

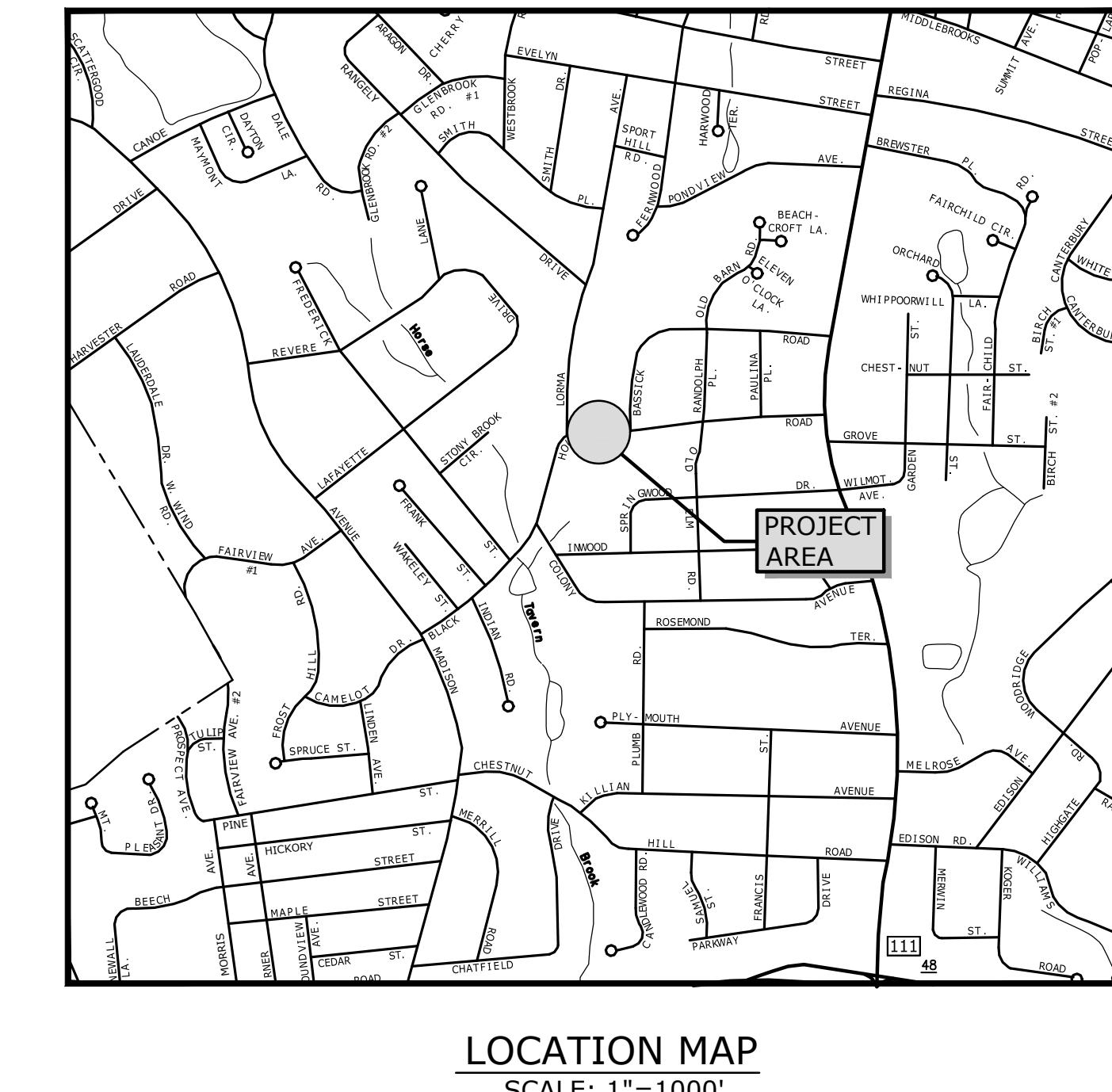
TOWN OF TRUMBULL, CT

BLACKHOUSE ROAD CULVERT

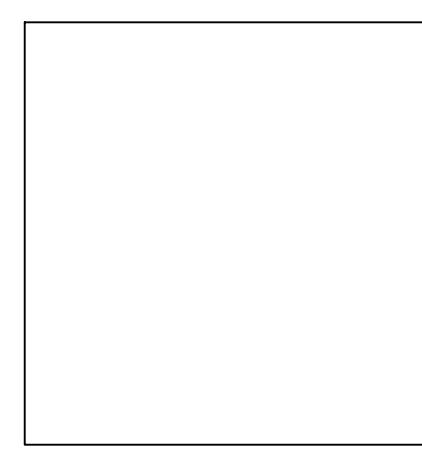
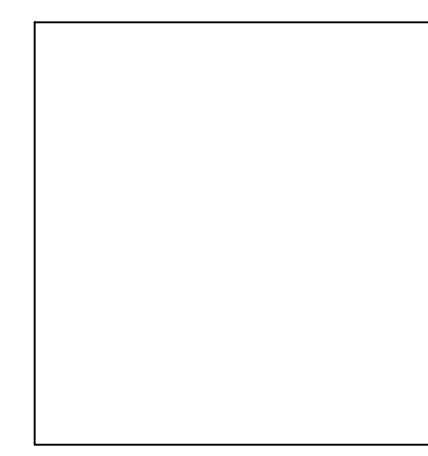
REHABILITATION PROJECT

MAY 10, 2018

LIST OF DRAWINGS	
SHEET NO.	SHEET TITLE
	COVER
G-1	GENERAL NOTES, LEGEND, ABBREVIATIONS AND BORING LOGS
G-2	EXISTING CONDITIONS PLAN
S-1	SITE PLAN, SECTION AND WALL DETAILS
S-2	STRUCTURAL AND SITE NOTES AND DETAILS
HW-910_01	W-BEAM METAL BEAM RAIL HARDWARE
HW-910_02	METAL BEAM RAIL (TYPE R-3 350) GUIDERAIL
HW-910_07	R-B 350 BRIDGE ATTACHMENT VERTICAL SHAPE PARAPET
HW-911_01	R-B ANCHORAGE TYPE I AND II
HW-911_04	TYPICAL GRADING PLAN FOR W-BEAM GUIDERAIL TURN-DOWN ANCHOR



PREPARED BY:
Tighe&Bond
www.tighebond.com
1000 Bridgeport Avenue
Suite 320
Shelton, CT 06484
(203) 712-1100



DANA C. HUFF, P.E.

ALFRED J. MASCIA JR., P.E.

PREPARED FOR:
TOWN OF TRUMBULL
FIRST SELECTMAN: VICKI A. TESERO

DEPARTMENT OF PUBLIC WORKS
DIRECTOR OF PUBLIC WORKS: JOHN MARSILIO
TOWN ENGINEER: FRANK SMERIGLIO

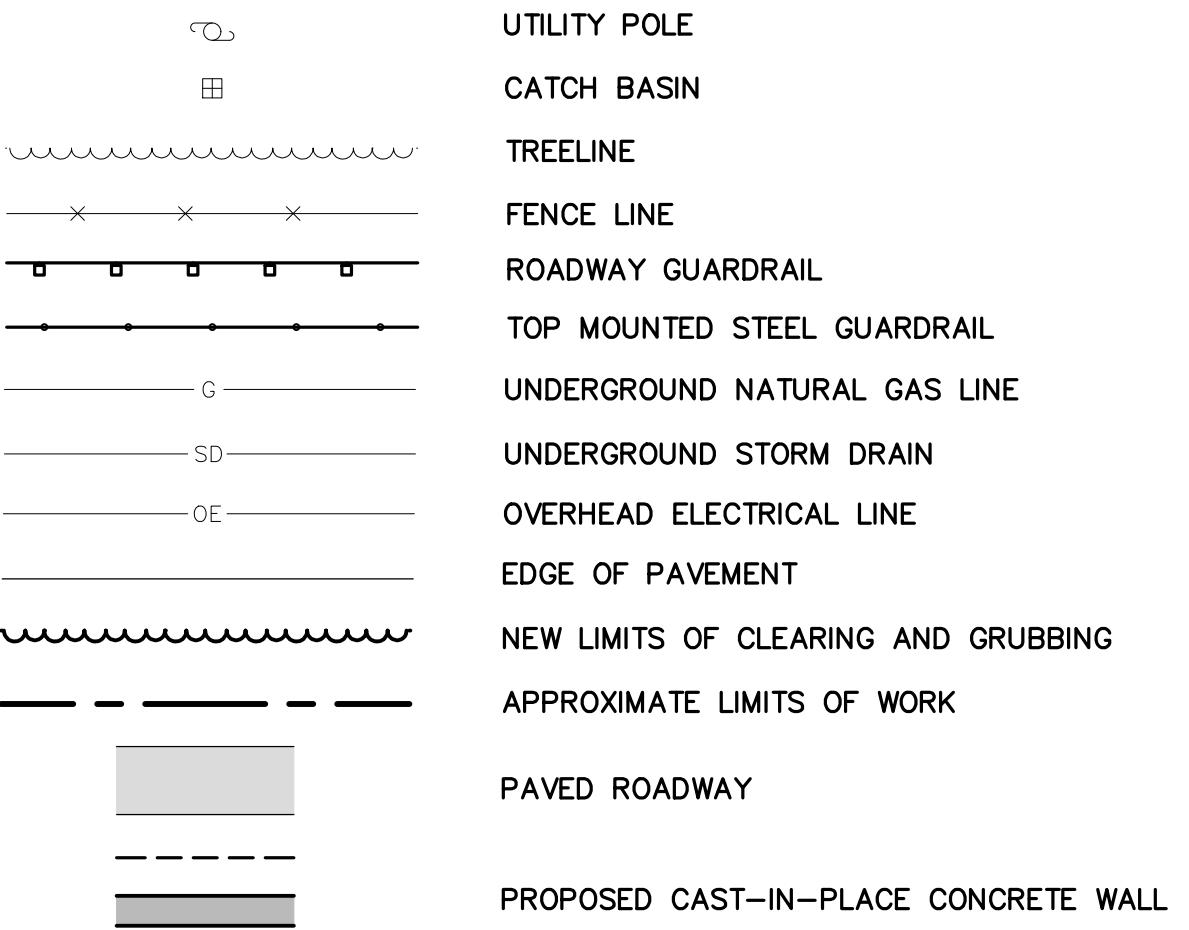
GENERAL NOTES

1. EXISTING CONDITIONS ARE NOT BASED ON FIELD SURVEY AND LOCATIONS OF SITE FEATURES ARE APPROXIMATE.
2. LIGHT LINES AND TEXT INDICATE APPROXIMATE EXISTING CONDITIONS.
3. BOLD LINES AND TEXT INDICATE PROPOSED WORK.
4. LAND DISTURBANCE SHALL BE KEPT TO THE MINIMUM NECESSARY FOR CONSTRUCTION OPERATIONS.
5. THE LOCATIONS OF UTILITIES ON THESE DRAWINGS ARE CONSIDERED APPROXIMATE AND THE SPECIFIC ALIGNMENT MAY VARY.
6. THE OWNER AND ENGINEER ASSUME NO RESPONSIBILITY FOR THE LOCATION OF EXISTING UTILITIES. THE ENGINEER AND OWNER MAKE NO GUARANTEE AS TO THE UNDERGROUND CONDITIONS THAT MAY BE ENCOUNTERED.
7. PER CONNECTICUT LAW, CONTRACTOR SHALL CALL 1-888-DIG-SAFE, (1-888-344-7233) AND THE TOWN OF TRUMBULL PRIOR TO ANY UNDERGROUND EXCAVATION ON SITE. THE DIG-SAFE SERVICE WILL FIELD LOCATE AND MARK UNDERGROUND UTILITIES IN THE FIELD. THE DIG-SAFE VERIFICATION NUMBER SHALL BE SUBMITTED TO THE TOWN OF TRUMBULL PRIOR TO ANY DEMOLITION AND REMOVAL OR CONSTRUCTION WORK.
8. ALL EXISTING CONDITIONS SHALL BE FIELD VERIFIED BY THE CONTRACTOR PRIOR TO CONSTRUCTION. IF FIELD CONDITIONS ARE OBSERVED THAT VARY SIGNIFICANTLY FROM THOSE SHOWN ON THESE PLANS, THE CONTRACTOR SHALL IMMEDIATELY NOTIFY THE ENGINEER IN WRITING FOR RESOLUTION OF THE CONFLICTING INFORMATION.
9. ALL EXCAVATION SHALL COMPLY WITH OSHA'S LATEST STANDARDS. ALL REQUIREMENTS OF OSHA'S EXCAVATION STANDARDS SHALL BE PROVIDED BY THE CONTRACTOR INCLUDING, BUT NOT LIMITED TO, THE PROVISION FOR A COMPETENT PERSON ON SITE AND ANY REQUIRED DOCUMENTATION THAT MAY REQUIRE CERTIFICATION BY A PROFESSIONAL ENGINEER.
10. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO MAINTAIN ALL UTILITIES FUNCTIONING PROPERLY IN THE AREAS UNDER CONSTRUCTION PRIOR TO COMPLETION OF THE PROJECT. ALL PIPES AND STRUCTURES WITHIN THE LIMITS OF THIS CONTRACT SHALL BE LEFT IN A CLEAN AND OPERABLE CONDITION AT THE COMPLETION OF THE WORK. THE CONTRACTOR SHALL TAKE ALL NECESSARY PRECAUTIONS TO PREVENT SAND AND SILT FROM DISTURBED AREAS FROM ENTERING THE SYSTEM. CONTRACTOR IS RESPONSIBLE FOR DAMAGE SUSTAINED TO ANY EXISTING UTILITIES AND IT IS HIS RESPONSIBILITY TO MAKE REPAIRS TO THE REQUIREMENTS OF THE TOWN OR RESPECTIVE UTILITY COMPANY.
11. COORDINATE RELOCATION OR SUPPORTING OF UTILITY POLES WITH THE RESPECTIVE UTILITIES.
12. ANY AND ALL DEMOLISHED BUILDING MATERIALS, STRUCTURES, PIPES, PAVEMENT, CURBING, SURPLUS MATERIAL, AND SITE RUBBLE SHALL BE DISPOSED OF BY THE CONTRACTOR OFF-SITE AT HIS EXPENSE AND IN ACCORDANCE WITH ALL APPLICABLE STATE AND FEDERAL ENVIRONMENTAL REGULATIONS.
13. ALL MATERIALS AND METHODS ARE TO COMPLY WITH TOWN OF TRUMBULL DPW STANDARDS, UNLESS OTHERWISE DIRECTED.
14. ALL DISTURBED AREAS SHALL BE LOAMED & SEEDED UNLESS OTHERWISE SPECIFIED. OVER EXCAVATE LOAM AND SEED AREAS AS REQUIRED TO MEET GRADE.

SEDIMENTATION AND EROSION CONTROL PLAN NOTES

1. ALL SEDIMENTATION AND EROSION CONTROL MEASURES SHALL BE IN ACCORDANCE WITH THE STANDARDS AND SPECIFICATIONS OF THE "2002 CONNECTICUT GUIDELINES FOR SOIL EROSION AND SEDIMENT CONTROL" DEEP BULLETIN NO 34, AND ALL AMENDMENTS AND ADDENDA THERETO AS PUBLISHED BY THE CONNECTICUT DEPARTMENT OF ENERGY AND ENVIRONMENTAL PROTECTION.
2. LAND DISTURBANCE SHALL BE KEPT TO THE MINIMUM NECESSARY FOR CONSTRUCTION.
3. ALL EROSION CONTROL MEASURES SHALL BE INSTALLED AS SHOWN ON THE PLANS AND ELSEWHERE AS ORDERED BY THE OWNER'S REPRESENTATIVE, OR THE TOWN OF TRUMBULL.
4. ALL CATCH BASINS SHALL BE PROTECTED WITH SILT SACKS THROUGHOUT THE CONSTRUCTION PERIOD AND UNTIL ALL DISTURBED AREAS ARE THOROUGHLY STABILIZED.
5. WHEREVER POSSIBLE, EROSION AND SEDIMENT CONTROL MEASURES SHALL BE INSTALLED PRIOR TO CONSTRUCTION.
6. ADDITIONAL CONTROL MEASURES SHALL BE INSTALLED DURING CONSTRUCTION PERIOD AS ORDERED BY THE OWNER'S REPRESENTATIVE, OR THE TOWN OF TRUMBULL.
7. ALL SEDIMENTATION AND EROSION CONTROL MEASURES SHALL BE MAINTAINED IN EFFECTIVE CONDITION THROUGHOUT THE CONSTRUCTION PERIOD.
8. SEDIMENT REMOVED SHALL BE DISPOSED OF LEGALLY OFFSITE.
9. THE CONTRACTOR SHALL BE RESPONSIBLE FOR CONSTRUCTION AND MAINTENANCE OF ALL EROSION CONTROL MEASURES THROUGHOUT THE CONSTRUCTION PERIOD.
10. THE CONTRACTOR SHALL MAINTAIN A SUPPLY OF SILT FENCE/HAYBALES AND ANTI-TRACKING CRUSHED STONE ON-SITE FOR EMERGENCY REPAIRS.
11. THE CONTRACTOR SHALL UTILIZE APPROVED METHODS/MATERIALS FOR PREVENTING THE BLOWING AND MOVEMENT OF DUST FROM EXPOSED SOIL SURFACES ONTO ADJACENT PROPERTIES AND SITE AREAS.
12. ALL DRAINAGE STRUCTURES SHALL BE INSPECTED WEEKLY BY THE CONTRACTOR AND CLEANED TO PREVENT THE BUILD-UP OF SILT.
13. THE CONTRACTOR SHALL CAREFULLY COORDINATE THE PLACEMENT OF EROSION CONTROL MEASURES WITH THE PHASING OF CONSTRUCTION.
14. KEEP ALL PAVED SURFACES CLEAN. SWEEP BEFORE FORECASTED STORMS OR WEEKLY AS NECESSARY. SWEEP IMPACTED PUBLIC ROADS OF ALL DIRT AND DEBRIS AT THE END OF EACH WORK DAY.
15. TREAT ALL UNPAVED SURFACES WITH 4" MINIMUM OF TOPSOIL AND SEEDING PRIOR TO FINAL STABILIZATION.
16. ALL TRUCKS ENTERING OR LEAVING THE SITE WITH MATERIALS MUST BE COVERED.
17. ALL SEDIMENTATION AND EROSION CONTROLS SHALL BE CHECKED WEEKLY AND AFTER EACH RAINFALL EVENT. NECESSARY REPAIRS SHALL BE MADE WITHOUT DELAY.
18. PRIOR TO ANY FORECASTED RAINFALL, EROSION AND SEDIMENT CONTROLS SHALL BE INSPECTED AND REPAIRED AS NECESSARY.
19. AFTER ALL DISTURBED AREAS HAVE BEEN STABILIZED, EROSION CONTROLS MAY BE REMOVED ONCE AUTHORIZATION TO DO SO HAS BEEN SECURED FROM THE TOWN OF TRUMBULL. DISTURBED AREAS SHALL BE SEEDED AND MULCHED.
20. CONTRACTOR IS TO COMPLY WITH THE REQUIREMENTS OF THE SOIL EROSION AND SEDIMENTATION CONTROL PLAN.

LEGEND:



ABBREVIATIONS

APPROX	APPROXIMATE
BIT.	BITUMINOUS
BLDG	BUILDING
CC	CONCRETE CURB
CJ	CONSTRUCTION JOINT
CLF	CHAIN LINK FENCE
CONC	CONCRETE
CONST	CONSTRUCTION
CW	CONCRETE WALL
CY	CUBIC YARD
DP	DEPTH
EJ	EXPANSION JOINT
ELEV	ELEVATION
EOP	EDGE OF PAVEMENT
GC	GRANITE CURB
H	HEIGHT
H.P.	HIGH POINT
INV	INVERT
KIP	1000 POUNDS-FORCE
MAX	MAXIMUM
MFR	MANUFACTURER
MH	MANHOLE
MIN	MINIMUM
N/F	NOW OR FORMERLY
NTS	NOT TO SCALE
R&D	REMOVE AND DISPOSE OF
RWL	RETAINING WALL
S	SLOPE
SF	SQUARE FEET
TBM	TEMPORARY BENCHMARK
T/WALL	TOP OF WALL
TYP	TYPICAL
W	WIDTH

Tighe & Bond

Consulting Engineers

Project: Blackhouse Road Culvert Replacement
 Location: _____
 Client: _____

Boring No. B-1
 Page 1 of 1
 File No. _____
 Checked by: _____

Drilling Co.: General Borings

Foreman: John Wyat Type: Casing Sampler: Split Spoon
 T&B Rep.: Chris Dubuque I.D./O.D. 1-3/8" / 2"
 Date Start: 12/14/15 End: 12/14/15 Hammer Wt. 140#
 Location: See Exploration Location Plan Hammer Fall 30"
 GS. Elev. _____ Datum: _____ Other: _____

Groundwater Readings

Date	Time	Depth	Casing	Sta. Time

Depth (ft.)	Casing Blows Per Ft.	Sample No. Rec. (in)	Sample Depth (ft.)	Blows Per 6"	Sample Description	General Stratigraphy	Notes	Well Construction
5		S-1/10"	0-2'	2/3	Dark Brown loose Sand and Silt			
				6/6				
		S-2/6"	2'-4'	6/7	Dark Brown loose Sand and Silt, some gravel			
				6/3				
		S-3/8"	5'-7'	3/10	Grey medium dense Sand and Silt, some gravel.			
				22/27	Redish Brown Sand and Silt some gravel.			
		S-4/14"	7'-9'	24/50-2"	Weathered Rock Drill bit was grinding @ 8' small amount of rock recovered.			
		S-5/1"	9-11	50-1"				
10								
15								
20								
25								
30								

Notes:
 Rock measured at 8'.
 Water measured at 7'

Proportions Used

TRACE (TR.)	0 - <10%
LITTLE (LI.)	10 - <20%
SOME (SO.)	20 - <35%
AND	35 - <50%

Density/Consistency

VERY LOOSE	0-4	VERY SOFT	<2
LOOSE	4-10	SOFT	2-4
MEDIUM DENSE	10-30	MEDIUM	4-8
DENSE	30-50	STIFF	8-15
VERY DENSE	>50	VERY STIFF	15-30
		HARD	>30

Tighe & Bond

Consulting Engineers

Project: Blackhouse Road Culvert Replacement
 Location: _____
 Client: _____

Boring No. B-2
 Page 1 of 1
 File No. _____
 Checked by: _____

Drilling Co.: General Borings

Foreman: John Wyat Type: Casing Sampler: Split Spoon
 T&B Rep.: Chris Dubuque I.D./O.D.: 1-3/8" / 2"
 Date Start: 12/14/15 End: 12/14/15 Hammer Wt.: 140#
 Location: See Exploration Location Plan Hammer Fall: 30"
 GS. Elev. _____ Datum: _____ Other: _____

Groundwater Readings

Date	Time	Depth	Casing	Sta. Time

Depth (ft.)	Casing Blows Per Ft.	Sample No. Rec. (in)	Sample Depth (ft.)	Blows Per 6"	Sample Description	General Stratigraphy	Notes	Well Construction
5		S-1/12"	0'-2'	2/5	Dark Brown medium dense Sand and Silt			
				15/50-2"				
		S-2/6"	2'-4'	5/11	Dark Brown medium dense Sand and Silt,			
				22/16	some gravel			
		S-3/8"	5'-7'	3/10	Redish Brown Dense Sand and Silt, some			
				22/27	gravel			
		S-4/14"	7'-9'	24/50-2"	Course Sand, some silt, some rock fragments			
					Drill bit was grinding rock for 15 minutes			
		S-5/1"	10'-12'	100-1"	from 9' to 10'.			
					Small piece of rock recovered.			
10								
15								
20								
25								
30								

Notes:
 Rock encountered at 9' deep. No water encountered

Proportions Used

TRACE (TR.) 0 - <10%
 LITTLE (LI.) 10 - <20%
 SOME (SO.) 20 - <35%
 AND 35 - <50%

Density/Consistency

VERY LOOSE	0-4	VERY SOFT	<2
LOOSE	4-10	MEDIUM	2-4
MEDIUM DENSE	10-30	STIFF	4-8
DENSE	30-50	VERY STIFF	8-15
VERY DENSE	>50	HARD	15-30

Blackhouse Road Culvert Rehabilitation

Town of Trumbull, CT

VERIFY SCALE
BAR IS 1 INCH ON
ORIGINAL DRAWING
0 [REDACTED] 1 INCH
IF NOT ONE INCH ON
THIS SHEET, ADJUST
SCALES ACCORDINGLY

MARK	DATE	DESCRIPTION
PROJECT NO:		T-0196-72
DATE:		05/10/2019
FILE: GN-T0196-72-01.dwg		
DRAWN BY:		ADM
CHECKED:		AJM
APPROVED:		DH
GENERAL NOTES, ABBREVIATIONS, LEGEND AND BORING LOGS		
SCALE:	1" = 10'	

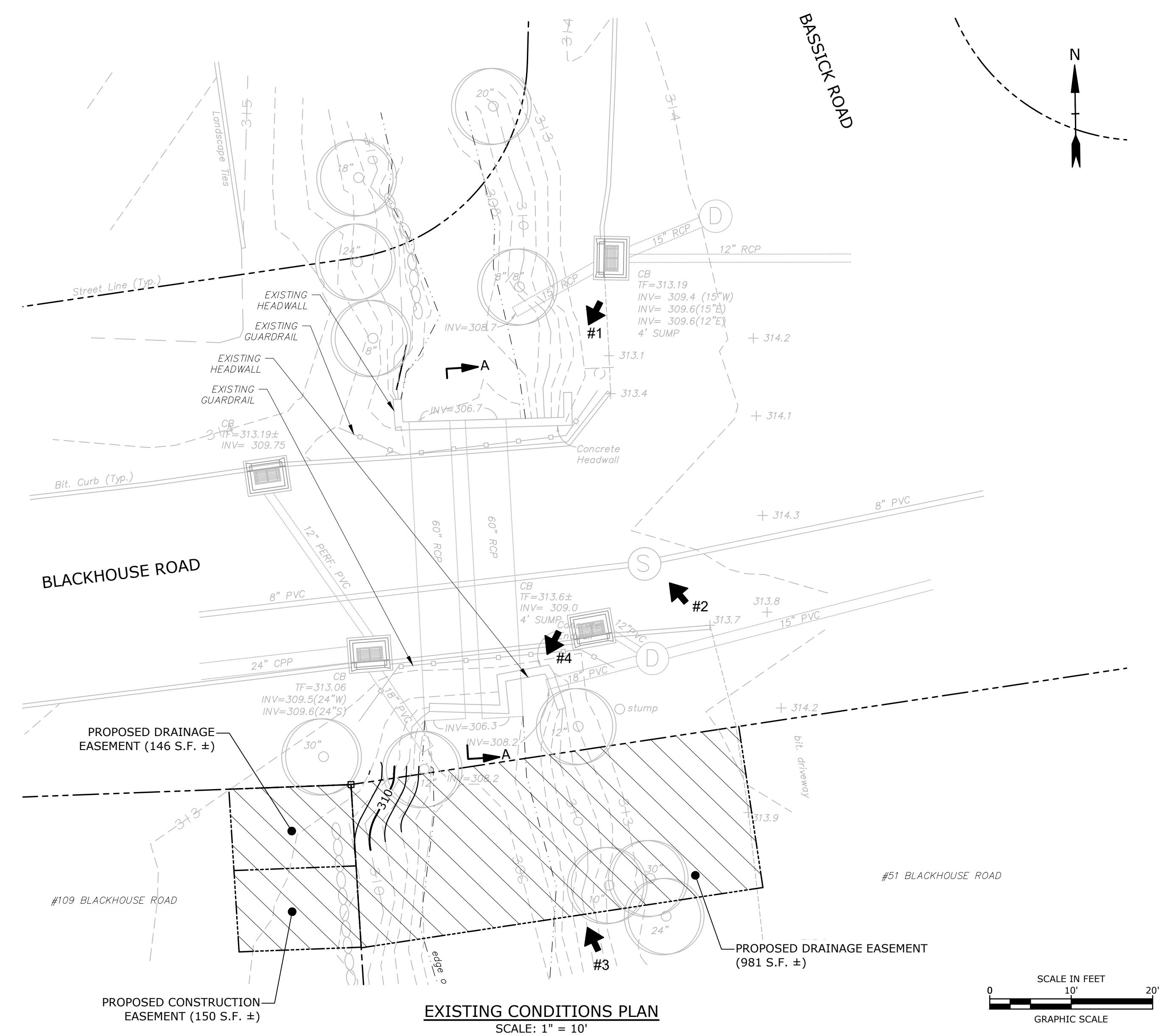


PHOTO #1



PHOTO #2

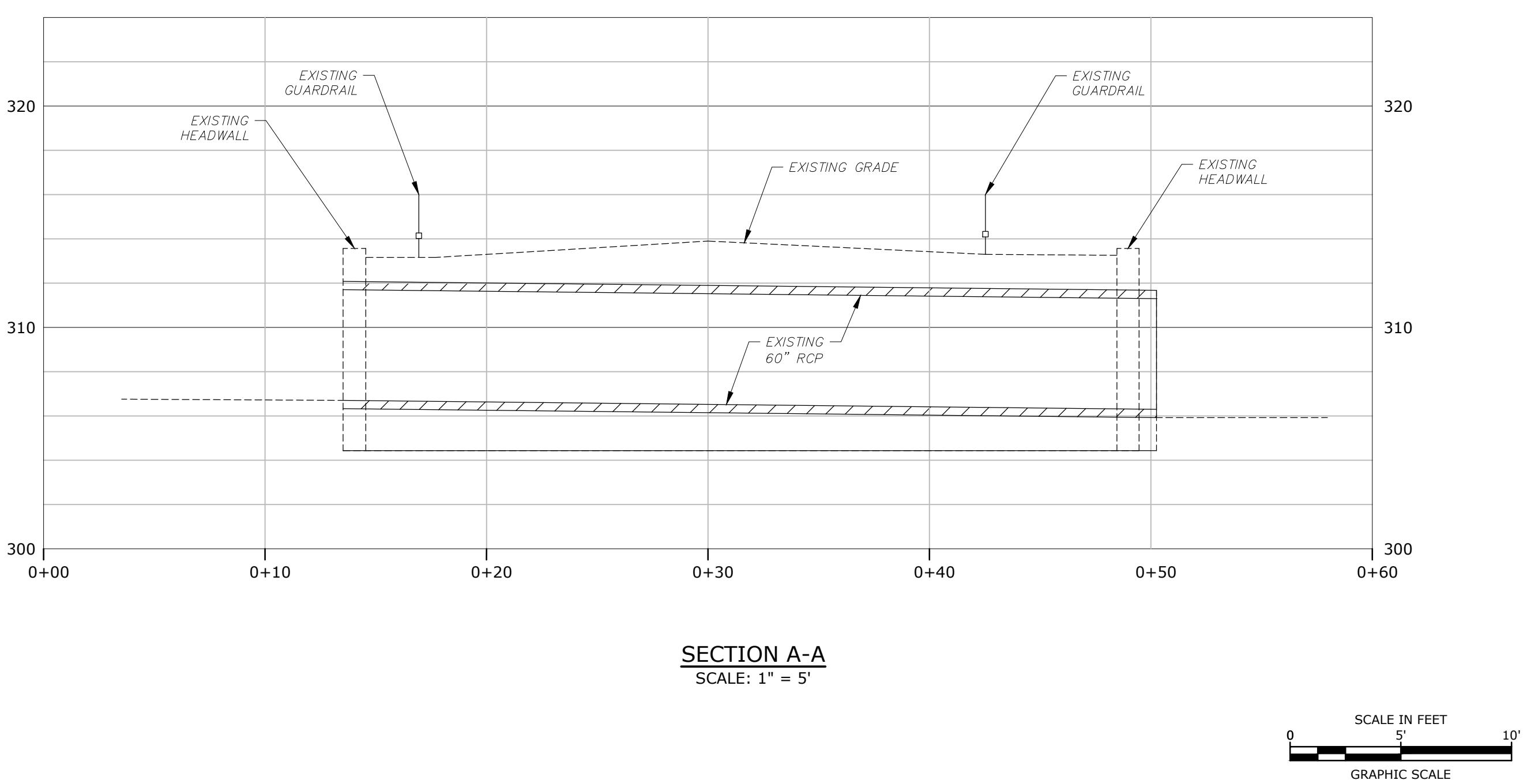


PHOTO #3



Blackhouse Road Culvert Rehabilitation

Town of Trumbull, CT



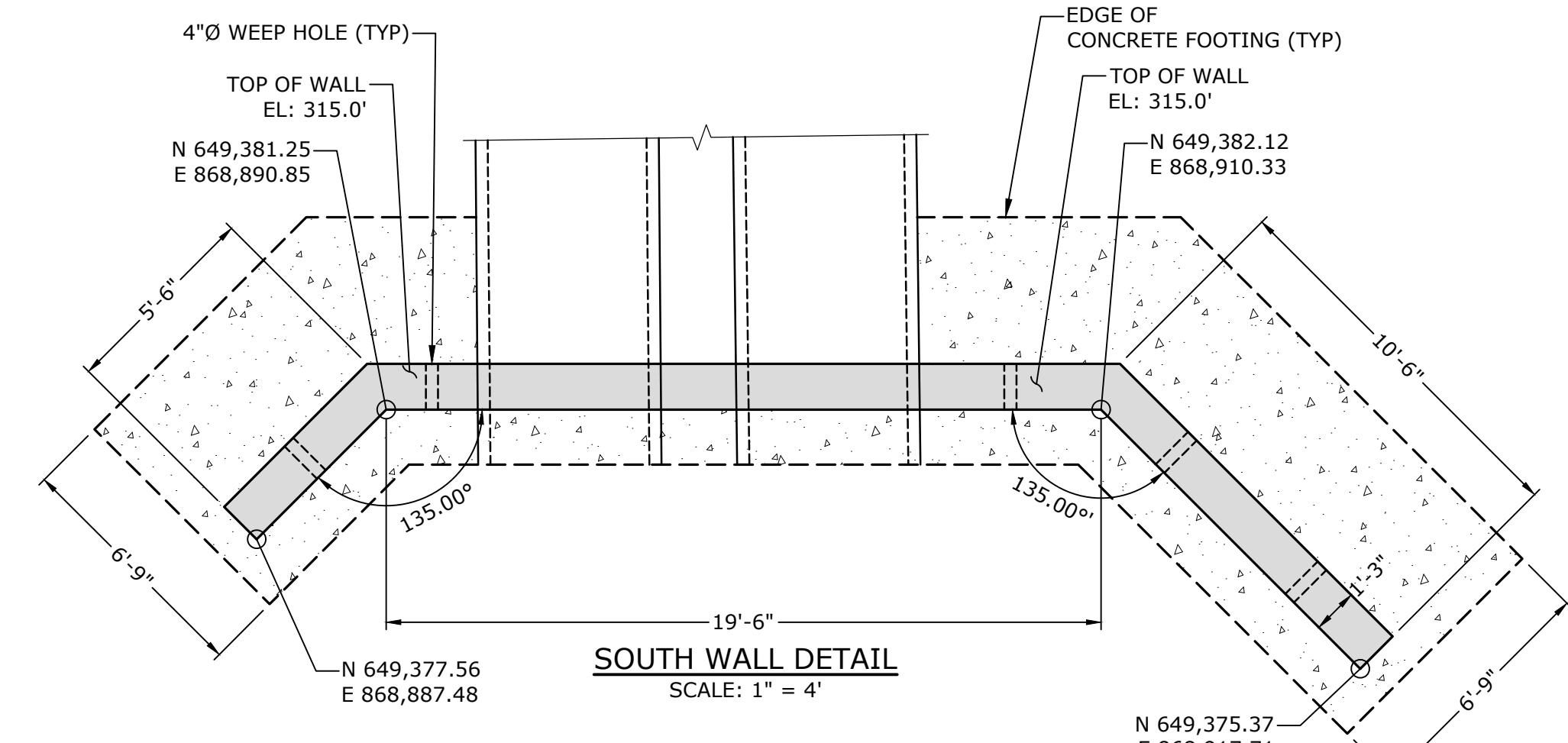
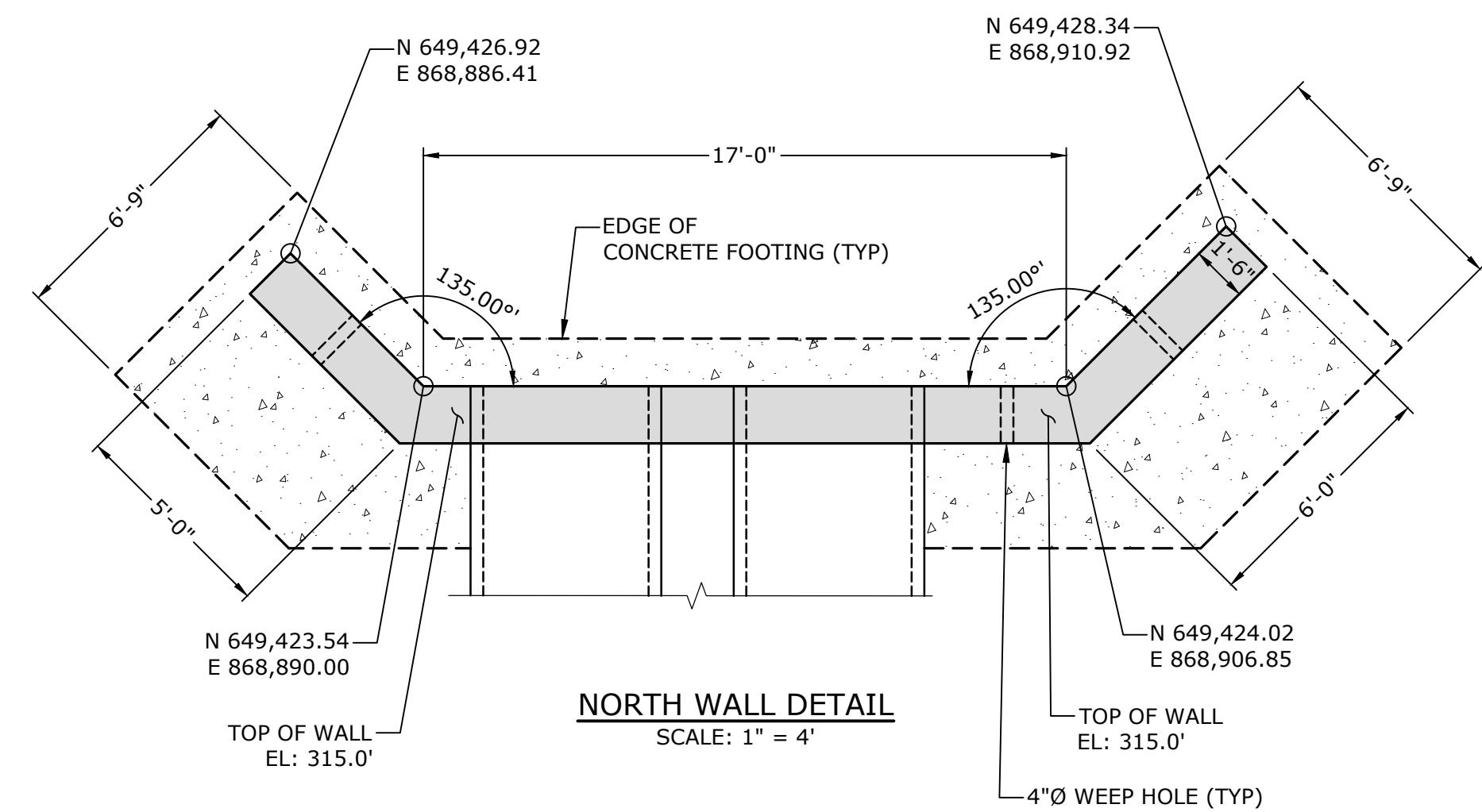
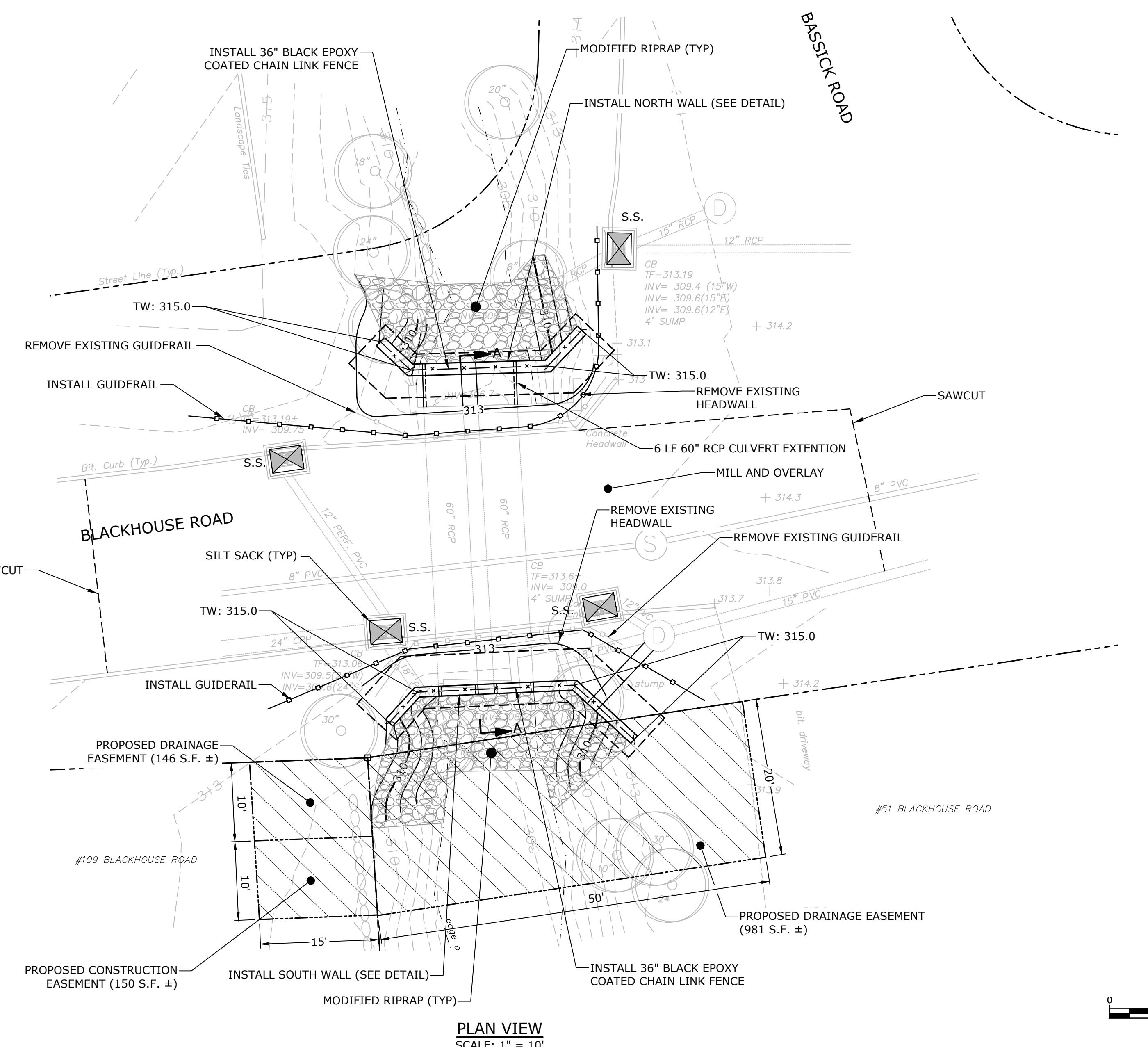
LEGEND:



PHOTOGRAPH

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SCALES ACCORDINGLY

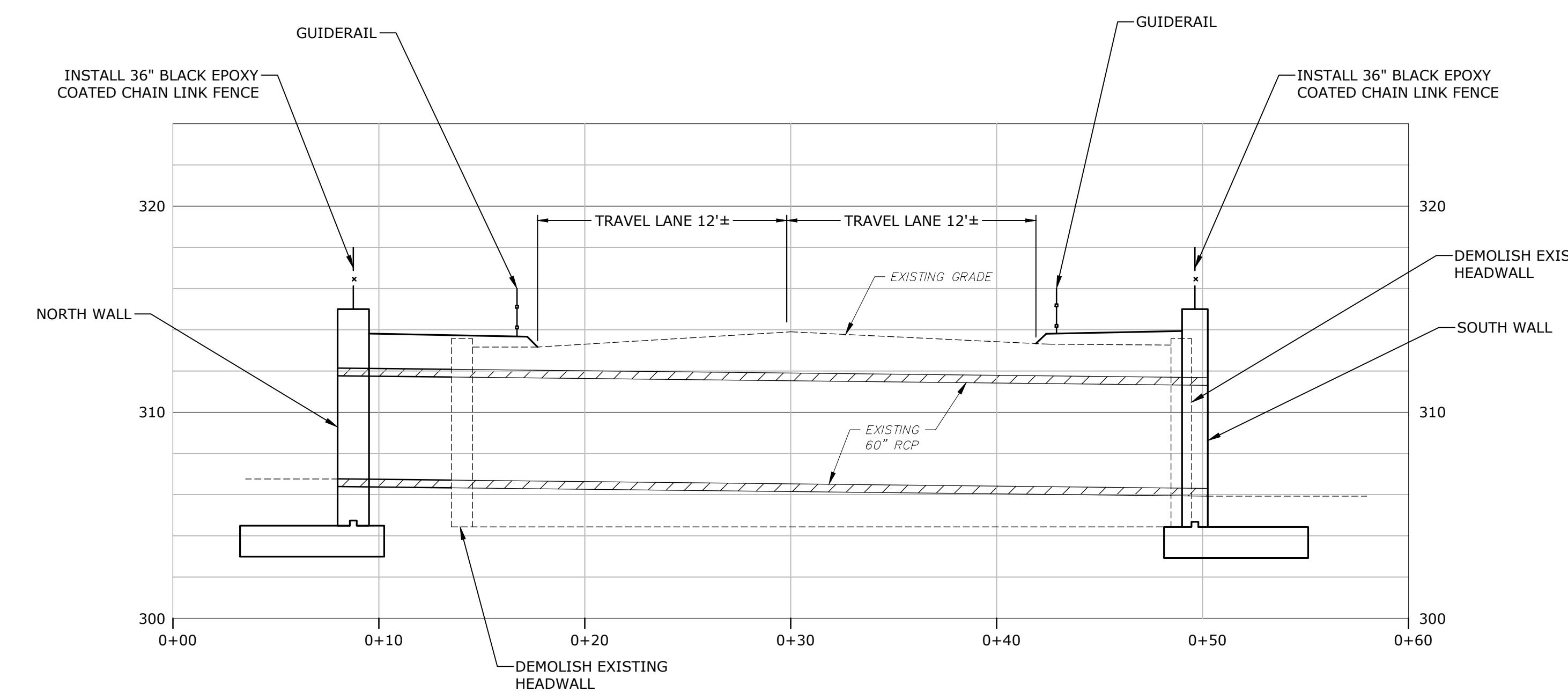
DATE	DESCRIPTION
NO:	T-0196-72
	05/10/2019
-T0196-72-01.dwg	
Y:	ADM
:	AJM
D:	DH
EXISTING CONDITIONS PLAN	
AS NOTED	



NOTE:
TOWN OF TRUMBULL ENGINEERING DEPARTMENT WILL PROVIDE THE CONTRACTOR
WITH CONTROL POINTS AND BENCHMARK TO LAYOUT PROPOSED CONSTRUCTION.

Blackhouse Road Culvert Rehabilitation

Town of
Trumbull, CT



VERIFY SCALE
BAR IS 1 INCH ON
ORIGINAL DRAWING
0 IF NOT ONE INCH ON
THIS SHEET, ADJUST
SCALES ACCORDINGLY

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PROJECT NO.	T-0196-72	
DATE:	05/10/2019	
FILE:	DR-T0196-72-01.dwg	
DRAWN BY:	ADM	
CHECKED:	AJM	
APPROVED:	DH	

**SITE PLAN, SECTION
AND WALL DETAILS**
SCALE: AS NOTED

BAR SIZE DESIGNATION		DEVELOPMENT LENGTH (INCHES)	SPLICE LENGTH (INCHES)	
ENGLISH	METRIC	Ld	CLASS B	CLASS B TOP BARS
#3	#10	15	19	25
#4	#13	19	25	33
#5	#16	24	31	40
#6	#19	29	37	48
#7	#22	42	54	70
#8	#25	48	62	81
#9	#29	54	70	91
#10	#32	61	79	103

REBAR SPLICE LENGTH SCHEDULE

NOTE

1. IF CLEAR SPACING BETWEEN THE REBARS IS LESS THAN THREE BAR DIAMETERS, OR IF COVER IS LESS THAN TWO BAR DIAMETERS, INCREASE THE SPLICE LENGTH BY AN ADDITIONAL 50%.
2. IF EPOXY COATED REBAR IS USED, INCREASE THE SPLICE LENGTH BY AN ADDITIONAL 50%.
3. IF LIGHTWEIGHT CONCRETE IS USED, INCREASE THE SPLICE LENGTH BY AN ADDITIONAL 30%.
4. THE MINIMUM REBAR SPLICE LENGTH SCHEDULE IS BASED ON $F'c=4,000$ PSI AND $F_y= 60,000$ PSI. ADJUST FOR OTHER STRENGTHS USING ACI-318.
5. FOR HORIZONTAL REINFORCEMENT SO PLACED THAT MORE THAN 12 INCHES OF FRESH CONCRETE IS CAST IN THE MEMBER BELOW, INCREASE THE DEVELOPMENT LENGTH BY AN ADDITIONAL 30%.
6. WHEN BARS OF DIFFERENT SIZE ARE LAP SPLICED, THE SPLICE LENGTH SHALL BE THE LARGER OF EITHER THE DEVELOPMENT LENGTH OF THE LARGER BAR OR THE SPLICE LENGTH OF THE SMALLER BAR.

Blackhouse Road Culvert Rehabilitation

Town of Trumbull, CT

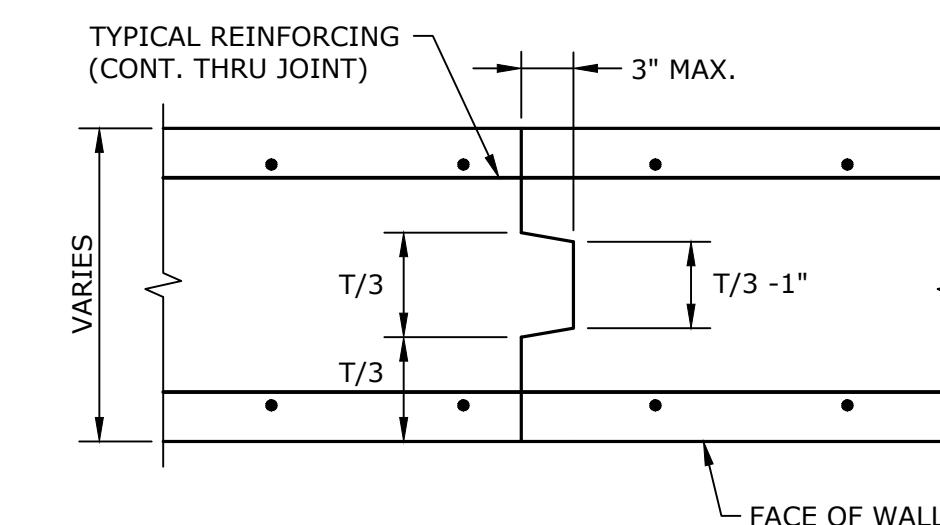
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SCALES ACCORDINGLY

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	05/10/2019
DS-T0196-72-01.dwg	
BY:	RAS
ED:	AJM

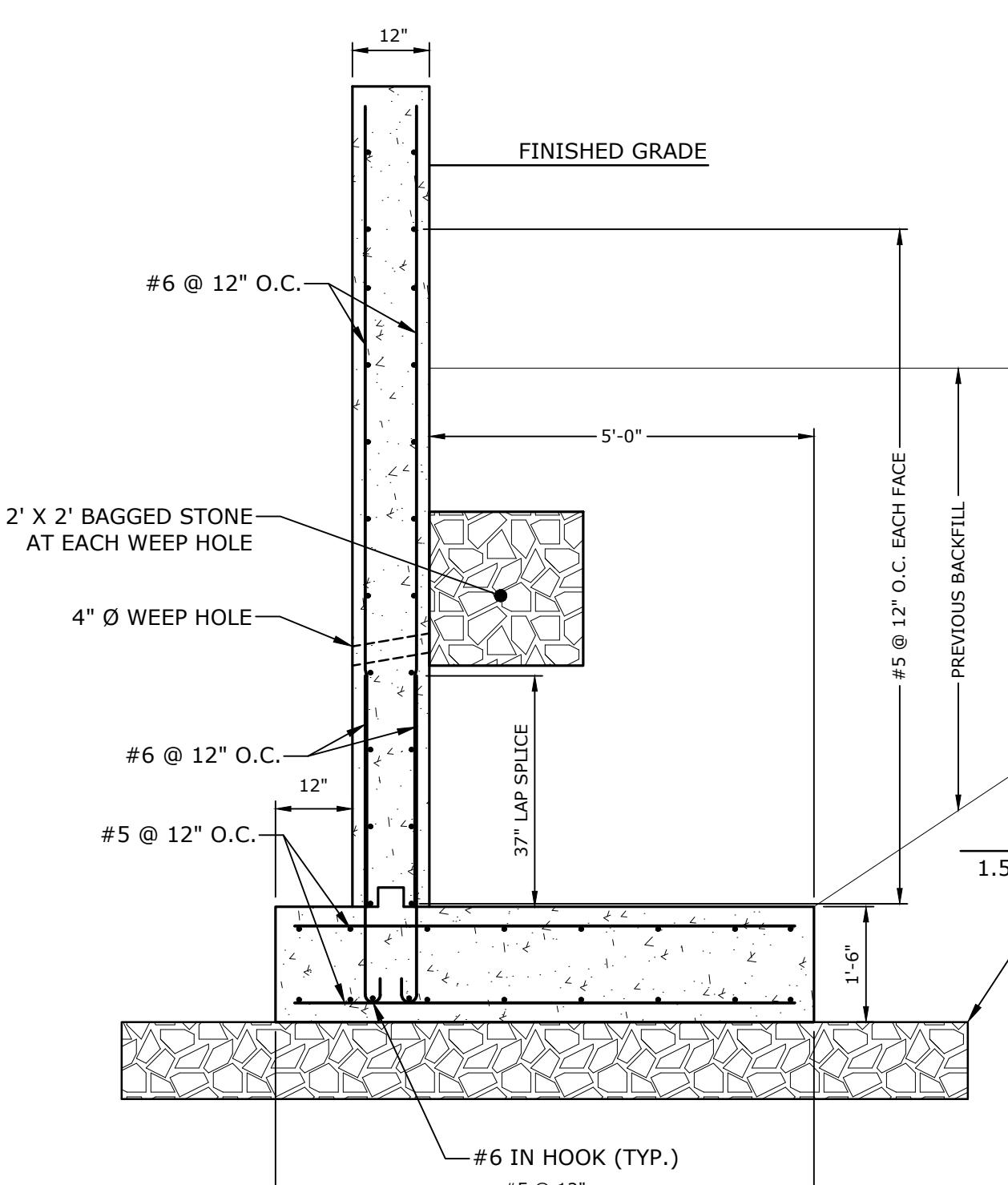
STRUCTURAL AND SITE NOTES AND DETAILS

CALE: AS NOTE

S-2

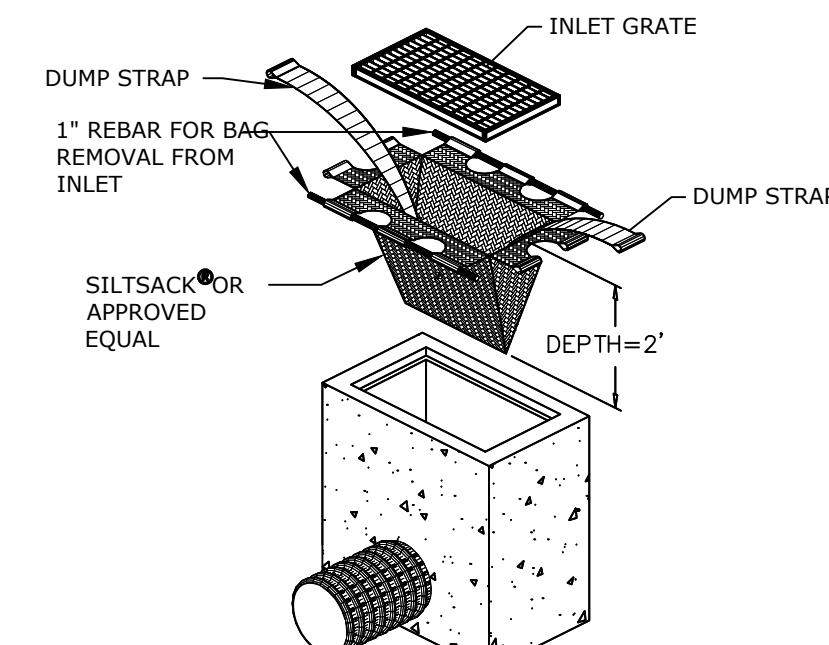


CONSTRUCTION JOINT



TYPICAL WING WALL SECTION

SCALE: 1" = 2'

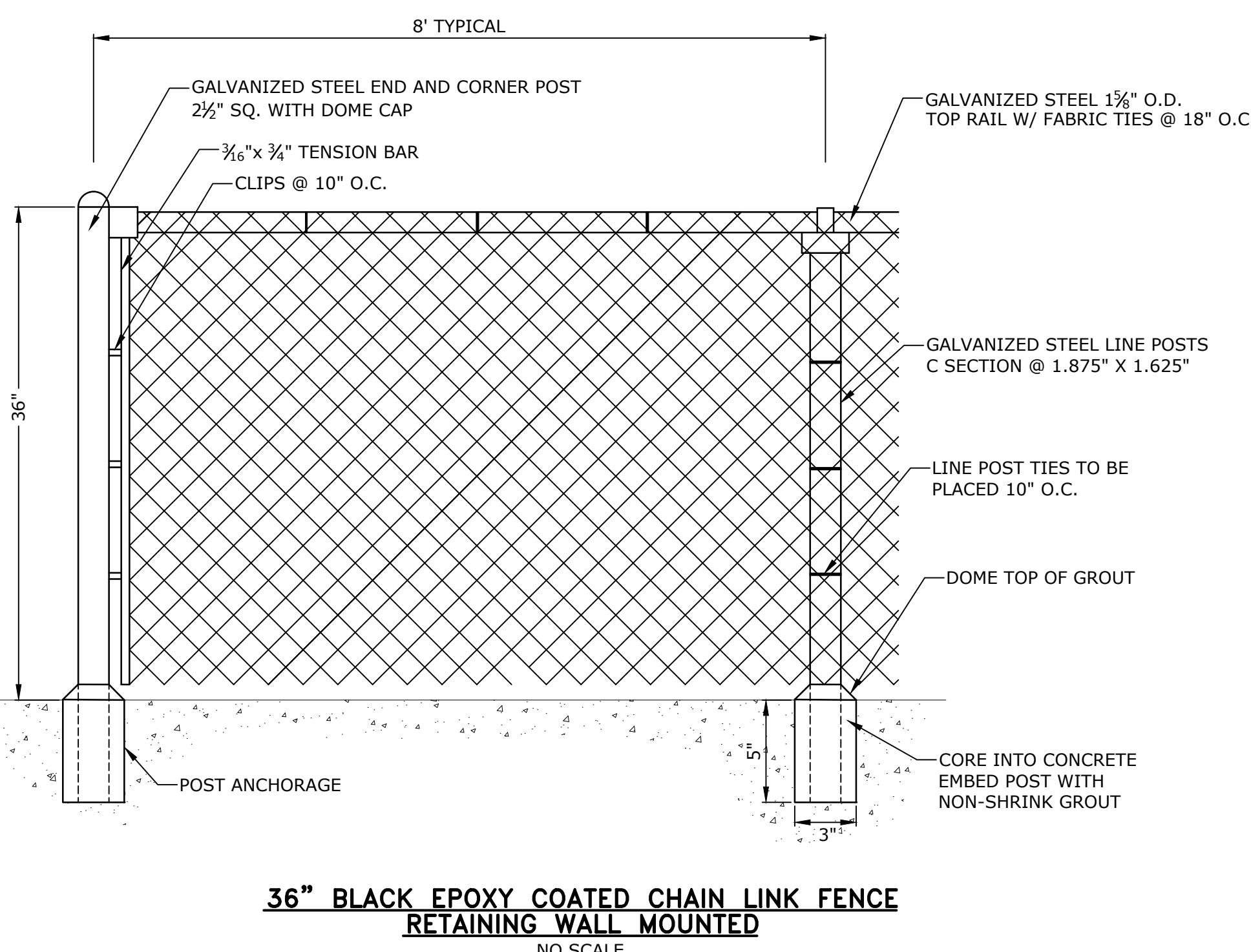


NOTES:

1. SILTSACKS MANUFACTURED BY ATLANTIC CONSTRUCTION FABRICS, INC.; 1801-A WILLIS ROAD; RICHMOND, VA 23237.
2. SILTSACKS FOR TRENCH GRATE WILL MATCH OPENING LENGTH AS REQUIRED.
3. SILTSACKS SHALL BE CLEANED OUT AND MAINTAINED IN GOOD WORKING ORDER PER MFR RECOMMENDATIONS.



SILTSACK®
NO SCALE



36" BLACK EPOXY COATED CHAIN LINK FENCE
RETAINING WALL MOUNTED

Last Saved: 5/10/2018
Plotted On: May 10, 2018-2:25pm By: WKesler

Blackhouse Road Culvert Rehabilitation

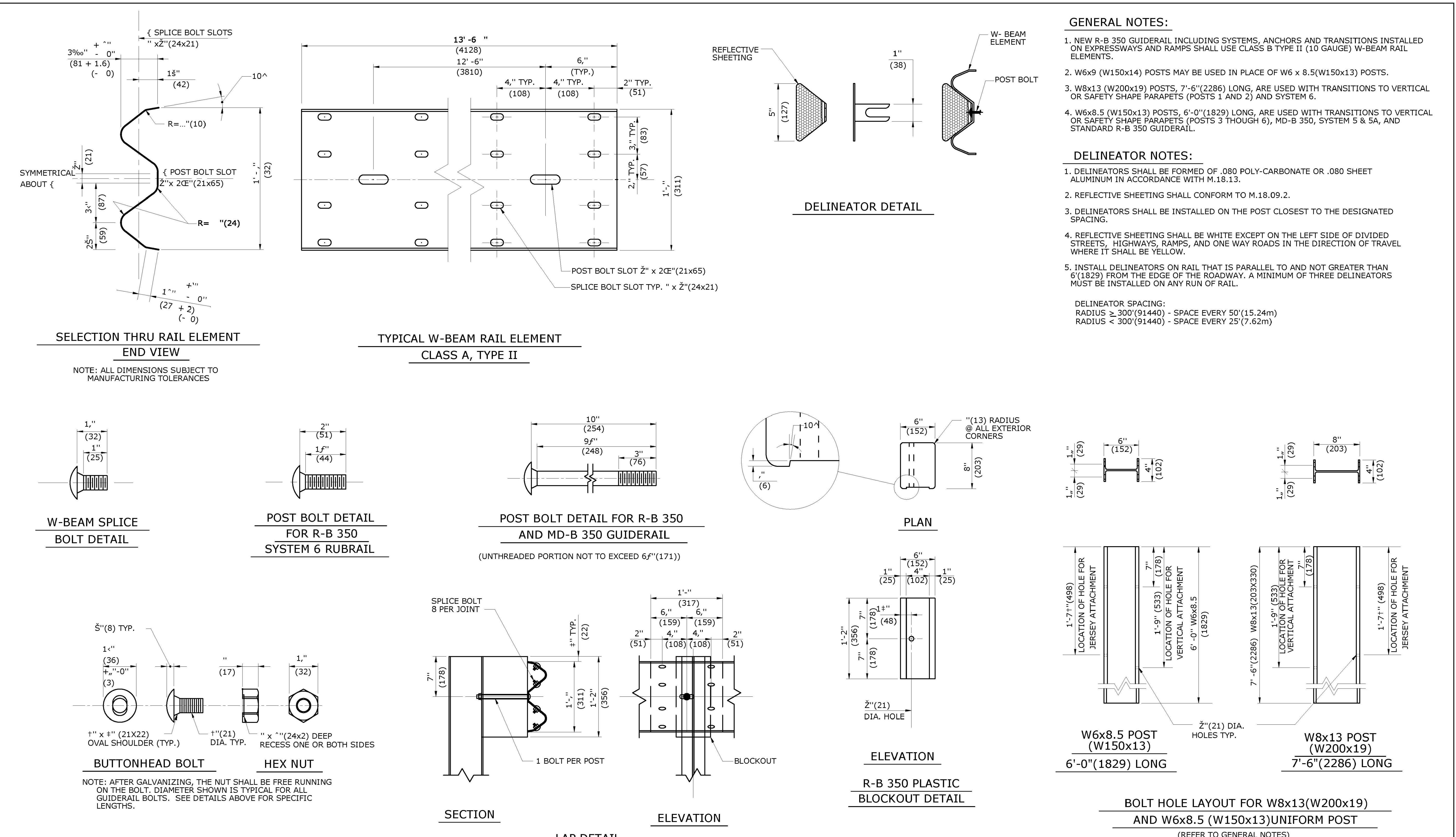
Town of Trumbull, CT

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DATE	DESCRIPTION
NO:	T-0196-72
	05/10/2019
-T0196-72-01.dwg	
Y:	JCB
:	AJM
D:	DH

CTDOT DETAILS - 1

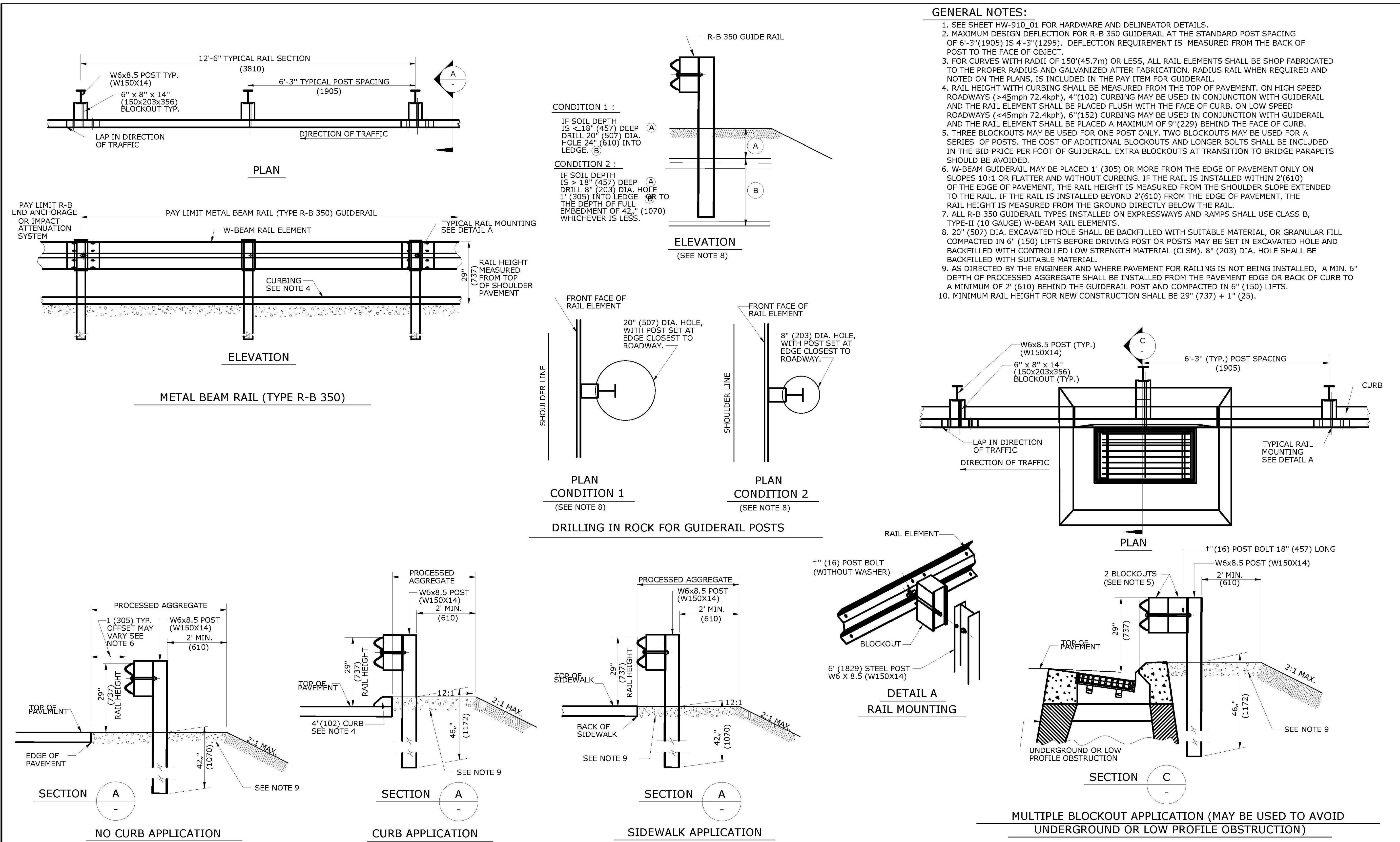
HW-910 01



ALL METRIC DIMENSIONS ARE IN MILLIMETERS (mm) UNLESS OTHERWISE NOTED.

ALL METRIC DIMENSIONS ARE IN MILLIMETERS (mm) UNLESS OTHERWISE NOTED.									
REV.	DATE	REVISION DESCRIPTION			Plotted Date: \$DATE\$	NOT TO SCALE	 STATE OF CONNECTICUT DEPARTMENT OF TRANSPORTATION	CTDOT STANDARD SHEET W-BEAM METAL BEAM RAIL HARDWARE	OFFICE OF ENGINEERING STANDARD SHEET TITLE: NAME/DATE/TIME: SUBMITTED BY: STANDARD SHEET NO.: NAME/DATE/TIME: APPROVED BY: NAME/DATE/TIME: HW-910-01
		1	6/11	REMOVE WEATHERING STEEL NOTES					
-	-	-			-	THE INFORMATION, INCLUDING ESTIMATED QUANTITIES OF WORK, SHOWN ON THESE SHEETS IS BASED ON LIMITED INVESTIGATIONS BY THE STATE AND IS IN NO WAY WARRANTED TO INDICATE THE CONDITIONS OF ACTUAL QUANTITIES OF WORK WHICH WILL BE REQUIRED.			-
-	-	-			-				
-	-	-			-				
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Last Saved: 5/10/2018
Plotted On: May 10, 2018-2:25pm By: WKesler



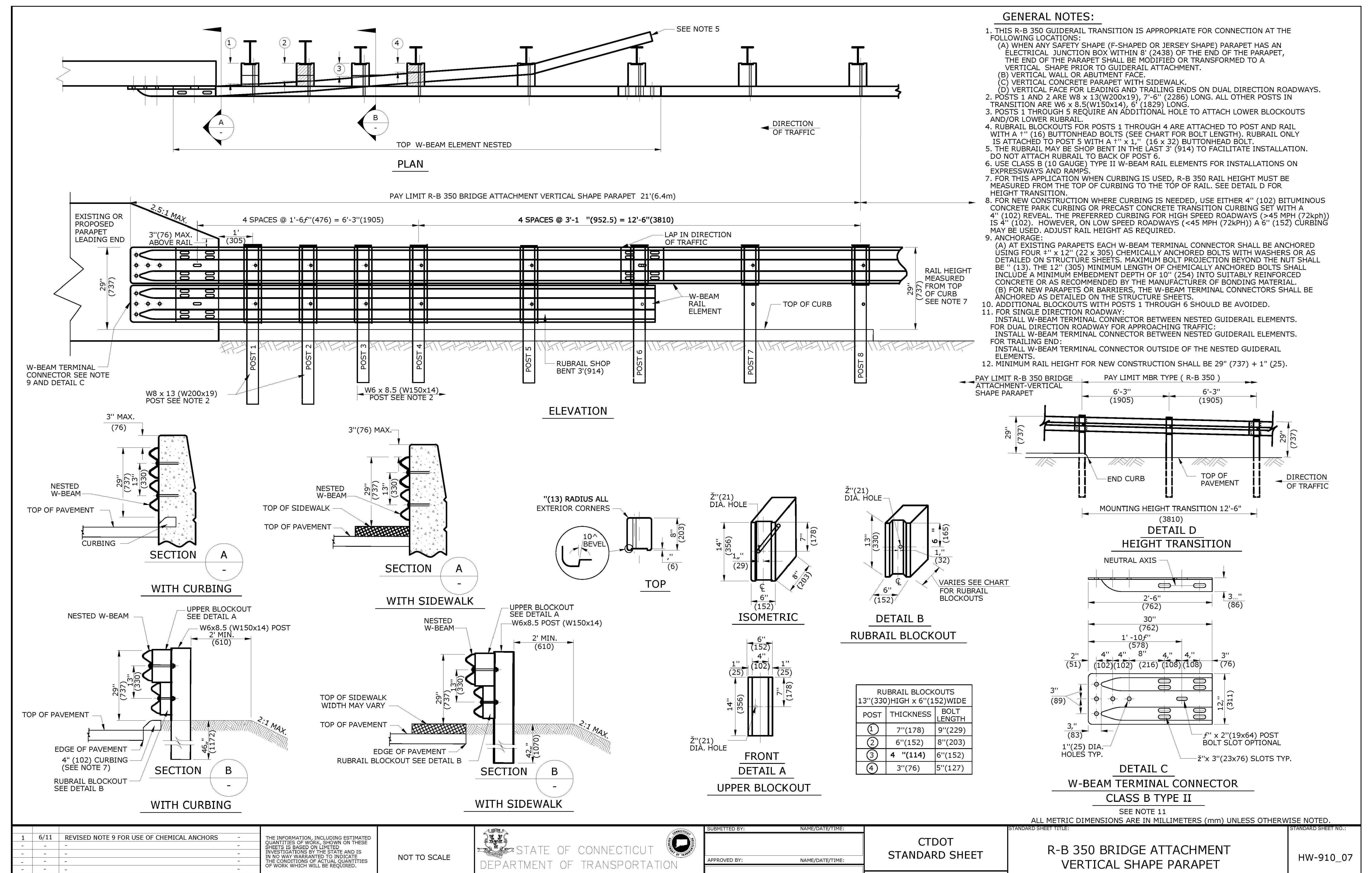
Blackhouse Road Culvert Rehabilitation

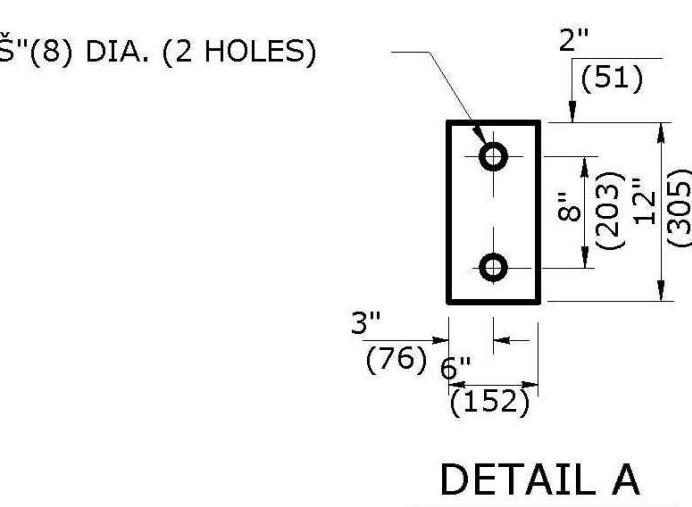
Town of Trumbull, CT

VERIFY SCALE
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0 [REDACTED] 1 INCH
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MARK	DATE	DESCRIPTION
PROJECT NO:		T-0196-72
DATE:		05/10/2019
FILE: DS-T0196-72-01.dwg		
DRAWN BY:		JCB
CHECKED:		AJM
APPROVED:		DH
CTDOT DETAILS - 2		
SCALE:		AS NOTED
HW-910_02		

Plotted On: May 10, 2018-2:25pm By: Wkesler
Tighe & Bond, J.\T10196\72_Blackhouse Rd\Drawings_Figures\AutoCAD\Culverts\Sheets\DS-T0196-72-01.dwg

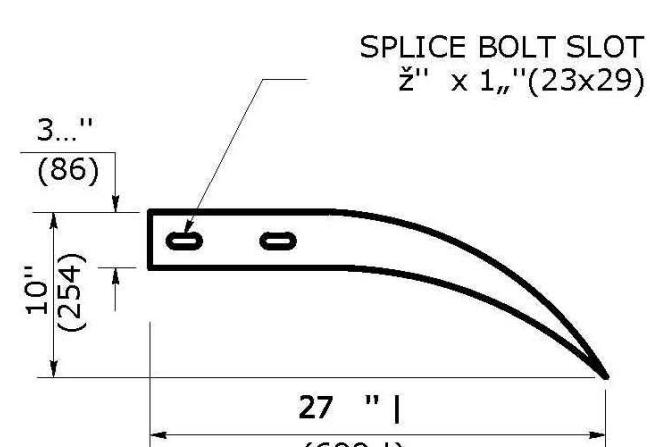




DETAIL A

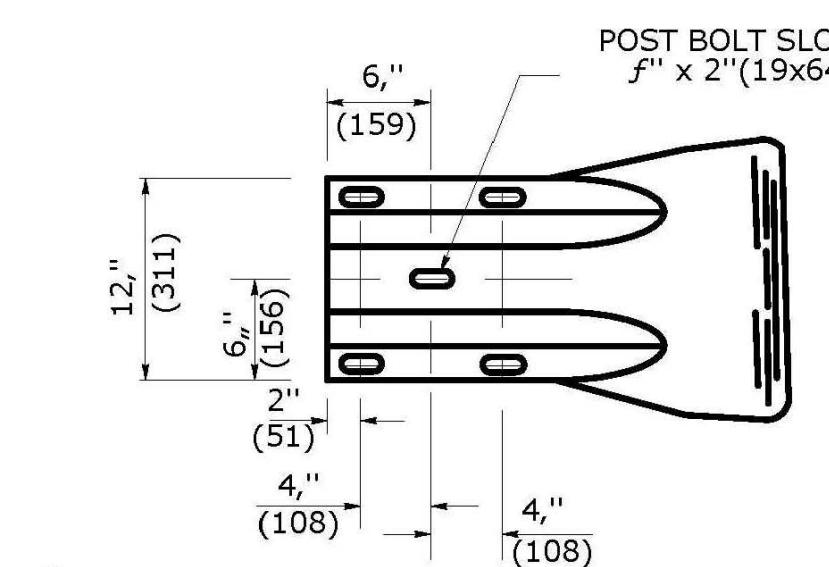
TYPE 2 OBJECT MARKER
SIGN # 51-5030

OBJECT MARKER FACE SHALL BE YELLOW TYPE III RETROREFLECTORIZED. THE BOTTOM OF TYPE 2 OBJECT MARKER SHALL BE 4'(1219) ABOVE GROUND LEVEL MOUNTED ON METAL DELINEATOR POST. IT SHALL BE USED TO IDENTIFY CULVERT ENDS AND TYPE II END ANCHORS, OR AS DIRECTED BY THE ENGINEER.



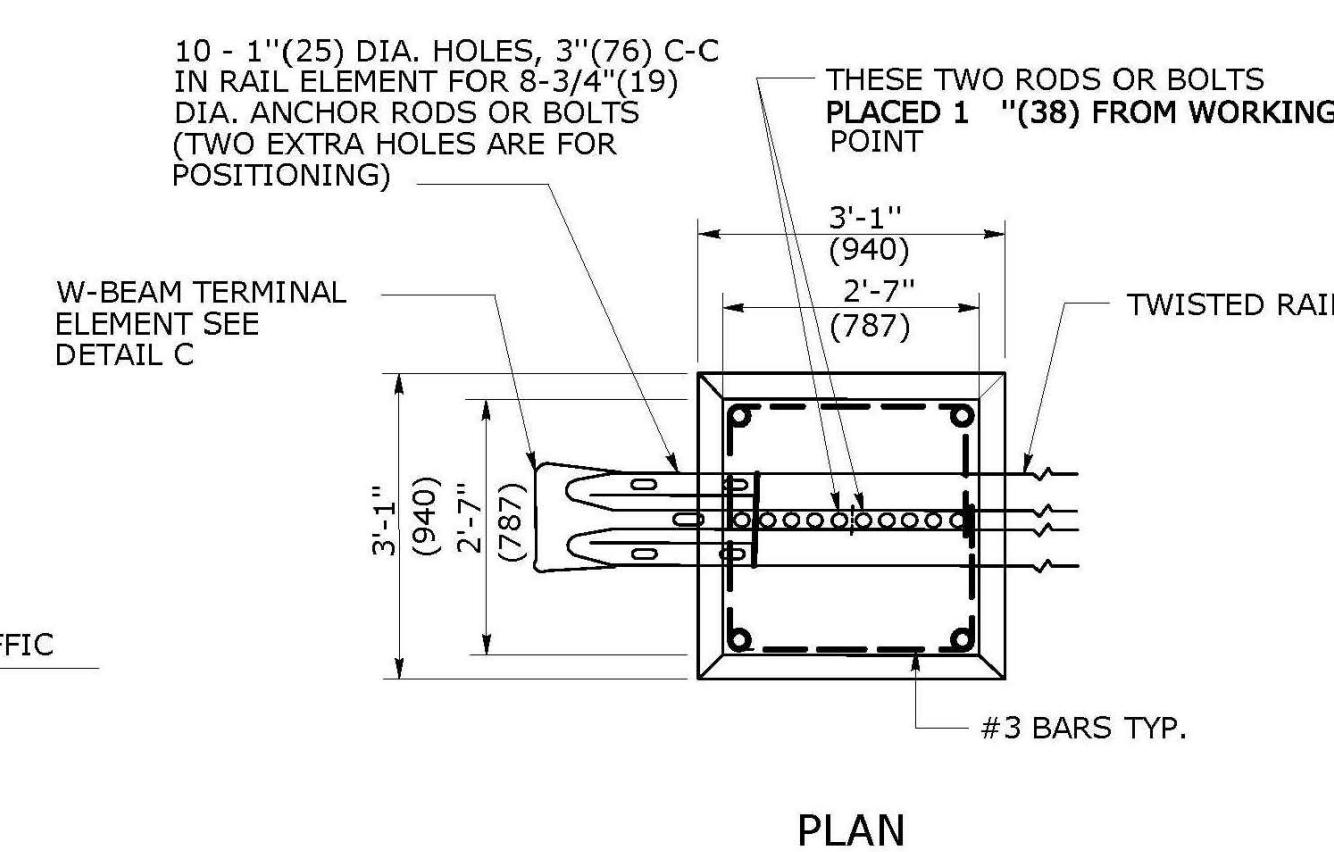
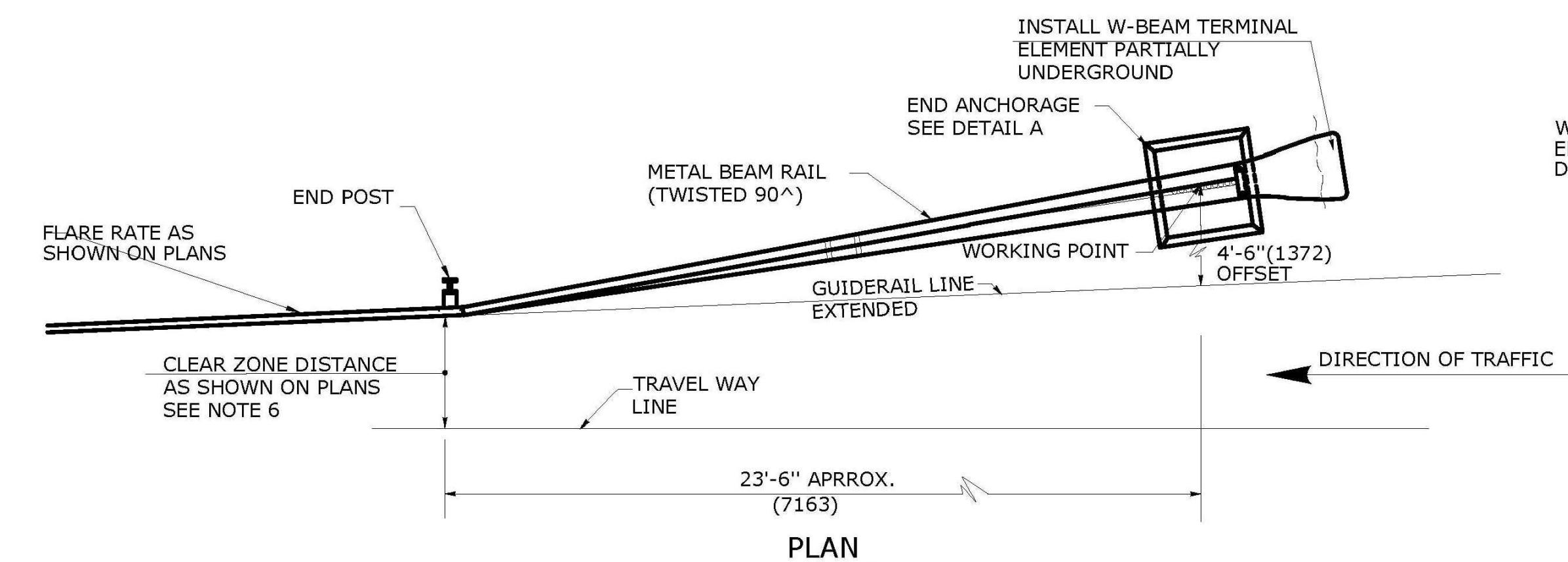
DETAIL C

W-BEAM TERMINAL ELEMENT

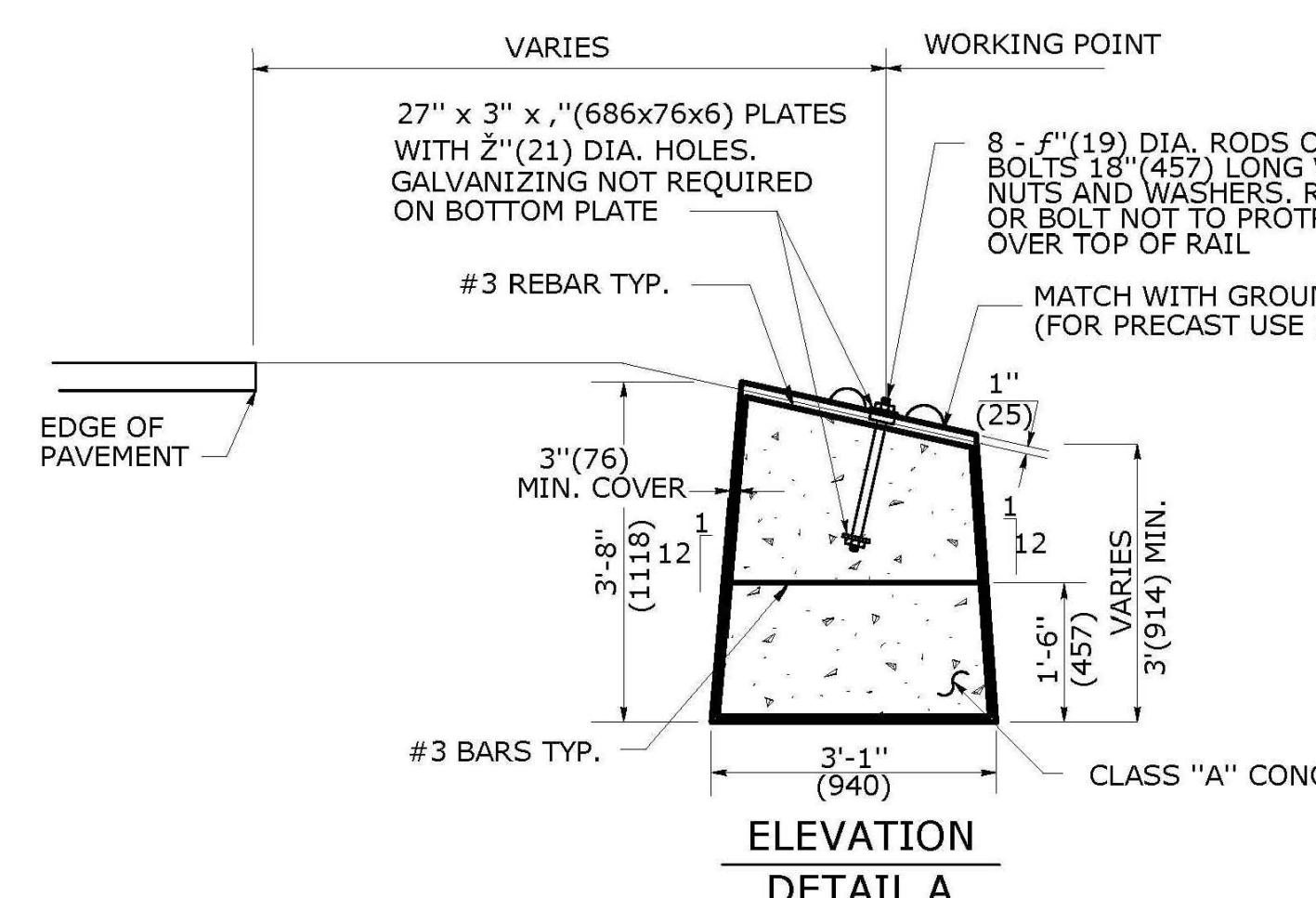
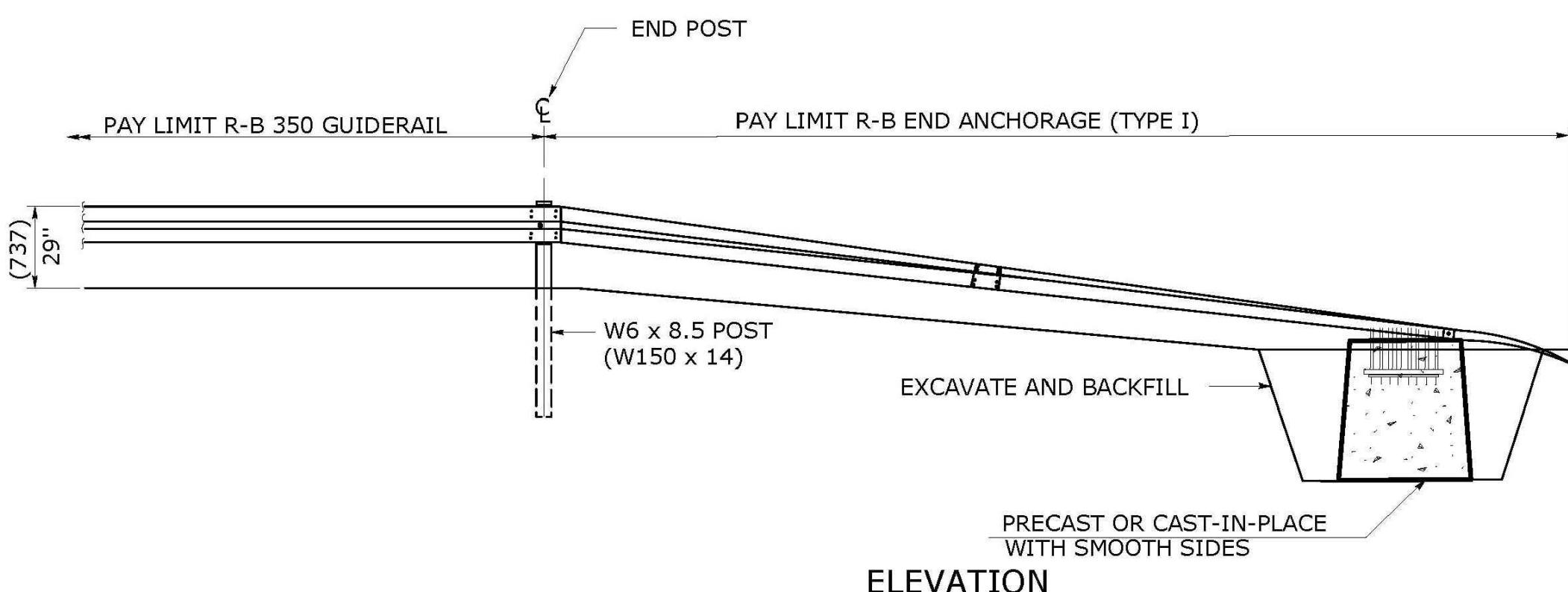
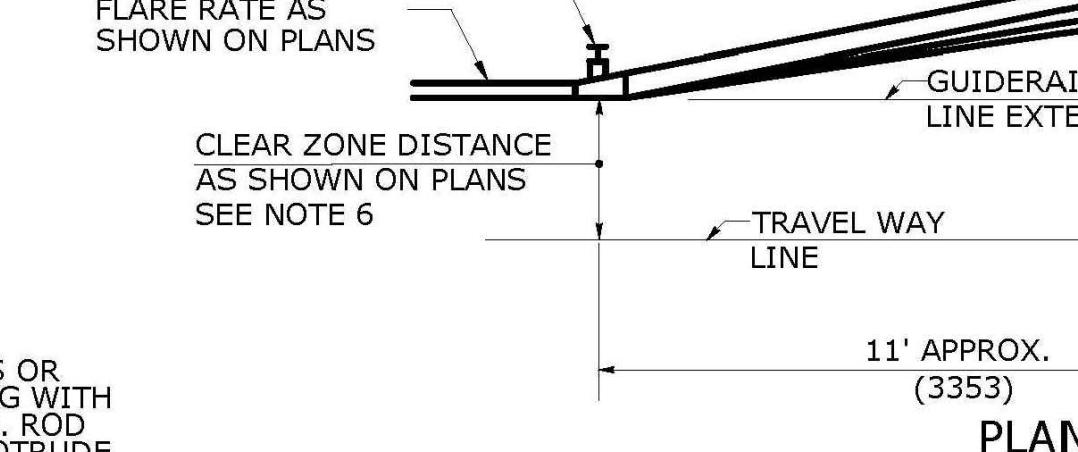
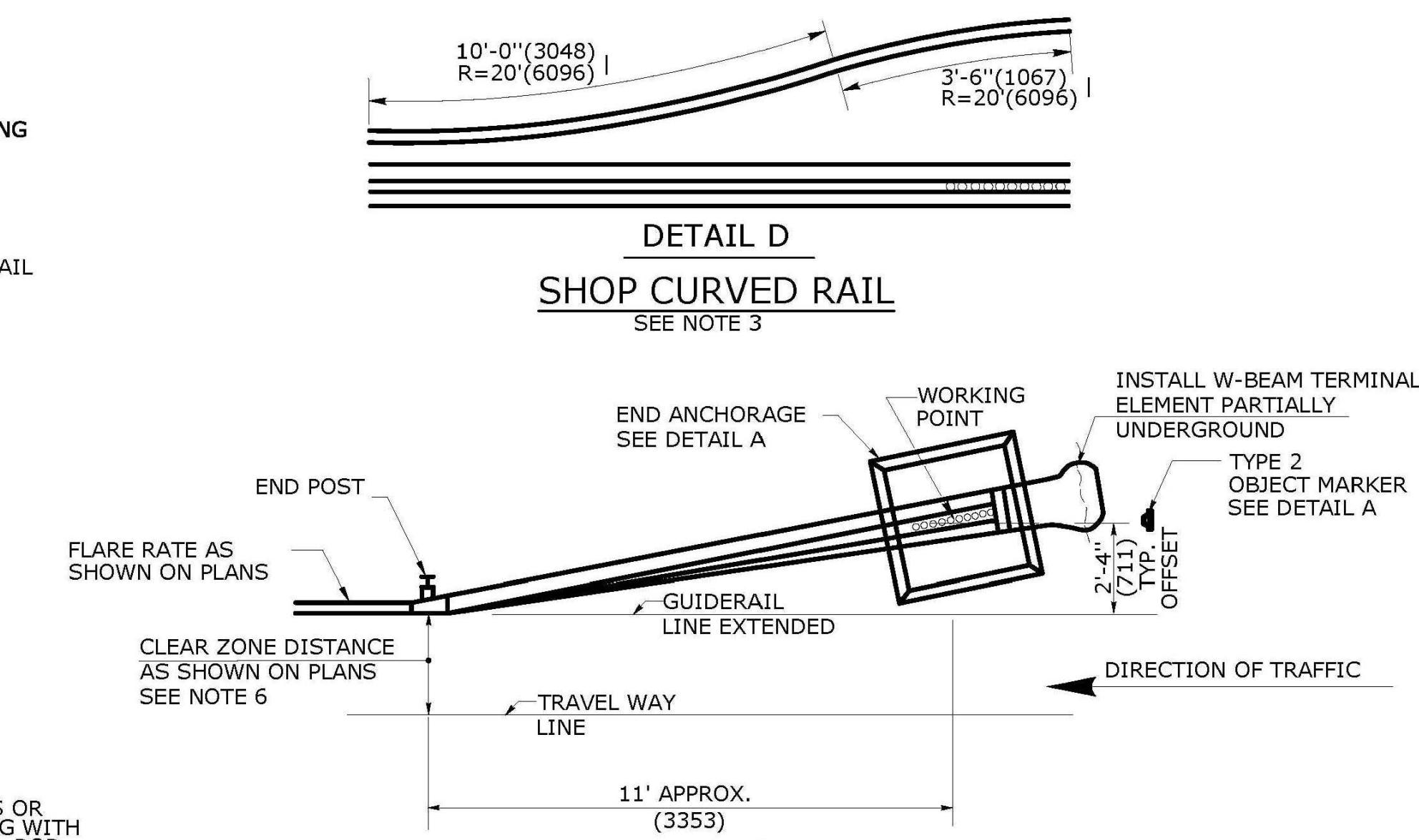


GENERAL NOTES:

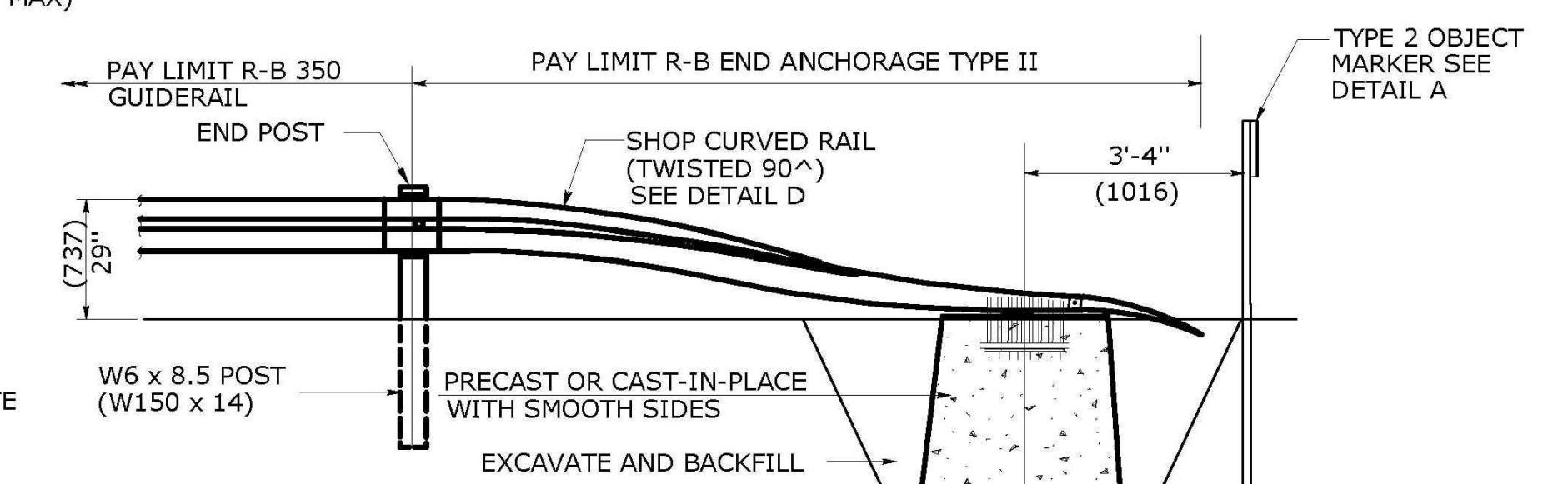
1. R-B END ANCHORAGE TYPE I INSTALLED ON FREEWAYS AND RAMPS SHALL USE CLASS B (10 GAUGE) TERMINAL AND W-BEAM RAIL ELEMENTS. ALL OTHER R-B END ANCHORAGE TYPE I SHALL USE CLASS A (12 GAUGE) TERMINAL AND W-BEAM RAIL ELEMENTS.
2. R-B END ANCHORAGE TYPE II SHALL USE CLASS A (12 GAUGE) TERMINAL AND W-BEAM RAIL ELEMENTS.
3. OTHER RADII WHICH CAN BE DEMONSTRATED TO PROVIDE THE INSTALLATIONS SHOWN FOR END ANCHORAGE TYPE II MAY BE APPROVED.
4. J-HOOK BOLTS MAY BE SUBSTITUTED FOR BOTTOM PLATE ANCHORAGE IN CONCRETE END ANCHORS USING THE SAME SIZE, STRENGTH, AND LENGTH AS NOTED ON THE PLANS.
5. MINIMUM RAIL HEIGHT FOR NEW CONSTRUCTION SHALL BE 29" (737) + 1' (25).
6. R-B TYPE I END ANCHOR: INSTALL LEADING END USING DESIGN CLEAR ZONE DISTANCE MEASURED FROM TRAVEL WAY LINE TO END POST AS SHOWN ON PLANS, THEN PLACE CONCRETE ANCHOR 4'-6"(1372) FROM THE LINE OF GUIDERAIL EXTENSION. INSTALL TRAILING END ON DUAL DIRECTION ROADWAYS IN THE SAME MANNER EXCEPT MEASURE CLEAR ZONE FROM THE DOUBLE YELLOW LINE. INSTALL TRAILING END ON SINGLE DIRECTION ROADWAYS MEASURED FROM THE GUIDERAIL LINE EXTENDED AND OFFSET 4'-6" (1372).
7. R-B TYPE II END ANCHOR: INSTALL ONLY ON ROADWAYS WITH DESIGN SPEEDS < 45mph (72kph). FOR DUAL DIRECTION ROADWAYS INSTALL IN THE SAME MANNER AS TYPE I END ANCHOR FOR BOTH LEADING AND TRAILING END USING DESIGN CLEAR ZONE DISTANCE EXCEPT PLACE CONCRETE ANCHOR 2'-4" (711) MEASURED FROM THE LINE OF GUIDERAIL EXTENDED INSTALL TRAILING END ON SINGLE DIRECTION ROADWAYS MEASURED FROM THE GUIDERAIL LINE EXTENDED AND OFFSET 2'-4" (711).
7. SEE HW-911_04 FOR TYPICAL END ANCHOR GRADING PLAN.



W-BEAM TERMINAL ELEMENT SEE DETAIL C



ROADSIDE CONCRETE END ANCHOR
SEE NOTE 4

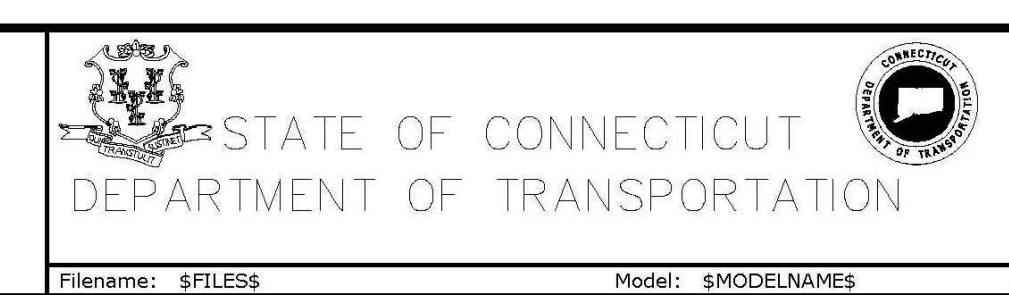


ELEVATION
R-B END ANCHORAGE TYPE II
SEE NOTE 2

ALL METRIC DIMENSIONS ARE IN MILLIMETERS (mm) UNLESS OTHERWISE NOTED.

1	6/11	REVISED TYPE I AND II ANCHOR FOR CLEAR ZONE PLACEMENT	THE INFORMATION, INCLUDING ESTIMATED QUANTITIES OF WORK, SHOWN ON THESE SHEETS IS FOR INFORMATION ONLY. INVESTIGATIONS OF THE STATE AND IS IN NO WAY WARRANTED TO INDICATE THE QUANTITIES OF WORK WHICH WILL BE REQUIRED.
-	-	-	
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-	-	-	
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REV. DATE	REVISION DESCRIPTION	Plotted Date: \$DATE\$	

NOT TO SCALE



SUBMITTED BY: NAME/DATE/TIME

APPROVED BY: NAME/DATE/TIME

STANDARD SHEET TITLE: CTDOT STANDARD SHEET
OFFICE OF ENGINEERING

R-B END ANCHORAGE TYPE I AND II

STANDARD SHEET NO.: HW-911_01

VERIFY SCALE
BAR IS 1 INCH ON
ORIGINAL DRAWING
0 IF NOT ONE INCH ON
THIS SHEET, ADJUST
SCALES ACCORDINGLY

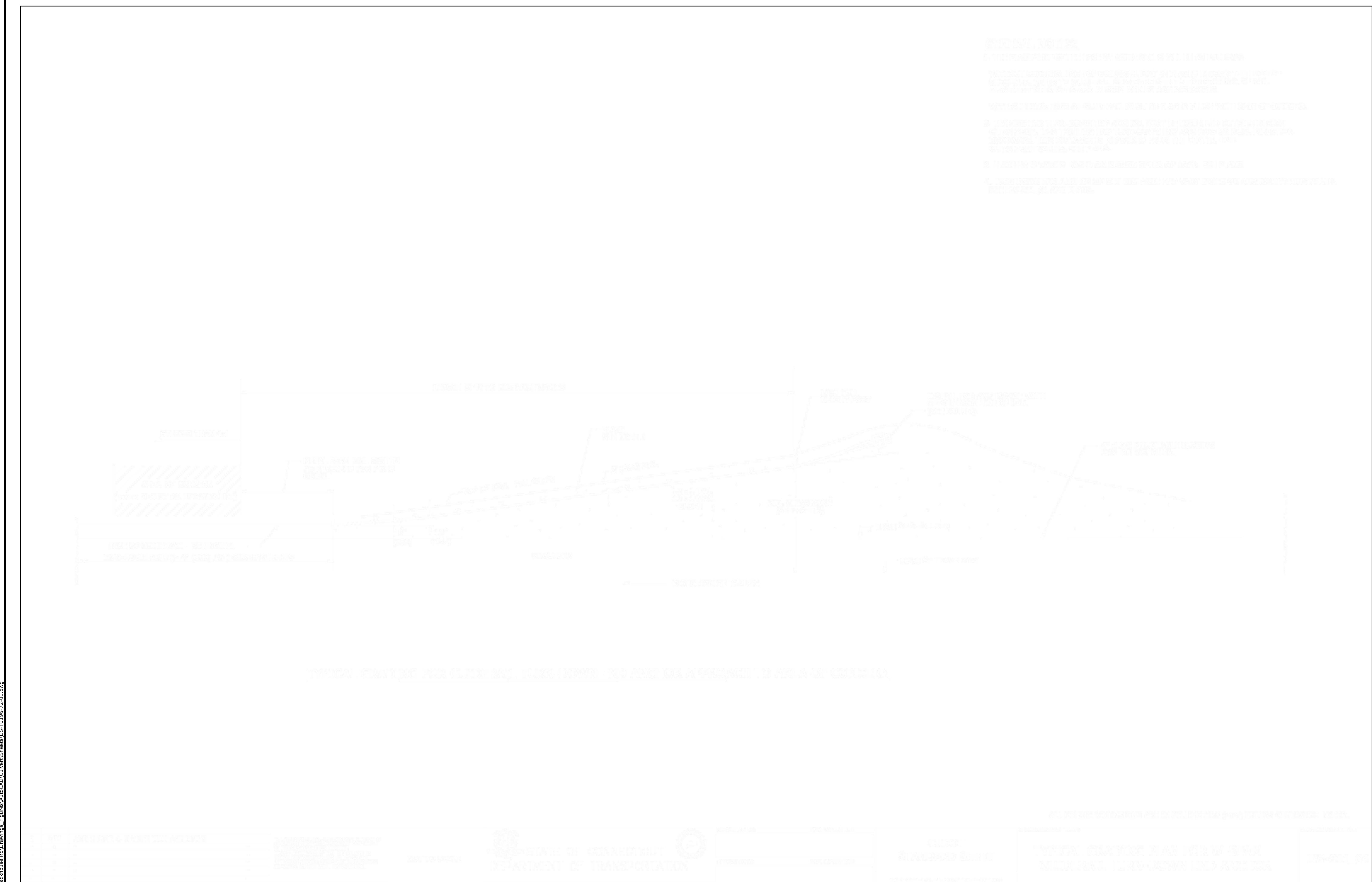
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DATE:	05/10/2019	
FILE:	DS-T0196-72-01.dwg	
DRAWN BY:	JCB	
CHECKED:	AJM	
APPROVED:	DH	

CTDOT DETAILS - 4

SCALE: AS NOTED
HW-911_01

Blackhouse Road Culvert Rehabilitation

Town of Trumbull, CT



**Blackhouse
Road Culvert
Rehabilitation**

Town of
Trumbull, CT

VERIFY SCALE

BAR IS 1 INCH ON
ORIGINAL DRAWING
0 IF NOT ONE INCH ON
THIS SHEET, ADJUST
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MARK	DATE	DESCRIPTION
PROJECT NO:	T-0196-72	
DATE:	05/10/2019	
FILE:	DS-T0196-72-01.dwg	
DRAWN BY:	JCB	
CHECKED:	AJM	
APPROVED:	DH	
CTDOT DETAILS - 5		
SCALE:	AS NOTED	
HW-911_04		