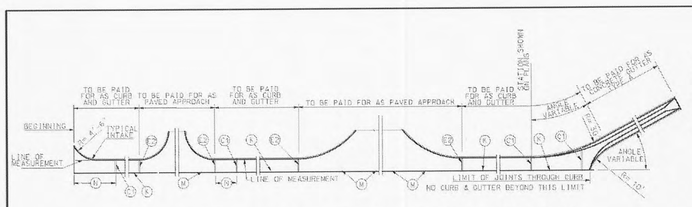
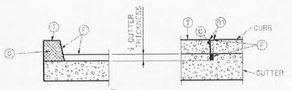
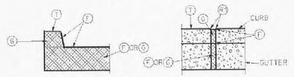


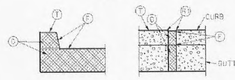
PLAN OF MEASUREMENT OF CURB & GUTTER AND JOINT PLAN



(C1) JOINT



(E2) JOINT



(E1) JOINT

LEGEND

(B) ½" MINIMUM TRANSVERSE CONTRACTION JOINT. (PREFORMED OR SAWED)

(C) 2" TRANSVERSE EXPANSION JOINT. (PREFORMED OR SAWED)

(C2) ½" TRANSVERSE EXPANSION JOINT. (PREFORMED OR SAWED)

(P) FILLER FOR JOINTS - HOT POURED.

(Q) PREFORMED JOINT FILLER MATERIAL.

(R) TONGUE & GROOVE JOINT WITH TIE BAR - SEE DETAIL.

(M) TONGUE & GROOVE JOINT WITHOUT TIE BARS - SEE DETAIL.

(N) NOT LESS THAN 10' OR MORE THAN 30'.

(T) TOP OF CURB.

(R) ROUND TO ¼" RADIUS. (EXCEPT FOR SAWED JOINTS)

GENERAL NOTES:

A MINIMUM 4" TYPE 5 AGGREGATE BASE SHALL BE PLACED BENEATH ALL CURB AND GUTTER SECTIONS.

WHEN CURBS ARE CONSTRUCTED DIRECTLY BENEATH GUARDRAIL, CURB HEIGHT SHALL BE 4 INCH BARRIER CURB, AS SHOWN ON STANDARD PLAN 606.00.

CURB, GUTTER AND CURB AND GUTTER CONSTRUCTED ALONG AND ATTACHED TO CONCRETE PAVEMENT OR BASE SHALL HAVE:

1. JOINT (B) THROUGH CURB AND ONE-QUARTER GUTTER THICKNESS AS A CONTINUATION OF EACH CONTRACTION JOINT IN THE BASE OR PAVEMENT.
2. JOINT (C) AS CONTINUATION OF 2" EXPANSION JOINT (E) IN THE CONCRETE BASE OR PAVEMENT SHALL EXTEND AND CONTINUE THROUGH THE CURB, GUTTER AND CURB AND GUTTER.
3. JOINT (C2) THROUGH CURB AND CURB AND GUTTER AT THE BEGINNING AND END OF EACH PAVED APPROACH.

CURB, CURB AND GUTTER AND GUTTER CONSTRUCTED APART OR SEPARATED FROM CONCRETE BASE OR PAVEMENT OR AS A FORM FOR ASPHALTIC CONCRETE PAVEMENT SHALL HAVE A JOINT (B) ENTIRELY THROUGH THE CURB, CURB AND GUTTER AND GUTTER. AT THE BEGINNING AND END OF EACH "PAVED APPROACH" AND A JOINT (C) ENTIRELY THROUGH THE CURB AND TO A DEPTH OF 1 GUTTER THICKNESS AT INTERVALS OF 30 FEET BETWEEN APPROACHES.

JOINTS (C), (C2) AND (E) THROUGH CURB SHALL BE FILLED WITH PREFORMED FILLER MATERIAL AND SEALED WITH HOT POURED FILLER FOR JOINTS.

JOINT (B) IN GUTTER SHALL BE FILLED AND SEALED WITH HOT POURED FILLER FOR JOINTS.

JOINT (C) IN GUTTER SHALL BE FILLED WITH PREFORMED FILLER AND SEALED WITH HOT FILLER MATERIAL.

JOINT (E) IN GUTTER SHALL BE FILLED WITH PREFORMED FILLER AND SEALED WITH FILLER OR FILLED WITH HOT POURED FILLER.

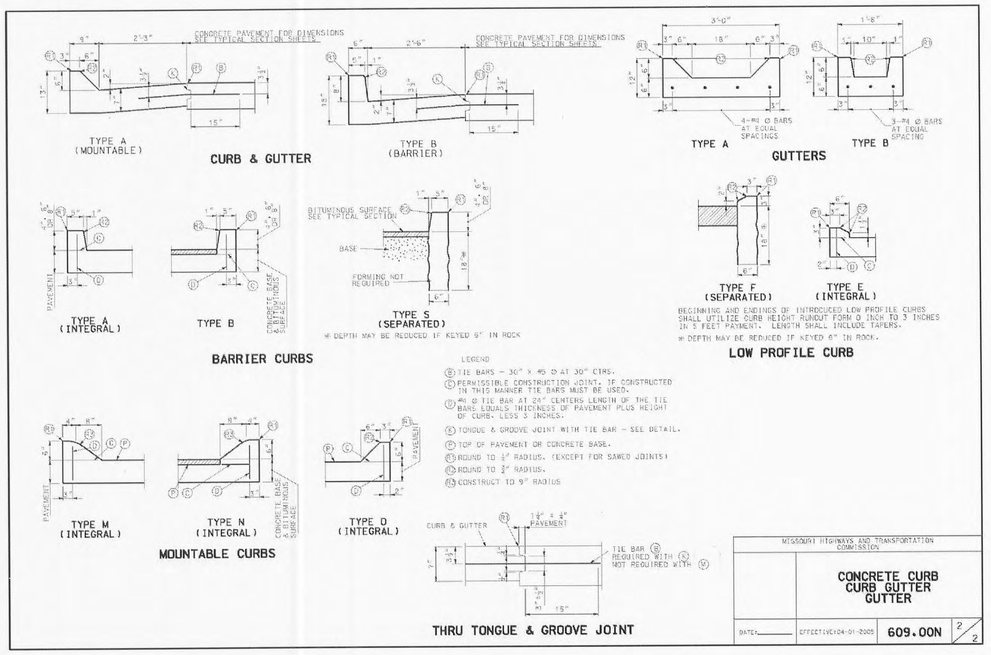
PREFORMED FILLER MATERIAL SHALL BE PLACED TO PROVIDE ½" HOT POURED FILLER FOR JOINTS.

THE BARRIER CLASS CURBS MAY BE CONSTRUCTED WITHOUT BATTER WHEN CONSTRUCTED ON A RADIUS OF 6 FEET OR LESS. THE (R) WILL BE REQUIRED.

WHERE A SIDEWALK INTERSECTS A CURB, THE SIDEWALK SHALL BE RAMPED NO STEEPER THAN 12:1 SLOPE TO PROVIDED ACCESS FOR WHEELCHAIRS ACROSS APPROACHES.

WHEN ALLOWED BY THE ENGINEER, TYPES A AND B GUTTER MAY BE PRECAST TO CONFORM TO THE DIMENSIONS SHOWN. THE PRECASTER SHALL SUBMIT SHOP DRAWINGS INDICATING THE SECTION LENGTH, SECTION CONNECTION, AND PROPOSED JOINT SEALING SYSTEM. WHEN PRECAST SECTIONS CANNOT CONFORM TO ANY VERTICAL OR HORIZONTAL CURVE DESIGNATED ON THE PLANS, THE GUTTER SHALL BE CAST-IN-PLACE. A COMBINATION OF CAST-IN-PLACE AND PRECAST GUTTER MAY BE PERMITTED.

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION			
	CONCRETE CURB CURB AND GUTTER GUTTER		
DATE:	EFFECTIVE: 04-01-2005	609.00N	1/2



LEGEND

(B) TIE BARS - 30" X #5 Ø AT 30" CTRS.

(C) PERMISSIBLE CONSTRUCTION JOINT. IF CONSTRUCTED IN THIS MANNER TIE BARS MUST BE USED.

(M) #5 Ø TIE BAR AT 24" CENTERS LENGTH OF THE TIE BARS EQUALS THICKNESS OF PAVEMENT PLUS HEIGHT OF CURB. LESS 3 INCHES.

(R) TONGUE & GROOVE JOINT WITH TIE BAR - SEE DETAIL.

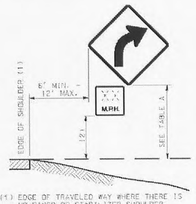
(P) TOP OF PAVEMENT OR CONCRETE BASE.

(S) ROUND TO ½" RADIUS. (EXCEPT FOR SAWED JOINTS)

(R) ROUND TO ¼" RADIUS.

(K) CONSTRUCT TO 9" RADIUS

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION			
	CONCRETE CURB CURB GUTTER GUTTER		
DATE:	EFFECTIVE: 04-01-2005	609.00N	2/2



(1) EDGE OF TRAVELED WAY WHERE THERE IS NO PAVED OR STABILIZED SHOULDER.
(2) ONE-FOOT LESS THAN MOUNTING HEIGHT NOTED IN TABLE A.

HEIGHT AND LATERAL LOCATIONS FOR POST AND PORTABLE SIGN MOUNTING

TYPE	SIGN SUPPORT	SIGN SUBSTRATE	MINIMUM MOUNTING HEIGHT(3)	USAGE LIMITATIONS	COMMENTS
POST	PERFORATED SQUARE STEEL TUBE U-CHANNEL WOOD	RIGID	5' RURAL UNDIVIDED HIGHWAYS 7' RURAL DIVIDED HIGHWAYS 7' URBAN HIGHWAYS	NONE	POSTS SHALL BE FREE OF ANY BRACING AND EXTEND NO FURTHER ABOVE THE SIGN EXCEPT AS NEEDED FOR WARNING LIGHT ATTACHMENT. SEE STANDARD PLAN 903.03 FOR POST INSTALLATION DETAILS. GALVANIZATION OF POSTS WILL NOT BE REQUIRED.
TYPE 1 PORTABLE	SKID FOLD-UP STAND	RIGID	5' RURAL UNDIVIDED HIGHWAYS 7' RURAL DIVIDED HIGHWAYS 7' URBAN HIGHWAYS	PERMITTED ONLY WHERE POST MOUNTING IS NOT FEASIBLE.	SYSTEMS SHALL COMPLY WITH CRASH TEST REQUIREMENTS OF NCHRP 350 TEST LEVEL 3 AND MAY BE PLACED ADJACENT TO OR WITHIN THE ROADWAY PROVIDED A MINIMUM LATERAL CLEARANCE OF 3 FEET, MEASURED HORIZONTALLY FROM THE EDGE OF THE SIGN TO THE EDGE OF DESIGNATED TRAVELED WAY, IS MAINTAINED.
TYPE 2 PORTABLE	EASEL FOLD-UP STAND SELF-DRIVING POST TYPE III MOVABLE BARRICADE SKID	FLEXIBLE RIGID	12"(4)	PERMITTED ONLY FOR INSTALLATION UP TO 3 DAYS(5). WHERE SIGNS ARE OBSCURED BY OTHER OBJECTS (I.E., TRAFFIC CONTROL DEVICES, PARKED VEHICLES, BARRIER, VEGETATION, ETC.) OR INSTALLED ON MULTI-LANE UNDIVIDED FACILITIES OR MULTI-LANE DIVIDED FACILITIES WITH 3 OR MORE LANES IN ONE DIRECTION, MOUNTING HEIGHTS SHALL BE AS SPECIFIED FOR POST-MOUNTED SIGNS.	SYSTEMS SHALL COMPLY WITH CRASH TEST REQUIREMENTS OF NCHRP 350 TEST LEVEL 3 AND MAY BE PLACE ADJACENT TO OR WITHIN ROADWAY PROVIDED A MINIMUM LATERAL CLEARANCE OF 3 FEET, MEASURED HORIZONTALLY FROM THE EDGE OF THE SIGN TO THE EDGE OF THE DESIGNATED TRAVELED WAY, IS MAINTAINED.
BARRIER	CONCRETE TRAFFIC BARRIER GUARDRAIL	FLEXIBLE RIGID	5' RURAL UNDIVIDED HIGHWAYS 7' RURAL DIVIDED HIGHWAYS 7' URBAN HIGHWAYS	PERMITTED ONLY WHERE LONGITUDINAL BARRIER IS PRESENT.	SYSTEMS SHALL PROVIDE POSITIVE CONNECTION TO THE BARRIER AND MINIMIZE POTENTIAL FOR VEHICLE SNAGGING.
VEHICLE	PAVEMENT MARKING EQUIPMENT PILOT CAR PROTECTIVE VEHICLE	FLEXIBLE RIGID	48" (6)	PERMITTED ONLY IN PILOT CAR OR MOVING OPERATIONS.	

(3) MEASURED FROM THE BOTTOM OF THE SIGN TO THE NEAR EDGE OF THE PAVEMENT.
(4) MOUNTING HEIGHTS FOR CRITICAL REGULATORY AND GUIDE SIGNS (E.G., STOP, YIELD, DO NOT ENTER, WRONG WAY, ONE WAY, AND ONE EXIT) SHALL BE AS SPECIFIED FOR POST-MOUNTED SIGNS.
(5) SIGNS MOUNTED ON TYPE III BARRICADES, SOME EXIT SIGN, AND SIGNS FOR CROSWALK/SIDEWALK CLOSURES MAY BE LEFT IN PLACE FOR MORE THAN 3 DAYS.
(6) DEVIATIONS AS APPROVED BY THE ENGINEER.

TABLE A
WORK ZONE SIGN MOUNTING REQUIREMENTS

SIGN AREA (SQ.FT.)	POST TYPE		
	U-CHANNEL	WOOD	PERF. SQUARE STEEL TUBING
< 10	1 - 3.0 LB./FT.*	1 - 4" X 4"*	1 - 2" 12 GA.*
> 10 ≤ 16	2 - 3.0 LB./FT.	2 - 4" X 4" 1 - 6" X 6"+	2 - 2" 12 GA.
> 16 ≤ 24	2 - 3.0 LB./FT.	2 - 4" X 6"	3 - 2" 12 GA.**
> 24 ≤ 30	3 - 3.0 LB./FT.	2 - 4" X 6"	N/A
> 30 ≤ 50	N/A	2 - 6" X 6"	N/A

* SIGNS GREATER THAN 4 FEET IN WIDTH, EXCEPT DIAMOND SHAPE SIGNS, REQUIRE TWO POSTS.
** REQUIRES SLIP BASE PER MANUFACTURER'S RECOMMENDATION.

TABLE B
POST SIZE REQUIREMENTS

GENERAL NOTES:

LONGITUDINAL SPACING OF SIGNS SHOWN IN THE PLANS ARE PREFERRED MINIMUMS, BUT MAY BE ADJUSTED TO MEET EXISTING FIELD CONDITIONS WITH APPROVAL FROM THE ENGINEER.

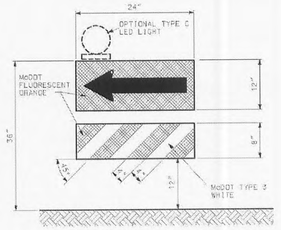
SIGNS SHALL NOT BE MOUNTED IN OR ON CHANNELIZERS.

ALL POSTS AND SIGNS SHALL BE INSTALLED AND MAINTAINED IN A PLUMB POSITION.

CONSTRUCTION SIGNS SHALL NOT BE LOCATED ON SIDEWALKS, BICYCLE LANES, OR AREAS DESIGNATED FOR PEDESTRIAN OR BICYCLE TRAFFIC.

ALL BATTERY PACKS SEPARATE FROM WARNING LIGHT SHALL BE MOUNTED ON A SUPPORT POST NO HIGHER THAN 18" ABOVE GROUND LINE. IF USED, WARNING LIGHTS SHALL NOT COVER ANY PORTION OF THE SIGN FACE.

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION			
	TEMPORARY TRAFFIC CONTROL DEVICES SIGN MOUNTING REQUIREMENTS		
DATE:	EFFECTIVE: 08-01-2007	616.10AH	1/8



DIRECTION INDICATOR BARRICADE

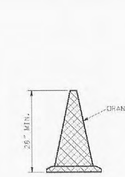
VERTICAL DIMENSIONS DO NOT INCLUDE PROJECTIONS DESIGNED FOR EASE OF HANDLING.

MARKING SHALL ONLY BE APPLIED TO THE FRONT OF EACH RAIL OR MAY BE APPLIED TO BOTH THE FRONT AND THE BACK OF EACH RAIL PROVIDED THE MARKING ON THE BACK DOES NOT CONFLICT WITH INTENDED OPPOSING TRAFFIC MOVEMENTS.

DIRECTION INDICATOR BARRICADES SHALL NOT BE USED IN SHIFTING TAPERS UNLESS SHOWN ON THE PLANS.

THE PANELS SHALL BE SECURELY ATTACHED TO A SUPPORT THAT IS PORTABLE, CAPABLE OF REMAINING UPRIGHT AND ENTIRELY FREE STANDING.

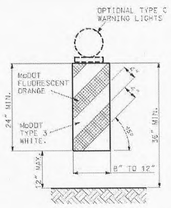
DETAIL SHOWN IS FOR INSTANCES WHERE TRAFFIC IS REQUIRED TO MOVE TO THE LEFT. FOR INSTANCES WHERE TRAFFIC IS REQUIRED TO MOVE TO THE RIGHT, THE REVERSE CONFIGURATION SHALL BE ASSEMBLED.



CONE

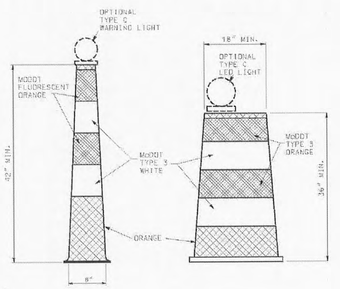
CONES SHALL MAINTAIN THEIR SHAPE UPON EXPOSURE TO NORMAL WORK CONDITIONS.

CONES SHALL BE USED DURING DAYLIGHT HOURS ONLY.



VERTICAL PANEL

VERTICAL PANELS SHALL BE SECURELY ATTACHED TO A SUPPORT THAT IS PORTABLE, CAPABLE OF REMAINING UPRIGHT AND ENTIRELY FREE STANDING.



TRIM-LINE DRUM-LIKE

STRIPES ON TRIM-LINE CHANNELIZERS SHALL BE 6" TO 8". STRIPES ON DRUM-LIKE CHANNELIZERS SHALL BE 4" TO 6".

CHANNELIZERS

GENERAL NOTES:

BALLAST FOR TRAFFIC CONTROL DEVICES SHALL CONFORM TO MANUFACTURERS' RECOMMENDATION FOR FIELD CONDITIONS WHEN APPLICABLE.

IF REQUIRED BY THE ENGINEER OR SPECIFIED ON THE PLANS, EACH DIRECTION INDICATOR BARRICADE, DRUM-LIKE CHANNELIZER, AND VERTICAL PANEL SHALL BE EQUIPPED WITH ONE TYPE C LED PORTABLE LIGHT UNIT. IF USED, THE LIGHT UNIT AND BATTERY COMPARTMENT SHALL BE FURNISHED BY THE DEVICE MANUFACTURER OR OTHERWISE MEET THE MANUFACTURER'S RECOMMENDATIONS FOR DESIGN AND WILL BE REQUIRED ON ALL DEVICES IN THE SERIES.

UPON APPROVAL OF THE ENGINEER, THE CONTRACTOR MAY AT NO ADDITIONAL COST, USE DRUM-LIKE CHANNELIZERS IN LIEU OF TRIM-LINE CHANNELIZERS TO PROVIDE LONGITUDINAL CHANNELIZATION WITHIN THE ACTIVITY AREA WHERE NO RAMPS, INTERSECTIONS OR LIMITED LATERAL CLEARANCE EXISTS.

UPON APPROVAL OF THE ENGINEER, THE CONTRACTOR MAY, AT NO ADDITIONAL COST, USE DIRECTION IMPACT BARRICADES IN LIEU OF TRIM-LINE CHANNELIZERS IN MERGING TAPERS.

UPON APPROVAL OF THE ENGINEER, THE CONTRACTOR MAY, AT NO ADDITIONAL COST, USE VERTICAL PANELS IN LIEU OF TRIM-LINE CHANNELIZERS TO PROVIDE LONGITUDINAL CHANNELIZATION WITHIN THE ACTIVITY AREA.

UPON APPROVAL OF THE ENGINEER, THE CONTRACTOR MAY, AT NO ADDITIONAL COST, USE CONES IN LIEU OF TRIM-LINE CHANNELIZERS DURING DAYTIME OPERATIONS ON MINOR ROUTES.

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION			
	TEMPORARY TRAFFIC CONTROL DEVICES CHANNELIZERS AND DIRECTION INDICATOR BARRICADE		
DATE:	EFFECTIVE: 08-01-2007	616.10AH	2/8

SHEET NO.
14

Job No.	157-07
Date:	1/16/08
Scale:	NTS
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COURTWRIGHT
PROFESSIONAL ENGINEER

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ROADWAY
MoDOT STANDARDS
MO ROUTE K
@ MEXICO ROAD
O'FALLON, MISSOURI

FOR INFORMATION ONLY
IT IS THE CONTRACTOR'S RESPONSIBILITY TO OBTAIN THE CURRENT EDTION OF MoDOT'S STANDARD DRAWINGS