

MISSOURI HIGHWAYS and TRANSPORTATION COMMISSION

JEFFERSON CITY, MISSOURI

**SUPPLEMENTAL PLANS TO JULY 201J MISSOURI STANDARD
PLANS FOR HIGHWAY CONSTRUCTION**

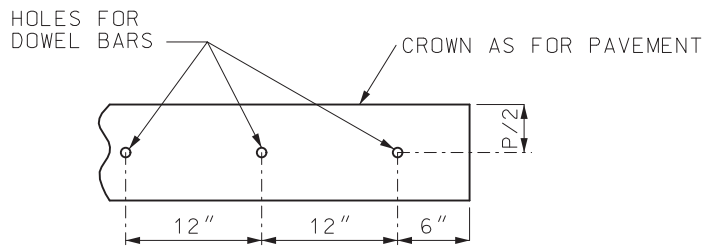
EFFECTIVE January 1, 2020

EFFECTIVE: 01/01/2020							
MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION							
MISSOURI STANDARD PLANS FOR HIGHWAY CONSTRUCTION							
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STANDARD NO.	DRAWING TITLE	NO. OF SHEETS	EFFECTIVE DATE	STANDARD NO.	DRAWING TITLE	NO. OF SHEETS	EFFECTIVE DATE
203.00E	EXCAVATION AND EMBANKMENT – TYPICAL DETAILS	1	08/01/1998	606.60B	MIDWEST GUARDRAIL SYSTEM (MGS) – VERTICAL BARRIER TRNSITIONS	6	04/01/2018
203.02F	UNDERGRADING – TYPICAL DETAILS	2	01/01/2004	606.70B	MIDWEST GUARDRAIL SYSTEM (MGS) – THRIE BEAM RAIL ON BRIDGE	5	04/01/2018
203.10D	TABULATED EARTHWORK AND SECTION DATA	1	02/01/2009	606.80C	MIDWEST GUARDRAIL SYSTEM (MGS) – TERMINAL ANCHOR ENDS	7	07/01/2017
203.20G	SUPERELEVATION, SPIRALS AND WIDENING (UNDIVIDED HIGHWAY)	4	07/01/2017	606.81B	MASH – CRASHWORTHY END TERMINALS – TYPE A – GRADING LIMITS *	1	10/01/2019
203.21K	SUPERELEVATION, SPIRALS AND WIDENING (DIVIDED HIGHWAY)	3	07/01/2017	607.10V	CHAIN-LINK FENCE	1	02/01/2007
203.22	SUPERELEVATION, SPIRALS AND WIDENING	2	07/01/2017	607.11H	CHAIN-LINK FENCE FOR RETAINING WALLS	1	06/01/2009
203.35A	MAILBOX TURNOUTS	1	08/01/1981	607.20G	WOVEN WIRE FENCE	2	07/01/2016
203.40G	TYPICAL DETAILS ON AND OFF RAMPS	2	10/01/2007	608.00H	PAVED APPROACHES	2	10/01/2009
203.41F	TYPICAL DETAILS ON AND OFF RAMPS (ROADWAY WITH 6:1 FORESLOPE)	2	01/01/1995	608.10P	CONCRETE SIDEWALK	1	04/01/2015
203.50N	TYPICAL MEDIAN OPENINGS (DIVIDED HIGHWAYS)	2	04/01/2016	608.20E	CONCRETE STAIRS	2	04/01/2015
203.61A	DRIVEWAY – TYPE I	1	07/01/2004	608.30A	CONCRETE MEDIAN STRIP	1	02/01/2011
203.62D	DRIVEWAY – TYPE II	2	04/01/2017	608.40	HANDRAILING	4	04/01/2015
203.63B	DRIVEWAY – TYPE III	2	04/01/2017	608.50	CURB RAMPS	4	04/01/2015
203.64D	DRIVEWAY – TYPE IV	2	04/01/2017	609.00P	CONCRETE CURB, CURB AND GUTTER AND GUTTER	2	08/01/2008
203.65A	DRIVEWAY – TYPE V	1	10/01/1998	609.15D	PAVED DITCHES	1	07/01/2016
204.00D	EMBANKMENT CONTROL – MEASURING DEVICES	1	04/01/1983	609.40S	DRAIN BASIN, SHOULDER PAVING AND FILL SLOPES AT BRIDGE ENDS	3	01/01/2017
204.30	PORE PRESSURE MEASUREMENT DEVICES	1	03/01/1996	609.60C	ROCK DITCH LINER	1	03/01/1993
401.00B	TYPE A2 AND A3 SHOULDERS, SAFETY EDGE SM	3	04/01/2018	609.70C	ROCK LINING FOR CULVERT OUTLET	1	10/01/1981
413.20	SCRUB SEAL BROOM CONFIGURATION	1	07/01/2004	611.60R	CONCRETE SLOPE PROTECTION	1	07/01/2015
502.05P	CONCRETE PAVEMENT AND BASE APPURTENANCES FOR 15 FT. JOINT SPACING *	4	01/01/2020	612.20E	SAND FILLED IMPACT ATTENUATORS	1	10/01/2018
502.10K	DOWEL SUPPORTING UNITS	2	06/01/2010	613.00T	PAVEMENT REPAIR *	4	01/01/2020
504.00J	CONCRETE APPROACH PAVEMENT	3	07/01/2015	614.10T	GRATES AND BEARING PLATES	1	12/01/2005
602.00D	RIGHT-OF-WAY AND DRAIN MARKERS	2	01/01/2003	614.11C	CURVED VANE GRATE AND FRAME	1	06/01/2010
604.05D	PIPE CULVERT HEADWALLS – TYPE S	2	08/01/2006	614.30E	MANHOLE FRAMES AND COVERS	2	03/01/1996
604.10E	PIPE CULVERT HEADWALL – ENERGY DISSIPATOR FOR 18” CONCRETE PIPE	1	07/01/2001	616.10AV	TEMPORARY TRAFFIC CONTROL DEVICES	9	07/01/2019
604.11E	PIPE CULVERT HEADWALL – ENERGY DISSIPATOR FOR 24” CONCRETE PIPE	1	07/01/2001	617.10L	PERMANENT CONCRETE TRAFFIC BARRIER	11	01/01/2019
604.12E	PIPE CULVERT HEADWALL – ENERGY DISSIPATOR FOR 30” CONCRETE PIPE	1	07/01/2001	617.20D	TEMPORARY CONCRETE TRAFFIC BARRIER	8	10/01/2018
604.13E	PIPE CULVERT HEADWALL – ENERGY DISSIPATOR FOR 36” CONCRETE PIPE	1	07/01/2001	619.10J	PAVEMENT EDGE TREATMENT	1	10/01/2017
604.14E	PIPE CULVERT HEADWALL – ENERGY DISSIPATOR FOR 42” CONCRETE PIPE	1	07/01/2001	620.00L	PAVEMENT MARKING	5	10/01/2016
604.15E	PIPE CULVERT HEADWALL – ENERGY DISSIPATOR FOR 48” CONCRETE PIPE	1	07/01/2001	620.10G	TEMPORARY PAVEMENT MARKING	5	07/01/2017
604.29C	DROP INLET – TYPE X	2	04/01/2018	625.00	HOLE PATTERN FOR PAVEMENT SLAB STABILIZATION	1	10/01/1998
604.30G	CONCRETE MANHOLES	2	02/01/2009	626.00H	RUMBLE STRIPS	2	04/01/2009
604.40F	PIPE COLLARS	2	10/01/2000				
604.70	SLOTTED DRAIN	2	03/01/1994				
605.10I	PAVEMENT UNDERDRAINAGE	4	06/01/2013				
606.00AY	GUARDRAIL *	7	01/01/2020				
606.01F	MEDIAN PIER PROTECTION	9	08/01/2012				
606.22U	BRIDGE ANCHOR SECTION – SAFETY BARRIER CURB ON BRIDGE	6	07/01/2016				
606.23J	BRIDGE ANCHOR SECTION (THRIE BEAM RAIL ON BRIDGE)	5	07/01/2016				
606.30K	GUARDRAIL – TERMINAL ANCHOR ENDS	7	04/01/2017				
606.31B	CRASHWORTHY END TERMINALS – TYPE A – GRADING LIMITS *	1	10/01/2019				
606.40D	ONE-STRAND ACCESS RESTRAINT CABLE	2	07/01/2004				
606.41L	THREE-STRAND GUARD CABLE	7	04/01/2019				
606.50D	MIDWEST GUARDRAIL SYSTEM (MGS)	8	01/01/2019				
606.51	MIDWEST GUARDRAIL SYSTEM (MGS) – MEDIAN PIER PROTECTION	2	04/01/2018				
				* REVISED OR ADDED SINCE JULY 2019			
				SHEET 1 OF 2			

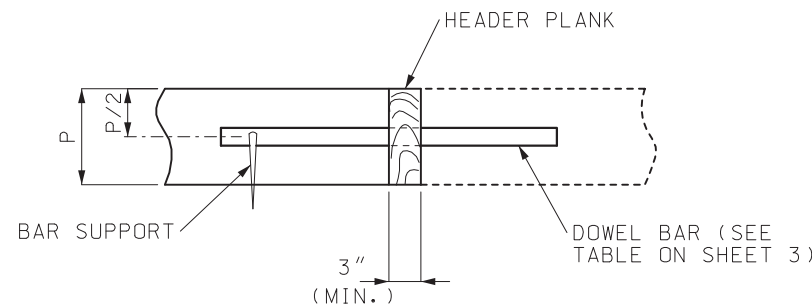
IF A SEAL IS PRESENT ON THIS SHEET IT HAS BEEN ELECTRONICALLY SEALED AND DATED.

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION				EFFECTIVE: 01/01/2020			
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703.10J	CONCRETE SINGLE BOX CULVERT – STRAIGHT WINGS (SQUARED)	3	07/01/2015	901.30F	HIGHWAY LIGHTING – BASE MOUNTED CONTROL STATION	2	04/01/2005
703.11J	CONCRETE SINGLE BOX CULVERT – FLARED WINGS (SQUARED)	3	07/01/2015	901.80D	HIGHWAY LIGHTING – POWER SUPPLY ASSEMBLY – SECONDARY SERVICE	2	04/01/2002
703.12J	CONCRETE SINGLE BOX CULVERT – STRAIGHT WINGS (LEFT ADVANCE)	3	07/01/2015	901.85B	HIGHWAY LIGHTING SYMBOLS	1	04/01/2018
703.13J	CONCRETE SINGLE BOX CULVERT – FLARED WINGS (LEFT ADVANCE)	3	07/01/2015	902.00P	TRAFFIC SIGNALS	2	04/01/2018
703.14J	CONCRETE SINGLE BOX CULVERT – STRAIGHT WINGS (RIGHT ADVANCE)	3	07/01/2015	902.10Q	TRAFFIC SIGNALS – CONTROLLERS CONDUIT LOCATION	1	04/01/2005
703.15E	CONCRETE SINGLE BOX CULVERT – FLARED WINGS (RIGHT ADVANCE)	3	07/01/2015	902.15K	TRAFFIC SIGNALS – POWER SUPPLY ASSEMBLY	3	07/01/2004
703.16	CONCRETE SINGLE BOX CULVERT – CUT SECTION	1	04/01/2011	902.20G	TRAFFIC SIGNALS – CONCRETE PULL BOXES	3	04/01/2019
703.17	CONCRETE SINGLE BOX CULVERT – MEMBER SIZES AND REINFORCEMENT	14	04/01/2011	902.21C	TRAFFIC SIGNALS – TELEPHONE INTERCONNECT	1	03/01/1996
703.37C	CONCRETE BOX CULVERT – EXTERIOR WING REINFORCEMENT	2	04/01/2011	902.30P	TRAFFIC SIGNALS – POST BASES	2	10/01/2018
703.38A	CONCRETE BOX CULVERT – CUTTING DETAILS	2	10/01/2009	902.40R	TRAFFIC SIGNALS – TUBULAR STEEL POSTS	3	04/01/2018
703.40H	CONCRETE DOUBLE BOX CULVERT – STRAIGHT WINGS (SQUARED)	3	10/01/2011	902.50M	TRAFFIC SIGNALS – INDUCTION LOOP DETECTORS	✱	01/01/2020
703.41H	CONCRETE DOUBLE BOX CULVERT – FLARED WINGS (SQUARED)	3	10/01/2011	902.70P	TRAFFIC SIGNALS – RIGID SPAN WIRE DETAILS	2	04/01/2018
703.42H	CONCRETE DOUBLE BOX CULVERT – STRAIGHT WINGS (LEFT ADVANCE)	3	10/01/2011	902.80L	TRAFFIC SIGNALS – TRAFFIC SIGNAL SYMBOLS	1	07/01/2017
703.43H	CONCRETE DOUBLE BOX CULVERT – FLARED WINGS (LEFT ADVANCE)	3	10/01/2011	903.01J	STANDARD ARROW DETAILS	2	10/01/2016
703.44H	CONCRETE DOUBLE BOX CULVERT – STRAIGHT WINGS (RIGHT ADVANCE)	3	10/01/2011	903.02AP	HIGHWAY SIGNING	✱	10/01/2019
703.45C	CONCRETE DOUBLE BOX CULVERT – FLARED WINGS (RIGHT ADVANCE)	3	10/01/2011	903.03BM	POST INSTALLATIONS AND SIGN MOUNTING DETAILS	✱	01/01/2020
703.46	CONCRETE BOX CULVERT – CUT SECTION	1	10/01/2011	903.04F	HIGHWAY SIGNING – WEIGH STATION	1	02/01/2012
703.47	CONCRETE BOX CULVERT – MEMBER SIZES AND REINFORCEMENT	27	10/01/2011	903.05J	HIGHWAY SIGNING – TUBULAR SUPPORT STEEL – TYPE S, ONE TUBE	2	10/01/2016
703.60E	CONCRETE BOX STRUCTURE – PIPE INLET	1	07/01/2001	903.06J	HIGHWAY SIGNING – TUBULAR SUPPORT STEEL – TYPE S, TWO TUBE	2	10/01/2016
703.80H	CONCRETE TRIPLE BOX CULVERT – STRAIGHT WINGS (SQUARED)	3	12/01/2011	903.07J	HIGHWAY SIGNING – TUBULAR SUPPORT STEEL – TYPE C	2	10/01/2016
703.81H	CONCRETE TRIPLE BOX CULVERT – FLARED WINGS (SQUARED)	3	12/01/2011	903.08H	HIGHWAY SIGNING – TUBULAR SUPPORT STEEL – TYPE B	2	10/01/2016
703.82H	CONCRETE TRIPLE BOX CULVERT – STRAIGHT WINGS (LEFT ADVANCE)	3	12/01/2011	903.10BC	OVERHEAD SIGN TRUSSES – ALUMINUM	6	10/01/2016
703.83H	CONCRETE TRIPLE BOX CULVERT – FLARED WINGS (LEFT ADVANCE)	3	12/01/2011	903.12Z	OVERHEAD SIGN TRUSSES – BUTTERFLY AND CANTILEVER STRUCTURAL STEEL	7	10/01/2016
703.84H	CONCRETE TRIPLE BOX CULVERT – STRAIGHT WINGS (RIGHT ADVANCE)	3	12/01/2011	903.60AB	OVERHEAD SIGN TRUSSES – STRUCTURAL STEEL	5	10/01/2016
703.85C	CONCRETE TRIPLE BOX CULVERT – FLARED WINGS (RIGHT ADVANCE)	3	12/01/2011				
703.86	CONCRETE TRIPLE BOX CULVERT – CUT SECTION	1	12/01/2011				
703.87	CONCRETE TRIPLE BOX CULVERT – MEMBER SIZES AND REINFORCEMENT	27	12/01/2011				
706.35H	BAR SUPPORTS FOR CONCRETE REINFORCEMENT	1	07/01/2004				
712.40L	STEEL DAMS AT EXPANSION DEVICES	✱	10/01/2019				
725.00C	CORRUGATED METAL PIPE INSTALLATION METHODS	5	04/01/2011				
725.31C	METAL CURTAIN WALL AND METAL INLETS	1	07/01/2004				
726.30J	RIGID CULVERT INSTALLATION METHODS	2	04/01/2015				
730.00E	THERMOPLASTIC PIPE INSTALLATION METHODS	1	04/01/2015				
731.00U	PRECAST MANHOLES	2	07/01/2016				
731.10S	PRECAST DROP INLET	8	07/01/2016				
732.00S	FLARED END SECTION	3	04/01/2016				
732.05C	BEVELED PIPE END TREATMENT	2	07/01/2004				
732.10H	SAFETY SLOPE END SECTION	3	06/01/2013				
733.00	PRECAST CONCRETE BOX CULVERT TIES	1	04/01/2018				
806.10J	TEMPORARY EROSION CONTROL MEASURES	6	04/01/2019				
808.00	TYPICAL PLANTING ILLUSTRATIONS	3	07/01/2004				
901.00AB	HIGHWAY LIGHTING – POLES, FOUNDATIONS & APPURTENANCES FOR 30’ M.H.	4	04/01/2018				
901.01AJ	HIGHWAY LIGHTING – POLES, FOUNDATIONS & APPURTENANCES FOR 45’ M.H.	6	04/01/2018				
901.02B	HIGHWAY LIGHTING – CABLE, CONDUIT AND TRENCHING	1	04/01/2002				
				✱ REVISED OR ADDED SINCE JULY 2019			
				SHEET 2 OF 2			

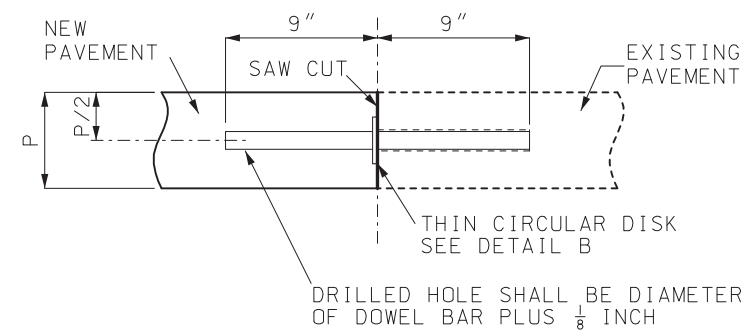
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PART ELEVATION OF
HEADER PLANK



HEADER SECTION



SAWED SECTION

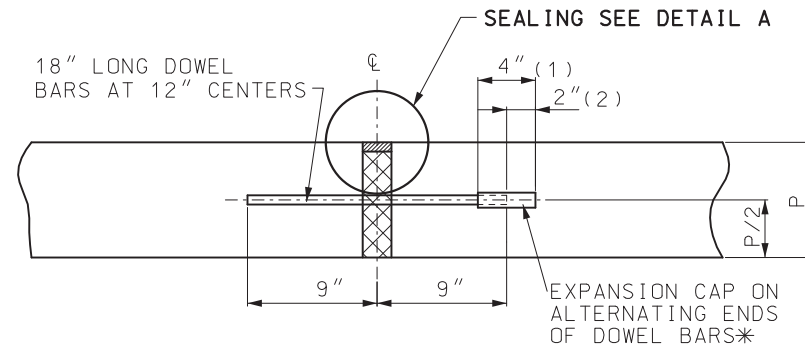
THE HEADER BOARD SHALL BE SUFFICIENTLY RIGID TO PREVENT DISTORTION FROM THE TYPICAL SECTION AND MAINTAIN A STRAIGHT LINE FROM PAVEMENT EDGE TO PAVEMENT EDGE.

THE CONSTRUCTION JOINT MAY BE SAWED FULL DEPTH. HOLES FOR DOWEL BARS SHALL BE DRILLED AFTER THE CONCRETE HAS SUFFICIENT SET TO PREVENT DAMAGE. DOWEL BARS SHALL BE BONDED INTO THE HOLES.

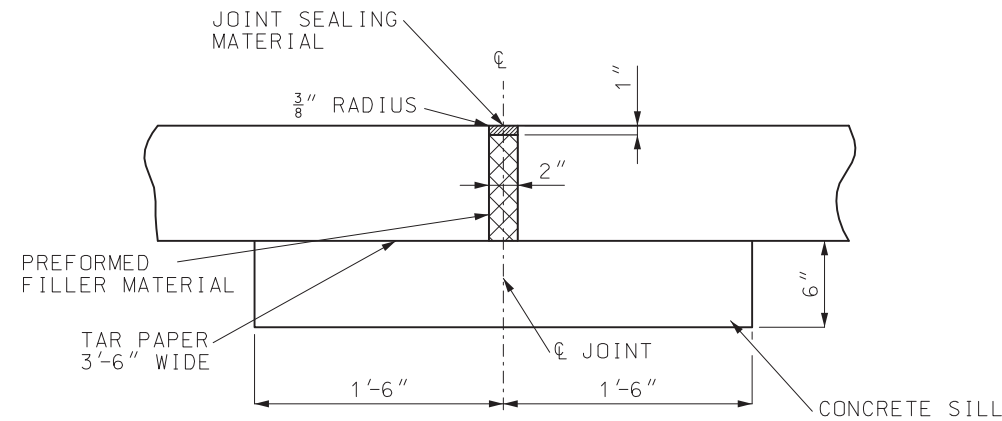
BONDING FOR DOWEL BARS SHALL BE EPOXY OR POLYESTER BONDING AGENTS AS SPECIFIED IN SECTION 1039.

THE PORTION OF THE DOWEL OUTSIDE THE HOLE SHALL BE COATED WITH AN APPROVED LUBRICANT.

CONSTRUCTION JOINT (C)



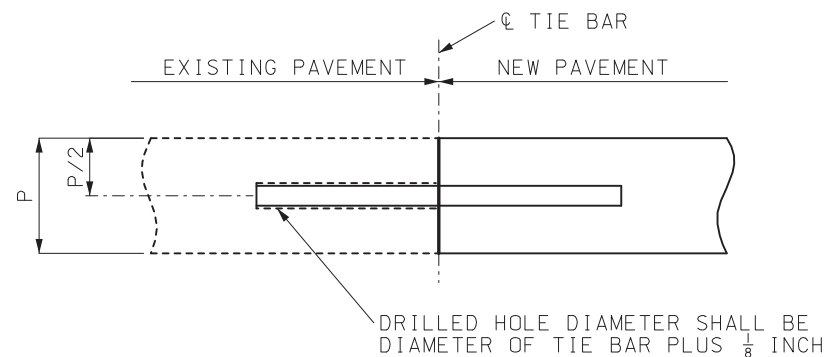
EXPANSION JOINTS (E)



SILL SHALL EXTEND 18" BEYOND EACH EDGE OF THE PAVEMENT AND SHALL BE CONSTRUCTED OF CONCRETE REGARDLESS OF ADJACENT BASE MATERIAL.

ALTERNATE EXPANSION JOINTS (E)

(CONTRACTOR MAY SELECT EITHER EXPANSION JOINT (E))



TIE BARS SHALL BE EPOXY COATED, DEFORMED REINFORCING BARS MEETING THE REQUIREMENTS OF SECTIONS 710 AND 1057.

BONDING FOR TIE BARS SHALL BE EPOXY OR POLYESTER BONDING AGENTS AS SPECIFIED IN SECTION 1039.

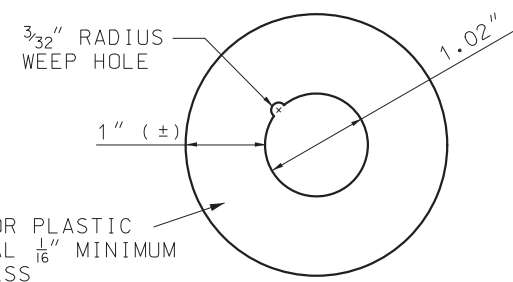
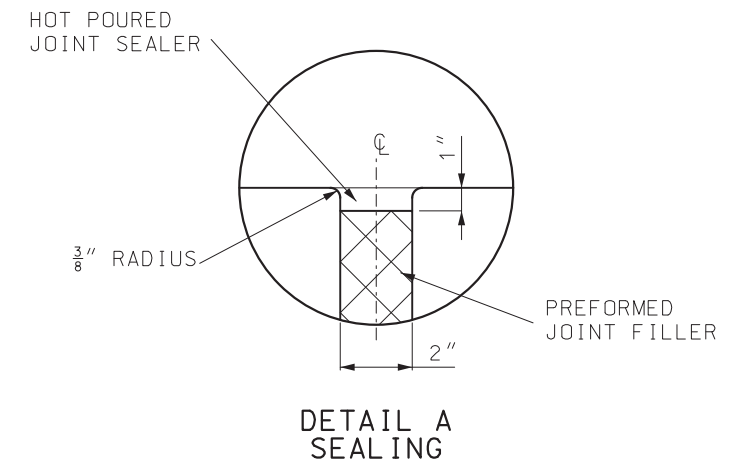
TIE BAR SIZE AND LENGTH SHALL BE BASED ON THE THICKNESS OF THE THINNER PAVEMENT OR SHOULDER TO BE TIED TOGETHER.

LONGITUDINAL CONSTRUCTION JOINT (EXISTING PAVEMENT) (L)


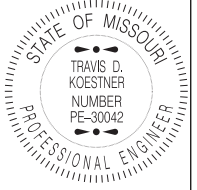
(1) LENGTH OF CAP

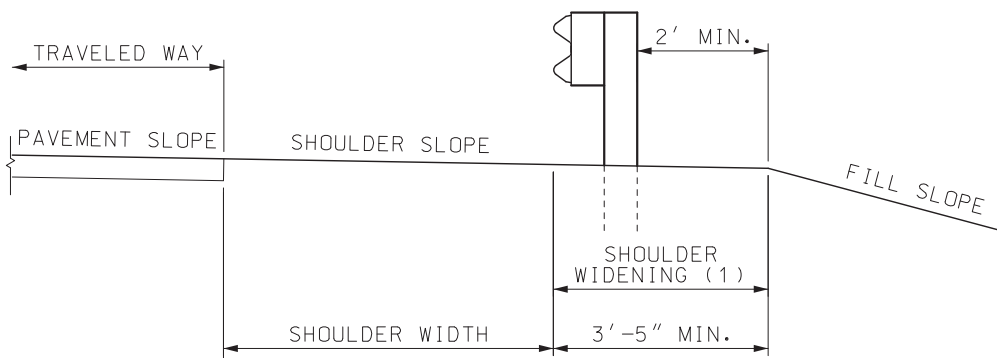
(2) GAP BETWEEN END OF CAP AND DOWEL.

* FOR EXPANSION JOINTS FORMED USING A CONSTRUCTION HEADER, THE EXPANSION CAPS SHALL BE INSTALLED ON THE EXPOSED END OF EACH BAR ONCE THE HEADER HAS BEEN REMOVED AND THE JOINT FILLER MATERIAL HAS BEEN INSTALLED.

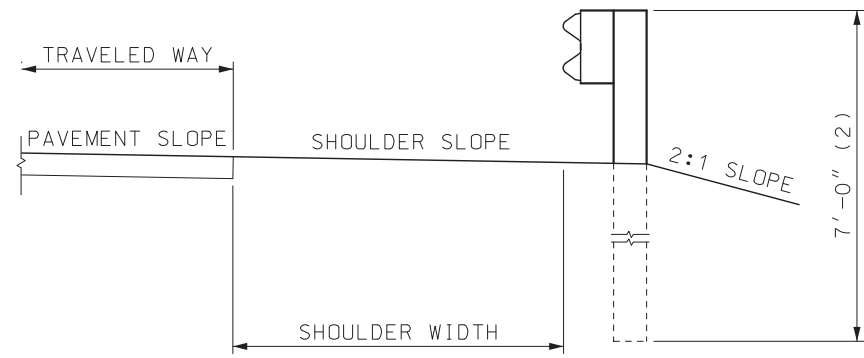


DETAIL B
THIN CIRCULAR DISK

 MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION 105 WEST CAPITOL JEFFERSON CITY, MO 65102 1-888-ASK-MODOT (1-888-275-6636)	
	CONCRETE PAVEMENT AND BASE APPURTENANCES FOR 15' JOINT SPACING
DATE EFFECTIVE: 01/01/2020 DATE PREPARED: 10/17/2019	502.05P
SHEET NO. 4 OF 4	

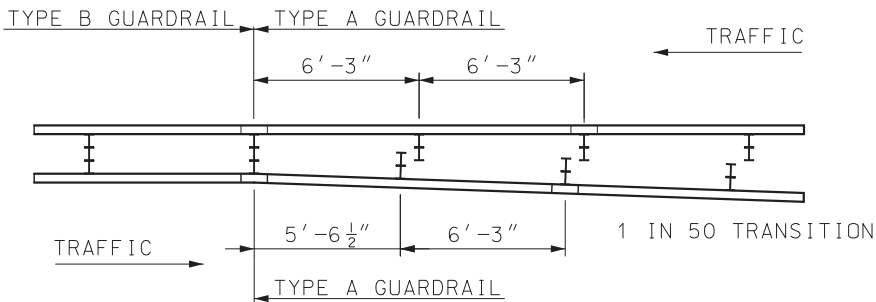


TYPICAL SECTION

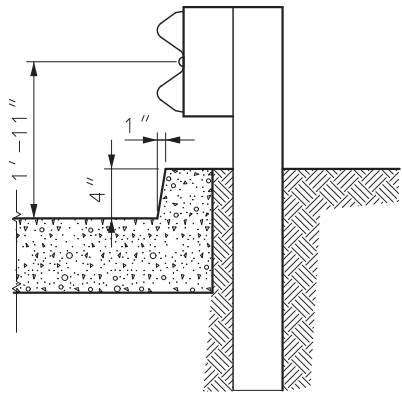
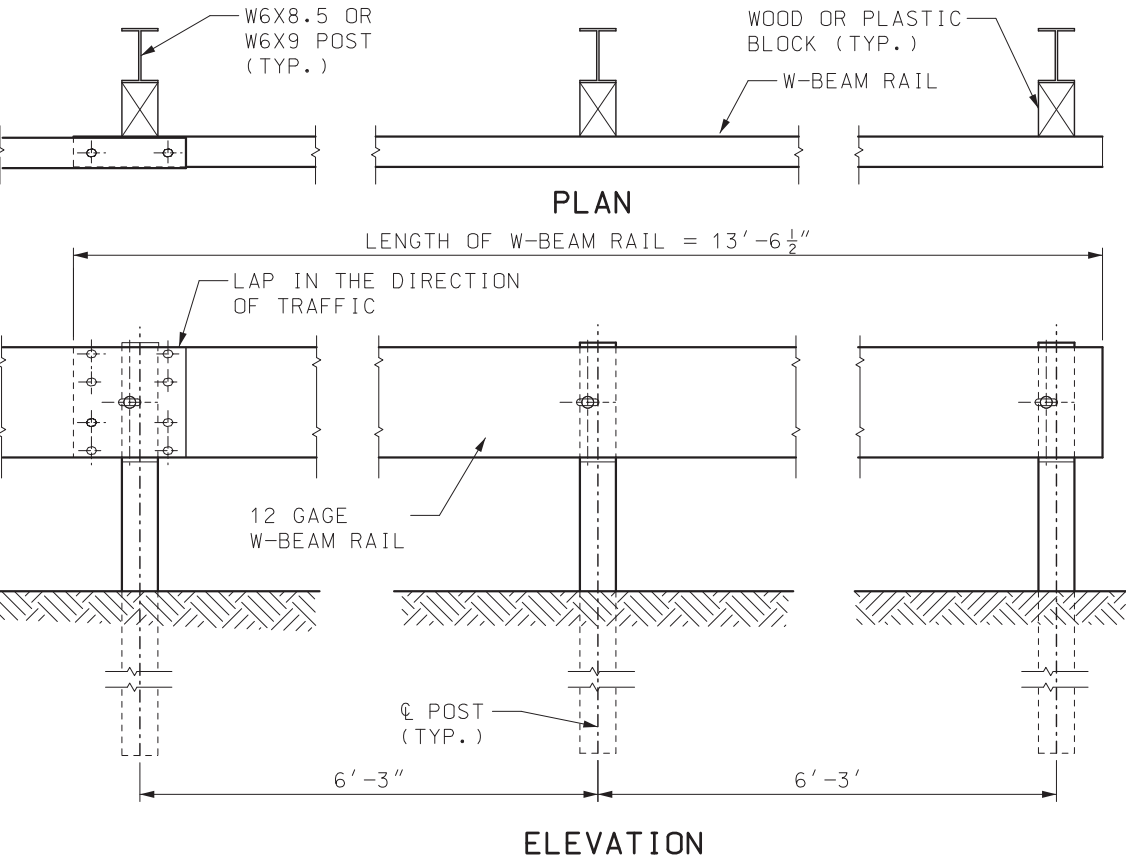


ALTERNATE TYPICAL SECTION AT SLOPE BREAKPOINT

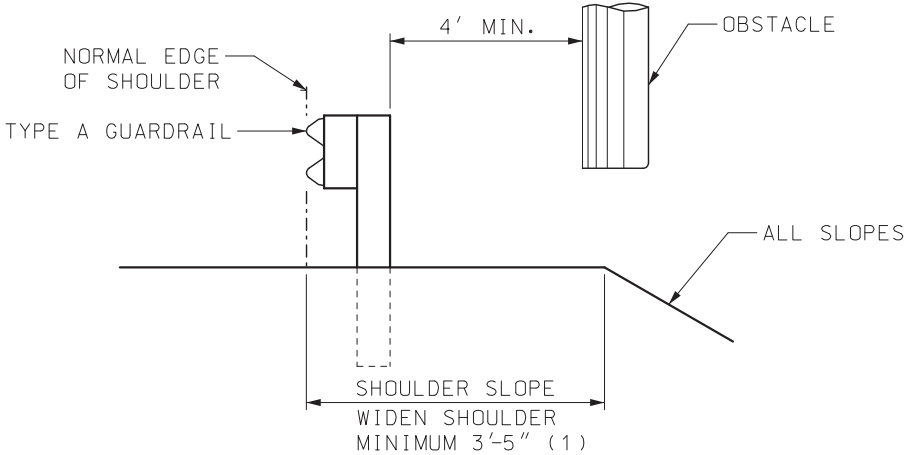
- (1) SHOULDER WIDENING SHALL CONSIST OF EMBANKMENT MATERIAL COMPACTED IN ACCORDANCE WITH SEC 203.4 OF THE STANDARD SPECIFICATIONS.
- (2) POST SHALL BE SPACED AT 3'-1 1/2" ON CENTER.
- (3) WHEN GUARDRAIL IS CONSTRUCTED OVER CURBS, THE CURBS SHALL BE CONSTRUCTED AS SHOWN.





DETAIL FOR TRANSITIONING
BETWEEN TYPE A AND TYPE B GUARDRAIL



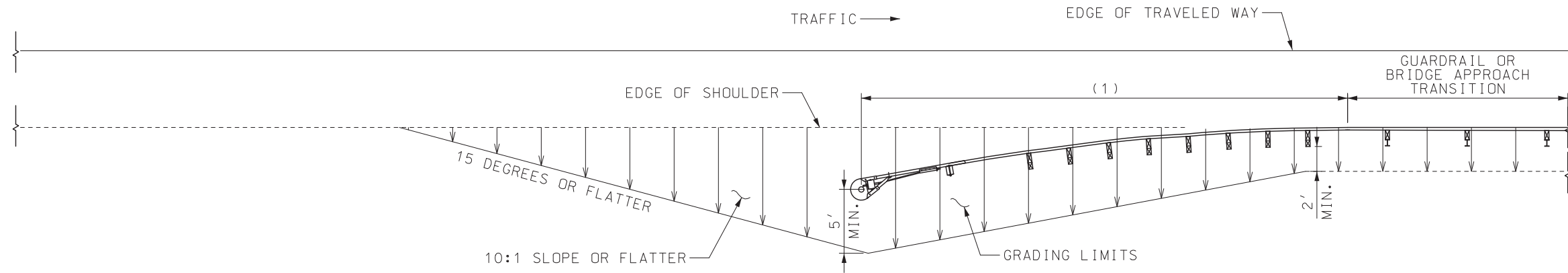
GUARDRAIL AT CURBS (3)



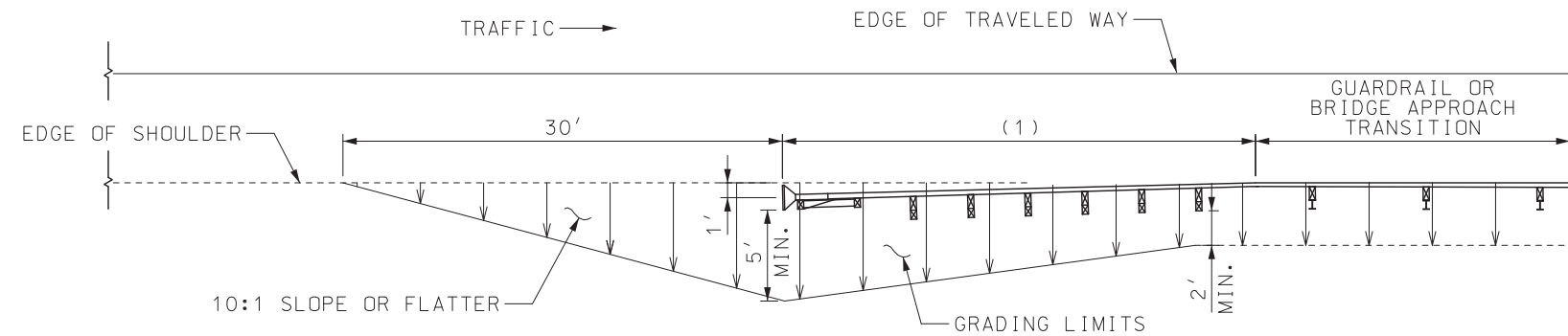
LOCATION OTHER THAN CL MEDIAN
LATERAL PLACEMENT OF GUARDRAIL
FOR SHOULDER INSTALLATION

 MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION 105 WEST CAPITOL JEFFERSON CITY, MO 65102 1-888-ASK-MODOT (1-888-275-6636)	
	GUARDRAIL LAYOUT
DATE EFFECTIVE: 01/01/2020 DATE PREPARED: 10/21/2019	606.00AY
SHEET NO. 3 OF 7	

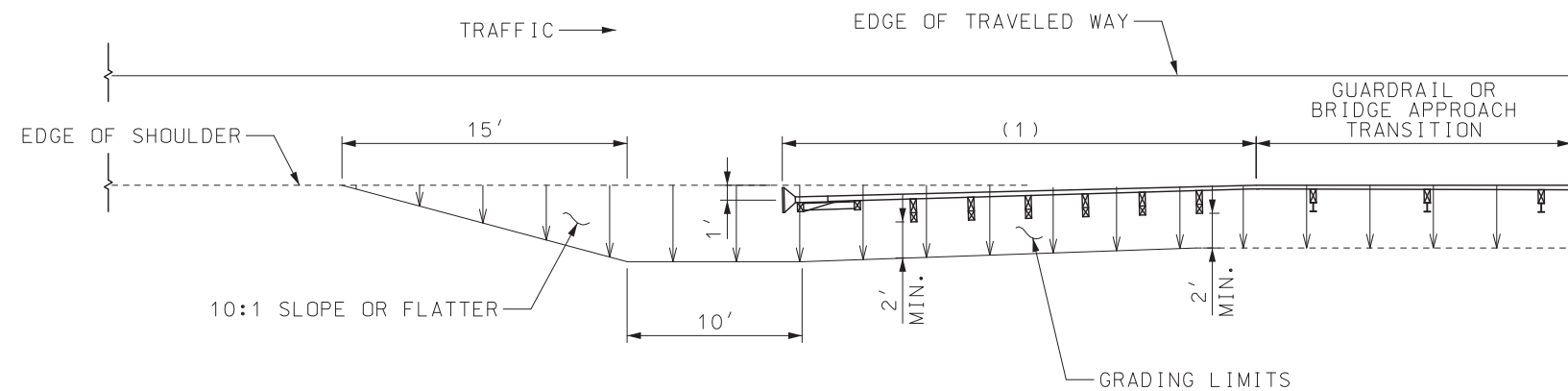
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GRADING LIMITS FOR FLARED CRASHWORTHY END TERMINALS



STANDARD GRADING LIMITS FOR CRASHWORTHY END TERMINALS




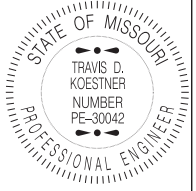
ALTERNATE GRADING LIMITS FOR CRASHWORTHY END TERMINALS

GENERAL NOTES:

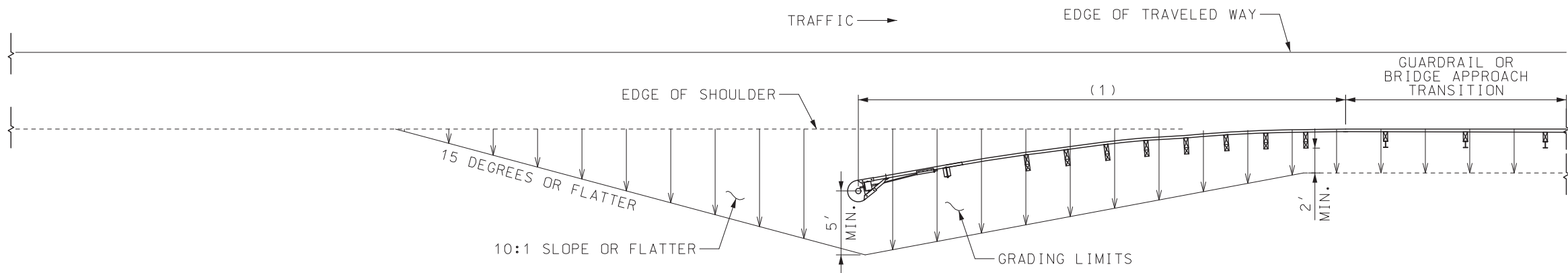
STANDARD GRADING LIMITS SHALL BE USED WHEN CONSTRUCTING A NEW ROADBED. ALTERNATE GRADING LIMITS ARE ALLOWABLE ON EXISTING ROADBEDS EXCEPT WHEN STANDARD GRADING IS INDICATED ON THE PLANS.

THE CONTRACTOR SHALL PROVIDE THE ENGINEER WITH APPROVED SHOP DRAWINGS OF THE APPROVED CRASHWORTHY END TERMINAL.

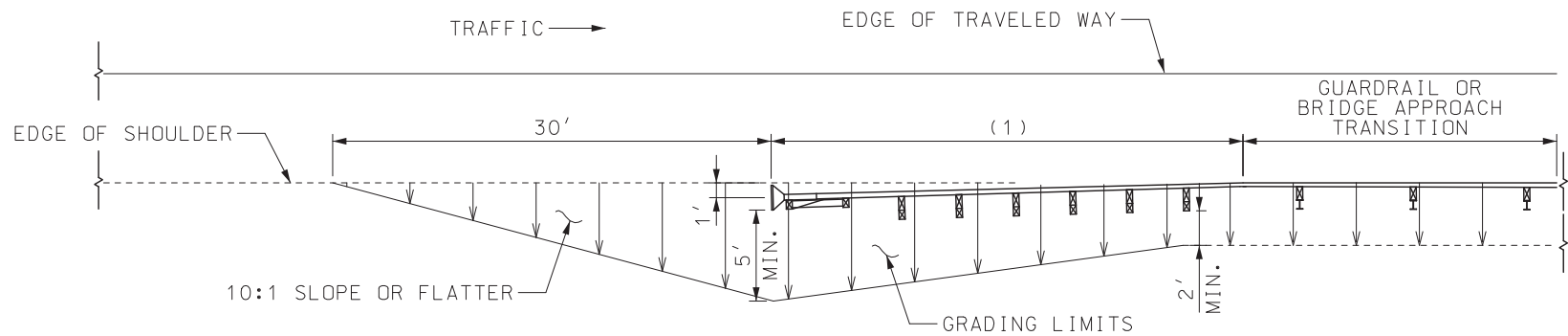
END ANCHORS SHALL BE INSTALLED ON ENDS OF GUARDRAIL RUNS WHERE CRASHWORTHY END TERMINALS ARE NOT REQUIRED.

 MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION 105 WEST CAPITOL JEFFERSON CITY, MO 65102 1-888-ASK-MODOT (1-888-275-6636)	
 <p>STATE OF MISSOURI TRAVIS D. KOESTNER NUMBER PE-30042 PROFESSIONAL ENGINEER</p> <p>THIS SHEET HAS BEEN SIGNED, SEALED AND DATED ELECTRONICALLY.</p>	<p>CRASHWORTHY END TERMINALS TYPE A GRADING LIMITS</p>
DATE EFFECTIVE: 10/01/2019 DATE PREPARED: 7/18/2019	606.31B
SHEET NO. 1 OF 1	

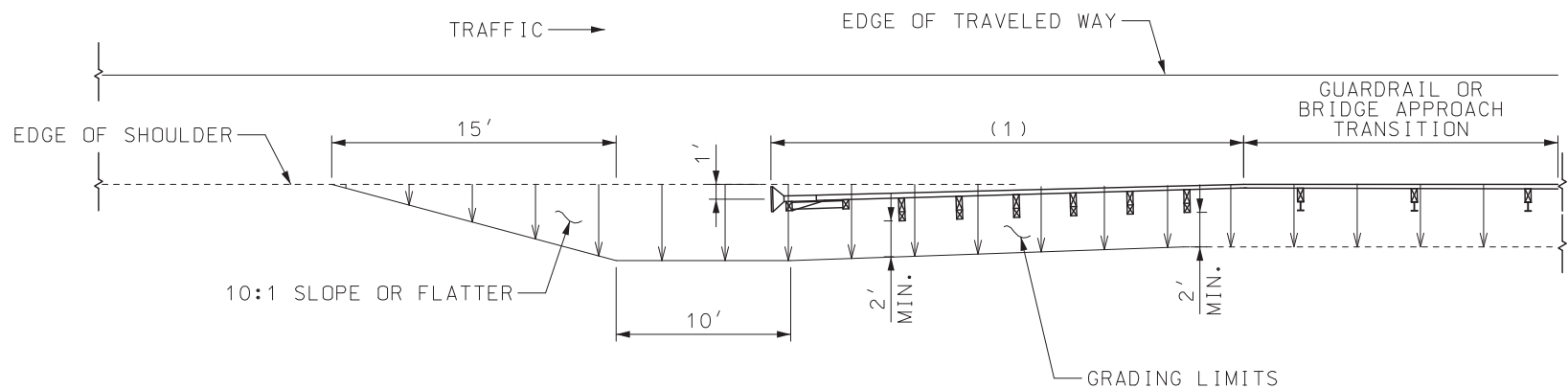
(1) APPROVED CRASHWORTHY END TERMINAL



GRADING LIMITS FOR FLARED CRASHWORTHY END TERMINALS



STANDARD GRADING LIMITS FOR CRASHWORTHY END TERMINALS




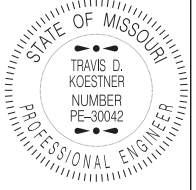
ALTERNATE GRADING LIMITS FOR CRASHWORTHY END TERMINALS

GENERAL NOTES:

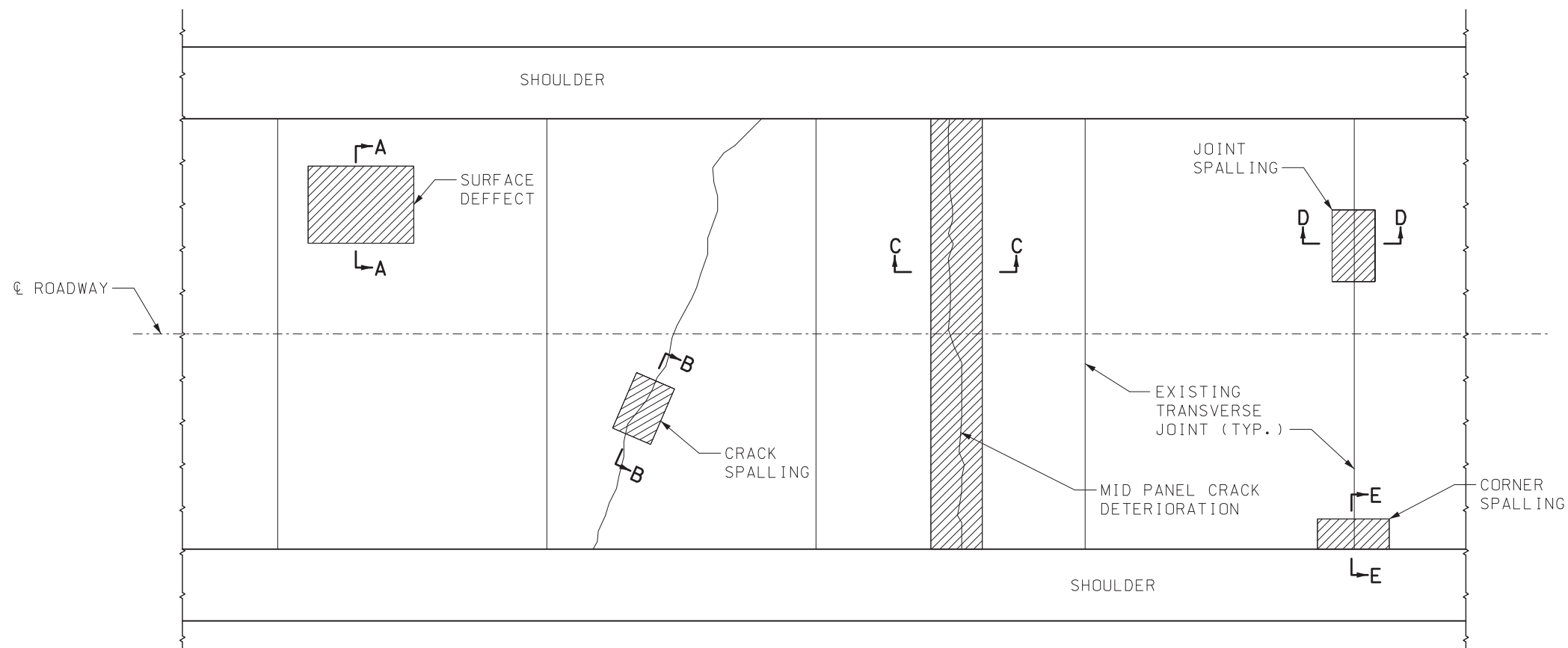
STANDARD GRADING LIMITS SHALL BE USED WHEN CONSTRUCTING A NEW ROADBED. ALTERNATE GRADING LIMITS ARE ALLOWABLE ON EXISTING ROADBEDS EXCEPT WHEN STANDARD GRADING IS INDICATED ON THE PLANS.

THE CONTRACTOR SHALL PROVIDE THE ENGINEER WITH APPROVED SHOP DRAWINGS OF THE MASH APPROVED CRASHWORTHY END TERMINAL.

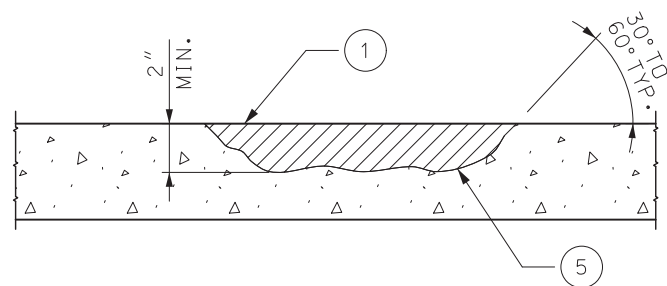
END ANCHORS SHALL BE INSTALLED ON ENDS OF GUARDRAIL RUNS WHERE CRASHWORTHY END TERMINALS ARE NOT REQUIRED.

 MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION 105 WEST CAPITOL JEFFERSON CITY, MO 65102 1-888-ASK-MODOT (1-888-275-6636)	
 <p>STATE OF MISSOURI TRAVIS D. KOESTNER NUMBER PE-30042 PROFESSIONAL ENGINEER</p> <p>THIS SHEET HAS BEEN SIGNED, SEALED AND DATED ELECTRONICALLY.</p>	<p>MASH CRASHWORTHY END TERMINALS TYPE A GRADING LIMITS</p>
DATE EFFECTIVE: 10/01/2019 DATE PREPARED: 7/18/2019	606.81B
SHEET NO. 1 OF 1	

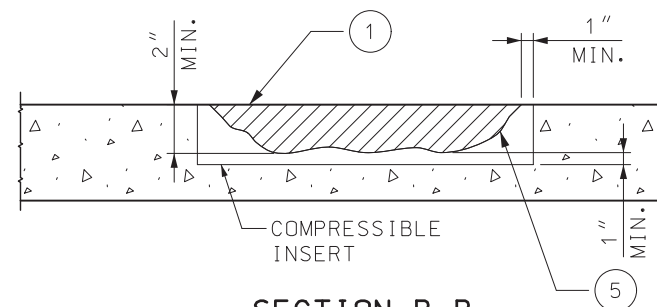
(1) APPROVED CRASHWORTHY END TERMINAL



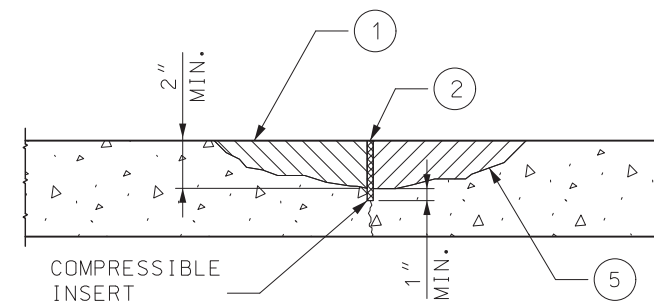
PLAN VIEW



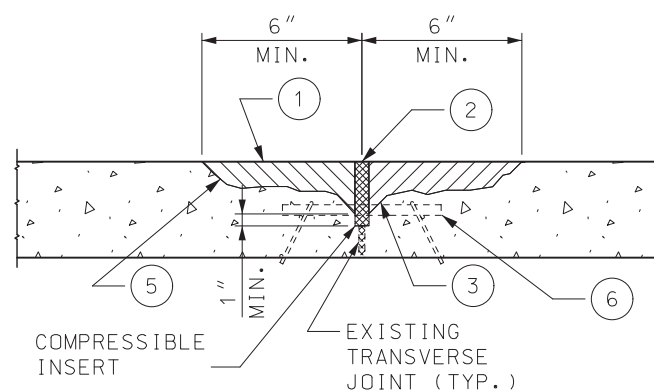
SECTION A-A



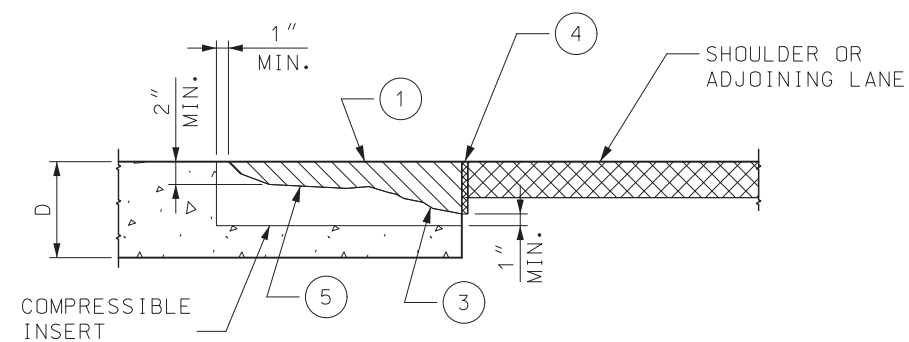
SECTION B-B



SECTION C-C



SECTION D-D

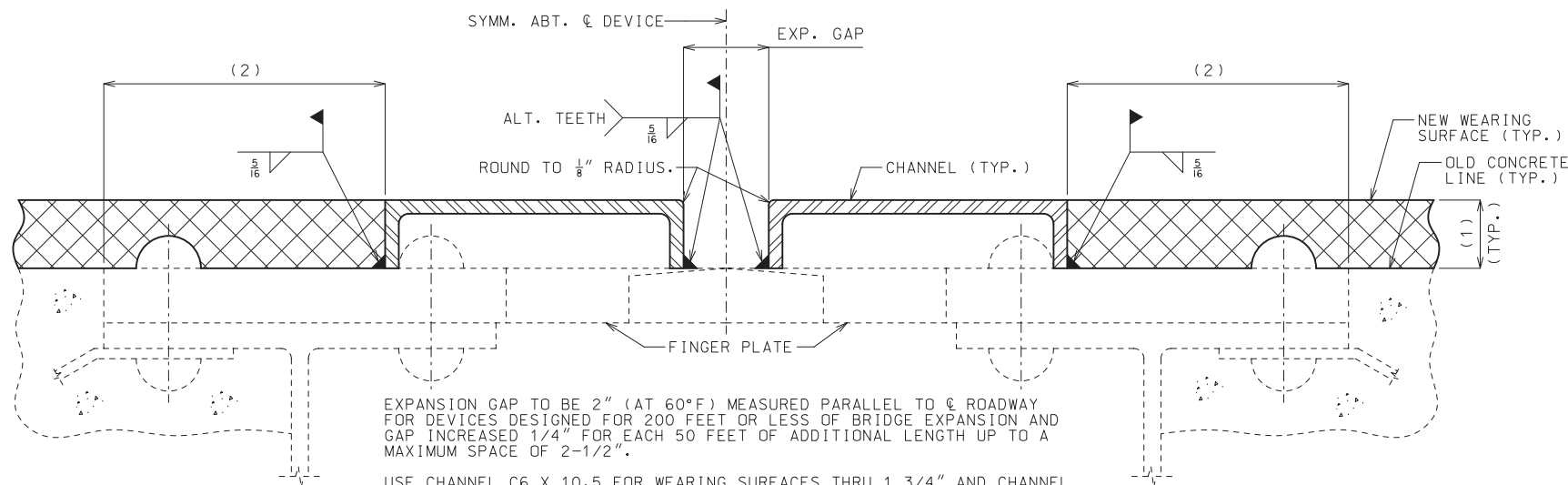


SECTION E-E

AREA TO BE REMOVED

- 1 REMOVE ALL CONCRETE, TO LIMITS SHOWN, TO MAX. OF $\frac{1}{2}$ THE PAVEMENT DEPTH OR TOP OF DOWELS BY MILLING.
- 2 PLACE COMPRESSIBLE INSERT IN JOINT OR CRACK. INSERT SHALL BE THICKNESS OF JOINT OR CRACK WIDTH, BUT NOT LESS THAN $\frac{1}{4}$ ".
- 3 CHIP VERTICAL REPAIR EDGES AT APPROXIMATE 1:1 SLOPE.
- 4 PLACE $\frac{1}{8}$ " MIN. COMPRESSIBLE INSERT ADJACENT TO LONGITUDINAL LANE OR SHOULDER JOINT.
- 5 EXPOSED SURFACE SHALL BE CLEANED BY SANDBLASTING OR SHOTBLASTING.
- 6 EXPOSED SURFACE OF DOWEL BARS SHALL BE COATED WITH AN APPROVED BONDBREAKER.

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION 105 WEST CAPITOL JEFFERSON CITY, MO 65102 1-888-ASK-MODOT (1-888-275-6636)	
	PAVEMENT REPAIR PARTIAL DEPTH CLASS A
DATE EFFECTIVE: 01/01/2020 DATE PREPARED: 10/17/2019	613.00T
SHEET NO. 2 OF 4	

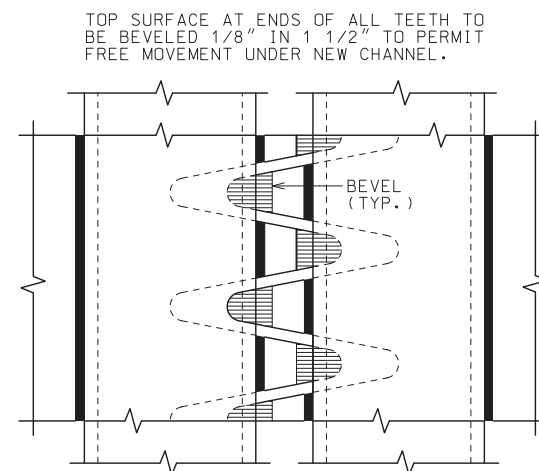


EXPANSION GAP TO BE 2" (AT 60°F) MEASURED PARALLEL TO & ROADWAY FOR DEVICES DESIGNED FOR 200 FEET OR LESS OF BRIDGE EXPANSION AND GAP INCREASED 1/4" FOR EACH 50 FEET OF ADDITIONAL LENGTH UP TO A MAXIMUM SPACE OF 2-1/2".

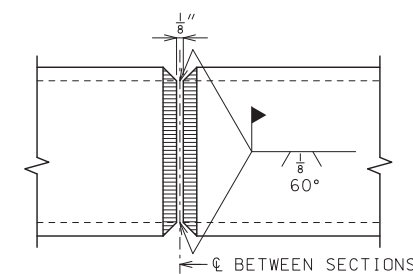
USE CHANNEL C6 X 10.5 FOR WEARING SURFACES THRU 1 3/4" AND CHANNEL C7 X 14.75 OR MC6 X 15.1 FOR WEARING SURFACES GREATER THAN 1 3/4" TO 2 1/4". CUT FLANGES TO MATCH REQUIRED WEARING SURFACE THICKNESS AND NOTCH FLANGE WHERE NECESSARY TO CLEAR RIVET HEADS.

PART SECTION THRU EXPANSION DEVICE

TYPE A - FINGER TYPE EXPANSION DEVICES

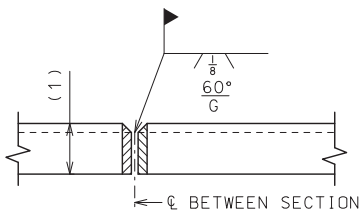


PART PLAN AT EXPANSION DEVICE

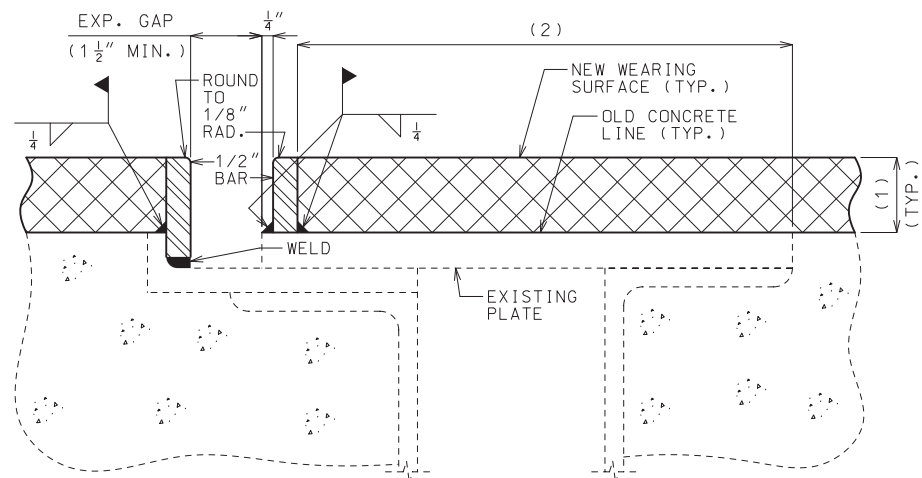


PLAN OF CHANNEL SPLICE

SPLICE TO BE AT & ROADWAY FOR TWO LANE BRIDGES.



ELEVATION OF CHANNEL SPLICE



PART SECTION AT EXPANSION DEVICE

TYPE B - PLATE TYPE EXPANSION DEVICES

- (1) WEARING SURFACE THICKNESS
- (2) WHEN THIS DIMENSION EXCEEDS 3" AND A CONCRETE WEARING SURFACE IS USED, TACK WELD A ONE INCH BAR CHAIR TO THE PLATE OR ANGLE FOR EACH 3" OF PLATE OR ANGLE TO BE COVERED BY WEARING SURFACE.

GENERAL NOTES:

OUTLINE OF OLD WORK IS INDICATED BY LIGHT DASHED LINES. HEAVY LINES INDICATE NEW WORK.

THE EXISTING EXPANSION DEVICE PLATES SHALL BE CHECKED FOR LOOSENESS AND SECURED BEFORE THE NEW BAR DAM IS INSTALLED.

STRUCTURAL STEEL SHALL BE IN ACCORDANCE WITH ASTM A70 GRADE 36.

QUALIFICATION OF WELDING OPERATORS WILL BE REQUIRED.

E7016 OR E7018 ELECTRODES SHALL BE USED.

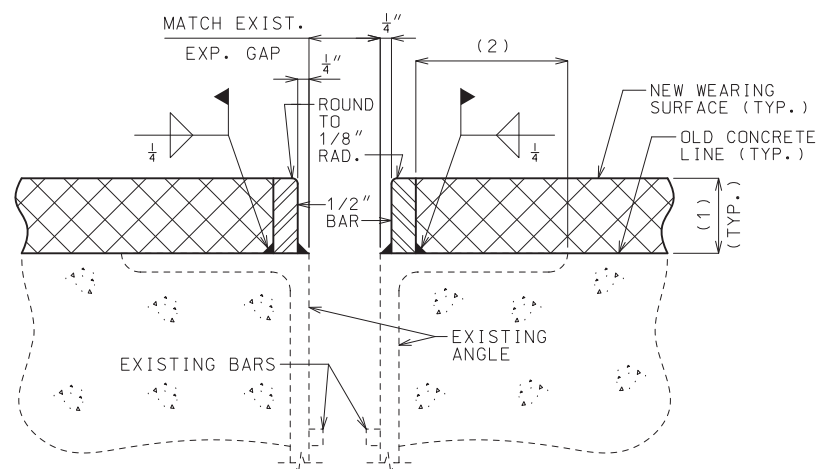
THE STEEL DAMS SHALL EXTEND FULL ROADWAY WIDTH BETWEEN CURBS, BUT SHALL BE INSTALLED IN SECTIONS OF SUCH LENGTHS TO PERMIT AT LEAST ONE WAY TRAFFIC AT ALL TIMES. BEFORE TRAFFIC IS PERMITTED TO CROSS OVER SECTIONS OF DAMS IN PLACE, SUFFICIENT WEARING SURFACE SHALL BE PLACED ON ROADWAY SLAB ADJACENT TO BOTH SIDES OF EXPANSION DEVICE TO PREVENT ANY DAMAGE TO EITHER THE STEEL DAMS OR TIRES OF VEHICLES.

STEEL DAMS SHALL BE FABRICATED AND INSTALLED TO THE CROWN AND GRADE OF THE ROADWAY.

STEEL CHANNELS OR BARS ON BOTH SIDES OF EXPANSION JOINT, FOR FULL WIDTH OF ROADWAY, WILL BE CONSIDERED COMPLETELY COVERED BY THE CONTRACT UNIT PRICE FOR STEEL BAR DAM.

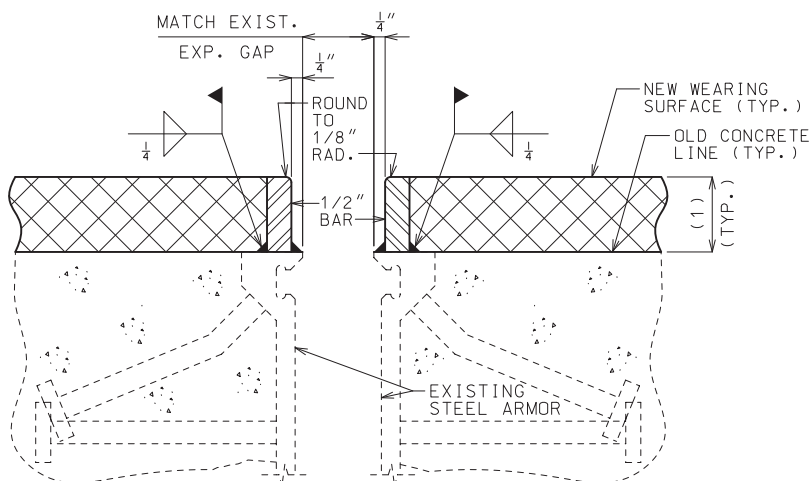
PAINT INSIDE SURFACE OF CHANNEL 5.0 MILS THICKNESS OF INORGANIC ZINC PRIMER.

SHOP DRAWINGS WILL NOT BE REQUIRED FOR STEEL BAR DAMS.



PART SECTION AT EXPANSION DEVICE

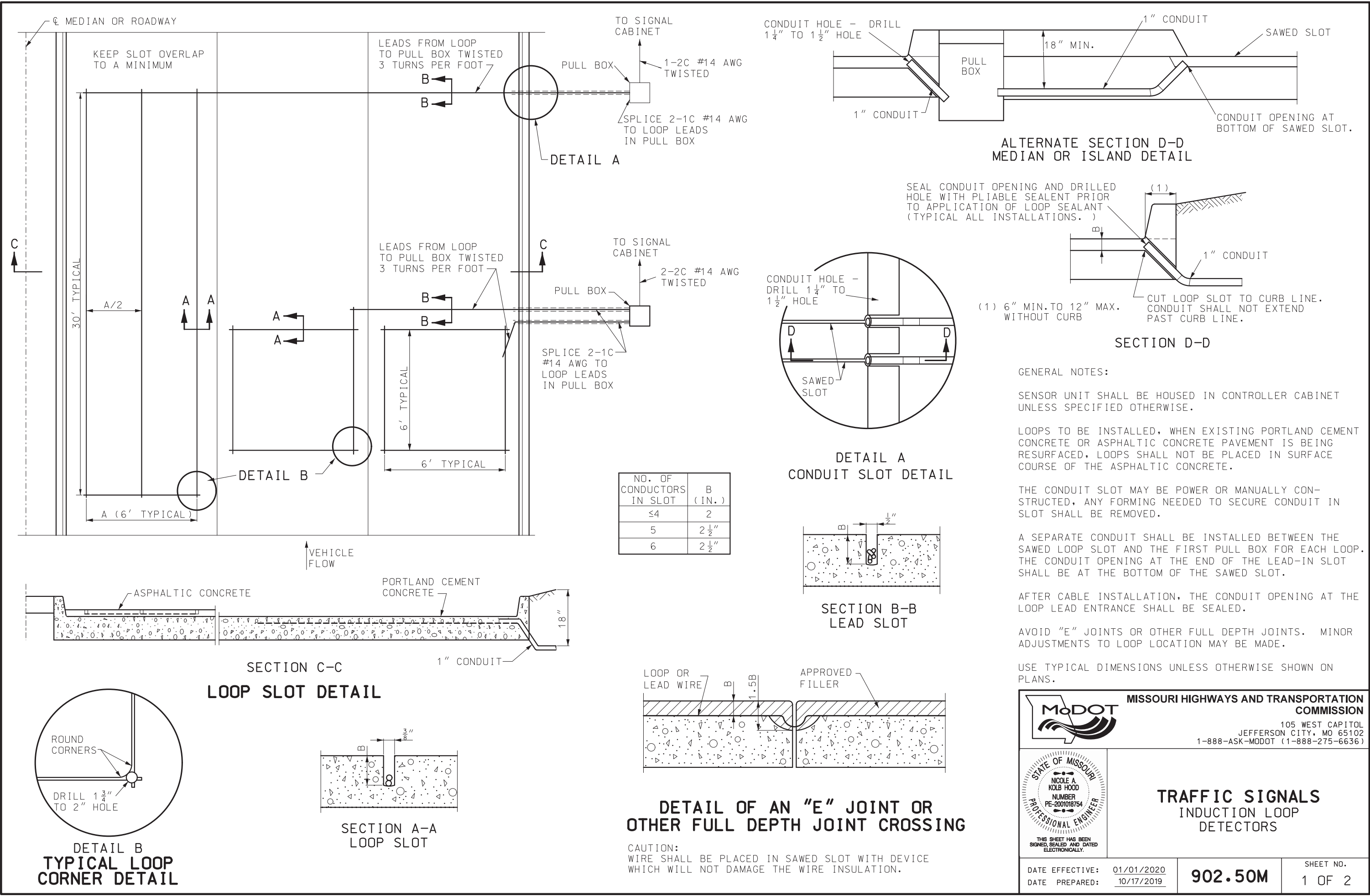
TYPE C - ANGLE TYPE EXPANSION DEVICES




PART SECTION AT EXPANSION DEVICE

TYPE D - STRIP SEAL TYPE EXPANSION DEVICES

		MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION	
105 WEST CAPITOL JEFFERSON CITY, MO 65102 1-888-ASK-MODOT (1-888-275-6636)		STEEL DAMS AT EXPANSION DEVICES FOR RESURFACING BRIDGE FLOORS	
		SHEET NO. 712.40L 1 OF 1	
DATE EFFECTIVE: 10/01/2019 DATE PREPARED: 7/18/2019		THIS SHEET HAS BEEN SIGNED, SEALED AND DATED ELECTRONICALLY.	

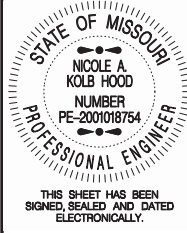


NO. OF CONDUCTORS IN SLOT	B (IN.)
≤4	2
5	2 1/2"
6	2 1/2"



MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION

105 WEST CAPITOL
JEFFERSON CITY, MO 65102
1-888-ASK-MODOT (1-888-275-6636)



STATE OF MISSOURI
NICOLE A. KOLB HOOD
NUMBER
PE-2001018754
PROFESSIONAL ENGINEER
THIS SHEET HAS BEEN
SIGNED, SEALED AND DATED
ELECTRONICALLY.

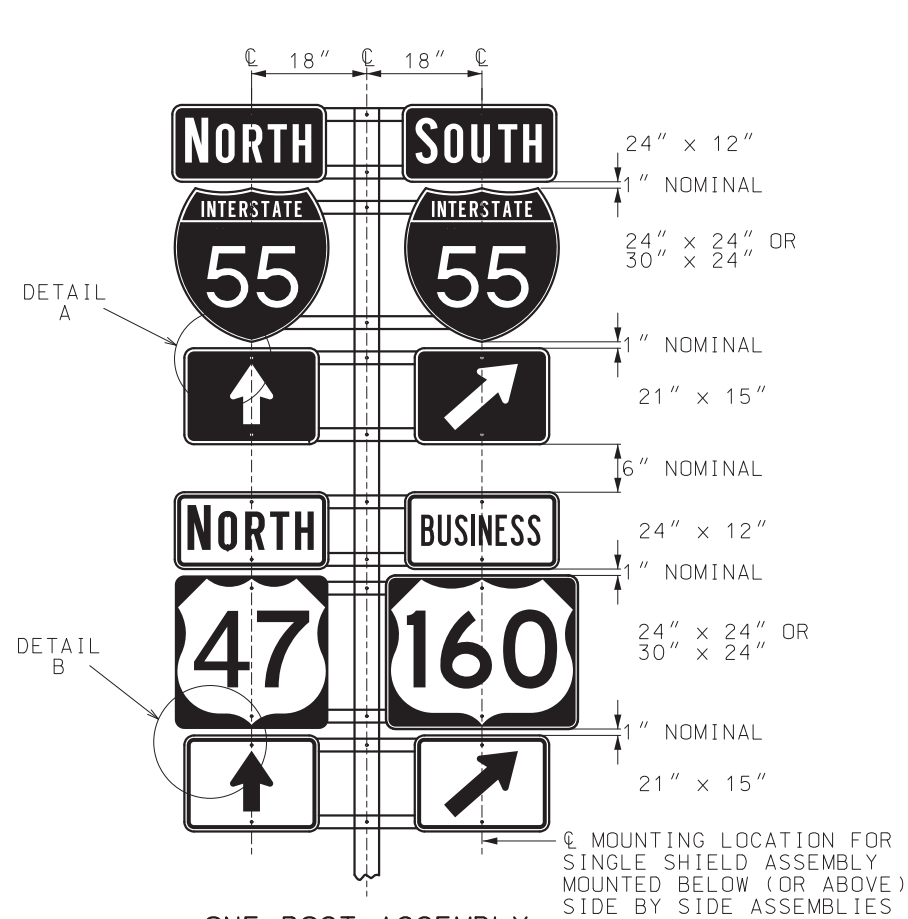
TRAFFIC SIGNALS
INDUCTION LOOP
DETECTORS

DATE EFFECTIVE: 01/01/2020
DATE PREPARED: 10/17/2019

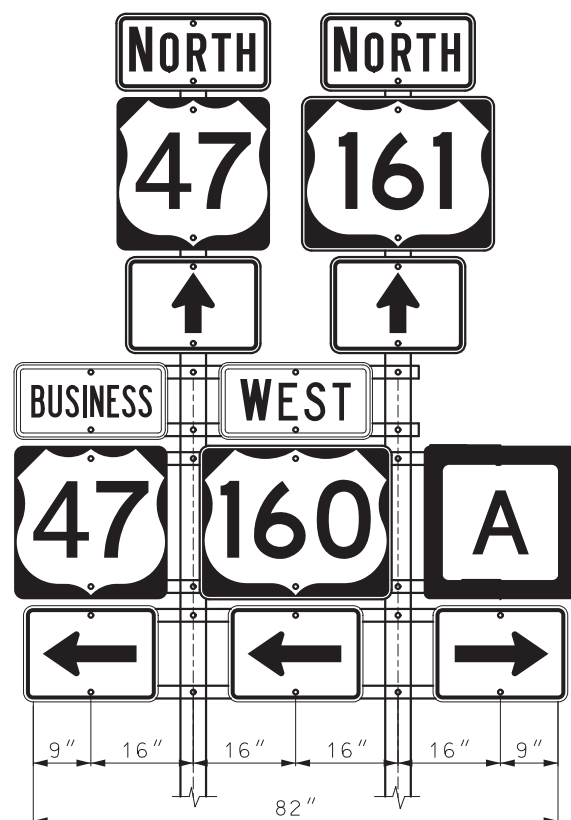
902.50M

SHEET NO.
1 OF 2

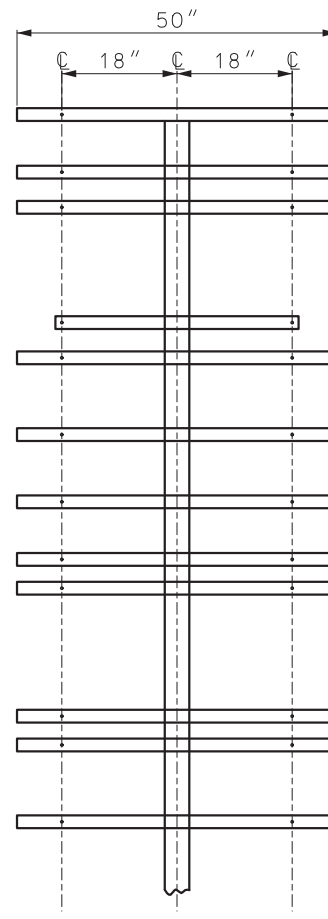
IF A SEAL IS PRESENT ON THIS SHEET IT HAS BEEN ELECTRONICALLY SEALED AND DATED.



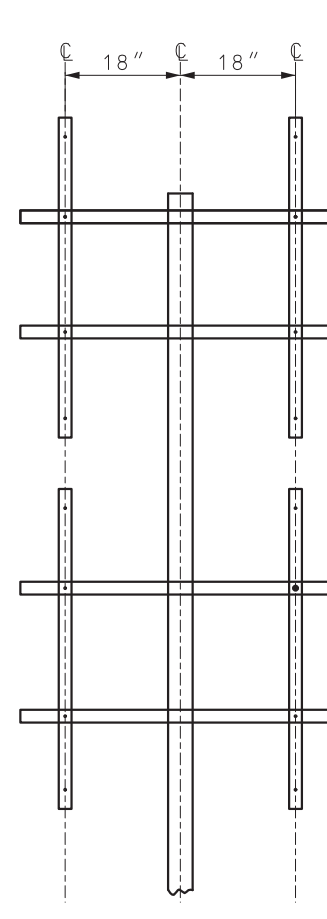
ONE POST ASSEMBLY
USE TO SUPPORT UP TO 4 ROUTE MARKERS



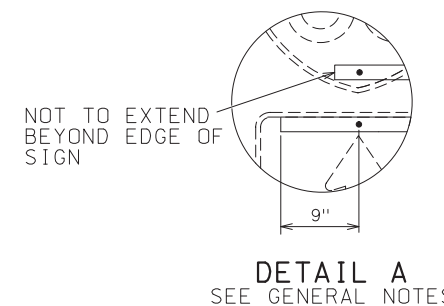
TWO POST ASSEMBLY
USE TO SUPPORT 5 OR 6 ROUTE MARKERS



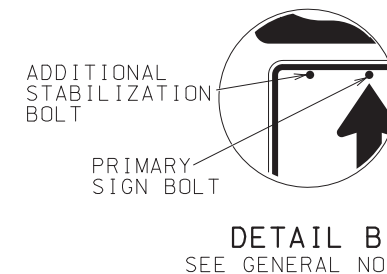
STANDARD BACKING
BAR LAYOUT



OPTIONAL BACKING
BAR LAYOUT



DETAIL A
SEE GENERAL NOTES



DETAIL B
SEE GENERAL NOTES

GENERAL NOTES:

ALL BACKING BARS SHALL BE 2"x 3/8" STEEL, GALVANIZED AFTER PUNCHING. WEIGHT = 2.55 LBS. PER FOOT. HOLES IN BARS SHALL BE 3/8" AND SHALL BE PUNCHED AS SHOWN ON THIS DRAWING.

DETAIL A - THE END OF THE HORIZONTAL BACKING BARS SHALL EXTEND MAXIMUM OF 9 INCHES PAST THE SIGN BOLT, BUT SHALL NOT EXTEND PAST THE EDGE OF THE SIGN.

DETAIL B - FOR SIGNS INSTALLED ON TWO PARALLEL HORIZONTAL BACKING BARS, ONE ADDITIONAL BOLT SHALL BE ADDED TO THE LEFT SIGN TO KEEP ASSEMBLY SQUARE.

WHEN USING OPTIONAL BACKING BAR LAYOUT, VERTICAL BARS SHALL BE MOUNTED BEHIND HORIZONTAL BARS.

BACKING BARS SHALL MEET MISSOURI STANDARD PLANS OR APPROVED PRODUCTS LIST.

BACKING BARS PAID FOR AS STRUCTURAL STEEL, PER POUND.

ALL SIGNS TO BE INSTALLED ALONG VERTICAL CENTERLINES.

FOR POST AND FOOTING DATA AND DETAILS OF SHIELDS AND PLAQUES, SEE OTHER DRAWINGS.

NOMINAL VERTICAL SPACING INDICATED BETWEEN SIGNS TO BE ACHIEVED BY USING THE CLOSEST AVAILABLE HOLES WHEN USING PSST.

TWO POST ASSEMBLY NOTE:

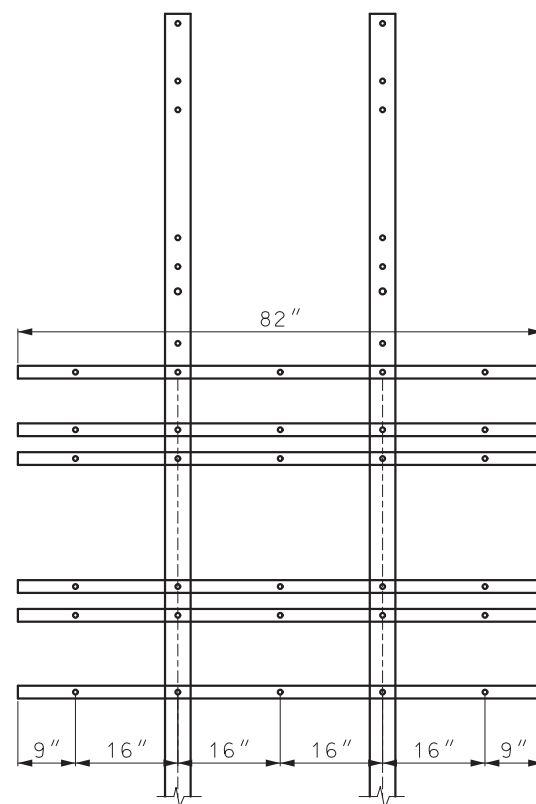
OPTIONAL BACKING BAR LAYOUT MAY BE USED WITH TWO POST ASSEMBLY.

FOR 6 ROUTE SHIELD ASSEMBLY ADDITIONAL BACKING BARS ARE REQUIRED.


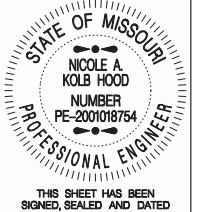
POST SELECTION

SINGLE POST ASSEMBLIES SHALL USE A 4" PIPE POST OR A 2 1/2" PSST POST.

TWO POST ASSEMBLIES SHALL USE TWO 4" PIPE POSTS OR TWO 2 1/2" PSST POST WITH 2 1/4" PSST INSERTS AND BREAKAWAYS. (SEE STANDARD PLAN 903.03)



STANDARD BACKING
BAR LAYOUT

 MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION	
105 WEST CAPITOL JEFFERSON CITY, MO 65102 1-888-ASK-MODOT (1-888-275-6636)	
	HIGHWAY SIGNING BACKING BARS SHEET SIGN MOUNTING ROUTE SHIELD AND MARKER ASSEMBLIES
DATE EFFECTIVE: 10/01/2019 DATE PREPARED: 7/18/2019	903.02AP
SHEET NO. 4 OF 8	



MECHANICAL ATTACH

TO

GALVANIZED STEEL PLATE

ON 1080

BASED ON POST SIZE SEE 7 GAUGE ANCHOR DETAILS

2' 8"

6"

5"

4 1/2"

7"

5"

1"

1"

1 1/2"

1"

1 1/2"

4"

6"

6°

1 1/2"

1 1/2"

17 3/32"

3"

1 1/2"

6"

1 1/2"