



NEW HAMPSHIRE DRINKING WATER & GROUNDWATER TRUST FUND



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Representatives**

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Pollution Control Association**

**Christopher S. Way, NH
Economic Development**

January 14, 2019

Larry D. Goodhue, Chief Executive Officer
Pennichuck Water Works, Inc.
25 Manchester Street
P.O. Box 1947
Merrimack, NH 03054

**Subject: 2018 Drinking Water and Groundwater Trust Fund Pre-Application, dated
June 15, 2018 and Submission of Project for Consideration of Loan Funds from the NH
Drinking Water Groundwater Trust Fund, dated November 2, 2018**

Project: Merrimack River Raw Water Intake, Merrimack

Dear Mr. Goodhue,

Congratulations on your recent loan award from the Drinking Water and Groundwater Trust Fund (DWGTF) Advisory Commission. On January 7, 2019, the DWGTF Advisory Commission authorized borrowing funds up to \$5,500,000 for the Merrimack River Raw Water Intake project presented in the subject documents.

The next step to move forward with securing the loan is completion and submission of a final application package. The required documents are listed on the enclosed checklist and are available online at https://www4.des.state.nh.us/nh-dwg-trust/?page_id=391. Once the final application has been submitted, the Funding Recipient will enter into a loan agreement, which must be approved by Governor and Council to be effective. The interest rate approved by the Advisory Commission effective on October 1, 2018 for 5, 10, 15, 20, 30, and 40-year loan terms is 3.38%.

The final application is due **by May 1, 2019**. Construction cannot begin until after Governor and Council approval and an environmental review has been completed. However, any non-construction project-related work that has been completed is eligible for reimbursement once the loan agreement is in place.

January 14, 2019
Merrimack River Raw Water Intake, Merrimack
Page 2 of 2

We ask that you keep us informed of progress made toward seeking the authority to borrow. Should your project not move forward, please contact us as soon as possible. If you have any questions, please contact me at 603-271-8321 or at erin.holmes@des.nh.gov.

Sincerely,



Erin Holmes, P.E.
Drinking Water and Groundwater Trust Fund Administrator
MtBE Remediation Bureau

Attachments: Final Application Checklist

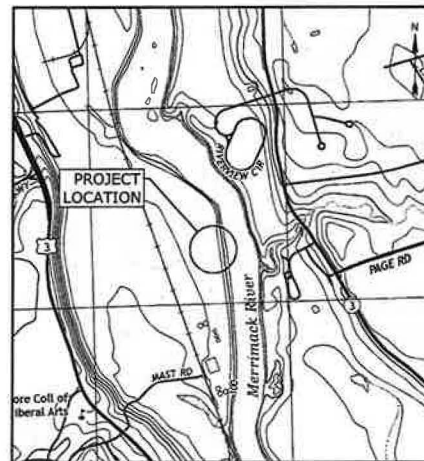
Cc: Michael Juranty, P.E., MtBE Remediation Bureau Administrator, NHDES
Johnna McKenna, Drinking Water and Groundwater Bureau, NHDES
John Boisvert, P.E., Chief Engineer, PWW, john.boisvert@pennichuck.com

Jan Savard: US1176819
National Center 31, 2019-211 Epsom Bv. (Bellingham)
Wash & Mead / VPS157 Woodcock Wm. Hwy (VPS157) - New Image/Jerry Jones 3-D-COMM-Bag

PROJECT NO: P0597-3

JANUARY 2019

LIST OF DRAWINGS	
SHEET NO.	SHEET TITLE
G-001	COVER
G-100	ABBREVIATIONS, LEGENDS, AND GENERAL NOTES
C-101	EXISTING SITE CONDITIONS
C-102	INTAKE ALIGNMENT PLAN AND PROFILE
C-501	INTAKE DETAILS
C-502	PROCESS PIPING INTAKE STATION SITE AND FLOOR PLANS
C-503	SITE DETAILS
D-101	DEMOLITION INTAKE STATION FLOOR PLAN
S-001	STRUCTURAL ABBREVIATIONS, LEGEND AND GENERAL NOTES
S-100	STRUCTURAL INTAKE STATION INTAKE STRUCTURES PLAN
S-101	STRUCTURAL PRECAST WET WELL STRUCTURE PLAN AND ELEVATIONS
S-102	PLATFORM STRUCTURAL PLAN AND DETAILS
S-300	STRUCTURAL CAST-IN-PLACE JUNCTION STRUCTURE ELEVATIONS AND SECTIONS
L-101	LANDSCAPING PLAN AND DETAILS
E-101	ELECTRICAL INTAKE STATION FLOOR PLAN



LOCATION MAP
SCALE: 1" = 2,000'

PREPARED BY:
Tighe & Bond
www.tighebond.com



DANIEL P. BISSON P.E.



PETER M. VALINSKI P.E.

OWNER:
PENNICHUCK WATER WORKS
MERRIMACK, NEW HAMPSHIRE

RELEASED FOR BID

COMPLETE SET 15 SHEETS

2019PWWDWGTf000033

LEGEND

IR	IRON ROD FOUND
IRP	IRON PIPE FOUND
DRG	DRILL HOLE FOUND
EM	ELECTRIC METER
PT	PAD MOUNTED TRANSFORMER
Q	MANHOLE
CB	CONCRETE BOUND WITH DRILL HOLE
WV	WATER GATE VALVE
UP	UTILITY POLE
GP	GUY POLE
GW	GUY WIRE
DT	DECIDUOUS TREE
CT	CONIFEROUS TREE
ST	SIGN (SINGLE POSTED)
PO	POST
BL	BORING LOCATION
GR	GRAVEL
BR	BEDROCK
SO	SEDIMENT/OVERBURDEN
RP	RIP-RAP
CL	CLEAR AND GRUB LIMIT
EX	APPROXIMATE EXCAVATION LIMIT
PL	PROPERTY LINE
AP	PROPOSED AIRBURST PIPE
WM	EXISTING WATER MAIN
UE	UNDERGROUND ELECTRIC
OE	OVERHEAD ELECTRIC
TL	TREE LINE
EF	EXISTING FENCE
IC	INDEX CONTOURS
AW	APPROXIMATE EDGE OF WATER
WL	WETLAND LINE
EB	EROSION CONTROL BARRIER
PF	PROPOSED FENCE

ABBREVIATIONS

BOE	BOE	INVT	INV
CI	CAST IRON	IP	IRON PIPE
CONC	CONCRETE	MD	MECHANICAL JOINT
DR	DIMENSION RATIO	NTS	NOT TO SCALE
DI	DUCTILE IRON	PL	PROPERTY LINE
ELEV	ELEVATION	SS	STAINLESS STEEL
EC	EROSION CONTROL	STA	STATION
GW	GUY WIRE	SB	STONE BOUND
GP	GUY POLE	UP	UTILITY POLE
HDPE	HIGH DENSITY POLYETHYLENE	UT	UTILITY STRUCTURE
ID	INTERIOR DIAMETER	WV	WATER GATE VALVE

PROJECT DESCRIPTION

THE PROJECT CONSISTS OF CONSTRUCTION OF A NEW RAW WATER INTAKE ON THE MERRIMACK RIVER IN MERRIMACK, NH. THE INTAKE SHALL BE CONSTRUCTED BY INSTALLING A 30"x30" (INSIDE DIMENSIONS) PRE-CAST CONCRETE WET WELL STRUCTURE AT THE SITE OF THE EXISTING RAW WATER MERRIMACK RIVER INTAKE PUMPING STATION WITH A 48-INCH STEEL INTAKE PIPE APPROXIMATELY 315' IF HORIZONTALLY INTO THE RIVER. A 12'-4"x15'-4" CAST-IN-PLACE JUNCTION STRUCTURE SHALL BE CONSTRUCTED AROUND THE TWO EXISTING 36-INCH RCP INTAKE PIPES. THE EXISTING RCP PIPES SHALL BE REMOVED FROM THE INSIDE OF THE WET WELL STRUCTURE AND CONNECTED TO THE JUNCTION BOX WITH A 48-INCH STEEL CONNECTOR PIPE. TWO 66-INCH DIAMETER T-GORDENS SHALL BE INSTALLED IN THE RIVER AT THE END OF THE 48-INCH INTAKE PIPE WITH TWO 6-INCH HOPE AIRBURST PIPES TO THE SCREENS. AN AIRBURST SYSTEM SHALL BE CONSTRUCTED INSIDE THE EXISTING MERRIMACK RIVER INTAKE PUMPING STATION.

GENERAL NOTES

- EXISTING UTILITY LOCATIONS AND LAND ELEVATIONS ARE BASED ON A GROUND SURVEY CONDUCTED BY DOUGET SURVEY IN JANUARY 2017. PRIOR TO CONSTRUCTION, DETERMINE THE EXACT LOCATION OF UTILITIES BY TEST PIT, OR OTHER METHODS WHERE REQUIRED, WHEN AUTHORIZED BY THE ENGINEER. VERTICAL DATUM IS BASED ON NAVD83.
- STREAM BED ELEVATIONS ARE BASED ON A BATHYMETRIC SURVEY CONDUCTED BY SUBSTRUCTURE INC. IN MAY 2015.
- BORING LOCATIONS SHOWN ARE APPROXIMATE ONLY AND BORINGS ARE NOT GUARANTEED TO REPRESENT THE EXISTING CONDITIONS. LOGS ARE INCLUDED IN PROJECT MANUAL.
- PROVIDE SEDIMENTATION AND EROSION CONTROL MEASURES PRIOR TO BEGINNING ANY CONSTRUCTION.
- MAINTAIN EROSION CONTROL DEVICES THROUGHOUT CONSTRUCTION. INSPECT AFTER EACH RADESTORM AND DURING MAJOR STORM EVENTS TO DETERMINE THAT ALL SEDIMENTATION AND EROSION CONTROL MEASURES ARE ADEQUATELY IN PLACE AND EFFECTIVE.
- WHERE HEAVY EQUIPMENT WILL CROSS EXISTING BELOW GRADE UTILITIES PROVIDE PROTECTION OF BELOW GRADE UTILITIES BY STEEL PLATING OR OTHER MEANS AS NECESSARY.
- STORE ALL FUEL, OIL, PAINT, OR OTHER HAZARDOUS MATERIALS IN A SECONDARY CONTAINER AND REMOVE FROM THE SITE TO A LOCKED INDOOR AREA WITH AN IMPERVIOUS FLOOR DURING NON WORK HOURS.
- PROVIDE A SUPPLY OF ABSORBENT SPILL RESPONSE MATERIALS SUCH AS BOOMS OR BLANKETS, AT THE CONSTRUCTION SITE AT ALL TIMES TO CLEAN UP POTENTIAL SPILLS OF HAZARDOUS MATERIALS.
- THE INTAKE PUMP STATION MUST REMAIN IN SERVICE THROUGHOUT CONSTRUCTION. MAINTAIN ACCESS TO THE INTAKE PUMP STATION BY THE OWNER THROUGHOUT CONSTRUCTION.
- A MINIMUM OF 12MGD SHALL BE SUPPLIED TO EXISTING PUMP STATION THROUGHOUT CONSTRUCTION DURATION.
- ALL WORK SHALL BE COMPLETED IN ACCORDANCE WITH THE FOLLOWING PERMITS:
 - NHDES SHORELAND IMPACT PERMIT 2017-03217.
 - NHDES WETLANDS IMPACT PERMIT 2017-00306.
 - U.S. ARMY CORPS OF ENGINEERS PERMIT NAE-2018-00177.

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**Merrimack
River Intake
Improvements**

**Pennichuck
Water Works**

Merrimack,
New Hampshire

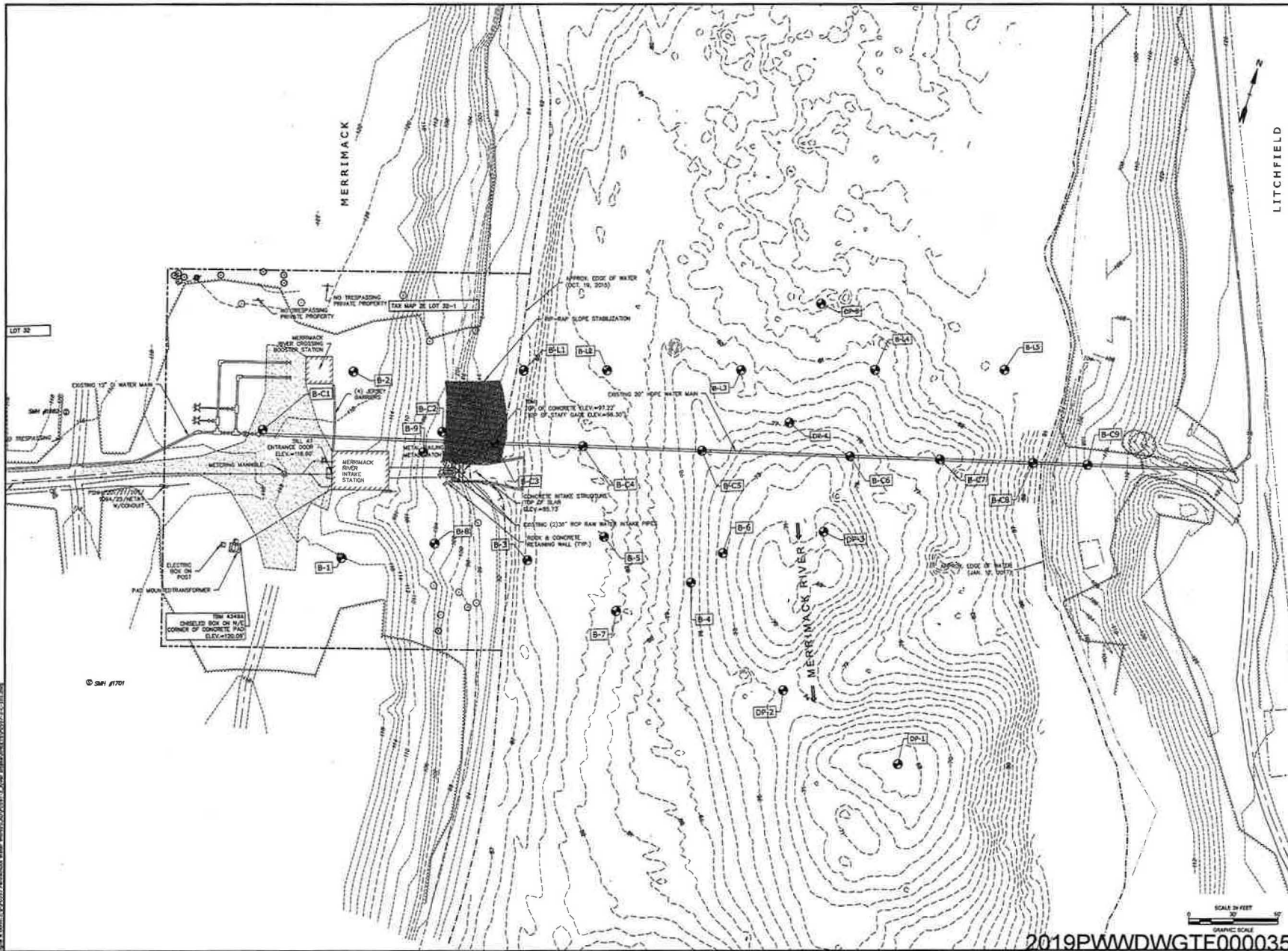
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DATE	06/06/2018
FILE	2019-1-1-101.DWG
DRAWN BY	AKS
CHECKED	DWB
APPROVED	PMO

ABBREVIATIONS, LEGENDS,
AND GENERAL NOTES

SCALE: AS SHOWN

G-100

2019PWWDWGTF000034



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Merrimack River Intake Improvements

Pennichuck Water Works

Merrimack, New Hampshire

DATE	DESCRIPTION
1/12/2018	RELEASED FOR BIDDING
1/12/2018	PROJECT NO. P00073
1/12/2018	DATE: 1/12/2018
1/12/2018	FILE: P00073-C-101.DWG
1/12/2018	DRAWN BY: AMS
1/12/2018	CHECKED: DFB
1/12/2018	APPROVED: PFW

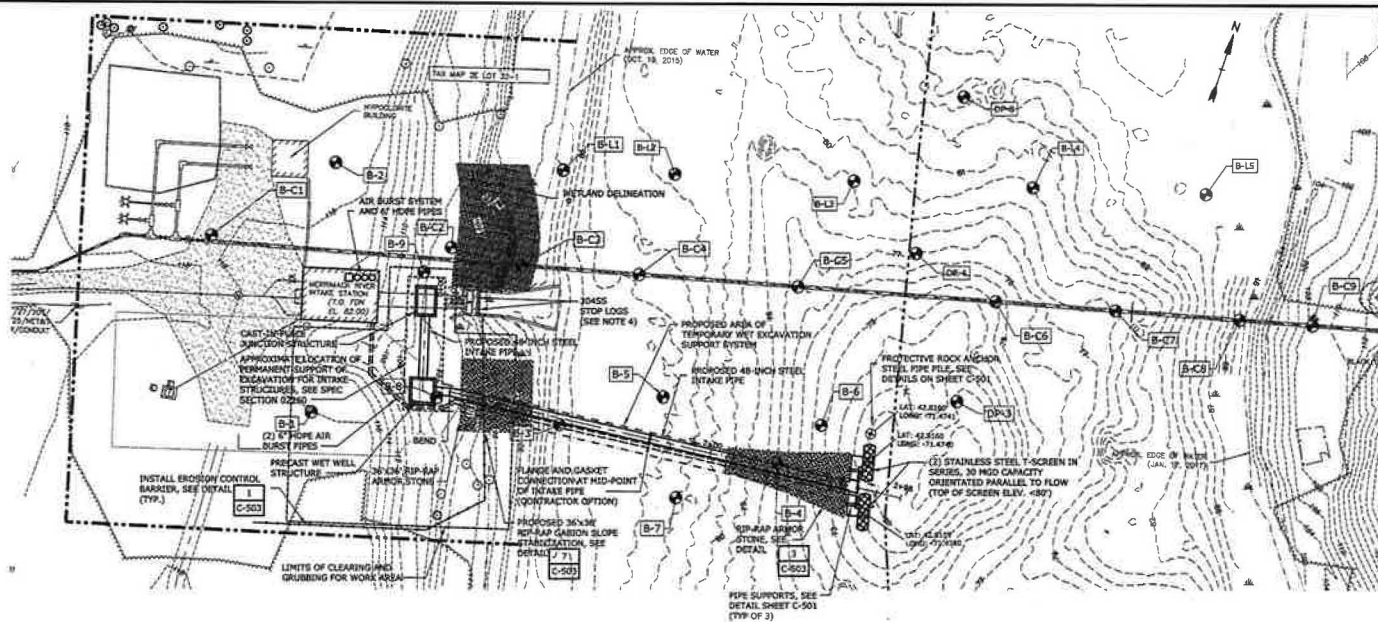
EXISTING SITE CONDITIONS

SCALE: AS SHOWN

C-101

2019PWWDWGTE000035

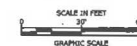
Lot 32
© 2018 PFW
Last Revised: 1/11/2018
Drawn by: AMS
Checked by: DFB
Approved by: PFW



NOTES:

1. INSTALL SEDIMENTATION AND EROSION CONTROL MEASURES PRIOR TO CONSTRUCTION.
2. THE EXISTENCE OF UTILITIES SHOWN ON DRAWINGS ARE APPROXIMATE. THE CONTRACTOR WILL BE RESPONSIBLE FOR DETERMINING THE EXACT LOCATION WHICH MIGHT BE OCCASIONED BY FAILURE TO PROPERLY LOCATE AND PRESERVE ANY AND ALL UTILITIES.
3. WHERE HEAVY EQUIPMENT CROSSES EXISTING BURIED UTILITIES, PROVIDE PROTECTION OF THE BURIED UTILITIES BY STEEL PLATING OR OTHER MEANS AS NECESSARY.
4. PROVIDE NEW 304SS STOP LOGS USING EXISTING STOP LOG CHANNELS.
5. REVER WATER ELEVATIONS AND CONDITIONS CAN FLUCTUATE QUICKLY. WORK SHALL BE CONDUCTED IN SUCH A MANNER TO CONSIDER THESE CHANGING CONDITIONS.
6. MAINTAIN FLOW TO EXISTING PUMP STATION WET WELL THROUGHOUT CONSTRUCTION.
7. SURFACE WATER ELEVATIONS:
 - A. MEAN FLOODPLAIN SURFACE (APP) EL. 115.84
 - B. MEAN ANNUAL HIGH WATER EL. 101.08
 - C. NORMAL WATER SURFACE EL. 92.68
 - D. POSSIBLE LOW WATER EL. 86.00
8. INTAKE SCREENS SHALL BE LOCATED IN ACCORDANCE WITH COORDINATES PROVIDED. CONTRACTOR SHALL FIELD FIT ALL ROCK ANCHORS AND PIPE BENDS AS NECESSARY.

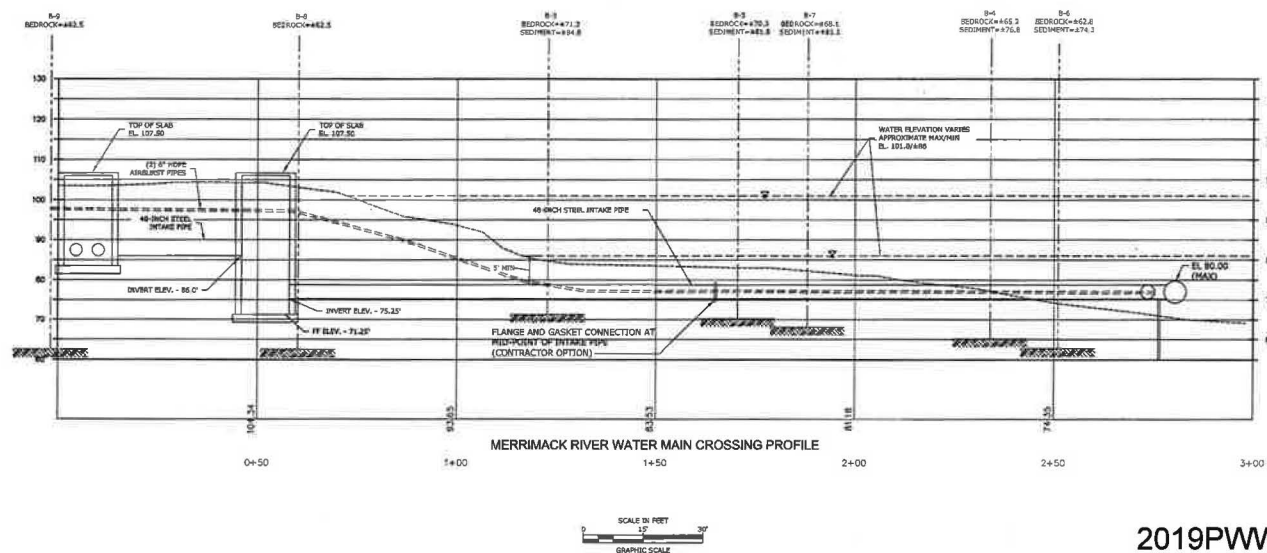
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Merrimack River Intake Improvements

Pennichuck Water Works

Merrimack,
New Hampshire

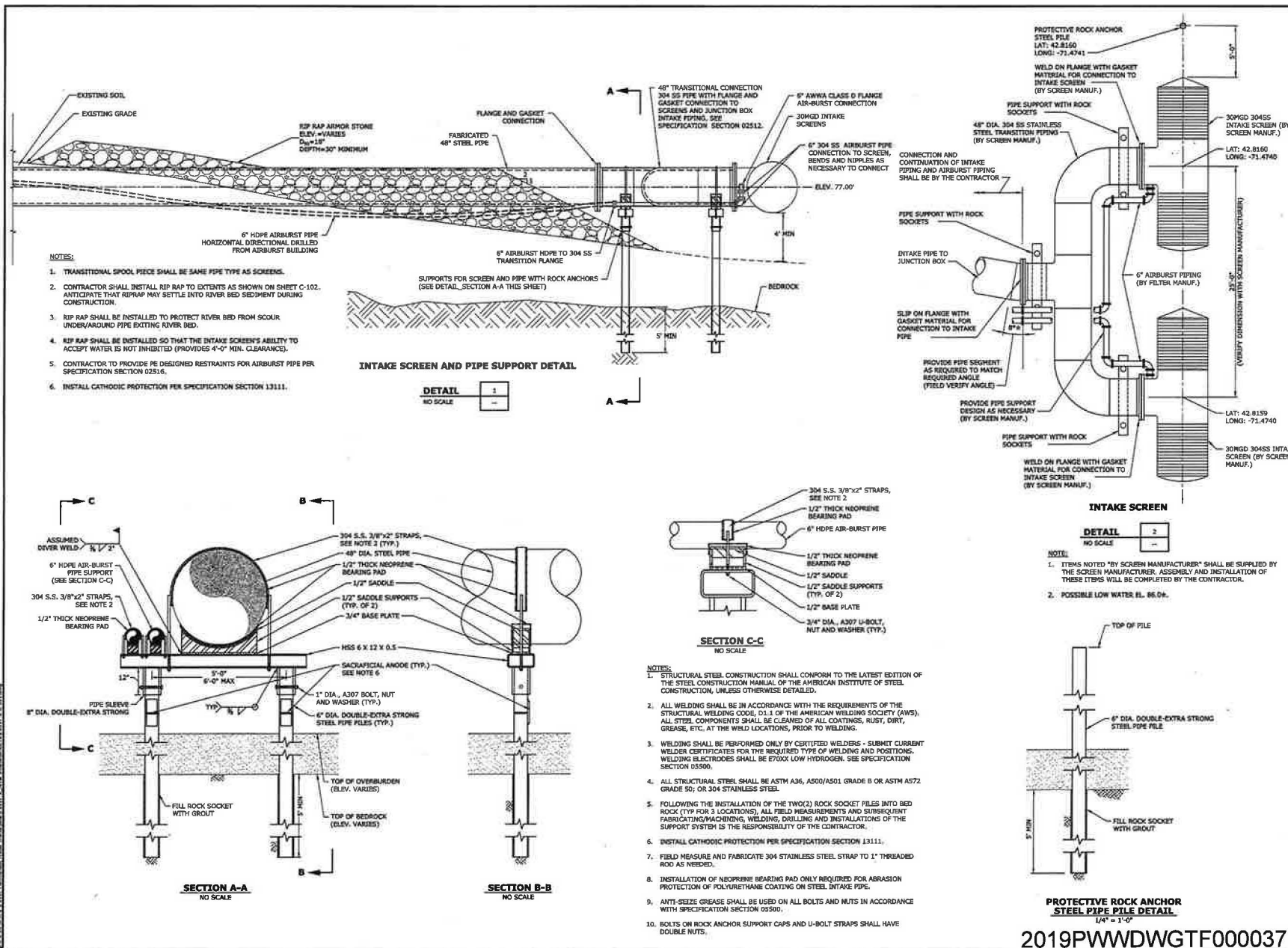


2019PWWDWGTf000036

INTAKE ALIGNMENT PLAN AND PROFILE

SCALE: AS SHOWN

C-102



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Merrimack River Intake Improvements

Pennichuck Water Works

Merrimack, New Hampshire

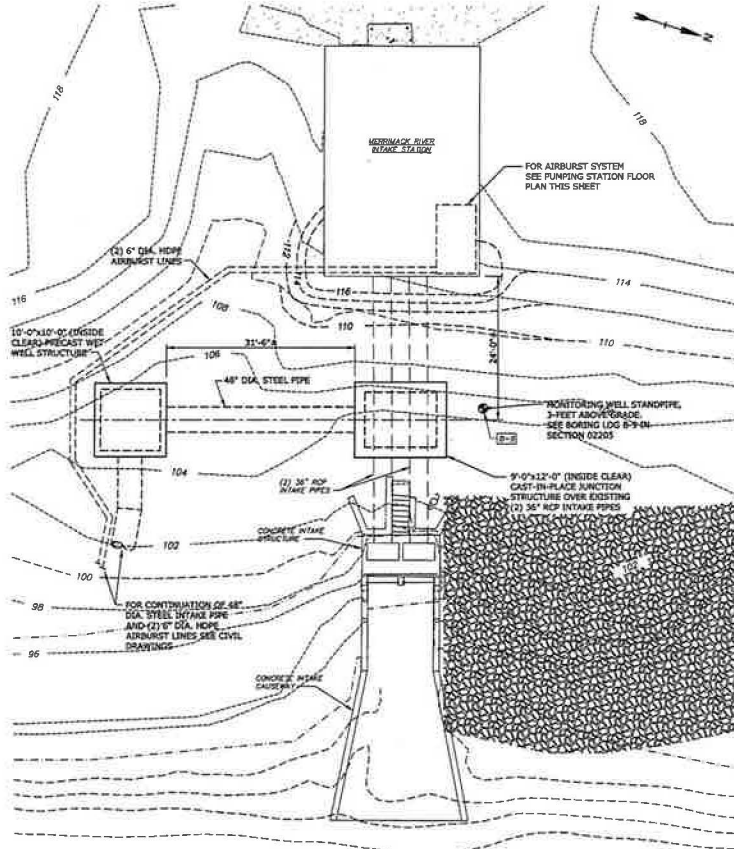
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1/23/2019	DATE: 1/23/2019
1/23/2019	FILE: 2019-1-23-01.000
1/23/2019	DRAWN BY: B. BISHOP
1/23/2019	CHECKED: C.W.
1/23/2019	APPROVED: B.W.

INTAKE DETAILS

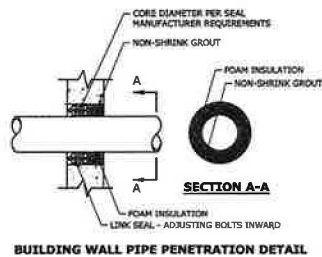
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C-501

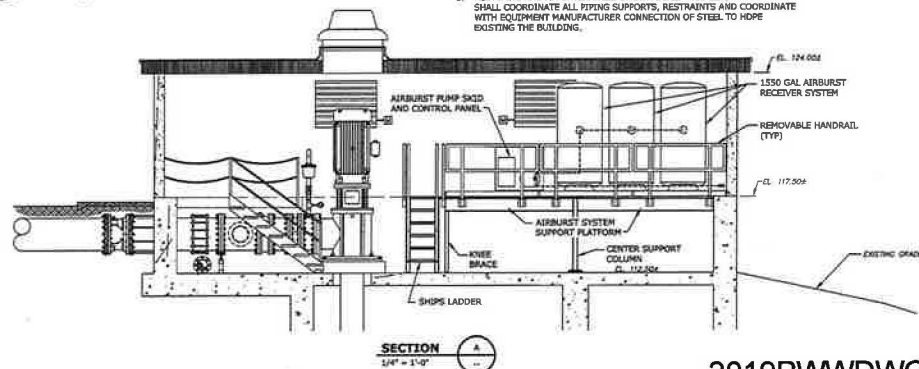
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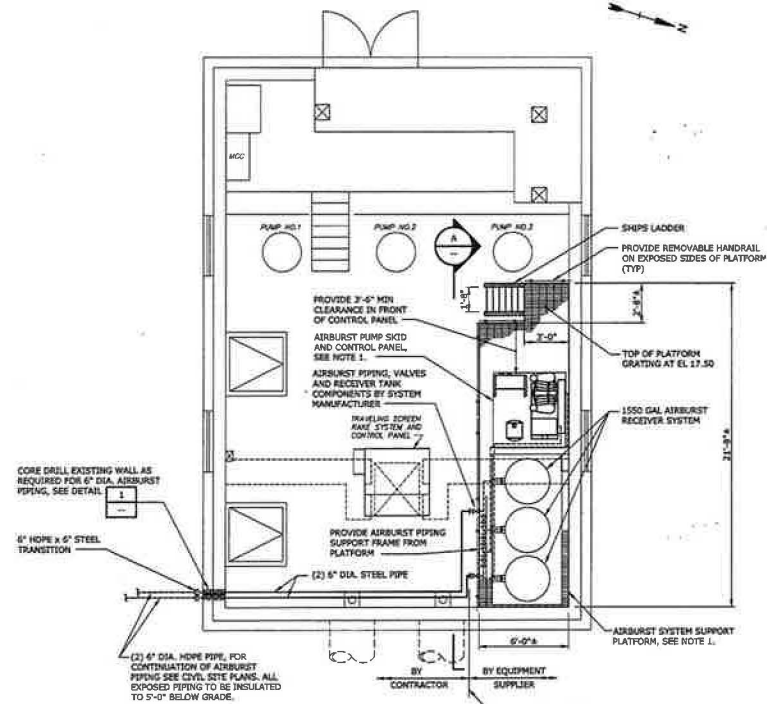
INTAKE STATION SITE PLAN
1" = 10'



DETAIL
NO SCALE



SECTION A-A
1/4" = 1'-0"



INTAKE STATION FLOOR PLAN
1/4" = 1'-0"

- NOTE**
1. PROVIDE AIRBURST PUMP SKID AND RECEIVER TANK SUPPORT PLATFORM AT EL. 117.50. SUPPORT PLATFORM SHALL BE DESIGNED BY MANUFACTURER TO SUPPORT EQUIPMENT AND COMPONENTS. PLATFORM SHALL BE SECURED TO EXISTING STRUCTURE TO PREVENT FLOTTATION DURING FLOODING. SEE DRAWING S-102 FOR CONCEPTUAL DESIGN LAYOUT.
 2. PLATFORM SHALL BE DESIGNED AND INSTALLED IN ACCORDANCE WITH SECTION 05500.
 3. ALL PIPING AND APPURTENANCES SHOWN SCHEMATICALLY. CONTRACTOR SHALL COORDINATE ALL PIPING SUPPORTS, RESTRAINTS AND COORDINATE WITH EQUIPMENT MANUFACTURER CONNECTION OF STEEL TO HOSE EXISTING THE BUILDING.

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**Merrimack
River Intake
Improvements**

**Pennichuck
Water Works**

**Merrimack,
New Hampshire**

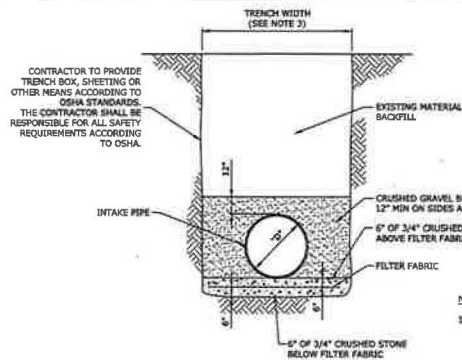
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PROJECT NO.	BLW/2019	REVISION
DATE	08/01/2019	
DRAWN BY	BLW/2019	
CHECKED	DR	
APPROVED	DR	

**PROCESS PIPING
INTAKE STATION
SITE AND FLOOR PLAN**

SCALE: AS SHOWN

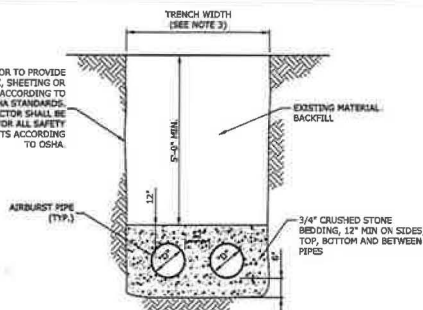
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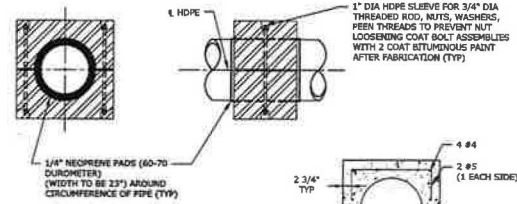


TYPICAL INTAKE PIPE TRENCH SECTION
NO SCALE

- NOTES:**
1. COMPACT ALL BACKFILL MATERIAL WITH VIBRATORY PLATE EQUIPMENT (MINIMUM TWO PASSES) TO A MINIMUM DENSITY OF 95 PERCENT OF THE STANDARD PROCTOR DENSITY AS DETERMINED BY ASTM D698.
 2. PLACE BACKFILL MATERIAL IN MAXIMUM ONE FOOT LIFTS.
 3. FOR PIPES LESS THAN 24" IN DIAMETER THE TRENCH WIDTH SHALL BE 5.0'. FOR PIPES 24" IN DIAMETER AND GREATER, TRENCH WIDTH SHALL BE THE PIPE DIAMETER + 3.0'.



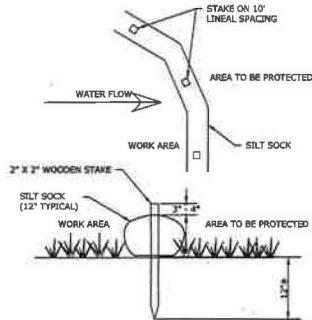
TYPICAL AIRBURST PIPING TRENCH SECTION
NO SCALE



HOPE AIRBURST CONCRETE PIPE ANCHOR DETAIL

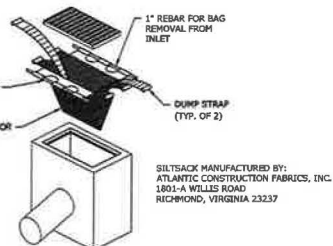
DETAIL	6
NO SCALE	-

- NOTES:**
1. CONCRETE SHALL HAVE A MINIMUM 28 DAY STRENGTH OF 4000PSI.
 2. CONCRETE SHALL MEET ALL SPECIFICATIONS OF MHDOT 520.1.2 AA³ CONCRETE.
 3. REBAR SHALL BE ASTM A615 OR ASTM A706 IF WELDED.
 4. ANCHOR BOLTS, NUTS, WASHERS, BARS, PLATES SHALL BE STAINLESS STEEL TYPE 316.
 5. CONCRETE ANCHORS SHALL BE SECURELY FASTENED TO THE PIPE TO PREVENT MOVEMENT DURING INSTALLATION.
 6. CONTRACTOR SHALL CAST STEEL LIFTING MECHANISMS INTO CONCRETE AS NEEDED FOR SAFE MANEUVERING OF THE BALLAST BLOCKS BOTH ABOVE AND BELOW WATER.
 7. CONTRACTOR SHALL SUPPLY A SHOP DRAWING OF THE REBAR CAGE LAYOUT TO THE ENGINEER FOR APPROVAL PRIOR TO CONSTRUCTION.
 8. CONTRACTOR SHALL SUPPLY STAMPED CALCULATIONS AND DRAWINGS TO PROVIDE THRUST RESTRAINT IN ACCORDANCE WITH SPECIFICATION SECTIONS 02516 AND 11332.



EROSION CONTROL BARRIER

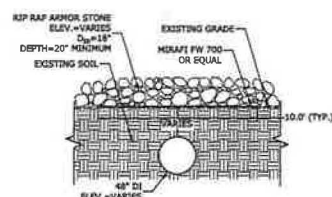
DETAIL	1
NO SCALE	-



- NOTE:**
1. SILT SACKS FOR TRENCH GRATE WILL MATCH OPENING LENGTH AS REQUIRED.

INLET PROTECTION SILT SACK

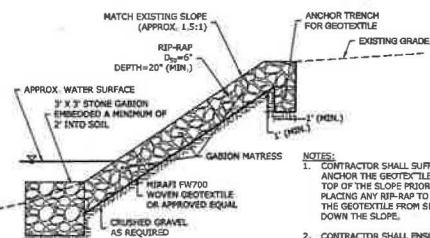
DETAIL	2
NO SCALE	-



- NOTES:**
1. CONTRACTOR SHALL SUFFICIENTLY ANCHOR THE GEOTEXTILE ON RIVER BOTTOM PRIOR TO PLACING ANY RIP-RAP TO PREVENT THE GEOTEXTILE FROM BEING LIFTED BY RIVER CURRENT.
 2. CONTRACTOR SHALL INSURE THAT THE GEOTEXTILE IS NOT PUNCTURED DURING PLACEMENT OF RIP-RAP.
 3. CONTRACTOR SHALL INSTALL RIP RAP ON EITHER SIDE OF CONCRETE BALLAST ANCHORS AS SHOWN ON SHEET C-201.

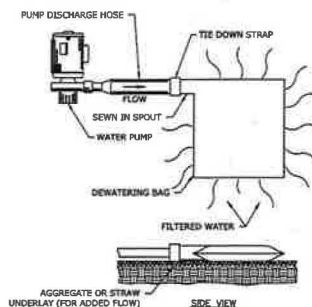
RIP RAP ARMOR STONE

DETAIL	3
NO SCALE	-



EMBANKMENT REPAIR DETAIL

DETAIL	7
NO SCALE	-



DEWATERING BAG

DETAIL	5
NO SCALE	-

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Merrimack River Intake Improvements

Pennichuck Water Works

Merrimack, New Hampshire

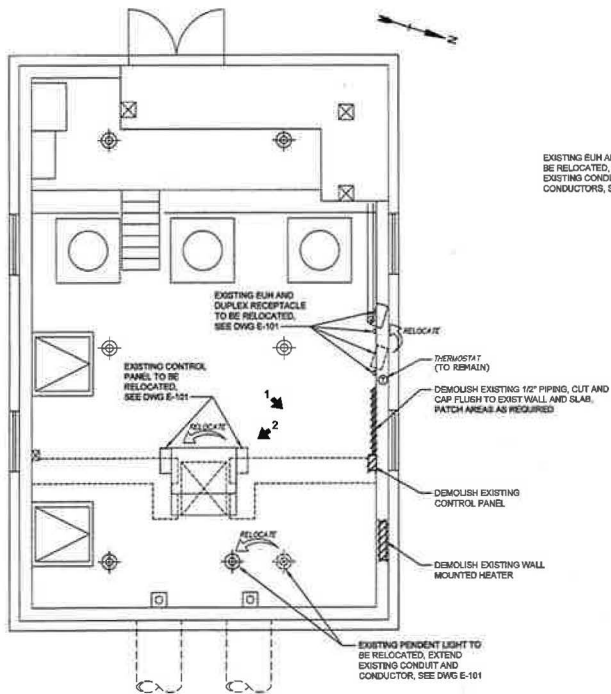
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1/15/2019	
DATE	DESCRIPTION
1/15/2019	
DATE	DESCRIPTION
1/15/2019	
DATE	DESCRIPTION
1/15/2019	
DATE	DESCRIPTION
1/15/2019	
DATE	DESCRIPTION
1/15/2019	

SITE DETAILS

SCALE: AS SHOWN

C-503

2019PWWDWGTF000039



DEMOLITION PLAN
1/4" = 1'-0"

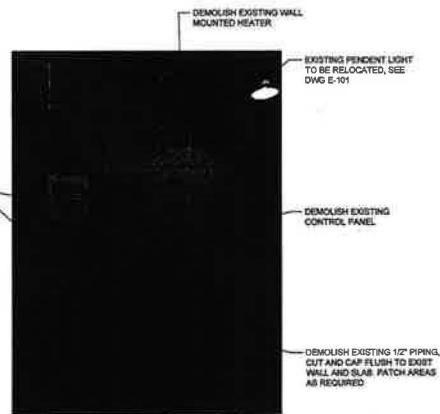


PHOTO 1 - NORTHEAST WALL
NO SCALE



PHOTO 2 - SCREEN CONTROL PANEL
NO SCALE

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**Merrimack
River Intake
Improvements**

Pennichuck
Water Works

Merrimack,
New Hampshire

1/23/2019	RELEASED FOR BID
DATE	DESCRIPTION
PROJECT NO.	P0597-3
DATE	01/09/2018
FILE	P0597-3-B-101.DWG
DRAWN BY	J. BOND
CHECKED	DB
APPROVED	DB
DEMOLITION EXISTING INTAKE STATION FLOOR PLAN	
SCALE: AS SHOWN	
D-101	

2019PWWDWGTF000040



Merrimack River Intake Improvements

Pennichuck
Water Works

Merrimack,
New Hampshire

DATE	REVISION	DESCRIPTION
1/2/2019	1	ISSUED FOR BIDD
1/2/2019	2	REVISED PER COMMENTS
1/2/2019	3	REVISED PER COMMENTS
1/2/2019	4	REVISED PER COMMENTS
1/2/2019	5	REVISED PER COMMENTS
1/2/2019	6	REVISED PER COMMENTS
1/2/2019	7	REVISED PER COMMENTS
1/2/2019	8	REVISED PER COMMENTS
1/2/2019	9	REVISED PER COMMENTS
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STRUCTURAL
ABBREVIATIONS, LEGENDS,
AND GENERAL NOTES

SCALE: AS SHOWN
S-001

GENERAL

- G1. STRUCTURAL WORK SHALL CONFORM TO NEW HAMPSHIRE STATE BUILDING CODE, LATEST EDITION, INCLUDING MOST RECENT ADDENDA, AND CONTRACT DOCUMENTS. IN CASE OF CONFLICT, MOST STRINGENT REQUIREMENT SHALL GOVERN.
- G2. CONTRACTOR SHALL VERIFY AND COORDINATE DIMENSIONS RELATED TO THIS PROJECT. CONTRACTOR SHALL EXAMINE DRAWINGS FOR ALL TRADES FOR THE VERIFICATION OF LOCATION AND DIMENSIONS OF ALL CHASES, INSERTS, OPENINGS, SLEEVES AND OTHER PROJECT REQUIREMENTS NOT SHOWN ON THE STRUCTURAL DRAWINGS.
- G4. PROVIDE CAULKING AT ALL CONTROL JOINTS. PROVIDE COMPRESSIBLE FILLER AND SEALANT AT ALL EXPANSION AND ISOLATION JOINTS.
- G5. PROVIDE PREMOULDED JOINT FILLER WHERE SLABS ON GRADE ABUT WALLS AND COLUMNS.

REINFORCEMENT

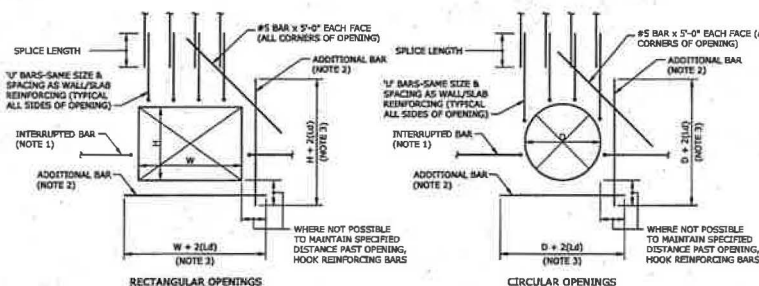
- R1. DETAILING, FABRICATION, AND ERECTION OF REINFORCEMENT, UNLESS OTHERWISE NOTED, SHALL CONFORM TO ACI "BUILDING CODE REQUIREMENTS FOR REINFORCED CONCRETE (ACI 318)" AND ACI "MANUAL OF STANDARD PRACTICE FOR DETAILING REINFORCED CONCRETE STRUCTURES (ACI 315)", LATEST EDITION.
- R2. STEEL REINFORCEMENT UNLESS OTHERWISE SHOWN SHALL CONFORM TO ASTM A615 GRADE 60 MINIMUM YIELD STRENGTH = 60,000 PSI.
- R3. WELDED WIRE FABRIC REINFORCEMENT SHALL CONFORM TO: ASTM A185.
- R4. PROVIDE AND SCHEDULE ON SHOP DRAWINGS, ALL NECESSARY ACCESSORIES TO HOLD REINFORCEMENT SECURELY IN POSITION: MINIMUM REQUIREMENTS SHALL BE: HIGH CHAIRS, 4'-0" ON CENTER, #5 SUPPORT BAR FOR HIGH CHAIRS, SLAB BOLSTERS, 3'-6" ON CENTER, ALL WIRE CHAIRS AND BOLSTERS TO BE PLASTIC TYPED.
- R5. THE CONCRETE PROTECTIVE COVERING FOR REINFORCEMENT SHALL BE AS FOLLOWS, UNLESS OTHERWISE SHOWN:
- (A) CAST-IN-PLACE CONCRETE.
- | | EXPOSED TO EARTH, WATER, OR WEATHER | NOT EXPOSED TO EARTH, WATER, OR WEATHER |
|---|-------------------------------------|---|
| (a) SLAB ON GRADE | 3 INCHES | 2 INCHES |
| (b) SLAB/WALL #3 TO #5 INCL'S | 1 1/2 INCHES | 3/4 INCHES |
| (c) SLAB/WALL #6 TO #11 INCL'S | 2 INCHES | 3/4 INCHES |
| (d) NOTE: MAXIMUM DEVIATION FROM THESE REQUIREMENTS SHALL BE +1/4" FOR SECTIONS TEN (10) INCHES OR LESS, AND +1/2" FOR SECTIONS OVER TEN (10) INCHES THICK. | | |
- (B) PRECAST CONCRETE
- | | EXPOSED TO EARTH, WATER, OR WEATHER | NOT EXPOSED TO EARTH, WATER, OR WEATHER |
|-------------------------------|-------------------------------------|---|
| (a) SLABS #11 BAR AND SMALLER | 1 1/4 INCHES | 5/8 INCHES |
| (b) WALL #11 BAR AND SMALLER | 3/4 INCHES | 5/8 INCHES |
- (C) IN NO CASE SHALL THE COVER BE LESS THAN THE BAR DIAMETER.
- R6. WHERE CONTINUOUS BARS ARE CALLED FOR THEY SHALL BE RUN CONTINUOUSLY AROUND CORNERS AND LAPPED AT NECESSARY SPLICES OR HOOKED AT DISCONTINUOUS ENDS. WHERE REINFORCEMENT IS NOT SHOWN ON DRAWINGS, PROVIDE REINFORCEMENT IN ACCORDANCE WITH APPLICABLE TYPICAL DETAILS OR SIMILAR TO THAT SHOWN FOR MOST NEARLY SIMILAR SITUATIONS, AS DETERMINED BY THE ENGINEER. IN NO CASE SHALL REINFORCEMENT BE LESS THAN MINIMUM REINFORCEMENT PERMITTED BY THE APPLICABLE CODES, NOR LESS THAN THE FOLLOWING:
- (A) STRUCTURAL SLABS--0.02% GROSS CONCRETE AREA IN EACH DIRECTION
- (B) STRUCTURAL WALLS--0.02% GROSS CONCRETE AREA IN EACH DIRECTION
- R8. WHERE REINFORCEMENT IS CALLED FOR IN SECTION, REINFORCEMENT IS CONSIDERED TYPICAL WHEREVER THE SECTION APPLIES.
- R9. REINFORCEMENT SHALL BE CONTINUOUS THROUGH ALL CONSTRUCTION JOINTS UNLESS OTHERWISE INDICATED ON THE DRAWINGS.
- R10. WELDED WIRE FABRIC SHALL LAP 12" OR TWO SPACES, WHICHEVER IS LARGER, AND SHALL BE WELDED TOGETHER.
- R11. REINFORCEMENT COUPLER SPLICES SHALL BE MECHANICAL DEVICES CAPABLE OF TRANSMITTING THE ULTIMATE TENSILE AND COMPRESSIVE STRENGTH OF THE BAR. INSTALLATION OF REINFORCEMENT SHALL BE COMPLETED AT LEAST 24 HOURS PRIOR TO SCHEDULED CONCRETE PLACEMENT. NOTIFY ENGINEER OF COMPLETION AT LEAST 24 HOURS PRIOR TO SCHEDULED COMPLETION OF PLACEMENT OR REINFORCEMENT.
- R13. REINFORCEMENT SHALL BE SET BEFORE PLACING CONCRETE. SETTING ANY REINFORCEMENT INTO WET CONCRETE IS PROHIBITED.

CONCRETE

- C1. CONCRETE WORK SHALL CONFORM TO THE LATEST EDITIONS OF THE BUILDING CODE REQUIREMENTS FOR REINFORCED CONCRETE (ACI 318), AND SPECIFICATIONS FOR STRUCTURAL CONCRETE FOR BUILDINGS (ACI 301).
- C2. CONCRETE SHALL BE CONTROLLED CONCRETE, PROPORTIONED, MIXED AND PLACED UNDER THE SUPERVISION OF AN APPROVED CONCRETE TESTING AGENCY OR THE ENGINEER.
- C3. CONCRETE SHALL BE NORMAL WEIGHT CONCRETE AND SHALL HAVE A COMPRESSIVE STRENGTH OF 4500 PSI AT 28 DAYS, UNLESS OTHERWISE NOTED AND SHALL BE AIR ENTRAINED (SEE SPEC).
- C4. THE USE OF CONSTRUCTION JOINTS WHERE SHOWN ON THE DRAWINGS IS MANDATORY. OMISSIONS, ADDITIONS OR CHANGES SHALL NOT BE MADE EXCEPT WITH THE SUBMISSION OF A WRITTEN REQUEST TOGETHER WITH DRAWINGS OF THE PROPOSED JOINT LOCATIONS FOR APPROVAL OF THE STRUCTURAL ENGINEER.
- C5. WHERE CONSTRUCTION JOINTS ARE NOT SHOWN, DRAWINGS SHOWING LOCATION OF CONSTRUCTION JOINTS AND CONCRETE PLACING SEQUENCE SHALL BE SUBMITTED TO THE ENGINEER FOR APPROVAL PRIOR TO PREPARATION OF THE REINFORCEMENT SHOP DRAWINGS.
- C6. CONCRETE SLABS SHALL BE CAST SO THAT THE SLAB THICKNESS IS AT NO POINT LESS THAN THAT INDICATED ON THE DRAWINGS.
- C7. CONCRETE SLABS AND WALLS SHALL BE CAST ALTERNATELY OR IN A CHECKERBOARD FASHION SO THAT ADJACENT SECTIONS ARE PLACED NO SOONER THAN THREE DAYS APART. AT LEAST TWO DAYS MUST ELAPSE AFTER PLACING CONCRETE IN WALLS BEFORE PLACING FLOOR SYSTEM SUPPORT THEREON.
- C8. CONCRETE SHALL BE PLACED WITHOUT HORIZONTAL CONSTRUCTION JOINTS EXCEPT WHERE SHOWN OR NOTED.
- C9. EXPOSED EDGES OF CONCRETE ELEMENTS SHALL HAVE CHAMFERED CORNERS.
- C10. ONLY CRITICAL CONSTRUCTION JOINTS ARE SHOWN. SEE SPECIFICATIONS FOR REQUIRED MAXIMUM SPACING OF CONSTRUCTION JOINTS.

FOUNDATIONS

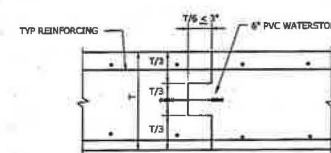
- F1. NO CONCRETE SHALL BE PLACED IN WATER OR ON FROZEN GROUND.
- F2. BOTTOM OF FOUNDATION ELEVATIONS GIVEN ON DRAWINGS ARE TO BE CONSIDERED MINIMUM DEPTHS. CONTRACTOR SHALL HAVE FURTHER EXCAVATION AS REQUIRED TO REACH GOOD BEARING.
- F3. ALL EXCAVATIONS FOR FOOTINGS SHALL BE FINISHED BY HAND FOR THE LAST 6".
- F4. ALL FINISHED EXCAVATIONS SHALL BE INSPECTED BY THE ENGINEER BEFORE ANY CONCRETE IS PLACED.
- F5. ALL BACKFILL UNDER OR ADJACENT TO ANY PORTION OF THE STRUCTURES SHALL BE COMPACTED IN 6" LIFTS. SEE SPECIFICATIONS.
- F6. REMOVE UNSUITABLE FILL AND/OR IMPROVE THE SUBGRADE PER SPECIFICATION REQUIREMENTS. BACKFILL WITH COMPACTED STRUCTURAL (GRANULAR) FILL UP TO THE UNDERSIDE OF THE BUILDING SLABS. SEE SPECIFICATIONS.



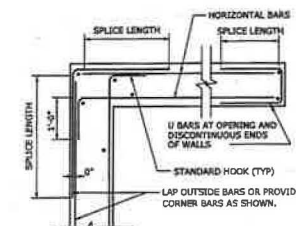
NOTES:

- FOR SLAB OR WALL APPLICATION WITH A CONCRETE THICKNESS LESS THAN 12 INCHES, 180° OR 90° HOOK BARS MAY BE USED IN LIEU OF U-BARS.
- PROVIDE ADDITIONAL BARS USING NOT LESS THAN ONE HALF OF INTERRUPTED BARS AT EACH SIDE OF OPENING AT 3" ON CENTER.
- FOR TOP BARS IN SLAB, INCREASE DEVELOPMENT LENGTH BY 30%.

TYPICAL REINFORCING AT OPENINGS IN CONCRETE WALLS AND SLABS NO SCALE



TYPICAL CONSTRUCTION JOINT NO SCALE

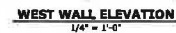


PLAN OF HORIZ. REINF. AT CORNERS OF CONCRETE WALLS NO SCALE

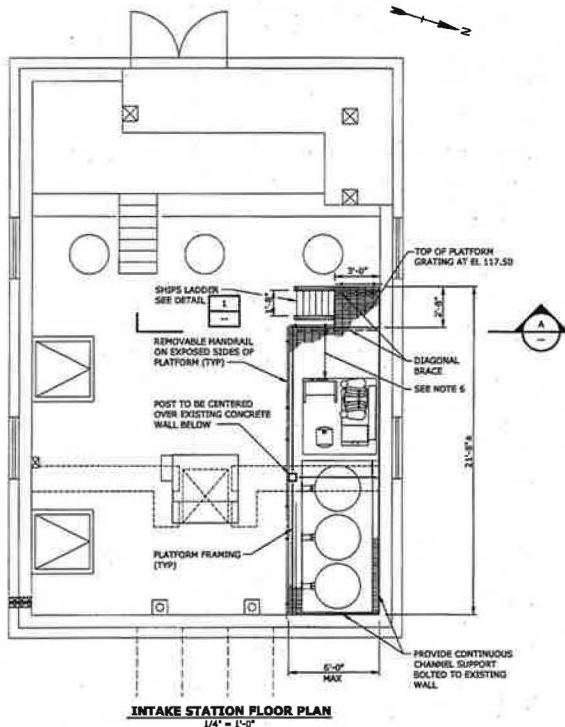
2019PWWDWGTF000041



- NOTE:**
1. FOR PRECAST CONCRETE DESIGN LOADING REQUIREMENTS, SEE SPECIFICATION SECTION 03485,
 2. CONTRACTOR SHALL PROVIDE SLIDE GATE AND APPURTENANCES IN ACCORDANCE WITH SECTION 11286.
 3. FOR WATER LEVEL ELEVATION TO VERIFY BUOYANCY, SEE SPECIFICATION SECTION 03485.

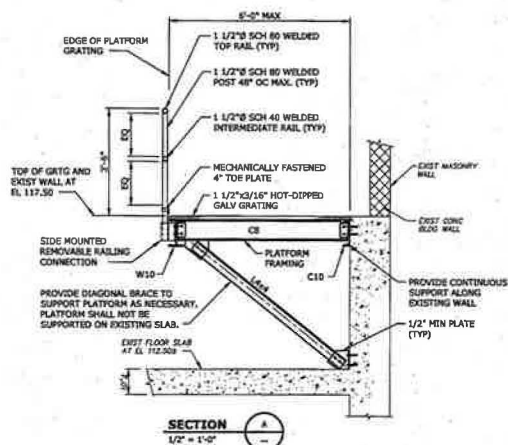


S-101



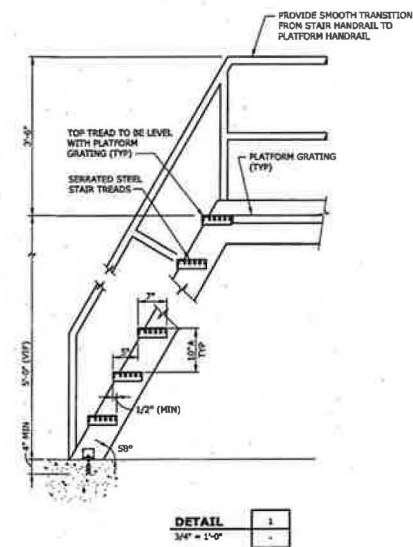
NOTE:

1. SUPPORT PLATFORM FOR AIRBURST PUMP SKID AND RECEIVER TANKS SHALL BE DESIGNED AND INSTALLED IN ACCORDANCE TO SPECIFICATION SECTION 0550.
2. TOP OF PLATFORM GRATING SHALL BE AT ELEVATION 117.50.
3. ALL PLATFORM STEEL SHALL BE HOT-DIPPED GALVANIZED STEEL UNLESS OTHERWISE NOTED.
4. NO PART OF THE NEW PLATFORM SHALL BE SUPPORTED BY THE EXISTING SLAB, EXCEPT AS SHOWN ON PLAN.
5. FINAL LAYOUT OF PLATFORM SHALL BE COORDINATED WITH DIMENSIONS OF RECEIVER TANKS, PUMP SKID AND CONTROL PANEL. CONTRACTOR SHALL COORDINATE DIMENSIONS WITH EQUIPMENT MANUFACTURER AND PLATFORM DESIGN.
6. A MINIMUM OF 3'-6" CLEARANCE SHALL BE PROVIDED TO ACCESS THE PUMP SKID AND CONTROL PANEL.
7. COORDINATE PLATFORM FRAMING WITH EQUIPMENT MANUFACTURER TO PROVIDE NECESSARY SUPPORTS FOR RECEIVER TANKS, PUMP SKID, AND CONTROL PANEL.



NOTE:

1. SIZES SHOWN ARE SCHEMATIC ONLY. FINAL FRAME SIZES SHALL BE DESIGNED BY CONTRACTOR IN ACCORDANCE WITH SPECIFICATION SECTION 0550.



NOTES:

1. VENDOR MANUFACTURED AND SUPPLIED ACCESS LADDER SHALL BE IN CONFORMANCE WITH SPEC SECTION 0550.
2. HANDRAIL TO BE SMOOTH AND FREE OF ALL BURRS AND DEFECTS.
3. ALL STEEL SHALL BE HOT-DIPPED GALVANIZED.



Merrimack River Intake Improvements

Pennichuck Water Works

Merrimack, New Hampshire

DATE	1/23/2019	REVISION	FOR RED
DATE	1/23/2019	REVISION	FOR RED
PROJECT NO.	2019-15	DATE	1/23/2019
FILE	PC181-15-102.DWG	DRAWN BY	SLASHOP
CHECKED	DPS	APPROVED	PHV

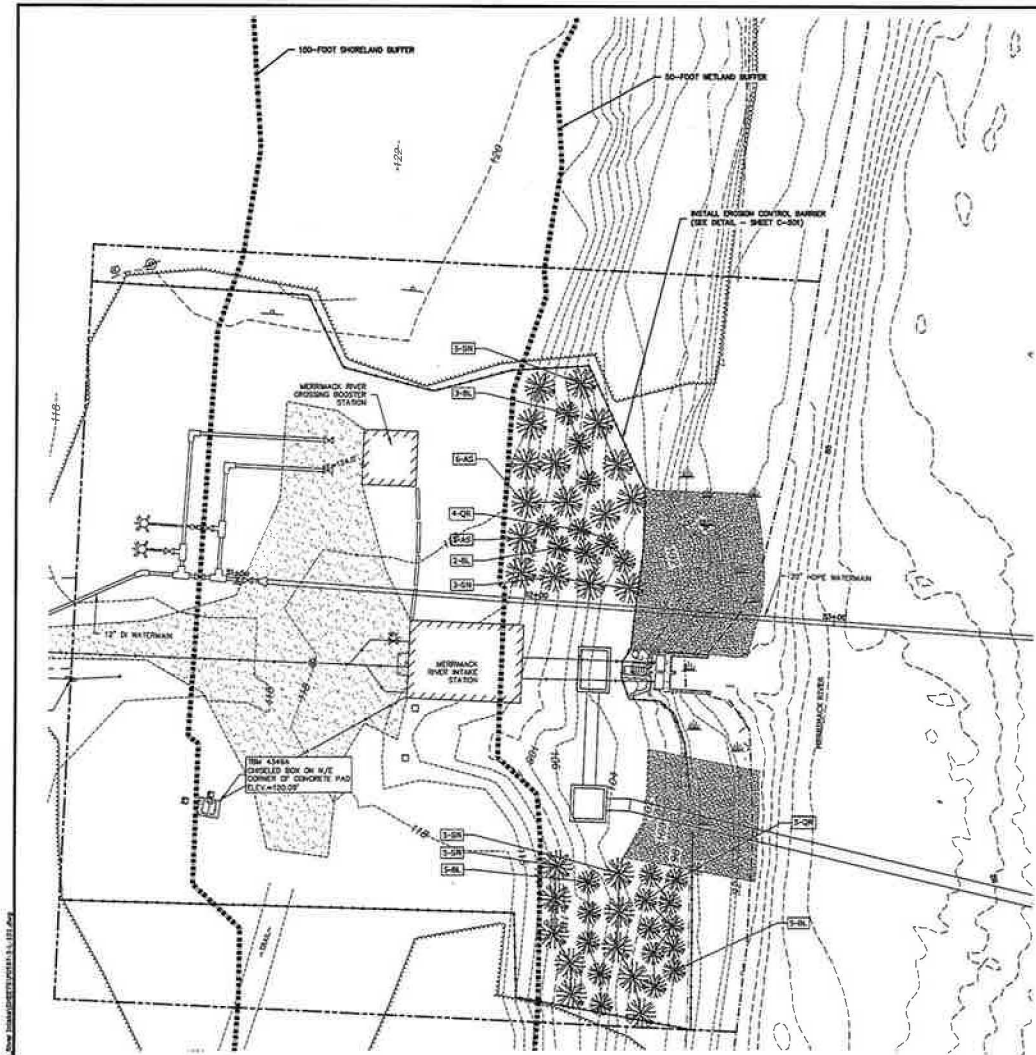
PLATFORM STRUCTURAL PLAN AND DETAILS

SCALE: AS SHOWN

S-102

2019PWWDWGTF000044

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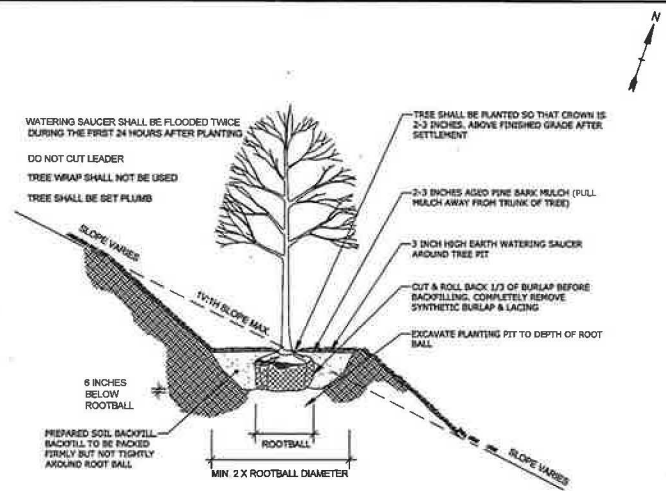


MERRIMACK PLANTING ZONE
1" = 20'

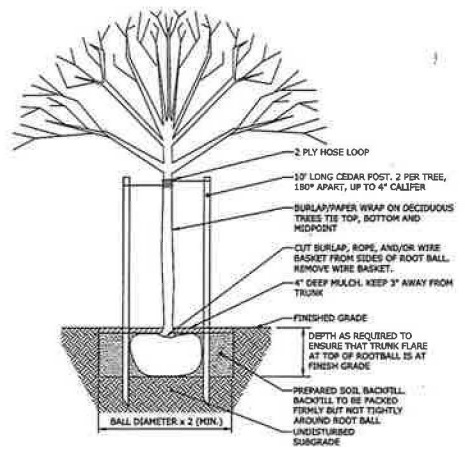
PLANT SCHEDULE

SYMBOL	BOTANICAL NAME	COMMON NAME	QTY.	SIZE
TREES				
AS	ACER SACCHARINUM	SILVER MAPLE	8	6-7' HT.
BL	BETULA LENTA	SWEET/BLACK BIRCH	13	4-5' HT.
OR	QUERCUS RUBRA	RED OAK	9	5-6' HT.
SN	SALEX NIGRA	BLACK WILLOW	18	6-7' HT.

NOTE:
PLANTS SYMBOLS SHOWN REFLECT APPROXIMATE SIZES 5-8 YEARS AFTER INSTALLATION.



EMBANKMENT TREE PLANTING DETAIL
NO SCALE



TREE PLANTING DETAIL
NO SCALE

2019PWWDWGTF000046



Tighe & Bond
www.tighebond.com



Merrimack River Intake Improvements

Pennichuck Water Works

Merrimack, New Hampshire

DATE	1/21/2019	RELEASED FOR BID
DATE	1/21/2019	DISCUSSION
PROJECT NO.	2019-01	
DATE	1/21/2019	
FILE	2019-01-01-01	
DRAWN BY	AKS	
CHECKED	GRS	
APPROVED	AKS	
LANDSCAPING PLAN AND DETAILS		
SCALE: AS SHOWN		
L-101		

From: [Holmes, Erin](#)
To: [Boisvert, John](#); [McKenna, Johnna](#)
Cc: [Freise, Clark](#)
Subject: RE: DWGTF Loan - Merrimack River Intake
Date: Friday, January 18, 2019 3:49:09 PM
Attachments: [image001.png](#)

Hi John,

We have received clear direction that the Advisory Commission is not in favor of 40 year loan terms. The loan term we can offer is up to 30 years and we feel that is consistent with the life of the asset. Please do not hesitate to contact Assistant DES Commissioner and Trust Fund Advisory Commission member Clark Freise or myself if you have any questions.

Thank you,

Erin Holmes, P.E.
 DWG Trust Fund Administrator
 MtBE Remediation Bureau

From: Boisvert, John <john.boisvert@PENNICHUCK.com>
Sent: Wednesday, January 16, 2019 10:15 AM
To: Holmes, Erin <Erin.Holmes@des.nh.gov>; McKenna, Johnna <Johnna.McKenna@des.nh.gov>
Subject: DWGTF Loan - Merrimack River Intake

Erin and Johnna

Thank you for passing along the loan approval letter. We have already starting on the application and we are assembling the required documents. We do have an important question especially for our NHPUC filing. The approval letter suggests that the loan term could be for 5, 10, 15, 20, 30, or 40 years. For the Pennichuck Board of Directors authority to borrow we can get authorization to borrow for up to and including a 40 year term. For the NHPUC we will need to be more specific. We would prefer a 40 year term as it is more consistent with the life of the asset life of the intake structure. If 40 years will be approved we would like confirmation of that to include with the NHPUC filing. If 40 is not going to be allowed but 30 years will be, we just need to know that so our filing with the NHPUC accurately reflects the terms. Any light you can shed on term of the loan will be most helpful.

Our current plan is to:

- Receive the authority to borrow in the form of a resolution of the Pennichuck Board on January 25th.
- File the completed loan application on the 29th and,
- File with the NHPUC the 30th or the 31st.
- Seek shareholder approval (City of Nashua) approval in February.

Regards,

John



John J. Boisvert, P.E.
Chief Engineer
Pennichuck Water
[25 Manchester St.](#)
[Merrimack, New Hampshire 03054](#)
Ph: [\(603\) 913-2328](#)