INDEX OF SHEETS

SHEET No.	DESCRIPTION
1	TITLE SHEET
2	INDEX OF SHEETS

STATE OF TEXAS
DEPARTMENT OF TRANSPORTATION

MAINTENANCE PROJECT No.				SHEET No.
BPM 6467-47-001				1
DRAFT	STATE	DISTRICT	COUNTY	
DL	TEXAS	WACO	MCLENNAN	
CHECK	CONT	SECT	JOB	HIGHWAY No.
CS	6467	47	001	FM 434,ETC

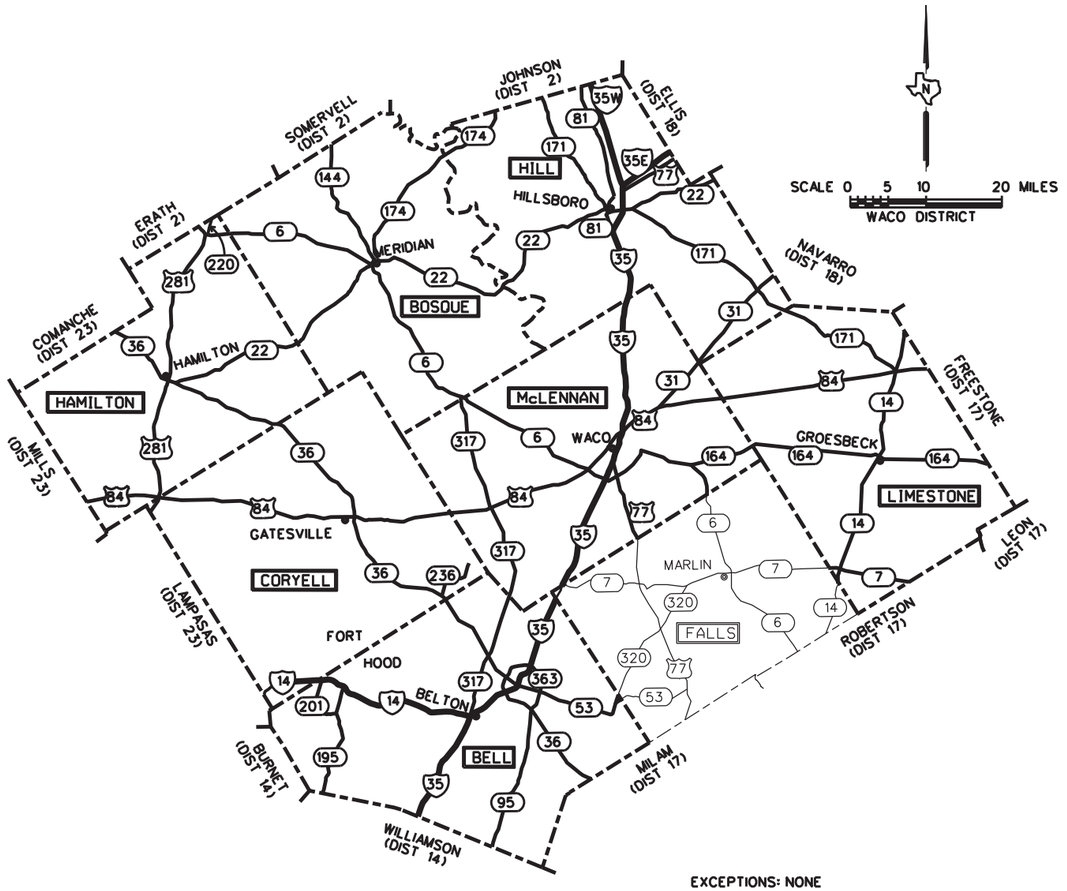
AREA OF DISTURBED SOIL = 0.248 ACRES

PLANS OF PROPOSED
HIGHWAY ROUTINE MAINTENANCE CONTRACT

TYPE OF WORK:

BRIDGE PREVENTIVE MAINTENANCE

PROJECT No.: BPM 6467-47-001
HIGHWAY No.: FM 434,ETC
LIMITS OF WORK: BELL, BOSQUE, CORYELL, HAMILTON, HILL, LIMESTONE & McLENNAN COUNTIES



EXCEPTIONS: NONE
EQUATIONS: NONE
RAILROAD: BSNF & UPRR
DOT# 023 086 B
DOT# 416 160 R

SPECIFICATIONS ADOPTED BY THE TEXAS DEPARTMENT OF TRANSPORTATION, NOVEMBER 1, 2014 AND PROVISIONAL ITEMS INCLUDED HEREIN, SHALL GOVERN ON THIS CONTRACT.

TEXAS DEPARTMENT OF TRANSPORTATION

RECOMMENDED FOR LETTING:

DocuSigned by:
Charles W. Smith, PE
E7CF02001E0C45F...
7/12/2024
DISTRICT MAINTENANCE ENGINEER

RECOMMENDED FOR LETTING:

DocuSigned by:
Stephen Michael Kasberg, P.E.
6597DEC5B49C452...
7/12/2024
DIRECTOR OF MAINTENANCE

APPROVED FOR LETTING:

DocuSigned by:
Stanley Swiatek
B69BD798DD564C9...
7/12/2024
DISTRICT ENGINEER

$USER$
$SCALE$

STATE OF TEXAS
CHARLES W. SMITH
110312
LICENSED
PROFESSIONAL ENGINEER

STANDARD SHEETS SPECIFICALLY IDENTIFIED WITH (*) HAVE BEEN SELECTED BY ME OR UNDER MY RESPONSIBLE SUPERVISION AS BEING APPLICABLE TO THIS PROJECT.

Charles W. Smith, PE P.E. 7/12/2024 DATE

INDEX OF SHEETS

SHEET 1 OF 2

DESIGN	FED RD DIV No.	PROJECT No.		HIGHWAY No.
ZB	6	BPM 646747001		FM 434,ETC
CHECK	STATE	DISTRICT	COUNTY	SHEET No.
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GRAPHICS	CONTROL	SECTION	JOB	2
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CHECK	6467	47	001	
CS				

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$SCALE$

STATE OF TEXAS
CHARLES W. SMITH
110312
LICENSED PROFESSIONAL ENGINEER

STANDARD SHEETS SPECIFICALLY IDENTIFIED WITH (*) HAVE BEEN SELECTED BY ME OR UNDER MY RESPONSIBLE SUPERVISION AS BEING APPLICABLE TO THIS PROJECT.

Charles W. Smith, P.E. 7/12/2024
P.E. DATE

Texas Department of Transportation

INDEX OF SHEETS

SHEET 2 OF 2

DESIGN	FED RD DIV No.	PROJECT No.		HIGHWAY No.
ZB	6	BPM 646747001		FM 434,ETC
CHECK	STATE	DISTRICT	COUNTY	SHEET No.
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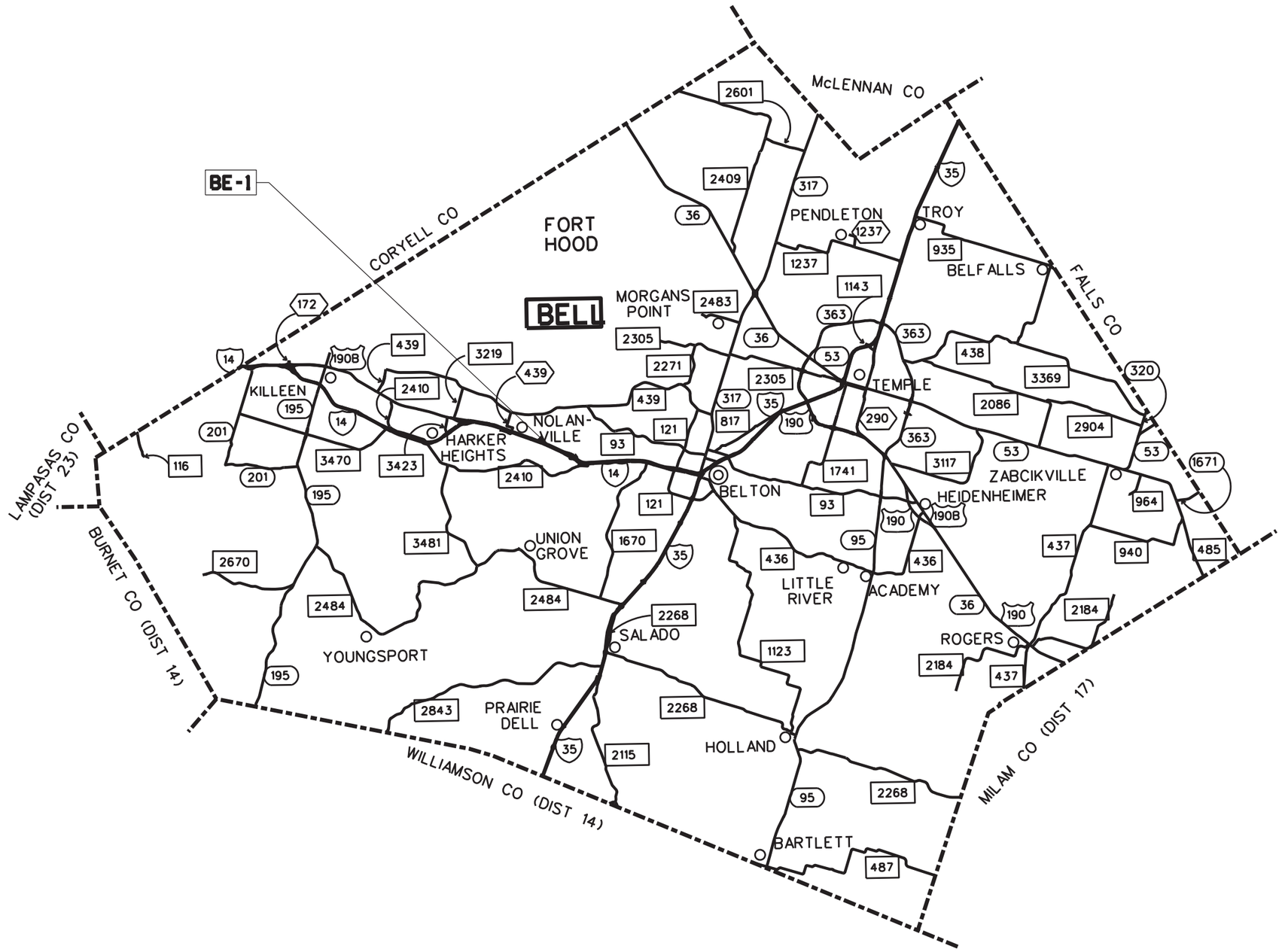

STATE OF TEXAS
CHARLES W. SMITH
110312
LICENSED PROFESSIONAL ENGINEER

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Charles W. Smith, PE 7/12/2024

PROJECT LAYOUT
BELL COUNTY

SCALE: 1"= 5 MILES

Sheet 1 of 7

DESIGN	FED RD DIV No.	PROJECT No.	HIGHWAY No.
ZB	6	BPM 6467-47-001	FM 434,ETC
CHECK	STATE	DISTRICT	COUNTY	SHEET No.
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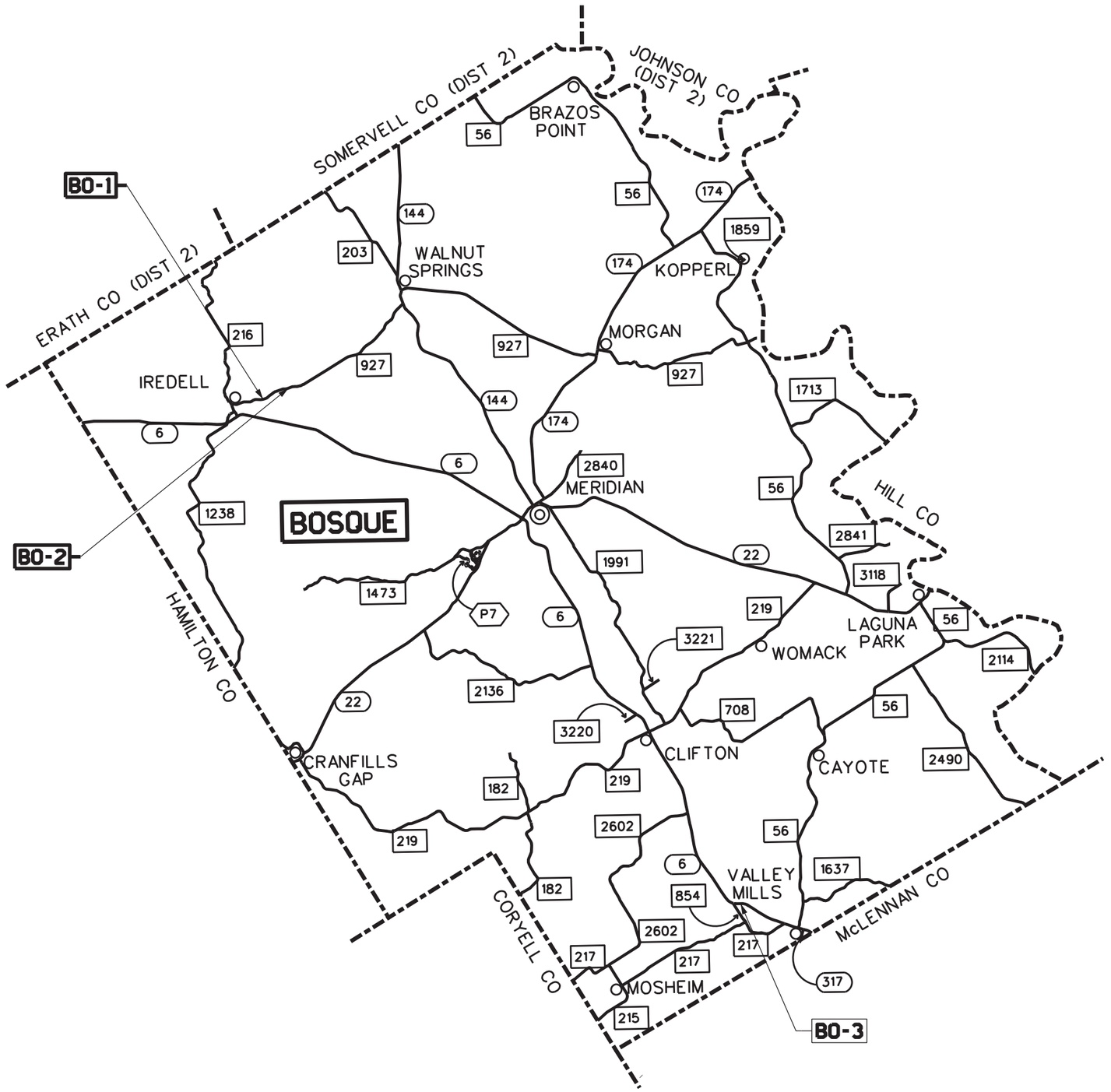

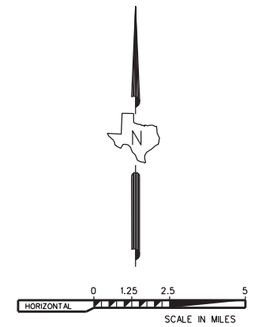

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Charles W. Smith, PE 7/12/2024

PROJECT LAYOUT
BOSQUE COUNTY

SCALE: 1" = 5 MILES

Sheet 2 of 7

DESIGN	FED RD DIV No.	PROJECT No.		HIGHWAY No.
ZB	6	BPM 6467-47-001		FM 434,ETC
CHECK	STATE	DISTRICT	COUNTY	SHEET No.
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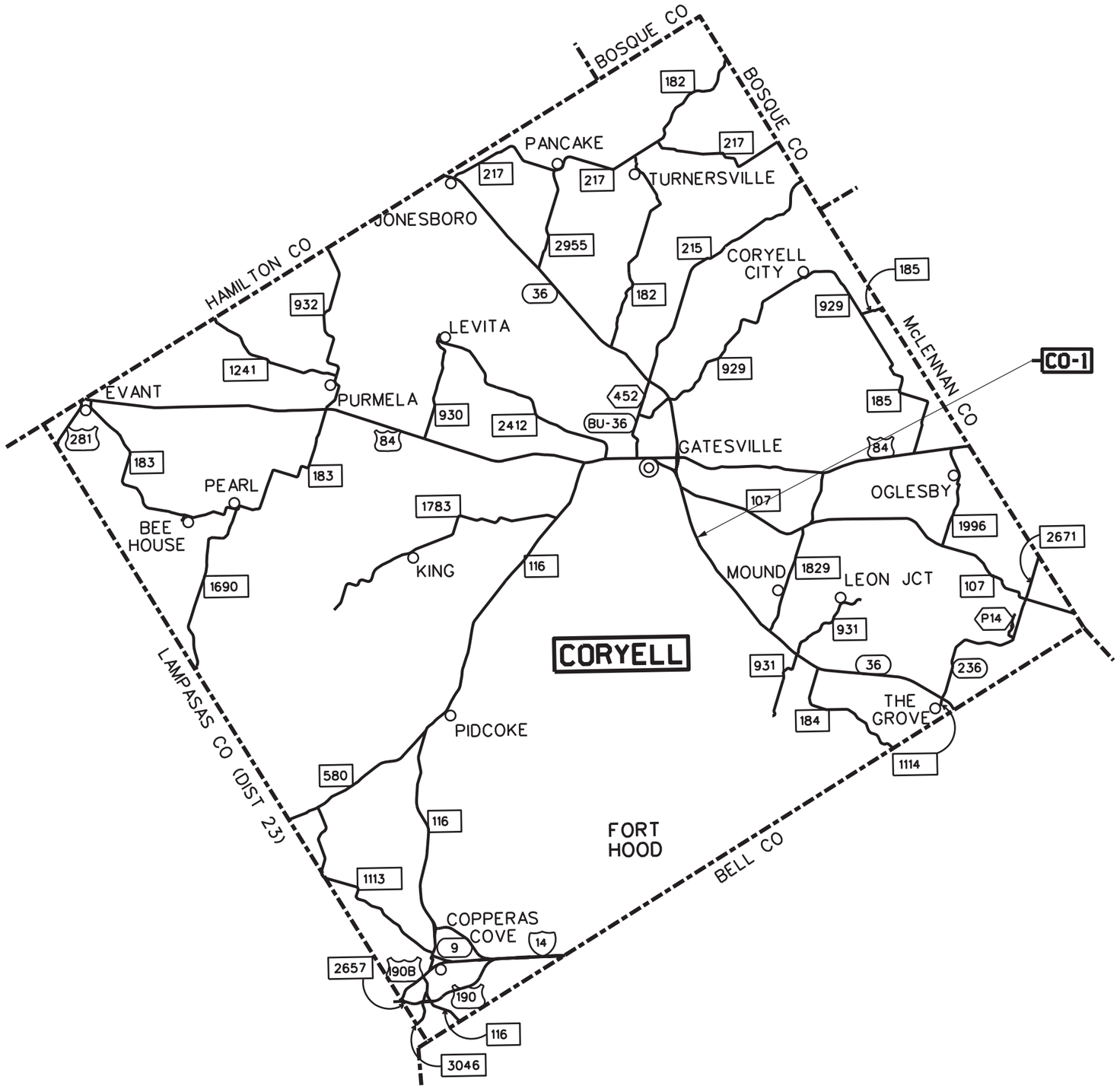

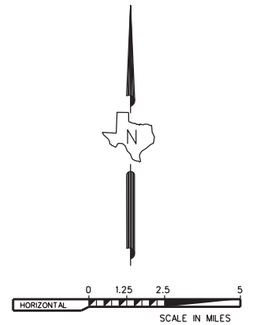

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PROJECT LAYOUT
CORYELL COUNTY

SCALE: 1"= 5 MILES — Sheet 3 of 7

DESIGN	FED RD DIV No.	PROJECT No.		HIGHWAY No.
ZB	6	BPM 6467-47-001		FM 434,ETC
CHECK	STATE	DISTRICT	COUNTY	SHEET No.
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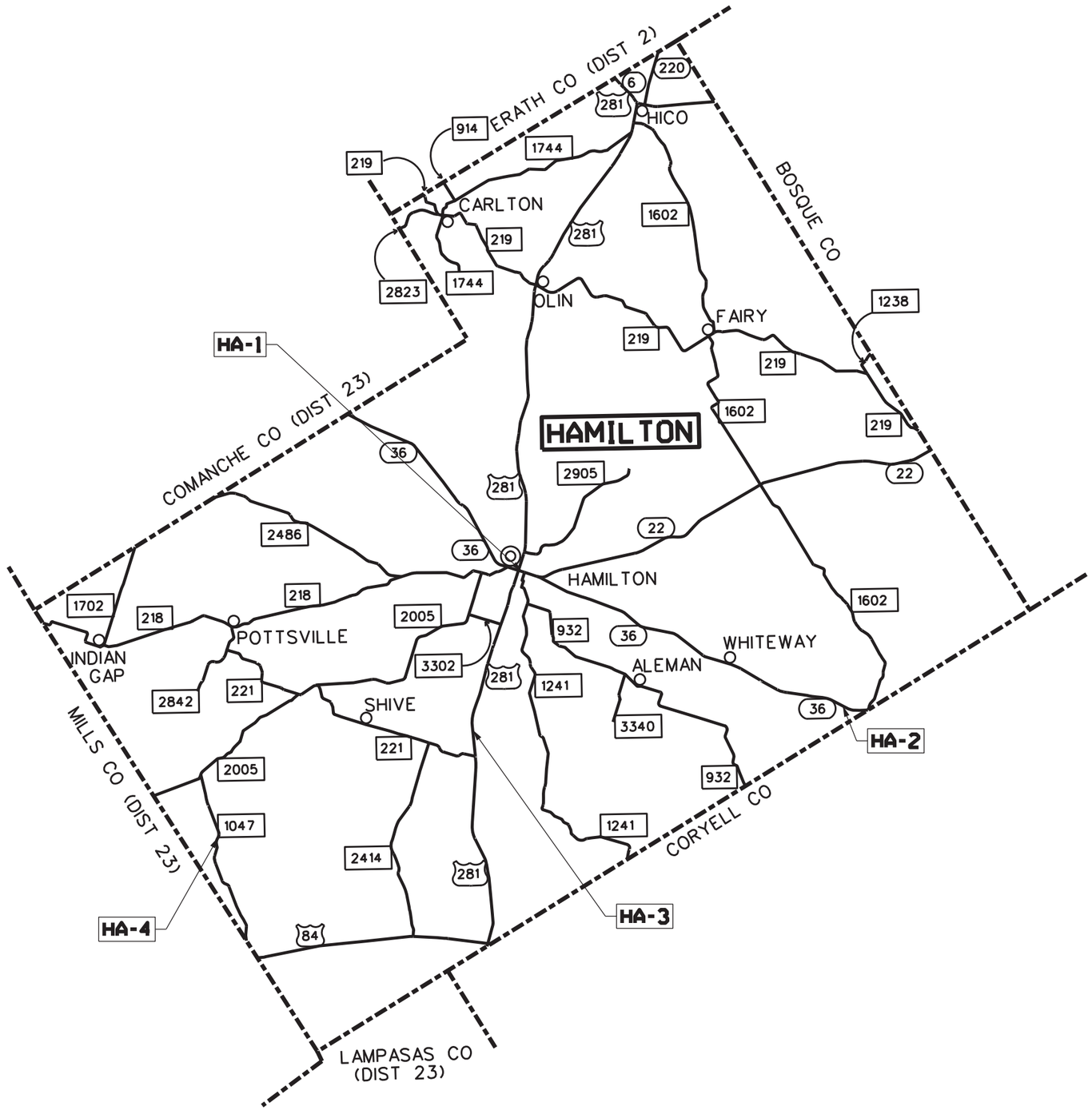

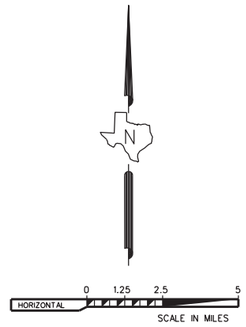

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Charles W. Smith, PE 7/12/2024

Texas Department of Transportation

PROJECT LAYOUT
HAMILTON COUNTY

SCALE: 1"= 5 MILES — Sheet 4 of 7

DESIGN	FED RD DIV No.	PROJECT No.		HIGHWAY No.
ZB	6	BPM 6467-47-001		FM 434,ETC
CHECK	STATE	DISTRICT	COUNTY	SHEET No.
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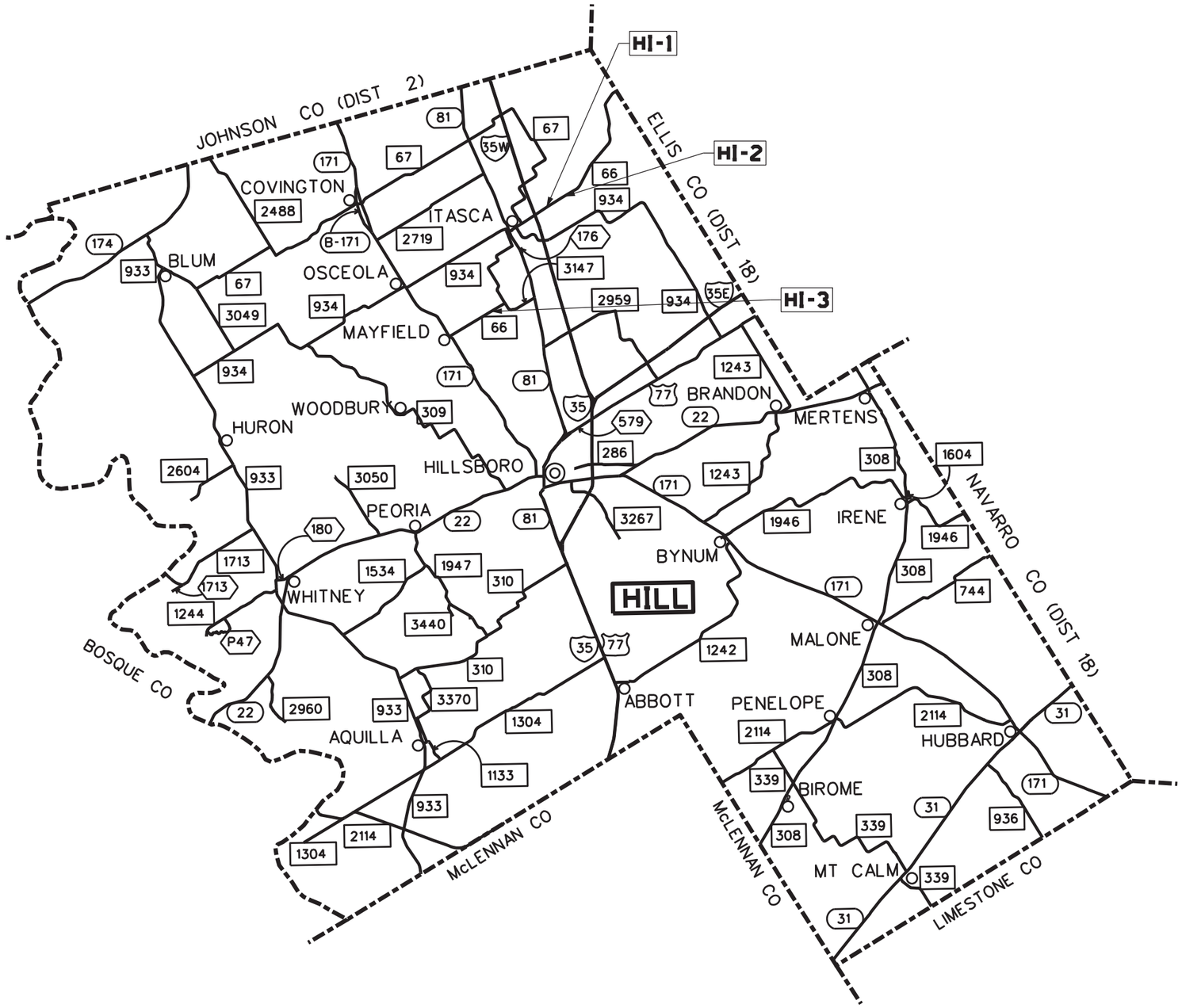

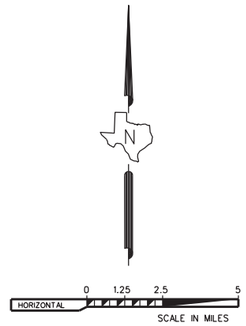

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Charles W. Smith, PE 7/12/2024

PROJECT LAYOUT
HILL COUNTY

SCALE: 1"= 5 MILES Sheet 5 of 7

DESIGN	FED RD DIV No.	PROJECT No.		HIGHWAY No.
ZB	6	BPM 6467-47-001		FM 434,ETC
CHECK	STATE	DISTRICT	COUNTY	SHEET No.
CS	TEXAS	WACO	MCLENNAN	8
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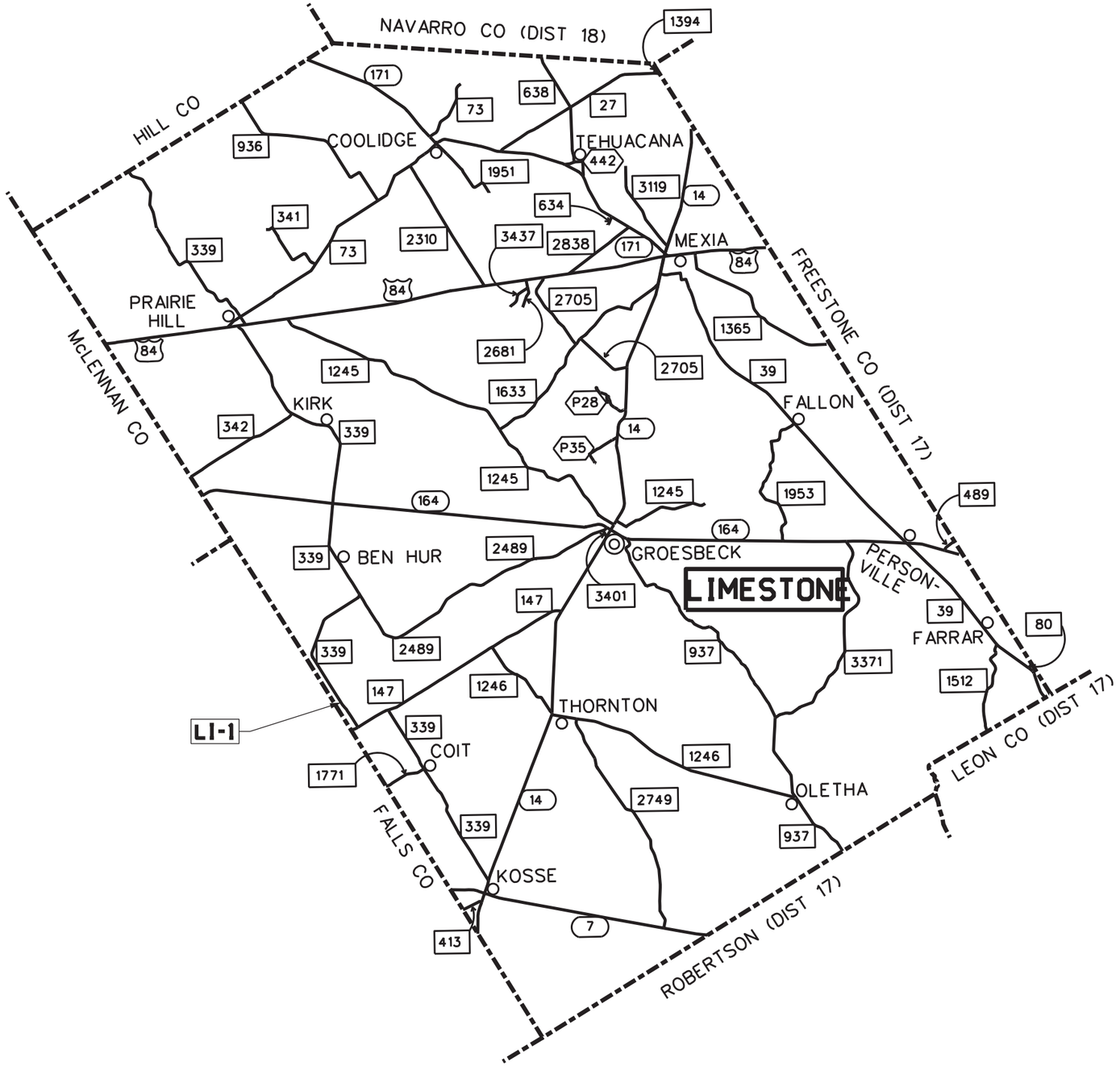

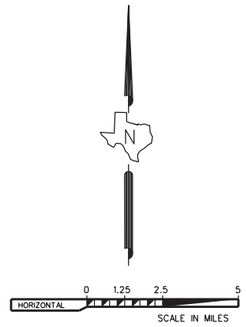

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Charles W. Smith, PE 7/12/2024

PROJECT LAYOUT
LIMESTONE COUNTY

SCALE: 1" = 5 MILES — Sheet 6 of 7

DESIGN	FED RD DIV No.	PROJECT No.		HIGHWAY No.
ZB	6	BPM 6467-47-001		FM 434,ETC
CHECK	STATE	DISTRICT	COUNTY	SHEET No.
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CS				

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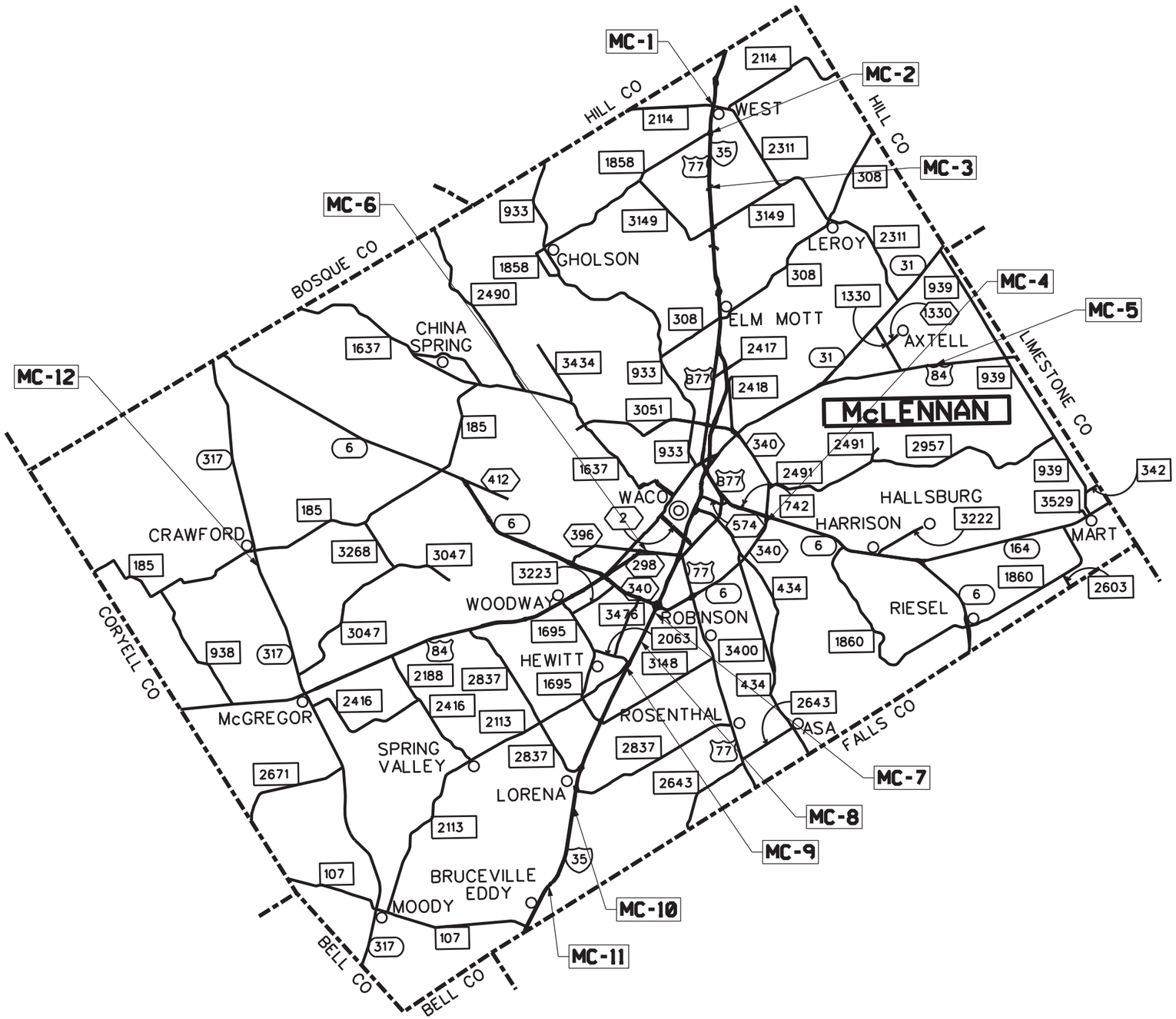

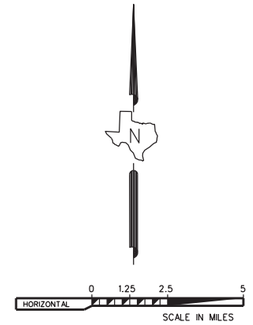

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Charles W. Smith, PE 7/12/2024

PROJECT LAYOUT
McLENNAN COUNTY

SCALE: 1"= 5 MILES — Sheet 7 of 7

DESIGN	FED RD DIV No.	PROJECT No.		HIGHWAY No.
ZB	6	BPM 6467-47-001		FM 434,ETC
CHECK	STATE	DISTRICT	COUNTY	SHEET No.
CS	TEXAS	WACO	MCLENNAN	10
GRAPHICS	CONTROL	SECTION	JOB	
DL	6467	47	001	
CHECK				
CS				

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Table 6: Basis of Estimate for Asphalt Pavements				
Item	Description	Rate	Basis	Quantities
341	DENSE-GRADED HOT MIX ASPHALT			
	TY-C PG 70-22	110 LB / SY / IN	733 SY	85 TON

Table 7: Basis of Estimate for Interlayer Material				
Item	Description	Rate	Basis	Quantities
3085	UNDERSEAL COURSE	0.25 GAL / SY	773 SY	155 GAL

GENERAL

PRE-BID QUESTIONS

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

Stephen Kasberg - Wacoprebid@txdot.gov, 254-867-2780, 100 S. Loop Dr., Waco, TX
Carmen Chau - Wacoprebid@txdot.gov, 254-867-2794, 100 S. Loop Dr., Waco, TX

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.

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 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 ___0.248_____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).

GENERAL NOTES

ITEM 5: CONTROL OF THE WORK

Provide the Engineer with a weekly work schedule of planned activities including anticipated quantities of materials to be placed daily (CY of each concrete placement, tons of HMAC to be placed daily, etc.). Schedules will be provided for the following week as part of each week's project meetings or by 5PM on Thursday as approved by the Engineer. Failure to provide notifications are required here may be deemed as insufficient notice per item 5.10.

Provide the Engineer Daily by 3PM the planned activities for the following day including location, quantities of materials to be placed, etc. in a format acceptable to the Engineer.

Acceptance or denial of an alternate is at the sole discretion of the Department. Contractor is responsible for impacts to the project schedule and cost resulting from the use of alternates.

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.

Work in this contract is required to be done on railroad property. Cooperate with the railroads and comply with all of their requirements including obtaining any training they require before performing work on railroad property. Please note various railroad companies have enacted video monitoring of their rights of way.

UNION PACIFIC RAILROAD COMPANY
Protection of Fiber Optic Cable Systems

Fiber optic cable systems may be buried on the railroad's property. Protection of the fiber optic cable systems is of extreme importance since any break could disrupt service to users resulting in business interruption and loss of revenue and profits. The State and/or its Contractor will telephone the railroad during normal business hours (7:00 A.M. to 9:00 P.M., Central time, Monday through Friday, except holidays) at 1-800-336-9193 (also a 24-hour, seven-day number for emergency calls) to determine if fiber optic cable is buried on the railroad's premises to be used by the State. If it is, the State and/or its Contractor will telephone the telecommunications company(ies) involved, arrange for a cable locator and make arrangements for relocation or other protection of the fiber optic cable prior to beginning any work on the railroad's premises.

BURLINGTON NORTHERN AND SANTA FE RAILWAY COMPANY
Protection of Fiber Optic Cable Systems

The State and/or its Contractor must, five (5) working days before any work is performed, call the railroad's communications network control center at 1-800-533-2891 (a 24-hour number) to assist in determining if fiber optic communications, control systems, or other type of cable systems are buried in the general locations where work is to be performed. In the event such cable is present, the State and/or its Contractor must then call the owner of the cable line to determine its exact location. The Contractor will indemnify and hold harmless the railroad against any cost or claims arising out of damage to any fiber optic communications, control systems or other types of cable systems, but only to the extent such damage is caused by negligence of the Contractor.

ITEM 6: CONTROL OF MATERIALS

This proposed Contract will not include federal funds. Buy Texas stipulations apply in accordance with 6.1.2 "Buy Texas".

ITEM 7: LEGAL RELATIONS AND RESPONSIBILITIES

No significant traffic generator events identified.

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 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 not 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 will be a Standard Workweek in accordance with Article 8.3.1.4. Nighttime work is required in accordance with Article 8.3.3.2.1.

Meet weekly or at intervals as agreed upon with the Engineer to notify him or her of planned work for the upcoming 3-week period.

For this project, provide a Bar Chart progress schedule.

Critical Path Method (CPM) schedule will be required for this project.

Submit the schedule in both PDF and in a base software electronic file format acceptable to TxDOT to allow for import and analysis into TxDOT's current scheduling software.

US 190 EB at South Nolan Creek (BE-1) NBI#: 09-014-0-0231-04-122 in Bell County is the starting location of work for this contract.

LANE CLOSURES

IH-35 main lane closures must be coordinated with other projects IH 35 including maintenance operations requiring main lane and frontage road closures in the Waco District with the Project Engineer and TxDOT's Mobility Coordinator. Provide one week notice to the Project Engineer of any planned lane closures to allow coordination. The Project Engineer must approve all closures prior to implementing. No additional compensation will be provided due to rescheduling of requested lane closures caused by the need for coordination with adjoining projects.

Placement of traffic control devices for night operations will not commence until after the start time and all devices must be removed from the roadway prior to the finish time.

The Contractor will be assessed a lane rental charge for each 15-minute increment one or more lanes are closed during any hours not included in defined non-peak hours provided. Charge will commence once five (5) minutes of a 15-minute increment have elapsed and will continue for each 15-minute increment until such time as all lanes are open to traffic. Charges will be as outlined in the following table:

Lane Rental Information

TIME	NO. OF LANES CLOSED	15 MINUTE INCREMENT RATE
Peak Hours	1 Lane Closed	$100.00 / Increment
Peak Hours	2 Lanes Closed	$200.00 / Increment
Peak Hours	3 Lanes Closed	$300.00 / Increment
Non-Peak Hours	3 Lanes or More	$300.00 / Increment

Lane closures that are necessary to perform emergency operations are excluded from lane rental charges. Emergency operations are those circumstances to restore pavement or other items as approved by the Engineer. Failure of the Contractor to prosecute emergency operations within a reasonable timeframe may result in lane rental charges being applied, based on a case-by-case review by the Engineer.

IH 35 main lane closures will only be allowed during Non-Peak Hours, and the purpose of the Peak Hour Lane Rental rate is to apply a disincentive when operations during Non-Peak Hours are not completed promptly, requiring extending lane closures into Peak Hours.

Non-Peak Hours are as follows:
Sunday 10PM – Monday 6AM
Monday 7PM – Tuesday 6AM
Tuesday 7PM – Wednesday 6AM
Wednesday 7PM – Thursday 6AM
Thursday 7PM – Friday 6AM

Lane closure restrictions will consist of:
• Lane closure length restricted to 2 miles or less
• Full freeway closures will only be allowed at nighttime

CONTROL OF THE WORK

All work on this contract will be scheduled and directed by the following person(s). Payments will be made on a monthly basis for work completed and accepted according to specifications. All payment requests will be directed to the same:

Maintenance Supervisor	Telephone Number	Maintenance Office Location
Jerrod Swift (Bell County)	(254) 939-3691	410 W. Loop 121 BELTON, TX 76513
Thomas Willis (McLennan County)	(254) 772-1200	7479 Bagby Ave. WACO, TX 76712
Waylon Holden (Coryell County)	(254) 865-5716	3502 E. Main GATESVILLE, TX 76528
Shad Parum (Hamilton County)	(254) 386-5512	1301 East Main HAMILTON, TX 76531
Chris Niedorf (Bosque County)	(254) 435-2258	9167 SH 6 CLIFTON, TX 76634
Eric Olivas (Hill County)	(254) 582-5411	1400 S. Abbott Avenue HILLSBORO, TX 76645
Dennis Cheyne (Falls County)	(254) 883-3462	5092 Highway 7 MARLIN, TX 76661
Roger Brooks (Limestone County)	(254) 562-2900	3229 Highway 14 N MEXIA, TX 76667-4669

PROSECUTION AND PROGRESS

Notify the Maintenance Supervisor or Assistant when encountering any unforeseen delays.

ITEM 104: REMOVING CONCRETE

In those areas where the pavement is not to be overlaid, provide a smooth surface after the curb removal. Planning or grinding is considered an acceptable method at these locations. Measurement and payment are in accordance with this item.

ITEMS 110 & 132: EXCAVATION & EMBANKMENT

Excavation and embankment for driveways, sleeper slabs, alleys and intersections will not be paid for directly, but will be considered subsidiary to these items.

The Contractor may modify side slopes from those shown in the cross section as needed to allow grades to match / tie into fixed features. In no case should slope be modified beyond the maximum grades shown on the typical section and approved by the Engineer. Additionally slope adjustments will not be allowed simply to reduce work quantities.

ITEM 132: EMBANKMENT

Excavated material from the project site has not been determined to be suitable for embankment. The bidder assumes all risk for the use of excavated materials for embankment and is expected to meet all material requirements for embankment regardless of the source.

ITEM 341: DENSE-GRADED HOT-MIX ASPHALT

Dense-Graded Hot-Mix Asphalt used as concrete pavement underlayment is deemed as “Exempt Production”.

ITEM 354: PLANING AND TEXTURING PAVEMENT

Saw existing asphalt along neat lines where portions are to be left in place temporarily or permanently. Sawing is not paid for directly but is subsidiary to this item.

Patch pavement cut to excessive depth by equipment failure with an approved epoxy material. Re-plane patched area to an acceptable approved ride quality. Payment for these corrections is subsidiary to this item

ITEM 400: EXCAVATION AND BACKFILL OF STRUCTURES

Aggregate for cement stabilized backfill will be coarse aggregates, GRADE 3, 4 or 5 and fine aggregate, as shown in Item 421, “Hydraulic Cement Concrete”. The ratio of course aggregate to sand should not contain more than sixty percent (60%) sand unless otherwise approved.

ITEM 432: RIPRAP

Weep holes and granular material are required and locations will be determined prior to placement of concrete riprap at bridge abutments.

ITEM 502: BARRICADES, SIGNS, AND TRAFFIC HANDLING

Access will be provided to all business and residences at all times. Where turning radii are limited during phased construction at intersections, provide all weather surfaces such as RAP or base in turning movements to accommodate and to protect the traffic from edge drop-offs. Materials, labor, maintenance and removal for these temporary accesses and radii will not be paid for directly but will be considered subsidiary to the various bid items.

Place Barricade / long term traffic control signs with driven post / sleeve mount options for all projects with more than 9 months of project barricades. e in ground mount for project limits signs / long term signs. Upon sign removal, pull sleeve or drive to below ground line.

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.

ITEM 503: PORTABLE CHANGEABLE MESSAGE SIGN

This project will require “full matrix” type portable changeable message signs.

Ensure that the Contractor’s Responsible Person for traffic control can revise messages within thirty (30) minutes of notification.

Supply portable changeable message sign(s) in accordance with the Traffic Control Plan standard sheets and Article 6f.55 of the Texas Manual on Uniform Traffic Control Devices for Streets and Highways Part VI.

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 / (2-5)-18 / (2-6)-18	All		1	
(2-3)-23	A	B	1	2

TCP 3 Series	Scenario	Required TMA
(3-1)-13	All	2
(3-2)-13	All	3

TCP 6 Series	Scenario		Required TMA	
(6-1)-12	A	B	1	2
(6-2)-12 / (6-3)-12	All		1	
(6-5)-12	A	B	1	2
(6-6)-12 / (6-7)-12	All		1 Per Lane	

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.

Mobile operations will be paid for by the hour, per specifications. For mobile operations, payment will be made only while the TMA is in use.

For mobile operations requiring multiple TMA's, judgement may be applied in lower speed, urban / in town traffic environments to reduce the numbers of TMA in use where the added TMA may pose a hazard for traffic entering and exiting driveways, side streets, etc.

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: TEMPORARY EROSION, SEDIMENTATION AND ENVIRONMENTAL CONTROLS

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.

If temporary construction stream crossings are allowed under a Nationwide Permit, submit in writing for approval the type and location of each temporary stream crossing. Use temporary bridges, timber mats, or other structurally sound and non-eroding material for temporary stream crossings. A temporary culvert crossing will consist of

storm sewer pipes and 4- to 8-inch nominal size rock. Temporary stream crossings must not cause more than minimal changes to the hydraulic flow characteristics of the stream, increase flooding, or cause more than minimal degradation of water quality. Remove the temporary stream crossings in their entirety and return the affected areas to their pre-existing elevation. All work and materials use for temporary construction stream crossings will not be paid for directly but are subsidiary to pertinent Items.

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

No soil disturbing activities will begin on any section of TxDOT ROW without adequate sedimentation controls first being installed and functioning at adjacent drainage outfalls. Begin and continuously prosecute the repairs, additions and maintenance of erosion and sedimentation control devices within seven days after the Contractor receives each Form 2118, Field Inspection and Maintenance Report, from the Engineer. Failure of the Contractor to fulfill either of the above requirements places TxDOT in potential non-compliance with permit requirements and may result in withholding estimates or stopping work or both until all environmental permit requirements are fulfilled.

Concrete Washouts are required per the CGP. The Concrete Washout Area(s) structural controls must consist of temporary berms, temporary shallow pits, and/or temporary storage tanks to prevent contaminated runoff and must be lined as to prevent contamination of underlying soil. Ensure pits properly maintained including removal of concrete as not to allow overflow. The location(s) of washout area will be approved by the Engineer. When washout pits are no longer needed, they will be removed, and area will be restored to original condition. This work, materials and labor will not be measured or paid for directly but will be subsidiary to Item 506, "Temporary Erosion, Sedimentation, and Environmental Controls."

Cleaning and sweeping of open roadways due to material spillage or loss from Contractor equipment or tires will be the responsibility of the Contractor at no cost to TxDOT. This work will not be charged as Item 738, "Cleaning and Sweeping Highways". Cleaning and sweeping of roadways will be completed as directed, including multiple times per day, if necessary, to maintain acceptable roadways for the traveling public and to meet environmental regulations. Construction activities will cease when material deposited on the roadway is not properly removed or when equipment is not available as needed. Adequate construction exits will be planned, constructed, and maintained by the Contractor per Item 506, "Temporary Erosion, Sedimentation, and Environmental Controls".

ITEM 666: RETROREFLECTORIZED PAVEMENT MARKINGS

The Contractor will layout the proposed striping in accordance with TxDOT Traffic Control Plan Standards and latest version Texas Manual on Uniform Traffic Control

Devices (TMUTCD), TxDOT Pavement Markings Standards, and project striping layout sheets. The Engineer will verify proposed striping layout prior to the beginning of striping operations.

The Contractor will locate the beginning and ending points of No Pass Zones.

ITEM 672: RAISED PAVEMENT MARKERS

Existing raised pavement markers to be replaced will be removed at the same time that the new markers are placed (i.e., remove and replace in one operation). Existing raised pavement markers replaced by new markers will be removed in accordance with Item 677, “Eliminating Existing Pavement Markings and Markers”. Immediately fill the damaged area in the pavement due to the removal of existing markers with an approved bituminous material. This removal and backfill work will not be paid for directly, but will be subsidiary to Item 672, "Raised Pavement Markers".

ITEM 735: DEBRIS REMOVAL

Quantities are subject to change at the discretion of the engineer. Work will be paid by the CY measured in vehicles at the point of removal.

Limits for the removal of driftwood and debris will include the width of the right-of-way (upstream and downstream) for the length of the structure, unless otherwise shown in details within this contract.

Debris will consist of all foreign material within the work area including trash, tires, etc.

Contractor will cut and remove abandoned timber bridge piles. This will not be paid for directly but considered subsidiary to various bid items.

No debris, whole or chipped will be deposited in a floodplain area.

Disposal sites must be permitted by State and Local Government.

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Estimate & Quantity Sheet

CONTROLLING PROJECT ID 6467-47-001 **DISTRICT** Waco **COUNTY** McLennan
HIGHWAY FM0434

			CONTROL SECTION JOB		**6467-47-001**	TOTAL EST.	TOTAL FINAL
			PROJECT ID		**A00209709**		
			COUNTY		**McLennan**		
			HIGHWAY		**FM0434**		
ALT	**BID CODE**	**DESCRIPTION**	**UNIT**	EST.	FINAL		
	104-7028	REMOV CONC (WINGWALL)	CY	13.200		13.200	
	110-7002	EXCAV (CHANNEL)	CY	200.000		200.000	
	132-7015	EMBANK (VEH)(OC)(TY B)	CY	230.000		230.000	
	341-7037	D-GR HMA TY-C SAC-B PG70-22 (EXEMPT)	TON	85.000		85.000	
	351-7001	FLEXIBLE PAVEMENT STRUCTURE REPAIR(2")	SY	26.000		26.000	
	354-7035	PLANE ASPH CONC PAV(0" TO 6")	SY	773.000		773.000	
	356-7021	PAV JT UNDERSEAL (24")	LF	48.000		48.000	
	400-7010	CEM STABIL BKFL	CY	120.000		120.000	
	401-7001	FLOWABLE BACKFILL	CY	61.000		61.000	
	403-7001	TEMPORARY SPL SHORING	SF	1,676.000		1,676.000	
	403-7002	TEMPORARY SPL SHORING (COFFERDAM)	SF	1,790.000		1,790.000	
	420-7146	CL C CONC (WINGWALLS)	CY	17.200		17.200	
	429-7007	CONC STR REPAIR (VERTICAL & OVERHEAD)	SF	631.000		631.000	
	429-7009	CONC STR REPAIR (STANDARD)	SF	30.000		30.000	
	432-7002	RIPRAP (CONC)(5 IN)	CY	30.000		30.000	
	432-7038	RIPRAP (STONE COMMON)(GROUT)(12 IN)	CY	150.000		150.000	
	432-7043	RIPRAP (STONE PROTECTION)(18 IN)	CY	211.000		211.000	
	432-7045	RIPRAP (STONE PROTECTION)(24 IN)	CY	414.000		414.000	
	438-7004	CLEANING AND SEALING EXIST JOINTS (CL3)	LF	1,200.000		1,200.000	
	438-7007	CLEANING AND SEALING EXIST JOINTS (CL7)	LF	1,674.000		1,674.000	
	438-7008	CLEANING EXISTING JOINTS	LF	2,596.000		2,596.000	
	438-7009	RESIZING AND SEALING JOINTS	LF	136.000		136.000	
	442-7007	STR STEEL (MISC NON-BRIDGE)	LB	112.000		112.000	
	442-7010	STR STEEL (PEDESTAL)	LB	378.000		378.000	
	459-7001	GABIONS (GALV)	CY	116.000		116.000	
	480-7001	CLEAN EXIST CULVERTS	EA	1.000		1.000	
	495-7001	RAISING EXIST STRUCT	LS	2.000		2.000	
	500-7001	MOBILIZATION	LS	1.000		1.000	
	502-7001	BARRICADES, SIGNS AND TRAFFIC HANDLING	MO	7.000		7.000	
	503-7001	PORTABLE CHANGEABLE MESSAGE SIGN	DAY	182.000		182.000	
	505-7001	TMA (STATIONARY)	DAY	200.000		200.000	
	506-7039	TEMP SEDMT CONT FENCE (INSTALL)	LF	200.000		200.000	
	506-7041	TEMP SEDMT CONT FENCE (REMOVE)	LF	200.000		200.000	
	552-7003	WIRE FENCE (TY C)	LF	122.000		122.000	
	662-7114	WK ZN PAV MRK SHT TERM (TAB)TY Y-2	EA	15.000		15.000	
	666-7411	REFL PAV MRK TY I (W)6"(SLD)(100MIL)	LF	580.000		580.000	
	666-7423	REFL PAV MRK TY I (Y)6"(SLD)(100MIL)	LF	580.000		580.000	

Estimate & Quantity Sheet

CONTROLLING PROJECT ID 6467-47-001

DISTRICT Waco
HIGHWAY FM0434

COUNTY McLennan

			CONTROL SECTION JOB		**6467-47-001**	TOTAL EST.	TOTAL FINAL
			PROJECT ID		**A00209709**		
			COUNTY		**McLennan**		
			HIGHWAY		**FM0434**		
ALT	**BID CODE**	**DESCRIPTION**	**UNIT**	EST.	FINAL		
	672-7004	REFL PAV MRKR TY II-A-A	EA	7.000		7.000	
	735-7060	DRIFTWOOD REMOVAL	CY	23.000		23.000	
	776-7001	REPAIR (STEEL RAIL)	LF	11.000		11.000	
	780-7002	CNC CRACK REPAIR (DISCRETE)(INJECT)	LF	116.000		116.000	
	780-7003	CONC CRCK REPR(DISCRETE)(ROUT AND SEAL)	LF	30.000		30.000	
	784-7001	STL STRUCTURE REPAIR (ENTIRE BRIDGE)	LS	1.000		1.000	
	785-7002	BRIDGE JOINT REPAIR (HEADER)	LF	174.000		174.000	
	3006-7001	UNDERSEAL COURSE	GAL	155.000		155.000	
	4010-7001	STEEL BRIDGE ZONE PAINTING REF STR #1	EA	1.000		1.000	
	4010-7003	STEEL BRIDGE ZONE PAINTING REF STR #2	EA	1.000		1.000	
	7001-7002	BENT CAP/ABUTMENT CAP CLEANING	EA	19.000		19.000	
	7010-7002	MAINTENANCE SPEED LIMIT SIGNING	DAY	182.000		182.000	

Personal
200.0000 ft / in.

BPM SUMMARY (FY-2025)

COUNTY	LOCATION CODE	LOCATION & STR ID	104 7028 REMOVE CONC (WINGWALL) CY	110 7002 EXCAVATION (CHANNEL) CY	132 7015 EMBANKMENT (VEHICLE)(ORD COMP)(TY B) CY	341 7037 D-GR HMA TY-C SAC-B PG70-22 (EXEMPT) TON	351 7001 FLEXIBLE PAVEMENT STRUCTURE REPAIR(2") SY	354 7035 PLANE ASPH CONC PAV (0" TO 6") SY	356 7021 PAV JT UNDERSEAL (24") LF	400 7010 CEM STABIL BKFL CY	401 7001 FLOWABLE BACKFILL CY	403 7001 TEMPORARY SPL SHORING SF	403 7002 TEMPORARY SPL SHORING (COFFERDAM) SF	420 7146 CL C CONC (WINGWALLS) CY
BELL	Be-1	US 190 EBML @ SOUTH NOLAN CREEK; BELL CO STR: 09-014-0-0231-04-122										1100		
BOSQUE	Bo-1	FM 927 @ WALKER CREEK; BOSQUE CO STR: 09-018-0-0422-01-020												
	Bo-2	FM 927 @ GRAHAM CREEK; BOSQUE CO STR: 09-018-0-0422-01-021				85		773	48					
	Bo-3	SH 6 @ BSNF RR; BOSQUE CO STR: 09-018-0-0258-07-038									9			
CORYELL	Co-1	SH 36 @ LEON RIVER; CORYELL CO STR: 09-050-0-0184-01-008												
HAMILTON	Ha-1	SH 36 @ PECAN CREEK; HAMILTON CO STR: 09-098-0-0183-03-051					8							
	Ha-2	SH 36 @ LEON RIVER RELIEF; HAMILTON CO STR: 09-098-0-0183-03-071												
	Ha-3	US 281 @ COWHOUSE CREEK; HAMILTON CO STR: 09-098-0-0251-02-048												
	Ha-4	FM 1047 @ LAMPASAS RIVER; HAMILTON CO STR: 09-098-0-1780-02-002			10						25			
HILL	Hi-1	FM 66 @ BRANCH OF ITASCA CREEK; HILL CO STR: 09-110-0-0596-01-002	13.2	200	200					120		576		17.2
	Hi-2	FM 66 @ CHAMBERS CREEK; HILL CO STR: 09-110-0-0596-01-003									9			
	Hi-3	FM 66 @ HACKBERRY CREEK; HILL CO STR: 09-110-0-0596-01-025									9			
LIMESTONE	Li-1	FM 339 @ LITTLE ELM CREEK; LIMESTONE CO STR: 09-147-0-1665-02-002									9			
MCLENNAN	Mc-1	IH 35 SB/NB @ FM 2114; McLENNAN CO STR: 09-161-0-0014-08-521/522												
	Mc-2	FM 1858 @ IH 35; McLENNAN CO STR: 09-161-0-0014-08-520												
	Mc-3	IH 35 NB/SB @ WIGGINS RD; McLENNAN CO STR: 09-161-0-0014-08-518/519												
	Mc-4	SH 6 SB/SL 340 NB @ UPRR; McLENNAN CO STR: 09-161-0-0258-09-094					12							
	Mc-5	US 84 @ WILLIAMS CREEK; McLENNAN CO STR: 09-161-0-0056-01-010			20								1790	
	Mc-6	LP 396 EB @ UPRR; McLENNAN CO STR: 09-161-0-0258-10-078												
	Mc-7	IH 35 NB TO SH 6 WB DC; MCLENNAN CO STR: 09-161-0-0015-01-515												
	Mc-8	IH 35 NB/SB @ CROSSOVER RD; MCLENNAN CO STR: 09-161-0-0015-01-512/671												
	Mc-9	FM 2113 TO IH 35 NB DC ; MCLENNAN CO STR: 09-161-0-2625-01-002												
	Mc-10	IH 35 NB/SB @ NORTH FORK COW BAYOU ; MCLENNAN CO STR: 09-161-0-0015-01-620/621												
	Mc-11	IH 35 SB/NB @ UPRR ; MCLENNAN CO STR: 09-161-0-0015-02-575/576												
	Mc-12	SH 317 @ WASP CREEK ; MCLENNAN CO STR: 09-161-0-0398-02-035					6							
TBD		TO - BE - DETERMINED												
PROJECT TOTALS:			13.2	200	230	85	26	773	48	120	61	1676	1790	17.2

QUANTITIES ARE FOR ESTIMATION AND MAY VARY. CONTRACTOR SHOULD VERIFY ALL QUANTITIES IN THE FIELD.

SUMMARY SHEET

DESIGN	FED RD DIV No.	PROJECT No.	HIGHWAY No.
ZB	6	BPM 6467-47-001	FM 434,ETC
CHECK: CS	STATE	DISTRICT / COUNTY	SHEET No.
GRAPHICS: DL	TEXAS	WACO / MCLENNAN	13
CHECK: CS	CONTROL	SECTION / JOB	
	6467	47 / 001	

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7/9/2024
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BPM SUMMARY (FY-2025)

COUNTY	LOCATION CODE	LOCATION & STR ID	429 7007 CONC STR REPAIR(VERTICAL & OVERHEAD) SF	429 7009 CONC STR REPAIR (STANDARD) SF	432 7002 RIPRAP (CONC)(5 IN) CY	432 7038 RIPRAP (STONE COMMON) (GROUT) (12") CY	432 7043 RIPRAP (STONE PROTECTION)(18 IN) CY	432 7045 RIPRAP (STONE PROTECTION)(24 IN) CY	438 7004 CLEANING AND SEALING EXIST JOINTS(CL3) LF	438 7007 CLEANING AND SEALING EXIST JOINTS(CL7) LF	438 7008 CLEANING EXISTING JOINTS LF	438 7009 RESIZING AND SEALING JOINTS LF	442 7007 STR STEEL (MISC NON-BRIDGE) LB	442 7010 STR STEEL (PEDESTAL) LB
BELL	Be-1	US 190 EBML @ SOUTH NOLAN CREEK; BELL CO STR: 09-014-0-0231-04-122				150		16						
BOSQUE	Bo-1	FM 927 @ WALKER CREEK; BOSQUE CO STR: 09-018-0-0422-01-020							96					
	Bo-2	FM 927 @ GRAHAM CREEK; BOSQUE CO STR: 09-018-0-0422-01-021							48					
	Bo-3	SH 6 @ BSNF RR; BOSQUE CO STR: 09-018-0-0258-07-038	160											
CORYELL	Co-1	SH 36 @ LEON RIVER; CORYELL CO STR: 09-050-0-0184-01-008		30										378
HAMILTON	Ha-1	SH 36 @ PECAN CREEK; HAMILTON CO STR: 09-098-0-0183-03-051							240	80				
	Ha-2	SH 36 @ LEON RIVER RELIEF; HAMILTON CO STR: 09-098-0-0183-03-071								88				
	Ha-3	US 281 @ COWHOUSE CREEK; HAMILTON CO STR: 09-098-0-0251-02-048	225						308			88		
	Ha-4	FM 1047 @ LAMPASAS RIVER; HAMILTON CO STR: 09-098-0-1780-02-002	95				180		72			48		
HILL	Hi-1	FM 66 @ BRANCH OF ITASCA CREEK; HILL CO STR: 09-110-0-0596-01-002	36		30								56	
	Hi-2	FM 66 @ CHAMBERS CREEK; HILL CO STR: 09-110-0-0596-01-003	30										56	
	Hi-3	FM 66 @ HACKBERRY CREEK; HILL CO STR: 09-110-0-0596-01-025	55				11							
LIMESTONE	Li-1	FM 339 @ LITTLE ELM CREEK; LIMESTONE CO STR: 09-147-0-1665-02-002	30				20							
MCLENNAN	Mc-1	IH 35 SB/NB @ FM 2114; McLENNAN CO STR: 09-161-0-0014-08-521/522								284	284			
	Mc-2	FM 1858 @ IH 35; McLENNAN CO STR: 09-161-0-0014-08-520								180	166			
	Mc-3	IH 35 NB/SB @ WIGGINS RD; McLENNAN CO STR: 09-161-0-0014-08-518/519								232	260			
	Mc-4	SH 6 SB/SL 340 NB @ UPRR; McLENNAN CO STR: 09-161-0-0258-09-094								94				
	Mc-5	US 84 @ WILLIAMS CREEK; McLENNAN CO STR: 09-161-0-0056-01-010						398						
	Mc-6	LP 396 EB @ UPRR; McLENNAN CO STR: 09-161-0-0258-10-078							385					
	Mc-7	IH 35 NB TO SH 6 WB DC; MCLENNAN CO STR: 09-161-0-0015-01-515									286			
	Mc-8	IH 35 NB/SB @ CROSSOVER RD; MCLENNAN CO STR: 09-161-0-0015-01-512/671								252	504			
	Mc-9	FM 2113 TO IH 35 NB DC ; MCLENNAN CO STR: 09-161-0-2625-01-002									208			
	Mc-10	IH 35 NB/SB @ NORTH FORK COW BAYOU ; MCLENNAN CO STR: 09-161-0-0015-01-620/621								232	232			
	Mc-11	IH 35 SB/NB @ UPRR ; MCLENNAN CO STR: 09-161-0-0015-02-575/576								232	656			
	Mc-12	SH 317 @ WASP CREEK ; MCLENNAN CO STR: 09-161-0-0398-02-035							51					
TBD		TO - BE - DETERMINED												
PROJECT TOTALS:			631	30	30	150	211	414	1200	1674	2596	136	112	378

QUANTITIES ARE FOR ESTIMATION AND MAY VARY. CONTRACTOR SHOULD VERIFY ALL QUANTITIES IN THE FIELD.

SUMMARY SHEET

Sheet 2 of 5

DESIGN	FED RD DIV No.	PROJECT No.	HIGHWAY No.
ZB	6	BPM 6467-47-001	FM 434,ETC
CHECK CS	STATE	DISTRICT / COUNTY	SHEET No.
GRAPHICS DL	TEXAS	WACO / MCLENNAN	14
CHECK CS	CONTROL	SECTION / JOB	
	6467	47 / 001	

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BPM SUMMARY (FY-2025)

COUNTY	LOCATION CODE	LOCATION & STR ID	459 7001 GABIONS (GALV) CY	480 7001 CLEAN EXIST CULVERTS EA	495 7001 RAISING EXIST STRUCT LS	500 7001 MOBILIZATION LS	502 7001 BARRICADES, SIGNS AND TRAFFIC HANDLING MO	503 7001 PORTABLE CHANGEABLE MESSAGE SIGN DAY	505 7001 TMA (STATIONARY) DAY	506 7039 TEMP SEDMT CONT FENCE (INSTALL) LF	506 7041 TEMP SEDMT CONT FENCE (REMOVE) LF	552 7003 WIRE FENCE (TY-C) LF	662 7114 WK ZN PAV MRK SHT TERM (TAB)TY Y-2 EA	666 7411 REFL PAV MRK TY I (W) 6" (SLD)(100MIL) LF
BELL	Be-1	US 190 EBML @ SOUTH NOLAN CREEK; BELL CO STR: 09-014-0-0231-04-122	116											
BOSQUE	Bo-1	FM 927 @ WALKER CREEK; BOSQUE CO STR: 09-018-0-0422-01-020												
	Bo-2	FM 927 @ GRAHAM CREEK; BOSQUE CO STR: 09-018-0-0422-01-021											15	580
	Bo-3	SH 6 @ BSNF RR; BOSQUE CO STR: 09-018-0-0258-07-038												
CORYELL	Co-1	SH 36 @ LEON RIVER; CORYELL CO STR: 09-050-0-0184-01-008			1									
HAMILTON	Ha-1	SH 36 @ PECAN CREEK; HAMILTON CO STR: 09-098-0-0183-03-051												
	Ha-2	SH 36 @ LEON RIVER RELIEF; HAMILTON CO STR: 09-098-0-0183-03-071												
	Ha-3	US 281 @ COWHOUSE CREEK; HAMILTON CO STR: 09-098-0-0251-02-048			1									
	Ha-4	FM 1047 @ LAMPASAS RIVER; HAMILTON CO STR: 09-098-0-1780-02-002										122		
HILL	Hi-1	FM 66 @ BRANCH OF ITASCA CREEK; HILL CO STR: 09-110-0-0596-01-002		1										
	Hi-2	FM 66 @ CHAMBERS CREEK; HILL CO STR: 09-110-0-0596-01-003												
	Hi-3	FM 66 @ HACKBERRY CREEK; HILL CO STR: 09-110-0-0596-01-025												
LIMESTONE	Li-1	FM 339 @ LITTLE ELM CREEK; LIMESTONE CO STR: 09-147-0-1665-02-002												
MCLENNAN	Mc-1	IH 35 SB/NB @ FM 2114; McLENNAN CO STR: 09-161-0-0014-08-521/522												
	Mc-2	FM 1858 @ IH 35; McLENNAN CO STR: 09-161-0-0014-08-520												
	Mc-3	IH 35 NB/SB @ WIGGINS RD; McLENNAN CO STR: 09-161-0-0014-08-518/519												
	Mc-4	SH 6 SB/SL 340 NB @ UPRR; McLENNAN CO STR: 09-161-0-0258-09-094												
	Mc-5	US 84 @ WILLIAMS CREEK; McLENNAN CO STR: 09-161-0-0056-01-010												
	Mc-6	LP 396 EB @ UPRR; McLENNAN CO STR: 09-161-0-0258-10-078												
	Mc-7	IH 35 NB TO SH 6 WB DC; MCLENNAN CO STR: 09-161-0-0015-01-515												
	Mc-8	IH 35 NB/SB @ CROSSOVER RD; MCLENNAN CO STR: 09-161-0-0015-01-512/671												
	Mc-9	FM 2113 TO IH 35 NB DC ; MCLENNAN CO STR: 09-161-0-2625-01-002												
	Mc-10	IH 35 NB/SB @ NORTH FORK COW BAYOU ; MCLENNAN CO STR: 09-161-0-0015-01-620/621												
	Mc-11	IH 35 SB/NB @ UPRR ; MCLENNAN CO STR: 09-161-0-0015-02-575/576												
	Mc-12	SH 317 @ WASP CREEK ; MCLENNAN CO STR: 09-161-0-0398-02-035												
TBD		**TO - BE - DETERMINED**				1	7	182	200	200	200			
		PROJECT TOTALS:	116	1	2	1	7	182	200	200	200	122	15	580

QUANTITIES ARE FOR ESTIMATION AND MAY VARY. CONTRACTOR SHOULD VERIFY ALL QUANTITIES IN THE FIELD.

SUMMARY SHEET

Sheet 3 of 5

DESIGN	FED RD DIV No.	PROJECT No.	HIGHWAY No.
ZB	6	BPM 6467-47-001	FM 434,ETC
CHECK CS	STATE	DISTRICT / COUNTY	SHEET No.
GRAPHICS DL	TEXAS	WACO / MCLENNAN	15
CHECK CS	CONTROL	SECTION / JOB	
	6467	47 / 001	

BPM SUMMARY (FY-2025)

COUNTY	LOCATION CODE	LOCATION & STR ID	666 7423 REFL PAV MRK TY I (Y) 6" (SLD)(100MIL) LF	672 7004 REFL PAV MRKR TY II-A-A EA	735 7060 DRIFTWOOD REMOVAL CY	776 7001 REPAIR (STEEL RAIL) LF	780 7002 CNC CRACK REPAIR (DISCRETE) (INJECT) LF	780 7003 CNC CRACK REPAIR (DISCRETE) (ROUT AND SEAL) LF	784 7001 STL STRUCTURE REPAIR (ENTIRE BRIDGE) LS	785 7002 BRIDGE JOINT REPAIR (HEADER) LF
BELL	Be-1	US 190 EBML @ SOUTH NOLAN CREEK; BELL CO STR: 09-014-0-0231-04-122								
BOSQUE	Bo-1	FM 927 @ WALKER CREEK; BOSQUE CO STR: 09-018-0-0422-01-020								
	Bo-2	FM 927 @ GRAHAM CREEK; BOSQUE CO STR: 09-018-0-0422-01-021	580	7						
	Bo-3	SH 6 @ BSNF RR; BOSQUE CO STR: 09-018-0-0258-07-038				11				
CORYELL	Co-1	SH 36 @ LEON RIVER; CORYELL CO STR: 09-050-0-0184-01-008								
HAMILTON	Ha-1	SH 36 @ PECAN CREEK; HAMILTON CO STR: 09-098-0-0183-03-051								80
	Ha-2	SH 36 @ LEON RIVER RELIEF; HAMILTON CO STR: 09-098-0-0183-03-071								
	Ha-3	US 281 @ COWHOUSE CREEK; HAMILTON CO STR: 09-098-0-0251-02-048							1	
	Ha-4	FM 1047 @ LAMPASAS RIVER; HAMILTON CO STR: 09-098-0-1780-02-002						30		
HILL	Hi-1	FM 66 @ BRANCH OF ITASCA CREEK; HILL CO STR: 09-110-0-0596-01-002			3					
	Hi-2	FM 66 @ CHAMBERS CREEK; HILL CO STR: 09-110-0-0596-01-003					116			
	Hi-3	FM 66 @ HACKBERRY CREEK; HILL CO STR: 09-110-0-0596-01-025								
LIMESTONE	Li-1	FM 339 @ LITTLE ELM CREEK; LIMESTONE CO STR: 09-147-0-1665-02-002			20					
MCLENNAN	Mc-1	IH 35 SB/NB @ FM 2114; McLENNAN CO STR: 09-161-0-0014-08-521/522								
	Mc-2	FM 1858 @ IH 35; McLENNAN CO STR: 09-161-0-0014-08-520								
	Mc-3	IH 35 NB/SB @ WIGGINS RD; McLENNAN CO STR: 09-161-0-0014-08-518/519								
	Mc-4	SH 6 SB/SL 340 NB @ UPRR; McLENNAN CO STR: 09-161-0-0258-09-094								94
	Mc-5	US 84 @ WILLIAMS CREEK; McLENNAN CO STR: 09-161-0-0056-01-010								
	Mc-6	LP 396 EB @ UPRR; McLENNAN CO STR: 09-161-0-0258-10-078								
	Mc-7	IH 35 NB TO SH 6 WB DC; MCLENNAN CO STR: 09-161-0-0015-01-515								
	Mc-8	IH 35 NB/SB @ CROSSOVER RD; MCLENNAN CO STR: 09-161-0-0015-01-512/671								
	Mc-9	FM 2113 TO IH 35 NB DC ; MCLENNAN CO STR: 09-161-0-2625-01-002								
	Mc-10	IH 35 NB/SB @ NORTH FORK COW BAYOU ; MCLENNAN CO STR: 09-161-0-0015-01-620/621								
	Mc-11	IH 35 SB/NB @ UPRR ; MCLENNAN CO STR: 09-161-0-0015-02-575/576								
	Mc-12	SH 317 @ WASP CREEK ; MCLENNAN CO STR: 09-161-0-0398-02-035								
TBD		TO - BE - DETERMINED								
		PROJECT TOTALS:	580	7	23	11	116	30	1	174

QUANTITIES ARE FOR ESTIMATION AND MAY VARY. CONTRACTOR SHOULD VERIFY ALL QUANTITIES IN THE FIELD.

SUMMARY SHEET

Sheet 4 of 5

DESIGN	FED RD DIV No.	PROJECT No.		HIGHWAY No.
ZB	6	BPM 6467-47-001		FM 434,ETC
CHECK	STATE	DISTRICT	COUNTY	SHEET No.
CS	TEXAS	WACO	MCLENNAN	16
GRAPHICS	CONTROL	SECTION	JOB	
DL	6467	47	001	
CHECK				
CS				

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BPM SUMMARY (FY-2025)

COUNTY	LOCATION CODE	LOCATION & STR ID	3006 7001 UNDERSEAL COURSE GAL	4010 7001 STEEL BRIDGE ZONE PAINITNG REF STR #1 EA	4010 7003 STEEL BRIDGE ZONE PAINTING REF STR #2 EA	7001 7002 BENT CAP/ABUTMENT CAP CLEANING EA	7010 7002 MAINTENANCE SPEED LIMIT SIGNING DAY
BELL	Be-1	US 190 EBML @ SOUTH NOLAN CREEK; BELL CO STR: 09-014-0-0231-04-122					
BOSQUE	Bo-1	FM 927 @ WALKER CREEK; BOSQUE CO STR: 09-018-0-0422-01-020					
	Bo-2	FM 927 @ GRAHAM CREEK; BOSQUE CO STR: 09-018-0-0422-01-021	155				
	Bo-3	SH 6 @ BSNF RR; BOSQUE CO STR: 09-018-0-0258-07-038		1		4	
CORYELL	Co-1	SH 36 @ LEON RIVER; CORYELL CO STR: 09-050-0-0184-01-008				6	
HAMILTON	Ha-1	SH 36 @ PECAN CREEK; HAMILTON CO STR: 09-098-0-0183-03-051					
	Ha-2	SH 36 @ LEON RIVER RELIEF; HAMILTON CO STR: 09-098-0-0183-03-071					
	Ha-3	US 281 @ COWHOUSE CREEK; HAMILTON CO STR: 09-098-0-0251-02-048			1	9	
	Ha-4	FM 1047 @ LAMPASAS RIVER; HAMILTON CO STR: 09-098-0-1780-02-002					
HILL	Hi-1	FM 66 @ BRANCH OF ITASCA CREEK; HILL CO STR: 09-110-0-0596-01-002					
	Hi-2	FM 66 @ CHAMBERS CREEK; HILL CO STR: 09-110-0-0596-01-003					
	Hi-3	FM 66 @ HACKBERRY CREEK; HILL CO STR: 09-110-0-0596-01-025					
LIMESTONE	Li-1	FM 339 @ LITTLE ELM CREEK; LIMESTONE CO STR: 09-147-0-1665-02-002					
MCLENNAN	Mc-1	IH 35 SB/NB @ FM 2114; McLENNAN CO STR: 09-161-0-0014-08-521/522					
	Mc-2	FM 1858 @ IH 35; McLENNAN CO STR: 09-161-0-0014-08-520					
	Mc-3	IH 35 NB/SB @ WIGGINS RD; McLENNAN CO STR: 09-161-0-0014-08-518/519					
	Mc-4	SH 6 SB/SL 340 NB @ UPRR; McLENNAN CO STR: 09-161-0-0258-09-094					
	Mc-5	US 84 @ WILLIAMS CREEK; McLENNAN CO STR: 09-161-0-0056-01-010					
	Mc-6	LP 396 EB @ UPRR; McLENNAN CO STR: 09-161-0-0258-10-078					
	Mc-7	IH 35 NB TO SH 6 WB DC; MCLENNAN CO STR: 09-161-0-0015-01-515					
	Mc-8	IH 35 NB/SB @ CROSSOVER RD; MCLENNAN CO STR: 09-161-0-0015-01-512/671					
	Mc-9	FM 2113 TO IH 35 NB DC ; MCLENNAN CO STR: 09-161-0-2625-01-002					
	Mc-10	IH 35 NB/SB @ NORTH FORK COW BAYOU ; MCLENNAN CO STR: 09-161-0-0015-01-620/621					
	Mc-11	IH 35 SB/NB @ UPRR ; MCLENNAN CO STR: 09-161-0-0015-02-575/576					
	Mc-12	SH 317 @ WASP CREEK ; MCLENNAN CO STR: 09-161-0-0398-02-035					
TBD		TO - BE - DETERMINED					182
		PROJECT TOTALS:	155	1	1	19	182

QUANTITIES ARE FOR ESTIMATION AND MAY VARY. CONTRACTOR SHOULD VERIFY ALL QUANTITIES IN THE FIELD.

Texas Department of Transportation

SUMMARY SHEET

Sheet 5 of 5

DESIGN	FED RD DIV No.	PROJECT No.	HIGHWAY No.
ZB	6	BPM 6467-47-001	FM 434,ETC
CHECK CS	STATE	DISTRICT / COUNTY	SHEET No.
GRAPHICS DL	TEXAS	WACO / MCLENNAN	17
CHECK CS	CONTROL	SECTION / JOB	
	6467	47 / 001	

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BARRICADE AND CONSTRUCTION (BC) STANDARD SHEETS GENERAL NOTES:

1. The Barricade and Construction Standard Sheets (BC sheets) are intended to show typical examples for placement of temporary traffic control devices, construction pavement markings, and typical work zone signs. The information contained in these sheets meet or exceed the requirements shown in the "Texas Manual on Uniform Traffic Control Devices" (TMUTCD).

2. The development and design of the Traffic Control Plan (TCP)is the responsibility of the Engineer.

3. The Contractor may propose changes to the TCP that are signed and sealed by a licensed professional engineer for approval. The Engineer may develop, sign and seal Contractor proposed changes.

4. The Contractor is responsible for installing and maintaining the traffic control devices as shown in the plans. The Contractor may not move or change the approximate location of any device without the approval of the Engineer.

5. Geometric design of lane shifts and detours should, when possible, meet the applicable design criteria contained in manuals such as the American Association of State Highway and Transportation Officials (AASHTO), "A Policy on Geometric Design of Highways and Streets," the TxDOT "Roadway Design Manual" or engineering judgment.

6. When projects abut, the Engineer(s) may omit the END ROAD WORK, TRAFFIC FINES DOUBLE, and other advance warning signs if the signing would be redundant and the work areas appear continuous to the motorists. If the adjacent project is completed first, the Contractor shall erect the necessary warning signs as shown on these sheets, the TCP sheets or as directed by the Engineer. The BEGIN ROAD WORK NEXT X MILES sign shall be revised to show appropriate work zone distance.

7. The Engineer may require duplicate warning signs on the median side of divided highways where median width will permit and traffic volumes justify the signing.

8. All signs shall be constructed in accordance with the details found in the "Standard Highway Sign Designs for Texas," latest edition. Sign details not shown in this manual shall be shown in the plans or the Engineer shall provide a detail to the Contractor before the sign is manufactured.

9. The temporary traffic control devices shown in the illustrations of the BC sheets are examples. As necessary, the Engineer will determine the most appropriate traffic control devices to be used.

10. Where highway construction or maintenance work is being undertaken, other than mobile operations as defined by the Texas Manual on Uniform Traffic Control Devices, CSJ limit signs are required. CSJ limit signs are shown on BC(2). The OBEY WARNING SIGNS STATE LAW sign, STAY ALERT TALK OR TEXT LATER and the WORK ZONE TRAFFIC FINES DOUBLE sign with plaque shall be erected in advance of the CSJ limits. The BEGIN ROAD WORK NEXT X MILES, CONTRACTOR and END ROAD WORK signs shall be erected at or near the CSJ limits. For mobile operations, CSJ limit signs are not required.

11. Traffic control devices should be in place only while work is actually in progress or a definite need exists.

12. The Engineer has the final decision on the location of all traffic control devices.

13. Inactive equipment and work vehicles, including workers' private vehicles must be parked away from travel lanes. They should be as close to the right-of-way line as possible, or located behind a barrier or guardrail, or as approved by the Engineer.

WORKER SAFETY NOTES:

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

2. Except in emergency situations, flagger stations shall be illuminated when flagging is used at night.

COMPLIANT WORKZONE TRAFFIC CONTROL DEVICES

1. Only pre-qualified products shall be used. The "Compliant Work Zone Traffic Control Devices List" (CWZTCD) describes pre-qualified products and their sources.

2. Work zone traffic control devices shall be compliant with the Manual for Assessing safety Hardware (MASH).

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

SHEET 1 OF 12

Texas Department of Transportation | Traffic Safety Division Standard

BARRICADE AND CONSTRUCTION GENERAL NOTES AND REQUIREMENTS

BC(1)-21

FILE: bc-21.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
© TxDOT November 2002	CONT	SECT	JOB	HIGHWAY
REVISIONS 4-03 7-13 9-07 8-14 5-10 5-21	6467	47	001	FM 434,ETC
	DIST	COUNTY		SHEET NO.
	WACO	MCLENNAN		18

DATE: 7/9/2024 10:07:09 AM
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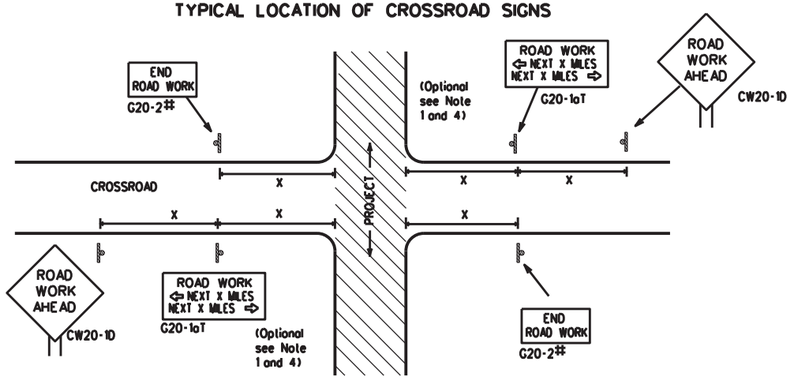
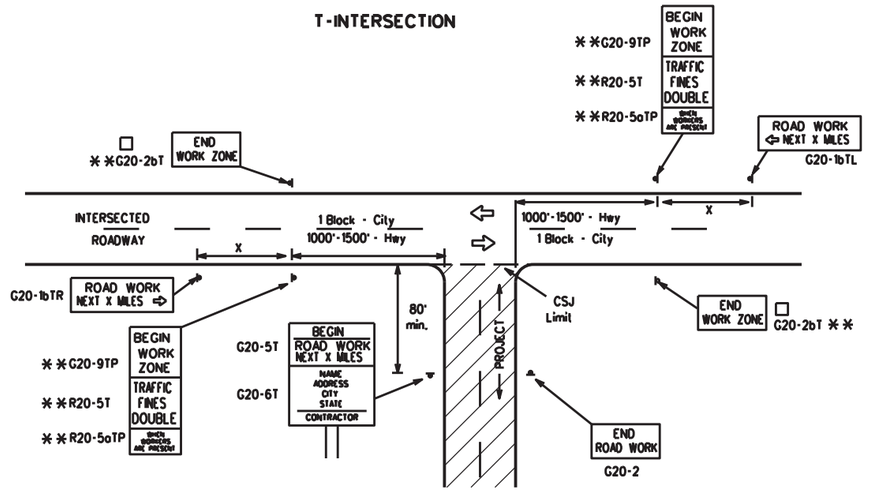
TYPICAL LOCATION OF CROSSROAD SIGNS



May be mounted on back of "ROAD WORK AHEAD"(CW20-1D) sign with approval of Engineer. (See note 2 below)

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

T-INTERSECTION



CSJ LIMITS AT T-INTERSECTION

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

TYPICAL CONSTRUCTION WARNING SIGN SIZE AND SPACING

1.5.6

SIZE

Sign Number or Series	Conventional Road	Expressway/ Freeway
CW20[4] CW21 CW22 CW23 CW25	48" x 48"	48" x 48"
CW1, CW2, CW7, CW8, CW9, CW11, CW14	36" x 36"	48" x 48"
CW3, CW4, CW5, CW6, CW8-3, CW10, CW12	48" x 48"	48" x 48"

SPACING

Posted Speed	Sign * Spacing "X"
MPH	Feet (Apprx.)
30	120
35	160
40	240
45	320
50	400
55	500 [2]
60	600 [2]
65	700 [2]
70	800 [2]
75	900 [2]
80	1000 [2]
*	* [3]

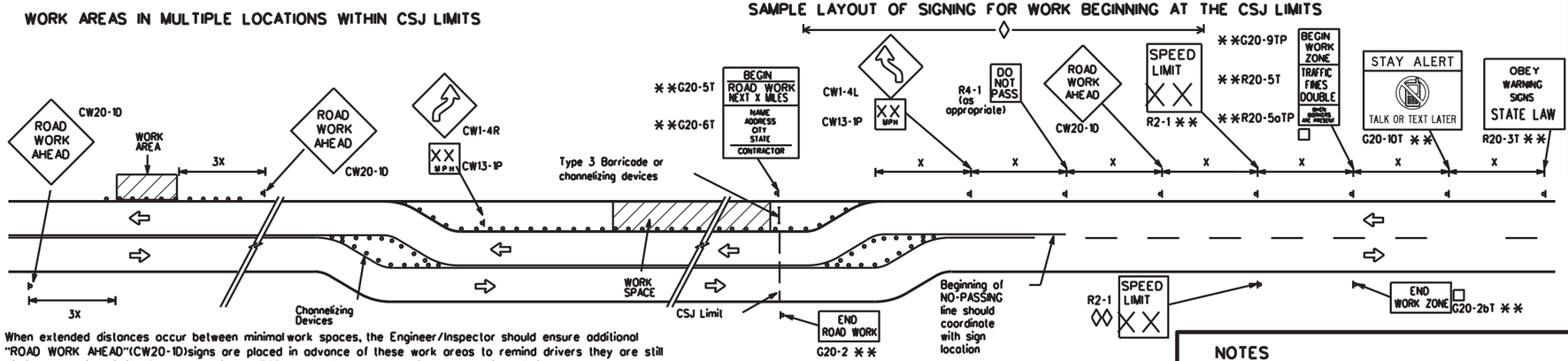
* For typical sign spacings on divided highways, expressways and freeways, see Part 6 of the "Texas Manual on Uniform Traffic Control Devices" (TMUTCD) typical application diagrams or TCP Standard Sheets.

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

GENERAL NOTES

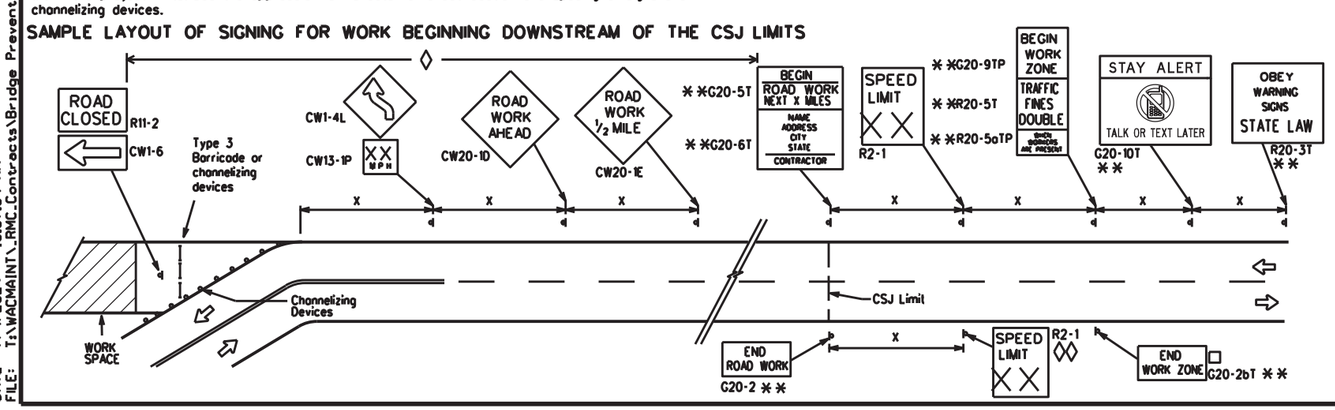
1. Special or larger size signs may be used as necessary.
2. Distance between signs should be increased as required to have 1500 feet advance warning.
3. Distance between signs should be increased as required to have 1/2 mile or more advance warning.
4. 36" x 36" "ROAD WORK AHEAD" (CW20-1D)signs may be used on low volume crossroads at the discretion of the Engineer as per TMUTCD Part 5. See Note 2 under "Typical Location of Crossroad Signs".
5. Only diamond shaped warning sign sizes are indicated.
6. See sign size listing in "TMUTCD", Sign Appendix or the "Standard Highway Sign Designs for Texas" manual for complete list of available sign design sizes.

WORK AREAS IN MULTIPLE LOCATIONS WITHIN CSJ LIMITS



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

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



SAMPLE LAYOUT OF SIGNING FOR WORK BEGINNING AT THE CSJ LIMITS

NOTES

The Contractor shall determine the appropriate distance to be placed on the G20-1 series signs and "BEGIN ROAD WORK NEXT X MILES"(G20-5T)sign for each specific project. This distance shall replace the "X" and shall be rounded to the nearest whole mile with the approval of the Engineer. No decimals shall be used.

□ The "BEGIN WORK ZONE"(G20-9TP) and "END WORK ZONE" (G20-2bT) shall be used as shown on the sample layout when advance signs are required outside the CSJ Limits. They inform the motorist of entering or leaving a part of the work zone lying outside the CSJ Limits where traffic fines may double if workers are present.

** CSJ limit signing is required for highway construction and maintenance work, with the exception of mobile operations.

◊ Area for placement of "ROAD WORK AHEAD" (CW20-1D)sign and other signs or devices as called for on the Traffic Control Plan.

◊◊ Contractor will install a regulatory speed limit sign at the end of the work zone.

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

Texas Department of Transportation

Traffic Safety Division Standard

BARRICADE AND CONSTRUCTION PROJECT LIMIT

BC(2)-21

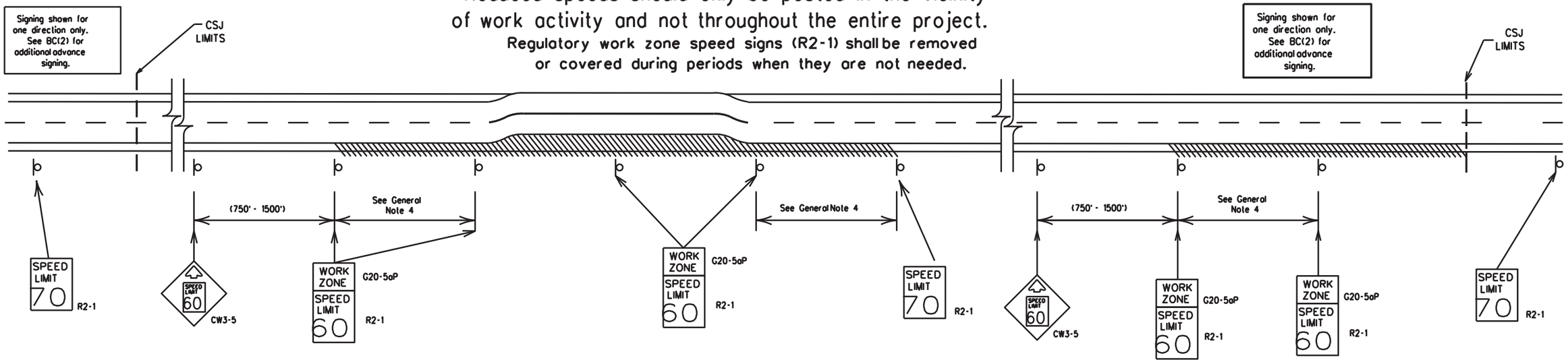
FILE: bc-21.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
© TxDOT November 2002	CONT	SECT	JOB	HIGHWAY
REVISIONS	6467	47	001	FM 434,ETC
9-07 8-14	DIST	COUNTY		SHEET NO.
7-13 5-21	WACO	MCLENNAN		19

TYPICAL APPLICATION OF WORK ZONE SPEED LIMIT SIGNS

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

Reduced speeds should only be posted in the vicinity of work activity and not throughout the entire project.

Regulatory work zone speed signs (R2-1) shall be removed or covered during periods when they are not needed.



GUIDANCE FOR USE:

LONG/INTERMEDIATE TERM WORK ZONE SPEED LIMITS

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

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

a) rough road or damaged pavement surface
b) substantial alteration of roadway geometrics (diversions)
c) construction detours
d) grade
e) width
f) other conditions readily apparent to the driver

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

SHORT TERM WORK ZONE SPEED LIMITS

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

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

GENERAL NOTES

1. Regulatory work zone speed limits should be used only for sections of construction projects where speed control is of major importance.
2. Regulatory work zone speed limit signs shall be placed on supports at a 7 foot minimum mounting height.
3. Speed zone signs are illustrated for one direction of travel and are normally posted for each direction of travel.
4. Frequency of work zone speed limit signs should be:
   40 mph and greater 0.2 to 2 miles
   35 mph and less 0.2 to 1 mile
5. Regulatory speed limit signs shall have black legend and border on a white reflective background (See "Reflective Sheeting" on BC(4)).
6. Fabrication, erection and maintenance of the "ADVANCE SPEED LIMIT" (CW3-5) sign, "WORK ZONE" (G20-5aP) plaque and the "SPEED LIMIT" (R2-1) signs shall not be paid for directly, but shall be considered subsidiary to Item 502.
7. Turning signs from view, laying signs over or down will not be allowed, unless as otherwise noted under "REMOVING OR COVERING" on BC(4).
8. Techniques that may help reduce traffic speeds include but are not limited to:
   A. Low enforcement.
   B. Flagger stationed next to sign.
   C. Portable changeable message sign (PCMS).
   D. Low-power (drone) radar transmitter.
   E. Speed monitor trailers or signs.
9. Speeds shown on details above are for illustration only.
   Work Zone Speed Limits should only be posted as approved for each project.
10. For more specific guidance concerning the type of work, work zone conditions and factors impacting allowable regulatory construction speed zone reduction see TxDOT form #1204 in the TxDOT e-form system.

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Texas Department of Transportation | Traffic Safety Division Standard

BARRICADE AND CONSTRUCTION WORK ZONE SPEED LIMIT

BC(3)-21

FILE: bc-21.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
©TxDOT November 2002	CONT	SECT	JOB	HIGHWAY
REVISIONS 9-07 8-14 7-13 5-21	6467	47	001	FM 434,ETC
	DIST	COUNTY		SHEET NO.
	WACO	MCLENNAN		20

DATE: 7/9/2024 10:07:10 AM
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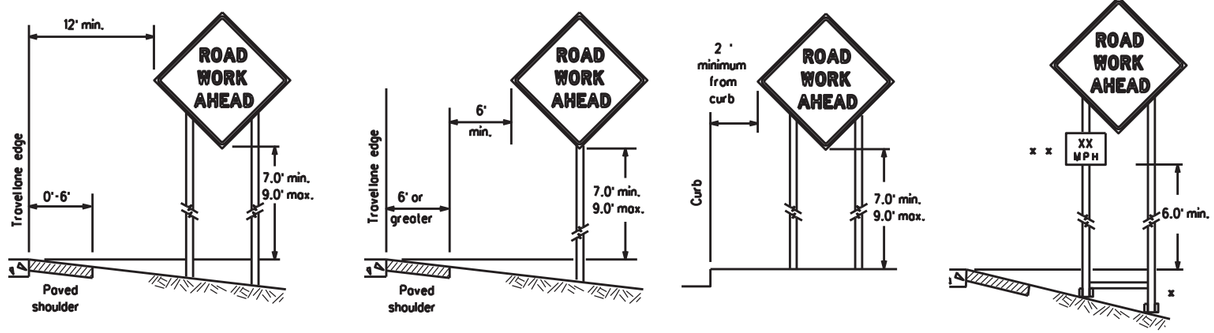
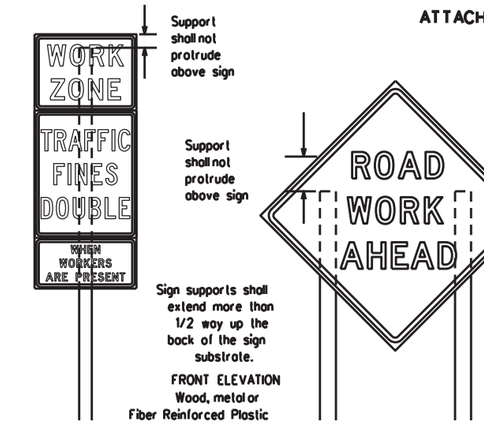
TYPICAL MINIMUM CLEARANCES FOR LONG TERM AND INTERMEDIATE TERM SIGNS



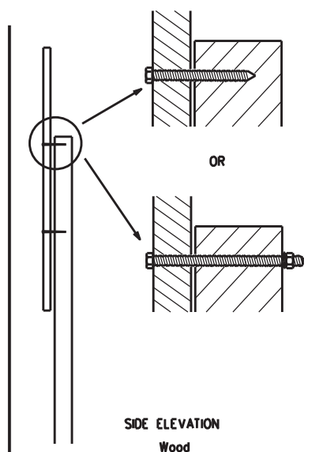
x When placing skid supports on unlevel ground, the leg post lengths must be adjusted so the sign appears straight and plumb. Objects shall NOT be placed under skids as a means of leveling.

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

ATTACHMENT FOR SIGN SUPPORTS



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

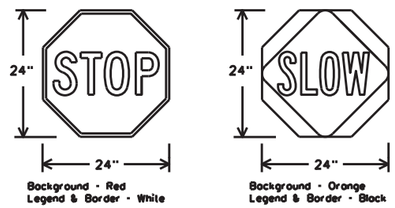


Attachment to wooden supports will be by bolts and nuts or screws. Use TxDOT's or manufacturer's recommended procedures for attaching sign substrates to other types of sign supports

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

STOP/SLOW PADDLES

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



SHEETING REQUIREMENTS (WHEN USED AT NIGHT)		
USAGE	COLOR	SIGN FACE MATERIAL
BACKGROUND	RED	TYPE B OR C SHEETING
BACKGROUND	ORANGE	TYPE B_{FL} OR C_{FL} SHEETING
LEGEND & BORDER	WHITE	TYPE B OR C SHEETING
LEGEND & BORDER	BLACK	ACRYLIC NON-REFLECTIVE FILM

CONTRACTOR REQUIREMENTS FOR MAINTAINING PERMANENT SIGNS WITHIN THE PROJECT LIMITS

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

GENERAL NOTES FOR WORK ZONE SIGNS

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

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

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

SIGN MOUNTING HEIGHT

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

SIZE OF SIGNS

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

SIGN SUBSTRATES

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

REFLECTIVE SHEETING

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

SIGN LETTERS

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

REMOVING OR COVERING

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

SIGN SUPPORT WEIGHTS

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

FLAGS ON SIGNS

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

Texas Department of Transportation | Traffic Safety Division Standard

BARRICADE AND CONSTRUCTION TEMPORARY SIGN NOTES

BC(4)-21

FILE: bc-21.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
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REVISIONS	6467	47	001	FM 434,ETC
9-07 8-14	DIST	COUNTY		SHEET NO.
7-13 5-21	WACO	MCLENNAN		21

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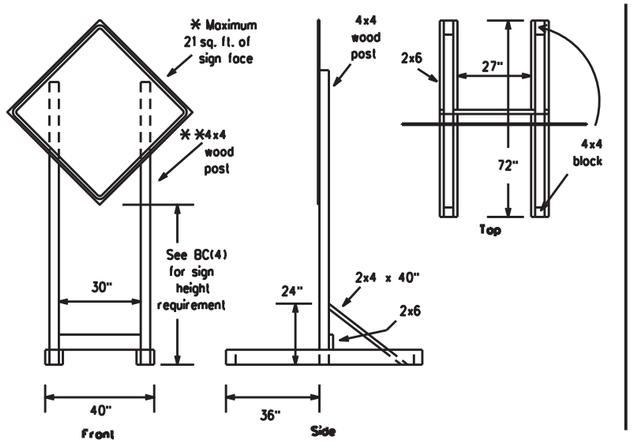
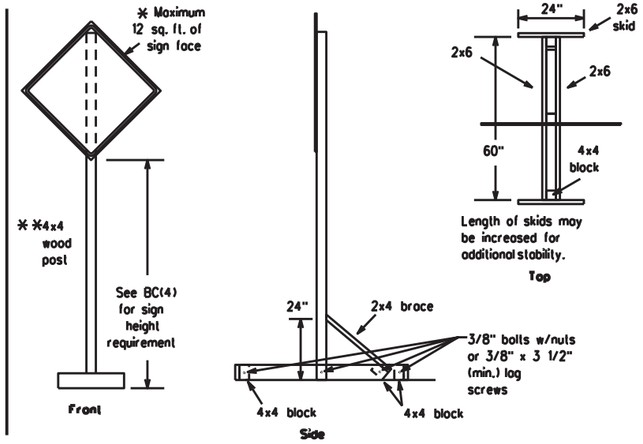
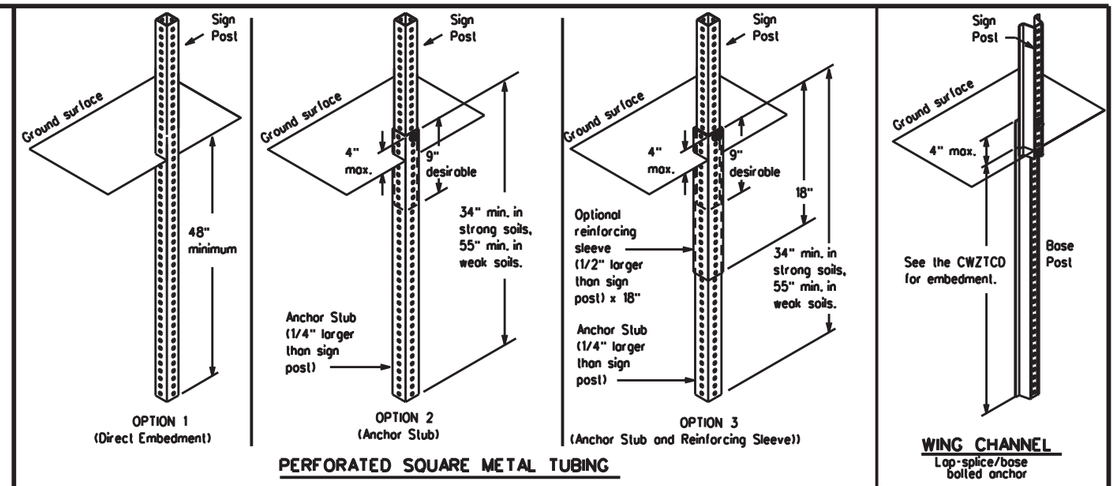




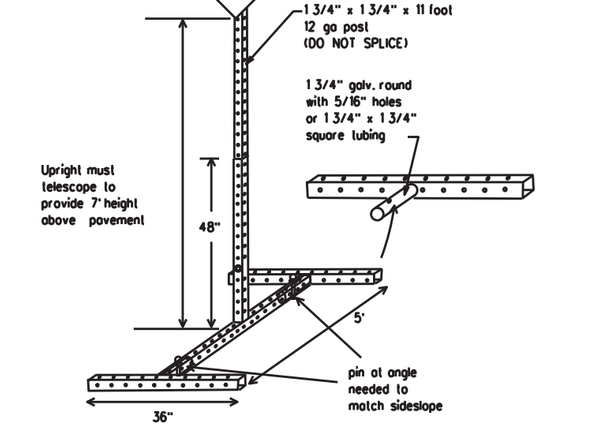
SKID MOUNTED WOOD SIGN SUPPORTS

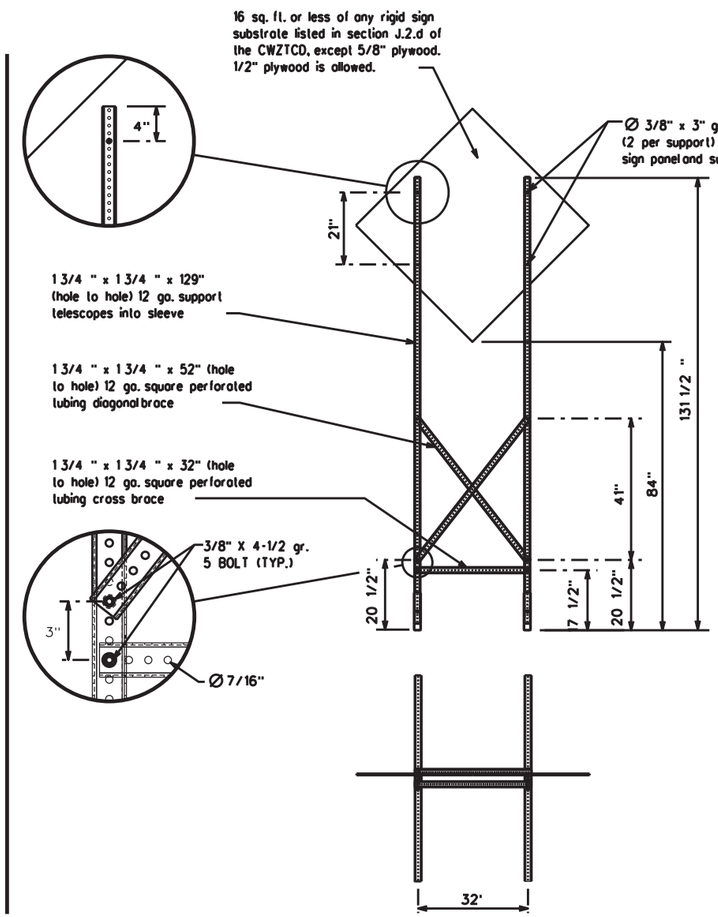
* LONG/INTERMEDIATE TERM STATIONARY - PORTABLE SKID MOUNTED SIGN SUPPORTS

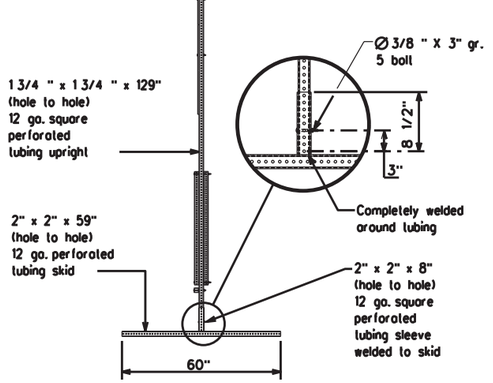


GROUND MOUNTED SIGN SUPPORTS

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







SKID MOUNTED PERFORATED SQUARE STEEL TUBING SIGN SUPPORTS

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

WEDGE ANCHORS

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

OTHER DESIGNS

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

GENERAL NOTES

1. Nails may be used in the assembly of wooden sign supports, but 3/8" bolts with nuts or 3/8" x 3 1/2" lag screws must be used on every joint for final connection.
2. No more than 2 sign posts shall be placed within a 7 ft. circle, except for specific materials noted on the CWZTCD List.
3. When project is completed, all sign supports and foundations shall be removed from the project site. This will be considered subsidiary to Item 502.

* See BC(4) for definition of "Work Duration."

** Wood sign posts MUST be one piece. Splicing will NOT be allowed. Posts shall be painted white.

☐ See the CWZTCD for the type of sign substrate that can be used for each approved sign support.

SHEET 5 OF 12

Texas Department of Transportation | Traffic Safety Division Standard

BARRICADE AND CONSTRUCTION TYPICAL SIGN SUPPORT

BC(5)-21

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9-07 8-14	DIST	COUNTY		SHEET NO.
7-13 5-21	WACO	MCLENNAN		22

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

PORTABLE CHANGEABLE MESSAGE SIGNS

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

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

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

RECOMMENDED PHASES AND FORMATS FOR PCMS MESSAGES DURING ROADWORK ACTIVITIES

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

Phase 1: Condition Lists

Road/Lane/Ramp Closure List

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

Other Condition List

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

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

Phase 2: Possible Component Lists

Action to Take/Effect on Travel List

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

Location List

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

Warning List

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

** Advance Notice List

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

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

** See Application Guidelines Note 6.

APPLICATION GUIDELINES

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

WORDING ALTERNATIVES

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

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

FULL MATRIX PCMS SIGNS

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

Texas Department of Transportation

Traffic Safety Division Standard

BARRICADE AND CONSTRUCTION PORTABLE CHANGEABLE MESSAGE SIGN (PCMS)

BC(6)-21

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© TxDOT November 2002	CONT	SECT	JOB	HIGHWAY
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9-07 8-14	DIST	COUNTY		SHEET NO.
7-13 5-21	WACO	MCLENNAN		23

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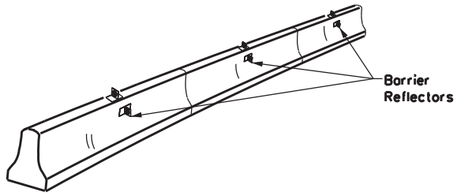
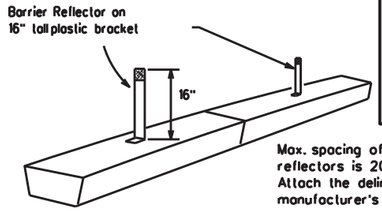
1. Barrier Reflectors shall be pre-qualified, and conform to the color and reflectivity requirements of DMS-8600. A list of prequalified Barrier Reflectors can be found at the Material Producer List web address shown on BC(1).
2. Color of Barrier Reflectors shall be as specified in the TMUTCD. The cost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



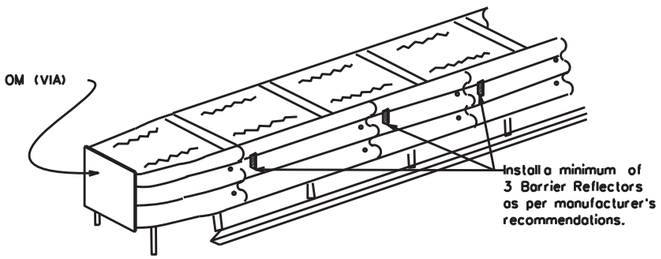
CONCRETE TRAFFIC BARRIER (CTB)

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



Max. spacing of barrier reflectors is 20 feet.
Attach the delineators as per manufacturer's recommendations.

LOW PROFILE CONCRETE BARRIER (LPCB)



DELINEATION OF END TREATMENTS

LOW PROFILE CONCRETE BARRIER (LPCB) USED IN WORK ZONES

LPCB is approved for use in work zone locations, where the posted speed is 45mph, or less. See Roadway Standard Sheet LPCB.

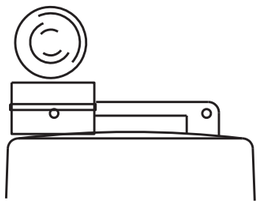
END TREATMENTS FOR CTB'S USED IN WORK ZONES

End treatments used on CTB's in work zones shall meet the appropriate crashworthy standards as defined in the Manual for Assessing Safety Hardware (MASH). Refer to the CWZTCD List for approved end treatments and manufacturers.

BARRIER REFLECTORS FOR CONCRETE TRAFFIC BARRIER AND ATTENUATORS

WARNING LIGHTS

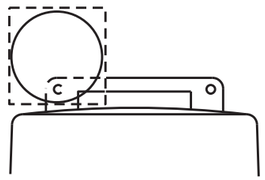
1. Warning lights shall meet the requirements of the TMUTCD.
2. Warning lights shall NOT be installed on barricades.
3. Type A-Low Intensity Flashing Warning Lights are commonly used with drums. They are intended to warn of or mark a potentially hazardous area. Their use shall be as indicated on this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



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

WARNING LIGHTS MOUNTED ON PLASTIC DRUMS

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



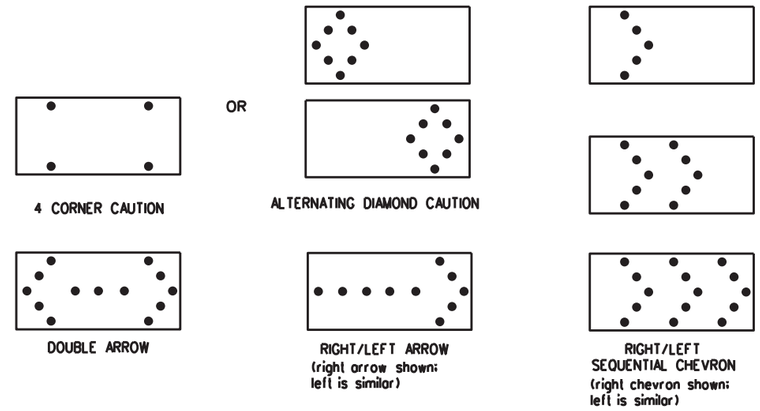
Warning reflector may be round or square. Must have a yellow reflective surface area of at least 30 square inches

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

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

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

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



4 CORNER CAUTION

ALTERNATING DIAMOND CAUTION

DOUBLE ARROW

RIGHT/LEFT ARROW
(right arrow shown; left is similar)

RIGHT/LEFT SEQUENTIAL CHEVRON
(right chevron shown; left is similar)

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

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

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

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

FLASHING ARROW BOARDS

TRUCK-MOUNTED ATTENUATORS

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

Texas Department of Transportation

Traffic Safety Division Standard

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

BC(7)-21

FILE: bc-21.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
© TxDOT November 2002	CONT	SECT	JOB	HIGHWAY
REVISIONS	6467	47	001	FM 434,ETC
9-07 8-14	DIST	COUNTY		SHEET NO.
7-13 5-21	WACO	MCLENNAN		24

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GENERAL NOTES

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

GENERAL DESIGN REQUIREMENTS

Pre-qualified plastic drums shall meet the following requirements:

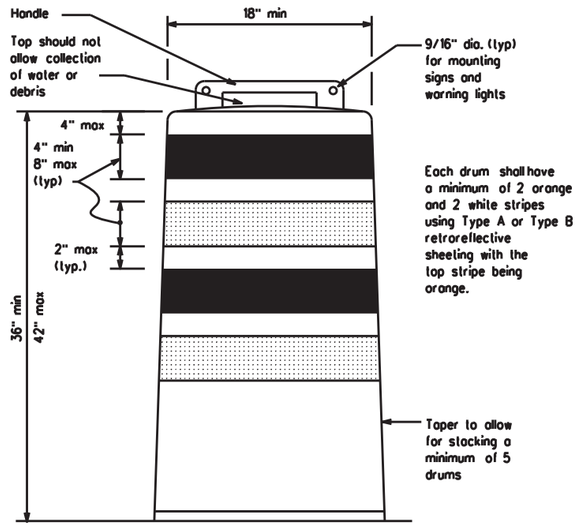
1. Plastic drums shall be a two-piece design: the "body" of the drum shall be the top portion and the "base" shall be the bottom.
2. The body and base shall lock together in such a manner that the body separates from the base when impacted by a vehicle traveling at a speed of 20 MPH or greater but prevents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

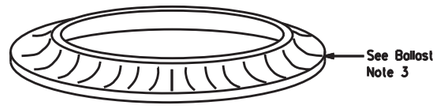
RETROREFLECTIVE SHEETING

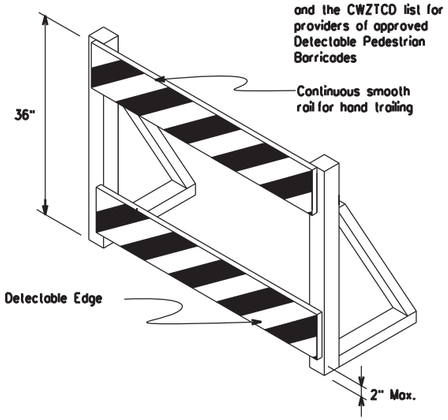
1. The stripes used on drums shall be constructed of sheeting meeting the color and retroreflectivity requirements of Departmental Materials Specification DMS-8300, "Sign Face Materials." Type A or Type B reflective sheeting shall be supplied unless otherwise specified in the plans.
2. The sheeting shall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

BALLAST

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







DETECTABLE PEDESTRIAN BARRICADES

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

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

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

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

SIGNS, CHEVRONS, AND VERTICAL PANELS MOUNTED ON PLASTIC DRUMS

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

SHEET 8 OF 12

Texas Department of Transportation | Traffic Safety Division Standard

BARRICADE AND CONSTRUCTION CHANNELIZING DEVICES

BC(8)-21

FILE: bc-21.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
© TxDOT November 2002	CONT	SECT	JOB	HIGHWAY
REVISIONS	6467	47	001	FM 434,ETC
4-03 8-14	DIST	COUNTY		SHEET NO.
9-07 5-21	WACO	MCLENNAN		25
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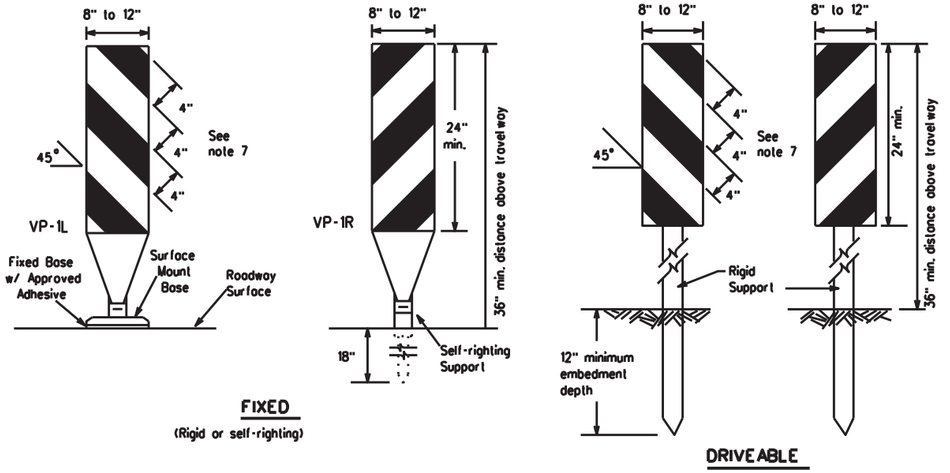
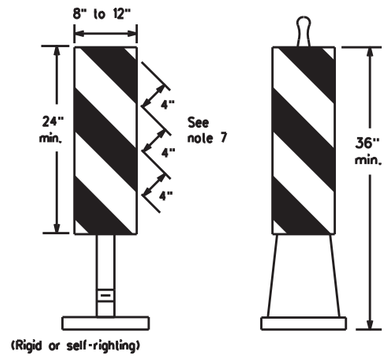
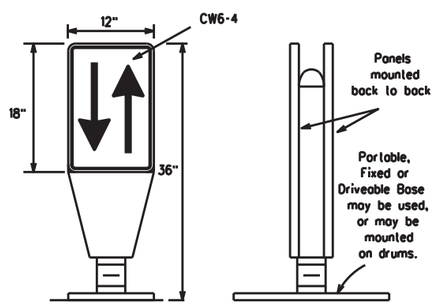




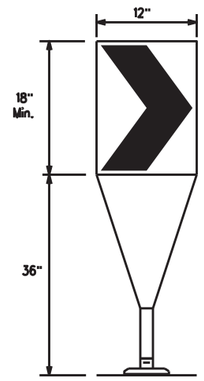
1. Vertical Panels (VP's) are normally used to channelize traffic or divide opposing lanes of traffic.
2. VP's may be used in daytime or nighttime situations. They may be used at the edge of shoulder drop-offs and other areas such as lane transitions where positive daytime and nighttime delineation is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

VERTICAL PANELS (VPs)



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

OPPOSING TRAFFIC LANE DIVIDERS (OTLD)

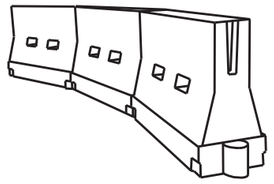


1. The chevron shall be a vertical rectangle with a minimum size of 12 by 18 inches.
2. Chevrons are intended to give notice of a sharp change of alignment with the direction of travel and provide additional emphasis and guidance for vehicle operators with regard to changes in horizontal alignment of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

CHEVRONS

GENERAL NOTES

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



LONGITUDINAL CHANNELIZING DEVICES (LCD)

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

WATER BALLASTED SYSTEMS USED AS BARRIERS

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

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

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

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

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

SUGGESTED MAXIMUM SPACING OF CHANNELIZING DEVICES AND MINIMUM DESIRABLE TAPER LENGTHS

SHEET 9 OF 12

Texas Department of Transportation | Traffic Safety Division Standard

BARRICADE AND CONSTRUCTION CHANNELIZING DEVICES

BC(9)-21

FILE: bc-21.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
©TxDOT November 2002	CONT	SECT	JOB	HIGHWAY
REVISIONS	6467	47	001	FM 434,ETC
9-07 8-14	DIST	COUNTY		SHEET NO.
7-13 5-21	WACO	MCLENNAN		26

DATE: 7/9/2024 10:07:11 AM
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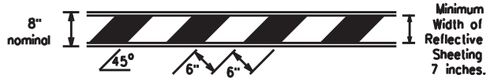
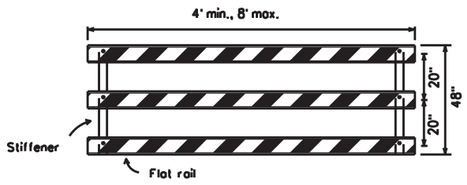
TYPE 3 BARRICADES

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

Barricades shall NOT be used as a sign support.



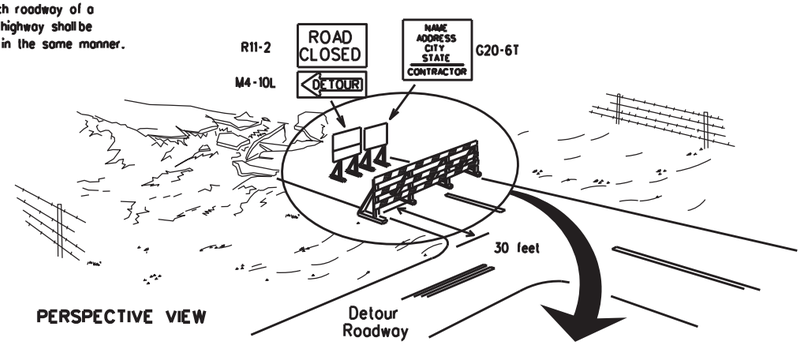
TYPICAL STRIPING DETAIL FOR BARRICADE RAIL



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

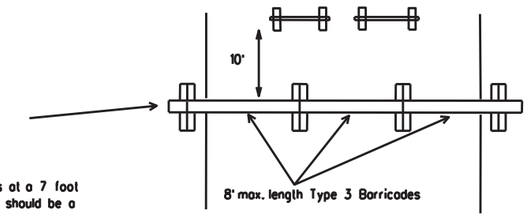
TYPICAL PANEL DETAIL FOR SKID OR POST TYPE BARRICADES

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



PERSPECTIVE VIEW

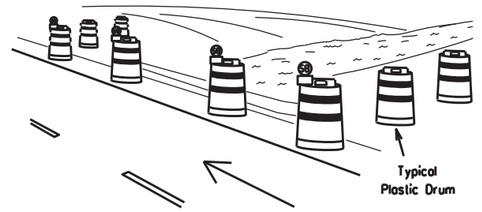
The three rails on Type 3 barricades shall be reflectorized orange and reflective white stripes on one side facing one-way traffic and both sides for two-way traffic.
Barricade striping should slant downward in the direction of detour.



PLAN VIEW

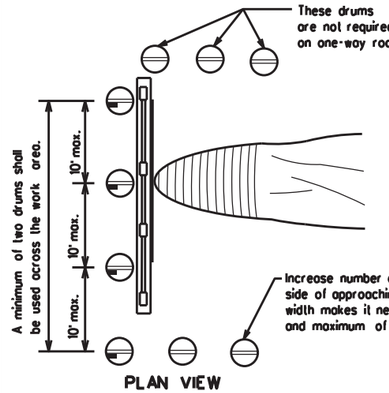
1. Signs should be mounted on independent supports at a 7 foot mounting height in center of roadway. The signs should be a minimum of 10 feet behind Type 3 Barricades.
2. Advance signing shall be as specified elsewhere in the plans.

TYPE 3 BARRICADE (POST AND SKID) TYPICAL APPLICATION



PERSPECTIVE VIEW

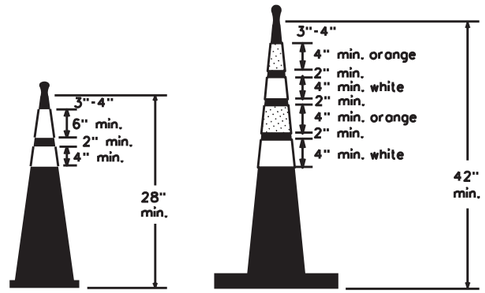
1. Where positive redirectional capability is provided, drums may be omitted.
2. Plastic construction fencing may be used with drums for safety as required in the plans.
3. Vertical Panels on flexible support may be substituted for drums when the shoulder width is less than 4 feet.
4. When the shoulder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



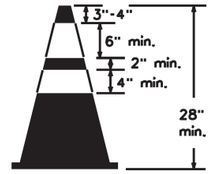
PLAN VIEW

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

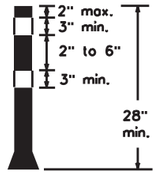
CULVERT WIDENING OR OTHER ISOLATED WORK WITHIN THE PROJECT LIMITS



Two-Piece cones



One-Piece cones

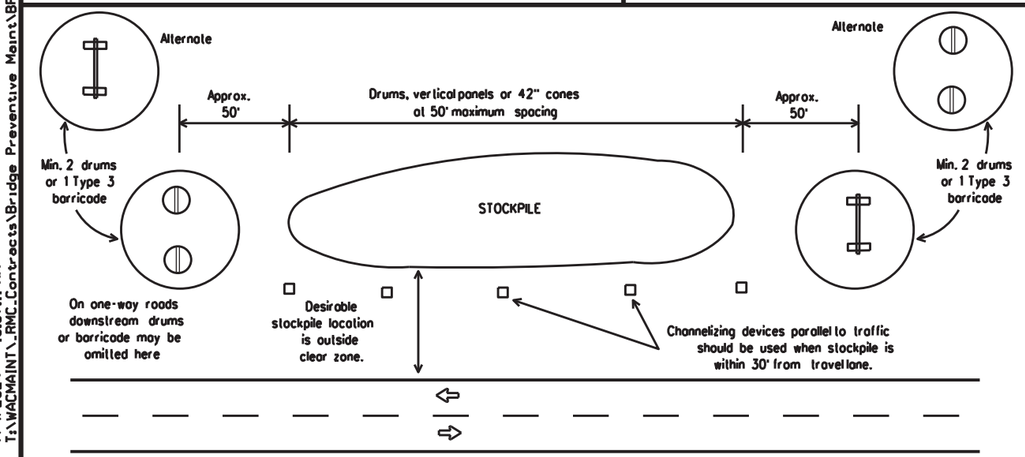


Tubular Marker

28" Cones shall have a minimum weight of 9 1/2 lbs.

42" 2-piece cones shall have a minimum weight of 30 lbs. including base.

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



TRAFFIC CONTROL FOR MATERIAL STOCKPILES

Texas Department of Transportation

Traffic Safety Division Standard

BARRICADE AND CONSTRUCTION CHANNELIZING DEVICES

BC(10)-21

FILE: bc-21.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
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REVISIONS	6467	47	001	FM 434,ETC
9-07 8-14	DIST	COUNTY		SHEET NO.
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WORK ZONE PAVEMENT MARKINGS

GENERAL

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

RAISED PAVEMENT MARKERS

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

PREFABRICATED PAVEMENT MARKINGS

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

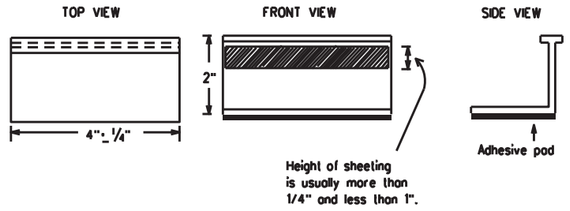
MAINTAINING WORK ZONE PAVEMENT MARKINGS

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

REMOVAL OF PAVEMENT MARKINGS

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

Temporary Flexible-Reflective Roadway Marker Tabs



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

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

RAISED PAVEMENT MARKERS USED AS GUIDEMARKS

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

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

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

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

Texas Department of Transportation | Traffic Safety Division Standard

BARRICADE AND CONSTRUCTION PAVEMENT MARKINGS

BC(11)-21

FILE: bc-21.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
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2-98 9-07 5-21	DIST	COUNTY		SHEET NO.
1-02 7-13	WACO	MCLENNAN		28
11-02 8-14				

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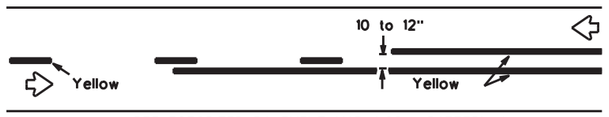
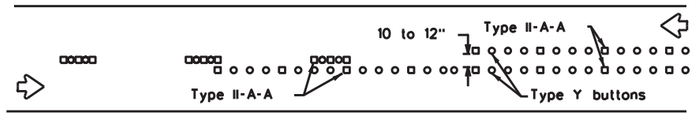
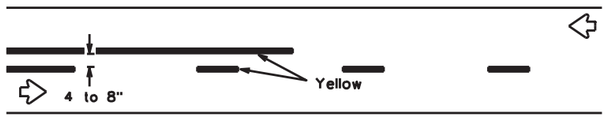
PAVEMENT MARKING PATTERNS



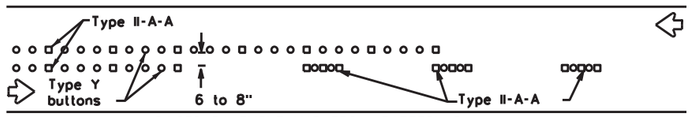
REFLECTORIZED PAVEMENT MARKINGS - PATTERN A



RAISED PAVEMENT MARKERS - PATTERN A



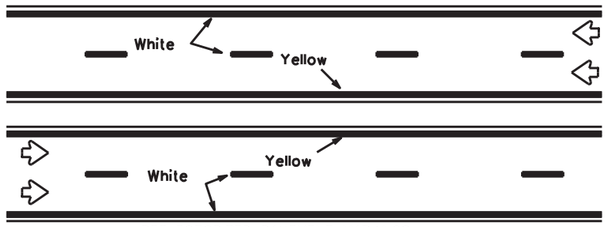
REFLECTORIZED PAVEMENT MARKINGS - PATTERN B



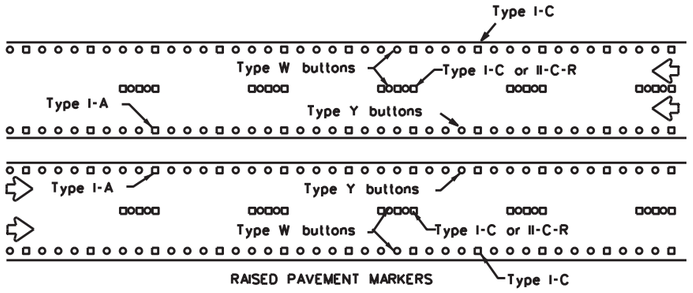
RAISED PAVEMENT MARKERS - PATTERN B

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

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



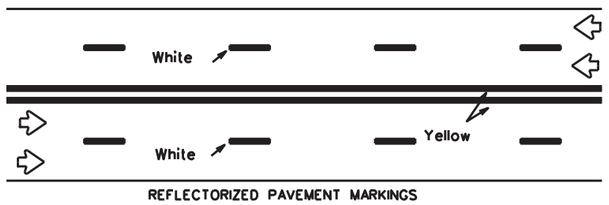
REFLECTORIZED PAVEMENT MARKINGS



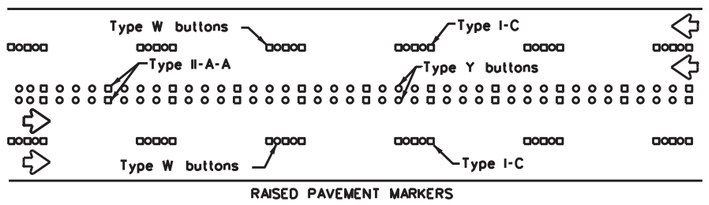
RAISED PAVEMENT MARKERS

Prefabricated markings may be substituted for reflectorized pavement markings.

EDGE & LANE LINES FOR DIVIDED HIGHWAY



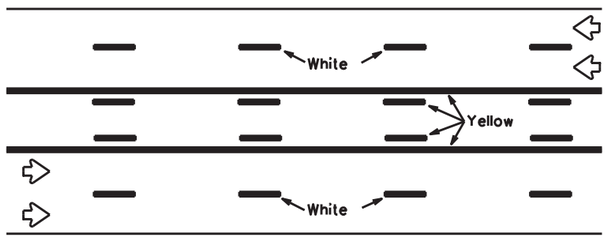
REFLECTORIZED PAVEMENT MARKINGS



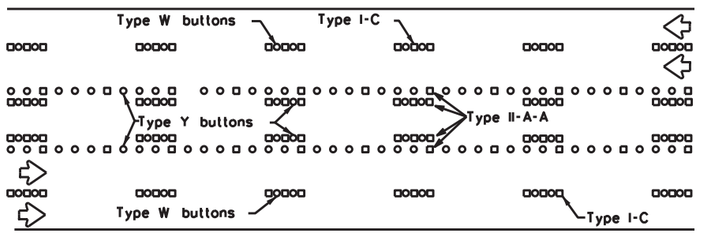
RAISED PAVEMENT MARKERS

Prefabricated markings may be substituted for reflectorized pavement markings.

LANE & CENTER LINES FOR MULTILANE UNDIVIDED HIGHWAYS



REFLECTORIZED PAVEMENT MARKINGS



RAISED PAVEMENT MARKERS

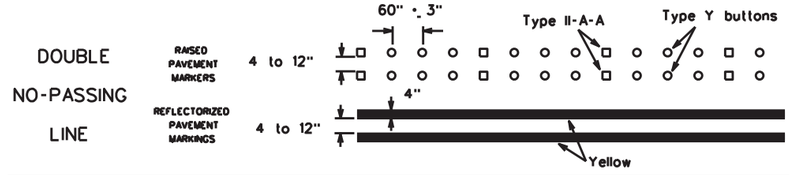
Prefabricated markings may be substituted for reflectorized pavement markings.

TWO-WAY LEFT TURN LANE

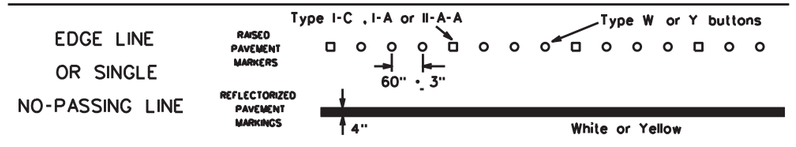
STANDARD WORK ZONE PAVEMENT MARKINGS DETAILS

SOLID LINES

DOUBLE NO-PASSING LINE

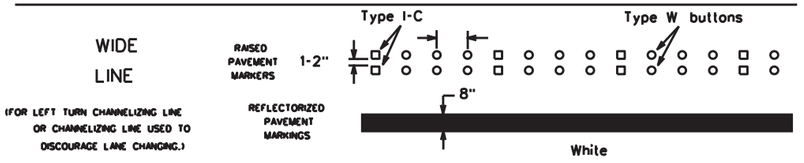


EDGE LINE OR SINGLE NO-PASSING LINE



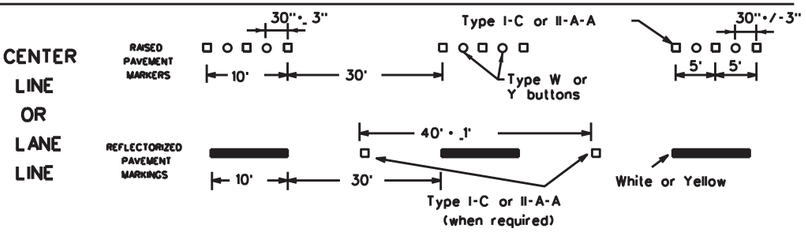
WIDE LINE

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

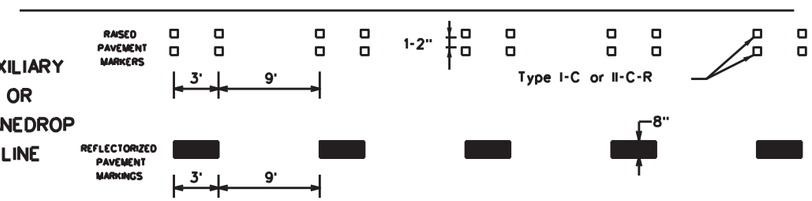


BROKEN LINES

CENTER LINE OR LANE LINE

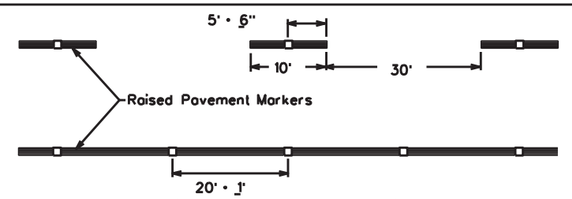


AUXILIARY OR LANEDROP LINE



REMOVABLE MARKINGS WITH RAISED PAVEMENT MARKERS

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



Centerline only - not to be used on edge lines

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

Texas Department of Transportation

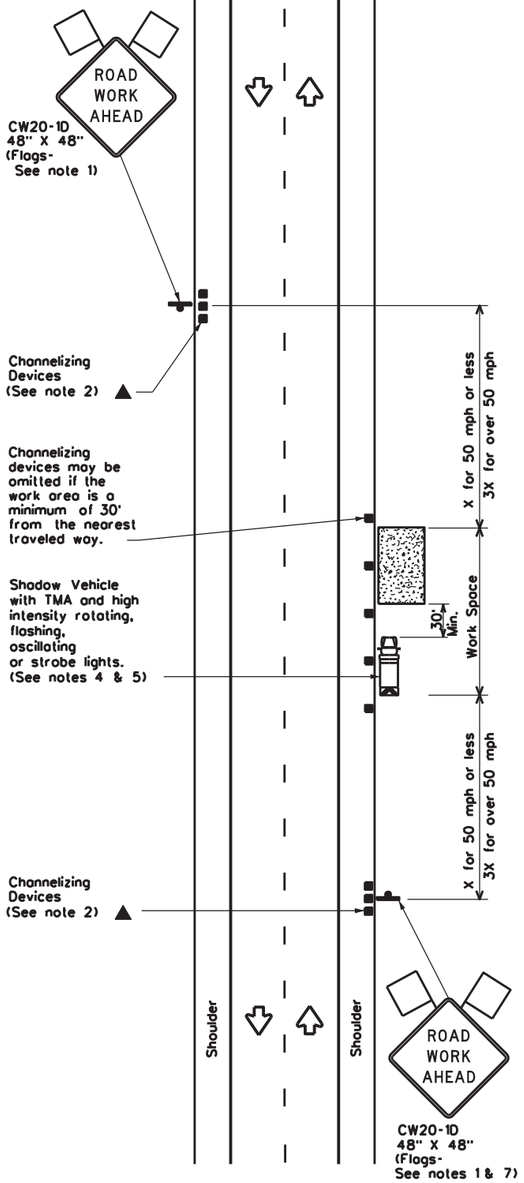
Traffic Safety Division Standard

BARRICADE AND CONSTRUCTION PAVEMENT MARKING PATTERNS

BC(12)-21

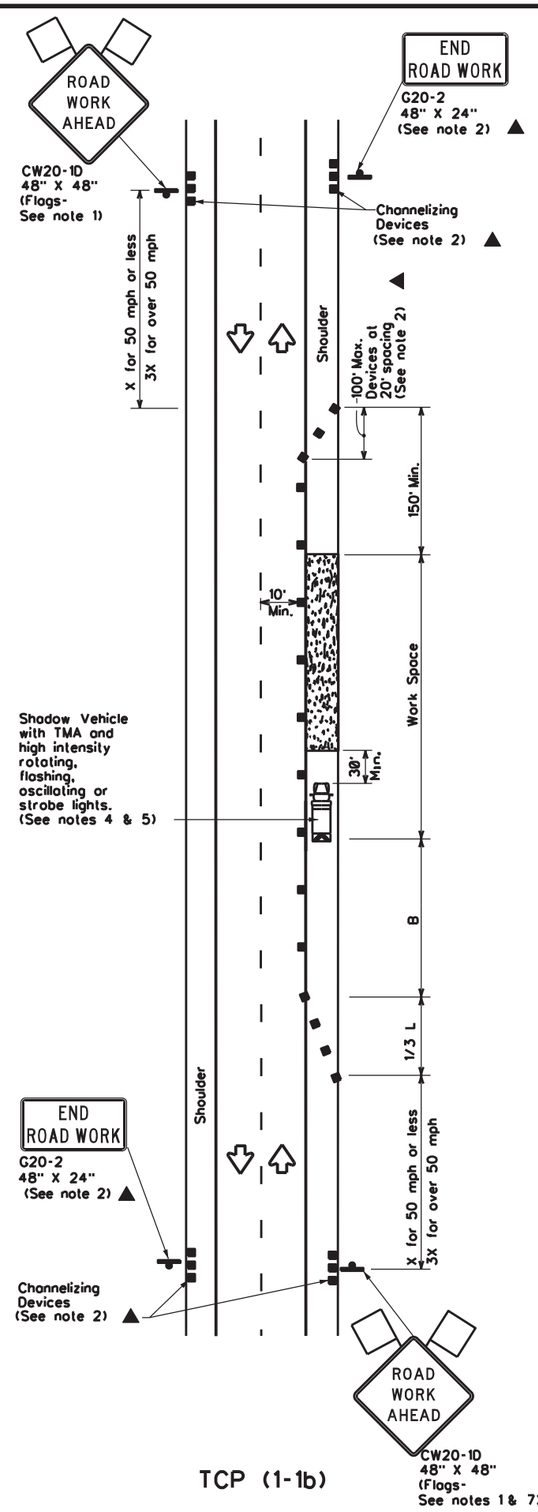
FILE: bc-21.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
©TxDOT February 1998	CONT	SECT	JOB	HIGHWAY
REVISIONS 1-97 9-07 5-21 2-98 7-13 11-02 8-14	6467	47	001	FM 434,ETC
	DIST	COUNTY		SHEET NO.
	WACO	MCLENNAN		29

DATE: 7/9/2024
FILE: T:\WACMAINT_RMC_Contracts\Bridge Preventive Maint\BPM_2025\BPM 6467-47-001\CADD\BASE\STANDARDS\tcp1-1-18.dgn



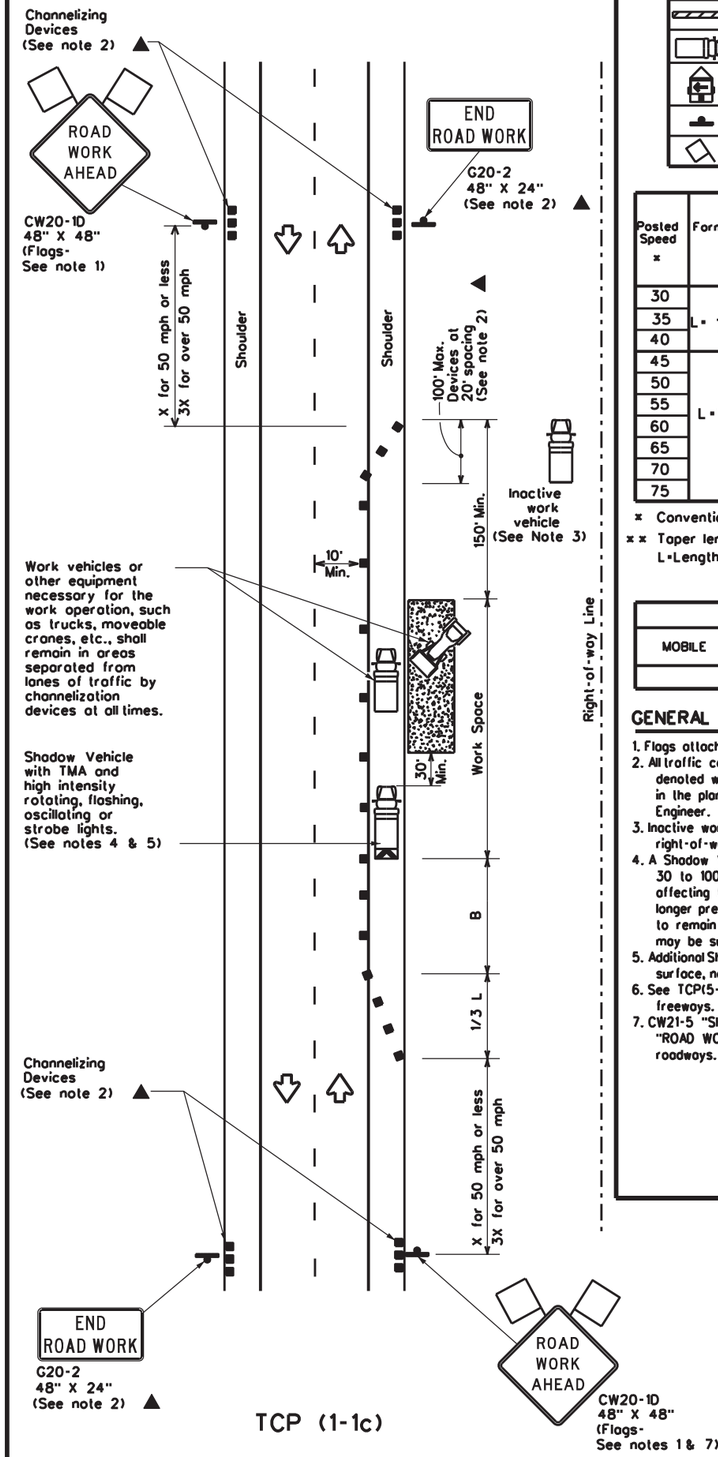
TCP (1-1a)

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

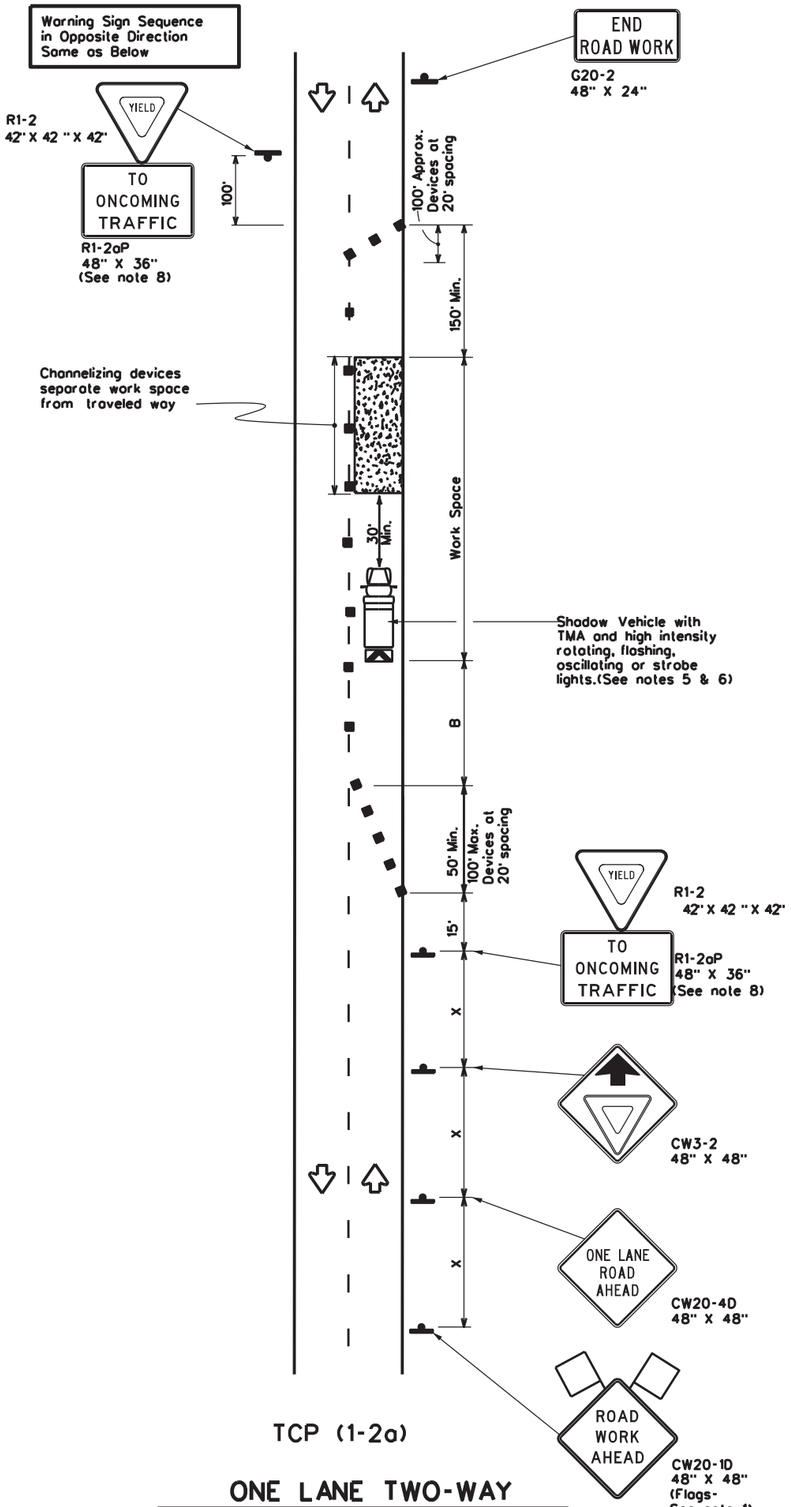
Traffic Operations Division Standard

TRAFFIC CONTROL PLAN CONVENTIONAL ROAD SHOULDER WORK

TCP(1-1)-18

FILE: tcp1-1-18.dgn	DN:	CK:	DW:	CK:
© TxDOT December 1985	CONT	SECT	JOB	HIGHWAY
REVISIONS 2-94 4-98 8-95 2-12 1-97 2-18	6467	47	001	FM 434,ETC
	DIST	COUNTY		SHEET NO.
	WACO	MCLENNAN		30

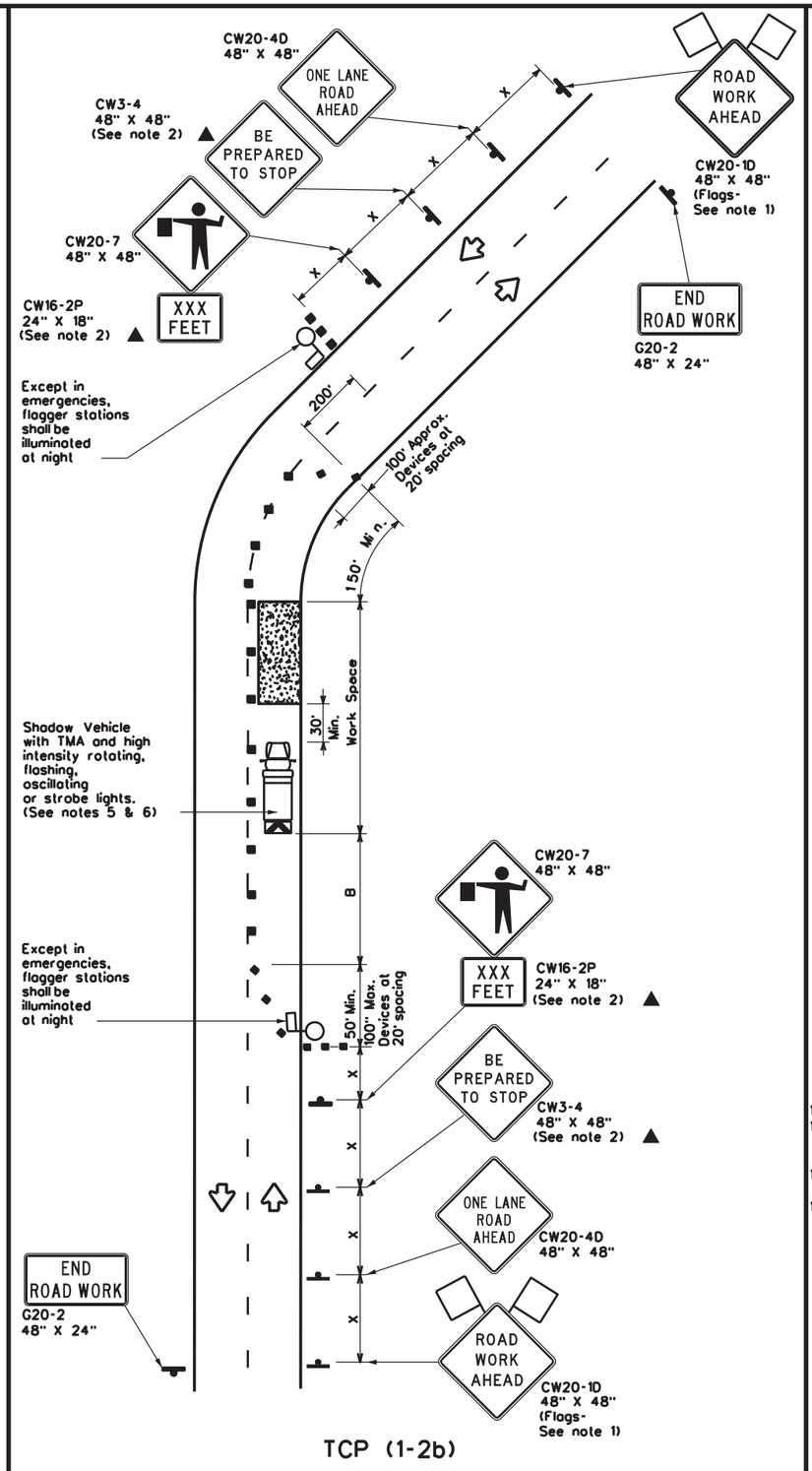
DATE: 7/9/2024
FILE: T:\WACMAINT_RMC_Contracts\Bridge Preventive Maint\BPM_2025\BPM 6467-47-001\CADD\BASE\STANDARDS\tcp1-2-18.dgn



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

FILE: tcp1-2-18.dgn	DN:	CK:	DW:	CK:
©TxDOT December 1985	CONT	SECT	JOB	HIGHWAY
REVISIONS	6467	47	001	FM 434,ETC
4-90 4-98	DIST	COUNTY		SHEET NO.
2-94 2-12	WACO	MCLENNAN		31
1-97 2-18				

DATE: 7/9/2024
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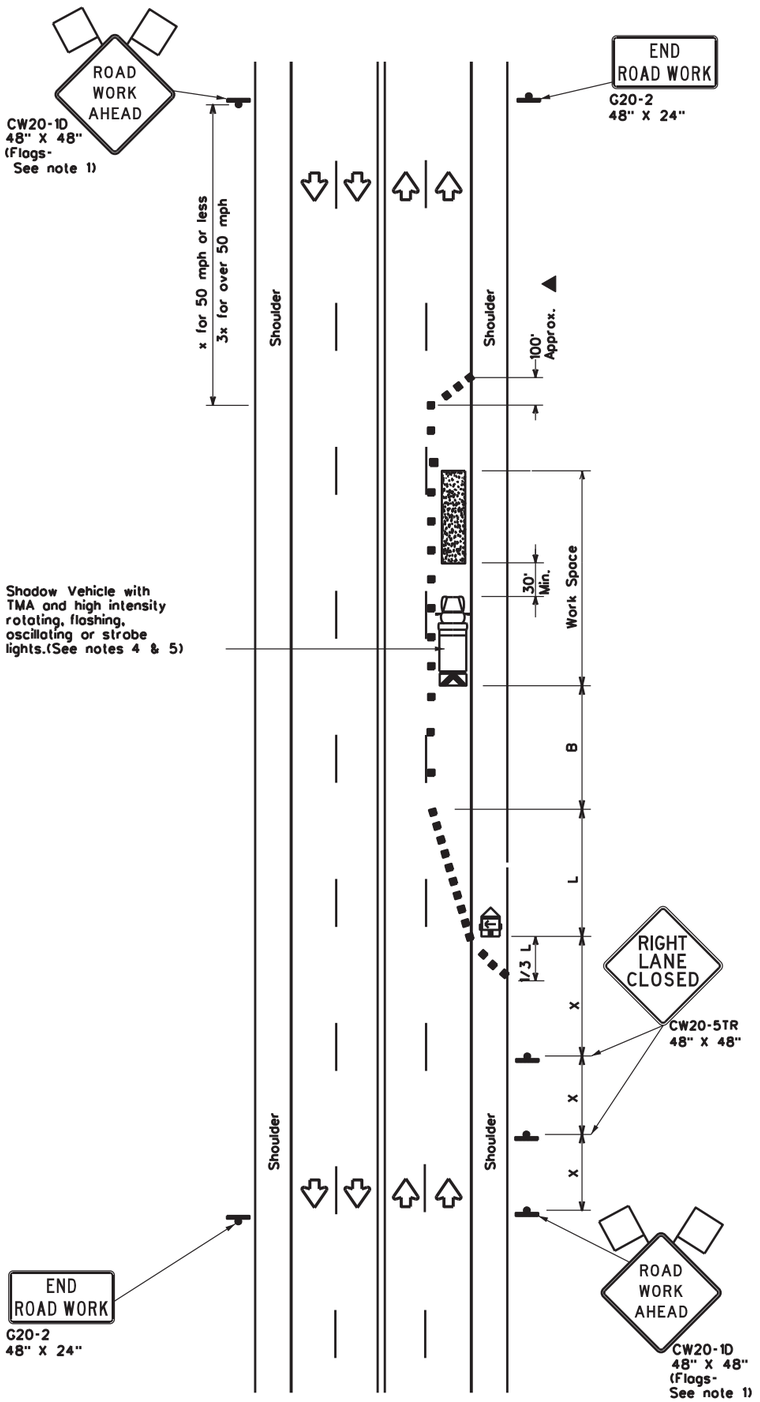
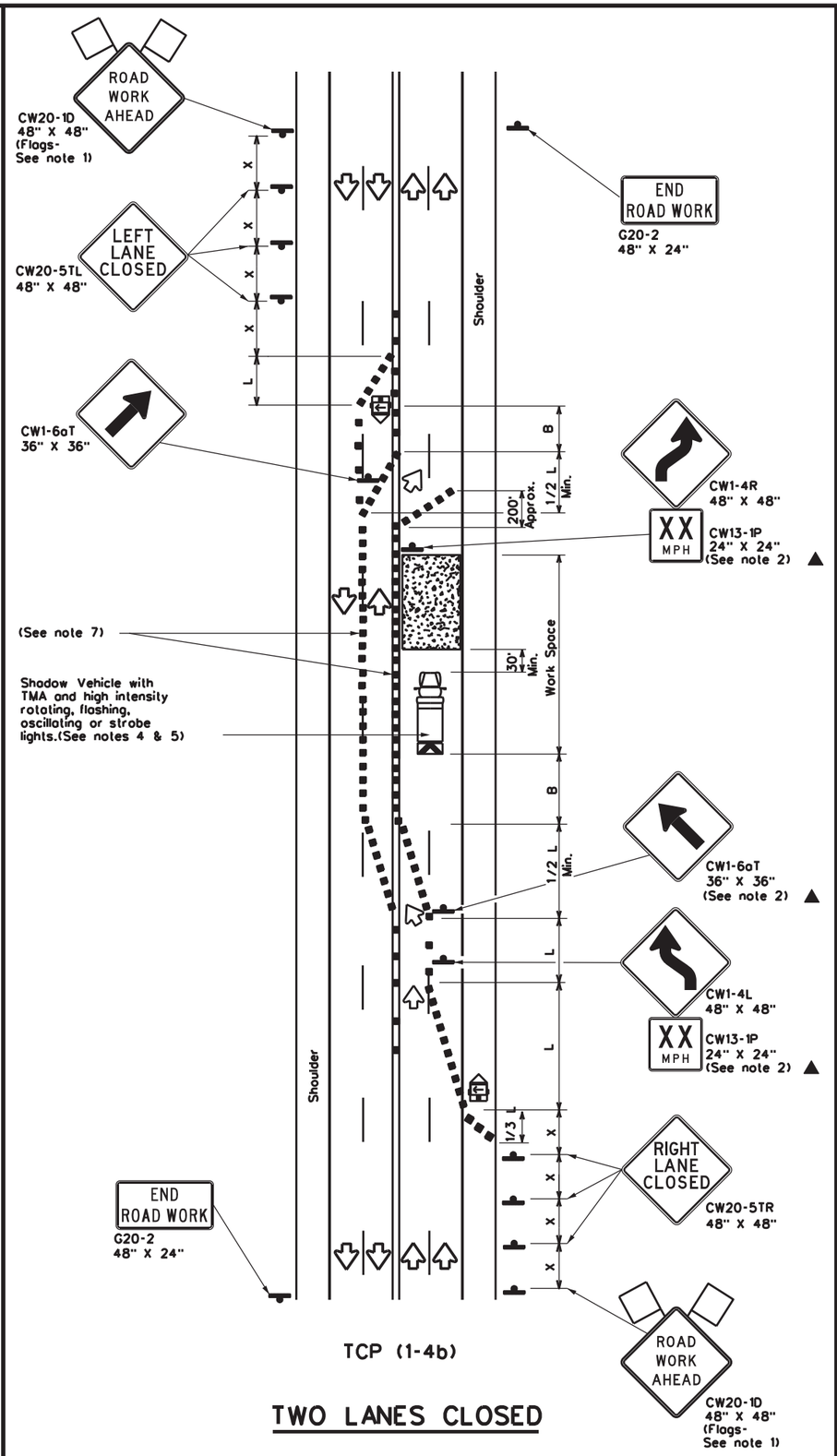


TCP (1-4a)

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 lighter 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	6467	47	001	FM 434,ETC
2-94 4-98	DIST	COUNTY		SHEET NO.
8-95 2-12	WACO	MCLENNAN		32
1-97 2-18				

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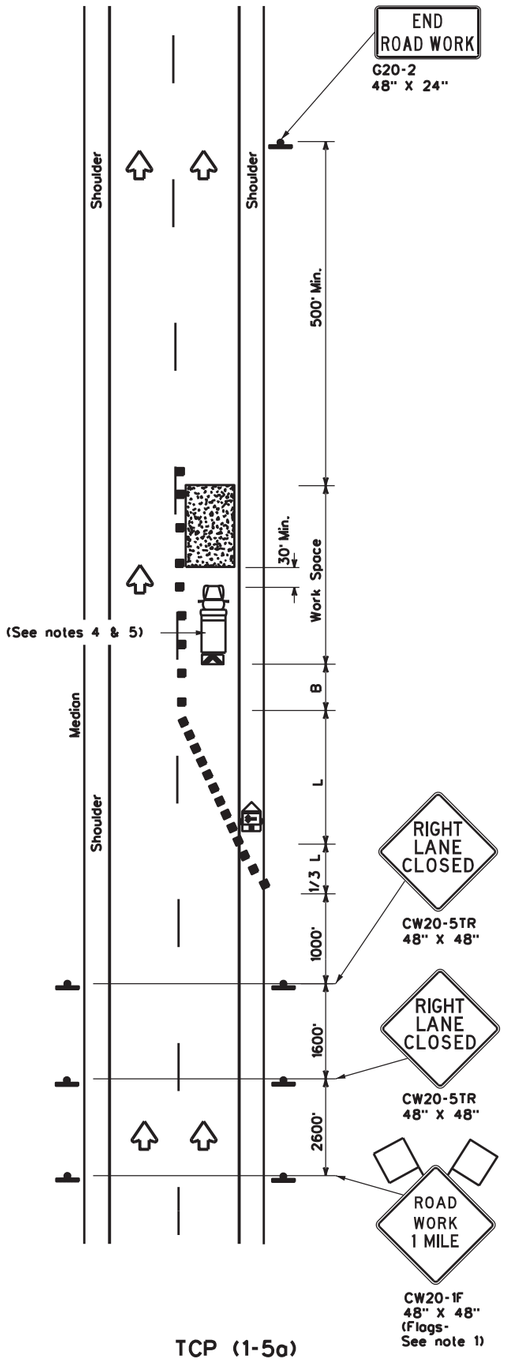
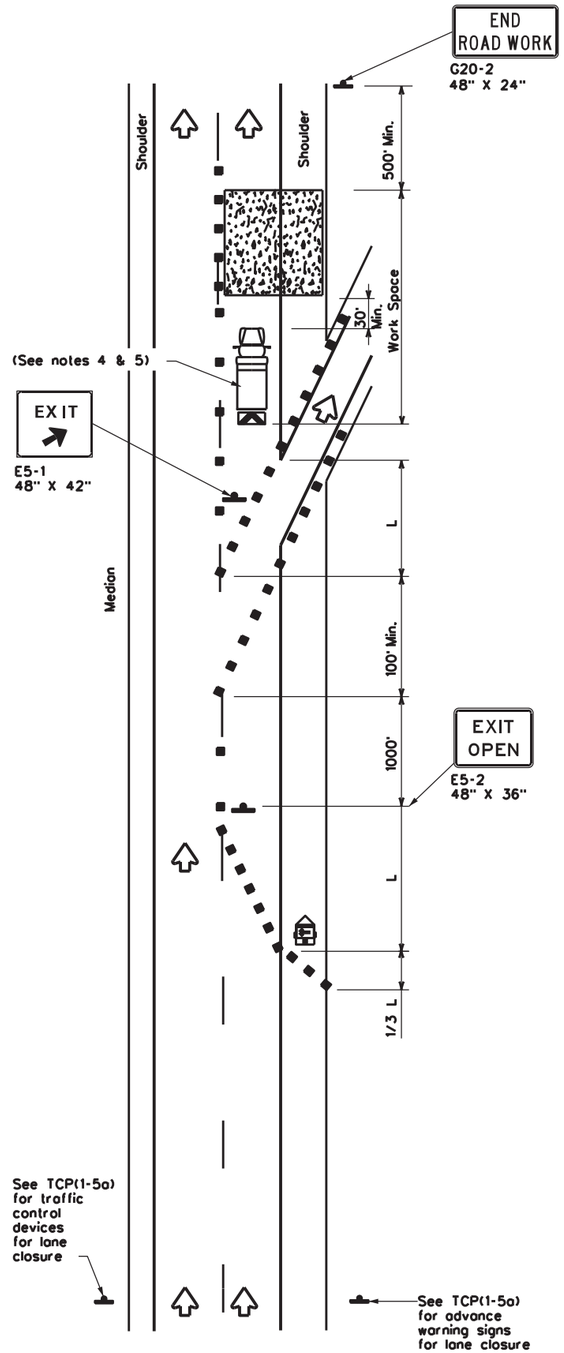
DATE: 7/9/2024
FILE: T:\MACMAINT_RMC_Contracts\Bridge Preventive Maint\BPM_2025\BPM 6467-47-001\CADD\BASE\STANDARDS\tcp1-5-18.dgn



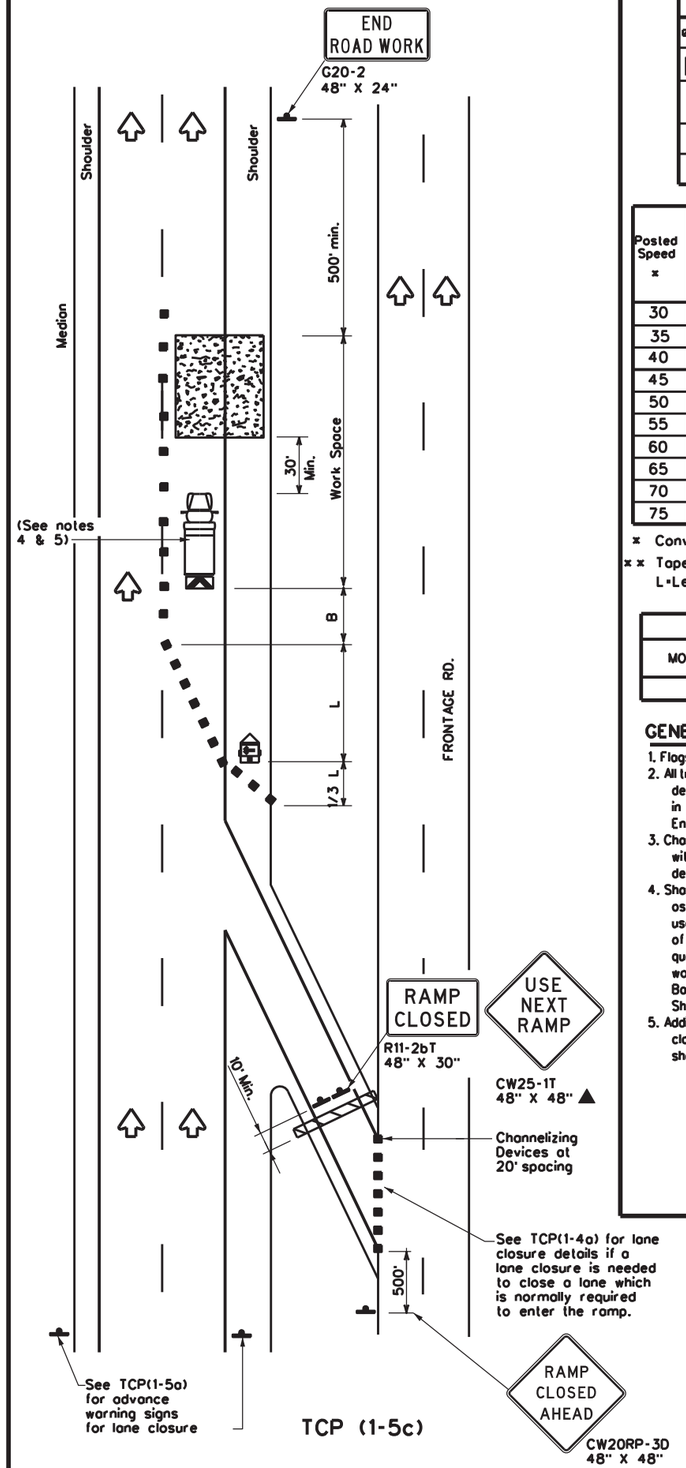
TCP (1-5a)

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	6467	47	001	FM 434,ETC
	DIST	COUNTY		SHEET NO.
	WACO	MCLENNAN		33

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DATE: 7/9/2024
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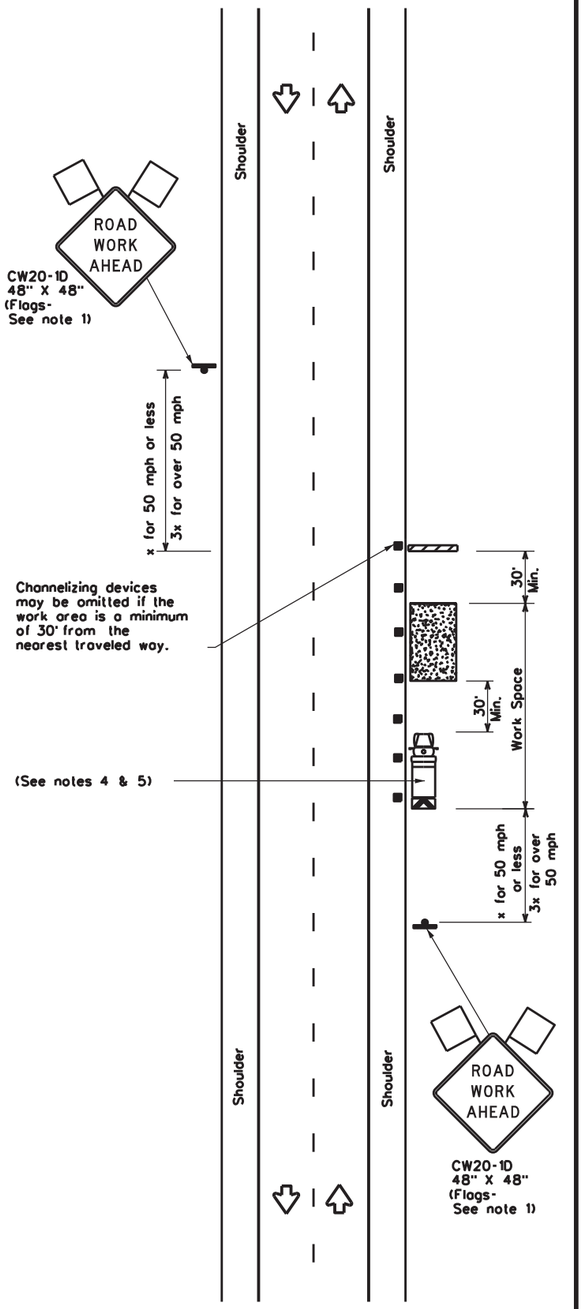
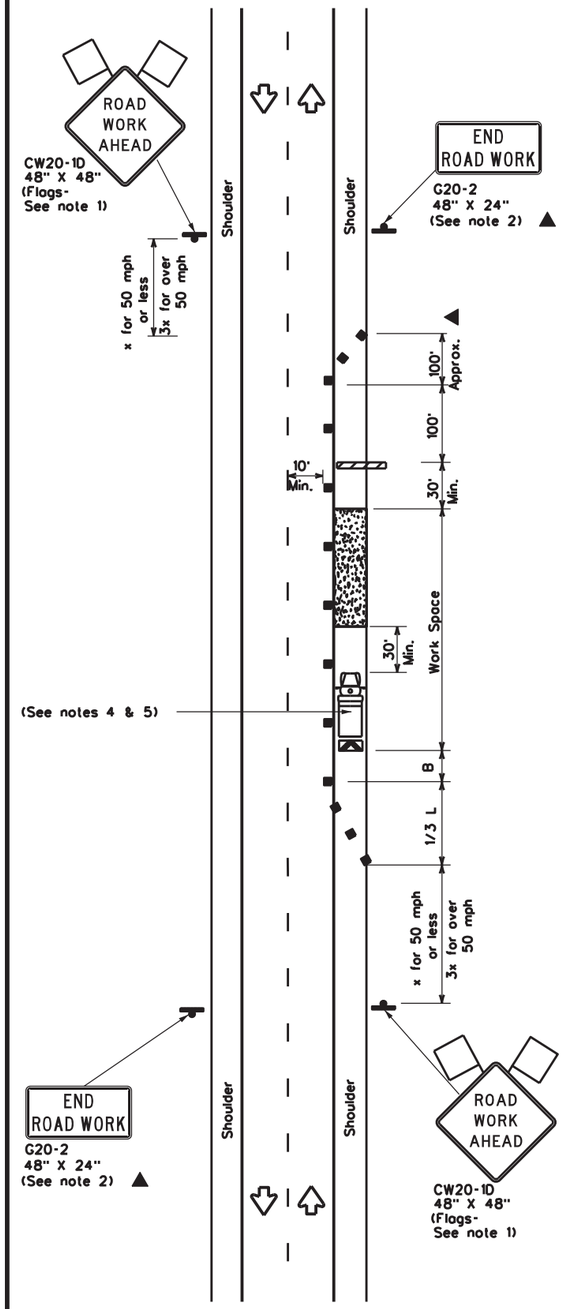


TCP (2-1a)

WORK SPACE NEAR SHOULDER

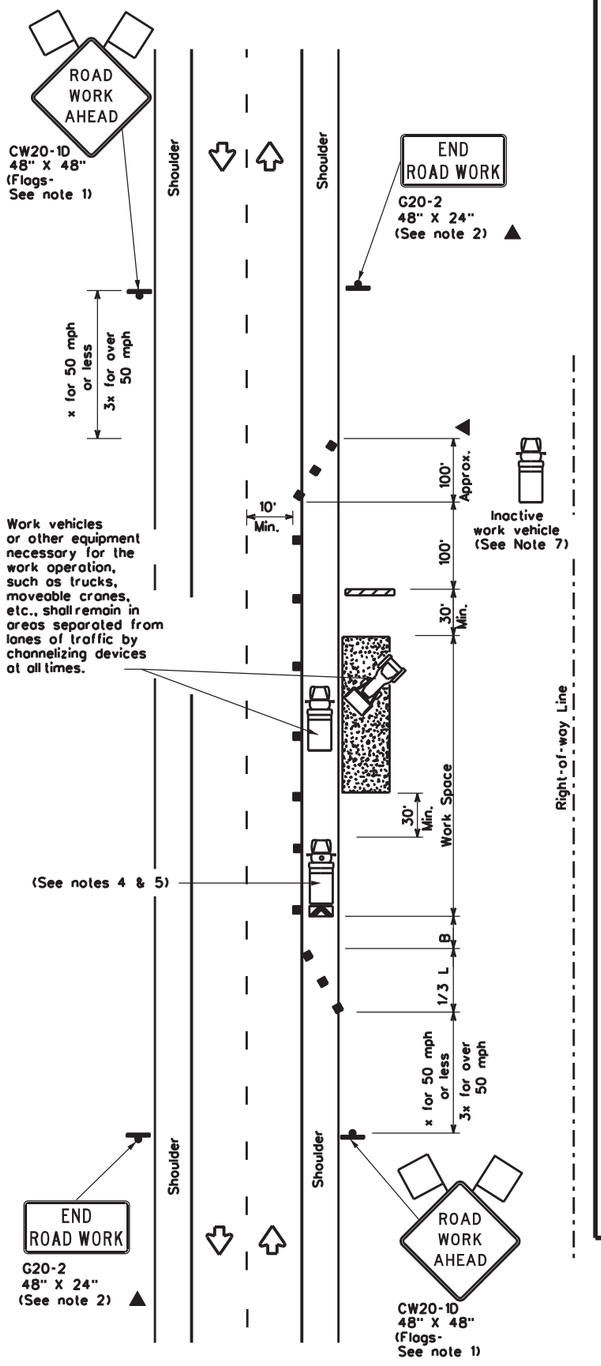
Conventional Roads



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 CW21-1D "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	6467	47	001	FM 434,ETC
2-94 4-98	DIST	COUNTY		SHEET NO.
8-95 2-12	WACO	MCLENNAN		34
1-97 2-18				

DATE: 7/9/2024
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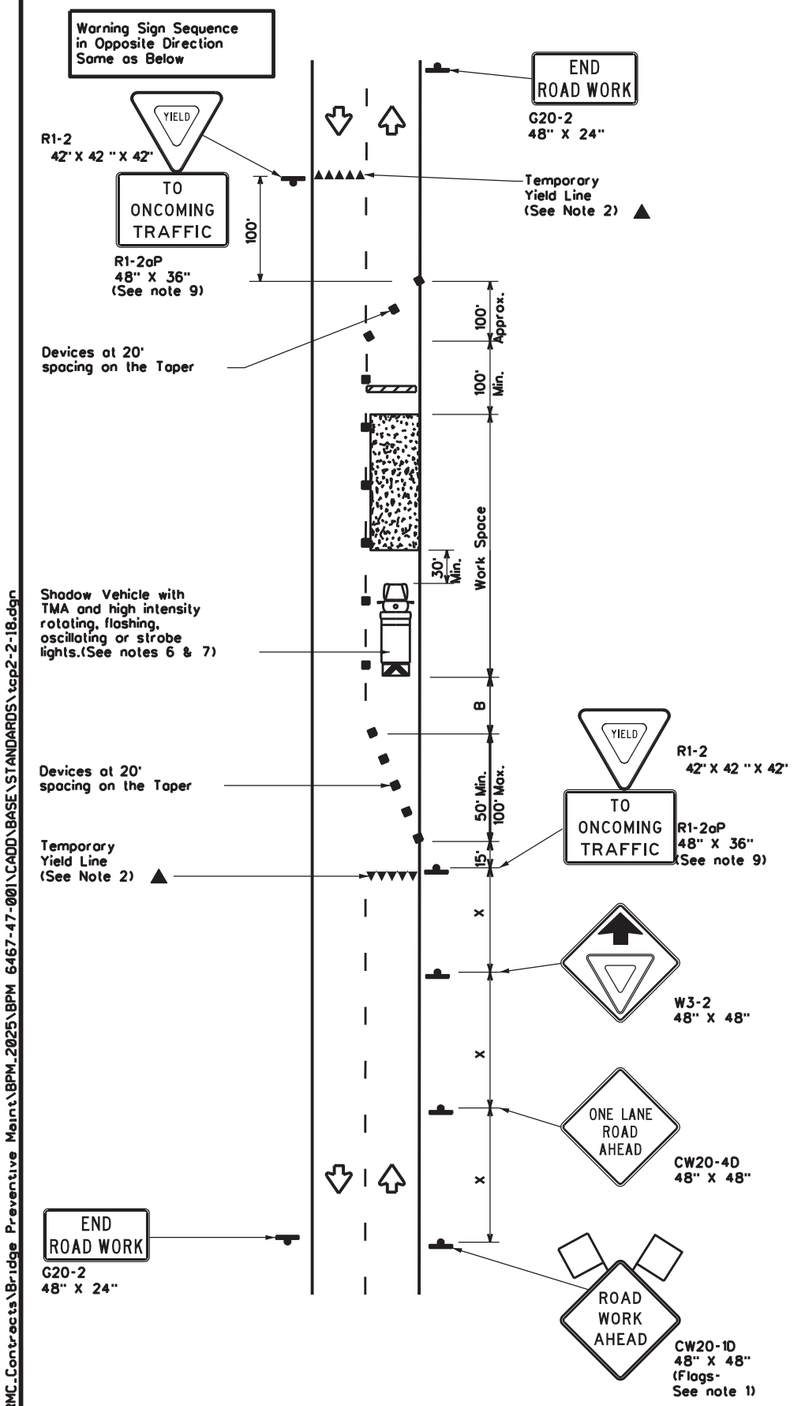
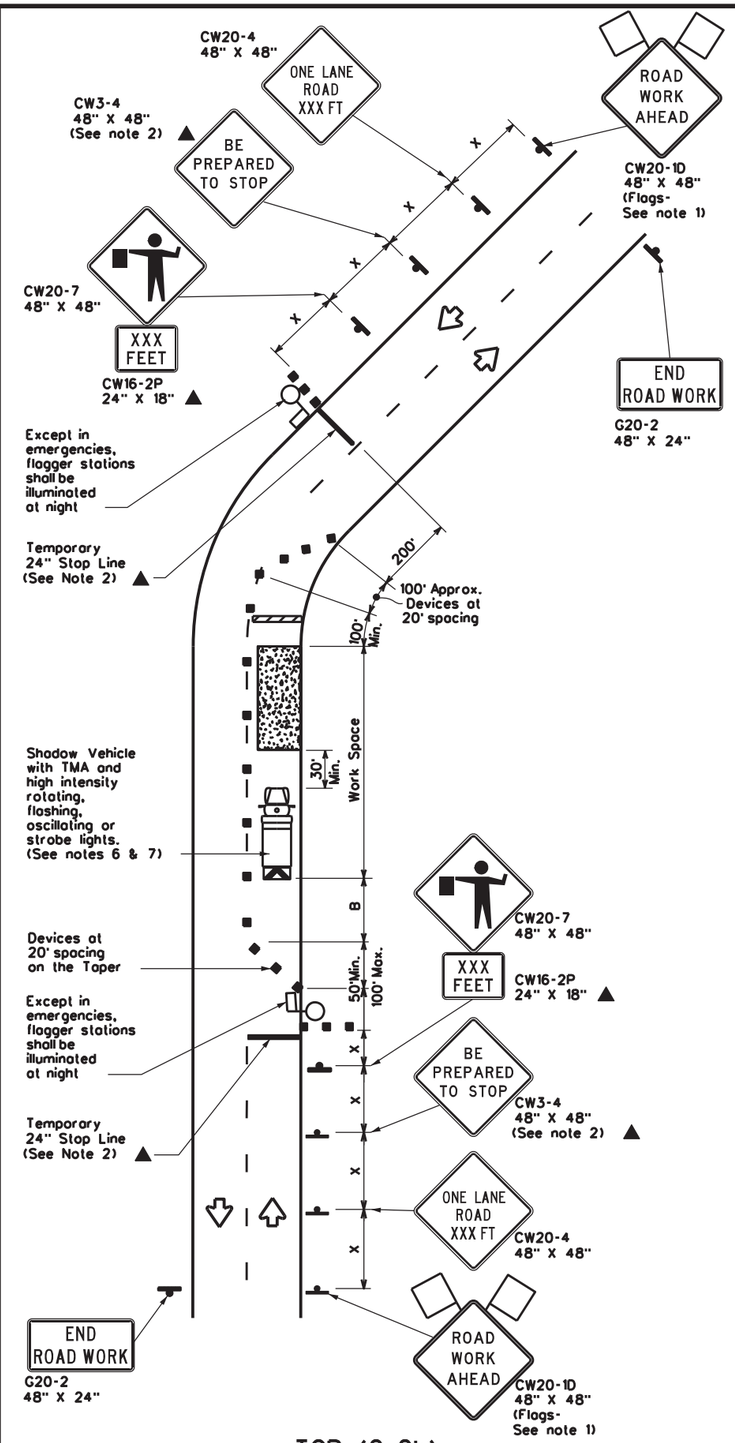


TCP (2-2a)
2-LANE ROADWAY WITHOUT PAVED SHOULDERS
ONE LANE TWO-WAY
CONTROL WITH YIELD SIGNS
(Less than 2000 ADT - See Note 9)



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 situations.

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	6467	47	001	FM 434,ETC
	DIST	COUNTY		SHEET NO.
	WACO	MCLENNAN		35

DATE: 7/9/2024 10:07:14 AM
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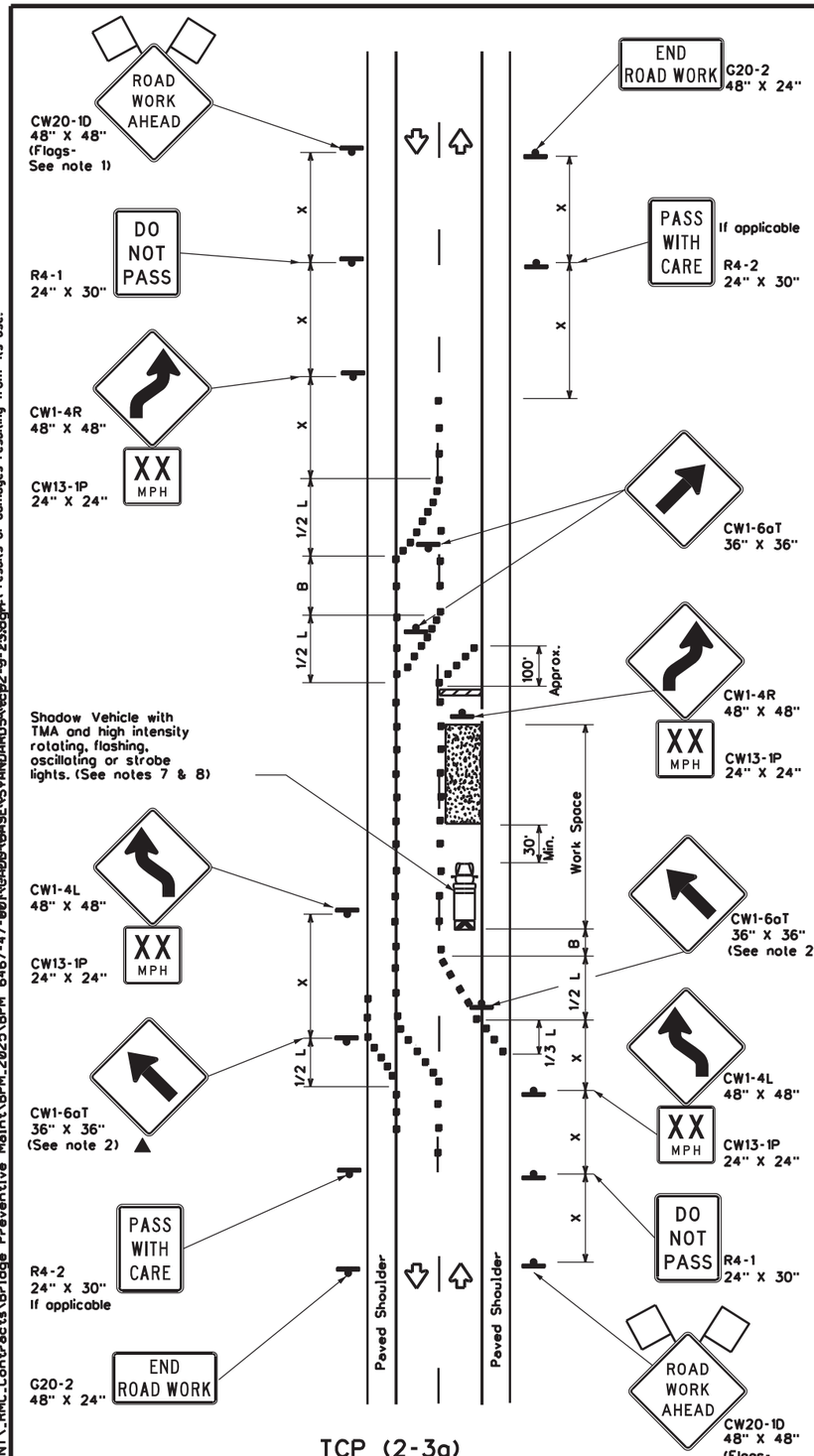
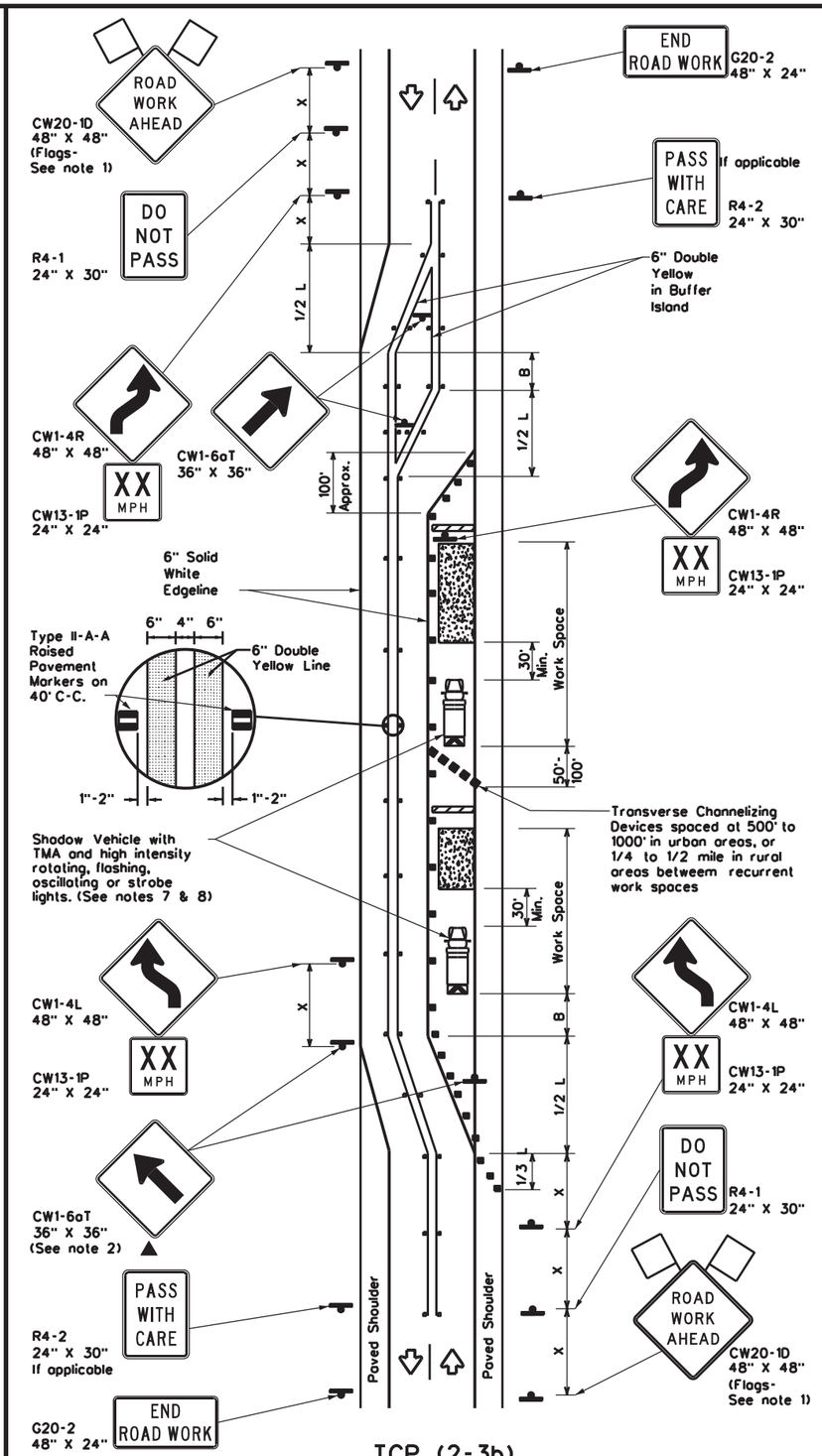


TCP (2-3a)
2-LANE ROADWAY WITH PAVED SHOULDERS

ONE LANE CLOSED
ADEQUATE FIELD OF VIEW



TCP (2-3b)
2-LANE ROADWAY WITH PAVED SHOULDERS

ONE LANE CLOSED
INADEQUATE FIELD OF VIEW

LEGEND

	Type 3 Barricade		Channelizing Devices
	Heavy Work Vehicle		Truck Mounted Attenuator (TMA)
	Trailer Mounted Flashing Arrow Board		Raised Pavement Markers Ty II-AA
	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
				TCP(2-3b)ONLY
			✓	✓

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. When work space will be in place less than three days existing pavement markings may remain in place. Channelizing devices shall be used to separate traffic.
4. Flagger control should NOT be used unless roadway conditions or heavy traffic volume require additional emphasis to safely control traffic. Flagger should be positioned at end of traffic queue.
5. The R4-1 "DO NOT PASS," R4-2 " PASS WITH CARE" and construction regulatory speed zone signs may be installed within CW20-1D "ROAD WORK AHEAD" signs. Proper spacing of signs shall be maintained.
6. Conflicting pavement marking shall be removed for long term projects.
7. 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.
8. 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 (2-3a)

9. Conflicting pavement markings shall be removed for long-term projects. 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 device spacing is intended for the area of the conflicting markings, not the entire work zone.

Texas Department of Transportation

Traffic Safety Division Standard

TRAFFIC CONTROL PLAN TRAFFIC SHIFTS ON TWO-LANE ROADS

TCP(2-3)-23

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© TxDOT April 2023	CONT	SECT	JOB	HIGHWAY
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8-95 3-03 4-23	DIST	COUNTY		SHEET NO.
1-97 2-12	WACO	MCLENNAN		36

DATE: 7/9/2024
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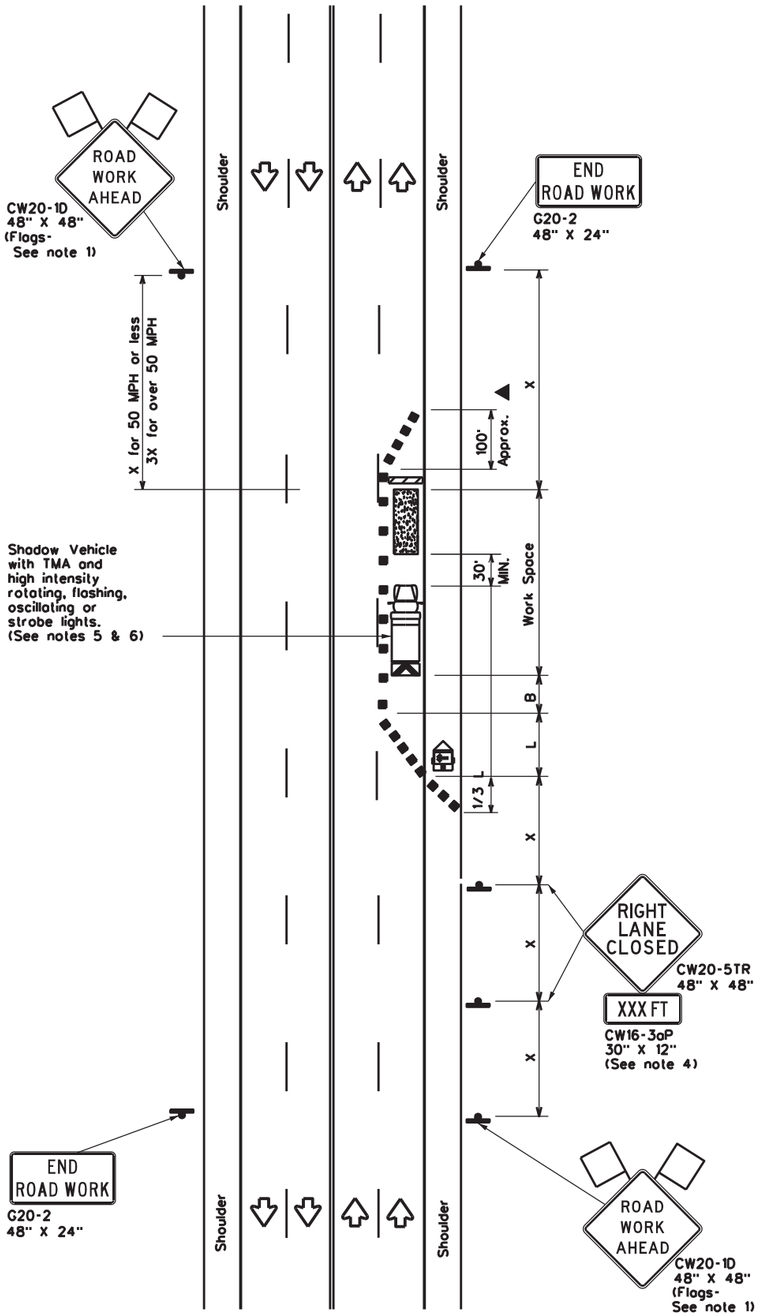
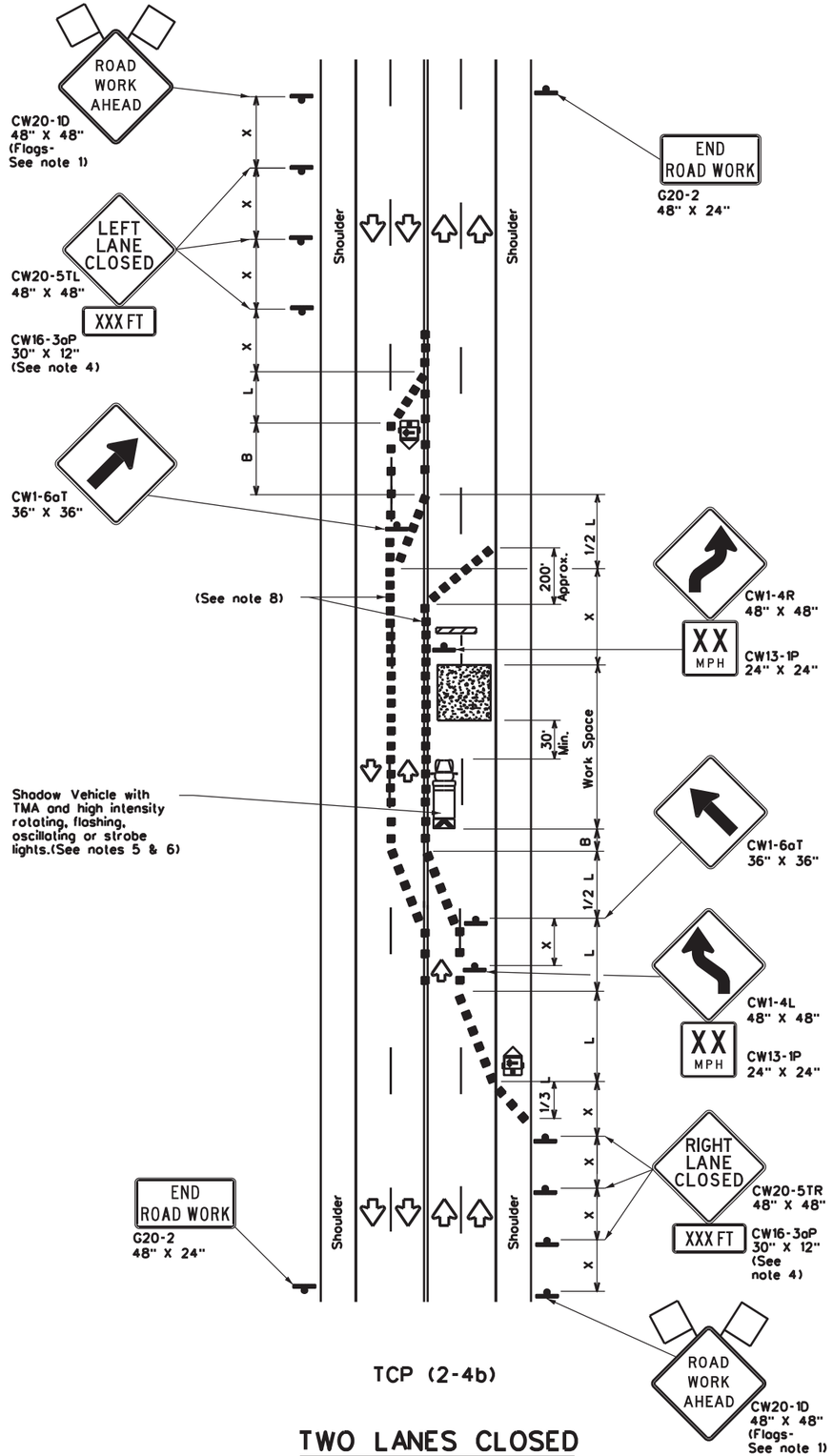


TCP (2-4a)

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 lighter 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

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© TxDOT December 1985	CONT	SECT	JOB	HIGHWAY
REVISIONS 8-95 3-03	6467	47	001	FM 434,ETC
1-97 2-12	DIST	COUNTY		SHEET NO.
4-98 2-18	WACO	MCLENNAN		37

DATE: 7/9/2024
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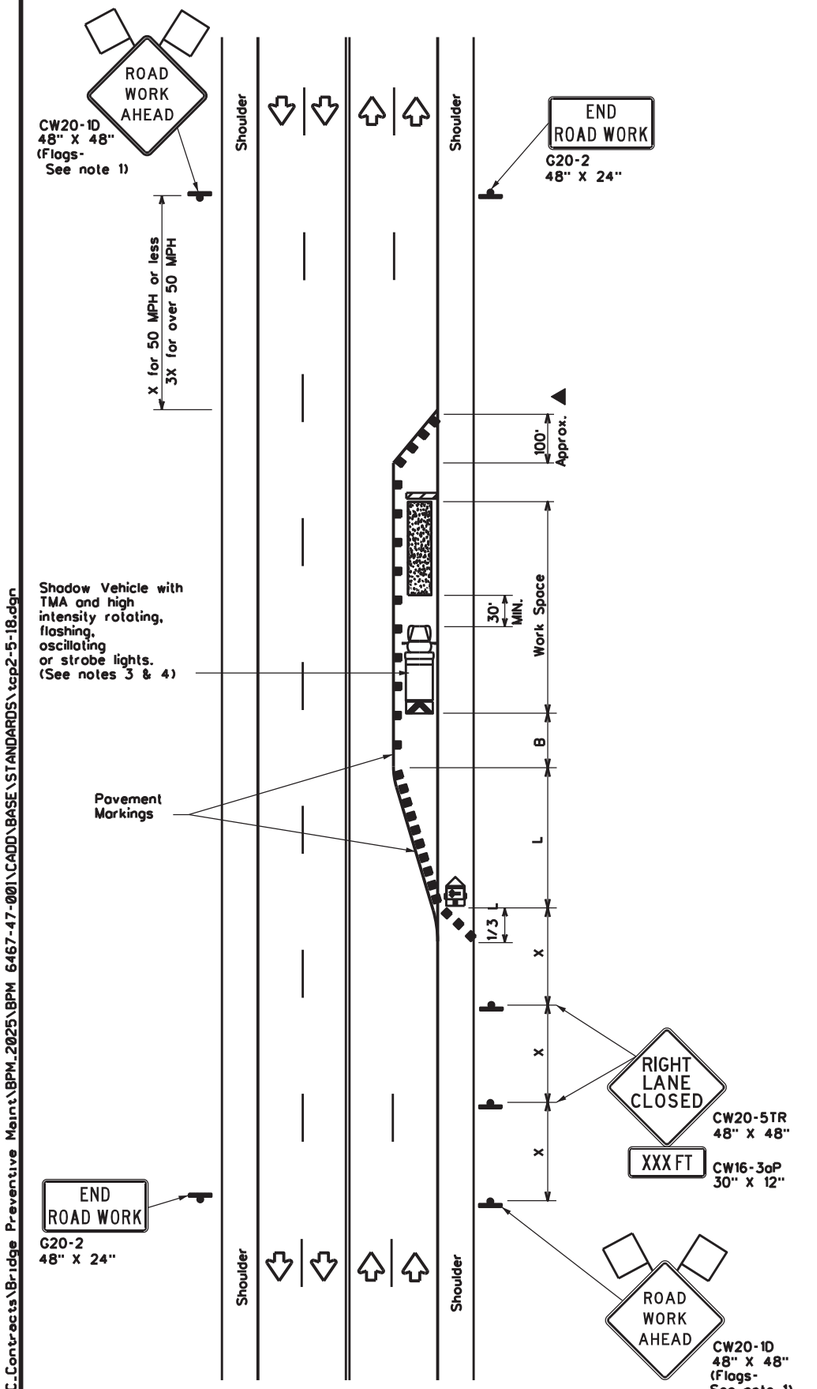
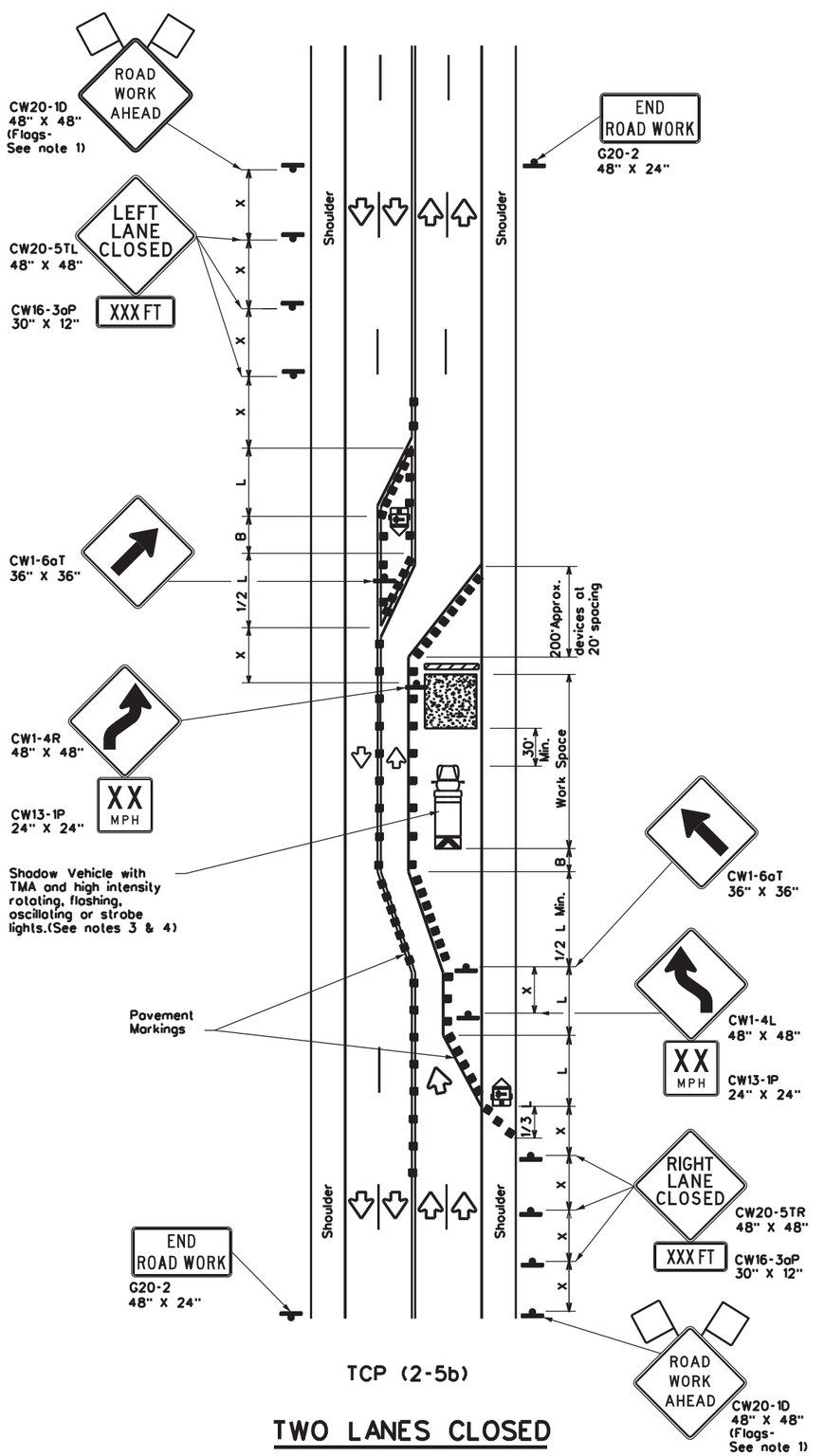


TCP (2-5a)

ONE LANE CLOSED



TCP (2-5b)

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. 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 eposure 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 substitutued for the Shadow Vehicle and TMA.
4. 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.
5. The downstream taper is optional. When used, it should be 100 feet approximately per lane, with channelizing devices spaced at 20 feet.

TCP (2-5a)

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 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 (2-5b)

7. Conflicting pavement markings shall be removed for long-term projects.

Texas Department of Transportation — Traffic Operations Division Standard

TRAFFIC CONTROL PLAN LONG TERM LANE CLOSURES MULTILANE CONVENTIONAL RDS.

TCP(2-5)-18

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© TxDOT December 1985	CONT	SECT	JOB	HIGHWAY
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8-95 2-12	DIST	COUNTY		SHEET NO.
1-97 3-03				
4-98 2-18	WACO	MCLENNAN		38

DATE: 7/9/2024 10:07:15 AM
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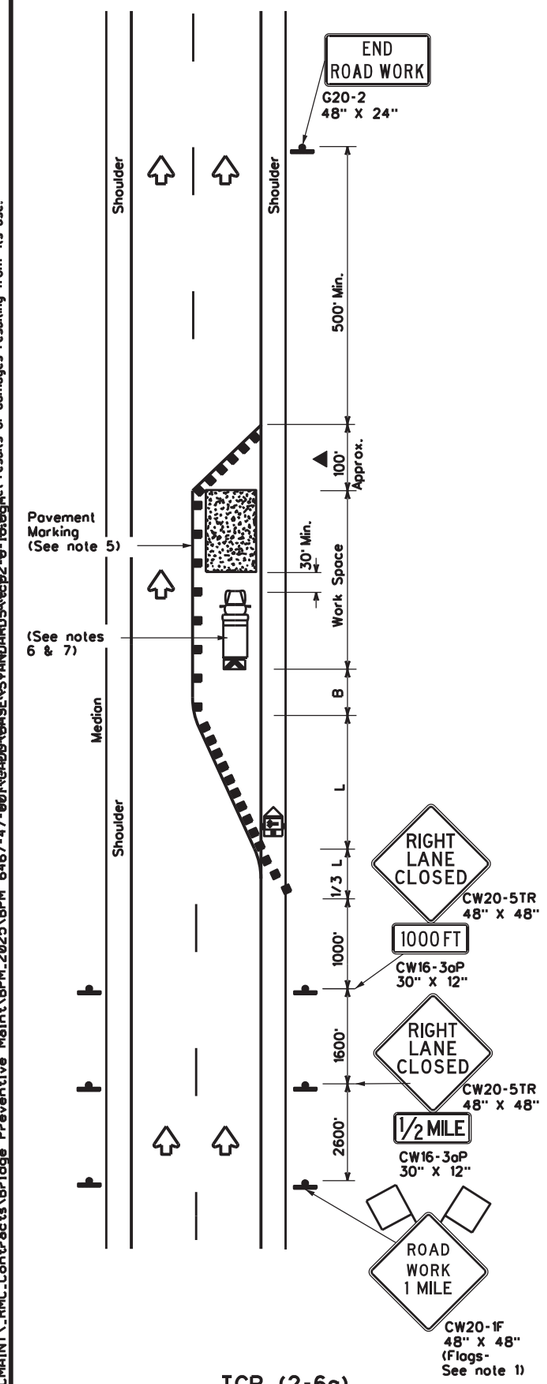
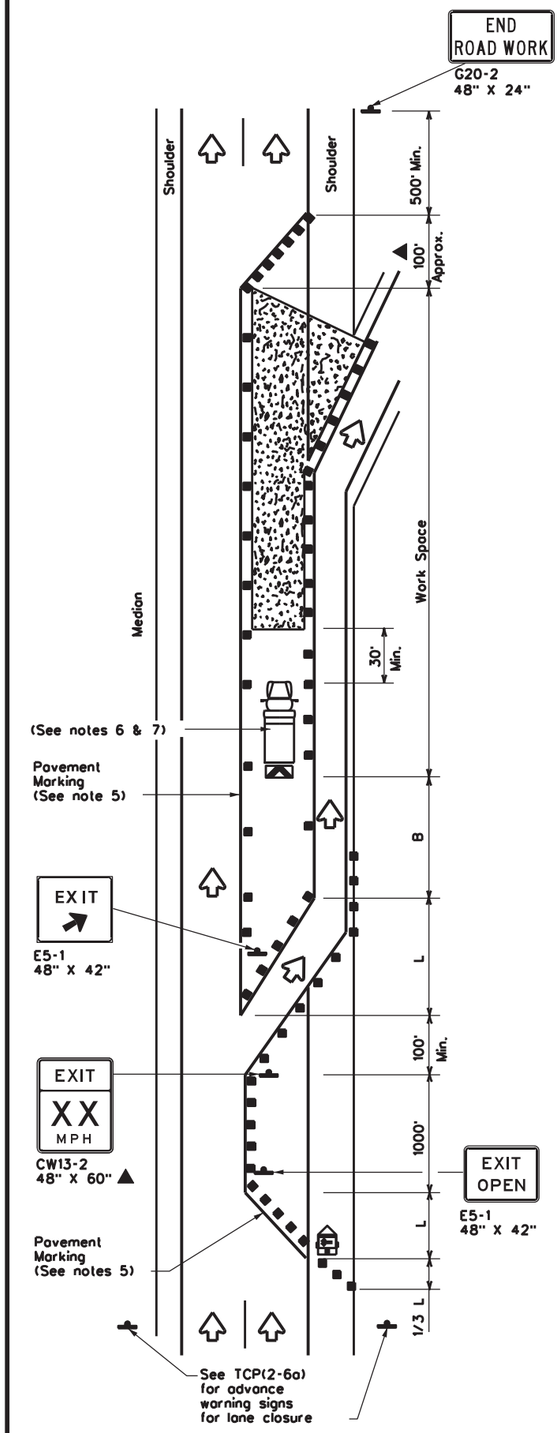


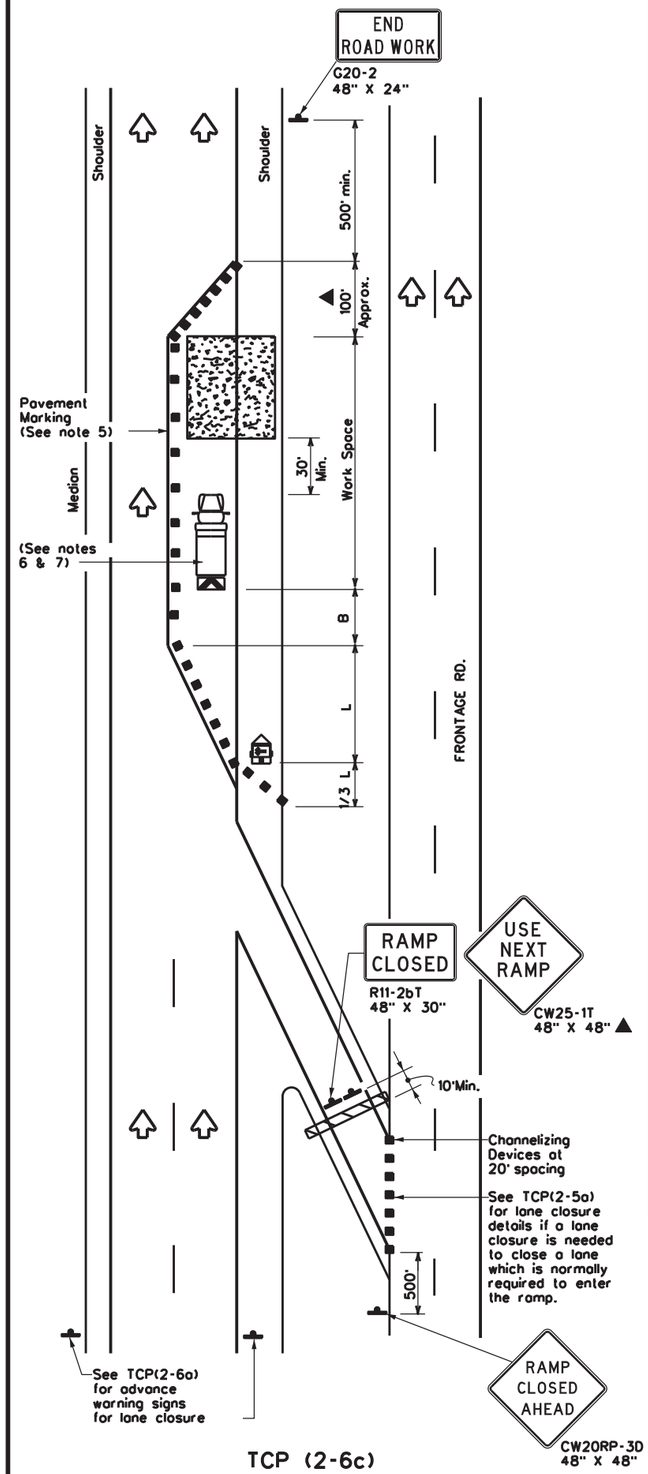
TCP (2-6a)

ONE LANE CLOSURE



TCP (2-6b)

LANE CLOSURE NEAR EXIT RAMPS



TCP (2-6c)

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. Channelizing devices used along the work space or along tangent sections may be supplemented with vertical panels (VP) placed on everyother channelizing device. If night time conditions make it difficult to see at least two VPs, the VPs may be placed on each channelizing device.
5. The placement of pavement markings may be omitted on intermediate-term stationary work zones with the approval of the Engineer.
6. Shadow Vehicle with TMA and high intensity rotating, flashing,oscillating or strobe lights. 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.
7. 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 ON DIVIDED HIGHWAYS

TCP(2-6)-18

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© TxDOT December 1985	CONT	SECT	JOB	HIGHWAY
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2-94 4-98	DIST	COUNTY		SHEET NO.
8-95 2-12	WACO	MCLENNAN		39
1-97 2-18				

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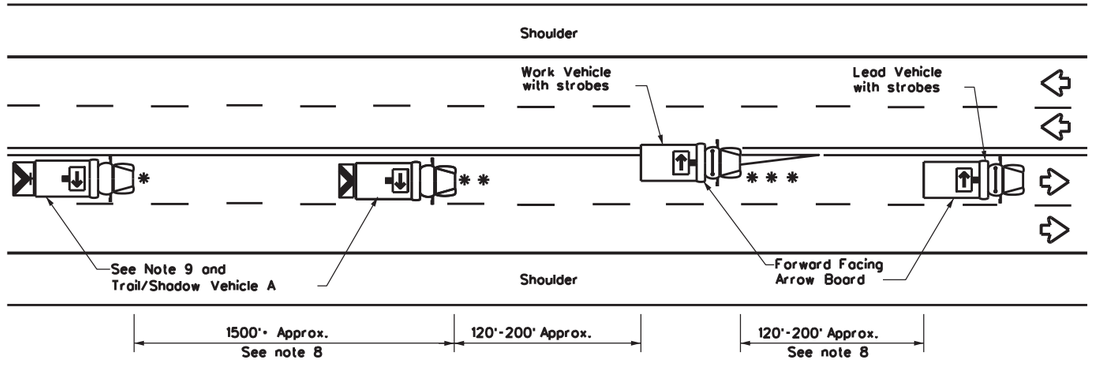
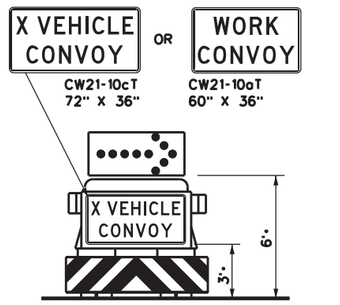


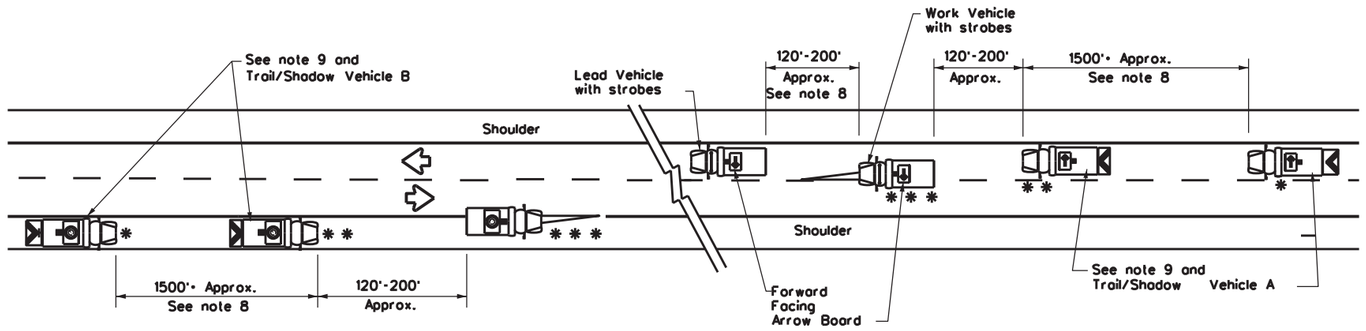
TCP (3-1a)

UNDIVIDED MULTILANE ROADWAY



TRAIL/SHADOW VEHICLE A

with RIGHT Directional display Flashing Arrow Board

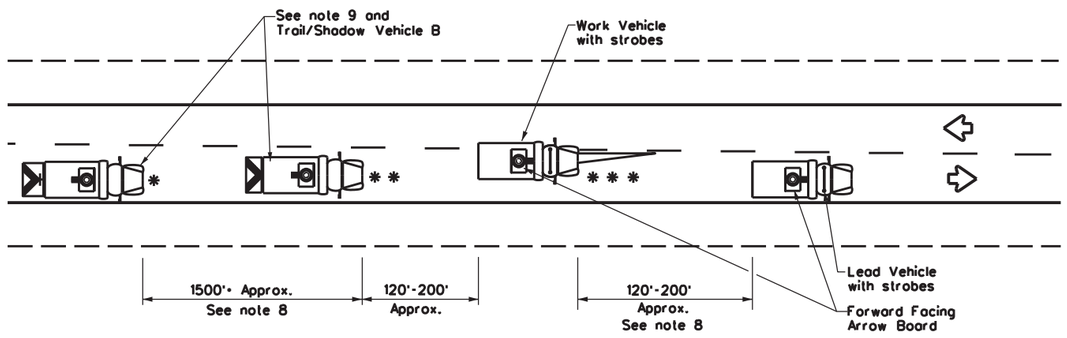


WORK ON SHOULDER

WORK ON TRAVEL LANE

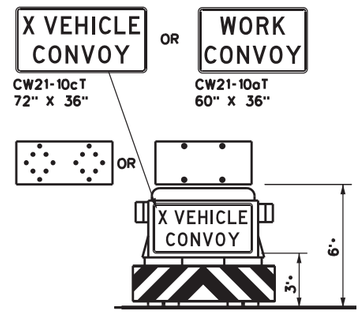
TCP (3-1b)

TWO-WAY ROADWAY WITH PAVED SHOULDERS



TCP (3-1c)

TWO-WAY ROADWAY WITHOUT PAVED SHOULDERS



TRAIL/SHADOW VEHICLE B

with Flashing Arrow Board in CAUTION display

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

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

GENERAL NOTES

1. TRAIL, SHADOW, and LEAD vehicles shall be equipped with arrow boards as illustrated. When a LEAD vehicle is not used the WORK vehicle must be equipped with an arrow board. The Engineer will determine if the LEAD VEHICLE and/or TRAIL VEHICLE are required based on prevailing roadway conditions, traffic volume, and sight distance restrictions.

2. The use of amber high intensity rotating, flashing, oscillating, or strobe lights on vehicles are required. Blue high intensity rotating, flashing, oscillating or strobe lights when mounted on the driver's side of the vehicle may be operated simultaneously with the amber beacons or strobe lights.

3. The use of truck mounted attenuators (TMA) on the SHADOW VEHICLE and TRAIL VEHICLE are required.

4. Reflective sheeting on the rear of the TMA shall meet or exceed the reflectivity and color requirements of DEPARTMENTAL MATERIAL SPECIFICATION DMS 8300, Type A.

5. Flashing arrow boards shall be Type B or Type C as per the Barricade and Construction (BC) standards. The board shall be controlled from inside the vehicle.

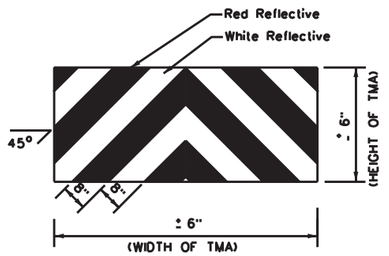
6. Each vehicle shall have two-way radio communication capability.

7. When work convoys must change lanes, the TRAIL VEHICLE should change lanes first to shadow the other convoy vehicles.

8. Vehicle spacing between the TRAIL VEHICLE and the SHADOW VEHICLE will vary depending on sight distance restrictions. Motorists approaching the work convoy should be able to see the TRAIL VEHICLE in time to slow down and/or change lanes as they approach the TRAIL VEHICLE. Vehicle spacing between the WORK VEHICLE and SHADOW VEHICLE and vehicle spacing between WORK VEHICLE and LEAD VEHICLE may vary according to terrain, work activity and other factors.

9. "X VEHICLE CONVOY" (CW21-10cT) or "WORK CONVOY" (CW21-10aT) signs shall be used on TRAIL VEHICLES and SHADOW VEHICLES as shown. As an option 48" X 48" diamond shaped "WORK CONVOY"(CW21-10T) or "X VEHICLE CONVOY" (CW21-10bT) signs may be used where adequate mounting space exists. When used, the X VEHICLE CONVOY sign shall have the number of the convoy vehicles displayed on the sign in the number designation "X" location. The "X VEHICLE CONVOY" sign shall not be used on the SHADOW VEHICLE if a TRAIL VEHICLE is used.

10. On two-lane two-way roadways, the work and protection vehicles should pull over periodically to allow motor vehicle traffic to pass. If motorists are not allowed to pass the work convoy, a "DO NOT PASS" (R4-1) sign should be placed on the back of the rearmost protection vehicle.



STRIPING FOR TMA

Texas Department of Transportation

Traffic Operations Division Standard

TRAFFIC CONTROL PLAN MOBILE OPERATIONS UNDIVIDED HIGHWAYS

TCP(3-1)-13

FILE: tcp3-1.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
©TxDOT December 1985	CONT	SECT	JOB	HIGHWAY
REVISIONS	6467	47	001	FM 434,ETC
2-94 4-98	DIST	COUNTY		SHEET NO.
8-95 7-13	WACO	MCLENNAN		40
1-97				

DATE: 7/9/2024 10:07:15 AM
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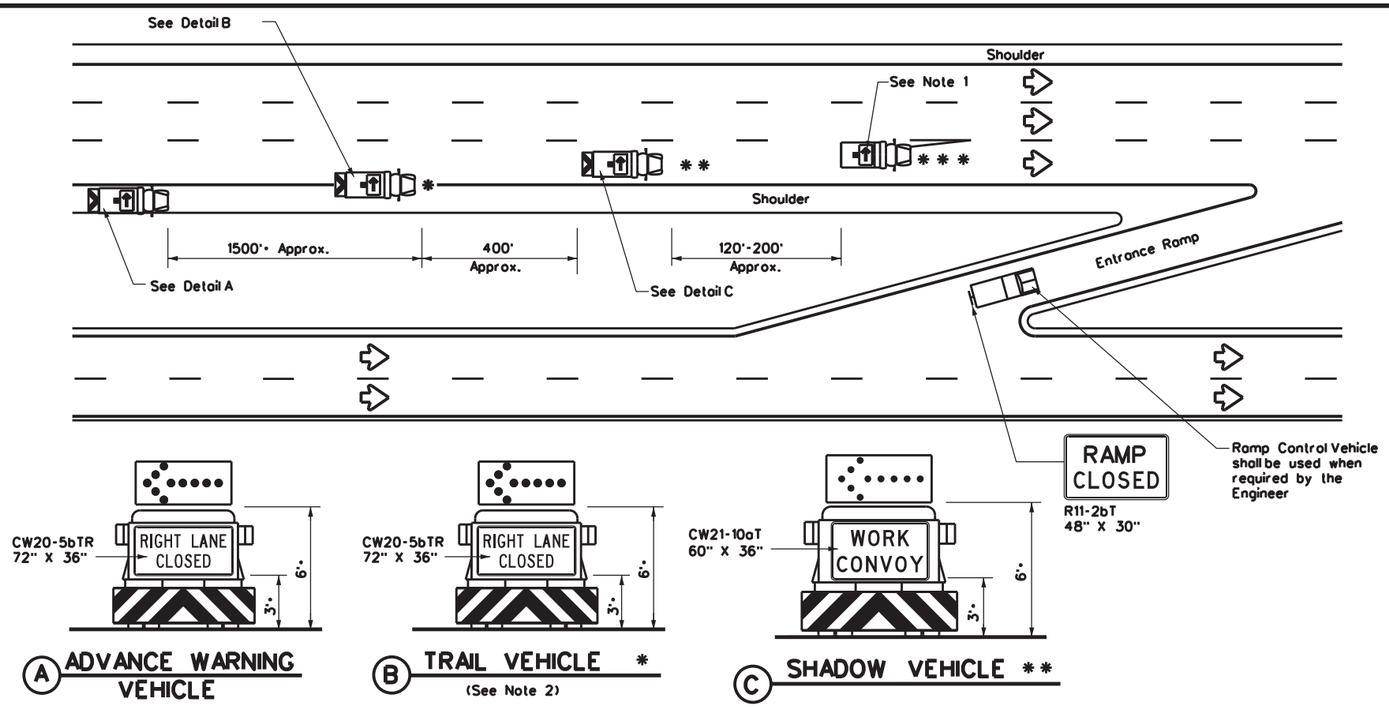
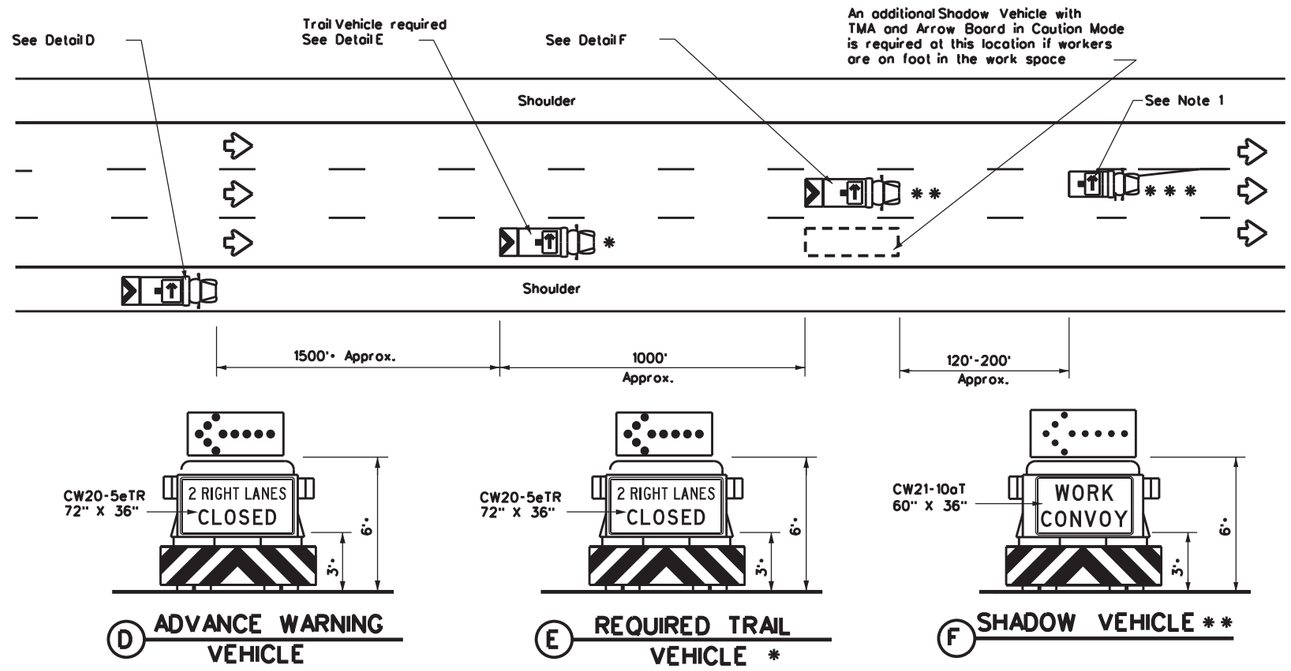


RIGHT LANE CLOSURE ON DIVIDED HIGHWAY - TCP(3-2a)



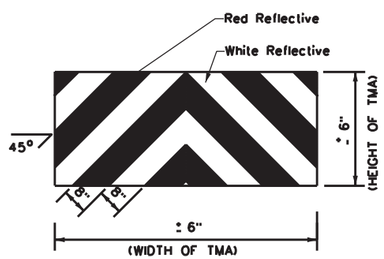
INTERIOR LANE CLOSURE ON MULTI-LANE DIVIDED HIGHWAY - TCP(3-2b)

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

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

GENERAL NOTES

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



STRIPING FOR TMA

Texas Department of Transportation

Traffic Operations Division Standard

TRAFFIC CONTROL PLAN MOBILE OPERATIONS DIVIDED HIGHWAYS

TCP(3-2)-13

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©TxDOT December 1985	CONT	SECT	JOB	HIGHWAY
REVISIONS 2-94 4-98 8-95 7-13 1-97	6467	47	001	FM 434,ETC
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	WACO	MCLENNAN		41

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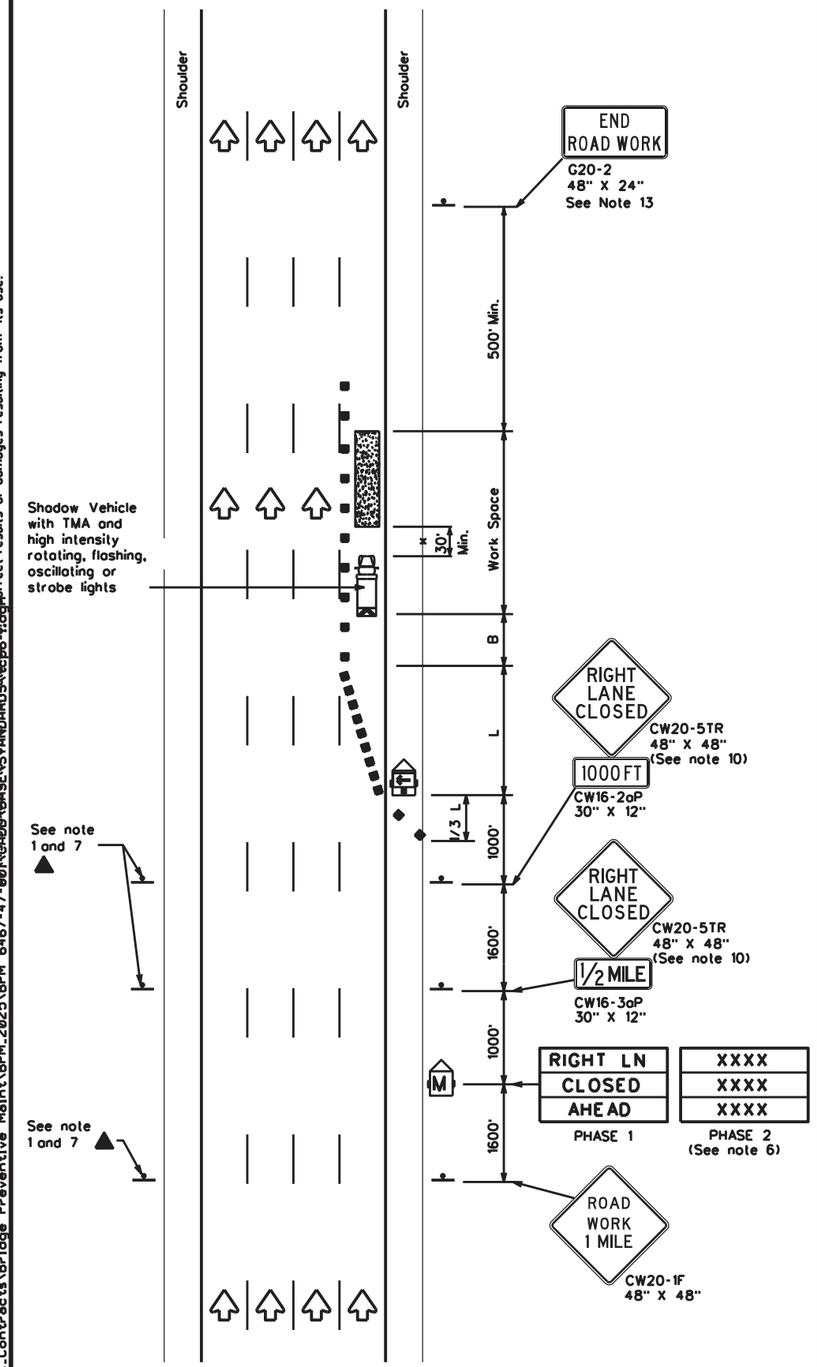
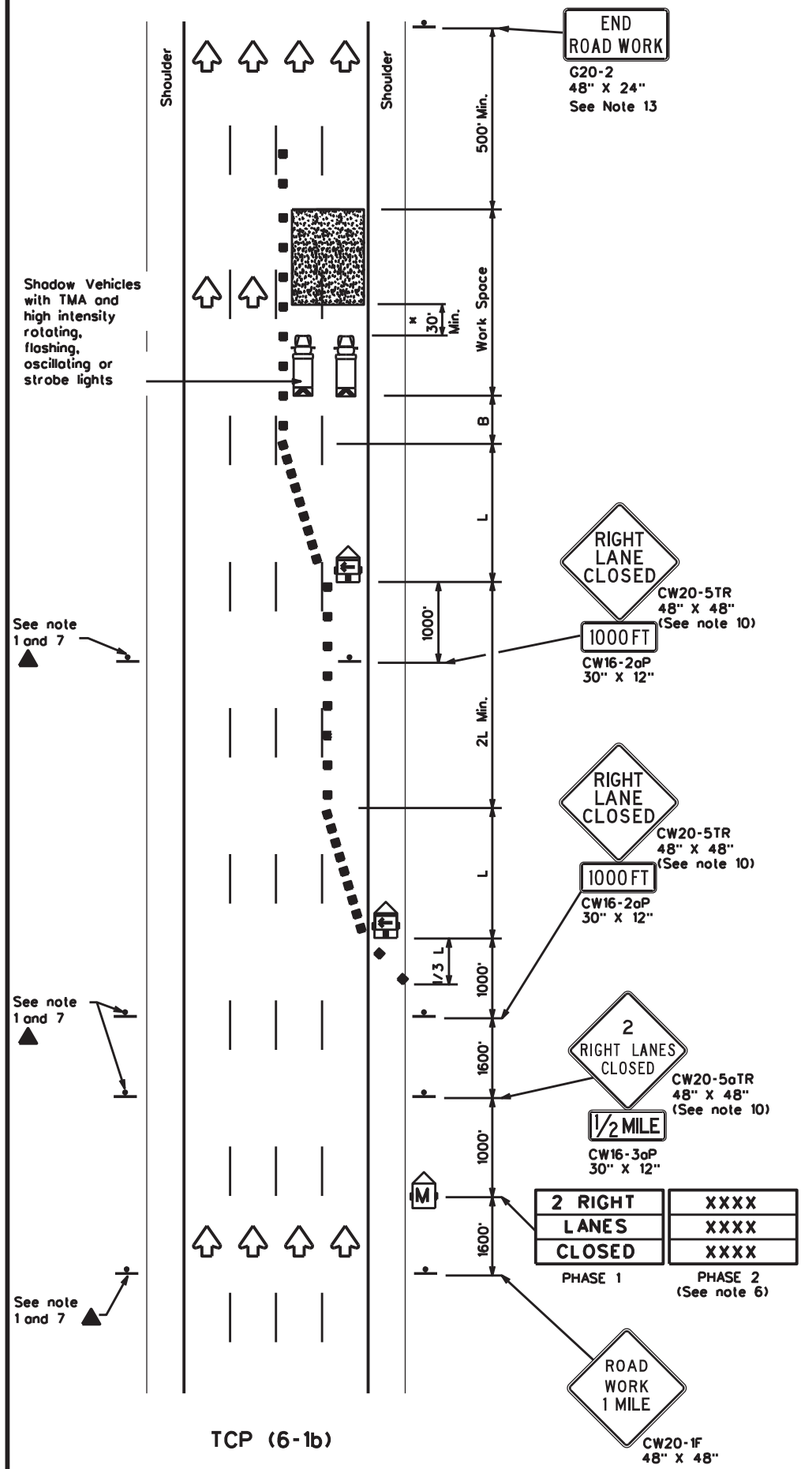


TCP (6-1a)

TYPICAL FREEWAY ONE LANE CLOSURE



TCP (6-1b)

TYPICAL FREEWAY TWO LANE CLOSURE

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

** 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. All traffic control devices illustrated are REQUIRED. Devices denoted with the triangle symbol may be omitted when stated elsewhere in the plans.
2. Drums or 42"cones are the typical channelizing devices. For Intermediate Term Stationary work, drums shall be used on tapers with drums or 42" cones used on tangent sections. Other channelizing devices may be used as directed by the Engineer.
3. All construction signs and barricades placed during any phase of work shall remain in place until removal is approved by the Engineer.
4. The Engineer may direct the Contractor to furnish additional signs and barricades as required to maintain traffic flow, detours and motorist safety during construction.
5. Static message boards or changeable message signs stating the date and duration of ramp or freeway lane closures shall be placed a minimum of seven (7) calendar days in advance of the actual closure.
6. Phase 2 of the PCMS message should include appropriate information formatted as shown on BC(6), such as "MERGE LEFT," recommended advisory speed, delay information, or other specific warnings.
7. Duplicate construction warning signs should be erected on the medians side of freeways where median width will permit and traffic volume justifies the signing.
8. The number of closed lanes may be increased provided the spacing of traffic control devices, taper lengths and tangent lengths meet the requirements of the TMUTCD.
9. Warning signs for intermediate term stationary work should be mounted at 7' to the bottom of the sign.
10. Warning signs shown shall be appropriately altered for left lane closures. When signs are mounted at 1' height for short term stationary or short duration work, sign versions shown in the SHSD for Texas with distances on the sign face rather than mounted on a plaque below the sign may be used.
11. When possible, PCMS units should be located in advance of the last available exit ramp prior to the lane closure to allow motorists an alternate route. They may also be relocated to improve advance warning in case of unanticipated queuing or congestion.
12. For Intermediate Term Stationary work at night, floodlights should be used to illuminate the work area and equipment crossings. Floodlights shall not produce a disabling glare condition for road users or workers.
13. The END ROAD WORK (G20-2) sign may be omitted when it conflicts with G20-2 signs already in place on the project.

* A shadow vehicle equipped with a Truck Mounted Attenuator is typically required. A shadow vehicle equipped with a TMA shall be used if it can be positioned 30' to 100' in advance of the area of crew exposure without adversely affecting the work performance.

Texas Department of Transportation
Traffic Operations Division Standard

TRAFFIC CONTROL PLAN FREEWAY LANE CLOSURES

TCP(6-1)-12

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©TxDOT February 1998	CONT	SECT	JOB	HIGHWAY
REVISIONS 8-12	6467	47	001	FM 434,ETC
	DIST	COUNTY		SHEET NO.
	WACO	MCLENNAN		42

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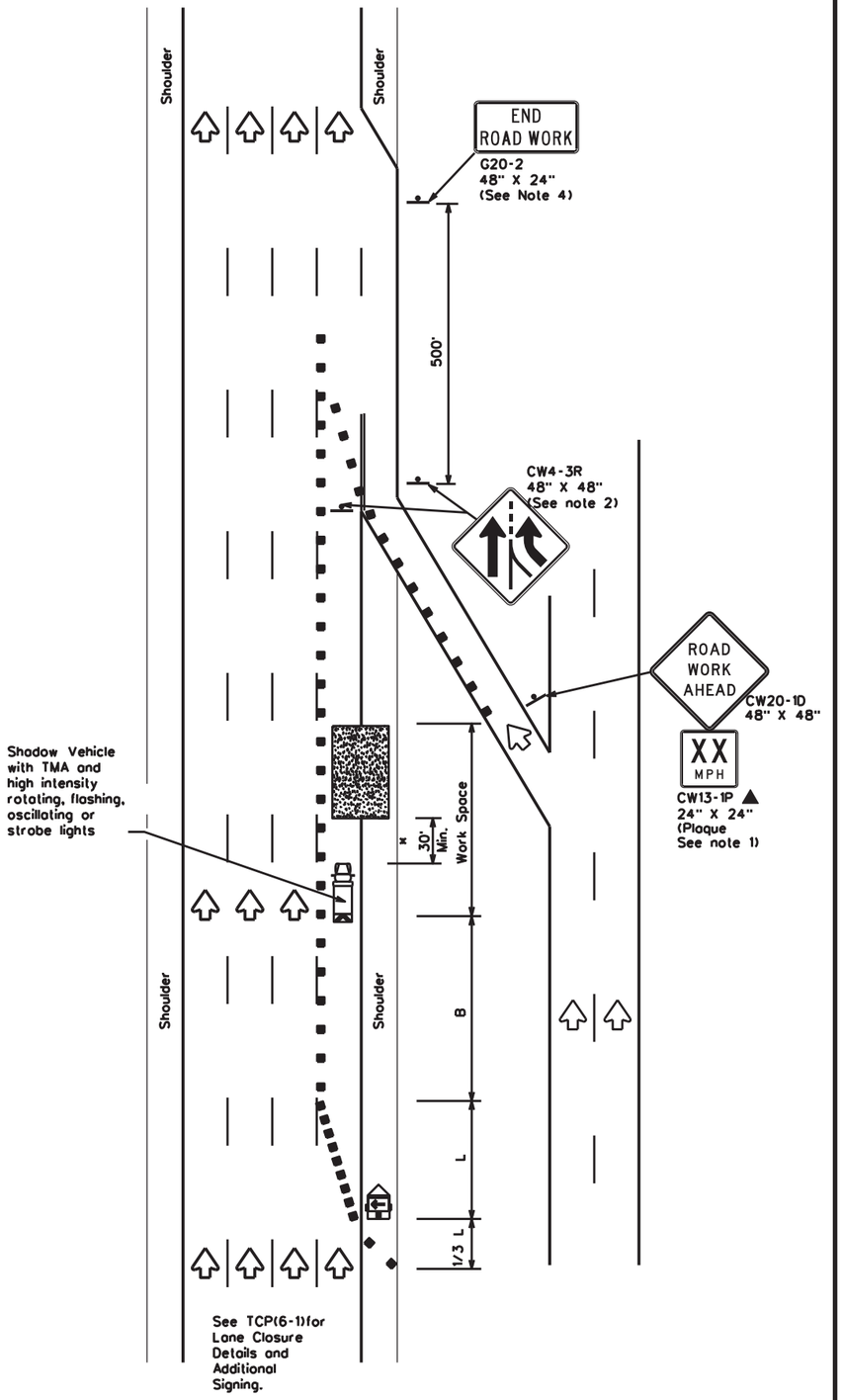
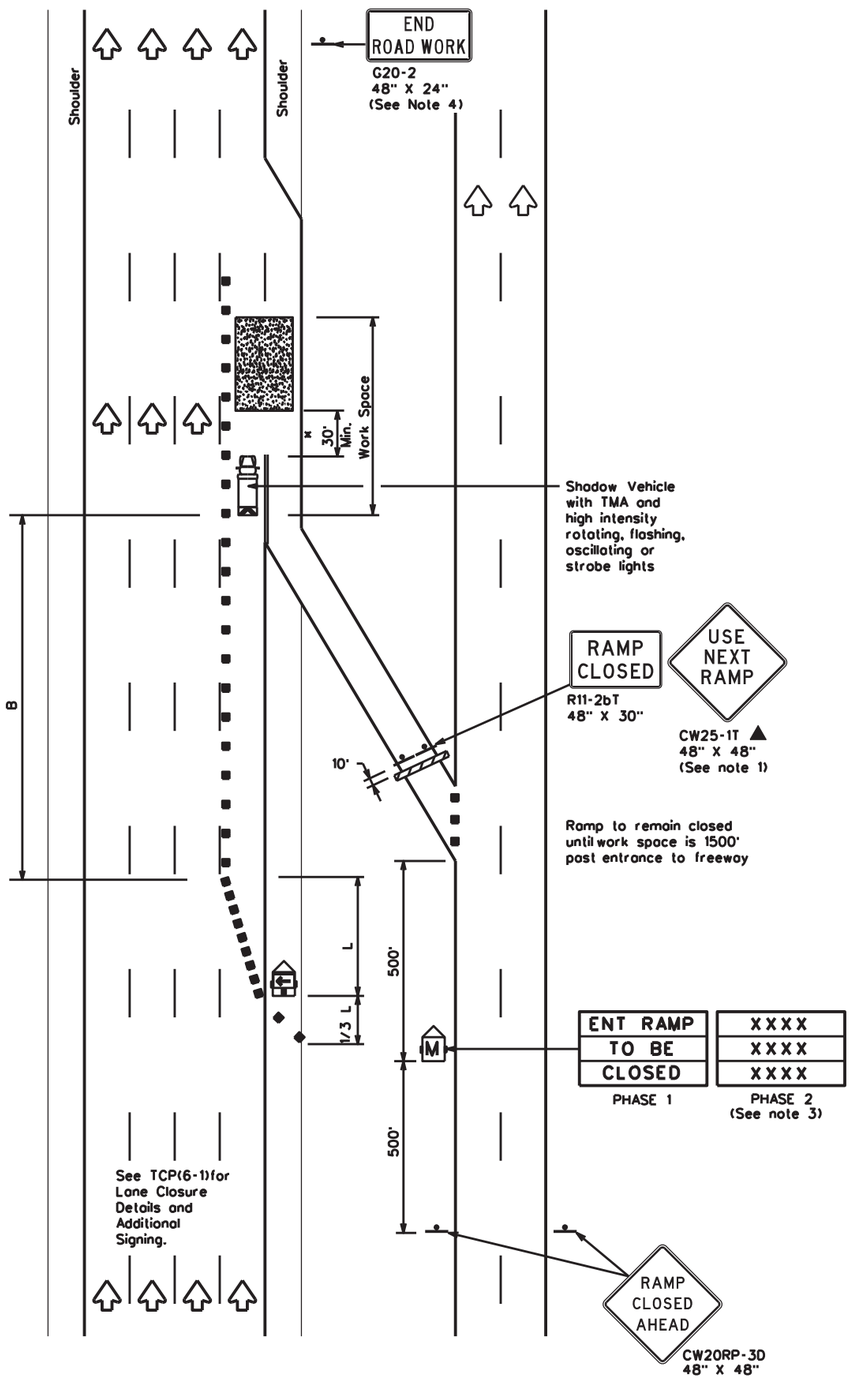


TCP (6-2a)

ENTRANCE RAMP OPEN
WORK WITHIN 500' OF RAMP



TCP (6-2b)

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

** 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. All traffic control devices illustrated are REQUIRED. Devices denoted with the triangle symbol may be omitted when stated elsewhere in the plans.
2. ADDED LANE Symbol (CW4-3) sign may be omitted when sign between ramp and mainlane can be seen from both roadways.
3. See "Advance Notice List" on BC(6) for recommended date and time formatting options for PCMS Phase 2 message.
4. The END ROAD WORK (G20-2) sign may be omitted when it conflicts with G20-2 signs already in place on the project.

x A shadow vehicle equipped with a Truck Mounted Attenuator is typically required. A shadow vehicle equipped with a TMA shall be used if it can be positioned 30' to 100' in advance of the area of crew exposure without adversely affecting the work performance.

Additional requirements for lane closures and advance signing shall be as shown on TCP (6-1) or as directed by the Engineer.

Texas Department of Transportation
Traffic Operations Division Standard

TRAFFIC CONTROL PLAN
WORK AREA NEAR RAMP

TCP(6-2)-12

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©TxDOT February 1994	CONT	SECT	JOB	HIGHWAY
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1-97 8-98	DIST	COUNTY		SHEET NO.
4-98 8-12	WACO	MCLENNAN		43

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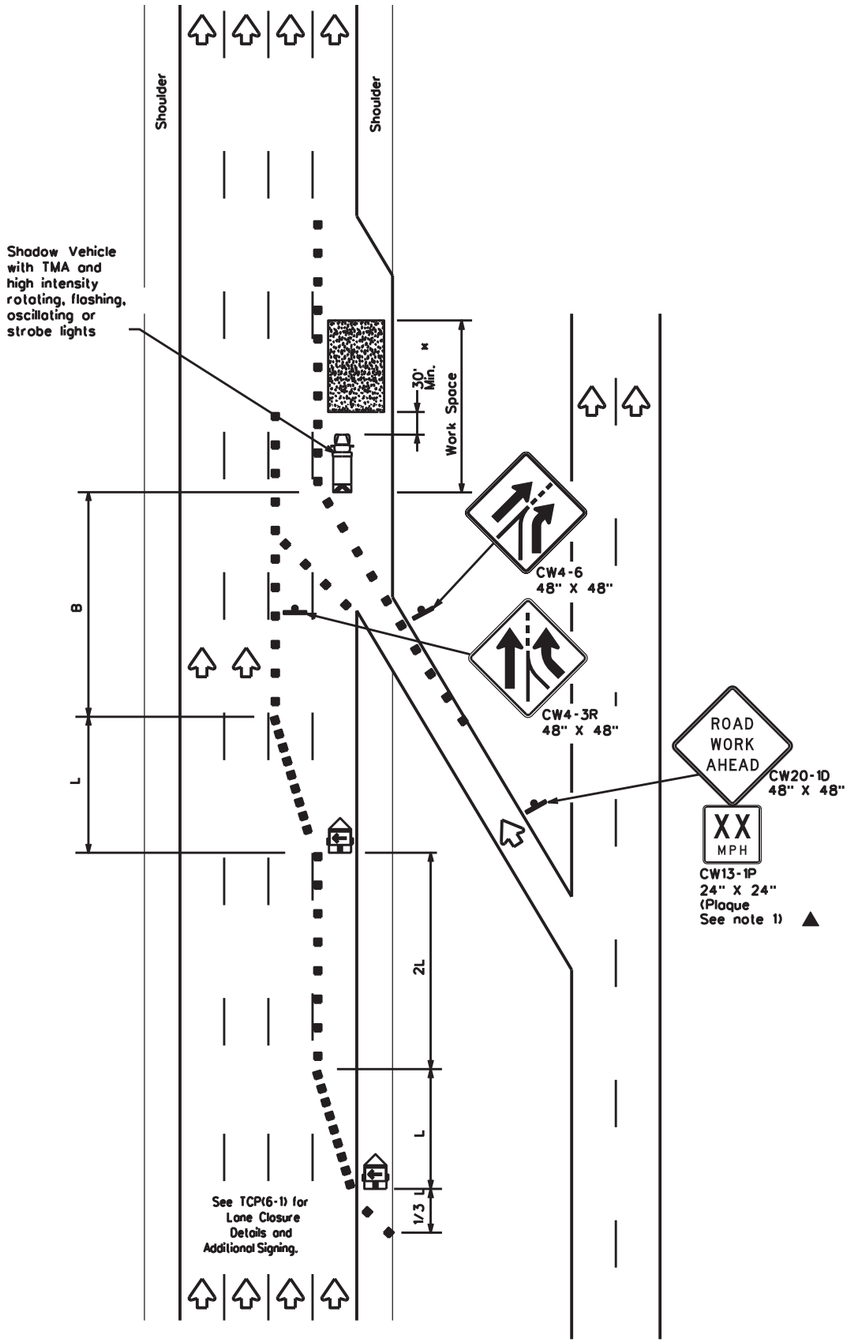
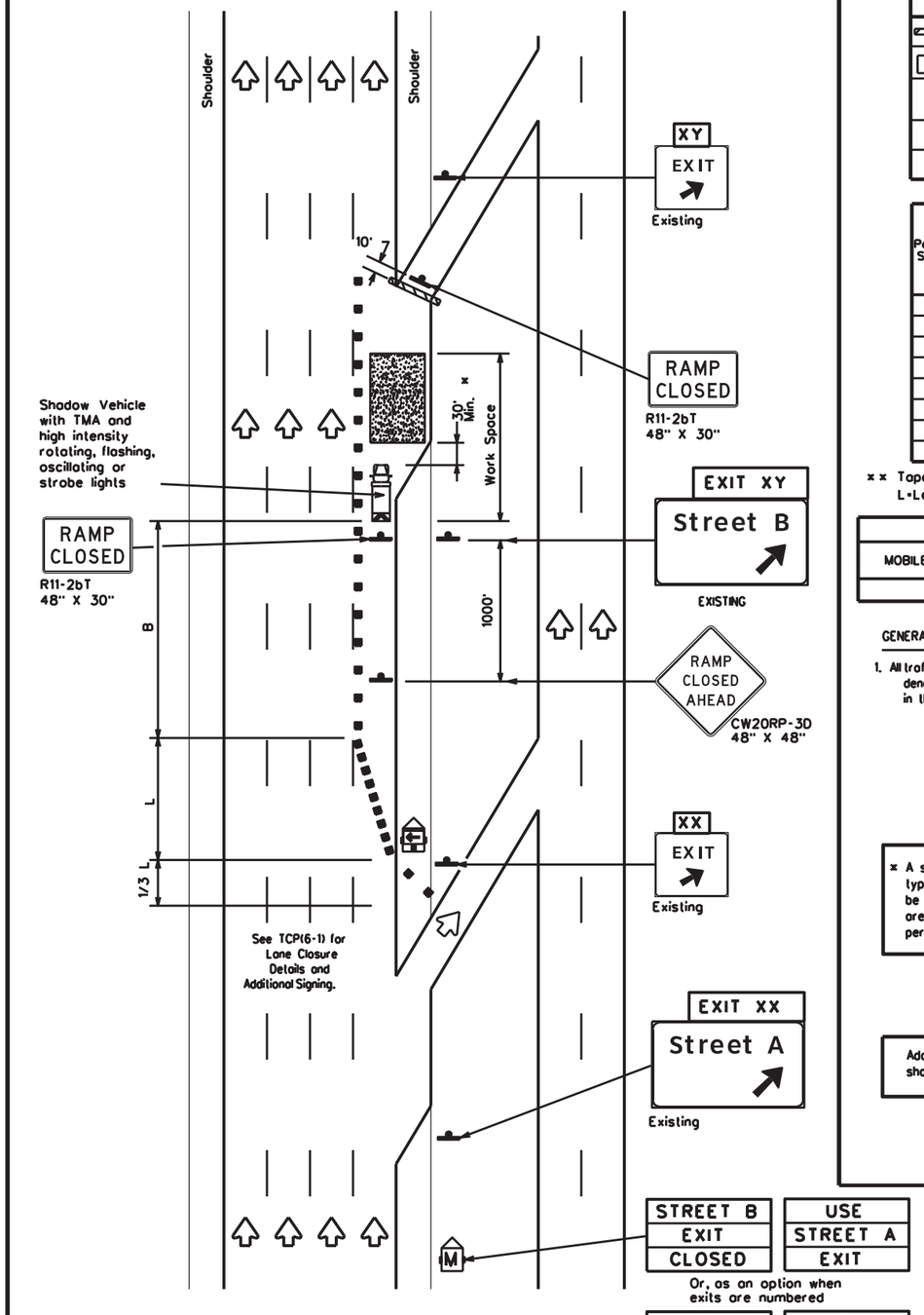


TCP (6-3a)

ENTRANCE RAMP OPEN



TCP (6-3b)

EXIT RAMP CLOSED

TRAFFIC EXITS PRIOR TO CLOSED RAMP

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

** 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. All traffic control devices illustrated are REQUIRED. Devices denoted with the triangle symbol may be omitted when stated elsewhere in the plans.

* A shadow vehicle equipped with a Truck Mounted Attenuator is typically required. A shadow vehicle equipped with a TMA shall be used if it can be positioned 30' to 100' in advance of the area of crew exposure without adversely affecting the work performance.

Additional requirements for lane closures and advance signing shall be as shown on TCP (6-1) or as directed by the Engineer.

Texas Department of Transportation
Traffic Operations Division Standard

TRAFFIC CONTROL PLAN
WORK AREA BEYOND RAMP

TCP(6-3)-12

FILE: tcp6-3.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
©TxDOT February 1994 REVISIONS 1-97 8-98 4-98 8-12	CONT	SECT	JOB	HIGHWAY
	6467	47	001	FM 434,ETC
	DIST	COUNTY		SHEET NO.
	WACO	MCLENNAN		44

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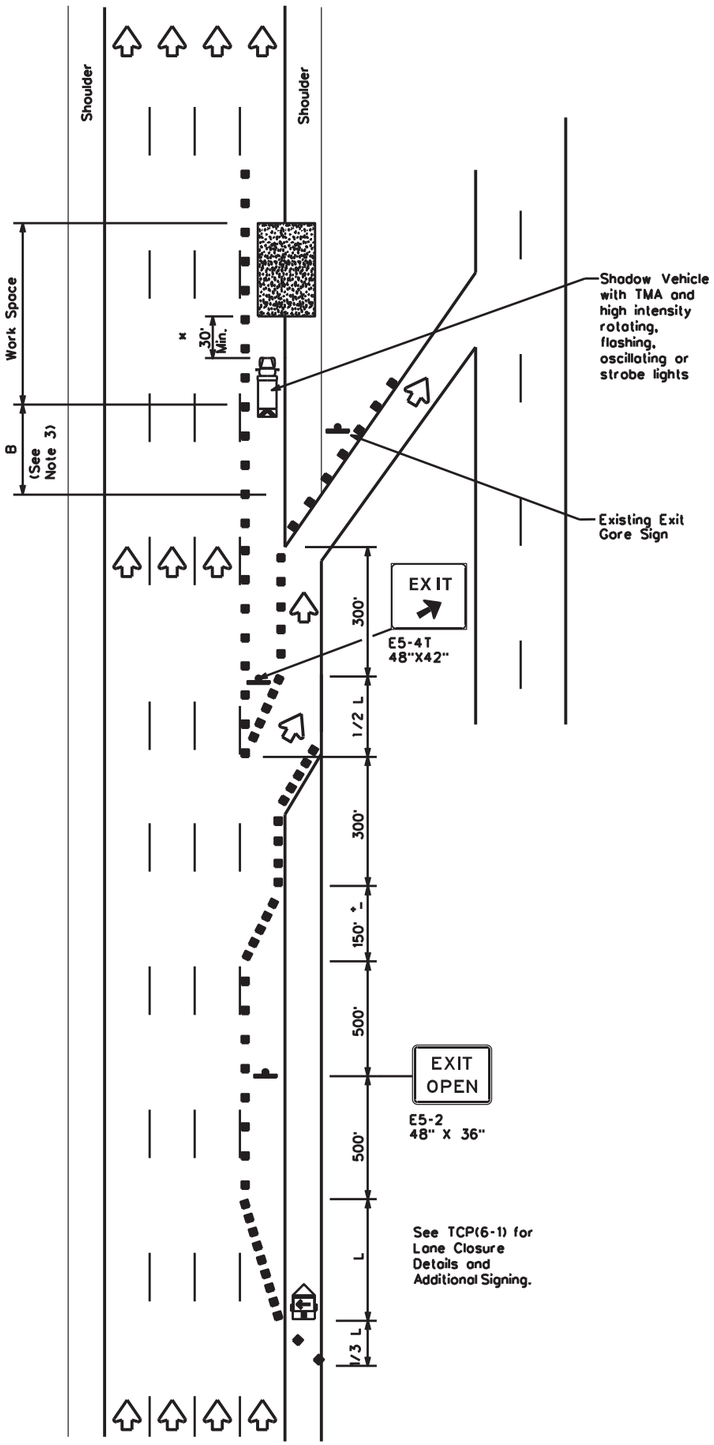
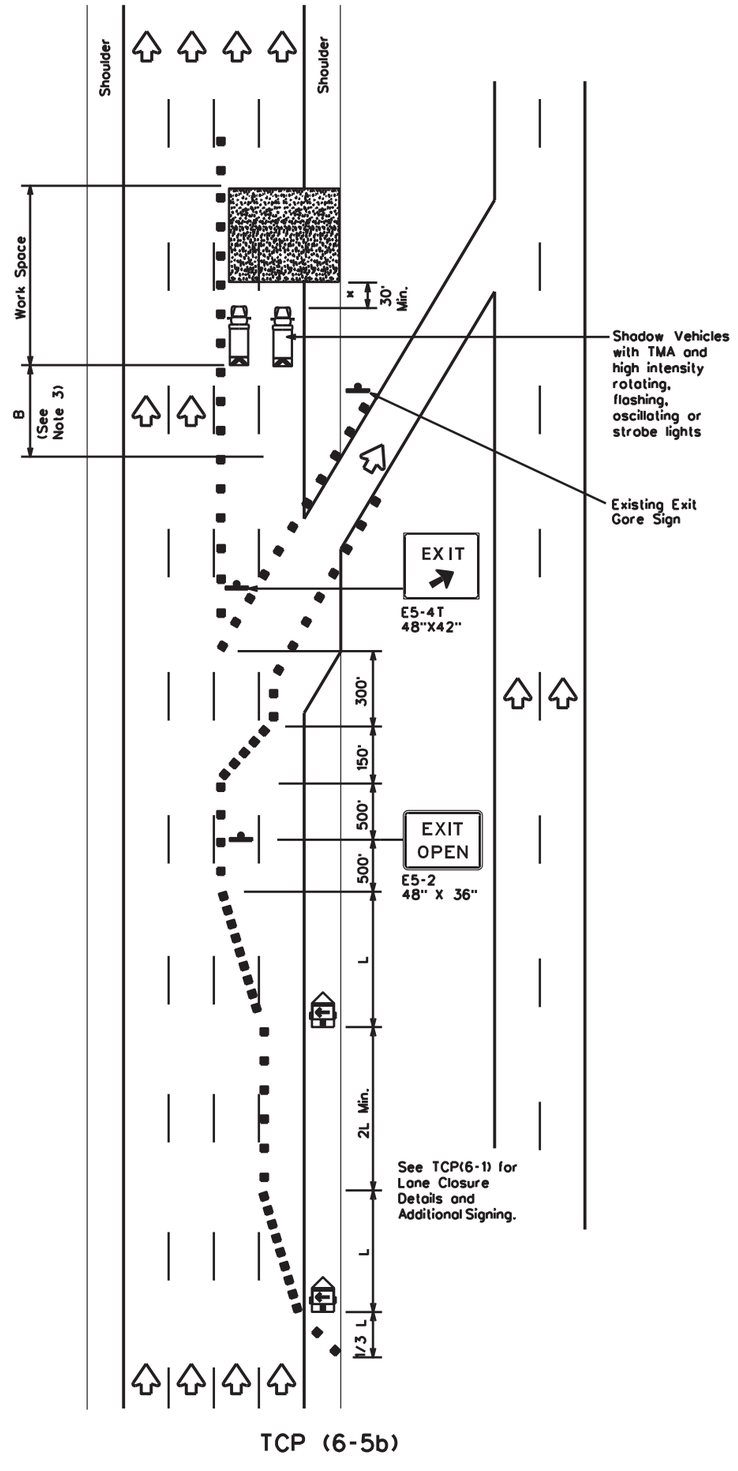


TCP (6-5a)

EXIT RAMP OPEN



TCP (6-5b)

EXIT RAMP OPEN
TWO LANE CLOSURE WITHIN 1500' PAST EXIT RAMP

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

** 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. All traffic control devices illustrated are REQUIRED. Devices denoted with the triangle symbol may be omitted when stated elsewhere in the plans.
2. See BC standards for sign details.
3. If adequate longitudinal buffer length "B" does not exist between the work space and the exit ramp, consideration should be given to closing the ramp.

x A shadow vehicle equipped with a Truck Mounted Attenuator is typically required. A shadow vehicle equipped with a TMA shall be used if it can be positioned 30' to 100' in advance of the area of crew exposure without adversely affecting the work performance.

Additional requirements for lane closures and advance signing shall be as shown on TCP (6-1) or as directed by the Engineer.

Texas Department of Transportation
Traffic Operations Division Standard

TRAFFIC CONTROL PLAN
WORK AREA BEYOND EXIT RAMP

TCP(6-5)-12

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©TxDOT Feburary 1998	CONT	SECT	JOB	HIGHWAY
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1-97 8-98	DIST	COUNTY		SHEET NO.
4-98 8-12	WACO	MCLENNAN		45

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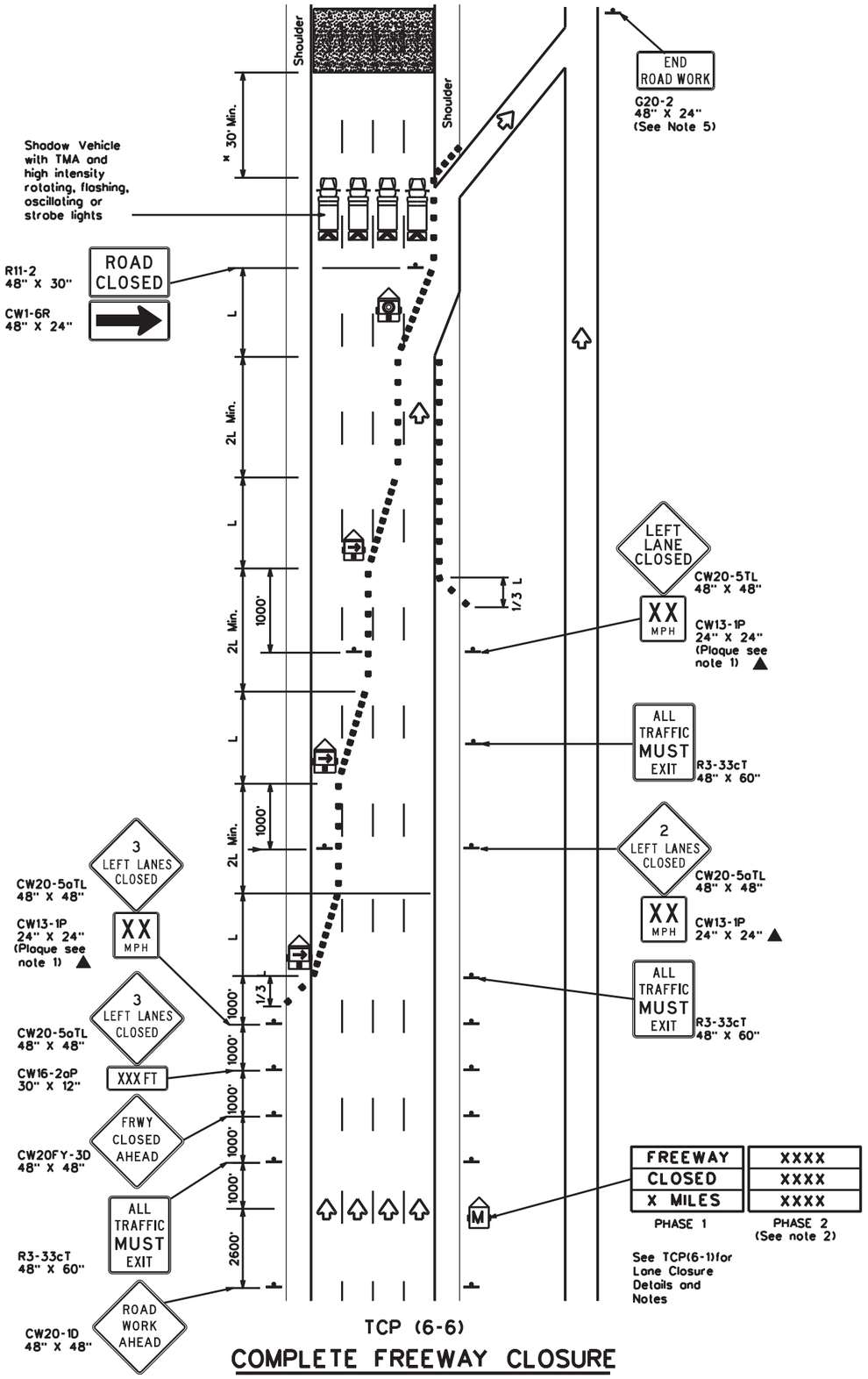

TCP (6-6)

COMPLETE FREEWAY CLOSURE

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

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

** 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. All traffic control devices illustrated are REQUIRED. Devices denoted with the triangle symbol may be omitted when stated elsewhere in the plans.
2. Phase 2 of the PCMS message should include appropriate information formatted as shown on BC(6), such as "MERGE RIGHT," recommended speed, delay, exit information, or other specific warnings.
3. Where queuing is anticipated beyond signing shown, additional PCMS signs, other warning signs, devices or Law Enforcement Officers should be available to warn approaching high speed traffic of the end of the queue, as directed by the Engineer.
4. Entrance ramps located from the advance warning area to the exit ramp should be closed whenever possible.
5. The END ROAD WORK (G20-2) sign may be omitted when it conflicts with G20-2 signs already in place on the project.

* A shadow vehicle equipped with a Truck Mounted Attenuator is typically required. A shadow vehicle equipped with a TMA shall be used if it can be positioned 30' to 100' in advance of the area of crew exposure without adversely affecting the work performance.

Additional requirements for lane closures and advance signing shall be as shown on TCP (6-1) or as directed by the Engineer.

Texas Department of Transportation
Traffic Operations Division Standard

TRAFFIC CONTROL PLAN
FREEWAY CLOSURE

TCP(6-6)-12

FILE: tcp6-6.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
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4-98 8-12	WACO	MCLENNAN		46

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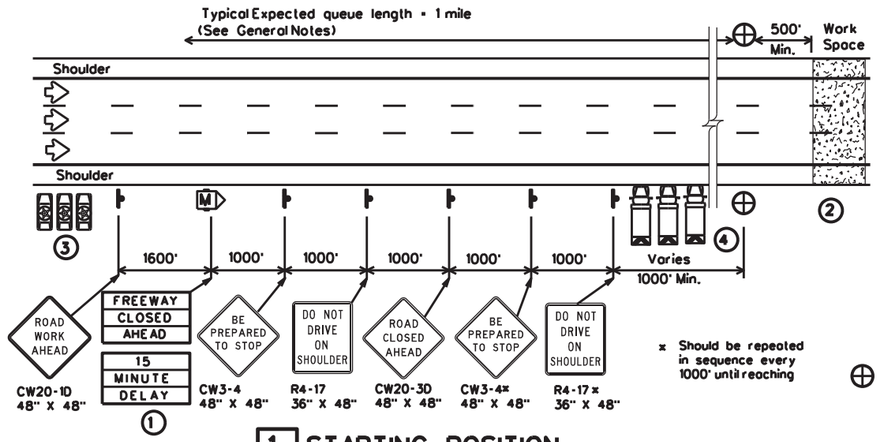


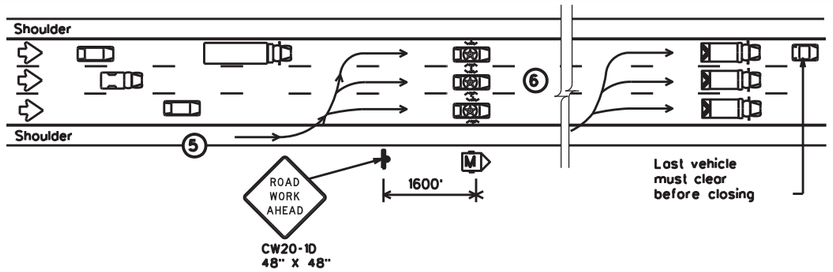
1 STARTING POSITION

(1) Traffic control devices should be installed or located near their intended position prior to beginning temporary roadway closure sequence. Duplicate signs should be erected on the median side of the roadway when median width permits. Warning signs should not be placed on the paved shoulders that will be used by the WARNING LEOV, or where movement of the LEOVs or barrier vehicles will be impeded.

(2) Prior to beginning the roadway closure sequence, all equipment, materials, personnel, and other items necessary to complete the work should be gathered near the work area. Entrance ramps located in the area where a queue is expected to build should be closed.

(3) There should be one LEOV for every lane to be controlled, plus a minimum of one to warn traffic approaching a queue. An additional lead law enforcement officer is desirable to remain with the Engineer's or Contractor's point of contact (POC) during the operation in order to improve communication with all LEOVs involved.

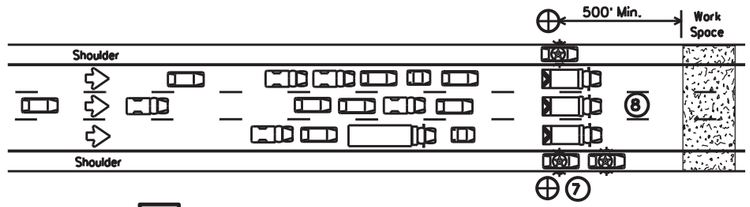
(4) One barrier vehicle with a Truck Mounted Attenuator and amber or blue and amber high intensity flashing/oscillating/strobe lighting shall be used for each lane to be closed.



2 REDUCING SPEED OPERATION

(5) Starting position of the LEOVs should be in advance of the most distant warning signs.

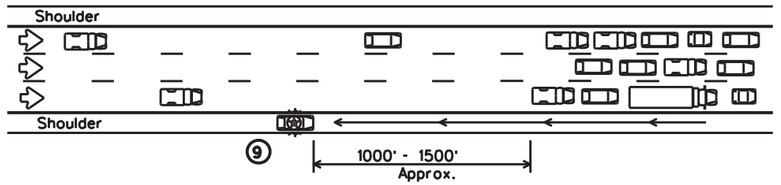
(6) Once the LEOVs have achieved an abreast blocking formation while traveling toward the CP, emergency lights and headlights should be turned "ON". The LEOVs should maintain formation, not allow traffic to pass, and begin to decelerate. The LEOVs should continue to decelerate, giving the barrier vehicles opportunity to be staged upstream of the work space after traffic has cleared. The LEOVs should then continue to decelerate slowly until bringing traffic to a stop near the barrier vehicles.



3 ALL TRAFFIC STOPPED AT CP

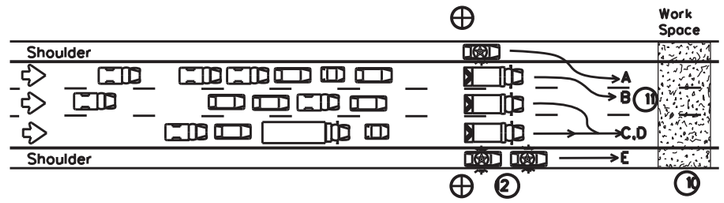
(7) Once traffic is stopped the LEOVs should park on the shoulders with emergency lighting "ON" in order to provide law enforcement presence at the closure and keep shoulders blocked ahead of the work space. They should stay in radio contact with the WARNING LEOV.

(8) The barrier vehicles should be parked, one in each lane, the parking brake set, with the high visibility flashing/oscillating/strobe lighting "ON," and the transmission in gear.



4 WARNING THE TRAFFIC QUEUE

(9) The WARNING LEOV should proceed to the right shoulder of the roadway, with emergency lights on approximately 1000' in advance of the traffic queue (stopped traffic) as the queue develops. When determined that limited sight distance situations (crest of hills, sharp roadway curvature, etc.) may occur to motorists approaching the queue, the WARNING LEOV may proceed 1/4 mile or more in advance of the queue.



5 RELEASING STOPPED TRAFFIC

(0) All equipment, materials, personnel, and other items should be removed from the roadway and maintain an adequate clear zone.

(1) When the roadway is clear for traffic, the LEOV should proceed forward from the left shoulder followed by the barrier vehicles, from left to right, as shown alphabetically in the plan view.

(2) The LEOV or LEOVs on the right shoulder may remain on the shoulder until satisfied that traffic is moving satisfactorily before merging or proceeding.

(3) LEOVs and barrier vehicles should re-group at their respective starting positions if necessary.

LEGEND			
■ ■	Channelizing Devices	⊕	Control Position (CP)
(M)	Portable Changeable Message Sign (PCMS)		Barrier Vehicle with Truck Mounted Attenuator
	Low Enforcement Officer's Vehicle(LEOV)		Traffic Flow

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

GENERAL NOTES

1. All traffic control devices shall conform with the latest edition of the Texas Manual on Uniform Traffic Control Devices (TMUTCD). Additional guidelines for traffic control devices may be found in the TMUTCD. Signs conflicting with the roadway closure sequence should be completely removed or covered. Additional traffic control devices may be required for closure of access roads, cross streets, exit and entrance ramps as directed by the Engineer.

2. Law enforcement officers and all workers involved should review and understand all procedures before the roadway closure sequence begins. Pre-work meetings may be held for this purpose. Local emergency services and media should have advance notification of roadway closure, expected dates and approximate times of closures.

3. Law enforcement officers shall be in uniform and have jurisdiction in the locale of the work area. An additional WARNING Law Enforcement Officer's Vehicle (LEOV) may be used on the median side of the roadway where median shoulder width permits (See sequence *9).

4. The roadway closure should be during off-peak hours, as shown in the plans, or as directed by the Engineer.

5. Work should be limited to approximately 15 minutes maximum duration unless otherwise directed by the Engineer based on existing roadway conditions. If the work is not complete within 15 minutes, or if the end of the traffic queue extends past the most distant advance warning signs, the work area should be cleared of all equipment, materials, personnel, and other items, and the roadway reopened. When the queue has dissipated and the traffic flow appears normal the roadway closure sequence may be repeated.

6. For traffic volumes greater than 1000 Passenger Cars Per Hour Per Lane (PCPHPL), or for roadway closures that exceed 15 minutes, see details elsewhere in the plan.

7. If traffic queues beyond the advance warning signs during one road closure sequence, the advance warning should be extended prior to repeating the road closure sequence. When possible, PCMS signs should be located in advance of the last available exit prior to the closure to allow motorists the choice of an alternate route.

THIS PLAN IS INTENDED TO BE USED AT LOCATIONS/TIMES WHEN TRAFFIC VOLUMES ARE LESS THAN 1000 PASSENGER CARS PER HOUR PER LANE.

Texas Department of Transportation
Traffic Operations Division Standard

TRAFFIC CONTROL PLAN SHORT DURATION FREEWAY CLOSURE SEQUENCE

TCP(6-7)-12

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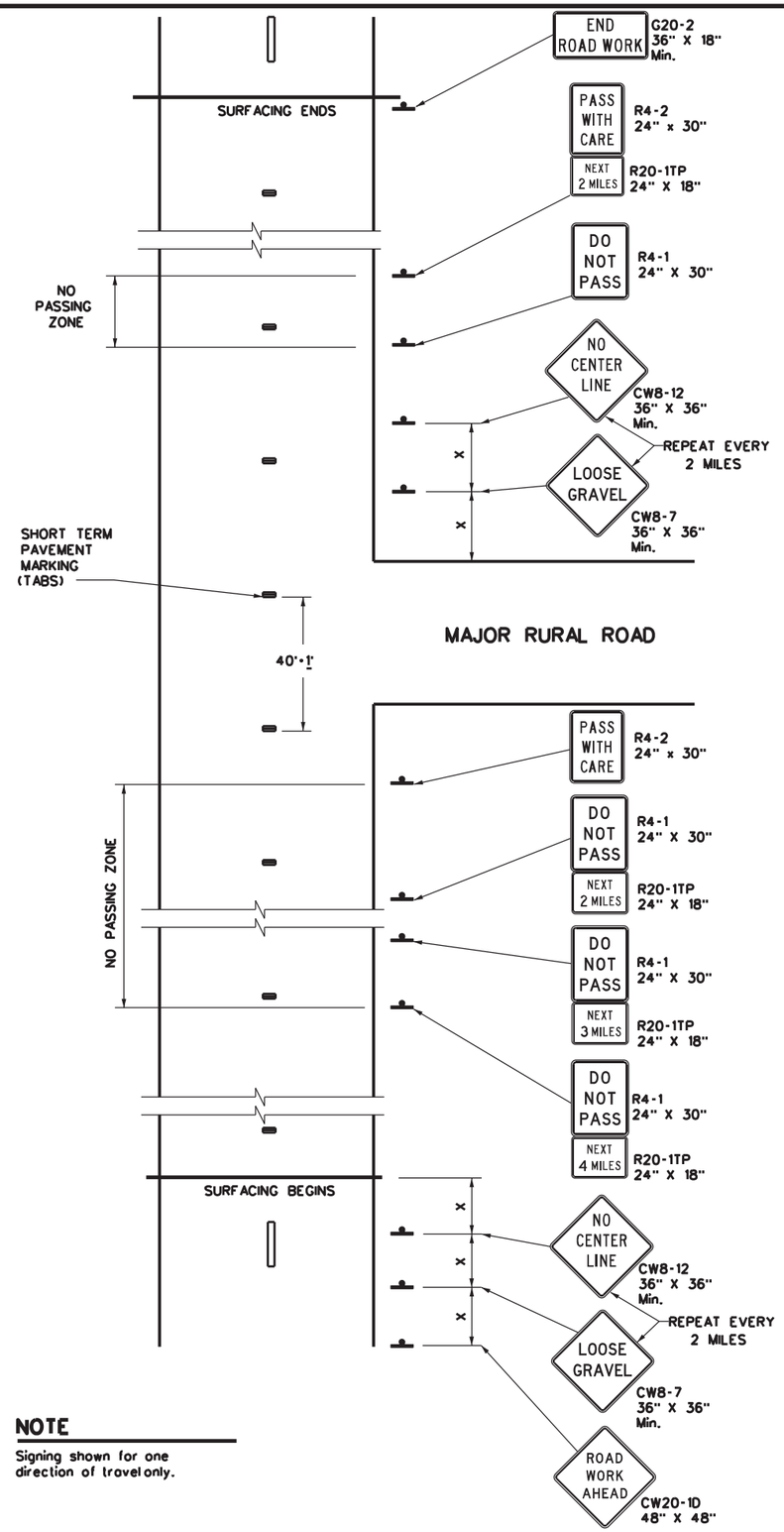
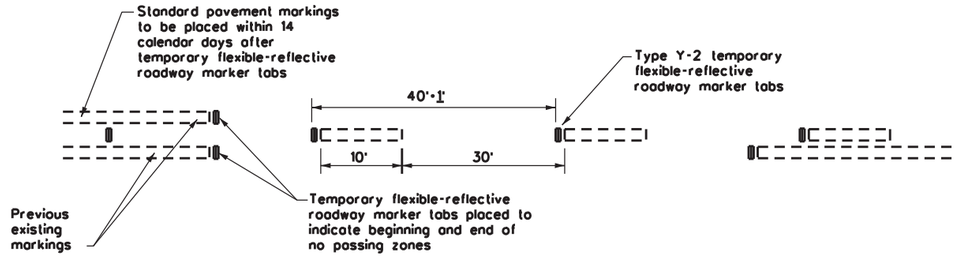


NOTE

Signing shown for one direction of travel only.

NO PASSING ZONES ON TWO-LANE TWO-WAY ROADS



TABS ON CENTERLINES OF TWO-LANE TWO-WAY ROADS

For seal coat, micro-surface or similar operations

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

A. Prior to the beginning of construction, all currently striped no-passing zones shall be signed with the DO NOT PASS (R4-1) signs and PASS WITH CARE (R4-2) signs placed at the beginning and end of each zone for each direction of travel except as otherwise provided herein. Signs marking these individual no-passing zones need not be covered prior to construction if the signs supplement the existing pavement markings.

B. At the discretion of the Engineer, in areas of numerous no-passing zones, several zones may be combined as a single zone. If passing is to be prohibited over one or more lengthy sections, a DO NOT PASS sign and a NEXT XX MILES (R20-1TP) plaque may be used at the beginning of such zones. The DO NOT PASS sign and the NEXT XX MILES plaque should be repeated every mile to the end of the no-passing zone. In areas where there is considerable distance between no-passing zones, the end of the no-passing zone may be signed with a PASS WITH CARE sign and a NEXT XX MILES plaque.

C. Depending on traffic volumes and length of sections, it may be desirable to prohibit passing throughout the project to prevent damage to windshield and lights. The DO NOT PASS sign and NEXT XX MILES plaque should be used and repeated as often as necessary for this purpose. Where several existing zones are to be combined into one individual no-passing zone, the sign at the beginning of the zone should be covered until the surfacing operation has passed this location so as not to have the DO NOT PASS sign conflict with the existing pavement markings. Also, unless one days operation completes the entire length of such combined zones, appropriate DO NOT PASS and PASS WITH CARE signs should be placed at the beginning and end of the no-passing zones where the surfacing operation has stopped for the day.

D. R4-1 and R4-2 are to remain in place until standard pavement markings are installed.

"NO CENTER LINE" SIGN (CW8-12)

A. Center line markings are yellow pavement markings that delineate the separation of travel lanes that have opposite directions of travel on a roadway. Divided highways do not typically have center line markings.

B. At the time construction activity obliterates the existing center line markings (low volume roads may not have an existing centerline), a NO CENTER LINE (CW8-12) sign should be erected at the beginning of the work area, at approximately 2 mile intervals within the work area, beyond major intersections and other locations deemed necessary by the Engineer.

C. The NO CENTER LINE signs are to remain in place until standard pavement markings are installed.

"LOOSE GRAVEL" SIGN (CW8-7)

A. When construction begins, a LOOSE GRAVEL (CW8-7) sign should be erected at each end of the work area and repeated at intervals of approximately 2 miles in rural areas and closer in urban areas.

B. The LOOSE GRAVEL signs are to remain in place until the condition no longer exists.

PAVEMENT MARKINGS

A. Temporary markings for surfacing projects shall be Temporary Flexible-reflective Roadway Marker Tabs unless otherwise approved by the Engineer. Tabs are to be installed to provide true alignment for striping crews or as directed by the Engineer. Tabs will be placed at the spacing indicated. Tabs should be applied to the pavement no more than two (2) days before the surfacing is applied. After the surfacing is rolled and swept, the cover over the reflective strip shall be removed.

B. Tabs shall not be used to simulate edge lines.

C. Tab placement for overlay/inlay operations shall be as shown on the WZ(STPM) standard sheet.

COORDINATION OF SIGN LOCATIONS

A. The location of warning signs at the beginning and end of a work area are to be coordinated with other signing typically shown on the Barricade and Construction Standards for project limits to ensure adequate sign spacing.

B. Where possible the ROAD WORK AHEAD (CW20-1D), LOOSE GRAVEL (CW8-7), and NO CENTER LINE (CW8-12) signs should be placed in the sequence shown following the OBEY WARNING SIGNS STATE LAW (R20-3T) and the TRAFFIC FINES DOUBLE (R20-5T) sign, and one "X" sign spacing prior to the CONTRACTOR (G20-6T) sign typically located at or near the limits of surfacing. LOOSE GRAVEL and NO CENTER LINE signs will then be repeated as described above.

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

* Conventional Roads Only

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

GENERAL NOTES

1. The traffic control devices detailed on this sheet will be furnished and erected as directed by the Engineer on sections of roadway where tabs must be placed prior to the surfacing operation which will cover or obliterate the existing pavement markings.
2. The devices shown on this sheet are to be used to supplement those required by the BC Standards or others required elsewhere in the plans.
3. Signs shall be erected as detailed on the BC Standards or the Compliant Work Zone Traffic Control Devices List (CWZTCD) on supports approved for Long-Term / Intermediate-Term Work Zone Sign Supports.
4. When surfacing operations take place on divided highways, freeways or expressways, the size of diamond shaped construction warning signs shall be 48" x 48".
5. Signs on divided highways, freeways and expressways will be placed on both right and left sides of the roadway based on roadway conditions as directed by the Engineer.

Texas Department of Transportation

Traffic Operations Division Standard

TRAFFIC CONTROL DETAILS FOR SURFACING OPERATIONS

TCP(7-1)-13

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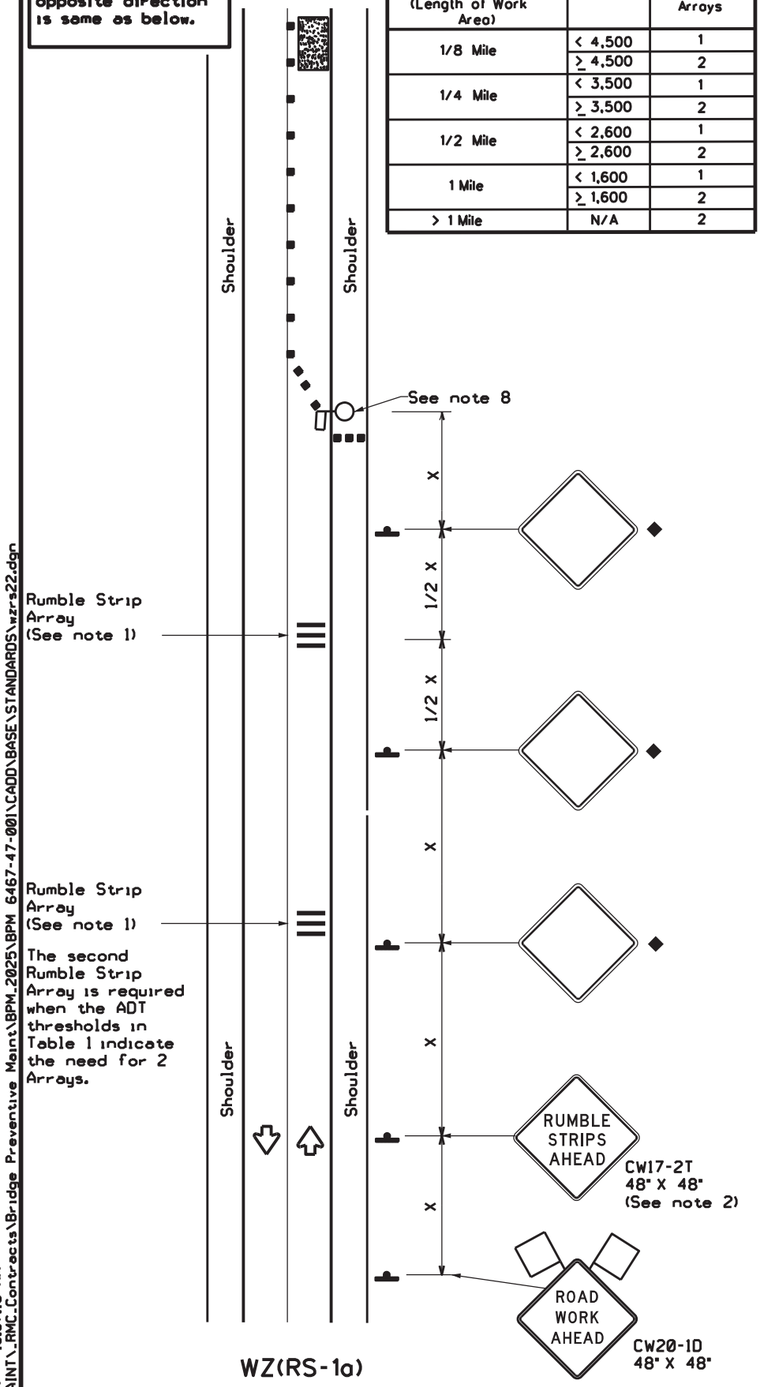
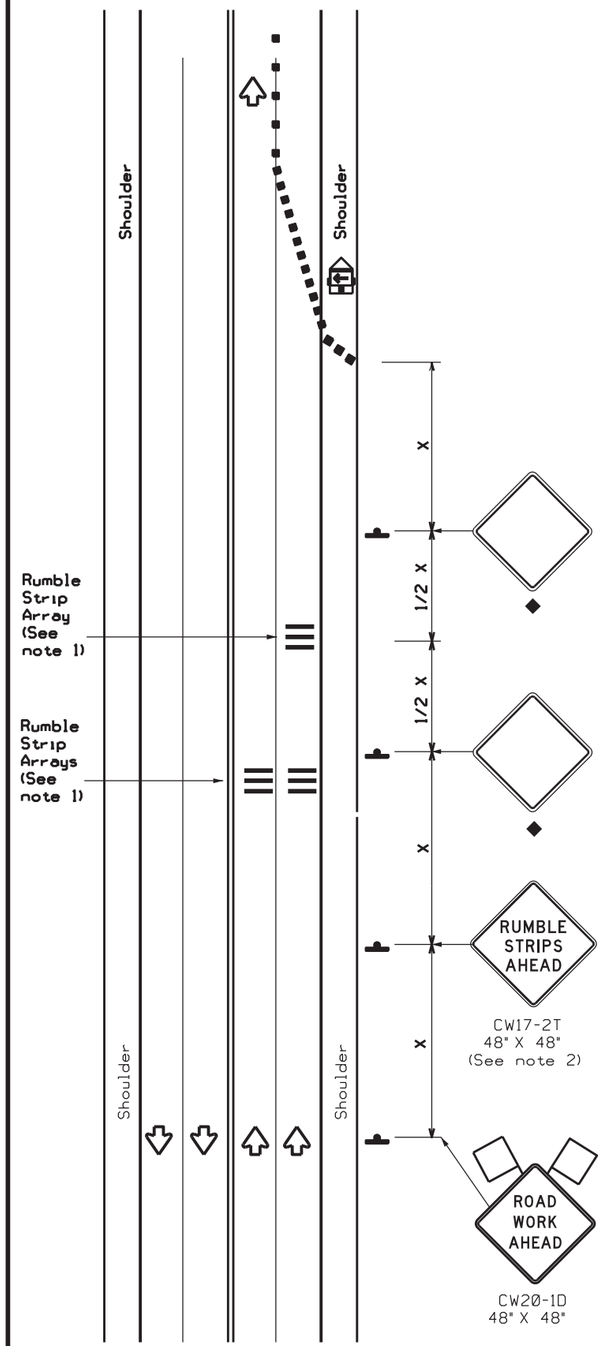
Warning sign and rumble strip sequence in opposite direction is same as below.

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

◆ 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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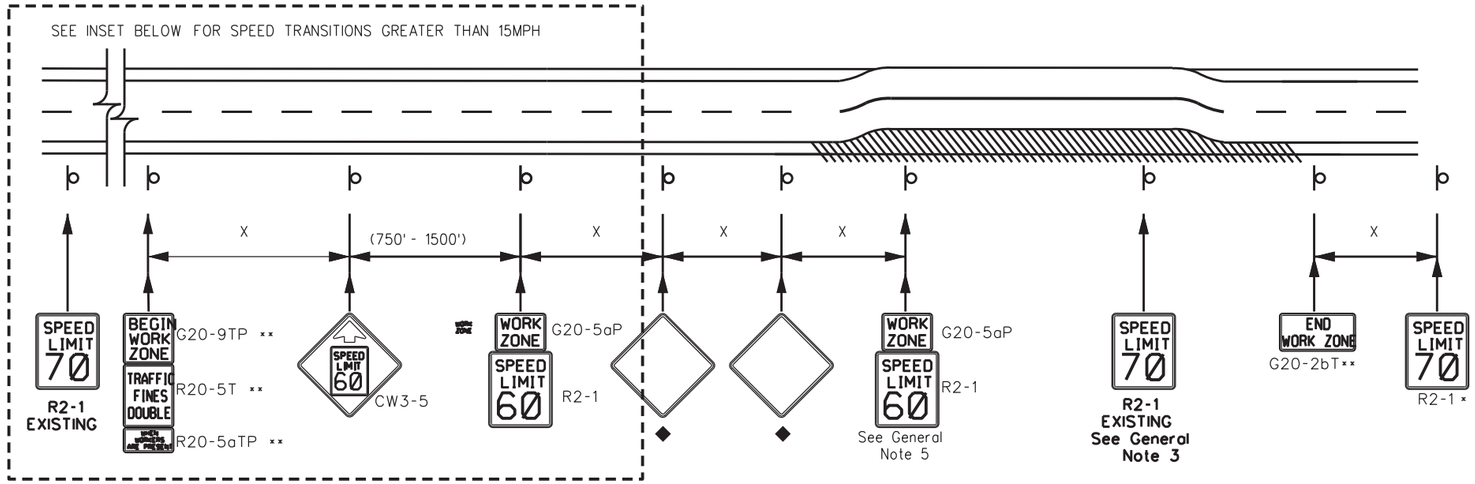
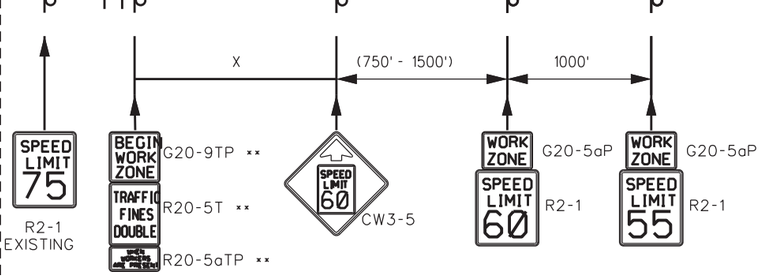
TYPICAL APPLICATION OF MAINTENANCE WORK ZONE SPEED LIMIT SIGNS

Signing shown for one direction only.

Remove all temporary speed limit signs and concealments of permanent speed limit signs when the maintenance activity has been completed and equipment has been removed from the activity site.



ALTERNATE SIGNING FOR TRANSITION OF SPEED ZONES GREATER THAN 15MPH DROP IN SPEED



* At the end of the maintenance work zone place a sign indicating the speed limit after the temporary zone ends.

** Signs should not be installed for mobile operations.

◆ Signs are for illustrative purposes only. Signs and sign spacing requirements may vary depending on the TCP, TMUTCD Typical Application, or project specific details for the project.

GENERAL NOTES

1. Signs may be skid mounted for long term or intermediate term work durations. Roll up signs may be used for short term, short duration or mobile operations.
2. Reduced speeds shall only be posted in the vicinity of work activity and not throughout the entire maintenance work area.
3. Cover all permanent speed limit signs within the work area that conflict with the temporary reduced speed limit. Advisory speed plaques on warning signs within the work area are not required by law to be covered.
4. Speed zone signs are illustrated for one direction of travel and are normally posted for each direction of travel.
5. Frequency of maintenance work zone speed limit signs should be:
   a. 40 mph and greater 0.2 to 2 miles
   b. 35 mph and less 0.2 to 1 mile
6. Regulatory speed limit signs shall have black legend and border on a white reflective background (See "Reflective Sheeting" on BC(4)).
7. Turning signs from view or laying signs over or down will not be allowed, unless as otherwise noted under "REMOVING OR COVERING" on BC(4).
8. Speeds shown on details above are for illustration only. Maintenance work zone speed limits shall only be posted as approved for each highway maintenance activity work zone.
9. For more specific guidance concerning the type of work, work zone conditions and factors impacting allowable regulatory maintenance speed zone reduction see TxDOT form #1204M available from TRF.

DURATION OF WORK

1. As defined by the "Texas Manual on Uniform Traffic Control Devices" Part 6.
2. The types of sign supports, sign mounting height, the size of signs, and the type of sign substrates can vary based on the type of work being performed. The Engineer is responsible for selecting the appropriate size sign for the type of work being performed. The Contractor is responsible for ensuring the sign support, sign mounting height and substrate meets manufacturer's recommendations in regard to crashworthiness and duration of work requirements.
   a. Long-term stationary - work that occupies a location more than 3 days.
   b. Intermediate-term stationary - work that occupies a location more than one daylight period up to 3 days, or nighttime work lasting more than one hour.
   c. Short-term stationary - daytime work that occupies a location for more than 1 hour in a single daylight period.
   d. Short, duration - work that occupies a location up to 1 hour.
   e. Mobile - work that moves continuously or intermittently (stopping for up to approximately 15 minutes.)

SIGN MOUNTING HEIGHT

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

REMOVING OR COVERING

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

SIGN SUPPORT WEIGHTS

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

FLAGS ON SIGNS

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

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)

SIGN DETAILS

Sign Number	Conventional Road	Expressway/ Freeway
G20-2bT	36"x18"	48"x24"
G20-5aP	24"x18"	36"x24"
G20-9TP	24"x24"	36"x30"
R20-5T	24"x30"	36"x36"
R20-5aTP	24"x12"	36"x18"
CW3-5	36"x36"	48"x48"
R2-1	24"x30"	36"x48"

Texas Department of Transportation

Traffic Safety Division Standard

MAINTENANCE WORK ZONE SPEED LIMIT SIGNS

FILE: mntwzsl.dgn	DN:	CK:	DW:	CK:
©TxDOT November 2021	CONT	SECT	JOB	HIGHWAY
REVISIONS	6467	47	001	FM 434,ETC
	DIST	COUNTY		SHEET NO.
	WACO	MCLENNAN		50

DATE: 7/9/2024 10:07:19 AM
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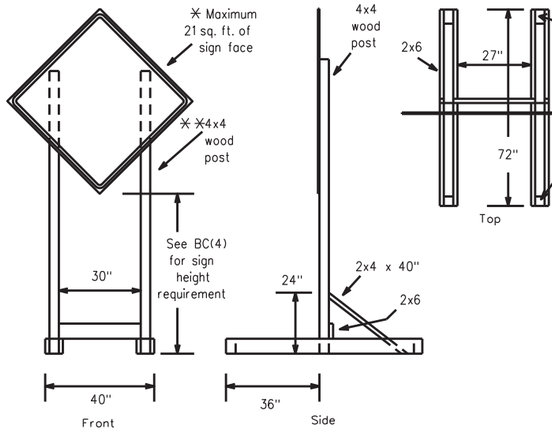
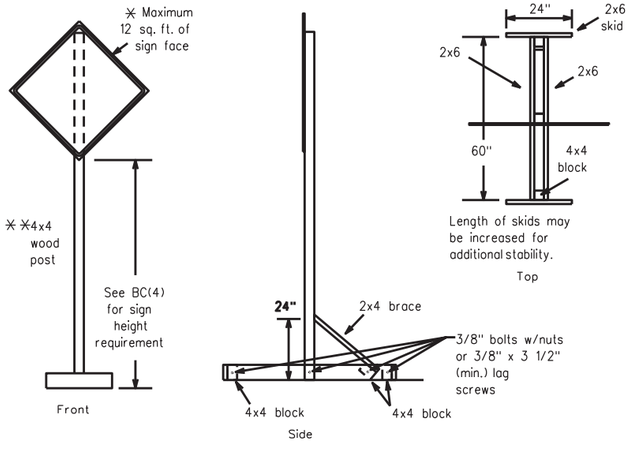
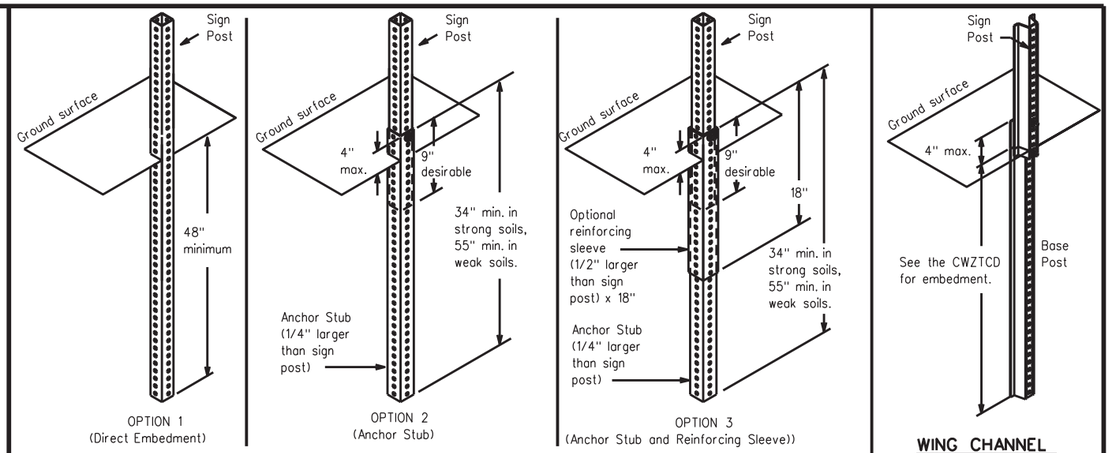




SKID MOUNTED WOOD SIGN SUPPORTS

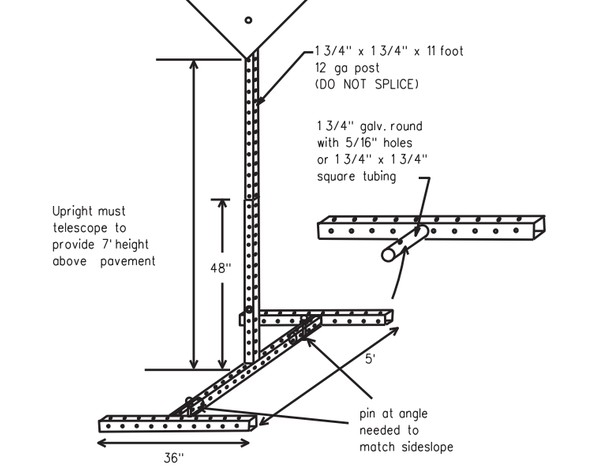
* LONG/INTERMEDIATE TERM STATIONARY - PORTABLE SKID MOUNTED SIGN SUPPORTS

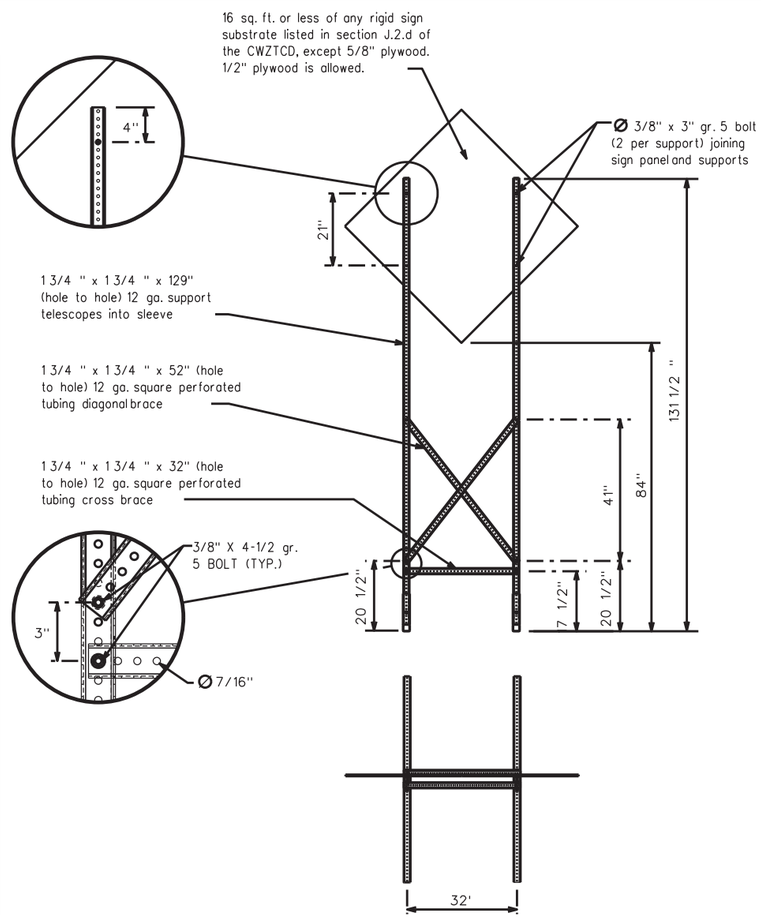


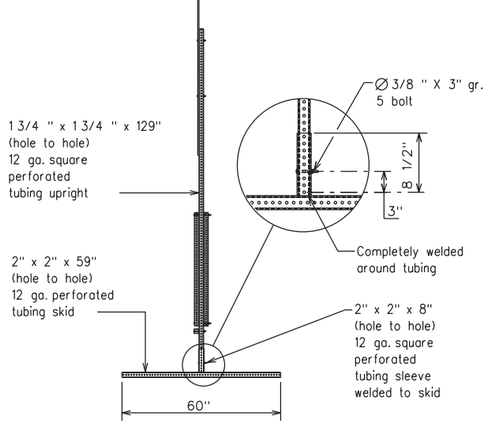
PERFORATED SQUARE METAL TUBING

GROUND MOUNTED SIGN SUPPORTS

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







SKID MOUNTED PERFORATED SQUARE STEEL TUBING SIGN SUPPORTS

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

WEDGE ANCHORS

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

OTHER DESIGNS

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

GENERAL NOTES

1. Nails may be used in the assembly of wooden sign supports, but 3/8" bolts with nuts or 3/8" x 3 1/2" lag screws must be used on every joint for final connection.
2. No more than 2 sign posts shall be placed within a 7 ft. circle, except for specific materials noted on the CWZTCD List.
3. When project is completed, all sign supports and foundations shall be removed from the project site. This will be considered subsidiary to Item 502.

* See sheet 1 for definition of "Work Duration."

** Wood sign posts MUST be one piece. Splicing will NOT be allowed. Posts shall be painted white.

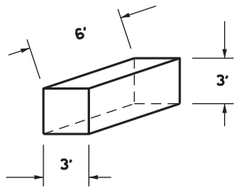
☐ See the CWZTCD for the type of sign substrate that can be used for each approved sign support.

Texas Department of Transportation

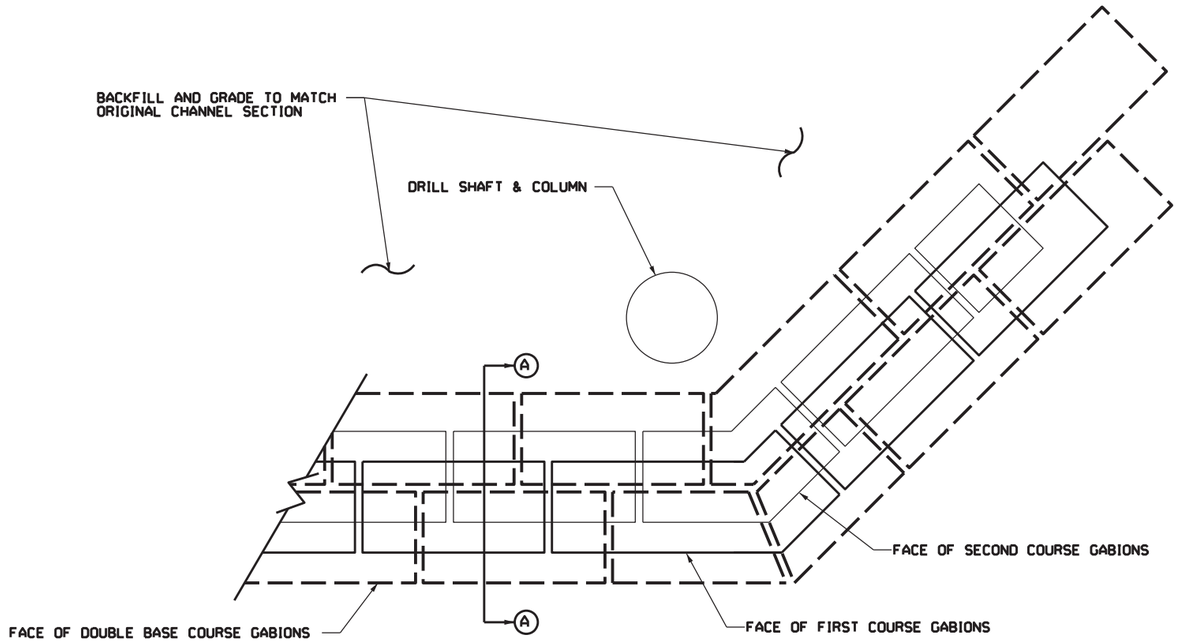
Traffic Safety Division Standard

MAINTENANCE WORK ZONE SPEED LIMIT SIGNS

FILE: mntwzsl.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
© TxDOT November 2021	CONT	SECT	JOB	HIGHWAY
REVISIONS	6467	47	001	FM 434,ETC
	DIST	COUNTY		SHEET NO.
	WACO	MCLENNAN		51



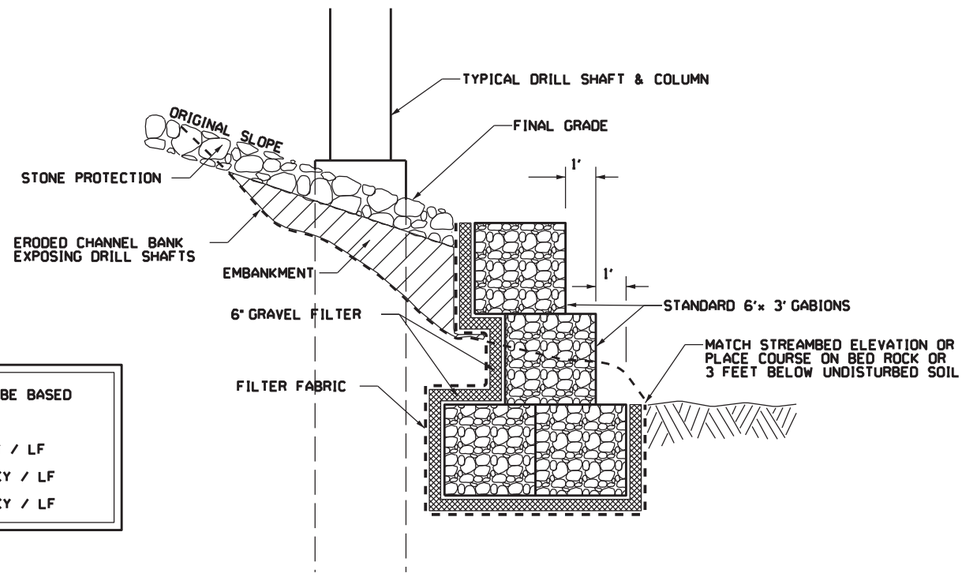
STANDARD GABION



PLAN VIEW

GENERAL NOTES:

1. GABION AND REVET MATTRESS WILL BE CONSTRUCTED IN ACCORDANCE TO ITEM 459.
2. ALL GABION INSTALLATIONS ARE REQUIRED TO USE FILTER FABRIC IN ACCORDANCE TO ITEM 459.
3. IF BEDROCK IS ENCOUNTERED WITHIN THE LIMITS OF THE TOE WALL, BEGIN TOE WALL ON THE BEDROCK OR AS DIRECTED BY THE ENGINEER.
4. ALL GABION INSTALLATIONS ARE REQUIRED TO USE A MINIMUM 4" FILTER MATERIAL.



SECTION A-A

FOR ESTIMATE PURPOSE, THE CUBIC YARD OF GABION TO BE BASED ON WALL HEIGHT ABOVE A TWO GABION BASE COURSE.
PER LINEAL FOOT OF WALL CALCULATES:

3' WALL (1 GABION COURSE ABOVE BASE COURSE) @ 1.0 CY / LF

6' WALL (2 GABION COURSES ABOVE BASE COURSE) @ 1.3 CY / LF

9' WALL (3 GABION COURSES ABOVE BASE COURSE) @ 1.7 CY / LF

STATE OF TEXAS
CHARLES W. SMITH
110312
LICENSED PROFESSIONAL ENGINEER

The seal appearing on this document was authorized by CHARLES W. SMITH P.E. 110312, on

Charles W. Smith, PE 7/12/2024

GABION DETAILS

DESIGN	FED RD DIV No.	PROJECT No.		HIGHWAY No.
ZB	6	BPM 6467-47-001		FM 434,ETC
CHECK	STATE	DISTRICT	COUNTY	SHEET No.
CS	TEXAS	WACO	MCLENNAN	52
GRAPHICS	CONTROL	SECTION	JOB	
DL	6467	47	001	
CHECK				
CS				

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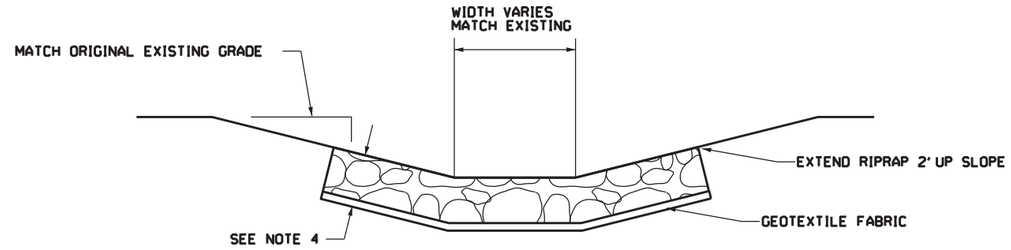
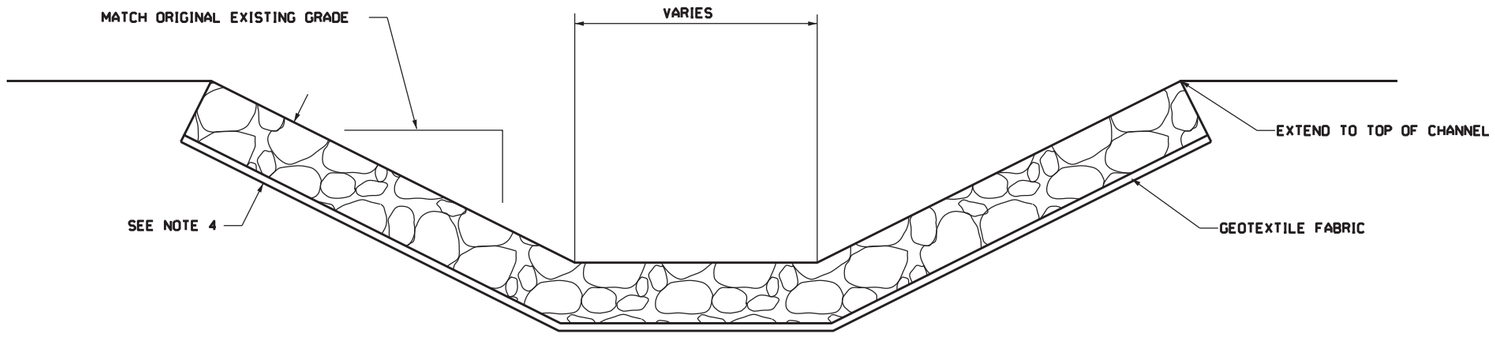
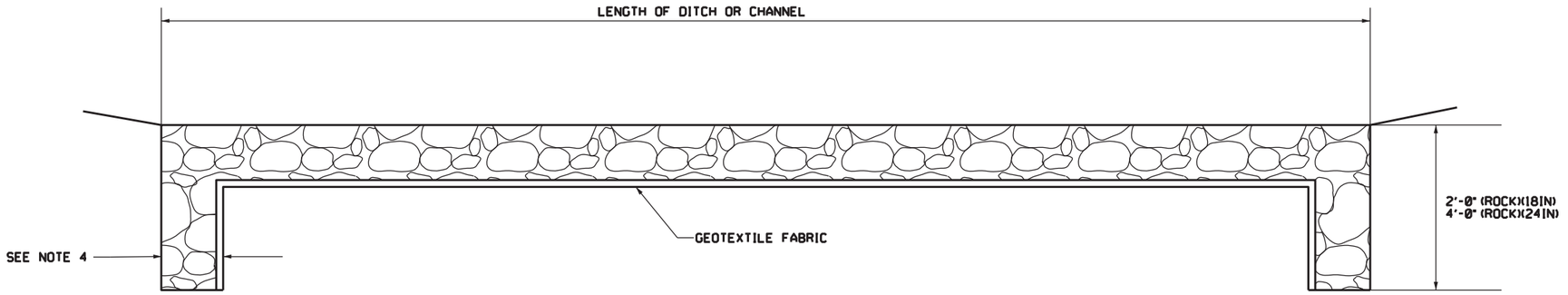


DITCH CHANNEL WITH ROCK RIPRAP TYPICAL SECTION



CHANNEL SECTIONS



DITCH LONGITUDINAL SECTIONS

GENERAL NOTES:

1. USE RIPRAP IN CHANNEL BED WHERE SHOWN ON PLANS.
2. STONE RIPRAP SHOULD BE FLUSH WITH THE FLOWLINE OF DITCH/CHANNEL AND POSITION STONE TO PROVIDE A SURFACE THAT CAN BE TRAVERSED BY ROW MOWING EQUIPMENT.
3. IF BEDROCK IS ENCOUNTERED WITHIN THE LIMITS OF THE TOEWALL, BEGIN TOEWALL ON THE BEDROCK OR AS DIRECTED.
4. THE MINIMUM DEPTH OF THE RIPRAP WILL BE GOVERNED BY THE SIZE OF THE ROCK RIPRAP PLACED. 18 IN RIPRAP WILL REQUIRE A MINIMUM DEPTH OF 18IN AND 24 IN RIPRAP WILL REQUIRE A MINIMUM DEPTH OF 24 IN.

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CHARLES W. SMITH
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LICENSED PROFESSIONAL ENGINEER

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Charles W. Smith, PE 7/12/2024

STONE PROTECTION DETAILS

DESIGN	FED RD DIV No.	PROJECT No.		HIGHWAY No.
ZB	6	BPM 6467-47-001		FM 434,ETC
CHECK	STATE	DISTRICT	COUNTY	SHEET No.
CS	TEXAS	WACO	MCLENNAN	53
GRAPHICS	CONTROL	SECTION	JOB	
DL	6467	47	001	
CHECK				
CS				

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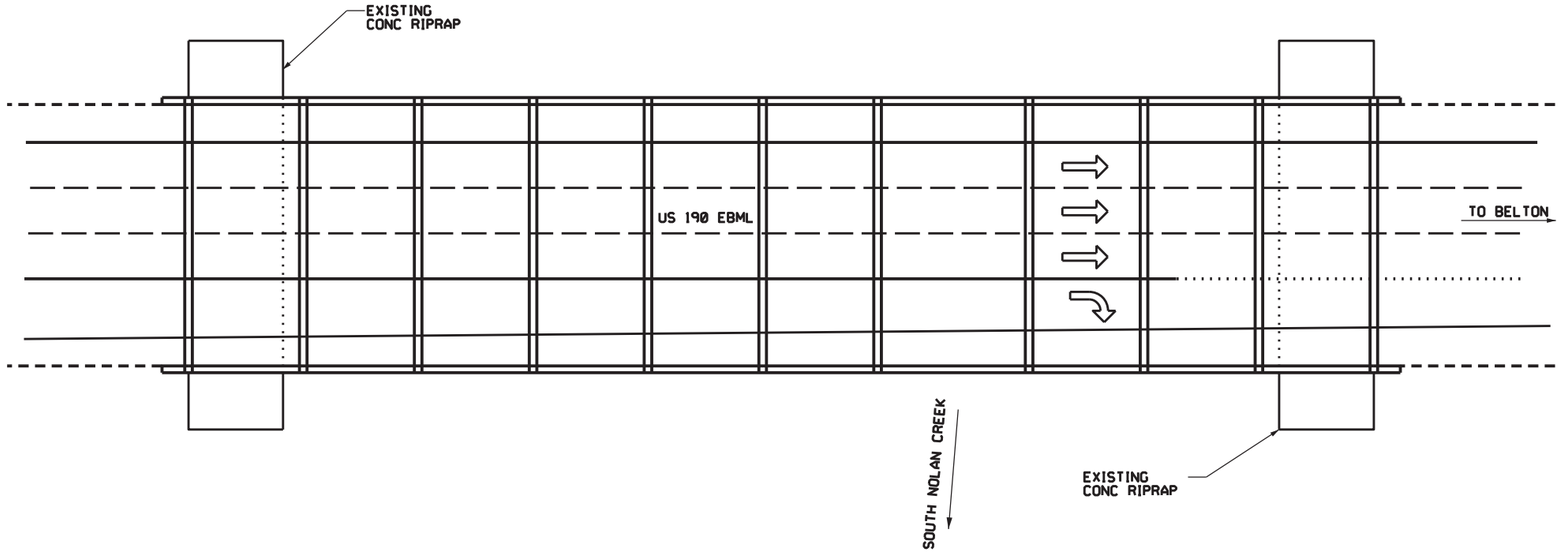
FOR LOCATION REPAIR DETAILS REFER TO:

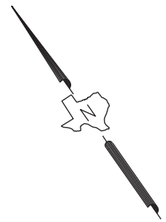
EROSION REPAIR DETAILS

AS-BUILT PLAN SET: 0231-0-122



LEGEND:

- EMBANKMENT
- EXCAVATION
- CONCRETE RIP RAP
- STONE RIP RAP
- FLOWABLE BACKFILL



GENERAL VICINITY LAYOUT
NTS
DRAWING NOT TO SCALE

GENERAL NOTES:

1. WHEN DIRECTED SURPLUS MATERIAL ESTIMATED AT INDIVIDUAL LOCATIONS MAY BE USED AT OTHER CONTRACT SITES.
2. IF STONE PROTECTION IS REQUIRED, THE DETAILS SHOWN ARE PROVIDED AS AN APPROXIMATE GUIDE FOR INSTALLATION OF STONE PROTECTION. THE CONTRACTOR WILL DETERMINE THE LIMITS OF STONE PROTECTION REQUIRED AS DICTATED BY FIELD CONDITIONS AND AS DIRECTED PRIOR TO MATERIAL PURCHASE AND DELIVERY.
3. IF NO PAY ITEM FOR DEBRIS REMOVAL IS NOTED; DEBRIS WILL BE REMOVED FROM BRIDGE STRUCTURE ELEMENTS. THIS WILL NOT BE PAID FOR DIRECTLY, BUT CONSIDERED SUBSIDIARY TO THE VARIOUS BID ITEMS.
4. THE CONTRACTOR WILL LIMIT CHANNEL DISTURBING ACTIVITIES TO THE VICINITY OF STRUCTURE AND TxDOT ROW. CONSTRUCTION WILL HAVE EROSION CONTROL BMP IN PLACE DURING ANY SOIL DISTURBING ACTIVITY.
5. IF NO PAY ITEM FOR BRUSH REMOVAL IS NOTED; BRUSH CLEARING FOR EXCAVATION AND EMBANKMENT WILL NOT BE PAID DIRECTLY, BUT CONSIDERED SUBSIDIARY TO THE VARIOUS BID ITEMS.
6. THE CONTRACTOR MUST EXHAUST ALL TYPE-D EMBANKMENT AVAILABLE AT SITE PRIOR TO DELIVERY OF TYPE-B.
7. IF JOINT SEAL IS REQUIRED FOR RIP RAP, THE QUANTITY SHOWN IS FOR ESTIMATION ONLY. THE CONTRACTOR WILL DETERMINE THE LIMITS OF SEALANT AS DICTATED BY FIELD CONDITIONS AND AS DIRECTED. JOINTS TOO LARGE FOR SEALANT MAY BE SEALED BY FLOWABLE BACKFILL AS DIRECTED. REFER TO DMS-6100 FOR MATERIAL SPECIFICATIONS.
8. LOCATIONS WHERE FENCING MUST BE ALTERED; AT ALL TIMES CONTRACTOR WILL MAINTAIN ADEQUATE BARRIER TO KEEP LIVESTOCK FROM ENTERING ROW. WHEN POSSIBLE REPLACE FENCING TO MATCH ORIGINAL. THIS WILL NOT BE PAID FOR DIRECTLY, BUT CONSIDERED SUBSIDIARY TO THE VARIOUS BID ITEMS.

ITEM-DESC	DESCRIPTION	UNITS	TOTAL
403-7002	TEMPORARY SPL SHORING (COFFERDAM)	SF	1100.0
432-7038	RIPRRAP (STONE COMMON) (GROUT) (12")	CY	150.0
432-7045	RIPRAP (STONE PROTECTION) (24")	CY	16.0
459-7001	GABIONS (GALV)	CY	116.0

CONTRACTOR'S INFORMATION ONLY

NOTE:
THIS SKETCH IS TO BE USED AS AN APPROXIMATE GUIDE FOR MAINTENANCE WORK TO BE PERFORMED IN THE VICINITY OF THIS EXISTING STRUCTURE.

LOCATION: US 190 EBML @ SOUTH NOLAN CREEK
NBI#: 09-014-0-0231-04-122
DIMENSIONS: 313'x 67' BRIDGE
SKEW: 0° SKEW
GPS LAT/LON: 31.06704/-97.57955

STATE OF TEXAS
CHARLES W. SMITH
110312
LICENSED
PROFESSIONAL ENGINEER

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Charles W. Smith, PE 7/12/2024

BELL COUNTY
STRUCTURE LAYOUT
US 190 EBML @ SOUTH NOLAN CREEK
NBI# 09-014-0-0231-04-122

SCALE: NTS

DESIGN	FED RD DIV No.	PROJECT No.		HIGHWAY No.
ZB	6	BPM 6467-47-001		FM 434,ETC
CHECK	STATE	DISTRICT	COUNTY	SHEET No.
CS	TEXAS	WACO	MCLENNAN	54
GRAPHICS	CONTROL	SECTION	JOB	
DL	6467	47	001	
CHECK				
CS				

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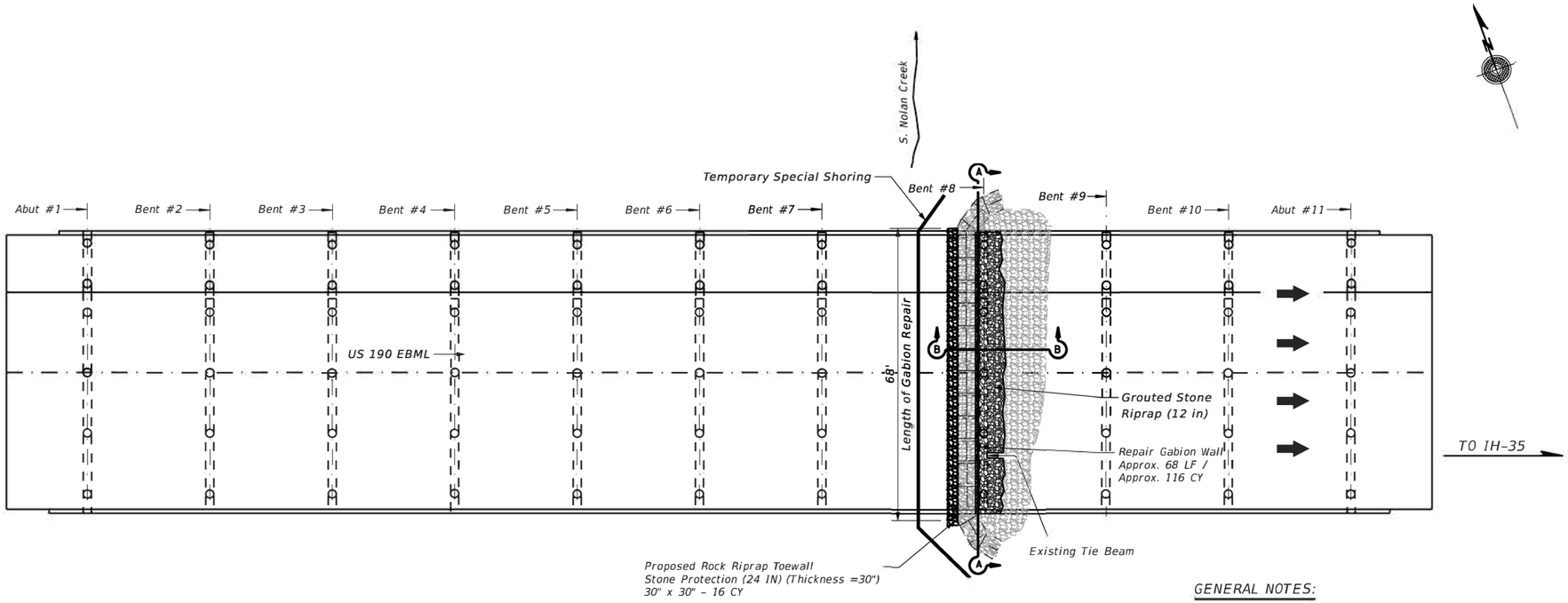

US 190 EBML'S AT S. NOLAN CREEK (EAST)
NBI NO. 09-014-0-0231-04-122

SEE SHEETS 2 AND 3 FOR ADDITIONAL DETAILS AND TYPICAL SECTIONS.

ESTIMATED QUANTITIES

ITEM	DESCRIPTION	UNIT	QTY
0403-7002	TEMPORARY SPL SHORING (COFFERDAM)	SF	1100
0432-7038	RIPRAP (STONE COMMON) (GROUT) (12")	C.Y.	150
0432-7045	RIPRAP (STONE PROTECTION) (24 IN)	C.Y.	16
0459-7001	GABIONS (GALV)	C.Y.	116

GENERAL NOTES:

1. THE DETAILS SHOWN ARE PROVIDED AS AN APPROXIMATE GUIDE FOR INSTALLATION OF RIPRAP STONE PROTECTION. EXISTING GABIONS DEEMED SALVAGEABLE MAY BE REUSED. THE CONTRACTOR WILL DETERMINE THE LIMITS OF THESE ITEMS AS DICTATED BY FIELD CONDITIONS AND AS DIRECTED PRIOR TO MATERIAL PURCHASE AND DELIVERY.

2. IF NO PAY ITEM FOR DEBRIS REMOVAL IS NOTED; DEBRIS WILL BE REMOVED AS NEEDED TO PLACE RIPRAP. THIS WORK WILL NOT BE PAID FOR DIRECTLY, BUT CONSIDERED SUBSIDIARY TO THE VARIOUS BID ITEMS.

3. ALL EXCAVATION, GRADING, BACKFILLING AND FINISHING OF SOIL WILL BE SUBSIDIARY TO THE VARIOUS BID ITEMS.

STATE OF TEXAS
ROSS L. LANGDALE
126994
LICENSED
PROFESSIONAL ENGINEER
7/12/2024
Ross Langdale, P.E.

Texas Department of Transportation

EROSION REPAIR DETAILS

US 190 EBML'S AT
S. NOLAN CREEK (EAST)

STR.# 122

FILE: SCOURREP122.DGN	DN: DOT	CK: DOT	DW: RLL	CK: DOT			
ORIG DATE: FEB. 2019	DIST	FED REG	FEDERAL AID PROJECT				SHEET
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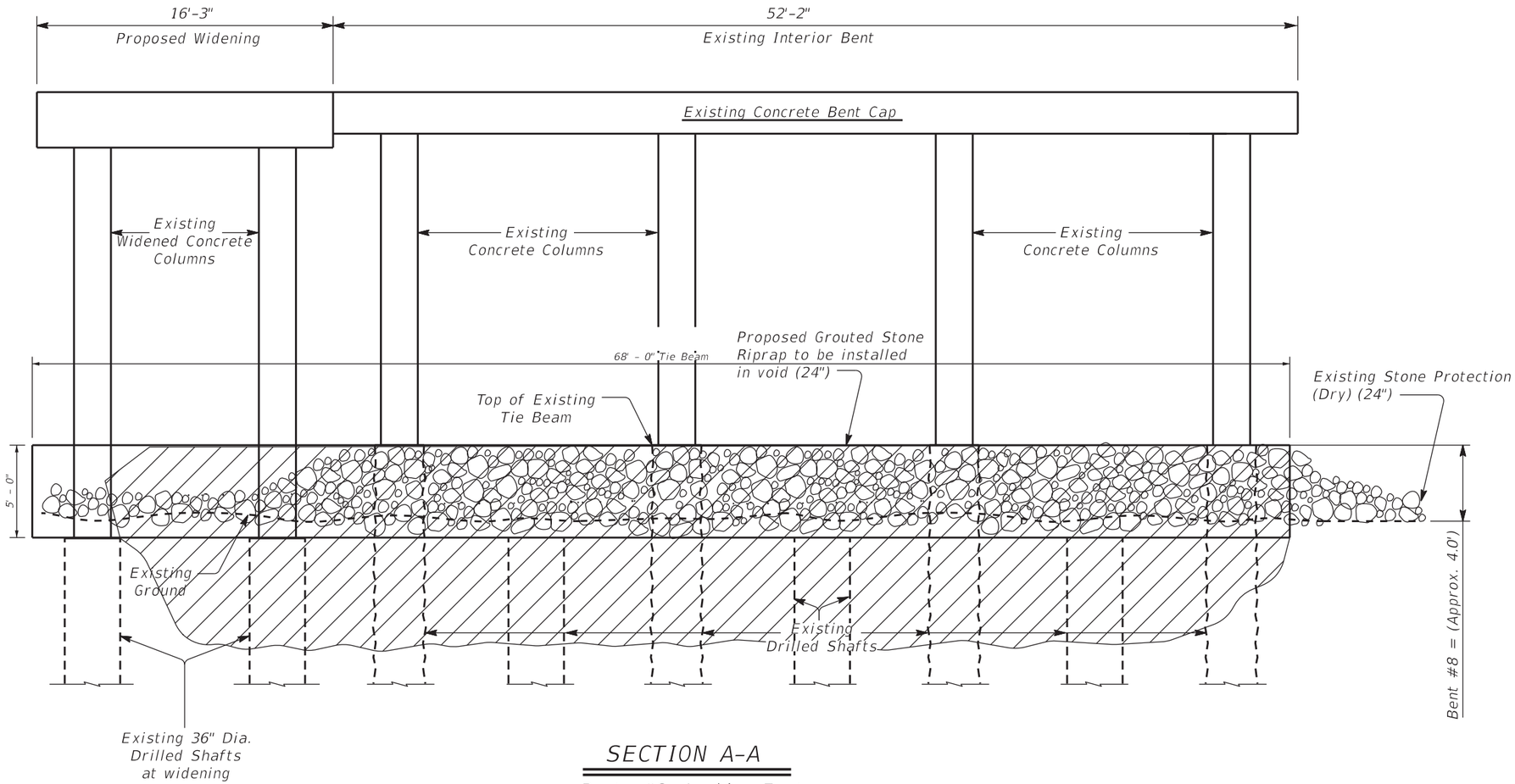
	COUNTY		CONTROL	SECT	JOB	HIGHWAY	
	MCLENNAN		6467	47	001	FM 434	



SECTION A-A

Bents #8- Looking East

SHEET 2 0F 3 SHEETS

STATE OF TEXAS
ROSS L LANGDALE
126994
LICENSED
PROFESSIONAL ENGINEER
7/12/2024
Ross Langdale, P.E.

Texas Department of Transportation
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EROSION REPAIR DETAILS

US 190 EBML'S AT
S. NOLAN CREEK (EAST)

STR.# 122

FILE: SCOURREP122.DGN	DN: DOT	CK: DOT	DW: RLL	CK: DOT
ORIG DATE: FEB. 2019	DIST	FED REG	FEDERAL AID PROJECT	SHEET
REVISIONS	WACO	6		56
	COUNTY		CONTROL SECT JOB	HIGHWAY
	MCLENNAN		6467 47 001	FM 434,ETC

LEVELS DISPLAYED

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32
33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48
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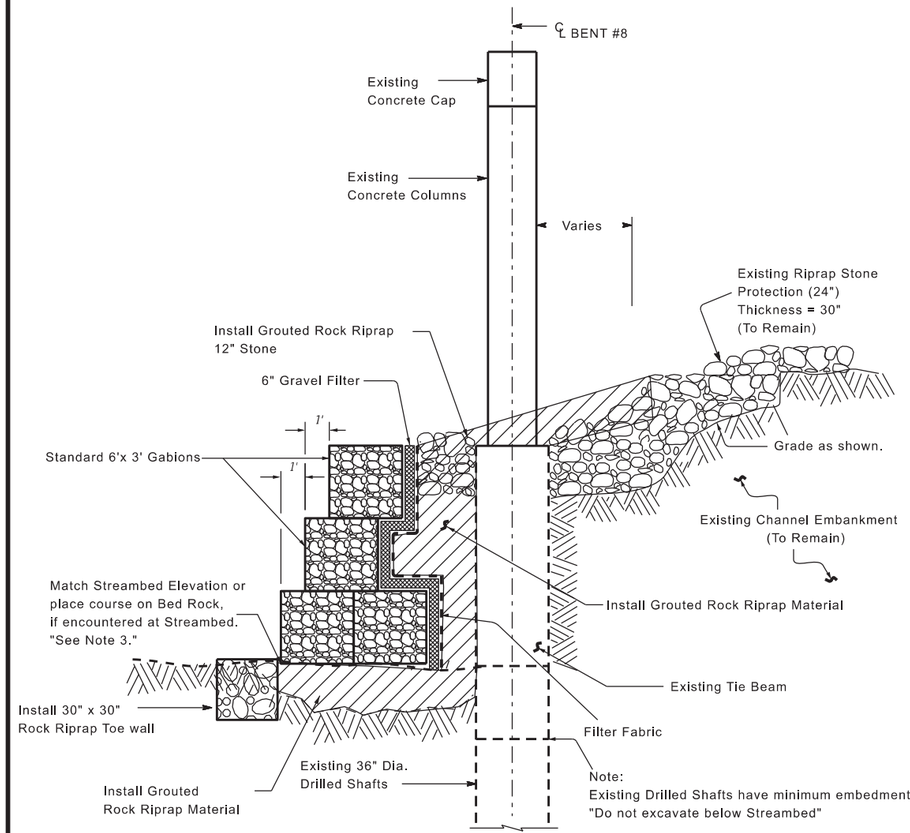
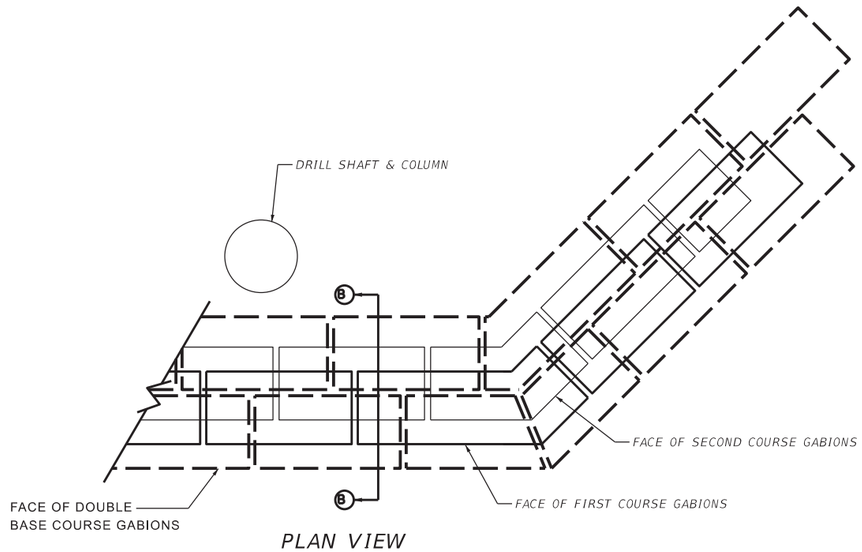
ACC:

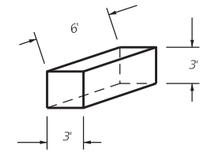


SECTION B-B

(Gabion Wall Courses vary along Bent #8).
(See ESTIMATED GABION WALL COURSES)



PLAN VIEW



STANDARD GABION

ESTIMATED GABION WALL COURSES

FOR ESTIMATE PURPOSE, THE CUBIC YARD OF GABION TO BE BASED ON WALL HEIGHT ABOVE A TWO GABION BASE COURSE. PER LINEAL FOOT OF WALL CALCULATES:

3' WALL (1 GABION COURSE ABOVE BASE COURSE) @ 1.0 CY / LF

6' WALL (2 GABION COURSES ABOVE BASE COURSE) @ 1.3 CY / LF

9' WALL (3 GABION COURSES ABOVE BASE COURSE) @ 1.7 CY / LF

GENERAL NOTES FOR GABIONS:

1. GABION AND REVET MATTRESS WILL BE CONSTRUCTED IN ACCORDANCE TO ITEM 459.
2. ALL GABION INSTALLATIONS ARE REQUIRED TO USE FILTER FABRIC IN ACCORDANCE TO ITEM 459.
3. BEGIN TOE WALL ON STREAMBED, OR IF ENCOUNTERED, ON TOP OF BEDROCK AND AS DIRECTED BY THE ENGINEER. CARE SHALL BE TAKEN AS TO NOT UNDERMINE THE EXISTING DRILLED SHAFTS, THEREFORE; EXCAVATING THE EXISTING STREAMBED SHOULD BE AVOIDED.
4. ALL GABION INSTALLATIONS ARE REQUIRED TO USE A MINIMUM; 4" FILTER MATERIAL.
5. EXISTING GABION MATTRESSES DEEMED SALVAGEABLE MAY BE REINSTALLED IN ACCORDANCE ITEM 459.

STATE OF TEXAS
ROSS L LANGDALE
126994
LICENSED
PROFESSIONAL ENGINEER
7/12/2024
Ross L Langdale, P.E.

SHEET 3 OF 3 SHEETS

Texas Department of Transportation
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EROSION REPAIR DETAILS

US 190 EBML'S AT
S. NOLAN CREEK (EAST)

STR.# 122

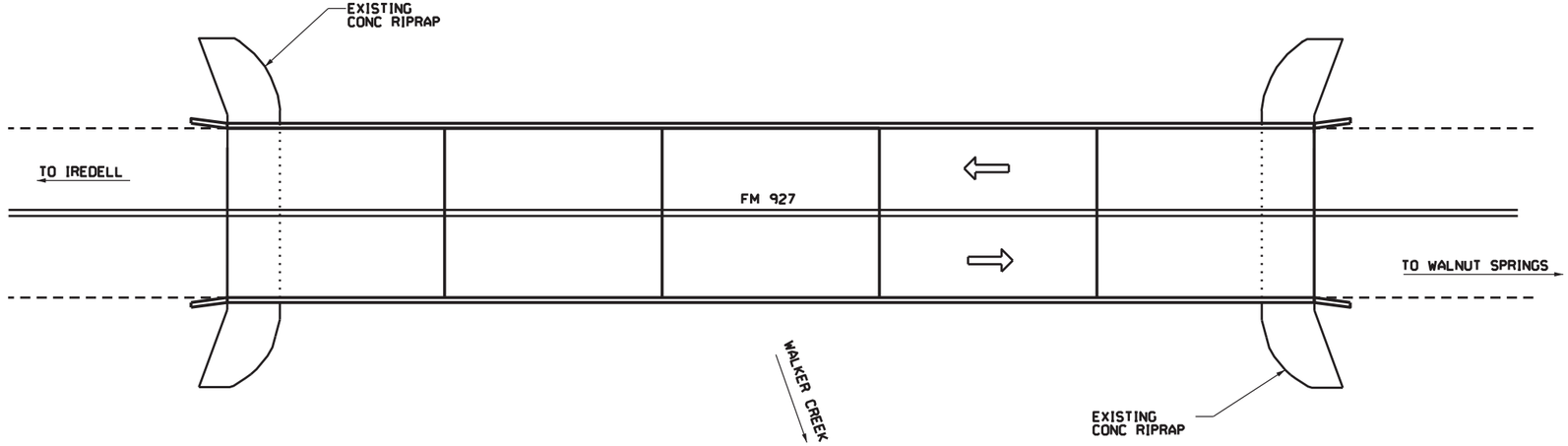
FILE: SCOURREP122.DGN	DN: DOT	CK: DOT	DW: RLL	CK: DOT
ORIG DATE: FEB. 2019	DIST	FED REG	FEDERAL AID PROJECT	SHEET
REVISIONS	WACO	6		57
	COUNTY	CONTROL	SECT	JOB	HIGHWAY
	MCLENNAN	6467	47	001	FM 434 ETC

LEVELS DISPLAYED
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16
17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32
33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48
49 50 51 52 53 54 55 56 57 58 59 60 61 62 63
ACC:

FOR LOCATION REPAIR DETAILS REFER TO:

LAYOUT & DETAILS FOR CLEANING AND SEALING EXPANSION JOINTS

AS-BUILT PLAN SET: 0422-01-020

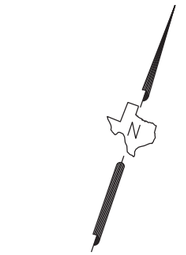


NOTE:
THIS SKETCH IS TO BE USED AS AN APPROXIMATE GUIDE FOR MAINTENANCE WORK TO BE PERFORMED IN THE VICINITY OF THIS EXISTING STRUCTURE.

LOCATION: FM 927 @ WALKER CREEK
NBI#: 09-018-0-0422-01-020
DIMENSIONS: 150'x 24' BRIDGE
SKEW: 0° SKEW
GPS LAT/LON: 31.99217882/-97.85088785

LEGEND:

- EMBANKMENT
- EXCAVATION
- CONCRETE RIP RAP
- STONE RIP RAP
- FLOWABLE BACKFILL



GENERAL VICINITY LAYOUT
NTS
DRAWING NOT TO SCALE

GENERAL NOTES:

1. WHEN DIRECTED SURPLUS MATERIAL ESTIMATED AT INDIVIDUAL LOCATIONS MAY BE USED AT OTHER CONTRACT SITES.
2. IF STONE PROTECTION IS REQUIRED, THE DETAILS SHOWN ARE PROVIDED AS AN APPROXIMATE GUIDE FOR INSTALLATION OF STONE PROTECTION. THE CONTRACTOR WILL DETERMINE THE LIMITS OF STONE PROTECTION REQUIRED AS DICTATED BY FIELD CONDITIONS AND AS DIRECTED PRIOR TO MATERIAL PURCHASE AND DELIVERY.
3. IF NO PAY ITEM FOR DEBRIS REMOVAL IS NOTED; DEBRIS WILL BE REMOVED FROM BRIDGE STRUCTURE ELEMENTS. THIS WILL NOT BE PAID FOR DIRECTLY, BUT CONSIDERED SUBSIDIARY TO THE VARIOUS BID ITEMS.
4. THE CONTRACTOR WILL LIMIT CHANNEL DISTURBING ACTIVITIES TO THE VICINITY OF STRUCTURE AND TxDOT ROW. CONSTRUCTION WILL HAVE EROSION CONTROL BMP IN PLACE DURING ANY SOIL DISTURBING ACTIVITY.
5. IF NO PAY ITEM FOR BRUSH REMOVAL IS NOTED; BRUSH CLEARING FOR EXCAVATION AND EMBANKMENT WILL NOT BE PAID DIRECTLY, BUT CONSIDERED SUBSIDIARY TO THE VARIOUS BID ITEMS.
6. THE CONTRACTOR MUST EXHAUST ALL TYPE-D EMBANKMENT AVAILABLE AT SITE PRIOR TO DELIVERY OF TYPE-B.
7. IF JOINT SEAL IS REQUIRED FOR RIP RAP, THE QUANTITY SHOWN IS FOR ESTIMATION ONLY. THE CONTRACTOR WILL DETERMINE THE LIMITS OF SEALANT AS DICTATED BY FIELD CONDITIONS AND AS DIRECTED. JOINTS TOO LARGE FOR SEALANT MAY BE SEALED BY FLOWABLE BACKFILL AS DIRECTED. REFER TO DMS-6100 FOR MATERIAL SPECIFICATIONS.
8. LOCATIONS WHERE FENCING MUST BE ALTERED; AT ALL TIMES CONTRACTOR WILL MAINTAIN ADEQUATE BARRIER TO KEEP LIVESTOCK FROM ENTERING ROW. WHEN POSSIBLE REPLACE FENCING TO MATCH ORIGINAL. THIS WILL NOT BE PAID FOR DIRECTLY, BUT CONSIDERED SUBSIDIARY TO THE VARIOUS BID ITEMS.

ITEM-DESC	DESCRIPTION	UNITS	TOTAL
438-7004	CLEANING & SEALING EXISITING JOINTS(CL3)	LF	96.0

CONTRACTOR'S INFORMATION ONLY

STATE OF TEXAS
CHARLES W. SMITH
110312
LICENSED
PROFESSIONAL ENGINEER

The seal appearing on this document was authorized by CHARLES W. SMITH P.E. 110312, on

Charles W. Smith, PE 7/12/2024

BOSQUE COUNTY
STRUCTURE LAYOUT
FM 927 @ WALKER CREEK
NBI# 09-014-0-0422-01-020

SCALE: NTS

DESIGN	FED RD DIV No.	PROJECT No.		HIGHWAY No.
ZB	6	BPM 6467-47-001		FM 434,ETC
CHECK	STATE	DISTRICT	COUNTY	SHEET No.
CS	TEXAS	WACO	MCLENNAN	58
GRAPHICS	CONTROL	SECTION	JOB	
DL	6467	47	001	
CHECK				
CS				

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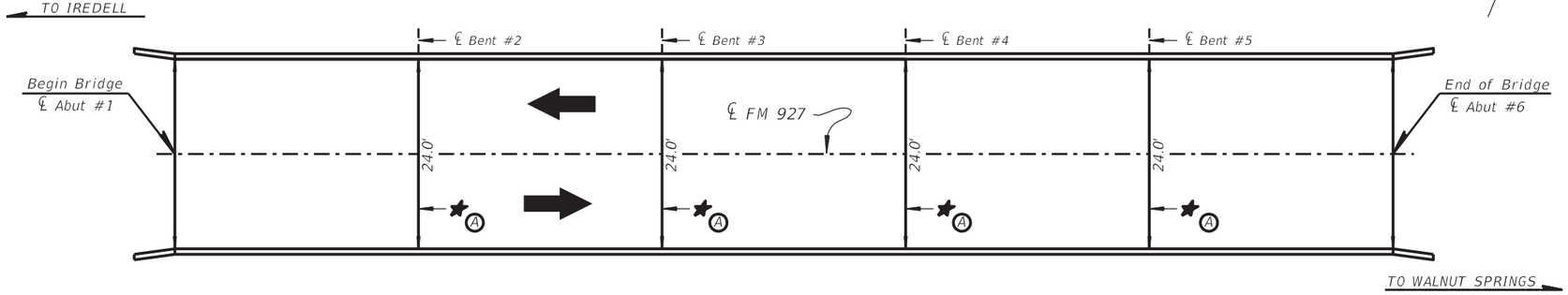
7/9/2024



LAYOUT PLAN

FM 927 OVER WALKER CREEK
(N.B.I.#09-018-0-0422-01-020

★ Denotes Location for Cleaning and Sealing Expansion Joints.

PROCEDURE FOR CLEANING AND SEALING EXISTING JOINT WITH HOT-POURED RUBBER SEAL:

1) **Saw cut through asphalt at the centerline of joint. Make mulitple cuts to create ½" minimum joint opening or match the existing joint opening. Clean joints opening of all old expansion materials/devices, bituminous materials, dirt, grease, and all other deleterious materials in accordance with Item 438, "Cleaning and Sealing Joints", Clean joint out full depth of the joint.**

2) **Obtain approval of cleaned joint prior to proceeding with joint sealing operation.**

3) **Place backer rod into joint opening 1" below the top of concrete. When sealing joints for slab spans, slab beam spans, or box beam spans, fill void below backer rod with extruded polystyrene foam before placing backer rod.**

4) **Seal the joint opening with a Class 3 joint sealant flush to the top of the asphaltic concrete pavement.**

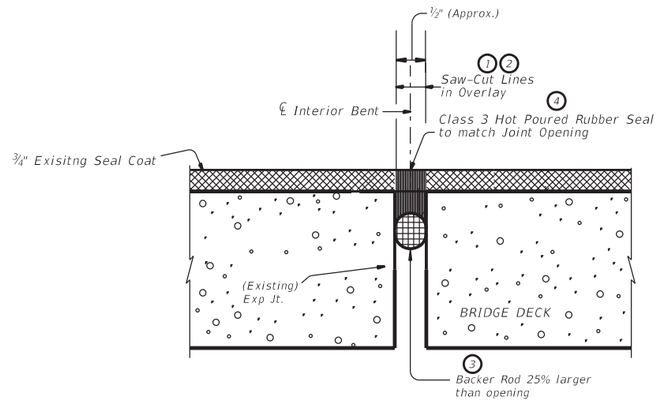
FM 927 OVER GRAHAM CREEK
150'-0" OVERALL LENGTH
(5 @ 30'-0") CONC. GIRDER SPAN
23'-4½" ROADWAY
24'-8½" OVERALL WIDTH

1. Saw cut through the asphalt at the centerline of joint. Make multiple saw cuts to create a ½" minimum joint opening or match the existing joint opening. Clean joint opening of all old expansion materials/devices, bituminous materials, dirt, grease and all other deleterious materials in accordance with Item 438, "Cleaning and Sealing Joints."

2. Obtain approval of cleaned joint prior to proceeding with joint sealing operation.

3. Place backer rod into joint opening 1" below the top of concrete. Backer rod must be of the type that can handle the heat and be compatible with the hot poured rubber seal. The backer rod must be 25% larger than the joint opening.

4. Seal the joint opening with a Class 3, "Hot Poured Rubber." Seal ush to the top of the asphaltic concrete pavement.



SECTION THRU EXPANSION JOINT

Ⓐ

Ⓐ ESTIMATED QUANTITIES

ITEM	438-7004
LOCATION	CLEANING AND SEALING EXISTING JOINTS (CL 3)
	L.F.
STR. #020 FM 927 OVER WALKER CREEK	96.0
TOTAL	96.0

General Notes:

Cleaning existing joint opening (full depth) of all debris, providing and placing backer rod, saw-cutting asphalt overlay, and sealing joints is paid for by Item 438, "Cleaning and Sealing Joints" and measured by the linear foot.
Obtain approval for all tools, equipment, materials, and techniques proposed to clean and seal the joint.
Provide Class 3 joint sealant in accordance with DMS-6310, Joint Sealants and Fillers" for joints in asphalt overlay.
Provide Class 7 joint sealant in accordance with DMS-6310, "Joint Sealants and Fillers" for joints in concrete.
Extend sealant up into rail or curb 3 inches on low side or sides of deck. If the Class 7 joint sealant cannot be effectively placed in the vertical postion, a Class 4 joint sealant compatible with the Class 7 joint sealant is allowed for the extension of the seal into the curb or rail. Prepare surfaces where sealant is to be placed in accordance with Manufacturer's specifications.

STATE OF TEXAS
ROSS L. LANGDALE
126994
LICENSED
PROFESSIONAL ENGINEER

7/12/2024

Ross L. Langdale, P.E.

Texas Department of Transportation

LAYOUT FOR CLEANING AND SEALING JOINTS

FM 927 OVER WALKER CREEK
09-018-0-0422-01-020

SCALE: 1" = HORIZ. FEET

SHEET 1 OF 1

CHANGE ORDER	FED.RD. DIV. NO.	CONT	SECT	JOB	HIGHWAY
	6	6467	47	001	FM 434,ETC
	STATE	DIST	COUNTY		SHEET NO.
	TEXAS	WACO	MCLENNAN		59

$FILEA$

NODE

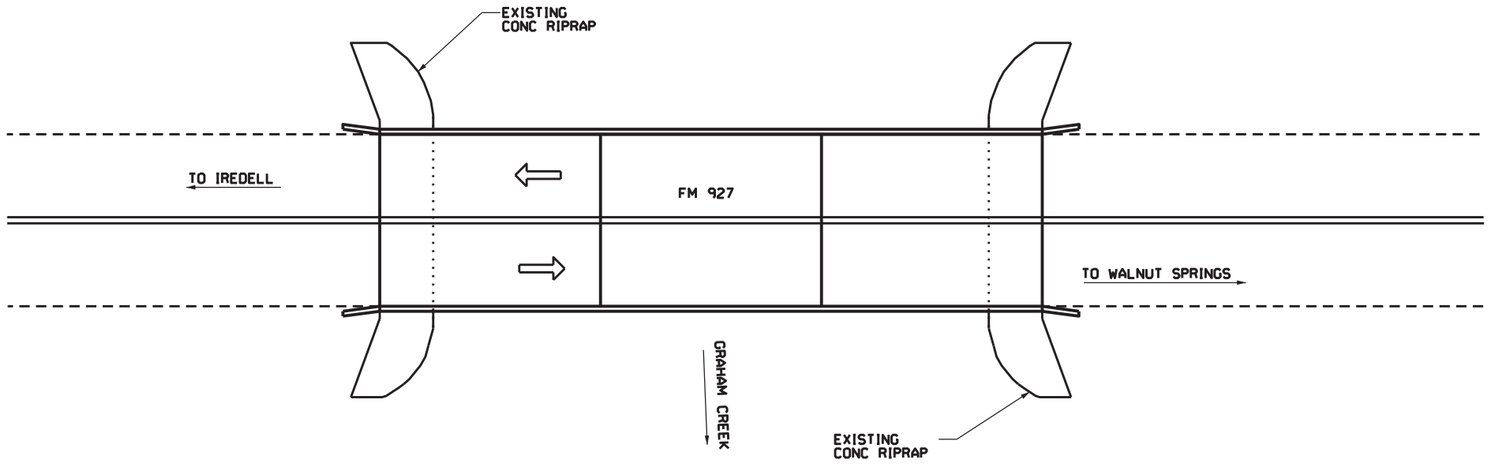
FOR LOCATION REPAIR DETAILS REFER TO:

LAYOUT & DETAILS FOR CLEANING AND SEALING EXPANSION JOINTS

MILL AND OVERLAY DETAILS

STRIPING DETAILS

AS-BUILT PLAN SET: 0422-01-021



NOTE:
THIS SKETCH IS TO BE USED AS AN APPROXIMATE GUIDE FOR MAINTENANCE WORK TO BE PERFORMED IN THE VICINITY OF THIS EXISTING STRUCTURE.

LOCATION: FM 927 @ GRAHAM CREEK
NBI#: 09-018-0-0422-01-021
DIMENSIONS: 90'x 24' BRIDGE
SKEW: 0° SKEW
GPS LAT/LON: 31.99913899/-97.83173932

LEGEND:

- EMBANKMENT
- EXCAVATION
- CONCRETE RIP RAP
- STONE RIP RAP
- FLOWABLE BACKFILL

GENERAL VICINITY LAYOUT
NTS
DRAWING NOT TO SCALE

GENERAL NOTES:

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ITEM-DESC	DESCRIPTION	UNITS	TOTAL
341-7037	D-GR HMA TY-C-SAC-B PG70-22 (EXEMPT)	TON	85.0
354-7035	PLANE ASPH CONC. PAV (0" TO 6")	SY	773.0
356-7021	PAV JT UNDERSEAL (24")	LF	48.0
438-7004	CLEANING & SEALING EXIST JOINTS (CL3)	LF	48.0
662-7114	WK ZN PAV MRK SHT TERM (TAB) TY-Y-2	EA	15.0
666-7411	REFL PAV MRK TY 1 (W) 6" (SLD)(100MIL)	LF	580.0
666-7423	REFL PAV MRK TY 1 (Y) 6" (SLD)(100MIL)	LF	580.0
672-7004	REFL PAV MRKR TY II-A-A	EA	7.0
3006-7001	UNDERSEAL COURSE	GAL	155.0

CONTRACTOR'S INFORMATION ONLY

STATE OF TEXAS
CHARLES W. SMITH
110312
LICENSED
PROFESSIONAL ENGINEER

The seal appearing on this document was authorized by CHARLES W. SMITH P.E. 110312, on

Charles W. Smith, PE 7/12/2024

Texas Department of Transportation

BOSQUE COUNTY
STRUCTURE LAYOUT
FM 927 @ GRAHAM CREEK
NBI# 09-014-0-0422-01-021

SCALE: NTS

DESIGN	FED RD DIV No.	PROJECT No.		HIGHWAY No.
ZB	6	BPM 6467-47-001		FM 434,ETC
CHECK	STATE	DISTRICT	COUNTY	SHEET No.
CS	TEXAS	WACO	MCLENNAN	60
GRAPHICS	CONTROL	SECTION	JOB	
DL	6467	47	001	
CHECK				
CS				

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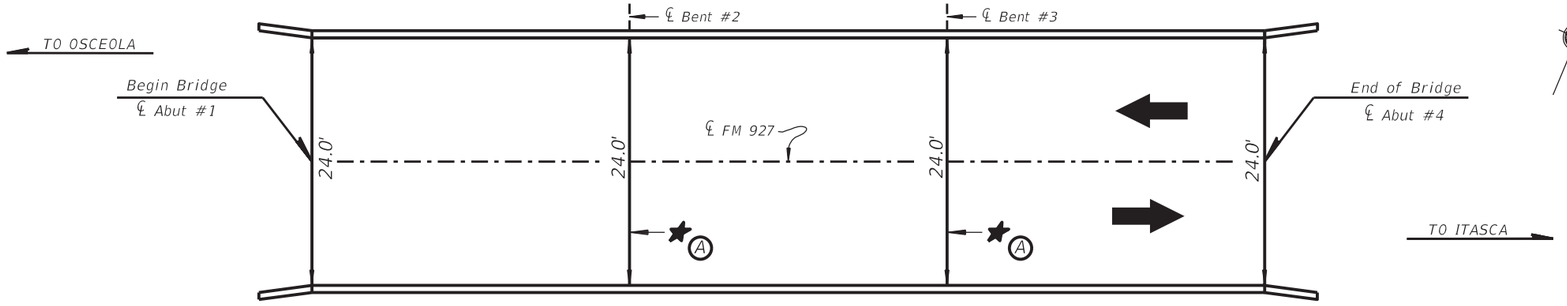


LAYOUT PLAN

FM 927 OVER GRAHAM CREEK
(N.B.I.#09-018-0-0422-01-021
GPS LAT/LON: 31.999166°/-97.831747°

★ Denotes Location for Cleaning and Sealing Expansion Joints.

FM 927 OVER GRAHAM CREEK
90'-0" OVERALL LENGTH
(3 @ 30'-0") CONC. GIRDER SPAN
23'-4½" ROADWAY
24'-8½" OVERALL WIDTH

NOTE: APPROX. 2" OF EXISTING OVERLAY IS TO BE REMOVED DOWN TO THE BRIDGE DECK PROIR TO JOINT REPAIR.
(SEE MILLING & OVERLAY FOR FURTHER DETAILS)

PROCEDURE FOR CLEANING AND SEALING EXISTING JOINT WITH HOT-POURED RUBBER SEAL:

1) Saw cut through asphalt at the centerline of joint. Make mulitple cuts to create ½" minimum joint opening or match the existing joint opening. Clean joints opening of all old expansion materials/devices, bituminous materials, dirt, grease, and all other deleterious materials in accordance with Item 438, "Cleaning and Sealing Joints", Clean joint out full depth of the joint.
2) Obtain approval of cleaned joint prior to proceeding with joint sealing operation.
3) Place backer rod into joint opening 1" below the top of concrete. When sealing joints for slab spans, slab beam spans, or box beam spans, fill void below backer rod with extruded polystyrene foam before placing backer rod.
4) Seal the joint opening with a Class 3 joint sealant flush to the top of the asphaltic concrete pavement.

General Notes:

Cleaning existing joint opening (full depth) of all debris, providing and placing backer rod, saw-cutting asphalt overlay, and sealing joints is paid for by Item 438, "Cleaning and Sealing Joints" and measured by the linear foot.
Obtain approval for all tools, equipment, materials, and techniques proposed to clean and seal the joint.
Provide Class 3 joint sealant in accordance with DMS-6310, Joint Sealants and Fillers" for joints in asphalt overlay.
Provide Class 7 joint sealant in accordance with DMS-6310, "Joint Sealants and Fillers" for joints in concrete.
Extend sealant up into rail or curb 3 inches on low side or sides of deck. If the Class 7 joint sealant cannot be effectively placed in the vertical postion, a Class 4 joint sealant compatible with the Class 7 joint sealant is allowed for the extension of the seal into the curb or rail. Prepare surfaces where sealant is to be placed in accordance with Manufacturer's specifications.

ESTIMATED QUANTITIES

ITEM	356-7021	438-7004
LOCATION	PAV JT UNDERSEAL (24")	CLEANING AND SEALING EXIST JOINTS (CL 3)
	L.F.	L.F.
STR. #021 FM 927 OVER GRAHAM CREEK	48.0	48.0
TOTAL	48.0	48.0

STATE OF TEXAS
ROSS L. LANGDALE
126994
LICENSED
PROFESSIONAL ENGINEER
7/12/2024
Ross L Langdale, P.E.

Texas Department of Transportation

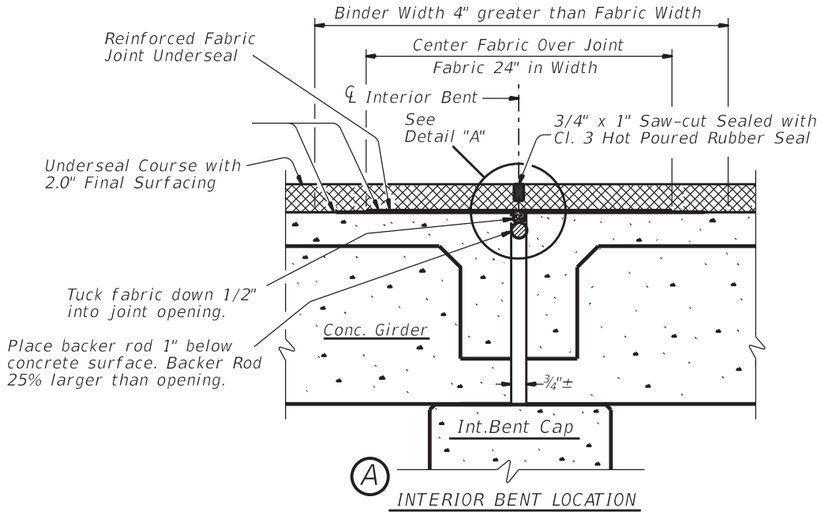
LAYOUT FOR CLEANING AND SEALING JOINTS

FM 927 OVER GRAHAM CREEK
09-018-0-0422-01-021

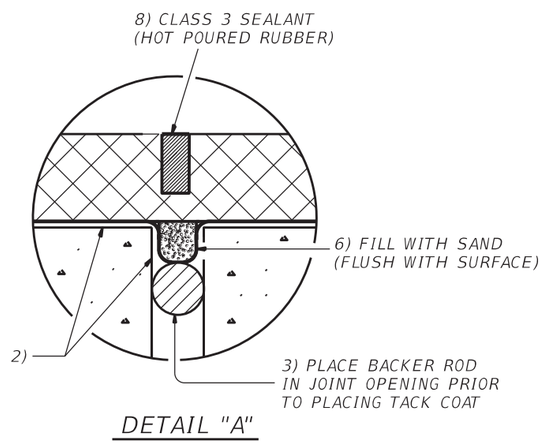
SCALE: 1" = HORIZ. FEET

CHANGE ORDER	FED.RD. DIV. NO.	CONT	SECT	JOB	HIGHWAY
	6	6467	47	001	FM 434,ETC
	STATE	DIST	COUNTY		SHEET NO.
	TEXAS	WACO	MCLENNAN		61

3) A tack coat must be applied if the surface has been milled.



FABRIC JOINT SEAL WITH HOT POURED RUBBER



DETAIL "A"

PROCEDURE FOR CLEANING AND SEALING
FABRIC JOINT SEAL WITH HOT-POURED RUBBER SEAL:

1) Prior to the placment of the fabric joint underseal. Clean joint opening of all old expansions material/devices, bitiminous materials, dirt, grease, and all other deleterious materials in accordance with Item 438, "Cleaning and sealing joints."

2) Repair any significant spalled or cracked areas, as determined by the engineer, around the joint with type II polymer concrete in accordance with DMS-6140, "Polymer Concrete for Joint Systems." This work will be paid for by Item 429, "CNC STR REP (STANDARD)".

3) Place tack coat or binder as required by the fabric joint underseal manufacturer's installation instructions. Place backer rod into joint opening prior to placing tack coat.

4) Place reinforced fabric joint underseal centered over joint opening. Tuck fabric down approximately ½" into the joint opening. Install underseal in accordance with manufactured recommendations.

5) When using the self-adhesive type fabric underseal, pressure roll fabirc joint underseal to improve adhesion.

6) Just prior to paving, fill tucked in portion of underseal with sand flush with surface. Apply a tack coat to fabric joint underseal as required by the manufacturer's instructions. Mark location of centerline of joint on curb or barrier as approved.

7) After the asphaltic concrete pavement operatons are complete, saw cut 1" into the asphalt at centerline of joint. Make multiple saw cuts to create a ¾" joint opening to match the existing joint opening. Whichever is greater. DO NOT DAMAGE THE UNDERSEAL.

8) Seal the joint opening with a Class 3, "Hot Poured Rubber". Seal flush with top of the asphaltic concrete pavement.

STATE OF TEXAS
ROSS L. LANGDALE
126994
LICENSED
PROFESSIONAL ENGINEER

7/12/2024

Ross L. Langdale, P.E.

Texas Department of Transportation

LAYOUT FOR CLEANING AND SEALING JOINTS

FM 927 OVER GRAHAM CREEK
09-018-0-0422-01-021

SCALE: 1" = HORIZ. FEET

SHEET 2 OF 2

CHANGE ORDER	FED.RD. DIV. NO.	CONT	SECT	JOB	HIGHWAY
	6	6467	47	001	FM 434,ETC
	STATE	DIST	COUNTY		SHEET NO.
	TEXAS	WACO	MCLENNAN		62

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7/9/2024
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NODE

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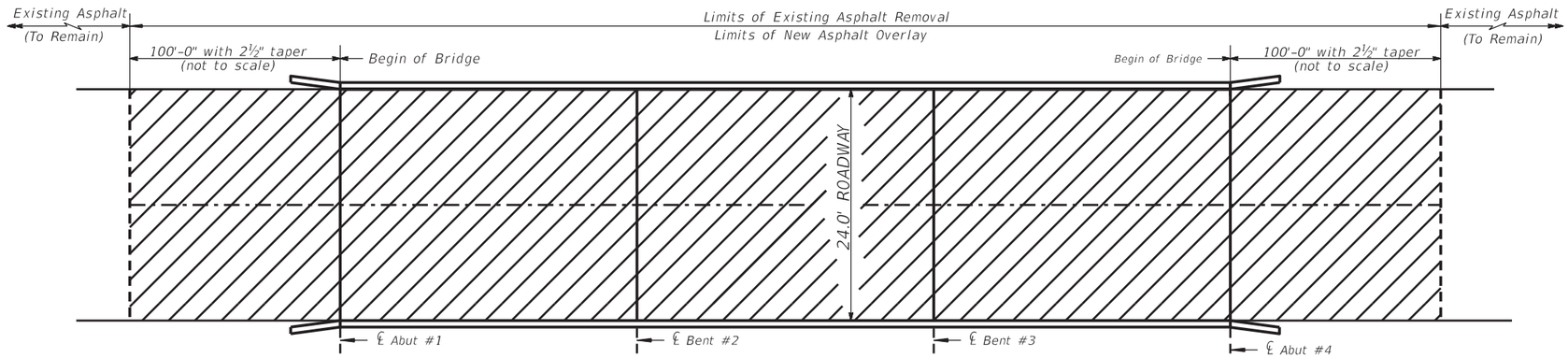
7/9/2024



ROADWAY PLAN

FM 927 OVER GRAHAM CREEK

(NBI # 09-018-0-0422-01-021)
(SHOWING LIMITS OF MILLING/OVERLAY)

NOTE: REMOVE APPROX. 2" OF EXISTING OVERLAY DOWN TO BRIDGE DECK

FM 927 OVER GRAHAM CREEK
90'-0" OVERALL LENGTH
(3 @ 30'-0") CONC. GIRDER SPAN
23'-4½" ROADWAY
24'-8½" OVERALL WIDTH

General Notes:

1. **Mill existing asphalt completely of the bridge deck**
2. **Repair any damaged exposed deck surface or bridge joints in accordance with Items 429, "Concrete Structure Repair" and Item 438, "Cleaning and Sealing Joints".**
3. **Prepare expansio joints in accordance with joint repair details.**
4. **Construct underseal course and final surfacing with a 2" D-GR HMA TY-C PG70-22.**
5. **Clean and seal bridge joints in accordance with joint repair details.**

ESTIMATED QUANTITIES

ITEM	341-7037	354-7035	3006-7001
LOCATION	D-GR HMA TY-C-SAC-B PG70-22 (EXEMPT)	PLANE ASPH CONC. PAV (0' to 6")	UNDERSEAL COURSE
	TON	S.Y.	GAL.
STR. #021 FM 927 OVER GRAHAM CREEK	85.0	773.0	155.0
TOTAL	85.0	773.0	155.0

STATE OF TEXAS
ROSS L. LANGDALE
126994
LICENSED
PROFESSIONAL ENGINEER

7/12/2024

Ross L Langdale, P.E.

Texas Department of Transportation

MILLING AND OVERLAY DETAILS

FM 927 OVER GRAHAM CREEK
09-018-0-0422-01-021

SCALE: 1" = FEET HORIZ.

SHEET 1 OF 1

CHANGE ORDER	FED.RD. DIV. NO.	CONT	SECT	JOB	HIGHWAY
	6	6467	47	001	FM 434,ETC
	STATE	DIST	COUNTY		SHEET NO.
	TEXAS	WACO	MCLENNAN		63

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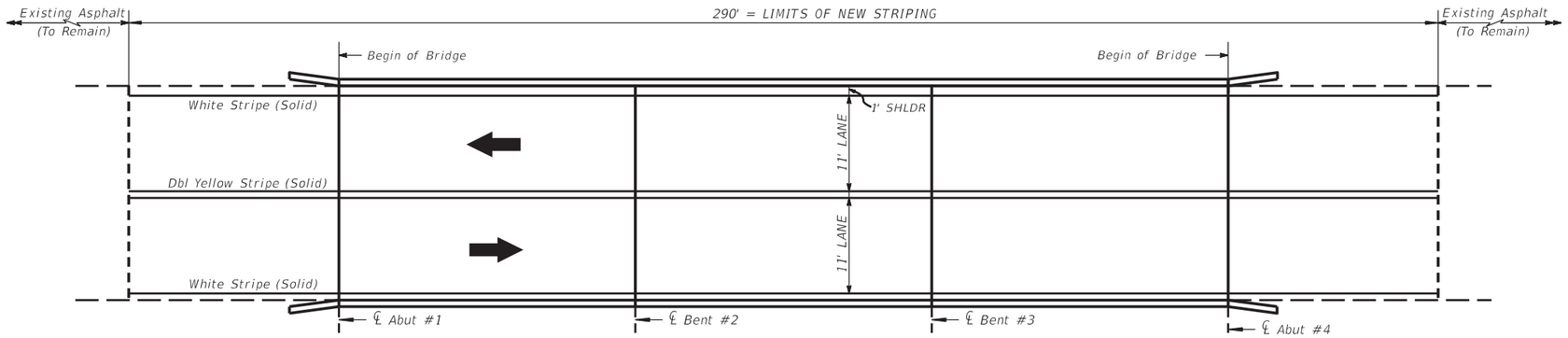
NODE



LAYOUT PLAN
FM 927 OVER GRAHAM CREEK
(NBI # 09-018-0-0422-01-021)

FM 927 OVER GRAHAM CREEK
90'-0" OVERALL LENGTH
(3 @ 30'-0") CONC. GIRDER SPAN
23'-4½" ROADWAY
24'-8½" OVERALL WIDTH

ESTIMATED QUANTITIES

ITEM	662-7114	666-7411	666-7423	672-7004
LOCATION	WK ZN PAV MRK SHT TERM (TAB) TY Y-2	REFL PAV MRK TY 1 (W) 6" (SLD) (100MIL)	REFL PAV MRK TY 1 (Y) 6" (SLD) (100MIL)	REFL PAV MRKR TY II-A-A
	EA	LF	LF	EA
STR. #021 FM 927 OVER GRAHAM CREEK	15.0	580.0	580.0	7.0
TOTAL	15.0	580.0	580.0	7.0

STATE OF TEXAS
ROSS L. LANGDALE
126994
LICENSED
PROFESSIONAL ENGINEER
7/12/2024
Ross L. Langdale, P.E.

Texas Department of Transportation

STRIPING DETAILS

FM 927 OVER GRAHAM CREEK
09-018-0-0422-01-021

SCALE: 1" = HORIZ. FEET

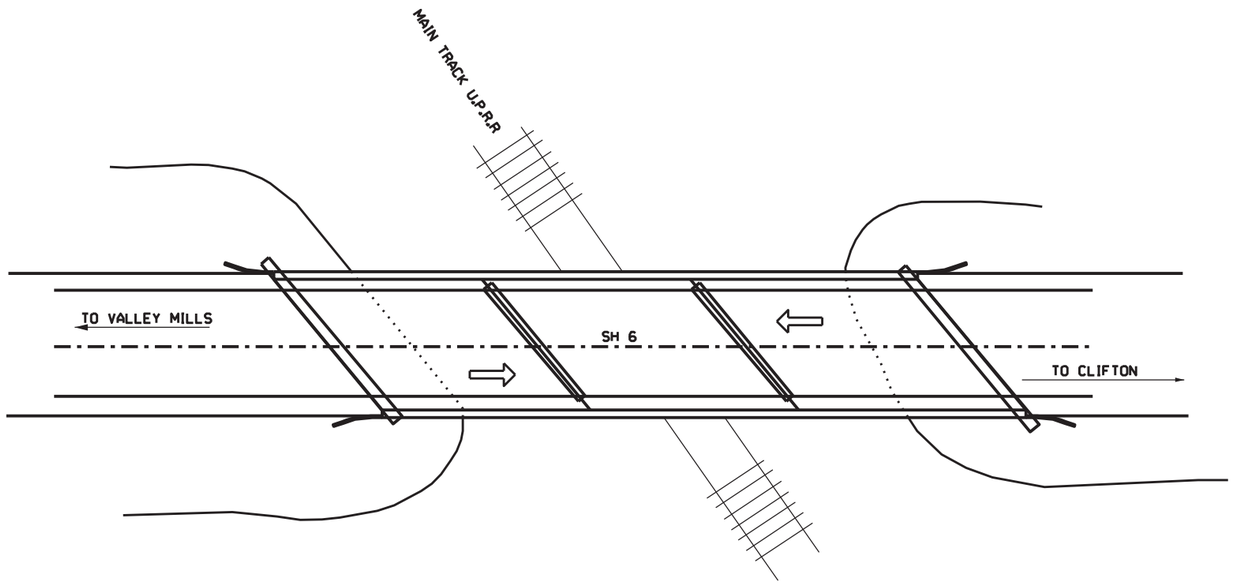
SHEET 1 OF 1

CHANGE ORDER	FED.RD. DIV. NO.	CONT	SECT	JOB	HIGHWAY
	6	6467	47	001	FM 434,ETC
	STATE	DIST	COUNTY		SHEET NO.
	TEXAS	WACO	MCLENNAN		64

FOR LOCATION REPAIR DETAILS REFER TO:

ZONE PAINTING LAYOUT

AS-BUILT PLAN SET: 0258-07-038



NOTE:
THIS SKETCH IS TO BE USED AS AN APPROXIMATE GUIDE FOR MAINTENANCE WORK TO BE PERFORMED IN THE VICINITY OF THIS EXISTING STRUCTURE.

LOCATION: SH 6 @ BSNF RR
NBI#: 09-018-0-0258-07-038
DIMENSIONS: 150'x 30' BRIDGE
SKEW: 40° SKEW
GPS LAT/LON: 31.67505876/-97.513694

LEGEND:

- EMBANKMENT
- EXCAVATION
- CONCRETE RIP RAP
- STONE RIP RAP
- FLOWABLE BACKFILL

GENERAL VICINITY LAYOUT
NTS
DRAWING NOT TO SCALE

GENERAL NOTES:

1. WHEN DIRECTED SURPLUS MATERIAL ESTIMATED AT INDIVIDUAL LOCATIONS MAY BE USED AT OTHER CONTRACT SITES.
2. IF STONE PROTECTION IS REQUIRED, THE DETAILS SHOWN ARE PROVIDED AS AN APPROXIMATE GUIDE FOR INSTALLATION OF STONE PROTECTION. THE CONTRACTOR WILL DETERMINE THE LIMITS OF STONE PROTECTION REQUIRED AS DICTATED BY FIELD CONDITIONS AND AS DIRECTED PRIOR TO MATERIAL PURCHASE AND DELIVERY.
3. IF NO PAY ITEM FOR DEBRIS REMOVAL IS NOTED; DEBRIS WILL BE REMOVED FROM BRIDGE STRUCTURE ELEMENTS. THIS WILL NOT BE PAID FOR DIRECTLY, BUT CONSIDERED SUBSIDIARY TO THE VARIOUS BID ITEMS.
4. THE CONTRACTOR WILL LIMIT CHANNEL DISTURBING ACTIVITIES TO THE VICINITY OF STRUCTURE AND TxDOT ROW. CONSTRUCTION WILL HAVE EROSION CONTROL BMP IN PLACE DURING ANY SOIL DISTURBING ACTIVITY.
5. IF NO PAY ITEM FOR BRUSH REMOVAL IS NOTED; BRUSH CLEARING FOR EXCAVATION AND EMBANKMENT WILL NOT BE PAID DIRECTLY, BUT CONSIDERED SUBSIDIARY TO THE VARIOUS BID ITEMS.
6. THE CONTRACTOR MUST EXHAUST ALL TYPE-D EMBANKMENT AVAILABLE AT SITE PRIOR TO DELIVERY OF TYPE-B.
7. IF JOINT SEAL IS REQUIRED FOR RIP RAP, THE QUANTITY SHOWN IS FOR ESTIMATION ONLY. THE CONTRACTOR WILL DETERMINE THE LIMITS OF SEALANT AS DICTATED BY FIELD CONDITIONS AND AS DIRECTED. JOINTS TOO LARGE FOR SEALANT MAY BE SEALED BY FLOWABLE BACKFILL AS DIRECTED. REFER TO DMS-6100 FOR MATERIAL SPECIFICATIONS.
8. LOCATIONS WHERE FENCING MUST BE ALTERED; AT ALL TIMES CONTRACTOR WILL MAINTAIN ADEQUATE BARRIER TO KEEP LIVESTOCK FROM ENTERING ROW. WHEN POSSIBLE REPLACE FENCING TO MATCH ORIGINAL. THIS WILL NOT BE PAID FOR DIRECTLY, BUT CONSIDERED SUBSIDIARY TO THE VARIOUS BID ITEMS.

ITEM-DESC	DESCRIPTION	UNITS	TOTAL
401-7001	FLOWABLE BACKFILL	CY	9.0
429-7007	CONC STR REPAIR (VERTICAL & OVERHEAD)	SF	160.0
776-7001	REPAIR (STEEL RAIL)	LF	11.0
4010-7001	STEEL BRIDGE ZONE PAINTING REF STR #1	EA	1.0
7001-7002	BENT CAP/ABUTMENT CAP CLEANING	EA	4.0

CONTRACTOR'S INFORMATION ONLY

STATE OF TEXAS
CHARLES W. SMITH
110312
LICENSED PROFESSIONAL ENGINEER

The seal appearing on this document was authorized by CHARLES W. SMITH P.E. 110312, on

Charles W. Smith, PE 7/12/2024

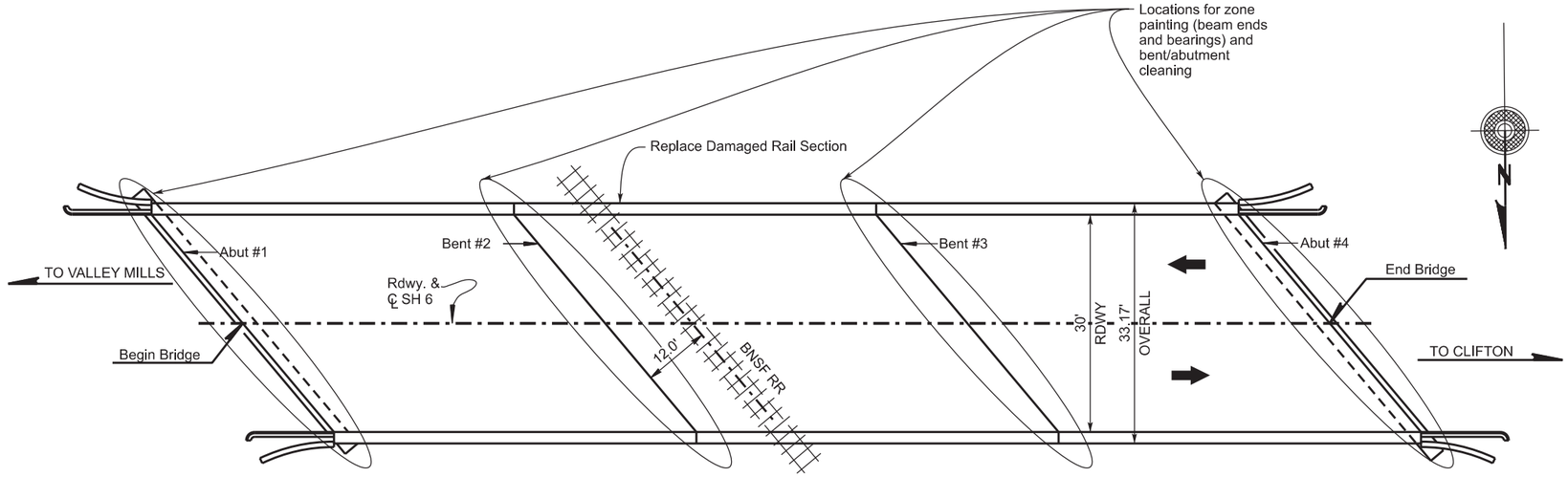
Texas Department of Transportation

BOSQUE COUNTY
STRUCTURE LAYOUT
SH 6 @ BNSF RR
NBI# 09-014-0-0258-07-038

SCALE: NTS

DESIGN	FED RD DIV No.	PROJECT No.		HIGHWAY No.
ZB	6	BPM 6467-47-001		FM 434,ETC
CHECK	STATE	DISTRICT	COUNTY	SHEET No.
CS	TEXAS	WACO	MCLENNAN	65
GRAPHICS	CONTROL	SECTION	JOB	
DL	6467	47	001	
CHECK				
CS				

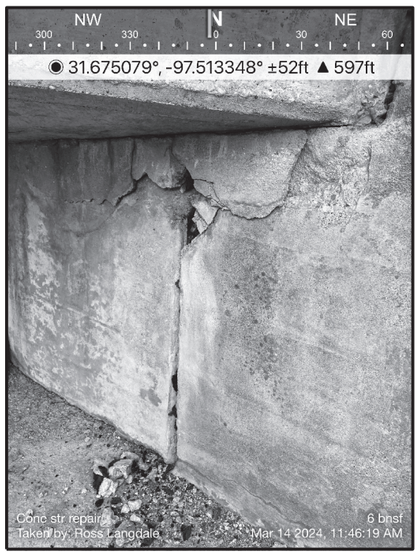
...\0258-07-038.dgn

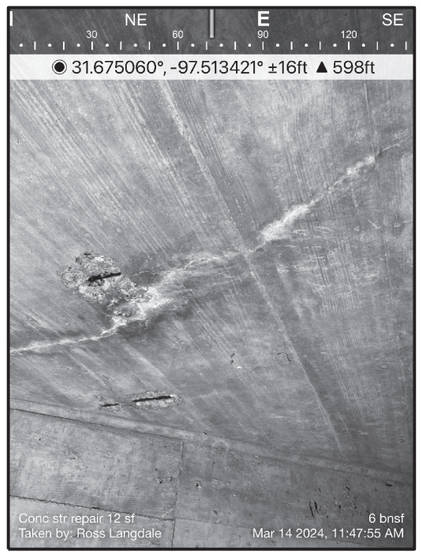


150'-0" OVERALL ~ 3 - 50'-0"
STEEL I-BEAM SPANS
(SPL. 40° RFS.)
30'-0" RDWY. TYPE 3 RAIL

LAYOUT PLAN

SH 6 OVER BNSF RAILROAD
NBI # 09-018-0-0158-07-038





TYPICAL CONC STR REPAIR LOCATIONS

(LOCATIONS AS APPROVED BY THE ENGINEER)

ESTIMATED QUANTITIES

ITEM	DESCRIPTION	UNIT	QTY
0401-7001	FLOWABLE BACKFILL	C.Y.	9.0
0429-7007	CONC STR REPAIR (VERTICAL & OVERHEAD)	S.F.	160.0
0776-7001	REPAIR (STEEL RAIL)	L.F.	11.0
4010-7001	STEEL BRIDGE ZONE PAINTING REF STR #1	E.A.	1.0
7001-7002	BENT CAP/ABUTMENT CAP CLEANING	E.A.	4.0

GENERAL NOTES

Repair locations and quantities are approximate and based on conditions surveyed in March 2024. Current conditions may vary. Contractor must field verify locations and extent of repairs in the presence of the Engineer an prior to ordering materials and performing any work.

See ZONE PAINTING DETAILS for additional information.

Damaged metal rail is to be replaced with in-kind railing as shown on the supplemental railing sheet. Length is to be determined in the field for Engineer approval prior to ordering materials.

CONSTRUCTION NOTES

Submit a detailed concrete repair procedure for approval. Perform any concrete repairs in accordance with Item 429, "Concrete Structure Repair" and TxDOT's Concrete Repair Manual, Chapter 3, Sections 1 and 2. A copy of this manual must be available onsite during all concrete repair operations.

Provide an approved Type C concrete repair material conforming to DMS 4655 for minor and intermediate, vertical or overhead spall repairs. Follow all manufacturer recommendations for preparation, application, and curing of repair materials.

Remove all damaged, loose, or delaminated concrete without damaging surrounding sound concrete that is to remain in place. Only use hand tools or power-driven chipping hammers (15 lb max) to remove concrete, unless otherwise approved by the Engineer. Clean all reinforcement exposed after concrete removal.

Additional damage cause to the structure during repair operations must be repaired at the Contractor's expense.

All zone painting work must only be performed once all other repairs at or near zone painting locations have been completed.

STATE OF TEXAS
ROSS L. LANGDALE
126994
LICENSED
PROFESSIONAL ENGINEER

7/12/2024

Ross L Langdale, P.E.

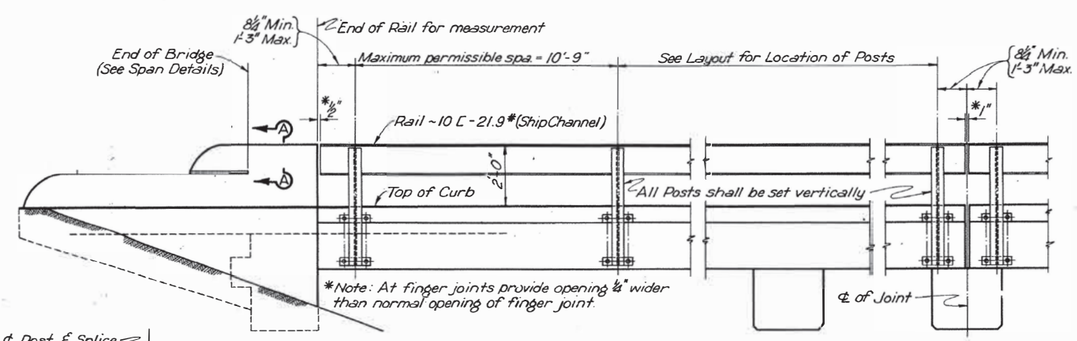
Texas Department of Transportation

ZONE PAINTING LAYOUT

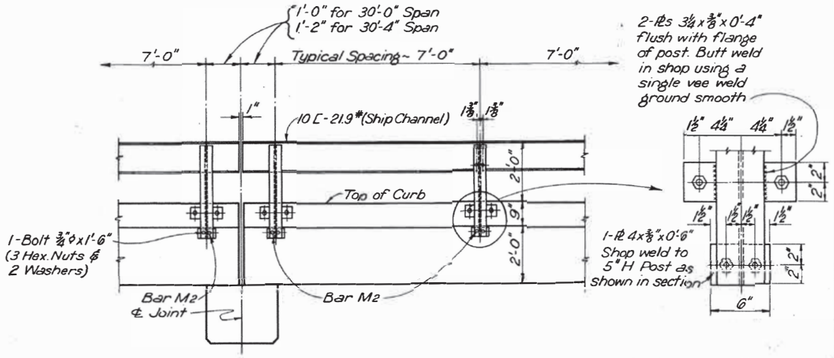
SH 6 OVER BNSF RAILROAD
NBI # 09-018-0-0258-07-038

SCALE: 1" = 20'HORIZ. FEET

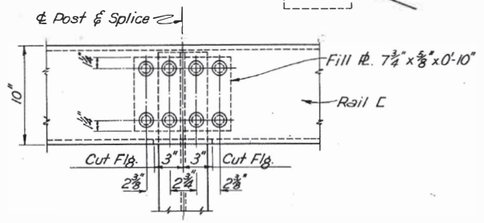
CHANGE ORDER	FED.RD. DIV. NO.	CONT	SECT	JOB	HIGHWAY
	6	6467	47	001	FM 434,ETC
	STATE	DIST	COUNTY		SHEET NO.
	TEXAS	WACO	MCLENNAN		66



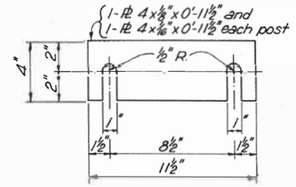
ELEVATION - OUTSIDE FACE



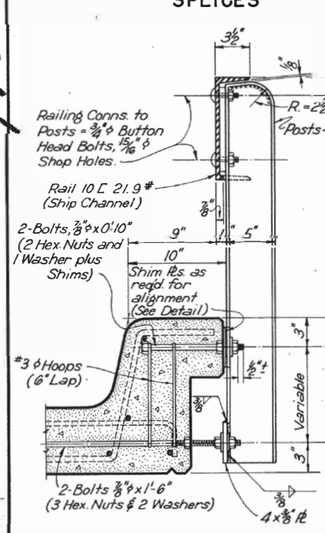
ELEVATION - OUTSIDE FACE
30'-0" & 30'-4" CONC. SLAB AND GIRDER SPANS



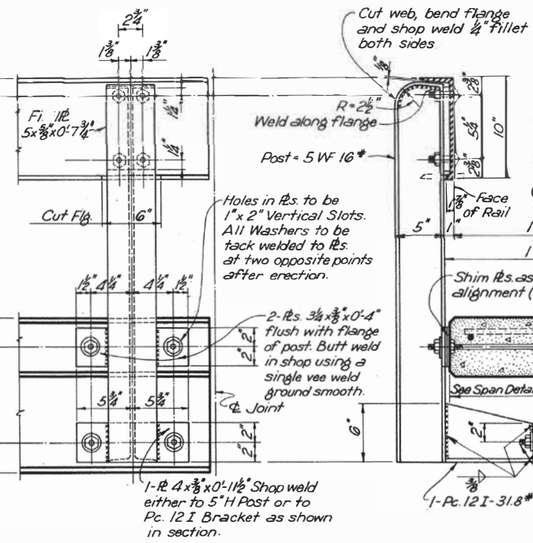
SPLICES



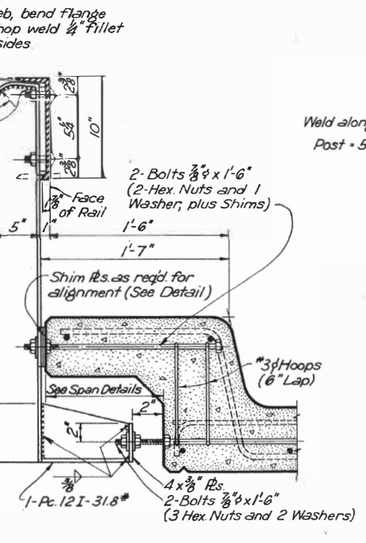
SHIM DETAIL



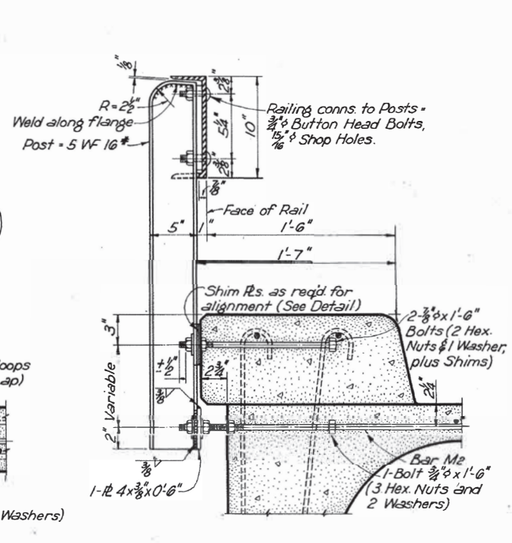
SECTION - 9" CURBS



OUTSIDE ELEVATION



SECTION - 18" CURBS



SECTION - 18" CURBS
30'-0" & 30'-4" CONC. SLAB AND GIRDER SPANS

GENERAL NOTES:

Rail sections may be of two panel lengths or continuous for a number of panel lengths not to exceed 50'-0" length.

All anchorage provisions, including bolts, nuts, washers, shim plates and #3 hoops around bolts, are considered parts of the railing.

The lower anchor bolts for posts at the acute angle ends of skewed spans shall be bent as required to provide a maximum penetration of bolts into slab, and to provide a minimum cover of 1½" for the bolt.

At posts where railing channel is spliced provide ⅛" opening between ends of channel, tighten ¾"ϕ bolts and then back off ½ turn and burr threads.

Rail Post anchor bolts, nuts and washers shall, after shop fabrication, be cadmium coated by the Udylite Process in accordance with A.S.T.M. Spec. A 165 or Galvanized in accordance with A.S.T.M Spec. 153

All Posts shall be set vertically.

If the metal railing is properly cleaned by sand-blasting or pickling the shop coat of Paint may be applied by spray.

TEXAS HIGHWAY DEPARTMENT

STANDARD RAILING TYPE 3

Dn. - THD	
Ck. Dn. - THD	
Dw. - HJD	
Ck. Dw. - JEA	
Tr. - OCK	
Ck. Tr. - HJD	

Texas Department of Transportation

ZONE PAINTING LAYOUT

SH 6 OVER BNSF RAILROAD
NBI # 09-018-0-0258-07-038

SHEET 2 OF 2

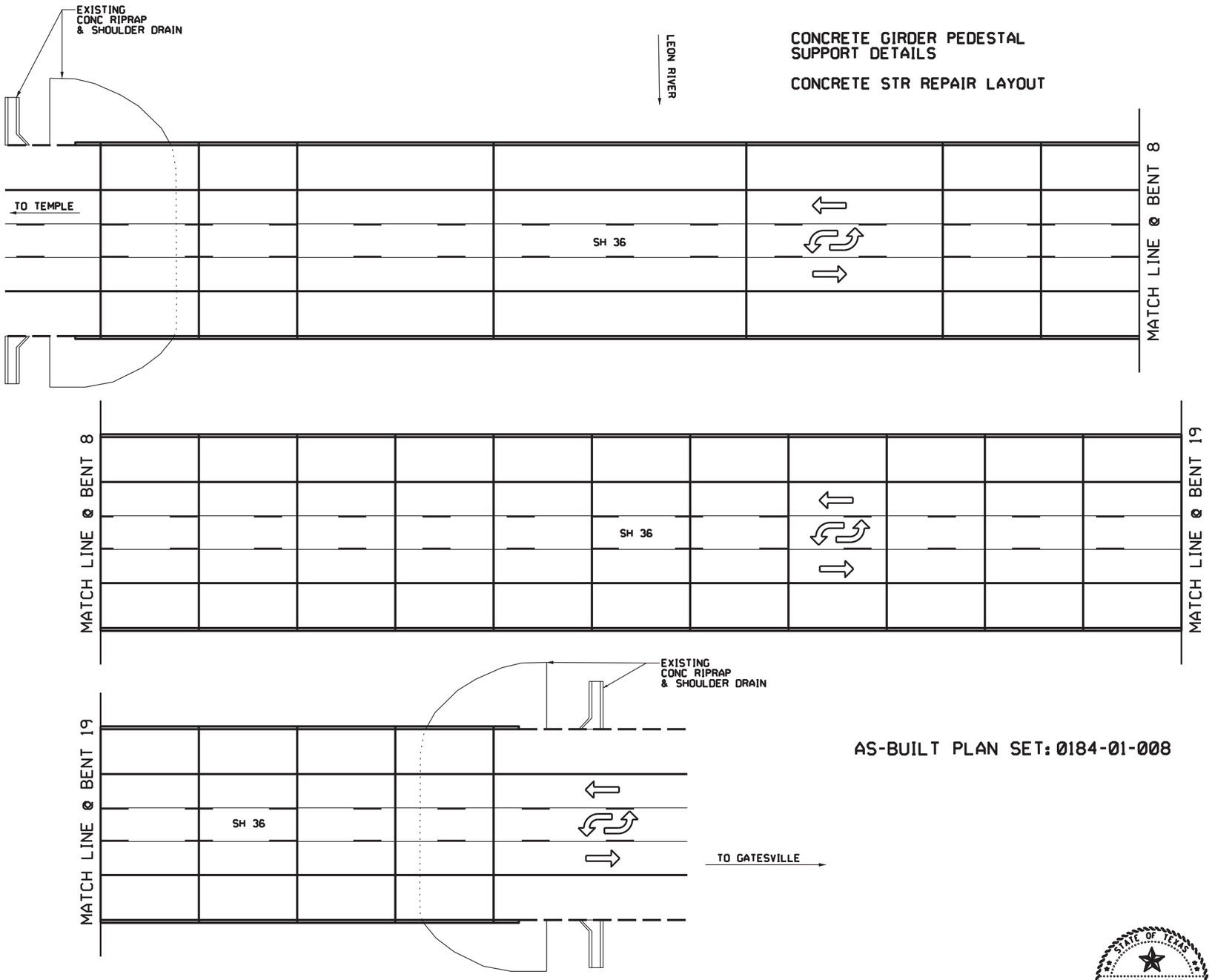
CHANGE ORDER	FED.RD. DIV. NO.	CONT	SECT	JOB	HIGHWAY
	6	6467	47	001	FM 434,ETC
	STATE	DIST	COUNTY		SHEET NO.
	TEXAS	WACO	MCLENNAN		66A

FOR CONTRACTOR'S INFORMATION ONLY FROM CSJ 0258-07-016

FOR LOCATION REPAIR DETAILS REFER TO:

CONCRETE GIRDER PEDESTAL SUPPORT DETAILS

CONCRETE STR REPAIR LAYOUT



LEGEND:

- EMBANKMENT
- EXCAVATION
- CONCRETE RIP RAP
- STONE RIP RAP
- FLOWABLE BACKFILL

GENERAL VICINITY LAYOUT
NTS
DRAWING NOT TO SCALE

GENERAL NOTES:

1. WHEN DIRECTED SURPLUS MATERIAL ESTIMATED AT INDIVIDUAL LOCATIONS MAY BE USED AT OTHER CONTRACT SITES.
2. IF STONE PROTECTION IS REQUIRED, THE DETAILS SHOWN ARE PROVIDED AS AN APPROXIMATE GUIDE FOR INSTALLATION OF STONE PROTECTION. THE CONTRACTOR WILL DETERMINE THE LIMITS OF STONE PROTECTION REQUIRED AS DICTATED BY FIELD CONDITIONS AND AS DIRECTED PRIOR TO MATERIAL PURCHASE AND DELIVERY.
3. IF NO PAY ITEM FOR DEBRIS REMOVAL IS NOTED; DEBRIS WILL BE REMOVED FROM BRIDGE STRUCTURE ELEMENTS. THIS WILL NOT BE PAID FOR DIRECTLY, BUT CONSIDERED SUBSIDIARY TO THE VARIOUS BID ITEMS.
4. THE CONTRACTOR WILL LIMIT CHANNEL DISTURBING ACTIVITIES TO THE VICINITY OF STRUCTURE AND TxDOT ROW. CONSTRUCTION WILL HAVE EROSION CONTROL BMP IN PLACE DURING ANY SOIL DISTURBING ACTIVITY.
5. IF NO PAY ITEM FOR BRUSH REMOVAL IS NOTED; BRUSH CLEARING FOR EXCAVATION AND EMBANKMENT WILL NOT BE PAID DIRECTLY, BUT CONSIDERED SUBSIDIARY TO THE VARIOUS BID ITEMS.
6. THE CONTRACTOR MUST EXHAUST ALL TYPE-D EMBANKMENT AVAILABLE AT SITE PRIOR TO DELIVERY OF TYPE-B.
7. IF JOINT SEAL IS REQUIRED FOR RIP RAP, THE QUANTITY SHOWN IS FOR ESTIMATION ONLY. THE CONTRACTOR WILL DETERMINE THE LIMITS OF SEALANT AS DICTATED BY FIELD CONDITIONS AND AS DIRECTED. JOINTS TOO LARGE FOR SEALANT MAY BE SEALED BY FLOWABLE BACKFILL AS DIRECTED. REFER TO DMS-6100 FOR MATERIAL SPECIFICATIONS.
8. LOCATIONS WHERE FENCING MUST BE ALTERED; AT ALL TIMES CONTRACTOR WILL MAINTAIN ADEQUATE BARRIER TO KEEP LIVESTOCK FROM ENTERING ROW. WHEN POSSIBLE REPLACE FENCING TO MATCH ORIGINAL. THIS WILL NOT BE PAID FOR DIRECTLY, BUT CONSIDERED SUBSIDIARY TO THE VARIOUS BID ITEMS.

AS-BUILT PLAN SET: 0184-01-008

ITEM-DESC	DESCRIPTION	UNITS	TOTAL
429-7009	CONC STR REPAIR (STANDARD)	SF	30.0
442-7007	STR STEEL (PEDESTAL)	LB	378.0
495-7001	RAISING EXIST STRUCTURE	EA	1.0
7001-7002	BENT CAP/ABUTMENT CAP CLEANING	EA	6.0

CONTRACTOR'S INFORMATION ONLY

NOTE:
THIS SKETCH IS TO BE USED AS AN APPROXIMATE GUIDE FOR MAINTENANCE WORK TO BE PERFORMED IN THE VICINITY OF THIS EXISTING STRUCTURE.

LOCATION: SH 36 @ LEON RIVER
NBI#: 09-050-0-0184-01-008
DIMENSIONS: 895'x 68' BRIDGE
SKEW: 0° SKEW
GPS LAT/LON: 31.38431252/-97.7020603

STATE OF TEXAS
CHARLES W. SMITH
110312
LICENSED PROFESSIONAL ENGINEER

The seal appearing on this document was authorized by CHARLES W. SMITH P.E. 110312, on

Charles W. Smith, PE 7/12/2024

CORYELL COUNTY
STRUCTURE LAYOUT
SH 36 @ LEON RIVER
NBI# 09-050-0-0184-01-008

SCALE: NTS

DESIGN	FED RD DIV No.	PROJECT No.		HIGHWAY No.
ZB	6	BPM 6467-47-001		FM 434,ETC
CHECK CS	STATE	DISTRICT	COUNTY	SHEET No.
GRAPHICS DL	TEXAS	WACO	MCLENNAN	67
CHECK CS	CONTROL	SECTION	JOB	
	6467	47	001	

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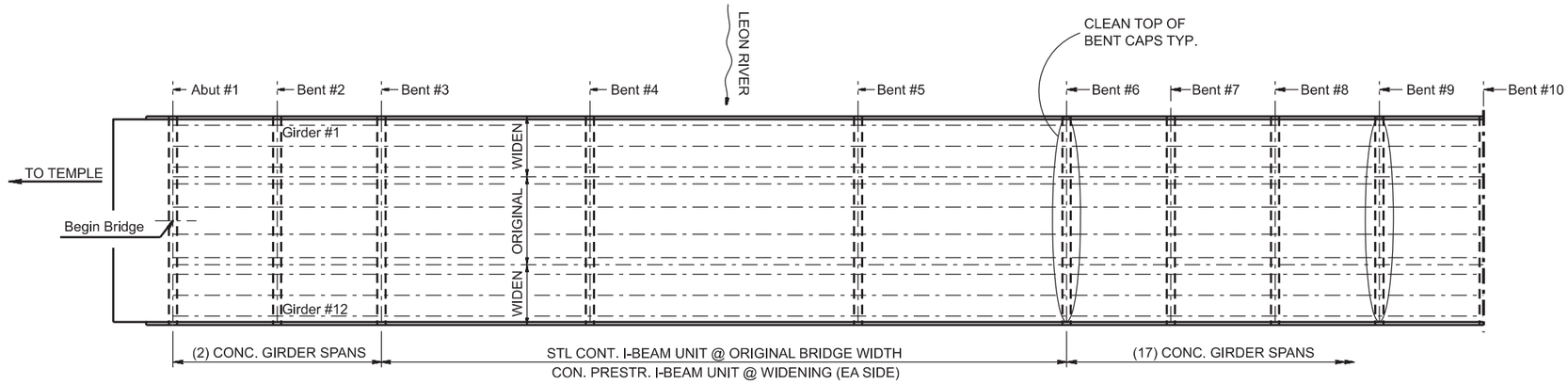
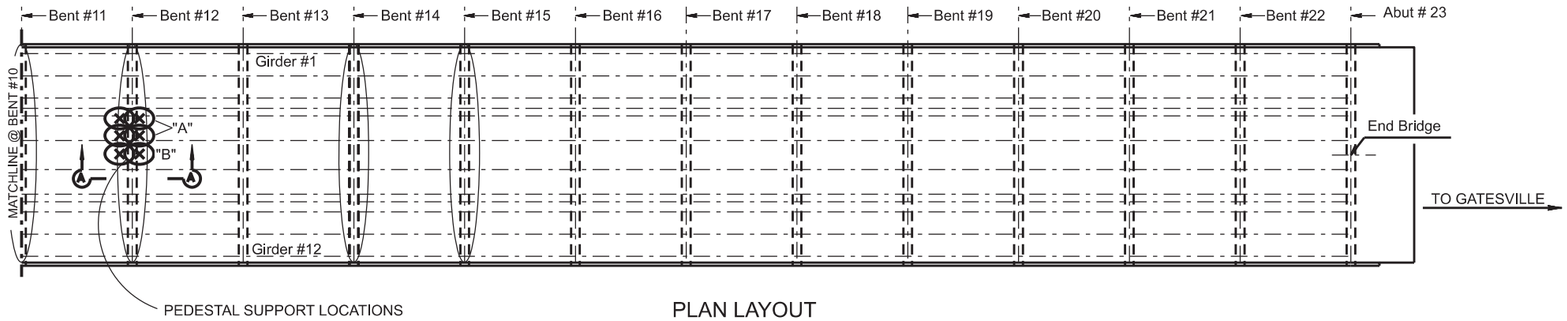
7/9/2024





See CONC GIRDER PEDESTAL SUPPORT DETAILS for additional information.

PLAN LAYOUT

SH 36 OVER LEON RIVER

(NBI # 09-050-0-0184-01-008)

NOTES:

Obtain approval for all tools, equipment, materials, and techniques proposed for use to repair spaled/delaminated concrete.

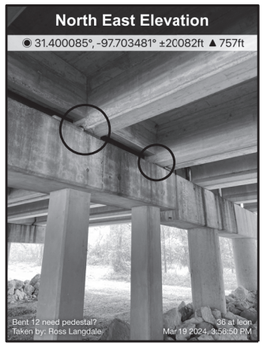
If no pay item for brush removal is noted; brush clearing to perform required work will not be paid for directly, but will be considered subsidiary to the various bid items.

Provide materials as outlined in the CONCRETE REPAIR MANUAL.

Provide repair materials suitable for the appropriate horizontal, vertical, or overhead application meeting the requirements in DMS-4655, "Concrete Repair Material."

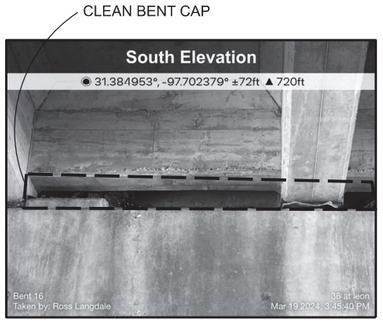
All materials and labor required for repairing spalled/delaminated areas shall be included in the price bid per SF for Item: CONC STR REPAIR (VERTICAL & OVERHEAD)

SH 36 OVER LEON RIVER
895' OVERALL LENGTH CONSISTING OF:
2 @ 35'-0" CONC. GIRDER SPANS
230'-0" (70', 90', 70') CONT. PRESTRESSED UNIT (@ WIDENING)
230'-0" (70', 90', 70') CONT. STEEL I-BEAM UNIT (@ EXISTING)
17 @ 35'-0" CONC. GIRDER SPANS
68'-0" ROADWAY, NORMAL BENTS
TYPE T202 RAIL



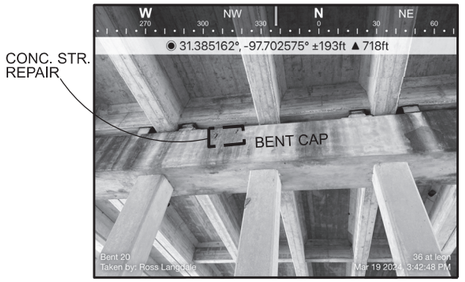
BENT #12

SHOWING LIMITS OF CRACKING @ BEARING



BENT # 16

SHOWING LIMITS OF REPAIR



BENT #20

SHOWING LIMITS OF REPAIR

ESTIMATED QUANTITIES

ITEM	DESCRIPTION	UNIT	QTY
0429-7009	CONC STR REPAIR (STANDARD)	S.F.	30.0
0442-7007	STR STEEL (PEDESTAL)	L.B.	378.0
0495-7001	RAISING EXIST STRUCT	E.A.	1.0
07001-7002	BENT CAP/ABUMENT CAP CLEANING	E.A.	6.0

STATE OF TEXAS
ROSS L. LANGDALE
126994
LICENSED
PROFESSIONAL ENGINEER

7/12/2024

Ross L Langdale, P.E.

Texas Department of Transportation

CONC STR REPAIR LAYOUT

SH 36 OVER LEON RIVER

(NBI # 09-050-0-0184-01-008)

SCALE: 1" = HORIZ. FEET

SHEET 1 OF 1

CHANGE ORDER	FED.RD. DIV. NO.	CONT	SECT	JOB	HIGHWAY
	6	6467	47	001	FM 434,ETC
	STATE	DIST	COUNTY		SHEET NO.
	TEXAS	WACO	MCLENNAN		68

10:07:37 AM

7/9/2024

$FILE&$

NODE

10:07:38 AM

7/9/2024

ESTIMATED QUANTITIES

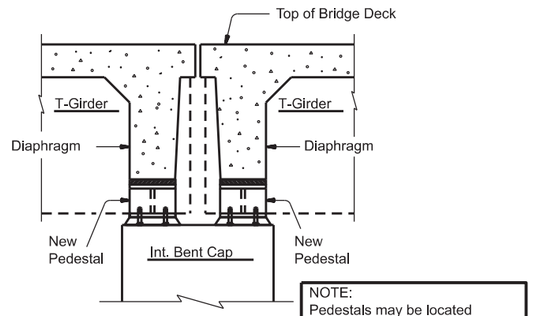
ITEM	442-6011	*	*
STR. #008 SH 36 OVER LEON RIVER	STR STEEL (PEDESTAL)	5/8" DIA. BOLTS	1" NEOPRENE PADS
	LB	EA	EA
LOCATION "A"	252	8	4
LOCATION "B"	126	4	2
TOTAL	378	12	6

* FOR CONTRACTOR'S INFORMATION ONLY

*SUMMARY OF STEEL PLATE

MK	SIZE	NO. REQ'D.	WEIGHT (LB)
(1)	¾" X 9" X 9"	6	103.5
(2)	¾" X 9" X 9"	6	103.5
(3)	¾" X 9" X 5 ½"	12	126
(4)	¾" X 6 ½" X 5 ½"	6	45
		TOTAL	378

*FOR CONTRACTOR'S INFORMATION ONLY



SECTION A-A

(SHOWING PEDESTAL PLACEMENT)

(BENT #12)

PEDESTAL PLACEMENT PROCEDURES:

1. Provide Temporary Jacks for stabilizing the Interior Diafram/Girder, prior to installing Pedestal Supports. The Jacks should be placed between the top of Interior Bent Cap and bottom of Interior Diafram at locations approved by the Engineer. Jacks to remain in place until the pedestals are securely tightened in position.

2. Minimal raising of Diafram/T-Girder may be required due to settlement at Spalled End Girder. Perform work in accordance with Item 495, RAISING EXIST STRUCT". Jacking will be done simultaneously for all pedestals at the end of span. See CONC STR REPAIR LAYOUT Sheet for locations and placement details. Cease lifting operations and contact Engineer immediately if jacking causes damage to the deck, beams, diaphragms or Bent Caps.

GENERAL NOTES

PEDESTAL SUPPORTS AS DETAILED ON THIS DRAWING SHALL BE INSTALLED AT THE LOCATIONS IDENTIFIED ON THE BRIDGE LAYOUTS. THE CONTRACTOR SHALL BE RESPONSIBLE FOR VERIFYING ALL PEDESTAL HEIGHT DIMENSIONS PRIOR TO SUPPORT FABRICATION.
THE CONTRACTOR SHALL CLEAN THE SURFACES OF THE EXISTING BENT CAPS WHERE PEDESTAL SUPPORTS ARE TO BE PLACED, AND ROUGHEN THE CONCRETE SURFACE USING AIR-HAMMER OR SIMILAR TOOL.
THE PEDESTAL SUPPORTS SHALL BE SET IN PLACE AS SHOWN BY TYPE OF PEDESTAL SPECIFIED ON THE BRIDGE LAYOUTS. THE 5/8 " DIA. ERECTION BOLTS SHALL BE TURNED IN SUCH A MANNER UNTIL THE NEOPRENE BEARING PAD BETWEEN THE TOP OF THE PEDESTAL AND THE BOTTOM OF THE DIAPHRAGM IS SECURELY SEATED IN PLACE. 3/8 " SHIM PLATES MAY BE PLACED BETWEEN THE TOP OF THE PEDESTAL SUPPORTS AND NEOPRENE PAD (IF NEEDED) TO PROVIDE ADDED HEIGHT TO THE SUPPORT ASSEMBLY IN ORDER TO ENSURE PROPER SEATING OF THE NEOPRENE PAD. THE VOID BETWEEN THE TOP OF THE CAP AND BOTTOM OF THE PEDESTAL SUPPORT SHALL THEN BE FILLED WITH NON-SHRINK GROUT AS SHOWN.

FABRICATION, GALVANIZING, AND INSTALLATION OF PEDESTAL SUPPORTS SHALL BE PAID FOR BY THE UNIT PRICE BID FOR STRUCTURAL STEEL (PEDESTAL). ALL OTHER MATERIALS AND WORK INCLUDING ERECTION BOLTS, NEOPRENE BEARING PADS, NON-SHRINK GROUT, AND CLEANING AND PREPARATION OF CONCRETE SURFACES SHALL NOT BE PAID FOR DIRECTLY BUT WILL BE CONSIDERED SUBSIDIARY TO THE PAY ITEM STRUCTURAL STEEL (PEDESTAL).

STRUCTURAL STEEL FOR PEDESTAL SUPPORTS AND SHIM PLATES SHALL CONFORM TO THE REQUIREMENTS OF ASTM A36. ⅝" DIA. ERECTION BOLTS SHALL CONFORM TO THE REQUIREMENTS OF ASTM A307, GRADE A. SUPPORT PEDESTALS, SHIM PLATES, AND ERECTION BOLTS SHALL BE HOT-DIP GALVANIZED. NEOPRENE BEARING PADS SHALL BE 70 DUROMETER NEOPRENE. EPOXY GROUT SHALL BE IN ACCORDANCE WITH TXDOT SPECIFICATION DMS-6100.

CONTRACTOR SHALL BE RESPONSIBLE FOR MEASURING THE DISTANCE BETWEEN TOP OF CAP AND BOTTOM OF DIAPHRAGM TO DETERMINE THE HEIGHT AND TYPE OF PEDESTAL SUPPORT TO BE USED AT EACH SPECIFIED LOCATION.

SH 36 OVER LEON RIVER
895' OVERALL LENGTH CONSISTING OF:
2 @ 35'-0" CONC. GIRDER SPANS
230'-0" (70', 90', 70') CONT. PRESTRESSED UNIT (@ WIDENING)
230'-0" (70', 90', 70') CONT. STEEL I-BEAM UNIT (@ EXISTING)
17 @ 35'-0" CONC. GIRDER SPANS
68'-0" ROADWAY, NORMAL BENTS
TYPE T202 RAIL

STATE OF TEXAS
ROSS L. LANGDALE
126994
LICENSED
PROFESSIONAL ENGINEER

7/12/2024

Ross L Langdale, P.E.

Texas Department of Transportation

CONC GIRDER PEDESTAL SUPPORT DETAILS

SH 36 OVER LEON RIVER
(NBI # 09-050-0-0184-01-008)

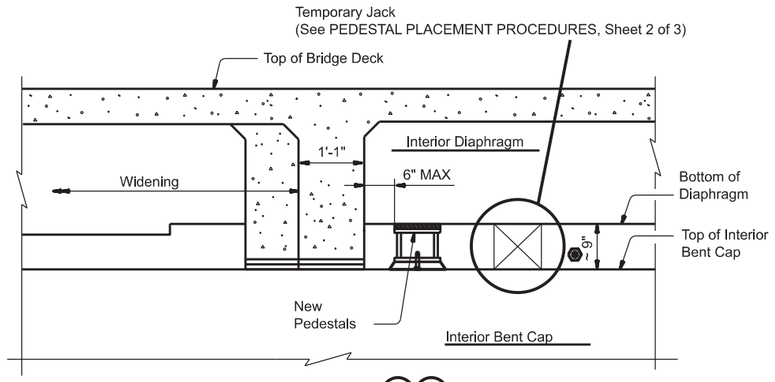
SCALE: 1" = FEET HORIZ.

SHEET 1 OF 2

CHANGE ORDER	FED.RD. DIV. NO.	CONT	SECT	JOB	HIGHWAY
	6	6467	47	001	FM 434,ETC
	STATE	DIST	COUNTY		SHEET NO.
	TEXAS	WACO	MCLENNAN		69

$FILE$

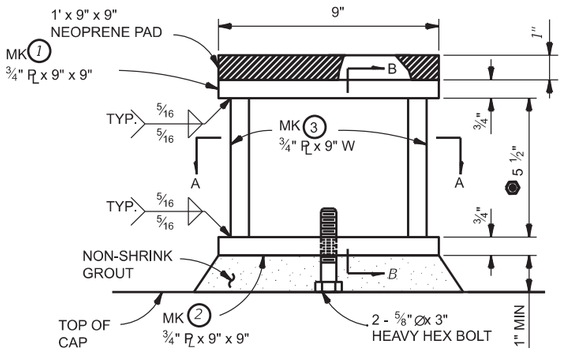
NODE



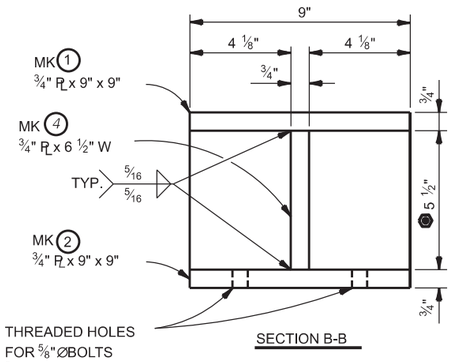
PEDESTAL LOCATIONS = (A)(C)

SECTION THRU GIRDERS

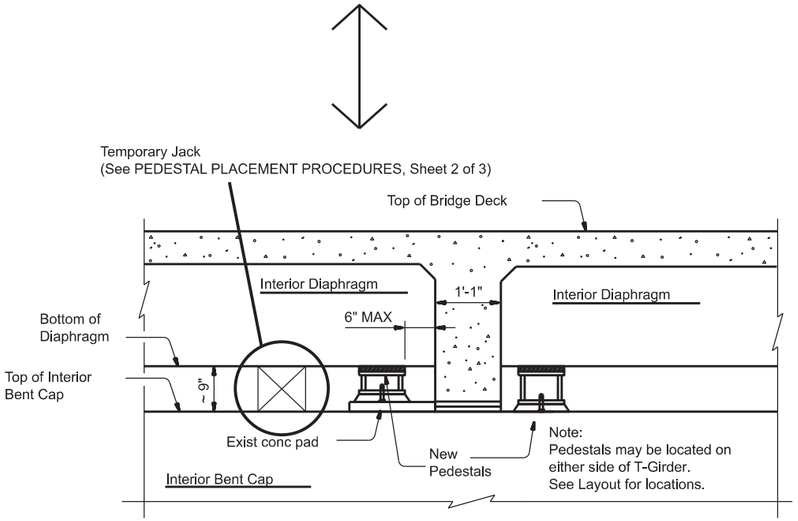
(SHOWING PEDESTAL PLACEMENT)
(BENTS #2 and #7)



PEDESTAL DETAILS



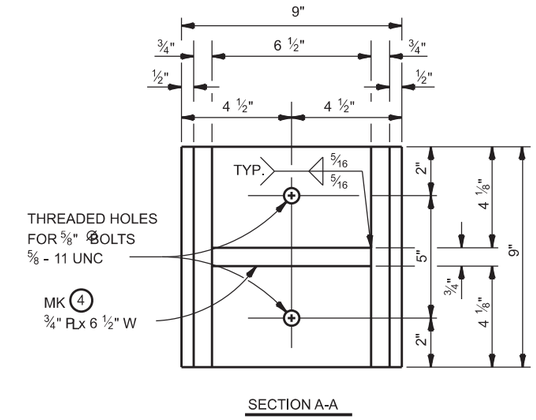
SECTION B-B



PEDESTAL LOCATIONS = (B)(D)

SECTION THRU GIRDER

(SHOWING PEDESTAL PLACEMENT)



SECTION A-A

THE CONTRACTOR SHALL BE RESPONSIBLE FOR VERIFYING ALL PEDESTAL HEIGHT DIMENSIONS PRIOR TO SUPPORT FABRICATION.

NOTE: SEE SHEET 2 OF 3 FOR ESTIMATED QUANTITIES, MATERIALS AND STEEL PLATES FOR MK(#).

SH 36 OVER LEON RIVER
895' OVERALL LENGTH CONSISTING OF:
2 @ 35'-0" CONC. GIRDER SPANS
230'-0" (70', 90', 70') CONT. PRESTRESSED UNIT (@ WIDENING)
230'-0" (70', 90', 70') CONT. STEEL I-BEAM UNIT (@ EXISTING)
17 @ 35'-0" CONC. GIRDER SPANS
68'-0" ROADWAY, NORMAL BENTS
TYPE T202 RAIL

STATE OF TEXAS
ROSS L. LANGDALE
126994
LICENSED
PROFESSIONAL ENGINEER

7/12/2024

Ross L Langdale, P.E.

Texas Department of Transportation

CONC GIRDER PEDESTAL SUPPORT DETAILS

SH 36 OVER LEON RIVER
(NBI # 09-050-0-0184-01-008)

SCALE: 1" = FEET HORIZ.

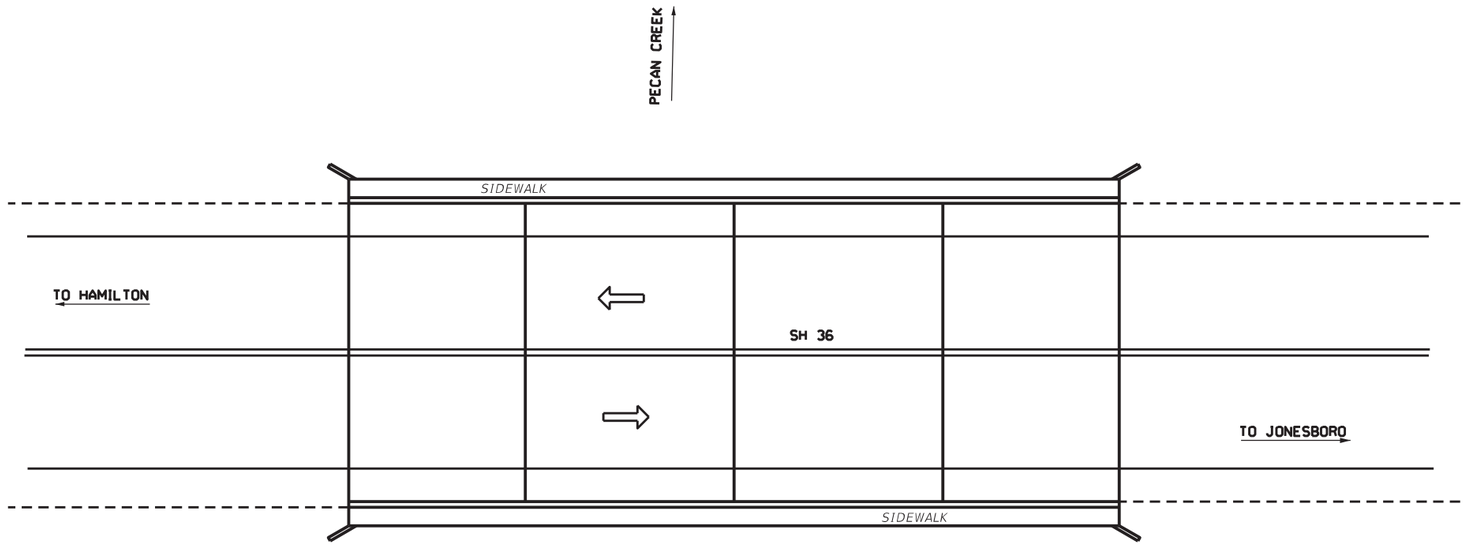
SHEET 2 OF 2

CHANGE ORDER	FED.RD. DIV. NO.	CONT	SECT	JOB	HIGHWAY
	6	6467	47	001	FM 434,ETC
	STATE	DIST	COUNTY		SHEET NO.
	TEXAS	WACO	MCLENNAN		70

FOR LOCATION REPAIR DETAILS REFER TO:

LAYOUT & DETAILS FOR CLEANING AND SEALING EXPANSION JOINTS

AS-BUILT PLAN SET: 0183-03-051



NOTE:
THIS SKETCH IS TO BE USED AS AN APPROXIMATE GUIDE FOR MAINTENANCE WORK TO BE PERFORMED IN THE VICINITY OF THIS EXISTING STRUCTURE.

LOCATION: SH 36 @ PECAN CREEK
NBI#: 09-098-0-0183-03-051
DIMENSIONS: 105'x 40' BRIDGE
SKEW: 0° SKEW
GPS LAT/LON: 31.70312747/-98.12156794

LEGEND:

- EMBANKMENT
- EXCAVATION
- CONCRETE RIP RAP
- STONE RIP RAP
- FLOWABLE BACKFILL

GENERAL VICINITY LAYOUT
NTS
DRAWING NOT TO SCALE

GENERAL NOTES:

1. WHEN DIRECTED SURPLUS MATERIAL ESTIMATED AT INDIVIDUAL LOCATIONS MAY BE USED AT OTHER CONTRACT SITES.
2. IF STONE PROTECTION IS REQUIRED, THE DETAILS SHOWN ARE PROVIDED AS AN APPROXIMATE GUIDE FOR INSTALLATION OF STONE PROTECTION. THE CONTRACTOR WILL DETERMINE THE LIMITS OF STONE PROTECTION REQUIRED AS DICTATED BY FIELD CONDITIONS AND AS DIRECTED PRIOR TO MATERIAL PURCHASE AND DELIVERY.
3. IF NO PAY ITEM FOR DEBRIS REMOVAL IS NOTED; DEBRIS WILL BE REMOVED FROM BRIDGE STRUCTURE ELEMENTS. THIS WILL NOT BE PAID FOR DIRECTLY, BUT CONSIDERED SUBSIDIARY TO THE VARIOUS BID ITEMS.
4. THE CONTRACTOR WILL LIMIT CHANNEL DISTURBING ACTIVITIES TO THE VICINITY OF STRUCTURE AND TxDOT ROW. CONSTRUCTION WILL HAVE EROSION CONTROL BMP IN PLACE DURING ANY SOIL DISTURBING ACTIVITY.
5. IF NO PAY ITEM FOR BRUSH REMOVAL IS NOTED; BRUSH CLEARING FOR EXCAVATION AND EMBANKMENT WILL NOT BE PAID DIRECTLY, BUT CONSIDERED SUBSIDIARY TO THE VARIOUS BID ITEMS.
6. THE CONTRACTOR MUST EXHAUST ALL TYPE-D EMBANKMENT AVAILABLE AT SITE PRIOR TO DELIVERY OF TYPE-B.
7. IF JOINT SEAL IS REQUIRED FOR RIP RAP, THE QUANTITY SHOWN IS FOR ESTIMATION ONLY. THE CONTRACTOR WILL DETERMINE THE LIMITS OF SEALANT AS DICTATED BY FIELD CONDITIONS AND AS DIRECTED. JOINTS TOO LARGE FOR SEALANT MAY BE SEALED BY FLOWABLE BACKFILL AS DIRECTED. REFER TO DMS-6100 FOR MATERIAL SPECIFICATIONS.
8. LOCATIONS WHERE FENCING MUST BE ALTERED; AT ALL TIMES CONTRACTOR WILL MAINTAIN ADEQUATE BARRIER TO KEEP LIVESTOCK FROM ENTERING ROW. WHEN POSSIBLE REPLACE FENCING TO MATCH ORIGINAL. THIS WILL NOT BE PAID FOR DIRECTLY, BUT CONSIDERED SUBSIDIARY TO THE VARIOUS BID ITEMS.

ITEM-DESC	DESCRIPTION	UNITS	TOTAL
351-7001	FLEXIBLE PAVEMENT STRUCUTRE REPAIR (2")	SY	8.0
438-7004	CLEANING & SEALING EXIST JOINTS (CL3)	LF	240.0
438-7007	CLEANING & SEALING EXIST JOINTS (CL7)	LF	80.0
785-7002	BRIDGE JOINT REPAIR (HEADER)	LF	80.0

CONTRACTOR'S INFORMATION ONLY

STATE OF TEXAS
CHARLES W. SMITH
110312
LICENSED
PROFESSIONAL ENGINEER

The seal appearing on this document was authorized by CHARLES W. SMITH P.E. 110312, on

Charles W. Smith, PE 7/12/2024

HAMILTON COUNTY
STRUCTURE LAYOUT
SH @ PECAN CREEK
NBI# 09-098-0-0183-03-051

SCALE: NTS

DESIGN	FED RD DIV No.	PROJECT No.		HIGHWAY No.
ZB	6	BPM 6467-47-001		FM 434,ETC
CHECK	STATE	DISTRICT	COUNTY	SHEET No.
CS	TEXAS	WACO	MCLENNAN	71
GRAPHICS	CONTROL	SECTION	JOB	
DL	6467	47	001	
CHECK				
CS				

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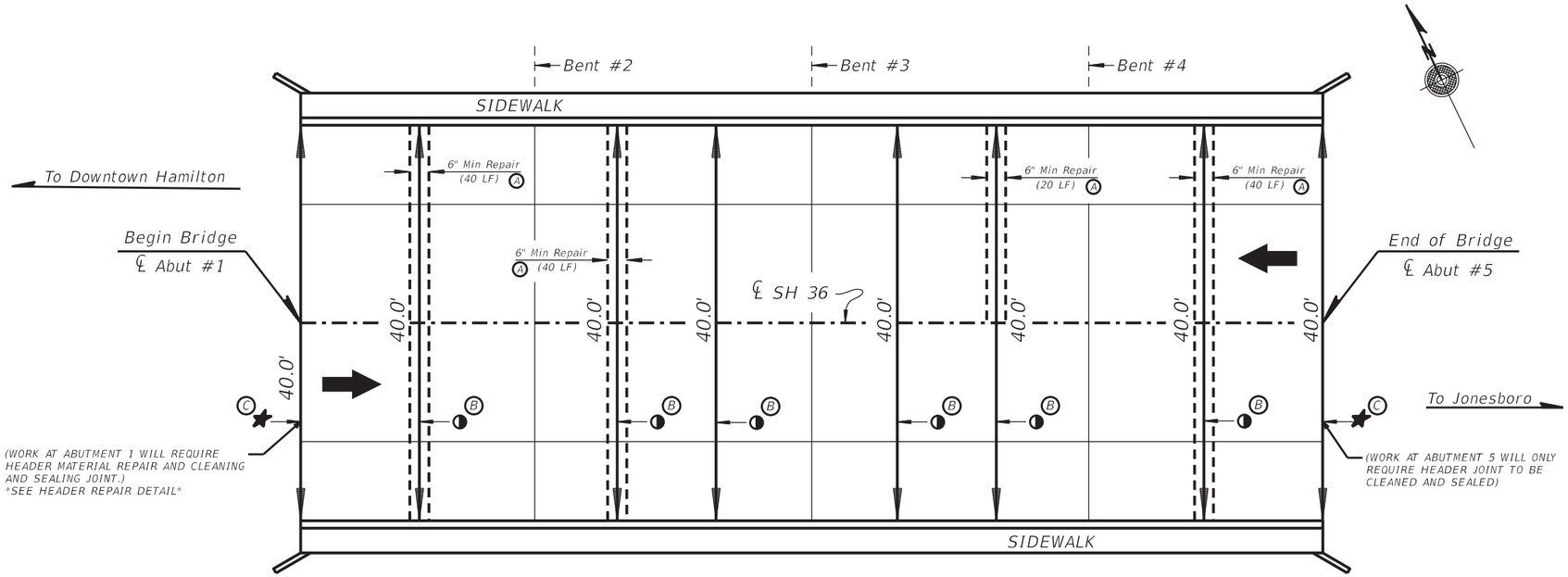


LAYOUT PLAN

SH 36 OVER PECAN CREEK
(N.B.I.#09-098-0-0183-03-051

◑ Denotes Location for Cleaning and Sealing Joints. (See Construction Joint Detail)

★ Denotes Location for Cleaning and Sealing Header Joints. (See Header Joint Detail)

PROCEDURE FOR CLEANING AND SEALING EXISTING JOINT WITH HOT-POURED RUBBER SEAL:

1) **Saw cut through asphalt at the centerline of joint. Make mulitple cuts to create ½" minimum joint opening or match the existing joint opening. Clean joints opening of all old expansion materials/devices, bituminous materials, dirt, grease, and all other deleterious materials in accordance with Item 438, "Cleaning and Sealing Joints", Clean joint out full depth of the joint.**

2) **Obtain approval of cleaned joint prior to proceeding with joint sealing operation.**

3) **Place backer rod into joint opening 1" below the top of concrete. When sealing joints for slab spans, slab beam spans, or box beam spans, fill void below backer rod with extruded polystyrene foam before placing backer rod.**

4) **Seal the joint opening with a Class 3 joint sealant flush to the top of the asphaltic concrete pavement.**

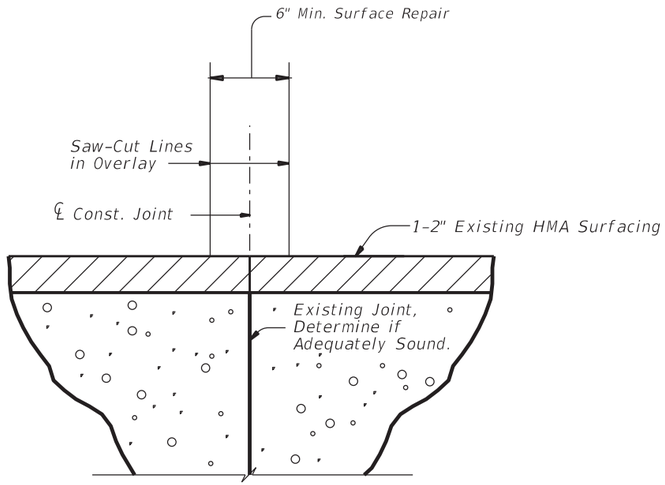
General Notes:

Remove and replace flexible pavement before sawing and sealing joint.

Flexible Pavement Structure Repair will be a 2" D-GR HMA TY-C PG70-22 with underseal. All materials is subsidiary to Item 351.

After finishing flexible pavemetn repair, then clean and seal joint. (SEE JOINT REPAIR DETAILS)

SH 36 OVER PECAN CREEK
103'-4" OVERALL LENGTH
(23'-8", 28', 28', 23'-8") CONC I-BEAM UNITS
40' ROADWAY
2-5' SIDEWALK
SPECIAL RAILING



CONSTRUCTION JOINT LOCATION

SECTION THRU CONSTRUCTION JOINT

Ⓐ ESTIMATED QUANTITIES

ITEM	351-7001
LOCATION	FLEXIBLE PAVEMENT STRUCTURE REPAIR (2")
	S.Y.
STR. #051 SH 36 OVER PECAN CREEK	8.0
TOTAL	8.0

STATE OF TEXAS
ROSS L. LANGDALE
126994
LICENSED
PROFESSIONAL ENGINEER
7/12/2024
Ross L Langdale, P.E.

Texas Department of Transportation

LAYOUT FOR CLEANING AND SEALING JOINTS

SH 36 OVER PECAN CREEK
09-161-0-0183-03-051

SCALE: 1" = HORIZ. FEET

SHEET 1 OF 1

CHANGE ORDER	FED.RD. DIV. NO.	CONT	SECT	JOB	HIGHWAY
	6	6467	47	001	FM 434,ETC
	STATE	DIST	COUNTY		SHEET NO.
	TEXAS	WACO	MCLENNAN		72

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7/9/2024
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NODE

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7/9/2024

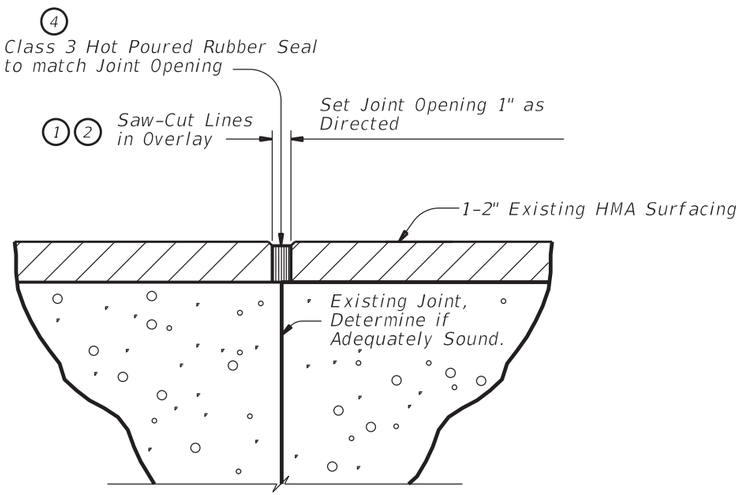
(B) ESTIMATED QUANTITIES

ITEM	438-7004
LOCATION	CLEANING AND SEALING EXISTING JOINTS (CL 3)
	L.F.
STR. #035 SH 36 OVER PECAN CREEK	240.0
TOTAL	240.0

1. Saw cut through the asphalt at the centerline of joint. Make multiple saw cuts to create a ½" minimum joint opening or match the existing joint opening. Clean joint opening of all old expansion materials/devices, bituminous materials, dirt, grease and all other deleterious materials in accordance with Item 438, "Cleaning and Sealing Joints."

2. Obtain approval of cleaned joint prior to proceeding with joint sealing operation.

3. Seal the joint opening with a Class 3, "Hot Poured Rubber." Seal level to the top of the asphaltic concrete pavement.



(B)

INTERIOR BENT LOCATION

SECTION THRU RELIEF JOINT

PROCEDURE FOR CLEANING AND SEALING EXISTING JOINT WITH HOT-POURED RUBBER SEAL:

1) **Saw cut through asphalt at the centerline of joint. Make mulitple cuts to create ½" minimum joint opening or match the existing joint opening. Clean joints opening of all old expansion materials/devices, bituminous materials, dirt, grease, and all other deleterious materials in accordance with Item 438, "Cleaning and Sealing Joints", Clean joint out full depth of the joint.**

2) **Obtain approval of cleaned joint prior to proceeding with joint sealing operation.**

3) **Place backer rod into joint opening 1" below the top of concrete. When sealing joints for slab spans, slab beam spans, or box beam spans, fill void below backer rod with extruded polystyrene foam before placing backer rod.**

4) **Seal the joint opening with a Class 3 joint sealant flush to the top of the asphaltic concrete pavement.**

General Notes:

Cleaning existing joint opening (full depth) of all debris, providing and placing backer rod, saw-cutting asphalt overlay, and sealing joints is paid for by Item 438, "Cleaning and Sealing Joints" and measured by the linear foot.
Obtain approval for all tools, equipment, materials, and techniques proposed to clean and seal the joint.
Provide Class 3 joint sealant in accordance with DMS-6310, Joint Sealants and Fillers" for joints in asphalt overlay.
Provide Class 7 joint sealant in accordance with DMS-6310, "Joint Sealants and Fillers" for joints in concrete.
Extend sealant up into rail or curb 3 inches on low side or sides of deck. If the Class 7 joint sealant cannot be effectively placed in the vertical postion, a Class 4 joint sealant compatible with the Class 7 joint sealant is allowed for the extension of the seal into the curb or rail. Prepare surfaces where sealant is to be placed in accordance with Manufacturer's specifications.

STATE OF TEXAS
ROSS L. LANGDALE
126994
LICENSED
PROFESSIONAL ENGINEER

7/12/2024

Ross L Langdale, P.E.

Texas Department of Transportation

LAYOUT FOR CLEANING AND SEALING JOINTS

SH 36 OVER PECAN CREEK
09-161-0-0183-03-051

SCALE: 1" = FEET HORIZ.

SHEET 2 OF 3

CHANGE ORDER	FED.RD. DIV. NO.	CONT	SECT	JOB	HIGHWAY
	6	6467	47	001	FM 434,ETC
	STATE	DIST	COUNTY		SHEET NO.
	TEXAS	WACO	MCLENNAN		73

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NODE

10:07:40 AM

7/9/2024

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NODE

NOTES:

1. Saw cut overlay to top of deck and remove material to expose existing joint.
2. Determine condition of concrete on either side of joint opening. The entire length of existing joint must be checked and any portion that is determined unsound by the Engineer must be removed as directed by the Engineer. Chip and remove loose and deteriorated concrete. Do not place elastomeric concrete on surface that is sloped greater than 45° from horizontal. Chip concrete down to obtain surface sloped less than 45° as directed. Do not use chipping hammers heavier than the normal 15-lbs class for concrete removal work. Take care not to increase the maximum depth of the spall.
3. Surfaces where nosing/header material is to be placed shall be clean and dry in accordance with the manufacturer's specs.
4. Match the thickness of the header with the thickness of the overlay. The thickness of the overlay is approximately 2" but may vary. If the thickness of the overlay exceeds 3.25", set the width of the header at one and a half times the thickness of the overlay but should not be greater than 8" unless approved by the Engineer.
5. Match existing joint opening or set at the minimum shown below or as directed by the Engineer. Do not cantilever header over joint opening.

   1" at 70° F when distance between joints is 150 feet or less.
   2" at 70° F when distance between joints is greater than 150 feet.
6. Seal with Class 7 Sealant in accordance with DMS-6310 "Joint Sealants and Fillers". Prepare surfaces where sealant is to be placed in accordance with manufacturer's speci cations.

© ESTIMATED QUANTITIES

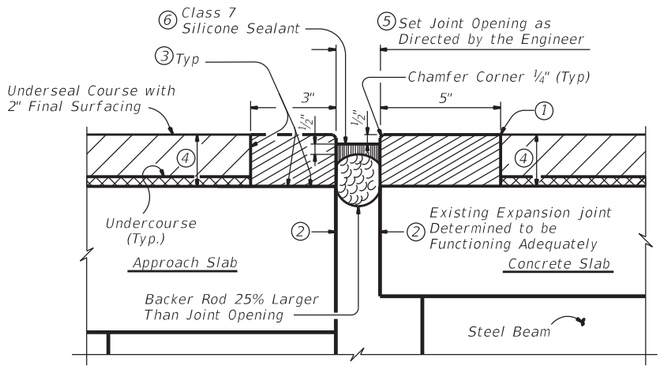
ITEM	438-7007	785-7002
LOCATION	CLEANING AND SEALING EXISTING JOINTS (CL 7)	BRIDGE JOINT REPAIR (HEADER)
	L.F.	L.F.
STR. #046 SH 53 EB OVER BNSF RR	80.0	80.0
TOTAL	80.0	80.0
	Refer to Item "438"	Refer to item "785"

PROCEDURE FOR CLEANING AND SEALING HEADER JOINT WITH SILICONE SEAL AND HEADER JOINT REPAIR

1) **Clean joint opening of all old expansion materials/devices, bituminous materials, dirt, grease and all other deleteious materials in accordance with Item 438, "Cleanlng and Sealing Joints."**
2) **Saw cut and remove damaged portions of existing header material to neat lines. Repair deck joint spalls greater than 2" deep in accordance wlth Item 785, "Bridge Joint Repalr or Replacement." Shallower spalls may be filled with header material.**
3) **Clean the voided region to the required width and inhibit the bond between header material and concrete or steel.**
4) **Form the joint opening to the required width and place header material to fill voided region. Repair header material in accordance with Item 785, "Bridge Joint Repalr or Replacement."**
5) **Place backer rod into joint opening 1" below the top of header materlal. When sealing joints for slab spans, slab beam spans, or box beam spans, fill void below backer rod with extruded polystyrene foam before placing backer rod.**
6) **Seal the joint opening with a Class 7 joint sealant. Recess seal 1/2" below top of header in travel lanes and 1/4" below top of header in shoulders.**

General Notes:

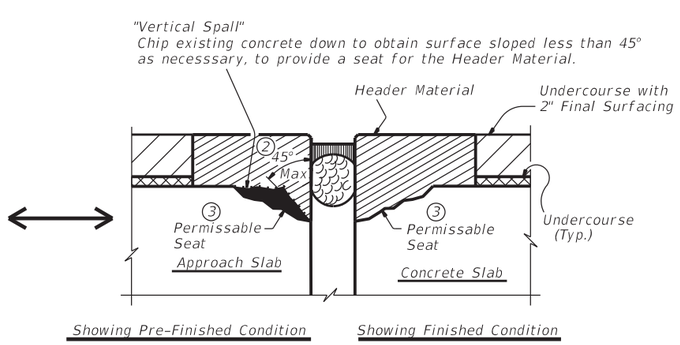
"Concrete Chipping" for Joint preparation is subsidiary to Item 454. The addtional elastomric concrete required to fill the spalled area is paid for by Item 454, HEADER TYPE EXPANSION JOINT.



NOT TO SCALE

SECTION THRU NOSING/HEADER AT SEALED EXPANSION JOINT

©



NOT TO SCALE

SECTION THRU NOSING/HEADER AT SEALED EXPANSION JOINT

(SHOWING SPALLED SLAB EDGES - TYPICAL)

STATE OF TEXAS
ROSS L. LANGDALE
126994
LICENSED
PROFESSIONAL ENGINEER

7/12/2024

Ross L Langdale, P.E.

Texas Department of Transportation

LAYOUT FOR CLEANING AND SEALING JOINTS

SH 36 OVER PECAN CREEK
09-098-0-0183-03-051

SCALE: 1" = FEET HORIZ.

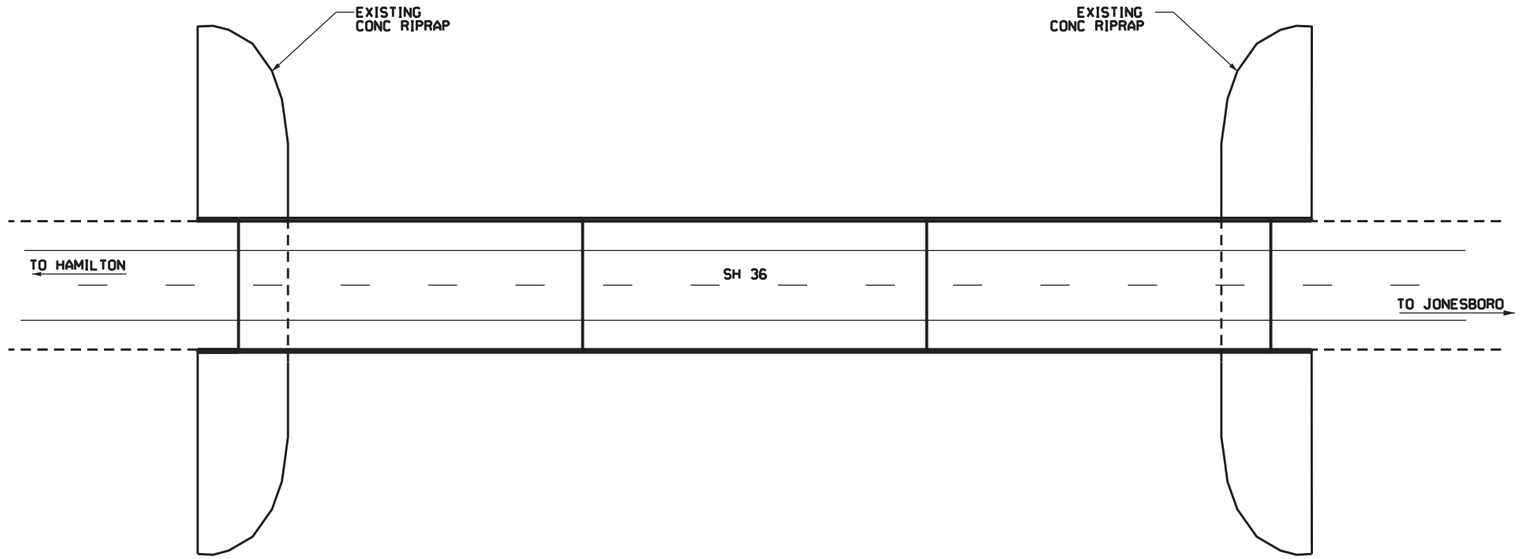
SHEET 3 OF 3

CHANGE ORDER	FED.RD. DIV. NO.	CONT	SECT	JOB	HIGHWAY
	6	6467	47	001	FM 434,ETC
	STATE	DIST	COUNTY		SHEET NO.
	TEXAS	WACO	MCLENNAN		74

FOR LOCATION REPAIR DETAILS REFER TO:

LAYOUT & DETAILS FOR CLEANING AND SEALING EXPANSION JOINTS

AS-BUILT PLAN SET: 0183-03-071

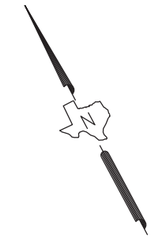


NOTE:
THIS SKETCH IS TO BE USED AS AN APPROXIMATE GUIDE FOR MAINTENANCE WORK TO BE PERFORMED IN THE VICINITY OF THIS EXISTING STRUCTURE.

LOCATION: SH 36 @ LEON RIVER RELIEF
NBI#: 09-098-0-0183-03-071
DIMENSIONS: 354'x 44' BRIDGE
SKEW: 0° SKEW
GPS LAT/LON: 31.61830286/-97.89826765

LEGEND:

- EMBANKMENT
- EXCAVATION
- CONCRETE RIP RAP
- STONE RIP RAP
- FLOWABLE BACKFILL



GENERAL VICINITY LAYOUT
NTS
DRAWING NOT TO SCALE

GENERAL NOTES:

1. WHEN DIRECTED SURPLUS MATERIAL ESTIMATED AT INDIVIDUAL LOCATIONS MAY BE USED AT OTHER CONTRACT SITES.
2. IF STONE PROTECTION IS REQUIRED, THE DETAILS SHOWN ARE PROVIDED AS AN APPROXIMATE GUIDE FOR INSTALLATION OF STONE PROTECTION. THE CONTRACTOR WILL DETERMINE THE LIMITS OF STONE PROTECTION REQUIRED AS DICTATED BY FIELD CONDITIONS AND AS DIRECTED PRIOR TO MATERIAL PURCHASE AND DELIVERY.
3. IF NO PAY ITEM FOR DEBRIS REMOVAL IS NOTED; DEBRIS WILL BE REMOVED FROM BRIDGE STRUCTURE ELEMENTS. THIS WILL NOT BE PAID FOR DIRECTLY, BUT CONSIDERED SUBSIDIARY TO THE VARIOUS BID ITEMS.
4. THE CONTRACTOR WILL LIMIT CHANNEL DISTURBING ACTIVITIES TO THE VICINITY OF STRUCTURE AND TxDOT ROW. CONSTRUCTION WILL HAVE EROSION CONTROL BMP IN PLACE DURING ANY SOIL DISTURBING ACTIVITY.
5. IF NO PAY ITEM FOR BRUSH REMOVAL IS NOTED; BRUSH CLEARING FOR EXCAVATION AND EMBANKMENT WILL NOT BE PAID DIRECTLY, BUT CONSIDERED SUBSIDIARY TO THE VARIOUS BID ITEMS.
6. THE CONTRACTOR MUST EXHAUST ALL TYPE-D EMBANKMENT AVAILABLE AT SITE PRIOR TO DELIVERY OF TYPE-B.
7. IF JOINT SEAL IS REQUIRED FOR RIP RAP, THE QUANTITY SHOWN IS FOR ESTIMATION ONLY. THE CONTRACTOR WILL DETERMINE THE LIMITS OF SEALANT AS DICTATED BY FIELD CONDITIONS AND AS DIRECTED. JOINTS TOO LARGE FOR SEALANT MAY BE SEALED BY FLOWABLE BACKFILL AS DIRECTED. REFER TO DMS-6100 FOR MATERIAL SPECIFICATIONS.
8. LOCATIONS WHERE FENCING MUST BE ALTERED; AT ALL TIMES CONTRACTOR WILL MAINTAIN ADEQUATE BARRIER TO KEEP LIVESTOCK FROM ENTERING ROW. WHEN POSSIBLE REPLACE FENCING TO MATCH ORIGINAL. THIS WILL NOT BE PAID FOR DIRECTLY, BUT CONSIDERED SUBSIDIARY TO THE VARIOUS BID ITEMS.

ITEM-DESC	DESCRIPTION	UNITS	TOTAL
438-7007	CLEANING & SEALING EXIST JOINTS (CL7)	LF	88.0

CONTRACTOR'S INFORMATION ONLY

STATE OF TEXAS
CHARLES W. SMITH
110312
LICENSED
PROFESSIONAL ENGINEER

The seal appearing on this document was authorized by CHARLES W. SMITH P.E. 110312, on

Charles W. Smith, PE 7/12/2024

Texas Department of Transportation

HAMILTON COUNTY
STRUCTURE LAYOUT
SH 36 @ LEON RIVER RELIEF
NBI# 09-098-0-0183-03-071

SCALE: NTS

DESIGN	FED RD DIV No.	PROJECT No.		HIGHWAY No.
ZB	6	BPM 6467-47-001		FM 434,ETC
CHECK	STATE	DISTRICT	COUNTY	SHEET No.
CS	TEXAS	WACO	MCLENNAN	75
GRAPHICS	CONTROL	SECTION	JOB	
DL	6467	47	001	
CHECK				
CS				

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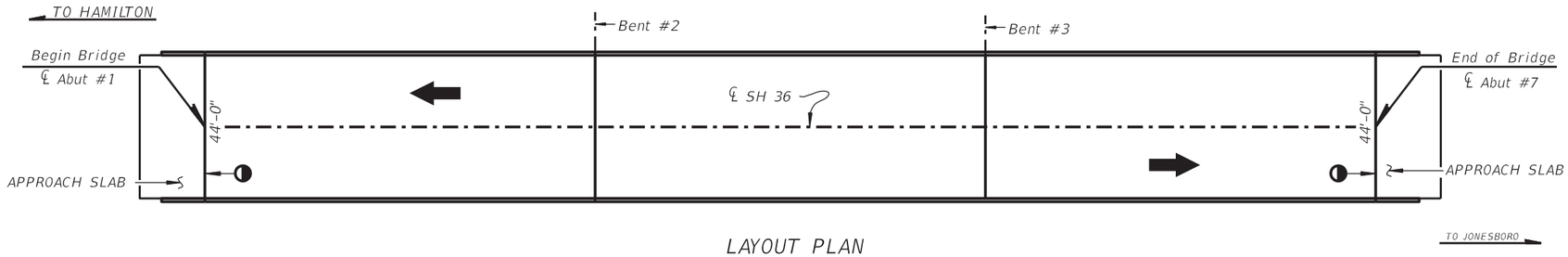


LAYOUT PLAN

SH 36 OVER LEON RIVER RELIEF
(N.B.I.#09-098-0-0183-03-071)

◐ Denotes location for Cleaning Existing Armor Joints

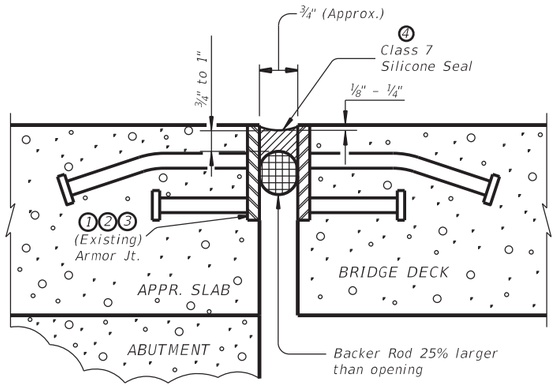
SH 36 OVER LEON RIVER RELIEF
354'-0" ~ OVERALL LENGTH =
(3 @ 118') PRESTR. CONC. BEAM UNIT
44' ROADWAY
46' OVERALL
T502(M) RAIL

NOTES:

1. The joints shall be cleaned in accordance with Item 438 and prior to beginning operations, the Contractor shall submit a statement from the Sealant Manufacturer showing the recommended equipment and Installation procedures to be used.
2. Condition of existing expansion joint or rail shall be determined prior to placing sealant material. The entire length of existing joint shall be checked and any portion that is determined unsound, shall be removed as directed. Any existing seal shall be removed and disposed of.

   Repair any signifcant spalled or cracked areas, as determined and directed, around the joint opening with an approved proprietary concrete repair material as approved and directed. This work will not be paid for directly, but shall be considered subsidiary to Item 438.
3. Surfaces where sealant material is to be placed shall be clean and dry in accordance with the manufacturer's speci cations.
4. Seal when required and as directed. Extend sealant up into rail or curb 6 inches on low side or sides of deck. Prepare surfaces where sealant is to be placed in accordance with manufacturers specifcations

   If the self-leveling sealant cannot be extended up into the rail, use a Class 4 Sealant in the curb or rail portion only.



SECTION THRU EXPANSION JOINT

(A)

ESTIMATED QUANTITIES

ITEM	438-7007
LOCATION	CLEANING AND SEALING EXISTING JOINTS (CL 7)
	L.F.
STR. #071 SH 36 LEON RIVER RELIEF	88.0
TOTAL	88.0

PROCEDURE FOR CLEANING AND SEALING
EXISTING JOINT WITH HOT-POURED RUBBER SEAL:

1) Remove existing seal, if present. Clean joint opening of all dirt and other deleterious materials in accordance with Item 438, "Cleaning and Sealing Joints". Clean joint out to full depth of the joint.
2) Abrasive blast clean exisitng steel surface where silcone seal is to be placed.
3) Obtain approval of cleaned joint prior to proceeding with joint sealing operation.
4) Place backer rod into joint opening 1" below the top of concrete. When sealing joints for slab spans, slab beam spans, or box beam spans, fill void below backer rod with extruded polystyrene foam before placing backer rod.
5) Seal the joint opening with a Class 7 joint sealant. Recess seal ½" below top of concrete in travel lanes and ¼" below top of concrete in shoulders.

General Notes:

Cleaning existing joint opening (full depth) of all debris, providing and placing backer rod, saw-cutting asphalt overlay, and sealing joints is paid for by Item 438, "Cleaning and Sealing Joints" and measured by the linear foot.
Obtain approval for all tools, equipment, materials, and techniques proposed to clean and seal the joint.
Provide Class 3 joint sealant in accordance with DMS-6310, Joint Sealants and Fillers" for joints in asphalt overlay.
Provide Class 7 joint sealant in accordance with DMS-6310, "Joint Sealants and Fillers" for joints in concrete.
Extend sealant up into rail or curb 3 inches on low side or sides of deck. If the Class 7 joint sealant cannot be effectively placed in the vertical postion, a Class 4 joint sealant compatible with the Class 7 joint sealant is allowed for the extension of the seal into the curb or rail. Prepare surfaces where sealant is to be placed in accordance with Manufacturer's specifications.

STATE OF TEXAS
ROSS L. LANGDALE
126994
LICENSED
PROFESSIONAL ENGINEER
7/12/2024
Ross L Langdale, P.E.

Texas Department of Transportation

LAYOUT FOR CLEANING AND SEALING JOINTS

SH 36 @ LEON RIVER RELIEF
09-098-0-0183-03-071

SCALE: 1" = HORIZ.

SHEET 1 OF 1

CHANGE ORDER	FED.RD. DIV. NO.	CONT	SECT	JOB	HIGHWAY
	6	6467	47	001	FM 434,ETC
	STATE	DIST	COUNTY		SHEET NO.
	TEXAS	WACO	MCLENNAN		76

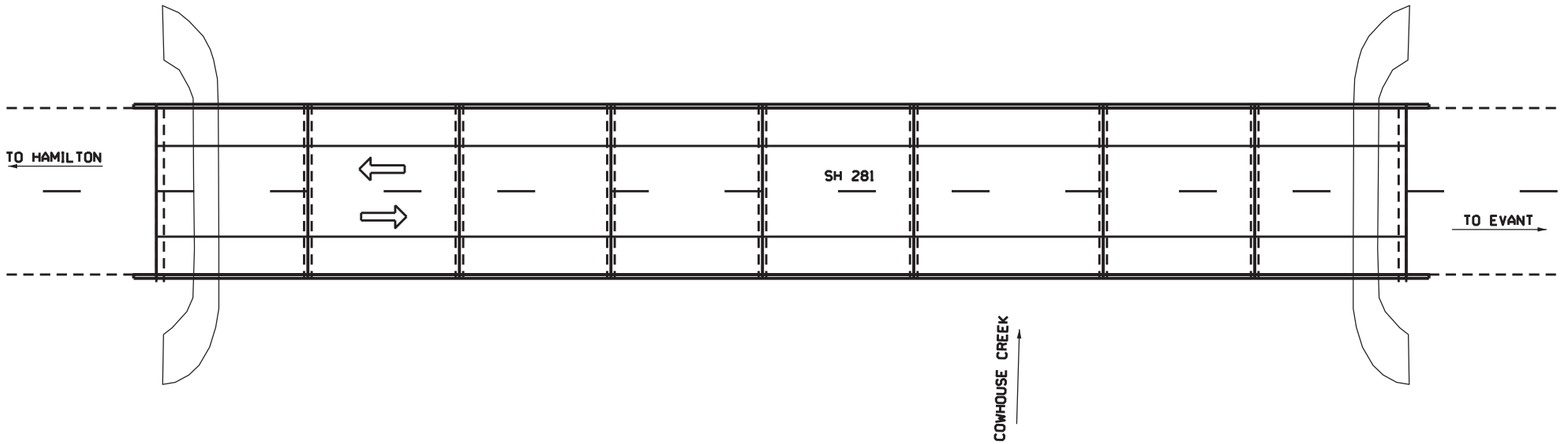
FOR LOCATION REPAIR DETAILS REFER TO:

CLEANING & SEALING EXPANSION JOINTS

ZONE PAINTING LAYOUT

LEAD BEARING SHEET REPLACEMENT DETAILS

AS-BUILT PLAN SET: 0251-02-048



LEGEND:

- EMBANKMENT
- EXCAVATION
- CONCRETE RIP RAP
- STONE RIP RAP
- FLOWABLE BACKFILL

GENERAL VICINITY LAYOUT
NTS
DRAWING NOT TO SCALE

GENERAL NOTES:

1. WHEN DIRECTED SURPLUS MATERIAL ESTIMATED AT INDIVIDUAL LOCATIONS MAY BE USED AT OTHER CONTRACT SITES.
2. IF STONE PROTECTION IS REQUIRED, THE DETAILS SHOWN ARE PROVIDED AS AN APPROXIMATE GUIDE FOR INSTALLATION OF STONE PROTECTION. THE CONTRACTOR WILL DETERMINE THE LIMITS OF STONE PROTECTION REQUIRED AS DICTATED BY FIELD CONDITIONS AND AS DIRECTED PRIOR TO MATERIAL PURCHASE AND DELIVERY.
3. IF NO PAY ITEM FOR DEBRIS REMOVAL IS NOTED; DEBRIS WILL BE REMOVED FROM BRIDGE STRUCTURE ELEMENTS. THIS WILL NOT BE PAID FOR DIRECTLY, BUT CONSIDERED SUBSIDIARY TO THE VARIOUS BID ITEMS.
4. THE CONTRACTOR WILL LIMIT CHANNEL DISTURBING ACTIVITIES TO THE VICINITY OF STRUCTURE AND TxDOT ROW. CONSTRUCTION WILL HAVE EROSION CONTROL BMP IN PLACE DURING ANY SOIL DISTURBING ACTIVITY.
5. IF NO PAY ITEM FOR BRUSH REMOVAL IS NOTED; BRUSH CLEARING FOR EXCAVATION AND EMBANKMENT WILL NOT BE PAID DIRECTLY, BUT CONSIDERED SUBSIDIARY TO THE VARIOUS BID ITEMS.
6. THE CONTRACTOR MUST EXHAUST ALL TYPE-D EMBANKMENT AVAILABLE AT SITE PRIOR TO DELIVERY OF TYPE-B.
7. IF JOINT SEAL IS REQUIRED FOR RIP RAP, THE QUANTITY SHOWN IS FOR ESTIMATION ONLY. THE CONTRACTOR WILL DETERMINE THE LIMITS OF SEALANT AS DICTATED BY FIELD CONDITIONS AND AS DIRECTED. JOINTS TOO LARGE FOR SEALANT MAY BE SEALED BY FLOWABLE BACKFILL AS DIRECTED. REFER TO DMS-6100 FOR MATERIAL SPECIFICATIONS.
8. LOCATIONS WHERE FENCING MUST BE ALTERED; AT ALL TIMES CONTRACTOR WILL MAINTAIN ADEQUATE BARRIER TO KEEP LIVESTOCK FROM ENTERING ROW. WHEN POSSIBLE REPLACE FENCING TO MATCH ORIGINAL. THIS WILL NOT BE PAID FOR DIRECTLY, BUT CONSIDERED SUBSIDIARY TO THE VARIOUS BID ITEMS.

ITEM-DESC	DESCRIPTION	UNITS	TOTAL
429-7007	CONC STR REPAIR (VERTICAL & OVERHEAD)	SF	225.0
438-7004	CLEANING & SEALING EXIST JOINTS (CL3)	LF	308.0
438-7009	RESIZING AND SEALING JOINTS	LF	88.0
495-7001	RAISING EXIST STRUCTURE	LS	1.0
784-7004	STL STRUCTURE REPAIR (ENTIRE BRIDGE)	LS	1.0
***	LEAD SHEETS (REFERENCE ITEM 784)	EA	70.0
4010-7001	STEEL BRIDGE ZONE PAINTING REF STR #2	EA	1.0
7001-7002	BENT CAP/ABUTMENT CAP CLEANING	EA	9.0

CONTRACTOR'S INFORMATION ONLY

NOTE:
THIS SKETCH IS TO BE USED AS AN APPROXIMATE GUIDE FOR MAINTENANCE WORK TO BE PERFORMED IN THE VICINITY OF THIS EXISTING STRUCTURE.

LOCATION: SH 281 @ COWHOUSE CREEK
NBI#: 09-098-0-0251-02-048
DIMENSIONS: 330'x 44' BRIDGE
SKEW: 0° SKEW
GPS LAT/LON: 31.60861005/-98.15844119

STATE OF TEXAS
CHARLES W. SMITH
110312
LICENSED
PROFESSIONAL ENGINEER

The seal appearing on this document was authorized by CHARLES W. SMITH P.E. 110312, on

Charles W. Smith, PE 7/12/2024

HAMILTON COUNTY
STRUCTURE LAYOUT
SH 281 @ COWHOUSE CREEK
NBI# 09-098-0-0251-02-048

SCALE: NTS

DESIGN	FED RD DIV No.	PROJECT No.		HIGHWAY No.
ZB	6	BPM 6467-47-001		FM 434,ETC
CHECK	STATE	DISTRICT	COUNTY	SHEET No.
CS	TEXAS	WACO	MCLENNAN	77
GRAPHICS	CONTROL	SECTION	JOB	
DL	6467	47	001	
CHECK				
CS				

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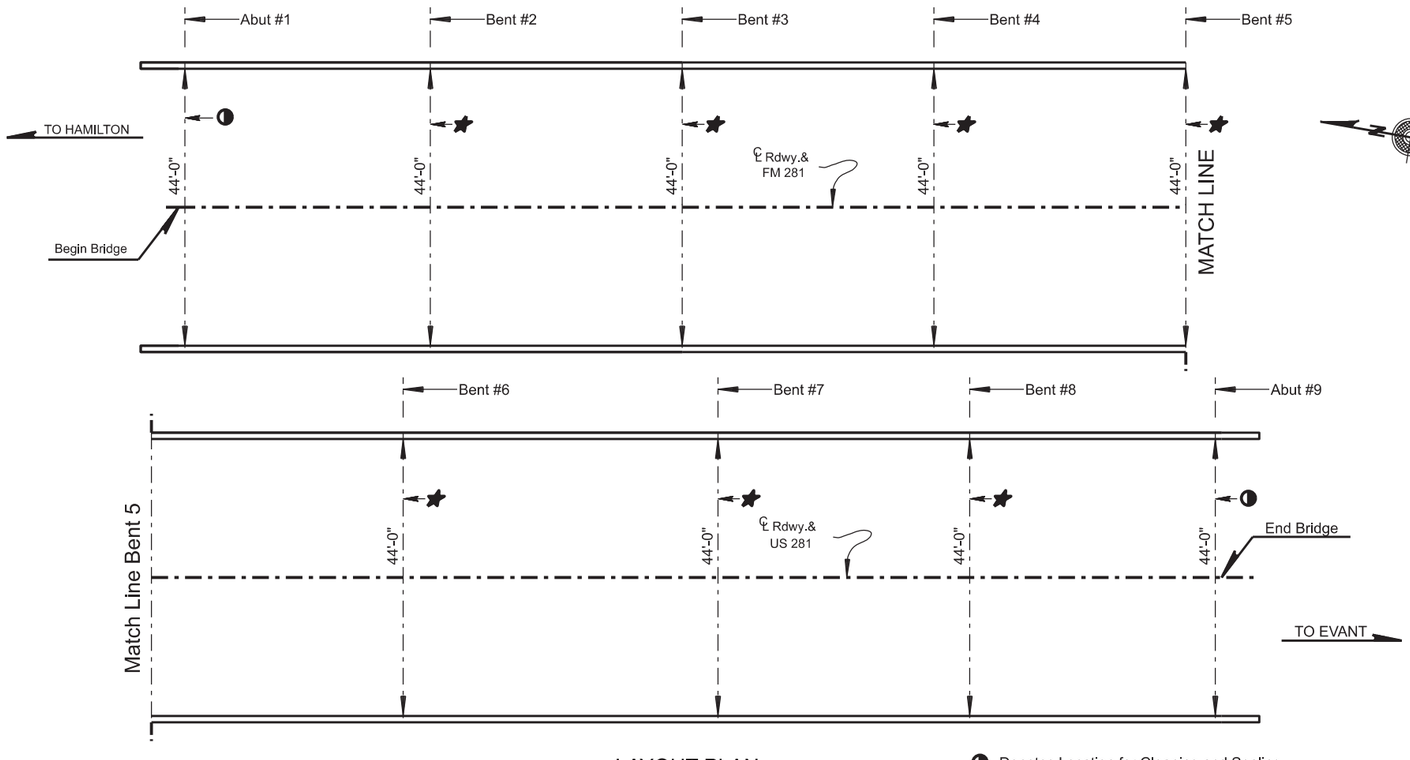
7/9/2024



LAYOUT PLAN

US 281 OVER COWHOUSE CREEK

09-098-0-0251-02-048

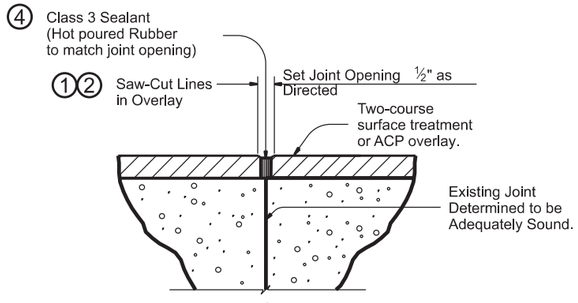
◐ Denotes Location for Cleaning and Sealing Relief Joints.

★ Denotes Location for Cleaning and Sealing Expansion Joints.

US 281 OVER COWHOUSE CREEK
330'-0" OVERALL LENGTH CONSISTING OF:
5 @ 40'-0", 1 @ 50'-0", 2 @ 40'-0" STEEL I-BEAM SPANS
& PRESTR. CONCRETE I-BEAMS SPANS AT WIDENED.
44'-0" ROADWAY, NORMAL BENTS, T4 RAIL

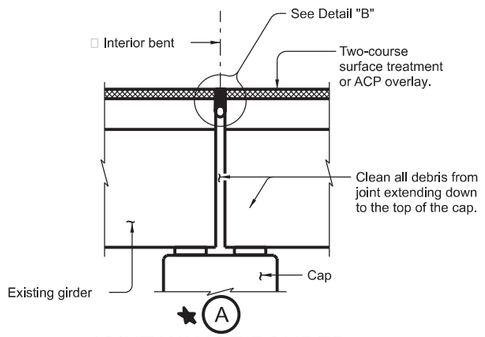
PROCEDURE FOR CLEANING AND SEALING EXISTING CONCRETE JOINT WITH HOT POURED RUBBER SEAL:

1. **Saw cut through the asphalt at the centerline of joint. Make multiple saw cuts to create a 1/2" minimum joint opening or match the existing joint opening. Clean joint opening of all old expansion materials/devices, bituminous materials, dlrt, grease and all other deletelous materials in accordance with Item 438, "Cleaning and Sealing Joints."**
2. **Obtain approval of cleaned joint prior to proceeding with joint sealing operation.**
3. **Place backer rod into joint opening below top of concrete as shown. Backer rod must be of the type that can handle the heat and be compatible with the Hot poured Rubber seal. The backer rod must be 25% larger than the joint opening.**
4. **Seal the joint opening with a Class 3, "Hot Poured Rubber". Seal flush to the top of the asphaltic concrete pavement. Prepare joint and seal in accordance with Item 438 "Cleaning and Sealing joints".**

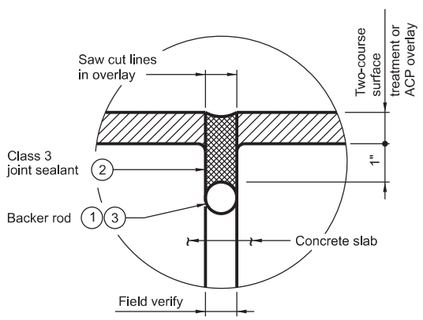


B ◐

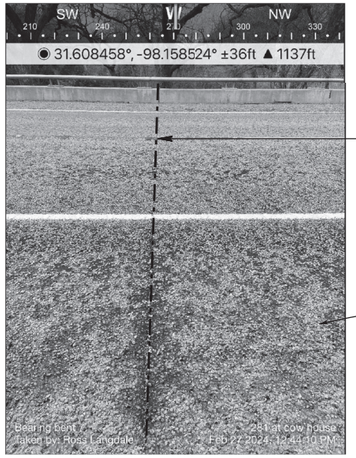
SECTION THRU RELIEF JOINT



JOINT W/ HOT-POURED RUBBER SEAL



DETAIL "B"



TYPICAL BENT

1. Provide backer rod 25% larger than joint opening and compatible with the sealant. Use of multiple pieces to create a backer rod cross section is not permitted. Top of backer rod must be convex as shown.
2. Use Class 3 joint sealant in accordance with DMS-6310, "Joint Sealants and Fillers". Prepare joint and seal in accordance with Item 438 "Cleaning and Sealing Joints."
3. Backer rod must be compatible with the hot poured rubber sealant and rated for a minimum of 400°F.

ESTIMATED QUANTITIES

	ITEM	DESCRIPTION	UNIT	QTY
★	0438-7004	CLEANING AND SEALING EXISTING JOINTS (CL 3)	L.F.	308.0
◐	0438-7009	RESIZING AND SEALING JOINTS	L.F.	88.0

STATE OF TEXAS
ROSS L. LANGDALE
126994
LICENSED
PROFESSIONAL ENGINEER

7/12/2024

Ross L Langdale, P.E.

Texas Department of Transportation

CLEANING AND SEALING EXPANSION JOINTS

US 281 OVER COWHOUSE CREEK

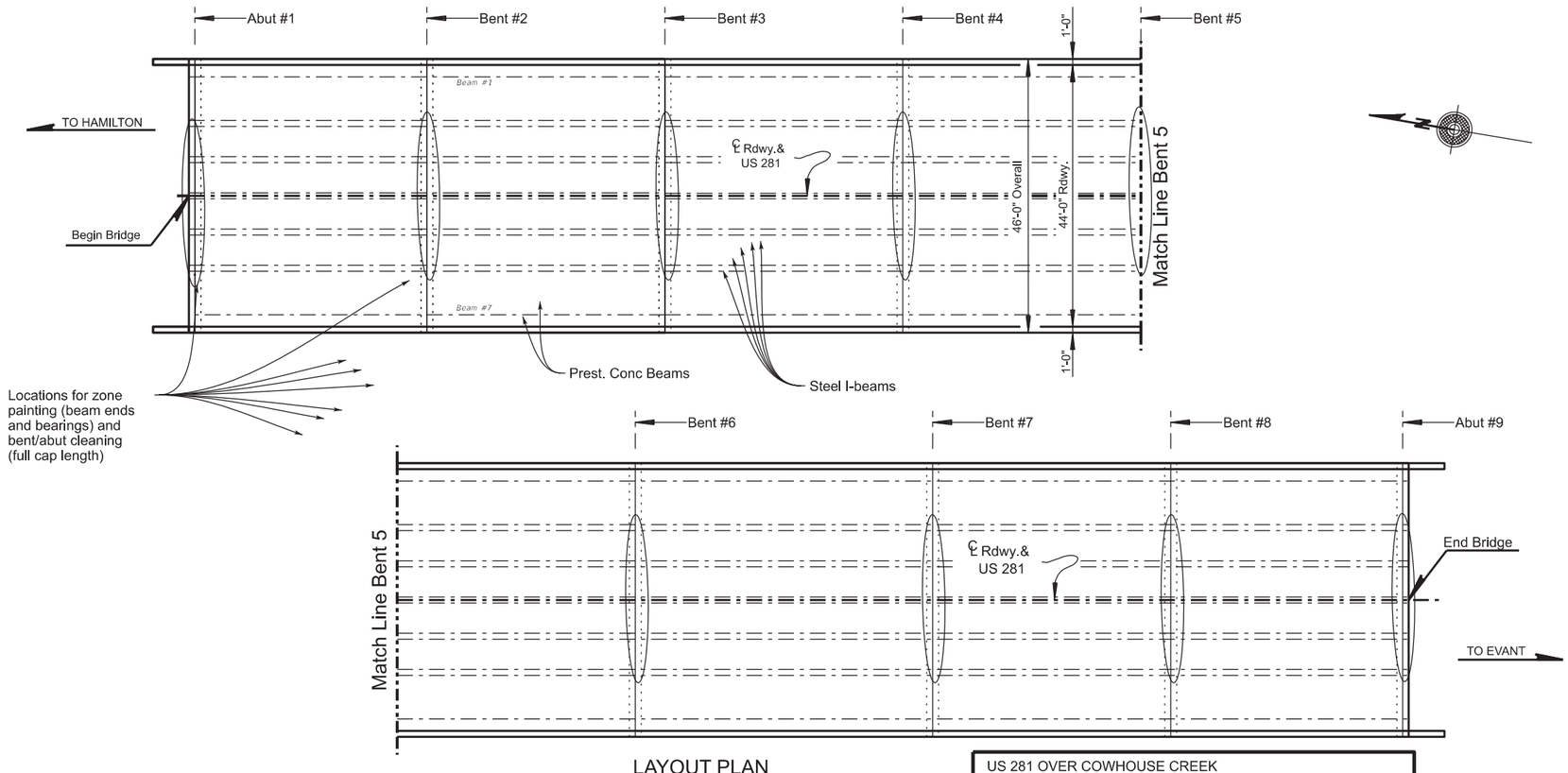
09-098-0-0251-02-048

SHEET 1 OF 1

CHANGE ORDER	FED.RD. DIV. NO.	CONT	SECT	JOB	HIGHWAY
	6	6467	47	001	FM 434,ETC
	STATE	DIST	COUNTY		SHEET NO.
	TEXAS	WACO	MCLENNAN		78

$FILEAS

NODE

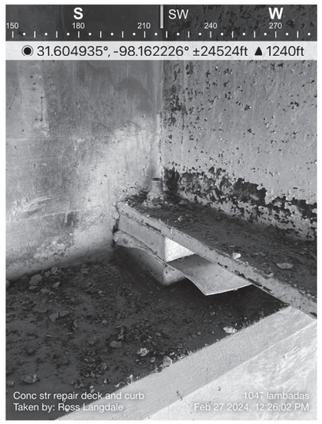


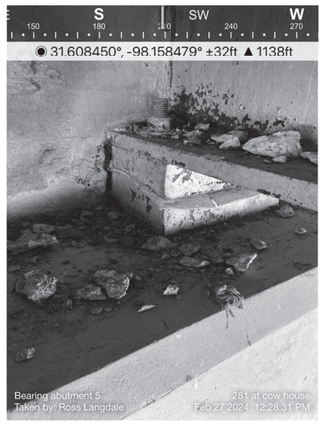
LAYOUT PLAN

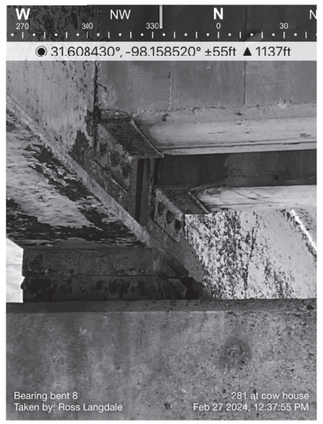
US 281 OVER COWHOUSE CREEK

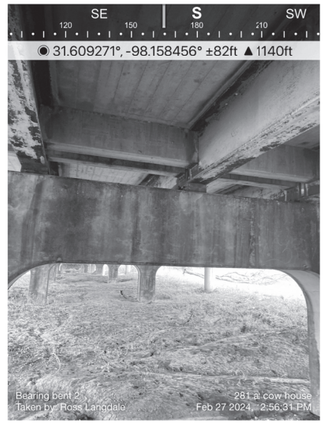
09-098-0-0251-02-048

US 281 OVER COWHOUSE CREEK
330'-0" OVERALL LENGTH CONSISTING OF:
5 @ 40'-0", 1 @ 50'-0", 2 @ 40'-0" STEEL & I-BEAMS SPANS
& PRESTR. CONCRETE I-BEAMS SPANS AT WIDENED.
44'-0" ROADWAY, NORMAL BENTS, T4 RAIL









ESTIMATED QUANTITIES

ITEM	DESCRIPTION	UNIT	QTY
0429-7007	CONC STR REPAIR (VERTICAL & OVERHEAD)	S.F.	225.0
4010-7003	STEEL BRIDGE ZONE PAINTING REF STR #2	E.A.	1.0
7001-7002	BENT CAP/ABUTMENT CAP CLEAING	E.A.	9.0

GENERAL NOTES

Repair locations and quantities are approximate and based on conditions surveyed in March 2024. Current conditions may vary. Contractor must field verify locations and extent of repairs in the presence of the Engineer an prior to ordering materials and performing any work.

See ZONE PAINTING DETAILS for additional information.

CONSTRUCTION NOTES

Submit a detailed concrete repair procedure for approval. Perform any concrete repairs in accordance with Item 429, "Concrete Structure Repair" and TxDOT's Concrete Repair Manual, Chapter 3, Sections 1 and 2. A copy of this manual must be available onsite during all concrete repair operations.

Provide an approved Type C concrete repair material conforming to DMS 4655 for minor and intermediate, vertical or overhead spall repairs. Follow all manufacturer recommendations for preparation, application, and curing of repair materials.

Remove all damaged, loose, or delaminated concrete without damaging surrounding sound concrete that is to remain in place. Only use hand tools or power-driven chipping hammers (15 lb max) to remove concrete, unless otherwise approved by the Engineer. Clean all reinforcement exposed after concrete removal.

Additional damage cause to the structure during repair operations must be repaired at the Contractor's expense.

All zone painting work must only be performed once all other repairs at or near zone painting locations have been completed.

STATE OF TEXAS
ROSS L. LANGDALE
126994
LICENSED
PROFESSIONAL ENGINEER

7/12/2024

Ross L Langdale, P.E.

Texas Department of Transportation

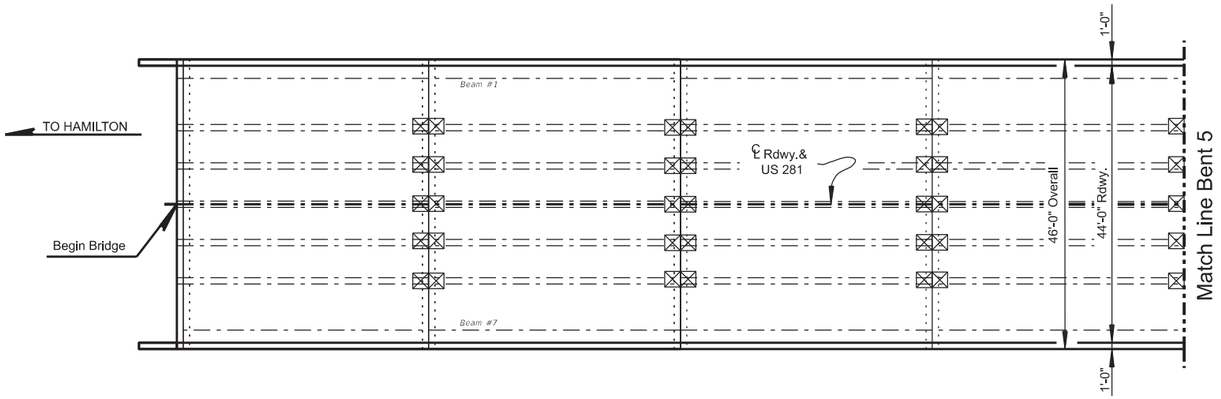
ZONE PAINTING LAYOUT

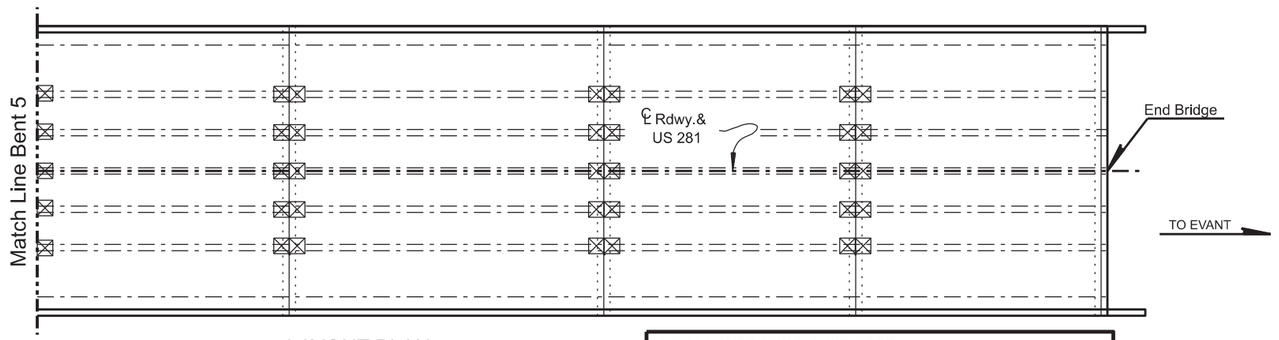
US 281 OVER COWHOUSE CREEK

09-098-0-0251-02-048

SHEET 1 OF 1

CHANGE ORDER	FED.RD. DIV. NO.	CONT	SECT	JOB	HIGHWAY
	6	6467	47	001	FM 434,ETC
	STATE	DIST	COUNTY		SHEET NO.
	TEXAS	WACO	MCLENNAN		79





LAYOUT PLAN

US 281 OVER COWHOUSE CREEK
09-098-0-0251-02-048

US 281 OVER COWHOUSE CREEK
330'-0" OVERALL LENGTH CONSISTING OF:
5 @ 40'-0", 1 @ 50'-0", 2 @ 40'-0" STEEL & I-BEAMS SPANS
& PRESTR. CONCRETE I-BEAMS SPANS AT WIDENED.
44'-0" ROADWAY, NORMAL BENTS, T4 RAIL

☒ LOCATION FOR LEAD BEARING SHEET REPLACEMENT

ESTIMATED QUANTITIES

ITEM	DESCRIPTION	UNIT	QTY
0495-7001	RAISING EXIST STRUCT	L.S.	1.0
0784-7004	STL STRUCTURE REPAIR (ENTIRE BRIDGE)	L.S.	1.0
*	LEAD SHEETS	E.A.	70.0

* FOR CONTRACTOR'S INFORMATION ONLY

STATE OF TEXAS
ROSS L. LANGDALE
126994
LICENSED
PROFESSIONAL ENGINEER

7/12/2024

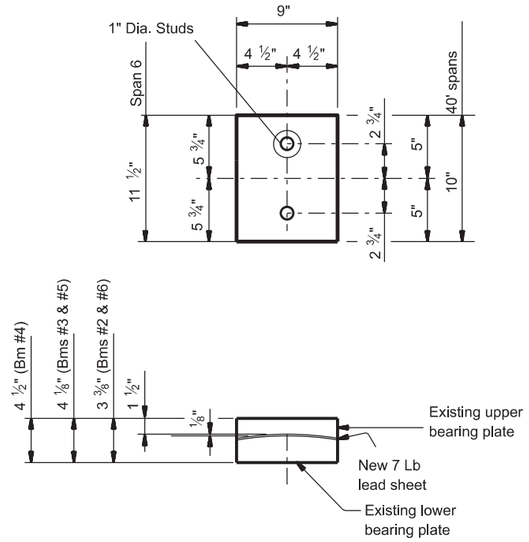
Ross L. Langdale, P.E.

Texas Department of Transportation

LEAD BEARING SHEET REPLACEMENT DETAILS

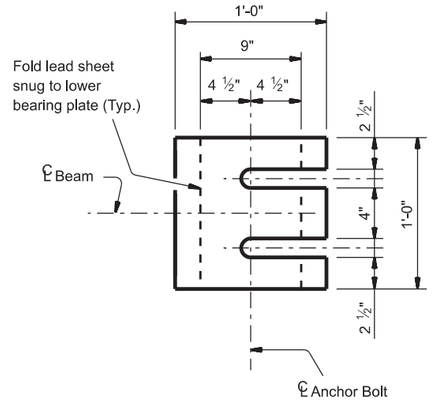
US 281 OVER COWHOUSE CREEK
09-098-0-0251-02-048

CHANGE ORDER	FED.RD. DIV. NO.	CONT	SECT	JOB	HIGHWAY
	6	6467	47	001	FM 434,ETC
	STATE	DIST	COUNTY		SHEET NO.
	TEXAS	WACO	MCLENNAN		80



STEEL I-BEAM LOCATIONS

EXISTING STEEL BEARING PLATE DETAILS



STEEL I-BEAM LOCATIONS

LEAD BEARING SHEET DETAILS

Note:
Contractor to field verify lead sheet size prior to ordering materials.

REPAIR PROCEDURE:

1. Perform lead bearing sheet replacement in phases. Close traffic lane above beams being raised. See Traffic Control Plan Narrative.
2. Raise beams approximately ½" max to facilitate lead bearing sheet replacement in accordance with Item 495. "Raising Existing Structures".
3. Replace lead bearing sheets between bearing plates. Bearing sheet replacement is paid for as Item 784, "Steel Member Repair".
4. Fold lead sheets as shown in Lead Bearing Sheet Detail.
5. Break upper bearing plate free of flange and apply heavy duty corrosion inhibiting lubricant. Lubricant shall be "Bastik Never - Seez Mariners Choice" or equivalent as approved by Engineer.
6. Lower beams until fully supported on bearings.
7. Remove jacks and restore traffic.

STATE OF TEXAS
ROSS L. LANGDALE
126994
LICENSED
PROFESSIONAL ENGINEER

7/12/2024

Ross L Langdale, P.E.

Texas Department of Transportation

LEAD BEARING SHEET REPLACEMENT DETAILS

US 281 OVER COWHOUSE CREEK
09-098-0-0251-02-048

CHANGE ORDER	FED.RD. DIV. NO.	CONT	SECT	JOB	HIGHWAY
	6	6467	47	001	FM 434,ETC
	STATE	DIST	COUNTY		SHEET NO.
	TEXAS	WACO	MCLENNAN		81

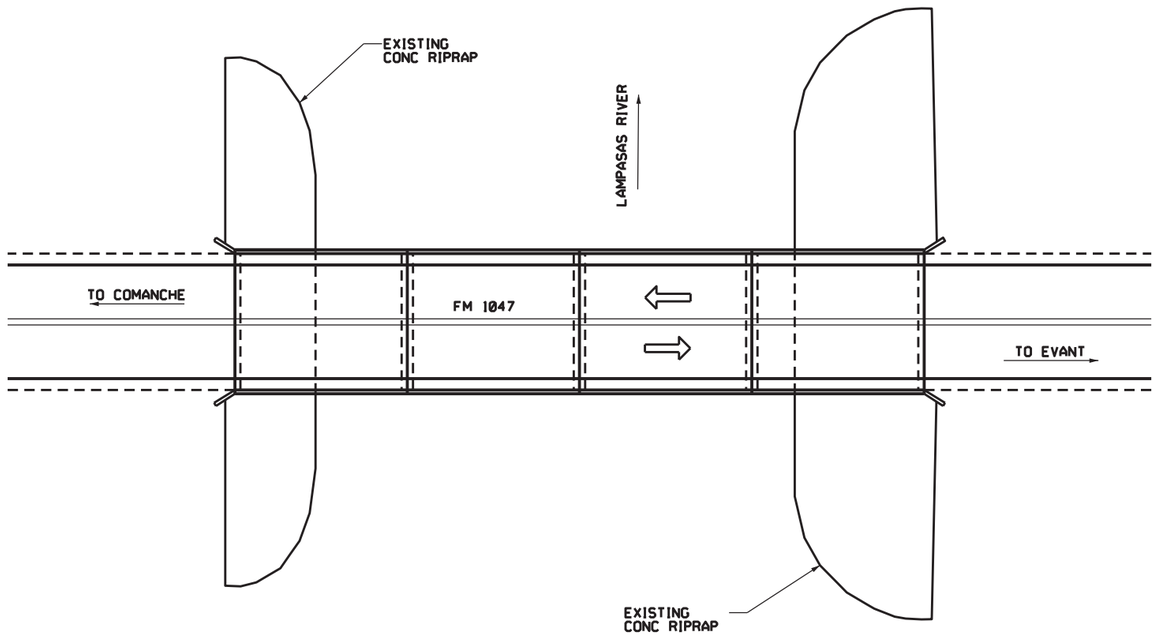
FOR LOCATION REPAIR DETAILS REFER TO:

LAYOUT FOR CLEANING AND SEALING EXPANSION JOINTS

EROSION REPAIR DETAILS

CONCRETE STR REPAIR

AS-BUILT PLAN SET: 1780-02-002

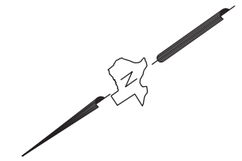


NOTE:
THIS SKETCH IS TO BE USED AS AN APPROXIMATE GUIDE FOR MAINTENANCE WORK TO BE PERFORMED IN THE VICINITY OF THIS EXISTING STRUCTURE.

LOCATION: FM 1047 @ LAMPASAS RIVER
NBI#: 09-098-0-1780-02-002
DIMENSIONS: 121'x 24' BRIDGE
SKEW: 0° SKEW
GPS LAT/LON: 31.5469899/-98.33850908

LEGEND:

- EMBANKMENT
- EXCAVATION
- CONCRETE RIP RAP
- STONE RIP RAP
- FLOWABLE BACKFILL



GENERAL VICINITY LAYOUT
NTS
DRAWING NOT TO SCALE

GENERAL NOTES:

1. WHEN DIRECTED SURPLUS MATERIAL ESTIMATED AT INDIVIDUAL LOCATIONS MAY BE USED AT OTHER CONTRACT SITES.
2. IF STONE PROTECTION IS REQUIRED, THE DETAILS SHOWN ARE PROVIDED AS AN APPROXIMATE GUIDE FOR INSTALLATION OF STONE PROTECTION. THE CONTRACTOR WILL DETERMINE THE LIMITS OF STONE PROTECTION REQUIRED AS DICTATED BY FIELD CONDITIONS AND AS DIRECTED PRIOR TO MATERIAL PURCHASE AND DELIVERY.
3. IF NO PAY ITEM FOR DEBRIS REMOVAL IS NOTED; DEBRIS WILL BE REMOVED FROM BRIDGE STRUCTURE ELEMENTS. THIS WILL NOT BE PAID FOR DIRECTLY, BUT CONSIDERED SUBSIDIARY TO THE VARIOUS BID ITEMS.
4. THE CONTRACTOR WILL LIMIT CHANNEL DISTURBING ACTIVITIES TO THE VICINITY OF STRUCTURE AND TxDOT ROW. CONSTRUCTION WILL HAVE EROSION CONTROL BMP IN PLACE DURING ANY SOIL DISTURBING ACTIVITY.
5. IF NO PAY ITEM FOR BRUSH REMOVAL IS NOTED; BRUSH CLEARING FOR EXCAVATION AND EMBANKMENT WILL NOT BE PAID DIRECTLY, BUT CONSIDERED SUBSIDIARY TO THE VARIOUS BID ITEMS.
6. THE CONTRACTOR MUST EXHAUST ALL TYPE-D EMBANKMENT AVAILABLE AT SITE PRIOR TO DELIVERY OF TYPE-B.
7. IF JOINT SEAL IS REQUIRED FOR RIP RAP, THE QUANTITY SHOWN IS FOR ESTIMATION ONLY. THE CONTRACTOR WILL DETERMINE THE LIMITS OF SEALANT AS DICTATED BY FIELD CONDITIONS AND AS DIRECTED. JOINTS TOO LARGE FOR SEALANT MAY BE SEALED BY FLOWABLE BACKFILL AS DIRECTED. REFER TO DMS-6100 FOR MATERIAL SPECIFICATIONS.
8. LOCATIONS WHERE FENCING MUST BE ALTERED; AT ALL TIMES CONTRACTOR WILL MAINTAIN ADEQUATE BARRIER TO KEEP LIVESTOCK FROM ENTERING ROW. WHEN POSSIBLE REPLACE FENCING TO MATCH ORIGINAL. THIS WILL NOT BE PAID FOR DIRECTLY, BUT CONSIDERED SUBSIDIARY TO THE VARIOUS BID ITEMS.

ITEM-DESC	DESCRIPTION	UNITS	TOTAL
132-7015	EMBANKMENT (VEHICLE)(ORD COMP)(TY-B)	CY	10.0
401-7001	FLOWABLE BACKFILL	CY	25.0
429-7007	CONC STR REPAIR (VERTICAL & OVERHEAD)	SF	95.0
432-7043	RIPRAP (STONE PROTECTION)(18")	CY	180.0
438-6004	CLEANING & SEALING EXIST JOINTS (CL3)	LF	72.0
438-7009	RESIZING AND CLEAING JOINTS	LF	48.0
552-7003	WIRE FENCE (TY-C)	LF	122.0
780-7005	CNC CRACK REPAIR (DISCRETE)(ROUT & SEAL)	LF	30.0

CONTRACTOR'S INFORMATION ONLY

STATE OF TEXAS
CHARLES W. SMITH
110312
LICENSED PROFESSIONAL ENGINEER

The seal appearing on this document was authorized by CHARLES W. SMITH P.E. 110312, on

Charles W. Smith, PE 7/12/2024

HAMILTON COUNTY STRUCTURE LAYOUT

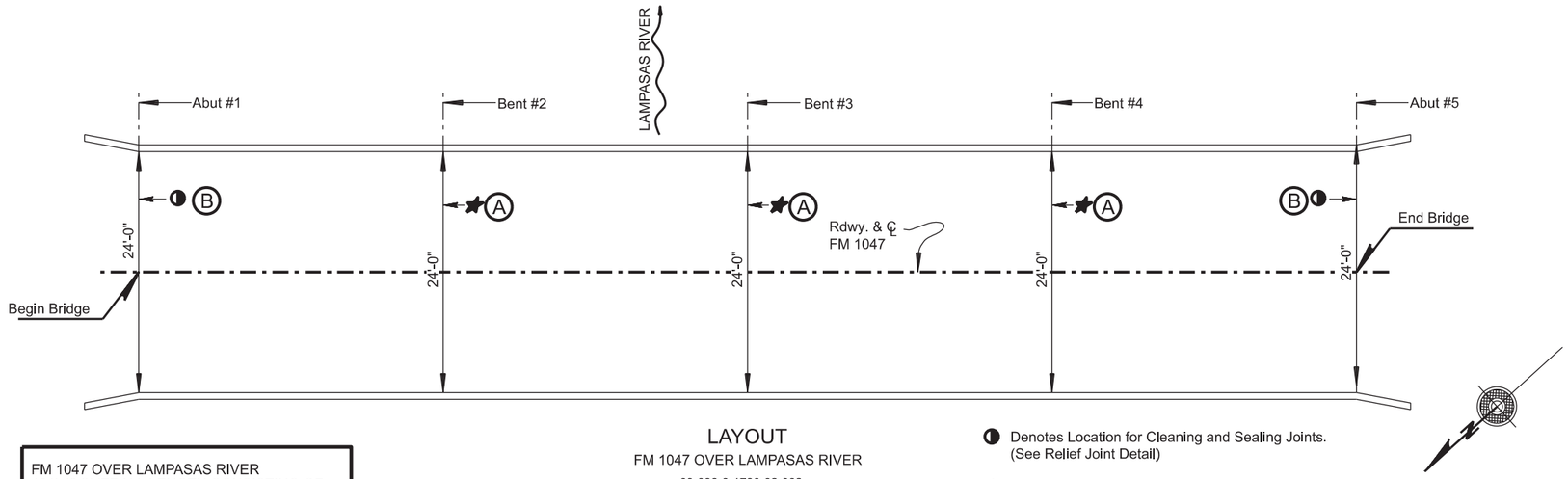
FM 1047 @ LAMPASAS RIVER

NBI# 09-098-0-1780-02-002

SCALE: NTS

DESIGN	FED RD DIV No.	PROJECT No.		HIGHWAY No.
ZB	6	BPM 6467-47-001		FM 434,ETC
CHECK	STATE	DISTRICT	COUNTY	SHEET No.
CS	TEXAS	WACO	MCLENNAN	82
GRAPHICS	CONTROL	SECTION	JOB	
DL	6467	47	001	
CHECK				
CS				

...\1780-02-002.dgn



FM 1047 OVER LAMPASAS RIVER
121'-4" OVERALL LENGTH CONSISTING OF:
(4 @ 30'-4") CONCRETE PAN GIRDER SPANS
24'-0" ROADWAY, TYPE II RAIL

LAYOUT

FM 1047 OVER LAMPASAS RIVER

09-098-0-1780-02-002

◐ Denotes Location for Cleaning and Sealing Joints. (See Relief Joint Detail)

★ Denotes Location for Cleaning and Sealing Expansion Joints.

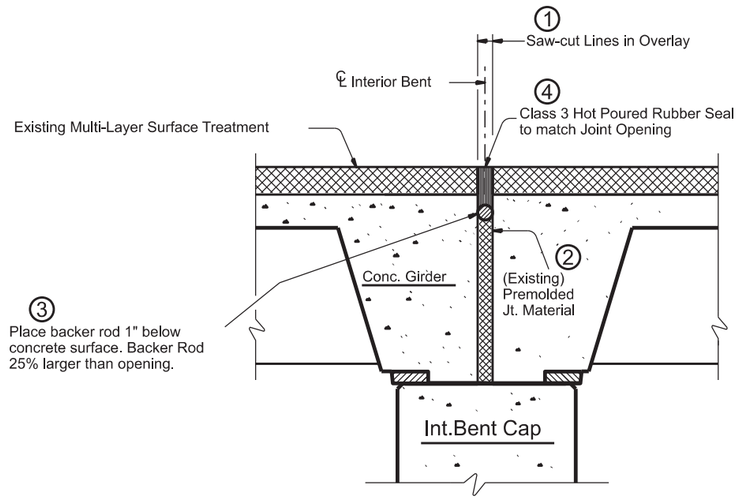
PROCEDURE FOR CLEANING AND SEALING EXISTING CONCRETE JOINT WITH HOT POURED RUBBER SEAL:

① Saw cut through the asphalt at the centerline of joint. Make multiple saw cuts to create a 1/2" minimum joint opening or match the existing joint opening. Clean joint openlng of all old expansion materials/devices, bituminous materials, dirt, grease and all other deleteious materials in accordance with Item 438, "Cleaning and Sealing Joints."

② Obtain approval of cleaned joint prior to proceedlng wlth joint sealing operation.

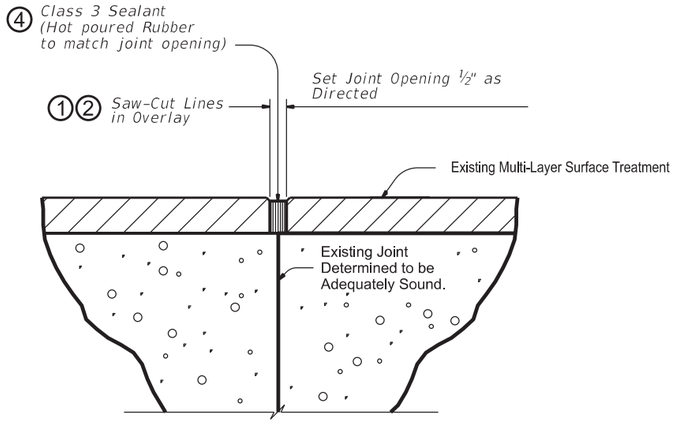
③ Place backer rod into joint opening below top of concrete as shown. Backer rod must be of the type that can handle the heat and be compatible with the Hot poured Rubber seal. The backer rod must be 25% larger than the joint opening.

④ Seal the joint opening with a Class 3, "Hot Poured Rubber". Seal flush to the top of the asphaltic concrete pavement. Prepare joint and seal in accordance with Item 438 "Cleaning and Sealing joints".



Ⓐ

INTERIOR BENT LOCATION



Ⓑ

SECTION THRU RELIEF JOINT

EXPANSION JOINT DETAIL

ESTIMATED QUANTITIES

	ITEM	DESCRIPTION	UNIT	QTY
Ⓐ	0438-7004	CLEANING AND SEALING EXIST JOINTS (CL 3)	L.F.	72.0
Ⓑ	0438-7009	RESIZING AND CLEANING JOINTS	L.F.	48.0

STATE OF TEXAS
ROSS L. LANGDALE
126994
LICENSED
PROFESSIONAL ENGINEER

7/12/2024

Ross L. Langdale, P.E.

Texas Department of Transportation

LAYOUT FOR CLEANING AND SEALING JOINTS

FM 1047 OVER LAMPASAS RIVER
09-098-0-1780-02-002

SCALE: 1" = HORIZ. FEET

SHEET 1 OF 1

CHANGE ORDER	FED.RD. DIV. NO.	CONT	SECT	JOB	HIGHWAY
	6	6467	47	001	FM 434,ETC
	STATE	DIST	COUNTY		SHEET NO.
	TEXAS	WACO	MCLENNAN		83

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7/9/2024
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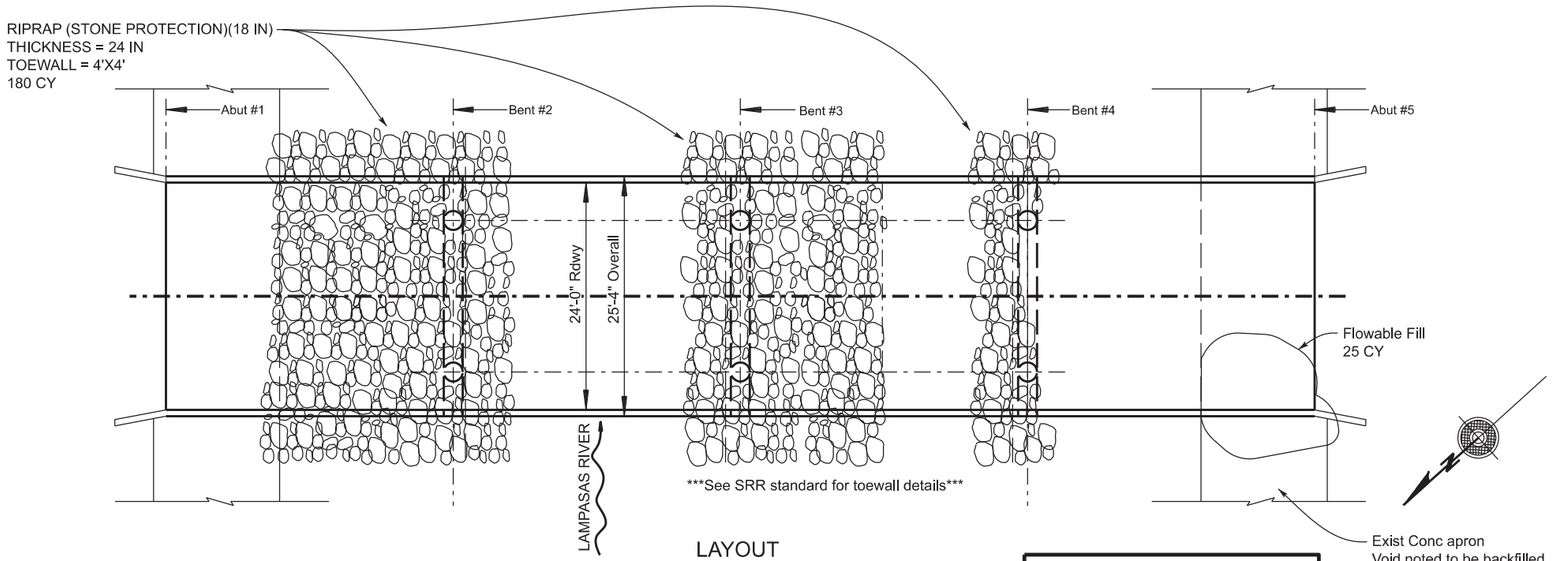
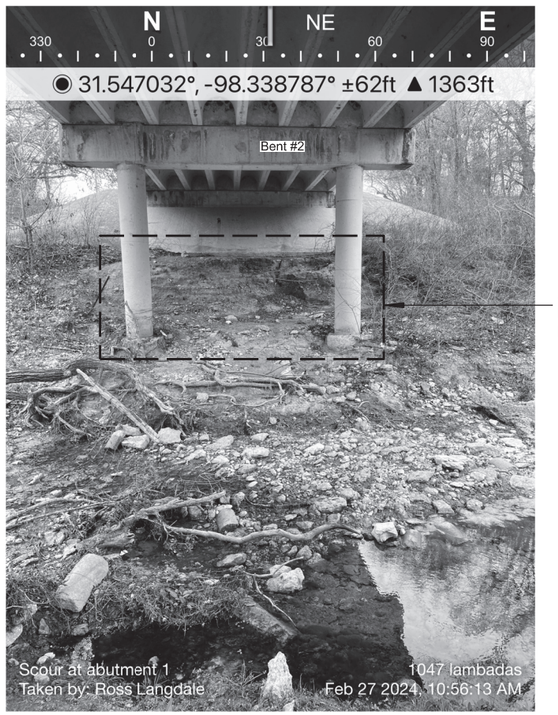
NODE



LAYOUT
FM 1047 OVER LAMPASAS RIVER
09-098-0-1780-02-002

FM 1047 OVER LAMPASAS RIVER
121'-4" OVERALL LENGTH CONSISTING OF:
(4 @ 30'-4") CONCRETE PAN GIRDER SPANS
24'-0" ROADWAY, TYPE II RAIL



TYPICAL EROSION REPAIR
SHOWING TYPICAL LIMITS OF REPAIR

GENERAL NOTES

Repair locations and quantities are approximate and based on conditions surveyed in March 2024. Current conditions may vary. Contractor must field verify locations and extent of repairs in the presence of the Engineer an prior to ordering materials and performing any work.

CONSTRUCTION NOTES

The details shown for stone protection riprap are provided as an approximate guide for installation of the stone protection.

*** STONE RIPPAP WILL BE REQUIRED TO BE GROUTED IN PLACE AFTER APPROVAL OF PLACEMENT OF THE STONE PROTECTION RIPRAP PER ITEM 432. THE GROUT MIX MUST CONFORM TO DMS-4675 AS SPECIFIED IN ITEM 421. FLOWABLE BACKFILL MAY ALSO BE USED WITH APPROVAL OF THE ENGINEER. ALL WORK AND MATERIALS NECESSARY TO PERFORM THIS OPERATION WILL BE SUBSIDIARY TO THIS PAY ITEM.

ESTIMATED QUANTITIES

ITEM	DESCRIPTION	UNIT	QTY
0132-7015	EMBANKMENT (VEHICLE)(ORD COMP)(TY B)	C.Y.	10.0
401-7001	FLOWABLE BACKFILL	C.Y.	25.0
0432-7043	RIPRAP (STONE PROTECTION)(18 IN)	C.Y.	180.0

STATE OF TEXAS
ROSS L. LANGDALE
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PROFESSIONAL ENGINEER
7/12/2024
Ross L. Langdale, P.E.

Texas Department of Transportation

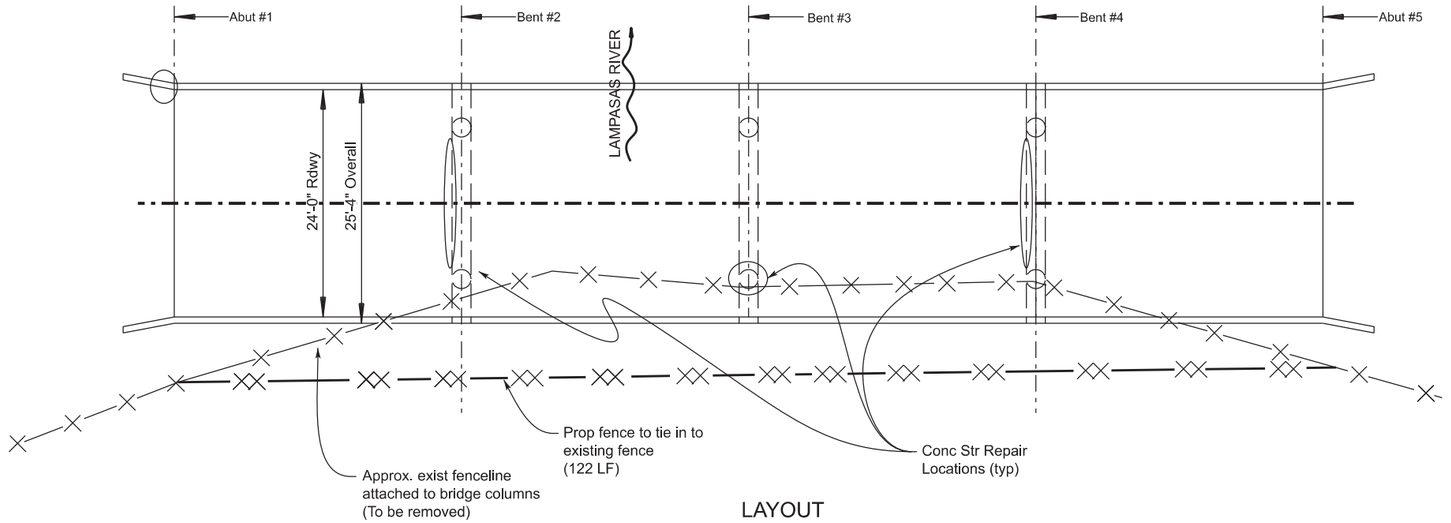
EROSION REPAIR DETAILS

FM 1047 OVER LAMPASAS RIVER
09-098-0-1780-02-002

SCALE: 1" = HORIZ. FEET

SHEET 1 OF 1

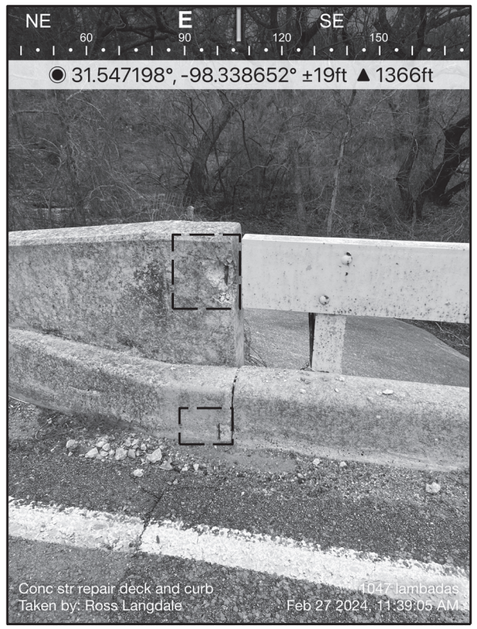
CHANGE ORDER	FED.RD. DIV. NO.	CONT	SECT	JOB	HIGHWAY
	6	6467	47	001	FM 434,ETC
	STATE	DIST	COUNTY		SHEET NO.
	TEXAS	WACO	MCLENNAN		84

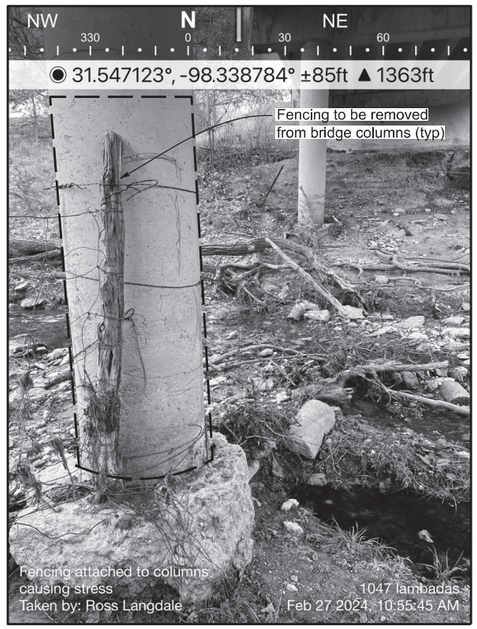


LAYOUT

FM 1047 OVER LAMPASAS RIVER
09-098-0-1780-02-002

FM 1047 OVER LAMPASAS RIVER
121'-4" OVERALL LENGTH CONSISTING OF:
(4 @ 30'-4") CONCRETE PAN GIRDER SPANS
24'-0" ROADWAY, TYPE II RAIL





TYPICAL CONC REPAIR LOCATIONS

SHOWING TYPICAL LIMITS OF REPAIR

ESTIMATED QUANTITIES

ITEM	DESCRIPTION	UNIT	QTY
0429-7007	CONC STR REPAIR (VERTICAL & OVERHEAD)	S.F.	95.0
0552-7003	WIRE FENCE (TY C)	L.F.	122.0
0780-7005	CNC CRACK REPAIR (DISCRETE)(ROUT AND SEAL)	L.F.	30.0

GENERAL NOTES

Repair locations and quantities are approximate and based on conditions surveyed in March 2024. Current conditions may vary. Contractor must field verify locations and extent of repairs in the presence of the Engineer an prior to ordering materials and performing any work.

CONSTRUCTION NOTES

Submit a detailed concrete repair procedure for approval. Perform any concrete repairs in accordance with Item 429, "Concrete Structure Repair" and TxDOT's Concrete Repair Manual, Chapter 3, Sections 1 and 2. A copy of this manual must be available onsite during all concrete repair operations.

Provide an approved Type C concrete repair material conforming to DMS 4655 for minor and intermediate, vertical or overhead spall repairs. Follow all manufacturer recommendations for preparation, application, and curing of repair materials.

Remove all damaged, loose, or delaminated concrete without damaging surrounding sound concrete that is to remain in place. Only use hand tools or power-driven chipping hammers (15 lb max) to remove concrete, unless otherwise approved by the Engineer. Clean all reinforcement exposed after concrete removal.

Additional damage cause to the structure during repair operations must be repaired at the Contractor's expense.

STATE OF TEXAS
ROSS L. LANGDALE
126994
LICENSED
PROFESSIONAL ENGINEER

7/12/2024

Ross L Langdale, P.E.

Texas Department of Transportation

CONCRETE STR REPAIR

FM 1047 OVER LAMPASAS RIVER
09-098-0-1780-02-002

SCALE: 1" = HORIZ. FEET

SHEET 1 OF 1

CHANGE ORDER	FED.RD. DIV. NO.	CONT	SECT	JOB	HIGHWAY
	6	6467	47	001	FM 434,ETC
	STATE	DIST	COUNTY		SHEET NO.
	TEXAS	WACO	MCLENNAN		85

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7/9/2024
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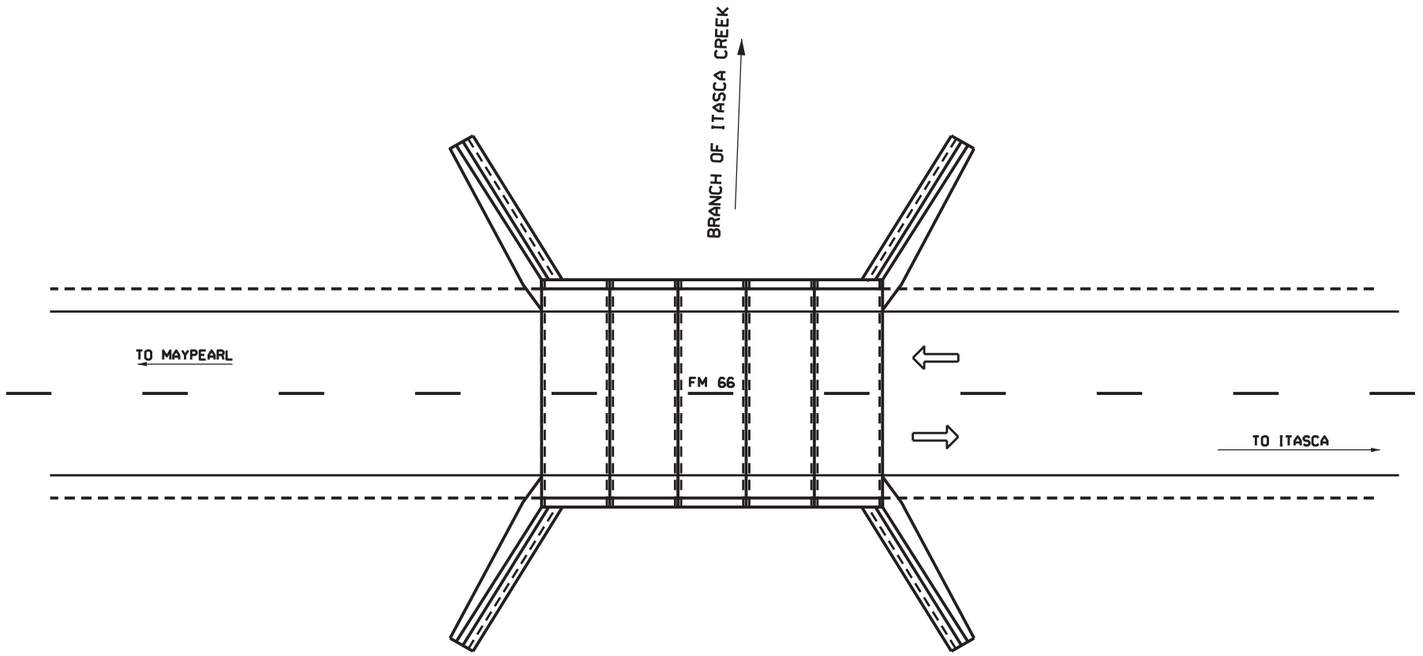
NODE

FOR LOCATION REPAIR DETAILS REFER TO:

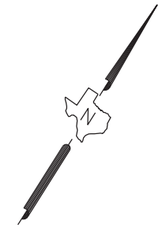
WINGWALL REPAIR

AS-BUILT PLAN SET: 0596-01-002



LEGEND:

- EMBANKMENT
- EXCAVATION
- CONCRETE RIP RAP
- STONE RIP RAP
- FLOWABLE BACKFILL



GENERAL VICINITY LAYOUT
NTS
DRAWING NOT TO SCALE

GENERAL NOTES:

1. WHEN DIRECTED SURPLUS MATERIAL ESTIMATED AT INDIVIDUAL LOCATIONS MAY BE USED AT OTHER CONTRACT SITES.
2. IF STONE PROTECTION IS REQUIRED, THE DETAILS SHOWN ARE PROVIDED AS AN APPROXIMATE GUIDE FOR INSTALLATION OF STONE PROTECTION. THE CONTRACTOR WILL DETERMINE THE LIMITS OF STONE PROTECTION REQUIRED AS DICTATED BY FIELD CONDITIONS AND AS DIRECTED PRIOR TO MATERIAL PURCHASE AND DELIVERY.
3. IF NO PAY ITEM FOR DEBRIS REMOVAL IS NOTED; DEBRIS WILL BE REMOVED FROM BRIDGE STRUCTURE ELEMENTS. THIS WILL NOT BE PAID FOR DIRECTLY, BUT CONSIDERED SUBSIDIARY TO THE VARIOUS BID ITEMS.
4. THE CONTRACTOR WILL LIMIT CHANNEL DISTURBING ACTIVITIES TO THE VICINITY OF STRUCTURE AND TxDOT ROW. CONSTRUCTION WILL HAVE EROSION CONTROL BMP IN PLACE DURING ANY SOIL DISTURBING ACTIVITY.
5. IF NO PAY ITEM FOR BRUSH REMOVAL IS NOTED; BRUSH CLEARING FOR EXCAVATION AND EMBANKMENT WILL NOT BE PAID DIRECTLY, BUT CONSIDERED SUBSIDIARY TO THE VARIOUS BID ITEMS.
6. THE CONTRACTOR MUST EXHAUST ALL TYPE-D EMBANKMENT AVAILABLE AT SITE PRIOR TO DELIVERY OF TYPE-B.
7. IF JOINT SEAL IS REQUIRED FOR RIP RAP, THE QUANTITY SHOWN IS FOR ESTIMATION ONLY. THE CONTRACTOR WILL DETERMINE THE LIMITS OF SEALANT AS DICTATED BY FIELD CONDITIONS AND AS DIRECTED. JOINTS TOO LARGE FOR SEALANT MAY BE SEALED BY FLOWABLE BACKFILL AS DIRECTED. REFER TO DMS-6100 FOR MATERIAL SPECIFICATIONS.
8. LOCATIONS WHERE FENCING MUST BE ALTERED; AT ALL TIMES CONTRACTOR WILL MAINTAIN ADEQUATE BARRIER TO KEEP LIVESTOCK FROM ENTERING ROW. WHEN POSSIBLE REPLACE FENCING TO MATCH ORIGINAL. THIS WILL NOT BE PAID FOR DIRECTLY, BUT CONSIDERED SUBSIDIARY TO THE VARIOUS BID ITEMS.

ITEM-DESC	DESCRIPTION	UNITS	TOTAL
104-7028	REMOVE CONC (WINGWALL)	CY	13.2
110-7002	EXCAVATION (CHANNEL)	CY	200.0
132-7015	EMBANKMENT (VEHICLE)(ORD COMP)(TY-B)	CY	200.0
400-7010	CEM STABIL BKFL	CY	120.0
403-7001	TEMPORARY SPL SHORING	SF	576.0
420-7146	CL C CONC (WINGWALLS)	CY	17.2
429-7007	CONC STR REPAIR (VERTICAL & OVERHEAD)	SF	36.0
432-7002	RIPRAP (CONC)(5")	CY	30.0
442-7007	STR STEEL (MISC NON-BRIDGE)	LB	56.0
480-7001	CLEAN EXIST CULVERTS	EA	1.0
735-7060	DRIFTWOOD REMOVAL	CY	3.0

CONTRACTOR'S INFORMATION ONLY

NOTE:
THIS SKETCH IS TO BE USED AS AN APPROXIMATE GUIDE FOR MAINTENANCE WORK TO BE PERFORMED IN THE VICINITY OF THIS EXISTING STRUCTURE.

LOCATION: FM 66 @ BRANCH OF ITASCA CREEK
NBI#: 09-110-0-0596-01-002
DIMENSIONS: 5-7' X 7' X 30' BOX CULVERT
SKEW: 0° SKEW
GPS LAT/LON: 31.17335612/-97.12362851

STATE OF TEXAS
CHARLES W. SMITH
110312
LICENSED
PROFESSIONAL ENGINEER

The seal appearing on this document was authorized by CHARLES W. SMITH P.E. 110312, on

Charles W. Smith, PE 7/12/2024

Texas Department of Transportation

HILL COUNTY
STRUCTURE LAYOUT
FM 66 @ BRANCH OF ITASCA CREEK
NBI# 09-110-0596-01-002

SCALE: NTS

DESIGN	FED RD DIV No.	PROJECT No.		HIGHWAY No.
ZB	6	BPM 6467-47-001		FM 434,ETC
CHECK	STATE	DISTRICT	COUNTY	SHEET No.
CS	TEXAS	WACO	MCLENNAN	86
GRAPHICS	CONTROL	SECTION	JOB	
DL	6467	47	001	
CHECK				
CS				

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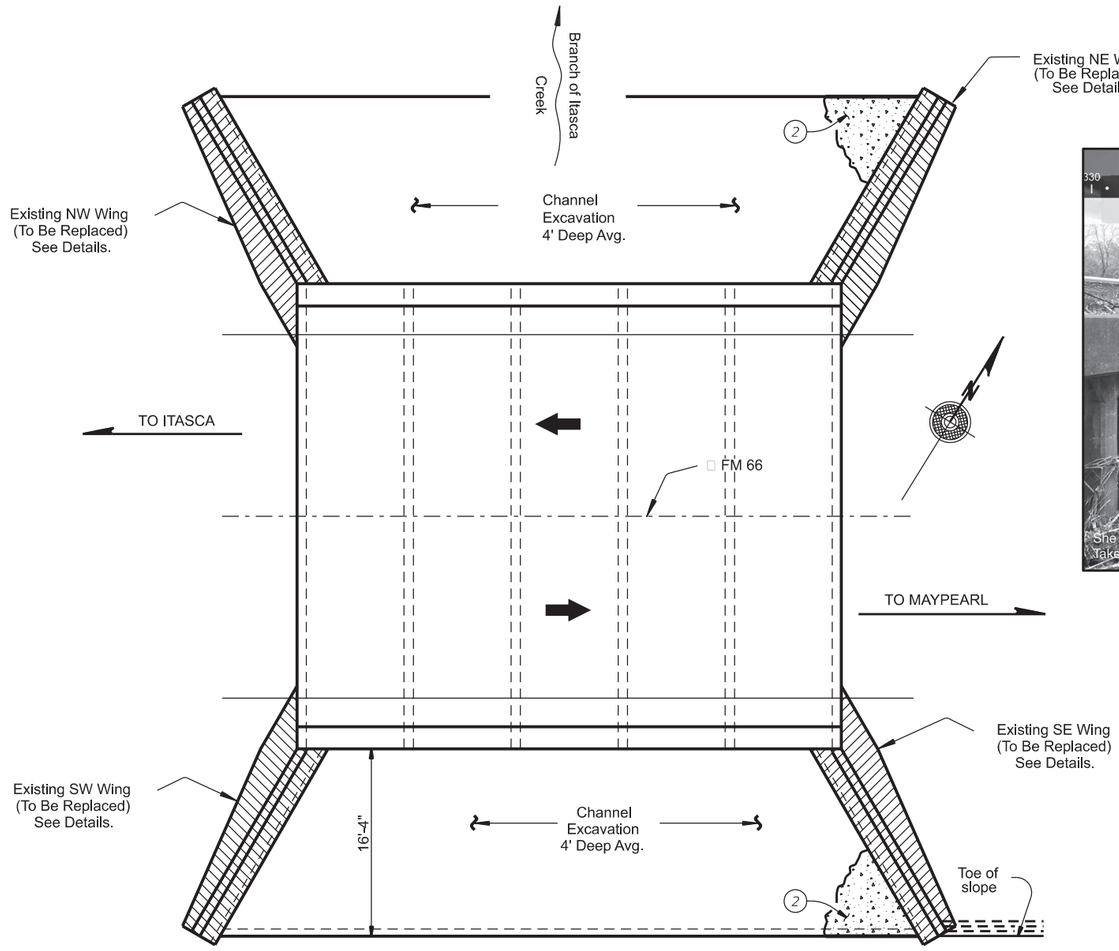
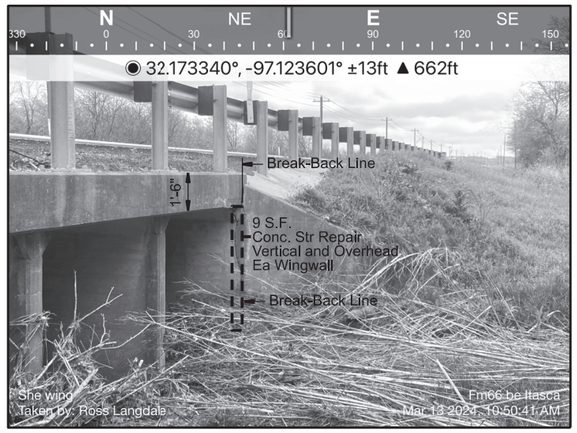


FM 66 OVER BRANCH OF ITASCA CREEK

(5 - 7' x 7' x 30' MBC) (NORMAL)

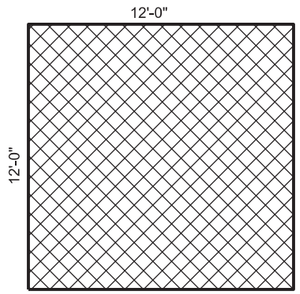
NBI# 09-110-0-0596-01-002



ELEVATION OF EXISTING BROKEN WINGWALL

(SHOWING LIMITS OF BREAK-BACK)

SE WINGWALL SHOWN



TEMPORARY SPECIAL SHORING

(FOR ROADWAY EMBANKMENT BEHIND WINGWALL)

NOTES:

1. Adjust as necessary to maintain 1 1/2" clear cover and 4" minimum between bars.
2. Construct 5" deep concrete riprap. Payment for riprap is as required by Item 432, "Riprap." Unless otherwise shown on the plans or directed by the Engineer, provide a 6" wide by 1'-6" deep reinforced concrete toewall along all edges of the riprap adjacent to natural ground; reinforce the toewall by extending typical riprap reinforcing into the toewall; and extend construction joints or grooved joints oriented in the direction of flow across the full distance of the riprap at intervals of approximately 20'.
3. At Contractor's option, culvert toewall may be ended flush with wingwall toewall. Adjust reinforcing as needed.

GENERAL NOTES:

All reinforcing steel shall be Grade 60.
Concrete for New Wing shall be Class "C" and shall have a minimum compressive strength of 3600 psi.
All materials and Labor required for constructing new wingwall shall be included in the price bid per CY for CL."C" CONC (WINGWALLS).

ESTIMATED QUANTITIES

ITEM	0104-7028	110 *	132 *	400-7010	403-7001	0420-7146	429-7007	432-7002	442-7007	480-7001	735-7060
LOCATION	REMOVE CONC (WINGWALL)	EXCAVATION (CHANNEL)	EMBANKMENT (VEHICLE) (ORD COMP) (TY B)	CEM STABIL BKFL	TEMPORARY SPL SHORING	CL C CONC (WINGWALLS)	CNC STR REP (VERTICAL OR OVERHEAD)	RIPRAP (CONC) (5 IN)	STR STEEL (MISC NON-BRIDGE)	CLEAN EXIST CULVERTS	REML & DISPL DRIFTWOOD & DEBRIS
	C.Y.	C.Y.	C.Y.	C.Y.	S.F.	C.Y.	S.F.	C.Y.	LB	EA.	C.Y.
NW WING	3.3			30	144	4.3	9.0	15.0			
SW WING	3.3			30	144	4.3	9.0	15.0			
NE WING	3.3			30	144	4.3	9.0				
SE WING	3.3			30	144	4.3	9.0				
TOTAL	13.2	200.0	200.0	120	576	17.2	36.0	30.0	56	1	3

STATE OF TEXAS
ROSS L. LANGDALE
126994
LICENSED
PROFESSIONAL ENGINEER

7/12/2024

Ross Langdale, P.E.

Texas Department of Transportation

WINGWALL REPAIR

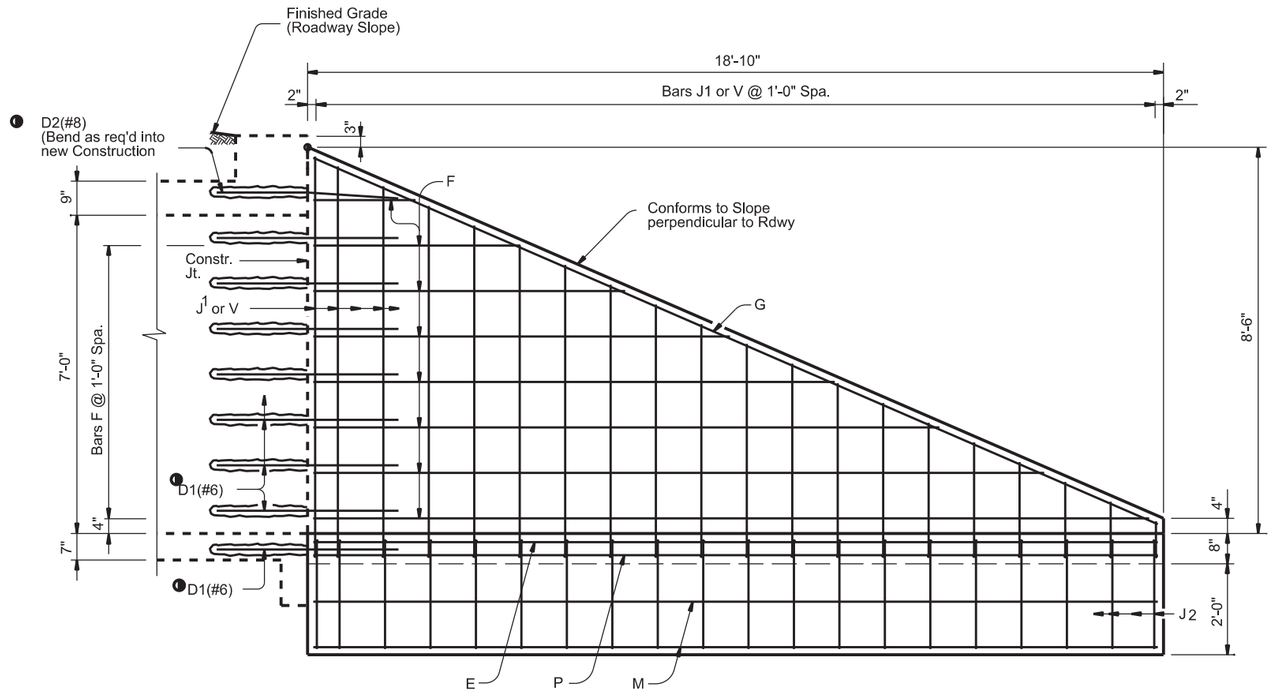
FM 66 OVER BRANCH OF ITASCA CREEK

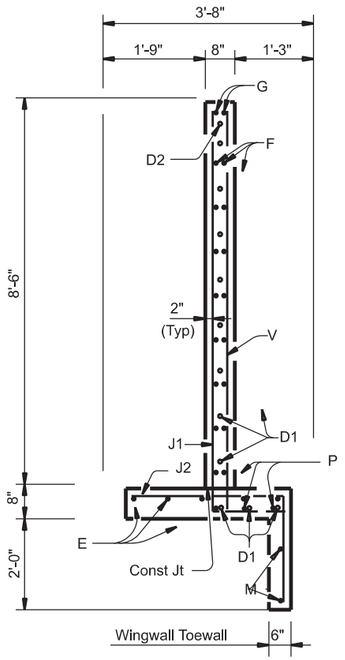
NBI# 09-110-0-0596-01-002

SCALE: 1" = HORIZ. FEET

SHEET 1 OF 3

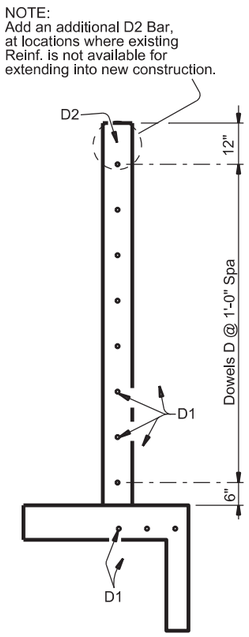
CHANGE ORDER	FED.RD. DIV. NO.	CONT	SECT	JOB	HIGHWAY
	6	6467	47	001	FM 434,ETC
	STATE	DIST	COUNTY		SHEET NO.
	TEXAS	WACO	MCLENNAN		87





SECTION A-A

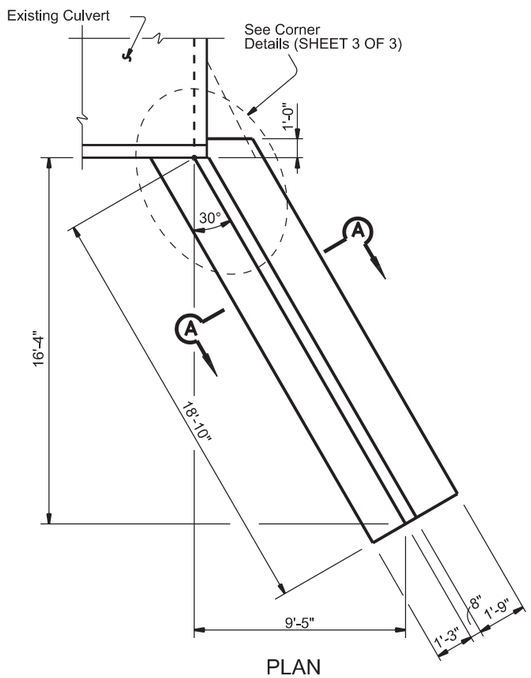
SHOWING NEW CONSTRUCTION



SECTION A-A

SHOWING DOWELS D PLACEMENT

◐ NOTE:
Drill & Grout Bars D (1'-6" depth),
into existing structure with Hilti Hit
RE500 Epoxy Adhesive anchoring system
or equivalent.



PLAN

SHOWING NEW WING DIMENSIONS

STATE OF TEXAS
ROSS L. LANGDALE
126994
LICENSED
PROFESSIONAL ENGINEER

7/12/2024

Ross L. Langdale, P.E.

Texas Department of Transportation

WINGWALL REPAIR

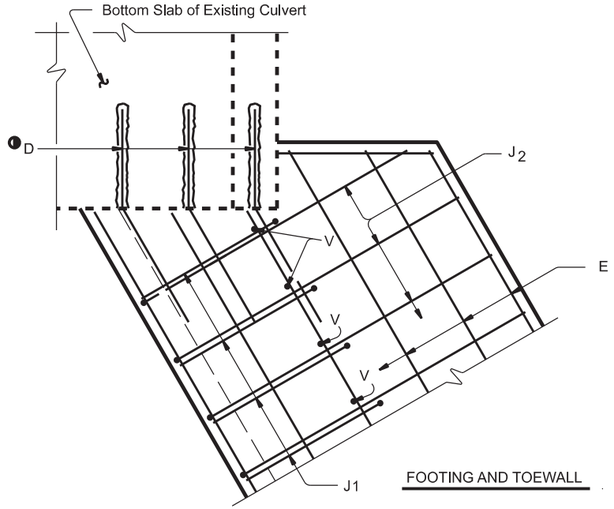
FM 66 OVER BRANCH OF ITASCA CREEK

NBI# 09-110-0-0596-01-002

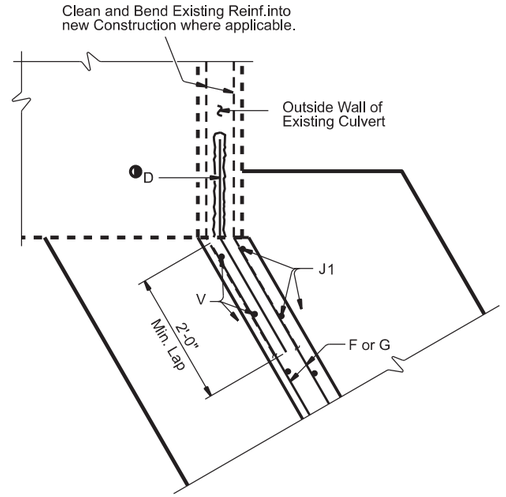
SCALE: 1" = FEET HORIZ.

SHEET 2 OF 3

CHANGE ORDER	FED.RD. DIV. NO.	CONT	SECT	JOB	HIGHWAY
	6	6467	47	001	FM 434,ETC
	STATE	DIST	COUNTY		SHEET NO.
	TEXAS	WACO	MCLENNAN		88



FOOTING AND TOEWALL



WINGWALL

CORNER DETAILS

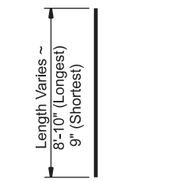
Culvert Toewall Reinforcing not shown for Clarity

NOTE:
Drill & Grout Bars D (1'-6" depth), into existing structure with Hilti Hit RE500 Epoxy Adhesive anchoring system or equivalent.

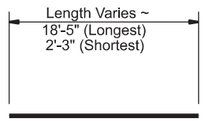
ESTIMATED QUANTITIES
(FOR ONE NEW WINGWALL)

Bar	No.	Size	Length	Weight
D1	10	#6	3'-6"	53
D2	1	#8	3'-6"	9
E	5	#4	18'-7"	62
F	Avg	#4	10'-4"	124
G	2	#6	20'-3"	61
J1	Avg	#4	7'-2"	143
J2	38	#4	6'-9"	135
M	2	#4	18'-7"	25
P	3	#4	18'-7"	37
V	Avg	#4	4'-10"	97
Reinforcing Steel			Lb	782

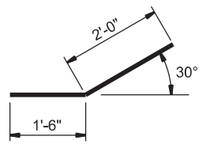
For Contractors Information Only



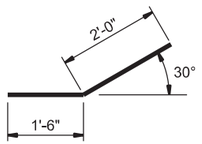
BARS V (#4)
(20 Bars)



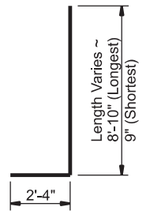
BARS F (#4)
(18 Bars)



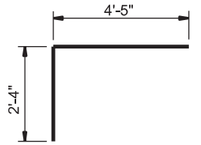
BARS D1 (#6)
(10 Bars)



BARS D2 (#8)
(1 Bar)



BARS J1 (#4)
(20 Bars)



BARS J2 (#4)
(20 Bars)

STATE OF TEXAS
ROSS L. LANGDALE
126994
LICENSED
PROFESSIONAL ENGINEER

7/12/2024

Ross L Langdale, P.E.

Texas Department of Transportation

WINGWALL REPAIR

FM 66 OVER BRANCH OF ITASCA CREEK

NBI# 09-110-0-0596-01-002

SCALE: 1" = FEET HORIZ.

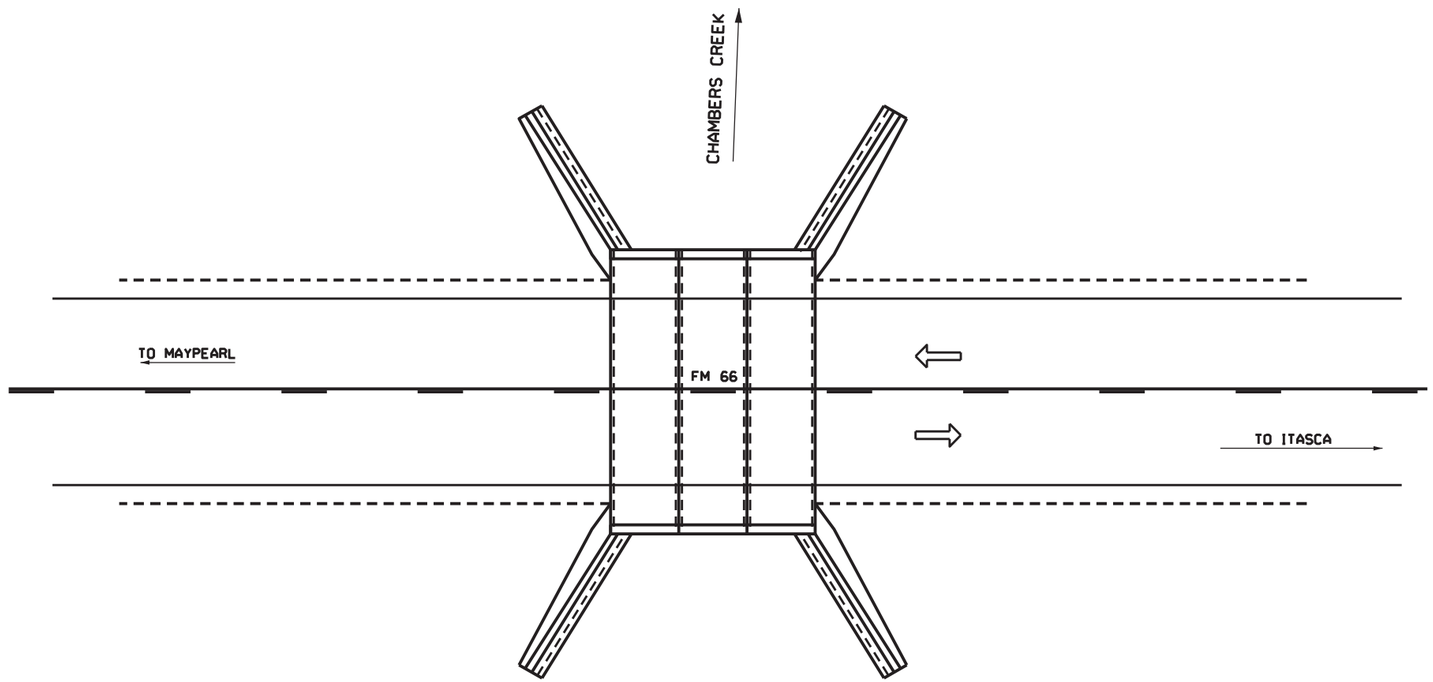
SHEET 3 OF 3

CHANGE ORDER	FED.RD. DIV. NO.	CONT	SECT	JOB	HIGHWAY
	6	6467	47	001	FM 434,ETC
	STATE	DIST	COUNTY		SHEET NO.
	TEXAS	WACO	MCLENNAN		89

FOR LOCATION REPAIR DETAILS REFER TO:

WINGWALL REPAIR

AS-BUILT PLAN SET: 0596-01-003

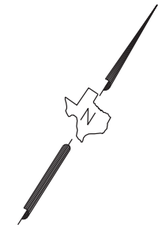


NOTE:
THIS SKETCH IS TO BE USED AS AN APPROXIMATE GUIDE FOR MAINTENANCE WORK TO BE PERFORMED IN THE VICINITY OF THIS EXISTING STRUCTURE.

LOCATION: FM 66 @ CHAMBERS CREEK
NBI#: 09-110-0-0596-01-003
DIMENSIONS: 3-9' X 9' X 38' BOX CULVERT
SKEW: 0° SKEW
GPS LAT/LON: 32.17969355/-97.11074056

LEGEND:

- EMBANKMENT
- EXCAVATION
- CONCRETE RIP RAP
- STONE RIP RAP
- FLOWABLE BACKFILL



GENERAL VICINITY LAYOUT
NTS
DRAWING NOT TO SCALE

GENERAL NOTES:

1. WHEN DIRECTED SURPLUS MATERIAL ESTIMATED AT INDIVIDUAL LOCATIONS MAY BE USED AT OTHER CONTRACT SITES.
2. IF STONE PROTECTION IS REQUIRED, THE DETAILS SHOWN ARE PROVIDED AS AN APPROXIMATE GUIDE FOR INSTALLATION OF STONE PROTECTION. THE CONTRACTOR WILL DETERMINE THE LIMITS OF STONE PROTECTION REQUIRED AS DICTATED BY FIELD CONDITIONS AND AS DIRECTED PRIOR TO MATERIAL PURCHASE AND DELIVERY.
3. IF NO PAY ITEM FOR DEBRIS REMOVAL IS NOTED; DEBRIS WILL BE REMOVED FROM BRIDGE STRUCTURE ELEMENTS. THIS WILL NOT BE PAID FOR DIRECTLY, BUT CONSIDERED SUBSIDIARY TO THE VARIOUS BID ITEMS.
4. THE CONTRACTOR WILL LIMIT CHANNEL DISTURBING ACTIVITIES TO THE VICINITY OF STRUCTURE AND TxDOT ROW. CONSTRUCTION WILL HAVE EROSION CONTROL BMP IN PLACE DURING ANY SOIL DISTURBING ACTIVITY.
5. IF NO PAY ITEM FOR BRUSH REMOVAL IS NOTED; BRUSH CLEARING FOR EXCAVATION AND EMBANKMENT WILL NOT BE PAID DIRECTLY, BUT CONSIDERED SUBSIDIARY TO THE VARIOUS BID ITEMS.
6. THE CONTRACTOR MUST EXHAUST ALL TYPE-D EMBANKMENT AVAILABLE AT SITE PRIOR TO DELIVERY OF TYPE-B.
7. IF JOINT SEAL IS REQUIRED FOR RIP RAP, THE QUANTITY SHOWN IS FOR ESTIMATION ONLY. THE CONTRACTOR WILL DETERMINE THE LIMITS OF SEALANT AS DICTATED BY FIELD CONDITIONS AND AS DIRECTED. JOINTS TOO LARGE FOR SEALANT MAY BE SEALED BY FLOWABLE BACKFILL AS DIRECTED. REFER TO DMS-6100 FOR MATERIAL SPECIFICATIONS.
8. LOCATIONS WHERE FENCING MUST BE ALTERED; AT ALL TIMES CONTRACTOR WILL MAINTAIN ADEQUATE BARRIER TO KEEP LIVESTOCK FROM ENTERING ROW. WHEN POSSIBLE REPLACE FENCING TO MATCH ORIGINAL. THIS WILL NOT BE PAID FOR DIRECTLY, BUT CONSIDERED SUBSIDIARY TO THE VARIOUS BID ITEMS.

ITEM-DESC	DESCRIPTION	UNITS	TOTAL
401-7001	FLOWABLE BACKFILL	CY	9.0
429-7007	CONC STR REPAIR (VERTICAL & OVERHEAD)	SF	30.0
442-7007	STR STEEL (MISC NON-BRIDGE)	LB	56.0
780-7002	CNC CRACK REPAIR (DISCRETE) (INJECT)	LF	116.0

CONTRACTOR'S INFORMATION ONLY

STATE OF TEXAS
CHARLES W. SMITH
110312
LICENSED
PROFESSIONAL ENGINEER

The seal appearing on this document was authorized by CHARLES W. SMITH P.E. 110312, on

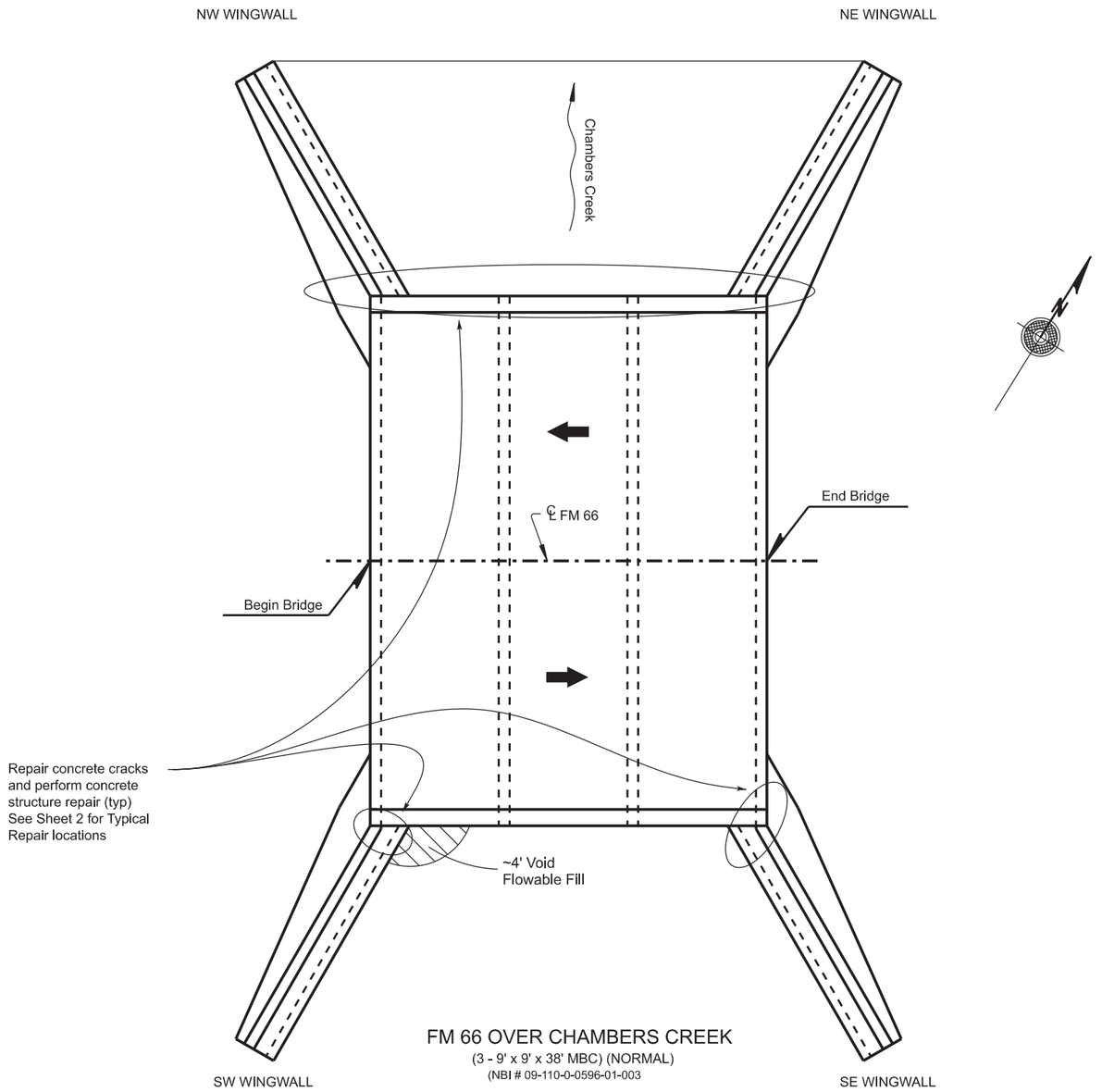
Charles W. Smith, PE 7/12/2024

HILL COUNTY
STRUCTURE LAYOUT
FM 66 @ CHAMBERS CREEK
NBI# 09-110-0596-01-003

SCALE: NTS

DESIGN	FED RD DIV No.	PROJECT No.		HIGHWAY No.
ZB	6	BPM 6467-47-001		FM 434,ETC
CHECK	STATE	DISTRICT	COUNTY	SHEET No.
CS	TEXAS	WACO	MCLENNAN	90
GRAPHICS	CONTROL	SECTION	JOB	
DL	6467	47	001	
CHECK				
CS				

...\0596-01-003.dgn



FM 66 OVER CHAMBERS CREEK
(3 - 9' x 9' x 38' MBC) (NORMAL)
(NBI # 09-110-0-0596-01-003

GENERAL NOTES

Repair locations and quantities are approximate and based on conditions surveyed in March 2024. Current conditions may vary. Contractor must field verify locations and extent of repairs in the presence of the Engineer an prior to ordering materials and performing any work.

CONSTRUCTION NOTES

Submit a detailed concrete repair procedure for approval. Perform any concrete repairs in accordance with Item 429, "Concrete Structure Repair" and TxDOT's Concrete Repair Manual, Chapter 3, Sections 1 and 2. A copy of this manual must be available onsite during all concrete repair operations.

Provide an approved Type C concrete repair material conforming to DMS 4655 for minor and intermediate, vertical or overhead spall repairs. Follow all manufacturer recommendations for preparation, application, and curing of repair materials.

Remove all damaged, loose, or delaminated concrete without damaging surrounding sound concrete that is to remain in place. Only use hand tools or power-driven chipping hammers (15 lb max) to remove concrete, unless otherwise approved by the Engineer. Clean all reinforcement exposed after concrete removal.

Additional damage cause to the structure during repair operations must be repaired at the Contractor's expense.

ESTIMATED QUANTITIES

ITEM	DESCRIPTION	UNIT	QTY
0401-7001	FLOWABLE BACKFILL	C.Y.	9.0
0429-7007	CONC STR REPAIR (VERTICAL & OVERHEAD)	S.F.	30.0
0442-7007	STR STEEL (MISC NON-BRIDGE)	LB	56.0
0780-7002	CNC CRACK REPAIR (DISCRETE)(INJECT)	L.F.	116.0

STATE OF TEXAS
ROSS L. LANGDALE
126994
LICENSED
PROFESSIONAL ENGINEER
7/12/2024
Ross L Langdale, P.E.

Texas Department of Transportation

WINGWALL REPAIR

FM 66 OVER CHAMBERS CREEK
(NBI # 09-110-0-0596-01-002

SCALE: 1" = HORIZ. FEET

CHANGE ORDER	FED.RD. DIV. NO.	CONT	SECT	JOB	HIGHWAY
	6	6467	47	001	FM 434,ETC
	STATE	DIST	COUNTY		SHEET NO.
	TEXAS	WACO	MCLENNAN		91

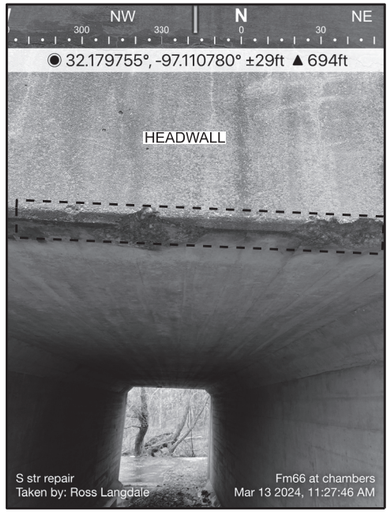
10:07:57 AM

7/9/2024

$FILEAS

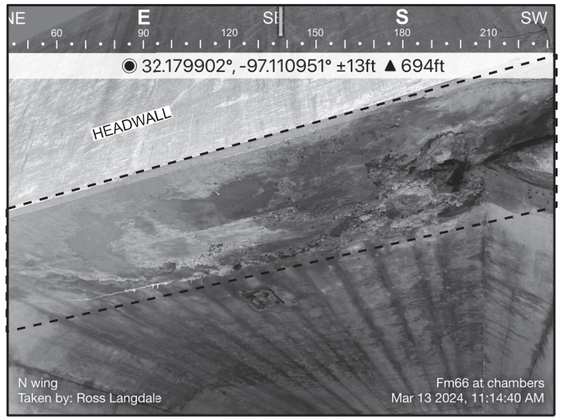
NODE

NOTES:



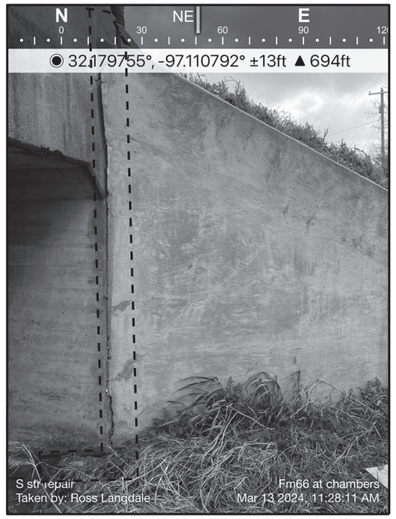
SOUTH LOOKING NORTH

SHOWING LIMITS OF CONC STR REPAIR
UNDERSIDE OF HEADWALL



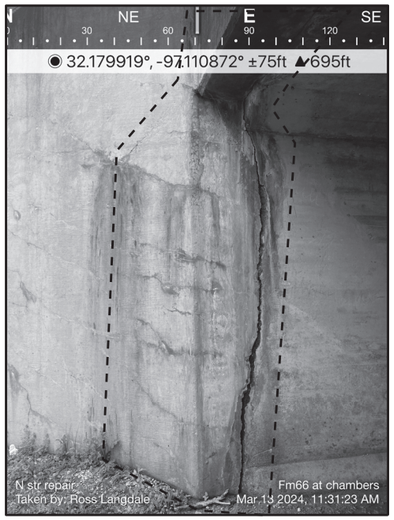
NORTH END WEST SIDE

SHOWING LIMITS OF CONC STR REPAIR
UNDERSIDE OF HEADWALL



SOUTH EAST WINGWALL

SHOWING LIMITS OF CONC STR REPAIR



NORTH EAST WINGWALL

SHOWING LIMITS OF CONC STR REPAIR

SOUTH WEST WINGWALL

SHOWING LIMITS OF CONC STR REPAIR

NOTE: 4' VOID AT TOE OF CULVERT
ADD FLOWABLE FILL

NORTH SIDE LOOKING SOUTH

SHOWING LIMITS OF CONC STR / JOINT REPAIR

TYPICAL REPAIR LOCATIONS

SHOWING LIMITS OF CONC STR REPAIR

STATE OF TEXAS
ROSS L. LANGDALE
126994
LICENSED
PROFESSIONAL ENGINEER

7/12/2024

Ross L Langdale, P.E.

Texas Department of Transportation

WINGWALL REPAIR

FM 66 OVER CHAMBERS CREEK
(NBI # 09-110-0-0596-01-002

SCALE: 1" = FEET HORIZ.

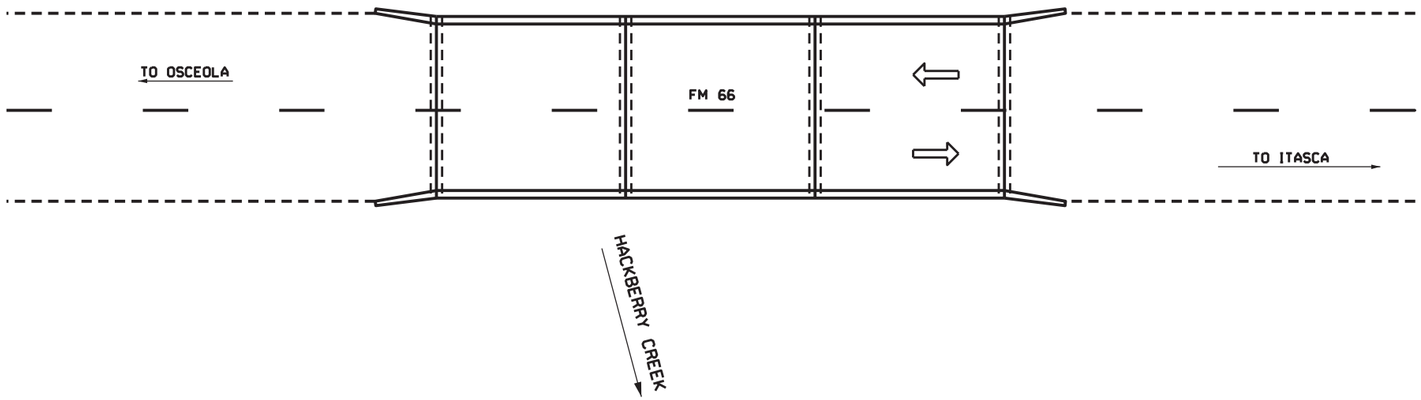
SHEET 2 OF 2

CHANGE ORDER	FED.RD. DIV. NO.	CONT	SECT	JOB	HIGHWAY
	6	6467	47	001	FM 434,ETC
	STATE	DIST	COUNTY		SHEET NO.
	TEXAS	WACO	MCLENNAN		92

FOR LOCATION REPAIR DETAILS REFER TO:

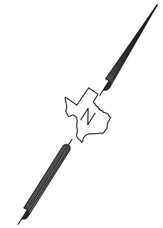
CONC STR REPAIR AND SCOUR

AS-BUILT PLAN SET: 0596-03-025



LEGEND:

- EMBANKMENT
- EXCAVATION
- CONCRETE RIP RAP
- STONE RIP RAP
- FLOWABLE BACKFILL



GENERAL VICINITY LAYOUT
NTS
DRAWING NOT TO SCALE

GENERAL NOTES:

1. WHEN DIRECTED SURPLUS MATERIAL ESTIMATED AT INDIVIDUAL LOCATIONS MAY BE USED AT OTHER CONTRACT SITES.
2. IF STONE PROTECTION IS REQUIRED, THE DETAILS SHOWN ARE PROVIDED AS AN APPROXIMATE GUIDE FOR INSTALLATION OF STONE PROTECTION. THE CONTRACTOR WILL DETERMINE THE LIMITS OF STONE PROTECTION REQUIRED AS DICTATED BY FIELD CONDITIONS AND AS DIRECTED PRIOR TO MATERIAL PURCHASE AND DELIVERY.
3. IF NO PAY ITEM FOR DEBRIS REMOVAL IS NOTED; DEBRIS WILL BE REMOVED FROM BRIDGE STRUCTURE ELEMENTS. THIS WILL NOT BE PAID FOR DIRECTLY, BUT CONSIDERED SUBSIDIARY TO THE VARIOUS BID ITEMS.
4. THE CONTRACTOR WILL LIMIT CHANNEL DISTURBING ACTIVITIES TO THE VICINITY OF STRUCTURE AND TxDOT ROW. CONSTRUCTION WILL HAVE EROSION CONTROL BMP IN PLACE DURING ANY SOIL DISTURBING ACTIVITY.
5. IF NO PAY ITEM FOR BRUSH REMOVAL IS NOTED; BRUSH CLEARING FOR EXCAVATION AND EMBANKMENT WILL NOT BE PAID DIRECTLY, BUT CONSIDERED SUBSIDIARY TO THE VARIOUS BID ITEMS.
6. THE CONTRACTOR MUST EXHAUST ALL TYPE-D EMBANKMENT AVAILABLE AT SITE PRIOR TO DELIVERY OF TYPE-B.
7. IF JOINT SEAL IS REQUIRED FOR RIP RAP, THE QUANTITY SHOWN IS FOR ESTIMATION ONLY. THE CONTRACTOR WILL DETERMINE THE LIMITS OF SEALANT AS DICTATED BY FIELD CONDITIONS AND AS DIRECTED. JOINTS TOO LARGE FOR SEALANT MAY BE SEALED BY FLOWABLE BACKFILL AS DIRECTED. REFER TO DMS-6100 FOR MATERIAL SPECIFICATIONS.
8. LOCATIONS WHERE FENCING MUST BE ALTERED; AT ALL TIMES CONTRACTOR WILL MAINTAIN ADEQUATE BARRIER TO KEEP LIVESTOCK FROM ENTERING ROW. WHEN POSSIBLE REPLACE FENCING TO MATCH ORIGINAL. THIS WILL NOT BE PAID FOR DIRECTLY, BUT CONSIDERED SUBSIDIARY TO THE VARIOUS BID ITEMS.

ITEM-DESC	DESCRIPTION	UNITS	TOTAL
401-7001	FLOWABLE BACKFILL	CY	9.0
429-7007	CONC STR REPAIR (VERTICAL & OVERHEAD)	SF	55.0
432-7043	RIPRAP (STONE PROTECTION) (18")	CY	11.0

CONTRACTOR'S INFORMATION ONLY

NOTE:
THIS SKETCH IS TO BE USED AS AN APPROXIMATE GUIDE FOR MAINTENANCE WORK TO BE PERFORMED IN THE VICINITY OF THIS EXISTING STRUCTURE.

LOCATION: FM 66 @ HACKBERRY CREEK
NBI#: 09-110-0-0596-03-025
DIMENSIONS: 75' X 22' BRIDGE
SKEW: 0° SKEW
GPS LAT/LON: 31.11122171/-97.16467834

STATE OF TEXAS
CHARLES W. SMITH
110312
LICENSED PROFESSIONAL ENGINEER

The seal appearing on this document was authorized by CHARLES W. SMITH P.E. 110312, on

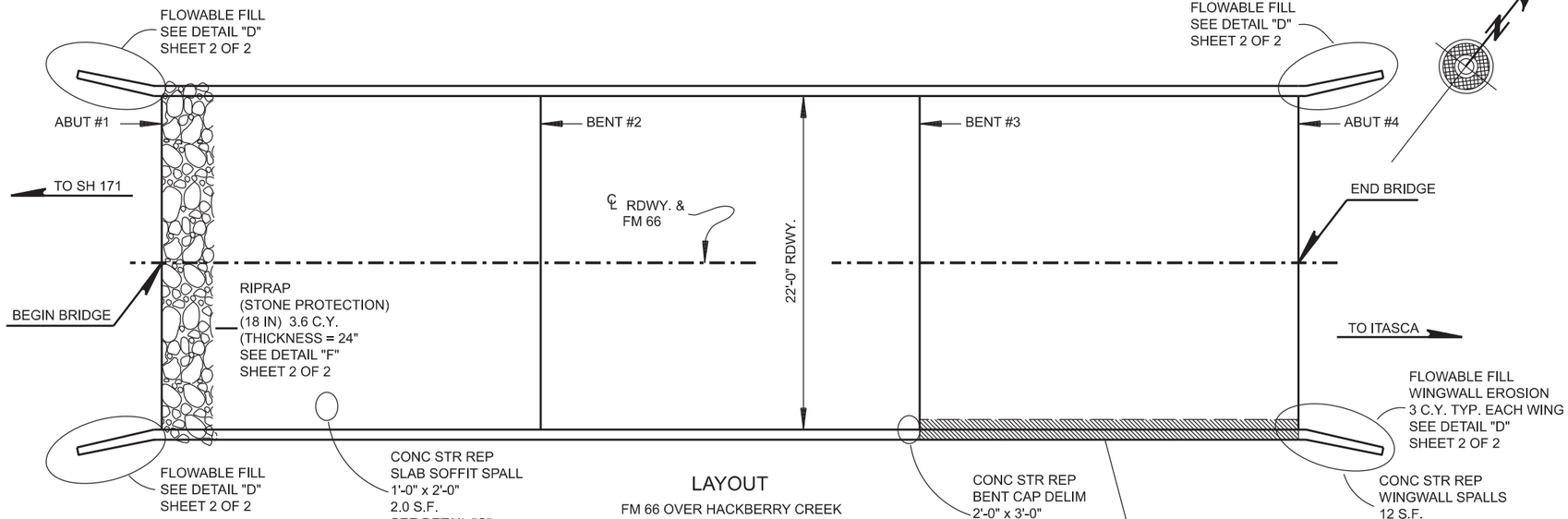
Charles W. Smith, PE 7/12/2024

HILL COUNTY
STRUCTURE LAYOUT
FM 66 @ HACKBERRY CREEK
NBI# 09-110-0596-03-025

SCALE: NTS

DESIGN	FED RD DIV No.	PROJECT No.		HIGHWAY No.
ZB	6	BPM 6467-47-001		FM 434,ETC
CHECK	STATE	DISTRICT	COUNTY	SHEET No.
CS	TEXAS	WACO	MCLENNAN	93
GRAPHICS	CONTROL	SECTION	JOB	
DL	6467	47	001	
CHECK				
CS				

...\0596-03-025.dgn



LAYOUT

FM 66 OVER HACKBERRY CREEK
(NBI # 09-110-0-0596-03-025)

FM 66 OVER HACKBERRY CREEK
75'-0" OVERALL LENGTH
(3 @ 25'-0") REINF. CONCRETE FLAT SLAB BRIDGE
22'-0" ROADWAY

NOTES:

1. IF STONE PROTECTION IS REQUIRED, THE DETAILS SHOWN ARE PROVODED AS AN APPOXIMATE GUIDE FOR INSTALLATION OF STONE PROTECTION. THE CONTRACTOR WILL DETERMINE THE LIMITS OF STONE PROTECTION REQUIRED AS DICTATED BY FIELD CONDITIONS AND AS DIRECTED PRIOR TO MATERIAL PURCHASE AND DELIVERY.
2. IF NO PAY ITEM FOR BRUSH REMOVAL IS NOTED; BRUSH CLEARING FOR EXCAVATION AND EMBANKMENT WILL NOT BE PAID DIRECTLY, BUT CONSIDERED SUBSIDIARY TO THE VARIOUS BID ITEMS.

GENERAL NOTES:

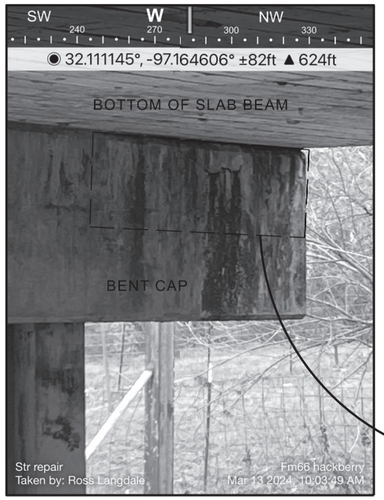
Obtain approal for all tools, equipment, materials and techniques proposed for use to repair spalled/Delamination Girder and Interior Bent Caps.

Provide materials as outlined in the CONCRETE REPAIR MANUAL.

Provide repair materials suitable for the appropriate horzontal, vertical or overhead application meeting the requirements in DMS-4655, "Concrete Repair Material".

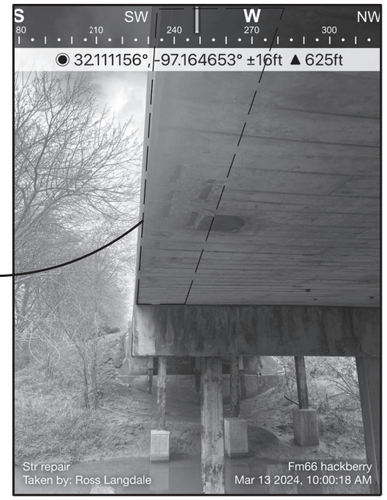
All materials and labor required for repairing spalled/ delaminated areas shall be included in the price bid per SF for Item: CONC STR REPAIR (VERTICAL & OVERHEAD).

All materilals and labor required for filling voids below Abutment Cap with Flowable fill, including forming and installation, shall be included in the price bid per CY for Item 401, FLOWABLE BACKFILL.



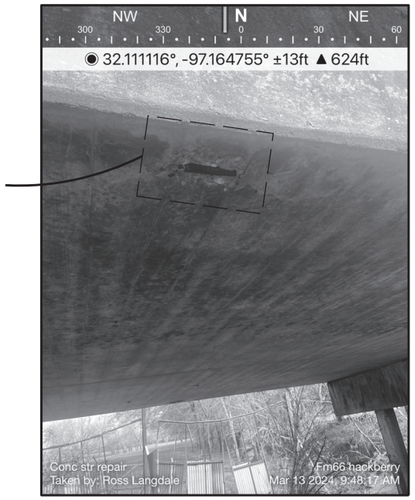
6 S.F. DELAMINATION
CONC. STR. REPAIR
VERT & OVERHEAD

DETAIL "B"
ELEVATION OF BENT 3 LOOKING NE
SHOWING LIMITS OF DELIMINATION ON BENT #3



38 S.F. SPALLING
CONC. STR. REPAIR
VERT & OVERHEAD

DETAIL "A"
BOTTOM OF DECK SLAB BEAM
SHOWING LIMITS OF SPALLING



2 S.F. SPALL
CONC. STR. REPAIR
VERT & OVERHEAD

DETAIL "C"
BOTTOM OF DECK SLAB BEAM
SHOWING LIMITS OF SPALLING

STATE OF TEXAS
ROSS L. LANGDALE
126994
LICENSED
PROFESSIONAL ENGINEER

7/12/2024

Ross L Langdale, P.E.

Texas Department of Transportation

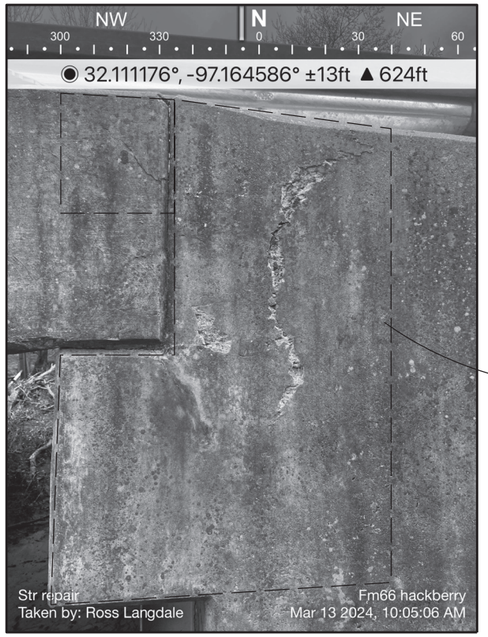
CONC. STR. REPAIR AND SCOUR

FM 66 OVER HACKBERRY CREEK
(NBI # 09-110-0-0596-03-025)

SCALE: 1" = HORIZ. FEET

SHEET 1 OF 2

CHANGE ORDER	FED.RD. DIV. NO.	CONT	SECT	JOB	HIGHWAY
	6	6467	47	001	FM 434,ETC
	STATE	DIST	COUNTY		SHEET NO.
	TEXAS	WACO	MCLENNAN		94

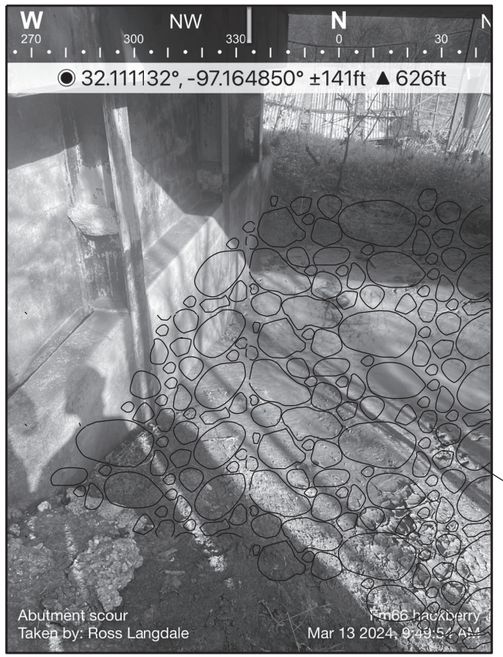


6 S.F. DELAMINATION
CONC. STR. REPAIR
VERT & OVERHEAD

DETAIL "D"
ELEVATION OF ABUTMENT #4
SHOWING LIMITS OF SPALL/DELAM NE WING

FLOWABLE FILL

DETAIL "E"
PLAN ABUTMENT 4 NE WINGWALL
SHOWING LIMITS OF FLOWABLE FILL



XX S.F. DELAMINATION
CONC. STR. REPAIR
VERT & OVERHEAD

DETAIL "F"
PLAN AT ABUTMENT #1
SHOWING LIMITS OF SCOUR REPAIR

ESTIMATED QUANTITIES

ITEM	DESCRIPTION	UNIT	QTY
0401-7001	FLOWABLE BACKFILL	C.Y.	9.0
0429-7007	CONC STR REPAIR (VERTICAL & OVERHEAD)	S.F.	55.0
0432-7043	RIPRAP (STONE PROTECTION) (18 IN)	C.Y.	11.0

STATE OF TEXAS
ROSS L. LANGDALE
126994
LICENSED
PROFESSIONAL ENGINEER

7/12/2024

Ross L. Langdale, P.E.

Texas Department of Transportation

CONC. STR. REPAIR AND SCOUR

FM 66 OVER HACKBERRY CREEK
(NBI # 09-110-0-0596-03-025)

SCALE: 1" = HORIZ. FEET

CHANGE ORDER	FED.RD. DIV. NO.	CONT	SECT	JOB	HIGHWAY
	6	6467	47	001	FM 434,ETC
	STATE	DIST	COUNTY		SHEET NO.
	TEXAS	WACO	MCLENNAN		95

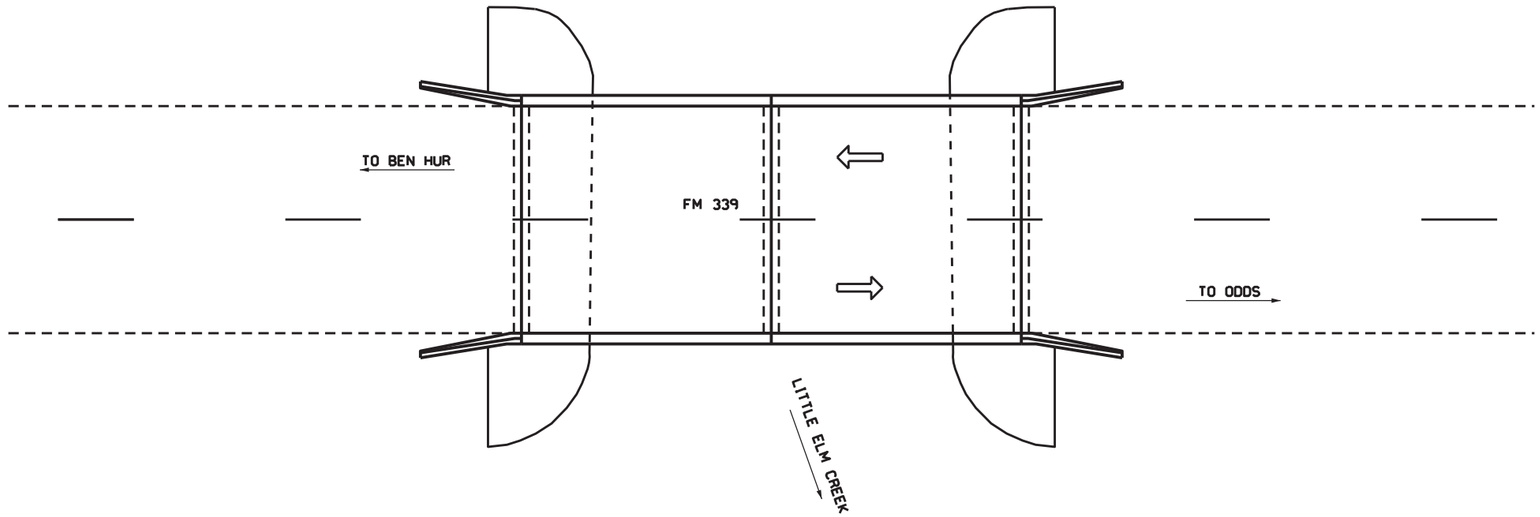
10:08:05 AM
7/9/2024
$FILE$
NODE

FOR LOCATION REPAIR DETAILS REFER TO:

CONC STR REPAIR

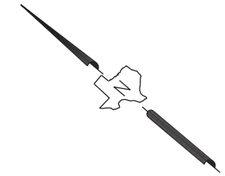
EROSION REPAIR DETAILS

AS-BUILT PLAN SET: 1665-02-002



LEGEND:

EMBANKMENT
EXCAVATION
CONCRETE RIP RAP
STONE RIP RAP
FLOWABLE BACKFILL



GENERAL VICINITY LAYOUT
NTS
DRAWING NOT TO SCALE

GENERAL NOTES:

1. WHEN DIRECTED SURPLUS MATERIAL ESTIMATED AT INDIVIDUAL LOCATIONS MAY BE USED AT OTHER CONTRACT SITES.
2. IF STONE PROTECTION IS REQUIRED, THE DETAILS SHOWN ARE PROVIDED AS AN APPROXIMATE GUIDE FOR INSTALLATION OF STONE PROTECTION. THE CONTRACTOR WILL DETERMINE THE LIMITS OF STONE PROTECTION REQUIRED AS DICTATED BY FIELD CONDITIONS AND AS DIRECTED PRIOR TO MATERIAL PURCHASE AND DELIVERY.
3. IF NO PAY ITEM FOR DEBRIS REMOVAL IS NOTED; DEBRIS WILL BE REMOVED FROM BRIDGE STRUCTURE ELEMENTS. THIS WILL NOT BE PAID FOR DIRECTLY, BUT CONSIDERED SUBSIDIARY TO THE VARIOUS BID ITEMS.
4. THE CONTRACTOR WILL LIMIT CHANNEL DISTURBING ACTIVITIES TO THE VICINITY OF STRUCTURE AND TxDOT ROW. CONSTRUCTION WILL HAVE EROSION CONTROL BMP IN PLACE DURING ANY SOIL DISTURBING ACTIVITY.
5. IF NO PAY ITEM FOR BRUSH REMOVAL IS NOTED; BRUSH CLEARING FOR EXCAVATION AND EMBANKMENT WILL NOT BE PAID DIRECTLY, BUT CONSIDERED SUBSIDIARY TO THE VARIOUS BID ITEMS.
6. THE CONTRACTOR MUST EXHAUST ALL TYPE-D EMBANKMENT AVAILABLE AT SITE PRIOR TO DELIVERY OF TYPE-B.
7. IF JOINT SEAL IS REQUIRED FOR RIP RAP, THE QUANTITY SHOWN IS FOR ESTIMATION ONLY. THE CONTRACTOR WILL DETERMINE THE LIMITS OF SEALANT AS DICTATED BY FIELD CONDITIONS AND AS DIRECTED. JOINTS TOO LARGE FOR SEALANT MAY BE SEALED BY FLOWABLE BACKFILL AS DIRECTED. REFER TO DMS-6100 FOR MATERIAL SPECIFICATIONS.
8. LOCATIONS WHERE FENCING MUST BE ALTERED; AT ALL TIMES CONTRACTOR WILL MAINTAIN ADEQUATE BARRIER TO KEEP LIVESTOCK FROM ENTERING ROW. WHEN POSSIBLE REPLACE FENCING TO MATCH ORIGINAL. THIS WILL NOT BE PAID FOR DIRECTLY, BUT CONSIDERED SUBSIDIARY TO THE VARIOUS BID ITEMS.

ITEM-DESC	DESCRIPTION	UNITS	TOTAL
401-7001	FLOWABLE BACKFILL	CY	9.0
429-7007	CONC STR REPAIR (VERTICAL & OVERHEAD)	SF	30.0
432-7043	RIPRAP (STONE PROTECTION) (18")	CY	20.0
735-7060	DRIFTWOOD REMOVAL	CY	20.0

CONTRACTOR'S INFORMATION ONLY

NOTE:
THIS SKETCH IS TO BE USED AS AN APPROXIMATE GUIDE FOR MAINTENANCE WORK TO BE PERFORMED IN THE VICINITY OF THIS EXISTING STRUCTURE.

LOCATION: FM 339 @ LITTLE ELM CREEK
NBI#: 09-147-0-1665-02-002
DIMENSIONS: 50'x 24' BRIDGE
SKEW: NORMAL
GPS LAT/LON: 31.4240023/-97.7250544

STATE OF TEXAS
CHARLES W. SMITH
110312
LICENSED
PROFESSIONAL ENGINEER

The seal appearing on this document was authorized by CHARLES W. SMITH P.E. 110312, on

Charles W. Smith, PE 7/12/2024

Texas Department of Transportation

LIMESTONE COUNTY STRUCTURE LAYOUT

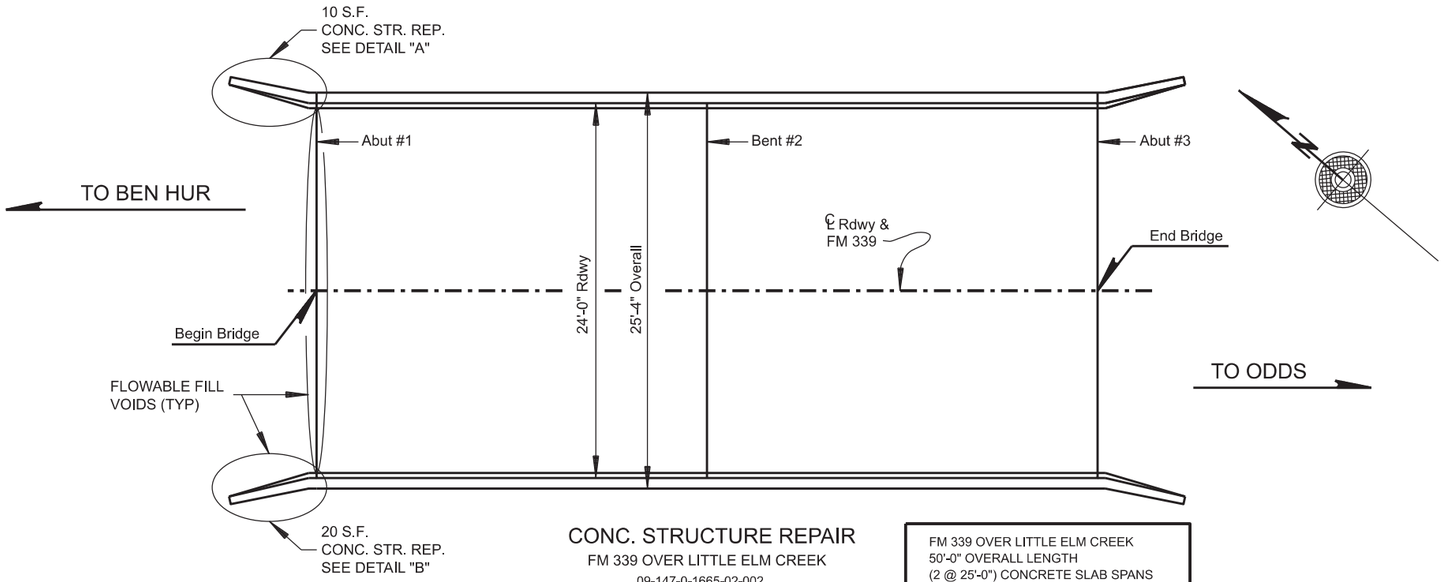
FM 339 @ LITTLE ELM CREEK

NBI# 09-147-0-1665-02-002

SCALE: NTS

DESIGN	FED RD DIV No.	PROJECT No.		HIGHWAY No.
ZB	6	BPM 6467-47-001		FM 434,ETC
CHECK	STATE	DISTRICT	COUNTY	SHEET No.
CS	TEXAS	WACO	MCLENNAN	96
GRAPHICS	CONTROL	SECTION	JOB	
DL	6467	47	001	
CHECK				
CS				

...\1665-02-002.dgn



CONC. STRUCTURE REPAIR

FM 339 OVER LITTLE ELM CREEK

09-147-0-1665-02-002

FM 339 OVER LITTLE ELM CREEK
50'-0" OVERALL LENGTH
(2 @ 25'-0") CONCRETE SLAB SPANS
24'-0" ROADWAY, TYPE T-101 RAIL.

GENERAL NOTES

Repair locations and quantities are approximate and based on conditions surveyed in March 2024. Current conditions may vary. Contractor must field verify locations and extent of repairs in the presence of the Engineer an prior to ordering materials and performing any work.

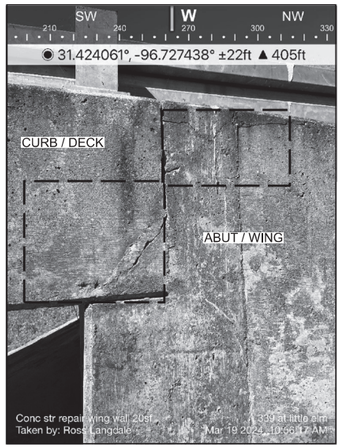
CONSTRUCTION NOTES

Submit a detailed concrete repair procedure for approval. Perform any concrete repairs in accordance with Item 429, "Concrete Structure Repair" and TxDOT's Concrete Repair Manual, Chapter 3, Sections 1 and 2. A copy of this manual must be available onsite during all concrete repair operations.

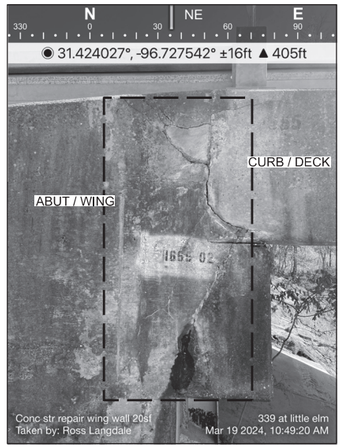
Provide an approved Type C concrete repair material conforming to DMS 4655 for minor and intermediate, vertical or overhead spall repairs. Follow all manufacturer recommendations for preparation, application, and curing of repair materials.

Remove all damaged, loose, or delaminated concrete without damaging surrounding sound concrete that is to remain in place. Only use hand tools or power-driven chipping hammers (15 lb max) to remove concrete, unless otherwise approved by the Engineer. Clean all reinforcement exposed after concrete removal.

Additional damage cause to the structure during repair operations must be repaired at the Contractor's expense.



DETAIL "A"
SHOWING LIMITS OF REPAIR



DETAIL "B"
SHOWING LIMITS OF WINGWALL REPAIR

ESTIMATED QUANTITIES

ITEM	DESCRIPTION	UNIT	QTY
0401-7001	FLOWABLE BACKFILL	C.Y.	9.0
0429-7007	CONC STR REPAIR (VERTICAL & OVERHEAD)	S.F.	30.0

STATE OF TEXAS
ROSS L. LANGDALE
126994
LICENSED
PROFESSIONAL ENGINEER

7/12/2024

Ross L Langdale, P.E.

Texas Department of Transportation

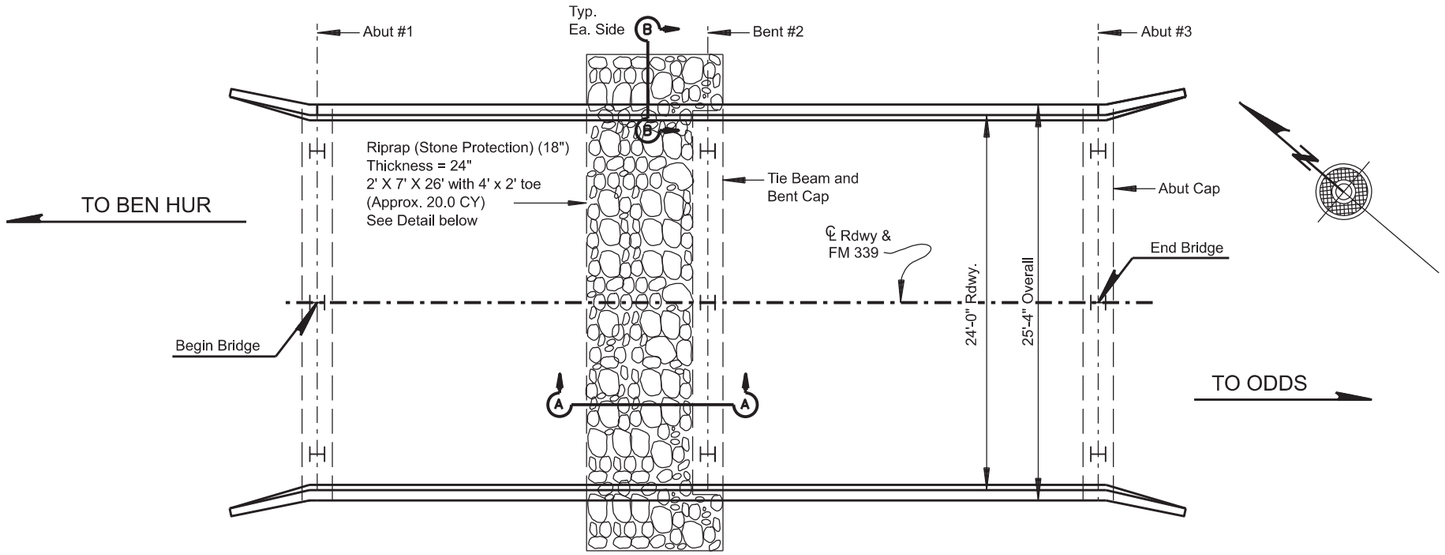
CONCRETE STR. REPAIR

FM 339 OVER LITTLE ELM CREEK
09-147-0-1665-02-002

SCALE: 1" = FEET HORIZ.

SHEET 1 OF 1

CHANGE ORDER	FED.RD. DIV. NO.	CONT	SECT	JOB	HIGHWAY
	6	6467	47	001	FM 434,ETC
	STATE	DIST	COUNTY		SHEET NO.
	TEXAS	WACO	MCLENNAN		97



CONC. STRUCTURE REPAIR

FM 339 OVER LITTLE ELM CREEK

09-147-0-1665-02-002

FM 339 OVER LITTLE ELM CREEK
50'-0" OVERALL LENGTH
(2 @ 25'-0") CONCRETE SLAB SPANS
24'-0" ROADWAY, TYPE T-101 RAIL.

GENERAL NOTES

Repair locations and quantities are approximate and based on conditions surveyed in March 2024. Current conditions may vary. Contractor must field verify locations and extent of repairs in the presence of the Engineer an prior to ordering materials and performing any work.

CONSTRUCTION NOTES

The details shown for stone protection riprap are provided as an approximate guide for installation of the stone protection.

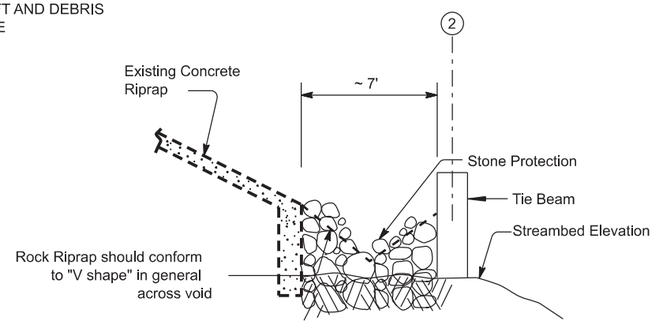
EXIST TOE WALL

DRIFT ACCUMULATION AND REMOVAL DRIFT AND DEBRIS UNDER BRIDGE APPROX 20 CY

TIE BEAM

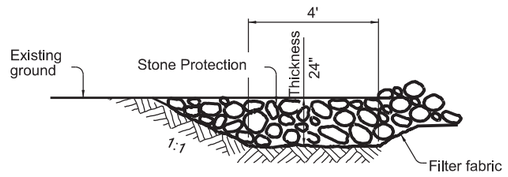
DETAIL "A"

SHOWING LIMITS OF EXPOSED TOE



SECTION A-A

(SHOWING LIMITS OF STONE PROTECTION AT EXISTING RIPRAP TOEWALL)



SECTION B-B

(SHOWING STONE PROTECTION TOEWALL)
(TYP UPSTREAM AND DOWNSTREAM)

ESTIMATED QUANTITIES

ITEM	DESCRIPTION	UNIT	QTY
0432-7043	RIPRAP (STONE PROTECTION) (18 IN)	C.Y.	20.0
735-7060	DRIFTWOOD REMOVAL	C.Y.	20.0

STATE OF TEXAS
ROSS L. LANGDALE
126994
LICENSED
PROFESSIONAL ENGINEER

7/12/2024

Ross L Langdale, P.E.

Texas Department of Transportation

EROSION REPAIR DETAILS

FM 339 OVER LITTLE ELM CREEK
09-147-0-1665-02-002

SCALE: 1" = HORIZ. FEET

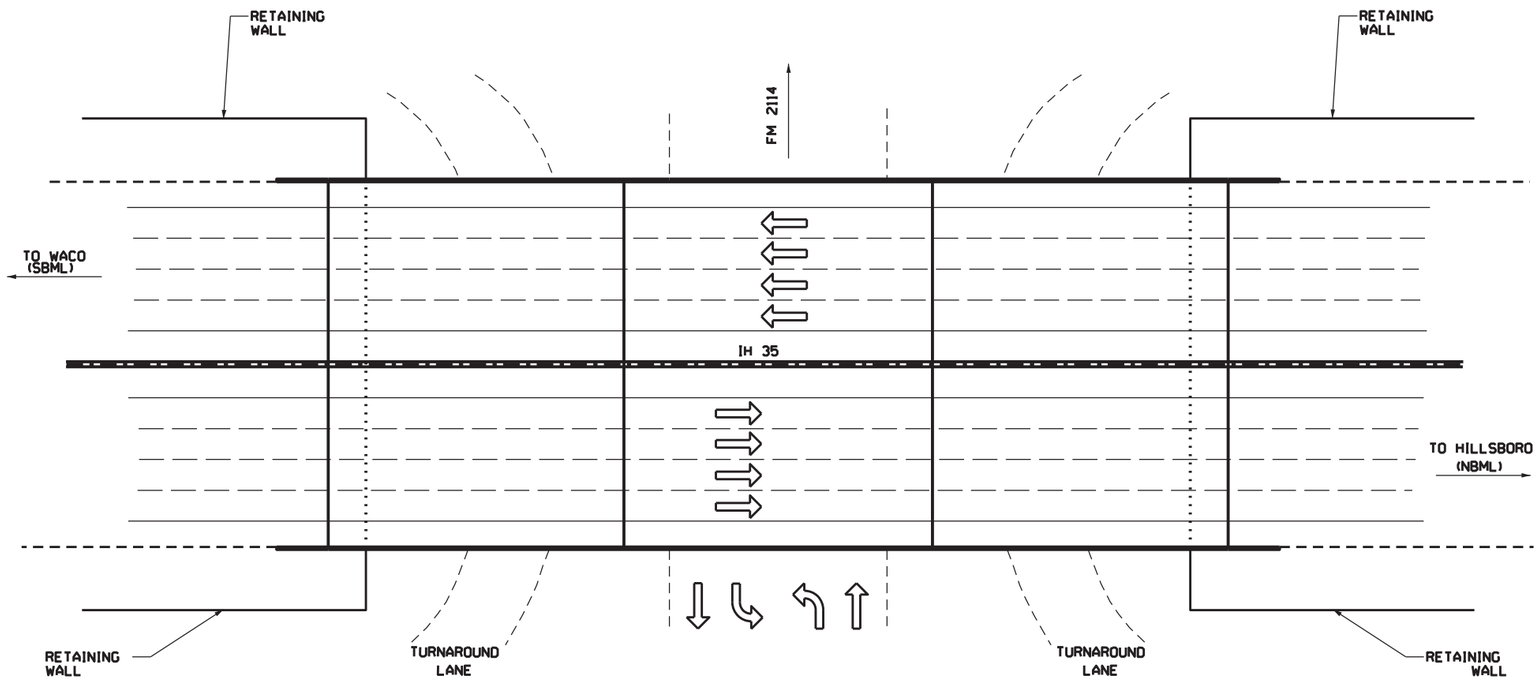
SHEET 1 OF 1

CHANGE ORDER	FED.RD. DIV. NO.	CONT	SECT	JOB	HIGHWAY
	6	6467	47	001	FM 434,ETC
	STATE	DIST	COUNTY		SHEET NO.
	TEXAS	WACO	MCLENNAN		98

FOR LOCATION REPAIR DETAILS REFER TO:

LAYOUT & DETAILS FOR CLEANING AND SEALING EXPANSION JOINTS

AS-BUILT PLAN SET: 0014-08-521/522



LEGEND:

- EMBANKMENT
- EXCAVATION
- CONCRETE RIP RAP
- STONE RIP RAP
- FLOWABLE BACKFILL

GENERAL VICINITY LAYOUT
NTS
DRAWING NOT TO SCALE

GENERAL NOTES:

1. WHEN DIRECTED SURPLUS MATERIAL ESTIMATED AT INDIVIDUAL LOCATIONS MAY BE USED AT OTHER CONTRACT SITES.
2. IF STONE PROTECTION IS REQUIRED, THE DETAILS SHOWN ARE PROVIDED AS AN APPROXIMATE GUIDE FOR INSTALLATION OF STONE PROTECTION. THE CONTRACTOR WILL DETERMINE THE LIMITS OF STONE PROTECTION REQUIRED AS DICTATED BY FIELD CONDITIONS AND AS DIRECTED PRIOR TO MATERIAL PURCHASE AND DELIVERY.
3. IF NO PAY ITEM FOR DEBRIS REMOVAL IS NOTED; DEBRIS WILL BE REMOVED FROM BRIDGE STRUCTURE ELEMENTS. THIS WILL NOT BE PAID FOR DIRECTLY, BUT CONSIDERED SUBSIDIARY TO THE VARIOUS BID ITEMS.
4. THE CONTRACTOR WILL LIMIT CHANNEL DISTURBING ACTIVITIES TO THE VICINITY OF STRUCTURE AND TxDOT ROW. CONSTRUCTION WILL HAVE EROSION CONTROL BMP IN PLACE DURING ANY SOIL DISTURBING ACTIVITY.
5. IF NO PAY ITEM FOR BRUSH REMOVAL IS NOTED; BRUSH CLEARING FOR EXCAVATION AND EMBANKMENT WILL NOT BE PAID DIRECTLY, BUT CONSIDERED SUBSIDIARY TO THE VARIOUS BID ITEMS.
6. THE CONTRACTOR MUST EXHAUST ALL TYPE-D EMBANKMENT AVAILABLE AT SITE PRIOR TO DELIVERY OF TYPE-B.
7. IF JOINT SEAL IS REQUIRED FOR RIP RAP, THE QUANTITY SHOWN IS FOR ESTIMATION ONLY. THE CONTRACTOR WILL DETERMINE THE LIMITS OF SEALANT AS DICTATED BY FIELD CONDITIONS AND AS DIRECTED. JOINTS TOO LARGE FOR SEALANT MAY BE SEALED BY FLOWABLE BACKFILL AS DIRECTED. REFER TO DMS-6100 FOR MATERIAL SPECIFICATIONS.
8. LOCATIONS WHERE FENCING MUST BE ALTERED; AT ALL TIMES CONTRACTOR WILL MAINTAIN ADEQUATE BARRIER TO KEEP LIVESTOCK FROM ENTERING ROW. WHEN POSSIBLE REPLACE FENCING TO MATCH ORIGINAL. THIS WILL NOT BE PAID FOR DIRECTLY, BUT CONSIDERED SUBSIDIARY TO THE VARIOUS BID ITEMS.

ITEM-DESC	DESCRIPTION	UNITS	TOTAL
438-7007	CLEANING AND SEALING EXIST JOINTS (CL7)	LF	284.0
438-7008	CLEANING EXISTING JOINTS	LF	284.0

CONTRACTOR'S INFORMATION ONLY

NOTE:
THIS SKETCH IS TO BE USED AS AN APPROXIMATE GUIDE FOR MAINTENANCE WORK TO BE PERFORMED IN THE VICINITY OF THIS EXISTING STRUCTURE.

LOCATION: IH 35 ML @ FM 2114
NBI#: 09-161-0-0014-08-521/522
DIMENSIONS: 350'x 142' BRIDGE
SKEW: 0°SKEW
GPS LAT/LON: 31.803735/-97.100145

STATE OF TEXAS
CHARLES W. SMITH
110312
LICENSED
PROFESSIONAL ENGINEER

The seal appearing on this document was authorized by CHARLES W. SMITH P.E. 110312, on

Charles W. Smith, PE 7/12/2024

Texas Department of Transportation

McLENNAN COUNTY STRUCTURE LAYOUT

IH 35 ML @ FM 2114

NBI# 09-161-0014-08-521/522

SCALE: NTS

DESIGN	FED RD DIV No.	PROJECT No.		HIGHWAY No.
ZB	6	BPM 6467-47-001		FM 434,ETC
CHECK	STATE	DISTRICT	COUNTY	SHEET No.
CS	TEXAS	WACO	MCLENNAN	99
GRAPHICS	CONTROL	SECTION	JOB	
DL	6467	47	001	
CHECK				
CS				

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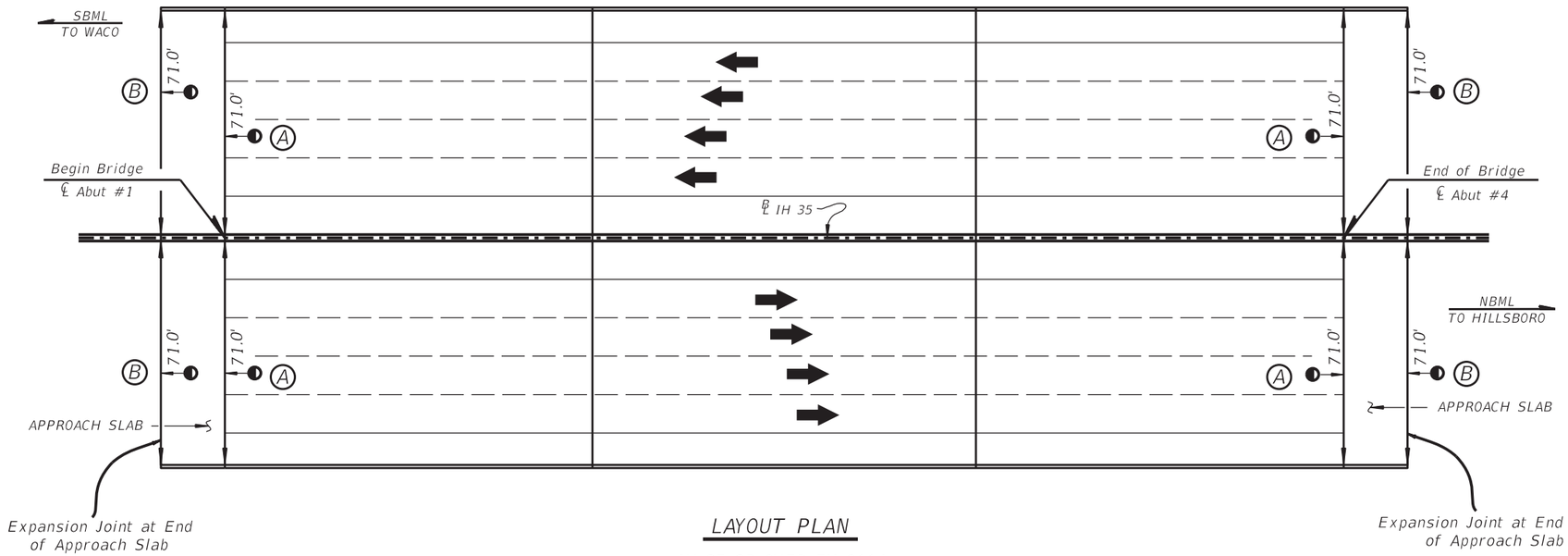


LAYOUT PLAN

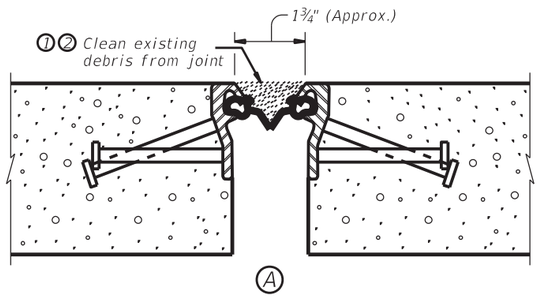
IH 35 SB OVER FM 2114
(N.B.I.#09-161-0-0014-08-522)
&
IH 35 NB OVER FM 2114
(N.B.I.#09-161-0-0014-08-521)

◐ Denotes location for Cleaning Existing SEJ-P

IH 35 ML OVER FM 2114
350'-0" OVERALL LENGTH
PRESTRESSED CONCRETE U-BEAM UNIT
@ (115', 120', 115') SPANS
142'-0" RDWY.
144'-0" OVERALL
SSTR RAIL (LT)
TYPE T1F (MOD) RAIL (RT)

ESTIMATED QUANTITIES

ITEM	438-7008
LOCATION	CLEANING EXISTING JOINTS
	L.F.
STR. #522 & 521 IH 35 SB & NB OVER FM 2114	284.0
TOTAL	284.0



SECTION THRU SEJ-P JOINT

PROCEDURE FOR CLEANING AND SEALING
EXISTING JOINT WITH SILCONE SEAL

1) **Clean joint opening of all old expansion materials/devices, bituminous materials, dirt, grease and all other deleteious materials in accordance with Item 438, "Cleaning and Sealing Joints."**
2) **Obtain approval of cleaned joint prior to proceeding with joint sealing operation.**
3) **Seal the joint opening with a Class 7 sealant Recess seal 1/2" below top of concrete in travel lanes and 1/4' below top of concrete shoulders.**

General Notes:

Cleaning existing joint opening (full depth) of all debris, providing and placing backer rod, saw-cutting asphalt overlay, and sealing joints is paid for by Item 438, "Cleaning and Sealing Joints" and measured by the linear foot.
Obtain approval for all tools, equipment, materials, and techniques proposed to clean and seal the joint.
Provide Class 3 joint sealant in accordance with DMS-6310, Joint Sealants and Fillers" for joints in asphalt overlay.
Provide Class 7 joint sealant in accordance with DMS-6310, "Joint Sealants and Fillers" for joints in concrete.
Extend sealant up into rail or curb 3 inches on low side or sides of deck. If the Class 7 joint sealant cannot be effectively placed in the vertical postion, a Class 4 joint sealant compatible with the Class 7 joint sealant is allowed for the extension of the seal into the curb or rail. Prepare surfaces where sealant is to be placed in accordance with Manufacturer's specifications.

STATE OF TEXAS
ROSS L. LANGDALE
126994
LICENSED
PROFESSIONAL ENGINEER
7/12/2024
Ross L. Langdale, P.E.

Texas Department of Transportation

LAYOUT FOR CLEANING AND SEALING JOINTS

IH 35 NB/SB OVER FM 2114
09-161-0-0014-08-521/522

SCALE: NOT TO SCALE FEET

SHEET 1 OF 2

CHANGE ORDER	FED.RD. DIV. NO.	CONT	SECT	JOB	HIGHWAY
	6	6467	47	001	FM 434,ETC
	STATE	DIST	COUNTY		SHEET NO.
	TEXAS	WACO	MCLENNAN		100

10:08:12 AM
7/9/2024
$FILE$
NODE

10:08:12 AM

7/9/2024

NOTES:

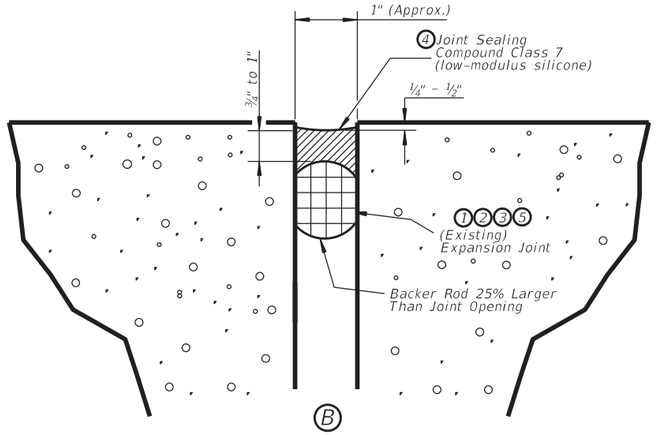
1. The joints shall be cleaned in accordance with Item 438 and prior to beginning operations, the Contractor shall submit a statement from the Sealant Manufacturer showing the recommended equipment and Installation procedures to be used.

2. Condition of existing expansion joint or rail shall be determined prior to placing sealant material. The entire length of existing joint shall be checked and any portion that is determined unsound by the Engineer shall be removed as directed by the Engineer. Any existing seal shall be removed and disposed of.
Repair any signi cant spalled or cracked areas, as determined by the Engineer, around the joint opening with an approved proprietary concrete repair material as Approved by the Engineer. This work will be paid for under Item 429 "Concrete Structure Repair".

3. Surfaces where sealant material is to be placed shall be clean and dry in accordance with the manufacturer's speci cations.

4. Seal when required as Directed by the Engineer. Extend sealant up into rail or curb 6 inches on low side or sides of deck. Prepare surfaces where sealant is to be placed in accordance with manufacturers speci cations.
If the self-leveling sealant cannot be extended up into the rail, use a Class 4 Sealant in the curb or rail portion only.

5. Clean joint opening of all old expansion materials/devices, dirt, and all other deleterious materials in accordance with Item 438, "Cleaning and Sealing Joints." Clean joint out full depth of the joint. Obtain approval of cleaned joint prior to proceeding with joint sealing operation.
Seal the joint opening with a Class 7 Silicone.



SECTION THRU SEALED EXPANSION JOINT

NOT TO SCALE

ESTIMATED QUANTITIES

ITEM	438-7007
LOCATION	CLEANING AND SEALING EXIST JOINTS (CL 7)
	L.F.
STR. #522 & 521 IH 35 SB & NB OVER FM 2114	284.0
TOTAL	284.0

PROCEDURE FOR CLEANING AND SEALING EXISTING JOINT WITH SILCONE SEAL

1) **Clean joint opening of all old expansion materials/devices, bituminous materials, dirt, grease and all other deleteious materials in accordance with Item 438, "Cleaning and Sealing Joints."**

2) **Obtain approval of cleaned joint prior to proceeding with joint sealing operation.**

3) **Place backer rod Into joInt openIng 1" below the top of concrete. When sealing joints for slab spans, slab beams, or box beams, fill void below backer rod with extruded polystyrene foam before placing backer rod.**

4) **Seal the joint opening with a Class 7 sealant Recess seal 1/2" below top of concrete In travel anes and 1/4' below top of concrete shoulders.**

General Notes:

Cleaning existing joint opening (full depth) of all debris, providing and placing backer rod, saw-cutting asphalt overlay, and sealing joints is paid for by Item 438, "Cleaning and Sealing Joints" and measured by the linear foot.
Obtaln approval for all tools, equlpment, materlals, and techniques proposed to clean and seal the joint.
Provide Class 3 joint sealant in accordance with DMS-6310, Joint Sealants and Fillers" for joints in asphalt overlay.
Provide Class 7 joint sealant in accordance with DMS-6310, "JoInt Sealants and FIllers" for jOints In concrete.
Extend sealant up into rail or curb 3 inches on low side or sides of deck. If the Class 7 joint sealant cannot be effectively placed In the vertlcal postlon, a Class 4 jOint sealant compatible with the Class 7 joint sealant is allowed for the extension of the seal into the curb or rail. Prepare surfaces where sealant is to be placed in accordance with Manufacturer's specifications.

STATE OF TEXAS
ROSS L. LANGDALE
126994
LICENSED
PROFESSIONAL ENGINEER

7/12/2024

Ross L Langdale, P.E.

Texas Department of Transportation

LAYOUT FOR CLEANING AND SEALING JOINTS

IH 35 NB/SB OVER FM 2114
09-161-0-0014-08-521/522

SCALE: FEET
NOT TO SCALE

SHEET 2 OF 2

CHANGE ORDER	FED.RD. DIV. NO.	CONT	SECT	JOB	HIGHWAY
	6	6467	47	001	FM 434,ETC
	STATE	DIST	COUNTY		SHEET NO.
	TEXAS	WACO	MCLENNAN		101

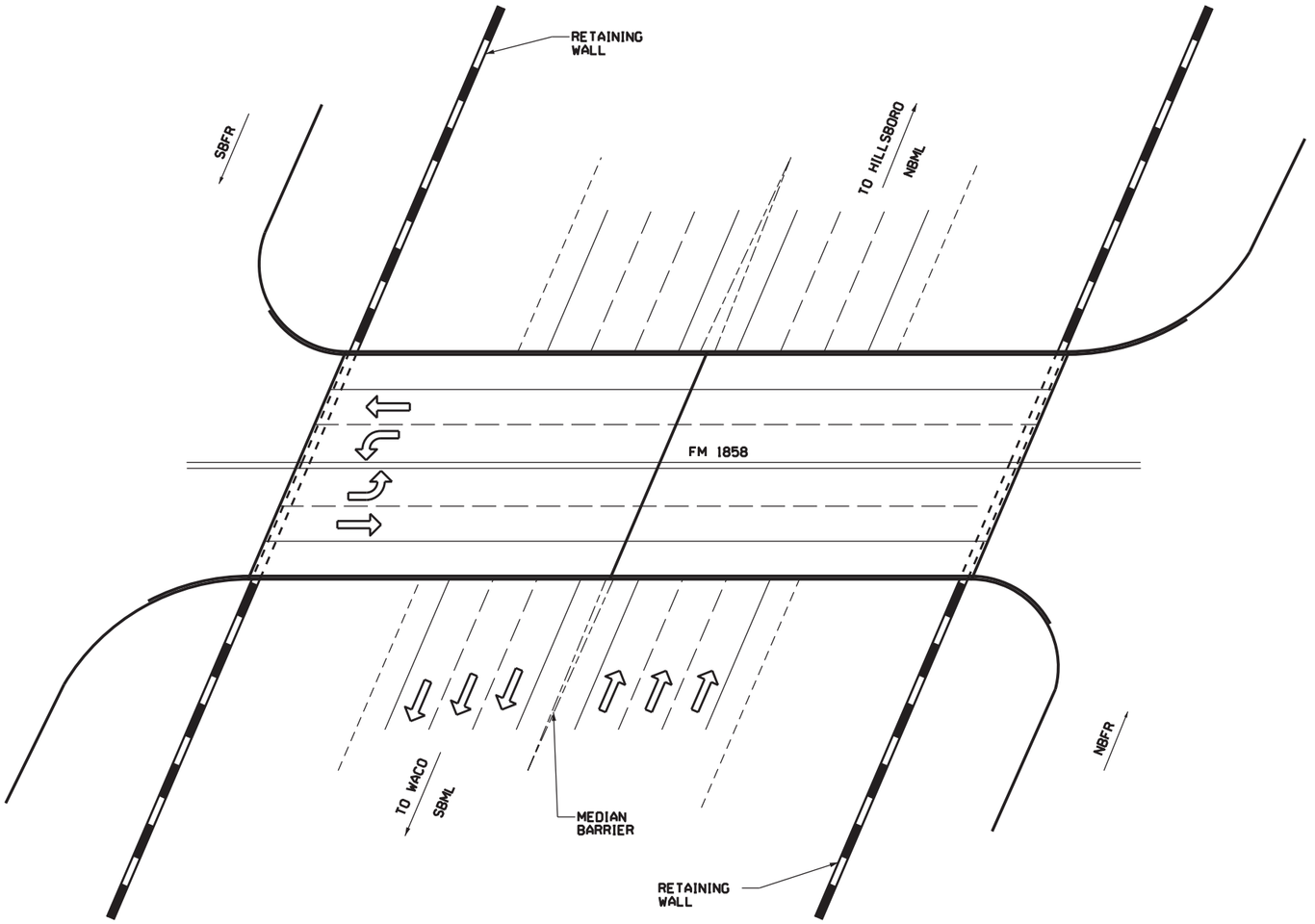
$FILE$

NODE

FOR LOCATION REPAIR DETAILS REFER TO:

LAYOUT & DETAILS FOR CLEANING AND SEALING EXPANSION JOINTS

AS-BUILT PLAN SET: 0014-08-520

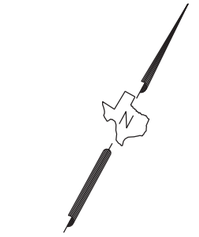


NOTE:
THIS SKETCH IS TO BE USED AS AN APPROXIMATE GUIDE FOR MAINTENANCE WORK TO BE PERFORMED IN THE VICINITY OF THIS EXISTING STRUCTURE.

LOCATION: FM 1858 @ IH 35
NBI#: 09-161-0-0014-08-520
DIMENSIONS: 248'x 76' BRIDGE
SKEW: 24°SKEW
GPS LAT/LON: 31.78765/-97.10304

LEGEND:

- EMBANKMENT
- EXCAVATION
- CONCRETE RIP RAP
- STONE RIP RAP
- FLOWABLE BACKFILL



GENERAL VICINITY LAYOUT
NTS
DRAWING NOT TO SCALE

GENERAL NOTES:

1. WHEN DIRECTED SURPLUS MATERIAL ESTIMATED AT INDIVIDUAL LOCATIONS MAY BE USED AT OTHER CONTRACT SITES.
2. IF STONE PROTECTION IS REQUIRED, THE DETAILS SHOWN ARE PROVIDED AS AN APPROXIMATE GUIDE FOR INSTALLATION OF STONE PROTECTION. THE CONTRACTOR WILL DETERMINE THE LIMITS OF STONE PROTECTION REQUIRED AS DICTATED BY FIELD CONDITIONS AND AS DIRECTED PRIOR TO MATERIAL PURCHASE AND DELIVERY.
3. IF NO PAY ITEM FOR DEBRIS REMOVAL IS NOTED; DEBRIS WILL BE REMOVED FROM BRIDGE STRUCTURE ELEMENTS. THIS WILL NOT BE PAID FOR DIRECTLY, BUT CONSIDERED SUBSIDIARY TO THE VARIOUS BID ITEMS.
4. THE CONTRACTOR WILL LIMIT CHANNEL DISTURBING ACTIVITIES TO THE VICINITY OF STRUCTURE AND TxDOT ROW. CONSTRUCTION WILL HAVE EROSION CONTROL BMP IN PLACE DURING ANY SOIL DISTURBING ACTIVITY.
5. IF NO PAY ITEM FOR BRUSH REMOVAL IS NOTED; BRUSH CLEARING FOR EXCAVATION AND EMBANKMENT WILL NOT BE PAID DIRECTLY, BUT CONSIDERED SUBSIDIARY TO THE VARIOUS BID ITEMS.
6. THE CONTRACTOR MUST EXHAUST ALL TYPE-D EMBANKMENT AVAILABLE AT SITE PRIOR TO DELIVERY OF TYPE-B.
7. IF JOINT SEAL IS REQUIRED FOR RIP RAP, THE QUANTITY SHOWN IS FOR ESTIMATION ONLY. THE CONTRACTOR WILL DETERMINE THE LIMITS OF SEALANT AS DICTATED BY FIELD CONDITIONS AND AS DIRECTED. JOINTS TOO LARGE FOR SEALANT MAY BE SEALED BY FLOWABLE BACKFILL AS DIRECTED. REFER TO DMS-6100 FOR MATERIAL SPECIFICATIONS.
8. LOCATIONS WHERE FENCING MUST BE ALTERED; AT ALL TIMES CONTRACTOR WILL MAINTAIN ADEQUATE BARRIER TO KEEP LIVESTOCK FROM ENTERING ROW. WHEN POSSIBLE REPLACE FENCING TO MATCH ORIGINAL. THIS WILL NOT BE PAID FOR DIRECTLY, BUT CONSIDERED SUBSIDIARY TO THE VARIOUS BID ITEMS.

ITEM-DESC	DESCRIPTION	UNITS	TOTAL
438-7007	CLEANING AND SEALING EXIST JOINTS (CL7)	LF	180.0
438-7008	CLEANING EXISTING JOINTS	LF	166.0

CONTRACTOR'S INFORMATION ONLY

STATE OF TEXAS
CHARLES W. SMITH
110312
LICENSED PROFESSIONAL ENGINEER

The seal appearing on this document was authorized by CHARLES W. SMITH P.E. 110312, on

Charles W. Smith, PE 7/12/2024

Texas Department of Transportation

McLENNAN COUNTY STRUCTURE LAYOUT

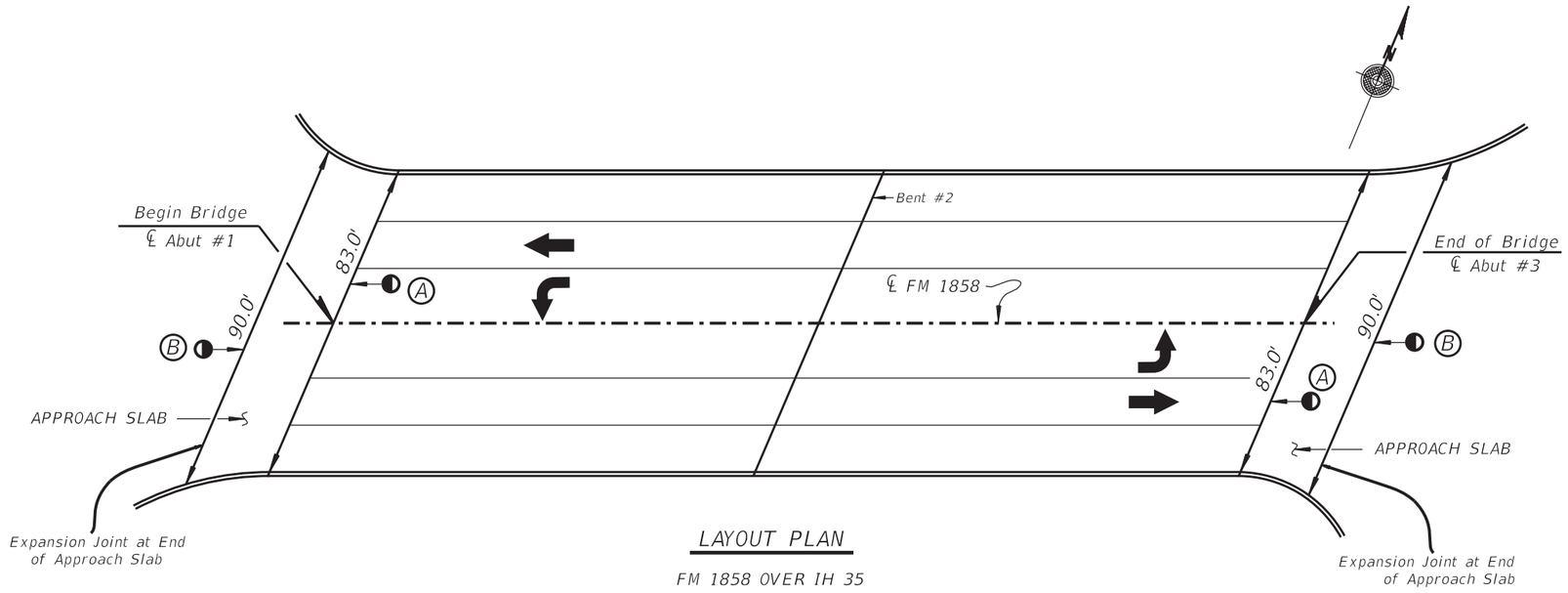
FM 1858 @ IH 35

NBI# 09-161-0014-08-520

SCALE: NTS

DESIGN	FED RD DIV No.	PROJECT No.	HIGHWAY No.
ZB	6	BPM 6467-47-001	FM 434,ETC
CHECK CS	STATE	DISTRICT / COUNTY	SHEET No.
GRAPHICS DL	TEXAS	WACO / MCLENNAN	102
CHECK CS	CONTROL	SECTION / JOB	
	6467	47 / 001	

...\0014-08-520.dgn

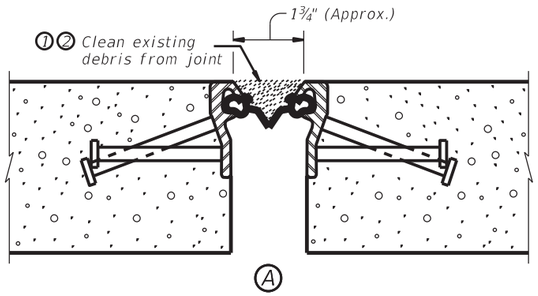


LAYOUT PLAN

FM 1858 OVER IH 35
(N.B.I.#09-161-0-0014-08-520

◑ Denotes location for Cleaning Existing SEJ-A

FM 1858 OVER IH 35
248'-0" OVERALL LENGTH
PRESTR. CONC. U-BEAM UNIT
@ (124', 124') SPANS
76'-0" RDWY.
78'-0" OVERALL
T1F (MOD) & T1F (SPL) RAIL



SECTION THRU SEJ-A JOINT

PROCEDURE FOR CLEANING AND SEALING EXISTING JOINT WITH SILCONE SEAL

1) **Clean joint opening of all old expansion materials/devices, bituminous materials, dirt, grease and all other deleteious materials In accordance with Item 438, "Cleaning and Sealing Joints."**
2) **Obtain approval of cleaned joint prior to proceeding with joint sealing operation.**
3) **Seal the joint opening with a Class 7 sealant Recess seal 1/2" below top of concrete in travel lanes and 1/4' below top of concrete shoulders.**

General Notes:

Cleaning existing joint opening (full depth) of all debris, providing and placing backer rod, saw-cutting asphalt overlay, and sealing joints is paid for by Item 438, "Cleaning and Sealing Joints" and measured by the linear foot.
Obtain approval for all tools, equipment, materials, and techniques proposed to clean and seal the joint.
Provide Class 3 joint sealant in accordance with DMS-6310, Joint Sealants and Fillers" for joints in asphalt overlay.
Provide Class 7 joint sealant in accordance with DMS-6310, "Joint Sealants and Fillers" for joints In concrete.
Extend sealant up into rail or curb 3 inches on low side or sides of deck. If the Class 7 joint sealant cannot be effectively placed In the vertical position, a Class 4 joint sealant compatible with the Class 7 joint sealant is allowed for the extension of the seal into the curb or rail. Prepare surfaces where sealant is to be placed in accordance with Manufacturer's specifications.

ESTIMATED QUANTITIES Ⓐ

ITEM	438-7008
LOCATION	CLEANING EXISTING JOINTS
	L.F.
STR. #520 FM 1858 OVER IH 35	166.0
TOTAL	166.0

STATE OF TEXAS
ROSS L. LANGDALE
126994
LICENSED
PROFESSIONAL ENGINEER
7/12/2024
Ross L Langdale, P.E.

Texas Department of Transportation

LAYOUT FOR CLEANING AND SEALING JOINTS

FM 1858 OVER IH 35
09-161-0-0014-08-520

SCALE: NOT TO SCALE FEET

CHANGE ORDER	FED.RD. DIV. NO.	CONT	SECT	JOB	HIGHWAY
	6	6467	47	001	FM 434,ETC
	STATE	DIST	COUNTY		SHEET NO.
	TEXAS	WACO	MCLENNAN		103

10:08:14 AM

7/9/2024

NOTES:

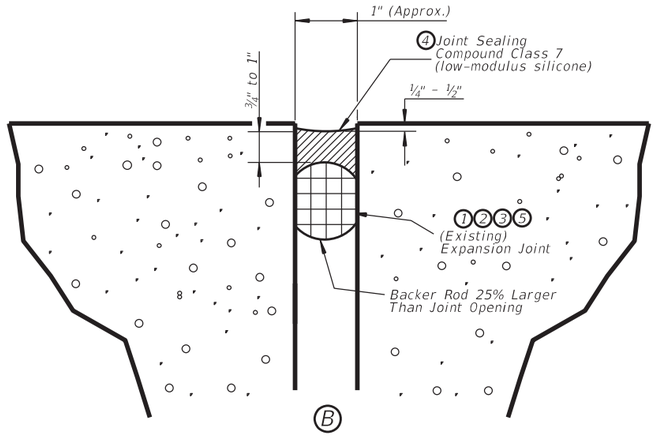
1. The joints shall be cleaned in accordance with Item 438 and prior to beginning operations, the Contractor shall submit a statement from the Sealant Manufacturer showing the recommended equipment and Installation procedures to be used.

2. Condition of existing expansion joint or rail shall be determined prior to placing sealant material. The entire length of existing joint shall be checked and any portion that is determined unsound by the Engineer shall be removed as directed by the Engineer. Any existing seal shall be removed and disposed of.
Repair any signi cant spalled or cracked areas, as determined by the Engineer, around the joint opening with an approved proprietary concrete repair material as Approved by the Engineer. This work will be paid for under Item 429 "Concrete Structure Repair".

3. Surfaces where sealant material is to be placed shall be clean and dry in accordance with the manufacturer's speci cations.

4. Seal when required as Directed by the Engineer. Extend sealant up into rail or curb 6 inches on low side or sides of deck. Prepare surfaces where sealant is to be placed in accordance with manufacturers speci cations.
If the self-leveling sealant cannot be extended up into the rail, use a Class 4 Sealant in the curb or rail portion only.

5. Clean joint opening of all old expansion materials/devices, dirt, and all other deleterious materials in accordance with Item 438, "Cleaning and Sealing Joints." Clean joint out full depth of the joint. Obtain approval of cleaned joint prior to proceeding with joint sealing operation.
Seal the joint opening with a Class 7 Silicone.



SECTION THRU SEALED EXPANSION JOINT

NOT TO SCALE

ESTIMATED QUANTITIES

ITEM	438-7007
LOCATION	CLEANING AND SEALING EXIST JOINTS (CL 7)
	L.F.
STR. #520 FM 1858 OVER IH 35	180.0
TOTAL	180.0

PROCEDURE FOR CLEANING AND SEALING EXISTING JOINT WITH SILCONE SEAL

1) **Clean joint opening of all old expansion materials/devices, bituminous materials, dirt, grease and all other deleteious materials in accordance with Item 438, "Cleaning and Sealing Joints."**

2) **Obtain approval of cleaned joint prior to proceeding with joint sealing operation.**

3) **Place backer rod Into joInt openIng 1" below the top of concrete. When sealing joints for slab spans, slab beams, or box beams, fill void below backer rod with extruded polystyrene foam before placing backer rod.**

4) **Seal the joint opening with a Class 7 sealant Recess seal 1/2" below top of concrete In travel anes and 1/4' below top of concrete shoulders.**

General Notes:

Cleaning existing joint opening (full depth) of all debris, providing and placing backer rod, saw-cutting asphalt overlay, and sealing joints is paid for by Item 438, "Cleaning and Sealing Joints" and measured by the linear foot.
Obtaln approval for all tools, equlpment, materlals, and techniques proposed to clean and seal the joint.
Provide Class 3 joint sealant in accordance with DMS-6310, Joint Sealants and Fillers" for joints in asphalt overlay.
Provide Class 7 joint sealant in accordance with DMS-6310, "JoInt Sealants and FIllers" for jolnts In concrete.
Extend sealant up into rail or curb 3 inches on low side or sides of deck. If the Class 7 joint sealant cannot be effectively placed In the vertlcal postlon, a Class 4 jolnt sealant compatible with the Class 7 joint sealant is allowed for the extension of the seal into the curb or rail. Prepare surfaces where sealant is to be placed in accordance with Manufacturer's specifications.

STATE OF TEXAS
ROSS L. LANGDALE
126994
LICENSED
PROFESSIONAL ENGINEER

7/12/2024

Ross L Langdale, P.E.

Texas Department of Transportation

LAYOUT FOR CLEANING AND SEALING JOINTS

FM 1858 OVER IH 35
09-161-0-0014-08-520

SCALE: NOT TO SCALE FEET

SHEET 2 OF 2

CHANGE ORDER	FED.RD. DIV. NO.	CONT	SECT	JOB	HIGHWAY
	6	6467	47	001	FM 434,ETC
	STATE	DIST	COUNTY		SHEET NO.
	TEXAS	WACO	MCLENNAN		104

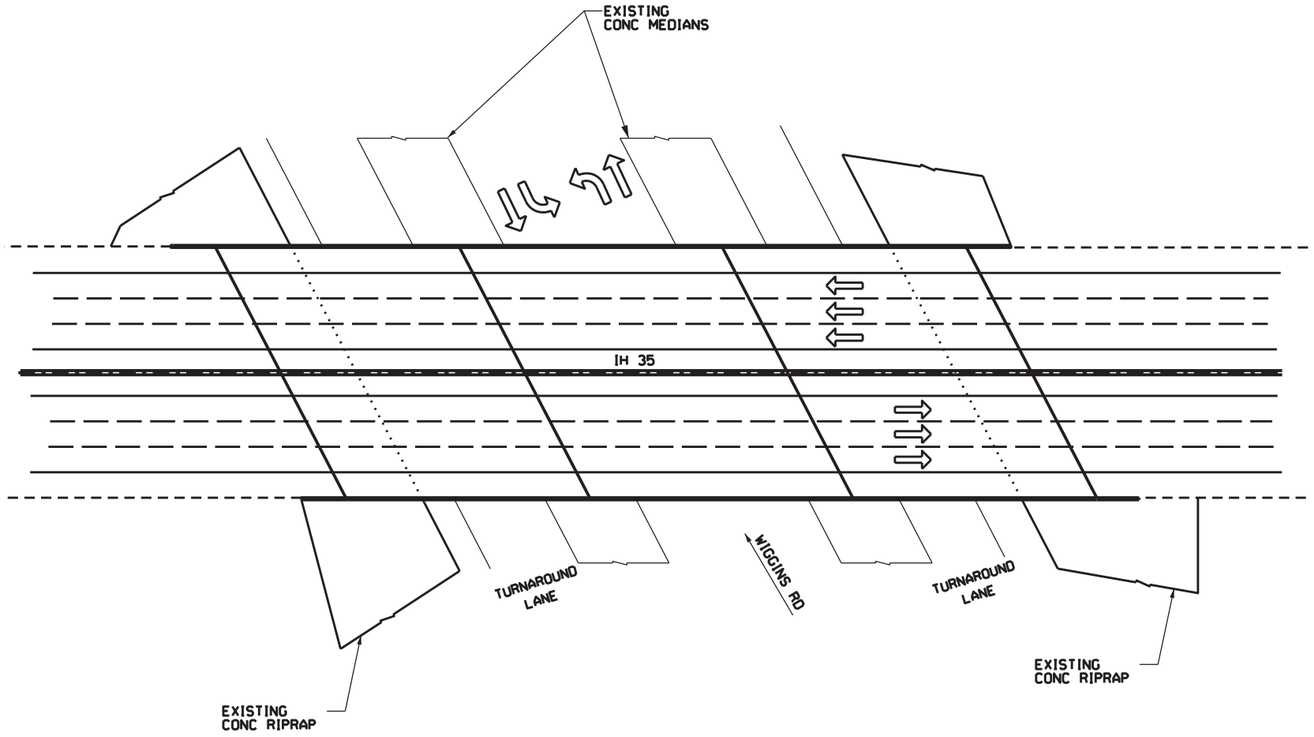
$FILEA$

NODE

FOR LOCATION REPAIR DETAILS REFER TO:

LAYOUT & DETAILS FOR CLEANING AND SEALING EXPANSION JOINTS

AS-BUILT PLAN SET: 0014-08-518



NOTE:
THIS SKETCH IS TO BE USED AS AN APPROXIMATE GUIDE FOR MAINTENANCE WORK TO BE PERFORMED IN THE VICINITY OF THIS EXISTING STRUCTURE.

LOCATION: IH 35 NB @ WIGGINS RD
NBI#: 09-161-0-0014-08-518
DIMENSIONS: 354'x 120' BRIDGE
SKEW: 27.5°SKEW
GPS LAT/LON: 31.753106/-97.104128

LEGEND:

- EMBANKMENT
- EXCAVATION
- CONCRETE RIP RAP
- STONE RIP RAP
- FLOWABLE BACKFILL

GENERAL VICINITY LAYOUT
NTS
DRAWING NOT TO SCALE

GENERAL NOTES:

1. WHEN DIRECTED SURPLUS MATERIAL ESTIMATED AT INDIVIDUAL LOCATIONS MAY BE USED AT OTHER CONTRACT SITES.
2. IF STONE PROTECTION IS REQUIRED, THE DETAILS SHOWN ARE PROVIDED AS AN APPROXIMATE GUIDE FOR INSTALLATION OF STONE PROTECTION. THE CONTRACTOR WILL DETERMINE THE LIMITS OF STONE PROTECTION REQUIRED AS DICTATED BY FIELD CONDITIONS AND AS DIRECTED PRIOR TO MATERIAL PURCHASE AND DELIVERY.
3. IF NO PAY ITEM FOR DEBRIS REMOVAL IS NOTED; DEBRIS WILL BE REMOVED FROM BRIDGE STRUCTURE ELEMENTS. THIS WILL NOT BE PAID FOR DIRECTLY, BUT CONSIDERED SUBSIDIARY TO THE VARIOUS BID ITEMS.
4. THE CONTRACTOR WILL LIMIT CHANNEL DISTURBING ACTIVITIES TO THE VICINITY OF STRUCTURE AND TxDOT ROW. CONSTRUCTION WILL HAVE EROSION CONTROL BMP IN PLACE DURING ANY SOIL DISTURBING ACTIVITY.
5. IF NO PAY ITEM FOR BRUSH REMOVAL IS NOTED; BRUSH CLEARING FOR EXCAVATION AND EMBANKMENT WILL NOT BE PAID DIRECTLY, BUT CONSIDERED SUBSIDIARY TO THE VARIOUS BID ITEMS.
6. THE CONTRACTOR MUST EXHAUST ALL TYPE-D EMBANKMENT AVAILABLE AT SITE PRIOR TO DELIVERY OF TYPE-B.
7. IF JOINT SEAL IS REQUIRED FOR RIP RAP, THE QUANTITY SHOWN IS FOR ESTIMATION ONLY. THE CONTRACTOR WILL DETERMINE THE LIMITS OF SEALANT AS DICTATED BY FIELD CONDITIONS AND AS DIRECTED. JOINTS TOO LARGE FOR SEALANT MAY BE SEALED BY FLOWABLE BACKFILL AS DIRECTED. REFER TO DMS-6100 FOR MATERIAL SPECIFICATIONS.
8. LOCATIONS WHERE FENCING MUST BE ALTERED; AT ALL TIMES CONTRACTOR WILL MAINTAIN ADEQUATE BARRIER TO KEEP LIVESTOCK FROM ENTERING ROW. WHEN POSSIBLE REPLACE FENCING TO MATCH ORIGINAL. THIS WILL NOT BE PAID FOR DIRECTLY, BUT CONSIDERED SUBSIDIARY TO THE VARIOUS BID ITEMS.

ITEM-DESC	DESCRIPTION	UNITS	TOTAL
438-7007	CLEANING AND SEALING EXIST JOINTS (CL7)	LF	232.0
438-7008	CLEANING EXISTING JOINTS	LF	260.0

CONTRACTOR'S INFORMATION ONLY

STATE OF TEXAS
CHARLES W. SMITH
110312
LICENSED
PROFESSIONAL ENGINEER

The seal appearing on this document was authorized by CHARLES W. SMITH P.E. 110312, on

7/12/2024

Charles W. Smith, PE

McLENNAN COUNTY
STRUCTURE LAYOUT
IH 35 NB @ WIGGINS RD
NBI# 09-161-0014-08-518

SCALE: NTS

DESIGN	FED RD DIV No.	PROJECT No.		HIGHWAY No.
ZB	6	BPM 6467-47-001		FM 434,ETC
CHECK CS	STATE	DISTRICT	COUNTY	SHEET No.
GRAPHICS DL	TEXAS	WACO	MCLENNAN	105
CHECK CS	CONTROL	SECTION	JOB	
	6467	47	001	

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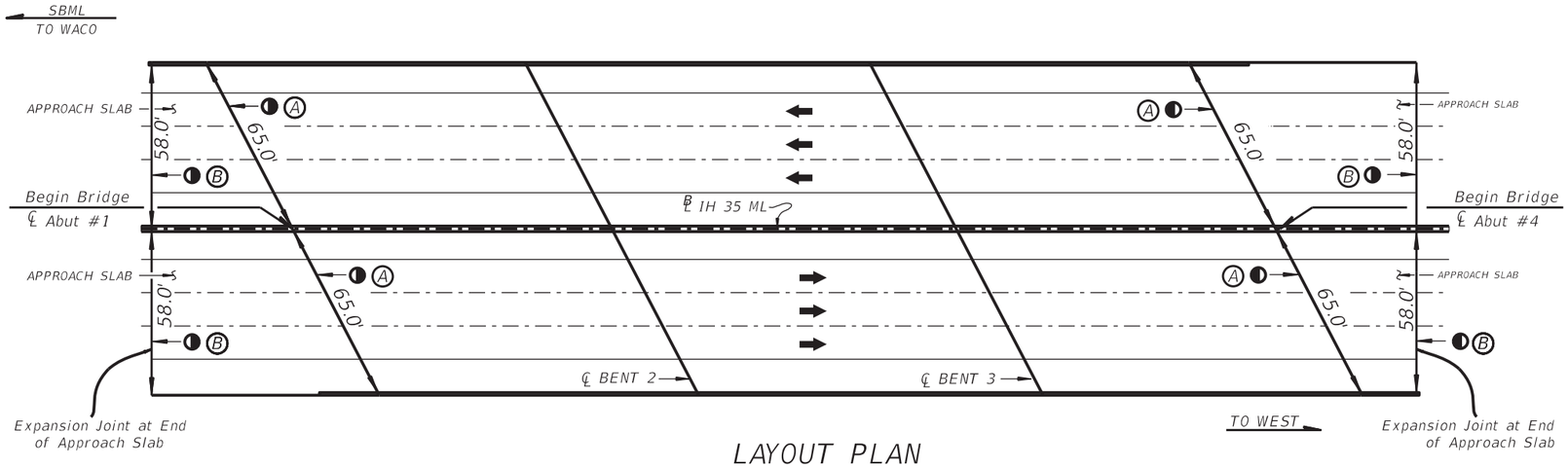


LAYOUT PLAN

IH 35 NB OVER WIGGINS RD
(N.B.I.#09-161-0-0014-08-518)
&
IH 35 SB OVER WIGGINS RD
(N.B.I.#09-161-0-0014-08-519)

◑ Denotes Location for Cleaning and Sealing Expansion Joints.

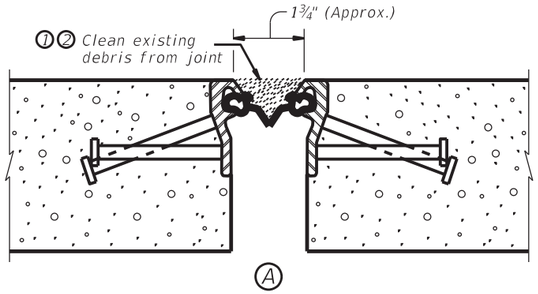
IH 35 NB/SB OVER WIGGINS RD
396' OVERALL LENGTH=
@ (115', 124', 115') PREST. CONC. U-BEAM UNIT
120" OVERALL WIDTH
58'-0" ROADWAY 27.5° LFS
T1F RAIL

PROCEDURE FOR CLEANING AND SEALING EXISTING JOINT WITH SILCONE SEAL

1) **Clean joint opening of all old expansion materials/devices, bituminous materials, dirt, grease and all other deleteious materials in accordance with Item 438, "Cleanlng and Sealng Joints."**
2) **Obtain approval of cleaned joint prior to proceeding with joint sealing operation.**
3) **Seal the joint openlng wlth a Class 7 sealant Recess seal 1/2" below top of concrete in travel lanes and 1/4' below top of concrete shoulders.**

General Notes:

Cleaning existing joint opening (full depth) of all debris, providlng and placlng backer rod, saw-cuttlng asphalt overlay, and sealing joints is paid for by Item 438, "Cleaning and Sealing Joints" and measured by the linear foot.
Obtain approval for all tools, equipment, materials, and techniques proposed to clean and seal the joint.
Provide Class 3 joint sealant in accordance with DMS-6310, Joint Sealants and Fillers" for joints in asphalt overlay.
Provide Class 7 joint sealant in accordance with DMS-6310, "Joint Sealants and Fillers" for joints in concrete.
Extend sealant up into rail or curb 3 inches on low side or sides of deck. If the Class 7 joint sealant cannot be effectively placed in the vertical postion, a Class 4 joint sealant compatible with the Class 7 joint sealant is allowed for the extension of the seal Into the curb or rall. Prepare surfaces where sealant Is to be placed in accordance with Manufacturer's specifications.



SECTION THRU SEJ-P JOINT

ESTIMATED QUANTITIES

Ⓐ

ITEM	438-7008
LOCATION	CLEANING EXISTING JOINTS
	L.F.
STR. #518 & 519 IH 35 NB & SB OVER WIGGINS RD	260.0
TOTAL	260.0

STATE OF TEXAS
ROSS L. LANGDALE
126994
LICENSED
PROFESSIONAL ENGINEER
7/12/2024
Ross L Langdale, P.E.

Texas Department of Transportation

LAYOUT FOR CLEANING AND SEALING JOINTS

IH 35 NB/SB OVER WIGGINS RD
09-161-0-0014-08-518/519

SCALE: NOT TO SCALE FEET

SHEET 1 OF 2

CHANGE ORDER	FED.RD. DIV. NO.	CONT	SECT	JOB	HIGHWAY
	6	6467	47	001	FM 434,ETC
	STATE	DIST	COUNTY		SHEET NO.
	TEXAS	WACO	MCLENNAN		106

10:08:15 AM

7/9/2024

NOTES:

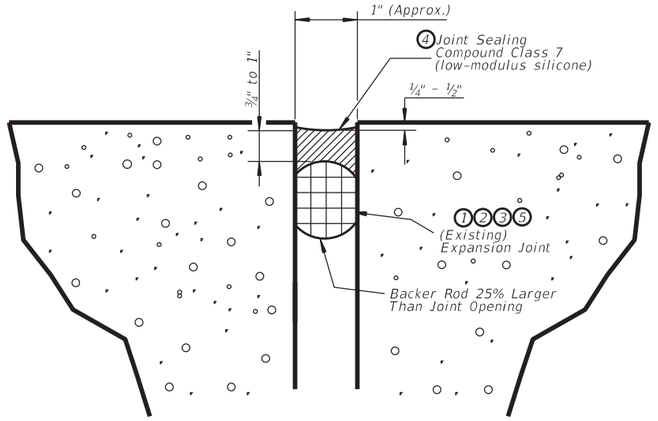
1. The joints shall be cleaned in accordance with Item 438 and prior to beginning operations, the Contractor shall submit a statement from the Sealant Manufacturer showing the recommended equipment and Installation procedures to be used.

2. Condition of existing expansion joint or rail shall be determined prior to placing sealant material. The entire length of existing joint shall be checked and any portion that is determined unsound by the Engineer shall be removed as directed by the Engineer. Any existing seal shall be removed and disposed of.
Repair any signi cant spalled or cracked areas, as determined by the Engineer, around the joint opening with an approved proprietary concrete repair material as Approved by the Engineer. This work will be paid for under Item 429 "Concrete Structure Repair".

3. Surfaces where sealant material is to be placed shall be clean and dry in accordance with the manufacturer's speci cations.

4. Seal when required as Directed by the Engineer. Extend sealant up into rail or curb 6 inches on low side or sides of deck. Prepare surfaces where sealant is to be placed in accordance with manufacturers speci cations.
If the self-leveling sealant cannot be extended up into the rail, use a Class 4 Sealant in the curb or rail portion only.

5. Clean joint opening of all old expansion materials/devices, dirt, and all other deleterious materials in accordance with Item 438, "Cleaning and Sealing Joints." Clean joint out full depth of the joint. Obtain approval of cleaned joint prior to proceeding with joint sealing operation.
Seal the joint opening with a Class 7 Silicone.



SECTION THRU SEALED EXPANSION JOINT

NOT TO SCALE

ESTIMATED QUANTITIES

ITEM	438-7007
LOCATION	CLEANING AND SEALING EXIST JOINTS (CL 7)
	L.F.
STR. #518 & 519 IH 35 NB OVER WIGGINS RD	232.0
TOTAL	232.0

PROCEDURE FOR CLEANING AND SEALING EXISTING JOINT WITH SILCONE SEAL

1) **Clean joint opening of all old expansion materials/devices, bituminous materials, dirt, grease and all other deleteious materials in accordance with Item 438, "Cleaning and Sealing Joints."**

2) **Obtain approval of cleaned joint prior to proceeding with joint sealing operation.**

3) **Place backer rod Into joInt openIng 1" below the top of concrete. When sealing joints for slab spans, slab beams, or box beams, fill void below backer rod with extruded polystyrene foam before placing backer rod.**

4) **Seal the joint opening with a Class 7 sealant Recess seal 1/2" below top of concrete In travel anes and 1/4' below top of concrete shoulders.**

General Notes:

Cleaning existing joint opening (full depth) of all debris, providing and placing backer rod, saw-cutting asphalt overlay, and sealing joints is paid for by Item 438, "Cleaning and Sealing Joints" and measured by the linear foot.
Obtaln approval for all tools, equlpment, materlals, and techniques proposed to clean and seal the joint.
Provide Class 3 joint sealant in accordance with DMS-6310, Joint Sealants and Fillers" for joints in asphalt overlay.
Provide Class 7 joint sealant in accordance with DMS-6310, "JoInt Sealants and FIllers" for jolnts In concrete.
Extend sealant up into rail or curb 3 inches on low side or sides of deck. If the Class 7 joint sealant cannot be effectively placed In the vertlcal postlon, a Class 4 jolnt sealant compatible with the Class 7 joint sealant is allowed for the extension of the seal into the curb or rail. Prepare surfaces where sealant is to be placed in accordance with Manufacturer's specifications.

STATE OF TEXAS
ROSS L. LANGDALE
126994
LICENSED
PROFESSIONAL ENGINEER

7/12/2024

Ross L Langdale, P.E.

Texas Department of Transportation

LAYOUT FOR CLEANING AND SEALING JOINTS

IH 35 NB/SB OVER WIGGINS RD
09-161-0-0014-08-518/519

SCALE: NOT TO SCALE FEET

SHEET 2 OF 2

CHANGE ORDER	FED.RD. DIV. NO.	CONT	SECT	JOB	HIGHWAY
	6	6467	47	001	FM 434,ETC
	STATE	DIST	COUNTY		SHEET NO.
	TEXAS	WACO	MCLENNAN		107

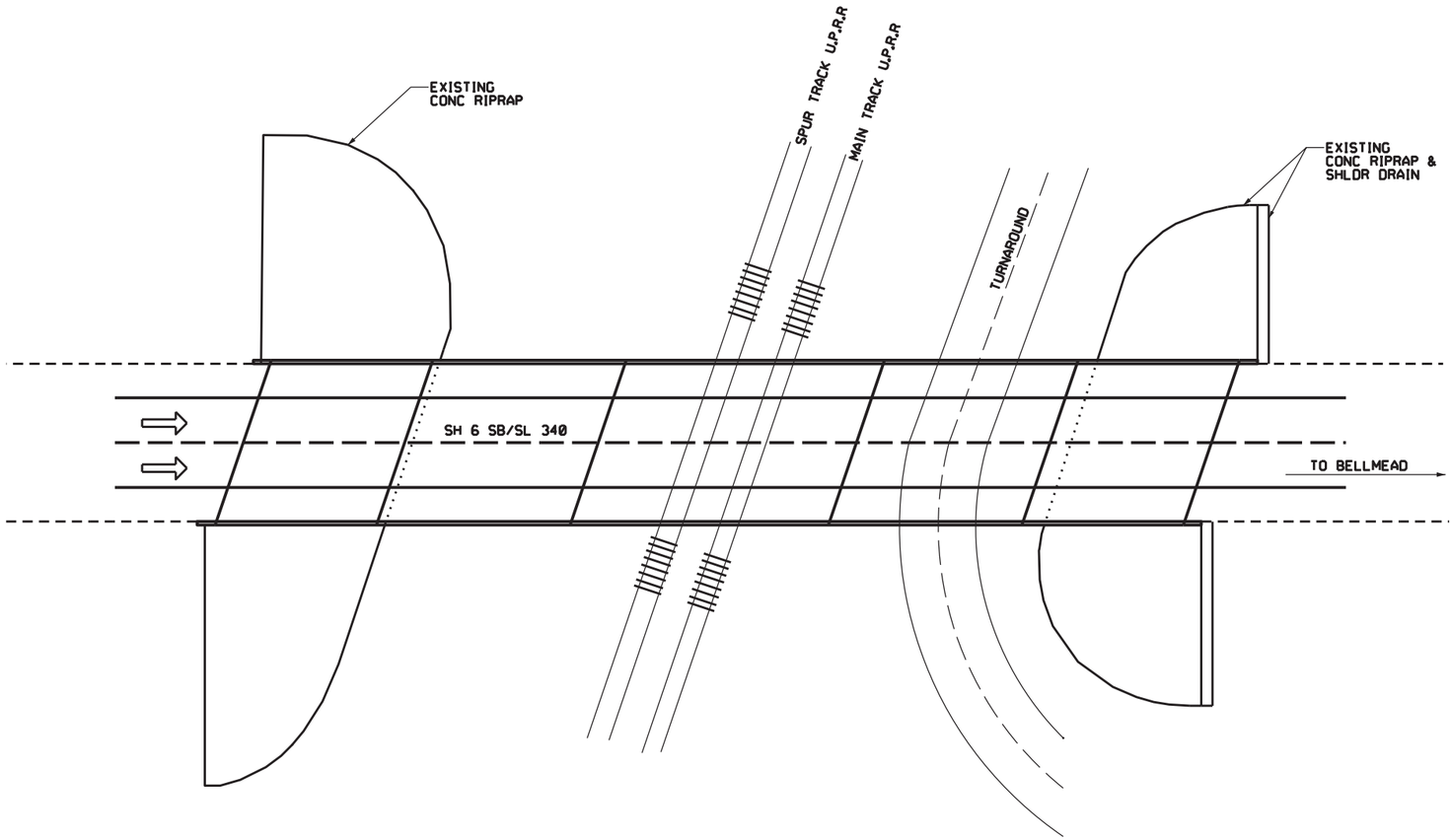
$FILEA$

NODE

FOR LOCATION REPAIR DETAILS REFER TO:

LAYOUT & DETAILS FOR CLEANING AND SEALING EXPANSION JOINTS

AS-BUILT PLAN SET: 0258-09-094



NOTE:
THIS SKETCH IS TO BE USED AS AN APPROXIMATE GUIDE FOR MAINTENANCE WORK TO BE PERFORMED IN THE VICINITY OF THIS EXISTING STRUCTURE.

LOCATION: SH 6 SB-SL 340 @ UPRR
NBI#: 09-161-0-0258-09-094
DIMENSIONS: 270'x 44' BRIDGE
SKEW: 20°SKEW
GPS LAT/LON: 31.5437845/-97.06997309

LEGEND:

- EMBANKMENT
- EXCAVATION
- CONCRETE RIP RAP
- STONE RIP RAP
- FLOWABLE BACKFILL

GENERAL VICINITY LAYOUT
NTS
DRAWING NOT TO SCALE

GENERAL NOTES:

1. WHEN DIRECTED SURPLUS MATERIAL ESTIMATED AT INDIVIDUAL LOCATIONS MAY BE USED AT OTHER CONTRACT SITES.
2. IF STONE PROTECTION IS REQUIRED, THE DETAILS SHOWN ARE PROVIDED AS AN APPROXIMATE GUIDE FOR INSTALLATION OF STONE PROTECTION. THE CONTRACTOR WILL DETERMINE THE LIMITS OF STONE PROTECTION REQUIRED AS DICTATED BY FIELD CONDITIONS AND AS DIRECTED PRIOR TO MATERIAL PURCHASE AND DELIVERY.
3. IF NO PAY ITEM FOR DEBRIS REMOVAL IS NOTED; DEBRIS WILL BE REMOVED FROM BRIDGE STRUCTURE ELEMENTS. THIS WILL NOT BE PAID FOR DIRECTLY, BUT CONSIDERED SUBSIDIARY TO THE VARIOUS BID ITEMS.
4. THE CONTRACTOR WILL LIMIT CHANNEL DISTURBING ACTIVITIES TO THE VICINITY OF STRUCTURE AND TxDOT ROW. CONSTRUCTION WILL HAVE EROSION CONTROL BMP IN PLACE DURING ANY SOIL DISTURBING ACTIVITY.
5. IF NO PAY ITEM FOR BRUSH REMOVAL IS NOTED; BRUSH CLEARING FOR EXCAVATION AND EMBANKMENT WILL NOT BE PAID DIRECTLY, BUT CONSIDERED SUBSIDIARY TO THE VARIOUS BID ITEMS.
6. THE CONTRACTOR MUST EXHAUST ALL TYPE-D EMBANKMENT AVAILABLE AT SITE PRIOR TO DELIVERY OF TYPE-B.
7. IF JOINT SEAL IS REQUIRED FOR RIP RAP, THE QUANTITY SHOWN IS FOR ESTIMATION ONLY. THE CONTRACTOR WILL DETERMINE THE LIMITS OF SEALANT AS DICTATED BY FIELD CONDITIONS AND AS DIRECTED. JOINTS TOO LARGE FOR SEALANT MAY BE SEALED BY FLOWABLE BACKFILL AS DIRECTED. REFER TO DMS-6100 FOR MATERIAL SPECIFICATIONS.
8. LOCATIONS WHERE FENCING MUST BE ALTERED; AT ALL TIMES CONTRACTOR WILL MAINTAIN ADEQUATE BARRIER TO KEEP LIVESTOCK FROM ENTERING ROW. WHEN POSSIBLE REPLACE FENCING TO MATCH ORIGINAL. THIS WILL NOT BE PAID FOR DIRECTLY, BUT CONSIDERED SUBSIDIARY TO THE VARIOUS BID ITEMS.

ITEM-DESC	DESCRIPTION	UNITS	TOTAL
351-7001	FLEXIBLE PAVEMENT STRUCTURE REPAIR (2")	SY	12.0
438-7007	CLEANING & SEALING EXIST JOINTS (CL7)	LF	94.0
785-7002	BRIDGE JOINT REPAIR (HEADER)	LF	94.0

CONTRACTOR'S INFORMATION ONLY

STATE OF TEXAS
CHARLES W. SMITH
110312
LICENSED
PROFESSIONAL ENGINEER

The seal appearing on this document was authorized by CHARLES W. SMITH P.E. 110312, on

Charles W. Smith, PE 7/12/2024

McLENNAN COUNTY STRUCTURE LAYOUT

SH 6 SB/SL 340 @ UPRR

NBI# 09-161-0258-09-094

SCALE: NTS

DESIGN	FED RD DIV No.	PROJECT No.		HIGHWAY No.
ZB	6	BPM 6467-47-001		FM 434,ETC
CHECK	STATE	DISTRICT	COUNTY	SHEET No.
CS	TEXAS	WACO	MCLENNAN	108
GRAPHICS	CONTROL	SECTION	JOB	
DL	6467	47	001	
CHECK				
CS				

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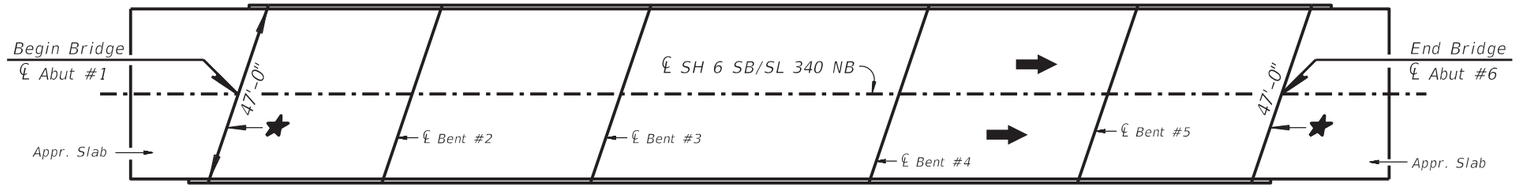


LAYOUT PLAN

SH 6 SB/SL 340 NB OVER UPRR

(N.B.I.#09-161-0-0258-09-094)

GPS LAT/LON: 31.543058°/-97.070004°

★ Denotes Location for Cleaning and Sealing Header Type Expansion Joints.

SH 6/SL 340 NB OVER UPRR
270'-0" ~ OVERALL LENGTH =
@ (45', 54', 72', 54', 45') CONT. CONC. SLAB UNIT
44' ROADWAY
46' OVERALL
TY T5 (MOD) RAIL

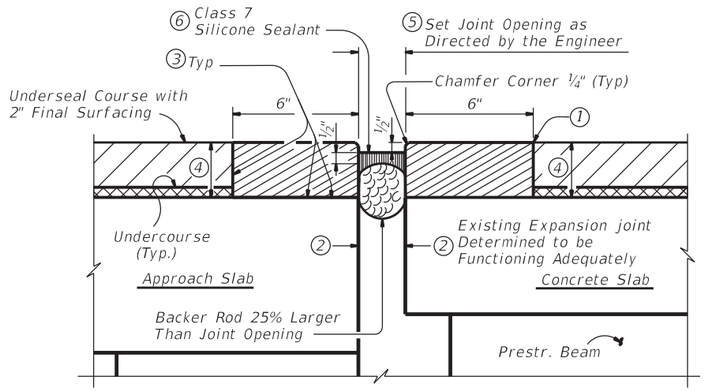
NOTES:

1. Saw cut overlay to top of deck and remove material to expose existing joint.
2. Determine condition of concrete on either side of joint opening. The entire length of existing joint must be checked and any portion that is determined unsound by the Engineer must be removed as directed by the Engineer. Chip and remove loose and deteriorated concrete. Do not place elastomeric concrete on surface that is sloped greater than 45° from horizontal. Chip concrete down to obtain surface sloped less than 45° as directed. Do not use chipping hammers heavier than the normal 15-lbs class for concrete removal work. Take care not to increase the maximum depth of the spall.
3. Surfaces where nosing/header material is to be placed shall be clean and dry in accordance with the manufacturer's specs.
4. Match the thickness of the header with the thickness of the overlay. The thickness of the overlay is approximately 2" but may vary. If the thickness of the overlay exceeds 3.25", set the width of the header at one and a half times the thickness of the overlay but should not be greater than 8" unless approved by the Engineer.
5. Match existing joint opening or set at the minimum shown below or as directed by the Engineer. Do not cantilever header over joint opening.

   1" at 70° F when distance between joints is 150 feet or less.
   2" at 70° F when distance between joints is greater than 150 feet.
6. Seal with Class 7 Sealant in accordance with DMS-6310 "Joint Sealants and Fillers". Prepare surfaces where sealant is to be placed in accordance with manufacturer's speci cations.

(A) ESTIMATED QUANTITIES

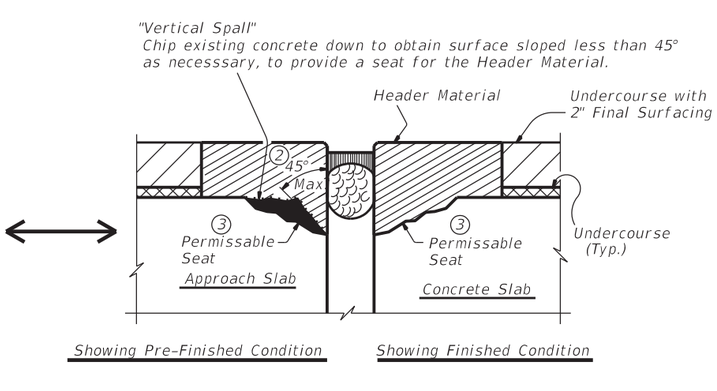
ITEM	351-7001	438-7007	785-7002
LOCATION	FLEXIBLE PAVEMENT STRUCTURE REPAIR (2")	CLEANING AND SEALING EXISTING JOINTS (CL 7)	BRIDGE JOINT REPAIR (HEADER)
	S.Y.	L.F.	L.F.
STR. #094 SH 6 SB/SL 340 NB OVER UPRR	12.0	94.0	94.0
TOTAL	12.0	94.0	94.0
	Refer to Item "351"	Refer to Item "438"	Refer to item "785".



NOT TO SCALE

SECTION THRU NOSING/HEADER AT SEALED EXPANSION JOINT

(A)



NOT TO SCALE

SECTION THRU NOSING/HEADER AT SEALED EXPANSION JOINT

(SHOWING SPALLED SLAB EDGES - TYPICAL)

PROCEDURE FOR CLEANING AND SEALING HEADER JOINT WITH SILICONE SEAL AND HEADER JOINT REPAIR

1) **Clean joint opening of all old expansion materials/devices, bituminous materials, dirt, grease and all other deleteious materials in accordance with Item 438, "Cleanlng and Sealing Joints."**
2) **Saw cut and remove damaged portions of existing header material to neat lines. Repair deck joint spalls greater than 2" deep in accordance wlth Item 785, "Bridge Joint Repalr or Replacement." Shallower spalls may be filled with header material.**
3) **Clean the voided region to the required width and inhibit the bond between header material and concrete or steel.**
4) **Form the joint opening to the required width and place header material to fill voided region. Repair header material in accordance with Item 785, "Bridge Joint Repalr or Replacement."**
5) **Place backer rod into joint opening 1" below the top of header materlal. When sealing joints for slab spans, slab beam spans, or box beam spans, fill void below backer rod with extruded polystyrene foam before placing backer rod.**
6) **Seal the joint opening with a Class 7 joint sealant. Recess seal 1/2" below top of header in travel lanes and 1/4" below top of header in shoulders.**

General Notes:

"Concrete Chipping" for Joint preparation is subsidiary to Item 454. The addtlonal elastomrlc concrete required to fill the spalled area is paid for by Item 454, HEADER TYPE EXPANSION JOINT.

STATE OF TEXAS
ROSS L. LANGDALE
126994
LICENSED
PROFESSIONAL ENGINEER

7/12/2024

Ross L Langdale, P.E.

Texas Department of Transportation

LAYOUT FOR CLEANING AND SEALING JOINTS

SH 6 SB/SL 340 NB OVER UPRR
09-161-0-0258-09-094

SCALE: 1" = HORIZ. FEET

SHEET 1 OF 1

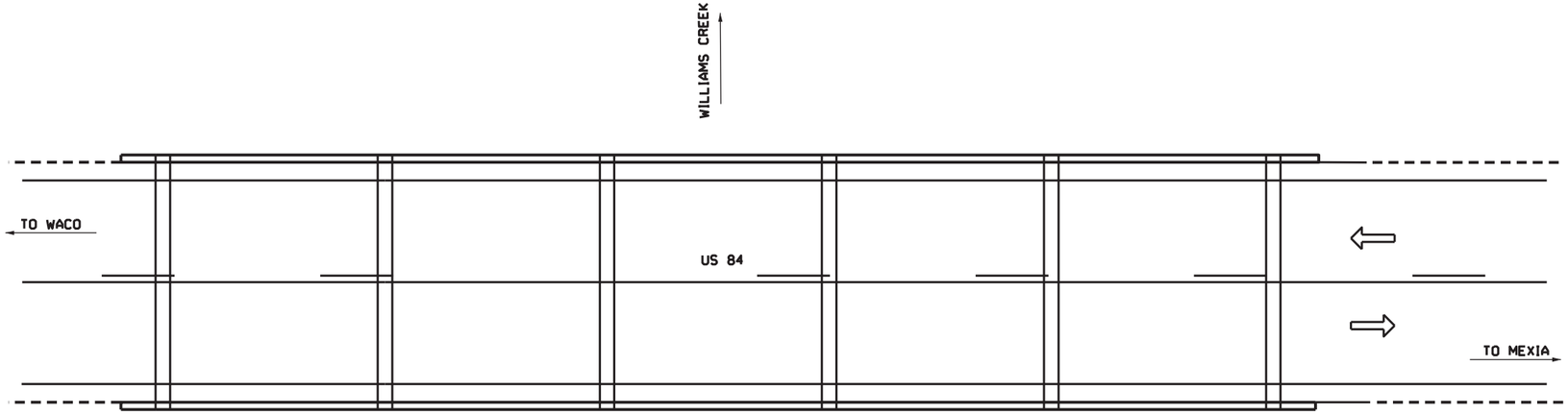
CHANGE ORDER	FED.RD. DIV. NO.	CONT	SECT	JOB	HIGHWAY
	6	6467	47	001	FM 434,ETC
	STATE	DIST	COUNTY		SHEET NO.
	TEXAS	WACO	MCLENNAN		109

10:08:16 AM
7/9/2024
$FILEAS
NODE

FOR LOCATION REPAIR DETAILS REFER TO:

EROSION REPAIR LAYOUT

AS-BUILT PLAN SET: 0056-01-010



LEGEND:

- EMBANKMENT
- EXCAVATION
- CONCRETE RIP RAP
- STONE RIP RAP
- FLOWABLE BACKFILL

GENERAL VICINITY LAYOUT
NTS
DRAWING NOT TO SCALE

GENERAL NOTES:

1. WHEN DIRECTED SURPLUS MATERIAL ESTIMATED AT INDIVIDUAL LOCATIONS MAY BE USED AT OTHER CONTRACT SITES.
2. IF STONE PROTECTION IS REQUIRED, THE DETAILS SHOWN ARE PROVIDED AS AN APPROXIMATE GUIDE FOR INSTALLATION OF STONE PROTECTION. THE CONTRACTOR WILL DETERMINE THE LIMITS OF STONE PROTECTION REQUIRED AS DICTATED BY FIELD CONDITIONS AND AS DIRECTED PRIOR TO MATERIAL PURCHASE AND DELIVERY.
3. IF NO PAY ITEM FOR DEBRIS REMOVAL IS NOTED; DEBRIS WILL BE REMOVED FROM BRIDGE STRUCTURE ELEMENTS. THIS WILL NOT BE PAID FOR DIRECTLY, BUT CONSIDERED SUBSIDIARY TO THE VARIOUS BID ITEMS.
4. THE CONTRACTOR WILL LIMIT CHANNEL DISTURBING ACTIVITIES TO THE VICINITY OF STRUCTURE AND TxDOT ROW. CONSTRUCTION WILL HAVE EROSION CONTROL BMP IN PLACE DURING ANY SOIL DISTURBING ACTIVITY.
5. IF NO PAY ITEM FOR BRUSH REMOVAL IS NOTED; BRUSH CLEARING FOR EXCAVATION AND EMBANKMENT WILL NOT BE PAID DIRECTLY, BUT CONSIDERED SUBSIDIARY TO THE VARIOUS BID ITEMS.
6. THE CONTRACTOR MUST EXHAUST ALL TYPE-D EMBANKMENT AVAILABLE AT SITE PRIOR TO DELIVERY OF TYPE-B.
7. IF JOINT SEAL IS REQUIRED FOR RIP RAP, THE QUANTITY SHOWN IS FOR ESTIMATION ONLY. THE CONTRACTOR WILL DETERMINE THE LIMITS OF SEALANT AS DICTATED BY FIELD CONDITIONS AND AS DIRECTED. JOINTS TOO LARGE FOR SEALANT MAY BE SEALED BY FLOWABLE BACKFILL AS DIRECTED. REFER TO DMS-6100 FOR MATERIAL SPECIFICATIONS.
8. LOCATIONS WHERE FENCING MUST BE ALTERED; AT ALL TIMES CONTRACTOR WILL MAINTAIN ADEQUATE BARRIER TO KEEP LIVESTOCK FROM ENTERING ROW. WHEN POSSIBLE REPLACE FENCING TO MATCH ORIGINAL. THIS WILL NOT BE PAID FOR DIRECTLY, BUT CONSIDERED SUBSIDIARY TO THE VARIOUS BID ITEMS.

ITEM-DESC	DESCRIPTION	UNITS	TOTAL
132-7015	EMBANKMENT (VEHICLE)(ORD COMP)(TY B)	CY	20
403-7002	TEMPORARY SPL SHORING (COFFERDAM)	SF	1790
432-7045	RIPRAP (STONE PROTECTION) (24IN)	CY	398

CONTRACTOR'S INFORMATION ONLY

NOTE:
THIS SKETCH IS TO BE USED AS AN APPROXIMATE GUIDE FOR MAINTENANCE WORK TO BE PERFORMED IN THE VICINITY OF THIS EXISTING STRUCTURE.

LOCATION: US 84 @ WILLIAMS CREEK
NBI#: 09-161-0-0056-01-010
DIMENSIONS: 142'x 44' BRIDGE
SKEW: NORMAL
GPS LAT/LON: 31.6384518/-96.94535327

STATE OF TEXAS
CHARLES W. SMITH
110312
LICENSED
PROFESSIONAL ENGINEER

The seal appearing on this document was authorized by CHARLES W. SMITH P.E. 110312, on

Charles W. Smith, PE 7/12/2024

Texas Department of Transportation

McLENNAN COUNTY STRUCTURE LAYOUT

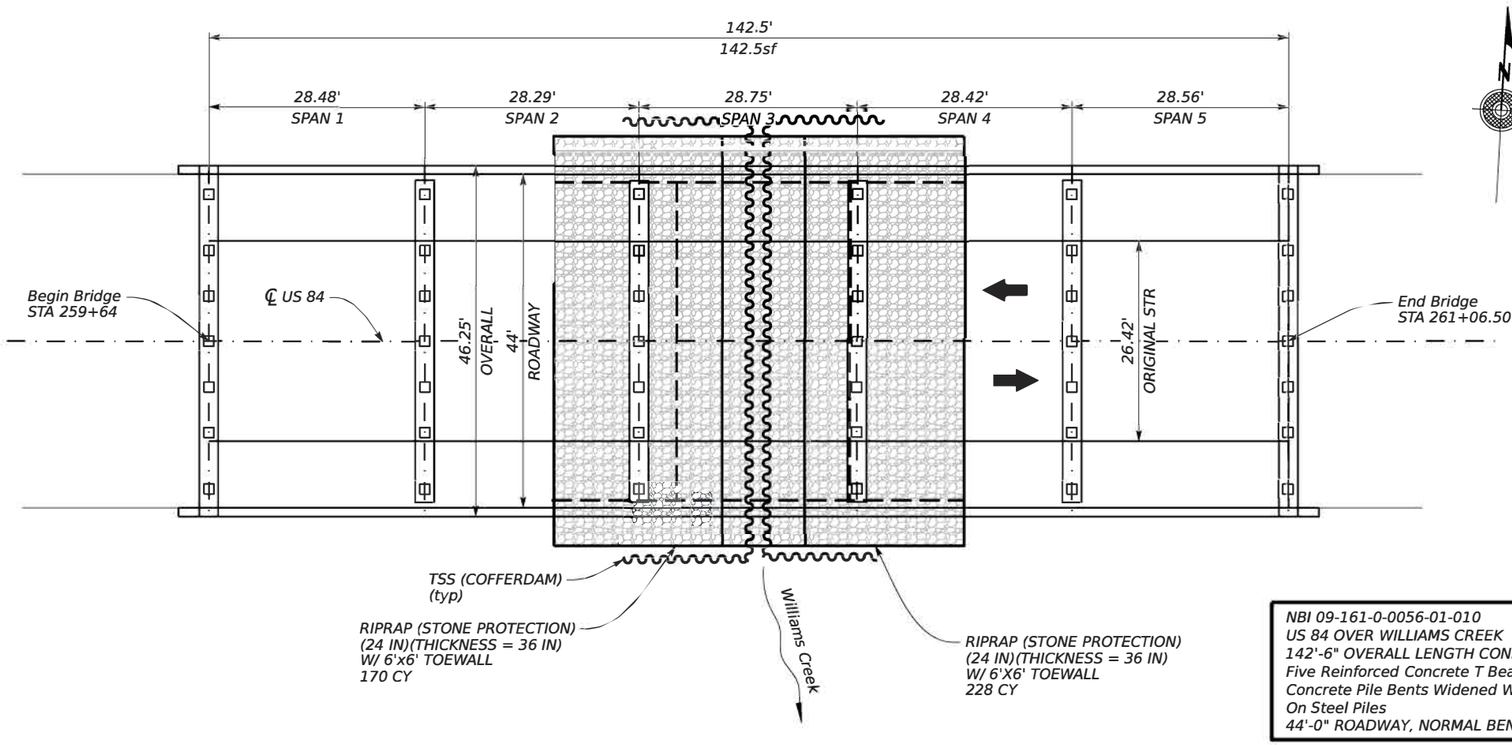
US 84 @ WILLIAMS CREEK

NBI# 09-161-0-0056-01-010

SCALE: NTS

DESIGN	FED RD DIV No.	PROJECT No.		HIGHWAY No.
ZB	6	BPM 6467-47-001		FM 434,ETC
CHECK	STATE	DISTRICT	COUNTY	SHEET No.
CS	TEXAS	WACO	MCLENNAN	110
GRAPHICS	CONTROL	SECTION	JOB	
DL	6467	47	001	
CHECK				
CS				

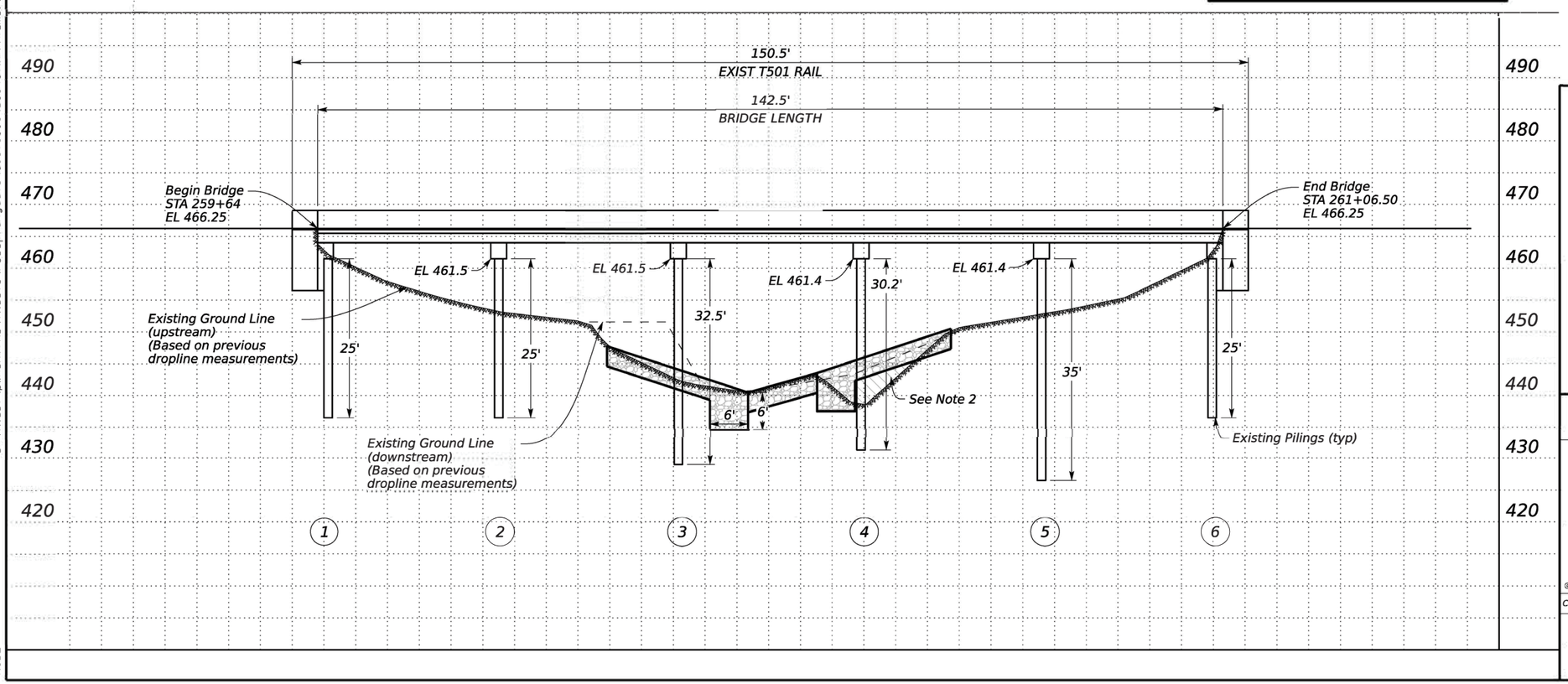
...\0056-01-010.dgn



NBI 09-161-0-0056-01-010
US 84 OVER WILLIAMS CREEK
142'-6" OVERALL LENGTH CONSISTING OF:
Five Reinforced Concrete T Beam Spans On Concrete Pile Bents Widened With T Beams On Steel Piles
44'-0" ROADWAY, NORMAL BENTS, T501 RAIL

NOTES:

1. The details shown are provided as an approximate guide for installation of riprap stone protection. The Contractor may adjust the limits as dictated by field conditions with Engineer approval prior to material purchase and delivery.
2. Scour damage may be filled with a material having a gradation equal to the bedding material but will not be more coarse than stone protection being placed, as specified in Item 432, "RIPRAP", approval of the Engineer is required. This will be paid by Item 132.
3. All elevations and stations shown taken from as built plan sheets. Contractor to field verify all dimensions.
4. Drift, debris, and brush removal necessary for the placement of rock riprap will be considered subsidiary to the various bid items.



CONTRACTOR TO BE CAUTIOUS WHEN WORKING AROUND EXISTING FOUNDATIONS TO LIMIT THE EXCAVATION NEAR EXISTING PILINGS. ANY DAMAGES CAUSED TO BRIDGE DUE CONTRACTOR'S OPERATIONS WILL BE REPAIRED AT THE CONTRACTOR'S EXPENSE.

STATE OF TEXAS
ROSS L. LANGDALE
126994
LICENSED
PROFESSIONAL ENGINEER

7/12/2024

Ross L Langdale, P.E.

Texas Department of Transportation

EROSION REPAIR LAYOUT

US 84 AT WILLIAMS CREEK
09-161-0-0056-01-010

SCALE: FEET
1" = 20'HORIZ.
1" = 20'VERTICAL

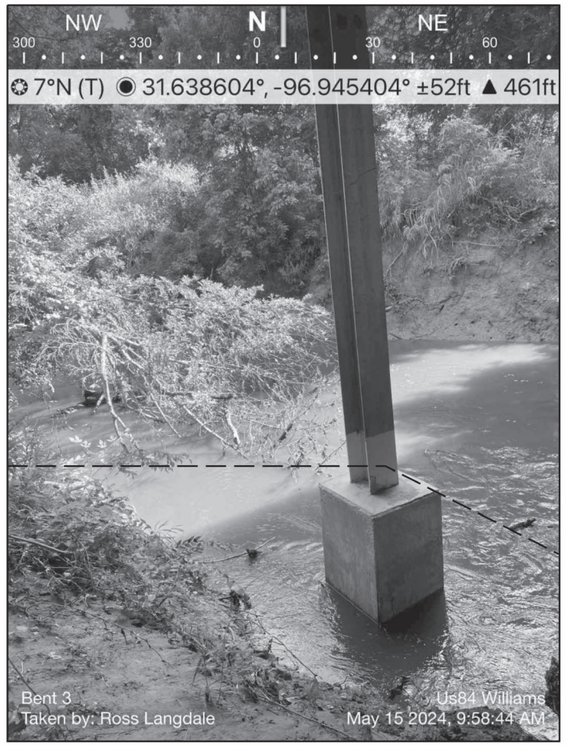
SHEET 1 OF 2

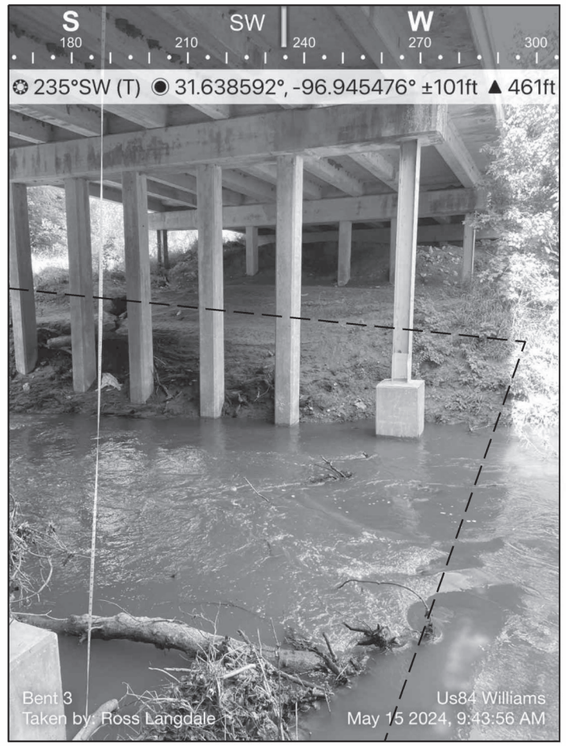
CHANGE ORDER	FED.RD. DIV. NO.	CONT	SECT	JOB	HIGHWAY
	6	6467	47	001	FM 434
	STATE	DIST	COUNTY		SHEET NO.
	TEXAS	WAC	MCLENNAN		111

4:27:38 PM

6/6/2024

NOTES:





TYPICAL EROSION REPAIR

SHOWING TYPICAL LIMITS OF REPAIR

1. Contractor may utilize existing material on site prior to delivery and placement of additional embankment with the prior approval of the Engineer.
2. Cofferdams estimated at 10' height from bottom of excavation.

ESTIMATED QUANTITIES

ITEM	DESCRIPTION	UNIT	QTY
0132-7015	EMBANKMENT (VEHICLE)(ORD COMP)(TY B)	C.Y.	20.0
0403-7002	TEMPORARY SPL SHORING (COFFERDAM)	S.F.	1790.0
0432-7045	RIPRAP (STONE PROTECTION)(24 IN)	C.Y.	398.0

STATE OF TEXAS
ROSS L. LANGDALE
126994
LICENSED
PROFESSIONAL ENGINEER

7/12/2024

Ross L. Langdale, P.E.

Texas Department of Transportation

EROSION REPAIR LAYOUT

US 84 AT WILLIAMS CREEK
09-161-0-0056-01-010

SHEET 2 OF 2

CHANGE ORDER	FED.RD. DIV. NO.	CONT	SECT	JOB	HIGHWAY
	6	6467	47	001	FM 434
	STATE	DIST	COUNTY		SHEET NO.
	TEXAS	WAC	MCLENNAN		113

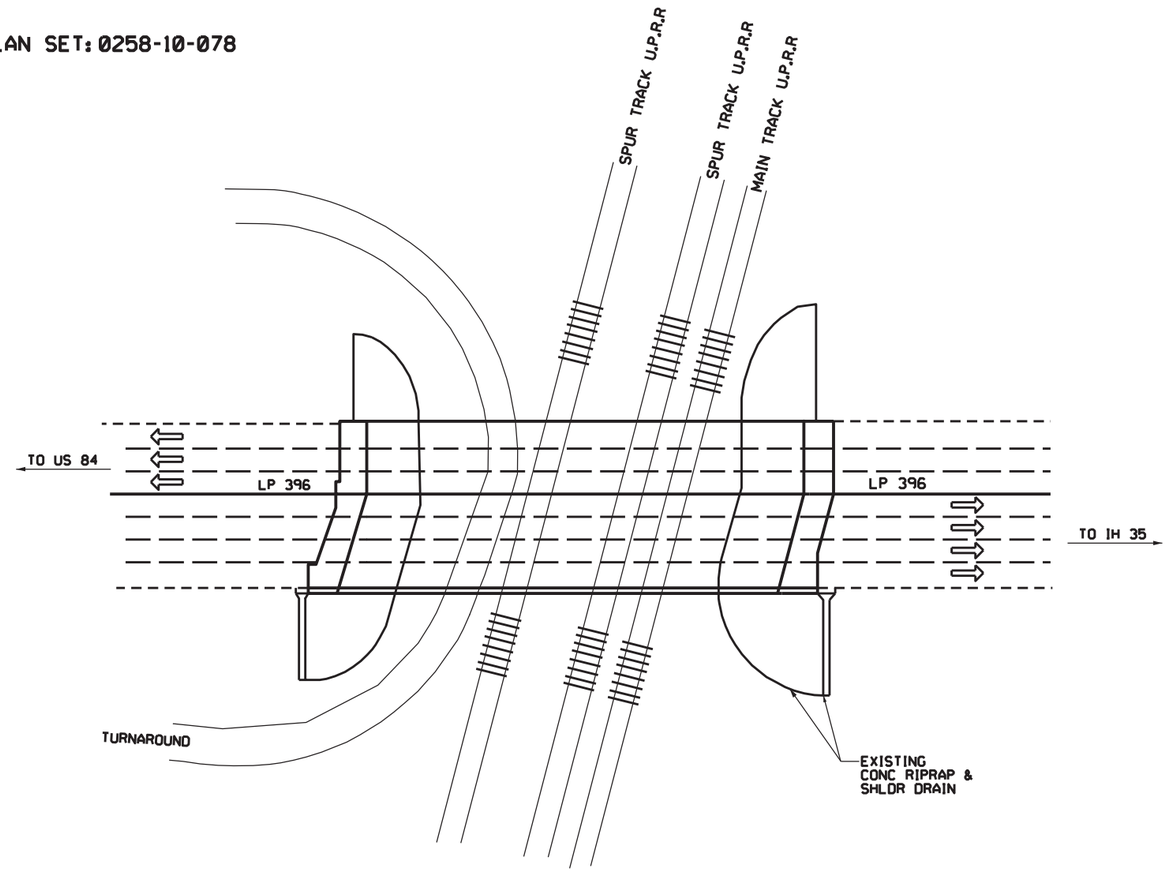
...\Us84atWilliams.dgn

NODE

FOR LOCATION REPAIR DETAILS REFER TO:

LAYOUT AND DETAILS FOR CLEANING AND SEALING EXPANSION JOINTS

AS-BUILT PLAN SET: 0258-10-078



NOTE:
THIS SKETCH IS TO BE USED AS AN APPROXIMATE GUIDE FOR MAINTENANCE WORK TO BE PERFORMED IN THE VICINITY OF THIS EXISTING STRUCTURE.

LOCATION: LP 396 EB @ UPRR
NBI#: 09-161-0-0258-10-078
DIMENSIONS: 303' x 52' BRIDGE
SKEW: 17.5°SKEW
GPS LAT/LON: 31.52700055/-97.15761407

LEGEND:

- EMBANKMENT
- EXCAVATION
- CONCRETE RIP RAP
- STONE RIP RAP
- FLOWABLE BACKFILL

GENERAL VICINITY LAYOUT
NTS
DRAWING NOT TO SCALE

GENERAL NOTES:

1. WHEN DIRECTED SURPLUS MATERIAL ESTIMATED AT INDIVIDUAL LOCATIONS MAY BE USED AT OTHER CONTRACT SITES.
2. IF STONE PROTECTION IS REQUIRED, THE DETAILS SHOWN ARE PROVIDED AS AN APPROXIMATE GUIDE FOR INSTALLATION OF STONE PROTECTION. THE CONTRACTOR WILL DETERMINE THE LIMITS OF STONE PROTECTION REQUIRED AS DICTATED BY FIELD CONDITIONS AND AS DIRECTED PRIOR TO MATERIAL PURCHASE AND DELIVERY.
3. IF NO PAY ITEM FOR DEBRIS REMOVAL IS NOTED; DEBRIS WILL BE REMOVED FROM BRIDGE STRUCTURE ELEMENTS. THIS WILL NOT BE PAID FOR DIRECTLY, BUT CONSIDERED SUBSIDIARY TO THE VARIOUS BID ITEMS.
4. THE CONTRACTOR WILL LIMIT CHANNEL DISTURBING ACTIVITIES TO THE VICINITY OF STRUCTURE AND TxDOT ROW. CONSTRUCTION WILL HAVE EROSION CONTROL BMP IN PLACE DURING ANY SOIL DISTURBING ACTIVITY.
5. IF NO PAY ITEM FOR BRUSH REMOVAL IS NOTED; BRUSH CLEARING FOR EXCAVATION AND EMBANKMENT WILL NOT BE PAID DIRECTLY, BUT CONSIDERED SUBSIDIARY TO THE VARIOUS BID ITEMS.
6. THE CONTRACTOR MUST EXHAUST ALL TYPE-D EMBANKMENT AVAILABLE AT SITE PRIOR TO DELIVERY OF TYPE-B.
7. IF JOINT SEAL IS REQUIRED FOR RIP RAP, THE QUANTITY SHOWN IS FOR ESTIMATION ONLY. THE CONTRACTOR WILL DETERMINE THE LIMITS OF SEALANT AS DICTATED BY FIELD CONDITIONS AND AS DIRECTED. JOINTS TOO LARGE FOR SEALANT MAY BE SEALED BY FLOWABLE BACKFILL AS DIRECTED. REFER TO DMS-6100 FOR MATERIAL SPECIFICATIONS.
8. LOCATIONS WHERE FENCING MUST BE ALTERED; AT ALL TIMES CONTRACTOR WILL MAINTAIN ADEQUATE BARRIER TO KEEP LIVESTOCK FROM ENTERING ROW. WHEN POSSIBLE REPLACE FENCING TO MATCH ORIGINAL. THIS WILL NOT BE PAID FOR DIRECTLY, BUT CONSIDERED SUBSIDIARY TO THE VARIOUS BID ITEMS.

ITEM-DESC	DESCRIPTION	UNITS	TOTAL
438-7004	CLEANING & SEALING EXISITING JOINTS(CL3)	LF	385.0

CONTRACTOR'S INFORMATION ONLY

STATE OF TEXAS
CHARLES W. SMITH
110312
LICENSED
PROFESSIONAL ENGINEER

The seal appearing on this document was authorized by CHARLES W. SMITH P.E. 110312, on

Charles W. Smith, PE 7/12/2024

Texas Department of Transportation

McLENNAN COUNTY
STRUCTURE LAYOUT
LP 396 EB @ UPRR
NBI# 09-161-0258-10-078

SCALE: NTS

DESIGN	FED RD DIV No.	PROJECT No.		HIGHWAY No.
ZB	6	BPM 6467-47-001		FM 434,ETC
CHECK	STATE	DISTRICT	COUNTY	SHEET No.
CS	TEXAS	WACO	MCLENNAN	113
GRAPHICS	CONTROL	SECTION	JOB	
DL	6467	47	001	
CHECK				
CS				

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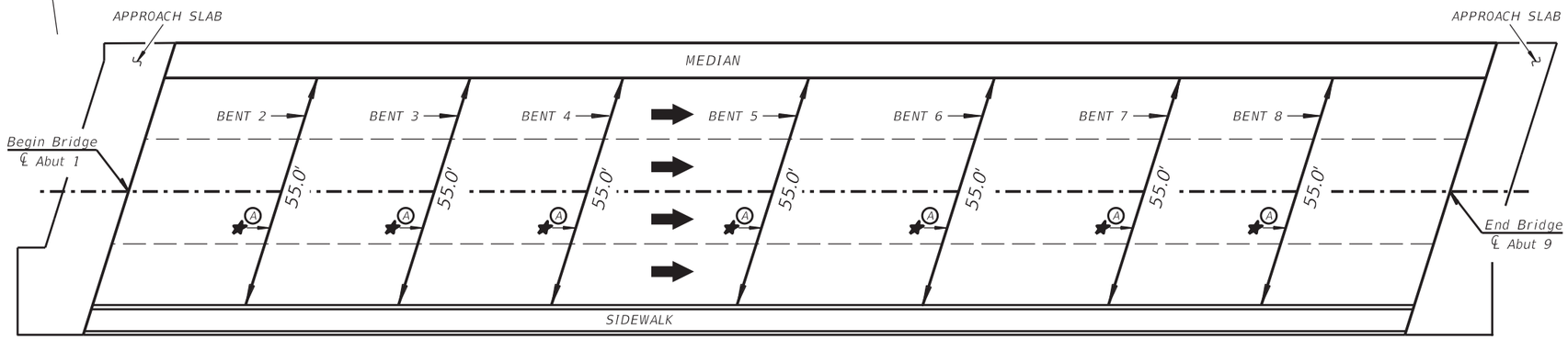


★ Denotes Location for Cleaning and Sealing Expansion Joints.

LP 396 EB OVER UPRR
320'-6" OVERALL LENGTH
(3 @ 35', 3 @ 42.5', 2 @ 35') CONC. BEAM SPANS
52' ROADWAY
5' SIDEWALK
17.5° LF SKEW
TYPE C501 (MOD) RAIL

LAYOUT PLAN

LP 396 EB OVER UNION PACIFIC RAILROAD

(NBI # 09-161-0-0258-10-078)

GPS LAT/LON: 31.526896°/-97.157443°

PROCEDURE FOR CLEANING AND SEALING EXISTING JOINT WITH HOT-POURED RUBBER SEAL:

1) **Saw cut through asphalt at the centerline of joint. Make mulitple cuts to create ½" minimum joint opening or match the existing joint opening. Clean joints opening of all old expansion materials/devices, bituminous materials, dirt, grease, and all other deleterious materials in accordance with Item 438, "Cleaning and Sealing Joints", Clean joint out full depth of the joint.**
2) **Obtain approval of cleaned joint prior to proceeding with joint sealing operation.**
3) **Place backer rod into joint opening 1" below the top of concrete. When sealing joints for slab spans, slab beam spans, or box beam spans, fill void below backer rod with extruded polystyrene foam before placing backer rod.**
4) **Seal the joint opening with a Class 3 joint sealant flush to the top of the asphaltic concrete pavement.**

General Notes:

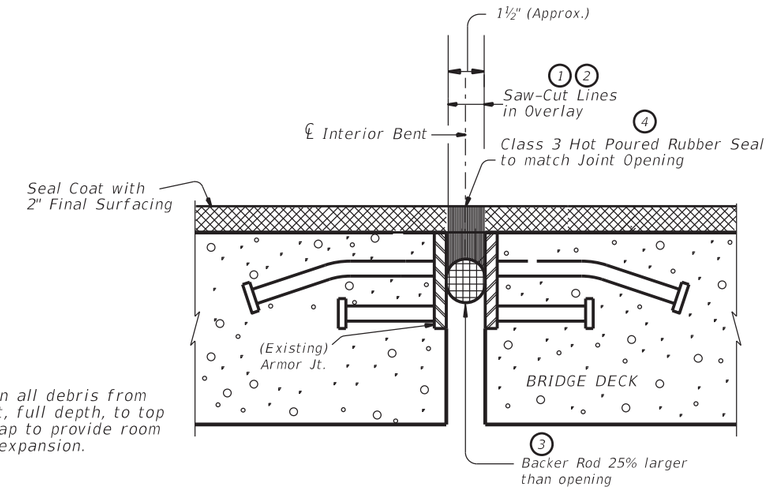
Cleaning existing joint opening (full depth) of all debris, providing and placing backer rod, saw-cutting asphalt overlay, and sealing joints is paid for by Item 438, "Cleaning and Sealing Joints" and measured by the linear foot.
Obtain approval for all tools, equipment, materials, and techniques proposed to clean and seal the joint.
Provide Class 3 joint sealant in accordance with DMS-6310, Joint Sealants and Fillers" for joints in asphalt overlay.
Provide Class 7 joint sealant in accordance with DMS-6310, "Joint Sealants and Fillers" for joints in concrete.
Extend sealant up into rail or curb 3 inches on low side or sides of deck. If the Class 7 joint sealant cannot be effectively placed in the vertical postion, a Class 4 joint sealant compatible with the Class 7 joint sealant is allowed for the extension of the seal into the curb or rail. Prepare surfaces where sealant is to be placed in accordance with Manufacturer's specifications.

(1) Saw cut through the asphalt at the centerline of joint. Make multiple saw cuts to create a ½" minimum joint opening or match the existing joint opening. Clean joint opening of all old expansion materials/devices, bituminous materials, dirt, grease and all other deleterious materials in accordance with Item 438, "Cleaning and Sealing Joints."

(2) Obtain approval of cleaned joint prior to proceeding with joint sealing operation.

(3) Place backer rod into joint opening 1" below the top of concrete. Backer rod must be of the type that can handle the heat and be compatible with the hot poured rubber seal. The backer rod must be 25% larger than the joint opening.

(4) Seal the joint opening with a Class 3, "Hot Poured Rubber." Seal ush to the top of the asphaltic concrete pavement.



Clean all debris from joint, full depth, to top of cap to provide room for expansion.

SECTION THRU EXPANSION JOINT

(A) ESTIMATED QUANTITIES

ITEM	438-7004
LOCATION	CLEANING AND SEALING EXISTING JOINTS (CL 3)
	L.F.
STR. #078 LP 396 EB OVER UPRR	385.0
TOTAL	385.0

STATE OF TEXAS
ROSS L. LANGDALE
126994
LICENSED
PROFESSIONAL ENGINEER
7/12/2024

Texas Department of Transportation

LAYOUT FOR CLEANING AND SEALING JOINTS

LP 396 EB OVER UPRR
09-161-0-0258-10-078

SCALE: 1" = HORIZ. FEET

SHEET 1 OF 1

CHANGE ORDER	FED.RD. DIV. NO.	CONT	SECT	JOB	HIGHWAY
	6	6467	47	001	FM 434,ETC
	STATE	DIST	COUNTY		SHEET NO.
	TEXAS	WACO	MCLENNAN		114

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7/9/2024
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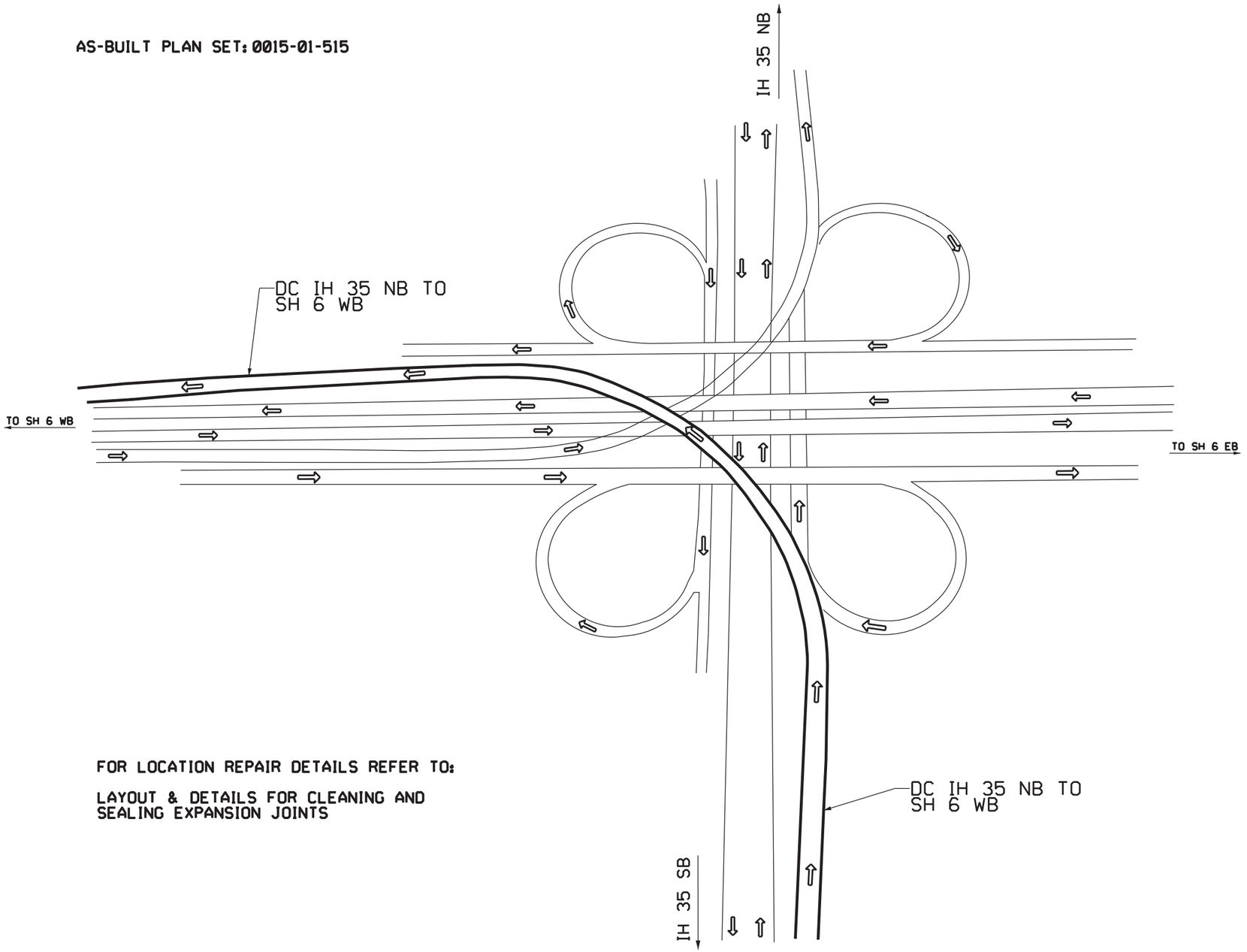
NODE

AS-BUILT PLAN SET: 0015-01-515



LEGEND:

- EMBANKMENT
- EXCAVATION
- CONCRETE RIP RAP
- STONE RIP RAP
- FLOWABLE BACKFILL

GENERAL VICINITY LAYOUT
NTS
DRAWING NOT TO SCALE

GENERAL NOTES:

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8. LOCATIONS WHERE FENCING MUST BE ALTERED; AT ALL TIMES CONTRACTOR WILL MAINTAIN ADEQUATE BARRIER TO KEEP LIVESTOCK FROM ENTERING ROW. WHEN POSSIBLE REPLACE FENCING TO MATCH ORIGINAL. THIS WILL NOT BE PAID FOR DIRECTLY, BUT CONSIDERED SUBSIDIARY TO THE VARIOUS BID ITEMS.

FOR LOCATION REPAIR DETAILS REFER TO:

LAYOUT & DETAILS FOR CLEANING AND SEALING EXPANSION JOINTS

ITEM-DESC	DESCRIPTION	UNITS	TOTAL
438-7008	CLEANING EXISITING JOINTS	LF	286.0

CONTRACTOR'S INFORMATION ONLY

NOTE:
THIS SKETCH IS TO BE USED AS AN APPROXIMATE GUIDE FOR MAINTENANCE WORK TO BE PERFORMED IN THE VICINITY OF THIS EXISTING STRUCTURE.

LOCATION: DIRECT CONNECTOR (IH 35 NB TO SH 6 WB
NBI#: 09-161-0-0015-01-515
DIMENSIONS: 3723' x 28' BRIDGE
SKEW: 90° SKEW
GPS LAT/LON: 31.48835/-97.1539

STATE OF TEXAS
CHARLES W. SMITH
110312
LICENSED
PROFESSIONAL ENGINEER

The seal appearing on this document was authorized by CHARLES W. SMITH P.E. 110312, on

Charles W. Smith, PE 7/12/2024

McLENNAN COUNTY
STRUCTURE LAYOUT
DC IH 35 NB TO SH 6 WB
NBI# 09-161-0015-01-515

SCALE: NTS

DESIGN	FED RD DIV No.	PROJECT No.		HIGHWAY No.
ZB	6	BPM 6467-47-001		FM 434,ETC
CHECK	STATE	DISTRICT	COUNTY	SHEET No.
CS	TEXAS	WACO	MCLENNAN	115
GRAPHICS	CONTROL	SECTION	JOB	
DL	6467	47	001	
CHECK				
CS				

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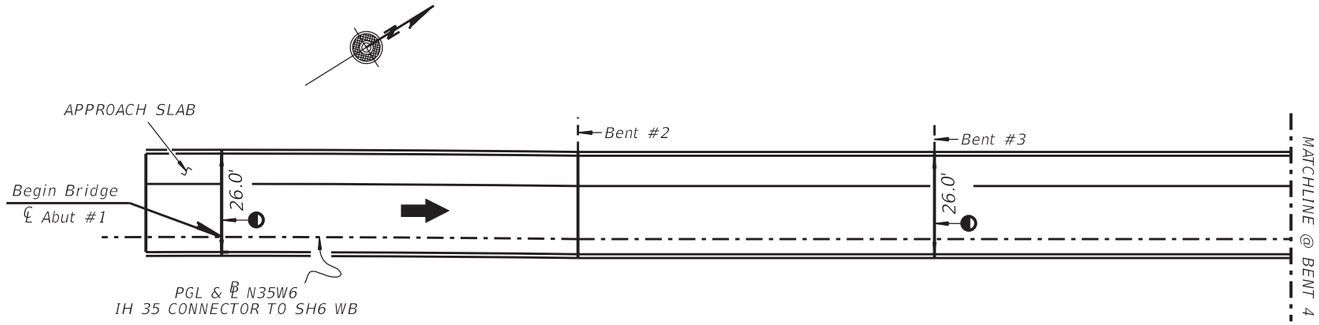
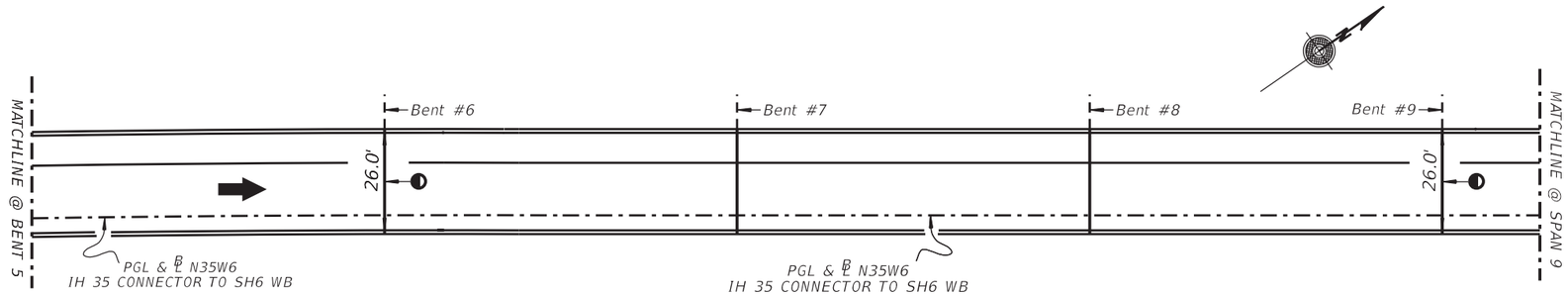
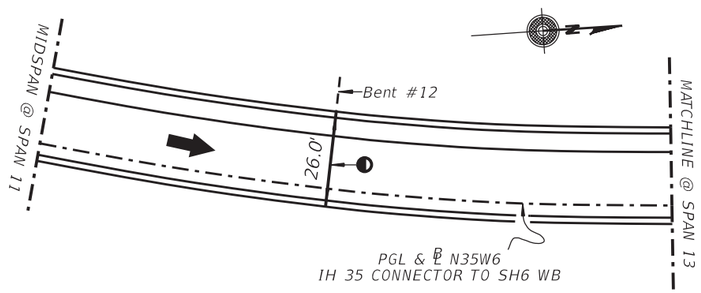


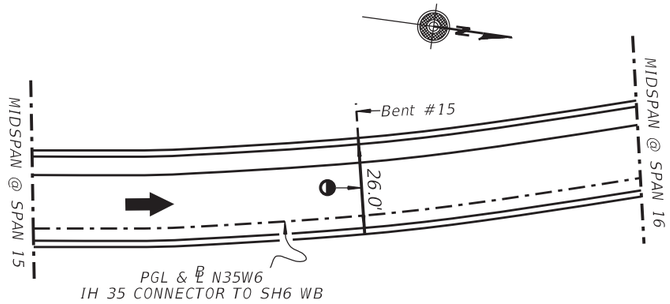
LAYOUT PLAN

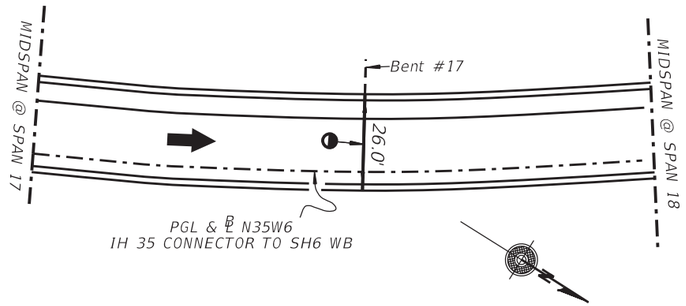
DIRECT CONNECTOR (IH 35 NB TO SH 6 WB)
(N.B.I.#09-161-0-0015-01-515

◐ Denotes location for Cleaning Existing SEJ-A









DIRECT CONNECTOR N35W6
3,723'-0" OVERALL LENGTH
PRESTR. CONC. U-BEAM UNIT &
TRAPEZOIDAL STEEL BOX GIRDER UNIT
26'-0" RDWY.
28'-0" OVERALL
TYPE T401 RAIL

PROCEDURE FOR CLEANING AND SEALING EXISTING JOINT WITH SILCONE SEAL

1) **Clean joint opening of all old expansion materials/devices, bituminous materials, dirt, grease and all other deleteious materials in accordance with Item 438, "Cleaning and Sealing Joints."**

2) **Obtain approval of cleaned joint prior to proceeding with joint sealing operation.**

3) **Seal the joint opening with a Class 7 sealant Recess seal 1/2" below top of concrete in travel lanes and 1/4' below top of concrete shoulders.**

General Notes:

Cleaning existing joint opening (full depth) of all debris, providing and placing backer rod, saw-cutting asphalt overlay, and sealing joints is paid for by Item 438, "Cleaning and Sealing Joints" and measured by the linear foot.
Obtain approval for all tools, equipment, materials, and techniques proposed to clean and seal the joint.
Provide Class 3 joint sealant in accordance with DMS-6310, Joint Sealants and Fillers" for joints in asphalt overlay.
Provide Class 7 joint sealant in accordance with DMS-6310, "Joint Sealants and Fillers" for joints in concrete.
Extend sealant up into rail or curb 3 inches on low side or sides of deck. If the Class 7 joint sealant cannot be effectively placed in the vertical position, a Class 4 joint sealant compatible with the Class 7 joint sealant is allowed for the extension of the seal into the curb or rail. Prepare surfaces where sealant is to be placed in accordance with Manufacturer's specifications.

STATE OF TEXAS
ROSS L. LANGDALE
126994
LICENSED
PROFESSIONAL ENGINEER

7/12/2024

Ross L Langdale, P.E.

Texas Department of Transportation

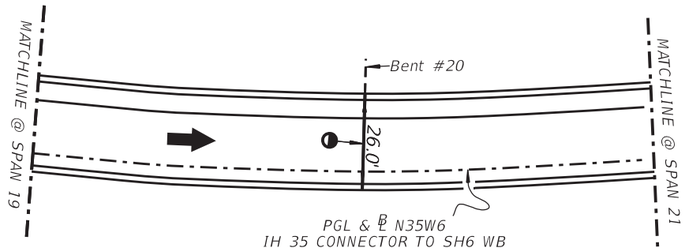
LAYOUT FOR CLEANING AND SEALING JOINTS

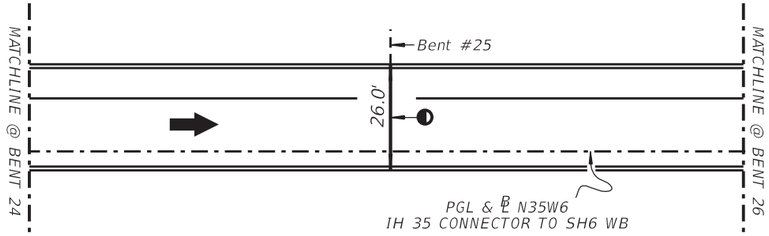
DIRECT CONNECTOR IH 35 NB TO SH 6 WB
09-161-0-0015-01-515

SCALE: NOT TO SCALE FEET

SHEET 1 OF 2

CHANGE ORDER	FED.RD. DIV. NO.	CONT	SECT	JOB	HIGHWAY
	6	6467	47	001	FM 434,ETC
	STATE	DIST	COUNTY		SHEET NO.
	TEXAS	WACO	MCLENNAN		116





DIRECT CONNECTOR N35W6
3,723'-0" OVERALL LENGTH
PRESTR. CONC. U-BEAM UNIT &
TRAPEZOIDAL STEEL BOX GIRDER UNIT
26'-0" RDWY.
28'-0" OVERALL
TYPE T401 RAIL

◐ Denotes location for Cleaning Existing SEJ-A

PROCEDURE FOR CLEANING AND SEALING
EXISTING JOINT WITH SILCONE SEAL

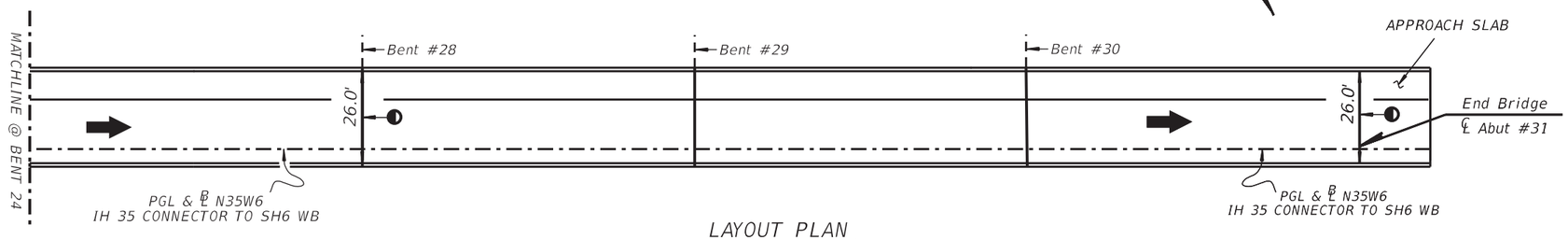
1) **Clean joint opening of all old expansion materials/devices, bituminous materials, dirt, grease and all other deleteious materials In accordance with Item 438, "Cleaning and Sealing Joints."**

2) **Obtain approval of cleaned joint prior to proceeding with joint sealing operation.**

3) **Seal the joint opening with a Class 7 sealant Recess seal 1/2" below top of concrete in travel lanes and 1/4' below top of concrete shoulders.**

General Notes:

Cleaning existing joint opening (full depth) of all debris, providing and placing backer rod, saw-cutting asphalt overlay, and sealing joints is paid for by Item 438, "Cleaning and Sealing Joints" and measured by the linear foot.
Obtain approval for all tools, equipment, materials, and techniques proposed to clean and seal the joint.
Provide Class 3 joint sealant in accordance with DMS-6310, Joint Sealants and Fillers" for joints in asphalt overlay.
Provide Class 7 joint sealant in accordance with DMS-6310, "Joint Sealants and Fillers" for joints In concrete.
Extend sealant up into rail or curb 3 inches on low side or sides of deck. If the Class 7 joint sealant cannot be effectively placed In the vertical postion, a Class 4 joint sealant compatible with the Class 7 joint sealant is allowed for the extension of the seal into the curb or rail. Prepare surfaces where sealant is to be placed in accordance with Manufacturer's specifications.



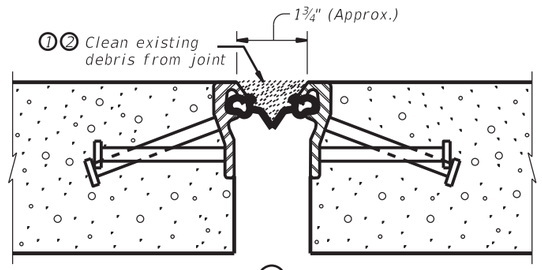
LAYOUT PLAN

DIRECT CONNECTOR (IH 35 NB TO SH 6 WB)
(N.B.I.#09-161-0-0015-01-515

ESTIMATED QUANTITIES

ITEM	438-7008
LOCATION	CLEANING EXISTING JOINTS
	L.F.
STR. #515 DIRECT CONNECTOR IH 35 NB TO SH 6 WB	286.0
TOTAL	286.0

Ⓐ



SECTION THRU SEJ-A JOINT

STATE OF TEXAS
ROSS L. LANGDALE
126994
LICENSED
PROFESSIONAL ENGINEER
7/12/2024
Ross L Langdale, P.E.

Texas Department of Transportation

LAYOUT FOR CLEANING AND SEALING JOINTS

DIRECT CONNECTOR IH 35 NB TO SH 6 WB
09-161-0-0015-01-515

SCALE: NOT TO SCALE FEET

SHEET 2 OF 2

CHANGE ORDER	FED.RD. DIV. NO.	CONT	SECT	JOB	HIGHWAY
	6	6467	47	001	FM 434,ETC
	STATE	DIST	COUNTY		SHEET NO.
	TEXAS	WACO	MCLENNAN		117

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7/9/2024
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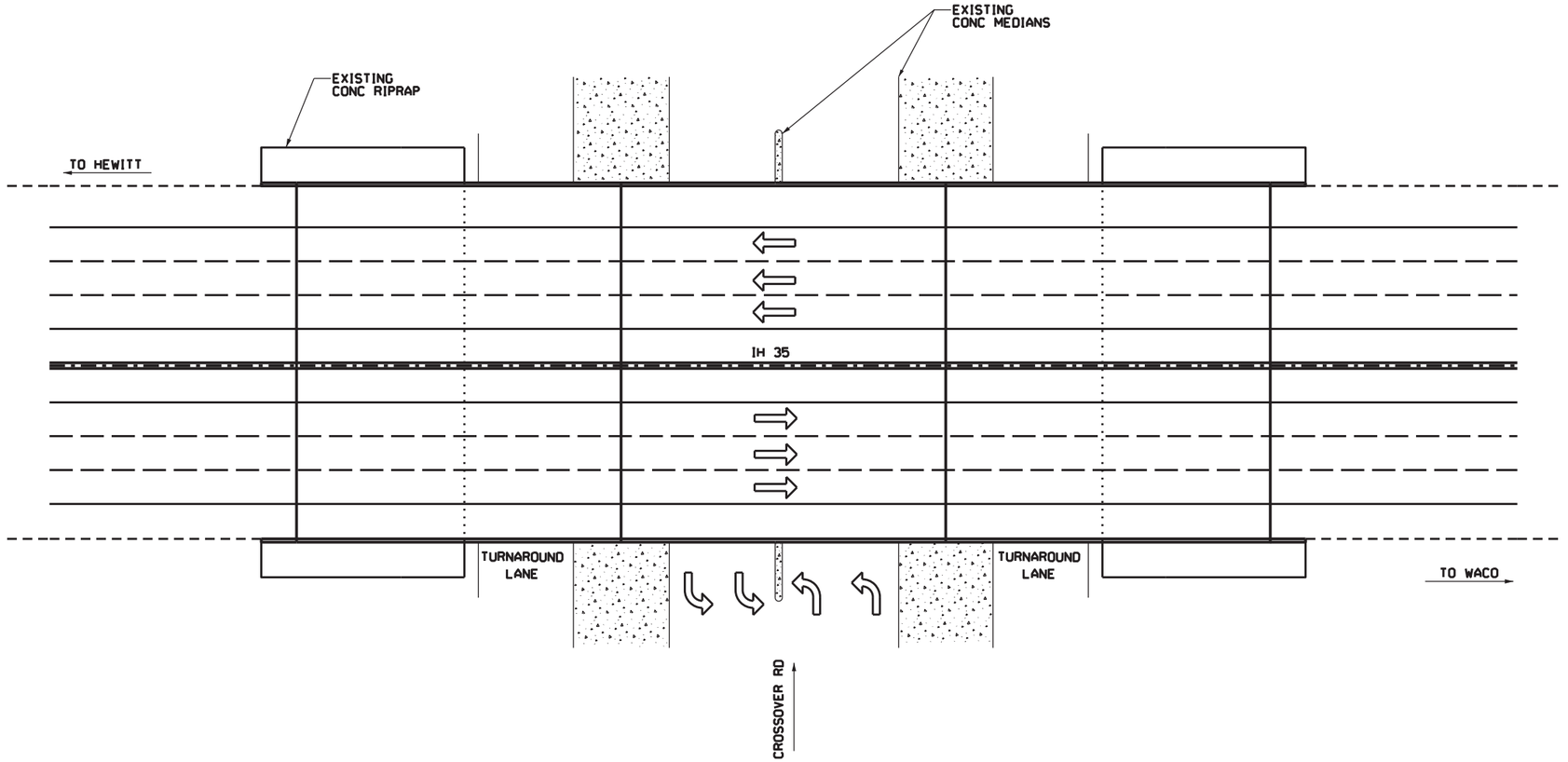
NODE

FOR LOCATION REPAIR DETAILS REFER TO:

LAYOUT & DETAILS FOR CLEANING AND SEALING EXPANSION JOINTS

AS-BUILT PLAN SET: 0015-01-512



LEGEND:

- EMBANKMENT
- EXCAVATION
- CONCRETE RIP RAP
- STONE RIP RAP
- FLOWABLE BACKFILL

GENERAL VICINITY LAYOUT
NTS
DRAWING NOT TO SCALE

GENERAL NOTES:

1. WHEN DIRECTED SURPLUS MATERIAL ESTIMATED AT INDIVIDUAL LOCATIONS MAY BE USED AT OTHER CONTRACT SITES.
2. IF STONE PROTECTION IS REQUIRED, THE DETAILS SHOWN ARE PROVIDED AS AN APPROXIMATE GUIDE FOR INSTALLATION OF STONE PROTECTION. THE CONTRACTOR WILL DETERMINE THE LIMITS OF STONE PROTECTION REQUIRED AS DICTATED BY FIELD CONDITIONS AND AS DIRECTED PRIOR TO MATERIAL PURCHASE AND DELIVERY.
3. IF NO PAY ITEM FOR DEBRIS REMOVAL IS NOTED; DEBRIS WILL BE REMOVED FROM BRIDGE STRUCTURE ELEMENTS. THIS WILL NOT BE PAID FOR DIRECTLY, BUT CONSIDERED SUBSIDIARY TO THE VARIOUS BID ITEMS.
4. THE CONTRACTOR WILL LIMIT CHANNEL DISTURBING ACTIVITIES TO THE VICINITY OF STRUCTURE AND TxDOT ROW. CONSTRUCTION WILL HAVE EROSION CONTROL BMP IN PLACE DURING ANY SOIL DISTURBING ACTIVITY.
5. IF NO PAY ITEM FOR BRUSH REMOVAL IS NOTED; BRUSH CLEARING FOR EXCAVATION AND EMBANKMENT WILL NOT BE PAID DIRECTLY, BUT CONSIDERED SUBSIDIARY TO THE VARIOUS BID ITEMS.
6. THE CONTRACTOR MUST EXHAUST ALL TYPE-D EMBANKMENT AVAILABLE AT SITE PRIOR TO DELIVERY OF TYPE-B.
7. IF JOINT SEAL IS REQUIRED FOR RIP RAP, THE QUANTITY SHOWN IS FOR ESTIMATION ONLY. THE CONTRACTOR WILL DETERMINE THE LIMITS OF SEALANT AS DICTATED BY FIELD CONDITIONS AND AS DIRECTED. JOINTS TOO LARGE FOR SEALANT MAY BE SEALED BY FLOWABLE BACKFILL AS DIRECTED. REFER TO DMS-6100 FOR MATERIAL SPECIFICATIONS.
8. LOCATIONS WHERE FENCING MUST BE ALTERED; AT ALL TIMES CONTRACTOR WILL MAINTAIN ADEQUATE BARRIER TO KEEP LIVESTOCK FROM ENTERING ROW. WHEN POSSIBLE REPLACE FENCING TO MATCH ORIGINAL. THIS WILL NOT BE PAID FOR DIRECTLY, BUT CONSIDERED SUBSIDIARY TO THE VARIOUS BID ITEMS.

ITEM-DESC	DESCRIPTION	UNITS	TOTAL
438-7007	CLEANING AND SEALING EXIST JOINTS (CL7)	LF	252.0
438-7008	CLEANING EXISITING JOINTS	LF	504.0

CONTRACTOR'S INFORMATION ONLY

NOTE:
THIS SKETCH IS TO BE USED AS AN APPROXIMATE GUIDE FOR MAINTENANCE WORK TO BE PERFORMED IN THE VICINITY OF THIS EXISTING STRUCTURE.

LOCATION: IH 35 NB @ CROSSOVER RD
NBI#: 09-161-0-0015-01-512
DIMENSIONS: 345'x 127' BRIDGE
SKEW: 0°SKEW
GPS LAT/LON: 31.471411/-97.164101

STATE OF TEXAS
CHARLES W. SMITH
110312
LICENSED
PROFESSIONAL ENGINEER

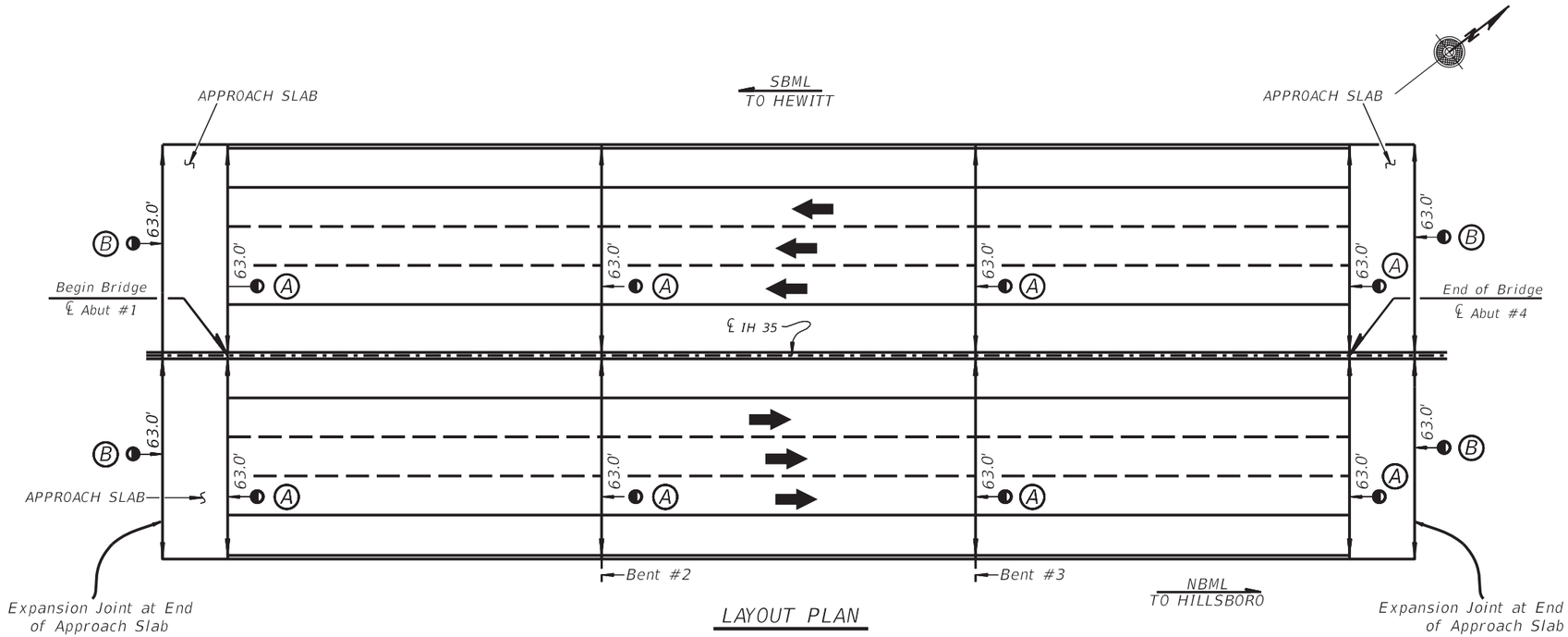
The seal appearing on this document was authorized by CHARLES W. SMITH P.E. 110312, on

Charles W. Smith, PE 7/12/2024

McLENNAN COUNTY
STRUCTURE LAYOUT
IH 35 NB @ CROSSOVER RD
NBI# 09-161-0015-01-512

SCALE: NTS

DESIGN	FED RD DIV No.	PROJECT No.		HIGHWAY No.
ZB	6	BPM 6467-47-001		FM 434,ETC
CHECK	STATE	DISTRICT	COUNTY	SHEET No.
CS	TEXAS	WACO	MCLENNAN	118
GRAPHICS	CONTROL	SECTION	JOB	
DL	6467	47	001	
CHECK				
CS				



LAYOUT PLAN

IH 35 NB OVER CROSSOVER RD
(N.B.I.#09-161-0-0015-01-512
&
IH 35 SB OVER CROSSOVER RD
(N.B.I.#09-161-0-0015-01-671

◑ Denotes location for Cleaning Existing SEJ-A

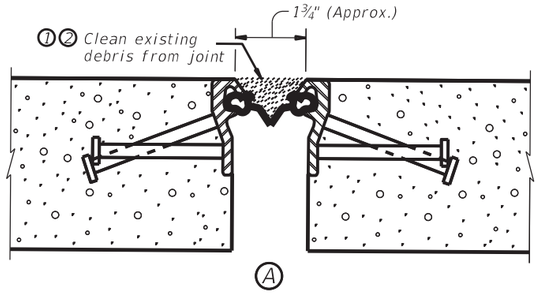
IH 35 OVER CROSSOVER RD
345'-0" OVERALL LENGTH
PRESTR. CONC. PTU-BEAM UNIT
@ (115', 115', 115') SPANS
125'-1½" RDWY.
177'-4 ½" OVERALL
TYPE T77 (MOD) & SSTR RAIL

PROCEDURE FOR CLEANING AND SEALING EXISTING JOINT WITH SILCONE SEAL

1) Clean joint opening of all old expansion materials/devices, bituminous materials, dirt, grease and all other deleteious materials in accordance with Item 438, "Cleaning and Sealing Joints."
2) Obtain approval of cleaned joint prior to proceeding with joint sealing operation.
3) Seal the joint opening with a Class 7 sealant Recess seal 1/2" below top of concrete in travel lanes and 1/4' below top of concrete shoulders.

General Notes:

Cleaning existing joint opening (full depth) of all debris, providing and placing backer rod, saw-cutting asphalt overlay, and sealing joints is paid for by Item 438, "Cleaning and Sealing Joints" and measured by the linear foot.
Obtain approval for all tools, equipment, materials, and techniques proposed to clean and seal the joint.
Provide Class 3 joint sealant in accordance with DMS-6310, Joint Sealants and Fillers" for joints in asphalt overlay.
Provide Class 7 joint sealant in accordance with DMS-6310, "Joint Sealants and Fillers" for joints in concrete.
Extend sealant up into rail or curb 3 inches on low side or sides of deck. If the Class 7 joint sealant cannot be effectively placed in the vertical position, a Class 4 joint sealant compatible with the Class 7 joint sealant is allowed for the extension of the seal into the curb or rail. Prepare surfaces where sealant is to be placed in accordance with Manufacturer's specifications.



SECTION THRU SEJ-A JOINT

ESTIMATED QUANTITIES

ITEM	438-7008 (A)
LOCATION	CLEANING EXISTING JOINTS
	L.F.
STR. #512 & 671 IH 35 NB & SB OVER CROSSOVER RD	504.0
TOTAL	504.0

ROSS L. LANGDALE
126994
LICENSED
PROFESSIONAL ENGINEER
STATE OF TEXAS
7/12/2024
Ross L Langdale, P.E.

Texas Department of Transportation

LAYOUT FOR CLEANING AND SEALING JOINTS

IH 35 NB/SB OVER CROSSOVER RD

09-161-0-0015-01-512/671

SCALE: NOT TO SCALE FEET

SHEET 1 OF 2

CHANGE ORDER	FED.RD. DIV. NO.	CONT	SECT	JOB	HIGHWAY
	6	6467	47	001	FM 434,ETC
	STATE	DIST	COUNTY		SHEET NO.
	TEXAS	WACO	MCLENNAN		119

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7/9/2024
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NODE

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7/9/2024

NOTES:

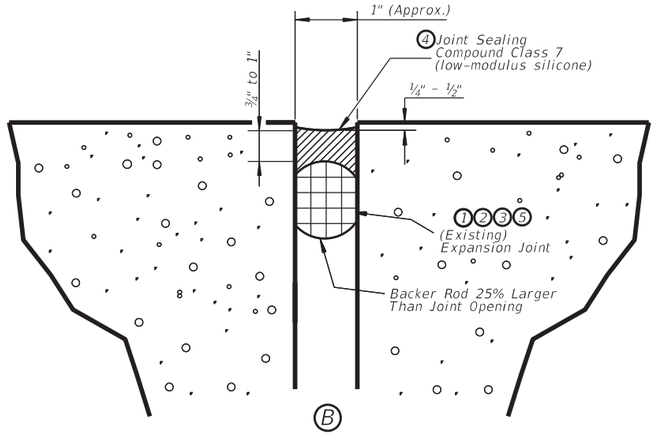
1. The joints shall be cleaned in accordance with Item 438 and prior to beginning operations, the Contractor shall submit a statement from the Sealant Manufacturer showing the recommended equipment and Installation procedures to be used.

2. Condition of existing expansion joint or rail shall be determined prior to placing sealant material. The entire length of existing joint shall be checked and any portion that is determined unsound by the Engineer shall be removed as directed by the Engineer. Any existing seal shall be removed and disposed of.
Repair any signi cant spalled or cracked areas, as determined by the Engineer, around the joint opening with an approved proprietary concrete repair material as Approved by the Engineer. This work will be paid for under Item 429 "Concrete Structure Repair".

3. Surfaces where sealant material is to be placed shall be clean and dry in accordance with the manufacturer's speci cations.

4. Seal when required as Directed by the Engineer. Extend sealant up into rail or curb 6 inches on low side or sides of deck. Prepare surfaces where sealant is to be placed in accordance with manufacturers speci cations.
If the self-leveling sealant cannot be extended up into the rail, use a Class 4 Sealant in the curb or rail portion only.

5. Clean joint opening of all old expansion materials/devices, dirt, and all other deleterious materials in accordance with Item 438, "Cleaning and Sealing Joints." Clean joint out full depth of the joint. Obtain approval of cleaned joint prior to proceeding with joint sealing operation.
Seal the joint opening with a Class 7 Silicone.



SECTION THRU SEALED EXPANSION JOINT

NOT TO SCALE

ESTIMATED QUANTITIES

ITEM	438-7007
LOCATION	CLEANING AND SEALING EXIST JOINTS (CL 7)
	L.F.
STR. #512 & 671 IH 35 NB & SB OVER CROSSOVER RD	252.0
TOTAL	252.0

PROCEDURE FOR CLEANING AND SEALING EXISTING JOINT WITH SILCONE SEAL

1) **Clean joint opening of all old expansion materials/devices, bituminous materials, dirt, grease and all other deleteious materials in accordance with Item 438, "Cleaning and Sealing Joints."**

2) **Obtain approval of cleaned joint prior to proceeding with joint sealing operation.**

3) **Place backer rod Into joint opening 1" below the top of concrete. When sealing joints for slab spans, slab beams, or box beams, fill void below backer rod with extruded polystyrene foam before placing backer rod.**

4) **Seal the joint opening with a Class 7 sealant Recess seal 1/2" below top of concrete In travel anes and 1/4' below top of concrete shoulders.**

General Notes:

Cleaning existing joint opening (full depth) of all debris, providing and placing backer rod, saw-cutting asphalt overlay, and sealing joints is paid for by Item 438, "Cleaning and Sealing Joints" and measured by the linear foot.
Obtain approval for all tools, equipment, materials, and techniques proposed to clean and seal the joint.
Provide Class 3 joint sealant in accordance with DMS-6310, Joint Sealants and Fillers" for joints in asphalt overlay.
Provide Class 7 joint sealant in accordance with DMS-6310, "Joint Sealants and Fillers" for joints In concrete.
Extend sealant up into rail or curb 3 inches on low side or sides of deck. If the Class 7 joint sealant cannot be effectively placed In the vertical postion, a Class 4 joint sealant compatible with the Class 7 joint sealant is allowed for the extension of the seal into the curb or rail. Prepare surfaces where sealant is to be placed in accordance with Manufacturer's specifications.

STATE OF TEXAS
ROSS L. LANGDALE
126994
LICENSED
PROFESSIONAL ENGINEER

7/12/2024

Ross L Langdale, P.E.

Texas Department of Transportation

LAYOUT FOR CLEANING AND SEALING JOINTS

IH 35 NB/SB OVER CROSSOVER RD
09-161-0-0015-01-512/671

SCALE: NOT TO SCALE FEET

SHEET 2 OF 2

CHANGE ORDER	FED.RD. DIV. NO.	CONT	SECT	JOB	HIGHWAY
	6	6467	47	001	FM 434,ETC
	STATE	DIST	COUNTY		SHEET NO.
	TEXAS	WACO	MCLENNAN		120

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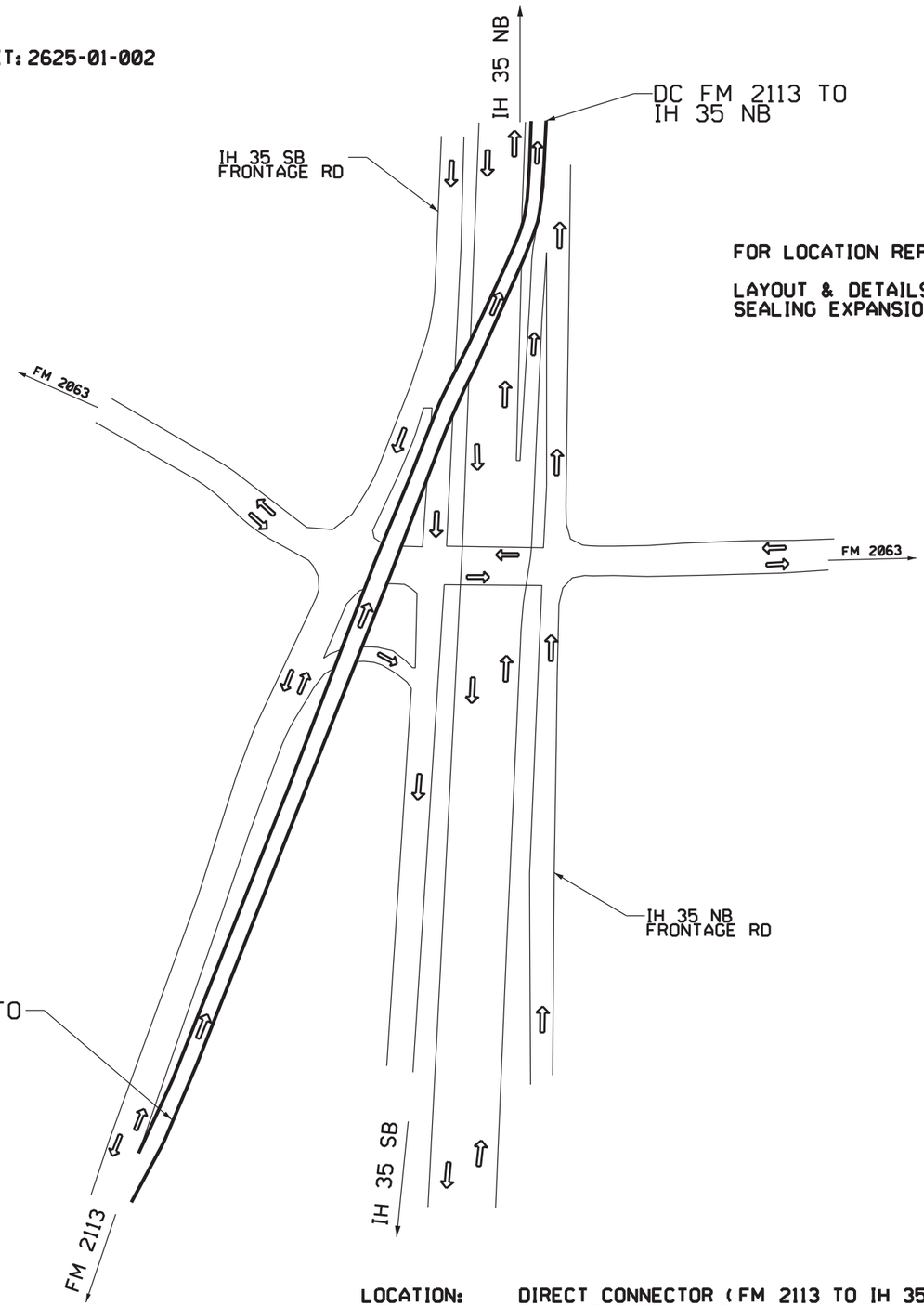
NODE

AS-BUILT PLAN SET: 2625-01-002

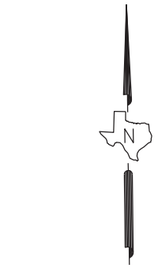


FOR LOCATION REPAIR DETAILS REFER TO:

LAYOUT & DETAILS FOR CLEANING AND SEALING EXPANSION JOINTS

LEGEND:

- EMBANKMENT
- EXCAVATION
- CONCRETE RIP RAP
- STONE RIP RAP
- FLOWABLE BACKFILL



GENERAL VICINITY LAYOUT
NTS
DRAWING NOT TO SCALE

GENERAL NOTES:

1. WHEN DIRECTED SURPLUS MATERIAL ESTIMATED AT INDIVIDUAL LOCATIONS MAY BE USED AT OTHER CONTRACT SITES.
2. IF STONE PROTECTION IS REQUIRED, THE DETAILS SHOWN ARE PROVIDED AS AN APPROXIMATE GUIDE FOR INSTALLATION OF STONE PROTECTION. THE CONTRACTOR WILL DETERMINE THE LIMITS OF STONE PROTECTION REQUIRED AS DICTATED BY FIELD CONDITIONS AND AS DIRECTED PRIOR TO MATERIAL PURCHASE AND DELIVERY.
3. IF NO PAY ITEM FOR DEBRIS REMOVAL IS NOTED; DEBRIS WILL BE REMOVED FROM BRIDGE STRUCTURE ELEMENTS. THIS WILL NOT BE PAID FOR DIRECTLY, BUT CONSIDERED SUBSIDIARY TO THE VARIOUS BID ITEMS.
4. THE CONTRACTOR WILL LIMIT CHANNEL DISTURBING ACTIVITIES TO THE VICINITY OF STRUCTURE AND TxDOT ROW. CONSTRUCTION WILL HAVE EROSION CONTROL BMP IN PLACE DURING ANY SOIL DISTURBING ACTIVITY.
5. IF NO PAY ITEM FOR BRUSH REMOVAL IS NOTED; BRUSH CLEARING FOR EXCAVATION AND EMBANKMENT WILL NOT BE PAID DIRECTLY, BUT CONSIDERED SUBSIDIARY TO THE VARIOUS BID ITEMS.
6. THE CONTRACTOR MUST EXHAUST ALL TYPE-D EMBANKMENT AVAILABLE AT SITE PRIOR TO DELIVERY OF TYPE-B.
7. IF JOINT SEAL IS REQUIRED FOR RIP RAP, THE QUANTITY SHOWN IS FOR ESTIMATION ONLY. THE CONTRACTOR WILL DETERMINE THE LIMITS OF SEALANT AS DICTATED BY FIELD CONDITIONS AND AS DIRECTED. JOINTS TOO LARGE FOR SEALANT MAY BE SEALED BY FLOWABLE BACKFILL AS DIRECTED. REFER TO DMS-6100 FOR MATERIAL SPECIFICATIONS.
8. LOCATIONS WHERE FENCING MUST BE ALTERED; AT ALL TIMES CONTRACTOR WILL MAINTAIN ADEQUATE BARRIER TO KEEP LIVESTOCK FROM ENTERING ROW. WHEN POSSIBLE REPLACE FENCING TO MATCH ORIGINAL. THIS WILL NOT BE PAID FOR DIRECTLY, BUT CONSIDERED SUBSIDIARY TO THE VARIOUS BID ITEMS.

ITEM-DESC	DESCRIPTION	UNITS	TOTAL
438-7008	CLEANING EXISITING JOINTS	LF	208.0

CONTRACTOR'S INFORMATION ONLY

NOTE:
THIS SKETCH IS TO BE USED AS AN APPROXIMATE GUIDE FOR MAINTENANCE WORK TO BE PERFORMED IN THE VICINITY OF THIS EXISTING STRUCTURE.

LOCATION: DIRECT CONNECTOR (FM 2113 TO IH 35 NB)
NBI#: 09-161-0-2625-01-002
DIMENSIONS: 2335'x 28' BRIDGE
SKEW: 90° SKEW
GPS LAT/LON: 31.454133/-97.175517

STATE OF TEXAS
CHARLES W. SMITH
110312
LICENSED
PROFESSIONAL ENGINEER

The seal appearing on this document was authorized by CHARLES W. SMITH P.E. 110312, on

Charles W. Smith, PE 7/12/2024

McLENNAN COUNTY
STRUCTURE LAYOUT
DC FM 2113 TO IH 35 NB
NBI# 09-161-2625-01-002

SCALE: NTS

DESIGN	FED RD DIV No.	PROJECT No.		HIGHWAY No.
ZB	6	BPM 6467-47-001		FM 434,ETC
CHECK	STATE	DISTRICT	COUNTY	SHEET No.
CS	TEXAS	WACO	MCLENNAN	121
GRAPHICS	CONTROL	SECTION	JOB	
DL	6467	47	001	
CHECK				
CS				

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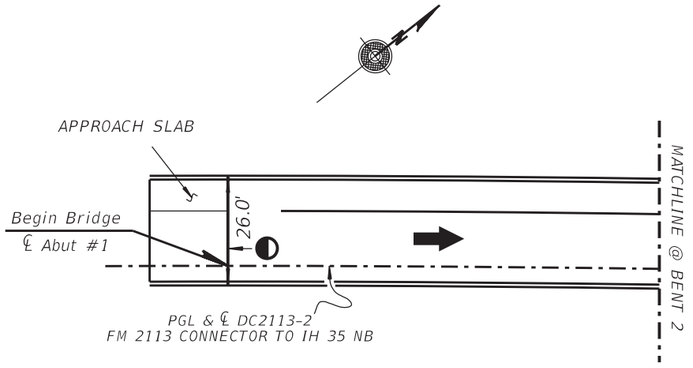
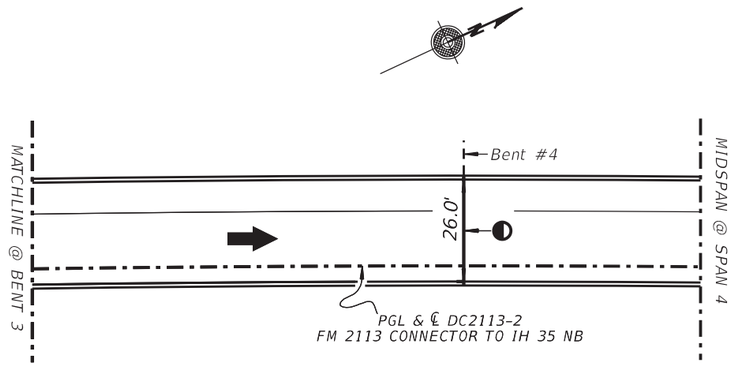
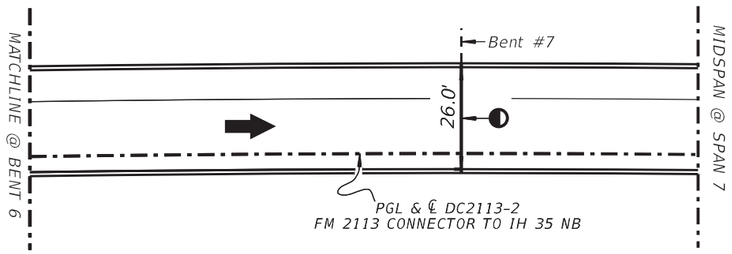
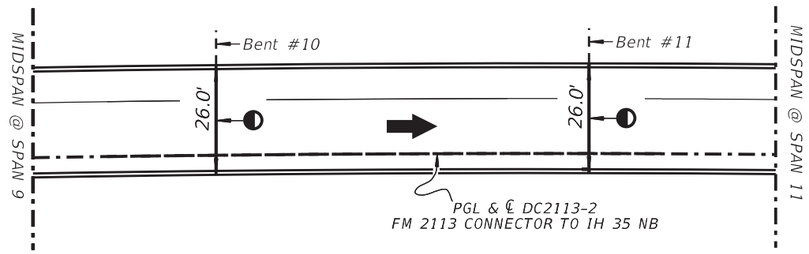
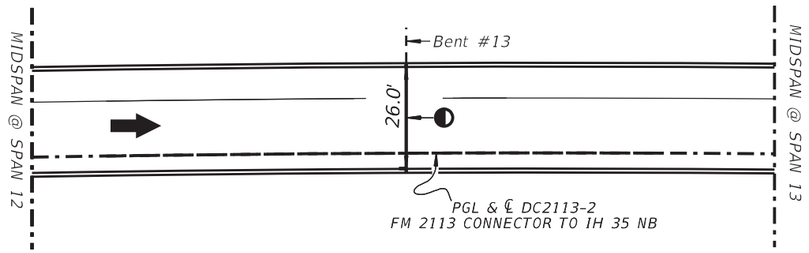










LAYOUT PLAN

DIRECT CONNECTOR (FM 2113 TO IH 35 NB)
(N.B.I.#09-161-0-2625-01-002

◐ Denotes location for Cleaning Existing SEJ-A

DIRECT CONNECTOR FM 2113 TO IH 35 NB
2,335'-0" OVERALL LENGTH
PRESTR. CONC. U-BEAM UNIT &
TRAPEZOIDAL STEEL BOX GIRDER UNIT
VARIOUS SPANS
26'-0" RDWY.
28'-0" OVERALL
TYPE T401 RAIL

PROCEDURE FOR CLEANING AND SEALING EXISTING JOINT WITH SILCONE SEAL

1) **Clean joint opening of all old expansion materials/devices, bituminous materials, dirt, grease and all other deletelous materials in accordance with Item 438, "Cleaning and Sealing Joints."**

2) **Obtain approval of cleaned joint prior to proceeding with joint sealing operation.**

3) **Seal the joint opening with a Class 7 sealant Recess seal 1/2" below top of concrete in travel lanes and 1/4' below top of concrete shoulders.**

General Notes:

Cleaning existing joint opening (full depth) of all debris, providing and placing backer rod, saw-cutting asphalt overlay, and sealing joints is paid for by Item 438, "Cleaning and Sealing Joints" and measured by the linear foot.
Obtain approval for all tools, equipment, materials, and techniques proposed to clean and seal the joint.
Provide Class 3 joint sealant in accordance with DMS-6310, Joint Sealants and Fillers" for joints in asphalt overlay.
Provide Class 7 joint sealant in accordance with DMS-6310, "Joint Sealants and Fillers" for joints in concrete.
Extend sealant up into rail or curb 3 inches on low side or sides of deck. If the Class 7 joint sealant cannot be effectively placed in the vertical position, a Class 4 joint sealant compatible with the Class 7 joint sealant is allowed for the extension of the seal into the curb or rail. Prepare surfaces where sealant is to be placed in accordance with Manufacturer's specifications.

STATE OF TEXAS
ROSS L. LANGDALE
126994
LICENSED
PROFESSIONAL ENGINEER
7/12/2024
Ross L Langdale, P.E.

Texas Department of Transportation

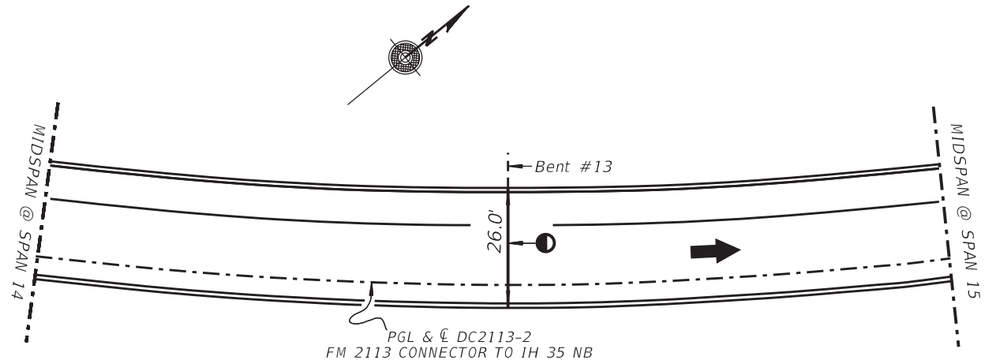
LAYOUT FOR CLEANING AND SEALING JOINTS

DIRECT CONNECTOR FM 2113 TO IH 35 NB
09-161-0-2625-01-002

SCALE: NOT TO SCALE FEET

SHEET 1 OF 2

CHANGE ORDER	FED.RD. DIV. NO.	CONT	SECT	JOB	HIGHWAY
	6	6467	47	001	FM 434,ETC
	STATE	DIST	COUNTY		SHEET NO.
	TEXAS	WACO	MCLENNAN		122

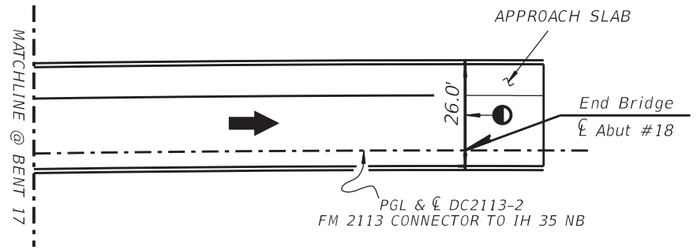


LAYOUT PLAN

DIRECT CONNECTOR (FM 2113 TO IH 35 NB)
(N.B.I.#09-161-0-2625-01-002

DIRECT CONNECTOR FM 2113 TO IH 35 NB
2,335'-0" OVERALL LENGTH
PRESTR. CONC. U-BEAM UNIT &
TRAPEZOIDAL STEEL BOX GIRDER UNIT
VARIOUS SPANS
26'-0" RDWY.
28'-0" OVERALL
TYPE T401 RAIL

◐ Denotes location for Cleaning Existing SEJ-A



PROCEDURE FOR CLEANING AND SEALING EXISTING JOINT WITH SILCONE SEAL

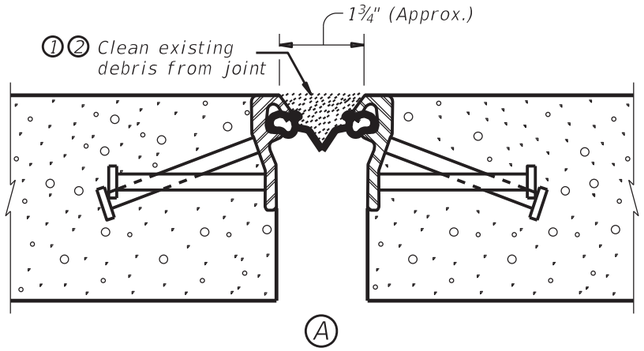
1) **Clean joint opening of all old expansion materials/devices, bituminous materials, dirt, grease and all other deletelous materials in accordance with Item 438, "Cleaning and Sealing Joints."**

2) **Obtain approval of cleaned joint prior to proceeding with joint sealing operation.**

3) **Seal the joint opening with a Class 7 sealant Recess seal 1/2" below top of concrete in travel lanes and 1/4' below top of concrete shoulders.**

General Notes:

Cleaning existing joint opening (full depth) of all debris, providing and placing backer rod, saw-cutting asphalt overlay, and sealing joints is paid for by Item 438, "Cleaning and Sealing Joints" and measured by the linear foot.
Obtain approval for all tools, equipment, materials, and techniques proposed to clean and seal the joint.
Provide Class 3 joint sealant in accordance with DMS-6310, Joint Sealants and Fillers" for joints in asphalt overlay.
Provide Class 7 joint sealant in accordance with DMS-6310, "Joint Sealants and Fillers" for joints in concrete.
Extend sealant up into rail or curb 3 inches on low side or sides of deck. If the Class 7 joint sealant cannot be effectively placed in the vertical position, a Class 4 joint sealant compatible with the Class 7 joint sealant is allowed for the extension of the seal into the curb or rail. Prepare surfaces where sealant is to be placed in accordance with Manufacturer's specifications.



SECTION THRU SEJ-A JOINT

ESTIMATED QUANTITIES

Ⓐ

ITEM	438-7008
LOCATION	CLEANING EXISTING JOINTS
	L.F.
STR. #002 DIRECT CONNECTOR FM 2113 TO IH 35 NB	208.0
TOTAL	208.0

STATE OF TEXAS
ROSS L. LANGDALE
126994
LICENSED
PROFESSIONAL ENGINEER
7/12/2024
Ross L. Langdale, P.E.

Texas Department of Transportation

LAYOUT FOR CLEANING AND SEALING JOINTS

DIRECT CONNECTOR FM 2113 TO IH 35 NB
09-161-0-2625-01-002

SCALE: NOT TO SCALE FEET

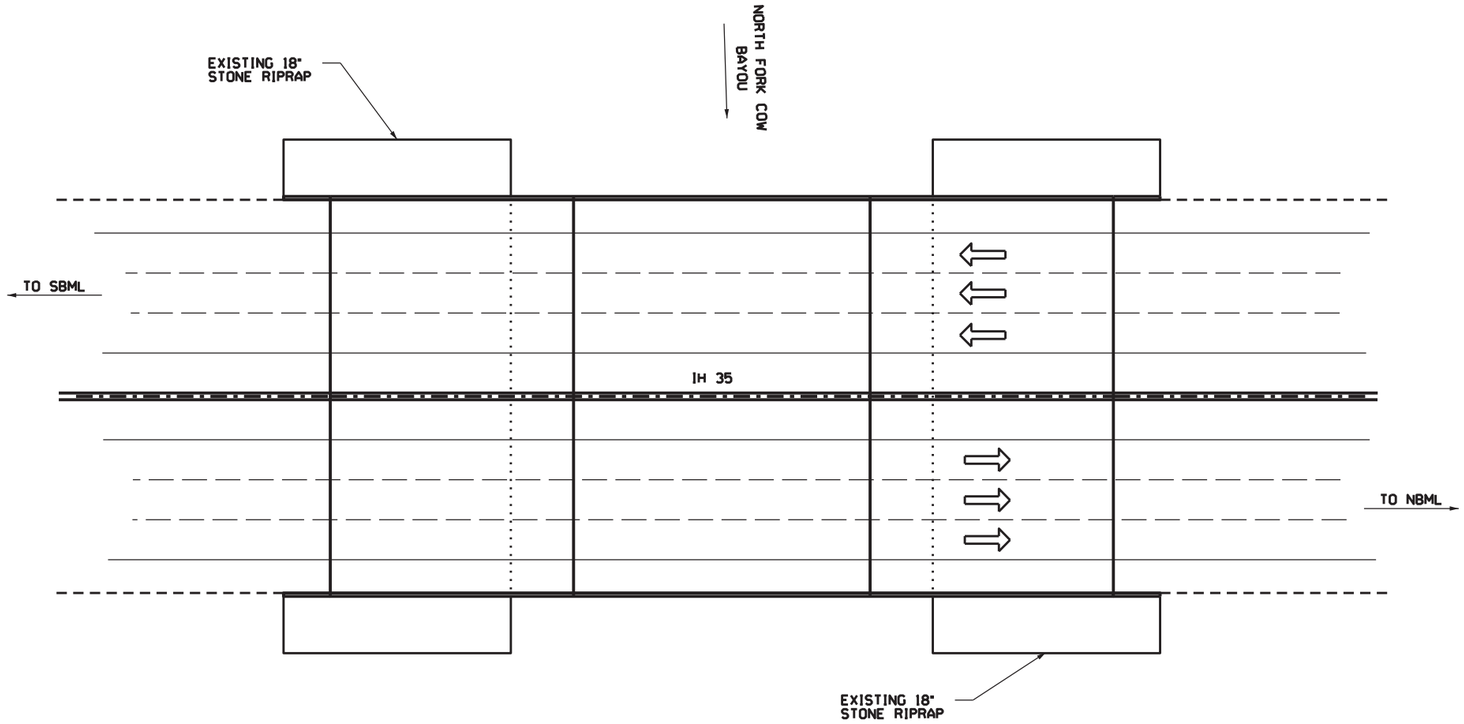
SHEET 2 OF 2

CHANGE ORDER	FED.RD. DIV. NO.	CONT	SECT	JOB	HIGHWAY
	6	6467	47	001	FM 434,ETC
	STATE	DIST	COUNTY		SHEET NO.
	TEXAS	WACO	MCLENNAN		123

FOR LOCATION REPAIR DETAILS REFER TO:

LAYOUT & DETAIL FOR CLEANING AND SEALING EXPANSION JOINTS

AS-BUILT PLAN SET: 0015-01-621



LEGEND:

- EMBANKMENT
- EXCAVATION
- CONCRETE RIP RAP
- STONE RIP RAP
- FLOWABLE BACKFILL

GENERAL VICINITY LAYOUT
NTS
DRAWING NOT TO SCALE

GENERAL NOTES:

1. WHEN DIRECTED SURPLUS MATERIAL ESTIMATED AT INDIVIDUAL LOCATIONS MAY BE USED AT OTHER CONTRACT SITES.
2. IF STONE PROTECTION IS REQUIRED, THE DETAILS SHOWN ARE PROVIDED AS AN APPROXIMATE GUIDE FOR INSTALLATION OF STONE PROTECTION. THE CONTRACTOR WILL DETERMINE THE LIMITS OF STONE PROTECTION REQUIRED AS DICTATED BY FIELD CONDITIONS AND AS DIRECTED PRIOR TO MATERIAL PURCHASE AND DELIVERY.
3. IF NO PAY ITEM FOR DEBRIS REMOVAL IS NOTED; DEBRIS WILL BE REMOVED FROM BRIDGE STRUCTURE ELEMENTS. THIS WILL NOT BE PAID FOR DIRECTLY, BUT CONSIDERED SUBSIDIARY TO THE VARIOUS BID ITEMS.
4. THE CONTRACTOR WILL LIMIT CHANNEL DISTURBING ACTIVITIES TO THE VICINITY OF STRUCTURE AND TxDOT ROW. CONSTRUCTION WILL HAVE EROSION CONTROL BMP IN PLACE DURING ANY SOIL DISTURBING ACTIVITY.
5. IF NO PAY ITEM FOR BRUSH REMOVAL IS NOTED; BRUSH CLEARING FOR EXCAVATION AND EMBANKMENT WILL NOT BE PAID DIRECTLY, BUT CONSIDERED SUBSIDIARY TO THE VARIOUS BID ITEMS.
6. THE CONTRACTOR MUST EXHAUST ALL TYPE-D EMBANKMENT AVAILABLE AT SITE PRIOR TO DELIVERY OF TYPE-B.
7. IF JOINT SEAL IS REQUIRED FOR RIP RAP, THE QUANTITY SHOWN IS FOR ESTIMATION ONLY. THE CONTRACTOR WILL DETERMINE THE LIMITS OF SEALANT AS DICTATED BY FIELD CONDITIONS AND AS DIRECTED. JOINTS TOO LARGE FOR SEALANT MAY BE SEALED BY FLOWABLE BACKFILL AS DIRECTED. REFER TO DMS-6100 FOR MATERIAL SPECIFICATIONS.
8. LOCATIONS WHERE FENCING MUST BE ALTERED; AT ALL TIMES CONTRACTOR WILL MAINTAIN ADEQUATE BARRIER TO KEEP LIVESTOCK FROM ENTERING ROW. WHEN POSSIBLE REPLACE FENCING TO MATCH ORIGINAL. THIS WILL NOT BE PAID FOR DIRECTLY, BUT CONSIDERED SUBSIDIARY TO THE VARIOUS BID ITEMS.

ITEM-DESC	DESCRIPTION	UNITS	TOTAL
438-7007	CLEANING AND SEALING EXIST JOINTS (CL7)	LF	232.0
438-7008	CLEANING EXISITING JOINTS	LF	232.0

CONTRACTOR'S INFORMATION ONLY

NOTE:
THIS SKETCH IS TO BE USED AS AN APPROXIMATE GUIDE FOR MAINTENANCE WORK TO BE PERFORMED IN THE VICINITY OF THIS EXISTING STRUCTURE.

LOCATION: IH 35 NB @ NORTH FORK COW BAYOU
NBI#: 09-161-0-0015-01-621
DIMENSIONS: 235'x 58' BRIDGE
SKEW: 0°SKEW
GPS LAT/LON: 31.369285/-97.215739

STATE OF TEXAS
CHARLES W. SMITH
110312
LICENSED
PROFESSIONAL ENGINEER

The seal appearing on this document was authorized by CHARLES W. SMITH P.E. 110312, on

Charles W. Smith, PE 7/12/2024

Texas Department of Transportation

McLENNAN COUNTY STRUCTURE LAYOUT

IH 35 NB @ NORTH FORK COW BAYOU

NBI# 09-161-0015-01-621

SCALE: NTS

DESIGN	FED RD DIV No.	PROJECT No.		HIGHWAY No.
ZB	6	BPM 6467-47-001		FM 434,ETC
CHECK CS	STATE	DISTRICT	COUNTY	SHEET No.
GRAPHICS DL	TEXAS	WACO	MCLENNAN	124
CHECK CS	CONTROL 6467	SECTION 47	JOB 001	

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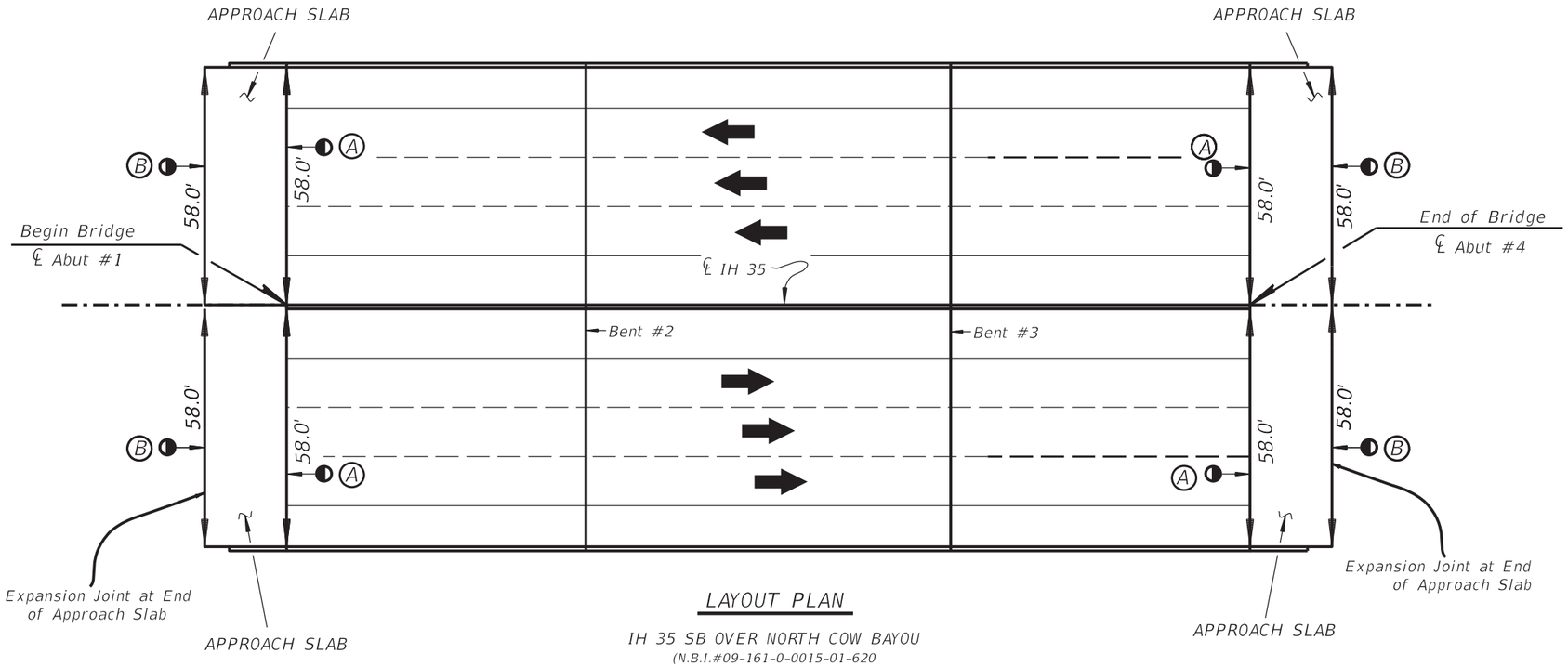


LAYOUT PLAN

IH 35 SB OVER NORTH COW BAYOU
(N.B.I.#09-161-0-0015-01-620

&

IH 35 NB OVER NORTH COW BAYOU
(N.B.I.#09-161-0-0015-01-621

◐ Denotes location for Cleaning Existing SEJ-P

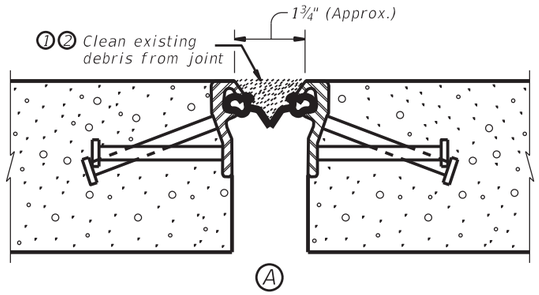
IH 35 SB/NB OVER NORTH COW BAYOU
235'-0" OVERALL LENGTH
PRESTR. CONC. BEAM UNIT
(73', 89', 73') SPANS
58'-0" RDWY.
60'-0" OVERALL
T1F RAIL & SSTR RAIL

PROCEDURE FOR CLEANING AND SEALING EXISTING JOINT WITH SILCONE SEAL

1) **Clean joint opening of all old expansion materials/devices, bituminous materials, dirt, grease and all other deleteious materials In accordance with Item 438, "Cleaning and Sealing Joints."**
2) **Obtain approval of cleaned joint prior to proceeding with joint sealing operation.**
3) **Seal the joint opening with a Class 7 sealant Recess seal 1/2" below top of concrete in travel lanes and 1/4' below top of concrete shoulders.**

General Notes:

Cleaning existing joint opening (full depth) of all debris, providing and placing backer rod, saw-cutting asphalt overlay, and sealing joints is paid for by Item 438, "Cleaning and Sealing Joints" and measured by the linear foot.
Obtain approval for all tools, equipment, materials, and techniques proposed to clean and seal the joint.
Provide Class 3 joint sealant in accordance with DMS-6310, Joint Sealants and Fillers" for joints in asphalt overlay.
Provide Class 7 joint sealant in accordance with DMS-6310, "Joint Sealants and Fillers" for joints In concrete.
Extend sealant up into rail or curb 3 inches on low side or sides of deck. If the Class 7 joint sealant cannot be effectively placed In the vertical postion, a Class 4 joint sealant compatible with the Class 7 joint sealant is allowed for the extension of the seal into the curb or rail. Prepare surfaces where sealant is to be placed in accordance with Manufacturer's specifications.



SECTION THRU SEJ-P JOINT

ESTIMATED QUANTITIES

ITEM	438-7008
LOCATION	CLEANING EXISTING JOINTS
	L.F.
STR. #620 & 621 IH 35 SB & NB OVER NORTH COW BAYOU	232.0
TOTAL	232.0

Ⓐ

STATE OF TEXAS
ROSS L. LANGDALE
126994
LICENSED
PROFESSIONAL ENGINEER
7/12/2024
Ross L Langdale, P.E.

Texas Department of Transportation

LAYOUT FOR CLEANING AND SEALING JOINTS

IH 35 SB/NB OVER NORTH FORK COW BAYOU
09-161-0-0015-01-620/621

SCALE: NOT TO SCALE FEET

SHEET 1 OF 2

CHANGE ORDER	FED.RD. DIV. NO.	CONT	SECT	JOB	HIGHWAY
	6	6467	47	001	FM 434,ETC
	STATE	DIST	COUNTY		SHEET NO.
	TEXAS	WACO	MCLENNAN		125

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7/9/2024
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7/9/2024

NOTES:

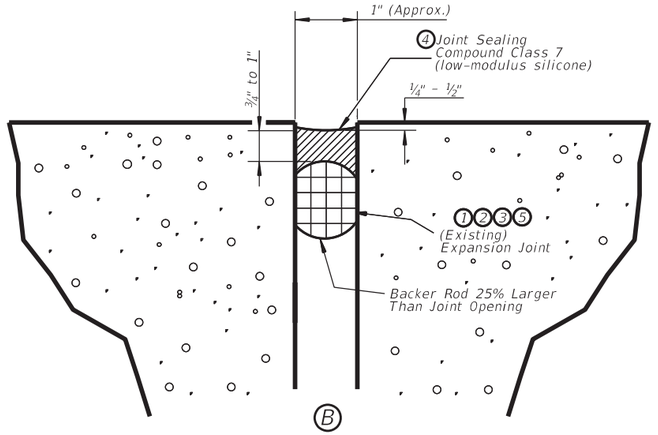
1. The joints shall be cleaned in accordance with Item 438 and prior to beginning operations, the Contractor shall submit a statement from the Sealant Manufacturer showing the recommended equipment and Installation procedures to be used.

2. Condition of existing expansion joint or rail shall be determined prior to placing sealant material. The entire length of existing joint shall be checked and any portion that is determined unsound by the Engineer shall be removed as directed by the Engineer. Any existing seal shall be removed and disposed of.
Repair any signi cant spalled or cracked areas, as determined by the Engineer, around the joint opening with an approved proprietary concrete repair material as Approved by the Engineer. This work will be paid for under Item 429 "Concrete Structure Repair".

3. Surfaces where sealant material is to be placed shall be clean and dry in accordance with the manufacturer's speci cations.

4. Seal when required as Directed by the Engineer. Extend sealant up into rail or curb 6 inches on low side or sides of deck. Prepare surfaces where sealant is to be placed in accordance with manufacturers speci cations.
If the self-leveling sealant cannot be extended up into the rail, use a Class 4 Sealant in the curb or rail portion only.

5. Clean joint opening of all old expansion materials/devices, dirt, and all other deleterious materials in accordance with Item 438, "Cleaning and Sealing Joints." Clean joint out full depth of the joint. Obtain approval of cleaned joint prior to proceeding with joint sealing operation.
Seal the joint opening with a Class 7 Silicone.



SECTION THRU SEALED EXPANSION JOINT

NOT TO SCALE

ESTIMATED QUANTITIES

ITEM	438-7007
LOCATION	CLEANING AND SEALING EXIST JOINTS (CL 7)
	L.F.
STR. #620 & 621 IH 35 NB & SB OVER NORTH COW BAYOU	232.0
TOTAL	232.0

PROCEDURE FOR CLEANING AND SEALING EXISTING JOINT WITH SILCONE SEAL

1) **Clean joint opening of all old expansion materials/devices, bituminous materials, dirt, grease and all other deleteious materials in accordance with Item 438, "Cleaning and Sealing Joints."**

2) **Obtain approval of cleaned joint prior to proceeding with joint sealing operation.**

3) **Place backer rod Into joInt openIng 1" below the top of concrete. When sealing joints for slab spans, slab beams, or box beams, fill void below backer rod with extruded polystyrene foam before placing backer rod.**

4) **Seal the joint opening with a Class 7 sealant Recess seal 1/2" below top of concrete In travel anes and 1/4' below top of concrete shoulders.**

General Notes:

Cleaning existing joint opening (full depth) of all debris, providing and placing backer rod, saw-cutting asphalt overlay, and sealing joints is paid for by Item 438, "Cleaning and Sealing Joints" and measured by the linear foot.
Obtaln approval for all tools, equlpment, materlals, and techniques proposed to clean and seal the joint.
Provide Class 3 joint sealant in accordance with DMS-6310, Joint Sealants and Fillers" for joints in asphalt overlay.
Provide Class 7 joint sealant in accordance with DMS-6310, "JoInt Sealants and FIllers" for jolnts In concrete.
Extend sealant up into rail or curb 3 inches on low side or sides of deck. If the Class 7 joint sealant cannot be effectively placed In the vertlcal postlon, a Class 4 jolnt sealant compatible with the Class 7 joint sealant is allowed for the extension of the seal into the curb or rail. Prepare surfaces where sealant is to be placed in accordance with Manufacturer's specifications.

STATE OF TEXAS
ROSS L. LANGDALE
126994
LICENSED
PROFESSIONAL ENGINEER

7/12/2024

Ross L Langdale, P.E.

Texas Department of Transportation

LAYOUT FOR CLEANING AND SEALING JOINTS

IH 35 SB/NB OVER NORTH FORK COW BAYOU
09-161-0-0015-01-620/621

SCALE: FEET
NOT TO SCALE

SHEET 2 OF 2

CHANGE ORDER	FED.RD. DIV. NO.	CONT	SECT	JOB	HIGHWAY
	6	6467	47	001	FM 434,ETC
	STATE	DIST	COUNTY		SHEET NO.
	TEXAS	WACO	MCLENNAN		126

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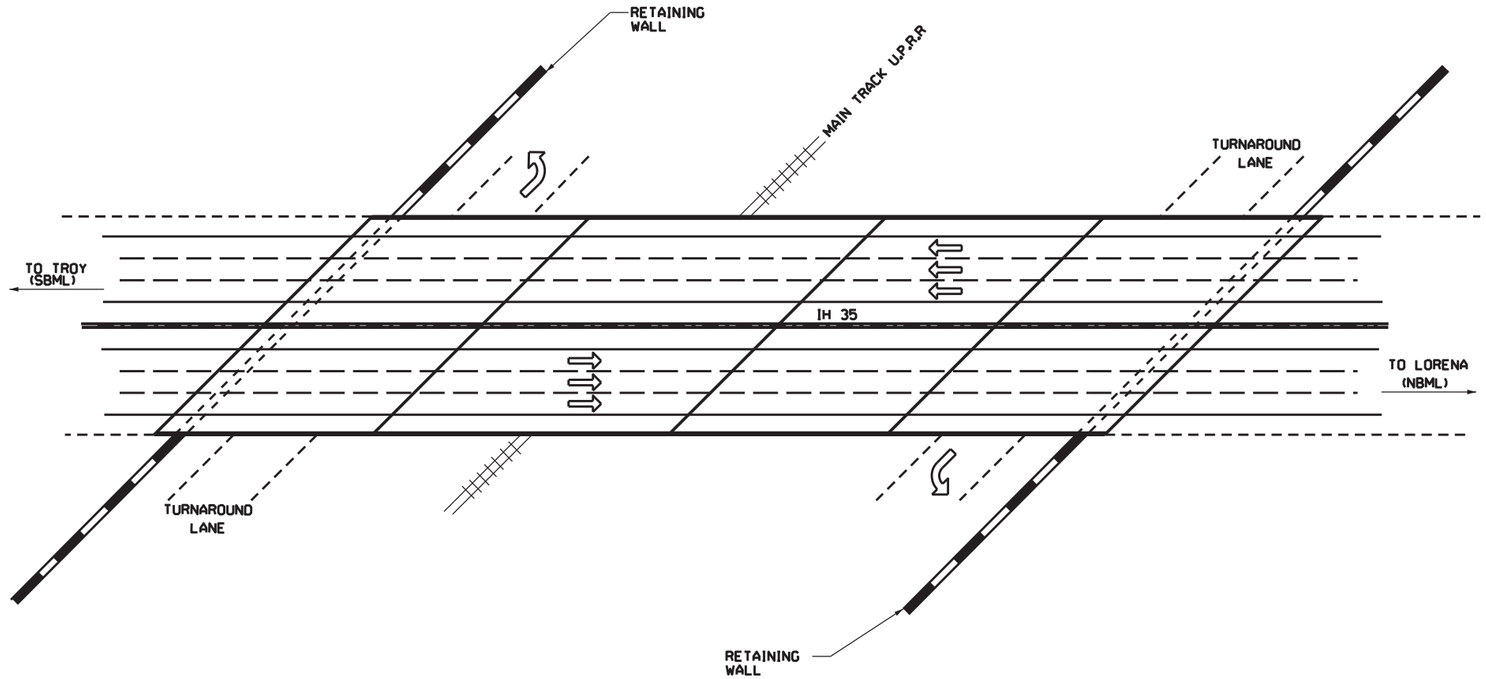
FOR LOCATION REPAIR DETAILS REFER TO:

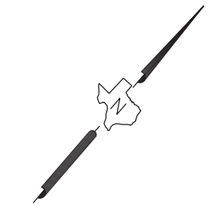
LAYOUT & DETAIL FOR CLEANING AND SEALING EXPANSION JOINTS

AS-BUILT PLAN SET: 0015-02-576



LEGEND:

- EMBANKMENT
- EXCAVATION
- CONCRETE RIP RAP
- STONE RIP RAP
- FLOWABLE BACKFILL



GENERAL VICINITY LAYOUT
NTS
DRAWING NOT TO SCALE

GENERAL NOTES:

1. WHEN DIRECTED SURPLUS MATERIAL ESTIMATED AT INDIVIDUAL LOCATIONS MAY BE USED AT OTHER CONTRACT SITES.
2. IF STONE PROTECTION IS REQUIRED, THE DETAILS SHOWN ARE PROVIDED AS AN APPROXIMATE GUIDE FOR INSTALLATION OF STONE PROTECTION. THE CONTRACTOR WILL DETERMINE THE LIMITS OF STONE PROTECTION REQUIRED AS DICTATED BY FIELD CONDITIONS AND AS DIRECTED PRIOR TO MATERIAL PURCHASE AND DELIVERY.
3. IF NO PAY ITEM FOR DEBRIS REMOVAL IS NOTED; DEBRIS WILL BE REMOVED FROM BRIDGE STRUCTURE ELEMENTS. THIS WILL NOT BE PAID FOR DIRECTLY, BUT CONSIDERED SUBSIDIARY TO THE VARIOUS BID ITEMS.
4. THE CONTRACTOR WILL LIMIT CHANNEL DISTURBING ACTIVITIES TO THE VICINITY OF STRUCTURE AND TxDOT ROW. CONSTRUCTION WILL HAVE EROSION CONTROL BMP IN PLACE DURING ANY SOIL DISTURBING ACTIVITY.
5. IF NO PAY ITEM FOR BRUSH REMOVAL IS NOTED; BRUSH CLEARING FOR EXCAVATION AND EMBANKMENT WILL NOT BE PAID DIRECTLY, BUT CONSIDERED SUBSIDIARY TO THE VARIOUS BID ITEMS.
6. THE CONTRACTOR MUST EXHAUST ALL TYPE-D EMBANKMENT AVAILABLE AT SITE PRIOR TO DELIVERY OF TYPE-B.
7. IF JOINT SEAL IS REQUIRED FOR RIP RAP, THE QUANTITY SHOWN IS FOR ESTIMATION ONLY. THE CONTRACTOR WILL DETERMINE THE LIMITS OF SEALANT AS DICTATED BY FIELD CONDITIONS AND AS DIRECTED. JOINTS TOO LARGE FOR SEALANT MAY BE SEALED BY FLOWABLE BACKFILL AS DIRECTED. REFER TO DMS-6100 FOR MATERIAL SPECIFICATIONS.
8. LOCATIONS WHERE FENCING MUST BE ALTERED; AT ALL TIMES CONTRACTOR WILL MAINTAIN ADEQUATE BARRIER TO KEEP LIVESTOCK FROM ENTERING ROW. WHEN POSSIBLE REPLACE FENCING TO MATCH ORIGINAL. THIS WILL NOT BE PAID FOR DIRECTLY, BUT CONSIDERED SUBSIDIARY TO THE VARIOUS BID ITEMS.

ITEM-DESC	DESCRIPTION	UNITS	TOTAL
438-7007	CLEANING AND SEALING EXIST JOINTS (CL7)	LF	232.0
438-7008	CLEANING EXISITING JOINTS	LF	656.0

CONTRACTOR'S INFORMATION ONLY

NOTE:
THIS SKETCH IS TO BE USED AS AN APPROXIMATE GUIDE FOR MAINTENANCE WORK TO BE PERFORMED IN THE VICINITY OF THIS EXISTING STRUCTURE.

LOCATION: IH 35 SB @ UPRR
NBI#: 09-161-0-0015-02-576
DIMENSIONS: 523'x 60' BRIDGE
SKEW: 45°SKEW
GPS LAT/LON: 31.320897/-97.234705

STATE OF TEXAS
CHARLES W. SMITH
110312
LICENSED
PROFESSIONAL ENGINEER

The seal appearing on this document was authorized by CHARLES W. SMITH P.E. 110312, on

Charles W. Smith, PE 7/12/2024

McLENNAN COUNTY STRUCTURE LAYOUT

IH 35 SB @ UPRR

NBI# 09-161-0015-02-576

SCALE: NTS

DESIGN	FED RD DIV No.	PROJECT No.		HIGHWAY No.
ZB	6	BPM 6467-47-001		FM 434,ETC
CHECK	STATE	DISTRICT	COUNTY	SHEET No.
CS	TEXAS	WACO	MCLENNAN	127
GRAPHICS	CONTROL	SECTION	JOB	
DL	6467	47	001	
CHECK				
CS				

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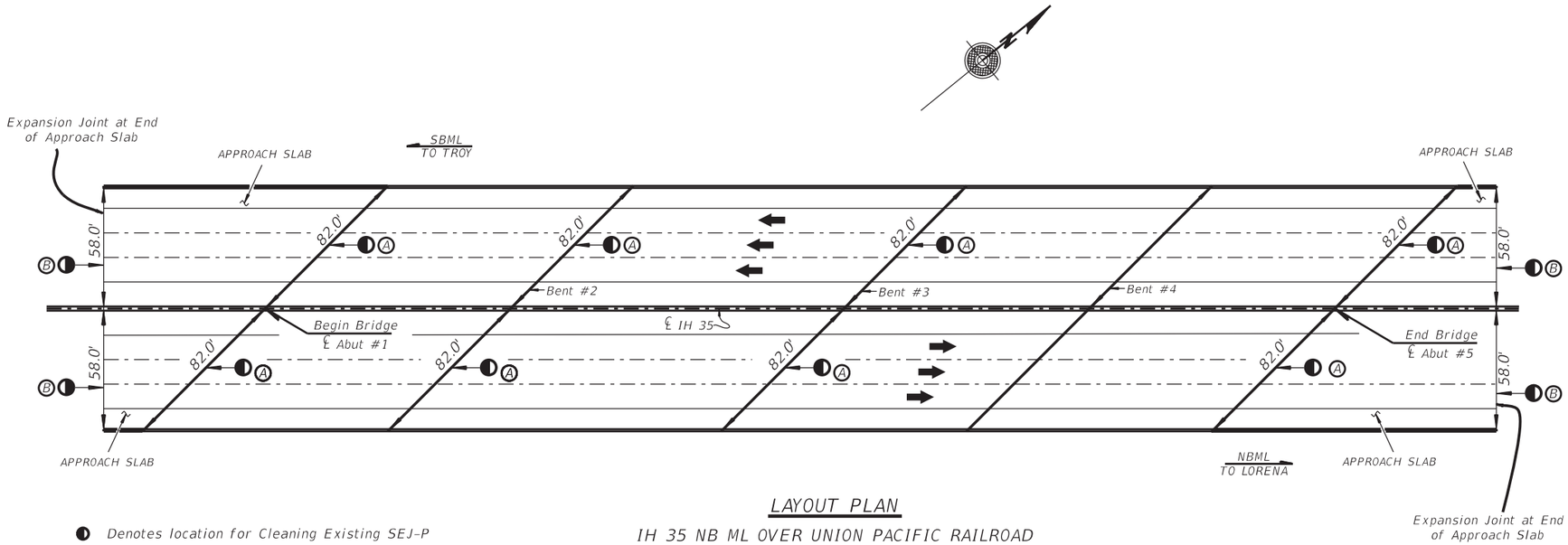


Denotes location for Cleaning Existing SEJ-P

LAYOUT PLAN

IH 35 NB ML OVER UNION PACIFIC RAILROAD
(N.B.I.#09-161-0-0015-02-575)

&

IH 35 SB ML OVER UNION PACIFIC RAILROAD
(N.B.I.#09-161-0-0015-02-576)

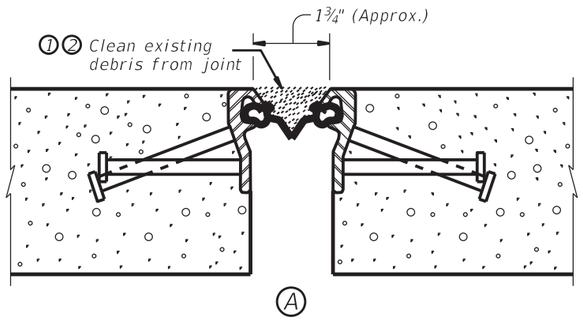
PROCEDURE FOR CLEANING AND SEALING EXISTING JOINT WITH SILCONE SEAL

1) **Clean joint opening of all old expansion materials/devices, bituminous materials, dirt, grease and all other deleteious materials In accordance with Item 438, "Cleaning and Sealing Joints."**
2) **Obtain approval of cleaned joint prior to proceeding with joint sealing operation.**
3) **Seal the joint opening with a Class 7 sealant Recess seal 1/2" below top of concrete in travel lanes and 1/4' below top of concrete shoulders.**

General Notes:

Cleaning existing joint opening (full depth) of all debris, providing and placing backer rod, saw-cutting asphalt overlay, and sealing joints is paid for by Item 438, "Cleaning and Sealing Joints" and measured by the linear foot.
Obtain approval for all tools, equipment, materials, and techniques proposed to clean and seal the joint.
Provide Class 3 joint sealant in accordance with DMS-6310, Joint Sealants and Fillers" for joints in asphalt overlay.
Provide Class 7 joint sealant in accordance with DMS-6310, "Joint Sealants and Fillers" for joints In concrete.
Extend sealant up into rail or curb 3 inches on low side or sides of deck. If the Class 7 joint sealant cannot be effectively placed In the vertical postion, a Class 4 joint sealant compatible with the Class 7 joint sealant is allowed for the extension of the seal into the curb or rail. Prepare surfaces where sealant is to be placed in accordance with Manufacturer's specifications.

IH 35 SB/NB OVER UNION PACIFIC RAILROAD
523'-0" OVERALL LENGTH
(120', 163', 120', 120') PREST. CONCRETE GIRDER SPAN 45° RFS
58'-0" RDWY.
60'-0" OVERALL
T1F RAIL LT
SSTR RAIL RT



SECTION THRU SEJ-P JOINT

ESTIMATED QUANTITIES

ITEM	Ⓐ 438-7008
LOCATION	CLEANING EXISTING JOINTS
	L.F.
STR. #575 & 576 IH 35 NB/SB ML OVER UNION PACIFIC RAILROAD	656.0
TOTAL	656.0

STATE OF TEXAS
ROSS L. LANGDALE
126994
LICENSED
PROFESSIONAL ENGINEER

Ross L Langdale, P.E.

7/12/2024

Texas Department of Transportation

LAYOUT FOR CLEANING AND SEALING JOINTS

IH 35 NB/SB OVER UPRR
09-161-0-0015-02-575/576

SCALE: NOT TO SCALE FEET

SHEET 1 OF 2

CHANGE ORDER	FED.RD. DIV. NO.	CONT	SECT	JOB	HIGHWAY
	6	6467	47	001	FM 434,ETC
	STATE	DIST	COUNTY		SHEET NO.
	TEXAS	WACO	MCLENNAN		128

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NOTES:

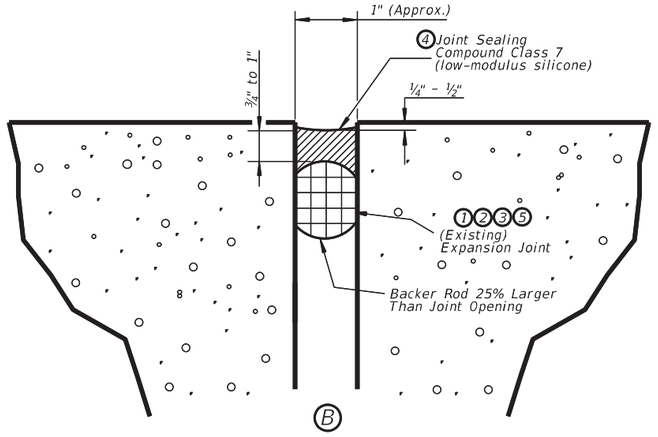
1. The joints shall be cleaned in accordance with Item 438 and prior to beginning operations, the Contractor shall submit a statement from the Sealant Manufacturer showing the recommended equipment and Installation procedures to be used.

2. Condition of existing expansion joint or rail shall be determined prior to placing sealant material. The entire length of existing joint shall be checked and any portion that is determined unsound by the Engineer shall be removed as directed by the Engineer. Any existing seal shall be removed and disposed of.
Repair any signi cant spalled or cracked areas, as determined by the Engineer, around the joint opening with an approved proprietary concrete repair material as Approved by the Engineer. This work will be paid for under Item 429 "Concrete Structure Repair".

3. Surfaces where sealant material is to be placed shall be clean and dry in accordance with the manufacturer's speci cations.

4. Seal when required as Directed by the Engineer. Extend sealant up into rail or curb 6 inches on low side or sides of deck. Prepare surfaces where sealant is to be placed in accordance with manufacturers speci cations.
If the self-leveling sealant cannot be extended up into the rail, use a Class 4 Sealant in the curb or rail portion only.

5. Clean joint opening of all old expansion materials/devices, dirt, and all other deleterious materials in accordance with Item 438, "Cleaning and Sealing Joints." Clean joint out full depth of the joint. Obtain approval of cleaned joint prior to proceeding with joint sealing operation.
Seal the joint opening with a Class 7 Silicone.



SECTION THRU SEALED EXPANSION JOINT

NOT TO SCALE

ESTIMATED QUANTITIES

ITEM	438-7007
LOCATION	CLEANING AND SEALING EXIST JOINTS (CL 7)
	L.F.
STR. #575 & 576 IH 35 NB/SB ML OVER UNION PACIFIC RAILROAD	232.0
TOTAL	232.0

PROCEDURE FOR CLEANING AND SEALING EXISTING JOINT WITH SILCONE SEAL

1) **Clean joint opening of all old expansion materials/devices, bituminous materials, dirt, grease and all other deleteious materials in accordance with Item 438, "Cleaning and Sealing Joints."**

2) **Obtain approval of cleaned joint prior to proceeding with joint sealing operation.**

3) **Place backer rod Into joInt openIng 1" below the top of concrete. When sealing joints for slab spans, slab beams, or box beams, fill void below backer rod with extruded polystyrene foam before placing backer rod.**

4) **Seal the joint opening with a Class 7 sealant Recess seal 1/2" below top of concrete In travel anes and 1/4' below top of concrete shoulders.**

General Notes:

Cleaning existing joint opening (full depth) of all debris, providing and placing backer rod, saw-cutting asphalt overlay, and sealing joints is paid for by Item 438, "Cleaning and Sealing Joints" and measured by the linear foot.
Obtaln approval for all tools, equlpment, materlals, and techniques proposed to clean and seal the joint.
Provide Class 3 joint sealant in accordance with DMS-6310, Joint Sealants and Fillers" for joints in asphalt overlay.
Provide Class 7 joint sealant in accordance with DMS-6310, "JoInt Sealants and FIllers" for jolnts In concrete.
Extend sealant up into rail or curb 3 inches on low side or sides of deck. If the Class 7 joint sealant cannot be effectively placed In the vertlcal postlon, a Class 4 jolnt sealant compatible with the Class 7 joint sealant is allowed for the extension of the seal into the curb or rail. Prepare surfaces where sealant is to be placed in accordance with Manufacturer's specifications.

STATE OF TEXAS
ROSS L. LANGDALE
126994
LICENSED
PROFESSIONAL ENGINEER

7/12/2024

Ross L Langdale, P.E.

Texas Department of Transportation

LAYOUT FOR CLEANING AND SEALING JOINTS

IH 35 NB/SB OVER UPRR
09-161-0-0015-01-575/576

SCALE: FEET
NOT TO SCALE

SHEET 2 OF 2

CHANGE ORDER	FED.RD. DIV. NO.	CONT	SECT	JOB	HIGHWAY
	6	6467	47	001	FM 434,ETC
	STATE	DIST	COUNTY		SHEET NO.
	TEXAS	WACO	MCLENNAN		129

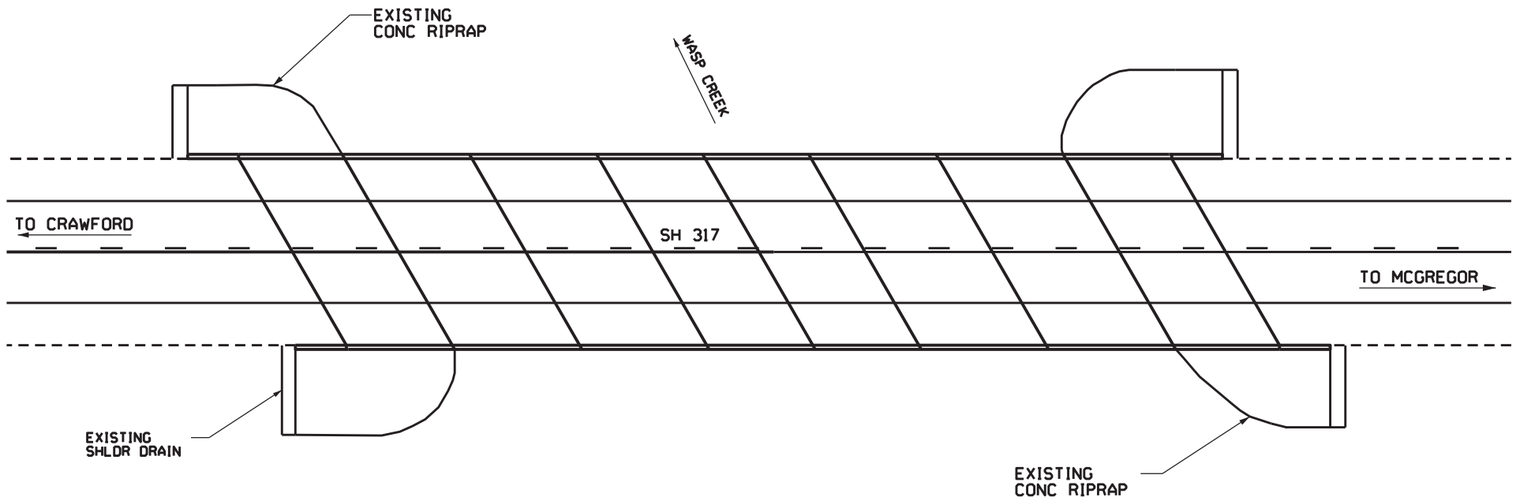
$FILE$

NODE

FOR LOCATION REPAIR DETAILS REFER TO:

LAYOUT & DETAILS FOR CLEANING AND SEALING EXPANSION JOINTS

AS-BUILT PLAN SET: 0398-02-035

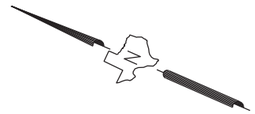


NOTE:
THIS SKETCH IS TO BE USED AS AN APPROXIMATE GUIDE FOR MAINTENANCE WORK TO BE PERFORMED IN THE VICINITY OF THIS EXISTING STRUCTURE.

LOCATION: SH 317 @ WASP CREEK
NBI#: 09-161-0-0398-02-035
DIMENSIONS: 220'x 44' BRIDGE
SKEW: 30° SKEW
GPS LAT/LON: 31.52328287/-97.44067452

LEGEND:

- EMBANKMENT
- EXCAVATION
- CONCRETE RIP RAP
- STONE RIP RAP
- FLOWABLE BACKFILL



GENERAL VICINITY LAYOUT
NTS
DRAWING NOT TO SCALE

GENERAL NOTES:

1. WHEN DIRECTED SURPLUS MATERIAL ESTIMATED AT INDIVIDUAL LOCATIONS MAY BE USED AT OTHER CONTRACT SITES.
2. IF STONE PROTECTION IS REQUIRED, THE DETAILS SHOWN ARE PROVIDED AS AN APPROXIMATE GUIDE FOR INSTALLATION OF STONE PROTECTION. THE CONTRACTOR WILL DETERMINE THE LIMITS OF STONE PROTECTION REQUIRED AS DICTATED BY FIELD CONDITIONS AND AS DIRECTED PRIOR TO MATERIAL PURCHASE AND DELIVERY.
3. IF NO PAY ITEM FOR DEBRIS REMOVAL IS NOTED; DEBRIS WILL BE REMOVED FROM BRIDGE STRUCTURE ELEMENTS. THIS WILL NOT BE PAID FOR DIRECTLY, BUT CONSIDERED SUBSIDIARY TO THE VARIOUS BID ITEMS.
4. THE CONTRACTOR WILL LIMIT CHANNEL DISTURBING ACTIVITIES TO THE VICINITY OF STRUCTURE AND TxDOT ROW. CONSTRUCTION WILL HAVE EROSION CONTROL BMP IN PLACE DURING ANY SOIL DISTURBING ACTIVITY.
5. IF NO PAY ITEM FOR BRUSH REMOVAL IS NOTED; BRUSH CLEARING FOR EXCAVATION AND EMBANKMENT WILL NOT BE PAID DIRECTLY, BUT CONSIDERED SUBSIDIARY TO THE VARIOUS BID ITEMS.
6. THE CONTRACTOR MUST EXHAUST ALL TYPE-D EMBANKMENT AVAILABLE AT SITE PRIOR TO DELIVERY OF TYPE-B.
7. IF JOINT SEAL IS REQUIRED FOR RIP RAP, THE QUANTITY SHOWN IS FOR ESTIMATION ONLY. THE CONTRACTOR WILL DETERMINE THE LIMITS OF SEALANT AS DICTATED BY FIELD CONDITIONS AND AS DIRECTED. JOINTS TOO LARGE FOR SEALANT MAY BE SEALED BY FLOWABLE BACKFILL AS DIRECTED. REFER TO DMS-6100 FOR MATERIAL SPECIFICATIONS.
8. LOCATIONS WHERE FENCING MUST BE ALTERED; AT ALL TIMES CONTRACTOR WILL MAINTAIN ADEQUATE BARRIER TO KEEP LIVESTOCK FROM ENTERING ROW. WHEN POSSIBLE REPLACE FENCING TO MATCH ORIGINAL. THIS WILL NOT BE PAID FOR DIRECTLY, BUT CONSIDERED SUBSIDIARY TO THE VARIOUS BID ITEMS.

ITEM-DESC	DESCRIPTION	UNITS	TOTAL
351-7001	FLEXIBLE PAVEMENT STRUCTURE REPAIR (2")	SY	6.0
438-7004	CLEANING & SEALING EXISITING JOINTS (CL3)	LF	51.0

CONTRACTOR'S INFORMATION ONLY

STATE OF TEXAS
CHARLES W. SMITH
110312
LICENSED PROFESSIONAL ENGINEER

The seal appearing on this document was authorized by CHARLES W. SMITH P.E. 110312, on

Charles W. Smith, PE 7/12/2024

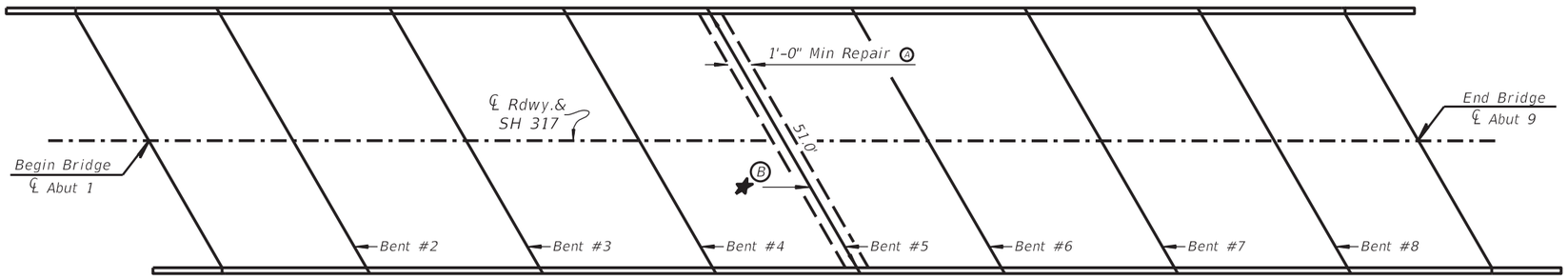
Texas Department of Transportation

McLENNAN COUNTY STRUCTURE LAYOUT
SH 317 @ WASP CREEK
NBI# 09-161-0398-02-035

SCALE: NTS

DESIGN	FED RD DIV No.	PROJECT No.	HIGHWAY No.
ZB	6	BPM 6467-47-001	FM 434,ETC
CHECK CS	STATE	DISTRICT / COUNTY	SHEET No.
GRAPHICS DL	TEXAS	WACO / MCLENNAN	130
CHECK CS	CONTROL	SECTION / JOB	
	6467	47 / 001	

...\0398-02-035.dgn



LAYOUT PLAN
SH 317 OVER WASP CREEK
(NBI # 09-161-0-0398-02-035)

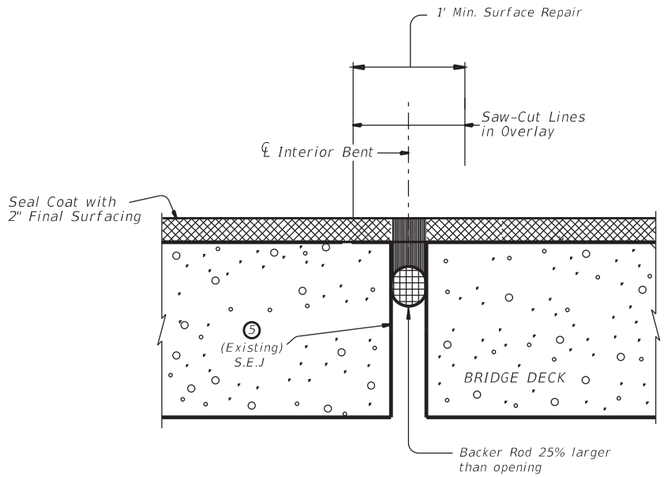
★ Denotes Location for Cleaning and Sealing Expansion Joints.

FM 317 OVER WASP CREEK
220'-0" OVERALL LENGTH
(25', 2 @ 30', 2 @ 25', 2 @ 30', 25') CONT. CONC. SLAB UNITS
46' ROADWAY
TYPE T501 RAIL

General Notes:

Remove and replace flexible pavement before sawing and sealing joint.

Flexible Pavement Structure Repair will be a 2" D-GR HMA TY-C PG64-22 with underseal. All materials is subsidiary to Item 351.



SECTION THRU EXPANSION JOINT
Ⓐ

Ⓐ ESTIMATED QUANTITIES

ITEM	351-7001
LOCATION	FLEXIBLE PAVEMENT STRUCTURE REPAIR (2")
	S.Y.
STR. #035 SH 317 OVER WASP CREEK	6.0
TOTAL	6.0

STATE OF TEXAS
ROSS L. LANGDALE
126994
LICENSED
PROFESSIONAL ENGINEER

7/12/2024

Ross L. Langdale, P.E.

Texas Department of Transportation

LAYOUT FOR CLEANING AND SEALING JOINTS

SH 317 OVER WASP CREEK
09-161-0-0398-02-035

SCALE: 1" = HORIZ. FEET

SHEET 1 OF 2

CHANGE ORDER	FED.RD. DIV. NO.	CONT	SECT	JOB	HIGHWAY
	6	6467	47	001	FM 434,ETC
	STATE	DIST	COUNTY		SHEET NO.
	TEXAS	WACO	MCLENNAN		131

10:08:32 AM

7/9/2024

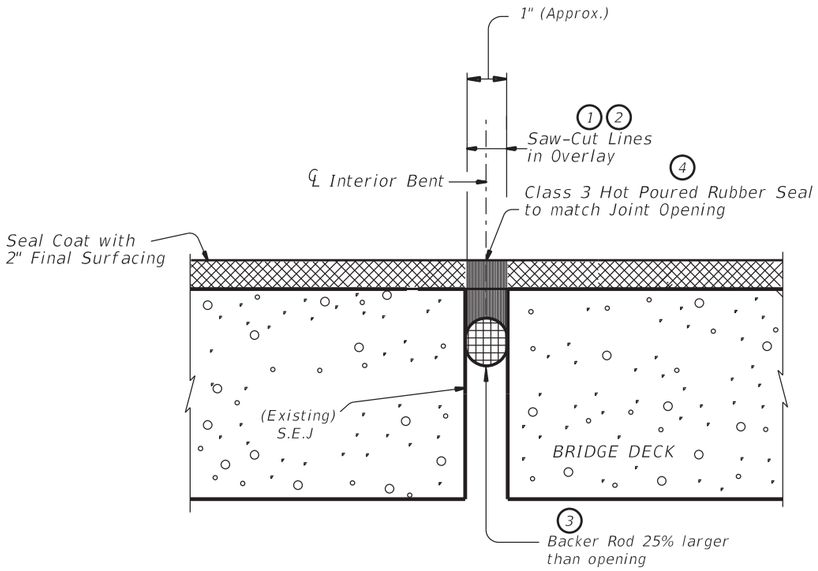
FM 317 OVER WASP CREEK
220'-0" OVERALL LENGTH
(25', 2 @ 30', 2 @ 25', 2 @ 30', 25') CONT. CONC. SLAB UNITS
46' ROADWAY
TYPE T501 RAIL

(1) Saw cut through the asphalt at the centerline of joint. Make multiple saw cuts to create a ½" minimum joint opening or match the existing joint opening. Clean joint opening of all old expansion materials/devices, bituminous materials, dirt, grease and all other deleterious materials in accordance with Item 438, "Cleaning and Sealing Joints."

(2) Obtain approval of cleaned joint prior to proceeding with joint sealing operation.

(3) Place backer rod into joint opening 1" below the top of concrete. Backer rod must be of the type that can handle the heat and be compatible with the hot poured rubber seal. The backer rod must be 25% larger than the joint opening.

(4) Seal the joint opening with a Class 3, "Hot Poured Rubber." Seal ush to the top of the asphaltic concrete pavement.



SECTION THRU EXPANSION JOINT

Ⓑ

PROCEDURE FOR CLEANING AND SEALING
EXISTING JOINT WITH HOT-POURED RUBBER SEAL:

1) Saw cut through asphalt at the centerline of joint. Make mulitple cuts to create ½" minimum joint opening or match the existing joint opening. Clean joints opening of all old expansion materials/devices, bituminous materials, dirt, grease, and all other deleterious materials in accordance with Item 438, "Cleaning and Sealing Joints", Clean joint out full depth of the joint.

2) Obtain approval of cleaned joint prior to proceeding with joint sealing operation.

3) Place backer rod into joint opening 1" below the top of concrete. When sealing joints for slab spans, slab beam spans, or box beam spans, fill void below backer rod with extruded polystyrene foam before placing backer rod.

4) Seal the joint opening with a Class 3 joint sealant flush to the top of the asphaltic concrete pavement.

General Notes:

Cleaning existing joint opening (full depth) of all debris, providing and placing backer rod, saw-cutting asphalt overlay, and sealing joints is paid for by Item 438, "Cleaning and Sealing Joints" and measured by the linear foot.
Obtain approval for all tools, equipment, materials, and techniques proposed to clean and seal the joint.
Provide Class 3 joint sealant in accordance with DMS-6310, Joint Sealants and Fillers" for joints in asphalt overlay.
Provide Class 7 joint sealant in accordance with DMS-6310, "Joint Sealants and Fillers" for joints in concrete.
Extend sealant up into rail or curb 3 inches on low side or sides of deck. If the Class 7 joint sealant cannot be effectively placed in the vertical postion, a Class 4 joint sealant compatible with the Class 7 joint sealant is allowed for the extension of the seal into the curb or rail. Prepare surfaces where sealant is to be placed in accordance with Manufacturer's specifications.

Ⓑ ESTIMATED QUANTITIES

ITEM	438-7004
LOCATION	CLEANING AND SEALING EXISTING JOINTS (CL 3)
	L.F.
STR. #035 SH 317 OVER WASP CREEK	51.0
TOTAL	51.0

STATE OF TEXAS
ROSS L. LANGDALE
126994
LICENSED
PROFESSIONAL ENGINEER
7/12/2024
Ross L Langdale, P.E.

Texas Department of Transportation

LAYOUT FOR CLEANING AND SEALING JOINTS

SH 317 OVER WASP CREEK
09-161-0-0398-02-035

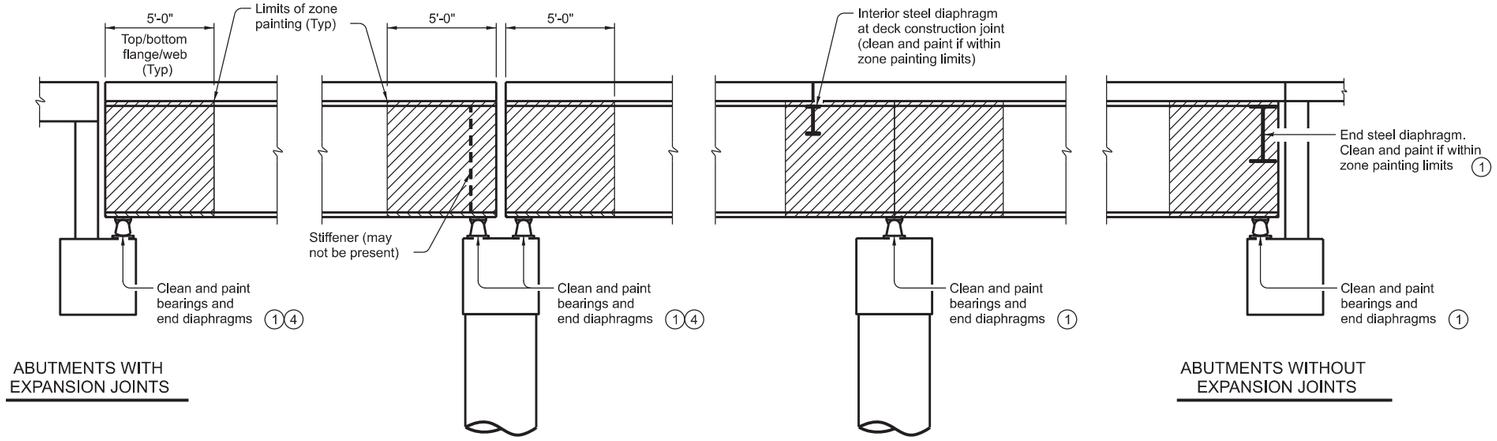
SCALE: 1" = HORIZ. FEET

SHEET 2 OF 2

CHANGE ORDER	FED.RD. DIV. NO.	CONT	SECT	JOB	HIGHWAY
	6	6467	47	001	FM 434,ETC
	STATE	DIST	COUNTY		SHEET NO.
	TEXAS	WACO	MCLENNAN		132

$FILEA$

NODE



ABUTMENTS WITH EXPANSION JOINTS

BENTS WITH EXPANSION JOINTS

Pin and hanger connections similar

BENTS WITHOUT EXPANSION JOINTS

ABUTMENTS WITHOUT EXPANSION JOINTS

PARTIAL STEEL BEAM ELEVATION (3)

Dimensions shown are basis of paint estimate but do not define exact limits of repainting. Address deteriorated paint as directed by the Engineer. Painting perimeter does not need to be a vertical plane except on exterior surfaces of exterior beams.

TABLE OF ESTIMATED QUANTITIES (2)

STRUCTURE NUMBER (& FEATURE CROSSED)	REFERENCE NUMBER	QUANTITY PER STRUCTURE (SF)
09-018-0-0258-07-038 (BNSF RR)	STR #1	1419
09-098-0-0251-02-048 (COWHOUSE CRK)	STR #2	3234
	TOTAL QUANTITY (SF)	4653

(1) Bearings and diaphragms may vary from what is shown.

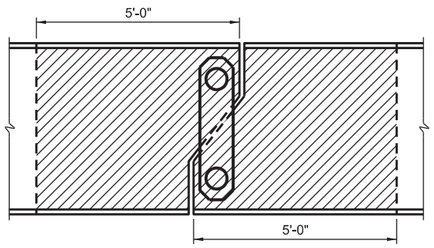
(2) Paint quantities shown include allowance for bearings, diaphragms and other minor areas as determined by the Engineer.

(3) Showing minimum areas of paint application. Spot clean and paint other locations on the bridge as directed by the Engineer.

(4) See "Cleaning at Expansion Bearings" detail.

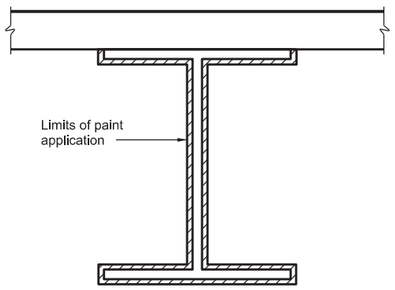
STRUCTURE NOTES:

Ref Str #1: Clean beam ends and bearings and apply default special protection system. Address other areas along flanges and webs as directed.



PIN AND HANGER ASSEMBLY WITH ZONE PAINT LIMITS

Showing example pin and hanger system. Pin and hanger system may vary from what is shown.



STEEL BEAM CROSS SECTION WITH ZONE PAINT LIMITS

ZONE PAINTING NOTES:

Prepare the surfaces to be cleaned by using hand tools, vacuuming, and water blasting as described in Special Specification 4207, "Steel Bridge Zone Painting" for Default Special Protection System. Abrasive blast and achieve SSPC SP10/SP11 (near white metal) for the Alternate Special Protection System.

Water blast all bearings for a minimum of 1 minute each while moving nozzle to thoroughly clean all surfaces. Keep nozzle no further than 6 inches from the surface. Blast concealed surfaces of end diaphragms below bridge expansion joints.

Use oil-free compressed air to blow out tightly confined locations.

Probe around edges of remaining paint with hand scraper to ensure all delaminated paint is removed.

For zone painting steel pilings, excavate a minimum of 1'-0" below existing ground level around each piling. Re-establish ground level once topcoat is dry to the touch.

GENERAL NOTES:

Clean and paint the structure in accordance with Special Specification 4207, "Steel Bridge Zone Painting."

Provide potable water for water blasting steel. Water from municipal supplies approved by the Texas Department of Health will not require testing. When water is provided from another source, test for chlorides and provide water with a maximum chloride concentration of 500 ppm (500 mg/L).

The default Special Protection System includes:
- Penetrating Sealer (DMS-8101)
- Top Coat (DMS-8105)

The Alternate Special Protection System includes:
- Epoxy Zinc Primer (DMS-8101)
- Top Coat (DMS-8105),

Provide a High Ratio Calcium Sulfonate (HRCSA) top coat for bearings.

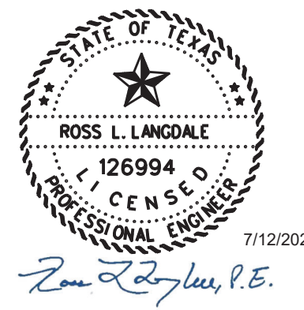
Provide compatible penetrating sealer and top coat from the same manufacturer.

Tint the proposed paint system to match the existing bridge paint color. Select the proposed paint color from the Federal Standard Colors list. Submit proposed paint color samples to the Engineer for approval before paint purchase.

SPECIAL PROTECTION SYSTEM

DEFAULT:
- Apply 0.5-1.0 mil DFT of penetrating seal to specified surfaces.
- Apply minimum 4.0 mils DFT topcoat to specified surfaces.
- Apply an additional 14-18 WFT protection coat of HRCSA to all exposed bearing surfaces after other coats have cured and in accordance with manufacturer recommendations.

ALTERNATE:
- Apply 3.5 to 10 mils epoxy zinc primer to specified surfaces.
- Apply minimum 4.0 mils DFT topcoat to specified surfaces.
- Apply an additional 14-18 WFT protection coat of HRCSA to all exposed bearing surfaces after other coats have cured and in accordance with manufacturer recommendations.



7/12/2024

Ross L. Langdale, P.E.

SHEET 1 OF 2

Texas Department of Transportation | Bridge Division

ZONE PAINTING DETAILS

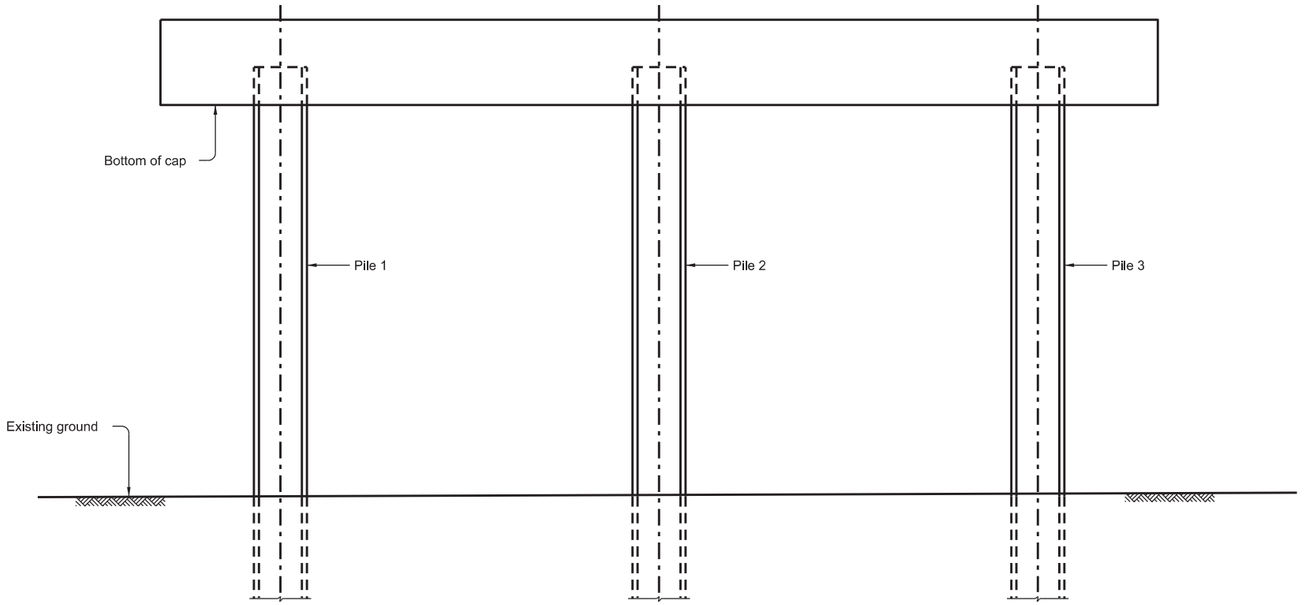
NBI: 09-018-0-0258-07-038
NBI: 09-098-0-0251-02-048

FILE: WD-ZPD-24.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
©TxDOT February 2024	CONT	SECT	JOB	HIGHWAY
REVISIONS	6467	47	001	FM 434,ETC
	DIST	COUNTY		SHEET NO.
	WACO	MCLENNAN		133

DATE:
FILE:

ESTIMATED QUANTITIES FOR STEEL PILING ZONE PAINTING

STRUCTURE NUMBER (& FEATURE CROSSED)	REFERENCE NUMBER	QUANTITY PER STRUCTURE (SF)

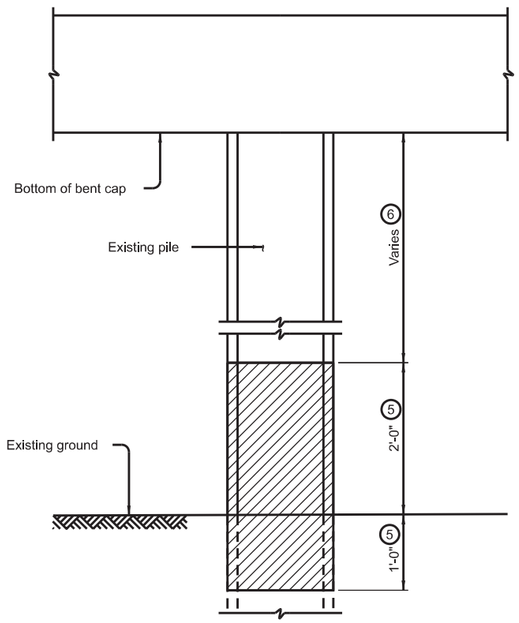


TYPICAL BENT ELEVATION

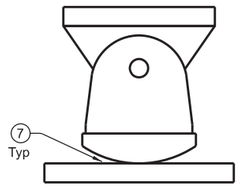
(5) Applies to all steel pilings at bents. Use Alternate Special Protection System.

(6) Applies to steel pilings at bents with full height corrosion or paint failure. Use Default Special Protection System.

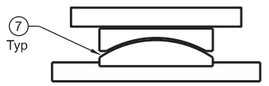
(7) Completely remove all debris and pack rust from under bearings before applying special protection system. Use tools and methods that will not damage the existing bearing or cap. Engineer may request demonstration of the tools and methods before beginning work.



ZONE PAINT LIMITS



ROCKER BEARING



CURVED PLATE BEARING

CLEANING AT EXPANSION BEARINGS

Existing bearings may differ from those shown.

STATE OF TEXAS
ROSS L. LANGDALE
126994
LICENSED
PROFESSIONAL ENGINEER

7/12/2024

Ross L Langdale, P.E.

SHEET 2 OF 2

Texas Department of Transportation | Bridge Division

ZONE PAINTING DETAILS

NBI: 09-018-0-0258-07-038
NBI: 09-098-0-0251-02-048

FILE: WD-ZPD-24.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
©TxDOT February 2024	CONT	SECT	JOB	HIGHWAY
REVISIONS	6467	47	001	FM 434,ETC
	DIST	COUNTY		SHEET NO.
	WACO	MCLENNAN		134

DATE:
FILE:

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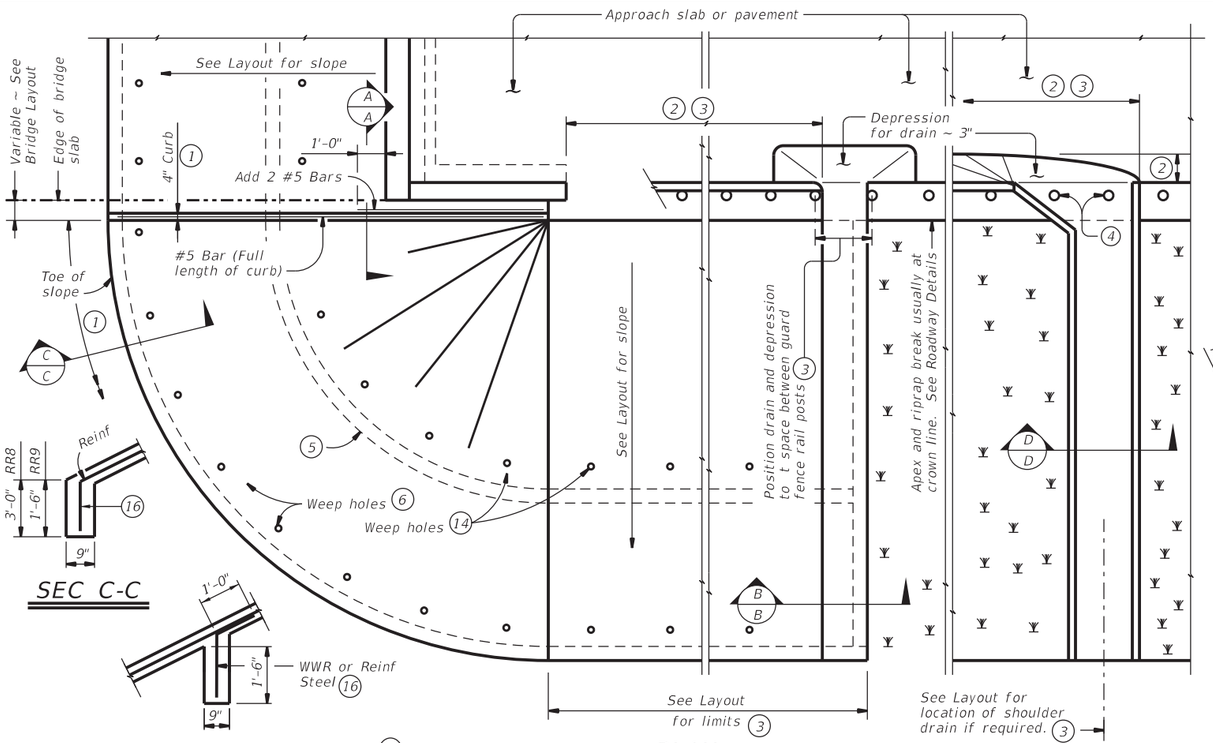
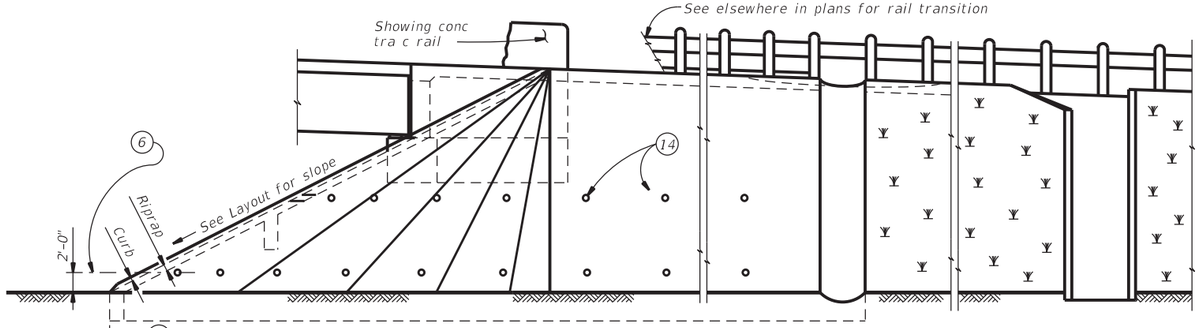


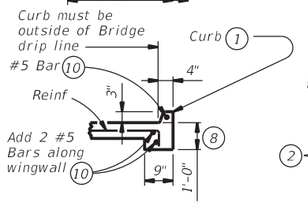
SEC C-C

INTERMEDIATE TOEWALL (5)

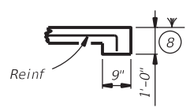
PLAN



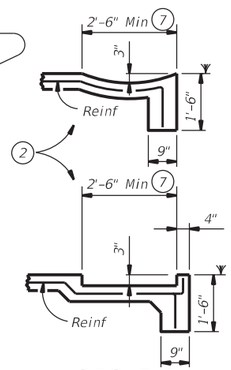
ELEVATION



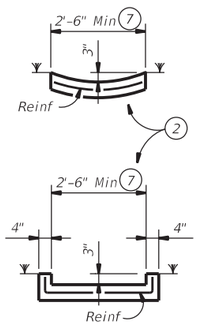
SEC A-A



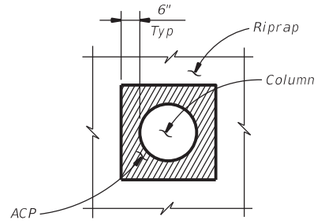
SEC B-B
(No drain)



SEC B-B
(Shoulder drain integral with riprap)

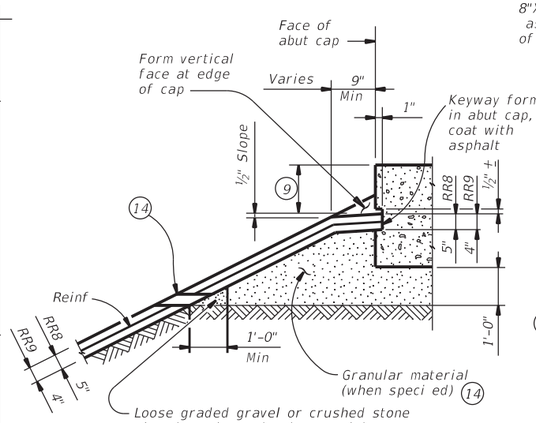


SEC D-D
(Shoulder drain)

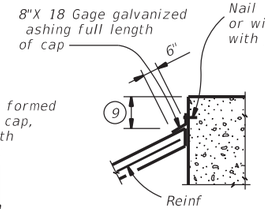


Riprap blockout to be lled with ACP. (Subsidiary to riprap)

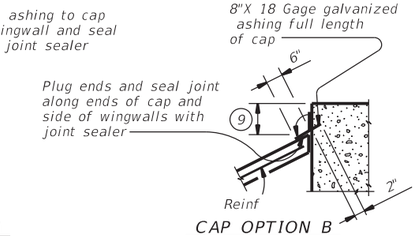
RIPRAP DETAIL AT COLUMNS
(As directed by the Engineer)



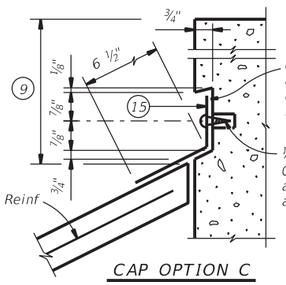
SHOWING KEYWAY OPTION



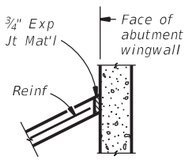
CAP OPTION A



CAP OPTION B

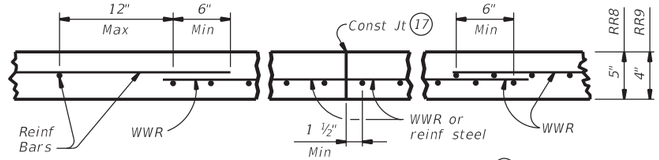


CAP OPTION C



SECT THRU RIPRAP AT WINGWALL (12)

SECTIONS THRU RIPRAP AT CAP (11)



REINFORCEMENT DETAILS (13)

See General Notes for optional synthetic ber reinforcement.

(1) When riprap is shown extended around header on layout, extend slab and toewall as shown and eliminate 4" curb.

(2) Limits and con guration of drains and depressions are as shown elsewhere in plans or as directed by the Engineer.

(3) Location of shoulder drain must consider limitations imposed by rail transition. Do not locate shoulder drains at expansion joints between approach slab and concrete pavement.

(4) See details elsewhere in plans for installation of guard fence posts through concrete riprap.

(5) Provide intermediate toewall only when designated elsewhere in the plans or included in the speci cations.

(6) Provide lower level of 2" Dia weep holes at 10' c-c backed by 1 CF packet of gravel and galvanized hardware cloth at all locations unless directed by the Engineer to eliminate.

(7) Use wider or other drain con gurations if shown elsewhere in plans or if directed by the Engineer.

(8) Wall extension may be reduced or modi ed if approved by the Engineer. Increase wall extension to 1'-6" whenever the optional intermediate toewall is called for in the plans.

(9) Top of cap to top of riprap dimension varies as directed by the Engineer. Should be 9" Min for beam/slab type bridges and 1'-6" for slab span, box beam, or slab beam bridges.

(10) #5 bars shown are required even when synthetic ber reinforcing option is selected.

(11) Provide sealing option for joint between the face of cap and riprap as designated by the Engineer or as shown elsewhere on plans.

(12) Flashing (shown in Cap Option A) may be used at wingwall in addition to Exp Jt Mat'l if shown on plans or directed by the Engineer.

(13) Provide #3 reinforcing bars at 18" Spa c-c. Provide Welded Wire Reinforcement (WWR) as 6x6-D2.9xD2.9 or D3xD3. Combinations of WWR and reinforcing bars may be used if both are permitted. Use lap splices of a minimum 6 inches, measured from the transverse wire of WWR, and the ends of reinforcing bars.

(14) If granular material is speci ed, provide upper level of 2" Dia weep holes at 10' c-c backed by galvanized hardware cloth.

(15) 8" x 18 Gage Galv Sheet Metal

(16) Provide WWR or #3 bars, with 1'-0" extension into slope.

(17) WWR or reinforcing steel is continuous through riprap construction joints. Provide WWR or reinforcing steel that extends 1'-1" minimum into adjacent riprap on each side of construction joint even if synthetic reinforcing ber is utilized.

FOR CONTRACTOR'S INFORMATION ONLY:
5" of RR8 = 0.015 CY/SF
4" of RR9 = 0.012 CY/SF
#3 Reinf at 18" c-c = 0.501 Lbs/SF
6x6-D3xD3 = 0.408 Lbs/SF

GENERAL NOTES:

Provide Class "B" concrete (f'c = 2,000 psi) unless noted elsewhere in plans.

Provide Grade 60 reinforcing steel.

Provide deformed welded wire reinforcement (WWR) meeting ASTM A1064, unless otherwise shown.

Provide reinforcing bars, deformed WWR, or any suitable combination of both types for riprap reinforcing, unless speci ed elsewhere in the plans.

Optionally synthetic bers may be used if approved by the Engineer. Provide synthetic bers listed on the "Fibers for Concrete" Material Producer List (MPL) in lieu of steel reinforcing in riprap concrete.

Install construction joints or grooved joints extending the full slant slope height at intervals of approximately 20 feet unless otherwise directed by the Engineer.

Hardware cloth, loose grade stone behind weep holes, ashing, or other sealing material are subsidiary to the bid item "Riprap".

See Layout for limits of riprap.

RR8 is to be used on stream crossings.

RR9 is to be used on other embankments.

Texas Department of Transportation

Bridge Division Standard

CONCRETE RIPRAP AND SHOULDER DRAINS
EMBANKMENTS AT BRIDGE ENDS (TYPES RR8 & RR9)

CRR

FILE: crrstde1-19.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
©TxDOT April 2019	CONT	SECT	JOB	HIGHWAY
REVISIONS	6467	47	001	FM 434,ETC
	DIST	COUNTY		SHEET NO.
	WACO	MCLENNAN		135

DATE: 7/9/2024 10:08:34 AM
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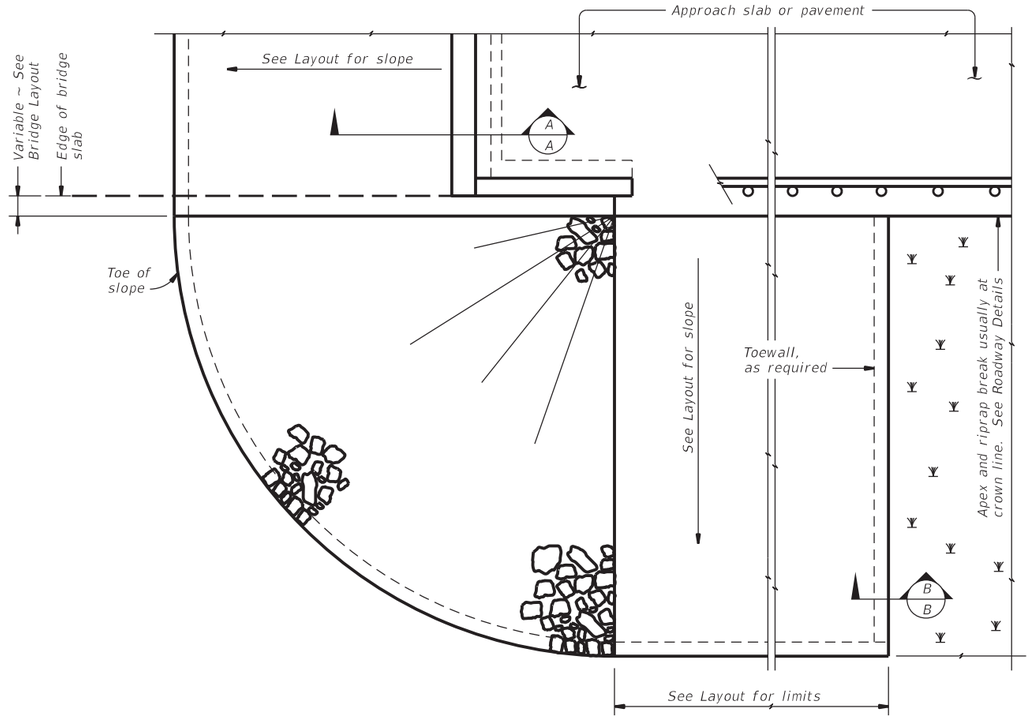
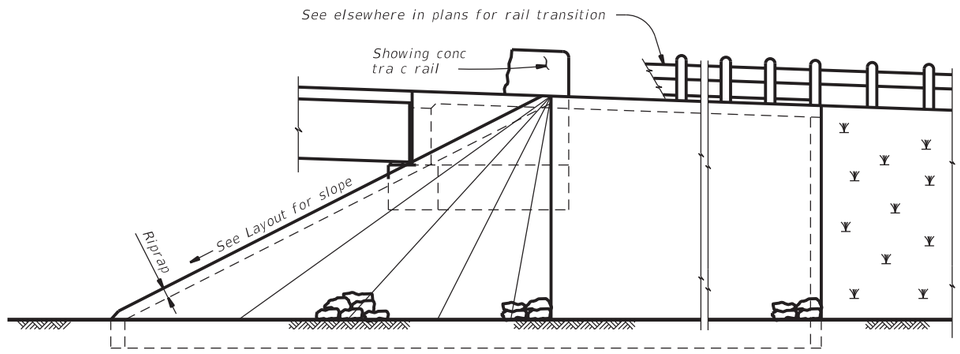
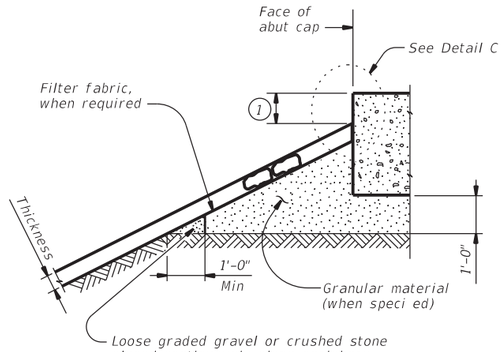


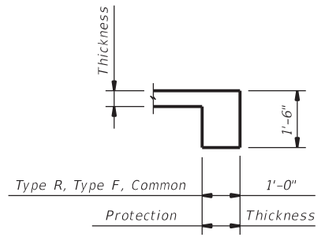
PLAN



ELEVATION

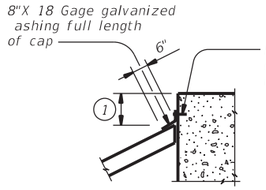


SECTION A-A AT CAP

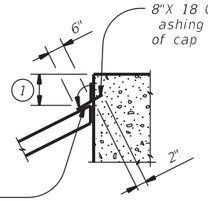


SECTION B-B

Provide toewall when shoulder drain is located adjacent to limits of stone riprap. Omit toewall when thickness of protection riprap is greater than 18".



CAP OPTION A



CAP OPTION B

DETAIL C

1 Top of cap to top of riprap dimension varies as directed by the Engineer. Provide 9" Min for beam/slab type bridges and 1'-6" for slab span, box beam, or slab beam bridges.

GENERAL NOTES:
Refer to Item 432, "Riprap" for stone size and gradation, and construction details. See Layout for limits and thickness of riprap speci ed.
See elsewhere in plans for locations and details of shoulder drains.

Texas Department of Transportation

Bridge Division Standard

STONE RIPRAP

SRR

FILE: srrstde1-19.dgn	DN: AES	CK: JGD	DW: BWH	CK: AES
©TxDOT April 2019	CONT	SECT	JOB	HIGHWAY
REVISIONS	6467	47	001	FM 434,ETC
	DIST	COUNTY		SHEET NO.
	WACO	MCLENNAN		136

DATE: 7/9/2024 10:08:35 AM
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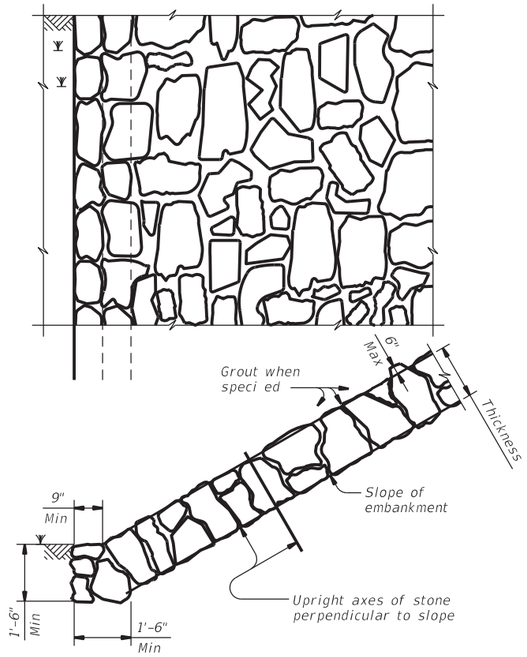


FIGURE 1 ~ TYPE R STONE RIPRAP
dry or grouted

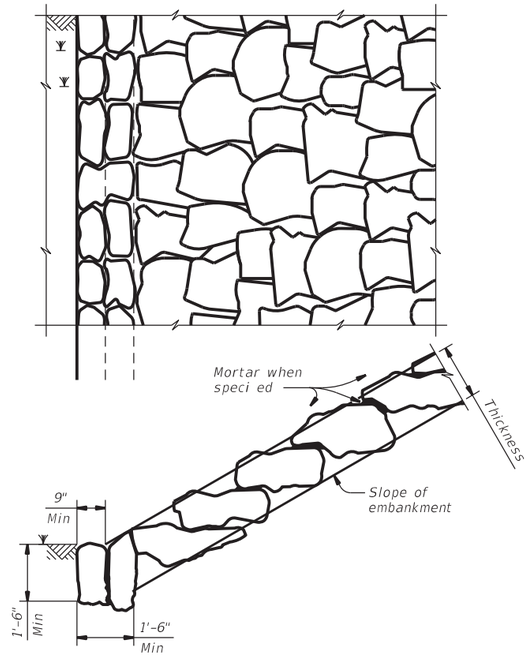


FIGURE 2 ~ TYPE F STONE RIPRAP
dry or mortared

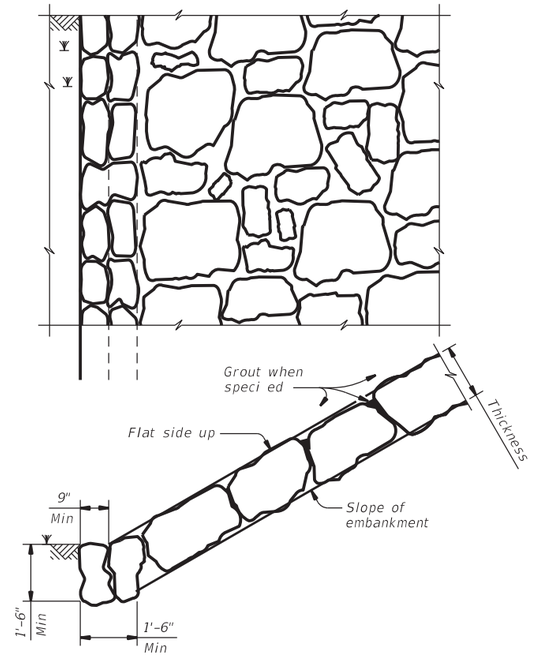


FIGURE 3 ~ TYPE F STONE RIPRAP
grouted

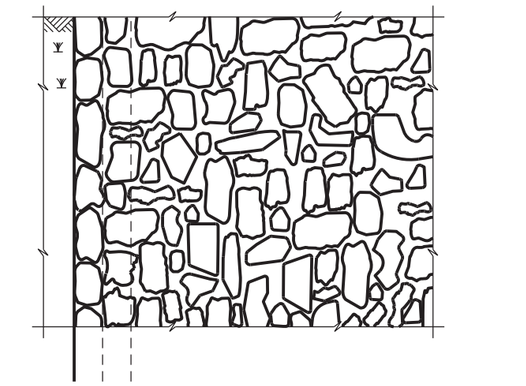


FIGURE 4 ~ COMMON STONE RIPRAP
dry or grouted

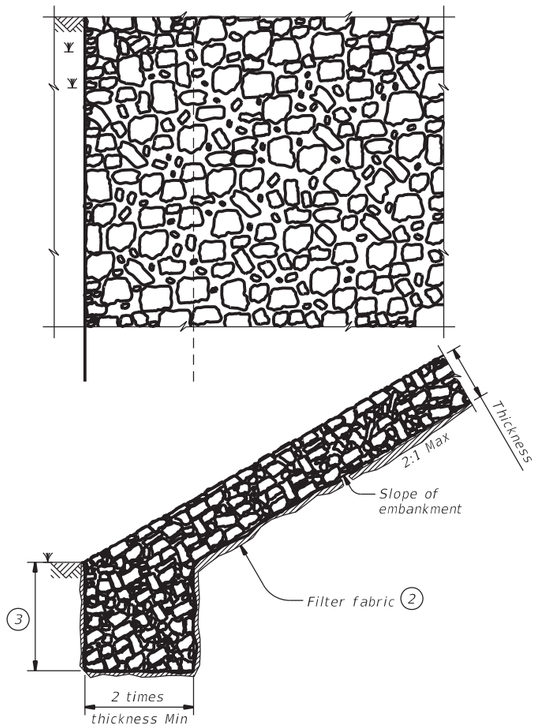


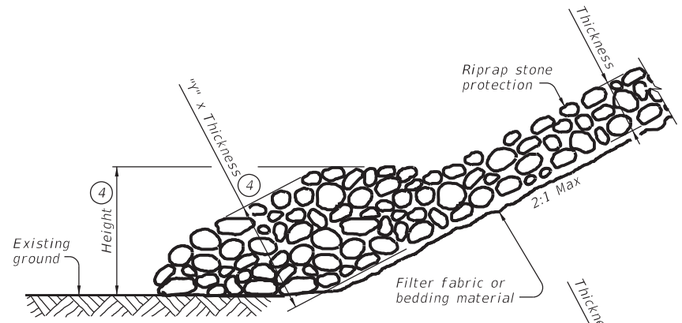
FIGURE 5 ~ PROTECTION STONE RIPRAP (5)

(2) Provide bedding material instead of lter fabric if shown elsewhere in plans. See Layout for thickness of bedding material.

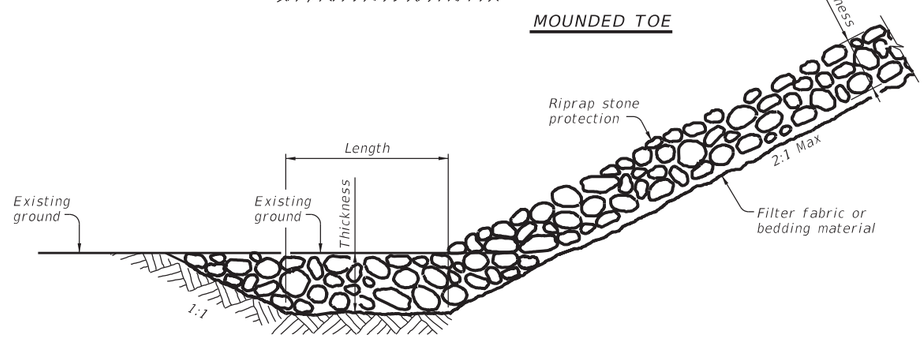
(3) Minimum toe depth is the larger of the maximum scour depth or 2 times the riprap thickness.

(4) "Y" and Height need to be de ned. See layout or detail sheet for values if this option is used.

(5) List Stone Protection as size (XX inch) and thickness (YY inch) on the layout.
Example: Riprap (Stone Protection) XX inch, Thickness = YY inch.



MOUNDED TOE



EXTENDED ROCK FILLED TRENCH

PROTECTION STONE RIPRAP TOE OPTIONS (5)

Texas Department of Transportation

Bridge Division Standard

STONE RIPRAP

SRR

FILE: srrstde1-19.dgn	DN: AES	CK: JGD	DW: BWH	CK: AES
©TxDOT April 2019	CONT	SECT	JOB	HIGHWAY
REVISIONS	6467	47	001	FM 434,ETC
	DIST	COUNTY		SHEET NO.
	WACO	MCLENNAN		137

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

☐ This project is adjacent or parallel work, not within RR ROW:

DOT No.: 023 086 B
Crossing Type: RR UNDER
RR Company Operating Track at Crossing: BNSF RAILWAY
RR Company Owning Track at Crossing: BNSF RAILWAY
RR MP: 262.130
RR Subdivision: FORT WORTH
City: VALLEY MILLS
County: BOSQUE
CSJ at this Crossing: 6467-47-001
Latitude: 31.6751028
Longitude: -97.5136414

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

BRIDGE JOINT REPAIR, CONCRETE STRUCTURE REPAIR, STEEL BRIDGE ZONE PAINTING, AND BRIDGE SUBSTRUCTURE CLEANING AT BENTS AND ABUTTMENTS.

Scope of Work to be performed by Railroad Company:

NONE

II. FLAGGING & INSPECTION

No. of Days of Railroad Flagging Expected: 6

On this project, night or weekend flagging is:

☐ Expected
☑ Not Expected

Flagging services will be provided by:

☐ Railroad Company: 1) Txdot will pay flagging invoices. Flagging Agreement with railroad will be needed or, 2) Permitted crossing. Railroad company to provide flagging.
☑ Outside Party: Contractor will pay flagging invoices to be reimbursed by TxDOT

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

Contact Information for Flagging:

☐ **UPRR** UP.info@railpros.com
Call Center 877-315-0513, Select #1 for flagging
UP.request@nrssinc.net
Call Center 877-984-6777

☑ **BNSF** BNSFinfo@railprosfs.com
Call Center 877-315-0513, Select #1 for flagging

☐ **CPKCR** KCS.info@railpros.com
Call Center 877-315-0513, Select #1 for flagging
Bottom Line On-Track Safety Services
bottomline076@aol.com, 903-767-7630

☐ OTHERS:

Contractor must incorporate railroad construction inspection into anticipated construction schedule.

☑ Not Required
☐ Required. Contact Information for Construction Inspection:

III. CONSTRUCTION WORK TO BE PERFORMED BY THE RAILROAD

☐ Required.
☑ Not Required

Railroad Point of Contact: _____

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

IV. RAILROAD INSURANCE REQUIREMENTS

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

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

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

Escalated Limits

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

Railroad Protective Liability Limits

☐ Not Required	
☑ Non - Bridge/Typical Maintenance Projects. Includes repairs to overpass/underpass and culvert structures	$2,000,000 / $6,000,000
☐ Bridge Structure Projects. Includes new construction or replacement of overpass/ underpass structures	$5,000,000 / $10,000,000
☐ Other: _____	

V. CONTRACTOR'S RIGHT OF ENTRY (CROE)

☐ Not Required
☐ Required: UPRR Maintenance Consent Letter. TxDOT to assist
☐ Required: TxDOT to assist in obtaining the UPRR CROE
☑ Required: Contractor to obtain
- ☑ BNSF: TEMPORARY OCCUPANCY PERMIT
  https://bnsf.railpermitting.com
- ☐ CPKCR
  https://jllrpg.360works.com/fmi/webd/rpo_web_kcs.fmp12
- ☐ Other Railroads: _____

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

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

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

VI. RAILROAD COORDINATION MEETING

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

VII. RAILROAD SAFETY ORIENTATION

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

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

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

VIII. SUBCONTRACTORS

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

IX. EMERGENCY NOTIFICATION

In Case of Railroad Emergency
Call: BNSF RAILWAY
Railroad Emergency Line at: 800-832-5452
Location: DOT 023 086 B
RR Milepost: 262.130
Subdivision: FORT WORTH

RRD Review Only
Initials: _____
Date: 05/17/2024

Texas Department of Transportation | Rail Division

RAILROAD SCOPE OF WORK
PROJECT SPECIFIC DETAILS

FILE: rr-scope-of-work.pdf		DN: TxDOT	CK:	DW:		CK:
© TxDOT June 2014		CONT	SECT	JOB		HIGHWAY
REVISIONS		6467	47	001		SH0006
6/2023		DIST	COUNTY			SHEET NO.
		09	BOSQUE			138

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

☐ This project is adjacent or parallel work, not within RR ROW:

DOT No.: 416 160 R
Crossing Type: RR UNDER
RR Company Operating Track at Crossing: UNION PACIFIC RAILROAD COMPANY
RR Company Owning Track at Crossing: UNION PACIFIC RAILROAD COMPANY
RR MP: 863.170
RR Subdivision: WACO
City: BRUCEVILLE-EDDY
County: MCLENNAN
CSJ at this Crossing: 416 160 R
Latitude: 31.3203010
Longitude: 520.6220839

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

BRIDGE JOINT REPAIR

Scope of Work to be performed by Railroad Company:

NONE

II. FLAGGING & INSPECTION

No. of Days of Railroad Flagging Expected: 4

On this project, night or weekend flagging is:

☑ Expected
☐ Not Expected

Flagging services will be provided by:

☐ Railroad Company: 1) Txdot will pay flagging invoices. Flagging Agreement with railroad will be needed or, 2) Permitted crossing. Railroad company to provide flagging.
☑ Outside Party: Contractor will pay flagging invoices to be reimbursed by TxDOT

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

Contact Information for Flagging:

☑ **UPRR** UP.info@railpros.com
Call Center 877-315-0513, Select #1 for flagging
UP.request@nrssinc.net
Call Center 877-984-6777

☐ **BNSF** BNSFinfo@railprosfs.com
Call Center 877-315-0513, Select #1 for flagging

☐ **CPKCR** KCS.info@railpros.com
Call Center 877-315-0513, Select #1 for flagging
Bottom Line On-Track Safety Services
bottomline076@aol.com, 903-767-7630

☐ OTHERS:

Contractor must incorporate railroad construction inspection into anticipated construction schedule.

☑ Not Required
☐ Required. Contact Information for Construction Inspection:

III. CONSTRUCTION WORK TO BE PERFORMED BY THE RAILROAD

☐ Required.
☑ Not Required

Railroad Point of Contact: _____

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

IV. RAILROAD INSURANCE REQUIREMENTS

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

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

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

Escalated Limits

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

Railroad Protective Liability Limits

☐ Not Required	
☑ Non - Bridge/Typical Maintenance Projects. Includes repairs to overpass/underpass and culvert structures	$2,000,000 / $6,000,000
☐ Bridge Structure Projects. Includes new construction or replacement of overpass/ underpass structures	$5,000,000 / $10,000,000
☐ Other: _____	

V. CONTRACTOR'S RIGHT OF ENTRY (CROE)

☐ Not Required
☑ Required: UPRR Maintenance Consent Letter. TxDOT to assist
☐ Required: TxDOT to assist in obtaining the UPRR CROE
☐ Required: Contractor to obtain
- ☐ BNSF: _____
  https://bnsf.railpermitting.com
- ☐ CPKCR
  https://jllrpg.360works.com/fmi/webd/rpo_web_kcs.fmp12
- ☐ Other Railroads: _____

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

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VIII. SUBCONTRACTORS

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

IX. EMERGENCY NOTIFICATION

In Case of Railroad Emergency
Call: UNION PACIFIC RAILROAD COMPANY
Railroad Emergency Line at: 888-877-7287
Location: DOT 416 160 R
RR Milepost: 863.170
Subdivision: WACO

RRD Review Only
Initials: _____
Date: 05/17/2024

Texas Department of Transportation | Rail Division

RAILROAD SCOPE OF WORK
PROJECT SPECIFIC DETAILS

FILE: rr-scope-of-work.pdf		DN: TxDOT	CK:	DW:		CK:	
© TxDOT June 2014		CONT	SECT	JOB		HIGHWAY	
REVISIONS	6/2023	6467	47	001		IH 0035	
		DIST	COUNTY			SHEET NO.	
		09	MCLENNAN			139	

DOT #	CROSSING TYPE	RR COMPANY OPERATOR	RR COMPANY OWNER	RR MILEPOST	RR SUBDIVISION	CITY	COUNTY	ROADWAY	CSJ	LATITUDE	LONGITUDE
440 583 C	RR UNDER	UPRR	UPRR	161.75	FORT WORTH	WACO	MCLENNAN	LP 0340	6467-47-001	31.54343	-97.0699111
416 140 E	RR UNDER	UPRR	UPRR	847.79	WACO	WACO	MCLENNAN	SL 0396	6467-47-001	31.5269161	-97.1570107

Texas Department of Transportation

SCOPE OF WORK

MULTIPLE DOT 3 UPRR

SCALE: 1" = 20'HORIZ. FEET

SHEET 1 OF 1

CHANGE ORDER	FED.RD. DIV. NO.	CONT	SECT	JOB	HIGHWAY
	6	6467	47	001	FM 434
	STATE	DIST	COUNTY		SHEET NO.
	TEXAS	WACO	MCLENNAN		140

PART 1 - GENERAL

1.01 DESCRIPTION

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

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

1.02 REQUEST FOR INFORMATION / CLARIFICATION

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

1.03 PLANS / SPECIFICATIONS

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

PART 2 - UTILITIES AND FIBER OPTIC

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

PART 3 - CONSTRUCTION

3.01 GENERAL

A. Perform all work in compliance with all applicable Railroad, Federal Railroad Administration (FRA), and TxDOT rules and regulations. Arrange and conduct work in a manner that does not endanger or interfere with the safe operation of the tracks and property of the Railroad and the traffic moving on such tracks, or the wires, signals and other property of the Railroad, its tenants or licensees, at or in the vicinity of the Work. The safe operation of railroad train movements takes precedence over any work to be performed by the Contractor. The Contractor is responsible for train delay cost and lost revenue claims due to any delays or interruption of train operations resulting from Contractor's construction or other activities.

B. Construction activities within 15 feet of the operational tracks will only be allowed if absolutely necessary and the Railroad's Designated Representative grants approval. Construction activities within 15 feet of the operational track(s) preferably allow the tracks to stay operational. In such cases, coordination and approval by the Railroad Track Manager is required with regard to schedule, flagging, and slow orders. See Sections 3.07 and 3.08 for additional information.

C. Provide track protection for all work equipment (including rubber tired equipment) operating within 25 feet from nearest rail. When not in use, keep Contractor machinery and materials at least 50 feet from the Railroad's nearest track.

D. Vehicular crossings of railroad track are allowed only at existing crossings, or haul road crossings developed with Railroad approval.

E. The Contractor is also advised that new railroad facilities within the project may be built by the Railroad. If applicable, these facilities are delineated in the plans. Be aware of the limits of responsibilities and coordinate efforts with the Railroad and TxDOT.

F. Railroad requirements do not allow work within 50 feet of track centers when a train passes the work site and all personnel must clear the area within 50 feet of the track centerline and secure all equipment. Additional allowances may be pursued as outlined in 3.02 and 3.03.

G. All permanent clearances shall be verified before project closing.

3.02 RAILROAD OPERATIONS

A. Trains and/or equipment are expected on any track, at any time, in either direction. Become familiar with the train schedules in this location and structure bid assuming intermittent track windows in this period, as defined in Paragraph B that follows.

B. All railroad tracks within and adjacent to the contract site are active, and rail traffic over these facilities shall be maintained throughout the Project. Activities may include both through moves and switching moves to local customers. railroad traffic and operations will occur continuously throughout the day and night on these tracks and shall be maintained at all times as defined herein. Coordinate and schedule the work so that construction activities do not interfere with railroad operations.

C. Coordinate work windows with TxDOT and the Railroad's Designated Representative. Types of work windows include Conditional Work Windows and Absolute Work Windows, as defined below:

1. Conditional Work Window: A Conditional Work Window is a period of time that railroad operations have priority over construction activities. When construction activities may occur on and/or adjacent to the railroad tracks within 25 feet of the nearest track, a railroad flag person will be required. At the direction of the railroad flag person, upon approach of a train, and when trains are present on the tracks, the tracks must be cleared (i.e., no construction equipment, materials or personnel within 25 feet, or as directed by the Railroad Designated Representative, from the tracks). Conditional Work Windows are available for the Project.

2. Absolute Work Window: An Absolute Work Window is a period of time that construction activities are given priority over railroad operations. During this time frame, the designated railroad track(s) will be inactive for train movements and may be fouled by the Contractor. At the end of an Absolute Work Window, the railroad tracks and/or signals must be completely operational for train operations and all Railroad, Public Utilities Commission (PUC) and FRA requirements, codes and regulations for operational tracks must be satisfied. In the situation where the operating tracks and/or signals have been affected, the Railroad will perform inspections of the work prior to placing that track back into service. Railroad flag persons will be required for construction activities requiring an Absolute Work Window. Absolute Work Windows will not generally be granted. Any request will require a detailed explanation for Railroad review.

3.03 RIGHT OF ENTRY, ADVANCE NOTICE AND WORK STOPPAGES

A. Do not perform any work within Railroad Right of Way without a valid executed Right of Entry Agreement if required on this project.

B. Give advance notice to the Railroad as required in the "Contractor's Right of Entry Agreement" before commencing work in connection with construction upon or over Railroad Right of Way and observe the Railroad's rules and regulations with respect thereto.

C. Perform all work upon Railroad Right of Way in a manner to avoid interference with or endanger the operations of the Railroad. Whenever work may affect the operations or safety of trains, submit the work method to the Railroad Designated Representative for approval. Approval does not relieve the Contractor from liability. Do not commence any work which requires flagging service or inspection service until the flagging protection required by the Railroad is available at the job site. See Section 3.15 for railroad flagging requirements.

D. Make requests in writing for both Absolute and Conditional Work Windows, at least 30 days in advance of any work. Include in the written request:
1. Exactly what the work entails.
2. The days and hours that work will be performed.
3. The exact location of work, and proximity to the tracks.
4. The type of window requested and the amount of time requested.
5. The designated contact person.

Provide a written confirmation notice to the Railroad at least 48 hours before commencing work in connection with approved work windows when work is within 25 feet of nearest rail. Perform all work in accordance with previously approved work plans.

E. Make provisions to protect operations and property of the Railroad should a condition arising from, or in connection with the work, require immediate and unusual action. If in the judgment of the Railroad Designated Representative such provisions are insufficient, the Railroad Designated Representative may require or provide such provisions as deemed necessary. In any event, such provisions shall be at the Contractor's expense and without cost to the Railroad or TxDOT. The Railroad or TxDOT shall have the right to order the Contractor to temporarily cease operations in the event of an emergency or, if in the opinion of the Railroad Designated Representative, the Contractor's operations could endanger railroad operations. In the event of such an order, immediately notify TxDOT of the order.

3.04 INSURANCE

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

3.05 RAILROAD SAFETY ORIENTATION

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

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

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

3.06 COOPERATION

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

3.07 MINIMUM CONSTRUCTION CLEARANCES FOR FALSEWORK AND OTHER TEMPORARY STRUCTURES

Abide by the following minimum temporary clearances during the course of construction:
A. 15' - 0" (BNSF)(UPRR)and 14'-0" (KCS) horizontal from centerline of track.
B. 22' (KCS) and 21' - 6" (UPRR & BNSF) vertically above top of rail.

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

3.08 APPROVAL OF REDUCED CLEARANCES

A. Maintain minimum track clearances during construction as specified in Section 3.07.

B. Submit any proposed infringement on the specified minimum clearances to the Railroad Designated Representative through TxDOT at least 30 days in advance of the work. Do not proceed with such infringement without written approval by the Railroad Designated Representative.

C. Do not commence work involving an approved infringement without receiving written assurance from the Railroad Designated Representative that arrangements have been made for any necessary flagging service.

DATE:
FILE:

SHEET 1 OF 2

Texas Department of Transportation | Rail Division

RAILROAD REQUIREMENTS FOR NON-BRIDGE CONSTRUCTION PROJECTS

FILE:	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
© TxDOT October 2018	CONT	SECT	JOB	HIGHWAY
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	WACO	MCLENNAN,ETC		141

3.09 MAINTENANCE OF RAILROAD FACILITIES

A. Maintain all ditches and drainage structures free of silt or other obstructions resulting from Contractor's operations. Repair eroded areas and any other damage within Railroad Right of Way and repair any other damage to the property of the Railroad, or its tenants.

B. Perform all such maintenance and repair of damages due to the Contractors's operations at Contractor's expense.

C. Submit a proposed method of erosion control for review by the Railroad prior to beginning any grading on the project site. Comply with all applicable local, state and federal regulations when developing and implementing such erosion control.

3.10 SITE INSPECTIONS BY RAILROAD's DESIGNATED REPRESENTATIVE

A. In addition to the office reviews of construction submittals, site inspections may be performed by the Railroad Designated Representative at significant points during construction, including the following if applicable:
   1. Pre-construction meetings.
   2. Pile driving/drilling of caissons or drilled shafts.
   3. Reinforcement and concrete placement for railroad bridge substructure and/or superstructure.
   4. Erection of precast concrete or steel bridge superstructure.
   5. Placement of waterproofing (prior to placing ballast on bridge deck).
   6. Completion of the bridge structure.

B. Site inspection is not limited to the milestone events listed above. Site visits to check progress of the work may be performed at any time throughout the construction as deemed necessary by the Railroad.

C. Provide a detailed construction schedule, including the proposed temporary horizontal and vertical clearances and construction sequence for all work to TxDOT for submittal to the Railroad Designated Representative for review prior to commencement of work. Include the anticipated dates when the above listed events will occur. Update this schedule for the above listed events as necessary and each month at a minimum to allow the Railroad to schedule site inspections.

3.11 RAILROAD REPRESENTATIVES

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

A. When any part of any equipment is standing or being operated within 25 feet, measured horizontally, from nearest rail of any track on which trains may operate, or when any object is off the ground and any dimension thereof could extend inside the 25 foot limit, or when any erection or construction activities are in progress within such limits, regardless of elevation above or below track.

B. For any excavation below elevation of track subgrade if, in the opinion of the Railroad Designated Representative, track or other railroad facilities may be subject to settlement or movement.

C. During any clearing, grubbing, excavation or grading in proximity to railroad facilities, which, in the opinion of the Railroad Designated Representative, may endanger railroad facilities or operations.

D. During any Contractor's operations when, in the opinion of the Railroad Designated Representative, railroad facilities, including, but not limited to, tracks, buildings, signals, wire lines, or pipe lines, may be endangered.

E. Arrange with the Railroad Designated Representative to provide the adequate number of flag persons to accomplish the work.

3.12 COMMUNICATIONS AND SIGNAL LINES

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

3.13 TRAFFIC CONTROL

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

3.14 CONSTRUCTION EXCAVATIONS AND BORING ACTIVITIES UNDER TRACK

A. Take special precaution and care in connection with excavating and shoring. Excavations for construction of footings, piers, columns, walls or other facilities that require shoring shall comply with requirements of TxDOT, OSHA, AREMA and Railroad "Guidelines for Temporary Shoring".

B. The project plans indicate whether there are fiber optic lines or other such telecommunications systems that require consideration. Regardless, contact the necessary call center to determine if such cable systems are present:

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

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

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

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

C. Projects involving a boring or jack and bore operation under track such as drainage pipes or culverts and utilities require an installation plan reviewed and approved by the Railroad and TxDOT prior to proceeding with such construction. A railroad inspector and contractor assisted monitoring of ground and track movement is required to maintain safe passage of rail traffic. Stop installation and do not allow passage of trains if movements in excess of ¼ inch vertical or horizontal is detected in the tracks. Immediately repair the damage to the satisfaction of TxDOT and the Railroad before proceeding.

3.15 RAILROAD FLAGGING

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

3.16 CLEANING OF RIGHT-OF-WAY

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

DATE:
FILE:

Texas Department of Transportation — Rail Division

RAILROAD REQUIREMENTS FOR NON-BRIDGE CONSTRUCTION PROJECTS

FILE:	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
© TxDOT October 2018	CONT	SECT	JOB	HIGHWAY
REVISIONS March 2020	6467	47	001	FM 434,ETC
	DIST	COUNTY		SHEET NO.
	WACO	MCLENNAN,ETC		142

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 projects with less than one acre of soil disturbing activity and that have Environmental, Permits, Issues, and Commitments (EPICs) dependent on stormwater controls and water quality measures TxDOT will maintain a SWP3 with all pertinent records, correspondence, environmental documents, etc. at the project field office, Area Office, or electronically.

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):
BPM 6467 - 47 - 001

1.2 PROJECT LIMITS:
VARIOUS LOCATION IN THE WACO DISTRICT; SEE PROJECT LAYOUTS FOR MAPS AND LOCATIONS

1.3 PROJECT COORDINATES:
SEE PROJECT LAYOUTS FOR COORDINATE DATA

1.4 TOTAL PROJECT AREA (Acres): 8.457

1.5 TOTAL AREA TO BE DISTURBED (Acres): 0.248

1.6 NATURE OF CONSTRUCTION ACTIVITY:
MAINTENANCE OF EXISTING BRIDGE STRUCTURES

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:

☐ PSLs determined during preconstruction meeting
☐ 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.)

☐ 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
☐ Other: _____
☐ Other: _____
☐ Other: _____

1.10 POTENTIAL POLLUTANTS AND SOURCES:

☐ Sediment laden stormwater from stormwater conveyance over disturbed area
☐ Fuels, oils, and lubricants from construction vehicles, equipment, and storage
☐ Solvents, paints, adhesives, etc. from various construction activities
☐ Transported soils from offsite vehicle tracking
☐ Construction debris and waste from various construction activities
☐ Contaminated water from excavation or dewatering pump-out water
☐ Sanitary waste from onsite restroom facilities
☐ Trash from various construction activities/receptacles
☐ Long-term stockpiles of material and waste
☐ Discharges from concrete washout activities, runoff from concrete cutting activities, and other concrete related activities
☐ 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

☒ Development of plans and specifications
☒ Perform SWP3 inspections
☒ Maintain SWP3 records and update to reflect daily operations
☐ Other: _____
☐ Other: _____

1.13 ROLES AND RESPONSIBILITIES: CONTRACTOR

☒ Day To Day Operational Control
☒ Maintain schedule of major construction activities
☒ Install, maintain and modify BMPs
☐ Other: _____
☐ Other: _____
☐ Other: _____

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

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Texas Department of Transportation

FED. RD. DIV. NO.	PROJECT NO.		SHEET NO.
6	BPM 6467-47-001		143
STATE	STATE DIST.	COUNTY	
TEXAS	WACO	MCLENNAN	
CONT.	SECT.	JOB	HIGHWAY NO.
6467	47	001	FM 434,ETC

DATE: 7/9/2024
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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

- ☐ X 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
- X ☐ 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
- ☐ Daily street sweeping
- ☐ 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:

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

2.8 DEWATERING:

Dewatering discharges of accumulated stormwater, groundwater, and surface water including discharges from dewatering of trenches, excavations, foundations, vaults, and other points of accumulation are prohibited unless managed by appropriate controls to prevent and minimize the offsite discharge of sediment and other pollutants.

2.9 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 .

2.10 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.

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

July 2023 Sheet 2 of 2

Texas Department of Transportation

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6	BPM 6467-47-001		144
STATE	STATE DIST.	COUNTY	
TEXAS	WACO	MCLENNAN	
CONT.	SECT.	JOB	HIGHWAY NO.
6467	47	001	FM 434,ETC

DATE: 7/9/2024
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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= NWP 3a

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. All work locations on this contract are waters of the US and work would be conducted under NWP3a
2.
3.
4.
5.
6.
7.
8.

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.

1. SEE STATEMENT ABOVE

2.

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. SEE STATEMENT ABOVE
2. See Item 8 of General Notes in regards to tree trimming and removal
3.
4.

V. BIOLOGICAL RESOURCES

☐ No Action Required ☒ Required Action

Action No.

1. Comply with Migratory Bird Treaty Act (MBTA)
2. At SH 95 at Little River, Bell County: no work in the Little River, stay out of the river. If work has to take place in the River, contact District Environmental (254) 867-2737
3. SEE STATEMENT BELOW
4.
5.

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: Points, 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. Lead Based Paint: The removal, containment, and disposal process of hazardous materails would comply with applicable federal, state and local laws.

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: TxDOT	CK: RG	DW: VP	CK: AR
©TxDOT: February 2015	CONT	SECT	JOB	HIGHWAY
REVISIONS	6467	47	001	FM 434,ETC
12-12-2011 (DS)	DIST	COUNTY		SHEET No.
05-07-14 ADDED NOTE SECTION IV. 01-23-2015 SECTION II CHANGED ITEM 1122 TO ITEM 506, ADDED GRASSY SWALES.	WACO	MCLENNAN		145

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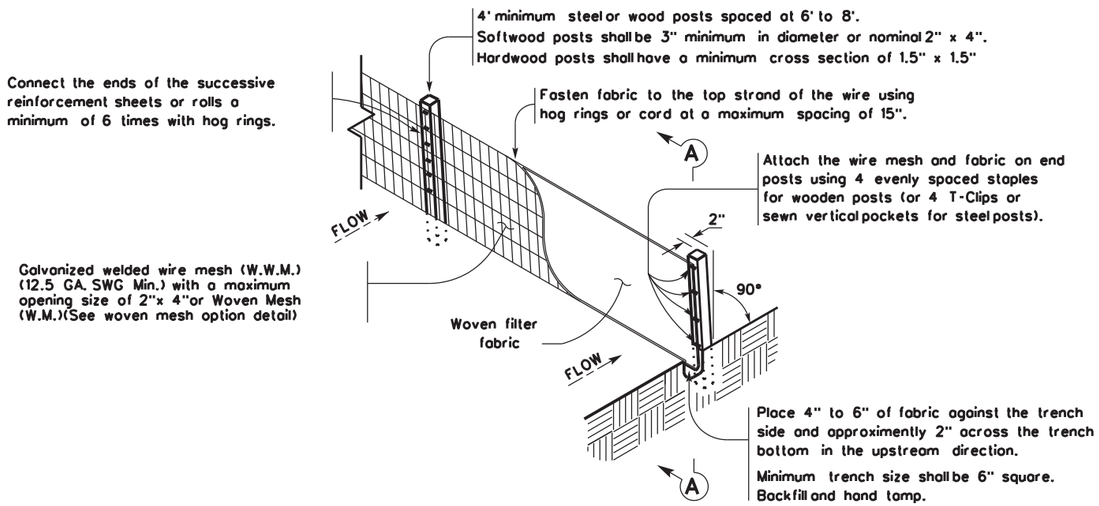
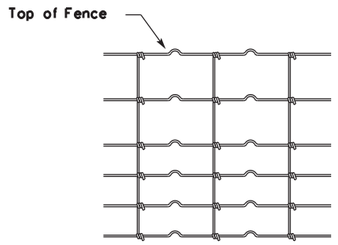
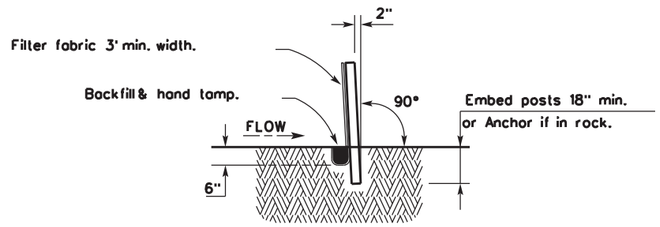


TEMPORARY SEDIMENT CONTROL FENCE

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.

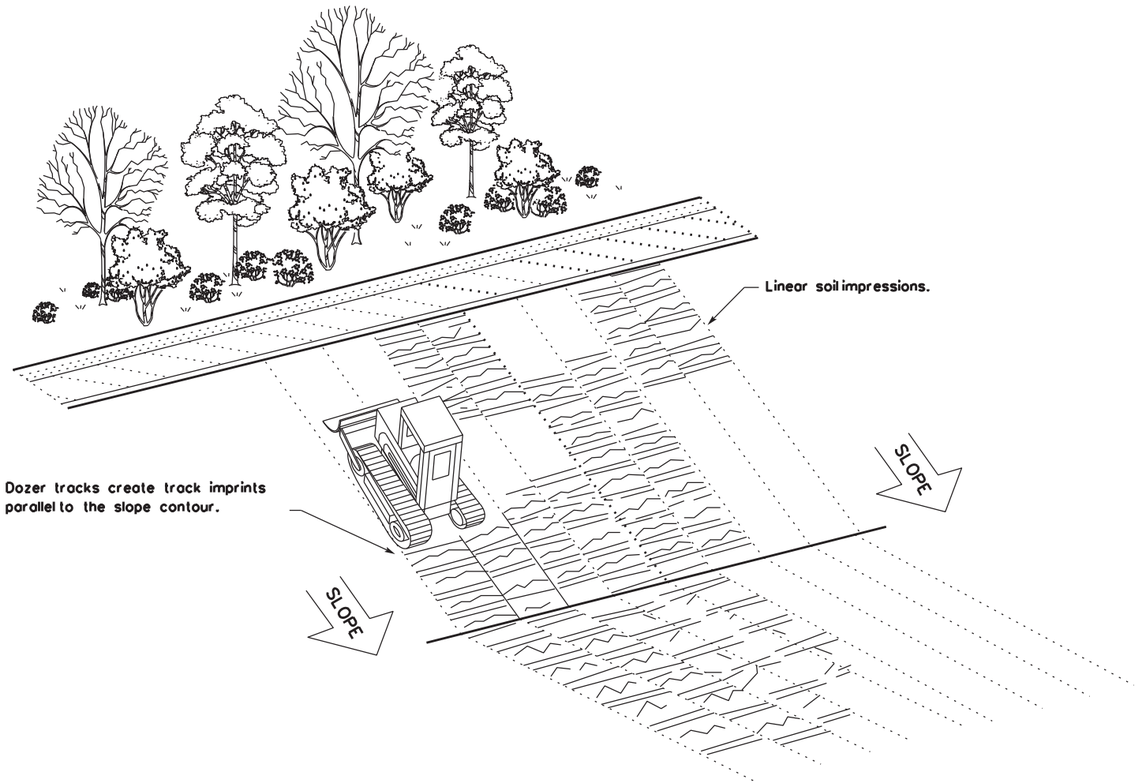
LEGEND

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

30. For sill fence maintenance, the Contractor will leave approximately 4 inches of deposited sediment up stream of sill fences and not over excavate around sill 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 sill fence constructed in line of the flow.

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

40. Sediment controls including rock filter dams and sill 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.

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Texas Department of Transportation
Waco District Standard

TYPICAL APPLICATIONS FOR BEST MANAGEMENT PRACTICES

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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.

SCALE = NTS SHEET 2 OF 10

Texas Department of Transportation
Waco District Standard

TYPICAL APPLICATIONS FOR BEST MANAGEMENT PRACTICES

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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.

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TYPICAL APPLICATIONS FOR BEST MANAGEMENT PRACTICES

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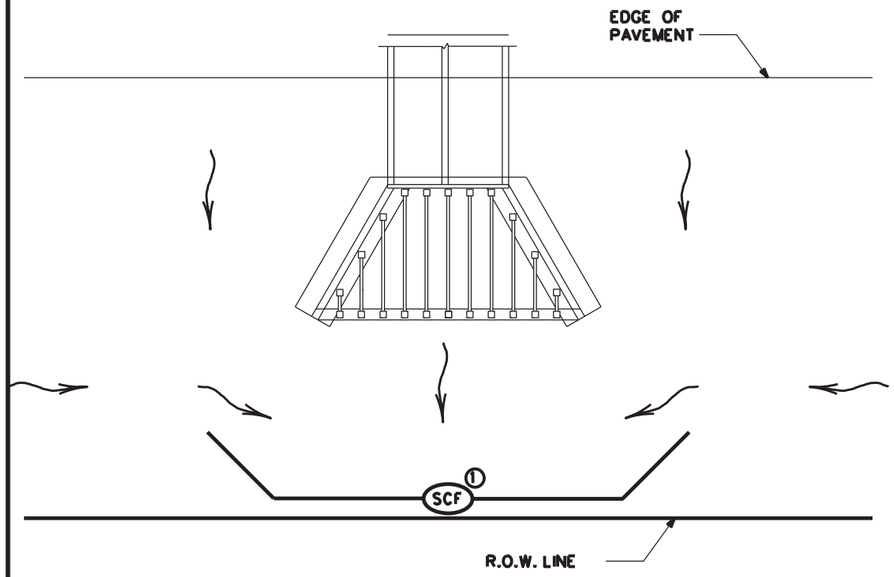
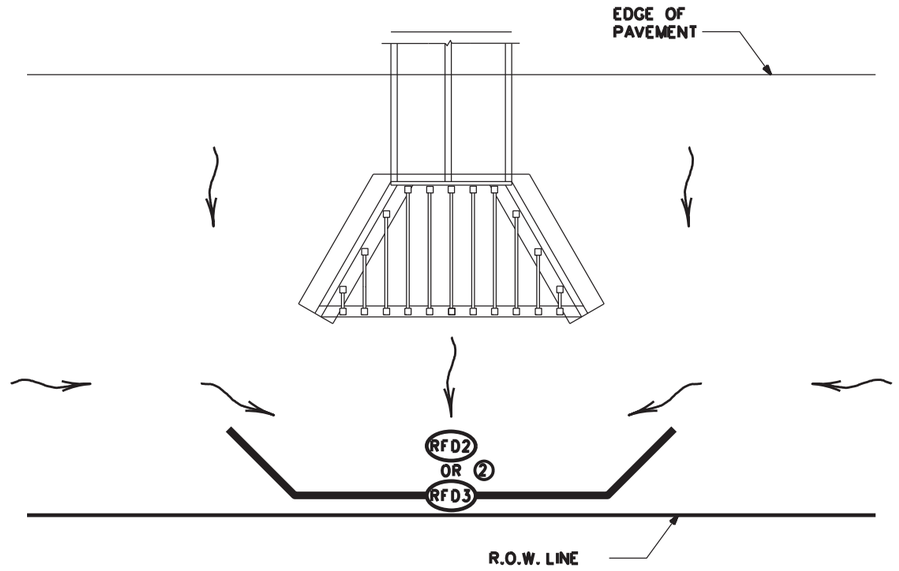


BEST MANAGEMENT PRACTICE (BMP) #1

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



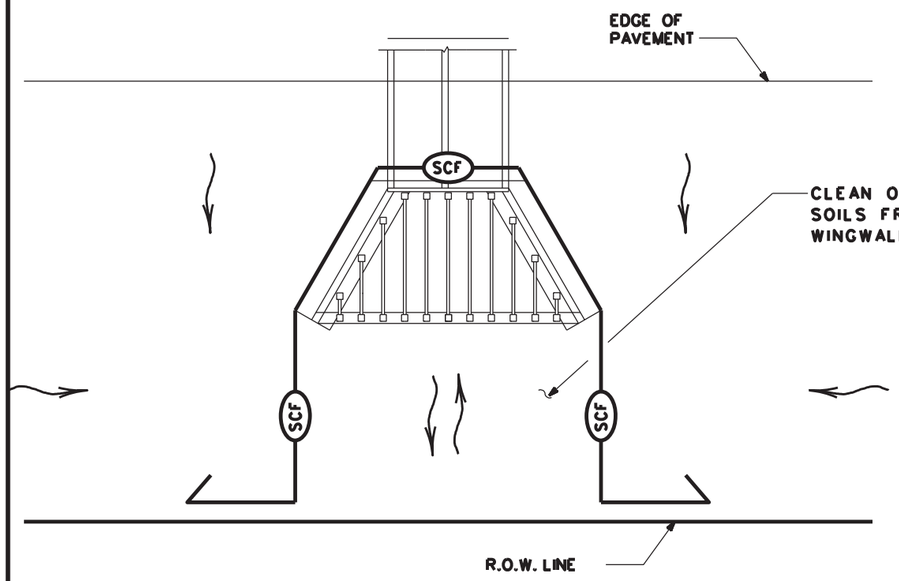
BEST MANAGEMENT PRACTICE (BMP) #2

FOR NON-404 STREAMS ~ 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

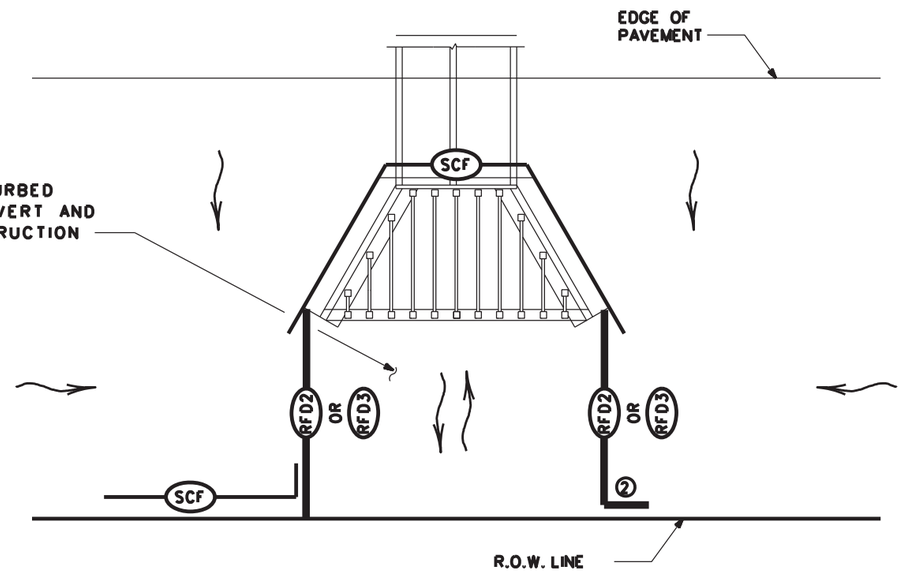
NOTES:

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

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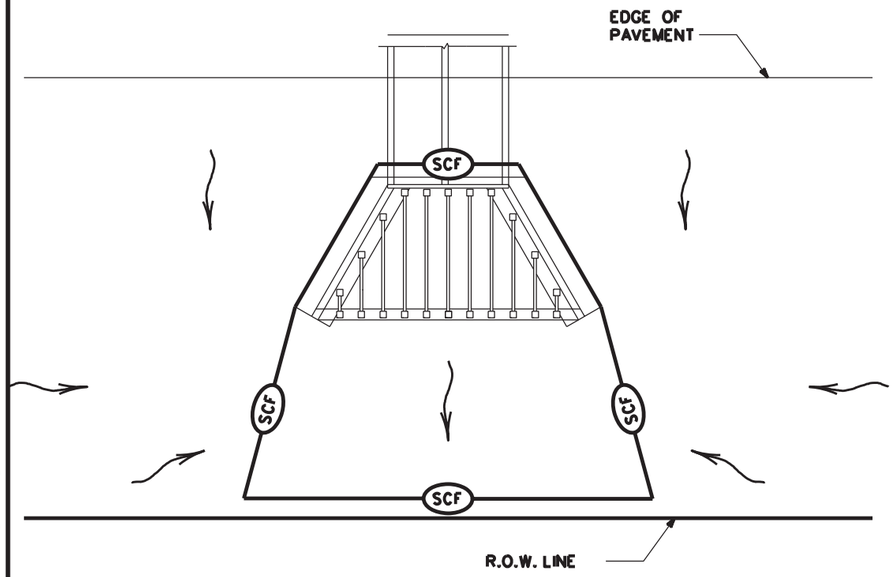
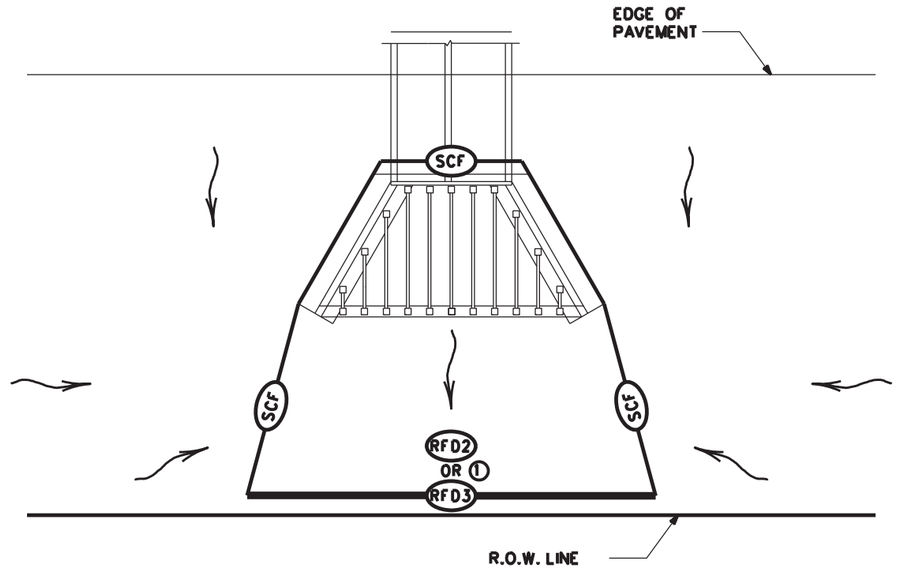


BEST MANAGEMENT PRACTICE (BMP) •5

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



BEST MANAGEMENT PRACTICE (BMP) •6

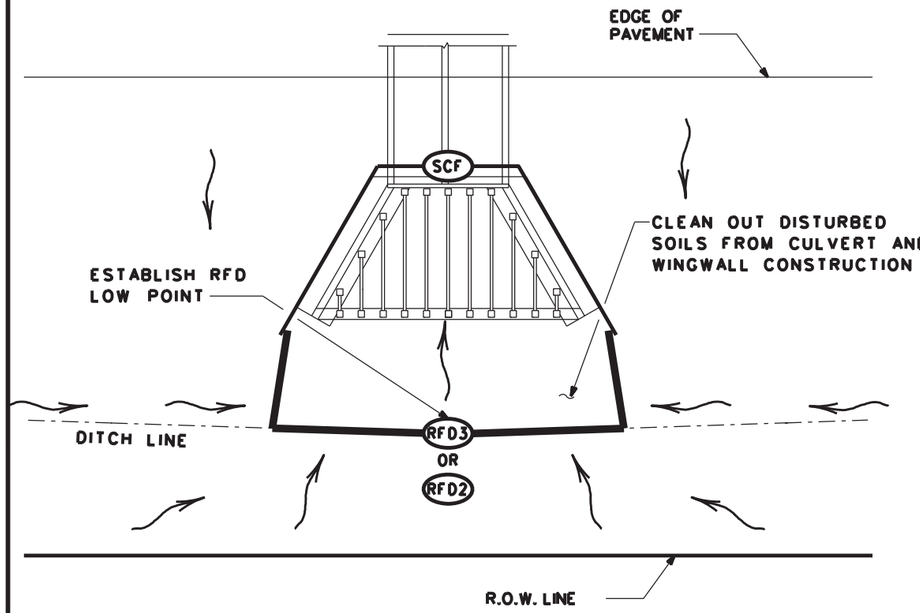
FOR NON-404 STREAMS ONLY ~ SEDIMENT CONTROL AT EXIT OF CULVERT

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

NOTES:

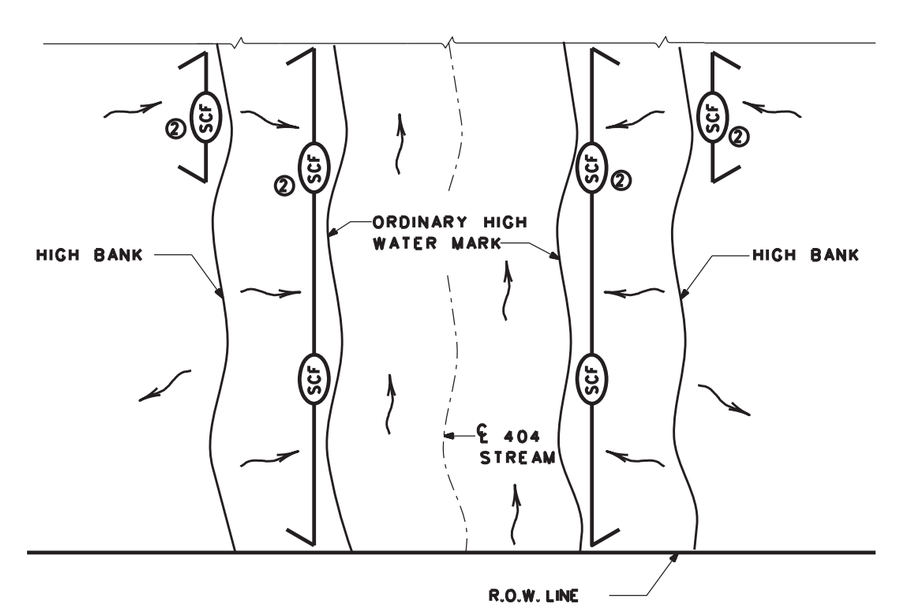
① PROVIDE OVERLAP OF SILT FENCE WITH ROCK FILTER DAM.

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

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Waco District Standard

TYPICAL APPLICATIONS FOR BEST MANAGEMENT PRACTICES

TA-BMP

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	WACO	MCLENNAN		152	

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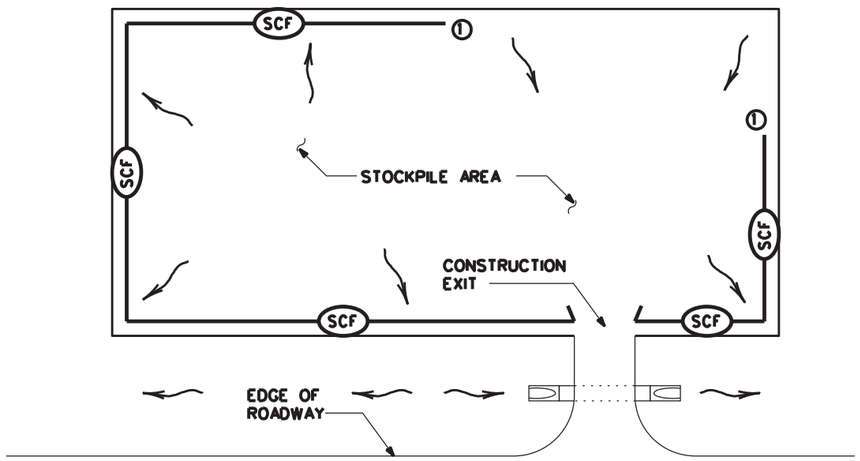
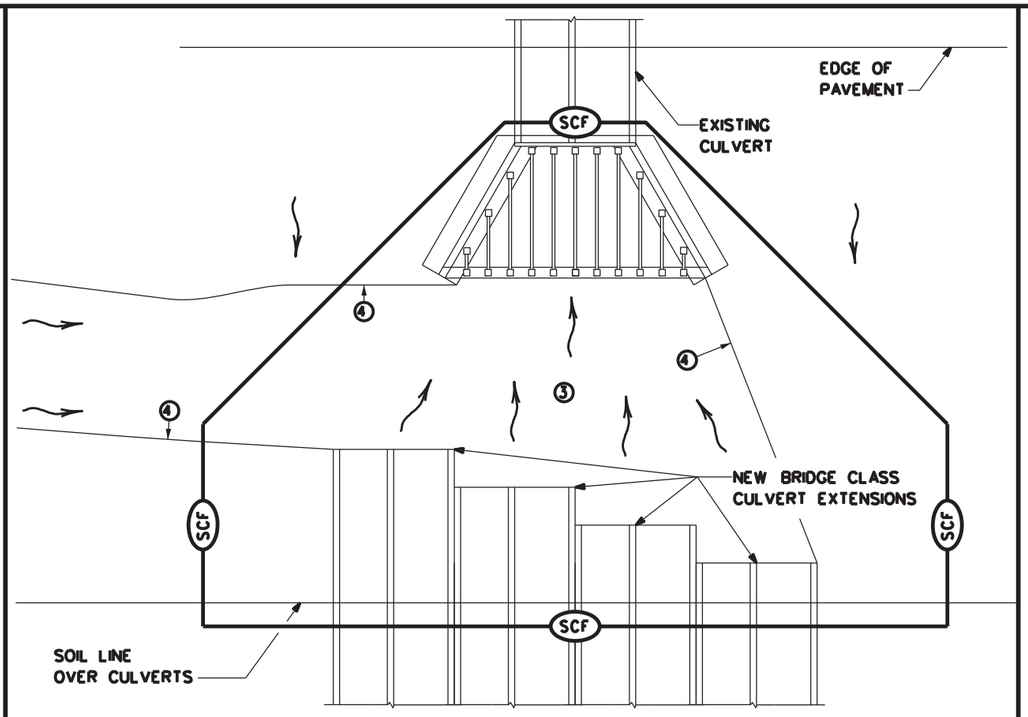


BEST MANAGEMENT PRACTICE (BMP) #9

STOCKPILE SEDIMENT CONTROL



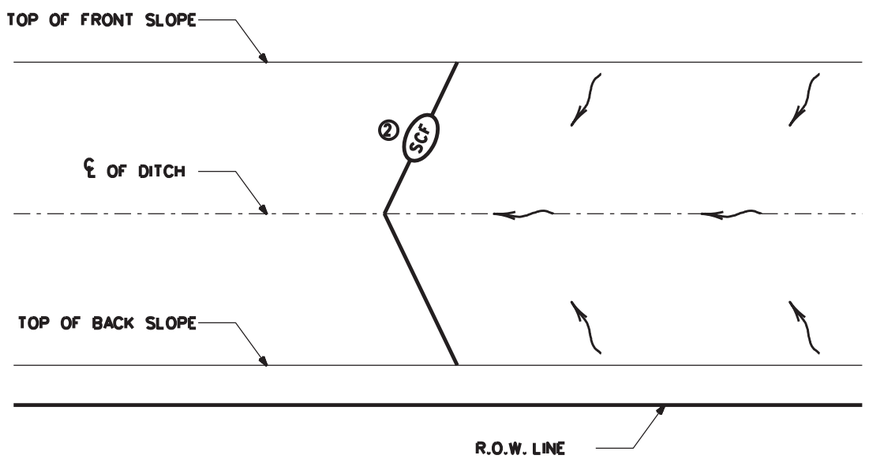
BEST MANAGEMENT PRACTICE (BMP) #10

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

SCF	SEDIMENT CONTROL FENCE
RF02	ROCK FILTER DAM (TY 2)
RF03	ROCK FILTER DAM (TY 3)
	DIRECTION OF FLOW

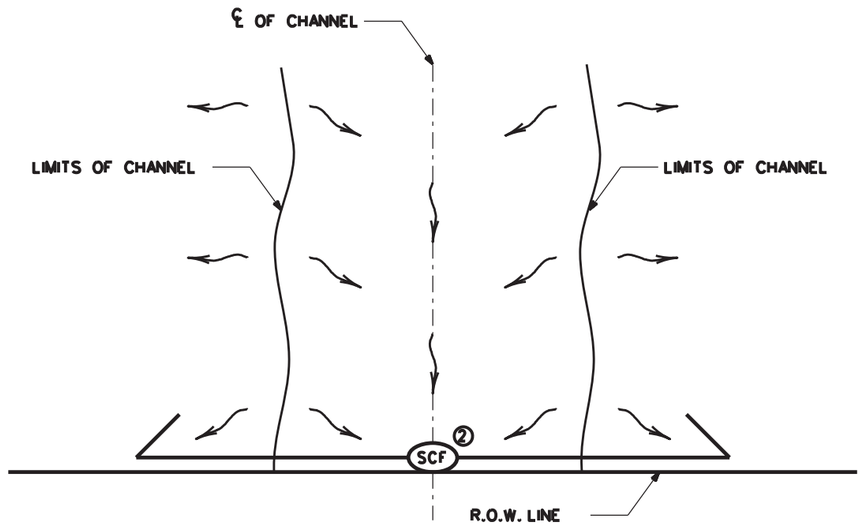
NOTES:

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

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TYPICAL APPLICATIONS FOR BEST MANAGEMENT PRACTICES

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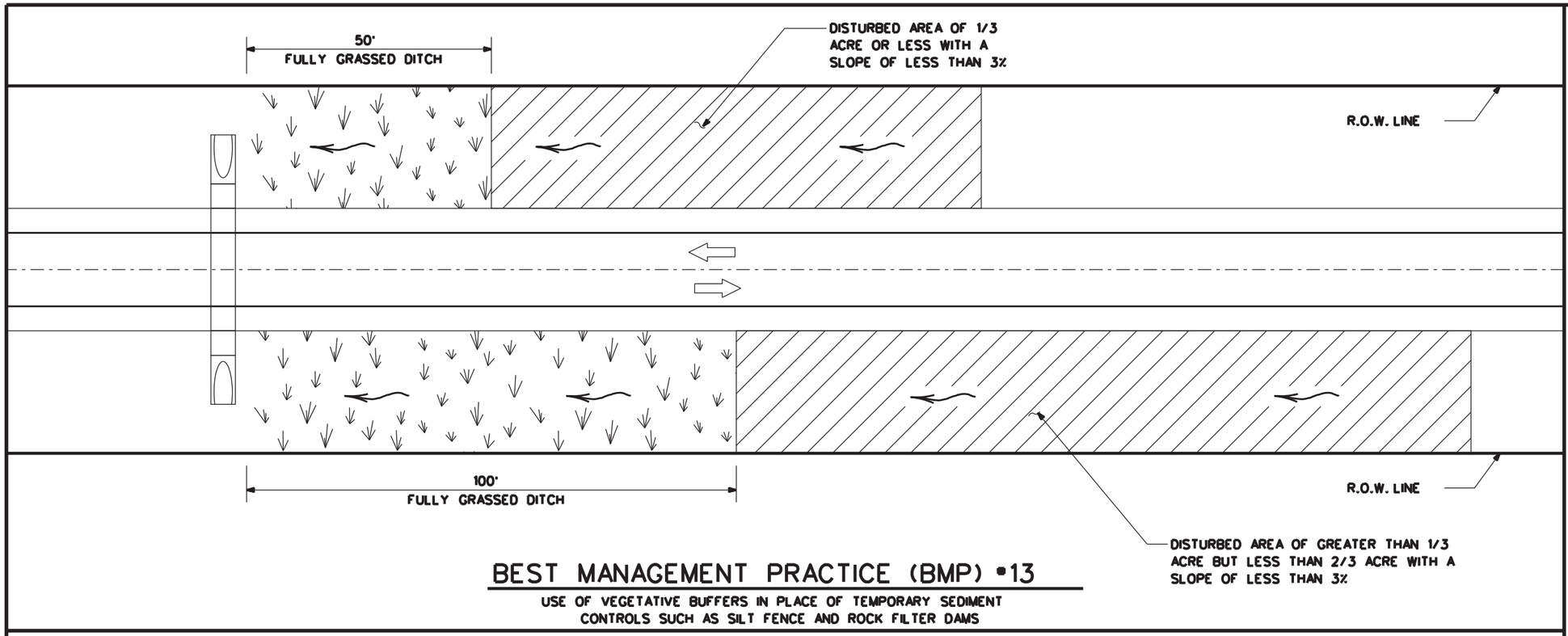


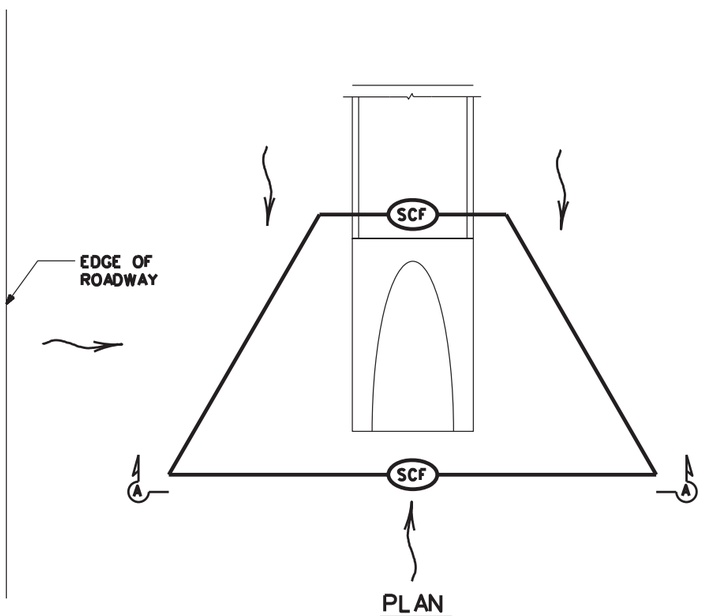
BEST MANAGEMENT PRACTICE (BMP) •13

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

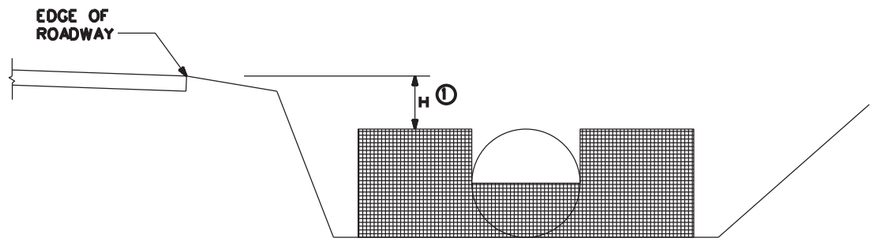
	FULLY GRASSED DITCH
	DISTURBED AREA
	DIRECTION OF FLOW
SCF	SEDIMENT CONTROL FENCE

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

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TYPICAL APPLICATIONS FOR BEST MANAGEMENT PRACTICES

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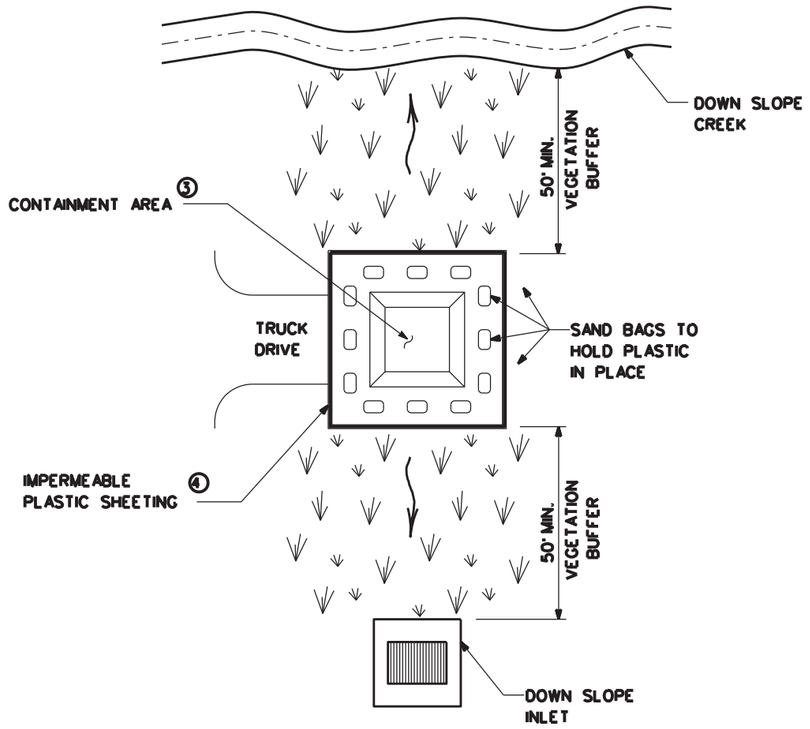
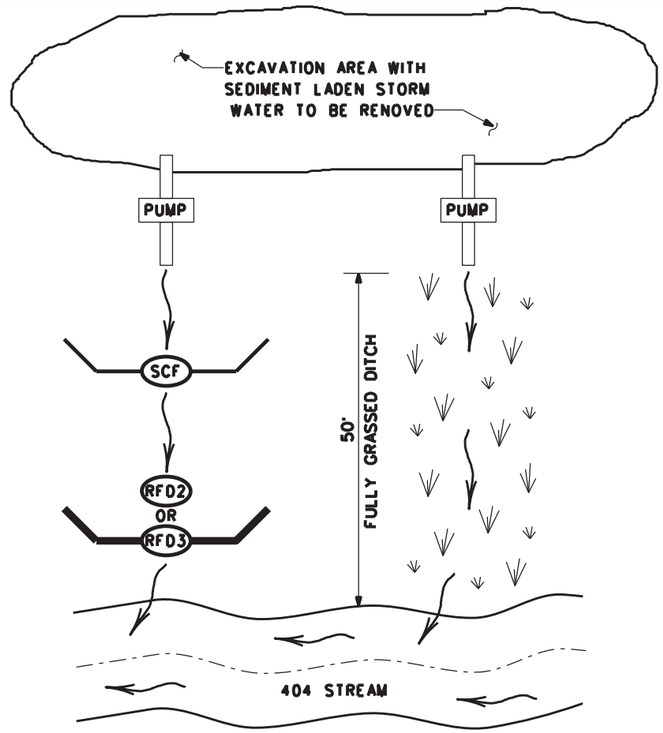


BEST MANAGEMENT PRACTICE (BMP) •15

CONCRETE TRUCK WASHOUT AREA



BEST MANAGEMENT PRACTICE (BMP) •16

PUMPED STORM WATER SEDIMENT CONTROLS ①

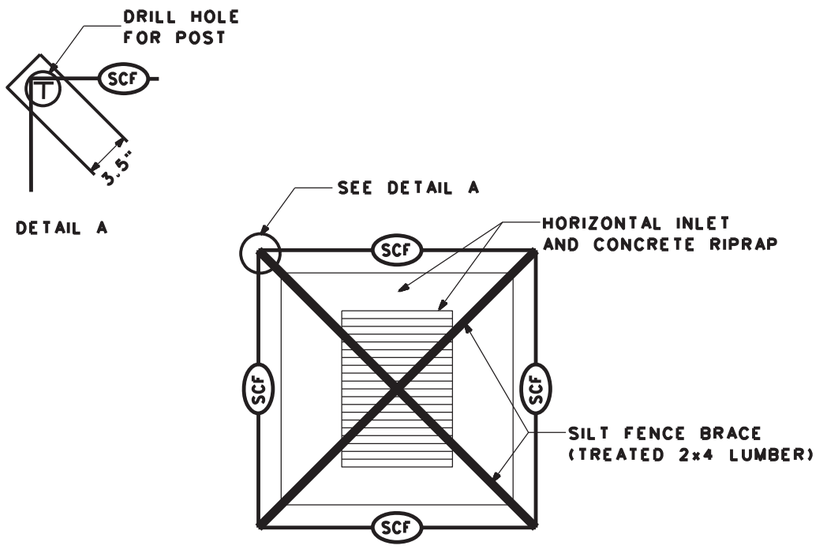
	FULLY GRASSED DITCH
	DIRECTION OF FLOW
SCF	SEDIMENT CONTROL FENCE
RFD2	ROCK FILTER DAM (TY 2)
RFD3	ROCK FILTER DAM (TY 3)

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.

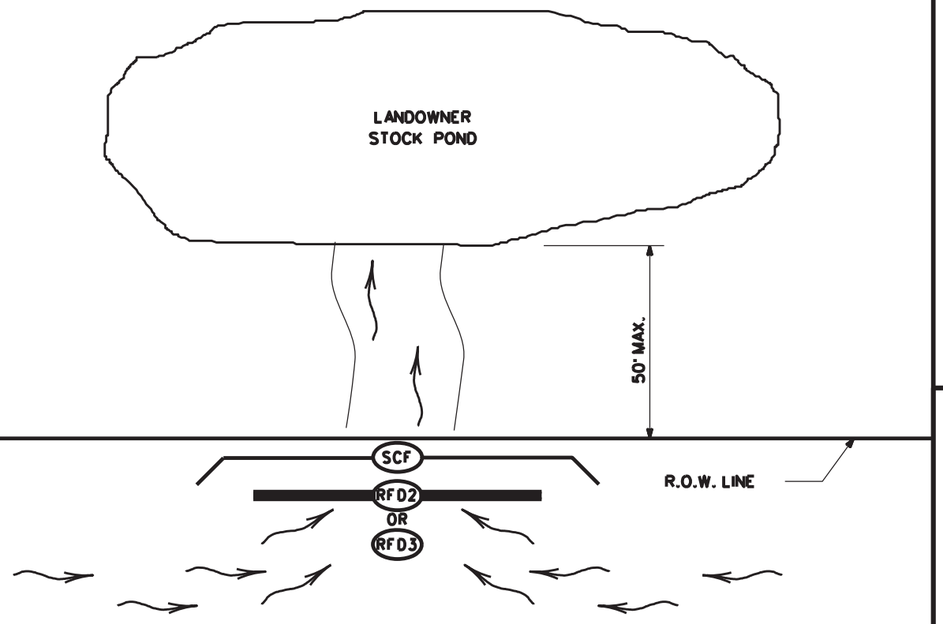
③ WHEN CONTAINMENT AREA REACHES 1' FREEBOARD, DISCONTINUE WASHOUT PLACEMENT AND REMOVE MATERIAL UPON SOLIDIFICATION.

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

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TYPICAL APPLICATIONS FOR BEST MANAGEMENT PRACTICES

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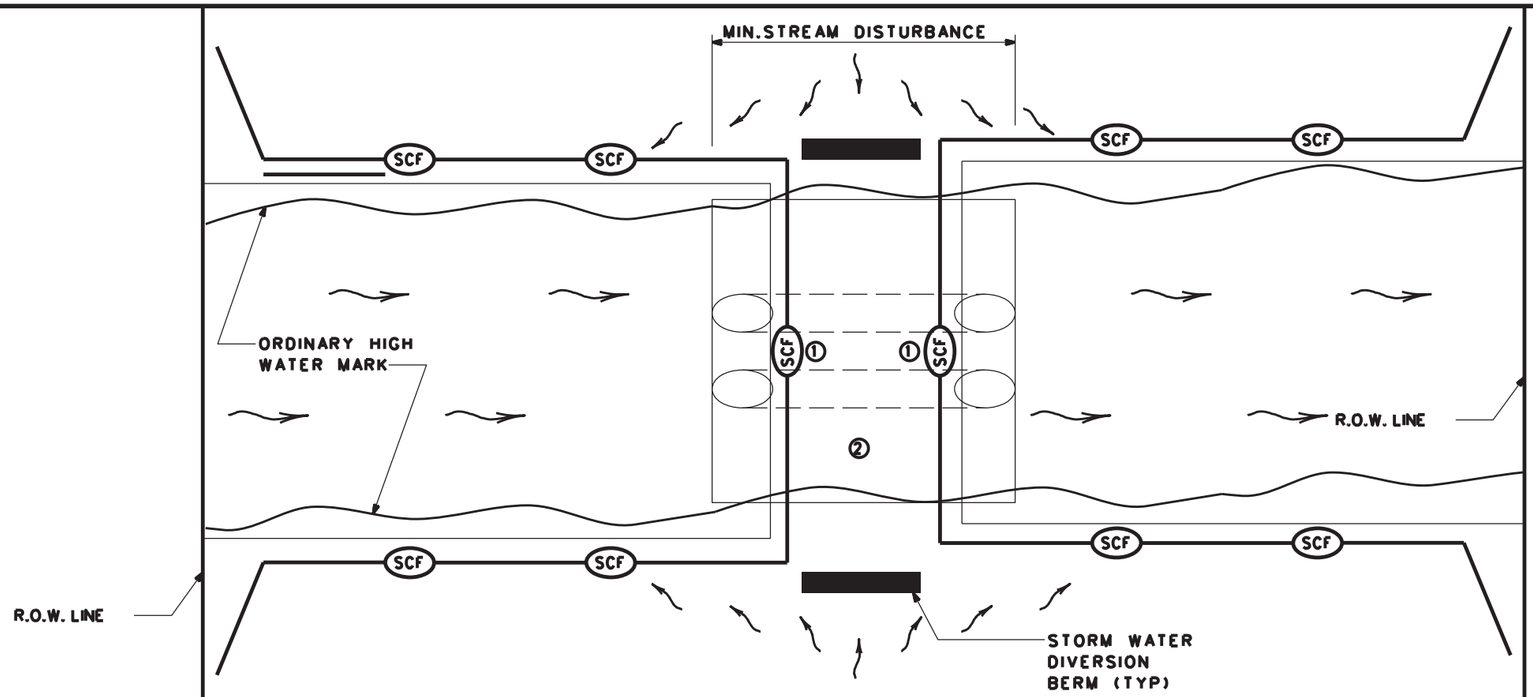


BEST MANAGEMENT PRACTICE (BMP) #19

TYPICAL 404 STREAM CROSSING (SEDIMENT CONTROL AT CROSSING)

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

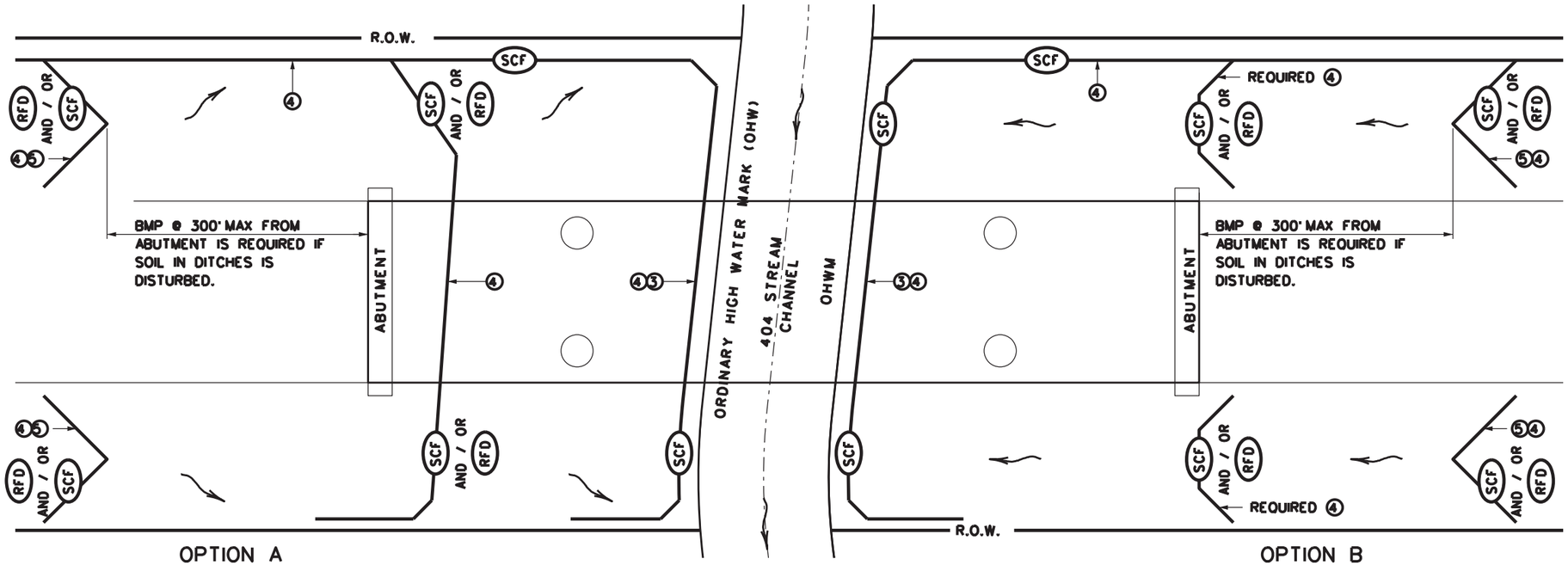
① HAY BALES MAY BE SUBSTITUTED FOR SILT FENCE OVER THE STREAM CROSSING.

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.



BEST MANAGEMENT PRACTICE (BMP) #20

FOR 404 STREAMS - BMP'S AT BRIDGES

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TYPICAL APPLICATIONS FOR BEST MANAGEMENT PRACTICES

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