DESIGN	FED. RD. DIV. NO.	FEDERAL AID PROJECT NO.		HIGHWAY NO.
GRAPHICS	6	STP 2B24(519)HES		VARIOUS
	STATE	DISTRICT	COUNTY	SHEET NO.
CHECK	TEXAS	WACO	McLENNAN, ETC.	1
CHECK	CONTROL	SECTION	JOB	
	0909	00	066	

INDEX OF SHEETS

SHEET NO.	DESCRIPTION
1	TITLE SHEET
2	INDEX OF SHEETS

STATE OF TEXAS
DEPARTMENT OF TRANSPORTATION

PLANS OF PROPOSED
STATE HIGHWAY IMPROVEMENT

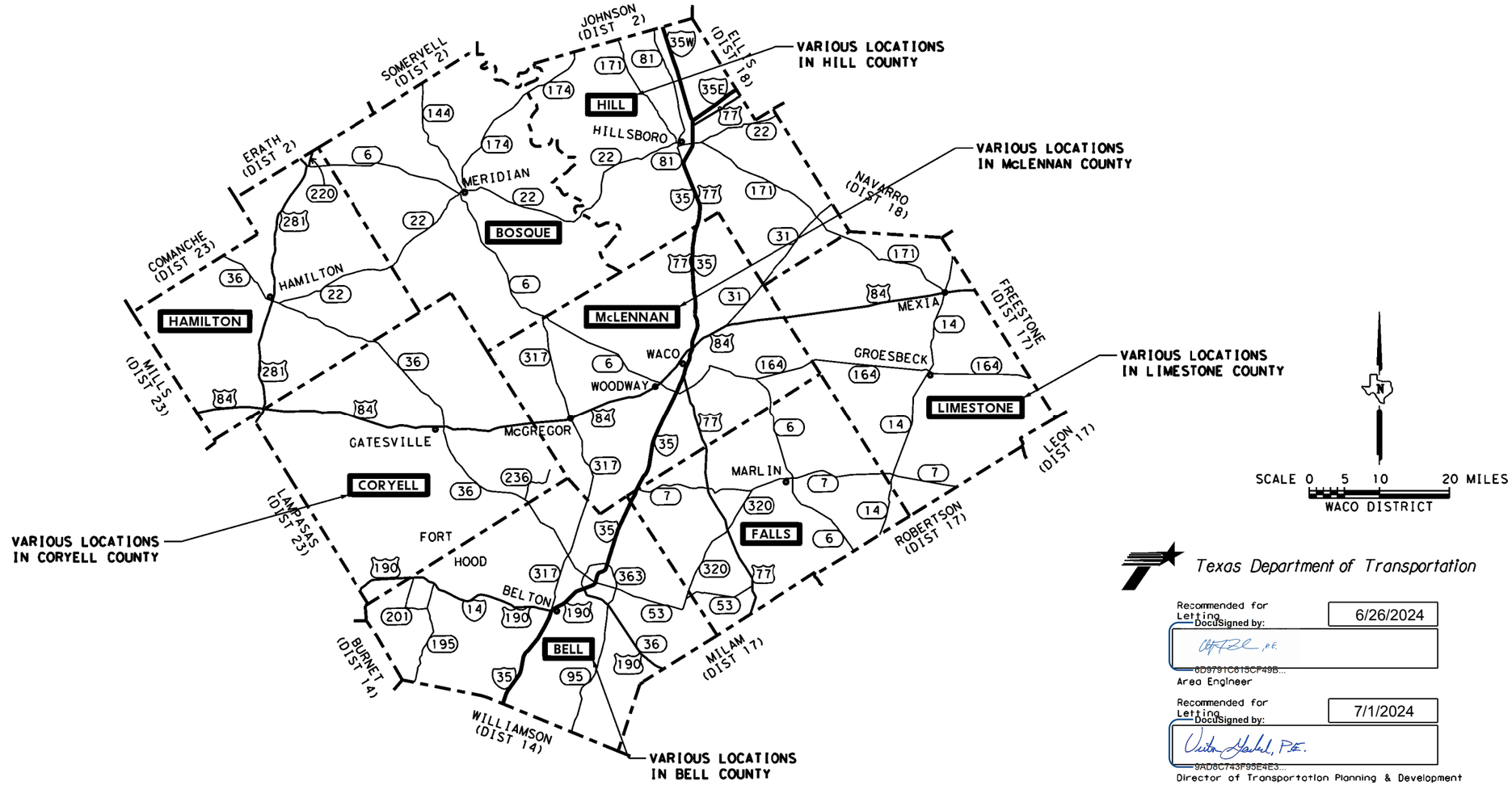
FEDERAL AID PROJECT: STP 2B24(519)HES

McLENNAN, ETC.

VARIOUS LOCATIONS

CSJ: 0909-00-066

FOR THE CONSTRUCTION OF INTERSECTION IMPROVEMENT CONSISTING
OF UPGRADE SIGNAL HEAD BACKPLATES WITH REFLECTIVE BORDERS



SCALE 0 5 10 20 MILES
WACO DISTRICT

SPECIFICATIONS ADOPTED BY THE TEXAS DEPARTMENT OF TRANSPORTATION, SEPTEMBER 1, 2024 AND SPECIFICATION ITEMS LISTED AND DATED AS FOLLOWS, WILL GOVERN ON THIS PROJECT: REQUIRED CONTRACT PROVISIONS FOR ALL FEDERAL - AID CONSTRUCTION CONTRACTS(FORM FHWA 1273, OCTOBER 2023).

EXCEPTIONS: NONE
EQUATIONS: NONE
RR CROSSINGS: NONE

Texas Department of Transportation

Recommended for Letting — DocuSigned by: — 6/26/2024
6D9791C615CF49B...
Area Engineer

Recommended for Letting — DocuSigned by: — 7/1/2024
9AD8C743F95E4E3...
Director of Transportation Planning & Development

Approved for Letting — DocuSigned by: — 7/1/2024
B69BD796DD564C9...
District Engineer

T:\WACTRAFF\DESIGN\Engineering\0909-00-066 Backplate Upgrade\Sheets\TITLE SHEET.dgn 6/25/2024 1:35:14 PM
NODE

SHEET NO.	DESCRIPTION
	GENERAL
1	TITLE SHEET
2	INDEX OF SHEETS
3, 3A-3C	GENERAL NOTES
4	ESTIMATE & QUANTITY
5	CONSOLIDATED SUMMARIES
6	SEQUENCE OF CONSTRUCTION
	TRAFFIC CONTROL STANDARDS
7 - 8	*WZ(BTS-1)-13 THROUGH WZ(BTS-2)-13
9	*WZ(RS)-22
10 - 11	*TCP(1-1)-18 THROUGH TCP(1-2)-18
12	*TCP(1-4)-18
13	*TCP(1-5)-18
14 - 15	*TCP(2-1)-18 THROUGH TCP(2-2)-18
16	*TCP(2-4)-18
	TRAFFIC
17 - 19	BELL COUNTY PROJECT LOCATION MAPS
20 - 23	CORYELL COUNTY PROJECT LOCATION MAPS
24 - 27	HILL COUNTY PROJECT LOCATION MAPS
28	LIMESTONE COUNTY PROJECT LOCATION MAPS
29 - 39	MCLENNAN COUNTY PROJECT LOCATION MAPS
40 - 41	PROJECT LOCATION TABLES
42	TRAFFIC SIGNAL SIGN DETAILS
	TRAFFIC STANDARDS
43 - 44	*SMA-80(1)-12 THROUGH SMA-80(2)-12
45	*TS-BP-20
	EROSION CONTROL STANDARDS
46 - 47	STORMWATER POLLUTION PREVENTION PLAN (SWP3)
48 - 57	*TA-BMP (WACO DISTRICT STANDARDS)
58 - 59	*EC(1)-16 THROUGH EC(2)-16
60	EPIC

* THE STANDARD SHEETS SPECIFICALLY IDENTIFIED ABOVE HAVE BEEN SELECTED BY ME OR UNDER MY DIRECT SUPERVISION AS BEING APPLICABLE TO THIS PROJECT.

STATE OF TEXAS
CHARLES C. SMITH
147716
LICENSED
PROFESSIONAL ENGINEER

Charles C. Smith, P.E. 6/13/2024

SIGNATURE OF REGISTRANT & DATE

INDEX OF SHEETS

CHANGE ORDER	FED. RD. DIV. NO.	CONT	SECT	JOB	HIGHWAY
	6	0909	00	066	VARIOUS
	STATE	DIST	COUNTY		SHEET NO.
	TEXAS	WAC	McLENNAN, ETC.		2

GENERAL

The construction, operation and maintenance of the proposed project will be consistent with the state implementation plan as prepared by the Texas Commission on Environmental Quality.

The disturbed area for this project, as shown on the plans is 0.00 acres. However, the Total Disturbed Area (TDA) will establish the required authorization for storm water discharges. The TDA of this project will be determined by the sum of the disturbed area in all project locations in the contract, and all disturbed area on all Project-Specific Locations (PSL) located in the project limits and/or within 1 mile of the project limits. The department will obtain an authorization to discharge storm water from the Texas Commission on Environmental Quality (TCEQ) for the construction site as shown on the plans, according to the TDA of the project. The Contractor will obtain any required authorization from the TCEQ for the discharge of storm water from any PSL for construction support activities on or off of the project row according to the TDA of the project. When the TDA for the project exceeds 1 acre, provide a copy of the appropriate application of permit (NOI, or Construction Site Notice) to the Engineer, for any PSL located in the project limits or within 1 mile of the project limits. Follow the directives and adhere to all requirements set forth in the TCEQ, Texas Pollution Discharge Elimination System, Construction General Permit (TPDES, CGP).

Contractor questions on this project are to be emailed to the Waco District at the following address:

Bill Compton - Wacoprebid@txdot.gov, 254-867-2770, 100 S. Loop Dr., Waco, TX
Carmen Chau - Wacoprebid@txdot.gov, 254-867-2794, 100 S. Loop Dr., Waco, TX

Or Via phone or in person to the following individual(s):
Area Engineer's: Clayton Zacha, P.E., (254) 772-2890
Assistant Area Engineer's: Mohab Samuel, P.E. (254) 772-2890

Contractor questions will be accepted through email, phone, and in person by the above individuals. Questions may also 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.

GENERAL NOTES

ITEM 5: CONTROL OF THE WORK

Submit all fabrication and shop drawings per TxDOT's online shop drawing submittal system and copy the Area Engineer on the email submittal, unless otherwise directed.

Underground utilities owned by the Texas Department of Transportation may be present within the Right-Of-Way on this project. For signal, illumination, surveillance, and communications & control maintained by TxDOT, call the TxDOT Traffic Signal Office (254)867-2808 for locates a minimum of 48 hours in advance of excavation. For irrigation systems, call TxDOT Landscape Office (254)867-2726 for locates a minimum of 48 hours in advance of excavation. If city or town owned irrigation facilities are present, call the appropriate department of the local city or town a minimum of 48 hours in advance of excavation. The Contractor is liable for all damages when utilities are damaged due to Contractor's negligence including, but not limited to, repair or replacement at the Contractor's expense.

ITEM 6: CONTROL OF MATERIALS

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.

References to manufacturer's trade name or catalog numbers are for the purpose of identification only and the Contractor will be permitted to furnish like materials of other manufacturers provided they are of equal quality and comply with specifications for this project.

ITEM 7: LEGAL RELATIONS AND RESPONSIBILITIES

No significant traffic generator events identified.

If utilizing private property for waste disposal sites, field office sites, equipment storage sites or for any other purpose involved with this project, provide to the Engineer written proof of the property owner's approval of the use of this property. This proof may be in the

form of a letter or agreement signed by the property owner or other documents acceptable to the Engineer. Provide such proof prior to occupying the site.

Personal vehicles of the Contractor's employees will not be parked within the right of way at any time including any section closed to public traffic, unless the vehicle is being utilized for construction procedures. However, the Contractor's employees may park on the right of way at the sites where the Contractor has his office, equipment and materials storage yard.

Law Enforcement Personnel.
As approved by the Engineer, provide uniformed off duty police officers and squad cars during the following activities:

- Lane closures on controlled access facilities or 4 lane divided facilities with speed limits above 55mph,
- ramp closures,
- Roadway Closures,
- Support of phase construction traffic switches,
- nighttime work, or
- other situations that indicate a need for additional traffic control to protect the traveling public or the construction workforce.

Law Enforcement Personnel must have jurisdictional authority to act in the area of the project.

Law Enforcement Personnel will be paid when use is approved by the Engineer. The Contractor retains the right to have law enforcement personnel on sight at their own cost and discretion when note approved by the Engineer.

Submit charge summary and invoices using the Department form 318. Provide documentation such as payroll, log sheets with signatures and badge number, or invoices from the government entity providing the officers for reimbursement.

Patrol vehicles must be clearly marked to correspond with the officer's agency and equipped with appropriate lights to identify them as law enforcement. For patrol vehicles not owned by a law enforcement agency, markings will be retroreflective and legible from 100 ft. from both sides and the rear of the vehicle. Lights will be high intensity and visible from all angles. Windows / Windshields may not be blocked.
No payment will be made for law enforcement personnel needed for moving equipment or payment for drive time to/from the event site. A minimum number of hours is not guaranteed. Payment is for work performed.

Cancel law enforcement personnel when the event is canceled. Cancellation, minimums or "show up" fees will not be paid when cancellation is made 12 hours prior to beginning of the event. Failure to cancel within 12 hours will not be cause for payment for cancellation,

minimums, or "show up" time. Payment of actual "show up" time to the event site due to cancellation will be on a case by case basis at a maximum of 2 hours per officer.

ITEM 8: PROSECUTION AND PROGRESS

This project includes a 90-day delayed start provision for material acquisition.

This Project will be a Standard Workweek in accordance with Article 8.3.1.4.

For this project, provide a Bar Chart progress schedule.

ITEM 500: MOBILIZATION

Material On Hand (MOH) will not be used in calculating partial payments for Mobilization.

ITEM 502: BARRICADES, SIGNS, AND TRAFFIC HANDLING

Barricade and Construction Standard Sheets (BC Sheets) are not required for this project. Installation, maintenance, and removal of the applicable Traffic Control Plan (TCP)/WZ and Typical Advance Signal Project Signing are required and paid under Item 502.

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.

Access will be provided to all business and residences at all times.

A meeting between the Contractor and Engineer to discuss upcoming changes in construction phasing and traffic switches is required at least fourteen (14) days prior to the phase change. Items to be discussed at this meeting include temporary signing, traffic control, pavement markings, the processes necessary for the phase change and subcontractor scheduling.
Place barricades and signs in locations that do not obstruct the sight distance of drivers entering the highway from driveways or side streets.

The Contractor Responsible Person(s) (CRP) for Work Zone Traffic Controls will inspect and ensure any deficiencies are corrected each and every day throughout the duration of this contract. Any misaligned or damaged traffic control devices will be repaired as soon as practical after deficiency is discovered.

In addition to providing a Contractor's Responsible Person and a phone number for emergency contact, have an employee(s) available to respond on the project for emergencies and for taking corrective measures within One (1) Hour.

Short Term Lane Closure Allowances:

Provide written proposed lane closure information by 1:00 pm on the business day prior to the proposed closures. Do not close lanes when this requirement is not met.

Traffic Control Plans with Lane Closures causing backups of 20 minutes or greater in duration will be modified to reduce delays to less than 20 minutes.

Lane Closure and Pilot Car Operations will be implemented to prevent conflicts with activities including school drop-off / dismissal, large employer shift changes, etc.

Lane Closures and Pilot Car Operations will not be allowed in nighttime work hours without approval of the Engineer.

ITEM 505: TRUCK MOUNTED ATTENUATORS

The TMA/TA used for installation/removal of traffic control for a work area will be subsidiary to the TMA/TA used to perform the work.

The total number of truck mounted attenuators (TMA) required when utilizing the traffic control standards are shown in the tables below.

TCP 1 Series	Scenario	Required TMA
(1-1)-18 / (1-2)-18		1
(1-4)-18 / (1-5)-18		1

TCP 2 Series	Scenario	Required TMA
(2-1)-18 / (2-2)-18 / (2-4)-18	All	1

Shadow vehicles equipped for truck mounted attenuators (TMA) for stationary operations will be paid for by the day and must be available for use at any time as determined by the Engineer.

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 needed for the project for those times per plan requirements. Additional TMAs used that are not specified in the plans in which the Contractor expects compensation will require prior approval from the Engineer.

ITEM 506: TEMPROARY EROSION, SEDIMENTATION AND ENVIRONMENTAL CONTROLS

The Storm Water Pollution Prevention Plan (SWP3) consists of temporary erosion control measures needed and provided for under this Item. The disturbed area is less than one acre and use of erosion control measures is not anticipated. If physical conditions encountered at the job site require necessary controls, BMP installation, maintenance, and removal will be paid as extra work on a force account basis per Articles 4.4 and 9.7

Take all practicable precautions to prevent debris from being discharged into the Waters of Texas or a designated wetland. Install Best Management Practices before demolition begins and maintain them during the demolition. Remove any debris or construction material that escapes containment devices and are discharged into the restricted areas before the next rain event or within 24 hours of the discharge.

Leave all right of way areas undisturbed until actual construction is to be performed in said areas.

ITEM 636: SIGNS

Verify all dimensions at the actual proposed sign location in order to maintain dimensions as shown on the Sign Mounting Details.

ITEM 682: VEHICLE AND PEDESTRAIN SIGNAL HEADS

This project includes the installation of signal backplates with reflective borders, as well as the upgrade from 5-section signal heads to 4-section signal heads for implementation of the Flashing Yellow Arrow (FYA).

Locations being upgraded to FYA will require controller and timing modifications. Coordinate these locations with the TxDOT Signal Supervisor (254-939-3691), at least 10 business days prior to performing work at these locations.

The retroreflective backplates are to be purchased new and conform to TxDOT DMS-8300. The use of stick-on retroreflective tape, split backplates, or any other method to avoid removing the signal head assembly will not be allowed.

Cover all signal heads installed, but not in operation, in an approved manner from the time of installation until the signal is placed in operation. This will not be paid for directly, but will be subsidiary to Item 682, "Vehicle and Pedestrian Signal Heads".

Provide and install standard detachable tunnel visors on all signal heads. Provide and install all necessary mounting hardware to insure proper mounting of all signal heads. The mounting hardware and attachments will be new (no reuse of old existing attachment

hardware) and the same color as the signal head housings. Use signal heads made of aluminum with 12 inch LED indications and aluminum back plates.

Install signal heads mounted on mast arms, as described on the Traffic Signal Support Structures Details, or as approved. Mount signal heads mounted on end of arm with a 90 degree mast arm elbow fitting as shown on the Structure Assembly on the Traffic Signal Support Structures Details.

Ensure that each signal head has a minimum vertical clearance of 18.5 feet and a maximum vertical clearance of 19 feet between the bottom edge of the signal head and the surface of the roadway.

ITEM 690: MAINTENANCE OF TRAFFIC SIGNALS

All signal head assemblies must be installed in accordance with Item 682, “Vehicle and Pedestrian Signal Heads,” as shown on the plans, or as directed.

Item 690-6024 (Removal of Signal Head Assm) refers to the removal of the signal head assembly to allow for installation of the new backplate with reflective border and new signal heads.

This sheet was intentionally left blank.

Estimate & Quantity Sheet

CONTROLLING PROJECT ID 0909-00-066 **DISTRICT** Waco **COUNTY** McLennan
HIGHWAY Various

						TOTAL EST.	TOTAL FINAL
		CONTROL SECTION JOB		**0909-00-066**			
		PROJECT ID		**A00188593**			
		COUNTY		**McLennan**			
		HIGHWAY		**Various**			
ALT	**BID CODE**	**DESCRIPTION**	**UNIT**	EST.	FINAL		
	500-7001	MOBILIZATION	LS	1.000		1.000	
	502-7001	BARRICADES, SIGNS AND TRAFFIC HANDLING	MO	5.000		5.000	
	505-7001	TMA (STATIONARY)	DAY	75.000		75.000	
	636-7004	REPLACE EXISTING ALUMINUM SIGNS(TY A)	SF	591.000		591.000	
	682-7001	VEH SIG SEC (12")LED(GRN)	EA	569.000		569.000	
	682-7002	VEH SIG SEC (12")LED(GRN ARW)	EA	134.000		134.000	
	682-7003	VEH SIG SEC (12")LED(YEL)	EA	569.000		569.000	
	682-7004	VEH SIG SEC (12")LED(YEL ARW)	EA	252.000		252.000	
	682-7005	VEH SIG SEC (12")LED(RED)	EA	569.000		569.000	
	682-7006	VEH SIG SEC (12")LED(RED ARW)	EA	133.000		133.000	
	682-7039	BACKPLATE W/REFL BRDR(3 SEC)ALUM	EA	572.000		572.000	
	682-7040	BACKPLATE W/REFL BRDR(4 SEC)ALUM	EA	120.000		120.000	
	684-7010	TRF SIG CBL (TY A)(12 AWG)(5 CONDR)	LF	1,000.000		1,000.000	
	690-7024	REMOVAL OF SIGNAL HEAD ASSM	EA	692.000		692.000	
	18	SAFETY CONTINGENCY: CONTRACTOR FORCE ACCOUNT WORK (PART)	LS	1.000		1.000	
		LAW ENFORCEMENT: CONTRACTOR FORCE ACCOUNT WORK (PART)	LS	1.000		1.000	
		EROSION CONTROL MAINTENANCE: CONTRACTOR FORCE ACCOUNT WORK (PART)	LS	1.000		1.000	

NOTES:

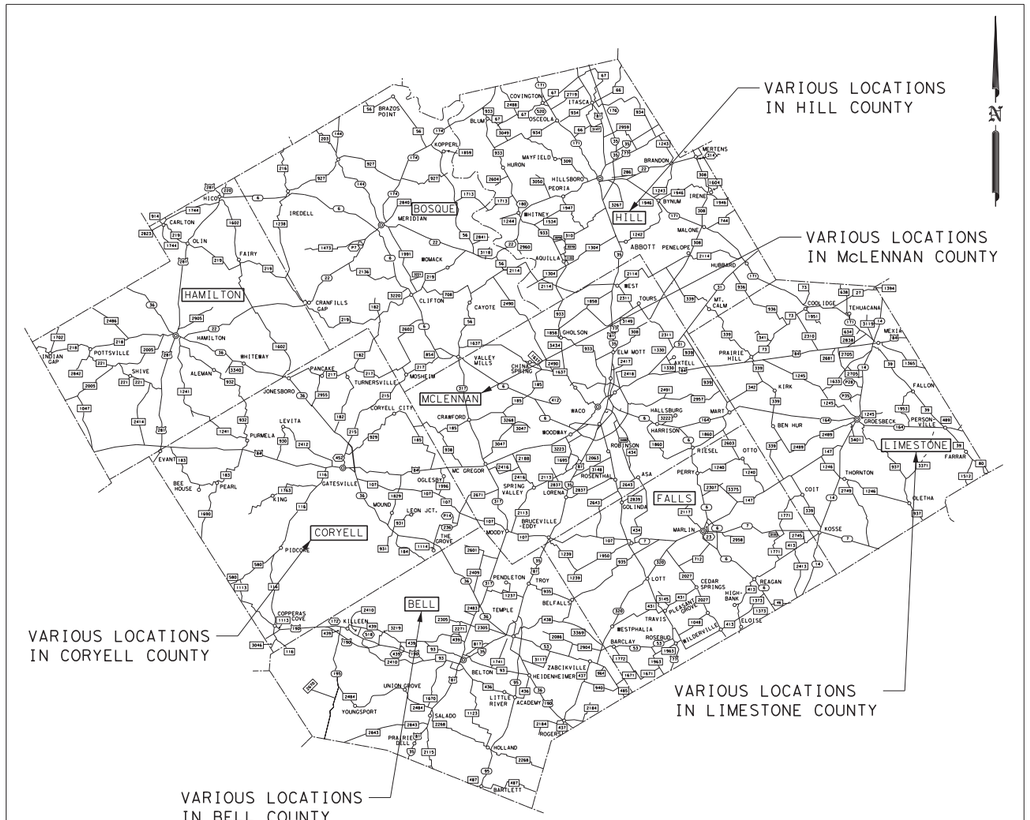
1. VARIOUS LOCATIONS ARE TO BE DETERMINED BY THE ENGINEER.

SUMMARY OF TRAFFIC ITEMS

LOCATION	636 7004 REPLACE EXISTING ALUMINUM SIGNS (TY A) SF	682 7001 VEH SIG SEC (12") LED (GRN) EA	682 7002 VEH SIG SEC (12") LED (GRN ARW) EA	682 7003 VEH SIG SEC (12") LED (YEL) EA	682 7004 VEH SIG SEC (12") LED (YEL ARW) EA	682 7005 VEH SIG SEC (12") LED (RED) EA	682 7006 VEH SIG SEC (12") LED (RED ARW) EA	682 7039 BACKPLATE W/REFL BRDR (3 SEC) ALUM EA	682 7040 BACKPLATE W/REFL BRDR (4 SEC) ALUM EA	684 7010 TRF SIG CBL (TY A) (12 AWG) (5 CONDR) LF	690 7024 REMOVAL OF SIGNAL HEAD ASSM EA	505 7001 TMA (STATIONARY) DAY
BELL COUNTY	200	134	40	134	78	134	40	134	38		172	19
CORYELL COUNTY	76	139	26	139	48	139	25	140	24		164	17
HILL COUNTY	84	99	18	99	36	99	18	99	18		117	13
LIMESTONE COUNTY	52.5	20	8	20	16	20	8	20	8		28	3
McLENNAN COUNTY	178.5	177	42	177	74	177	42	179	32		211	23
VARIOUS LOCATIONS (SEE NOTE 1)										1000		
CSJ: 0909-00-066 PROJECT TOTALS	591	569	134	569	252	569	133	572	120	1000	692	75

CONSOLIDATED SUMMARIES

CHANGE ORDER	FED. RD. DIV. NO.	CONT	SECT	JOB	HIGHWAY
	6	0909	00	066	VARIOUS
	STATE	DIST	COUNTY		SHEET NO.
	TEXAS	WAC	McLENNAN, ETC.		5



VICINITY MAP

SCALE 0 5 10 20 MILES

GENERAL

A. INSTALL ALL SIGNS, BARRICADES AND TRAFFIC CONTROL DEVICES AS SHOWN AND IN ACCORDANCE WITH THE STANDARD BC SHEETS AND AS DIRECTED.

B. ADDITIONAL SIGNS, BARRICADES OR TRAFFIC CONTROL DEVICES OTHER THAN THOSE SPECIFIED MAY BE REQUIRED FOR THE SAFE MOVEMENT OF TRAFFIC THROUGH THE PROJECT. PAYMENT FOR ALL SUCH SIGNS, BARRICADES OR TRAFFIC CONTROL DEVICES WILL BE CONSIDERED SUBSIDIARY TO THE ITEM "BARRICADES, SIGNS AND TRAFFIC HANDLING".

C. WORK SITES SHOULD BE CAREFULLY MONITORED TO ENSURE THAT TRAFFIC CONTROL MEASURES ARE OPERATING EFFECTIVELY AND THAT ALL DEVICES USED ARE CLEARLY VISIBLE, CLEAN AND IN GOOD REPAIR.

D. THE CONTRACTOR WILL PROVIDE SAFE ACCESS TO AND FROM ALL PRIVATE PROPERTY AT ALL TIMES AND IN ALL WEATHER CONDITIONS.

E. THE CONTRACTOR WILL BE REQUIRED TO SUBMIT A DETAILED SCHEDULE OF WORK PRIOR TO THE BEGINNING OF CONSTRUCTION WHICH GENERALLY CONFORMS TO THE SEQUENCE SHOWN ON THE TCP SEQUENCE OF OPERATION BELOW.

F. COMPLETE ALL WORK ON PROJECT AS SHOWN ON THE VARIOUS PLAN SHEETS AND IN COMPLIANCE WITH THE GENERAL NOTES OF THIS CONTRACT.

G. ANY REQUEST TO ALTER THE SEQUENCE OF OPERATION OR TRAFFIC CONTROL PLAN WILL BE SUBMITTED TO THE ENGINEER FOR WRITTEN APPROVAL.

SEQUENCE OF CONSTRUCTION

A. THIS PROJECT CONSISTS OF WORK AREAS AS DEFINED BY CSJ:

(CSJ: 0909-00-066)

I. (LIMITS: VARIOUS LOCATIONS IN BELL, CORYELL, HILL, LIMESTONE, AND McLENNAN COUNTY)

B. THE CONTRACTOR MAY WORK IN MORE THAN ONE AREA AT A TIME, BUT THE WORK MUST PROGRESS AT EACH LOCATION.

C. FINISH PROPOSED WORK IN EACH WORK AREA BEFORE PROCEEDING TO PERFORM WORK IN ANOTHER WORK AREA.

D. THE CONTRACTOR WILL BE REQUIRED TO SUBMIT A DETAILED SCHEDULE OF WORK TO THE AREA ENGINEER PRIOR TO THE BEGINNING OF CONSTRUCTION, WHICH GENERALLY CONFORMS TO THE FOLLOWING SEQUENCE:

1. ORDER ALL EQUIPMENT FOR ALL LOCATIONS.
2. PROVIDE AND INSTALL ALL SIGNS, BARRICADES, AND TRAFFIC CONTROL DEVICES IN ACCORDANCE WITH THE TRAFFIC CONTROL STANDARDS.
3. REMOVE EACH SIGNAL HEAD ASSEMBLY.
4. INSTALL SIGNAL BACKPLATE WITH REFLECTIVE BORDER SHEETING.
5. REINSTALL/INSTALL EACH SIGNAL HEAD ASSEMBLY.
6. COMPLETE ALL OTHER WORK AS DIRECTED.
7. FINAL CLEAN UP.

I. SIGNS G20-IT WITH PLAQUE OR G20-5T, G20-6, G20-2a, G20-2b, CW20-ID, R20-3, R20-5, G20-9T AND R20-5 PLAQUE WILL BE REQUIRED AT PROJECT LIMITS.

2. CW20-ID AND G20-2a WILL BE REQUIRED AT ALL CROSSROADS.

3. G20-1a WILL BE REQUIRED AT ALL MAJOR CROSSROADS.

SIGNAGE LEGEND

G20-IT W/ PLAQUE OR G20-5T	48XI8	BEGIN ROAD WORK NEXT X MILES
	48X24	BEGIN ROAD WORK NEXT X MILES
G20-6	48X30	NAME, ADDRESS, CITY, STATE, CONTRACTOR
G20-9T	36X30	BEGIN WORK ZONE
G20-2b	36XI8	END WORK ZONE
R20-3	48X42	OBEY WARNING SIGNS STATE LAW
G20-1a	72X36	ROAD WORK NEXT X MILES
CW20-ID	48X48	ROAD WORK AHEAD
R20-5	36X36	TRAFFIC FINES DOUBLE
R20-5 PLAQUE	36XI8	WHEN WORKERS ARE PRESENT
G20-2a	48X24	END ROAD WORK

NOTES:

I. ALL TRAFFIC CONTROL DEVICES WILL CONFORM WITH THE TEXAS "MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES FOR STREETS AND HIGHWAYS" (TMUTCD), AND WILL BE MAINTAINED AS DIRECTED. ADDITIONAL GUIDELINES FOR TRAFFIC CONTROL DEVICES MAY BE FOUND IN THE TMUTCD.

2. FOR CHANNELING DEVICE PLACEMENT AND SPACING FOR ALL PHASES, REFER TO THE TCP STANDARDS.

STATE OF TEXAS
CHARLES C. SMITH
147716
LICENSED
PROFESSIONAL ENGINEER

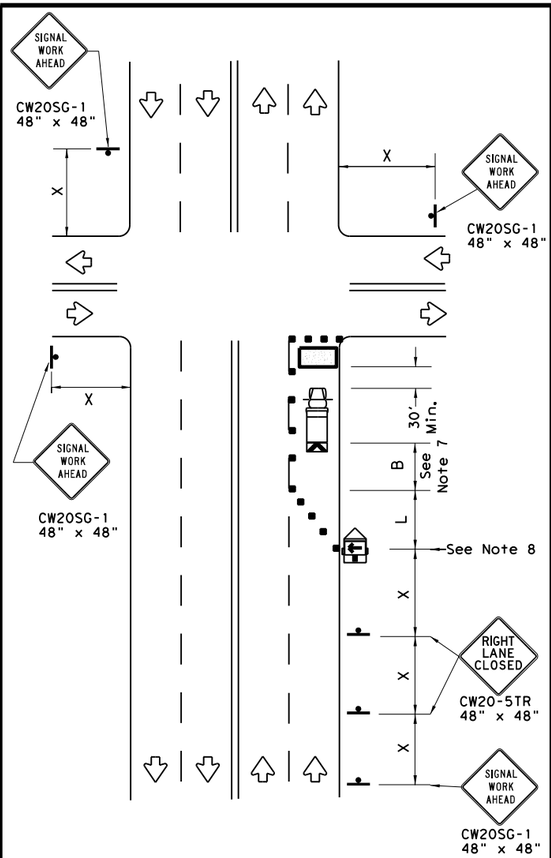
Charles C. Smith, P.E. 6/10/2024

SIGNATURE OF REGISTRANT & DATE

SEQUENCE OF CONSTRUCTION

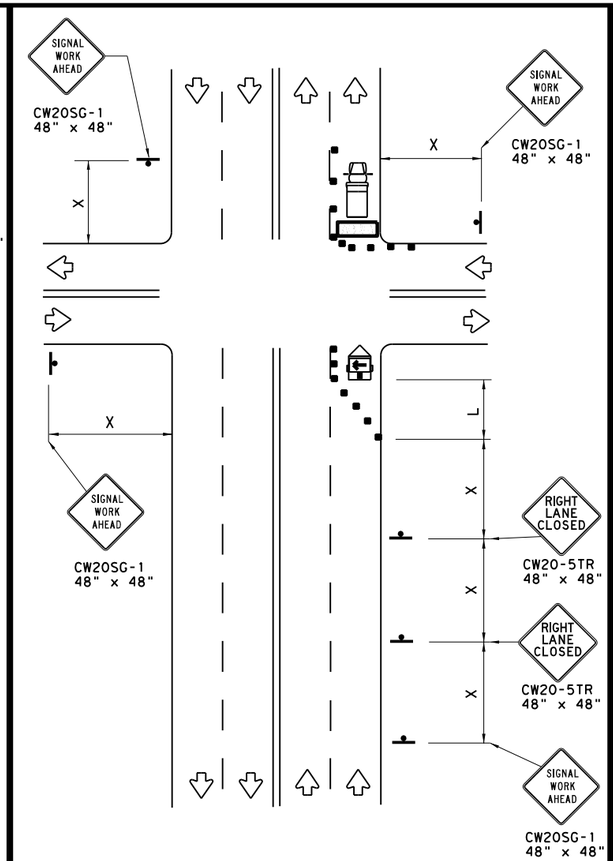
CHANGE ORDER	FED. RD. DIV. NO.	CONT	SECT	JOB	HIGHWAY
	6	0909	00	066	VARIOUS
	STATE	DIST	COUNTY		SHEET NO.
	TEXAS	WAC	McLENNAN, ETC.		6

DATE: 6/10/2024 12:46:20 PM
FILE: T:\WACTRAFF\DESIGN\Engineering\0909-00-066 Backplate Upgrade\Standards\WZBTS\wzbts-13.dgp



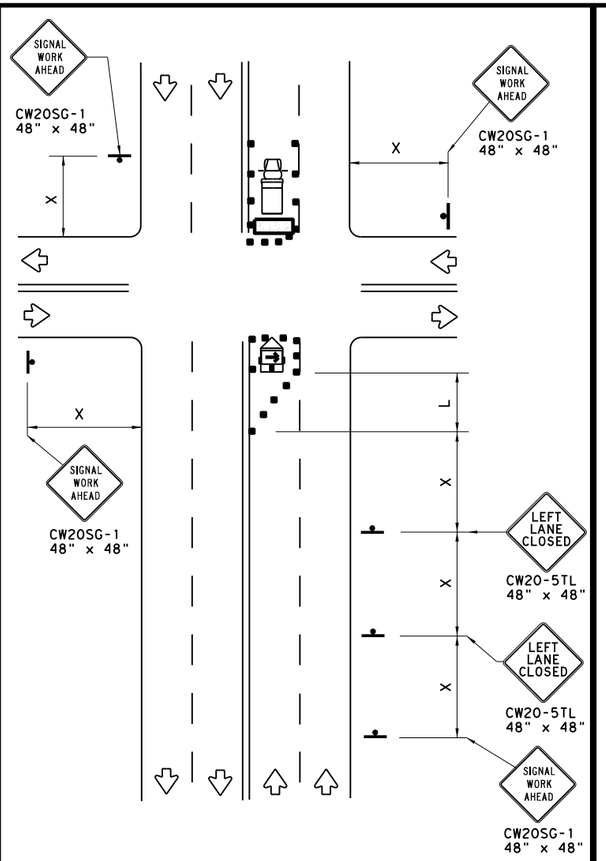
NEAR SIDE LANE CLOSURE

SHORT DURATION OR SHORT TERM STATIONARY



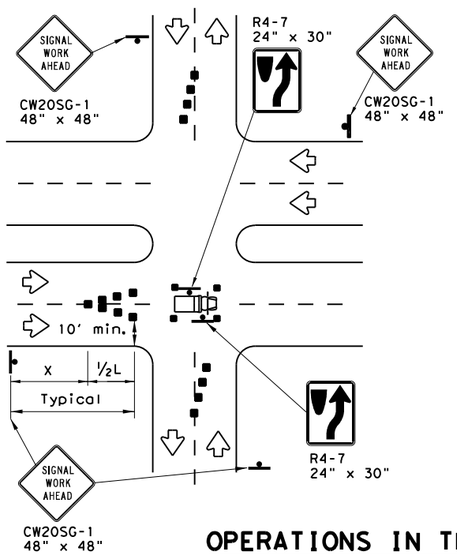
FAR SIDE RIGHT LANE CLOSURE

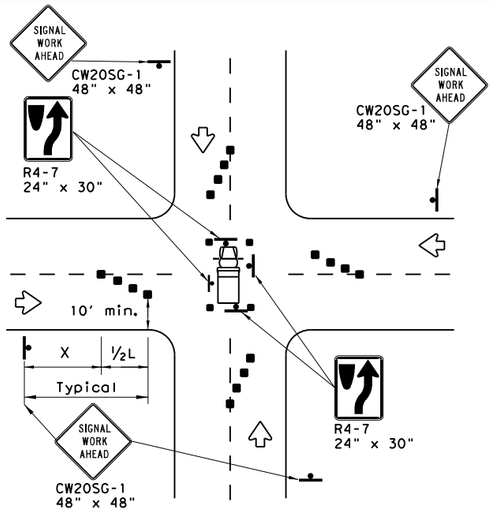
SHORT DURATION OR SHORT TERM STATIONARY



FAR SIDE LEFT LANE CLOSURE

SHORT DURATION OR SHORT TERM STATIONARY





OPERATIONS IN THE INTERSECTION

SHORT DURATION

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

Posted Speed *	Formula	Minimum Desirable Taper Lengths ** 10' Offset	11' Offset	12' Offset	Suggested Maximum Spacing of Channelizing Devices: On a Taper	On a Tangent	Minimum Sign Spacing "X" Distance	Suggested Longitudinal Buffer Space "B"
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)

WORKERS IN BUCKET TRUCKS SHALL NOT WORK ABOVE OPEN LANES OF TRAFFIC.

GENERAL NOTES

1. The minimum size channelizing device is the 28" cone. 42" Two-piece cones, drums, vertical panels or barricades will be required when the device must be left unattended at night.
2. Obstructions or hazards at the work area shall be clearly marked and delineated at all times.
3. Flaggers and Flagger Symbol (CW20-7) signs may be required according to field conditions.
4. Vehicles parked in roadway shall be equipped with at least two high intensity rotating, flashing, oscillating or strobe type lights.
5. High level warning devices (flag trees) may be used at corners of the vehicle.
6. When work operations are performed on existing signals, the signals may be placed in flashing red mode when approved by the engineer. If existing signals do not have power, All-Way Stop (R1-1 and R1-3P) signs may be implemented when approved by the engineer.
7. For Short-Term Stationary work the buffer space "B" from the above table should be used if field conditions permit. For Short Duration (less than 1 hour) any buffer space provided will enhance the safety of the setup.
8. The arrow board at this location may be omitted for Short Duration work if the work vehicle has an arrow board in operation. As an option, the arrow board may be placed at the end of the taper in the closed lane if space is not available at the beginning of the taper.
9. Signs and devices for the NEAR SIDE LANE CLOSURE may be altered for a left lane closure by using a LEFT LANE CLOSED (CW20-5TL) and adding channelizing devices on the centerline to protect the work space from opposing traffic.

Texas Department of Transportation | Traffic Operations Division Standard

TRAFFIC SIGNAL WORK TYPICAL DETAILS

WZ(BTS-1)-13

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©TxDOT April 1992	CONT	SECT	JOB	HIGHWAY
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2-98 10-99 7-13	DIST	COUNTY		SHEET NO.
4-98 3-03	WAC	McLENNAN, ETC.		7

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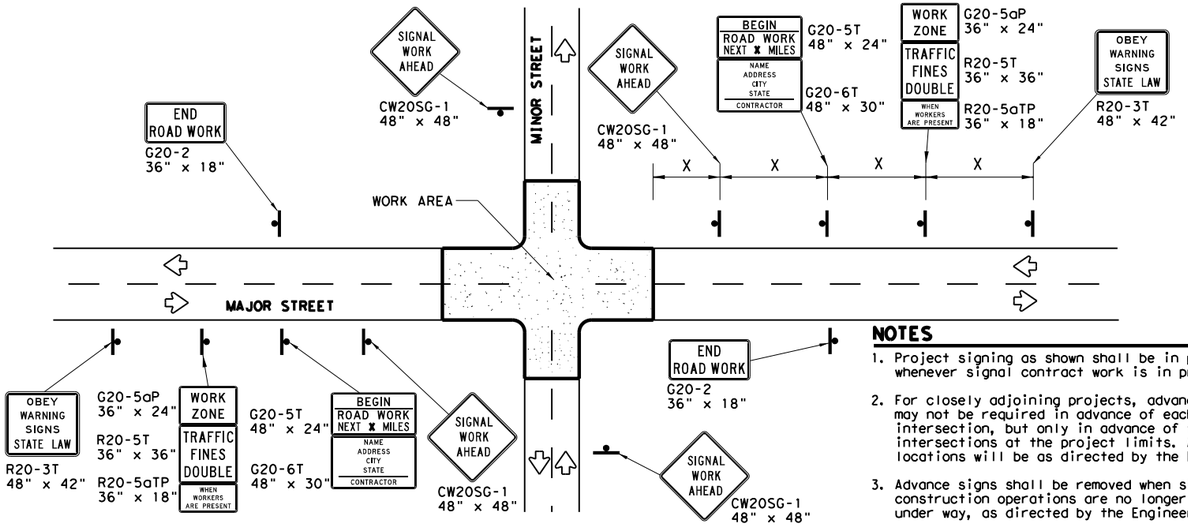


TYPICAL ADVANCE SIGNAL PROJECT SIGNING

FOR LONG TERM and INTERMEDIATE-TERM STATIONARY WORK OPERATIONS

NOTES

1. Project signing as shown shall be in place whenever signal contract work is in progress.
2. For closely adjoining projects, advance signing may not be required in advance of each intersection, but only in advance of the intersections at the project limits. Actual locations will be as directed by the Engineer.
3. Advance signs shall be removed when signal construction operations are no longer under way, as directed by the Engineer.
4. Warning sign spacing shown is typical for both directions.
5. See the Table on sheet 1 of 2 for Typical warning sign spacing.

GENERAL NOTES FOR WORK ZONE SIGNS

1. Signs shall be installed and maintained in a straight and plumb condition.
2. Wooden sign posts shall be painted white.
3. Barricades shall NOT be used as sign supports.
4. Nails shall NOT be used to attach signs to any support.
5. All signs shall be installed in accordance with the plans or as directed by the Engineer.
6. The Contractor shall furnish the sign design shown in the plans or in the "Standard Highway Sign Designs for Texas" (SHSD).
7. The Contractor shall furnish sign supports and substrates listed in the "Compliant Work Zone Traffic Control Device List" (CWZTCD), installed as per the manufacturer's recommendations.
8. Temporary signs that have damaged or cracked substrates and/or damaged or marred reflective sheeting shall be replaced as directed by the Engineer.
9. 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".
10. Damaged wood posts shall be replaced. Splicing wood posts will not be allowed.

DURATION OF WORK

1. Work zone durations are defined in Part 6, Section 6G.02 of the Texas Manual on Uniform Traffic Control Devices (TMUTCD).

SIGN MOUNTING HEIGHT

1. Sign height of Long-term/Intermediate-term warning signs shall be as shown on Figure 6F-1 of the TMUTCD.
2. Sign height of Short-term/Short Duration warning signs shall be as shown on Figure 6F-2 of the TMUTCD.
3. Regulatory signs shall be mounted at least 7 feet, but not more than 9 feet, above the paved surface regardless of work duration.

REMOVING OR COVERING

1. When sign messages may be confusing or do not apply, the signs shall be removed or completely covered, unless otherwise approved by the Engineer.
2. 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. Burlap, or heavy materials such as plywood or aluminum shall not be used to cover signs.
3. Duct tape or other adhesive material shall NOT be affixed to a sign face.
4. Signs and anchor stubs shall be removed and holes back filled upon completion of the work.

REFLECTIVE SHEETING

1. All signs shall be retroreflective and constructed of sheeting meeting the requirements of the DMS and color usage table shown on this sheet.

SIGN SUPPORT WEIGHTS

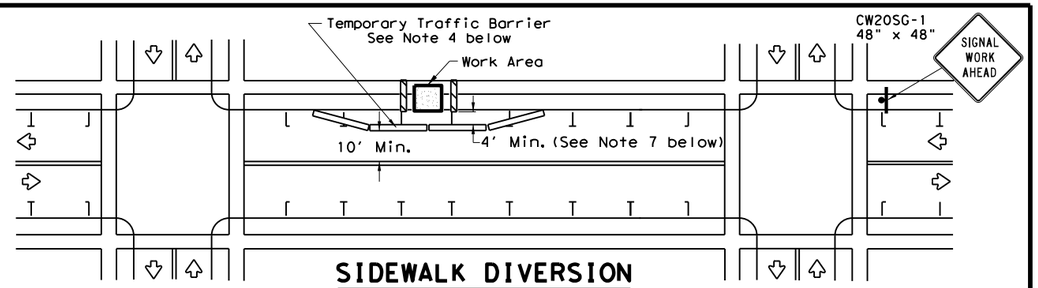
1. Weights used to keep signs from turning over should be sandbags filled with dry, cohesionless material.
2. The sandbags will be tied shut to keep the sand from spilling and to maintain a constant weight.
3. Rock, concrete, iron, steel or other solid objects will not be permitted for use as sign support 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 CWZTCD 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 fastners. 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.

LEGEND	
	Sign
	Channelizing Devices
	Type 3 Barricade

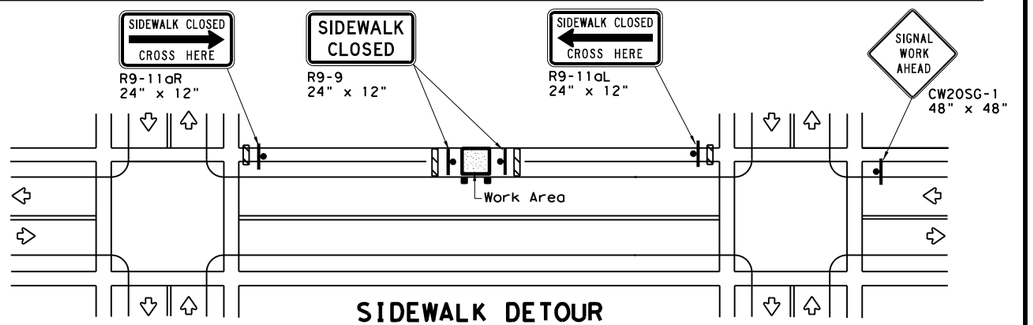
DEPARTMENTAL MATERIAL SPECIFICATIONS	
SIGN FACE MATERIALS	DMS-8300
FLEXIBLE ROLL-UP REFLECTIVE SIGNS	DMS-8310

COLOR	USAGE	SHEETING MATERIAL
ORANGE	BACKGROUND	TYPE B_{FL} OR TYPE C_{FL} SHEETING
WHITE	BACKGROUND	TYPE A SHEETING
BLACK	LEGEND & BORDERS	ACRYLIC NON-REFLECTIVE SHEETING

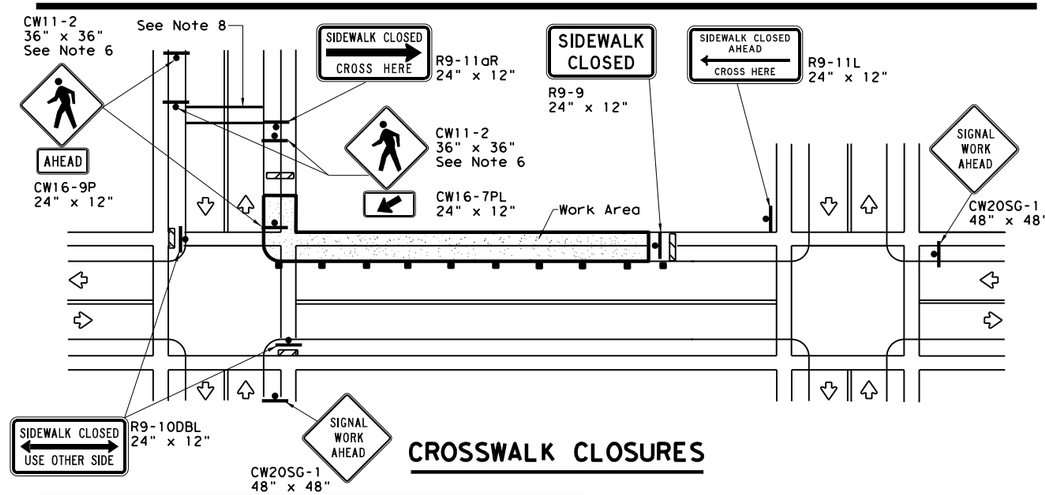
Only pre-qualified products shall be used. A copy of the "Compliant Work Zone Traffic Control Devices List" (CWZTCD) describes pre-qualified products and their sources and may be found at the following web address:
http://www.txdot.gov/txdot_library/publications/construction.htm



SIDEWALK DIVERSION



SIDEWALK DETOUR



CROSSWALK CLOSURES

PEDESTRIAN CONTROL

1. Holes, trenches or other hazards shall be adequately protected by covering, delineating or surrounding the hazard with orange plastic pedestrian fencing or longitudinal channelizing devices, or as directed by the Engineer.
2. "CROSSWALK CLOSURES" as detailed above will require the Engineer's approval prior to installation.
3. R9 series signs shown may be placed on supports detailed on the BC standards or CWZTCD list, or when fabricated from approved lightweight plastic substrates, they may be mounted on top of a plastic drum at or near the location shown.
4. For speeds less than 45 mph longitudinal channelizing devices may be used instead of traffic barriers when approved by the Engineer. Attenuation of blunt ends and installation of water filled devices shall be as per BC(9) and manufacturer's recommendations.
5. Location of devices are for general guidance. Actual device spacing and location must be field adjusted to meet actual conditions.
6. Where pedestrians with visual disabilities normally use the closed sidewalk Detectable Pedestrian Barricades should be used instead of the Type 3 Barricades shown.
7. The width of existing sidewalk should be maintained if practical.
8. Pavement markings for mid-block crosswalks shall be paid for under the appropriate bid items.
9. When crosswalks or other pedestrian facilities are closed or relocated, temporary facilities shall be detectable and shall include accessibility features consistent with the features present in the existing pedestrian facility.

Texas Department of Transportation

Traffic Operations Division Standard

TRAFFIC SIGNAL WORK BARRICADES AND SIGNS

WZ(BTS-2)-13

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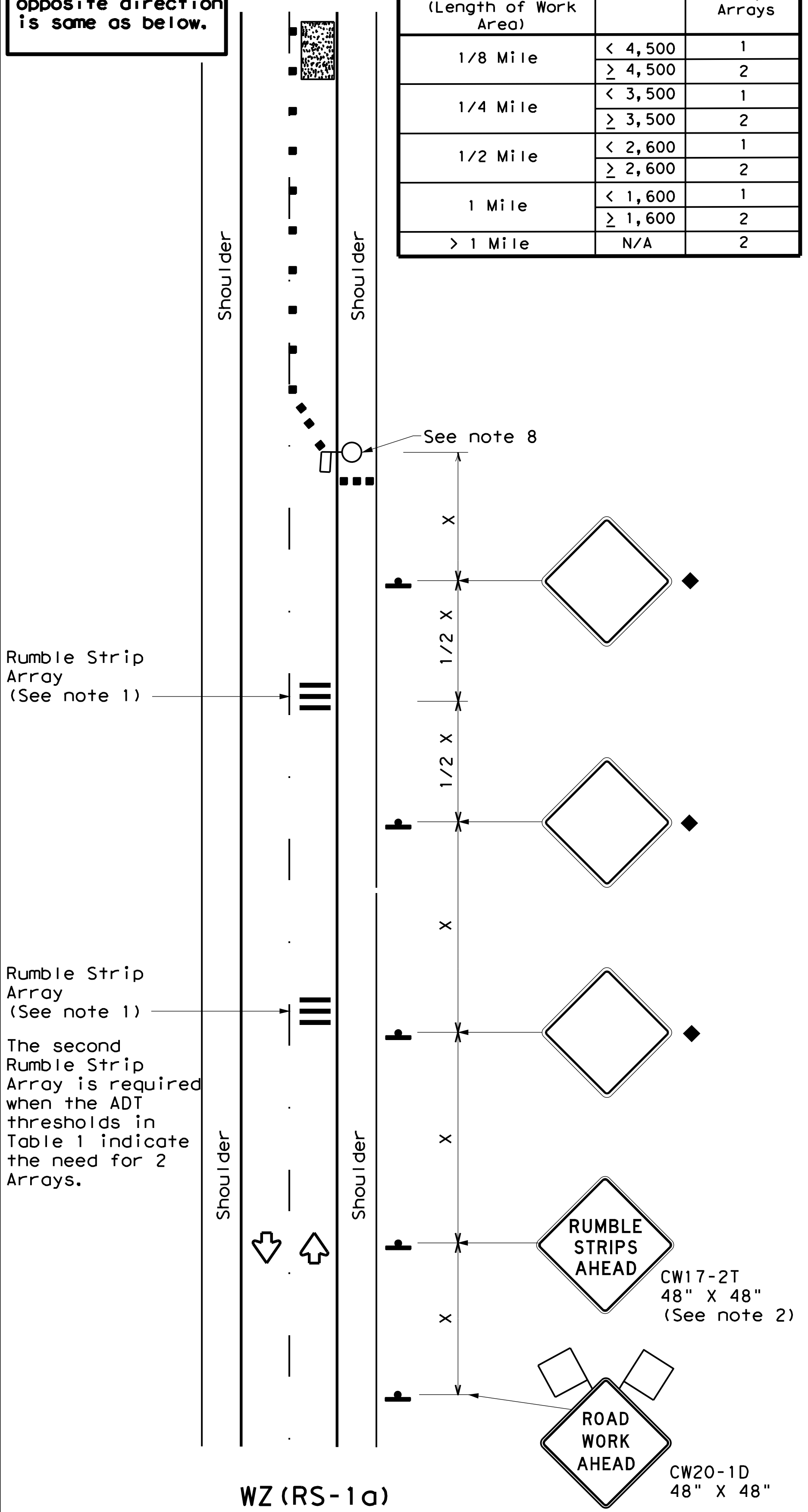
2-98 10-99 7-13	DIST	COUNTY		SHEET NO.
4-98 3-03	WAC	McLENNAN, ETC.		8

Warning sign and rumble strip sequence in opposite direction is same as below.

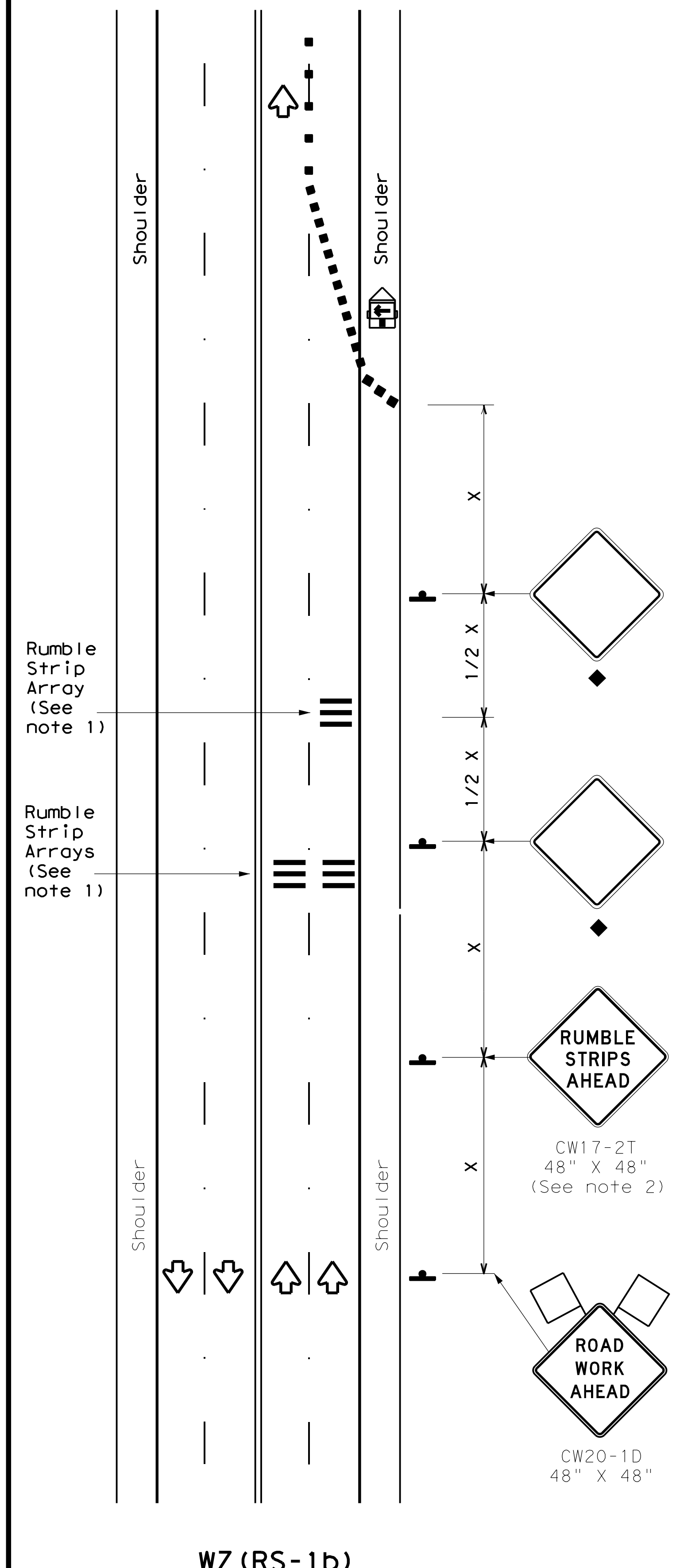
TABLE 1

Flagger to Flagger (Length of Work Area)	ADT	# of Rumble Strip Arrays
1/8 Mile	< 4,500	1
	≥ 4,500	2
1/4 Mile	< 3,500	1
	≥ 3,500	2
1/2 Mile	< 2,600	1
	≥ 2,600	2
1 Mile	< 1,600	1
	≥ 1,600	2
> 1 Mile	N/A	2



WZ(RS-1a)

RUMBLE STRIPS ON ONE-LANE TWO-WAY APPLICATION



WZ(RS-1b)

RUMBLE STRIPS FOR LANE CLOSURE ON CONVENTIONAL ROADWAY

GENERAL NOTES

1. Each Rumble Strip Array should consist of three rumble strips spaced center to center at the spacing shown in Table 2, placed transverse across the lane at locations shown.
2. The CW17-2T "RUMBLE STRIPS AHEAD" sign should be located after the CW20-1D "ROAD WORK AHEAD sign and spaced as shown. If traffic is observed to be queuing, or is expected to queue beyond the Rumble Strips, the CW17-2T sign and the first Rumble Strip Array may be located upstream of the CW20-1D sign as necessary to provide needed warning.
3. Temporary Rumble Strips will be considered subsidiary to Item 502, and shall be a product listed on the Compliant Work Zone Traffic Control Devices.
4. Remove Temporary Rumble Strips before removing the advanced warning signs.
5. Temporary Rumble Strips should not be used on horizontal curves, loose gravel, soft or bleeding asphalt, heavily rutted pavements or unpaved surfaces.
6. Temporary Rumble Strips shall be installed and maintained as per manufacturer's recommendations.
7. This standard sheet shall be used in conjunction with other appropriate TCP standard, TMUTCD typical application or project specific detail for the project.
8. The one-lane two-way application may utilize a flagger, an Automated Flagger Assistance Device (AFAD) or a Portable Traffic Signal (PTS).
9. Replace defective Temporary Rumble Strips as directed by the Engineer.
10. Temporary Rumble Strips may be used on freeways or expressways based on engineering judgment and written direction from the Engineer.

LEGEND

Symbol	Description	Symbol	Description
	Type 3 Barricade		Channelizing Devices
	Heavy Work Vehicle		Truck Mounted Attenuator (TMA)
	Trailer Mounted Flashing Arrow Panel		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
	✓	✓		

◆ **Signs are for illustrative purposes only. Signs required may vary depending on the TCP, TMUTCD Typical Application, or project specific details for the project.**

* **For posted speeds in excess of 65 MPH, it is recommended that spacing is increased as speed limits increase. Increasing space between rumble strips will improve effectiveness.**

TABLE 2

Speed	Approximate distance between strips in an array
≤ 40 MPH	10'
> 40 MPH & ≤ 55 MPH	15'
= 60 MPH	20'
≥ 65 MPH	* 35'+

Texas Department of Transportation — Traffic Safety Division Standard

TEMPORARY RUMBLE STRIPS

WZ(RS)-22

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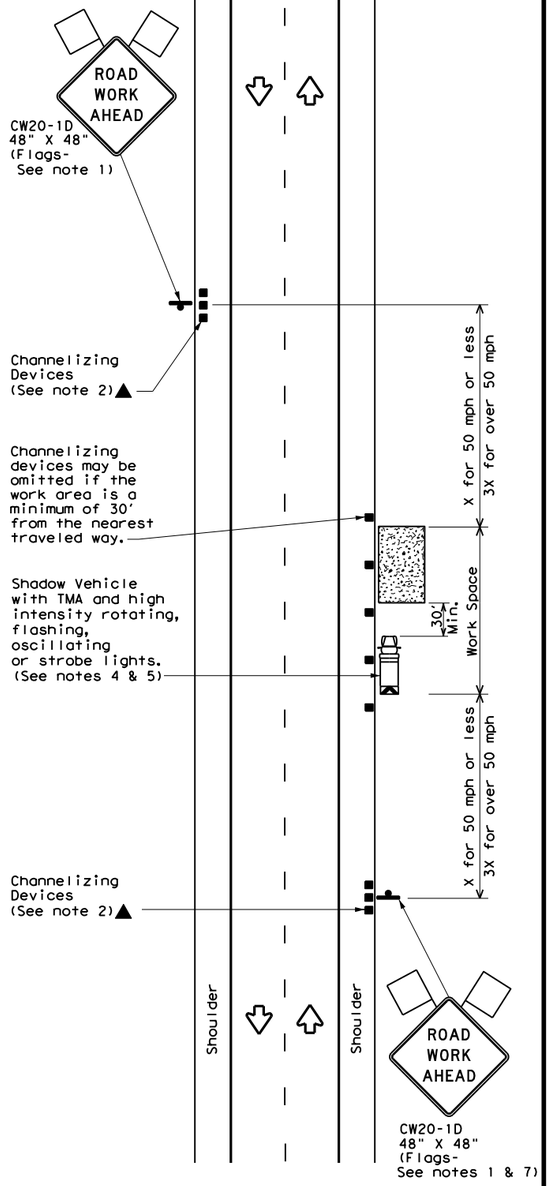
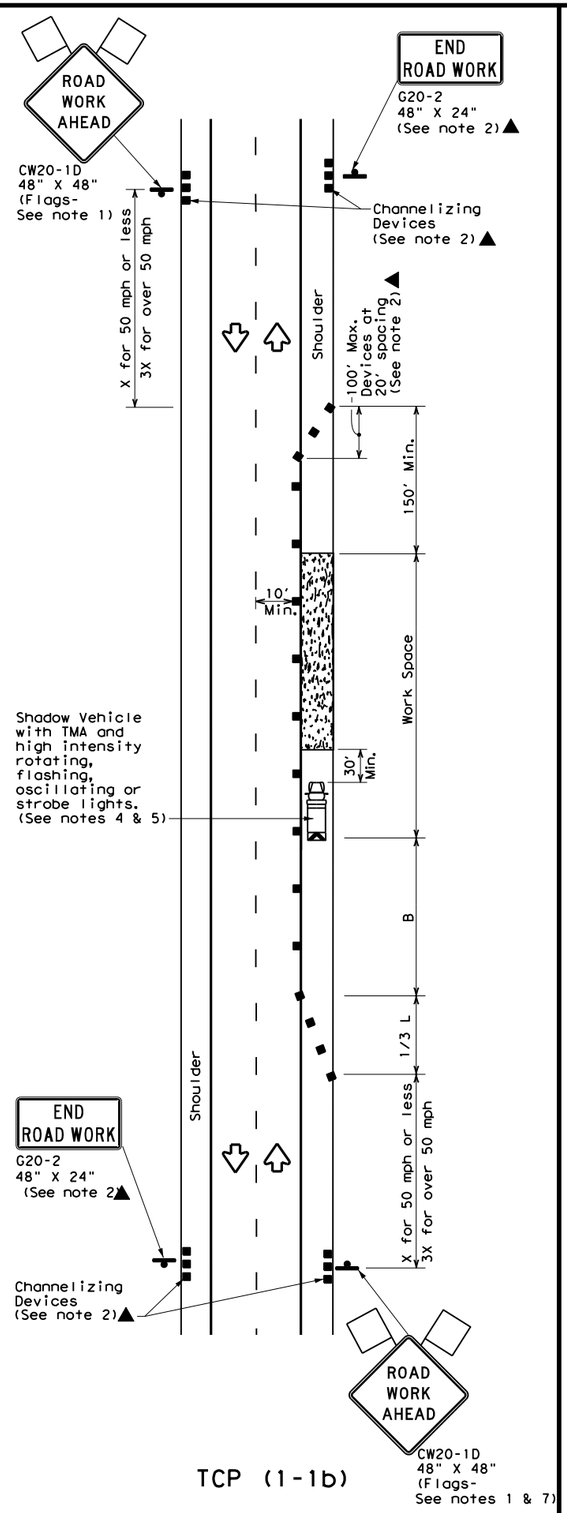


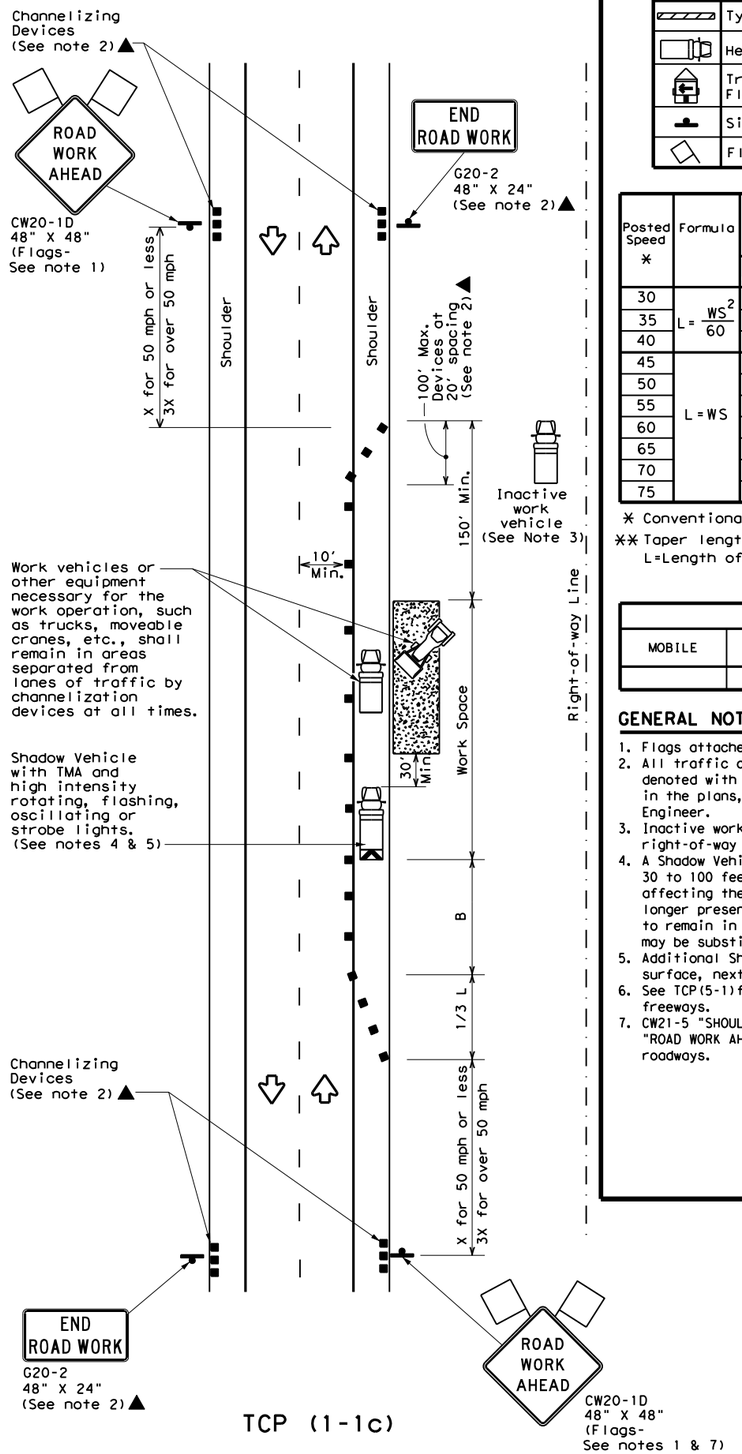
TCP (1-1a)

WORK SPACE NEAR SHOULDER
Conventional Roads



TCP (1-1b)

WORK SPACE ON SHOULDER
Conventional Roads



TCP (1-1c)

WORK VEHICLES ON SHOULDER
Conventional Roads

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

Posted Speed *	Formula	Minimum Desirable Taper Lengths ** 10' Offset	11' Offset	12' Offset	Suggested Maximum Spacing of Channelizing Devices: On a Taper	On a Tangent	Minimum Sign Spacing "X" Distance	Suggested Longitudinal Buffer Space "B"
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

1. Flags attached to signs where shown are REQUIRED.
2. 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.
3. Inactive work vehicles or other equipment should be parked near the right-of-way line and not parked on the paved shoulder.
4. 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.
5. Additional Shadow Vehicles with TMAs may be positioned off the paved surface, next to those shown in order to protect wider work spaces.
6. See TCP(5-1) for shoulder work on divided highways, expressways and freeways.
7. CW21-5 "SHOULDER WORK" signs may be used in place of CW20-1D "ROAD WORK AHEAD" signs for shoulder work on conventional roadways.

Texas Department of Transportation

Traffic Operations Division Standard

TRAFFIC CONTROL PLAN CONVENTIONAL ROAD SHOULDER WORK

TCP(1-1)-18

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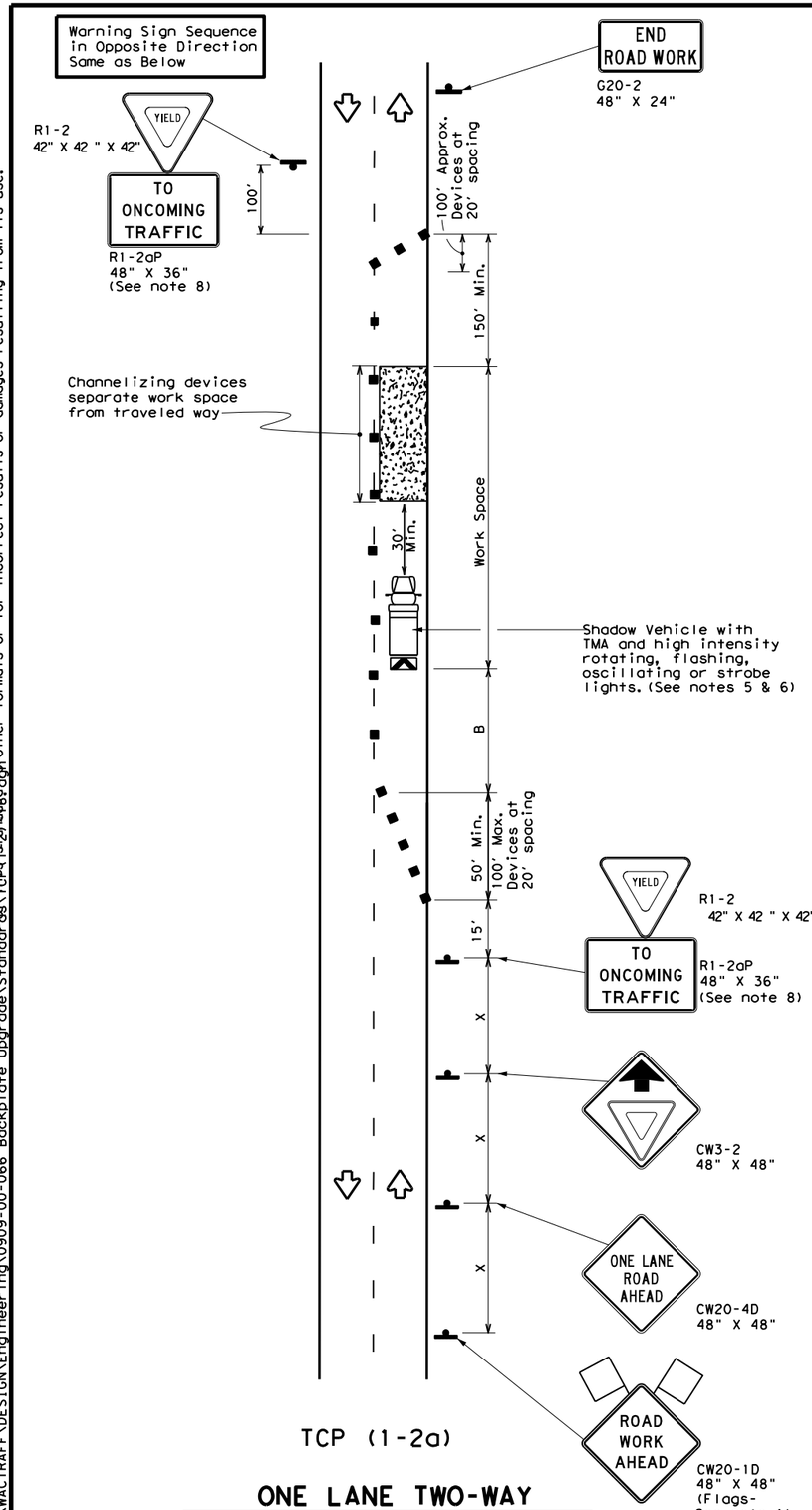
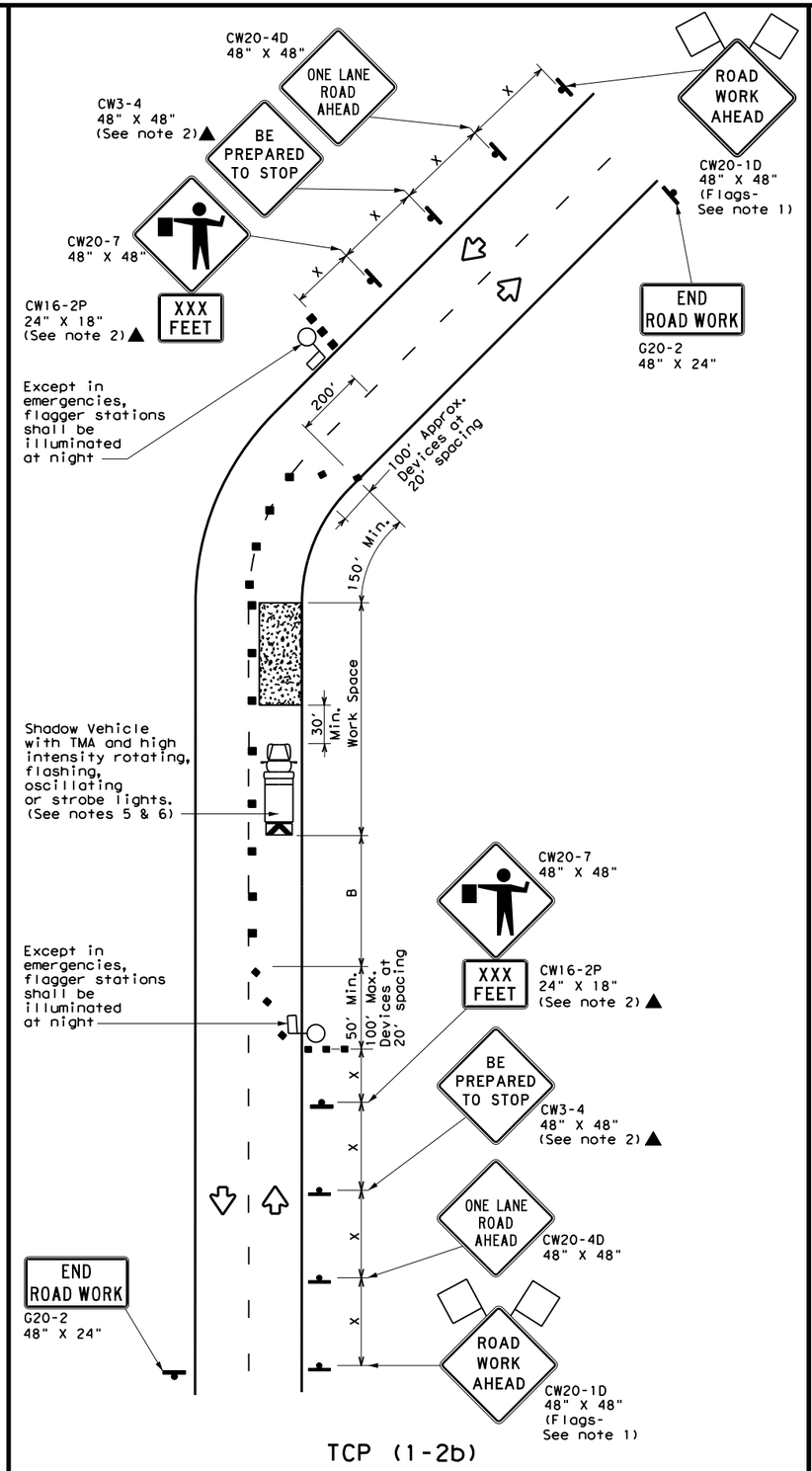


TCP (1-2a)

ONE LANE TWO-WAY CONTROL WITH YIELD SIGNS

(Less than 2000 ADT - See note 7)



TCP (1-2b)

ONE LANE TWO-WAY CONTROL WITH FLAGGERS

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

Posted Speed *	Formula	Minimum Desirable Taper Lengths ** 10' Offset	11' Offset	12' Offset	Suggested Maximum Spacing of Channelizing Devices: On a Taper	On a Tangent	Minimum Sign Spacing "X" Distance	Suggested Longitudinal Buffer Space "B"	Stopping Sight Distance
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

1. Flags attached to signs where shown are REQUIRED.
2. 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.
3. The CW3-4 "BE PREPARED TO STOP" sign may be installed after the CW20-4D "ONE LANE ROAD AHEAD" sign, but proper sign spacing shall be maintained.
4. Sign spacing may be increased or an additional CW20-1D "ROAD WORK AHEAD" sign may be used if advance warning ahead of the flagger or R1-2 "YIELD" sign is less than 1500 feet.
5. 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.
6. Additional Shadow Vehicles with TMAs may be positioned off the paved surface, next to those shown in order to protect wider work spaces.

TCP (1-2a)

7. R1-2 "YIELD" sign traffic control may be used on projects with approaches that have adequate sight distance. For projects in urban areas, work spaces should be no longer than one half city block. In rural areas on roadways with less than 2000 ADT, work spaces should be no longer than 400 feet.
8. R1-2 "YIELD" sign with R1-2aP "TO ONCOMING TRAFFIC" plaque shall be placed on a support at a 7 foot minimum mounting height.

TCP (1-2b)

9. Flaggers should use two-way radios or other methods of communication to control traffic.
10. Length of work space should be based on the ability of flaggers to communicate.
11. 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).
12. Channelizing devices on the center-line may be omitted when a pilot car is leading traffic and approved by the Engineer.
13. Flaggers should use 24" STOP/SLOW paddles to control traffic. Flags should be limited to emergency situations.

Texas Department of Transportation — Traffic Operations Division Standard

TRAFFIC CONTROL PLAN ONE-LANE TWO-WAY TRAFFIC CONTROL

TCP(1-2)-18

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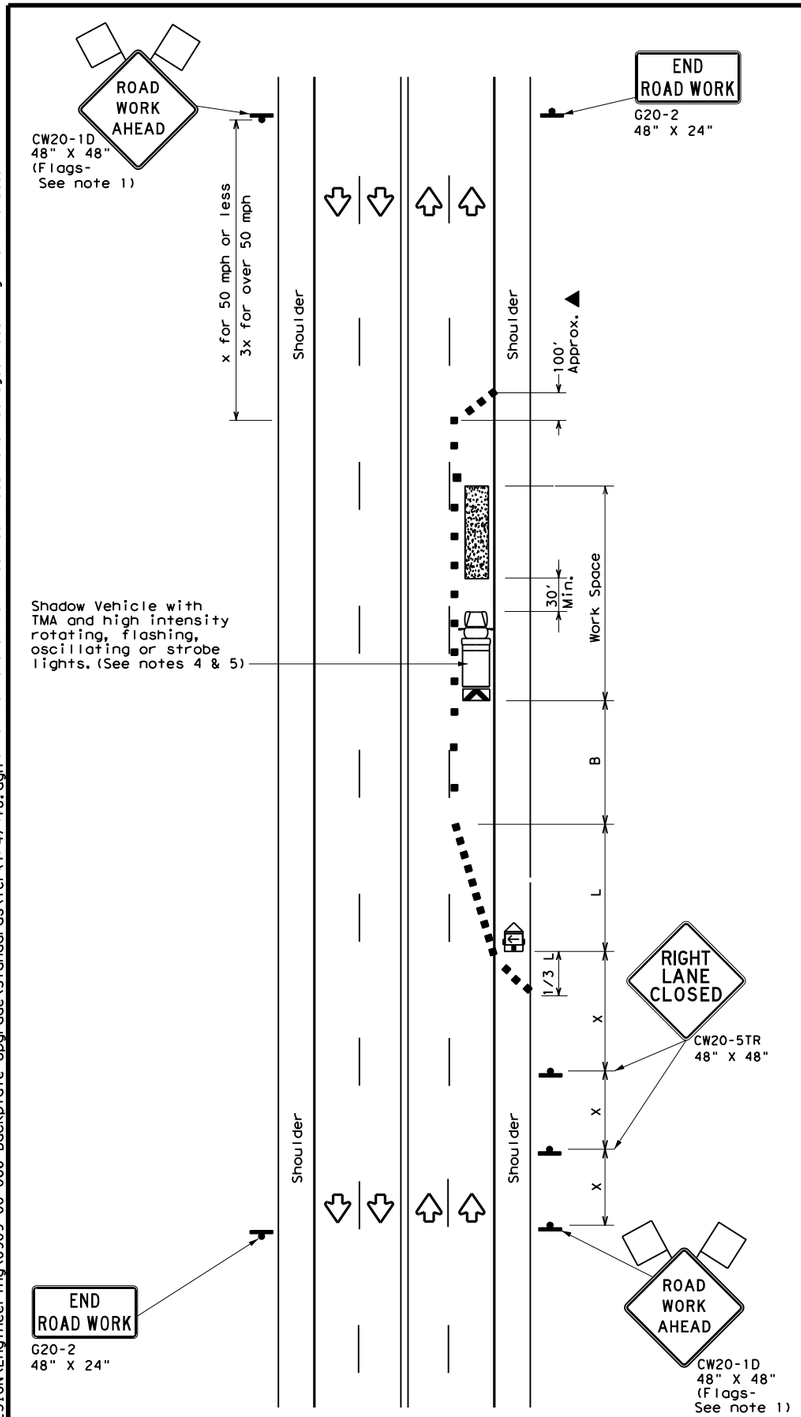
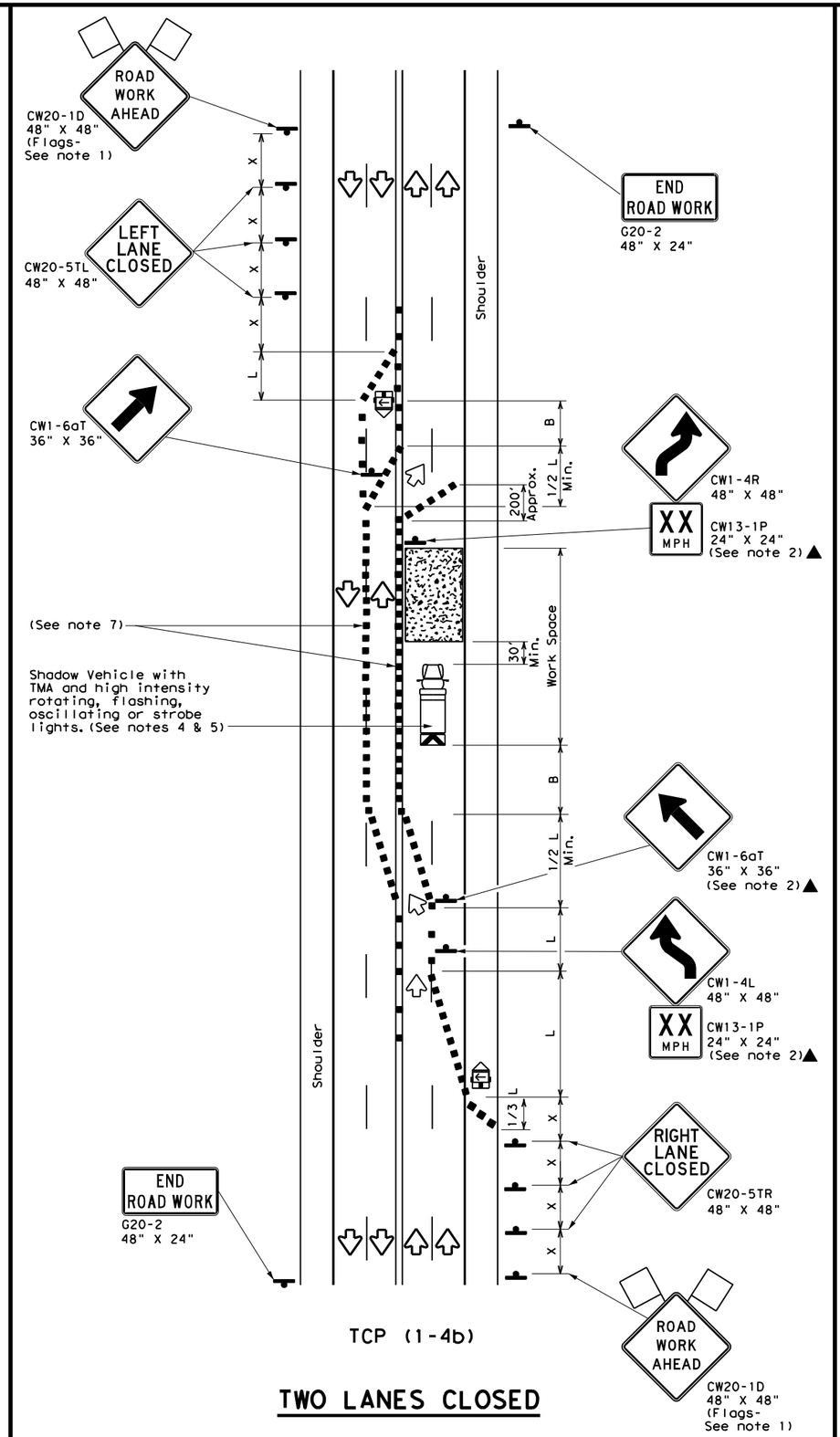


TCP (1-4a)

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	M	Portable Changeable Message Sign (PCMS)
	Sign		Traffic Flow
	Flag		Flagger

Posted Speed *	Formula	Minimum Desirable Taper Lengths ** 10' Offset	11' Offset	12' Offset	Suggested Maximum Spacing of Channelizing Devices On a Taper	On a Tangent	Minimum Sign Spacing "X" Distance	Suggested Longitudinal Buffer Space "B"
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

1. Flags attached to signs where shown are REQUIRED.
2. 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.
3. The CW20-1D "ROAD WORK AHEAD" sign may be repeated if the visibility of the work zone is less than 1500 feet.
4. 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.
5. 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)

6. 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)

7. 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.

Texas Department of Transportation — Traffic Operations Division Standard

TRAFFIC CONTROL PLAN LANE CLOSURES ON MULTILANE CONVENTIONAL ROADS

TCP(1-4)-18

FILE: tcp1-4-18.dgn	DN:	CK:	DW:	CK:
© TxDOT December 1985	CONT	SECT	JOB	HIGHWAY
REVISIONS	0909	00	066	VARIOUS
2-94 4-98	DIST	COUNTY		SHEET NO.
8-95 2-12	WAC	McLENNAN, ETC.		12
1-97 2-18				

DATE: 6/10/2024 12:46:32 PM
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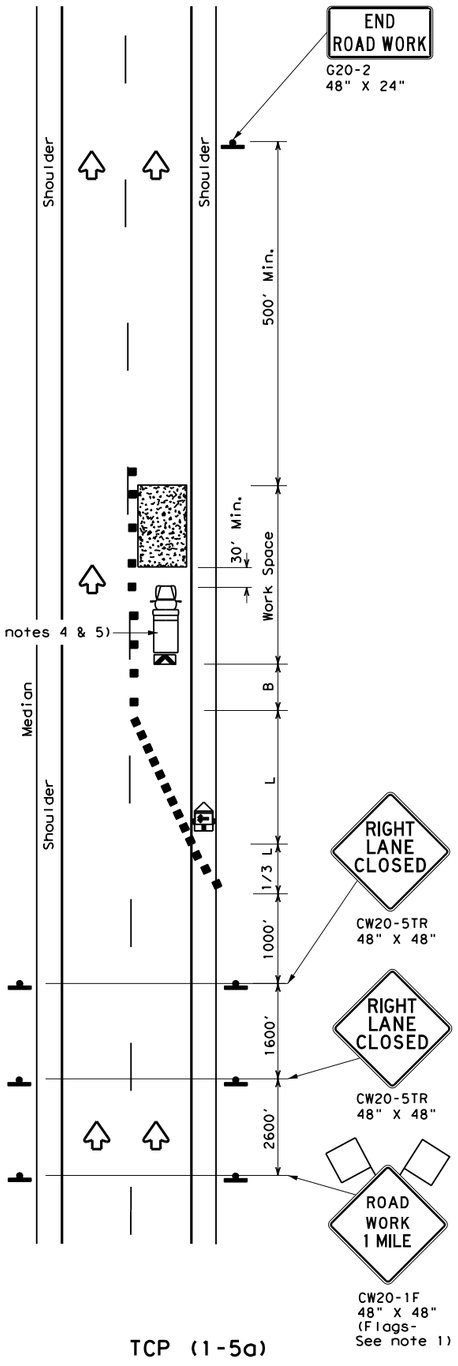
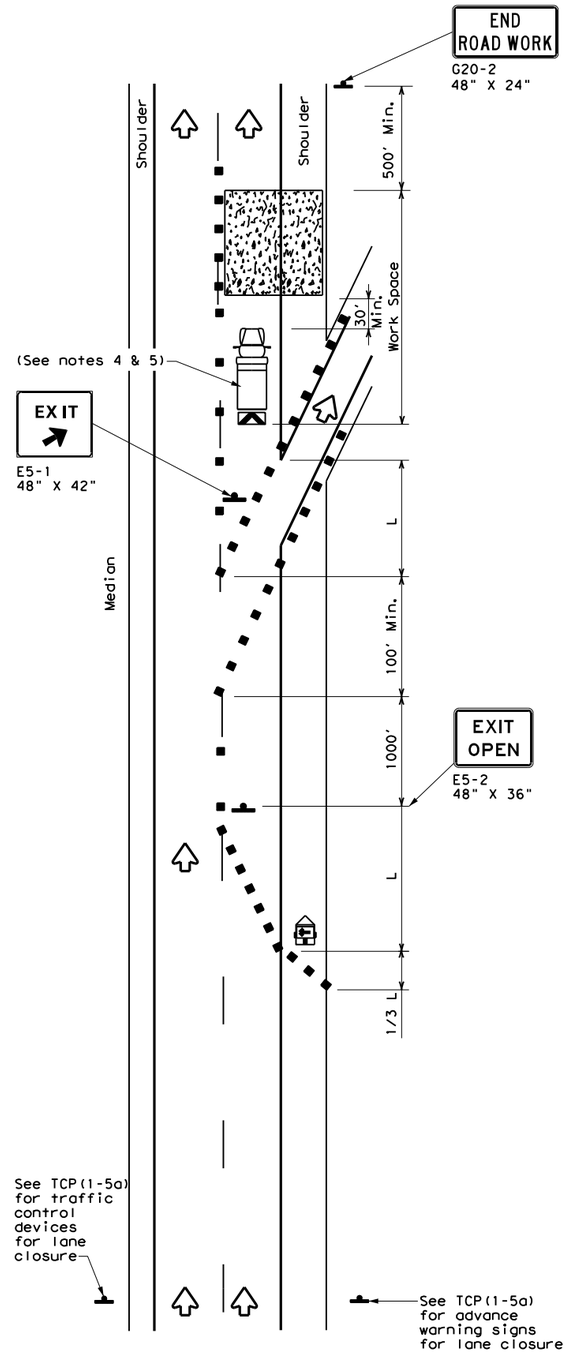


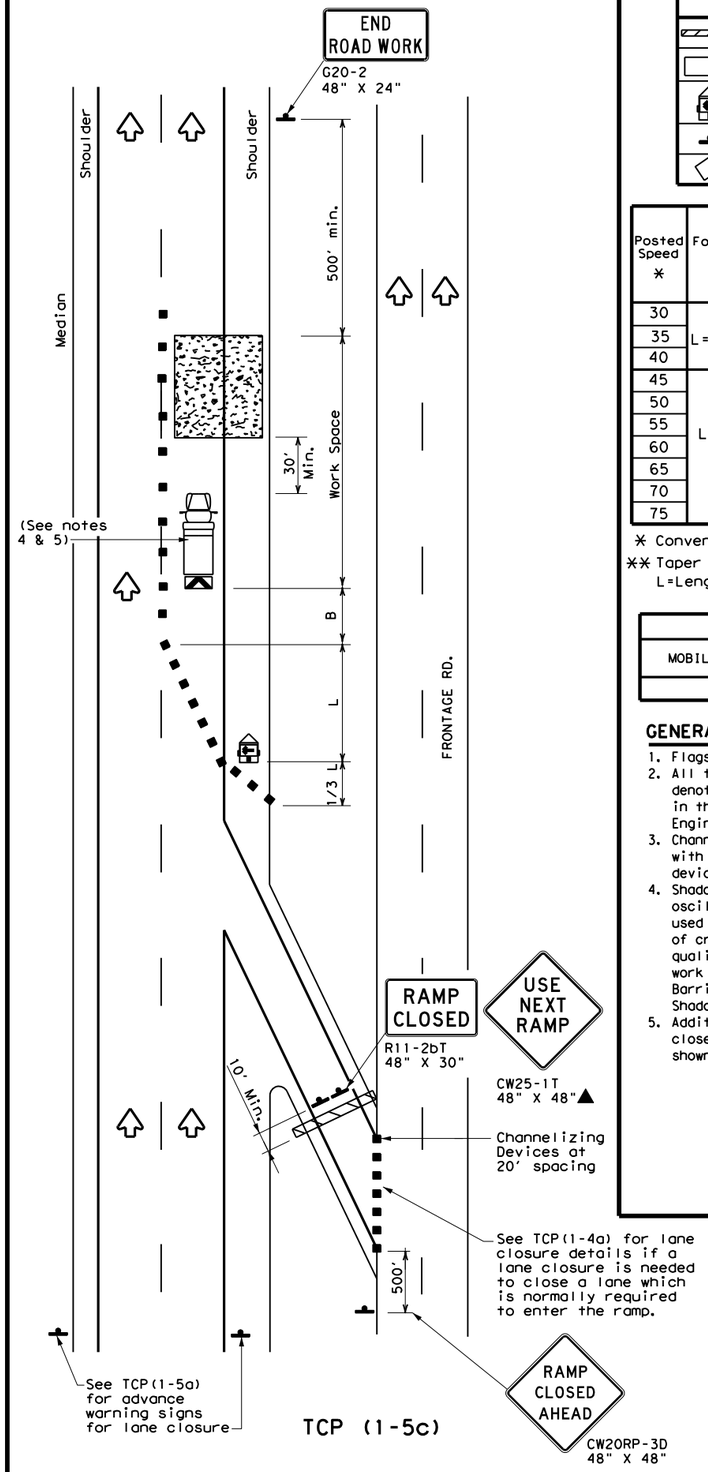
TCP (1-5a)

ONE LANE CLOSURE



TCP (1-5b)

LANE CLOSURE NEAR EXIT RAMPS



TCP (1-5c)

LANE CLOSURE NEAR ENTRANCE RAMPS

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

Posted Speed *	Formula	Minimum Desirable Taper Lengths ** 10' Offset	11' Offset	12' Offset	Suggested Maximum Spacing of Channelizing Devices: On a Taper	On a Tangent	Minimum Sign Spacing "X" Distance	Suggested Longitudinal Buffer Space "B"
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

1. Flags attached to signs where shown, are REQUIRED.
2. 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.
3. 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.
4. Shadow Vehicle with TMA and high intensity rotating, flashing, oscillating or strobe lights. 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.
5. Additional Shadow Vehicles with TMAs may be positioned in each closed lane, on the shoulder or off the paved surface, next to those shown in order to protect a wider work space.

Texas Department of Transportation

Traffic Operations Division Standard

TRAFFIC CONTROL PLAN LANE CLOSURES FOR DIVIDED HIGHWAYS

TCP(1-5)-18

FILE: tcp1-5-18.dgn	DN:	CK:	DW:	CK:
©TxDOT February 2012	CONT	SECT	JOB	HIGHWAY
REVISIONS 2-18	0909	00	066	VARIOUS
	DIST	COUNTY		SHEET NO.
	WAC	McLENNAN, ETC.		13

DATE: 6/10/2024 12:46:34 PM
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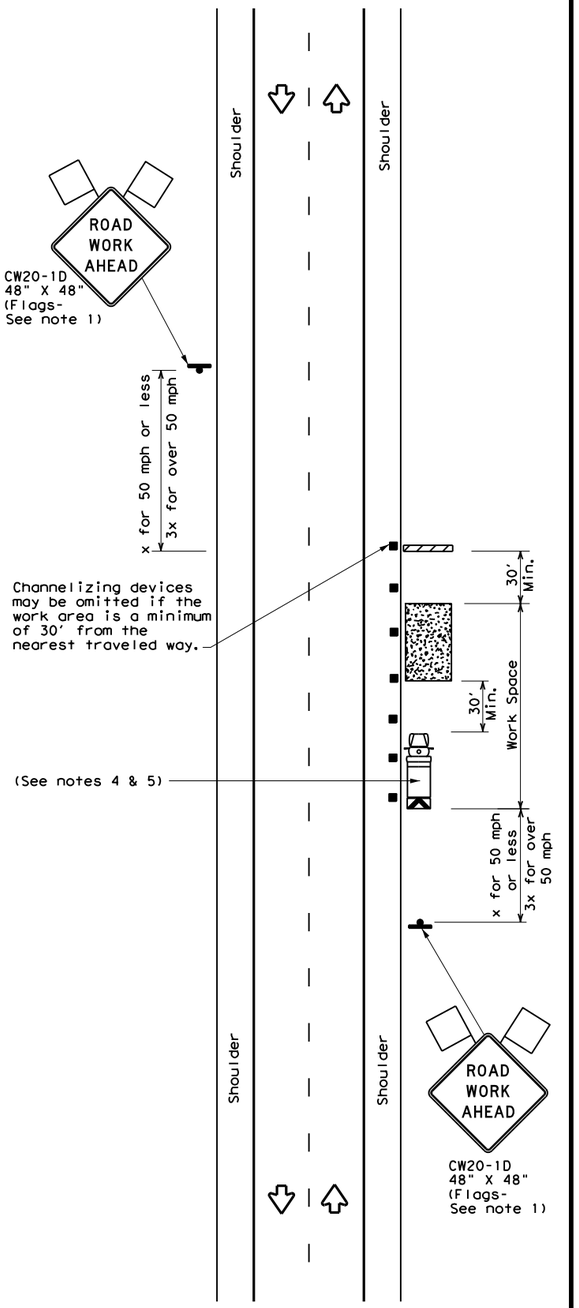
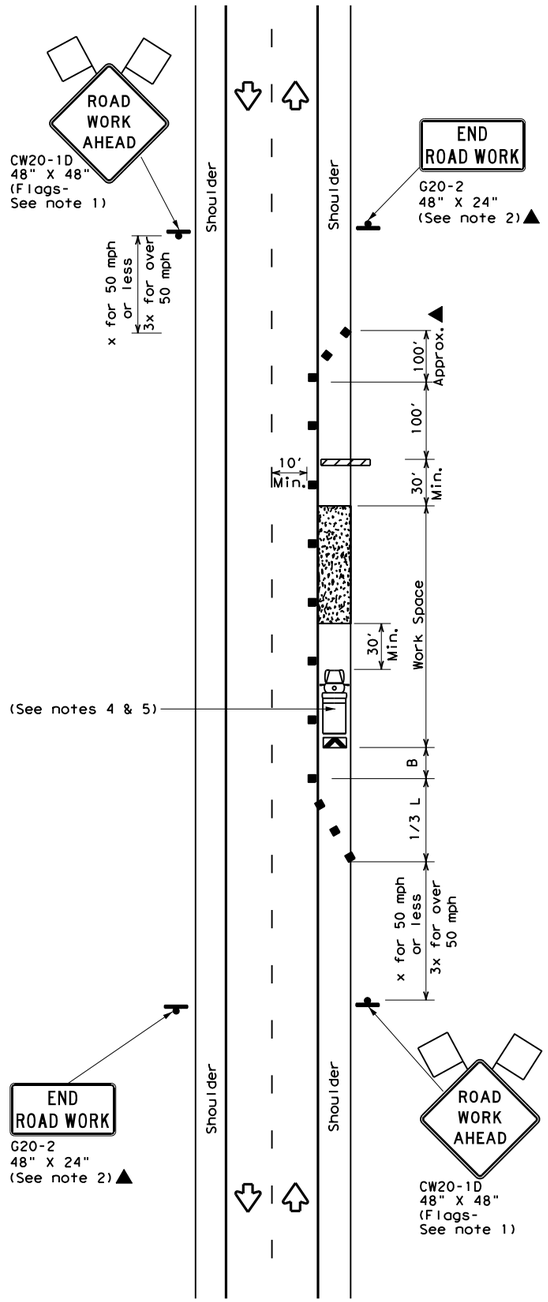


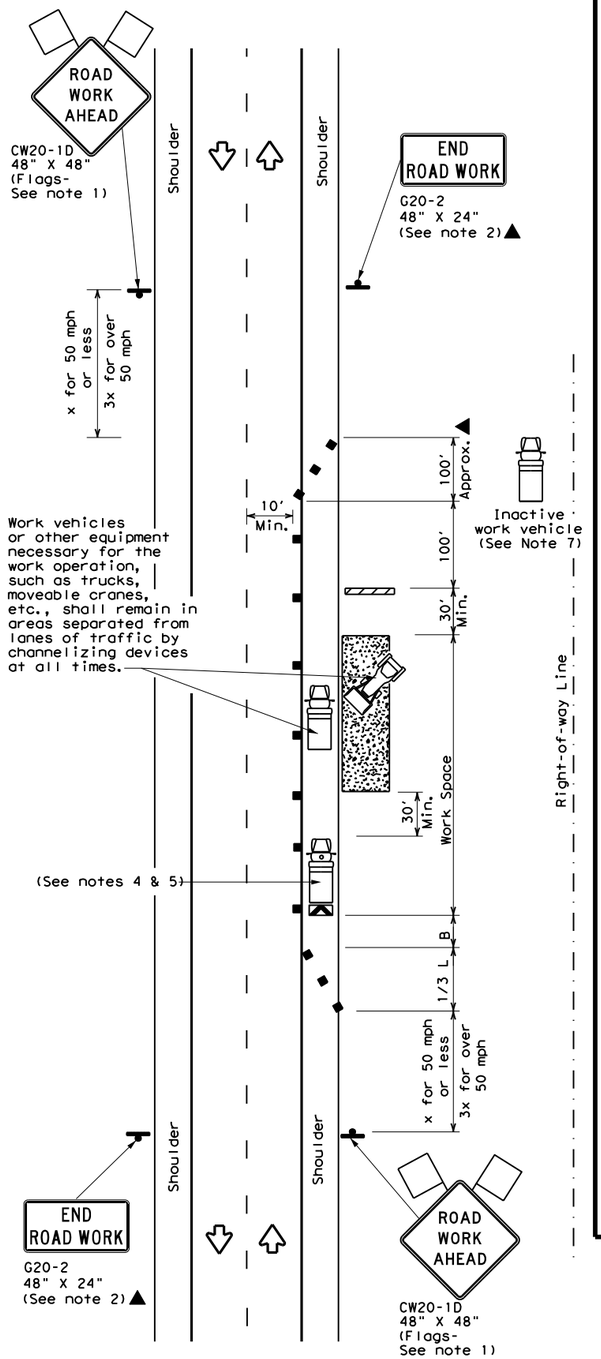
TCP (2-1a)

WORK SPACE NEAR SHOULDER
Conventional Roads



TCP (2-1b)

WORK SPACE ON SHOULDER
Conventional Roads



TCP (2-1c)

WORK VEHICLES ON SHOULDER
Conventional Roads

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

Posted Speed *	Formula	Minimum Desirable Taper Lengths ** 10' Offset	11' Offset	12' Offset	Suggested Maximum Spacing of Channelizing Devices: On a Taper	On a Tangent	Minimum Sign Spacing "X" Distance	Suggested Longitudinal Buffer Space "B"
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

1. Flags attached to signs where shown, are REQUIRED.
2. All traffic control devices illustrated are REQUIRED, except those denoted with the triangle symbol may be omitted when stated in the plans, or for routine maintenance work, when approved by the Engineer.
3. Stockpiled material should be placed a minimum of 30 feet from nearest traveled way.
4. Shadow Vehicle with TMA and high intensity rotating, flashing, oscillating or strobe lights. 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.
5. Additional Shadow Vehicles with TMAs may be positioned off the paved surface, next to those shown in order to protect a wider work space.
6. See TCP(5-1) for shoulder work on divided highways, expressways and freeways.
7. Inactive work vehicles or other equipment should be parked near the right-of-way line and not parked on the paved shoulder.
8. CW21-5 "SHOULDER WORK" signs may be used in place of CW20-1D "ROAD WORK AHEAD" signs for shoulder work on conventional roadways.

Texas Department of Transportation

Traffic Operations Division Standard

TRAFFIC CONTROL PLAN CONVENTIONAL ROAD SHOULDER WORK

TCP(2-1)-18

FILE: tcp2-1-18.dgn	DN:	CK:	DW:	CK:
© TxDOT December 1985	CONT	SECT	JOB	HIGHWAY
REVISIONS	0909	00	066	VARIOUS
2-94 4-98	DIST	COUNTY		SHEET NO.
8-95 2-12	WAC	McLENNAN, ETC.		14
1-97 2-18				

DATE: 6/10/2024 12:46:37 PM
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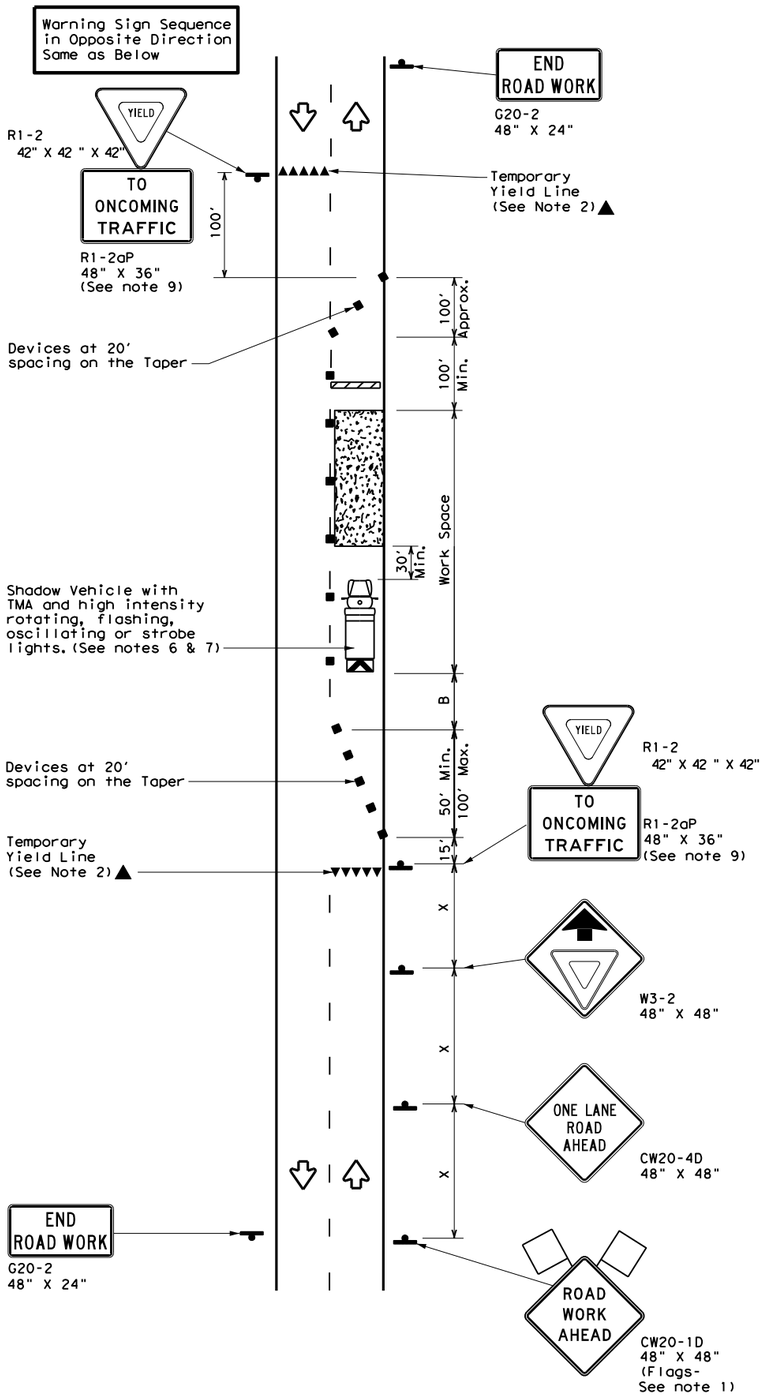
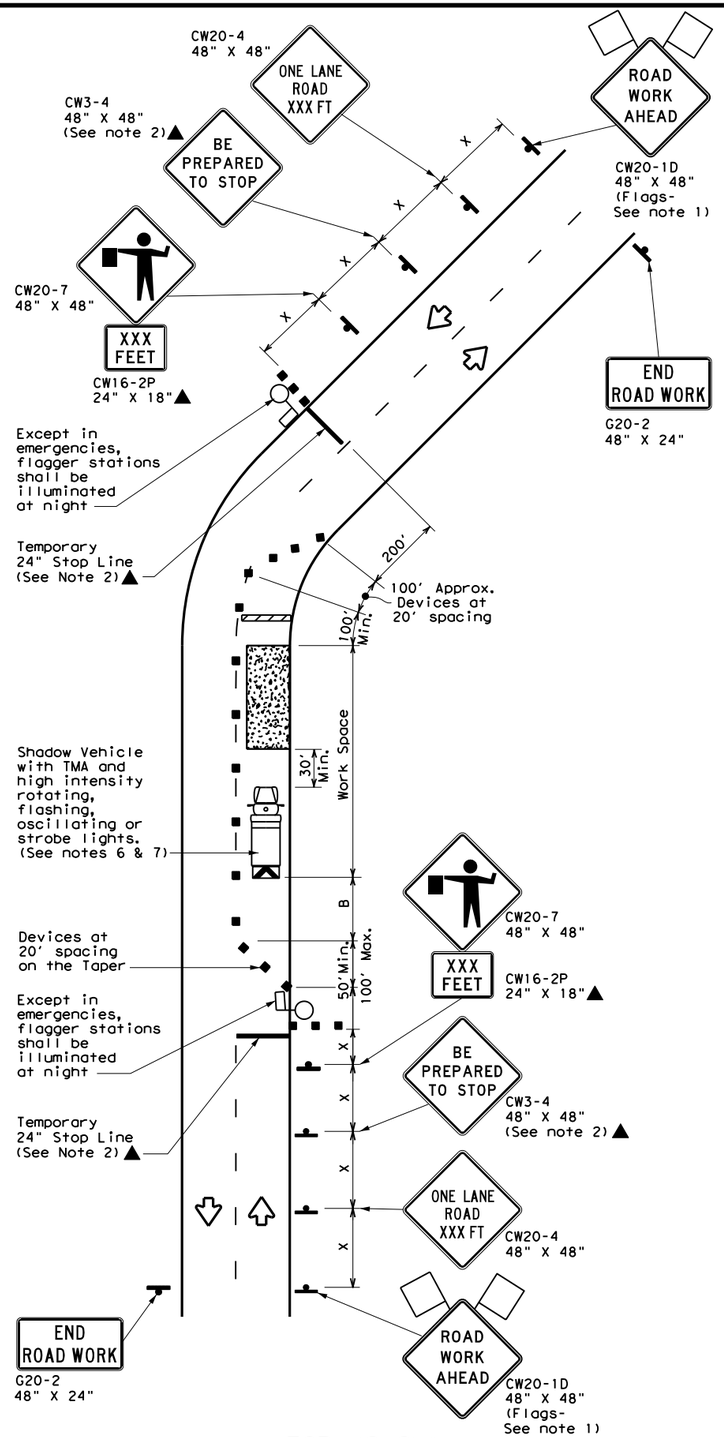


TCP (2-2a)
2-LANE ROADWAY WITHOUT PAVED SHOULDERS
ONE LANE TWO-WAY
CONTROL WITH YIELD SIGNS
(Less than 2000 ADT - See Note 9)



TCP (2-2b)
2-LANE ROADWAY WITHOUT PAVED SHOULDERS
ONE LANE TWO-WAY
CONTROL WITH FLAGGERS

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

Posted Speed *	Formula	Minimum Desirable Taper Lengths ** 10' Offset	11' Offset	12' Offset	Suggested Maximum Spacing of Channelizing Devices: On a Taper	On a Tangent	Minimum Sign Spacing "X" Distance	Suggested Longitudinal Buffer Space "B"	Stopping Sight Distance
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

1. Flags attached to signs where shown, are REQUIRED.
2. 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.
3. The CW3-4 "BE PREPARED TO STOP" sign may be installed after the CW20-4 "ONE LANE ROAD XXX FT" sign, but proper sign spacing shall be maintained.
4. Flaggers should use two-way radios or other methods of communication to control traffic.
5. Length of work space should be based on the ability of flaggers to communicate.
6. 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.
7. Additional Shadow Vehicles with TMAs may be positioned off the paved surface, next to those shown in order to protect a wider work space.

TCP (2-2a)

8. The R1-2 "YIELD" sign traffic control may be used on projects with approaches that have adequate sight distance. For projects in urban areas, work space should be no longer than one half city block. In rural areas, roadways with less than 2000 ADT, work space should be no longer than 400 feet.
9. The R1-2aP "YIELD TO ONCOMING TRAFFIC" sign shall be placed on a support at a 7 foot minimum mounting height.

TCP (2-2b)

10. Channelizing devices on the center line may be omitted when a pilot car is leading traffic and approved by the Engineer.
11. If the work space is located near a horizontal or vertical curve, the buffer distances should be increased in order to maintain stopping sight distance to the flagger and a queue of stopped vehicles. (See table above).
12. Flaggers should use 24" STOP/SLOW paddles to control traffic. Flags should be limited to emergency situtations.

Texas Department of Transportation
Traffic Operations Division Standard

TRAFFIC CONTROL PLAN ONE-LANE TWO-WAY TRAFFIC CONTROL

TCP(2-2)-18

FILE: tcp2-2-18.dgn	DN:	CK:	DW:	CK:
©TxDOT December 1985	CONT	SECT	JOB	HIGHWAY
REVISIONS 8-95 3-03 1-97 2-12 4-98 2-18	0909	00	066	VARIOUS
	DIST	COUNTY		SHEET NO.
	WAC	McLENNAN, ETC.		15

DATE: 6/10/2024 12:46:39 PM
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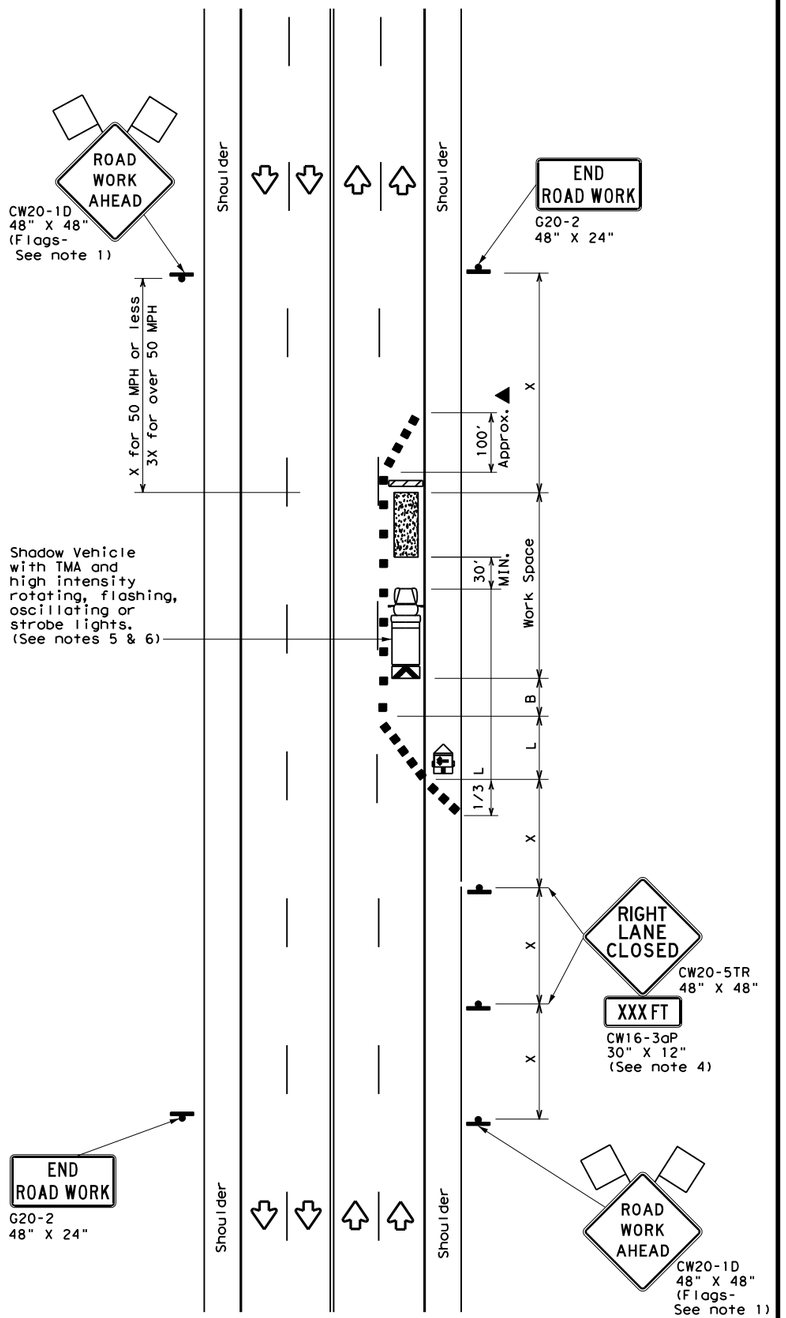
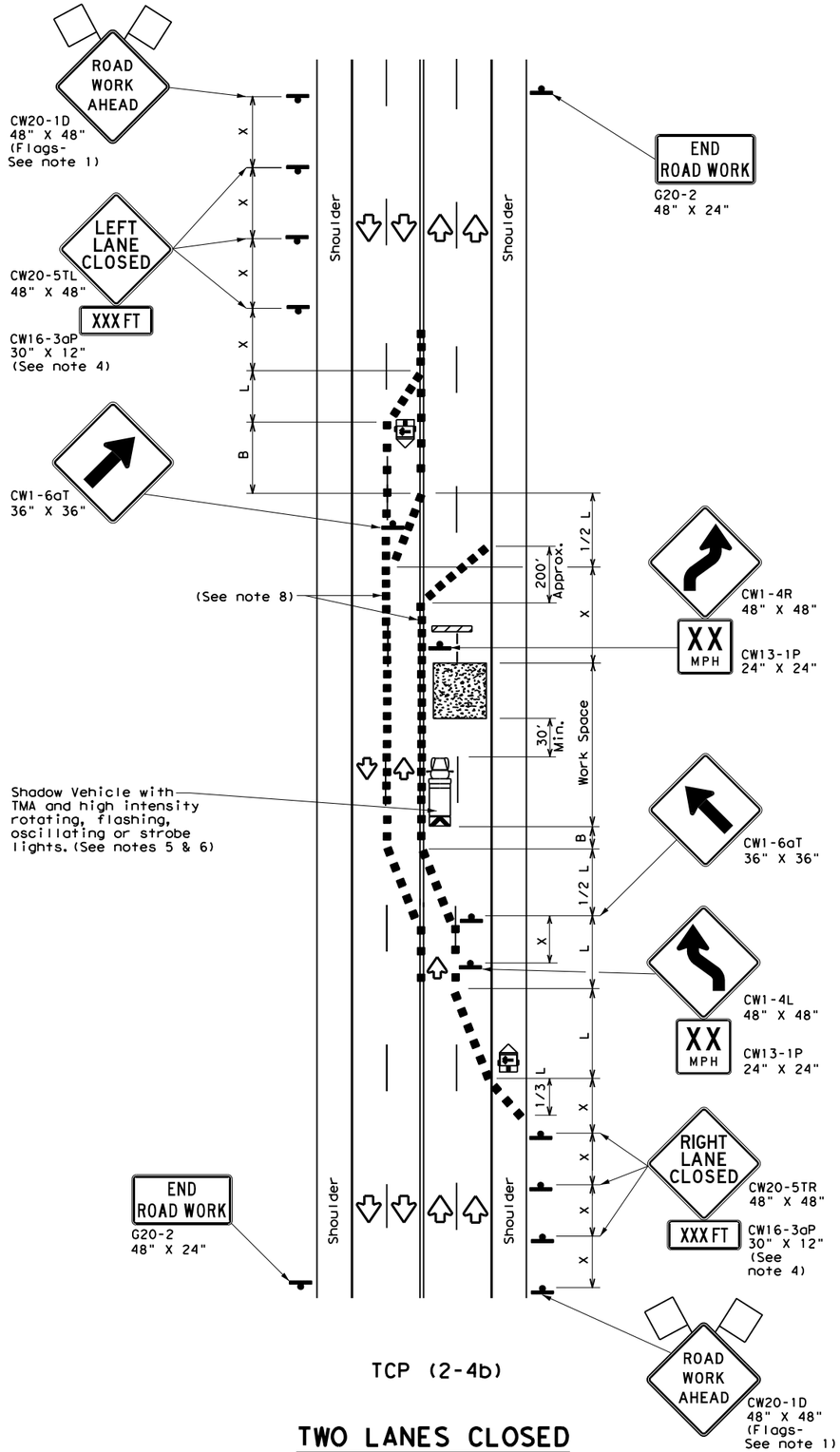


TCP (2-4a)

ONE LANE CLOSED



TCP (2-4b)

TWO LANES CLOSED

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

Posted Speed *	Formula	Minimum Desirable Taper Lengths ** 10' Offset	11' Offset	12' Offset	Suggested Maximum Spacing of Channelizing Devices: On a Taper	On a Tangent	Minimum Sign Spacing "X" Distance	Suggested Longitudinal Buffer Space "B"
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

1. Flags attached to signs where shown, are REQUIRED.
2. 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.
3. The downstream taper is optional. When used, it should be 100 feet minimum length per lane.
4. For short term applications, when post mounted signs are not used, the distance legend may be shown on the sign face rather than on a CW16-3aP supplemental plaque.
5. 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.
6. Additional Shadow Vehicles with TMAs may be positioned in each closed lane, on the shoulder or off the paved surface, next to those shown in order to protect a wider work space.

TCP (2-4a)

7. 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 to protect the work space from opposing traffic with the arrow board placed in the closed lane near the end of the merging taper.

TCP (2-4b)

8. For shorter durations 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 1/2(S) where S is the speed in mph. This tighter devices spacing is intended for the area of conflicting markings, not the entire work zone.

Texas Department of Transportation

Traffic Operations Division Standard

TRAFFIC CONTROL PLAN LANE CLOSURES ON MULTILANE CONVENTIONAL ROADS

TCP(2-4)-18

FILE: tcp2-4-18.dgn	DN:	CK:	DW:	CK:
© TxDOT December 1985	CONT	SECT	JOB	HIGHWAY
REVISIONS 8-95 3-03	0909	00	066	VARIOUS
1-97 2-12	DIST	COUNTY		SHEET NO.
4-98 2-18	WAC	McLENNAN, ETC.		16

NOTES:

1. REFER TO THE PROJECT LOCATION TABLE SHEET FOR WORK REQUIRED AT EACH LOCATION.

STATE OF TEXAS
CHARLES C. SMITH
147716
LICENSED
PROFESSIONAL ENGINEER

Charles C. Smith, P.E. 6/10/2024

SIGNATURE OF REGISTRANT & DATE

BELL COUNTY
PROJECT LOCATION MAPS
RURAL

SCALE: 1" = 1200' HORIZ. FEET

CHANGE ORDER	FED.RD. DIV. NO.	CONT	SECT	JOB	HIGHWAY
	6	0909	00	066	VARIOUS
	STATE	DIST	COUNTY		SHEET NO.
	TEXAS	WAC	McLENNAN, ETC.		17

LOCATION 2-1
US 190 @
INDIAN TRAIL DR/FRONTAGE RD
SEE NOTE 1

LOCATION 2-2
FM 2410 @ ANN BLVD
SEE NOTE 1

LOCATION 2-3
US 190 FR @ FM 2410
SEE NOTE 1

LOCATION 2-4
FM 2410 @ MILLERS CROSSING
SEE NOTE 1

LOCATION 2-5
FM 2410 @ WAMPUM DR
SEE NOTE 1

LOCATION 2-6
FM 2410 @ MOUNTAIN LION RD
SEE NOTE 1

LOCATION 2-7
FM 2410 @
FM 3481/VERNA LEE BLVD
SEE NOTE 1

LOCATION 2-8
FM 3481/STILLHOUSE LAKE RD @
PROSPECTOR TRL
SEE NOTE 1

LOCATION 2-9
FM 3481/STILLHOUSE LAKE RD @
VINEYARD TRL/CEDAR KNOB
SEE NOTE 1

NOTES:

1. REFER TO THE PROJECT LOCATION TABLE SHEET FOR WORK REQUIRED AT EACH LOCATION.

STATE OF TEXAS
CHARLES C. SMITH
147716
LICENSED
PROFESSIONAL ENGINEER

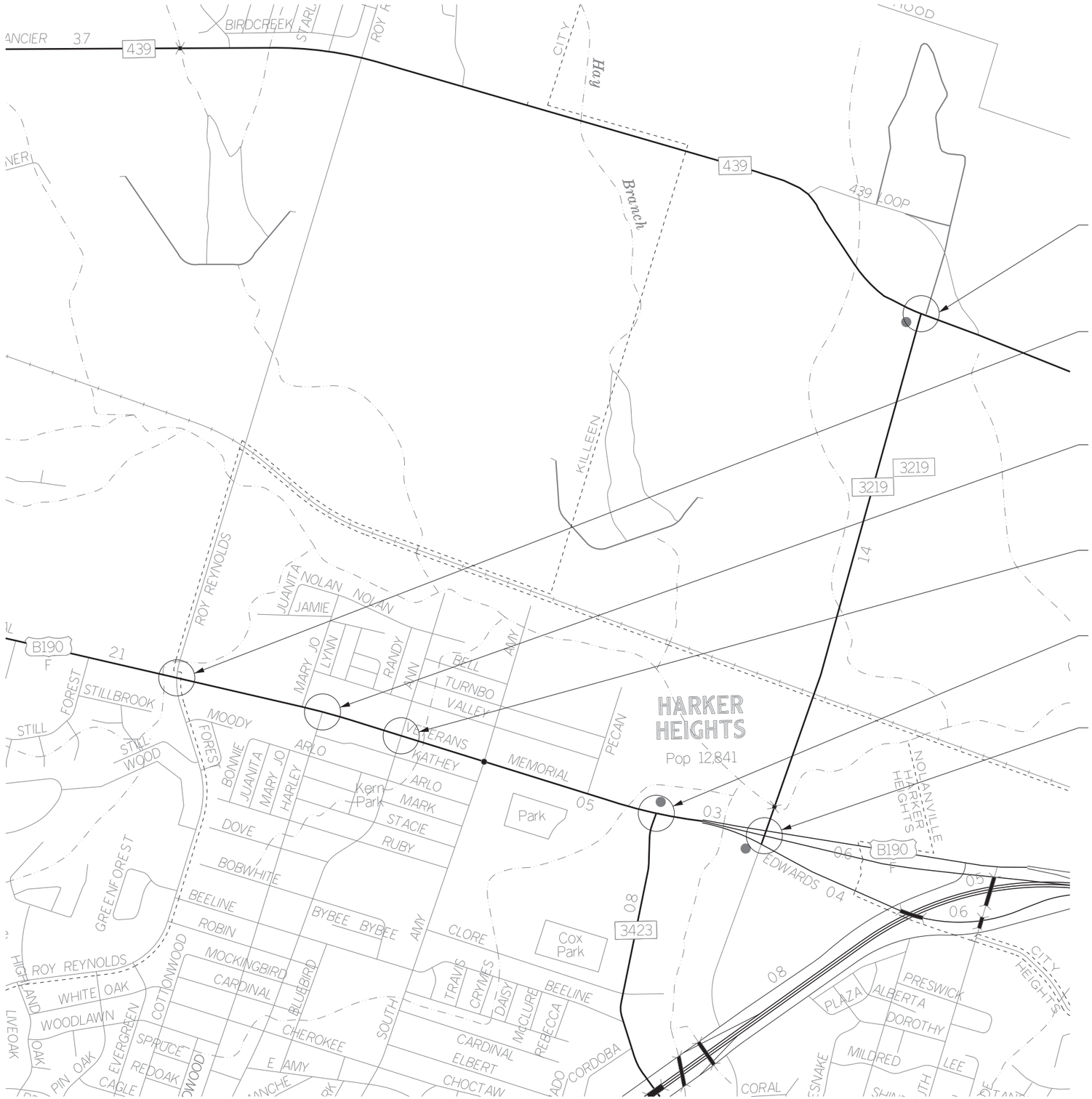
Charles C. Smith, P.E. 6/10/2024
SIGNATURE OF REGISTRANT & DATE

BELL COUNTY
PROJECT LOCATION MAPS
HARKER HEIGHTS

SCALE: 1" = 1500' HORIZ. FEET

SHEET 2 OF 3

CHANGE ORDER	FED.RD. DIV. NO.	CONT	SECT	JOB	HIGHWAY
	6	0909	00	066	VARIOUS
	STATE	DIST	COUNTY		SHEET NO.
	TEXAS	WAC	McLENNAN, ETC.		18



NOTES:

1. REFER TO THE PROJECT LOCATION TABLE SHEET FOR WORK REQUIRED AT EACH LOCATION.

LOCATION 3-1
FM 439/RANCIER AVE @ FM 3219
SEE NOTE 1

LOCATION 3-2
BUS 190 @ ROY REYNOLDS DR
SEE NOTE 1

LOCATION 3-3
BUS 190 @ HARLEY DR
SEE NOTE 1

LOCATION 3-4
BUS 190 @ ANN BLVD
SEE NOTE 1

LOCATION 3-5
BUS 190 @ FM 3423/INDIAN TRL
SEE NOTE 1

LOCATION 3-6
BUS 190 @ FM 3219
SEE NOTE 1

STATE OF TEXAS
CHARLES C. SMITH
147716
LICENSED
PROFESSIONAL ENGINEER

Charles C. Smith, P.E. 6/10/2024

SIGNATURE OF REGISTRANT & DATE

BELL COUNTY
PROJECT LOCATION MAPS

HARKER HEIGHTS

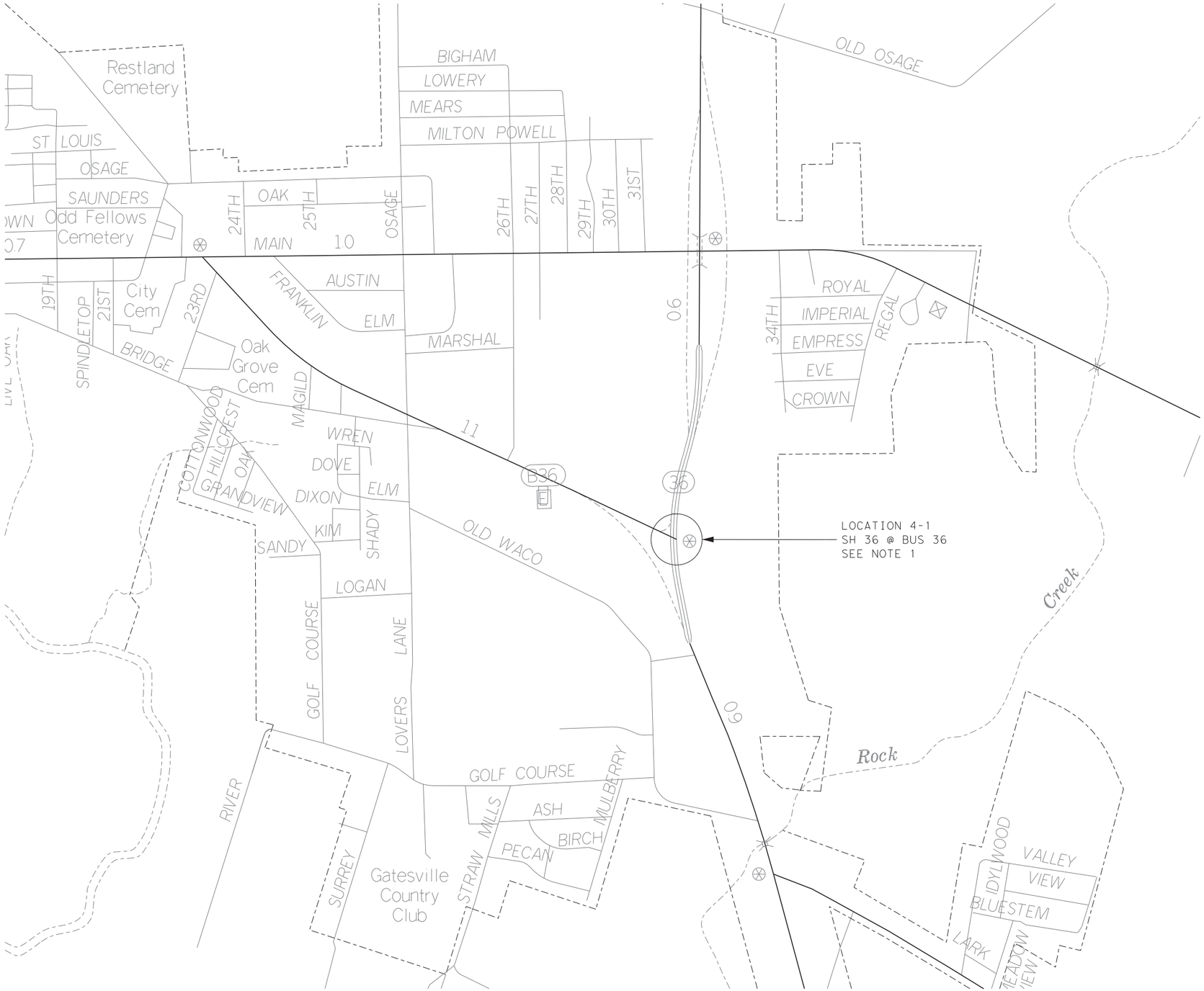
SCALE: 1" = 1500' HORIZ. FEET

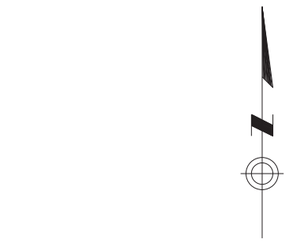
SHEET 3 OF 3

CHANGE ORDER	FED.RD. DIV. NO.	CONT	SECT	JOB	HIGHWAY
	6	0909	00	066	VARIOUS
	STATE	DIST	COUNTY		SHEET NO.
	TEXAS	WAC	McLENNAN, ETC.		19

NOTES:

1. REFER TO THE PROJECT LOCATION TABLE SHEET FOR WORK REQUIRED AT EACH LOCATION.





Charles C. Smith, P.E. 6/10/2024

SIGNATURE OF REGISTRANT & DATE

CORYELL COUNTY PROJECT LOCATION MAPS

GATESVILLE

SCALE: FEET
1" = 1200' HORIZ.

SHEET 1 OF 4

CHANGE ORDER	FED. RD. DIV. NO.	CONT	SECT	JOB	HIGHWAY
	6	0909	00	066	VARIOUS
	STATE	DIST	COUNTY		SHEET NO.
	TEXAS	WAC	McLENNAN, ETC.		20

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NOTES:

1. REFER TO THE PROJECT LOCATION TABLE SHEET FOR WORK REQUIRED AT EACH LOCATION.

LOCATION 5-1
FM 116 @ LUTHERAN CHURCH RD
SEE NOTE 1

LOCATION 5-2
FM 116 @ SH 9
SEE NOTE 1

LUTHERAN CHURCH
WOODLAND
MERLE
116
House Creek
FORT
MILITARY
PINTO
BRONC
HALTER
SORREL
CHESTNUT
SPUR
BLANKET
BRIDGE
CACTUS
LOCUST
CEDAR
OAK
NORTHERN
MAPLE
HICKORY
STAGECOACH
KAREN SUE
LANTERN
HICKORY
WALNUT
WINDOW
MARY JANE
EDGEMERE
City Park
FAIRBANKS
JANET
LINDA
ROB
COURTNEY
23RD
MICHELLE
19TH
KELLY
DRYDEN
MARILYN
BELINDA
TOPSEY
21ST
19TH
17TH
HILL
15TH
13TH
LINCOLN
11TH
TRACI
7TH
3RD
SHERMAN
KIELMAN
WASHINGTON
JODI LN
FORT HOOD BOUNDARY
JANUARY
ZARLEY
NELSON
BLANCAS
BLACKBERRY
MAIN

STATE OF TEXAS
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147716
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PROFESSIONAL ENGINEER

Charles C. Smith, P.E. 6/10/2024
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CORYELL COUNTY
PROJECT LOCATION MAPS
COPPERAS COVE

SCALE: 1" = 1200' HORIZ. FEET

SHEET 2 OF 4

CHANGE ORDER	FED. RD. DIV. NO.	CONT	SECT	JOB	HIGHWAY
	6	0909	00	066	VARIOUS
	STATE	DIST	COUNTY		SHEET NO.
	TEXAS	WAC	McLENNAN, ETC.		21

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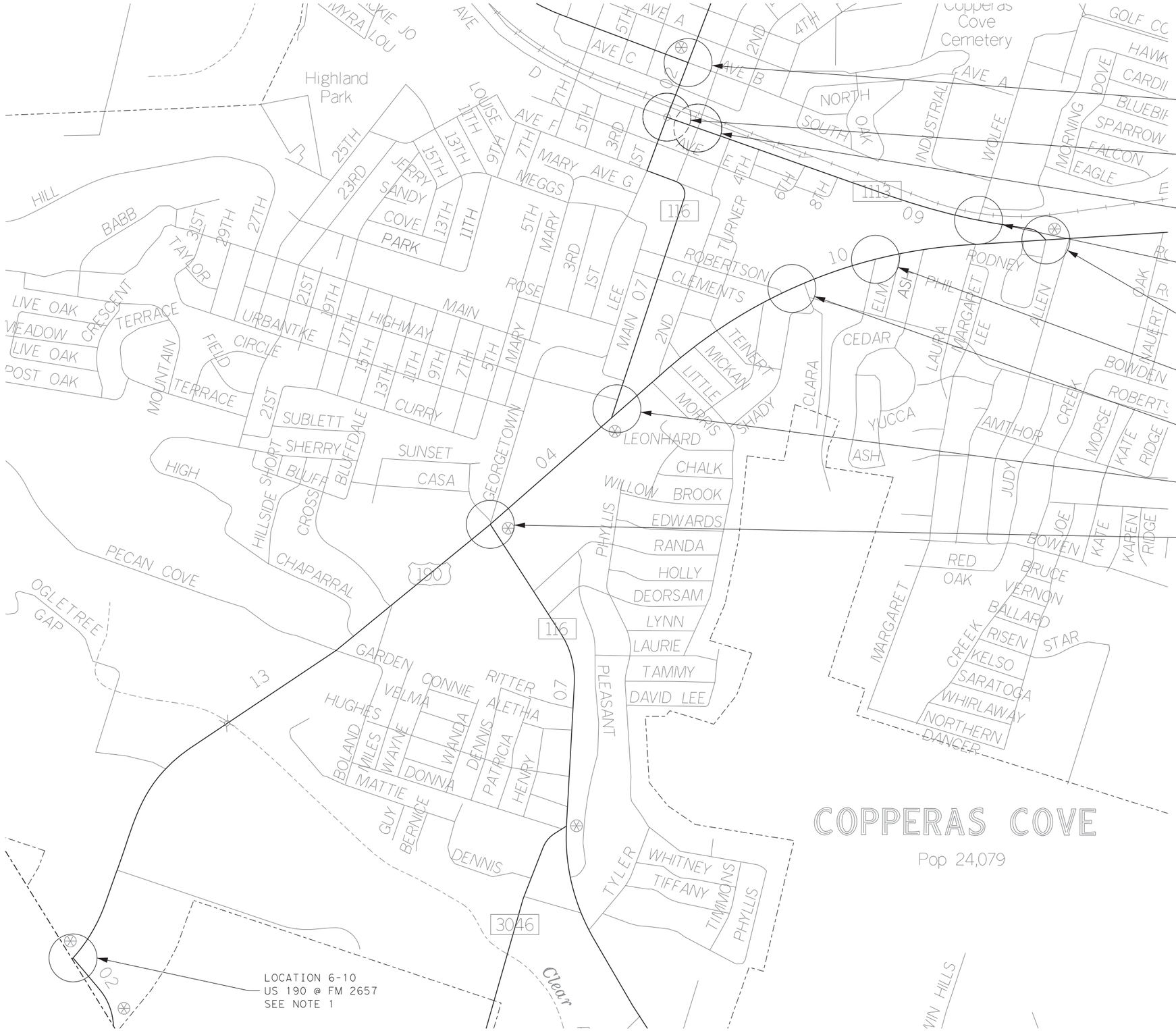

NOTES:

1. REFER TO THE PROJECT LOCATION TABLE SHEET FOR WORK REQUIRED AT EACH LOCATION.

LOCATION 6-1
FM 116 @ FM 1113/AVENUE B
SEE NOTE 1

LOCATION 6-2
FM 116/1ST ST @ FM 1113/AVE D
SEE NOTE 1

LOCATION 6-3
FM 1113/AVE D @ MAIN ST
SEE NOTE 1

LOCATION 6-4
FM 1113/AVE D @ WOLF RD
SEE NOTE 1

LOCATION 6-5
FM 1113/AVE D @ BUS 190
SEE NOTE 1

LOCATION 6-6
BUS 190 @ ELM ST
SEE NOTE 1

LOCATION 6-7
BUS 190 @ ROBERTSON AVE
SEE NOTE 1

LOCATION 6-8
BUS 190 @ FM 116/LEONHARD ST/MAIN ST
SEE NOTE 1

LOCATION 6-9
BUS 190 @ FM 116/GEORGETOWN RD
SEE NOTE 1

STATE OF TEXAS
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CORYELL COUNTY
PROJECT LOCATION MAPS
COPPERAS COVE

SCALE: 1" = 1200' HORIZ. FEET

SHEET 3 OF 4

CHANGE ORDER	FED. RD. DIV. NO.	CONT	SECT	JOB	HIGHWAY
	6	0909	00	066	VARIOUS
	STATE	DIST	COUNTY		SHEET NO.
	TEXAS	WAC	McLENNAN, ETC.		22

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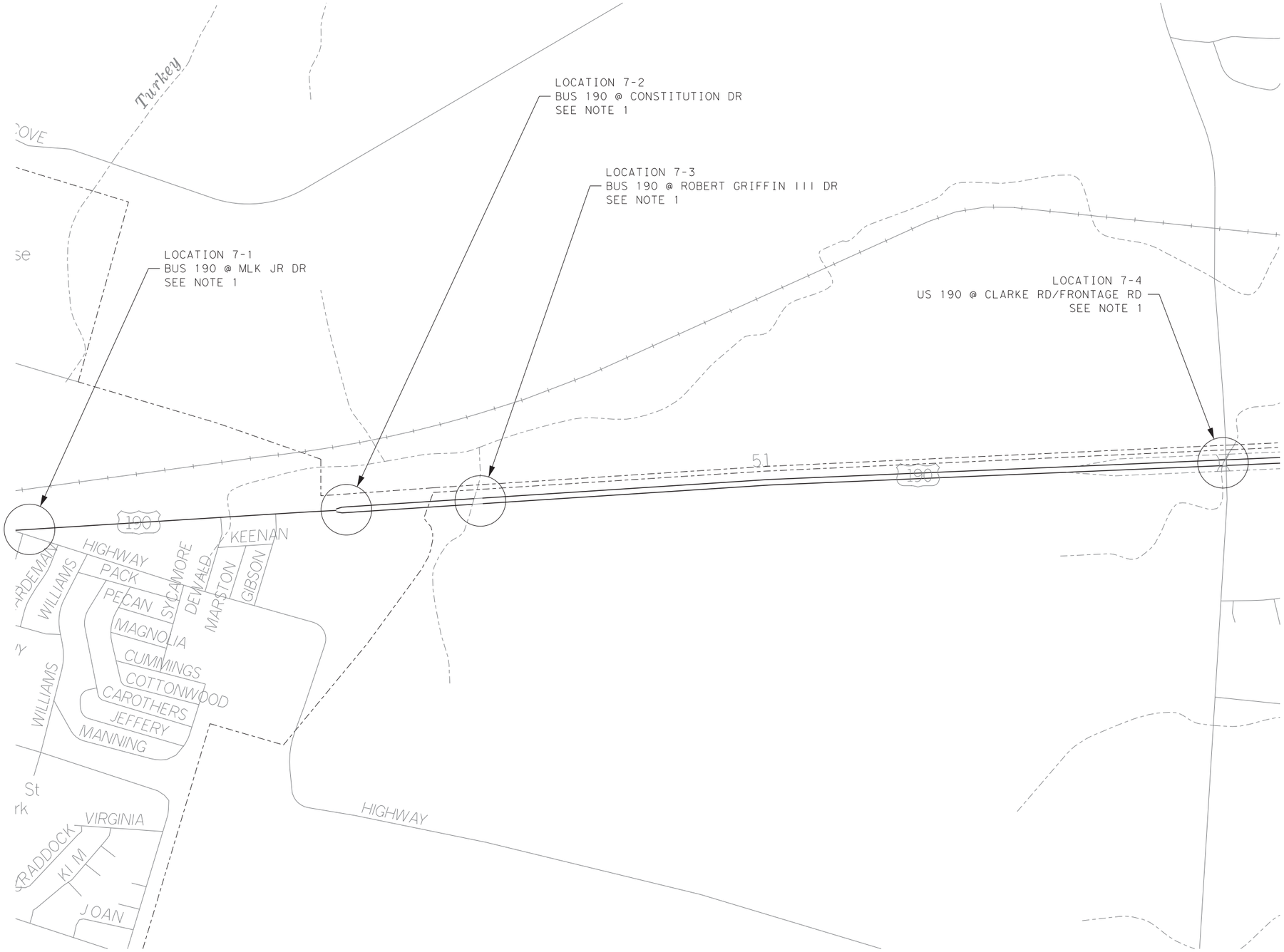

NOTES:

1. REFER TO THE PROJECT LOCATION TABLE SHEET FOR WORK REQUIRED AT EACH LOCATION.

STATE OF TEXAS
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CORYELL COUNTY
PROJECT LOCATION MAPS

COPPERAS COVE

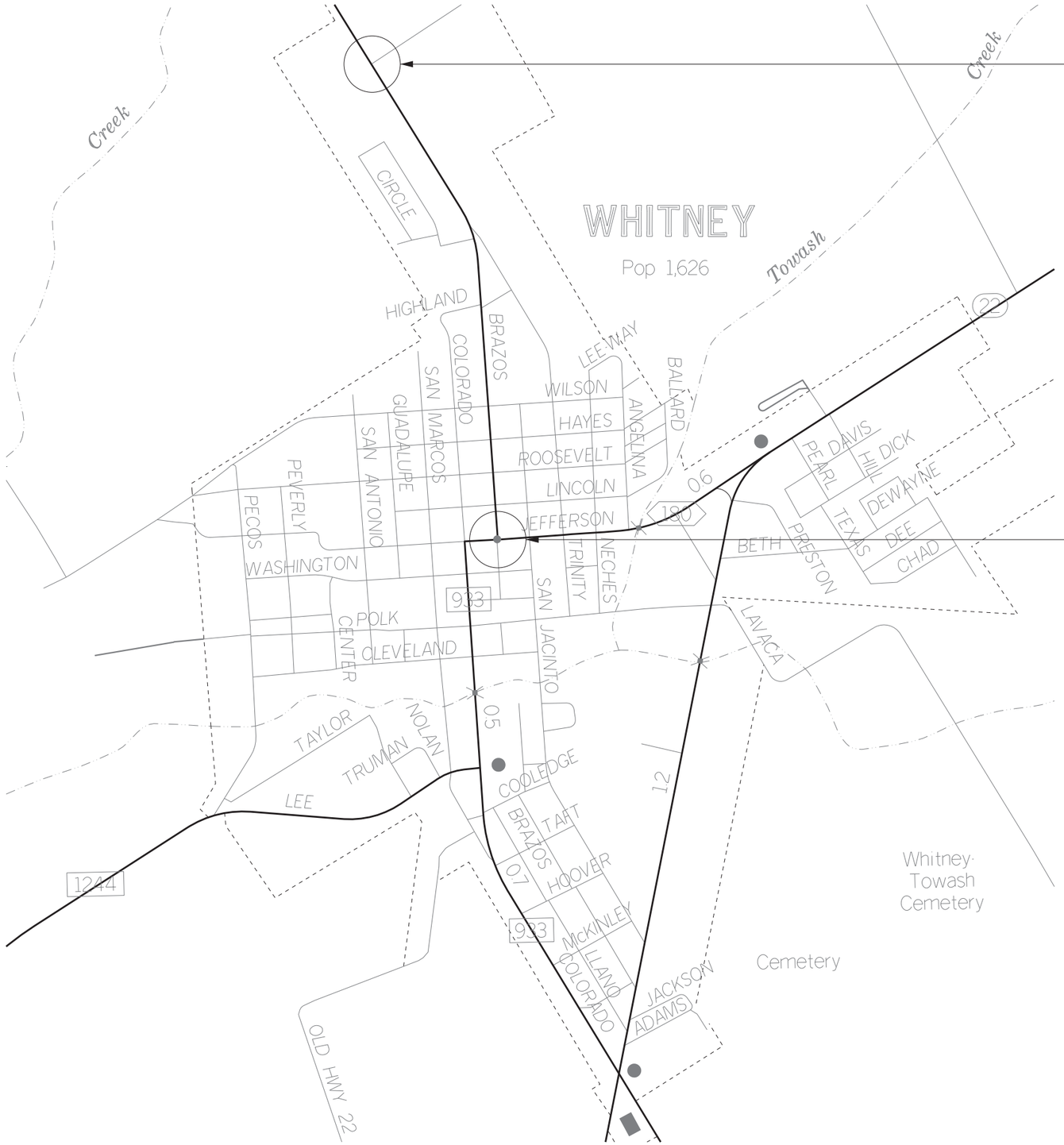
SCALE: FEET
1" = 1200' HORIZ.

SHEET 4 OF 4

CHANGE ORDER	FED. RD. DIV. NO.	CONT	SECT	JOB	HIGHWAY
	6	0909	00	066	VARIOUS
	STATE	DIST	COUNTY		SHEET NO.
	TEXAS	WAC	McLENNAN, ETC.		23

NOTES:

1. REFER TO THE PROJECT LOCATION TABLE SHEET FOR WORK REQUIRED AT EACH LOCATION.



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HILL COUNTY
PROJECT LOCATION MAPS

WHITNEY

SCALE: 1" = 1200' HORIZ. FEET

SHEET 1 OF 4

CHANGE ORDER	FED. RD. DIV. NO.	CONT	SECT	JOB	HIGHWAY
	6	0909	00	066	VARIOUS
	STATE	DIST	COUNTY		SHEET NO.
	TEXAS	WAC	McLENNAN, ETC.		24

NOTES:

1. REFER TO THE PROJECT LOCATION TABLE SHEET FOR WORK REQUIRED AT EACH LOCATION.

STATE OF TEXAS
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HILL COUNTY
PROJECT LOCATION MAPS

HILLSBORO

SCALE: 1" = 1200' HORIZ. FEET

SHEET 2 OF 4

CHANGE ORDER	FED.RD. DIV. NO.	CONT	SECT	JOB	HIGHWAY
	6	0909	00	066	VARIOUS
	STATE	DIST	COUNTY		SHEET NO.
	TEXAS	WAC	McLENNAN, ETC.		25

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LOCATION 10-1
SH 22/ELM ST HWY @ 171 HOUSTON ST
SEE NOTE 1

LOCATION 10-2
SH 81/WACO ST @ FRANKLIN ST
SEE NOTE 1

LOCATION 10-3
SH 22/ELM @ COVINGTON ST
SEE NOTE 1

LOCATION 10-4
SH 81/WACO ST @ SH22/ELM ST
SEE NOTE 1

LOCATION 10-5
SH 81/WACO ST @ WALNUT ST
SEE NOTE 1

LOCATION 10-6
SH 22/CORSICANA HWY @ SH 81
SEE NOTE 1

NOTES:

1. REFER TO THE PROJECT LOCATION TABLE SHEET FOR WORK REQUIRED AT EACH LOCATION.

STATE OF TEXAS
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Charles C. Smith, P.E. 6/13/2024

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HILL COUNTY PROJECT LOCATION MAPS

HILLSBORO

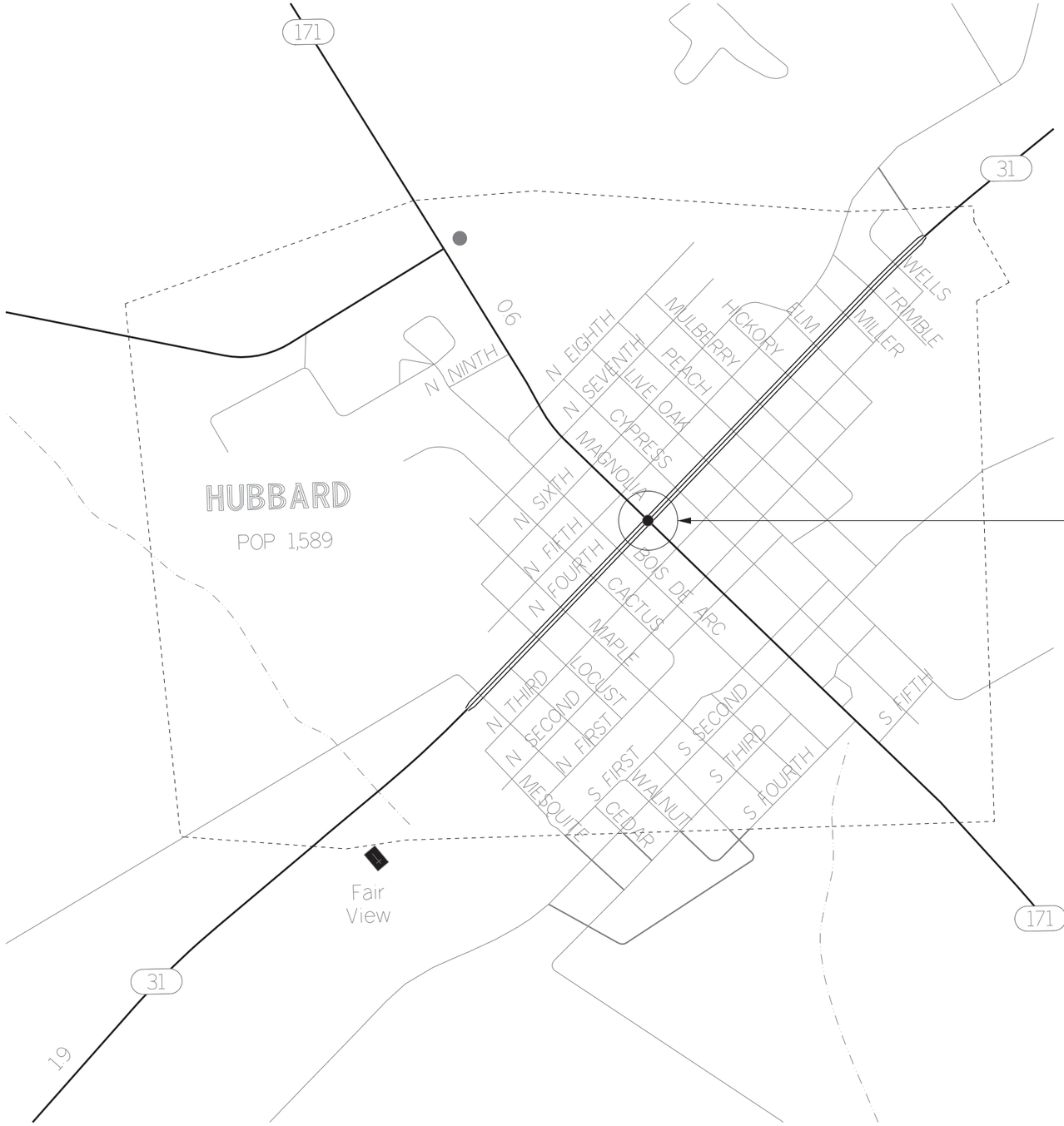
SCALE: FEET
1" = 1200' HORIZ.

SHEET 3 OF 4

CHANGE ORDER	FED. RD. DIV. NO.	CONT	SECT	JOB	HIGHWAY
	6	0909	00	066	VARIOUS
	STATE	DIST		COUNTY	SHEET NO.
	TEXAS	WAC		McLENNAN, ETC.	26

NOTES:

1. REFER TO THE PROJECT LOCATION TABLE SHEET FOR WORK REQUIRED AT EACH LOCATION.



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HILL COUNTY
PROJECT LOCATION MAPS

HUBBARD

SCALE: 1" = 1200' HORIZ. FEET

SHEET 4 OF 4

CHANGE ORDER	FED. RD. DIV. NO.	CONT	SECT	JOB	HIGHWAY
	6	0909	00	066	VARIOUS
	STATE	DIST	COUNTY		SHEET NO.
	TEXAS	WAC	McLENNAN, ETC.		27

NOTES:

1. REFER TO THE PROJECT LOCATION TABLE SHEET FOR WORK REQUIRED AT EACH LOCATION.

STATE OF TEXAS
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Charles C. Smith, P.E. 6/13/2024

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LIMESTONE COUNTY PROJECT LOCATION MAPS

GROESBECK

SCALE: 1" = 1500' HORIZ. FEET

SHEET 1 OF 1

CHANGE ORDER	FED. RD. DIV. NO.	CONT	SECT	JOB	HIGHWAY
	6	0909	00	066	VARIOUS
	STATE	DIST	COUNTY		SHEET NO.
	TEXAS	WAC	McLENNAN, ETC.		28

NOTES:

1. REFER TO THE PROJECT LOCATION TABLE SHEET FOR WORK REQUIRED AT EACH LOCATION.

STATE OF TEXAS
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McLENNAN COUNTY PROJECT LOCATION MAPS

MOODY

SCALE: 1" = 1000' HORIZ. FEET

SHEET 1 OF 11

CHANGE ORDER	FED. RD. DIV. NO.	CONT	SECT	JOB	HIGHWAY
	6	0909	00	066	VARIOUS
	STATE	DIST	COUNTY		SHEET NO.
	TEXAS	WAC	McLENNAN, ETC.		29

NODE

NOTES:

1. REFER TO THE PROJECT LOCATION TABLE SHEET FOR WORK REQUIRED AT EACH LOCATION.

STATE OF TEXAS
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Charles C. Smith, P.E. 6/13/2024

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McLENNAN COUNTY PROJECT LOCATION MAPS

RIESEL

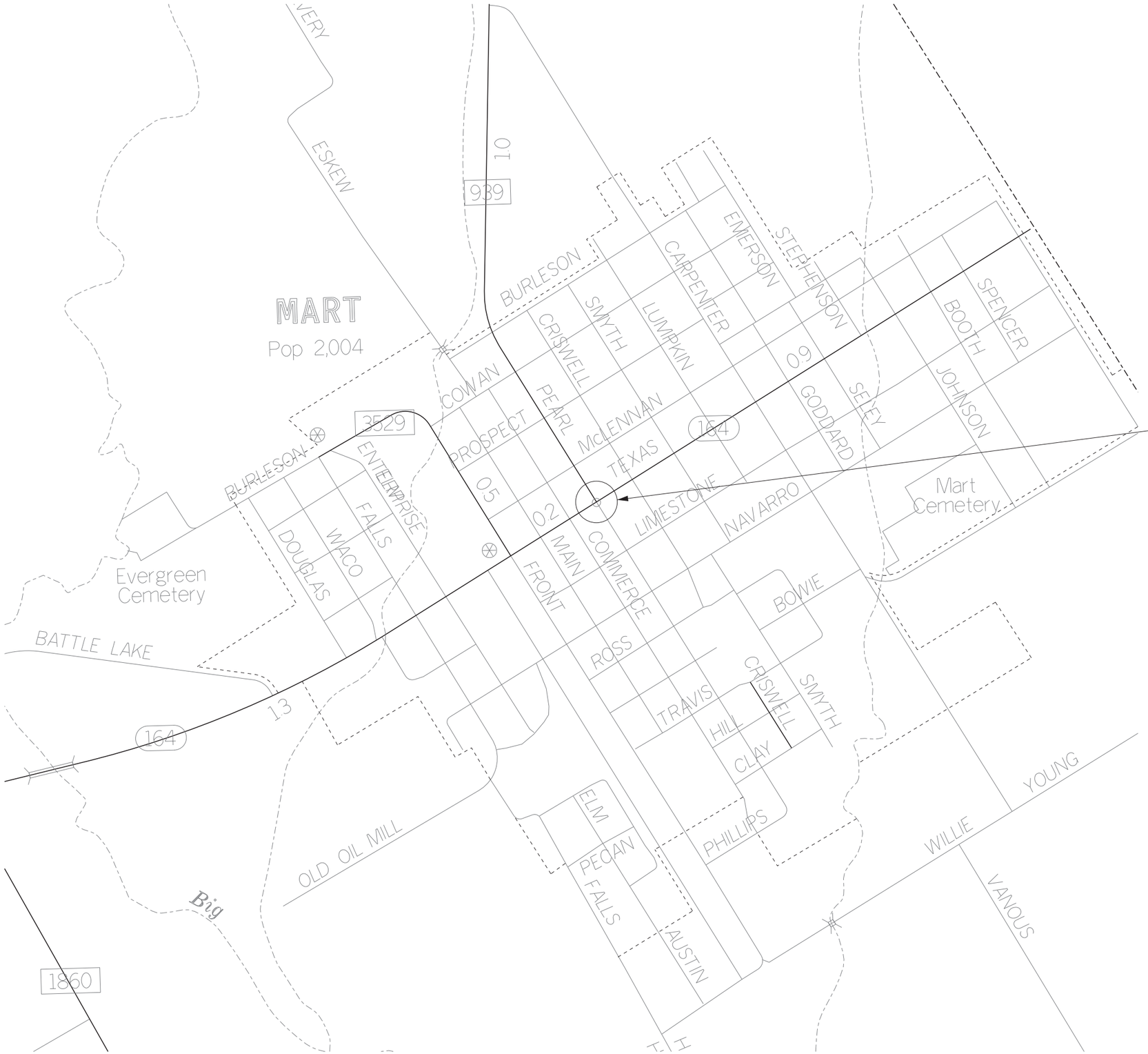
SCALE: 1" = 1000' HORIZ. FEET

SHEET 2 OF 11

CHANGE ORDER	FED. RD. DIV. NO.	CONT	SECT	JOB	HIGHWAY
	6	0909	00	066	VARIOUS
	STATE	DIST	COUNTY		SHEET NO.
	TEXAS	WAC	McLENNAN, ETC.		30

NOTES:

1. REFER TO THE PROJECT LOCATION TABLE SHEET FOR WORK REQUIRED AT EACH LOCATION.



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McLENNAN COUNTY PROJECT LOCATION MAPS

MART

SCALE: 1" = 1000' HORIZ. FEET

SHEET 3 OF 11

CHANGE ORDER	FED.RD. DIV. NO.	CONT	SECT	JOB	HIGHWAY
	6	0909	00	066	VARIOUS
	STATE	DIST	COUNTY		SHEET NO.
	TEXAS	WAC	McLENNAN, ETC.		31

NOTES:

1. REFER TO THE PROJECT LOCATION TABLE SHEET FOR WORK REQUIRED AT EACH LOCATION.

LOCATION 16-1
FM 308 @ I-35 FRONTAGE RD
SEE NOTE 1

STATE OF TEXAS
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Charles C. Smith, P.E. 6/13/2024

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McLENNAN COUNTY PROJECT LOCATION MAPS

ELM MOTT

SCALE: 1" = 1000' HORIZ. FEET

SHEET 4 OF 11

CHANGE ORDER	FED. RD. DIV. NO.	CONT	SECT	JOB	HIGHWAY
	6	0909	00	066	VARIOUS
	STATE	DIST	COUNTY		SHEET NO.
	TEXAS	WAC	McLENNAN, ETC.		32

NODE

NOTES:

1. REFER TO THE PROJECT LOCATION TABLE SHEET FOR WORK REQUIRED AT EACH LOCATION.

LOCATION 17-1
FM 1637 @ BOB JOHNSON RD
SEE NOTE 1

STATE OF TEXAS
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Charles C. Smith, P.E. 6/13/2024
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McLENNAN COUNTY PROJECT LOCATION MAPS

CHINA SPRING

SCALE: 1" = 1000' HORIZ. FEET

SHEET 5 OF 11

CHANGE ORDER	FED. RD. DIV. NO.	CONT	SECT	JOB	HIGHWAY
	6	0909	00	066	VARIOUS
	STATE	DIST	COUNTY		SHEET NO.
	TEXAS	WAC	McLENNAN, ETC.		33

NOTES:

1. REFER TO THE PROJECT LOCATION TABLE SHEET FOR WORK REQUIRED AT EACH LOCATION.

STATE OF TEXAS
CHARLES C. SMITH
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Charles C. Smith, P.E. 6/13/2024

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McLENNAN COUNTY PROJECT LOCATION MAPS

SPEEGLEVILLE

SCALE: 1" = 1000' HORIZ. FEET

SHEET 6 OF 11

CHANGE ORDER	FED. RD. DIV. NO.	CONT	SECT	JOB	HIGHWAY
	6	0909	00	066	VARIOUS
	STATE	DIST	COUNTY		SHEET NO.
	TEXAS	WAC	McLENNAN, ETC.		34

NOTES:

1. REFER TO THE PROJECT LOCATION TABLE SHEET FOR WORK REQUIRED AT EACH LOCATION.

LOCATION 19-1
US 84 @ AVIATION PKWY
SEE NOTE 1

STATE OF TEXAS
CHARLES C. SMITH
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McLENNAN COUNTY PROJECT LOCATION MAPS

WACO

SCALE: 1" = 1000' HORIZ. FEET

SHEET 7 OF 11

CHANGE ORDER	FED. RD. DIV. NO.	CONT	SECT	JOB	HIGHWAY
	6	0909	00	066	VARIOUS
	STATE	DIST	COUNTY		SHEET NO.
	TEXAS	WAC	McLENNAN, ETC.		35

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NODE

NOTES:

1. REFER TO THE PROJECT LOCATION TABLE SHEET FOR WORK REQUIRED AT EACH LOCATION.

CHARLES C. SMITH
147716
LICENSED PROFESSIONAL ENGINEER
STATE OF TEXAS

Charles C. Smith, P.E. 6/13/2024

SIGNATURE OF REGISTRANT & DATE

McLENNAN COUNTY PROJECT LOCATION MAPS

BEVERLY HILLS

SCALE: 1" = 1000' HORIZ. FEET

SHEET 8 OF 11

CHANGE ORDER	FED. RD. DIV. NO.	CONT	SECT	JOB	HIGHWAY
	6	0909	00	066	VARIOUS
	STATE	DIST	COUNTY		SHEET NO.
	TEXAS	WAC	McLENNAN, ETC.		36

NOTES:

1. REFER TO THE PROJECT LOCATION TABLE SHEET FOR WORK REQUIRED AT EACH LOCATION.

STATE OF TEXAS
CHARLES C. SMITH
147716
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Charles C. Smith, P.E. 6/13/2024

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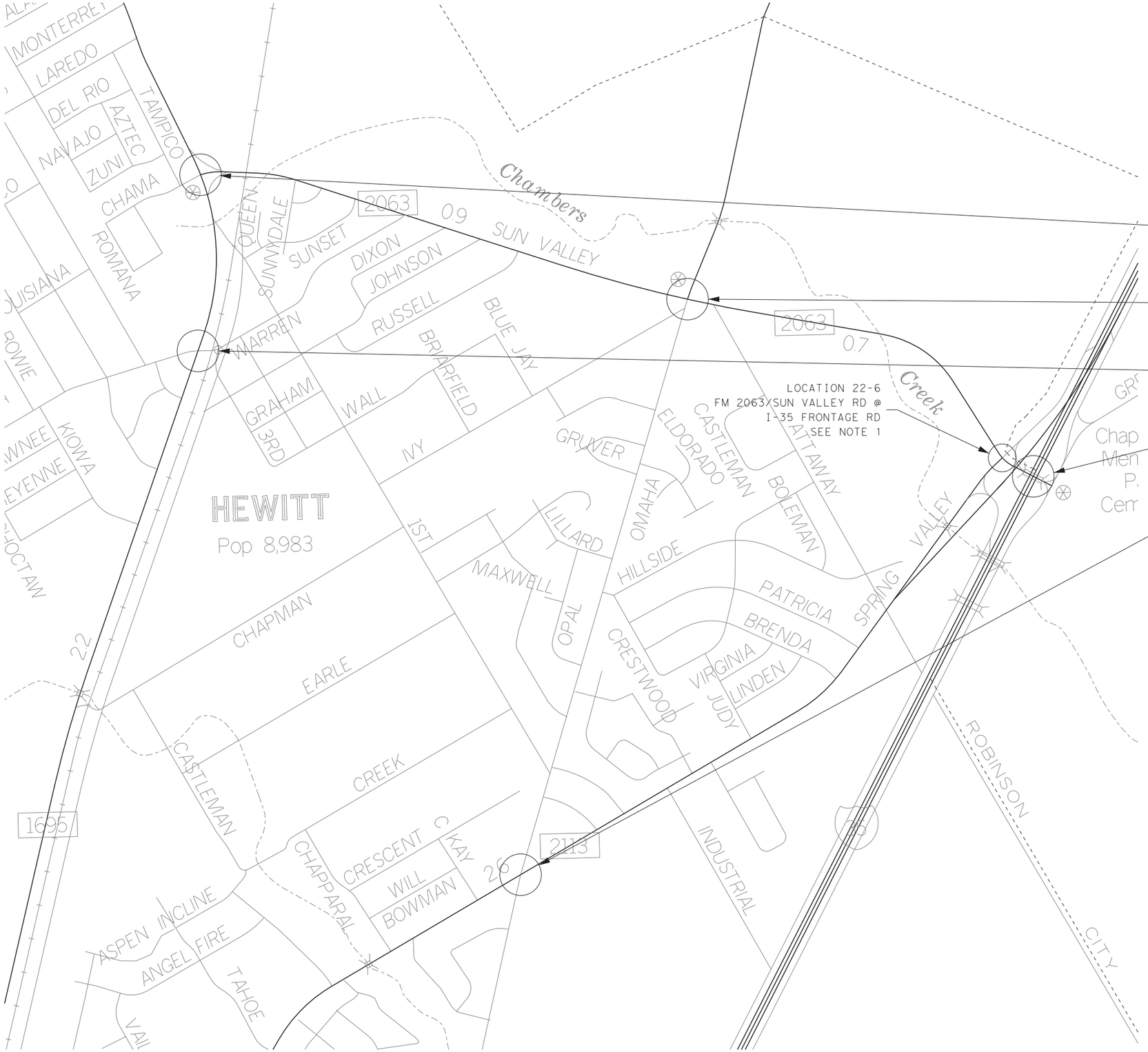
McLENNAN COUNTY PROJECT LOCATION MAPS

HEWITT

SCALE: FEET
1" = 1000' HORIZ.

SHEET 9 OF 11

CHANGE ORDER	FED. RD. DIV. NO.	CONT	SECT	JOB	HIGHWAY
	6	0909	00	066	VARIOUS
	STATE	DIST	COUNTY		SHEET NO.
	TEXAS	WAC	McLENNAN, ETC.		37



NOTES:

1. REFER TO THE PROJECT LOCATION TABLE SHEET FOR WORK REQUIRED AT EACH LOCATION.

LOCATION 22-1
FM 1695/HEWITT DR @ FM 2063
SEE NOTE 1

LOCATION 22-2
FM 3476/BAGBY AVE @ FM 2063/SUN VALLEY BLVD
SEE NOTE 1

LOCATION 22-3
FM 1695 @ WARREN ST
SEE NOTE 1

LOCATION 22-4
FM 2063/SUN VALLEY RD @ I-35 FRONTAGE RD
SEE NOTE 1

LOCATION 22-5
FM 2113/SPRING VALLEY RD @ OLD TEMPLE RD
SEE NOTE 1

STATE OF TEXAS
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McLENNAN COUNTY PROJECT LOCATION MAPS

HEWITT

SCALE: 1" = 1000' HORIZ. FEET

SHEET 10 OF 11

CHANGE ORDER	FED.RD. DIV. NO.	CONT	SECT	JOB	HIGHWAY
	6	0909	00	066	VARIOUS
	STATE	DIST	COUNTY		SHEET NO.
	TEXAS	WAC	McLENNAN, ETC.		38

NOTES:

1. REFER TO THE PROJECT LOCATION TABLE SHEET FOR WORK REQUIRED AT EACH LOCATION.

LOCATION 23-1
FM 2113/SPRING VALLEY RD @
FM 1695/FRONTAGE RD (HEWITT DR)
SEE NOTE 1

LOCATION 23-2
FM 2113/SPRING VALLEY RD @ FM 2837
SEE NOTE 1

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McLENNAN COUNTY PROJECT LOCATION MAPS

HEWITT

SCALE: 1" = 1000' HORIZ. FEET

SHEET 11 OF 11

CHANGE ORDER	FED. RD. DIV. NO.	CONT	SECT	JOB	HIGHWAY
	6	0909	00	066	VARIOUS
	STATE	DIST	COUNTY		SHEET NO.
	TEXAS	WAC	McLENNAN, ETC.		39

NOTES:

1. REFER TO THE CONSOLIDATED SUMMARIES SHEET FOR PROJECT TOTALS
2. VARIOUS LOCATIONS ARE TO BE DETERMINED BY THE ENGINEER.

ID	County	City	Street 1	Street 2	Latitude	Longitude	Item Bid Codes										
							636 7004	682 7001	682 7002	682 7003	682 7004	682 7005	682 7006	682 7039	682 7040	684 7010	690 7024
							REPLACE EXISTING ALUMINUM SIGNS (TY A)	VEH SIG SEC (12") LED (GRN)	VEH SIG SEC (12") LED (GRN ARW)	VEH SIG SEC (12") LED (YEL)	VEH SIG SEC (12") LED (YEL ARW)	VEH SIG SEC (12") LED (RED)	VEH SIG SEC (12") LED (RED ARW)	BACKPLATE W/REFL BRDR (3 SEC) ALUM	BACKPLATE W/REFL BRDR (4 SEC) ALUM	TRF SIG CBL (TY A) (12 AWG) (5 CONDR)	REMOVAL OF SIGNAL HEAD ASSM
							SF	EA	EA	EA	EA	EA	EA	EA	EA	LF	EA
1-1	Bell	Rural	SH 195 / FT HOOD ST	Chaparral Rd	31.023045	-97.754870		6	1	6	2	6	1	6	1		7
2-1	Bell	Harker Heights	US 190	Indian Trail / Frontage Rd	31.076337	-97.654086	21	12	2	12	4	12	2	12	2		14
2-2	Bell	Harker Heights	FM 2410	Ann Blvd	31.073756	-97.674092		8	2	8	4	8	2	8	2		10
2-3	Bell	Harker Heights	US 190 FR	FM 2410	31.070788	-97.669621		14	2	14	4	14	2	14	2		16
2-4	Bell	Harker Heights	FM 2410	Millers Crossing	31.065375	-97.665494	21	6	2	6	4	6	2	6	2		8
2-5	Bell	Harker Heights	FM 2410	Wampum Dr	31.061958	-97.662864	10.5	7	1	7	2	7	1	7	1		8
2-6	Bell	Harker Heights	FM 2410	Mountain Lion Rd	31.058122	-97.659633	21	7	4	7	8	7	4	7	4		11
2-7	Bell	Harker Heights	FM 2410	FM 3481 / Verna Lee Blvd	31.056253	-97.654103		8	4	8	8	8	4	8	4		12
2-8	Bell	Harker Heights	FM 3481 / Stillhouse Lake Rd	Prospector Trl	31.052359	-97.655279		8	2	8	4	8	2	8	2		10
2-9	Bell	Harker Heights	FM 3481	Vineyard Trl / Cedar Knob	31.043887	-97.658275		8	4	8	8	8	4	8	4		12
3-1	Bell	Harker Heights	FM 439 / Rancier Ave	FM 3219	31.105056	-97.641458	21	8	2	8	4	8	2	8	2		10
3-2	Bell	Harker Heights	BUS 190	Roy Reynolds Dr	31.092244	-97.674369	21	6	2	6	4	6	2	6	2		8
3-3	Bell	Harker Heights	BUS 190	Harley Dr	31.090764	-97.668017	21	8	2	8	4	8	2	8	2		10
3-4	Bell	Harker Heights	BUS 190	Ann Blvd	31.089794	-97.664636	21	8	2	8	4	8	2	8	2		10
3-5	Bell	Harker Heights	BUS 190	FM 3423 / Indian Trl	31.086736	-97.653697	11	6	1	6	2	6	1	6	1		7
3-6	Bell	Harker Heights	BUS 190	FM 3219	31.085643	-97.648831	31.5	14	7	14	12	14	7	14	5		19
4-1	Coryell	Gatesville	SH 36	BUS 36	31.425771	-97.715942	21	12	2	12	4	12	2	12	2		14
5-1	Coryell	Copperas Cove	FM 116	Lutheran Church Rd	31.157056	-97.909669	11	6	1	6	2	6	1	6	1		7
5-2	Coryell	Copperas Cove	FM 116	SH 9	31.141280	-97.900933		11		11		11		11			11
6-1	Coryell	Copperas Cove	FM 116	FM 1113/ Avenue B	31.125986	-97.902811	11	7	1	7	2	7	1	7	1		8
6-2	Coryell	Copperas Cove	FM 1113	FM 116 / 1st St	31.124294	-97.903583	11	7	1	7	2	7	1	7	1		8
6-3	Coryell	Copperas Cove	FM 1113	Main St	31.123922	-97.902489	11	7	1	7	2	7	1	7	1		8
6-4	Coryell	Copperas Cove	FM 1113	Wolf Rd	31.120758	-97.891975	11	5	1	5	2	5	1	5	1		6
6-5	Coryell	Copperas Cove	BUS 190	FM 1113 / Avenue D	31.120108	-97.889636		9	1	9	2	9	1	9	1		10
6-6	Coryell	Copperas Cove	BUS 190	Elm St	31.119686	-97.894931		7	1	7	2	7	1	7	1		8
6-7	Coryell	Copperas Cove	BUS 190	Robertson Ave	31.118597	-97.899031		10	5	10	6	10	4	11	3		14
6-8	Coryell	Copperas Cove	BUS 190	FM 116 / Leonhard St / Main St	31.115078	-97.905406		12	2	12	4	12	2	12	2		14
6-9	Coryell	Copperas Cove	BUS 190	FM 116 / Georgetown Rd	31.111303	-97.910597		7	5	7	10	7	5	7	5		12
7-1	Coryell	Copperas Cove	BUS 190	Martin Luther King Jr Dr	31.120369	-97.881447		8	3	8	6	8	3	8	3		11
7-2	Coryell	Copperas Cove	BUS 190	Constitution Dr	31.120825	-97.869028		9		9		9		9			9
7-3	Coryell	Copperas Cove	BUS 190	Robert Griffin III Dr	31.121042	-97.865758		10		10		10		10			10
7-4	Coryell	Copperas Cove	US 190	Clarke Rd / Frontage Rd	31.121883	-97.837279		12	2	12	4	12	2	12	2		14
						VARIOUS LOCATIONS										500	
						TOTALS	276	273	66	273	126	273	65	274	62	500	336

PROJECT LOCATION TABLE

CHANGE ORDER	FED.RD. DIV. NO.	CONT	SECT	JOB	HIGHWAY
	6	0909	00	066	VARIOUS
	STATE	DIST	COUNTY		SHEET NO.
	TEXAS	WAC	McLENNAN, ETC.		40

NOTES:

1. REFER TO THE CONSOLIDATED SUMMARIES SHEET FOR PROJECT TOTALS
2. VARIOUS LOCATIONS ARE TO BE DETERMINED BY THE ENGINEER.

ID	County	City	Street 1	Street 2	Latitude	Longitude	Item Bid Codes										
							636 7004	682 7001	682 7002	682 7003	682 7004	682 7005	682 7006	682 7039	682 7040	684 7010	690 7024
							REPLACE EXISTING ALUMINUM SIGNS (TY A)	VEH SIG SEC (12") LED (GRN)	VEH SIG SEC (12") LED (GRN ARW)	VEH SIG SEC (12") LED (YEL)	VEH SIG SEC (12") LED (YEL ARW)	VEH SIG SEC (12") LED (RED)	VEH SIG SEC (12") LED (RED ARW)	BACKPLATE W/REFL BRDR (3 SEC) ALUM	BACKPLATE W/REFL BRDR (4 SEC) ALUM	TRF SIG CBL (TY A) (12 AWG) (5 CONDR)	REMOVAL OF SIGNAL HEAD ASSM
							SF	EA	EA	EA	EA	EA	EA	EA	EA	LF	EA
8-1	Hill	Whitney	FM 933	HCR 1240	31.965042	-97.324969		8	2	8	4	8	2	8	2		10
8-2	Hill	Whitney	FM 933	LP 180 / Jefferson Ave	31.951903	-97.321308	10.5	8	1	8	2	8	1	8	1		9
9-1	Hill	Hillsboro	SH 22 / Corsicana Hwy	Cho St	32.007286	-97.110628	21	8	2	8	4	8	2	8	2		10
9-2	Hill	Hillsboro	SH 22 / Corsicana Hwy	I-35 Frontage Rd	32.008597	-97.095561	21	12	2	12	4	12	2	12	2		14
9-3	Hill	Hillsboro	SH 22 / Corsicana Hwy	Coke St	32.008367	-97.098778	21	8	2	8	4	8	2	8	2		10
10-1	Hill	Hillsboro	SH 22 / Elm St	SH 171 / Houston St	32.010753	-97.135447		8		8		8		8			8
10-2	Hill	Hillsboro	SH 81 / Waco St	Franklin St	32.011742	-97.130150		8		8		8		8			8
10-3	Hill	Hillsboro	SH 22 / Elm St	Covington St	32.010758	-97.131361		8		8		8		8			8
10-4	Hill	Hillsboro	SH 81 / Waco St	SH 22 / Elm St	32.010744	-97.130147	10.5	7	1	7	2	7	1	7	1		8
10-5	Hill	Hillsboro	SH 81 / Waco St	Walnut St	32.008756	-97.130172		8		8		8		8			8
10-6	Hill	Hillsboro	SH 22 / Corsicana Hwy	SH 81	32.003897	-97.130239		8	4	8	8	8	4	8	4		12
11-1	Hill	Hubbard	SH 31	SH 171 / Magnolia Ave	31.848269	-96.797353		8	4	8	8	8	4	8	4		12
12-1	Limestone	Groesbeck	SH 14	Navasota St	31.523825	-96.534642	21	8	2	8	4	8	2	8	2		10
12-2	Limestone	Groesbeck	SH 14	SH 164	31.521489	-96.536408	31.5	6	4	6	8	6	4	6	4		10
12-3	Limestone	Groesbeck	SH 164	FM 937	31.515914	-96.525342		6	2	6	4	6	2	6	2		8
13-1	McLennan	Moody	SH 317	FM 107	31.308381	-97.361350		8		8		8		8			8
14-1	McLennan	Riesel	SH 6	FM 1860	31.474838	-96.925134		15		15		15		15			15
15-1	McLennan	Mart	SH 164	FM 939	31.542417	-96.833492		8		8		8		8			8
16-1	McLennan	Elm Mott	FM 308	I-35 Frontage Rd	31.671492	-97.099496	21	13	2	13	4	13	2	13	2		15
17-1	McLennan	China Spring	FM 1637	Bob Johnson Rd	31.642489	-97.301500		7	1	7	2	7	1	7	1		8
18-1	McLennan	Speegleville	SH 6	FM 185	31.581394	-97.305364	21	7	4	7	8	7	4	7	4		11
19-1	McLennan	Waco	US 84	Aviation Pkwy	31.616914	-97.052689		12	2	12	2	12	2	12			12
20-1	McLennan	Beverly Hills	Loop 396	Clay Ave	31.526556	-97.153617		12	5	12	7	12	5	12	2		14
21-1	McLennan	Hewitt	FM 1695 / Hewitt Dr	Panther Way	31.476139	-97.203767		8	4	8	8	8	4	8	4		12
21-2	McLennan	Hewitt	FM 3476 / Bagby Ave	Tuscany Dr	31.483975	-97.173586		8	2	8	4	8	2	8	2		10
22-1	McLennan	Hewitt	FM 1695/Hewitt Dr	FM 2063	31.465997	-97.197858	21	8	2	8	4	8	2	8	2		10
22-2	McLennan	Hewitt	FM 3476 / Bagby Ave	FM 2063 / Sun Valley Blvd	31.462381	-97.183236	42	8	4	8	8	8	4	8	4		12
22-3	McLennan	Hewitt	FM 1695	Warren St	31.461325	-97.198161	21	8	2	8	4	8	2	8	2		10
22-4	McLennan	Hewitt	FM 2063 / Sun Valley Rd	I-35 Frontage Rd	31.457436	-97.172761		18	3	18	3	18	3	18			18
22-5	McLennan	Hewitt	FM 2113 / Spring Valley Rd	Old Temple Rd	31.447542	-97.188478	21	8	2	8	4	8	2	8	2		10
22-6	McLennan	Hewitt	FM 2063 / Sun Valley Rd	FM 2113 / Spring Valley Rd	31.457929	-97.173624	10.5	7	3	7	4	7	3	9	1		10
23-1	McLennan	Hewitt	FM 2113 / Spring Valley Rd	FM 1695 / Frontage Rd (Hewitt Dr)	31.436692	-97.206900	21	14	2	14	4	14	2	14	2		16
23-2	McLennan	Hewitt	FM 2113 / Spring Valley Rd	FM 2837	31.421939	-97.238556		8	4	8	8	8	4	8	4		12
						VARIOUS LOCATIONS										500	
						TOTALS	315	296	68	296	126	296	68	298	58	500	356

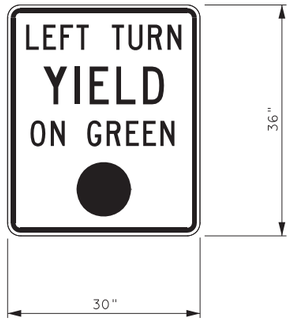
PROJECT LOCATION TABLE

SHEET 2 OF 2

CHANGE ORDER	FED. RD. DIV. NO.	CONT	SECT	JOB	HIGHWAY
	6	0909	00	066	VARIOUS
	STATE	DIST	COUNTY		SHEET NO.
	TEXAS	WAC	McLENNAN, ETC.		41

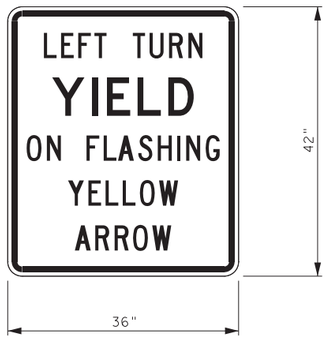
EXISTING TRAFFIC SIGNAL SIGN (TYP.)

R10-12



PROPOSED TRAFFIC SIGNAL SIGN (TYP.)

R10-17T



STATE OF TEXAS
CHARLES C. SMITH
147716
LICENSED
PROFESSIONAL ENGINEER

Charles C. Smith, P.E. 6/13/2024

SIGNATURE OF REGISTRANT & DATE

TRAFFIC SIGNAL SIGN DETAILS

CHANGE ORDER	FED. RD. DIV. NO.	CONT	SECT	JOB	HIGHWAY
	6	0909	00	066	VARIOUS
	STATE	DIST	COUNTY		SHEET NO.
	TEXAS	WAC	McLENNAN, ETC.		42

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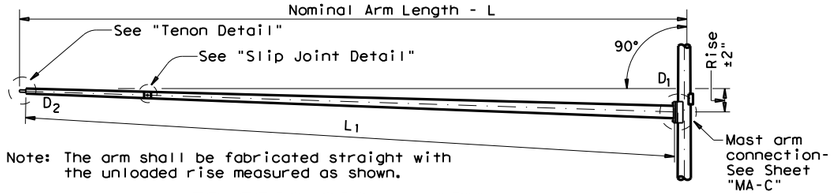
Arm Length	ROUND POLES					POLYGONAL POLES					Foundation Type
	D_B	D_{19}	D_{24}	D_{30}	① thk	D_B	D_{19}	D_{24}	D_{30}	① thk	
ft.	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.	
20	10.5	7.8	7.1	6.3	.179	11.5	8.5	7.7	6.8	.179	30-A
24	11.0	8.3	7.6	6.8	.179	12.0	9.0	8.2	7.3	.179	30-A
28	11.5	8.8	8.1	7.3	.179	12.5	9.5	8.7	7.8	.179	30-A
32	12.5	9.8	9.1	8.3	.179	12.0	9.0	8.2	7.3	.239	30-A
36	12.0	9.3	8.6	7.8	.239	12.5	9.5	8.7	7.8	.239	36-A
40	12.0	9.3	8.6	7.8	.239	13.5	10.5	9.7	8.8	.239	36-A
44	12.5	9.8	9.1	8.3	.239	14.0	11.0	10.2	9.3	.239	36-A
48	13.0	10.3	9.6	8.8	.239	15.0	12.0	11.2	10.3	.239	36-A

Arm Length	ROUND ARMS					POLYGONAL ARMS				
	L_1	D_1	D_2	① thk	Rise	L_1	D_1	② D_2	① thk	Rise
ft.	ft.	in.	in.	in.		ft.	in.	in.	in.	
20	19.1	6.5	3.8	.179	1'-9"	19.1	7.0	3.5	.179	1'-8"
24	23.1	7.5	4.3	.179	1'-10"	23.1	7.5	3.5	.179	1'-9"
28	27.1	8.0	4.2	.179	1'-11"	27.1	8.0	3.5	.179	1'-10"
32	31.0	9.0	4.7	.179	2'-1"	31.0	9.0	3.5	.179	2'-0"
36	35.0	9.5	4.6	.179	2'-4"	35.0	10.0	3.5	.179	2'-1"
40	39.0	9.5	4.1	.239	2'-8"	39.0	9.5	3.5	.239	2'-3"
44	43.0	10.0	4.1	.239	2'-11"	43.0	10.0	3.5	.239	2'-6"
48	47.0	10.5	4.1	.239	3'-4"	47.0	11.0	3.5	.239	2'-9"

D_B = Pole Base O.D.
D_{19} = Pole Top O.D. with no Luminaire and no ILSN
D_{24} = Pole Top O.D. with ILSN w/out Luminaire
D_{30} = Pole Top O.D. with Luminaire
D_1 = Arm Base O.D.
D_2 = Arm End O.D.
L_1 = Shaft Length
L = Nominal Arm Length

① Thickness shown are minimums, thicker materials may be used.

② D_2 may be increased by up to 1" for polygonal arms.



Note: The arm shall be fabricated straight with the unloaded rise measured as shown.

TRAFFIC SIGNAL ARM

(Fixed Mount)

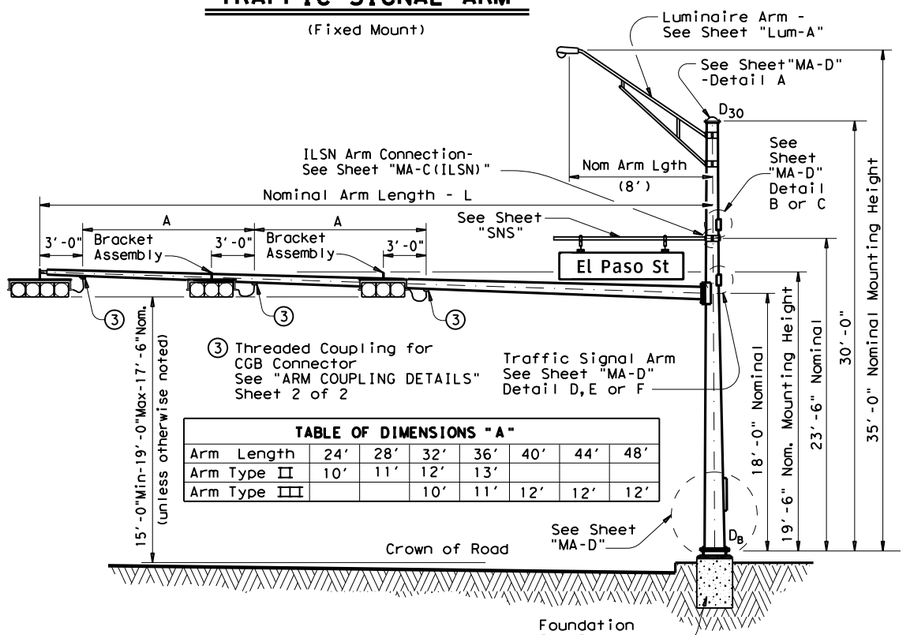


TABLE OF DIMENSIONS "A"

Arm Length	24'	28'	32'	36'	40'	44'	48'
Arm Type II	10'	11'	12'	13'			
Arm Type III			10'	11'	12'	12'	12'

STRUCTURE ASSEMBLY

SHIPPING PARTS LIST

Ship each pole with the following attached: enlarged hand hole, pole cap, fixed-arm connection bolts and washers and any additional hardware listed in the table.

Nominal Arm Length	30' Poles With Luminaire		24' Poles With ILSN		19' Poles With No Luminaire and No ILSN	
	Above hardware plus: One (or two if ILSN attached) small hand hole, clamp-on simplex		Above hardware plus one small hand hole		See note above	
ft	Designation	Quantity	Designation	Quantity	Designation	Quantity
20	20L-80		20S-80		20-80	
24	24L-80		24S-80		24-80	
28	28L-80		28S-80		28-80	
32	32L-80		32S-80		32-80	
36	36L-80		36S-80		36-80	
40	40L-80		40S-80		40-80	
44	44L-80		44S-80		44-80	
48	48L-80		48S-80		48-80	

Traffic Signal Arms (1 per Pole) Ship each arm with the listed equipment attached

Nominal Arm Length	Type I Arm (1 Signal)		Type II Arm (2 Signals)		Type III Arm (3 Signals)	
	1 CGB connector		1 Bracket Assembly and 2 CGB Connectors		2 Bracket Assemblies and 3 CGB Connectors	
ft	Designation	Quantity	Designation	Quantity	Designation	Quantity
20	20I-80					
24	24I-80		24II-80			
28	28I-80		28II-80			
32			32II-80		32III-80	
36			36II-80		36III-80	
40					40III-80	
44					44III-80	
48					48III-80	

Luminaire Arms (1 per 30' pole)

Nominal Arm Length	Quantity
8' Arm	

ILSN Arm (Max. 2 per pole) Ship with clamps, bolts and washers

Nominal Arm Length	Quantity
7' Arm	
9' Arm	

Anchor Bolt Assemblies (1 per pole)

Anchor Bolt Diameter	Anchor Bolt Length	Quantity
1 ½"	3'-4"	
1 ¾"	3'-10"	

Each anchor bolt assembly consists of the following: Top and Bottom templates, 4 anchor bolts, 8 nuts, 8 flat washers, and 4 nut anchor devices (Type 2) per Standard Drawing "TS-FD".

Templates may be removed for shipment.

Texas Department of Transportation
Traffic Operations Division

TRAFFIC SIGNAL SUPPORT STRUCTURES

SINGLE MAST ARM ASSEMBLY

(80 MPH WIND ZONE)

SMA-80(1)-12

DN: MS	CK: JSY	DW: MMF	CK: JSY

REVISIONS
5-96
11-99
1-12

CONT	SECT	JOB	HIGHWAY
0909	00	066	VARIOUS
DIST	COUNTY		SHEET NO.
WAC	McLENNAN, ETC.		43

122A

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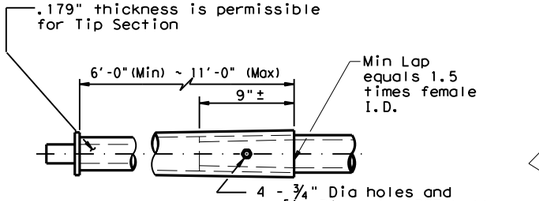
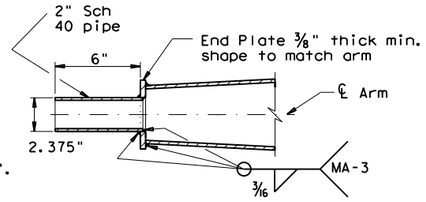


SLIP JOINT DETAIL



TENON DETAIL

VIBRATION WARNING

Mast Arms of SMA and DMA structures and clamp-on Arms of LMA structures of approximately 40 ft or longer are subject to harmonic vertical vibrations in light wind conditions due to the aeroelastic characteristics of a few of the myriads of possible combinations of the following: signal numbers, weights and positions; existence/solidity of backplates; presence of additional attachments to the arm, such as signs and cameras; arm-wind orientation; and arm-pole stiffness.

Such vibrations may cause fatigue damage to the structure and may lead to galloping in moderate wind conditions which may further damage the structure and alarm the public. Tests have indicated that when wind is blowing toward the back side of signal heads having un-vented backplates attached the probability of unacceptable harmonic vibration and/or galloping is rather high.

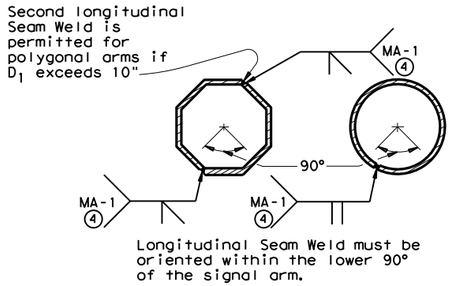
If backplates are not required for improved visibility they should not be applied to the signal heads or, if they must be applied, they should be vented as a first and inexpensive measure to mitigate vibrations.

The traffic signal mast arms shall be visually inspected in 5 to 20 mph wind conditions after installation of signal heads and any attachments, including any required backpates. If vertical movements with a total excursion (maximum upward excursion to maximum downward excursion) of more than approximately 8" are observed at the arm tip, a damping plate shall be fitted to the arm. See "Damping Plate Mounting Details" on standard sheet, MA-DPD-10.

This visual inspection shall be repeated after each modification of the structure that could affect its aeroelastic response. Excessive vibrations shall not be allowed to continue for more than two days.

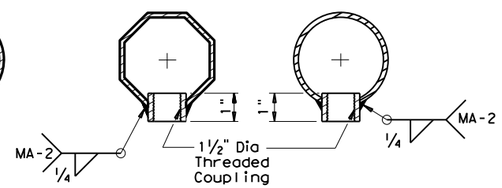
Stainless steel bands (or Cables) and cast bracket as in "Astro-Brac", "Sky Bracket" or "Easy Bracket" with 1 ½" Dia Threaded Coupling.

BRACKET ASSEMBLY



ARM WELD DETAIL

④ 60% Min. penetration 100% pemetration within 6" of circumferential base welds.



ARM COUPLING DETAILS

GENERAL NOTES:

Design conforms to 1994 AASHTO Standard Specifications for Structural Supports for Highway Signs, Luminaires, and Traffic Signals and Interim Specifications thereto. Design Wind Speed equals 80 mph plus a 1.3 gust factor.

Poles are designed to support one 8'-0" luminaire arm, one 9'-0" internally lighted street name sign and one traffic signal arm with a length as tabulated. The specified luminaire load applied at the end of the luminaire arm equals 60 lbs vertical dead load plus the horizontal wind load on an effective projected area of 1.6 sq ft. The specified internally lighted street name sign load applied 4.5 ft from the centerline of the pole equals 85 lbs vertical dead load plus horizontal wind load on an effective projected area of 11.5 sq ft. The specified signal load applied at the end of the traffic signal arm equals 180 lbs vertical dead load plus the horizontal wind load on an effective projected area of 32.4 sq ft (actual area times drag coefficient).

See Standard Sheet "MA-D" for pole details, "MA-C" for traffic signal arm connection details, "MA-C (ILSN)" for internally lighted street name sign arm connection details, "LUM-A" for luminaire arm and connection details, "SNS" for internally lighted street name sign details, and "TS-FD" for anchor bolt and foundation details. See "MA-C" for material specifications.

Fabrication shall be in accordance with Item 686, "Traffic Signal Pole Assemblies (Steel)" and with the details, dimensions, and weld procedures shown herein. Weld references call for preapproved weld procedures which the Fabricator must obtain prior to fabrication. Materials, fabrication tolerances, and shipping practices shall meet the requirements of this sheet and Item 686, "Traffic Signal Pole Assemblies (Steel)".

Unless otherwise noted, all parts shall be galvanized in accordance with Item 445, "Galvanizing", after fabrication.

Deviation from the details and dimensions shown herein require submission of shop drawings in accordance with Item 441, "Steel Structures". Alternate designs are not acceptable.

Texas Department of Transportation
Traffic Operations Division

TRAFFIC SIGNAL SUPPORT STRUCTURES
SINGLE MAST ARM ASSEMBLY
(80 MPH WIND ZONE)
SMA-80(2)-12

DN: MS	CK: JSY	DW: MMF	CK: JSY

REVISIONS
5-96
1-12

CONT	SECT	JOB	HIGHWAY
0909	00	066	VARIOUS
DIST	COUNTY		SHEET NO.
WAC	McLENNAN, ETC.		44

122B

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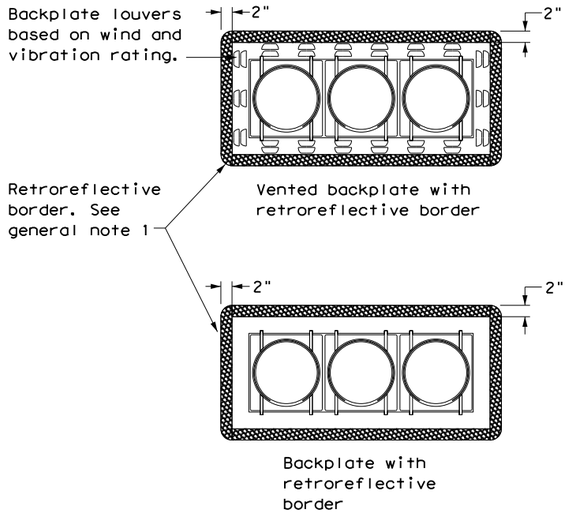
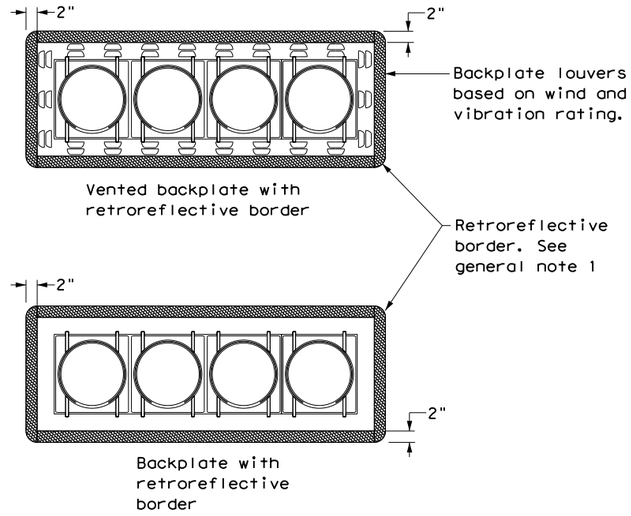
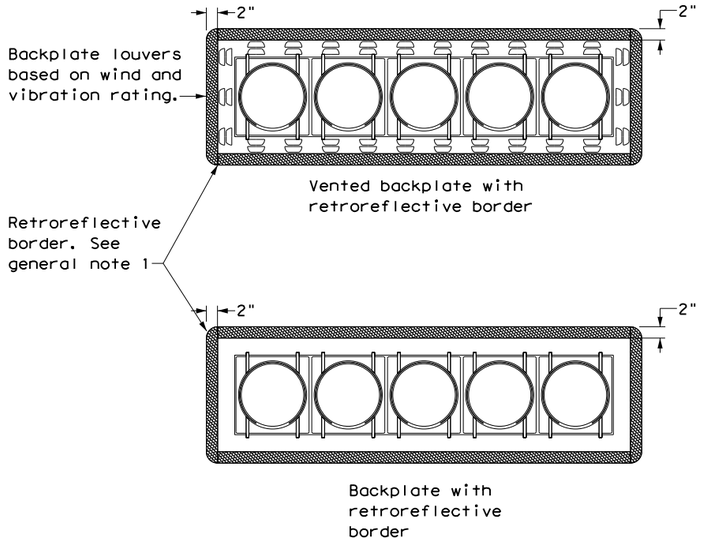


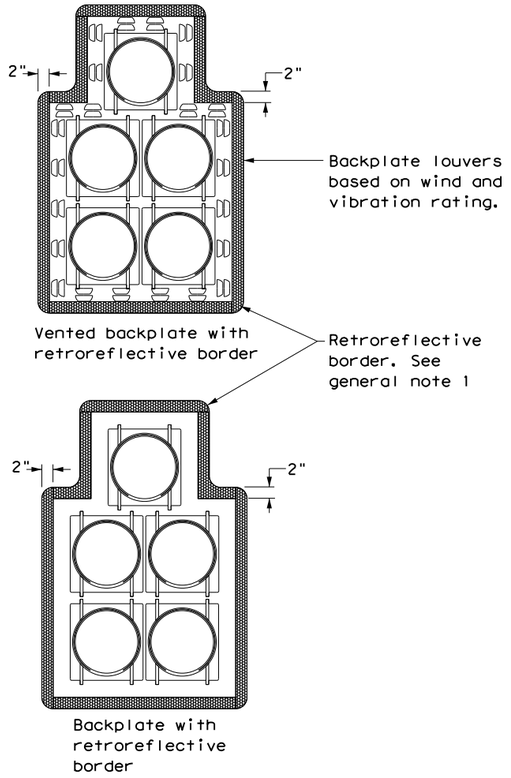
THREE-SECTION HEAD
HORIZONTAL OR VERTICAL



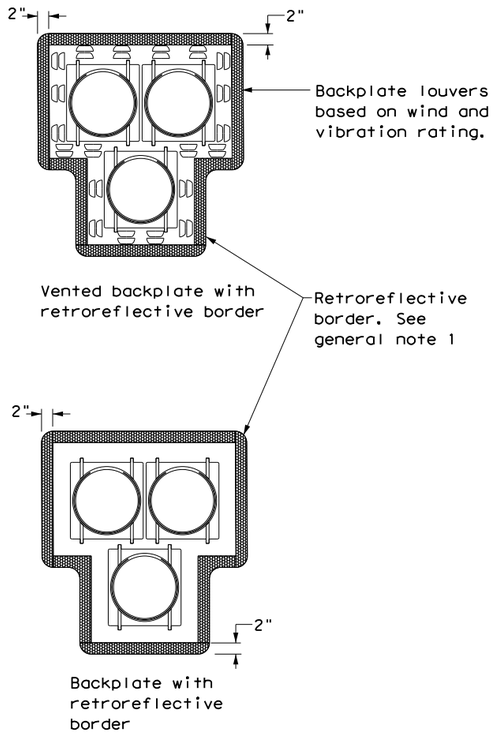
FOUR-SECTION HEAD
HORIZONTAL OR VERTICAL



FIVE-SECTION HEAD
HORIZONTAL OR VERTICAL



FIVE-SECTION HEAD
CLUSTER



PEDESTRIAN HYBRID
BEACON

GENERAL NOTES:

1. Backplates are optional for traffic signals and pedestrian hybrid beacons. When backplates are used, a 2-inch wide fluorescent yellow AASHTO Type B_{FL} or C_{FL} retroreflective border conforming to TxDOT DMS-8300 is required. Place on all approaches when used.
2. Signal head and backplate compatability must be verified by the contractor prior to installation.
3. When using backplates on signal heads, venting is preferred to reduce cyclic vibration stress.
4. When a vented backplate is used, the retroreflective border must not be placed over the louvers.
5. This standard sheet applies to all signal heads with backplates, including but not limited to:
   - Pole mounted
   - Overhead mounted
   - Span wire mounted
   - Mast arm mounted
   - Vertical signal heads
   - Horizontal signal heads
   - Clustered signal heads
   - Pedestrian hybrid beacons

Texas Department of Transportation

Traffic Safety Division Standard

TRAFFIC SIGNAL HEAD WITH BACKPLATE

TS-BP-20

FILE: ts-bp-20.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
	CONT	SECT	JOB	HIGHWAY
REVISIONS	0909	00	066	VARIOUS
	DIST	COUNTY		SHEET NO.
	WAC	McLENNAN, ETC.		45

STORMWATER POLLUTION PRVENTION PLAN (SWP3):

This SWP3 has been developed in accordance with TxDOT policy for projects disturbing less than 1 acre of soil, and not part of a larger common plan of development.

For all projects with any soil disturbing activities, TxDOT will maintain a SWP3 with all pertinent records, correspondence, environmental documents, etc. at the project field office. If no field office is available, then this SWP3 shall be kept at the appropriate TxDOT Area Office.

This SWP3 is consistent with requirements specified in applicable stormwater plans, and the project's environmental permits, issues, and commitments (EPICs).

1.0 SITE/PROJECT DESCRIPTION

1.1 PROJECT CONTROL SECTION JOB (CSJ):
0909-00-066

1.2 PROJECT LIMITS:
From: Various

To: Various

1.3 PROJECT COORDINATES:
BEGIN: (Lat) N/A ,(Long) N/A

END: (Lat) N/A ,(Long) N/A

1.4 TOTAL PROJECT AREA (Acres): N/A

1.5 TOTAL AREA TO BE DISTURBED (Acres): 0.0

1.6 NATURE OF CONSTRUCTION ACTIVITY:
UPGRADE SIGNAL HEAD BACKPLATES WITH REFLECTIVE BORDERS

1.7 MAJOR SOIL TYPES:

Soil Type	Description

1.8 PROJECT SPECIFIC LOCATIONS (PSLs):
PSLs must be depicted on the Environmental Layout Sheets in Attachment 1.2 of this SWP3. PSLs may be identified during preconstruction meetings or during the construction process. Please choose from the options below:

- [x] PSLs determined during preconstruction meeting
- [x] PSLs determined during construction
- [ ] No PSLs planned for construction

Type	Sheet #s

All off-ROW PSLs required by the Contractor are the Contractor's responsibility. The Contractor shall secure all permits required by local, state, federal laws for off-ROW PSLs. The contractor shall provide diagrams, areas of disturbance, acreage, and BMPs for all off-ROW PSLs within one mile of the project.

1.9 CONSTRUCTION ACTIVITIES:
(Use the following list as a starting point when developing the Construction Activity Schedule and Ceasing Record in Attachment 2.3.)

- [x] Mobilization
- [ ] Install sediment and erosion controls
- [ ] Blade existing topsoil into windrows, prep ROW, clear and grub
- [ ] Remove existing pavement
- [ ] Grading operations, excavation, and embankment
- [ ] Excavate and prepare subgrade for proposed pavement widening
- [ ] Remove existing culverts, safety end treatments (SETs)
- [ ] Remove existing metal beam guard fence (MBGF), bridge rail
- [ ] Install proposed pavement per plans
- [ ] Install culverts, culvert extensions, SETs
- [ ] Install mow strip, MBGF, bridge rail
- [ ] Place flex base
- [ ] Rework slopes, grade ditches
- [ ] Blade windrowed material back across slopes
- [ ] Revegetation of unpaved areas
- [ ] Achieve site stabilization and remove sediment and erosion control measures
- [x] Other: UPGRADE SIGNAL HEAD BACKPLATES WITH REFLECTIVE BORDERS.
- [ ] Other: _____
- [ ] Other: _____

1.10 POTENTIAL POLLUTANTS AND SOURCES:

- [ ] Sediment laden stormwater from stormwater conveyance over disturbed area
- [x] Fuels, oils, and lubricants from construction vehicles, equipment, and storage
- [x] Solvents, paints, adhesives, etc. from various construction activities
- [x] Transported soils from offsite vehicle tracking
- [x] Construction debris and waste from various construction activities
- [ ] Contaminated water from excavation or dewatering pump-out water
- [ ] Sanitary waste from onsite restroom facilities
- [x] Trash from various construction activities/receptacles
- [ ] Long-term stockpiles of material and waste
- [ ] Other: _____
- [ ] Other: _____
- [ ] Other: _____

1.11 RECEIVING WATERS:
Receiving waters must be depicted on the Environmental Layout Sheets in Attachment 1.2 of this SWP3. Include Segment # for receiving waters.

Tributaries	Classified Waterbody

* Add (*) for impaired waterbodies with pollutant in ().

1.12 ROLES AND RESPONSIBILITIES: TxDOT

- [X] Development of plans and specifications
- [X] Perform SWP3 inspections
- [X] Maintain SWP3 records and update to reflect daily operations
- [ ] Other: _____
- [ ] Other: _____

1.13 ROLES AND RESPONSIBILITIES: CONTRACTOR

- [X] Day To Day Operational Control
- [X] Maintain schedule of major construction activities
- [X] Install, maintain and modify BMPs
- [ ] Other: _____
- [ ] Other: _____
- [ ] Other: _____

STATE OF TEXAS
CHARLES C. SMITH
147716
LICENSED
PROFESSIONAL ENGINEER

Charles C. Smith, P.E. 6/13/2024
SIGNATURE OF REGISTRANT & DATE

STORMWATER POLLUTION PREVENTION PLAN (SWP3) (Less Than 1 Acre)

Sheet 1 of 2

Texas Department of Transportation

FED. RD. DIV. NO.	PROJECT NO.		SHEET NO.
			46
STATE	STATE DIST.	COUNTY	
TEXAS	WAC	McLENNAN, ETC.	
CONT.	SECT.	JOB	HIGHWAY NO.
0909	00	066	VARIOUS

STORMWATER POLLUTION PRVENTION PLAN (SWP3):

2.0 BEST MANAGEMENT PRACTICES (BMPs) AND CONTROLS, INSPECTION, AND MAINTENANCE

The Contractor shall be the responsible party for implementing the BMPs described herein and for complying with the SWP3 for control of erosion and sedimentation during day-to-day operations. The Contractor shall implement changes to this SWP3 approved by TxDOT within the times specified in this SWP3 or the CGP.

2.1 EROSION CONTROL AND SOIL STABILIZATION BMPs:

T / P

- ☐ ☒ Protection of Existing Vegetation
- ☐ ☐ Vegetated Buffer Zones
- ☐ ☐ Soil Retention Blankets
- ☐ ☐ Geotextiles
- ☐ ☐ Mulching/ Hydromulching
- ☐ ☐ Soil Surface Treatments
- ☐ ☐ Temporary Seeding
- ☐ ☐ Permanent Planting, Sodding or Seeding
- ☐ ☐ Biodegradable Erosion Control Logs
- ☐ ☐ Rock Filter Dams/ Rock Check Dams
- ☐ ☐ Vertical Tracking
- ☐ ☐ Interceptor Swale
- ☐ ☐ Riprap
- ☐ ☐ Diversion Dike
- ☐ ☐ Temporary Pipe Slope Drain
- ☐ ☐ Embankment for Erosion Control
- ☐ ☐ Paved Flumes
- ☐ ☐ Other: _____
- ☐ ☐ Other: _____
- ☐ ☐ Other: _____
- ☐ ☐ Other: _____

2.2 SEDIMENT CONTROL BMPs:

T / P

- ☐ ☐ Biodegradable Erosion Control Logs
- ☐ ☐ Dewatering Controls
- ☐ ☐ Inlet Protection
- ☐ ☐ Rock Filter Dams/ Rock Check Dams
- ☐ ☐ Sandbag Berms
- ☐ ☐ Sediment Control Fence
- ☐ ☐ Stabilized Construction Exit
- ☐ ☐ Floating Turbidity Barrier
- ☐ ☐ Vegetated Buffer Zones
- ☐ ☐ Vegetated Filter Strips
- ☐ ☐ Other: _____
- ☐ ☐ Other: _____
- ☐ ☐ Other: _____
- ☐ ☐ Other: _____

Refer to the Environmental Layout Sheets/ SWP3 Layout Sheets located in Attachment 1.2 of this SWP3

2.3 PERMANENT CONTROLS:

(Coordinate post-construction BMPs with appropriate TxDOT maintenance sections.)

BMPs To Be Left In Place Post Construction:

Type	Stationing	
	From	To

Refer to the Environmental Layout Sheets/ SWP3 Layout Sheets located in Attachment 1.2 of this SWP3

2.4 OFFSITE VEHICLE TRACKING CONTROLS:

- ☐ Excess dirt/mud on road removed daily
- ☐ Haul roads dampened for dust control
- ☐ Loaded haul trucks to be covered with tarpaulin
- ☐ Stabilized construction exit
- ☐ Other: _____
- ☐ Other: _____
- ☐ Other: _____
- ☐ Other: _____

2.5 POLLUTION PREVENTION MEASURES:

- ☒ Chemical Management
- ☒ Concrete and Materials Waste Management
- ☒ Debris and Trash Management
- ☐ Dust Control
- ☒ Sanitary Facilities
- ☐ Other: _____
- ☐ Other: _____
- ☐ Other: _____
- ☐ Other: _____

2.6 VEGETATED BUFFER ZONES:

Natural vegetated buffers shall be maintained as feasible to protect adjacent surface waters. If vegetated natural buffer zones are not feasible due to site geometry, the appropriate additional sediment control measures have been incorporated into this SWP3.

Type	Stationing	
	From	To

Refer to the Environmental Layout Sheets/ SWP3 Layout Sheets located in Attachment 1.2 of this SWP3

2.7 ALLOWABLE NON-STORMWATER DISCHARGES:

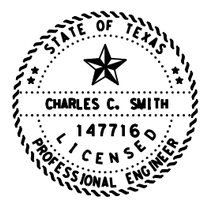
- ☒ Fire hydrant flushings
- ☒ Irrigation drainage
- ☒ Pavement washwater (where spills or leaks have not occurred, and detergents are not used)
- ☒ Potable water sources
- ☒ Springs
- ☒ Uncontaminated groundwater
- ☒ Water used to wash vehicles or control dust
- ☒ Other allowable non-stormwater discharges as allowed by TPDES GP TXR150000.

2.8 INSPECTIONS:

All disturbed areas and erosion and sediment control devices shall be inspected at least once every seven (7) days. Inspections shall be performed by TxDOT as indicated on the Field Inspection and Maintenance Report Form 2118 and retained in Attachment 2.3 of this SWP3 .

2.9 MAINTENANCE:

Control measures shall be properly installed according to specifications. If it is determined that a BMP or control measure is not operating effectively, maintenance must be accomplished as soon as possible and before the next anticipated rain event, but in no case later than 7 calendar days after being able to access the site. Maintenance shall be performed by the Contractor as indicated on the Field Inspection and Maintenance Report Form 2118 and retained in Attachment 2.3 of this SWP3.



Charles C. Smith, P.E. 6/13/2024

SIGNATURE OF REGISTRANT & DATE

STORMWATER POLLUTION PREVENTION PLAN (SWP3) (Less Than 1 Acre)

Sheet 2 of 2

Texas Department of Transportation

FED. RD. DIV. NO.	PROJECT NO.		SHEET NO.
			47
STATE	STATE DIST.	COUNTY	
TEXAS	WAC	McLENNAN, ETC.	
CONT.	SECT.	JOB	HIGHWAY NO.
0909	00	066	VARIOUS

BEST MANAGEMENT PRACTICE (BMP) GENERAL NOTES

1. Prior to TxDOT allowing the Contractor to start construction, the Contractor will provide the required storm water and 404 permit documentation and support activities, including but not limited to the following:

   - Provide a list of all chemicals, construction and waste products that will be generated, stored or brought upon TxDOT ROW. The list includes expected construction debris, sanitary wastes, construction chemicals and petroleum products used or generated by the Contractor and sub-contractors. Along with the list, the Contractor will supply a spill prevention plan and clean up procedures that will include each of these chemical products or generated waste.

   - Provide in the construction schedule the necessary line items that will comply with the schedule and planning requirements of the storm water permit.

   - Post the TxDOT storm water permit and any Contractor permits, per permit requirements.

   - Provide copies of storm water permits for Contractor PSL(s). As new PSL(s) may be obtained for the project, provide copies of new or amended permits to TxDOT. The Contractor will not disturb soil without the proper permits.

   - Provide scale drawings of off ROW PSL's within one mile of the project, for field offices, borrow sources, plant sites or other uses.

   - Provide permit information on any Contractor batch plants or concrete crushing plants to be located at a Contractor PSL(s) within one mile of the project limits or boundaries. Copies of the air and water permits are to be provided to TxDOT before materials will be used on the project. No asphalt or concrete batch plants or concrete crushing plants will be located on TxDOT ROW.

   - Provide a letter indicating a Contractor Responsible Person for environmental compliance (CRP) for the project, and maintain a CRP throughout the project duration.

   - Provide all environmental documentation including certification of compliance and EMS training documents/certificates prior to starting work. The Contractor is to provide daily BMP inspection reports that document all field BMPs needing repair or replacement. The Contractor is to clearly document specific BMPs needing repair and location each work day. The Contractor is encouraged to be proactive in fixing BMPs without TxDOT direction.

   - Provide documentation required for Waters of the US, Note #3 and submittals for Item 496 bridge removal. Bridge removal methods submitted will follow all Waters of the US note requirements. The Contractor is not to start construction within the Ordinary High Water Marks of any stream until receiving approval for stream channel construction methods from TxDOT.

   - Provide a written procedure for managing all chemicals and construction items placed in vertical containment structures. Also, provide methods to be used for the treatment, disposal, collection or release of storm water.

   - Provide an estimated date by letter, for the submittal of marked up bridge drawings, indicating cut locations for any structural steel requiring cutting or torching of steel, coated with lead containing paints.

2. Place and maintain trash cans and portable sanitary facilities at locations where there is active construction. Worker generated trash and construction debris will be kept from being transported by storm water and will be collected daily from the ground and routinely hauled from the work area.

3. Contractor will provide TxDOT copies of all correspondence with MS4s, TCEQ, EPA, DSHS and Corps of Engineers regarding activities on this project.

4. Contractor to conduct storm water inspections and develop SWPPP documents to support Contractor permits obtained for the project including PSL(s).

5. Contractor will maintain written documentation of locations of all portable sanitary facilities. The Contractor is required to document the location and disposition of all spills and cleanups from portable sanitary facilities.

6. Contractor will not store chemicals on TxDOT ROW, unless chemicals are stored following all environmental and safety regulations. Fuels for construction equipment will not be stored on TxDOT ROW.

7. The Contractor will store fuels and bulk chemicals on Contractor PSL(s) using a secondary containment method, such as double lined tanks and/or free standing containment reservoirs made of plastic or steel designed to hold bulk chemicals or drums.

8. The Contractor will not remove sediment controls without the prior approval of TxDOT, except for a sediment control that may back up water and cause safety or traffic problems.

SCALE = NTS SHEET 1 OF 10

Texas Department of Transportation
Waco District Standard

TYPICAL APPLICATIONS FOR BEST MANAGEMENT PRACTICES

TA-BMP

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© TxDOT 2009	CONT	SECT	JOB	HIGHWAY
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DEC 2013	DIST	COUNTY		SHEET NO.
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BEST MANAGEMENT PRACTICE (BMP) GENERAL NOTES

9. Any sediment controls removed by the Contractor must be re-installed before the next rainfall event or by the end of day, as approved in advance.

10. Vegetative buffer strips may be used in place of temporary sediment controls such as silt fences and rock filter dams. The amount of disturbed soil area will be limited to 1/3 of an acre or less for a minimum of 50 feet of grassed ditch and 2/3 of an acre of disturbed soil for a minimum of 100 feet of grassed ditch.

11. Construction equipment found to be leaking oil, fuel or coolant will be immediately stopped, the leaking fluid collected and the equipment fixed. Equipment continuing to leak will be removed from the project at no cost to TxDOT. Leaking fluids from equipment will be collected and removed from the project or PSL.

12. Earth berms or mounds typically used to stockpile topsoil and used in place of boundary silt fence will be seeded upon being constructed. Long term use of earth berms or mounds will not be continued without establishing grass on the control.

13. The Contractor will inform TxDOT of new areas where soil will be disturbed to facilitate planning for new sediment controls. Areas of vegetated soil will not be disturbed by the Contractor, unless adequate sediment controls can be installed before the next rainfall event. The Contractor will assist TxDOT in keeping an accurate set of working SWPPP drawings that show the locations of all temporary sediment and erosion controls.

14. The Contractor will maintain an adequate amount of temporary sediment controls on hand at the field office or project staging area for critical SWPPP maintenance, including silt fence (minimum of 200 feet) and rock / fabric for rock filter dams (minimum for 100 feet of Type III dams).

    The requirement for BMP rock quantities on hand is waived for small projects for on and off system bridge installations. The Contractor having a BMP Subcontractor does not eliminate the requirement for the Contractor to have the required silt fence and rock on hand, typically stored at the Contractor PSL.

15. Failure of a sub-contractor to complete storm water work on time will require the Contractor to start storm water sediment control work immediately and complete the work with high priority, or be subject to stop work on the entire project.

16. Earth materials on roads as a result of soil tracking will not be allowed to be transported off ROW in storm water. Soil or rock material found on roadways deposited from Contractor equipment will be removed daily.

17. Unless approved, completed concrete curb inlets will not be blocked by sediment controls. The contractor will frequently sweep the completed or partially completed roadway to keep sediment out of drainage pipes.

18. The Contractor will be responsible for proper dust control and will route construction traffic in a manner that minimizes dust generation.

19. Water for dust control will contain no pollutants, but may be non-potable from upland stock ponds. No quantity of water to be used for construction purposes may be taken from a 404 stream, prior to the proper authorizations or permits being obtained by the Contractor.

20. Contractor is to direct workers and sub-contractors to use portable sanitary facilities provided by the Contractor and not to trespass off ROW.

21. Contractor will provide written verification to TxDOT that earth borrow pits and disposal sources meet environmental and regulatory requirements, prior to use. Excavations will meet all OSHA requirements and the current safety guidelines established for TxDOT Quarries and Pits.

22. Boundary silt fences that are terminated down slope, with one end being at the lowest elevation, will be installed with an L - hook to contain sediment. Boundary silt fences that are installed on flat ground will have L-hooks on both ends.

23. Rock filter dams across ditches will be constructed where the rock filter dam ends are embedded within the ditch side slopes and ditch bottom. The top center elevation of the rock filter dam will be at least 6 inches lower than the elevations on the rock filter dam ends.

24. Silt fence will be constructed in a U or V pattern across ditch lines and up the ditch side slope to keep storm water from flowing around the ends of the silt fence. Small silt fences that do not adequately span the ditch and allows storm water around the end(s) will not be used. Where there is adequate space, large U pattern silt fences are preferred to facilitate sediment collection and sediment removal with equipment.

25. Sediment controls (RFDs or silt fences) will be located along road ditches as marked on the SWPPP drawings. Modifications to the sediment control spacing will be adjusted during the project based on sediment control effectiveness. The installation and maintenance of sediment controls at or near outfalls, where storm water leaves TxDOT ROW, takes persistent over ditch line sediment controls.

Texas Department of Transportation
Waco District Standard

TYPICAL APPLICATIONS FOR BEST MANAGEMENT PRACTICES

TA-BMP

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BEST MANAGEMENT PRACTICE (BMP) GENERAL NOTES

26. Storm water draining sheet flow over disturbed soil sloped towards the ROW property line, will be intercepted by a boundary silt fence typically installed with L-shaped ends.

27. For ditch grading and shoulder up work, the Contractor is limited during good weather to remove up to one mile (limited to five acres of disturbed soil) of ditch line sediment controls; on one side of the roadway. Outfall controls cannot be removed during this activity. Ditch line controls must be replaced upon completion of work and before the next rain event.

28. Sediment controls damaged by the Contractor, as defined by permit, must be fixed or replaced immediately upon discovery.

29. Notches in silt fences are not typically allowed. Specific silt fences that back up water onto lanes of traffic may be notched if approved.

30. For silt fence maintenance, the Contractor will leave approximately 4 inches of deposited sediment up stream of silt fences and not over excavate around silt fences or rock filter dams.

31. The Contractor will inform TxDOT of new construction areas and where soil is planned to be disturbed. Sediment controls will be installed at outfalls prior to the Contractor beginning soil disturbing activities up slope from the outfall.

32. Water from concrete saw cutting, concrete grinding and concrete coring activities; or fine materials from concrete chipping and salvage will not be allowed to enter storm drains or enter streams.

33. Storm water containing suspended sediment and turbidity needing to be removed from excavations or low areas will be pumped or gravity drained through vegetated buffer strips (50 foot minimum) or placed in ditches with temporary sediment controls, prior to the water being discharged into a stream.

34. Uncontaminated water from natural groundwater seepage, springs, foundations and drains that does not contain suspended sediment or any pollutants may be discharged without storm water controls.

35. Lime or cement if spilled in ditches or outside the defined limits of application is considered a pollutant and will be excavated and removed the same day, to avoid contaminating streams.

36. If located along the project ROW, RAP stockpiles will be located where there is a minimum 100 feet of vegetative buffer strip before storm water will reach a stream. RAP will not be used as a construction material within the Ordinary High Water Marks of a stream channel of a 404 designated stream.

37. If allowed on the project, concrete truck wash out areas will have adequate volume to allow 12 inch freeboard for rain and will be lined with 6 mils of plastic. No concrete will be stored higher than the 12 inch freeboard. Cleaning of truck chutes and equipment does not constitute concrete truck wash out and this activity may be completed at the concrete placement location. Wash out areas will not be located closer than 50 ft from down slope inlets or stream channels.

38. For outfalls near stock ponds closer than 50 foot from disturbed soil at the ROW line, redundant sediment controls will be provided, typically a combination of rock filter dam and a silt fence constructed in line of the flow.

39. Earth stockpiles will utilize silt fence sediment controls, positioned on the low end of the stockpile drainage area with L-hooks or silt fence installed around the entire stockpile.

40. Sediment controls including rock filter dams and silt fences will not be installed across any 404 streams. Sediment controls at 404 streams will be positioned to limit sediment entering the stream from the banks and around structures/culverts, and will allow free flow of storm water to pass through the ROW without being dammed by any sediment controls. Remove loose materials from stream channels prior to each rain event.

41. Sediment controls for non-404 streams may be constructed across the drainage channel in unlimited locations. It is appropriate to use sediment control details typically used for 404 streams for non-404 streams when flow velocities are high. Remove loose material from stream channels prior to each rain event.

42. Incomplete drainage pipe installation across the roadway does not remove the requirement for having sediment controls around the ends of the pipe. To stay within permit requirements, sediment controls should be installed over and around the terminated end and along each side of the banks as soon as construction on the pipe has been completed. Remove loose material from stream channels prior to each rain event.

43. Safety end / headwall construction temporarily will require the removal of part of the sediment control placed over and around the pipe end. Retain in place as much functioning sediment control as possible. Replace the silt fence over and around the top of the pipe, immediately upon concrete placement and form removal. Do not remove culvert sediment controls that cannot be replaced before the next rain event. Sediment control at the ends of culverts must be in place and available for any rain event until the disturbed soil areas are re-vegetated.

Texas Department of Transportation
Waco District Standard

TYPICAL APPLICATIONS FOR BEST MANAGEMENT PRACTICES

TA-BMP

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	DIST	COUNTY				SHEET NO.	
	WAC	McLENNAN, ETC.				50	

BEST MANAGEMENT PRACTICE (BMP) GENERAL NOTES

44. Between the Ordinary High Water Marks of a 404 stream channel, the Contractor will disturb only the minimum amount of stream channel that is necessary to complete the work.

45. Rock riprap for erosion control does not replace the requirements to maintain sediment control until vegetation is re-established. Replace sediment controls immediately after installing erosion rock.

46. At the direction of TxDOT, sediment deposited into existing and new culverts will be removed subsidiary to Item 506. Sediment to be removed is either pre-existing material before construction starts or sediment generated as a part of this project.

47. Provide treated 2X4 cross bracing for rectangular inlet silt fence, subsidiary to Item 506.

48. Loose or granular earth materials will not be used to repair silt fence undercuts. Silt fence undercut repairs will be conducted with well compacted soils or the silt fence will be reset in a nearby location.

49. Silt fence steel T posts of approximately 1.25 pounds per foot are allowed at a spacing of 8 feet or less. Silt fence steel T posts between approximately 1.25 pounds per foot and 0.85 pounds per foot are allowed for T post spacing of 5 feet or less.

50. Silt fence to be used to slow the flow of storm water down slopes will be positioned approximately horizontal (on the contour) with L hooks on the ends and limited to approximately 200 feet in length. Multiple sections and levels of silt fence may be required in addition to temporary / permanent erosion control flumes.

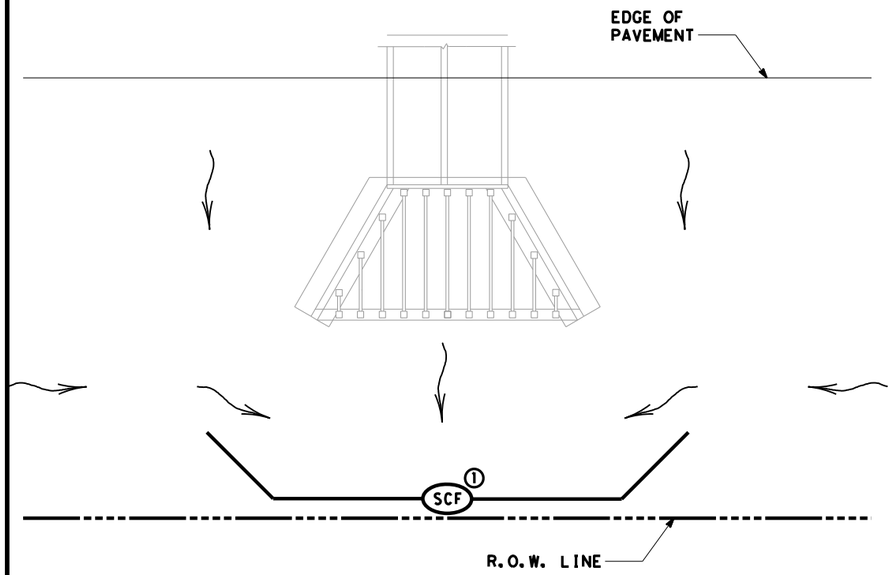
51. Soil retention blankets will be installed rolled down the slope with the small dimension side embedded at the top of slope, unless recommended otherwise by the manufacturer. Excess grass, rocks, trash, debris or clods will be removed before seeding and installing soil retention blankets. All installations will be by the manufacturer recommendations. Contractor equipment, including tractor mowers will be kept off areas with soil retention blankets until the grass is established.

Texas Department of Transportation
Waco District Standard

TYPICAL APPLICATIONS FOR BEST MANAGEMENT PRACTICES

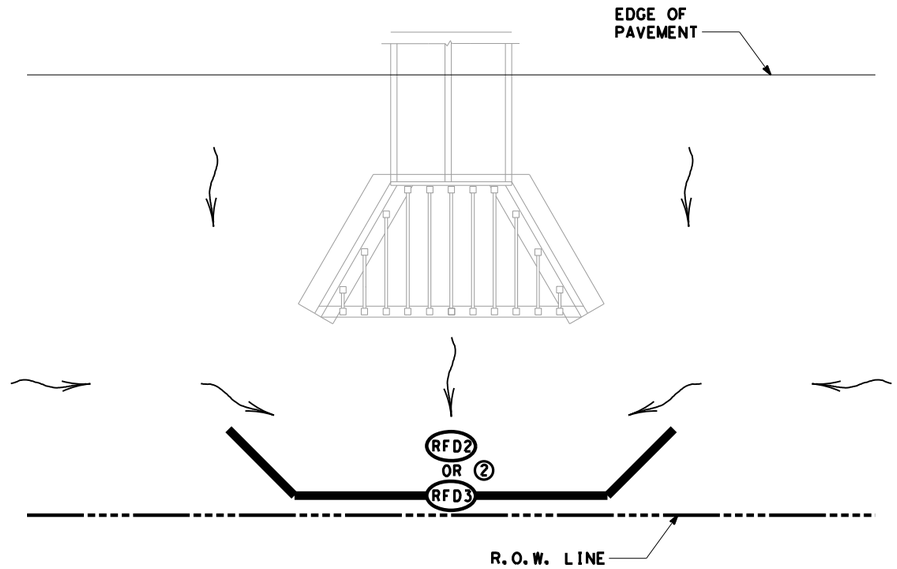
TA-BMP

FILE: BMPLAYOUTS.dgn	DN:	CK:	DW:	CK:
	CONT	SECT	JOB	HIGHWAY
REVISIONS DEC 2013 FEB 2015	0909	00	066	VARIOUS
	DIST	COUNTY		SHEET NO.
	WAC	McLENNAN, ETC.		51



BEST MANAGEMENT PRACTICE (BMP) #1

FOR NON-404 STREAMS ONLY ~ SEDIMENT CONTROL AT EXIT OF CULVERT



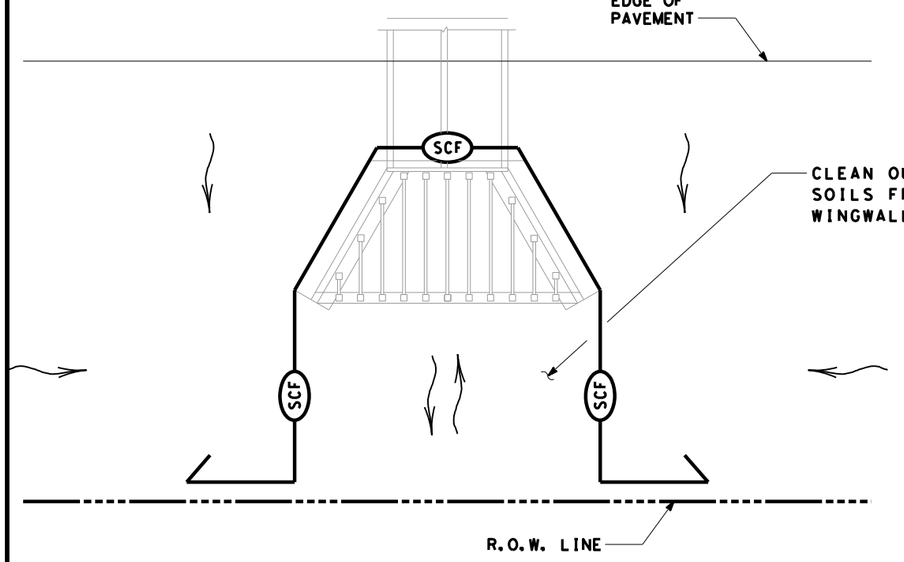
BEST MANAGEMENT PRACTICE (BMP) #2

FOR NON-404 STREAMS ONLY ~ SEDIMENT CONTROL AT EXIT OF CULVERT

SCF	SEDIMENT CONTROL FENCE
RFD2	ROCK FILTER DAM (TY 2)
RFD3	ROCK FILTER DAM (TY 3)
	DIRECTION OF FLOW

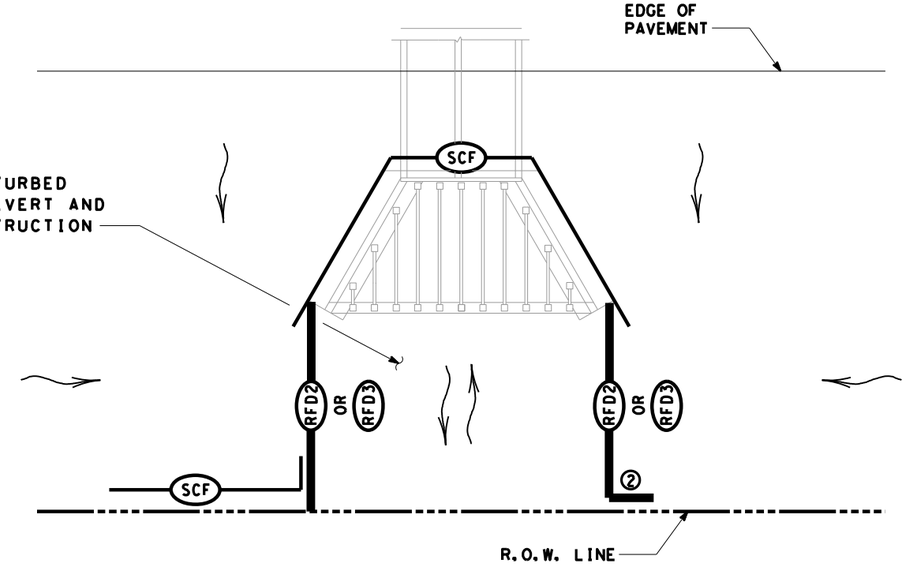
NOTES:

1. EXTEND SILT FENCE SO STORM WATER DOES NOT GO AROUND THE ENDS. USE L-HOOKS ON ENDS AS REQUIRED.
2. EXTEND ROCK FILTER DAM SO STORM WATER DOES NOT GO AROUND THE ENDS.



BEST MANAGEMENT PRACTICE (BMP) #3

FOR 404 OR NON-404 STREAMS ~ SEDIMENT CONTROL AT EXIT OR ENTRANCE OF CULVERT



BEST MANAGEMENT PRACTICE (BMP) #4

FOR 404 OR NON-404 STREAMS ~ SEDIMENT CONTROL AT EXIT OR ENTRANCE OF CULVERT

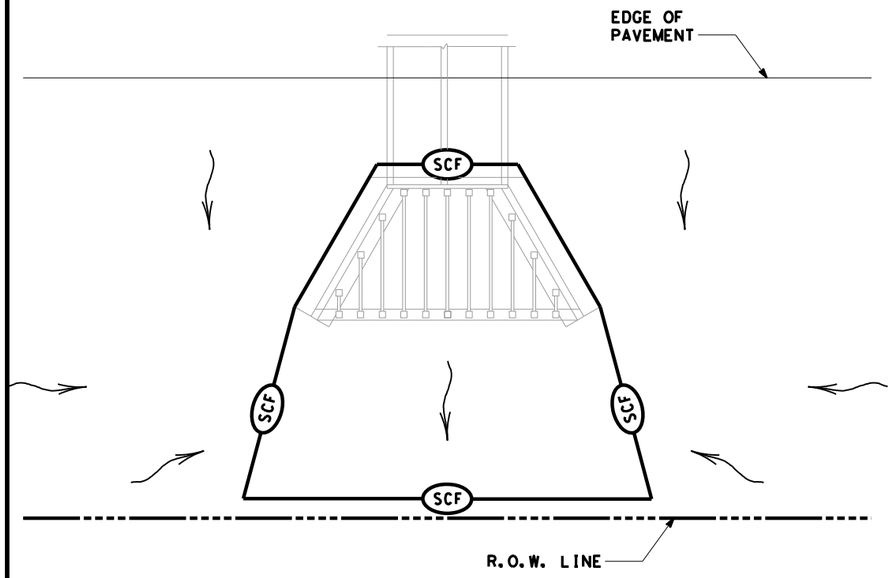
SCALE = NTS SHEET 5 OF 10

Texas Department of Transportation
Waco District Standard

TYPICAL APPLICATIONS FOR BEST MANAGEMENT PRACTICES

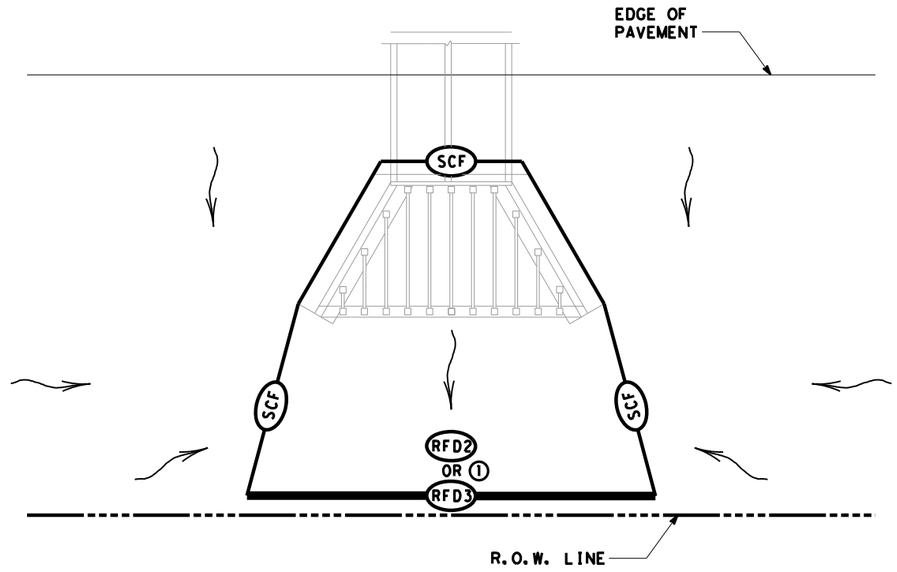
TA-BMP

FILE: BMPLAYOUTS.dgn		DN: TXDOT	CK: TXDOT	DW: TXDOT	CK: TXDOT	
©TxDOT 2009		CONT	SECT	JOB	HIGHWAY	
REVISIONS		0909	00	066	VARIOUS	
DEC 2013		DIST	COUNTY		SHEET NO.	
FEB 2015		WAC	McLENNAN, ETC.		52	



BEST MANAGEMENT PRACTICE (BMP) #5

FOR NON-404 STREAMS ONLY ~ SEDIMENT CONTROL AT EXIT OF CULVERT



BEST MANAGEMENT PRACTICE (BMP) #6

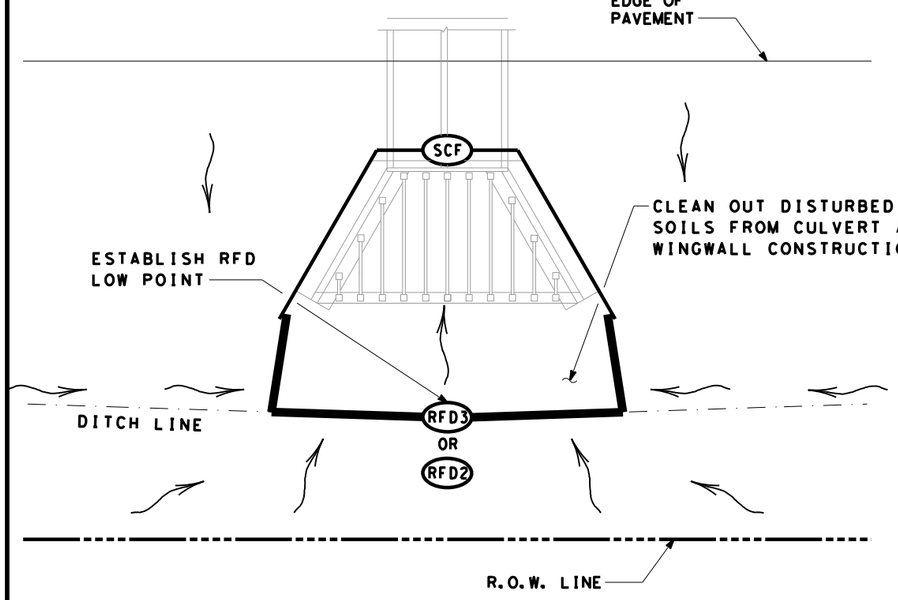
FOR NON-404 STREAMS ONLY ~ SEDIMENT CONTROL AT EXIT OF CULVERT

SCF	SEDIMENT CONTROL FENCE
RFD2	ROCK FILTER DAM (TY 2)
RFD3	ROCK FILTER DAM (TY 3)
	DIRECTION OF FLOW

NOTES:

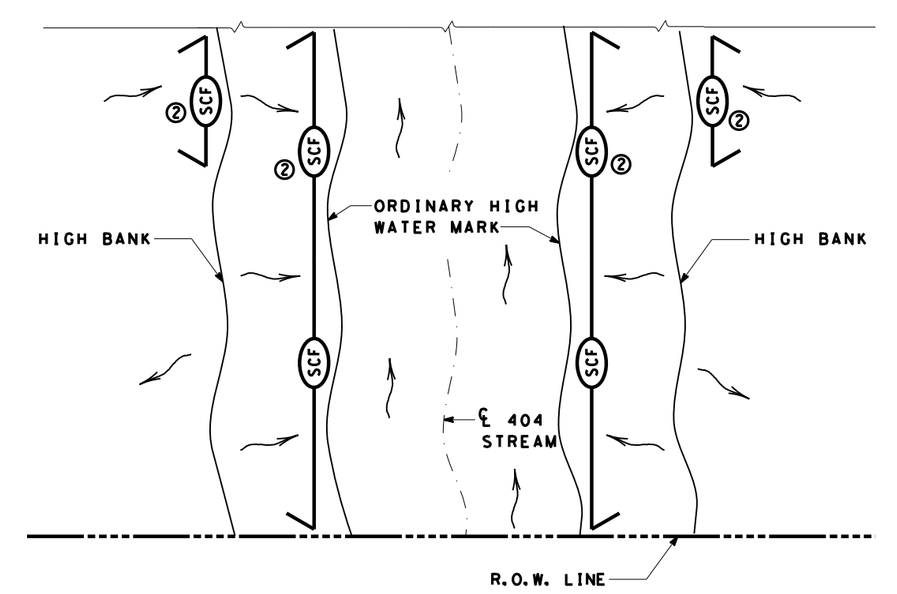
① PROVIDE OVERLAP OF SILT FENCE WITH ROCK FILTER DAM.

② USE SILT FENCE L-HOOKS ON ENDS TO BLOCK STORM WATER SEDIMENT



BEST MANAGEMENT PRACTICE (BMP) #7

FOR NON-404 STREAMS ONLY ~ SEDIMENT CONTROL AT ENTRANCE OF CULVERT



BEST MANAGEMENT PRACTICE (BMP) #8

FOR 404 STREAMS ~ SEDIMENT CONTROL DURING PROJECT CLEARING AND GRUBBING

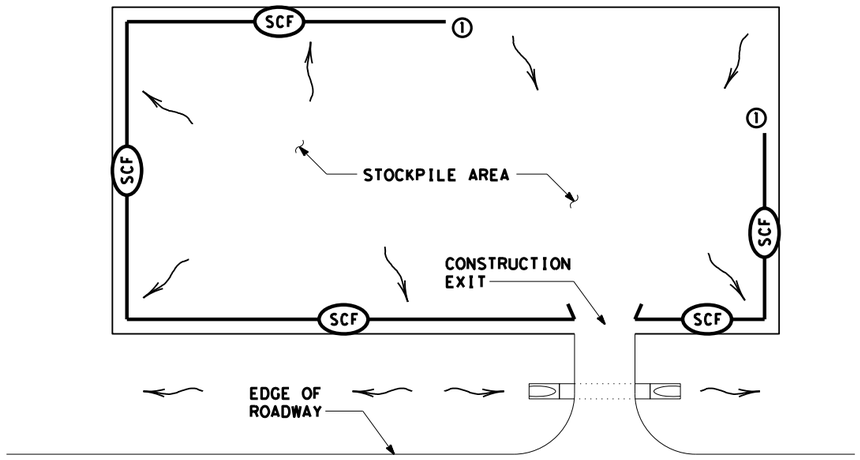
SCALE = NTS SHEET 6 OF 10

Texas Department of Transportation
Waco District Standard

TYPICAL APPLICATIONS FOR BEST MANAGEMENT PRACTICES

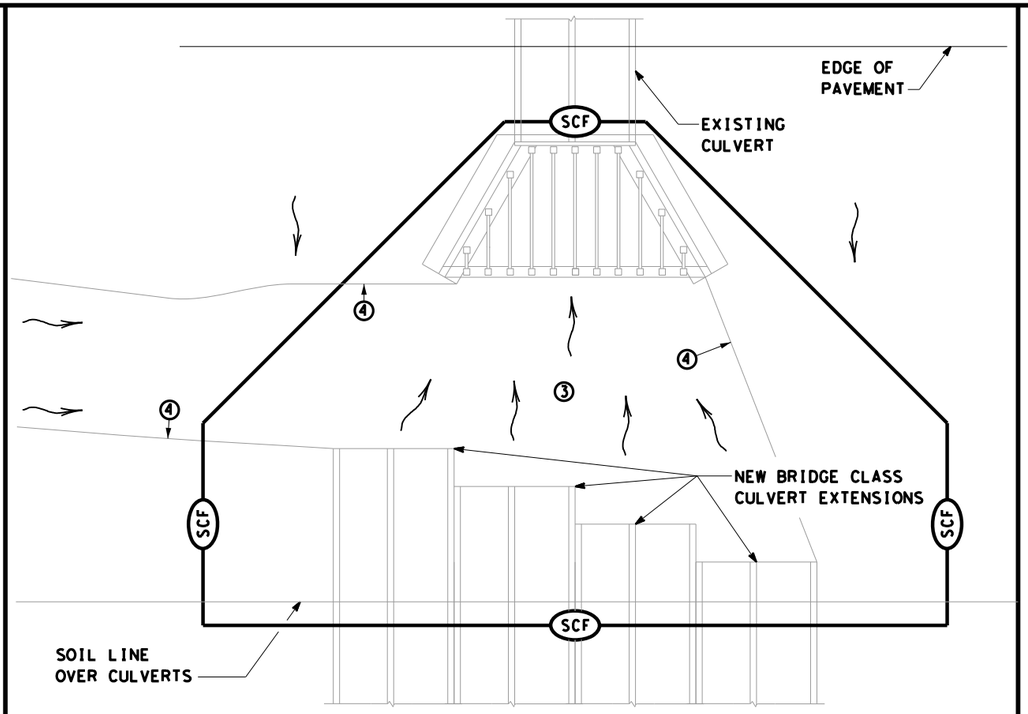
TA-BMP

FILE: BMPLAYOUTS.dgn	DN: TXDOT		CK: TXDOT	DW: TXDOT	CK: TXDOT
©TxDOT 2009	CONT	SECT	JOB		HIGHWAY
REVISIONS	0909	00	066		VARIOUS
DEC 2013 FEB 2015	DIST	COUNTY			SHEET NO.
	WAC	McLENNAN, ETC.			53



BEST MANAGEMENT PRACTICE (BMP) #9

STOCKPILE SEDIMENT CONTROL



BEST MANAGEMENT PRACTICE (BMP) #10

FOR 404 OR NON-404 STREAMS ONLY ~
SEDIMENT CONTROL AT PHASED CONSTRUCTION OF BRIDGE CLASS CULVERTS

SCF	SEDIMENT CONTROL FENCE
RFD2	ROCK FILTER DAM (TY 2)
RFD3	ROCK FILTER DAM (TY 3)
	DIRECTION OF FLOW

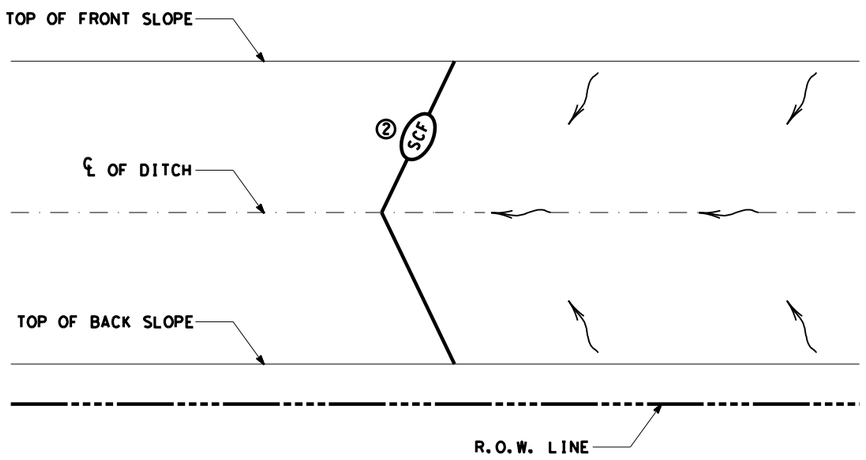
NOTES:

① START SEDIMENT CONTROL AT LOCATION SO ALL STORM WATER WITH SEDIMENT IS COLLECTED

② ROCK FILTER DAMS OR EARTH/GRASSED EMBANKMENTS CAN BE SUBSTITUTED AS DIRECTED.

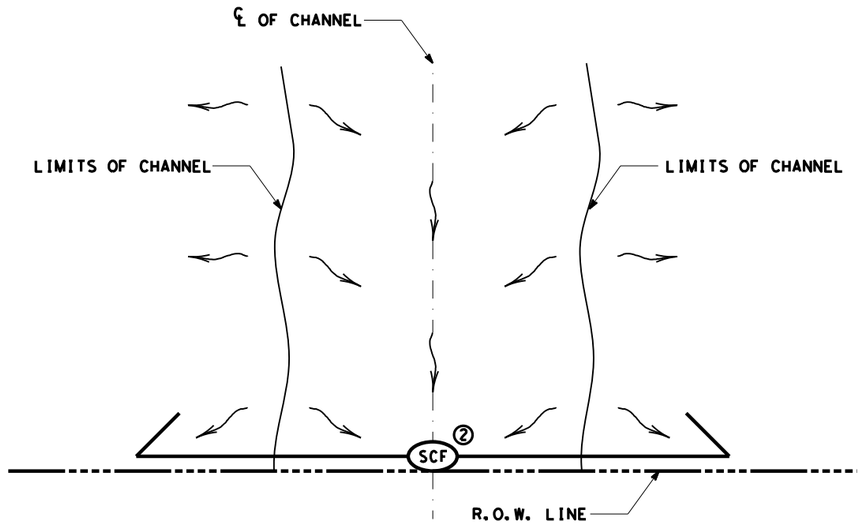
③ PROVIDE A SMOOTH TRANSITION FROM THE INVERT ELEVATIONS BETWEEN CULVERTS. REMOVE LOOSE SOIL FROM EXCAVATED AREA BETWEEN CULVERTS.

④ PROVIDE AND INSTALL PNEUMATICALLY PLACED CONCRETE ON THE DITCH BOTTOM AND SIDE SLOPES BETWEEN TEMPORARY TERMINATIONS BETWEEN OLD AND NEW CULVERTS. PNEUMATICALLY PLACED CONCRETE WILL BE PLACED TO THE HEIGHT OF THE LARGEST CULVERT ON THE DITCH SIDE SLOPES; AND TO A LIMIT 10 FEET OUTSIDE THE LOCATION OF BMPS ALONG THE DITCH BOTTOM. CEMENT STABILIZED SAND MAY BE SUBSTITUTED FOR PNEUMATICALLY PLACED CONCRETE, IN AREAS WHERE INSTALLATION WORKS AND AT THE OPTION OF TXDOT.



BEST MANAGEMENT PRACTICE (BMP) #11

BOUNDRY SEDIMENT CONTROL ~ BOTH ENDS OF CONTROL TERMINATED UP SLOPE



BEST MANAGEMENT PRACTICE (BMP) #12

BOUNDRY SEDIMENT CONTROL ~ BOTH ENDS OF CONTROL TERMINATED DOWN SLOPE

SCALE = NTS SHEET 7 OF 10

Texas Department of Transportation
Waco District Standard

TYPICAL APPLICATIONS FOR BEST MANAGEMENT PRACTICES

TA-BMP

FILE: BMPLAYOUTS.dgn		DN: TXDOT		CK: TXDOT	DW: TXDOT		CK: TXDOT
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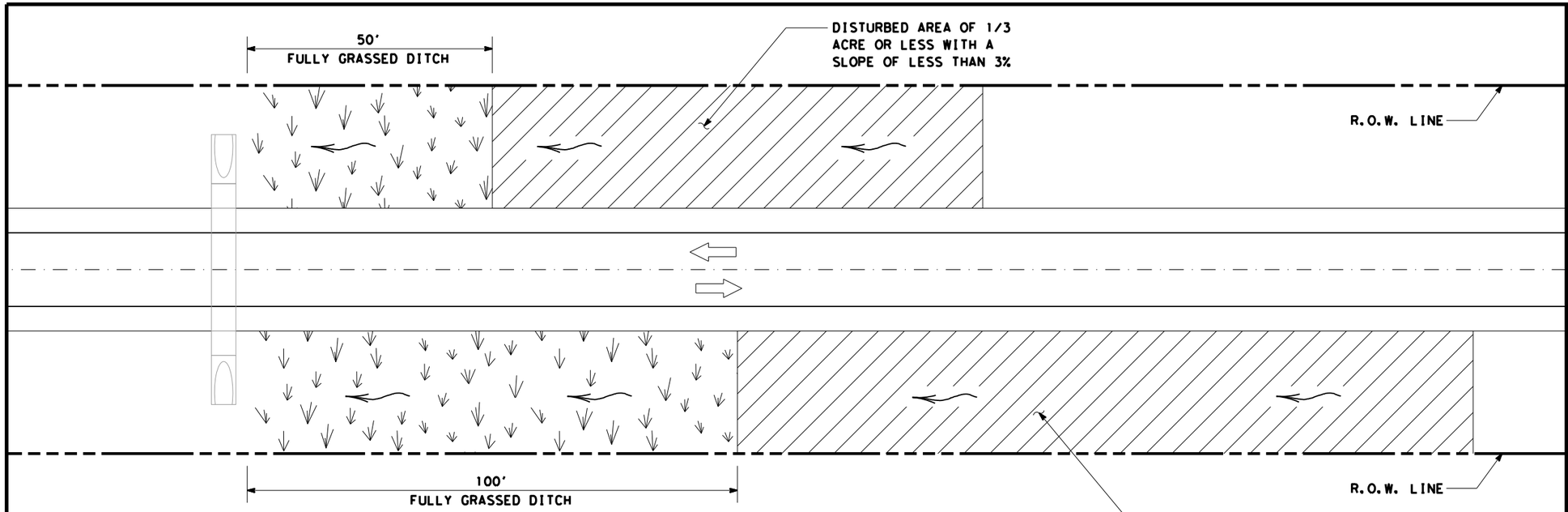
FEB 2015		WAC	McLENNAN, ETC.				54



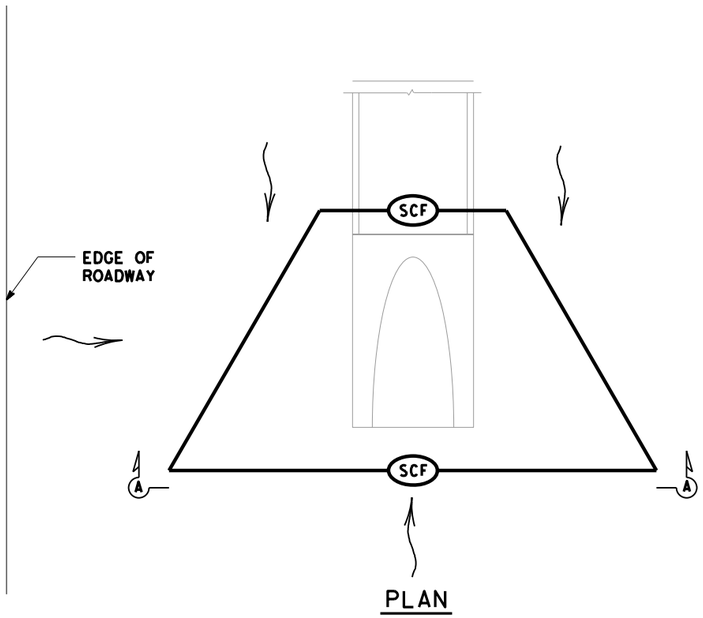
BEST MANAGEMENT PRACTICE (BMP) #13

USE OF VEGETATIVE BUFFERS IN PLACE OF TEMPORARY SEDIMENT CONTROLS SUCH AS SILT FENCE AND ROCK FILTER DAMS

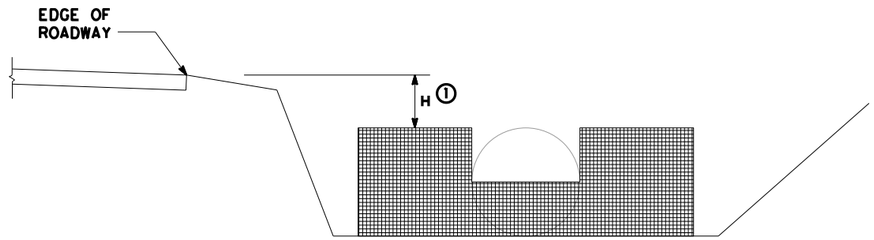
	FULLY GRASSED DITCH
	DISTURBED AREA
	DIRECTION OF FLOW
SCF	SEDIMENT CONTROL FENCE

① FOR H DIMENSIONS LESS THAN 1.5' SILT FENCE MAY NEED TO BE NOTCHED AS SHOWN IN VIEW A-A. ADD EXTRA POSTS AT NOTCH.

② BMP #14 MAY BE USED AT CROSS DRAINAGE STRUCTURES AS DIRECTED.



PLAN



VIEW A-A

BEST MANAGEMENT PRACTICE (BMP) #14

NON-404 STREAMS AND DITCHES ONLY - SEDIMENT CONTROL AT PARALLEL DRAINAGE STRUCTURE ENTRANCE ②

SCALE = NTS SHEET 8 OF 10

Texas Department of Transportation
Waco District Standard

TYPICAL APPLICATIONS FOR BEST MANAGEMENT PRACTICES

TA-BMP

FILE: BMPLAYOUTS.dgn	DN: TXDOT		CK: TXDOT	DW: TXDOT		CK: TXDOT
© TxDOT 2009	CONT	SECT	JOB		HIGHWAY	
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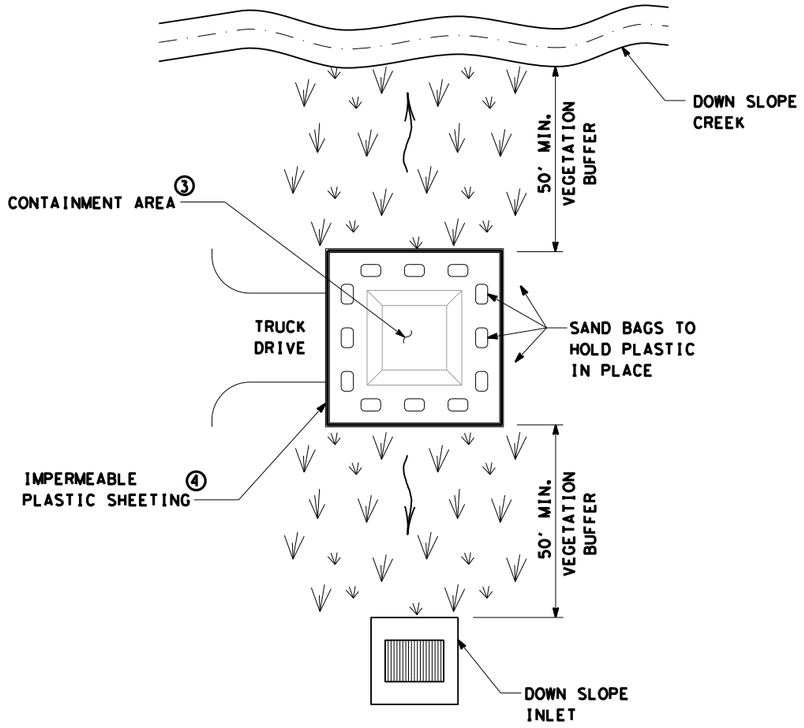
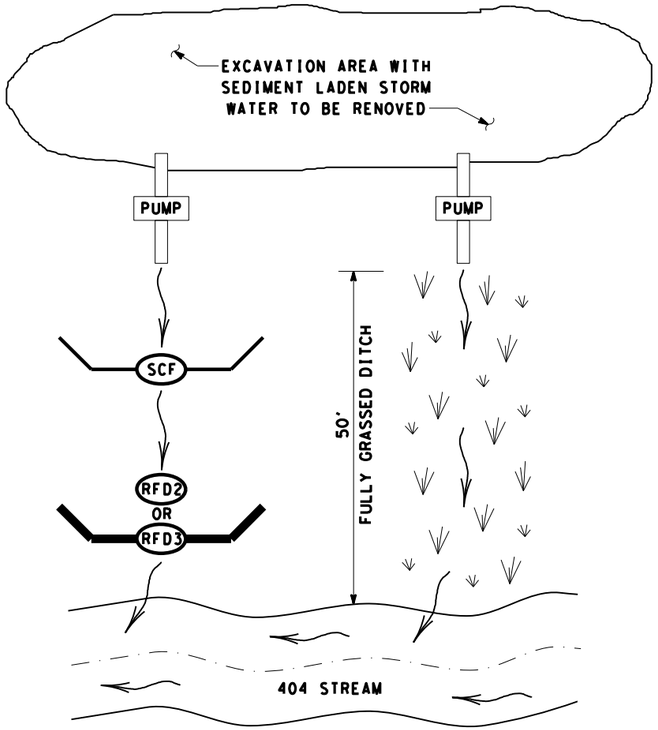
DEC 2013	DIST	COUNTY				SHEET NO.
FEB 2015	WAC	McLENNAN, ETC.				55



BEST MANAGEMENT PRACTICE (BMP) #15

CONCRETE TRUCK WASHOUT AREA



BEST MANAGEMENT PRACTICE (BMP) #16

PUMPED STORM WATER SEDIMENT CONTROLS ①

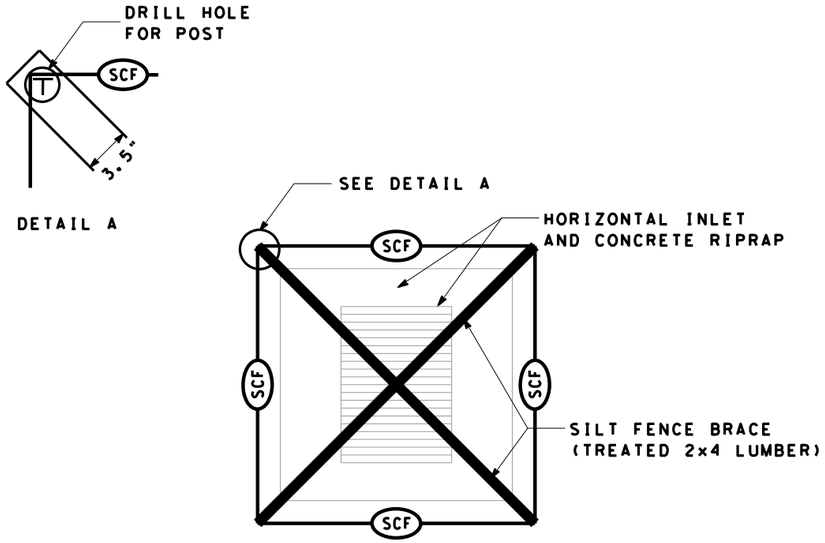
	FULLY GRASSED DITCH
	DIRECTION OF FLOW
SCF	SEDIMENT CONTROL FENCE
RFD2	ROCK FILTER DAM (TY 2)
RFD3	ROCK FILTER DAM (TY 3)

① PUMPED STROM WATER FROM AN EXCAVATION AREA SHOULD BE DISCHARGED IN A 50' VEGETATIVE BARRIER OR THROUGH TWO TEMPORARY SEDIMENT CONTROLS BEFORE ENTERING A 404 STREAM.

② FOR LANDOWNER STOCKPONDS WITHIN 50' OF THE RIGHT OF WAY LINE, PROVIDE REDUNDANT SEDIMENT CONTROLS AT THE CONVEYANCE OF THE POND. MINIMUM OF TWO SEDIMENT CONTROLS.

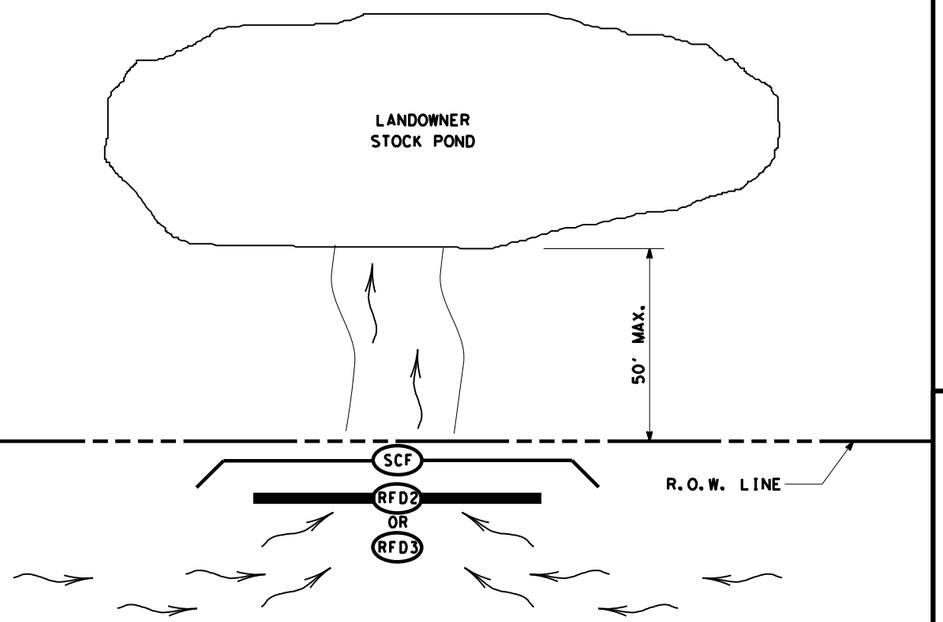
③ WHEN CONTAINMENT AREA REACHES 1' FREEBOARD, DISCONTINUE WASHOUT PLACEMENT AND REMOVE MATERIAL UPON SOLIDIFICATION.

④ EACH TIME SOLIDIFIED MATERIAL IS REMOVED REPLACE PLASTIC SHEETING.



BEST MANAGEMENT PRACTICE (BMP) #17

HORIZONTAL INLET SEDIMENT CONTROL



BEST MANAGEMENT PRACTICE (BMP) #18

LANDOWNER STOCKPOND SEDIMENT CONTROL ②

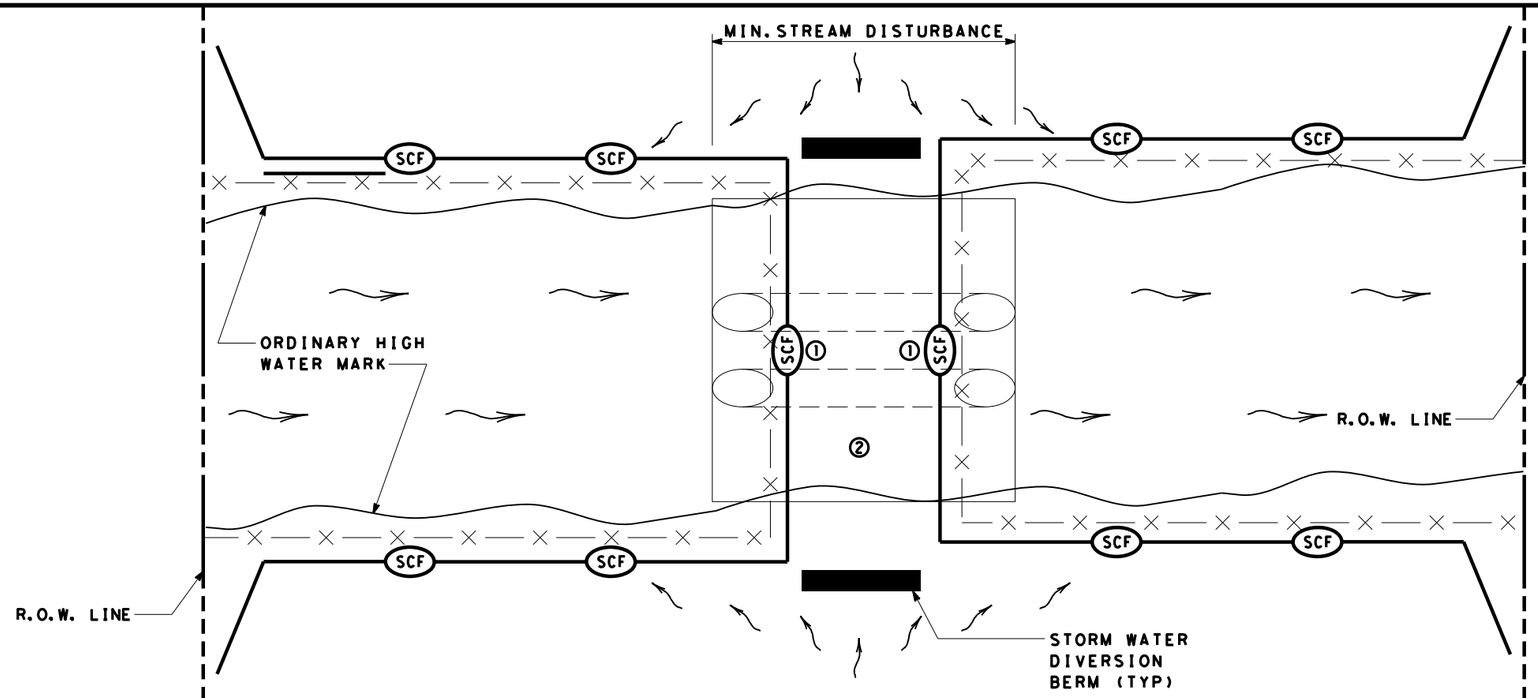
SCALE = NTS SHEET 9 OF 10

Texas Department of Transportation
Waco District Standard

TYPICAL APPLICATIONS FOR BEST MANAGEMENT PRACTICES

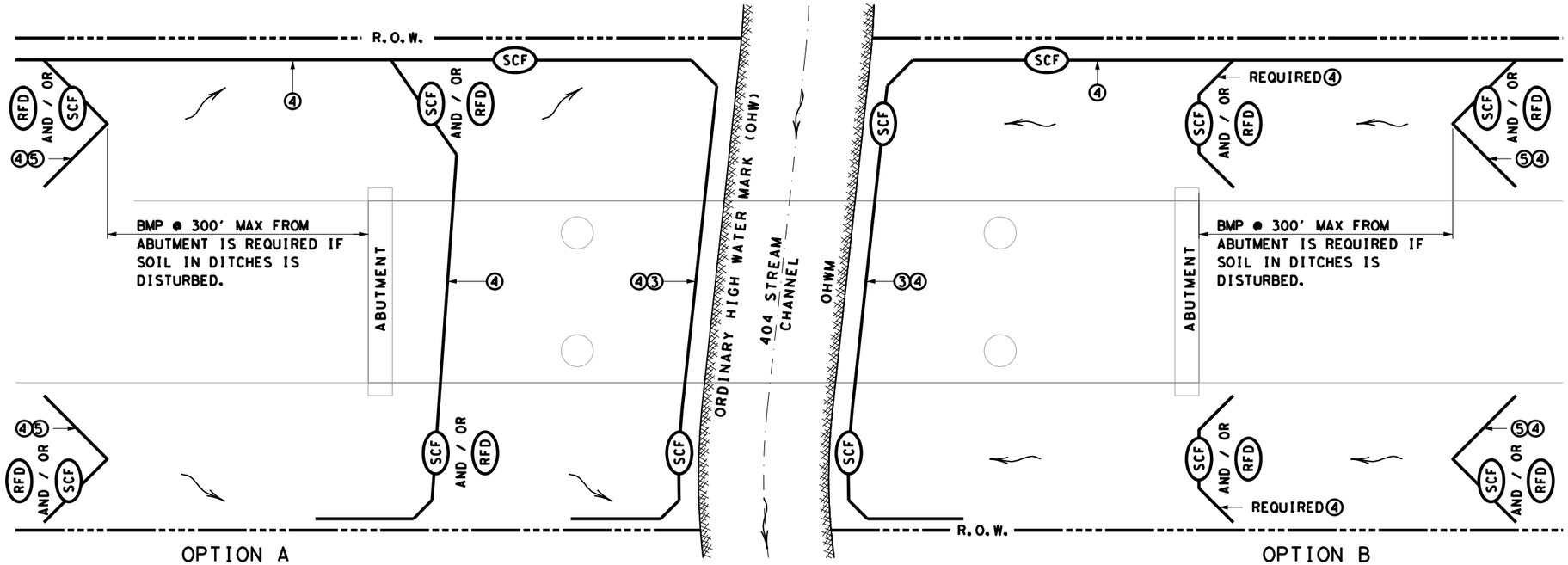
TA-BMP

FILE: BMPLAYOUTS.dgn	DN: TXDOT		CK: TXDOT	DW: TXDOT		CK: TXDOT	
©TxDOT 2009	CONT	SECT	JOB		HIGHWAY		
REVISIONS	0909	00	066		VARIOUS		
DEC 2013 FEB 2015	DIST	COUNTY				SHEET NO.	
	WAC	McLENNAN, ETC.				56	



BEST MANAGEMENT PRACTICE (BMP) #19

TYPICAL 404 STREAM CROSSING (SEDIMENT CONTROL AT CROSSING)



BEST MANAGEMENT PRACTICE (BMP) #20

FOR 404 STREAMS ~ BMP'S AT BRIDGES

	DIRECTION OF FLOW
SCF	SEDIMENT CONTROL FENCE
RFD	ROCK FILTER DAM
× — ×	SECURITY FENCING

① HAY BALES MAY BE SUBSTITUTED FOR SILT FENCE OVER THE STREAM CROSSING.

② CROSSING WILL BE AS PER REQUIREMENTS OF THE WATERS OF THE US GENERAL NOTES.

③ INSTALL SILT FENCE SLIGHTLY UP FROM OHW MARK FROM R.O.W. TO R.O.W.

④ USE SILT FENCE L-HOOKS ON LEVEL OR DOWN SLOPING ENDS TO BLOCK STORM WATER SEDIMENT

⑤ INSTALL LARGE V OR U SHAPED BMP'S FROM ABUTMENT AS SHOWN. IF THERE IS STEEP DITCH CONDITIONS DECREASE SPACING AND CONSIDER RFD'S. ADD ADDITIONAL BMP'S IF GRADE IS STEEP OR IF FLOW IS HIGH.

SCALE = NTS SHEET 10 OF 10

Texas Department of Transportation
Waco District Standard

TYPICAL APPLICATIONS FOR BEST MANAGEMENT PRACTICES

TA-BMP

FILE: BMPLAYOUTS.dgn	DN: TXDOT	CK: TXDOT	DW: TXDOT	CK: TXDOT
© TxDOT 2009	CONT	SECT	JOB	HIGHWAY
REVISIONS DEC 2013 FEB 2015	0909	00	066	VARIOUS
	DIST	COUNTY		SHEET NO.
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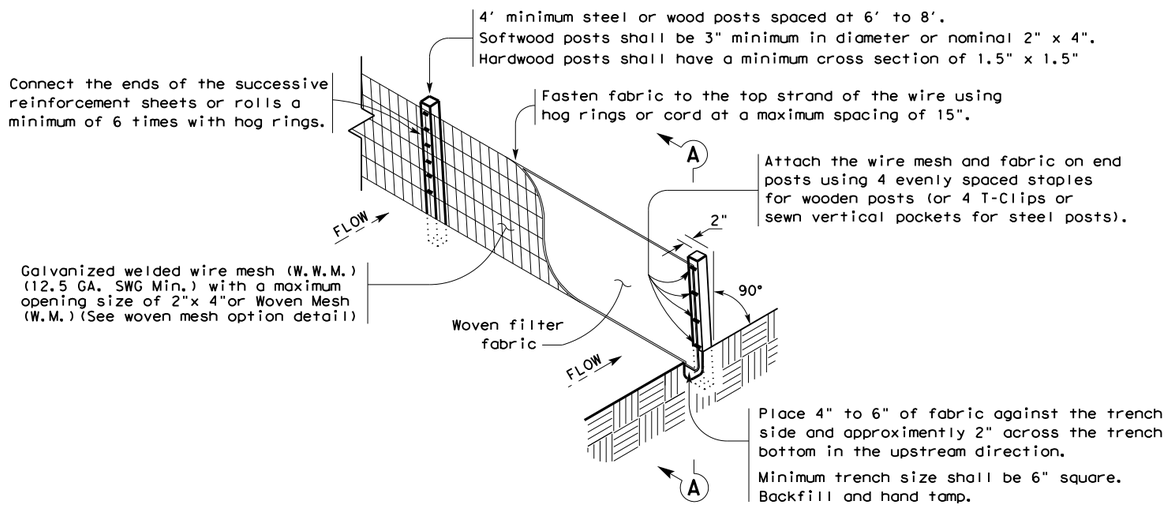
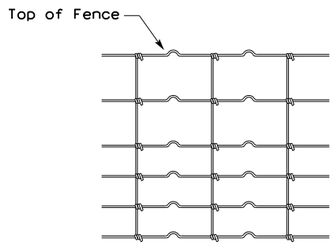
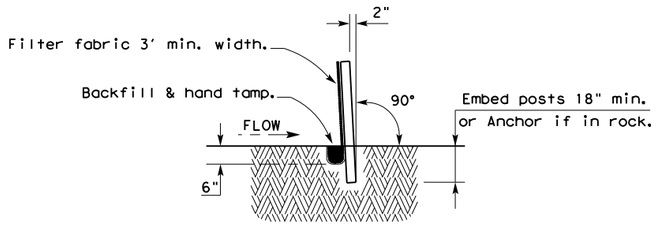
DATE: 2024
FILE: C:\TRAFF\DESIGN\Engineering\0909-00-066 Backplate Upgrade\Standards\EC(1)-16.dgn



TEMPORARY SEDIMENT CONTROL FENCE

SCF





SECTION A-A

HINGE JOINT KNOT WOVEN MESH (OPTION) DETAIL

Galvanized hinge joint knot woven mesh (12.5 GA.SWG Min.) requires a minimum of five horizontal wires spaced at a maximum of 12 inches apart and all vertical wires spaced at a maximum of 12 inches apart.

SEDIMENT CONTROL FENCE USAGE GUIDELINES

A sediment control fence may be constructed near the downstream perimeter of a disturbed area along a contour to intercept sediment from overland runoff. A 2 year storm frequency may be used to calculate the flow rate to be filtered.

Sediment control fence should be sized to filter a maximum flow through rate of 100 GPM/FT^2. Sediment control fence is not recommended to control erosion from a drainage area larger than 2 acres.

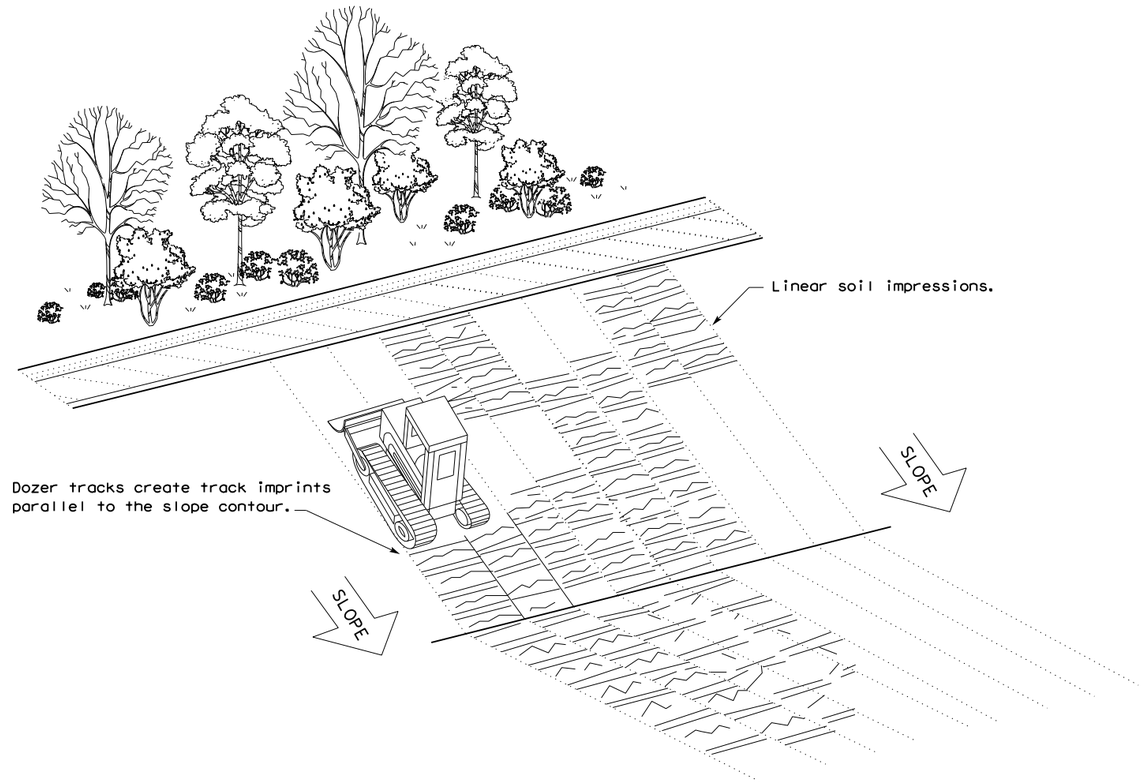
LEGEND

Sediment Control Fence

SCF

GENERAL NOTES

1. Vertical tracking is required on projects where soil distributing activities have occurred unless otherwise approved.
2. Perform vertical tracking on slopes to temporarily stabilize soil.
3. Provide equipment with a track undercarriage capable of producing linear soil impressions measuring a minimum of 12" in length by 2" to 4" in width by 1/2" to 2" in depth.
4. Do not exceed 12" between track impressions.
5. Install continous linear track impressions where the minimum 12" length impressions are perpendicular to the slope or direction of water flow.



VERTICAL TRACKING

Texas Department of Transportation

Design Division Standard

TEMPORARY EROSION, SEDIMENT AND WATER POLLUTION CONTROL MEASURES

FENCE & VERTICAL TRACKING

EC(1)-16

FILE: ec116	DN: TxDOT	CK: KM	DW: VP	DN/CK: LS
© TxDOT: JULY 2016	CONT	SECT	JOB	HIGHWAY
REVISIONS	0909	00	066	VARIOUS
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	WAC	McLENNAN, ETC.		58

DATE: 6/13/2024
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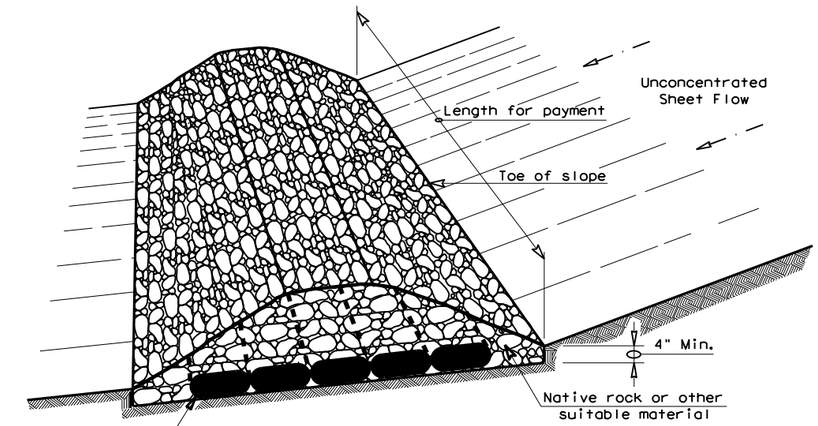
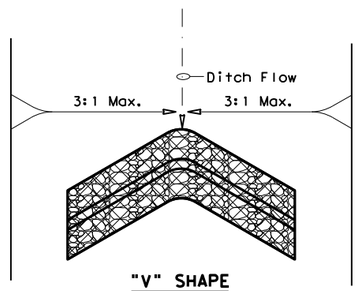
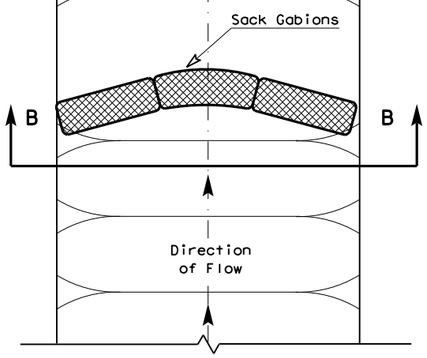


FILTER DAM AT TOE OF SLOPE

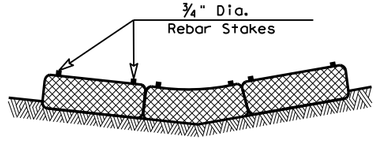
RFD1



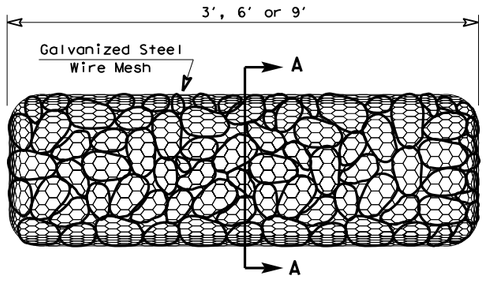
"V" SHAPE PLAN VIEW



PLAN VIEW

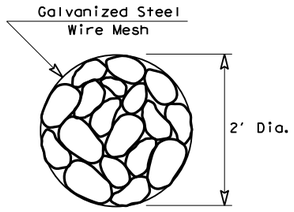


SECTION B-B

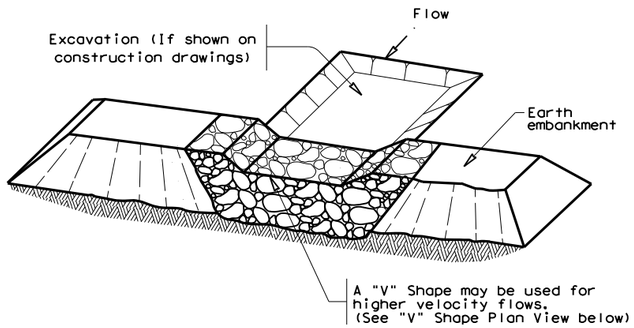


TYPE 4 (SACK GABIONS)

RFD4

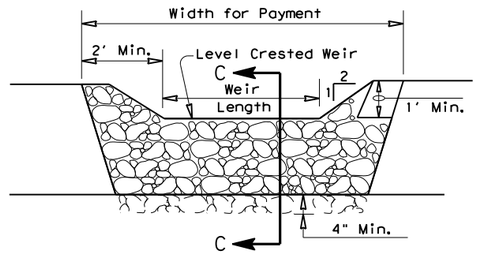


SECTION A-A

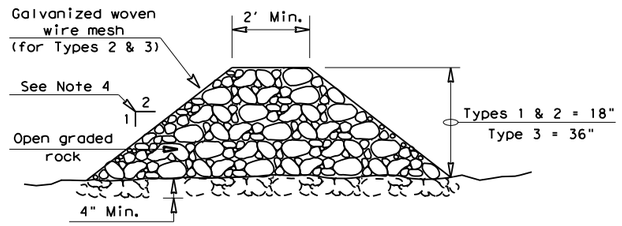


FILTER DAM AT SEDIMENT TRAP

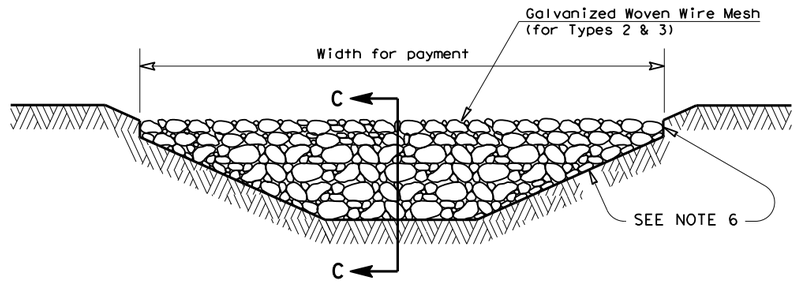
RFD1 OR RFD2



PROFILE



SECTION C-C



FILTER DAM AT CHANNEL SECTIONS

RFD1 OR RFD2 OR RFD3

ROCK FILTER DAM USAGE GUIDELINES

Rock Filter Dams should be constructed downstream from disturbed areas to intercept sediment from overland runoff and/or concentrated flow. The dams should be sized to filter a maximum flow through rate of 60 GPM/FT^2 of cross sectional area. A 2 year storm frequency may be used to calculate the flow rate.

Type 1 (18" high with no wire mesh) (3" to 6" aggregate): Type 1 may be used at the toe of slopes, around inlets, in small ditches, and at dike or swale outlets. This type of dam is recommended to control erosion from a drainage area of 5 acres or less. Type 1 may not be used in concentrated high velocity flows (approximently 8 Ft/Sec or more) in which aggregate wash out may occur. Sandbags may be used at the embedded foundation (4" deep min.) for better filtering efficiency of low flows if called for on the plans or directed by the Engineer.

Type 2 (18" high with wire mesh) (3" to 6" aggregate): Type 2 may be used in ditches and at dike or swale outlets.

Type 3 (36" high with wire mesh) (4" to 8" aggregate): Type 3 may be used in stream flow and should be secured to the stream bed.

Type 4 (Sack gabions) (3" to 6" aggregate): Type 4 May be used in ditches and smaller channels to form an erosion control dam.

Type 5: Provide rock filter dams as shown on plans.

GENERAL NOTES

1. If shown on the plans or directed by the Engineer, filter dams should be placed near the toe of slopes where erosion is anticipated, upstream and/or downstream at drainage structures, and in roadway ditches and channels to collect sediment.
2. Materials (aggregate, wire mesh, sandbags, etc.) shall be as indicated by the specification for "Rock Filter Dams for Erosion and Sedimentation Control".
3. The rock filter dam dimensions shall be as indicated on the SW3P plans.
4. Side slopes should be 2:1 or flatter. Dams within the safety zone shall have sideslopes of 6:1 or flatter.
5. Maintain a minimum of 1' between top of rock filter dam weir and top of embankment for filter dams at sediment traps.
6. Filter dams should be embedded a minimum of 4" into existing ground.
7. The sediment trap for ponding of sediment laden runoff shall be of the dimensions shown on the plans.
8. Rock filter dam types 2 & 3 shall be secured with 20 gauge galvanized woven wire mesh with 1" diameter hexagonal openings. The aggregate shall be placed on the mesh to the height & slopes specified. The mesh shall be folded at the upstream side over the aggregate and tightly secured to itself on the downstream side using wire ties or hog rings. For in stream use, the mesh should be secured or staked to the stream bed prior to aggregate placement.
9. Sack Gabions should be staked down with ¾" dia. rebar stakes, and have a double-twisted hexagonal weave with a nominal mesh opening of 2 ½" x 3 ¼"
10. Flow outlet should be onto a stabilized area (vegetation, rock, etc.).
11. The guidelines shown hereon are suggestions only and may be modified by the Engineer.

PLAN SHEET LEGEND

Type 1 Rock Filter Dam — RFD1
Type 2 Rock Filter Dam — RFD2
Type 3 Rock Filter Dam — RFD3
Type 4 Rock Filter Dam — RFD4

Texas Department of Transportation | Design Division Standard

TEMPORARY EROSION, SEDIMENT AND WATER POLLUTION CONTROL MEASURES

ROCK FILTER DAMS

EC(2)-16

FILE: ec216	DN: TxDOT	CK: KM	DW: VP	DN/CK: LS
© TxDOT: JULY 2016	CONT	SECT	JOB	HIGHWAY
REVISIONS	0909	00	066	VARIOUS
	DIST	COUNTY		SHEET NO.
	WAC	McLENNAN, ETC.		59

DATE: 6/13/2024
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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.

2.

☐ No Action Required ☒ Required Action

Action No.

1. Prevent stormwater pollution by controlling erosion and sedimentation in accordance with TPDES Permit TXR 150000

2. Comply with the SW3P and revise when necessary to control pollution or required by the Engineer.

3. Post Construction Site Notice (CSN) with SW3P information on or near the site, accessible to the public and TCEQ, EPA or other inspectors.

4. When Contractor project specific locations (PSL's) increase disturbed soil area to 5 acres or more, submit NOI to TCEQ and the Engineer.

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
☐ Temporary Vegetation	☐ Silt Fence	☐ Vegetative Filter Strips
☐ Blankets/Matting	☐ Rock Berm	☐ Retention/Irrigation Systems
☐ Mulch	☐ Triangular Filter Dike	☐ Extended Detention Basin
☐ Sodding	☐ Sand Bag Berm	☐ Constructed Wetlands
☐ Interceptor Swale	☐ Straw Bale Dike	☐ Wet Basin
☐ Diversion Dike	☐ Brush Berms	☐ Erosion Control Compost
☐ Erosion Control Compost	☐ Erosion Control Compost	☐ Mulch Filter Berm and Socks
☐ Mulch Filter Berm and Socks	☐ Mulch Filter Berm and Socks	☐ Compost Filter Berm and Socks
☐ Compost Filter Berm and Socks	☐ Compost Filter Berm and Socks	☐ Vegetation Lined Ditches
	☐ Stone Outlet Sediment Traps	☐ Sand Filter Systems
	☐ Sediment Basins	☐ 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.

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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.

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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	SW3P:	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.

Texas Department of Transportation — Design Division Standard

ENVIRONMENTAL PERMITS, ISSUES AND COMMITMENTS EPIC

FILE: epic.dgn	DN:	CK:	DW:	CK:
©TxDOT: February 2015	CONT	SECT	JOB	HIGHWAY
REVISIONS 12-12-2011 (DS) 05-07-14 ADDED NOTE SECTION IV. 01-23-2015 SECTION I (CHANGED ITEM 1122 TO ITEM 506, ADDED GRASSY SWALES.	0909	00	066	VARIOUS
	DIST	COUNTY		SHEET NO.
	WAC	McLENNAN, ETC.		60