

GENERAL NOTES

1.

THE OWNER WILL BE RESPONSIBLE FOR OBTAINING THE PERMITS LISTED IN THE SUPPLEMENTARY OR SPECIAL CONDUIT EACH. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO BE FAMILIAR WITH THE APPLICABLE PROVISIONS OF EACH PERMIT AS THEY APPLY TO THE WORK PRIOR TO BIDDING AND ABIDE BY THOSE PROVISIONS DURING CONSTRUCTION. COPIES OF ALL OBTAINED PERMITS ARE AVAILABLE FOR REVIEW FROM THE OWNER. ALL OTHER PERMITS ARE THE RESPONSIBILITY OF THE CONTRACTOR.
2.

THE OWNER SHALL BE RESPONSIBLE FOR OBTAINING ALL NECESSARY RIGHTS OF WAY AND 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 ALL RIGHTS-OF-WAY AND EASEMENTS ARE AVAILABLE FOR REVIEW FROM THE OWNER.
3.

THE CONTRACTOR IS RESPONSIBLE FOR MAINTAINING TRAFFIC FLOW AT ALL TIMES. CONTRACTOR SHALL INSTALL AND MAINTAIN TRAFFIC CONTROL SIGNS IN ACCORDANCE WITH THE MUTCD AND ALL STATE AND LOCAL REGULATIONS. THE CONTRACTOR IS REQUIRED TO SUBMIT A TRAFFIC CONTROL PLAN TO THE OWNER PRIOR TO COMMENCING CONSTRUCTION. THE POLICE DEPARTMENT AND FIRE DEPARTMENT ARE TO BE NOTIFIED AT LEAST 24-HOURS IN ADVANCE OF ANY STREET CLOSING OR DETOUR. REFER TO SPECIFICATION SECTION 01570.
4.

CONTRACTOR SHALL COMPLY WITH ALL APPLICABLE REGULATIONS OF THE OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION (OSHA).
5.

CONTRACTOR SHALL COMPLY WITH THE COORDINATION REQUIREMENTS AND RELATED COSTS, IF ANY, AS SPECIFIED IN SPECIFICATION SECTION 01050.
6.

CONTRACTOR SHALL NOTE THAT, IN GENERAL, ALL EXISTING CONDITION INFORMATION ON THE DRAWINGS ARE SHOWN WITH A LIGHTER LINE WEIGHT AND WITH A SLANTED TYPE TEXT.

EXISTING SITE CONDITIONS

1.

THE LOCATIONS OF UNDERGROUND UTILITIES AND STRUCTURES, AS SHOWN ON THE DRAWINGS, ARE APPROXIMATE AND MAY NOT BE COMPLETE. THE LOCATION OF EXISTING UNDERGROUND UTILITIES ARE BASED ON PREVIOUS CONSTRUCTION DESIGN PLANS, WHICH ARE AVAILABLE FOR INSPECTION AT THE ENGINEER'S OFFICE. NO GUARANTEE IS MADE THAT UTILITIES OR STRUCTURES WILL BE ENCOUNTERED WHERE SHOWN, OR THAT ALL UNDERGROUND UTILITIES AND STRUCTURES ARE SHOWN. ALL LOCATIONS AND SIZES OF EXISTING UTILITIES AND STRUCTURES SHALL BE VERIFIED IN THE FIELD WITH TEST PITS AS REQUIRED PRIOR TO BEGINNING CONSTRUCTION OF NEW FACILITIES OR PIPING THAT MAY BE AFFECTED. THE CONTRACTOR WILL REALIGN NEW PIPE LOCATIONS AS REQUIRED TO CONFORM TO EXISTING LINES AND AS APPROVED BY THE ENGINEER.
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:

GAS/ELECTRIC: EVERSOURCE (888) 633-3797	WATER/SEWER/DRAIN: BELLINGHAM DEPARTMENT OF PUBLIC WORKS 215 DEPOT STREET BELLINGHAM, MA (508) 966-5813
TELEPHONE/CABLE: VERIZON (800) 922-0204	DIG SAFE: (888) 344-7233

3.

THERE ARE NO KNOWN HAZARDOUS ENVIRONMENTAL CONDITIONS WITHIN THE AREA OF WORK. REFER TO SPECIFICATION SECTION 00800-SC-5.06. IF THE PRESENCE OF HAZARDOUS ENVIRONMENTAL CONDITIONS ARE DISCOVERED, THE CONTRACTOR SHALL NOTIFY THE OWNER AND THE ENGINEER IMMEDIATELY. ALL ACTIVITIES, HANDLING AND DISPOSAL OF HAZARDOUS ENVIRONMENTAL CONDITIONS AND MATERIALS SHALL BE IN ACCORDANCE WITH OSHA, FEDERAL, STATE, AND LOCAL REGULATIONS.

SITE DEMOLITION

1.

A SOLID GREY HATCH HIGHLIGHTS AND REPRESENTS DEMOLITION ON AN ITEM(S) IN THE AREA ASSOCIATED WITH THE HATCH.
2.

REFER TO THE EXISTING SITE PLAN, FOR ADDITIONAL INFORMATION REGARDING EXISTING FACILITIES. REFER TO THE LAYOUT DRAWING FOR LIMITS OF WORK.
3.

REFER TO ARCHITECTURAL, STRUCTURAL, PROCESS, MECHANICAL, PLUMBING, INSTRUMENTATION AND ELECTRICAL DRAWINGS FOR SPECIFIC INFORMATION REGARDING DEMOLITION AND REMOVAL.
4.

REFER TO SPECIFICATION SECTION 01010A, WHICH CONTAINS INFORMATION ON CONSTRAINTS OF CONSTRUCTION SEQUENCING.
5.

DEMOLISH/REMOVE EXISTING PIPING AS REQUIRED FOR CONSTRUCTION OF NEW FACILITIES. ALL PIPING, EQUIPMENT AND MATERIALS TO BE DEMOLISHED AND/OR REMOVED FROM SERVICE SHALL BE COORDINATED WITH THE OWNER AND ENGINEER BEFORE COMMENCING THAT WORK. EXISTING PIPING THAT NEEDS TO BE REMOVED TO CONSTRUCT THE NEW FACILITIES, BUT IS TO REMAIN, SHALL BE REINSTALLED/REPLACED AS NEEDED. EXISTING PIPES AND CONDUIT DESIGNATED AS "ABANDONED" MAY BE REMOVED IF THE CONTRACTOR SO CHOOSES. IF ABANDONED PIPE CONFLICTS WITH NEW SITE PIPING OR FACILITIES, THEN A PORTION OF THE ABANDONED PIPE SHALL BE REMOVED, AND THE NEW ENDS OF ABANDONED PIPE CAPPED OR PLUGGED WITH CONCRETE.
6.

ALL EXISTING PIPING AND UTILITIES WHICH ARE BENEATH PROPOSED STRUCTURES, AND ARE TO BE ABANDONED, SHALL BE REMOVED TO A MINIMUM OF 5-FEET OUTSIDE OF THE STRUCTURE. PIPE AND UTILITIES BENEATH PROPOSED STRUCTURES THAT ARE TO REMAIN SHALL BE CONCRETE ENCASED, UNLESS OTHERWISE INDICATED. REFER TO THE STRUCTURAL DRAWINGS FOR DETAILS.
7.

SEVERING OF EXISTING UTILITIES FOR ABANDONMENT, OR REMOVAL OF A SEGMENT FROM SERVICE, SHALL BE PERFORMED IN SUCH A MANNER AS TO ALLOW THE REMAINING ACTIVE SEGMENT TO CONTINUE IN ITS INTENDED SERVICE. CAP ACTIVE SEGMENTS WITH APPROPRIATE FITTINGS, JOINT RESTRAINT, ETC. TO ENSURE THEIR INTEGRITY. PLUG ENDS OF ABANDONED PIPE SEGMENTS WITH CONCRETE UNLESS SPECIAL CIRCUMSTANCES DICTATE PLUGGING ABANDONED PIPES WITH BLIND FLANGES, RESTRAINED MECHANICAL JOINT PLUGS, ETC. AS APPROPRIATE.
8.

THE CONTRACTOR SHALL BE RESPONSIBLE FOR REMOVING AND DISPOSING OF ALL DEMOLISHED PIPING, EQUIPMENT AND MATERIALS. DISPOSAL SHALL BE IN ACCORDANCE WITH ALL STATE AND LOCAL REGULATIONS. THE OWNER RESERVES THE RIGHT TO RETAIN ANY SUCH PIPING, EQUIPMENT AND MATERIALS DESIGNATED FOR DEMOLITION. SUCH MATERIALS TO BE RETAINED SHALL BE PROPERLY STORED IN AN ON-SITE LOCATION. COORDINATE LOCATION AND MATERIALS TO BE SALVAGED WITH THE OWNER/ENGINEER. REFER TO SPECIFICATION SECTION 02050A.
9.

THE CONTRACTOR SHALL KEEP A RECORD OF DEMOLITION AS PART OF THE PROJECT RECORD DOCUMENTS IN ACCORDANCE WITH SPECIFICATION SECTION 01270.
10.

THE CONTRACTOR SHALL TAKE ALL NECESSARY STEPS TO ENSURE THAT ALL PROCESS FLOWS ARE MAINTAINED DURING CONSTRUCTION. GRAVITY OR PUMPED BYPASSES AND OTHER MEANS OF MAINTAINING FLOW SHALL BE SUBJECT TO THE REVIEW AND ACCEPTANCE OF THE ENGINEER. THE CONTRACTOR SHALL COORDINATE ANY TEMPORARY STOPPAGES OR BYPASSES WITH THE OWNER AND ENGINEER. FEDERAL AND STATE REGULATIONS REQUIRE THAT THE TREATMENT FACILITY REMAIN IN OPERATION (ALL TREATMENT, DISINFECTION, SLUDGE HANDLING AND DISPOSAL PROCESSES) THROUGHOUT CONSTRUCTION, AND THAT DISCHARGE PERMITS ARE MET. REFER TO SPECIFICATION SECTION 01010A.
11.

THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE APPROPRIATE DISPOSAL OF FLOWS RESULTING FROM PRECIPITATION AND GROUNDWATER DEWATERING OPERATIONS.

SITE CLEARING, GRUBBING AND GRADING

1.

STRIPPING OF TOPSOIL (LOAM) SHALL BE IN ACCORDANCE WITH SPECIFICATION SECTION 02115. REFER TO THE LAYOUT AND GRADING DRAWINGS FOR LIMIT OF WORK AND STRIPPING.
2.

CONTRACTOR SHALL MINIMIZE CLEARING OPERATIONS. CLEARING AND GRUBBING SHALL BE IN ACCORDANCE WITH SPECIFICATION SECTION 02110. CLEARING LIMITS SHALL BE AS INDICATED ON THE DRAWINGS, BUT AT ALL TIMES WITHIN EXISTING ROAD RIGHTS-OF-WAY AND PROPERTY LINES ON STATE OR COUNTY-OWNED PROPERTY OR EASEMENTS. ALL CLEARING AND GRUBBING MATERIAL SHALL BE THE PROPERTY OF THE CONTRACTOR AND SHALL BE DISPOSED OF AT A SITE PROVIDED BY THE CONTRACTOR IN COMPLIANCE WITH ALL STATE AND LOCAL LAWS.

3.

CONTRACTOR SHALL PROVIDE PROPER EROSION CONTROL AND DRAINAGE MEASURES IN ALL AREAS OF WORK, AND CONTROL SEDIMENT TO WITHIN THE LIMITS OF EXCAVATION AND GRADING. PRIOR TO BEGINNING EXCAVATION WORK, EROSION CONTROL FENCE SHALL BE INSTALLED AT THE DOWN GRADIENT PERIMETER OF THE ACTUAL LIMITS OF GRUBBING AND/OR GRADING, AND AS SHOWN ON THE DRAWINGS. EROSION CONTROL MEASURES SHOWN ON THE DRAWINGS ARE A MINIMUM, CONTRACTOR SHALL TAKE ALL OTHER NECESSARY MEASURES. EROSION CONTROL FENCE SHALL ALSO BE INSTALLED AT THE DOWN GRADIENT PERIMETER OF THE TOPSOIL STOCKPILES. ALL DISTURBED EARTH SURFACES SHALL 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 SHALL BE STABILIZED IN A MANNER THAT WILL MINIMIZE EROSION. ALL INSTALLED EROSION CONTROL FACILITIES SHALL BE REMOVED AT THE END OF THE PROJECT. REFER TO SPECIFICATION SECTION 02270.
4.

ALL STORM DRAINAGE INLETS SHALL BE PROTECTED BY HAY BALE FILTERS TO PREVENT ENTRY OF SEDIMENT FROM RUNOFF WATERS DURING CONSTRUCTION. CONTRACTOR SHALL BE RESPONSIBLE FOR THE REMOVAL AND DISPOSAL OF ALL COLLECTED SEDIMENT, AND THAT WHICH COLLECTS IN THE STORM DRAIN SYSTEM. REFER TO THE CIVIL DETAIL DRAWINGS.
5.

THE GEOTECHNICAL DATA REPORT FOR THE PROJECT SITE IS INCLUDED IN APPENDIX A AND IS DESCRIBED IN SPECIFICATION SECTION 00800 (SUPPLEMENTAL CONDITIONS).
6.

CONTRACTOR SHALL CONTROL DUST ON THE CONSTRUCTION SITE TO A REASONABLE LIMIT, AS DETERMINED BY THE ENGINEER, AND AS OUTLINED IN SPECIFICATION SECTION 01562.
7.

CONTRACTOR SHALL NOT TRACK OR SPILL EARTH, DEBRIS OR OTHER CONSTRUCTION MATERIAL ON PUBLIC OR PRIVATE STREETS AND PLANT DRIVES. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE IMMEDIATE ASSOCIATED CLEAN UP.
8.

ALL CATCH BASINS, MANHOLES, VALVE PITS, VALVE BOXES AND OTHER BURIED FACILITIES WITH SURFACE ACCESS SHALL BE ADJUSTED TO MATCH FINAL GRADES, UNLESS OTHERWISE INDICATED.
9.

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, WITH EXCESS MATERIAL DISPOSED OF AT A LOCATION PROVIDED BY THE CONTRACTOR. THESE PROVISIONS SHALL IN NO WAY RELIEVE THE CONTRACTOR OF OBLIGATIONS TO PROPERLY DISPOSE OF AND REPLACE ANY MATERIAL DETERMINED BY THE ENGINEER TO BE UNSUITABLE FOR BACKFILLING. THE CONTRACTOR SHALL DISPOSE OF UNSUITABLE AND EXCESS MATERIAL IN ACCORDANCE WITH THE APPLICABLE SECTIONS OF THE CONTRACT DOCUMENTS.
10.

CONTRACTOR SHALL REMOVE AND REPLACE, OR REPAIR, ALL CURBS, SIDEWALKS, PAVEMENT AND OTHER ITEMS DAMAGED BY CONSTRUCTION ACTIVITIES TO AT LEAST THEIR ORIGINAL CONDITION, TO THE SATISFACTION OF THE OWNER AND ENGINEER.
11.

WHERE EXISTING PAVEMENT IS REMOVED AND REPLACED, MATCH EXISTING GRADES TO THE EXTENT POSSIBLE. COORDINATE FINE GRADING WITH THE ENGINEER.
12.

ALL ROAD AND DRIVE CROSS SLOPES SHALL PITCH 1/4-INCH PER FOOT MINIMUM. ALL PAVED SURFACES SHALL PITCH 1% UNLESS OTHERWISE NOTED. REFER TO THE CIVIL DETAIL DRAWINGS.
13.

ALL NON-ROADWAY AREAS THAT ARE EXCAVATED, FILLED, OR OTHERWISE DISTURBED BY THE CONTRACTOR SHALL BE LOAMED, GRADED, LIMED, FERTILIZED, SEEDED AND MULCHED, UNLESS OTHERWISE NOTED. THE TOP 4-INCHES OF SOIL SHALL BE LOAM. REFER TO SPECIFICATION SECTION 02485, LANDSCAPING/LOAM AND SEED.

CIVIL SITE LAYOUT

1.

THE CONTRACTOR SHALL BE RESPONSIBLE FOR MAINTAINING THIS PROVIDED LAYOUT INFORMATION THROUGHOUT THE COURSE OF CONSTRUCTION. REPORT ANY LAYOUT DISCREPANCIES IMMEDIATELY TO THE ENGINEER.
2.

REFER TO THE SITE PIPING AND SITE GRADING DRAWINGS FOR ADDITIONAL LAYOUT INFORMATION.
3.

CONTRACTOR SHALL EXCAVATE TEST PITS, WHERE NECESSARY, PRIOR TO CONSTRUCTION LAYOUT AND RESULTS REPORTED TO THE ENGINEER FOR REVIEW FOR CONFORMANCE TO THE PLANS. TEST PITS ARE REQUIRED WHERE SHOWN ON THE PLANS AND AS DIRECTED BY THE ENGINEER.
4.

IN GENERAL, THE GIVEN STRUCTURE LOCATIONS ARE TO THE OUTSIDE FACE OF THE STRUCTURE FOUNDATION WALL, NOT FOOTINGS. REFER TO THE ARCHITECTURAL AND STRUCTURAL DRAWINGS FOR BUILDING AND STRUCTURE DIMENSIONS. RADII SHOWN FOR ROADS ARE TO EDGE OF PAVEMENT.
5.

PLACE CRUSHED STONE MOWING STRIP AROUND THOSE STRUCTURES AS INDICATED ON THE DRAWINGS. REFER TO THE CIVIL DETAIL DRAWINGS.
6.

THE LOCATIONS AND LIMITS OF ALL ON-SITE WORK AND STORAGE AREAS SHALL BE REVIEWED/COORDINATED WITH, AND ACCEPTABLE TO, THE OWNER AND ENGINEER. THE CONTRACTOR SHALL LIMIT ACTIVITIES TO THESE AREAS.
7.

THE CONTRACTOR SHALL BE RESPONSIBLE FOR RE-ESTABLISHING AND RESETING ALL EXISTING PROPERTY MONUMENTATION DISTURBED BY CONSTRUCTION. THIS WORK SHALL BE DONE BY A LAND SURVEYOR REGISTERED IN THE STATE OF MASSACHUSETTS, AT NO ADDITIONAL COST TO THE OWNER.
8.

WRITTEN DIMENSIONS SHALL PREVAIL. DO NOT SCALE DISTANCES FROM THE DRAWINGS. REPORT ANY DISCREPANCIES IMMEDIATELY TO THE ENGINEER.
9.

BOLLARD LOCATIONS SHOWN ARE APPROXIMATE. COORDINATE BOLLARD LOCATIONS WITH THE ENGINEER. REFER TO THE CIVIL DETAIL DRAWINGS.
10.

PARKING SPACES SHALL BE 10' WIDE X 20' LONG (TYPICAL) FOR REGULAR SPACES, AND 12' WIDE X 20' LONG (TYPICAL) FOR HANDICAP SPACES, UNLESS SHOWN OTHERWISE.
11.

ALL ELEVATIONS REFER TO THE NAVD88 DATUM. ORIENTATION IS GRID NORTH ON THE MASSACHUSETTS STATE PLANE COORDINATE SYSTEM. PROJECT BENCH MARK IS SHOWN ON THE DRAWINGS AND IS DERIVED FROM MASSDOT BENCHMARK 7766. CONTRACTOR SHALL VERIFY BENCHMARK ELEVATIONS PRIOR TO USING IN CONSTRUCTION.
12.

EXISTING CONDITIONS SITE PLAN DEVELOPED FROM SURVEY DRAWING PREPARED BY LANDTECH CONSULTANTS, INC, DATED MAY 2024, AND EXISTING RECORD DRAWING INFORMATION.
13.

WETLANDS FLAGS SURVEYED BY LANDTECH CONSULTANTS, INC.

SITE PIPING NOTES

1.

SITE PIPING REQUIREMENTS ARE SHOWN ON THE PIPE SCHEDULE ON THE DRAWINGS, IN SPECIFICATION SECTION 15050 AND AS REFERENCED. PROCESS ABBREVIATIONS AND PROCESS FLOW SCHEMATICS ARE SHOWN ON THE PROCESS DRAWINGS.
2.

ALL PIPE LINES SHALL SLOPE UNIFORMLY BETWEEN ELEVATIONS INDICATED ON THE DRAWINGS. NO CRESTS IN PIPING WILL BE PERMITTED. CONCRETE THRUST BLOCKS OR OTHER ACCEPTABLE RESTRAINT SYSTEM IS REQUIRED ON ALL FITTINGS ON PRESSURE PIPE. WHERE A RESTRAINED JOINT SYSTEM IS USED, THE NUMBER OF PIPES WITH RESTRAINED JOINTS ON EITHER SIDE OF THE FITTING SHALL BE DESIGNED TO REFLECT THE PROJECT SOIL CONDITIONS AND PEAK SURGE PRESSURE IN THE PIPING SYSTEM. SEE THE CIVIL DETAIL DRAWINGS FOR THRUST BLOCK DETAILS. PROVIDE ALL BENDS (HORIZONTAL AND VERTICAL) AS REQUIRED TO MEET THE GRADES AND ALIGNMENT INDICATED ON THE DRAWINGS.
3.

THE CONTRACTOR SHALL ASCERTAIN THE LOCATION AND SIZE OF EXISTING PIPING AND UTILITIES IN THE FIELD BY TEST PIT EXCAVATION PRIOR TO COMMENCING INSTALLATION OF ANY OF THE NEW PIPING AFFECTED. WHERE NEW PIPE CONNECTS TO EXISTING PIPING OR STRUCTURAL PENETRATION, CONTRACTOR SHALL VERIFY ELEVATION BY TEST PIT, AS REQUIRED, PRIOR TO INSTALLATION OF ANY OF THE ASSOCIATED/AFFECTED NEW PIPING. IDENTIFIED CONFLICTS WITH EXISTING PIPING AND UTILITIES WILL BE REVIEWED WITH THE ENGINEER PRIOR TO COMMENCING INSTALLATION. THE HORIZONTAL ALIGNMENT OF NEW PIPING MAY BE ADJUSTED IN THE FIELD SUBJECT TO PRIOR REVIEW AND ACCEPTANCE OF THE ENGINEER. CONTRACTOR SHALL BE RESPONSIBLE FOR LAYOUT OF ALL PROPOSED WORK AS SHOWN ON THE DRAWINGS AND REPORT ANY LAYOUT DISCREPANCIES IMMEDIATELY TO THE ENGINEER.
4.

ALL WASTEWATER PIPING (EXCLUDING BUILDING DRAINS) AND ALL PRESSURIZED PIPES (I.E. PLANT WATER, TOWN WATER, SOLUTION LINES, HEAT, ETC.) INSTALLED BENEATH STRUCTURES SHALL BE ENCASED IN CONCRETE. SEE STRUCTURAL DRAWING FOR DETAILS.
5.

ALL BURIED CONNECTIONS TO STRUCTURES SHALL HAVE SLEEVE TYPE FLEXIBLE CONNECTIONS APPROXIMATELY 4-FEET FROM THE STRUCTURES. ALL SLEEVE TYPE COUPLINGS ON PRESSURE LINES SHALL BE RESTRAINED (SOLID SLEEVE). REFER TO SPECIFICATION SECTION 15088.
6.

PROVIDE CAST OR DUCTILE IRON WALL CASTINGS, OR GALVANIZED STEEL PIPE SLEEVES, FOR ALL PIPE PENETRATIONS MADE THROUGH CONCRETE FOUNDATIONS, WALLS AND SLABS. ALL WALL SLEEVES AND WALL CASTINGS SHALL HAVE WATERSTOPS. SEE PROCESS, MECHANICAL AND STRUCTURAL DRAWINGS FOR LOCATIONS OF PENETRATIONS. NEW PENETRATIONS THROUGH EXISTING STRUCTURE WALLS SHALL BE BY CORING MACHINE AND LINK-TYPE SEALS, UNLESS OTHERWISE INDICATED. OPENINGS TO BE COMPATIBLE WITH REQUIRED PIPING AND STANDARD LINK SEAL SIZES. SEE PROCESS DETAIL DRAWINGS. REFER TO SPECIFICATION SECTION 15092.
7.

TRENCH INSULATION SHALL BE USED WHERE DEPTH OF COVER IS LESS THAN 4-FEET. REFER TO THE CIVIL DETAIL DRAWINGS FOR THE TRENCH INSULATION DETAIL.
8.

TRENCH INSULATION SHALL BE USED WHEN THERE IS LESS THAN 2-FEET BETWEEN THE SEWER OR FORCE MAIN AND A CULVERT. REFER TO THE CIVIL DETAIL DRAWINGS FOR THE TRENCH INSULATION DETAIL.

9.

MANHOLES ARE 4-FEET IN DIAMETER UNLESS OTHERWISE NOTED. THE TOP OF MANHOLE FRAMES SHALL BE SET FLUSH WITH FINISH GRADE, UNLESS OTHERWISE NOTED ON DRAWINGS. SEWER MANHOLE INVERTS SHOWN ON THE DRAWINGS ARE TO THE INSIDE FACE OF THE MANHOLE.
10.

PIPES WITHIN VALVE PITS (MANHOLES) SHALL BE SUPPORTED 12-INCHES ABOVE BOTTOM OF MANHOLE ON ADJUSTABLE PIPE SADDLE SUPPORTS, IN ACCORDANCE WITH SPECIFICATION SECTION 15094, UNLESS OTHERWISE INDICATED.
11.

CONTRACTOR SHALL RE-SHAPE INVERTS AS REQUIRED WHEN CONNECTING INTO EXISTING MANHOLES.
12.

REFER TO SPECIFICATION SECTION 02200 FOR PIPE AND STRUCTURE BEDDING AND BACKFILL REQUIREMENTS.
13.

COMPACTION TESTS WILL BE PERFORMED IN ACCORDANCE WITH SPECIFICATION SECTION 02200. ANY SETTLEMENT OCCURRING WITHIN ONE-YEAR OF FINAL COMPLETION OF THE WORK SHALL BE CORRECTED BY THE CONTRACTOR AT NO ADDITIONAL COST.
14.

OPEN TRENCHES IN THE ROADWAY MUST BE BACKFILLED AT THE END OF THE WORKDAY. OPEN TRENCHES OUTSIDE OF THE WAY MAY BE LEFT OPEN IF THE CONTRACTOR PROVIDES ADEQUATELY SAFE BARRICADING AND LIGHTS.
15.

IN THOSE INSTANCES WHERE POWER OR TELEPHONE POLE SUPPORT IS REQUIRED, THE CONTRACTOR SHALL PROVIDE A MINIMUM 48-HOUR NOTICE TO THE RESPECTIVE UTILITY POLE OWNER. NO ADDITIONAL PAYMENT WILL BE PROVIDED FOR TEMPORARY BRACING OF UTILITIES.
16.

WHERE NEW PIPING IS TO BE CONNECTED TO EXISTING PIPING, THE CONTRACTOR SHALL FURNISH AND INSTALL ALL ADAPTERS, FITTINGS, AND ADDITIONAL PIPE AS REQUIRED TO COMPLETE THE CONNECTION. CONTRACTOR SHALL VERIFY LOCATION, ELEVATION, ORIENTATION AND MATERIAL OF CONSTRUCTION. TEST PITS SHALL BE USED AS REQUIRED.
17.

ALL EXISTING UTILITIES ENCOUNTERED DURING CONSTRUCTION ARE TO REMAIN IN SERVICE UNLESS OTHERWISE NOTED ON THE CIVIL EXISTING CONDITIONS AND DEMOLITION PLAN. ANY EXISTING UTILITIES DAMAGED DURING CONSTRUCTION SHALL BE REPAIRED BY THE CONTRACTOR AT NO ADDITIONAL COST TO THE OWNER.
18.

CONTRACTOR SHALL BE RESPONSIBLE FOR REMOVAL AND DISPOSAL OF ALL DEMOLITION MATERIALS IN ACCORDANCE WITH SPECIFICATION SECTION 02050.
19.

WHENEVER SEWER AND WATER MAINS MUST CROSS, WATER LINES SHOULD BE INSTALLED ABOVE WASTEWATER OR SLUDGE LINES. A MINIMUM SEPARATION OF 18-INCHES BETWEEN THE BOTTOM OF THE WATER LINE AND THE TOP OF THE WASTEWATER OR SLUDGE LINE SHALL BE MAINTAINED. WHERE A WATER LINE CROSSES UNDER A WASTEWATER OR SLUDGE LINE, A FULL LENGTH OF PIPE SHALL BE CENTERED ABOVE THE WATER LINE SO THAT BOTH JOINTS WILL BE AS FAR FROM THE WATER LINE AS POSSIBLE.
20.

ALL STRUCTURES AND PIPELINES LOCATED ADJACENT TO ANY 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 OWNER.
21.

PIPING ON THE SITE PIPING PLAN HAS BEEN SHOWN BROKEN FOR CLARITY ONLY. PIPE BREAKS DO NOT INDICATE RELATIVE ELEVATIONS OF PIPING.
22.

ELECTRICAL CONDUIT RUNS ARE INDICATED ON THE ELECTRICAL DRAWINGS. CONTRACTOR IS RESPONSIBLE FOR ALL COORDINATION, EXCAVATION AND BACKFILLING REQUIRED FOR THE ELECTRICAL CONDUITS, AND SHALL FURNISH AND INSTALL ELECTRICAL MANHOLES AND HANDHOLES. COORDINATE THE LOCATION OF THE ELECTRICAL MANHOLES AND HANDHOLES, AND THE REQUIRED OPENING SIZES, WITH THE ELECTRICAL CONTRACTOR.
23.

WHENEVER PROPOSED STRUCTURES ARE LOCATED PARTLY WITHIN A PAVED AREA AND PARTLY IN A NON-PAVED AREA, A BITUMINOUS CONCRETE PAVED APRON 2-FEET WIDE SHALL BE SUPPLIED AROUND THE PROPOSED COVER. PAVEMENT SHALL SLOPE AWAY FROM THE COVER.

CIVIL ABBREVIATIONS

&	AND	LB	POUND
Ø, DIA	DIAMETER	LF	LINEAR FOOT
#, NO	NUMBER	MAX	MAXIMUM
AC	ASBESTOS CEMENT	MH	MANHOLE
AI	ACTIFLO INLET	MIN	MINIMUM
AO	ACTIFLO OUTLET	MW	MONITORING WELL
APP'D	APPROVED	N	NORTH
BR	BRICK	NGVD	NATIONAL GEODETIC VERTICAL DATUM
BLDG	BUILDING	N/A	NOT AVAILABLE/APPLICABLE
CB	CATCH BASIN	NTS	NOT TO SCALE
CEN	CENTER	OD	OUTSIDE DIAMETER
CFS	CUBIC FEET PER SECOND	OUT	OUTFALL
CI	CAST IRON	PC	PERFORATED CLAY
CIPP	CURED-IN-PLACE-PIPE	PSF	POUNDS PER SQUARE FOOT
CL	CENTERLINE	PSI	POUNDS PER SQUARE INCH
CMP	CORRUGATED METAL PIPE	PS	PRIMARY SLUDGE
CO	CLEANOUT	PT	POINT OF TANGENCY
CONC	CONCRETE	PVC	POLYVINYL CHLORIDE
COR	CORNER	PW	PLANT WATER
CPE	CORRUGATED POLYETHYLENE PIPE	RCP	REINFORCED CONCRETE PIPE
CY	CUBIC YARD	RD	ROOF DRAIN
DEMO	DEMOLITION	REQ'D	REQUIRED
DMH	DRAIN MANHOLE	S	SLOPE, SEWER
DI	DUCTILE IRON	SD	STORM DRAIN
DR	DRAIN	SF	SQUARE FEET
DWG	DRAWING	SMH	SANITARY SEWER MANHOLE
EL	ELEVATION	SPD	SUMP PUMP DISCHARGE
EMH	ELECTRIC MANHOLE	SQ	SQUARE
FM	FORCE MAIN	STA	STATION
FT	FEET	T, XFMR	TRANSFORMER
FW	FINISH WATER	TBM	TEMPORARY BENCH MARK
G	GAS	THK	THICKNESS
GAC	GRANULAR ACTIVATED CARBON	TOS	TOP OF STRUCTURE
GAI	GAC FILTER INFLUENT	TYP	TYPICAL
GAO	GAC FILTER OUTLET	UD	UNDERDRAIN
GBWS	GAC BACKWASH SUPPLY	UG	UNDERGROUND
GBWW	GAC BACKWASH WASTE	UGE	UNDERGROUND ELECTRIC
HDPE	HIGH DENSITY POLYETHYLENE	VC	VITRIFIED CLAY
HYD	HYDRANT	VF	VERTICAL FOOT
IN	INCH	W/	WITH
INF	INFLUENT	W	POTABLE WATER
INV	INVERT		

EXISTING	LEGEND	PROPOSED
	PROPERTY/ROW LINE	
	SETBACK LINE	
	EASEMENT LINE	
	CENTERLINE	
	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	
	STORM DRAIN	
	UNDERDRAIN	
	CULVERT	
	UNDERGROUND ELECTRIC	
	OVERHEAD ELECTRIC	
	UNDERGROUND TELEPHONE	
	UNDERGROUND CABLE TV	
	IRON PIPE/REBAR	
	DRILLHOLE	
	MONUMENT	
	SURVEY CONTROL POINT	
	SPOT ELEVATION	
	SEWER MANHOLE	
	DRAINAGE MANHOLE	
	CATCH BASIN	
	ELECTRIC MANHOLE	
	TELEPHONE MANHOLE	
	SHUTOFF VALVE	
	WATER SERVICE SHUTOFF	
	YARD HYDRANT	
	HYDRANT	
	GAS SERVICE SHUTOFF	
	GAS GATE VALVE	
	UTILITY POLE	
	UTILITY POLE W/ GUY	
	UTILITY POLE W/ LIGHT	
	LIGHT POLE	
	BOLLARD	
	FLAGPOLE	
	CONIFEROUS TREE	
	DECIDUOUS TREE	
	SHRUB	
	WETLAND FLAG	
	EDGE OF WATER	
	STREAM	
	EDGE OF WETLANDS	
	FLOODPLAIN	
	WETLANDS	
	DRAINAGE FLOW	
	DRAINAGE SWALE	
	PAVEMENT MARKINGS	
	SIGN	
	MAILBOX	
	TEMPORARY BENCH MARK	
	TEST PIT	
	TEST BORING	
	TEST PROBE	
	MONITORING WELL	
	LIMIT OF WORK	
	SILT FENCE	
	RIPRAP	
	RAILROAD	
	MATCHLINE	
	ROCK OUTCROP	

PROJECT NO: 21796
DESIGNED: C.DARGLE
CAD COORD: C.MERRICK
CAD: D.METZ
CHECKED:
DATE: FEBRUARY 2025
APPROVED:
DATE:
SUBMISSION: 90% DESIGN REVIEW

REVISIONS

NO		DATE

SEAL

COMMONWEALTH OF MASSACHUSETTS
STATE OF MASSACHUSETTS
REGISTERED PROFESSIONAL ENGINEER
NO. 10000
EXPIRATION DATE: 12/31/2025
DANIEL M. METZ

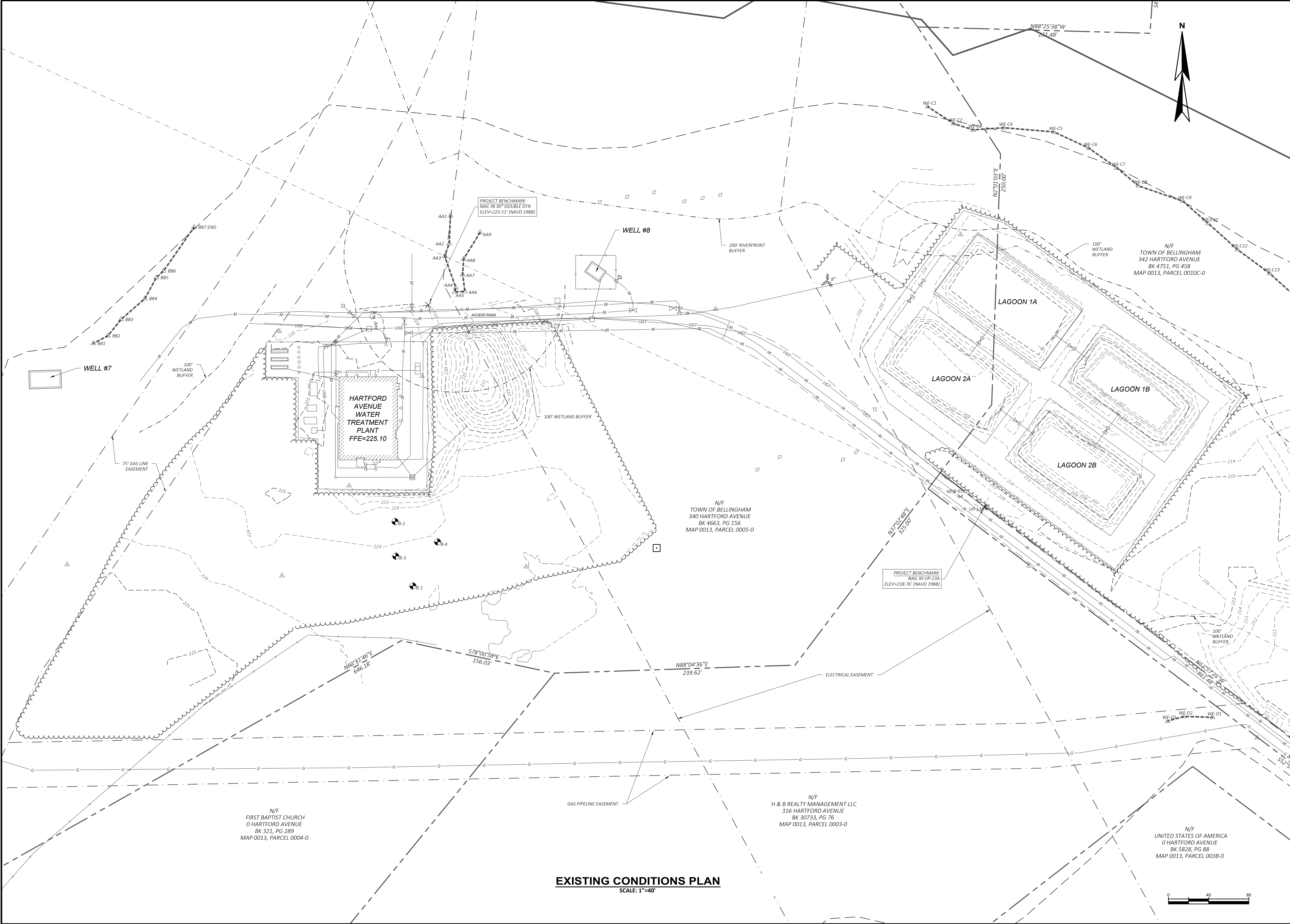
BELLINGHAM, MASSACHUSETTS
HARTFORD AVENUE
WATER TREATMENT PLANT PFAS UPGRADES

978.416.8000 | www.wright-pierce.com
600 FEDERAL STREET, SUITE 2151, ANDOVER, MA 01810

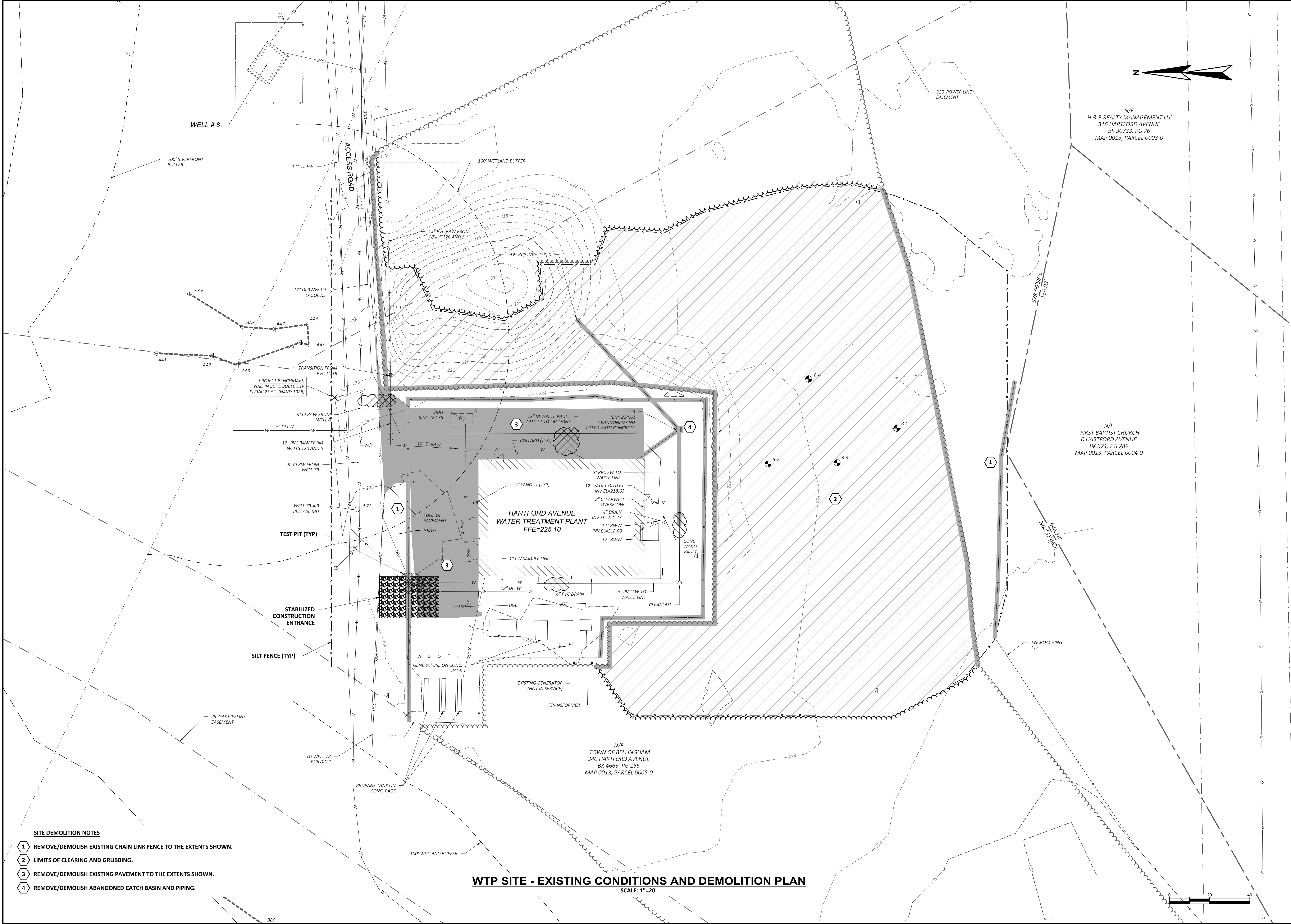
GENERAL NOTES, LEGEND AND ABBREVIATIONS

DRAWING
C-00-001

LAST SAVED BY: DANIEL METZ 1/24/2025 3:06 PM
A:\ENGINEERING\BELLINGHAM\21796-HARTFORD PLANT UPGRADES\DRAWINGS\21796-CS-EXISTINGCONDITIONS.DWG | 21796-CS-ExistingConditions | 12.5849 | 1/24/2025 3:22:09 PM | DANIEL.METZ



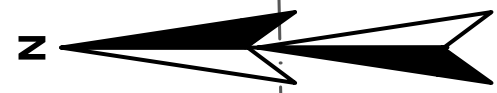
LAST SAVED BY: DANIEL METZ 1/24/2025 3:07 PM
A:\ENGINE\BELLINGHAM\21796-HARTF\PAK_UPGRADES\DRAWINGS\DWG\21796-CS-WTP-EXISTINGCOND-DEMO.DWG | 21796-CS-WTP-EXISTINGCOND-DEMO | 1:2.5849 | 1/24/2025 3:23:54 PM | DANIEL METZ



- SITE DEMOLITION NOTES**
- 1 REMOVE/DEMOLISH EXISTING CHAIN LINK FENCE TO THE EXTENTS SHOWN.
 - 2 LIMITS OF CLEARING AND GRUBBING.
 - 3 REMOVE/DEMOLISH EXISTING PAVEMENT TO THE EXTENTS SHOWN.
 - 4 REMOVE/DEMOLISH ABANDONED CATCH BASIN AND PIPING.

WTP SITE - EXISTING CONDITIONS AND DEMOLITION PLAN



SCALE: 1"=20'



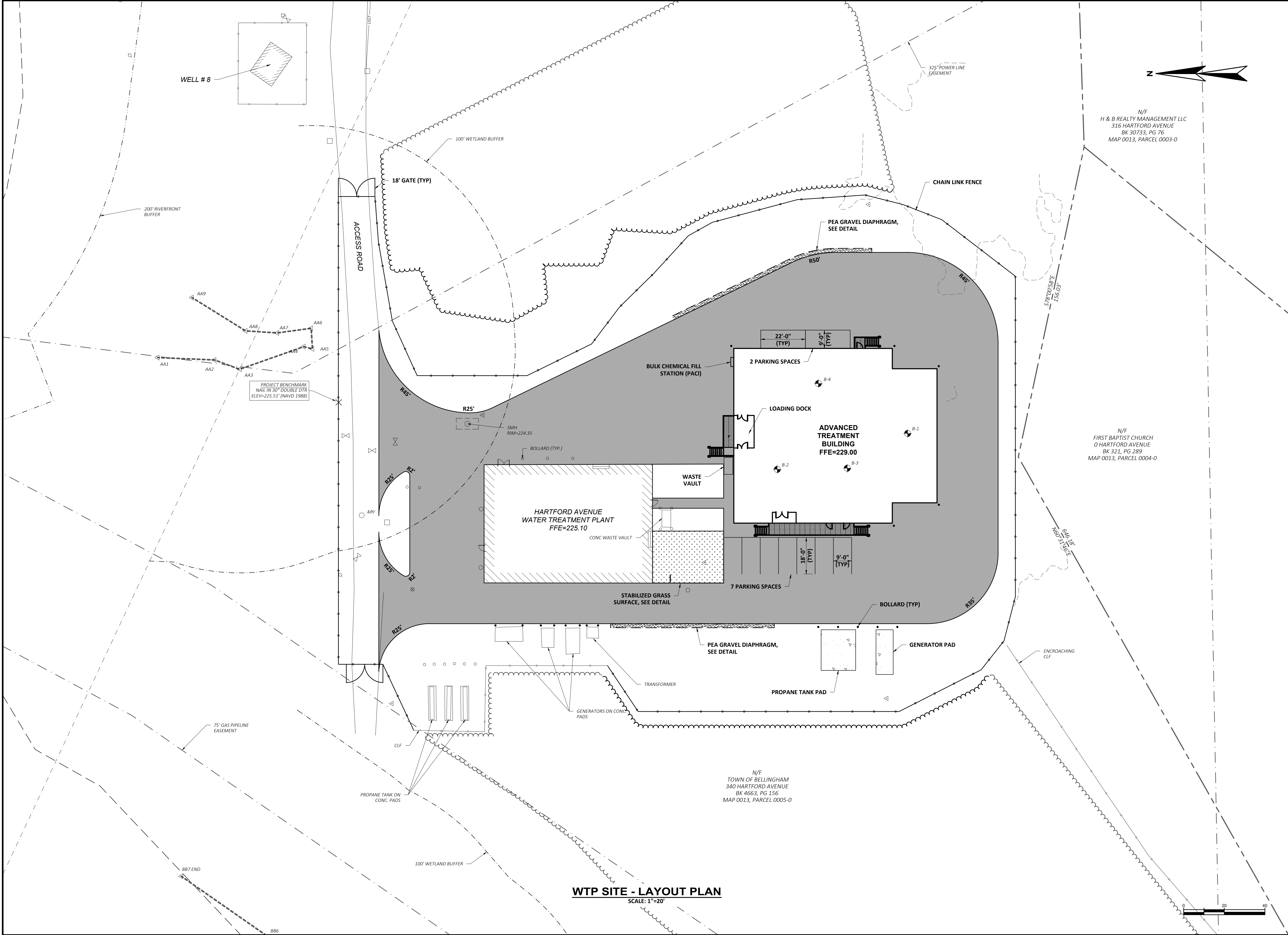
N/F
H & B REALTY MANAGEMENT LLC
316 HARTFORD AVENUE
BK 30733, PG 76
MAP 0013, PARCEL 0003-0

N/F
FIRST BAPTIST CHURCH
0 HARTFORD AVENUE
BK 321, PG 289
MAP 0013, PARCEL 0004-0

N/F
TOWN OF BELLINGHAM
340 HARTFORD AVENUE
BK 4663, PG 156
MAP 0013, PARCEL 0005-0

DRAWING		C-01-102	
BELLINGHAM, MASSACHUSETTS HARTFORD AVENUE WATER TREATMENT PLANT PFAS UPGRADES		WTP SITE EXISTING CONDITIONS AND DEMOLITION PLAN	
978.416.8000 www.wright-pierce.com			
978.416.8000 www.wright-pierce.com		600 FEDERAL STREET, SUITE 2151, ANDOVER, MA 03810	
			

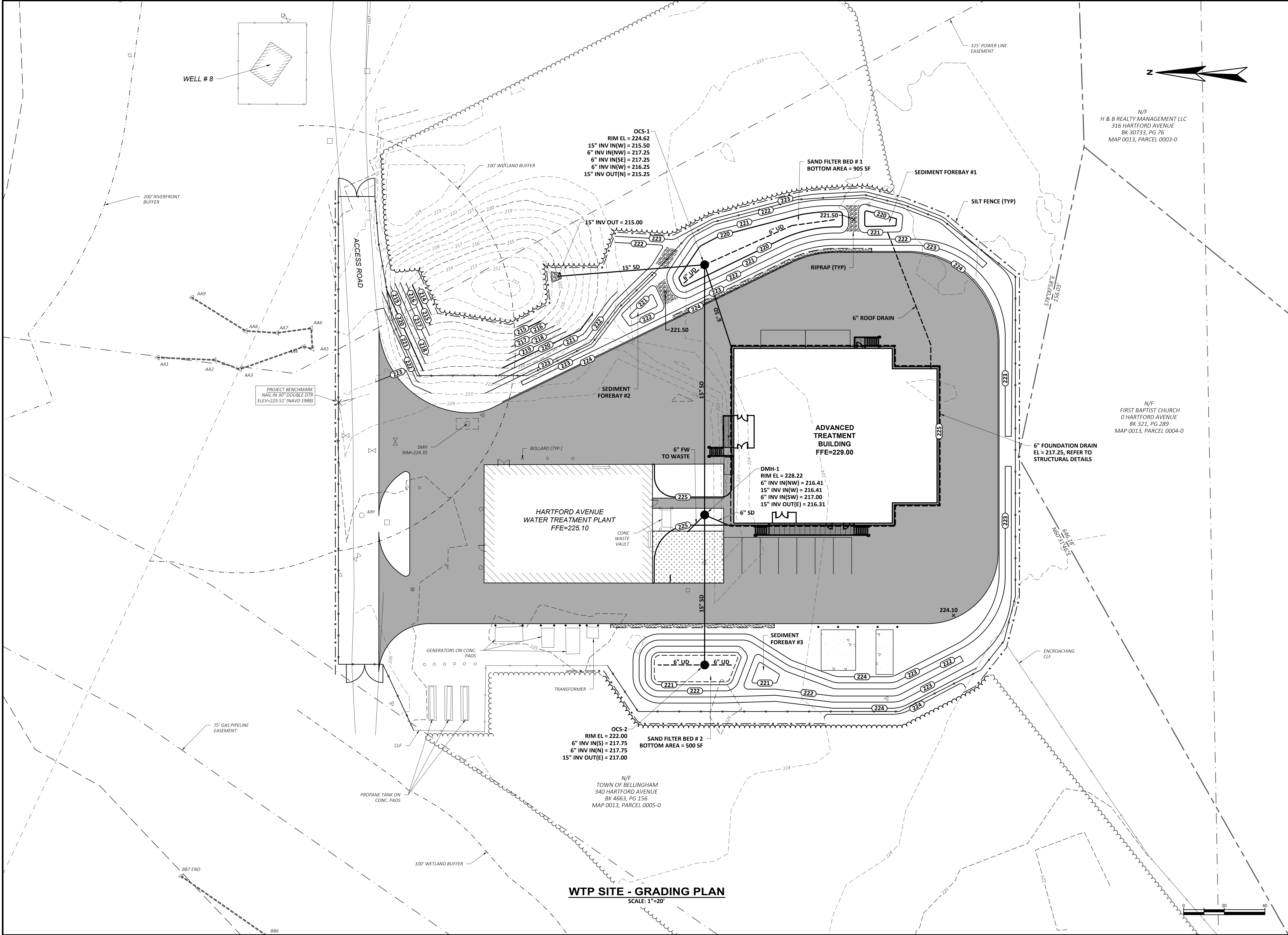
LAST SAVED BY: DANIEL METZ 1/24/2025 3:09 PM
A:\ENGINE\BELLINGHAM\21796-HARTFORD\UPGRADES\DRAWINGS\CIV\21796-CS-WTP-LAYOUT\PLAN.DWG | 21796-CS-WTP-LAYOUT\PLAN.DWG | 1:15.5849 | 1/24/2025 3:23:39 PM | DANIEL METZ



WTP SITE - LAYOUT PLAN
SCALE: 1"=20'

DRAWING		REVISIONS		APPD	DATE
BELLINGHAM, MASSACHUSETTS HARTFORD AVENUE WATER TREATMENT PLANT PFAS UPGRADES	C-01-103	NO			
		DESIGNED: C.DARGLE			
		CAD COORD: C.MERRICK			
		CAD: D.METZ			
		CHECKED: DATE: FEBRUARY 2025			
WTP SITE LAYOUT PLAN		APPROVED: DATE:			
		SUBMISSION: 90% DESIGN REVIEW			

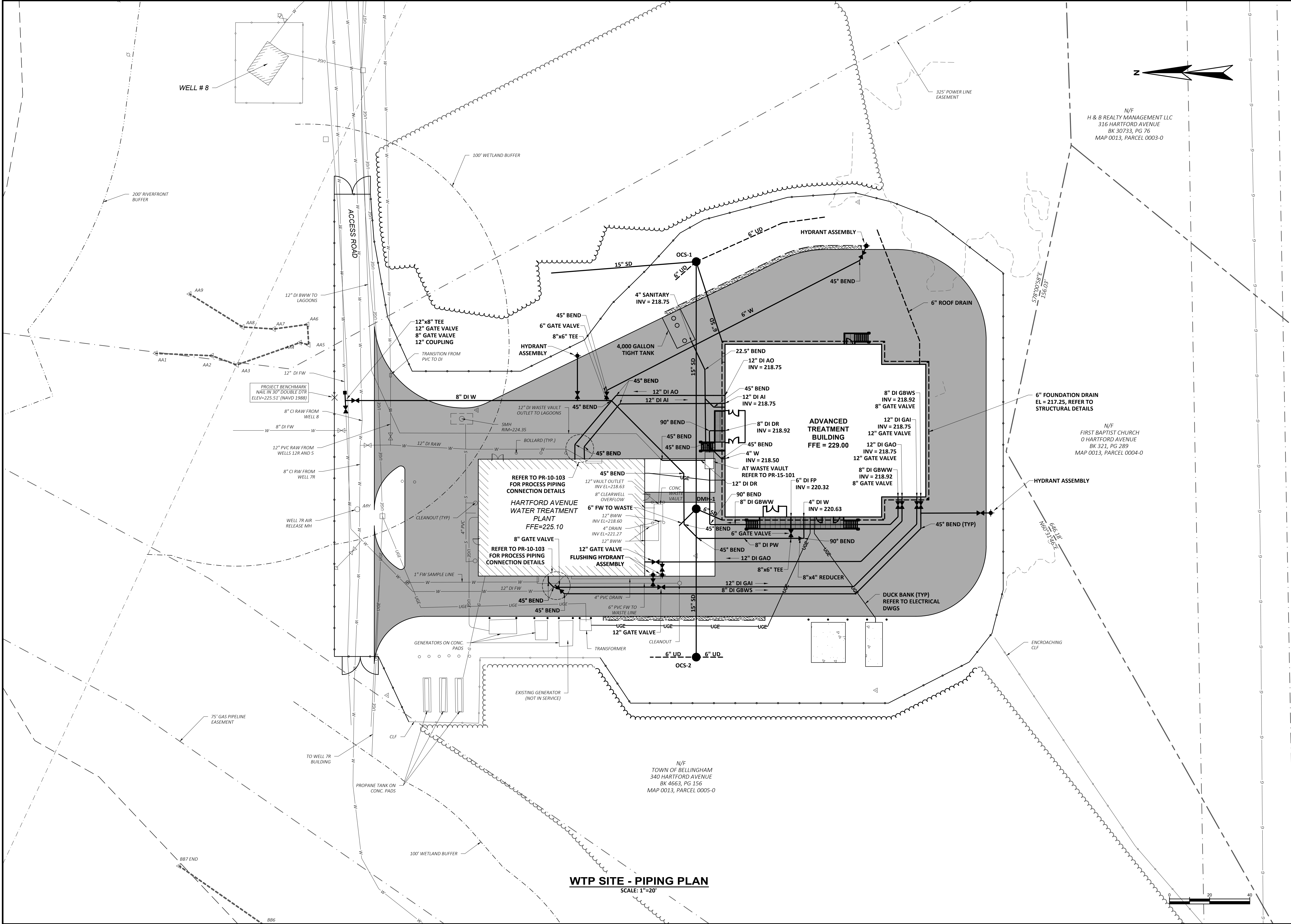
LAST SAVED BY: DANIEL METZ / 2/4/2025 3:12 PM
A:\ENGINEERING\BELLINGHAM\21796-HARTFORD AVENUE WATER TREATMENT PLANT PFAS UPGRADES\DRAWINGS\CIV\21796-CS-WTP-GradingPlan 1.2.5849 | 1/24/2025 2:24:20 PM | DANIEL METZ



DRAWING		REVISIONS		APPD	DATE
BELLINGHAM, MASSACHUSETTS HARTFORD AVENUE WATER TREATMENT PLANT PFAS UPGRADES	WTP SITE GRADING PLAN	PROJECT NO: 21796			
		DESIGNED: C.DARGLE			
		CAD COORD: C.MERRICK			
		CAD: D.METZ			
		CHECKED:			
		DATE: FEBRUARY 2025			
		APPROVED:			
		DATE:			
		SUBMISSION: 90% DESIGN REVIEW			
		978.416.8000 www.wright-pierce.com			
		600 FEDERAL STREET, SUITE 2151, ANDOVER, MA 01810			

\\PWWG\WV\01\ENG\MA\BELLINGHAM\21796-HAWTP-PFAS-UPGRADES_DRAWINGS\DWG\21796-CS-WTP-PIPING\Plan | 1.2.5849 | --- | 1/27/2025 7:44:24 AM | DANIEL.METZ

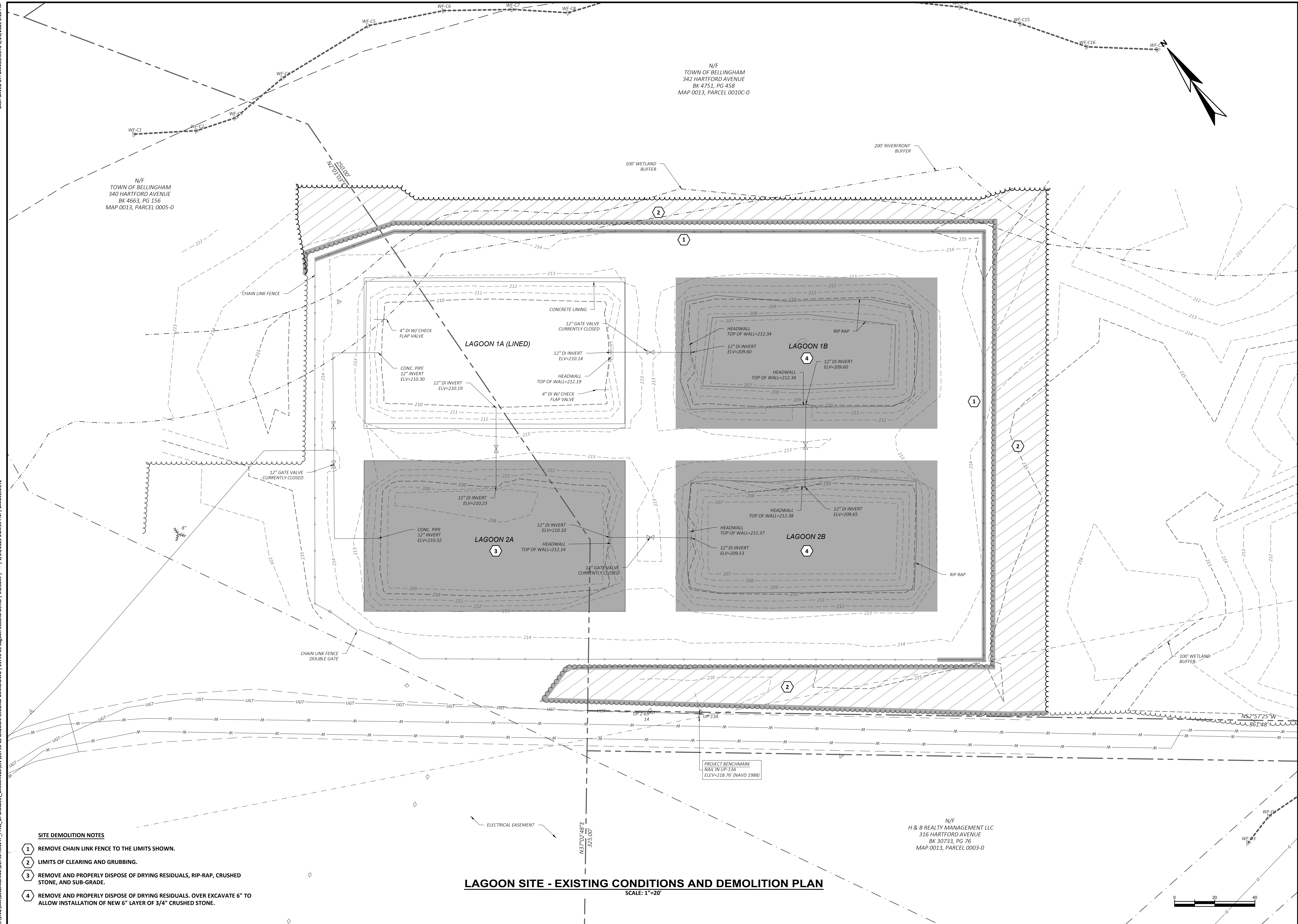
LAST SAVED BY: DANIEL.METZ 1/24/2025 3:13 PM




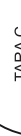



WTP SITE - PIPING PLAN

SCALE: 1"=20'

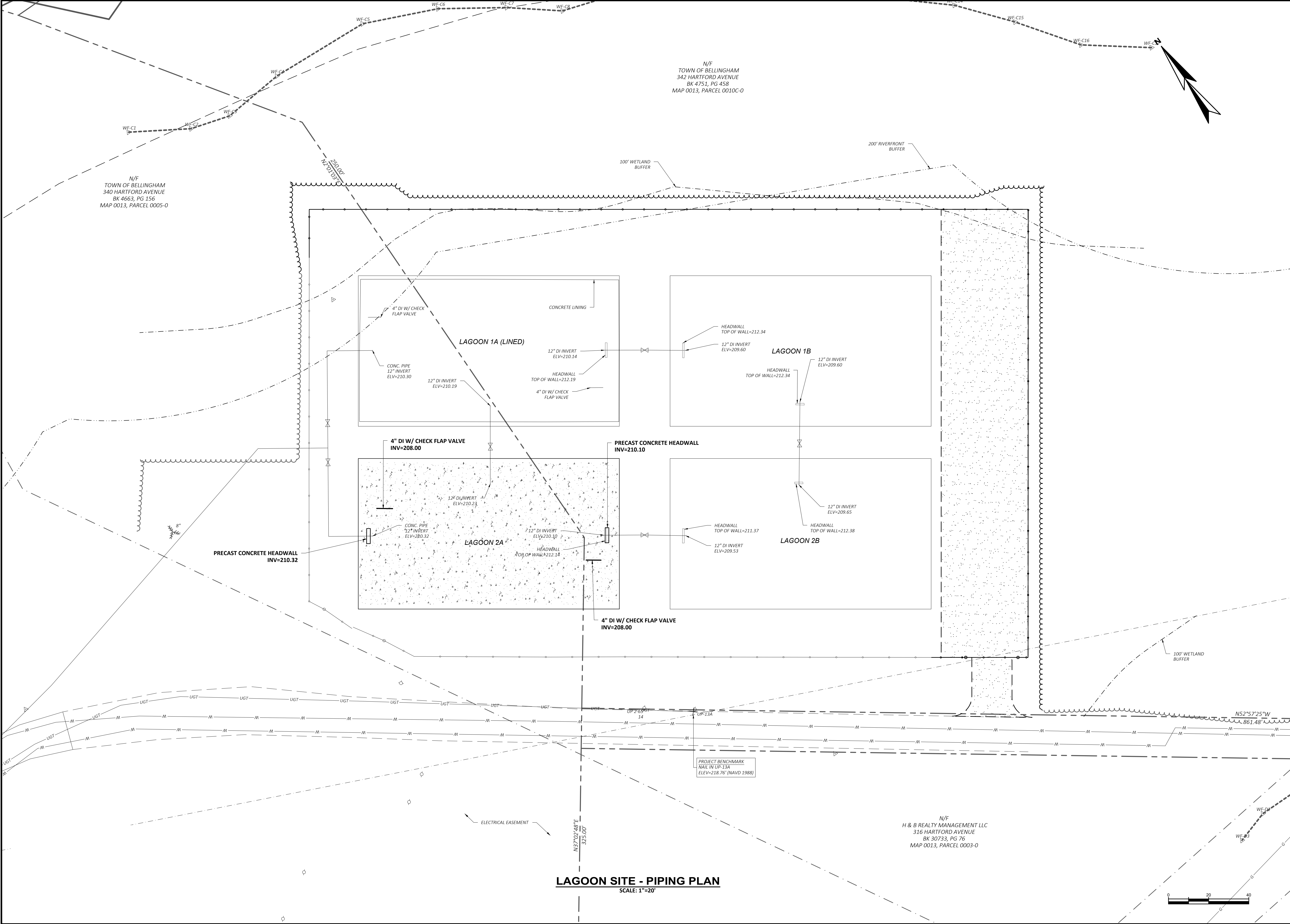
DRAWING		C-01-105	
BELLINGHAM, MASSACHUSETTS HARTFORD AVENUE WATER TREATMENT PLANT PFAS UPGRADES		WTP SITE PIPING PLAN	
WRIGHT-PIERCE 978.416.8000 www.wright-pierce.com 600 FEDERAL STREET, SUITE 2151, ANDOVER, MA 01810			
PROJECT NO: 21796 DESIGNED: C.DARGLE CAD COORD: C.MERRICK CAD: D.METZ CHECKED: DATE: FEBRUARY 2025 APPROVED: DATE: SUBMISSION: 90% DESIGN REVIEW		REVISIONS	
NO		APPD DATE	



DRAWING	BELLINGHAM, MASSACHUSETTS HARTFORD AVENUE WATER TREATMENT PLANT PFAS UPGRADES		 978.416.8000 www.wright-pierce.com 600 FEDERAL STREET, SUITE 2151, ANDOVER, MA 01810		PROJECT NO.: 21796 DESIGNED: C D'AMALE CAD COORD: C MERRICK CAD: D MERTZ CHECKED:  DATE: FEBRUARY 2025 APPROVED:  DATE: 	NO Δ Δ Δ Δ Δ Δ	REVISIONS	APP'D DATE
	LAGOON SITE EXISTING CONDITIONS AND DEMOLITION PLAN							
C-02-101	SUBMISSION: 90% DESIGN REVIEW							

LAST SAVED BY: DANIEL METZ 1/24/2025 3:20 PM

A:\ENG\MA\BELLINGHAM\21796-HANPT-PFA\UPGRADES\DRAWINGS\CIV\21796-CS-Lagoon-Piping | 1:2.5849 | 1/24/2025 3:25:19 PM | DANIEL METZ



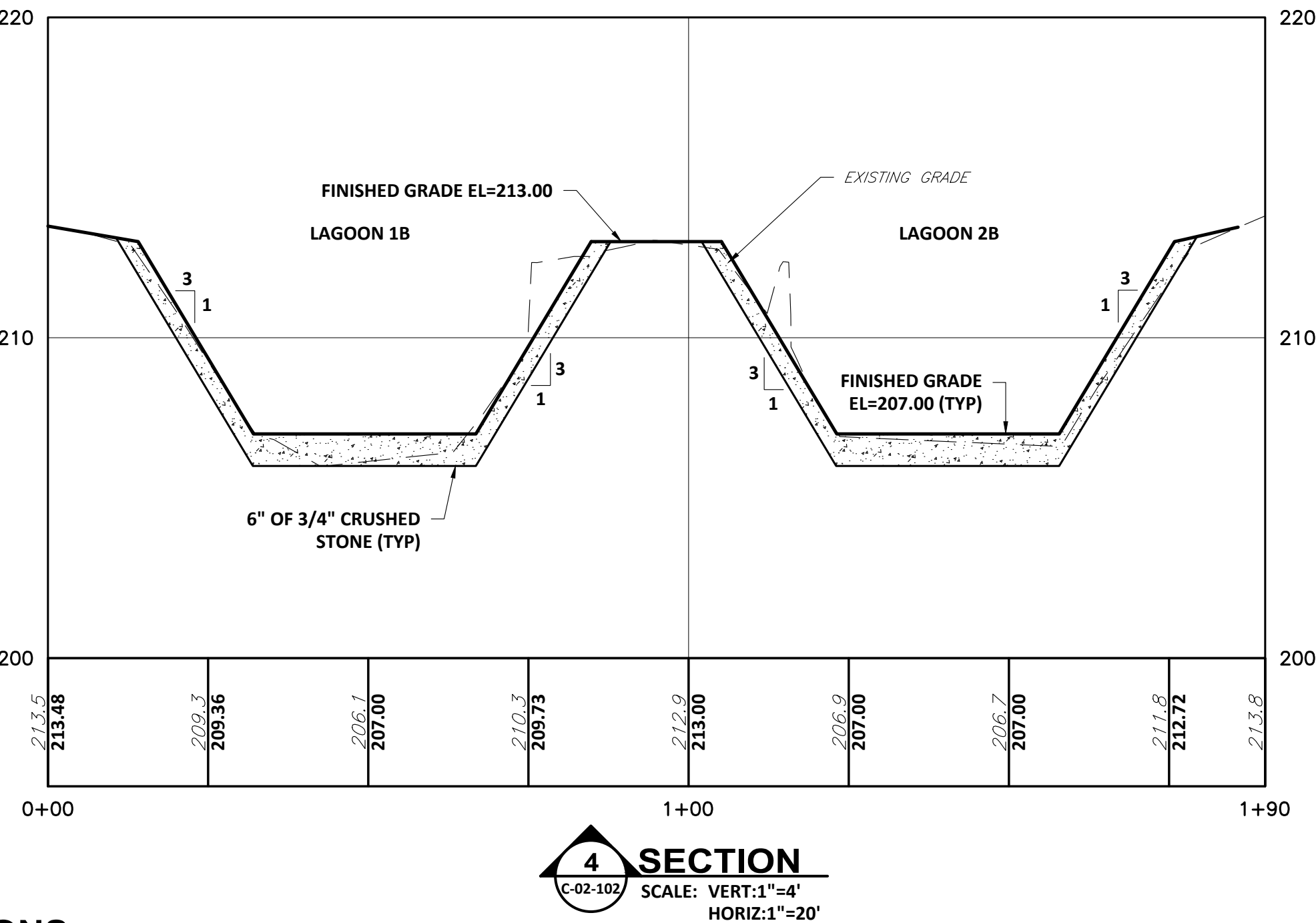
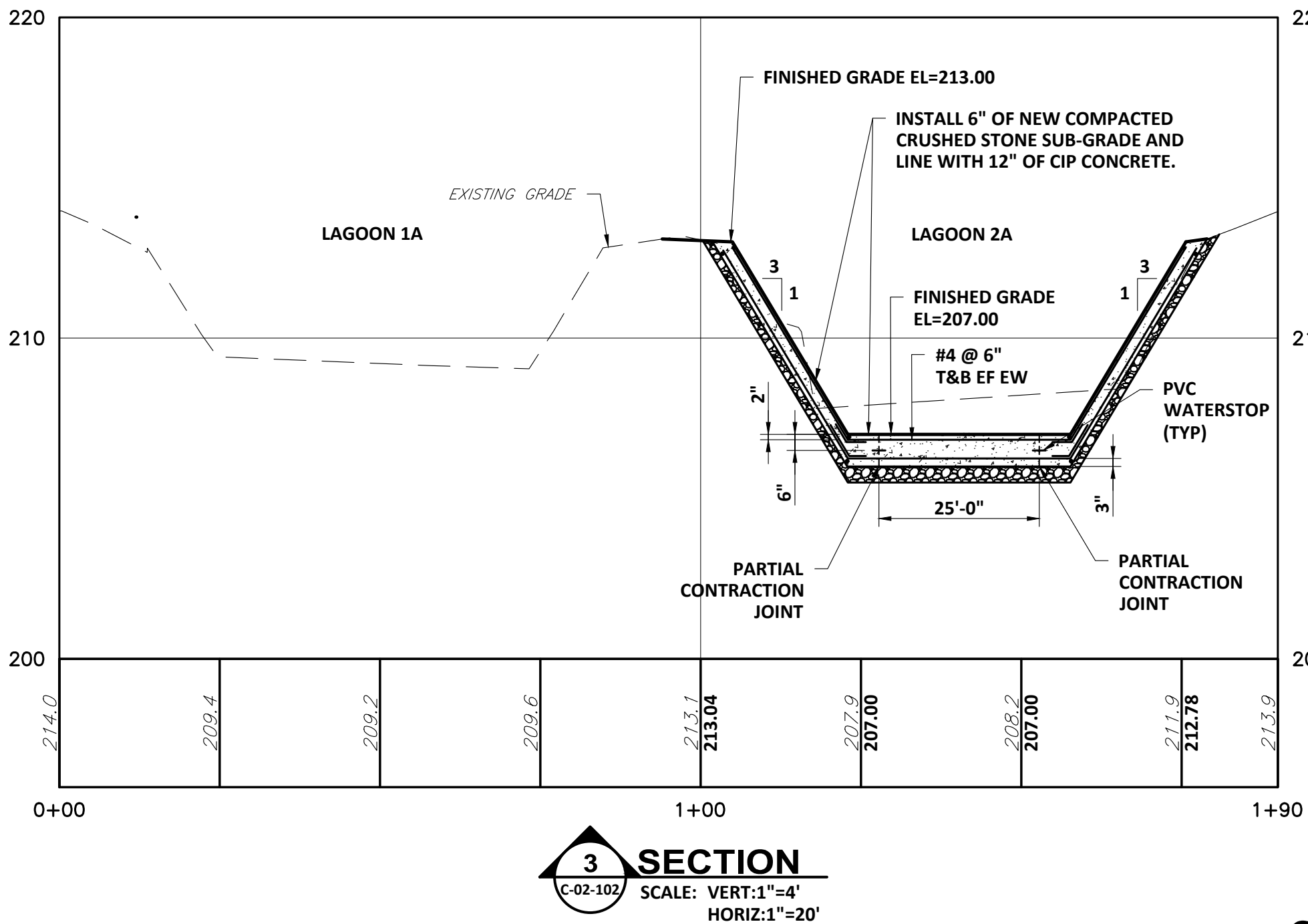
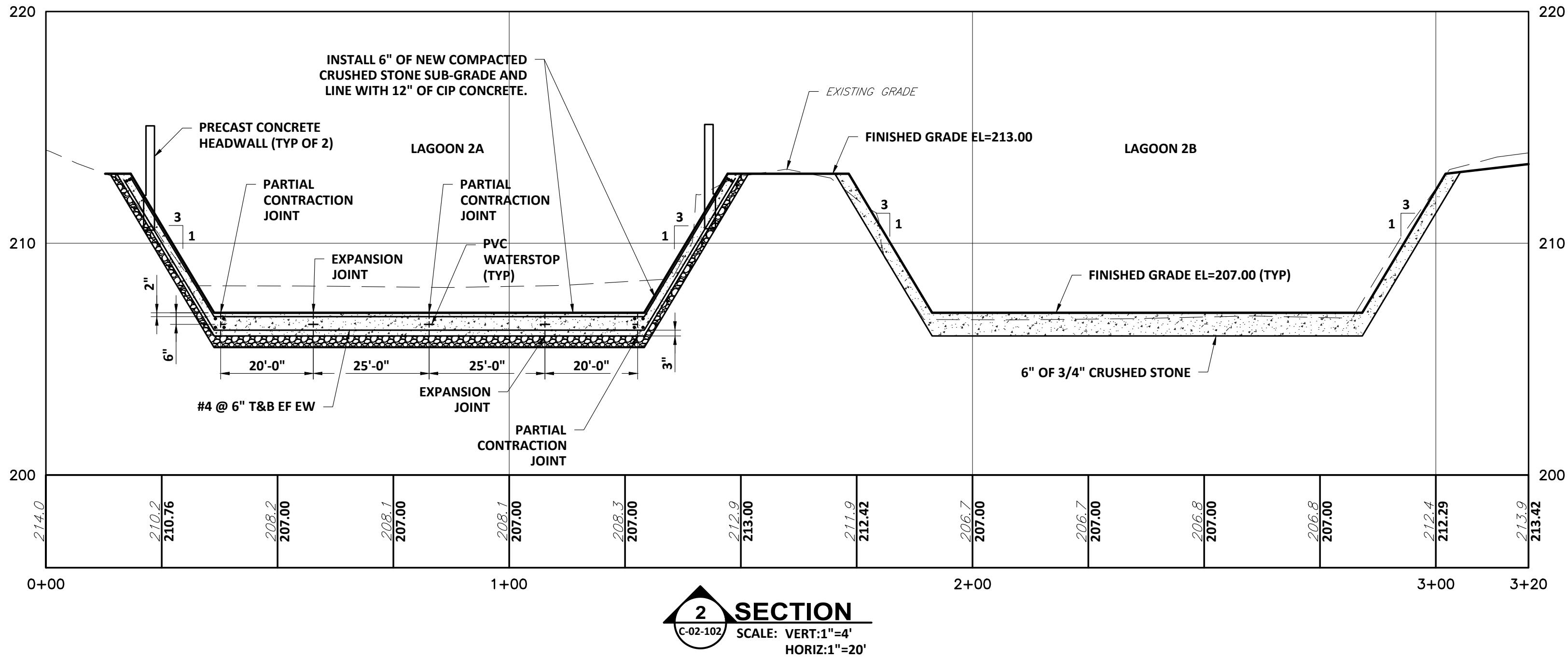
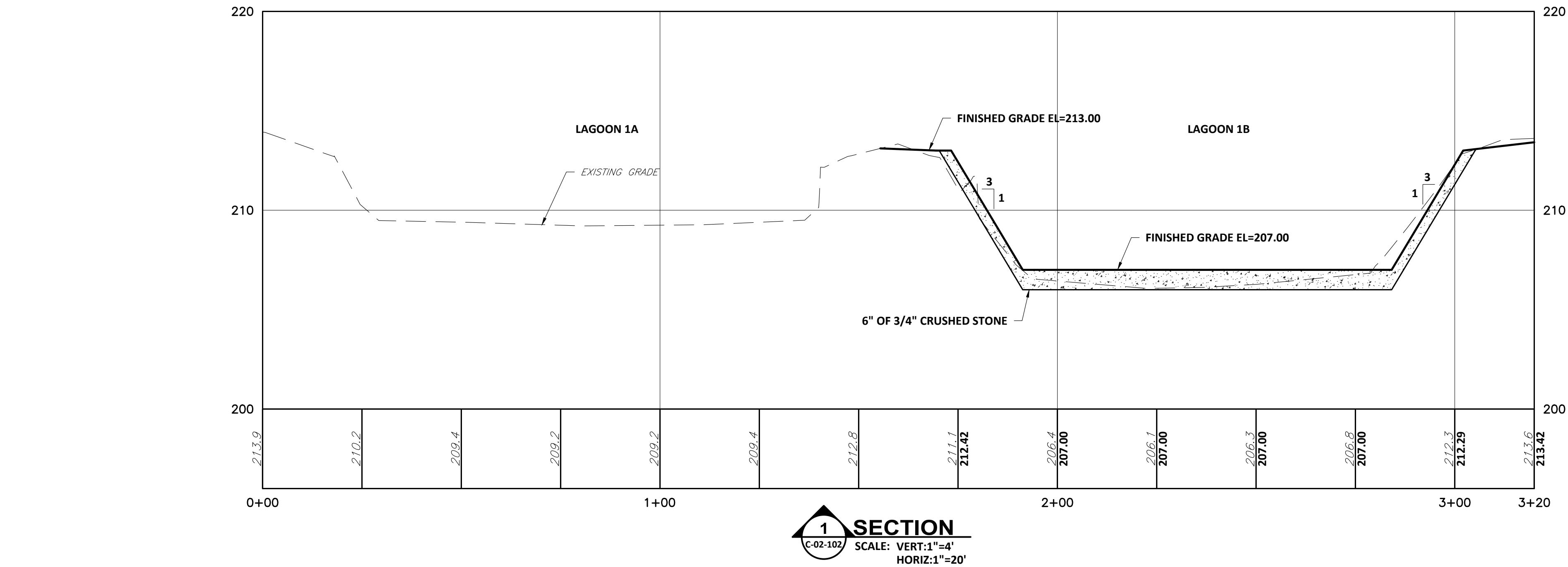
REVISIONS		APPD	DATE
NO	Δ		
NO	Δ		
NO	Δ		
NO	Δ		
NO	Δ		

PROJECT NO: 21796	DESIGNED: C.DAGLE	CAD COORD: C.MERRICK	CAD: D.METZ	CHECKED: D.METZ	DATE: FEBRUARY 2025	APPROVED: D.METZ	DATE: FEBRUARY 2025	SUBMISSION: 90% DESIGN REVIEW
-------------------	-------------------	----------------------	-------------	-----------------	---------------------	------------------	---------------------	-------------------------------

978.416.8000 | www.wright-pierce.com

600 FEDERAL STREET, SUITE 2151, ANDOVER, MA 01810

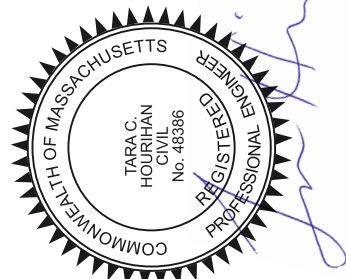
BELLINGHAM, MASSACHUSETTS HARTFORD AVENUE WATER TREATMENT PLANT PFAS UPGRADES	LAGOON SITE PIPING PLAN
	DRAWING C-02-103



CROSS SECTIONS
SCALE: 1"=20'

REVISIONS		NO	DATE
		1	
		2	
		3	
		4	
		5	
		6	
		7	
		8	
		9	
		10	

PROJECT NO:	21796
DESIGNED: <td>C.DAGLE</td>	C.DAGLE
CAD COORD: <td>C.MERRICK</td>	C.MERRICK
CAD: <td>D.METZ</td>	D.METZ
CHECKED: <td></td>	
DATE: <td>FEBRUARY 2025</td>	FEBRUARY 2025
APPROVED: <td></td>	
DATE: <td></td>	
SUBMISSION: <td>90% DESIGN REVIEW</td>	90% DESIGN REVIEW

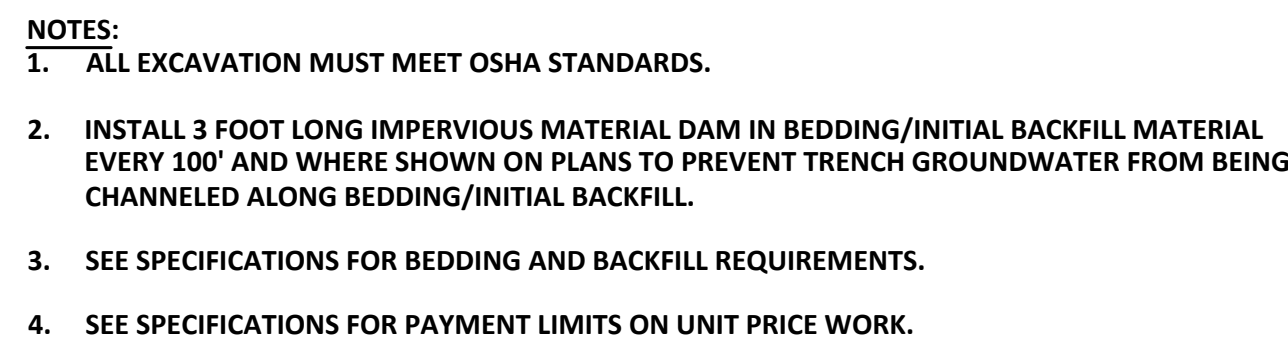


WRIGHT-PIERCE
978.416.8000 | www.wright-pierce.com
600 FEDERAL STREET, SUITE 2151, ANDOVER, MA 01810

DRAWING	
C-02-301	

BELLINGHAM, MASSACHUSETTS
HARTFORD AVENUE
WATER TREATMENT PLANT PFAS UPGRADES

LAGOON CROSS SECTIONS

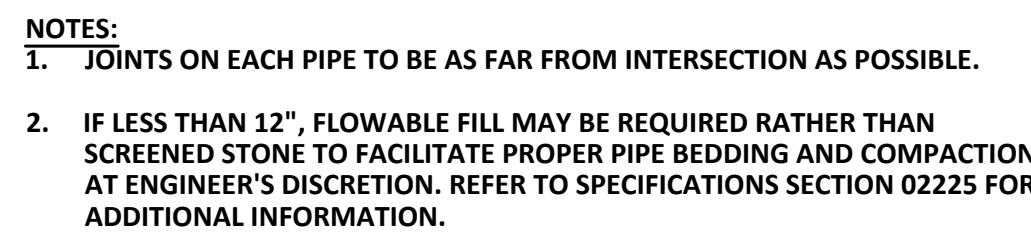


SCALE: "NTS"



1. ALL SERVICE CONNECTIONS AND APPURTENANT VALVES AND FITTINGS SHALL BE LEAD FREE.
2. FOR WATER MAINS UP TO AND INCLUDING 8-INCH DIAMETER USE SADDLE CONNECTION IF SERVICE LARGER THAN 1" DIAMETER, ALL PLASTIC MAINS SHALL BE TAPPED USING A SADDLE CONNECTION.
3. PROVIDE TRACER WIRE FOR PLASTIC MAINS AND SERVICE LINES.

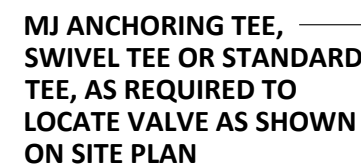
SCALE: NTS



SCALE: NTS



SCALE: NTS



SCALE: NTS



1. THIS SECTION IS SHOWN FOR TWO PIPES. IT IS TO BE USED FOR ANY NUMBER OF PIPES.
2. SEE SPECIFICATIONS FOR BEDDING AND BACKFILL MATERIALS AND COMPACTED BACKFILL REQUIREMENTS.
3. PIPE SPACING SHOWN IS TYPICAL UNLESS OTHERWISE NOTED.
4. SEE SPECIFICATIONS SECTION 01150 - MEASUREMENT AND PAYMENT FOR PAY WIDTH REQUIREMENTS.

SCALE: NTS



SCALE: NTS



SCALE: NTS




ENLARGEMENT



SCALE: NTS

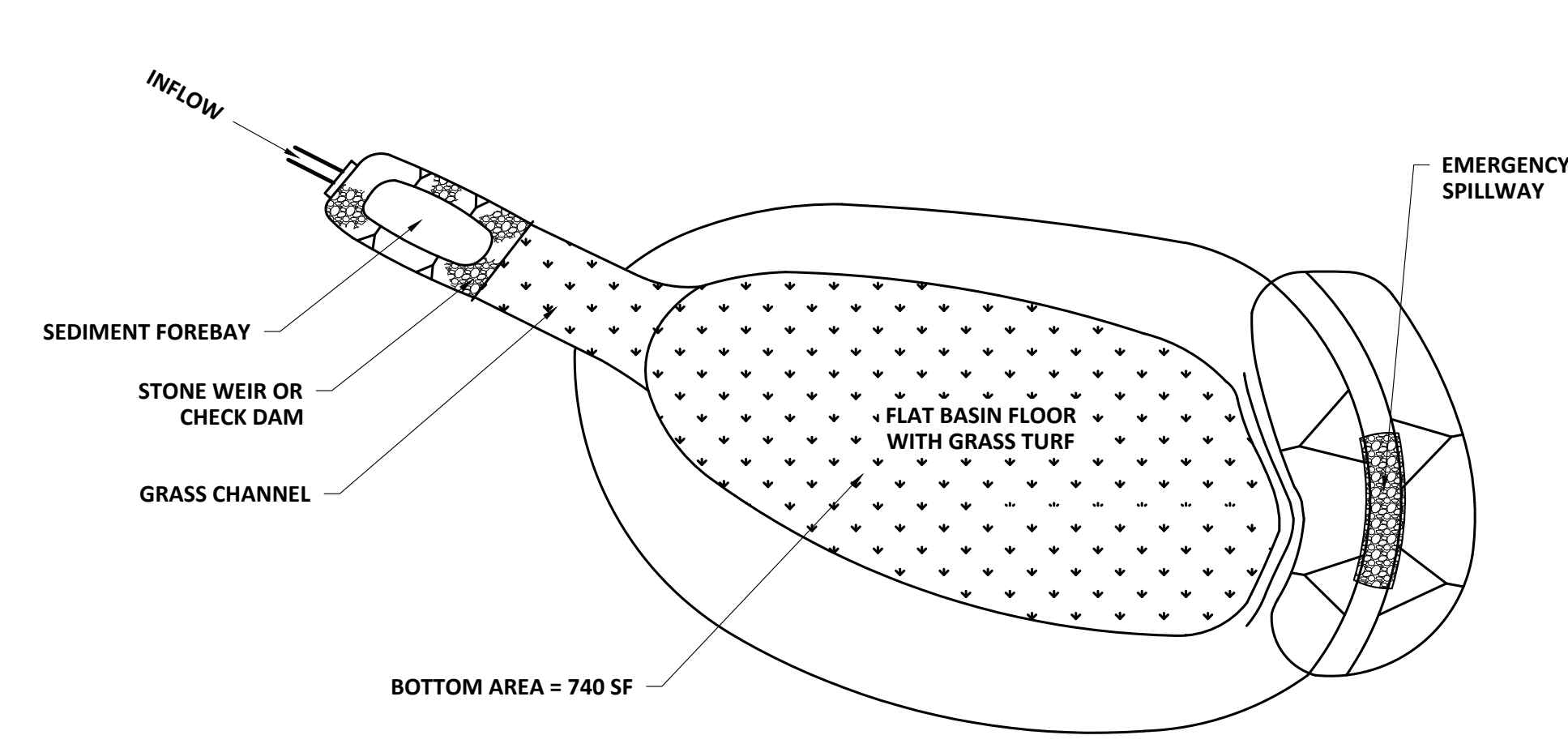


SCALE: NTS

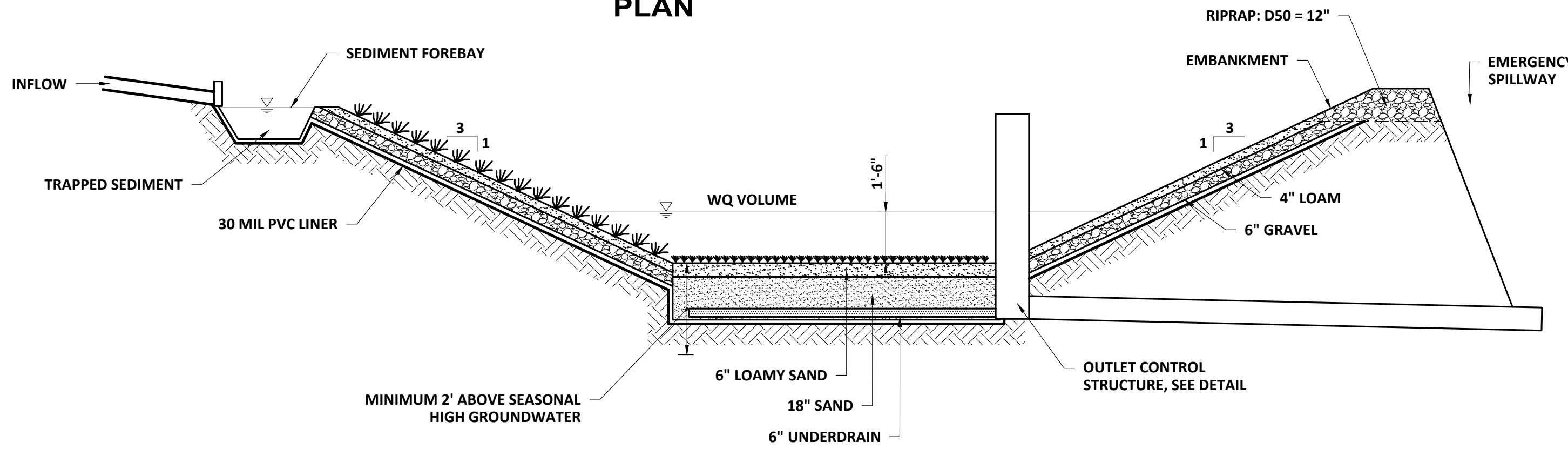
<div style="text-align: center; margin-bottom: 20px;"> BELLINGHAM, MASSACHUSETTS HARTFORD AVENUE WATER TREATMENT PLANT PEAS UPGRADES </div> <div style="float: right; width: 80%;"> DETAILS I </div>	 <p style="margin-top: 20px;">WRIGHT-PIERCE</p> <hr/> <p>978.416.8000 www.wright-pierce.com</p> <p>600 FEDERAL STREET, SUITE 215L ANDOVER, MA 01810</p>
<div style="display: flex; justify-content: space-between;"> <div style="width: 60%;"> PROJECT NO.: 21796 DESIGNED: CDAGLE CAD COORD: CMERRICK CADD: DMETZ CHECKED: DATE: FEBRUARY 2025 APPROVED: DATE: SUBMISSION: 90% DESIGN REVIEW </div> <div style="width: 35%; font-size: small;"> NO. APPD. DATE </div> </div>	

LAST SAVED BY: DANIEL METZ | 1/21/2025 7:29 AM

A:\ENGINEERING\BELLINGHAM\21796-HANFP\PFAS_UPGRADES_DRAWINGS\CIV\21796-CS-DETAILS\DWG | 21796-CS-DETAILS | 1:2.5849 | — | 1/24/2025 9:25:41 PM | DANIEL METZ



PLAN



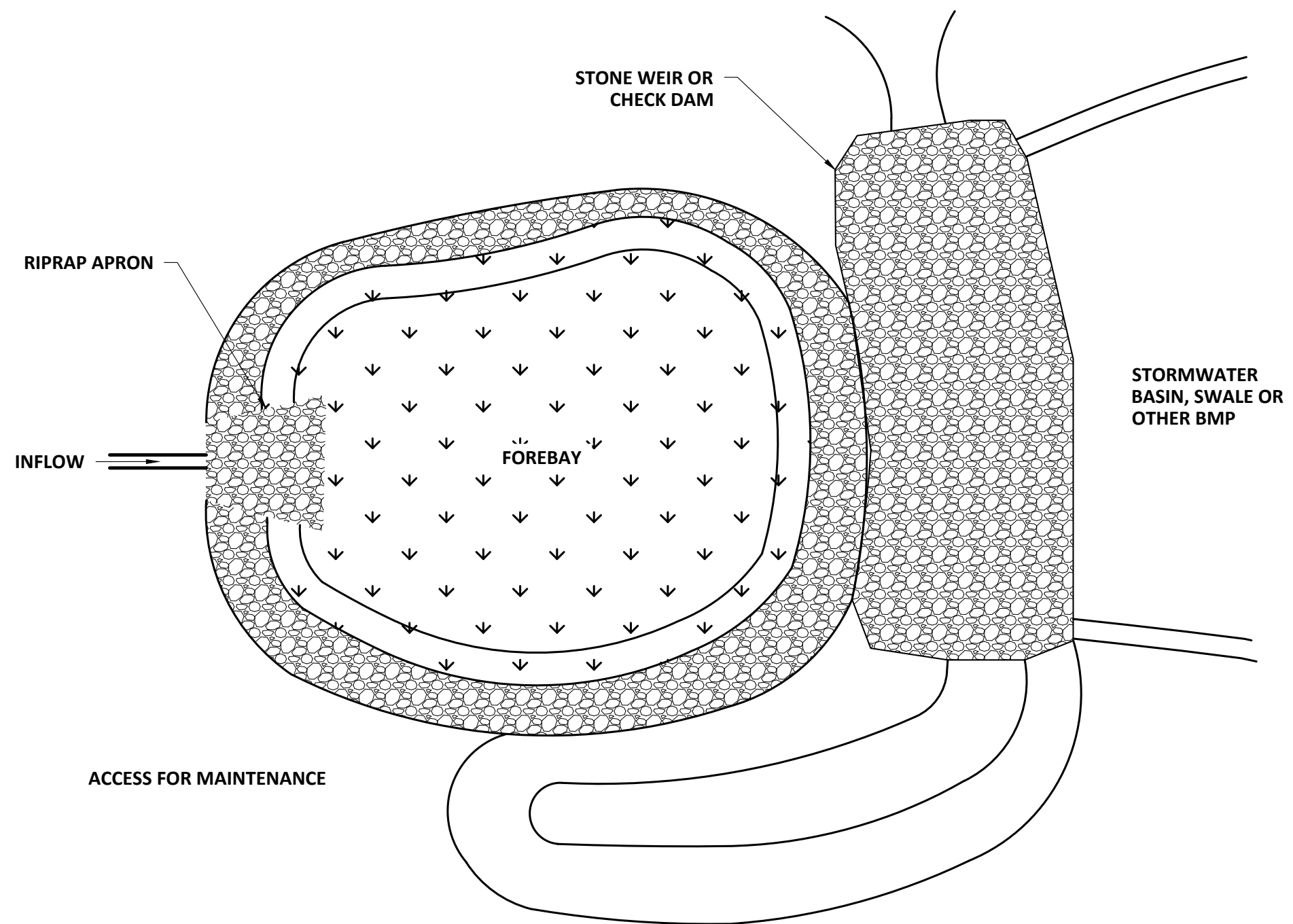
SECTION

SAND FILTER BED

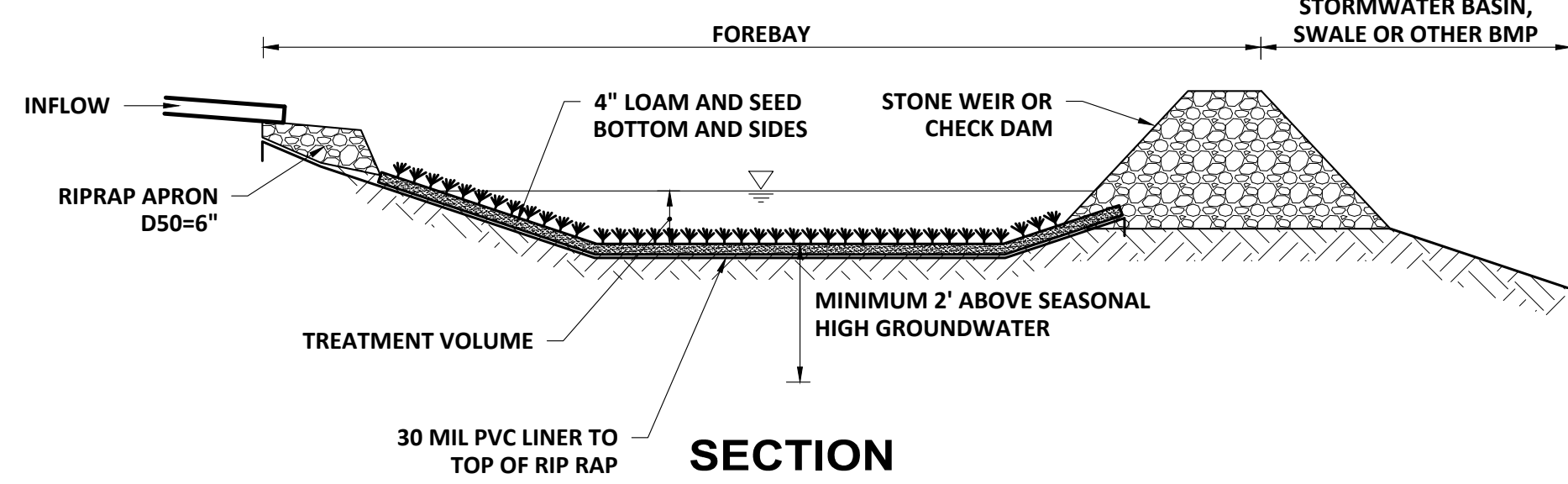
NTS

NOTES:

1. STABILIZE SIDE SLOPES AND BOTTOM WITH DENSE TURF OF WATER TOLERANT GRASS.
2. THE FILTER MUST BE PERMEABLE ENOUGH TO DRAIN WITHIN 72-HOURS, YET HAVE SUFFICIENT FINES TO INSURE FILTRATION OF FINE PARTICLES.
3. THE BASIN FLOOR SHALL BE CONSTRUCTED WITH 0% CROSS SLOPE. UNDERDRAIN SHALL BE BEDDED AND BACKFILLED WITH CRUSHED STONE WRAPPED IN FABRIC.
4. LOAMY SAND SHALL CONSIST OF 68-70% SAND, 0-1% CLAY, 0-9% SILT, 2-4% ORGANIC MATTER AND 20% WELL-AGED AND WELL-AERATED LEAF COMPOST.



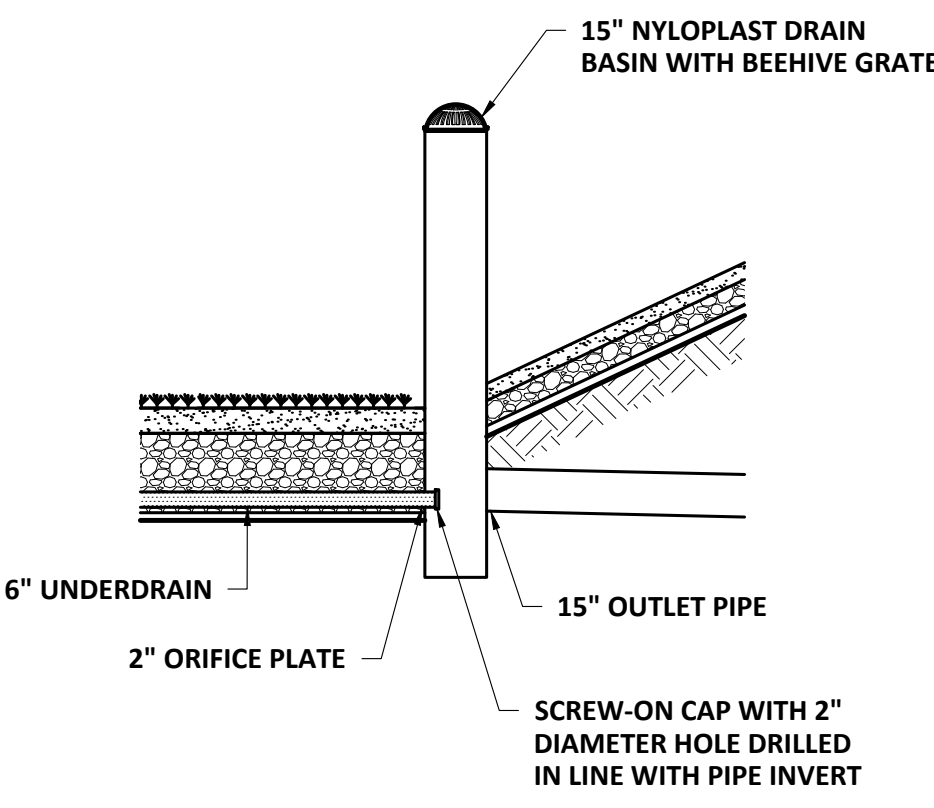
PLAN



SECTION

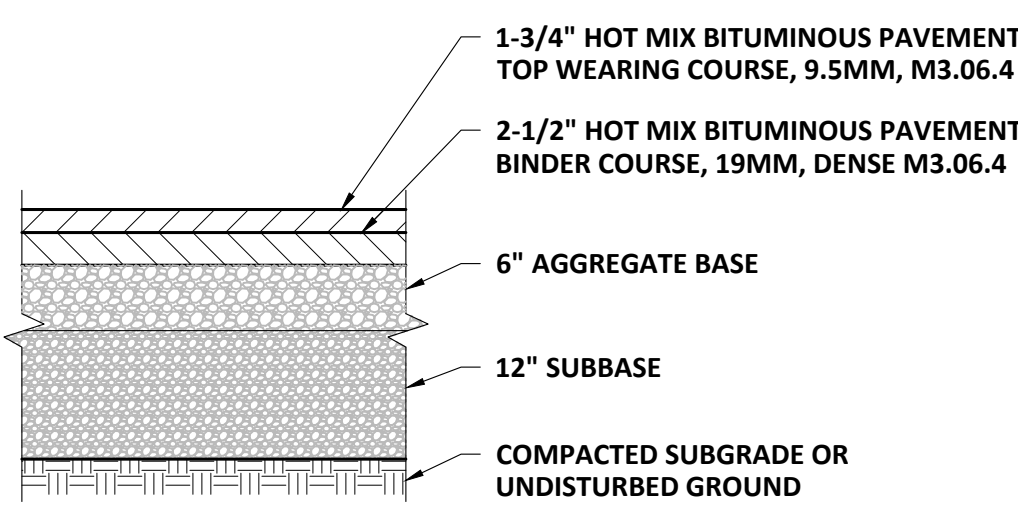
SEDIMENT FOREBAY

NTS



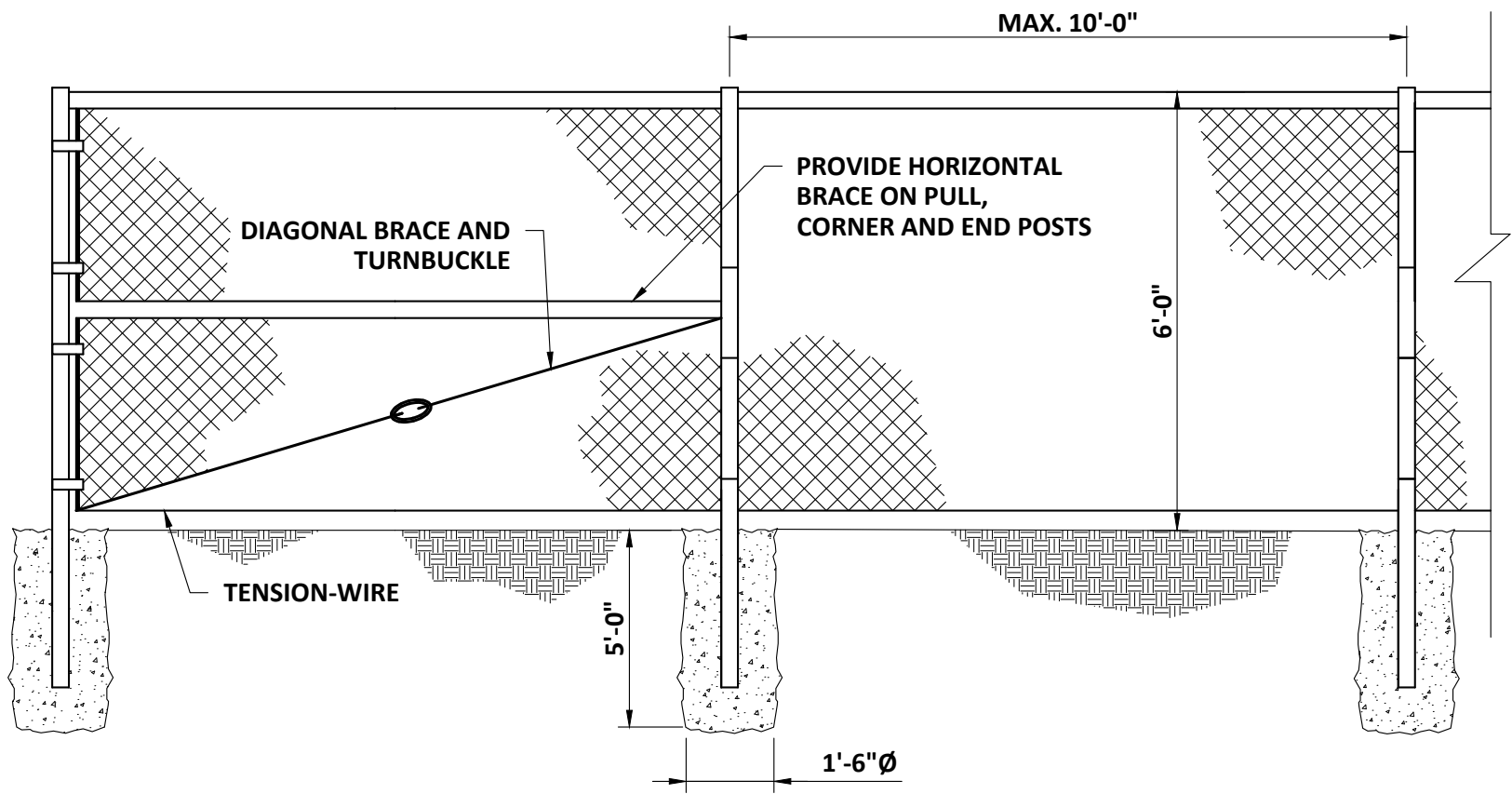
OUTLET CONTROL STRUCTURE

NTS



PAVEMENT

SCALE: "NTS"

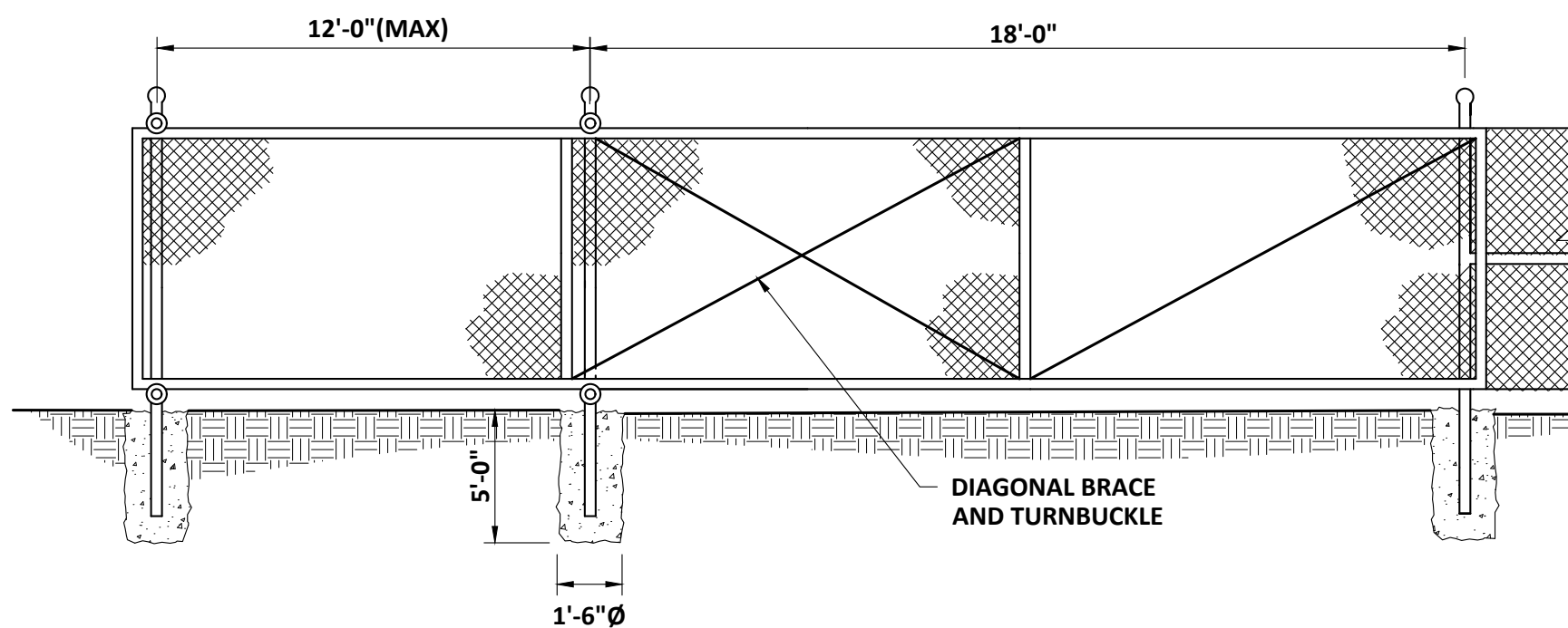


NOTES:

1. SECURE POSTS IN CONCRETE AS SHOWN AT PULL, CORNER AND END POSTS (INCLUDING GATE POSTS)
2. IF CHAINLINK FENCE IS INSTALLED IN UNFRACTURED LEDGE, POST SHALL PENETRATE 2'-0" INTO THE LEDGE AND SHALL BE GROUTED INTO 6" Ø HOLE.

CHAINLINK FENCE

SCALE: "NTS"

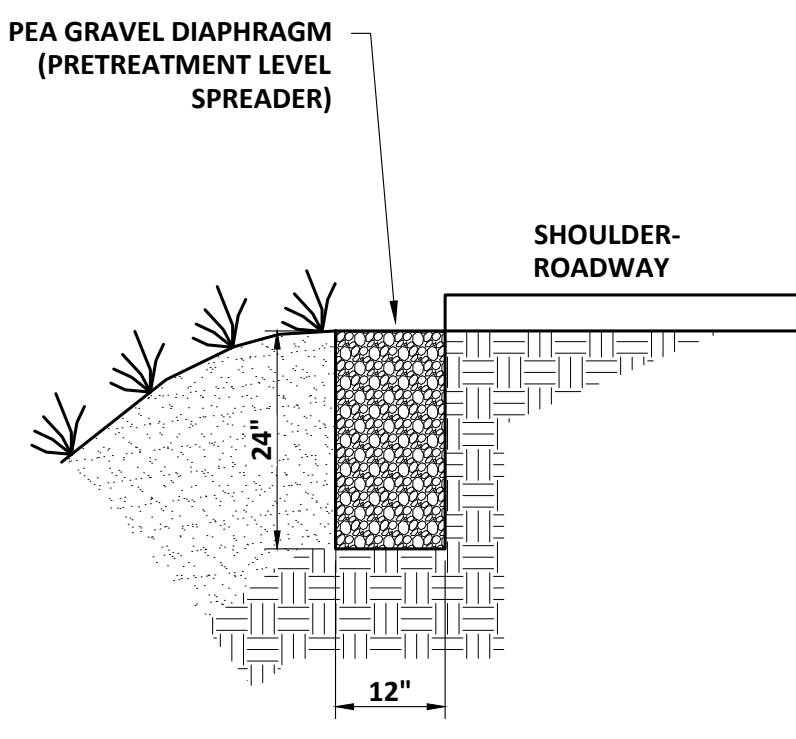


NOTE:

1. SECURE POSTS IN CONCRETE AS SHOWN AT PULL, CORNER AND END POSTS (INCLUDING GATE POSTS).
2. IF CHAINLINK FENCE IS INSTALLED IN UNFRACTURED LEDGE, POST SHALL PENETRATE 2'-0" INTO THE LEDGE AND SHALL BE GROUTED INTO 6" Ø HOLE.

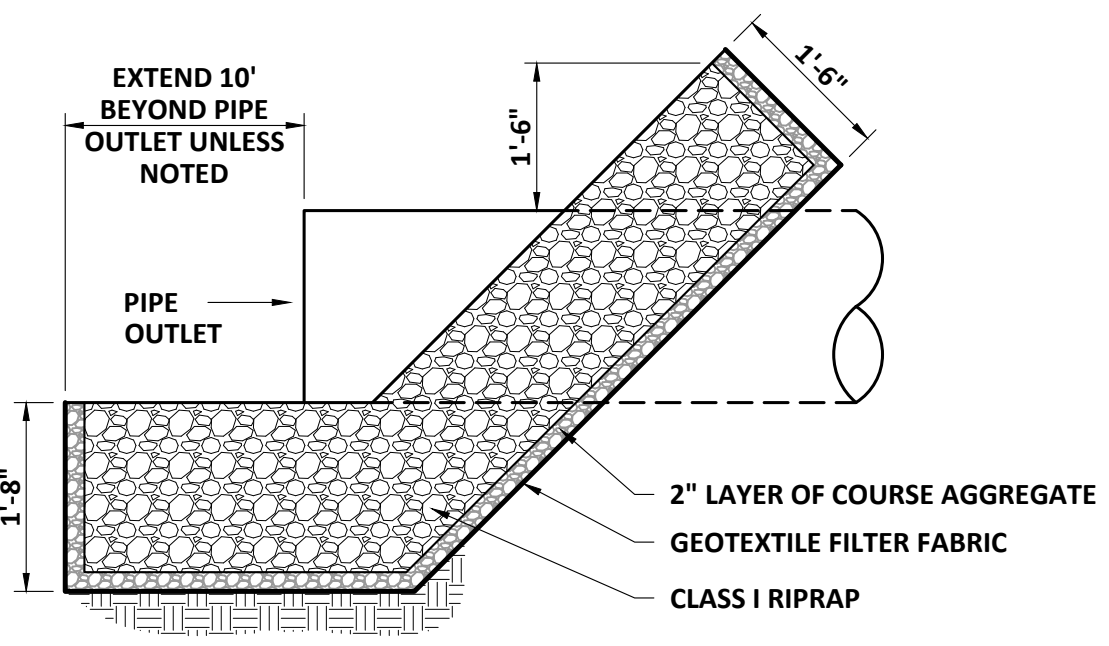
CHAIN LINK FENCE CANTILEVER GATE

SCALE: NTS



PEA GRAVEL DIAPHRAGM

SCALE: "NTS"



PIPE OUTLET RIPRAP

SCALE: NTS

NOTE:
RIPRAP WIDTH SHALL BE EQUAL TO THE
PIPE OUTSIDE Ø PLUS 4 FEET CENTERED
ON PIPE

NO	REVISIONS	APPD	DATE
1			
2			
3			
4			
5			

PROJECT NO: 21796	DESIGNED: C.DANGLE	CAD COORD: C.MERRICK	CAD: D.METZ	CHECKED: D.METZ	DATE: FEBRUARY 2025	APPROVED: D.METZ	DATE: FEBRUARY 2025	SUBMISSION: 90% DESIGN REVIEW
-------------------	--------------------	----------------------	-------------	-----------------	---------------------	------------------	---------------------	-------------------------------

WRIGHT-PIERCE

978.416.8000 | www.wright-pierce.com

600 FEDERAL STREET, SUITE 2151, ANDOVER, MA 01810

BELLINGHAM, MASSACHUSETTS HARTFORD AVENUE WATER TREATMENT PLANT PFAS UPGRADES	DETAILS II
---	------------

DRAWING	C-99-502
---------	----------

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 STANDARDS AND SPECIFICATIONS FOR EROSION PREVENTION IN URBAN AND SUBURBAN AREAS AS CONTAINED IN THE "MASSACHUSETTS EROSION AND SEDIMENT CONTROL GUIDELINES FOR URBAN AND SUBURBAN AREAS", FRANKLIN, HAMPDEN, HAMPSHIRE CONSERVATION DISTRICTS, DATED MARCH, 1997.

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

1.

ALL SEDIMENT AND EROSION CONTROL MEASURES SHALL BE DONE IN ACCORDANCE WITH THE "MASSACHUSETTS EROSION AND SEDIMENT CONTROL GUIDELINES FOR URBAN AND SUBURBAN AREAS", FRANKLIN, HAMPDEN, HAMPSHIRE CONSERVATION DISTRICTS, DATED MARCH, 1997.
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 DECOMPOSURE. SEDIMENT DEPOSITS MUST BE REMOVED WHEN DEPOSITS 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 PERMANENT EROSION CONTROL MEASURES.
7.

IF FINAL SEEDING OF THE DISTURBED AREAS IS NOT TO BE COMPLETED 30 DAYS PRIOR TO THE ANTICIPATED DATE OF THE FIRST KILLING FROST, USE TEMPORARY MULCHING (DORMANT SEEDING MAY BE ATTEMPTED AS WELL) TO PROTECT THE SITE AND DELAY PERMANENT SEEDING, UNTIL UPGRADIENT AREAS ARE STABILIZED.
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 AS FOLLOWS:

A.

A MINIMUM OF FOUR (4) INCHES OF LOAM WILL BE SPREAD OVER DISTURBED AREAS AND SMOOTHED TO A UNIFORM SURFACE.

B.

APPLY LIMESTONE AND FERTILIZER ACCORDING TO SOIL TEST. IF SOIL TESTING IS NOT DEEMED FEASIBLE ON SMALL OR VARIABLE SITES, OR WHERE TIMING IS CRITICAL, FERTILIZER MAY BE APPLIED AT THE RATE OF 800 POUNDS PER ACRE OR 18.4 POUNDS PER 1,000 SQUARE FEET USING 10-20-20 (N-P205-K20) OR EQUIVALENT. APPLY GROUND LIMESTONE (EQUIVALENT TO 50% CALCIUM PLUS MAGNESIUM OXIDE) AT A RATE OF 3 TONS PER ACRE (138 LB PER 1,000 SQ. FT.).

C.

FOLLOWING SEED BED PREPARATION, DITCHES AND BACK SLOPES WILL BE SEEDED WITH A MIXTURE OF 47% CREEPING RED FESCUE, 5% REDTOP, AND 48% TALL FESCUE. THE LAWN AREAS WILL BE SEEDED WITH A PREMIUM TURF MIXTURE OF 44% KENTUCKY BLUEGRASS, 44% CREEPING RED FESCUE, AND 12% PERENNIAL RYE GRASS. SEEDING RATE IS 3.0 LB PER 1000 SQ. FT. LAWN QUALITY SOD MAY BE SUBSTITUTED FOR SEED.

D.

HAY MULCH AT THE RATE OF 70-90 LB PER 1000 SQUARE FEET OR A HYDRO-APPLICATION OF CELLULOSE FIBER SHALL BE APPLIED FOLLOWING SEEDING. A SUITABLE BINDER WILL BE USED ON HAY MULCH FOR WIND CONTROL.
11.

ALL TEMPORARY EROSION CONTROL MEASURES SHALL BE REMOVED ONCE THE WORK AREA IS STABILIZED.
12.

WETLANDS (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.
13.

IN GENERAL, AREAS WITHIN 100 FEET OF DELINEATED WETLANDS OR STREAMS SHALL HAVE A MAXIMUM PERIOD OF EXPOSURE OF NOT MORE THAN 15 DAYS.
14.

FOLLOW APPROPRIATE EROSION CONTROL MEASURES PRIOR TO EACH STORM IN ALL AREAS WITHIN 100 FEET OF DELINEATED WETLANDS OR STREAMS.

EROSION CONTROL DURING WINTER CONSTRUCTION

1.

WINTER CONSTRUCTION PERIOD DEFINED: NOVEMBER 1 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 TO THAT WHICH CAN BE MULCHED IN ONE DAY PRIOR TO ANY PRECIPITATION EVENT.
4.

AN AREA SHALL BE CONSIDERED TO HAVE BEEN STABILIZED WHEN EXPOSED SURFACES HAVE BEEN EITHER MULCHED WITH STRAW OR HAY AT A RATE OF 100 POUNDS 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.
5.

BETWEEN THE DATES OF OCTOBER 15 AND APRIL 1, 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 1 AND IF THE EXPOSED AREA HAS BEEN LOAMED, FINAL GRADED, AND IS SMOOTH, THEN THE AREA MAY BE DORMANT SEEDED AT A RATE 200%-300% HIGHER THAN SPECIFIED FOR PERMANENT SEED AND THEN MULCHED. 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 PERMIT, ALL 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.
6.

A)

BETWEEN THE DATES OF NOVEMBER 1 AND APRIL 15, ALL MULCH SHALL BE EITHER WOOD CELLULOSE FIBER OR BE ANCHORED WITH MULCH NETTING OR CHEMICAL TACK.

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 1, THE SAME APPLIES FOR ALL SLOPES GREATER THAN 8%.
7.

AFTER NOVEMBER 1, THE CONTRACTOR SHALL APPLY DORMANT SEEDING OR MULCH AND ANCHORING ON ALL BARE EARTH AT THE END OF EACH WORKING DAY.
8.

DURING WINTER CONSTRUCTION PERIODS, ALL SNOW SHALL BE REMOVED FROM AREAS OF SEEDING AND MULCHING PRIOR TO PLACEMENT.

MULCH ANCHORING

ANCHOR MULCH WITH: MULCH NETTING (AS PER MANUFACTURER); ASPHALT EMULSION (0.05 GALLONS PER SQ. YD.); CHEMICAL TACK (AS PER MANUFACTURER'S SPECIFICATIONS); OR BE WOOD CELLULOSE FIBER (2000 LB/ACRE). WETTING FOR SMALL AREAS AND ROAD DITCHES MAY BE PERMITTED.

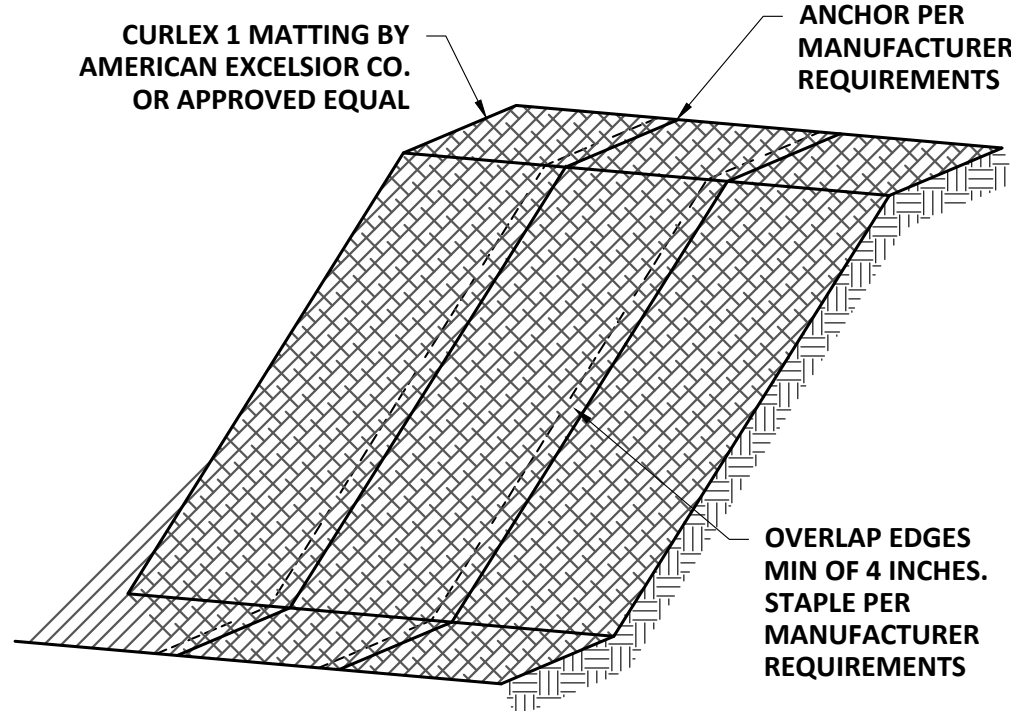
ADDITIONAL TEMPORARY SEED MIXTURE (OR PERIODS LESS THAN 12 MONTHS)		
DATES	SEED	RATE
4/1 - 7/1 8/15 - 9/15	OATS	80 LB/ACRE
4/1 - 6/1 8/15 - 9/15	ANNUAL RYE GRASS	40 LB/ACRE
8/15 - 10/15	WINTER RYE	120 LB/ACRE
11/1 - 4/1	MULCH W/ DORMANT SEED	80 LB/ACRE*
5/1 - 6/30	FOXTAIL MILLET	30 LB/ACRE

*SEED RATE ONLY

MULCH AND MULCH ANCHORING

MULCH		
LOCATION	MULCH	RATE (1000 S.F.)
PROTECTED AREA	STRAW OR HAY *	100 POUNDS
WINDY AREAS	STRAW OR HAY (ANCHORED) *	100 POUNDS
MODERATE TO HIGH VELOCITY AREAS OR STEEP SLOPES (GREATER THAN 3:1)	JUTE MESH,	AS REQUIRED
	EXCELSIOR MAT OR EQUIV.	AS REQUIRED

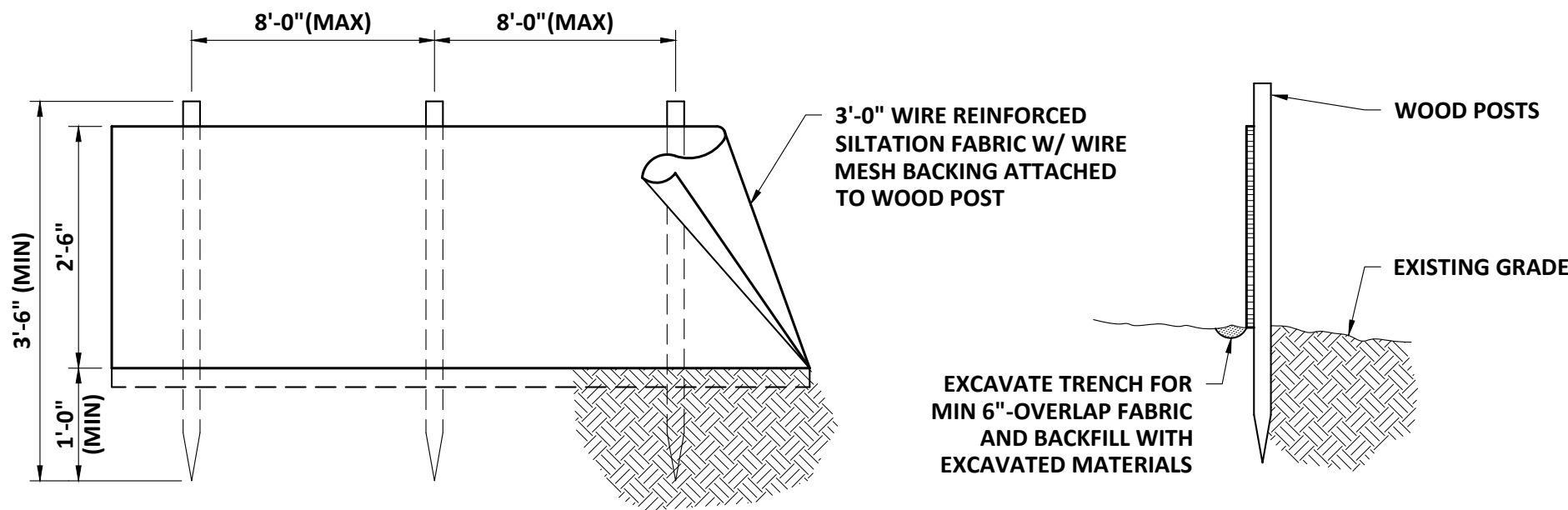
* A HYDRO-APPLICATION OF CELLULOSE FIBER MAY BE APPLIED FOLLOWING SEEDING. A SUITABLE BINDER SHALL BE USED ON HAY MULCH FOR WIND CONTROL.



NOTE:
INSTALL ON SLOPES 3:1 OR GREATER

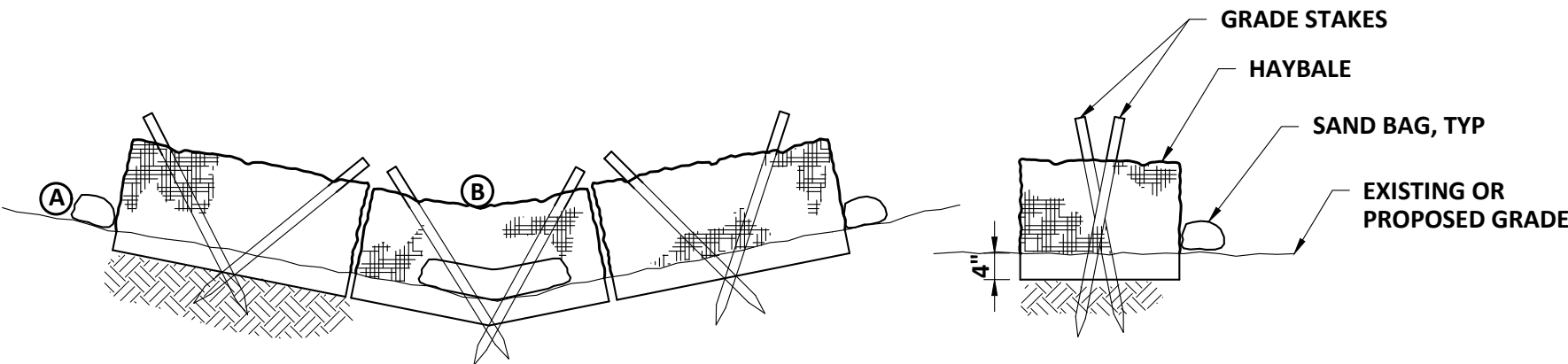
EROSION CONTROL MATTING - SLOPES

SCALE: "NTS"



SILT FENCE INSTALLATION DETAIL

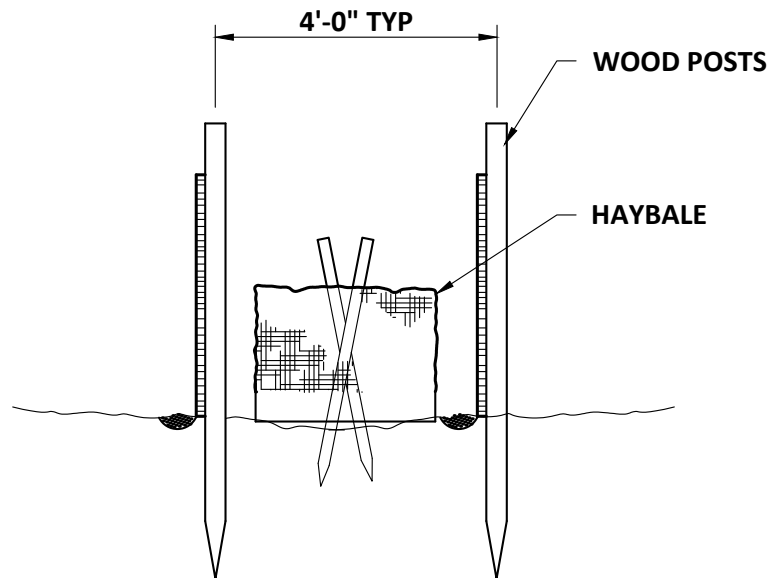
SCALE: "NTS"



EROSION CHECK TO BE BALES OF HAY SECURED TO THE GROUND WITH TWO 4' LONG GRADE STAKES FOR EACH BALE. SAND BAG AS REQUIRED, PLACE SUFFICIENT BALES TO ESTABLISH ELEVATIONS AT (A) AT LEAST 6 INCHES ABOVE OVERFLOW AT (B)

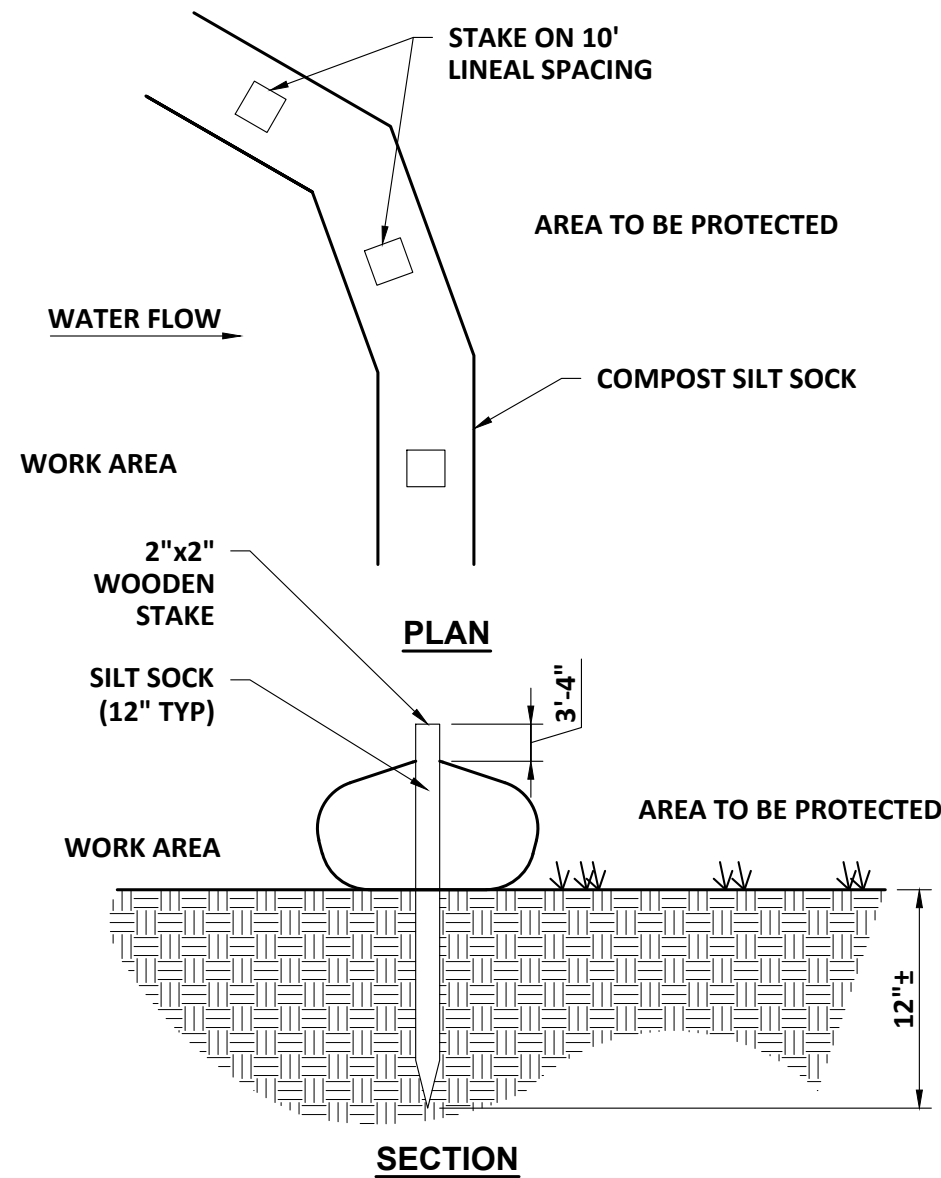
HAY BALE CHECK DAM

SCALE: "NTS"



COMBINATION SILT FENCE AND HAY BALE BARRIER

SCALE: "NTS"



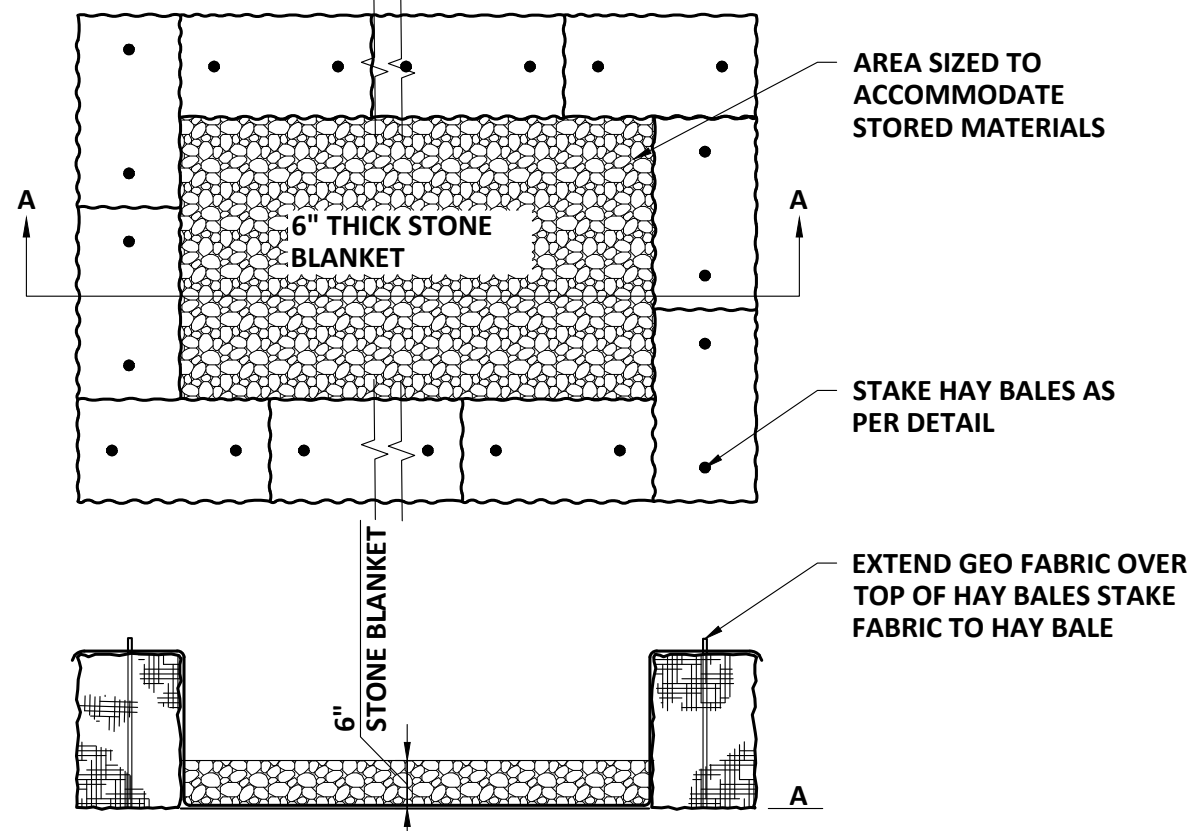
PLAN

SECTION

- 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.

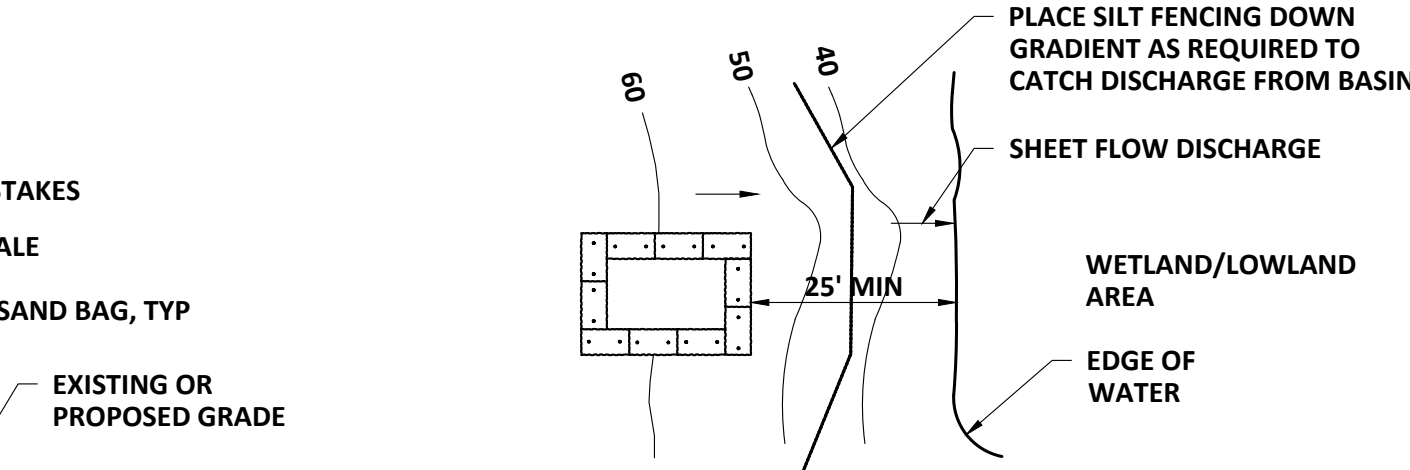
COMPOST SILT SOCK

SCALE: NTS



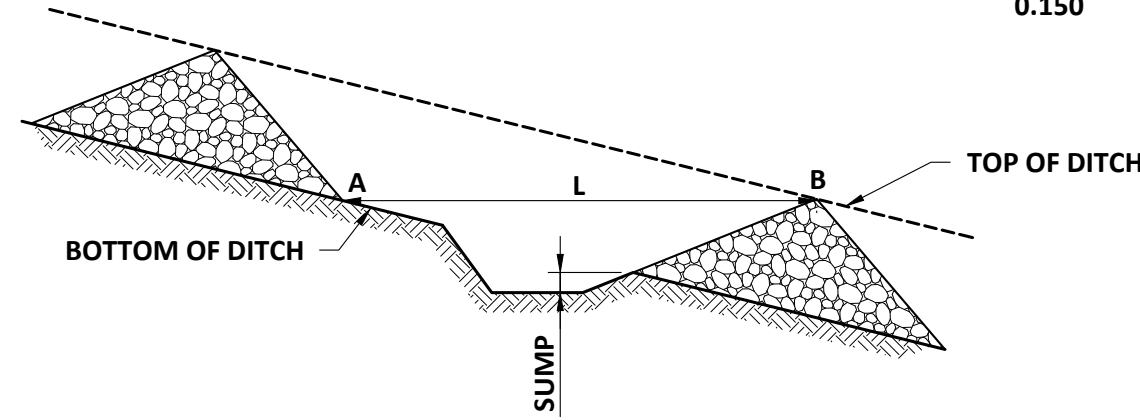
TEMPORARY HAY BALE SEDIMENT BASIN

SCALE: "NTS"



DITCH SLOPE (FT/FT)	L (FT)
0.020	100
0.030	66
0.040	50
0.050	40
0.080	25
0.100	20
0.120	17
0.150	13

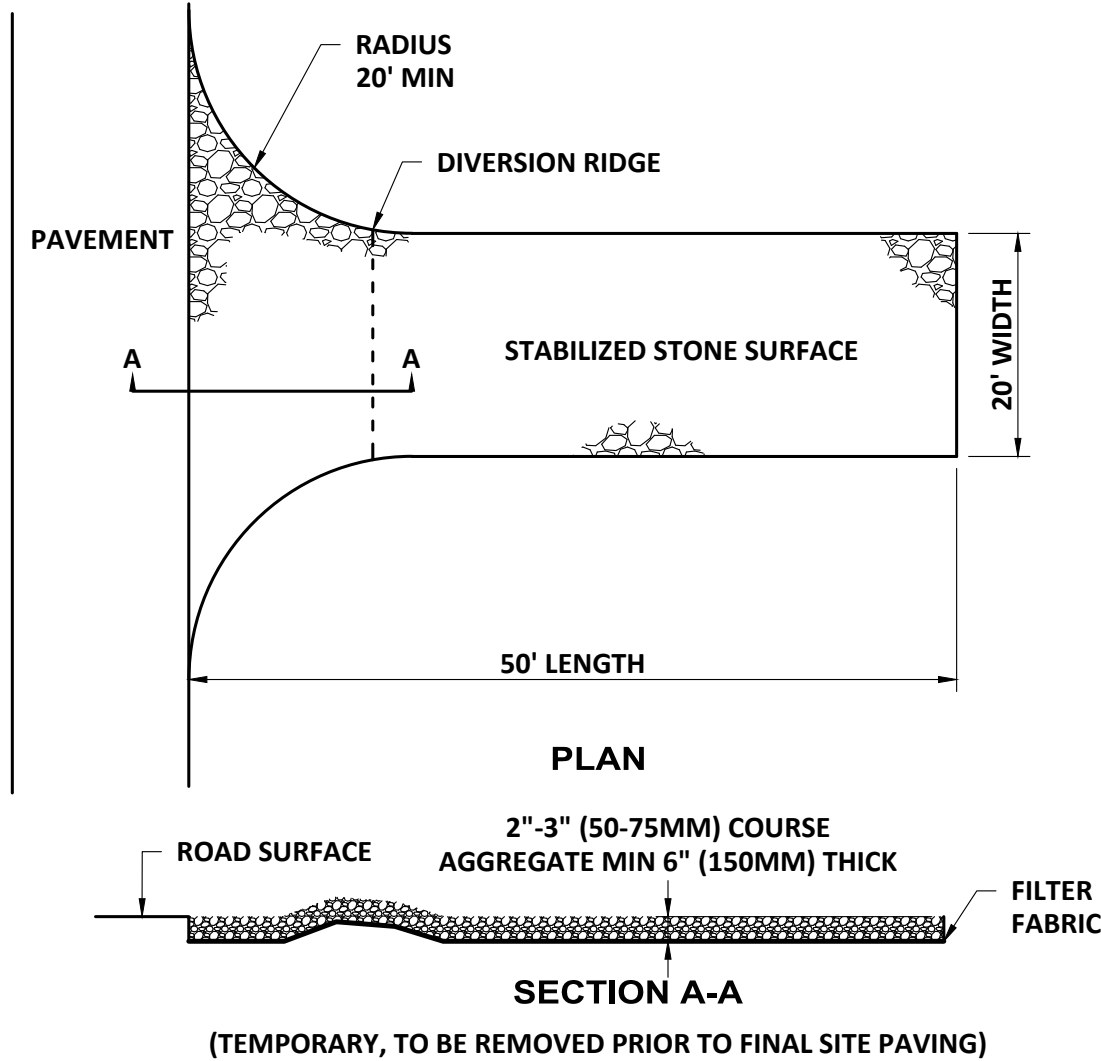
CROSS SECTION



PROFILE

STONE CHECK DAM DETAIL

SCALE: "NTS"



SECTION A-A

(TEMPORARY, TO BE REMOVED PRIOR TO FINAL SITE PAVING)

- NOTE:
- STABILIZED CONSTRUCTION ENTRANCE SHALL BE MAINTAINED DURING CONSTRUCTION AS REQUIRED TO PREVENT OFF-SITE TRACKING OF SEDIMENT. ANY SEDIMENT TRACKED OFF-SITE SHALL BE REMOVED AND DISPOSED OF IN A MANNER THAT SEDIMENTS DO NOT ENTER DOWN SLOPE WATER RESOURCES.

STABILIZED CONSTRUCTION ENTRANCE

SCALE: "NTS"

APPROVALS

DATE	APPROVED

REVISIONS

NO	REVISIONS
1	
2	
3	
4	
5	

PROJECT INFORMATION

PROJECT NO: 21796	DESIGNED: C.DARGLE
CAD COORD: C.MERRICK	CAD: D.METZ
CHECKED: DATE: FEBRUARY 2025	APPROVED: DATE:
SUBMISSION: 90% DESIGN REVIEW	

SEAL

COMMONWEALTH OF MASSACHUSETTS
STATE ENGINEER
TARA C. WRIGHT
REGISTERED PROFESSIONAL ENGINEER
NO. 10000
EXPIRATION DATE: 12/31/2025

WRIGHT-PIERCE

978.416.8000 | www.wright-pierce.com

600 FEDERAL STREET, SUITE 2151, ANDOVER, MA 01810

BELLINGHAM, MASSACHUSETTS
HARTFORD AVENUE
WATER TREATMENT PLANT PFAS UPGRADES

EROSION CONTROL NOTES AND DETAILS

DRAWING

C-99-503