

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION



BANGOR
PENOBSCOT COUNTY
INTERSTATE 95
NHS-1920(100)

PROJECT LENGTH: 2.24 MILES

PLAN LEGEND

Town, County, State	Centerline-Existing	Centerline-Proposed
Property Lines	Travelway-Existing	Travelway-Proposed
R/W Lines-Existing	Travelway-Proposed	
R/W Lines-Proposed	Railroad	
Culvert-Existing	Catch Basins	Existing Proposed
Culvert Proposed	Manholes	Existing Proposed
Curbing Existing	Proposed Underdrain	
Type 1	Proposed Ditch	
Type 3	Existing Ditch	
Type 5	Utility Poles	Existing Proposed
Outline of Bodies of Water	Fire Hydrants	Existing Proposed
Ledge	Existing Water Line	
Buildings	Existing San. Sewer	
Trees Conifer	Existing San. Sewer Manhole	
Tree Line	Guardrail-Existing	
Clearing Limit Line	Guardrail-Proposed	
	Guardrail-Cable, Other	

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STATE OF MAINE DEPARTMENT OF TRANSPORTATION	APPROVED	DATE
	4/24/13	4/24/13
	COMMISSIONER	CHIEF ENGINEER
	James P. Swaney	

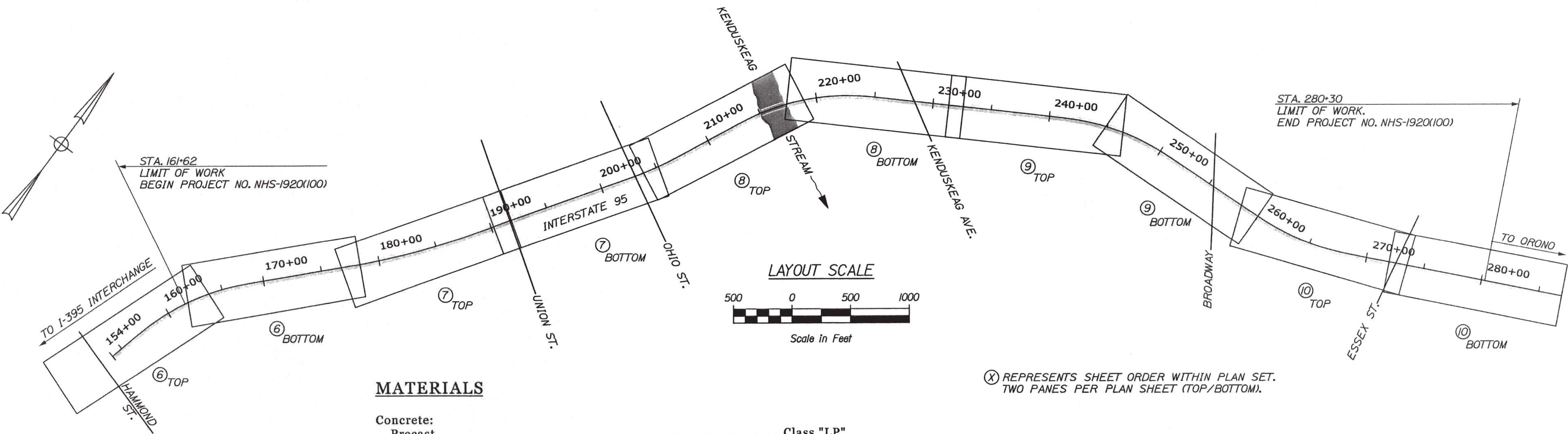
STATE OF MAINE PENOBSCOT COUNTY BANGOR	SIGNATURE	P.E. NUMBER	DATE
	James P. Swaney	6452	4/18/13

PROJECT INFORMATION	PROGRAM	PROJECT MANAGER	DESIGNER	PROJECT RESIDENT	CONTRACTOR	PROJECT COMPLETION DATE
Highway - Interstate	TOM STEVENS	GREG BLAKE	HNTB			

BANGOR I-95 CONCRETE BARRIER	TITLE SHEET
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WIN 019201.00 NHS-1920(100)

SHEET NUMBER
1
OF 17



MATERIALS

Concrete:	
Precast	Class "LP"
All Other	Class "LP"
Reinforcing (Test Section)	
Glass Fiber Reinforced Polymer (GFRP)	CSA S807-10, ACI 1440-1R-06
Reinforcing Steel (All Other)	ASTM A1055, Grade 60
	Or CSA S807-10, ACI 1440-1R-06

BASIC DESIGN STRESSES

Concrete	f'c = 4,350 psi
Reinforcing Steel	f'y = 60,000 psi
Glass Fiber Reinforced Polymer (GFRP)	
Normal Modulus	100 ksi
High Modulus	145 ksi

TRAFFIC DATA

	Northbound	Southbound
Current (2013) AADT	25,240	25,650
DHV - % of AADT	10	10
Design Hour Volume	2,524	2,565
Design Speed (mph)	55	55

PROJECT LOCATION:

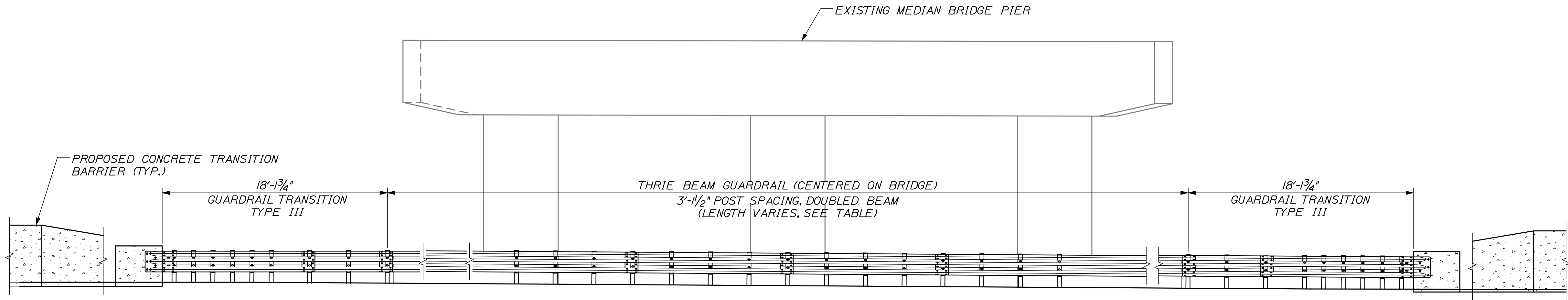
In the city of Bangor along Interstate 95, 0.36 miles north of the Hammond Street underpass, extending 2.24 miles to 0.14 miles north of the Essex Street underpass

PROGRAM AREA:

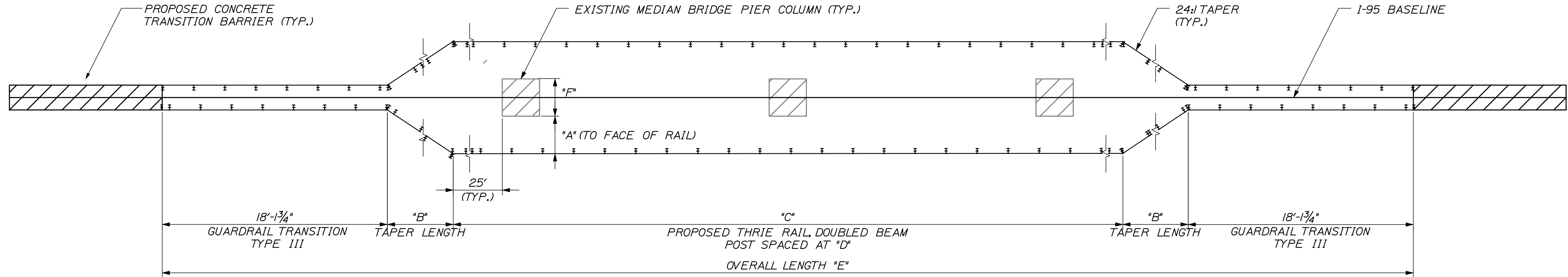
Highway Program - Interstate

OUTLINE OF WORK:

Median guardrail removal, drainage modifications, and precast concrete barrier installation in median



ELEVATION - GUARDRAIL PLACEMENT AT UNDERPASSES
NOT TO SCALE



PLAN - GUARDRAIL PLACEMENT AT UNDERPASSES
NOT TO SCALE

BRIDGE LOCATION	DIMENSIONS					
	A	B	C	D	E	F
UNION STREET	2'-0"	62'-6"	125'-0"	3' 1/2"	286'-3 1/2"	3'-0"
OHIO STREET	2'-0"	62'-6"	112'-6"	3' 1/2"	273'-9 1/2"	3'-0"
KENDUSKEAG AVENUE	2'-0"	62'-6"	87'-6"	3' 1/2"	248'-9 1/2"	3'-0"
ESSEX STREET	1'-6"	62'-6"	125'-0"	3' 1/2"	286'-3 1/2"	4'-0"

NOT TO SCALE

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION
NHS-1920(100)

WIN
019201.00
HIGHWAY PLANS

PROJ. MANAGER
THOMAS STEVENS

DESIGN-DETAILED
G. BLAKE

CHECKED-REVIEWED
G. BLAKE

DESIGN-DETAILED
G. BLAKE

REVISIONS 1

REVISIONS 2

REVISIONS 3

REVISIONS 4

FIELD CHANGES

DATE
04/13

BY
D. BURGESS

DATE
04/13

SIGNATURE

P.E. NUMBER

DATE

BANGOR
I-95 CONCRETE BARRIER

TYPICAL SECTIONS

SHEET NUMBER

2

OF 17

GENERAL NOTES

1. ALL DIMENSIONS, ANGLES AND STATIONING SHOWN ON EXISTING PLANS ARE TAKEN FROM AS-BUILT CONSTRUCTION DRAWINGS, SUPPLEMENTED BY LIMITED FIELD MEASUREMENTS, AND ARE NOT GUARANTEED TO BE CORRECT. ALL EXISTING BRIDGE, HIGHWAY AND DRAINAGE INFORMATION SHALL BE VERIFIED IN THE FIELD BY THE CONTRACTOR PRIOR TO COMMENCING WORK AND PRIOR TO SUBMITTING SHOP DRAWINGS.
2. THE CONTRACTOR SHALL REMOVE AND REPLACE THE GLARE FOIL SYSTEM AT THE KENDUSKEAG STREAM OVERPASS. PAYMENT FOR THIS WORK WILL BE CONSIDERED INCIDENTAL TO PAY ITEM 526.50I, PRECAST CONCRETE MEDIAN BARRIER.
3. INSTALLATION OF BARRIER REFLECTORS WILL BE CONSIDERED INCIDENTAL TO PAY ITEM 526.50I, PRECAST CONCRETE MEDIAN BARRIER
4. GUARDRAIL REMOVAL WILL BE PAID FOR UNDER ITEM 606.363, GUARDRAIL REMOVE AND DISPOSE, AND WILL INCLUDE ALL EXISTING GUARDRAIL AND GLARE FOIL ELEMENTS. ALL STEEL W-BEAM FIT FOR RE-USE (AS DETERMINED BY THE RESIDENT) SHALL BE DELIVERED, UNLOADED AND STACKED AT THE MAINEDOT MAINTENANCE FACILITY LOCATED ON ROUTE 69 IN CARMEL. THE DELIVERY, UNLOADING AND STACKING SHALL BE CONSIDERED INCIDENTAL TO ITEM 606.363.
5. WITH THE EXCEPTION OF MATERIAL TO BECOME PROPERTY OF THE DEPARTMENT, ALL EXISTING MATERIALS WHICH ARE REMOVED FROM THE WORK AREA SHALL BE REMOVED FROM THE SITE AND PROPERLY DISPOSED OF BY THE CONTRACTOR. THESE EXISTING MATERIALS INCLUDE, BUT ARE NOT LIMITED TO, BITUMINOUS PAVEMENT, CONCRETE, REINFORCING STEEL, SILT AND OTHER DEBRIS. THE COST OF REMOVAL AND DISPOSAL SHALL BE INCIDENTAL TO THE COST OF THE WORK ITEMS FOR WHICH THESE REMOVALS ARE REQUIRED.
6. ALL WORK SHALL CONFORM TO MAINEDOT STANDARD SPECIFICATIONS AND STANDARD DETAILS FOR HIGHWAYS AND BRIDGES, UNLESS OTHERWISE NOTED HEREIN.
7. THE CONTRACTOR IS RESPONSIBLE FOR ALL NECESSARY FIELD SURVEY AND THE LAYOUT OF THE CONSTRUCTION BASELINE AS NECESSARY TO COMPLETE THE WORK. ALL BASELINE LAYOUT INFORMATION SHALL BE CHECKED AND APPROVED BY THE RESIDENT PRIOR TO STARTING BARRIER INSTALLATION WORK. PAYMENT SHALL BE CONSIDERED INCIDENTAL TO THE CONTRACT.
8. NO SEPARATE PAYMENT FOR SUPERINTENDENT OR FOREMAN WILL BE MADE FOR THE SUPERVISION OF THE EQUIPMENT BEING PAID FOR UNDER THE EQUIPMENT RENTAL ITEMS.
9. PROPOSED STATIONS REFERENCED ON THE PLANS ARE APPROXIMATE. CONTRACTOR SHALL CALCULATE AND PROVIDE ACCURATE STATIONING BASED ON THEIR SURVEY AND SHOP DRAWING PROCESS.
10. PAVEMENT SAWCUTTING, WHERE REQUIRED, SHALL NOT BE PAID FOR DIRECTLY BUT SHALL BE CONSIDERED INCIDENTAL TO THE RELATED CONTRACT ITEMS.
11. PROJECT INFORMATION MAY BE ACCESSED AT THE FOLLOWING MAINEDOT WEB ADDRESS:
HTTP://WWW.MAINE.GOV/MDOT/CONTRACTORS/INDEX.SHTML.
12. THE EXISTING BRIDGE AND HIGHWAY PLANS MAY BE ACCESSED AT THE MAINEDOT WEB ADDRESS. THE PLANS ARE REPRODUCTIONS OF THE ORIGINAL DRAWINGS AS PREPARED FOR THE CONSTRUCTION OF THE BRIDGE AND HIGHWAY. IT IS VERY UNLIKELY THAT THE PLANS WILL SHOW ANY CONSTRUCTION FIELD CHANGES OR ANY ALTERATIONS WHICH MAY HAVE BEEN MADE TO THE BRIDGE OR HIGHWAY DURING ITS LIFE SPAN.
13. GUARDRAIL DELINEATORS SHALL BE PLACED IN ACCORDANCE WITH THE SPECIFICATIONS WHERE THRIE-BEAM GUARDRAIL IS INSTALLED.
14. ANY DAMAGE TO THE SLOPES CAUSED BY THE CONTRACTOR'S EQUIPMENT, PERSONNEL, OR OPERATION SHALL BE REPAIRED TO THE SATISFACTION OF THE RESIDENT. ALL WORK, EQUIPMENT, AND MATERIALS REQUIRED TO MAKE REPAIRS SHALL BE AT THE CONTRACTOR'S EXPENSE.
15. GRANULAR BORROW USED TO BACKFILL MUCK EXCAVATION OR IN LOW OR WET AREAS TO BE ONE FOOT ABOVE WATER LEVEL OR OLD GROUND SHALL MEET REQUIREMENTS FOR GRANULAR BORROW UNDERWATER BACKFILL.

UTILITIES

1. UTILITIES IN THIS CONTRACT ARE LISTED IN SPECIAL PROVISION SECTION 104, UTILITIES.
2. ALL UTILITY FACILITIES SHALL BE ADJUSTED BY THE RESPECTIVE UTILITIES UNLESS OTHERWISE NOTED. NO UTILITY ADJUSTMENT IS ANTICIPATED.
3. THE CONTRACTOR SHALL BE MADE AWARE OF FOUR ROADWAY SENSORS THAT ARE INSTALLED IN THE TRAVEL AND PASSING LANE PAVEMENT ON I-95, APPROXIMATELY 10' NORTHERLY OF THE NORTHERLY ABUTMENT FOR THE KENDUSKEAG STREAM BRIDGE. IT IS UNKNOWN IF WIRES CROSS THROUGH THE MEDIAN AREA. THE CONTRACTOR SHALL EXERCISE CAUTION IN THIS AREA, AND WILL BE RESPONSIBLE (AT NO COST TO THE DEPARTMENT) TO REPAIR ANY DAMAGE INCURRED TO WIRING DURING THE CONSTRUCTION PROCESS.
4. THE LOCATIONS OF THE EXISTING UTILITIES, BRIDGE WIRING AND MONITORING INSTRUMENTS (I.E. UTILITIES AND SPECIAL EQUIPMENT) SHOWN ON THESE PLANS ARE BASED ON THE BEST AVAILABLE INFORMATION AND ARE APPROXIMATE. THE CONTRACTOR SHALL VERIFY THE LOCATION OF ALL EXISTING UTILITIES AND SPECIAL EQUIPMENT PRIOR TO STARTING WORK. THE CONTRACTOR SHALL PROTECT EXISTING UTILITIES AND SPECIAL EQUIPMENT DURING CONSTRUCTION. THE COST OF THIS WORK SHALL BE CONSIDERED INCIDENTAL TO THE WORK REQUIRED UNDER ITEM 659.10 MOBILIZATION.

STRUCTURAL

1. PRIOR TO FABRICATING THE PRECAST CONCRETE BARRIER AND REINFORCING STEEL THE CONTRACTOR SHALL SUBMIT WORKING DRAWINGS OF THE PROPOSED MEDIAN BARRIER LAYOUT AND ITS' COMPONENTS IN ACCORDANCE WITH SPECIAL PROVISION 526.
2. PAYMENT FOR SELECTIVE REMOVAL AND REPLACEMENT OF THE EXISTING CONCRETE MEDIAN END POSTS AT THE KENDUSKEAG RIVER BRIDGE SHALL BE INCIDENTAL TO PAY ITEM 526.50I, PRECAST CONCRETE MEDIAN BARRIER.
3. REINFORCING STEEL SCHEDULES SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR. REFER TO SPECIAL PROVISION 503 FOR ADDITIONAL INFORMATION. PAYMENT FOR ALL WORK ASSOCIATED WITH DEVELOPING REINFORCING STEEL SCHEDULES WILL BE CONSIDERED INCIDENTAL TO PAY ITEM 526.50I, PRECAST CONCRETE MEDIAN BARRIER.
4. ALL CONCRETE REINFORCING SHALL HAVE A 2.5 INCH MINIMUM COVER UNLESS OTHERWISE NOTED.
5. PROTECTIVE COATING FOR CONCRETE SURFACES SHALL BE APPLIED TO THE FOLLOWING AREAS OF NEW PRECAST OR CAST-IN-PLACE CONCRETE: ALL EXPOSED SURFACES OF CONCRETE MEDIAN BARRIERS AND TRANSITION BARRIERS.
6. WHERE REINFORCING STEEL WILL BE DRILLED AND GROUTED IN PLACE THE ANCHORING MATERIAL SHALL BE SELECTED FROM MAINE DOT'S QUALIFIED PRODUCTS LIST. THE CONTRACTOR SHALL SUBMIT THE PROPOSED SYSTEM TO THE RESIDENT FOR APPROVAL. THE SELECTED ANCHORING MATERIAL SHALL BE INSTALLED IN STRICT ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS. REINFORCING STEEL DRILLED AND ANCHORED INTO EXISTING CONCRETE SHALL BE EMBEDDED TO DEVELOP 125% OF THE YIELD STRENGTH OF THE BAR.
7. ALL PROPOSED BARRIER CONNECTION COMPONENTS SHALL BE HOT DIP GALVANIZED AFTER FABRICATION.
8. ALL CONCRETE REINFORCING SHALL BE GLASS FIBER REINFORCED POLYMER (GFRP) OR DUAL-COATED REINFORCING STEEL CONFORMING TO ASTM A1055 IN ACCORDANCE WITH SPECIAL PROVISIONS 526 AND 503. CORROSION RESISTANT REINFORCING WILL NOT BE MEASURED FOR PAYMENT SEPARATELY, BUT SHALL BE INCIDENTAL TO THE PAY ITEM 526.50I, PRECAST CONCRETE MEDIAN BARRIER.
9. WHERE DUAL-COATED REINFORCING STEEL CONFORMING TO ASTM A1055 IS USED THE GUIDELINES OF ASTM A1055, APPENDIX XI, GUIDELINES FOR JOB SITE PRACTICES, SHALL APPLY.
10. WHERE DUAL-COATED REINFORCING CONFORMING TO ASTM A1055 IS USED THE SURFACE PREPARATION AND PATCHING OF FIELD CUT BAR ENDS SHALL CONFORM TO ASTM A1055, APPENDIX XI, ARTICLE XI.3.12.
11. AT THE CONTRACTOR'S OPTION THE STRUCTURAL TUBE AND I-BEAM BARRIER CONNECTION DETAIL MAY BE USED IN LIEU OF THE DOWEL BAR BARRIER CONNECTION DETAIL. ALL PROPOSED SUBSTITUTIONS SHALL BE NOTED ON THE BARRIER WORKING DRAWINGS.

CONSTRUCTION PHASING

1. THE CONTRACTOR SHALL NOTE CONSTRUCTION TIME RESTRICTIONS EXIST. SEE SPECIAL PROVISIONS 105 AND 107 FOR SPECIFIC TIME RESTRICTIONS AND LIMITATIONS OF OPERATIONS.
2. THE CONTRACTOR SHALL SUBMIT A TRAFFIC CONTROL PLAN FOR THE PROJECT IN ACCORDANCE WITH SPECIAL PROVISIONS 105, 107 & 652 AND THE MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES, LATEST EDITION.
3. ALL TRAFFIC CONTROL DEVICES SHALL BE IN ACCORDANCE WITH THE MANUAL FOR UNIFORM TRAFFIC CONTROL DEVICES FOR STREETS AND HIGHWAYS, USDOT, FHWA, LATEST EDITION.
4. AT THE END OF EACH WORK DAY, THE CONTRACTOR SHALL PROVIDE 350 COMPLIANT END TREATMENTS, NO BLUNT ENDS, TWO LANES OF TRAFFIC IN EACH DIRECTION, AND ALL CONFLICTING SIGNS SHALL BE COVERED.

SHEET NUMBER		3		OF 17			
BANGOR I-95 CONCRETE BARRIER		PROJ. MANAGER		THOMAS STEVENS	BY	DATE	
		DESIGN-DETAILED		G. BLAKE	D. BURGESS	04/13	
		CHECKED-REVIEWED		G. BLAKE		04/13	
		DESIGN2-DETAILED2					
		DESIGN3-DETAILED3					
GENERAL NOTES		REVISIONS		1		P.E. NUMBER	
		REVISIONS		2			
		REVISIONS		3			
		REVISIONS		4		DATE	
		FIELD CHANGES					
STATE OF MAINE		DEPARTMENT OF TRANSPORTATION		NHS-1920(100)		WIN 019201.00	HIGHWAY PLANS

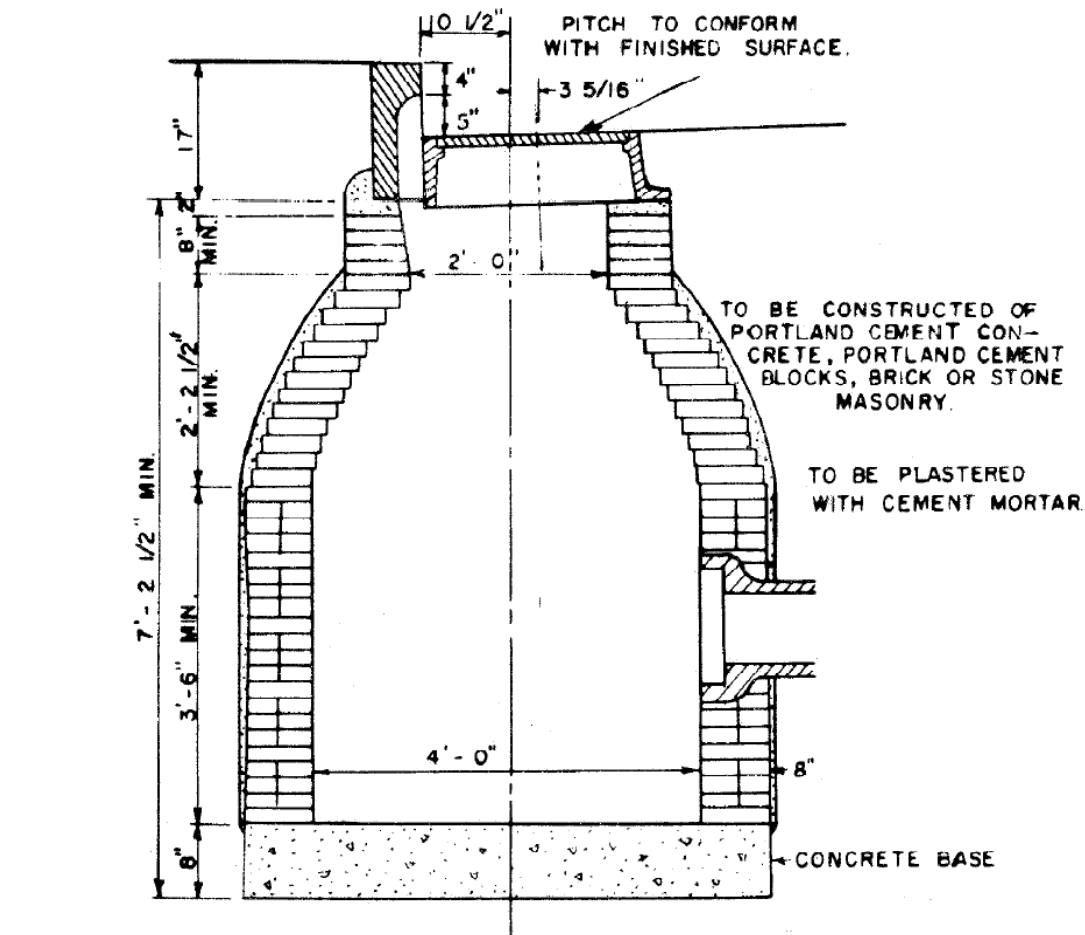
Date:4/22/2013

Username: moundiff

Division: BRIDGE

Filename: 004_Drainage.dgn

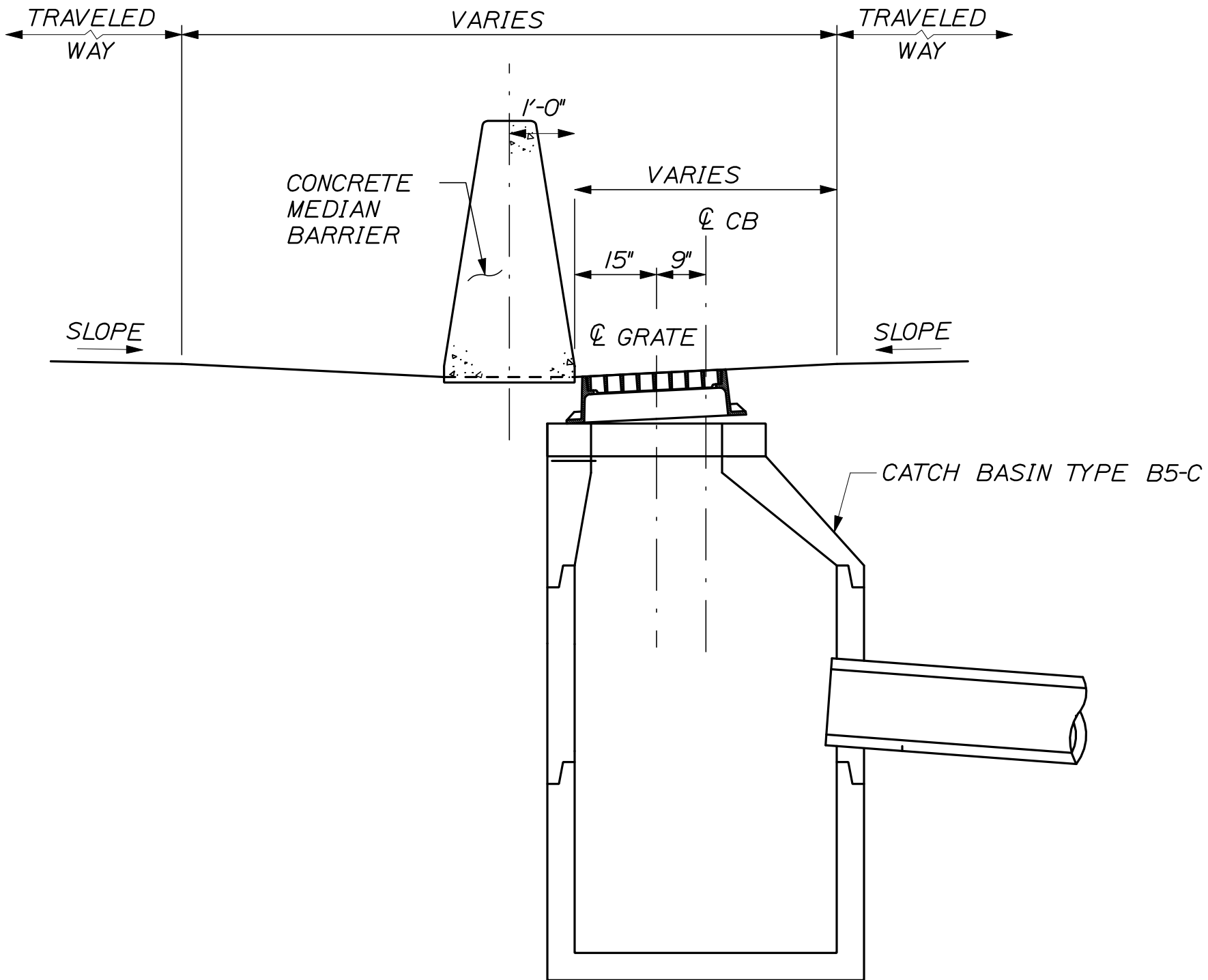
STATION	CULVERT PIPE												CATCH BASIN						REMARKS
	RCP			CMP		OPTION I		OPTION III											
								SMOOTH LINED		CORRUGATED									
	SIZE	LENGTH	CLASS	SIZE	LENGTH	SIZE	LENGTH	SIZE	LENGTH	SIZE	LENGTH	A1-C	B1-C	B5-C	E	F			
STA. 166+00, LT. (CB1)														/					
STA. 170+50, LT. (CB2)														/					
STA. 173+75, RT. (CB3)														/			DOUBLE BASIN LOCATION		
STA. 173+75, LT. (CB4)														/			DOUBLE BASIN LOCATION		
STA. 177+00, RT. (CB5)														/			DOUBLE BASIN LOCATION		
STA. 177+00, LT. (CB6)														/			DOUBLE BASIN LOCATION		
STA. 180+50, RT. (CB7)														/					
STA. 184+00, RT. (CB8)														/					
STA. 187+50, RT. (CB9)														/					
STA. 190+75, RT. (CB10)														/			DOUBLE BASIN LOCATION		
STA. 190+75, LT. (CB11)														/			DOUBLE BASIN LOCATION		
STA. 192+70, RT. (CB12)														/			DOUBLE BASIN LOCATION		
STA. 192+70, LT. (CB13)														/			DOUBLE BASIN LOCATION		
STA. 196+00, RT. (CB14)														/			DOUBLE BASIN LOCATION		
STA. 196+00, LT. (CB15)														/			DOUBLE BASIN LOCATION		
STA. 199+00, RT. (CB16)														/			DOUBLE BASIN LOCATION		
STA. 199+00, LT. (CB17)														/			DOUBLE BASIN LOCATION		
STA. 202+00, RT. (CB18)														/			DOUBLE BASIN LOCATION		
STA. 202+00, LT. (CB19)														/			DOUBLE BASIN LOCATION		
STA. 205+00, RT. (CB20)														/					
STA. 208+00, RT. (CB21)														/					
STA. 209+50, ON BL. (CB21-A)														/			MOVE TO LEFT SIDE OF BARRIER		
STA. 210+75, ON BL. (CB22)														/			MOVE TO LEFT SIDE OF BARRIER		
STA. 214+05, ON BL. (CB23)														/			MOVE TO LEFT SIDE OF BARRIER		
STA. 221+00, LT. (CB24)														/					
STA. 224+50, LT. (CB25)														/					
STA. 227+00, RT. (CB26)														/			DOUBLE BASIN LOCATION		
STA. 227+00, LT. (CB27)														/			DOUBLE BASIN LOCATION		
STA. 230+00, RT. (CB28)														/			DOUBLE BASIN LOCATION		
STA. 230+00, LT. (CB29)														/			DOUBLE BASIN LOCATION		
STA. 233+00, RT. (CB30)														/			DOUBLE BASIN LOCATION		
STA. 233+00, LT. (CB31)														/			DOUBLE BASIN LOCATION		
STA. 236+50, RT. (CB32)														/			DOUBLE BASIN LOCATION		
STA. 236+50, LT. (CB33)														/			DOUBLE BASIN LOCATION		
STA. 240+00, LT. (CB34)														/					
STA. 243+00, LT. (CB35)														/					
STA. 246+00, LT. (CB36)														/					
STA. 249+00, LT. (CB37)														/					
STA. 252+50, RT. (CB38)														/			DOUBLE BASIN LOCATION		
STA. 252+50, LT. (CB39)														/			DOUBLE BASIN LOCATION		
STA. 262+00, RT. (CB40)														/					
STA. 265+50, RT. (CB41)														/					
STA. 269+00, RT. (CB42)														/					
STA. 272+00, RT. (CB43)														/			DOUBLE BASIN LOCATION		
STA. 272+00, LT. (CB44)														/			DOUBLE BASIN LOCATION		
STA. 276+00, RT. (CB45)														/			DOUBLE BASIN LOCATION		
STA. 276+00, LT. (CB46)														/			DOUBLE BASIN LOCATION		
STA. 279+30, RT. (CB47)														/			DOUBLE BASIN LOCATION		
STA. 279+30, LT. (CB48)														/			DOUBLE BASIN LOCATION		



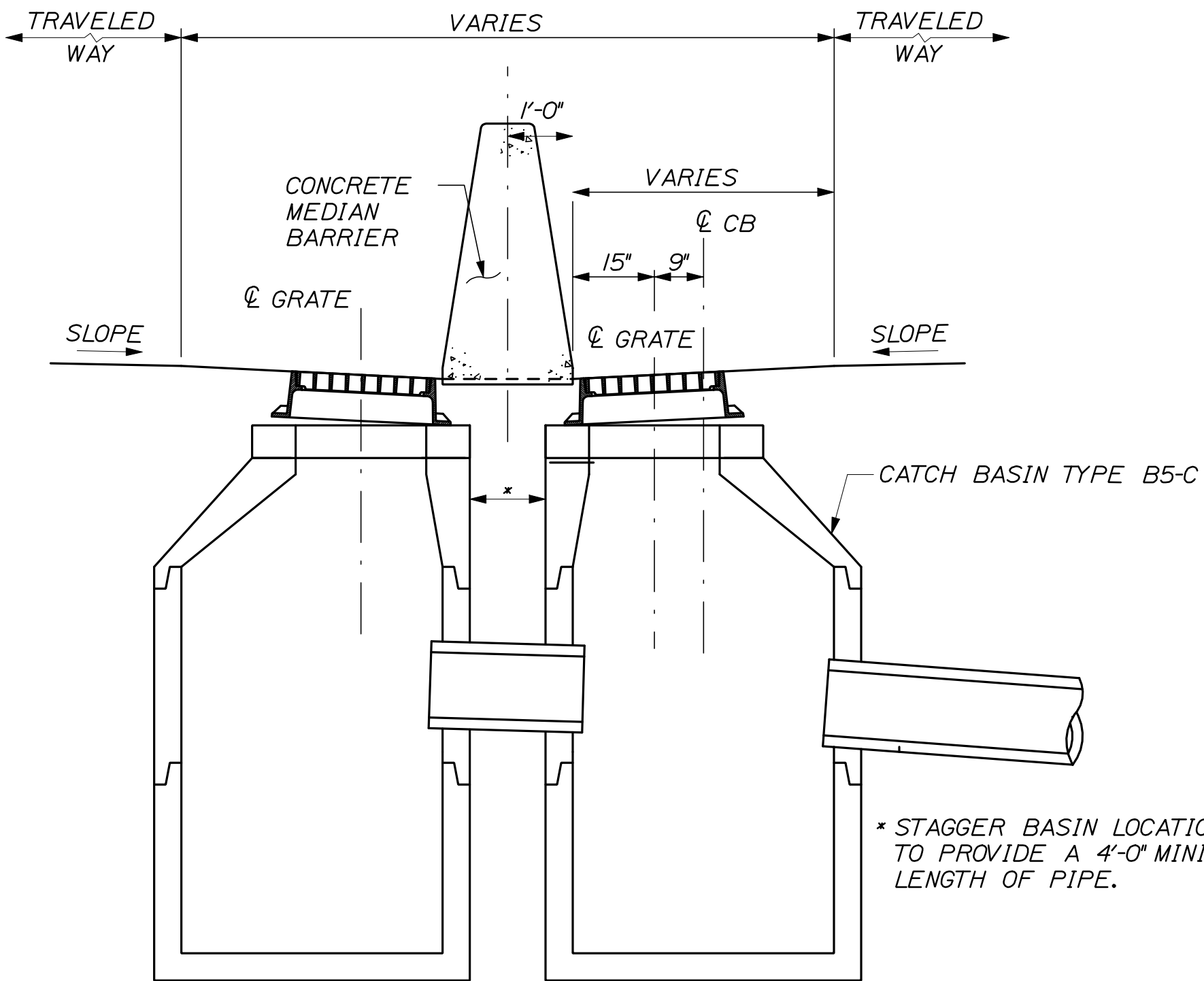
EXISTING CATCH BASINS - TO BE REMOVED
NOT TO SCALE

NOTES:

- THE FOLLOWING SHALL BE INCIDENTAL TO THE 604 ITEM(S):
 - ANY CUTTING OF EXISTING PIPE CULVERTS AND/OR CONNECTORS NECESSARY TO INSTALL NEW PIPE CULVERT REPLACEMENTS OR EXTENSIONS.
 - ALL PIPE EXCAVATION INCLUDING CUTTING AND REMOVAL OF PAVEMENT.
 - FURNISHING, PLACING, GRADING AND COMPACTING OF ANY TEMPORARY GRAVEL OR PAVEMENT TO MAINTAIN TRAFFIC DURING AND/OR AFTER PIPE INSTALLATION.
 - ALL WORK NECESSARY TO CONNECT THE EXISTING PIPE CULVERTS TO THE NEW CATCH BASIN STRUCTURES.
- NO EXISTING DRAINAGE SHALL BE ABANDONED, REMOVED OR PLUGGED WITHOUT PRIOR APPROVAL OF THE RESIDENT ENGINEER.
- TOP OF GRATE SHALL MATCH THE EXISTING SURFACE CROSS SECTION AND PROFILE AND BE FLUSH WITH THE BOTTOM FACE OF CONCRETE BARRIER.
- EXISTING PIPE INVERTS SHALL NOT BE ADJUSTED (TEMPORARILY OR PERMANENTLY) WITHOUT PRIOR AUTHORIZATION FROM THE RESIDENT ENGINEER.
- AS-BUILT SKETCH OF EXISTING CATCH BASINS IS PROVIDED FOR INFORMATION ONLY



SINGLE BASIN MEDIAN DRAINAGE DETAIL
(MIRROR IMAGE FOR LEFT SIDE BASIN)



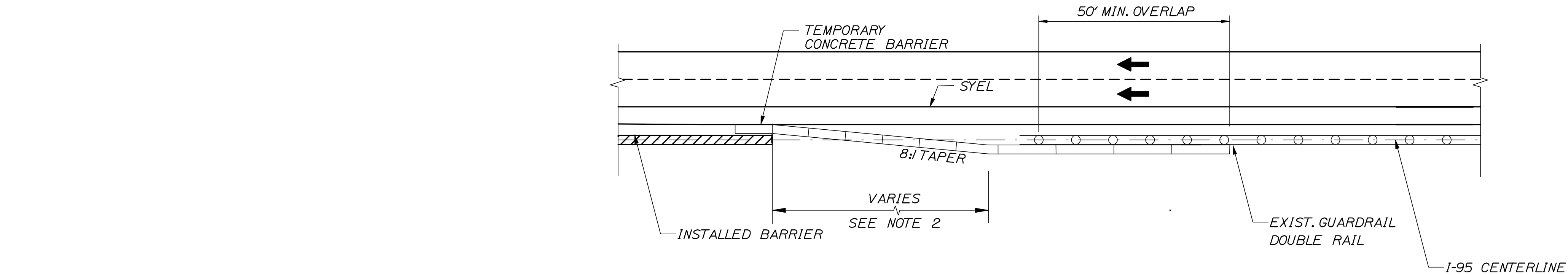
DOUBLE BASIN MEDIAN DRAINAGE DETAIL

STATE OF MAINE	
DEPARTMENT OF TRANSPORTATION	
NHS-1920(100)	
WIN	HIGHWAY PLANS
019201.00	

DATE	BY	PROJ. MANAGER	THOMAS STEVENS
04/13	D. BURGESS	DESIGN-DETAILED	G. BLAKE
04/13		CHECKED-REVIEWED	G. BLAKE
		DESIGN-DETAILED	
		DESIGN-DETAILED	
		REVISIONS 1	
		REVISIONS 2	
		REVISIONS 3	
		REVISIONS 4	
		FIELD CHANGES	

BANGOR	
I-95 CONCRETE BARRIER	
DRAINAGE SHEET	

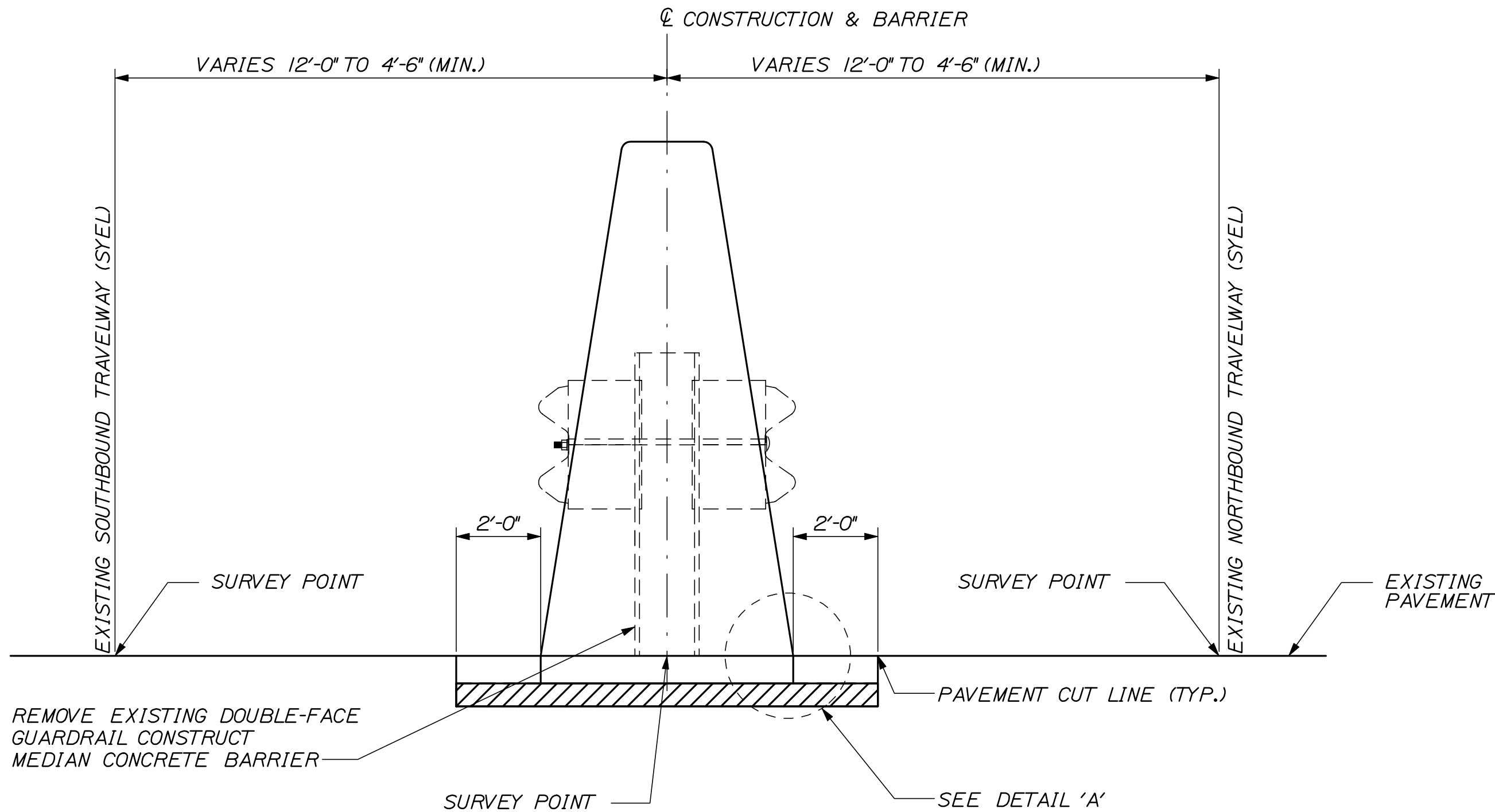
SHEET NUMBER
4
OF 17



NOTES:

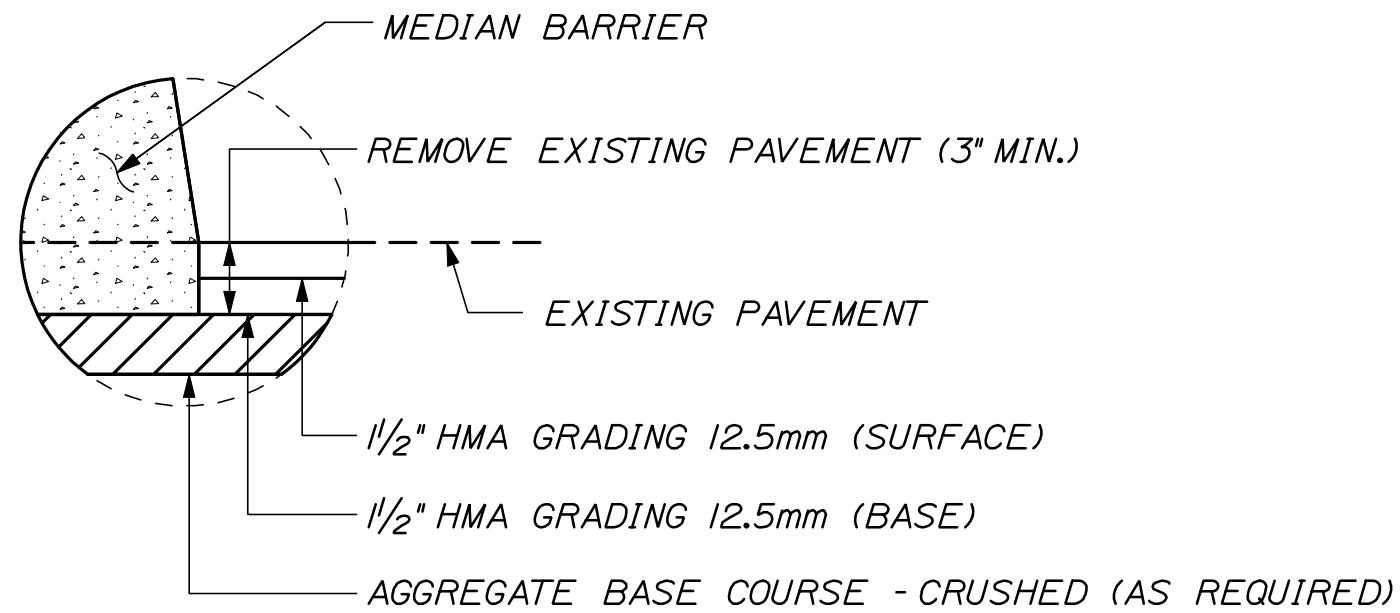
- BARRIER ENDS SHALL BE PROTECTED BY A TEMPORARY WORK ZONE CRASH CUSHION OR LAPPED BEHIND GUARDRAIL.
- 8:1 TAPERED BARRIER LENGTH IS DEPENDANT ON THE LOCATION OF THE BARRIER RELATIVE TO I-95 SHOULDERS, LANES, AND THE CONTRACTORS OPERATION.
- IF A TEMPORARY WORK ZONE CRASH CUSHION IS USED, THE WORK ZONE CRASH CUSHION SYSTEM MUST BE FOUNDED ON A LEVEL SURFACE. ANY WORK NECESSARY TO PROVIDE A LEVEL SURFACE WILL BE INCIDENTAL TO THE WORK ZONE CRASH CUSHION ITEM.
- AN NCHRP350 COMPLIANT IMPACT ATTENUATION SYSTEM SHALL BE INSTALLED CONCURRENTLY WITH THE PLACEMENT OF EACH RUN OF CONCRETE BARRIER.

CONCRETE BARRIER / GUARDRAIL OVERLAP DETAIL
NOT TO SCALE



MEDIAN BARRIER INSTALLATION DETAIL
NOT TO SCALE

NOTE:
SURVEY POINTS ARE MINIMUM REQUIRED (AT 50' INTERVALS) TO ASCERTAIN BARRIER TYPE AND HEIGHT, AND DRAINAGE CHARACTERISTICS. SURVEY IS INCIDENTAL TO ITEM 526.501, PRECAST CONCRETE MEDIAN BARRIER.

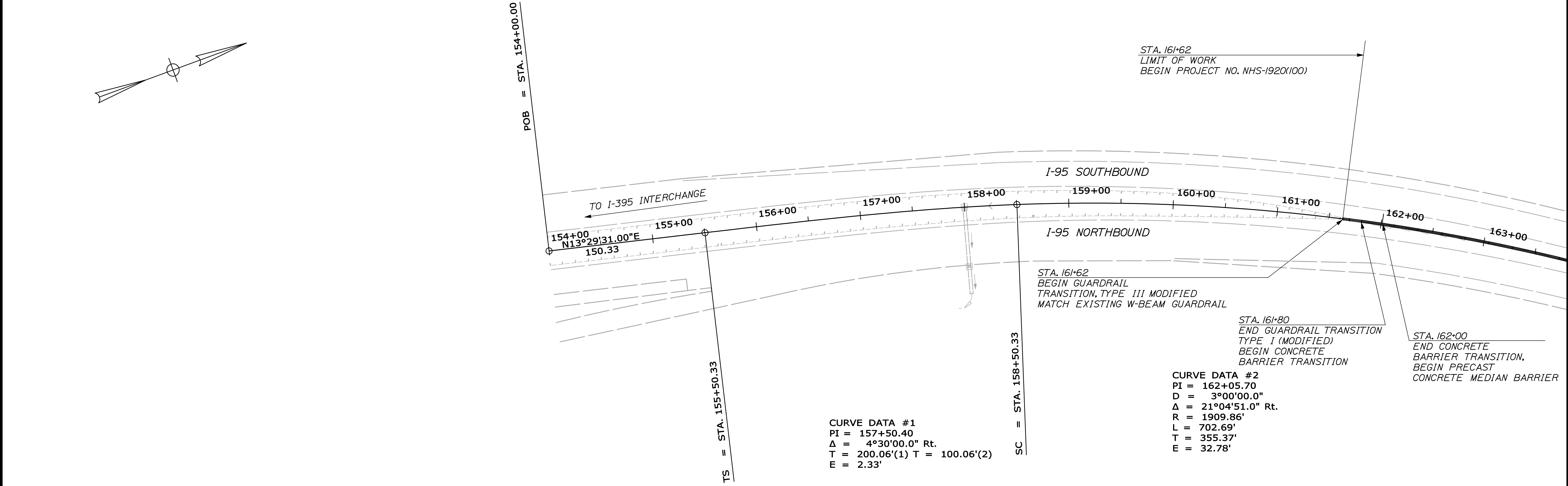
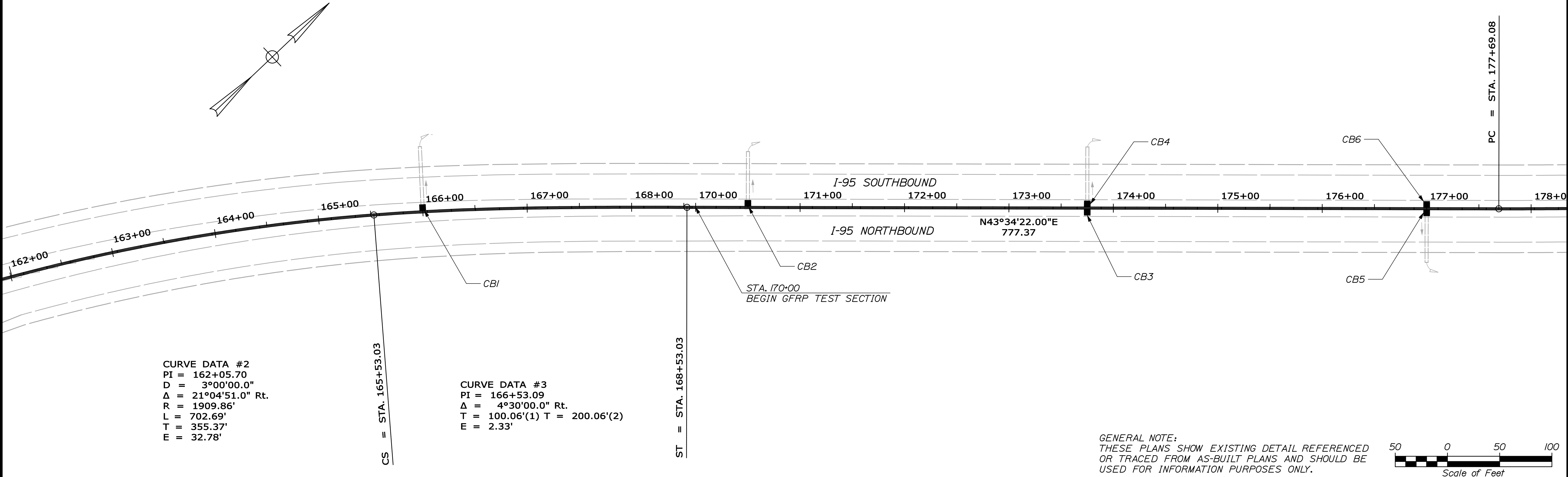


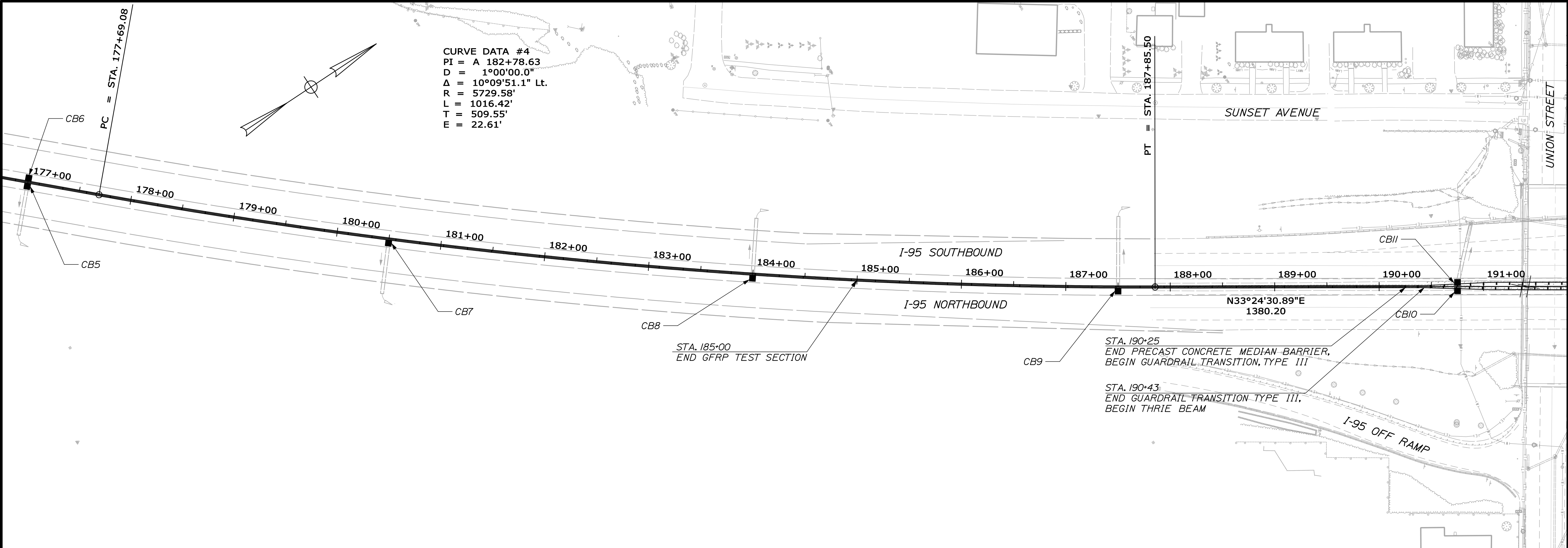
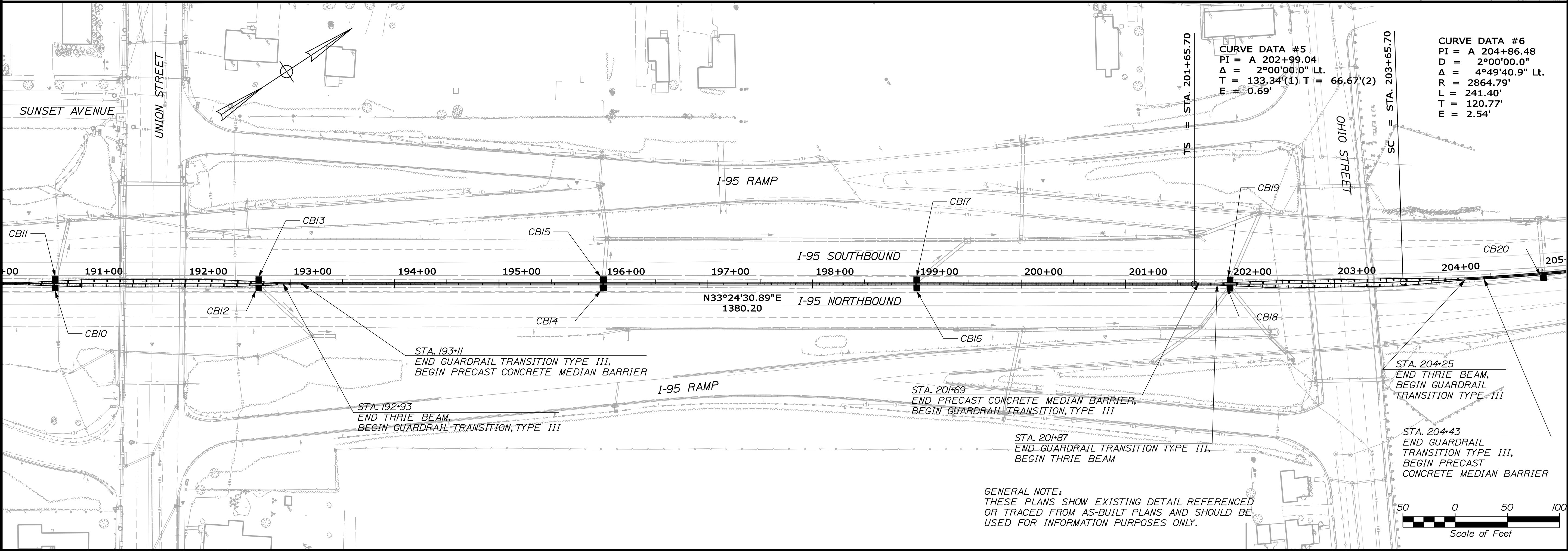
DETAIL 'A'
NOT TO SCALE

NOTES:
1. 2" OF LEVELING SAND TO BE USED ON TOP OF GRAVEL TO SET BARRIER. PAYMENT IS INCIDENTAL TO ITEM 526.501, PRECAST CONCRETE MEDIAN BARRIER.

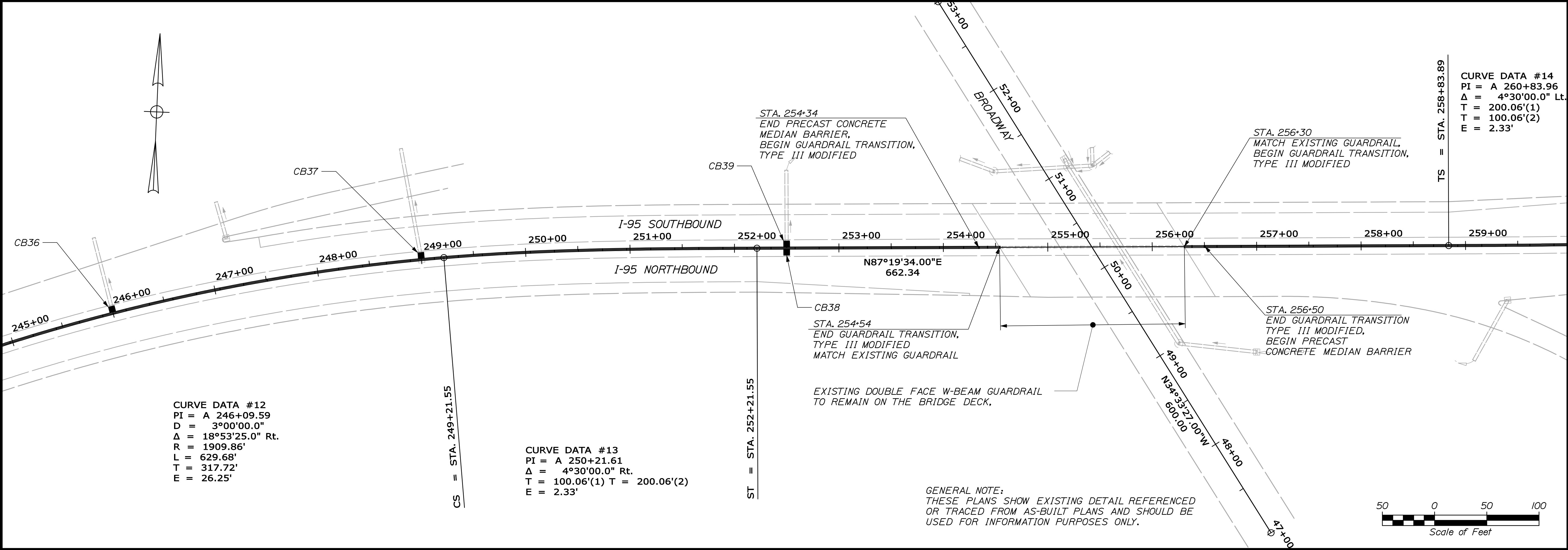
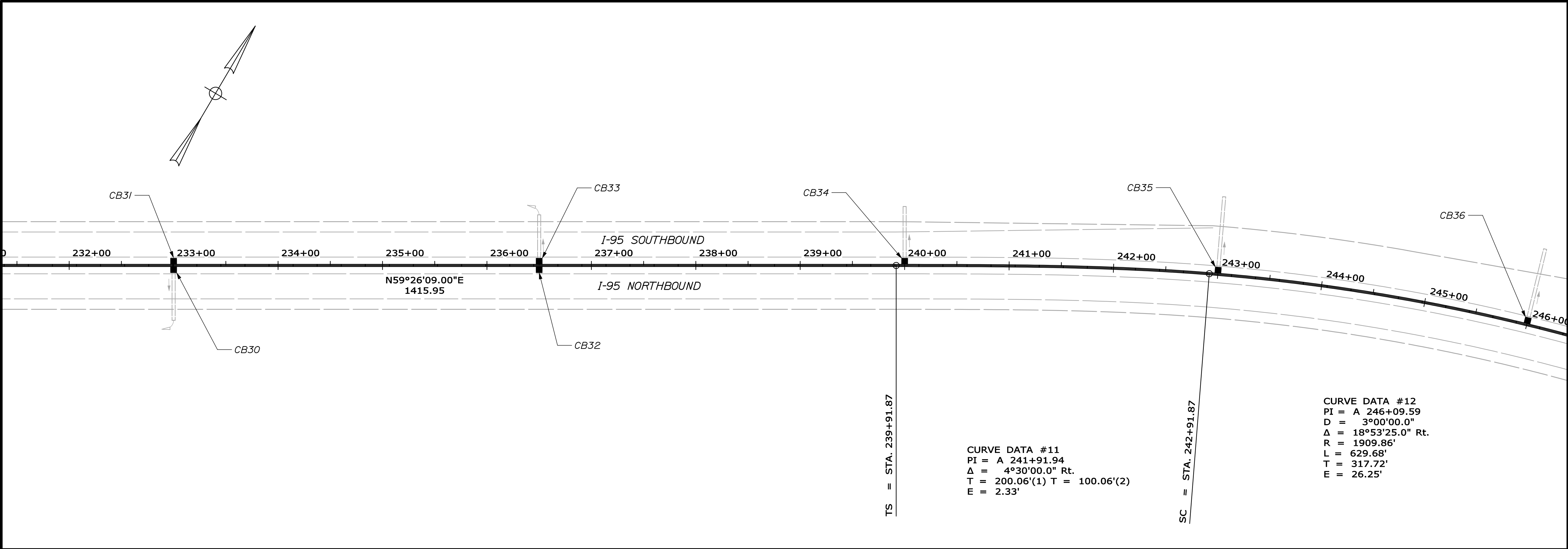
2. VERTICAL FACES OF THE BASE AND SURFACE PAVEMENT SHALL BE COATED WITH HOT RUBBERIZED ASPHALT (INCIDENTAL TO PAVEMENT ITEMS).

STATE OF MAINE DEPARTMENT OF TRANSPORTATION		NHS-1920(100)		WIN 019201.00		HIGHWAY PLANS	
SIGNATURE		P.E. NUMBER		DATE			
PROJ. MANAGER THOMAS STEVENS		BY		DATE			
DESIGN-DETAILED G. BLAKE		D.BURGESS		04/13			
CHECKED-REVIEWED G. BLAKE				04/13			
DESIGN-DETAILED D2							
DESIGNS-DETAILED D3							
REVISIONS 1							
REVISIONS 2							
REVISIONS 3							
REVISIONS 4							
FIELD CHANGES							
BANGOR I-95 CONCRETE BARRIER		MISCELLANEOUS DETAILS					
SHEET NUMBER		5					
OF 17							

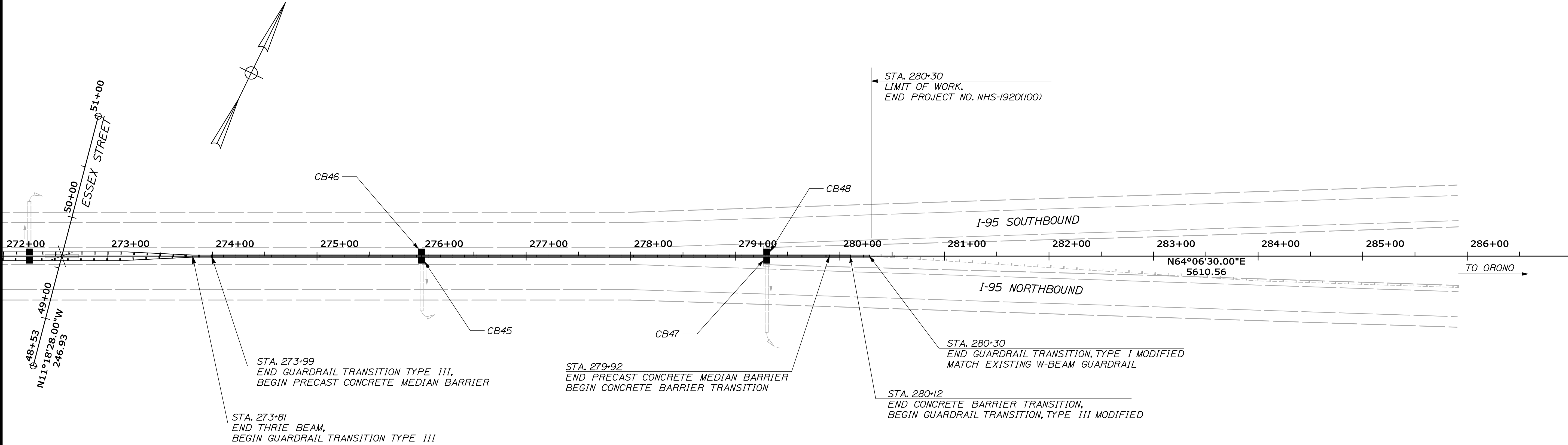




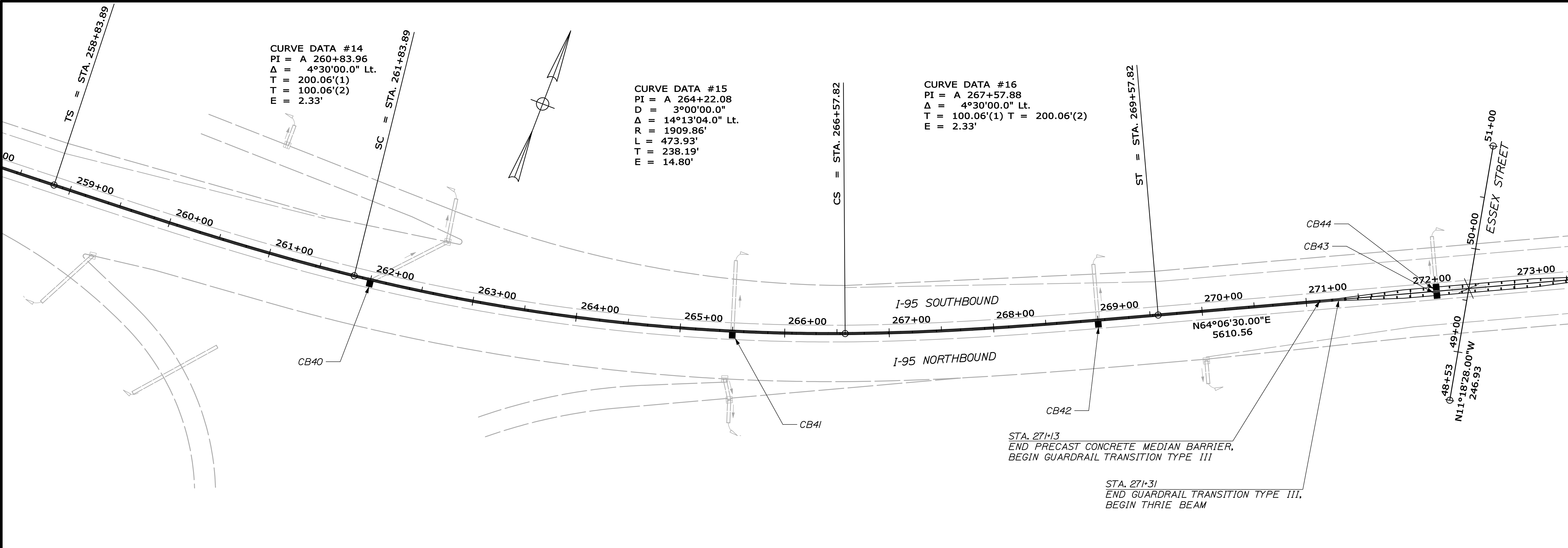
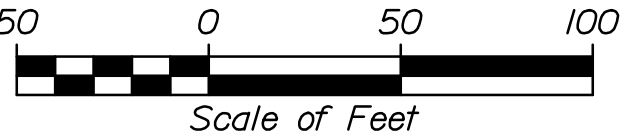
STATE OF MAINE		DEPARTMENT OF TRANSPORTATION		NHS-1920(100)		WIN 019201.00		HIGHWAY PLANS	
PROJECT MANAGER		DESIGN-DETAILED		CHECKED-REVIEWED		DESIGN-DETAILED		REVISIONS	
THOMAS STEVENS		G. BLAKE		G. BLAKE		G. BLAKE		1	
BY		DATE		SIGNATURE		P.E. NUMBER		DATE	
D. BURGESS		04/13		04/13					
I-95 CONCRETE BARRIER		SHEET NUMBER		7		OF 17			



STATE OF MAINE DEPARTMENT OF TRANSPORTATION	NHS-1920(100)		WIN 019201.00	HIGHWAY PLANS
PROJECT MANAGER THOMAS STEVENS	DESIGN-DETAILED	G. BLAKE	CHECKED-REVIEWED	G. BLAKE
	DESIGN-DETAILED	G. BLAKE	DESIGN-DETAILED	G. BLAKE
	REVISIONS 1		REVISIONS 2	
	REVISIONS 3		REVISIONS 4	
DATE	04/13	DATE	04/13	
BY	D. BURGESS	BY		
SIGNATURE		P.E. NUMBER		DATE
I-95 CONCRETE BARRIER		SHEET NUMBER 9 OF 17		



GENERAL NOTE:
THESE PLANS SHOW EXISTING DETAIL REFERENCED
OR TRACED FROM AS-BUILT PLANS AND SHOULD BE
USED FOR INFORMATION PURPOSES ONLY.



CURVE DATA #14
PI = A 260+83.96
 $\Delta = 4^{\circ}30'00.0''$ Lt.
T = 200.06'(1)
T = 100.06'(2)
E = 2.33'

CURVE DATA #15
PI = A 264+22.08
D = $3^{\circ}00'00.0''$
 $\Delta = 14^{\circ}13'04.0''$ Lt.
R = 1909.86'
L = 473.93'
T = 238.19'
E = 14.80'

CURVE DATA #16
PI = A 267+57.88
 $\Delta = 4^{\circ}30'00.0''$ Lt.
T = 100.06'(1) T = 200.06'(2)
E = 2.33'

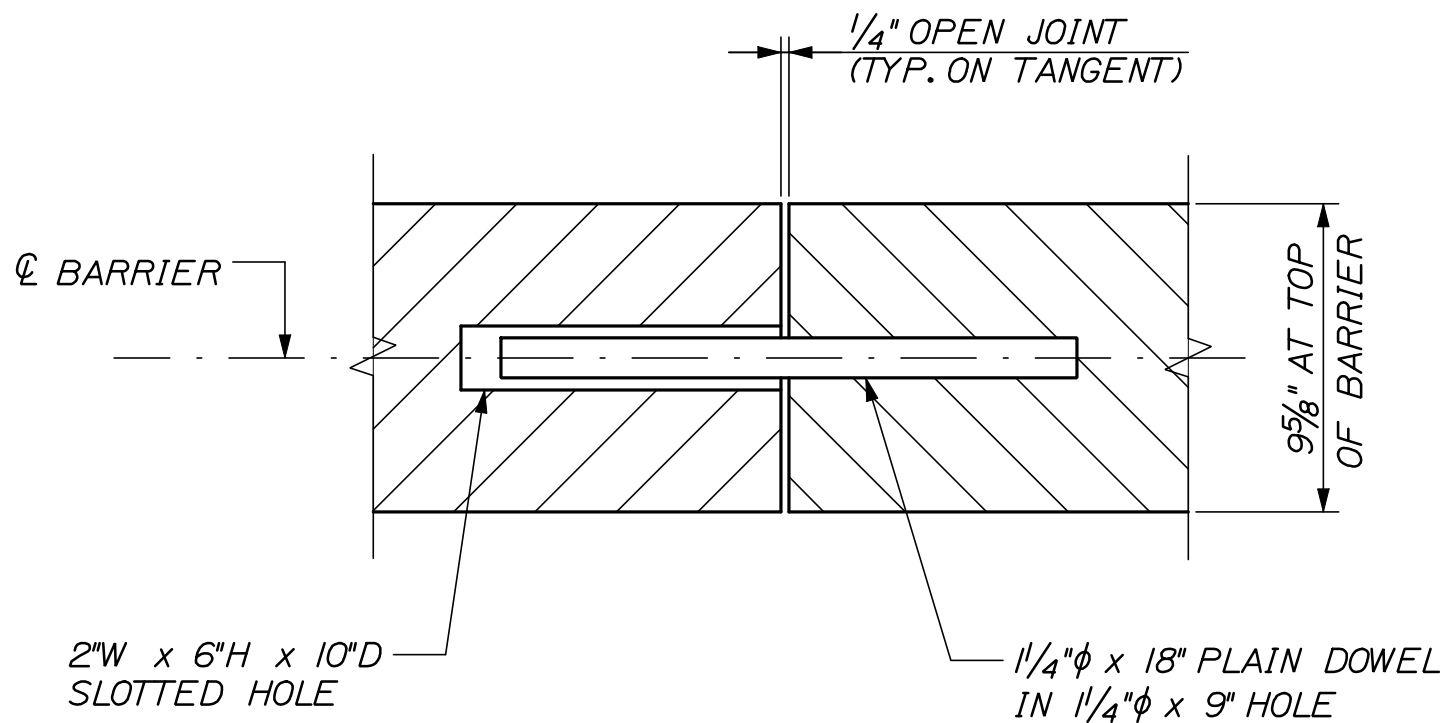
STATE OF MAINE		DEPARTMENT OF TRANSPORTATION	
NHS-1920(100)		SIGNATURE	
WIN		P.E. NUMBER	
019201.00		DATE	
HIGHWAY PLANS		DATE	
PROJECT MANAGER		BY	
DESIGN-DETAILED		DATE	
CHECKED-REVIEWED		DATE	
DESIGN-DETAILED		DATE	
REVISIONS 1		DATE	
REVISIONS 2		DATE	
REVISIONS 3		DATE	
REVISIONS 4		DATE	
FIELD CHANGES		DATE	
BANGOR		I-95 CONCRETE BARRIER	
SHEET NUMBER		PLANS	
10		OF 17	

CONCRETE BARRIER REINFORCING SCHEDULE*				
DESCRIPTION	SIZE	NO.	UNBENT LENGTH	TYPE
LONGITUDINAL (EACH FACE)	#4	12	19'-7"	
STIRRUPS	#4	29	10'-8"	
LOOP BAR	#6	2	8'-2 1/2"	

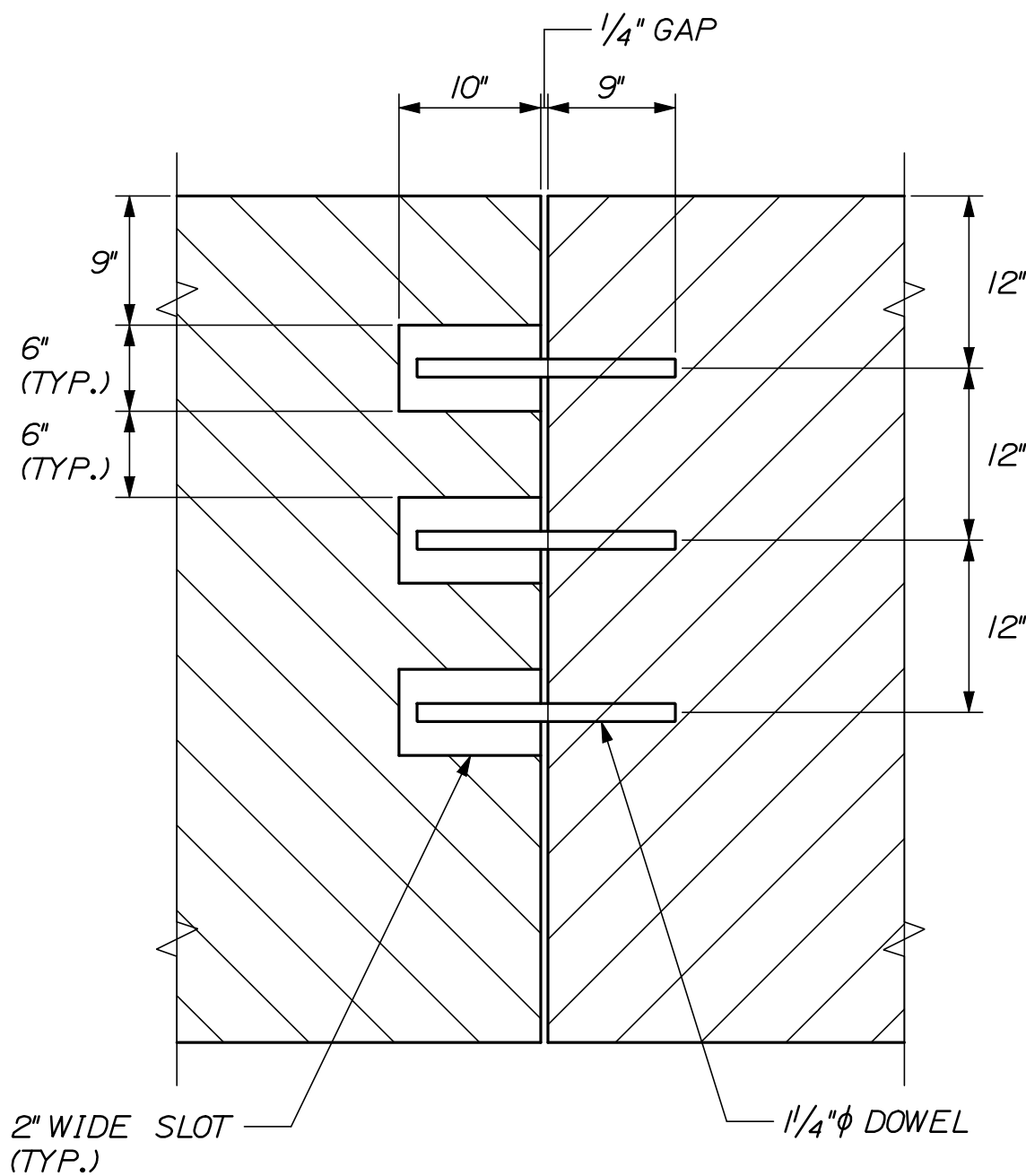
#6 LOOP BAR (TOP VIEW)

#4 STIRRUP BAR

* QUANTITIES BASED ON 20'-0" BARRIER LENGTH.
REINFORCING BAR DIMENSIONS WERE DEVELOPED BASED ON DUAL-COATED STEEL REINFORCING. IF GFRP REINFORCING IS USED THE CONTRACTOR SHALL MODIFY THE BAR DIMENSIONS AS REQUIRED TO PROVIDE A SATISFACTORY DESIGN IN ACCORDANCE WITH SPECIAL PROVISION 503, SUBSECTION 503.08.

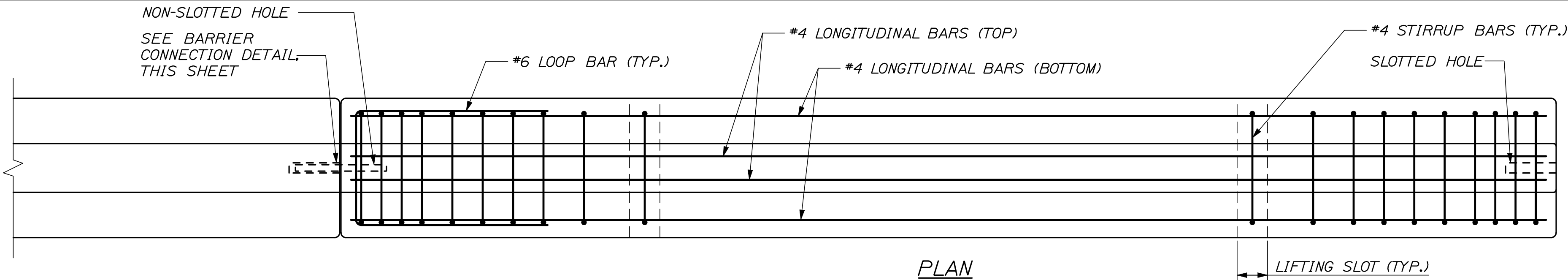


SECTION B-B

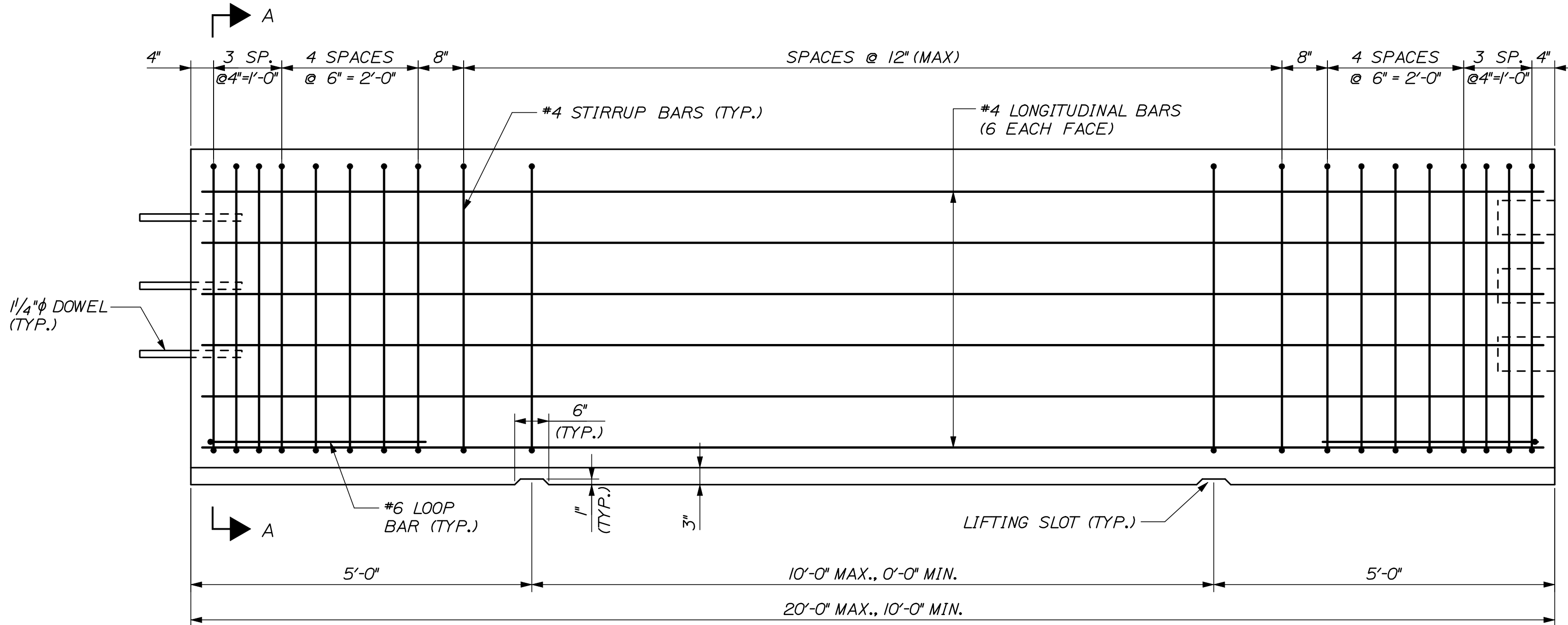


SECTION C-C

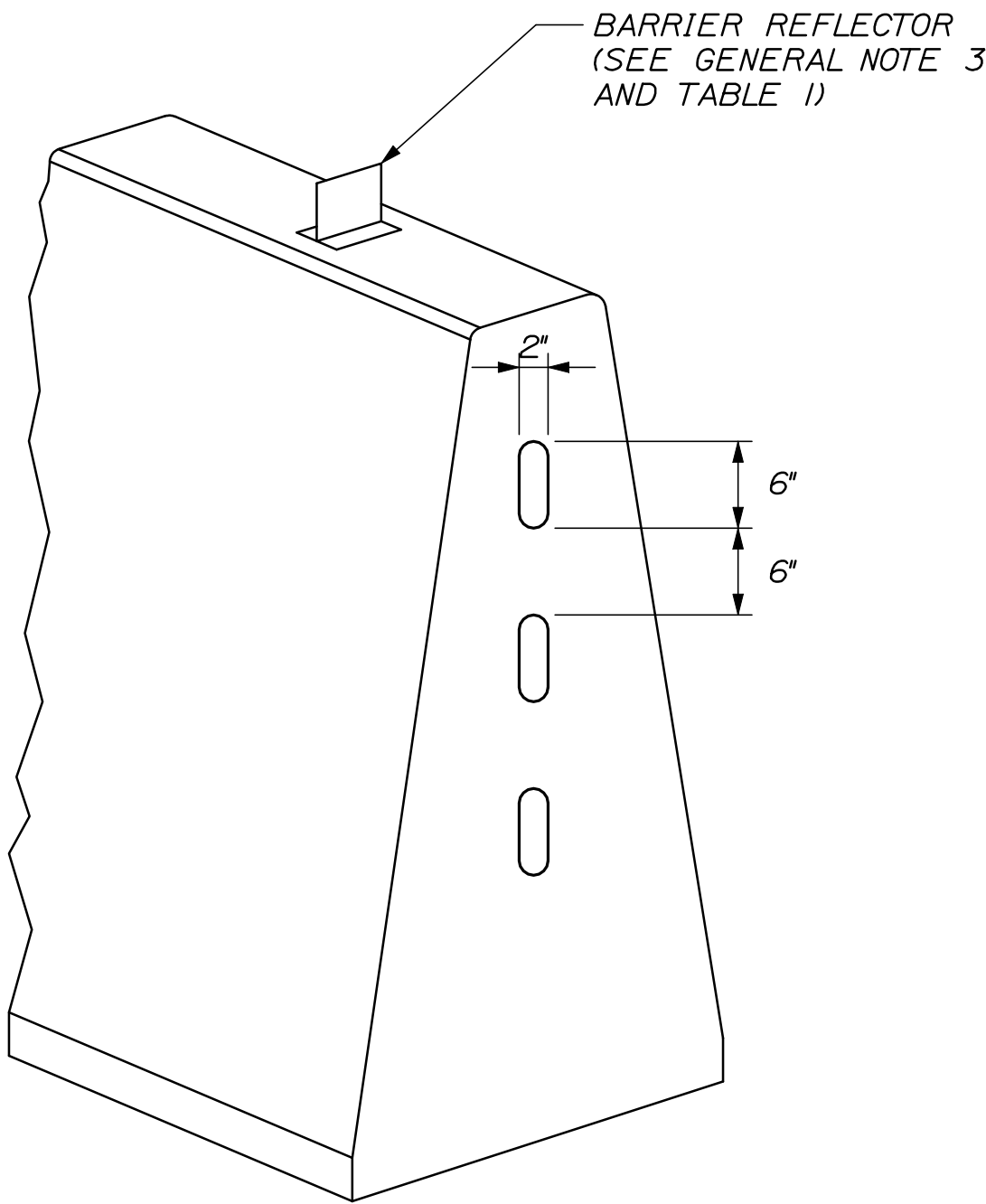
BARRIER CONNECTION DETAILS



PLAN



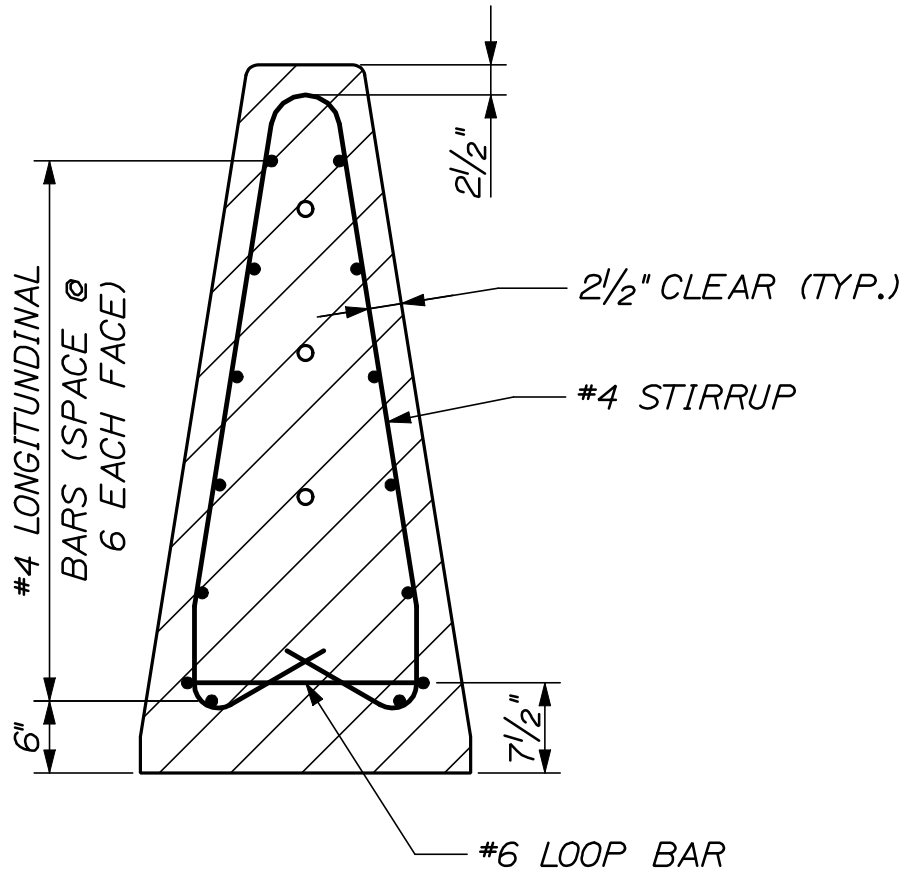
ELEVATION



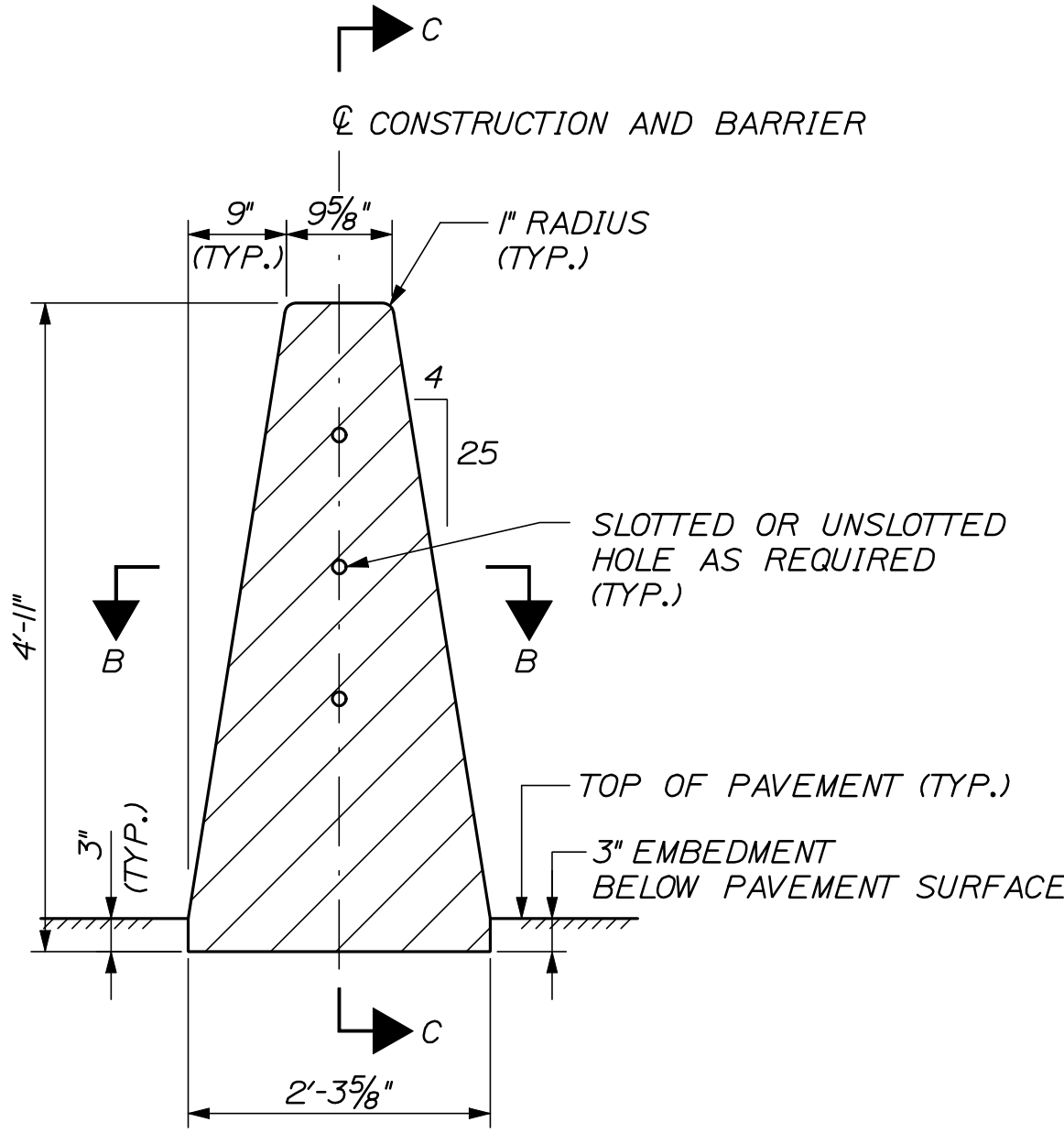
PERSPECTIVE VIEW
(SLOTTED END SHOWN)

SPACING OF REFLECTORS	
RADIUS OF HORIZONTAL CURVE	℄ TO ℄ DISTANCE BETWEEN REFLECTORS
LESS THAN 2000'	115'
2000' TO 3000'	130'
3000' TO 5000'	160'
OVER 5000'	200'
TANGENT AREA	200'

TABLE 1



SECTION A-A (REINFORCEMENT)

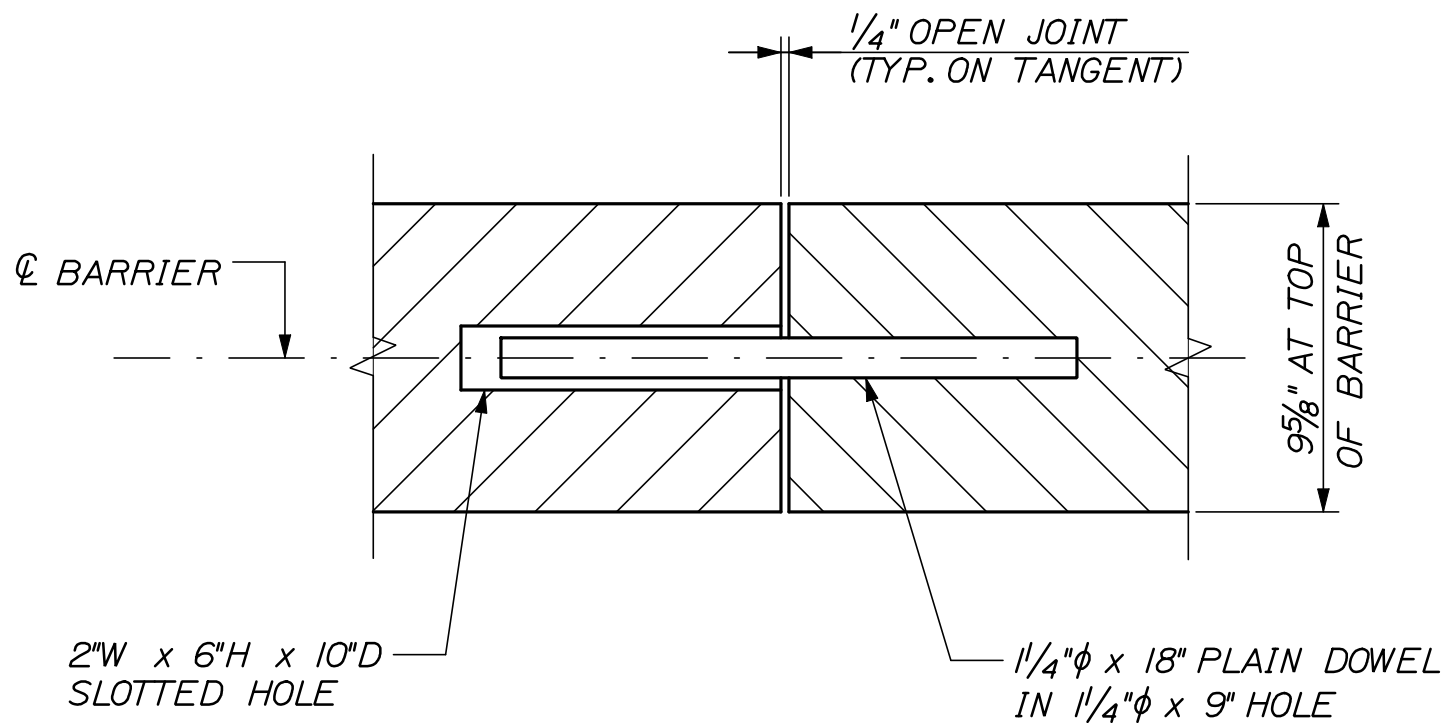


SECTION A-A (MASONRY)

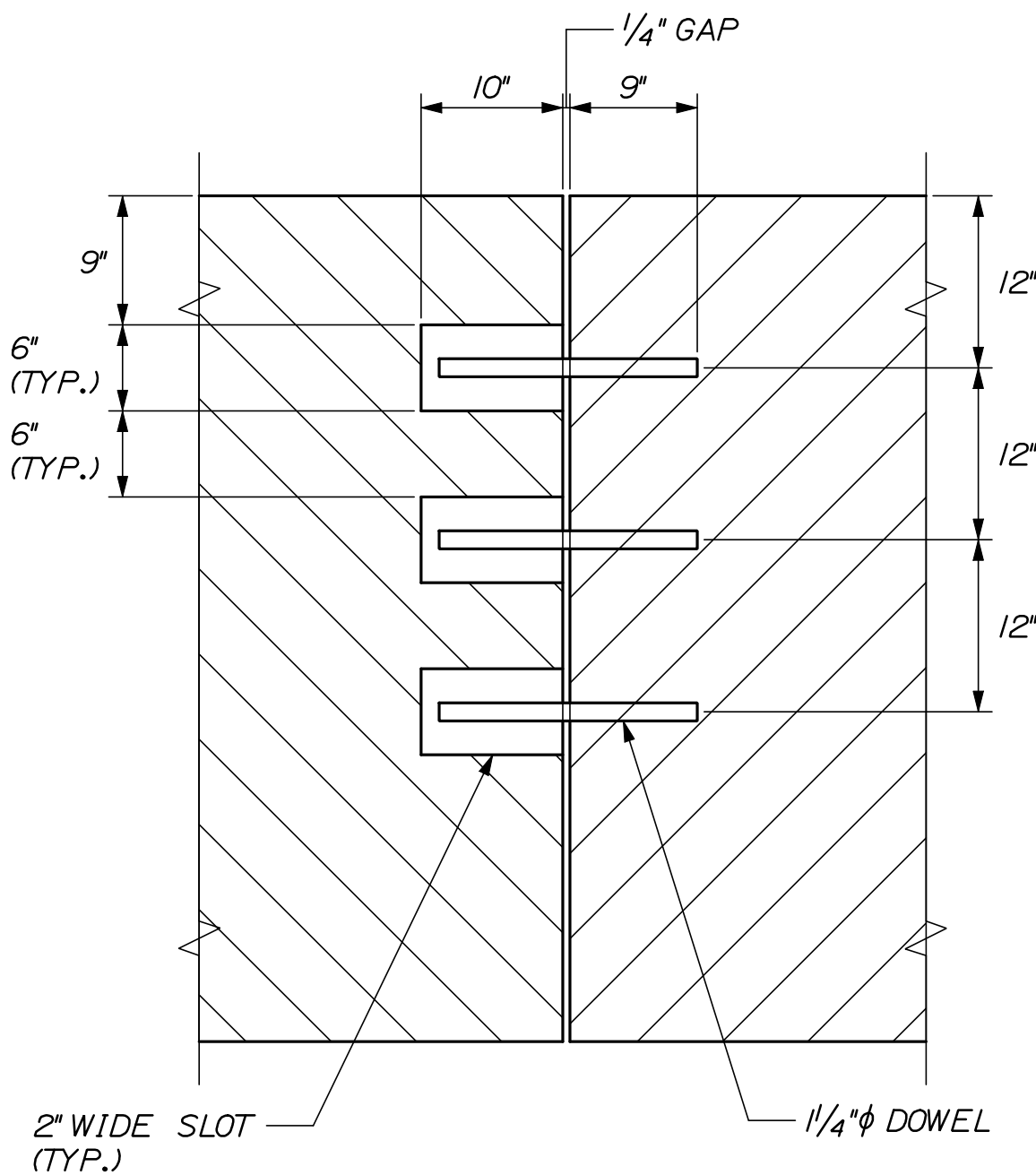
PROJ. MANAGER	THOMAS STEVENS	BY	DATE	SIGNATURE	P.E. NUMBER	DATE
DESIGN-DETAILED	TRC	MPC	04/13			
CHECKED-REVIEWED	AET		04/13			
DESIGN-DETAILED						
REVISIONS 1						
REVISIONS 2						
REVISIONS 3						
REVISIONS 4						
FIELD CHANGES						

CONCRETE BARRIER REINFORCING SCHEDULE*				
DESCRIPTION	SIZE	NO.	UNBENT LENGTH	TYPE
LONGITUDINAL (EACH FACE)	#4	14	19'-7"	
STIRRUPS	#4	29	11'-8"	
LOOP BAR	#6	2	8'-4 1/2"	

* QUANTITIES BASED ON 20'-0" BARRIER LENGTH.
REINFORCING BAR DIMENSIONS WERE DEVELOPED BASED ON DUAL-COATED STEEL REINFORCING. IF GFRP REINFORCING IS USED THE CONTRACTOR SHALL MODIFY THE BAR DIMENSIONS AS REQUIRED TO PROVIDE A SATISFACTORY DESIGN IN ACCORDANCE WITH SPECIAL PROVISION 503, SUBSECTION 503.08.

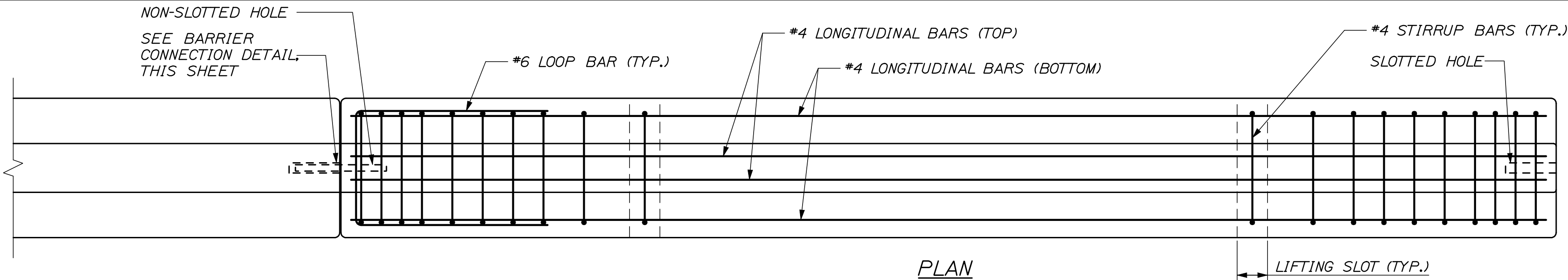


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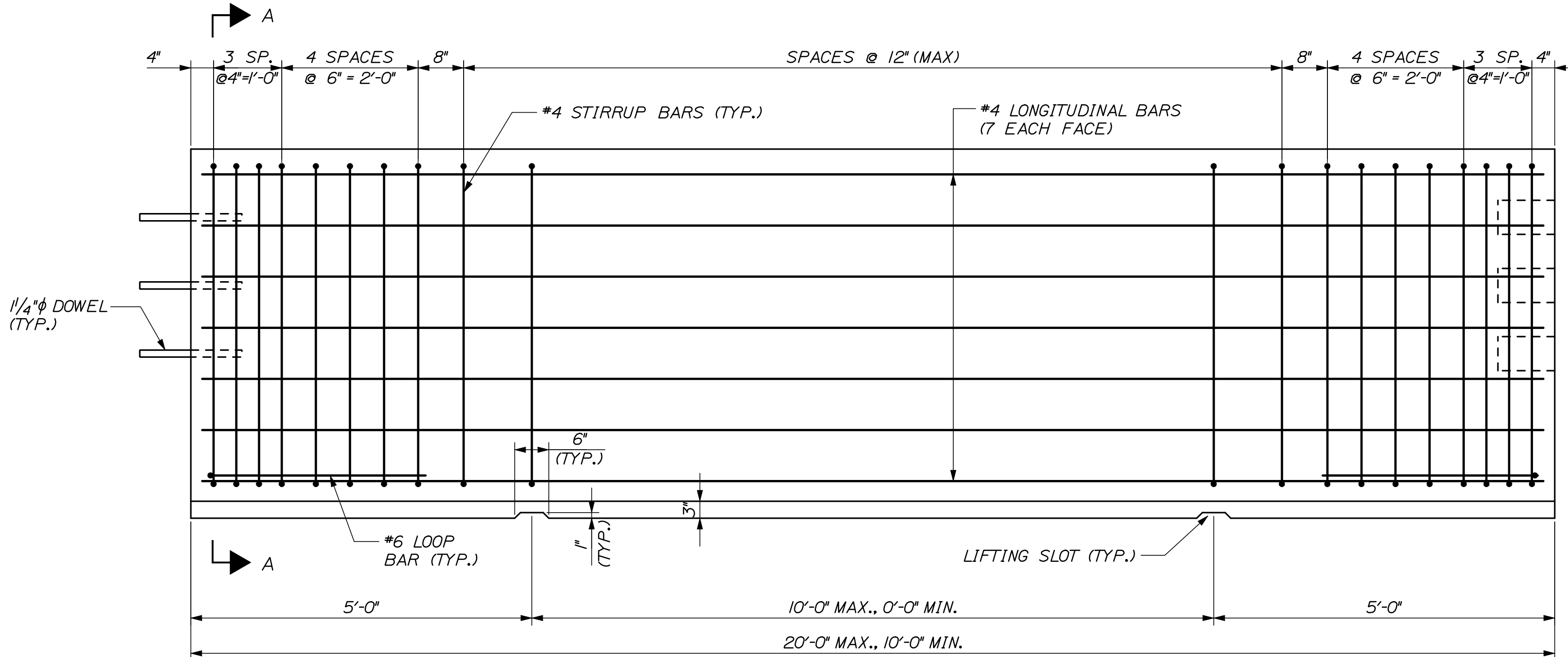


SECTION C-C

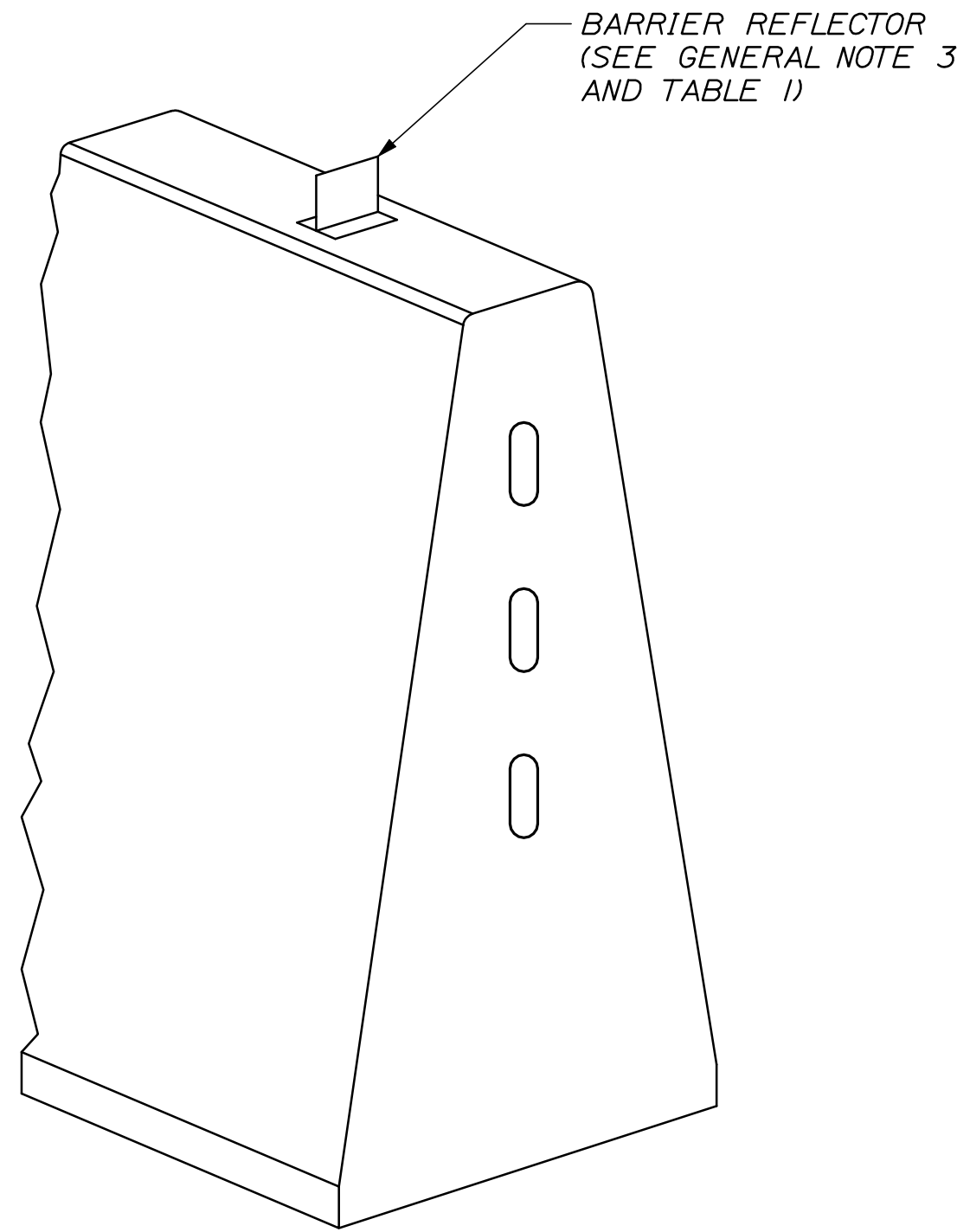
BARRIER CONNECTION DETAILS



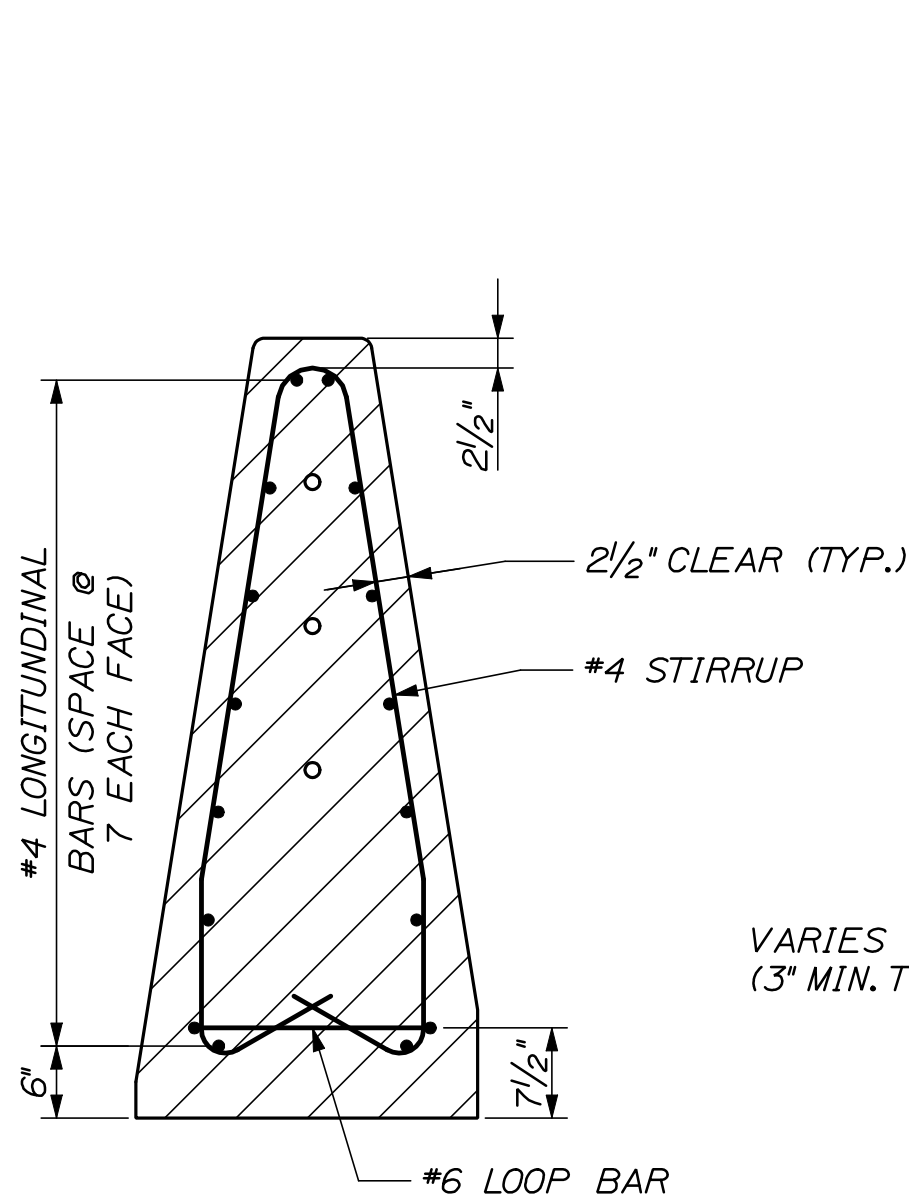
PLAN



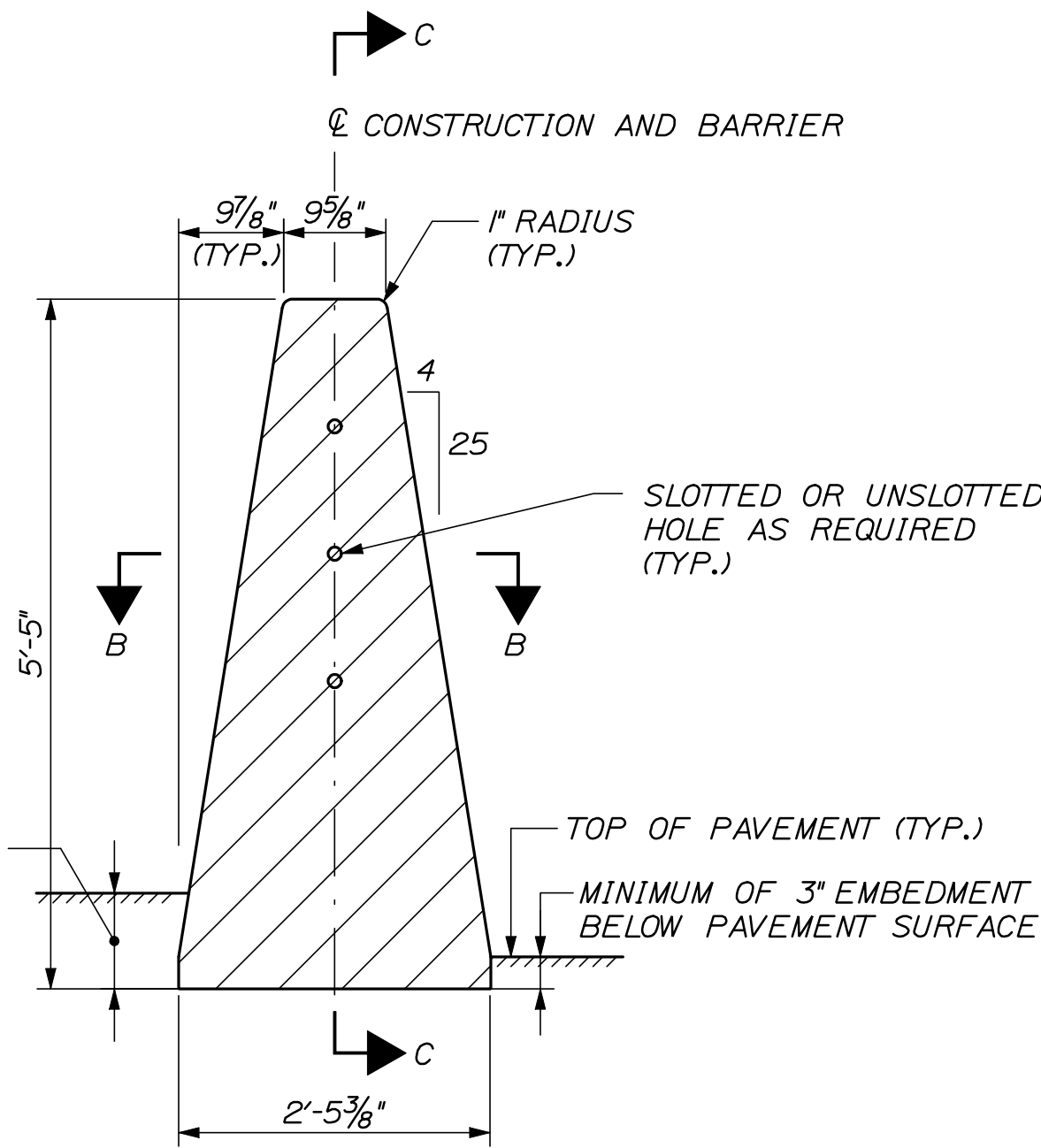
ELEVATION



PERSPECTIVE VIEW
(SLOTTED END SHOWN)






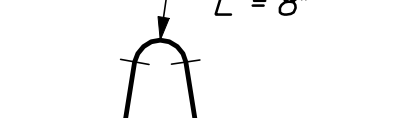
SECTION A-A (REINFORCEMENT)

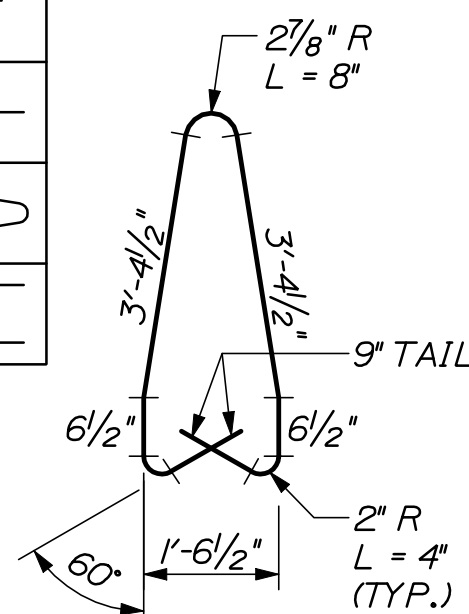
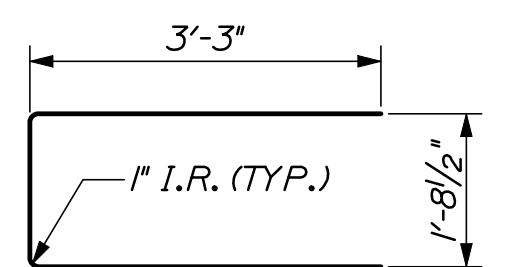


SECTION A-A (MASONRY)

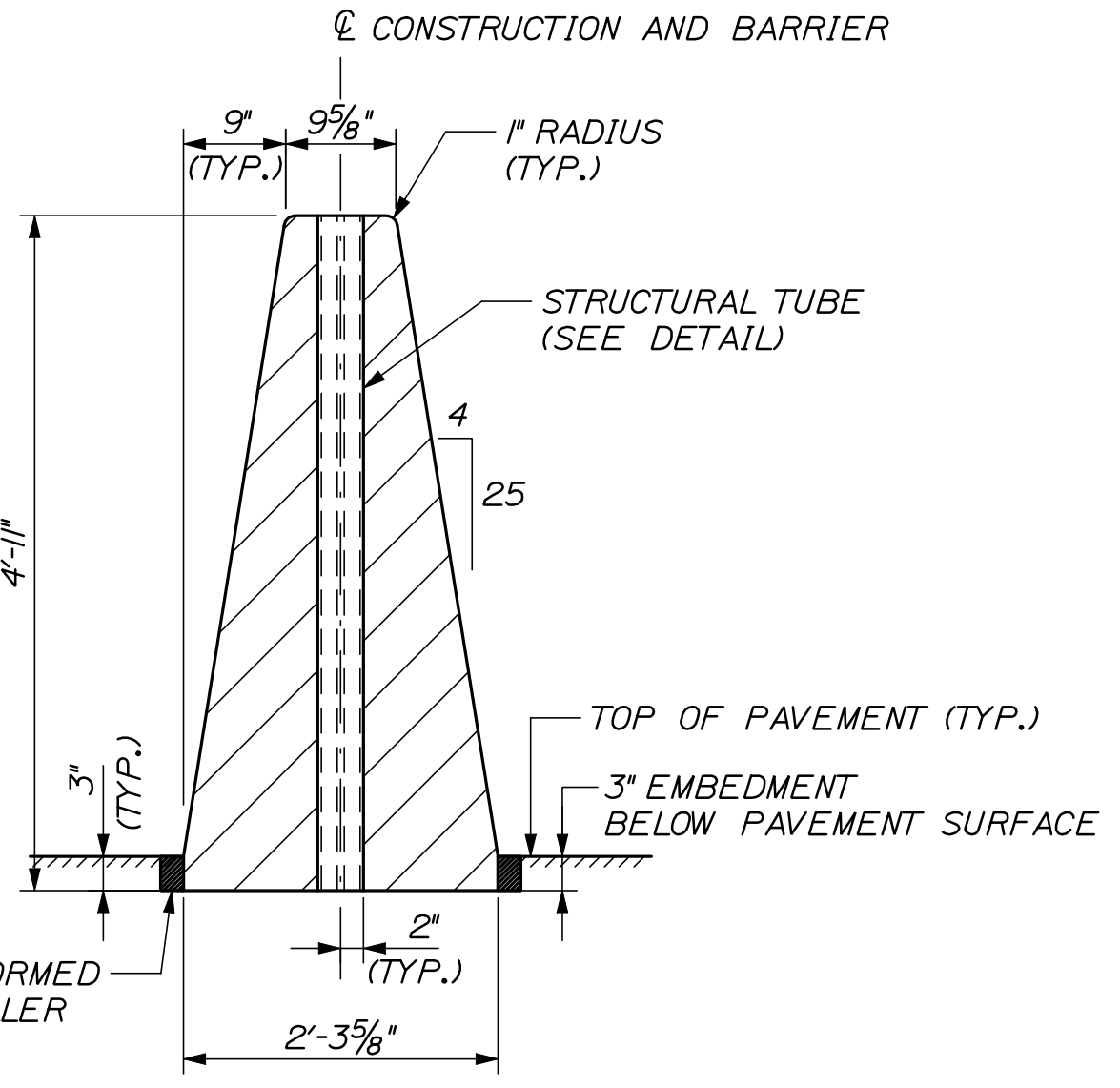
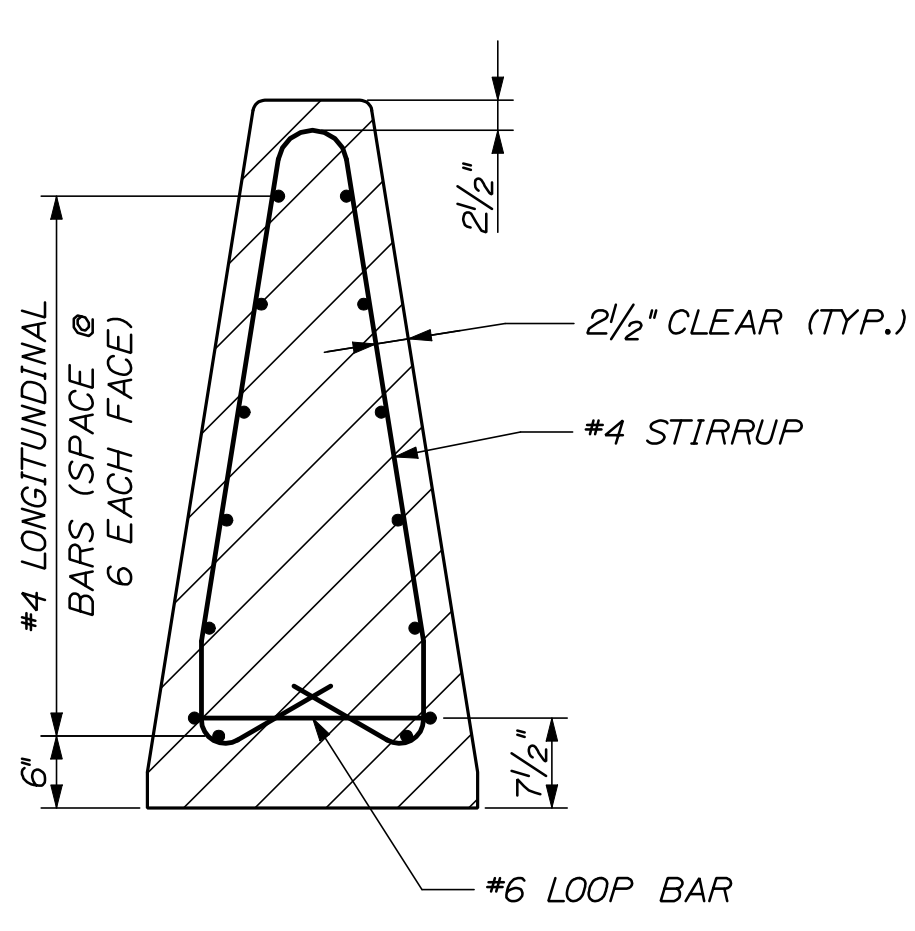
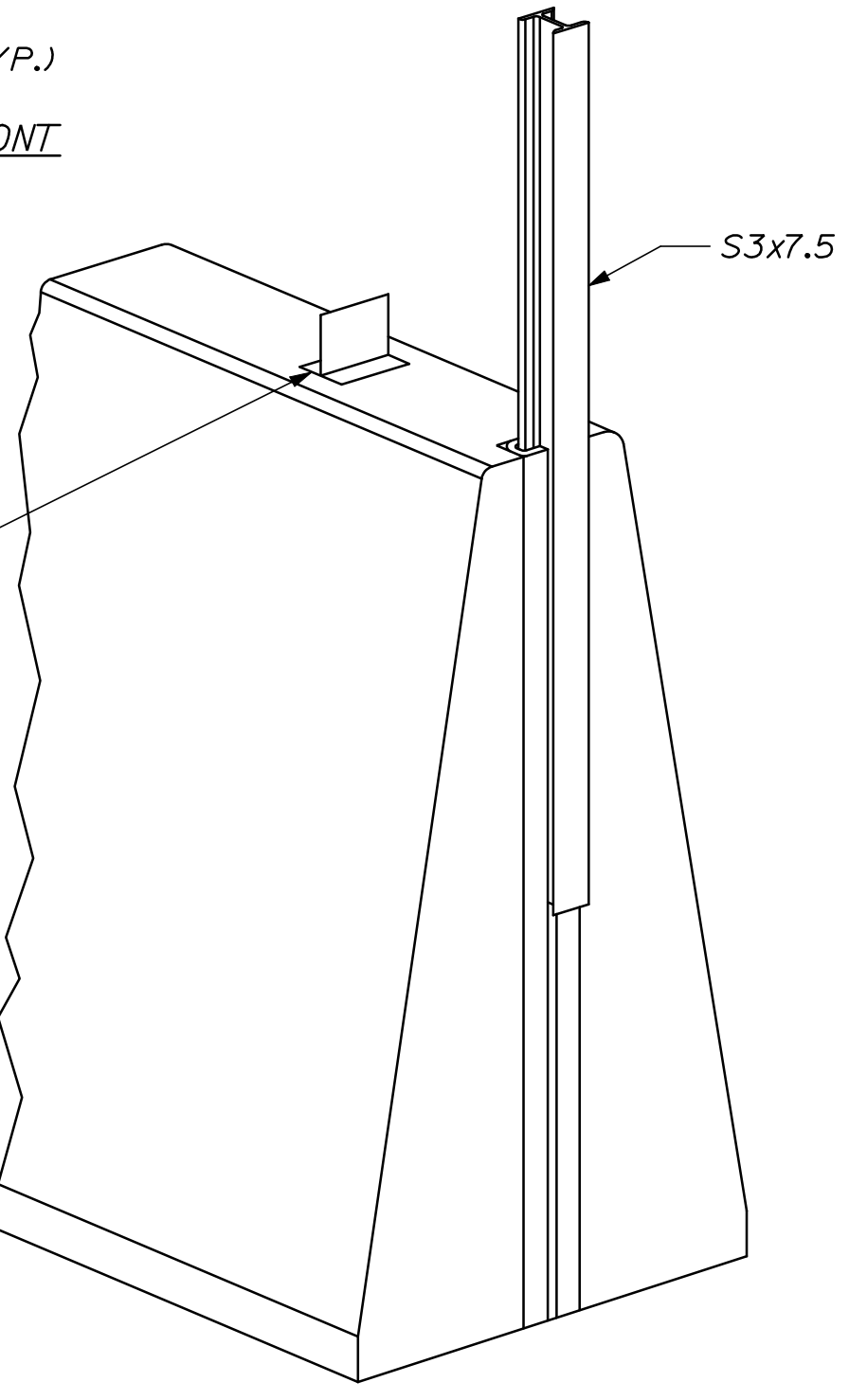
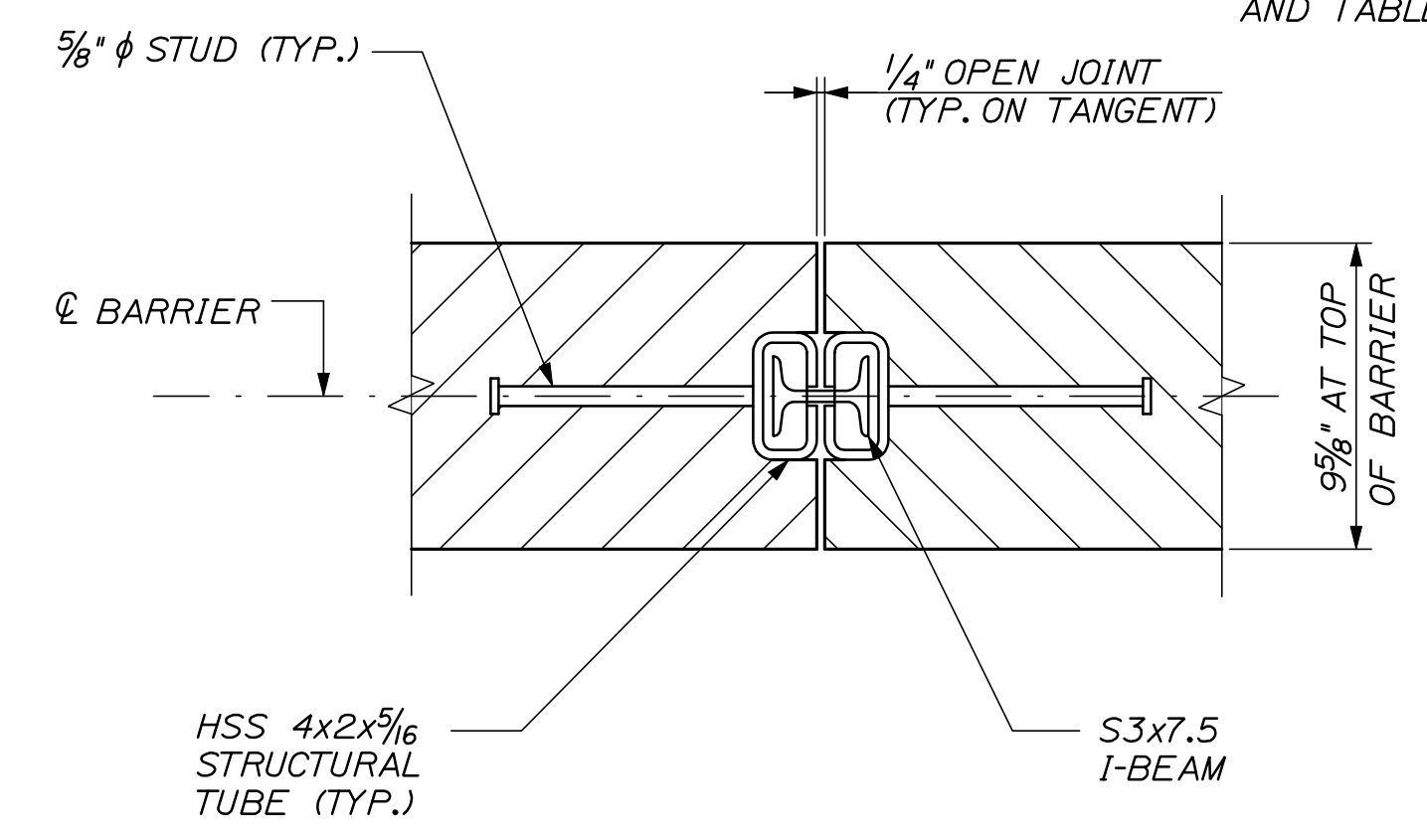
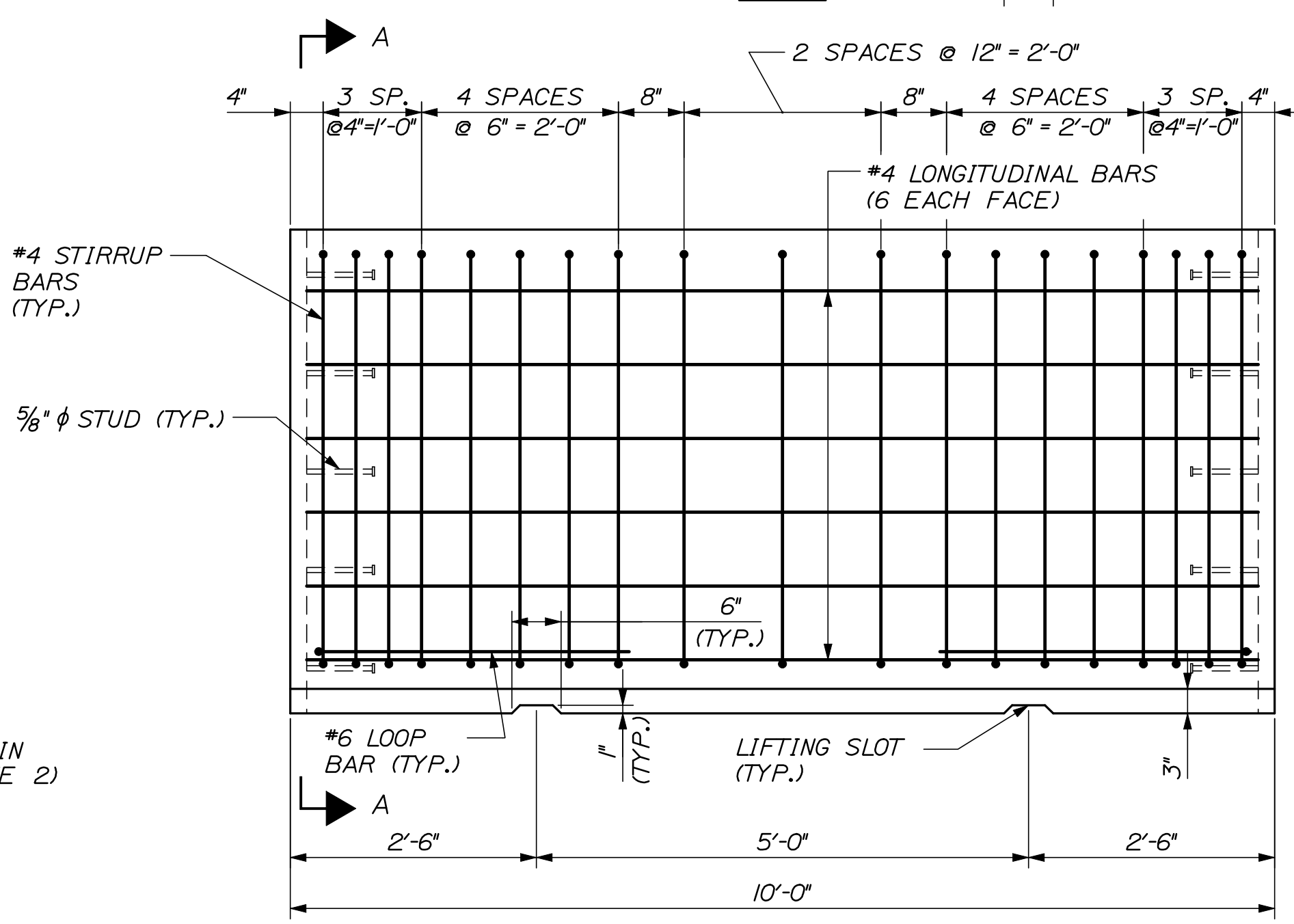
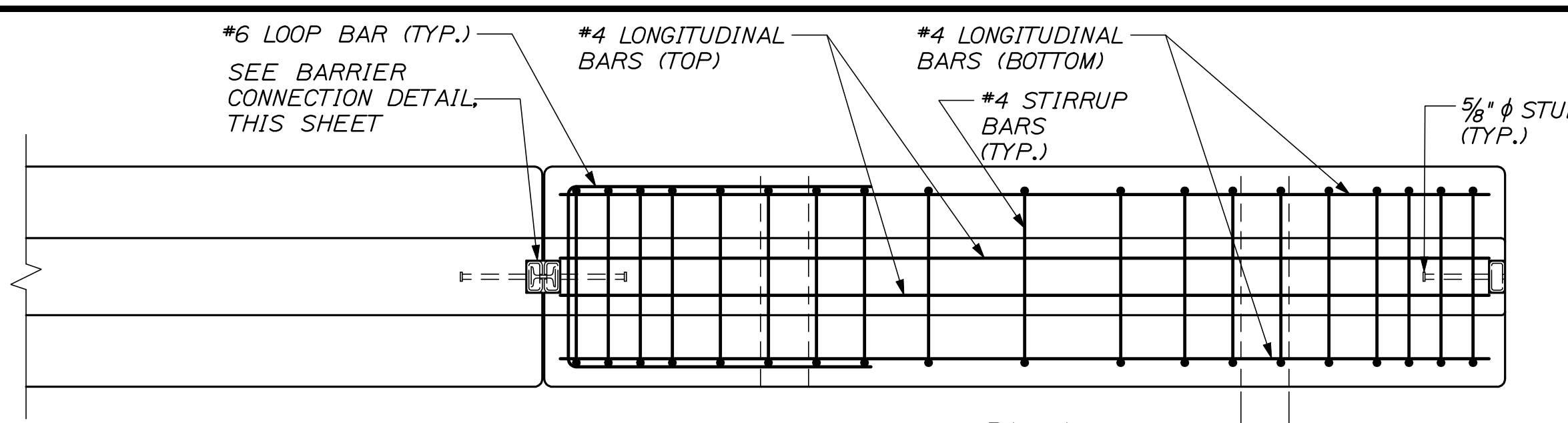
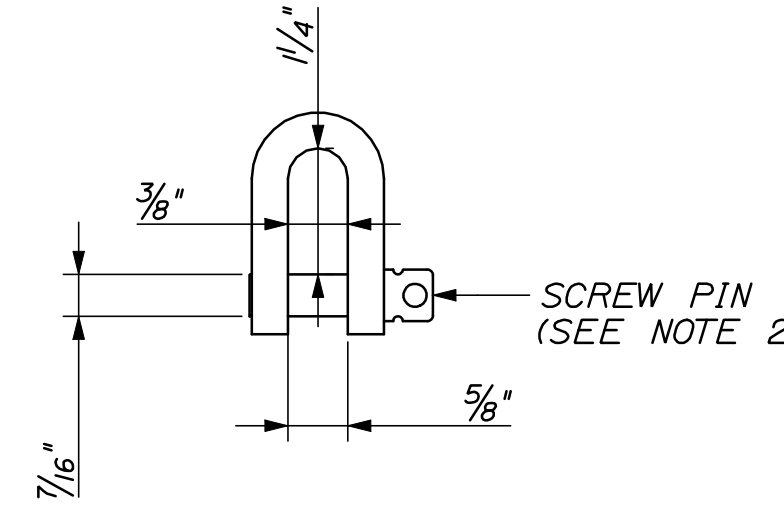
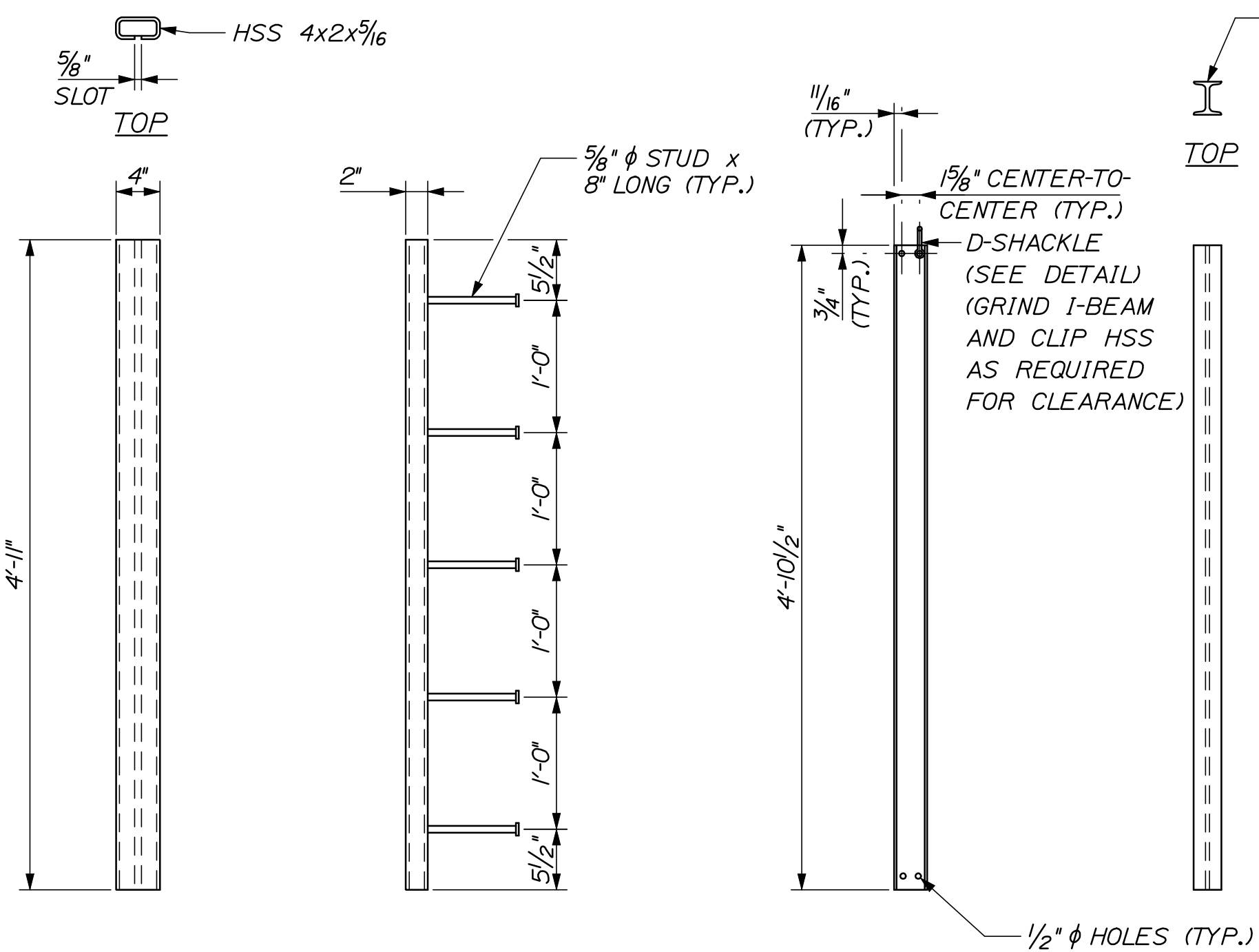
PROJ. MANAGER	THOMAS STEVENS	BY	DATE
DESIGN-DETAILED	TRC	MPC	04/13
CHECKED-REVIEWED	AET		04/13
DESIGN-DETAILED			
REVISIONS 1			
REVISIONS 2			
REVISIONS 3			
REVISIONS 4			
FIELD CHANGES			

CONCRETE BARRIER REINFORCING SCHEDULE				
DESCRIPTION	SIZE	NO.	UNBENT LENGTH	TYPE
LONGITUDINAL (EACH FACE)	#4	12	9'-7"	
STIRRUPS	#4	19	10'-8"	
LOOP BAR	#6	2	8'-2 1/2"	





REINFORCING BAR DIMENSIONS WERE DEVELOPED BASED ON DUAL-COATED STEEL REINFORCING. IF GFRP REINFORCING IS USED THE CONTRACTOR SHALL MODIFY THE BAR DIMENSIONS AS REQUIRED TO PROVIDE A SATISFACTORY DESIGN IN ACCORDANCE WITH SPECIAL PROVISION 503, SUBSECTION 503.08.



NOTES:
1. WHERE TYPE C BARRIER SEGMENTS WILL CONNECT TO TYPE A OR TYPE B BARRIER SEGMENTS A MODIFIED TYPE C BARRIER SEGMENT SHALL BE USED. THE MODIFIED BARRIER SEGMENT SHALL CONSIST OF A STRUCTURAL TUBE CONNECTION DETAIL AT ONE END AND A 1 1/4" Ø DOWEL CONNECTION AT THE OTHER. THE BARRIER CONNECTION DETAILS SHALL BE COORDINATED BY THE CONTRACTOR AND SHOWN ON THE BARRIER SHOP DRAWINGS SUBMITTED FOR APPROVAL. SEE SHEET 10 FOR DOWEL CONNECTION DETAIL.

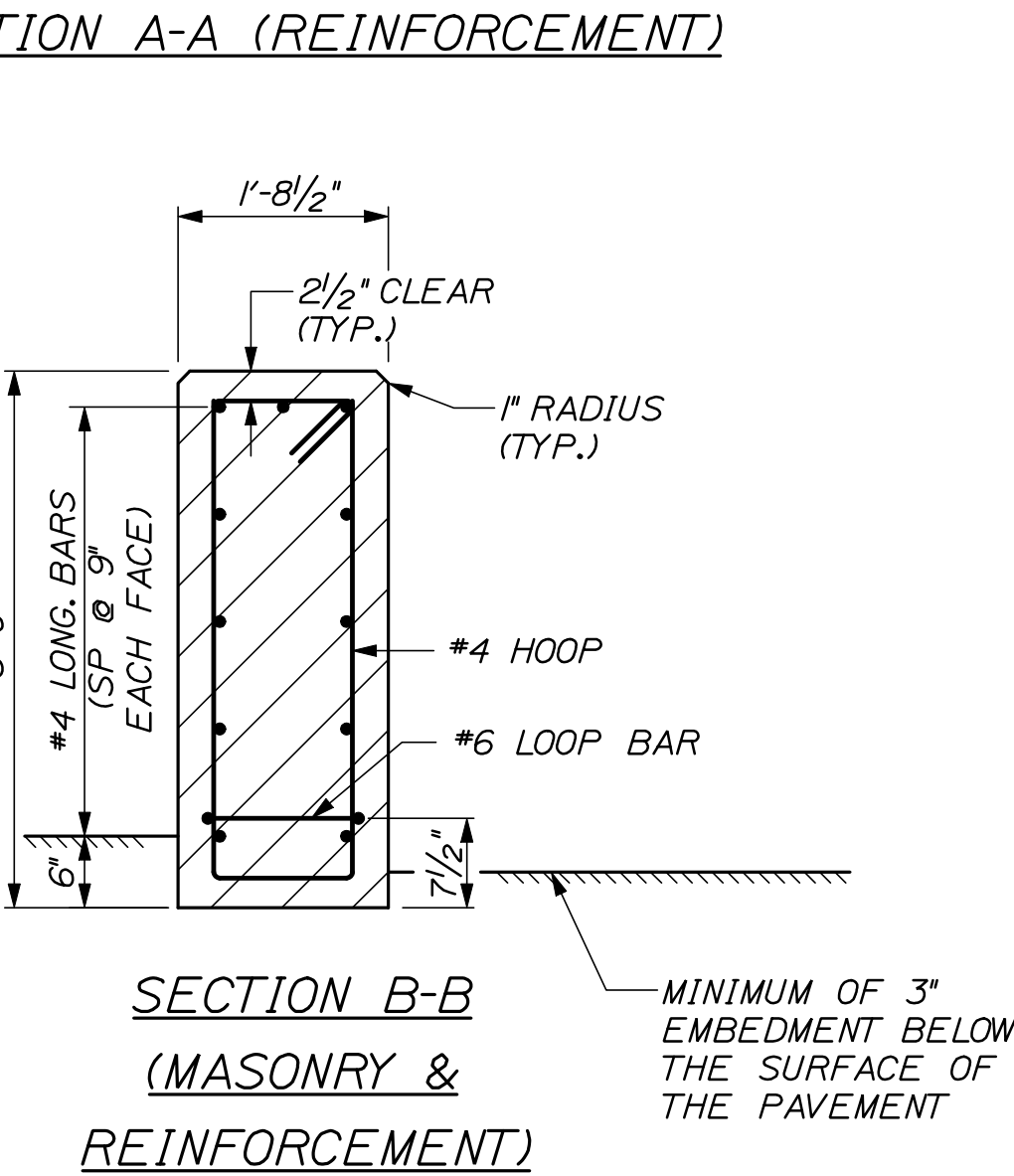
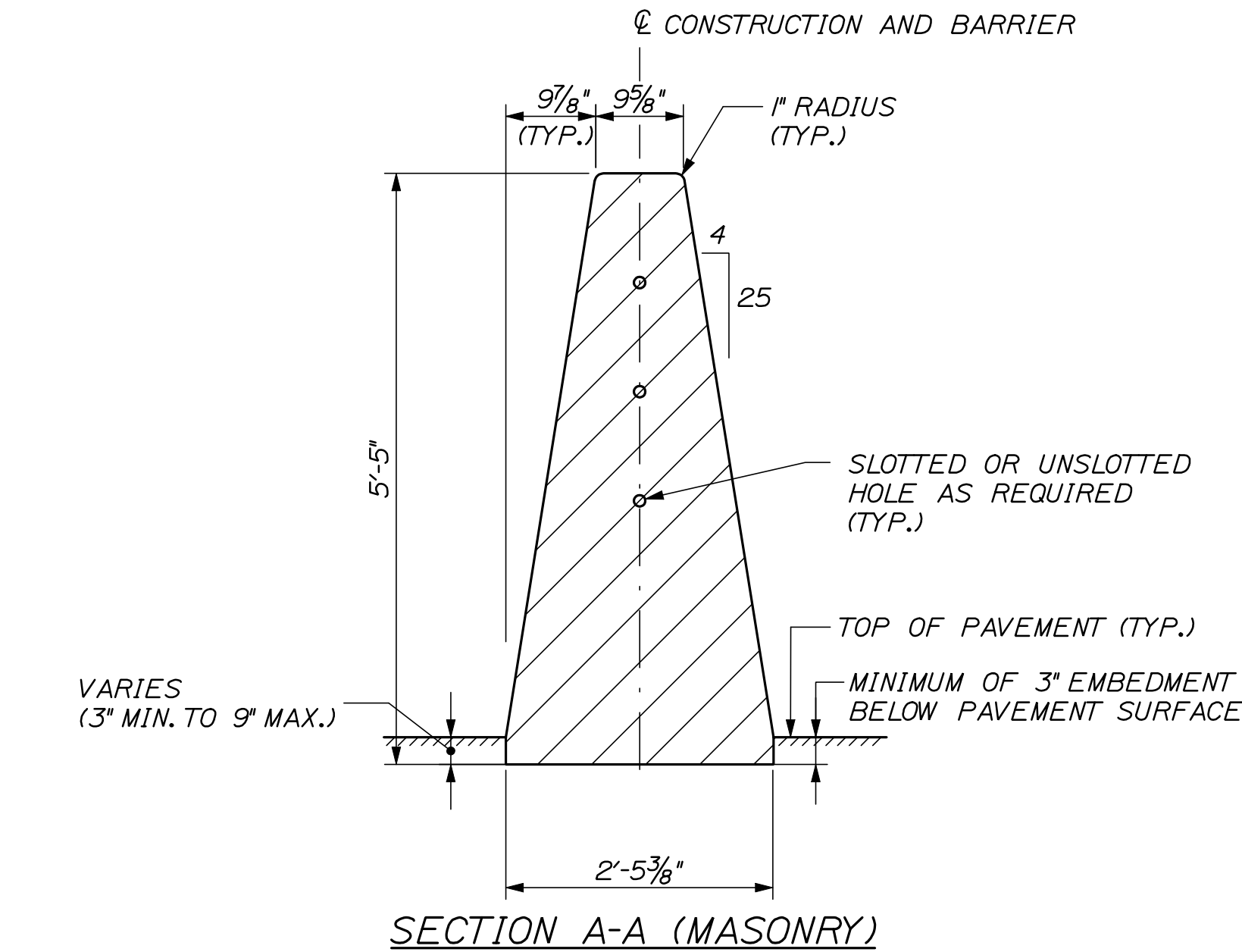
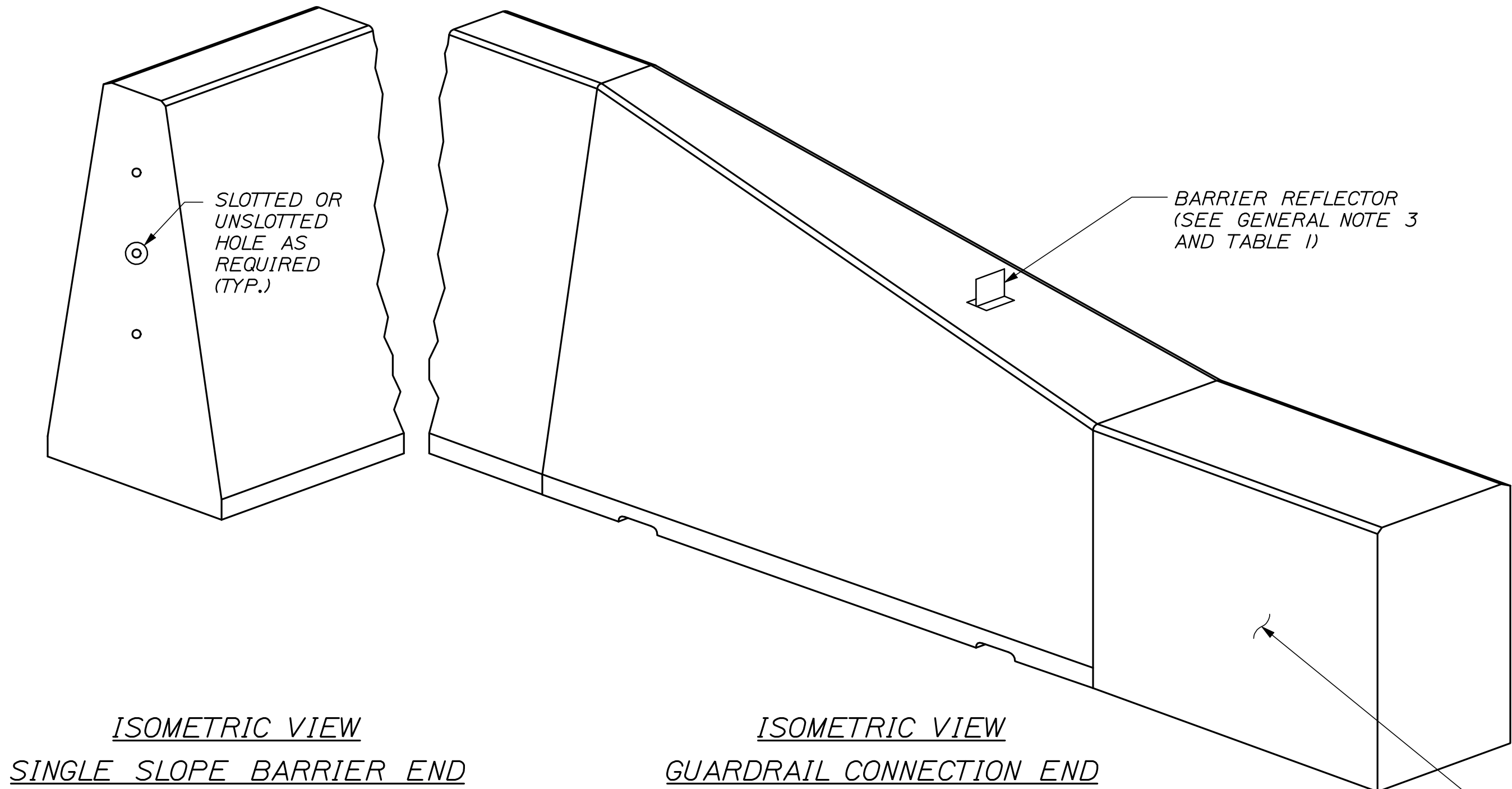
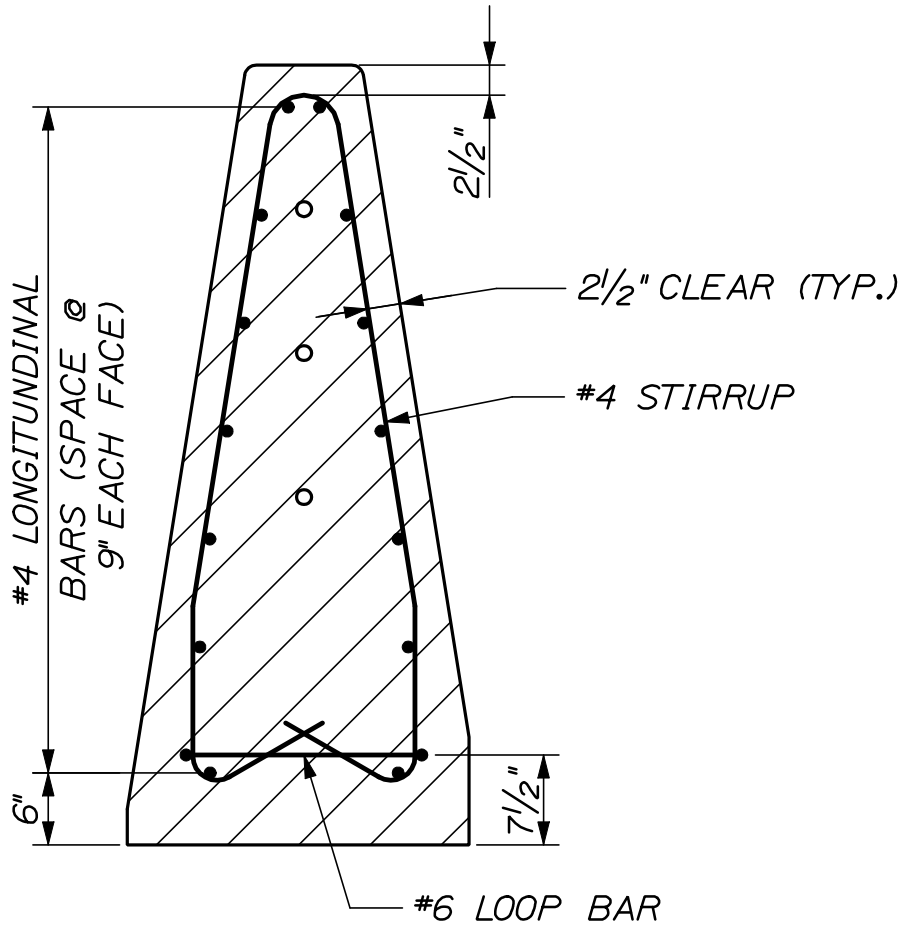
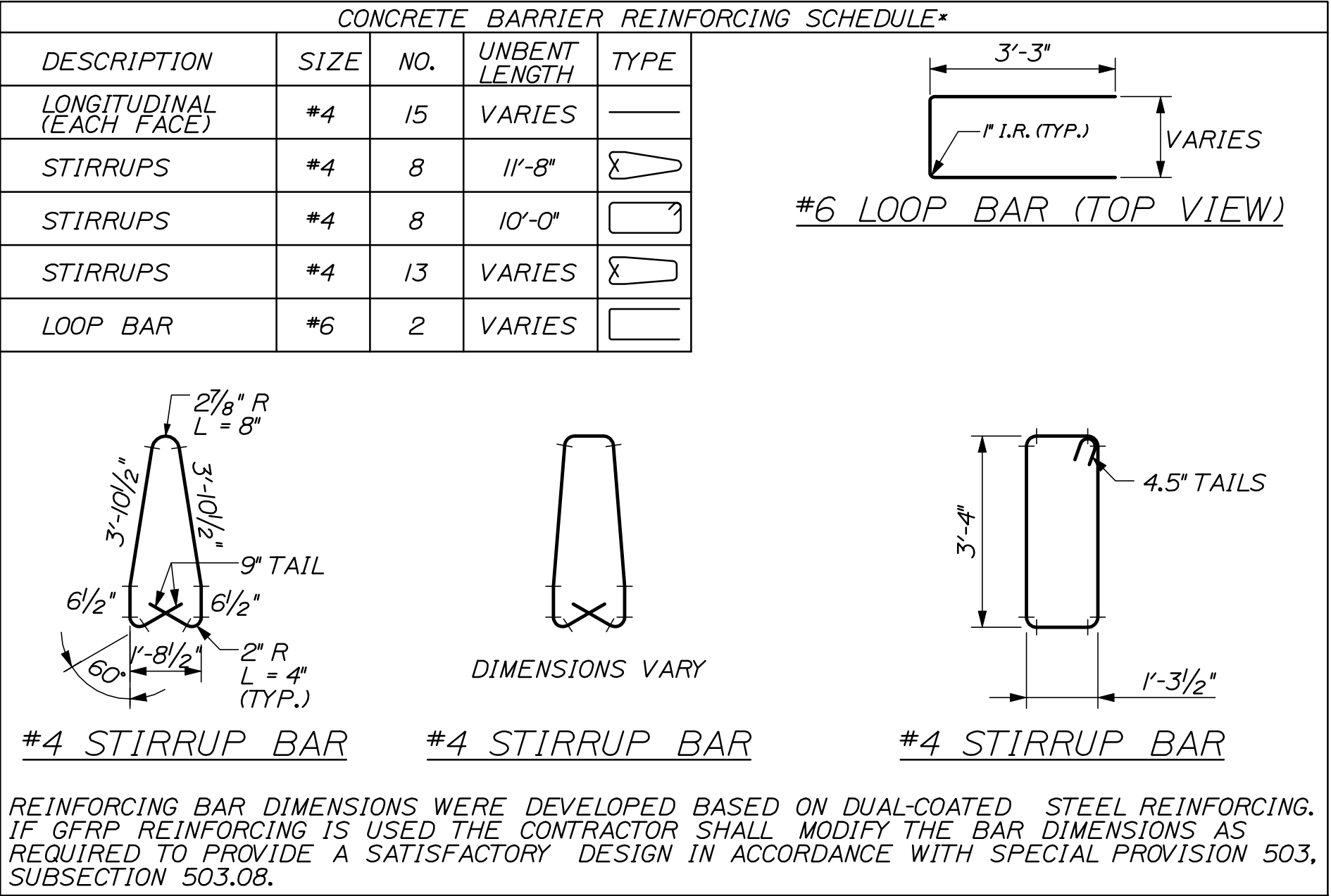
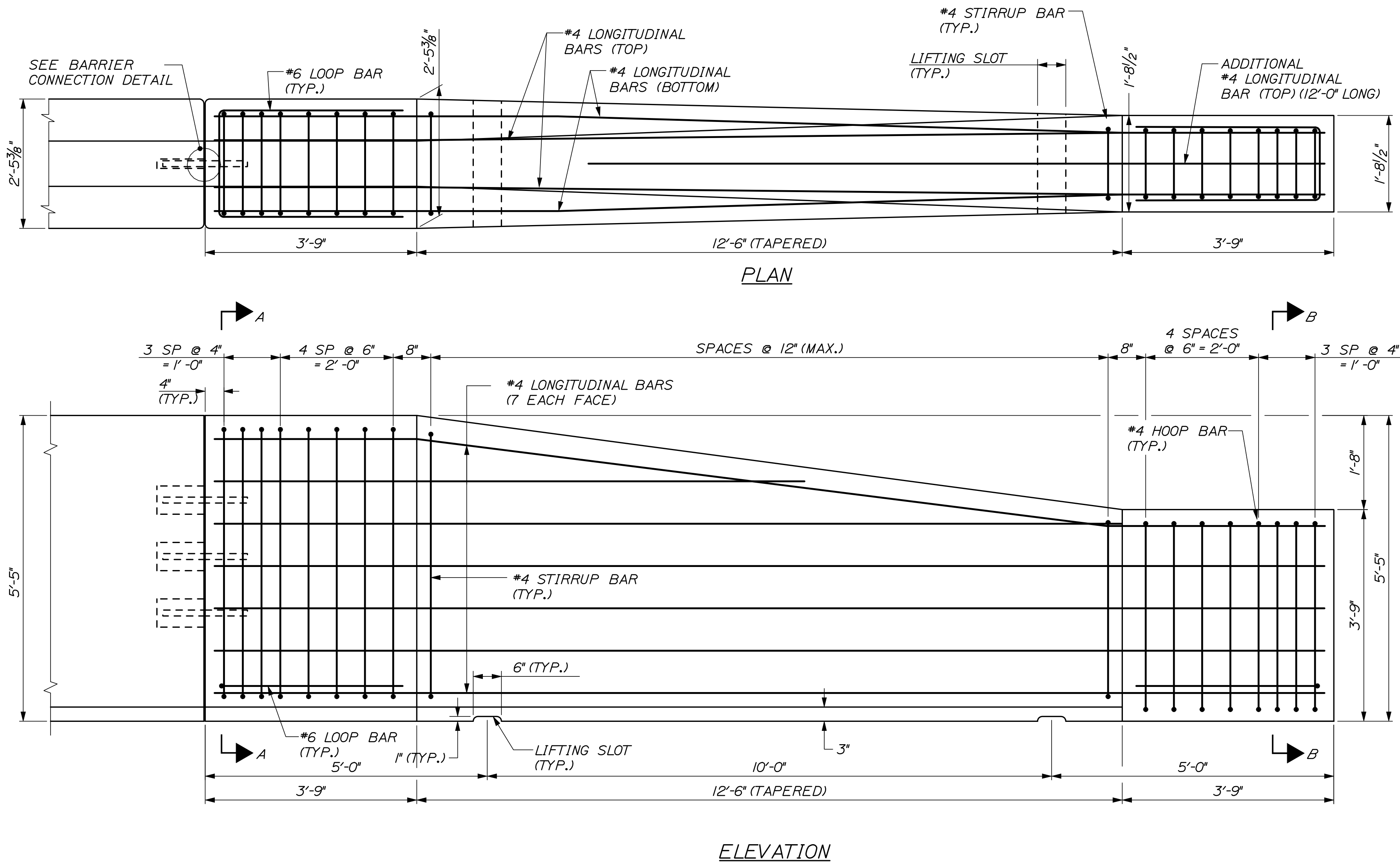
SHEET NUMBER		BANGOR		I-95 CONCRETE BARRIER		PROJ. MANAGER		THOMAS	STEVENS	BY	DATE	STATE OF MAINE
						DESIGN-DETAILED		TRC	MPC			
		PRECAST CONCRETE		MEDIAN BARRIER TYPE C		CHECKED-REVIEWED		AET		P.E. NUMBER	DATE	DEPARTMENT OF TRANSPORTATION
						DESIGN2-DETAILED2						
						DESIGN3-DETAILED3						
						REVISIONS 1						
						REVISIONS 2						
						REVISIONS 3						NHS-1920(100)
						REVISIONS 4						
OF 17										WIN	019201.00	HIGHWAY PLANS

BANGOR
I-95 CONCRETE BARRIER
PRECASTCONCRETE
MEDIAN BARRIER TYPE C

SHEET NUMBER

13

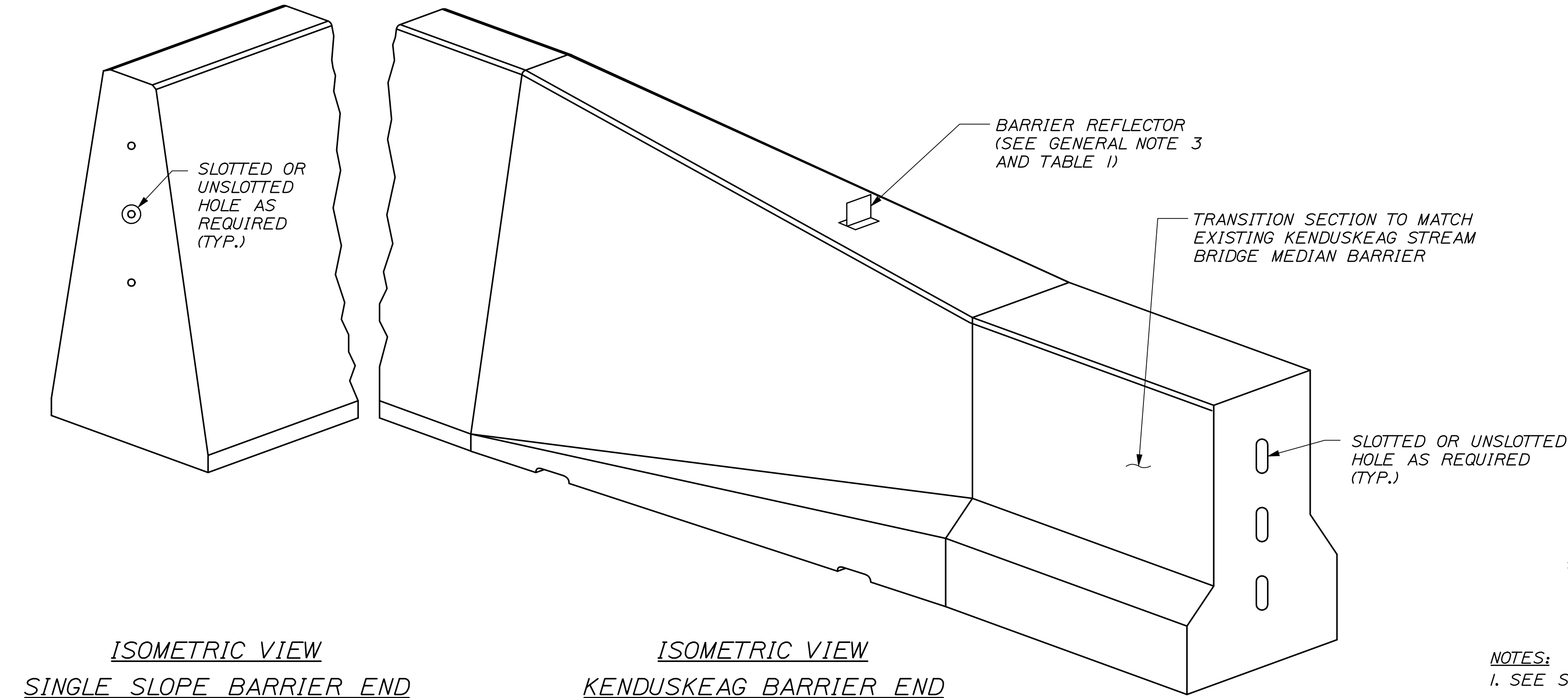
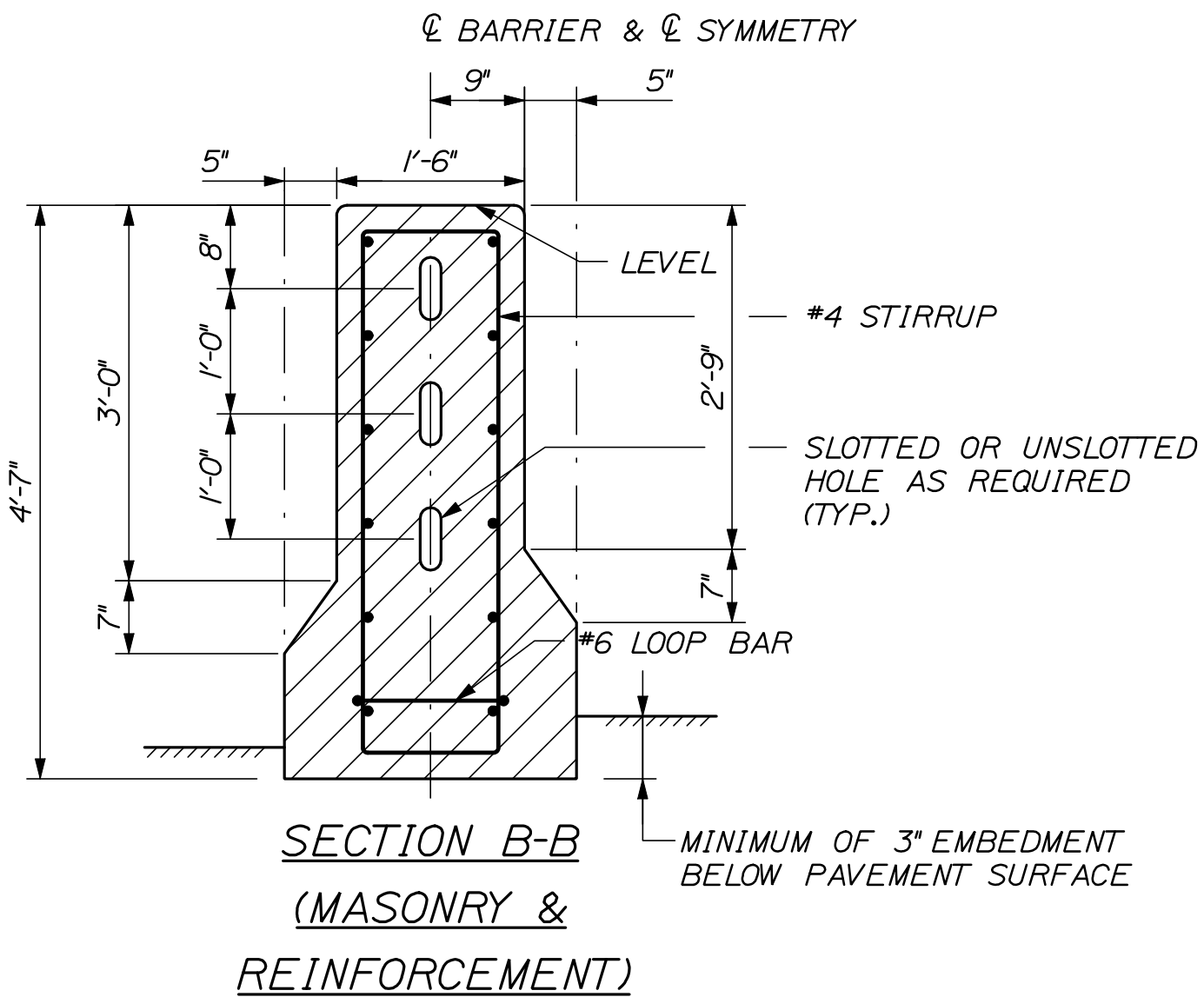
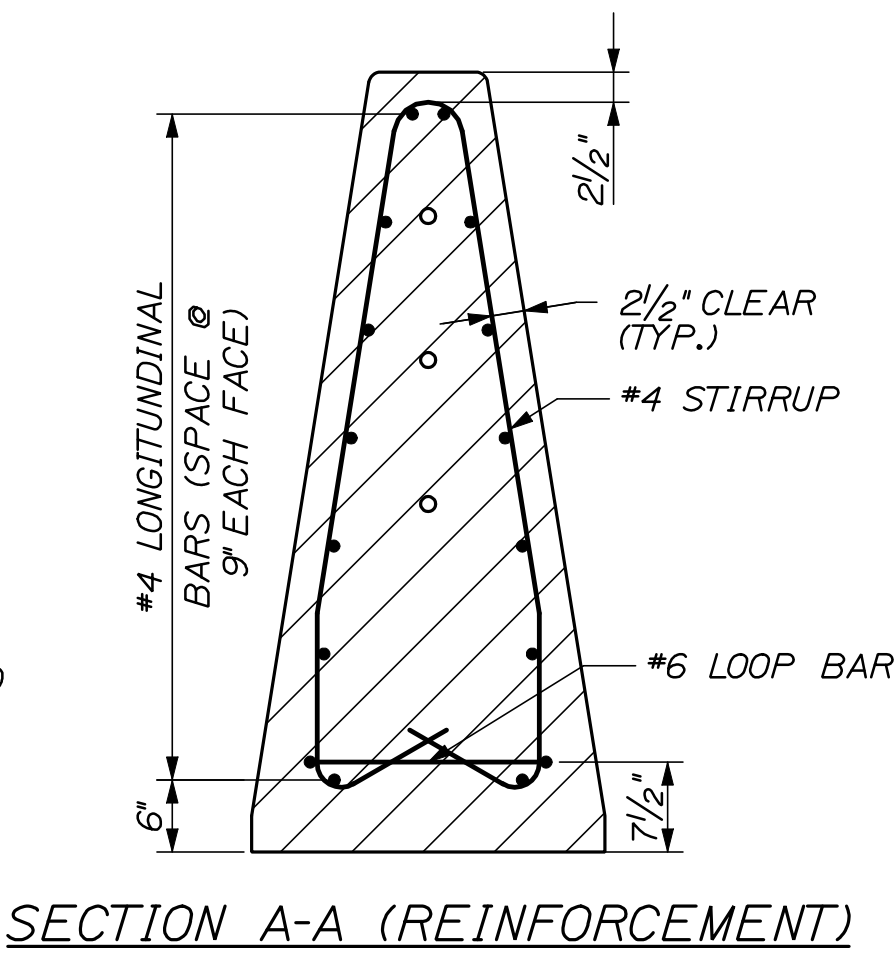
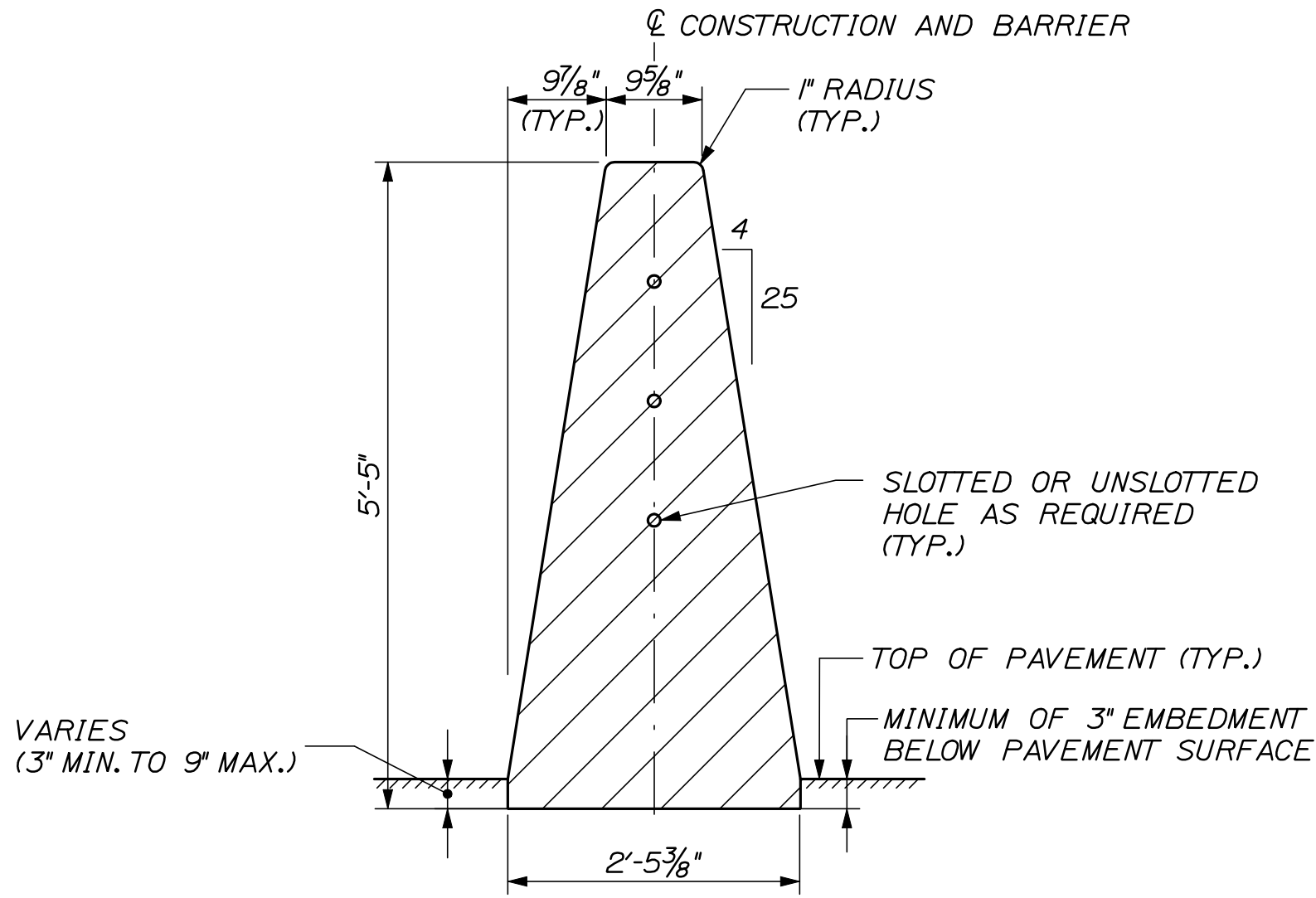
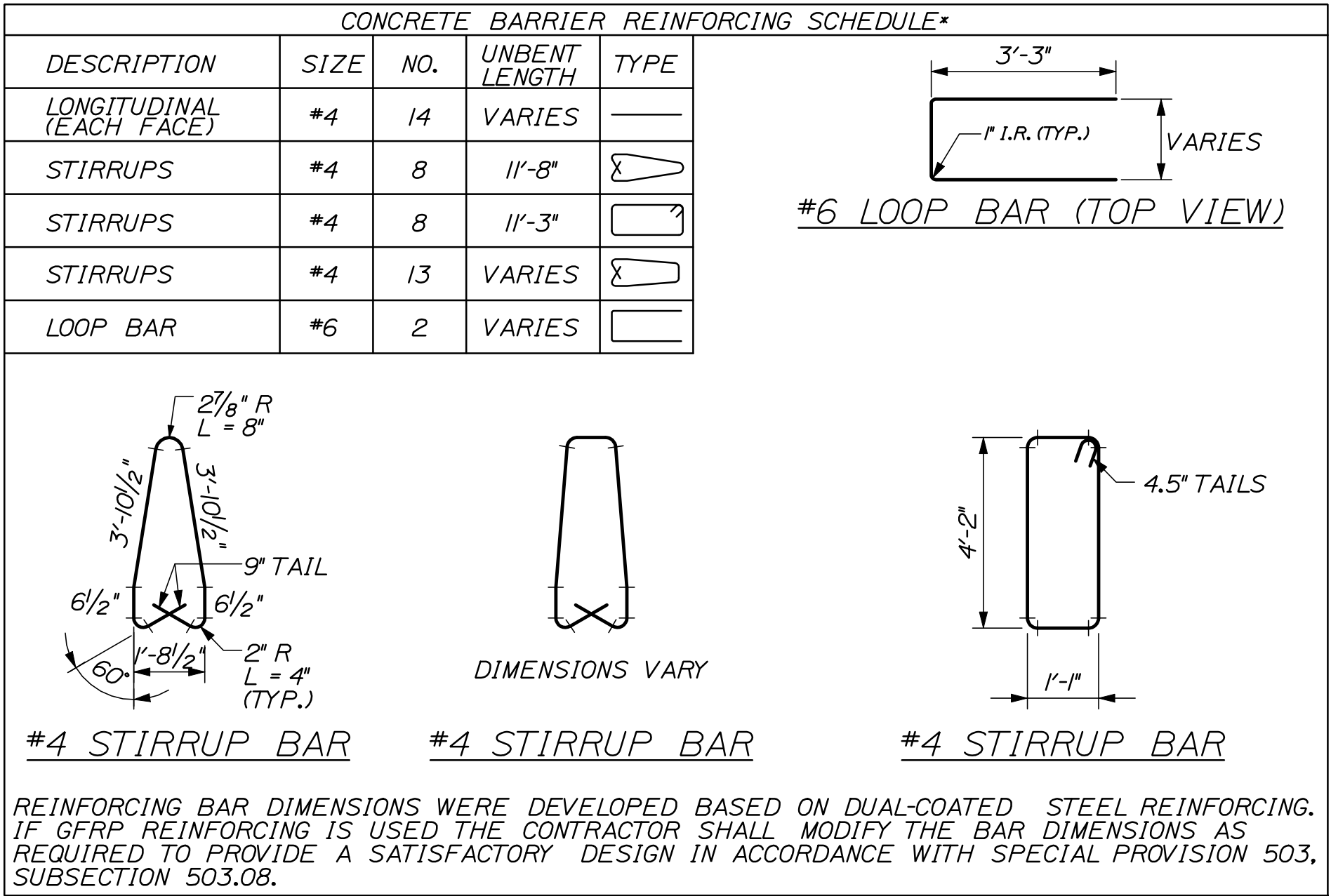
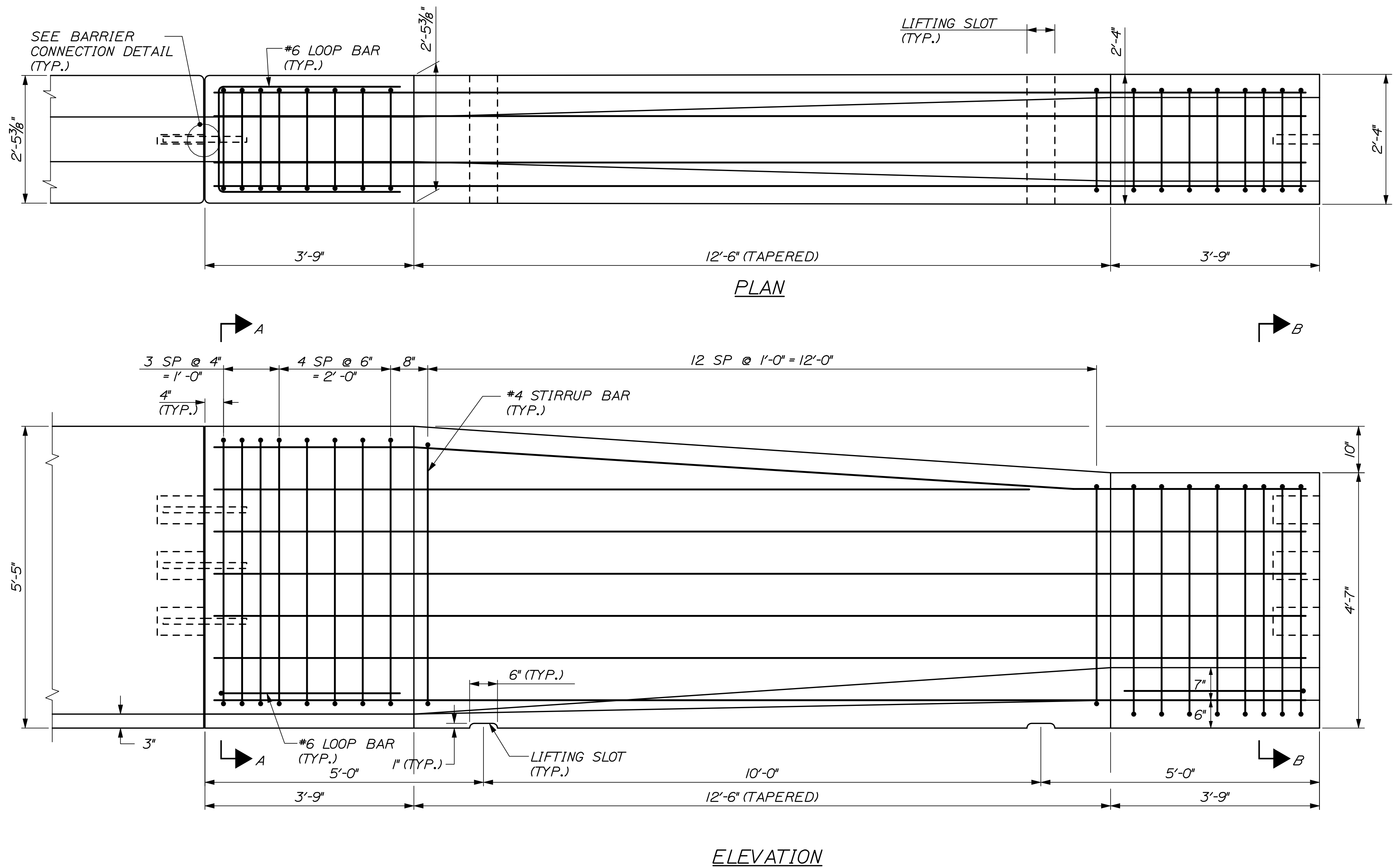
OF 17



NOTES:

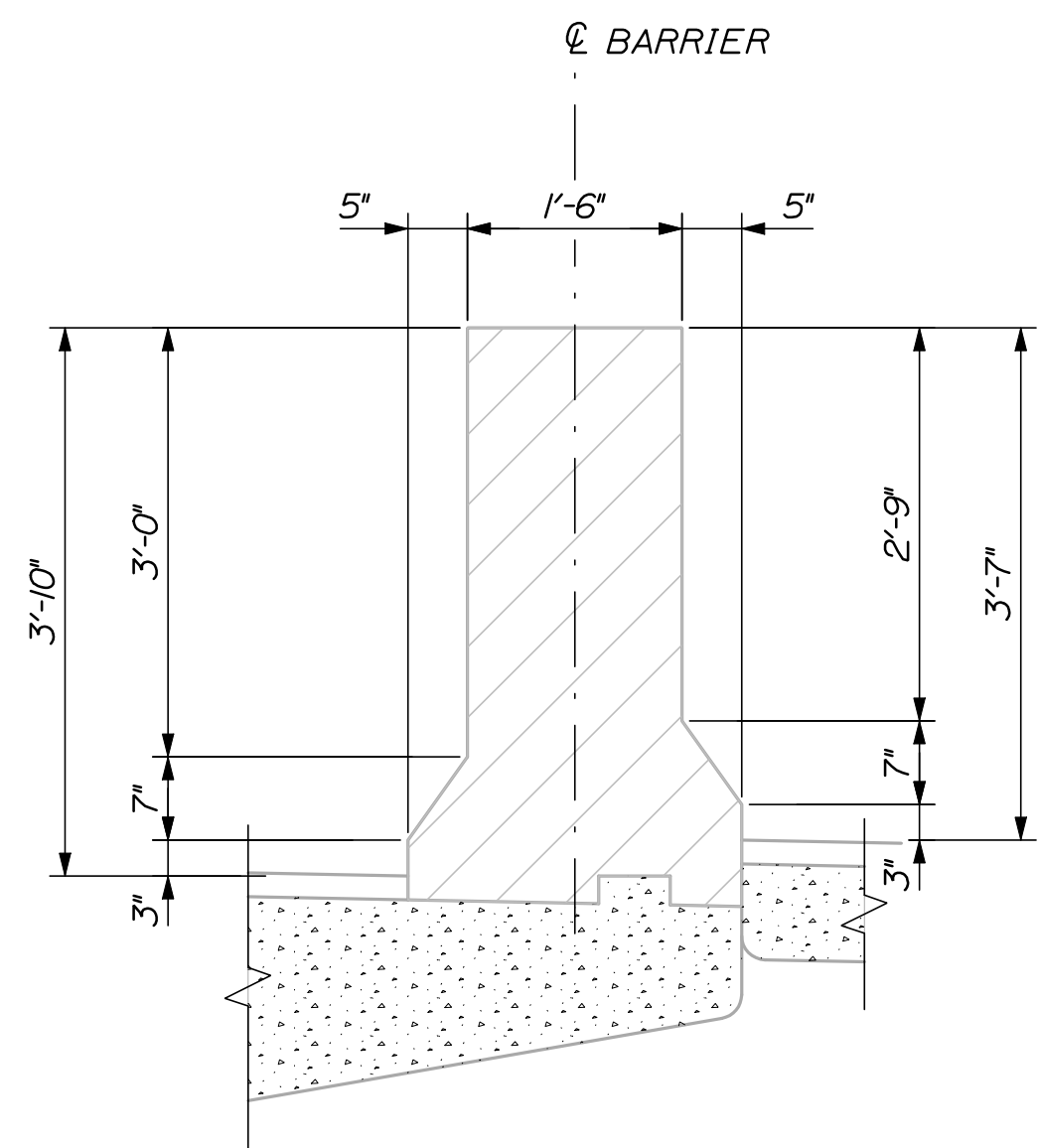
- SEE SHEET II FOR BARRIER CONNECTION DETAIL.
- PREPARATION OF SUBGRADE SHALL BE PERFORMED TO ENSURE PROPER HEIGHT OF CONNECTING GUARDRAIL PRIOR TO SETTING CONCRETE TRANSITION BARRIER.

SHEET NUMBER		BANGOR		PROJ. MANAGER		THOMAS STEVENS		BY		DATE	
14		I-95 CONCRETE BARRIER		DESIGN-DETAILED		TRC		MPC		04/13	
		PRECAST CONCRETE		CHECKED-REVIEWED		AET				04/13	
		TRANSITION BARRIER, TYPE A		DESIGN-DETAILED2						SIGNATURE	
				DESIGN-DETAILED3						P.E. NUMBER	
OF 17				REVISIONS 1						DATE	
				REVISIONS 2							
				REVISIONS 3							
				REVISIONS 4							
				FIELD CHANGES							
										WIN	
										019201.00	
										HIGHWAY PLANS	
										STATE OF MAINE	
										DEPARTMENT OF TRANSPORTATION	
										NHS-1920(100)	

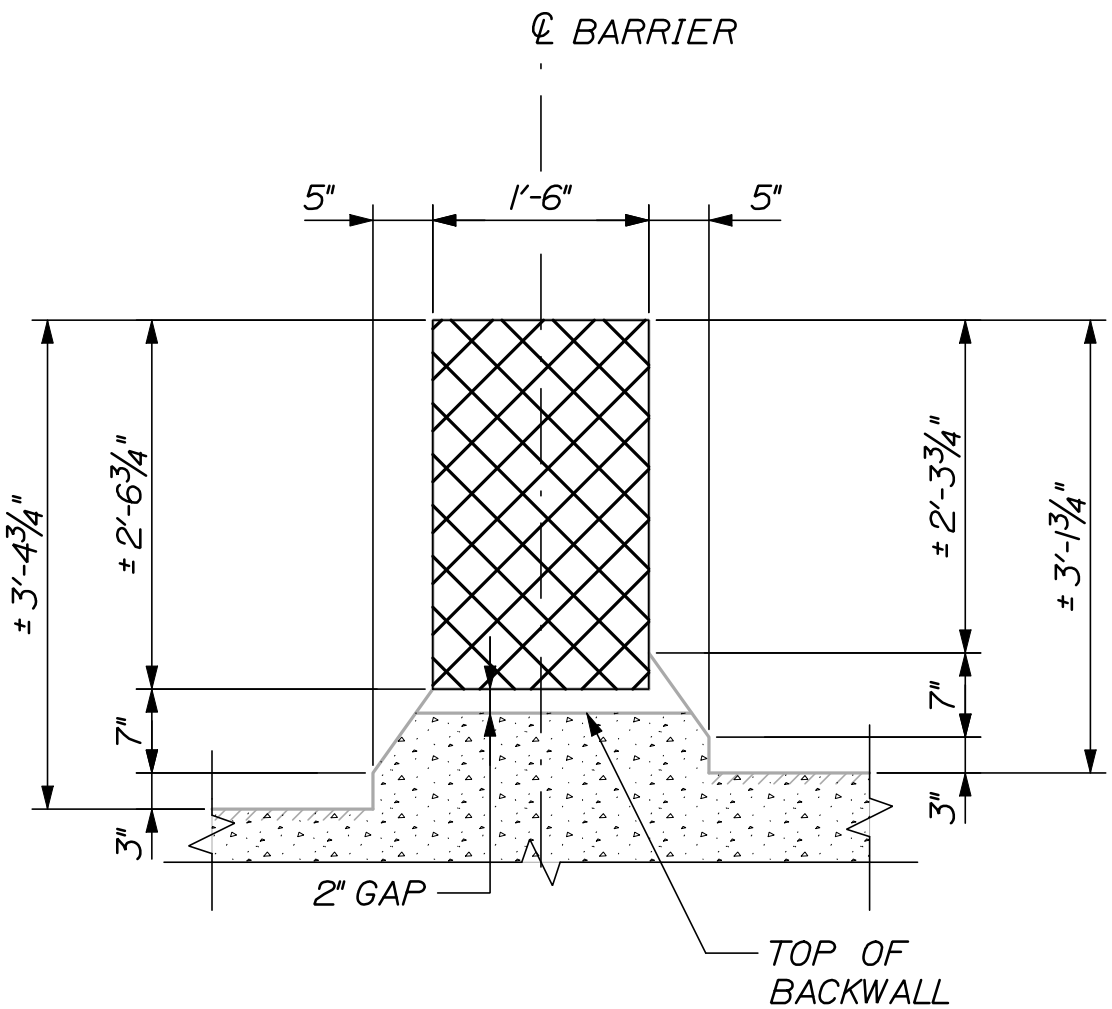


- NOTES:
- SEE SHEET 11 FOR BARRIER CONNECTION DETAIL (MATCH INTO EXISTING BARRIER PROFILE).
 - THE CONTRACTOR SHALL FIELD MEASURE THE PROFILE OF THE KENDUSKEAG MEDIAN BARRIER AND MAKE ADJUSTMENTS TO THE GEOMETRY SHOWN HEREIN AS REQUIRED TO ACHIEVE A SMOOTH TRANSITION BETWEEN THE NEW AND EXISTING BARRIER SEGMENTS.
 - ONE REQUIRED AS SHOWN, ONE REQUIRED OPPOSITE HAND.

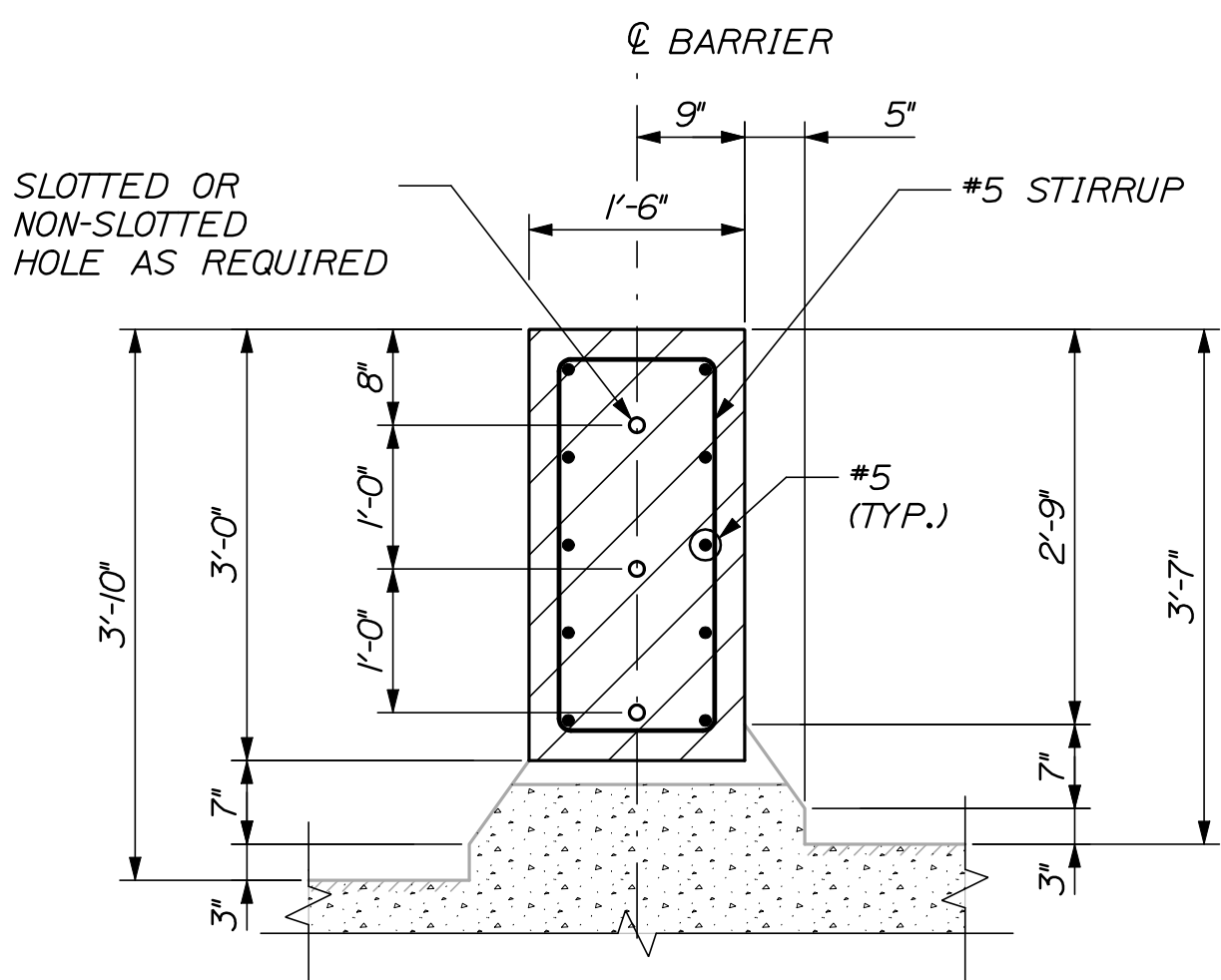
STATE OF MAINE DEPARTMENT OF TRANSPORTATION NHS-1920(100) WIN 019201.00 HIGHWAY PLANS	SHEET NUMBER			
	15			
	OF 17			
BANGOR I-95 CONCRETE BARRIER PRECAST CONCRETE TRANSITION BARRIER, TYPE B	PROJ. MANAGER	THOMAS STEVENS	DATE	04/13
	DESIGN-DETAILED	TRC	BY	MPC
	CHECKED-REVIEWED	AET	DATE	04/13
	DESIGN-DETAILED		SIGNATURE	
	REVISIONS 1		P.E. NUMBER	
	REVISIONS 2		DATE	
	REVISIONS 3			
	REVISIONS 4			
	FIELD CHANGES			



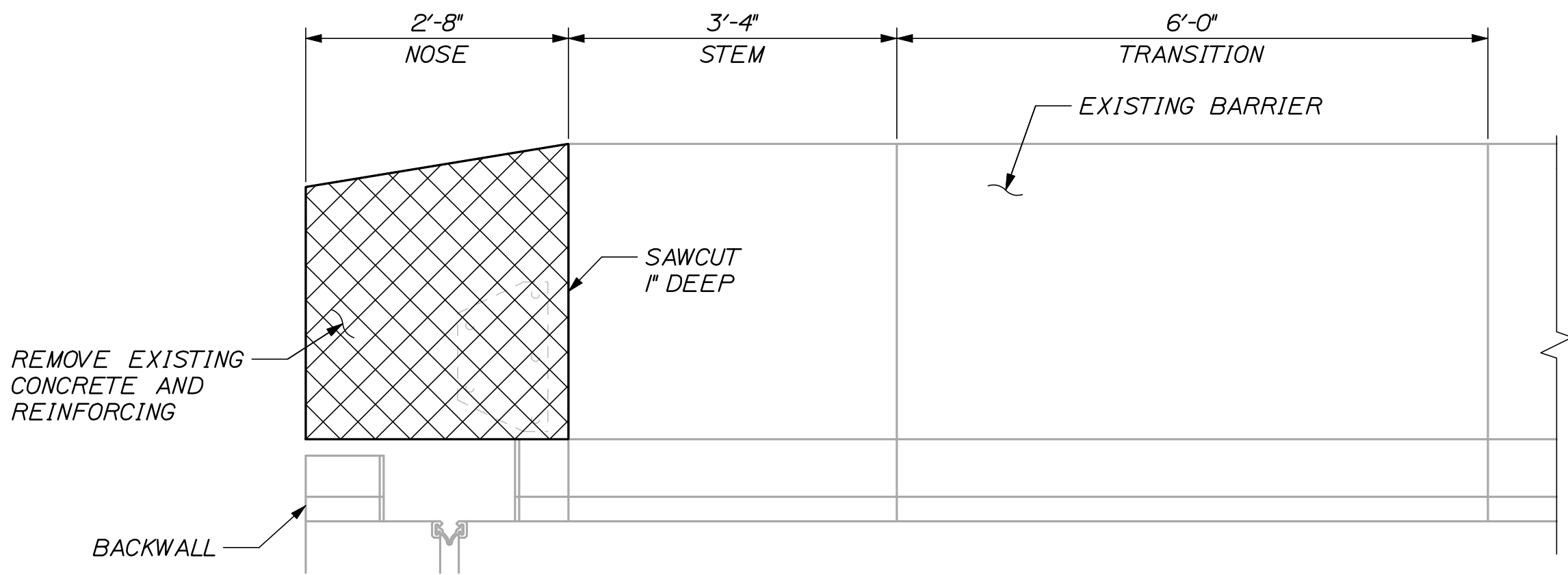
SECTION A-A



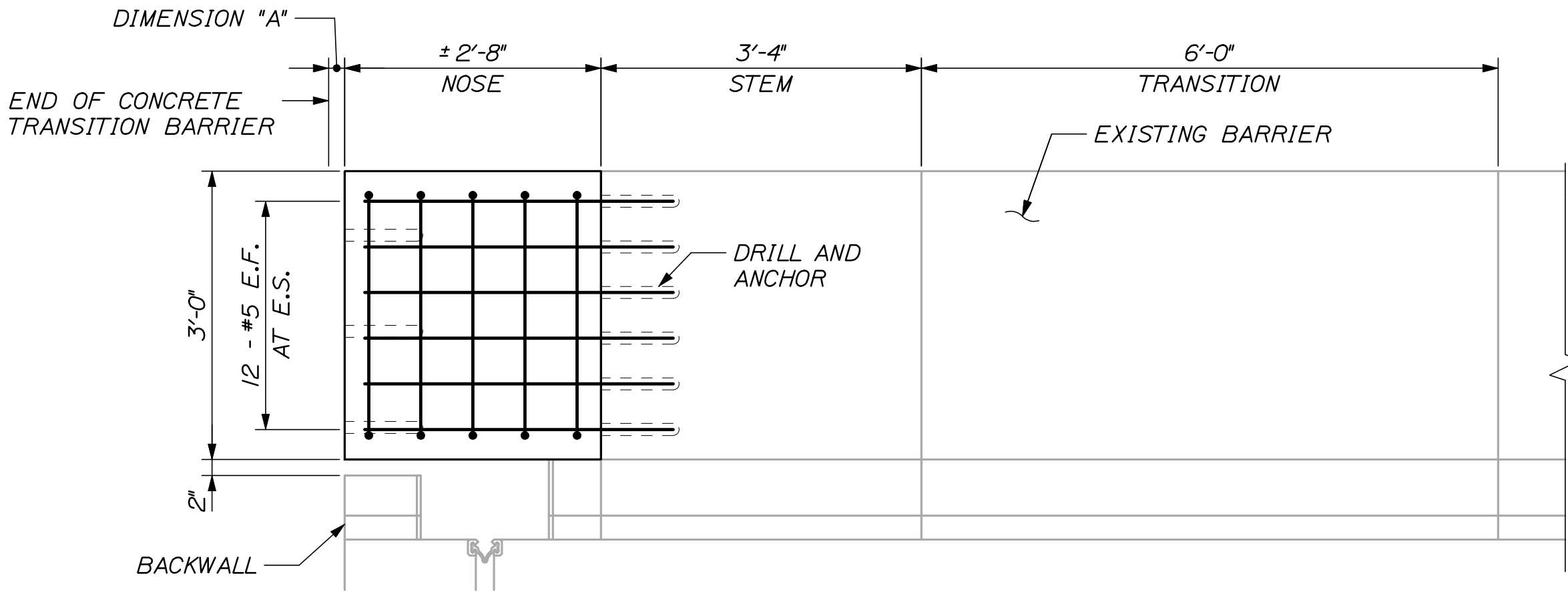
SECTION B-B



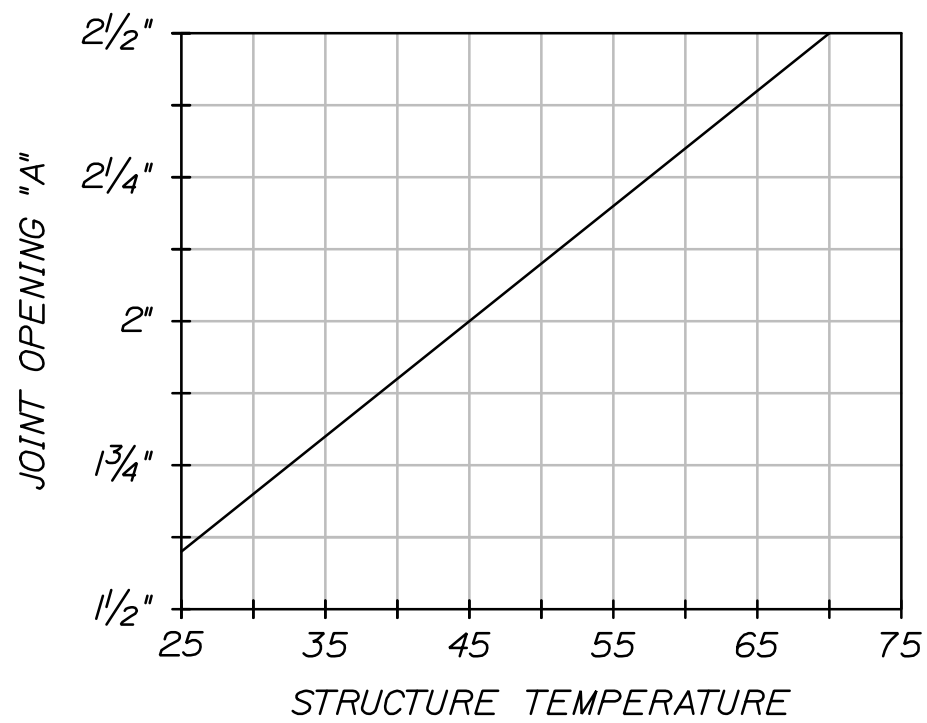
SECTION C-C



ELEVATION
DEMOLITION



ELEVATION
CONSTRUCTION



JOINT OPENING TABLE

CONCRETE BARRIER REINFORCING SCHEDULE*				
DESCRIPTION	SIZE	NO.	UNBENT LENGTH	TYPE
STIRRUPS	#5	5	8'-5"	
LOOP BAR	#6	6	8'-0"	

#6 LOOP BAR (TOP VIEW)

#4 STIRRUP BAR

REINFORCING BAR DIMENSIONS WERE DEVELOPED BASED ON DUAL-COATED STEEL REINFORCING. IF GFRP REINFORCING IS USED THE CONTRACTOR SHALL MODIFY THE BAR DIMENSIONS AS REQUIRED TO PROVIDE A SATISFACTORY DESIGN IN ACCORDANCE WITH SPECIAL PROVISION 503, SUBSECTION 503.08.

NOTE:
DOWEL BARS USED FOR BARRIER CONNECTION
AT KENDUSKEAG SHALL BE 20" LONG.

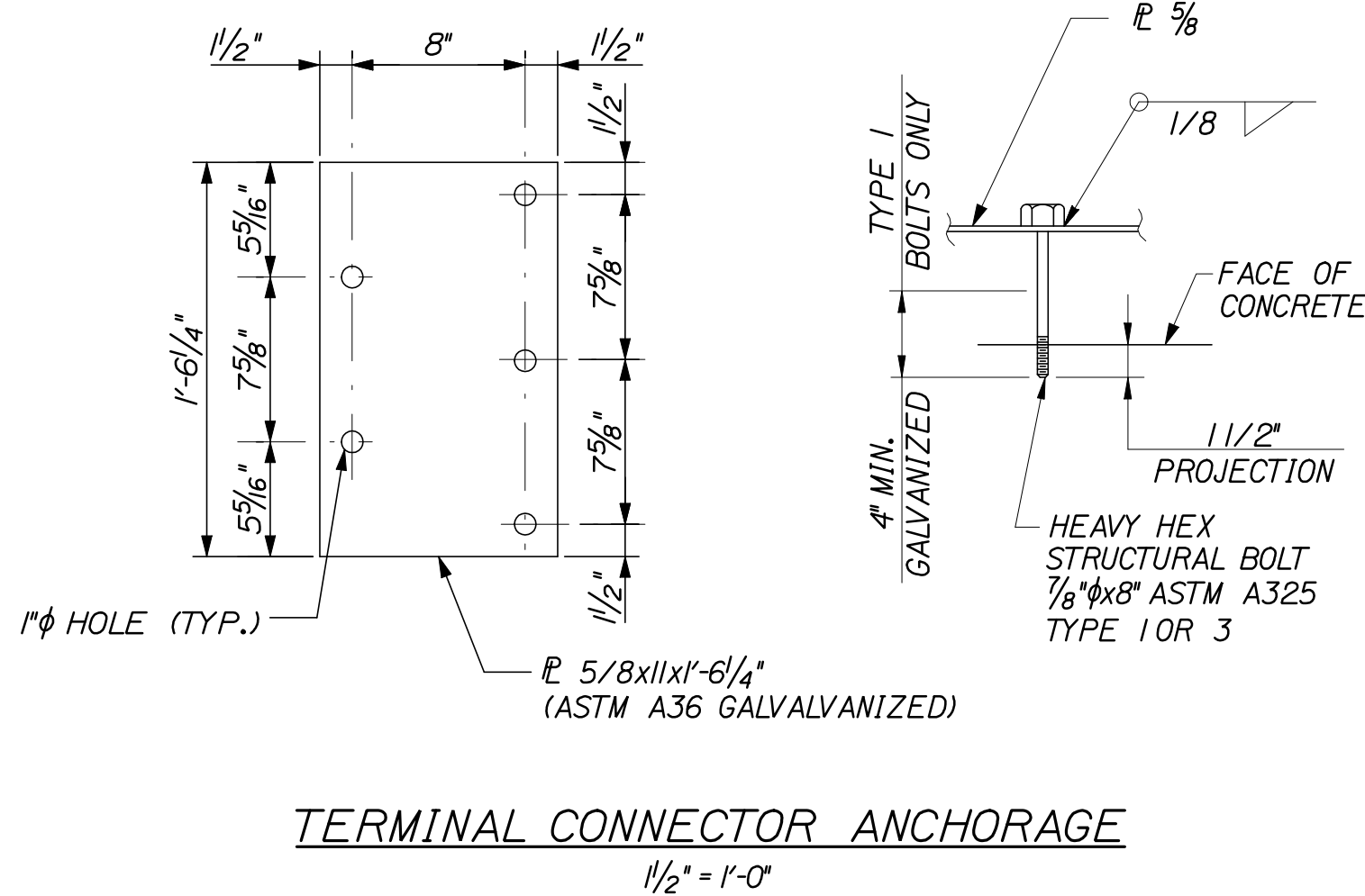
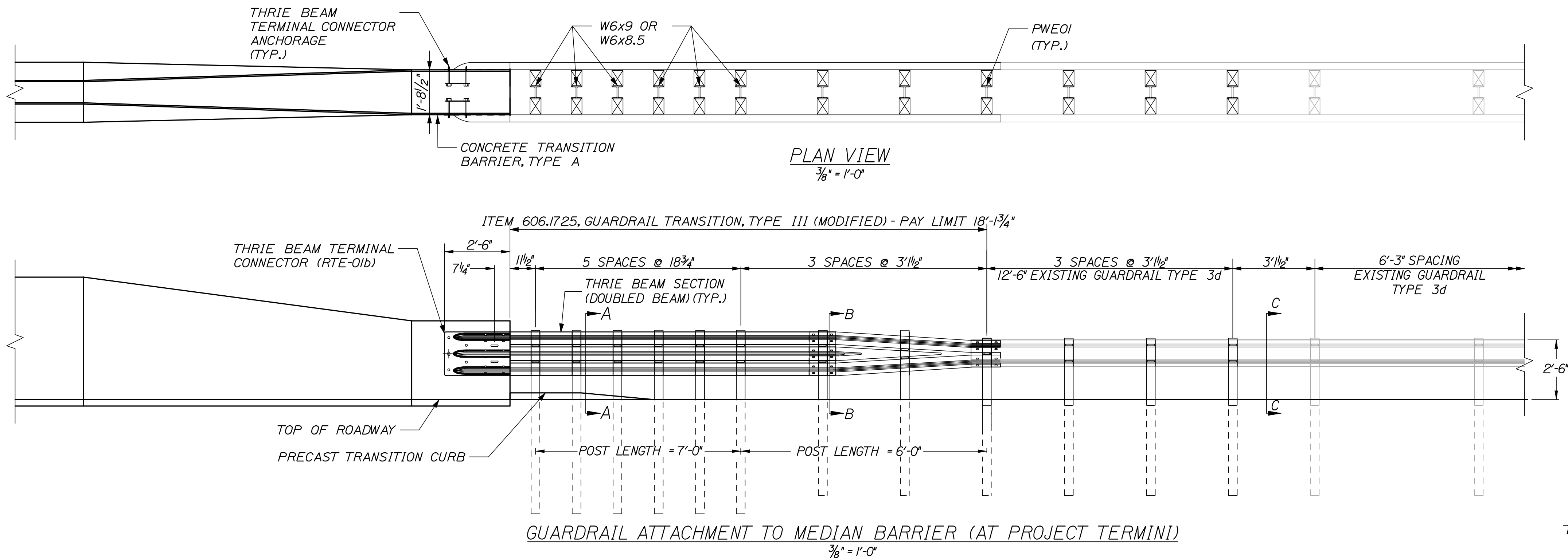
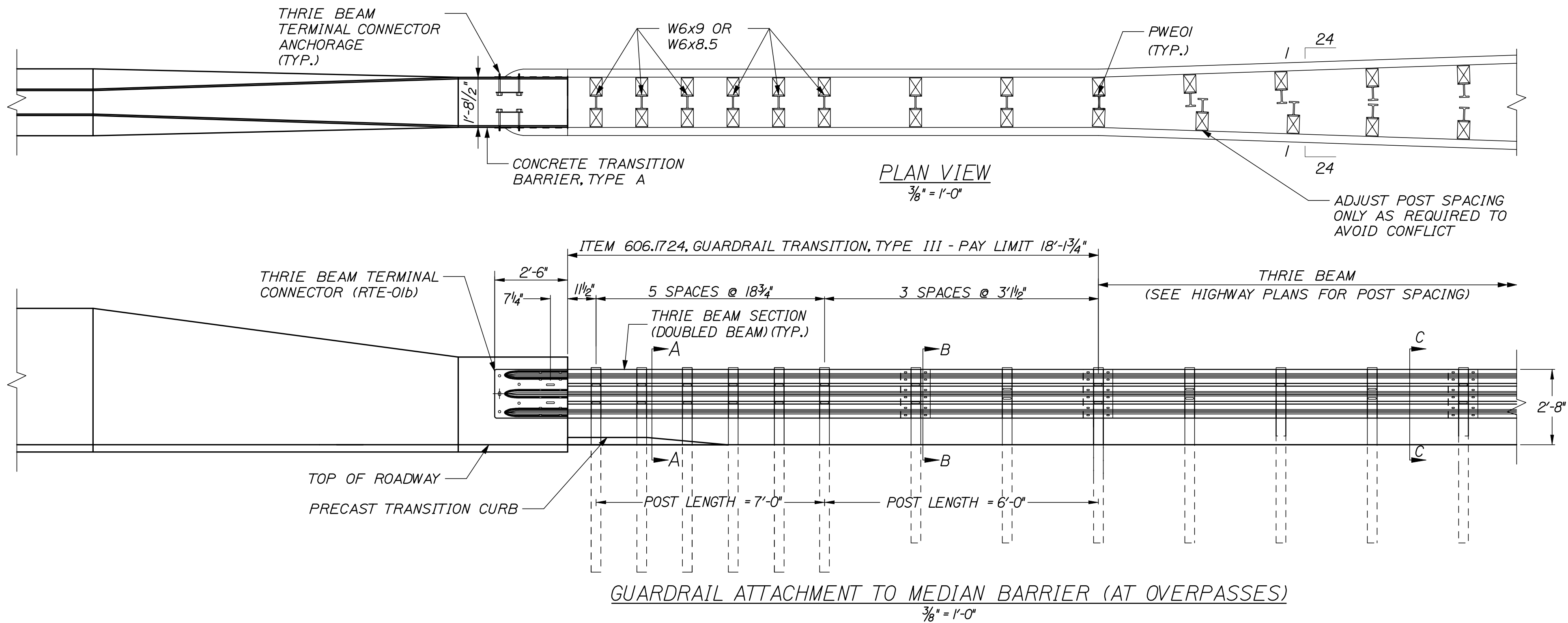
SHEET NUMBER				BANGOR				PROJ. MANAGER				THOMAS STEVENS				BY				DATE				STATE OF MAINE							
16				I-95 CONCRETE BARRIER				DESIGN-DETAILED				TRC				MPC				04/13				DEPARTMENT OF TRANSPORTATION							
								CHECKED-REVIEWED				AET																			
								DESIGN-DETAILED2																							
								DESIGN-DETAILED3																							
								REVISIONS 1																							
OF 17				KENDUSKEAG BRIDGE				REVISIONS 2												SIGNATURE											
								REVISIONS 3																							
								REVISIONS 4																							
								FIELD CHANGES																							
																								P.E. NUMBER							
				MEDIAN BARRIER MODIFICATIONS																				NHS-1920(100)							
																								WIN				HIGHWAY PLANS			
																								019201.00							

Date: 4/19/2013

Username: mcardiff

Division: BRIDGE

Filename: 017_GuardrailTransition.dgn



GENERAL NOTES:

- ADDITIONAL HOLES MAY BE MADE IN THE THRIE-BEAM PANELS BY DRILLING, PUNCHING, OR OTHER MEANS THAT PRODUCE A NEAT, CLEAN HOLE. BURNING HOLES WILL NOT BE ALLOWED.
- STANDARD BARRIER HARDWARE HAS BEEN USED TO DEVELOP THESE GUARDRAIL ATTACHMENTS. DESIGNATIONS PROVIDED IN PARENTHESIS RELATE TO STANDARD ELEMENTS DETAILED IN "A GUIDE TO STANDARDIZED BARRIER RAIL HARDWARE," 1979, AASHTO-AGC-ARTBA JOINT COOPERATE COMMITTEE.
- RAIL ELEMENT SHALL MEET ALL THE REQUIREMENTS OF AASHTO M-180 EXCEPT AS MODIFIED ON THE PLANS. THE THRIE BEAM TRANSITION TO W-BEAM SHALL BE OF THE SAME MATERIAL, BUT SHALL NOT BE LESS THAN 10 GAUGE.
- AFTER INSTALLATION IS COMPLETE, UPSET THE THREAD ON THE ANCHOR BOLTS IN THREE PLACES AROUND EACH BOLT, AT THE JUNCTION OF THE NUT AND THE EXPOSED THREAD, WITH A CENTER PUNCH OR SIMILAR TOOL.
- EXTRA POSTS REQUIRED TO ATTACH TO EXISTING GUARDRAIL WILL BE INCIDENTAL TO THE MEDIAN BARRIER GUARDRAIL ATTACHMENT.

DATE	BY	PROJ. MANAGER	THOMAS	STEVENS	DESIGN-DETAILED	CHECKED-REVIEWED	DATE	SIGNATURE
04/13	MPC	TRC	GAB		DESIGN-DETAILED		04/13	
REVISIONS 1					REVISIONS 2			P.E. NUMBER
REVISIONS 3					REVISIONS 4			DATE
FIELD CHANGES								

BANGOR
I-95 CONCRETE BARRIER
GUARDRAIL DETAILS
MEDIAN BARRIER GUARDRAIL TRANSITION