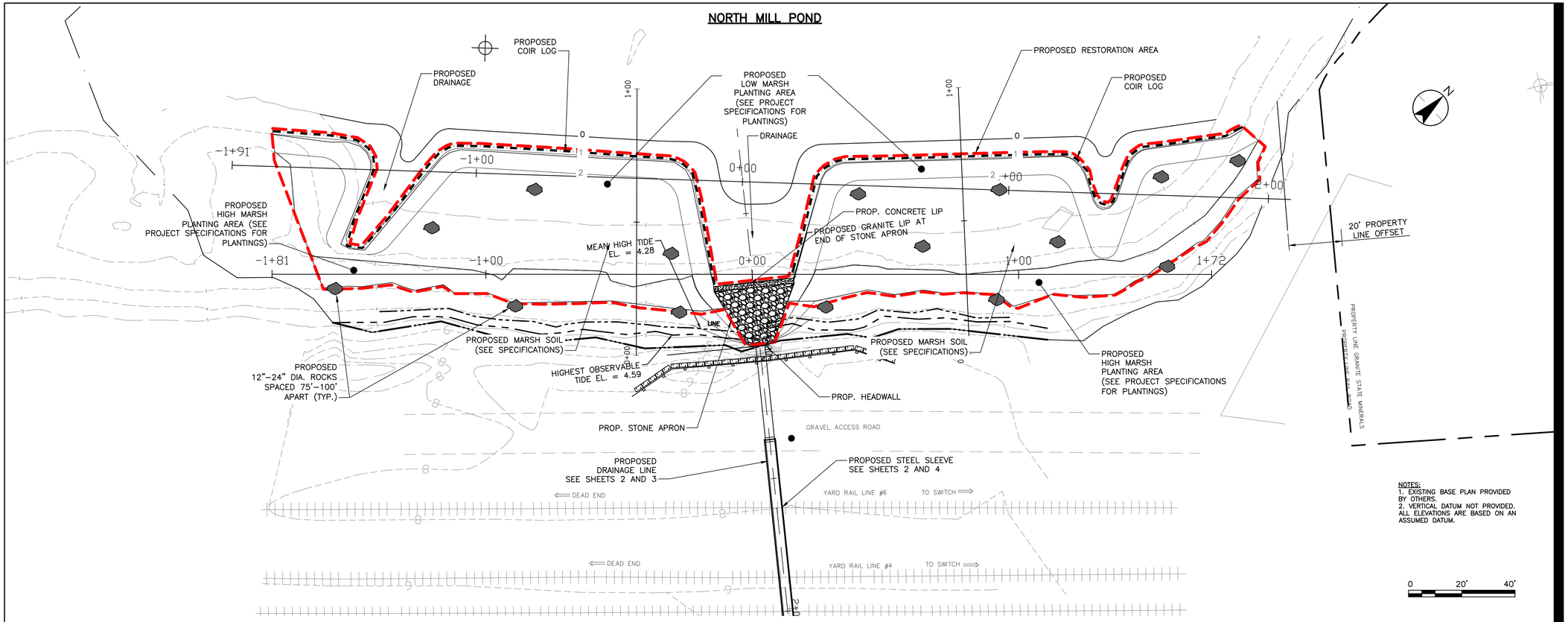
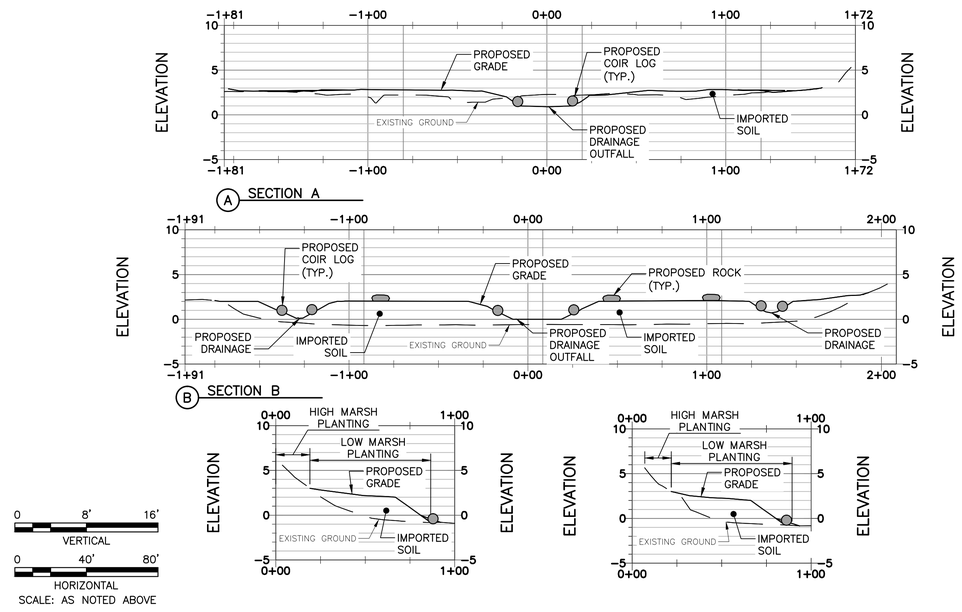
ORIGINAL SHEET - ARCH D



TIDAL MITIGATION PLAN
SCALE: 1 = 20'



TIDAL MITIGATION CROSS SECTIONS
SCALE: 1 = 40'

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Notes

1 ADD PROPERTY LINE/SETBACK PER NHDES COMMENTS	MEL	RL	14.09.26
Revision	By	Appd.	YY.MM.DD
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File Name: 12923-C-106-WETLAND MITIGATION.dwg	Dwn.	Chkd.	Dsgn. YY.MM.DD

Permit-Seal

Client/Project
CITY OF PORTSMOUTH
DEPARTMENT OF PUBLIC WORKS

BREWSTER STREET
DRAINAGE IMPROVEMENTS
PORTSMOUTH, NH

Title
WETLAND MITIGATION PLAN

Project No.	Scale	
195112923	AS NOTED	
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C-102	5 of 10	0

GENERAL NOTES AND SPECIFICATIONS FOR EROSION CONTROL

1. The contractor is responsible for water control during all phases of construction. No work shall be permitted in flowing water. Streams shall be temporarily dammed by use of sand bags or other suitable means. The diversion shall be accomplished by temporary culverts or by pumping. All diverted water shall be discharged to stone fill or other suitable energy dissipater surrounded by silt fence.

2. This plan is to be used as a guideline only. Additional silt fence, stone check dams, or other measures may be dictated by field conditions.

3. The Contractor is responsible for complying with all local, state, and federal regulations.

4. Temporary Stabilization:

All disturbed areas shall have temporary or permanent stabilization within 14 days of initial disturbance. After this time any disturbance shall be stabilized by the end of the day, with the following exceptions:

(1) Stabilization is not required if work is to continue in the area in the next 24 hours and there is no precipitation forecast for the next 24 hours.

(2) Stabilization is not required if the work is in a self–contained excavation with a depth of 2 feet or mare.

Temporary Stabilization Measures:

(1) Hay or straw mulch with a thickness of at least 2 inches.

(2) Soil tracking with tracked equipment. Should be limited to small areas with slopes less than 100 feet long (less than 50 feet with slopes steeper than 3:1)

(3) A combination of the above.

(4) Erosion Control matting.

5. Materials

A. Mulch material: Select mulch material for erosion control that will best meet the site conditions from the following.

(1) Hay or straw – Shall be dry, free of mold and weed seeds. Hay or straw can be used on disturbed areas that will not be reworked for 7 to 30 days.

(2) Wood Chips – Shall be dry, free of soil and other foreign material.

(3) Rolled Erosion Control Products (RECP) – Shall be dry, and shall be made of straw or hay, coconut and related fibers, wood excelsior, jute, polypropylene, nylon, or an approved combination of different materials.

B. Mulch Anchoring: When mulch must be held in place, the following mulch anchoring material shall be used:

(1) Mulch Netting (Paper, twine, plastic, or plastic and wood fiber).

C. Fertilizer: Complete fertilizer 10–20–20 (Standard Product) – Class A
10–10–10 (Standard Product) – Class B

D. Lime: Ground limestone containing not less than 95% total carbonates (calcium or magnesium).

E. Temporary Seed Mixture: When it is impractical to establish permanent protective vegetation on disturbed earth by October 15, use "Conservation Mix" or the following seed mixture. Disturbed areas that will not be reworked for 30 days or more shall also receive temporary seed and mulch.

Kind of Seed:	% By Weight
Annual Ryegrass	50
Perennial Ryegrass	50

Apply seed mixture at 50 pounds per acre.

F. Permanent Seed Mixture: (Not for Wetland Restoration):

(1) For Class A (Lawn) restoration of growth: Shall normally be used on loam areas. This seed shall conform to the following and shall be furnished on a pure live seed (PLS) basis.

Class A

Kind of Seed:	PLS Per Acre, LBS
Red Fescue (Creeping)	21
Kentucky Bluegrass	21
	21
	21
Perrenial Ryegrass (Manhattann)	
Total	84

(2) For Class B (Field) restoration of growth: Shall normally be used for all slope work. This seed shall conform to the table below unless amended by the engineer to suit special local conditions encountered. This seed shall be furnished on a pure live seed (PLS) basis.

Class B

Kind of Seed:	PLS Per Acre, LBS
Tall Fescue (ALTA or K–31)	20
Perennial Ryegrass (Manhattan)	15
Red Fescue (Creeping)	5
Red Clover	5
Birdsfoot Trefoil (Empire variety Preferred)	5
Total	50

6. Seeding and Mulching:

A. All areas shall be seeded and mulched within 48 hours of final grading.

B. Soil samples may be sent to the county extension service for analysis to determine the proper seed mixture and fertilizer requirements.

C. The following procedures shall be followed for temporary seeding:

(1) Apply lime at a rate of 75 to 100 pounds per 1000 square feet. Incorporate into top two inches of soil.

(2) Apply fertilizer at a rate of 30 pounds per 1000 square feet. Mix thoroughly into the top two inches of soil.

(3) Apply seed mixture at a rate of 50 pounds per acre and additional 3–4 lbs. per 1000 square feet for sloped areas of 45% and greater evenly in two intersecting directions. Rake lightly.

(4) Apply mulch material within 24 hours after seeding in accordance with the following:

(A) Hay or Straw: Application rate – 75 to 100 pounds per 1000 square feet. Spread by hand or with machine. Anchor on slopes and where subject to blowing or slipping.

(B) Wood Chips – Application rate – Two to six inches deep. Use for tree and shrub planting.

(5) Anchor mulch on all slopes exceeding 5% and other areas as required using the following method:

(A) Mulch Netting: Spread over loose mulch and pin to the soil in accordance with the manufacturer's instructions.

D. When temporary seeding cannot be accomplished to have established or visible growth by October 15, the disturbed areas shall be covered with 6 inches of mulch and anchored or erosion control blankets for the duration of the winter.

7. Maintenance of Erosion Control Structures:

A. Stone check dams shall be replaced when they become clogged with soil particles or as directed by the owner/representative.

B. When the sediment accumulation reaches a depth of 12 inches behind the silt fence, it shall be disposed of.

C. Repair all damages caused by soil erosion or construction equipment at or before the end of each working day.

D. Stone stabilized construction entrances shall be inspected to ensure tracking of sediments onto public right–of–ways or streets is not occurring. Maintenance may include periodic top dressing with additional aggregate to ensure a minimum thickness of eight inches.

E. All measures shall be removed within 30 days of stabilization.

8. Wetland Restoration

A. Replace wetland soil from stock pile to a minimum depth of 8 inches or equal to original depth.

B. Grade areas to match preconstruction grades

C. Apply "New England Wetmix" seed or equal in accordance with the manufacturers application rates.

9. Winter Erosion Control

A. All erosion control features such as silt fence must be in place prior to the ground freezing.

B. All disturbed areas of the site shall be seeded and mulched from October 15 to May 1 regardless of whether final grading has been finished. Work may continue through this period if the following winter erosion controls are implemented.

(1) Oat seeds shall be substituted for any other temporary annual grass seeds.

(2) All exposed earth shall be mulched with 6 inches of hay or straw. Slopes over 5% shall have an additional covering of staked jute mat or its equivalent.

C. The following maintenance items should be performed specifically for the various erosion control devices:

(1) Diversion Dike:

(A) Minimum inspection frequency – Weekly.

(B) Remove any flow blockage caused by ice or sediment.

(2) Mulch:

(A) Minimum inspection frequency – Daily.

(B) Replace mulch on any area where original mulch cover has been lost.

(3) Silt Fence:

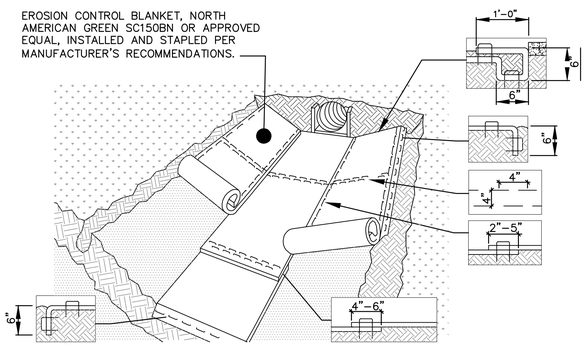
(A) Minimum inspection frequency – Weekly.

(B) Clean and remove any collected sediment before predicted thaws or rainy periods.

(4) Stone Check Dam:

(A) Minimum inspection frequency – Weekly.

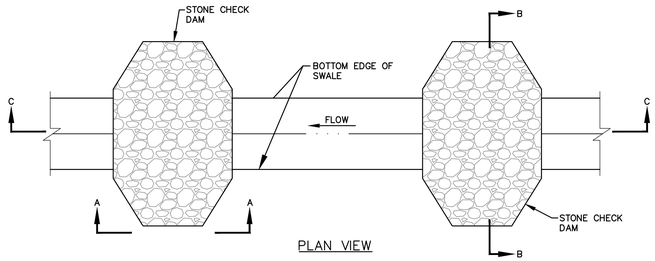
(B) Remove and replace clogged stone.



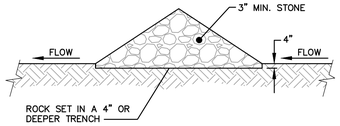
NOTES:

1. TO BE USED ON SLOPES 3 HORIZONTAL TO 1 VERTICAL OR STEEPER.
2. PREPARE SOIL INCLUDING APPLICATION OF LIME, FERTILIZER AND SEED PRIOR TO INSTALLING BLANKET

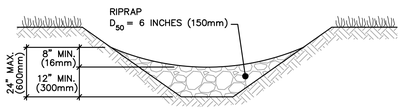
1 EROSION CONTROL BLANKET DETAIL
NOT TO SCALE



PLAN VIEW



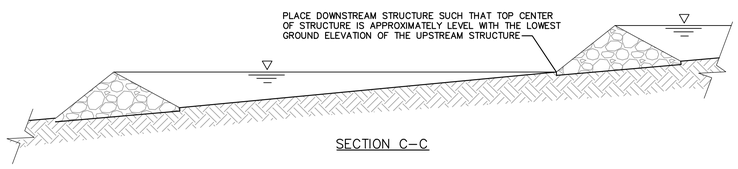
SECTION A–A



SECTION B–B

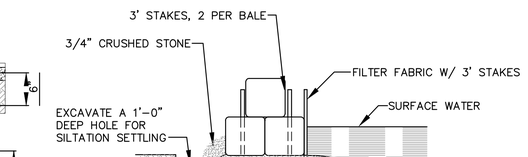
DITCH GRADE (G)	CHECK DAM SPACING(S)
0.02 FT/FT (M/M)	67 FT (20.5 M)
0.03 FT/FT (M/M)	44.5 FT (13.6 M)
0.04 FT/FT (M/M)	33.4 FT (10.2 M)
0.05 FT/FT (M/M)	26.7 FT (8.2 M)
0.06 FT/FT (M/M)	22.3 FT (6.8 M)

DO NOT USE CHECK DAMS BELOW 2% OR ABOVE 6% DITCH GRADES

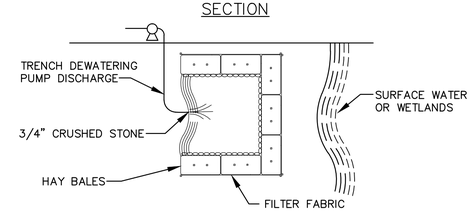


SECTION C–C

2 STONE CHECK DAM DETAIL
NOT TO SCALE

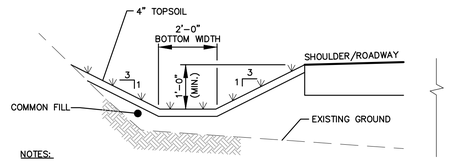


SECTION



PLAN

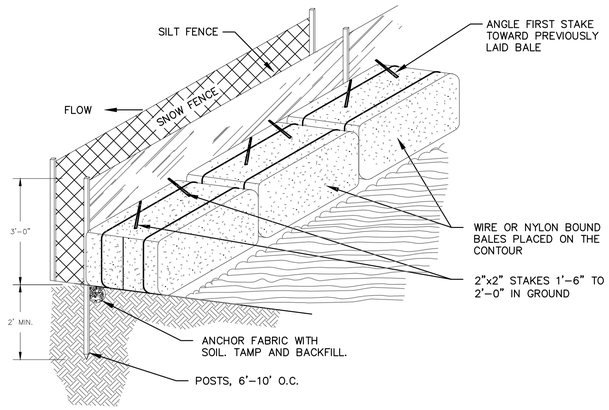
DEWATERING BASIN DETAIL
NOT TO SCALE



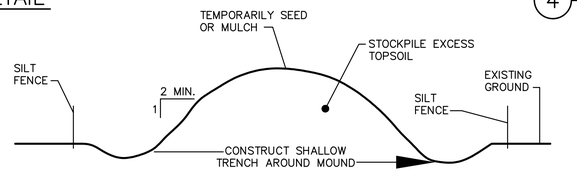
NOTES:

1. GRASS LINED SWALES ARE TO BE USED EVERYWHERE UNLESS INDICATED OTHERWISE.
2. IF LONGITUTINAL SLOPE IS GREATER THAN 2% , TEMPORARY STONE CHECK DAMS ARE NEEDED TO REDUCE STORMWATER VELOCITY AND PREVENT SOIL EROSION WITHIN THE SWALE.
3. SWALE TO BE SEEDED WITH A GRASS SPECIES NATIVE TO THE AREA THAT TOLERATES WET/DRY CONDITIONS.

3 GRASS SWALE DETAIL
NOT TO SCALE



4 SILT FENCE & BALE DETAIL
NOT TO SCALE



TYPICAL TOPSOIL STOCKPILE MOUND DETAIL
NOT TO SCALE

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PORTSMOUTH, NH

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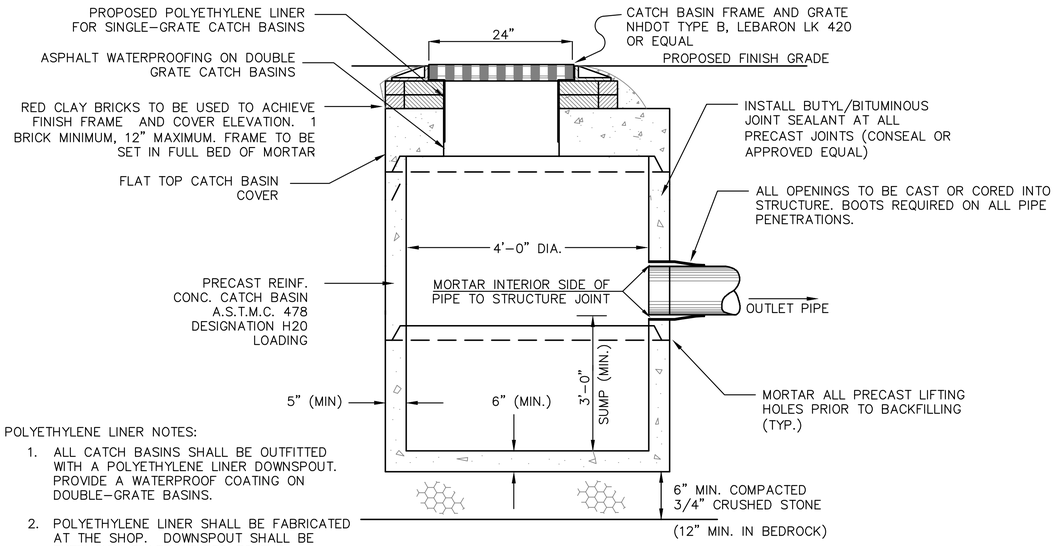
Drawing No.	Sheet	Revision
DET1	6 of 10	0



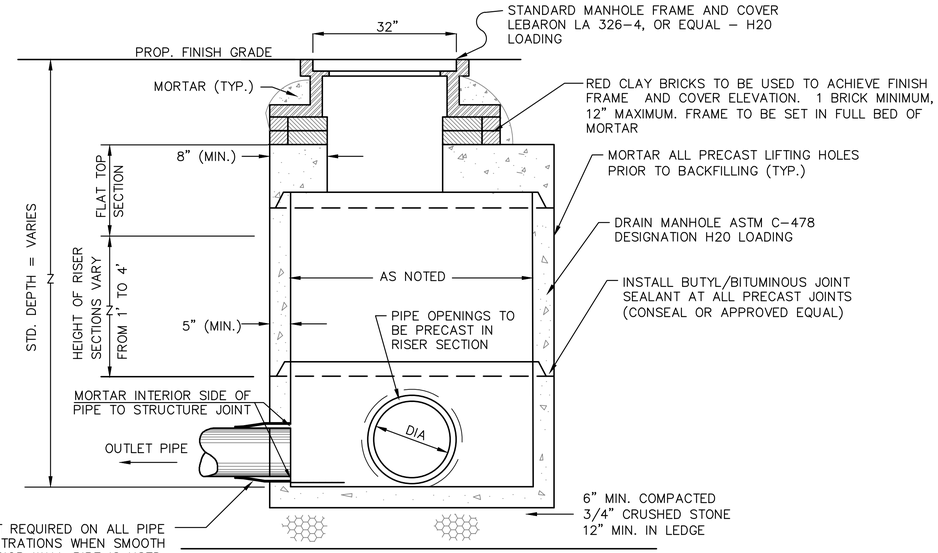
CATCH BASIN DETAIL (CB1 AND CB2)

NOT TO SCALE

NOTE: CONE SECTIONS SHALL BE ECCENTRIC. WHERE PIPE CORE WOULD OTHERWISE ENTER INTO THE CONE SECTION OR A JOINT A FLAT TOP ECCENTRIC LID MAY BE USED.

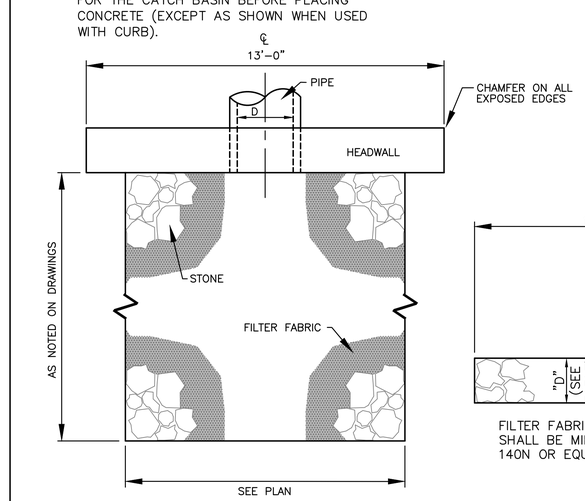
POLYETHYLENE LINER NOTES:

1. ALL CATCH BASINS SHALL BE OUTFITTED WITH A POLYETHYLENE LINER DOWNSPOUT. PROVIDE A WATERPROOF COATING ON DOUBLE-GRATE BASINS.
2. POLYETHYLENE LINER SHALL BE FABRICATED AT THE SHOP. DOWNSPOUT SHALL BE EXTRUSION FILLET WELDED TO THE POLYETHYLENE SHEET.
3. PLACE A CONTINUOUS BEAD OF AN APPROVED SILICONE SEALANT BETWEEN FRAME AND POLYETHYLENE SHEET.
4. PLACE CLASS AA CONCRETE TO 2" BELOW THE TOP OF GRATE ELEVATION (SUBSIDIARY TO DRAINAGE STRUCTURE).
5. TRIM POLYETHYLENE SHEET A MAXIMUM OF 4" OUTSIDE THE FLANGE ON THE FRAME FOR THE CATCH BASIN BEFORE PLACING CONCRETE (EXCEPT AS SHOWN WHEN USED WITH CURB).

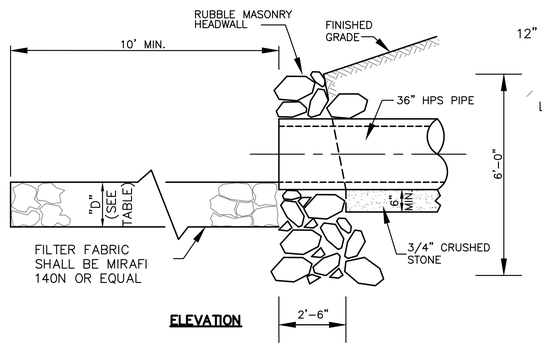


PRECAST DRAIN MANHOLE DETAIL

NOT TO SCALE



PLAN



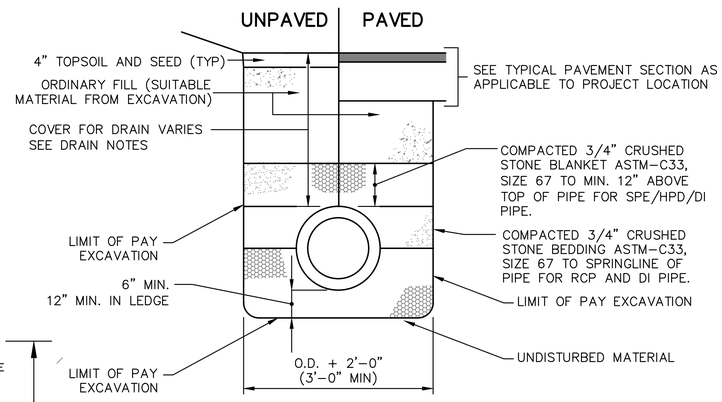
ELEVATION

NOTE: STONE SHALL CONFORM TO NHDOT STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION, 2006, SECTION 585, STONE FILL WITH THE FOLLOWING REQUIREMENTS:

HEADWALL WITH STONE APRON

NOT TO SCALE

% OF PASSING BY WEIGHT	STONE SIZES C1 D = BLANKET THICKNESS 12"	C2 18"	C3 24"
100%	8"	12"	18"
85%	7"	11"	16"
50%	5"	8"	12"
15%	2"	3"	4"



TYPICAL DRAIN PIPE TRENCH

NOT TO SCALE

PIPE TRENCH NOTES:

1. SUITABLE MATERIAL: IN ROADS, ROAD SHOULDERS, WALKWAYS AND TRAVELED WAYS, SUITABLE MATERIAL FOR TRENCH BACKFILL SHALL BE THE NATURAL MATERIAL EXCAVATED DURING THE COURSE OF CONSTRUCTION, SHALL EXCLUDE DEBRIS, PIECES OF PAVEMENT, ORGANIC MATTER, TOP SOIL, ALL WET OR SOFT MUCK, PEAT OR CLAY, ALL EXCAVATED LEDGE MATERIAL AND ALL ROCKS OVER SIX INCHES IN THE LARGEST DIMENSION, OR ANY MATERIAL WHICH, AS DETERMINED BY THE CITY OF PORTSMOUTH ENGINEERING DEPARTMENT, WILL NOT PROVIDE SUFFICIENT SUPPORT OR MAINTAIN THE COMPLETED CONSTRUCTION IN A STABLE CONDITION. SUITABLE MATERIAL SHALL BE PLACED IN 12" LIFTS AND THOROUGHLY COMPACTED USING WALK BEHIND HAND OPERATED PLATE COMPACTORS. THE USE OF MACHINE MOUNTED PLATE COMPACTORS IS NOT ALLOWED UNDER THIS PROJECT.
2. BACKFILL OF THE TRENCHES SHALL BE COMPACTED TO TO 95% MAX. DRY DENSITY UNDER ALL PAVED AREAS AND 92% MAX. DRY DENSITY ELSEWHERE. (SEE PROJECT SPECIFICATIONS)
3. DRAINAGE PIPE SHALL BE AS NOTED ON THE PLANS AND SPECIFICATIONS.

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Notes

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Permit-Seal

Client/Project
CITY OF PORTSMOUTH
DEPARTMENT OF PUBLIC WORKS

BREWSTER STREET
DRAINAGE IMPROVEMENTS
PORTSMOUTH, NH

Title
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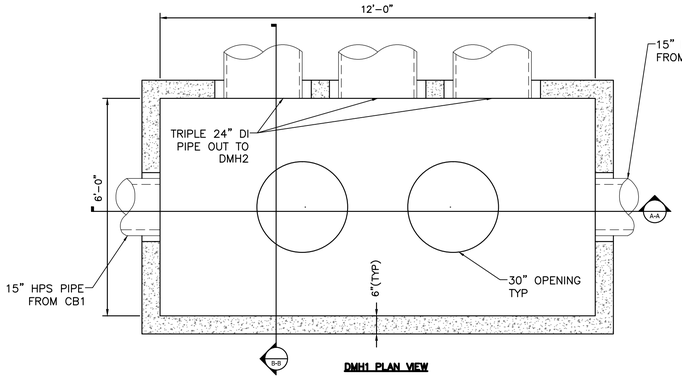
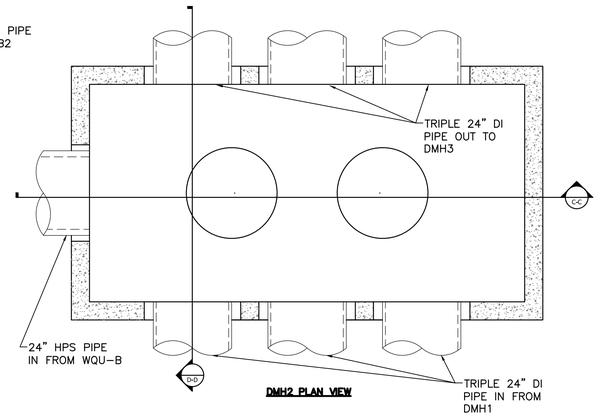
Project No. 195112923 | Scale AS NOTED

Drawing No. DET2 | Sheet 7 of 10 | Revision 0

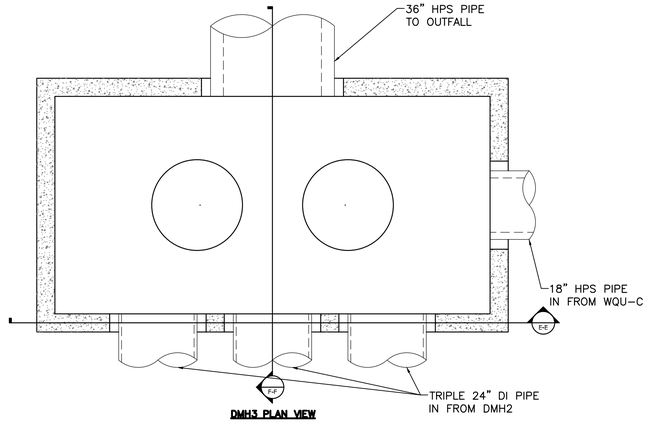
ORIGINAL SHEET - ARCH D



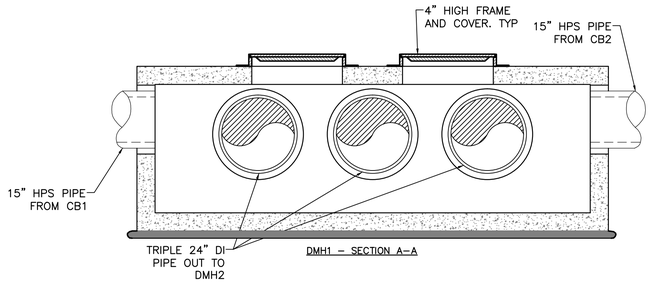
DMH1 PLAN VIEW



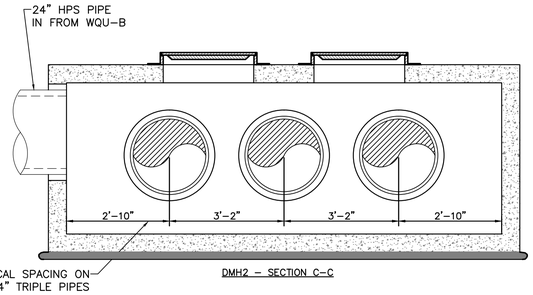
DMH2 PLAN VIEW



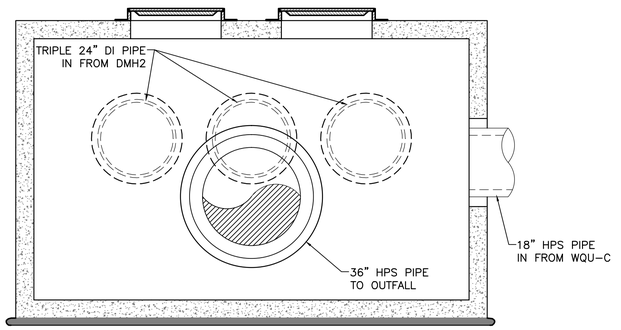
DMH3 PLAN VIEW



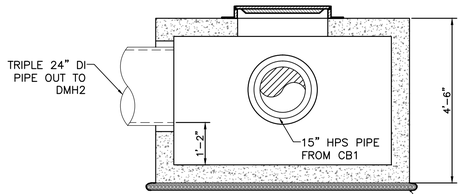
DMH1 – SECTION A–A



DMH2 – SECTION C–C

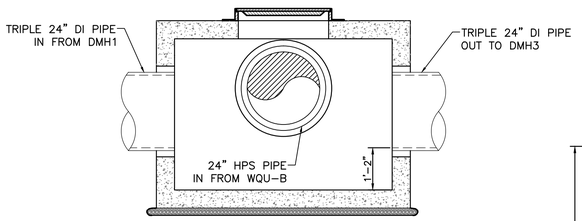


DMH3 – SECTION E–E

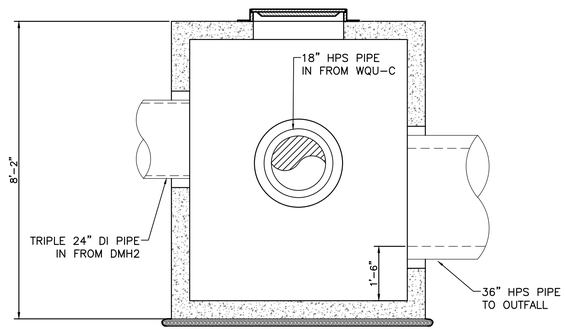


DMH1 SECTION B–B

SET DMH LEVEL ON 6" BED OF ¾" CRUSHED STONE (12" IF BEDROCK IS ENCOUNTERED) TYP. FOR ALL DMH'S.



DMH2 SECTION D–D



DMH3 – SECTION F–F

SPECIAL DRAIN MANHOLE NOTES:

CONTRACTOR SHALL SUBMIT SHOP DRAWINGS FOR ALL MANHOLES AND WATER QUALITY STRUCTURES.

NOTES:

1. ALL DMH'S SHALL BE PRECAST REINFORCED CONCRETE WITH A MINIMUM COMPRESSIVE STRENGTH OF 5,000 P.S.I. @ 28 DAYS.
2. STEEL REINFORCEMENT: ASTM A–615 GR. 60 WITH MINIMUM 1" COVER.
3. TANKS AND COVERS SHALL BE DESIGNED TO MEET ACI 318 WITH AASHTO HS20–44 LOADING.
4. THE CONTRACTOR SHALL SUBMIT SHOP DRAWINGS OF PROPOSED STRUCTURES PRIOR TO CASTING. ALL SHOP DRAWINGS SHALL BE STAMPED BY A PROFESSIONAL ENGINEER REGISTERED IN NEW HAMPSHIRE.
5. OPENINGS FOR DRAIN PIPES AND OTHER APPURTENANCES SHALL BE CAST INTO STRUCTURE DURING FABRICATION BY MANUFACTURER AND SHALL NOT BE FIELD CUT OR CORED.
6. TONGUE AND GROOVE JOINTS ARE TO BE SEALED WITH A TWO (2) STRIPS OF ASPHALTIC BUTYL RUBBER. ALL JOINTS SHALL BE SUBJECT TO WATER TIGHTNESS TESTING.
7. ALL PIPE TO PRECAST CONNECTIONS SHALL BE NEOPRENE BOOTS WITH STAINLESS STEEL BANDS WHERE POSSIBLE AS DEFINED BY THE ENGINEER. WHERE NEOPRENE BOOTS ARE NOT USED, THE CONTRACTOR SHALL PROVIDE MORTAR BETWEEN THE PIPE AND PRECAST CONCRETE STRUCTURE OPENING.
8. SEE PLAN AND PROFILE DRAWINGS FOR ALL INVERT AND RIM ELEVATIONS.
9. ALL STRUCTURES ARE TO HAVE INSIDE DIMENSIONS OF 12–FOOT LONG BY 6–FOOT WIDE. DEPTH OF THE STRUCTURE VARIES ACCORDING TO PIPE INVERT ELEVATIONS AND SUMP DIMENSIONS NOTED.

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Notes

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Permit-Seal

Client/Project
CITY OF PORTSMOUTH
DEPARTMENT OF PUBLIC WORKS

BREWSTER STREET
DRAINAGE IMPROVEMENTS
PORTSMOUTH, NH

Title
CONSTRUCTION DETAILS
DMH-1, 2, AND 3

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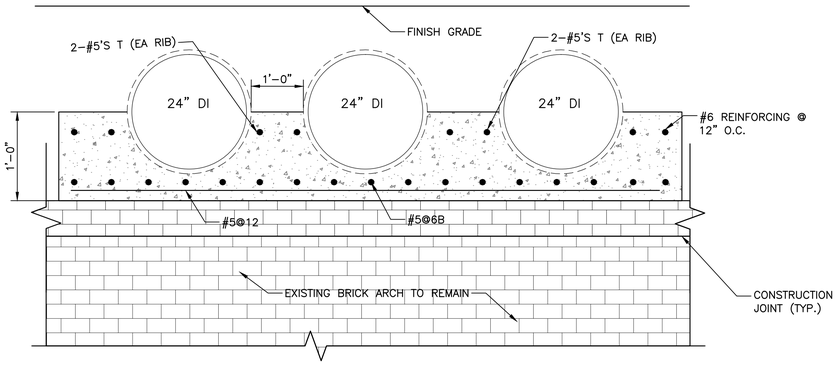
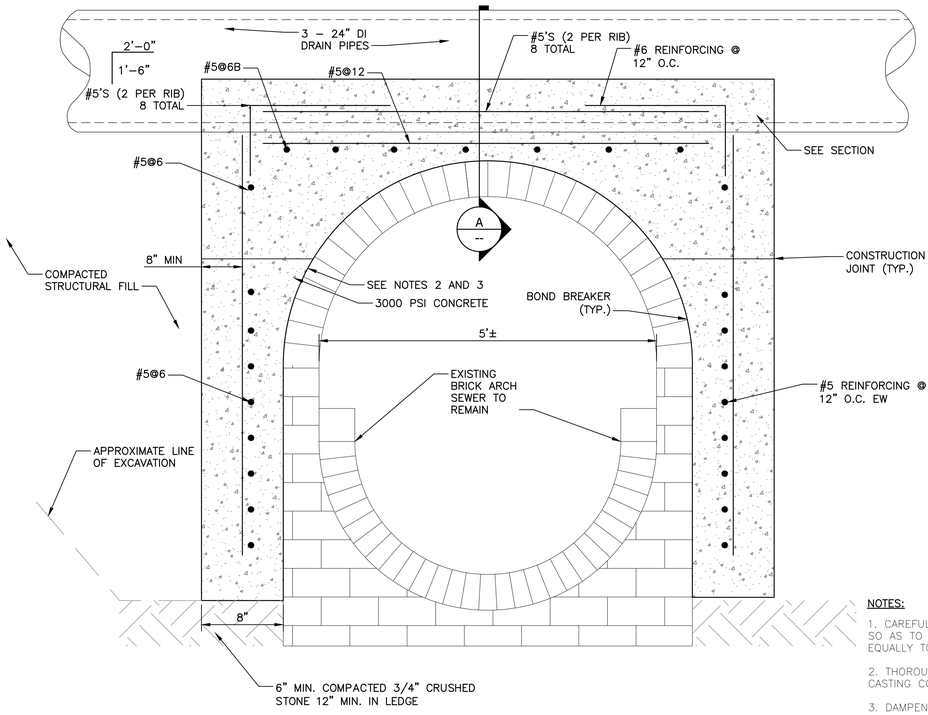


BRICK ARCH SEWER CONCRETE CRADLE SECTION A

NOT TO SCALE

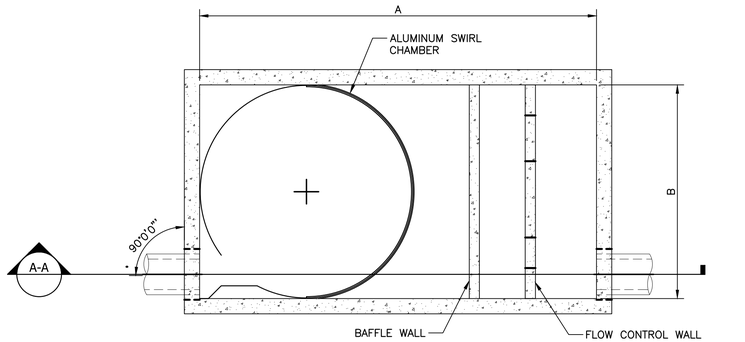


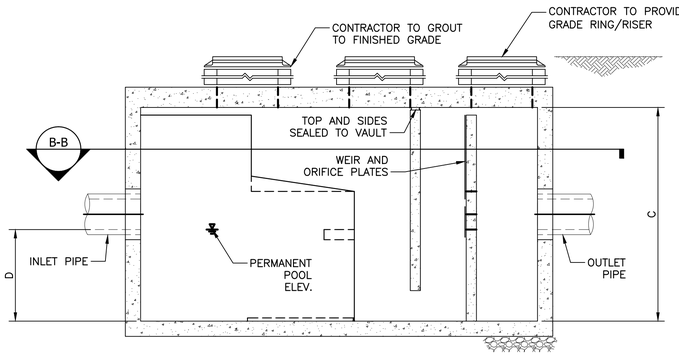
BRICK ARCH SEWER CONCRETE CRADLE

NOT TO SCALE

NOTES:

1. CAREFULLY EXCAVATE AROUND EXISTING BRICK SEWER SO AS TO PREVENT DAMAGE. EXCAVATE BOTH SIDES EQUALLY TO LIMIT UNBALANCED SOIL PRESSURES.
2. THOROUGHLY CLEAN EXISTING BRICK PRIOR TO CASTING CONCRETE ENCASEMENT.
3. DAMPEN EXISTING BRICK PRIOR TO CASTING OF CONCRETE.
4. SEE SPECIFICATIONS FOR BACKFILLING REQUIREMENTS.
5. CONCRETE CRADLE MUST BE IN PLACE A MINIMUM OF 14 DAYS PRIOR TO THE INSTALLATION OF DRAINAGE PIPING CROSSING THE BRICK–SEWER INTERCEPTOR.





VORTECHS MODELS 3000 AND 5000 DETAIL OR APPROVED EQUAL

NOT TO SCALE

GENERAL NOTES
1. CONTECH TO PROVIDE ALL MATERIALS UNLESS NOTED OTHERWISE.
2. DIMENSIONS MARKED WITH ( ) ARE REFERENCE DIMENSIONS. ACTUAL DIMENSIONS MAY VARY.
3. FOR FABRICATION DRAWINGS WITH DETAILED STRUCTURE DIMENSIONS AND WEIGHT, PLEASE CONTACT YOUR CONTECH REPRESENTATIVE. www.contechES.com
4. VORTECHS WATER QUALITY STRUCTURE SHALL BE IN ACCORDANCE WITH ALL DESIGN DATA AND INFORMATION CONTAINED IN THIS DRAWING.
5. STRUCTURE SHALL MEET AASHTO HS20 AND CASTINGS SHALL MEET AASHTO M306 LOAD RATING, ASSUMING GROUNDWATER ELEVATION AT, OR BELOW, THE OUTLET PIPE INVERT ELEVATION. ENGINEER OF RECORD TO CONFIRM ACTUAL GROUNDWATER ELEVATION.
6. INLET PIPE(S) MUST BE PERPEDICULAR TO THE VAULT AND AT THE CORNER TO INTRODUCE THE FLOW TANGENTIALLY TO THE SWIRL CHAMBER. DUAL INLETS NOT TO HAVE OPPOSING TANGENTIAL FLOW DIRECTIONS.
7. OUTLET PIPE(S) MUST BE DOWN STREAM OF THE FLOW CONTROL BAFFLE AND MAY BE LOCATED ON THE SIDE OR END OF THE VAULT. THE FLOW CONTROL WALL MAY BE TURNED TO ACCOMODATE OUTLET PIPE KNOCKOUTS ON THE SIDE OF THE VAULT.

INSTALLATION NOTES
A. ANY SUB–BASE, BACKFILL DEPTH, AND/OR ANTI–FLOTATION PROVISIONS ARE SITE–SPECIFIC DESIGN CONSIDERATIONS AND SHALL BE SPECIFIED BY ENGINEER OF RECORD.
B. CONTRACTOR TO PROVIDE EQUIPMENT WITH SUFFICIENT LIFTING AND REACH CAPACITY TO LIFT AND SET THE VORTECHS STRUCTURE (LIFTING CLUTCHES PROVIDED).
C. CONTRACTOR TO INSTALL JOINT SEALANT BETWEEN ALL STRUCTURE SECTIONS AND ASSEMBLE STRUCTURE.
D. CONTRACTOR TO PROVIDE, INSTALL, AND GROUT PIPES. MATCH PIPE INVERTS WITH ELEVATIONS SHOWN.
E. CONTRACTOR TO TAKE APPROPRIATE MEASURES TO ASSURE UNIT IS WATER TIGHT, HOLDING WATER TO FLOWLINE INVERT MINIMUM. IT IS SUGGESTED THAT ALL JOINTS BELOW PIPE INVERTS ARE GROUTED.

SITE SPECIFIC DATA REQUIREMENTS VORTECHS MODEL 3000

DIMENSION A	11'–0"
DIMENSION B	5'–0"
DIMENSION C	7'–0"
DIMENSION D	3'–0"
STRUCTURE ID	WQV–C
WATER QUALITY FLOW RATE (CFS)	3.0
PEAK FLOW RATE (CFS)	8.4
RETURN PERIOD OF PEAK FLOW (YRS)	10

PIPE DATA:	I.E.	MATERIAL	DIAMETER
INLET PIPE 1	4.01	SPE	18"
INLET PIPE 2	---	---	---
OUTLET PIPE	3.91	SPE	18

RIM ELEVATION	9.0

ANTI–FLOTATION BALLAST	WIDTH	HEIGHT
	---	---

NOTES/SPECIAL REQUIREMENTS:

* PER ENGINEER OF RECORD

SITE SPECIFIC DATA REQUIREMENTS VORTECHS MODEL 5000

DIMENSION A	13'–0"
DIMENSION B	7'–0"
DIMENSION C	7'–0"
DIMENSION D	3'–0"
STRUCTURE ID	WQV–B
WATER QUALITY FLOW RATE (CFS)	4.0
PEAK FLOW RATE (CFS)	10.9
RETURN PERIOD OF PEAK FLOW (YRS)	10

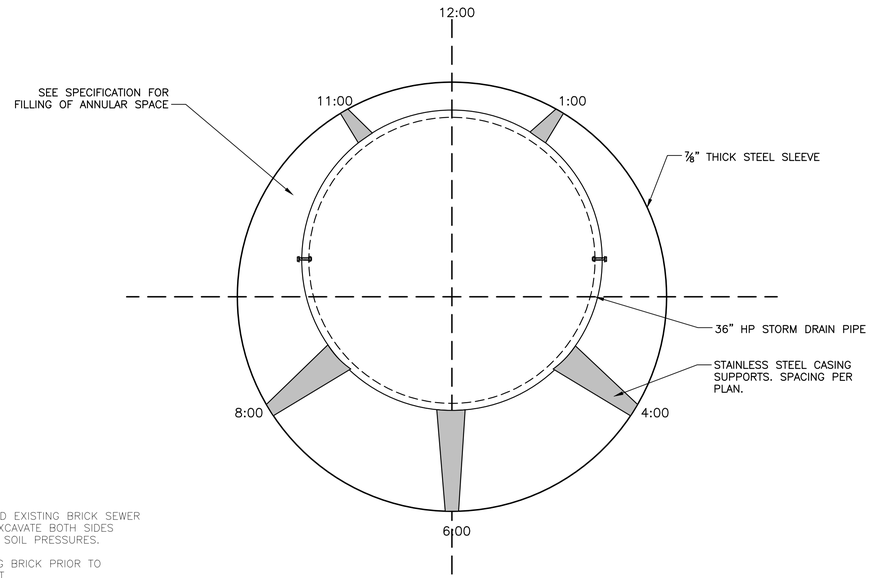
PIPE DATA:	I.E.	MATERIAL	DIAMETER
INLET PIPE 1	5.16	DI	18
INLET PIPE 2	5.16	DI	18
OUTLET PIPE	5.06	DI	18

RIM ELEVATION	8.46

ANTI–FLOTATION BALLAST	WIDTH	HEIGHT
	---	---

NOTES/SPECIAL REQUIREMENTS:

* PER ENGINEER OF RECORD



STEEL CASING / CARRIER PIPE DETAIL

NOT TO SCALE

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Client/Project
CITY OF PORTSMOUTH
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BREWSTER STREET
DRAINAGE IMPROVEMENTS
PORTSMOUTH, NH

Title
CONSTRUCTION DETAILS

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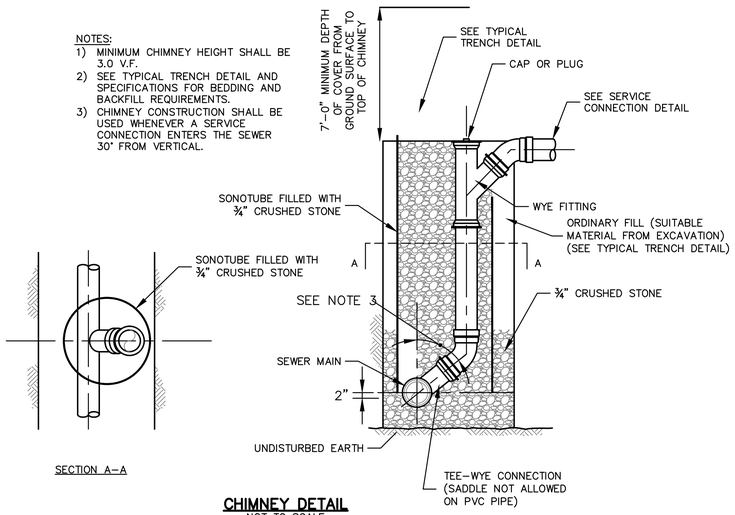
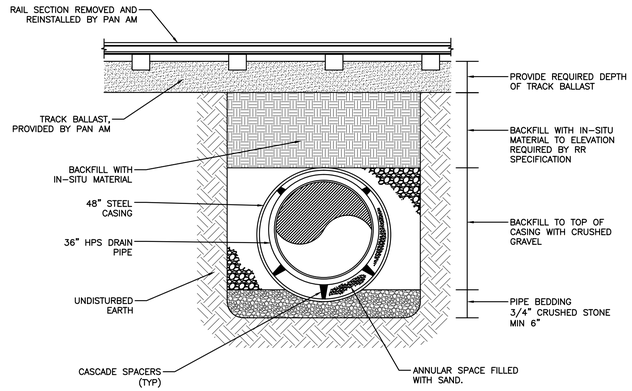
NOTES:
1) MINIMUM CHIMNEY HEIGHT SHALL BE 3.0 V.F.
2) SEE TYPICAL TRENCH DETAIL AND SPECIFICATIONS FOR BEDDING AND BACKFILL REQUIREMENTS.
3) CHIMNEY CONSTRUCTION SHALL BE USED WHENEVER A SERVICE CONNECTION ENTERS THE SEWER 30° FROM VERTICAL.

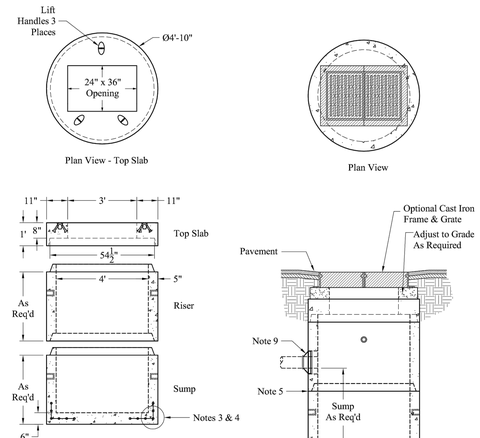


SECTION A-A

CHIMNEY DETAIL
NOT TO SCALE



RAIL CROSSING OPEN TRENCH DETAIL
NOT TO SCALE



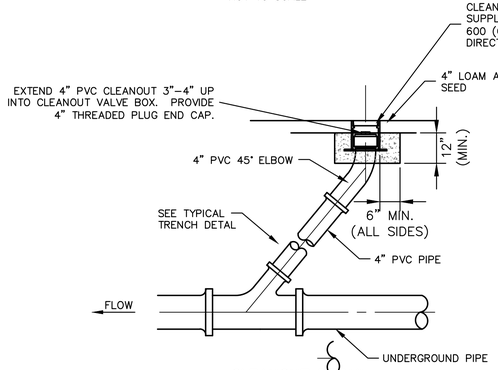
General Notes
1. Concrete: fc = 4,000 psi @ 28 Days Minimum, Type III Cement
2. HS-20 Design Loading Conforms to Latest Specifications ASTM C478, AASHTO M199 Precast Reinforced Concrete Manhole Sections
3. One Pour Monolithic Base Section
4. Steel Reinforcement Conforms to Latest ASTM Specification: ASTM A-615, Grade 60 Black Deformed Bars ASTM A-185 Welded Wire Fabric 0.12 Sq. In./Lineal Ft. And 0.12 Sq. In.(Both Ways) Base Bottom
5. Butyl Rubber Joint Sealant Provided Conforms to ASTM C-990 And Federal Spec SS-S-210A
6. 94 Gallons/VF
7. Holes & Elevations TBD
8. Sections Available in Increments of 6"
9. Booted Pipe Connections (If Used) Conform to ASTM C-923. Maximum Booted Connection Pipe Size is 24"
10. Maximum Pipe OD is 32" (24" RCP)
11. Plastic Manhole Steps (If Required) are Steel Reinforced Conforming to ASTM C-478

Est Weights:

Top Slab:	1,340 Lbs
Wt/VF:	864 Lbs
Floor:	931 Lbs

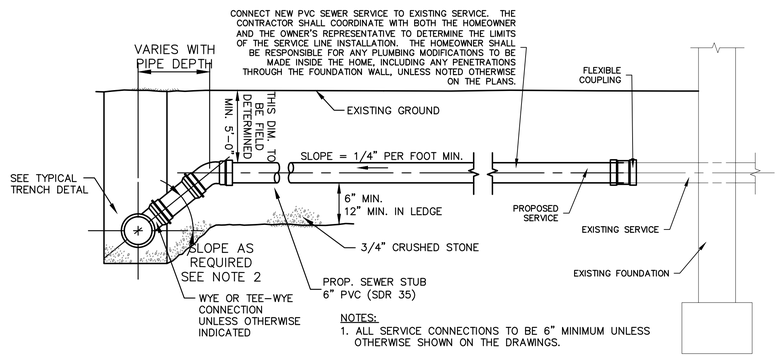
STANDARD DETAIL FOR DOUBLE-GRATE CB
NOT TO SCALE

CLEANOUT VALVE BOX. COVER SHALL BE MARKED "CLEANOUT" SUPPLIED BY EJ PRESCOTT, CONCORD, NH. PART NO. 65004 6C 600 (OR APPOVED EQUAL) SET IN CONCRETE. 6" MIN. IN ALL DIRECTIONS. TOP OF CONCRETE TO BE BELOW LOAM.



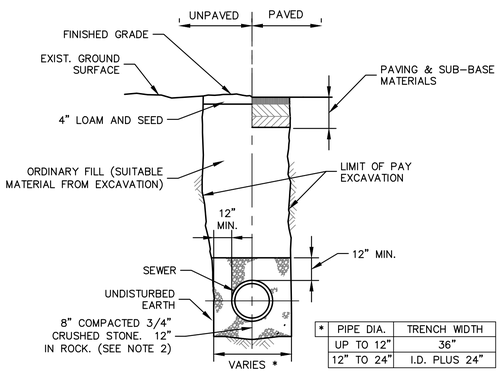
CLEANOUT DETAIL
NOT TO SCALE

CONNECT NEW PVC SEWER SERVICE TO EXISTING SERVICE. THE CONTRACTOR SHALL COORDINATE WITH BOTH THE HOMEOWNER AND THE OWNER'S REPRESENTATIVE TO DETERMINE THE LIMITS OF THE SERVICE LINE INSTALLATION. THE HOMEOWNER SHALL BE RESPONSIBLE FOR ANY PLUMBING MODIFICATIONS TO BE MADE INSIDE THE HOME, INCLUDING ANY PENETRATIONS THROUGH THE FOUNDATION WALL, UNLESS NOTED OTHERWISE ON THE PLANS.



NOTES:
1. ALL SERVICE CONNECTIONS TO BE 6" MINIMUM UNLESS OTHERWISE SHOWN ON THE DRAWINGS.
2. USE CHIMNEY DETAIL WHERE SERVICE CONNECTION ENTERS SEWER AT GREATER THAN 60° TO THE HORIZONTAL.

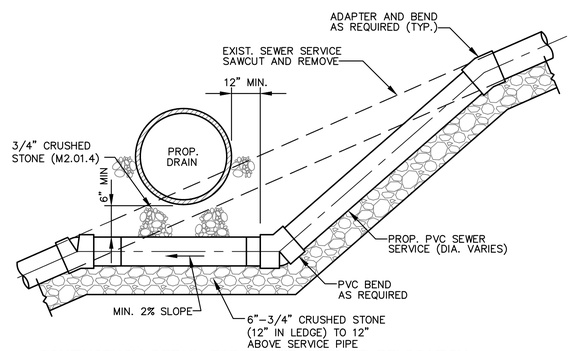
DETAIL FOR SEWER SERVICE CONNECTION
NOT TO SCALE



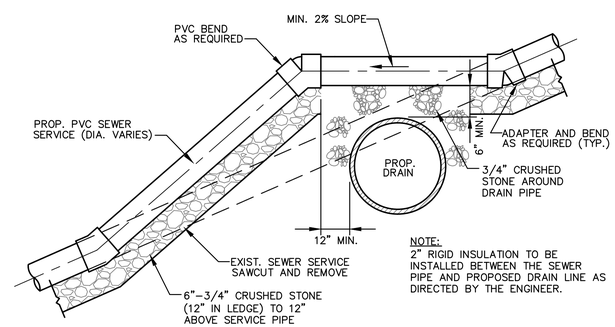
*	PIPE DIA.	TRENCH WIDTH
	UP TO 12"	36"
	12" TO 24"	I.D. PLUS 24"

TYPICAL TRENCH DETAIL FOR SEWER PIPE
NOT TO SCALE

NOTES
1. SHORING AND STABILIZING OF TRENCH SIDEWALLS DURING EXCAVATION SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR. NO ADDITIONAL COMPENSATION WILL BE ALLOWED FOR ANY TRENCH EXCAVATION BEYOND THE LIMITS OF PAY EXCAVATION INDICATED INCLUDING ROCK EXCAVATION.
2. FOR TRENCH EXCAVATION IN ROCK AS DETERMINED BY THE ENGINEER, ALLOWABLE PAY LIMIT SHALL BE AS DEFINED IN TABLE ABOVE.
3. FOR CONSTRUCTION RELATIVE TO UNSUITABLE MATERIALS ENCOUNTERED DURING EXCAVATION, THE ENGINEER SHALL BE CONTACTED IMMEDIATELY UPON ENCOUNTERING UNSUITABLE MATERIAL PRIOR TO EXCAVATION TO VERIFY THE WORK. THE CONTRACTOR SHALL EXCAVATE THE UNSUITABLE MATERIAL AND REPLACE WITH SELECT FILL AS DIRECTED BY THE ENGINEER.



CONTINGENCY DETAIL FOR SEWER SERVICE RELOCATION BELOW PROPOSED DRAIN
NOT TO SCALE



NOTE:
2" RIGID INSULATION TO BE INSTALLED BETWEEN THE SEWER PIPE AND PROPOSED DRAIN LINE AS DIRECTED BY THE ENGINEER.

CONTINGENCY DETAIL FOR SEWER SERVICE RELOCATION ABOVE PROPOSED DRAIN
NOT TO SCALE

ORIGINAL SHEET - ARCH D

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Legend

Notes

1	ADDED RR TRENCH DETAIL	DMB	RL	15.05.04
Revision		By	Appd.	YY.MM.DD
Issued		By	Appd.	YY.MM.DD

File Name: 12923-C-104-DETAILS.dwg
Dwn. Chkd. Dsgn. YY.MM.DD

Permit-Seal

Client/Project
CITY OF PORTSMOUTH
DEPARTMENT OF PUBLIC WORKS

BREWSTER STREET
DRAINAGE IMPROVEMENTS
PORTSMOUTH, NH

Title
CONSTRUCTION DETAILS

Project No.	Scale	
195112923	AS NOTED	
Drawing No.	Sheet	Revision
DET5	10 of 10	1