

ACCEPTABLE TEMPORARY CONCRETE BARRIER (TCB) TYPES AND ANCHORING DETAILS BASED ON UNDERLYING SURFACE TYPE AND BARRIER OFFSET FROM DROP-OFF								
UNDERLYING SURFACE	BARRIER OFFSET							
	0" ≤ A < 6"		6" ≤ A < 12"		12" ≤ A < 26"		A ≥ 26"	
	TCB TYPE	DETAIL	TCB TYPE	DETAIL	TCB TYPE	DETAIL	TCB TYPE	DETAIL
BRIDGE DECK (CONCRETE)	L OR S *	3A OR 4A *	L OR S *	3A OR 4A *	L	1	***	N/A
BRIDGE DECK (CONCRETE WITH HMA OVERLAY)	L OR S *	3B *	L OR S *	3B *	L	1	***	N/A
ROADWAY (CONCRETE)	L OR S	4A	L OR S	4A	L	1	***	N/A
ROADWAY (HMA)	****	****	L OR S	2	L	1	***	N/A
ROADWAY (CONCRETE WITH HMA OVERLAY)	L OR S	4B	L OR S	4B	L	1	***	N/A

IN REGARDS TO BARRIER OFFSET, "A" IS THE DISTANCE FROM THE OUTSIDE EDGE OF THE TCB TO THE DROP OFF OR THE EDGE OF SLAB.

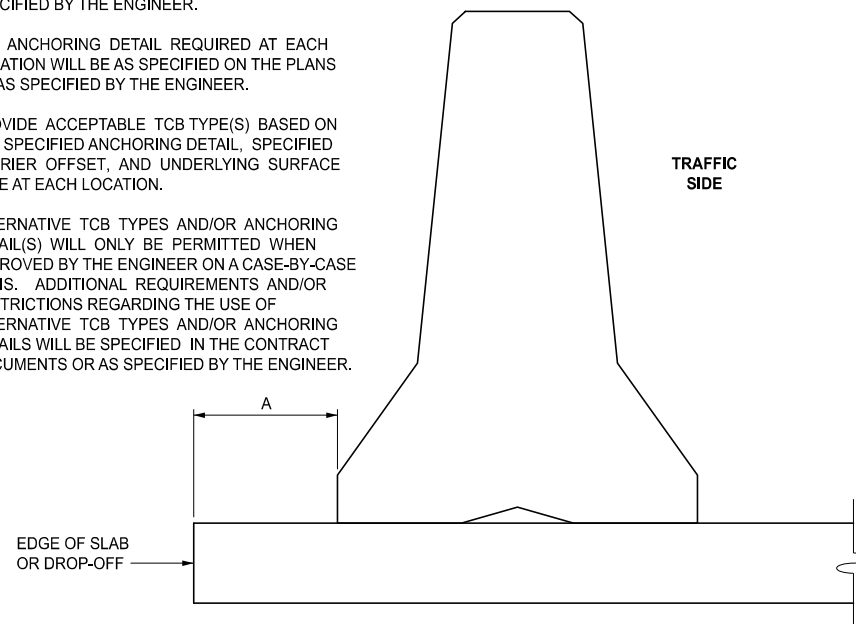
NOTES:

THE CLEAR DIMENSION, A, BETWEEN THE TOE OF THE TCB AND THE DROP-OFF OR EDGE OF SLAB WILL BE AS SPECIFIED ON THE PLANS OR AS SPECIFIED BY THE ENGINEER.

THE ANCHORING DETAIL REQUIRED AT EACH LOCATION WILL BE AS SPECIFIED ON THE PLANS OR AS SPECIFIED BY THE ENGINEER.

PROVIDE ACCEPTABLE TCB TYPE(S) BASED ON THE SPECIFIED ANCHORING DETAIL, SPECIFIED BARRIER OFFSET, AND UNDERLYING SURFACE TYPE AT EACH LOCATION.

ALTERNATIVE TCB TYPES AND/OR ANCHORING DETAIL(S) WILL ONLY BE PERMITTED WHEN APPROVED BY THE ENGINEER ON A CASE-BY-CASE BASIS. ADDITIONAL REQUIREMENTS AND/OR RESTRICTIONS REGARDING THE USE OF ALTERNATIVE TCB TYPES AND/OR ANCHORING DETAILS WILL BE SPECIFIED IN THE CONTRACT DOCUMENTS OR AS SPECIFIED BY THE ENGINEER.



SHEET INDEX	
ITEM	SHEET NUMBER
TYPE L	10
TYPE S	18
TYPE J1	13
TYPE J2	14
DETAIL 1	2, 3, 4
DETAIL 2	5, 8
DETAIL 3A & 3B	6, 8, 9, 11
DETAIL 4A & 4B	7, 8, 9, 11

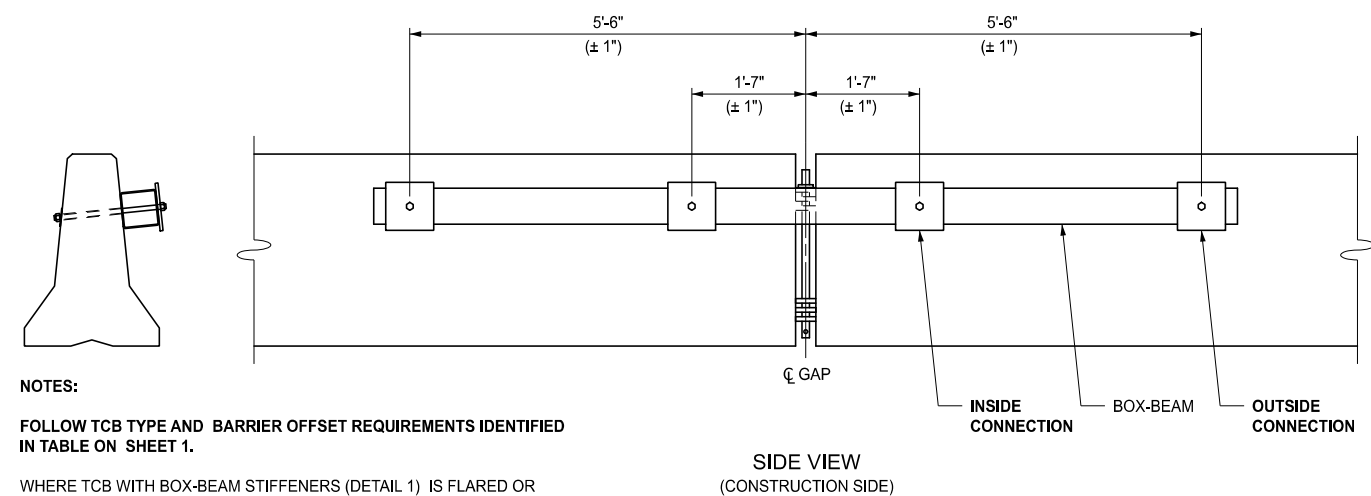
* USE TYPE J1 AND J2 TCB SECTIONS OVER BRIDGE DECK EXPANSION JOINTS WITH THERMAL EXPANSION FROM 1 1/2" TO 4". DO NOT USE DETAILS 3A, 3B, OR 4A, OVER BRIDGE DECK EXPANSION JOINTS WITH THERMAL EXPANSION GREATER THAN 4". INSTEAD, USE DETAIL 1 AND TYPE L TCB SECTIONS (WITH "A" NOW BEING ≥ 12") OVER THE ENTIRE BRIDGE SPAN WHEN PLACING LIMITED DEFLECTION TCB SECTIONS OVER BRIDGE DECK EXPANSION JOINTS WITH THERMAL EXPANSION GREATER THAN 4". REFER TO TCB SECTION OVER BRIDGE EXPANSION JOINT DETAILS. FOR ADDITIONAL INFORMATION CONTACT THE TRAFFIC AND SAFETY CRASH BARRIER ENGINEER.

** PROVIDE THE ANCHORING DETAIL SPECIFIED ON THE PLANS OR AS SPECIFIED BY THE ENGINEER.

*** USE OF LIMITED DEFLECTION TCB IS NOT REQUIRED WHEN "A" ≥ 26". TYPE L OR TYPE S TCB MAY BE USED WITHOUT ANCHORING TO THE UNDERLYING SURFACE OR BOX-BEAM STIFFENERS. OTHER MDOT APPROVED STANDARD TEMPORARY BARRIER TYPES MAY ALSO BE USED WHEN "A" ≥ 26"

**** DO NOT INSTALL LIMITED DEFLECTION TCB ON HMA ROADWAYS WHEN "A" < 6".

BOX BEAM STIFFENED METHOD DETAIL 1



NOTES:

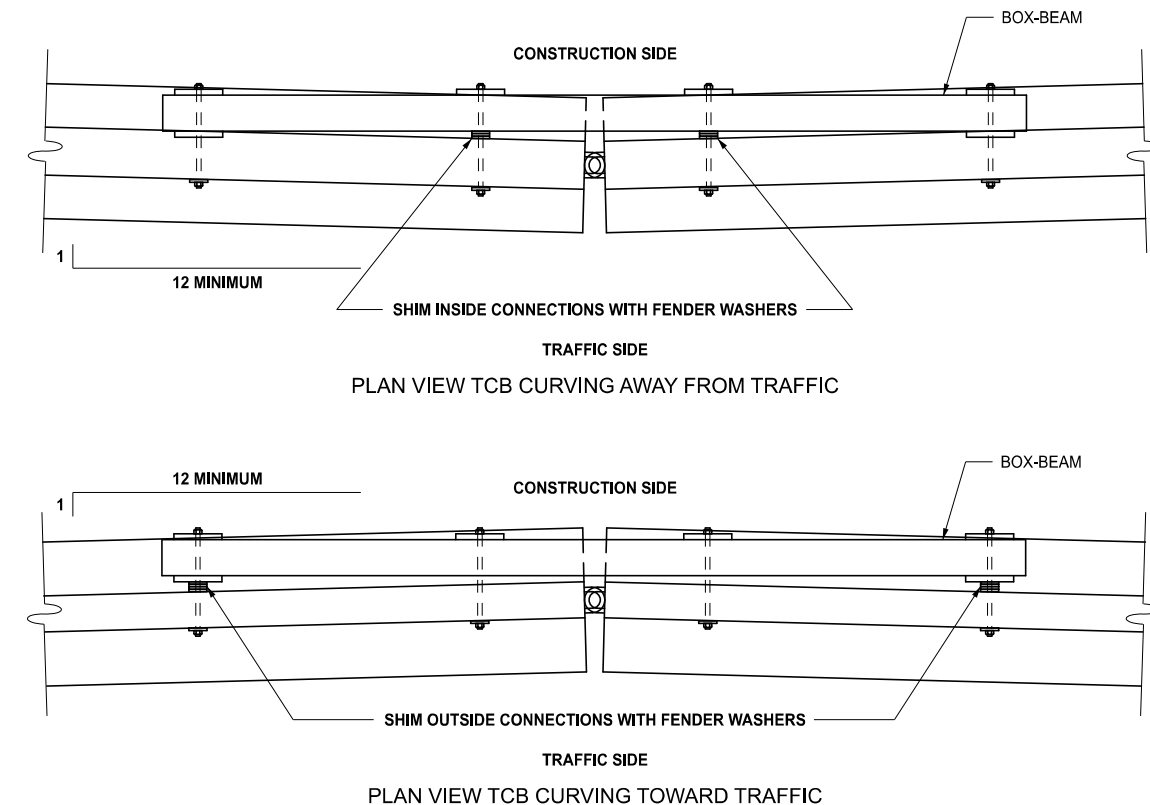
FOLLOW TCB TYPE AND BARRIER OFFSET REQUIREMENTS IDENTIFIED IN TABLE ON SHEET 1.

WHERE TCB WITH BOX-BEAM STIFFENERS (DETAIL 1) IS FLARED OR PLACED ON A RADIUS, THE RESULTING GAPS BETWEEN THE BOX-BEAM AND TCB MUST BE SHIMMED.

SHIMMING MUST CONSIST OF 8" x 8" x 1/2" SQUARE PLATE AND FENDER WASHERS, AS NEEDED TO SNUG THE BOX-BEAM STIFFENER TO THE TCB.

FENDER WASHERS MUST BE 3" NOMINAL O.D.

INSTALL CONNECTION PINS BETWEEN TCB SECTIONS IN ADDITION TO BOX-BEAM STIFFENERS.



APPROVED BY: _____
DIRECTOR, BUREAU OF FIELD SERVICES



STANDARD PLAN FOR
TEMPORARY CONCRETE BARRIER LIMITED DEFLECTION

APPROVED BY: _____
DIRECTOR, BUREAU OF DEVELOPMENT

DEPARTMENT DIRECTOR
BRADLEY C. WIEFERICH, PE

(SPECIAL DETAIL)
FHWA APPROVAL

08/14/2015
PLAN DATE

R-53-A

SHEET
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STANDARD PLAN FOR
TEMPORARY CONCRETE BARRIER LIMITED DEFLECTION

DEPARTMENT DIRECTOR
BRADLEY C. WIEFERICH, PE

(SPECIAL DETAIL)
FHWA APPROVAL

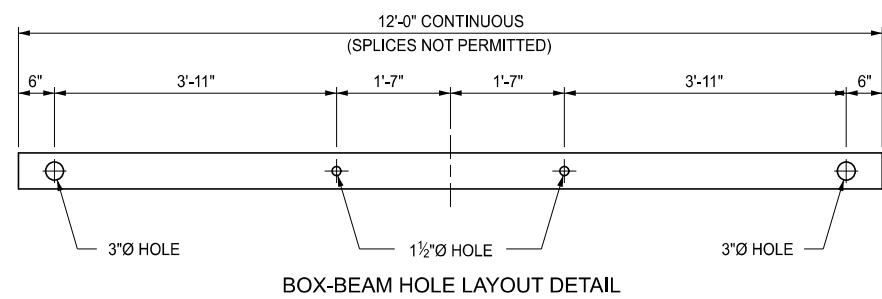
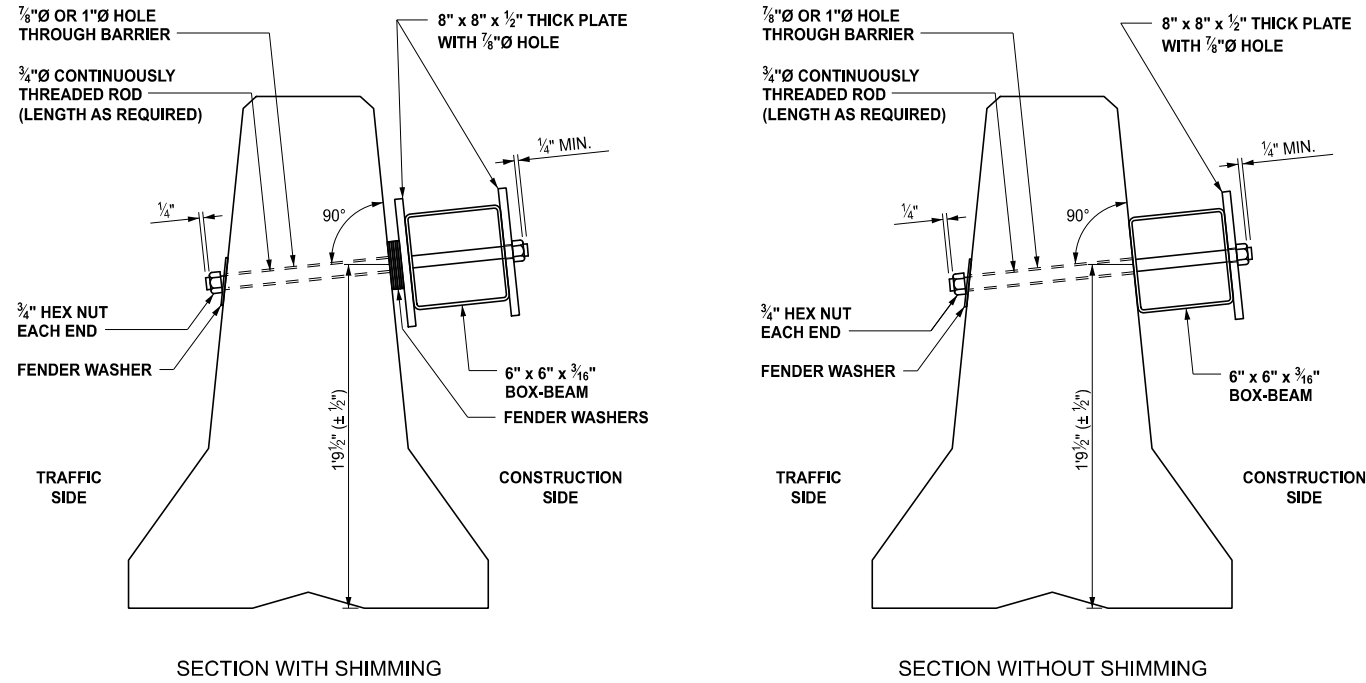
08/14/2015
PLAN DATE

R-53-A

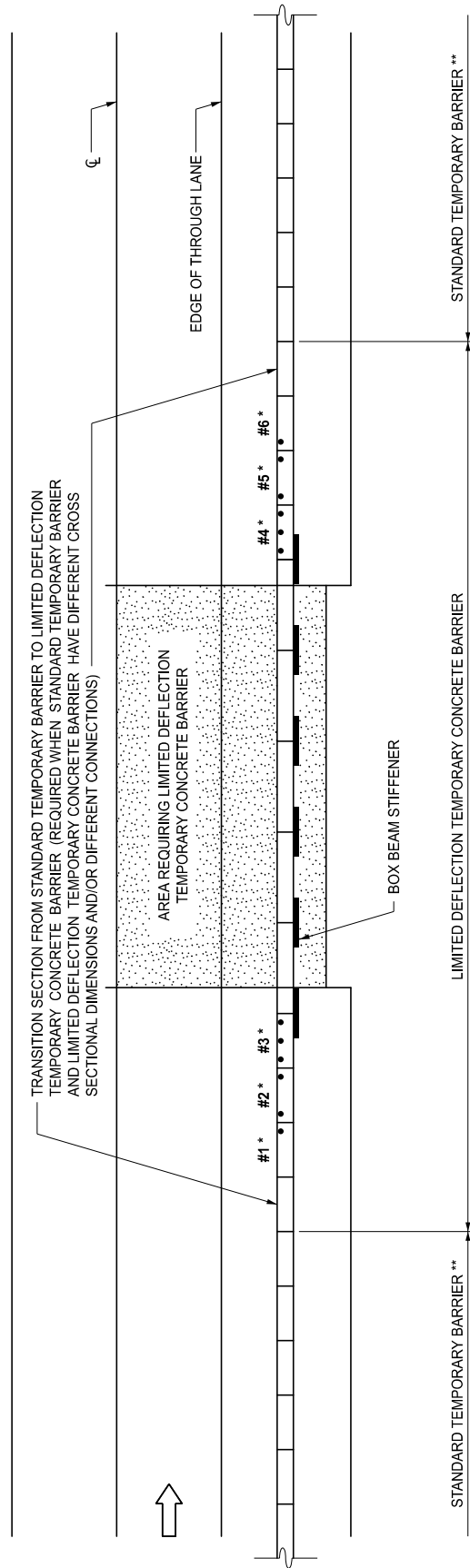
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BOX BEAM STIFFENED METHOD DETAIL 1



TRANSITION FROM LIMITED DEFLECTION TEMPORARY CONCRETE BARRIER TO STANDARD TEMPORARY BARRIER WHEN USING DETAIL 1



* INSTALL THE FOLLOWING NUMBER OF ANCHORS OR STAKES EVENLY SPACED (ON THE TRAFFIC SIDE OF THE BARRIER) ON THE FOLLOWING TEMPORARY CONCRETE BARRIER SECTIONS:

	#1	#2	#3	#4	#5	#6
TYPE L OR TYPE S	1	2	3	3	2	1

** STANDARD TEMPORARY BARRIER CONSISTS OF ANY TEMPORARY BARRIER MEETING MDOT SPECIFICATIONS.

NOTES:

TCB SECTIONS #3 AND #4 MUST BE LOCATED OUTSIDE THE AREA REQUIRING LIMITED DEFLECTION TEMPORARY CONCRETE BARRIER.

ANY DEVIATIONS FROM THIS DETAIL REQUIRE APPROVAL FROM THE ENGINEER PRIOR TO INSTALLATION.

INSTALL BOX-BEAM STIFFENERS BETWEEN TCB SECTIONS AS DEPICTED IN THIS DETAIL.

USE EITHER TYPE L OR TYPE S TCB FOR SECTIONS #1, #2, #3, #4, #5, AND #6. ALL OTHER LIMITED DEFLECTION TCB SECTIONS, EXCLUDING TRANSITION SECTIONS, MUST CONSIST OF TYPE L TCB WHEN USING DETAIL 1.

	STANDARD PLAN FOR			SHEET
	TEMPORARY CONCRETE BARRIER LIMITED DEFLECTION			
DEPARTMENT DIRECTOR BRADLEY C. WIEFERICH, PE	(SPECIAL DETAIL) FHWA APPROVAL	08/14/2015 PLAN DATE	R-53-A	

	STANDARD PLAN FOR			SHEET
	TEMPORARY CONCRETE BARRIER LIMITED DEFLECTION			
DEPARTMENT DIRECTOR BRADLEY C. WIEFERICH, PE	(SPECIAL DETAIL) FHWA APPROVAL	08/14/2015 PLAN DATE	R-53-A	

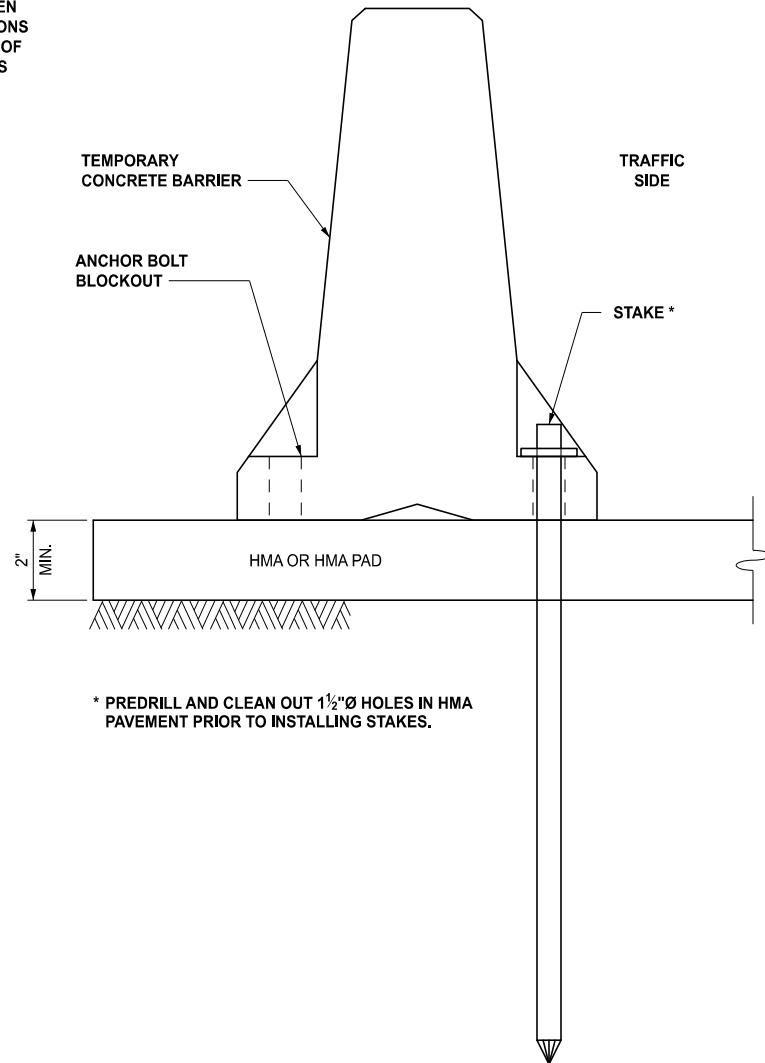
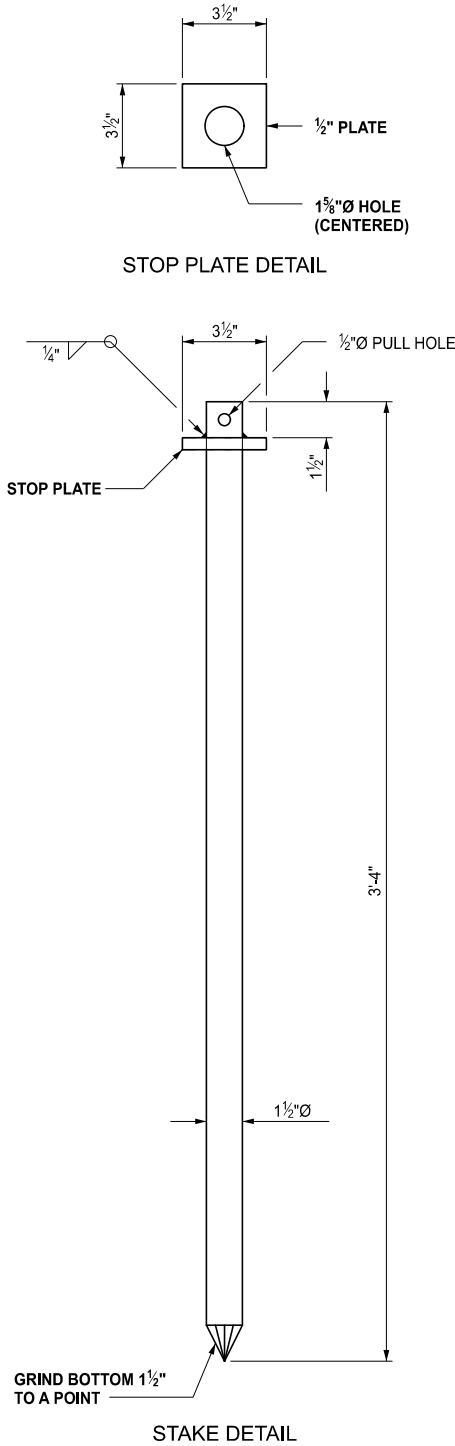
STAKED METHOD DETAIL 2

NOTES:

FOLLOW TCB TYPE AND BARRIER OFFSET REQUIREMENTS IDENTIFIED IN TABLE ON SHEET 1.

INSTALL CONNECTION PINS BETWEEN TCB SECTIONS IN ADDITION TO STAKES.

A MAXIMUM OF TWO STAKES IN A SINGLE TCB SECTION MAY BE OMITTED WHEN NECESSARY TO AVOID IMPACTING UNDERGROUND UTILITIES OR OBSTRUCTIONS WITHIN STAKE DEPTH. HOWEVER, ADJACENT TCB SECTIONS ON BOTH ENDS OF THE PARTIALLY STAKED TCB SECTION MUST BE FULLY STAKED WITH STAKES IN ALL ANCHOR BOLT BLOCKOUTS ON THE TRAFFIC SIDE OF THE BARRIER.



THROUGH BOLT METHOD DETAILS 3A AND 3B

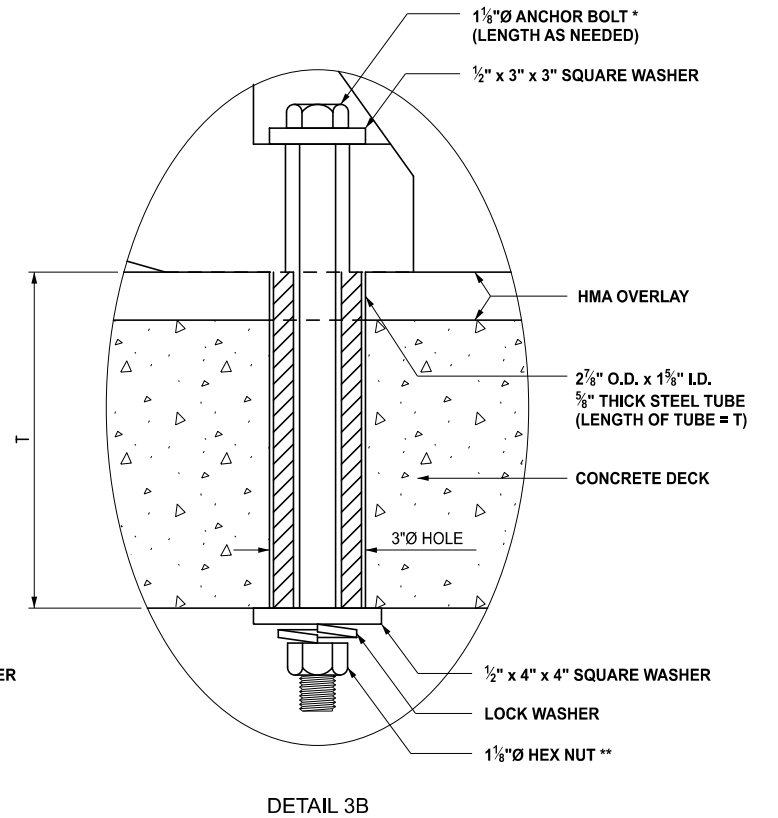
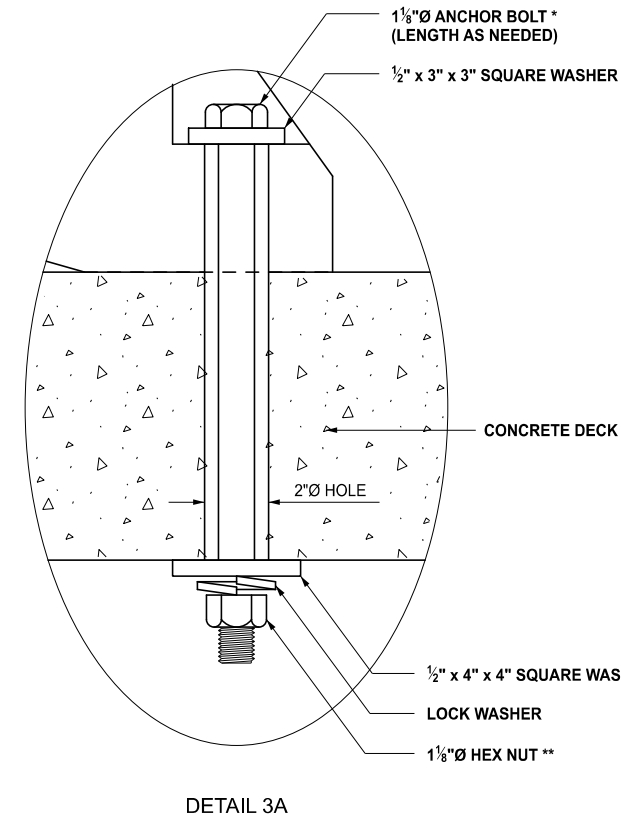
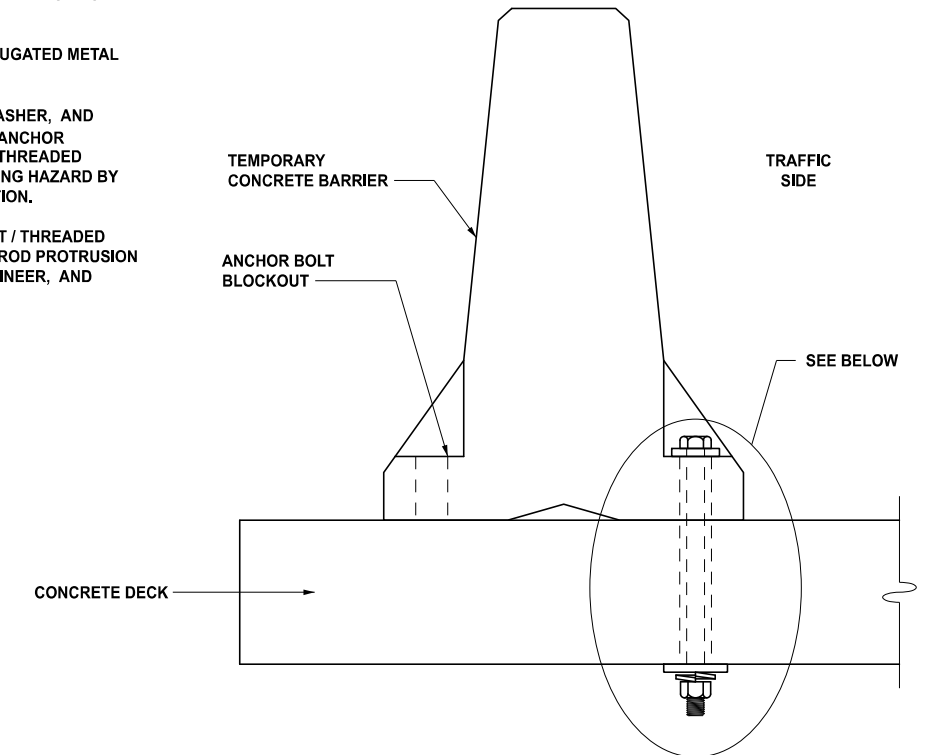
NOTES:

FOLLOW TCB TYPE AND BARRIER OFFSET REQUIREMENTS IDENTIFIED IN TABLE ON SHEET 1.

INSTALL CONNECTION PINS BETWEEN TCB SECTIONS IN ADDITION TO ANCHOR BOLTS / THREADED RODS.

DETAILS 3A AND 3B SHOULD NOT BE USED WHEN CORRUGATED METAL BRIDGE DECKING IS PRESENT.

- * 1 1/8" DIAMETER THREADED ROD WITH HEX NUT, LOCK WASHER, AND 1/2" x 3" x 3" SQUARE WASHER MAY BE USED IN LIEU OF ANCHOR BOLT. HEX NUT MUST BE FULLY ENGAGED WITH THE THREADED ROD, BUT THREADED ROD MUST NOT CREATE A SNAGGING HAZARD BY PROTRUDING ABOVE THE SLOPED TOE OF THE TCB SECTION.
- ** HEX NUT MUST BE FULLY ENGAGED WITH ANCHOR BOLT / THREADED ROD. MAXIMUM ALLOWABLE ANCHOR BOLT/THREADED ROD PROTRUSION BELOW THE HEX NUT WILL BE AS SPECIFIED BY THE ENGINEER, AND MAY VARY BY LOCATION.



	STANDARD PLAN FOR			R-53-A	SHEET 5 OF 22
	TEMPORARY CONCRETE BARRIER LIMITED DEFLECTION				
DEPARTMENT DIRECTOR BRADLEY C. WIEFERICH, PE	(SPECIAL DETAIL) FHWA APPROVAL	08/14/2015 PLAN DATE			

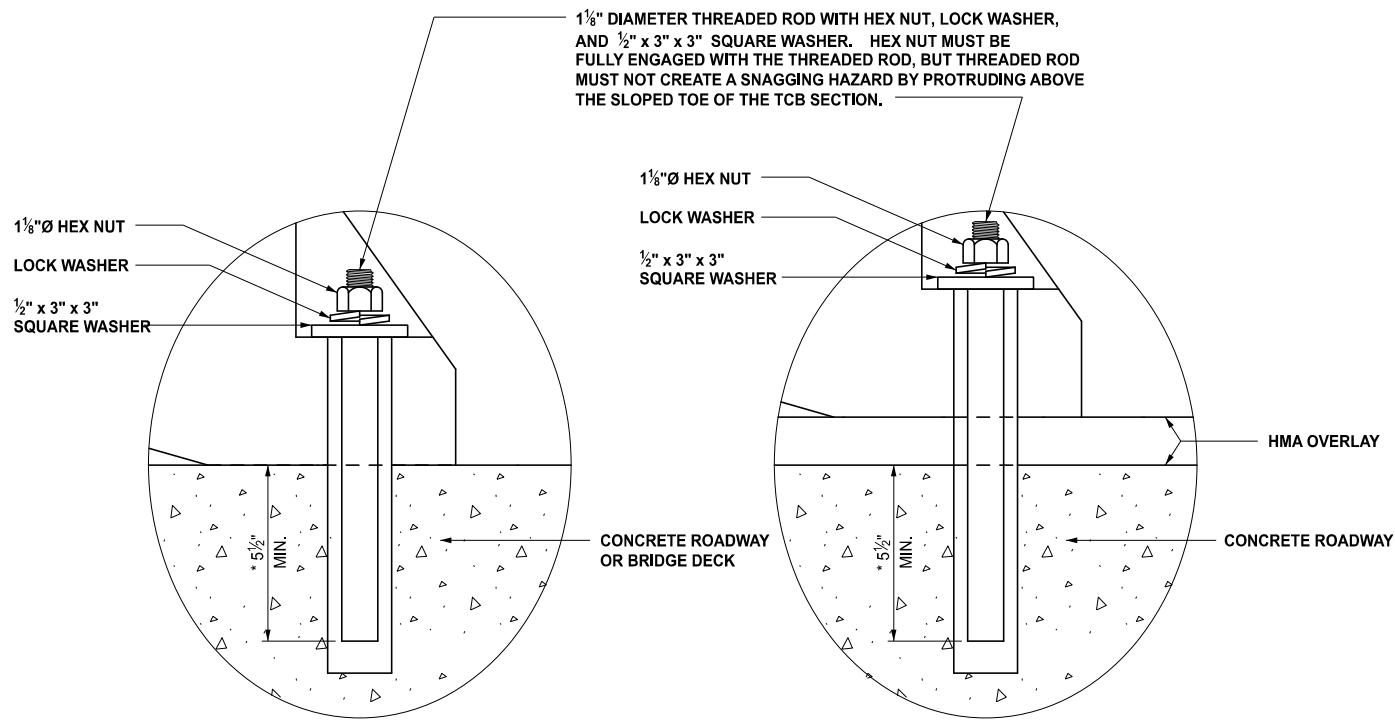
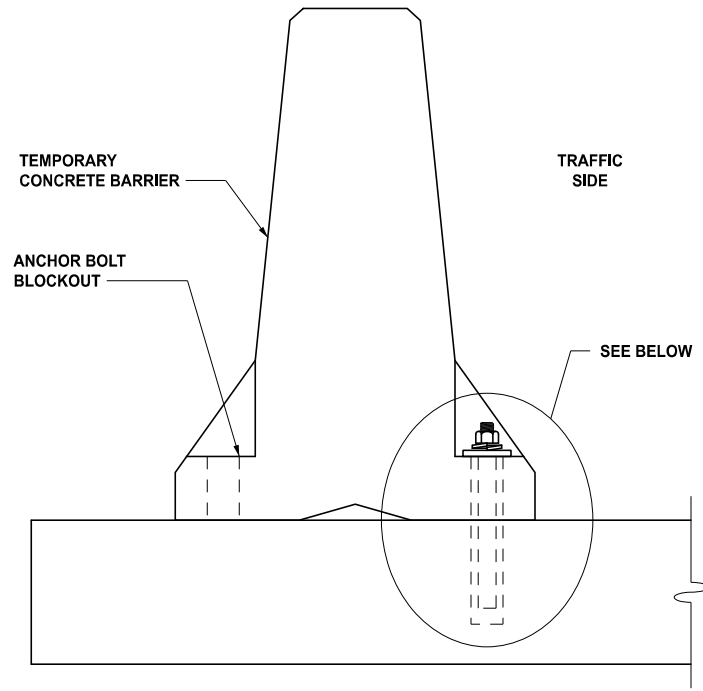
	STANDARD PLAN FOR			R-53-A	SHEET 6 OF 22
	TEMPORARY CONCRETE BARRIER LIMITED DEFLECTION				
DEPARTMENT DIRECTOR BRADLEY C. WIEFERICH, PE	(SPECIAL DETAIL) FHWA APPROVAL	08/14/2015 PLAN DATE			

DRILLED AND GROUTED METHOD DETAILS 4A AND 4B

NOTES:

FOLLOW TCB TYPE AND BARRIER OFFSET REQUIREMENTS IDENTIFIED IN TABLE ON SHEET 1.

INSTALL CONNECTION PINS BETWEEN TCB SECTIONS IN ADDITION TO THREADED RODS.



* EMBEDMENT DEPTH, ALONG WITH DIAMETER AND DEPTH OF HOLE PER (ADHESIVE) MANUFACTURER'S SPECIFICATIONS

DETAIL 4A

CONCRETE ROADWAY OR CONCRETE BRIDGE DECK

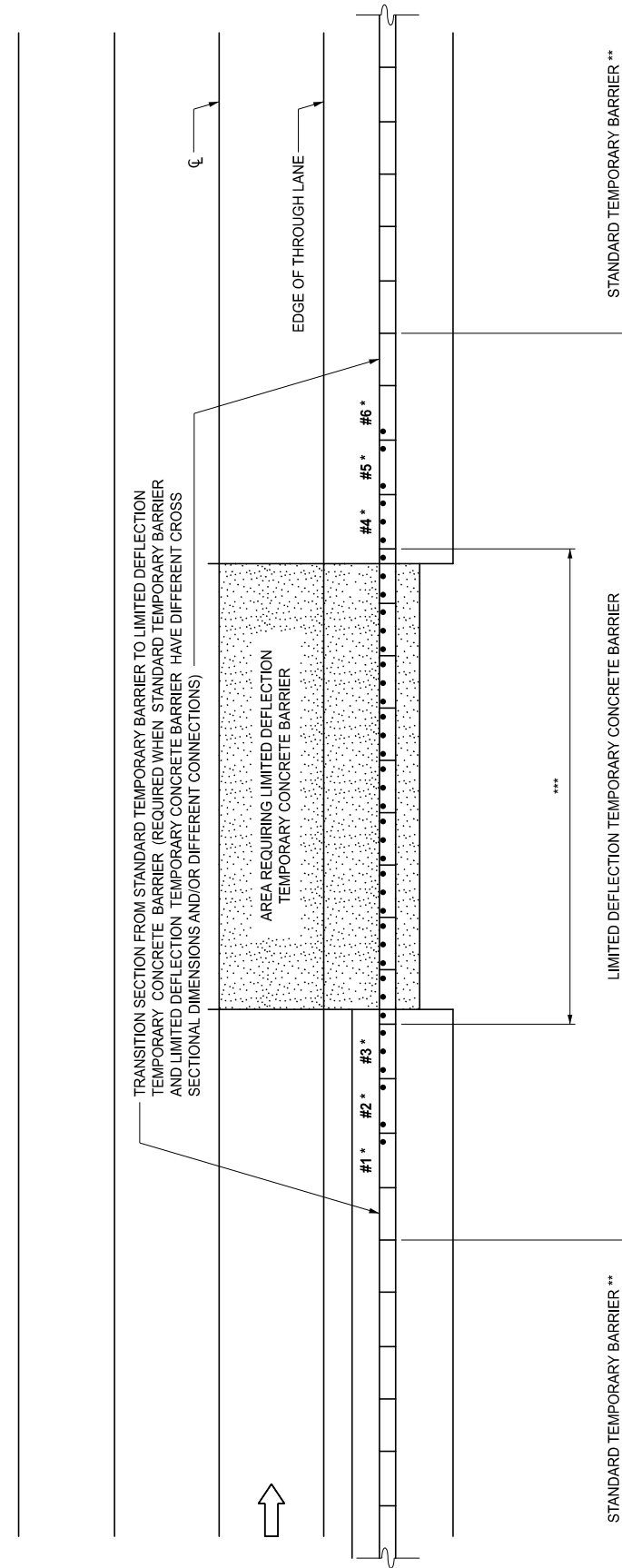
(DO NOT USE THIS DETAIL ON CONCRETE BRIDGE DECKS WITH HMA OVERLAY)

DETAIL 4B

CONCRETE ROADWAY WITH HMA OVERLAY

(DO NOT USE THIS DETAIL ON CONCRETE BRIDGE DECKS WITH HMA OVERLAY)

TRANSITION FROM LIMITED DEFLECTION TEMPORARY CONCRETE BARRIER TO STANDARD TEMPORARY BARRIER WHEN USING DETAIL 2, 3A, 3B, 4A, OR 4B



STANDARD TEMPORARY BARRIER **

LIMITED DEFLECTION TEMPORARY CONCRETE BARRIER ***

STANDARD TEMPORARY BARRIER **

NOTES:

TCB SECTIONS #3 AND #4 MUST BE LOCATED OUTSIDE THE AREA REQUIRING LIMITED DEFLECTION TEMPORARY CONCRETE BARRIER.

ALL LIMITED DEFLECTION TCB SECTIONS, EXCLUDING TRANSITION SECTIONS AND SECTIONS OVER EXPANSION JOINTS WITH THERMAL EXPANSION 1 1/2" OR GREATER, MAY BE TYPE L OR TYPE S. INTERMIXING TYPE L AND TYPE S TCB SECTIONS WILL BE PERMITTED.

ANY DEVIATIONS FROM THIS LAYOUT REQUIRE APPROVAL FROM THE ENGINEER PRIOR TO INSTALLATION.

* INSTALL TYPE L OR TYPE S TEMPORARY CONCRETE BARRIER WITH THE FOLLOWING NUMBER OF ANCHORS OR STAKES (EVENLY SPACED ON THE TRAFFIC SIDE OF THE BARRIER) ON THE FOLLOWING SECTIONS:

	#1	#2	#3	#4	#5	#6
TYPE L OR TYPE S	1	2	3	3	2	1

** STANDARD TEMPORARY BARRIER CONSISTS OF ANY TEMPORARY BARRIER MEETING MDOT SPECIFICATIONS.

*** INSTALL STAKES, ANCHOR BOLTS, OR RODS IN ALL ANCHOR BOLT BLOCKOUTS ON THE TRAFFIC SIDE OF THE BARRIER EXCEPT AS NOTED IN STAKED METHOD DETAIL 2 (SHEET 5 OF 22) AND THE BRIDGE DECK EXPANSION JOINT DETAILS (SHEET 9 AND 11 OF 22).



DEPARTMENT DIRECTOR
BRADLEY C. WIEFERICH, PE

STANDARD PLAN FOR
TEMPORARY CONCRETE BARRIER LIMITED DEFLECTION

(SPECIAL DETAIL)
FHWA APPROVAL

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DEPARTMENT DIRECTOR
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STANDARD PLAN FOR
TEMPORARY CONCRETE BARRIER LIMITED DEFLECTION

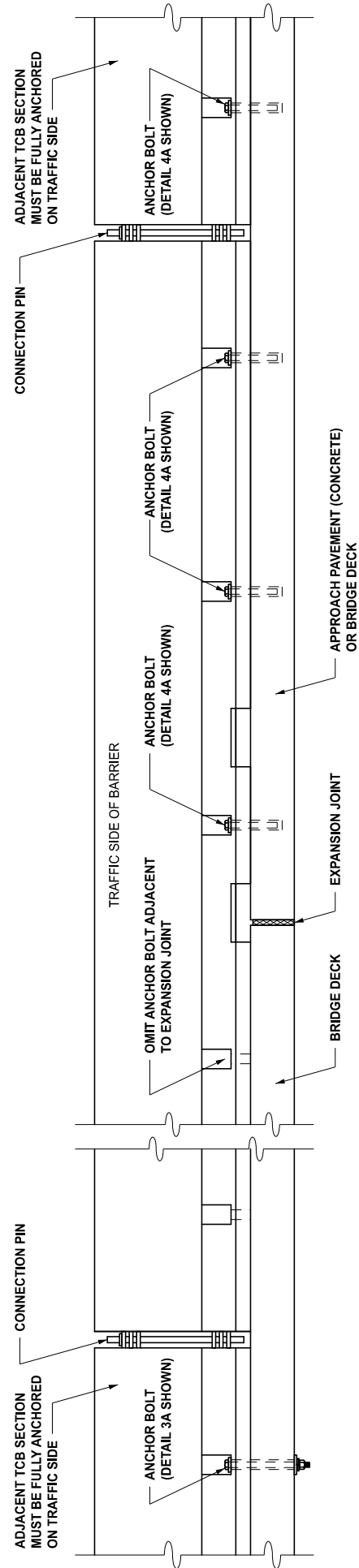
(SPECIAL DETAIL)
FHWA APPROVAL

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PLAN DATE

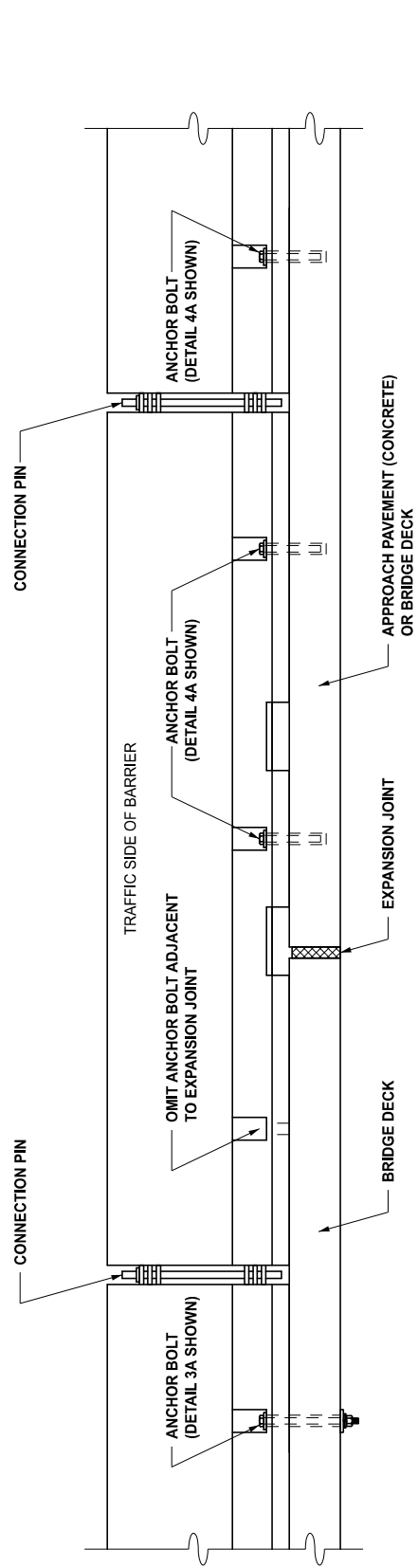
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SECT



ELEVATION VIEW
TYPE L TCB PLACED OVER BRIDGE EXPANSION JOINT WITH THERMAL EXPANSION LESS THAN 1 1/2"



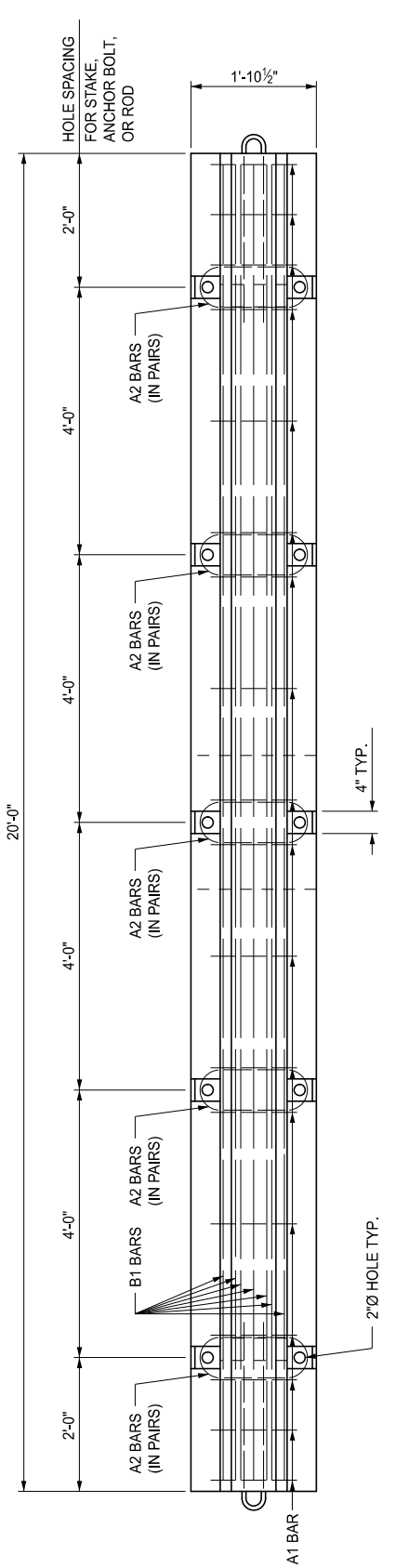
ELEVATION VIEW
TYPE S TCB PLACED OVER BRIDGE EXPANSION JOINT WITH THERMAL EXPANSION LESS THAN 1 1/2"

TCB SECTION OVER BRIDGE DECK EXPANSION JOINT WITH THERMAL EXPANSION LESS THAN 1 1/2" WHEN USING DETAIL 3A, 3B, OR 4A

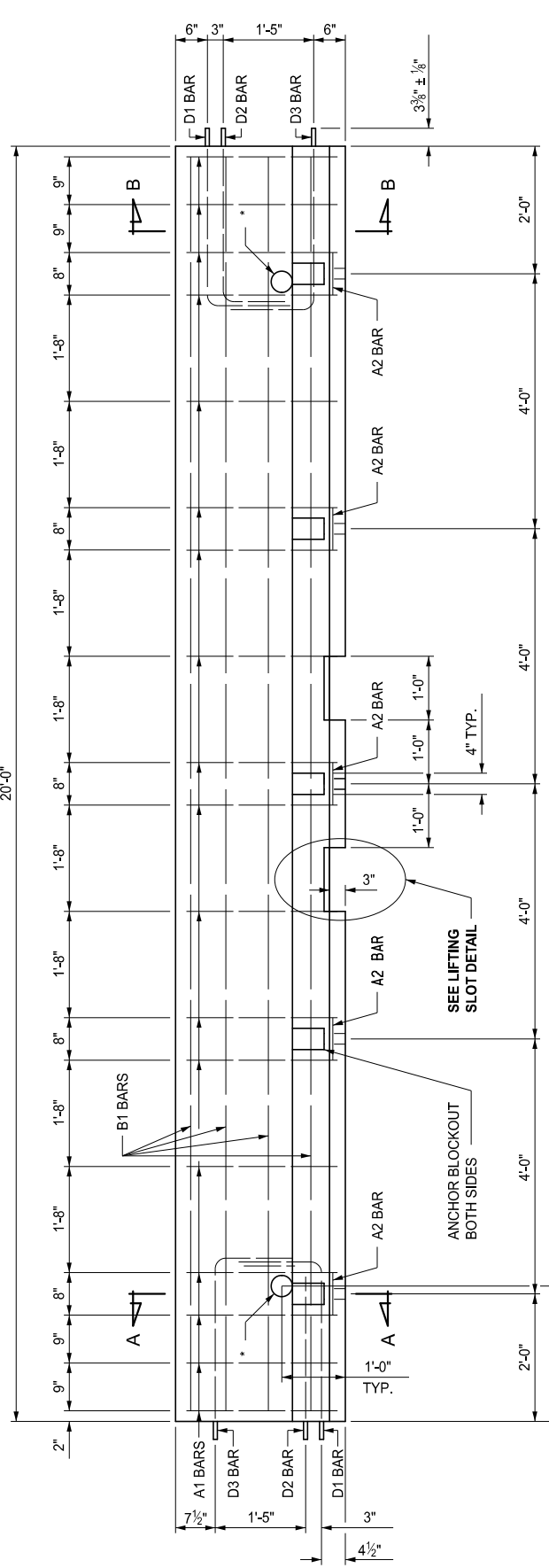
MDOT
Michigan Department of Transportation

DEPARTMENT DIRECTOR
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STANDARD PLAN FOR TEMPORARY CONCRETE BARRIER LIMITED DEFLECTION			
(SPECIAL DETAIL)	08/14/2015	R-53-A	SHEET 9 OF 22
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PLAN VIEW
TEMPORARY CONCRETE BARRIER TYPE L



* 4"Ø LIFTING HOLE WITH 11 GAUGE STEEL ROUND MECHANICAL TUBING SLEEVE.
(LIFTING HOLES ARE OPTIONAL)

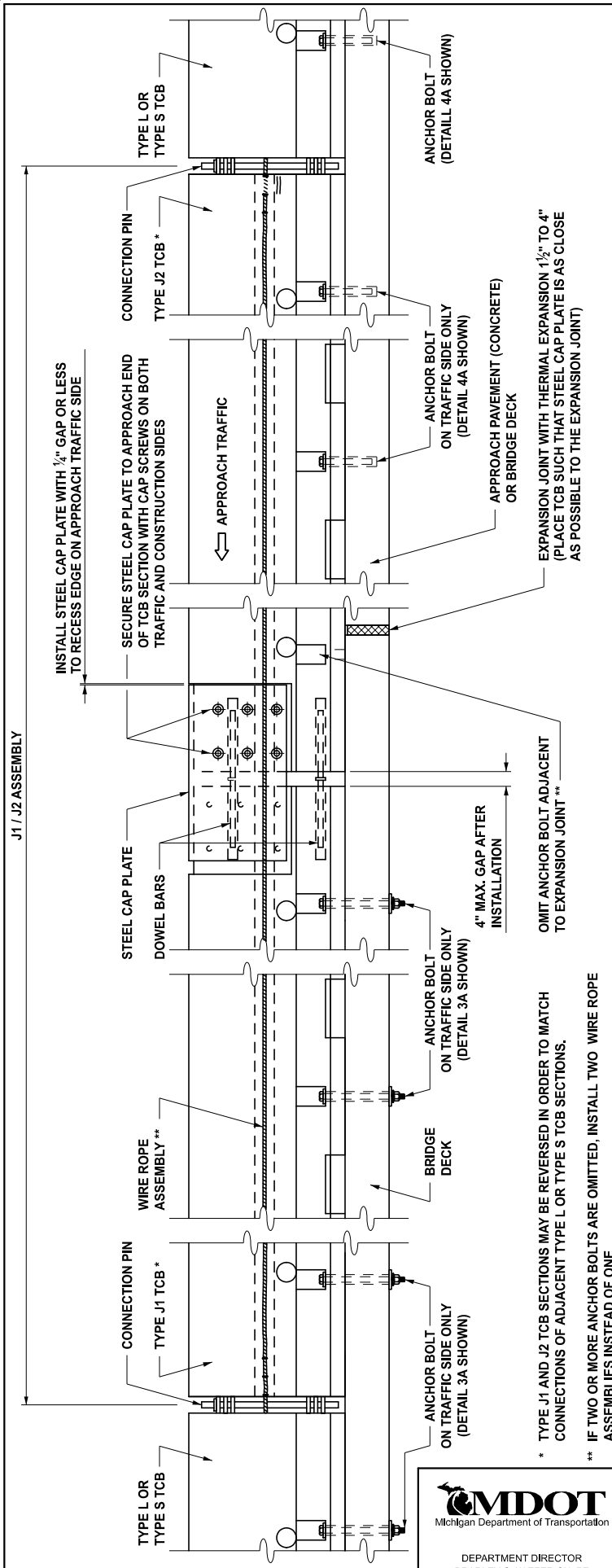
NOTE:
ADDITIONAL LIFTING SLOTS MAY BE INSTALLED AT THE CONTRACTOR'S OPTION PROVIDED THE ADDITIONAL SLOTS DO NOT INTERFERE WITH ANCHOR BLOCKOUTS OR STEEL REINFORCEMENT IN THE TEMPORARY CONCRETE BARRIER SECTION.

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STANDARD PLAN FOR TEMPORARY CONCRETE BARRIER LIMITED DEFLECTION			
(SPECIAL DETAIL)	08/14/2015	R-53-A	SHEET 10 OF 22
FHWA APPROVAL	PLAN DATE		

ELEVATION VIEW
TEMPORARY CONCRETE BARRIER TYPE L



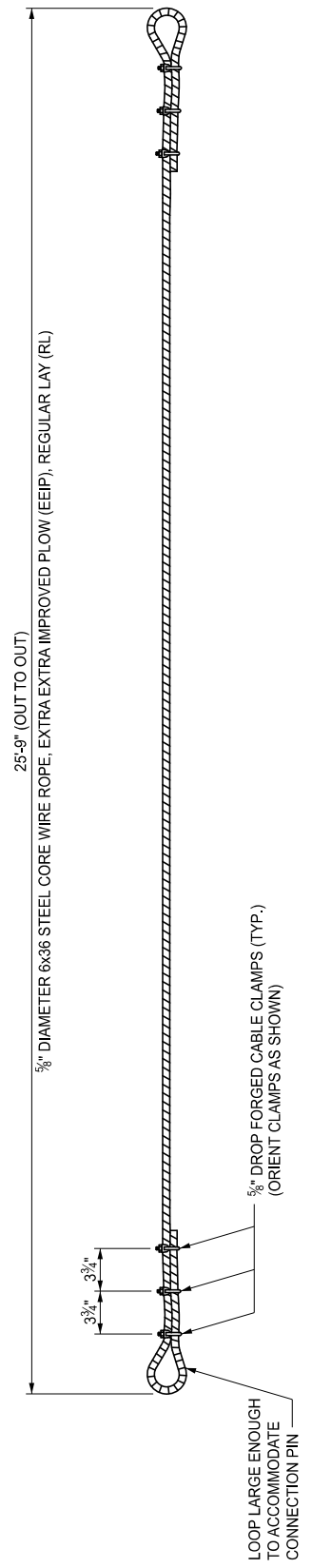
EXPANSION JOINT WITH THERMAL EXPANSION 1 1/2" TO 4" (PLACE TCB SUCH THAT STEEL CAP PLATE IS AS CLOSE AS POSSIBLE TO THE EXPANSION JOINT)

OMIT ANCHOR BOLT ADJACENT TO EXPANSION JOINT **

* TYPE J1 AND J2 TCB SECTIONS MAY BE REVERSED IN ORDER TO MATCH CONNECTIONS OF ADJACENT TYPE L OR TYPE S TCB SECTIONS.
 ** IF TWO OR MORE ANCHOR BOLTS ARE OMITTED, INSTALL TWO WIRE ROPE ASSEMBLIES INSTEAD OF ONE.

ELEVATION VIEW

TCB SECTION OVER BRIDGE DECK EXPANSION JOINT WITH THERMAL EXPANSION 1 1/2" TO 4" WHEN USING DETAIL 3A, 3B, OR 4A

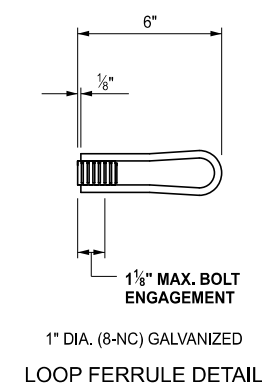


WIRE ROPE ASSEMBLY DETAIL

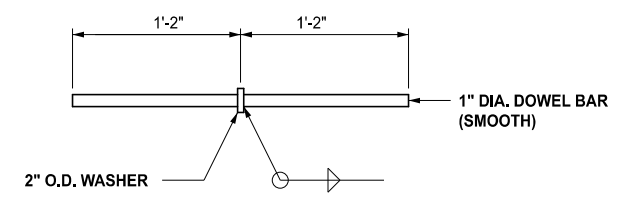


STANDARD PLAN FOR
 TEMPORARY CONCRETE BARRIER LIMITED DEFLECTION

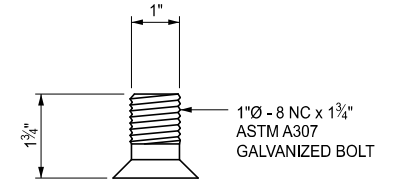
(SPECIAL DETAIL)	08/14/2015	R-53-A	SHEET 11 OF 22
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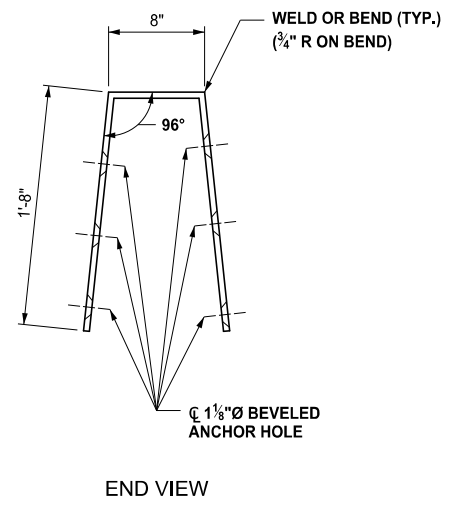
1" DIA. (8-NC) GALVANIZED LOOP FERRULE DETAIL



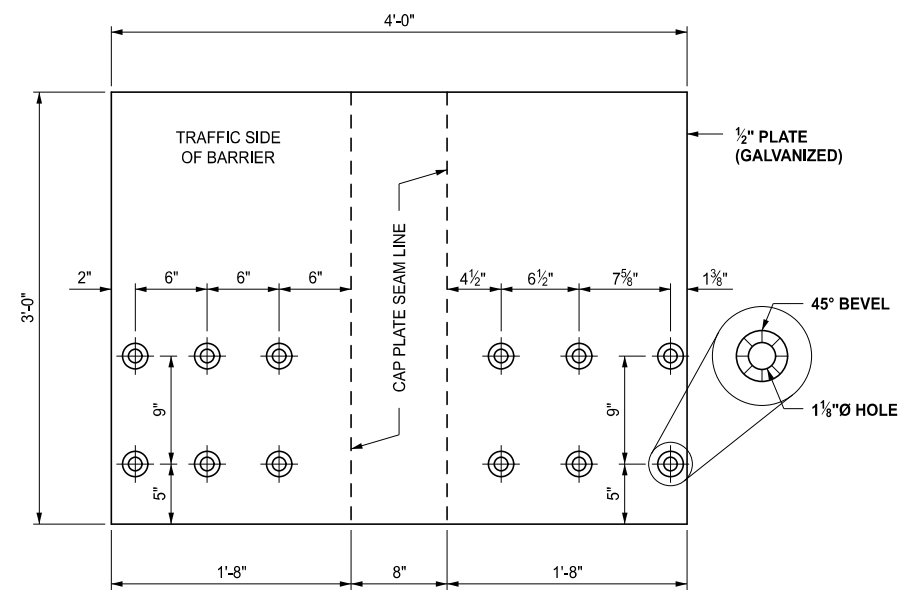
DOWEL BAR DETAIL



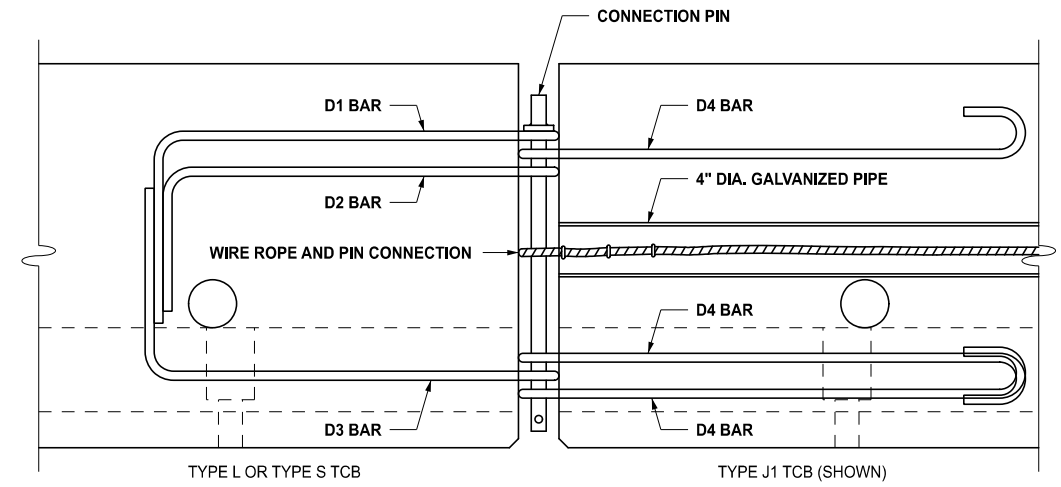
FLAT HEAD SOCKET CAP SCREW DETAIL



END VIEW



STEEL CAP PLATE DETAILS

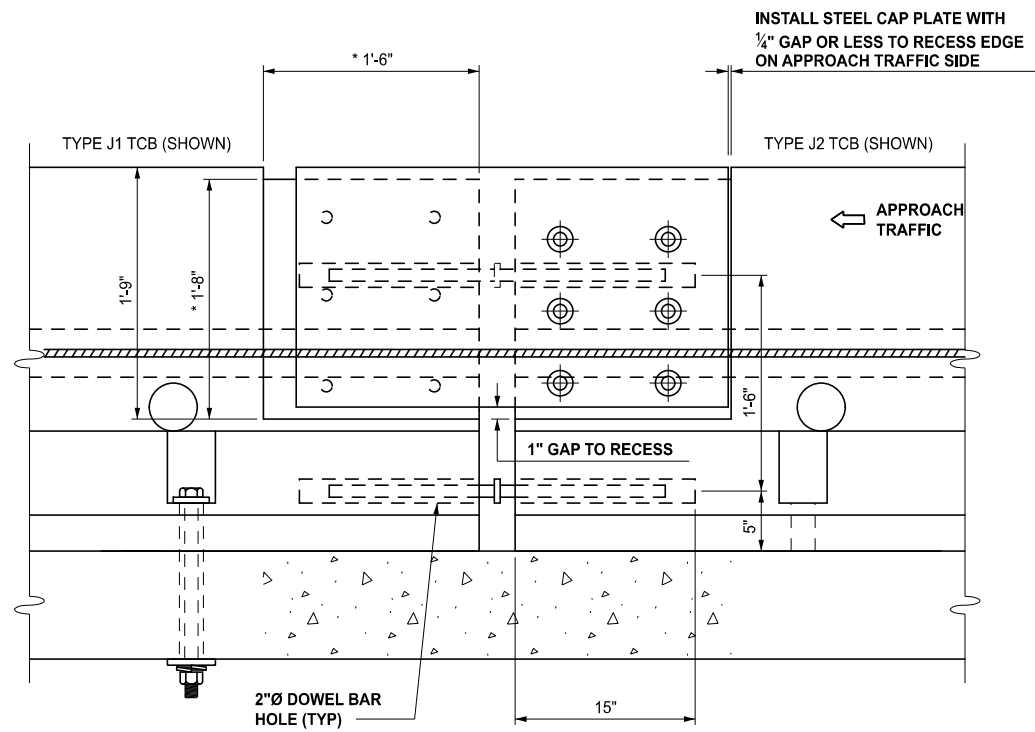


WIRE ROPE AND PIN CONNECTION DETAIL



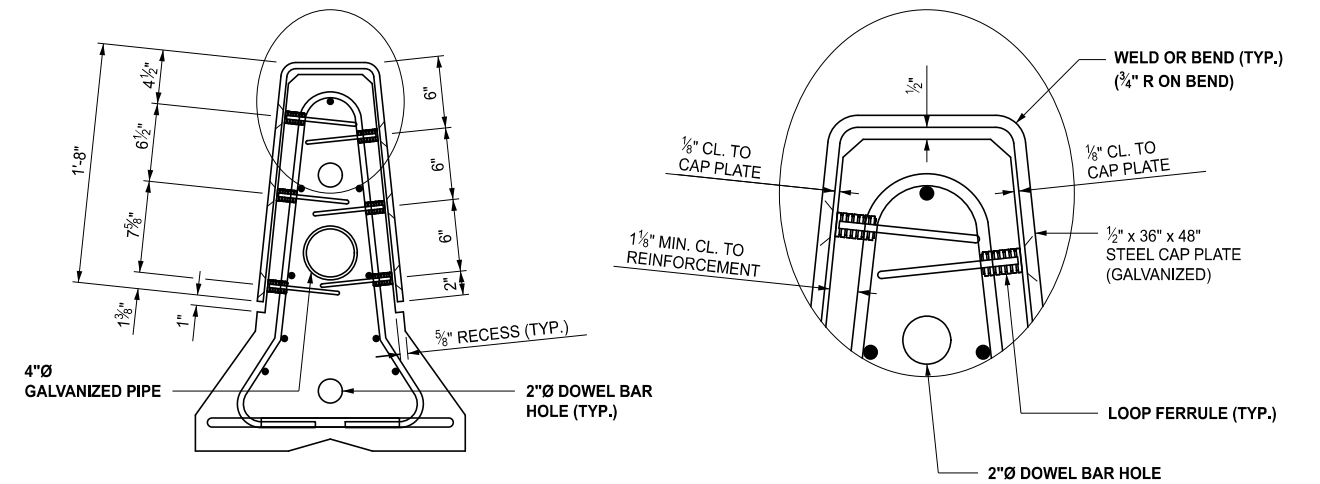
STANDARD PLAN FOR
 TEMPORARY CONCRETE BARRIER LIMITED DEFLECTION

(SPECIAL DETAIL)	08/14/2015	R-53-A	SHEET 12 OF 22
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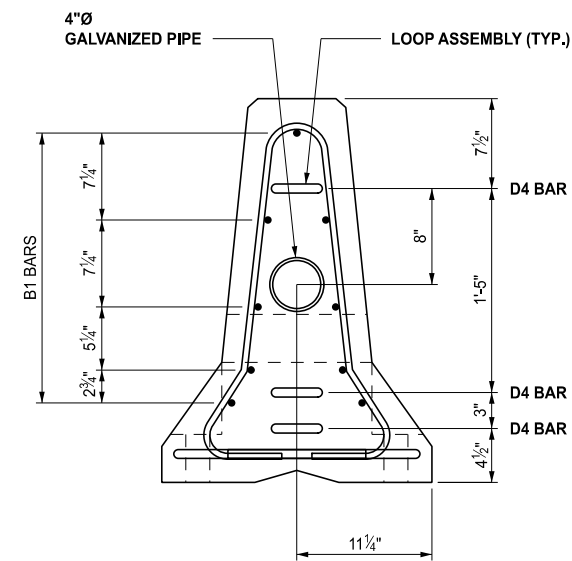


* 1'-6" x 1'-9" x 5/8" BARRIER RECESS TO ACCOMMODATE 1/2" STEEL CAP PLATE

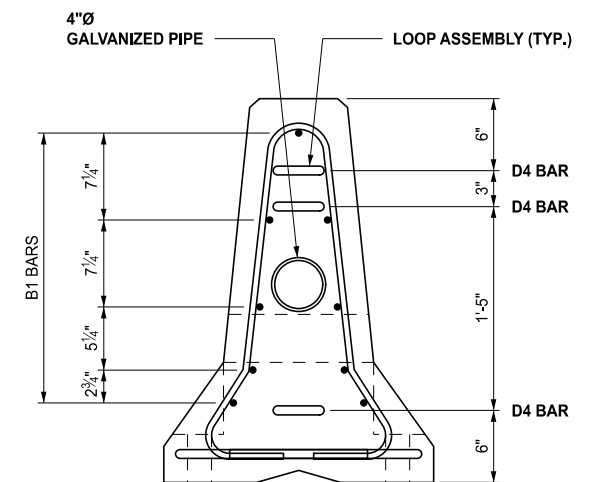
CAP PANEL RECESS DETAILS
TEMPORARY CONCRETE BARRIER TYPES J1 AND J2




SECTION C-C
TEMPORARY CONCRETE BARRIER TYPE J1 AND J2








SECTION D-D
TEMPORARY CONCRETE BARRIER TYPE J1 OR TYPE J2



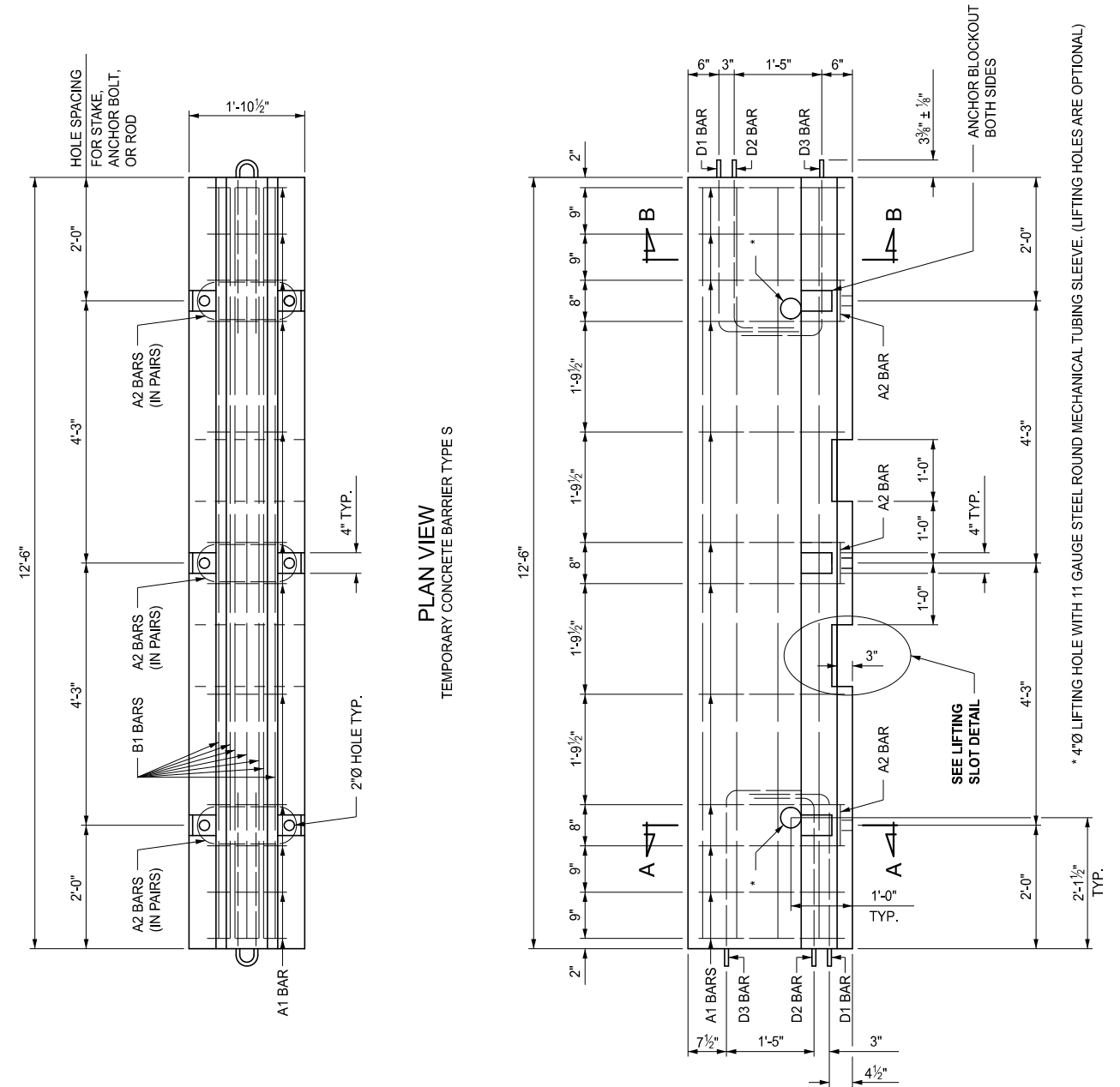
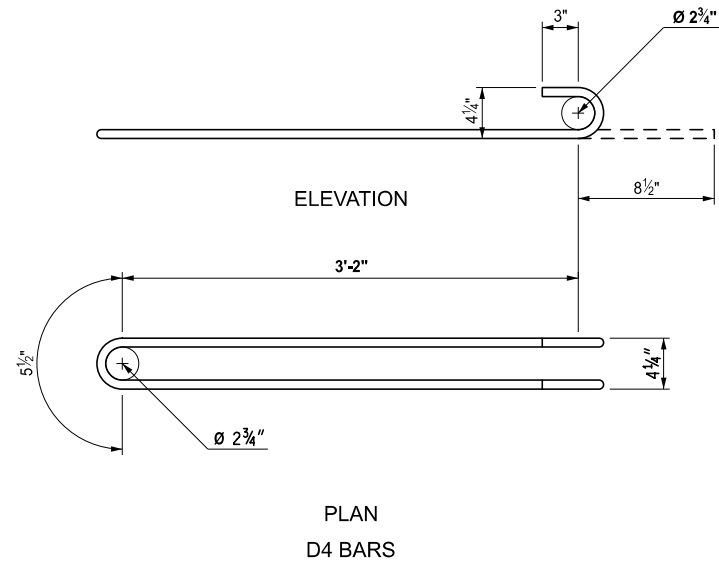
SECTION E-E
TEMPORARY CONCRETE BARRIER TYPE J1 OR TYPE J2


 Michigan Department of Transportation	STANDARD PLAN FOR			R-53-A	SHEET 15 OF 22
	TEMPORARY CONCRETE BARRIER LIMITED DEFLECTION				
DEPARTMENT DIRECTOR BRADLEY C. WIEFERICH, PE	(SPECIAL DETAIL) FHWA APPROVAL	08/14/2015 PLAN DATE			


 Michigan Department of Transportation	STANDARD PLAN FOR			R-53-A	SHEET 16 OF 22
	TEMPORARY CONCRETE BARRIER LIMITED DEFLECTION				
DEPARTMENT DIRECTOR BRADLEY C. WIEFERICH, PE	(SPECIAL DETAIL) FHWA APPROVAL	08/14/2015 PLAN DATE			

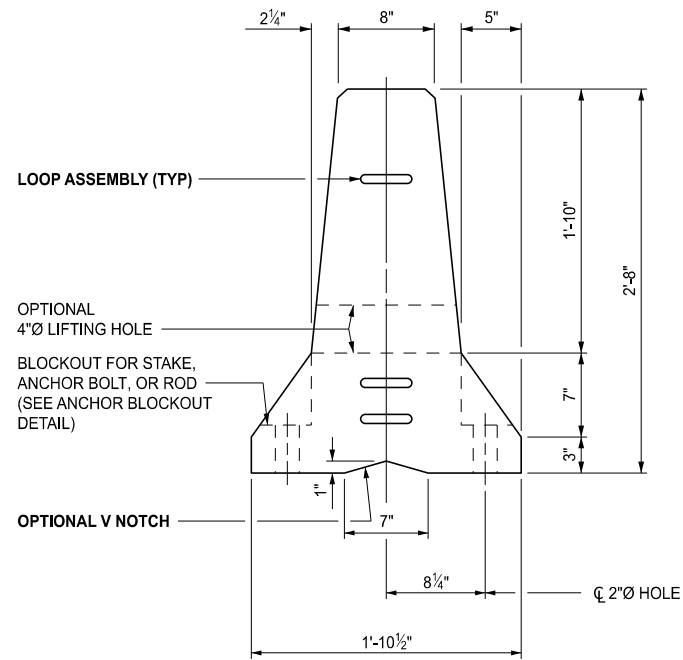
STEEL REINFORCEMENT FOR TEMPORARY CONCRETE BARRIER TYPES J1 & J2				
BAR	BAR SIZE	SHAPE	NUMBER OF BARS	LENGTH (PER BAR)
REINFORCING				
A1	#4		16	6'-0"
A2	#6		6	2'-11"
B1	#5		9	12'-2"
LOOP ASSEMBLY				
D4	#6		3	8'-2"

NOTE: NUMBER OF BARS SPECIFIED ARE PER TEMPORARY CONCRETE BARRIER SECTION.

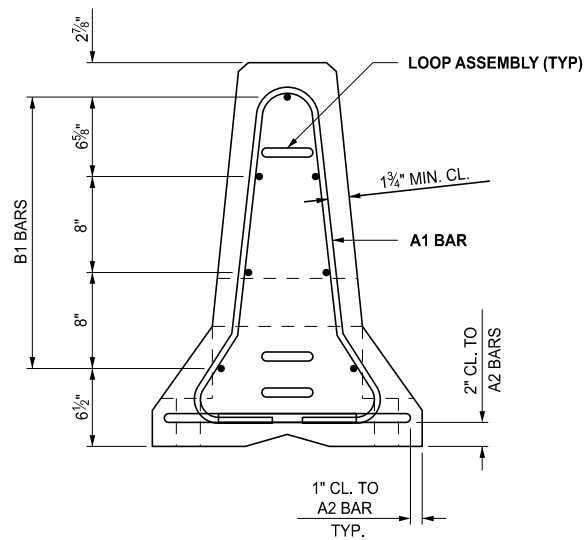


 Michigan Department of Transportation	STANDARD PLAN FOR TEMPORARY CONCRETE BARRIER LIMITED DEFLECTION		
	(SPECIAL DETAIL) FHWA APPROVAL	08/14/2015 PLAN DATE	R-53-A

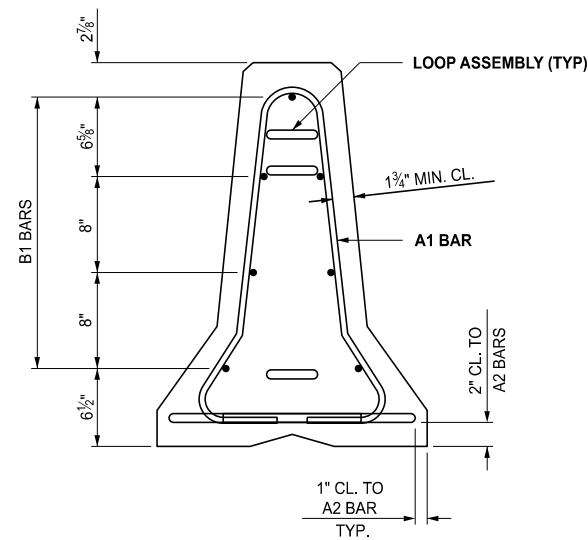
 Michigan Department of Transportation	STANDARD PLAN FOR TEMPORARY CONCRETE BARRIER LIMITED DEFLECTION		
	(SPECIAL DETAIL) FHWA APPROVAL	08/14/2015 PLAN DATE	R-53-A



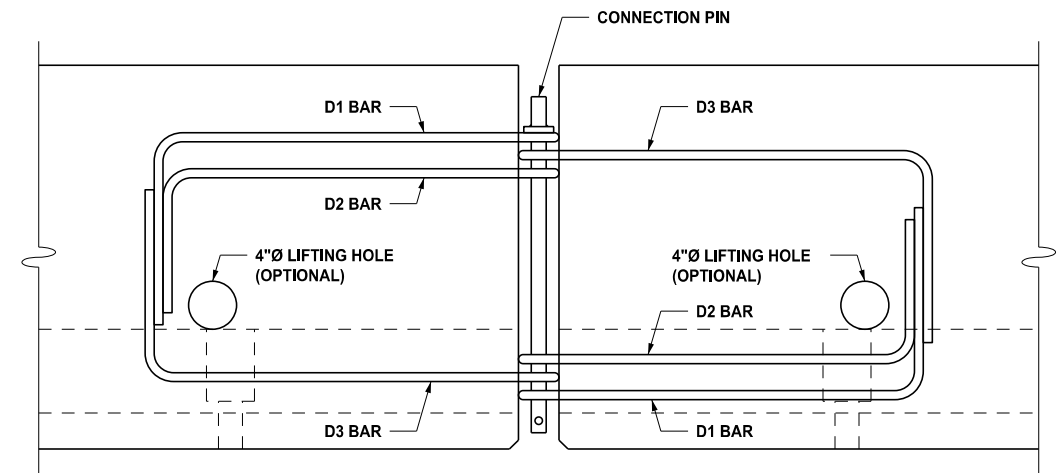
END VIEW
TEMPORARY CONCRETE BARRIER TYPE L OR TYPE S



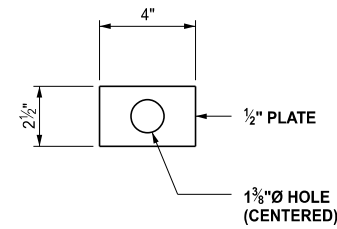
SECTION A-A
TEMPORARY CONCRETE BARRIER TYPE L OR TYPE S



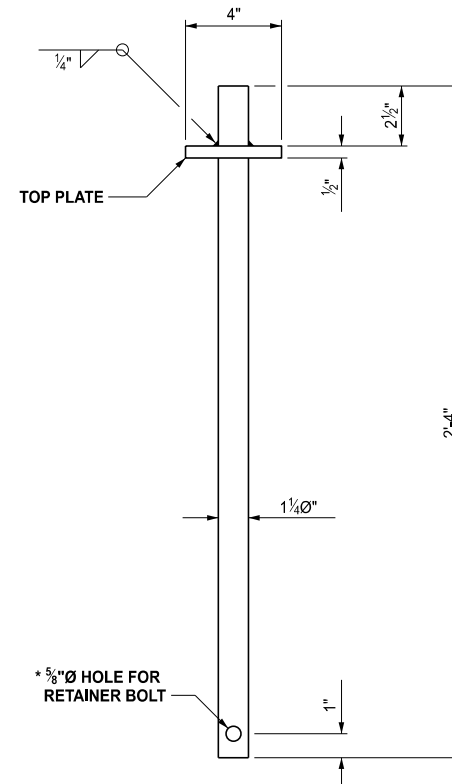
SECTION B-B
TEMPORARY CONCRETE BARRIER TYPE L OR TYPE S



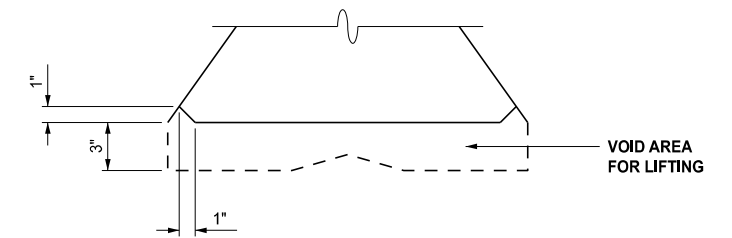
BARRIER CONNECTION DETAIL
TEMPORARY CONCRETE BARRIER TYPE L OR TYPE S



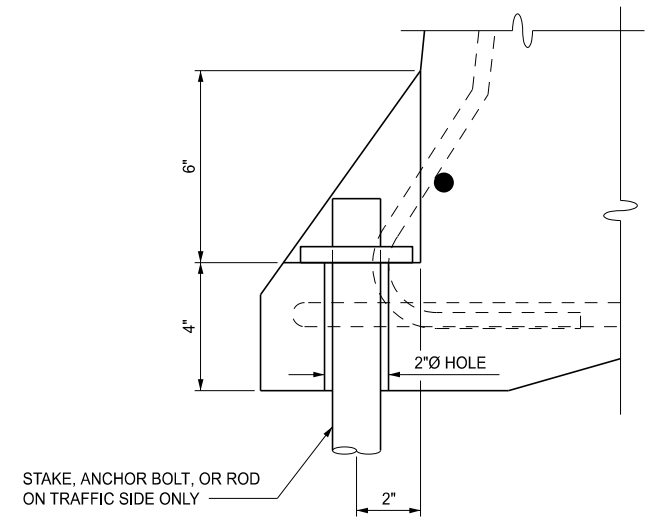
TOP PLATE DETAIL



CONNECTION PIN DETAIL
* RETAINER BOLT AND NUT ARE INSTALLED AT THE CONTRACTOR'S OPTION.



LIFTING SLOT DETAIL
1" CHAMFER TO PREVENT SPALLING



ANCHOR BLOCKOUT DETAIL
SEE TYPE L / TYPE S TCB PLAN AND ELEVATION VIEWS FOR WIDTH AND LOCATION OF ANCHOR BLOCKOUTS



DEPARTMENT DIRECTOR
BRADLEY C. WIEFERICH, PE

STANDARD PLAN FOR
TEMPORARY CONCRETE BARRIER LIMITED DEFLECTION

(SPECIAL DETAIL)
FHWA APPROVAL

08/14/2015
PLAN DATE

R-53-A

SHEET
19 OF 22



DEPARTMENT DIRECTOR
BRADLEY C. WIEFERICH, PE

STANDARD PLAN FOR
TEMPORARY CONCRETE BARRIER LIMITED DEFLECTION

(SPECIAL DETAIL)
FHWA APPROVAL

08/14/2015
PLAN DATE

R-53-A

SHEET
20 OF 22

SECT

