

BOX CULVERT GENERAL PLAN
SCALE: 1" = 5'

NOTICE TO BRIDGE INSPECTORS

THE DEPARTMENT'S BRIDGE SAFETY PROCEDURES REQUIRE THIS BRIDGE TO BE INSPECTED FOR, BUT NOT LIMITED TO, ALL APPROPRIATE COMPONENTS INDICATED IN THE GOVERNING MANUALS FOR BRIDGE INSPECTION. ATTENTION MUST BE GIVEN TO INSPECTING THE FOLLOWING SPECIAL COMPONENTS AND DETAILS. (THE LISTING OF COMPONENTS FOR SPECIFIC ATTENTION SHALL NOT BE CONSTRUED TO REDUCE THE IMPORTANCE OF ANY OTHER COMPONENT OF THE STRUCTURE.) THE FREQUENCY OF INSPECTION OF THIS STRUCTURE SHALL BE IN ACCORDANCE WITH THE GOVERNING MANUALS FOR BRIDGE INSPECTION, UNLESS OTHERWISE DIRECTED BY THE MANAGER OF THE BRIDGE SAFETY AND EVALUATION.

COMPONENT OR DETAIL	DRAWING NUMBER REFERENCE
FOLLOW NORMAL INSPECTION PROCEDURES	-

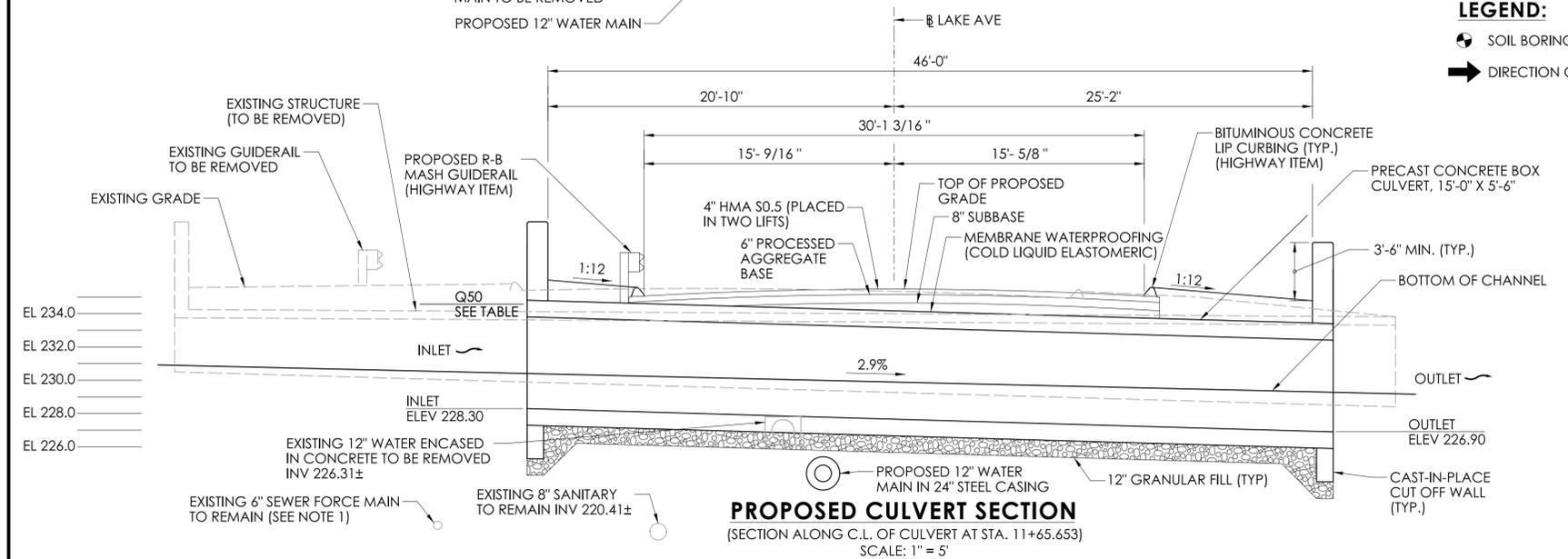
ESTIMATED SHIPPING DATA

MEMBER	SHIPPING HEIGHT	SHIPPING LENGTH	SHIPPING WIDTH	SHIPPING WEIGHT
MAXIMUM CULVERT UNIT	7.50 FT	5.00 FT	17.00 FT	33750 LBS

HYDRAULIC DATA

DRAINAGE AREA	0.57± SQ. MILE
DESIGN FREQUENCY	50 YR
DESIGN DISCHARGE	398 CFS
AVERAGE DAILY FLOW ELEVATION	231.2 FT
UPSTREAM DESIGN WATER SURFACE ELEVATION	234.58 FT
DOWNSTREAM DESIGN WATER SURFACE ELEVATION	233.66 FT

LEGEND:
 SOIL BORING
 DIRECTION OF TRAFFIC



PROPOSED CULVERT SECTION
(SECTION ALONG C.L. OF CULVERT AT STA. 11+65.653)
SCALE: 1" = 5'

NOTES:

1. THE EXISTING 6" SEWER FORCE MAIN WAS UNABLE TO BE IDENTIFIED DURING DESIGN INVESTIGATIONS. THE CONTRACTOR SHALL LOCATE THIS UTILITY VIA TEST PIT PRIOR TO PROCEEDING WITH REMOVAL OF EXISTING CULVERT. SEE SPECIAL PROVISION "TEST PIT" FOR ADDITIONAL INFORMATION.
2. STRUCTURE DIMENSIONS ARE BASED ON 12" CULVERT WALL THICKNESS. CONTRACTOR SHALL ADJUST DIMENSIONS IF CULVERT WALL THICKNESS DIFFERS.
3. REMOVAL OF EXISTING STRUCTURE TO BE PAID FOR UNDER ITEM 0974000 REMOVAL OF EXISTING MASONRY.
4. FOR CULVERT CONSTRUCTION STAGING AND WATER HANDLING DETAILS SEE DWGS. MPT-02 AND MPT-03.

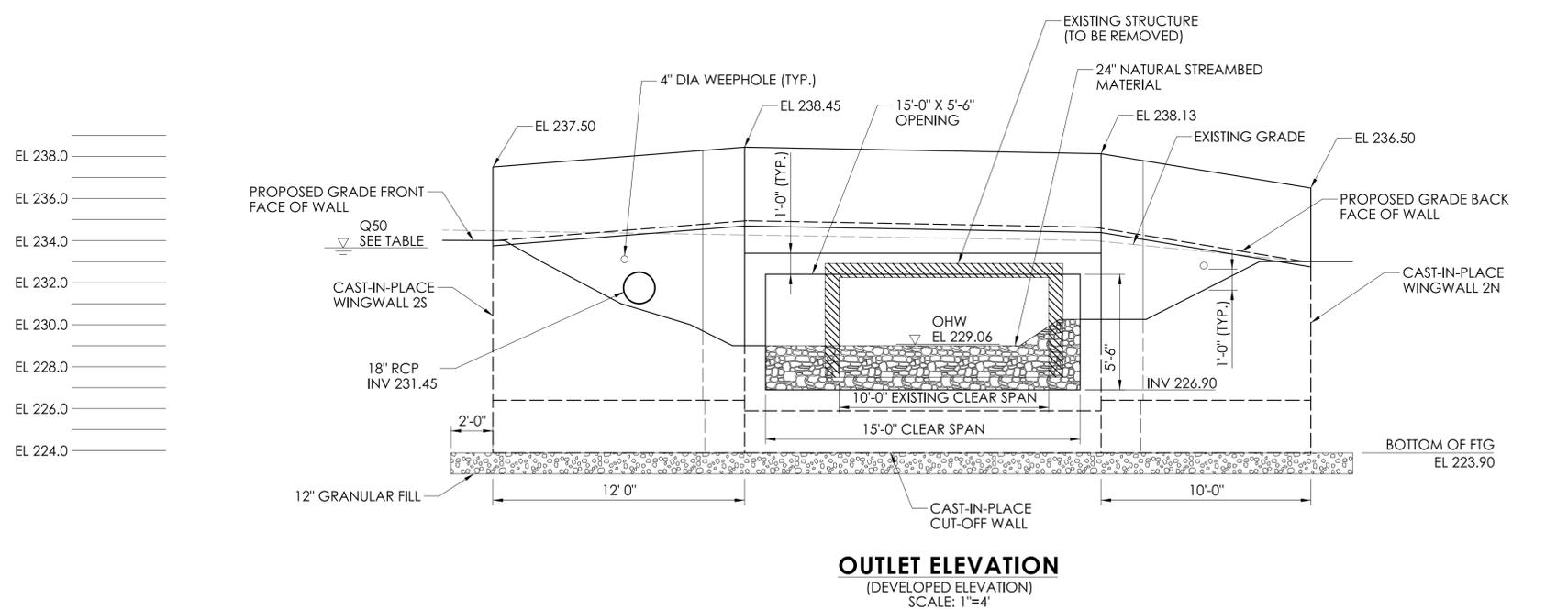
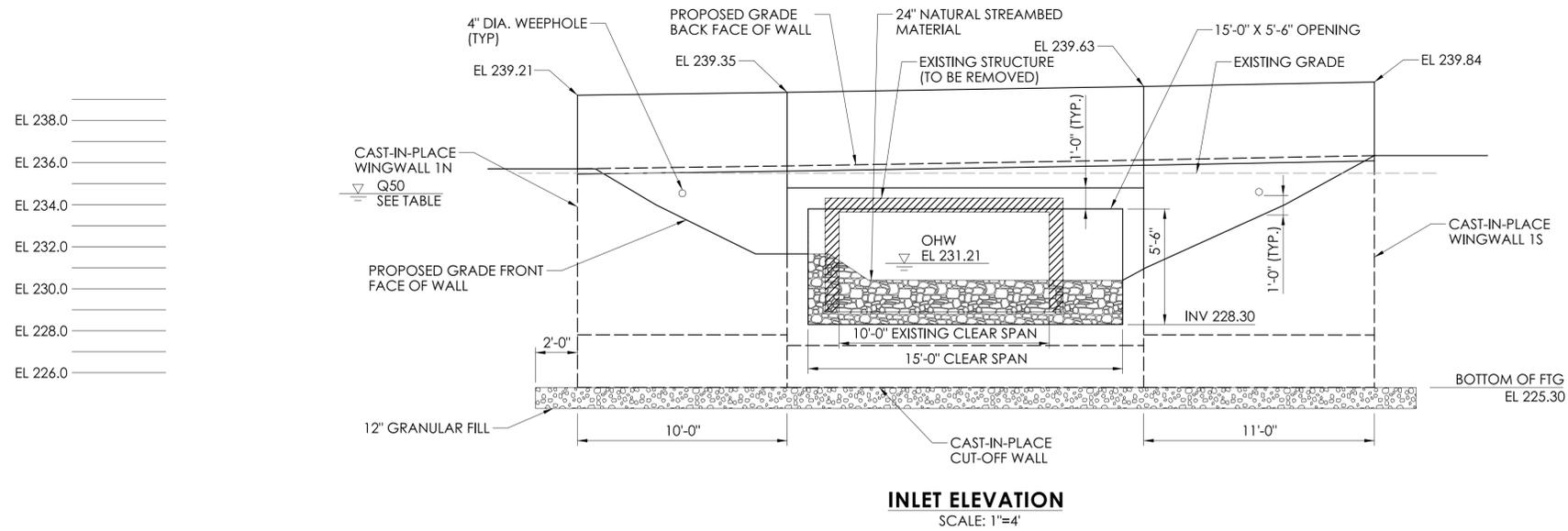
DESIGNER/DRAFTER: JCG/JCG CHECKED BY: KLM
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 PLOTTED DATE: 2/2/2023

SIGNATURE/BLOCK:



PROJECT NUMBER: 0000-0000
 PROJECT DESCRIPTION: REPLACEMENT OF LAKE AVENUE CULVERT OVER CUSSGUTTER BROOK
 TOWN(S): BRISTOL
 DRAWING TITLE: CULVERT PLAN AND ELEVATION

DRAWING NO. BR-02
 SHEET NO. 4.02



BANK FULL WIDTH NOTES:

BFW = 12 FT (MEASURE PERPENDICULAR TO FLOW)
 1.2 X BFW = 14.4 FT
 15 FT = PROPOSED CLEAR SPAN

THE FOLLOWING PAY ITEMS AND CONCRETE CLASS ARE REQUIRED FOR CAST-IN-PLACE CONCRETE BRIDGE COMPONENTS:

ITEM	BRIDGE COMPONENTS	PCC CLASS
ABUTMENT AND WALL CONCRETE	HEADWALLS, WINGWALL STEMS	PCC03340
FOOTING CONCRETE	CUT-OFF WALLS, RETURN WALLS, WINGWALL FOOTINGS	PCC03340
PARAPET CONCRETE	WINGWALL PARAPET, HEADWALL PARAPET	PCC03340

NATURAL STREAMBED MATERIAL NOTES:

- NATIVE STREAMBED MATERIAL EXCAVATED DURING EXISTING STRUCTURE REMOVAL AND NEW STRUCTURE INSTALLATION SHALL BE STOCKPILED AND THEN REPLACED TO THE DEPTH SHOWN ON THE PLANS, AS DIRECTED BY THE ENGINEER, AND IN ACCORDANCE WITH SPECIAL PROVISION "EXCAVATION AND REUSE OF EXISTING CHANNEL BOTTOM MATERIAL"
- ADDITIONAL STREAMBED MATERIAL, IF REQUIRED, SHALL BE IN ACCORDANCE WITH THE SPECIAL PROVISION "SUPPLEMENTAL STREAMBED CHANNEL MATERIAL".
- THE STOCKPILE SHALL BE LOCATED OUTSIDE THE WETLAND LIMITS AND PROTECTED WITH SEDIMENTATION CONTROL SYSTEM.

GENERAL NOTES:

SPECIFICATIONS: CONNECTICUT DEPARTMENT OF TRANSPORTATION FORM 818 (2020); SUPPLEMENTAL SPECIFICATIONS DATED JANUARY 2023 AND SPECIAL PROVISIONS
 DESIGN SPECIFICATIONS: AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS, 8TH EDITION (2017), WITH INTERIM SPECIFICATIONS, AS SUPPLEMENTED BY THE CONNECTICUT DEPARTMENT OF TRANSPORTATION BRIDGE DESIGN MANUAL (2003), AS UPDATED THROUGH DECEMBER 2019.

MATERIAL STRENGTHS:
 CONCRETE:
 -CLASS PCC03340 $f'_c = 3,000$ PSI
 -PRECAST CONCRETE $f'_c = 5,000$ PSI

THE CONCRETE STRENGTH, f'_c , USED IN THE DESIGN OF THE CONCRETE COMPONENTS IS NOTED ABOVE, THE COMPRESSIVE STRENGTH OF THE CONCRETE IN THE CONSTRUCTED COMPONENTS SHALL CONFORM TO THE REQUIREMENTS OF SECTION 6.01 - CONCRETE FOR STRUCTURES, AND M.03 - PORTLAND CEMENT CONCRETE.

REINFORCEMENT:
 -ASTM A615 GRADE 60 $f_y = 60,000$ PSI

LIVE LOAD: HL-93, LEGAL AND PERMIT VEHICLES

FUTURE PAVING ALLOWANCES: NONE

HMA OVERLAY SHALL CONSIST OF:
 4" HMA S0.5 TRAFFIC LEVEL 2 ON
 6" PROCESSED AGGREGATE BASE ON
 8" SUBBASE
 MEMBRANE WATERPROOFING (COLD LIQUID ELASTOMERIC).

DIMENSIONS: WHEN DECIMAL DIMENSIONS ARE GIVEN TO LESS THAN THREE DECIMAL PLACES, THE OMITTED DIGITS SHALL BE ASSUMED TO BE ZEROS.

EXISTING DIMENSIONS: DIMENSIONS OF THE EXISTING STRUCTURE SHOWN ON THESE PLANS ARE FOR GENERAL REFERENCE ONLY. THE CONTRACTOR SHALL TAKE ALL FIELD MEASUREMENTS NECESSARY TO ASSURE PROPER FIT OF THE FINISHED WORK AND SHALL ASSUME FULL RESPONSIBILITY FOR THEIR ACCURACY. WHEN SHOP DRAWINGS BASED ON FIELD MEASUREMENTS ARE SUBMITTED FOR APPROVAL, THE FIELD MEASUREMENTS SHALL ALSO BE SUBMITTED FOR REFERENCE BY THE REVIEWER.

UTILITIES: THE FOLLOWING UTILITIES ARE LOCATED WITHIN THE PROJECT LIMITS: CITY OF BRISTOL WATER, CITY OF BRISTOL SEWER, FRONTIER, CROWN CASTLE FIBER, EVERSOURCE. THE CONTRACTOR SHALL COORDINATE ALL WORK RELATED TO UTILITY RELOCATION WITH THE RESPECTIVE UTILITY COMPANIES.

TRAFFIC: ALL WORK SHALL BE DONE IN ACCORDANCE WITH SECTION 1.08 "PROSECUTION AND PROGRESS" AND ITEM 0971001A" MAINTENANCE AND PROTECTION OF TRAFFIC".

DEMOLITION: THE CONTRACTOR SHALL SUBMIT DEMOLITION PROCEDURES PRIOR TO THE REMOVAL OF THE EXISTING CULVERT.

MASH TEST LEVEL: THE CONCRETE PARAPET MEETS THE TL-4 CRITERIA FOR MASH 2016.

CONCRETE NOTES:

EXPOSED EDGES: EXPOSED EDGES OF CONCRETE SHALL BE BEVELED 1" X 1" UNLESS DIMENSIONED OTHERWISE.

CONCRETE COVER: ALL REINFORCEMENT SHALL HAVE 2 INCHES COVER UNLESS DIMENSIONED OTHERWISE.

REINFORCEMENT: ALL REINFORCEMENT SHALL BE GALVANIZED AFTER FABRICATION UNLESS NOTED OTHERWISE. ALL REINFORCEMENTS SHALL CONFORM TO THE REQUIREMENTS OF ASTM A767, CLASS 1, INCLUDING SUPPLEMENTAL REQUIREMENTS. THE COST OF FURNISHING AND PLACING THIS REINFORCEMENT SHALL BE INCLUDED IN THE ITEM "DEFORMED STEEL BARS - GALVANIZED".

PREFORMED EXPANSION JOINT FILLER: THE COST OF FURNISHING AND INSTALLING PREFORMED EXPANSIONS JOINT FILLER SHALL BE INCLUDED IN THE COST FOR ITEM "1/2" PREFORMED EXPANSION JOINT FILLER FOR BRIDGES".

CONSTRUCTION JOINT: CONSTRUCTION JOINTS, OTHER THAN THOSE SHOWN ON PLANS, WILL NOT BE PERMITTED WITHOUT THE PRIOR APPROVAL OF THE ENGINEER.

BRIDGE IDENTIFICATION PLACARDS: THE CONTRACTOR SHALL PROVIDE AND INSTALL NEW BRIDGE IDENTIFICATION SIGNS AT THE LEADING END OF EACH BRIDGE WINGWALL. THE SIGNS SHALL BE FABRICATED WITH 40 GAUGE ALUMINUM SHEET METAL. THE SIGNS SHALL BE 4' X 12" WITH 3" WHITE REFLECTIVE BLOCK LETTERS ON GREEN REFLECTIVE SHEETING. EACH SIGN SHALL READ: 17005. ALL COSTS ASSOCIATED WITH PROVIDING AND INSTALLING THE BRIDGE SIGNS SHALL BE COVERED UNDER ITEM 1208931 SIGN FACE SHEET ALUMINUM (TYPE IX RETROREFLECTIVE SHEETING.) THE FINAL LOCATION AND ATTACHMENT METHOD FOR THE SIGNS SHALL BE APPROVED BY THE ENGINEER PRIOR TO INSTALLATION.

PRECAST CONCRETE NOTES:

SPECIFICATIONS: CONNECTICUT DEPARTMENT OF TRANSPORTATION FORM 818 (2020); SUPPLEMENTAL SPECIFICATIONS DATED JANUARY 2023 AND SPECIAL PROVISIONS, "15' X 5.5' PRECAST CONCRETE BOX CULVERT".

DESIGN SPECIFICATIONS: AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS 8TH EDITION, AS SUPPLEMENTED BY THE CONNECTICUT DEPARTMENT OF TRANSPORTATION BRIDGE DESIGN MANUAL(2003), AS UPDATED THROUGH DECEMBER 2019.

RATINGS SPECIFICATIONS: THE MANUAL FOR BRIDGE EVALUATION (AASHTO LRFR) SECOND EDITION-2010 WITH THE LATEST INTERIMS AND CTDOT BRIDGE LOAD RATING MANUAL (MARCH 29, 2018 REVISION).

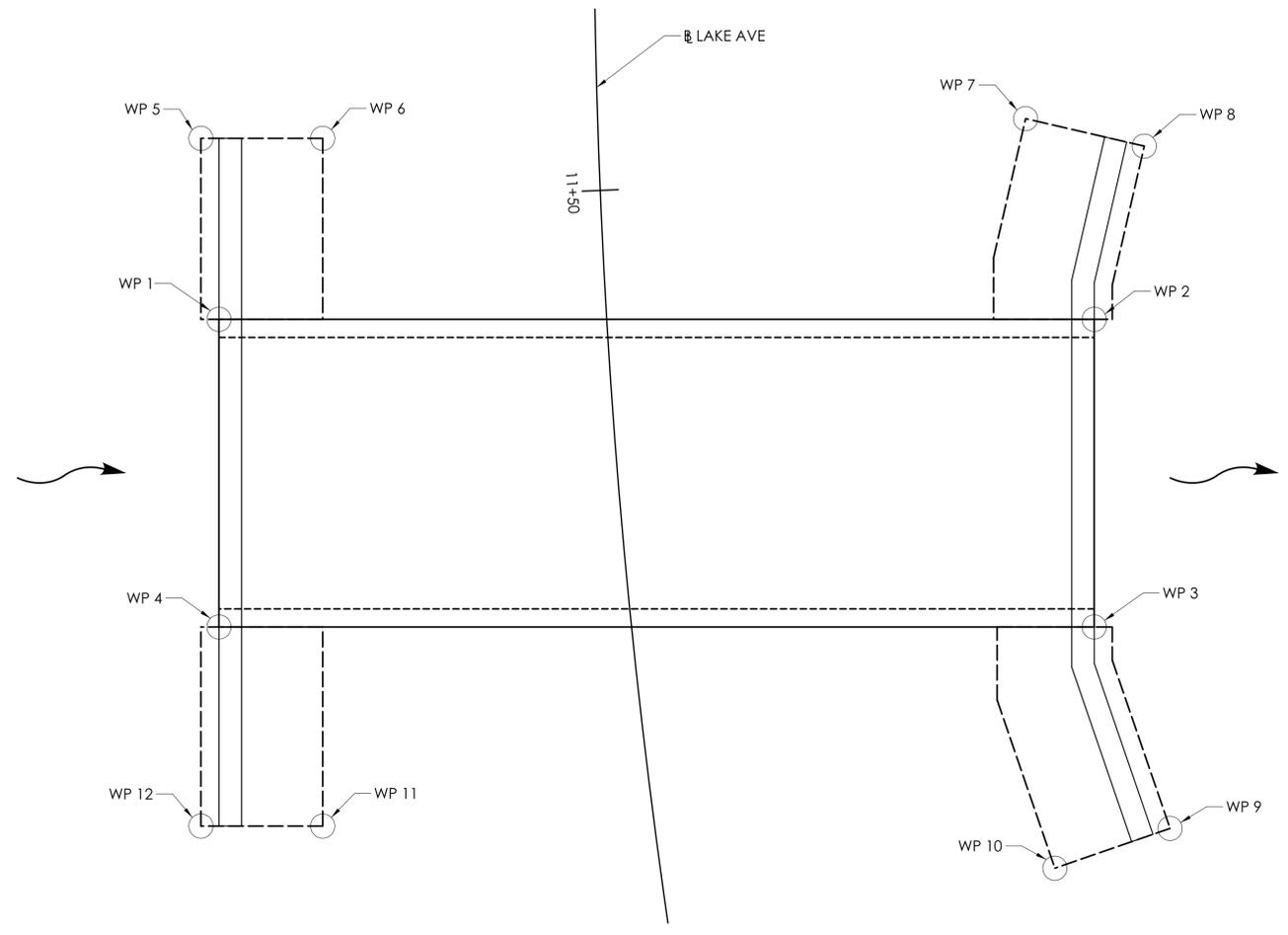
MATERIAL PROPERTIES: THE CONCRETE MIX FOR PRECAST BOX CULVERT UNITS, CUT-OFF WALLS, AND RETURN WALLS SHALL ATTAIN A MINIMUM 28-DAY COMPRESSIVE STRENGTH OF 5,000 PSI, REINFORCEMENT (ASTM A615, GRADE 60); $f_y = 60$ KSI.

REINFORCEMENT: ALL STEEL REINFORCING BARS IN BOX CULVERT UNITS, CUT-OFF WALLS, AND RETURN WALLS SHALL CONFORM TO ASTM A615, GRADE 60 AND SHALL BE GALVANIZED IN ACCORDANCE WITH ASTM A767, CLASS 1.

THE FIRST DIMENSION FOR THE BOX CULVERT IS WIDTH, SECOND DIMENSION IS HEIGHT.

CONCRETE COVER: REINFORCEMENT IN PRECAST CONCRETE CUT-OFF WALLS AND RETURN WALLS SHALL HAVE THE MINIMUM COVER INDICATED ON THE PLANS, COVER IN THE PRECAST CONCRETE BOX CULVERT SHALL BE 2".

THE CONTRACTOR IS FULLY RESPONSIBLE FOR THE DESIGN OF THE LIFTING DEVICES, WHICH SHALL BE ADEQUATE FOR THE SAFETY FACTORS REQUIRED BY THE ERECTION PROCEDURE.



WORKING POINT COORDINATES			
WORKING POINTS	NORTHING	EASTING	LOCATION
WP 1	795567.9448	952508.0480	NW EXTERIOR CORNER OF BOX CULVERT
WP 2	795591.1292	952550.6477	NE EXTERIOR CORNER OF BOX CULVERT
WP 3	795576.1974	952558.7742	SE EXTERIOR CORNER OF BOX CULVERT
WP 4	795553.0130	952516.1745	SW EXTERIOR CORNER OF BOX CULVERT
WP 5	795576.2502	952502.3894	NW FOOTING CORNER AT TOE
WP 6	795579.4769	952508.3182	NW FOOTING CORNER AT HEEL
WP 7	795599.0507	952542.0067	NE FOOTING CORNER AT HEEL
WP 8	795600.8610	952548.5095	NE FOOTING CORNER AT TOE
WP 9	795568.4301	952567.7846	SE FOOTING CORNER AT TOE
WP 10	795563.4489	952563.2293	SE FOOTING CORNER AT HEEL
WP 11	795546.0999	952526.4833	SW FOOTING CORNER AT HEEL
WP 12	795542.8732	952520.5545	SW FOOTING CORNER AT TOE

CULVERT LAYOUT - PLAN VIEW
SCALE: 1" = 5'

- NOTES:**
- STRUCTURE DIMENSIONS ARE BASED ON 12" CULVERT WALL THICKNESS. CONTRACTOR SHALL ADJUST DIMENSIONS IF CULVERT WALL THICKNESS DIFFERS.

BORING S-1

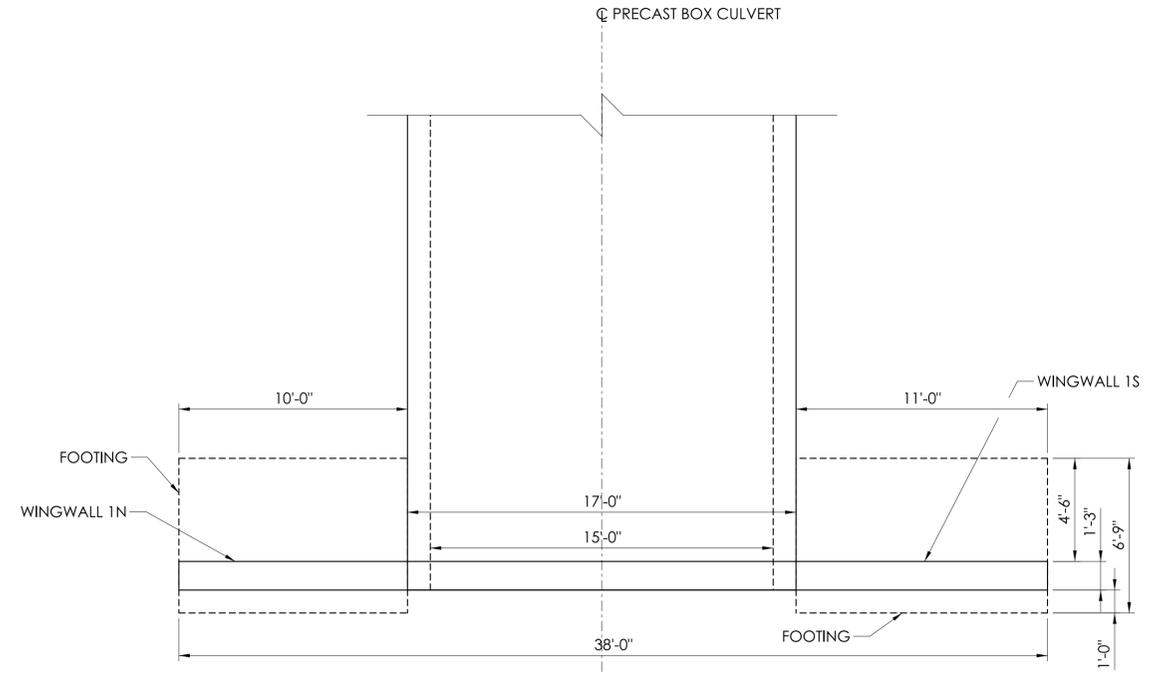
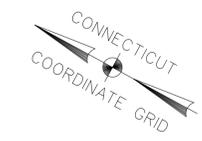
Driller: D. Griffin		Connecticut DOT Boring Report Format		Hole No.: S-1			
Inspector: N. Johnson		Town: Bristol		Stat./Offset:			
Engineer: A. McCauliffe		Project No.: 2019-0117.1		Nothing: 795669			
Start Date: 3-4-21		Route No.:		Easting: 952532.5			
Finish Date: 3-4-21		Bridge No.:		Surface Elevation: 235.3			
Project Description: Lake Avenue Culvert Replacement							
Casing Size/Type: 4-in Casing			Sampler Type/Size: 1-3/8 inch ID				
Hammer Wt.: 300lb. Fat: 30in.			Core Barrel Type: N/A				
Groundwater Observations: 5.5 ATD							
Depth (ft)	Sample Type/No.	SAMPLES			Generalized Strata Description	Material Description and Notes	Elevation (ft)
		Blows on Sampler per 6 inches	Pen. (in.)	Rec. (in.)			
0					ASPHALT FILL	Asphalt Pavement (8.5')	235
1	S-1	4 10 13 14	24	16		Brown c-f SAND, little c-f gravel, trace silt, 2" lense quartz fragments near bottom of Split Spoon	
2	S-2	14 9 11 17	24	6		[TOP S2] Gray Brown c-f SAND, some m-f gravel, trace silt	
3	S-3	21 50/5"	11	5		[BOTTOM S2] Gray Brown c-f GRAVEL, some c-f sand, trace silt	230
4						[TOP S3] Brown gray c-f SAND, little c-f gravel, trace silt, top 2" S3	
5	S-4	9 12 29 22	24	8		[BOTTOM S3] White c-f GRAVEL, some f sand, quartz, bottom 2" S3	225
6					SAND (Glacioluvial Deposit)	Gray brown c-f GRAVEL, some c-f sand, trace silt, quartz fragments	
15	S-5	13 17 16 17	24	13		Brown c-f SAND, trace silt	220
20	S-6	8 11 12 16	24	12		Light Brown c-f SAND, trace f gravel, trace silt	215
25	S-7	9 15 25 31	24	24		Light Brown c-f SAND, little c-f gravel, trace silt	210
30	S-8	9 12 13 15	24	12		Light Brown c-f SAND, little c-f gravel, trace silt	205
35						END OF BORING 32ft	
Sample Type: S = Split Spoon C = Core UP = Undisturbed Piston V = Vane Shear Test							
Proportions Used: Trace = 1 - 10%, Little = 10 - 20%, Some = 20 - 35%, And = 35 - 50%							
Total Penetration in Earth: 32ft Rock: 0ft		NOTES:		Sheet 1 of 1			
No. of Soil Samples: 8		No. of Core Runs: 0		SM-001-M REV. 1/02			

BORING S-2

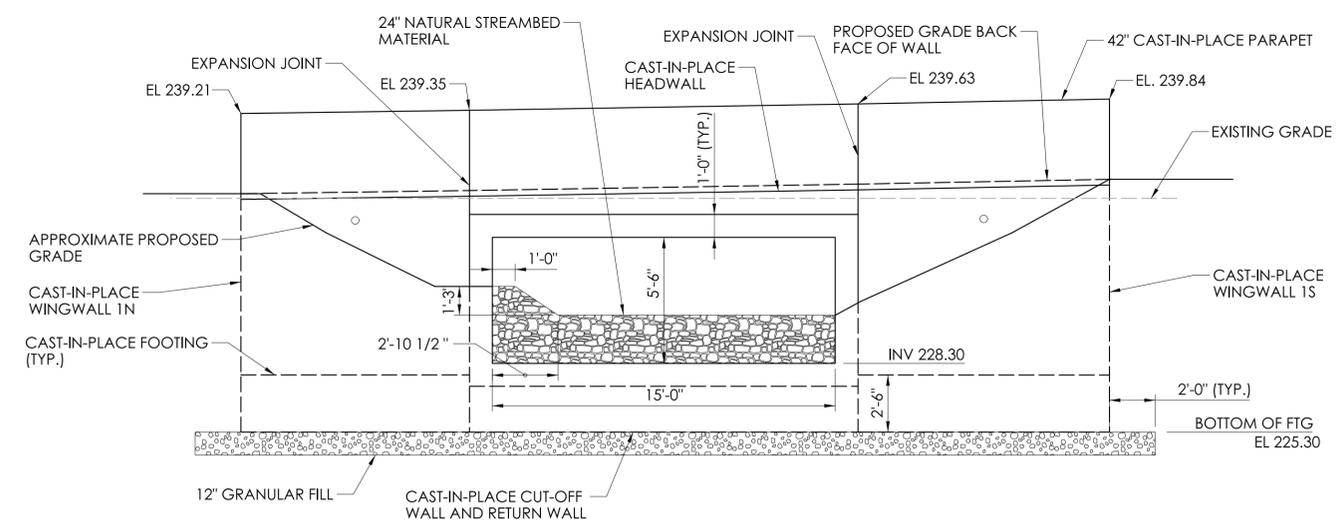
Driller: D. Griffin		Connecticut DOT Boring Report Format		Hole No.: S-2			
Inspector: N. Johnson		Town: Bristol		Stat./Offset:			
Engineer: A. McCauliffe		Project No.: 2019-0117.1		Nothing: 795624.1			
Start Date: 3-4-21		Route No.:		Easting: 952502.2			
Finish Date: 3-4-21		Bridge No.:		Surface Elevation: 235.0			
Project Description: Lake Avenue Culvert Replacement							
Casing Size/Type: 4-in Casing			Sampler Type/Size: 1-3/8 inch ID				
Hammer Wt.: 300lb. Fat: 30in.			Core Barrel Type: N/A				
Groundwater Observations: Not Encountered							
Depth (ft)	Sample Type/No.	SAMPLES			Generalized Strata Description	Material Description and Notes	Elevation (ft)
		Blows on Sampler per 6 inches	Pen. (in.)	Rec. (in.)			
0					ASPHALT FILL	Asphalt Pavement (7')	235
1	S-1	14 13 40 50	24	12		[TOP S1] Brown c-f SAND, little c-f gravel, trace silt, top 10" S1	
2						[BOTTOM S1] Gray c-f gravel, little c-f sand, trace silt, flecks of mica, bottom 2" S1	
3	S-2	39 50/5"	11	7		[TOP S2] Brown c-f SAND, some c-f gravel, top 3" S2	
4						[BOTTOM S2] Gray c-f GRAVEL, some f sand, trace silt, possible weathered rock, bottom 4" S2	
5						Refusal on Augers at 3.5ft on probable boulder	
10						END OF BORING 3.5ft	230
Sample Type: S = Split Spoon C = Core UP = Undisturbed Piston V = Vane Shear Test							
Proportions Used: Trace = 1 - 10%, Little = 10 - 20%, Some = 20 - 35%, And = 35 - 50%							
Total Penetration in Earth: 3.5ft Rock: 0ft		NOTES:		Sheet 1 of 1			
No. of Soil Samples: 2		No. of Core Runs: 0		SM-001-M REV. 1/02			

BORING S-2A

Driller: D. Griffin		Connecticut DOT Boring Report Format		Hole No.: S-2A			
Inspector: N. Johnson		Town: Bristol		Stat./Offset:			
Engineer: A. McCauliffe		Project No.: 2019-0117.1		Nothing: 795613.5			
Start Date: 3-4-21		Route No.:		Easting: 952497.3			
Finish Date: 3-4-21		Bridge No.:		Surface Elevation: 234.9			
Project Description: Lake Avenue Culvert Replacement							
Casing Size/Type: 4-in Casing			Sampler Type/Size: 1-3/8 inch ID				
Hammer Wt.: 300lb. Fat: 30in.			Core Barrel Type: N/A				
Groundwater Observations: 5.5 ATD							
Depth (ft)	Sample Type/No.	SAMPLES			Generalized Strata Description	Material Description and Notes	Elevation (ft)
		Blows on Sampler per 6 inches	Pen. (in.)	Rec. (in.)			
0					ASPHALT FILL	Asphalt Pavement (7')	235
1	S-1	18 21 18 13	24	10		Brown c-f SAND, little c-f gravel, trace silt	
2	S-2	4 4 9 17	24	12		Brown c-f SAND, little silt, trace m-f gravel	
3	S-3	16 26 16 10	24	14		Brown c-f SAND, some c-f gravel, little silt, 2" lense gray f sand and rock fragments in middle of spoon	230
4	S-4	15 20 25 37	24	16		Brown c-f SAND, some c-f gravel, trace silt, rock fragments, 1" lense light gray f sand and gravel near bottom of spoon	
5	S-5	22 26 32 21	24	12		[Augered through boulder 9' to 10'] Brown and gray c-f SAND, some c-f gravel, little silt, rock fragments	225
10					SAND (Glacioluvial Deposit)		
15	S-6	12 13 13 18	24	14		Light Brown c-f SAND, trace m-f gravel, trace silt	220
20	S-7	10 10 12 19	24	24		Light Brown c-f SAND, little c-f gravel, trace silt, 2" lense of f gravel in middle of spoon	215
25	S-8	8 9 9 14	24	24		Light Brown c-f SAND, trace f gravel, trace silt	210
30	S-9	50/5"	5	0		No Recovery	205
35						END OF BORING 30.4ft	200
Sample Type: S = Split Spoon C = Core UP = Undisturbed Piston V = Vane Shear Test							
Proportions Used: Trace = 1 - 10%, Little = 10 - 20%, Some = 20 - 35%, And = 35 - 50%							
Total Penetration in Earth: 30.4ft Rock: 0ft		NOTES: Offset approximately 5ft north of S-2 to confirm shallow refusal		Sheet 1 of 1			
No. of Soil Samples: 7		No. of Core Runs: 0		SM-001-M REV. 1/02			



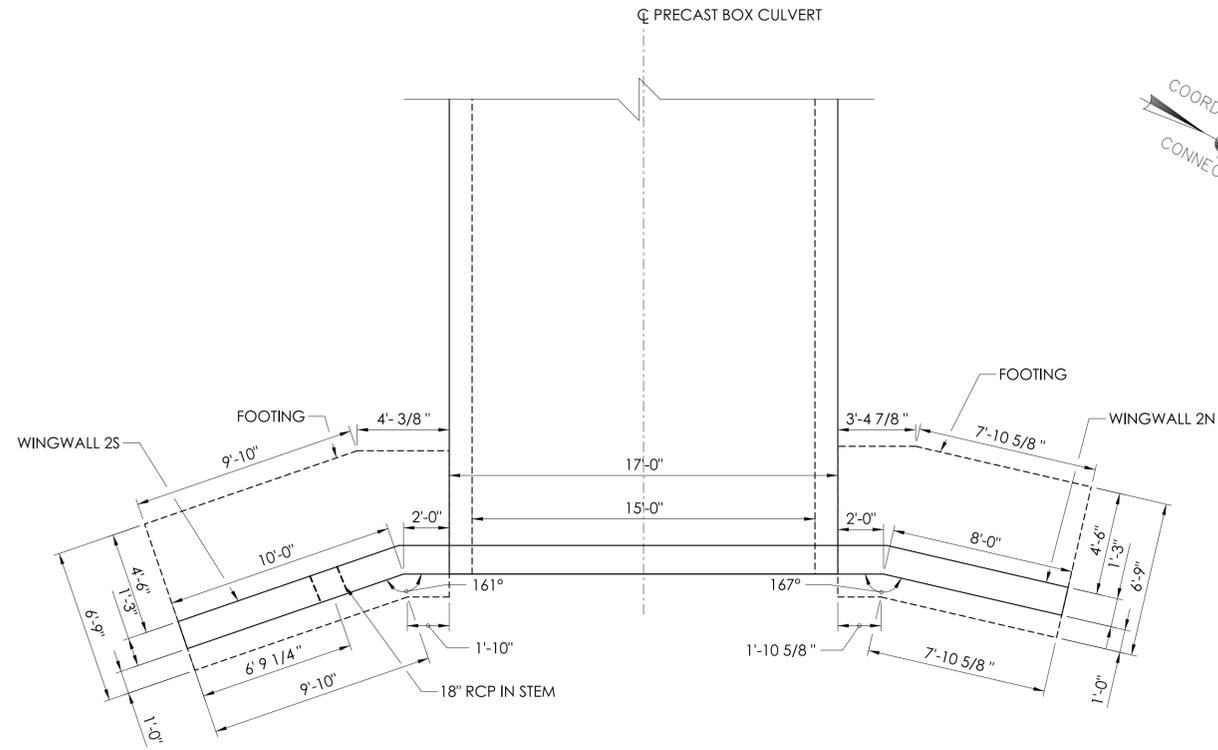
INLET PLAN
SCALE: 1/4" = 1'-0"



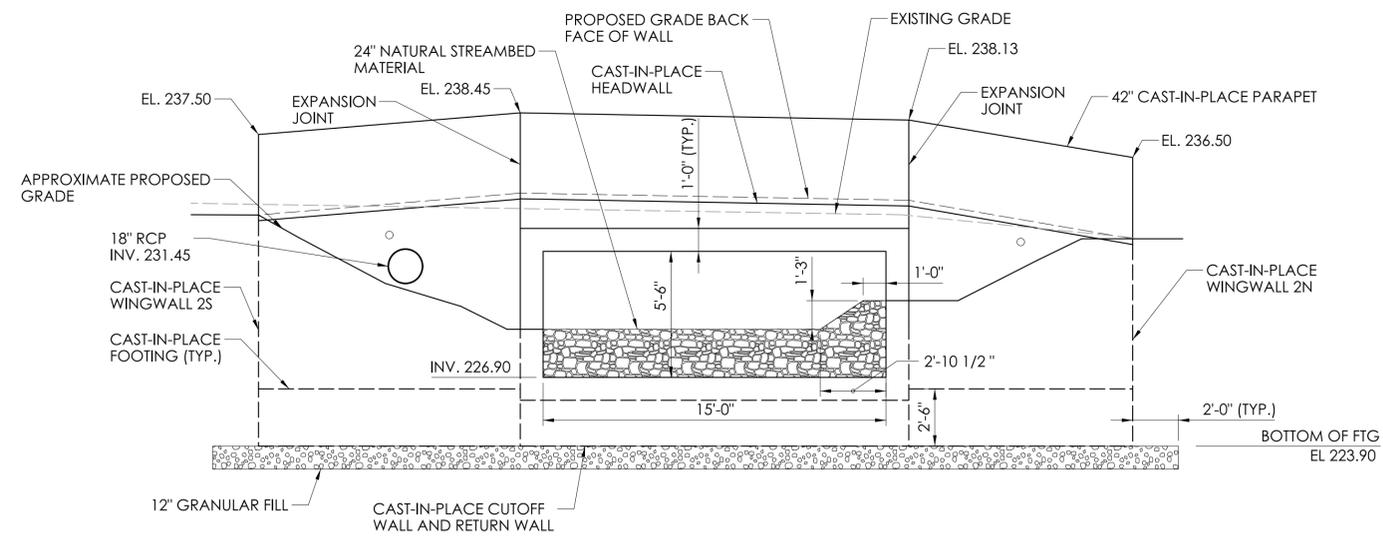
INLET ELEVATION
SCALE: 1/4" = 1'-0"

NOTES:

1. REFER TO DWG BR-04 FOR LAYOUT OF WORKING POINTS.
2. PROVIDE 1/2" PREFORMED EXPANSION JOINT FILLER FOR BRIDGES, FULL HEIGHT OF WINGWALL, TYP. AT EXPANSION JOINT.
3. STRUCTURE DIMENSIONS ARE BASED ON 12" CULVERT WALL THICKNESS. CONTRACTOR SHALL ADJUST DIMENSIONS IF CULVERT WALL THICKNESS DIFFERS.

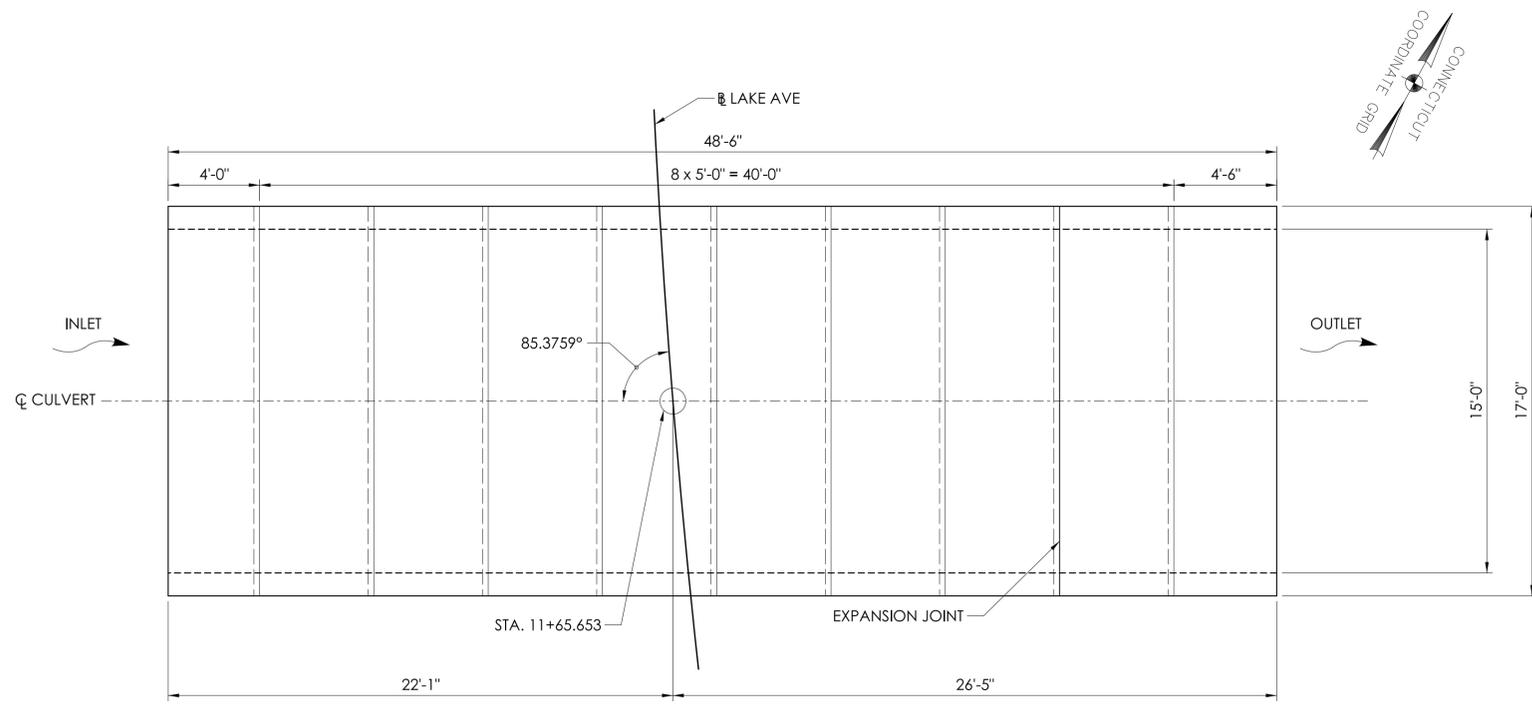


OUTLET PLAN
SCALE: 1/4" = 1'-0"



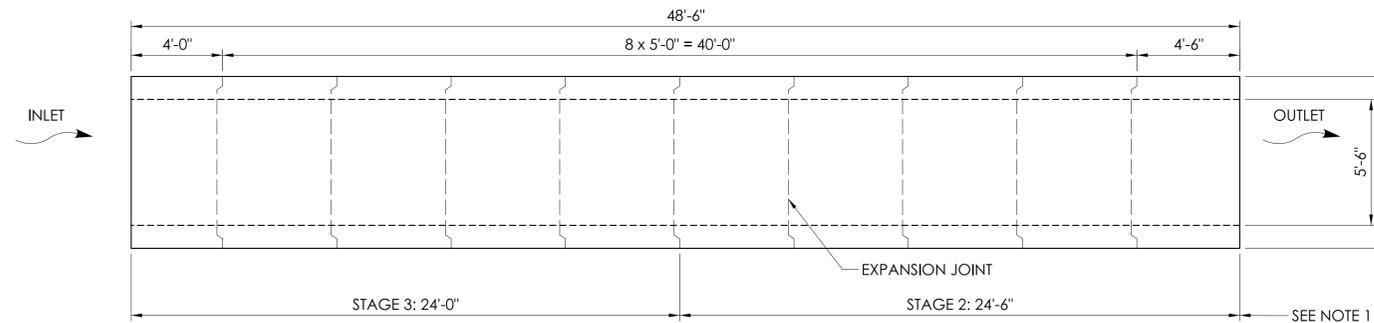
OUTLET ELEVATION
SCALE: 1/4" = 1'-0"

- NOTES:**
1. REFER TO DWG BR-04 FOR LAYOUT OF WORKING POINTS.
 2. PROVIDE 1/2" PREFORMED EXPANSION JOINT FILLER FOR BRIDGES, FULL HEIGHT OF WINGWALL, TYP. AT EXPANSION JOINT.
 3. STRUCTURE DIMENSIONS ARE BASED ON 12" CULVERT WALL THICKNESS. CONTRACTOR SHALL ADJUST DIMENSIONS IF CULVERT WALL THICKNESS DIFFERS.



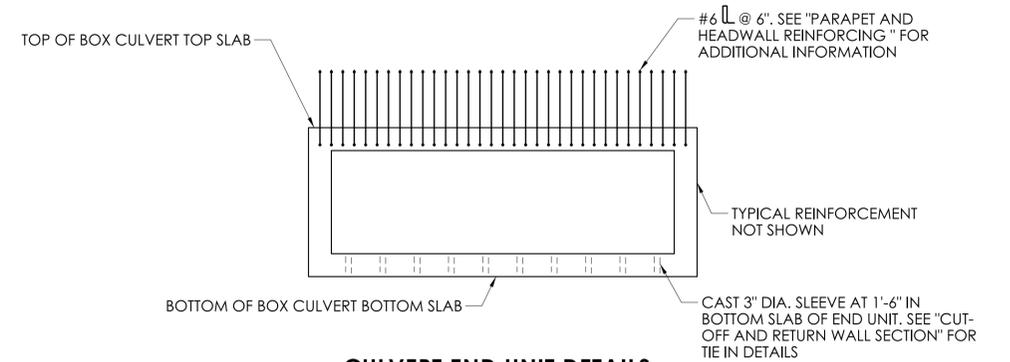
CULVERT LAYOUT - PLAN VIEW

SCALE: 1" = 4'



CULVERT LAYOUT - ELEVATION VIEW

SCALE: 1" = 4'

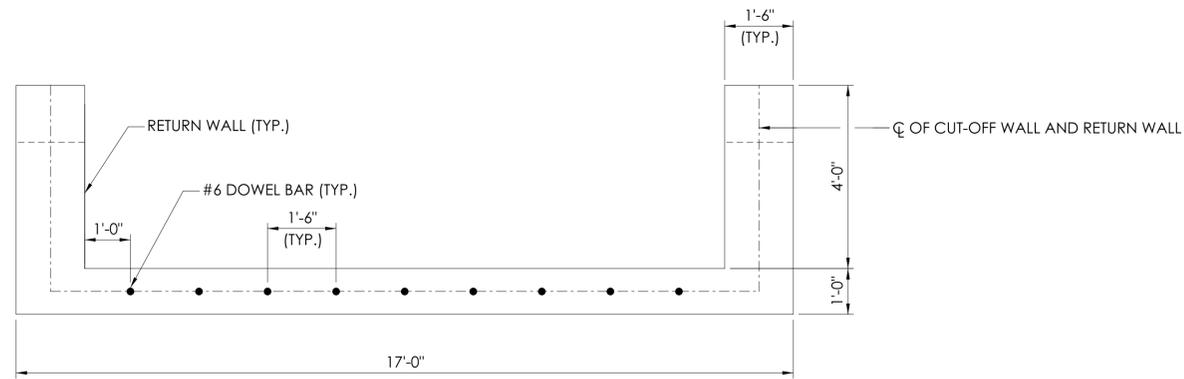


CULVERT END UNIT DETAILS

SCALE: 1" = 4'

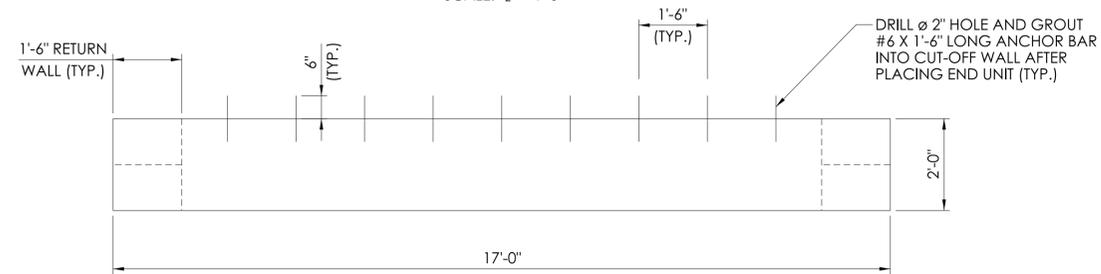
NOTES:

1. FOR STAGING DETAILS, SEE DWGS. MPT-02 AND MPT-03.
2. STRUCTURE DIMENSIONS ARE BASED ON 12" CULVERT WALL THICKNESS. CONTRACTOR SHALL ADJUST DIMENSIONS IF CULVERT WALL THICKNESS DIFFERS.



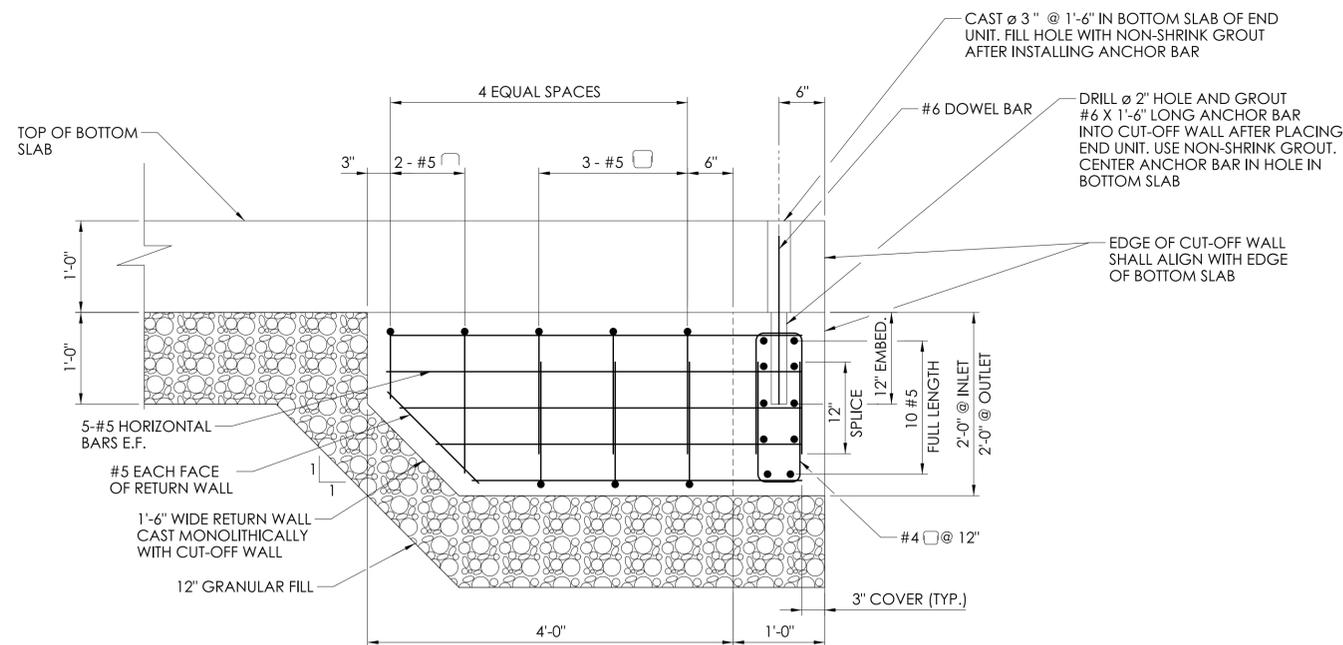
CUT-OFF WALL AND RETURN WALL PLAN

SCALE: 1/2" = 1'-0"



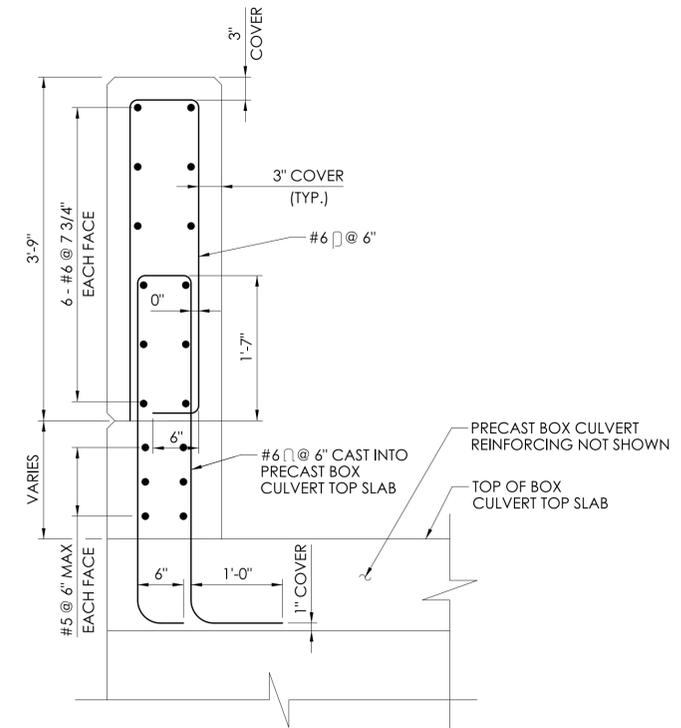
CUT-OFF WALL ELEVATION

SCALE: 1/2" = 1'-0"



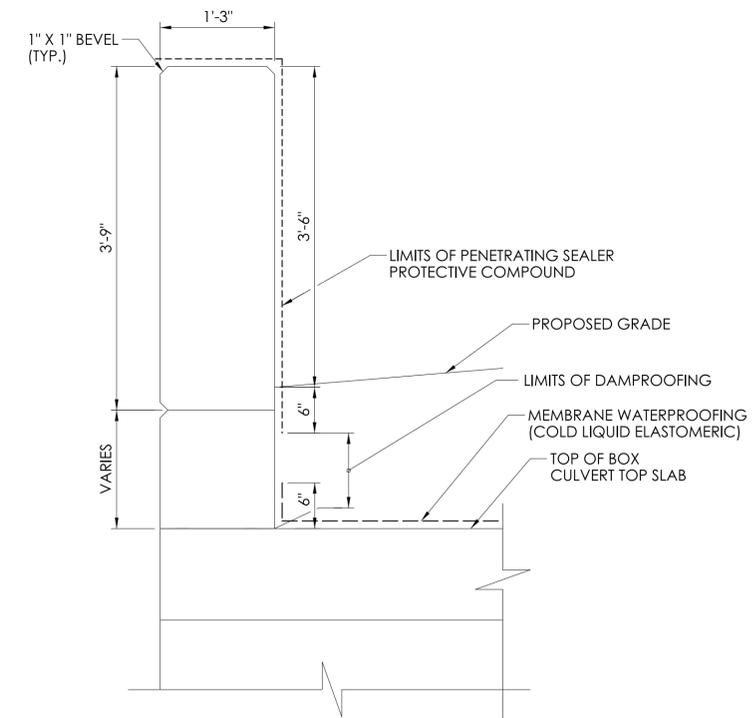
CUT-OFF AND RETURN WALL SECTION

SCALE: 1" = 1'-0"



PARAPET AND HEADWALL REINFORCING

SCALE: 1" = 1'-0"

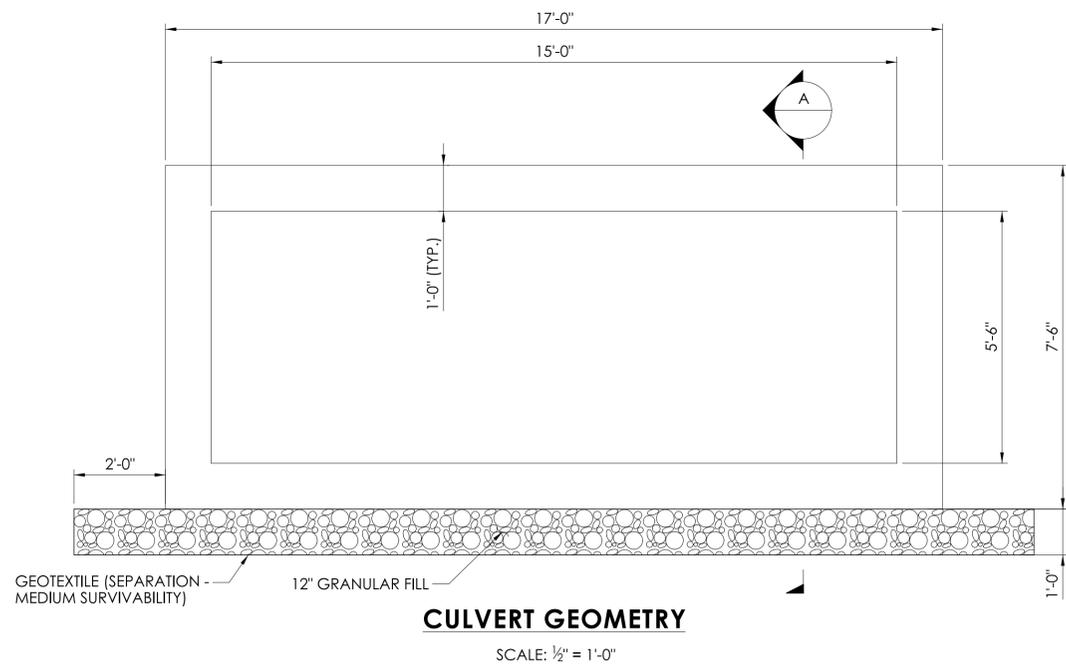


PARAPET AND HEADWALL SECTION

SCALE: 1" = 1'-0"

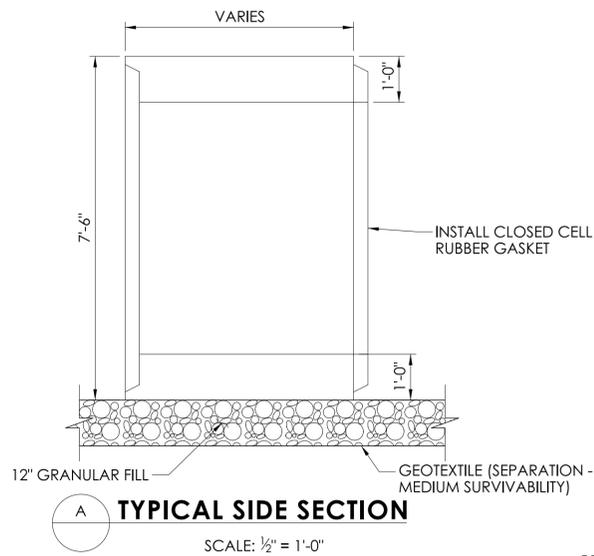
NOTES:

1. STRUCTURE DIMENSIONS ARE BASED ON 12" CULVERT WALL THICKNESS. CONTRACTOR SHALL ADJUST DIMENSIONS IF CULVERT WALL THICKNESS DIFFERS.
2. PENETRATING SEALER PROTECTIVE COMPOUND TO BE PAID FOR UNDER ITEM 0819002A PENETRATING SEALER PROTECTIVE COMPOUND.



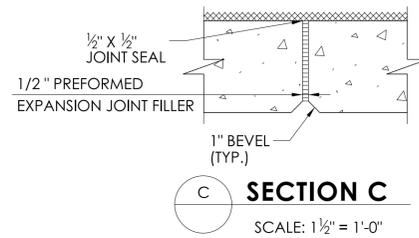
CULVERT GEOMETRY

SCALE: 1/2" = 1'-0"



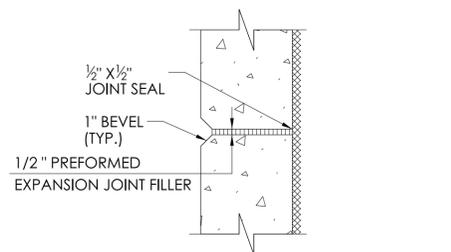
TYPICAL SIDE SECTION

SCALE: 1/2" = 1'-0"



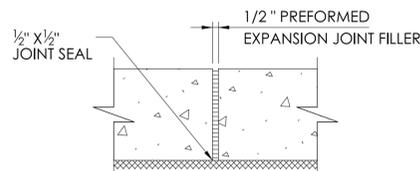
SECTION C

SCALE: 1 1/2" = 1'-0"



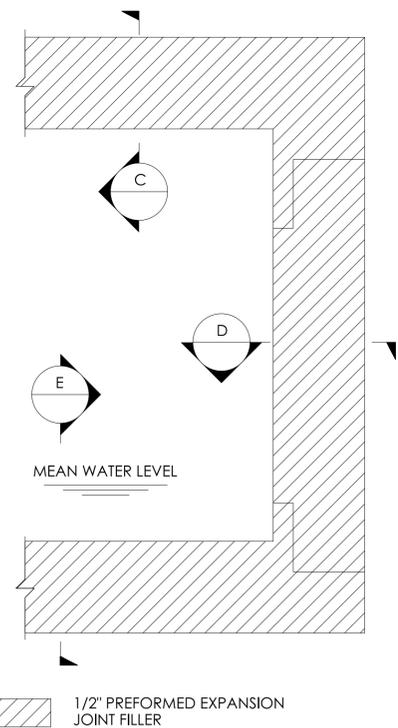
SECTION D

SCALE: 1 1/2" = 1'-0"



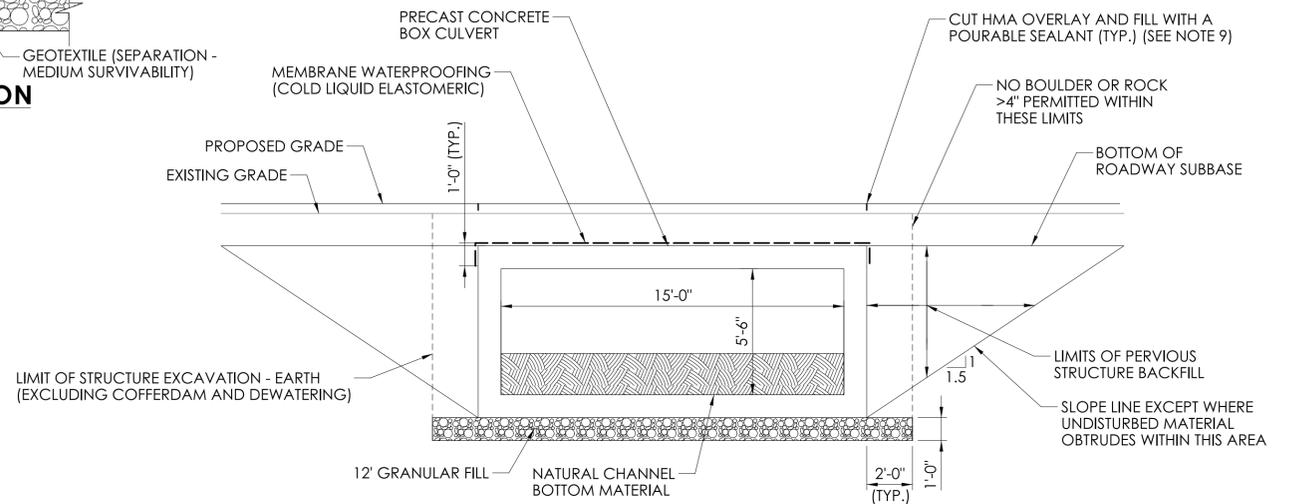
SECTION E

SCALE: 1 1/2" = 1'-0"



PARTIAL SECTION THROUGH CULVERT AT EXPANSION JOINT

SCALE: 1/2" = 1'-0"

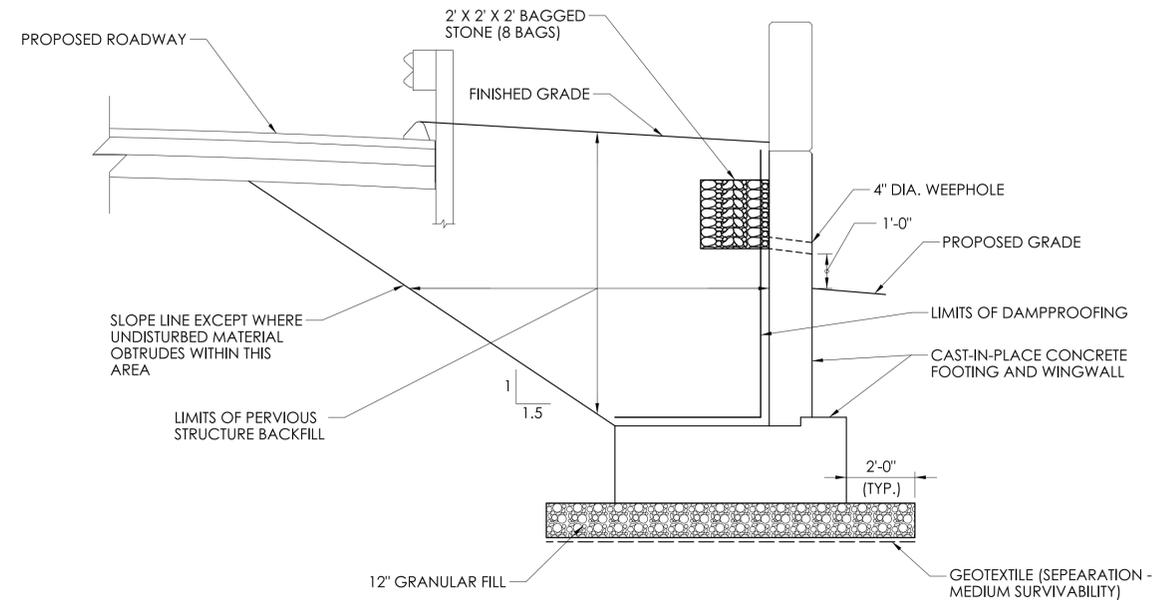
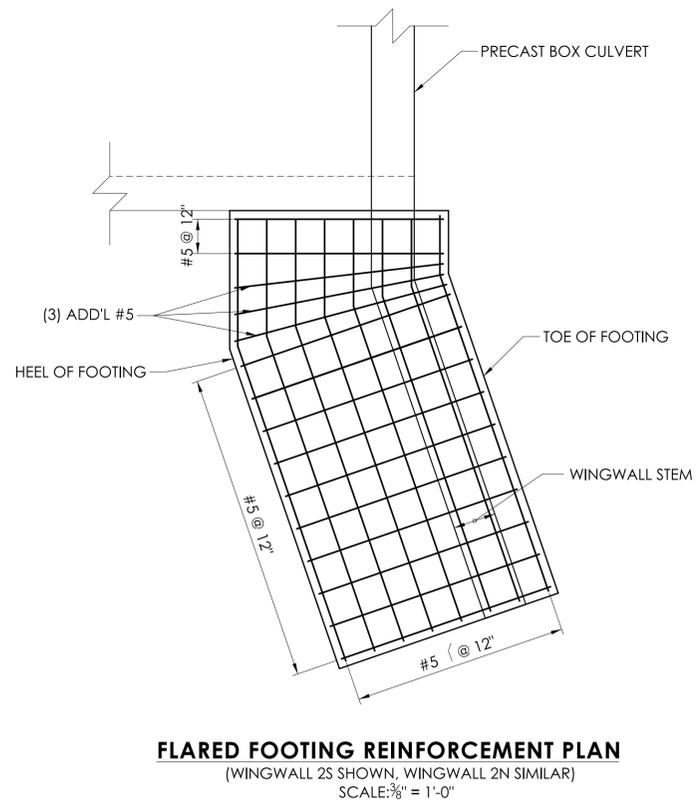
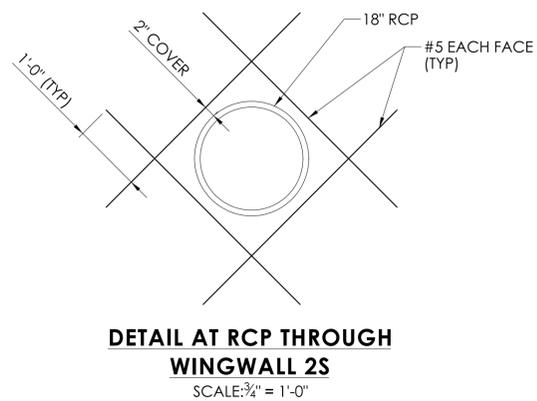
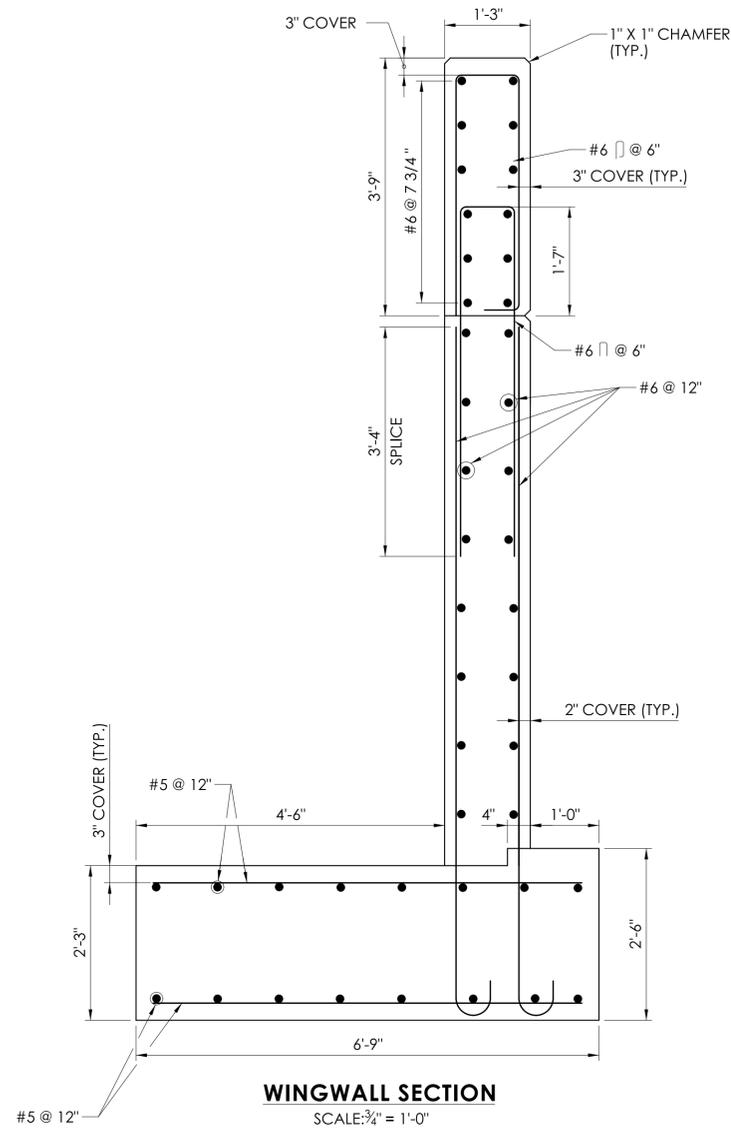


PRECAST CONCRETE BOX CULVERT PAY LIMITS

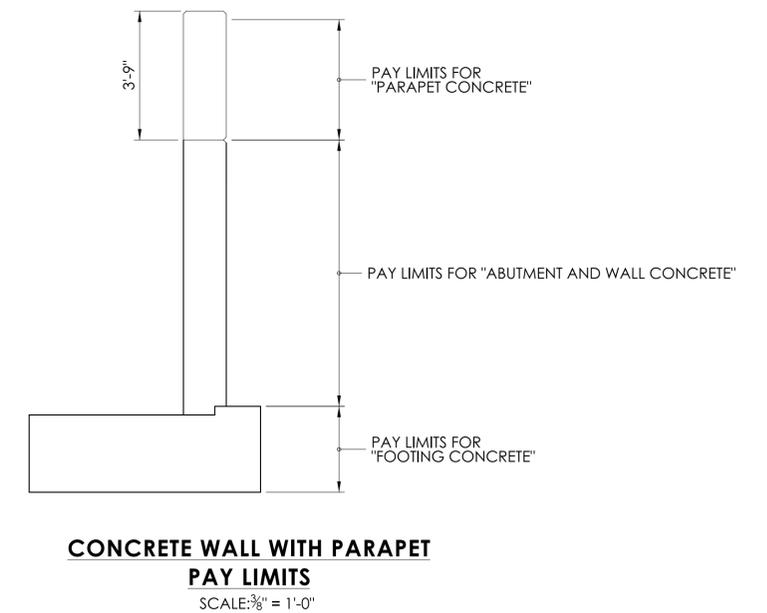
SCALE: 1/4" = 1'-0"

NOTES:

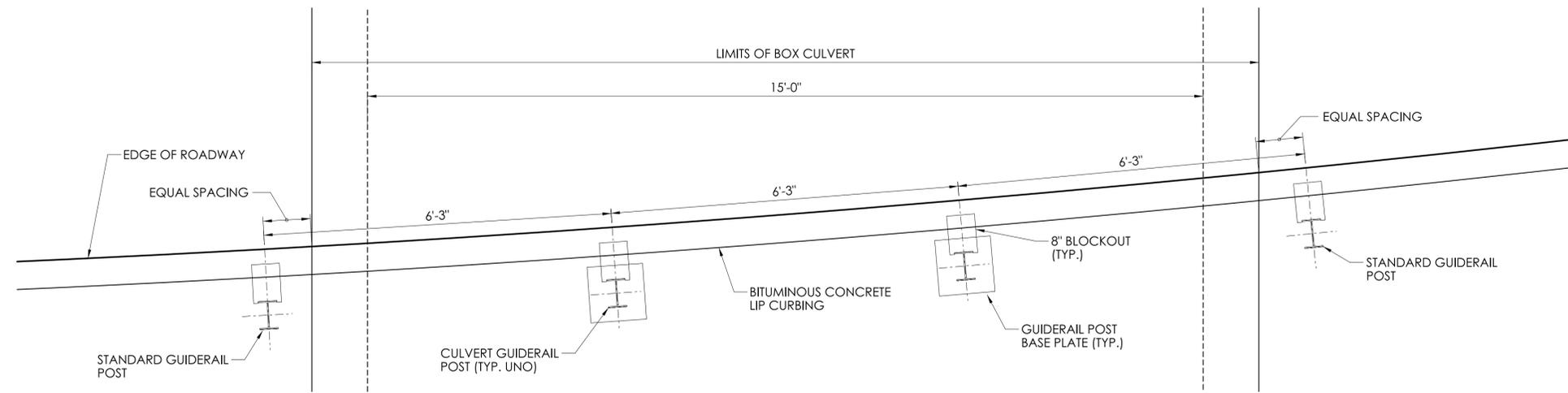
1. THE CONTRACTOR SHALL DESIGN, MANUFACTURE AND CONSTRUCT PRECAST BOX CULVERT IN ACCORDANCE WITH THE SPECIAL PROVISIONS FOR "15' X 5.5' PRECAST BOX CULVERT" AND THE INSIDE DIMENSIONS, LENGTH AND DETAILS SHOWN ON THESE PLANS.
2. ALL INSERTS OR HOLES CAST INTO THE CULVERT SECTIONS FOR THE SOLE PURPOSE OF HANDLING AND SETTING THE UNITS SHALL BE GROUTED OVER TO A SMOOTH FINISH UPON COMPLETION OF THE WORK.
3. NON-SHRINK GROUT SHALL BE USED TO GROUT THE REINFORCEMENT.
4. THE COST OF FURNISHING AND INSTALLING INSERTS SHALL BE INCLUDED IN THE ITEM "15' X 5.5' PRECAST CONCRETE BOX CULVERT" AND SHALL BE ONE OF THE FOLLOWING:
 1. STAR EXPANSION INDUSTRIES CORP. TYPE P-35-T
 2. RICHMOND SCREW ANCHOR CO. TYPE LF
 3. DAYTON SUPERIOR CORP. TYPE F-57
 ALL INSERTS SHALL HAVE CORROSIVE RESISTANT COATING.
5. ALL REINFORCEMENT TO HAVE 2" COVER UNLESS OTHERWISE NOTED.
6. ALL INTERIOR JOINTS BETWEEN BOX CULVERT SECTIONS SHALL BE GROUTED AS OUTLINED IN THE SPECIFICATION FOR "15' X 5.5' PRECAST CONCRETE BOX CULVERT".
7. ALL PRECAST ELEMENT REINFORCING INCLUDING CAST DOWELL BAR SPLICER INSERTS AND THREADED ROD DOWELS AT HEADWALLS SHALL BE INCLUDED IN ITEM FOR "15' X 5.5' PRECAST CONCRETE BOX CULVERT".
8. STRUCTURE DIMENSIONS ARE BASED ON 12" CULVERT WALL THICKNESS. CONTRACTOR SHALL ADJUST DIMENSIONS IF CULVERT WALL THICKNESS DIFFERS.
9. COST OF CUTTING AND SEALING HMA TO BE PAID FOR UNDER ITEM 0202529 CUT BITUMINOUS CONCRETE PAVEMENT (HIGHWAY ITEM).
10. GEOTEXTILE (SEPARATION - MEDIUM SURVIVABILITY) TO BE PAID FOR UNDER ITEM 0755010 GEOTEXTILE (SEPARATION - MEDIUM SURVIVABILITY).



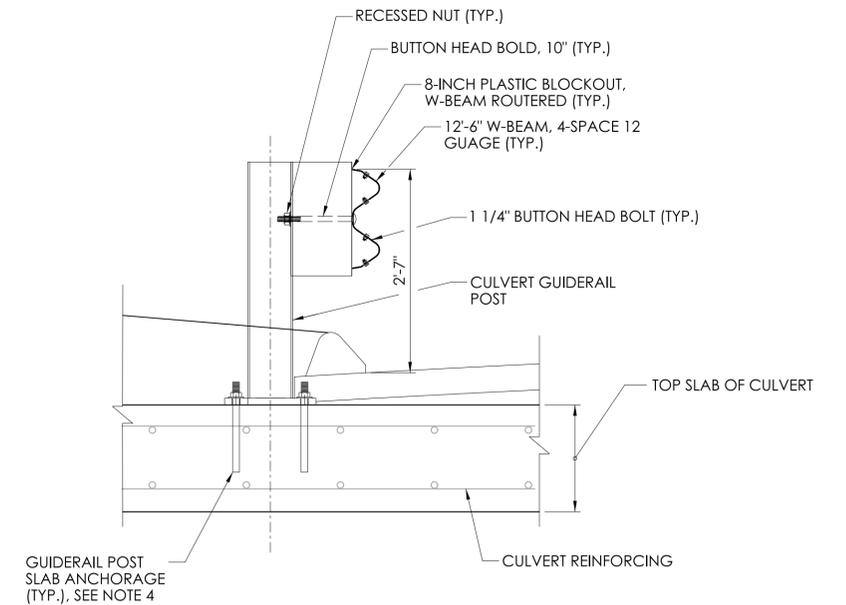
NOTE: GEOTEXTILE (SEPARATION MEDIUM SURVIVABILITY) SHALL NOT BE PLACED WITHIN THE WATER COURSE



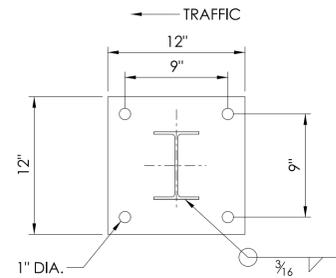
- NOTE:
- DAMPPROOFING TO BE PAID FOR UNDER ITEM 0708001 DAMPPROOFING.
 - GEOTEXTILE (SEPARATION - MEDIUM SURVIVABILITY) TO BE PAID FOR UNDER ITEM 0755010 GEOTEXTILE (SEPARATION - MEDIUM SURVIVABILITY).



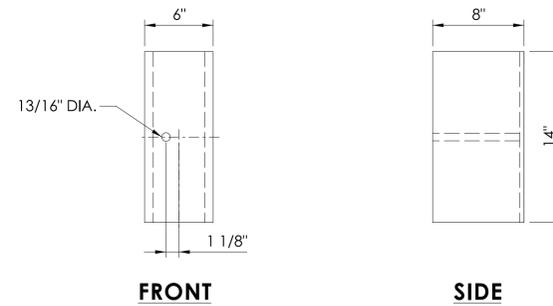
GUIDERRAIL POST LAYOUT OVER CULVERT
SCALE: 3/4" = 1'-0"



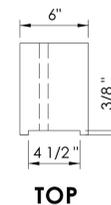
GUIDERRAIL MOUNTING DETAIL
SCALE: N.T.S.



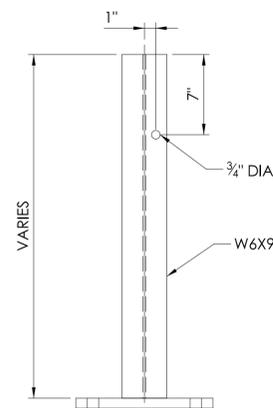
CULVERT GUIDERRAIL POST BASEPLATE DETAIL



FRONT SIDE



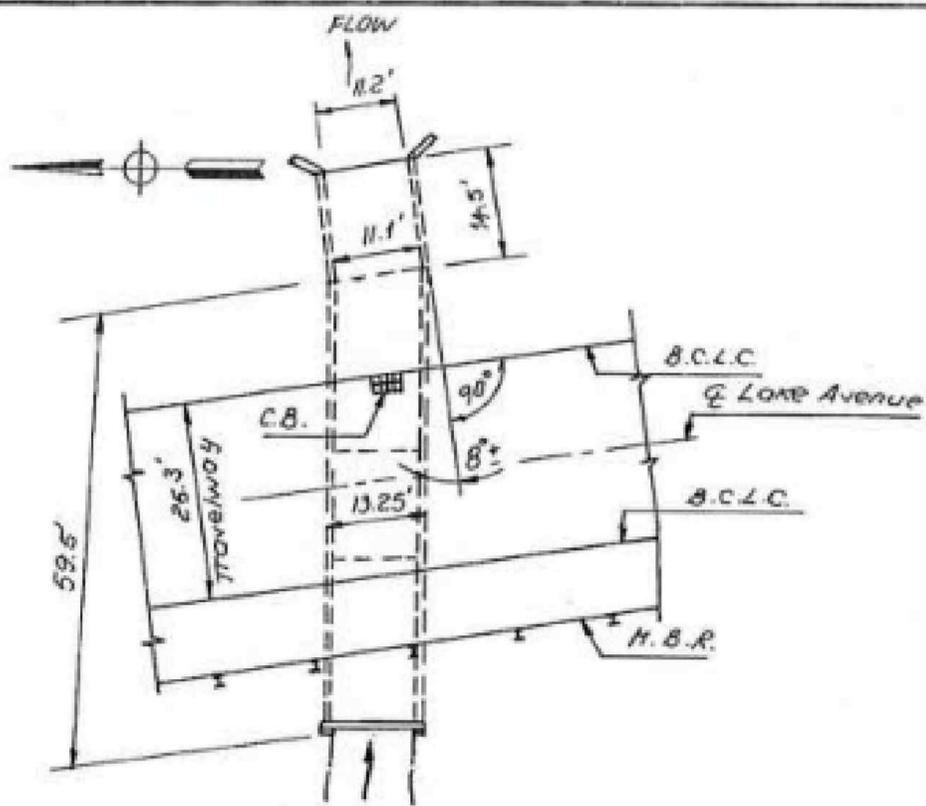
TOP
8" PLASTIC BLOCKOUT DETAILS
SCALE: N.T.S.



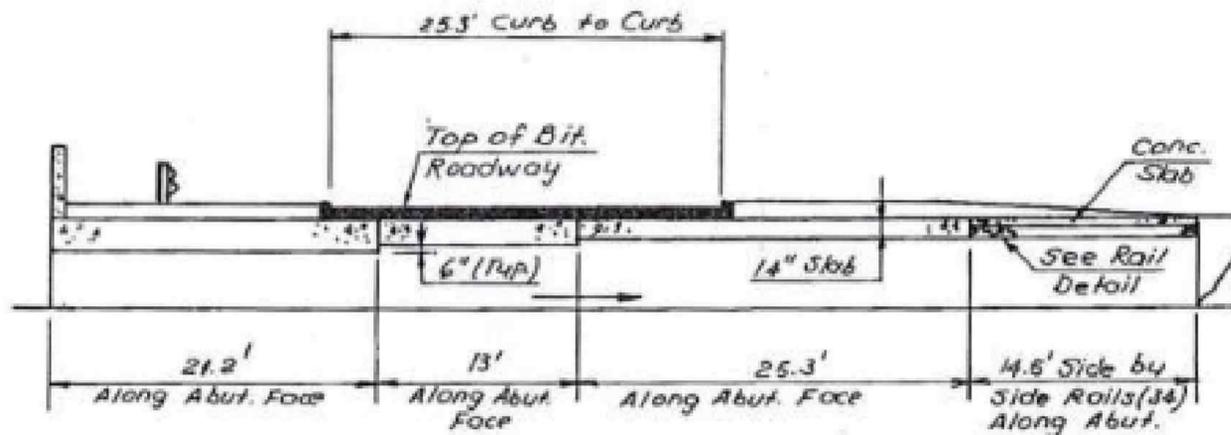
CULVERT GUIDERRAIL POST DETAIL
SCALE: N.T.S.

NOTES:

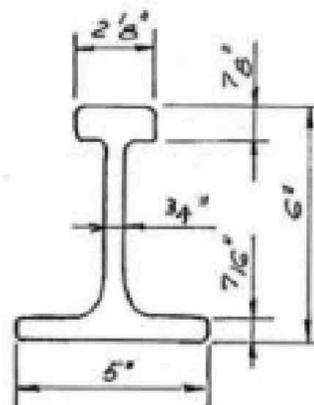
1. ALL POST SPACINGS ON CULVERT SHALL BE 75" CENTER TO CENTER WITH W-BEAM SPLICE LOCATED AT MIDPOINT OF POST BAY SPACING.
2. CULVERT GUIDERRAIL POST SHALL BE ASTM A992.
3. CULVERT GUIDERRAIL POST BASEPLATE SHALL BE ASTM A36.
4. CULVERT GUIDERRAIL POST DECK ANCHORAGE SHALL BE HILTI HAS-E 7/8" DIA. 10" LONG WITH WASHER AND NUT. ANCHORAGE SHALL BE INSTALLED WITH HILTI RE500 EPOXY ACCORDING TO MANUFACTURER REQUIREMENTS. ANCHORAGE SHALL HAVE MINIMUM 6" EMBEDMENT.
5. CULVERT GUIDERRAIL POSTS AND HARDWARE TO BE PAID FOR UNDER ITEM 0910300A METAL BEAM RAIL (R-B MASH).



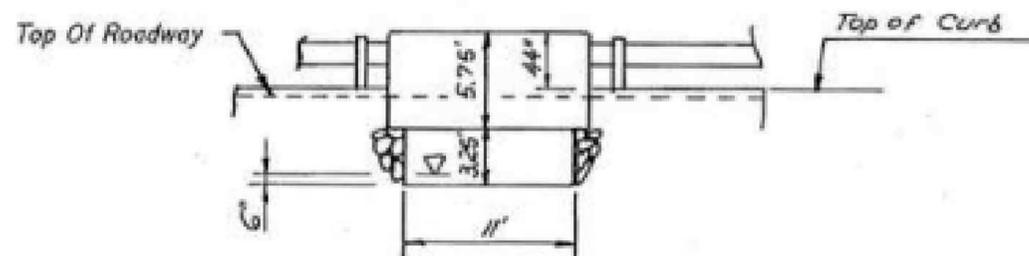
PLAN
SCALE : 1" = 20'



**CROSS SECTION
LOOKING NORTH**
SCALE : 1" = 10'



RAIL DETAIL
SCALE : 3" = 1'- 0"



ELEVATION
SCALE : 1" = 10'

STATE OF CONNECTICUT DEPARTMENT OF TRANSPORTATION		
BRISTOL LAKE AVENUE OVER CUSSGUTTER BROOK		
Steinman Boynton Gronquist & Birdsell 1800 Silas Deane Highway - Rocky Hill, CT 06067		
SCALE: NOTED	DATE: 05/22/99	BR. NO. 017005

10422003 ACE