



**US Army Corps
of Engineers®**
New England District
696 Virginia Road
Concord, MA 01742-2751

PUBLIC NOTICE

Comment Period Begins: July 20, 2021
Comment Period Ends: August 19, 2021
File Number: NAE-2019-01078
In Reply Refer To:
Phone: (978) 318-8295
E-mail: Lindsey.E.Lefebvre@usace.army.mil

The District Engineer has received a permit application to conduct work in waters of the United States from The City of Portsmouth at 680 Peverly Hill Road, Portsmouth, New Hampshire 03801. This work is proposed in Little Bay at 180 Piscataqua Road, Durham, New Hampshire and Fox Point, Newington, New Hampshire. The site coordinates are: Latitude 43.12393°N, Longitude -70.86338°West.

The work involves both direct permanent and temporary discharges of dredged and fill material into wetlands and Waters for the United States (WoUS) along the proposed crossing of Little Bay between Durham and Newington (Fox Point) to install a drinking water transmission main. The City of Portsmouth currently owns and maintains a 6-mile cross-country drinking water transmission main which supplies over 60% of the drinking water used in the City's regional water system. The existing transmission main was built in the 1950s and consists of two, parallel cast iron water mains, approximately 3,200 ft long. Replacement of this crossing is proposed because the existing mains have experienced significant corrosion and the replacement will increase the reliability of this drinking water transmission main.

The proposed project involves installing a new 24" high density polyethylene (HDPE) water main on the ocean floor between the existing cast iron mains crossing Little Bay with connections to the existing reinforced concrete mains on either shore. The proposed installation method involves assembling the new pipeline on land and floating the pipeline into Little Bay. Since the HDPE pipe is buoyant, concrete collars are required to sink and anchor the pipeline to river bottom. At the intertidal zone and within portions of the tidal buffer zone, the proposed pipeline will be buried, via trench excavation, to protect the pipe from freezing, anchor drag, and tidal currents.

Impacts to wetlands and WoUS include approximately 0.12 acres of permanent impact to tidal waters (mudflat and subtidal area) associated with the proposed submerged pipe with anchors. Temporary impacts include 1.05 acres to tidal waters (mudflat and subtidal area) and 0.05 acres to salt marsh. Temporary impacts are associated with trench excavation and constructions access in both Durham and Newington.

The work is shown on the enclosed plans entitled "CITY OF PORTSMOUTH CONTRACT DRAWINGS FOR LITTLE BAY SUBAQUEOUS WATER MAIN REPLACEMENT," on 16 sheets, and dated "NOVEMBER 2020."

The water transmission main replacement project has been designed to avoid and minimize environmental impacts while increasing the reliability of this critical drinking water transmission main. To compensate for the project's projected impacts to waterways and wetlands, the applicant is currently proposing a contribution to the State of New Hampshire Aquatic Resource Mitigation Fund (NH In Lieu Fee Program). Additionally, all

temporary impacts will be restored upon project completion to pre-impact conditions & elevations, and turbidity curtains will also be used to minimize/prevent sediment dispersing from the trenching area.

AUTHORITY

Permits are required pursuant to:

- X Section 10 of the Rivers and Harbors Act of 1899
- X Section 404 of the Clean Water Act
- Section 103 of the Marine Protection, Research and Sanctuaries Act.

The decision whether to issue a permit will be based on an evaluation of the probable impact of the proposed activity on the public interest. That decision will reflect the national concern for both protection and utilization of important resources. The benefit which may reasonably accrue from the proposal must be balanced against its reasonably foreseeable detriments. All factors which may be relevant to the proposal will be considered, including the cumulative effects thereof; among those are: conservation, economics, aesthetics, general environmental concerns, wetlands, cultural value, fish and wildlife values, flood hazards, flood plain value, land use, navigation, shoreline erosion and accretion, recreation, water supply and conservation, water quality, energy needs, safety, food production and, in general, the needs and welfare of the people.

The U.S. Army Corps of Engineers, New England District (USACE), is soliciting comments from the public; Federal, state, and local agencies and officials; Indian Tribes; and other interested parties in order to consider and evaluate the impacts of this proposed activity. The USACE will consider all comments received to determine whether to issue, modify, condition or deny a permit for this proposal. To make this decision, comments are used to assess impacts on endangered species, historic properties, water quality, general environmental effects, and the other public interest factors listed above. Comments are used in the preparation of an Environmental Assessment and/or an Environmental Impact Statement pursuant to the National Environmental Policy Act. Comments are also used to determine the need for a public hearing and to determine the overall public interest of the proposed activity.

Where the activity involves the discharge of dredged or fill material into waters of the United States or the transportation of dredged material for the purpose of disposing it in ocean waters, the evaluation of the impact of the activity in the public interest will also include application of the guidelines promulgated by the Administrator, U.S Environmental Protection Agency, under authority of Section 404(b) of the Clean Water Act, and/or Section 103 of the Marine Protection Research and Sanctuaries Act of 1972, as amended.

ESSENTIAL FISH HABITAT

The Magnuson-Stevens Fishery Conservation and Management Act, as amended by the Sustainable Fisheries Act of 1996 (Public Law 104-267), requires all federal agencies to consult with the National Marine Fisheries Service on all actions, or proposed actions, permitted, funded, or undertaken by the agency, that may adversely affect Essential Fish Habitat (EFH). Essential Fish Habitat describes waters and substrate necessary for fish for spawning, breeding, feeding or growth to maturity.

This project will impact 1.22 acres of EFH. Habitat at this site can be described as fine sand, silt, and soft clay in the intertidal zone and in the deeper areas the substrate is made up of fine to medium sand, silts, clay, and shell fragments. Additionally, there are some bedrock areas in the project area. Loss of this habitat may adversely affect species that use these waters and substrate. However, the District Engineer has made a

preliminary determination that the site-specific adverse effect will not be substantial. Further consultation with the National Marine Fisheries Service regarding EFH conservation recommendations is being conducted and will be concluded prior to the final decision.

NATIONAL HISTORIC PRESERVATION ACT

Based on his initial review, the District Engineer has determined that the proposed work may impact properties listed in, or eligible for listing in, the National Register of Historic Places. Additional review and consultation to fulfil requirements under Section 106 of the National Historic Preservation Act of 1966, as amended, will be ongoing as part of the permit review process.

ENDANGERED SPECIES CONSULTATION

The USACE has reviewed the application for the potential impact on Federally-listed threatened or endangered species and their designated critical habitat pursuant to section 7 of the Endangered Species Act as amended. It is our preliminary determination that the proposed activity for which authorization is being sought is designed, situated or will be operated/used in such a manner that it is not likely to adversely affect a listed species or their critical habitat. We are coordinating with the National Marine Fisheries Service and/or U.S. Fish and Wildlife Service on listed species under their jurisdiction and the ESA consultation will be concluded prior to the final decision.

OTHER GOVERNMENT AUTHORIZATIONS

The states of Connecticut, Maine, Massachusetts, New Hampshire and Rhode Island have approved Coastal Zone Management Programs. Where applicable, the applicant states that any proposed activity will comply with and will be conducted in a manner that is consistent with the approved Coastal Zone Management Program. By this Public Notice, we are requesting the State concurrence or objection to the applicant's consistency statement.

The following authorizations have been applied for, or have been, or will be obtained:

- ☒ (X) Permit, license or assent from State.
- ☐ () Permit from local wetland agency or conservation commission.
- ☒ (X) Water Quality Certification in accordance with Section 401 of the Clean Water Act.

COMMENTS

In order to properly evaluate the proposal, we are seeking public comment. Anyone wishing to comment is encouraged to do so. Comments should be submitted in writing by the above date. If you have any questions, please contact Lindsey Lefebvre at (978) 318-8295, (800) 343-4789 or (800) 362-4367, if calling from within Massachusetts.

Any person may request, in writing, within the comment period specified in this notice, that a public hearing be held to consider the application. Requests for a public hearing shall specifically state the reasons for holding a public hearing. The USACE holds public hearings for the purpose of obtaining public comments when that is the best means for understanding a wide variety of concerns from a diverse segment of the public.

CENAE-R
FILE NO. NAE-2019-01078

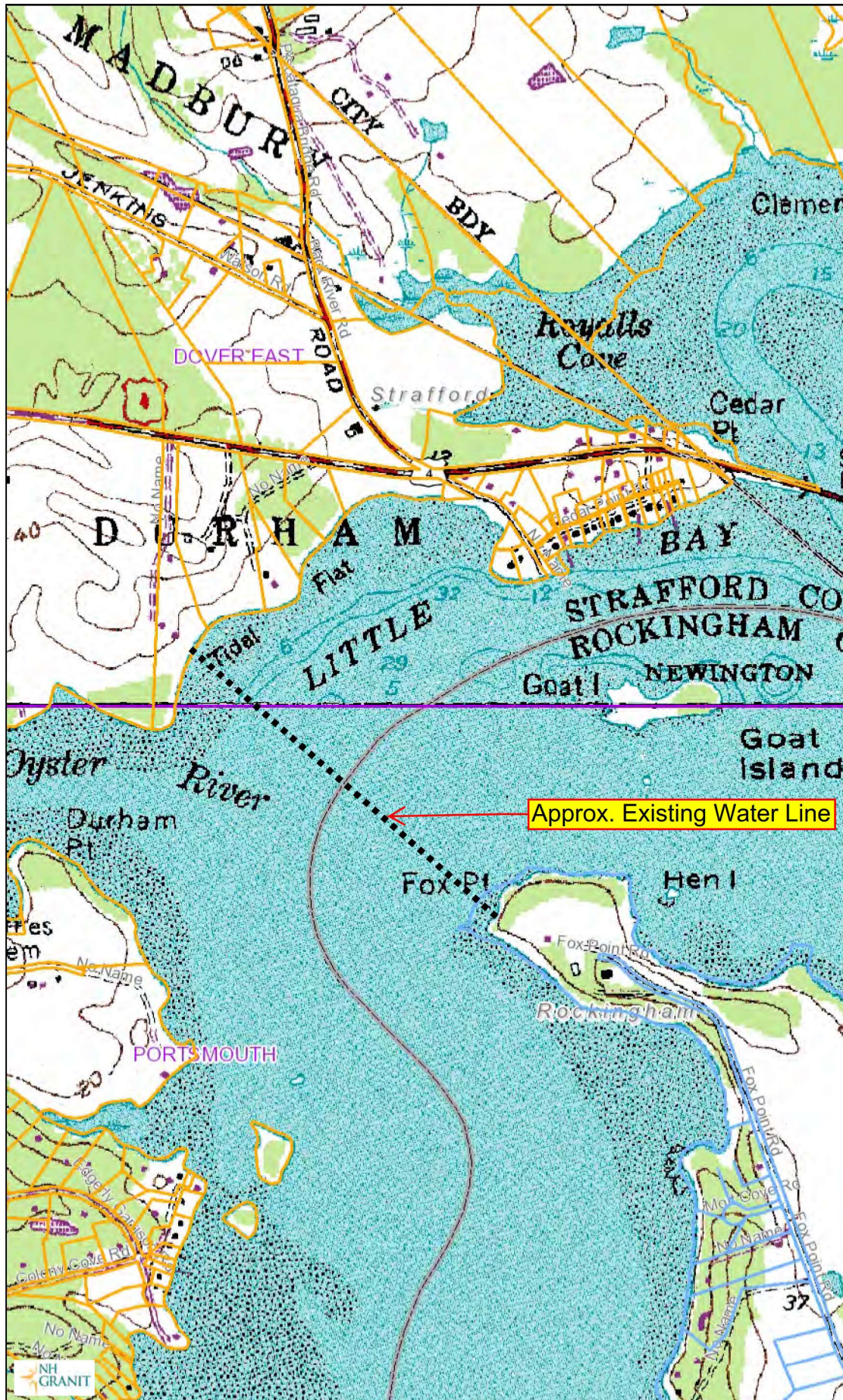
The initial determinations made herein will be reviewed in light of facts submitted in response to this notice. All comments will be considered a matter of public record. Copies of letters of objection will be forwarded to the applicant who will normally be requested to contact objectors directly in an effort to reach an understanding.

THIS NOTICE IS NOT AN AUTHORIZATION TO DO ANY WORK.

for **Frank Delgiudice**
Chief, Permits and Enforcement Branch C
Regulatory Division

If you would prefer not to continue receiving Public Notices by email, please contact Ms. Tina Chaisson at (978) 318-8058 or e-mail her at bettina.m.chaisson@usace.army.mil.

Subaqueous Water Main



CITY OF PORTSMOUTH
CONTRACT DRAWINGS FOR
LITTLE BAY
SUBAQUEOUS WATER MAIN REPLACEMENT
DURHAM & NEWINGTON, NH
NOVEMBER 2020

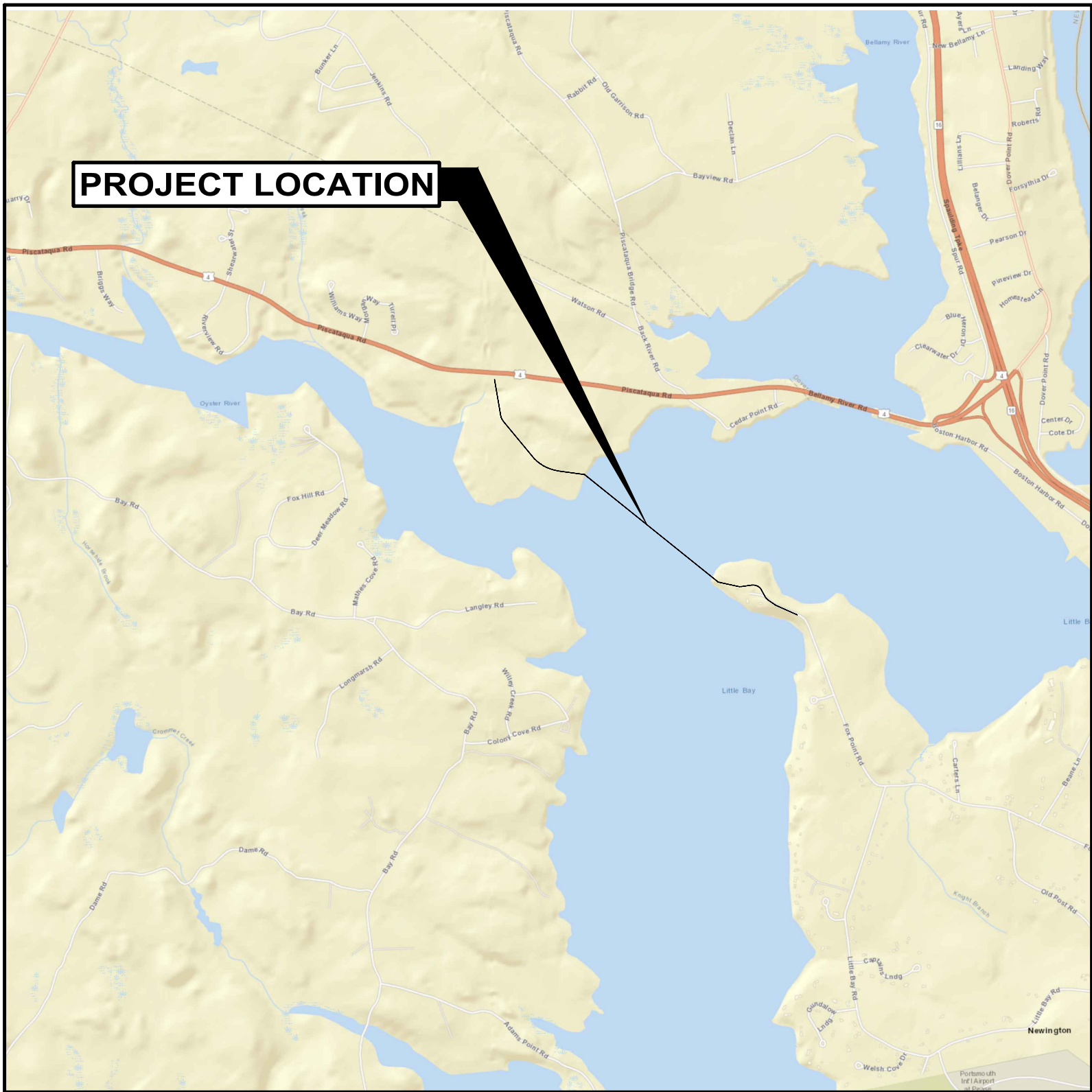
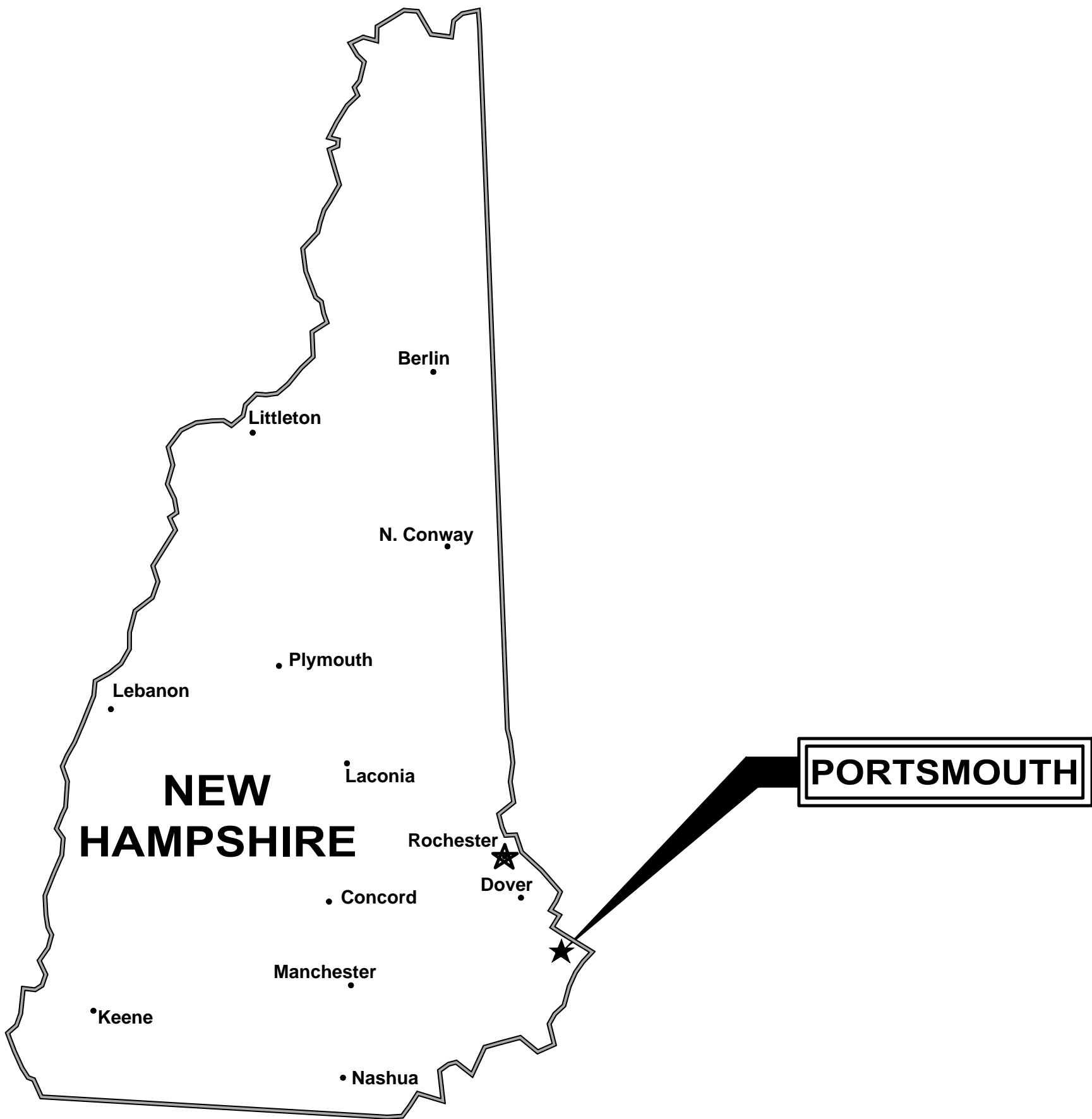
DRAWING INDEX

GENERAL

COVER SHEET

CIVIL

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- C-2 GENERAL NOTES, ABBREVIATIONS AND LEGEND
- C-3 EXISTING CONDITIONS-DURHAM
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- C-5 CONSTRUCTION STAGING PLAN - NEWINGTON
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- C-7 PLAN & PROFILE I - STA 100+00 TO 106+00
- C-8 PLAN & PROFILE II - STA 106+00 TO 112+00
- C-9 PLAN & PROFILE III - STA 112+00 TO 118+00
- C-10 PLAN & PROFILE IV - STA 118+00 TO 124+00
- C-11 PLAN & PROFILE V - STA 124+00 TO 130+00
- C-12 PLAN & PROFILE VI - STA 130+00 TO 133+00
- C-13 EROSION CONTROL NOTES & DETAILS - DURHAM
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- C-15 DETAILS I



LOCATION PLAN

PRELIMINARY DESIGN



Offices Throughout New England
888.621.8156 | www.wright-pierce.com

FOR REVIEW -
FOR BIDDING -
WP PROJECT No. 14202A



CITY OF PORTSMOUTH
SUBAQUEOUS WATER TRANSMISSION MAIN
PISCATAQUA RIVER, DURHAM-NEWINGTON
NEW HAMPSHIRE

DRAWING

C-1

PROJECT EXTENTS

**WRIGHT-PIERCE**
Engineering a Better Environment
888.621.8156 | www.wright-pierce.com

DESIGNED BY: W. EDG
CAG CORP.: W. EDG
CAG: W. EDG
CHECKED BY:
DATE:
APPROVED BY:
DATE:
PROJECT NO.: 14202A

NO
PRELIMINARY DESIGN - NOT FOR CONSTRUCTION
SUBMISSIONS/REVISIONS
APPD
DATE
07/20

GENERAL NOTES

1. THE CONTRACTOR IS REFERRED TO SECTION 01050 OF THE SPECIFICATIONS REGARDING COORDINATION WITH OTHERS, INCLUDING RESPONSIBILITIES AND RELATED COSTS.

2. BELOW GRADE UTILITY INFORMATION IS BASED ON INFORMATION PROVIDED BY EACH UTILITY. LOCATION OF PUBLIC UTILITIES SHOWN IS ONLY APPROXIMATE AND MAY NOT BE COMPLETE. PRIVATE UNDERGROUND UTILITIES SUCH AS, BUT NOT LIMITED TO, SEWER LINES, WATER LINES AND BURIED ELECTRICAL SERVICE ENTRANCES ARE NOT SHOWN. THE CONTRACTOR SHALL ASCERTAIN THE LOCATION AND SIZE OF EXISTING UTILITIES IN THE FIELD WITH THE RESPECTIVE UTILITY COMPANY REPRESENTATIVE PRIOR TO COMMENCING WORK. REFER TO SPECIFICATION SECTION 01050. ADDITIONAL TEST PITS, BEYOND THOSE SHOWN, MAY BE REQUIRED. UTILITY CONTACTS ARE AS FOLLOWS:

ELECTRIC:

EVERSOURCE
780 N COMMERCIAL ST
MANCHESTER, NH 03101
(800) 662-7764

WATER/SEWER/STORM DRAIN:

CITY OF PORTSMOUTH
PUBLIC WORKS DEPARTMENT
680 PEVERLY ROAD
PORTSMOUTH, NH 03801
TEL. (603) 427-1530
CONTACT: BRIAN GOETZ

GAS:

UNITIL CORPORATION
325 WEST ROAD
PORTSMOUTH, NH 03801
TEL. (603) 294-5157 (MAIN)
TEL. (603) 325-0252 (CELL)
CONTACT: PHIL JOHNSON

TELEPHONE:

FAIRPOINT COMMUNICATIONS
6 OLD PRESCOTT HILL ROAD
BELMONT, NH 03222
TEL. (603) 433-2090 (MAIN)
TEL. (603) 540-1616 (CELL)
CONTACT: JENNIFER FOLEY

DIG SAFE:

TEL. 1-800-344-7233

CABLE TELEVISION:

METROCAST CABLEVISION
21 JARVIS BLVD.
ROCHESTER, NH 03868
TEL. (603) 330-7741
CONTACT: MIKE GRAVEL

ADJUSTMENT OF WATER, SEWER, AND DRAINAGE, COVERS OR SIMILAR STRUCTURES TO MATCH THE NEW PAVEMENT GRADE AND THE RELOCATION OF UTILITY POLES WILL BE PERFORMED BY THE APPROPRIATE UTILITY OR ITS AUTHORIZED REPRESENTATIVE. THE CONTRACTOR SHALL COOPERATE WITH THE UTILITY IN EVERY WAY TO EXPEDITE SUCH ADJUSTMENTS. CONTRACTOR IS RESPONSIBLE TO IMPLEMENT AND SCHEDULE ALL CONTRACTORS INFRASTRUCTURE WORK.

3. THE LOCATION AND LIMITS OF ALL ON SITE WORK AND STORAGE AREAS SHALL BE REVIEWED/COORDINATED WITH, AND ACCEPTABLE TO THE OWNER AND ENGINEER.

4. ALL STRUCTURES AND PIPELINES LOCATED ADJACENT TO THE TRENCH EXCAVATION SHALL BE PROTECTED AND FIRMLY SUPPORTED BY THE CONTRACTOR UNTIL THE TRENCH IS BACKFILLED. DAMAGE TO ANY SUCH STRUCTURES CAUSED BY, OR RESULTING FROM, THE CONTRACTOR'S OPERATIONS SHALL BE REPAIRED AT THE CONTRACTOR'S EXPENSE. ALL UTILITIES REQUIRING REPAIR, RELOCATION OR ADJUSTMENT AS A RESULT OF THE PROJECT SHALL BE COORDINATED THROUGH THE RESPECTIVE UTILITY.

5. IN THOSE INSTANCES WHERE POWER OR TELEPHONE POLE SUPPORT IS REQUIRED, THE CONTRACTOR SHALL PROVIDE A MINIMUM 48-HOUR NOTIFICATION TO EVERSOURCE OR FAIRPOINT, RESPECTIVELY. NO ADDITIONAL PAYMENT WILL BE PROVIDED FOR TEMPORARY BRACING OF UTILITIES.

6. DO NOT SCALE DRAWINGS UNLESS OTHERWISE NOTED. WRITTEN DIMENSIONS AND STATIONING SHALL PREVAIL.

7. CONTRACTOR SHALL INSTALL AND MAINTAIN TRAFFIC CONTROL DEVICES AS NECESSARY AND IN A MANNER CONSISTENT WITH THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (M.U.T.C.D.), N.H.D.O.T. STANDARDS, OR AS REQUIRED BY OWNER.

8. THE CONTRACTOR IS RESPONSIBLE FOR MAINTAINING TRAFFIC FLOW AT ALL TIMES. THE CONTRACTOR IS REQUIRED TO SUBMIT A TRAFFIC CONTROL PLAN TO THE OWNER PRIOR TO COMMENCING CONSTRUCTION. THE ROCHESTER POLICE DEPARTMENT (335-1338) AND FIRE DEPARTMENT (332-4140) ARE TO BE NOTIFIED AT LEAST 24 HOURS IN ADVANCE OF ANY STREET CLOSING OR DETOUR. REFER TO SPEC. SECTION 01570.

9. THE OWNER SHALL BE RESPONSIBLE FOR OBTAINING NECESSARY RIGHTS OF WAY AND PERMANENT EASEMENTS. THE CONTRACTOR SHALL VERIFY THAT THE NECESSARY EASEMENTS HAVE BEEN SECURED BY THE OWNER. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO BE FAMILIAR WITH THE APPLICABLE PROVISIONS OF EACH EASEMENT AS THEY APPLY TO THE WORK PRIOR TO BIDDING AND ABIDE BY THOSE PROVISIONS DURING CONSTRUCTION. COPIES OF ANY SUCH RIGHTS-OF-WAY AND EASEMENTS ARE AVAILABLE FOR REVIEW FROM THE CITY OF ROCHESTER.

10. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE PREVENTION OF EROSION. ALL DISTURBED EARTH SURFACES ARE TO BE STABILIZED IN THE SHORTEST PRACTICAL TIME AND TEMPORARY EROSION CONTROL DEVICES SHALL BE EMPLOYED UNTIL SUCH TIME AS ADEQUATE SOIL STABILIZATION HAS BEEN ACHIEVED. TEMPORARY STORAGE OF EXCAVATED MATERIAL IS TO BE IN A MANNER THAT WILL MINIMIZE EROSION. MATERIALS AND METHODS USED FOR TEMPORARY EROSION CONTROL SHALL BE AS SPECIFIED BY THE "NEW HAMPSHIRE STORMWATER MANUAL" PREPARED BY THE NEW HAMPSHIRE DEPARTMENT OF ENVIRONMENTAL SERVICES. REFER TO SPECIFICATION SECTION 02270.

11. COMPACTION TESTS SHALL BE PERFORMED IN ACCORDANCE WITH SPECIFICATION SECTION 02200. ANY SETTLEMENT OCCURRING WITHIN ONE YEAR OF SUBSTANTIAL COMPLETION OF THE PROJECT WILL BE CORRECTED BY THE CONTRACTOR AT NO ADDITIONAL EXPENSE TO THE OWNER.

12. OPEN TRENCHES IN THE ROADWAY MUST BE BACKFILLED AT THE END OF THE WORKDAY, UNLESS PERMISSION IS GIVEN IN WRITING BY THE OWNER.

13. CONTRACTOR SHALL CONTROL DUST TO A TOLERABLE LIMIT AS OUTLINED IN SPECIFICATION SECTION 01562. CONTRACTOR SHALL NOT TRACK OR SPILL EARTH AND DEBRIS ON PUBLIC STREETS OUTSIDE THE PROJECT AREA. STREETS OPENED TO THE PUBLIC SHALL BE KEPT SWEEPED AND FREE OF DEBRIS EACH DAY AT THE BEGINNING AND END OF WORK DAY. CROSS STREETS THAT BOUND THE PROJECT AREA WILL BE SWEEPED AT LEAST ONCE EACH WEEK OR AS DIRECTED BY THE ENGINEER.

14. ALL AREAS (EXCEPT GRAVEL DRIVEWAYS) THAT ARE EXCAVATED, FILLED OR OTHERWISE DISTURBED BY THE CONTRACTOR AND ARE NOT TO BE PAVED OR FILLED WITH RIPRAP, SHALL BE LOAMED, GRADED, LIMED, FERTILIZED, SEEDED AND MULCHED.

15. THE CONTRACTOR SHALL BE RESPONSIBLE FOR RESETING ALL EXISTING PROPERTY MONUMENTATION THAT IS DISTURBED BY HIS OPERATIONS AT NO EXPENSE TO THE OWNER. THIS WORK IS TO BE DONE BY A LAND SURVEYOR REGISTERED IN THE STATE OF NEW HAMPSHIRE.

16. THE CONTRACTOR SHALL NOT HAVE ANY RIGHT OF PROPERTY IN ANY MATERIALS TAKEN FROM ANY EXCAVATION. SUITABLE EXCAVATED MATERIAL MAY BE INCORPORATED IN THE PROJECT. THE OWNER AND THE ROCHESTER DEPARTMENT OF PUBLIC WORKS SHALL HAVE FIRST REFUSAL TO ALL EXCESS SOIL MATERIAL. EXCESS MATERIALS ACCEPTED BY THE OWNER SHALL BE DELIVERED BY THE CONTRACTOR TO THE ROCHESTER PUBLIC WORKS FACILITY ON 45 OLD DOVER ROAD. THE CONTRACTOR SHALL DISPOSE OF ALL UNSUITABLE AND EXCESS MATERIAL NOT ACCEPTED FOR REUSE BY THE OWNER IN ACCORDANCE WITH THE APPLICABLE SECTIONS OF THE CONTRACT DOCUMENTS AND ALL STATE, FEDERAL AND LOCAL REGULATIONS. SUITABLE MATERIAL WITH EXCESSIVE MOISTURE SHALL BE STOCKPILED AND MANAGED TO ALLOW DRYING BEFORE FUTURE USE ON PROJECT.

17. THE CONTRACTOR SHALL COMPLY WITH ALL APPLICABLE REGULATIONS OF THE OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION (OSHA).

18. CONTRACTOR SHALL RETURN ALL CASTINGS TO THE CITY OF ROCHESTER. CASTINGS SHALL BE TRANSPORTED TO THE CITY OF ROCHESTER PUBLIC WORKS DEPARTMENT OR SEPARATE STOCKPILE LOCATION. COORDINATE WITH THE CITY.

19. THE ENGINEER WILL PROVIDE CONTRACTOR WITH HORIZONTAL CONTROL POINTS TO ASSIST CONTRACTOR IN LAYING OUT THE CONSTRUCTION BASELINE. THE CONTRACTOR SHALL ESTABLISH HORIZONTAL AND VERTICAL ROADWAY LAYOUT CONTROL POINTS BEYOND THE LIMITS OF ROADWAY WORK AND PROTECT THESE POINTS FOR THE DURATION OF THE PROJECT. LAYOUT OF ALL CONSTRUCTION SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR.

20. THE CONTRACTOR IS TO TAKE SPECIAL CARE NOT TO DAMAGE TREES WITHIN THE CONSTRUCTION AREA UNLESS THEY ARE NOTED TO BE REMOVED.

21. LIMITS OF WORK IN EXISTING DRIVES AS SHOWN ON THE PLANS ARE APPROXIMATE. ACTUAL LIMITS OF WORK ARE TO BE DETERMINED IN THE FIELD BASED ON THESE DRAWINGS AND AS APPROVED BY THE ENGINEER.

22. PAVEMENT IS TO BE SAWCUT AT ALL SIDE ROADS, PAVED DRIVES, PAVED SIDEWALKS, AS WELL AS THE BEGINNING AND END OF THE PROJECT.

23. SAWCUT LINES FOR PAVED DRIVEWAY MATCHES ARE APPROXIMATE. CONTRACTOR SHALL FIELD VERIFY SAWCUT LOCATION FOR DRIVEWAY MATCHES WITH THE ENGINEER.

24. EXISTING SIGNS IMPACTED BY THIS PROJECT SHALL BE RESET AT NO ADDITIONAL COST TO THE OWNER. PLACEMENT SHALL CONFORM TO THE REQUIREMENTS OF THE MUTCD.

25. ALL DUCTILE IRON WATER MAIN, VALVES AND FITTINGS SHALL BE WRAPPED WITH POLYETHYLENE ENCASEMENT PROTECTION WRAP (POLY WRAP). REFER TO SPEC. SECTION 02616.
- PIPELINE GENERAL NOTES
1. PROVIDE 2 INCH RIGID INSULATION WHERE DIRECTED BY OWNER OR ENGINEER. TYPICAL INSULATION INSTALLATION IS OVER SEWER AND WATER MAINS WHEN COVER IS LESS THAN 5'-0".

2. MINIMUM DEPTH OF COVER FOR WATER MAIN SHALL BE 5'-0"

3. PIPE RESTRAINT FOR WATER MAINS: ALL BENDS, TEES, REDUCERS, HYDRANTS, AND PLUGS SHALL BE RESTRAINED BY USING CONCRETE THRUST BLOCKS AND "GRIP RINGS" OR OTHER METHOD AS SHOWN ON THE DRAWINGS.

4. A MINIMUM SEPARATION OF 6 INCHES BETWEEN THE WATER MAIN AND STORM DRAINAGE PIPES SHALL BE MAINTAINED. 2 INCH RIGID INSULATION SHALL BE PROVIDED WHEN THE SEPARATION IS LESS THAN 18 INCHES.
- SURVEY NOTES
1. EXISTING CONDITION INFORMATION AND WETLAND INFORMATION IS BASED ON A GROUND SURVEY CONDUCTED BY DOUCET SURVEY, INC., OF NEWMARKET, NEW HAMPSHIRE. SURVEY CONDUCTED DURING NOVEMBER 2018, AUGUST & SEPTEMBER 2019, AND DECEMBER 2019 USING A TRIMBLE S7 TOTAL STATION AND A TRIMBLE R10 SURVEY GRADE GPS WITH A TRIMBLE TSC3 DATA COLLECTOR AND A SOKKIA B21 AUTO LEVEL. TRAVERSE ADJUSTMENT BASED ON LEAST SQUARE ANALYSIS.

2. JURISDICTIONAL RESOURCES INCLUDING HIGHEST OBSERVABLE TIDE LINE WERE DELINEATED ON MAY 29, 2019 BY MARC JACOBS, CERTIFIED WETLAND SCIENTIST NUMBER 090, ACCORDING TO THE STANDARDS OF THE US ARMY CORPS OF ENGINEERS - WETLANDS DELINEATION MANUAL: THE 2012 REGIONAL SUPPLEMENT TO THE CORPS OF ENGINEERS WETLAND DELINEATION MANUAL: NORTHCENTRAL AND NORTHEAST REGION; AND THE CODE OF ADMINISTRATIVE RULES, NH DEPARTMENT OF ENVIRONMENTAL SERVICES - WETLANDS BUREAU - ENV WT 100-900. SOILS WERE EVALUATED UTILIZING THE FIELD INDICATORS FOR IDENTIFYING HYDRIC SOILS IN NEW ENGLAND, VERSION 4, APRIL 2019 AND THE FIELD INDICATORS OF HYDRIC SOILS IN THE UNITED STATES, VERSION 8, 2016. THE INDICATOR STATUS OF VEGETATION AS HYDROPHYTIC WAS DETERMINED ACCORDING TO THE U.S. ARMY CORPS OF ENGINEERS - NORTHCENTRAL AND NORTHEAST 2016 REGIONAL WETLAND PLANT LIST. COPIES OF SITE PLANS WHICH HAVE BEEN REVIEWED BY THE WETLAND SCIENTIST ARE INDIVIDUALLY STAMPED, SIGNED AND DATED. THIS NOTE HAS BEEN CUSTOMIZED FOR THIS PROJECT.

3. HORIZONTAL DATUM BASED ON NEW HAMPSHIRE STATE PLANE (2800) NAD83(2011) DERIVED FROM REDUNDANT GPS OBSERVATIONS UTILIZING THE KEYNET GPS VRS NETWORK.

4. VERTICAL DATUM IS BASED ON APPROXIMATE MLLW (MEAN LOWER LOW WATER) PER CONVERSION FROM NAVD88 TO MLLW, ELEVATION CHANGE -2.27' PROVIDED BY OCEANS SURVEY, INC. AND VERIFIED USING THE NOAA ONLINE VERTICAL DATUM TRANSFORMATION (VDATUM) WEBSITE. NAVD88(GEIOD12A) ELEVATIONS DERIVED FROM REDUNDANT GPS OBSERVATIONS UTILIZING THE KEYNET GPS VRS NETWORK (± 2').

5. THE LOCATION OF THE WATER LINE EASEMENT SHOWN IS BASED ON THE LISTED REFERENCE PLAN AND IS ALIGNED USING THE NGS COORDINATE AND TRANSFORMATION TOOL (NCA1) TO CONVERT FROM NAD27 TO NAD83(2011).
- | EXISTING | LEGEND | PROPOSED |
|----------|-----------------------|----------|
| | PROPERTY/ROW LINE | |
| | SETBACK LINE | |
| | EASEMENT LINE | |
| | EDGE OF PAVEMENT | |
| | CURBING | |
| | EDGE OF GRAVEL | |
| | EDGE OF CONCRETE | |
| | CONTOUR | |
| | BUILDING | |
| | STONEWALL | |
| | TREELINE | |
| | CHAIN LINK FENCE | |
| | STOCKADE FENCE | |
| | BARB WIRE FENCE | |
| | RETAINING WALL | |
| | GUARDRAIL | |
| | SEWER | |
| | SEWER FORCE MAIN | |
| | GAS | |
| | WATER | 8"W |
| | STORM DRAIN | |
| | UNDERDRAIN | |
| | CULVERT | |
| | UNDERGROUND ELECTRIC | |
| | OVERHEAD ELECTRIC | |
| | IRON PIPE/REBAR | |
| | DRILLHOLE | |
| | MONUMENT | |
| | SURVEY CONTROL POINT | |
| | SPOT ELEVATION | |
| | SEWER MANHOLE | |
| | DRAINAGE MANHOLE | |
| | CATCH BASIN | |
| | ELECTRIC MANHOLE | |
| | TELEPHONE MANHOLE | |
| | GATE VALVE | |
| | CURB STOP | |
| | YARD HYDRANT | |
| | HYDRANT | |
| | UTILITY POLE | |
| | UTILITY POLE W/ GUY | |
| | UTILITY POLE W/ LIGHT | |
| | LIGHT POLE | |
| | BOLLARD | |
| | FLAGPOLE | |
| | CONIFEROUS TREE | |
| | DECIDUOUS TREE | |
| | SHRUB | |
| | EDGE OF WATER | |
| | STREAM | |
| | EDGE OF WETLANDS | |
| | FLOODPLAIN | |
| | WETLANDS | |
| | DRAINAGE FLOW | |
| | PAVEMENT MARKINGS | |
| | SIGN | |
| | MAILBOX | |
| | TEMPORARY BENCH MARK | |
| | TEST BORING | |
| | TEST PROBE | |
| | LIMIT OF WORK | |
| | SILT FENCE | |
| | RIPRAP | |
| | MATCHLINE | |
| | ROCK OUTCROP | |
- PROPOSED WETLAND IMPACT AREAS
- | | |
|-------------------------|--|
| TEMP. TIDAL BUFFER ZONE | |
| TEMP. TIDAL MARSH | |
| TEMP. TIDAL WATERS | |
| PERM. TIDAL WATER | |
- CIVIL ABBREVIATIONS
- | | |
|---------|----------------------------------|
| & | AND |
| Ø, DIA | DIAMETER |
| #, NO | NUMBER |
| APP'D | APPROVED |
| BLDG | BUILDING |
| CB | CATCH BASIN |
| CEN | CENTER |
| CFS | CUBIC FEET PER SECOND |
| CI | CAST IRON |
| CL | CENTERLINE |
| CMP | CORRUGATED METAL PIPE |
| CO | CLEANOUT |
| CONC | CONCRETE |
| COR | CORNER |
| CY | CUBIC YARD |
| DEMO | DEMOLITION |
| DMH | DRAIN MANHOLE |
| DI | DUCTILE IRON |
| DR | DRAIN |
| DWG | DRAWING |
| EL | ELEVATION |
| EMH | ELECTRIC MANHOLE |
| FM | FORCE MAIN |
| FT | FEET |
| G | GAS |
| HYD | HYDRANT |
| IN | INCH |
| INF | INFLUENT |
| INV | INVERT |
| LBS | POUNDS |
| MAX | MAXIMUM |
| MH | MANHOLE |
| MIN | MINIMUM |
| MW | MONITORING WELL |
| N | NORTH |
| NGVD | NATIONAL GEODETIC VERTICAL DATUM |
| N/A | NOT AVAILABLE/ APPLICABLE |
| NTS | NOT TO SCALE |
| OD | OUTSIDE DIAMETER |
| PC | PERFORATED CLAY |
| PSF | POUNDS PER SQUARE FOOT |
| PSI | POUNDS PER SQUARE INCH |
| PS | PRIMARY SLUDGE |
| PT | POINT OF TANGENCY |
| PVC | POLYVINYL CHLORIDE |
| RCP | REINFORCED CONCRETE PIPE |
| RD | ROOF DRAIN |
| REQ'D | REQUIRED |
| S | SLOPE, SEWER |
| SD | STORM DRAIN |
| SF | SQUARE FEET |
| SMH | SANITARY SEWER MANHOLE |
| SQ | SQUARE |
| STA | STATION |
| T, XFMR | TRANSFORMER |
| TBM | TEMPORARY BENCH MARK |
| THK | THICKNESS |
| TOS | TOP OF STRUCTURE |
| TYP | TYPICAL |
| UD | UNDERDRAIN |
| UG | UNDERGROUND |
| UGE | UNDERGROUND ELECTRIC |
| VC | VITRIFIED CLAY |
| W/ | WITH |
| W | POTABLE WATER |
- CITY OF PORTSMOUTH
SUBAQUEOUS WATER TRANSMISSION MAIN
PISCATAQUA RIVER, DURHAM-NEWINGTON
NEW HAMPSHIRE

GENERAL NOTES, LEGEND & ABBREVIATIONS

DRAWING

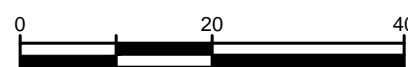
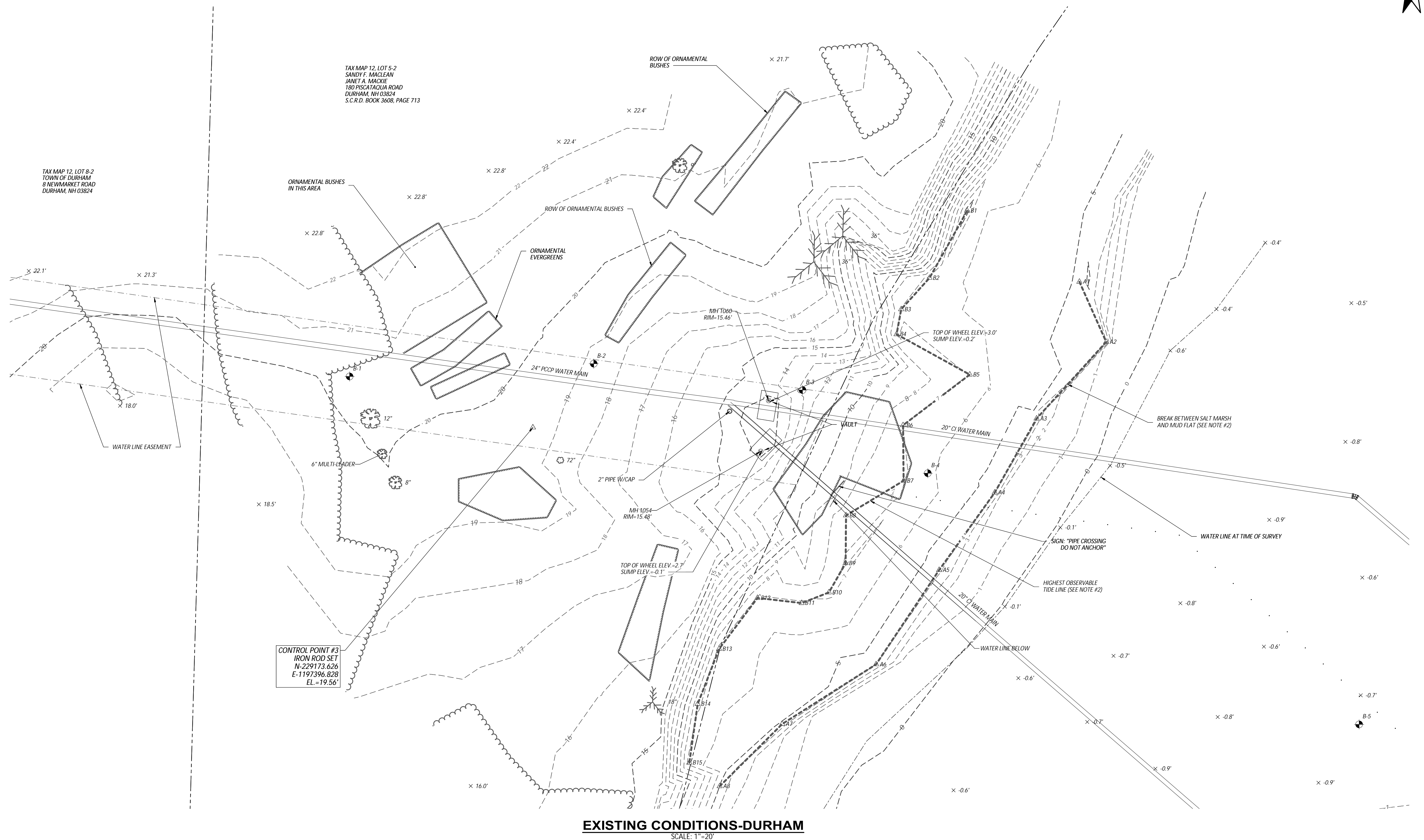
C-2

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DATE	07/20
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DESIGNED BY: W. EDG	
CAD CORP: W. EDG	
CAD: W. EDG	
CHECKED BY:	
DATE:	
APPROVED BY:	
DATE:	11/02/20
PROJECT NO:	

NOTES

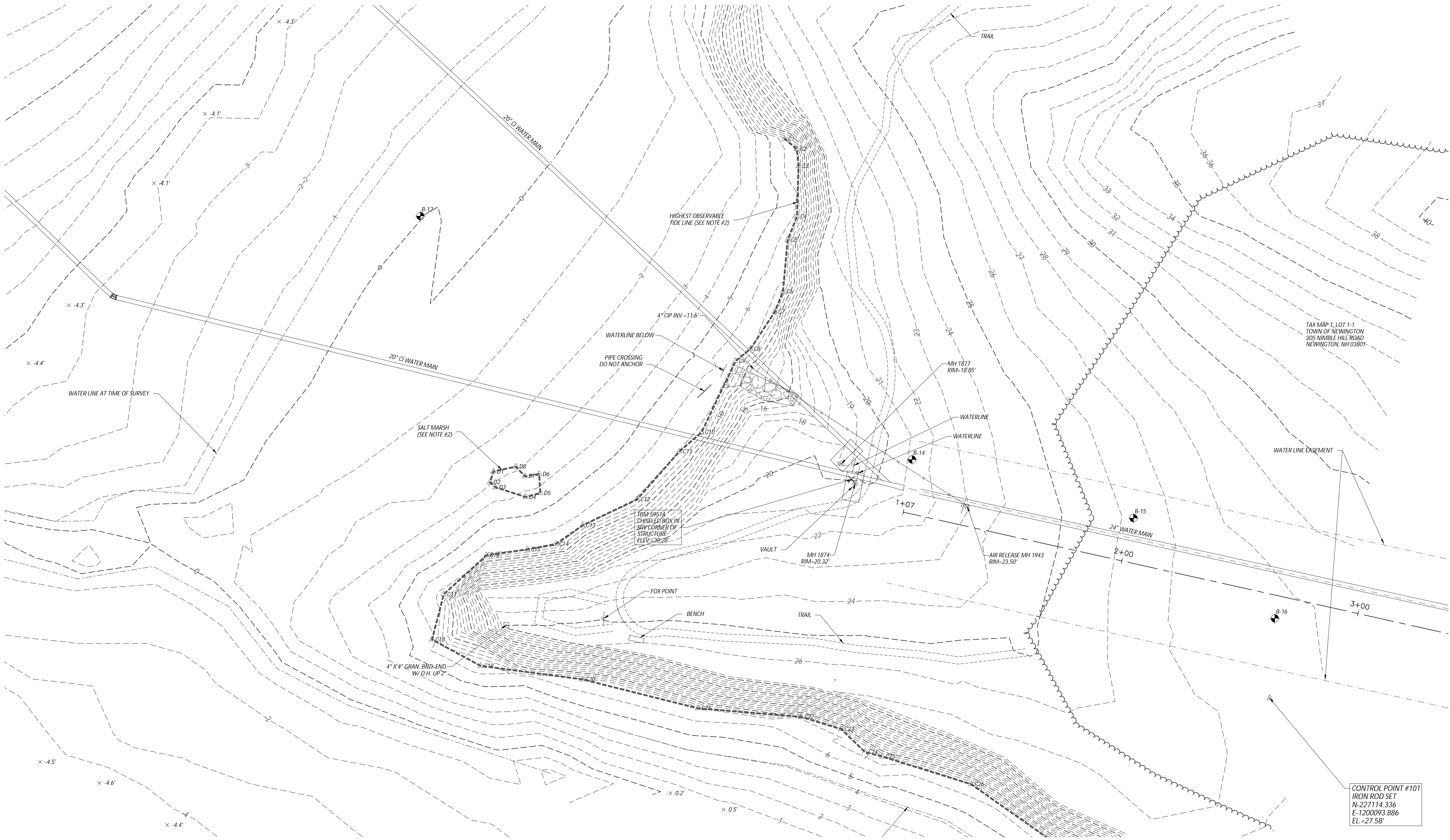
1. FIELD SURVEY PERFORMED BY DOUCET SURVEY, INC., DURING MAY & JUNE 2019 USING A TRIMBLE 57 TOTAL STATION AND A TRIMBLE R10 SURVEY GRADE GPS WITH A TRIMBLE TSC3 DATA COLLECTOR AND A SOKKIA B21 AUTO LEVEL. TRAVERSE ADJUSTMENT BASED ON LEAST SQUARE ANALYSIS.
2. JURISDICTIONAL RESOURCES INCLUDING HIGHEST OBSERVABLE TIDE LINE, WERE DELINEATED ON MAY 29, 2019 BY MARC JACOBS, CERTIFIED WETLAND SCIENTIST NUMBER 090 ACCORDING TO THE STANDARDS OF THE US ARMY CORPS OF ENGINEERS – WETLANDS DELINEATION MANUAL; THE 2012 REGIONAL SUPPLEMENT TO THE CORPS OF ENGINEERS WETLAND DELINEATION MANUAL: NORTH-CENTRAL AND NORTHEAST REGION; AND THE CODE OF ADMINISTRATIVE RULES, NH DEPARTMENT OF ENVIRONMENTAL SERVICES – WETLANDS BUREAU – ENV WT 100-900. SOILS WERE EVALUATED UTILIZING THE FIELD INDICATORS FOR IDENTIFYING HYDRIC SOILS IN NEW ENGLAND, VERSION 4, APRIL 2019 AND THE FIELD INDICATORS FOR HYDRIC SOILS IN THE UNITED STATES, VERSION 8, 2016. THE INDICATOR STATUS OF VEGETATION AND HYDROPHYTIC WAS DETERMINED BY RECORDING TO THE NEAREST 10 CM. THE HIGHEST OBSERVABLE TIDE LINE WAS RECORDED TO THE NEAREST 0.1 METER. FIVE COPIES OF SITE PLANS WHICH HAVE BEEN REVIEWED BY THE WETLAND SCIENTIST ARE INDIVIDUALLY STAMPED, SIGNED AND DATED. THIS NOTE HAS BEEN COMPLETED FOR THIS PROJECT.

[illegible]

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J:\ENGINE\PORTSMOUTH\14202 SUBAQUEOUS WATER TRANSMISSION DRAWINGS\DWG 14202A.CS EXCOND_NEWINGTON.DWG | Excond_Newington | 1:10.1264677 | | 11/10/2020 6:25:20 PM | BRITTECKSTROM

NOTES

1. FIELD SURVEY PERFORMED BY DOUCET SURVEY, INC., DURING MAY & JUNE 2019 USING A TRIMBLE S7 TOTAL STATION AND A TRIMBLE R10 SURVEY GRADE GPS WITH A TRIMBLE TSC3 DATA COLLECTOR AND A SOKKIA B21 AUTO LEVEL. TRAVERSE ADJUSTMENT BASED ON LEAST SQUARE ANALYSIS.
2. JURISDICTIONAL RESOURCES INCLUDING HIGHEST OBSERVABLE TIDE LINE WERE DELINEATED ON MAY 29, 2019 BY MARC JACOBS, CERTIFIED WETLAND SCIENTIST NUMBER 090, ACCORDING TO THE STANDARDS OF THE US ARMY CORPS OF ENGINEERS - WETLANDS DELINEATION MANUAL: THE 2012 REGIONAL SUPPLEMENT TO THE CORPS OF ENGINEERS WETLAND DELINEATION MANUAL: NORTHCENTRAL AND NORTHEAST REGION; AND THE CODE OF ADMINISTRATIVE RULES, NH DEPARTMENT OF ENVIRONMENTAL SERVICES - WETLANDS BUREAU - ENV WT 100-900. SOILS WERE EVALUATED UTILIZING THE FIELD INDICATORS FOR IDENTIFYING HYDRIC SOILS IN NEW ENGLAND, VERSION 4, APRIL 2019 AND THE FIELD INDICATORS OF HYDRIC SOILS IN THE UNITED STATES, VERSION 8, 2016. THE INDICATOR STATUS OF VEGETATION AS HYDROPHYTIC WAS DETERMINED ACCORDING TO THE U.S. ARMY CORPS OF ENGINEERS - NORTHCENTRAL AND NORTHEAST 2016 REGIONAL WETLAND PLANT LIST. COPIES OF SITE PLANS WHICH HAVE BEEN REVIEWED BY THE WETLAND SCIENTIST ARE INDIVIDUALLY STAMPED, SIGNED AND DATED. THIS NOTE HAS BEEN CUSTOMIZED FOR THIS PROJECT.



EXISTING CONDITIONS-NEWINGTON
SCALE: 1"=20'



CITY OF PORTSMOUTH SUBAQUEOUS WATER TRANSMISSION MAIN PISCATAQUA RIVER, DURHAM-NEWINGTON NEW HAMPSHIRE		EXISTING CONDITIONS NEWINGTON SITE	
DRAWING C-4			
WRIGHT-PIERCE Engineering a Better Environment 888.621.8156 www.wright-pierce.com		DESIGNED BY: W. EDG CAG CORP.: W. EDG CAG CORP.: W. EDG CHECKED BY: DATE: APPROVED BY: DATE: 11/20/20 PROJECT NO: 14202A	
SUBMISSIONS/REVISIONS PRELIMINARY DESIGN - NOT FOR CONSTRUCTION		NO. 1 DATE 07/20	

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CONSTRUCTION STAGING PLAN-NEWINGTON SITE

SCALE: 1"=40'

CITY OF PORTSMOUTH		SUBAQUEOUS WATER TRANSMISSION MAIN		DRAWING	
SUBAQUEOUS WATER TRANSMISSION MAIN		PISCATAQUA RIVER, DURHAM-NEWINGTON		C-5	
NEW HAMPSHIRE		CONSTRUCTION STAGING PLAN - NEWINGTON			
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C.D. CORP.		W. EDG.		PRELIMINARY DESIGN - NOT FOR CONSTRUCTION	
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APPROVED BY:				DATE	
DATE:				1402A	
PROJECT NO.					

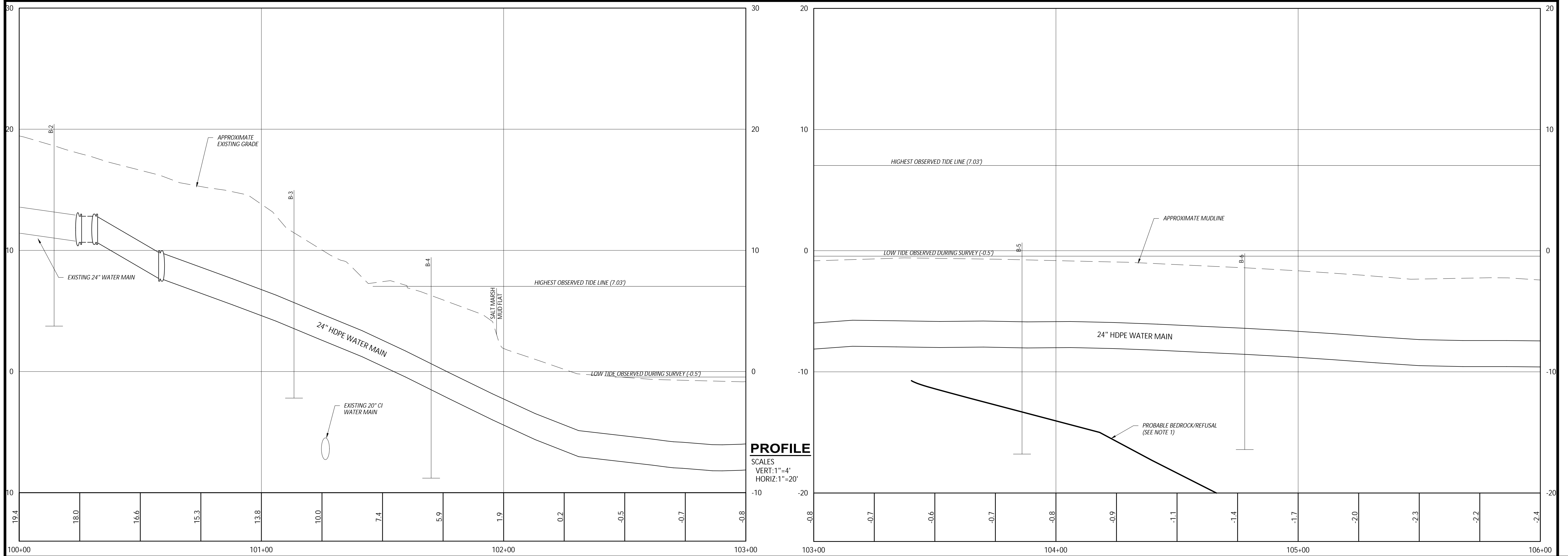
NOTES

1. PROPERTY LINES SHOWN WERE OBTAINED FROM THE TOWN OF DURHAM, NEW HAMPSHIRE GIS DATABASE AND ARE CONSIDERED APPROXIMATE.



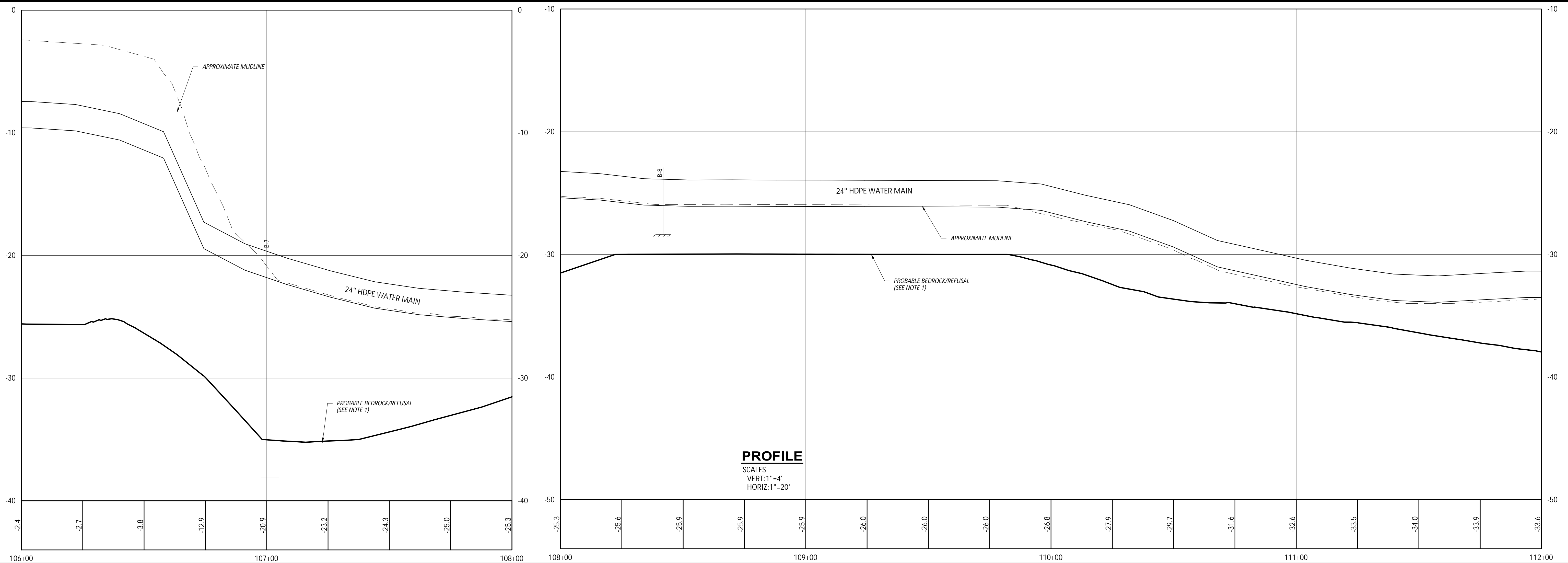
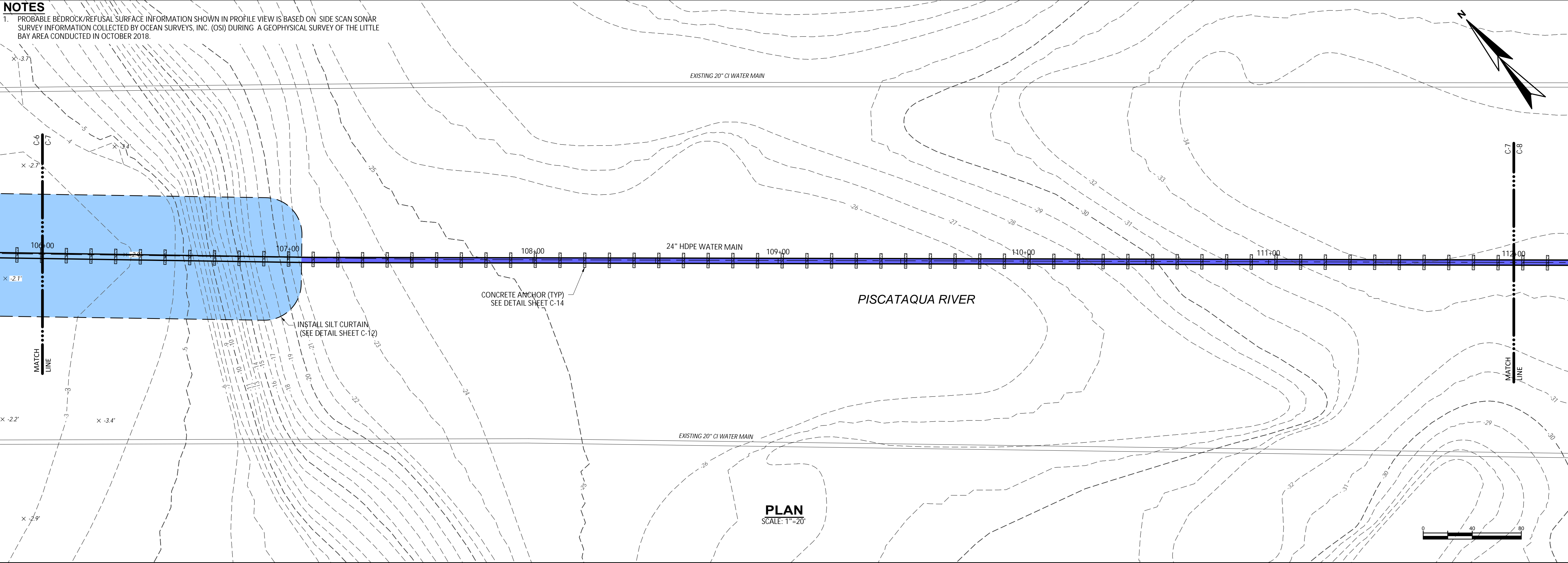
<p>CITY OF PORTSMOUTH SUBAQUEOUS WATER TRANSMISSION MAIN PISCATAQUA RIVER, DURHAM-NEWINGTON NEW HAMPSHIRE</p>	<p>WRIGHT-PIERCE Engineering a Better Environment</p>		<p>888.621.8156 www.wright-pierce.com</p>		<p>DESIGNED BY: WJ EDG CAD COORD: WJ EDG CAD: WJ EDG CHECKED BY: DATE: APPROVED BY: DATE: PROJECT NO.: 14202A</p>		<p>NO SUBMISSIONS/REVISIONS PRELIMINARY DESIGN - NOT FOR CONSTRUCTION</p>		<p>APPD. DATE 07/20</p>
	<p>DRAWING</p>								

1. PROBABLE BEDROCK/REFUSAL SURFACE INFORMATION SHOWN IN PROFILE VIEW IS BASED ON SIDE SCAN SONAR SURVEY INFORMATION COLLECTED BY OCEAN SURVEYS, INC. (OSI) DURING A GEOPHYSICAL SURVEY OF THE LITTLE BAY AREA CONDUCTED IN OCTOBER 2018.

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NOTES
1. PROBABLE BEDROCK/REFUSAL SURFACE INFORMATION SHOWN IN PROFILE VIEW IS BASED ON SIDE SCAN SONAR SURVEY INFORMATION COLLECTED BY OCEAN SURVEYS, INC. (OSI) DURING A GEOPHYSICAL SURVEY OF THE LITTLE BAY AREA CONDUCTED IN OCTOBER 2018.



J:\ENGINE\PORTSMOUTH\14202-SUBAQUEOUSWATERTRANSMISSION\DRAWINGS\CIV\14202-S-PS-P&IDWG [P&ID] 11/10/2020 2:28:10 PM | BRITT LECKSTROM

SUBMISSIONS/REVISIONS		APPD	DATE
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PROJECT NO: 14202A			

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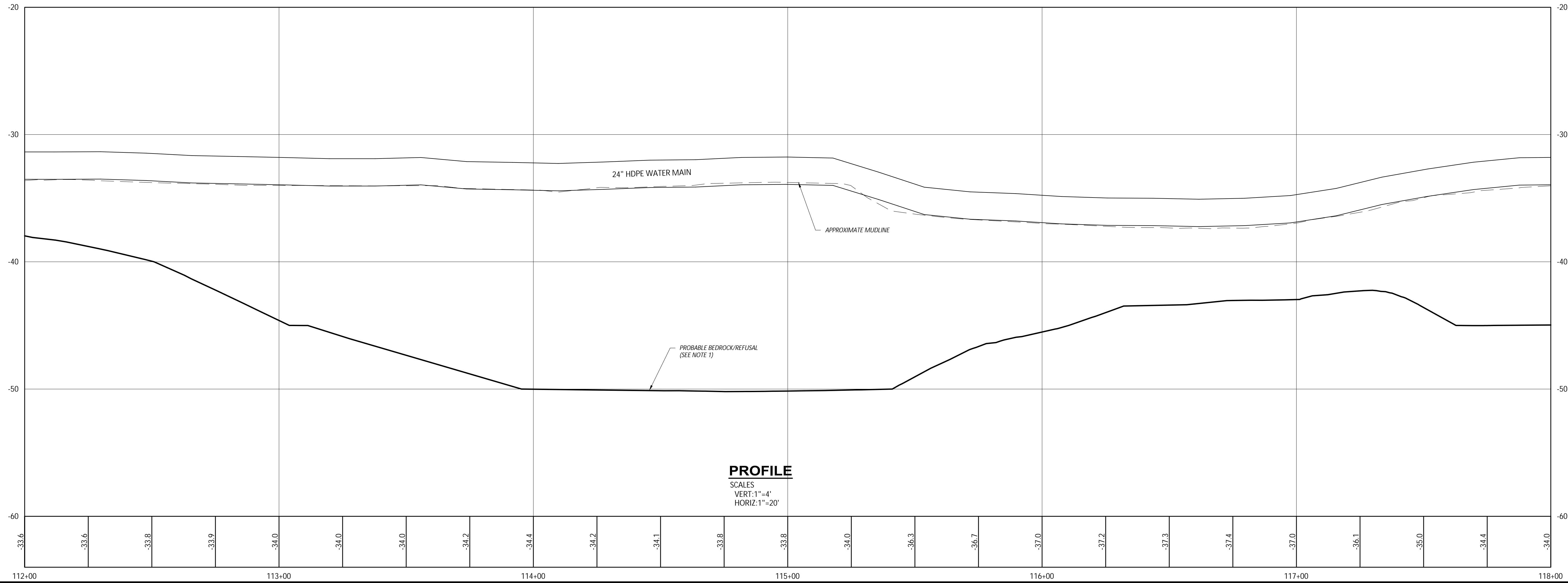
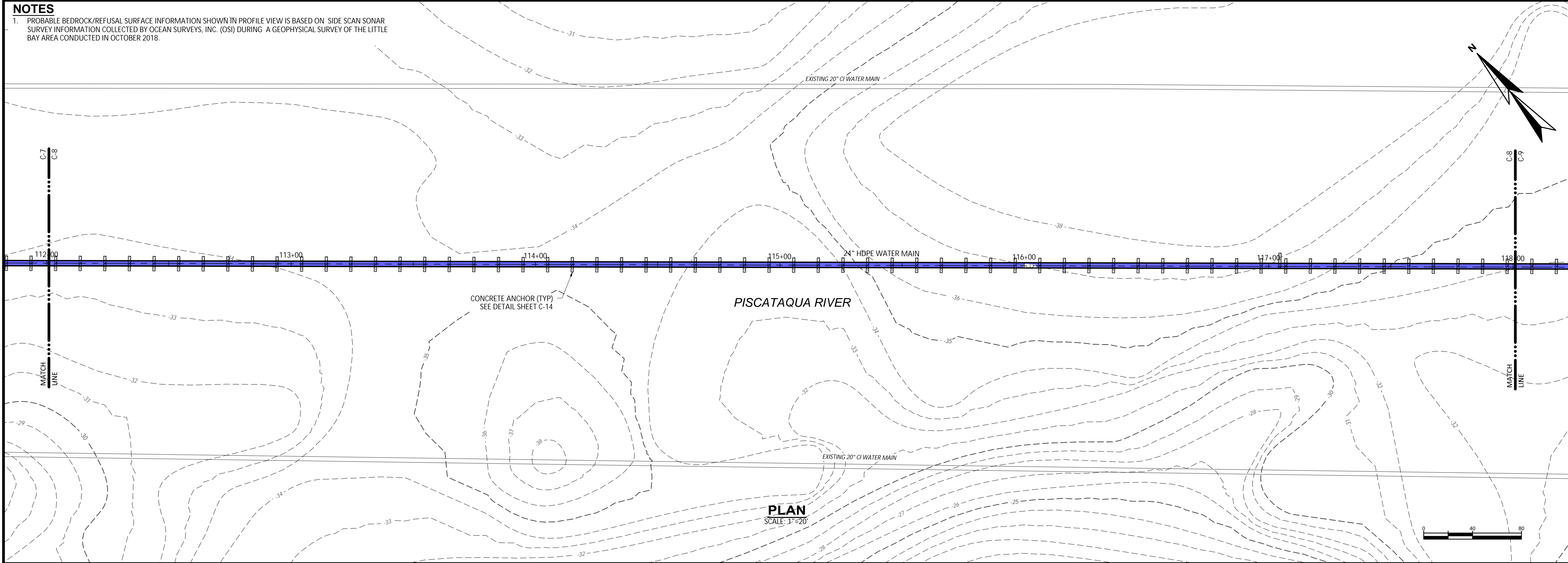
CITY OF PORTSMOUTH
SUBAQUEOUS WATER TRANSMISSION MAIN
PISCATAQUA RIVER, DURHAM-NEWINGTON
NEW HAMPSHIRE

WATER MAIN REPLACEMENT PLAN & PROFILE II
STA. 106+00 TO STA. 112+00

DRAWING
C-8

NOTES

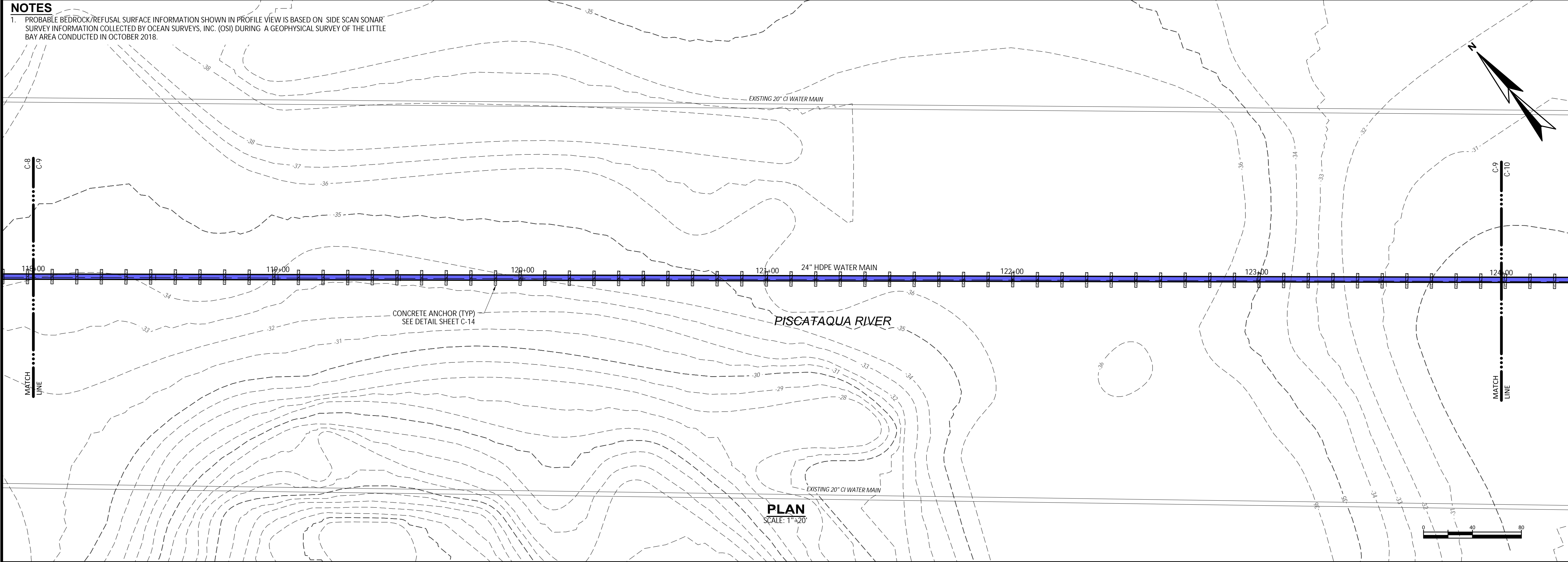
1. PROBABLE BEDROCK/REFUSAL SURFACE INFORMATION SHOWN IN PROFILE VIEW IS BASED ON SIDE SCAN SONAR SURVEY INFORMATION COLLECTED BY OCEAN SURVEYS, INC. (OSI) DURING A GEOPHYSICAL SURVEY OF THE LITTLE BAY AREA CONDUCTED IN OCTOBER 2018.



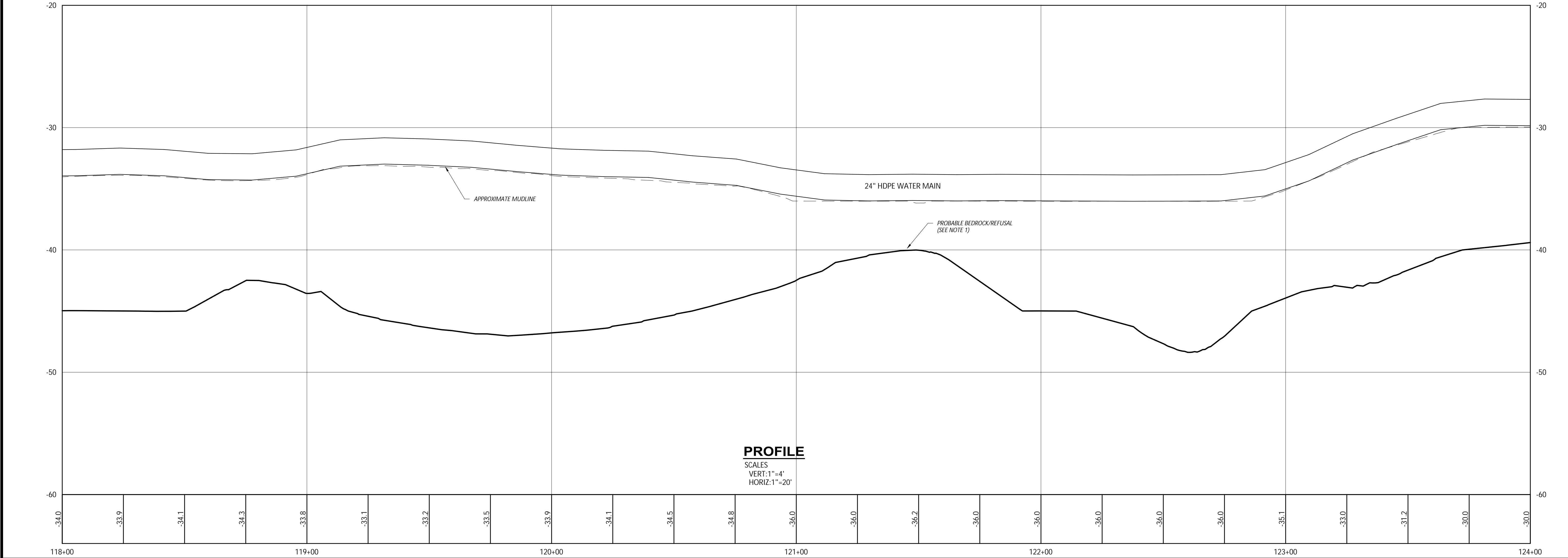
<p>CITY OF PORTSMOUTH</p> <p>SUBAQUEOUS WATER TRANSMISSION MAIN</p> <p>PISCATAQUA RIVER, DURHAM-NEWINGTON</p> <p>NEW HAMPSHIRE</p>	<p>WRIGHT-PIERCE</p> <p>Engineering a Better Environment</p> <p>888.621.8156 www.wright-pierce.com</p>		<p>DESIGNED BY: W/ EDG</p> <p>CAD COORD.: W/ EDG</p> <p>CAD.: W/ EDG</p> <p>CHECKED BY:</p> <p>DATE:</p> <p>APPROVED BY:</p> <p>DATE: 1/20/20A</p> <p>PROJECT NO.: 14202A</p>		<p>NO. _____</p> <p>PRELIMINARY DESIGN - NOT FOR CONSTRUCTION</p> <p>SUBMISSIONS/REVISIONS</p> <p>APPD. DATE: 07/20</p>
	<p>WATER MAIN REPLACEMENT PLAN & PROFILE III</p> <p>STA. 112+00 TO STA. 118+00</p>				
<p>DRAWING</p> <p>C-9</p>					

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NOTES
1. PROBABLE BEDROCK/REFUSAL SURFACE INFORMATION SHOWN IN PROFILE VIEW IS BASED ON 'SIDE SCAN SONAR' SURVEY INFORMATION COLLECTED BY OCEAN SURVEYS, INC. (OSI) DURING A GEOPHYSICAL SURVEY OF THE LITTLE BAY AREA CONDUCTED IN OCTOBER 2018.



PLAN
SCALE: 1"=320'



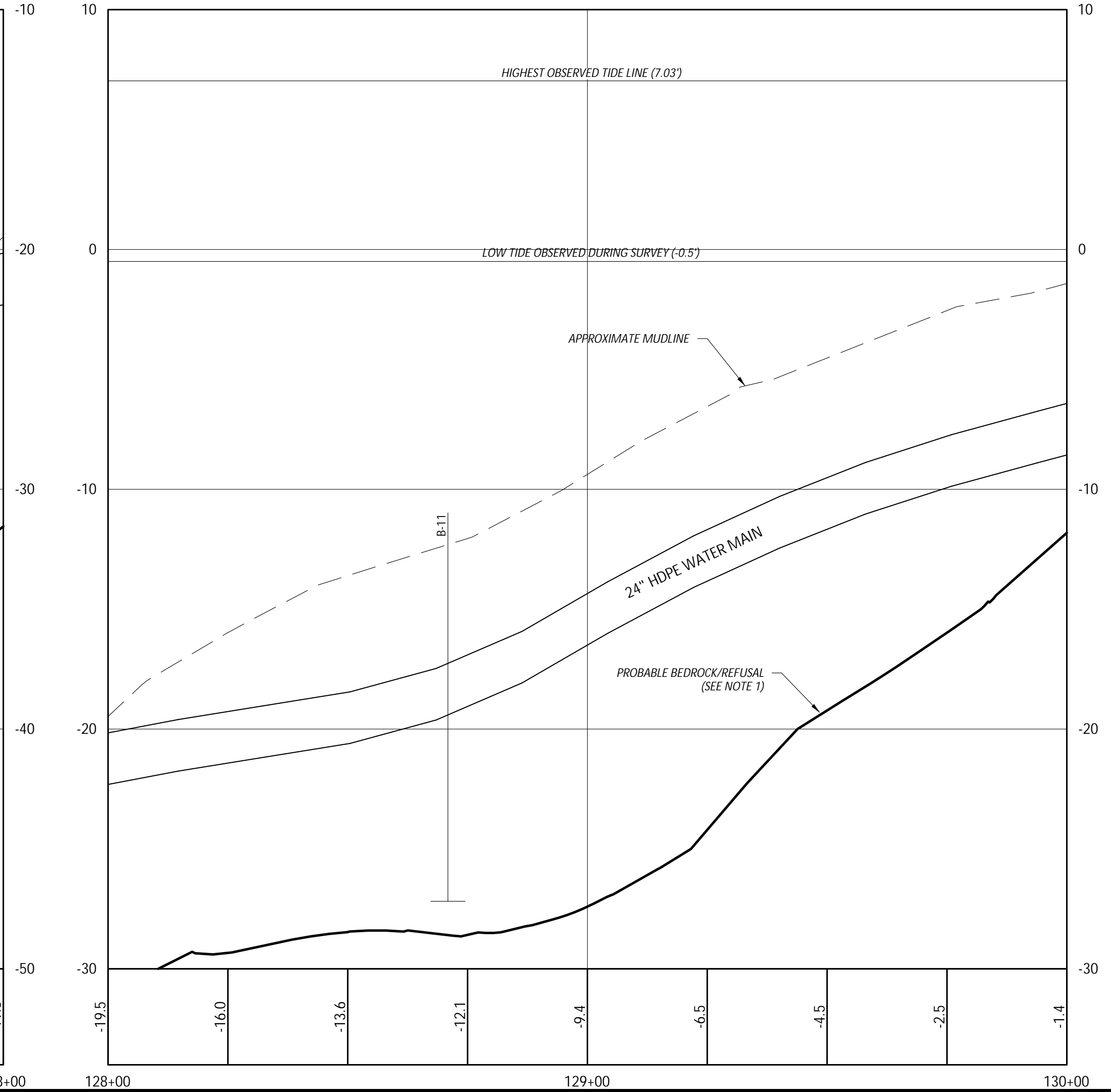
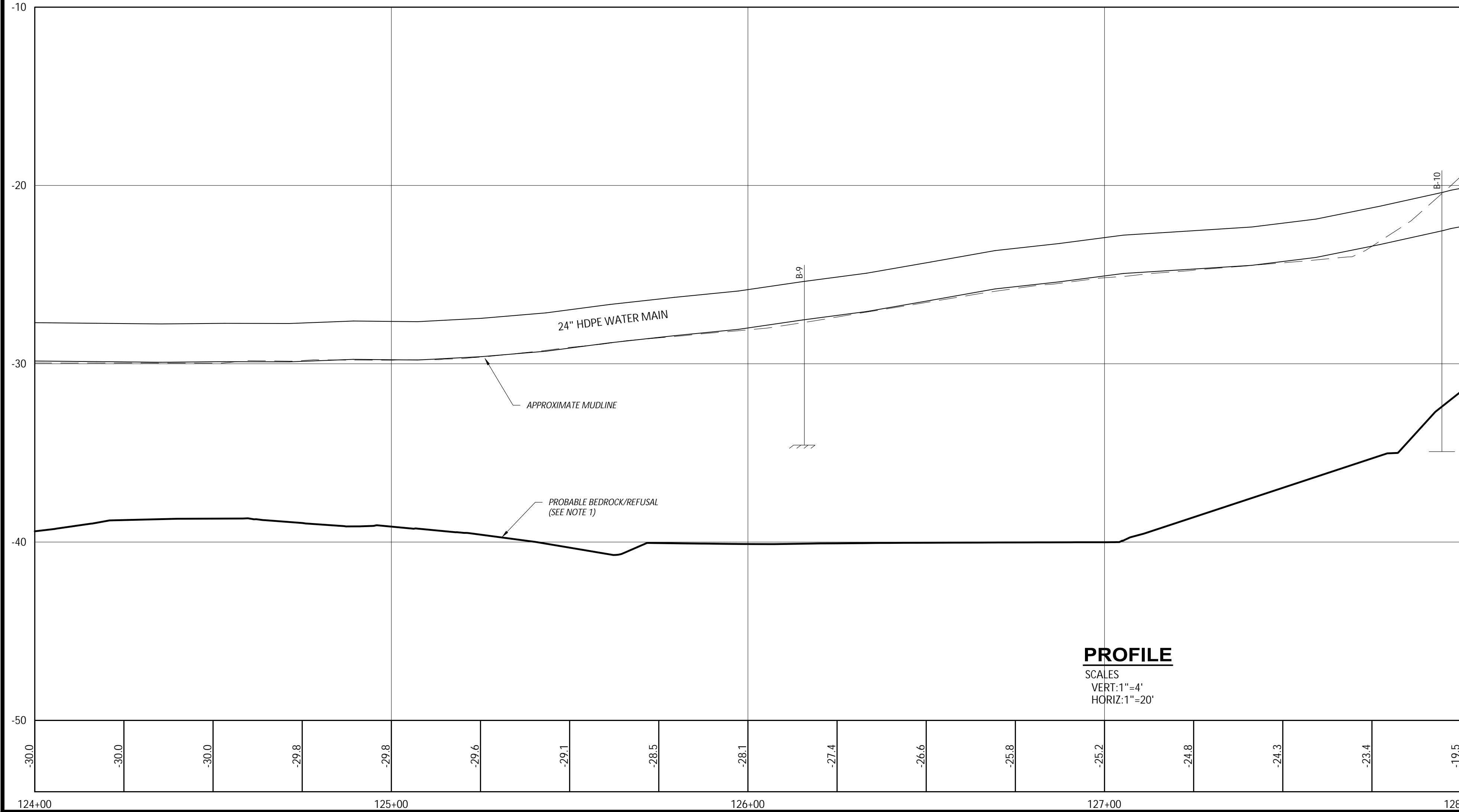
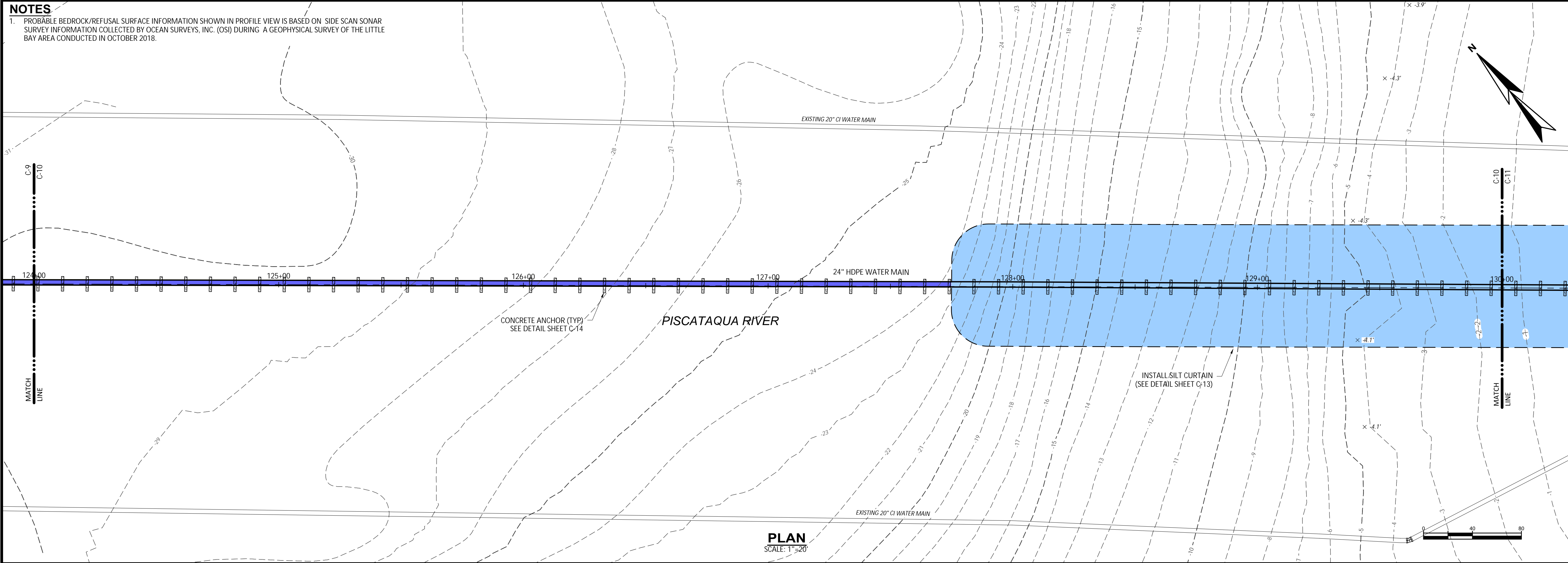
PROFILE
SCALES
VERT: 1"=4'
HORIZ: 1"=20'

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NO	SUBMISSIONS/REVISIONS	APPD	DATE
		PRELIMINARY DESIGN - NOT FOR CONSTRUCTION	07/20
DESIGNED BY: W. EDG	CAB CORP. W. EDG	CHECKED BY:	DATE:
CAB CORP. W. EDG			
APPROVED BY:			
PROJECT NO: 14202A			
CITY OF PORTSMOUTH SUBAQUEOUS WATER TRANSMISSION MAIN PISCATAQUA RIVER, DURHAM-NEWINGTON NEW HAMPSHIRE		888.621.8156 www.wright-pierce.com	
WATER MAIN REPLACEMENT PLAN & PROFILE IV STA. 118+00 TO STA. 124+00		DRAWING C-10	

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NOTES
1. PROBABLE BEDROCK/REFUSAL SURFACE INFORMATION SHOWN IN PROFILE VIEW IS BASED ON SIDE SCAN SONAR SURVEY INFORMATION COLLECTED BY OCEAN SURVEYS, INC. (OSI) DURING A GEOPHYSICAL SURVEY OF THE LITTLE BAY AREA CONDUCTED IN OCTOBER 2018.



NO	DESIGNED BY: W. EDG	APPD	DATE
1	CAD CORP: W. EDG	PRELIMINARY DESIGN - NOT FOR CONSTRUCTION	07/20
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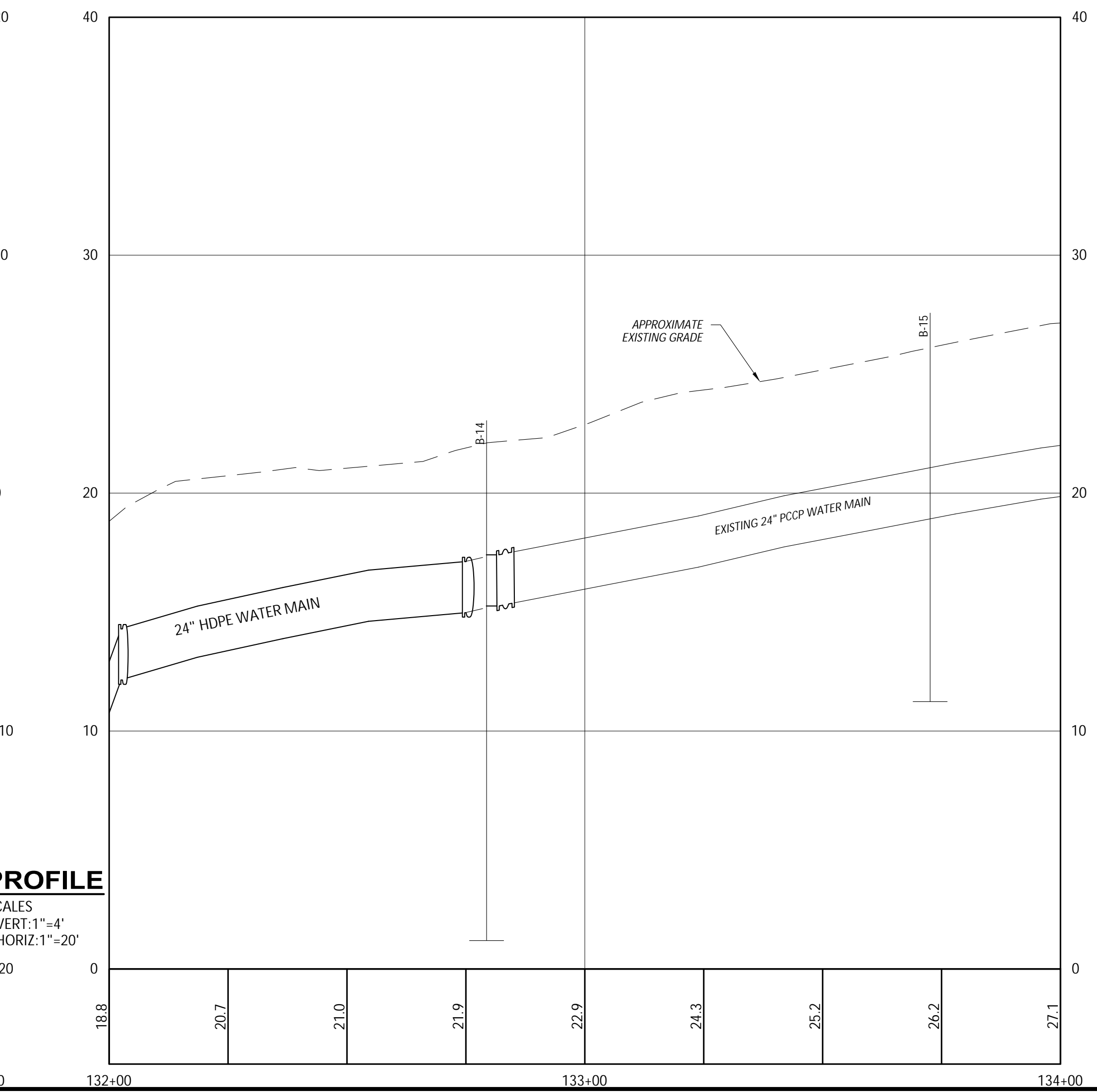
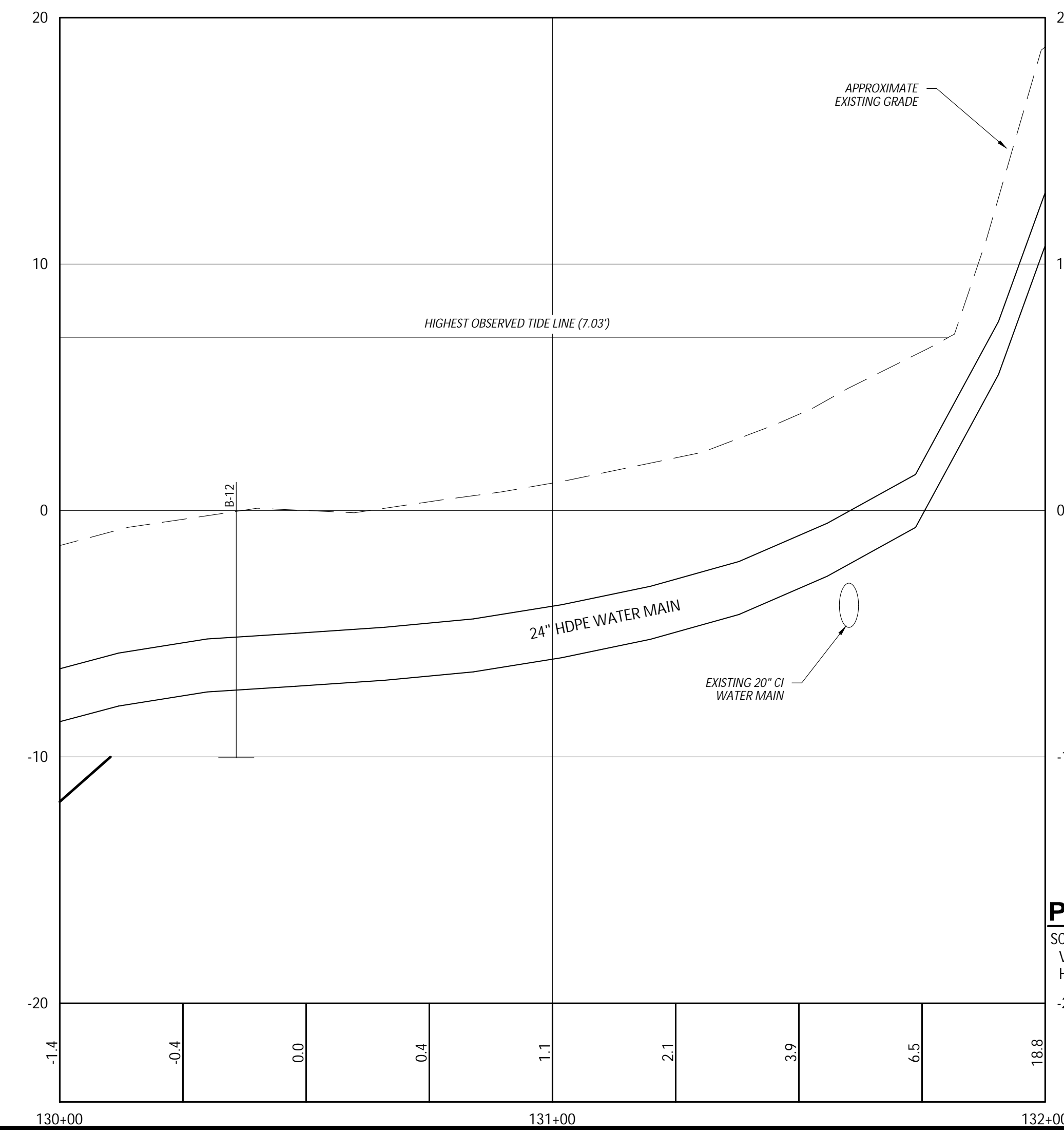
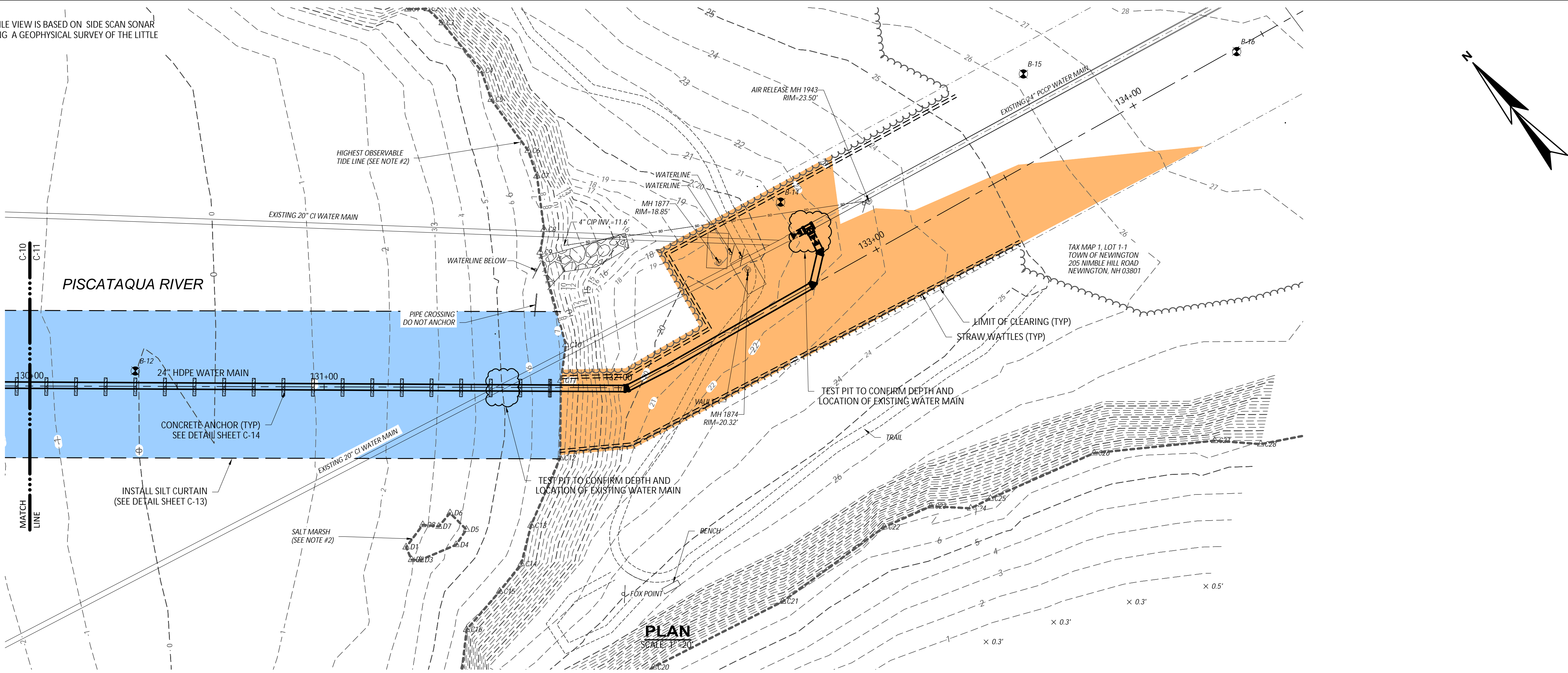
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CITY OF PORTSMOUTH
SUBAQUEOUS WATER TRANSMISSION MAIN
PISCATAQUA RIVER, DURHAM-NEWINGTON
NEW HAMPSHIRE


WATER MAIN REPLACEMENT PLAN & PROFILE V
STA. 124+00 TO STA. 130+00

DRAWING
C-11

NOTES
1. PROBABLE BEDROCK/REFUSAL SURFACE INFORMATION SHOWN IN PROFILE VIEW IS BASED ON SIDE SCAN SONAR SURVEY INFORMATION COLLECTED BY OCEAN SURVEYS, INC. (OSI) DURING A GEOPHYSICAL SURVEY OF THE LITTLE BAY AREA CONDUCTED IN OCTOBER 2018.



SUBMISSIONS/REVISIONS		DATE
PRELIMINARY DESIGN - NOT FOR CONSTRUCTION		07/20
NO	DESIGNED BY: W. EDG	
	CAD CORP: W. EDG	
	CAD: W. EDG	
	CHECKED BY:	
	DATE:	
	APPROVED BY:	
	DATE:	1/14/2024
	PROJECT NO:	14202A

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CITY OF PORTSMOUTH
SUBAQUEOUS WATER TRANSMISSION MAIN
PISCATAQUA RIVER, DURHAM-NEWINGTON
NEW HAMPSHIRE

WATER MAIN REPLACEMENT PLAN & PROFILE VI
STA. 130+00 TO STA 133+00

DRAWING

C-12

EROSION AND SEDIMENTATION CONTROL NOTES

- THIS PLAN HAS BEEN DEVELOPED AS A STRATEGY TO CONTROL SOIL EROSION AND SEDIMENTATION DURING AND AFTER CONSTRUCTION. THIS PLAN IS BASED ON THE NEW HAMPSHIRE STORMWATER MANUAL BY THE NEW HAMPSHIRE DEPARTMENT OF ENVIRONMENTAL SERVICES, TERRAIN ALTERATION BUREAU, DATED DECEMBER 2008
- THE PROPOSED LOCATIONS OF SILTATION AND EROSION CONTROL STRUCTURES REQUIRED ARE SHOWN ON THE DRAWINGS. PROVIDE SILT FENCE, STONE CHECK DAMS AND OTHER EROSION CONTROL MEASURES AS REQUIRED TO ADEQUATELY PREVENT SEDIMENT TRANSPORT AS NOTED IN THE BMP.
- ALL SEDIMENT AND EROSION CONTROL MEASURES SHALL BE DONE IN ACCORDANCE WITH THE NEW HAMPSHIRE STORMWATER MANAGEMENT MANUAL AND THE NEW HAMPSHIRE DEPARTMENT OF ENVIRONMENTAL SERVICES, ENV-Wq 1500: ALTERATION OF TERRAIN AND THE NHDES BEST MANAGEMENT PRACTICES MANUAL FOR THE UTILITY MAINTENANCE IN AND ADJACENT TO WETLANDS AND WATERBODIES.
 - THOSE AREAS UNDERGOING ACTUAL CONSTRUCTION WILL BE MAINTAINED IN AN UNTREATED OR UNVEGETATED CONDITION FOR THE MINIMUM TIME REQUIRED. IN GENERAL AREAS TO BE VEGETATED SHALL BE PERMANENTLY STABILIZED WITHIN 15 DAYS OF FINAL GRADING AND TEMPORARILY STABILIZED WITHIN 30 DAYS OF INITIAL DISTURBANCE OF THE SOIL.
 - SEDIMENT BARRIERS (SILT FENCE, STONE CHECK DAMS, ETC.) SHOULD BE INSTALLED PRIOR TO ANY SOIL DISTURBANCE OF UPGRADE DRAINAGE AREAS.
 - INSTALL SILT FENCE AT TOE OF SLOPES TO FILTER SILT FROM RUNOFF. SEE SILT FENCE DETAIL FOR PROPER INSTALLATION. SILT FENCE WILL REMAIN IN PLACE PER NOTE #5.
 - ALL EROSION CONTROL STRUCTURES WILL BE INSPECTED, REPLACED AND/OR REPAIRED EVERY 7 DAYS AND IMMEDIATELY FOLLOWING ANY SIGNIFICANT RAINFALL OR SNOW MELT OR WHEN NO LONGER SERVICEABLE DUE TO SEDIMENT ACCUMULATION OR DECOMPOSURE. SEDIMENT DEPOSITS MUST BE REMOVED WHEN THEY REACH APPROXIMATELY ONE HALF THE HEIGHT OF THE BARRIER. SEDIMENT CONTROL DEVICES SHALL REMAIN IN PLACE AND BE MAINTAINED BY THE CONTRACTOR UNTIL AREAS UPSLOPE ARE PERMANENTLY STABILIZED.
 - NO SLOPES, EITHER PERMANENT OR TEMPORARY, SHALL BE STEEPER THAN TWO HORIZONTAL TO ONE VERTICAL (2 TO 1) UNLESS STABILIZED WITH RIPRAP OR OTHER STRUCTURAL MEANS.
 - IF FINAL SEEDING AND SODDING IS NOT EXPECTED PRIOR TO THE ANTICIPATED DATE OF THE FIRST KILLING FROST, USE TEMPORARY ANNUAL REYGRASS SEEDING AND MULCHING ON ROUGH GRADED SUBSOIL TO PROTECT THE SITE AND DELAY PERMANENT LOAMING, FINE GRADING, AND SEEDING OR SODDING UNTIL SPRING.
 - WHEN FEASIBLE, TEMPORARY SEEDING OF DISTURBED AREAS THAT HAVE NOT BEEN FINISH GRADED SHALL BE COMPLETED 30 DAYS PRIOR TO THE FIRST KILLING FROST.
 - DURING THE CONSTRUCTION PHASE, INTERCEPTED SEDIMENT WILL BE RETURNED TO THE SITE AND REGRADED ONTO OPEN AREAS. POST SEEDING SEDIMENT, IF ANY, WILL BE DISPOSED OF IN AN ACCEPTABLE MANNER.
 - REVEGETATION MEASURES WILL COMMENCE UPON COMPLETION OF CONSTRUCTION EXCEPT AS NOTED ABOVE. ALL DISTURBED AREAS NOT OTHERWISE STABILIZED WILL BE GRADED, SMOOTHED, AND REVEGETATED.
 - ALL TEMPORARY EROSION CONTROL MEASURES SHALL BE REMOVED ONCE THE SITE IS STABILIZED.
 - STABILIZATION SCHEDULE BEFORE WINTER:

SEPTEMBER 15

ALL DISTURBED AREAS MUST BE SEEDED AND MULCHED. ALL SLOPES MUST BE STABILIZED, SEEDED AND MULCHED. SLOPES 3:1 OR GREATER TO BE STABILIZED WITH EROSION CONTROL MATTING AND SEEDED. ALL DISTURBED AREAS TO BE PROTECTED WITH AN ANNUAL GRASS MUST BE SEEDED AT A SEEDING RATE OF 3 POUNDS PER 1,000 SQUARE FEET AND MULCHED.

OCTOBER 1

ALL GRASS-LINED DITCHES AND CHANNELS MUST BE STABILIZED WITH MULCH OR EROSION CONTROL BLANKET.

NOVEMBER 15

ALL STONE-LINED DITCHES AND CHANNELS MUST BE CONSTRUCTED AND STABILIZED. SLOPES THAT ARE COVERED WITH RIPRAP MUST BE CONSTRUCTED BY THAT DATE.

DECEMBER 1

ALL DISTURBED AREAS WHERE THE GROWTH OF VEGETATION FAILS TO BE AT LEAST THREE INCHES TALL OR AT LEAST 75% OF THE DISTURBED SOIL IS COVERED BY VEGETATION, RIPRAP MUST BE PROTECTED FOR OVER-WINTER.
- EROSION CONTROL - WINTER CONSTRUCTION
- WINTER CONSTRUCTION PERIOD DEFINED: NOVEMBER 1 THROUGH APRIL 15
 - WINTER EXCAVATION AND EARTHWORK SHALL BE DONE SUCH THAT NO MORE THAN 1 ACRE OF THE SITE IS WITHOUT STABILIZATION AT ANY ONE TIME.
 - EXPOSED AREA SHOULD BE LIMITED SUCH THAT THE AREA CAN BE MULCHED IN ONE DAY PRIOR TO ANY SNOW EVENT.
 - CONTINUATION OF EARTHWORK OPERATIONS ON ADDITIONAL AREAS SHALL NOT BEGIN UNTIL THE EXPOSED SOIL SURFACE ON THE AREA BEING WORKED HAS BEEN STABILIZED SUCH THAT NO LARGER AREA OF THE SITE IS WITHOUT EROSION CONTROL PROTECTION AS LISTED IN ITEM 2 ABOVE.
 - AN AREA SHALL BE CONSIDERED TO HAVE BEEN STABILIZED WHEN EXPOSED SURFACES HAVE BEEN EITHER MULCHED WITH STRAW AT A RATE OF 100 LB. PER 1,000 SQUARE FEET (WITH OR WITHOUT SEEDING) OR DORMANT SEEDED, MULCHED AND ADEQUATELY ANCHORED BY AN APPROVED ANCHORING TECHNIQUE. IN ALL CASES, MULCH SHALL BE APPLIED SUCH THAT SOIL SURFACE IS NOT VISIBLE THROUGH THE MULCH.
 - BETWEEN THE DATES OF OCTOBER 15 AND APRIL 1ST, LOAM OR SEED WILL NOT BE REQUIRED. DURING PERIODS OF ABOVE-FREEZING TEMPERATURES, THE SLOPES SHALL BE FINE GRADED AND EITHER PROTECTED WITH MULCH OR TEMPORARILY SEEDED AND MULCHED UNTIL SUCH TIME AS THE FINAL TREATMENT CAN BE APPLIED. IF THE DATE IS AFTER NOVEMBER 1ST AND IF THE EXPOSED AREA HAS BEEN LOAMED, FINAL GRADED AND IS SMOOTH, THEN THE AREA MUST BE STABILIZED WITH MULCH. IF CONSTRUCTION CONTINUES DURING FREEZING WEATHER, ALL EXPOSED AREAS SHALL BE GRADED BEFORE FREEZING AND THE SURFACE TEMPORARILY PROTECTED FROM EROSION BY THE APPLICATION OF MULCH. SLOPES SHALL NOT BE LEFT EXPOSED OVER THE WINTER OR ANY OTHER EXTENDED TIME OF WORK SUSPENSION UNLESS TREATED IN THE ABOVE MANNER. UNTIL SUCH TIME AS WEATHER CONDITIONS ALLOW DITCHES TO BE FINISHED WITH THE PERMANENT SURFACE TREATMENT, EROSION SHALL BE CONTROLLED BY THE INSTALLATION OF BALES OF HAY OR STONE CHECK DAMS IN ACCORDANCE WITH THE STANDARD DETAILS.
 - THE APPLICATION OF MULCH TO FINE GRADED AREAS WILL BE STABILIZED AS FOLLOWS:

A) BETWEEN THE DATES OF NOVEMBER 1ST AND APRIL 15TH ALL MULCH SHALL BE ANCHORED BY EITHER PEG LINE, MULCH NETTING, ASPHALT EMULSION, CHEMICAL TACK OR WOOD CELLULOSE FIBER.

B) MULCH NETTING SHALL BE USED TO ANCHOR MULCH IN ALL DRAINAGE WAYS WITH A SLOPE GREATER THAN 3% FOR SLOPES EXPOSED TO DIRECT WINDS AND FOR ALL OTHER SLOPES GRATER THAN 8%.

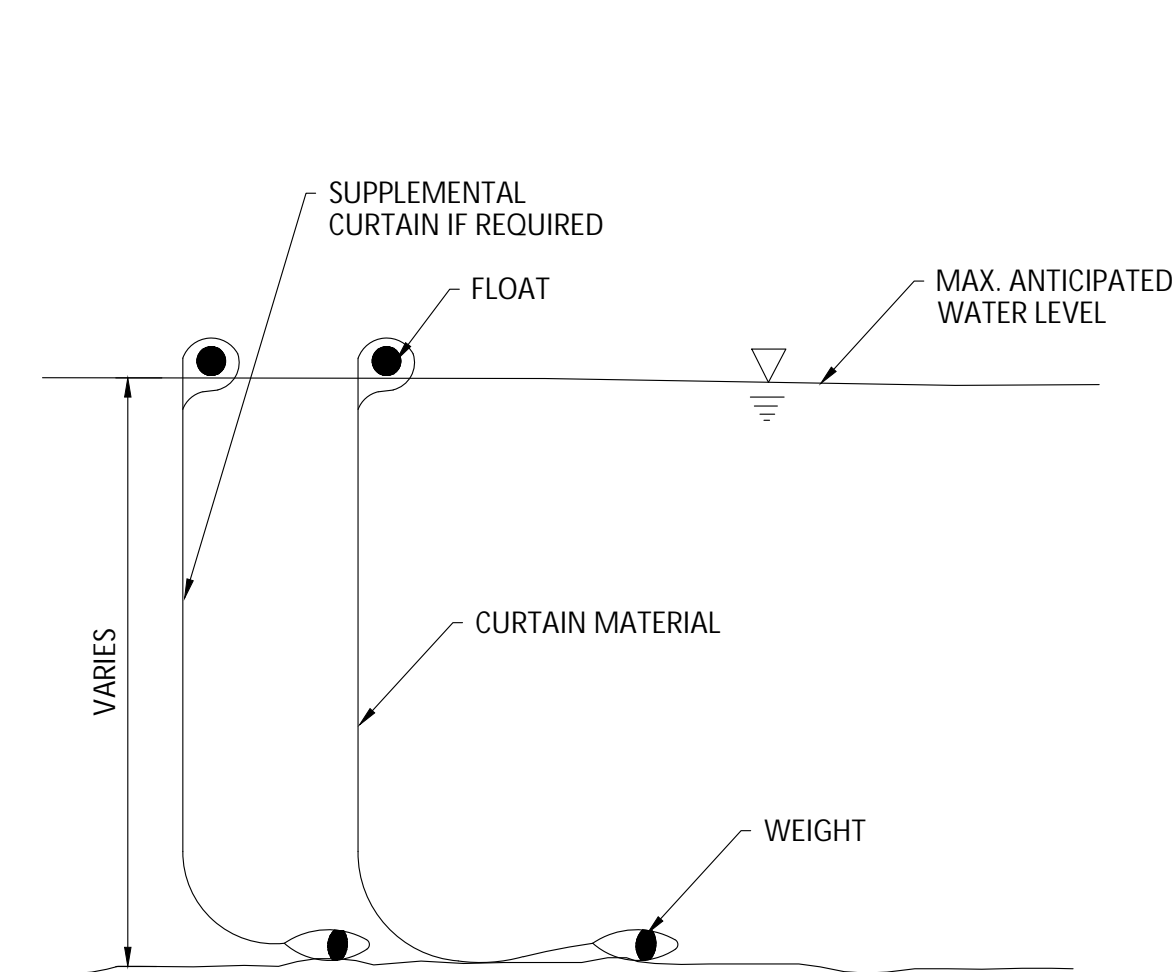
C) MULCH NETTING SHALL BE USED TO ANCHOR MULCH IN ALL AREAS WITH SLOPES GREATER THAN 15%. AFTER OCTOBER 1ST, THE SAME APPLIES FOR ALL SLOPES GREATER THAN 8%.
 - AFTER NOVEMBER 1ST THE CONTRACTOR SHALL APPLY MULCH AND ANCHORING ON ALL BARE EARTH AT THE END OF EACH WORKING DAY.
 - DURING WINTER CONSTRUCTION PERIODS ALL SNOW SHALL BE REMOVED FROM AREAS OF MULCHING PRIOR TO PLACEMENT.

EROSION CONTROL - WETLAND NOTES

- WETLANDS AND SURFACE WATERS (EXCEPTING THOSE WHICH ARE TO BE FILLED IN ACCORDANCE WITH STATE AND FEDERAL REGULATIONS) WILL BE PROTECTED WITH SILT FENCE INSTALLED AT THE EDGE OF THE WETLAND OR THE BOUNDARY OF WETLAND DISTURBANCE.
- IF THE WORK INCLUDES CROSSING OF WETLANDS AND/OR STREAMS, THE CONTRACTOR SHALL TAKE SPECIAL PRECAUTIONS WORKING IN THESE AREAS. CONTRACTOR IS TO PLAN EARTH DISTURBANCE AND GRADING ACTIVITIES TO MINIMIZE THE AREA OF SOIL EXPOSED AT ONE TIME, AS WELL AS THE LENGTH OF TIME BETWEEN INITIAL SOIL EXPOSURE AND FINAL GRADING.
- ANY WETLAND CROSSING WORK SHALL BE COMPLETED BETWEEN THE PERIOD OF MAY 1 AND SEPTEMBER 30
- ALL EROSION CONTROL MEASURES SHALL BE IN PLACE PRIOR TO COMMENCING CONSTRUCTION WITHIN OR ADJACENT TO WETLAND AREAS.
- WETLAND VEGETATIVE LAYERS SHALL BE REMOVED AND SALVAGED FOR RESTORATION OF THE DISTURBED AREAS.
- SOIL EXCAVATED FROM WETLANDS SHALL BE TEMPORARILY STOCKPILED IN UPLAND AREAS SEPARATED FROM OTHER MATERIALS AND SOILS. ALL STOCKPILED WETLAND SOILS SHALL BE PUT BACK IN THE SAME TRENCH THEY WERE EXCAVATED FROM. STORAGE AREAS FOR WETLAND MATERIALS SHALL BE PROPERLY PROTECTED AGAINST EROSION.
- DISPERSE CLEAN STORMWATER AWAY FROM ALL WETLANDS TO UNDISTURBED, VEGETATED, FLAT OR MODERATE-SLOPED, SURFACES WHEREVER POSSIBLE, RATHER THAN CONCENTRATED INTO CHANNELS.
- ANY SIGN OF RILL OR GULLY EROSION EROSION SHALL BE IMMEDIATELY INVESTIGATED AND REPAIRED AS NEEDED BASED ON THE DISCRETION OF THE ENGINEER AND OR OWNER.
- ONLY DISTURB, CLEAR OR GRADE AREAS NECESSARY FOR CONSTRUCTION. FLAG OR OTHERWISE DELINEATE IDENTIFIED WETLAND AREAS NOT TO BE DISTURBED. EXCLUDE VEHICLES AND CONSTRUCTION EQUIPMENT FROM THESE AREAS TO PRESERVE NATURAL VEGETATION. CONTRACTOR TO AVOID GRADING IN WETLANDS CROSSING AREAS.
- FALL AND WINTER EROSION CONTROL MEASURES MUST BE UPGRADED AND REFINED TO PROTECT THE DISTURBED WETLAND AREAS FROM SPRING RUNOFF AND SNOWMELT
- SEEDING OF THE DISTURBED AREAS WITHIN WETLAND AREAS SHALL UTILIZE MIXTURES APPROPRIATE FOR WETLAND AREAS AS OUTLINED IN SECTION 02270 OF THE SPECIFICATIONS.
- TRENCH DEWATERING RUNOFF MUST BE DIRECTED AWAY FROM WETLANDS AREAS USING THE APPLICABLE EROSION CONTROL PRACTICES. DEWATERING WILL NOT BE PERMITTED FOR TRENCH EXCAVATION IN WETLANDS.

SALT MARSH SALVAGE AND RESTORATION NOTES

- ALL CONSTRUCTION AND RESTORATION SHALL BE DONE UNDER THE SUPERVISION OF THE ENGINEER AND AN ENVIRONMENTAL MONITOR.
- INSTALL EROSION CONTROLS ALONG THE EDGE OF WORK TO PREVENT DISTURBED SOIL FROM MIGRATING INTO THE SALT MARSH DURING THE WORK PERIOD.
- EXCAVATION WITHIN THE SALT MARSH SHALL BE LIMITED TO ONLY THE AREA NECESSARY FOR INSTALLATION OF THE NEW PIPE LINE.
- MATTING AND EXCAVATION WITHIN THE SALT MARSH SHALL BE LIMITED TO THE SHORTEST AMOUNT OF TIME PRACTICABLE.
- IN THE EXCAVATION AREAS, ALL SUITABLE SALT MARSH PEAT WILL BE SALVAGED AND STOCKPILED FOR REPLACEMENT DURING RESTORATION. SUITABLE PEAT WILL BE DEFINED IN THE FIELD BY THE ENVIRONMENTAL MONITOR, BUT WILL BE PROTECTED FROM SUN, WIND, DEHYDRATION AND FREEZING IN A SUITABLE UPLAND AREA AND MAINTAINED FOR THE DURATION OF THE PROJECT. THE PEAT BLOCKS SHALL BE KEPT MOIST WITH FRESH WATER.
- OUTSIDE THE EXCAVATION AREAS, TIMBER MATS SHALL BE USED TO PROTECT THE MARSH FROM EQUIPMENT AND FOOT TRAFFIC.
- THE SALVAGED PEAT BLOCKS SHALL BE PROTECTED FROM THE SUN, WIND, DEHYDRATION, AND FREEZING IN A SUITABLE UPLAND AREA AND MAINTAINED FOR THE DURATION OF THE PROJECT. THE PEAT BLOCKS SHALL BE KEPT MOIST WITH FRESH WATER.
- CONSTRUCTION IN THE SALVAGE AREA SHALL BE COMPLETED SUCH THAT THE SALVAGED BLOCKS ARE REPLACED NO LATER THAN NOVEMBER 1. IF THE CONSTRUCTION EXTENDS BEYOND NOVEMBER 1, THE PEAT BLOCKS WILL BE MAINTAINED THROUGH THE WINTER AND REPLACED IN APRIL OF THE FOLLOWING YEAR.
- UPON COMPLETION OF THE WATER MAIN INSTALLATION AND BACKFILLING, THE UNDERLYING SUBSTRATES WILL BE RESTORED TO APPROPRIATE SUBGRADES TO SUPPORT THE PEAT BLOCKS. FINAL ELEVATION OF THE TOP OF PEAT SHALL BE EQUAL TO OR UP TO 2 INCHES HIGHER THAN THE PRE-CONSTRUCTION CONDITION.
- THE PEAT BLOCKS SHALL BE REPLACED TO MATCH THE ORIGINAL SALT MARSH LIMITS. PEAT BLOCKS SHALL BE ANCHORED WITH ¾ INCH REBAR STAKES DRIVEN INTO THE SUBSTRATES AND/OR ADJACENT PEAT. ANY OPENING BETWEEN THE PEAT BLOCKS WILL BE FILLED WITH SAND TO COVER EXPOSED ROOTS AND MAINTAIN GRADES. ADDITIONAL SALT MARSH CORDGRASS (SPARTINA ALTERNIFLORA) SEEDLINE SHALL BE PLANTED IN THE GAP BETWEEN THE PEAT BLOCKS IF IT EXCEEDS 4 INCHES.
- IF THE SALVAGED PEAT BLOCKS DO NOT FULLY COVER THE DISTURBED MARSH AREA, CORDGRASS SEEDLINGS SHALL BE PLANTED AT 1 SQ. FT INTERVALS IN THE AREAS THAT WERE PREVIOUSLY MARSH AREAS.
- IN THE REPLANTING AREAS, THE SUBSTRATES SHALL BE RESTORED WITH SAND, CONTAINED WITHIN SANDBAGS OR OTHERWISE PROTECTED, TO STABILIZE THE SEDIMENTS. SURFACE ELEVATIONS SHALL MATCH PRE-CONSTRUCTION CONDITIONS OR AS DIRECTED BY THE ENVIRONMENTAL MONITOR. THE SEAWARD FACE OF THE RESTORED MARSH WILL BE PROTECTED FROM ICE AND WAVE ACTION WITH COIR LOGS AND/OR BOULDERS, AS COORDINATED WITH THE ENVIRONMENTAL MONITOR.

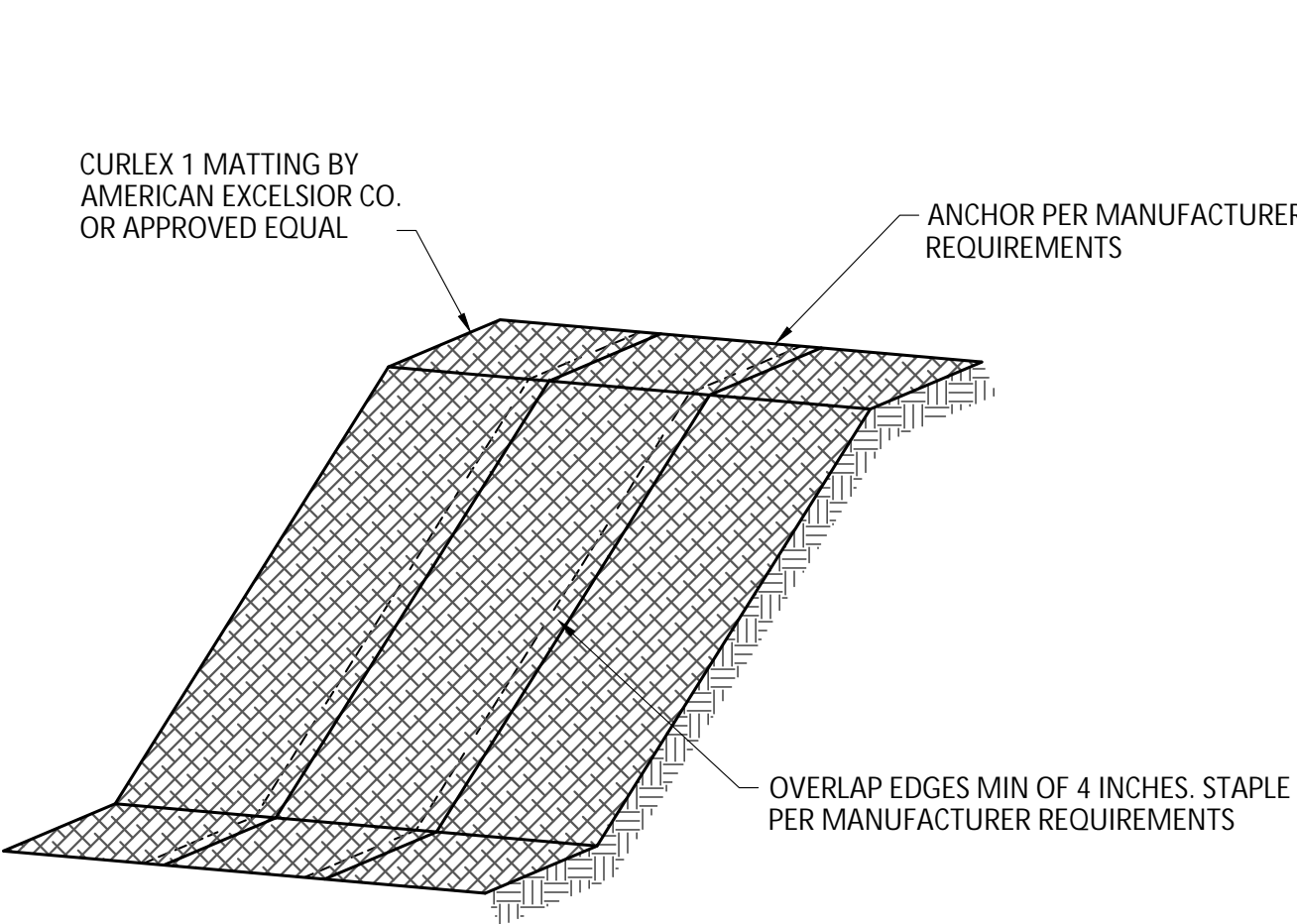
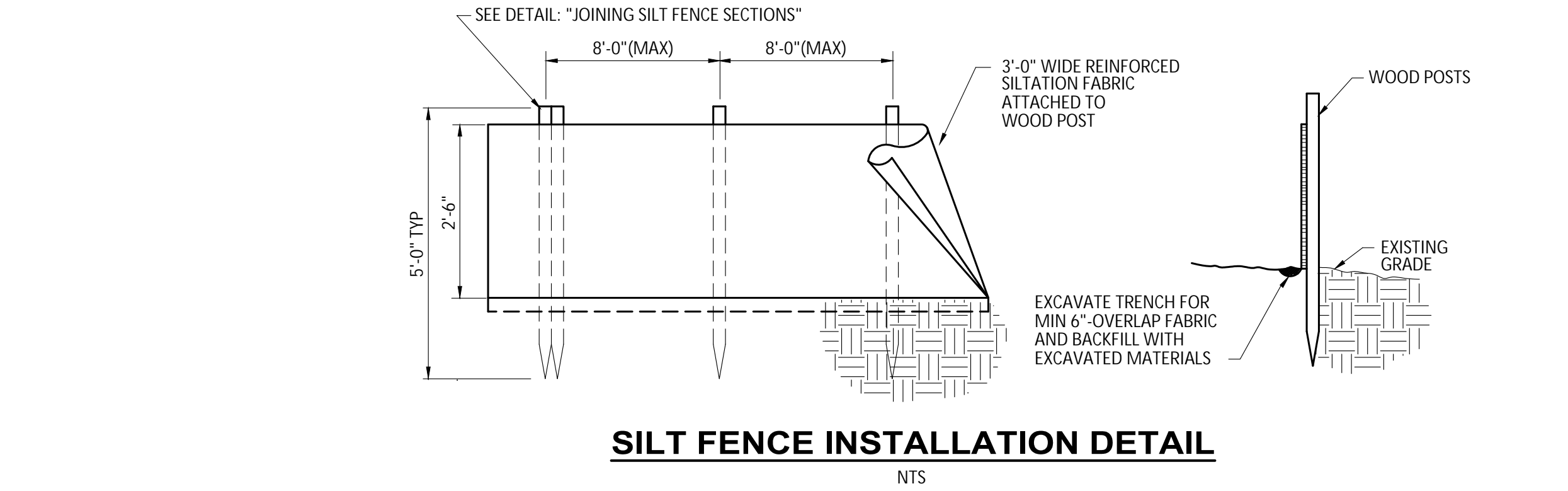


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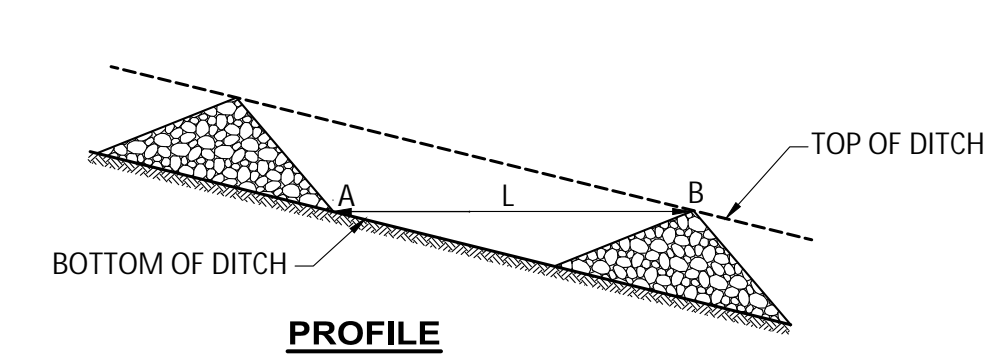
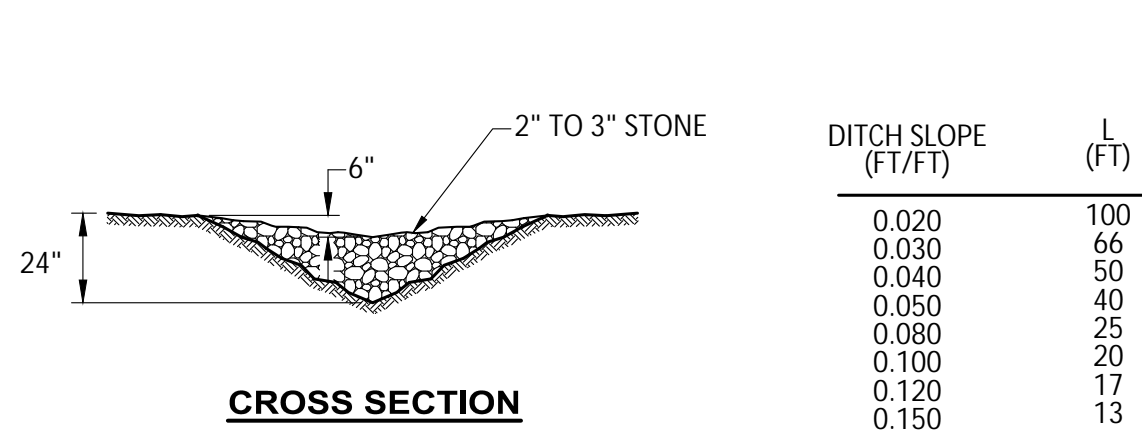
- TURBIDITY CURTAIN SHALL BE APPROXIMATELY RATED FOR RIVERINE AND TIDAL ENVIRONMENTS.
- CURTAIN SHALL BE INSTALLED AND MAINTAINED IN ACCORDANCE WITH THE MANUFACTURERS RECOMMENDATIONS.

FLOATING SEDIMENT
TURBIDITY CURTAIN

NTS

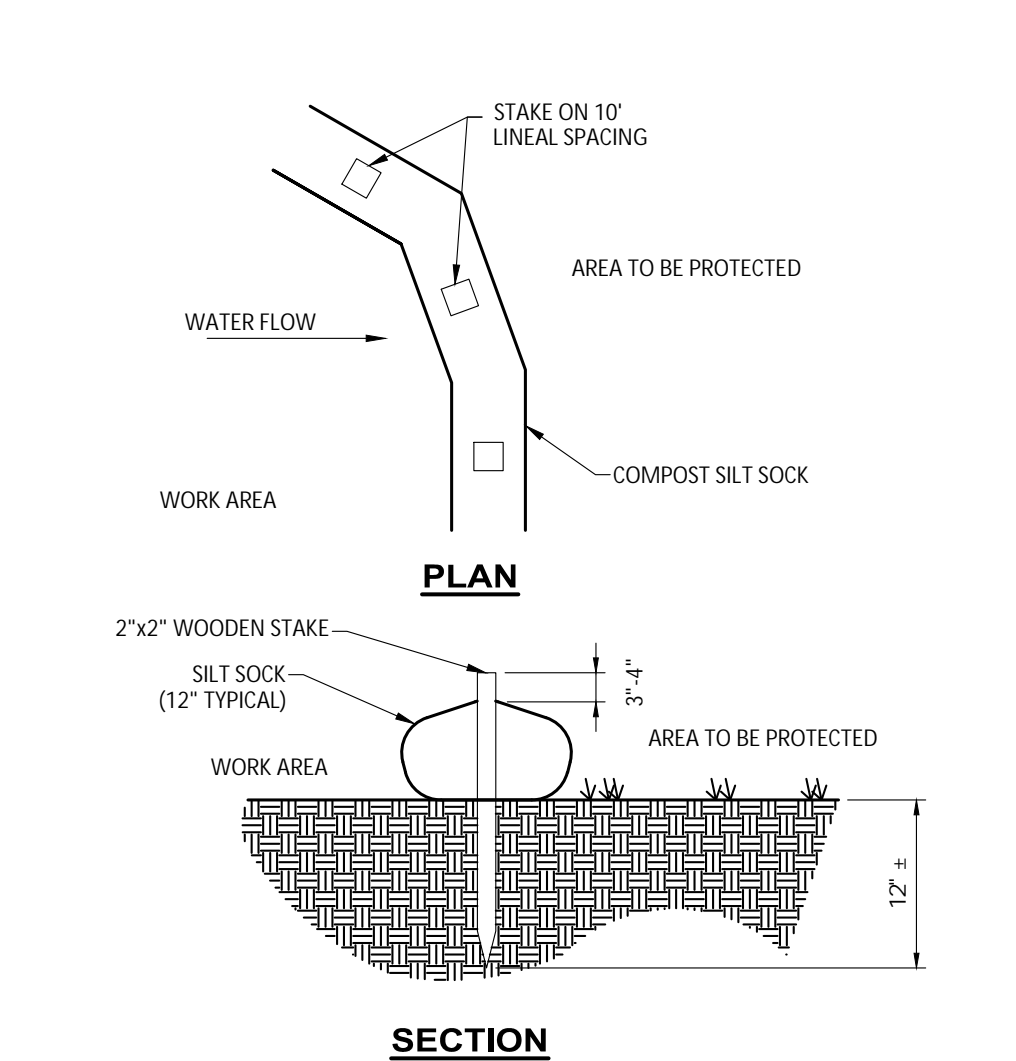
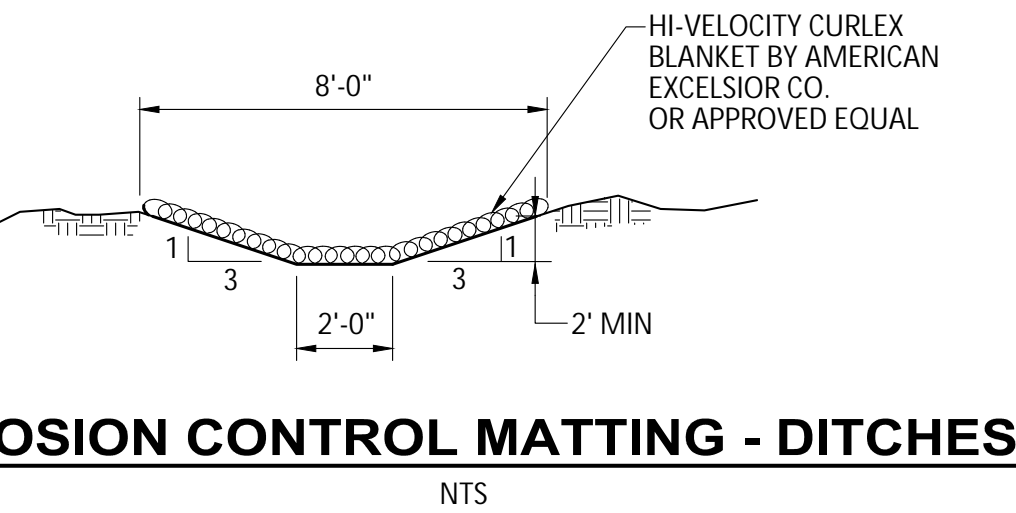
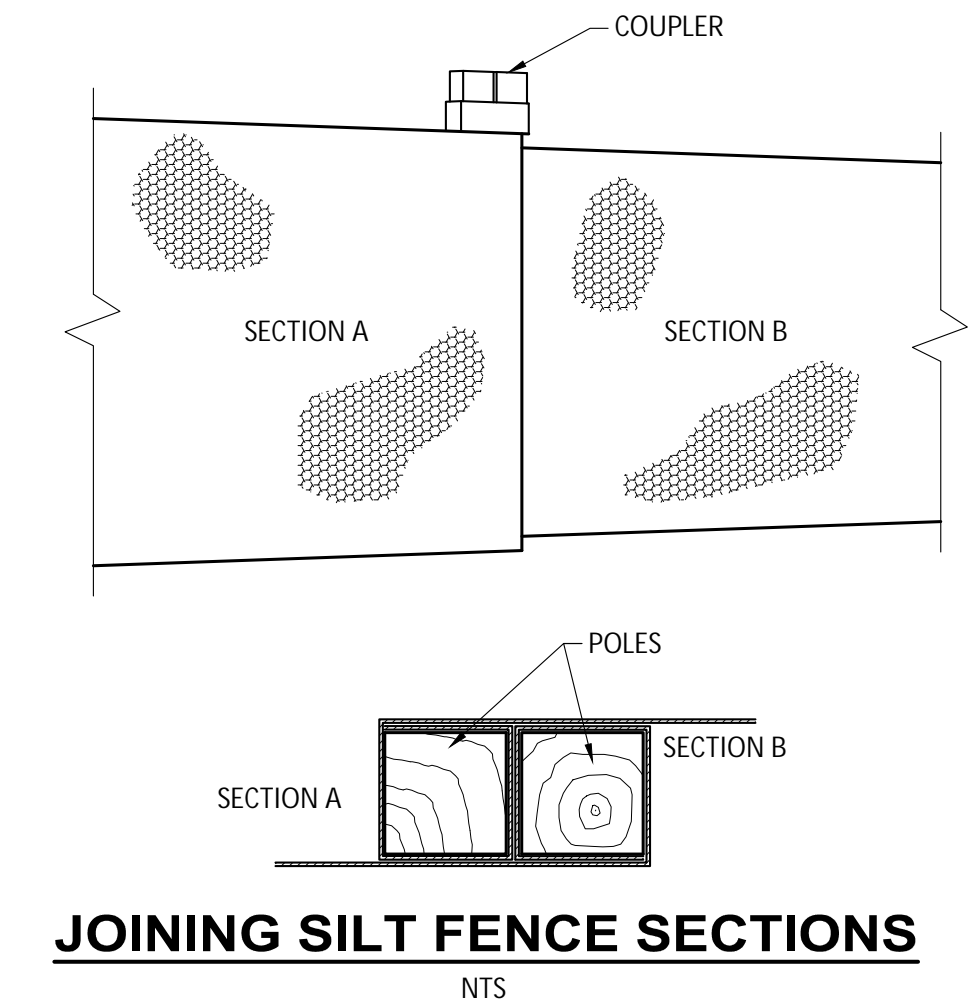


INSTALL ON SLOPES 3:1 OR GREATER
EROSION CONTROL MATTING - SLOPES



STONE CHECK DAM DETAIL

NTS



NOTES:

- ALL MATERIAL TO MEET SPECIFICATIONS
- SILT SOCK COMPOST/SOIL/ROCK/SEED FILL TO MEET APPLICATION REQUIREMENTS
- SILT SOCK DEPICTED IS FOR MINIMUM SLOPES. GREATER SLOPES MAY REQUIRE LARGER SOCKS PER THE ENGINEER
- COMPOST MATERIAL TO BE DISPERSED ON SITE, AS DETERMINED BY ENGINEER.

COMPOST SILT SOCK

NTS

NO	DESIGNED BY: B.ECK	C&G CORP. - W.EDG	CHECKED BY: W.EDG	DATE: 11/20/20	APPROVED BY: 11/20/20	PROTECT NO: 14202A	SUBMISSIONS/REVISIONS	DATE
								07/20
PRELIMINARY DESIGN - NOT FOR CONSTRUCTION								

CITY OF PORTSMOUTH
SUBAQUEOUS WATER TRANSMISSION MAIN
PISCATAQUA RIVER, DURHAM-NEWINGTON
NEW HAMPSHIRE

EROSION CONTROL NOTES & DETAILS - DURHAM SITE

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DRAWING
C-13

EROSION AND SEDIMENTATION CONTROL NOTES

THIS PLAN HAS BEEN DEVELOPED AS A STRATEGY TO CONTROL SOIL EROSION AND SEDIMENTATION DURING AND AFTER CONSTRUCTION. THIS PLAN IS BASED ON THE NEW HAMPSHIRE STORMWATER MANUAL BY THE NEW HAMPSHIRE DEPARTMENT OF ENVIRONMENTAL SERVICES, TERRAIN ALTERATION BUREAU, DATED DECEMBER 2008

THE PROPOSED LOCATIONS OF SILTATION AND EROSION CONTROL STRUCTURES REQUIRED ARE SHOWN ON THE DRAWINGS. PROVIDE SILT FENCE, STONE CHECK DAMS AND OTHER EROSION CONTROL MEASURES AS REQUIRED TO ADEQUATELY PREVENT SEDIMENT TRANSPORT AS NOTED IN THE BMP.

3. ALL SEDIMENT AND EROSION CONTROL MEASURES SHALL BE DONE IN ACCORDANCE WITH THE NEW HAMPSHIRE STORMWATER MANAGEMENT MANUAL AND THE NEW HAMPSHIRE DEPARTMENT OF ENVIRONMENTAL SERVICES, ENV-Wq 1500: ALTERATION OF TERRAIN AND THE NHDES BEST MANAGEMENT PRACTICES MANUAL FOR THE UTILITY MAINTENANCE IN AND ADJACENT TO WETLANDS AND WATERBODIES.
2. THOSE AREAS UNDERGOING ACTUAL CONSTRUCTION WILL BE MAINTAINED IN AN UNTREATED OR UNVEGETATED CONDITION FOR THE MINIMUM TIME REQUIRED. IN GENERAL AREAS TO BE VEGETATED SHALL BE PERMANENTLY STABILIZED WITHIN 15 DAYS OF FINAL GRADING AND TEMPORARILY STABILIZED WITHIN 30 DAYS OF INITIAL DISTURBANCE OF THE SOIL.
3. SEDIMENT BARRIERS (SILT FENCE, STONE CHECK DAMS, ETC.) SHOULD BE INSTALLED PRIOR TO ANY SOIL DISTURBANCE OF UPGRADIENT DRAINAGE AREAS.
4. INSTALL SILT FENCE AT TOE OF SLOPES TO FILTER SILT FROM RUNOFF. SEE SILT FENCE DETAIL FOR PROPER INSTALLATION. SILT FENCE WILL REMAIN IN PLACE PER NOTE #5.
5. ALL EROSION CONTROL STRUCTURES WILL BE INSPECTED, REPLACED AND/OR REPAIRED EVERY 7 DAYS AND IMMEDIATELY FOLLOWING ANY SIGNIFICANT RAINFALL OR SNOW MELT OR WHEN NO LONGER SERVICEABLE DUE TO SEDIMENT ACCUMULATION OR DECOMPOSITION. SEDIMENT DEPOSITS MUST BE REMOVED WHEN THEY REACH APPROXIMATELY ONE HALF THE HEIGHT OF THE BARRIER. SEDIMENT CONTROL DEVICES SHALL REMAIN IN PLACE AND BE MAINTAINED BY THE CONTRACTOR UNTIL AREAS UPSLOPE ARE PERMANENTLY STABILIZED.
6. NO SLOPES, EITHER PERMANENT OR TEMPORARY, SHALL BE STEEPER THAN TWO HORIZONTAL TO ONE VERTICAL (2 TO 1) UNLESS STABILIZED WITH RIPRAP OR OTHER STRUCTURAL MEANS.
7. IF FINAL SEEDING AND SODDING IS NOT EXPECTED PRIOR TO THE ANTICIPATED DATE OF THE FIRST KILLING FROST, USE TEMPORARY ANNUAL RYEGRASS SEEDING AND MULCHING ON ROUGH GRADED SUBSOIL TO PROTECT THE SITE AND DELAY PERMANENT LOAMING, FINE GRADING, AND SEEDING OR SODDING UNTIL SPRING.
8. WHEN FEASIBLE, TEMPORARY SEEDING OF DISTURBED AREAS THAT HAVE NOT BEEN FINISH GRADED SHALL BE COMPLETED 30 DAYS PRIOR TO THE FIRST KILLING FROST.
9. DURING THE CONSTRUCTION PHASE, INTERCEPTED SEDIMENT WILL BE RETURNED TO THE SITE AND REGRADED ONTO OPEN AREAS. POST SEEDING SEDIMENT, IF ANY, WILL BE DISPOSED OF IN AN ACCEPTABLE MANNER.
10. REVEGETATION MEASURES WILL COMMENCE UPON COMPLETION OF CONSTRUCTION EXCEPT AS NOTED ABOVE. ALL DISTURBED AREAS NOT OTHERWISE STABILIZED WILL BE GRADED, SMOOTHED, AND REVEGETATED.
11. ALL TEMPORARY EROSION CONTROL MEASURES SHALL BE REMOVED ONCE THE SITE IS STABILIZED.

12. STABILIZATION SCHEDULE BEFORE WINTER:
- | | |
|---------------------|--|
| <u>SEPTEMBER 15</u> | ALL DISTURBED AREAS MUST BE SEEDED AND MULCHED.
ALL SLOPES MUST BE STABILIZED, SEEDED AND MULCHED.
SLOPES 3:1 OR GREATER TO BE STABILIZED WITH EROSION CONTROL MATTING AND SEEDED.
ALL DISTURBED AREAS TO BE PROTECTED WITH AN ANNUAL GRASS MUST BE SEEDED AT A SEEDING RATE OF 3 POUNDS PER 1,000 SQUARE FEET AND MULCHED. |
| <u>OCTOBER 1</u> | ALL GRASS-LINED DITCHES AND CHANNELS MUST BE STABILIZED WITH MULCH OR EROSION CONTROL BLANKET. |
| <u>NOVEMBER 15</u> | ALL STONE-LINED DITCHES AND CHANNELS MUST BE CONSTRUCTED AND STABILIZED.
SLOPES THAT ARE COVERED WITH RIPRAP MUST BE CONSTRUCTED BY THAT DATE. |
| <u>DECEMBER 1</u> | ALL DISTURBED AREAS WHERE THE GROWTH OF VEGETATION FAILS TO BE AT LEAST THREE INCHES TALL OR AT LEAST 75% OF THE DISTURBED SOIL IS COVERED BY VEGETATION, MUST BE PROTECTED FOR OVER-WINTER. |

EROSION CONTROL - WINTER CONSTRUCTION

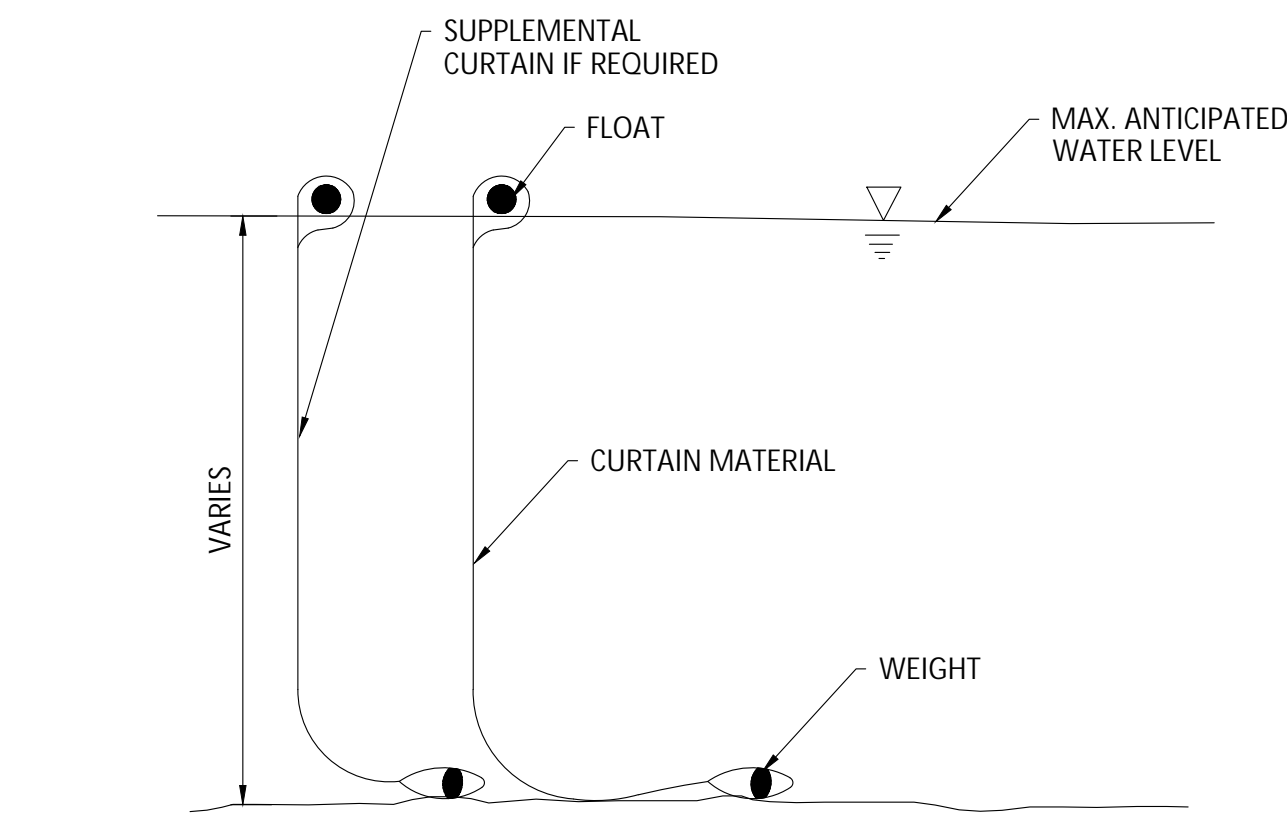
1. WINTER CONSTRUCTION PERIOD DEFINED: NOVEMBER 15 THROUGH APRIL 15
2. WINTER EXCAVATION AND EARTHWORK SHALL BE DONE SUCH THAT NO MORE THAN 1 ACRE OF THE SITE IS WITHOUT STABILIZATION AT ANY ONE TIME.
3. EXPOSED AREA SHOULD BE LIMITED SUCH THAT THE AREA CAN BE MULCHED IN ONE DAY PRIOR TO ANY SNOW EVENT.
4. CONTINUATION OF EARTHWORK OPERATIONS ON ADDITIONAL AREAS SHALL NOT BEGIN UNTIL THE EXPOSED SOIL SURFACE ON THE AREA BEING WORKED HAS BEEN STABILIZED SUCH THAT NO LARGER AREA OF THE SITE IS WITHOUT EROSION CONTROL PROTECTION AS LISTED IN ITEM 2 ABOVE.
5. AN AREA SHALL BE CONSIDERED TO HAVE BEEN STABILIZED WHEN EXPOSED SURFACES HAVE BEEN EITHER MULCHED WITH STRAW AT A RATE OF 100 LB. PER 1,000 SQUARE FEET (WITH OR WITHOUT SEEDING) OR DORMANT SEEDED, MULCHED AND ADEQUATELY ANCHORED BY AN APPROVED ANCHORING TECHNIQUE. IN ALL CASES, MULCH SHALL BE APPLIED SUCH THAT SOIL SURFACE IS NOT VISIBLE THROUGH THE MULCH.
6. BETWEEN THE DATES OF OCTOBER 15 AND APRIL 1ST, LOAM OR SEED WILL NOT BE REQUIRED. DURING PERIODS OF ABOVE-FREEZING TEMPERATURES, THE SLOPES SHALL BE FINE GRADED AND EITHER PROTECTED WITH MULCH OR TEMPORARILY SEEDED AND MULCHED UNTIL SUCH TIME AS THE FINAL TREATMENT CAN BE APPLIED. IF THE DATE IS AFTER NOVEMBER 1ST AND IF THE EXPOSED AREA HAS BEEN LOAMED, FINAL GRADED AND IS SMOOTH, THEN THE AREA MUST BE STABILIZED WITH MULCH. IF CONSTRUCTION CONTINUES DURING FREEZING WEATHER, ALL EXPOSED AREAS SHALL BE GRADED BEFORE FREEZING AND THE SURFACE TEMPORARILY PROTECTED FROM EROSION BY THE APPLICATION OF MULCH. SLOPES SHALL NOT BE LEFT EXPOSED OVER THE WINTER OR ANY OTHER EXTENDED TIME OF WORK SUSPENSION UNLESS TREATED IN THE ABOVE MANNER. UNTIL SUCH TIME AS WEATHER CONDITIONS ALLOW DITCHES TO BE FINISHED WITH THE PERMANENT SURFACE TREATMENT, EROSION SHALL BE CONTROLLED BY THE INSTALLATION OF BALES OF HAY OR STONE CHECK DAMS IN ACCORDANCE WITH THE STANDARD DETAILS.
7. THE APPLICATION OF MULCH TO FINE GRADED AREAS WILL BE STABILIZED AS FOLLOWS:
 - A) BETWEEN THE DATES OF NOVEMBER 1ST AND APRIL 15TH ALL MULCH SHALL BE ANCHORED BY EITHER PEG LINE, MULCH NETTING, ASPHALT EMULSION, CHEMICAL TACK OR WOOD CELLULOSE FIBER.
 - B) MULCH NETTING SHALL BE USED TO ANCHOR MULCH IN ALL DRAINAGE WAYS WITH A SLOPE GREATER THAN 3% FOR SLOPES EXPOSED TO DIRECT WINDS AND FOR ALL OTHER SLOPES GREATER THAN 8%.
 - C) MULCH NETTING SHALL BE USED TO ANCHOR MULCH IN ALL AREAS WITH SLOPES GREATER THAN 15%. AFTER OCTOBER 1ST, THE SAME APPLIES FOR ALL SLOPES GREATER THAN 8%.
8. AFTER NOVEMBER 1ST THE CONTRACTOR SHALL APPLY MULCH AND ANCHORING ON ALL BARE EARTH AT THE END OF EACH WORKING DAY.
9. DURING WINTER CONSTRUCTION PERIODS ALL SNOW SHALL BE REMOVED FROM AREAS OF MULCHING PRIOR TO PLACEMENT.

EROSION CONTROL - WETLAND NOTES

3. WETLANDS AND SURFACE WATERS (EXCEPTING THOSE WHICH ARE TO BE FILLED IN ACCORDANCE WITH STATE AND FEDERAL REGULATIONS) WILL BE PROTECTED WITH SILT FENCE INSTALLED AT THE EDGE OF THE WETLAND OR THE BOUNDARY OF WETLAND DISTURBANCE.
2. IF THE WORK INCLUDES CROSSING OF WETLANDS AND/OR STREAMS, THE CONTRACTOR SHALL TAKE SPECIAL PRECAUTIONS INCLUDING IN THESE AREAS. CONTRACTOR IS TO PLAN EARTH DISTURBANCE AND GRADING ACTIVITIES TO MINIMIZE THE AREA OF SOIL EXPOSED AT ONE TIME, AS WELL AS THE LENGTH OF TIME BETWEEN INITIAL SOIL EXPOSURE AND FINAL GRADING.
3. ANY WETLAND CROSSING WORK SHALL BE COMPLETED BETWEEN THE PERIOD OF MAY 1 AND SEPTEMBER 30
4. ALL EROSION CONTROL MEASURES SHALL BE IN PLACE PRIOR TO COMMENCING CONSTRUCTION WITHIN OR ADJACENT TO WETLAND AREAS.
5. WETLAND VEGETATIVE LAYERS SHALL BE REMOVED AND SALVAGED FOR RESTORATION OF THE DISTURBED AREAS.
6. SOIL EXCAVATED FROM WETLANDS SHALL BE TEMPORARILY STOCKPILED IN UPLAND AREAS SEPARATED FROM OTHER MATERIALS AND SOILS. ALL STOCKPILED WETLAND SOILS SHALL BE PUT BACK IN THE SAME TRENCH THEY WERE EXCAVATED FROM. STORAGE AREAS FOR WETLAND MATERIALS SHALL BE PROPERLY PROTECTED AGAINST EROSION.
7. DISPERSE CLEAN STORMWATER AWAY FROM ALL WETLANDS TO UNDISTURBED, VEGETATED, FLAT OR MODERATE-SLOPED, SURFACES WHEREVER POSSIBLE, RATHER THAN CONCENTRATED INTO CHANNELS.
8. ANY SIGN OF RILL OR GULLY EROSION SHALL BE IMMEDIATELY INVESTIGATED AND REPAIRED AS NEEDED BASED ON THE DISCRETION OF THE ENGINEER AND OR OWNER.
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10. FALL AND WINTER EROSION CONTROL MEASURES MUST BE UPGRADED AND REFINED TO PROTECT THE DISTURBED WETLAND AREAS FROM SPRING RUNOFF AND SNOWMELT
11. SEEDING OF THE DISTURBED AREAS WITHIN WETLAND AREAS SHALL UTILIZE MIXTURES APPROPRIATE FOR WETLAND AREAS AS OUTLINED IN SECTION 02270 OF THE SPECIFICATIONS.
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SALT MARSH SALVAGE AND RESTORATION NOTES

1. ALL CONSTRUCTION AND RESTORATION SHALL BE DONE UNDER THE SUPERVISION OF THE ENGINEER AND AN ENVIRONMENTAL MONITOR.
2. INSTALL EROSION CONTROLS ALONG THE EDGE OF WORK TO PREVENT DISTURBED SOIL FROM MIGRATING INTO THE SALT MARSH DURING THE WORK PERIOD.
3. EXCAVATION WITHIN THE SALT MARSH SHALL BE LIMITED TO ONLY THE AREA NECESSARY FOR INSTALLATION OF THE NEW PIPE LINE.
4. MATTING AND EXCAVATION WITHIN THE SALT MARSH SHALL BE LIMITED TO THE SHORTEST AMOUNT OF TIME PRACTICABLE.
5. IN THE EXCAVATION AREAS, ALL SUITABLE SALT MARSH PEAT WILL BE SALVAGED AND STOCKPILED FOR REPLACEMENT DURING RESTORATION. SUITABLE PEAT WILL BE DEFINED IN THE FIELD BY THE ENVIRONMENTAL MONITOR, BUT WILL BE PROTECTED FROM SUN, WIND, DEHYDRATION AND FREEZING IN A SUITABLE UPLAND AREA AND MAINTAINED FOR THE DURATION OF THE PROJECT. THE PEAT BLOCKS SHALL BE KEPT MOIST WITH FRESH WATER.
6. OUTSIDE THE EXCAVATION AREAS, TIMBER MATS SHALL BE USED TO PROTECT THE MARSH FROM EQUIPMENT AND FOOT TRAFFIC.
7. THE SALVAGED PEAT BLOCKS SHALL BE PROTECTED FROM THE SUN, WIND, DEHYDRATION, AND FREEZING IN A SUITABLE UPLAND AREA AND MAINTAINED FOR THE DURATION OF THE PROJECT. THE PEAT BLOCKS SHALL BE KEPT MOIST WITH FRESH WATER.
8. CONSTRUCTION IN THE SALVAGE AREA SHALL BE COMPLETED SUCH THAT THE SALVAGED BLOCKS ARE REPLACED NO LATER THAN NOVEMBER 1. IF THE CONSTRUCTION EXTENDS BEYOND NOVEMBER 1, THE PEAT BLOCKS WILL BE MAINTAINED THROUGH THE WINTER AND REPLACED IN APRIL OF THE FOLLOWING YEAR.
9. UPON COMPLETION OF THE WATER MAIN INSTALLATION AND BACKFILLING, THE UNDERLYING SUBSTRATES WILL BE RESTORED TO APPROPRIATE SUBGRADES TO SUPPORT THE PEAT BLOCKS. FINAL ELEVATION OF THE TOP OF PEAT SHALL BE EQUAL TO OR UP TO 2 INCHES HIGHER THAN THE PRE-CONSTRUCTION CONDITION.
10. THE PEAT BLOCKS SHALL BE REPLACED TO MATCH THE ORIGINAL SALT MARSH LIMITS. PEAT BLOCKS SHALL BE ANCHORED WITH $\frac{3}{8}$ INCH REBAR STAKES DRIVEN INTO THE SUBSTRATES AND/OR ADJACENT PEAT. ANY OPENING BETWEEN PEAT BLOCKS WILL BE FILLED WITH SAND TO COVER EXPOSED ROOTS AND MAINTAIN GRADES. ADDITIONAL SALT MARSH CORDGRASS (*Spartina alterniflora*) SEEDLINE SHALL BE PLANTED IN THE GAP BETWEEN THE PEAT BLOCKS IF IT EXCEEDS 4 INCHES.
11. IF THE SALVAGED PEAT BLOCKS DO NOT FULLY COVER THE DISTURBED MARSH AREA, CORDGRASS SEEDLINGS SHALL BE PLANTED AT 1 SQ. FT INTERVALS IN THE AREAS THAT WERE PREVIOUSLY MARSH AREAS.
12. IN THE REPLANTING AREAS, THE SUBSTRATES SHALL BE RESTORED WITH SAND, CONTAINED WITHIN SANDBAGS OR OTHERWISE PROTECTED, TO STABILIZE THE SEDIMENTS. SURFACE ELEVATIONS SHALL MATCH PRE-CONSTRUCTION CONDITIONS OR AS DIRECTED BY THE ENVIRONMENTAL MONITOR. THE SEAWARD FACE OF THE RESTORED MARSH WILL BE PROTECTED FROM ICE AND WAVE ACTION WITH COIR LOGS AND/OR BOULDERS, AS COORDINATED WITH THE ENVIRONMENTAL MONITOR.

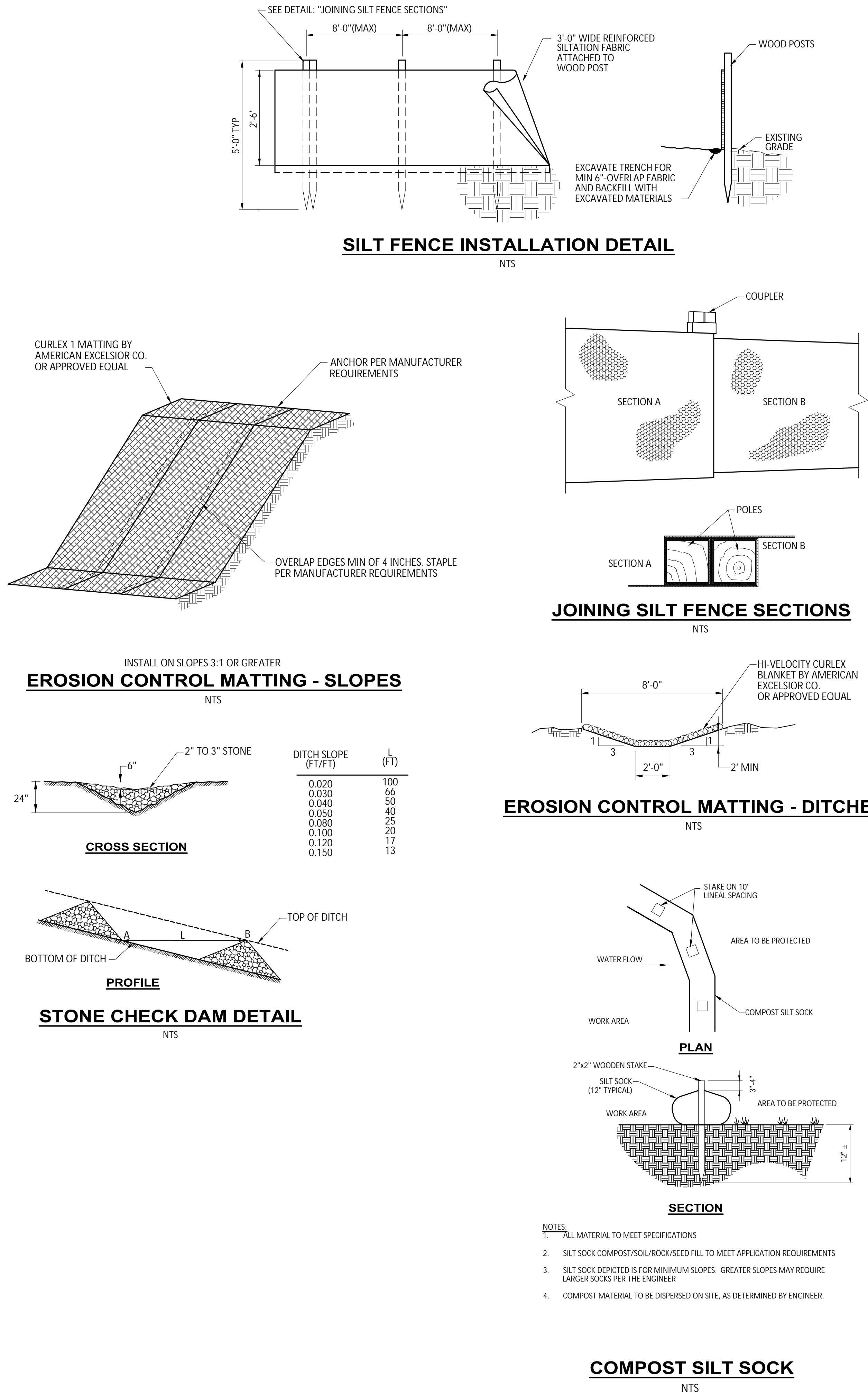



NOTES:

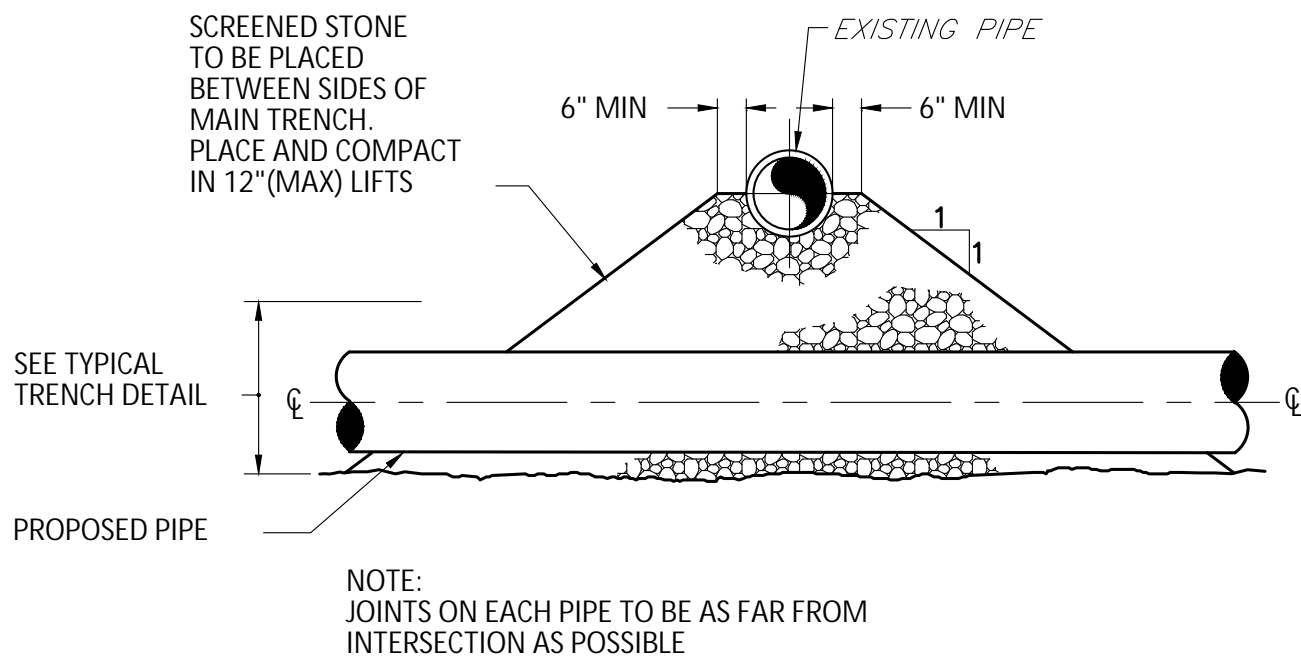
1. TURBIDITY CURTAIN SHALL BE APPROXIMATELY RATED FOR RIVERINE AND TIDAL ENVIRONMENTS.
2. CURTAIN SHALL BE INSTALLED AND MAINTAINED IN ACCORDANCE WITH THE MANUFACTURERS RECOMMENDATIONS.

FLOATING SEDIMENT TURBIDITY CURTAIN

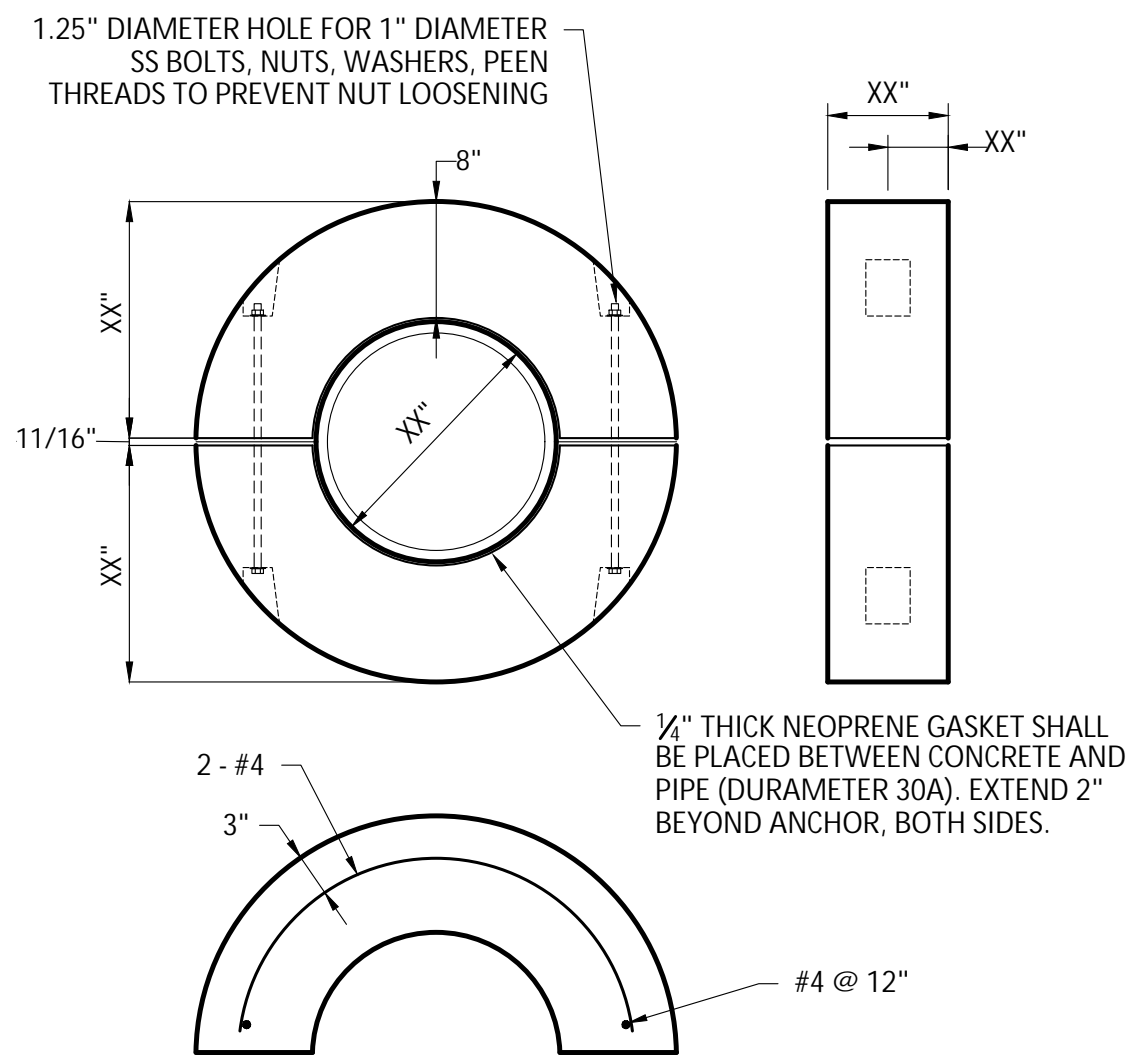
NTS



CITY OF PORTSMOUTH SUBAQUEOUS WATER TRANSMISSION MAIN PISCATAQUA RIVER, DURHAM-NEWINGTON NEW HAMPSHIRE	 WRIGHT-PIERCE Engineering a Better Environment 888.621.8156 www.wright-pierce.com	DESIGNED BY:	B.ECK		
		CAD CORREP:	W. EDG		
		CDS:	W. EDG		
		CHECKED BY:			
		DATE:			
		APPROVED BY:			
DRAWING C-14	EROSION CONTROL NOTES & DETAILS - NEWINGTON SITE	NO.	SUBMISSIONS/REVISIONS	APP'D	DATE
			PRELIMINARY DESIGN - NOT FOR CONSTRUCTION		07/20

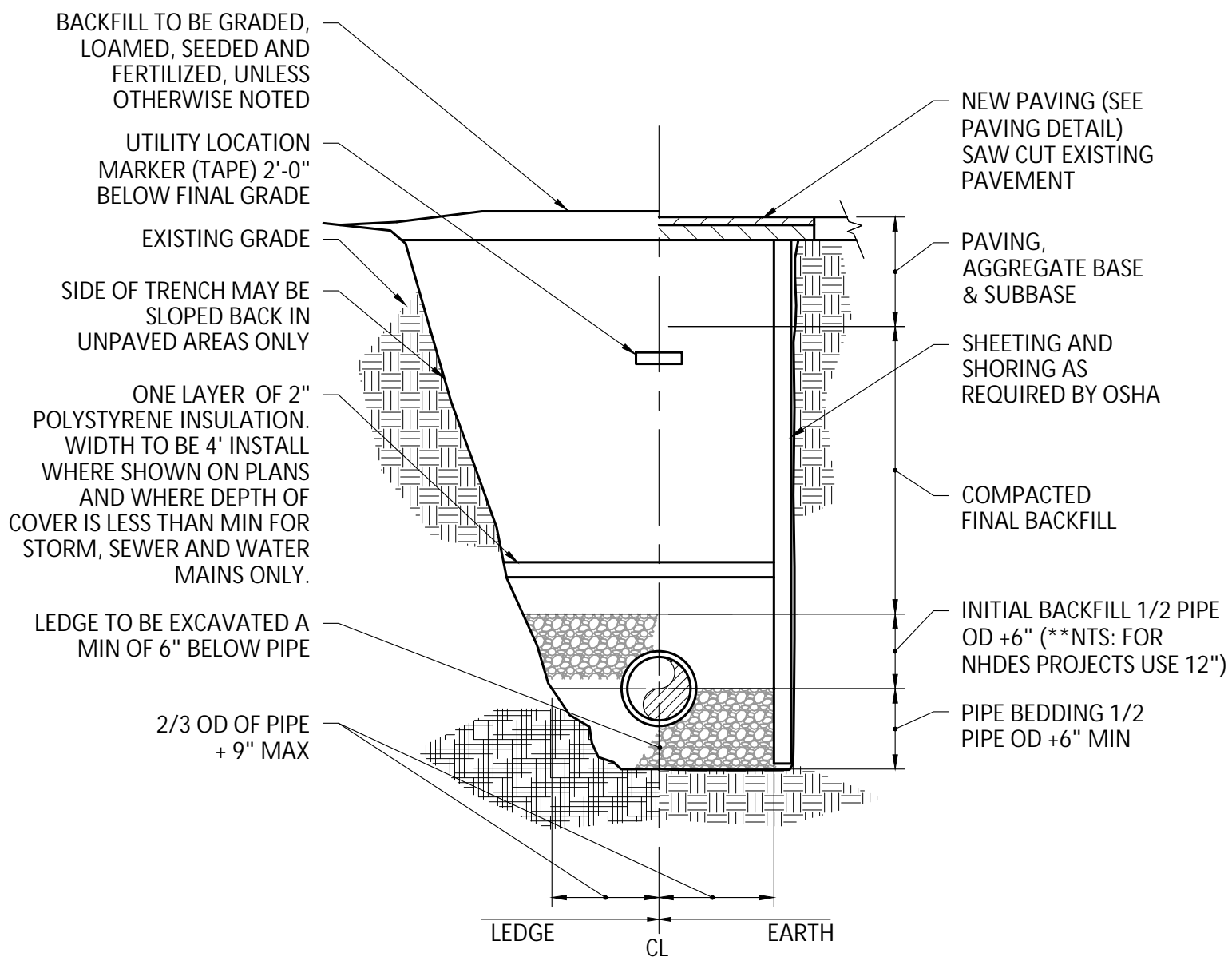


PIPE CROSSING DETAIL
NTS

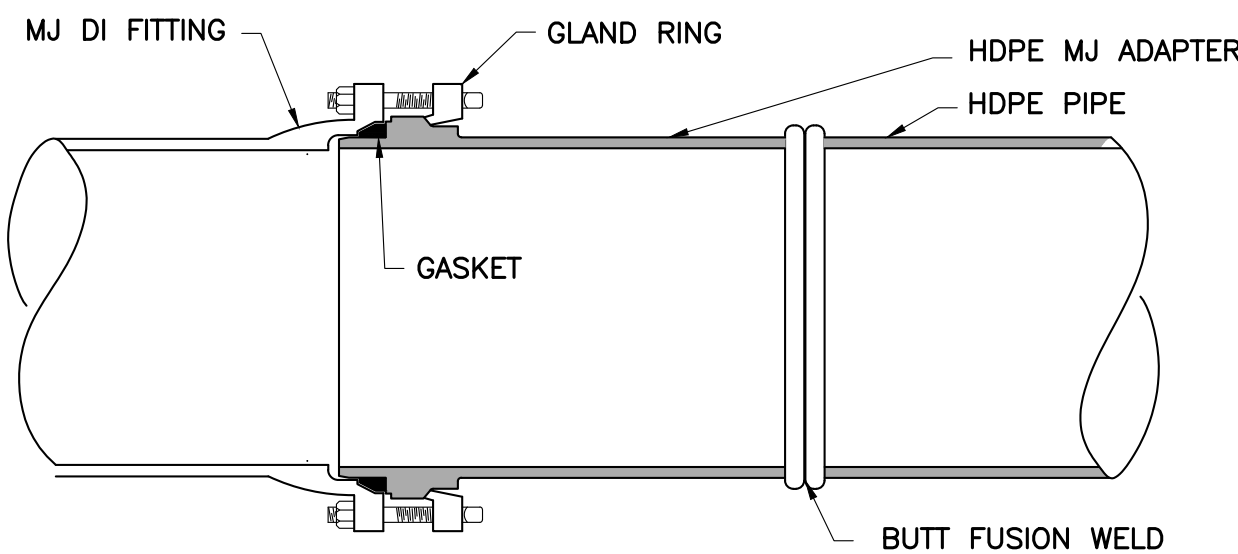
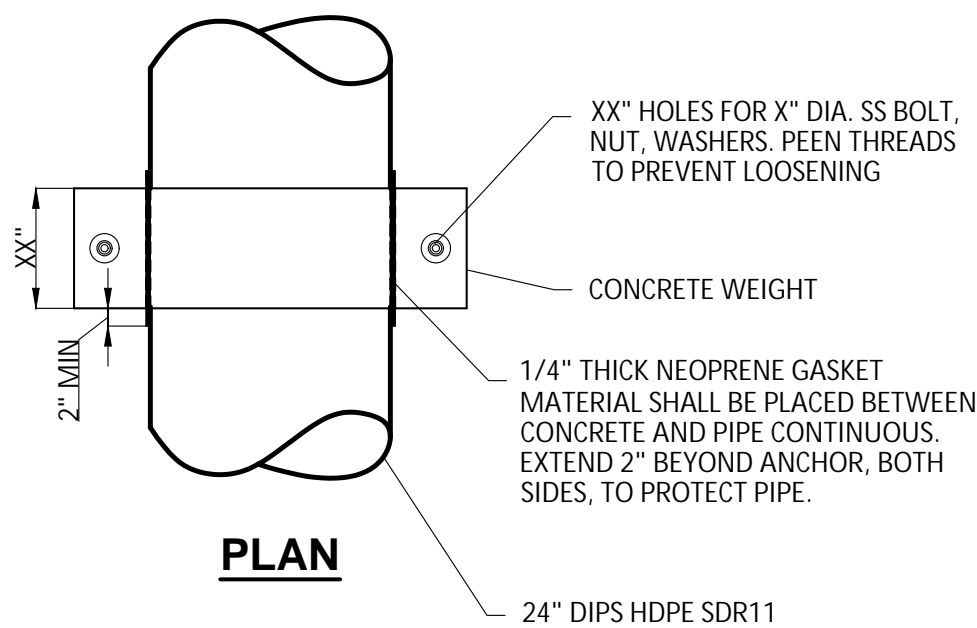


1. CONCRETE SHALL HAVE A MINIMUM 28 DAY STRENGTH OF 4500 PSI.
2. REINFORCING STEEL SHALL BE ASTM A615 GRADE 60 DEFORMED BARS.
3. ANCHOR BOLTS, NUTS, WASHERS, BARS, PLATES SHALL BE STAINLESS STEEL TYPE 316.
4. CONCRETE ANCHORS SHALL BE SECURELY FASTENED TO THE PIPE TO PREVENT MOVEMENT.
5. CONCRETE ANCHORS TO BE SPACED AT 10'-0" O.C. BASED ON 24" SDR 11 PIPE WITH XX-INCHES O.D. AND PIPE WEIGHT 34.44 LBS PER LINEAR FOOT.
6. CONTRACTOR SHALL VERIFY THE ABOVE CONCRETE ANCHOR DIMENSIONS WITH PIPE.
7. PROVIDE LIFTING INSERT ON EACH ANCHOR SECTION.

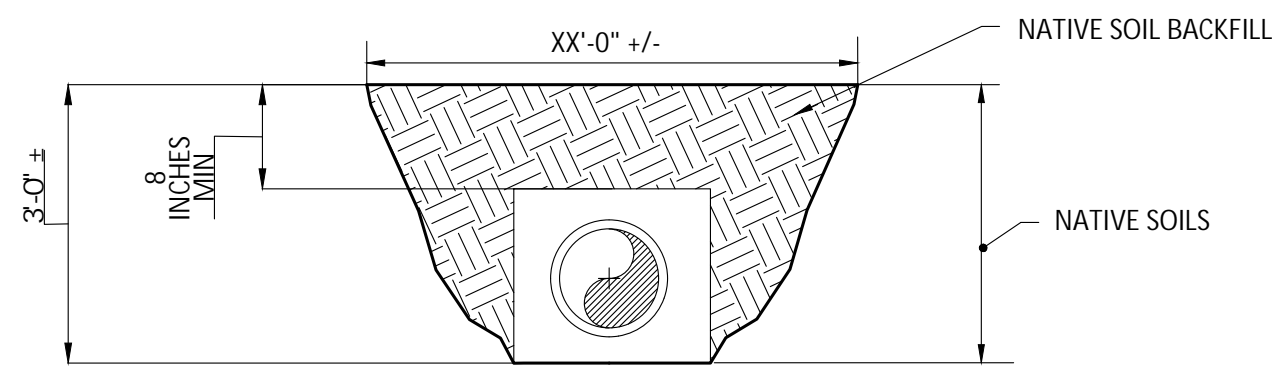
CONCRETE ANCHOR DETAIL
NTS



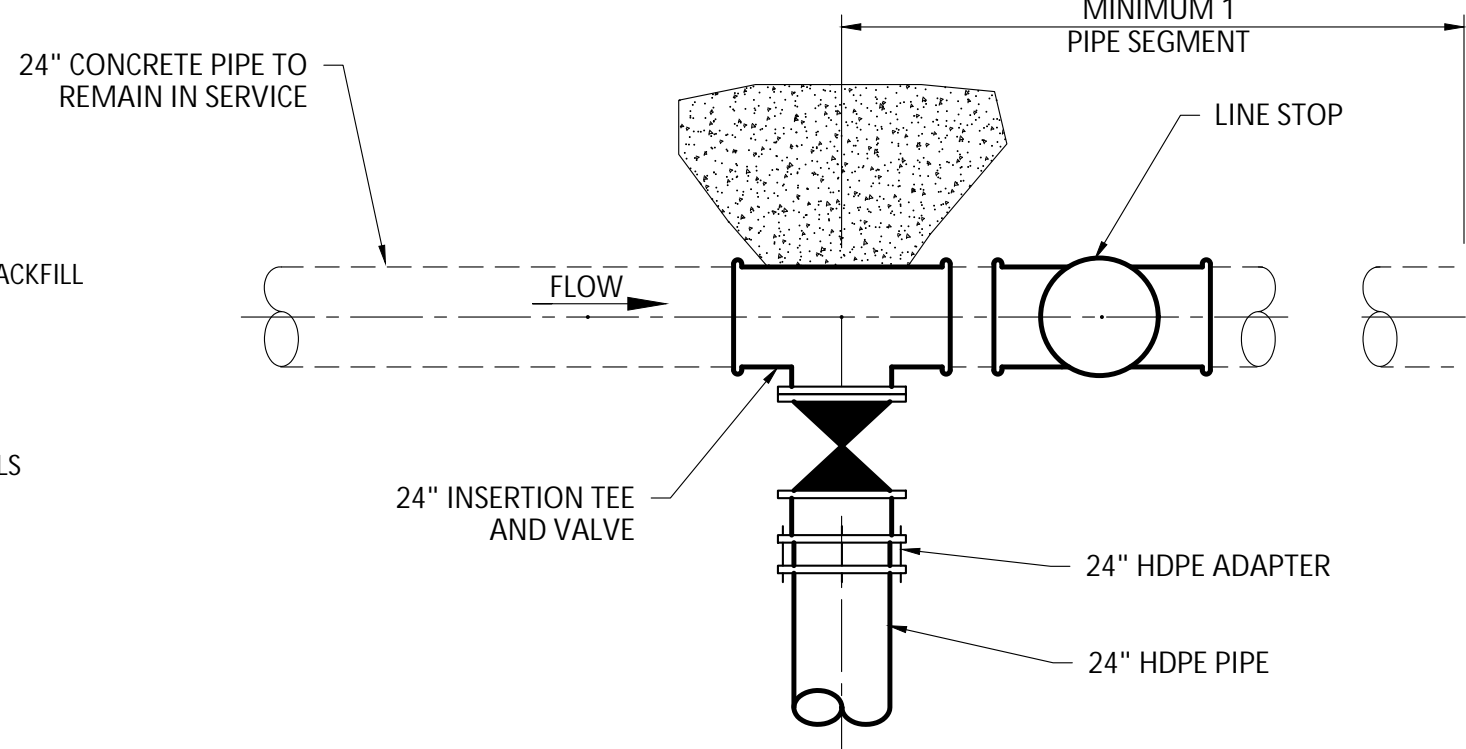
PIPE TRENCH
SCALE: "NTS"



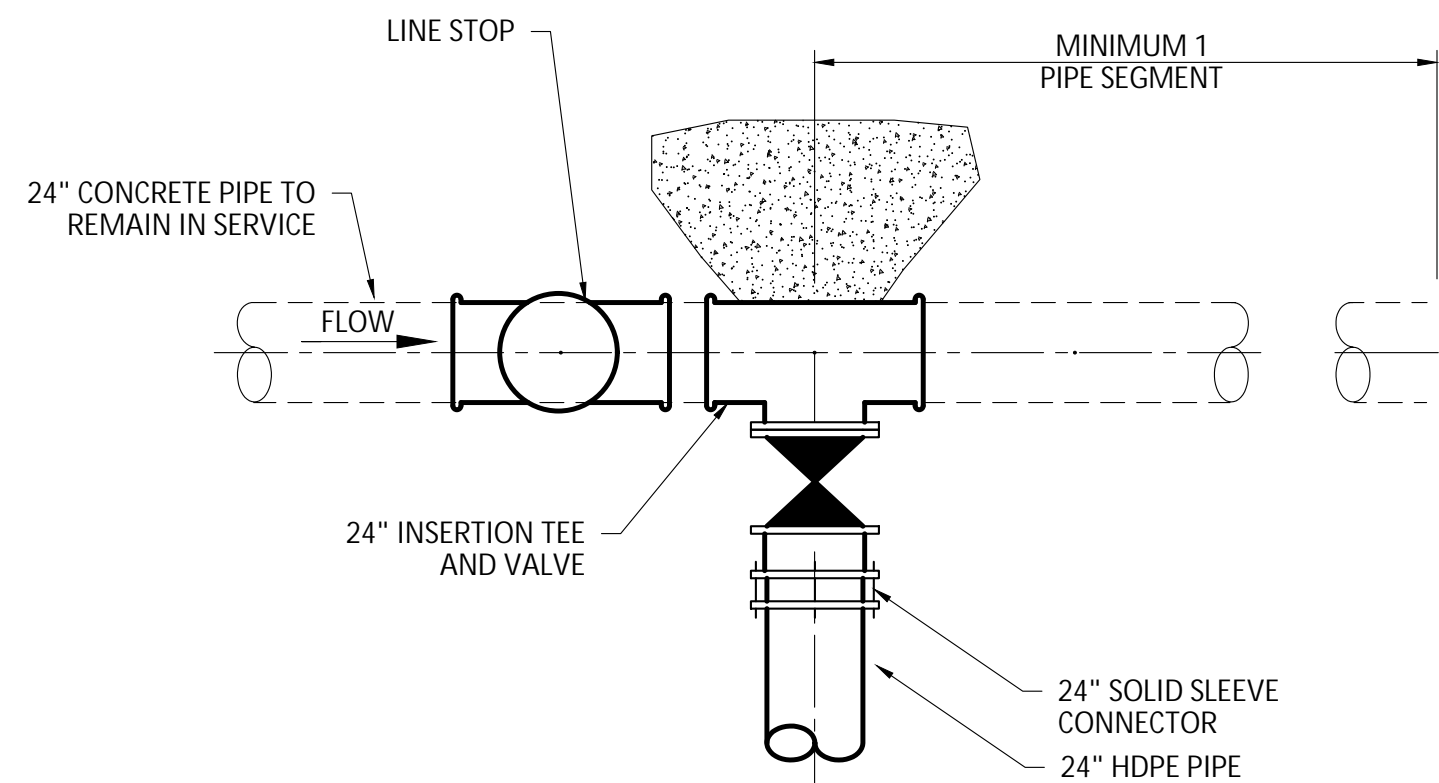
HIGH DENSITY POLYETHYLENE PIPE TO
MECHANICAL JOINT CONNECTION DETAIL
SCALE: NTS



MARINE WATER MAIN TRENCH DETAIL
NTS



DURHAM LOCATION



NEWINGTON LOCATION

NEW WATER MAIN TIE IN DETAIL
NTS

NO	SUBMISSIONS/REVISIONS		APP'D	DATE
	PRELIMINARY DESIGN - NOT FOR CONSTRUCTION			07/20
1	DESIGNED BY:	W. EDG		
	CAD COORD:	W. EDG		
	CAD:	W. EDG		
2	CHECKED BY:			
	DATE:			
3	APPROVED BY:			
	DATE:			
4	PROJECT NO:	14202A		