

MISSOURI HIGHWAYS and TRANSPORTATION COMMISSION

JEFFERSON CITY, MISSOURI

**SUPPLEMENTAL PLANS TO JULY 2017 MISSOURI STANDARD
PLANS FOR HIGHWAY CONSTRUCTION**

EFFECTIVE October 1, 2017

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION

MISSOURI STANDARD PLANS FOR HIGHWAY CONSTRUCTION

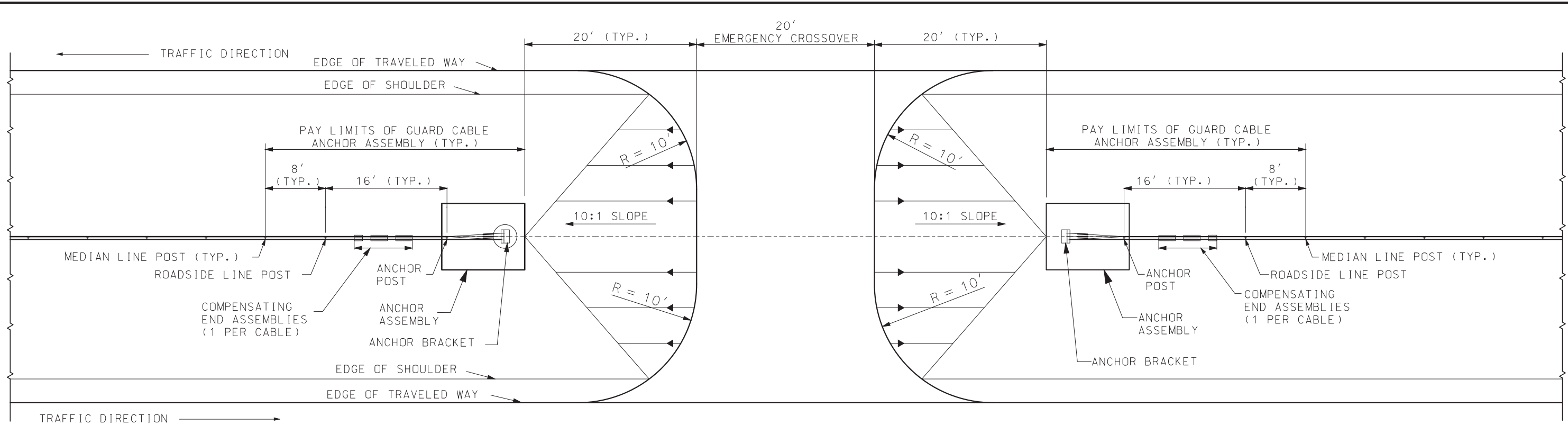
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STANDARD NO.	DRAWING TITLE	NO. OF SHEETS	EFFECTIVE DATE	STANDARD NO.	DRAWING TITLE	NO. OF SHEETS	EFFECTIVE DATE	
203.00E	EXCAVATION AND EMBANKMENT - TYPICAL DETAILS	1	08/01/1998	606.60B	MIDWEST GUARDRAIL SYSTEM (MGS) - VERTICAL BARRIER TRNSITIONS	6	07/01/2017	
203.02F	UNDERGRADING - TYPICAL DETAILS	2	01/01/2004	606.70B	MIDWEST GUARDRAIL SYSTEM (MGS) - THRIE BEAM RAIL ON BRIDGE	5	07/01/2017	
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	606.81	MASH - CRASHWORTHY END TERMINALS - TYPE A - GRADING LIMITS	1	01/01/2017	
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	
401.00A	TYPE A2 AND A3 SHOULDERS	2	04/01/2009	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	
502.05N	CONCRETE PAVEMENT AND BASE APPURTENANCES FOR 15 FT. JOINT SPACING	4	07/01/2015	612.20D	SAND FILLED IMPACT ATTENUATORS	1	08/01/2008	
502.10K	DOWEL SUPPORTING UNITS	2	06/01/2010	613.00S	PAVEMENT REPAIR	4	04/01/2017	
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	616.10AU	TEMPORARY TRAFFIC CONTROL DEVICES	*	9	10/01/2017
604.11E	PIPE CULVERT HEADWALL - ENERGY DISSIPATOR FOR 24" CONCRETE PIPE	1	07/01/2001	617.10K	PERMANENT CONCRETE TRAFFIC BARRIER	11	07/01/2017	
604.12E	PIPE CULVERT HEADWALL - ENERGY DISSIPATOR FOR 30" CONCRETE PIPE	1	07/01/2001	617.20D	TEMPORARY CONCRETE TRAFFIC BARRIER	8	10/01/2015	
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	04/01/1983	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	01/01/2017					
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					
606.31	CRASHWORTHY END TERMINALS - TYPE A - GRADING LIMITS	1	01/01/2017					
606.40D	ONE-STRAND ACCESS RESTRAINT CABLE	2	07/01/2004					
606.41L	THREE-STRAND GUARD CABLE	*	7	10/01/2017				
606.50C	MIDWEST GUARDRAIL SYSTEM (MGS)	8	07/01/2017					
606.51	MIDWEST GUARDRAIL SYSTEM (MGS) - MEDIAN PIER PROTECTION	*	2	10/01/2017				

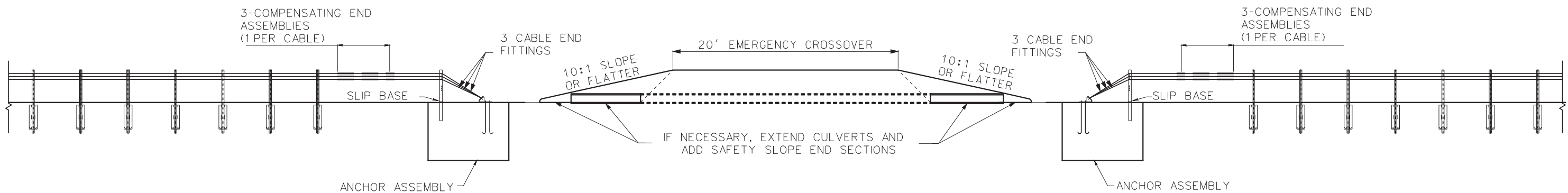
* REVISED OR ADDED SINCE OCTOBER 2016

SHEET 1 OF 2

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



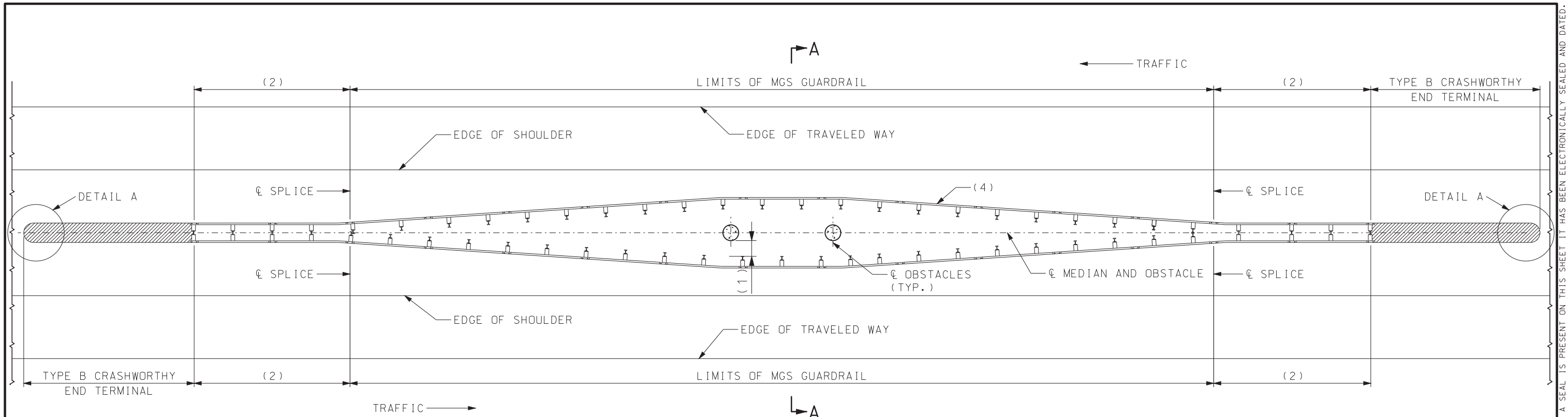
PLAN



PROFILE

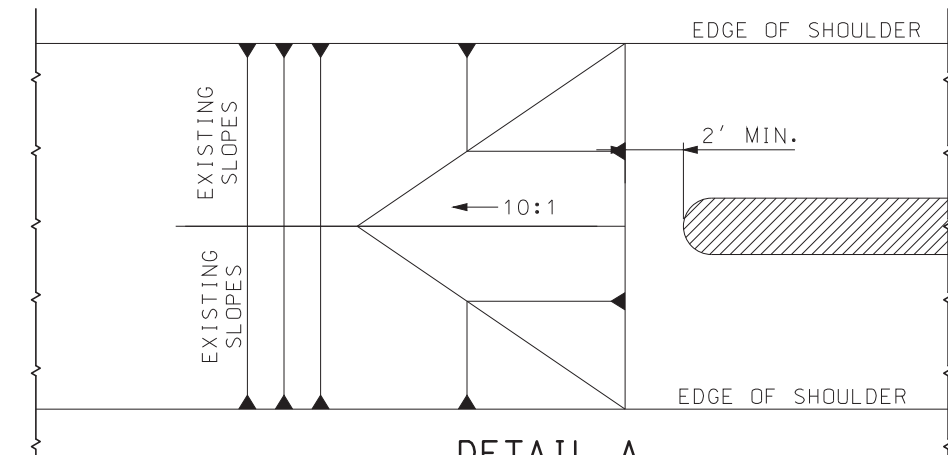
 <p>MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION 105 WEST CAPITOL JEFFERSON CITY, MO 65102 1-888-ASK-MODOT (1-888-275-6636)</p>	<p>THREE-STRAND GUARD CABLE TRANSITION AT MEDIAN OPENING</p>		
			<p>STATE OF MISSOURI ERIC E. SCHROETER NUMBER PE-28411 PROFESSIONAL ENGINEER</p> <p><small>THIS SHEET HAS BEEN SIGNED, SEALED AND DATED ELECTRONICALLY.</small></p>

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

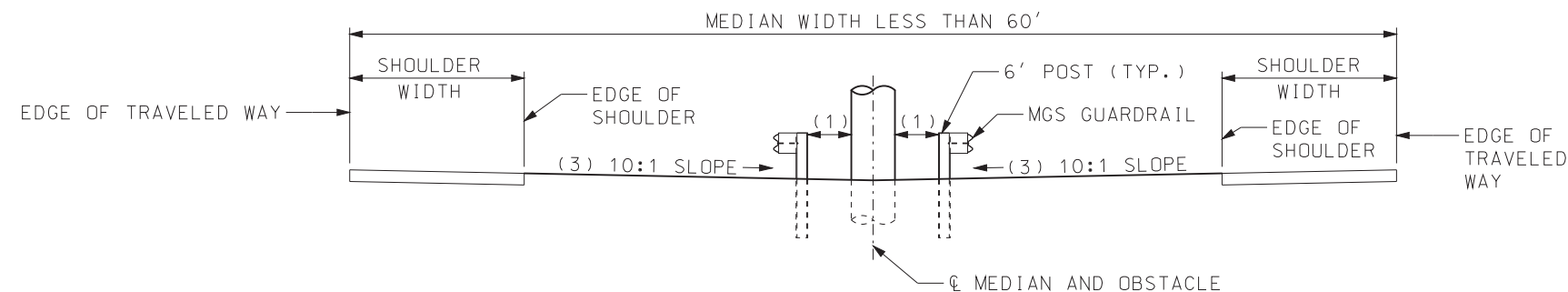


PIER AT CL MEDIAN

- (1) 3'-0" MINIMUM CLEARANCE TO THE FACE OF OBSTACLE WITH 6'-3" POST SPACING IS PREFERRED
 2'-0" MINIMUM CLEARANCE USE 3'-1 1/2" POST SPACING
 1'-6" MINIMUM CLEARANCE USE 1'-6 3/4" POST SPACING
 SEE STD. PLANS 606.50 FOR POST SPACING DETAILS.
- (2) TRANSITION DOUBLE FACED GUARDRAIL HEIGHT AND WIDTH IF NEEDED FOR TYPE B CRASHWORTHY END TERMINAL PER MANUFACTURER'S REQUIREMENTS. SEE STD. PLANS 606.50 FOR HEIGHT TRANSITION DETAILS.
- (3) CONTINUE 10:1 SLOPE TO OBSTACLE OR A MINIMUM OF 2' PAST THE BACK OF THE GUARDRAIL POST.
- (4) 15:1 FLARE RATE OR AS RECOMMENDED BY TABLE 5-9 OF THE LATEST VERSION OF THE "ROADSIDE DESIGN GUIDE".



DETAIL A
(GRADING LIMITS)



SECTION A-A

GENERAL NOTE:

TYPE B CRASHWORTHY END TERMINAL SHALL BE MGS COMPATIBLE, LATEST VERSION AND SHALL BE INSTALLED ACCORDING TO MANUFACTURER'S RECOMMENDATIONS.

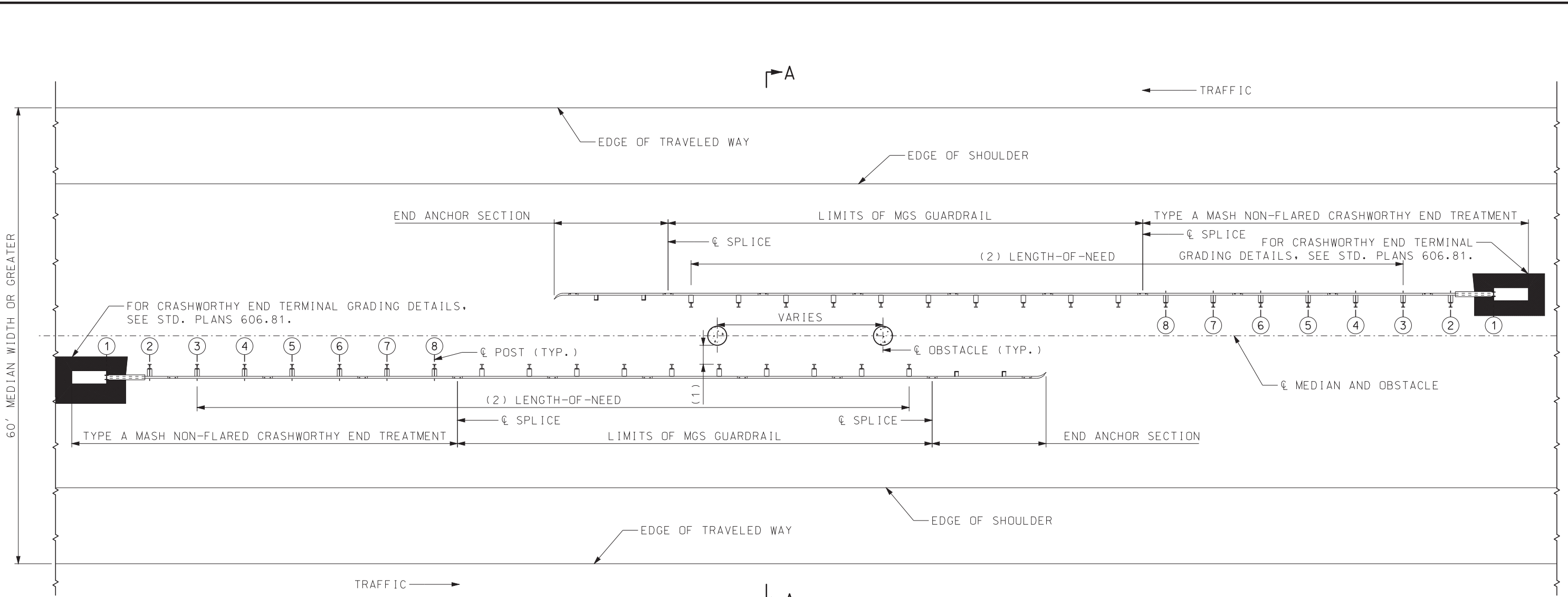
MoDOT MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION
 105 WEST CAPITOL
 JEFFERSON CITY, MO 65102
 1-888-ASK-MODOT (1-888-275-6636)

STATE OF MISSOURI
 ERIC E. SCHROETER
 NUMBER PE-28411
 PROFESSIONAL ENGINEER
 THIS SHEET HAS BEEN SIGNED, SEALED AND DATED ELECTRONICALLY.

**MGS GUARDRAIL
 MEDIAN PIER
 PROTECTION**
 MEDIAN LESS THAN 60'

DATE EFFECTIVE: 10/01/2017	606.51	SHEET NO. 1 OF 2
DATE PREPARED: 8/8/2017		

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

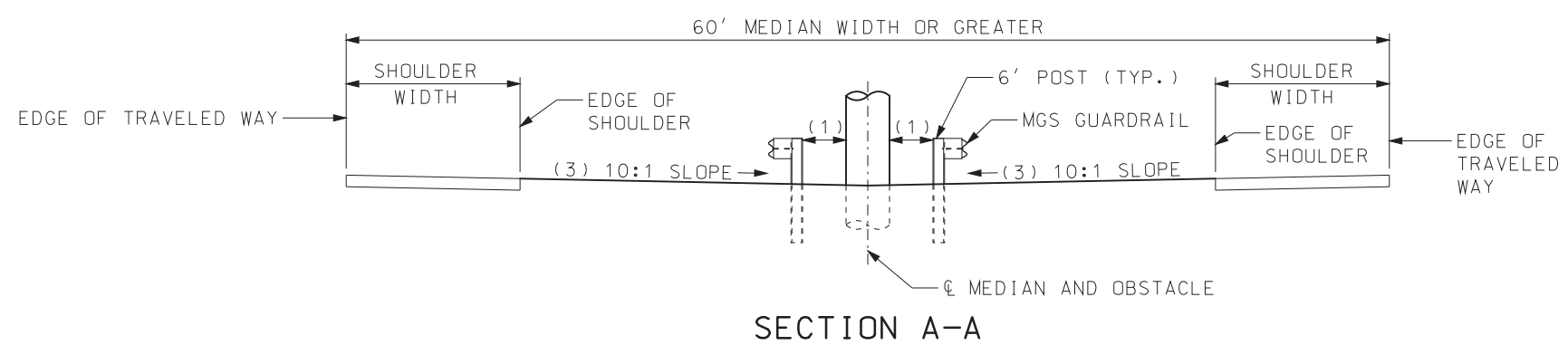


PIER AT ϕ MEDIAN


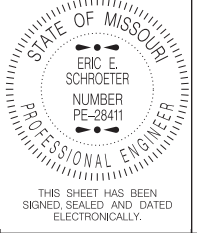
- (1) 3'-0" MINIMUM CLEARANCE TO THE FACE OF OBSTACLE WITH 6'-3" POST SPACING IS PREFERRED
 2'-0" MINIMUM CLEARANCE USE 3'-11#2" POST SPACING
 1'-6" MINIMUM CLEARANCE USE 1'-63#4" POST SPACING
 SEE STD. PLANS 606.50 FOR POST SPACING DETAILS.
- (2) FOR LENGTH-OF-NEED, SEE THE LATEST VERSION OF THE "ROADSIDE DESIGN GUIDE 5.6.4 LENGTH-OF-NEED".
- (3) CONTINUE 10:1 SLOPE TO OBSTACLE OR A MINIMUM OF 2' PAST THE BACK OF THE GUARDRAIL POST.

GENERAL NOTE:
 MEDIAN WIDTHS GREATER THAN 60' THAT THE PIER OBSTACLES ARE BEYOND THE CLEAR-ZONE DO NOT REQUIRE MEDIAN PIER PROTECTION. FOR CLEAR-ZONE DISTANCES, SEE THE LATEST VERSION OF THE "ROADSIDE DESIGN GUIDE 3.1 THE CLEAR-ZONE CONCEPT".

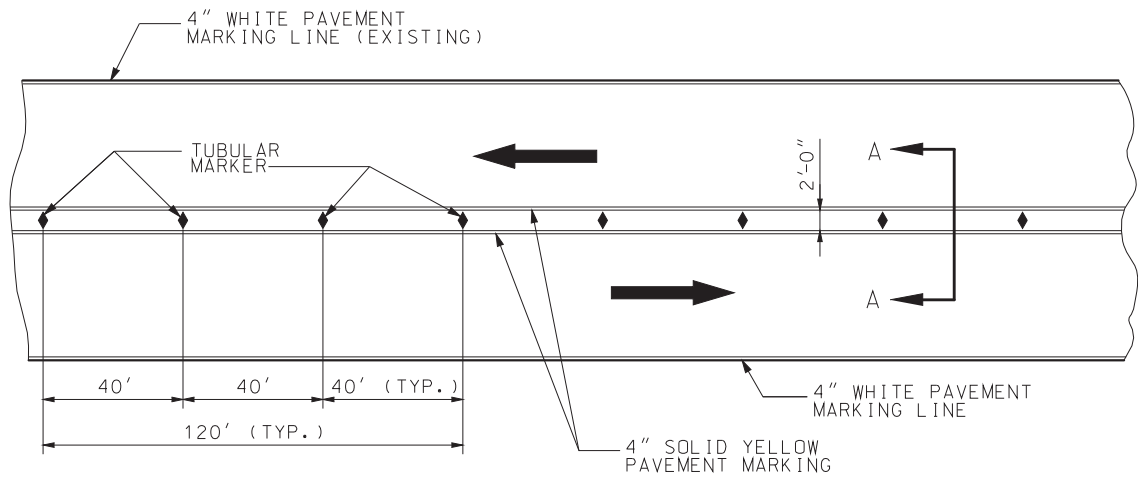
TYPE A NON-FLARED CRASHWORTHY END TERMINAL SHALL BE THE LATEST VERSION AND SHALL BE INSTALLED ACCORDING TO MANUFACTURER'S RECOMMENDATIONS.



SECTION A-A

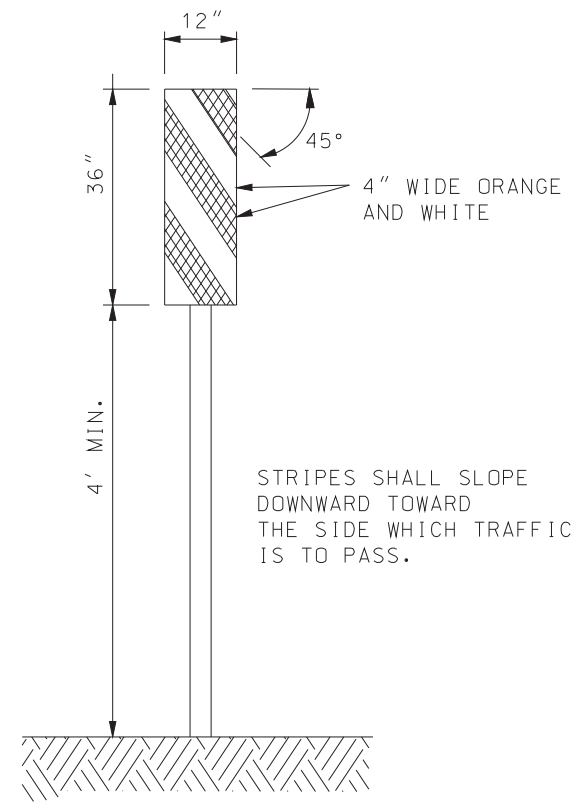
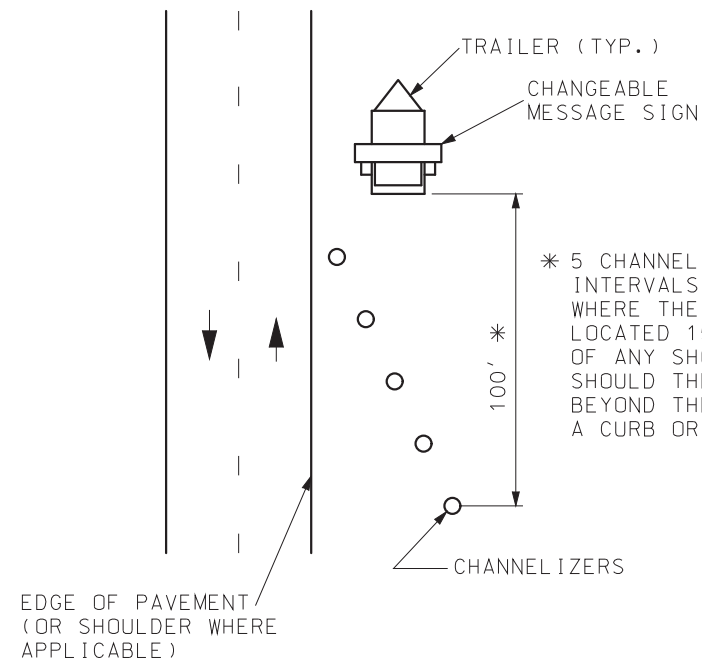
 MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION 105 WEST CAPITOL JEFFERSON CITY, MO 65102 1-888-ASK-MODOT (1-888-275-6636)	
	<p>MGS GUARDRAIL MEDIAN PIER PROTECTION</p> <p>60' MEDIAN OR GREATER</p>
DATE EFFECTIVE: 10/01/2017 DATE PREPARED: 8/8/2017	<p>606.51</p>
SHEET NO. 2 OF 2	

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

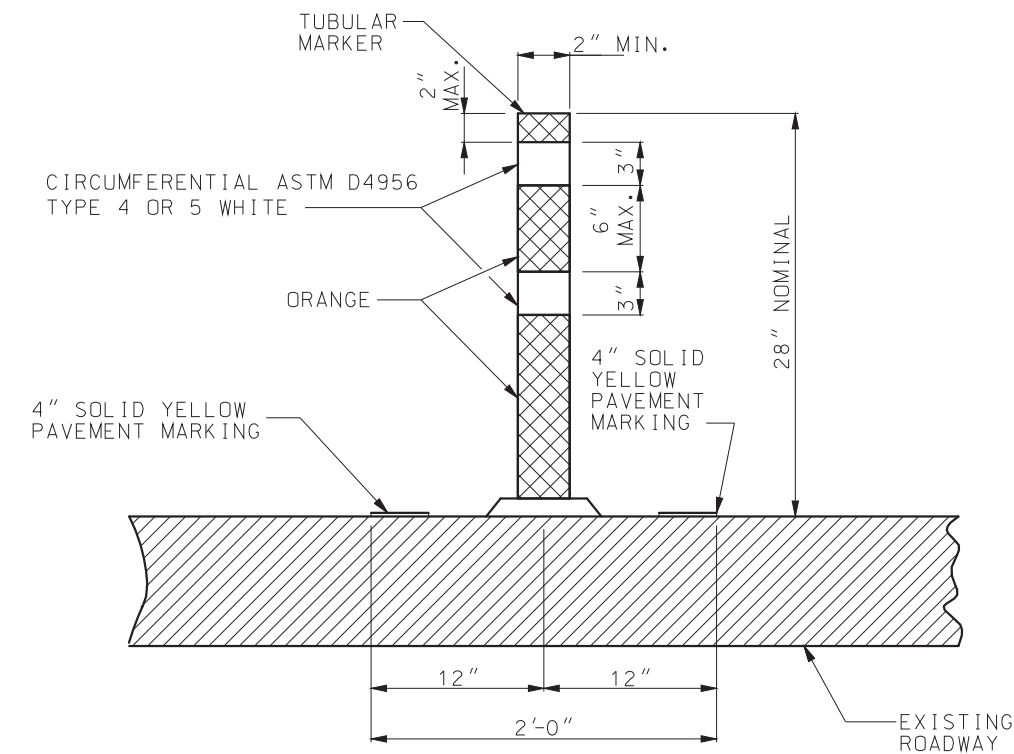


TWO LANE / TWO WAY TRAFFIC DELINEATION PLAN FOR DIVIDED HIGHWAY

IF RAISED PAVEMENT MARKERS ARE PRESENT, THE LENSES SHALL BE REMOVED OR COVERED TO THE SATISFACTION OF THE ENGINEER.



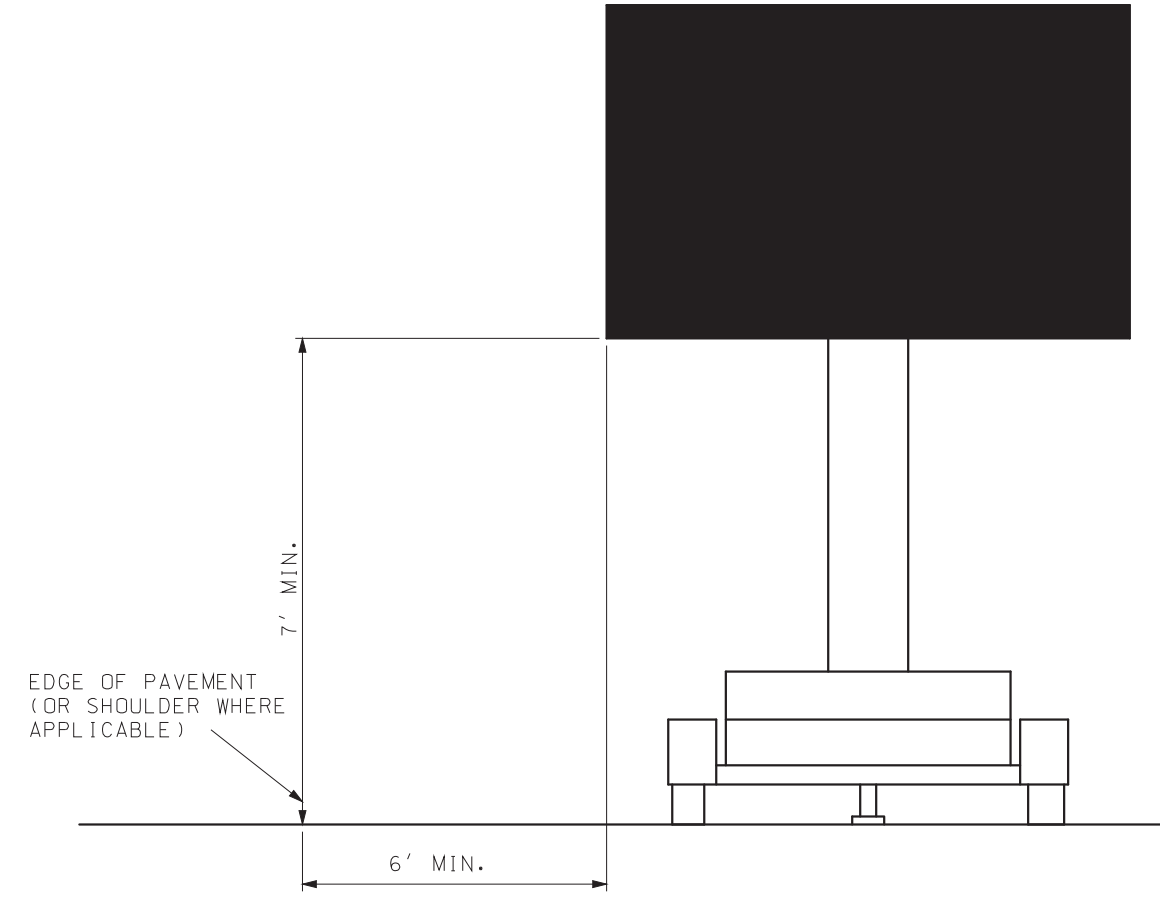
TYPE 3 OBJECT MARKERS
WHITE AND ORANGE REFLECTIVE SHEETING SHALL BE IN ACCORDANCE WITH SEC 1042.2.7.3.



SECTION A-A TUBULAR MARKER DETAIL

AN ADHESIVE, IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS, SHALL BE USED TO APPLY THE TUBULAR MARKER TO THE ROADWAY SURFACE. THE ADHESIVE SHALL PERMIT EASY REMOVAL OF THE TUBULAR MARKER WITHOUT DAMAGE TO THE ROADWAY SURFACE.

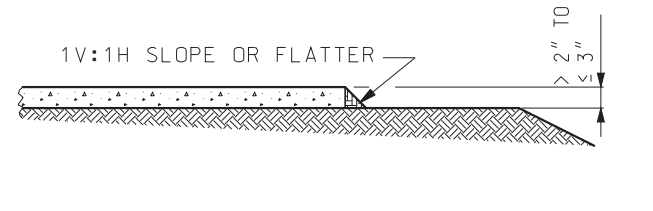

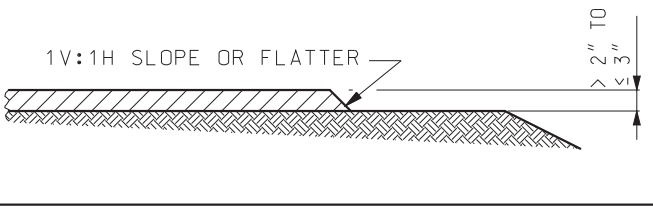

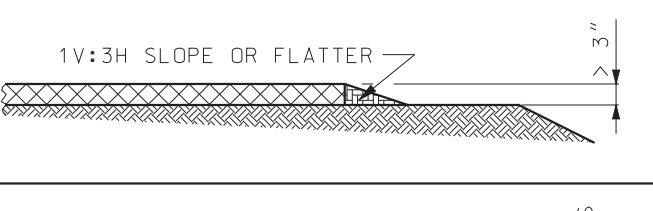

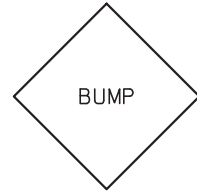
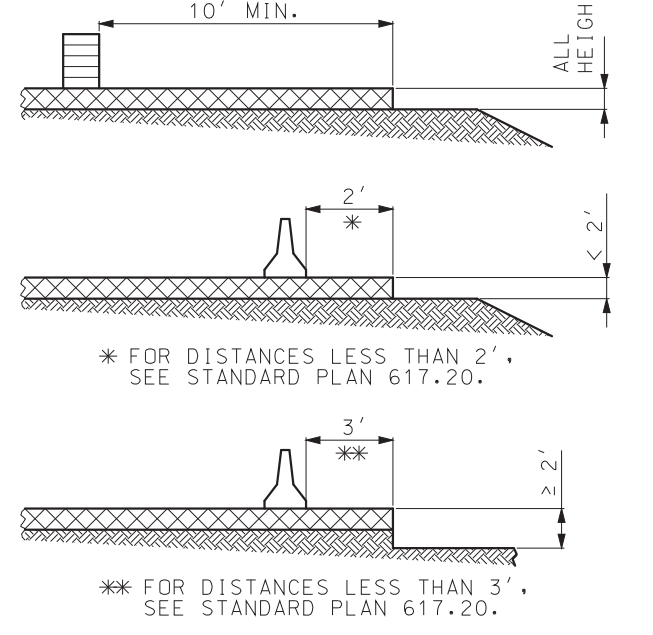



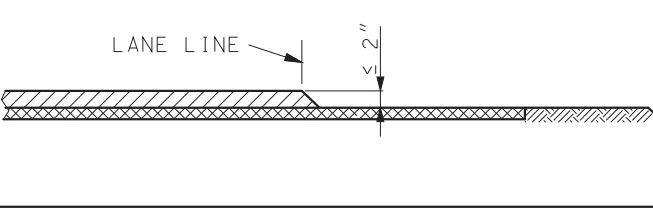
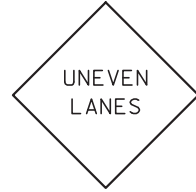
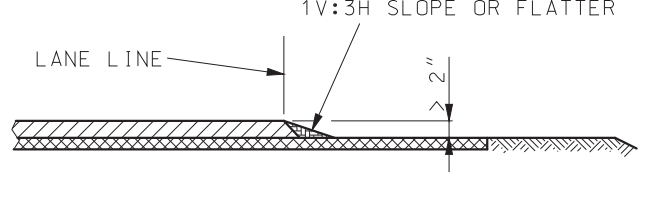
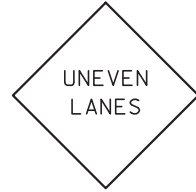
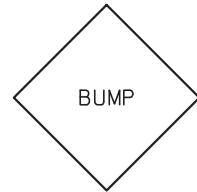
REFLECTIVE SHEETING APPLIED TO TUBULAR MARKERS SHALL BE REBOUNDABLE MEETING ASTM D4956.




CHANGEABLE MESSAGE SIGN

<p>MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION</p> <p>105 WEST CAPITOL JEFFERSON CITY, MO 65102 1-888-ASK-MODOT (1-888-275-6636)</p>	
<p>STATE OF MISSOURI ERIC E. SCHROETER NUMBER PE-28411 PROFESSIONAL ENGINEER</p> <p>THIS SHEET HAS BEEN SIGNED, SEALED AND DATED ELECTRONICALLY.</p>	<p>TEMPORARY TRAFFIC CONTROL DEVICES</p>
<p>DATE EFFECTIVE: 10/01/2017 DATE PREPARED: 8/8/2017</p>	<p>616.10AU</p>
<p>SHEET NO. 5 OF 9</p>	

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

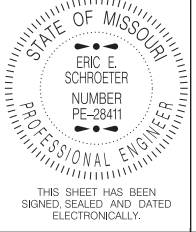
	CROSS SECTION	CONDITION		TREATMENT	SIGN		
		DIFFERENTIAL	TIME		MAINLINE (1)	SIDE ROAD (2)	
EDGE DROP-OFF		PAVEMENT EDGE DIFFERENTIAL > 2" TO ≤ 3"	NON-WORKING HOURS	WEDGE SLOPE TO 1V:1H OR FLATTER	 SHOULDER DROP-OFF W08-17 (3)(4) W08-17p (6)	NO SIGNS REQUIRED	<p>(1) SIGNS SHALL BE SPACED AT APPROXIMATELY ONE MILE INTERVALS AND LOCATED WITHIN 150 FT. BEYOND ANY STATE ROADS. WHEN A SIGN PLACED AT THE ONE MILE INTERVAL FALLS WITHIN 1/2 MILE OF A SIGN PLACED AFTER AN INTERSECTION, THE SIGN PLACED AT THE 1/2 MILE INTERVAL MAY BE OMITTED. WHEN SHOULDER DROP-OFF SIGNS WITH UNEVEN LANES ARE BOTH SPECIFIED, ALTERNATING SIGN MESSAGES SHALL BE USED AT 1 MILE SPACINGS.</p> <p>(2) ON SIDE ROADS WITH POSTED SPEED OF 45 MPH OR GREATER, SIGNS SHALL BE PLACED 150 FT. IN ADVANCE OF INTERSECTION WITH MAINLINE.</p> <p>(3) SIGNS SHALL BE LOCATED ON THE SIDE OF THE ROADWAY WHERE THE PAVEMENT EDGE DIFFERENTIAL EXISTS.</p> <p>(4) SIGNS TO REMAIN VISIBLE UNTIL SHOULDER SHAPING IS COMPLETE.</p> <p>(5) SIGNS SHALL BE LOCATED ON RIGHT SIDE OF NON-DIVIDED HIGHWAYS AND ON BOTH SIDES OF DIVIDED HIGHWAYS WHERE A LANE LINE DIFFERENTIAL EXISTS.</p> <p>(6) WHEN THE SHOULDER DROP-OFF SIGNS ARE IN PLACE FOR GREATER THAN THREE DAYS, THE SHOULDER DROP-OFF PLAQUE SHOULD BE USED IN ADDITION WITH THE SHOULDER DROP-OFF SIGN.</p>
	WORKING HOURS		NO EDGE TREATMENT REQUIRED				
		PAVEMENT EDGE DIFFERENTIAL > 2" TO ≤ 3"	NON-WORKING HOURS	WEDGE SLOPE TO 1V:1H OR FLATTER	 SHOULDER DROP-OFF W08-17 (3)(4) W08-17p (6)	NO SIGNS REQUIRED	
	WORKING HOURS		NO EDGE TREATMENT REQUIRED				
	PAVEMENT EDGE DIFFERENTIAL > 3"	NON-WORKING HOURS	WEDGE SLOPE TO 1V:3H OR FLATTER	 SHOULDER DROP-OFF W08-17 (3)(4) W08-17p (6)	 BUMP W08-1 (3)		
WORKING HOURS		DELINEATE DIFFERENTIAL WITH CHANNELIZERS					
		ANY PAVEMENT EDGE OR LANE LINE DIFFERENTIAL	NON-WORKING AND WORKING HOURS WHERE PLANS REQUIRE ADJACENT LANE CLOSURE WITH CHANNELIZATION OR PARTIAL LANE CLOSURE WITH BARRIER.	NO EDGE TREATMENT REQUIRED	NO SIGNS REQUIRED	NO SIGNS REQUIRED	<p>LEGEND</p> <p> - RIGID PAVEMENT</p> <p> - FLEXIBLE PAVEMENT</p> <p> - ALL PAVEMENT TYPES</p> <p>GENERAL NOTES:</p> <p>SIGNS SHALL BE VISIBLE TO TRAFFIC ONLY WHEN AND WHERE CONDITIONS EXIST.</p> <p>FOR ADDITIONAL SIGN SPACING AND DETAILS SEE STANDARD PLAN 620.10.</p>
LANE DIFFERENTIAL		LANE LINE DIFFERENTIAL ≤ 2"	NON-WORKING AND WORKING HOURS	NO EDGE TREATMENT REQUIRED	 UNEVEN LANES W08-11 (5)	NO SIGNS REQUIRED	
		LANE LINE DIFFERENTIAL > 2"	NON-WORKING AND WORKING HOURS WHERE LANES OPEN TO TRAFFIC	WEDGE SLOPE TO 1V:3H OR FLATTER	 UNEVEN LANES W08-11 (5)	 BUMP W08-1	
		NON-WORKING AND WORKING HOURS WHERE LANE CLOSED TO TRAFFIC	DELINEATE DIFFERENTIAL WITH CHANNELIZERS				

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MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION

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



PAVEMENT EDGE TREATMENT

DATE EFFECTIVE: 10/01/2017	619.10J	SHEET NO. 1 OF 1
DATE PREPARED: 8/8/2017		