

CONTRACT DRAWINGS

for the

- GODFREY BROOK CAPACITY IMPROVEMENTS PROJECT -

WEST STREET TO WATER STREET

TOWN of MILFORD, MASSACHUSETTS

MILFORD HIGHWAY DEPARTMENT

and the

OFFICE of PLANNING and ENGINEERING

SCOTT J. CRISAFULLI
HIGHWAY SURVEYOR



ELIZABETH MAININI, P.E.
TOWN ENGINEER

JANUARY, 2025

PROJECT FUNDING ASSISTANCE PROVIDED BY:

PRE-DISASTER MITIGATION GRANT PROGRAM (PDM)

"A Federal, State, and Local Partnership through the Federal Emergency Management Agency (FEMA)"

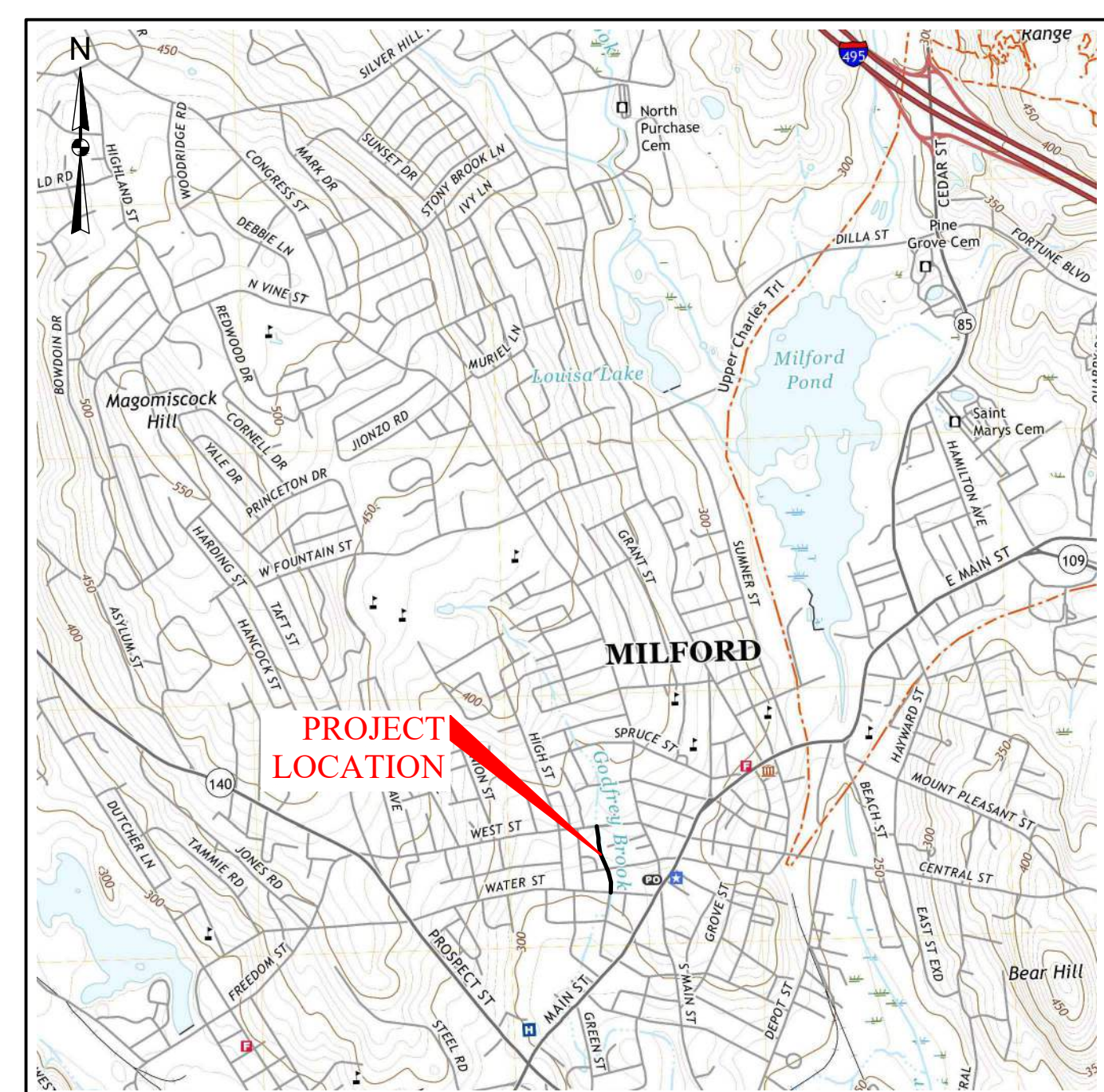
PDM GRANT NUMBER PDMC-PJ-01-MA-2019-004

Commonwealth of Massachusetts
MAURA HEALEY, GOVERNOR

Massachusetts Emergency Management Agency
DAWN BRANTLEY, DIRECTOR

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LOCUS PLAN
U.S.G.S. MILFORD QUAD 2021
1"=2,000'

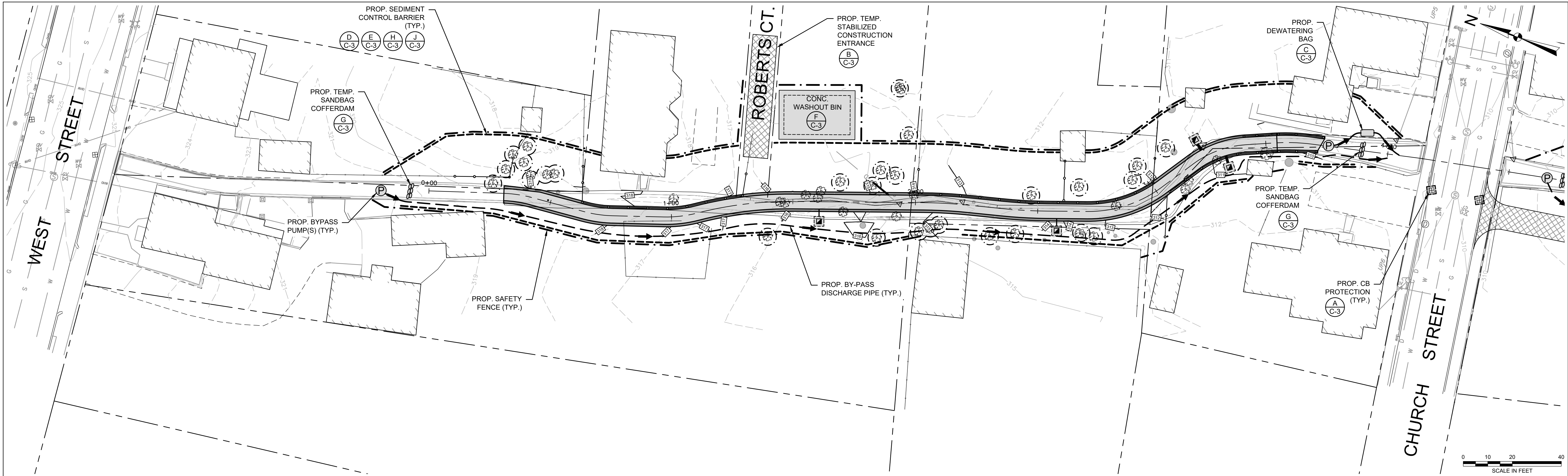
PREPARED BY:
GZA GeoEnvironmental, Inc.
Engineers and Scientists
ONE FINANCIAL PLAZA
1350 Main Street, Suite 1400
Springfield, MA 01103
413-726-2100



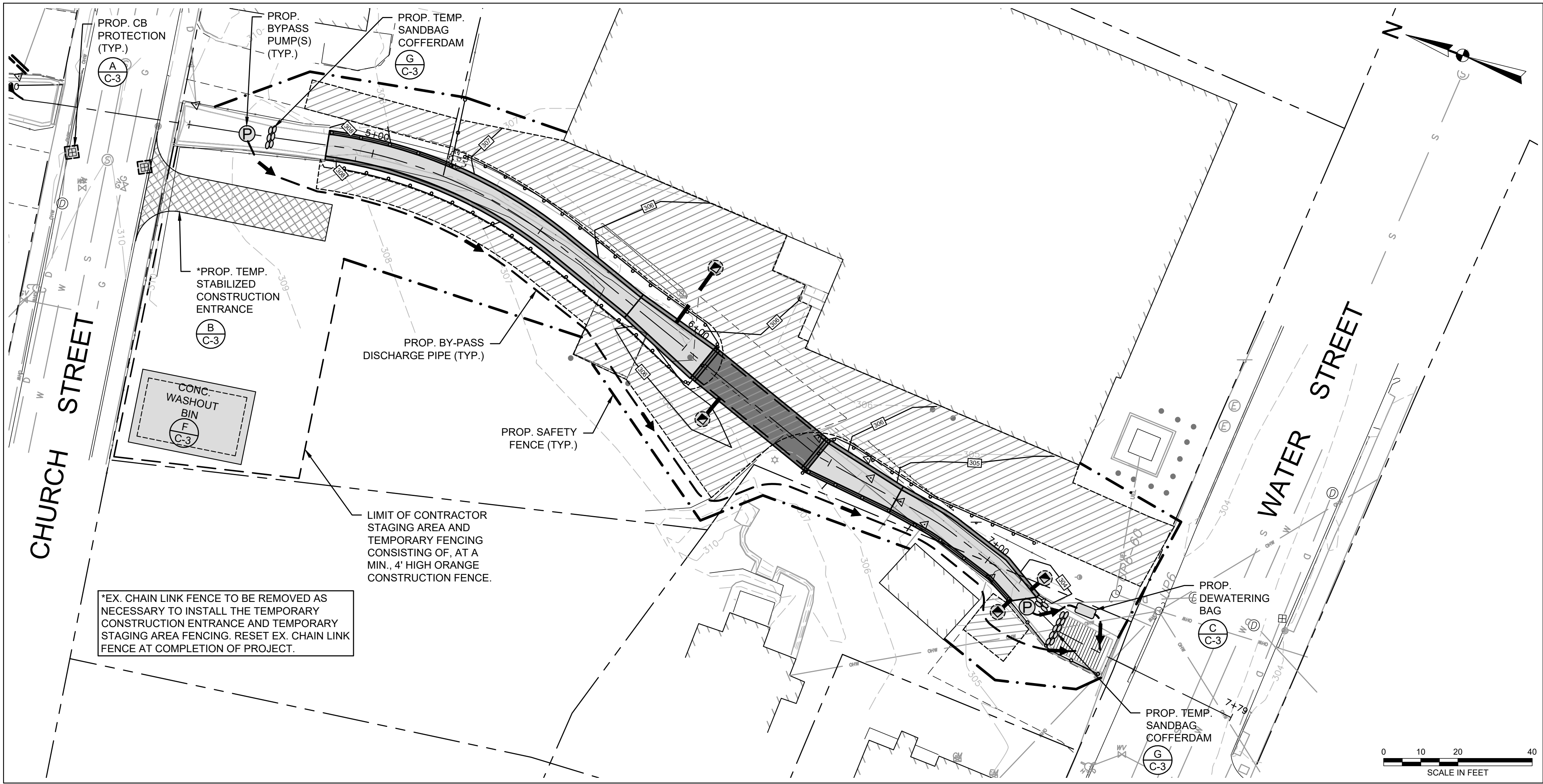


NOTE: REFERENCES TO LEFT AND RIGHT ALONG CHANNEL ARE FACING DOWNSTREAM (SOUTH).

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PROPOSED SITE PLAN
(WEST STREET TO CHURCH STREET)



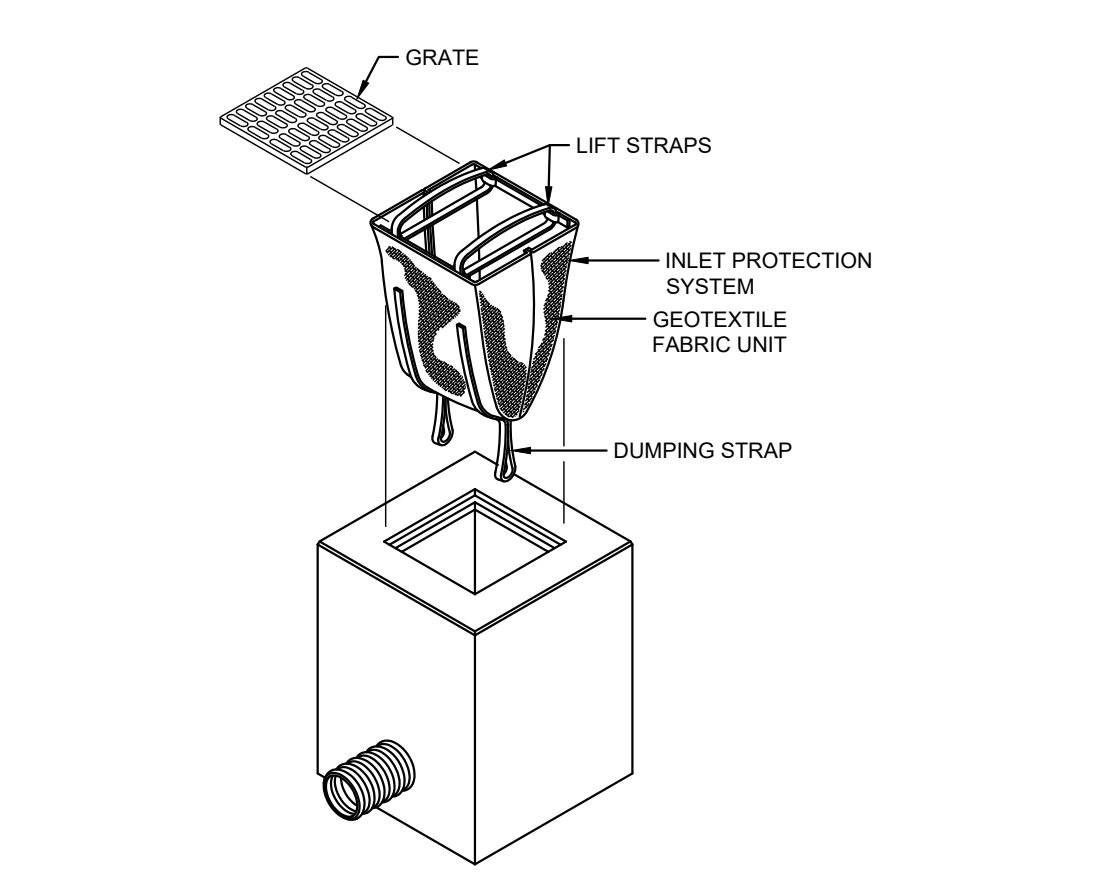
PROPOSED SITE PLAN
(CHURCH STREET TO WATER STREET)

SITE PLAN LEGEND	
	EXISTING WETLAND FLAG
	EXISTING EDGE OF PAVEMENT
	EXISTING CURB
	EXISTING PROPERTY LINE
	EXISTING 5 FT. CONTOUR
	EXISTING 1 FT. CONTOUR
	EXISTING FENCE
	EXISTING GUARDRAIL
	EXISTING STORM DRAIN LINE
	EXISTING SANITARY SEWER LINE
	EXISTING GAS LINE
	EXISTING WATER LINE
	EXISTING OVERHEAD WIRES
	EXISTING TREE LINE
	EXISTING TREE
	EXISTING BOLLARD
	EXISTING CATCH BASIN
	EXISTING DRAIN MANHOLE
	EXISTING SANITARY MANHOLE
	EXISTING UTILITY POLE
	EXISTING HYDRANT
	EXISTING WATER SERVICE SHUT OFF
	EXISTING WATER GATE
	EXISTING GAS VALVE
	PROPOSED CONTOUR
	PROPOSED FENCE
	PROPOSED GUARDRAIL
	PROPOSED STORM DRAIN LINE
	PROPOSED CATCH BASIN
	PROPOSED AREA DRAIN
	PROPOSED CATCH BASIN PROTECTION
	PROPOSED TREE PROTECTION
	PROPOSED PUMP
	PROPOSED SANDBAG
	PROPOSED BYPASS LINE
	PROPOSED LIMIT OF WORK
	PROPOSED SEDIMENT CONTROL BARRIER
	PROPOSED BITUMINOUS CONCRETE PAVEMENT
	PROPOSED CHANNEL CENTERLINE STATIONING

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NO.	ISSUE/DESCRIPTION	BY	DATE
GODFREY BROOK CAPACITY IMPROVEMENTS PROJECT MILFORD, MASSACHUSETTS			
PROPOSED SEDIMENT, EROSION AND WATER CONTROL PLAN			
PREPARED BY: GZA GeoEnvironmental, Inc. www.gza.com		PREPARED FOR: MILFORD TOWN HALL 52 MAIN STREET MILFORD, MA 01757	
PROJ MGR: RTS	DESIGNED BY: RTS	REVIEWED BY: JDA	CHECKED BY: SLL
DATE: JANUARY, 2025	DRAWN BY: EDM	SCALE: AS NOTED	REVISION NO.
PROJECT NO. 15.0167038.00		DRAWING C-2	



© 2015 - GZA GeoEnvironmental, Inc. GZA-A-10 167038-00 - 0 167038-00-0007REY BROOK IMPROVEMENTS 15.0167038-00 CAD/DWG/CONSTRUCTION SET 167038-00-0007REY BROOK IMPROVEMENTS.DWG C-3 E&S NOTES AND DETAILS March 14, 2023 ED MULLEN

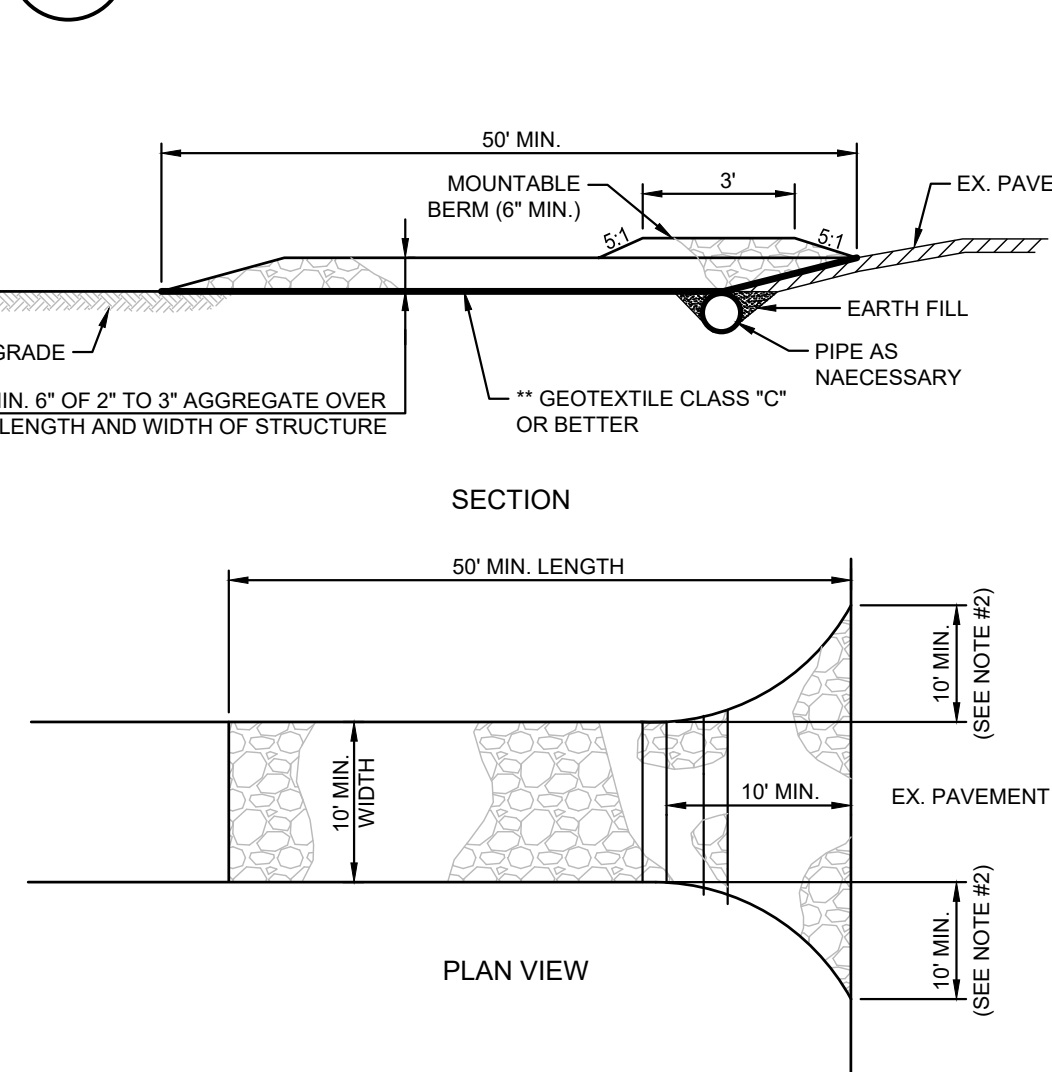


INSTALLATION AND MAINTENANCE GUIDELINES

INSTALLATION: REMOVE THE GRATE FROM CATCH BASIN. IF USING OPTIONAL OIL ABSORBENTS, PLACE ABSORBENT PILLOW IN UNIT. STAND THE GRATE ON END. MOVE THE TOP LIFTING STRAPS OUT OF THE WAY AND PLACE THE GRATE INTO THE GEOTEXTILE FABRIC UNIT SO THAT THE GRATE IS BELOW THE TOP STRAPS AND ABOVE THE LOWER STRAPS. HOLDING THE LIFTING DEVICES, INSERT THE GRATE INTO THE INLET.

MAINTENANCE: REMOVE ALL ACCUMULATED SEDIMENT AND DEBRIS FROM VICINITY OF UNIT AFTER EACH STORM EVENT. AFTER EACH STORM EVENT AND AT REGULAR INTERVALS, LOOK INTO THE GEOTEXTILE FABRIC UNIT. IF THE CONTAINMENT AREA IS MORE THAN 1/3 FULL OF SEDIMENT, THE UNIT MUST BE EMPTIED. TO EMPTY UNIT, LIFT THE UNIT OUT OF THE INLET USING THE LIFTING STRAPS AND REMOVE THE GRATE. IF USING OPTIONAL OIL ABSORBENTS, REPLACE ABSORBENT WHEN NEAR SATURATION.

A CATCH BASIN SEDIMENTATION PROTECTION

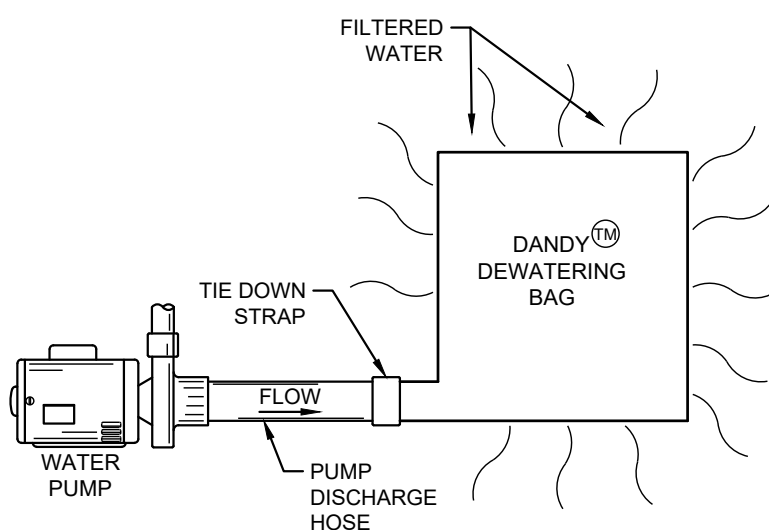


STABILIZED CONSTRUCTION ENTRANCE SPECIFICATIONS

- LENGTH - MINIMUM OF 50' (*30' FOR SINGLE RESIDENCE LOT).
- WIDTH - 10' MINIMUM. SHOULD BE FLARED AT THE EXISTING ROAD TO PROVIDE A TURNING RADIUS.
- GEOTEXTILE FABRIC (FILTER CLOTH) SHALL BE PLACED OVER THE EXISTING GROUND PRIOR TO PLACING STONE. *THE PLAN APPROVAL AUTHORITY MAY NOT REQUIRE SINGLE FAMILY RESIDENCES TO USE GEOTEXTILE.
- STONE - CRUSHED AGGREGATE (2" TO 3") OR RECLAIMED OR RECYCLED CONCRETE EQUIVALENT SHALL BE PLACED AT LEAST 6" DEEP OVER THE LENGTH AND WIDTH OF THE ENTRANCE.
- SURFACE WATER - ALL SURFACE WATER FLOWING TO OR DIVERTED TOWARD CONSTRUCTION ENTRANCES SHALL BE PIPED THROUGH THE ENTRANCE MAINTAINING POSITIVE DRAINAGE. PIPE INSTALLED THROUGH THE STABILIZED CONSTRUCTION ENTRANCE SHALL BE PROTECTED WITH A MOUNTABLE BERM WITH 5:1 SLOPES AND A MINIMUM OF 6" OF STONE OVER THE PIPE. PIPE HAS TO BE SIZED ACCORDING TO THE DRAINAGE. WHEN THE SCE IS LOCATED AT A HIGH SPOT AND HAS NO DRAINAGE TO CONVEY A PIPE WILL NOT BE NECESSARY. PIPE SHOULD BE SIZED ACCORDING TO THE AMOUNT OF RUNOFF TO BE CONVEYED. A 6" MINIMUM DIAMETER PIPE WILL BE REQUIRED.
- LOCATION - A STABILIZED CONSTRUCTION ENTRANCE SHALL BE LOCATED AT EVERY POINT WHERE CONSTRUCTION TRAFFIC ENTERS OR LEAVES A CONSTRUCTION SITE. VEHICLES LEAVING THE SITE MUST TRAVEL OVER THE ENTIRE LENGTH OF THE STABILIZED CONSTRUCTION ENTRANCE.

B STABILIZED CONSTRUCTION ENTRANCE

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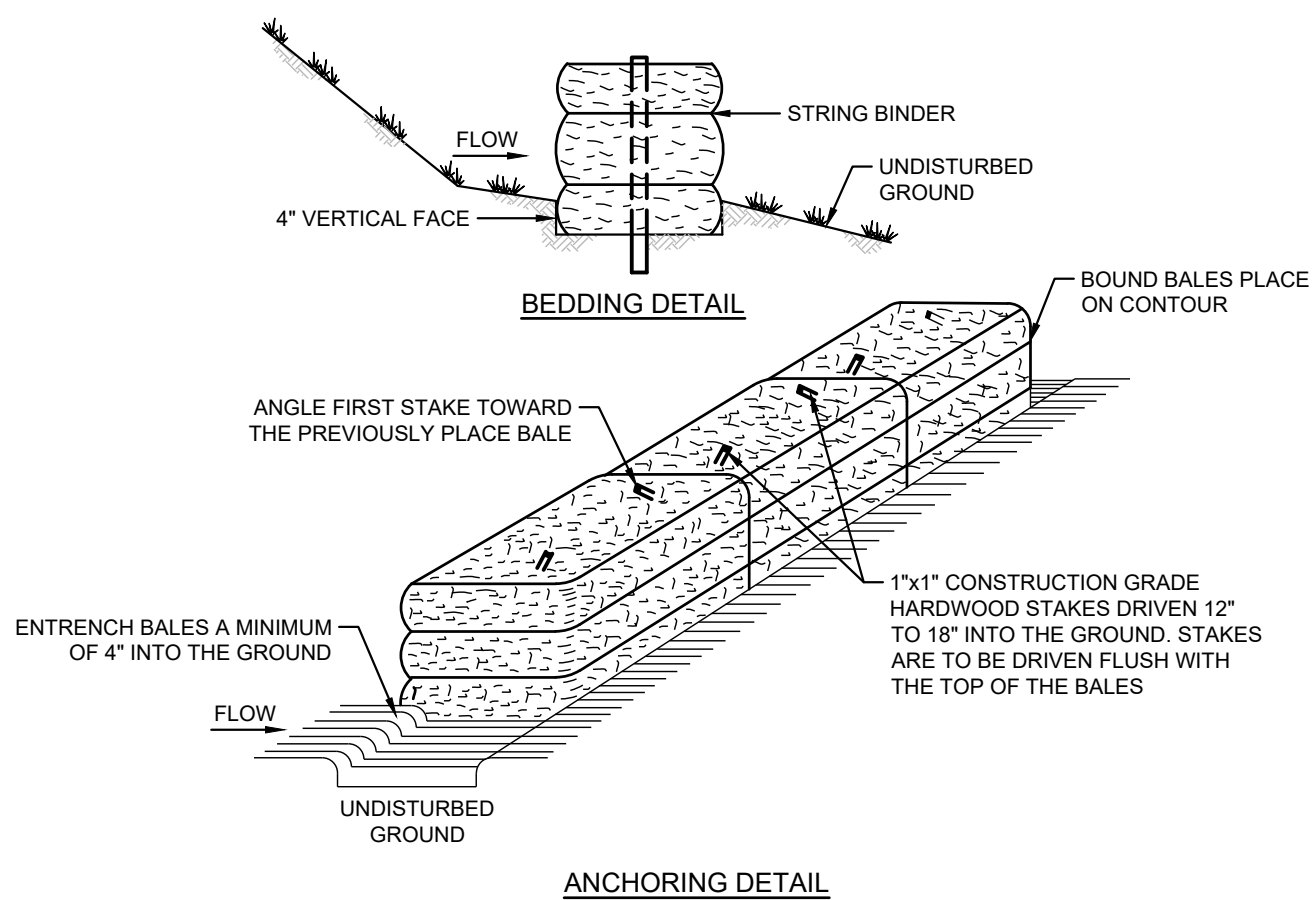
C DANDY DEWATERING BAG (OR EQUAL)

NTS

DANDY DEWATERING BAG™

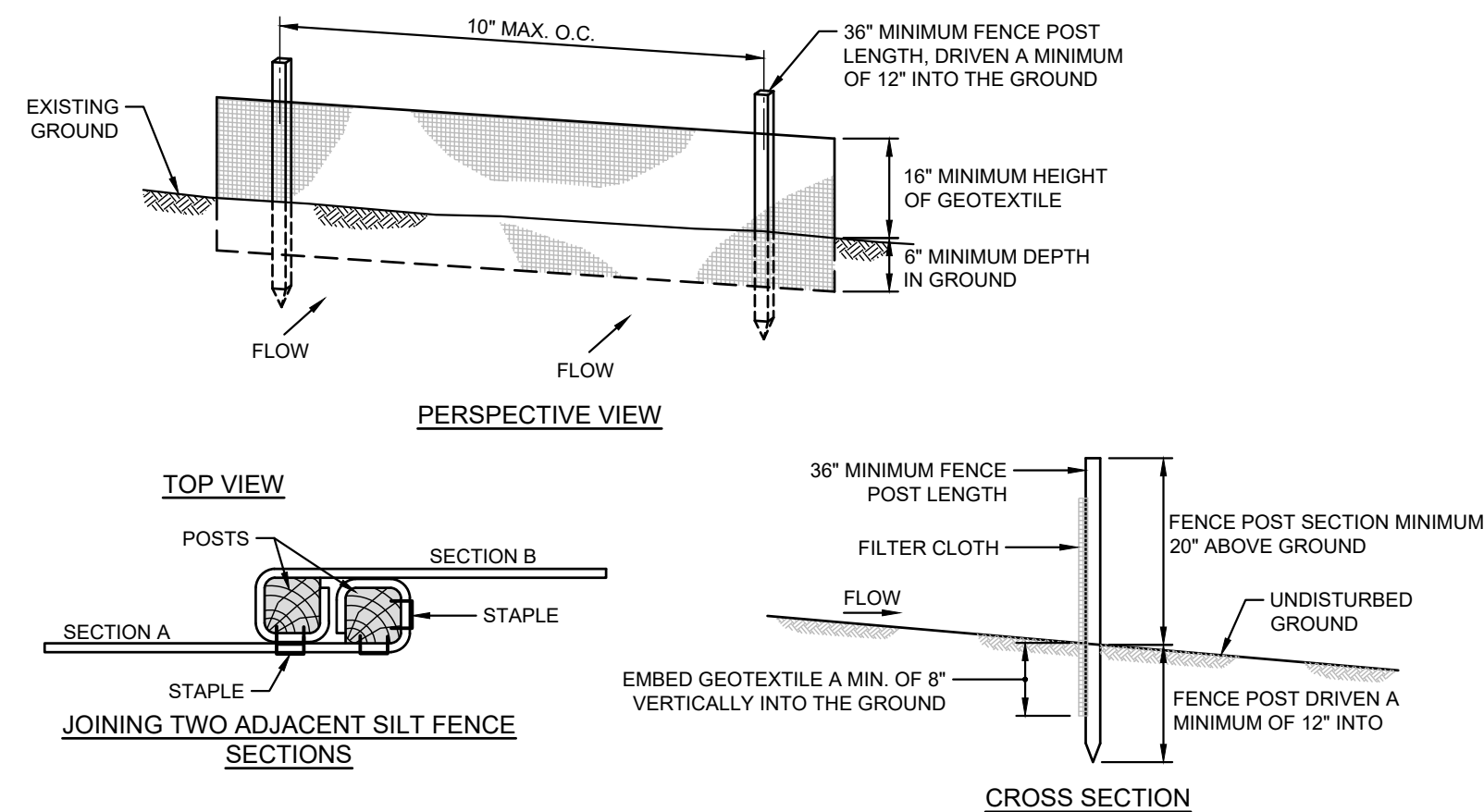
INSTALLATION AND MAINTENANCE GUIDELINES
INSTALLATION: PLACE LIFTING STRAPS (NOT INCLUDED) UNDER THE UNIT TO FACILITATE REMOVAL AFTER USE. UNFOLD DANDY DEWATERING BAG® ON A STABILIZED AREA OVER DENSE VEGETATION, STRAW, OR GRAVEL (IF AN INCREASED DRAINAGE SURFACE IS NEEDED). INSERT DISCHARGE HOSE FROM PUMP INTO DANDY DEWATERING BAG® A MINIMUM OF SIX INCHES (6") AND TIGHTLY SECURE WITH THE ATTACHED STRAP TO PREVENT WATER FROM FLOWING OUT OF THE UNIT WITHOUT BEING FILTERED. IF USING OPTIONAL ABSORBENTS, PLACE ABSORBENT BOOM INTO THE DANDY DEWATERING BAG® CLIP ABSORBENT BOOM TO TETHER PROVIDED INSIDE THE UNIT.

MAINTENANCE: REPLACE THE UNIT WHEN 1/2 FULL OF SEDIMENT OR WHEN SEDIMENT HAS REDUCED THE FLOW RATE OF THE PUMP DISCHARGE TO AN IMPRACTICAL RATE. IF USING OPTIONAL OIL ABSORBENTS, REMOVE AND REPLACE ABSORBENT WHEN NEAR SATURATION.



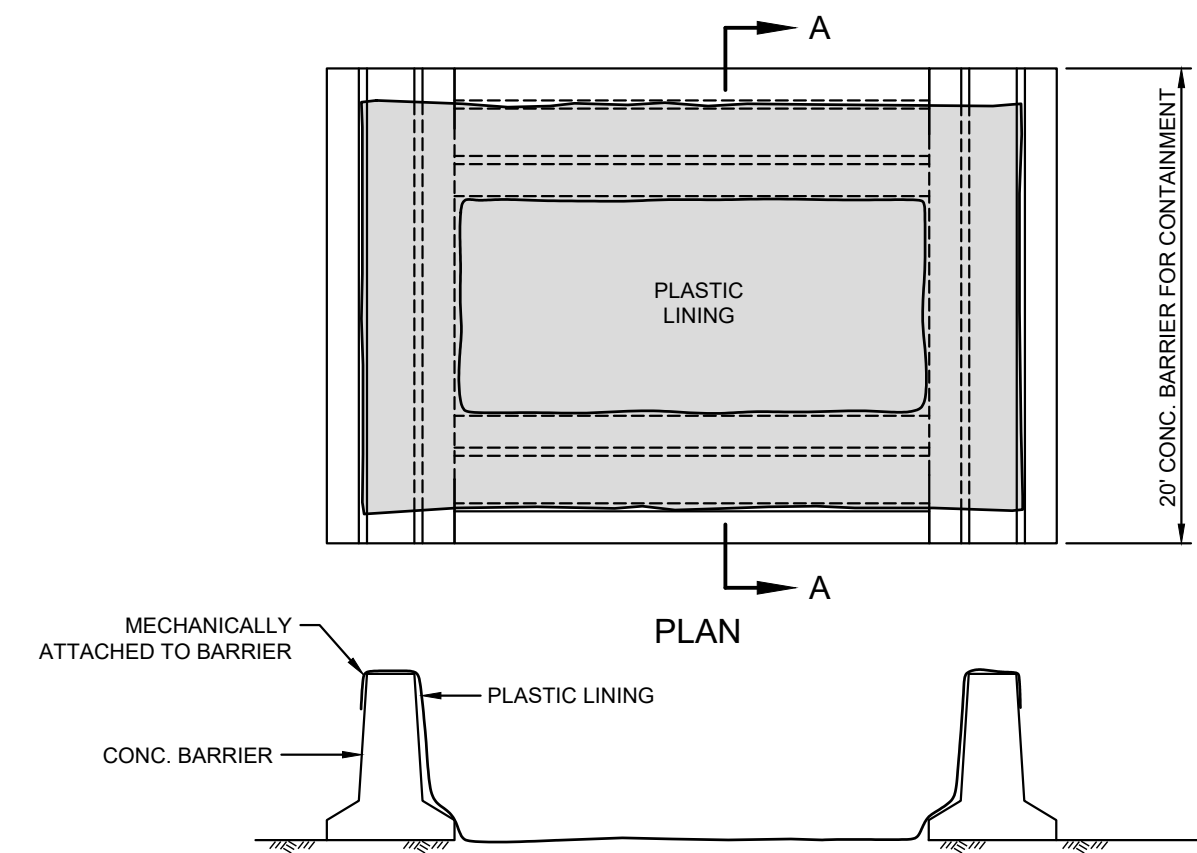
D STRAW BALE SILT FENCE BARRIER

NTS



E SILT FENCE

NTS

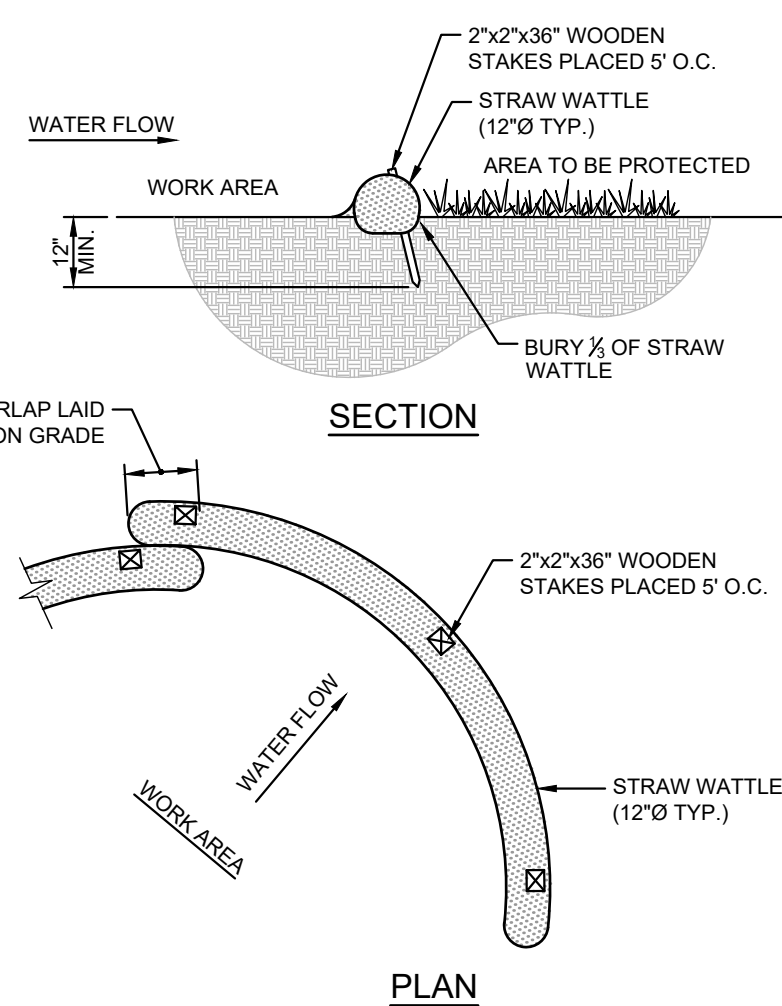


F CONCRETE WASHOUT BIN DETAIL

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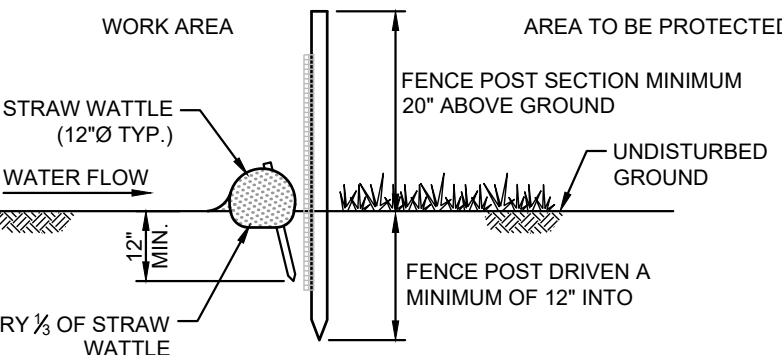
STORMWATER PERMIT NOTES:

- THIS PROJECT IS NOT ANTICIPATED TO BE REGULATED UNDER THE U.S. EPA NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES) STORMWATER PERMIT PROGRAM. OPERATORS OF CONSTRUCTION SITES WHICH DISTURB GREATER THAN OR EQUAL TO ONE ACRE OF LAND MUST MEET THE REQUIREMENTS OF EPA'S CONSTRUCTION GENERAL PERMIT (CGP). PART OF THE CGP REQUIREMENTS IS THE PREPARATION OF A STORMWATER POLLUTION PREVENTION PLAN (SWPPP) FOR THE PROJECT. THIS PROJECT IS NOT ANTICIPATED TO REQUIRE THE PREPARATION OF A SWPPP.



H STRAW WATTLE FOR SEDIMENT CONTROL

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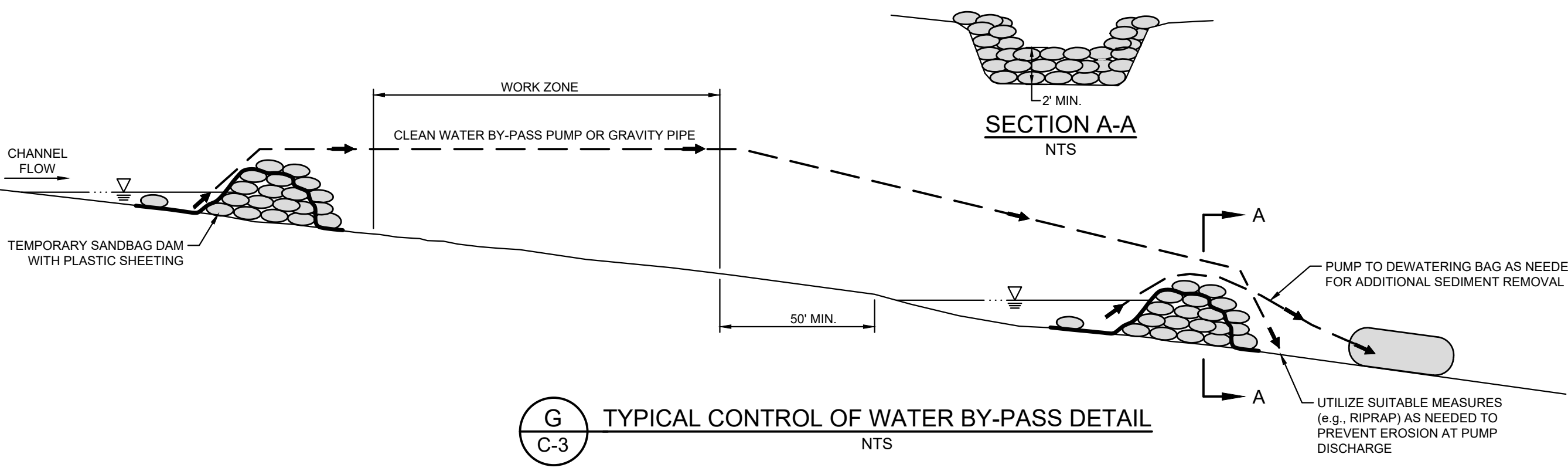


J COMBINATION STRAW WATTLE/SILT FENCE

NTS

NOTES:

- WHEN FULL, THE CONCRETE WASHOUT WILL BE DISPOSED OF AT LOCAL RECYCLING FACILITY.
- WASHOUT BIN TO BE LOCATED IN STOCKPILE LOCATION.
- ALL APPLICABLE PERSONNEL WILL BE TRAINED IN THE WASHOUT PROCEDURE PRIOR TO CONCRETE WORK BEING PERFORMED.
- REDDY MIX TRUCK DRIVERS WILL BE DIRECTED TO THE WASHOUT BIN BY FOREMAN ON DUTY.



G TYPICAL CONTROL OF WATER BY-PASS DETAIL

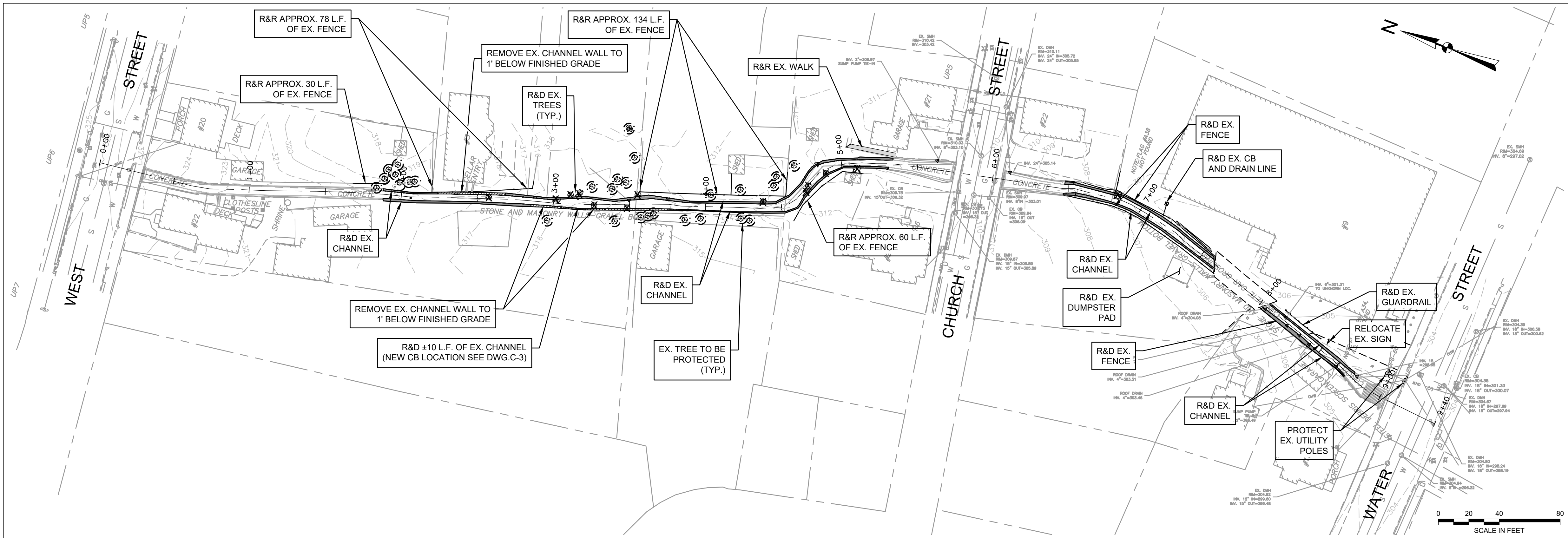
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SEDIMENT AND EROSION CONTROL NOTES:

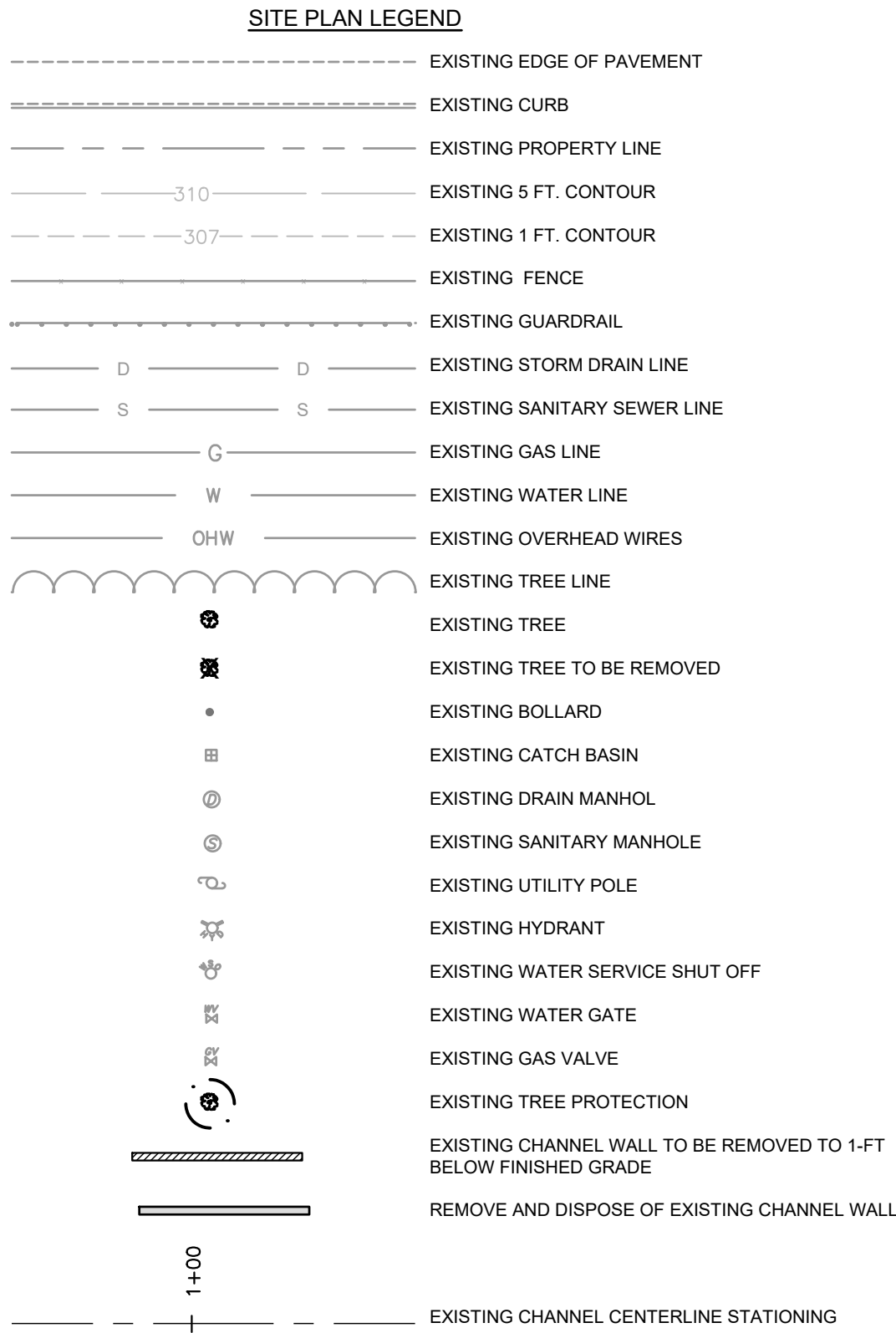
- SEDIMENT BARRIERS AND OTHER MEASURES INTENDED TO TRAP SEDIMENT SHALL BE CONSTRUCTED AS A FIRST STEP IN ANY LAND DISTURBING ACTIVITY AND SHALL BE MADE FUNCTIONAL BEFORE UPSLOPE LAND DISTURBANCE TAKES PLACE.
- THE CONTRACTOR SHALL CONSTRUCT ALL EROSION AND SEDIMENT CONTROL MEASURES PER THE SEDIMENT AND EROSION CONTROL (S&EC) PLAN PRIOR TO BEGINNING ANY LAND DISTURBANCE FOR THAT PHASE OF THE WORK. SHALL ENSURE THAT ALL RUNOFF FROM DISTURBED AREAS IS DIRECTED TO THE SEDIMENT CONTROL DEVICES, AND SHALL NOT REMOVE ANY EROSION OR SEDIMENT CONTROL MEASURES UNTIL THE AREAS DRAINING TO THEM ARE FINAL STABILIZED. THE CONTRACTOR SHALL INSPECT DAILY AND MAINTAIN CONTINUOUSLY IN EFFECTIVE OPERATING CONDITION ALL EROSION AND SEDIMENT CONTROL MEASURES UNTIL SUCH TIME AS THEY ARE REMOVED. CONDUCT INSPECTIONS AND REPORTING IN ACCORDANCE WITH ALL PERMITS.
- ALL CATCH BASINS OR OTHER DRAIN INLETS WHICH MAY RECEIVE STORMWATER FROM DISTURBED AREAS SHALL BE PROVIDED WITH SUITABLE INLET PROTECTION CONSISTING OF AN OPEN-TOP FILTER FABRIC BAG THAT IS DESIGNED TO HANG UNDERNEATH A STORM GRATE TO FILTER SEDIMENT-LADEN STORMWATER. THE FILTER FABRIC BAGS SHALL BE INSPECTED WEEKLY AND AFTER EACH RAIN EVENT, AND CLEANED AND MAINTAINED IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS. ADDITIONAL INLET PROTECTION MAY BE PROVIDED AS APPROPRIATE BY SURROUNDING THE CATCH BASIN WITH STRAWBALES.
- THE SEDIMENT AND EROSION CONTROL MEASURES AND BEST MANAGEMENT PRACTICES (BMPs) SHOWN ON THIS PLAN SHALL BE CONSIDERED AS MINIMUM REQUIREMENTS. IMMEDIATELY UPON DISCOVERING UNFORESEEN CIRCUMSTANCES POSING THE POTENTIAL FOR ACCELERATED EROSION AND/OR SEDIMENT POLLUTION, THE CONTRACTOR SHALL IMPLEMENT APPROPRIATE BMPs TO ELIMINATE THE POTENTIAL FOR ACCELERATED EROSION AND/OR SEDIMENT POLLUTION. THE CONTRACTOR SHALL INSTALL AND MAINTAIN, AT NO ADDITIONAL COST TO THE OWNER, ANY ADDITIONAL EROSION CONTROL MEASURES DEEMED NECESSARY FOR PERMIT COMPLIANCE BY THE CONTRACTOR, THE OWNER, AND/OR THEIR REPRESENTATIVES, OR BY FEDERAL/STATE/LOCAL GOVERNMENT INSPECTORS.
- ALL EROSION CONTROL MEASURES SHALL BE CONSTRUCTED AND MAINTAINED IN ACCORDANCE WITH APPLICABLE PUBLISHED STANDARDS AND SPECIFICATIONS AND THE 'MASSACHUSETTS EROSION AND SEDIMENT CONTROL GUIDELINES FOR URBAN AND SUBURBAN AREAS: A GUIDE FOR PLANNERS, DESIGNERS, AND MUNICIPAL OFFICIALS' (MADEP, 2003).
- CONSTRUCTION ENTRANCE(S) SHALL BE INSTALLED CONCURRENTLY WITH THE INITIATION OF CLEARING AND GRUBBING OPERATIONS. THE CONTRACTOR SHALL PROTECT ALL POINTS OF CONSTRUCTION INGRESS AND EGRESS, INCLUDING AT STAGING AREAS, TO PREVENT THE DEPOSITION OF MATERIALS ONTO TRAVERSED PUBLIC THOROUGHFARES. ALL MATERIALS DEPOSITED ONTO PUBLIC THOROUGHFARES SHALL BE REMOVED IMMEDIATELY. ALL STAGING AREAS SHALL BE SURROUNDED BY SEDIMENT CONTROL BARRIER.
- THE CONTRACTOR SHALL BEGIN TO APPLY SOD, SEED AND ANCHORED STRAW MULCH, OR OTHER APPROVED STABILIZATION MEASURES TO ALL DISTURBED AREAS IMMEDIATELY AFTER STRIPPING AND GRADING ACTIVITIES HAVE CEASED ON THAT AREA AND SHALL COMPLETE STABILIZATION ACTIVITIES WITHIN FOURTEEN (14) CALENDAR DAYS. MAINTENANCE SHALL BE PERFORMED TO ENSURE CONTINUED STABILIZATION. ACTIVE CONSTRUCTION AREAS, SUCH AS BORROW OR STOCKPILE AREAS, ROADWAY IMPROVEMENTS, AND AREAS WITHIN 50 FEET OF A BUILDING UNDER CONSTRUCTION MAY BE EXEMPTED FROM THIS REQUIREMENT, PROVIDED THAT OTHER APPROPRIATE SEDIMENT AND EROSION CONTROL MEASURES ARE INSTALLED AND MAINTAINED TO PROTECT AND PROVIDE SEDIMENT CONTROL FROM THOSE AREAS.
- ALL STOCKPILES SHALL BE SURROUNDED BY SEDIMENT CONTROL BARRIER. STOCKPILES WHICH WILL NOT BE USED FOR A PERIOD OF FOURTEEN (14) OR MORE CALENDAR DAYS SHALL BE COVERED, STABILIZED THROUGH THE APPLICATION OF SOD, SEED, AND ANCHORED STRAW MULCH, COVERS, OR OTHER APPROVED STABILIZATION MEASURES.
- EFFLUENT FROM DEWATERING OPERATIONS AND LINE FLUSHING DISCHARGES SHALL BE DIRECTED ONTO FIBER MATS, STONE/RIPRAP, NETTING, OR NATURALLY OCCURRING GROUND COVER TO MINIMIZE EROSION. EFFLUENT FROM DEWATERING OPERATIONS SHALL BE PUMPED TO SEDIMENT TANKS, GEOTEXTILE SEDIMENT BAGS, SEDIMENT TRAPS, OR OTHER APPROVED SEDIMENT REMOVAL CONTROL MEASURE FOR SEDIMENT REMOVAL. DEWATERING SHALL BE PERFORMED IN ACCORDANCE WITH THE 'MASSACHUSETTS EROSION AND SEDIMENT CONTROL GUIDELINES FOR URBAN AND SUBURBAN AREAS: A GUIDE FOR PLANNERS, DESIGNERS, AND MUNICIPAL OFFICIALS' (MADEP, 2003) AND IN A MANNER THAT DOES NOT ADVERSELY AFFECT AREAS OUTSIDE OF THE LIMIT OF WORK.
- SEDIMENT TRAPPING/FILTERING BMPs SHALL BE CLEANED OUT WHEN THE SEDIMENT ACCUMULATES TO ONE HALF THE HEIGHT OF THE BMP, AT A MINIMUM.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE CONTROL OF DUST AND DIRT RISING AND SCATTERING IN THE AIR DURING CONSTRUCTION AND SHALL PROVIDE WATER SPRINKLING, CALCIUM CHLORIDE, AND/OR OTHER EFFECTIVE MEANS OF CONTROL.
- ALL WASTE MATERIALS GENERATED AT THE SITE SHALL BE IMMEDIATELY REMOVED AND DISPOSED OF OR STORED IN A SECURELY COVERED CONTAINER IN ACCORDANCE WITH PROJECT PERMITS AND LOCAL AND STATE REGULATIONS. CONTAINER SHALL BE EMPTIED ON A REGULAR BASIS AND AS NEEDED. NO CONSTRUCTION WASTE OR DEBRIS SHALL BE BURIED ONSITE.
- PRIOR TO REMOVAL OF SEDIMENT CONTROL MEASURES, THE CONTRACTOR SHALL STABILIZE ALL CONTRIBUTORY DISTURBED AREAS USING SOD OR AN APPROVED PERMANENT SEED MIXTURE WITH REQUIRED SOIL AMENDMENTS AND AN APPROVED ANCHORED MULCH. AREAS BROUGHT TO FINISHED GRADE DURING THE SEEDING SEASON SHALL BE PERMANENTLY STABILIZED WITHIN FOURTEEN (14) CALENDAR DAYS OF COMPLETION OF WORK. AREAS BROUGHT TO GRADE DURING THE MONTHS WHEN PERMANENT STABILIZATION IS FOUND TO BE IMPRACTICAL SHALL BE STABILIZED WITH AN APPROVED TEMPORARY SEED AND ANCHORED MULCH OR OTHER ACCEPTABLE MEANS AND PERMANENTLY STABILIZED DURING THE SEEDING SEASON.
- TEMPORARY SEDIMENT CONTROL DEVICES SHALL BE REMOVED WITHIN THIRTY (30) CALENDAR DAYS FOLLOWING ESTABLISHMENT OF PERMANENT STABILIZATION IN ALL CONTRIBUTORY DRAINAGE AREAS. STORMWATER MANAGEMENT STRUCTURES USED TEMPORARILY FOR SEDIMENT CONTROL SHALL BE CLEANED AND CONVERTED TO THEIR PERMANENT CONFIGURATION WITHIN THIS TIME PERIOD AS WELL. ALL STORM DRAINAGE STRUCTURES, SUMPS, AND PIPES SHALL BE CLEANED OF ALL SEDIMENTS PRIOR TO FINAL PAYMENT. SEDIMENT CONTROL BARRIER MAY CONSIST OF STRAWBALE SILT BARRIER, SILT FENCE, OR COMPOST FILTER TUBE, OR EQUAL.

NO.	ISSUE/DESCRIPTION	BY	DATE
GODFREY BROOK CAPACITY IMPROVEMENTS PROJECT MILFORD, MASSACHUSETTS			
SEDIMENT, EROSION AND WATER CONTROL PLAN NOTES AND DETAILS			
PREPARED BY: GZA GeoEnvironmental, Inc. www.gza.com		PREPARED FOR: MILFORD TOWN HALL 52 MAIN STREET MILFORD, MA 01757	
PROJ MGR: RTS	REVIEWED BY: JDA	CHECKED BY: SLL	DRAWING C-3
DESIGNED BY: RTS	DRAWN BY: EDM	SCALE: NTS	
DATE: JANUARY, 2025	PROJECT NO: 15.0167038.00	REVISION NO: -	

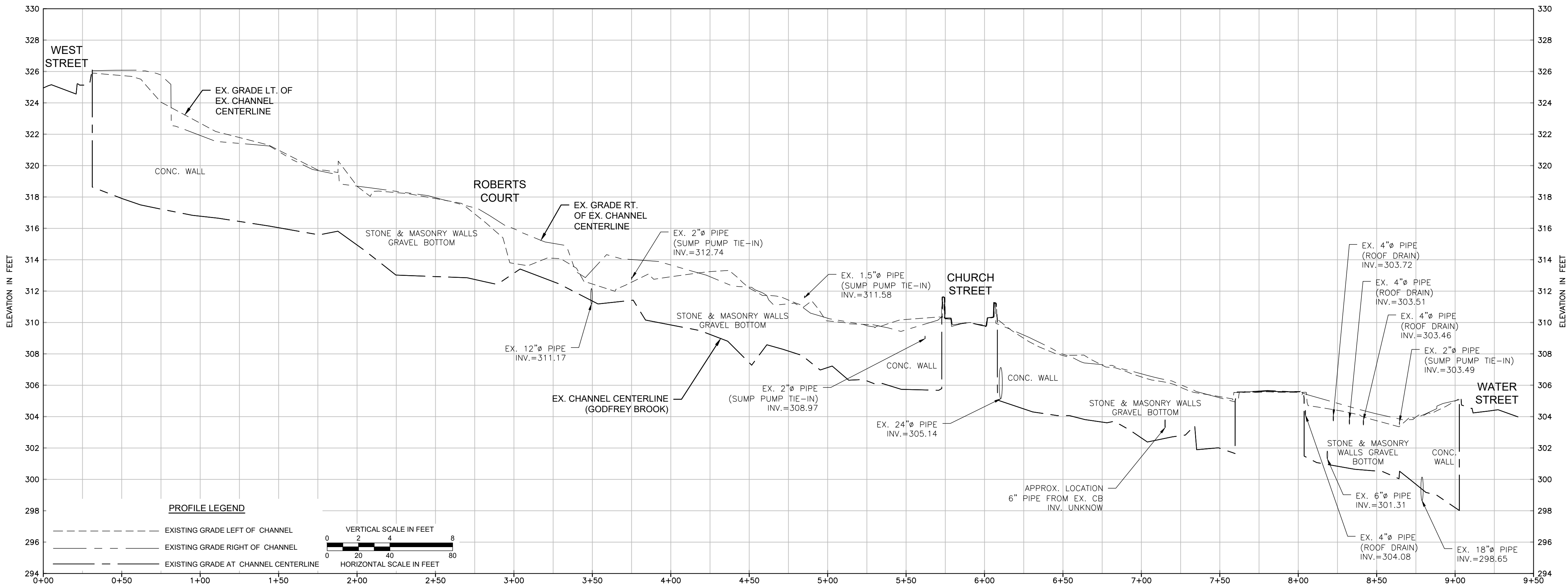




GODFREY BROOK DEMOLITION PLAN
(WEST STREET TO WATER STREET)

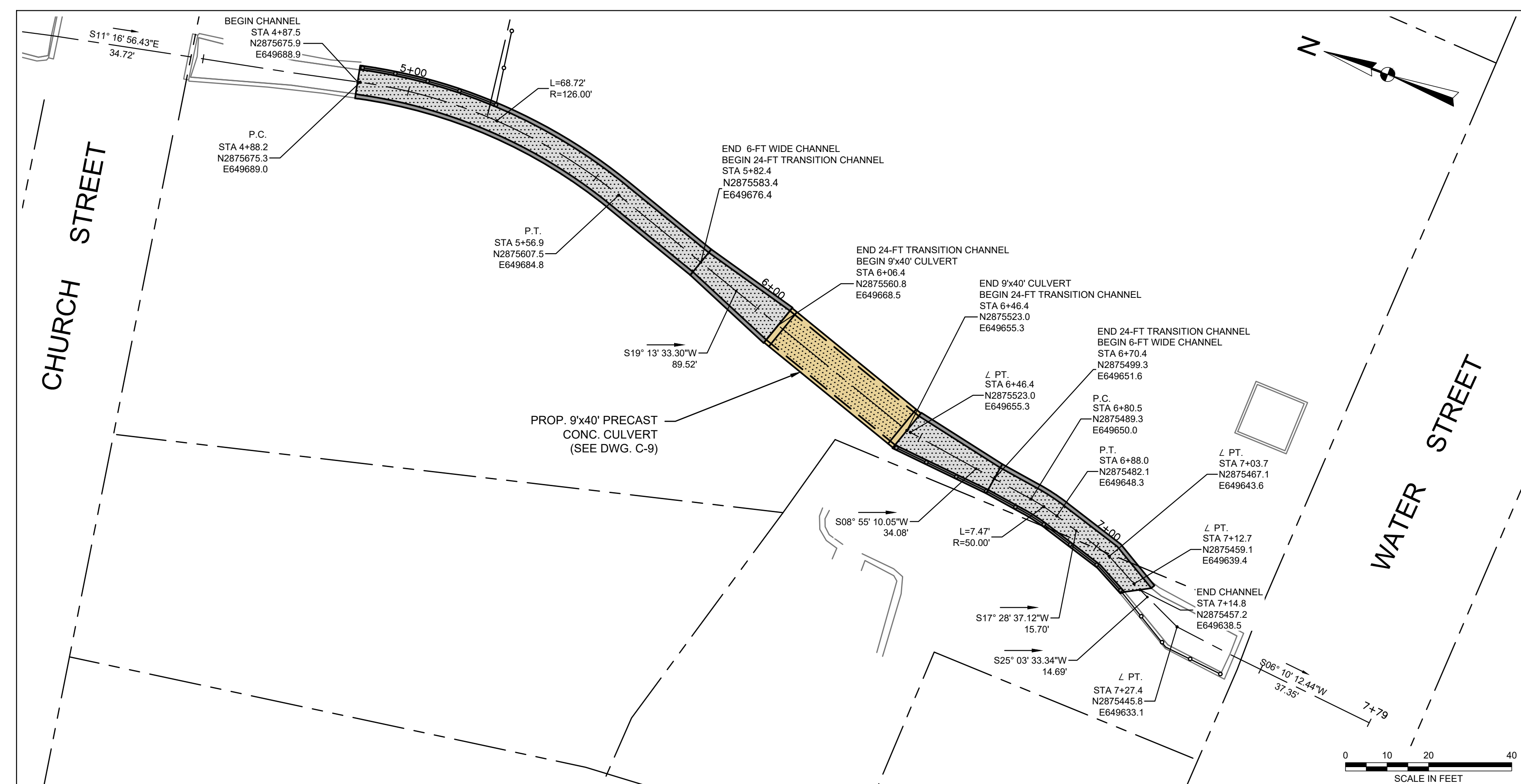
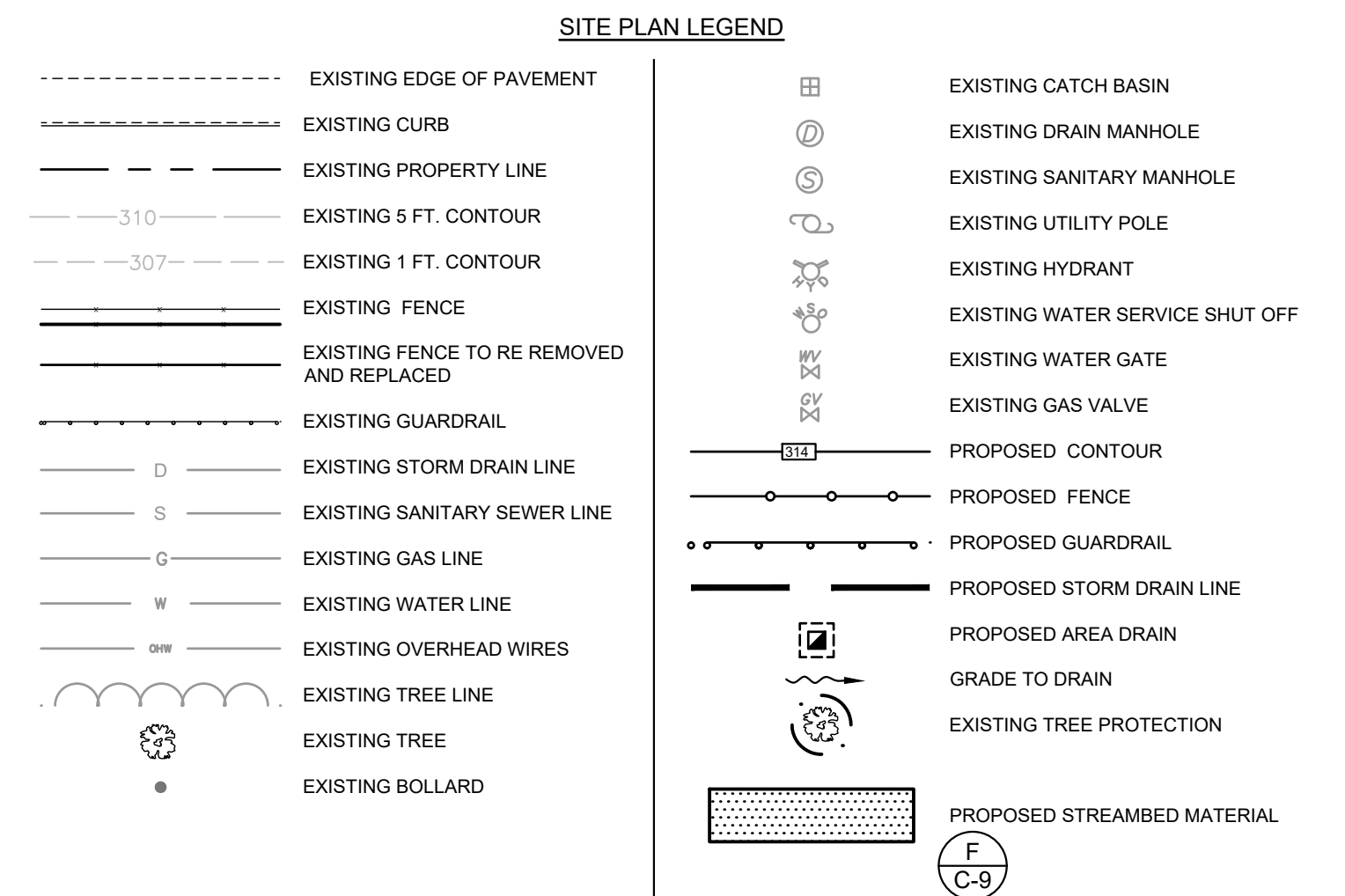
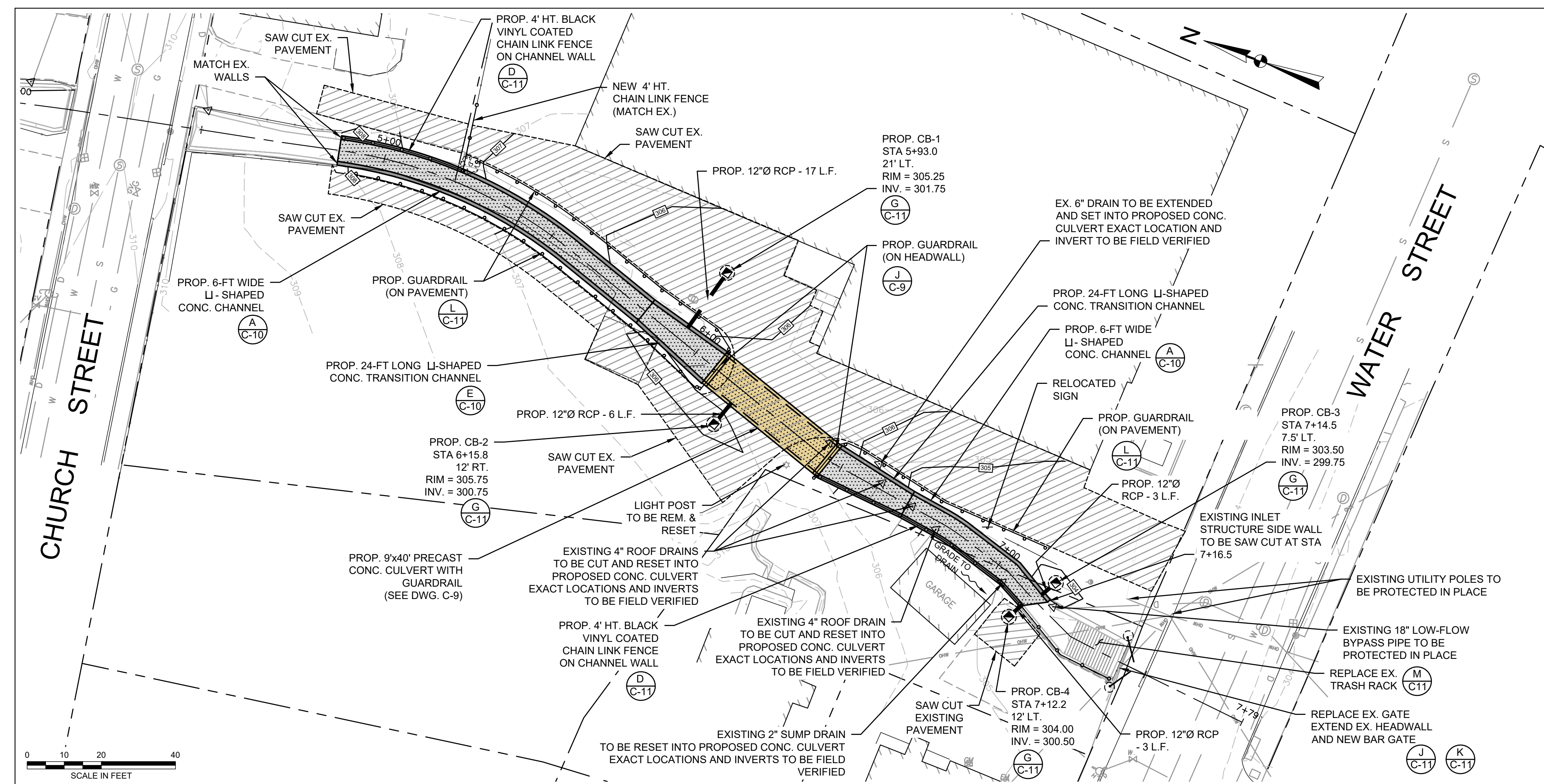


R&D = REMOVE AND DISPOSE OF
R&R = REMOVE AND REPLACE




GODFREY BROOK EXISTING CHANNEL CENTERLINE PROFILE
(WEST STREET TO WATER STREET)

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GODFREY BROOK CAPACITY IMPROVEMENTS PROJECT MILFORD, MASSACHUSETTS			
DEMOLITION PLAN AND EXISTING CHANNEL CENTERLINE PROFILE (WEST STREET TO WATER STREET)			
PREPARED BY:	MILFORD TOWN HALL 52 MAIN STREET MILFORD, MA 01757		
PROJ MGR:	RTS	REVIEWED BY:	JDA
DESIGNED BY:	RTS	DRAWN BY:	EDM
DATE:	JANUARY, 2025	PROJECT NO.:	15.0167038.00
CHECKED BY:		SCALE:	AS NOTED
REVISION NO.:		DRAWING	
		C-4	

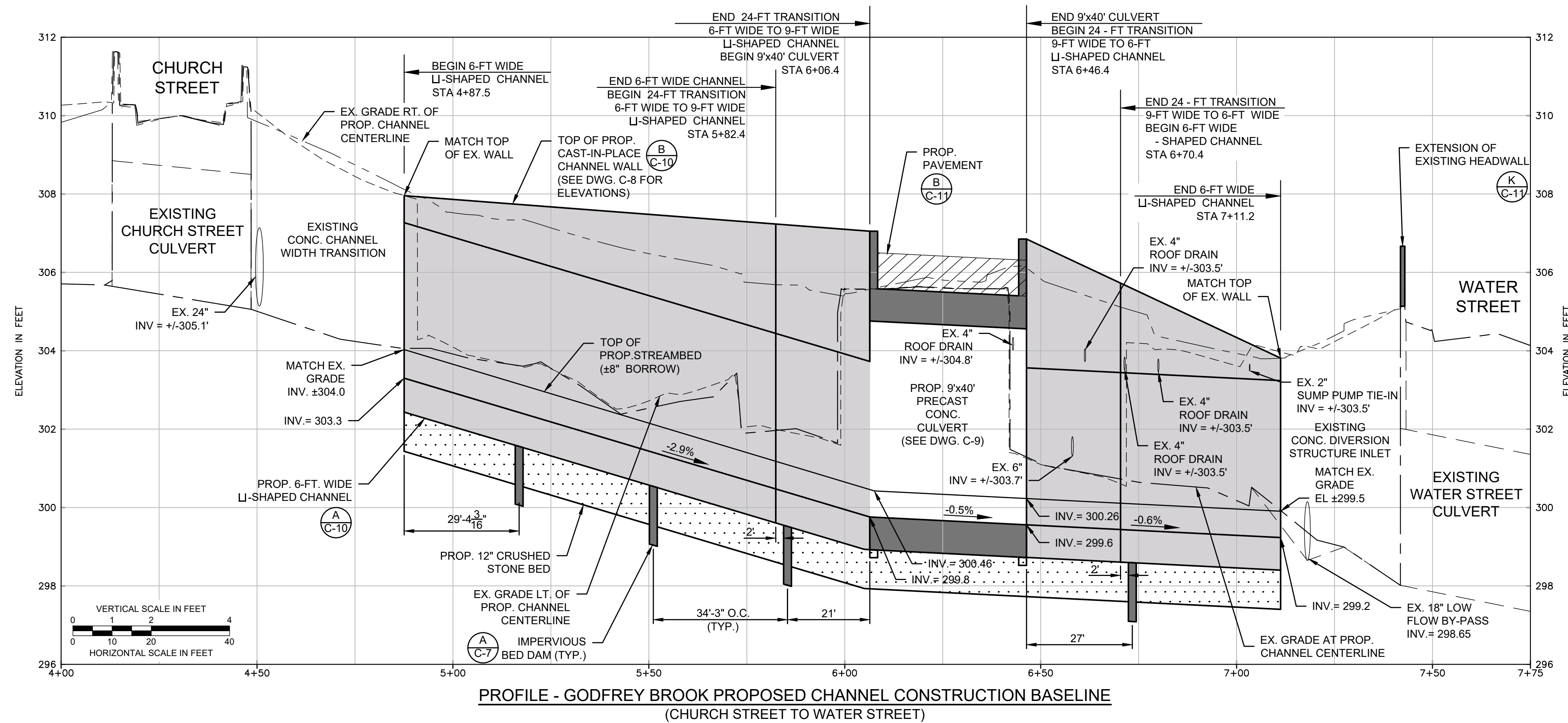
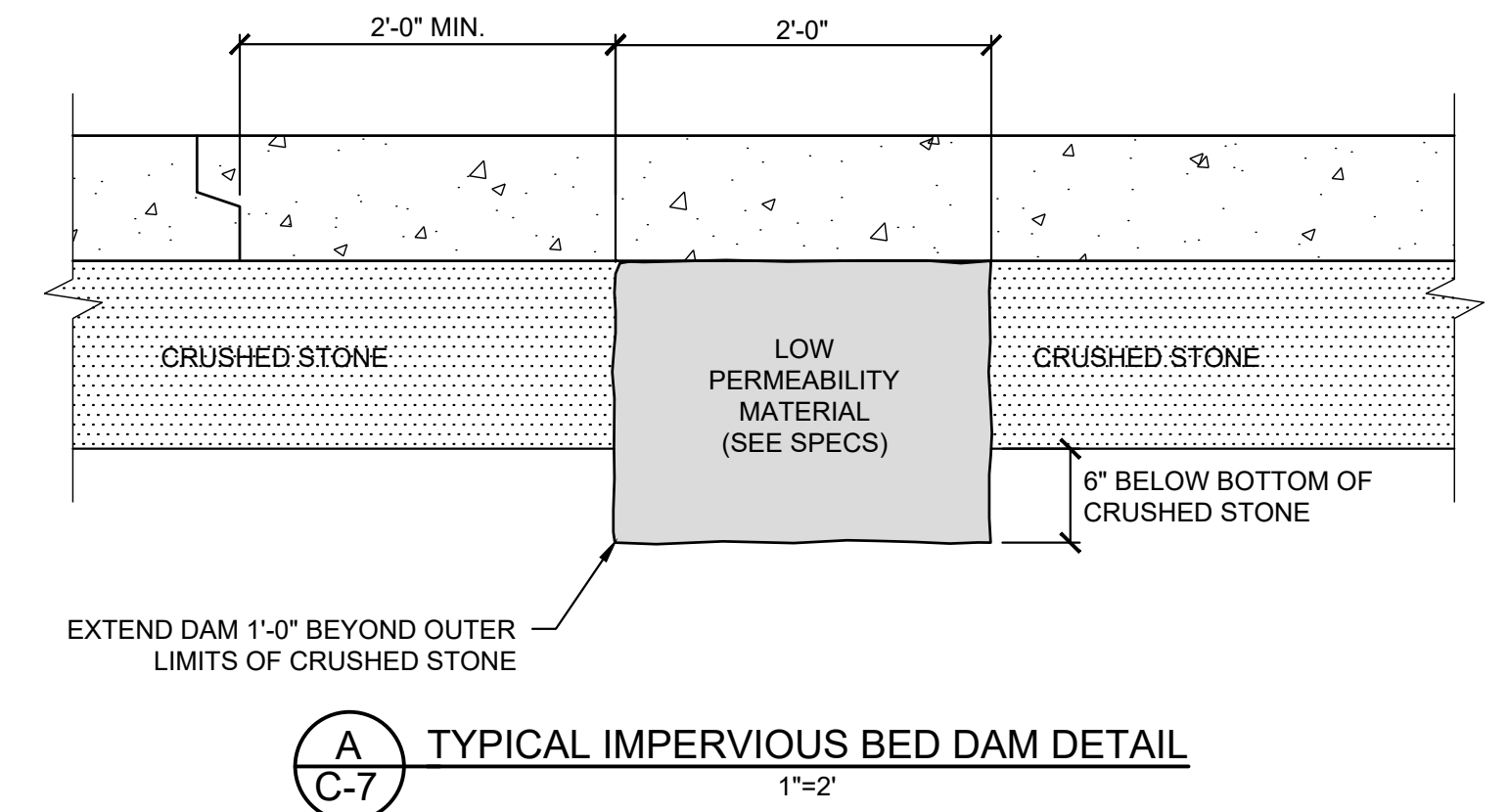
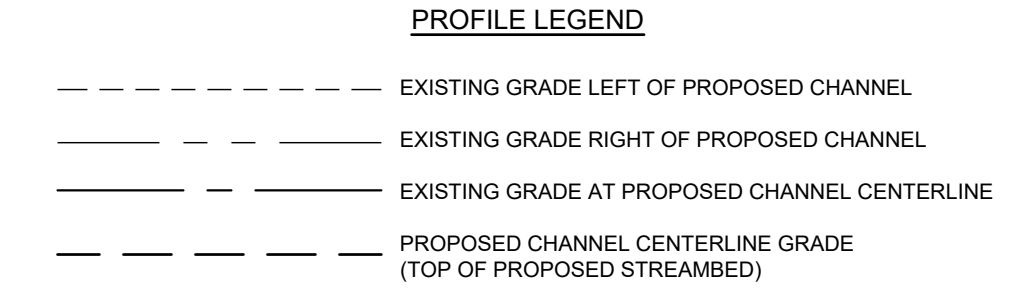
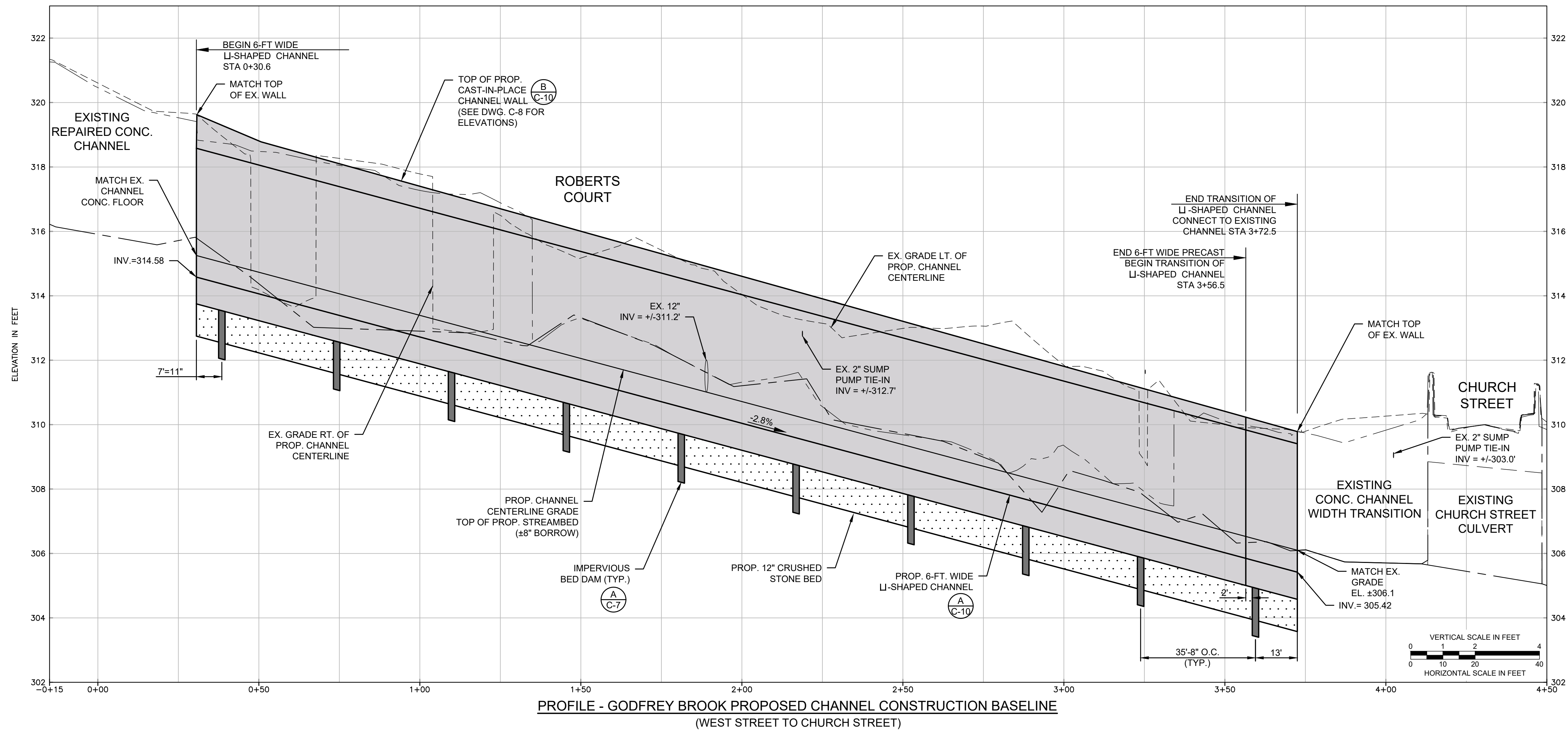


GODFREY BROOK LAYOUT PLAN
(CHURCH STREET TO WEST STREET)

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GODFREY BROOK CAPACITY IMPROVEMENTS PROJECT MILFORD, MASSACHUSETTS					
PROPOSED SITE PLAN AND PROPOSED CHANNEL LAYOUT PLAN (CHURCH STREET TO WATER STREET)					
PREPARED BY:		PREPARED FOR:			
 GZA GeoEnvironmental, Inc. www.gza.com		MILFORD TOWN HALL 52 MAIN STREET MILFORD, MA 01757			
PROJ MGR: RTS	REVIEWED BY: JDA	CHECKED BY: SLL	DRAWING		
DESIGNED BY: RTS	DRAWN BY: EDM	SCALE: AS NOTED			
DATE:	PROJECT NO:	REVISION NO.	C-6		
JANUARY, 2025	15.0167038.00	-			

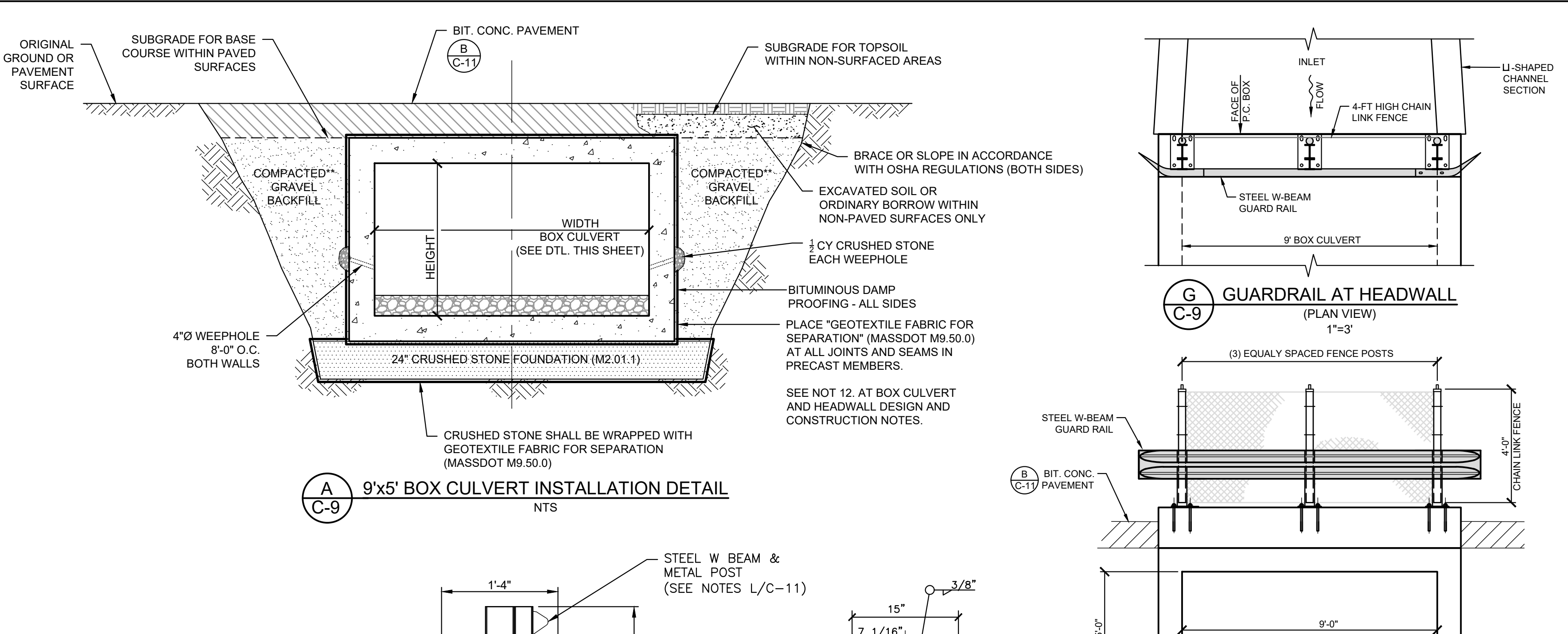
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 2025- GZA GeoEnvironmental, Inc. 15.0167038.00 GODFREY BROOK IMPROVEMENTS SET\167038.00 CAD\DWG\CONSTRUCTION SET\167038.00 GODFREY BROOK IMPROVEMENT.DWG C-6 PROP. CHANNEL LAYOUT March 14, 2025 ED MULLIN

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GZA-A-10 167020 - 0 167099 15.0167038.00

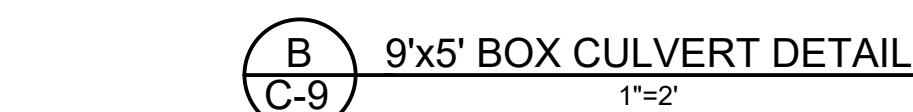


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GODFREY BROOK CAPACITY IMPROVEMENTS PROJECT MILFORD, MASSACHUSETTS			
PROFILE - PROPOSED CHANNEL CONSTRUCTION BASELINE			
PREPARED BY: GZA GeoEnvironmental, Inc. www.gza.com		PREPARED FOR: MILFORD TOWN HALL 52 MAIN STREET MILFORD, MA 01757	
PROJ MGR: RTS	REVIEWED BY: JDA	CHECKED BY: SLL	DRAWING C-7
DESIGNED BY: RTS	DRAWN BY: EDM	SCALE: AS NOTED	
DATE: JANUARY, 2025	PROJECT NO: 15.0167038.00	REVISION NO: -	



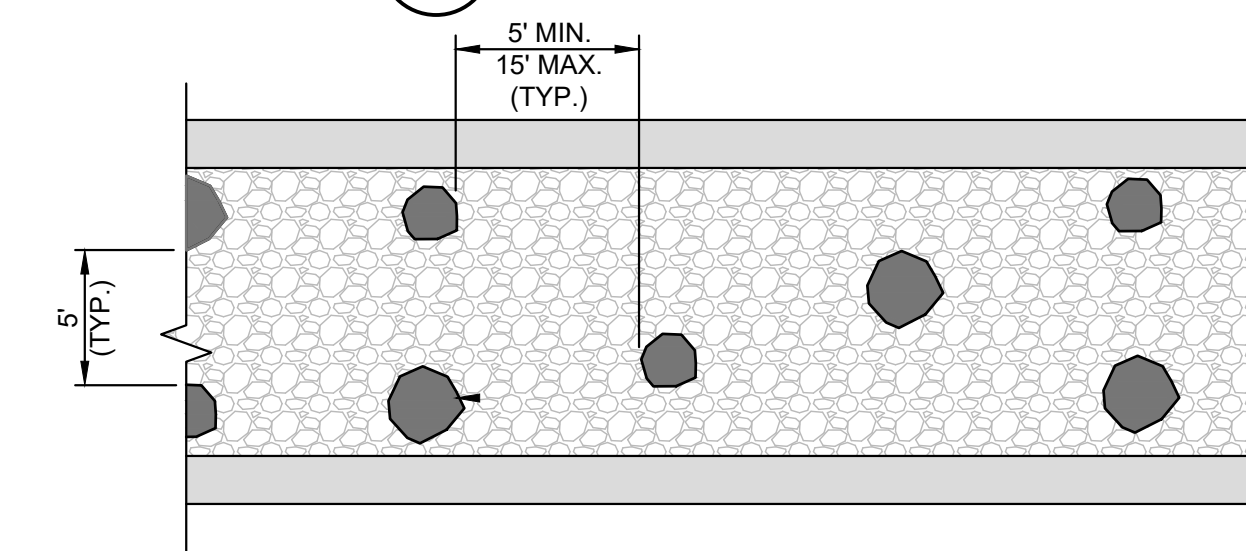


VERT. 1"=2'
HOR. 1"=20'

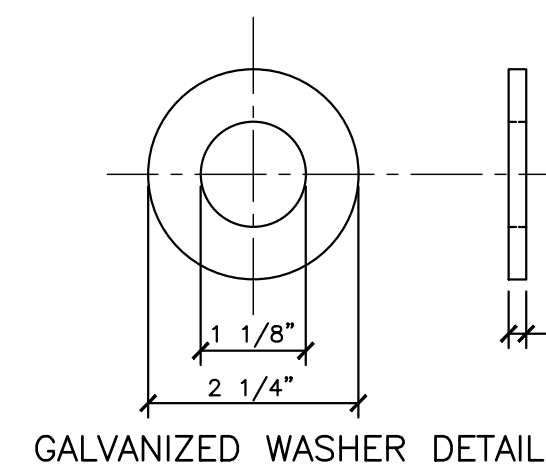


C 9'x5' BOX CULVERT PROJECTED SECTION

- SECTION DIMENSIONS, MATERIALS, AND REINFORCEMENT DETAILS FOR BOX CULVERT AND ASSOCIATED HEADWALLS SHALL BE ACCORDING TO THE REQUIREMENTS FOR ASTM C1571.
2. THE CONTRACTOR MAY PROPOSE TO FURNISH THE END SECTIONS USING PRECAST CONSTRUCTION METHODS AND THE END SECTIONS MAY CONSIST OF MULTIPLE PRECAST CONCRETE SEGMENTS.
3. ALTERNATIVELY, THE CONTRACTOR MAY PROPOSE USING CAST-IN-PLACE (CIP) CONSTRUCTION METHODS.
4. THE CONTRACTOR SHALL BE RESPONSIBLE FOR DETERMINING ALL DETAILS ASSOCIATED WITH THE PRECAST OR THE CIP OPTION INCLUDING ANY STRENGTHENING OR STIFFENING PROVISIONS NECESSARY FOR HANDLING THE PRECAST SEGMENTS.
5. FOR EITHER CONSTRUCTION METHOD, CONCEPTUAL DETAILS FOLLOWED BY SHOP DRAWINGS AND DESIGN CALCULATIONS SEALED BY A MASSACHUSETTS REGISTERED PROFESSIONAL STRUCTURAL ENGINEER SHALL BE SUBMITTED TO THE ENGINEER FOR REVIEW.
6. EACH ELEMENT OF THE PRECAST OR CIP OPTION SHALL AT A MINIMUM RESULT IN THE SAME HEADWALL GEOMETRY AND NOT HAVE A THICKNESS LESS THAN THAT DETAIL HEREIN.
7. THE OPTION TO CONSTRUCT THE END SECTIONS USING PRECAST OR CIP CONSTRUCTION METHODS SHALL BE AT NO ADDITIONAL CHARGE.
8. FINAL DESIGN OF THE BOX CULVERT AND ASSOCIATED HEADWALL STRUCTURES SHALL ASSUME A SOIL BEARING CAPACITY OF 2,000 PSF. PRIOR TO INITIATING ANY SHOP DRAWINGS FOR THESE ITEMS, THE CONTRACTOR SHALL CONDUCT A TEST PIT TO THE SUBGRADE ELEVATION OF THE BOX CULVERT WHICH SHALL BE WITNESSED BY THE ENGINEER. THE TEST PIT WILL BE USED TO CONFIRM THE BEARING CAPACITY PRIOR TO THE CONTRACTOR'S PREPARATION OF FINAL DESIGNS AND SHOP DRAWINGS FOR SUBMITTAL PURPOSES.
9. DESIGN FOR GUARDRAILS MOUNTED ON TOP OF HEADWALLS AND SIDEWALLS: LOCAL WALL STABILITY (OVERTURNING, SLIDING, AND BEARING PRESSURES) AND THE STEM DESIGN SHALL ACCOMMODATE VEHICULAR COLLISION LOADS IN ACCORDANCE WITH THE MassDOT BRIDGE MANUAL HUNDRED ANNIVERSARY EDITION (JUNE 1, 2024), SECTION 3.3.24. HEADWALLS AT CULVERT END SECTIONS SHALL BE CAST MONOLITHICALLY WITH THE CULVERT END SECTION. REFER TO GUARDRAIL DETAILS ON DWG. C-9.
10. PRECAST DESIGN NOTES:
 - 10.1. CONCRETE MINIMUM STRENGTH = 5000 PSI @ 28 DAYS
 - 10.2. STEEL REINFORCEMENT - ASTM A615, GRADE 60
 - 10.3. WHEEL LOADING - AASHTO H20-44 + IMPACT
 - 10.4. COVER TO STEEL - 1.5 INCHES MINIMUM
 - 10.5. EARTH COVER - VARIES
 - 10.6. UNIT WEIGHT OF EARTH - 135 POUNDS PER CUBIC FOOT
 - 10.7. ACTIVE PRESSURE COEFFICIENT - 0.25 MIN., 0.5 MAX.
11. CAST-IN-PLACE NOTES:
 - 11.1. CONCRETE MINIMUM STRENGTH = 4,000 psi @ 28 DAYS.
 - 11.2. STEEL REINFORCEMENT - ASTM A615, GRADE 60, EPOXY COATED.
 - 11.3. ALL SURFACES VISIBLE WHEN COMPLETED SHALL HAVE RUBBED FINISH.
 - 11.4. 1"x1" CHAMFER ON ALL CORNERS.
 - 11.5. NOTES 10.5 - 10.7 APPLY
12. JOINTS BETWEEN PRECAST SECTIONS SHALL BE TONGUE & GROOVE WITH JOINT SEALANT. GEOTEXTILE FABRIC FOR SEPARATION (MassDOT M9.50) SHALL BE PLACED AT ALL JOINTS BETWEEN PRECAST BOX SECTIONS, HEADWALLS, FOOTERS, ETC. FABRIC SHALL BE MINIMUM WIDTH OF 2'-0", CENTERED ON THE JOINT, AND ALL FABRIC SPLICES SHALL INCLUDE A MINIMUM 2'-0" OVERLAP.



F PROPOSED STREAMBED MATERIAL PLACEMENT
C-9 NTS



J
C-9

GUARD RAIL INSTALLATION ON HEADWALL

NTS

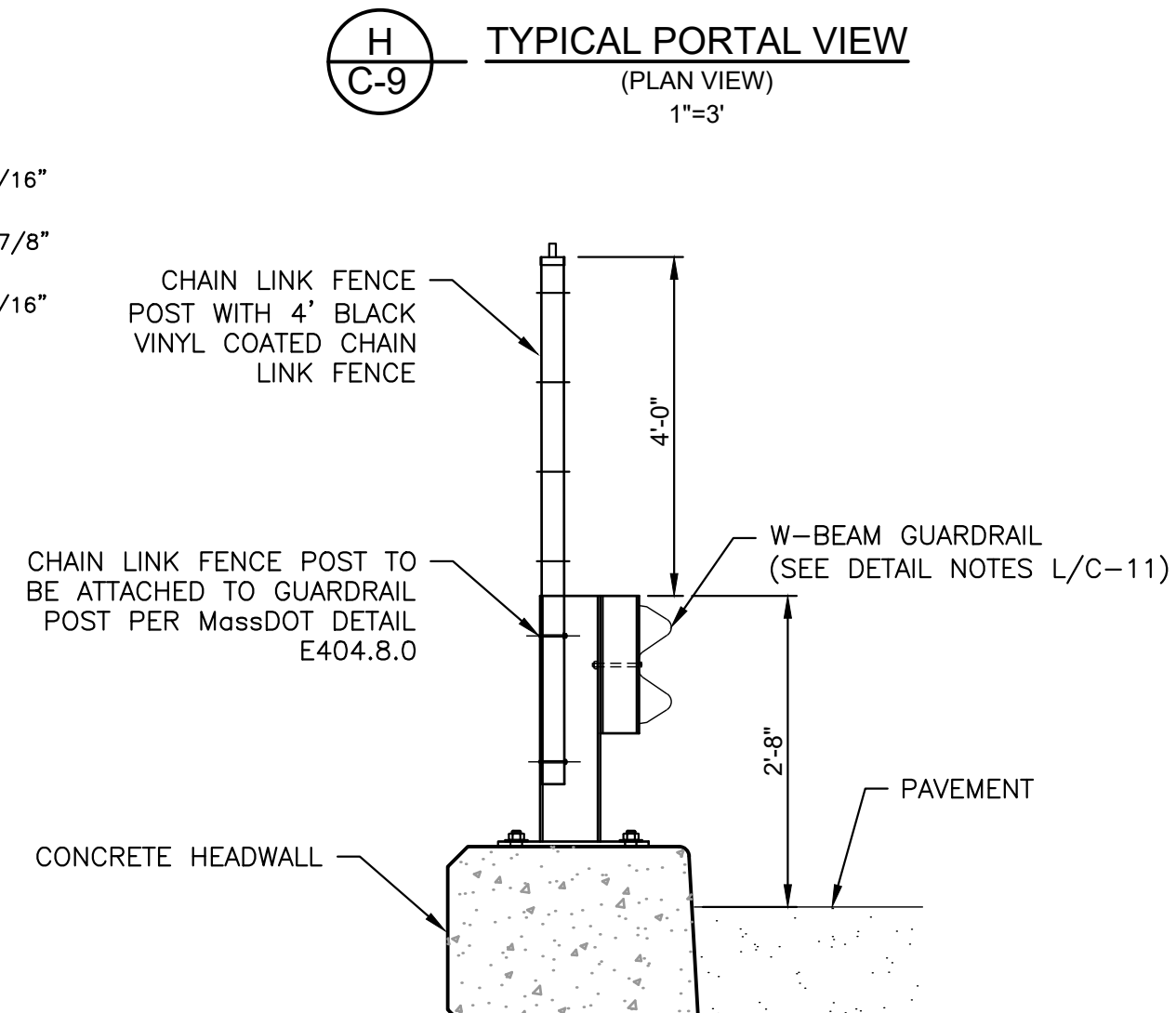
1. THE STREAMBED MATERIAL SHALL BE OF NATURAL ORIGIN AND CONSIST OF ANGULAR TO SUB-ROUNDED STONES, SIMILAR IN APPEARANCE AND TEXTURE TO THE EXISTING STREAM BED MATERIAL IN THE PROJECT AREA.
2. THE STREAMBED MATERIAL SHALL BE SUBSTANTIALLY FREE OF SHALE, PRODUCTS FROM CRUSHING OR BLASTING OPERATIONS, ORGANIC MATERIALS, AND DEBRIS. STONES GREATER THAN ONE INCH IN DIAMETER SHALL BE GENERALLY FREE OF FRACTURED FACES OR ANY DIMENSIONS THAT ARE LARGER THAN THE MAXIMUM SIZE STATED IN THE STREAMBED MATERIAL GRADATION REQUIREMENTS.
3. MATERIALS SALVAGED FROM THE PROJECT SITE THAT MEET THE REQUIREMENTS OF STREAMBED MATERIAL MAY BE USED IF OBTAINED FROM WITHIN THE LIMIT OF WORK AND AS APPROVED BY THE ENGINEER.
4. STREAMBED MATERIAL GRADATION:

NOMINAL RIPRAP CLASS BY MEDIAN PARTICLE DIAMETER (INCHES)


	<u>MIN.</u>	<u>MAX.</u>
d15	5.5	7.8
d50	8.5	10.5
d85	11.5	14.0
d100	18.0	20.0

5. THE VOIDS BETWEEN THE STONE MATRIX SHALL BE COMPLETELY FILLED WITH A PORTLAND CEMENT BASED GROUT IN ACCORDANCE WITH THE PROJECT SPECIFICATIONS.

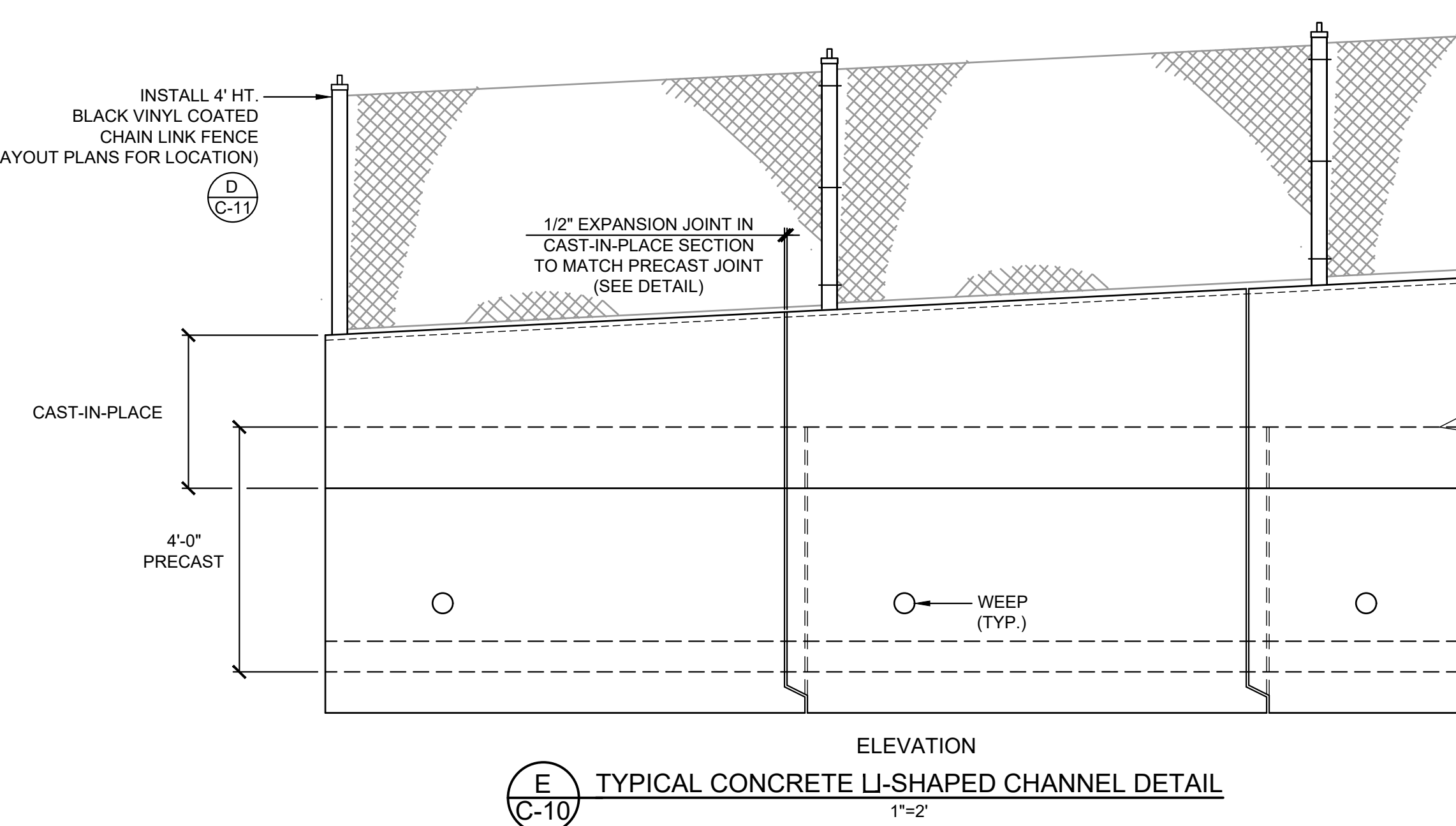
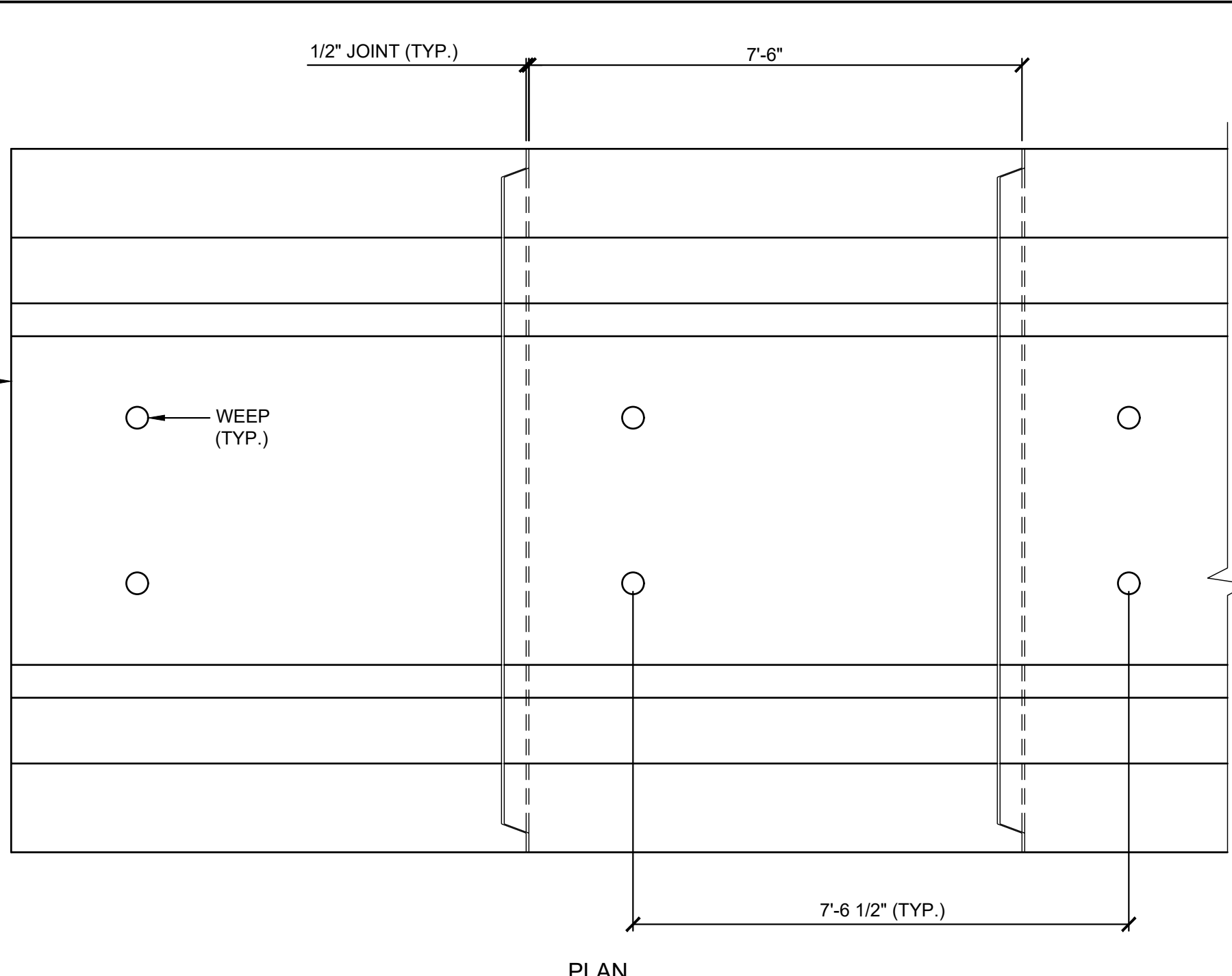
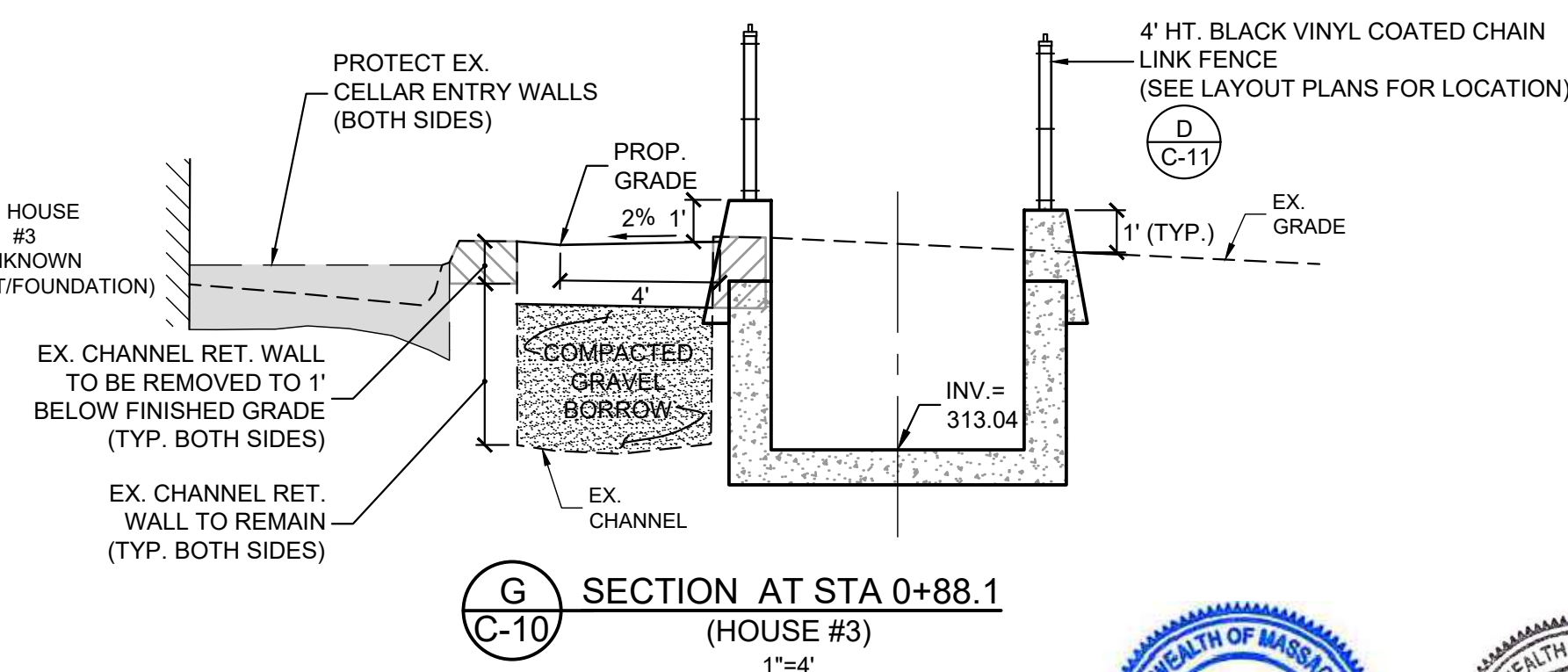
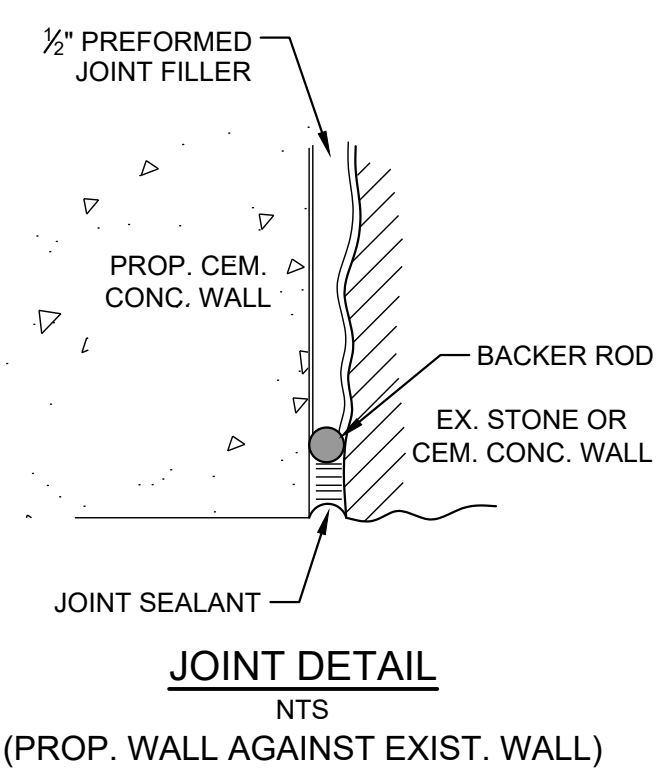
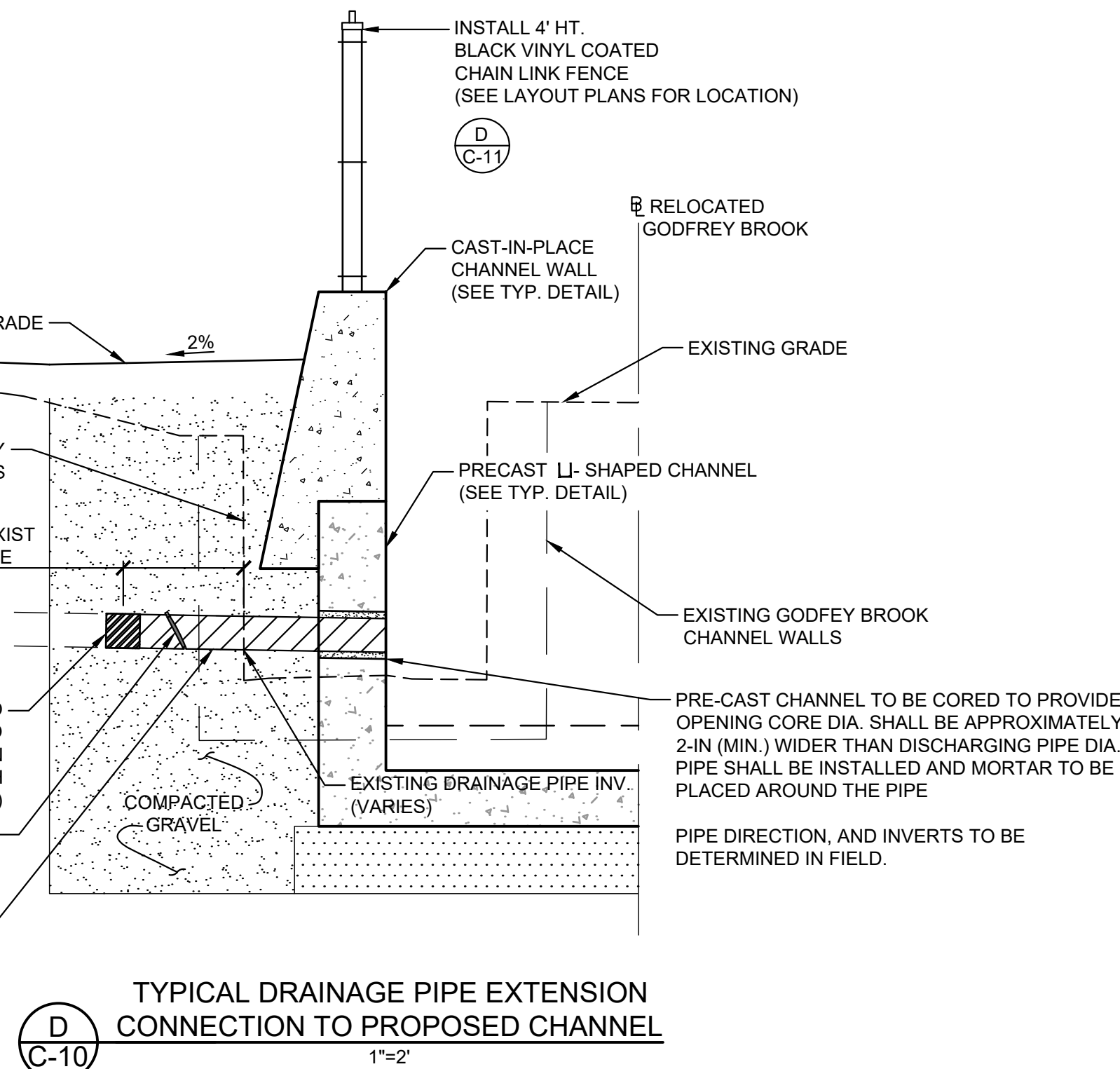
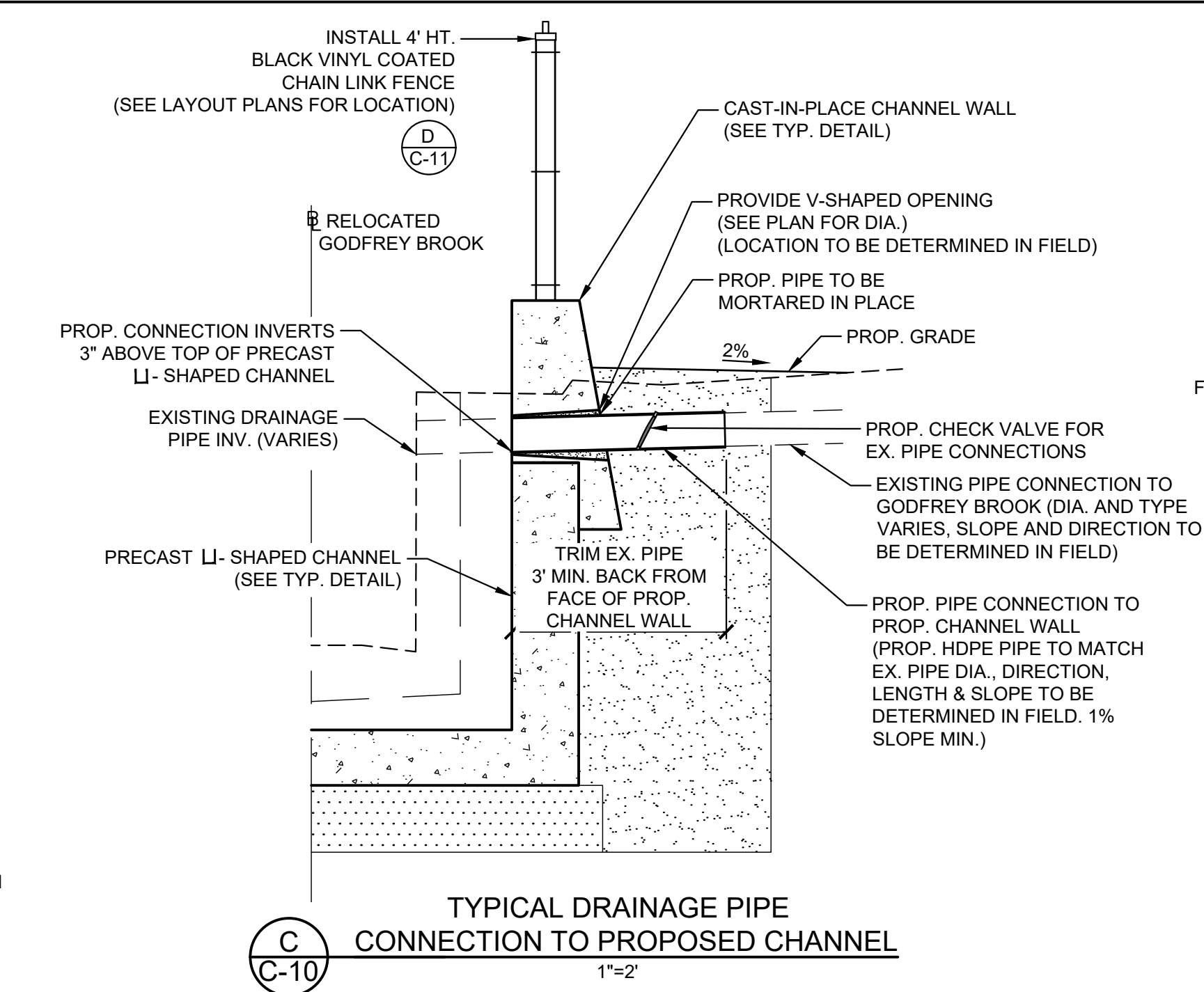
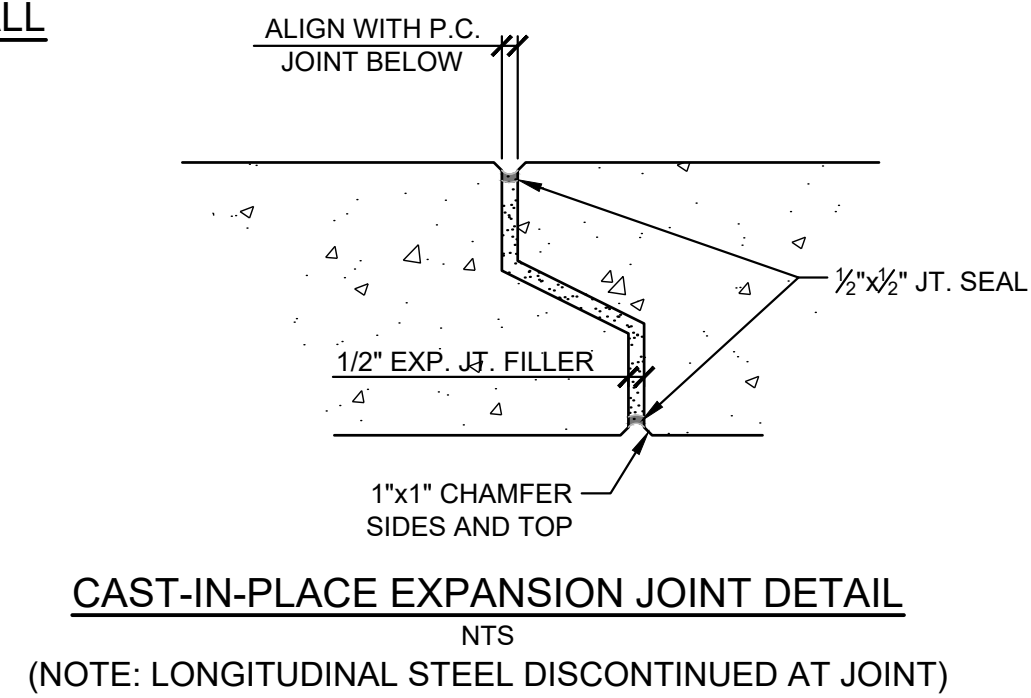
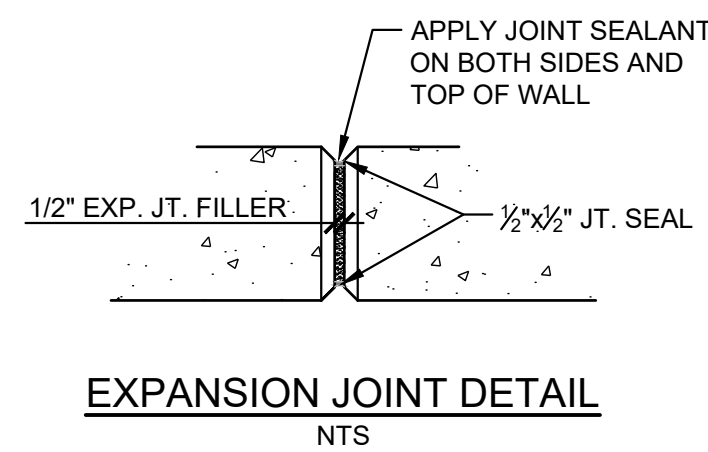
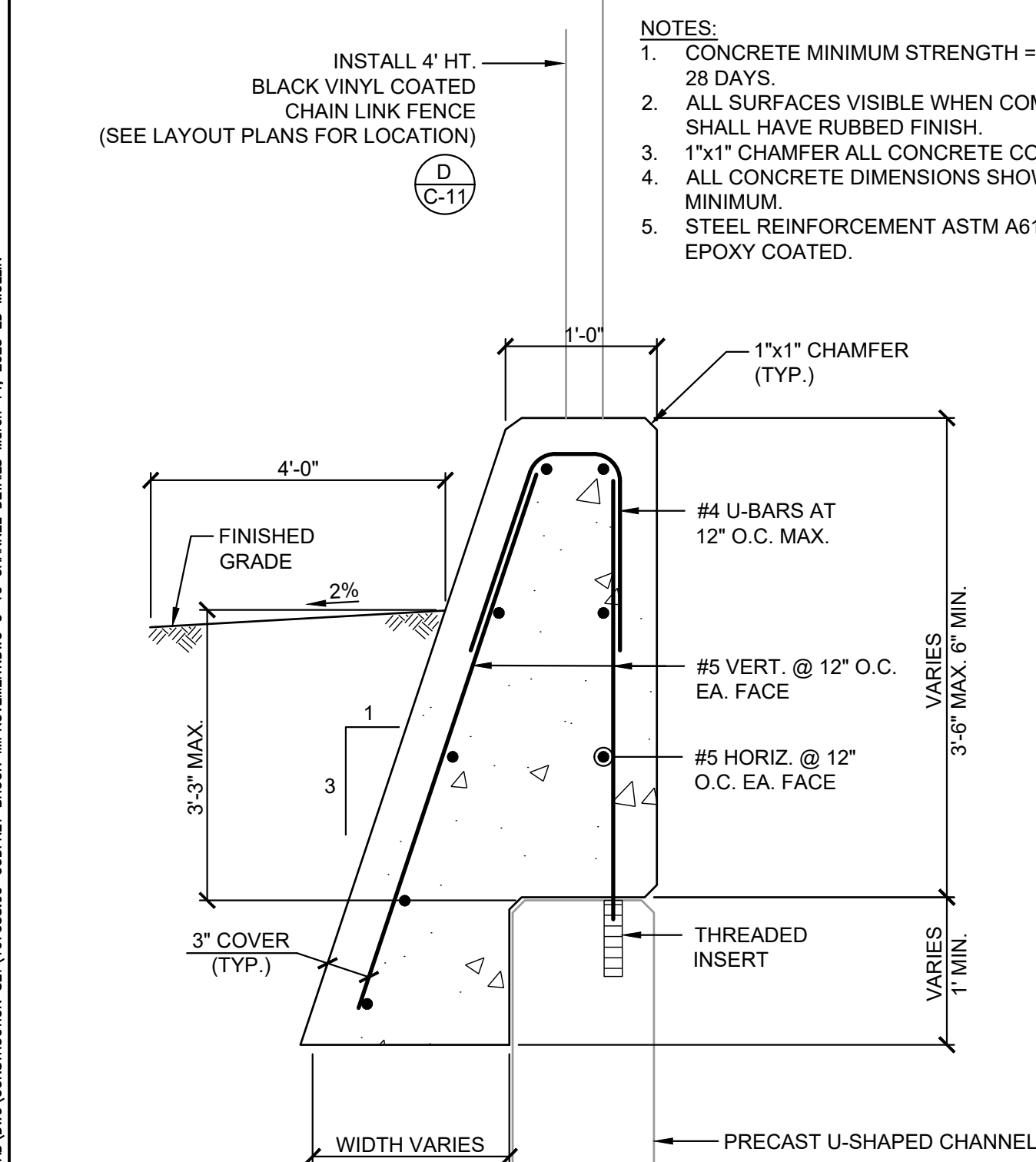
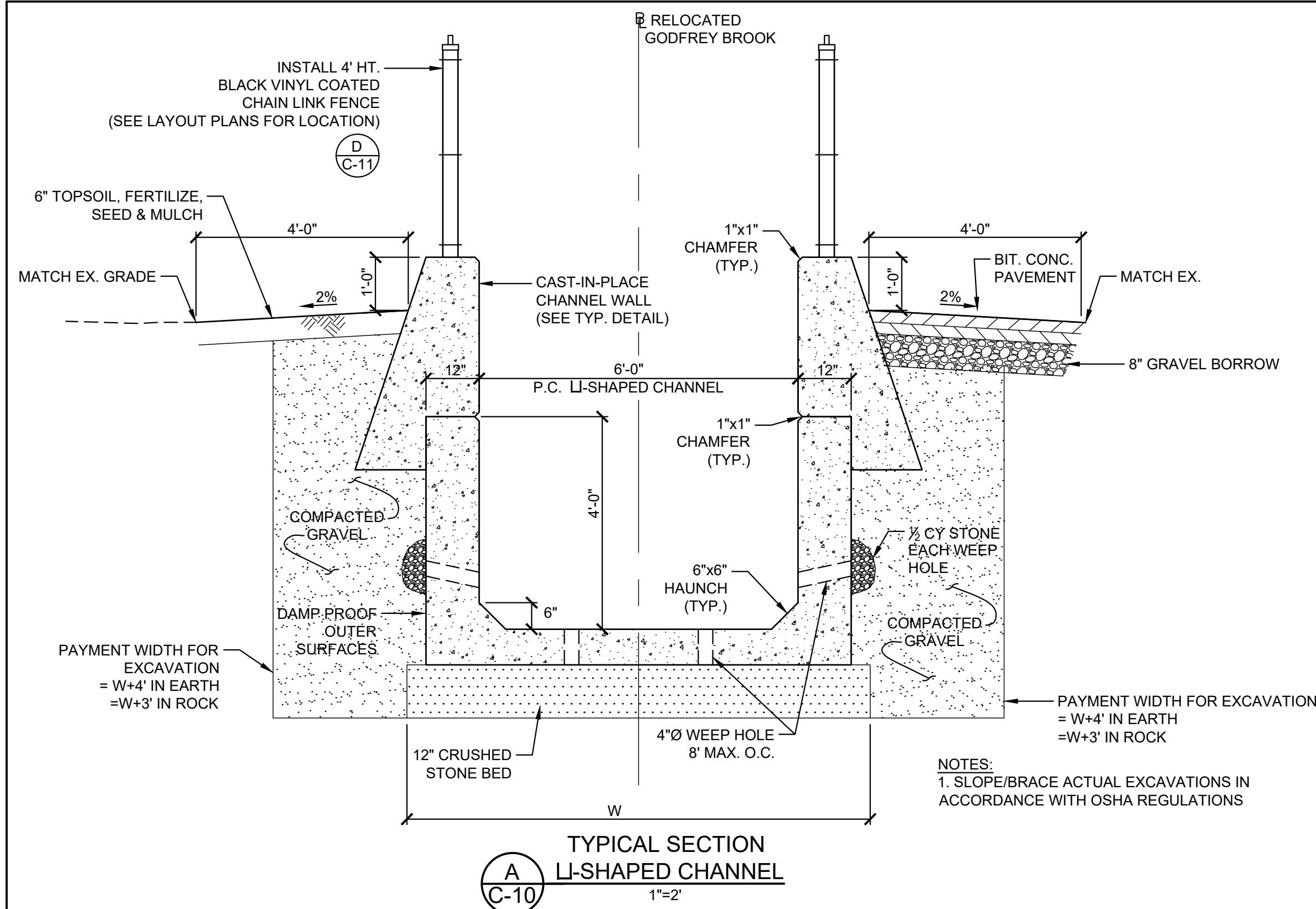
6. LARGER STONES 14 TO 20 INCHES IN DIAMETER SHALL BE PLACED IN A RANDOM FASHION BOTH LATEROALLY AND VERTICALLY. STONES SHALL BE PLACED AT DISTANCES APART OF BETWEEN FIVE AND FIFTEEN FEET. SOME OF THE STONES SHALL BE PLACED TO EXTEND ABOVE THE FINISHED STREAM PROFILE AT A DISTANCE OF UP TO 1 FOOT.



CHAIN LINK FENCE INSTALLATION ON GUARDRAIL
NTS

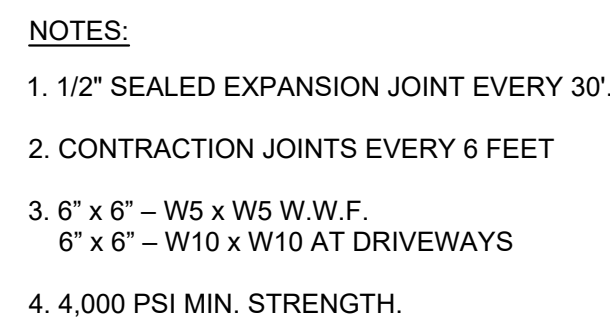
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<p>GODFREY BROOK CAPACITY IMPROVEMENTS PROJECT MILFORD, MASSACHUSETTS</p>			
<p>PROPOSED CULVERT PROFILE AND DETAILS</p>			
<p>PREPARED BY:</p>  <p>GZA GeoEnvironmental, Inc. www.gza.com</p>		<p>PREPARED FOR:</p> <p>MILFORD TOWN HALL 52 MAIN STREET MILFORD, MA 01757</p>	
<p>PROJ MGR: RTS</p> <p>DESIGNED BY: RTS</p> <p>DATE:</p>	<p>REVIEWED BY: JDA</p> <p>DRAWN BY: EDM</p> <p>PROJECT NO.</p>	<p>CHECKED BY: SLL</p> <p>SCALE: AS NOTED</p> <p>REVISION NO.</p>	<p>DRAWING</p> <p>C-9</p>
<p>JANUARY, 2025</p>	<p>15.0167038.00</p>	<p>-</p>	

© 2025 - GZA GeoEnvironmental, Inc. 15.0167038.00 GODFREY BROOK IMPROVEMENTS 15.0167038.00 GODFREY BROOK IMPROVEMENTS SET 15.0167038.00 GODFREY BROOK IMPROVEMENTS C-10 CHANNEL DETAILS March 14, 2025 ED MALLIN



Typical Concrete L-shaped Channel Detail (E C-10)
1"=2"

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GODFREY BROOK IMPROVEMENTS MILFORD MASSACHUSETTS			
CHANNEL DETAILS			
PREPARED BY:	RTS	REVIEWED BY:	JDA
DESIGNED BY:	RTS	DRAWN BY:	EDM
DATE:	JANUARY, 2025	PROJECT NO.:	15.0167038.00
PREPARED FOR:	MILFORD TOWN HALL 52 MAIN STREET MILFORD, MA 01757	CHECKED BY:	SLL
SCALE:	AS NOTED	REVISION NO.:	
DRAWING		C-10	



TYPICAL SECTION
CEMENT CONCRETE WALKWAYS

NTS




 STANDARD PRECAST 4 FT. DIA.
 CONC. CATCH BASIN
 NTS



SECTION D-D
N.T.S



NOTES:

1. STEEL W BEAM GUARD RAILS SHALL BE FURNISHED AND INSTALLED IN ACCORDANCE WITH MassDOT STANDARDS.
2. ALL STEEL COMPONENTS (INCLUDING BOLTS, NUTS AND WASHERS) SHALL BE GALVANIZED IN ACCORDANCE WITH ASTM A153 AND ASTM A123.
3. STEEL POST SPACING SHALL BE NO MORE THAN 6'0". FOR POST SPACING NEAR THE BRIDGE, SEE DETAIL H/C-9.
4. EACH W BEAM SHALL BE INSTALLED ON A MINIMUM OF 3 RAILS.
5. FOR STEEL W BEAM AND RAIL, SPICE DETAILS SEE MASSDOT CONSTRUCTION STANDARD ME 401.7.0.
6. FOR STEEL POST AND TERMINAL SECTIONS SEE MassDOT CONSTRUCTION STANDARD ME 401.8.0R.
7. FOR CHANNELIZED BLOCK-OUT DETAILS SEE MassDOT CONSTRUCTION STANDARD ME 401.20.0.
8. FOR STEEL W BEAM DETAILS SEE MASSDOT CONSTRUCTION STANDARD ME 401.7.0.
9. IF THE STEEL POST CANNOT BE INSTALLED TO MINIMUM DEPTH, THE CONTRACTOR SHALL INSTALL A MODIFIED POST WITH A CONCRETE FOOTING AS SPECIFIED ON MASSDOT CONSTRUCTION STANDARD ME 401.12.0.

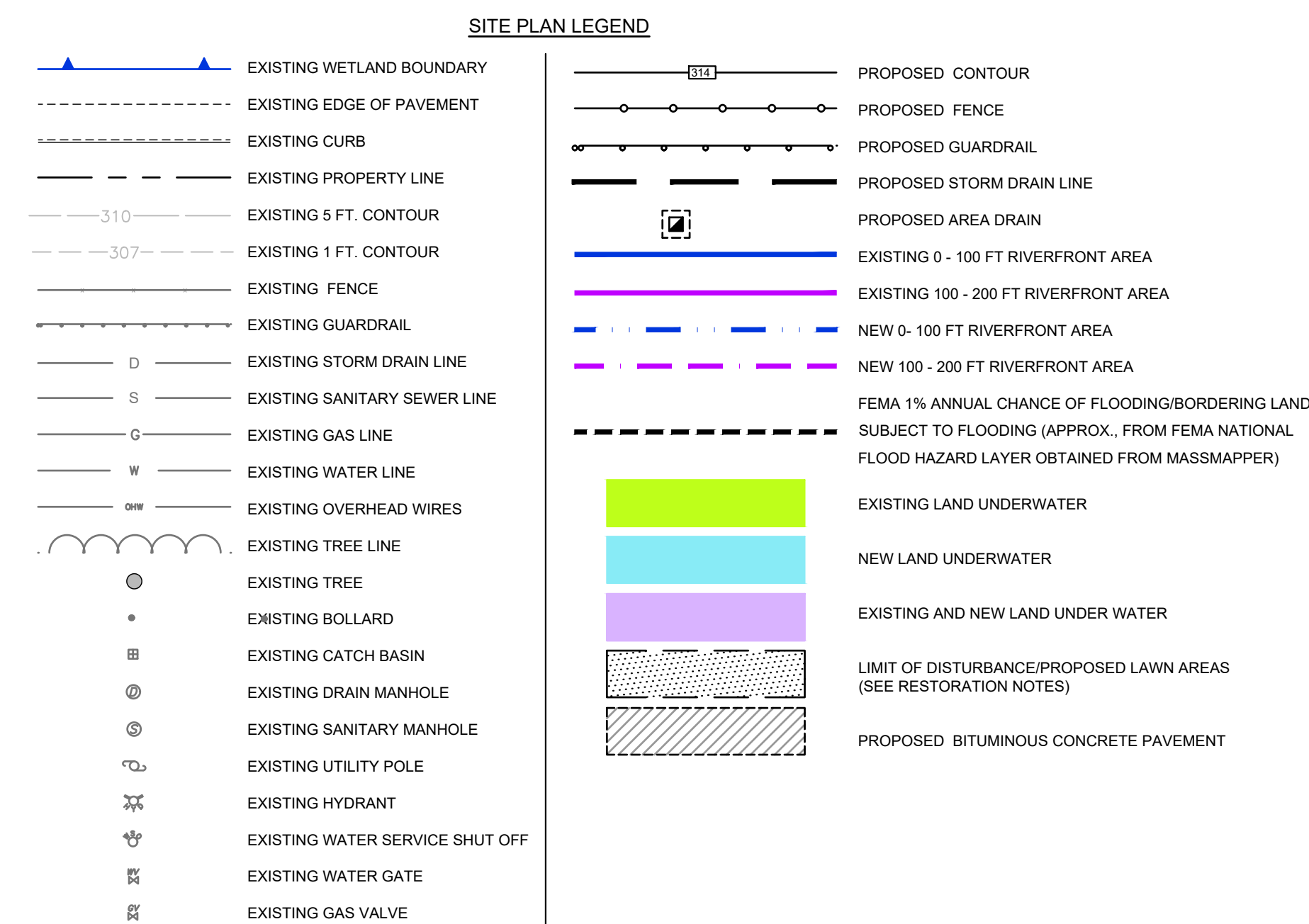
PROJECT SIGN NOTES:

1. TOP SECTION SHALL BE LIGHT BLUE BACKGROUND WITH IVORY LETTERING
2. BOTTOM SECTION BACKGROUND SHALL BE IVORY WITH DARK GREEN LETTERING.
3. THE SIGN SHALL BE ERECTED AT A SUITABLE LOCATION NEAR THE PROJECT SITE TO BE APPROVED BY THE ENGINEER.

TRASH RACK NOTES:


1. EXISTING GRATE DIMENSIONS ARE TO BE CONFIRMED IN FIELD.
2. EXISTING GRATE AND STRUCTURE DETAILS CAN BE FOUND ON SHEETS 25 AND 26 IN THE GODFREY BROOK FLOOD MITIGATION PROJECT PLAN SET, PREPARED FOR THE TOWN OF MILFORD, MA, PREPARED BY BAYSTATE ENVIRONMENTAL CONSULTANTS INC., DATED APRIL 1999.
3. LENGTH OF PROPOSED CUT OF VERTICAL BARS WILL DEPEND ON FIELD MEASUREMENTS TO CATCH 16-IN VERTICAL CLEARANCE. ACTUAL SLOPE AND DIMENSIONS OF EXISTING GRATE MAY DIFFER FROM THAT SHOWN ON PLANS.

[illegible]



0 15 30 60
SCALE IN FEET

ALL AREAS DISTURBED DUE TO CONSTRUCTION OPERATIONS AND NOT DESIGNATED FOR OTHER SURFACE TREATMENT SHALL RECEIVE 6" MIN. THICKNESS OF LOAM AND SHALL BE FINE-GRADED, SEEDED, AND ESTABLISHED AS TURF GRASS, PER SPECIFICATIONS, USING PERENNIAL RYE GRASSES SEED MIX, APPLIED AT A RATE OF NOT LESS THAN 50 POUNDS/ACRE AND MULCHED WITH A 2" MIN. LAYER OF STRAW MULCH.

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<p>GODFREY BROOK CAPACITY IMPROVEMENTS PROJECT MILFORD, MASSACHUSETTS</p>					
<p>WETLAND RESOURCE AREAS AND PROPOSED RESTORATION PLAN</p>					
<p>PREPARED BY:</p>  <p>GZA GeoEnvironmental, Inc. www.gza.com</p>			<p>PREPARED FOR:</p> <p>MILFORD TOWN HALL 52 MAIN STREET MILFORD, MA 01757</p>		
<p>PROJ MGR: RTS</p>		<p>REVIEWED BY: JDA</p>		<p>CHECKED BY: SLL</p>	
<p>DESIGNED BY: RTS</p>		<p>DRAWN BY: EDM</p>		<p>SCALE: AS NOTED</p>	
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<p>JANUARY, 2025</p>		<p>15.0167038.00</p>		<p>-</p>	
<p>DRAWING C-12</p>					

