

ALL GENERAL NOTES SHOWN BELOW SHALL APPLY TO ALL OF THE STANDARD DRAWINGS IN TCS SERIES

DESCRIPTION	REVISIONS	DATE
MODIFIED NOTES		3/15/2011

CONTRACTOR

ON CONSTRUCTION PROJECTS IT WILL BE THE CONTRACTORS RESPONSIBILITY TO INSTALL THE NECESSARY TRAFFIC CONTROL BEFORE CONSTRUCTION BEGINS.

THE CONTRACTOR SHALL BE RESPONSIBLE FOR MAINTAINING ALL DEVICES TO ASSURE A HIGH DEGREE OF BOTH DAY AND NIGHT VISIBILITY, WHICH WILL INCLUDE ANY WASHING, REPLACEMENT AND/OR REPOSITIONING WHERE DEEMED NECESSARY BY THE ENGINEER.

THE CONTRACTOR SHALL REPAIR OR REPLACE ANY NEW OR EXISTING PERMANENT STATE OWNED SIGNS WHICH ARE DAMAGED DUE TO HIS NEGLIGENCE OR CARELESS HANDLING DURING THE CONSTRUCTION OF THIS PROJECT. THIS SHALL BE DONE AT THE CONTRACTORS EXPENSE.

THE CONTRACTOR SHALL BE RESPONSIBLE FOR MAINTAINING TEMPORARY TRAFFIC CONTROL WORK ZONE AND EXISTING PAVEMENT MARKINGS ON ALL ROADWAYS OPEN TO TRAFFIC WITHIN THE PROJECT. SUFFICIENT QUANTITIES HAVE BEEN PROVIDED FOR MAINTAINING PAVEMENT MARKINGS FOR PRESCRIBED DETOUR ROUTES WHEN DEEMED NECESSARY BY THE ENGINEER.

SIGN MATERIALS

ALL SIGN BLANK MATERIALS SHALL BE THE OPTION OF THE CONTRACTOR BUT SHALL BE OF SUCH MATERIAL THAT WILL RETAIN A SATISFACTORY APPEARANCE THROUGHOUT THE LIFE OF THE PROJECT.

ALL SIGNS, LIGHTS, FLAGS, ETC. SHALL CONFORM IN SIZE, SHAPE, COLOR, LEGENDS AND APPLICATIONS TO THE STANDARDS SET FORTH IN THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES AND/OR OKLAHOMA STATE STANDARD DRAWINGS FOR SIGNS. STANDARD DRAWINGS ARE AVAILABLE FROM THE DEPARTMENT OF TRANSPORTATION. INTERPRETATIONS THAT MAY BE NECESSARY SHALL BE REFERRED TO THE ENGINEER.

SIGN SHEETING

REFLECTORIZATION OF TRAFFIC CONTROL DEVICES SHALL BE BY MEANS OF WIDE ANGLE, FLAT TOP REFLECTIVE SHEETING MEETING THE REQUIREMENTS OF 2009, OKLAHOMA STANDARD SPECIFICATIONS.

SIGN INSTALLATION

ALL SIGNS SHALL BE SECURELY PLACED OR WEIGHTED TO PREVENT BLOWING OVER. ROCKS, BROKEN CONCRETE OR OTHER SUCH OBJECTS SHALL NOT BE CONSIDERED AN ACCEPTABLE SUBSTITUTE FOR SAND BAGS WHEN USED TO OBTAIN ADDED STABILITY FOR MOVABLE SIGNS AND BARRICADES.

SPACING OF SIGNING, ON THE PLANS OR TCS STANDARDS, SHOULD BE NO LESS THAN THE DISTANCES SHOWN. THE DISTANCE BETWEEN SIGNS SHOULD BE INCREASED ON HIGH SPEED OR MORE HEAVILY TRAVELED HIGHWAYS, OR WHERE SIGHT DISTANCE IS RESTRICTED.

IN ALL CONSTRUCTION ZONES, THE 48 INCH X 48 INCH WARNING SIGNS SHALL HAVE ATTACHED THERETO FLORESCENT FLAGS AND TYPE "A" WARNING LIGHTS. THIS SHALL ALSO APPLY WHEN SIGNS ARE USED ON BOTH SIDES OF THE ROADWAY. ADDITIONAL FLASHING LIGHTS MAY BE REQUIRED WHEN SO DESIRED BY THE ENGINEER.

ALL DIAMOND SHAPED CONSTRUCTION WARNING SIGNS ON EXPRESSWAYS OR FREEWAYS SHALL BE 48 INCH X 48 INCH, WITH THE APPROPRIATE ADVISORY SIGN WHERE REQUIRED UNLESS OTHERWISE NOTED IN THE PLANS.

DUE TO THE TEMPORARY NATURE OF CONSTRUCTION, SIGNS WHICH ARE 33 S.F. AND OVER WILL HAVE NO REINFORCING STEEL IN THEIR FOOTINGS.

ALL SIGNS AND SIGN ASSEMBLIES WITH A TOTAL SURFACE AREA OF 10 S.F. OR MORE SHALL BE INSTALLED ON TWO (2) POSTS. THE EXCEPTION BEING SINGLE ROUTE MARKER ASSEMBLIES.

SIGNS MOUNTED ON BARRICADES SHALL BE MOUNTED AS HIGH AS NECESSARY TO BE VISIBLE.

BARRICADES

ONE (1) WING BARRICADE SHALL BE SET ON EACH SIDE OF THE ROADWAY IN ADVANCE OF THE FIRST ADVANCE WARNING SIGN. THE EXCEPTIONS ARE MINOR CROSS STREETS AND SECTION LINE ROADS WHICH INTERSECT THE WORK AREA.

WING BARRICADES SHALL BE INSTALLED ON TWO (2) BREAKAWAY POSTS.

WORK DURATION

THE FIVE CATEGORIES OF WORK DURATION AND THEIR TIME AT A LOCATION SHALL BE:

- A) LONG-TERM STATIONARY IS WORK THAT OCCUPIES A LOCATION MORE THAN 3 DAYS.
- B) INTERMEDIATE-TERM STATIONARY IS WORK THAT OCCUPIES A LOCATION MORE THAN ONE DAYLIGHT PERIOD UP TO 3 DAYS, OR NIGHTTIME WORKLASTING MORE THAN 1 HOUR.
- C) SHORT-TERM STATIONARY IS DAYTIME WORK THAT OCCUPIES A LOCATION FOR MORE THAN 1 HOUR WITHIN A SINGLE DAYLIGHT PERIOD.
- D) SHORT DURATION IS WORK THAT OCCUPIES A LOCATION UP TO 1 HOUR.
- E) MOBILE IS WORK THAT MOVES INTERMITTENTLY OR CONTINUOUSLY.

LIGHTING

TYPE "A" WARNING LIGHTS SHALL BE USED ON BARRICADES (AS REQUIRED) AND WARNING SIGNS.

TYPE "C" WARNING LIGHTS MAY BE USED ON VERTICAL PANELS (OPTIONAL).

CONSTRUCTION NOTES

SHOULD THE REQUIRED WORK ON ANY PROJECT, INCLUDING ANY TRAFFIC CONTROL, OVERLAP OR OTHERWISE INTERFERE WITH THE ON-GOING WORK OR TRAFFIC CONTROL OF ANOTHER PROJECT, IT SHALL BE THE RESPONSIBILITY OF THE RESPECTIVE CONTRACTORS TO COORDINATE THEIR WORK ACTIVITIES TO FACILITATE THE SAFE MOVEMENT OF TRAFFIC THROUGHOUT OR AROUND THEIR COLLECTIVE WORK AREAS. ANY SUCH RECOMMENDED CHANGES SHALL BE SUBMITTED IN WRITING TO EACH PROJECT RESIDENT ENGINEER FOR REVIEW AND APPROVAL.

ALL TRAFFIC CONTROL DEVICES NOT REQUIRED FOR THE SAFE CONDUCT OF TRAFFIC THROUGH THE TEMPORARY TRAFFIC CONTROL ZONE SHALL BE PROMPTLY REMOVED, COMPLETELY COVERED, TURNED AWAY FROM TRAFFIC OR OTHERWISE TAKEN OUT OF SERVICE. DEVICES SHALL NOT BE STORED ALONG THE ROADWAY WITHIN 15 FEET (15') OF AN OPEN DRIVING LANE, EITHER BEFORE OR AFTER THEY ARE TO BE USED UNLESS PROTECTED BY GUARDRAIL, BRIDGE RAIL, AND/OR BARRIERS INSTALLED FOR OTHER PURPOSES. THESE DEVICES SHALL BE REMOVED FROM THE TEMPORARY TRAFFIC CONTROL ZONE WHEN THE ENGINEER DETERMINES THEY ARE NO LONGER NEEDED. WHERE THERE IS INSUFFICIENT RIGHT-OF-WAY TO PROVIDE FOR THIS 15 FEET (15') SETBACK, THE CONTRACTOR SHALL DETERMINE ALTERNATE LOCATIONS AND REQUEST THE ENGINEERS APPROVAL TO USE THEM.

TRAFFIC CONTROL DEVICES, WARNING DEVICES, AND BARRIERS SHALL BE KEPT IN CORRECT POSITION, PROPERLY DIRECTED, CLEARLY VISIBLE AND CLEAN AT ALL TIMES. DAMAGED, DEFACED OR DIRTY DEVICES OR BARRICADES SHALL IMMEDIATELY BE REPAIRED, REPLACED OR CLEANED BY THE CONTRACTOR AND APPROVED FOR USE BY THE ENGINEER.

NO EQUIPMENT OR VEHICLES BELONGING TO THE CONTRACTOR, HIS SUB-CONTRACTORS OR EMPLOYEES SHALL BE PARKED OR STOPPED WITHIN 30 FEET (30') OF A LANE CARRYING TRAFFIC, AT ANY TIME, UNLESS REQUIRED BY ONGOING WORK OPERATIONS.

ALL DETOURS AND DIVERSIONS SHOULD BE IN PLACE, WITH SIGNING, STRIPING AND CHANNELIZING DEVICES, AS SHOWN IN THE PLANS OR STANDARD DRAWINGS, BEFORE THEY ARE OPENED TO TRAFFIC.

WHEN IT BECOMES NECESSARY TO CLOSE THE ROAD TO THROUGH TRAFFIC, NO LESS THAN SEVEN DAYS PRIOR TO THE CLOSURE, THE CONTRACTOR SHALL NOTIFY THE FOLLOWING INDIVIDUALS OR AGENCIES DESCRIBING THE AFFECTED ROAD AND THE APPROXIMATE DURATION OF THE CLOSURE. THOSE TO BE NOTIFIED INCLUDE BUT ARE NOT LIMITED TO 1) LOCAL LAW ENFORCEMENT OFFICIALS, 2) LOCAL FIRE OFFICIALS, 3) AMBULANCE SERVICES, 4) LOCAL SCHOOL SUPERINTENDENT, 5) UNITED STATES POSTAL SERVICE, AND 6) CITY OR COUNTY ROAD SUPERINTENDENT.

ALL TEMPORARY TRAFFIC CONTROL DEVICES, AND THEIR CONDITIONS THROUGHOUT THE LIFE OF THE CONSTRUCTION PROJECT, SHALL MEET O.D.O.T.'S LATEST "QUALITY STANDARDS FOR TEMPORARY TRAFFIC CONTROL DEVICES". THE O.D.O.T. RESIDENT ENGINEER WILL MAKE FINAL DECISION OF ALL TEMPORARY TRAFFIC CONTROL DEVICES BASED ON THE O.D.O.T. GUIDELINES.

NO GENDER BIAS SIGNS ARE ALLOWED.

ARROW DISPLAY

USE OF AN ARROW DISPLAY, IN THE ARROW OR CHEVRON MODE, SHALL BE LIMITED TO STATIONARY OR MOVING LANE CLOSURES.

AN ARROW DISPLAY, IN THE CAUTION MODE, SHALL BE USED ONLY FOR SHOULDER WORK, BLOCKING THE SHOULDER, ROADSIDE WORK NEAR THE SHOULDER, OR FOR MOBILE OPERATIONS (I.E. STRIPING).

AN ARROW DISPLAY IN THE ARROW OR CHEVRON MODE, SHALL NOT BE USED ON A TWO-LANE, TWO-WAY ROADWAY FOR TEMPORARY ONE-LANE OPERATION.

AN ARROW DISPLAY SHALL NOT BE USED ON A MULTI-LANE ROADWAY TO LATERALLY SHIFT TRAFFIC.

CHANNELIZING DEVICES

IN THOSE AREAS WHERE DRIVERS ARE ASKED TO MAKE A DECISION OR MUST BE GUIDED THROUGH A PRECISE MOVEMENT, BY USE OF CHANNELIZING DEVICES, IT IS ESPECIALLY IMPORTANT TO PROVIDE A CLEARLY DEFINED PATH. EXAMPLES OF THIS COULD BE IN DELINEATING A TEMPORARY GORE OR TURNING RADIUS. IN SUCH AREAS THE SPACING OF CHANNELIZING DEVICES MAY BE REDUCED TO 10 FEET FOR SPEEDS OF 40 M.P.H. OR LESS, AND 20 FEET FOR SPEEDS GREATER THAN 40 M.P.H.

WHEN CHANNELIZING DEVICES ARE USED TO DIRECT TRAFFIC ACROSS EXISTING LANE LINES OR EDGE LINES, THE SPACING BETWEEN CHANNELIZING DEVICES SHALL BE REDUCED 50%. SPACING SHOULD ALSO BE REDUCED WHEN CHANNELIZING DEVICES ARE PLACED ON CURVES, HILLS, OR NEXT TO POTENTIAL HAZARDS.

ALL TRAFFIC CONTROL CHANNELIZING DEVICES SHALL MEET MUTCD COLOR REQUIREMENTS.

FLAGGERS

FLAGGERS MUST BE CLEARLY VISIBLE TO APPROACHING TRAFFIC FOR A DISTANCE SUFFICIENT TO PERMIT PROPER RESPONSE BY MOTORISTS TO THE FLAGGING INSTRUCTIONS, AND TO PERMIT TRAFFIC TO REDUCE SPEED OR STOP BEFORE ENTERING THE TEMPORARY TRAFFIC CONTROL ZONE. FLAGGERS SHALL BE POSITIONED TO MAINTAIN MAXIMUM COLOR CONTRAST BETWEEN THE FLAGGER'S REFLECTIVE CLOTHING AND EQUIPMENT AND THE WORK AREA BACKGROUND.

DURING HOURS OF DARKNESS, FLAGGER STATIONS SHALL BE ILLUMINATED SUCH THAT THE FLAGGER WILL BE CLEARLY VISIBLE TO APPROACHING TRAFFIC. LIGHTS TO BE USED FOR ILLUMINATING THE STATION SHALL BE APPROVED BY THE ENGINEER. REFLECTORIZED PADDLES AND REFLECTORIZED VESTS, SHIRTS OR JACKETS SHALL BE USED FOR NIGHTTIME FLAGGING.

UNLESS OTHERWISE SPECIFIED IN THE PLANS, THE COST OF FLAGGING OPERATIONS SHALL BE INCLUDED IN OTHER ITEMS OF WORK.

MINIMUM STANDARDS FOR TRAFFIC CONTROL DEVICES

- (1) WARNING LIGHTS (TYPE A FLASHERS AND TYPE C STEADY BURN)
 - (A) NOT LESS THAN NINETY (90) PERCENT OF THE TOTAL NUMBER OF LIGHTS BEING USED AT ANY ONE TIME SHALL BE FULLY OPERATIONAL.
 - (B) NOT MORE THAN THREE (3) LIGHTS ADJACENT TO ONE ANOTHER SHALL BE FAILING.
- (2) ARROW DISPLAY
 - (A) WHEN IN ARROW MODE, NO MORE THAN TWO (2) LAMPS IN THE STEM AND ZERO (0) LAMPS IN THE HEAD SHALL BE FAILING. THE DIMMING FUNCTION SHALL BE OPERATING PROPERLY.
 - (B) WHEN IN CAUTION MODE (CORNERS), A MINIMUM OF FOUR (4) LAMPS SHALL BE OPERATIONAL. THE DIMMING FUNCTION SHALL BE OPERATING PROPERLY.
 - (C) ANY LAMP WHICH IS LIGHTED BUT IMPROPERLY ALIGNED SHALL NOT BE CONSIDERED OPERATIONAL.
- (3) CHANGEABLE MESSAGE SIGNS
 - (A) NOT LESS THAN NINETY (90) PERCENT OF THE PIXELS SHALL BE FUNCTIONAL IN EACH CHARACTER MODULE.
 - (B) NO SANDBAG BALLASTING OVER 3 FEET IN HEIGHT.
- (4) PAVEMENT MARKING TAPE
 - (A) NOT MORE THAN TEN (10) PERCENT OF ALL TAPE, PAINT, MESSAGE OR SYMBOL SHALL BE MISSING.
 - (B) NOT MORE THAN TWO (2) CONSECUTIVE DASHED LINES SHALL BE MISSING.
 - (C) NOT MORE THAN FIFTY (50) CONTINUOUS FEET OF A SOLID LINE SHALL BE MISSING.
- (5) CONSTRUCTION ZONE PAVEMENT MARKERS
 - (A) NOT MORE THAN TEN (10) PERCENT OF THE TOTAL NUMBER OF MARKERS SHALL BE MISSING.
 - (B) NOT MORE THAN THREE (3) CONSECUTIVE MARKERS SHALL BE MISSING.

STRIPING

WHENEVER THE WORK CAUSES THE OBLITERATION OF PAVEMENT MARKINGS, EITHER TEMPORARY OR PERMANENT MARKINGS SHALL BE IN PLACE PRIOR TO OPENING THE ROADWAY TO TRAFFIC. CENTERLINE PAVEMENT MARKINGS SHALL BE PROVIDED AT ALL TIMES FOR ROADWAYS OPEN TO TRAFFIC.

THE APPLICATION SURFACES FOR PAVEMENT MARKINGS SHALL BE FREE OF DUST, DIRT, MOISTURE OR OTHER FOREIGN MATTER WHICH WOULD INTERFERE WITH ADHESION. INSTALLATION OF ALL PAVEMENT MARKINGS SHALL BE IN ACCORDANCE WITH THE MANUFACTURERS RECOMMENDATIONS.

ALL TEMPORARY PAVEMENT MARKINGS SHALL BE REMOVED IMMEDIATELY AHEAD OF THE PERMANENT STRIPING OPERATIONS OR RE-STRIPING FOR FOLLOWING CONSTRUCTION PHASES.

WHEN REMOVABLE PAVEMENT MARKINGS TAPE IS TO BE INSTALLED ON NEW CONCRETE PAVEMENT, THE CURING COMPOUND SHALL BE REMOVED PRIOR TO INSTALLATION.

IF REMOVABLE PAVEMENT MARKING TAPE IS INSTALLED IN ACCORDANCE WITH THE MANUFACTURERS SPECIFICATIONS AND FAILS DURING THE FIRST SIX MONTHS OF SERVICE, IT SHALL BE REPLACED AT THE CONTRACTOR'S EXPENSE. REPLACEMENT SHALL BE ACCOMPLISHED IN A TIMELY MANNER UPON BEING NOTIFIED, BY THE ENGINEER, OF SUCH FAILURE.

PILOT CAR

WHEN LANE CLOSURES ARE REQUIRED ON TWO-LANE /TWO-WAY ROADWAYS, THE CONTRACTOR MAY, AT HIS OPTION, UTILIZE A PILOT CAR. IF THE CONTRACTOR ELECTS TO USE A PILOT CAR, CHANNELIZING DEVICES ALONG THE CENTERLINE WILL NOT BE REQUIRED. THE PILOT CAR OPERATOR SHALL BE IN RADIO CONTACT WITH PERSONNEL IN THE TEMPORARY TRAFFIC CONTROL ZONE. MAXIMUM SPEED OF THE PILOT CAR THROUGH THE WORK AREA SHALL BE 25 M.P.H. FULL COMPENSATION FOR FURNISHING AND OPERATING THE PILOT CAR, (INCLUDING DRIVER, RADIOS, AND ANY OTHER EQUIPMENT OR LABOR REQUIRED) SHALL BE CONSIDERED AS INCLUDED IN THE COST OF OTHER ITEMS OF WORK.

MISCELLANEOUS

TRAFFIC CONDITIONS MAY NECESSITATE CHANGES IN THE USE AND/OR QUANTITIES OF THE TRAFFIC CONTROL DEVICES AS SHOWN IN THE PLANS OR IN THE STANDARDS. ANY SUCH CHANGES ARE SUBJECT TO APPROVAL BY THE ENGINEER.

ALL CHANNELIZING DEVICES PROVIDED ON THIS PROJECT SHALL BE IN GOOD CONDITION AND SHALL BE APPROVED FOR USE ON THIS PROJECT BY THE ENGINEER.

THE REGULATORY SPEED LIMITS THROUGH THE WORK ZONE MAY BE ADJUSTED AT THE DISCRETION OF THE ENGINEER WITH THE DOCUMENTED APPROVAL OF THE DIVISION ENGINEER IN ACCORDANCE WITH TITLE 47 OF THE OKLAHOMA MOTOR VEHICLE LAWS.

THE TERMINATION AREA EXTENDS FROM THE DOWNSTREAM END OF THE WORK AREA TO THE TEMPORARY TRAFFIC CONTROL DEVICE SUCH AS "END ROAD WORK" SIGNS. IF POSTED, A SPEED SIGN, OR OTHER SIGNS MAY BE USED TO INFORM ROAD USERS THAT THEY CAN RESUME NORMAL OPERATIONS.

THE CONSTRUCTION SIGNING AND BARRICADE CONTRACTOR SHOULD AFFIX THEIR COMPANY NAME AND/OR LOGO INCONSPICUOUSLY ON EACH TRAFFIC CONTROL DEVICE.



APPROVED BY TRAFFIC ENGINEER: *Shelby Gray* DATE: 3/21/11

TRAFFIC STANDARD
TRAFFIC CONTROL STANDARD
TRAFFIC CONTROL CONSTRUCTION NOTES

2009 SPECIFICATIONS

TCS1-1	01
T-501	

\$\$\$date\$\$\$

DESCRIPTION	REVISIONS	DATE
-------------	-----------	------

TAPER LENGTH CRITERIA FOR WORK ZONES

SPEED LIMIT M.P.H.	*L* FORMULA	*L* TAPER LENGTH (MINIMUM) (FT)			NUMBER OF CHANNELIZING DEVICES REQUIRED (MINIMUM)			SPACING CHANNELIZING DEVICES (MAXIMUM)		MAXIMUM HORIZONTAL ALIGNMENT THRU DETOUR (DEGREE) (S=0)	SPEED LIMIT M.P.H.
		10' OFFSET	11' OFFSET	12' OFFSET	10' OFFSET	11' OFFSET	12' OFFSET	① THRU TAPER SECTION (FT.)	② THRU TANGENT SECTION (FT.)		
20	$L = \frac{W \times S^2}{60}$	70	75	80	5	5	5	20	40	—	20
25		105	115	125	6	6	6	25	50	—	25
30		150	165	180	6	7	7	30	60	15	30
35		205	225	245	7	8	8	35	70	11	35
40		265	295	320	8	9	9	40	80	8	40
45	L = W x S	450	495	540	11	12	13	45	90	6	45
50		500	550	600	11	12	13	50	100	5	50
55		550	605	660	12	14	15	50	100	4	55
60		600	660	720	13	15	16	50	100	3	60
65		650	715	780	14	16	17	50	100	2.5	65
70		700	770	840	15	17	18	50	100	2	70
75		750	825	900	16	18	19	50	100	1.8	75

NOTES:

① RECOMMENDED SIGNING TO BE USED THRU LANE TAPER IS (1) CW1-8 ON EVERY OTHER DRUM.

② RECOMMENDED SIGNING TO BE USED THRU TANGENT LANES IS (1) R4-7A(R) OR (1) R4-7A(L) (AS APPLIES) ON EVERY OTHER DRUM.

L = TAPER LENGTH IN FEET
W = WIDTH OF OFFSET IN FEET
S = POSTED SPEED OR OFF-PEAK 85 PERCENTILE SPEED IN MPH

TYPE OF TAPER

UPSTREAM TAPERS
MERGING TAPER
SHIFTING TAPER
SHOULDER TAPER
TWO-WAY TRAFFIC TAPER

TAPER LENGTH

L MINIMUM
1/2 L MINIMUM
1/3 L MINIMUM
100 FEET MAXIMUM

DOWNSTREAM TAPERS
(USE IS OPTIONAL)

100 FEET PER LANE

FLARE RATES FOR CONCRETE MEDIAN BARRIER IN TEMPORARY TRAFFIC CONTROL ZONES

SPEED *	FLARE RATE (MINIMUM)
40 M.P.H.	9 TO 1
45 M.P.H.	10 TO 1
50 M.P.H.	11 TO 1
55 M.P.H.	12 TO 1
60 M.P.H.	13 TO 1
65 M.P.H.	14 TO 1
70 M.P.H.	15 TO 1
75 M.P.H.	16 TO 1

* POSTED SPEED LIMIT PRIOR TO CONSTRUCTION

PAVEMENT MARKINGS THROUGH TEMPORARY TRAFFIC CONTROL ZONE

DRIVING SURFACE		FLEX TAB MARKERS	TAPE (REMOVABLE)	TAPE (NON-REMOVABLE)	PAINT	CONSTRUCTION ZONE PAVEMENT MARKERS
ASPHALT	EXISTING PAVEMENT TO BE REMOVED OR OVERLAYED IN THE NEXT PHASE	X	X	X	X	X
	EXISTING PAVEMENT TO BE LEFT IN PLACE THRU THE NEXT PHASE	X	X			X
	INTERMEDIATE LIFT	X	X	X	X	X
	MILLED SURFACE	X	X	X	X	X
CONCRETE	EXISTING PAVEMENT TO BE REMOVED OR OVERLAYED IN THE NEXT PHASE	X	X	X	X	X
	EXISTING PAVEMENT TO BE LEFT IN PLACE THRU THE NEXT PHASE	X	X			X
	FINAL SURFACE	X	X		X	X

NOTE: USE OF NON-REMOVABLE TAPE (FOILBACK) SHALL BE LIMITED TO THOSE CONDITIONS SHOWN IN THE TABLE.

RECOMMENDED CLEAR ZONE DISTANCE (FT) (CONSTRUCTION WORK ZONES)

DESIGN SPEED	DESIGN ADT	FILL SLOPES			CUT SLOPES		
		6:1 OR FLATTER	5:1 OR 4:1	3:1	3:1	4:1 OR 5:1	6:1 OR FLATTER
40 MPH OR LESS	UNDER 750	4	4	SEE NOTE 3	4	4	4
	750-1500	5	6		5	5	5
	1500-6000	6	7		6	6	6
	OVER 6000	7	8		7	7	7
45-50 MPH	UNDER 750	5	6		4	4	5
	750-1500	7	8		5	6	7
	1500-6000	8	10		6	7	8
	OVER 6000	10	12		7	9	10
55 MPH	UNDER 750	6	7		4	5	5
	750-1500	8	10		5	7	8
	1500-6000	10	12		7	8	10
	OVER 6000	11	13		8	10	11
60 MPH	UNDER 750	8	10	5	6	7	
	750-1500	10	13	6	8	10	
	1500-6000	13	16 *	7	9	12	
	OVER 6000	15	18 *	10	12	13	
65-70 MPH	UNDER 750	9	10	5	7	7	
	750-1500	12	14	6	9	10	
	1500-6000	14	17 *	8	11	13	
	OVER 6000	15	19 *	11	13	14	

NOTES:

* THE CLEAR ZONE MAY BE LIMITED TO 15 FEET FOR PRACTICALITY AND TO PROVIDE A CONSISTENT ROADWAY TEMPLATE.

(1) ALL DISTANCES ARE MEASURED FROM EDGE OF THE TRAVEL LANE.

(2) FOR CLEAR ZONES, THE "DESIGN ADT" WILL BE THE TOTAL ADT ON TWO-WAY ROADWAYS AND DIRECTIONAL ADT ON ONE-WAY ROADWAYS (E.G., RAMPS AND ONE ROADWAY OF A DIVIDED HIGHWAY).

(3) FILL SLOPES WHICH ARE 3:1 OR STEEPER ARE CRITICAL AND MAY REQUIRE A BARRIER. THEREFORE THERE IS NOT A CLEAR ZONE APPLICATION.

STOPPING SIGHT DISTANCE AS A FUNCTION OF SPEED

SPEED * (MPH)	LENGTH (FEET)
20 M.P.H.	115
25 M.P.H.	155
30 M.P.H.	200
35 M.P.H.	250
40 M.P.H.	305
45 M.P.H.	360
50 M.P.H.	425
55 M.P.H.	495
60 M.P.H.	570
65 M.P.H.	645
70 M.P.H.	730
75 M.P.H.	820

* POSTED SPEED, OFF-PEAK 85th PERCENTILE SPEED PRIOR TO WORK STARTING, OR THE ANTICIPATED OPERATING SPEED.

CROSSOVER CRITERIA FOR WORK ZONES

WIDTH OF MEDIAN (W) (FT)	LATERAL SHIFT - (P) (FT)	LENGTH OF CROSSOVER - LC * (FT)											
		V.	30 M.P.H.	35 M.P.H.	40 M.P.H.	45 M.P.H.	50 M.P.H.	55 M.P.H.	60 M.P.H.	65 M.P.H.	70 M.P.H.	75 M.P.H.	
		D. 15°	11°	8°	6°	5°	4°	3°	2.5°	2°	1.8°		
20	32	R.	382	521	716	955	1146	1433	1910	2292	2865	3183	
30	42		219	256	301	348	382	427	493	541	605	637	
40	52		277	325	382	443	485	543	628	688	770	812	
50	62		301	354	417	483	529	593	685	751	841	886	
60	72		324	381	448	519	570	638	738	809	905	955	
70	82		344	405	478	554	608	681	787	863	966	1,018	
80	92		363	428	505	586	643	720	833	914	1,023	1,078	
90	102		381	450	531	616	676	758	877	962	1,076	1,135	
100	112		398	470	555	644	708	793	918	1,007	1,127	1,189	
110	122		414	489	578	672	738	827	958	1,050	1,176	1,240	
120	132		429	508	601	698	767	860	995	1,092	1,223	1,290	

* CROSSOVER = REVERSE CURVE CONNECTION TYING TWO (2) PARALLEL ROADWAYS.

RECOMMENDED DISTANCE BETWEEN SIGNS (MIN.)

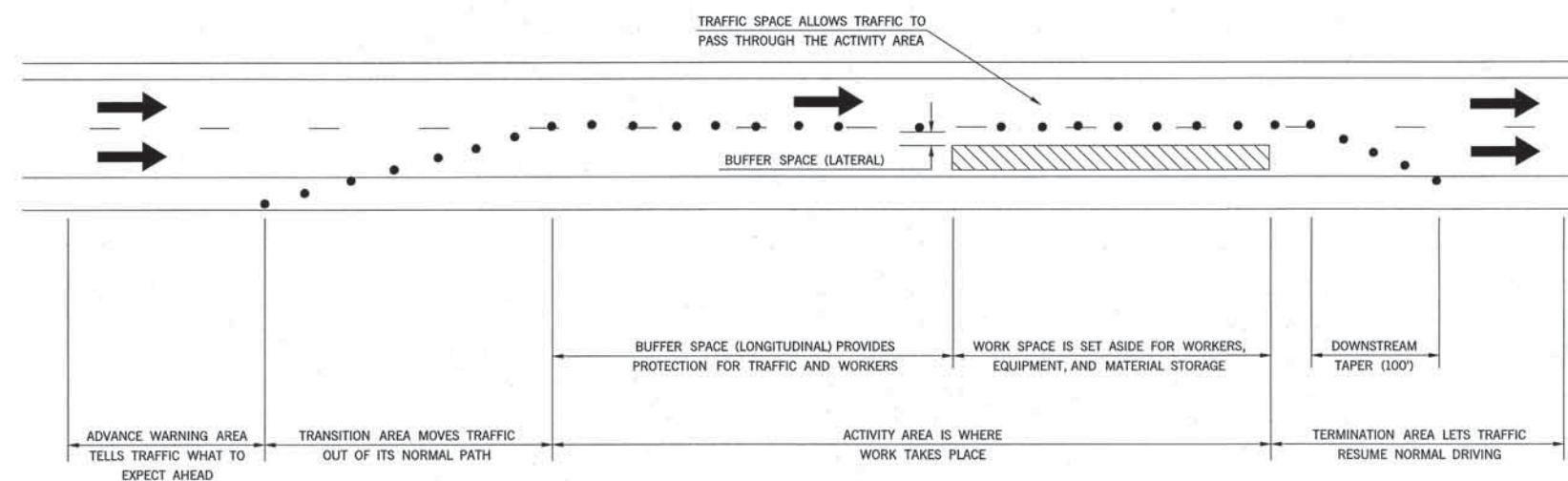
ROAD TYPE	A (FT)	B (FT)	C (FT)
URBAN (LOW SPEED)	100	100	100
URBAN (HIGH SPEED)	350	350	350
RURAL	500	500	500
EXPRESSWAY / FREEWAY	1,000	1,500	2,640



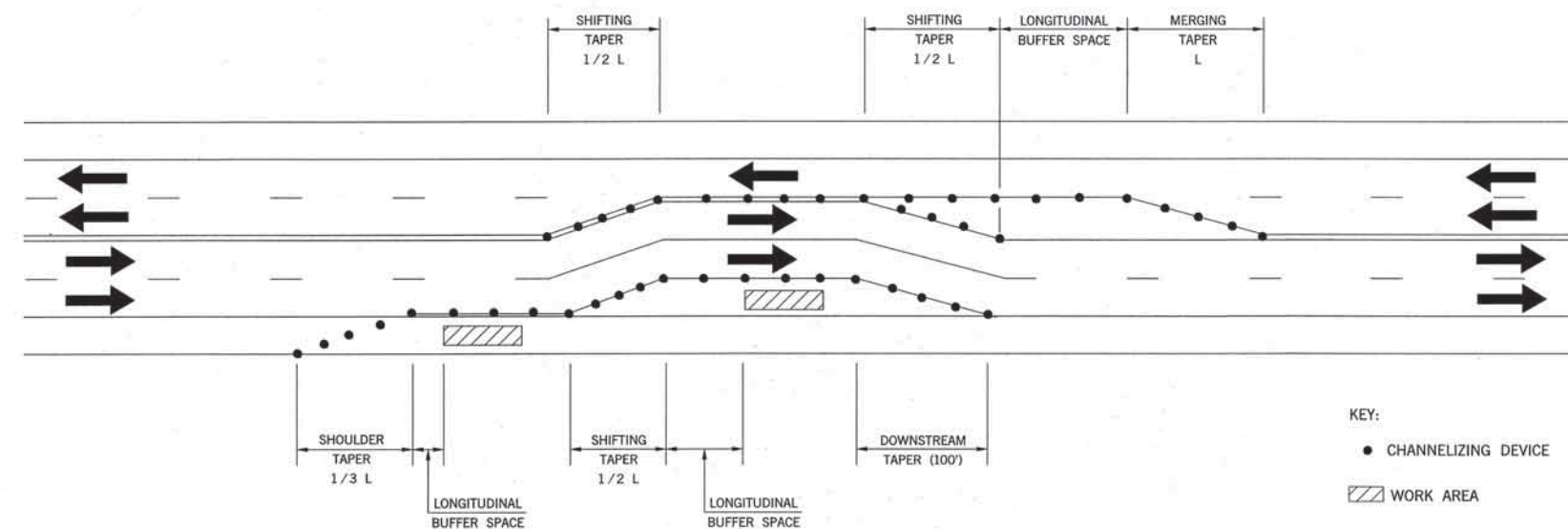
APPROVED BY
TRAFFIC ENGINEER: *David Smith* DATE: 6/23/10

TRAFFIC STANDARD
TRAFFIC CONTROL STANDARD
TRAFFIC CONTROL TABLES AND CHARTS

DESCRIPTION	REVISIONS	DATE
CHANGED TRANSITION NOTATION		5/31/2011



COMPONENT PARTS OF A TEMPORARY TRAFFIC CONTROL ZONE



TAPERS AND BUFFER SPACE

TEMPORARY TRAFFIC CONTROL ELEMENTS



APPROVED BY TRAFFIC ENGINEER: *David Gandy* DATE: 5/31/2011

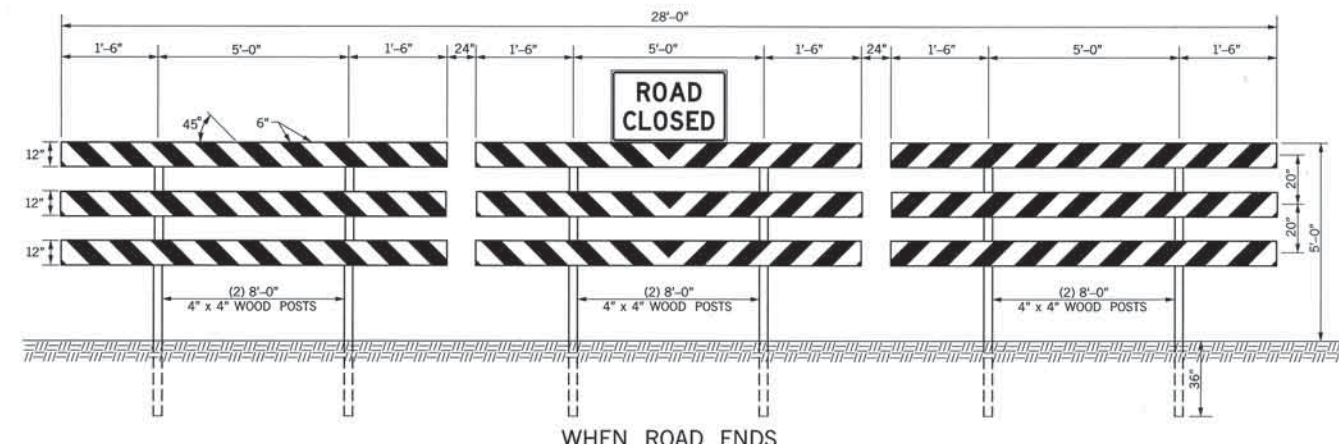
TRAFFIC STANDARD
TRAFFIC CONTROL STANDARD
TEMPORARY TRAFFIC CONTROL ELEMENTS

2009 SPECIFICATIONS

TCS3-1	01
T-503	

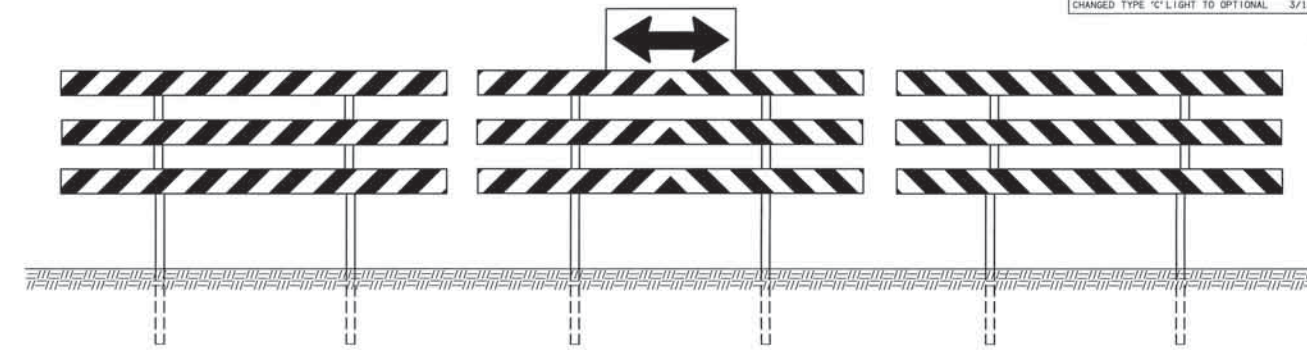
\$\$\$dnt\$\$\$

DESCRIPTION	REVISIONS	DATE
CHANGED TYPE 'C' LIGHT TO OPTIONAL		3/15/2011



WHEN ROAD ENDS

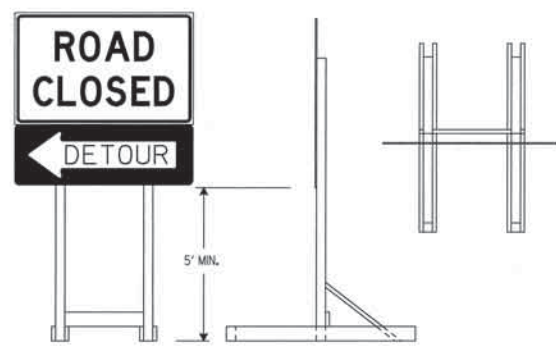
PERMANENT TYPE III(A/B) BARRICADE
(DIMENSIONS ARE TYPICAL FOR BOTH BARRICADES)



FOR T-INTERSECTIONS

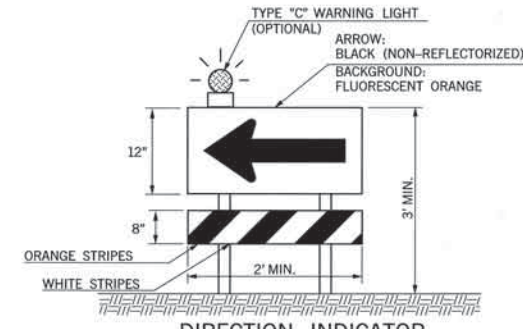
NOTES: A PERMANENT BARRICADE TYPE III(A) SHALL CONSIST OF NINE (9) PANELS AND SIX (6) POSTS.
TYPICAL INSTALLATION AS SHOWN IS FOR AN ABSOLUTE CLOSURE.
BARRICADES SHOULD NOT BE PLACED PARALLEL TO TRAFFIC IF NOT OUTSIDE OF CLEAR ZONE.

PERMANENT BARRICADE TYPE III(B) WILL BE IDENTICAL TO TYPE III(A) WITH NINE (9) ADDITIONAL REFLECTORIZED 3/4"x12" LUMBER PANELS ATTACHED TO THE BACK SIDE OF THE BARRICADE.
COLOR: BACKGROUND - WHITE (REFLECTORIZED)
DIAGONAL STRIPES - RED (REFLECTORIZED)

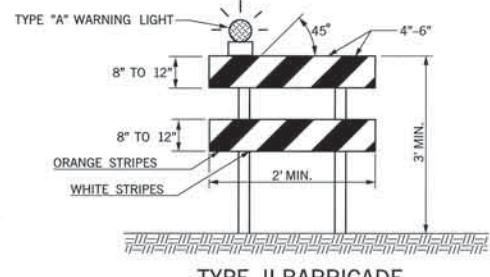


Skid-Mounted Sign Support with plywood sign

LONG INTERMEDIATE TERM STATIONARY PORTABLE SIGN SUPPORTS
5 Foot Mounting Height
(SKID MOUNTED)
(SHALL BE PLACED BEHIND TYPE III BARRICADE)



DIRECTION INDICATOR BARRICADE



TYPE II BARRICADE

NOTES: FOR WOODEN BARRICADES NOMINAL LUMBER DIMENSIONS WILL BE SATISFACTORY.
FOR RAILS LESS THAN 3 FEET LONG, 4 INCH WIDE STRIPES SHALL BE USED.
TYPE III BARRICADES SHALL BE CONSTRUCTED USING A MINIMUM OF TWO (2) POSTS.
FOR WOODEN BARRICADES, PANEL THICKNESS SHALL NOT EXCEED ONE-HALF INCH (1/2").
BARRICADES SHOULD NOT BE PLACED PARALLEL TO TRAFFIC IF NOT OUTSIDE OF CLEAR ZONE.
PROJECTS WITH WORK LIMITS OF 2.0 MILES OR MORE IN LENGTH WILL REQUIRE THE G20-1A SIGN. THE SIGN (G20-1A) WILL BE REQUIRED ON ONE SIDE OF A 2-LANE ROADWAY AND BOTH SIDES OF A DIVIDED HIGHWAY.
ALL BARRICADE STRIPES SHALL BE RETROREFLECTIVE.
COLOR: BACKGROUND - WHITE (REFLECTORIZED)
DIAGONAL STRIPES - FLUORESCENT ORANGE (REFLECTORIZED)

IF BARRICADES ARE USED TO CHANNELIZE PEDESTRIANS, THERE SHALL BE CONTINUOUS DETECTABLE BOTTOM AND TOP RAILS WITH NO GAPS BETWEEN INDIVIDUAL BARRICADES TO BE DETECTABLE TO USERS OF LONG CANES. THE BOTTOM OF THE BOTTOM RAIL SHALL BE NO HIGHER THAN 6 INCHES ABOVE THE GROUND SURFACE. THE TOP OF THE TOP RAIL SHALL BE NO LOWER THAN 36 INCHES ABOVE THE GROUND SURFACE.

SIGNS MOUNTED ON TYPE III BARRICADES SHOULD NOT COVER MORE THAN 50 PERCENT OF THE TOP TWO RAILS OR 33 PERCENT OF THE TOTAL AREA OF THE THREE RAILS
SIGNS MOUNTED ON BARRICADES, OR OTHER PORTABLE SUPPORTS, SHALL BE NO LESS THAN 1' ABOVE THE TRAVELED WAY.

SANDBAGS MAY BE PLACED ON LOWER PARTS OF THE FRAME OR THE STAYS OF BARRICADES TO PROVIDE THE REQUIRED BALLAST.

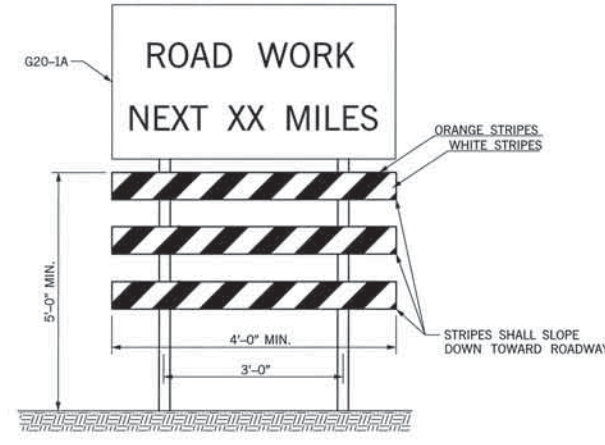
BALLAST SHALL NOT BE PLACED ON TOP OF ANY STRIPED RAIL. BARRICADES SHALL NOT BE BALLASTED BY NONDEFORMABLE OBJECTS SUCH AS ROCKS OR CHUNKS OF CONCRETE. BALLAST SHALL NOT EXTEND INTO THE ACCESSIBLE PASSAGE WIDTH OF 60".

DIRECTION INDICATOR BARRICADE SHALL CONSIST OF A ONE-DIRECTION LARGE ARROW (W1-6) SIGN MOUNTED ABOVE A DIAGONAL STRIPED, HORIZONTALLY ALIGNED, RETROREFLECTIVE RAIL.

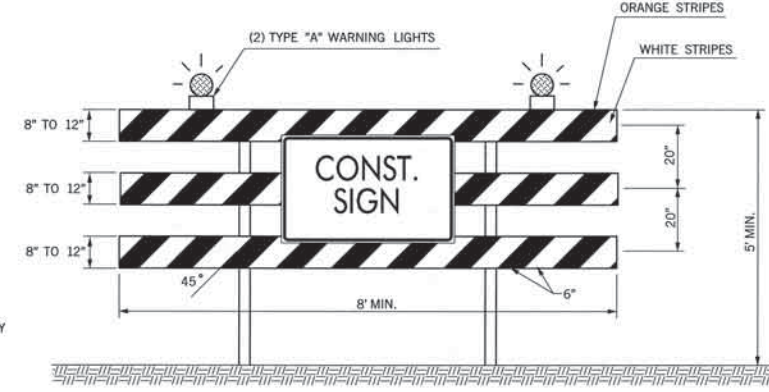
WHERE BARRICADES EXTEND ENTIRELY ACROSS A ROADWAY, THE STRIPES SHOULD SLOPE DOWNWARD IN THE DIRECTION TOWARD WHICH ROAD USERS MUST TURN.

WHERE BOTH RIGHT AND LEFT TURNS ARE PROVIDED, THE BARRICADE STRIPES SHOULD SLOPE DOWNWARD IN BOTH DIRECTIONS FROM THE CENTER OF THE BARRICADE OR BARRICADES.

WHERE NO TURNS ARE INTENDED, THE STRIPES SHOULD BE POSITIONED TO SLOPE DOWNWARD TOWARD THE CENTER OF THE BARRICADE OR BARRICADES.



WING BARRICADE



TYPE III BARRICADE

BASIS OF PAYMENT		
ITEM NO.	ITEM	UNIT
880(B)	CONSTRUCTION SIGNS	SD
880(C)	CONSTRUCTION BARRICADES	SD
880(E)	WARNING LIGHTS	SD



APPROVED BY TRAFFIC ENGINEER: *[Signature]* DATE: 3/21/11

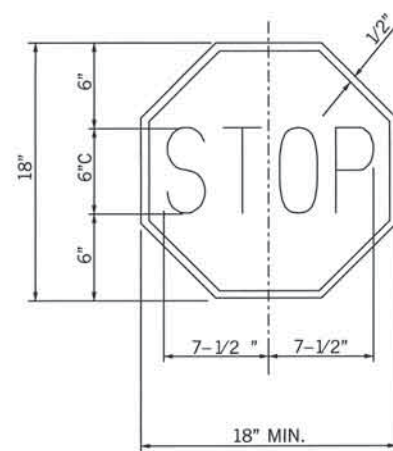
TRAFFIC STANDARD
TRAFFIC CONTROL STANDARD
TRAFFIC CONTROL DEVICES

2009 SPECIFICATIONS

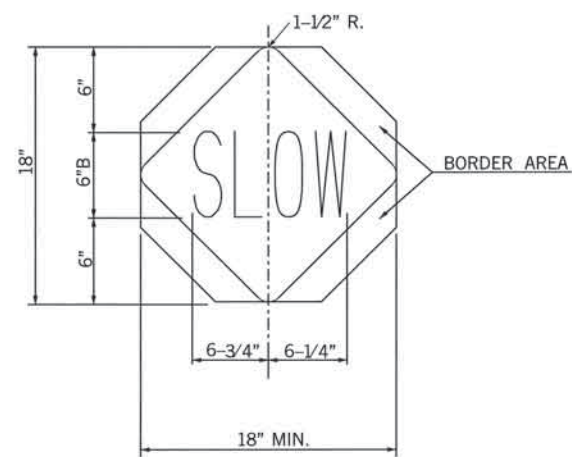
TCS4-1	01
T-504	

\$\$\$date\$\$\$

DESCRIPTION	REVISIONS	DATE

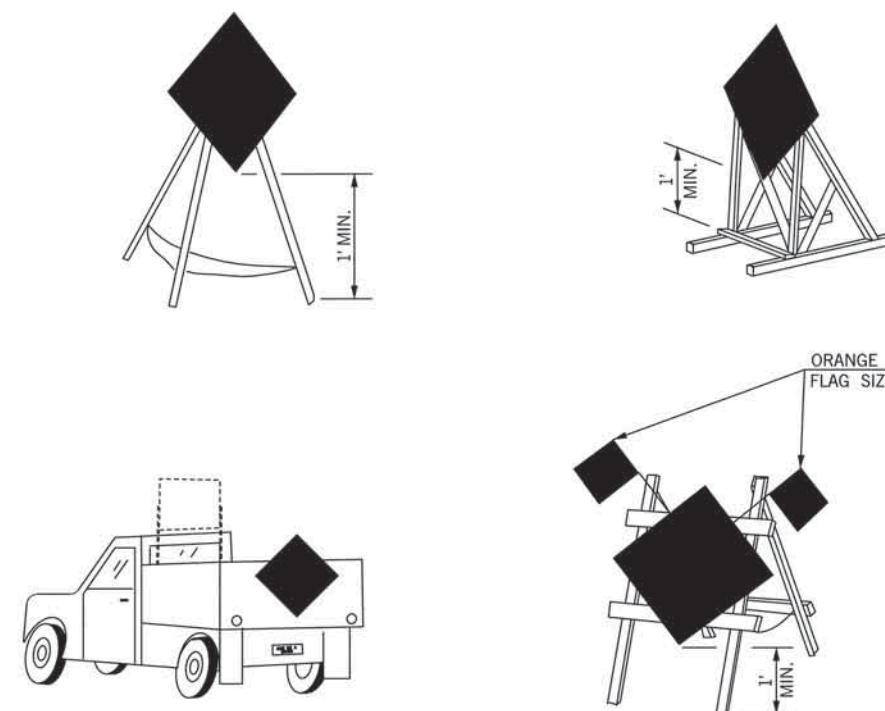


STOP:
 LEGEND AND BORDER: WHITE (REFLECTORIZED)
 BACKGROUND: RED (REFLECTORIZED)



SLOW:
 LEGEND AND BORDER AREA: BLACK (NON-REFLECTORIZED)
 BACKGROUND: ORANGE (REFLECTORIZED)

STOP-SLOW PADDLE

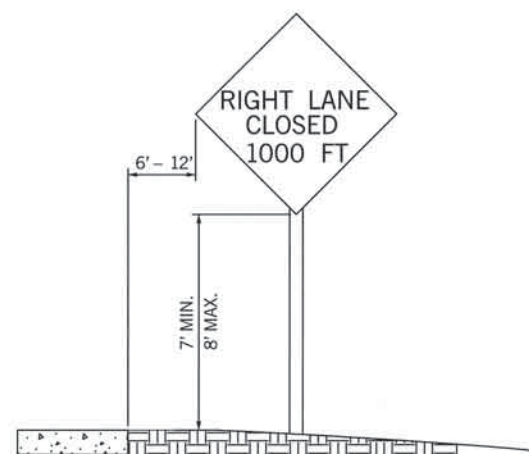


NOTE:
 THE BOTTOM OF SIGNS MOUNTED
 ON BARRICADES OR TEMPORARY
 SUPPORTS SHALL NOT BE LESS THAN
 1 FOOT ABOVE THE TRAVELED WAY.

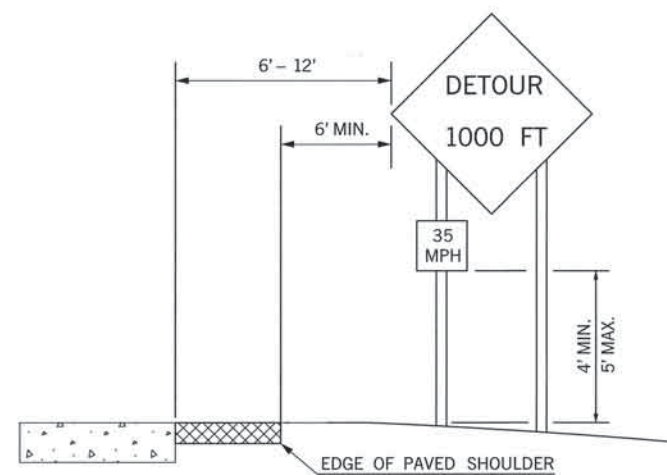
**PORTABLE AND TEMPORARY MOUNTINGS
 METHODS OF MOUNTING SIGNS OTHER THAN ON POSTS**



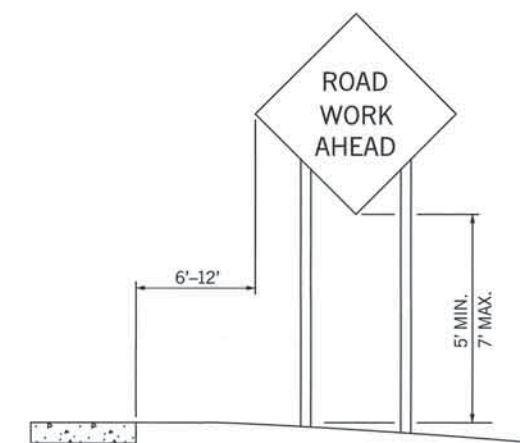
**URBAN DISTRICT
 (WITH CURB)**



**URBAN DISTRICT
 (WITHOUT CURB)**



**RURAL DISTRICT WITH
 ADVISORY SPEED PLATE**



RURAL DISTRICT

HEIGHT AND LATERAL LOCATIONS OF SIGNS – TYPICAL INSTALLATIONS

TRFFC36 M:\2009_Standards_TC\505.dgn 8:24:30 AM 6/23/2010 R:\TBAF_PLOT\lroy.pen R:\TBAF_PLOT\bw.ctb



APPROVED BY
 TRAFFIC ENGINEER: *David G. Smith* DATE: 6/23/10

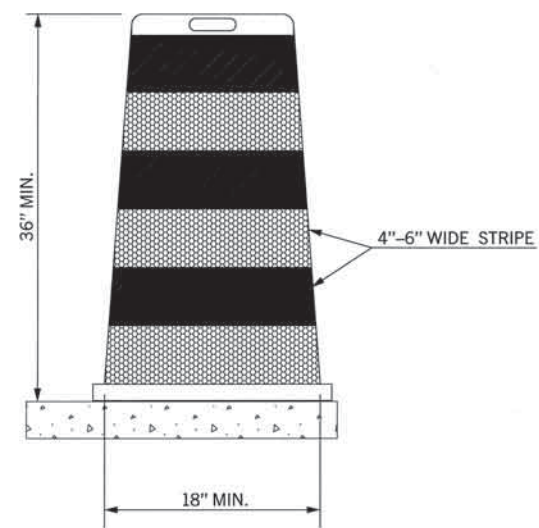
TRAFFIC STANDARD

TRAFFIC CONTROL STANDARD
 TYPICAL SIGN INSTALLATION

2009 SPECIFICATIONS

TCSS-1	00
T-505	

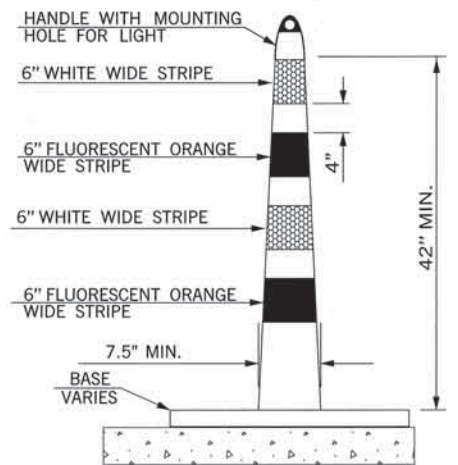
DESCRIPTION	REVISIONS	DATE
ADD NOTE TO VERTICAL PANEL		07/19/10
CHANGED TYPE 'C' LIGHT TO OPTIONAL		3/15/2011



DRUM

NOTES:

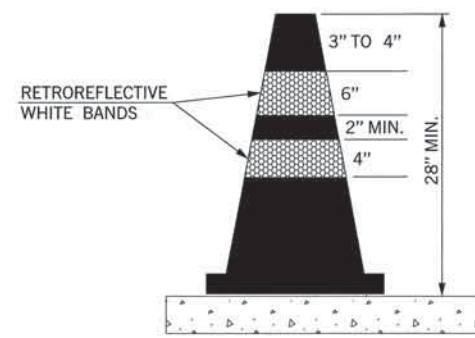
METAL DRUMS SHALL NOT BE USED.
 EACH DRUM SHALL HAVE A MINIMUM OF TWO (2) FLUORESCENT ORANGE STRIPES ALTERNATING WITH A MINIMUM OF TWO (2) WHITE STRIPES. THESE STRIPES SHALL CONSIST OF RETROREFLECTIVE SHEETING.
 BALLAST SHALL NOT BE PLACED ON TOP OF A DRUM.
 DRUMS SHALL NOT BE USED TO DELINEATE AN EDGE DROP OFF IF THEY MUST BE PLACED IN THE DROP OFF AREA BELOW THE LEVEL OF THE DRIVING SURFACE.



CHANNELIZER CONE

NOTES:

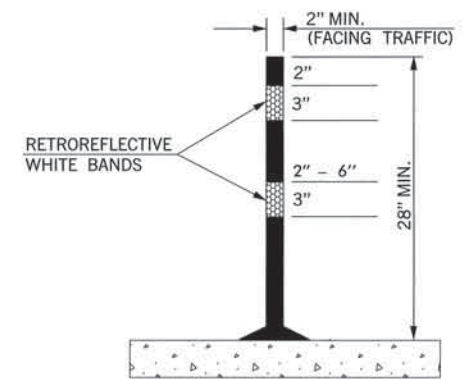
CHANNELIZER CONES USED ON HIGH SPEED ROADWAYS, ON ALL HIGHWAYS DURING NIGHTTIME, OR WHENEVER MORE CONSPICUOUS GUIDANCE IS NEEDED SHALL BE A MINIMUM OF 42 INCHES HIGH.
 EACH CHANNELIZER CONES SHALL HAVE A MINIMUM OF TWO (2) FLUORESCENT ORANGE STRIPES ALTERNATING WITH A MINIMUM OF TWO (2) WHITE STRIPES. THESE STRIPES SHALL CONSIST OF RETROREFLECTIVE SHEETING.
 BASE SHALL WEIGH 30 LBS. OR MORE.



CONE

NOTES:

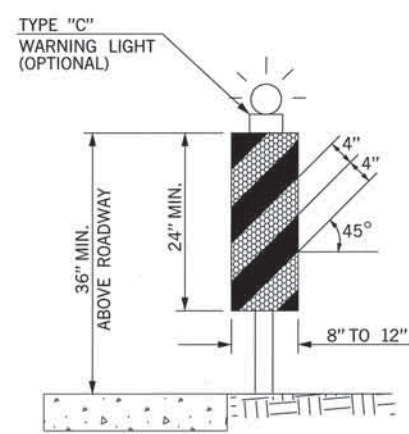
CONES USED ON HIGH SPEED ROADWAYS, ON ALL HIGHWAYS DURING NIGHTTIME, OR WHENEVER MORE CONSPICUOUS GUIDANCE IS NEEDED SHALL BE A MINIMUM OF 28 INCHES HIGH.
 CONES SHALL BE PREDOMINANTLY ORANGE, WITH WHITE RETROREFLECTIVE SHEETING.



TUBE CHANNELIZER

NOTES:

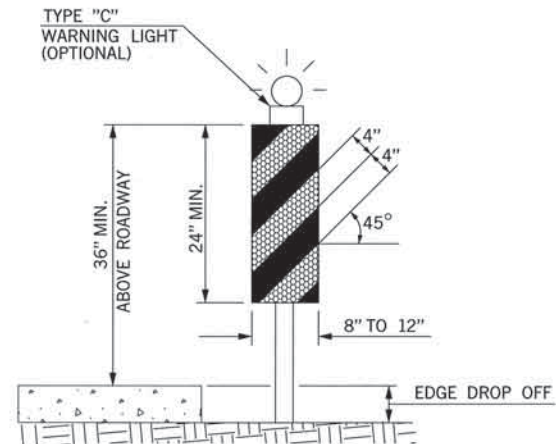
TUBE CHANNELIZERS USED ON HIGH SPEED ROADWAYS, ON ALL HIGHWAYS DURING NIGHTTIME, OR WHENEVER MORE CONSPICUOUS GUIDANCE IS NEEDED SHALL BE A MINIMUM OF 28 INCHES HIGH.
 TUBE CHANNELIZERS SHALL BE PREDOMINANTLY ORANGE, WITH WHITE RETROREFLECTIVE SHEETING.



**VERTICAL PANEL
W/O DROP OFF**

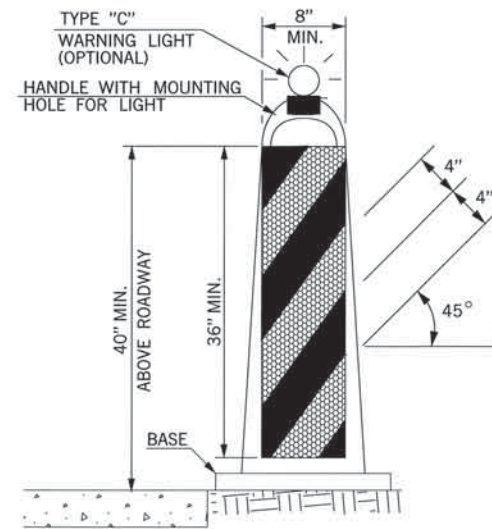
NOTES:

PANEL STRIPE WIDTHS SHALL BE 6 INCHES EXCEPT WHERE PANEL LENGTHS ARE LESS THAN 36 INCHES, THEN 4 INCH WIDE STRIPES MAY BE USED.
 MARKINGS FOR VERTICAL PANELS SHALL BE ALTERNATING FLUORESCENT ORANGE AND WHITE RETROREFLECTORIZED STRIPES (SLOPING DOWNWARD AT AN ANGLE OF 45 DEGREES IN THE DIRECTION TRAFFIC IS TO PASS).
 SHALL HAVE A MINIMUM OF TWO (2) FULL FLUORESCENT ORANGE STRIPES.



**VERTICAL PANEL
W/DROP OFF**

ON UNDIVIDED HIGHWAYS, VERTICAL PANELS SHALL HAVE A MINIMUM OF 192 SQUARE INCHES OF RETROREFLECTIVE SHEETING ON EACH PANEL (FRONT AND BACK). WHEN USED ON HIGH SPEED ROADWAYS, VERTICAL PANELS SHALL HAVE MINIMUM OF 270 SQUARE INCHES OF RETROREFLECTIVE SHEETING ON EACH PANEL (FRONT AND BACK). THIS SHALL CONSTITUTE ONE (1) COMPLETE VERTICAL PANEL.
 ON DIVIDED HIGHWAYS A VERTICAL PANEL MAY HAVE SHEETING ON ONLY ONE SIDE.



STACKABLE VERTICAL PANEL

NOTES:

(1) VERTICAL PANEL SIGNS SHALL BE MOUNTED BACK TO BACK WHEN USED FOR TWO-WAY TRAFFIC.
 (2) BASE SHALL BE NO LARGER THAN 28" LONG BY 20" WIDE, AND 2" THICK.
 (3) BASE SHALL WEIGHT 30 LBS. OR MORE.
 (4) THESE DEVICES SHALL BE CONSTRUCTED OF A MATERIAL THAT CAN BE STRUCK WITHOUT DAMAGING VEHICLES ON IMPACT.

KEY:

	FLUORESCENT ORANGE (REFLECTORIZED)
	WHITE (REFLECTORIZED)

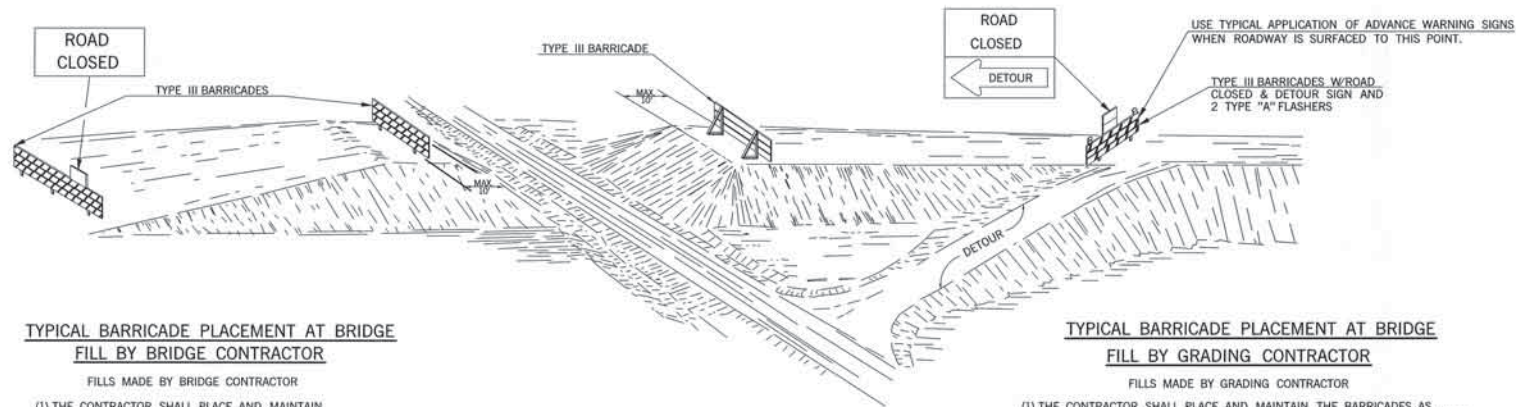
BASIS OF PAYMENT		
ITEM NO.	ITEM	UNIT
880(D)	VERTICAL PANEL	SD
880(E)	WARNING LIGHTS	SD
880(F)	DRUMS	SD
880(G)	TUBE CHANNELIZERS	SD
880(H)	CONES	SD
880(I)	CHANNELIZER CONES	SD



APPROVED BY TRAFFIC ENGINEER: *[Signature]* DATE: 3/21/11

TRAFFIC STANDARD
CHANNELIZING DEVICES

\$\$\$date\$\$\$

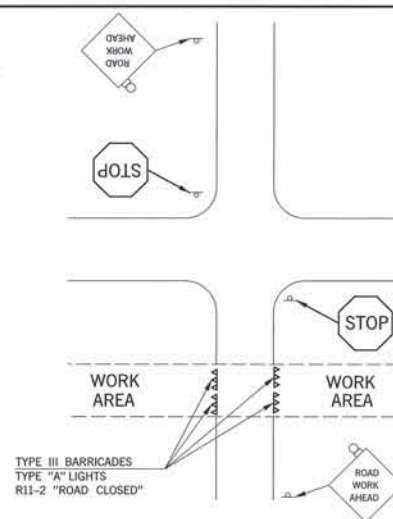


TYPICAL BARRICADE PLACEMENT AT BRIDGE FILL BY BRIDGE CONTRACTOR

- FILLS MADE BY BRIDGE CONTRACTOR
- (1) THE CONTRACTOR SHALL PLACE AND MAINTAIN THE BARRICADES AS SHOWN UNTIL THEY ARE NO LONGER NEEDED.
 - (2) THE CONTRACTOR SHALL NOTIFY THE ENGINEER PRIOR TO REMOVAL OF THE BARRICADES.
 - (3) THE ENGINEER SHALL NOTIFY THE GRADING CONTRACTOR TO FURNISH AND ERECT HIS BARRICADES "IMMEDIATELY" AFTER THE BRIDGE CONTRACTOR REMOVES HIS BARRICADES. THE GRADING CONTRACTOR SHALL MAINTAIN HIS BARRICADES UNTIL FINAL INSPECTION OR UNTIL THEY ARE NO LONGER NEEDED.
 - (4) BARRICADES AT BRIDGE FILL SHALL BE IN PLACE AND MAINTAINED AT ALL TIMES UNTIL OPENED TO TRAFFIC. HOWEVER, BARRICADES MAY BE REMOVED OR ADJUSTED, AS NEEDED, TO ALLOW ACCESS TO THE WORK AREA.

TYPICAL BARRICADE PLACEMENT AT BRIDGE FILL BY GRADING CONTRACTOR

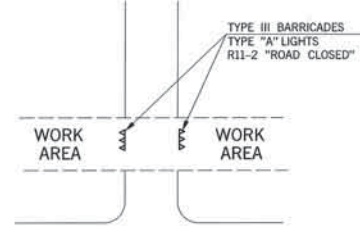
- FILLS MADE BY GRADING CONTRACTOR
- (1) THE CONTRACTOR SHALL PLACE AND MAINTAIN THE BARRICADES AS SHOWN UNTIL FINAL INSPECTION OR UNTIL THEY ARE NO LONGER NEEDED.
 - (2) THE CONTRACTOR SHALL NOTIFY THE ENGINEER PRIOR TO REMOVAL OF THE BARRICADES.
 - (3) IF THE BRIDGE WORK ORDER IS ISSUED PRIOR TO COMPLETION OF THE GRADING CONTRACT, THE BRIDGE CONTRACTOR SHALL MAKE ARRANGEMENTS WITH THE GRADING CONTRACTOR TO ASSUME RESPONSIBILITY FOR PROTECTION OF THE BRIDGE WORK AREA. THIS WILL INCLUDE FURNISHING, INSTALLING, AND MAINTAINING ALL BARRICADES AND SIGNS NECESSARY TO PROVIDE THAT PROTECTION UNTIL THE BRIDGE IS COMPLETED AND THE FINAL INSPECTION IS COMPLETED.
 - (4) IF THE BRIDGE WORK ORDER HAS NOT BEEN ISSUED PRIOR TO THE FINAL INSPECTION OF THE GRADING, THEN THE GRADING CONTRACTOR SHALL MAKE ARRANGEMENTS WITH THE OKLAHOMA DEPARTMENT OF TRANSPORTATION FOR STATE FORCES TO SUPPLY, INSTALL AND MAINTAIN ANY NECESSARY TRAFFIC CONTROL DEVICES NEEDED TO PROTECT THE WORK AREA. THESE STATE OWNED DEVICES SHALL REMAIN IN PLACE UNTIL SUCH TIME THAT THE BRIDGE WORK ORDER IS ISSUED. AT THAT TIME THE BRIDGE CONTRACTOR SHALL ASSUME RESPONSIBILITY FOR TRAFFIC CONTROL AND REPLACE THE STATE OWNED DEVICES WITH HIS OWN.
 - (5) SUFFICIENT NUMBER OF TYPE II BARRICADES WITH SIGNS SHALL BE USED TO COMPLETELY CLOSE THE WORK AREA TO THROUGH TRAFFIC.
 - (6) BARRICADES AT BRIDGE FILL SHALL BE IN PLACE AND MAINTAINED AT ALL TIMES UNTIL OPENED TO TRAFFIC. HOWEVER, BARRICADES MAY BE REMOVED OR ADJUSTED, AS NEEDED, TO ALLOW ACCESS TO THE WORK AREA.



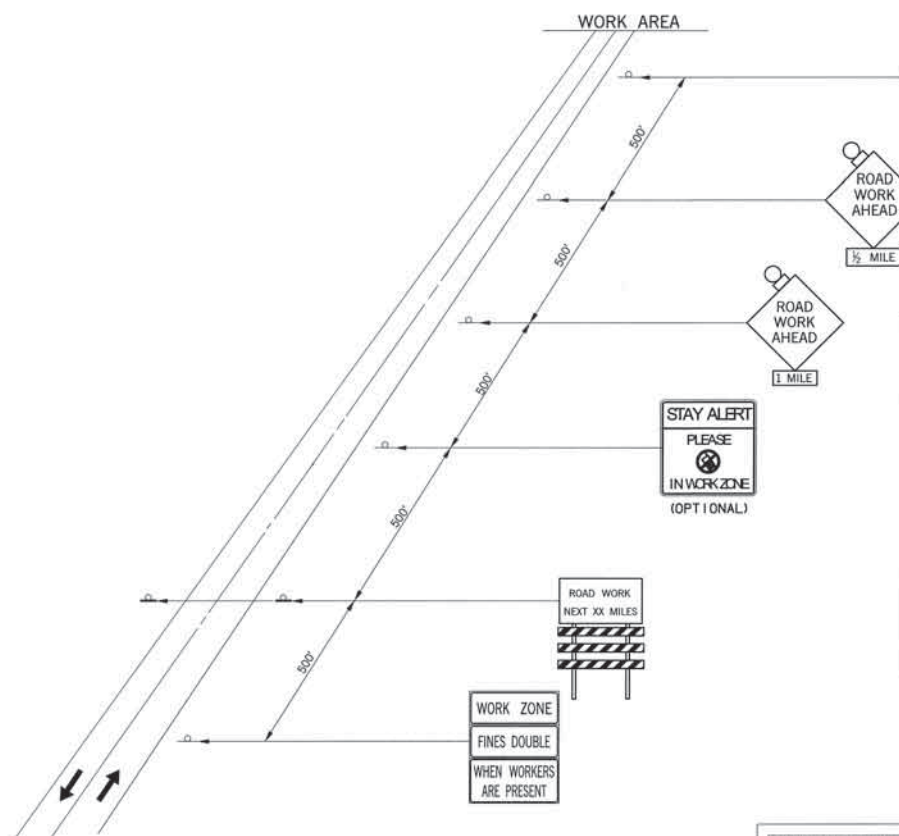
TYPICAL SIGN PLACEMENT FOR INTERSECTING ROADS AND STREETS

DESCRIPTION	REVISIONS	DATE
MODIFIED NOTE		3/16/2011
ADD "NO CELL PHONE" USAGE IN WORK ZONE DISTANCE SIGN TO WARNING SIGNS		4/2/2013

- NOTES:
- (1) SIGNS SHOWN FOR ONE DIRECTION OF TRAVEL ONLY.
 - (2) FLASHING WARNING LIGHTS SHALL BE USED TO CALL ATTENTION TO THE EARLY WARNING SIGNS.
 - (3) WARNING LIGHTS SHOULD BE USED TO MARK CHANNELIZING DEVICES AT NIGHT AS NEEDED.
 - (4) PLACEMENT OF TYPE III BARRICADES SHALL BE APPROVED BY THE ENGINEER.
 - (5) TYPE II BARRICADES, DRUMS AND/OR VERTICAL PANELS MAY BE SUBSTITUTED FOR TYPE III BARRICADES TO AVOID OBSTRUCTING THE MOTORIST'S VIEW.
 - (6) IF TWO OR MORE DRIVEWAYS ARE IN CLOSE PROXIMITY, THE BARRICADES BETWEEN THE DRIVEWAYS MAY BE OMITTED AT THE DISCRETION OF THE ENGINEER.
 - (7) THE "ROAD WORK AHEAD" SIGN, WHICH SERVES AS A GENERAL WARNING OF OBSTRUCTIONS OR RESTRICTIONS, SHALL BE LOCATED ON ALL INTERSECTING ROADS AND STREETS.



TYPICAL SIGN PLACEMENT FOR PRIVATE DRIVE OR RESIDENCE



TYPICAL APPLICATION ADVANCE WARNING SIGNS ON 2-LANE HIGHWAY

TYPICAL CONSTRUCTION WARNING SIGNS WITH MESSAGES OTHER THAN DETAILED ON STANDARD DRAWINGS SHALL BE CONSTRUCTED USING THE LARGEST POSSIBLE LETTER SIZE. SIGN SIZE AND COLOR SHALL BE THE SAME AS OTHER CONSTRUCTION WARNING SIGNS USED FOR SIMILAR CONDITIONS.

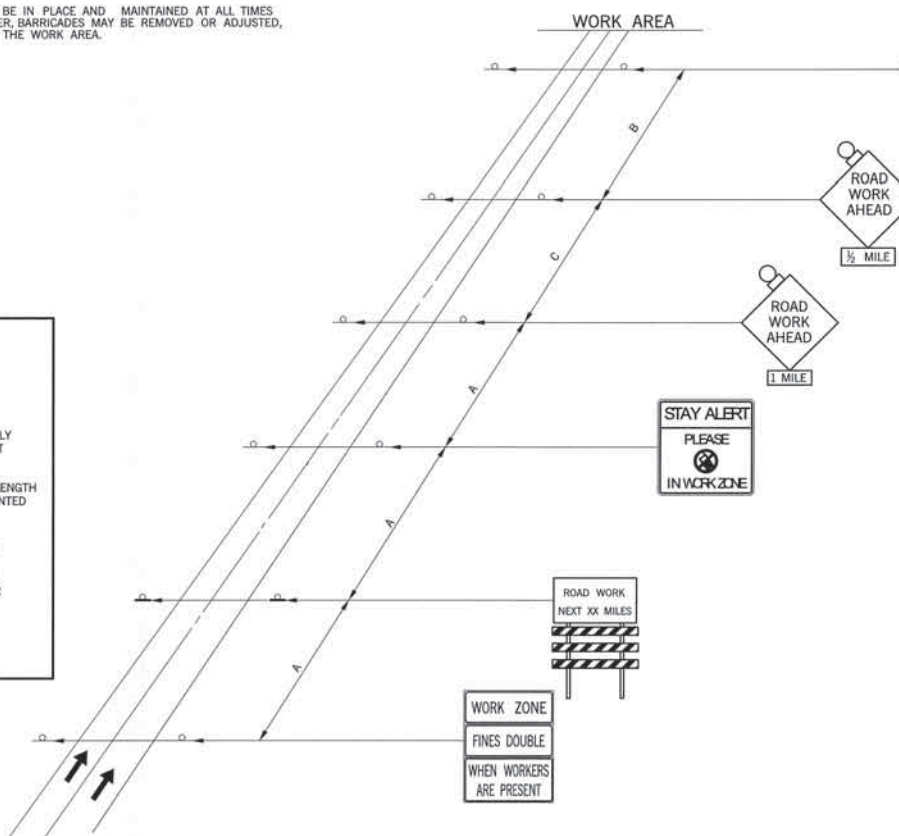
FINES DOUBLE IN WORK ZONE SIGNS ARE TO BE USED ONLY ON STATE OR FEDERAL HIGHWAYS WHERE THE SPEED LIMIT IS REDUCED OR AS DIRECTED BY THE ENGINEER.

PROJECTS WITH WORK LIMITS OF 1.0 MILES OR MORE IN LENGTH WILL REQUIRE THE Q20-1A SIGN. THE SIGN SHALL BE MOUNTED AS SHOWN ON TCS4-1 (LATEST REVISION).

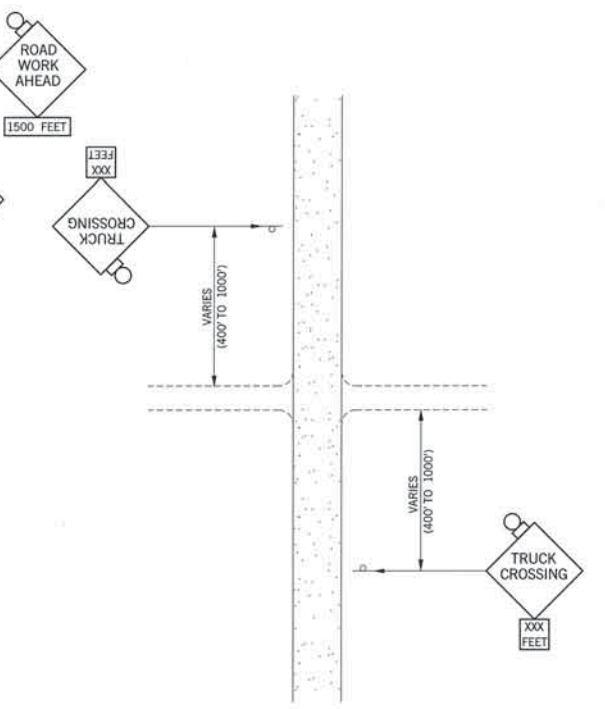
WARNING SIGNS SHOWN ARE "ADVANCE" WARNING SIGNS AND ARE REQUIRED ON ALL STATE HIGHWAYS. ADDITIONAL WARNING SIGNS MAY BE REQUIRED WITHIN THE PROJECT LIMITS TO WARN DRIVERS OF SPECIFIC HAZARDS. ADVANCE "WARNING SIGNS" MAY CHANGE AS CONDITIONS CHANGE OR AS DIRECTED BY THE ENGINEER.

PROJECT WORK OF 1.0 MILE OR MORE IN LENGTH WILL REQUIRE SIGNS CS-14 AND R2-1 TO BE PLACED EVERY 1/2 MILE THROUGH WORK ZONE.

ROAD TYPE	DISTANCE BETWEEN SIGNS SHALL BE A (MIN.)		
	A (FT)	B (FT)	C (FT)
URBAN (LOW SPEED)	100	100	100
URBAN (HIGH SPEED)	350	350	350
RURAL	500	500	500
EXPRESSWAY /FREEWAY	1,000	1,500	2,640



TYPICAL APPLICATION ADVANCE WARNING SIGNS ON A DIVIDED HIGHWAY



TYPICAL APPLICATION ADVANCE SIGNING WHERE TRUCKS ARE CROSSING



APPROVED BY TRAFFIC ENGINEER: *David S. ...* DATE: 4/18/2013

TRAFFIC STANDARD TRAFFIC CONTROL STANDARD PLACEMENT OF ADVANCE WARNING SIGNS

2009 SPECIFICATIONS

TCS7-1	02
	T-507

\$\$\$date\$\$\$



ROAD CLOSED

R11-2 48 x 30 10.00 SF

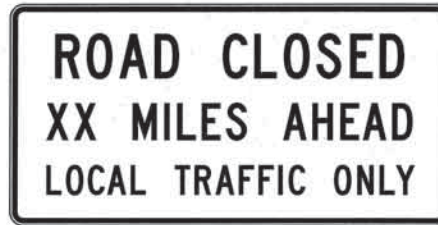
COLOR:
LEGEND AND BORDER:
BLACK (NON-REFLECTORIZED)
BACKGROUND:
WHITE (REFLECTORIZED)



LANE CLOSED

R11-2(LANE) 48 x 30 10.00 SF

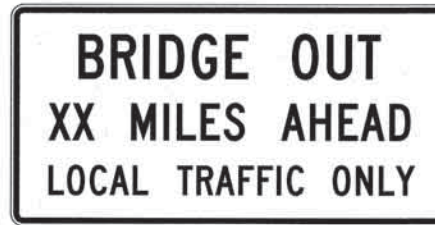
COLOR:
LEGEND AND BORDER:
BLACK (NON-REFLECTORIZED)
BACKGROUND:
WHITE (REFLECTORIZED)



ROAD CLOSED XX MILES AHEAD

R11-3a 60 x 30 12.50 SF

COLOR:
LEGEND AND BORDER:
BLACK (NON-REFLECTORIZED)
BACKGROUND:
WHITE (REFLECTORIZED)



BRIDGE OUT XX MILES AHEAD

R11-3b 60 x 30 12.50 SF

COLOR:
LEGEND AND BORDER:
BLACK (NON-REFLECTORIZED)
BACKGROUND:
WHITE (REFLECTORIZED)



ROAD CLOSED TO THRU TRAFFIC

R11-4 60 x 30 12.50 SF

COLOR:
LEGEND AND BORDER:
BLACK (NON-REFLECTORIZED)
BACKGROUND:
WHITE (REFLECTORIZED)



DETOUR SIGN

M4-8 24 x 12 2.00 SF
M4-8E 30 x 15 3.13 SF

COLOR:
LEGEND AND BORDER:
BLACK (NON-REFLECTORIZED)
BACKGROUND:
FLUORESCENT ORANGE
(REFLECTORIZED)



DETOUR SIGN

M4-9(R) 30 x 24 5.00 SF
M4-9(R)E 48 x 36 12.00 SF
M4-9(R)F 60 x 48 20.00 SF

COLOR:
LEGEND AND BORDER:
BLACK (NON-REFLECTORIZED)
BACKGROUND:
FLUORESCENT ORANGE
(REFLECTORIZED)



DETOUR SIGN

M4-9(L) 30 x 24 5.00 SF
M4-9(L)E 48 x 36 12.00 SF
M4-9(L)F 60 x 48 20.00 SF

COLOR:
LEGEND AND BORDER:
BLACK (NON-REFLECTORIZED)
BACKGROUND:
FLUORESCENT ORANGE
(REFLECTORIZED)



DETOUR SIGN

M4-9(V) 30 x 24 5.00 SF
M4-9(V)E 48 x 36 12.00 SF
M4-9(V)F 60 x 48 20.00 SF

COLOR:
LEGEND AND BORDER:
BLACK (NON-REFLECTORIZED)
BACKGROUND:
FLUORESCENT ORANGE
(REFLECTORIZED)



DETOUR SIGN

M4-10(R) 48 x 18 6.00 SF

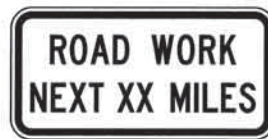
COLOR:
LEGEND AND BORDER:
BLACK (NON-REFLECTORIZED)
BACKGROUND:
FLUORESCENT ORANGE
(REFLECTORIZED)



DETOUR SIGN

M4-10(L) 48 x 18 6.00 SF

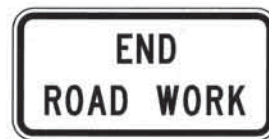
COLOR:
LEGEND AND BORDER:
BLACK (NON-REFLECTORIZED)
BACKGROUND:
FLUORESCENT ORANGE
(REFLECTORIZED)



ROAD WORK NEXT XX MILES SIGN

G20-1A 36 x 18 4.50 SF

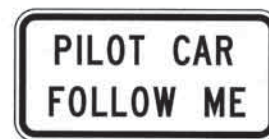
COLOR:
LEGEND AND BORDER:
BLACK (NON-REFLECTORIZED)
BACKGROUND:
FLUORESCENT ORANGE
(REFLECTORIZED)



END ROAD WORK SIGN

G20-2A 36 x 18 4.50 SF

COLOR:
LEGEND AND BORDER:
BLACK (NON-REFLECTORIZED)
BACKGROUND:
FLUORESCENT ORANGE
(REFLECTORIZED)



PILOT CAR FOLLOW ME SIGN

G20-4 36 x 18 4.50 SF

COLOR:
LEGEND AND BORDER:
BLACK (NON-REFLECTORIZED)
BACKGROUND:
FLUORESCENT ORANGE
(REFLECTORIZED)

NOTES:
WORD SIGNS MAY BE USED IF SYMBOL SIGNS ARE NOT AVAILABLE EITHER IN "STANDARD HIGHWAY SIGNS MANUAL" OR IN THE "MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES" (MUTCD) (CURRENT EDITION).

ALL DIAMOND SHAPE CONSTRUCTION WARNING SIGNS SHALL BE 48 INCHES X 48 INCHES UNLESS OTHERWISE NOTED IN THE PLANS.

BASIS OF PAYMENT		
ITEM NO.	ITEM	UNIT
880(B)	CONSTRUCTION SIGNS	SD



APPROVED BY
TRAFFIC ENGINEER: *David Gandy* DATE: 3/21/11

TRAFFIC STANDARD
TRAFFIC CONTROL STANDARD
CONSTRUCTION SIGNS

2009 SPECIFICATIONS

TCS9-1 01
T-509

DESCRIPTION	REVISIONS	DATE
CHANGE DESIGN NUMBER		07/19/10



CHEVRON

W1-8 18 x 24 3.00 SF
W1-8E 30 x 36 7.50 SF
W1-8F 36 x 48 12.00 SF

COLOR:
SYMBOL AND BORDER:
BLACK (NON-REFLECTORIZED)
BACKGROUND:
FLUORESCENT ORANGE
(REFLECTORIZED)



STOP AHEAD

W3-1 48 x 48 16.00 SF

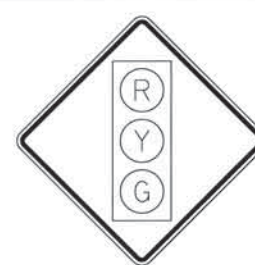
COLOR:
BORDER AND ARROW:
BLACK (NON-REFLECTORIZED)
BACKGROUND:
FLUORESCENT ORANGE (REFLECTORIZED)
SYMBOL:
WHITE BORDER ON RED BACKGROUND
(REFLECTORIZED)



YIELD AHEAD

W3-2 48 x 48 16.00 SF

COLOR:
BORDER AND ARROW:
BLACK (NON-REFLECTORIZED)
BACKGROUND:
FLUORESCENT ORANGE (REFLECTORIZED)
SYMBOL:
WHITE BORDER ON RED BACKGROUND
(REFLECTORIZED)



SIGNAL AHEAD

W3-3 48 x 48 16.00 SF

COLOR:
SYMBOL AND BORDER:
BLACK (NON-REFLECTORIZED)
BACKGROUND:
FLUORESCENT ORANGE (REFLECTORIZED)
R = RED (REFLECTORIZED)
Y = YELLOW (REFLECTORIZED)
G = GREEN (REFLECTORIZED)



BE PREPARED TO STOP SIGN

W3-4 48 x 48 16.00 SF

COLOR:
LEGEND AND BORDER:
BLACK (NON-REFLECTORIZED)
BACKGROUND:
FLUORESCENT ORANGE (REFLECTORIZED)



SPEED REDUCTION

W3-5 48 x 48 16.00 SF

COLOR:
BORDER AND ARROW:
BLACK (NON-REFLECTORIZED)
BACKGROUND:
FLUORESCENT ORANGE (REFLECTORIZED)
SYMBOL:
BLACK BORDER AND TEXT ON
WHITE BACKGROUND (REFLECTORIZED)



LEFT LANE ENDS

W4-2(L) 48 x 48 16.00 SF

COLOR:
SYMBOL AND BORDER:
BLACK (NON-REFLECTORIZED)
BACKGROUND:
FLUORESCENT ORANGE (REFLECTORIZED)



RIGHT LANE ENDS

W4-2(R) 48 x 48 16.00 SF

COLOR:
SYMBOL AND BORDER:
BLACK (NON-REFLECTORIZED)
BACKGROUND:
FLUORESCENT ORANGE (REFLECTORIZED)



ROAD NARROWS

W5-1 48 x 48 16.00 SF

COLOR:
SYMBOL AND BORDER:
BLACK (NON-REFLECTORIZED)
BACKGROUND:
FLUORESCENT ORANGE (REFLECTORIZED)



NARROW BRIDGE

W5-2 48 x 48 16.00 SF

COLOR:
SYMBOL AND BORDER:
BLACK (NON-REFLECTORIZED)
BACKGROUND:
FLUORESCENT ORANGE (REFLECTORIZED)

NOTES:
WORD SIGNS MAY BE USED IF SYMBOL SIGNS
ARE NOT AVAILABLE EITHER IN "STANDARD
HIGHWAY SIGNS MANUAL" OR IN THE "MANUAL
ON UNIFORM TRAFFIC CONTROL DEVICES"
(MUTCD) (CURRENT EDITION).

ALL DIAMOND SHAPE CONSTRUCTION
WARNING SIGNS SHALL BE 48 INCHES X
48 INCHES UNLESS OTHERWISE NOTED IN THE
PLANS.

* SUPPLEMENTAL SIGNS SHALL ONLY BE USED
IN CONJUNCTION WITH DIAMOND SHAPE
CONSTRUCTION WARNING SIGNS. THE SIZE OF
SUPPLEMENTAL SIGNS SHALL BE APPROPRIATE
FOR USE WITH A 48 INCH X 48 INCH WARNING
SIGN UNLESS OTHERWISE NOTED IN THE PLANS.



ONE LANE BRIDGE

W5-3 48 x 48 16.00 SF

COLOR:
SYMBOL AND BORDER:
BLACK (NON-REFLECTORIZED)
BACKGROUND:
FLUORESCENT ORANGE (REFLECTORIZED)



DIVIDED HIGHWAY

W6-1 48 x 48 16.00 SF

COLOR:
SYMBOL AND BORDER:
BLACK (NON-REFLECTORIZED)
BACKGROUND:
FLUORESCENT ORANGE (REFLECTORIZED)



DIVIDED HIGHWAY

W6-2 48 x 48 16.00 SF

COLOR:
SYMBOL AND BORDER:
BLACK (NON-REFLECTORIZED)
BACKGROUND:
FLUORESCENT ORANGE (REFLECTORIZED)



TWO WAY TRAFFIC SIGN

W6-3 48 x 48 16.00 SF

COLOR:
SYMBOL AND BORDER:
BLACK (NON-REFLECTORIZED)
BACKGROUND:
FLUORESCENT ORANGE (REFLECTORIZED)

BASIS OF PAYMENT

ITEM NO.	ITEM	UNIT
880(B)	CONSTRUCTION SIGNS	SD



APPROVED BY
TRAFFIC ENGINEER: *[Signature]* DATE: 8/6/2010

TRAFFIC STANDARD
TRAFFIC CONTROL STANDARD
CONSTRUCTION SIGNS

2009 SPECIFICATIONS

TCS11-1 01
T-511

TRFPC36 U:\Traffic\TRAFFIC STD. CURRENT\2009 DRAWINGS\TCS11-1-01 1511.dgn 3:13:15 PM 7/26/2010 R:\TRAF PLOT\lroy.pcn R:\TRAF PLOT\bw.cb

DESCRIPTION	REVISIONS	DATE



ROAD WORK SIGN

W20-1 48 x 48 16.00 SF
 COLOR:
 LEGEND AND BORDER:
 BLACK (NON-REFLECTORIZED)
 BACKGROUND:
 FLUORESCENT ORANGE (REFLECTORIZED)



DETOUR SIGN

W20-2 48 x 48 16.00 SF
 COLOR:
 LEGEND AND BORDER:
 BLACK (NON-REFLECTORIZED)
 BACKGROUND:
 FLUORESCENT ORANGE (REFLECTORIZED)



ROAD CLOSED SIGN

W20-3 48 x 48 16.00 SF
 COLOR:
 LEGEND AND BORDER:
 BLACK (NON-REFLECTORIZED)
 BACKGROUND:
 FLUORESCENT ORANGE (REFLECTORIZED)



STREET CLOSED SIGN

W20-3A 48 x 48 16.00 SF
 COLOR:
 LEGEND AND BORDER:
 BLACK (NON-REFLECTORIZED)
 BACKGROUND:
 FLUORESCENT ORANGE (REFLECTORIZED)



ONE LANE ROAD SIGN

W20-4 48 x 48 16.00 SF
 COLOR:
 LEGEND AND BORDER:
 BLACK (NON-REFLECTORIZED)
 BACKGROUND:
 FLUORESCENT ORANGE (REFLECTORIZED)



LEFT LANE CLOSED SIGN

W20-5(L) 48 x 48 16.00 SF
 COLOR:
 LEGEND AND BORDER:
 BLACK (NON-REFLECTORIZED)
 BACKGROUND:
 FLUORESCENT ORANGE (REFLECTORIZED)



RIGHT LANE CLOSED SIGN

W20-5(R) 48 x 48 16.00 SF
 COLOR:
 LEGEND AND BORDER:
 BLACK (NON-REFLECTORIZED)
 BACKGROUND:
 FLUORESCENT ORANGE (REFLECTORIZED)



FLAGGER SIGN

W20-7 48 x 48 16.00 SF
 COLOR:
 LEGEND AND BORDER:
 BLACK (NON-REFLECTORIZED)
 BACKGROUND:
 FLUORESCENT ORANGE (REFLECTORIZED)



FLAGGER SIGN

W20-7a 48 x 48 16.00 SF
 COLOR:
 LEGEND AND BORDER:
 BLACK (NON-REFLECTORIZED)
 BACKGROUND:
 FLUORESCENT ORANGE (REFLECTORIZED)



WORKERS SIGN

W21-1 48 x 48 16.00 SF
 COLOR:
 LEGEND AND BORDER:
 BLACK (NON-REFLECTORIZED)
 BACKGROUND:
 FLUORESCENT ORANGE (REFLECTORIZED)



FRESH OIL SIGN

W21-2 48 x 48 16.00 SF
 COLOR:
 LEGEND AND BORDER:
 BLACK (NON-REFLECTORIZED)
 BACKGROUND:
 FLUORESCENT ORANGE (REFLECTORIZED)



ROAD MACHINERY AHEAD SIGN

W21-3 48 x 48 16.00 SF
 COLOR:
 LEGEND AND BORDER:
 BLACK (NON-REFLECTORIZED)
 BACKGROUND:
 FLUORESCENT ORANGE (REFLECTORIZED)

NOTES:
 WORD SIGNS MAY BE USED IF SYMBOL SIGNS ARE NOT AVAILABLE EITHER IN "STANDARD HIGHWAY SIGNS MANUAL" OR IN THE "MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES" (MUTCD) (CURRENT EDITION).

ALL DIAMOND SHAPE CONSTRUCTION WARNING SIGNS SHALL BE 48 INCHES X 48 INCHES UNLESS OTHERWISE NOTED IN THE PLANS.

* SUPPLEMENTAL SIGNS SHALL ONLY BE USED IN CONJUNCTION WITH DIAMOND SHAPE CONSTRUCTION WARNING SIGNS. THE SIZE OF SUPPLEMENTAL SIGNS SHALL BE APPROPRIATE FOR USE WITH A 48 INCH x 48 INCH WARNING SIGN UNLESS OTHERWISE NOTED IN THE PLANS.

TRFPC36 MA\2009_Standard\TC-1514.dgn 8:37:49 AM 6/23/2010 RA\TRAF_PLOT\Veroy\pen RA\TRAF_PLOT\dw.ctb

BASIS OF PAYMENT		
ITEM NO.	ITEM	UNIT
880(B)	CONSTRUCTION SIGNS	SD



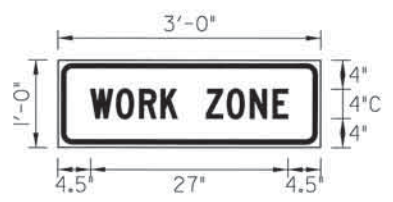
APPROVED BY
 TRAFFIC ENGINEER: *David J. Smith* DATE: 6/23/10

TRAFFIC STANDARD
 TRAFFIC CONTROL STANDARD
 CONSTRUCTION SIGNS

2009 SPECIFICATIONS

TCS14-1	00
T-514	

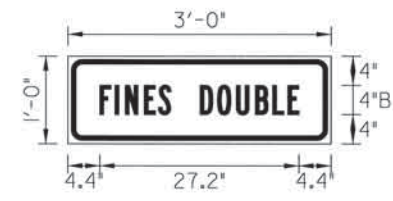
DESCRIPTION	REVISIONS	DATE
-------------	-----------	------



SIGN NUMBER	CS-16
WIDTH x HGHT.	3'-0" x 1'-0"
BORDER WIDTH	0.63"
CORNER RADIUS	1.5"
MOUNTING	Ground
SIGN AREA	3.0 Sq.Ft.
BACKGROUND	TYPE: Reflective COLOR: Orange
LEGNDBORDER	TYPE: Non-Reflective COLOR: Black

Dimensions are in Inches,tenths

LETTER POSITIONS (X)										LENGTH	SERIESSIZE
W	O	R	K	Z	O	N	E			C	2000
4.5	8	11.2	14.1	16.3	20.3	23.2	26.3	29.5		27	



SIGN NUMBER	CS-17
WIDTH x HGHT.	3'-0" x 1'-0"
BORDER WIDTH	0.63"
CORNER RADIUS	1.5"
MOUNTING	Ground
SIGN AREA	3.0 Sq.Ft.
BACKGROUND	TYPE: Reflective COLOR: White
LEGNDBORDER	TYPE: Non-Reflective COLOR: Black

Dimensions are in Inches,tenths

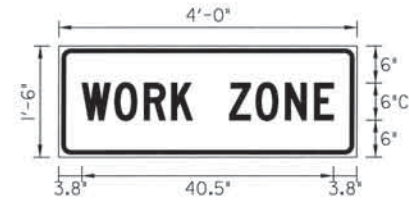
LETTER POSITIONS (X)										LENGTH	SERIESSIZE	
F	I	N	E	S	D	O	U	B	L	E	B	2000
4.4	6.5	7.9	10.5	12.4	14.1	18.1	20.5	23.1	25.7	28	30.1	27.2



SIGN NUMBER	CS-18
WIDTH x HGHT.	3'-0" x 1'-6"
BORDER WIDTH	0.63"
CORNER RADIUS	1.5"
MOUNTING	Ground
SIGN AREA	4.5 Sq.Ft.
BACKGROUND	TYPE: Reflective COLOR: White
LEGNDBORDER	TYPE: Non-Reflective COLOR: Black

Dimensions are in Inches,tenths

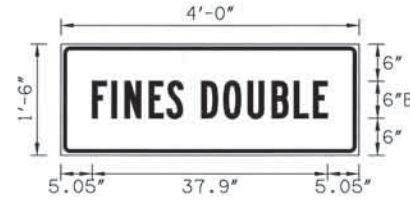
LETTER POSITIONS (X)										LENGTH	SERIESSIZE		
W	H	E	N	W	O	R	K	E	R	S	B	2000	
3	6.1	8.7	10.9	12.6	16.6	19.6	22.2	24.6	27	29.1	31.3	30	
A	R	E	P	R	E	S	E	N	T			B	2000
5.3	8	10.3	11.9	15.9	18.1	20.5	22.4	24.8	26.9	29.2		25.5	



SIGN NUMBER	CS-16E
WIDTH x HGHT.	4'-0" x 1'-6"
BORDER WIDTH	0.63"
CORNER RADIUS	1.5"
MOUNTING	Ground
SIGN AREA	6.0 Sq.Ft.
BACKGROUND	TYPE: Reflective COLOR: Orange
LEGNDBORDER	TYPE: Non-Reflective COLOR: Black

Dimensions are in Inches,tenths

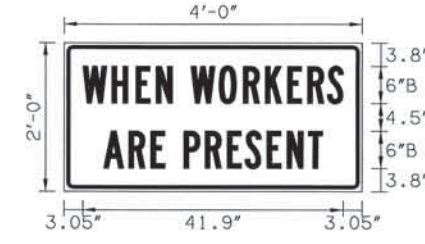
LETTER POSITIONS (X)										LENGTH	SERIESSIZE
W	O	R	K	Z	O	N	E			C	2000
3.8	9	13.8	18.2	21.5	27.5	31.8	36.5	41.2		40.5	



SIGN NUMBER	CS-17E
WIDTH x HGHT.	4'-0" x 1'-6"
BORDER WIDTH	0.63"
CORNER RADIUS	1.5"
MOUNTING	Ground
SIGN AREA	6.0 Sq.Ft.
BACKGROUND	TYPE: Reflective COLOR: White
LEGNDBORDER	TYPE: Non-Reflective COLOR: Black

Dimensions are in Inches,tenths

LETTER POSITIONS (X)										LENGTH	SERIESSIZE	
F	I	N	E	S	D	O	U	B	L	E	B	2000
5.1	8.2	10.3	14.2	17.1	22.7	26.2	30.1	34	37.5	40.7	37.9	



SIGN NUMBER	CS-18E
WIDTH x HGHT.	4'-0" x 2'-0"
BORDER WIDTH	0.63"
CORNER RADIUS	1.13"
MOUNTING	Ground
SIGN AREA	8.0 Sq.Ft.
BACKGROUND	TYPE: Reflective COLOR: White
LEGNDBORDER	TYPE: Non-Reflective COLOR: Black

Dimensions are in Inches,tenths

LETTER POSITIONS (X)										LENGTH	SERIESSIZE		
W	H	E	N	W	O	R	K	E	R	S	B	2000	
3	7.7	11.6	14.9	20.4	24.9	28.8	32.4	36	39.2	42.4	41.9		
A	R	E	P	R	E	S	E	N	T			B	2000
6.4	10.5	14	19.3	22.7	26.3	29.1	32.7	35.9	39.3		35.2		



CS-16, E
CS-17, E
CS-18, E

CONSTRUCTION
FINES DOUBLE
ASSEMBLY

BASIS OF PAYMENT		
ITEM NO.	ITEM	UNIT
880(B)	CONSTRUCTION SIGNS	SD



APPROVED BY
TRAFFIC ENGINEER: *David Smith* DATE: 6/23/10

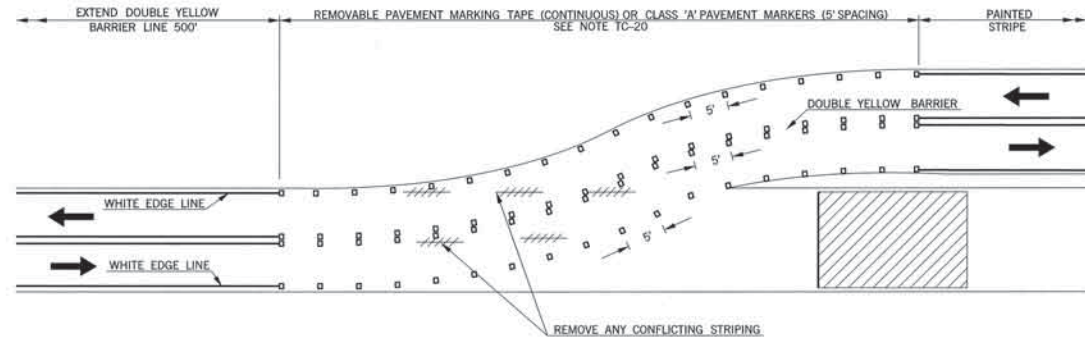
TRAFFIC STANDARD
TRAFFIC CONTROL STANDARD
CONSTRUCTION SIGNS

2009 SPECIFICATIONS

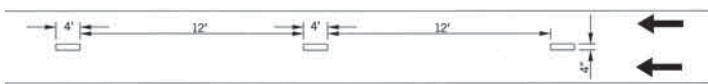
TCS20-1 00
T-520

TRFFC36 M:\2009_Standards_TC\1520.dgn 8:42:20 AM 6/23/2010 R:\TRAF_PLOT\eroy.pen R:\TRAF_PLOT\bw.ctb

DESCRIPTION	REVISIONS	DATE
ADDED TRAFFIC STRIPE NOTES		4/10/12
REDEFINED TERMS, MOD. PM SPACING		4/2/2013

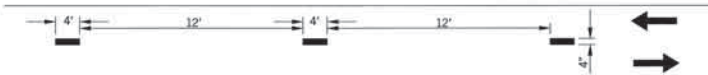


CONSTRUCTION ZONE PAVEMENT MARKINGS THRU SHOO-FLY

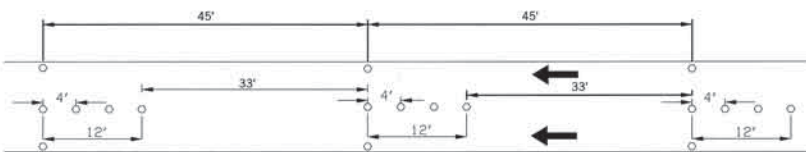


**ONE-WAY PAVEMENT MARKING
REMOVABLE TAPE OR PAINT**

PAVEMENT MARKINGS: REMOVABLE TAPE OR PAINT
WIDTH OF STRIPED LANE LINES SHALL BE A MINIMUM OF 4".
INTERMEDIATE-TERM STATIONARY PAVEMENT MARKINGS ARE THOSE THAT MAY BE USED UNTIL THE EARLIEST DATE WHEN IT IS PRACTICAL AND POSSIBLE TO INSTALL PERMANENT PAVEMENT MARKINGS THAT MEET THE FULL OKLAHOMA DEPARTMENT OF TRANSPORTATION STANDARDS FOR PAVEMENT MARKINGS.

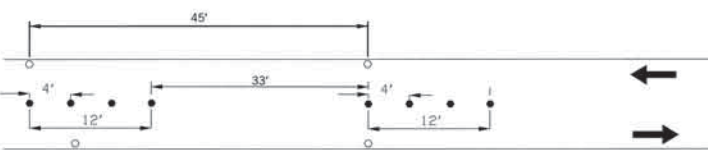


**TWO-WAY PAVEMENT MARKING
REMOVABLE TAPE OR PAINT**



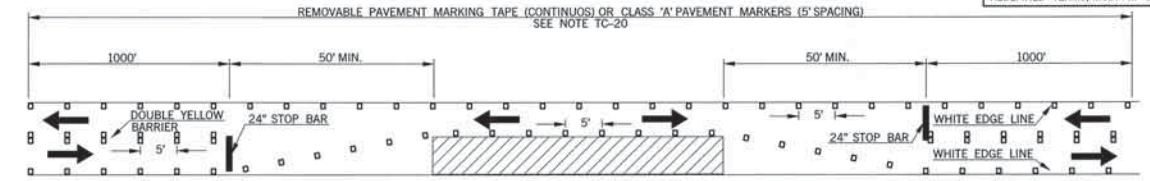
**ONE-WAY PAVEMENT MARKING
FLEX TABS**

PAVEMENT MARKINGS: FLEX TABS
TYPE I - FLEX TAB MARKERS SHALL HAVE REFLECTORIZED MATERIAL ON BOTH SIDES.
TYPE II - FLEX TAB MARKERS SHALL HAVE REFLECTORIZED MATERIAL ON BOTH SIDES AND SHALL HAVE A CLEAR REMOVABLE COVER.
FLEX TABS MAY BE INSTALLED AS SHOWN FOR LONG-TERM STATIONARY PAVEMENT MARKINGS.



**TWO-WAY PAVEMENT MARKING
FLEX TABS**

INTERMEDIATE-TERM STATIONARY PAVEMENT MARKINGS



**TYPICAL PAVEMENT MARKINGS FOR ONE LANE CLOSURE ON TWO LANE /TWO WAY ROADWAY
REMOVABLE TAPE OR CONSTRUCTION ZONE PAVEMENT MARKERS**

NOTES:

CONSTRUCTION ZONE PAVEMENT MARKINGS SHALL CONSIST OF EITHER PAINT, CONSTRUCTION ZONE PAVEMENT MARKERS (FLEX TABS) OR REMOVABLE MARKING TAPE. THERMO-PLASTIC STRIPE MAY BE USED IN CONJUNCTION WITH PAINT, FLEX TABS OR TAPE WHEN SPECIFIED IN THE PLANS.

ALL PAVEMENT MARKINGS TO BE PLACED ON TEMPORARY SURFACES OR ON SURFACES SCHEDULED TO BE REMOVED SHALL BE DONE WITH PAINT UNLESS OTHERWISE SHOWN IN THE PLANS OR STANDARD DRAWINGS. ALL FINAL OR FINISHED SURFACES SHALL BE MARKED WITH EITHER REMOVABLE PAVEMENT MARKING TAPE OR CONSTRUCTION ZONE PAVEMENT MARKERS, UNLESS OTHERWISE NOTED ON THE PLANS.

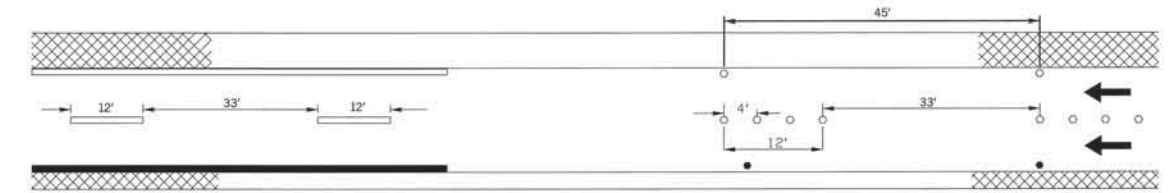
WIDTH OF STRIPED LANE LINES SHALL BE A MINIMUM OF 4".

KEY:

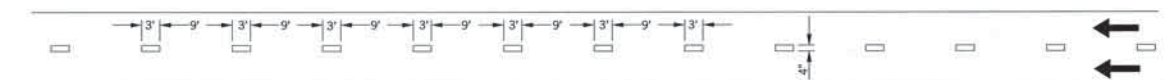
- WORK ZONE
- WHITE LANE LINE (PAINT OR TAPE)
- YELLOW LANE LINE (PAINT OR TAPE)
- WHITE FLEX TAB
- YELLOW FLEX TAB
- CLASS A PAVEMENT MARKER



TWO-LANE /TWO-WAY



**4 -LANE
DIVIDED ROADWAY**



WHITE DOTTED LINE

LONG-TERM STATIONARY PAVEMENT MARKINGS

MUTCD DEFINITIONS OF THE FIVE CATEGORIES OF WORK DURATION, AND THEIR TIME AT A LOCATION SHALL BE:

- A. LONG-TERM STATIONARY IS WORK THAT OCCUPIES A LOCATION MORE THAN 3 DAYS.
- B. INTERMEDIATE-TERM STATIONARY IS WORK THAT OCCUPIES A LOCATION MORE THAN ONE DAYLIGHT PERIOD UP TO 3 DAYS, OR NIGHTTIME WORK LASTING MORE THAN 1 HOUR.
- C. SHORT-TERM STATIONARY IS DAYTIME WORK THAT OCCUPIES A LOCATION FOR MORE THAN 1 HOUR WITHIN A SINGLE DAYLIGHT PERIOD.
- D. SHORT DURATION IS WORK THAT OCCUPIES A LOCATION UP TO 1 HOUR.
- E. MOBILE IS WORK THAT MOVES INTERMITTENTLY OR CONTINUOUSLY.



APPROVED BY: *[Signature]* DATE: 4/8/2013
TRAFFIC ENGINEER

TRAFFIC STANDARD

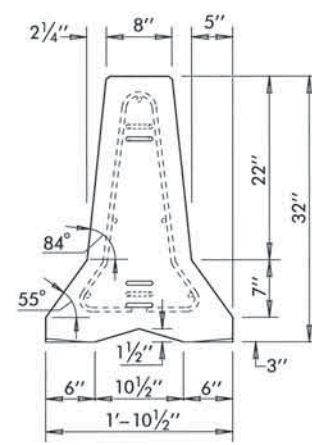
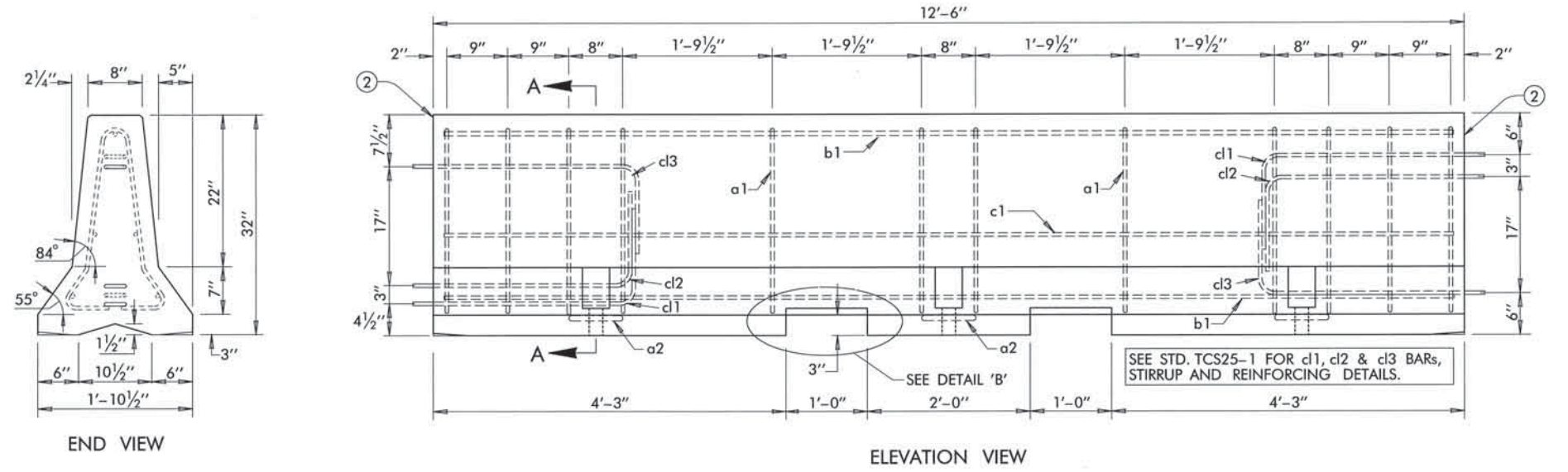
TRAFFIC CONTROL STANDARD
CONSTRUCTION ZONE PAVEMENT MARKINGS

2009 SPECIFICATIONS

TCS21-1	02
	T-521

\$\$\$date\$\$\$

DESCRIPTION	REVISIONS	DATE
CHANGED DIMENSION		2/25/2011
ADDED DELINEATORS/NOTES		11/09/2011



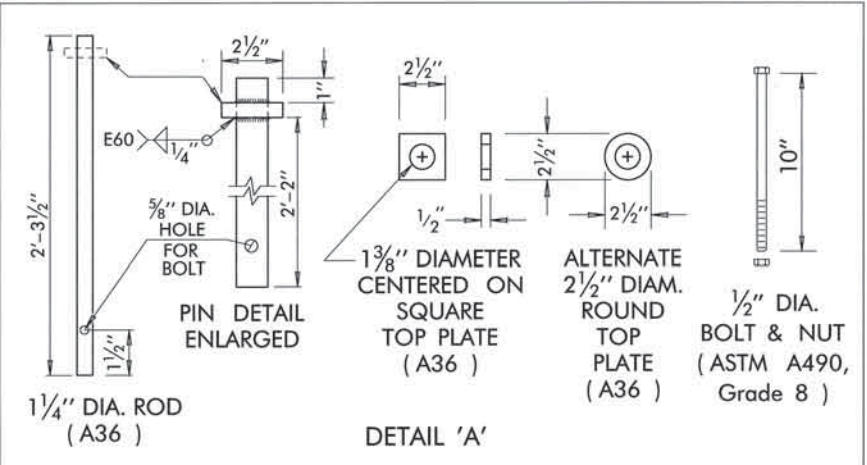
END VIEW

ELEVATION VIEW

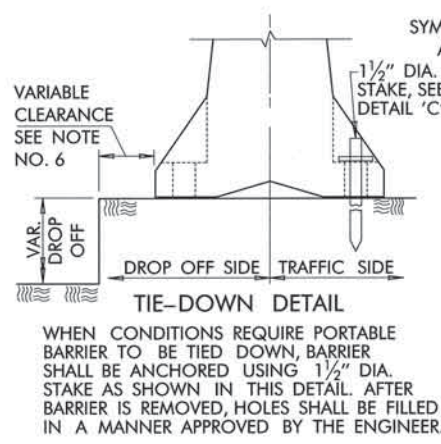
- DRAWING NOTES:**
- 1 INCH RADIUS ALLOWED FOR EASE OF CASTING (BOTH SIDES).
 - THE TOP SURFACE OF ONE END OF EACH BARRIER UNIT SHALL BE PERMANENTLY MARKED INDICATING THE FOLLOWING INFORMATION:
 - NCHRP REPORT 350 APPROVED
 - TYPE F BARRIER
 - MANUFACTURER IDENTIFICATION
 - DATE MANUFACTURED (MONTH AND YEAR)
 EXAMPLE: 350F-SM9/01 (SM=SMITH MATERIALS)
 - 1 INCH CHAMFER TO PREVENT SPALLING (BOTH SIDES).

GENERAL NOTES:

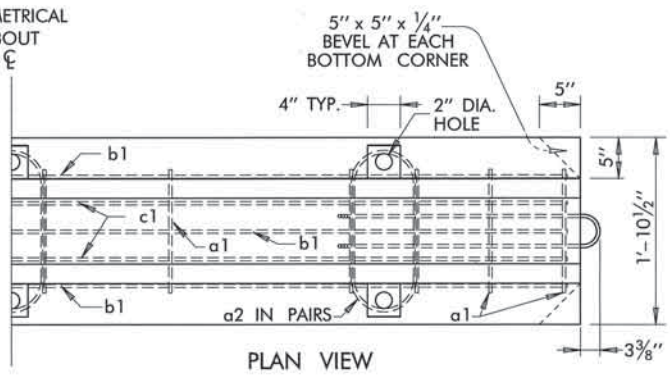
- ALL CONSTRUCTION AND MATERIAL REQUIREMENTS OF THE PORTABLE PRECAST CONCRETE MEDIAN BARRIER, PROVIDED BY THE CONTRACTOR, SHALL BE IN ACCORDANCE WITH THE 2009 ENGLISH STANDARD SPECIFICATIONS & MEET REQUIREMENTS OF NCHRP REPORT 350, TEST LEVEL 3. CONTRACTOR MAY PROVIDE ANY PORTABLE F-SHAPE BARRIER DESIGN MEETING THE REQUIREMENTS OF NCHRP REPORT 350, SO LONG AS THE MATERIAL REQUIREMENTS OF 2009 STANDARD SPECIFICATIONS ARE MET.
- CONCRETE FOR PORTABLE PRECAST CONCRETE MEDIAN BARRIER SHALL REACH A MINIMUM OF 4000 PSI STRENGTH AFTER 28 DAYS.
- ALL REINFORCEMENT SHALL BE DEFORMED GRADE 60, AASHTO M 31, EXCEPT FOR THE CONNECTION LOOP BAR ASSEMBLY SHALL BE SMOOTH #6 BARS WITH A MINIMUM YIELD STRENGTH OF 60 KSI, A MINIMUM TENSILE STRENGTH OF 80 KSI, AND PASSING A 180 DEGREE BEND TEST USING A 2 3/4" PIN BEND DIAMETER. THE LOOPS SHALL BE INSTALLED WITHIN 1/8" OF THE PLAN DIMENSIONS.
- CONTRACTOR SHALL FURNISH AND INSTALL REFLECTIVE MARKERS ON BARRIER AS RECOMMENDED BY THE MANUFACTURER AND SHOWN ON THIS SHEET. DELINEATORS USED MUST BE ON THE OKLAHOMA DEPARTMENT OF TRANSPORTATION QUALIFIED PRODUCTS LIST (QPL) AT <http://www.okladot.state.ok.us/traffic/qpl/index.php>. TWO MARKERS ON EACH SIDE OF THE BARRIER SHALL BE INSTALLED AT NOMINAL 12.5 FOOT SPACING AND FACE ONCOMING TRAFFIC. THE CONTRACTOR SHALL MAINTAIN THE MARKERS AND PROMPTLY REPAIR OR REPLACE ANY DAMAGED OR MISSING UNITS. ALL COSTS FOR FURNISHING, INSTALLING AND MAINTAINING MARKERS SHALL BE INCLUDED IN THE PRICE BID FOR THE PORTABLE LONGITUDINAL BARRIER.
- UNLESS STATED OTHERWISE IN THE PLANS, THE BARRIER RAIL SECTIONS SHALL REMAIN THE PROPERTY OF THE CONTRACTOR AND AT THE COMPLETION OF THE WORK SHALL BE REMOVED FROM THE SITE BY CONTRACTOR.
- WHEN TEMPORARY BARRIER RAIL IS INSTALLED WITHIN 2 FEET OF A DROPOFF, BARRIER SECTIONS SHALL BE ANCHORED WITH TIE DOWN PINS AS DESCRIBED AND SHOWN ON TIE-DOWN DETAIL, THIS SHEET. SEE ROADWAY STD. PDT-1-(LATEST REVISION) FOR PAVEMENT EDGE DROP-OFF DETAILS.
- PAVEMENT MARKERS OR TEMPORARY FLEXIBLE-REFLECTIVE ROADWAY MARKER TABS SHALL NOT BE USED AS BARRIER DELINEATION.
- CONTRACTOR MAY USE STEEL BARRIER INSTEAD OF CONCRETE BARRIER. THE STEEL BARRIER USED MUST BE ON THE OKLAHOMA DEPARTMENT OF TRANSPORTATION QUALIFIED PRODUCTS LIST (QPL) AT <http://www.okladot.state.ok.us/traffic/qpl/index.php>.



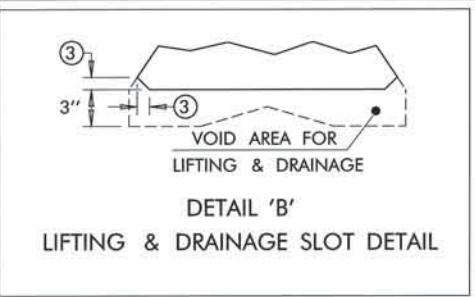
DETAIL 'A'



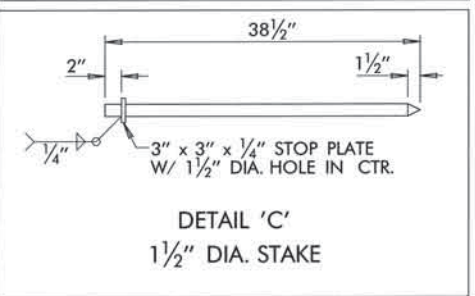
TIE-DOWN DETAIL



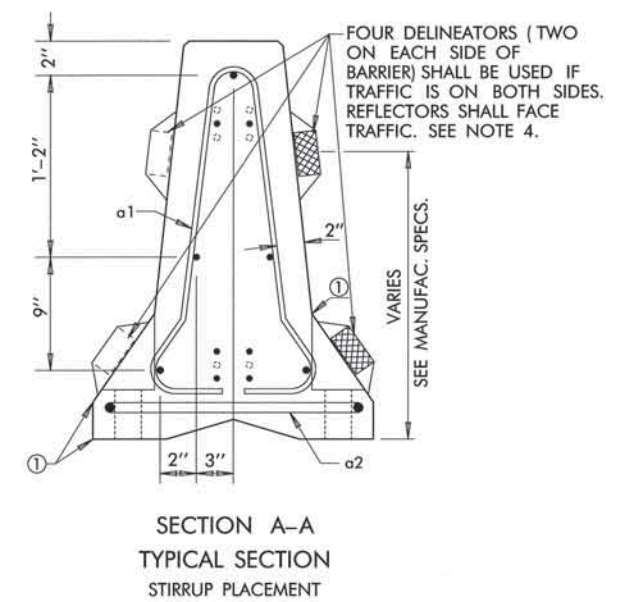
PLAN VIEW



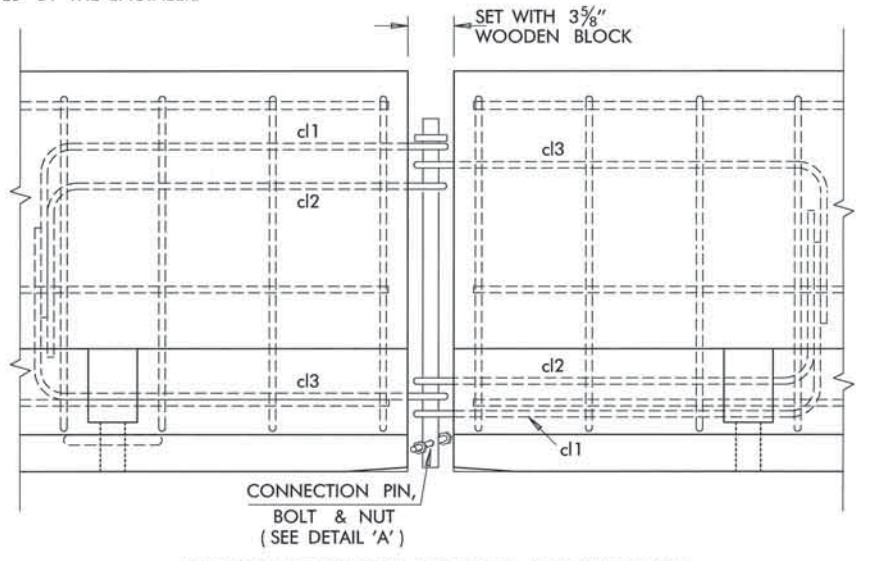
DETAIL 'B' LIFTING & DRAINAGE SLOT DETAIL



DETAIL 'C' 1 1/2" DIA. STAKE



SECTION A-A TYPICAL SECTION STIRRUP PLACEMENT



DETAILS OF BARRIER SECTION CONNECTION

BASIS OF PAYMENT		
ITEM NO.	ITEM	UNIT
877(A)	PORTABLE LONGITUDINAL BARRIER	L.F.
877(B)	DELIVER PORTABLE LONGITUDINAL BARRIER	L.F.
877(C)	RELOCATION OF PORT. LONGITUDINAL BARRIER	L.F.

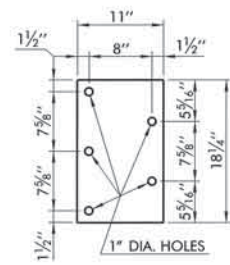
THIS STANDARD SHALL BE USED IN CONJUNCTION WITH TCS25-1.



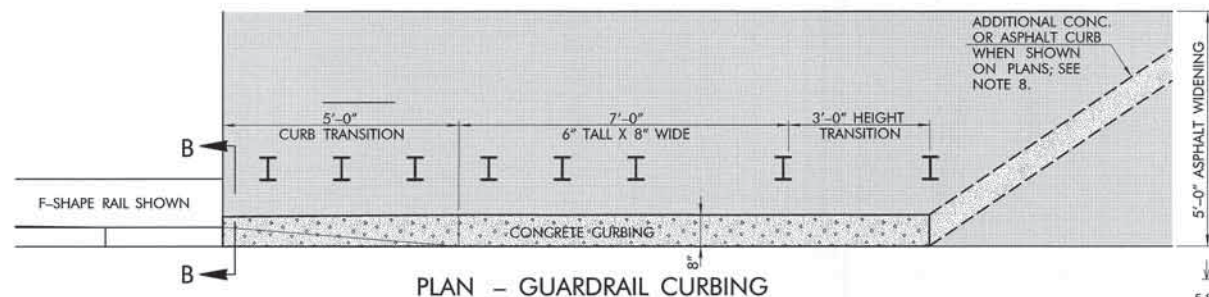
APPROVED BY TRAFFIC ENGINEER: *[Signature]* DATE: 11/9/2011

TRAFFIC STANDARD
TRAFFIC CONTROL STANDARD
PORTABLE LONGITUDINAL BARRIER

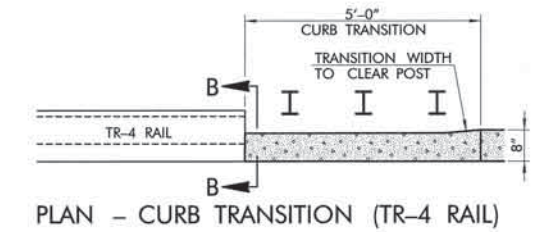
DESCRIPTION	REVISIONS	DATE
REVISED NOTE 8 & GUARDRAIL PAY ITEM		4/2/2013
REVISED THRIE BEAM TO W-BEAM SPACING		6/18/2013



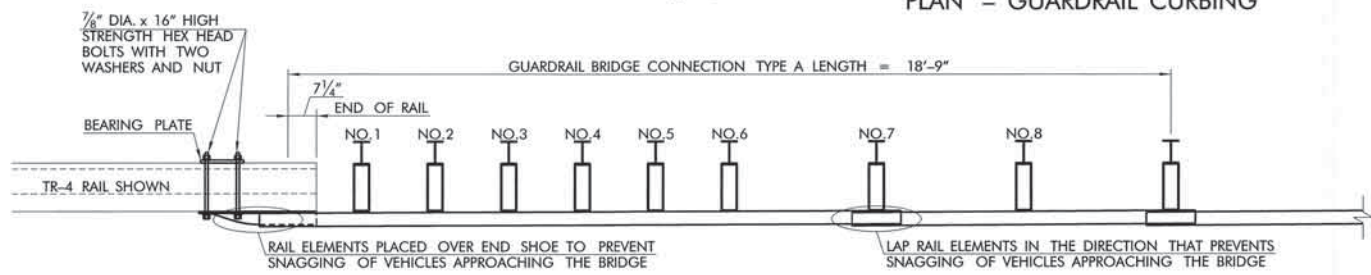
BEARING PLATE
BEARING PLATE SHALL BE 3/8" THICK, GRADE 36 STRUCTURAL STEEL MEETING REQUIREMENTS OF AASHTO M270.



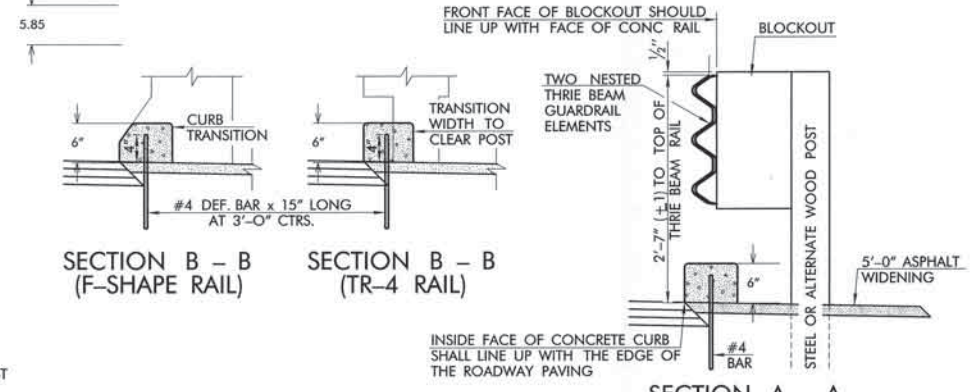
PLAN - GUARDRAIL CURBING



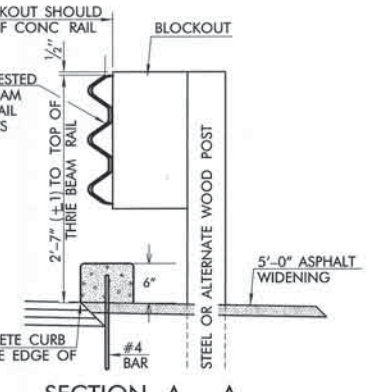
PLAN - CURB TRANSITION (TR-4 RAIL)



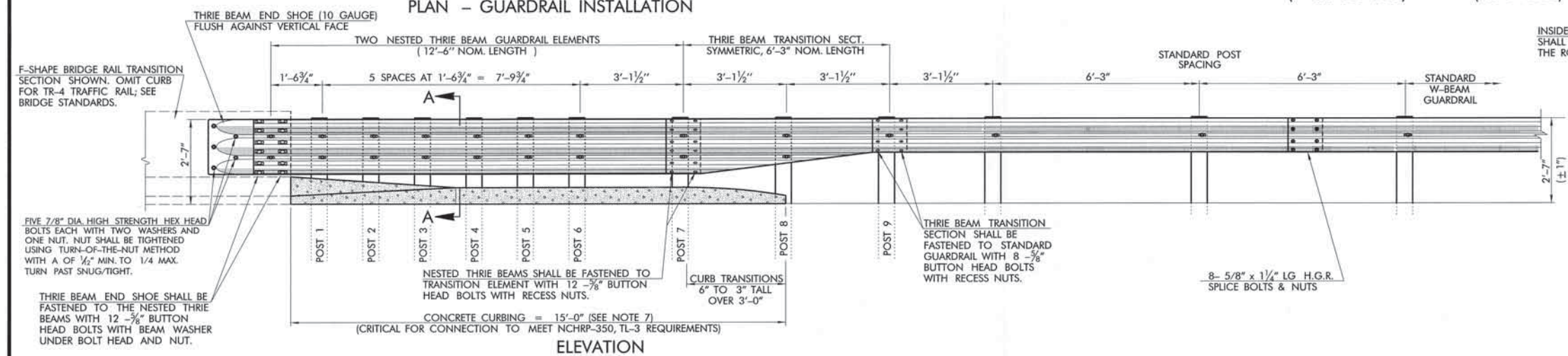
PLAN - GUARDRAIL INSTALLATION



SECTION B - B (F-SHAPE RAIL) SECTION B - B (TR-4 RAIL)



SECTION A - A

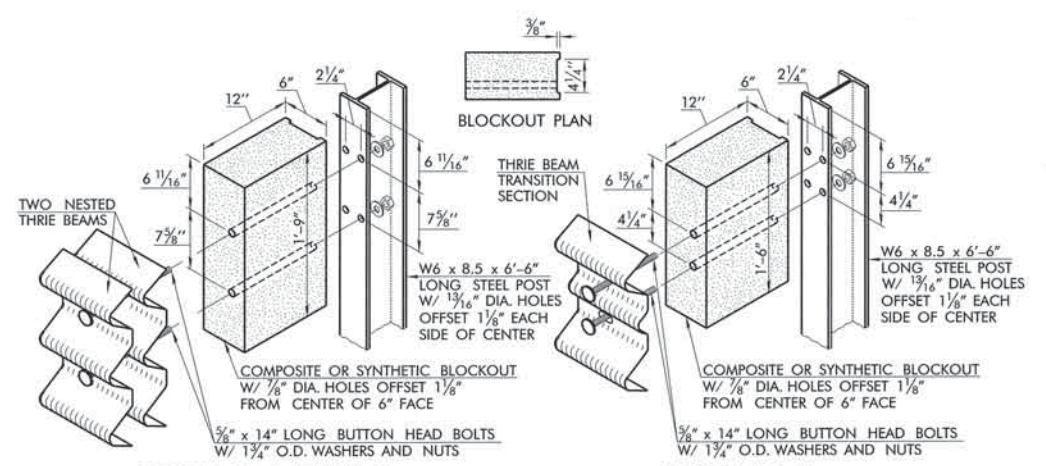


ELEVATION

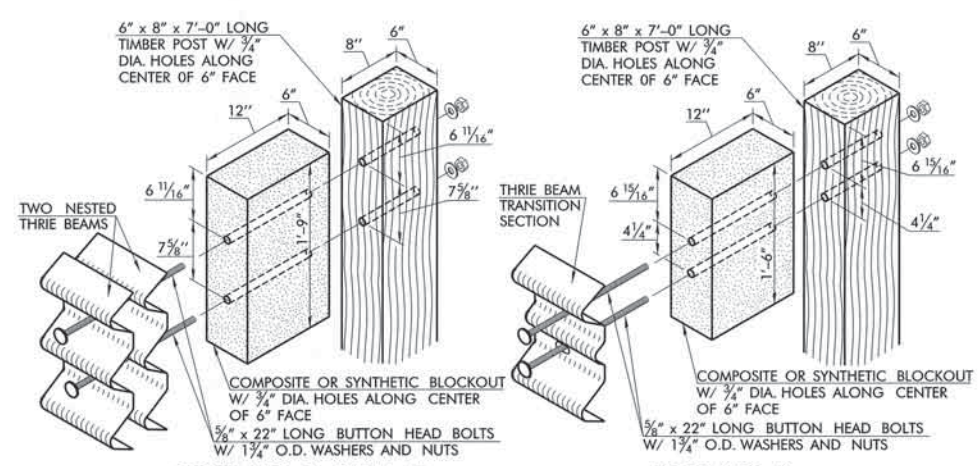
GENERAL NOTES

- ALL CONSTRUCTION AND MATERIAL REQUIREMENTS SHALL BE IN ACCORDANCE WITH THE 2009 ODOT STANDARD SPECIFICATIONS.
- ALL GUARDRAIL, METAL POSTS, BEARING PLATES, BOLTS, WASHERS, AND NUTS SHALL BE GALVANIZED AFTER FABRICATION.
- ANY FIELD CUTS OR HOLES DRILLED IN GALVANIZED MATERIALS SHALL BE COATED WITH A ZINC OXIDE PAINT, ACCORDING TO SECTION 730.06 OF THE SPECIFICATIONS.
- ALTERNATIVE POSTS MAY BE USED IN LIEU OF THE POSTS SHOWN ON THIS STANDARD, IF THEY ARE CERTIFIED AS NCHRP-350, TL-3, TESTED AND APPROVED BY THE ENGINEER.
- WOOD BLOCKOUTS MAY BE USED IN LIEU OF COMPOSITE OR SYNTHETIC BLOCKOUTS, IF BLOCKOUT IS ODOT APPROVED.
- FOR DETAILS OF GUARDRAIL HARDWARE INCLUDING THRIE BEAM GUARDRAIL ELEMENT, THRIE BEAM TRANSITION SECTION, END SHOE, BEAM WASHER, BUTTON HEAD BOLTS & RECESS NUTS, SEE TRAFFIC STANDARD GHW2-1.
- PAY ITEM 'GUARDRAIL BRIDGE CONNECTION-THRIE BEAM' INCLUDES ALL COST OF MATERIALS AND INSTALLATION OF THE THRIE BEAM RAIL ELEMENTS, TRANSITION SECTION, END SHOE, POSTS, BLOCKOUTS, CONCRETE CURB, BEARING PLATE, BOLTS, WASHERS AND NUTS SHOWN ON DETAILS.
- PAY ITEM 'GUARDRAIL CURBING' INCLUDES ALL COST OF MATERIALS AND INSTALLATION OF CLASS A CONCRETE CURB AND #4 BARS AS SHOWN ON DETAILS WHEN ADDITIONAL LENGTH IS REQUIRED.

BASIS OF PAYMENT		
ITEM NO.	ITEM	UNIT
623(1)	GUARDRAIL BRIDGE CONN-THRIE BEAM (31")	EA.
623	(PL) GUARDRAIL CURBING	EA.



POST NO. 1 THRU 7
STEEL POST AND COMPOSITE OR SYNTHETIC BLOCKOUT



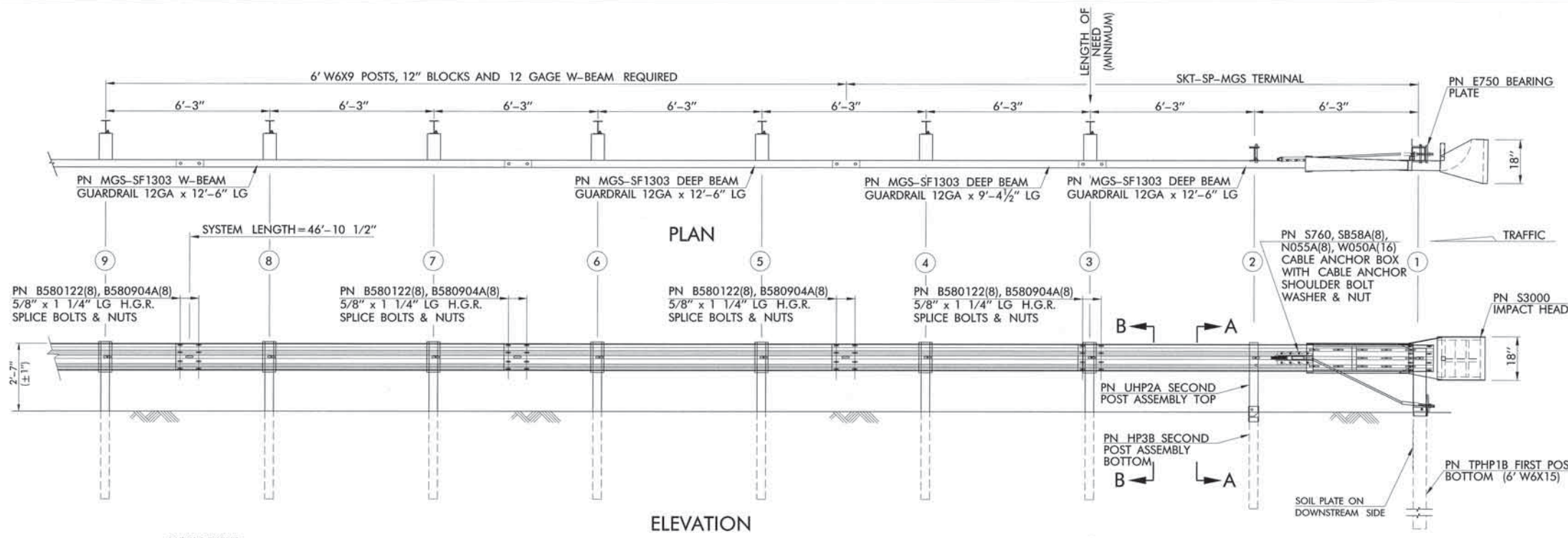
POST NO. 1 THRU 7
OPTIONAL WOOD POST AND COMPOSITE OR SYNTHETIC BLOCKOUT



APPROVED BY: *David Smith* DATE: 6/18/2013
TRAFFIC ENGINEER

TRAFFIC STANDARD
GUARDRAIL BRIDGE CONNECTION-
THRIE BEAM
(31" SYSTEM)

DESCRIPTION	REVISIONS	DATE

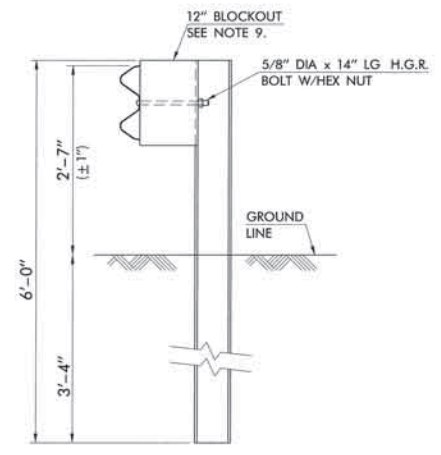


BILL OF MATERIAL

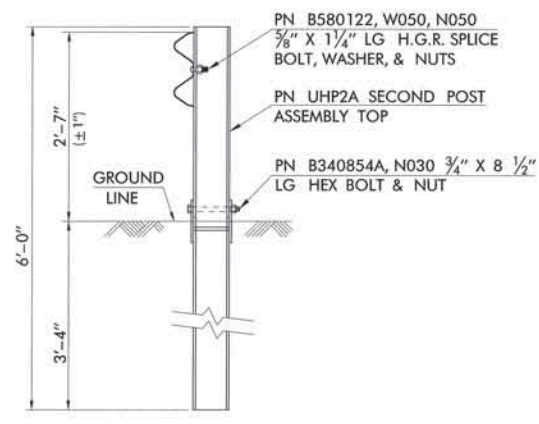
PN	QTY	DESCRIPTION
S3000	1	IMPACT HEAD
MGS-SF1303	1	W-BEAM GUARDRAIL END SECTION, 12 Ga.
TPHP1A	1	FIRST POST TOP (6X6X 1/8" Tube)
TPHP1B	1	FIRST POST BOTTOM (6' W6X15)
UHP2A	1	SECOND POST ASSEMBLY TOP
HP3B	1	SECOND POST ASSEMBLY BOTTOM
E750	1	BEARING PLATE
S760	1	CABLE ANCHOR BOX
E770	1	BCT CABLE ANCHOR ASSEMBLY
B5160104A	2	5/16 x 1 HEX BOLT GRD 5
W0516	4	5/16 WASHER
N0516	2	5/16 HEX NUT
B580122	25	5/8 Dia. x 1 1/4 SPLICE BOLT (POST #2)
B580904A	2	5/8 Dia. x 9 HEX BOLT GRD 5
W050	3	5/8 WASHER
N050	26	5/8 Dia. H.G.R. NUT
B340854A	1	3/4 Dia. x 8 1/2 HEX BOLT GRD A449
N030	1	3/4 Dia. HEX NUT
N100	1	1 ANCHOR CABLE HEX NUT
W100	1	1 ANCHOR CABLE WASHER
SB58A	8	CABLE ANCHOR BOX SHOULDER BOLT
N055A	8	1/2 A325 STRUCTURAL NUT
W050A	16	1 1/16 OD x 9/16 ID A325 STR. WASHER

GENERAL NOTES

- ALL CONSTRUCTION AND MATERIAL REQUIREMENTS SHALL BE IN ACCORDANCE WITH THE 2009 ODOT STANDARD SPECIFICATIONS.
- ALL BOLTS, NUTS, CABLE ASSEMBLIES, CABLE ANCHORS AND BEARING PLATES SHALL BE GALVANIZED.
- THE LOWER SECTIONS OF THE POSTS 1 & 2 SHALL NOT PROTRUDE MORE THAN 4 IN ABOVE THE GROUND (MEASURED ALONG A 5' CORD). SITE GRADING MAY BE NECESSARY TO MEET THIS REQUIREMENT.
- THE LOWER SECTIONS OF THE HINGED POSTS SHOULD NOT BE DRIVEN WITH THE UPPER POST ATTACHED. IF THE POST IS PLACED IN A DRILLED HOLE, THE BACKFILL MATERIAL MUST BE SATISFACTORILY COMPACTED TO PREVENT SETTLEMENT.
- WHEN COMPETENT ROCK IS ENCOUNTERED, A 12" DIA POST HOLE, 20 IN. DEEP CORED INTO THE ROCK SURFACE MAY BE USED IF APPROVED BY THE ENGINEER FOR POST 1. GRANULAR MATERIAL WILL BE PLACED IN THE BOTTOM OF THE HOLE, APPROXIMATELY 2.5" DEEP TO PROVIDE DRAINAGE. THE FIRST POST CAN BE FIELD CUT TO LENGTH, PLACED IN THE HOLE AND BACKFILLED WITH SUITABLE BACKFILL. THE SOIL PLATE MAY BE TRIMMED IF REQUIRED.
- A SITE EVALUATION SHOULD BE CONSIDERED IF THERE IS LESS THAN 25' BETWEEN THE OUTLET SIDE OF THE TERMINAL AND ANY ADJACENT DRIVING LANE.
- THE BREAKAWAY CABLE ASSEMBLY MUST BE TAUT. A LOCKING DEVICE (VICE GRIPS OR CHANNEL LOCK PLIERS) SHOULD BE USED TO PREVENT THE CABLE FROM TWISTING WHEN TIGHTENING NUTS.
- EXTRUDER TYPE TERMINALS SHALL NOT BE INSTALLED WHEN ADJACENT DRIVING LANES ARE WITHIN 25 FEET (HORIZONT.) OF EXTRUSION SIDE OF THE TERMINAL.
- RECYCLED COMPOSITE (PLASTIC) OR WOOD BLOCKOUTS MAY BE USED THROUGHOUT THE LENGTH OF THE TERMINAL, IF APPROVED BY THE ENGINEER.



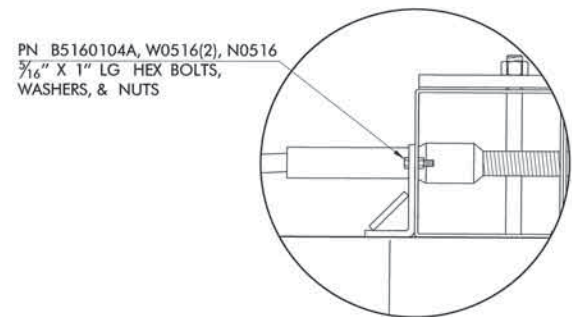
SECTION B-B
TYP AT POSTS #3 THRU #8



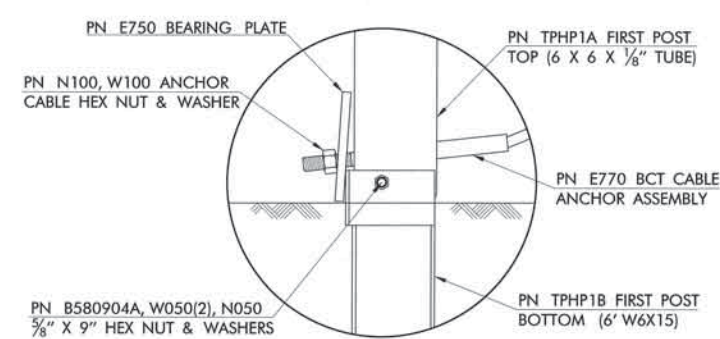
SECTION A-A
POST #2

OPTIONAL FLARED INSTALLATION

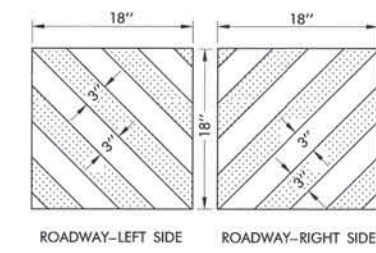
25:1 MAXIMUM FLARE RATE



IMPACT HEAD CONNECTION DETAIL



POST #1 CONNECTION DETAIL



REFLECTIVE MARKER DETAIL

REFLECTIVE MARKER

- REFLECTORIZED MARKER(S) SHOULD BE ATTACHED TO THE VERTICAL END (12" x 24" FACE - TYP.) OF THE G.E.T PRIOR TO INSTALLATION.
- ATTACHMENT SURFACE SHOULD BE THOROUGHLY CLEANED & DRY BEFORE ATTACHING ADHESIVE MARKER (STICK-ON SHEETING).
- ATTACHED ADHESIVE SHEETING SHOULD BE FREE OF AIR BUBBLES WITH ALL EDGES FIRMLY BONDED.
- STRIPING PATTERN MAY CONSIST OF 3" OR 4" STRIPES.

BASIS OF PAYMENT

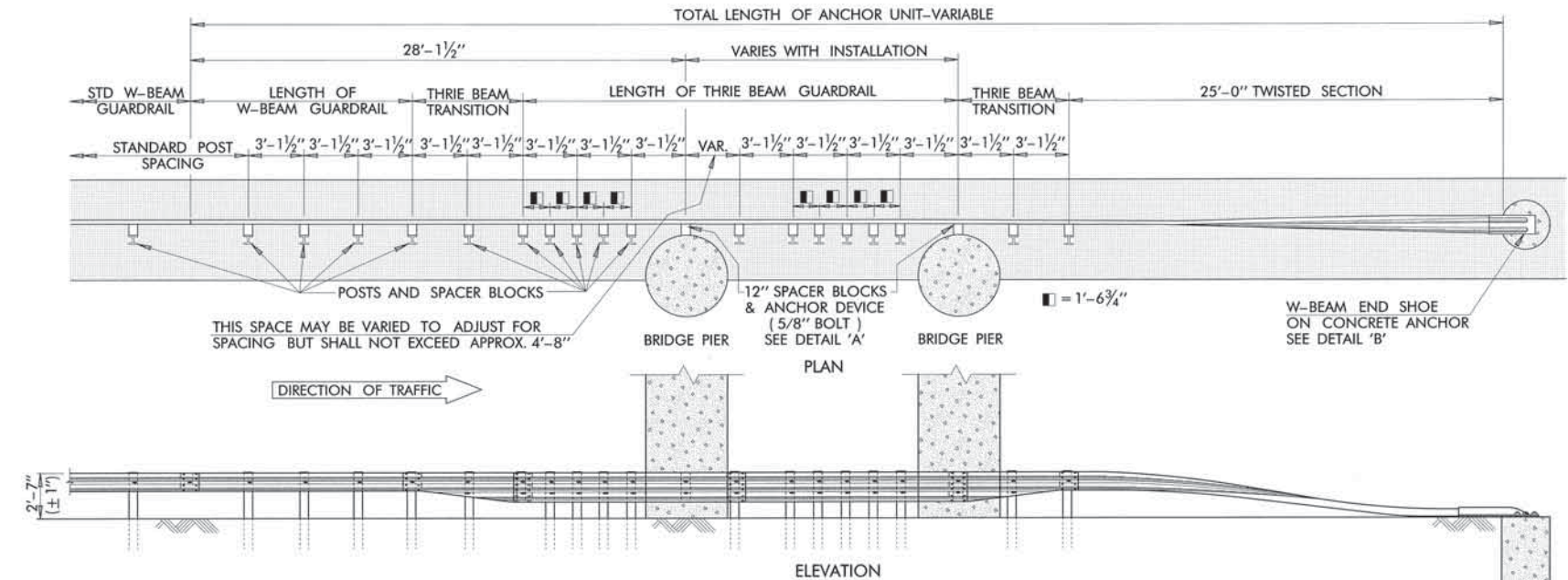
ITEM NO.	ITEM	UNIT
623(G)	GUARDRAIL END TREATMENT (31")	EA.



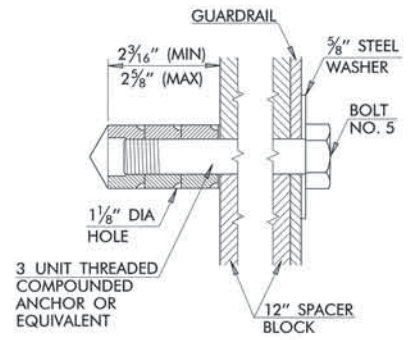
APPROVED BY
TRAFFIC ENGINEER: *David Smith* DATE: 4/19/12
TRAFFIC STANDARD

GUARDRAIL END TREATMENT
(SKT-SP-MGS EXTRUDER TERMINAL)
(31" SYSTEM)

DESCRIPTION	REVISIONS	DATE

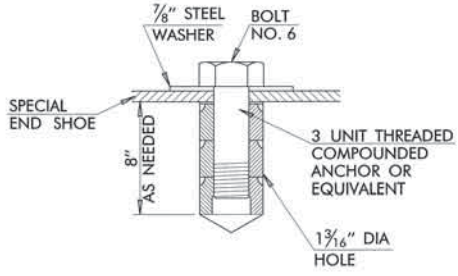


GUARDRAIL SYSTEM - PIER PROTECTION



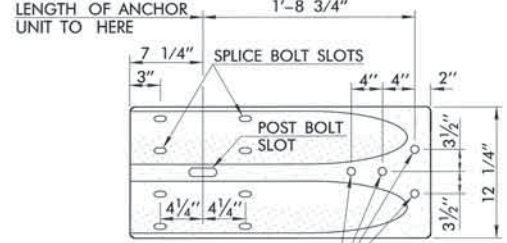
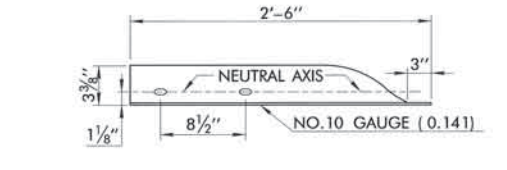
DETAIL 'A' ANCHOR DEVICE (5/8" BOLT)

USE WHEN CONNECTION IS MADE TO ROUND PIERS.

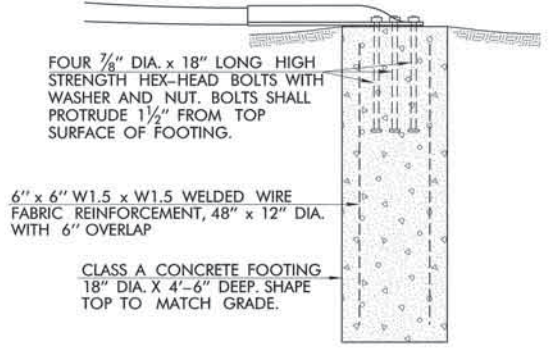
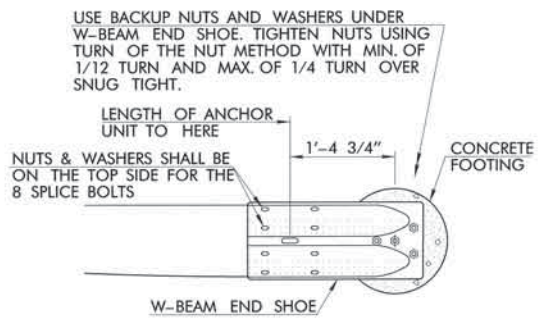


DETAIL 'B' ANCHOR DEVICE (7/8" BOLT)

USE TO ANCHOR SPECIAL END SHOE TO THE BRIDGE PIER, BRIDGE CURB, OR TO CONCRETE PARAPET IN LIEU OF BOLTS THROUGH THE PARAPET.

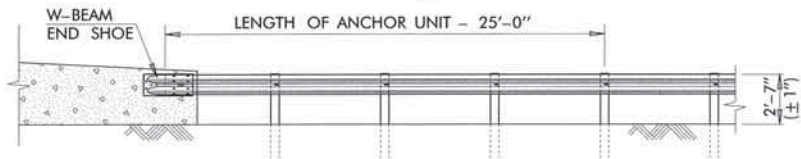
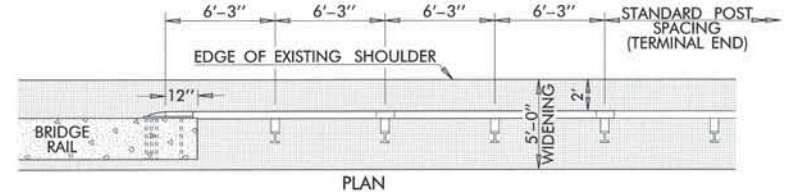


W-BEAM TERMINAL CONNECTION (END SHOE)



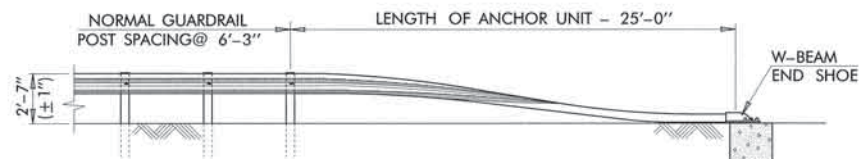
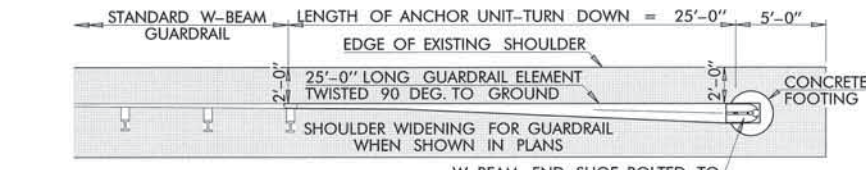
GROUND ANCHOR FOOTING DETAIL

- GENERAL NOTES**
- ALL CONSTRUCTION AND MATERIAL REQUIREMENTS SHALL BE IN ACCORDANCE WITH THE 2009 ENGLISH STANDARD SPECIFICATIONS.
 - GUARDRAIL POST HOLES DRILLED THROUGH THE APPROACH SLAB, CURB, OR DRAIN SHALL BE RESTORED TO THE ORIGINAL SHAPE OF THE SLAB, CURB, OR DRAIN WITH CONCRETE IN A MANNER APPROVED BY THE ENGINEER WITH COST TO BE INCLUDED IN OTHER ITEMS OF WORK.
 - EXTRA LENGTH POSTS OR ADDITIONAL COMPACTED EARTH MAY BE REQUIRED NEAR BRIDGE AS DIRECTED BY THE ENGINEER. SPECIAL BLOCKOUT MAY BE REQUIRED.
 - GUARDRAIL COMPONENTS SHALL MEET NCHRP 350 THE APPLICABLE STANDARDS OF A GUIDE TO STANDARDIZED HIGHWAY BARRIER RAIL HARDWARE PREPARED AND APPROVED BY THE AASHTO-ARTBA-AGC JOINT COOPERATIVE COMMITTEE, TECHNICAL BULLETIN NUMBER 268 B.
 - ALL ANCHOR UNITS SHALL INCLUDE GUARDRAIL, ALL HARDWARE AND OTHER APPURTENANCES NECESSARY TO CONSTRUCT UNIT.



GUARDRAIL BRIDGE CONN - TRAIL END

NOTE: GUARDRAIL ANCHOR UNIT-BRIDGE LEAVE END, SHOULD ONLY BE USED AT EXITING ENDS OF ONE WAY BRIDGES ALONG ONE WAY ROADS.



GUARDRAIL TRAIL END TURNDOWN

NOTE: GUARDRAIL ANCHOR UNIT-TURN DOWN, SHOULD ONLY BE USED AT EXITING ENDS OF GUARDRAIL ALONG ONE WAY ROADS.

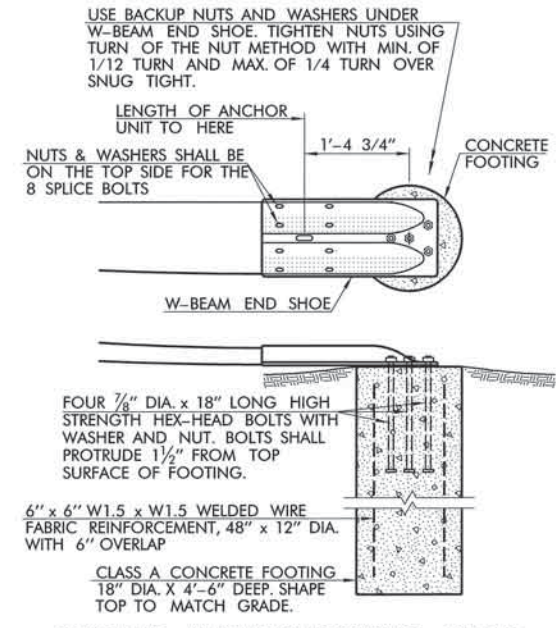
BASIS OF PAYMENT		
ITEM NO.	ITEM	UNIT
623 (F)	GUARDRAIL BRIDGE CONN-TRAIL END (31")	EA.
623 (F)	GUARDRAIL TRAIL END TURNDOWN (31")	EA.
623 (J)	GUARDRAIL SYSTEM-PIER PROTECTION (31")	EA.



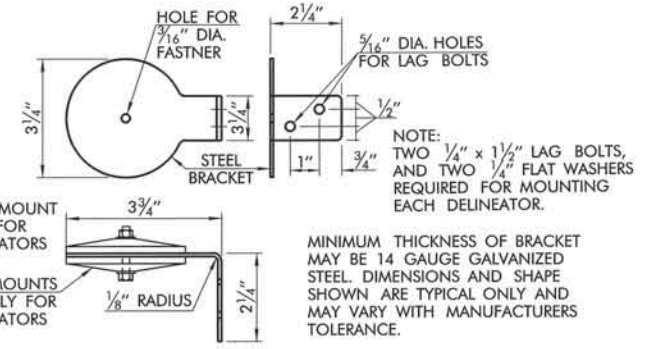
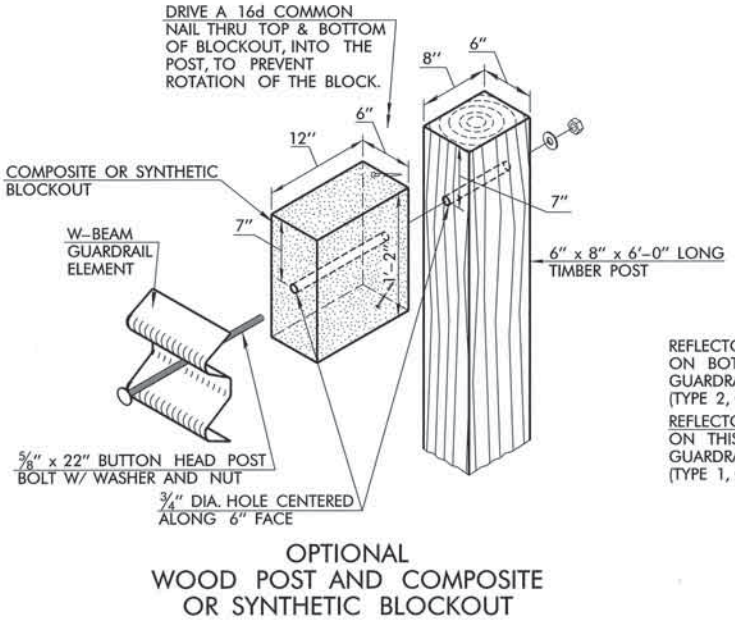
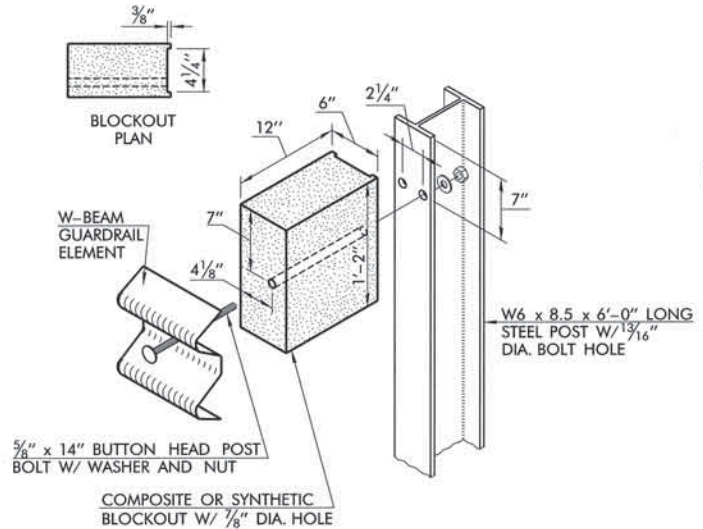
APPROVED BY TRAFFIC ENGINEER: *David Smith* DATE: 4/9/12

TRAFFIC STANDARD
GUARDRAIL ANCHOR UNITS
(31" SYSTEM)

REVISIONS	DATE
DESCRIPTION	

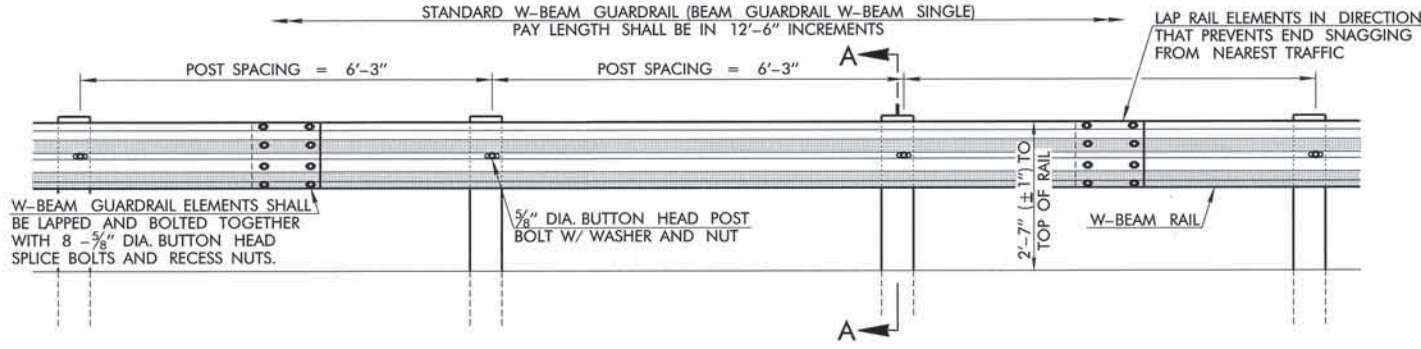


GROUND ANCHOR FOOTING DETAIL

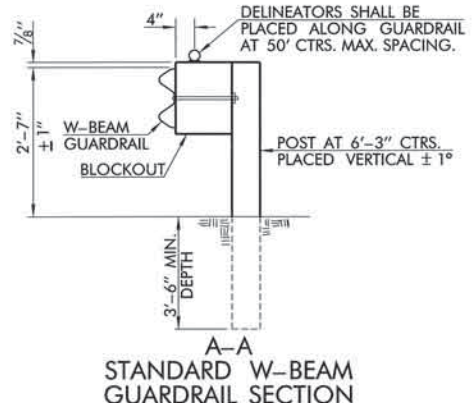


TYPICAL BRACKET FOR MOUNTING 3/4" ROUND DELINEATOR TO GUARD RAIL BLOCKOUT

CONTRACTOR MAY USE ALTERNATE DELINEATORS LISTED ON TRAFFIC ENGINEERING DIVISIONS QUALIFIED PRODUCTS LIST (QPL). THE USE OF ALTERNATE DELINEATORS (NOT DESCRIBED IN THIS STANDARD) MUST BE APPROVED BY THE RESIDENT ENGINEER.



STANDARD W-BEAM GUARDRAIL ELEVATION

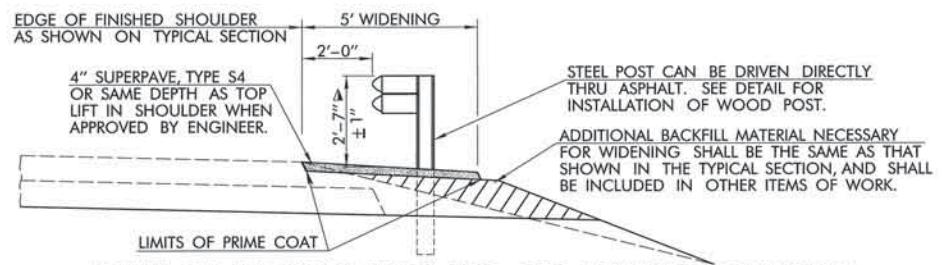


OPTIONAL TYPE POSTS OR BLOCKOUTS FOR STANDARD GUARDRAIL

THE CONTRACTOR MAY, AT HIS OPTION, SELECT AND USE ONE OF THE TYPE POSTS AND BLOCKOUTS SHOWN ABOVE, OR AN APPROVED ALTERNATE. THIS POST & BLOCKOUT CHOICE MUST BE USED ON THE ENTIRE PROJECT. ALTERNATE POST (INCLUDING SPECIAL SHAPES) MAY BE USED UPON THE APPROVAL OF THE ENGINEER. ALTERNATE BLOCKOUTS SUCH AS WOOD MAY BE USED IF PRODUCT HAS BEEN EVALUATED AND APPROVED BY ODOT.

GENERAL NOTES

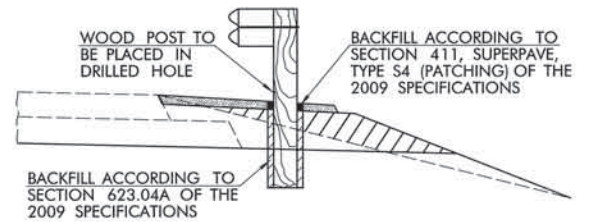
- ALL CONSTRUCTION AND MATERIAL REQUIREMENTS SHALL BE IN ACCORDANCE WITH THE 2009 ODOT STANDARD SPECIFICATIONS.
- STANDARD GUARDRAIL WITH 6'-3" POST SPACING MEETS NHCPR-350, TEST LEVEL 3. IF A RIGID HAZARD IS TO BE LEFT BEHIND THE GUARDRAIL, WITHIN 3'-0" OF THE RAIL, CONSIDER USING A DIFFERENT TREATMENT.
- IF OPTIONAL WOOD POSTS AND BLOCKOUTS ARE USED, THEN THEY SHALL BE STRESS GRADE 1200F.
- ALL STANDARD GUARDRAIL AND GUARDRAIL EXTRUDER TERMINALS SHALL BE OFFSET SO THAT RAIL FACE IS TWO FEET OUTSIDE THE SHOULDER. FOR TRANSITION FROM BRIDGE RAIL TO TWO FOOT OFFSET, BEGINNING AT THE GUARDRAIL BRIDGE CONNECTION, TRANSITION THE STANDARD GUARDRAIL, AT A 30:1 TAPER, UNTIL THE RAIL REACHES THE OFFSET DISTANCE.
- ALL GUARDRAIL, METAL POSTS, PLATES AND HARDWARE SHALL BE GALVANIZED AFTER FABRICATION.
- ANY FIELD CUTS OR HOLES DRILLED IN GALVANIZED MATERIALS SHALL BE COATED WITH A ZINC OXIDE PAINT. SEE SECTION 730 OF THE 2009 SPECIFICATIONS.
- GUARDRAIL DELINEATORS (TYPE 2, CODE 1) WILL BE REQUIRED FOR ALL TWO-LANE ROADWAYS. ALL OTHER ROADWAYS WILL REQUIRE GUARDRAIL DELINEATORS (TYPE 1, CODE 1).



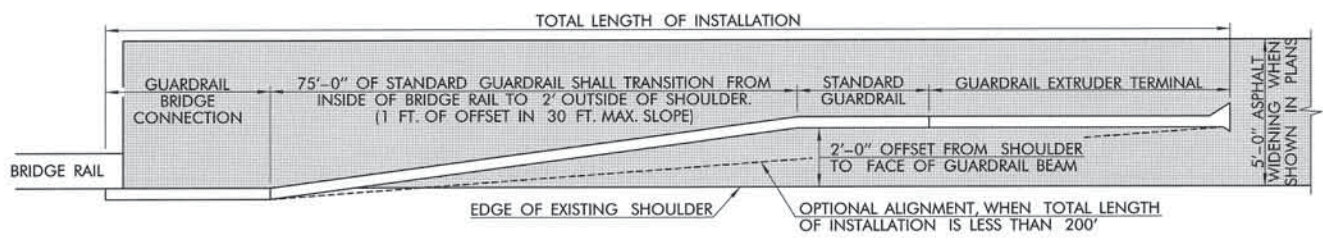
DETAIL OF SHOULDER WIDENING FOR STANDARD GUARDRAIL

MEASURE FROM TOP OF RAIL, GUARDRAIL TO BE INSTALLED WITH THIS DIMENSION. WHEN INSTALLING GUARDRAIL IN AN AREA WITH NO SHOULDER WIDENING, THE RAIL HEIGHT SHALL BE MEASURED AS FOLLOWS:

- FOR NEGATIVE GRADE SHOULDERS, MEASURE TO A LINE FROM THE SHOULDER ON THE SAME SLOPE AS THE SHOULDER.
- FOR POSITIVE GRADE & LEVEL SHLDRS, MEASURE FROM A LINE LEVEL WITH THE EDGE OF SHOULDER.



INSTALLATION OF WOOD POST IN ASPHALT WIDENING



TYPICAL GUARDRAIL INSTALLATION AT BRIDGE

BASIS OF PAYMENT		
ITEM NO.	ITEM	UNIT
623(A)	BEAM GUARDRAIL W-BEAM SINGLE	L.F.
623(F)	GUARDRAIL TRAIL END TURNDOWN (31")	EA.
853	GUARDRAIL DELINEATORS (TYPE 1, CODE 1)	EA.
853	GUARDRAIL DELINEATORS (TYPE 2, CODE 1)	EA.

NOTE: PAY ITEM GUARDRAIL ANCHOR UNIT-TURN DOWN INCLUDES ALL LABOR AND MATERIALS TO INSTALL 25'-0" TWISTED RAIL ELEMENT, W-BEAM END SHOE, CONC. FOOTING, AND FOUR ANCHOR BOLTS.

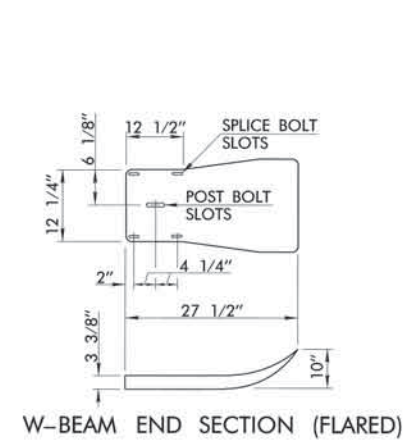
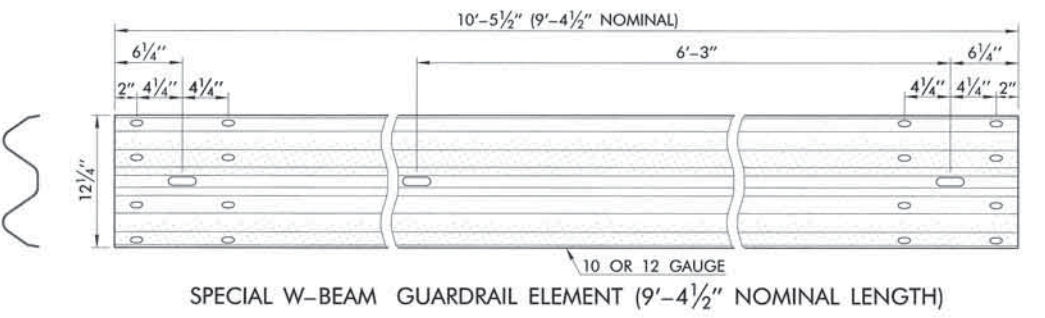
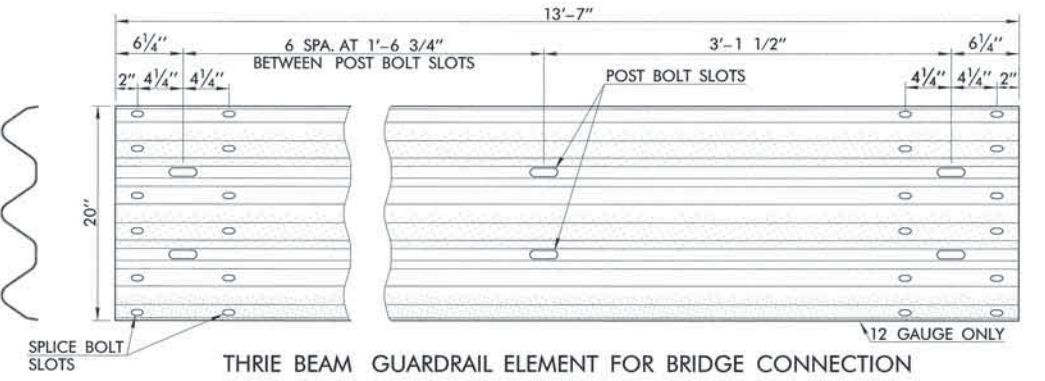
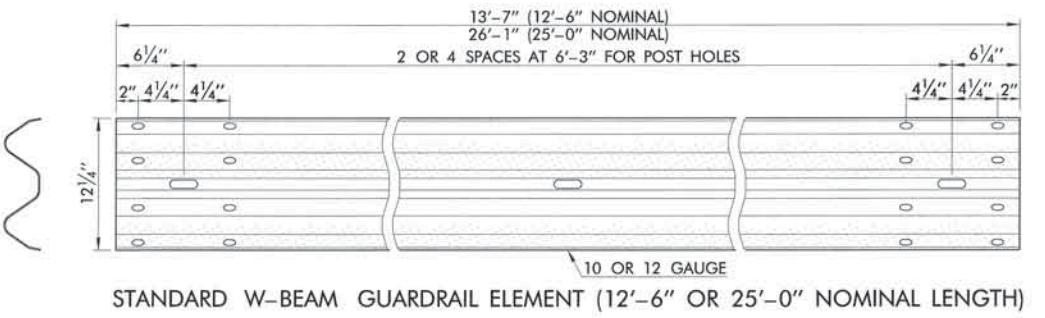
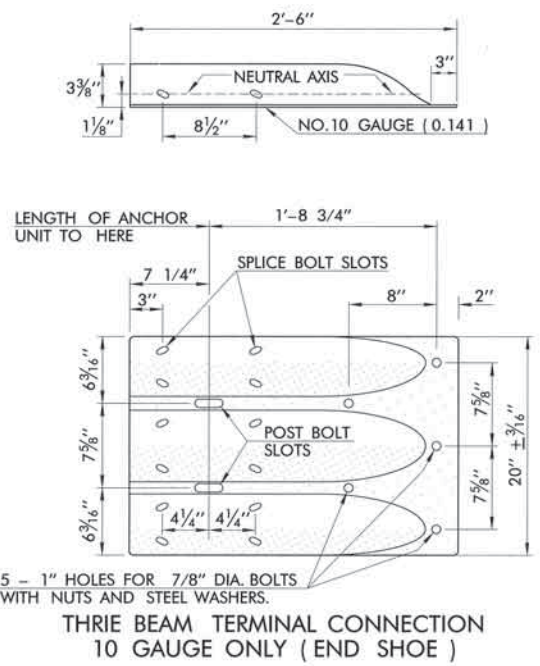
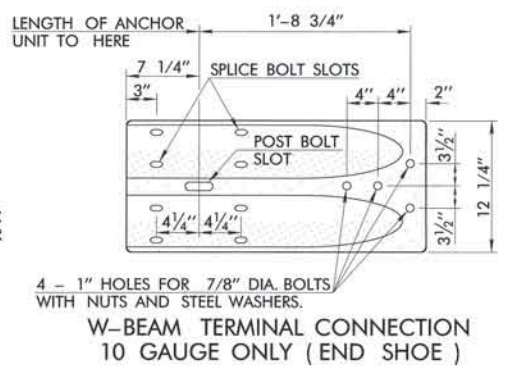
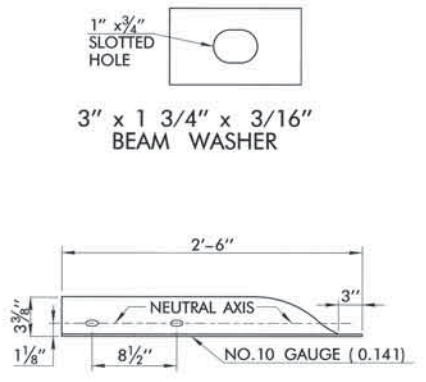
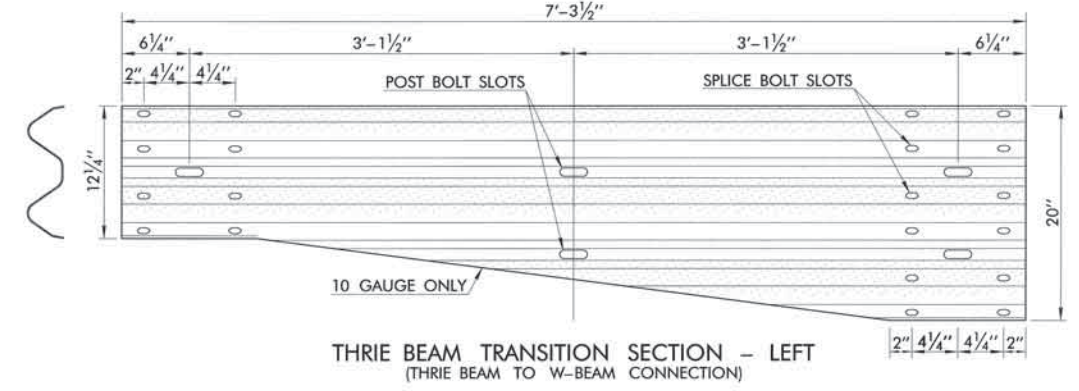
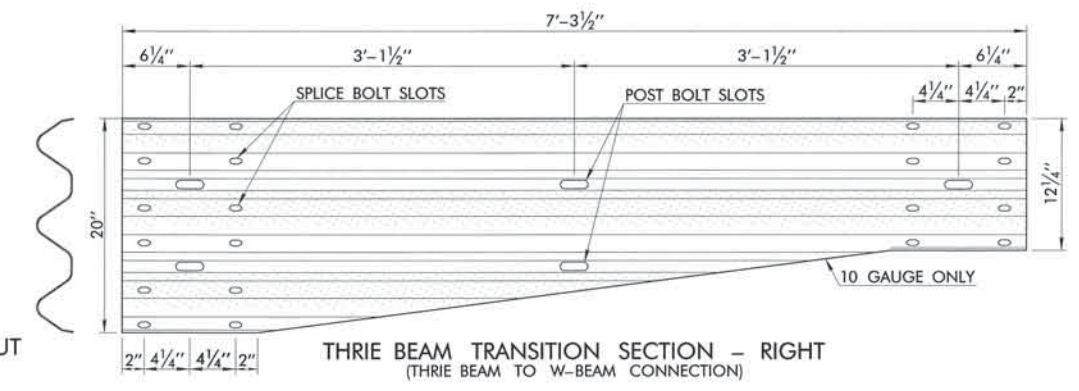
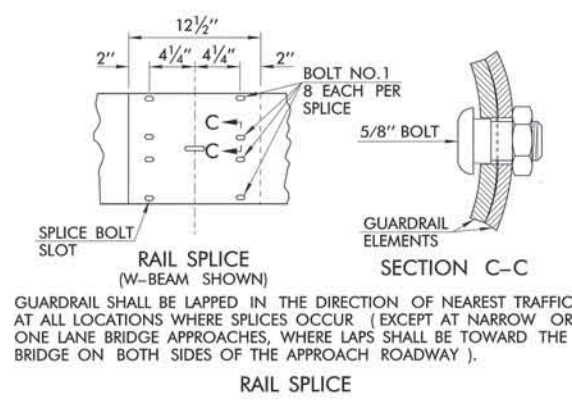
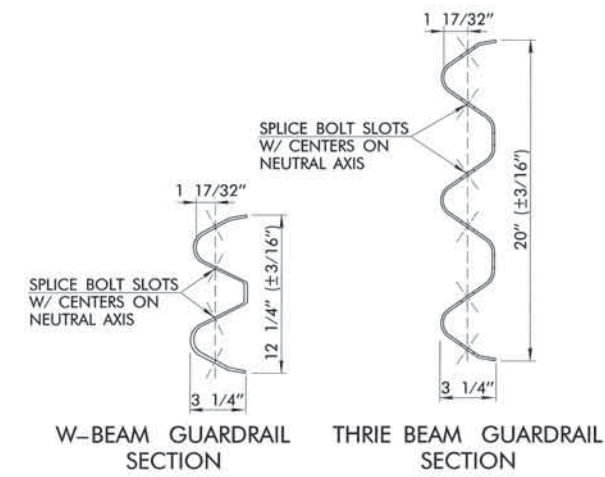
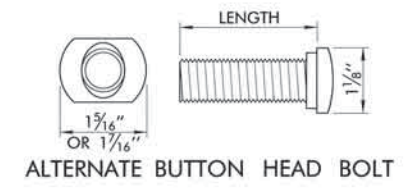
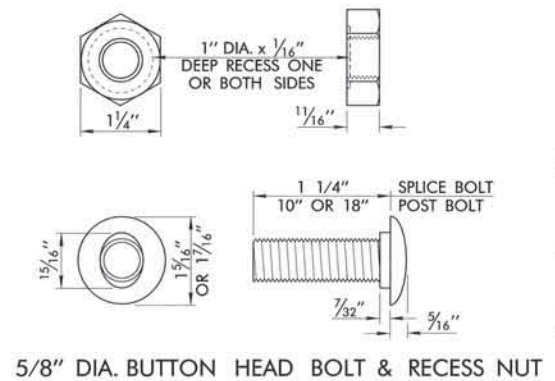


APPROVED BY TRAFFIC ENGINEER: *[Signature]* DATE: 4/9/2012

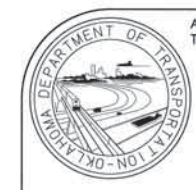
TRAFFIC STANDARD
GUARDRAIL AND HARDWARE
(1 OF 2)
(31" SYSTEM)

2009 SPECIFICATIONS

DESCRIPTION	REVISIONS	DATE



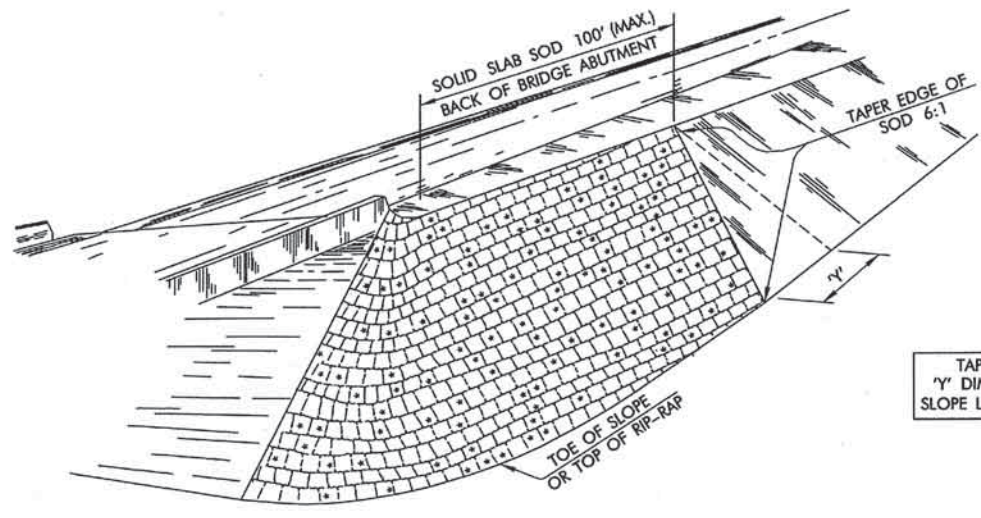
- GENERAL NOTES**
1. ALL CONSTRUCTION AND MATERIAL REQUIREMENTS SHALL BE IN ACCORDANCE WITH THE 2009 ODOT STANDARD SPECIFICATIONS.
 2. ALL GUARDRAIL BEAMS, END SHOES, AND END SECTIONS ON THIS STANDARD DRAWING SHALL BE IN ACCORDANCE WITH AASHTO M 180.
 3. ALL SPLICE BOLT SLOTS SHALL BE 29/32" WIDE x 1 1/8" LONG.
 4. ALL POST BOLT SLOTS SHALL BE 3/4" WIDE x 2 1/2" LONG.



APPROVED BY
TRAFFIC ENGINEER: *David Gandy* DATE: 9/9/12

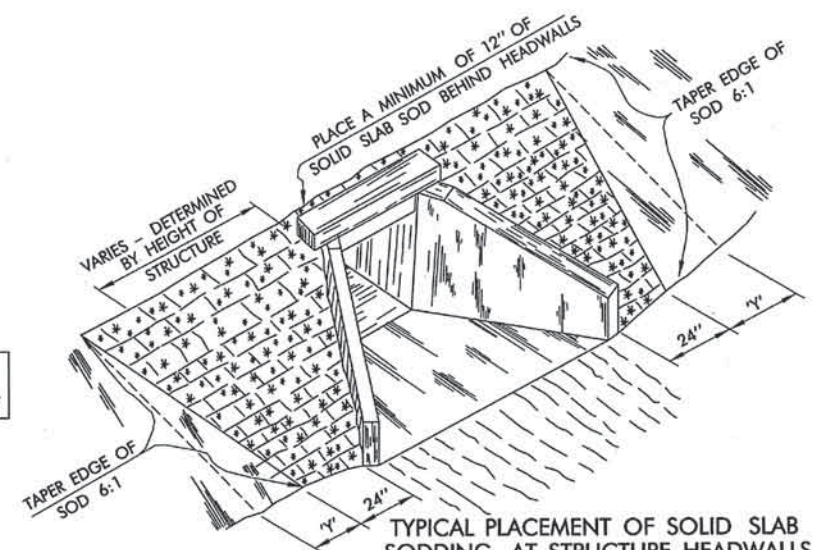
TRAFFIC STANDARD
GUARDRAIL AND HARDWARE
(2 OF 2)
(31" SYSTEM)

REVISIONS	
DESCRIPTION	DATE



TYPICAL PLACEMENT OF SOLID SLAB SODDING ON FILL SLOPES, APPROACHES TO OVERPASSES AND BRIDGES.

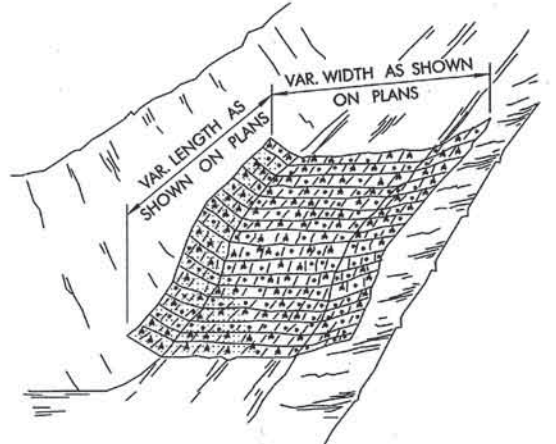
TAPER NOTE
 'Y' DIMENSION =
 SLOPE LENGTH x 0.17



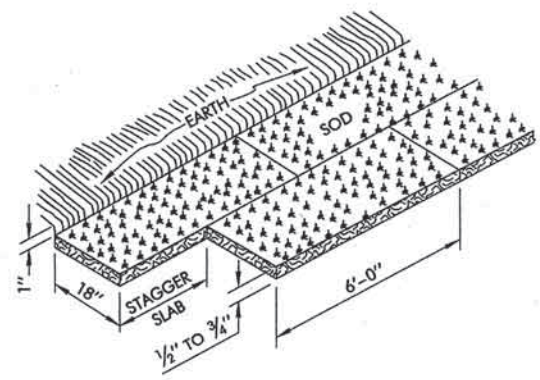
TYPICAL PLACEMENT OF SOLID SLAB SODDING AT STRUCTURE HEADWALLS

GENERAL NOTES

1. ALL CONSTRUCTION AND MATERIAL REQUIREMENTS SHALL BE IN ACCORDANCE WITH THE 2009 ODOT STANDARD SPECIFICATIONS.
2. SOLID SLAB SOD SHALL BE PLACED IN HORIZONTAL ROWS WITH THE LONGEST SIDE OF EACH SLAB RUNNING PARALLEL TO THE ROADWAY, AND THE SLABS IN ALTERNATE ROWS STAGGERED HALF THE LENGTH OF EACH INDIVIDUAL SLAB. ENSURE THE ROWS RUN PARALLEL TO THE ROADWAY.
3. SLABS SHALL BE CUT AND HARVESTED WITH A COMMERCIAL SOD CUTTER TO THE DIMENSIONS SHOWN, THEN LOADED, TRANSPORTED AND HANDLED ON PALLETS.
4. AFTER PLACEMENT OF SOLID SLAB SOD, EARTH AT THE OUTER EDGES OF THE PLACEMENT SHALL BE BACKFILLED AND LOOSELY COMPACTED TO AT LEAST 1" ABOVE THE TOP OF THE SOLID SLAB SODDING.
5. STAKE SOD ON ALL SLOPES 1:2 OR STEEPER, AND ON ANY AREAS THAT ARE IN SUCH CONDITION THAT THERE IS DANGER OF SOD SLIPPING. PERFORM STAKING CONCURRENTLY WITH SOD PLACEMENT AND PRIOR TO TAMPING WITH SOUND WOODEN STAKES APPROXIMATELY 1 INCH SQUARE OR 1 INCH IN DIAMETER AND NOT LESS THAN 12 INCHES IN LENGTH, OR USE METAL STAPLES IN PLACE OF WOODEN STAKES. PLACE, STAKE AND STAPLE THE SOD WHERE NECESSARY, AND AS DETERMINED BY THE ENGINEER.



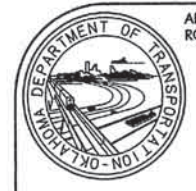
TYPICAL PLACEMENT OF SOLID SLAB SODDING IN DITCHES



SOLID SLAB SODDING (MARCH 1 THRU AUGUST 31)

THE PLACEMENT OF SOLID SLAB SOD SHALL BE RESTRICTED TO THE PERIOD FROM MARCH 1 THRU AUGUST 31, UNLESS OTHERWISE APPROVED BY THE ENGINEER.

BASIS OF PAYMENT		
ITEM NO.	ITEM	UNIT
230(A)	SOLID SLAB SODDING	S.Y.



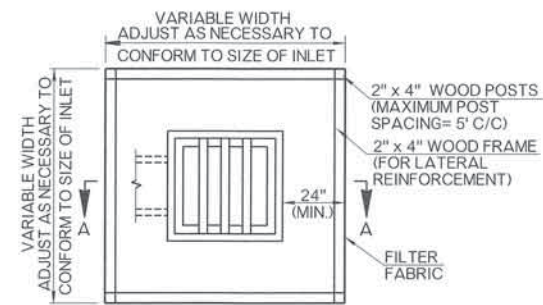
APPROVED BY ROADWAY ENGINEER: *Timothy A. Rogers* DATE: 12/2/09
 ROADWAY STANDARD

SOLID SLAB SODDING

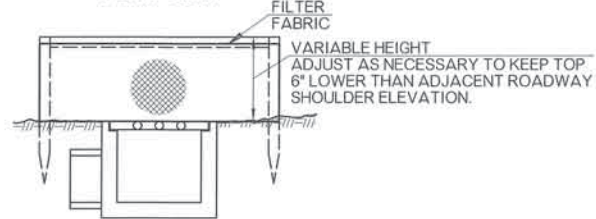
2009 SPECIFICATIONS

SSS-1	0
R-3	

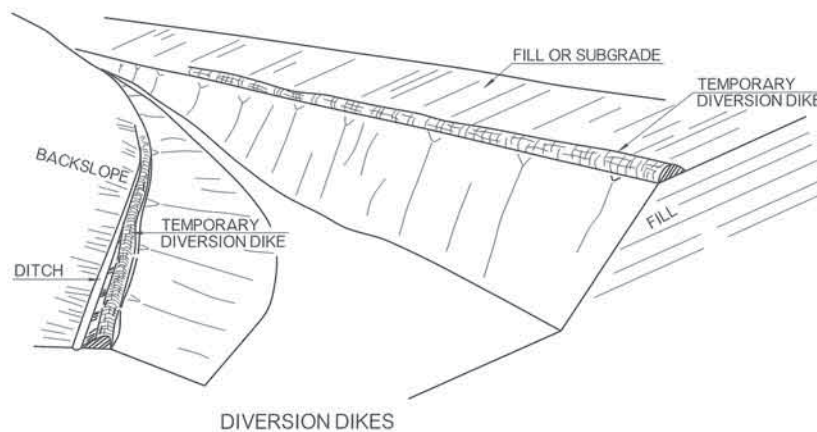
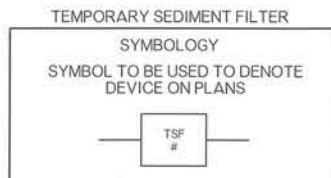
OKLAHOMA DEPARTMENT OF TRANSPORTATION	
STANDARD REVISIONS	
DESCRIPTION	DATE



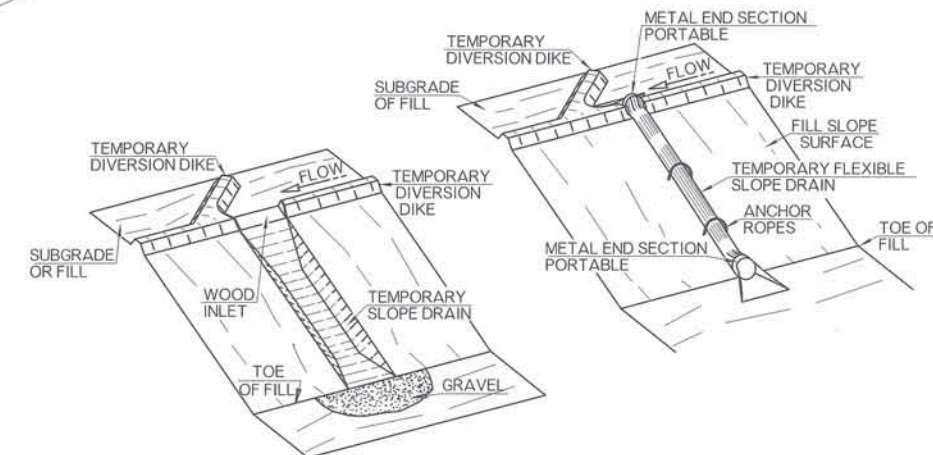
PLAN VIEW



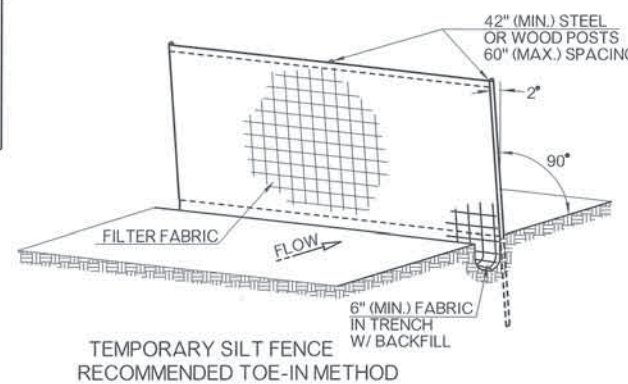
SECTION A - A
SEDIMENT FILTER



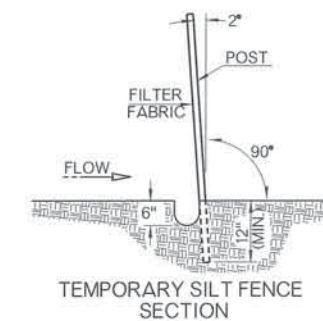
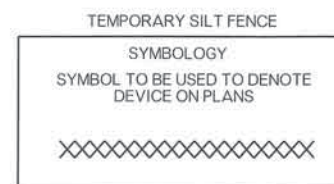
DIVERSION DIKES



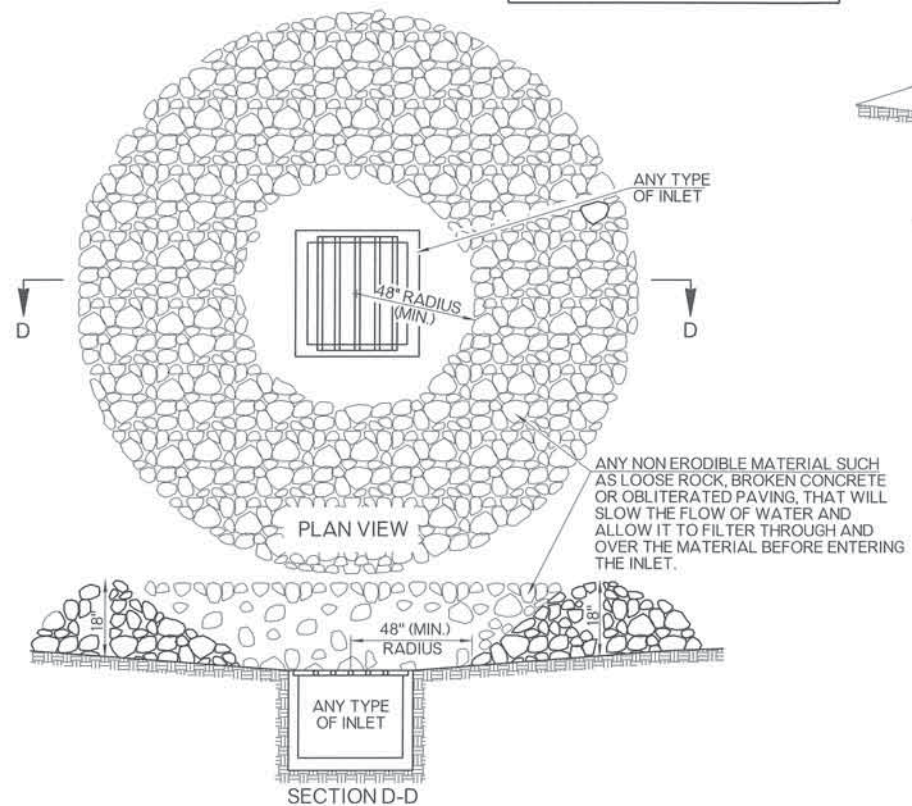
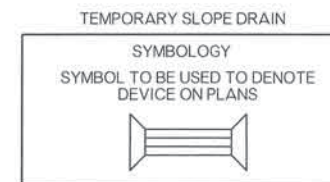
SLOPE DRAINS



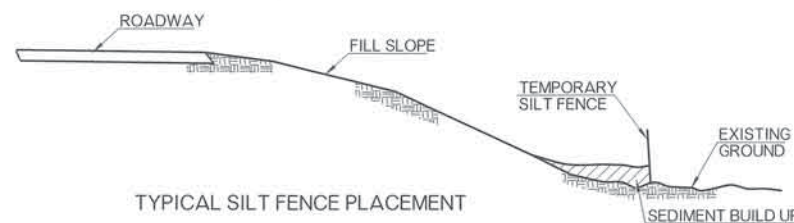
TEMPORARY SILT FENCE
RECOMMENDED TOE-IN METHOD



TEMPORARY SILT FENCE SECTION



SECTION D-D
SEDIMENT FILTER
(TYPE II)



TYPICAL SILT FENCE PLACEMENT

- GENERAL NOTES
- ALL CONSTRUCTION AND MATERIAL REQUIREMENTS SHALL BE IN ACCORDANCE WITH THE 2009 ODOT STANDARD SPECIFICATIONS.
 - COST OF TEMPORARY DIVERSION DIKES TO BE INCLUDED IN PRICE BID FOR OTHER ITEMS OF WORK.

BASIS OF PAYMENT		
ITEM NO.	ITEM	UNIT
221 (A)	TEMPORARY SLOPE DRAINS	LF
221 (C)	TEMPORARY SILT FENCE	LF
221 (D)	TEMPORARY SEDIMENT FILTER	EA

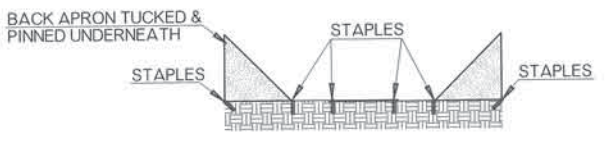
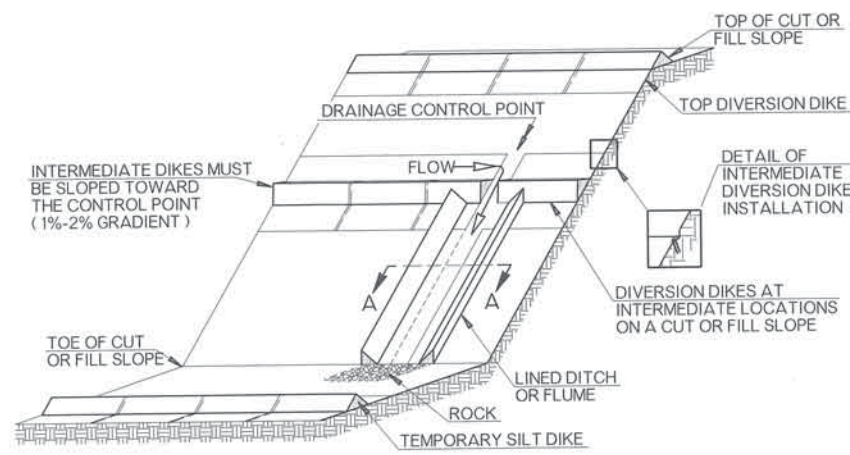
APPROVED BY ROADWAY ENGINEER: *Calvin A. ...* DATE: *08/11/15*

ROADWAY DESIGN DIVISION STANDARD

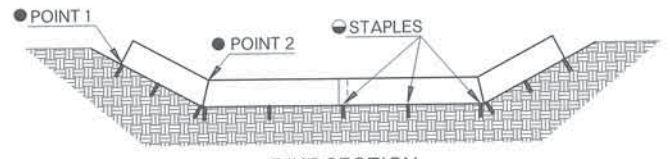
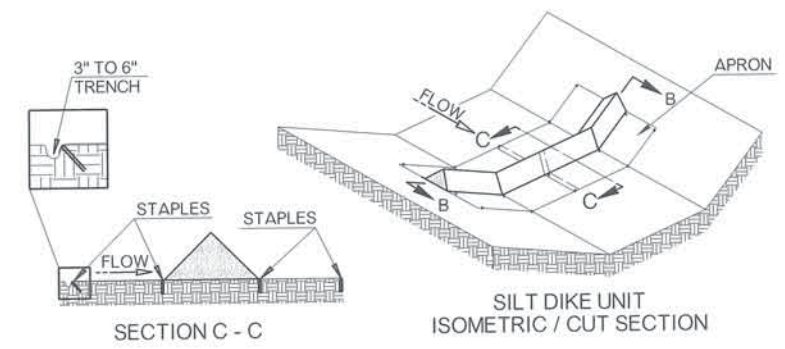
DOT

TEMPORARY SEDIMENT CONTROLS

OKLAHOMA DEPARTMENT OF TRANSPORTATION		
STANDARD REVISIONS		
DESCRIPTION	DATE	

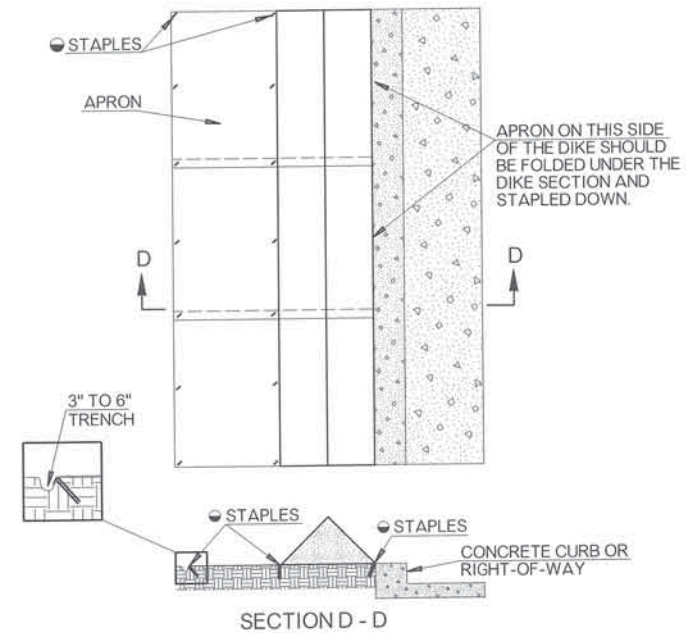


TEMPORARY SILT DIKE INSTALLATION FOR DIVERSION DIKES AND / OR DITCH LINER

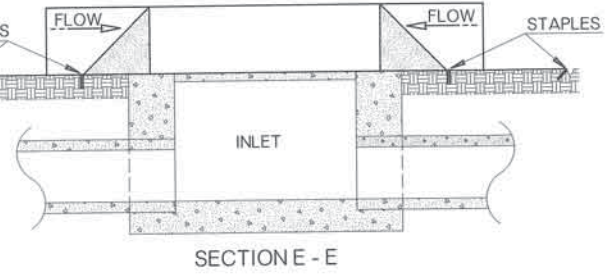
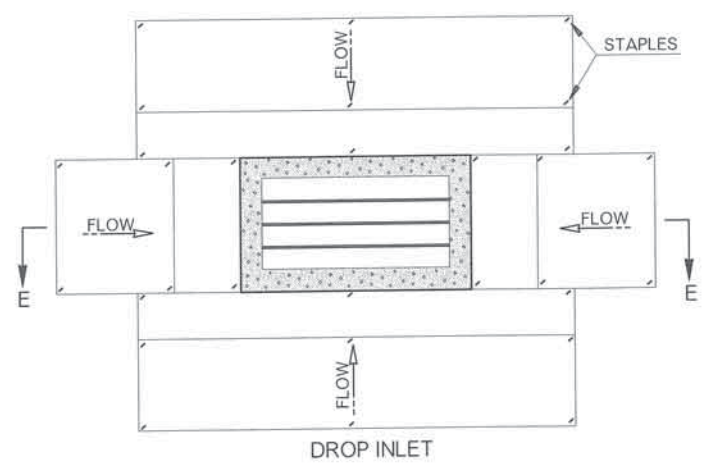


TEMPORARY SILT DIKE INSTALLATION FOR ROADWAY DITCH OR DRAINAGE DITCH

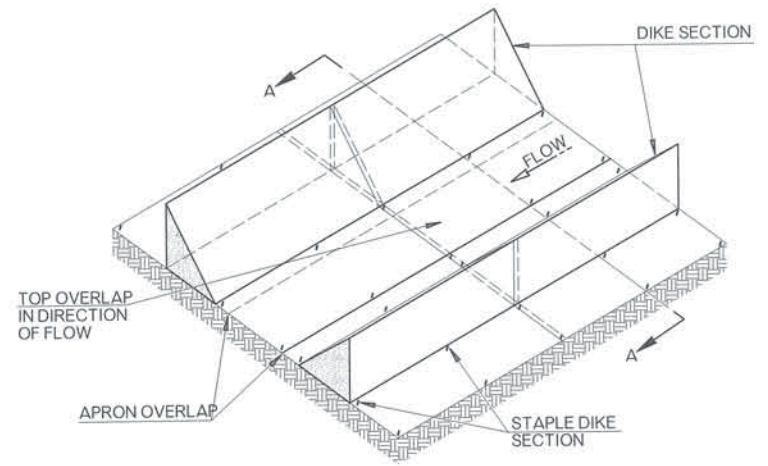
- POINT "1" MUST BE HIGHER THAN POINT "2" TO ENSURE THAT WATER FLOWS OVER THE DIKE AND NOT AROUND THE ENDS.
- STAPLES SHALL BE PLACED WHERE THE UNITS OVERLAP AND IN THE CENTER OF THE UNIT AS SHOWN ON THE DIAGRAM.



TEMPORARY SILT DIKE INSTALLATION FOR CONTINUOUS BARRIER



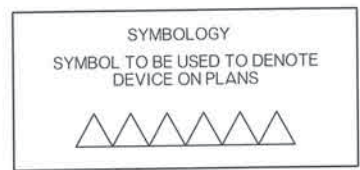
TEMPORARY SILT DIKE INSTALLATION FOR DROP INLETS



TEMPORARY SILT DIKE INSTALLATION FOR TEMPORARY DITCH LINER

GENERAL NOTES

1. ALL CONSTRUCTION AND MATERIAL REQUIREMENTS SHALL BE IN ACCORDANCE WITH THE 2009 ODOT STANDARD SPECIFICATIONS.
2. THIS WORK SHALL CONSIST OF FURNISHING, INSTALLING, AND MAINTAINING THE TEMPORARY SILT DIKE. THE DIKES SHALL BE USED AS A CONTINUOUS LINE BARRIER AT THE TOE OF SLOPE OR ACROSS THE ROADWAY DITCH TO CONTAIN SEDIMENT AND MINIMIZE EROSION, OR AS DIRECTED BY THE ENGINEER. THESE DIKES SHALL BE INSTALLED AND LOCATED AS SOON AS CONSTRUCTION WILL ALLOW OR AS DIRECTED BY THE ENGINEER.
3. TEMPORARY SILT DIKE SHALL BE TRIANGULAR SHAPED HAVING A HEIGHT OF AT LEAST 8" TO 10" IN THE CENTER WITH EQUAL SIDES AND A 16" TO 20" BASE. THE TRIANGULAR SHAPED INNER MATERIAL SHALL BE URETHANE FOAM MEETING THE REQUIREMENTS FOR ASTM D3574. THE OUTER COVER SHALL BE A WOVEN GEOTEXTILE FABRIC PLACED AROUND THE INNER MATERIAL & ALLOWED TO EXTEND BEYOND BOTH SIDES OF THE TRIANGLE 24" TO 36". THIS FABRIC SHOULD BE MILDEW RESISTANT, ROT-PROOF AND RESISTANT TO HEAT AND ULTRAVIOLET RADIATION MEETING REQUIREMENTS FOR SEDIMENT CONTROL IN AASHTO M 288. THE DIKES SHALL BE ATTACHED TO THE GROUND WITH WIRE STAPLES. THE STAPLES SHALL BE NO. 11 GAUGE WIRE AND BE AT LEAST 6" TO 8" LONG. STAPLES SHALL BE PLACED AS SHOWN ON THESE DETAILS.
4. ACCEPTED TEMPORARY SILT DIKE, MEASURED AS PROVIDED ABOVE, WILL BE PAID FOR AT THE CONTRACT UNIT PRICE BID FOR TEMPORARY SILT DIKE. PRICE BID WILL INCLUDE THE COST OF FURNISHING THE DIKES, INSTALLING, MAINTAINING AND REMOVAL WHEN DIRECTED BY THE ENGINEER.



NOTE: SILT DIKE SHOULD ONLY BE USED FOR DROP INLETS IN SUMP LOCATIONS. FOR DROP INLETS ON GRADE, USE SEDIMENT TRAPS OR OTHER CONTROLS.

BASIS OF PAYMENT		
ITEM NO.	ITEM	UNIT
221 (F)	TEMPORARY SILT DIKE	LF

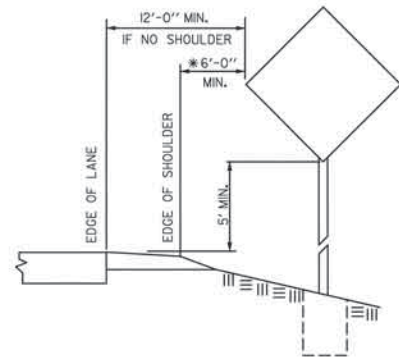
NOTE: SILT DIKES ARE ONLY FURNISHED IN 7' INCREMENTS.

APPROVED BY ROADWAY ENGINEER: *Caleb F. A.* DATE: *02/11/15*
 ROADWAY DESIGN DIVISION STANDARD

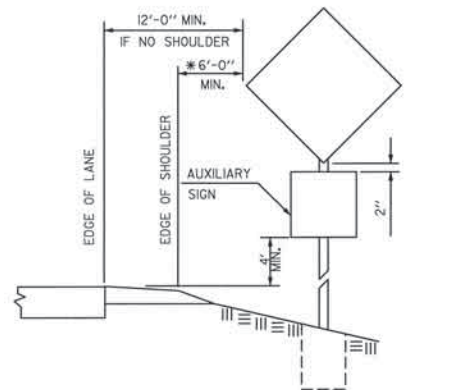
TEMPORARY SILT DIKE

OKLAHOMA DEPARTMENT OF TRANSPORTATION
 2009 SPECIFICATIONS

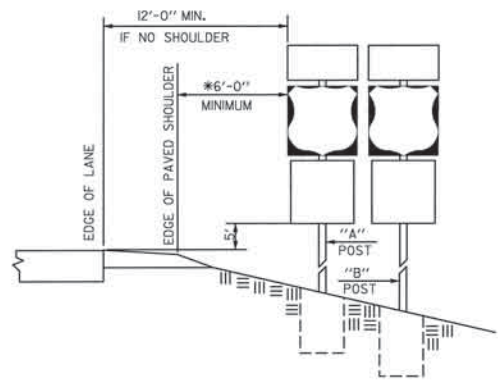
TSD-2	0
R-6	



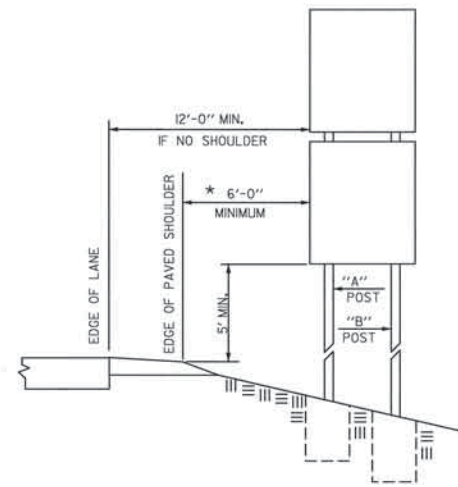
SINGLE POST (RURAL)



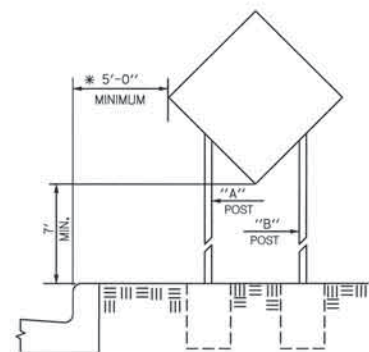
SINGLE POST WITH AUXILIARY SIGN (RURAL)



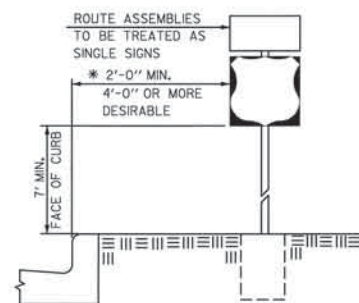
ROADSIDE ASSEMBLY (RURAL)



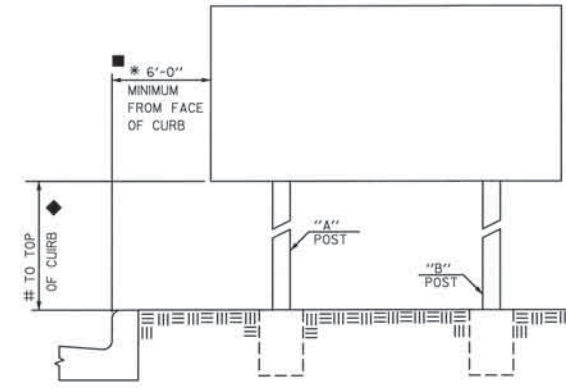
DOUBLE POST MAXIMUM & MINIMUM SPEED LIMIT SIGNS (RURAL)



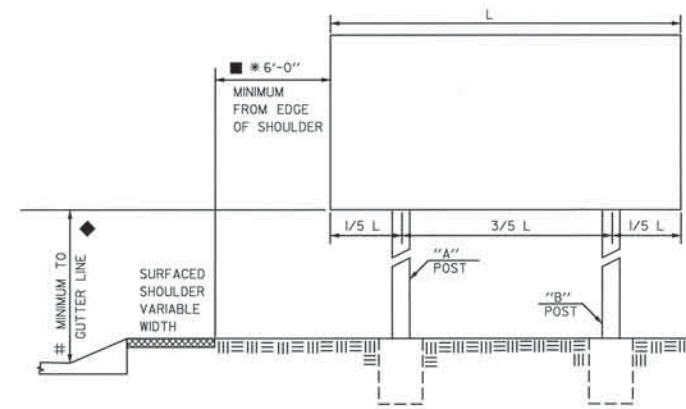
BUSINESS, COMMERCIAL OR RESIDENTIAL AREA



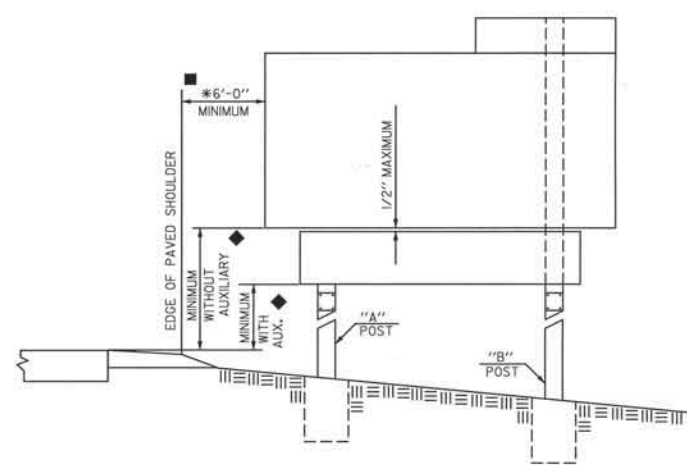
BUSINESS, COMMERCIAL OR RESIDENTIAL AREA



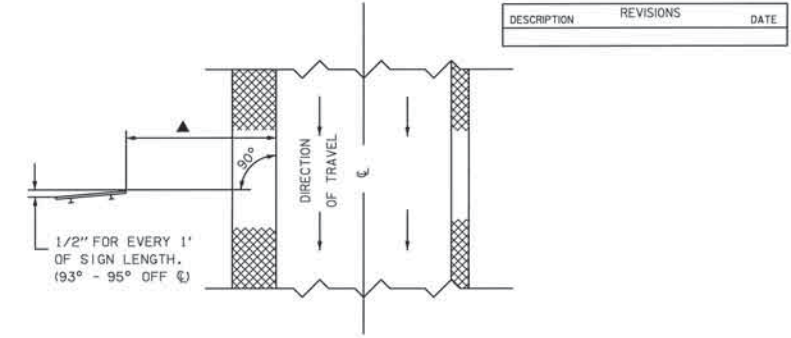
INFORMATION SIGN WITH NON-MOUNTABLE CURB



INFORMATION SIGN WITH MOUNTABLE CURB



FREEWAY OR EXPRESSWAY SIGN (WITH OR WITHOUT AUXILIARY SIGN)



SIGN POSITIONING DETAIL

*1 SIGNS SHALL BE SO POSITIONED TO ELIMINATE OR MINIMIZE SPECULAR REFLECTION. DUE TO THE NUMEROUS VARIATIONS IN ROAD CURVES AND GRADES, THIS GENERAL RULE MAY NOT ALWAYS BE APPLICABLE, AND SIGNS SHALL BE POSITIONED AS DETERMINED BY THE ENGINEER.

*2 IF FURTHER CLARIFICATION OF VERTICAL AND LATERAL CLEARANCES IS REQUIRED, SEE THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (LATEST REVISION).

◆ WHEN LATERAL CLEARANCE OF STANDARD OR SPECIAL INFORMATION GUIDE SIGNS IS 30' OR GREATER (AS REQUIRED BY CLEAR ZONE) FROM THE EDGE LINE, THE MINIMUM VERTICAL CLEARANCE IS 7'. IF AN AUXILIARY SIGN IS MOUNTED BELOW A STANDARD OR SPECIAL INFORMATION GUIDE SIGN, THE RECOMMEND VERTICAL CLEARANCE FOR THE STANDARD OR SPECIAL INFORMATION GUIDE SIGN IS MINIMUM 8' AND THE AUXILIARY SIGN IS MINIMUM 5'.

* THE MINIMUM LATERAL CLEARANCE OF THE SIGN FROM THE EDGE OF SHOULDER OR FACE OF CURB SHALL BE AS SHOWN ON THIS STANDARD DRAWING UNLESS OTHERWISE SHOWN OR NOTED ON PLANS. WHEN SIGNS ARE NOTED TO BE PLACED 5' TO 9' FROM SHOULDER, THE TOLERANCE SHALL BE THE DISTANCE SHOWN +2'.

IN INSTANCES WHERE THE LATERAL CLEARANCE SHOWN CAUSES THE FOOTING TO BE LOCATED UNDESIRABLY, SUCH AS THE BOTTOM OF DITCHES, ETC., THE LOCATION MAY BE ADJUSTED OUTWARD FROM THE ROADWAY IF NECESSARY AT THE DISCRETION OF THE ENGINEER.

IN RURAL AREAS THERE SHALL BE A 12' MINIMUM FROM TRAVELWAY (EDGE LINE) TO THE EDGE OF THE SIGN IF NO SHOULDER EXISTS.

■ NORMALLY, ON FREEWAY AND EXPRESSWAY MAINLINE, STANDARD OR SPECIAL INFORMATION SIGNS SHALL BE LOCATED WITH A LATERAL CLEARANCE OF 10' FROM THE FACE OF NON-MOUNTABLE CURBS OR GUARD RAILS, 20' FROM EDGE OF SHOULDER. IN ALL CASES EXCEPT WHEN SIGN SUPPORTS ARE PROTECTED BY BARRIERS, SIGNS SHALL HAVE A LATERAL CLEARANCE OF 30' OR GREATER (AS REQUIRED BY CLEAR ZONE) FROM EDGE OF DRIVING LANE.

ALONG INTERCHANGE RAMP THE LATERAL CLEARANCE SHALL NORMALLY BE 10' OR GREATER (AS REQUIRED BY CLEAR ZONE).

▲ WHEN LATERAL CLEARANCE IS 30'-0" OR GREATER FROM EDGE OF PAVEMENT, THE SIGN IS TO BE APPROXIMATELY PERPENDICULAR TO ROADWAY.



APPROVED BY TRAFFIC ENGINEER: *David Smith* DATE: 8/31/2010

TRAFFIC STANDARD

TYPICAL INSTALLATIONS OF GROUND MOUNTED SIGNS

DESCRIPTION	REVISIONS	DATE
MODIFIED GENERAL NOTE 4.		7/08/2011
REISSUED		4/10/2012

WINDLOAD COORDINATES FOR SQUARE POST AT 90 MPH

SIGN CENTROID	ALLOWABLE SIGN AREA (FT ²) PER SINGLE POST *							
	FHWA APPROVED FOR: 2 POST PER SIGN				FHWA APPROVED FOR: 1 POST PER SIGN			
	1 1/2"x12ga perf.	1 3/4"x14ga perf.	1 3/4"x12ga perf.	2"x14ga perf.	2"x12ga perf.	2 1/4"x14ga perf.	2 1/4"x12ga perf.	2 1/2"x12ga perf.
16.5'	3.46	3.90	4.85	5.19	6.48	6.67	8.34	10.44
16'	3.57	4.02	5.00	5.36	6.68	6.88	8.60	10.76
15.5'	3.68	4.15	5.17	5.53	6.90	7.11	8.88	11.11
15'	3.81	4.29	5.34	5.71	7.13	7.34	9.17	11.48
14.5'	3.94	4.44	5.52	5.91	7.37	7.60	9.49	11.87
14'	4.08	4.59	5.72	6.12	7.64	7.87	9.83	12.30
13.5'	4.23	4.76	5.93	6.35	7.92	8.16	10.19	12.75
13'	4.39	4.95	6.16	6.59	8.22	8.47	10.59	13.24
12.5'	4.57	5.15	6.41	6.86	8.55	8.81	11.01	13.77
12'	4.76	5.36	6.67	7.14	8.91	9.18	11.47	14.35
11.5'	4.96	5.59	6.96	7.45	9.30	9.58	11.97	14.97
11'	5.19	5.85	7.28	7.79	9.72	10.01	12.51	15.65
10.5'	5.44	6.13	7.63	8.16	10.18	10.49	13.11	16.40
10'	5.71	6.43	8.01	8.57	10.69	11.01	13.76	17.22
9.5'	6.01	6.77	8.43	9.02	11.25	11.59	14.49	18.12
9'	6.34	7.15	8.90	9.52	11.88	12.24	15.29	19.13
8.5'	6.72	7.57	9.42	10.08	12.58	12.96	16.19	20.26
8'	7.14	8.04	10.01	10.71	13.36	13.77	17.20	21.52

* USE A MULTIPLIER OF 2 OR 3 FOR 2 & 3 POST INSTALLATIONS.

GENERAL NOTES

- POST TUBE SHALL MEET ASTM A1011 GRADE 50. POST TUBE GALVANIZED AS PER ASTM A653 GRADE 90.
- HEAVY DUTY ANCHOR TUBE SHALL MEET ASTM A500 GRADE B STRUCTURAL TUBE AND STEEL SHALL BE HOT DIP GALVANIZED PER ASTM A123.
- THE UPPER SIGN POST SHALL TELESCOPE INSIDE THE ANCHOR TUBE A MINIMUM OF 12". ANCHOR TUBE SHALL BE MINIMUM OF 30" WITH 3" MAXIMUM AS SHOWN IN DETAILS.
- THE CONCRETE FOOTING SHALL BE CLASS "C" CONCRETE OR AS DIRECTED BY THE ENGINEER. CONCRETE INCLUDED IN THE COST OF SQUARE TUBE POST.
- THE NON-REINFORCED CIRCULAR CONCRETE FOOTING, ANCHOR TUBE AND HARDWARE SHALL BE INCLUDED IN THE UNIT PRICE BID FOR THE SQUARE TUBE POST.
- SEE STANDARD DRAWINGS SSA1-1, MSD5-1, MSD6-1, SBS1-1, SBS2-1, AND SBS3-1 (LATEST REVISION) FOR PROPER BRACKET PLACEMENT ON THE SIGN AND POST SPACING FOR TWO POST INSTALLATION.
- FOR VERTICAL AND LATERAL CLEARANCE, SEE STANDARD DRAWING GMS1-1, AND GMS2-1-(LATEST REVISION).
- SIGNS SHALL BE ATTACHED TO THE POSTS WITH BOLTS AS SHOWN ON STANDARD DRAWING SSA1-1-(LATEST REVISION).

BASIS OF PAYMENT		
ITEM NO.	ITEM	UNIT
851(C)	SQUARE TUBE POST	LF

APPROVED BY TRAFFIC ENGINEER: *Theresa Gray* DATE: 4/17/12

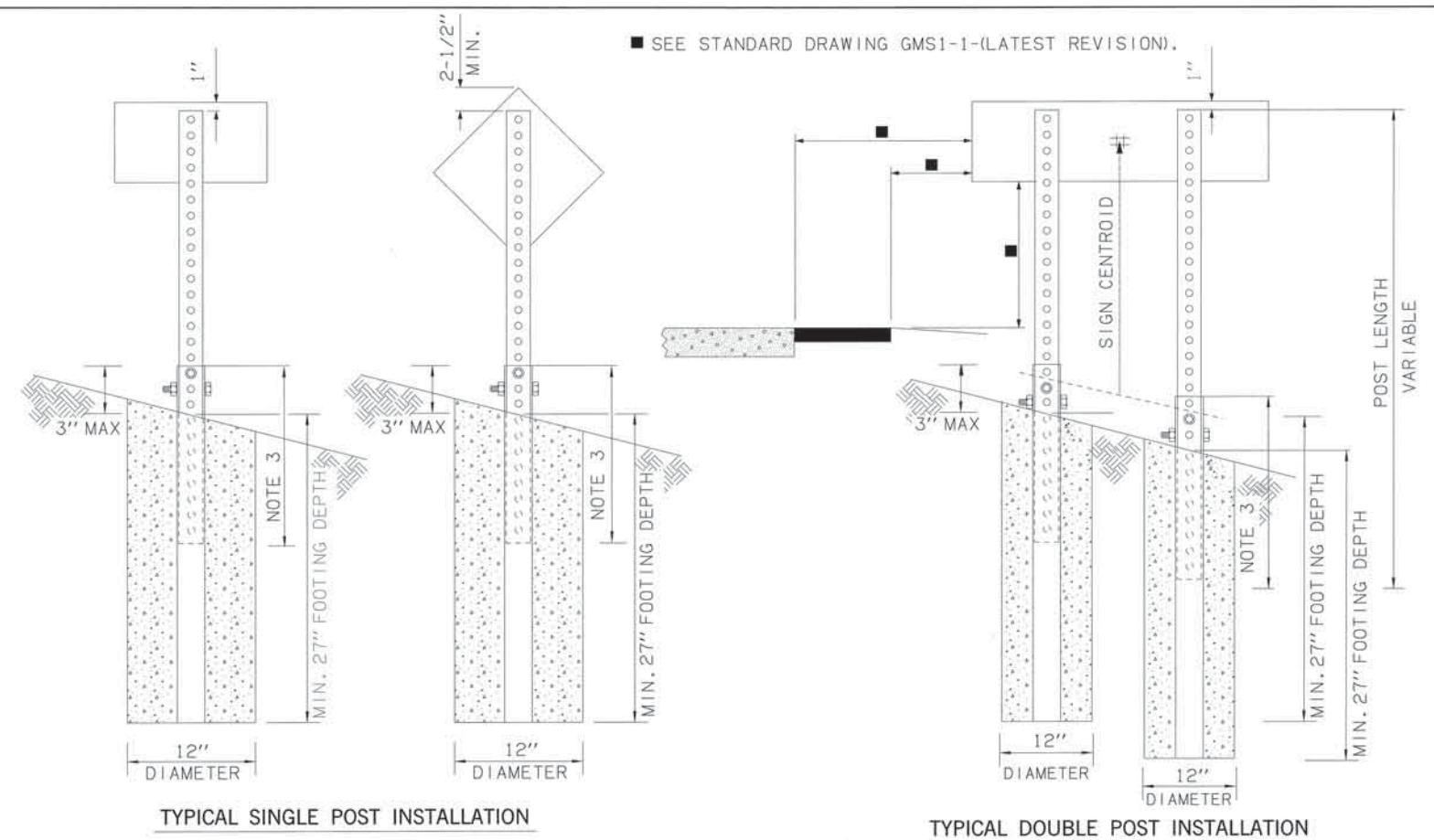


TRAFFIC STANDARD
SQUARE TUBE POST DETAILS

2009 SPECIFICATIONS

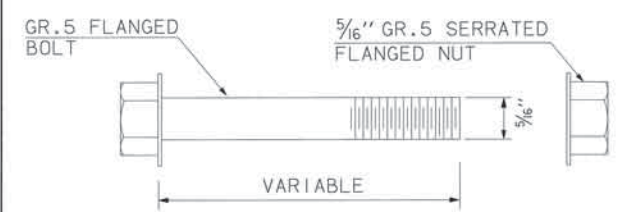
SSP1-1	02
T-138	

SEE STANDARD DRAWING GMS1-1-(LATEST REVISION).

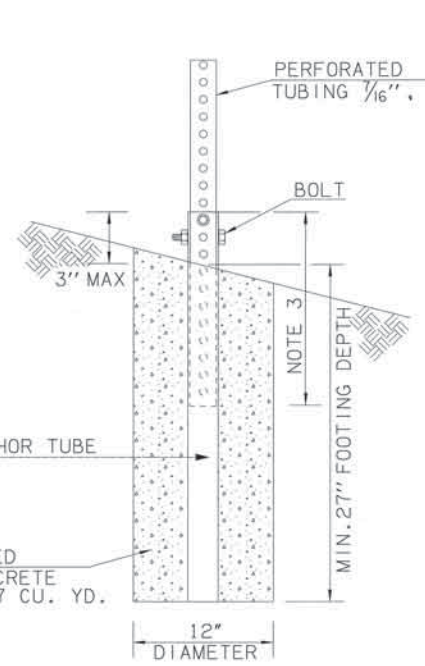
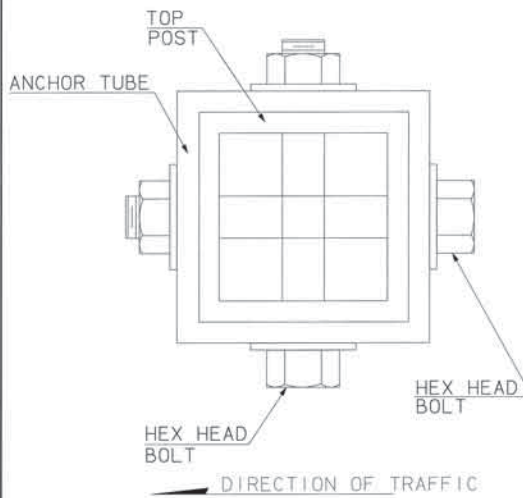


TYPICAL SINGLE POST INSTALLATION

TYPICAL DOUBLE POST INSTALLATION



BOLT DESIGN



ANCHOR TUBE DETAILS WITH CONCRETE FOOTING

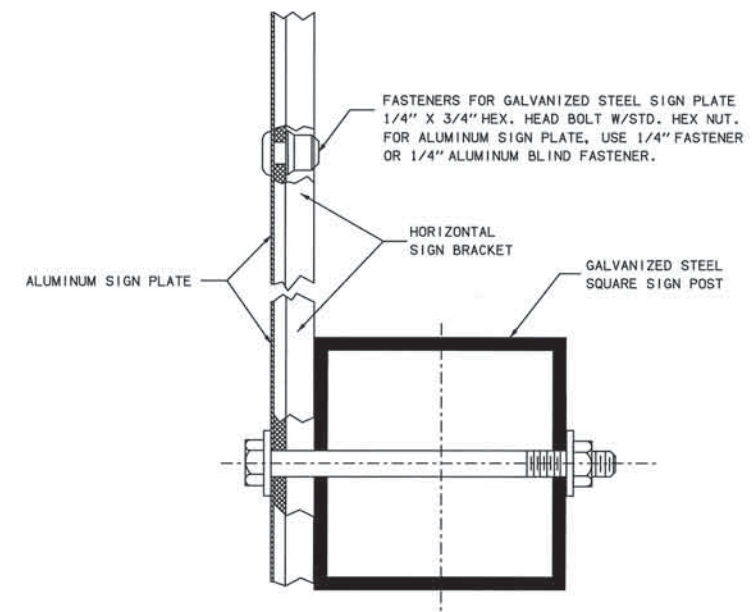
NON-PERFORATED ANCHOR TUBE SHALL HAVE TWO (2) 1/16" DIAMETER HOLES SPACED 1" ON CENTER ALONG THE CENTERLINE OF EACH OF THE FOUR SIDES.



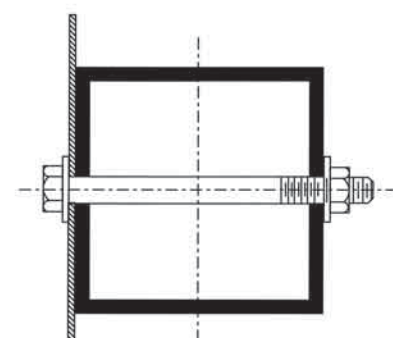
HEAVY DUTY ANCHOR TUBE

- DRAWING NOT TO SCALE -

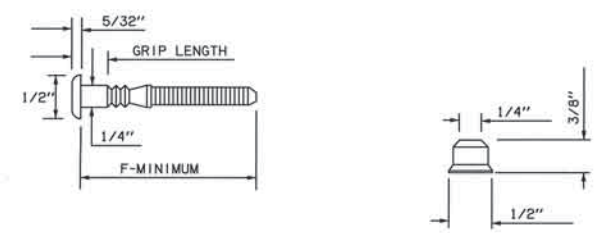
DESCRIPTION	REVISIONS	DATE



TOP VIEW

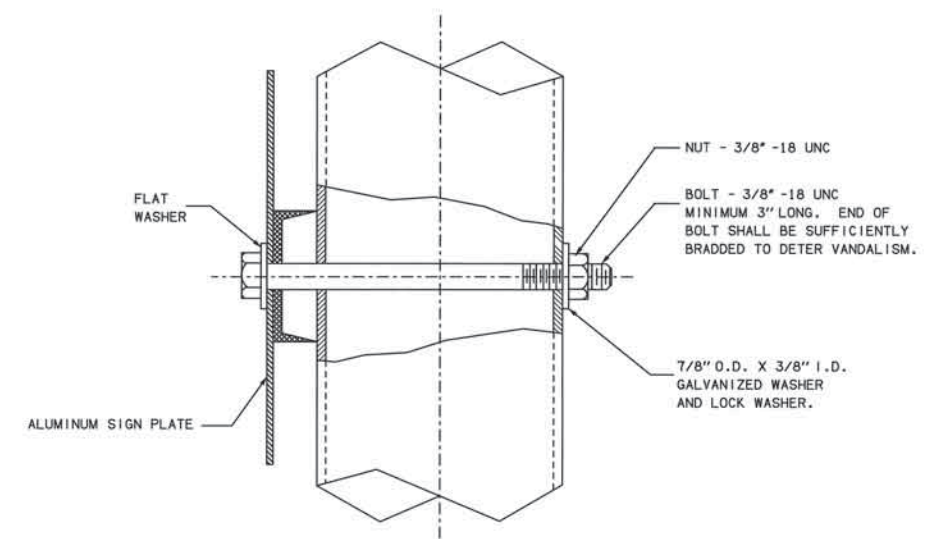


TOP VIEW



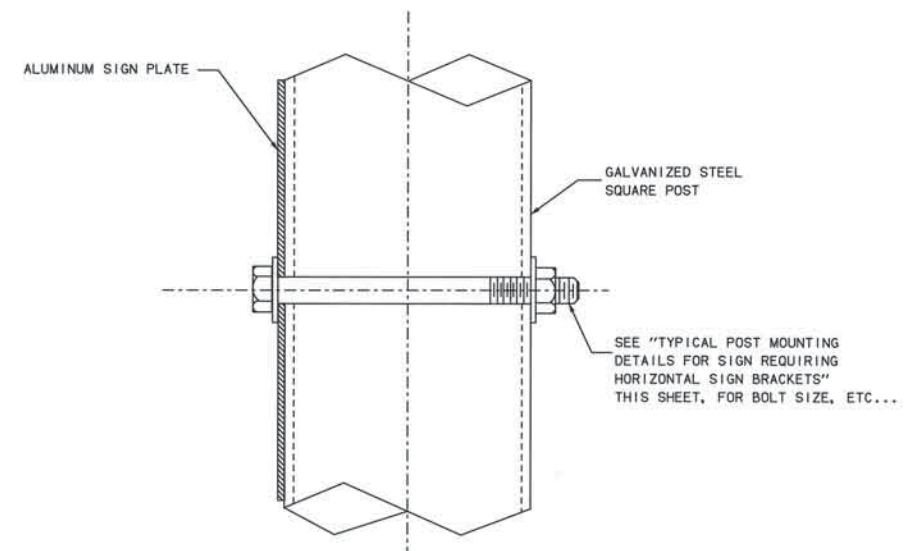
1/4" FASTENER AND 1/4" COLLAR (TYPICAL)

GRIP NO.	GRIP LENGTH (INCHES)	F-MIN.
2	0.094 - 0.156	1-7/16"
3	0.157 - 0.218	1-1/2"
4	0.219 - 0.281	1-9/16"
5	0.282 - 0.343	1-5/8"
6	0.344 - 0.406	1-11/16"
17	0.407 - 1.093	2-3/8"



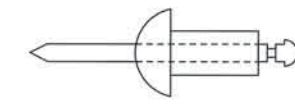
SIDE VIEW

TYPICAL POST MOUNTING DETAILS FOR SIGN REQUIRING HORIZONTAL SIGN BRACKETS



SIDE VIEW

TYPICAL POST MOUNTING DETAILS FOR SIGN 18" WIDE AND UNDER



ALUMINUM ALLOY BODY AND MANDREL. GRIP RANGE 1/16" TO 1/4".

1/4" BLIND FASTENERS

NOTE: ALL NUTS SHALL BE SELF-LOCKING.



APPROVED BY TRAFFIC ENGINEER: *David J. Smith* DATE: 8/31/2010

TRAFFIC STANDARD

SHEET SIGN ASSEMBLY DETAILS (SQUARE TUBE)

2009 SPECIFICATIONS

SSA1-1	00
T-139	