

INDEX OF SHEETS

SEE SHEET NO 2

STATE OF TEXAS
DEPARTMENT OF TRANSPORTATION

PLANS OF PROPOSED
STATE HIGHWAY IMPROVEMENT

FEDERAL AID PROJECT NOS. F 2024(073) & F 2024(072)
STATE AID PROJECT NOS. C 919-20-32 & C 1620-3-13

NET LENGTH OF PROJECT= 1,073,863 FT. = 203.383MI.

FOR THE CONSTRUCTION OF SEAL COAT
CONSISTING OF SEAL COAT AND PAVEMENT MARKINGS

THE CONTRACTOR SHALL MAKE HIS OWN
INVESTIGATIONS AND ARRANGEMENTS FOR
DELIVERY OF MATERIALS.

REQUIRED SIGNS SHALL BE IN ACCORDANCE WITH
THE CURRENT BARRICADE AND CONSTRUCTION OR BC
SHEETS AND THE "TEXAS MANUAL ON UNIFORM
TRAFFIC CONTROL DEVICES".

0010-19-014, ETC
FM 991, ETC
BOWIE COUNTY, ETC

NOTE: SEE PROJECT SUMMARY SHEETS
FOR COMPLETE LISTING OF
CSJs, LIMITS, LENGTHS AND EXCEPTIONS.

SEE SHEET 3 FOR PROJECT LOCATION MAP

EQUATIONS: NONE
EXCEPTIONS: SEE PROJECT SUMMARY SHEETS
RAILROAD CROSSINGS: THREE

- 1) FM 991, BOWIE CO. (LAT: 33.358446°, LONG: -94.254928°)
2) FM 2208, MARION CO. (LAT: 32.732633°, LONG: -94.357238°)
3) FM 1000, TITUS CO. (LAT: 33.184065°, LONG: -94.853365°)

SPECIFICATIONS ADOPTED BY THE TEXAS DEPARTMENT OF
TRANSPORTATION, NOVEMBER 1, 2014 AND SPECIFICATION ITEMS
LISTED AND DATED AS FOLLOWS, SHALL GOVERN ON THIS PROJECT: REQUIRED
CONTRACT PROVISIONS FOR ALL FEDERAL-AID CONSTRUCTION CONTRACTS
(FORM FHWA 1273, JULY 2022)

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Table with columns: FEDERAL AID PROJECT NO., F 2024(073), ETC., CONT, SECT, JOB, HIGHWAY, DIST, COUNTY, SHEET NO., ATL, BOWIE, ETC, 1

DESIGN SPEED = N/A

FINAL PLANS

LETTING DATE:
DATE CONTRACTOR BEGAN WORK:
DATE WORK WAS COMPLETED & ACCEPTED:
FINAL CONTRACT COST: \$
CONTRACTOR :
CONTRACTOR ADDRESS:
LIST OF APPROVED FIELD CHANGES:

THE CONSTRUCTION WORK WAS PERFORMED IN SUBSTANTIAL
COMPLIANCE WITH THE CONTRACT.

P. E. DATE

DATE: 7/28/2023 9:15:12 AM
FILE: D:\txdot\projectwiseonline.com\TXDOT15\Documents\19 - ATL\Design Projects\001019014\4 - Design\Master Design Files\01 PLANSHEETS\001 TITLE SHEET.dgn

COUNTY: BOWIE, ETC PROJ. NO. F 2024(073), ETC.
HWY. NO. FM991, ETC; LETTING DATE: OCTOBER 5, 2023
DATE ACCEPTED



RECOMMENDED FOR LETTING: 8/4/2023

DocuSigned by:
3B337C5031074A4...
DISTRICT DIRECTOR OF TRANSPORTATION
PLANNING AND DEVELOPMENT

APPROVED FOR LETTING: 8/4/2023

DocuSigned by:
23686C08B28F4A0...
DISTRICT ENGINEER

**GENERAL**

1 TITLE SHEET  
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 6, 6A-6B GENERAL NOTES  
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**ENVIRONMENTAL ISSUES**

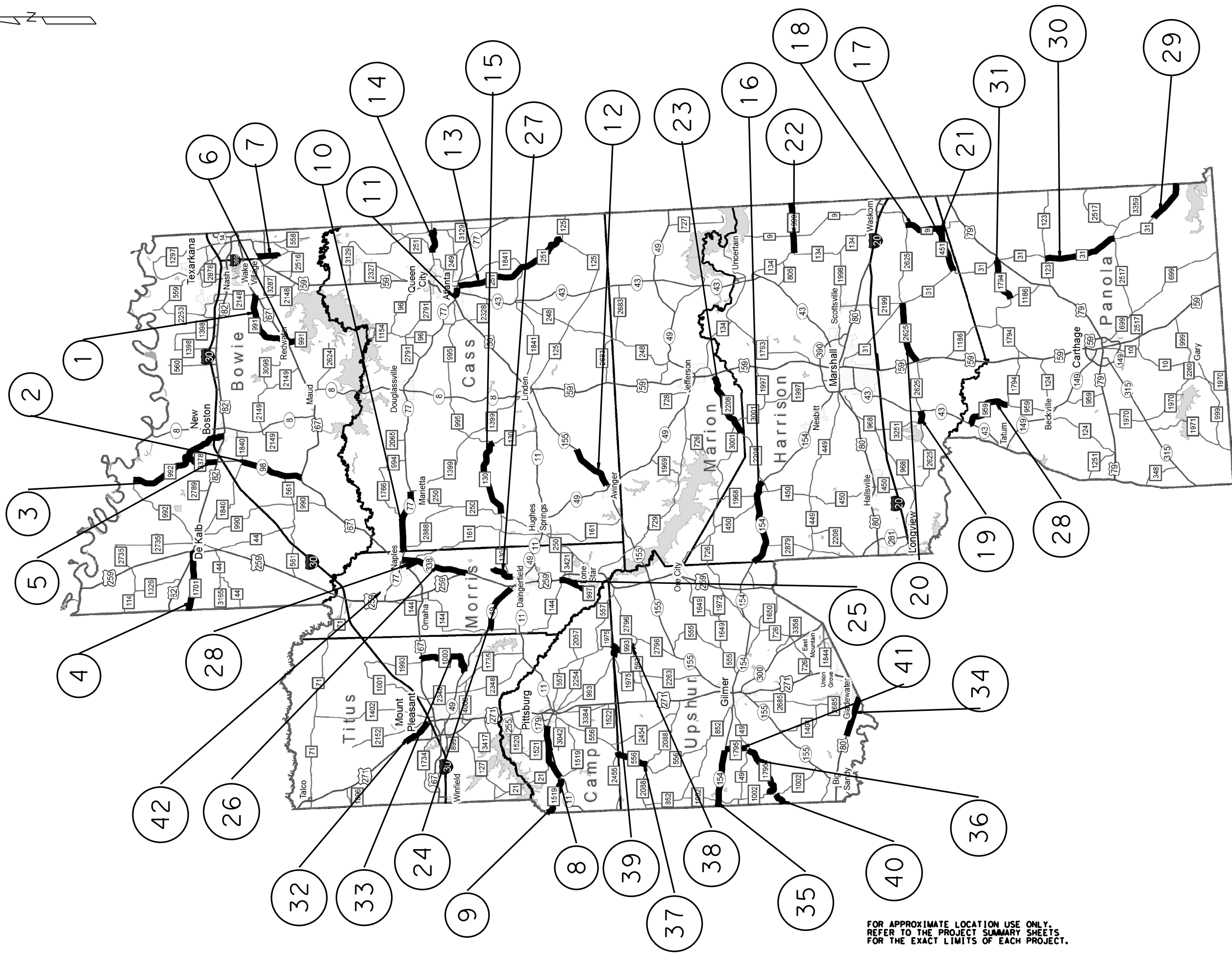
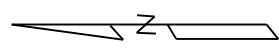
59 EPIC

STATE OF TEXAS  
 GLENN R. YOWELL  
 92077  
 LICENSED  
 PROFESSIONAL ENGINEER  
 Glenn R. Yowell, P.E.  
 7-28-23

**INDEX  
 OF  
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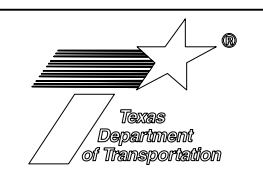
THE STANDARD SHEETS SPECIFICALLY IDENTIFIED ABOVE BY A '#'  
 HAVE BEEN ISSUED BY ME AND ARE APPLICABLE TO THIS PROJECT.

CONT	SECT	JOB	HIGHWAY
0010	19	014	FM 991
DIST	COUNTY	SHEET NO.	
ATL	BOWIE	2	



FOR APPROXIMATE LOCATION USE ONLY.  
REFER TO THE PROJECT SUMMARY SHEETS  
FOR THE EXACT LIMITS OF EACH PROJECT.

LOCATION MAP



CONT	SECT	JOB	HIGHWAY
0010	19	014	FM 991
DIST	COUNTY	SHEET NO.	
ATL	BOWIE	3	

NOT TO SCALE

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REF	COUNTY	HIGHWAY	CSJ	LIMITS	BEGIN STATION	END STATION	BEGIN REF MRK	END REF MRK	EXCEPTIONS	LENGTH FEET	LENGTH MILES	AADT (2021)
1	BOWIE	FM 991	0010-19-014	FR: US 67 W TO: US 67 E	10+00	368+78.00	732 -0.067	738 +0.673	NONE	35,878	6.795	3,208
2	BOWIE	SH 98	0330-01-038	FR: FM 1840 TO: US 67	10+00	366+23.00	214 +0.567	220 +0.988	STA 196+07- STA 217+07	33,523	6.349	1,747
3	BOWIE	FM 992	1214-01-020	FR: 10.3 Mi N of US 82 TO: US 82	10+00	629+77.00	722 +0.687	732 +2.48	NONE	61,977	11.738	1,017
4	BOWIE	FM 1701	1620-03-013	FR: US 259 TO: Red River C/L	10+00	358+48.00	706 +0.007	710 +2.591	NONE	34,848	6.600	710
5	BOWIE	FM 3378	2526-02-013	FR: US 82 TO: FM 992	10+00	186+19.00	208 -0.141	210 +1.348	NONE	17,619	3.337	1,300
6	BOWIE	FM 991	2776-01-015	FR: US 67 TO: 1.8 Mi S of US 67	10+00	106+84.00	730 -0.009	730 +1.825	NONE	9,684	1.834	632
7	BOWIE	FM 3527	3591-01-005	FR: SH 93 TO: FM 989	10+00	135+91.00	216 -0.048	218 +0.049	STA 81+07- STA 92+25	11,473	2.173	2,007
8	CAMP	SH 11	0083-07-048	FR: FM 1519 TO: SL 179	10+00	455+16.00	708 +1.065	714 +1.06	NONE	44,516	8.431	5,037
9	CAMP	FM 1519	2683-02-013	FR: Franklin C/L TO: SH 11	10+00	104+72.00	682 +0.167	686 +0.435	NONE	9,472	1.794	1,204
10	CASS	SH 77	0277-02-057	FR: Morris C/L TO: FM 250	10+00	363+18.00	714 +0.097	720 +0.981	NONE	35,318	6.689	2,009
11	CASS	SH 77	0278-01-064	FR: US 59 TO: 0.98 Mi E of US 59	10+00	62+06.00	744 -0.426	744 +0.56	NONE	5,206	0.986	5,723
12	CASS	SH 155	0520-03-037	FR: 5.15 Mi E of SH 49 TO: 0.1 Mi E of SH 49	10+00	277+01.00	252 +0.314	256 +1.385	NONE	26,701	5.057	3,072
13	CASS	FM 251	0812-01-039	FR: 0.1 Mi S of SH 77 TO: FM 125	10+00	683+57.00	240 +0.091	252 +0.948	NONE	67,357	12.757	1,449
14	CASS	FM 74	1571-02-015	FR: FM 251 TO: FM 249	10+00	143+58.00	742 -0.8	742 +1.73	NONE	13,358	2.530	1,182
15	CASS	FM 130	1573-01-020	FR: FM 250 TO: FM 995	10+00	468+75.00	718 -0.249	726 +0.471	STA 51+56- STA 54+22	45,609	8.638	371
16	HARRISON	SH 154	0402-03-044	FR: Upshur C/L TO: FM 2208	10+00	509+96.00	742 +1.529	752 +1.329	NONE	49,996	9.469	3,649
17	HARRISON	FM 451	0632-04-037	FR: FM 31 TO: FM 9	10+00	262+98.00	738 -0.041	742 +0.721	STA 59+60- STA 61+83	25,075	4.749	1,718
18	HARRISON	FM 9	0632-04-038	FR: FM 2625 TO: FM 451	10+00	262+98.00	284+0.759	286+2.713	STA 59+60- STA 61+84	20,302	3.845	1,726
19	HARRISON	FM 2625	0843-07-025	FR: FM 3251 TO: SH 43	10+00	87+22.00	724 +0.403	724 +1.807	STA 16+03- STA 19+12	7,413	1.404	716
20	HARRISON	FM 2625	0843-08-013	FR: US 59 TO: FM 31	10+00	356+42.00	730 +1.436	736 +1.959	NONE	34,642	6.561	1,186
21	HARRISON	FM 9	1576-01-014	FR: FM 451 TO: Panola C/L	10+00	28+64.00	286 +2.713	288 +0.018	NONE	1,864	0.353	2,029
22	HARRISON	FM 1999	1921-02-019	FR: FM 134 TO: Louisiana S/L	10+00	295+44.00	742 -0.145	748 +0.04	NONE	28,544	5.406	1,255
23	MARION	FM 2208	0138-12-026	FR: US 59 TO: Harrison C/L	10+00	393+43.00	260 +1.283	266 +2.783	NONE	38,343	7.262	1,325
24	MORRIS	SH 49	0222-02-061	FR: 0.3 Mi S of FM 144S TO: US 259	10+00	292+27.00	702 +0.935	708 +0.461	NONE	28,227	5.346	6,234
25	MORRIS	FM 997	0392-06-013	FR: FM 144 TO: 3.7 Mi S of FM 144	10+00	209+74.00	246 -0.049	248 +1.785	NONE	19,974	3.783	1,551
26	MORRIS	SH 338	0622-01-016	FR: US 259 TO: SH 77	10+00	362+70.00	230 -0.072	236 +0.686	NONE	35,270	6.680	1,330
27	MORRIS	FM 1400	1383-01-009	FR: FM 130 TO: 2.3 Mi N of FM 130	10+00	135+98.00	238 -0.012	240 +0.387	NONE	12,598	2.386	201
28	PANOLA	FM 959	0394-01-071	FR: SH 43 TO: FM 1794	10+00	302+14.00	288 -0.031	292 +1.673	NONE	29,214	5.533	590
29	PANOLA	FM 31	0731-01-055	FR: 5.0 Mi S of FM 2517 TO: Louisiana S/L	10+00	253+94.00	314 +0.321	318 +0.964	NONE	24,394	4.620	1,084
30	PANOLA	FM 31	0731-01-056	FR: FM 123 TO: FM 2517	10+00	412+55.00	302 -0.396	308 +1.284	NONE	40,255	7.624	1,310
31	PANOLA	FM 1794	2774-02-009	FR: FM 1186 TO: FM 31	10+00	256+73.00	742 -1.465	744 +1.211	NONE	24,673	4.673	403
32	TITUS	BU 271E	0221-09-030	FR: US 271N TO: IH 30	10+00	170+25.00	232 +0.078	234 +1.23	NONE	16,025	3.035	2,991
33	TITUS	FM 1000	1226-01-019	FR: SH 49 TO: US 67	10+00	325+59.00	232 -0.044	236 +1.98	NONE	31,559	5.977	626
34	UPSHUR	US 80	0096-03-077	FR: Little White Oak Creek TO: Gregg C/L	10+00	239+84.00	764 +1.394	768 +1.767	NONE	22,984	4.353	9,924
35	UPSHUR	SH 154	0401-04-042	FR: Wood C/L TO: FM 1795	10+00	333+08.00	716 +0.006	722 +0.137	NONE	32,308	6.119	4,163
<b>SHEET 1 SUBTOTALS</b>										<b>976,199</b>	<b>184.886</b>	

STATIONING IS FOR CONSTRUCTION PURPOSES ONLY.

**PROJECT SUMMARY SHEET**

SHEET 1 OF 2

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CONT	SECT	JOB	HIGHWAY
0010	19	014	FM 991
DISTRICT		COUNTY	SHEET
ATL		BOWIE	4

REF	COUNTY	HIGHWAY	CSJ	LIMITS		BEGIN STATION	END STATION	BEGIN REF MRK	END REF MRK	EXCEPTIONS	LENGTH FEET	LENGTH MILES	AADT (2021)
36	UPSHUR	FM 1795	1018-01-034	FR: FM 49 TO: FM 1002		10+00	340+21.00	268 -1.525	272 +0.769	NONE	33,021	6.254	765
37	UPSHUR	FM 556	1019-04-031	FR: CAMP C/L TO: FM 2088		10+00	195+59.00	254 +0.002	256 +1.518	NONE	18,559	3.515	1,171
38	UPSHUR	FM 993	1511-01-014	FR: Camp C/L TO: FM 593		10+00	156+15.00	256 +0.155	258 +0.93	NONE	14,615	2.768	333
39	UPSHUR	FM 1975	1511-03-007	FR: Camp C/L TO: FM 993		10+00	50+44.00	252 +0.003	252 +0.769	NONE	4,044	0.766	99
40	UPSHUR	FM 1795	1762-01-006	FR: FM 1002 TO: Wood C/L		10+00	86+88.00	274 -0.563	274 +0.893	NONE	7,688	1.456	640
41	UPSHUR	FM 1795	2775-01-006	FR: SH 154 TO: FM 49		10+00	125+53.00	264 -0.037	266 +0.239	NONE	11,553	2.188	405
42	MORRIS	VA	0919-20-032	FR: AT WHITE OAK CREEK WMA TO:		10+00	91+84.00	0+00.00	0+00.00	NONE	8,184	1.550	N/A
<b>SHEET 2 SUBTOTALS</b>											<b>97,664</b>	<b>18.497</b>	
<b>SHEET 1 SUBTOTALS</b>											<b>976,199</b>	<b>184.886</b>	
<b>PROJECT TOTALS</b>											<b>1,073,863</b>	<b>203.383</b>	

STATIONING IS FOR CONSTRUCTION PURPOSES ONLY.

**PROJECT SUMMARY SHEET**

SHEET 2 OF 2

© 2023



CONT	SECT	JOB	HIGHWAY
0010	19	014	FM 991
DISTRICT	COUNTY	SHEET	
ATL	BOWIE	5	

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Control: 0010-19-014, ETC  
County: BOWIE, ETC  
Highway: FM 991, ETC

Sheet:

Control: 0010-19-014, ETC  
County: BOWIE, ETC  
Highway: FM 991, ETC

Sheet: 6

## **GENERAL NOTES:**

### **General Requirements and Covenants:**

Schedule the preconstruction meeting prior to making any aggregate deliveries to the roadway. A representative of the contractor and all suppliers, with the authority to enter into contracts and agreements, shall be present.

Contractor questions on this project are to be addressed to the following individuals:

Tommy Bruce – Area Engineer  
Tommy.Bruce@txdot.gov  
Dana Moore – Assistant Area Engineer  
Dana.Moore@txdot.gov

Questions may be submitted via the Letting Pre-Bid Q&A web page. This webpage can be accessed from the Notice to Contractors dashboard located at the following Address:

<https://tableau.txdot.gov/views/ProjectInformationDashboard/NoticetoContractors>

All contractor questions will be reviewed by the Engineer. All questions and any corresponding responses that are generated will be posted through the same Letting Pre-Bid Q&A web page.

The Letting Pre-Bid Q&A web page for each project can be accessed by using the dashboard to navigate to the project you are interested in by scrolling or filtering the dashboard using the controls on the left. Hover over the blue hyperlink for the project you want to view the Q&A for and click on the link in the window that pops up.

### **ITEM 6 - Control of Material:**

To comply with the latest provisions of Build America, Buy America Act (BABA Act) of the Bipartisan Infrastructure Law, the contractor must submit a notarized original of the TxDOT Construction Material Buy America Certification Form for all items classified as construction materials. This form is not required for materials classified as a manufactured product.

Refer to the Buy America Material Classification Sheet for clarification on material categorization.

The Buy America Material Classification Sheet is located at the below link.

<https://www.txdot.gov/business/resources/materials/buy-america-material-classification-sheet.html> for clarification on material categorization.

## **ITEM 7 – Legal Relations and Responsibilities:**

This project is considered a maintenance activity and is exempt from the Construction General Permit (CGP) coverage.

Work in this contract is required to be done on railroad property. Cooperate with the railroads and comply with all their requirements including obtaining any training they require before performing work on railroad property.

No significant traffic generator events.

## **ITEM 8 – Prosecution and Progress:**

Asphalt Season is May1 and ends August 31.

The latest roadway start work date is June 24, 2024.

Working days will be charged in accordance with Section 8.3.1.2, “Six-Day Workweek”

Refer to SP 008---048 for additional information regarding beginning of working day charges.

## **ITEM 302 – Aggregates for Surface Treatment:**

Furnish material in accordance with Atlanta District’s QA Program for Surface Treatment Aggregates. This program is included in the plans.

## **ITEM 316 – Seal Coat:**

Furnish aggregate material in accordance with the Atlanta District’s QA Program for Surface Treatment Aggregates. A copy of the program is included in the plans.

Precoat material with a minimum of 1.0 % of asphalt material or as directed by the Engineer.

Apply anti-stripping agent when using siliceous gravel or other material that is prone to stripping.

Consolidate the aggregate into a uniform stockpile in a manner that will prevent segregation and/or degradation. It is the intent that stockpiling operations be performed continuously during daily deliveries.

**Control: 0010-19-014, ETC**  
**County: BOWIE, ETC**  
**Highway: FM 991, ETC**

**Sheet:**

**Control: 0010-19-014, ETC**  
**County: BOWIE, ETC**  
**Highway: FM 991, ETC**

**Sheet: 6A**

Use the same type of aggregate on each individual project.

Equip the distributor spray bar so that the asphalt rate over the wheel paths can be set at a rate different than the application rate over the rest of the travel lane.

Patch, repair, clean up each project and apply work zone pavement markings to each individual project before conducting further sealing operations.

Seal intersections and driveways before sealing the main lanes. Seal all existing roadway surfaces, including extra widths, crossovers, roadside parks, picnic areas, mailbox turnouts, public road intersections, and public drives, within the limits of each project. Do not seal intersections or driveways surfaced with ACP or constructed of concrete.

Contact the maintenance supervisor in each county prior to beginning any stockpile activity.

COUNTY	SUPERVISOR	TELEPHONE
Panola	Kyle Weatherford	903-693-6331
Morris/Camp	Fred Crowder	903-645-2519
Upshur	Christopher Moore	903-797-3100
Marion	Robert Smith	903-665-2692
Harrison	Michael Smith	903-935-2809
Cass	James Barron	903-756-7118
Titus/Camp	Fred Cowder	903-645-2519
Bowie (West)	Kevin Camp	903-628-2321
Bowie (East)	Kelly Speer	903-838-8574

Deliver aggregate Monday through Friday during daylight hours only. Deliveries outside of these hours will cause all stockpiled aggregate to be removed from material on hand.

For final surfaces, furnish aggregate with a minimum "A" surface aggregate classification.

The Department may require the use of emulsion instead of AC if conditions so dictate. Apply AC unless otherwise directed.

Asphalt season starts May 1 and ends August 31. Obtain written approval before placing asphaltic materials between August 31 and May 1.

Cure the surface treatment under traffic a minimum of 14 days before placement of any subsequent surface courses.

Final brooming, of the patched or repaired areas, may take place the working day after the individual project is completed.

Materials remaining on the right of way after final payment has been made will become property of the State.

Any remaining aggregate from a stockpile shall be used on a subsequent reference.

If any of the remaining aggregate at the end of the project is to be purchased by the State, the aggregate shall be placed in a consolidated stockpile at a central location as approved by the Engineer.

**ITEM 502 – Barricades, Signs, and Traffic Handling:**

The Contractor Force Account "Safety Contingency" that has been established for this project is intended to be utilized for work zone enhancements, to improve the effectiveness of the Traffic Control Plan, that could not be foreseen in the project planning and design stage. These enhancements will be mutually agreed upon by the Engineer and the Contractor's Responsible Person based on weekly or more frequent traffic management reviews on the project. The Engineer may choose to use existing bid items if it does not slow the implementation of enhancement

The Contractor's responsible person (CRP) will be responsible for ensuring that the signs and traffic control devices are in place and functioning properly.

The CRP will inspect and ensure any deficiencies are corrected each and every day throughout the duration of this contract. Notify the Engineer in writing of the name, address, and telephone number of this employee or these employees.

Restrict the movement of equipment across traffic lanes to an absolute minimum.

Use strobe lights or rotating beacons on all motorized equipment, operating on or adjacent to the road surface.

Erect signs within forty-eight (48) hours prior to sealing an individual project.

Cover or turn away from traffic the Road Work Ahead, No Center Stripe, and Loose Gravel signs until sealing operations begin.

**Control: 0010-19-014, ETC**  
**County: BOWIE, ETC**  
**Highway: FM 991, ETC**

**Sheet:**

**Control: 0010-19-014, ETC**  
**County: BOWIE, ETC**  
**Highway: FM 991, ETC**

**Sheet: 6B**

Remove the Loose Gravel signs immediately after the final brooming and prior to striping. Remove the No Center Stripe and Do Not Pass signs immediately after the centerline stripe is placed.

**ITEM 506 – Temporary Erosion, Sedimentation, and Environmental Controls:**

It is the intent of this contract that no disturbance of vegetation occurs as a result of roadway operations. In the event vegetation is disturbed, place erosion or pollution control measures deemed necessary by the Engineer. Work performed for which there are no applicable pay items in the contract will be reimbursed in accordance with Article 9.7, “Payment for Extra Work and Force Account Method”.

The project is exempt from the Texas Pollutant Discharge Elimination System (TPDES) General Permit (TXR15000). Exempt projects are those that disturb less than one acre or routine maintenance activities that maintain the original line and grade, hydraulic capacity, or original purposes of the site. No temporary erosion control measures or Storm Water Pollution Prevention Plan (SW3P) have been included in the plans.

**ITEM 662 – Work Zone Pavement Markings:**

Patch, repair, clean up each project and apply work zone pavement markings to each individual project before conducting further sealing operations.

**ITEM 666 - Reflectorized Pavement Markings:**

Furnish and place a double drop of Type II and Type III drop-on glass beads.

Place pavement markings only after the surface treatment has cured to the satisfaction of the Engineer.

Place pavement markings within 14 days after completion of the final surface.

Mark the lateral locations of pavement markings with pilot lines. Obtain approval of the location and alignment of the pilot lines before application of permanent markings. Record the location of “passing” and “no passing” zones before beginning roadway work to re-establish these zones in their original location. Provide a copy of the record to the Engineer.

Use PM(2)-22 for the placement of 6” pavement markings.

**ITEM 6001 – Portable Changeable Message Sign:**

Portable Changeable Message signs will be used on this contract. The Portable Changeable Message Signs will be used in advance of signal work where changing conditions may warrant the use of message boards. They may also be required at other locations as directed by the Engineer. The Engineer will provide the Contractor with the location and the messages to be displayed for each specific event. The Engineer or his representative will inspect each location once the Contractor has placed the message boards to verify that the placement and message is correct. The Contractor will change the message board location and modify the message being displayed as directed before leaving the location to the satisfaction of the Engineer or his representative. The Portable Changeable Message Signs will be paid for by the day after installed and fully operational. All locations that the Contractor will be called upon to use the Portable Changeable Message Signs will be for a minimum of 10 days. The Engineer will notify the Contractor when the Portable Changeable Message Signs are needed, and the Contractor will have the Portable Changeable Message Signs on location and fully operational in 5 working days. In cases of emergency the Contractor will have the Portable Changeable Message Signs on location and fully operational in 3 working days. Refer to traffic control plan sheets for typical temporary portable changeable message sign layout.

**ITEM 6185–Truck Mounted Attenuator (TMA) and Trailer Attenuator (TA):**

The shadow vehicle with truck mounted attenuator (TMA) will not be optional but will be required as shown on the appropriate traffic control plan sheets.

A total of one (2) shadow vehicle with TMA will be required for work. The contractor will be responsible for determining if one or more of these operations will be ongoing at the same time to determine the total number of TMA’s needed for the project.

A total of two (2) shadow vehicles with TMA will be required for Pavement Marking Operations.



### Atlanta District QA Program for Surface Treatment Aggregates

The purpose of this program is to ensure quality aggregates are used for construction of seal coats.

The Contractor will perform QC (Quality Control) sampling and testing on surface treatment aggregates. All sampling and testing methods will be in accordance with TxDOT's Manual of Testing Procedures. TxAPA Level IA and AGG 101 certifications are required.

Contractor-performed QC sampling and testing will not be used as part of the acceptance decision.

The Producer is the same as, and has the same definition as, the Contractor (Article 1.3.37 of the Standard Specifications) throughout this document.

Provide aggregates that meet the requirements of TxDOT's:

- 1) Plans, 2014 Standard Specifications, Special Specifications, and Special Provisions.
- 2) Bituminous Rated Source Quality Catalog.
- 3) Atlanta District Quality Assurance Program which includes QC and QA sampling, testing, inspection, material inventory and tracking, documentation, reporting, and material shelf life.
- 4) Quality Assurance Program for Design-Bid-Build Projects amended as follows:
  - a) **3.3 Testing Equipment**, fourth paragraph, first sentence. remove "in making an acceptance decision" and do not replace.
  - b) **6.3 Who Must Be Qualified?** first paragraph, first sentence. remove "for acceptance," and do not replace.
  - c) remove "statewide" and replace with "local" throughout this document.


General Requirements:

- 1) All individuals performing testing on seal coat aggregate must have current certification/qualification records filed with Atlanta District Lab.
- 2) All testing equipment subject to inspection by TxDOT at random,
- 3) Provide TxDOT Atlanta District a minimum of 2 weeks' notice of the need for inspection or testing.
- 4) TxDOT reserves the right to prioritize or reschedule any inspection or testing services, and shall not be cause for additional project time.

- 5) All non-TxDOT laboratories will be responsible for calibration and documentation of testing equipment conforming to the American Association for Laboratory Accreditation (A2LA) ISO17025 certification. AASHTO accreditation will not be required for non-TxDOT laboratories.
- 6) Testing of seal coat aggregate is limited to sampling, deleterious material, decantation, flakiness index, gradation, crushed faces, asphalt content, and boil test. Project acceptance testing will be performed by the Engineer after a review of the Producer's QC test results by TxDOT.
- 7) Sample stockpiles at the source with a front end loader following test method Tex-400-A.
- 8) All accepted stockpiled materials shall be reserved for exclusive use on Texas Department of Transportation Atlanta District construction contracts, maintenance contracts, and materials requisitions. The Producer will obtain written permission from the Engineer to use this accepted material on other TxDOT projects.
- 9) The stockpiles shall be in a designated area, approved by the Engineer, removed from the main plant operations and roadways to prevent the accumulation, of excessive detrimental dust. However, these areas must be conveniently located for inspection and shipment control. Excessive contamination, in the opinion of the Engineer, will warrant rejection of all or a portion of the stockpile(s).
- 10) The stockpiles shall be constructed sufficiently apart so that the materials in one stockpile will not blend with that in another. Stockpiles shall be built in a manner acceptable to representatives of the Engineer.
- 11) All stockpiles intended for TxDOT use shall be adequately marked or signed (stockpile identification, producer, pit identification, quantity, status: QC, QC w/approval to precoat, QC precoated, or Accepted), as approved by the Engineer. No material shall be added to a stockpile once the request to accept or precoat is made to the Engineer. Adding material under these circumstances will be cause for stockpile rejection. The stockpile can be re-tested when requested by the Producer and when deemed desirable by the Department. The Engineer will enact Article 6.2 of the Standard Specifications if warranted.
- 12) It is the responsibility of the Producer to maintain the stockpiles and the stockpile area in a neat and orderly fashion. Each stockpile shall be properly maintained until depleted.
- 13) All stockpiles must be accessible to the Department at all times.
- 14) All costs associated with this QA Program will be the responsibility of the Producer and shall be subsidiary to Item 316.
- 15) The Producer is expected to make approved materials available to Contractors proposing to use the material on Department projects.

### ATLANTA DISTRICT QA PROGRAM FOR SURFACE TREATMENT AGGREGATES

SHEET 1 OF 3

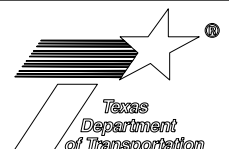
			
CONT	SECT	JOB	HIGHWAY
0010	19	014	FM 991
DIST	COUNTY		SHEET NO.
ATL	BOWIE		7

- 16) A stockpile shall have an acceptance life of three months from the date of testing when stockpiled off of State of Texas property. Seal coat aggregate remaining in stockpile after three months may be resubmitted for testing.
- 17) The stockpile size shall be 3000 CY with a tolerance of 300 CY. Minimum quantities do not apply when material is left over from stockpiles that have been previously tested and accepted. Smaller project specific stockpiles may be created. Measure the stockpile size in CY with "Stockpile Reports" ([www.stockpilereports.com](http://www.stockpilereports.com)) and report to the Engineer with QC test results prior to Department acceptance testing.
- 18) When building a stockpile the Producer will perform the following production QC tests:
- Tex-200-F Part I (grad.) once every 3 hours of production per day\*
  - Tex-217-F Part I (deleterious) once per day of production\*
  - Tex-224-F (flakiness index) once every 5 hours of production per day\*
  - Tex-406-A (decantation) once per day of production\*
  - Tex-460-A Part I (cru. faces) once every 5 hours of production per day\*
- \*minimum testing frequency per stockpile, or fraction thereof.
- 19) After building the stockpile and prior to precoat the Producer will perform the following QC tests on the stockpile:
- Tex-200-F Part I (grad.) four per stockpile, one per quadrant\*
  - Tex-217-F Part I (deleterious) once per stockpile\*
  - Tex-224-F (flakiness index) once per stockpile\*
  - Tex-406-A (decantation) once per stockpile\*
  - Tex-460-A Part I (crushed faces) once per stockpile\*
- \*minimum testing frequency per stockpile
- 20) The Producer will review all QC tests for a stockpile and forward the individual complete QC test reports to the Engineer. The Engineer will determine from the QC test reports if the stockpile is ready for acceptance testing (non-precoat aggregate) or for precoat. The Engineer's receipt of QC stockpile test reports will serve as notification by the Producer that a stockpile is ready for acceptance testing or further processing.
- 21) The Engineer will perform acceptance sampling and testing on non-precoat (will receive no coating) stockpiles based on Producer QC test results. The Engineer will sample four quadrants of each 3000 CY stockpile. A lesser sampling and testing scheme may be used for smaller stockpiles. The Engineer will afford the Producer the opportunity to take split samples of each quadrant sampled. Acceptance testing frequency shall meet the requirements of TxDOT's Guide

- Schedule of Sampling and Testing. The Engineer will notify the Contractor and Producer that a stockpile is accepted or rejected based on QA test results. A stockpile that has been accepted may be transported to a TxDOT project.
- 22) The Engineer will notify the Producer that a stockpile is ready for precoat based on the Producers QC test results. The Producer will perform the following QC tests during the precoat process:
- Tex-236-F (ignition AC) once per stockpile\*
  - Tex-530-C (boil test) once per day per stockpile\*
- \*minimum testing frequency per stockpile
- 23) The Producer will review all QC tests for a precoated stockpile and forward the individual complete QC test reports to the Engineer. The Engineer will determine from the QC test reports if the precoated stockpile is ready for acceptance testing. The Engineer's receipt of QC stockpile test reports will serve as notification by the Producer that a stockpile is ready for acceptance testing. The Engineer will perform acceptance (QA) testing on precoated aggregate stockpiles for:
- Tex-200-F Part I (gradation)
  - Tex-217-F Part I (deleterious material)
  - Tex-224-F (flakiness index)
  - Tex-236-F (AC removal by ignition)
  - Tex-406-A (decantation)
  - Tex-460-A Part I (crushed faces)
  - Tex-530-C (boil test)
- 24) The Engineer will sample four quadrants of each 3000 CY precoated stockpile. A lesser sampling and testing scheme may be used for smaller stockpiles. The Engineer will afford the Producer the opportunity to take split samples of each quadrant sampled. Acceptance testing frequency shall meet the requirements of TxDOT's Guide Schedule of Sampling and Testing. The Engineer will notify the Contractor and Producer that a precoated stockpile is accepted or rejected based on QA test results. A stockpile that has been accepted may be transported to a TxDOT project.
- 25) Each stockpile transported to a project without acceptance documentation from the Engineer, the Contractor will be assessed \$500 to cover the cost of travel, sampling, testing, and reporting. This cost will be deducted from the Contractor's estimate as stated in Article 6.2 of the Standard Specifications. TxDOT may also require the stockpile to be removed. All costs associated with producing, testing, shipping, removing, and disposing of this stockpile shall be the responsibility of the Contractor as stated in Article 5.3.2 of the Standard Specifications.

**ATLANTA DISTRICT  
 QA PROGRAM FOR  
 SURFACE TREATMENT  
 AGGREGATES**


SHEET 2 OF 3

			
CONT	SECT	JOB	HIGHWAY
0010	19	014	FM 991
DIST	COUNTY		SHEET NO.
ATL	BOWIE		8

- 26)The Producer shall maintain records of all individual truck or rail exports from the source. Each record shall include the following as a minimum and included on the delivery ticket:
- project CSJ or RMC #
  - material Type (ex: B, PB, L, PL)
  - material Grade (ex: 3, 4, 5)
  - quantity in Tons
  - date of shipment
  - stockpile number, District Lab number, or both
  - producer (ex: MM or Hanson)
  - pit or source (ex: Sawyer or Little River)
  - reference number
- 27)The Contractor will provide delivery tickets for materials delivered to the project by the following Monday.
- 28)When in the opinion of the Engineer the Producer's QC operation is consistently producing stockpiles that comply reasonably well with all the requirements set forth above. The Engineer may exclude the requirement for QC Technician qualification, lab equipment calibration, and allow for a QC testing schedule other than the one detailed above.
- 29)Failure to comply with any of the requirements above or at the Contractor's request, all acceptance sampling and testing will be performed on seal coat aggregate delivered to the roadway.
- 30)Roadway stockpiles will be constructed as approved by the Engineer. Individual truck piles are unacceptable.

**ATLANTA DISTRICT  
QA PROGRAM FOR  
SURFACE TREATMENT  
AGGREGATES**

SHEET 3 OF 3

			
CONT	SECT	JOB	HIGHWAY
0010	19	014	FM 991
DIST	COUNTY		SHEET NO.
ATL	BOWIE		9



CONTROLLING PROJECT ID 0010-19-014

# Estimate & Quantity Sheet

DISTRICT Atlanta

COUNTY Bowie, Camp, Cass, Harrison, Marion, Morris, Panola, Titus, Upshur

HIGHWAY BU 271E, FM 1000, FM 130, FM 1400, FM 1519, FM 1701, FM 1794, FM 1795, FM 1975, FM 1999, FM 2208, FM 251, FM 2625, FM 31, FM 3378, FM 3527, FM 451, FM 556, FM 74, FM 9, FM 959, FM 991, FM 992, FM 993, FM 997, SH 11, SH 154, SH 155, SH 338, SH 49, SH 77, SH 98, US 80, Various

CONTROL SECTION JOB				0010-19-014		0083-07-048		0096-03-077		0138-12-026		0221-09-030		0222-02-061	
PROJECT ID				A00187114		A00187249		A00187635		A00187604		A00187633		A00187617	
COUNTY				Bowie		Camp		Upshur		Marion		Titus		Morris	
HIGHWAY				FM 991		SH 11		US 80		FM 2208		BU 271E		SH 49	
ALT	BID CODE	DESCRIPTION	UNIT	EST.	FINAL	EST.	FINAL	EST.	FINAL	EST.	FINAL	EST.	FINAL	EST.	FINAL
	316-6048	ASPH (AC-20-5TR)	TON	183.100		177.870		102.450		181.520		68.480		131.660	
	316-6510	AGGR (TY-PB GR-4 SAC-A)	TON	980.000		953.000		549.000		971.000		367.000		705.000	
	316-6514	AGGR(TY-PB GR-3 SAC-A)	TON												
	500-6001	MOBILIZATION	LS	1.000											
	502-6025	BARR, SIGNS, TRAFFIC HANDLING	EA	42.000											
	662-6109	WK ZN PAV MRK SHT TERM (TAB)TY W	EA	48.000		50.000		35.000		46.000				85.000	
	662-6111	WK ZN PAV MRK SHT TERM (TAB)TY Y-2	EA	1,728.000		1,048.000		941.000		1,498.000		578.000		851.000	
	666-6170	REFL PAV MRK TY II (W) 4" (SLD)	LF												
	666-6171	REFL PAV MRK TY II (W) 6" (BRK)	LF					2,150.000						2,180.000	
	666-6174	REFL PAV MRK TY II (W) 6" (SLD)	LF	71,300.000		57,746.000		46,464.000		80,486.000		30,638.000		53,938.000	
	666-6178	REFL PAV MRK TY II (W) 8" (SLD)	LF			995.000									
	666-6208	REFL PAV MRK TY II (Y) 6" (BRK)	LF	17,100.000		4,270.000		3,230.000		5,910.000		2,510.000		3,920.000	
	666-6210	REFL PAV MRK TY II (Y) 6" (SLD)	LF	52,013.000		37,647.000		34,424.000		53,991.000		20,610.000		30,137.000	
	668-6076	PREFAB PAV MRK TY C (W) (24") (SLD)	LF							25.000				116.000	
	668-6077	PREFAB PAV MRK TY C (W) (ARROW)	EA	6.000											
	668-6085	PREFAB PAV MRK TY C (W) (WORD)	EA	6.000											
	668-6089	PREFAB PAV MRK TY C (W) (RR XING)	EA							2.000					
	668-6092	PREFAB PAV MRK TY C (W) (36")(YLD TRI)	EA												
	668-6113	PRE PM TY C(ACC PRK)(BL&WH)(W/BORDR)LG	EA												
	672-6007	REFL PAV MRKR TY I-C	EA			50.000		35.000		13.000				85.000	
	672-6009	REFL PAV MRKR TY II-A-A	EA	1,728.000		1,048.000		941.000		1,498.000		578.000		851.000	
	3028-6002	FRICTIONAL ASPH SURF PRESERV TRTMT	SY					51,076.000				13,617.000		59,931.000	
	6001-6001	PORTABLE CHANGEABLE MESSAGE SIGN	DAY	4.000											
	6185-6002	TMA (STATIONARY)	DAY	110.000											
	6185-6005	TMA (MOBILE OPERATION)	DAY	152.000											
18		EROSION CONTROL MAINTENANCE: CONTRACTOR FORCE ACCOUNT WORK (PART)	LS	1.000											
		RAILROAD FLAGGING: CONTRACTOR FORCE ACCOUNT WORK (PARTICIPATING)	LS	1.000											
		SAFETY CONTINGENCY: CONTRACTOR FORCE ACCOUNT WORK (PARTICIPATING)	LS	1.000											



CONTROLLING PROJECT ID 0010-19-014

# Estimate & Quantity Sheet

DISTRICT Atlanta

COUNTY Bowie, Camp, Cass, Harrison, Marion, Morris, Panola, Titus, Upshur

HIGHWAY BU 271E, FM 1000, FM 130, FM 1400, FM 1519, FM 1701, FM 1794, FM 1795, FM 1975, FM 1999, FM 2208, FM 251, FM 2625, FM 31, FM 3378, FM 3527, FM 451, FM 556, FM 74, FM 9, FM 959, FM 991, FM 992, FM 993, FM 997, SH 11, SH 154, SH 155, SH 338, SH 49, SH 77, SH 98, US 80, Various

CONTROL SECTION JOB				0277-02-057		0278-01-064		0330-01-038		0392-06-013		0394-01-071		0401-04-042	
PROJECT ID				A00187256		A00187251		A00187113		A00187618		A00187620		A00187637	
COUNTY				Cass		Cass		Bowie		Morris		Panola		Upshur	
HIGHWAY				SH 77		SH 77		SH 98		FM 997		FM 959		SH 154	
ALT	BID CODE	DESCRIPTION	UNIT	EST.	FINAL	EST.	FINAL	EST.	FINAL	EST.	FINAL	EST.	FINAL	EST.	FINAL
	316-6048	ASPH (AC-20-5TR)	TON	306.620		54.950		124.240		82.330		198.010		165.490	
	316-6510	AGGR (TY-PB GR-4 SAC-A)	TON	1,642.000		295.000		665.000		441.000				885.000	
	316-6514	AGGR(TY-PB GR-3 SAC-A)	TON									970.000			
	500-6001	MOBILIZATION	LS												
	502-6025	BARR, SIGNS, TRAFFIC HANDLING	EA												
	662-6109	WK ZN PAV MRK SHT TERM (TAB)TY W	EA	216.000		252.000		22.000							
	662-6111	WK ZN PAV MRK SHT TERM (TAB)TY Y-2	EA	1,387.000		429.000		759.000		567.000		450.000		1,489.000	
	666-6170	REFL PAV MRK TY II (W) 4" (SLD)	LF												
	666-6171	REFL PAV MRK TY II (W) 6" (BRK)	LF	8,060.000				330.000							
	666-6174	REFL PAV MRK TY II (W) 6" (SLD)	LF	71,726.000		11,780.000		60,888.000		39,902.000		58,626.000		65,020.000	
	666-6178	REFL PAV MRK TY II (W) 8" (SLD)	LF	890.000		950.000		157.000							
	666-6208	REFL PAV MRK TY II (Y) 6" (BRK)	LF	4,740.000		670.000		5,430.000		1,780.000		3,750.000		3,510.000	
	666-6210	REFL PAV MRK TY II (Y) 6" (SLD)	LF	50,733.000		16,472.000		24,947.000		20,901.000		14,245.000		56,068.000	
	668-6076	PREFAB PAV MRK TY C (W) (24") (SLD)	LF	40.000		290.000									
	668-6077	PREFAB PAV MRK TY C (W) (ARROW)	EA	5.000		4.000		1.000							
	668-6085	PREFAB PAV MRK TY C (W) (WORD)	EA	5.000		8.000		1.000							
	668-6089	PREFAB PAV MRK TY C (W) (RR XING)	EA												
	668-6092	PREFAB PAV MRK TY C (W) (36")(YLD TRI)	EA			8.000									
	668-6113	PRE PM TY C(ACC PRK)(BL&WH)(W/BORDR)LG	EA												
	672-6007	REFL PAV MRKR TY I-C	EA	165.000		193.000		12.000							
	672-6009	REFL PAV MRKR TY II-A-A	EA	1,387.000		429.000		759.000		567.000		450.000		1,489.000	
	3028-6002	FRICTIONAL ASPH SURF PRESERV TRTMT	SY			11,570.000									
	6001-6001	PORTABLE CHANGEABLE MESSAGE SIGN	DAY												
	6185-6002	TMA (STATIONARY)	DAY												
	6185-6005	TMA (MOBILE OPERATION)	DAY												
18		EROSION CONTROL MAINTENANCE: CONTRACTOR FORCE ACCOUNT WORK (PART)	LS												
		RAILROAD FLAGGING: CONTRACTOR FORCE ACCOUNT WORK (PARTICIPATING)	LS												
		SAFETY CONTINGENCY: CONTRACTOR FORCE ACCOUNT WORK (PARTICIPATING)	LS												



CONTROLLING PROJECT ID 0010-19-014

# Estimate & Quantity Sheet

DISTRICT Atlanta

COUNTY Bowie, Camp, Cass, Harrison, Marion, Morris, Panola, Titus, Upshur

HIGHWAY BU 271E, FM 1000, FM 130, FM 1400, FM 1519, FM 1701, FM 1794, FM 1795, FM 1975, FM 1999, FM 2208, FM 251, FM 2625, FM 31, FM 3378, FM 3527, FM 451, FM 556, FM 74, FM 9, FM 959, FM 991, FM 992, FM 993, FM 997, SH 11, SH 154, SH 155, SH 338, SH 49, SH 77, SH 98, US 80, Various

CONTROL SECTION JOB				0402-03-044		0520-03-037		0622-01-016		0632-04-037		0632-04-038		0731-01-055	
PROJECT ID				A00187295		A00187268		A00187616		A00187279		A00194830		A00187626	
COUNTY				Harrison		Cass		Morris		Harrison		Harrison		Panola	
HIGHWAY				SH 154		SH 155		SH 338		FM 451		FM 9		FM 31	
ALT	BID CODE	DESCRIPTION	UNIT	EST.	FINAL	EST.	FINAL	EST.	FINAL	EST.	FINAL	EST.	FINAL	EST.	FINAL
	316-6048	ASPH (AC-20-5TR)	TON	267.840		120.730		203.190		125.980		86.880		109.070	
	316-6510	AGGR (TY-PB GR-4 SAC-A)	TON	1,435.000		646.000		1,089.000		675.000		465.000		584.000	
	316-6514	AGGR(TY-PB GR-3 SAC-A)	TON												
	500-6001	MOBILIZATION	LS												
	502-6025	BARR, SIGNS, TRAFFIC HANDLING	EA												
	662-6109	WK ZN PAV MRK SHT TERM (TAB)TY W	EA	39.000		13.000		48.000		152.000					
	662-6111	WK ZN PAV MRK SHT TERM (TAB)TY Y-2	EA	2,163.000		835.000		1,114.000		1,882.000		729.000		621.000	
	666-6170	REFL PAV MRK TY II (W) 4" (SLD)	LF												
	666-6171	REFL PAV MRK TY II (W) 6" (BRK)	LF	1,220.000		380.000		3,820.000							
	666-6174	REFL PAV MRK TY II (W) 6" (SLD)	LF	99,546.000		53,032.000		68,898.000		50,222.000		41,440.000		48,332.000	
	666-6178	REFL PAV MRK TY II (W) 8" (SLD)	LF												
	666-6208	REFL PAV MRK TY II (Y) 6" (BRK)	LF	6,010.000		1,560.000		6,010.000		6,150.000		2,870.000		4,330.000	
	666-6210	REFL PAV MRK TY II (Y) 6" (SLD)	LF	80,506.000		31,827.000		38,553.000		28,937.000		26,288.000		24,857.000	
	668-6076	PREFAB PAV MRK TY C (W) (24") (SLD)	LF							240.000					
	668-6077	PREFAB PAV MRK TY C (W) (ARROW)	EA	6.000						8.000					
	668-6085	PREFAB PAV MRK TY C (W) (WORD)	EA			2.000									
	668-6089	PREFAB PAV MRK TY C (W) (RR XING)	EA												
	668-6092	PREFAB PAV MRK TY C (W) (36")(YLD TRI)	EA												
	668-6113	PRE PM TY C(ACC PRK)(BL&WH)(W/BORDR)LG	EA												
	672-6007	REFL PAV MRKR TY I-C	EA	15.000		5.000				74.000					
	672-6009	REFL PAV MRKR TY II-A-A	EA	2,163.000		835.000		1,114.000		1,882.000		729.000		621.000	
	3028-6002	FRICTIONAL ASPH SURF PRESERV TRTMT	SY			50,434.000									
	6001-6001	PORTABLE CHANGEABLE MESSAGE SIGN	DAY												
	6185-6002	TMA (STATIONARY)	DAY												
	6185-6005	TMA (MOBILE OPERATION)	DAY												
18		EROSION CONTROL MAINTENANCE: CONTRACTOR FORCE ACCOUNT WORK (PART)	LS												
		RAILROAD FLAGGING: CONTRACTOR FORCE ACCOUNT WORK (PARTICIPATING)	LS												
		SAFETY CONTINGENCY: CONTRACTOR FORCE ACCOUNT WORK (PARTICIPATING)	LS												



CONTROLLING PROJECT ID 0010-19-014

# Estimate & Quantity Sheet

DISTRICT Atlanta

COUNTY Bowie, Camp, Cass, Harrison, Marion, Morris, Panola, Titus, Upshur

HIGHWAY BU 271E, FM 1000, FM 130, FM 1400, FM 1519, FM 1701, FM 1794, FM 1795, FM 1975, FM 1999, FM 2208, FM 251, FM 2625, FM 31, FM 3378, FM 3527, FM 451, FM 556, FM 74, FM 9, FM 959, FM 991, FM 992, FM 993, FM 997, SH 11, SH 154, SH 155, SH 338, SH 49, SH 77, SH 98, US 80, Various

CONTROL SECTION JOB				0731-01-056		0812-01-039		0843-07-025		0843-08-013		0919-20-032		1018-01-034	
PROJECT ID				A00187628		A00187263		A00187294		A00187285		A00043461		A00187639	
COUNTY				Panola		Cass		Harrison		Harrison		Morris		Upshur	
HIGHWAY				FM 31		FM 251		FM 2625		FM 2625		Various		FM 1795	
ALT	BID CODE	DESCRIPTION	UNIT	EST.	FINAL	EST.	FINAL	EST.	FINAL	EST.	FINAL	EST.	FINAL	EST.	FINAL
	316-6048	ASPH (AC-20-5TR)	TON	174.870		291.950		42.210		156.100		16.250		174.620	
	316-6510	AGGR (TY-PB GR-4 SAC-A)	TON	936.000		1,563.000				836.000		87.000			
	316-6514	AGGR(TY-PB GR-3 SAC-A)	TON					207.000						856.000	
	500-6001	MOBILIZATION	LS												
	502-6025	BARR, SIGNS, TRAFFIC HANDLING	EA												
	662-6109	WK ZN PAV MRK SHT TERM (TAB)TY W	EA	15.000		20.000				8.000		120.000			
	662-6111	WK ZN PAV MRK SHT TERM (TAB)TY Y-2	EA	1,447.000		2,801.000		339.000		1,157.000				1,654.000	
	666-6170	REFL PAV MRK TY II (W) 4" (SLD)	LF									1,126.000			
	666-6171	REFL PAV MRK TY II (W) 6" (BRK)	LF												
	666-6174	REFL PAV MRK TY II (W) 6" (SLD)	LF	80,602.000		134,714.000		14,544.000		69,006.000				66,160.000	
	666-6178	REFL PAV MRK TY II (W) 8" (SLD)	LF	111.000											
	666-6208	REFL PAV MRK TY II (Y) 6" (BRK)	LF	4,990.000		6,830.000		330.000		5,620.000					
	666-6210	REFL PAV MRK TY II (Y) 6" (SLD)	LF	57,883.000		105,219.000		13,230.000		40,667.000				66,160.000	
	668-6076	PREFAB PAV MRK TY C (W) (24") (SLD)	LF			40.000						30.000			
	668-6077	PREFAB PAV MRK TY C (W) (ARROW)	EA	1.000											
	668-6085	PREFAB PAV MRK TY C (W) (WORD)	EA	1.000						2.000					
	668-6089	PREFAB PAV MRK TY C (W) (RR XING)	EA												
	668-6092	PREFAB PAV MRK TY C (W) (36")(YLD TRI)	EA			3.000									
	668-6113	PRE PM TY C(ACC PRK)(BL&WH)(W/BORDR)LG	EA									3.000			
	672-6007	REFL PAV MRKR TY I-C	EA	10.000											
	672-6009	REFL PAV MRKR TY II-A-A	EA	1,447.000		2,801.000		339.000		1,157.000				1,654.000	
	3028-6002	FRICTIONAL ASPH SURF PRESERV TRTMT	SY												
	6001-6001	PORTABLE CHANGEABLE MESSAGE SIGN	DAY												
	6185-6002	TMA (STATIONARY)	DAY												
	6185-6005	TMA (MOBILE OPERATION)	DAY												
18		EROSION CONTROL MAINTENANCE: CONTRACTOR FORCE ACCOUNT WORK (PART)	LS												
		RAILROAD FLAGGING: CONTRACTOR FORCE ACCOUNT WORK (PARTICIPATING)	LS												
		SAFETY CONTINGENCY: CONTRACTOR FORCE ACCOUNT WORK (PARTICIPATING)	LS												



CONTROLLING PROJECT ID 0010-19-014

# Estimate & Quantity Sheet

DISTRICT Atlanta

COUNTY Bowie, Camp, Cass, Harrison, Marion, Morris, Panola, Titus, Upshur

HIGHWAY BU 271E, FM 1000, FM 130, FM 1400, FM 1519, FM 1701, FM 1794, FM 1795, FM 1975, FM 1999, FM 2208, FM 251, FM 2625, FM 31, FM 3378, FM 3527, FM 451, FM 556, FM 74, FM 9, FM 959, FM 991, FM 992, FM 993, FM 997, SH 11, SH 154, SH 155, SH 338, SH 49, SH 77, SH 98, US 80, Various

CONTROL SECTION JOB				1019-04-031		1214-01-020		1226-01-019		1383-01-009		1511-01-014		1511-03-007	
PROJECT ID				A00176902		A00187153		A00187630		A00187608		A00177061		A00177060	
COUNTY				Upshur		Bowie		Titus		Morris		Upshur		Upshur	
HIGHWAY				FM 556		FM 992		FM 1000		FM 1400		FM 993		FM 1975	
ALT	BID CODE	DESCRIPTION	UNIT	EST.	FINAL	EST.	FINAL	EST.	FINAL	EST.	FINAL	EST.	FINAL	EST.	FINAL
	316-6048	ASPH (AC-20-5TR)	TON	111.570		247.840		191.910		62.600		94.790		21.010	
	316-6510	AGGR (TY-PB GR-4 SAC-A)	TON			1,327.000									
	316-6514	AGGR(TY-PB GR-3 SAC-A)	TON	546.000				940.000		307.000		464.000		103.000	
	500-6001	MOBILIZATION	LS												
	502-6025	BARR, SIGNS, TRAFFIC HANDLING	EA												
	662-6109	WK ZN PAV MRK SHT TERM (TAB)TY W	EA					20.000							
	662-6111	WK ZN PAV MRK SHT TERM (TAB)TY Y-2	EA	795.000		2,229.000		1,478.000		624.000		668.000		200.000	
	666-6170	REFL PAV MRK TY II (W) 4" (SLD)	LF												
	666-6171	REFL PAV MRK TY II (W) 6" (BRK)	LF												
	666-6174	REFL PAV MRK TY II (W) 6" (SLD)	LF	37,160.000		123,954.000		63,038.000		24,968.000		30,764.000		7,998.000	
	666-6178	REFL PAV MRK TY II (W) 8" (SLD)	LF												
	666-6208	REFL PAV MRK TY II (Y) 6" (BRK)	LF	1,660.000		8,650.000		1,130.000				580.000			
	666-6210	REFL PAV MRK TY II (Y) 6" (SLD)	LF	30,135.000		80,515.000		58,002.000		24,968.000		26,140.000		7,998.000	
	668-6076	PREFAB PAV MRK TY C (W) (24") (SLD)	LF					24.000							
	668-6077	PREFAB PAV MRK TY C (W) (ARROW)	EA												
	668-6085	PREFAB PAV MRK TY C (W) (WORD)	EA												
	668-6089	PREFAB PAV MRK TY C (W) (RR XING)	EA					2.000							
	668-6092	PREFAB PAV MRK TY C (W) (36")(YLD TRI)	EA												
	668-6113	PRE PM TY C(ACC PRK)(BL&WH)(W/BORDR)LG	EA												
	672-6007	REFL PAV MRKR TY I-C	EA												
	672-6009	REFL PAV MRKR TY II-A-A	EA	795.000		2,229.000		1,478.000		624.000		668.000		200.000	
	3028-6002	FRICTIONAL ASPH SURF PRESERV TRTMT	SY												
	6001-6001	PORTABLE CHANGEABLE MESSAGE SIGN	DAY												
	6185-6002	TMA (STATIONARY)	DAY												
	6185-6005	TMA (MOBILE OPERATION)	DAY												
18		EROSION CONTROL MAINTENANCE: CONTRACTOR FORCE ACCOUNT WORK (PART)	LS												
		RAILROAD FLAGGING: CONTRACTOR FORCE ACCOUNT WORK (PARTICIPATING)	LS												
		SAFETY CONTINGENCY: CONTRACTOR FORCE ACCOUNT WORK (PARTICIPATING)	LS												





CONTROLLING PROJECT ID 0010-19-014

# Estimate & Quantity Sheet

DISTRICT Atlanta

COUNTY Bowie, Camp, Cass, Harrison, Marion, Morris, Panola, Titus, Upshur

HIGHWAY BU 271E, FM 1000, FM 130, FM 1400, FM 1519, FM 1701, FM 1794, FM 1795, FM 1975, FM 1999, FM 2208, FM 251, FM 2625, FM 31, FM 3378, FM 3527, FM 451, FM 556, FM 74, FM 9, FM 959, FM 991, FM 992, FM 993, FM 997, SH 11, SH 154, SH 155, SH 338, SH 49, SH 77, SH 98, US 80, Various

CONTROL SECTION JOB				1571-02-015		1573-01-020		1576-01-014		1620-03-013		1762-01-006		1921-02-019	
PROJECT ID				A00187259		A00187265		A00187603		A00187134		A00187641		A00187275	
COUNTY				Cass		Cass		Harrison		Bowie		Upshur		Harrison	
HIGHWAY				FM 74		FM 130		FM 9		FM 1701		FM 1795		FM 1999	
ALT	BID CODE	DESCRIPTION	UNIT	EST.	FINAL	EST.	FINAL	EST.	FINAL	EST.	FINAL	EST.	FINAL	EST.	FINAL
	316-6048	ASPH (AC-20-5TR)	TON	60.340		271.340		9.210		201.370		40.450		124.560	
	316-6510	AGGR (TY-PB GR-4 SAC-A)	TON	322.000				49.000						667.000	
	316-6514	AGGR(TY-PB GR-3 SAC-A)	TON			1,330.000				985.000		198.000			
	500-6001	MOBILIZATION	LS												
	502-6025	BARR, SIGNS, TRAFFIC HANDLING	EA												
	662-6109	WK ZN PAV MRK SHT TERM (TAB)TY W	EA	28.000											
	662-6111	WK ZN PAV MRK SHT TERM (TAB)TY Y-2	EA	603.000		1,697.000		48.000		1,030.000		362.000		1,589.000	
	666-6170	REFL PAV MRK TY II (W) 4" (SLD)	LF												
	666-6171	REFL PAV MRK TY II (W) 6" (BRK)	LF												
	666-6174	REFL PAV MRK TY II (W) 6" (SLD)	LF	26,820.000		91,436.000		3,994.000		69,862.000		15,400.000		57,080.000	
	666-6178	REFL PAV MRK TY II (W) 8" (SLD)	LF												
	666-6208	REFL PAV MRK TY II (Y) 6" (BRK)	LF	650.000		5,900.000		500.000		6,750.000		320.000		710.000	
	666-6210	REFL PAV MRK TY II (Y) 6" (SLD)	LF	23,467.000		61,994.000		1,436.000		34,444.000		14,152.000		62,845.000	
	668-6076	PREFAB PAV MRK TY C (W) (24") (SLD)	LF	78.000											
	668-6077	PREFAB PAV MRK TY C (W) (ARROW)	EA												
	668-6085	PREFAB PAV MRK TY C (W) (WORD)	EA												
	668-6089	PREFAB PAV MRK TY C (W) (RR XING)	EA												
	668-6092	PREFAB PAV MRK TY C (W) (36")(YLD TRI)	EA												
	668-6113	PRE PM TY C(ACC PRK)(BL&WH)(W/BORDR)LG	EA												
	672-6007	REFL PAV MRKR TY I-C	EA												
	672-6009	REFL PAV MRKR TY II-A-A	EA	603.000		1,697.000		48.000		1,030.000		362.000		1,589.000	
	3028-6002	FRICTIONAL ASPH SURF PRESERV TRTMT	SY												
	6001-6001	PORTABLE CHANGEABLE MESSAGE SIGN	DAY												
	6185-6002	TMA (STATIONARY)	DAY												
	6185-6005	TMA (MOBILE OPERATION)	DAY												
18		EROSION CONTROL MAINTENANCE: CONTRACTOR FORCE ACCOUNT WORK (PART)	LS												
		RAILROAD FLAGGING: CONTRACTOR FORCE ACCOUNT WORK (PARTICIPATING)	LS												
		SAFETY CONTINGENCY: CONTRACTOR FORCE ACCOUNT WORK (PARTICIPATING)	LS												



CONTROLLING PROJECT ID 0010-19-014

# Estimate & Quantity Sheet

DISTRICT Atlanta

COUNTY Bowie, Camp, Cass, Harrison, Marion, Morris, Panola, Titus, Upshur

HIGHWAY BU 271E, FM 1000, FM 130, FM 1400, FM 1519, FM 1701, FM 1794, FM 1795, FM 1975, FM 1999, FM 2208, FM 251, FM 2625, FM 31, FM 3378, FM 3527, FM 451, FM 556, FM 74, FM 9, FM 959, FM 991, FM 992, FM 993, FM 997, SH 11, SH 154, SH 155, SH 338, SH 49, SH 77, SH 98, US 80, Various

CONTROL SECTION JOB				2526-02-013		2683-02-013		2774-02-009		2775-01-006		2776-01-015		3591-01-005	
PROJECT ID				A00187131		A00187246		A00187622		A00187638		A00187115		A00187243	
COUNTY				Bowie		Camp		Panola		Upshur		Bowie		Bowie	
HIGHWAY				FM 3378		FM 1519		FM 1794		FM 1795		FM 991		FM 3527	
ALT	BID CODE	DESCRIPTION	UNIT	EST.	FINAL	EST.	FINAL	EST.	FINAL	EST.	FINAL	EST.	FINAL	EST.	FINAL
	316-6048	ASPH (AC-20-5TR)	TON	88.360		94.690		152.260		60.180		59.160		79.730	
	316-6510	AGGR (TY-PB GR-4 SAC-A)	TON	473.000		507.000								427.000	
	316-6514	AGGR(TY-PB GR-3 SAC-A)	TON					746.000		295.000		290.000			
	500-6001	MOBILIZATION	LS												
	502-6025	BARR, SIGNS, TRAFFIC HANDLING	EA												
	662-6109	WK ZN PAV MRK SHT TERM (TAB)TY W	EA	8.000								8.000		145.000	
	662-6111	WK ZN PAV MRK SHT TERM (TAB)TY Y-2	EA	432.000		1,042.000		706.000		473.000		436.000		364.000	
	666-6170	REFL PAV MRK TY II (W) 4" (SLD)	LF												
	666-6171	REFL PAV MRK TY II (W) 6" (BRK)	LF											790.000	
	666-6174	REFL PAV MRK TY II (W) 6" (SLD)	LF	37,114.000		46,140.000		49,214.000		22,908.000		20,848.000		26,742.000	
	666-6178	REFL PAV MRK TY II (W) 8" (SLD)	LF												
	666-6208	REFL PAV MRK TY II (Y) 6" (BRK)	LF	4,000.000		1,180.000		5,320.000		1,200.000		540.000		1,330.000	
	666-6210	REFL PAV MRK TY II (Y) 6" (SLD)	LF	13,290.000		40,506.000		22,927.000		17,727.000		16,912.000		13,224.000	
	668-6076	PREFAB PAV MRK TY C (W) (24") (SLD)	LF											206.000	
	668-6077	PREFAB PAV MRK TY C (W) (ARROW)	EA											4.000	
	668-6085	PREFAB PAV MRK TY C (W) (WORD)	EA	2.000										4.000	
	668-6089	PREFAB PAV MRK TY C (W) (RR XING)	EA									2.000			
	668-6092	PREFAB PAV MRK TY C (W) (36")(YLD TRI)	EA												
	668-6113	PRE PM TY C(ACC PRK)(BL&WH)(W/BORDR)LG	EA												
	672-6007	REFL PAV MRKR TY I-C	EA											113.000	
	672-6009	REFL PAV MRKR TY II-A-A	EA	432.000		1,042.000		706.000		473.000		436.000		364.000	
	3028-6002	FRICTIONAL ASPH SURF PRESERV TRTMT	SY												
	6001-6001	PORTABLE CHANGEABLE MESSAGE SIGN	DAY												
	6185-6002	TMA (STATIONARY)	DAY												
	6185-6005	TMA (MOBILE OPERATION)	DAY												
18		EROSION CONTROL MAINTENANCE: CONTRACTOR FORCE ACCOUNT WORK (PART)	LS												
		RAILROAD FLAGGING: CONTRACTOR FORCE ACCOUNT WORK (PARTICIPATING)	LS												
		SAFETY CONTINGENCY: CONTRACTOR FORCE ACCOUNT WORK (PARTICIPATING)	LS												



CONTROLLING PROJECT ID 0010-19-014

# Estimate & Quantity Sheet

DISTRICT Atlanta

COUNTY Bowie, Camp, Cass, Harrison, Marion, Morris, Panola, Titus, Upshur

HIGHWAY BU 271E, FM 1000, FM 130, FM 1400, FM 1519, FM 1701, FM 1794, FM 1795, FM 1975, FM 1999, FM 2208, FM 251, FM 2625, FM 31, FM 3378, FM 3527, FM 451, FM 556, FM 74, FM 9, FM 959, FM 991, FM 992, FM 993, FM 997, SH 11, SH 154, SH 155, SH 338, SH 49, SH 77, SH 98, US 80, Various

CONTROL SECTION JOB				TOTAL EST.	TOTAL FINAL
PROJECT ID					
COUNTY					
HIGHWAY					
ALT	BID CODE	DESCRIPTION	UNIT		
	316-6048	ASPH (AC-20-5TR)	TON	5,517.780	
	316-6510	AGGR (TY-PB GR-4 SAC-A)	TON	20,541.000	
	316-6514	AGGR(TY-PB GR-3 SAC-A)	TON	8,237.000	
	500-6001	MOBILIZATION	LS	1.000	
	502-6025	BARR, SIGNS, TRAFFIC HANDLING	EA	42.000	
	662-6109	WK ZN PAV MRK SHT TERM (TAB)TY W	EA	1,378.000	
	662-6111	WK ZN PAV MRK SHT TERM (TAB)TY Y-2	EA	41,243.000	
	666-6170	REFL PAV MRK TY II (W) 4" (SLD)	LF	1,126.000	
	666-6171	REFL PAV MRK TY II (W) 6" (BRK)	LF	18,930.000	
	666-6174	REFL PAV MRK TY II (W) 6" (SLD)	LF	2,130,450.000	
	666-6178	REFL PAV MRK TY II (W) 8" (SLD)	LF	3,103.000	
	666-6208	REFL PAV MRK TY II (Y) 6" (BRK)	LF	141,940.000	
	666-6210	REFL PAV MRK TY II (Y) 6" (SLD)	LF	1,476,997.000	
	668-6076	PREFAB PAV MRK TY C (W) (24") (SLD)	LF	1,089.000	
	668-6077	PREFAB PAV MRK TY C (W) (ARROW)	EA	35.000	
	668-6085	PREFAB PAV MRK TY C (W) (WORD)	EA	31.000	
	668-6089	PREFAB PAV MRK TY C (W) (RR XING)	EA	6.000	
	668-6092	PREFAB PAV MRK TY C (W) (36")(YLD TRI)	EA	11.000	
	668-6113	PRE PM TY C(ACC PRK)(BL&WH)(W/BORDR)LG	EA	3.000	
	672-6007	REFL PAV MRKR TY I-C	EA	770.000	
	672-6009	REFL PAV MRKR TY II-A-A	EA	41,243.000	
	3028-6002	FRICTIONAL ASPH SURF PRESERV TRTMT	SY	186,628.000	
	6001-6001	PORTABLE CHANGEABLE MESSAGE SIGN	DAY	4.000	
	6185-6002	TMA (STATIONARY)	DAY	110.000	
	6185-6005	TMA (MOBILE OPERATION)	DAY	152.000	
18		EROSION CONTROL MAINTENANCE: CONTRACTOR FORCE ACCOUNT WORK (PART)	LS	1.000	
		RAILROAD FLAGGING: CONTRACTOR FORCE ACCOUNT WORK (PARTICIPATING)	LS	1.000	
		SAFETY CONTINGENCY: CONTRACTOR FORCE ACCOUNT WORK (PARTICIPATING)	LS	1.000	



DISTRICT	COUNTY	CCSJ	SHEET
Atlanta	Bowie	0010-19-014	10G

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REF	COUNTY	HIGHWAY	CSJ	LIMITS	DESCRIPTION OF WORK	SURFACE AREA	ASPHALT				AGGREGATE				ONYX
							316 6048				GRADE 4 1CY/140SY	GRADE 3 1CY/110SY	316 6510 TY PB GR 4 SAC-A	316 6514 TY PB GR 3 SAC-A	3028 6002
							AC-20-5TR								
							FOR GR 4 AGGR 0.36 GAL/SY		FOR GR 3 AGGR 0.50 GAL/SY		CY		2,320 LB/CY TON	2,317 LB/CY TON	1
SY	GAL	TON	GAL	TON						FRICITIONAL ASPH SURF PRESERV TRTMT					
										SY					
1	BOWIE	FM 991	0010-19-014	FR: US 67 W TO: US 67 E	TRAF LANES	117,340	42,242	181.57			838		972		
					INTERSECTIONS (1)	992	357	1.53			7		8		
					<b>CSJ TOTALS</b>	118,332	42,599	183.10			845		980		
2	BOWIE	SH 98	0330-01-038	FR: FM 1840 TO: US 67	TRAF LANES	80,289	28,904	124.24			573		665		
					<b>CSJ TOTALS</b>	80,289	28,904	124.24			573		665		
3	BOWIE	FM 992	1214-01-020	FR: 10.3 Mi N of US 82 TO: US 82	TRAF LANES	158,386	57,019	245.08			1,131		1312		
					INTERSECTIONS (4)	1,784	642	2.76			13		15		
					<b>CSJ TOTALS</b>	160,170	57,661	247.84			1,144		1327		
4	BOWIE	FM 1701	1620-03-013	FR: US 259 TO: Red River C/L	TRAF LANES	93,149			46,575	200.19		846		980	
					INTERSECTIONS (1)	548			274	1.18		4		5	
					<b>CSJ TOTALS</b>	93,697			46,849	201.37		850		985	
PROJECT #: C 1620-3-13															
5	BOWIE	FM 3378	2526-02-013	FR: US 82 TO: FM 992	TRAF LANES	54,404	19,585	84.18			389		451		
					MAILBOX TURNOUTS (18)	2,700	972	4.18			19		22		
					<b>CSJ TOTALS</b>	57,104	20,557	88.36			408		473		
6	BOWIE	FM 991	2776-01-015	FR: US 67 TO: 1.8 Mi S of US 67	TRAF LANES	27,528			13,764	59.16		250		290	
					<b>CSJ TOTALS</b>	27,528			13,764	59.16		250		290	
7	BOWIE	FM 3527	3591-01-005	FR: SH 93 TO: FM 989	TRAF LANES	51,524	18,549	79.73			368		427		
					<b>CSJ TOTALS</b>	51,524	18,549	79.73			368		427		
8	CAMP	SH 11	0083-07-048	FR: FM 1519 TO: SL 179	TRAF LANES	105,923	38,132	163.90			757		878		
					INTERSECTIONS (2)	2,284	822	3.53			16		19		
					MAILBOX TURNOUTS (45)	6,750	2,430	10.44			48		56		
					<b>CSJ TOTALS</b>	114,957	41,384	177.87			821		953		
9	CAMP	FM 1519	2683-02-013	FR: Franklin C/L TO: SH 11	TRAF LANES	61,193	22,029	94.69			437		507		
					<b>CSJ TOTALS</b>	61,193	22,029	94.69			437		507		
10	CASS	SH 77	0277-02-057	FR: Morris C/L TO: FM 250	TRAF LANES	196,144	70,612	303.51			1,401		1625		
					INTERSECTIONS (2)	1,222	440	1.89			9		10		
					MAILBOX TURNOUTS (5)	785	283	1.22			6		7		
					<b>CSJ TOTALS</b>	198,151	71,335	306.62			1,416		1642		
11	CASS	SH 77	0278-01-064	FR: US 59 TO: 0.98 Mi E of US 59	TRAF LANES	28,958	10,425	44.81			207		240		
					INTERSECTIONS (2)	6,550	2,358	10.14			47		55		
					SHOULDERS	11,570								11,570	
					<b>CSJ TOTALS</b>	47,078	12,783	54.95			254		295	11,570	
12	CASS	SH 155	0520-03-037	FR: 5.15 Mi E of SH 49 TO: 0.1 Mi E of SH 49	TRAF LANES	77,260	27,814	119.55			552		640		
					EXTRA WIDTH (1)	761	274	1.18			5		6		
					SHOULDERS	50,434								50,434	
					<b>CSJ TOTALS</b>	128,455	28,088	120.73			557		646	50,434	
<b>SHEET 1 SUBTOTALS</b>						<b>1,138,478</b>	<b>343,889</b>	<b>1,478.13</b>	<b>60,613</b>	<b>260.53</b>	<b>6,823</b>	<b>1,100</b>	<b>7,915</b>	<b>1,275</b>	<b>62,004</b>

1 TO BE APPLIED IN ACCORDANCE WITH SPECIAL SPEC 3028 OR AS DIRECTED BY THE ENGINEER

2 FOR CONTRACTOR'S INFORMATION ONLY

3 CALCULATED AT 1 TON / 232.65 GAL

**ROADWAY SUMMARY**

SHEET 1 OF 4



CONT	SECT	JOB	HIGHWAY
0010	19	014	FM 991
DISTRICT	COUNTY	SHEET	
ATL	BOWIE	11	

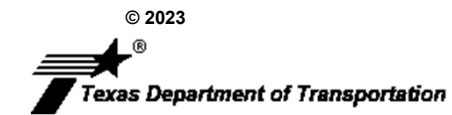
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REF	COUNTY	HIGHWAY	CSJ	LIMITS	DESCRIPTION OF WORK	SURFACE AREA	ASPHALT				AGGREGATE				ONYX		
							316 6048				GRADE 4 1CY/140SY	GRADE 3 1CY/110SY	316 6510		316 6514		3028 6002
							AC-20-5TR						FOR GR 4 AGGR		FOR GR 3 AGGR		TY PB GR 4 SAC-A
							2 SY	2 GAL	3 TON	2 GAL	3 TON	CY		2,320 LB/CY TON	2,317 LB/CY TON	SY	
13	CASS	FM 251	0812-01-039	FR: 0.1 Mi S of SH 77 TO: FM 125	TRAF LANES	187,103	67,357	289.52			1,336		1,550				
					INTERSECTIONS (2)	1,573	566	2.43			11		13				
					<b>CSJ TOTALS</b>	188,676	67,923	291.95			1,347		1,563				
14	CASS	FM 74	1571-02-015	FR: FM 251 TO: FM 249	TRAF LANES	37,767	13,596	58.44			270		313				
					INTERSECTIONS (1)	475	171	0.74			3		3				
					MAILBOX TURNOUTS (5)	750	270	1.16			5		6				
<b>CSJ TOTALS</b>	38,992	14,037	60.34			278		322									
15	CASS	FM 130	1573-01-020	FR: FM 250 TO: FM 995	TRAF LANES	126,256			63,128	271.34		1,148		1,330			
					<b>CSJ TOTALS</b>	126,256			63,128	271.34		1,148		1,330			
16	HARRISON	SH 154	0402-03-044	FR: Upshur C/L TO: FM 2208	TRAF LANES	170,217	61,278	263.39			1,216		1,411				
					INTERSECTIONS (3)	2,624	945	4.06			19		22				
					EXTRA WIDTH (2)	250	90	0.39			2		2				
					<b>CSJ TOTALS</b>	173,091	62,313	267.84			1,237		1,435				
17	HARRISON	FM 451	0632-04-037	FR: FM 31 TO: FM 9	TRAF LANES	77,507	27,903	119.94			554		643				
					INTERSECTIONS (1)	450	162	0.70			3		3				
					MAILBOX TURNOUTS (22)	3,454	1,243	5.34			25		29				
					<b>CSJ TOTALS</b>	81,411	29,308	125.98			582		675				
18	HARRISON	FM 9	0632-04-038	FR: FM 2625 TO: FM 451	TRAF LANES	54,528	19,630	84.38			389		451				
					MAILBOX TURNOUTS (42)	1,616	582	2.50			12		14				
					<b>CSJ TOTALS</b>	56,144	20,212	86.88			401		465				
19	HARRISON	FM 2625	0843-07-025	FR: FM 3251 TO: SH 43	TRAF LANES	19,637			9,819	42.21		179		207			
					<b>CSJ TOTALS</b>	19,637			9,819	42.21		179		207			
20	HARRISON	FM 2625	0843-08-013	FR: US 59 TO: FM 31	TRAF LANES	99,675	35,883	154.24			712		826				
					EXTRA WIDTH (4)	1,203	433	1.86			9		10				
					<b>CSJ TOTALS</b>	100,878	36,316	156.10			721		836				
21	HARRISON	FM 9	1576-01-014	FR: FM 451 TO: Panola C/L	TRAF LANES	5,325	1,917	8.24			38		44				
					MAILBOX TURNOUTS (4)	628	226	0.97			4		5				
					<b>CSJ TOTALS</b>	5,953	2,143	9.21			42		49				
22	HARRISON	FM 1999	1921-02-019	FR: FM 134 TO: Louisiana S/L	TRAF LANES	79,278	28,540	122.67			566		657				
					INTERSECTIONS (2)	1,221	440	1.89			9		10				
					<b>CSJ TOTALS</b>	80,499	28,980	124.56			575		667				
23	MARION	FM 2208	0138-12-026	FR: US 59 TO: Harrison C/L	TRAF LANES	116,258	41,853	179.90			830		963				
					INTERSECTIONS (2)	1,045	376	1.62			7		8				
					<b>CSJ TOTALS</b>	117,303	42,229	181.52			837		971				
<b>SHEET 2 SUBTOTALS</b>						<b>988,840</b>	<b>303,461</b>	<b>1,304.38</b>	<b>72,947</b>	<b>313.55</b>	<b>6,020</b>	<b>1,327</b>	<b>6,983</b>	<b>1,537</b>	<b>0</b>		

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**ROADWAY SUMMARY**



SHEET 2 OF 4

CONT	SECT	JOB	HIGHWAY
0010	19	014	FM 991
DISTRICT		COUNTY	SHEET
ATL		BOWIE	12

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REF	COUNTY	HIGHWAY	CSJ	LIMITS	DESCRIPTION OF WORK	SURFACE AREA	ASPHALT				AGGREGATE				ONYX		
							316 6048				GRADE 4 1CY/140SY	GRADE 3 1CY/110SY	316 6510		316 6514		3028 6002
							AC-20-5TR						FOR GR 4 AGGR 0.36 GAL/SY	FOR GR 3 AGGR 0.50 GAL/SY	TY PB GR 4	TY PB GR 3	FRICIONAL ASPH SURF PRESERV TRTMT
							SY	GAL	TON	GAL	TON	CY			2,320 LB/CY TON	2,317 LB/CY TON	SY
24	MORRIS	SH 49	0222-02-061	FR: 0.3 Mi S of FM 144S TO: US 259	TRAF LANES	85,085	30,631	131.66			608		705				
					SHOULDERS	59,931								59,931			
					<b>CSJ TOTALS</b>	145,016	30,631	131.66			608		705		59,931		
25	MORRIS	FM 997	0392-06-013	FR: FM 144 TO: 3.7 Mi S of FM 144	TRAF LANES	53,203	19,153	82.33			380		441				
					<b>CSJ TOTALS</b>	53,203	19,153	82.33			380		441				
					<b>CSJ TOTALS</b>	53,203	19,153	82.33			380		441				
26	MORRIS	SH 338	0622-01-016	FR: US 259 TO: SH 77	TRAF LANES	130,004	46,801	201.16			929		1,078				
					INTERSECTIONS (1)	1,203	433	1.86			9		10				
					EXTRA WIDTH (1)	111	40	0.17			1		1				
					<b>CSJ TOTALS</b>	131,318	47,274	203.19			939		1,089				
27	MORRIS	FM 1400	1383-01-009	FR: FM 130 TO: 2.3 Mi N of FM 130	TRAF LANES	29,129			14,565	62.60		265		307			
					<b>CSJ TOTALS</b>	29,129			14,565	62.60		265		307			
					<b>CSJ TOTALS</b>	29,129			14,565	62.60		265		307			
28	PANOLA	FM 959	0394-01-071	FR: SH 43 TO: FM 1794	TRAF LANES	91,196			45,598	195.99		829		960			
					MAILBOX TURNOUTS (6)	942			471	2.02		9		10			
					<b>CSJ TOTALS</b>	92,138			46,069	198.01		838		970			
29	PANOLA	FM 31	0731-01-055	FR: 5.0 Mi S of FM 2517 TO: Louisiana S/L	TRAF LANES	67,128	24,166	103.87			479		556				
					EXTRA WIDTH (1)	222	80	0.34			2		2				
					MAILBOX TURNOUTS (20)	3,140	1,130	4.86			22		26				
					<b>CSJ TOTALS</b>	70,490	25,376	109.07			503		584				
30	PANOLA	FM 31	0731-01-056	FR: FM 123 TO: FM 2517	TRAF LANES	113,007	40,683	174.87			807		936				
					<b>CSJ TOTALS</b>	113,007	40,683	174.87			807		936				
					<b>CSJ TOTALS</b>	113,007	40,683	174.87			807		936				
31	PANOLA	FM 1794	2774-02-009	FR: FM 1186 TO: FM 31	TRAF LANES	68,961			34,481	148.21		627		726			
					MAILBOX TURNOUTS (12)	1,884			942	4.05		17		20			
					<b>CSJ TOTALS</b>	70,845			35,423	152.26		644		746			
32	TITUS	BU 271E	0221-09-030	FR: US 271N TO: IH 30	TRAF LANES	44,255	15,932	68.48			316		367				
					SHOULDERS	13,617								13,617			
					<b>CSJ TOTALS</b>	57,872	15,932	68.48			316		367		13,617		
33	TITUS	FM 1000	1226-01-019	FR: SH 49 TO: US 67	TRAF LANES	89,071			44,536	191.43		810		938			
					EXTRA WIDTH (1)	222			111	0.48		2		2			
					<b>CSJ TOTALS</b>	89,293			44,647	191.91		812		940			
34	UPSHUR	US 80	0096-03-077	FR: Little White Oak Creek TO: Gregg C/L	TRAF LANES	65,707	23,655	101.68			469		544				
					INTERSECTIONS (1)	497	179	0.77			4		5				
					SHOULDERS	51,076								51,076			
					<b>CSJ TOTALS</b>	117,280	23,834	102.45			473		549		51,076		
35	UPSHUR	SH 154	0401-04-042	FR: Wood C/L TO: FM 1795	TRAF LANES	105,165	37,859	162.73			751		871				
					INTERSECTIONS (2)	1,446	521	2.24			10		12				
					EXTRA WIDTH (1)	333	120	0.52			2		2				
					<b>CSJ TOTALS</b>	106,944	38,500	165.49			763		885				
<b>SUBTOTALS</b>						<b>1,076,535</b>	<b>241,383</b>	<b>1,037.54</b>	<b>140,704</b>	<b>604.78</b>	<b>4,789</b>	<b>2,559</b>	<b>5,556</b>	<b>2,963</b>	<b>124,624</b>		

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**ROADWAY SUMMARY**

REF	COUNTY	HIGHWAY	CSJ	LIMITS	DESCRIPTION OF WORK	SURFACE AREA	ASPHALT				AGGREGATE				ONYX
							316 6048				GRADE 4 1CY/140SY	GRADE 3 1CY/110SY	316 6510	316 6514	3028 6002
							AC-20-5TR						TY PB GR 4 SAC-A	TY PB GR 3 SAC-A	1] FRICTIONAL ASPH SURF PRESERV TRTMT
							FOR GR 4 AGGR 0.36 GAL/SY		FOR GR 3 AGGR 0.50 GAL/SY		2,320 LB/CY TON	2,317 LB/CY TON	SY		
2] SY	2] GAL	3] TON	2] GAL	3] TON	2] CY										
36	UPSHUR	FM 1795	1018-01-034	FR: FM 49 TO: FM 1002	TRAF LANES	80,862			40,431	173.78		735		851	
					INTERSECTIONS (1)	389			195	0.84		4		5	
					<b>CSJ TOTALS</b>	81,251			40,626	174.62		739		856	
37	UPSHUR	FM 556	1019-04-031	FR: CAMP C/L TO: FM 2088	TRAF LANES	51,611			25,806	110.92		469		543	
					INTERSECTIONS (1)	301			151	0.65		3		3	
					<b>CSJ TOTALS</b>	51,912			25,957	111.57		472		546	
38	UPSHUR	FM 993	1511-01-014	FR: Camp C/L TO: FM 593	TRAF LANES	42,728			21,364	91.83		388		449	
					INTERSECTIONS (2)	1,375			688	2.96		13		15	
					<b>CSJ TOTALS</b>	44,103			22,052	94.79		401		464	
39	UPSHUR	FM 1975	1511-03-007	FR: Camp C/L TO: FM 993	TRAF LANES	9,775			4,888	21.01		89		103	
					<b>CSJ TOTALS</b>	9,775			4,888	21.01		89		103	
40	UPSHUR	FM 1795	1762-01-006	FR: FM 1002 TO: Wood C/L	TRAF LANES	18,822			9,411	40.45		171		198	
					<b>CSJ TOTALS</b>	18,822			9,411	40.45		171		198	
41	UPSHUR	FM 1795	2775-01-006	FR: SH 154 TO: FM 49	TRAF LANES	27,999			14,000	60.18		255		295	
					<b>CSJ TOTALS</b>	27,999			14,000	60.18		255		295	
42	MORRIS	VA	0919-20-032	FR: AT WHITE OAK CREEK WMA TO:	TRAF LANES	4,952	1,783	7.66			35		41		
					EXTRA WIDTH (5)	5,554	1,999	8.59			40		46		
					<b>CSJ TOTALS</b>	10,506	3,782	16.25			75		87		
<b>SHEET 4 SUBTOTALS</b>						<b>233,862</b>	<b>3,782</b>	<b>16.25</b>	<b>116,934</b>	<b>502.62</b>	<b>75</b>	<b>2,127</b>	<b>87</b>	<b>2,462</b>	<b>0</b>
<b>SHEET 1 SUBTOTALS</b>						<b>1,138,478</b>	<b>343,889</b>	<b>1,478.13</b>	<b>60,613</b>	<b>260.53</b>	<b>6,823</b>	<b>1,100</b>	<b>7,915</b>	<b>1,275</b>	<b>62,004</b>
<b>SHEET 2 SUBTOTALS</b>						<b>988,840</b>	<b>303,461</b>	<b>1,304.38</b>	<b>72,947</b>	<b>313.55</b>	<b>6,020</b>	<b>1,327</b>	<b>6,983</b>	<b>1,537</b>	<b>0</b>
<b>SHEET 3 SUBTOTALS</b>						<b>1,076,535</b>	<b>241,383</b>	<b>1,037.54</b>	<b>140,704</b>	<b>604.78</b>	<b>4,789</b>	<b>2,559</b>	<b>5,556</b>	<b>2,963</b>	<b>124,624</b>
<b>PROJECT TOTALS</b>						<b>3,437,715</b>	<b>892,515</b>	<b>3,836.30</b>	<b>391,198</b>	<b>1,681.48</b>	<b>17,707</b>	<b>7,113</b>	<b>20,541</b>	<b>8,237</b>	<b>186,628</b>

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**ROADWAY SUMMARY**

SHEET 4 OF 4

CONT	SECT	JOB	HIGHWAY
0010	19	014	FM 991
DISTRICT	COUNTY	SHEET	
ATL	BOWIE	14	



REF	COUNTY	HIGHWAY	CSJ	LIMITS	SHORT TERM		REF PAV MRK TY II					
					662		666					
					6109	6111	6171	6174	6178	6208	6210	6170
					TAB TY W	TAB TY Y-2	(W) 6 IN (BRK)	(W) 6 IN (SLD)	(W) 8 IN (SLD)	(Y) 6 IN (BRK)	(Y) 6 IN (SLD)	(W) 4 IN (SLD)
EA	EA	LF	LF	LF	LF	LF	LF					
1	BOWIE	FM 991	0010-19-014	FR: US 67 W TO: US 67 E	48	1,728		71,300		17,100	52,013	
2	BOWIE	SH 98	0330-01-038	FR: FM 1840 TO: US 67	22	759	330	60,888	157	5,430	24,947	
3	BOWIE	FM 992	1214-01-020	FR: 10.3 Mi N of US 82 TO: US 82		2,229		123,954		8,650	80,515	
4	BOWIE	FM 1701	1620-03-013	FR: US 259 TO: Red River C/L		1,030		69,862		6,750	34,444	
5	BOWIE	FM 3378	2526-02-013	FR: US 82 TO: FM 992	8	432		37,114		4,000	13,290	
6	BOWIE	FM 991	2776-01-015	FR: US 67 TO: 1.8 Mi S of US 67	8	436		20,848		540	16,912	
7	BOWIE	FM 3527	3591-01-005	FR: SH 93 TO: FM 989	145	364	790	26,742		1,330	13,224	
8	CAMP	SH 11	0083-07-048	FR: FM 1519 TO: SL 179	50	1,048		57,746	995	4,270	37,647	
9	CAMP	FM 1519	2683-02-013	FR: Franklin C/L TO: SH 11		1,042		46,140		1,180	40,506	
10	CASS	SH 77	0277-02-057	FR: Morris C/L TO: FM 250	216	1,387	8,060	71,726	890	4,740	50,733	
11	CASS	SH 77	0278-01-064	FR: US 59 TO: 0.98 Mi E of US 59	252	429		11,780	950	670	16,472	
12	CASS	SH 155	0520-03-037	FR: 5.15 Mi E of SH 49 TO: 0.1 Mi E of SH 49	13	835	380	53,032		1,560	31,827	
13	CASS	FM 251	0812-01-039	FR: 0.1 Mi S of SH 77 TO: FM 125	20	2,801		134,714		6,830	105,219	
14	CASS	FM 74	1571-02-015	FR: FM 251 TO: FM 249	28	603		26,820		650	23,467	
15	CASS	FM 130	1573-01-020	FR: FM 250 TO: FM 995		1,697		91,436		5,900	61,994	
16	HARRISON	SH 154	0402-03-044	FR: Upshur C/L TO: FM 2208	39	2,163	1,220	99,546		6,010	80,506	
17	HARRISON	FM 451	0632-04-037	FR: FM 31 TO: FM 9	152	1,882		50,222		6,150	28,937	
18	HARRISON	FM 9	0632-04-038	FR: FM 2625 TO: FM 451		729		41,440		2,870	26,288	
19	HARRISON	FM 2625	0843-07-025	FR: FM 3251 TO: SH 43		339		14,544		330	13,230	
20	HARRISON	FM 2625	0843-08-013	FR: US 59 TO: FM 31	8	1,157		69,006		5,620	40,667	
21	HARRISON	FM 9	1576-01-014	FR: FM 451 TO: Panola C/L		48		3,994		500	1,436	
22	HARRISON	FM 1999	1921-02-019	FR: FM 134 TO: Louisiana S/L		1,589		57,080		710	62,845	
23	MARION	FM 2208	0138-12-026	FR: US 59 TO: Harrison C/L	46	1,498		80,486		5,910	53,991	
24	MORRIS	SH 49	0222-02-061	FR: 0.3 Mi S of FM 144S TO: US 259	85	851	2,180	53,938		3,920	30,137	
25	MORRIS	FM 997	0392-06-013	FR: FM 144 TO: 3.7 Mi S of FM 144		567		39,902		1,780	20,901	
26	MORRIS	SH 338	0622-01-016	FR: US 259 TO: SH 77	48	1,114	3,820	68,898		6,010	38,553	
27	MORRIS	FM 1400	1383-01-009	FR: FM 130 TO: 2.3 Mi N of FM 130		624		24,968			24,968	
28	PANOLA	FM 959	0394-01-071	FR: SH 43 TO: FM 1794		450		58,626		3,750	14,245	
29	PANOLA	FM 31	0731-01-055	FR: 5.0 Mi S of FM 2517 TO: Louisiana S/L		621		48,332		4,330	24,857	
30	PANOLA	FM 31	0731-01-056	FR: FM 123 TO: FM 2517	15	1,447		80,602	111	4,990	57,883	
<b>SHEET 1 SUBTOTALS</b>					<b>1,203</b>	<b>31,899</b>	<b>16,780</b>	<b>1,695,686</b>	<b>3,103</b>	<b>122,480</b>	<b>1,122,654</b>	<b>0</b>

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**PAVEMENT MARKING SUMMARY**

SHEET 1 OF 4



CONT	SECT	JOB	HIGHWAY
0010	19	014	FM 991
DISTRICT		COUNTY	SHEET
ATL		BOWIE	15



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FILE: DATE 3:56:39 PM

REF	COUNTY	HIGHWAY	CSJ	LIMITS	SHORT TERM		REF PAV MRK TY II					
					662		666					
					6109	6111	6171	6174	6178	6208	6210	6170
					TAB TY W	TAB TY Y-2	(W) 6 IN (BRK)	(W) 6 IN (SLD)	(W) 8 IN (SLD)	(Y) 6 IN (BRK)	(Y) 6 IN (SLD)	(W) 4 IN (SLD)
EA	EA	LF	LF	LF	LF	LF	LF					
31	PANOLA	FM 1794	2774-02-009	FR: FM 1186 TO: FM 31		706		49,214		5,320	22,927	
32	TITUS	BU 271E	0221-09-030	FR: US 271N TO: IH 30		578		30,638		2,510	20,610	
33	TITUS	FM 1000	1226-01-019	FR: SH 49 TO: US 67	20	1,478		63,038		1,130	58,002	
34	UPSHUR	US 80	0096-03-077	FR: Little White Oak Creek TO: Gregg C/L	35	941	2,150	46,464		3,230	34,424	
35	UPSHUR	SH 154	0401-04-042	FR: Wood C/L TO: FM 1795		1,489		65,020		3,510	56,068	
36	UPSHUR	FM 1795	1018-01-034	FR: FM 49 TO: FM 1002		1,654		66,160			66,160	
37	UPSHUR	FM 556	1019-04-031	FR: CAMP C/L TO: FM 2088		795		37,160		1,660	30,135	
38	UPSHUR	FM 993	1511-01-014	FR: Camp C/L TO: FM 593		668		30,764		580	26,140	
39	UPSHUR	FM 1975	1511-03-007	FR: Camp C/L TO: FM 993		200		7,998			7,998	
40	UPSHUR	FM 1795	1762-01-006	FR: FM 1002 TO: Wood C/L		362		15,400		320	14,152	
41	UPSHUR	FM 1795	2775-01-006	FR: SH 154 TO: FM 49		473		22,908		1,200	17,727	
42	MORRIS	VA	0919-20-032	FR: AT WHITE OAK CREEK TO: WMA	120							1,126
<b>SHEET 2 PROJECT SUBTOTALS</b>					<b>175</b>	<b>9,344</b>	<b>2,150</b>	<b>434,764</b>	<b>0</b>	<b>19,460</b>	<b>354,343</b>	<b>1,126</b>
<b>SHEET 1 PROJECT SUBTOTALS</b>					<b>1,203</b>	<b>31,899</b>	<b>16,780</b>	<b>1,695,686</b>	<b>3,103</b>	<b>122,480</b>	<b>1,122,654</b>	<b>0</b>
<b>PROJECT TOTALS</b>					<b>1,378</b>	<b>41,243</b>	<b>18,930</b>	<b>2,130,450</b>	<b>3,103</b>	<b>141,940</b>	<b>1,476,997</b>	<b>1,126</b>

**PAVEMENT MARKING SUMMARY**

SHEET 2 OF 4



CONT	SECT	JOB	HIGHWAY
0010	19	014	FM 991
DISTRICT		COUNTY	SHEET
ATL		BOWIE	16

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REF	COUNTY	HIGHWAY	CSJ	LIMITS	PREFAB PAV MRK TY C						RAISED REFL PAV MRKR	
					668						672	
					6076	6077	6085	6089	6092	6113	6007	6009
					(W) 24 IN (SLD)	(W) (ARROW)	(W) (WORD)	(W) (RR XING)	(W) (36") (YLD TRI)	PRE PM TY C(ACC PRK)(BL&WH)	TY I-C	TY II A-A
LF	EA	EA	EA	EA	EA	EA	EA					
1	BOWIE	FM 991	0010-19-014	FR: US 67 W TO: US 67 E		6	6					1,728
2	BOWIE	SH 98	0330-01-038	FR: FM 1840 TO: US 67		1	1				12	759
3	BOWIE	FM 992	1214-01-020	FR: 10.3 Mi N of US 82 TO: US 82								2,229
4	BOWIE	FM 1701	1620-03-013	FR: US 259 TO: Red River C/L								1,030
5	BOWIE	FM 3378	2526-02-013	FR: US 82 TO: FM 992			2					432
6	BOWIE	FM 991	2776-01-015	FR: US 67 TO: 1.8 Mi S of US 67				2				436
7	BOWIE	FM 3527	3591-01-005	FR: SH 93 TO: FM 989	206	4	4				113	364
8	CAMP	SH 11	0083-07-048	FR: FM 1519 TO: SL 179							50	1,048
9	CAMP	FM 1519	2683-02-013	FR: Franklin C/L TO: SH 11								1,042
10	CASS	SH 77	0277-02-057	FR: Morris C/L TO: FM 250	40	5	5				165	1,387
11	CASS	SH 77	0278-01-064	FR: US 59 TO: 0.98 Mi E of US 59	290	4	8		8		193	429
12	CASS	SH 155	0520-03-037	FR: 5.15 Mi E of SH 49 TO: 0.1 Mi E of SH 49			2				5	835
13	CASS	FM 251	0812-01-039	FR: 0.1 Mi S of SH 77 TO: FM 125	40				3			2,801
14	CASS	FM 74	1571-02-015	FR: FM 251 TO: FM 249	78							603
15	CASS	FM 130	1573-01-020	FR: FM 250 TO: FM 995								1,697
16	HARRISON	SH 154	0402-03-044	FR: Upshur C/L TO: FM 2208		6					15	2,163
17	HARRISON	FM 451	0632-04-037	FR: FM 31 TO: FM 9	240	8					74	1,882
18	HARRISON	FM 9	0632-04-038	FR: FM 2625 TO: FM 451								729
19	HARRISON	FM 2625	0843-07-025	FR: FM 3251 TO: SH 43								339
20	HARRISON	FM 2625	0843-08-013	FR: US 59 TO: FM 31			2					1,157
21	HARRISON	FM 9	1576-01-014	FR: FM 451 TO: Panola C/L								48
22	HARRISON	FM 1999	1921-02-019	FR: FM 134 TO: Louisiana S/L								1,589
23	MARION	FM 2208	0138-12-026	FR: US 59 TO: Harrison C/L	25			2			13	1,498
24	MORRIS	SH 49	0222-02-061	FR: 0.3 Mi S of FM 144S TO: US 259	116						85	851
25	MORRIS	FM 997	0392-06-013	FR: FM 144 TO: 3.7 Mi S of FM 144								567
26	MORRIS	SH 338	0622-01-016	FR: US 259 TO: SH 77								1,114
27	MORRIS	FM 1400	1383-01-009	FR: FM 130 TO: 2.3 Mi N of FM 130								624
28	PANOLA	FM 959	0394-01-071	FR: SH 43 TO: FM 1794								450
29	PANOLA	FM 31	0731-01-055	FR: 5.0 Mi S of FM 2517 TO: Louisiana S/L								621
30	PANOLA	FM 31	0731-01-056	FR: FM 123 TO: FM 2517		1	1				10	1,447
<b>SHEET 1 SUBTOTALS</b>					<b>1,035</b>	<b>35</b>	<b>31</b>	<b>4</b>	<b>11</b>	<b>0</b>	<b>735</b>	<b>31,899</b>

**PAVEMENT MARKING SUMMARY**

SHEET 3 OF 4

CONT	SECT	JOB	HIGHWAY
0010	19	014	FM 991
DISTRICT		COUNTY	SHEET
ATL		BOWIE	17



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REF	COUNTY	HIGHWAY	CSJ	LIMITS	PREFAB PAV MRK TY C						RAISED REFL PAV MRKR	
					668						672	
					6076	6077	6085	6089	6092	6113	6007	6009
					(W) 24 IN (SLD)	(W) (ARROW)	(W) (WORD)	(W) (RR XING)	(W) (36") (YLD TRI)	PREPMT TY C (ACC PRK) (BL&WH) (W/BORDRILG)	TY I-C	TY II A-A
LF	EA	EA	EA	EA	EA	EA	EA					
31	PANOLA	FM 1794	2774-02-009	FR: FM 1186 TO: FM 31								706
32	TITUS	BU 271E	0221-09-030	FR: US 271N TO: IH 30								578
33	TITUS	FM 1000	1226-01-019	FR: SH 49 TO: US 67	24			2				1,478
34	UPSHUR	US 80	0096-03-077	FR: Little White Oak Creek TO: Gregg C/L							35	941
35	UPSHUR	SH 154	0401-04-042	FR: Wood C/L TO: FM 1795								1,489
36	UPSHUR	FM 1795	1018-01-034	FR: FM 49 TO: FM 1002								1,654
37	UPSHUR	FM 556	1019-04-031	FR: CAMP C/L TO: FM 2088								795
38	UPSHUR	FM 993	1511-01-014	FR: Camp C/L TO: FM 593								668
39	UPSHUR	FM 1975	1511-03-007	FR: Camp C/L TO: FM 993								200
40	UPSHUR	FM 1795	1762-01-006	FR: FM 1002 TO: Wood C/L								362
41	UPSHUR	FM 1795	2775-01-006	FR: SH 154 TO: FM 49								473
42	MORRIS	VA	0919-20-032	FR: AT WHITE OAK CREEK TO: WMA	30					3		
<b>SHEET 2 PROJECT SUBTOTALS</b>					<b>54</b>	<b>0</b>	<b>0</b>	<b>2</b>	<b>0</b>	<b>3</b>	<b>35</b>	<b>9,344</b>
<b>SHEET 1 PROJECT SUBTOTALS</b>					<b>1,035</b>	<b>35</b>	<b>31</b>	<b>4</b>	<b>11</b>	<b>0</b>	<b>735</b>	<b>31,899</b>
<b>PROJECT TOTALS</b>					<b>1,089</b>	<b>35</b>	<b>31</b>	<b>6</b>	<b>11</b>	<b>3</b>	<b>770</b>	<b>41,243</b>

TRAFFIC CONTROL SUMMARY		
6001 6001	6185 6002	6185 6005
1	2	2
PORTABLE CHANGEABLE MESSAGE SIGN	TMA (STATIONARY)	TMA (MOBILE OPERATION)
DAY	DAY	DAY
4	110	152

1 TO BE USED AS DIRECTED BY THE ENGINEER  
2 THIS QUANTITY IS FOR 2 TMAs EACH

**PAVEMENT MARKING SUMMARY**

SHEET 4 OF 4



CONT	SECT	JOB	HIGHWAY
0010	19	014	FM 991
DISTRICT		COUNTY	SHEET
ATL		BOWIE	18

DATE: 7/11/2023 10:29:03 AM  
 FILE: \\txdot.projectwiseonline.com:TXDOT15\Documents\19 - ATL\Design Projects\001019014\4 - Design\Master Design Files\01 PLANSHEETS\000 RAILROAD REQUIREMENTS FOR NON-BRIDGE CONSTRUCTION

**PART 1 - GENERAL**

**1.01 DESCRIPTION**

This project includes construction work within the right of way and/or properties of the Railroad and adjacent to its tracks, wire lines and other facilities. These sheets describe the minimum special requirements for coordination with the Railroad when working upon, over or under Railroad Right of Way or when impacting current or future Railroad operations. Coordinate with the Railroad while performing the work outlined herein, and afford the same cooperation with the Railroad as with TxDOT. Complete all submittals and work in accordance with TxDOT Standard Specifications, Railroad Guidelines and AREMA recommendations as modified by these minimum special requirements or as directed in writing by the Railroad Designated Representative.

For purposes of this project, the Railroad Designated Representative is the person or persons designated by the Railroad Manager of Industry and Public Projects to handle specific tasks related to the project.

**1.02 REQUEST FOR INFORMATION / CLARIFICATION**

Submit Requests for Information ("RFI") involving work within any Railroad Right of Way to the TxDOT Engineer. The TxDOT Engineer will submit the RFI to the Railroad Designated Representative for review and approval for RFI's corresponding to work within Railroad Right of Way. Allow six (6) weeks total time for review and approval, which includes four (4) weeks for review and approval by the Railroad.

**1.03 PLANS / SPECIFICATIONS**

TxDOT has received written Railroad approval of the plans and specifications for this project. Any revisions or changes in the plans after award of the Contract must have the approval of TxDOT and the Railroad.

**PART 2 - UTILITIES AND FIBER OPTIC**

Construct all utility installations in accordance with current AREMA recommendations, Railroad, TxDOT and owning utility specifications and requirements. Railroad general guidelines can be found on the Railroad website or by contacting the Railroad Designated Representative.

**PART 3 - CONSTRUCTION**

**3.01 GENERAL**

- A. Perform all work in compliance with all applicable Railroad, Federal Railroad Administration (FRA), and TxDOT rules and regulations. Arrange and conduct work in a manner that does not endanger or interfere with the safe operation of the tracks and property of the Railroad and the traffic moving on such tracks, or the wires, signals and other property of the Railroad, its tenants or licensees, at or in the vicinity of the Work. The safe operation of railroad train movements takes precedence over any work to be performed by the Contractor. The Contractor is responsible for train delay cost and lost revenue claims due to any delays or interruption of train operations resulting from Contractor's construction or other activities.
- B. Construction activities within 15 feet of the operational tracks will only be allowed if absolutely necessary and the Railroad's Designated Representative grants approval. Construction activities within 15 feet of the operational track(s) preferably allow the tracks to stay operational. In such cases, coordination and approval by the Railroad Track Manager is required with regard to schedule, flagging, and slow orders. See Sections 3.07 and 3.08 for additional information.
- C. Provide track protection for all work equipment (including rubber tired equipment) operating within 25 feet from nearest rail. When not in use, keep Contractor machinery and materials at least 50 feet from the Railroad's nearest track.
- D. Vehicular crossings of railroad track are allowed only at existing crossings, or haul road crossings developed with Railroad approval.
- E. The Contractor is also advised that new railroad facilities within the project may be built by the Railroad. If applicable, these facilities are delineated in the plans. Be aware of the limits of responsibilities and coordinate efforts with the Railroad and TxDOT.
- F. Railroad requirements do not allow work within 50 feet of track centers when a train passes the work site and all personnel must clear the area within 50 feet of the track centerline and secure all equipment. Additional allowances may be pursued as outlined in 3.02 and 3.03.
- G. All permanent clearances shall be verified before project closing.

**3.02 RAILROAD OPERATIONS**

- A. Trains and/or equipment are expected on any track, at any time, in either direction. Become familiar with the train schedules in this location and structure bid assuming intermittent track windows in this period, as defined in Paragraph B that follows.
- B. All railroad tracks within and adjacent to the contract site are active, and rail traffic over these facilities shall be maintained throughout the Project. Activities may include both through moves and switching moves to local customers. Railroad traffic and operations will occur continuously throughout the day and night on these tracks and shall be maintained at all times as defined herein. Coordinate and schedule the work so that construction activities do not interfere with railroad operations.
- C. Coordinate work windows with TxDOT and the Railroad's Designated Representative. Types of work windows include Conditional Work Windows and Absolute Work Windows, as defined below:
  - 1. Conditional Work Window: A Conditional Work Window is a period of time that railroad operations have priority over construction activities. When construction activities may occur on and/or adjacent to the railroad tracks within 25 feet of the nearest track, a railroad flag person will be required. At the direction of the railroad flag person, upon approach of a train, and when trains are present on the tracks, the tracks must be cleared (i.e., no construction equipment, materials or personnel within 25 feet, or as directed by the Railroad Designated Representative, from the tracks). Conditional Work Windows are available for the Project.
  - 2. Absolute Work Window: An Absolute Work Window is a period of time that construction activities are given priority over railroad operations. During this time frame, the designated railroad track(s) will be inactive for train movements and may be fouled by the Contractor. At the end of an Absolute Work Window, the railroad tracks and/or signals must be completely operational for train operations and all Railroad, Public Utilities Commission (PUC) and FRA requirements, codes and regulations for operational tracks must be satisfied. In the situation where the operating tracks and/or signals have been affected, the Railroad will perform inspections of the work prior to placing that track back into service. Railroad flag persons will be required for construction activities requiring an Absolute Work Window. Absolute Work Windows will not generally be granted. Any request will require a detailed explanation for Railroad review.

**3.03 RIGHT OF ENTRY, ADVANCE NOTICE AND WORK STOPPAGES**

- A. Do not perform any work within Railroad Right of Way without a valid executed Right of Entry Agreement if required on this project.
- B. Give advance notice to the Railroad as required in the "Contractor's Right of Entry Agreement" before commencing work in connection with construction upon or over Railroad Right of Way and observe the Railroad's rules and regulations with respect thereto.
- C. Perform all work upon Railroad Right of Way in a manner to avoid interference with or endanger the operations of the Railroad. Whenever work may affect the operations or safety of trains, submit the work method to the Railroad Designated Representative for approval. Approval does not relieve the Contractor from liability. Do not commence any work which requires flagging service or inspection service until the flagging protection required by the Railroad is available at the job site. See Section 3.15 for railroad flagging requirements.
- D. Make requests in writing for both Absolute and Conditional Work Windows, at least 30 days in advance of any work. Include in the written request:
  - 1. Exactly what the work entails.
  - 2. The days and hours that work will be performed.
  - 3. The exact location of work, and proximity to the tracks.
  - 4. The type of window requested and the amount of time requested.
  - 5. The designated contact person.

Provide a written confirmation notice to the Railroad at least 48 hours before commencing work in connection with approved work windows when work is within 25 feet of nearest rail. Perform all work in accordance with previously approved work plans.
- E. Make provisions to protect operations and property of the Railroad should a condition arising from, or in connection with the work, require immediate and unusual action. If in the judgment of the Railroad Designated Representative such provisions are insufficient, the Railroad Designated Representative may require or provide such provisions as deemed necessary. In any event, such provisions shall be at the Contractor's expense and without cost to the Railroad or TxDOT. The Railroad or TxDOT shall have the right to order the Contractor to temporarily cease operations in the event of an emergency or, if in the opinion of the Railroad Designated Representative, the Contractor's operations could endanger railroad operations. In the event of such an order, immediately notify TxDOT of the order.

**3.04 INSURANCE**

Do not begin work upon or over Railroad Right of Way until furnishing the Railroad with the insurance policies, binders, certificates and endorsements required by the "Contractor's Right of Entry Agreement", and until the Railroad Designated Representative has advised TxDOT that such insurance is in accordance with the Agreement.

**3.05 RAILROAD SAFETY ORIENTATION**

- A. Complete the railroad course "Orientation for Contractor's Safety", and maintain current registration prior to working on railroad property. This course is required to be completed annually by Contractor and Subcontractor personnel working on site.
 

"UPRR, BNSF, KCS/TEXMEX will not accept on-track safety training certificates from other railroads. Refer to Railroad specific contractor right of entry for training information."
- B. Know and follow the "Contractor's Right of Entry Agreement" EXHIBIT D, MINIMUM SAFETY REQUIREMENTS regarding clothing, personal protective equipment, and general safety requirements.

**3.06 COOPERATION**

The Railroad will cooperate with Contractor so that work may be conducted in an efficient manner, and will cooperate with Contractor in enabling use of Railroad Right of Way in performing the work.

**3.07 MINIMUM CONSTRUCTION CLEARANCES FOR FALSEWORK AND OTHER TEMPORARY STRUCTURES**

Abide by the following minimum temporary clearances during the course of construction:


- A. 15' - 0" (BNSF) (UPRR) and 14' - 0" (KCS) horizontal from centerline of track
- B. 22' (KCS) and 21' - 6" (UPRR & BNSF) vertically above top of rail.

For construction clearance less than listed above, obtain local Railroad Operating Unit review and approval.

**3.08 APPROVAL OF REDUCED CLEARANCES**

- A. Maintain minimum track clearances during construction as specified in Section 3.07.
- B. Submit any proposed infringement on the specified minimum clearances to the Railroad Designated Representative through TxDOT at least 30 days in advance of the work. Do not proceed with such infringement without written approval by the Railroad Designated Representative.
- C. Do not commence work involving an approved infringement without receiving written assurance from the Railroad Designated Representative that arrangements have been made for any necessary flagging service.

SHEET 1 OF 2

 Texas Department of Transportation				Rail Division	
RAILROAD REQUIREMENTS FOR NON-BRIDGE CONSTRUCTION PROJECTS					
FILE:	DN: TxDOT	CK: TxDOT	DW: TxDOT	CR: TxDOT	
© TxDOT October 2018	CONT	SECT	JOB	HIGHWAY	
REVISIONS March 2020	0010	19	014	FM	991
	DIST	COUNTY	SHEET NO.		
	ATL	BOWIE	19		

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**3.09 MAINTENANCE OF RAILROAD FACILITIES**

- A. Maintain all ditches and drainage structures free of silt or other obstructions resulting from Contractor's operations. Repair eroded areas and any other damage within Railroad Right of Way and repair any other damage to the property of the Railroad, or its tenants.
- B. Perform all such maintenance and repair of damages due to the Contractor's operations at Contractor's expense.
- C. Submit a proposed method of erosion control for review by the Railroad prior to beginning any grading on the project site. Comply with all applicable local, state and federal regulations when developing and implementing such erosion control.

**3.10 SITE INSPECTIONS BY RAILROAD'S DESIGNATED REPRESENTATIVE**

- A. In addition to the office reviews of construction submittals, site inspections may be performed by the Railroad Designated Representative at significant points during construction, including the following if applicable:
  1. Pre-construction meetings.
  2. Pile driving/drilling of caissons or drilled shafts.
  3. Reinforcement and concrete placement for railroad bridge substructure and/or superstructure.
  4. Erection of precast concrete or steel bridge superstructure.
  5. Placement of waterproofing (prior to placing ballast on bridge deck).
  6. Completion of the bridge structure.
- B. Site inspection is not limited to the milestone events listed above. Site visits to check progress of the work may be performed at any time throughout the construction as deemed necessary by the Railroad.
- C. Provide a detailed construction schedule, including the proposed temporary horizontal and vertical clearances and construction sequence for all work to TxDOT for submittal to the Railroad Designated Representative for review prior to commencement of work. Include the anticipated dates when the above listed events will occur. Update this schedule for the above listed events as necessary and each month at a minimum to allow the Railroad to schedule site inspections.

**3.11 RAILROAD REPRESENTATIVES**

Railroad representatives, conductors, flag person or watch person will be provided by the Railroad at expense of TxDOT to protect Railroad facilities, property and movements of its trains or engines. In general, the Railroad will furnish such personnel or other protective services as follows:

- A. When any part of any equipment is standing or being operated within 25 feet, measured horizontally, from nearest rail of any track on which trains may operate, or when any object is off the ground and any dimension thereof could extend inside the 25 foot limit, or when any erection or construction activities are in progress within such limits, regardless of elevation above or below track.
- B. For any excavation below elevation of track subgrade if, in the opinion of the Railroad Designated Representative, track or other railroad facilities may be subject to settlement or movement.
- C. During any clearing, grubbing, excavation or grading in proximity to railroad facilities, which, in the opinion of the Railroad Designated Representative, may endanger railroad facilities or operations.
- D. During any Contractor's operations when, in the opinion of the Railroad Designated Representative, railroad facilities, including, but not limited to, tracks, buildings, signals, wire lines, or pipe lines, may be endangered.
- E. Arrange with the Railroad Designated Representative to provide the adequate number of flag persons to accomplish the work.

**3.12 COMMUNICATIONS AND SIGNAL LINES**

If required, the Railroad will rearrange its communications and signal lines, its grade crossing warning devices, train signals and tracks, and facilities that are in use and maintained by the Railroad's forces in connection with its operation at expense of TxDOT. This work by the Railroad will be done by its own forces and it is not a part of the Work under this Contract.

**3.13 TRAFFIC CONTROL**

Coordinate any operations that control traffic across or around railroad facilities with the Railroad Designated Representative.

**3.14 CONSTRUCTION EXCAVATIONS AND BORING ACTIVITIES UNDER TRACK**

- A. Take special precaution and care in connection with excavating and shoring. Excavations for construction of footings, piers, columns, walls or other facilities that require shoring shall comply with requirements of TxDOT, OSHA, AREMA and Railroad "Guidelines for Temporary Shoring".
- B. The project plans indicate whether there are fiber optic lines or other such telecommunications systems that require consideration. Regardless, contact the necessary call center to determine if such cable systems are present:

UPRR 1-800-336-9193  
 7:00 AM to 9:00 PM CST Monday-Friday except holidays,  
 staffed 24 hrs/day for emergencies  
 48 hrs notice required

BNSF 1-800-533-2891  
 24 hour number  
 5 working days notice required

KCS 1-800-344-8377  
 Texas One Call, a 24 hour number  
 48 hrs notice required, excluding weekends and holidays

If a telecommunications system is buried anywhere on or near railroad property, coordinate with TxDOT, the Railroad and the Telecommunication Company(ies) to arrange for relocation or protective measures prior to beginning work on or near railroad property. Refer to the project General Notes for additional information.


- C. Projects involving a boring or jack and bore operation under track such as drainage pipes or culverts and utilities require an installation plan reviewed and approved by the Railroad and TxDOT prior to proceeding with such construction. A railroad inspector and contractor assisted monitoring of ground and track movement is required to maintain safe passage of rail traffic. Stop installation and do not allow passage of trains if movements in excess of 1/4 inch vertical or horizontal is detected in the tracks. Immediately repair the damage to the satisfaction of TxDOT and the Railroad before proceeding.

**3.15 RAILROAD FLAGGING**

Per the Right of Entry Agreement for flagging, notify the Railroad Representative at least 10 working days in advance of Contractor's work and at least 30 working days in advance of any Contractor's work in which any person or equipment will be within 25 feet of nearest rail or as specified in the Contractor Right of Entry (CROE).

**3.16 CLEANING OF RIGHT-OF-WAY**

When work is complete, remove all tools, implements, and other materials brought into Railroad Right of Way and leave the right of Way in a clean and presentable condition to the satisfaction of TxDOT and the Railroad.

 Texas Department of Transportation				Rail Division	
RAILROAD REQUIREMENTS FOR NON-BRIDGE CONSTRUCTION PROJECTS					
FILE:	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT	
©TxDOT October 2018	CONT	SECT	JOB	HIGHWAY	
REVISIONS March 2020	0010	19	014	FM 991	
DIST	COUNTY			SHEET NO.	
ATL	BOWIE			20	

**DISCLAIMER:** The use of this standard is governed by the "Texas Engineering Practice Act." No warranty of any kind is made by TxDOT for any purpose whatsoever. TxDOT assumes no responsibility for the conversion of this standard to other formats or for incorrect results or damages resulting from its use.

**I. WORK AT CROSSING LOCATIONS (AT GRADE, HIGHWAY OVERPASS, HIGHWAY UNDERPASS, PEDESTRIAN, OR CLOSED/ABANDONED)**

This project is adjacent or parallel work, not within RR ROW:  
 DOT No.: 789595P  
 Crossing Type: AT GRADE  
 RR Company Operating Track at Crossing: UNION PACIFIC  
 RR Company Owning Track at Crossing: UNION PACIFIC  
 RR MP: 431.73  
 RR Subdivision: PINE BLUFF  
 City: REDWATER  
 County: BOWIE  
 CSJ at this Crossing: 2776-01-015

Scope of Work, including any TCP, to be performed by State Contractor:

Seal Coat maintenance at FM 991. Consisting of installing and maintaining traffic control devices, as well as spraying oil, laying rock and traffic pavement markings. If contractor performs seal coat operations outside of RR ROW, but creates a traffic contra-flow condition that causes vehicles to cross the railroad tracks in an opposing lane. A railroad flagger is also required to be on-site for the duration of the contra-flow traffic control plan with the UPRR ROW.

Scope of Work to be performed by Railroad Company:

Railroad Protective Flagging with the R.O.W. limits for seal coat operations.

**II. FLAGGING & INSPECTION**

No. of Days of Railroad Flagging Expected: 2  
 On this project, night or weekend flagging is:  
 Expected  
 Not Expected

Flagging services will be provided by:

Railroad Company: TxDOT will pay flagging invoices. Flagging Agreement with Railroad will be needed  
 Outside Party: Contractor will pay flagging invoices to be reimbursed by TxDOT

Contractor must incorporate flaggers into anticipated construction schedule. The Railroad requires a 30-day notice if their flaggers are to be utilized. If Contractor falls behind schedule due to their own negligence and is not ready for scheduled flaggers, any flagging charges will be paid by Contractor.

Contact Information for Flagging:

**UPRR** UP.info@railpros.com  
 Call Center 877-315-0513, Select #1 for flagging  
 UP.request@nrssinc.net  
 Call Center 877-984-677  
 **BNSF** BNSFinfo@railprofs.com  
 Call Center 877-315-0513, Select #1 for flagging  
 **KCS** KCS.info@railpros.com  
 Call Center 877-315-0513, Select #1 for flagging  
 Bottom Line On-Track Safety Services  
 bottomline076@aol.com, 903-767-7630

OTHERS:   
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

Contractor must incorporate Construction Inspection into anticipated construction schedule.

Not Required  
 Required. Contact Information for Construction Inspection:

**III. CONSTRUCTION WORK TO BE PERFORMED BY THE RAILROAD**

Required. Railroad Point of Contact: \_\_\_\_\_  
 Not Required

Coordinate with TxDOT for any work to be performed by the Railroad Company. TxDOT must issue a work order for any work done by the Railroad Company prior to the work being performed.

**IV. RAILROAD INSURANCE REQUIREMENTS**

The Contractor shall confirm the insurance requirements with the Railroad as the insurance limits are subject to change without notice.

Insurance policies and corresponding certificates of insurance must be issued by the contractor on behalf of the Railroad. Separate insurance policies and certificates are required when more than one Railroad Company is operating on the same right of way, or when several Railroad Companies are involved and operate on their own separate right of ways.

No direct compensation will be made to the Contractor for providing the insurance coverages shown below or any deductibles. These costs are incidental to the various bid items.

Escalated Limits	
Type of Insurance	Amount of Coverage (Minimum)
Workers Compensation	\$500,000 / \$500,000 / \$500,000
Commercial General Liability	\$2,000,000 / \$4,000,000
Business Automobile	\$2,000,000

Railroad Protective Liability Limits	
<input type="checkbox"/> Not Required	
<input checked="" type="checkbox"/> Non - Bridge/Typical Maintenance Projects. Includes repairs to overpass/underpass and culvert structures	\$2,000,000 / \$6,000,000
<input type="checkbox"/> Bridge Structure Projects. Includes new construction or replacement of overpass/underpass structures	\$5,000,000 / \$10,000,000
<input type="checkbox"/> Other: _____	

**V. CONTRACTOR'S RIGHT OF ENTRY (CROE)**

Not Required  
 Required: UPRR Maintenance Consent Letter. TxDOT to assist  
 Required: TxDOT to assist in obtaining the UPRR CROE  
 Required: Contractor to obtain
 

- BNSF: \_\_\_\_\_  
https://bnsf.railpermitting.com
- KCS: \_\_\_\_\_  
https://jllrpg.360works.com/fmi/webd/rpo\_web\_kcs.fmp12
- Other Railroads: \_\_\_\_\_

To view previously approved CROE templates agreed upon between the State and Railroad, see: <https://www.txdot.gov/business/resources/railroad-highway-crossing/sample-right-of-entry-agreements.html>

Approved CROE templates are not to be modified by the Contractor.

Contractor shall not operate within Railroad Right of Way without an executed Construction & Maintenance Agreement between the State and the Railroad and an executed CROE between the Contractor and the Railroad if required on project.

**VI. RAILROAD COORDINATION MEETING**

A Railroad Coordination Meeting is required. See item 5, Article 8.1. of the Standard Specifications for Construction and Maintenance of Highways, Streets and Bridges Manual for more details.

**VII. RAILROAD SAFETY ORIENTATION**

A. Complete the Railroad's course "Orientation for Contractor's Safety," and maintain registration prior to working on the Railroad's property. This course is required to be completed annually by Contractor and Subcontractor personnel working on site.

UPRR, BNSF, KCS/TEXMEX will not accept on-track safety training certificates from other Railroads. Refer to each Railroad's specific contractor right of entry for training information.

Know and follow the Contractor's Right of Entry Agreement EXHIBIT D, MINIMUM SAFETY REQUIREMENTS regarding clothing, personal protective equipment, and general safety requirements.

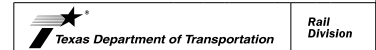
**VIII. SUBCONTRACTORS**

Contractor shall not subcontract work without written consent of TxDOT. Subcontractors are subject to the same insurance requirements as the Prime Contractor.

**IX. EMERGENCY NOTIFICATION**

**In Case of Railroad Emergency**  
 Call: Union Pacific Railroad Emergency Line  
 Railroad Emergency Line at: 800-848-8715  
 Location: DOT 789595P  
 RR Milepost: 431.73  
 Subdivision: PINE BLUFF

**RRD Review Only**  
 Initials: [Signature]  
 Date: 8/29/2023



**RAILROAD SCOPE OF WORK PROJECT SPECIFIC DETAILS**

FILE: r-scope-of-work.pdf	DR: TxDOT	CR:	DR:	CR:
© TxDOT June 2014	CONT	SECT	JOB	HIGHWAY
REVISIONS	0010	19	014	FM 991
3/2023	DIST	COUNTY	SHEET NO.	
	ATL	BOWIE	21	

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**I. WORK AT CROSSING LOCATIONS (AT GRADE, HIGHWAY OVERPASS, HIGHWAY UNDERPASS, PEDESTRIAN, OR CLOSED/ABANDONED)**

This project is adjacent or parallel work, not within RR ROW:  
 DOT No.: 794574G  
 Crossing Type: AT GRADE  
 RR Company Operating Track at Crossing: UNION PACIFIC  
 RR Company Owning Track at Crossing: UNION PACIFIC  
 RR MP: 53.49  
 RR Subdivision: LITTLE ROCK  
 City: RURAL  
 County: MARION  
 CSJ at this Crossing: 0138-12-026

Scope of Work, including any TCP, to be performed by State Contractor:

Seal Coat maintenance at FM 2208. Consisting of installing and maintaining traffic control devices, as well as spraying oil, laying rock and traffic pavement markings. If contractor performs seal coat operations outside of RR ROW, but creates a traffic contra-flow condition that causes vehicles to cross the railroad tracks in an opposing lane. A railroad flagger is also required to be on-site for the duration of the contra-flow traffic control plan with the UPRR ROW.

Scope of Work to be performed by Railroad Company:

Railroad Protective Flagging with the R.O.W. limits for seal coat operations.

**II. FLAGGING & INSPECTION**

No. of Days of Railroad Flagging Expected: 2  
 On this project, night or weekend flagging is:  
 Expected  
 Not Expected

Flagging services will be provided by:

Railroad Company: TxDOT will pay flagging invoices. Flagging Agreement with Railroad will be needed  
 Outside Party: Contractor will pay flagging invoices to be reimbursed by TxDOT

Contractor must incorporate flaggers into anticipated construction schedule. The Railroad requires a 30-day notice if their flaggers are to be utilized. If Contractor falls behind schedule due to their own negligence and is not ready for scheduled flaggers, any flagging charges will be paid by Contractor.

Contact Information for Flagging:

**UPRR** UP.info@railpros.com  
 Call Center 877-315-0513, Select #1 for flagging  
 UP.request@nrssinc.net  
 Call Center 877-984-677  
 **BNSF** BNSFinfo@railprosfs.com  
 Call Center 877-315-0513, Select #1 for flagging  
 **KCS** KCS.info@railpros.com  
 Call Center 877-315-0513, Select #1 for flagging  
 Bottom Line On-Track Safety Services  
 bottomline076@aol.com, 903-767-7630

OTHERS:

Contractor must incorporate Construction Inspection into anticipated construction schedule.

Not Required  
 Required. Contact Information for Construction Inspection:

**III. CONSTRUCTION WORK TO BE PERFORMED BY THE RAILROAD**

Required. Railroad Point of Contact: \_\_\_\_\_  
 Not Required

Coordinate with TxDOT for any work to be performed by the Railroad Company. TxDOT must issue a work order for any work done by the Railroad Company prior to the work being performed.

**IV. RAILROAD INSURANCE REQUIREMENTS**

The Contractor shall confirm the insurance requirements with the Railroad as the insurance limits are subject to change without notice.

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No direct compensation will be made to the Contractor for providing the insurance coverages shown below or any deductibles. These costs are incidental to the various bid items.

Escalated Limits	
Type of Insurance	Amount of Coverage (Minimum)
Workers Compensation	\$500,000 / \$500,000 / \$500,000
Commercial General Liability	\$2,000,000 / \$4,000,000
Business Automobile	\$2,000,000

Railroad Protective Liability Limits	
<input type="checkbox"/> Not Required	
<input checked="" type="checkbox"/> Non - Bridge/Typical Maintenance Projects. Includes repairs to overpass/underpass and culvert structures	\$2,000,000 / \$6,000,000
<input type="checkbox"/> Bridge Structure Projects. Includes new construction or replacement of overpass/underpass structures	\$5,000,000 / \$10,000,000
<input type="checkbox"/> Other: _____	

**V. CONTRACTOR'S RIGHT OF ENTRY (CROE)**

Not Required  
 Required: UPRR Maintenance Consent Letter. TxDOT to assist  
 Required: TxDOT to assist in obtaining the UPRR CROE  
 Required: Contractor to obtain  
 BNSF: \_\_\_\_\_  
                   <https://bnsf.railpermitting.com>  
 KCS  
                   [https://jllrpg.360works.com/fmi/webd/rpo\\_web\\_kcs.fmp12](https://jllrpg.360works.com/fmi/webd/rpo_web_kcs.fmp12)  
 Other Railroads: \_\_\_\_\_

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**VI. RAILROAD COORDINATION MEETING**

A Railroad Coordination Meeting is required. See item 5, Article 8.1. of the Standard Specifications for Construction and Maintenance of Highways, Streets and Bridges Manual for more details.

**VII. RAILROAD SAFETY ORIENTATION**

A. Complete the Railroad's course "Orientation for Contractor's Safety," and maintain registration prior to working on the Railroad's property. This course is required to be completed annually by Contractor and Subcontractor personnel working on site.

UPRR, BNSF, KCS/TEXMEX will not accept on-track safety training certificates from other Railroads. Refer to each Railroad's specific contractor right of entry for training information.

Know and follow the Contractor's Right of Entry Agreement EXHIBIT D, MINIMUM SAFETY REQUIREMENTS regarding clothing, personal protective equipment, and general safety requirements.

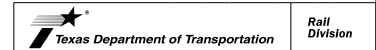
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Contractor shall not subcontract work without written consent of TxDOT. Subcontractors are subject to the same insurance requirements as the Prime Contractor.

**IX. EMERGENCY NOTIFICATION**

**In Case of Railroad Emergency**  
 Call: Union Pacific Railroad Emergency Line  
 Railroad Emergency Line at: 800-848-8715  
 Location: DOT 794574G  
 RR Milepost: 53.49  
 Subdivision: LITTLE ROCK

**RRD Review Only**  
 Initials: [Signature]  
 Date: 6/29/2023



**RAILROAD SCOPE OF WORK PROJECT SPECIFIC DETAILS**

FILE: r-scope-of-work.pdf	DN: TxDOT	DN:	DN:	DN:
© TxDOT June 2014	CONT	SECT	JOB	HIGHWAY
REVISIONS	0010	19	014	FM 991
3/2023	DIST	COUNTY	SHEET NO.	
	ATL	BOWIE	22	

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This project is adjacent or parallel work, not within RR ROW:  
 DOT No.: 789524T  
 Crossing Type: AT GRADE  
 RR Company Operating Track at Crossing: UNION PACIFIC  
 RR Company Owning Track at Crossing: UNION PACIFIC  
 RR MP: 472.33  
 RR Subdivision: PINE BLUFF  
 City: RURAL  
 County: TITUS  
 CSJ at this Crossing: 1226-01-019

Scope of Work, including any TCP, to be performed by State Contractor:

Seal Coat maintenance at FM 1000. Consisting of installing and maintaining traffic control devices, as well as spraying oil, laying rock and traffic pavement markings. If contractor performs seal coat operations outside of RR ROW, but creates a traffic contra-flow condition that causes vehicles to cross the railroad tracks in an opposing lane. A railroad flagger is also required to be on-site for the duration of the contra-flow traffic control plan with the UPRR ROW.

Scope of Work to be performed by Railroad Company:

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No. of Days of Railroad Flagging Expected: 2  
 On this project, night or weekend flagging is:  
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 Not Expected

Flagging services will be provided by:

Railroad Company: TxDOT will pay flagging invoices. Flagging Agreement with Railroad will be needed  
 Outside Party: Contractor will pay flagging invoices to be reimbursed by TxDOT

Contractor must incorporate flaggers into anticipated construction schedule. The Railroad requires a 30-day notice if their flaggers are to be utilized. If Contractor falls behind schedule due to their own negligence and is not ready for scheduled flaggers, any flagging charges will be paid by Contractor.

Contact Information for Flagging:

**UPRR** UP.info@railpros.com  
 Call Center 877-315-0513, Select #1 for flagging  
 UP.request@nrssinc.net  
 Call Center 877-984-677  
 **BNSF** BNSFinfo@railprofs.com  
 Call Center 877-315-0513, Select #1 for flagging  
 **KCS** KCS.info@railpros.com  
 Call Center 877-315-0513, Select #1 for flagging  
 Bottom Line On-Track Safety Services  
 bottomline076@aol.com, 903-767-7630

OTHERS:   
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

Contractor must incorporate Construction Inspection into anticipated construction schedule.

Not Required  
 Required. Contact Information for Construction Inspection:

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Required. Railroad Point of Contact: \_\_\_\_\_  
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 Required: UPRR Maintenance Consent Letter. TxDOT to assist  
 Required: TxDOT to assist in obtaining the UPRR CROE  
 Required: Contractor to obtain
 

- BNSF: \_\_\_\_\_  
https://bnsf.railpermitting.com
- KCS \_\_\_\_\_  
https://jllrpg.360works.com/fmi/webd/rpo\_web\_kcs.fmp12
- Other Railroads: \_\_\_\_\_

To view previously approved CROE templates agreed upon between the State and Railroad, see: <https://www.txdot.gov/business/resources/railroad-highway-crossing/sample-right-of-entry-agreements.html>

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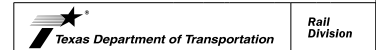
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**IX. EMERGENCY NOTIFICATION**

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 Call: Union Pacific Railroad Emergency Line  
 Railroad Emergency Line at: 800-848-8715  
 Location: DOT 789524T  
 RR Milepost: 472.33  
 Subdivision: PINE BLUFF

**RRD Review Only**  
 Initials: [Signature]  
 Date: 8/29/2023

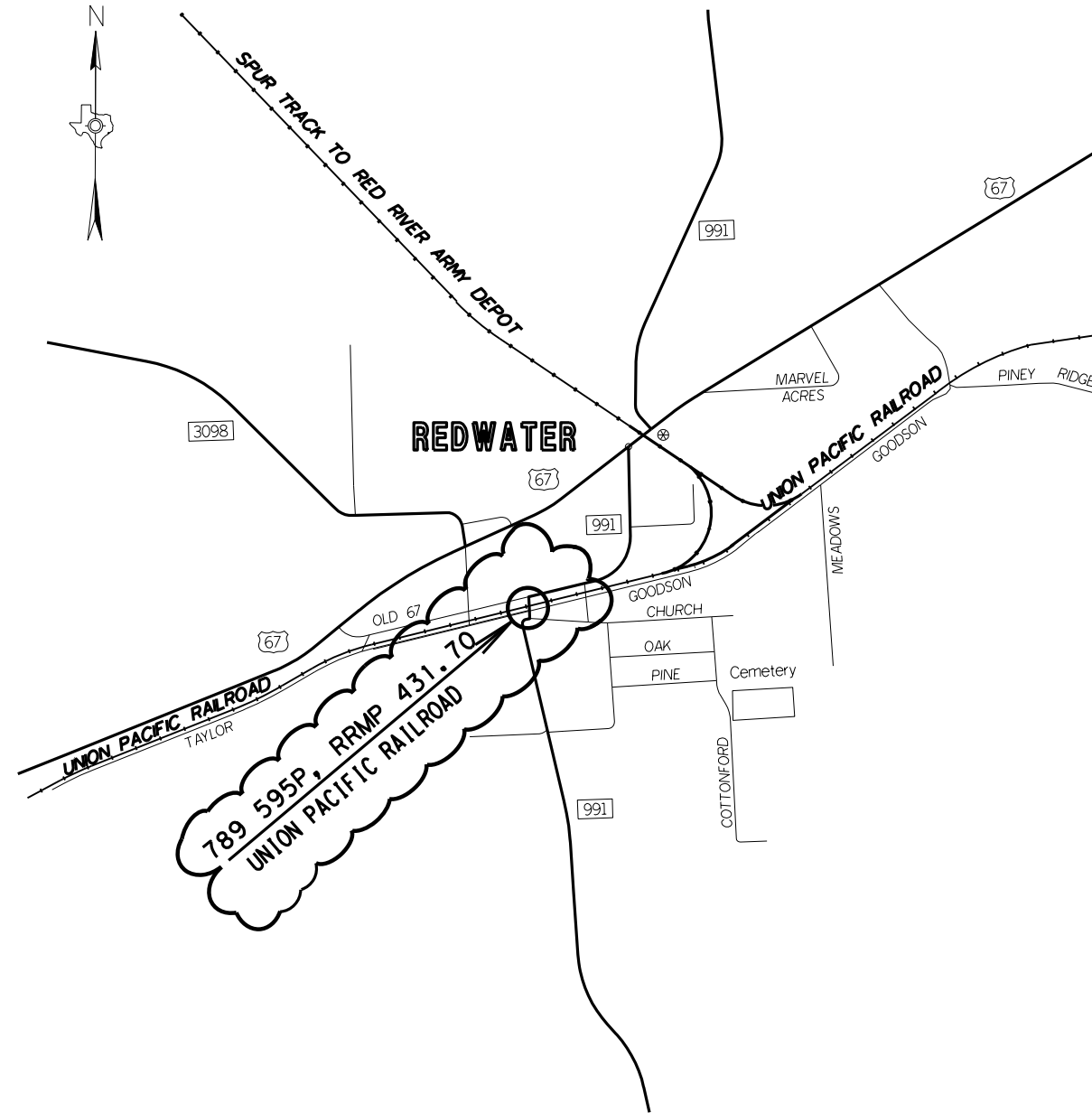


**RAILROAD SCOPE OF WORK PROJECT SPECIFIC DETAILS**

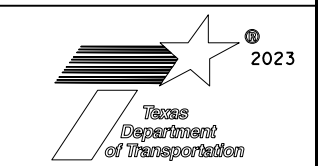
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© TxDOT June 2014	CONT	SECT	JOB	HIGHWAY
REVISIONS	0010	19	014	FM 991
3/2023	DIST	COUNTY	SHEET NO.	
	ATL	BOWIE	23	



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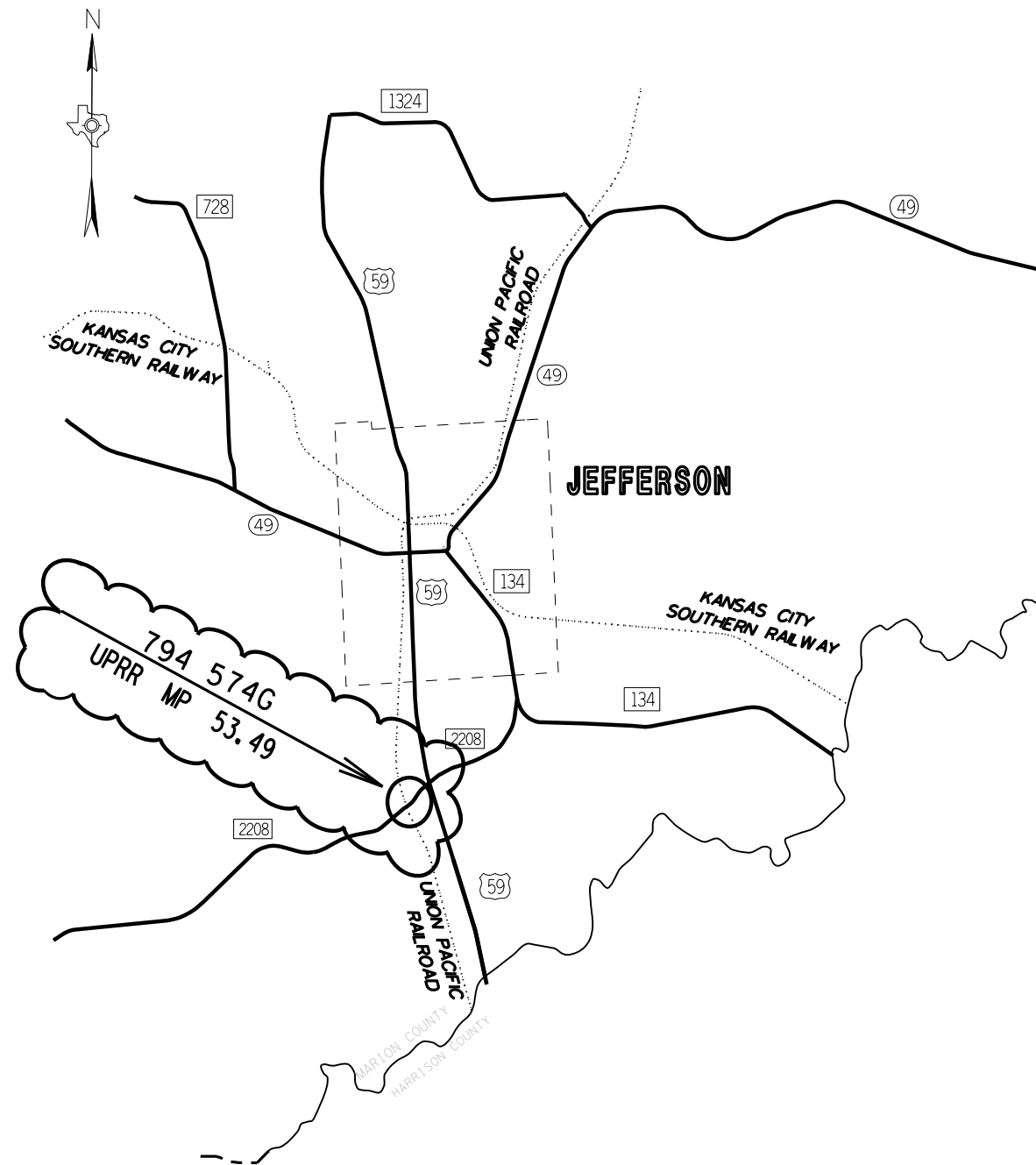
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 FM 991  
 BOWIE CO.



NOT TO SCALE

CONT	SECT	JOB	HIGHWAY
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DIST	COUNTY		SHEET NO.
ATL	BOWIE		24

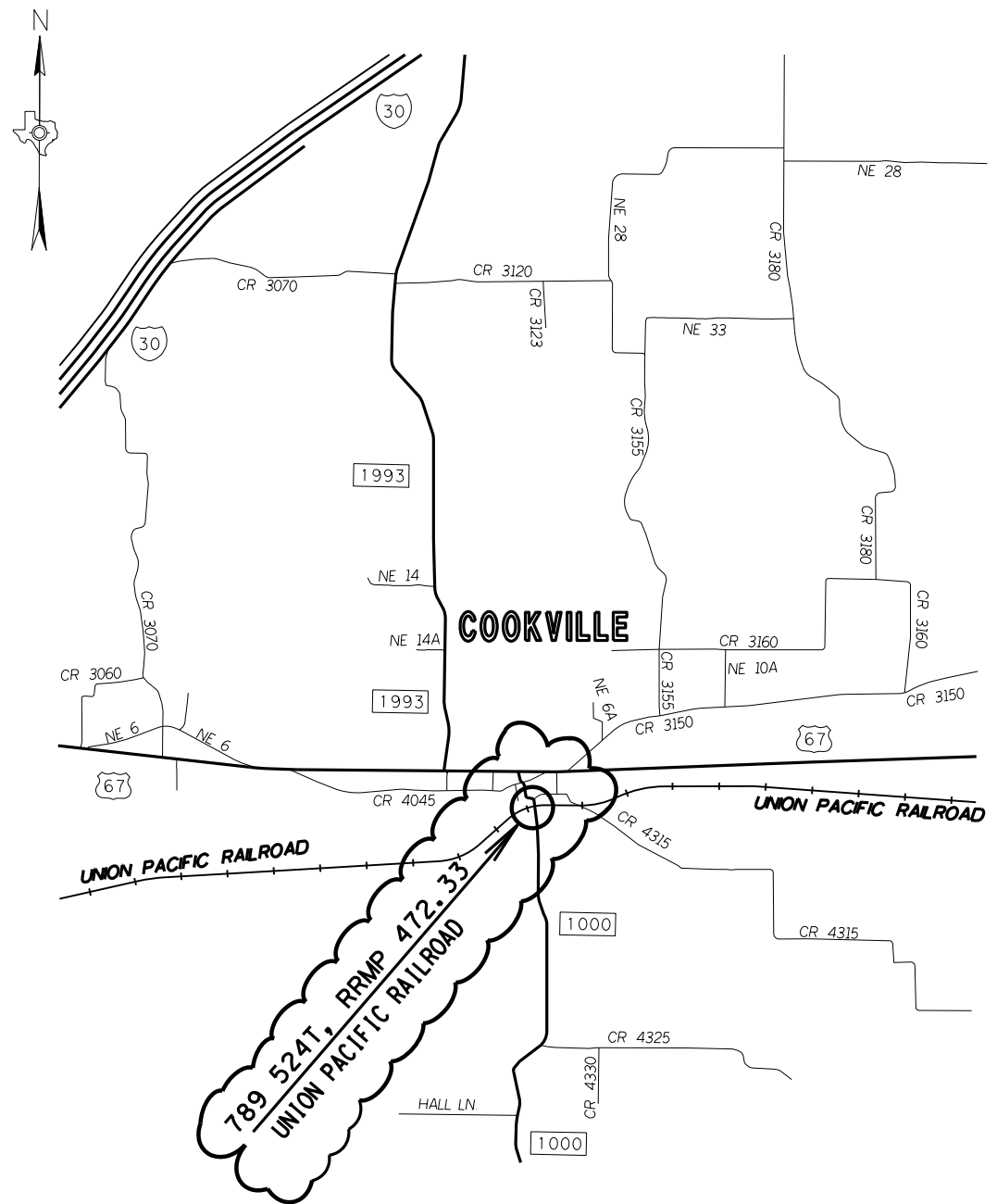
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LOCATION MAP  
 FM 2208  
 MARION CO.

CONT	SECT	JOB	HIGHWAY
0010	19	014	FM 991
DIST	COUNTY		SHEET NO.
ATL	BOWIE		25

NOT TO SCALE



LOCATION MAP  
 FM 1000  
 TITUS CO.

NOT TO SCALE

2023

CONT	SECT	JOB	HIGHWAY
0010	19	014	FM 991
DIST	COUNTY		SHEET NO.
ATL	BOWIE		26

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**BARRICADE AND CONSTRUCTION (BC) STANDARD SHEETS GENERAL NOTES:**

- The Barricade and Construction Standard Sheets (BC sheets) are intended to show typical examples for placement of temporary traffic control devices, construction pavement markings, and typical work zone signs. The information contained in these sheets meet or exceed the requirements shown in the "Texas Manual on Uniform Traffic Control Devices" (TMUTCD).
- The development and design of the Traffic Control Plan (TCP) is the responsibility of the Engineer.
- The Contractor may propose changes to the TCP that are signed and sealed by a licensed professional engineer for approval. The Engineer may develop, sign and seal Contractor proposed changes.
- The Contractor is responsible for installing and maintaining the traffic control devices as shown in the plans. The Contractor may not move or change the approximate location of any device without the approval of the Engineer.
- Geometric design of lane shifts and detours should, when possible, meet the applicable design criteria contained in manuals such as the American Association of State Highway and Transportation Officials (AASHTO), "A Policy on Geometric Design of Highways and Streets," the TxDOT "Roadway Design Manual" or engineering judgment.
- When projects abut, the Engineer(s) may omit the END ROAD WORK, TRAFFIC FINES DOUBLE, and other advance warning signs if the signing would be redundant and the work areas appear continuous to the motorists. If the adjacent project is completed first, the Contractor shall erect the necessary warning signs as shown on these sheets, the TCP sheets or as directed by the Engineer. The BEGIN ROAD WORK NEXT X MILES sign shall be revised to show appropriate work zone distance.
- The Engineer may require duplicate warning signs on the median side of divided highways where median width will permit and traffic volumes justify the signing.
- All signs shall be constructed in accordance with the details found in the "Standard Highway Sign Designs for Texas," latest edition. Sign details not shown in this manual shall be shown in the plans or the Engineer shall provide a detail to the Contractor before the sign is manufactured.
- The temporary traffic control devices shown in the illustrations of the BC sheets are examples. As necessary, the Engineer will determine the most appropriate traffic control devices to be used.
- Where highway construction or maintenance work is being undertaken, other than mobile operations as defined by the Texas Manual on Uniform Traffic Control Devices, CSJ limit signs are required. CSJ limit signs are shown on BC(2). The OBEY WARNING SIGNS STATE LAW sign, STAY ALERT TALK OR TEXT LATER and the WORK ZONE TRAFFIC FINES DOUBLE sign with plaque shall be erected in advance of the CSJ limits. The BEGIN ROAD WORK NEXT X MILES, CONTRACTOR and END ROAD WORK signs shall be erected at or near the CSJ limits. For mobile operations, CSJ limit signs are not required.
- Traffic control devices should be in place only while work is actually in progress or a definite need exists.
- The Engineer has the final decision on the location of all traffic control devices.
- Inactive equipment and work vehicles, including workers' private vehicles must be parked away from travel lanes. They should be as close to the right-of-way line as possible, or located behind a barrier or guardrail, or as approved by the Engineer.

**WORKER SAFETY NOTES:**


- Workers on foot who are exposed to traffic or to construction equipment within the right-of-way shall wear high-visibility safety apparel meeting the requirements of ISEA "American National Standard for High-Visibility Apparel," or equivalent revisions, and labeled as ANSI 107-2004 standard performance for Class 2 or 3 risk exposure. Class 3 garments should be considered for high traffic volume work areas or night time work.
- Except in emergency situations, flagger stations shall be illuminated when flagging is used at night.

**COMPLIANT WORKZONE TRAFFIC CONTROL DEVICES**

- Only pre-qualified products shall be used. The "Compliant Work Zone Traffic Control Devices List" (CWZTCD) describes pre-qualified products and their sources.
- Work zone traffic control devices shall be compliant with the Manual for Assessing safety Hardware (MASH).

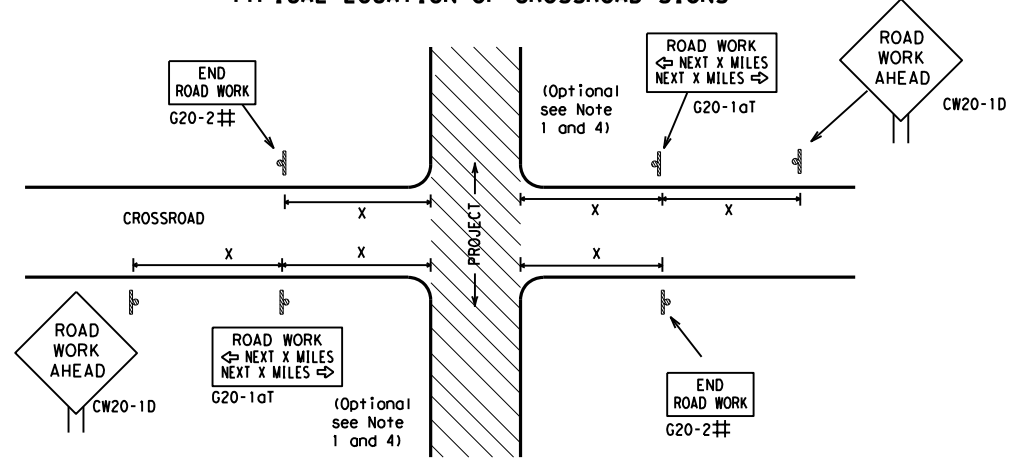
<b>THE DOCUMENTS BELOW CAN BE FOUND ON-LINE AT</b> <a href="http://www.txdot.gov">http://www.txdot.gov</a>
COMPLIANT WORK ZONE TRAFFIC CONTROL DEVICES LIST (CWZTCD)
DEPARTMENTAL MATERIAL SPECIFICATIONS (DMS)
MATERIAL PRODUCER LIST (MPL)
ROADWAY DESIGN MANUAL - SEE "MANUALS (ONLINE MANUALS) "
STANDARD HIGHWAY SIGN DESIGNS FOR TEXAS (SHSD)
TEXAS MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (TMUTCD)
TRAFFIC ENGINEERING STANDARD SHEETS

SHEET 1 OF 12

 Texas Department of Transportation		Traffic Safety Division Standard	
<b>BARRICADE AND CONSTRUCTION GENERAL NOTES AND REQUIREMENTS</b>			
<b>BC (1) - 21</b>			
FILE:	bc-21.dgn	DN:	TxDOT
© TxDOT	November 2002	CK:	TxDOT
		DW:	TxDOT
		CK:	TxDOT
		CONT	SECT
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		JOB	HIGHWAY
		014	FM 991
		DIST	COUNTY
		ATL	BOWIE
		SHEET NO.	27

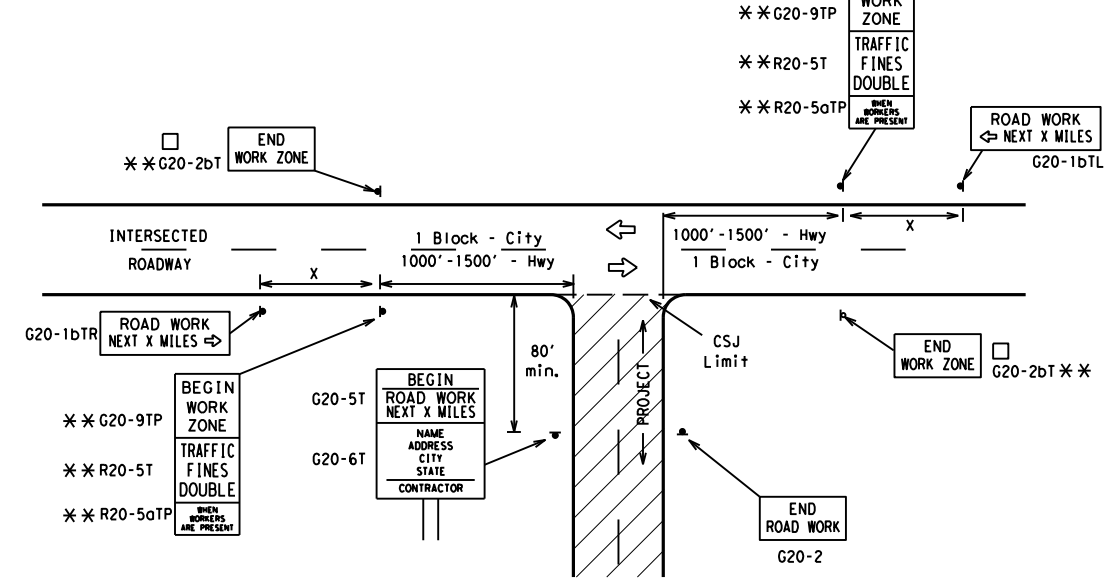
DISCLAIMER: The use of this standard is governed by the "Texas Engineering Practice Act". No warranty of any kind is made by TxDOT for any purpose whatsoever. TxDOT assumes no responsibility for the conversion of units or the use of this standard in any project.

**TYPICAL LOCATION OF CROSSROAD SIGNS**



- ## May be mounted on back of "ROAD WORK AHEAD" (CW20-1D) sign with approval of Engineer. (See note 2 below)
- The typical minimum signing on a crossroad approach should be a "ROAD WORK AHEAD" (CW20-1D) sign and a (G20-2) "END ROAD WORK" sign, unless noted otherwise in plans.
  - The Engineer may use the reduced size 36" x 36" ROAD WORK AHEAD (CW20-1D) sign mounted back to back with the reduced size 36" x 18" "END ROAD WORK" (G20-2) sign on low volume crossroads (see Note 4 under "Typical Construction Warning Sign Size and Spacing"). See the "Standard Highway Sign Designs for Texas" manual for sign details. The Engineer may omit the advance warning signs on low volume crossroads. The Engineer will determine whether a road is low volume as per TMUTCD Part 5. This information shall be shown in the plans.
  - Based on existing field conditions, the Engineer/Inspector may require additional signs such as FLAGGER AHEAD, LOOSE GRAVEL, or other appropriate signs. When additional signs are required, these signs will be considered part of the minimum requirements. The Engineer/Inspector will determine the proper location and spacing of any sign not shown on the BC sheets, Traffic Control Plan sheets or the Work Zone Standard Sheets.
  - The "ROAD WORK NEXT X MILES" (G20-1aT) sign shall be required at high volume crossroads to advise motorists of the length of construction in either direction from the intersection. The Engineer will determine whether a roadway is considered high volume.
  - Additional traffic control devices may be shown elsewhere in the plans for higher volume crossroads.
  - When work occurs in the intersection area, appropriate traffic control devices, as shown elsewhere in the plans or as determined by the Engineer/Inspector, shall be in place.

**T-INTERSECTION**



**CSJ LIMITS AT T-INTERSECTION**

- The Engineer will determine the types and location of any additional traffic control devices, such as a flagger and accompanying signs, or other signs, that should be used when work is being performed at or near an intersection.
- If construction closes the road at a T-intersection, the Contractor shall place the "CONTRACTOR NAME" (G20-6T) sign behind the Type 3 Barricades for the road closure (see BC(10) also). The "ROAD WORK NEXT X MILES" left arrow (G20-1bTL) and "ROAD WORK NEXT X MILES" right arrow (G20-1bTR) signs shall be replaced by the detour signing called for in the plans.

**TYPICAL CONSTRUCTION WARNING SIGN SIZE AND SPACING<sup>1,5,6</sup>**

Sign Number or Series	SIZE		SPACING	
	Conventional Road	Expressway/Freeway	Posted Speed MPH	Sign Δ Spacing "x" Feet (Apprx.)
CW20 <sup>4</sup>	48" x 48"	48" x 48"	30	120
CW21			35	160
CW22			40	240
CW23			45	320
CW1, CW2, CW7, CW8, CW9, CW11, CW14	36" x 36"	48" x 48"	50	400
CW3, CW4, CW5, CW6, CW8-3, CW10, CW12	48" x 48"	48" x 48"	60	600 <sup>2</sup>
			65	700 <sup>2</sup>
			70	800 <sup>2</sup>
			75	900 <sup>2</sup>
			80	1000 <sup>2</sup>
			*	* <sup>3</sup>

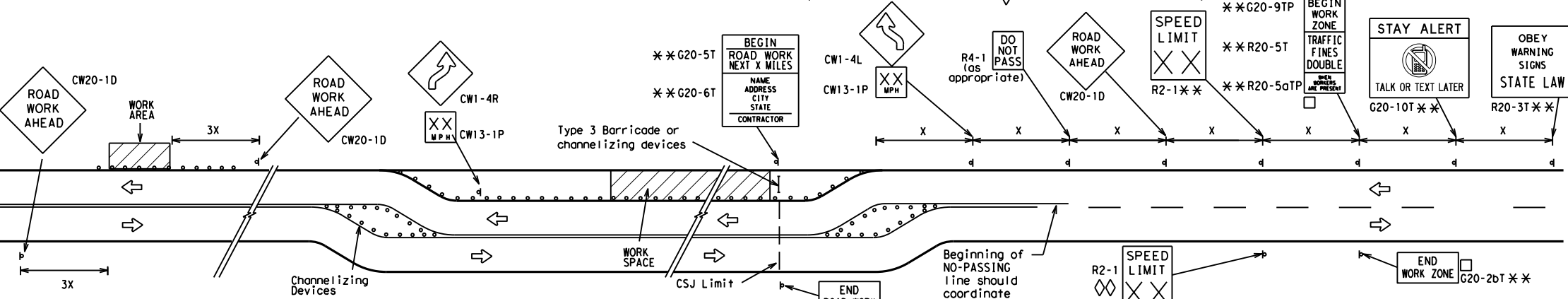
\* For typical sign spacings on divided highways, expressways and freeways, see Part 6 of the "Texas Manual on Uniform Traffic Control Devices" (TMUTCD) typical application diagrams or TCP Standard Sheets.

Δ Minimum distance from work area to first Advance Warning sign nearest the work area and/or distance between each additional sign.

**GENERAL NOTES**

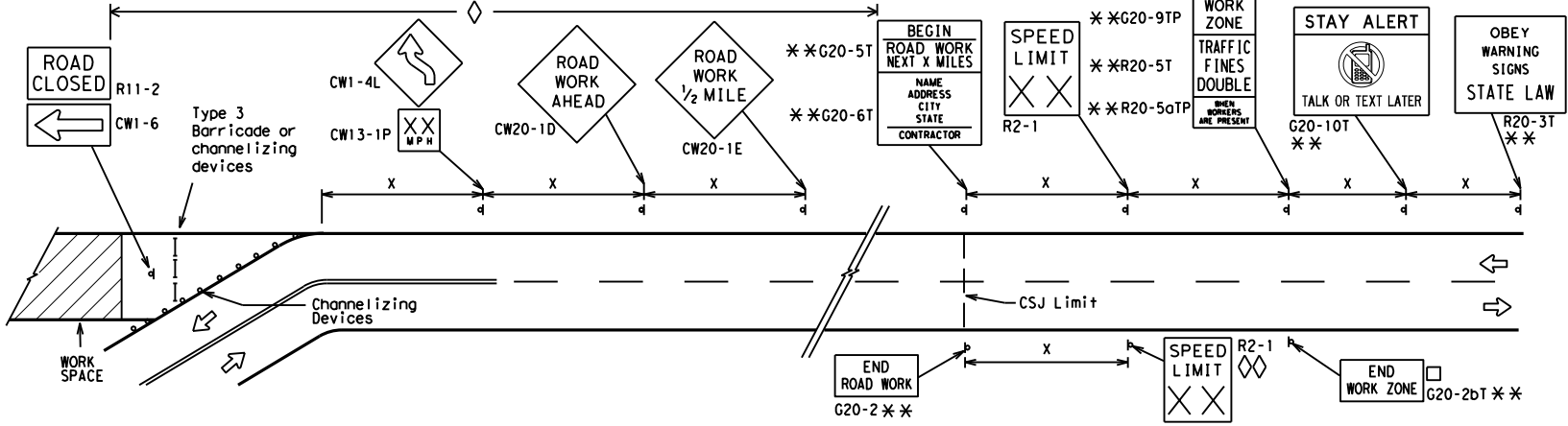
- Special or larger size signs may be used as necessary.
- Distance between signs should be increased as required to have 1500 feet advance warning.
- Distance between signs should be increased as required to have 1/2 mile or more advance warning.
- 36" x 36" "ROAD WORK AHEAD" (CW20-1D) signs may be used on low volume crossroads at the discretion of the Engineer as per TMUTCD Part 5. See Note 2 under "Typical Location of Crossroad Signs".
- Only diamond shaped warning sign sizes are indicated.
- See sign size listing in "TMUTCD", Sign Appendix or the "Standard Highway Sign Designs for Texas" manual for complete list of available sign design sizes.

**WORK AREAS IN MULTIPLE LOCATIONS WITHIN CSJ LIMITS**

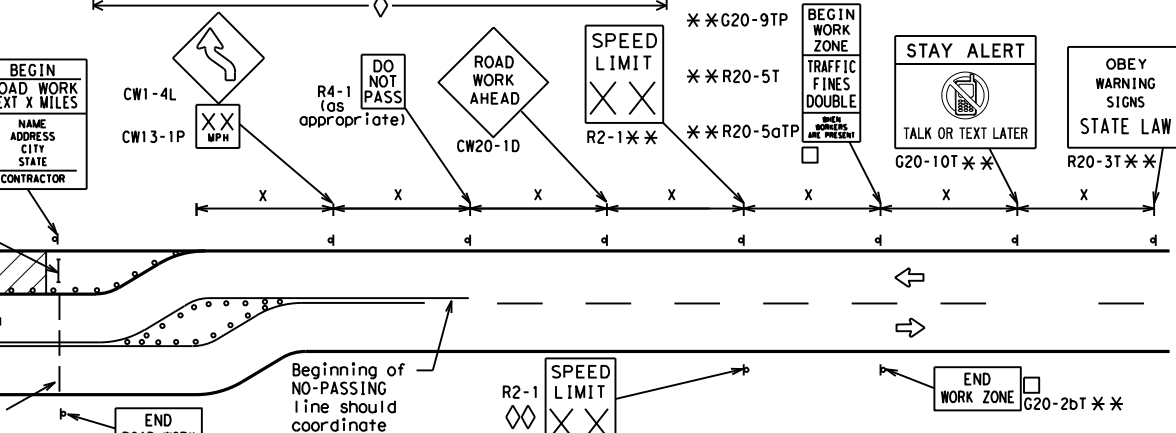


When extended distances occur between minimal work spaces, the Engineer/Inspector should ensure additional "ROAD WORK AHEAD" (CW20-1D) signs are placed in advance of these work areas to remind drivers they are still within the project limits. See the applicable TCP sheets for exact location and spacing of signs and channelizing devices.

**SAMPLE LAYOUT OF SIGNING FOR WORK BEGINNING DOWNSTREAM OF THE CSJ LIMITS**



**SAMPLE LAYOUT OF SIGNING FOR WORK BEGINNING AT THE CSJ LIMITS**



**NOTES**

- The Contractor shall determine the appropriate distance to be placed on the G20-1 series signs and "BEGIN ROAD WORK NEXT X MILES" (G20-5T) sign for each specific project. This distance shall replace the "x" and shall be rounded to the nearest whole mile with the approval of the Engineer. No decimals shall be used.
- The "BEGIN WORK ZONE" (G20-9TP) and "END WORK ZONE" (G20-2bT) shall be used as shown on the sample layout when advance signs are required outside the CSJ Limits. They inform the motorist of entering or leaving a part of the work zone lying outside the CSJ Limits where traffic fines may double if workers are present.
  - CSJ limit signing is required for highway construction and maintenance work, with the exception of mobile operations.
  - Area for placement of "ROAD WORK AHEAD" (CW20-1D) sign and other signs or devices as called for on the Traffic Control Plan.
  - Contractor will install a regulatory speed limit sign at the end of the work zone.

**LEGEND**

—	Type 3 Barricade
○ ○ ○	Channelizing Devices
■	Sign
X	See Typical Construction Warning Sign Size and Spacing chart or the TMUTCD for sign spacing requirements.

SHEET 2 OF 12



**BARRICADE AND CONSTRUCTION PROJECT LIMIT**

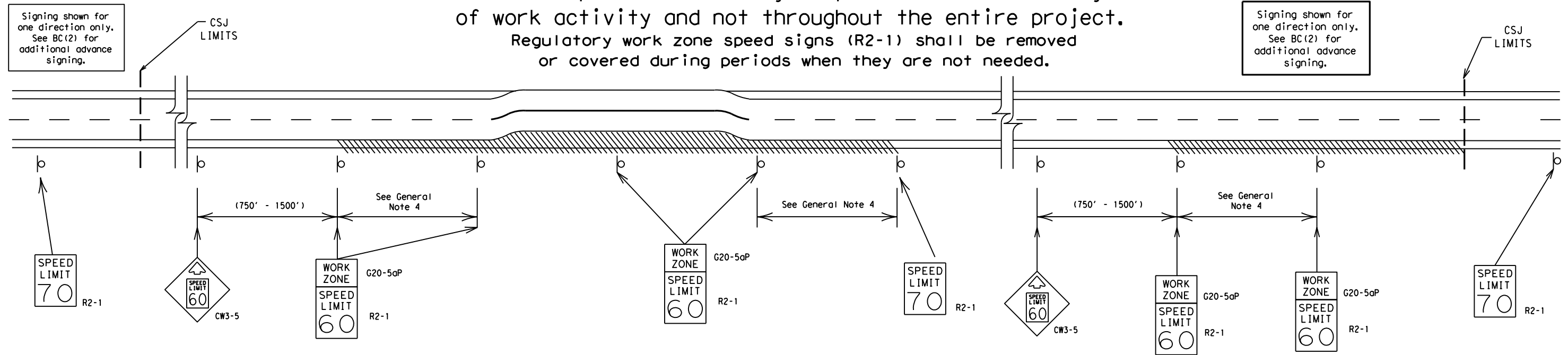
**BC(2)-21**

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© TxDOT November 2002	CONT	SECT	JOB	HIGHWAY
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9-07 8-14	DIST	COUNTY	SHEET NO.	
7-13 5-21	ATL	BOWIE	28	

# TYPICAL APPLICATION OF WORK ZONE SPEED LIMIT SIGNS

Work zone speed limits shall be regulatory, established in accordance with the "Procedures for Establishing Speed Zones," and approved by the Texas Transportation Commission, or by City Ordinance when within Incorporated City Limits.

Reduced speeds should only be posted in the vicinity of work activity and not throughout the entire project. Regulatory work zone speed signs (R2-1) shall be removed or covered during periods when they are not needed.



## GUIDANCE FOR USE:

### LONG/INTERMEDIATE TERM WORK ZONE SPEED LIMITS

This type of work zone speed limit should be included on the design of the traffic control plans when restricted geometrics with a lower design speed are present in the work zone and modification of the geometrics to a higher design speed is not feasible.

Long/Intermediate Term Work Zone Speed Limit signs, when approved as described above, should be posted and visible to the motorist when work activity is present. Work activity may also be defined as a change in the roadway that requires a reduced speed for motorists to safely negotiate the work area, including:

- rough road or damaged pavement surface
- substantial alteration of roadway geometrics (diversions)
- construction detours
- grade
- width
- other conditions readily apparent to the driver

As long as any of these conditions exist, the work zone speed limit signs should remain in place.

### SHORT TERM WORK ZONE SPEED LIMITS

This type of work zone speed limit may be included on the design of the traffic control plans when workers or equipment are not behind concrete barrier, when work activity is within 10 feet of the traveled way or actually in the traveled way.

Short Term Work Zone Speed Limit signs should be posted and visible to the motorists only when work activity is present. When work activity is not present, signs shall be removed or covered. (See Removing or Covering on BC(4)).

## GENERAL NOTES

- Regulatory work zone speed limits should be used only for sections of construction projects where speed control is of major importance.
- Regulatory work zone speed limit signs shall be placed on supports at a 7 foot minimum mounting height.
- Speed zone signs are illustrated for one direction of travel and are normally posted for each direction of travel.
- Frequency of work zone speed limit signs should be:
 

40 mph and greater	0.2 to 2 miles
35 mph and less	0.2 to 1 mile
- Regulatory speed limit signs shall have black legend and border on a white reflective background (See "Reflective Sheeting" on BC(4)).
- Fabrication, erection and maintenance of the "ADVANCE SPEED LIMIT" (CW3-5) sign, "WORK ZONE" (G20-5aP) plaque and the "SPEED LIMIT" (R2-1) signs shall not be paid for directly, but shall be considered subsidiary to Item 502.
- Turning signs from view, laying signs over or down will not be allowed, unless as otherwise noted under "REMOVING OR COVERING" on BC(4).
- Techniques that may help reduce traffic speeds include but are not limited to:
  - Law enforcement.
  - Flagger stationed next to sign.
  - Portable changeable message sign (PCMS).
  - Low-power (drone) radar transmitter.
  - Speed monitor trailers or signs.
- Speeds shown on details above are for illustration only. Work Zone Speed Limits should only be posted as approved for each project.
- For more specific guidance concerning the type of work, work zone conditions and factors impacting allowable regulatory construction speed zone reduction see TxDOT form #1204 in the TxDOT e-form system.

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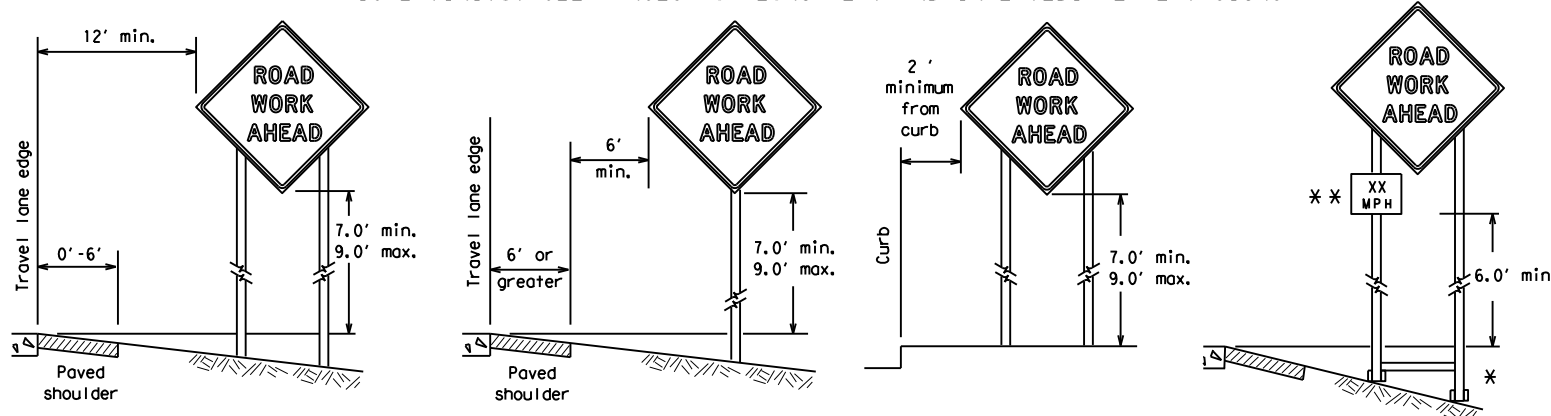
SHEET 3 OF 12

		Traffic Safety Division Standard	
<h2>BARRICADE AND CONSTRUCTION WORK ZONE SPEED LIMIT</h2>			
<h3>BC (3) - 21</h3>			
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© TxDOT	November 2002	CONT	SECT
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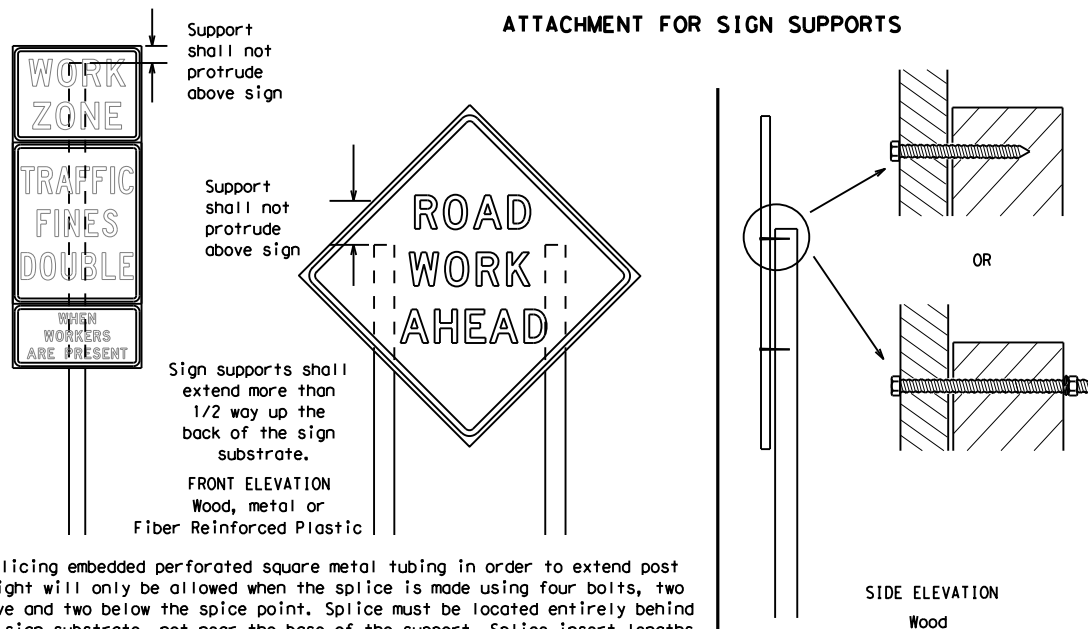
**TYPICAL MINIMUM CLEARANCES FOR LONG TERM AND INTERMEDIATE TERM SIGNS**



\* When placing skid supports on unlevel ground, the leg post lengths must be adjusted so the sign appears straight and plumb. Objects shall NOT be placed under skids as a means of leveling.

\*\* When plaques are placed on dual-leg supports, they should be attached to the upright nearest the travel lane. Supplemental plaques (advisory or distance) should not cover the surface of the parent sign.

**ATTACHMENT FOR SIGN SUPPORTS**

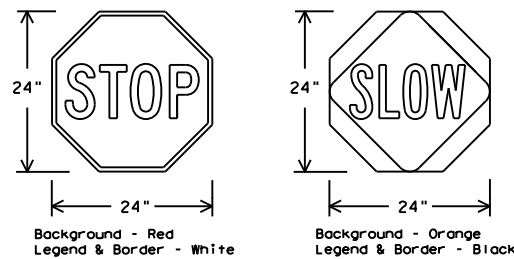


**Nails shall NOT be allowed.**  
 Each sign shall be attached directly to the sign support. Multiple signs shall not be joined or spliced by any means. Wood supports shall not be extended or repaired by splicing or other means.

Splicing embedded perforated square metal tubing in order to extend post height will only be allowed when the splice is made using four bolts, two above and two below the splice point. Splice must be located entirely behind the sign substrate, not near the base of the support. Splice insert lengths should be at least 5 times nominal post size, centered on the splice and of at least the same gauge material.

**STOP/SLOW PADDLES**

1. STOP/SLOW paddles are the primary method to control traffic by flaggers. The STOP/SLOW paddle size should be 24" x 24".
2. STOP/SLOW paddles shall be retroreflective when used at night.
3. STOP/SLOW paddles may be attached to a staff with a minimum length of 6' to the bottom of the sign.
4. Any lights incorporated into the STOP or SLOW paddle faces shall only be as specifically described in Section 6E.03 Hand Signaling Devices in the TMUTCD.



SHEETING REQUIREMENTS (WHEN USED AT NIGHT)		
USAGE	COLOR	SIGN FACE MATERIAL
BACKGROUND	RED	TYPE B OR C SHEETING
BACKGROUND	ORANGE	TYPE B <sub>FL</sub> OR C <sub>FL</sub> SHEETING
LEGEND & BORDER	WHITE	TYPE B OR C SHEETING
LEGEND & BORDER	BLACK	ACRYLIC NON-REFLECTIVE FILM

**CONTRACTOR REQUIREMENTS FOR MAINTAINING PERMANENT SIGNS WITHIN THE PROJECT LIMITS**

1. Permanent signs are used to give notice of traffic laws or regulations, call attention to conditions that are potentially hazardous to traffic operations, show route designations, destinations, directions, distances, services, points of interest, and other geographical, recreational, specific service (LOGO), or cultural information. Drivers proceeding through a work zone need the same, if not better route guidance as normally installed on a roadway without construction.
2. When permanent regulatory or warning signs conflict with work zone conditions, remove or cover the permanent signs until the permanent sign message matches the roadway condition. For details for covering large guide signs see the TS-CD standard.
3. When existing permanent signs are moved and relocated due to construction purposes, they shall be visible to motorists at all times.
4. If existing signs are to be relocated on their original supports, they shall be installed on crashworthy bases as shown on the SMD Standard sheets. The signs shall meet the required mounting heights shown on the BC Sheets or the SMD Standards. This work should be paid for under the appropriate pay item for relocating existing signs.
5. If permanent signs are to be removed and relocated using temporary supports, the Contractor shall use crashworthy supports as shown on the BC standard sheets, TLRs standard sheets or the CWZTC list. The signs shall meet the required mounting heights shown on the BC, or the SMD standard sheets during construction. This work should be paid for under the appropriate pay item for relocating existing signs.
6. Any sign or traffic control device that is struck or damaged by the Contractor or his/her construction equipment shall be replaced as soon as possible by the Contractor to ensure proper guidance for the motorists. This will be subsidiary to Item 502.

**GENERAL NOTES FOR WORK ZONE SIGNS**

1. Contractor shall install and maintain signs in a straight and plumb condition and/or as directed by the Engineer.
2. Wooden sign posts shall be painted white.
3. Barricades shall NOT be used as sign supports.
4. All signs shall be installed in accordance with the plans or as directed by the Engineer. Signs shall be used to regulate, warn, and guide the traveling public safely through the work zone.
5. The Contractor may furnish either the sign design shown in the plans or in the "Standard Highway Sign Designs for Texas" (SHSD). The Engineer/Inspector may require the Contractor to furnish other work zone signs that are shown in the TMUTCD but may have been omitted from the plans. Any variation in the plans shall be documented by written agreement between the Engineer and the Contractor's Responsible Person. All changes must be documented in writing before being implemented. This can include documenting the changes in the Inspector's TxDOT diary and having both the Inspector and Contractor initial and date the agreed upon changes.
6. The Contractor shall furnish sign supports listed in the "Compliant Work Zone Traffic Control Device List" (CWZTC) for small roadside signs. Supports for temporary large roadside signs shall meet the requirements detailed on the Temporary Large Roadside Signs (TLRS) standard sheets. The Contractor shall install the sign support in accordance with the manufacturer's recommendations. If there is a question regarding installation procedures, the Contractor shall furnish the Engineer a copy of the manufacturer's installation recommendations so the Engineer can verify the correct procedures are being followed.
7. The Contractor is responsible for installing signs on approved supports and replacing signs with damaged or cracked substrates and/or damaged or marred reflective sheeting as directed by the Engineer/Inspector.
8. Identification markings may be shown only on the back of the sign substrate. The maximum height of letters and/or company logos used for identification shall be 1 inch.
9. The Contractor shall replace damaged wood posts. New or damaged wood sign posts shall not be spliced.

**DURATION OF WORK (as defined by the "Texas Manual on Uniform Traffic Control Devices" Part 6)**

1. The types of sign supports, sign mounting height, the size of signs, and the type of sign substrates can vary based on the type of work being performed. The Engineer is responsible for selecting the appropriate size sign for the type of work being performed. The Contractor is responsible for ensuring the sign support, sign mounting height and substrate meets manufacturer's recommendations in regard to crashworthiness and duration of work requirements.
  - a. Long-term stationary - work that occupies a location more than 3 days.
  - b. Intermediate-term stationary - work that occupies a location more than one daylight period up to 3 days, or nighttime work lasting more than one hour.
  - c. Short-term stationary - daytime work that occupies a location for more than 1 hour in a single daylight period.
  - d. Short, duration - work that occupies a location up to 1 hour.
  - e. Mobile - work that moves continuously or intermittently (stopping for up to approximately 15 minutes.)

**SIGN MOUNTING HEIGHT**

1. The bottom of Long-term/Intermediate-term signs shall be at least 7 feet, but not more than 9 feet, above the paved surface, except as shown for supplemental plaques mounted below other signs.
2. The bottom of Short-term/Short Duration signs shall be a minimum of 1 foot above the pavement surface but no more than 2 feet above the ground.
3. Long-term/Intermediate-term Signs may be used in lieu of Short-term/Short Duration signing.
4. Short-term/Short Duration signs shall be used only during daylight and shall be removed at the end of the workday or raised to appropriate Long-term/Intermediate sign height.
5. Regulatory signs shall be mounted at least 7 feet, but not more than 9 feet, above the paved surface regardless of work duration.

**SIZE OF SIGNS**

1. The Contractor shall furnish the sign sizes shown on BC (2) unless otherwise shown in the plans or as directed by the Engineer.

**SIGN SUBSTRATES**

1. The Contractor shall ensure the sign substrate is installed in accordance with the manufacturer's recommendations for the type of sign support that is being used. The CWZTC lists each substrate that can be used on the different types and models of sign supports.
2. "Mesh" type materials are NOT an approved sign substrate, regardless of the tightness of the weave.
3. All wooden individual sign panels fabricated from 2 or more pieces shall have one or more plywood cleat, 1/2" thick by 6" wide, fastened to the back of the sign and extending fully across the sign. The cleat shall be attached to the back of the sign using wood screws that do not penetrate the face of the sign panel. The screws shall be placed on both sides of the splice and spaced at 6" centers. The Engineer may approve other methods of splicing the sign face.

**REFLECTIVE SHEETING**

1. All signs shall be retroreflective and constructed of sheeting meeting the color and retro-reflectivity requirements of DMS-8300 for rigid signs or DMS-8310 for roll-up signs. The web address for DMS specifications is shown on BC(1).
2. White sheeting, meeting the requirements of DMS-8300 Type A, shall be used for signs with a white background.
3. Orange sheeting, meeting the requirements of DMS-8300 Type B<sub>FL</sub> or Type C<sub>FL</sub>, shall be used for rigid signs with orange backgrounds.

**SIGN LETTERS**

1. All sign letters and numbers shall be clear, and open rounded type uppercase alphabet letters as approved by the Federal Highway Administration (FHWA) and as published in the "Standard Highway Sign Design for Texas" manual. Signs, letters and numbers shall be of first class workmanship in accordance with Department Standards and Specifications.

**REMOVING OR COVERING**

1. When sign messages may be confusing or do not apply, the signs shall be removed or completely covered.
2. Long-term stationary or intermediate stationary signs installed on square metal tubing may be turned away from traffic 90 degrees when the sign message is not applicable. This technique may not be used for signs installed in the median of divided highways or near any intersections where the sign may be seen from approaching traffic.
3. Signs installed on wooden skids shall not be turned at 90 degree angles to the roadway. These signs should be removed or completely covered when not required.
4. When signs are covered, the material used shall be opaque, such as heavy mil black plastic, or other materials which will cover the entire sign face and maintain their opaque properties under automobile headlights at night, without damaging the sign sheeting.
5. Burlap shall NOT be used to cover signs.
6. Duct tape or other adhesive material shall NOT be affixed to a sign face.
7. Signs and anchor stubs shall be removed and holes backfilled upon completion of work.

**SIGN SUPPORT WEIGHTS**

1. Where sign supports require the use of weights to keep from turning over, the use of sandbags with dry, cohesionless sand should be used.
2. The sandbags will be tied shut to keep the sand from spilling and to maintain a constant weight.
3. Rock, concrete, iron, steel or other solid objects shall not be permitted for use as sign support weights.
4. Sandbags should weigh a minimum of 35 lbs and a maximum of 50 lbs.
5. Sandbags shall be made of a durable material that tears upon vehicular impact. Rubber (such as tire inner tubes) shall NOT be used.
6. Rubber ballasts designed for channelizing devices should not be used for ballast on portable sign supports. Sign supports designed and manufactured with rubber bases may be used when shown on the CWZTC list.
7. Sandbags shall only be placed along or laid over the base supports of the traffic control device and shall not be suspended above ground level or hung with rope, wire, chains or other fasteners. Sandbags shall be placed along the length of the skids to weigh down the sign support.
8. Sandbags shall NOT be placed under the skid and shall not be used to level sign supports placed on slopes.

**FLAGS ON SIGNS**

1. Flags may be used to draw attention to warning signs. When used, the flag shall be 16 inches square or larger and shall be orange or fluorescent red-orange in color. Flags shall not be allowed to cover any portion of the sign face.

SHEET 4 OF 12

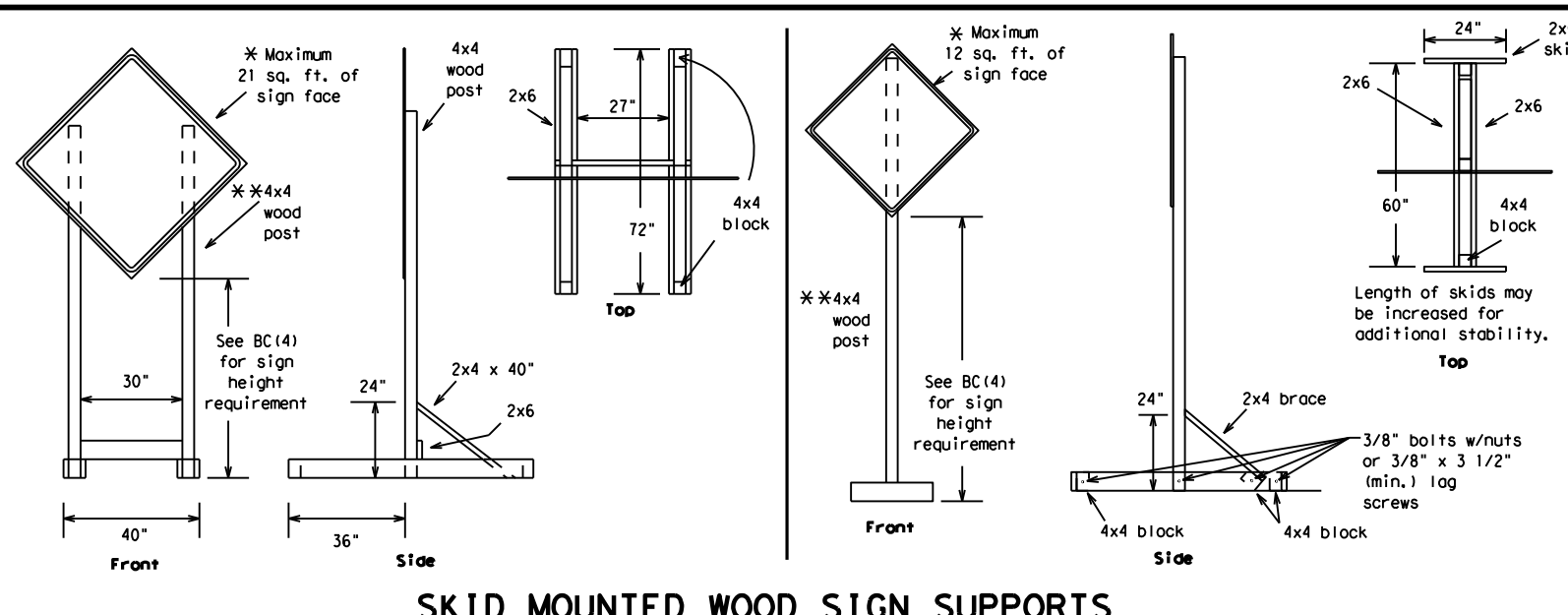


**BARRICADE AND CONSTRUCTION TEMPORARY SIGN NOTES**

**BC (4) - 21**

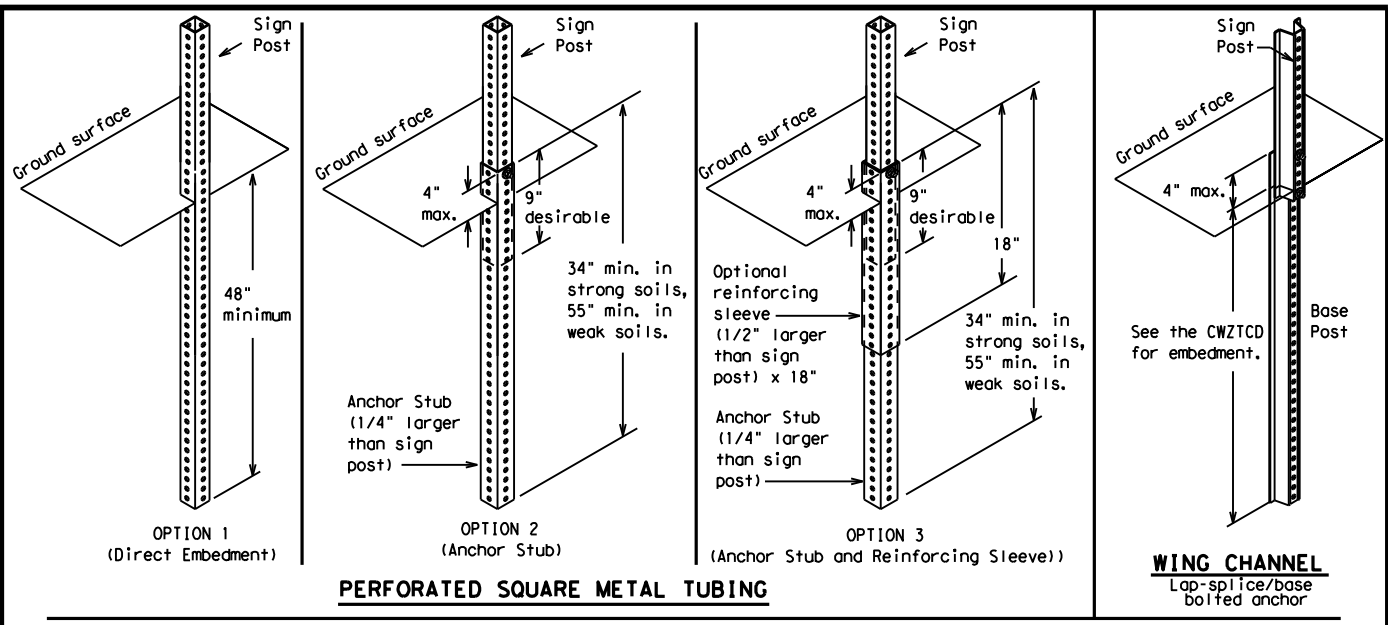
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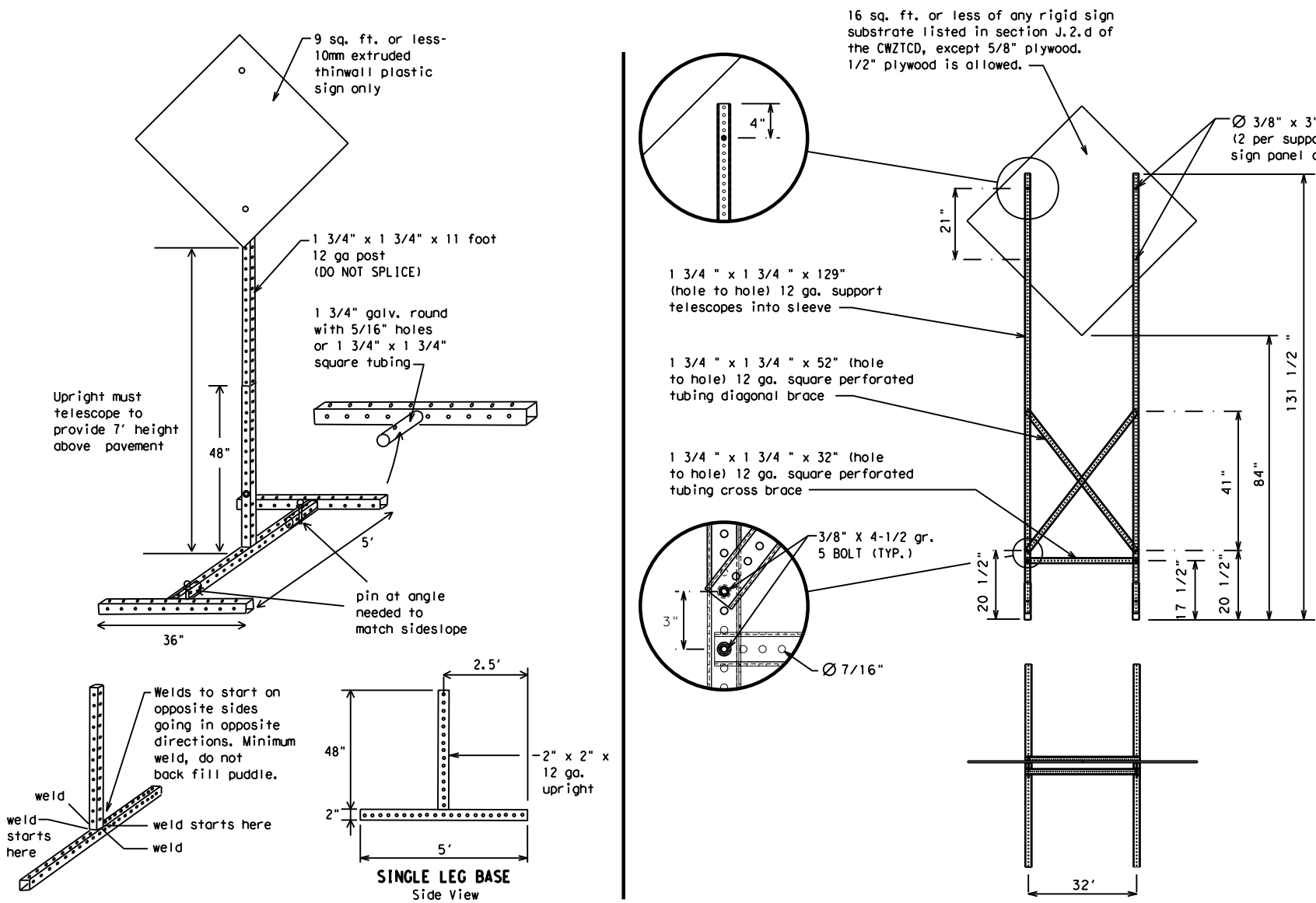
**SKID MOUNTED WOOD SIGN SUPPORTS**

\* LONG/INTERMEDIATE TERM STATIONARY - PORTABLE SKID MOUNTED SIGN SUPPORTS



**GROUND MOUNTED SIGN SUPPORTS**

Refer to the CWZTCD and the manufacturer's installation procedure for each type sign support. The maximum sign square footage shall adhere to the manufacturer's recommendation. Two post installations can be used for larger signs.



**SKID MOUNTED PERFORATED SQUARE STEEL TUBING SIGN SUPPORTS**

\* LONG/INTERMEDIATE TERM STATIONARY - PORTABLE SKID MOUNTED SIGN SUPPORTS

**WEDGE ANCHORS**  
 Both steel and plastic Wedge Anchor Systems as shown on the SMD Standard Sheets may be used as temporary sign supports for signs up to 10 square feet of sign face. They may be set in concrete or in sturdy soils if approved by the Engineer. (See web address for "Traffic Engineering Standard Sheets" on BC(1)).

**OTHER DESIGNS**  
 MORE DETAILS OF APPROVED LONG/INTERMEDIATE AND SHORT TERM SUPPORTS CAN BE FOUND ON THE CWZTCD LIST. SEE BC(1) FOR WEBSITE LOCATION.

- GENERAL NOTES**
- Nails may be used in the assembly of wooden sign supports, but 3/8" bolts with nuts or 3/8" x 3 1/2" lag screws must be used on every joint for final connection.
  - No more than 2 sign posts shall be placed within a 7 ft. circle, except for specific materials noted on the CWZTCD List.
  - When project is completed, all sign supports and foundations shall be removed from the project site. This will be considered subsidiary to Item 502.
- \* See BC(4) for definition of "Work Duration."  
 \*\* Wood sign posts MUST be one piece. Splicing will NOT be allowed. Posts shall be painted white.  
 See the CWZTCD for the type of sign substrate that can be used for each approved sign support.

**BARRICADE AND CONSTRUCTION TYPICAL SIGN SUPPORT**  
 BC(5) - 21

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WHEN NOT IN USE, REMOVE THE PCMS FROM THE RIGHT-OF-WAY OR PLACE THE PCMS BEHIND BARRIER OR GUARDRAIL WITH SIGN PANEL TURNED PARALLEL TO TRAFFIC

# RECOMMENDED PHASES AND FORMATS FOR PCMS MESSAGES DURING ROADWORK ACTIVITIES

(The Engineer may approve other messages not specifically covered here.)

## PORTABLE CHANGEABLE MESSAGE SIGNS

- The Engineer/Inspector shall approve all messages used on portable changeable message signs (PCMS).
- Messages on PCMS should contain no more than 8 words (about four to eight characters per word), not including simple words such as "TO," "FOR," "AT," etc.
- Messages should consist of a single phase, or two phases that alternate. Three-phase messages are not allowed. Each phase of the message should convey a single thought, and must be understood by itself.
- Use the word "EXIT" to refer to an exit ramp on a freeway; i.e., "EXIT CLOSED." Do not use the term "RAMP."
- Always use the route or interstate designation (IH, US, SH, FM) along with the number when referring to a roadway.
- When in use, the bottom of a stationary PCMS message panel should be a minimum 7 feet above the roadway, where possible.
- The message term "WEEKEND" should be used only if the work is to start on Saturday morning and end by Sunday evening at midnight. Actual days and hours of work should be displayed on the PCMS if work is to begin on Friday evening and/or continue into Monday morning.
- The Engineer/Inspector may select one of two options which are available for displaying a two-phase message on a PCMS. Each phase may be displayed for either four seconds each or for three seconds each.
- Do not "flash" messages or words included in a message. The message should be steady burn or continuous while displayed.
- Do not present redundant information on a two-phase message; i.e., keeping two lines of the message the same and changing the third line.
- Do not use the word "Danger" in message.
- Do not display the message "LANES SHIFT LEFT" or "LANES SHIFT RIGHT" on a PCMS. Drivers do not understand the message.
- Do not display messages that scroll horizontally or vertically across the face of the sign.
- The following table lists abbreviated words and two-word phrases that are acceptable for use on a PCMS. Both words in a phrase must be displayed together. Words or phrases not on this list should not be abbreviated, unless shown in the TMUTCD.
- PCMS character height should be at least 18 inches for trailer mounted units. They should be visible from at least 1/2 (.5) mile and the text should be legible from at least 600 feet at night and 800 feet in daylight. Truck mounted units must have a character height of 10 inches and must be legible from at least 400 feet.
- Each line of text should be centered on the message board rather than left or right justified.
- If disabled, the PCMS should default to an illegible display that will not alarm motorists and will only be used to alert workers that the PCMS has malfunctioned. A pattern such as a series of horizontal solid bars is appropriate.

## Phase 1: Condition Lists

### Road/Lane/Ramp Closure List

FREEWAY CLOSED X MILE	FRONTAGE ROAD CLOSED
ROAD CLOSED AT SH XXX	SHOULDER CLOSED XXX FT
ROAD CLSD AT FM XXXX	RIGHT LN CLOSED XXX FT
RIGHT X LANES CLOSED	RIGHT X LANES OPEN
CENTER LANE CLOSED	DAYTIME LANE CLOSURES
NIGHT LANE CLOSURES	I-XX SOUTH EXIT CLOSED
VARIOUS LANES CLOSED	EXIT XXX CLOSED X MILE
EXIT CLOSED	RIGHT LN TO BE CLOSED
MALL DRIVEWAY CLOSED	X LANES CLOSED TUE - FRI
XXXXXXXXX BLVD CLOSED	

### Other Condition List

ROADWORK XXX FT	ROAD REPAIRS XXXX FT
FLAGGER XXXX FT	LANE NARROWS XXXX FT
RIGHT LN NARROWS XXXX FT	TWO-WAY TRAFFIC XX MILE
MERGING TRAFFIC XXXX FT	CONST TRAFFIC XXX FT
LOOSE GRAVEL XXXX FT	UNEVEN LANES XXXX FT
DETOUR X MILE	ROUGH ROAD XXXX FT
ROADWORK PAST SH XXXX	ROADWORK NEXT FRI-SUN
BUMP XXXX FT	US XXX EXIT X MILES
TRAFFIC SIGNAL XXXX FT	LANES SHIFT *

\* LANES SHIFT in Phase 1 must be used with STAY IN LANE in Phase 2.

## Phase 2: Possible Component Lists

### Action to Take/Effect on Travel List

MERGE RIGHT	FORM X LINES RIGHT
DETOUR NEXT X EXITS	USE XXXXX RD EXIT
USE EXIT XXX	USE EXIT I-XX NORTH
STAY ON US XXX SOUTH	USE I-XX E TO I-XX N
TRUCKS USE US XXX N	WATCH FOR TRUCKS
WATCH FOR TRUCKS	EXPECT DELAYS
EXPECT DELAYS	PREPARE TO STOP
REDUCE SPEED XXX FT	END SHOULDER USE
USE OTHER ROUTES	WATCH FOR WORKERS
STAY IN LANE *	

### Location List

AT FM XXXX
BEFORE RAILROAD CROSSING
NEXT X MILES
PAST US XXX EXIT
XXXXXXXXX TO XXXXXXX
US XXX TO FM XXXX

### Warning List

SPEED LIMIT XX MPH
MAXIMUM SPEED XX MPH
MINIMUM SPEED XX MPH
ADVISORY SPEED XX MPH
RIGHT LANE EXIT
USE CAUTION
DRIVE SAFELY
DRIVE WITH CARE

### \*\* Advance Notice List

TUE-FRI XX AM-X PM
APR XX-XX X PM-X AM
BEGINS MONDAY
BEGINS MAY XX
MAY X-X XX PM - XX AM
NEXT FRI-SUN
XX AM TO XX PM
NEXT TUE AUG XX
TONIGHT XX PM-XX AM

\*\* See Application Guidelines Note 6.

## APPLICATION GUIDELINES

- Only 1 or 2 phases are to be used on a PCMS.
- The 1st phase (or both) should be selected from the "Road/Lane/Ramp Closure List" and the "Other Condition List".
- A 2nd phase can be selected from the "Action to Take/Effect on Travel, Location, General Warning, or Advance Notice Phase Lists".
- A Location Phase is necessary only if a distance or location is not included in the first phase selected.
- If two PCMS are used in sequence, they must be separated by a minimum of 1000 ft. Each PCMS shall be limited to two phases, and should be understandable by themselves.
- For advance notice, when the current date is within seven days of the actual work date, calendar days should be replaced with days of the week. Advance notification should typically be for no more than one week prior to the work.

PCMS SIGNS WITHIN THE R.O.W. SHALL BE BEHIND GUARDRAIL OR CONCRETE BARRIER OR SHALL HAVE A MINIMUM OF FOUR (4) PLASTIC DRUMS PLACED PERPENDICULAR TO TRAFFIC ON THE UPSTREAM SIDE OF THE PCMS, WHEN EXPOSED TO ONE DIRECTION OF TRAFFIC. WHEN EXPOSED TO TWO WAY TRAFFIC, THE FOUR DRUMS SHOULD BE PLACED WITH ONE DRUM AT EACH OF THE FOUR CORNERS OF THE UNIT.

## FULL MATRIX PCMS SIGNS

- When Full Matrix PCMS signs are used, the character height and legibility/visibility requirements shall be maintained as listed in Note 15 under "PORTABLE CHANGEABLE MESSAGE SIGNS" above.
- When symbol signs, such as the "Flagger Symbol" (CW20-7) are represented graphically on the Full Matrix PCMS sign and, with the approval of the Engineer, it shall maintain the legibility/visibility requirement listed above.
- When symbol signs are represented graphically on the Full Matrix PCMS, they shall only supplement the use of the static sign represented, and shall not substitute for, or replace that sign.
- A full matrix PCMS may be used to simulate a flashing arrow board provided it meets the visibility, flash rate and dimming requirements on BC(7), for the same size arrow.

## WORDING ALTERNATIVES

- The words RIGHT, LEFT and ALL can be interchanged as appropriate.
- Roadway designations IH, US, SH, FM and LP can be interchanged as appropriate.
- EAST, WEST, NORTH and SOUTH (or abbreviations E, W, N and S) can be interchanged as appropriate.
- Highway names and numbers replaced as appropriate.
- ROAD, HIGHWAY and FREEWAY can be interchanged as needed.
- AHEAD may be used instead of distances if necessary.
- FT and MI, MILE and MILES interchanged as appropriate.
- AT, BEFORE and PAST interchanged as needed.
- Distances or AHEAD can be eliminated from the message if a location phase is used.

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WORD OR PHRASE	ABBREVIATION	WORD OR PHRASE	ABBREVIATION
Access Road	ACCS RD	Major	MAJ
Alternate	ALT	Miles	MI
Avenue	AVE	Miles Per Hour	MPH
Best Route	BEST RTE	Minor	MNR
Boulevard	BLVD	Monday	MON
Bridge	BRDG	Normal	NORM
Canal	CANT	North	N
Center	CTR	Northbound	(route) N
Construction Ahead	CONST AHD	Parking	PKING
CROSSING	XING	Road	RD
Detour Route	DETOUR RTE	Right Lane	RT LN
Do Not	DONT	Saturday	SAT
East	E	Service Road	SERV RD
Eastbound	(route) E	Shoulder	SHLDR
Emergency	EMER	Slippery	SLIP
Emergency Vehicle	EMER VEH	South	S
Entrance, Enter	ENT	Southbound	(route) S
Express Lane	EXP LN	Speed	SPD
Expressway	EXPWY	Street	ST
XXXX Feet	XXXX FT	Sunday	SUN
Fog Ahead	FOG AHD	Telephone	PHONE
Freeway	FRWY, FWY	Temporary	TEMP
Freeway Blocked	FWY BLKD	Thursday	THURS
Friday	FRI	To Downtown	TO DWNTN
Hazardous Driving	HAZ DRIVING	Traffic	TRAF
Hazardous Material	HAZMAT	Travelers	TRVLR
High-Occupancy Vehicle	HOV	Tuesday	TUES
Highway	HWY	Time Minutes	TIME MIN
Hour(s)	HR, HRS	Upper Level	UPR LEVEL
Information	INFO	Vehicles (s)	VEH, VEHS
It Is	ITS	Warning	WARN
Junction	JCT	Wednesday	WED
Left	LFT	Weight Limit	WT LIMIT
Left Lane	LFT LN	West	W
Lane Closed	LN CLOSED	Westbound	(route) W
Lower Level	LWR LEVEL	Wet Pavement	WET PVMT
Maintenance	MAINT	Will Not	WONT

Roadway designation # IH-number, US-number, SH-number, FM-number



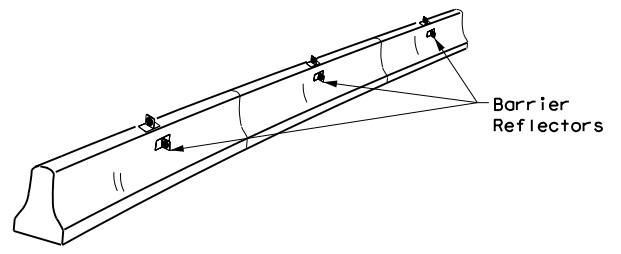
# BARRICADE AND CONSTRUCTION PORTABLE CHANGEABLE MESSAGE SIGN (PCMS)

BC (6) - 21

FILE: bc-21.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CR: TxDOT
© TxDOT November 2002	CONT	SECT	JOB	HIGHWAY
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7-13 5-21	ATL	BOWIE	32	

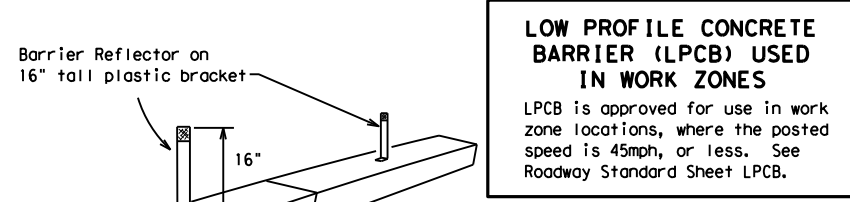
DATE: 7/10/2023 4:58:57 PM  
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- Barrier Reflectors shall be pre-qualified, and conform to the color and reflectivity requirements of DMS-8600. A list of prequalified Barrier Reflectors can be found at the Material Producer List web address shown on BC(1).
- Color of Barrier Reflectors shall be as specified in the TMUTCD. The cost of the reflectors shall be considered subsidiary to Item 512.



**CONCRETE TRAFFIC BARRIER (CTB)**

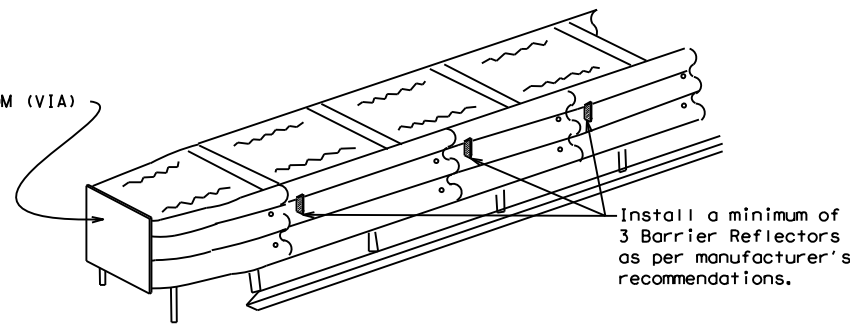
- Where traffic is on one side of the CTB, two (2) Barrier Reflectors shall be mounted in approximately the midsection of each section of CTB. An alternate mounting location is uniformly spaced at one end of each CTB. This will allow for attachment of a barrier grapple without damaging the reflector. The Barrier Reflector mounted on the side of the CTB shall be located directly below the reflector mounted on top of the barrier, as shown in the detail above.
- Where CTB separates two-way traffic, three barrier reflectors shall be mounted on each section of CTB. The reflector unit on top shall have two yellow reflective faces (Bi-Directional) while the reflectors on each side of the barrier shall have one yellow reflective face, as shown in the detail above.
- When CTB separates traffic traveling in the same direction, no barrier reflectors will be required on top of the CTB.
- Barrier Reflector units shall be yellow or white in color to match the edgeline being supplemented.
- Maximum spacing of Barrier Reflectors is forty (40) feet.
- Pavement markers or temporary flexible-reflective roadway marker tabs shall NOT be used as CTB delineation.
- Attachment of Barrier Reflectors to CTB shall be per manufacturer's recommendations.
- Missing or damaged Barrier Reflectors shall be replaced as directed by the Engineer.
- Single slope barriers shall be delineated as shown on the above detail.



**LOW PROFILE CONCRETE BARRIER (LPCB) USED IN WORK ZONES**  
 LPCB is approved for use in work zone locations, where the posted speed is 45mph, or less. See Roadway Standard Sheet LPCB.

Barrier Reflector on 16" tall plastic bracket  
 Max. spacing of barrier reflectors is 20 feet. Attach the delineators as per manufacturer's recommendations.

**LOW PROFILE CONCRETE BARRIER (LPCB)**



**DELINEATION OF END TREATMENTS**

**END TREATMENTS FOR CTB'S USED IN WORK ZONES**  
 End treatments used on CTB's in work zones shall meet the appropriate crashworthy standards as defined in the Manual for Assessing Safety Hardware (MASH). Refer to the CWZTCD List for approved end treatments and manufacturers.

**BARRIER REFLECTORS FOR CONCRETE TRAFFIC BARRIER AND ATTENUATORS**

**WARNING LIGHTS**

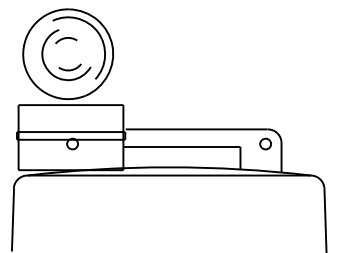
- Warning lights shall meet the requirements of the TMUTCD.
- Warning lights shall NOT be installed on barricades.
- Type A-Low Intensity Flashing Warning Lights are commonly used with drums. They are intended to warn of or mark a potentially hazardous area. Their use shall be as indicated on this sheet and/or other sheets of the plans by the designation "FL". The Type A Warning Lights shall not be used with signs manufactured with Type B<sub>FL</sub> or C<sub>FL</sub> Sheeting meeting the requirements of Departmental Material Specification DMS-8300.
- Type-C and Type D 360 degree Steady Burn Lights are intended to be used in a series for delineation to supplement other traffic control devices. Their use shall be as indicated on this sheet and/or other sheets of the plans by the designation "SB".
- The Engineer/Inspector or the plans shall specify the location and type of warning lights to be installed on the traffic control devices.
- When required by the Engineer, the Contractor shall furnish a copy of the warning lights certification. The warning light manufacturer will certify the warning lights meet the requirements of the latest ITE Purchase Specifications for Flashing and Steady-Burn Warning Lights.
- When used to delineate curves, Type-C and Type D Steady Burn Lights should only be placed on the outside of the curve, not the inside.
- The location of warning lights and warning reflectors on drums shall be as shown elsewhere in the plans.

**WARNING LIGHTS MOUNTED ON PLASTIC DRUMS**

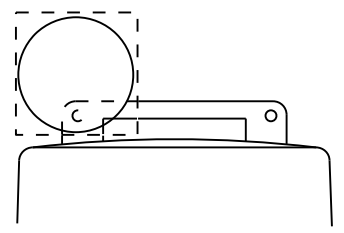
- Type A flashing warning lights are intended to warn drivers that they are approaching or are in a potentially hazardous area.
- Type A random flashing warning lights are not intended for delineation and shall not be used in a series.
- A series of sequential flashing warning lights placed on channelizing devices to form a merging taper may be used for delineation. If used, the successive flashing of the sequential warning lights should occur from the beginning of the taper to the end of the merging taper in order to identify the desired vehicle path. The rate of flashing for each light shall be 65 flashes per minute, plus or minus 10 flashes.
- Type C and D steady-burn warning lights are intended to be used in a series to delineate the edge of the travel lane on detours, on lane changes, on lane closures, and on other similar conditions.
- Type A, Type C and Type D warning lights shall be installed at locations as detailed on other sheets in the plans.
- Warning lights shall not be installed on a drum that has a sign, chevron or vertical panel.
- The maximum spacing for warning lights on drums should be identical to the channelizing device spacing.

**WARNING REFLECTORS MOUNTED ON PLASTIC DRUMS AS A SUBSTITUTE FOR TYPE C (STEADY BURN) WARNING LIGHTS**

- A warning reflector or approved substitute may be mounted on a plastic drum as a substitute for a Type C, steady burn warning light at the discretion of the Contractor unless otherwise noted in the plans.
- The warning reflector shall be yellow in color and shall be manufactured using a sign substrate approved for use with plastic drums listed on the CWZTCD.
- The warning reflector shall have a minimum retroreflective surface area (one-side) of 30 square inches.
- Round reflectors shall be fully reflectorized, including the area where attached to the drum.
- Square substrates must have a minimum of 30 square inches of reflectorized sheeting. They do not have to be reflectorized where it attaches to the drum.
- The side of the warning reflector facing approaching traffic shall have sheeting meeting the color and retroreflectivity requirements for DMS 8300-Type B or Type C.
- When used near two-way traffic, both sides of the warning reflector shall be reflectorized.
- The warning reflector should be mounted on the side of the handle nearest approaching traffic.
- The maximum spacing for warning reflectors should be identical to the channelizing device spacing requirements.



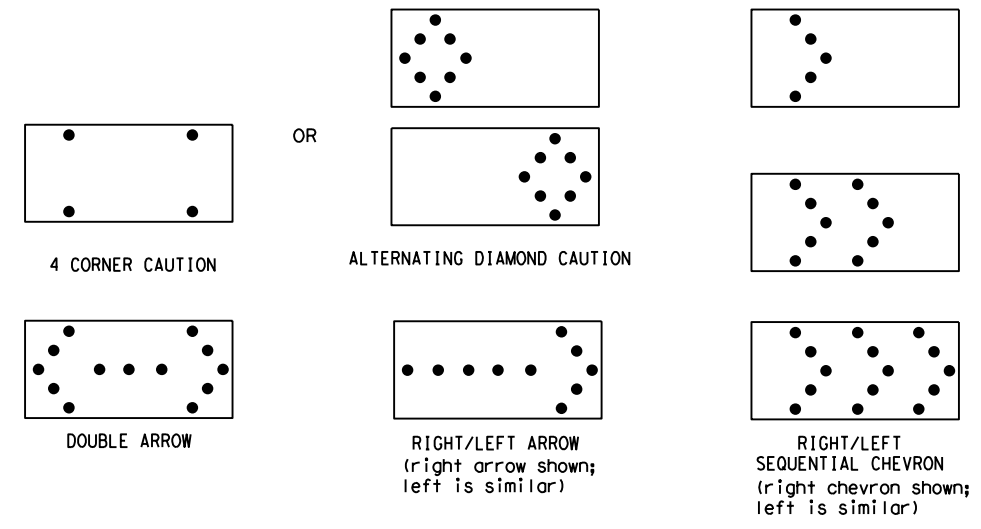
Type C Warning Light or approved substitute mounted on a drum adjacent to the travel way.



Warning reflector may be round or square. Must have a yellow reflective surface area of at least 30 square inches

Arrow Boards may be located behind channelizing devices in place for a shoulder taper or merging taper, otherwise they shall be delineated with four (4) channelizing devices placed perpendicular to traffic on the upstream side of traffic.

- The Flashing Arrow Board should be used for all lane closures on multi-lane roadways, or slow moving maintenance or construction activities on the travel lanes.
- Flashing Arrow Boards should not be used on two-lane, two-way roadways, detours, diversions or work on shoulders unless the "CAUTION" display (see detail below) is used.
- The Engineer/Inspector shall choose all appropriate signs, barricades and/or other traffic control devices that should be used in conjunction with the Flashing Arrow Board.
- The Flashing Arrow Board should be able to display the following symbols:



- The "CAUTION" display consists of four corner lamps flashing simultaneously, or the Alternating Diamond Caution mode as shown.
- The straight line caution display is NOT ALLOWED.
- The Flashing Arrow Board shall be capable of minimum 50 percent dimming from rated lamp voltage. The flashing rate of the lamps shall not be less than 25 nor more than 40 flashes per minute.
- Minimum lamp "on time" shall be approximately 50 percent for the flashing arrow and equal intervals of 25 percent for each sequential phase of the flashing chevron.
- The sequential arrow display is NOT ALLOWED.
- The flashing arrow display is the TxDOT standard; however, the sequential chevron display may be used during daylight operations.
- The Flashing Arrow Board shall be mounted on a vehicle, trailer or other suitable support.
- A Flashing Arrow Board SHALL NOT BE USED to laterally shift traffic.
- A full matrix PCMS may be used to simulate a Flashing Arrow Board provided it meets visibility, flash rate and dimming requirements on this sheet for the same size arrow.
- Minimum mounting height of trailer mounted Arrow Boards should be 7 feet from roadway to bottom of panel.

REQUIREMENTS			
TYPE	MINIMUM SIZE	MINIMUM NUMBER OF PANEL LAMPS	MINIMUM VISIBILITY DISTANCE
B	30 x 60	13	3/4 mile
C	48 x 96	15	1 mile

**ATTENTION**  
 Flashing Arrow Boards shall be equipped with automatic dimming devices.

WHEN NOT IN USE, REMOVE THE ARROW BOARD FROM THE RIGHT-OF-WAY OR PLACE THE ARROW BOARD BEHIND CONCRETE TRAFFIC BARRIER OR GUARDRAIL.

**FLASHING ARROW BOARDS**

SHEET 7 OF 12

**TRUCK-MOUNTED ATTENUATORS**

- Truck-mounted attenuators (TMA) used on TxDOT facilities must meet the requirements outlined in the Manual for Assessing Safety Hardware (MASH).
- Refer to the CWZTCD for the requirements of Level 2 or Level 3 TMAs.
- Refer to the CWZTCD for a list of approved TMAs.
- TMAs are required on freeways unless otherwise noted in the plans.
- A TMA should be used anytime that it can be positioned 30 to 100 feet in advance of the area of crew exposure without adversely affecting the work performance.
- The only reason a TMA should not be required is when a work area is spread down the roadway and the work crew is an extended distance from the TMA.



**BARRICADE AND CONSTRUCTION ARROW PANEL, REFLECTORS, WARNING LIGHTS & ATTENUATOR**

**BC (7) - 21**

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© TxDOT	November 2002	CONT	SECT	JOB	HIGHWAY				
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7-13	5-21	ATL	BOWIE	33					

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**GENERAL NOTES**

- For long term stationary work zones on freeways, drums shall be used as the primary channelizing device.
- For intermediate term stationary work zones on freeways, drums should be used as the primary channelizing device but may be replaced in tangent sections by vertical panels, or 42" two-piece cones. In tangent sections, one-piece cones may be used with the approval of the Engineer but only if personnel are present on the project at all times to maintain the cones in proper position and location.
- For short term stationary work zones on freeways, drums are the preferred channelizing device but may be replaced in tapers, transitions and tangent sections by vertical panels, two-piece cones or one-piece cones as approved by the Engineer.
- Drums and all related items shall comply with the requirements of the current version of the "Texas Manual on Uniform Traffic Control Devices" (TMUTCD) and the "Compliant Work Zone Traffic Control Devices List" (CWZTCD).
- Drums, bases, and related materials shall exhibit good workmanship and shall be free from objectionable marks or defects that would adversely affect their appearance or serviceability.
- The Contractor shall have a maximum of 24 hours to replace any plastic drums identified for replacement by the Engineer/Inspector. The replacement device must be an approved device.

**GENERAL DESIGN REQUIREMENTS**

Pre-qualified plastic drums shall meet the following requirements:

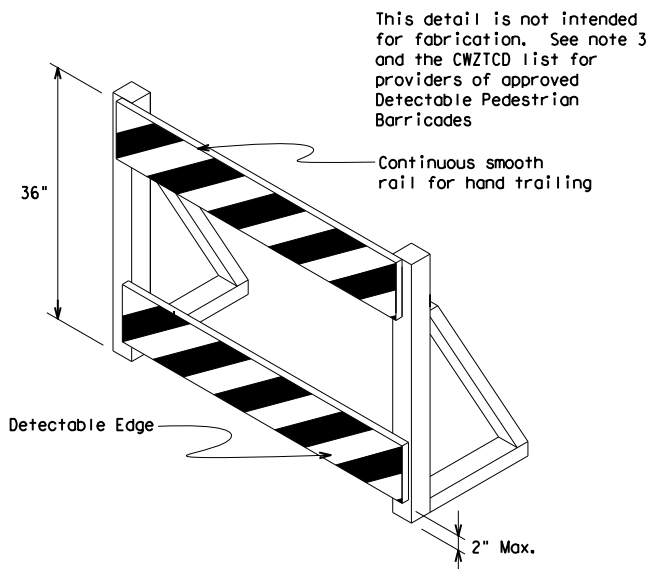
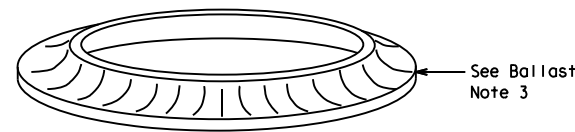
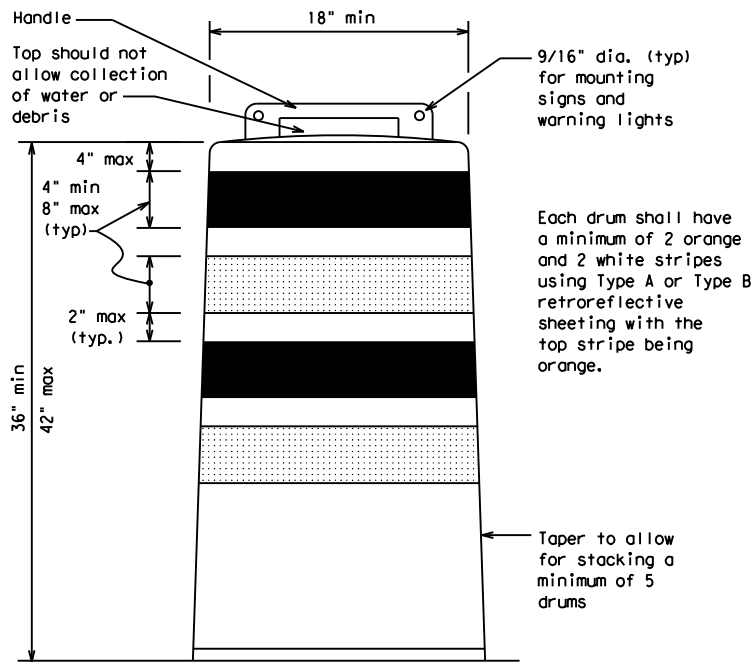
- Plastic drums shall be a two-piece design; the "body" of the drum shall be the top portion and the "base" shall be the bottom.
- The body and base shall lock together in such a manner that the body separates from the base when impacted by a vehicle traveling at a speed of 20 MPH or greater but prevents accidental separation due to normal handling and/or air turbulence created by passing vehicles.
- Plastic drums shall be constructed of lightweight flexible, and deformable materials. The Contractor shall NOT use metal drums or single piece plastic drums as channelization devices or sign supports.
- Drums shall present a profile that is a minimum of 18 inches in width at the 36 inch height when viewed from any direction. The height of drum unit (body installed on base) shall be a minimum of 36 inches and a maximum of 42 inches.
- The top of the drum shall have a built-in handle for easy pickup and shall be designed to drain water and not collect debris. The handle shall have a minimum of two widely spaced 9/16 inch diameter holes to allow attachment of a warning light, warning reflector unit or approved compliant sign.
- The exterior of the drum body shall have a minimum of four alternating orange and white retroreflective circumferential stripes not less than 4 inches nor greater than 8 inches in width. Any non-reflectORIZED space between any two adjacent stripes shall not exceed 2 inches in width.
- Bases shall have a maximum width of 36 inches, a maximum height of 4 inches, and a minimum of two footholds of sufficient size to allow base to be held down while separating the drum body from the base.
- Plastic drums shall be constructed of ultra-violet stabilized, orange, high-density polyethylene (HDPE) or other approved material.
- Drum body shall have a maximum unballasted weight of 11 lbs.
- Drum and base shall be marked with manufacturer's name and model number.

**RETROREFLECTIVE SHEETING**

- The stripes used on drums shall be constructed of sheeting meeting the color and retroreflectivity requirements of Departmental Materials Specification DMS-8300, "Sign Face Materials." Type A or Type B reflective sheeting shall be supplied unless otherwise specified in the plans.
- The sheeting shall be suitable for use on and shall adhere to the drum surface such that, upon vehicular impact, the sheeting shall remain adhered in-place and exhibit no delaminating, cracking, or loss of retroreflectivity other than that loss due to abrasion of the sheeting surface.

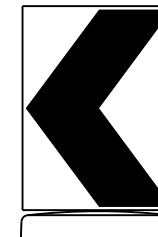
**BALLAST**

- Unballasted bases shall be large enough to hold up to 50 lbs. of sand. This base, when filled with the ballast material, should weigh between 35 lbs (minimum) and 50 lbs (maximum). The ballast may be sand in one to three sandbags separate from the base, sand in a sand-filled plastic base, or other ballasting devices as approved by the Engineer. Stacking of sandbags will be allowed, however height of sandbags above pavement surface may not exceed 12 inches.
- Bases with built-in ballast shall weigh between 40 lbs. and 50 lbs. Built-in ballast can be constructed of an integral crumb rubber base or a solid rubber base.
- Recycled truck tire sidewalls may be used for ballast on drums approved for this type of ballast on the CWZTCD list.
- The ballast shall not be heavy objects, water, or any material that would become hazardous to motorists, pedestrians, or workers when the drum is struck by a vehicle.
- When used in regions susceptible to freezing, drums shall have drainage holes in the bottoms so that water will not collect and freeze becoming a hazard when struck by a vehicle.
- Ballast shall not be placed on top of drums.
- Adhesives may be used to secure base of drums to pavement.

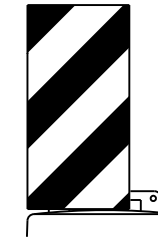


**DETECTABLE PEDESTRIAN BARRICADES**

- When existing pedestrian facilities are disrupted, closed, or relocated in a TTC zone, the temporary facilities shall be detectable and include accessibility features consistent with the features present in the existing pedestrian facility. Refer to WZ(BTS-2) for Pedestrian Control requirements for Sidewalk Diversions, Sidewalk Detours and Crosswalk Closures.
- Where pedestrians with visual disabilities normally use the closed sidewalk, a Detectable Pedestrian Barricade shall be placed across the full width of the closed sidewalk instead of a Type 3 Barricade.
- Detectable pedestrian barricades similar to the one pictured above, longitudinal channelizing devices, some concrete barriers, and wood or chain link fencing with a continuous detectable edging can satisfactorily delineate a pedestrian path.
- Tape, rope, or plastic chain strung between devices are not detectable, do not comply with the design standards in the "Americans with Disabilities Act Accessibility Guidelines (ADAAG)" and should not be used as a control for pedestrian movements.
- Warning lights shall not be attached to detectable pedestrian barricades.
- Detectable pedestrian barricades should use 8" nominal barricade rails as shown on BC(10) provided that the top rail provides a smooth continuous rail suitable for hand trailing with no splinters, burrs, or sharp edges.



18" x 24" Sign  
(Maximum Sign Dimension)  
Chevron CW1-8, Opposing Traffic Lane  
Divider, Driveway sign D70a, Keep Right  
R4 series or other signs as approved  
by Engineer



12" x 24"  
Vertical Panel  
mount with diagonals  
sloping down towards  
travel way

Plywood, Aluminum or Metal sign  
substrates shall NOT be used on  
plastic drums

**SIGNS, CHEVRONS, AND VERTICAL PANELS MOUNTED ON PLASTIC DRUMS**

- Signs used on plastic drums shall be manufactured using substrates listed on the CWZTCD.
- Chevrons and other work zone signs with an orange background shall be manufactured with Type B<sub>FL</sub> or Type C<sub>FL</sub> Orange sheeting meeting the color and retroreflectivity requirements of DMS-8300, "Sign Face Material," unless otherwise specified in the plans.
- Vertical Panels shall be manufactured with orange and white sheeting meeting the requirements of DMS-8300 Type A or Type B. Diagonal stripes on Vertical Panels shall slope down toward the intended traveled lane.
- Other sign messages (text or symbolic) may be used as approved by the Engineer. Sign dimensions shall not exceed 18 inches in width or 24 inches in height, except for the R9 series signs discussed in note 8 below.
- Signs shall be installed using a 1/2 inch bolt (nominal) and nut, two washers, and one locking washer for each connection.
- Mounting bolts and nuts shall be fully engaged and adequately torqued. Bolts should not extend more than 1/2 inch beyond nuts.
- Chevrons may be placed on drums on the outside of curves, on merging tapers or on shifting tapers. When used in these locations, they may be placed on every drum or spaced not more than on every third drum. A minimum of three (3) should be used at each location called for in the plans.
- R9-9, R9-10, R9-11 and R9-11a Sidewalk Closed signs which are 24 inches wide may be mounted on plastic drums, with approval of the Engineer.

SHEET 8 OF 12



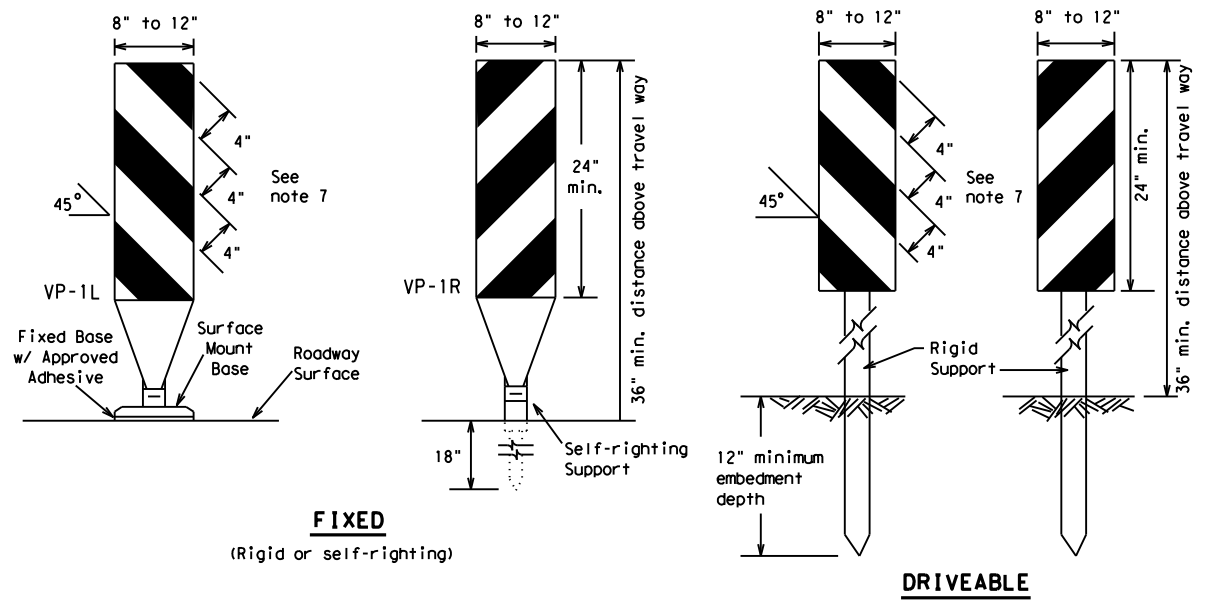
**BARRICADE AND CONSTRUCTION CHANNELIZING DEVICES**

**BC (8) - 21**

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9-07	5-21	ATL	BOWIE	34					
7-13									

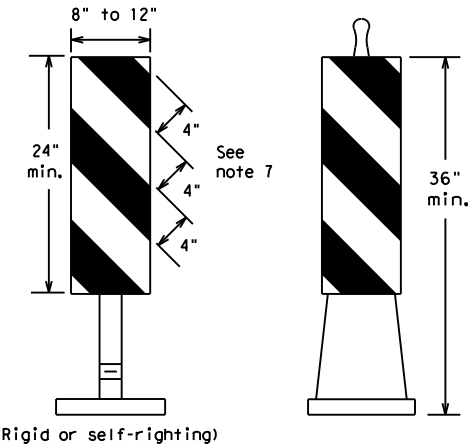
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**FIXED**  
(Rigid or self-righting)

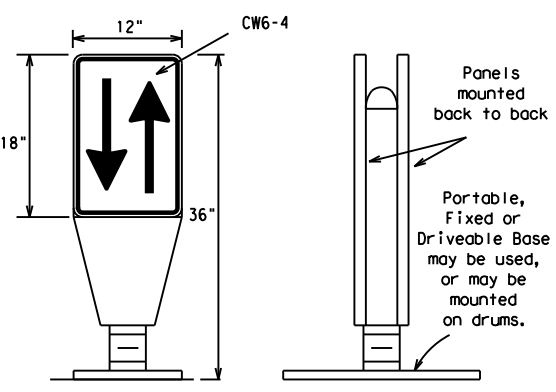
**DRIVEABLE**



**PORTABLE**

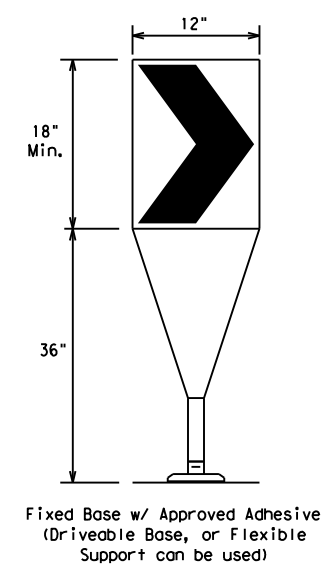
**VERTICAL PANELS (VPs)**

- Vertical Panels (VP's) are normally used to channelize traffic or divide opposing lanes of traffic.
- VP's may be used in daytime or nighttime situations. They may be used at the edge of shoulder drop-offs and other areas such as lane transitions where positive daytime and nighttime delineation is required. The Engineer/Inspector shall refer to the Roadway Design Manual for additional requirements on the use VP's for drop-offs.
- VP's should be mounted back to back if used at the edge of cuts adjacent to two-way two lane roadways. Stripes are to be reflective orange and reflective white and should always slope downward toward the travel lane.
- VP's used on expressways and freeways or other high speed roadways, may have more than 270 square inches of retroreflective area facing traffic.
- Self-righting supports are available with portable base. See "Compliant Work Zone Traffic Control Devices List" (CWZTCD).
- Sheeting for the VP's shall be retroreflective Type A or Type B conforming to Departmental Material Specification DMS-8300, unless noted otherwise.
- Where the height of reflective material on the vertical panel is 36 inches or greater, a panel stripe of 6 inches shall be used.



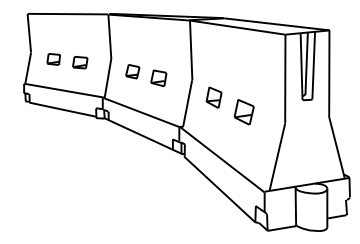
**OPPOSING TRAFFIC LANE DIVIDERS (OTLD)**

- Opposing Traffic Lane Dividers (OTLD) are delineation devices designed to convert a normal one-way roadway section to two-way operation. OTLD's are used on temporary centerlines. The upward and downward arrows on the sign's face indicate the direction of traffic on either side of the divider. The base is secured to the pavement with an adhesive or rubber weight to minimize movement caused by a vehicle impact or wind gust.
- The OTLD may be used in combination with 42" cones or VPs.
- Spacing between the OTLD shall not exceed 500 feet. 42" cones or VPs placed between the OTLD's should not exceed 100 foot spacing.
- The OTLD shall be orange with a black non-reflective legend. Sheeting for the OTLD shall be retroreflective Type B<sub>FL</sub> or Type C<sub>FL</sub> conforming to Departmental Material Specification DMS-8300, unless noted otherwise. The legend shall meet the requirements of DMS-8300.



- The chevron shall be a vertical rectangle with a minimum size of 12 by 18 inches.
- Chevrons are intended to give notice of a sharp change of alignment with the direction of travel and provide additional emphasis and guidance for vehicle operators with regard to changes in horizontal alignment of the roadway.
- Chevrons, when used, shall be erected on the outside of a sharp curve or turn, or on the far side of an intersection. They shall be in line with and at right angles to approaching traffic. Spacing should be such that the motorist always has three in view, until the change in alignment eliminates its need.
- To be effective, the chevron should be visible for at least 500 feet.
- Chevrons shall be orange with a black nonreflective legend. Sheeting for the chevron shall be retroreflective Type B<sub>FL</sub> or Type C<sub>FL</sub> conforming to Departmental Material Specification DMS-8300, unless noted otherwise. The legend shall meet the requirements of DMS-8300.
- For Long Term Stationary use on tapers or transitions on freeways and divided highways, self-righting chevrons may be used to supplement plastic drums but not to replace plastic drums.

**CHEVRONS**



**LONGITUDINAL CHANNELIZING DEVICES (LCD)**

- LCDs are crashworthy, lightweight, deformable devices that are highly visible, have good target value and can be connected together. They are not designed to contain or redirect a vehicle on impact.
- LCDs may be used instead of a line of cones or drums.
- LCDs shall be placed in accordance to application and installation requirements specific to the device, and used only when shown on the CWZTCD list.
- LCDs should not be used to provide positive protection for obstacles, pedestrians or workers.
- LCDs shall be supplemented with retroreflective delineation as required for temporary barriers on BC(7) when placed roughly parallel to the travel lanes.
- LCDs used as barricades placed perpendicular to traffic should have at least one row of reflective sheeting meeting the requirements for barricade rails as shown on BC(10). Place reflective sheeting near the top of the LCD along the full length of the device.

**WATER BALLASTED SYSTEMS USED AS BARRIERS**

- Water ballasted systems used as barriers shall not be used solely to channelize road users, but also to protect the work space per the appropriate Manual for Assessing Safety Hardware (MASH) crashworthiness requirements based on roadway speed and barrier application.
- Water ballasted systems used to channelize vehicular traffic shall be supplemented with retroreflective delineation or channelizing devices to improve daytime/nighttime visibility. They may also be supplemented with pavement markings.
- Water ballasted systems used as barriers shall be placed in accordance to application and installation requirements specific to the device, and used only when shown on the CWZTCD list.
- Water ballasted systems used as barriers should not be used for a merging taper except in low speed (less than 45 MPH) urban areas. When used on a taper in a low speed urban area, the taper shall be delineated and the taper length should be designed to optimize road user operations considering the available geometric conditions.
- When water ballasted systems used as barriers have blunt ends exposed to traffic, they should be attenuated as per manufacturer recommendations or flared to a point outside the clear zone.

If used to channelize pedestrians, longitudinal channelizing devices or water ballasted systems must have a continuous detectable bottom for users of long canes and the top of the unit shall not be less than 32 inches in height.

**HOLLOW OR WATER BALLASTED SYSTEMS USED AS LONGITUDINAL CHANNELIZING DEVICES OR BARRIERS**

**GENERAL NOTES**

- Work Zone channelizing devices illustrated on this sheet may be installed in close proximity to traffic and are suitable for use on high or low speed roadways. The Engineer/Inspector shall ensure that spacing and placement is uniform and in accordance with the "Texas Manual on Uniform Traffic Control Devices" (TMUTCD).
- Channelizing devices shown on this sheet may have a driveable, fixed or portable base. The requirement for self-righting channelizing devices must be specified in the General Notes or other plan sheets.
- Channelizing devices on self-righting supports should be used in work zone areas where channelizing devices are frequently impacted by errant vehicles or vehicle related wind gusts making alignment of the channelizing devices difficult to maintain. Locations of these devices shall be detailed elsewhere in the plans. These devices shall conform to the TMUTCD and the "Compliant Work Zone Traffic Control Devices List" (CWZTCD).
- The Contractor shall maintain devices in a clean condition and replace damaged, nonreflective, faded, or broken devices and bases as required by the Engineer/Inspector. The Contractor shall be required to maintain proper device spacing and alignment.
- Portable bases shall be fabricated from virgin and/or recycled rubber. The portable bases shall weigh a minimum of 30 lbs.
- Pavement surfaces shall be prepared in a manner that ensures proper bonding between the adhesives, the fixed mount bases and the pavement surface. Adhesives shall be prepared and applied according to the manufacturer's recommendations.
- The installation and removal of channelizing devices shall not cause detrimental effects to the final pavement surfaces, including pavement surface discoloration or surface integrity. Driveable bases shall not be permitted on final pavement surfaces. The Engineer/Inspector shall approve all application and removal procedures of fixed bases.

Posted Speed	Formula	Minimum Desirable Taper Lengths * *			Suggested Maximum Spacing of Channelizing Devices	
		10' Offset	11' Offset	12' Offset	On a Taper	On a Tangent
30	L = WS <sup>2</sup> / 60	150'	165'	180'	30'	60'
35		205'	225'	245'	35'	70'
40		265'	295'	320'	40'	80'
45	L = WS	450'	495'	540'	45'	90'
50		500'	550'	600'	50'	100'
55		550'	605'	660'	55'	110'
60		600'	660'	720'	60'	120'
65		650'	715'	780'	65'	130'
70		700'	770'	840'	70'	140'
75		750'	825'	900'	75'	150'
80		800'	880'	960'	80'	160'

\* \* \* Taper lengths have been rounded off.  
 L=Length of Taper (FT.) W=Width of Offset (FT.)  
 S=Posted Speed (MPH)

**SUGGESTED MAXIMUM SPACING OF CHANNELIZING DEVICES AND MINIMUM DESIRABLE TAPER LENGTHS**

SHEET 9 OF 12



**BARRICADE AND CONSTRUCTION CHANNELIZING DEVICES**

BC (9) - 21

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7-13 5-21	ATL	BOWIE	35	

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**TYPE 3 BARRICADES**

1. Refer to the Compliant Work Zone Traffic Control Devices List (CWZTCD) for details of the Type 3 Barricades and a list of all materials used in the construction of Type 3 Barricades.
2. Type 3 Barricades shall be used at each end of construction projects closed to all traffic.
3. Barricades extending across a roadway should have stripes that slope downward in the direction toward which traffic must turn in detouring. When both right and left turns are provided, the chevron striping may slope downward in both directions from the center of the barricade. Where no turns are provided at a closed road, striping should slope downward in both directions toward the center of roadway.
4. Striping of rails, for the right side of the roadway, should slope downward to the left. For the left side of the roadway, striping should slope downward to the right.
5. Identification markings may be shown only on the back of the barricade rails. The maximum height of letters and/or company logos used for identification shall be 1".
6. Barricades shall not be placed parallel to traffic unless an adequate clear zone is provided.
7. Warning lights shall NOT be installed on barricades.
8. Where barricades require the use of weights to keep from turning over, the use of sandbags with dry, cohesionless sand is recommended. The sandbags will be tied shut to keep the sand from spilling and to maintain a constant weight. Sand bags shall not be stacked in a manner that covers any portion of a barricade rails reflective sheeting. Rock, concrete, iron, steel or other solid objects will NOT be permitted. Sandbags should weigh a minimum of 35 lbs and a maximum of 50 lbs. Sandbags shall be made of a durable material that tears upon vehicular impact. Rubber (such as tire inner tubes) shall not be used for sandbags. Sandbags shall only be placed along or upon the base supports of the device and shall not be suspended above ground level or hung with rope, wire, chains or other fasteners.
9. Sheeting for barricades shall be retroreflective Type A or Type B conforming to Departmental Material Specification DMS-8300 unless otherwise noted.

Barricades shall NOT be used as a sign support.

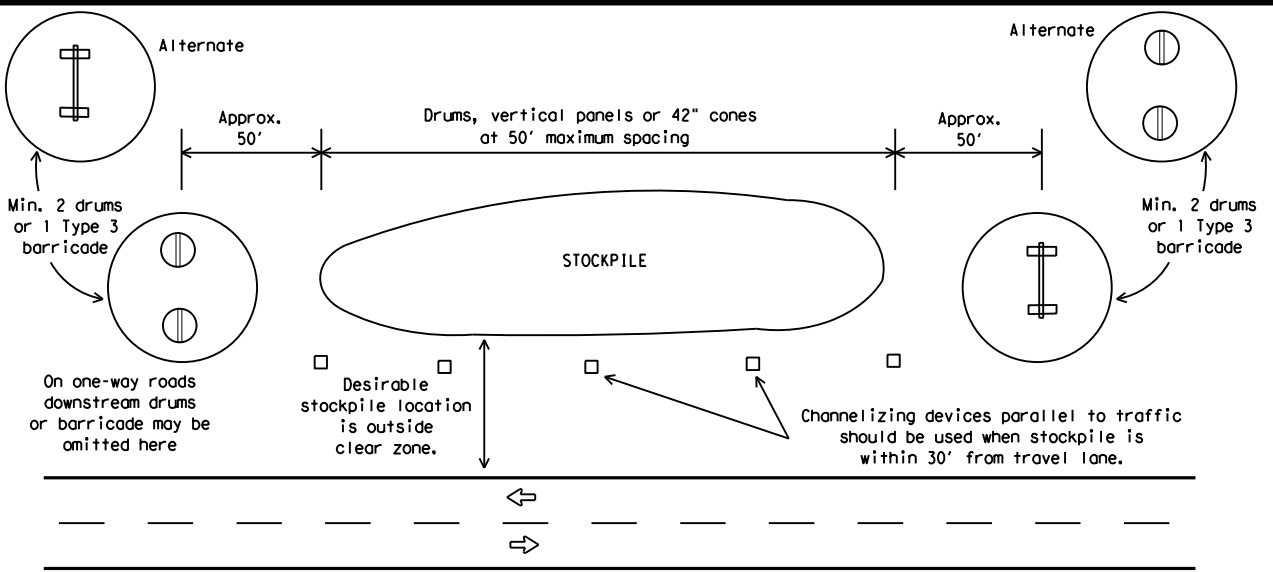


**TYPICAL STRIPING DETAIL FOR BARRICADE RAIL**



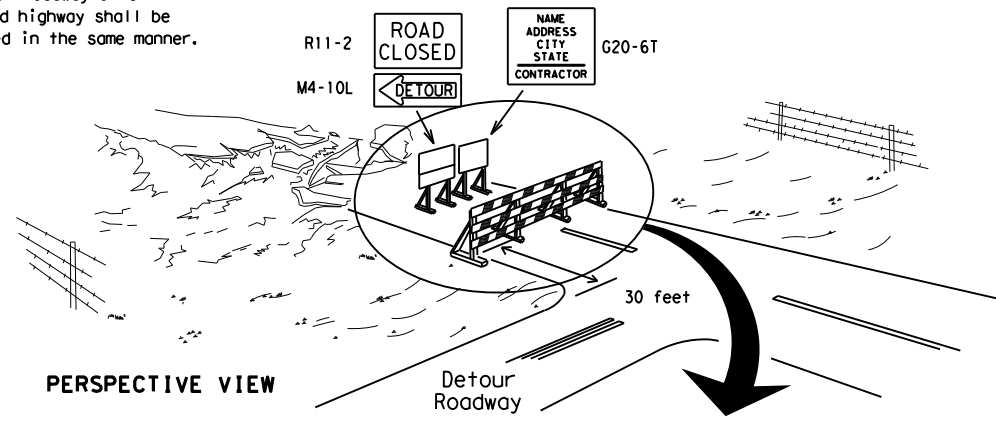
Stiffener may be inside or outside of support, but no more than 2 stiffeners shall be allowed on one barricade.

**TYPICAL PANEL DETAIL FOR SKID OR POST TYPE BARRICADES**



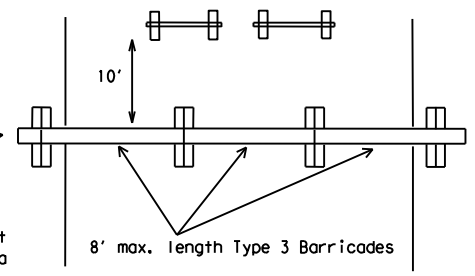
**TRAFFIC CONTROL FOR MATERIAL STOCKPILES**

Each roadway of a divided highway shall be barricaded in the same manner.



PERSPECTIVE VIEW

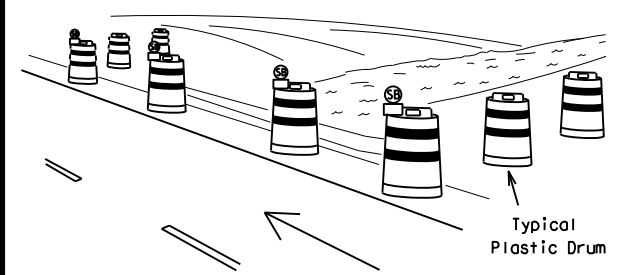
The three rails on Type 3 barricades shall be reflectorized orange and reflective white stripes on one side facing one-way traffic and both sides for two-way traffic. Barricade striping should slant downward in the direction of detour.



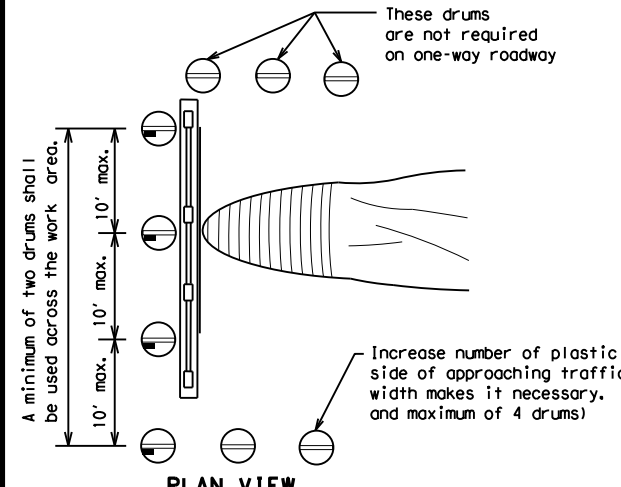
PLAN VIEW

1. Signs should be mounted on independent supports at a 7 foot mounting height in center of roadway. The signs should be a minimum of 10 feet behind Type 3 Barricades.
2. Advance signing shall be as specified elsewhere in the plans.

**TYPE 3 BARRICADE (POST AND SKID) TYPICAL APPLICATION**



PERSPECTIVE VIEW



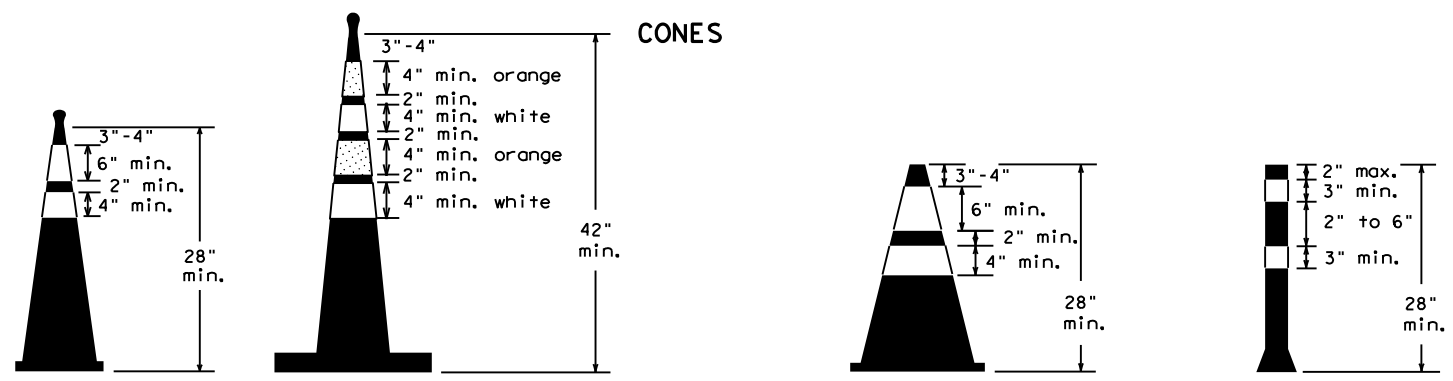
PLAN VIEW

**CULVERT WIDENING OR OTHER ISOLATED WORK WITHIN THE PROJECT LIMITS**

1. Where positive redirection capability is provided, drums may be omitted.
2. Plastic construction fencing may be used with drums for safety as required in the plans.
3. Vertical Panels on flexible support may be substituted for drums when the shoulder width is less than 4 feet.
4. When the shoulder width is greater than 12 feet, steady-burn lights may be omitted if drums are used.
5. Drums must extend the length of the culvert widening.

LEGEND	
	Plastic drum
	Plastic drum with steady burn light or yellow warning reflector
	Steady burn warning light or yellow warning reflector

These drums are not required on one-way roadway. Increase number of plastic drums on the side of approaching traffic if the crown width makes it necessary. (minimum of 2 and maximum of 4 drums)



Two-Piece cones

One-Piece cones

Tubular Marker

28" Cones shall have a minimum weight of 9 1/2 lbs.  
 42" 2-piece cones shall have a minimum weight of 30 lbs. including base.

1. Traffic cones and tubular markers shall be predominantly orange, and meet the height and weight requirements shown above.
2. One-piece cones have the body and base of the cone molded in one consolidated unit. Two-piece cones have a cone shaped body and a separate rubber base, or ballast, that is added to keep the device upright and in place.
3. Two-piece cones may have a handle or loop extending up to 8" above the minimum height shown, in order to aid in retrieving the device.
4. Cones or tubular markers shall have white or white and orange reflective bands as shown above. The reflective bands shall have a smooth, sealed outer surface and meet the requirements of Departmental Material Specification DMS-8300 Type A or Type B.
5. 28" cones and tubular markers are generally suitable for short duration and short-term stationary work as defined on BC(4). These should not be used for intermediate-term or long-term stationary work unless personnel is on-site to maintain them in their proper upright position.
6. 42" two-piece cones, vertical panels or drums are suitable for all work zone durations.
7. Cones or tubular markers used on each project should be of the same size and shape.



**BARRICADE AND CONSTRUCTION CHANNELIZING DEVICES**

**BC (10) - 21**

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9-07 8-14	DIST	COUNTY	SHEET NO.	
7-13 5-21	ATL	BOWIE	36	

## WORK ZONE PAVEMENT MARKINGS

### GENERAL

- The Contractor shall be responsible for maintaining work zone and existing pavement markings, in accordance with the standard specifications and special provisions, on all roadways open to traffic within the CSJ limits unless otherwise stated in the plans.
- Color, patterns and dimensions shall be in conformance with the "Texas Manual on Uniform Traffic Control Devices" (TMUTCD).
- Additional supplemental pavement marking details may be found in the plans or specifications.
- Pavement markings shall be installed in accordance with the TMUTCD and as shown on the plans.
- When short term markings are required on the plans, short term markings shall conform with the TMUTCD, the plans and details as shown on the Standard Plan Sheet WZ(STPM).
- When standard pavement markings are not in place and the roadway is opened to traffic, DO NOT PASS signs shall be erected to mark the beginning of the sections where passing is prohibited and PASS WITH CARE signs at the beginning of sections where passing is permitted.
- All work zone pavement markings shall be installed in accordance with Item 662, "Work Zone Pavement Markings."

### RAISED PAVEMENT MARKERS

- Raised pavement markers are to be placed according to the patterns on BC(12).
- All raised pavement markers used for work zone markings shall meet the requirements of Item 672, "RAISED PAVEMENT MARKERS" and Departmental Material Specification DMS-4200 or DMS-4300.

### PREFABRICATED PAVEMENT MARKINGS

- Removable prefabricated pavement markings shall meet the requirements of DMS-8241.
- Non-removable prefabricated pavement markings (foil back) shall meet the requirements of DMS-8240.

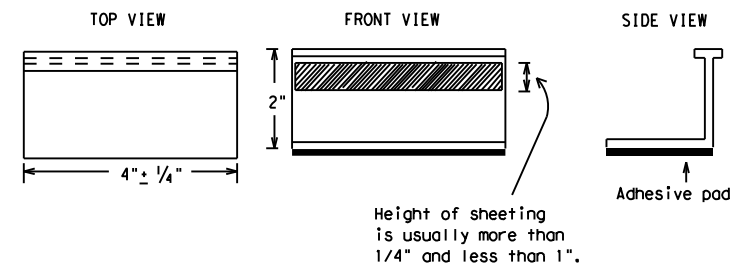
### MAINTAINING WORK ZONE PAVEMENT MARKINGS

- The Contractor will be responsible for maintaining work zone pavement markings within the work limits.
- Work zone pavement markings shall be inspected in accordance with the frequency and reporting requirements of work zone traffic control device inspections as required by Form 599.
- The markings should provide a visible reference for a minimum distance of 300 feet during normal daylight hours and 160 feet when illuminated by automobile low-beam headlights at night, unless sight distance is restricted by roadway geometrics.
- Markings failing to meet this criteria within the first 30 days after placement shall be replaced at the expense of the Contractor as per Specification Item 662.

### REMOVAL OF PAVEMENT MARKINGS

- Pavement markings that are no longer applicable, could create confusion or direct a motorist toward or into the closed portion of the roadway shall be removed or obliterated before the roadway is opened to traffic.
- The above shall not apply to detours in place for less than three days, where flaggers and/or sufficient channelizing devices are used in lieu of markings to outline the detour route.
- Pavement markings shall be removed to the fullest extent possible, so as not to leave a discernable marking. This shall be by any method approved by TxDOT Specification Item 677 for "Eliminating Existing Pavement Markings and Markers".
- The removal of pavement markings may require resurfacing or seal coating portions of the roadway as described in Item 677.
- Subject to the approval of the Engineer, any method that proves to be successful on a particular type pavement may be used.
- Blast cleaning may be used but will not be required unless specifically shown in the plans.
- Over-painting of the markings SHALL NOT BE permitted.
- Removal of raised pavement markers shall be as directed by the Engineer.
- Removal of existing pavement markings and markers will be paid for directly in accordance with Item 677, "ELIMINATING EXISTING PAVEMENT MARKINGS AND MARKERS," unless otherwise stated in the plans.
- Black-out marking tape may be used to cover conflicting existing markings for periods less than two weeks when approved by the Engineer.

## Temporary Flexible-Reflective Roadway Marker Tabs



**STAPLES OR NAILS SHALL NOT BE USED TO SECURE  
TEMPORARY FLEXIBLE-REFLECTIVE ROADWAY MARKER  
TABS TO THE PAVEMENT SURFACE**

- Temporary flexible-reflective roadway marker tabs used as guidemarks shall meet the requirements of DMS-8242.
- Tabs detailed on this sheet are to be inspected and accepted by the Engineer or designated representative. Sampling and testing is not normally required, however at the option of the Engineer, either "A" or "B" below may be imposed to assure quality before placement on the roadway.
  - Select five (5) or more tabs at random from each lot or shipment and submit to the Construction Division, Materials and Pavement Section to determine specification compliance.
  - Select five (5) tabs and perform the following test. Affix five (5) tabs at 24 inch intervals on an asphaltic pavement in a straight line. Using a medium size passenger vehicle or pickup, run over the markers with the front and rear tires at a speed of 35 to 40 miles per hour, four (4) times in each direction. No more than one (1) out of the five (5) reflective surfaces shall be lost or displaced as a result of this test.
- Small design variances may be noted between tab manufacturers.
- See Standard Sheet WZ(STPM) for tab placement on new pavements. See Standard Sheet TCP(7-1) for tab placement on seal coat work.

### RAISED PAVEMENT MARKERS USED AS GUIDEMARKS

- Raised pavement markers used as guidemarks shall be from the approved product list, and meet the requirements of DMS-4200.
- All temporary construction raised pavement markers provided on a project shall be of the same manufacturer.
- Adhesive for guidemarks shall be bituminous material hot applied or butyl rubber pad for all surfaces, or thermoplastic for concrete surfaces.

Guidemarks shall be designated as:  
 YELLOW - (two amber reflective surfaces with yellow body).  
 WHITE - (one silver reflective surface with white body).

DEPARTMENTAL MATERIAL SPECIFICATIONS	
PAVEMENT MARKERS (REFLECTORIZED)	DMS-4200
TRAFFIC BUTTONS	DMS-4300
EPOXY AND ADHESIVES	DMS-6100
BITUMINOUS ADHESIVE FOR PAVEMENT MARKERS	DMS-6130
PERMANENT PREFABRICATED PAVEMENT MARKINGS	DMS-8240
TEMPORARY REMOVABLE, PREFABRICATED PAVEMENT MARKINGS	DMS-8241
TEMPORARY FLEXIBLE, REFLECTIVE ROADWAY MARKER TABS	DMS-8242

A list of prequalified reflective raised pavement markers, non-reflective traffic buttons, roadway marker tabs and other pavement markings can be found at the Material Producer List web address shown on BC(1).

SHEET 11 OF 12



## BARRICADE AND CONSTRUCTION PAVEMENT MARKINGS

**BC(11)-21**

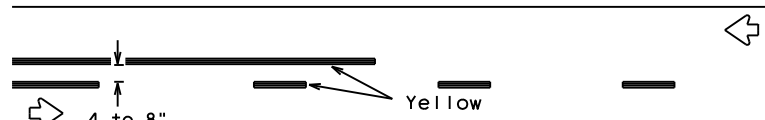
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11-02 8-14				

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## PAVEMENT MARKING PATTERNS

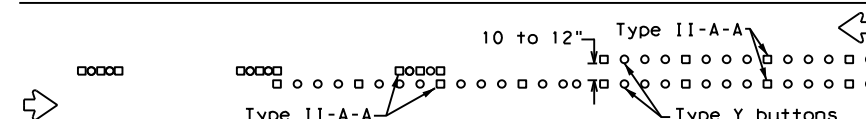


REFLECTORIZED PAVEMENT MARKINGS - PATTERN A

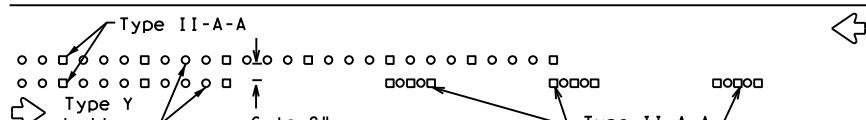


REFLECTORIZED PAVEMENT MARKINGS - PATTERN B

Pattern A is the TXDOT Standard, however Pattern B may be used if approved by the Engineer. Prefabricated markings may be substituted for reflectORIZED pavement markings.



RAISED PAVEMENT MARKERS - PATTERN A



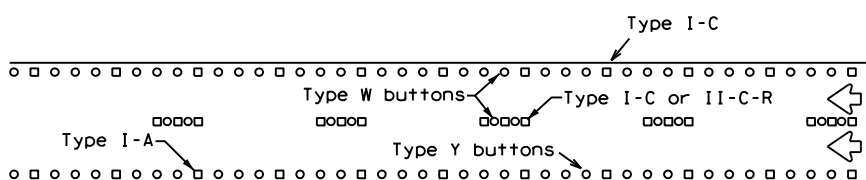
RAISED PAVEMENT MARKERS - PATTERN B

## CENTER LINE & NO-PASSING ZONE BARRIER LINES FOR TWO-LANE, TWO-WAY HIGHWAYS



REFLECTORIZED PAVEMENT MARKINGS

Prefabricated markings may be substituted for reflectORIZED pavement markings.



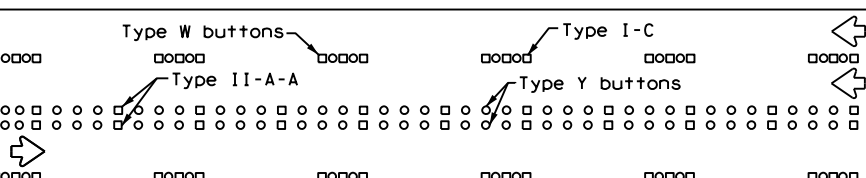
RAISED PAVEMENT MARKERS

## EDGE & LANE LINES FOR DIVIDED HIGHWAY



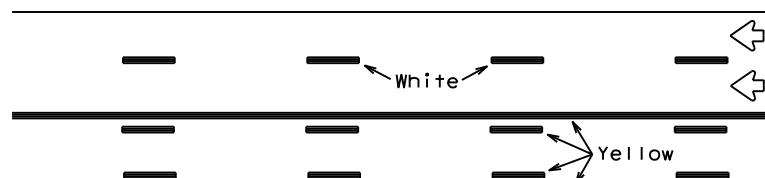
REFLECTORIZED PAVEMENT MARKINGS

Prefabricated markings may be substituted for reflectORIZED pavement markings.



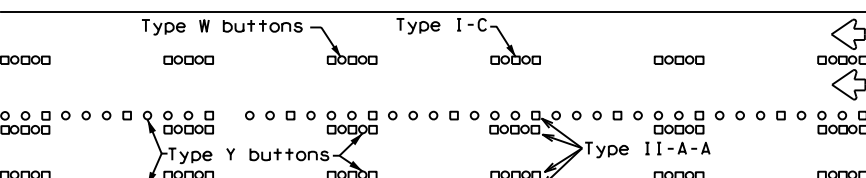
RAISED PAVEMENT MARKERS

## LANE & CENTER LINES FOR MULTILANE UNDIVIDED HIGHWAYS



REFLECTORIZED PAVEMENT MARKINGS

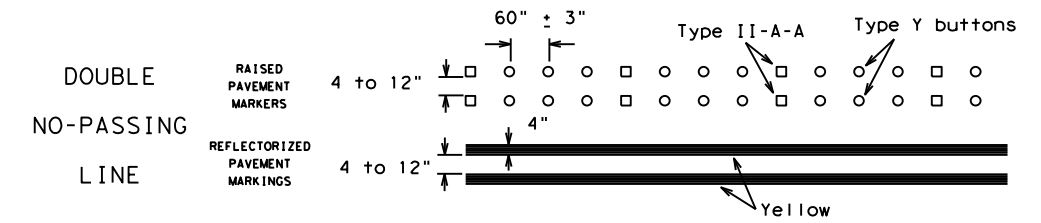
Prefabricated markings may be substituted for reflectORIZED pavement markings.



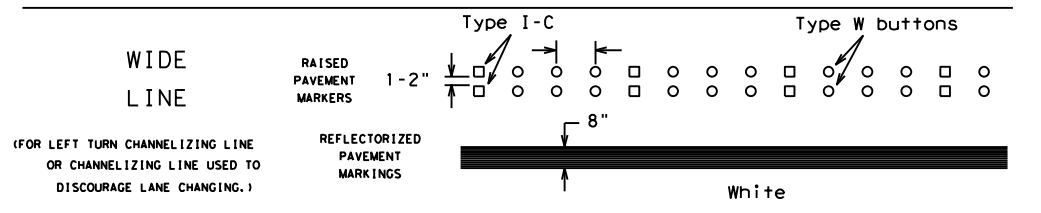
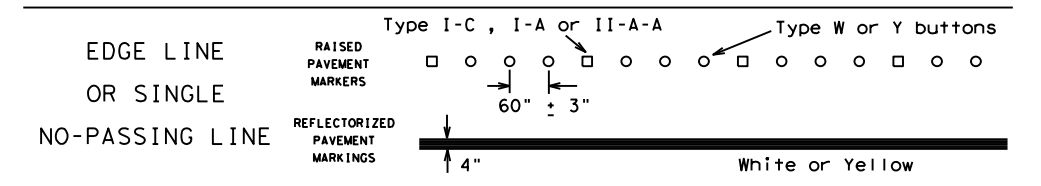
RAISED PAVEMENT MARKERS

## TWO-WAY LEFT TURN LANE

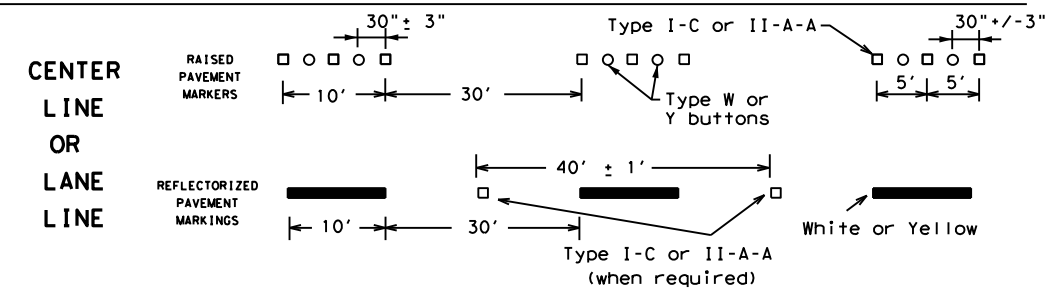
## STANDARD WORK ZONE PAVEMENT MARKINGS DETAILS



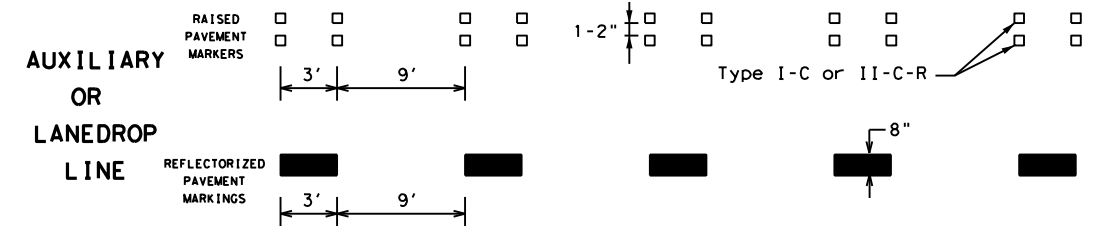
### SOLID LINES



(FOR LEFT TURN CHANNELIZING LINE OR CHANNELIZING LINE USED TO DISCOURAGE LANE CHANGING.)

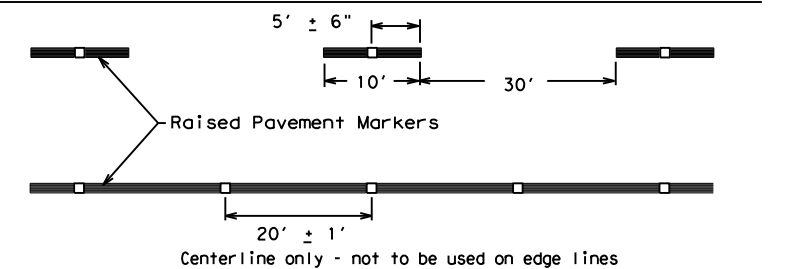


### BROKEN LINES



### REMOVABLE MARKINGS WITH RAISED PAVEMENT MARKERS

If raised pavement markers are used to supplement REMOVABLE markings, the markers shall be applied to the top of the tape at the approximate mid length of tape used for broken lines or at 20 foot spacing for solid lines. This allows an easier removal of raised pavement markers and tape.



SHEET 12 OF 12



## BARRICADE AND CONSTRUCTION PAVEMENT MARKING PATTERNS

BC(12)-21

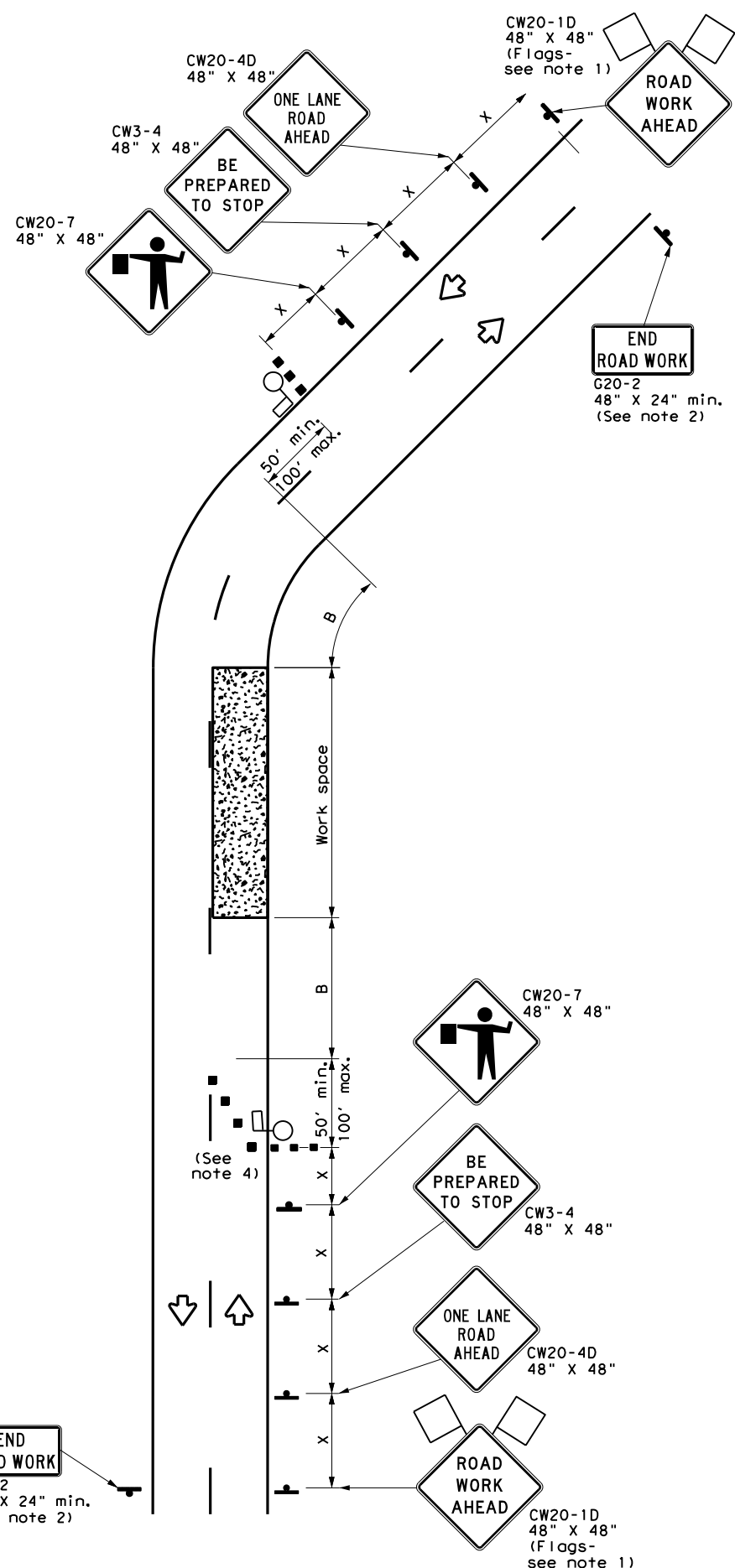
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©TxDOT February 1998	CONT	SECT	JOB	HIGHWAY
REVISIONS	0010	19	014	FM 991
1-97 9-07 5-21	DIST	COUNTY	SHEET NO.	
2-98 7-13	ATL	BOWIE	38	
11-02 8-14				

Raised pavement markers used as standard pavement markings shall be from the approved products list and meet the requirements of Item 672 "RAISED PAVEMENT MARKERS."

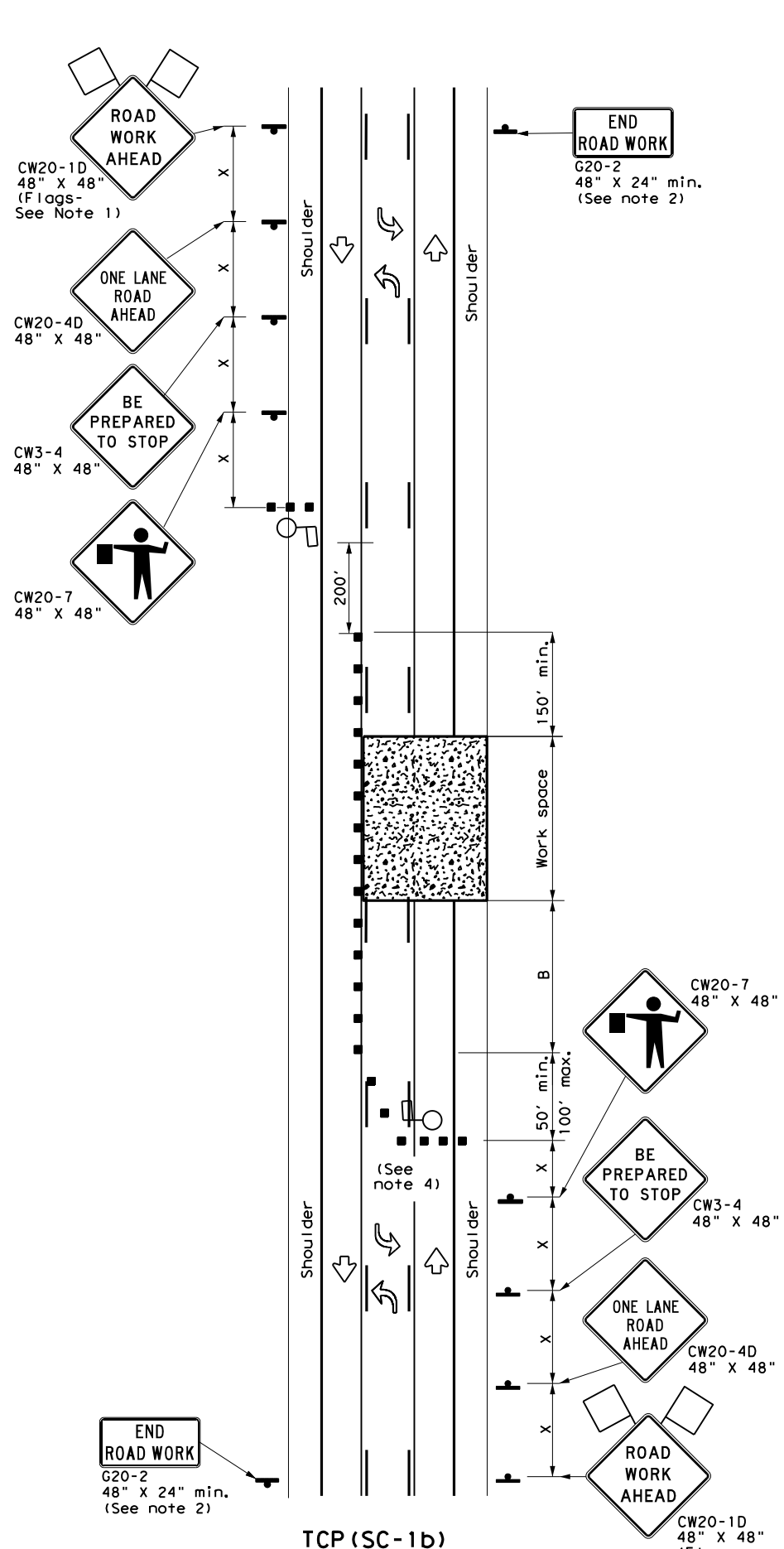
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DATE: 7/10/2023 4:59:17 PM  
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DATE: 7/11/2023 8:36:27 AM  
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TCP (SC-1a)  
**ONE LANE TWO-WAY (TWO LANES)  
CONTROL WITH PILOT VEHICLE**



TCP (SC-1b)  
**ONE LANE TWO-WAY (THREE LANES)  
CONTROL WITH PILOT VEHICLE  
AND CHANNELIZING DEVICES**

LEGEND			
	Type 3 Barricade		Channelizing Devices
	Heavy Work Vehicle		Truck Mounted Attenuator (TMA)
	Trailer Mounted Flashing Arrow Board		Portable Changeable Message Sign (PCMS)
	Sign		Traffic Flow
	Flag		Flagger

Posted Speed *	Formula	Minimum Desirable Taper Lengths * * *			Suggested Maximum Spacing of Channelizing Devices		Minimum Sign Spacing Distance "x"	Suggested Longitudinal Buffer Space "B"	Stopping Sight Distance
		10' Offset	11' Offset	12' Offset	On a Taper	On a Tangent			
30	L = $\frac{WS^2}{60}$	150'	165'	180'	30'	60'	120'	90'	200'
35		205'	225'	245'	35'	70'	160'	120'	250'
40		265'	295'	320'	40'	80'	240'	155'	305'
45	L = WS	450'	495'	540'	45'	90'	320'	195'	360'
50		500'	550'	600'	50'	100'	400'	240'	425'
55		550'	605'	660'	55'	110'	500'	295'	495'
60		600'	660'	720'	60'	120'	600'	350'	570'
65		650'	715'	780'	65'	130'	700'	410'	645'
70		700'	770'	840'	70'	140'	800'	475'	730'
75		750'	825'	900'	75'	150'	900'	540'	820'

\* Conventional Roads Only  
 \*\* Taper lengths have been rounded off.  
 L = Length of Taper (FT) W = Width of Offset (FT) S = Posted Speed (MPH)

TYPICAL USAGE				
MOBILE	SHORT DURATION	SHORT TERM STATIONARY	INTERMEDIATE TERM STATIONARY	LONG TERM STATIONARY
	✓	✓		

**GENERAL NOTES**

- Flags attached to signs where shown are REQUIRED.
- All traffic control devices illustrated are REQUIRED, except: if project signing is present, END ROAD WORK (G20-2) sign is optional with approval by the Engineer.
- Sign spacing may be increased or an additional ROAD WORK AHEAD (CW20-1D) sign may be used if advance warning ahead of the flagger sign is less than 1500 feet.
- Flaggers should use two-way radios or other methods of communication at all times for traffic control coordination.
- Flaggers should use 24" STOP (CW20-8) / SLOW (CW20-8aT) paddles to control traffic. Flags should be limited to emergency situations.
- If the work space is located near a horizontal or vertical curve, the buffer distances should be increased in order to maintain adequate stopping sight distance to the flagger and a queue of stopped vehicles (see table above).
- If the seal coat operation crosses intersections, traffic in these areas must be controlled. Care must be taken to prevent vehicles from crossing the asphalt before the aggregate is placed. This may require positioning additional traffic control personnel (flaggers) at the intersection.
- Temporary rumble strips are not required on seal coat operations.
- The pilot car is used to guide vehicles through traffic control zone. The pilot car shall have an identification name displayed and PILOT CAR, FOLLOW ME (G20-4) sign or message board mounted in a conspicuous position on rear.

**TCP (SC-1a)**

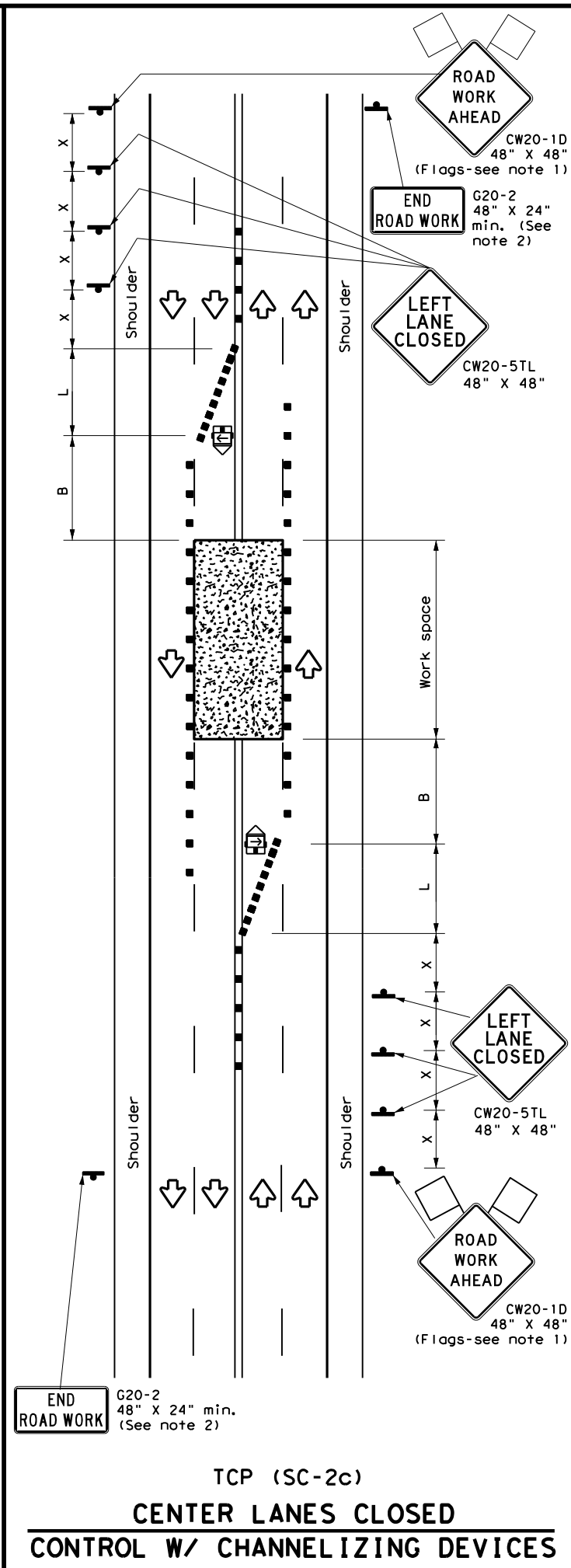
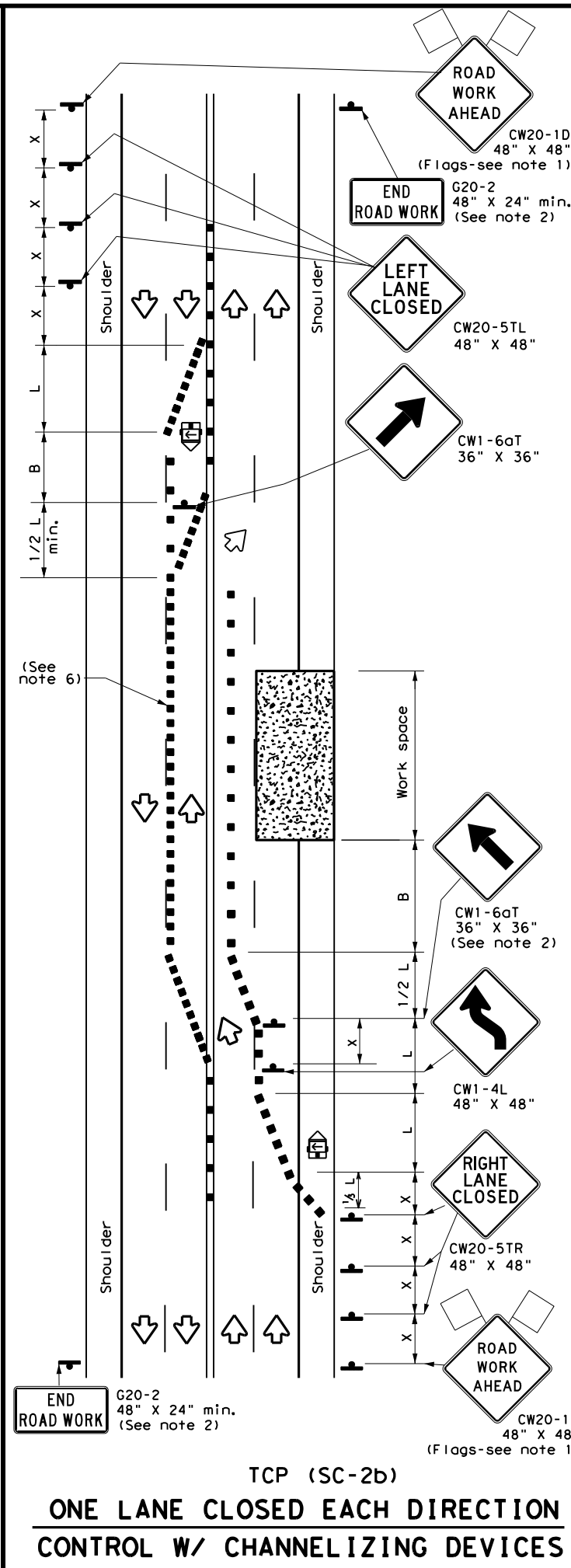
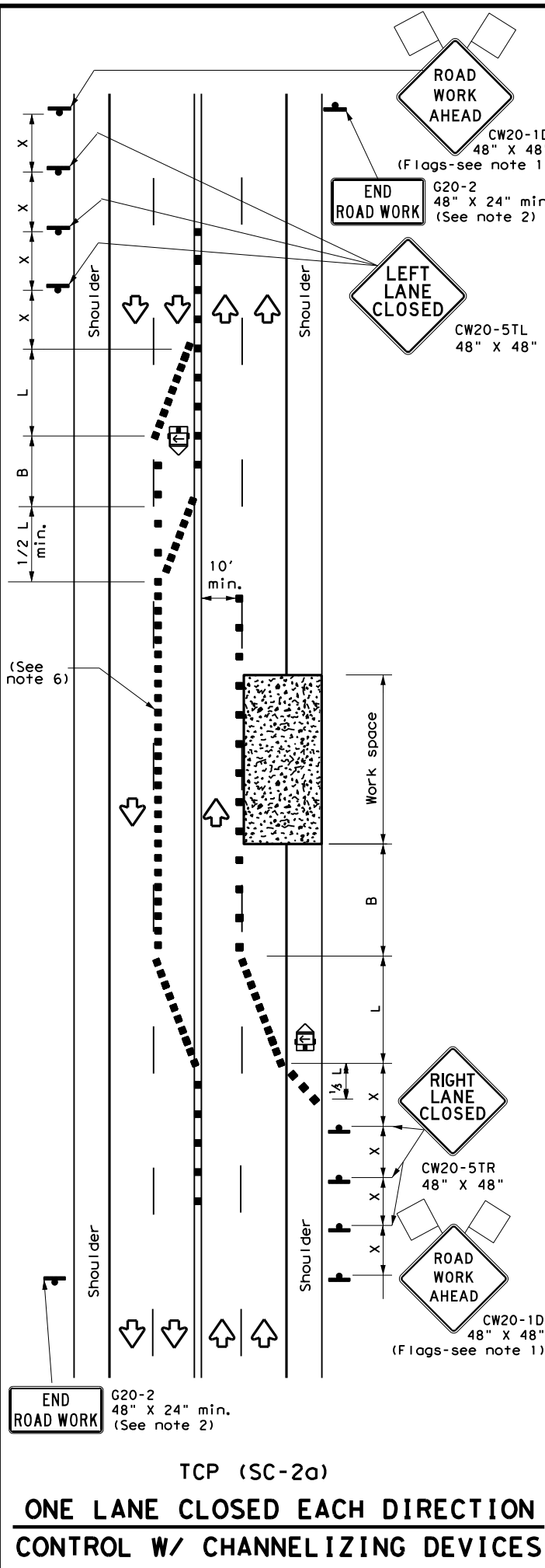
- Channelizing devices on the centerline are not required when a pilot car is leading traffic, unless directed by the Engineer.

SHEET 1 OF 8

			Traffic Safety Division Standard		
<b>TRAFFIC CONTROL PLAN SEAL COAT OPERATIONS ONE-LANE TWO-WAY</b>					
<b>TCP (SC-1) - 22</b>					
FILE:	tcpsc-1-22.dgn	DN:	CK:	DW:	CK:
© TxDOT	October 2022	CONT	SECT	JOB	HIGHWAY
4-21	REVISIONS	0010	19	014	FM 991
10-22		DIST	COUNTY	SHEET NO.	
		ATL	BOWIE	39	



DATE: 7/11/2023 8:38:49 AM  
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**LEGEND**

	Type 3 Barricade		Channelizing Devices
	Heavy Work Vehicle		Truck Mounted Attenuator (TMA)
	Trailer Mounted Flashing Arrow Board		Portable Changeable Message Sign (PCMS)
	Sign		Traffic Flow
	Flag		Flagger

Posted Speed *	Formula	Minimum Desirable Taper Lengths **			Suggested Maximum Spacing of Channelizing Devices		Minimum Sign Spacing Distance "X"	Suggested Longitudinal Buffer Space "B"
		10' Offset	11' Offset	12' Offset	On a Taper	On a Tangent		
30	$L = \frac{WS^2}{60}$	150'	165'	180'	30'	60'	120'	90'
35		205'	225'	245'	35'	70'	160'	120'
40		265'	295'	320'	40'	80'	240'	155'
45	L = WS	450'	495'	540'	45'	90'	320'	195'
50		500'	550'	600'	50'	100'	400'	240'
55		550'	605'	660'	55'	110'	500'	295'
60		600'	660'	720'	60'	120'	600'	350'
65		650'	715'	780'	65'	130'	700'	410'
70		700'	770'	840'	70'	140'	800'	475'
75		750'	825'	900'	75'	150'	900'	540'

\* Conventional Roads Only  
 \*\* Taper lengths have been rounded off.  
 L = Length of Taper (FT) W = Width of Offset (FT)  
 S = Posted Speed (MPH)

**TYPICAL USAGE**

MOBILE	SHORT DURATION	SHORT TERM STATIONARY	INTERMEDIATE TERM STATIONARY	LONG TERM STATIONARY
	✓	✓		

- GENERAL NOTES**
- Flags attached to signs where shown are REQUIRED.
  - All traffic control devices illustrated are REQUIRED, except: if project signing is present, END ROAD WORK (G20-2) sign is optional with approval by the Engineer.
  - The ROAD WORK AHEAD (CW20-1D) sign may be repeated if the visibility of the work zone is less than 1500 feet.
  - If the seal coat operation crosses intersections, traffic in these areas must be controlled. Care must be taken to prevent vehicles from crossing the asphalt before the aggregate is placed. This may require positioning additional traffic control personnel (flaggers) at the intersection.
  - Temporary rumble strips are not required on seal coat operations.
- TCP (SC-2a) and (SC-2b)**
- Channelizing devices which separate two-way traffic shall be spaced on tapers at:
    - 20 feet;
    - 15 feet when posted speeds are 35 mph or slower; or
    - at 1/2(S) for tangent sections.
 This tighter device spacing is intended for the areas of conflicting markings, not the entire work zone.

SHEET 2 OF 8

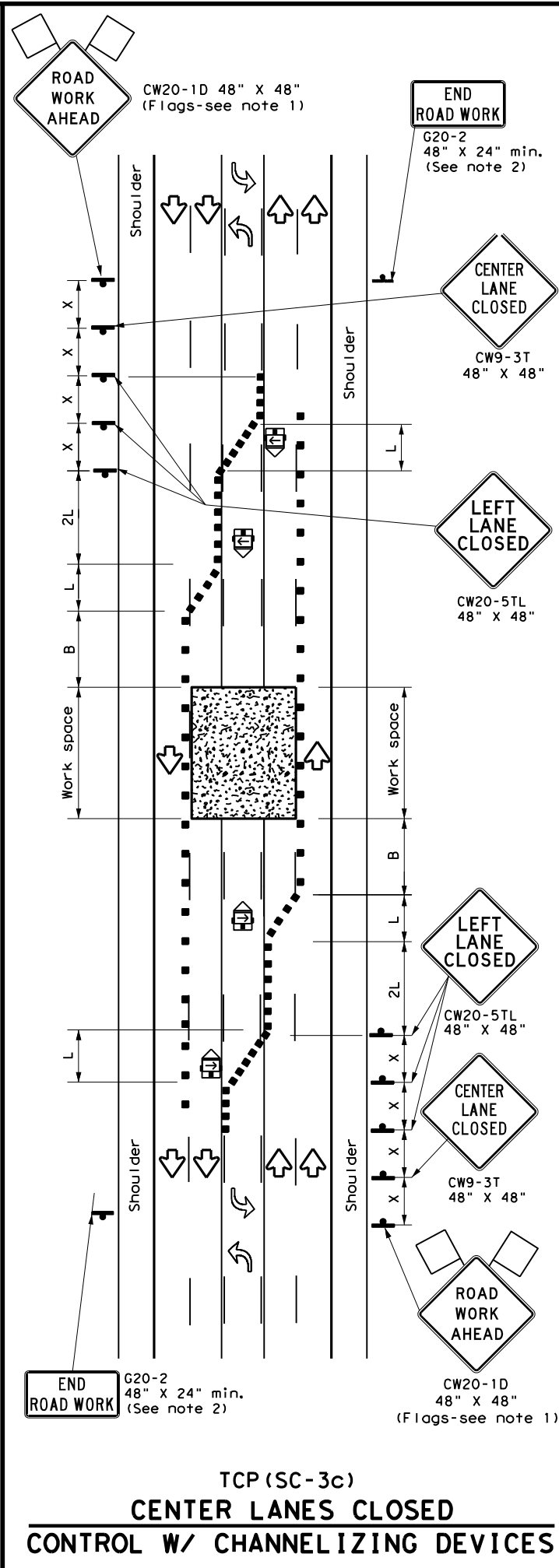
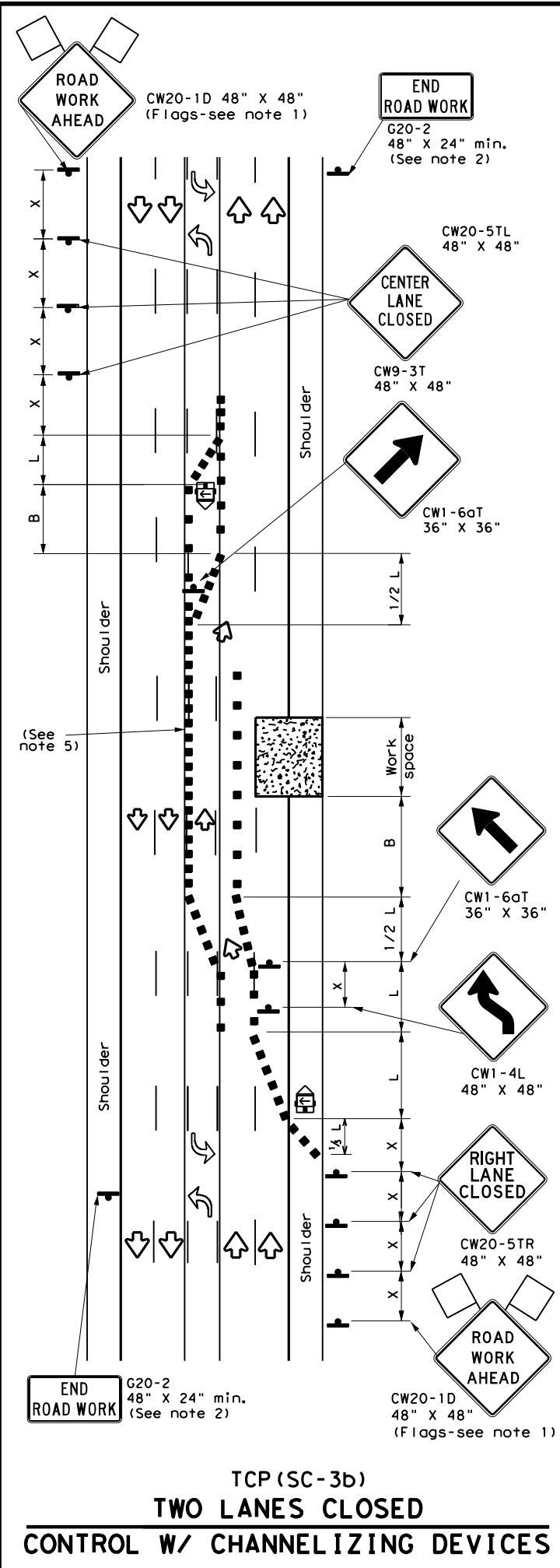
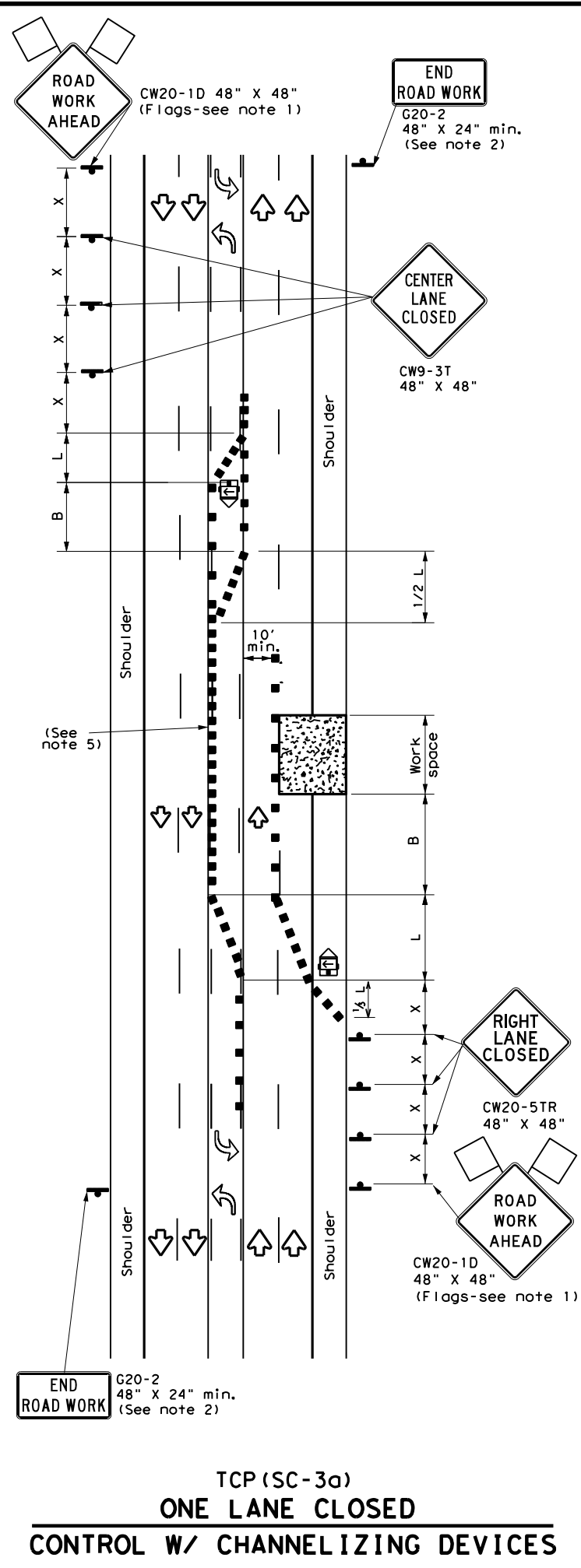
Texas Department of Transportation  
 Traffic Safety Division Standard

**TRAFFIC CONTROL PLAN  
 SEALCOAT OPERATIONS  
 MULTILANE ROADS  
 (UNDIVIDED)  
 TCP (SC-2) -22**

FILE: tcpsc-2-22.dgn	DN:	CK:	DW:	CK:
© TxDOT October 2022	CONT	SECT	JOB	HIGHWAY
REVISIONS	0010	19	014	FM 991
4-21	DIST	COUNTY	SHEET NO.	
10-22	ATL	BOWIE	40	

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DATE: 7/11/2023 8:40:39 AM  
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LEGEND			
	Type 3 Barricade		Channelizing Devices
	Heavy Work Vehicle		Truck Mounted Attenuator (TMA)
	Trailer Mounted Flashing Arrow Board		Portable Changeable Message Sign (PCMS)
	Sign		Traffic Flow
	Flag		Flagger

Posted Speed * X	Formula	Minimum Desirable Taper Lengths **			Suggested Maximum Spacing of Channelizing Devices		Minimum Sign Spacing Distance "X"	Suggested Longitudinal Buffer Space "B"
		10' Offset	11' Offset	12' Offset	On a Taper	On a Tangent		
30	L = WS <sup>2</sup> / 60	150'	165'	180'	30'	60'	120'	90'
35		205'	225'	245'	35'	70'	160'	120'
40		265'	295'	320'	40'	80'	240'	155'
45	L = WS	450'	495'	540'	45'	90'	320'	195'
50		500'	550'	600'	50'	100'	400'	240'
55		550'	605'	660'	55'	110'	500'	295'
60		600'	660'	720'	60'	120'	600'	350'
65		650'	715'	780'	65'	130'	700'	410'
70		700'	770'	840'	70'	140'	800'	475'
75		750'	825'	900'	75'	150'	900'	540'

\* Conventional Roads Only  
 \*\* Taper lengths have been rounded off.  
 L = Length of Taper (FT) W = Width of Offset (FT)  
 S = Posted Speed (MPH)

TYPICAL USAGE				
MOBILE	SHORT DURATION	SHORT TERM STATIONARY	INTERMEDIATE TERM STATIONARY	LONG TERM STATIONARY
	✓	✓		

**GENERAL NOTES**

- Flags attached to signs where shown are REQUIRED.
- All traffic control devices illustrated are REQUIRED, except: if project signing is present, END ROAD WORK (G20-2) sign is optional with approval by the Engineer.
- If the seal coat operation crosses intersections, traffic in these areas must be controlled. Care must be taken to prevent vehicles from crossing the asphalt before the aggregate is placed. This may require positioning additional traffic control personal (flaggers) at the intersection.
- Temporary rumble strips are not required on seal coat operations.

**TCP (SC-3a) and (SC-3b)**

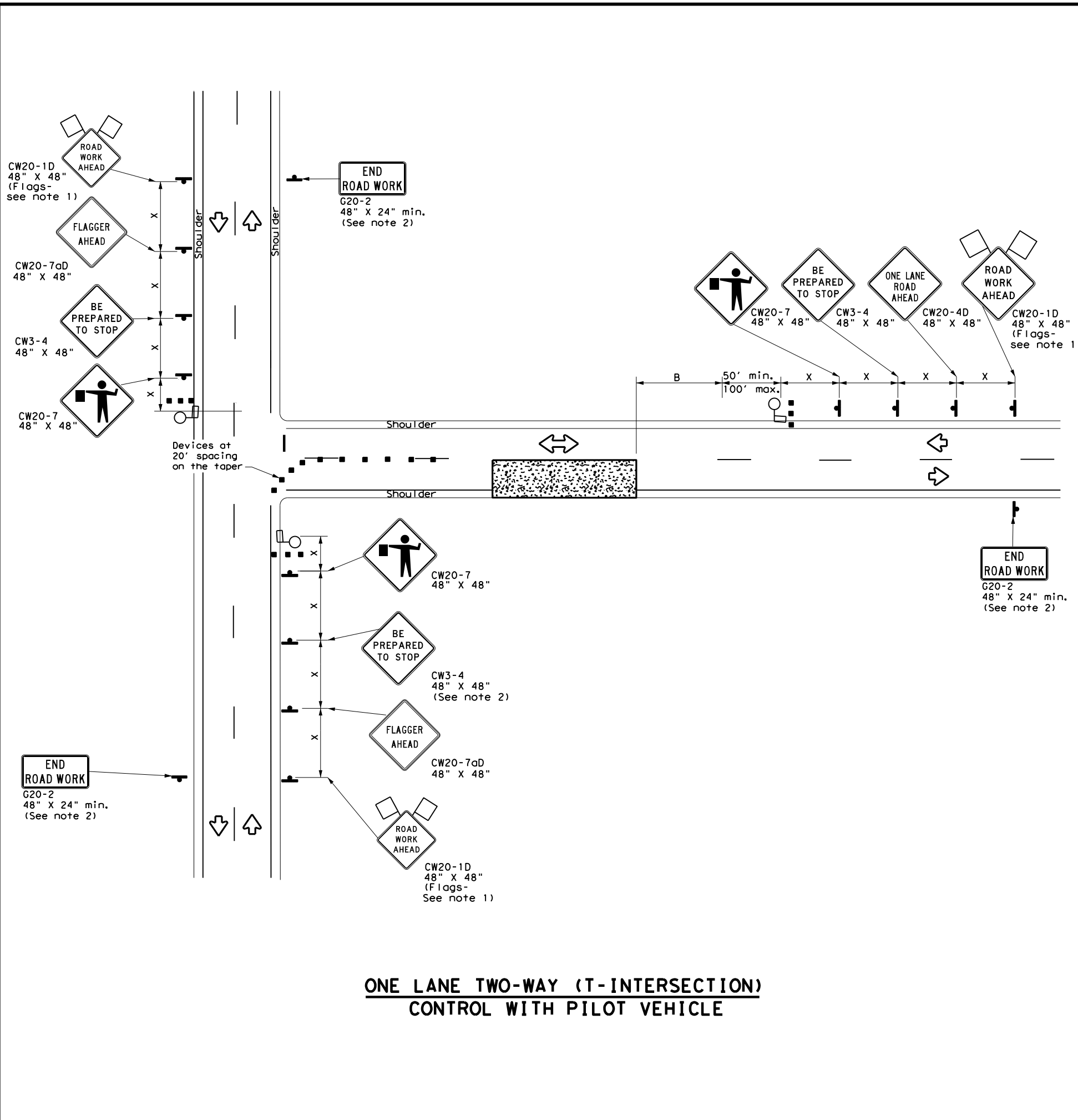
- Channelizing devices which separate two-way traffic shall be spaced on tapers at:
  - 20 feet;
  - 15 feet when posted speeds are 35 mph or slower; or
  - at 1/2(S) for tangent sections.
 This tighter device spacing is intended for the areas of conflicting markings, not the entire work zone.

Texas Department of Transportation  
 Traffic Safety Division Standard

**TRAFFIC CONTROL PLAN**  
**SEAL COAT OPERATIONS**  
**MULTILANE ROADS**  
**(W/ CENTER LEFT TURN LANE)**  
**TCP (SC-3) - 22**

FILE: tcpsc-3-22.dgn	DN:	CK:	DW:	CK:
© TxDOT	REVISIONS	CONT	SECT	JOB
0010	19	014	FM	991
4-21	10-22	DIST	COUNTY	SHEET NO.
		ATL	BOWIE	41

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LEGEND			
	Type 3 Barricade		Channelizing Devices
	Heavy Work Vehicle		Truck Mounted Attenuator (TMA)
	Trailer Mounted Flashing Arrow Board		Portable Changeable Message Sign (PCMS)
	Sign		Traffic Flow
	Flag		Flagger

Posted Speed *	Formula	Minimum Desirable Taper Lengths **			Suggested Maximum Spacing of Channelizing Devices		Minimum Sign Spacing Distance "X"	Suggested Longitudinal Buffer Space "B"	Stopping Sight Distance
		10' Offset	11' Offset	12' Offset	On a Taper	On a Tangent			
30	$L = \frac{WS^2}{60}$	150'	165'	180'	30'	60'	120'	90'	200'
35		205'	225'	245'	35'	70'	160'	120'	250'
40		265'	295'	320'	40'	80'	240'	155'	305'
45	L = WS	450'	495'	540'	45'	90'	320'	195'	360'
50		500'	550'	600'	50'	100'	400'	240'	425'
55		550'	605'	660'	55'	110'	500'	295'	495'
60		600'	660'	720'	60'	120'	600'	350'	570'
65		650'	715'	780'	65'	130'	700'	410'	645'
70		700'	770'	840'	70'	140'	800'	475'	730'
75		750'	825'	900'	75'	150'	900'	540'	820'

\* Conventional Roads Only  
 \*\* Taper lengths have been rounded off.  
 L = Length of Taper (FT) W = Width of Offset (FT) S = Posted Speed (MPH)

TYPICAL USAGE				
MOBILE	SHORT DURATION	SHORT TERM STATIONARY	INTERMEDIATE TERM STATIONARY	LONG TERM STATIONARY
	✓	✓		

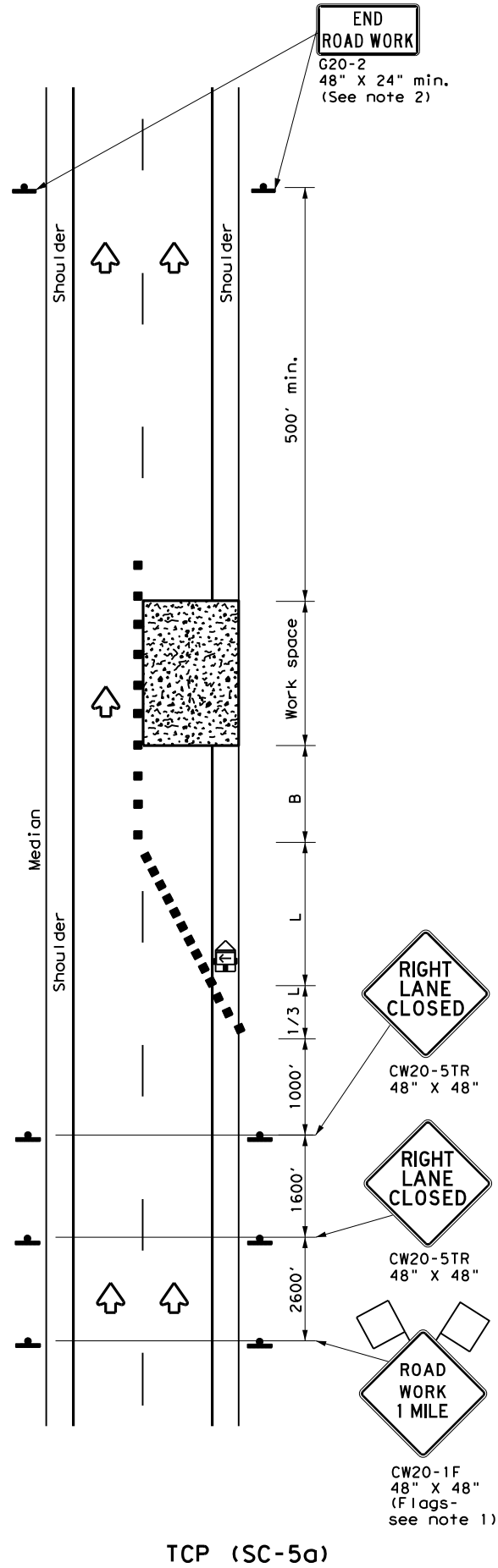
**GENERAL NOTES**

- Flags attached to signs where shown are REQUIRED.
- All traffic control devices illustrated are REQUIRED, except: if project signing is present, END ROAD WORK (G20-2) sign is optional with approval by the Engineer.
- Flaggers should use two-way radios or other methods of communication at all times for traffic control coordination.
- Flaggers should use 24" STOP (CW20-8) / SLOW (CW20-8aT) paddles to control traffic. Flags should be limited to emergency situations.
- If the work space is located near a horizontal or vertical curve, the buffer distances should be increased in order to maintain adequate stopping sight distance to the flagger and a queue of stopped vehicles (see table above).
- Temporary rumble strips are not required on seal coat operations.
- The pilot car is used to guide vehicles through traffic control zone. The pilot car shall have an identification name displayed and PILOT CAR, FOLLOW ME (G20-4) sign or message board mounted in a conspicuous position on rear.

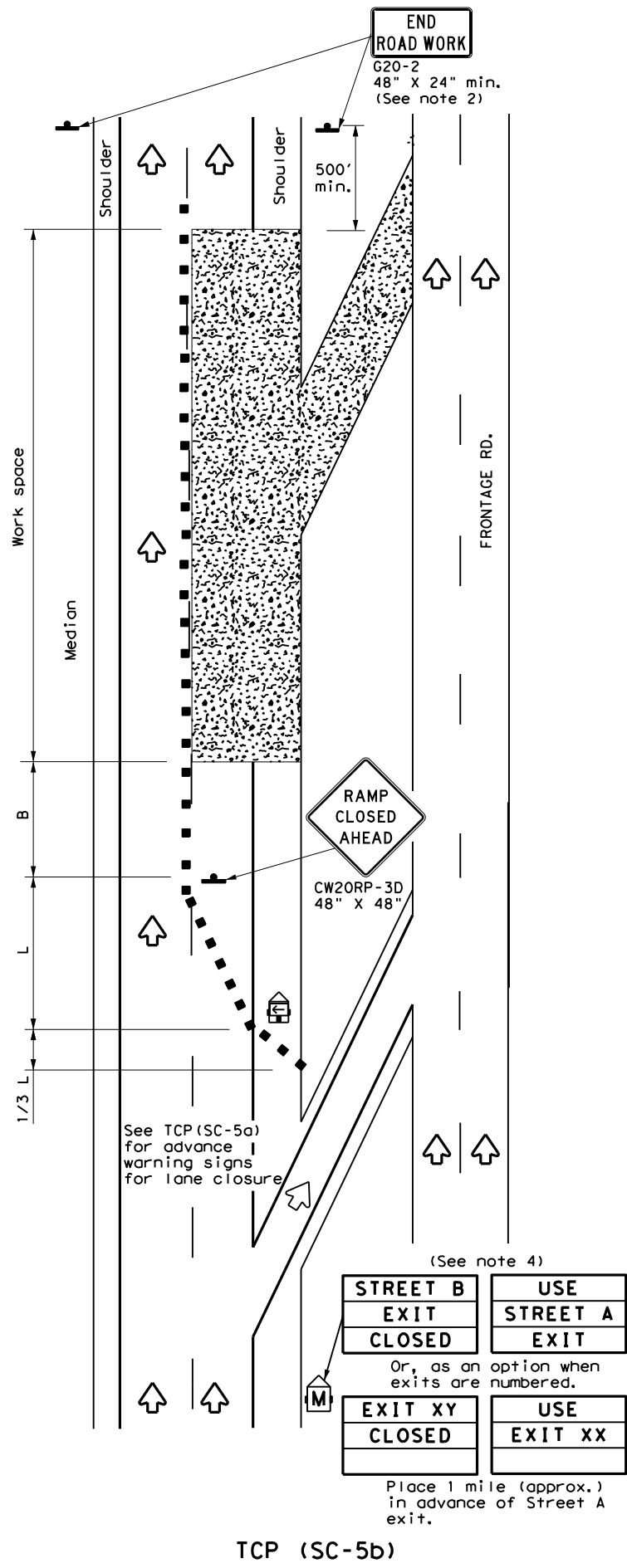
SHEET 4 OF 8

<b>TRAFFIC CONTROL PLAN          SEAL COAT OPERATIONS          NEAR INTERSECTION</b>			
<b>TCP (SC-4) - 22</b>			
FILE: tcpsc-4-22.dgn	DN:	CK:	DW:
© TxDOT October 2022	CONT	SECT	JOB
REVISIONS	0010	19	014
4-21	DIST	COUNTY	SHEET NO.
10-22	ATL	BOWIE	42

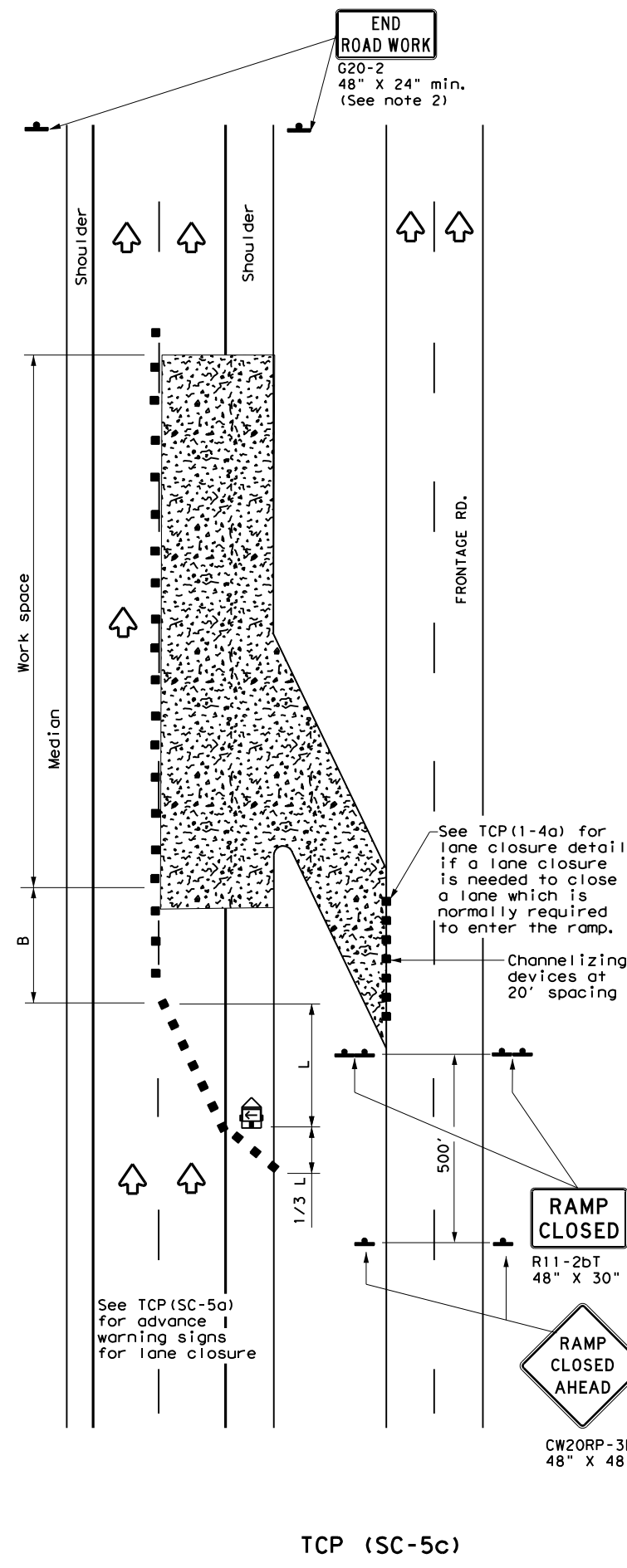
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TCP (SC-5a)  
ONE LANE CLOSURE



TCP (SC-5b)  
LANE AND RAMP CLOSURE AT EXIT RAMP



TCP (SC-5c)  
LANE AND RAMP CLOSURE AT ENTRANCE RAMP

LEGEND			
[Symbol]	Type 3 Barricade	[Symbol]	Channelizing Devices
[Symbol]	Heavy Work Vehicle	[Symbol]	Truck Mounted Attenuator (TMA)
[Symbol]	Trailer Mounted Flashing Arrow Board	[Symbol]	Portable Changeable Message Sign (PCMS)
[Symbol]	Sign	[Symbol]	Traffic Flow
[Symbol]	Flag	[Symbol]	Flagger

Posted Speed *	Formula	Minimum Desirable Taper Lengths **			Suggested Maximum Spacing of Channelizing Devices		Minimum Sign Spacing Distance "x"	Suggested Longitudinal Buffer Space "B"
		10' Offset	11' Offset	12' Offset	On a Taper	On a Tangent		
30	$L = \frac{WS^2}{60}$	150'	165'	180'	30'	60'	120'	90'
35		205'	225'	245'	35'	70'	160'	120'
40		265'	295'	320'	40'	80'	240'	155'
45	L = WS	450'	495'	540'	45'	90'	320'	195'
50		500'	550'	600'	50'	100'	400'	240'
55		550'	605'	660'	55'	110'	500'	295'
60		600'	660'	720'	60'	120'	600'	350'
65		650'	715'	780'	65'	130'	700'	410'
70		700'	770'	840'	70'	140'	800'	475'
75		750'	825'	900'	75'	150'	900'	540'

\* Conventional Roads Only

\*\* Taper lengths have been rounded off.

L = Length of Taper (FT) W = Width of Offset (FT)  
S = Posted Speed (MPH)

TYPICAL USAGE				
MOBILE	SHORT DURATION	SHORT TERM STATIONARY	INTERMEDIATE TERM STATIONARY	LONG TERM STATIONARY
		✓		

GENERAL NOTES

- Flags attached to signs where shown, are REQUIRED.
- All traffic control devices illustrated are REQUIRED, except:
  - If project signing is present, END ROAD WORK (G20-2) sign is optional with approval by the Engineer.
  - USE NEXT RAMP (CW25-1T) sign is optional with approval by the Engineer.
- Channelizing devices used to close lanes may be supplemented with the Chevron Alignment Sign placed on every other channelizing device. Chevrons may be attached to plastic drums as per BC Standards.
- The PCMS may be omitted if: it is replaced with a RAMP CLOSED AHEAD (CW2ORP-3D) sign or when a permanent Dynamic Message Sign (DMS) is available in the appropriate location to display a similar message as called for on the PCMS.
- Temporary rumble strips are not required on seal coat operations.

SHEET 5 OF 8

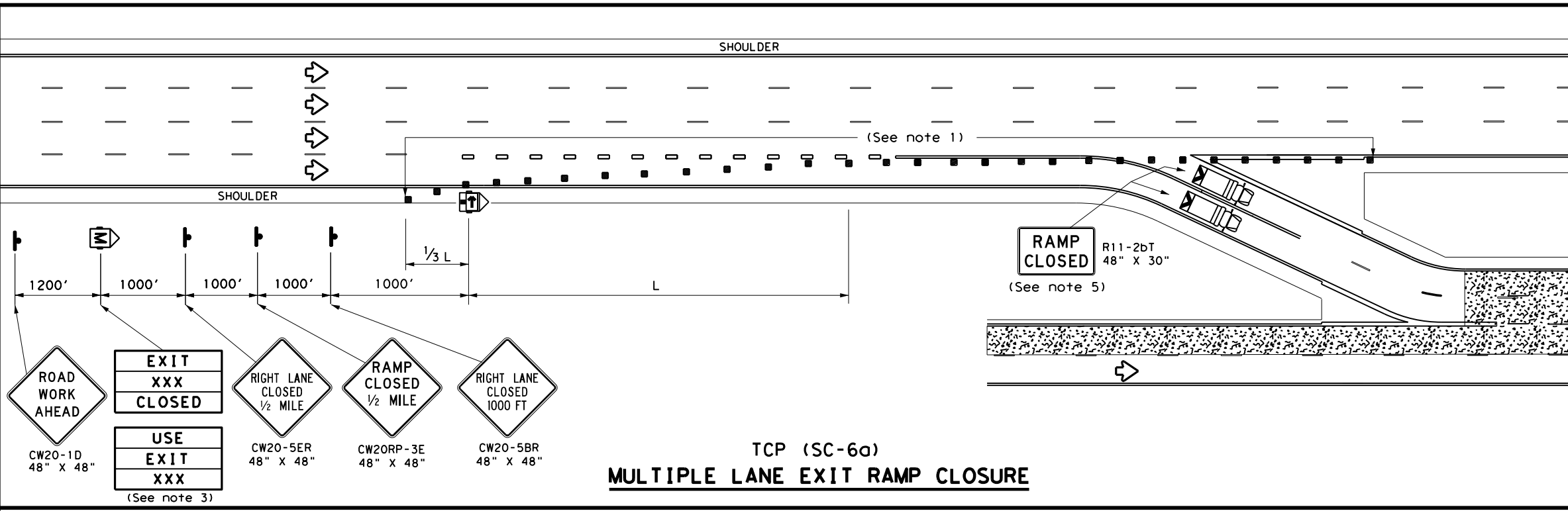
*Texas Department of Transportation* Traffic Safety Division Standard

## TRAFFIC CONTROL PLAN SEAL COAT OPERATIONS DIVIDED HIGHWAYS

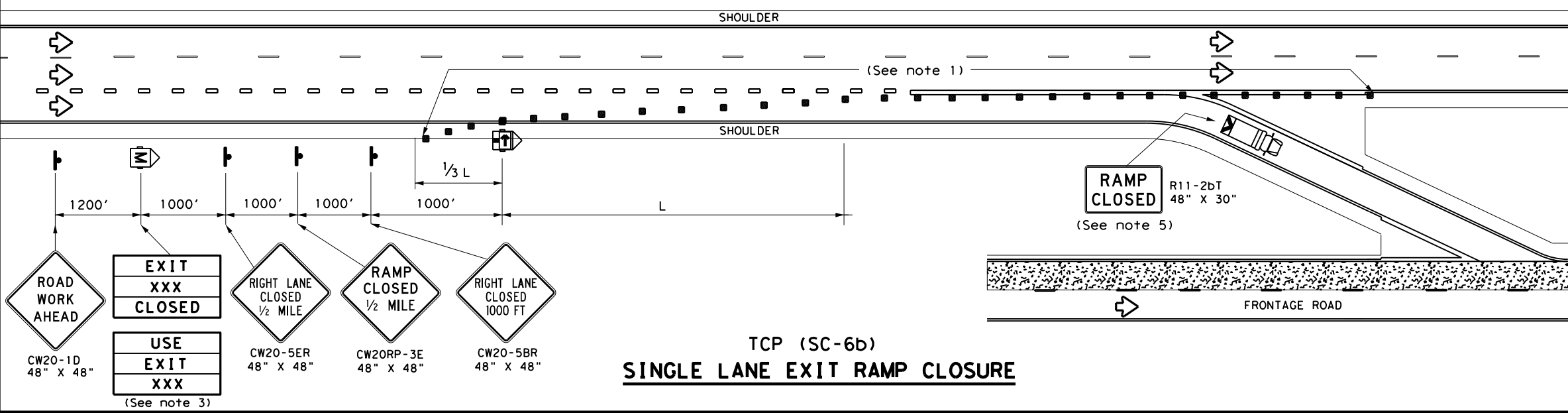
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© TxDOT October 2022	CON:	SECT:	JOB:	HIGHWAY:
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4-21	DIST:	COUNTY:	SHEET NO.:	
10-22	ATL	BOWIE	43	

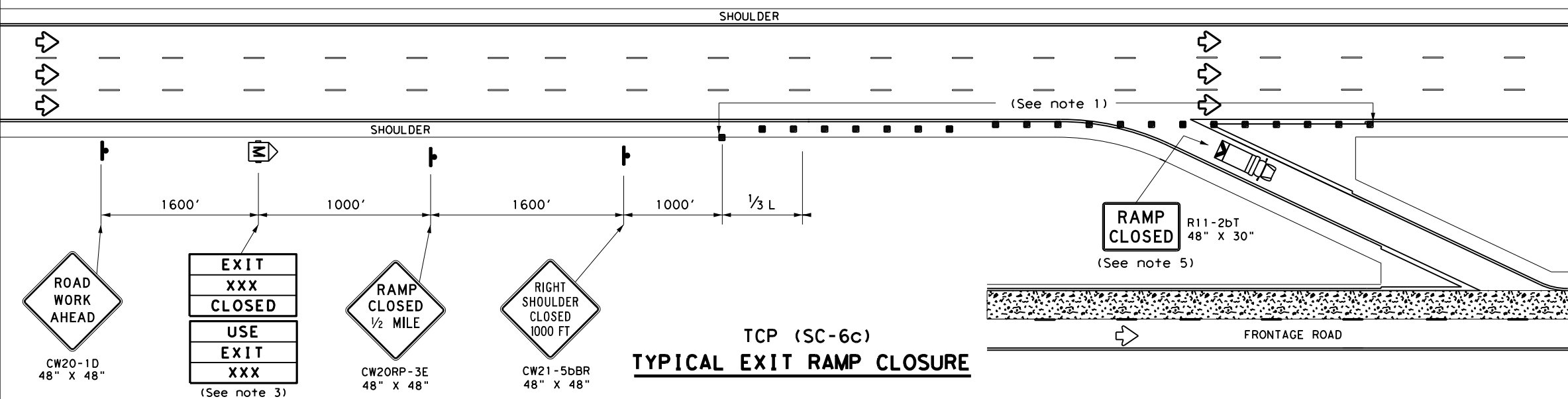
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TCP (SC-6a)  
**MULTIPLE LANE EXIT RAMP CLOSURE**



TCP (SC-6b)  
**SINGLE LANE EXIT RAMP CLOSURE**



TCP (SC-6c)  
**TYPICAL EXIT RAMP CLOSURE**

LEGEND			
	Type 3 Barricade		Channelizing Devices (CDs)
	Heavy Work Vehicle		Truck Mounted Attenuator (TMA)
	Trailer Mounted Flashing Arrow Board		Portable Changeable Message Sign (PCMS)
	Sign		Traffic Flow
	Flag		Flagger

Posted Speed	Formula	Minimum Desirable Taper Lengths "L"			Suggested Maximum Spacing of Channelizing Devices		Suggested Longitudinal Buffer Space "B"
		10' Offset	11' Offset	12' Offset	On a Taper	On a Tangent	
45	L = WS	450'	495'	540'	45'	90'	195'
50		500'	550'	600'	50'	100'	240'
55		550'	605'	660'	55'	110'	295'
60		600'	660'	720'	60'	120'	350'
65		650'	715'	780'	65'	130'	410'
70		700'	770'	840'	70'	140'	475'
75		750'	825'	900'	75'	150'	540'
80		800'	880'	960'	80'	160'	615'
85		850'	935'	1020'	85'	170'	695'

\*\* Taper lengths have been rounded off.  
L = Length of Taper (FT) W = Width of Offset (FT)  
S = Posted Speed (MPH)

TYPICAL USAGE				
MOBILE	SHORT DURATION	SHORT TERM STATIONARY	INTERMEDIATE TERM STATIONARY	LONG TERM STATIONARY
	✓	✓		

- GENERAL NOTES**
- Place channelizing devices at 20' spacings. Tighter spacing allowed as necessary to address field conditions or observed driver behavior.
  - See the Standard Highway Sign Design for Texas (SHSD) for sign details.
  - The PCMS may be omitted if replaced with a RAMP CLOSED AHEAD (CW20RP-3D) sign or when a permanent Dynamic Message Sign (DMS) is available in an appropriate location to display a similar message as called for on the PCMS.
  - When it is determined that a through lane should be closed in addition to the exit ramp, refer to TCP(6-4) for traffic control details.
  - A Truck Mounted Attenuator (TMA), where shown, is REQUIRED and shall have a RAMP CLOSED (R11-2bT) sign mounted on the rear of the truck.

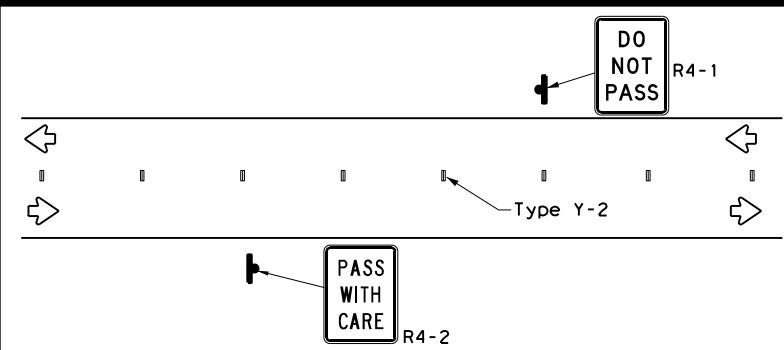
**TRAFFIC CONTROL PLAN  
SEAL COAT OPERATIONS  
DIVIDED HIGHWAYS**

**TCP (SC-6) - 22**

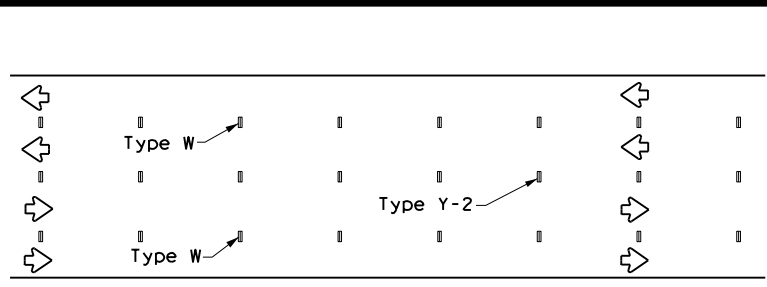
FILE: fcpSC-6-22.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
© TxDOT October 2022	CONT	SECT	JOB	HIGHWAY
10-22	0010	19	014	FM 991
	DIST	COUNTY	SHEET NO.	
	ATL	BOWIE	44	

DATE: 7/11/2023  
 FILE: pw://txdot.projectwiseonline.com:TXDOT15/Documents/19 - ATL/Design Projects/190442 changes for R4-1 and R4-2 for the conversion of the use of this standard is governed by the "Texas Engineering Practice Act". No warranty of any kind is made by TxDOT for any purpose whatsoever. TxDOT assumes no responsibility for the conversion of this standard to the current version.

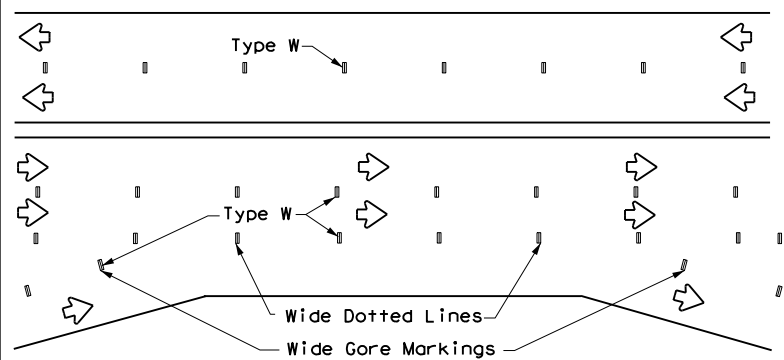
**WORK ZONE SHORT TERM PAVEMENT MARKINGS PATTERNS (TABS)**



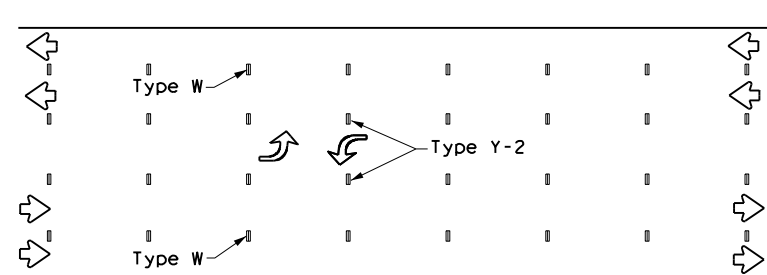
**CENTER LINE & NO-PASSING ZONE BARRIER LINES FOR TWO LANE TWO-WAY HIGHWAYS**



**LANE & CENTER LINES FOR MULTILANE UNDIVIDED HIGHWAYS**



**LANE LINES FOR DIVIDED HIGHWAY**

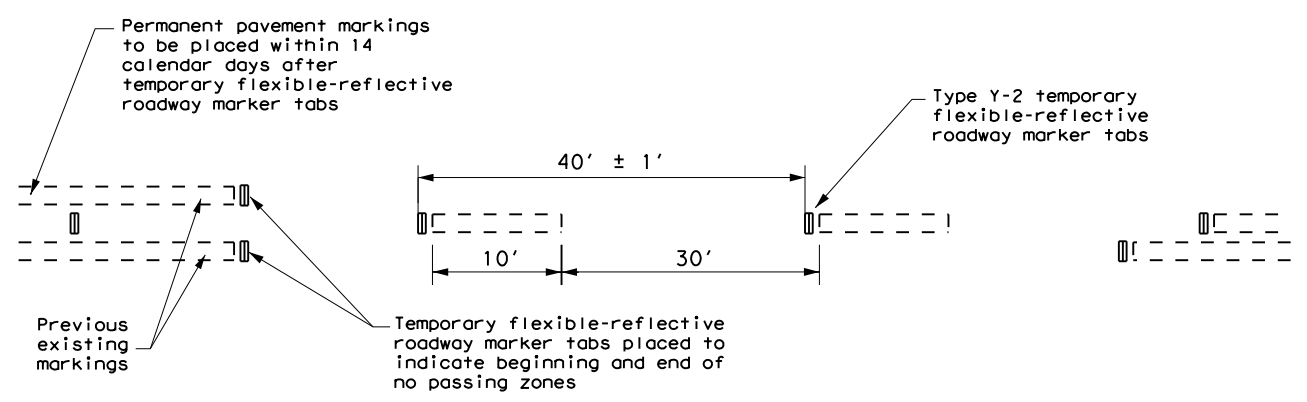


**TWO-WAY LEFT TURN LANE**

**WORK ZONE SHORT TERM PAVEMENT MARKINGS DETAILS (TABS)**

SOLID LINES	DOUBLE NO-PASSING LINE	
	SINGLE NO-PASSING LINE OR CHANNELIZATION LINE	
	8" WIDE SOLID LINE	
BROKEN LINES (FOR CENTER LINE OR LANE LINE)		
WIDE DOTTED LINES (FOR LANE DROP LINES)		
WIDE GORE MARKINGS		

**TABS ON CENTERLINES OF TWO-LANE TWO-WAY ROADS**



**TEMPORARY FLEXIBLE-REFLECTIVE ROADWAY MARKER TABS**

1. Temporary markings for surfacing projects shall be Temporary Flexible-Reflective Roadway Marker Tabs with protective cover unless otherwise approved by the Engineer. Tabs are to be installed to provide true alignment for striping crews or as directed by the Engineer. Tabs will be placed at the spacing indicated. Tabs should be applied to the pavement no more than two days before the surfacing is applied. After the surfacing is rolled and swept, the protective cover over the reflective strip shall be removed.
2. Temporary Flexible-Reflective Roadway Marker Tabs detailed on this sheet will be designated Type Y-2 (two amber reflective surfaces with a yellow body); Type Y (one amber reflective surface with yellow body); and Type W (one white or silver reflective surface with white body). Additional details may be found on BC(11).
3. Temporary Flexible-Reflective Roadway Marker Tabs will require normal maintenance replacement when used on roadways with an Average Daily Traffic (ADT) per lane of up to 7500 vehicles with no more than 10% truck mix. When roadway volumes exceed these values, additional maintenance replacement of these devices should be planned for.
4. When dry, tabs shall be visible for a minimum distance of 200 feet during normal daylight hours and when illuminated by automobile low-beam head light at night, unless sight distance is restricted by roadway geometrics.
5. No two consecutive tabs nor four tabs per 1000 feet of line shall be missing or fail to meet the visual performance requirements of Note 4.
6. Tabs shall meet requirements of Departmental Material Specification DMS-8242.
7. Tabs shall NOT be used to simulate edge lines.

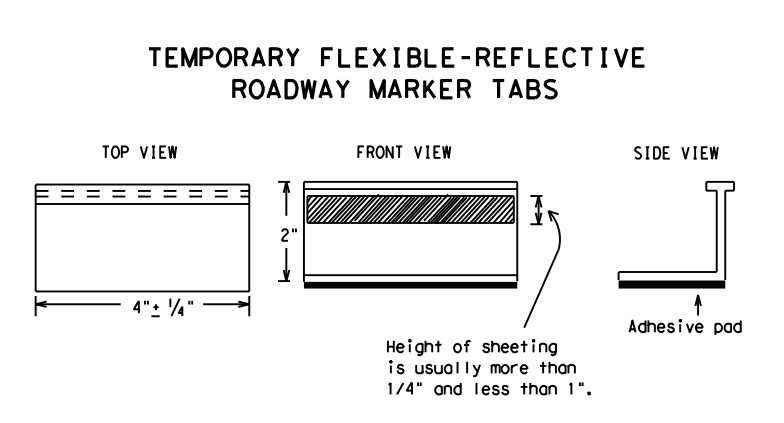
**NOTES:**

1. The Contractor will be responsible for maintaining short term pavement markings until permanent pavement markings are in place. When the Contractor is responsible for placement of permanent pavement markings, no segment of roadway shall remain without permanent pavement markings for a period greater than 14 calendar days unless weather conditions prohibit placement. Permanent pavement markings shall be placed as soon as weather permits.
2. For exit gores where a lane is being dropped, place wide gore markings or retroreflective channelizing devices to guide motorist through the exit. If channelizing devices are to be used it should be noted elsewhere in the plans. One piece cones are NOT acceptable.
3. Dimensions indicated on this sheet are typical and approximate. Variations in size and height may occur between markers or devices made by manufacturers, by as much as 1/4 inch, unless otherwise noted.

**DEPARTMENTAL MATERIAL SPECIFICATIONS (DMS) & MATERIAL PRODUCER LISTS (MPL)**

1. DMSs referenced above may be found along with embedded links to their respective MPLs at the following website: <http://www.txdot.gov>

SHEET 7 OF 8



Texas Department of Transportation

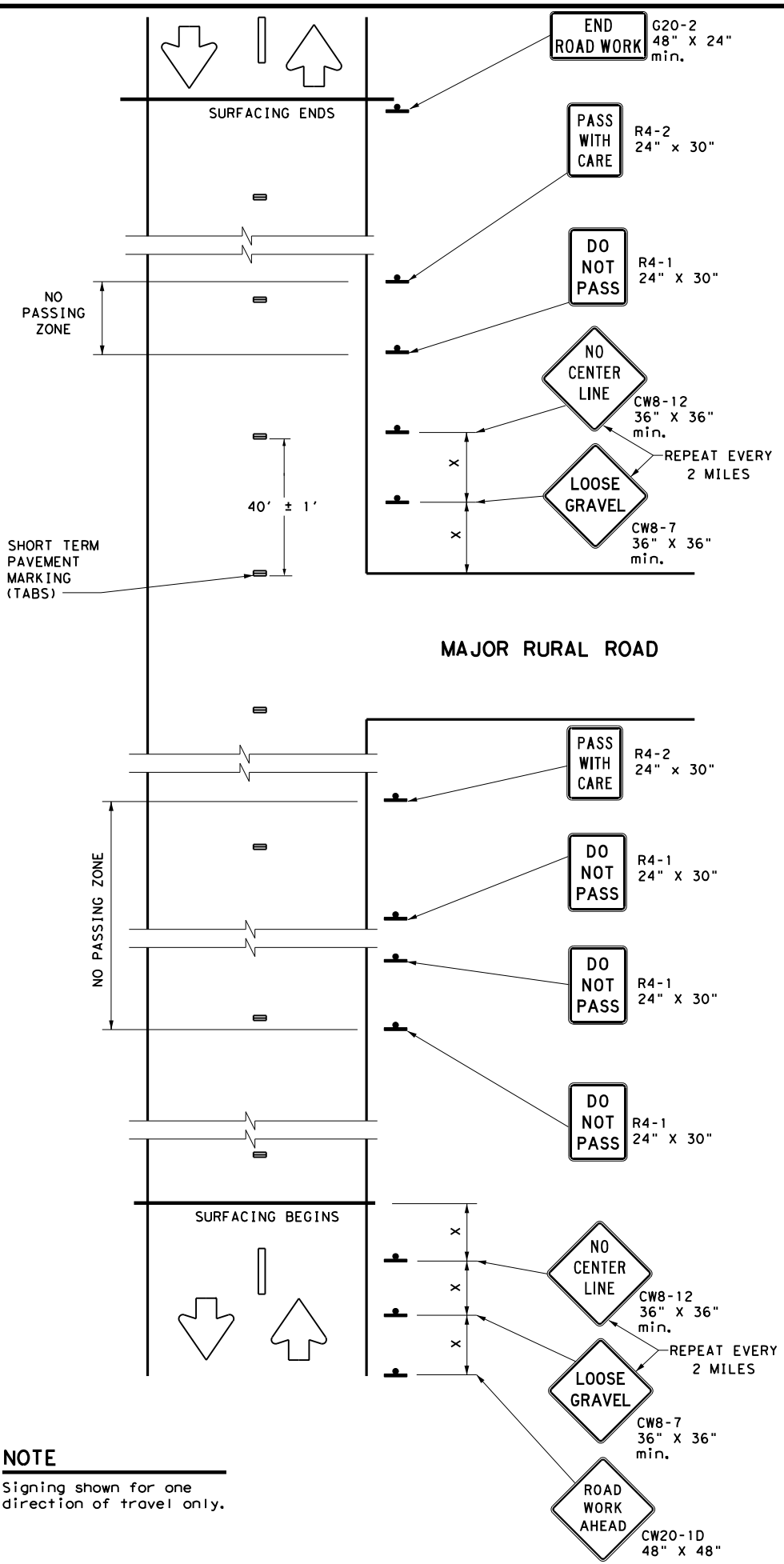
Traffic Safety Division Standard

**TEMPORARY PAVEMENT MARKINGS FOR SEAL COAT OPERATIONS**  
**TCP (SC-7) -22**

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© TxDOT October 2022	CONT	SECT	JOB	HIGHWAY
REVISIONS	0010	19	014	FM 991
4-21	DIST	COUNTY	SHEET NO.	
10-22	ATL	BOWIE	45	

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**NOTE**  
Signing shown for one direction of travel only.

### NO PASSING ZONES ON TWO-LANE TWO-WAY ROADS

### DO NOT PASS (R4-1) SIGN and NO-PASSING ZONES

- A. Prior to the beginning of construction, all currently striped no-passing zones shall be signed with the DO NOT PASS (R4-1) signs and PASS WITH CARE (R4-2) signs placed at the beginning and end of each zone for each direction of travel, except as otherwise provided herein. Signs marking these individual no-passing zones need not be covered prior to construction if the signs supplement the existing pavement markings.
- B. At the discretion of the Engineer, in areas of numerous no-passing zones, several zones may be combined as a single zone. If passing is to be prohibited over one or more lengthy sections, a DO NOT PASS sign and a NEXT XX MILES (R20-1TP) plaque may be used at the beginning of such zones. The DO NOT PASS sign and the NEXT XX MILES plaque should be repeated every mile to the end of the no-passing zone. In areas where there is a considerable distance between no-passing zones, the end of the no-passing zone may be signed with a PASS WITH CARE sign and a NEXT XX MILES plaque.
- C. Depending on traffic volumes and length of sections, it may be desirable to prohibit passing throughout the project to prevent damage to windshields and lights. The DO NOT PASS sign and NEXT XX MILES plaque should be used and repeated as often as necessary for this purpose. Where several existing zones are to be combined into one individual no-passing zone, the sign at the beginning of the zone should be covered until the surfacing operation has passed this location so as not to have the DO NOT PASS sign conflict with the existing pavement markings. Also, unless one day of operation completes the entire length of such combined zones, appropriate DO NOT PASS and PASS WITH CARE signs should be placed at the beginning and end of the no-passing zones where the surfacing operation has stopped for the day.
- D. DO NOT PASS and PASS WITH CARE signs are to remain in place until permanent pavement markings are installed.

### NO CENTER LINE (CW8-12) SIGN

- A. Center line markings are yellow pavement markings that delineate the separation between lanes that have opposite directions of travel on a roadway. Divided highways do not typically have center line markings.
- B. At the time construction activity obliterates the existing center line markings (low volume roads may not have an existing center line), a NO CENTER LINE (CW8-12) sign should be erected at the beginning of the work area, at approximately two mile intervals within the work area, beyond major intersections, and other locations deemed necessary by the Engineer.
- C. The NO CENTER LINE signs are to remain in place until permanent pavement markings are installed.

### LOOSE GRAVEL (CW8-7) SIGN

- A. When construction begins, a LOOSE GRAVEL (CW8-7) sign should be erected at each end of the work area and repeated at intervals of approximately two miles in rural areas and closer in urban areas.
- B. The LOOSE GRAVEL signs are to remain in place until the condition no longer exists.

### COORDINATION OF SIGN LOCATIONS

- A. The location of warning signs at the beginning and end of a work area are to be coordinated with other signing typically shown on the Barricade and Construction Standards for project limits to ensure adequate sign spacing.
- B. Where possible, the ROAD WORK AHEAD (CW20-1D), LOOSE GRAVEL (CW8-7), and NO CENTER LINE (CW8-12) signs should be placed:
- In the sequence shown following the OBEY WARNING SIGNS STATE LAW (R20-3T) sign and the TRAFFIC FINES DOUBLE (R20-5T) sign; and
  - One "X" sign spacing prior to the CONTRACTOR (G20-6T) sign typically located at or near the limits of surfacing.
- LOOSE GRAVEL and NO CENTER LINE sign placements will then be repeated as described above.

Posted Speed *	Minimum Sign Spacing Distance "X"
30	120'
35	160'
40	240'
45	320'
50	400'
55	500'
60	600'
65	700'
70	800'
75	900'

\* Conventional Roads Only

#### TYPICAL USAGE

MOBILE	SHORT DURATION	SHORT TERM STATIONARY	INTERMEDIATE TERM STATIONARY	LONG TERM STATIONARY
	✓	✓		

### GENERAL NOTES

- Surfacing operations that cover or obliterate existing pavement markings must first have the passing zones clearly marked with tabs as well as having any of the traffic control devices detailed on this sheet furnished and erected as directed by the Engineer.
- The devices shown on this sheet are to be used to supplement those required by the BC Standards or others required elsewhere in the plans.
- Signs shall be erected as detailed on the BC Standards or the Compliant Work Zone Traffic Control Devices List (CWZTCD) on supports approved for Short Duration / Short Term Stationary Work Zone Sign Supports.
- When surfacing operations take place on divided highways, freeways or expressways, the size of diamond shaped construction warning signs shall be 48" x 48".
- Signs on divided highways, freeways and expressways should be placed on both right and left sides of the roadway based on roadway conditions as directed by the Engineer.

SHEET 8 OF 8



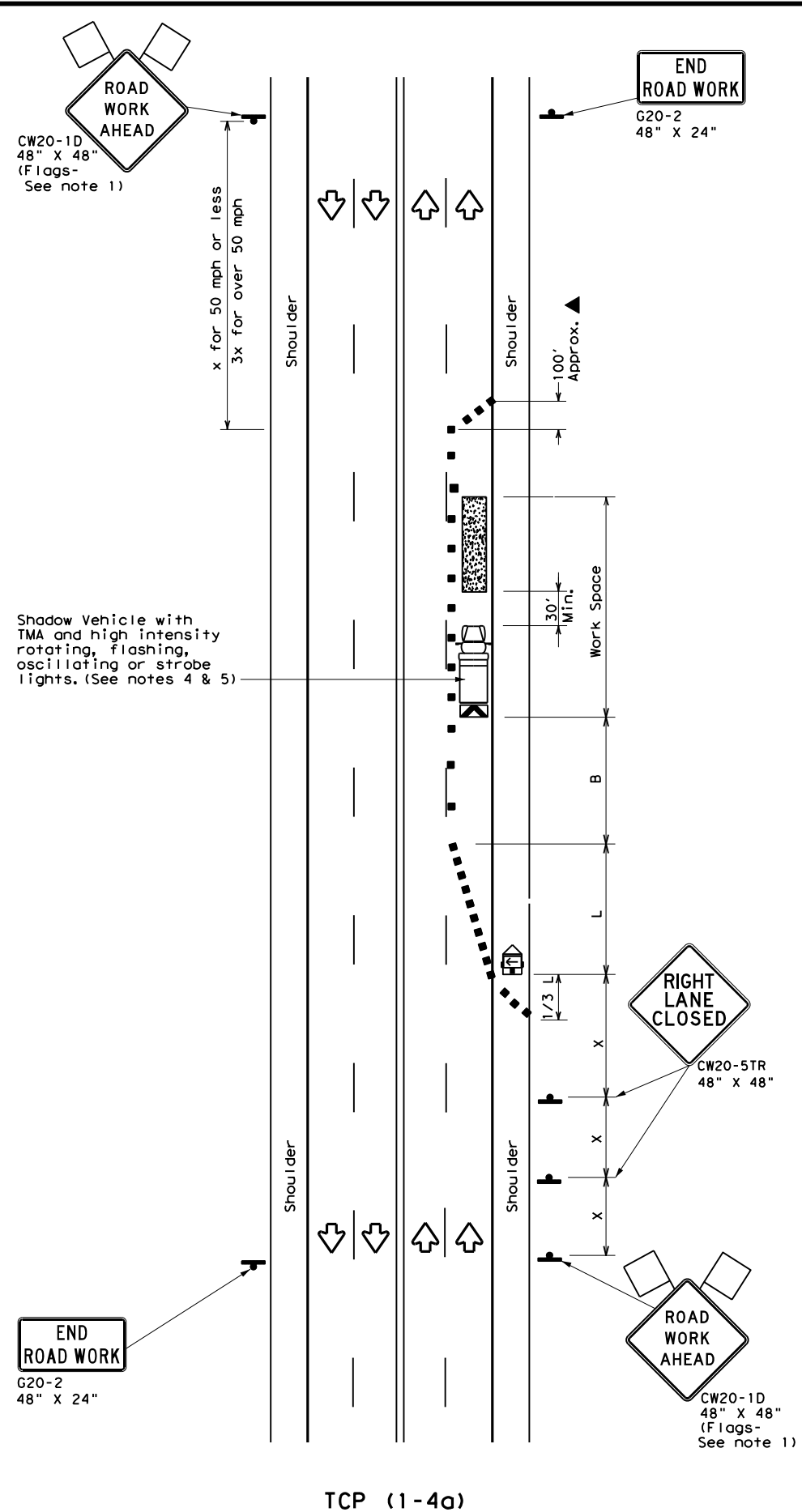
## TRAFFIC CONTROL DETAILS FOR SEAL COAT OPERATIONS

### TCP (SC-8) -22

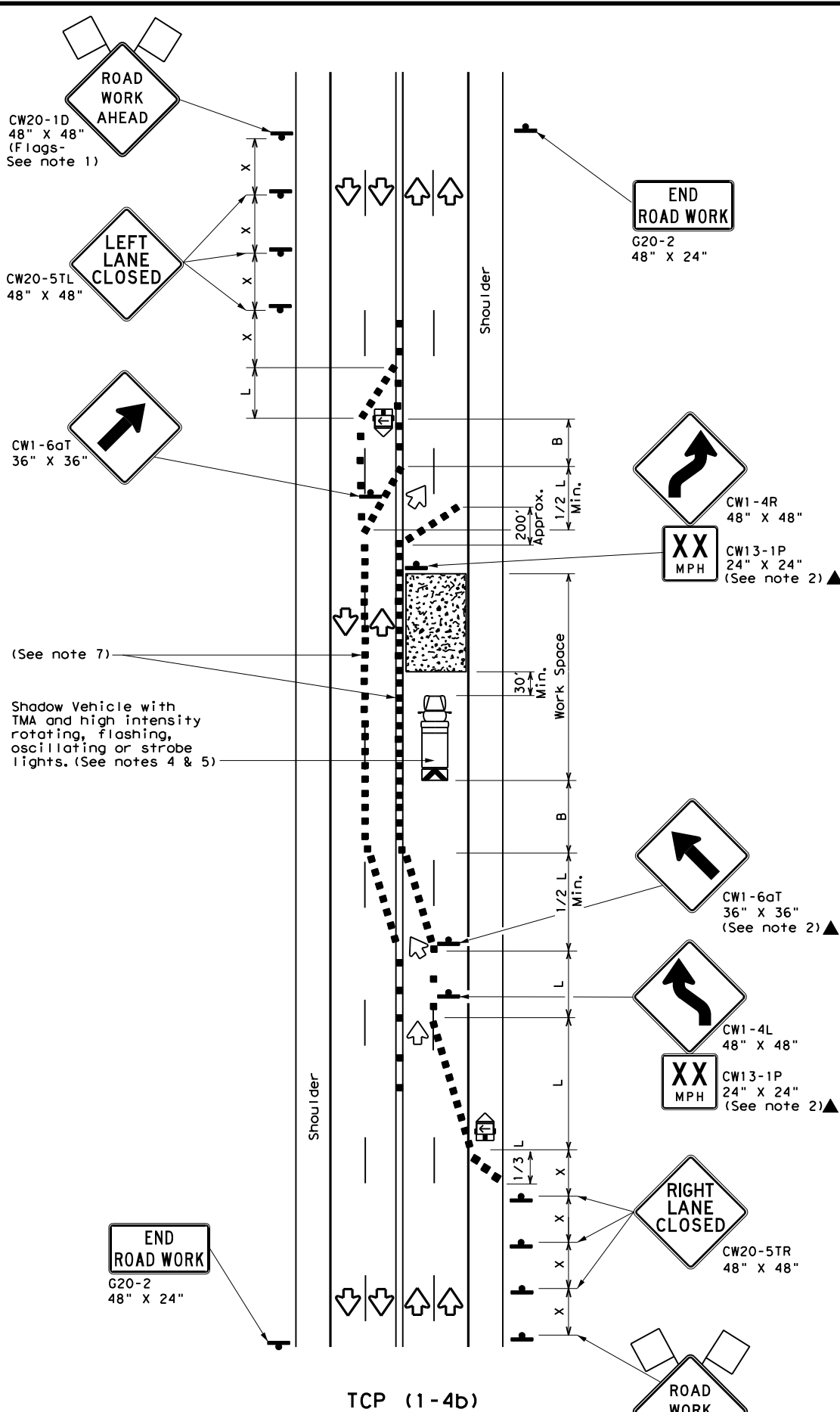
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REVISIONS	0010	19	014	FM 991
4-21	DIST	COUNTY		SHEET NO.
10-22	ATL	BOWIE		46

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TCP (1-4a)  
**ONE LANE CLOSED**



TCP (1-4b)  
**TWO LANES CLOSED**

LEGEND			
	Type 3 Barricade		Channelizing Devices
	Heavy Work Vehicle		Truck Mounted Attenuator (TMA)
	Trailer Mounted Flashing Arrow Board		Portable Changeable Message Sign (PCMS)
	Sign		Traffic Flow
	Flag		Flagger

Posted Speed *	Formula	Minimum Desirable Taper Lengths **			Suggested Maximum Spacing of Channelizing Devices		Minimum Sign Spacing "x" Distance	Suggested Longitudinal Buffer Space "B"
		10' Offset	11' Offset	12' Offset	On a Taper	On a Tangent		
30	$L = \frac{WS^2}{60}$	150'	165'	180'	30'	60'	120'	90'
35		205'	225'	245'	35'	70'	160'	120'
40		265'	295'	320'	40'	80'	240'	155'
45	$L = WS$	450'	495'	540'	45'	90'	320'	195'
50		500'	550'	600'	50'	100'	400'	240'
55		550'	605'	660'	55'	110'	500'	295'
60		600'	660'	720'	60'	120'	600'	350'
65		650'	715'	780'	65'	130'	700'	410'
70		700'	770'	840'	70'	140'	800'	475'
75		750'	825'	900'	75'	150'	900'	540'

\* Conventional Roads Only  
 \*\* Taper lengths have been rounded off.  
 L=Length of Taper (FT) W=Width of Offset (FT) S=Posted Speed (MPH)

TYPICAL USAGE				
MOBILE	SHORT DURATION	SHORT TERM STATIONARY	INTERMEDIATE TERM STATIONARY	LONG TERM STATIONARY
	✓	✓		

- GENERAL NOTES**
- Flags attached to signs where shown are REQUIRED.
  - All traffic control devices illustrated are REQUIRED, except those denoted with the triangle symbol may be omitted when stated elsewhere in the plans, or for routine maintenance work, when approved by the Engineer.
  - The CW20-1D "ROAD WORK AHEAD" sign may be repeated if the visibility of the work zone is less than 1500 feet.
  - A Shadow Vehicle with a TMA should be used anytime it can be positioned 30 to 100 feet in advance of the area of crew exposure without adversely affecting the performance or quality of the work. If workers are no longer present but road or work conditions require the traffic control to remain in place, Type 3 Barricades or other channelizing devices may be substituted for the Shadow Vehicle and TMA.
  - Additional Shadow Vehicles with TMAs may be positioned off the paved surface, next to those shown in order to protect wider work spaces.

**TCP (1-4a)**

- If this TCP is used for a left lane closure, CW20-5TL "LEFT LANE CLOSED" signs shall be used and channelizing devices shall be placed on the centerline where needed to protect the work space from opposing traffic with the arrow panel placed in the closed lane near the end of the merging taper.

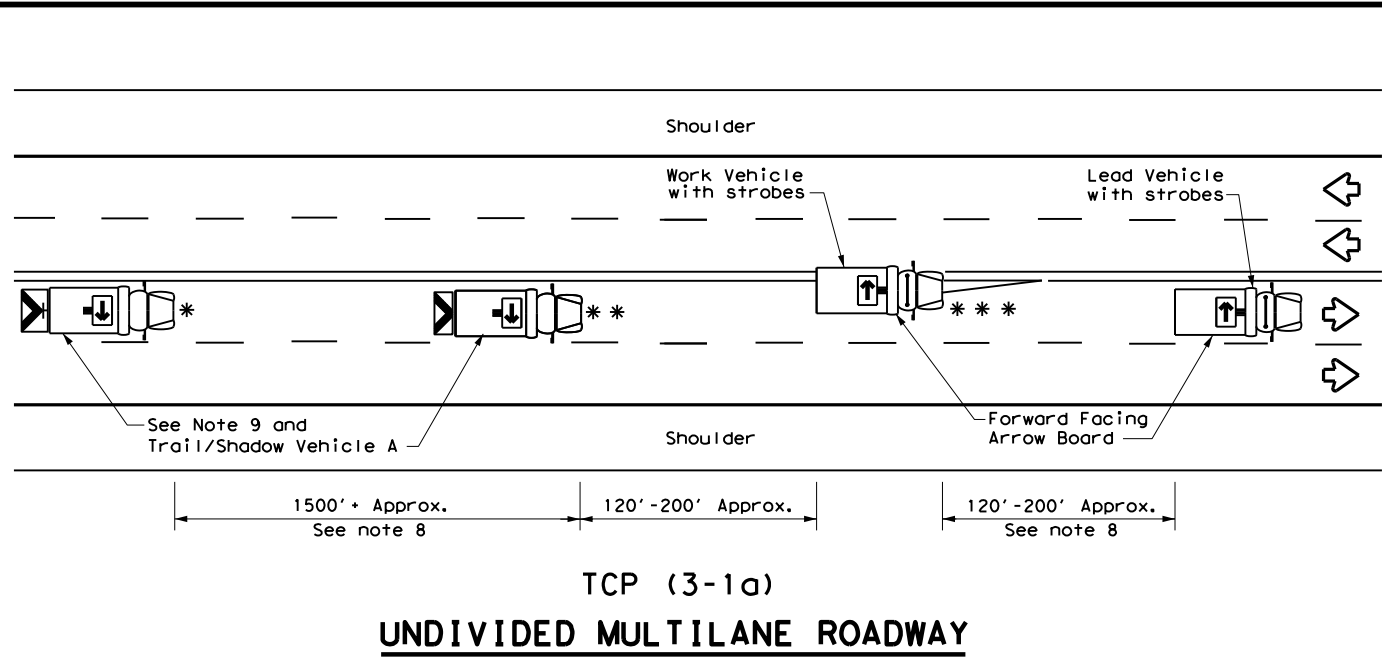
**TCP (1-4b)**

- Where traffic is directed over a yellow centerline, channelizing devices which separate two-way traffic should be spaced on tapers at 20' or 15' if posted speeds are 35 mph or slower, and for tangent sections, at 1/2S where S is the speed in mph. This tighter device spacing is intended for the areas of conflicting markings, not the entire work zone.

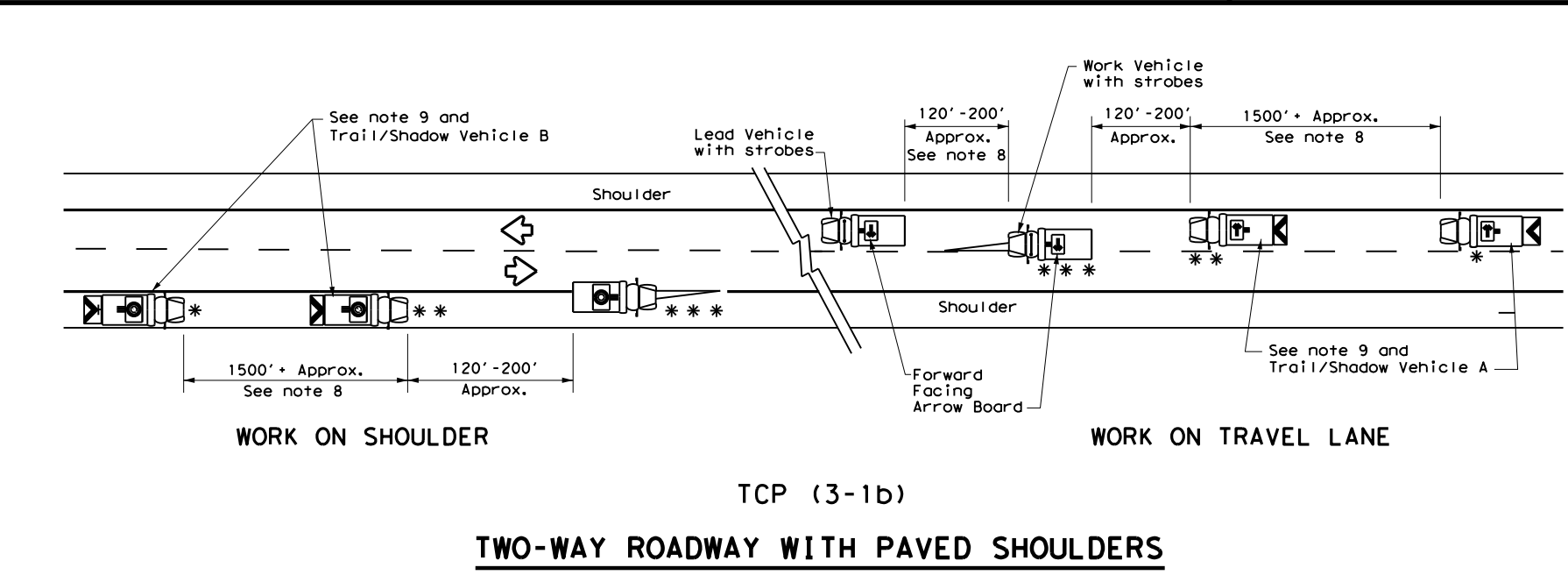
		Traffic Operations Division Standard	
<b>TRAFFIC CONTROL PLAN          LANE CLOSURES ON MULTILANE          CONVENTIONAL ROADS</b>			
<b>TCP (1-4) - 18</b>			
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2-94	4-98	JOB	014
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		ATL	BOWIE
			SHEET NO. 47



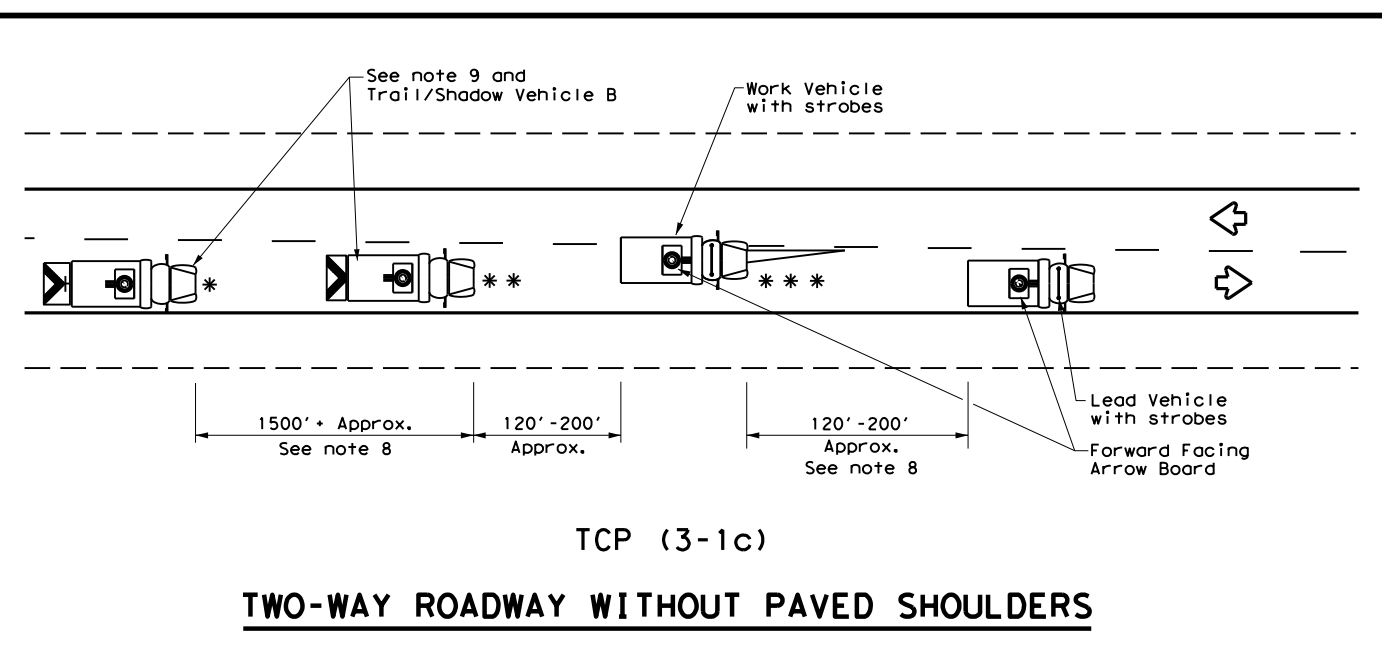
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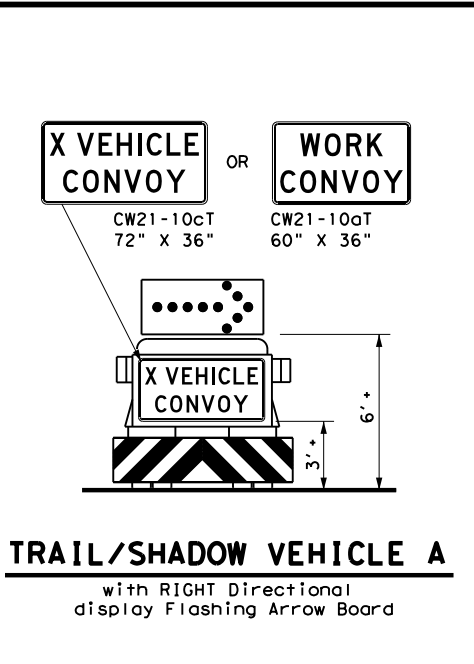
**TCP (3-1a)**  
**UNDIVIDED MULTILANE ROADWAY**



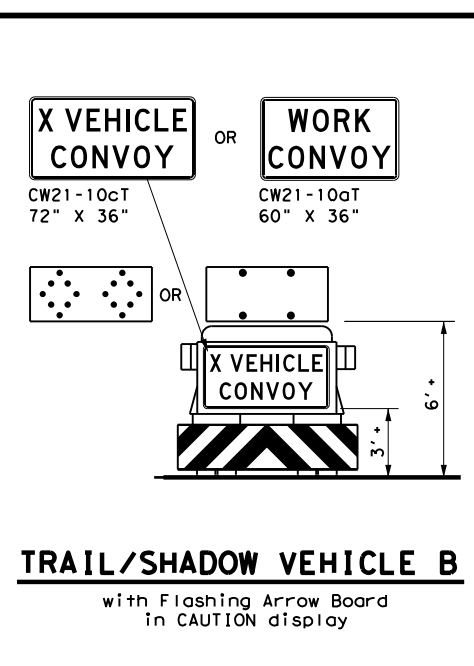
**TCP (3-1b)**  
**TWO-WAY ROADWAY WITH PAVED SHOULDERS**



**TCP (3-1c)**  
**TWO-WAY ROADWAY WITHOUT PAVED SHOULDERS**



**TRAIL/SHADOW VEHICLE A**  
with RIGHT Directional display Flashing Arrow Board



**TRAIL/SHADOW VEHICLE B**  
with Flashing Arrow Board in CAUTION display

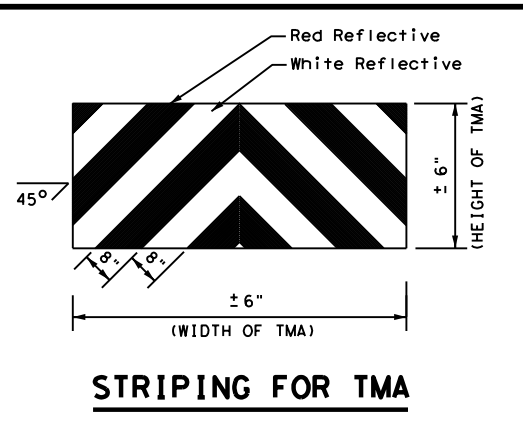
LEGEND			
*	Trail Vehicle	ARROW BOARD DISPLAY	
**	Shadow Vehicle		
***	Work Vehicle		RIGHT Directional
	Heavy Work Vehicle		LEFT Directional
	Truck Mounted Attenuator (TMA)		Double Arrow
	Traffic Flow		CAUTION (Alternating Diamond or 4 Corner Flash)

TYPICAL USAGE				
MOBILE	SHORT DURATION	SHORT TERM STATIONARY	INTERMEDIATE TERM STATIONARY	LONG TERM STATIONARY
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

**GENERAL NOTES**

- TRAIL, SHADOW, and LEAD vehicles shall be equipped with arrow boards as illustrated. When a LEAD vehicle is not used the WORK vehicle must be equipped with an arrow board. The Engineer will determine if the LEAD VEHICLE and/or TRAIL VEHICLE are required based on prevailing roadway conditions, traffic volume, and sight distance restrictions.
- The use of amber high intensity rotating, flashing, oscillating, or strobe lights on vehicles are required. Blue high intensity rotating, flashing, oscillating or strobe lights when mounted on the driver's side of the vehicle may be operated simultaneously with the amber beacons or strobe lights.
- The use of truck mounted attenuators (TMA) on the SHADOW VEHICLE and TRAIL VEHICLE are required.
- Reflective sheeting on the rear of the TMA shall meet or exceed the reflectivity and color requirements of DEPARTMENTAL MATERIAL SPECIFICATION DMS 8300, Type A.
- Flashing arrow boards shall be Type B or Type C as per the Barricade and Construction (BC) standards. The board shall be controlled from inside the vehicle.
- Each vehicle shall have two-way radio communication capability.
- When work convoys must change lanes, the TRAIL VEHICLE should change lanes first to shadow the other convoy vehicles.
- Vehicle spacing between the TRAIL VEHICLE and the SHADOW VEHICLE will vary depending on sight distance restrictions. Motorists approaching the work convoy should be able to see the TRAIL VEHICLE in time to slow down and/or change lanes as they approach the TRAIL VEHICLE. Vehicle spacing between the WORK VEHICLE and SHADOW VEHICLE and vehicle spacing between WORK VEHICLE and LEAD VEHICLE may vary according to terrain, work activity and other factors.
- "X VEHICLE CONVOY" (CW21-10cT) or "WORK CONVOY" (CW21-10aT) signs shall be used on TRAIL VEHICLES and SHADOW VEHICLES as shown. As an option 48" X 48" diamond shaped "WORK CONVOY" (CW21-10T) or "X VEHICLE CONVOY" (CW21-10bT) signs may be used where adequate mounting space exists. When used, the X VEHICLE CONVOY sign shall have the number of the convoy vehicles displayed on the sign in the number designation "X" location. The "X VEHICLE CONVOY" sign shall not be used on the SHADOW VEHICLE if a TRAIL VEHICLE is used.
- On two-lane two-way roadways, the work and protection vehicles should pull over periodically to allow motor vehicle traffic to pass. If motorists are not allowed to pass the work convoy, a "DO NOT PASS" (R4-1) sign should be placed on the back of the rearmost protection vehicle.



**STRIPING FOR TMA**

Texas Department of Transportation  
 Traffic Operations Division Standard

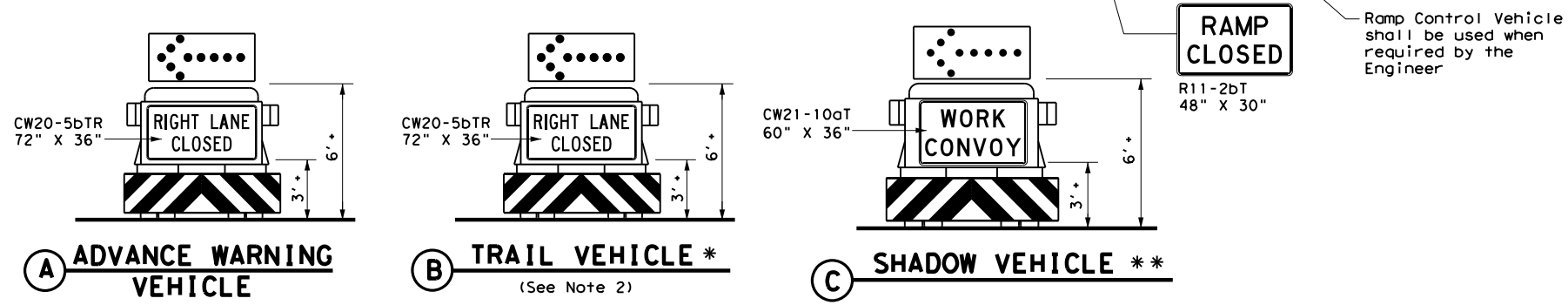
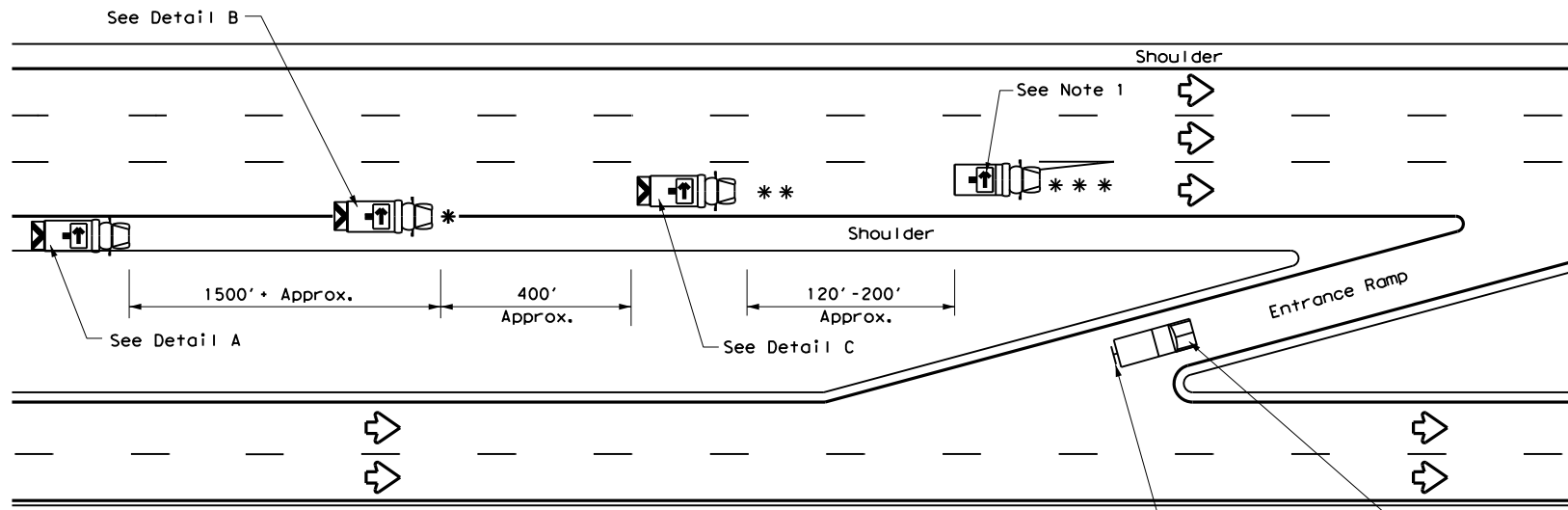
TRAFFIC CONTROL PLAN  
 MOBILE OPERATIONS  
 UNDIVIDED HIGHWAYS

TCP(3-1)-13

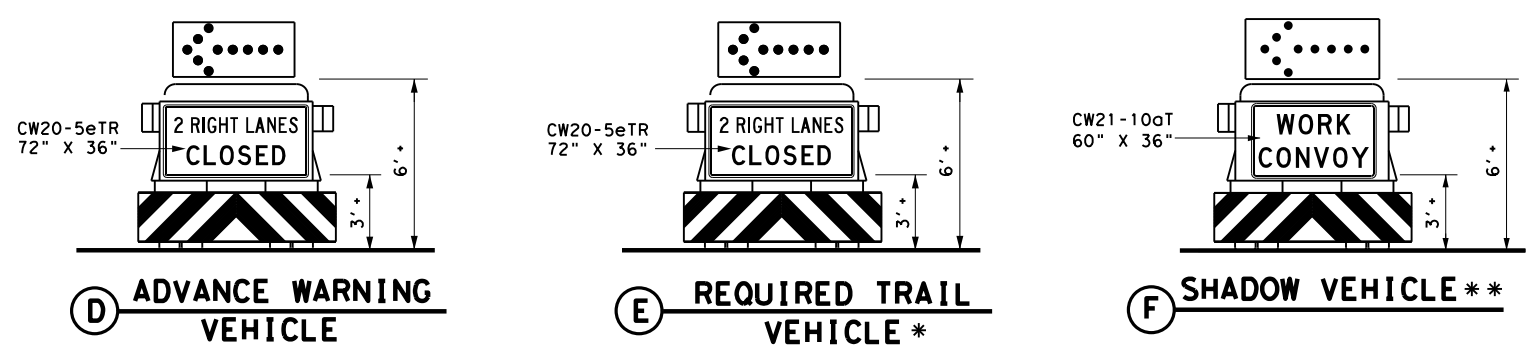
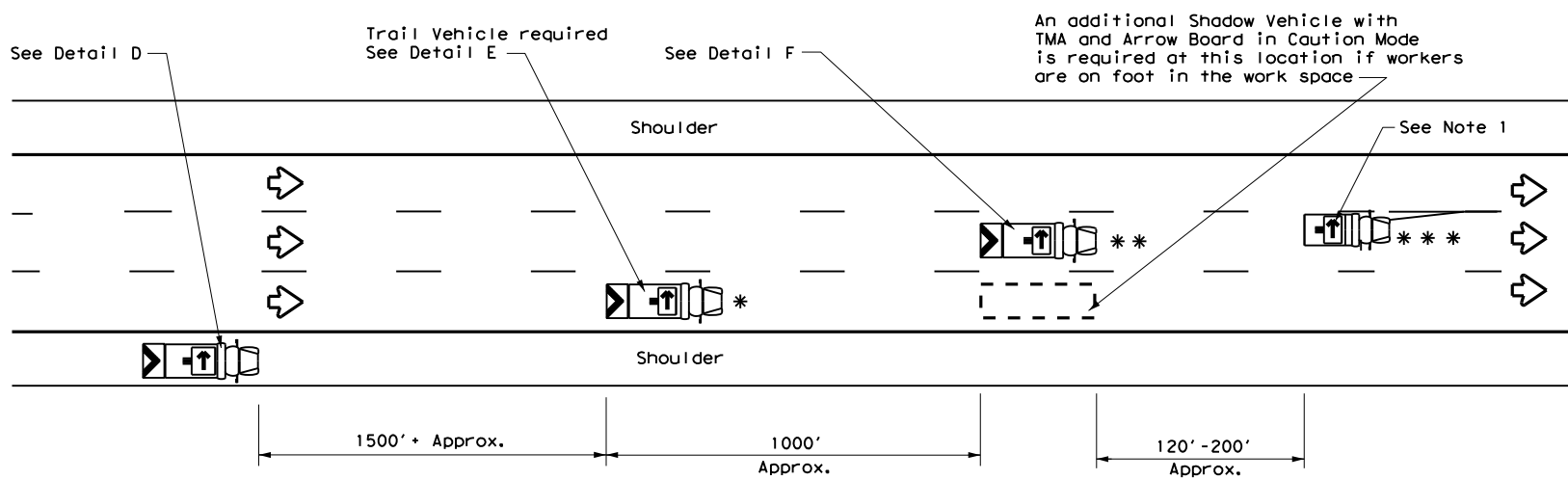
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8-95 7-13				
1-97				
ATL		COUNTY	BOWIE	SHEET NO. 48

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**RIGHT LANE CLOSURE ON DIVIDED HIGHWAY - TCP(3-2a)**



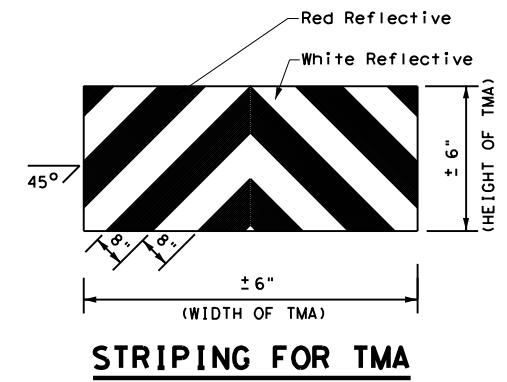
**INTERIOR LANE CLOSURE ON MULTI-LANE DIVIDED HIGHWAY - TCP(3-2b)**

LEGEND			
*	Trail Vehicle	ARROW BOARD DISPLAY	
**	Shadow Vehicle		
***	Work Vehicle		RIGHT Directional
	Heavy Work Vehicle		LEFT Directional
	Truck Mounted Attenuator (TMA)		Double Arrow
	Traffic Flow		CAUTION (Alternating Diamond or 4 Corner Flash)

TYPICAL USAGE				
MOBILE	SHORT DURATION	SHORT TERM STATIONARY	INTERMEDIATE TERM STATIONARY	LONG TERM STATIONARY
✓				

**GENERAL NOTES**

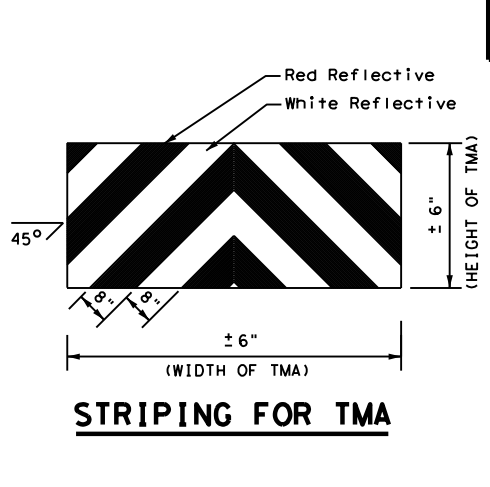
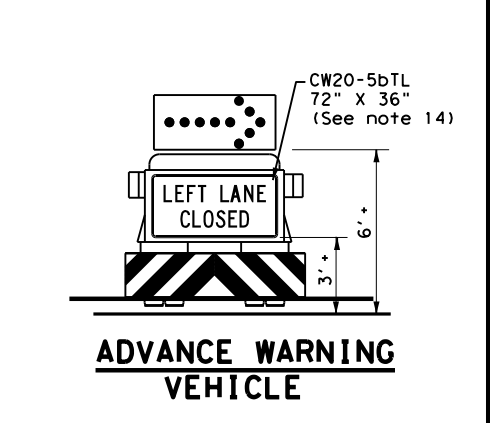
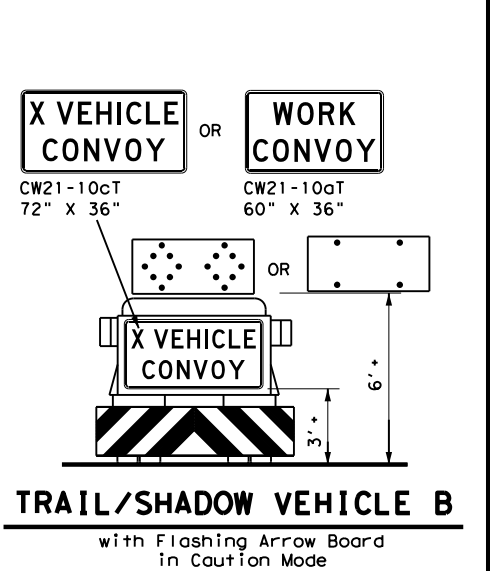
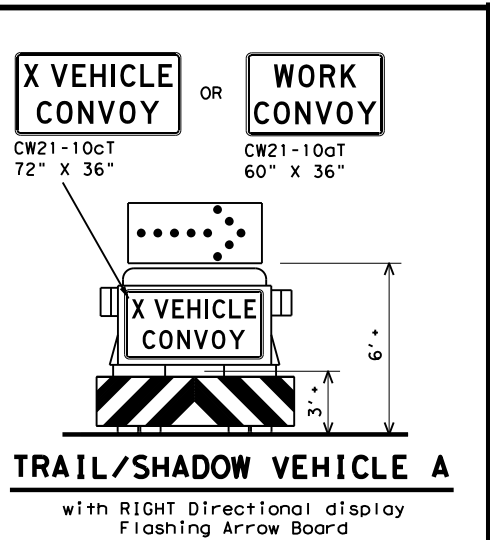
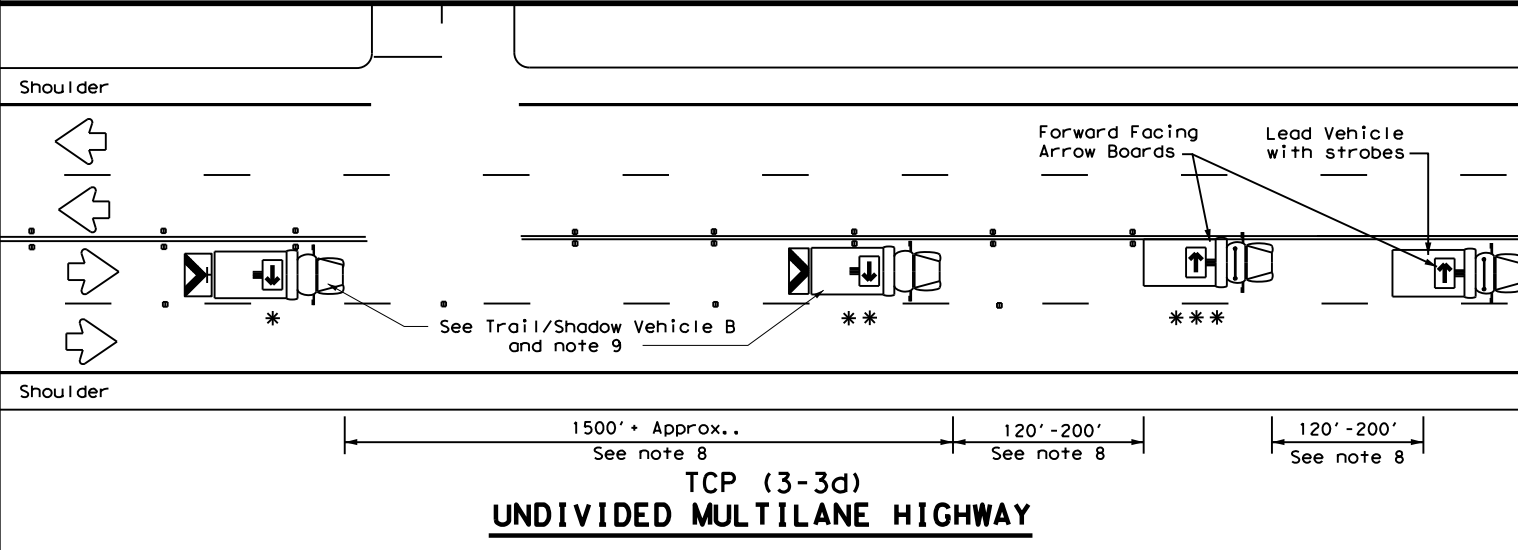
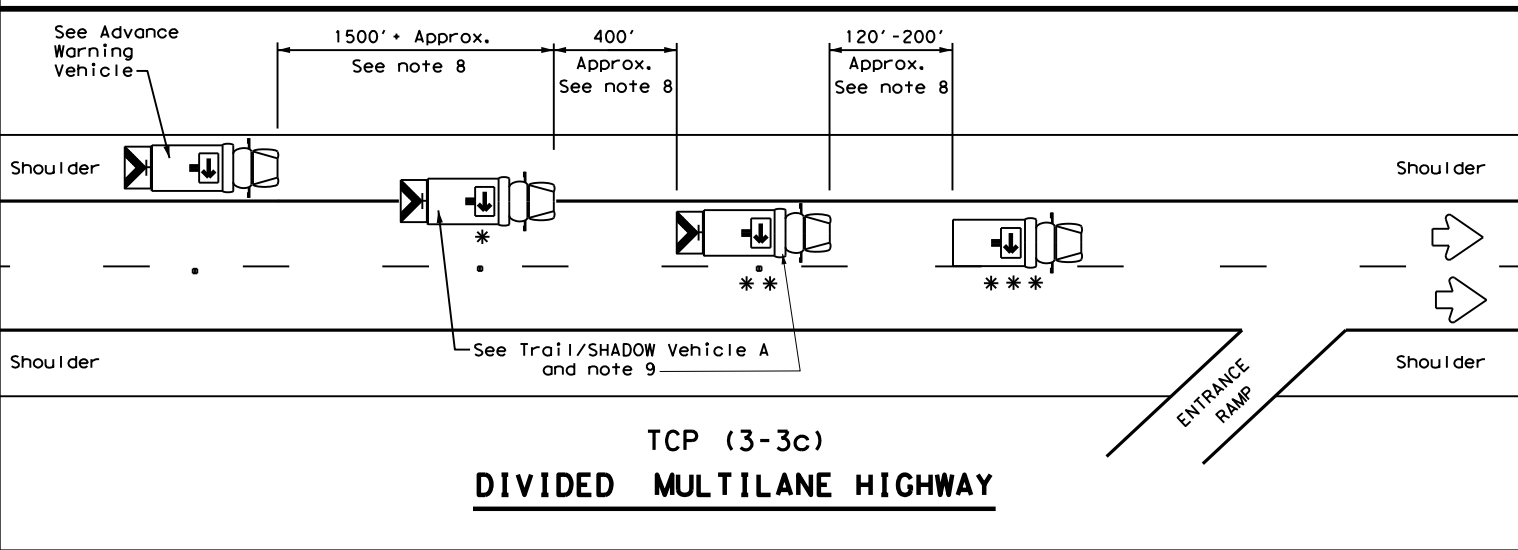
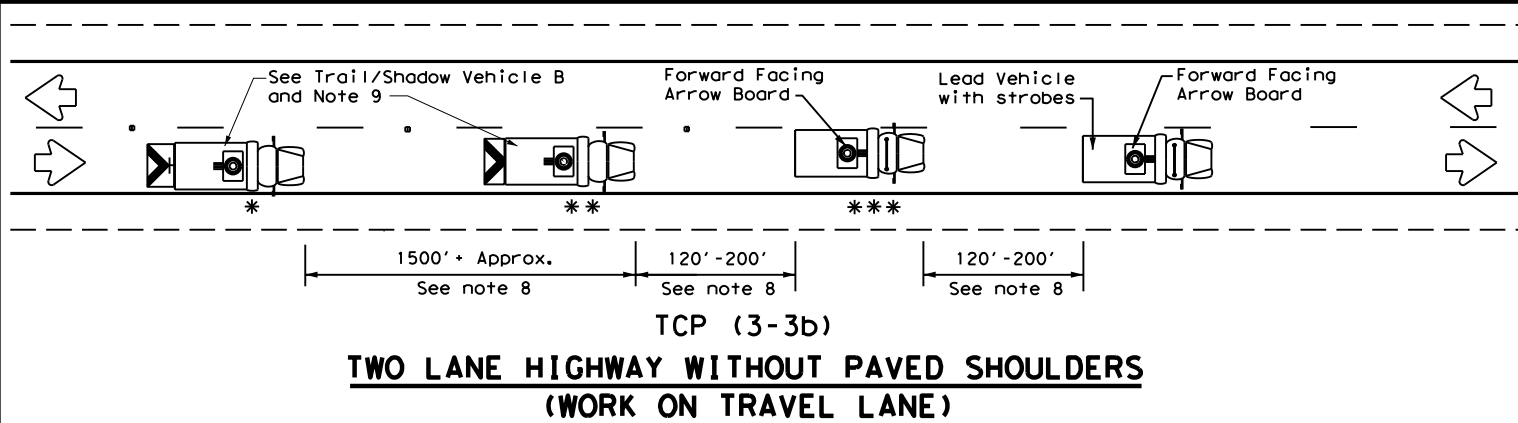
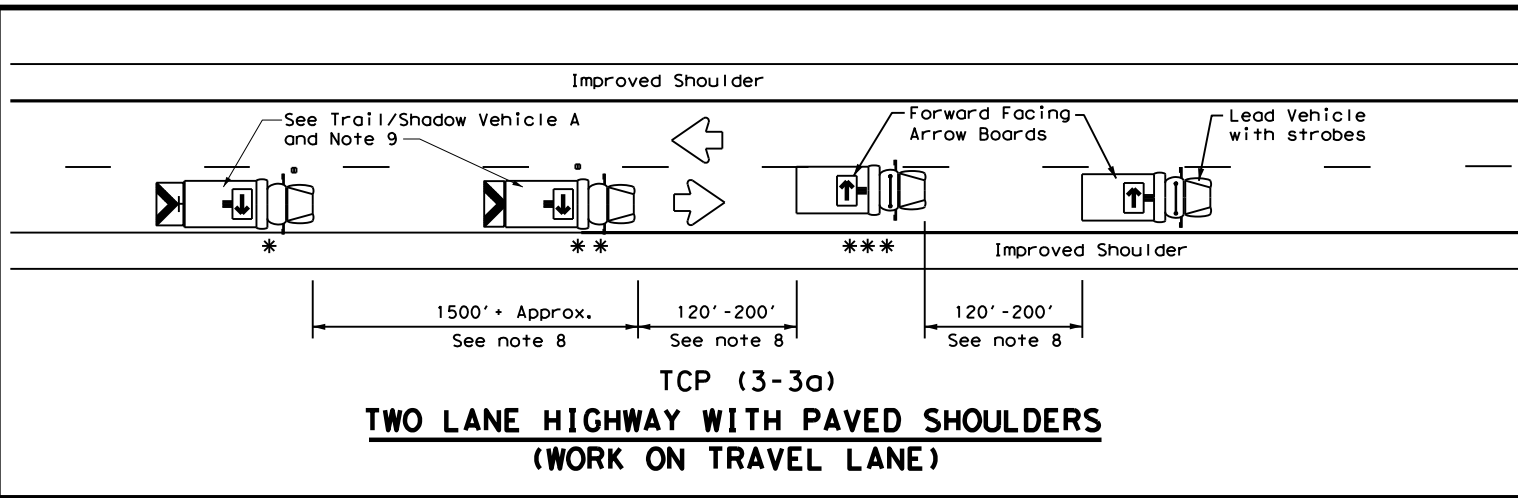
- ADVANCE WARNING, TRAIL and SHADOW vehicles shall be equipped with Type B or Type C flashing arrow boards as per the Barricade and Construction (BC) standards. Arrow boards on WORK vehicles will be optional based on the type of work being performed. The arrow boards shall be operated from inside the vehicle.
- For TCP(3-2a) the Engineer will determine if the TRAIL VEHICLE is required based on prevailing roadway conditions, traffic volume, and sight distance restrictions. All other vehicles shown for both TCP(3-2a) and TCP(3-2b) are required.
- The use of amber high intensity rotating, flashing, oscillating, or strobe lights on vehicles are required. Blue high intensity rotating, flashing, oscillating or strobe lights when mounted on the driver's side of the vehicle may be operated simultaneously with the amber beacons or strobe lights.
- The use of truck mounted attenuators (TMA) on the ADVANCE WARNING, SHADOW, and TRAIL vehicles are required.
- Reflective sheeting on the rear of the TMA shall meet or exceed the reflectivity and color requirements of DMS 8300, Type A.
- Each vehicle shall have two-way radio communication capability.
- When work convoys must change lanes, the TRAIL VEHICLE should change lanes first to shadow the other convoy vehicles.
- Vehicle spacing between the TRAIL VEHICLE and the SHADOW VEHICLE will vary depending on sight distance restrictions. Motorists approaching the work convoy should be able to see the TRAIL VEHICLE in time to slow down and/or change lanes as they approach the TRAIL VEHICLE. Vehicle spacing between the WORK VEHICLE and SHADOW VEHICLE may vary according to terrain, work activity and other factors.
- Standard 48" X 48" diamond shaped warning signs with the same message as those shown may be used where adequate mounting space exists.
- The signs shown should be used on the Advance Warning Vehicle. As an option, a portable changeable message sign (PCMS) or a truck mounted changeable message sign (TMCMS) with a minimum character height of 12", and displaying the same legend may be substituted for these signs. An appropriate directional arrow display, simulating the size and legibility of the flashing arrow board, must be used in the second phase of the PCMS/TMCMS message. When this is done, the arrow board will not be required on the Advance Warning Vehicle.
- Standard diamond shape versions of the CW20-5 series signs may be used as an option if the rectangular signs shown are not available.
- The principles on this sheet may be used to close lanes from the left side of the roadway considering the number of lanes, shoulder width, sight distance, and ramp frequency.
- Signs and flashing arrow board modes shall be appropriately altered when implementing left lane closures or interior closures which close the left lanes.
- The Advance Warning Vehicle may straddle the edgeline when shoulder width makes it necessary.



**STRIPING FOR TMA**

 Texas Department of Transportation		Traffic Operations Division Standard	
<h3>TRAFFIC CONTROL PLAN MOBILE OPERATIONS DIVIDED HIGHWAYS</h3>			
<h2>TCP(3-2)-13</h2>			
FILE:	tcp3-2.dgn	DN:	TxDOT
© TxDOT	December 1985	CONT. SECT.	JOB
REVISIONS	0010 19	014	FM 991
2-94 4-98		DIST.	COUNTY
8-95 7-13		ATL	BOWIE
1-97			SHEET NO.
			49

DATE: 7/10/2023 4:59:32 PM  
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LEGEND		
* Trail Vehicle	ARROW BOARD DISPLAY	
** Shadow Vehicle		
*** Work Vehicle		RIGHT Directional
		LEFT Directional
		Double Arrow
		CAUTION (Alternating Diamond or 4 Corner Flash)

TYPICAL USAGE				
MOBILE	SHORT DURATION	SHORT TERM STATIONARY	INTERMEDIATE TERM STATIONARY	LONG TERM STATIONARY
✓				

**GENERAL NOTES**

- TRAIL, SHADOW, and LEAD vehicles shall be equipped with arrow boards as illustrated. When a LEAD vehicle is not used on two way roads the WORK vehicle must have an arrow board. For divided roadways, the arrow board on the WORK vehicle is optional based on the type of work being performed. The Engineer will determine if the LEAD vehicle and/or TRAIL vehicle are required based on prevailing roadway conditions, traffic volume, and sight distance restrictions.
- The use of amber high intensity rotating, flashing, oscillating, or strobe lights on vehicles are required. Blue high intensity rotating, flashing, oscillating, or strobe lights when mounted on the driver's side of the vehicle may be operated simultaneously with the amber beacons or strobe lights.
- The use of truck mounted attenuators (TMA) on the SHADOW VEHICLE, ADVANCE WARNING and TRAIL VEHICLE are required.
- Reflective sheeting on the rear of the TMA shall meet or exceed the reflectivity and color requirements of DEPARTMENTAL MATERIAL SPECIFICATION DMS 8300, Type A.
- Flashing arrow boards shall be Type B or Type C as per the Barricade and Construction (BC) standards. The board shall be controlled from inside the vehicle.
- Each vehicle shall have two-way radio communication capability.
- When work convoys must change lanes, the TRAIL VEHICLE should change lanes first to shadow the other convoy vehicles.
- Vehicle spacing between the TRAIL VEHICLE and the SHADOW VEHICLE will vary depending on sight distance restrictions. Motorists approaching the convoy should be able to see the TRAIL VEHICLE in time to slow down and/or change lanes as they approach the TRAIL VEHICLE. Vehicle spacing between the WORK VEHICLE and SHADOW VEHICLE and vehicle spacing between WORK VEHICLE and LEAD VEHICLE may vary according to terrain, work activity and other factors.
- X VEHICLE CONVOY (CW21-10cT) or WORK CONVOY (CW21-10aT) signs shall be used on TRAIL VEHICLES and SHADOW VEHICLES as shown. As an option 48" x 48" diamond shaped WORK CONVOY (CW21-10T) or X VEHICLE CONVOY (CW21-10bT) signs may be used where adequate mounting space exists. When used, the X VEHICLE CONVOY sign shall have the number of the convoy vehicles displayed on the sign in the number designation "X" location. The X VEHICLE CONVOY sign shall not be used on the SHADOW VEHICLE if a TRAIL VEHICLE is used.
- For divided highways with two or three lanes in one direction, the appropriate LEFT LANE CLOSED (CW20-5bTL), RIGHT LANE CLOSED (CW20-5bTR), or CENTER LANE CLOSED (CW20-5dT) sign should be used on the Advance Warning Vehicle. As an option, a portable changeable message sign (PCMS) or truck mounted changeable message sign (TMCMS) with a minimum character height of 12", and displaying the same legend may be substituted for these signs. An appropriate directional arrow display, simulating the size and legibility of the flashing arrow board may be used in the second phase of the PCMS/TMCMS message. When this is done, the arrow board will not be required on the Advance Warning Vehicle.
- A double arrow shall not be displayed on the arrow board on the Advance Warning Vehicle.
- For divided highways with three or four lanes in each direction, use TCP(3-2).
- Standard diamond shape versions of the CW20-5 series signs may be used as an option if the rectangular signs shown are not available.
- The Advance Warning Vehicle may straddle the edgeline when Shoulder width makes it necessary.
- On two-lane two-way roadways, the work and protection vehicles should pull over periodically to allow motor vehicle traffic to pass. If motorists are not allowed to pass the work convoy, a DO NOT PASS (R4-1) sign should be placed on the back of the rearmost protection vehicle.

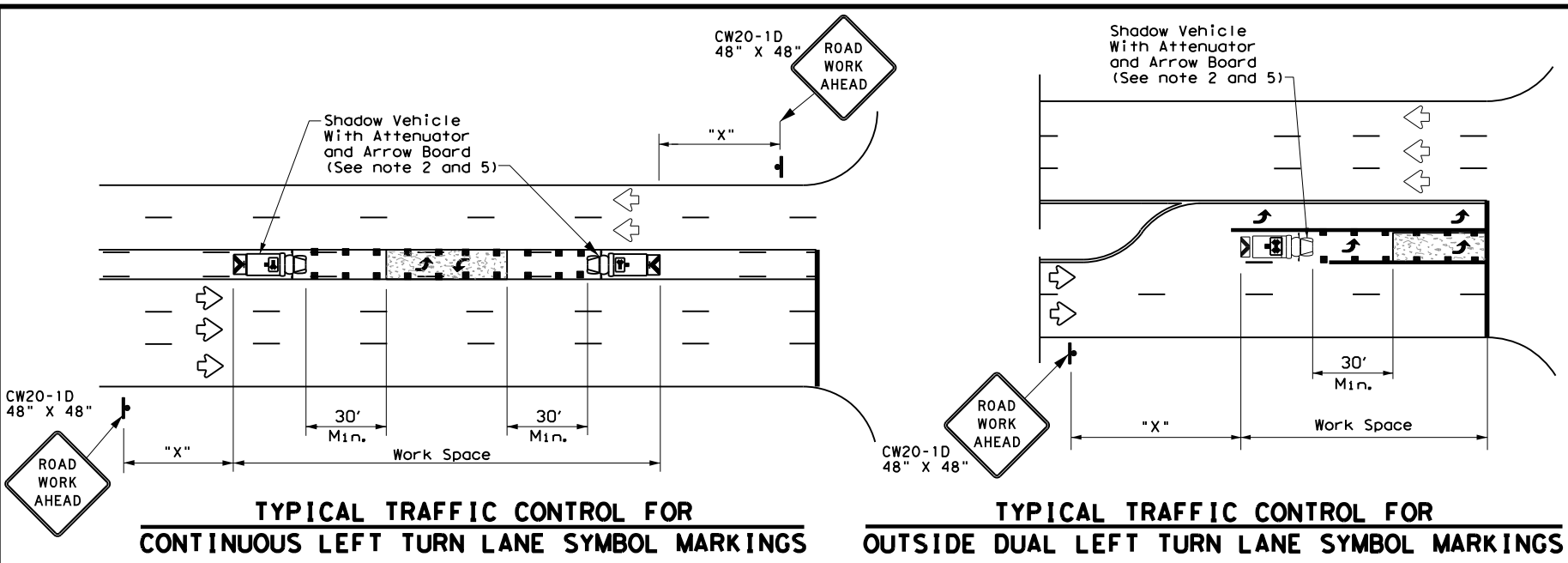
Texas Department of Transportation

Traffic Operations Division Standard

## TRAFFIC CONTROL PLAN MOBILE OPERATIONS RAISED PAVEMENT MARKER INSTALLATION/ REMOVAL TCP (3-3) - 14

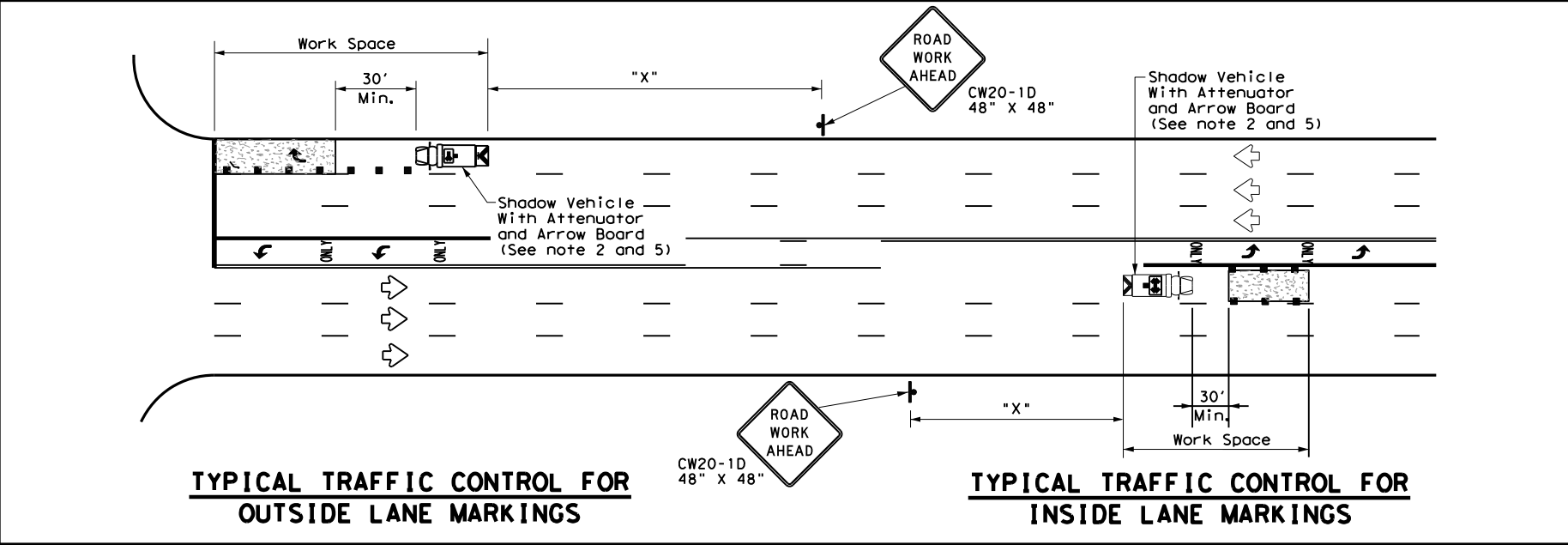
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© TxDOT September 1987	CONT	SECT	JOB	HIGHWAY
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2-94 4-98	DIST	COUNTY	SHEET NO.	
8-95 7-13	ATL	BOWIE	50	
1-97 7-14				

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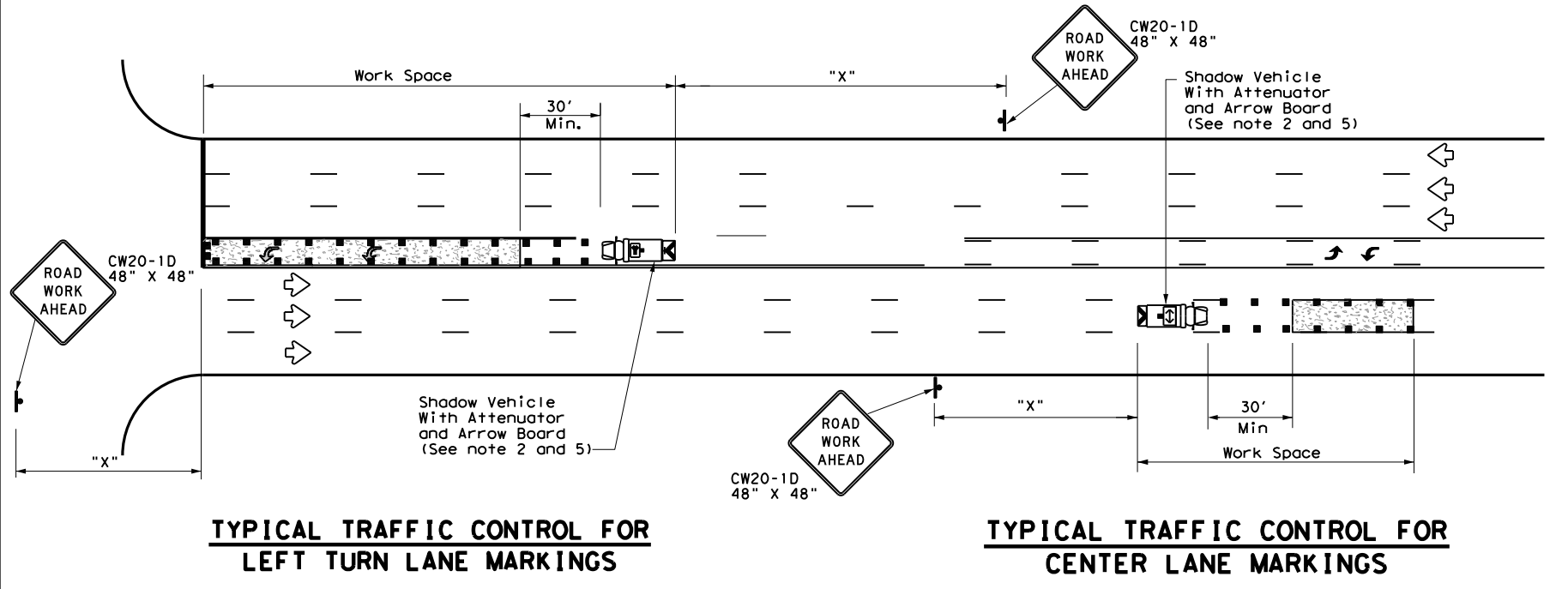
**TYPICAL TRAFFIC CONTROL FOR CONTINUOUS LEFT TURN LANE SYMBOL MARKINGS**

**TYPICAL TRAFFIC CONTROL FOR OUTSIDE DUAL LEFT TURN LANE SYMBOL MARKINGS**



**TYPICAL TRAFFIC CONTROL FOR OUTSIDE LANE MARKINGS**

**TYPICAL TRAFFIC CONTROL FOR INSIDE LANE MARKINGS**



**TYPICAL TRAFFIC CONTROL FOR LEFT TURN LANE MARKINGS**

**TYPICAL TRAFFIC CONTROL FOR CENTER LANE MARKINGS**

LEGEND		
*	Trail Vehicle	ARROW BOARD DISPLAY
**	Shadow Vehicle	
***	Work Vehicle	RIGHT Directional
	Heavy Work Vehicle	LEFT Directional
	Truck Mounted Attenuator (TMA)	Double Arrow
	Traffic Flow	Channelizing Devices

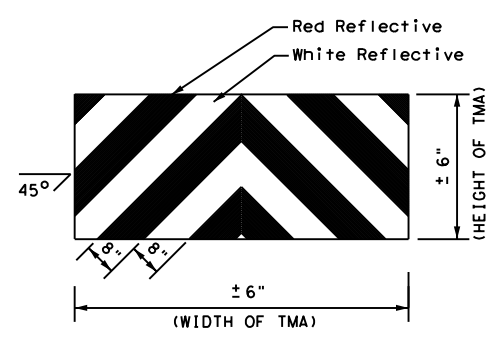
Posted Speed *	Formula	Minimum Desirable Taper Lengths **			Suggested Maximum Spacing of Channelizing Devices		Minimum Sign Spacing "X" Distance	Suggested Longitudinal Buffer Space "B"
		10' Offset	11' Offset	12' Offset	On a Taper	On a Tangent		
30	L = WS <sup>2</sup> / 60	150'	165'	180'	30'	60'	120'	90'
35		205'	225'	245'	35'	70'	160'	120'
40		265'	295'	320'	40'	80'	240'	155'
45	L = WS	450'	495'	540'	45'	90'	320'	195'
50		500'	550'	600'	50'	100'	400'	240'
55		550'	605'	660'	55'	110'	500'	295'
60		600'	660'	720'	60'	120'	600'	350'
65		650'	715'	780'	65'	130'	700'	410'
70		700'	770'	840'	70'	140'	800'	475'
75		750'	825'	900'	75'	150'	900'	540'

\* Conventional Roads Only  
 \*\* Taper lengths have been rounded off.  
 L=Length of Taper (FT) W=Width of Offset (FT) S=Posted Speed (MPH)

TYPICAL USAGE				
MOBILE	SHORT DURATION	SHORT TERM STATIONARY	INTERMEDIATE TERM STATIONARY	LONG TERM STATIONARY
✓				

**GENERAL NOTES**

1. This traffic control plan is for use on conventional roads posted at 45 mph or less and is intended for mobile operations that move continuously or intermittently (stopping up to approximately 15 minutes) such as short-line striping and in-lane rumble strips. When activities are anticipated to take longer amounts of time or traffic conditions warrant, a short duration or short-term stationary traffic control plan should be used.
2. A Truck Mounted Attenuator shall be used on Shadow Vehicle. Striping on the back panel of all truck mounted attenuators shall be 8" red and white reflective sheeting placed in an inverted "V" design. Reflective sheeting shall meet or exceed the reflectivity and color requirements of departmental material specification DMS-8300, Type A.
3. All traffic control devices shall be in accordance with the "Texas Manual on Uniform Traffic Control Devices" (TMUTCD), latest edition.
4. The use of yellow rotating beacons or strobe lights on vehicles are required. Blue high intensity rotating, flashing, oscillating or strobe lights when mounted on the drivers side of the vehicle may be operated simultaneously with the amber beacons or strobe lights.
5. Flashing arrow board shall be used on Shadow Vehicle. Flashing arrow board shall be Type B or Type C as per BC Standards. The arrow board operation shall be controlled from inside the truck.



**STRIPING FOR TMA**

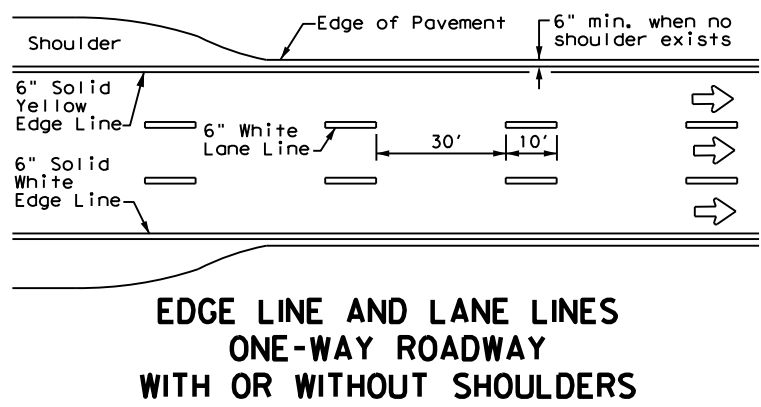
Texas Department of Transportation  
 Traffic Operations Division Standard

**TRAFFIC CONTROL PLAN  
 MOBILE OPERATIONS FOR  
 ISOLATED WORK AREAS  
 UNDIVIDED HIGHWAYS**

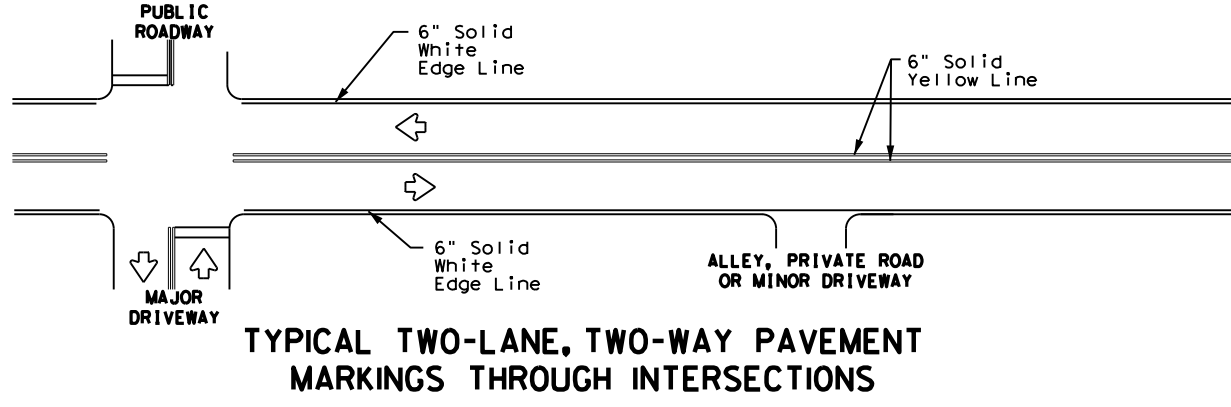
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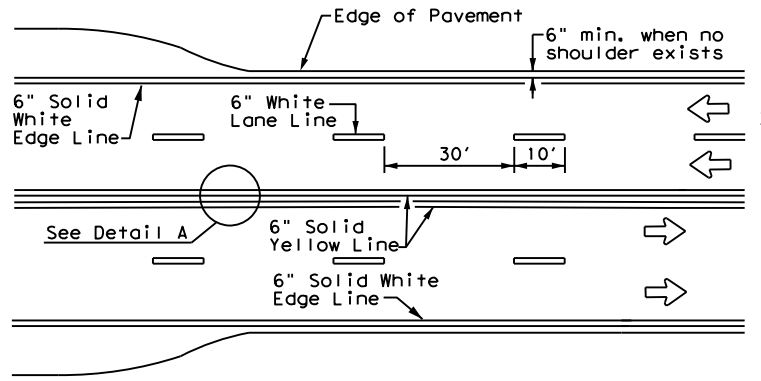
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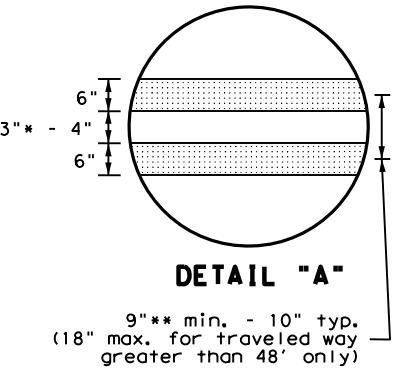
**EDGE LINE AND LANE LINES  
ONE-WAY ROADWAY  
WITH OR WITHOUT SHOULDERS**



**TYPICAL TWO-LANE, TWO-WAY PAVEMENT  
MARKINGS THROUGH INTERSECTIONS**

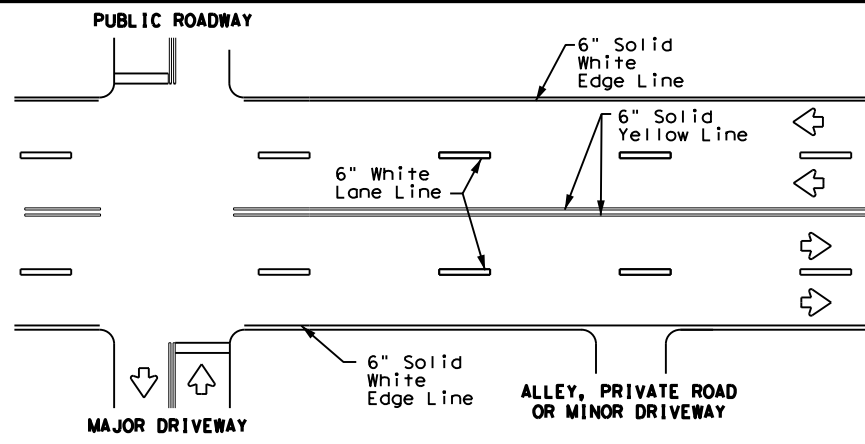


**CENTERLINE AND LANE LINES  
FOUR LANE TWO-WAY ROADWAY  
WITH OR WITHOUT SHOULDERS**

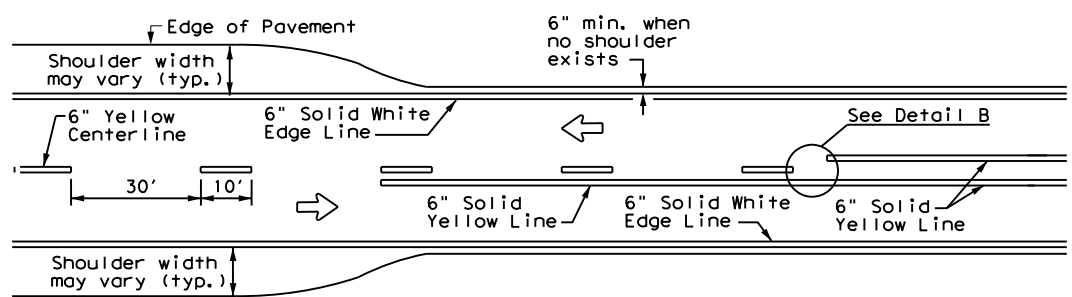


**DETAIL "A"**  
 9" min. - 10" typ.  
 (18" max. for traveled way greater than 48' only)

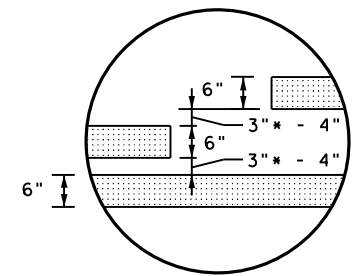
\* 2" minimum for restripe projects when approved by the Engineer.  
 \*\* 8" minimum for restripe projects when approved by the Engineer.



**TYPICAL MULTI-LANE, TWO-WAY PAVEMENT  
MARKINGS THROUGH INTERSECTIONS**

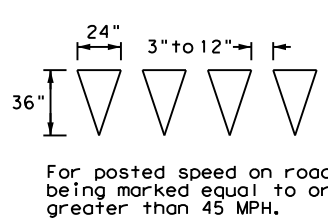


**TWO LANE TWO-WAY ROADWAY  
WITH OR WITHOUT SHOULDERS**

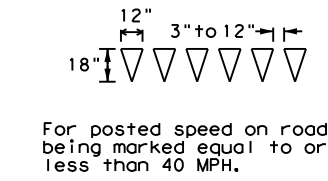


**DETAIL "B"**  
 18" min. - 20" max.  
 (16" minimum for restripe projects when approved by the Engineer.)

\* 2" minimum for restripe projects when approved by the Engineer.



**YIELD LINES**

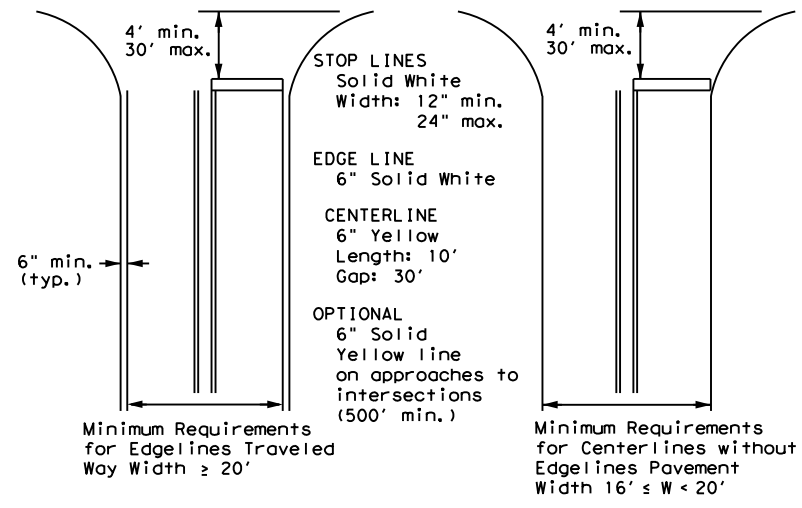


For posted speed on road being marked equal to or less than 40 MPH.

- GENERAL NOTES**
- Edge line striping shall be as shown in the plans or as directed by the Engineer. The edge line should not be placed less than 6 inches from the edge of pavement. This distance may vary due to pavement raveling or other conditions. Edge lines are not required in curb and gutter sections of roadways.
  - The traveled way includes only that portion of the roadway used for vehicular travel. It does not include the parking lanes, sidewalks, berms and shoulders. The traveled ways shall be measured from the center of edge line to the center of edge line of a two lane roadway.

MATERIAL SPECIFICATIONS	
PAVEMENT MARKERS (REFLECTORIZED)	DMS-4200
EPOXY AND ADHESIVES	DMS-6100
BITUMINOUS ADHESIVE FOR PAVEMENT MARKERS	DMS-6130
TRAFFIC PAINT	DMS-8200
HOT APPLIED THERMOPLASTIC	DMS-8220
PERMANENT PREFABRICATED PAVEMENT MARKINGS	DMS-8240

All pavement marking materials shall meet the required Departmental Material Specifications as specified by the plans.

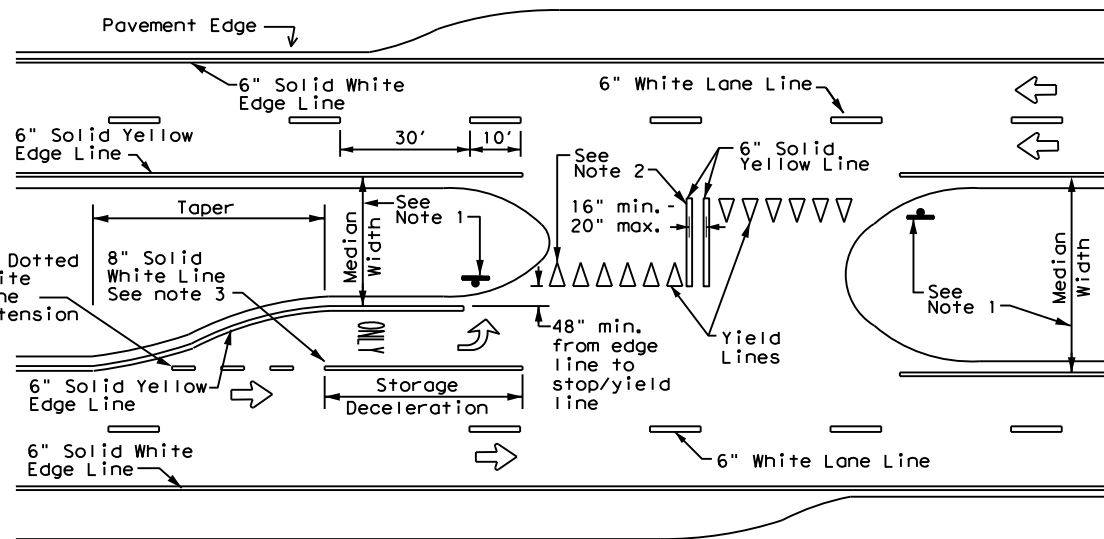


NOTE: Traveled way is exclusive of shoulder widths. Refer to General Note 2 for additional details.

**GUIDE FOR PLACEMENT OF STOP LINES,  
EDGE LINE & CENTERLINE**  
 Based on Traveled Way and Pavement Widths for Undivided Roadways

**NOTES**

- Where divided highways are separated by median widths at the median opening itself of 30 feet or more, median openings shall be signed as two separate intersections. Each median opening has two width measurements, with one measurement for each approach. The narrow median width will be the controlling width to determine if signs are required. Yield signs are the typical intersection control. Stop signs and stop bars are optional as determined by the Engineer.
- Install median striping (double yellow centerlines and stop lines/yield lines) when a 50' or greater median centerline can be placed. Stop lines shall only be used with stop signs. Yield lines shall only be used with yield signs.
- Length of turn bays, including taper, deceleration, and storage lengths shall be as shown on the plans or as directed by the Engineer.



**FOUR LANE DIVIDED ROADWAY CROSSOVERS**

Texas Department of Transportation  
 Traffic Safety Division Standard

**TYPICAL STANDARD  
PAVEMENT MARKINGS**

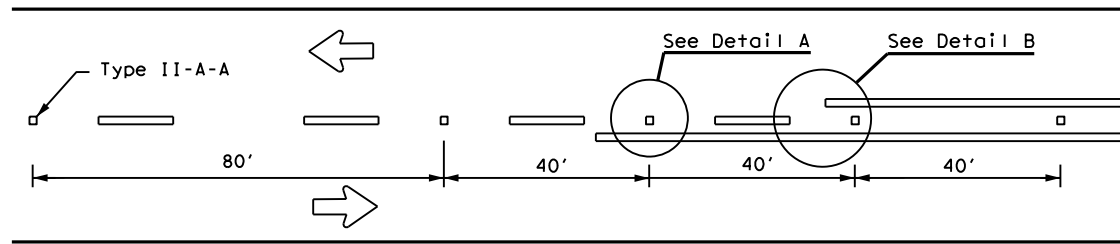
**PM(1) - 22**

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© TxDOT December 2022	CONT: 0010	SECT: 19	HIGHWAY: FM 991
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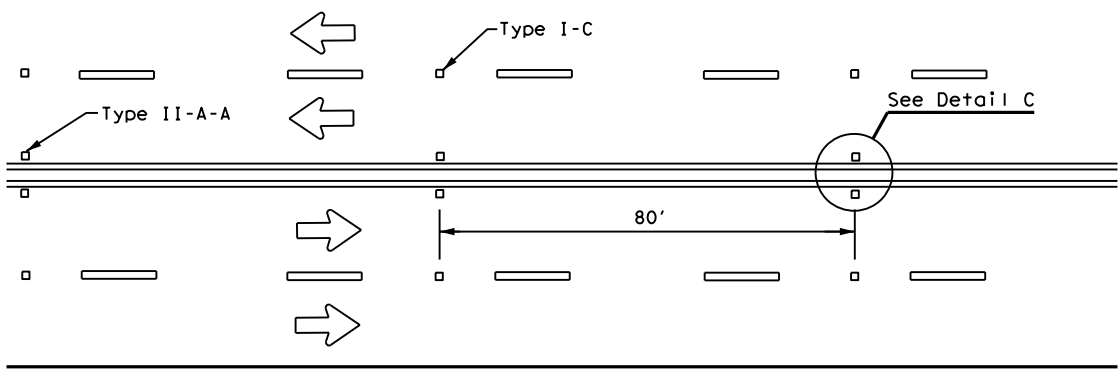
22A

# REFLECTIVE RAISED PAVEMENT MARKERS FOR VEHICLE POSITIONING GUIDANCE

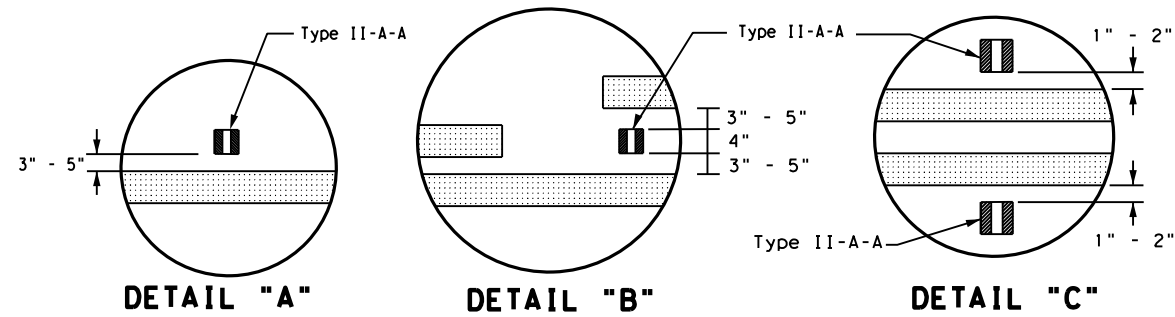
DISCLAIMER: The use of this standard is governed by the "Texas Engineering Practice Act". No warranty of any kind is made by TxDOT for any purpose whatsoever. TxDOT assumes no responsibility for the conversion of units or the use of this standard in any project. DATE: 7/11/2023 9:33:34 AM FILE: pw://txdot.projectwiseonline.com:TXDOT15/Documents/19 - ATL/Design Projects/00000474 changes for PM(2)-22.dwg



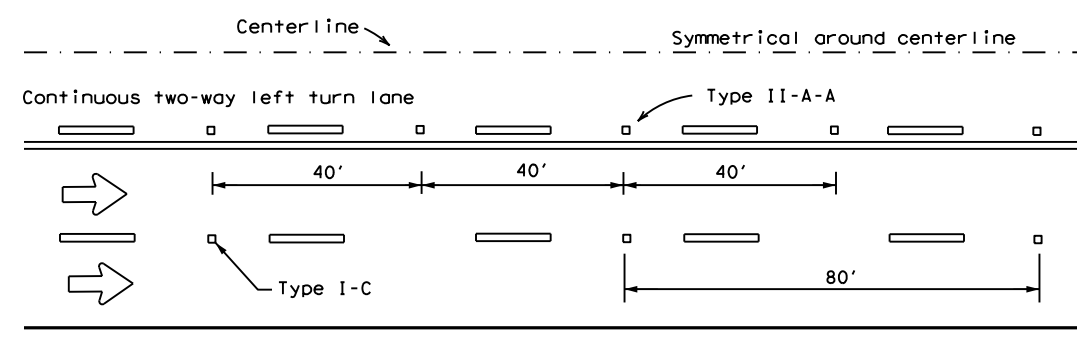
**CENTERLINE FOR ALL TWO LANE TWO-WAY ROADWAYS**



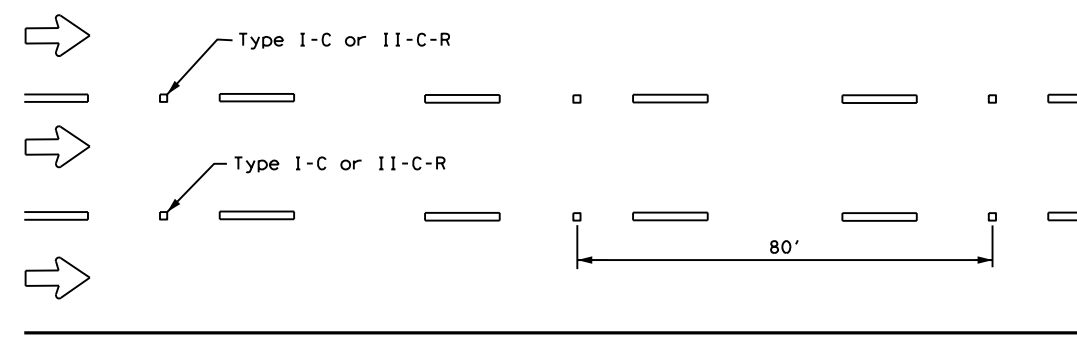
**CENTERLINE & LANE LINES  
FOR FOUR LANE TWO-WAY ROADWAYS**



**DETAIL "A"      DETAIL "B"      DETAIL "C"**

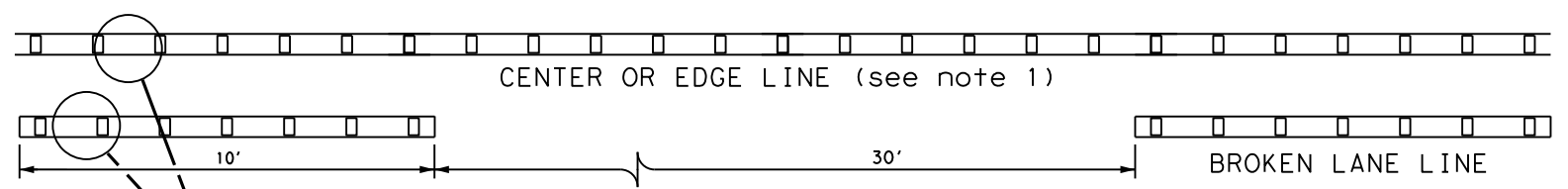


**CENTERLINE AND LANE LINES FOR TWO-WAY LEFT TURN LANE**

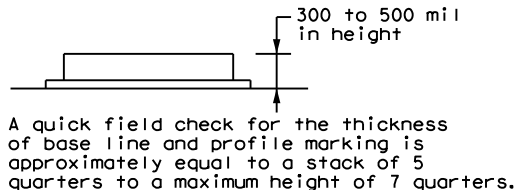


**LANE LINES FOR ONE-WAY ROADWAY (NON-FREEWAY FACILITIES)**

Raised pavement markers Type II-C-R shall have clear face toward normal traffic and red face toward wrong-way traffic.  
See Note 3.



**REFLECTORIZED PROFILE  
PATTERN DETAIL**  
USING REFLECTIVE PROFILE PAVEMENT MARKINGS



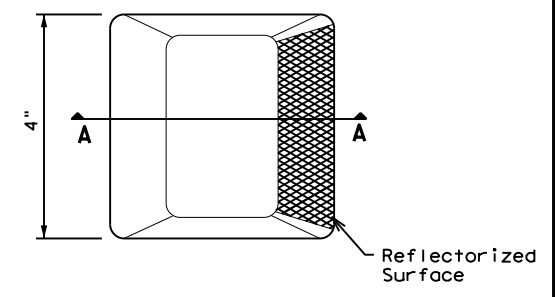
- NOTES**
1. Edge lines should typically be 6" wide and the materials shall be specified in the plans.
  2. Profile markings shall not be placed on roadways with a posted speed limit of 45 MPH or less.

**GENERAL NOTES**

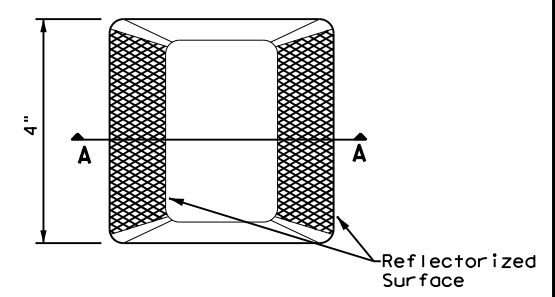
1. All raised pavement markers placed along broken lines shall be placed in line with and midway between the stripes.
2. On concrete pavements the raised pavement markers should be placed to one side of the longitudinal joints.
3. Use raised pavement marker Type I-C with undivided roadways, flush medians and two way left turn lanes. Use raised pavement marker Type II-C-R with divided highways and raised medians.

MATERIAL SPECIFICATIONS	
PAVEMENT MARKERS (REFLECTORIZED)	DMS-4200
EPOXY AND ADHESIVES	DMS-6100
BITUMINOUS ADHESIVE FOR PAVEMENT MARKERS	DMS-6130
TRAFFIC PAINT	DMS-8200
HOT APPLIED THERMOPLASTIC	DMS-8220
PERMANENT PREFABRICATED PAVEMENT MARKINGS	DMS-8240

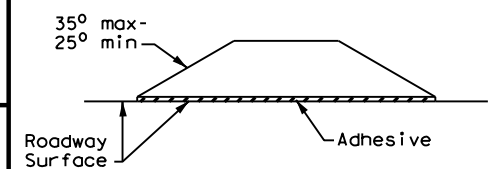
All pavement marking materials shall meet the required Departmental Material Specifications as specified by the plans.



**Type I (Top View)**



**Type II (Top View)**



**SECTION A**

**RAISED PAVEMENT MARKERS**

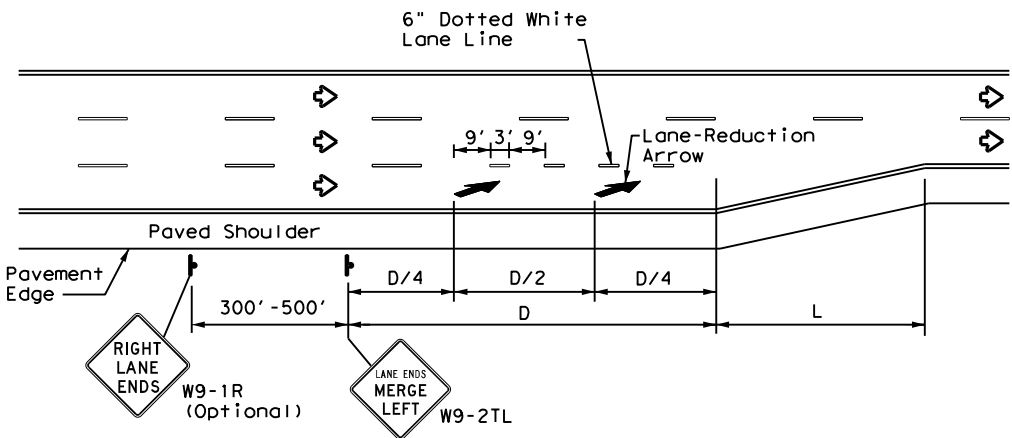


**POSITION GUIDANCE USING  
RAISED MARKERS  
REFLECTORIZED PROFILE  
MARKINGS  
PM(2) - 22**

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4-92 2-10 12-22	ATL	BOWIE	53	
5-00 2-12				

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**LANE REDUCTION**

**NOTES**

- Lane reduction pavement markings are used where the number of through lanes is reduced because of narrowing of the roadway or because of a section of on-street parking in what would otherwise be a through lane. For Texas Super 2 Passing Lanes, see TS2(PL) standard sheets.
- On divided highways, an additional RIGHT LANE ENDS (W9-1R) sign may be installed in the median aligned with the W9-1R sign on the right side of the highway.
- Lane reduction arrows are required for speeds of 45 mph or greater. An optional third lane reduction arrow may be added based on engineering judgement. If used, the optional third lane reduction arrow should be centered between the first and last lane reduction arrows.
- For lane reductions on Freeways and Expressways, signing shall conform to the TxDOT Freeway Signing Handbook.

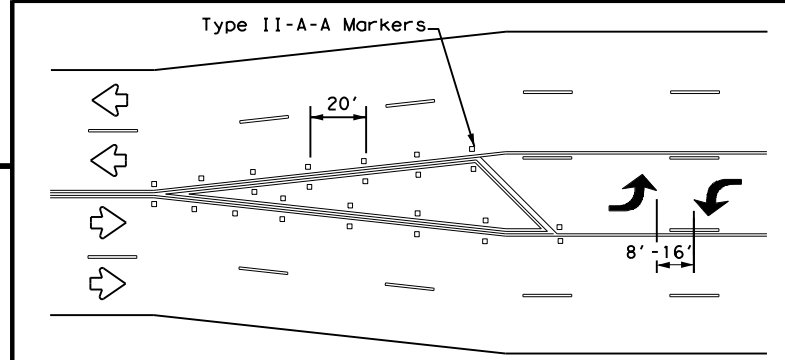
ADVANCED WARNING SIGN DISTANCE (D)		
Posted Speed	D (ft)	L (ft)
30 MPH	460	$L = \frac{WS^2}{60}$
35 MPH	565	
40 MPH	670	
45 MPH	775	L=WS
50 MPH	885	
55 MPH	990	
60 MPH	1,100	
65 MPH	1,200	
70 MPH	1,250	
75 MPH	1,350	

**GENERAL NOTES**

- Lane use word and arrow markings shall be used where through lanes approaching an intersection become mandatory turn lanes. Lane use word and arrow markings should be used in auxiliary lanes of substantial length. Lane use arrow markings or word and arrow markings may be used in other lanes and turn bays for emphasis. Details for words and arrows are as shown in the Standard Highway Sign Designs for Texas.
- When lane-use words and arrow markings are used, two sets of arrows should be used if the length of the bay is greater than 180 feet. When a single lane use arrow or word and arrow marking is used for a short turn lane, it should be located at or near the upstream end of the full-width turn lane.
- Use raised pavement marker Type I-C with undivided highways, flush medians and two way left turn lanes. Use raised pavement marker Type II-C-R with divided highways and raised medians.
- Length of turn bays, including taper, deceleration, and storage lengths shall be as shown on the plans or as directed by the Engineer. See Chapter 3 of the Roadway Design Manual for additional information on turning lanes or storage lengths.

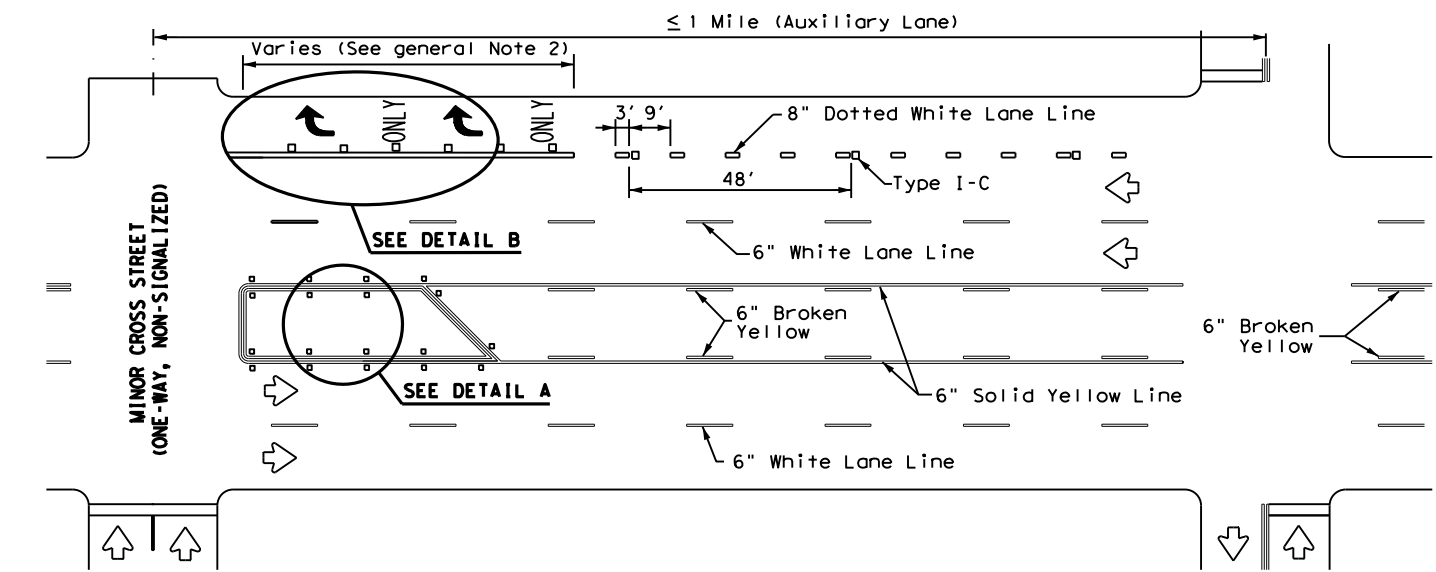
MATERIAL SPECIFICATIONS	
PAVEMENT MARKERS (REFLECTORIZED)	DMS-4200
EPOXY AND ADHESIVES	DMS-6100
BITUMINOUS ADHESIVE FOR PAVEMENT MARKERS	DMS-6130
TRAFFIC PAINT	DMS-8200
HOT APPLIED THERMOPLASTIC	DMS-8220
PERMANENT PREFABRICATED PAVEMENT MARKINGS	DMS-8240

All pavement marking materials shall meet the required Departmental Material Specifications as specified by the plans.

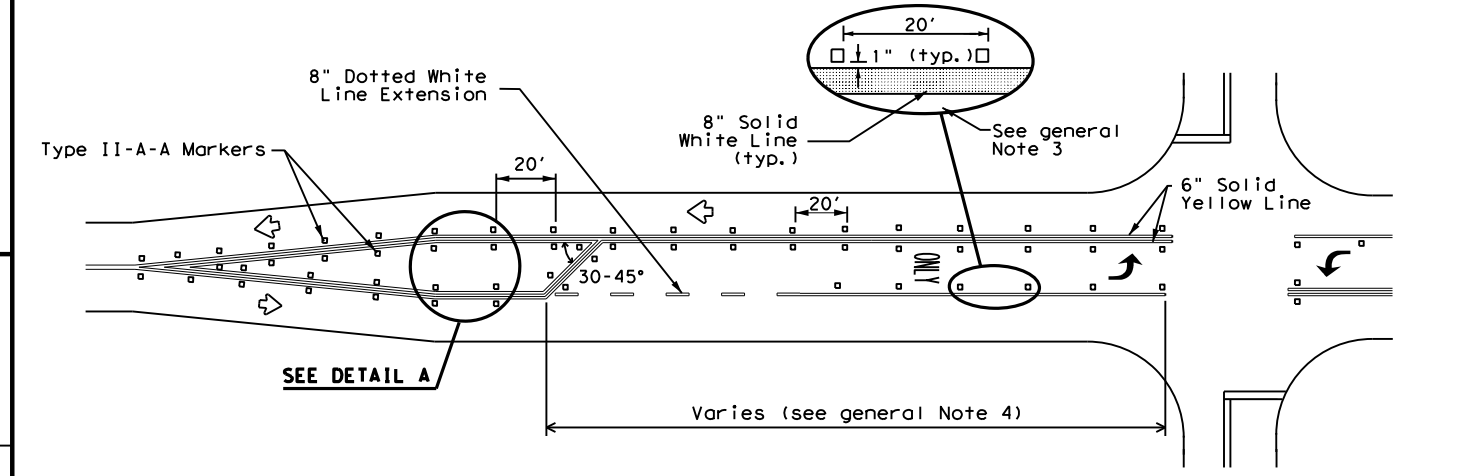


A two-way left-turn (TWLTL) lane-use arrow pavement marking should be used at or just downstream from the beginning of a two-way left-turn lane within a corridor. Repeating the marking after each intersection or dedicated turn bay is not required unless stated elsewhere in the plans.

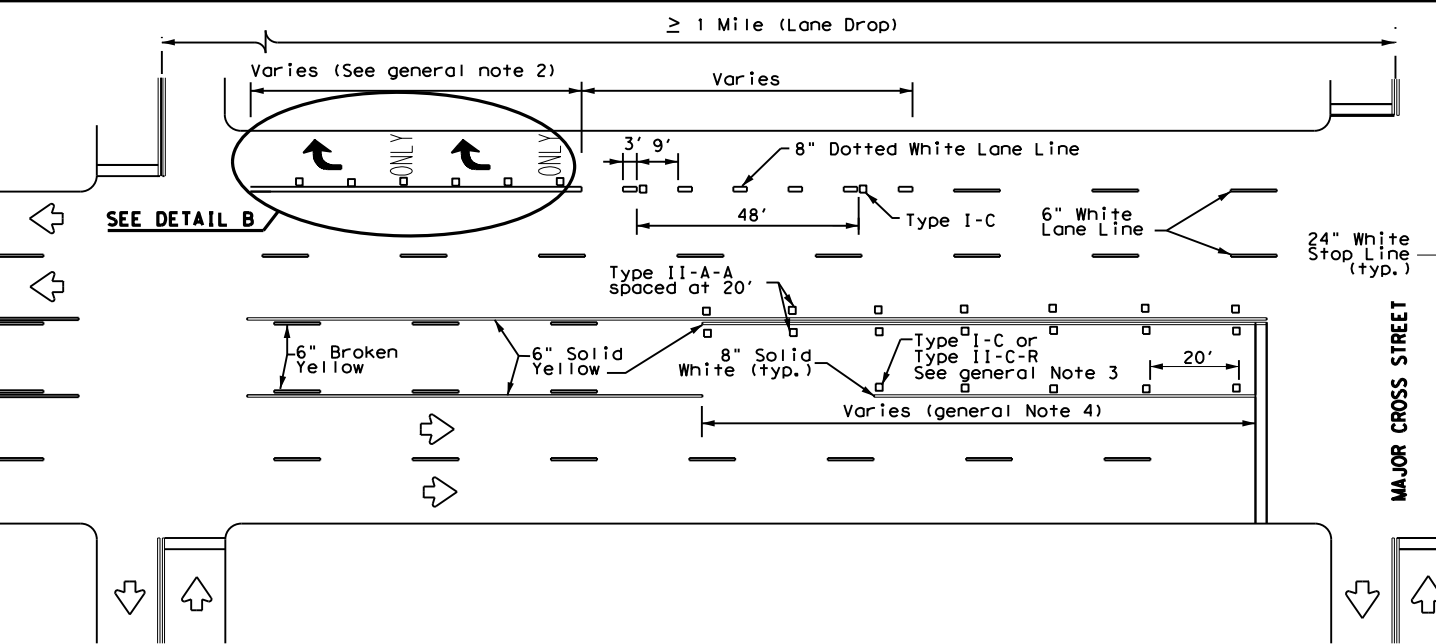
**TYPICAL TRANSITION FOR TWLTL AND DIVIDED HIGHWAY**



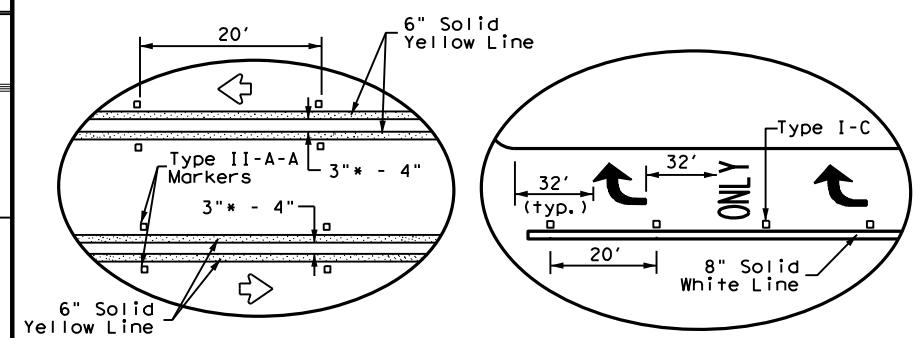
**TYPICAL TWLTL AT ONE-WAY STREET AND RIGHT TURN AUXILIARY LANE**



**TYPICAL TWO-LANE ROADWAY INTERSECTION WITH LEFT TURN BAYS**



**TYPICAL TWLTL AT TWO-WAY CROSS STREET AND RIGHT TURN LANE DROP**



**DETAIL A**

**DETAIL B**

\* 2" minimum allowed for restripe projects when approved by the Engineer.

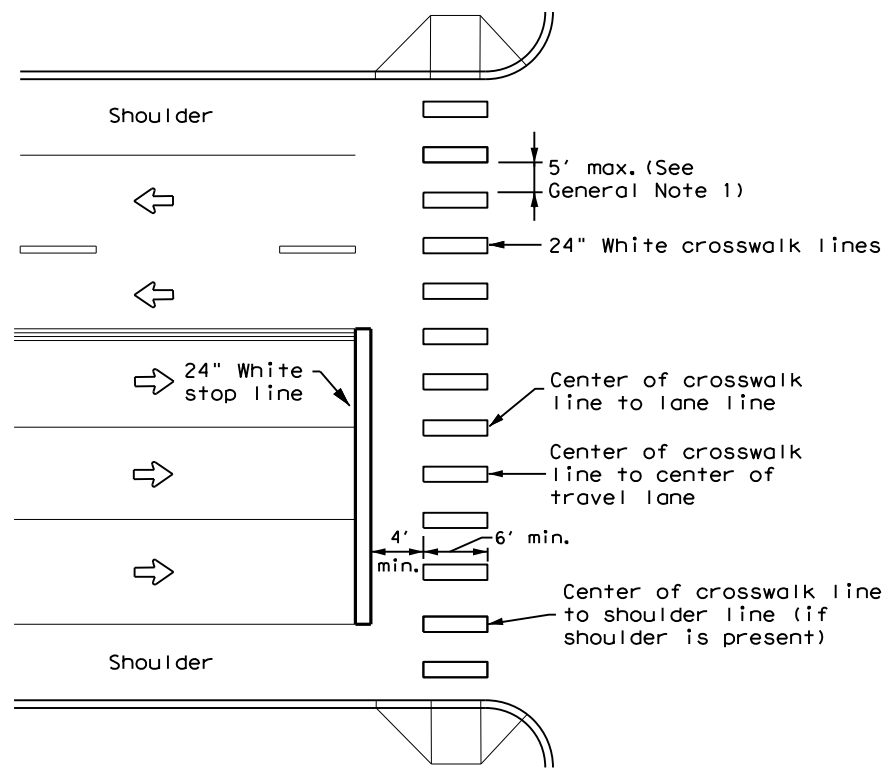
Texas Department of Transportation  
 Traffic Safety Division Standard

**TWO-WAY LEFT TURN LANES, RURAL LEFT TURN BAYS, AND LANE REDUCTION PAVEMENT MARKINGS PM(3)-22**

FILE: pm3-22.dgn	DN:	CK:	DW:	CK:
© TxDOT December 2022	CONT	SECT	JOB	HIGHWAY
REVISIONS	0010	19	014	FM 991
4-98 3-03 6-20	DIST	COUNTY	SHEET NO.	
5-00 2-10 12-22	ATL	BOWIE		54
8-00 2-12				

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DATE: 7/11/2023 9:35:19 AM  
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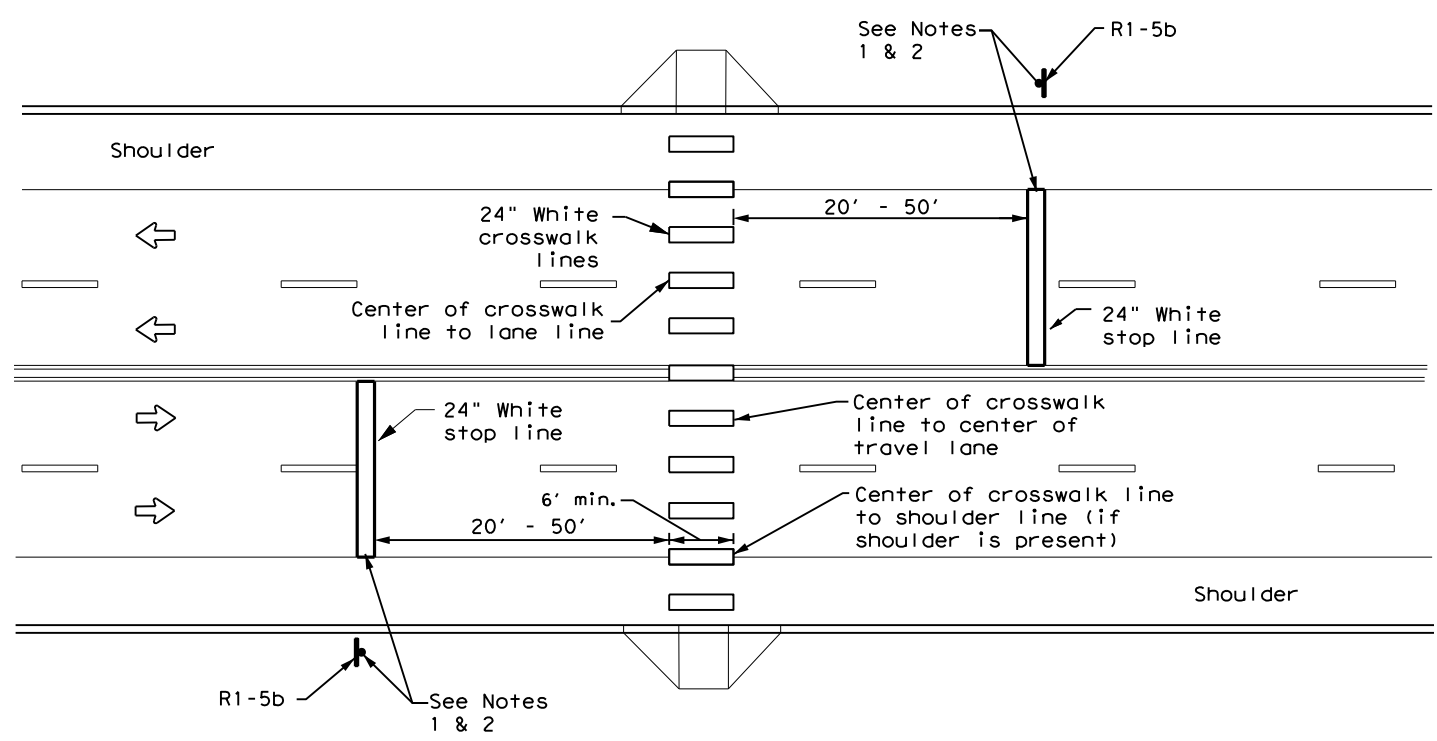
**HIGH-VISIBILITY LONGITUDINAL CROSSWALK AT CONTROLLED APPROACH**

**GENERAL NOTES**

1. Longitudinal crosswalk lines should not be placed in the wheel path of vehicles. Center the crosswalk lines on travel lanes, lane lines, and shoulder lines (if present).
2. A minimum 6" clear distance shall be provided to the curb face. If the last crosswalk line falls into this distance it must be omitted.
3. For divided roadways, adjustments in spacing of the crosswalk lines should be made in the median so that the crosswalk lines are maintained in their proper location across the travel portion of the roadway.
4. At skewed crosswalks, the crosswalk lines are to remain parallel to the lane lines.
5. Each crosswalk shall be a minimum of 6' wide.
6. The High-Visibility Longitudinal Crosswalk is the preferred crosswalk pattern on State Highways. Other crosswalk patterns as shown in the "Texas Manual on Uniform Traffic Control Devices" may be used. All crosswalk designs and dimension shall comply with the "Texas Manual on Uniform Traffic Control Devices."
7. Final placement of Stop Bar and Crosswalk shall be approved by the Engineer in the field.

MATERIAL SPECIFICATIONS	
PAVEMENT MARKERS (REFLECTORIZED)	DMS-4200
EPOXY AND ADHESIVES	DMS-6100
BITUMINOUS ADHESIVE FOR PAVEMENT MARKERS	DMS-6130
TRAFFIC PAINT	DMS-8200
HOT APPLIED THERMOPLASTIC	DMS-8220
PERMANENT PREFABRICATED PAVEMENT MARKINGS	DMS-8240

All pavement marking materials shall meet the required Departmental Material Specifications as specified by the plans.



**UNSIGNALIZED MIDBLOCK HIGH-VISIBILITY LONGITUDINAL CROSSWALK**

**NOTES:**

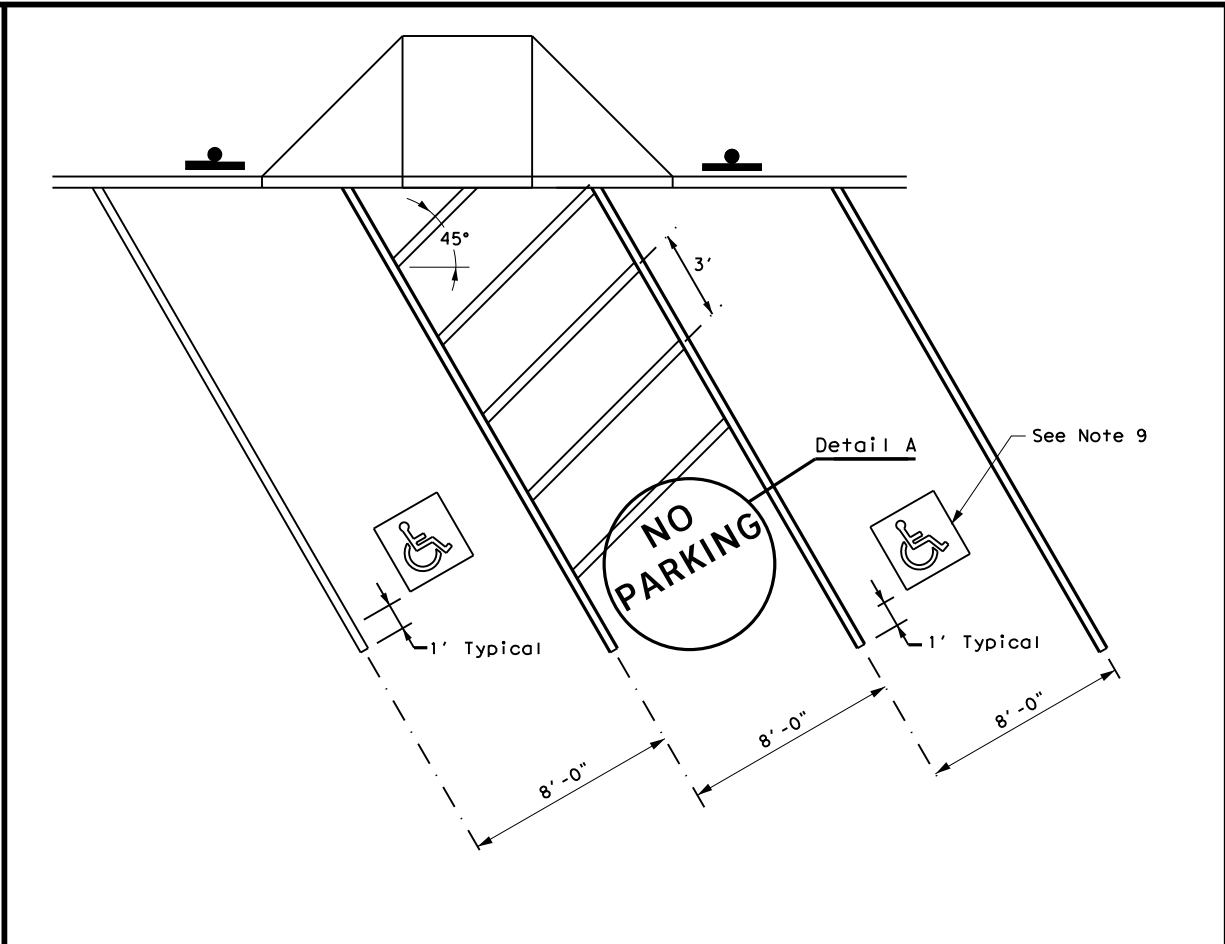
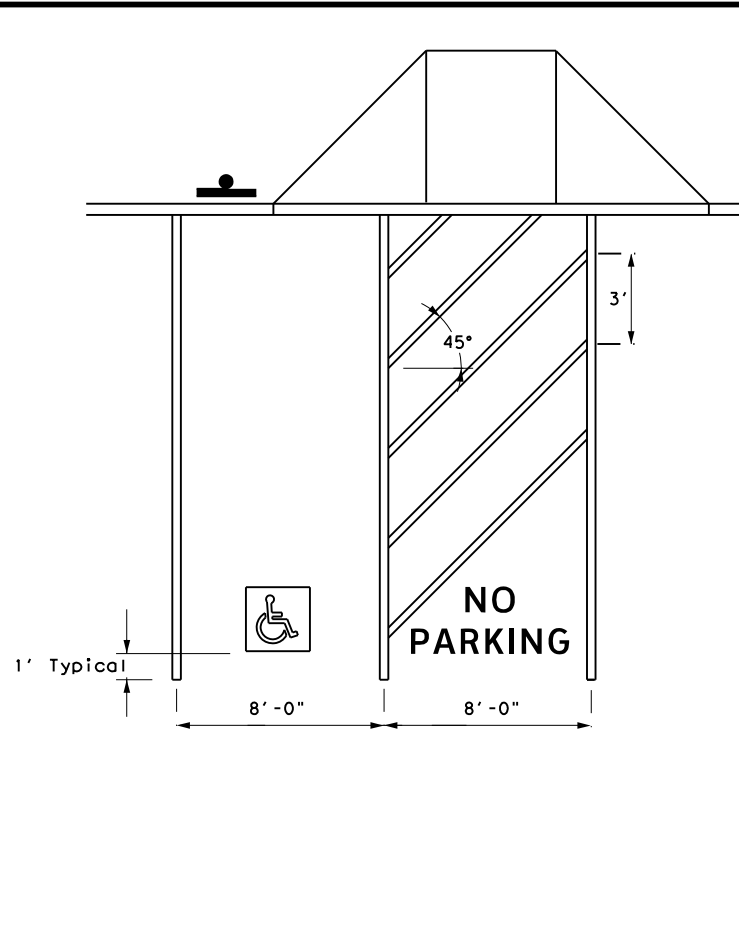
1. Use stop bars with Stop Here For Pedestrians (R1-5b) signs at unsignalized midblock crosswalks.
2. Use stop bars with STOP HERE ON RED (R10-6 or R10-6a) signs at midblock crosswalks controlled by traffic signals or pedestrian hybrid beacons.

<p><b>CROSSWALK PAVEMENT MARKINGS</b></p> <p><b>PM(4) - 22A</b></p>			
FILE: pm4-22a.dgn	DN:	CK:	DW:
© TxDOT December 2022	CONT	SECT	JOB
REVISIONS	0010	19	014
6-20	DIST	COUNTY	SHEET NO.
6-22	ATL	BOWIE	55
12-22			



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DATE: 7/28/2023 3:41:54 PM  
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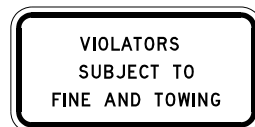
PERPENDICULAR OR ANGLED ACCESSIBLE PARKING SPACE DIMENSIONS



R7-8T



R7-8P



R7-8aPT

ACCESSIBLE PARKING SIGNS



Detail A

ALUMINUM SIGN BLANKS THICKNESS	
Square Feet	Minimum Thickness
Less than 7.5	0.080
7.5 to 15	0.100
Greater than 15	0.125

DEPARTMENTAL MATERIAL SPECIFICATIONS	
ALUMINUM SIGN BLANKS	DMS-7110
TRAFFIC PAINT	DMS-8200
HOT APPLIED THERMOPLASTIC	DMS-8220
PERMANENT PREFABRICATED PAVEMENT MARKINGS	DMS-8240
SIGN FACE MATERIALS	DMS-8300

GENERAL NOTES:

- All paved accessible parking space limit lines shall be 4" solid white lines.
- Paved accessible parking spaces must include a white International Symbol of Accessibility applied conspicuously on the surface in a color that contrasts the pavement. A blue background with white border may supplement the symbol for additional contrast.
- The words "NO PARKING" must be applied on any access aisle adjacent to the parking space. The words must be white, applied:
  - in all capital letters.
  - centered within each access aisle adjacent to the parking space.
- RESERVED PARKING (R7-8T) sign including the International Symbol of Accessibility.
  - shall be REQUIRED for each accessible parking space.
  - shall NOT be placed between two accessible parking spaces.
  - shall NOT be placed in a location that restricts movement of wheelchairs within the adjacent sidewalk.
  - shall have a mounting height of 7 feet to the bottom of the sign.
- A sign identifying the consequences of parking illegally in a paved accessible parking space. Must:
  - at a minimum state "VIOLATORS SUBJECT TO FINE AND TOWING" (Plaque) (R7-8aPT).
  - be mounted on a pole, post, wall or freestanding board.
  - be no more than eight inches (8") below sign R7-8T a sign required by the Texas Accessibility Standards, 502.6.
  - be installed so that the bottom edge of the sign is no lower than 48 inches and no higher than 80 inches above the ground level.
- Signs identifying van parking spaces shall contain the designation "VAN ACCESSIBLE" (R7-8P) Signs shall be 60 inches minimum above the ground level measured to the bottom of the sign.
- Perpendicular or angled parking spaces shall be 8 feet wide minimum with an access aisle 8 feet minimum wide (van accessible). Two parking spaces are permitted to share a common access aisle.
- Access aisles shall be at street level, extend the full length of the parking space they serve, follow ADA surface requirements, and marked to discourage parking in the access aisle. Curb ramps shall connect the access aisle to the adjacent pedestrian access route. Curb ramps shall not be located within the access aisle.
- International Symbol of Accessibility Parking Space Marking and sign details can be found in The Standard Highway Sign Designs for Texas (SHSD) at the following website. <http://www.txdot.gov/>

Traffic Safety Division Standard

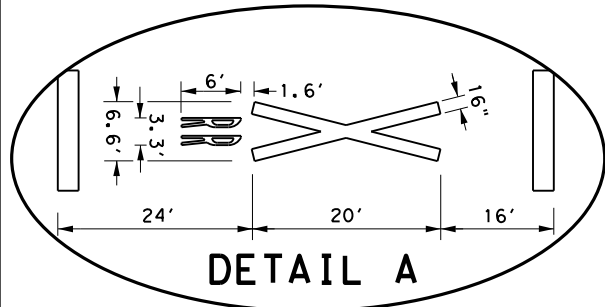
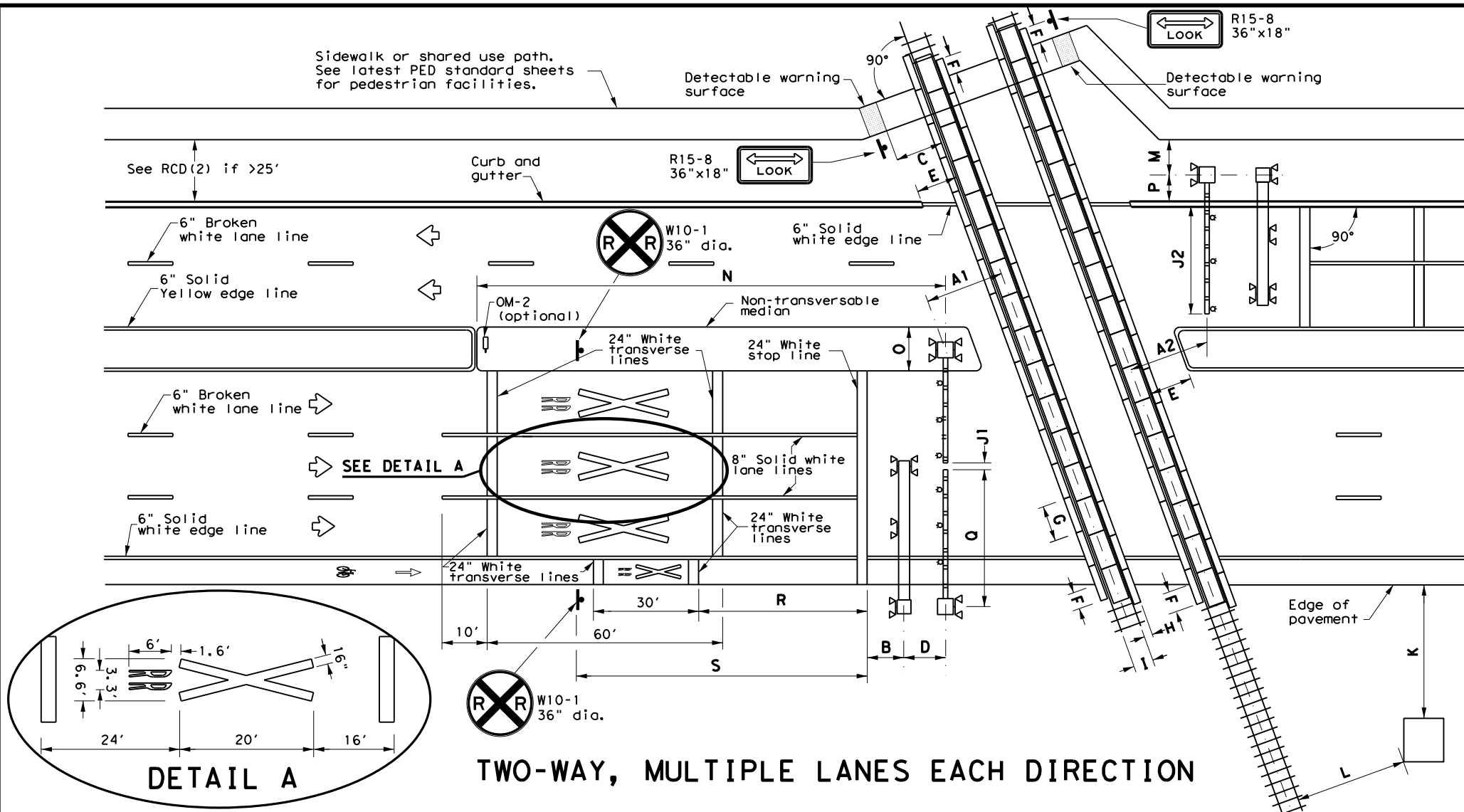
**PAVEMENT MARKINGS AND SIGNING FOR ACCESSIBLE PARKING**

**PM(AP) -21**

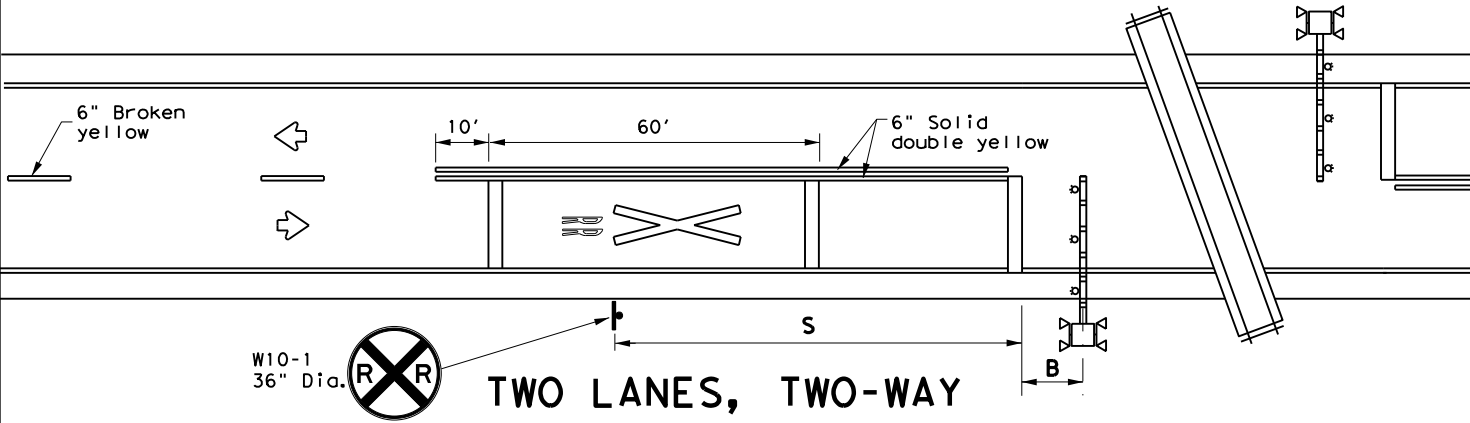
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© TxDOT July 2021	CONT	SECT	JOB	HIGHWAY
REVISIONS	0010	19	014	FM 991
	DIST	COUNTY	SHEET NO.	
	ATL	BOWIE	56	

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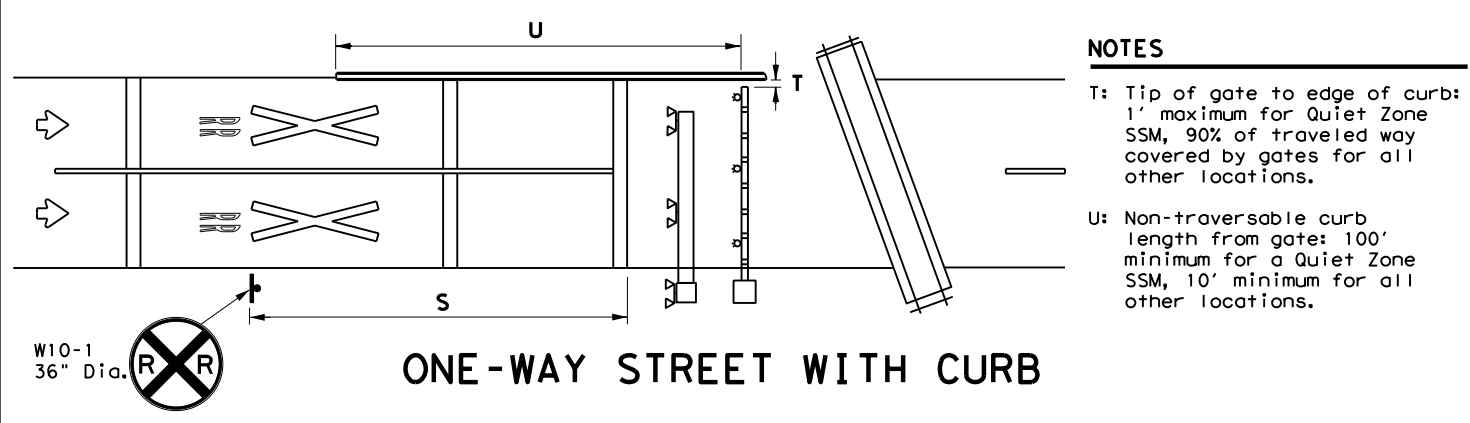
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**TWO-WAY, MULTIPLE LANES EACH DIRECTION**



**TWO LANES, TWO-WAY**



**ONE-WAY STREET WITH CURB**

- NOTES**
- T: Tip of gate to edge of curb: 1' maximum for Quiet Zone SSM, 90% of traveled way covered by gates for all other locations.
  - U: Non-transversible curb length from gate: 100' minimum for a Quiet Zone SSM, 10' minimum for all other locations.

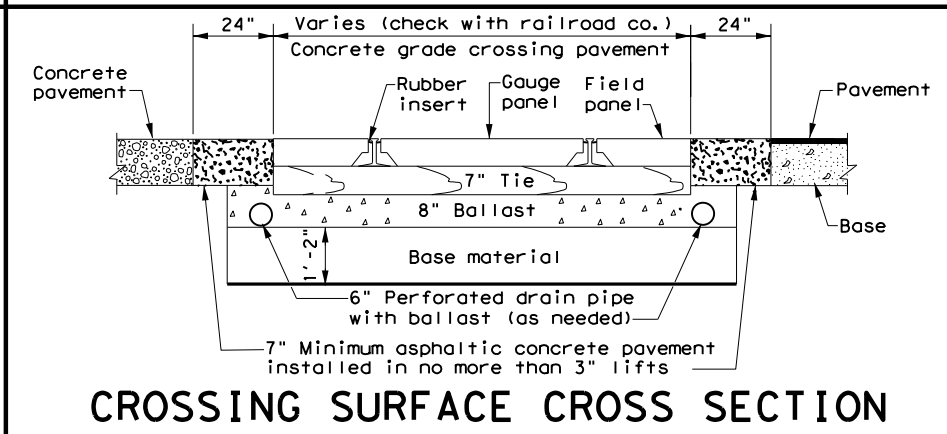
**TABLE 1**

Approach Speed (mph)	Desirable Placement (feet)
20	100
25	100
30	100
35	100
40	125
45	175
50	250
55	325
60	400
65	475
70	550
75	650

**LEGEND**

	Sign
	Object Marker
	Traffic Flow
	Cantilever
	Gate Assembly
	Mast Flasher Pair

- GENERAL NOTES**
- Medians and curbs must be non-traversable to qualify as a Quiet Zone Supplementary Safety Measure (SSM). Non-traversable curbs in Quiet Zones are 6" tall minimum and used on roadways where speed does not exceed 40 mph.
  - Raised pavement markers may be used to supplement striping. See PM(2) and PM(3) standard sheets.
  - Medians preferred whenever possible to prevent vehicles from driving around gates.
  - Longitudinal edge striping may be continued thru crossing as needed. Illumination may also be considered for nighttime visibility.
  - See SMD standard sheets for sign mounting details.
  - See the Standard Highway Sign Design for Texas (SHSD) manual for sign and pavement marking details.



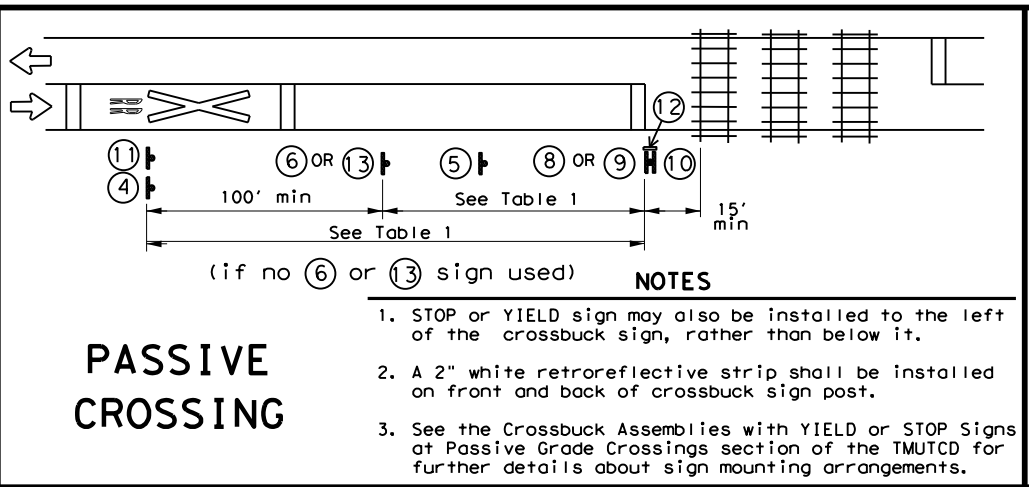
**CROSSING SURFACE CROSS SECTION**

- NOTES**
- A1: Center of RR mast to center of rail: 12' minimum, 15' typical.
  - A2: Tip of gate to center of rail: 12' minimum, 15' typical.
  - B: Center of mast (cantilever, gate, or mast flasher) of nearest active traffic control device to stop line: 8' (NOTE: Stop line may be moved as needed, but should be at least 8' back from gates, if present).
  - C: Near edge of detectable warning surface to nearest rail: 12' minimum.
  - D: Center of gate mast to center of cantilever mast: 6' typical. NOTE: Cantilever may be located in front or behind gates.
  - E: Edge of median or curb to nearest rail: 10' typical. NOTE: Design median edge to be parallel with rail.
  - F: Edge of planking panel from edge of pavement or sidewalk: 3' minimum. NOTE: Field panels need not be in line with gauge panels.
  - G: Length of panels along rail: 8' typical.
  - H: Width of field panel: 2' typical (check with railroad company).
  - I: Distance between rails: 4'- 8'1/2".
  - J1: Tip of gate to tip of gate: 2' maximum.
  - J2: 90% of traveled roadway to be covered by gate.
  - K: Nearest edge of RR cabinet from edge of pavement: 30' typical. NOTE: Cabinet not required to be parallel to edge of pavement.
  - L: Nearest edge of RR cabinet from nearest rail: 25' typical.
  - M: Center of RR mast to edge of sidewalk: 6' minimum.
  - N: Center of gate mast to leading edge of non-traversable median: 100' minimum to qualify as a Quiet Zone SSM. NOTE: 60' will suffice if there is a street intersection within the 100' and all street intersections within 60' are closed.
  - O: Width of median for RR gate assembly: 8'-6" minimum, 10' typical when using median gates. NOTE: Center of gate mast minimum 4'-3" from face of curb.
  - P: Center of RR mast to face of curb: 5'-3" minimum. Center of RR mast to edge of pavement (with shoulder): 7' minimum. Center of RR mast to edge of pavement (no shoulder): 9'-3" minimum. NOTE: Final location determined by the railroad company.
  - Q: Gate length: 28' or less typical, but railroad company may allow up to 32' under special circumstances.
  - R: Stop line to first RR Crossing transverse line (bike lane): 50' typical.
  - S: Stop line to GRADE CROSSING ADVANCE WARNING (W10-1) sign and adjacent RR Crossing pavement markings. See Table 1. See RCD(2) for other signs.

Texas Department of Transportation  
**RAILROAD CROSSING DETAILS**  
**SIGNING, STRIPING, AND DEVICE PLACEMENT**  
**RCD(1)-22**

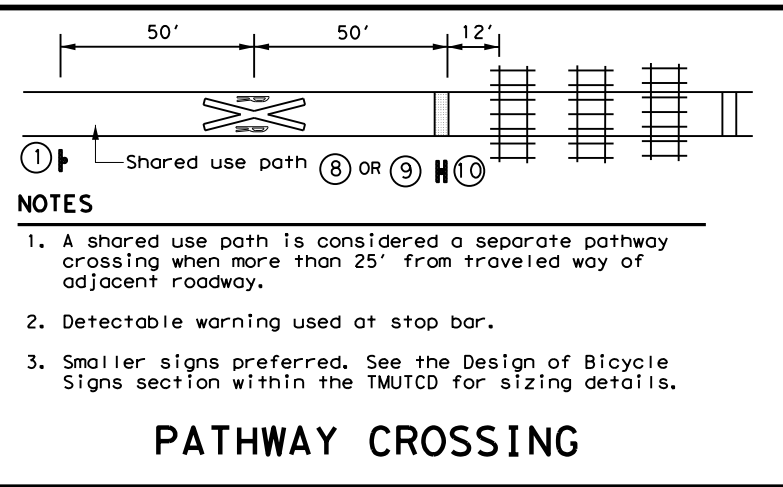
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© TxDOT November 2022	CONT	SECT	JOB	HIGHWAY
REVISIONS	0010	19	014	FM 991
2-16	DIST	COUNTY	SHEET NO.	
11-22	ATL	BOWIE	57	

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### PASSIVE CROSSING

- NOTES**
1. STOP or YIELD sign may also be installed to the left of the crossbuck sign, rather than below it.
  2. A 2" white retroreflective strip shall be installed on front and back of crossbuck sign post.
  3. See the Crossbuck Assemblies with YIELD or STOP Signs at Passive Grade Crossings section of the TMUTCD for further details about sign mounting arrangements.

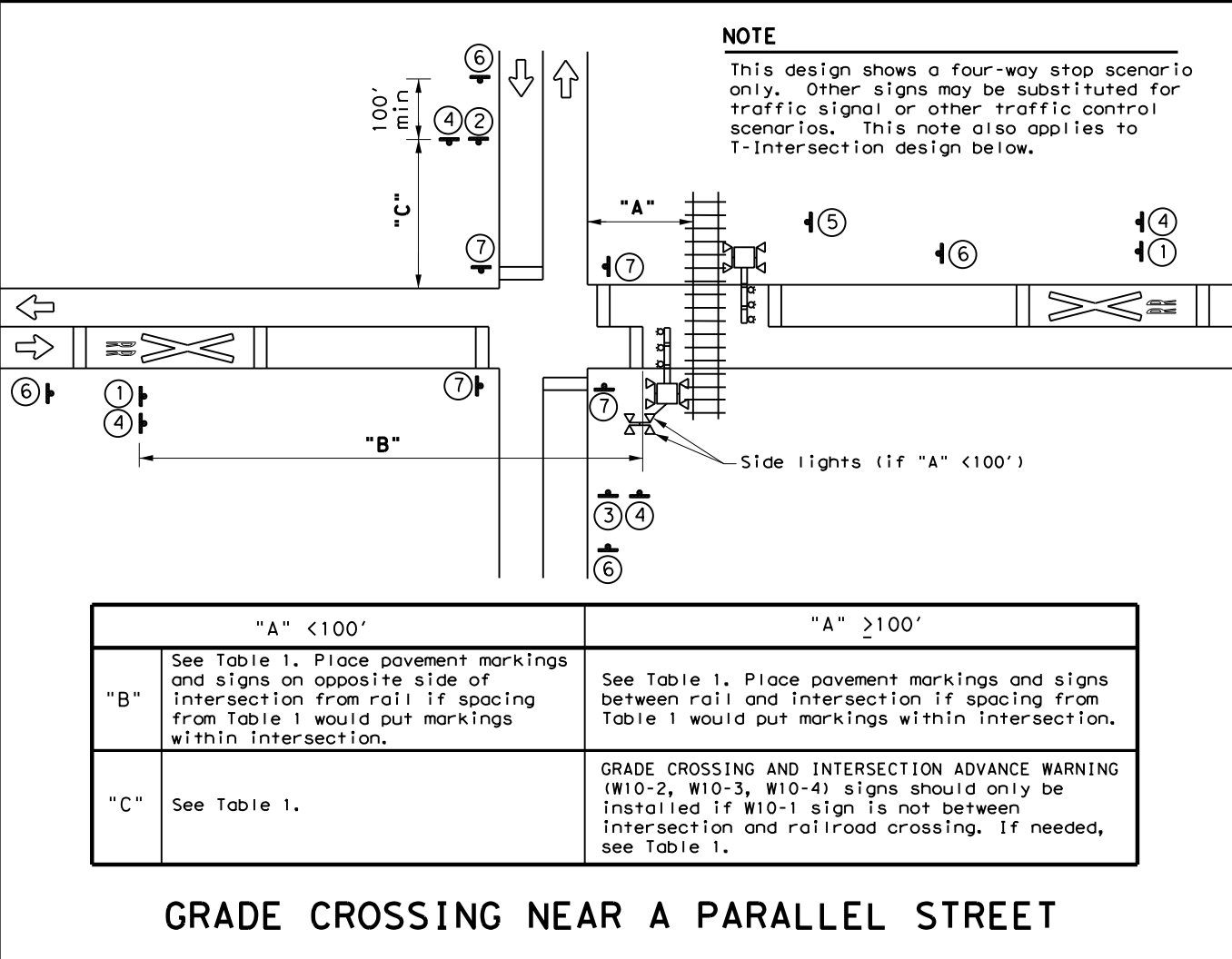


### PATHWAY CROSSING

- NOTES**
1. A shared use path is considered a separate pathway crossing when more than 25' from traveled way of adjacent roadway.
  2. Detectable warning used at stop bar.
  3. Smaller signs preferred. See the Design of Bicycle Signs section within the TMUTCD for sizing details.

Approach Speed (mph)	Desirable Placement (feet)
20	100
25	100
30	100
35	100
40	125
45	175
50	250
55	325
60	400
65	475
70	550
75	650

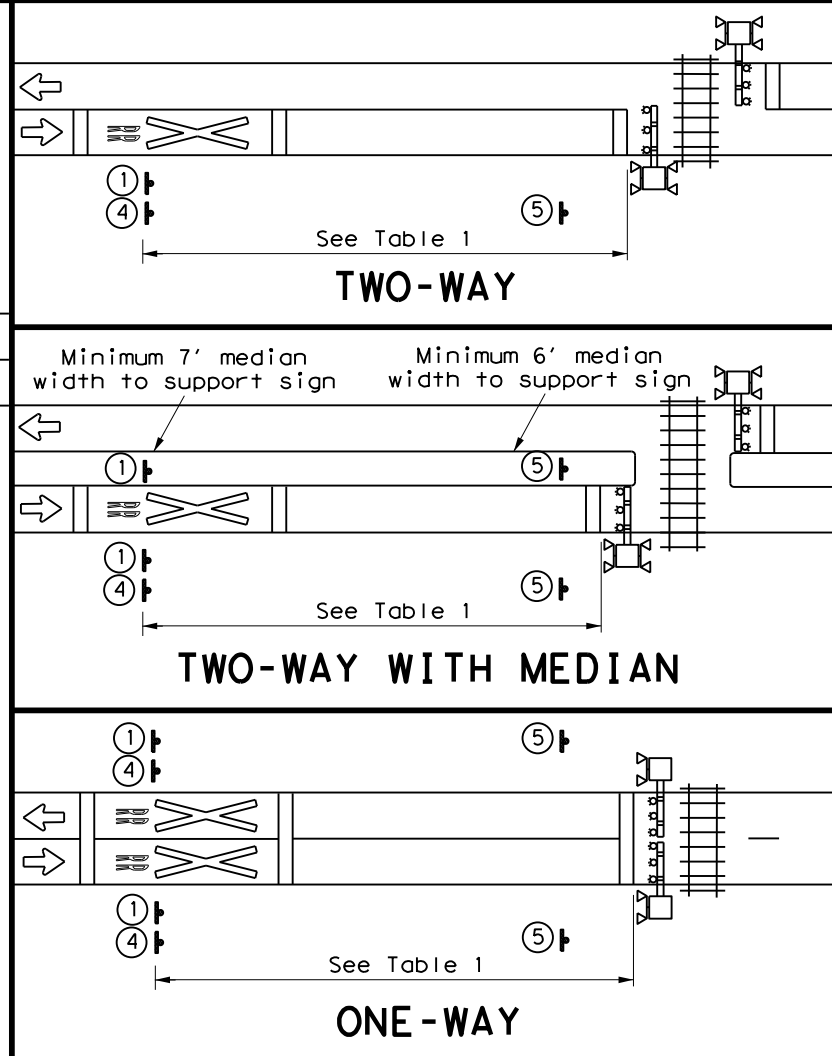
- GENERAL NOTES**
1. Railroad company to provide active traffic control devices, CROSSBUCK (R15-1), NUMBER OF TRACKS (R15-2P) plaque (if more than 1 track), and EMERGENCY NOTIFICATION (I-13) signs.
  2. LOW GROUND CLEARANCE (W10-5) signs may be relocated further upstream of crossing to provide advance warning of alternate route.
  3. GRADE CROSSING AND INTERSECTION ADVANCE WARNING (W10-2) signs may be modified as needed to fit roadway geometry.
  4. Table 1 placement distances may vary per the Placement of Warning Signs section of the TMUTCD.
  5. See Table 1 to determine placement of STOP AHEAD (W3-1) and YIELD AHEAD (W3-2) signs unless shown otherwise.
  6. DO NOT STOP ON TRACKS (R8-8) signs installed when potential for vehicles stopping on tracks is significant as determined by sealing engineer. Install so sign does not block view of RR mast.
  7. See the Standard Highway Sign Design for Texas (SHSD) manual for sign and pavement marking details.



**NOTE**  
 This design shows a four-way stop scenario only. Other signs may be substituted for traffic signal or other traffic control scenarios. This note also applies to T-intersection design below.

	"A" < 100'	"A" ≥ 100'
"B"	See Table 1. Place pavement markings and signs on opposite side of intersection from rail if spacing from Table 1 would put markings within intersection.	See Table 1. Place pavement markings and signs between rail and intersection if spacing from Table 1 would put markings within intersection.
"C"	See Table 1.	GRADE CROSSING AND INTERSECTION ADVANCE WARNING (W10-2, W10-3, W10-4) signs should only be installed if W10-1 sign is not between intersection and railroad crossing. If needed, see Table 1.

### GRADE CROSSING NEAR A PARALLEL STREET



### TWO-WAY

### TWO-WAY WITH MEDIAN

### ONE-WAY

**NOTE**  
 Separate active traffic control devices, railroad crossing pavement markings, and adjacent signs required when tracks are more than 100' apart.

### TWO ADJACENT CROSSINGS

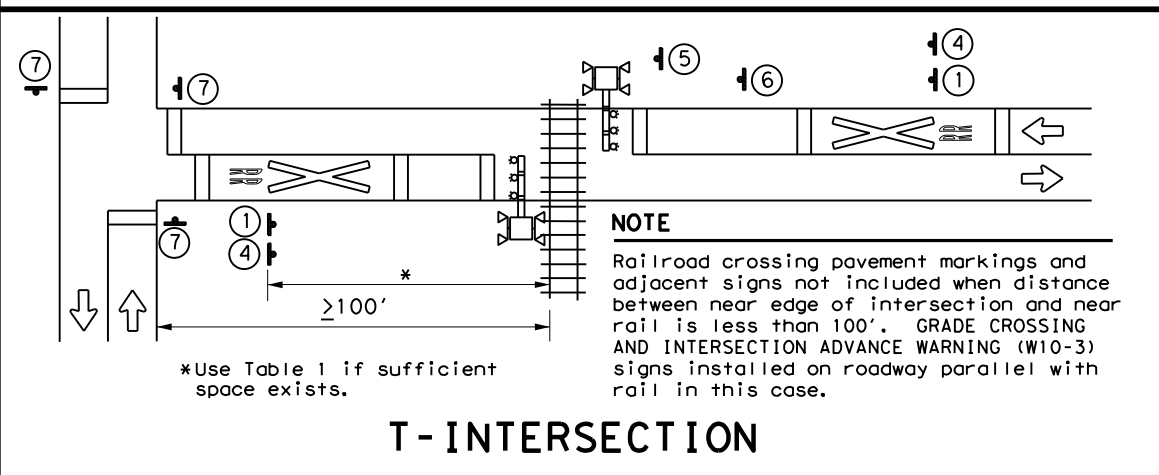
**SIGNS**

<b>1</b> W10-1 36" Dia.	<b>2</b> W10-2L 36" X 36"	<b>3</b> W10-2R 36" X 36"	<b>4</b> IF NEEDED LOW GROUND CLEARANCE W10-5P 30" X 24"
<b>5</b> R8-8 24" X 30"	<b>6</b> W3-1 30" X 30"	<b>7</b> STOP R1-1 36" X 36" R1-3P 18" X 6"	<b>8</b> RAILROAD CROSSING R15-1 48" X 9" R15-2P 27" X 18" STOP R1-1 36" X 36"
<b>9</b> R1-2 48" X 48" X 48"	<b>10</b> RAILROAD CROSSING R15-1 48" X 9" R15-2P 27" X 18"	<b>11</b> ** NO GATES OR LIGHTS W10-13P 30" X 24"	<b>12</b> I-13 15" X 9"

**REPORT EMERGENCY OR PROBLEM**  
 1-800-555-5555  
 CROSSING 836 597 H  
 Sign may be placed perpend. to travel lanes.

\*\* Includes a NO TRAIN HORN (W10-9P) plaque if crossing is in a Quiet Zone. If needed, is mounted below W10-2/W10-3/W10-4 signs.

**NO TRAIN HORN** W10-9P  
30" X 24"



### T-INTERSECTION

Texas Department of Transportation  
 Traffic Safety Division Standard

## RAILROAD CROSSING DETAILS SIGNING & STRIPING

### RCD(2) - 22

FILE: rcd2-22.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
© TxDOT November 2022	CONT	SECT	JOB	HIGHWAY
REVISIONS	0010	19	014	FM 991
2-16	DIST	COUNTY	SHEET NO.	
11-22	ATL	BOWIE	58	

DATE: 7/28/2023  
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**I. STORMWATER POLLUTION PREVENTION-CLEAN WATER ACT SECTION 402**

TPDES TXR 150000: Stormwater Discharge Permit or Construction General Permit required for projects with 1 or more acres disturbed soil. Projects with any disturbed soil must protect for erosion and sedimentation in accordance with Item 506.

List MS4 Operator(s) that may receive discharges from this project. They may need to be notified prior to construction activities.

1. N/A

No Action Required       Required Action

Action No.

1. This project is considered a maintenance activity and is exempt from the requirements of TPDES TX 150000.

Commitment No.

**II. WORK IN OR NEAR STREAMS, WATERBODIES AND WETLANDS CLEAN WATER ACT SECTIONS 401 AND 404**

USACE Permit required for filling, dredging, excavating or other work in any water bodies, rivers, creeks, streams, wetlands or wet areas.

The Contractor must adhere to all of the terms and conditions associated with the following permit(s):

- No Permit Required
- Nationwide Permit 14 - PCN not Required (less than 1/10th acre waters or wetlands affected)
- Nationwide Permit 14 - PCN Required (1/10 to <1/2 acre, 1/3 in tidal waters)
- Individual 404 Permit Required
- Other Nationwide Permit Required: NWP# \_\_\_\_\_

Required Actions: List waters of the US permit applies to, location in project and check Best Management Practices planned to control erosion, sedimentation and post-project TSS.

- 1.
- 2.
- 3.
- 4.

The elevation of the ordinary high water marks of any areas requiring work to be performed in the waters of the US requiring the use of a nationwide permit can be found on the Bridge Layouts.

**Best Management Practices:**

Erosion	Sedimentation	Post-Construction TSS
<input type="checkbox"/> Temporary Vegetation	<input type="checkbox"/> Silt Fence	<input type="checkbox"/> Vegetative Filter Strips
<input type="checkbox"/> Blankets/Matting	<input type="checkbox"/> Rock Berm	<input type="checkbox"/> Retention/Irrigation Systems
<input type="checkbox"/> Mulch	<input type="checkbox"/> Triangular Filter Dike	<input type="checkbox"/> Extended Detention Basin
<input type="checkbox"/> Sodding	<input type="checkbox"/> Sand Bag Berm	<input type="checkbox"/> Constructed Wetlands
<input type="checkbox"/> Interceptor Swale	<input type="checkbox"/> Straw Bale Dike	<input type="checkbox"/> Wet Basin
<input type="checkbox"/> Diversion Dike	<input type="checkbox"/> Brush Berms	<input type="checkbox"/> Erosion Control Compost
<input type="checkbox"/> Erosion Control Compost	<input type="checkbox"/> Erosion Control Compost	<input type="checkbox"/> Mulch Filter Berm and Socks
<input type="checkbox"/> Mulch Filter Berm and Socks	<input type="checkbox"/> Mulch Filter Berm and Socks	<input type="checkbox"/> Compost Filter Berm and Socks
<input type="checkbox"/> Compost Filter Berm and Socks	<input type="checkbox"/> Compost Filter Berm and Socks	<input type="checkbox"/> Vegetation Lined Ditches
	<input type="checkbox"/> Stone Outlet Sediment Traps	<input type="checkbox"/> Sand Filter Systems
	<input type="checkbox"/> Sediment Basins	<input type="checkbox"/> Grassy Swales

**III. CULTURAL RESOURCES**

Refer to TxDOT Standard Specifications in the event historical issues or archeological artifacts are found during construction. Upon discovery of archeological artifacts (bones, burnt rock, flint, pottery, etc.) cease work in the immediate area and contact the Engineer immediately.

No Action Required       Required Action

Action No.

- 1.
- 2.
- 3.
- 4.

**IV. VEGETATION RESOURCES**

Preserve native vegetation to the extent practical. Contractor must adhere to Construction Specification Requirements Specs 162, 164, 192, 193, 506, 730, 751, 752 in order to comply with requirements for invasive species, beneficial landscaping, and tree/brush removal commitments.

No Action Required       Required Action

Action No.

- 1.
- 2.
- 3.
- 4.

**V. FEDERAL LISTED, PROPOSED THREATENED, ENDANGERED SPECIES, CRITICAL HABITAT, STATE LISTED SPECIES, CANDIDATE SPECIES AND MIGRATORY BIRDS.**

No Action Required       Required Action

Action No.

- 1.
- 2.
- 3.
- 4.

If any of the listed species are observed, cease work in the immediate area, do not disturb species or habitat and contact the Engineer immediately. The work may not remove active nests from bridges and other structures during nesting season of the birds associated with the nests. If caves or sinkholes are discovered, cease work in the immediate area, and contact the Engineer immediately.

**LIST OF ABBREVIATIONS**

BMP: Best Management Practice	SPCC: Spill Prevention Control and Countermeasure
CGP: Construction General Permit	SWSP: Storm Water Pollution Prevention Plan
DSHS: Texas Department of State Health Services	PCN: Pre-Construction Notification
FHWA: Federal Highway Administration	PSL: Project Specific Location
MOA: Memorandum of Agreement	TCEQ: Texas Commission on Environmental Quality
MOU: Memorandum of Understanding	TPDES: Texas Pollutant Discharge Elimination System
MS4: Municipal Separate Stormwater Sewer System	TPWD: Texas Parks and Wildlife Department
MBTA: Migratory Bird Treaty Act	TxDOT: Texas Department of Transportation
NOT: Notice of Termination	T&E: Threatened and Endangered Species
NWP: Nationwide Permit	USACE: U.S. Army Corps of Engineers
NOI: Notice of Intent	USFWS: U.S. Fish and Wildlife Service

**VI. HAZARDOUS MATERIALS OR CONTAMINATION ISSUES**

General (applies to all projects):

Comply with the Hazard Communication Act (the Act) for personnel who will be working with hazardous materials by conducting safety meetings prior to beginning construction and making workers aware of potential hazards in the workplace. Ensure that all workers are provided with personal protective equipment appropriate for any hazardous materials used. Obtain and keep on-site Material Safety Data Sheets (MSDS) for all hazardous products used on the project, which may include, but are not limited to the following categories: Paints, acids, solvents, asphalt products, chemical additives, fuels and concrete curing compounds or additives. Provide protected storage, off bare ground and covered, for products which may be hazardous. Maintain product labelling as required by the Act. Maintain an adequate supply of on-site spill response materials, as indicated in the MSDS. In the event of a spill, take actions to mitigate the spill as indicated in the MSDS, in accordance with safe work practices, and contact the District Spill Coordinator immediately. The Contractor shall be responsible for the proper containment and cleanup of all product spills.

Contact the Engineer if any of the following are detected:

- \* Dead or distressed vegetation (not identified as normal)
- \* Trash piles, drums, canister, barrels, etc.
- \* Undesirable smells or odors
- \* Evidence of leaching or seepage of substances

Does the project involve any bridge class structure rehabilitation or replacements (bridge class structures not including box culverts)?

Yes       No

If "No", then no further action is required.

If "Yes", then TxDOT is responsible for completing asbestos assessment/inspection.

Are the results of the asbestos inspection positive (is asbestos present)?

Yes       No

If "Yes", then TxDOT must retain a DSHS licensed asbestos consultant to assist with the notification, develop abatement/mitigation procedures, and perform management activities as necessary. The notification form to DSHS must be postmarked at least 15 working days prior to scheduled demolition.

If "No", then TxDOT is still required to notify DSHS 15 working days prior to any scheduled demolition.

In either case, the Contractor is responsible for providing the date(s) for abatement activities and/or demolition with careful coordination between the Engineer and asbestos consultant in order to minimize construction delays and subsequent claims.

Any other evidence indicating possible hazardous materials or contamination discovered on site. Hazardous Materials or Contamination Issues Specific to this Project:

No Action Required       Required Action

Action No.

- 1.
- 2.
- 3.


**VII. OTHER ENVIRONMENTAL ISSUES**

(includes regional issues such as Edwards Aquifer District, etc.)

No Action Required       Required Action

Action No.

- 1.
- 2.
- 3.

 <b>Texas Department of Transportation</b>		<b>Design Division Standard</b>			
<h2 style="margin: 0;">ENVIRONMENTAL PERMITS, ISSUES AND COMMITMENTS</h2> <h1 style="margin: 0;">EPIC</h1>					
FILE: epic.dgn	DN: TxDOT	CK: RG	DW: VP	CK: AR	
©TxDOT: February 2015		CONT	SECT	JOB	HIGHWAY
12-12-2011 (DS) REVISIONS		0010	19	014	FM 991
05-07-14 ADDED NOTE SECTION IV.		DIST	COUNTY	SHEET NO.	
01-23-2015 SECTION I (CHANGED ITEM 1122 TO ITEM 506, ADDED GRASSY SWALES.		ATL	BOWIE	59	