FEDERAL AID PROJECT NO.			
BR 2B24(268)			
CONT	SECT	JOB	HIGHWAY
0795	02	017, ETC	FM 1260
DIST	COUNTY		SHEET NO.
CHS	DONLEY		1

STATE OF TEXAS
DEPARTMENT OF TRANSPORTATION

PLANS OF PROPOSED
STATE HIGHWAY IMPROVEMENT

FEDERAL AID PROJECT NO. BR 2B24(268)

FM 1260
DONLEY COUNTY

THE REPLACEMENT OF AN EXISTING BRIDGE FACILITY

CONSISTING OF: CONCRETE BRIDGE CONSTRUCTION AND EARTHWORK

LIMITS: @ SALT FORK OF RED RIVER
CSJ: 0795-02-017

NET LENGTH OF ROADWAY = 2,100.00 FT = 0.398 MI.
NET LENGTH OF BRIDGE = 600.00 FT. = 0.114 MI.
NET LENGTH OF PROJECT = 2,700.00 FT. = 0.511 MI.

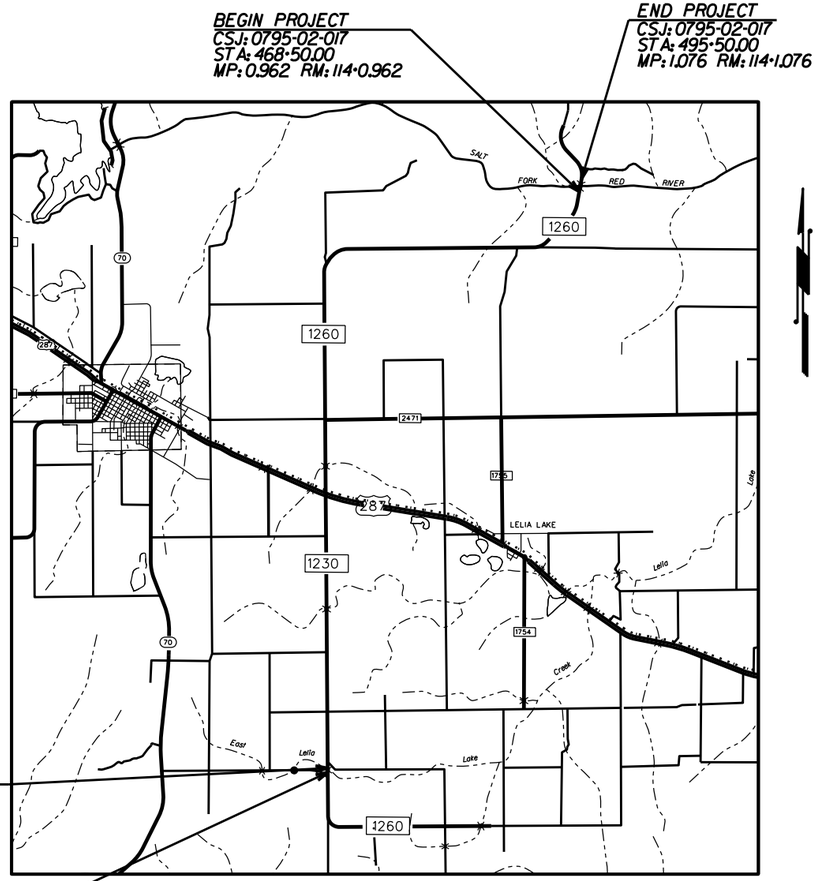
LIMITS: @ EAST LELIA LAKE CREEK
CSJ: 0795-03-010

NET LENGTH OF ROADWAY = 550.00 FT = 0.104 MI.
NET LENGTH OF BRIDGE = 160.00 FT. = 0.030 MI.
NET LENGTH OF PROJECT = 710.00 FT. = 0.134 MI.

FM 1260 @ SALT FORK OF RED RIVER
DESIGN SPEED = 65 MPH
A.D.T. (2021) = 50
A.D.T. (2041) = 75

FM 1260 @ EAST LELIA LAKE
DESIGN SPEED = 70 MPH
A.D.T. (2021) = 138
A.D.T. (2041) = 193

LIMITS: @ SALT FORK OF RED RIVER
LIMITS: @ EAST LELIA LAKE CREEK



EXCEPTIONS: NONE
EQUATIONS: NONE
RAILROAD CROSSINGS: NONE

05/09/2024

THE TCP HAS BEEN REVIEWED BY TRAFFIC SAFETY COMMITTEE

Jack R. Ward, P.E.
TRAFFIC SAFETY CHAIRMAN

REQUIRED SIGNS SHALL BE IN ACCORDANCE WITH BC (1)-21 THRU BC (12)-21 AND THE "TEXAS MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES".

SPECIFICATIONS ADOPTED BY THE TEXAS DEPARTMENT OF TRANSPORTATION, NOVEMBER 1, 2014 AND SPECIFICATION ITEMS LISTED AND DATED AS FOLLOWS, SHALL GOVERN ON THIS PROJECT: REQUIRED CONTRACT PROVISIONS FOR ALL FEDERAL-AID CONSTRUCTION CONTRACTS (FORM FHWA 1273, OCTOBER 23, 2023)

DATE: $DATE$ $TIME$
FILE: $FILE$

FINAL PLANS

CONTRACTOR NAME: _____

CONTRACTOR ADDRESS: _____

_____

LETTING DATE: _____

DATE TIME CHARGES BEGAN: _____

DATE WORK BEGAN: _____

DATE WORK COMPLETED: _____

DATE OF WORK ACCEPTANCE: _____

I, _____, P.E. DO HEREBY CERTIFY THAT THE CONSTRUCTION WORK WAS PERFORMED IN ACCORDANCE WITH THE PLANS, CONTRACT, AND CHANGES THERETO.

_____ _____
AREA ENGINEER DATE

Texas Department of Transportation

RECOMMENDED FOR LETTING: 05/09/2024
LMCDOW Digitally signed by LMCDOW Date: 2024.05.09 15:14:16 -05'00'
AREA ENGINEER

SUBMITTED FOR LETTING: 05/09/2024
Charles B. Reed, P.E.
TP&D DIRECTOR

APPROVED FOR LETTING: 05/09/2024
DISTRICT ENGINEER

*THE STANDARD SHEETS SPECIFICALLY IDENTIFIED ON THIS SHEET HAVE BEEN ISSUED BY ME OR UNDER MY RESPONSIBLE SUPERVISION AS BEING APPLICABLE TO THIS PROJECT.

Charles B. Steed, P.E. — 05/09/2024

DESIGN ENGINEER — DATE

STATE OF TEXAS
CHARLES B. STEED
88647
LICENSED
PROFESSIONAL ENGINEER

INDEX OF SHEETS

Texas Department of Transportation

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DIST	COUNTY		SHEET NO.
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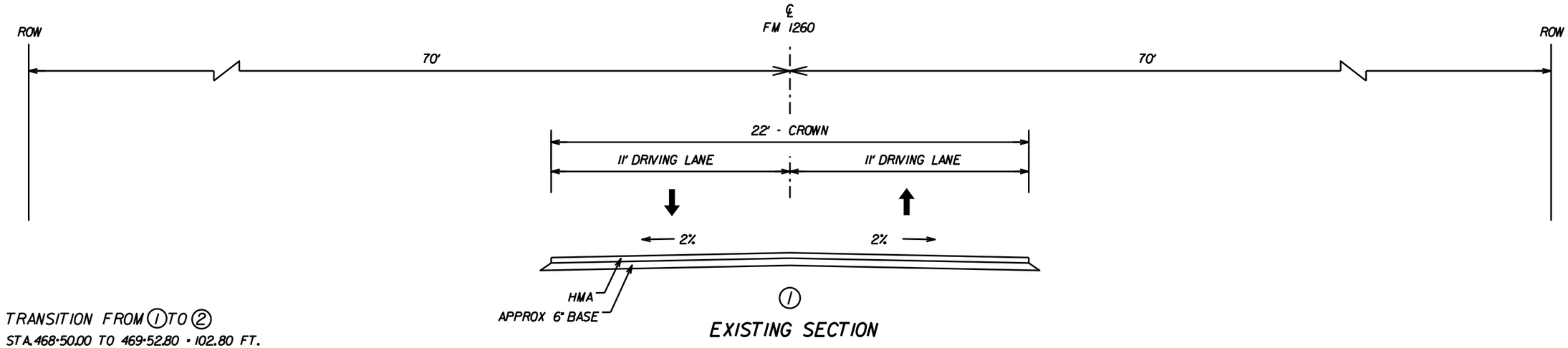
DATE: $DATE$
FILE: $FILE$
$TIME$

704

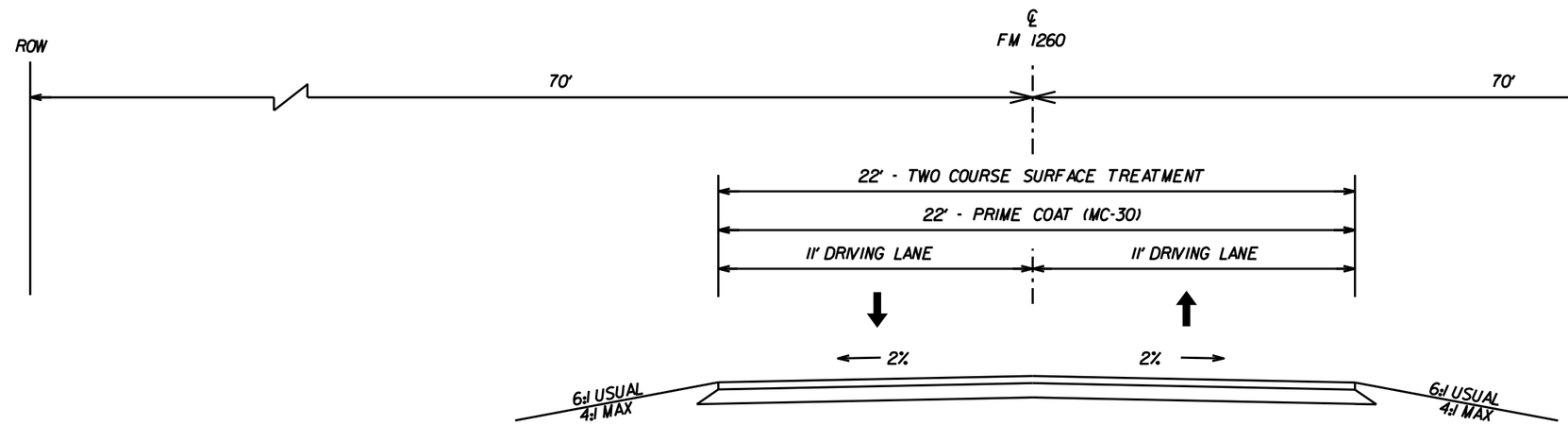


TRANSITION FROM ① TO ②

STA. 468+50.00 TO 469+52.80 = 102.80 FT.

① EXISTING SECTION

STA. 469+52.80 TO STA. 478+21.22 = 868.42 FT.
STA. 484+21.22 TO STA. 495+50.00 = 1,128.78 FT.
TOTAL = 1,997.20 FT



TRANSITION FROM ① TO ②

STA. 468+50.00 TO STA. 470+30.00 = 180.00 FT.

① PROPOSED SECTION

STA. 468+50.00
STA. 495+50.00

STATE OF TEXAS
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LICENSED
PROFESSIONAL ENGINEER
Charles B. Steed, P.E.
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TYPICAL SECTIONS

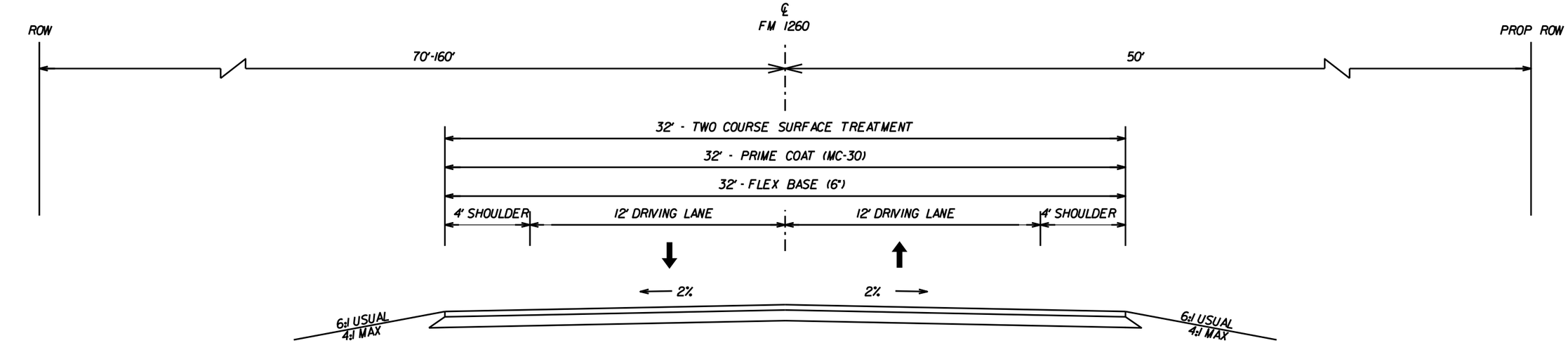
FM 1260 @ SALT FORK OF RED RIVER

Texas Department of Transportation

SHEET 1 OF 2

CONT	SECT	JOB	HIGHWAY
0795	02	017	FM 1260
DIST	COUNTY		SHEET NO.
CHS	DONLEY		3

DATE: $DATE$ $TIME$
FILE: $FILE$



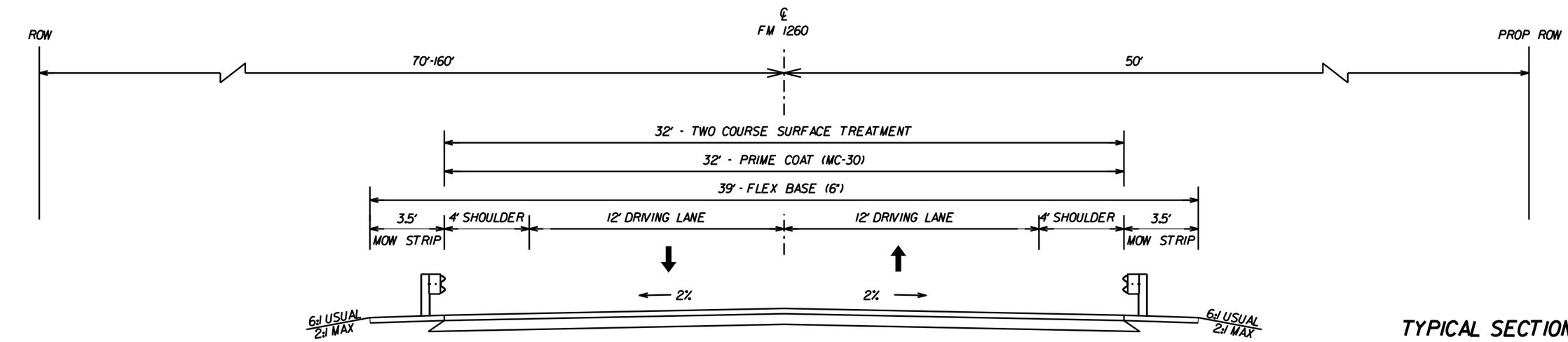
TRANSITION FROM ② TO ①

STA. 493+70.00 TO STA. 495+50.00 = 180.00 FT.

②

PROPOSED SECTION

STA. 470+30.00 TO STA. 475+22.00 = 492.00 FT.
STA. 487+17.00 TO STA. 493+70.00 = 653.00 FT.
TOTAL = 1,145.00 FT.



PROPOSED BRIDGE

STA. 478+20.00 TO STA. 484+20.00 = 600.00 FT.

BRIDGE APPROACHES

STA. 478+00.00 TO STA. 478+20.00 = 20.00 FT.
STA. 484+20.00 TO STA. 484+40.00 = 20.00 FT.
40.00 FT.

③

PROPOSED SECTION

STA. 475+22.00 TO STA. 478+00.00 = 278.00 FT.
STA. 484+40.00 TO STA. 487+17.00 = 277.00 FT.
TOTAL = 555.00 FT.

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Charles B. Steed, P.E.

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TYPICAL SECTIONS

FM 1260 @ SALT FORK OF RED RIVER

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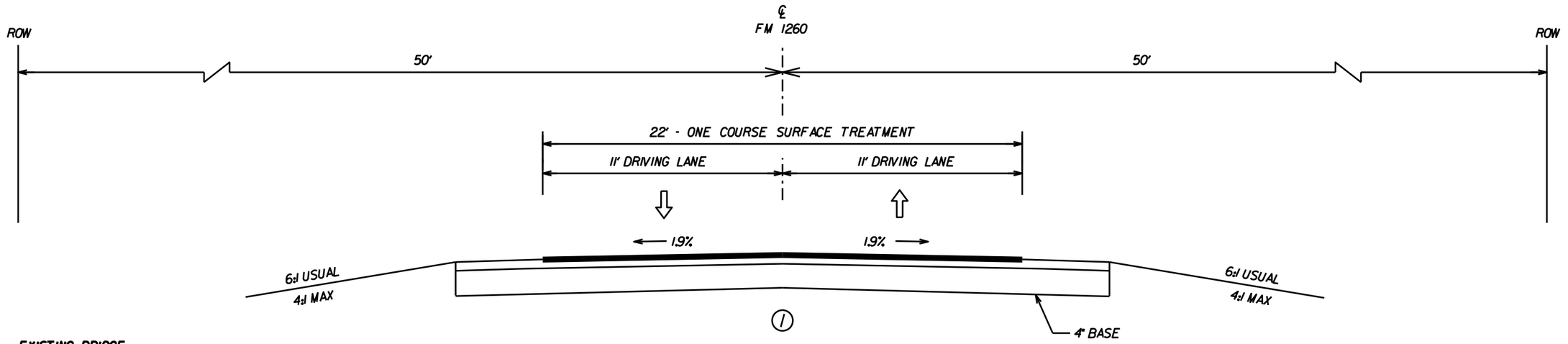
0795	02	017	FM 1260
DIST	COUNTY		SHEET NO.
CHS	DONLEY		4

DATE: $DATE$ $TIME$
FILE: $FILE$

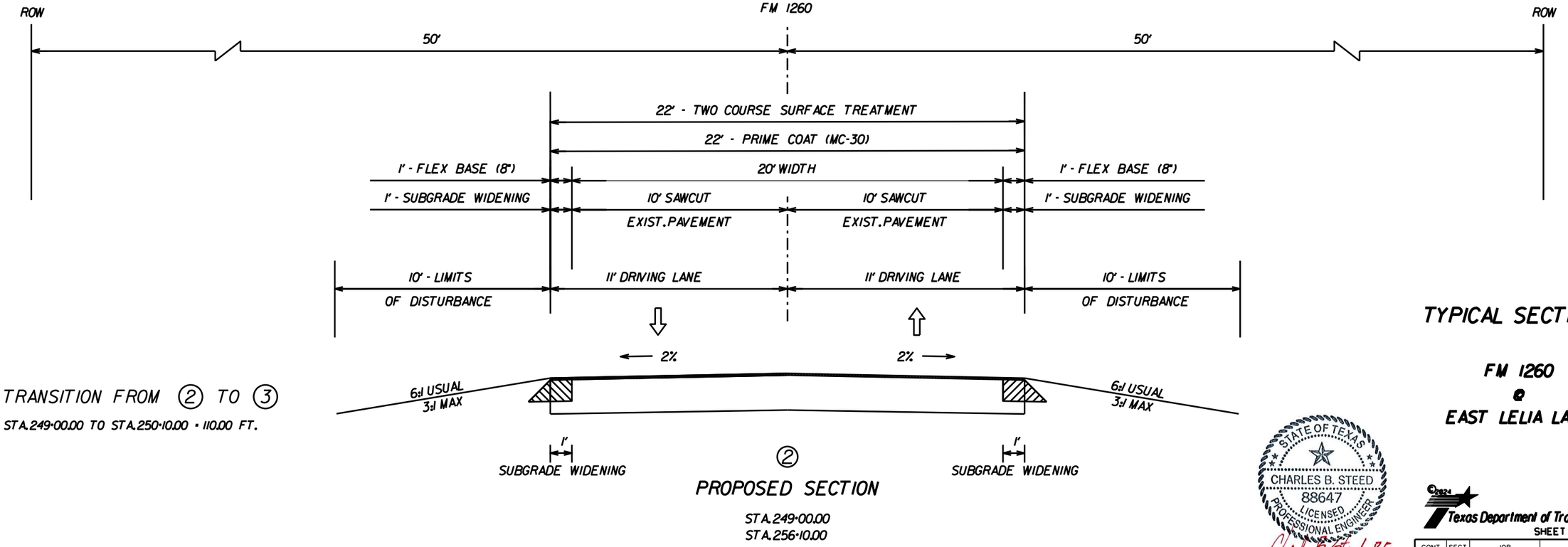


EXISTING BRIDGE

STA. 251+85.00 TO STA. 253+35.00 = 150.00 FT.

① EXISTING SECTION

STA. 250+10.00 TO STA. 251+85.00 = 175.00 FT.
STA. 253+35.00 TO STA. 255+10.00 = 175.00 FT.
350.00 FT.



TRANSITION FROM ② TO ③

STA. 249+00.00 TO STA. 250+10.00 = 110.00 FT.

② PROPOSED SECTION

STA. 249+00.00
STA. 256+10.00

TYPICAL SECTIONS

FM 1260
@
EAST LELIA LAKE

STATE OF TEXAS
CHARLES B. STEED
88647
LICENSED
PROFESSIONAL ENGINEER

Charles B. Steed, P.E.
05/09/2024

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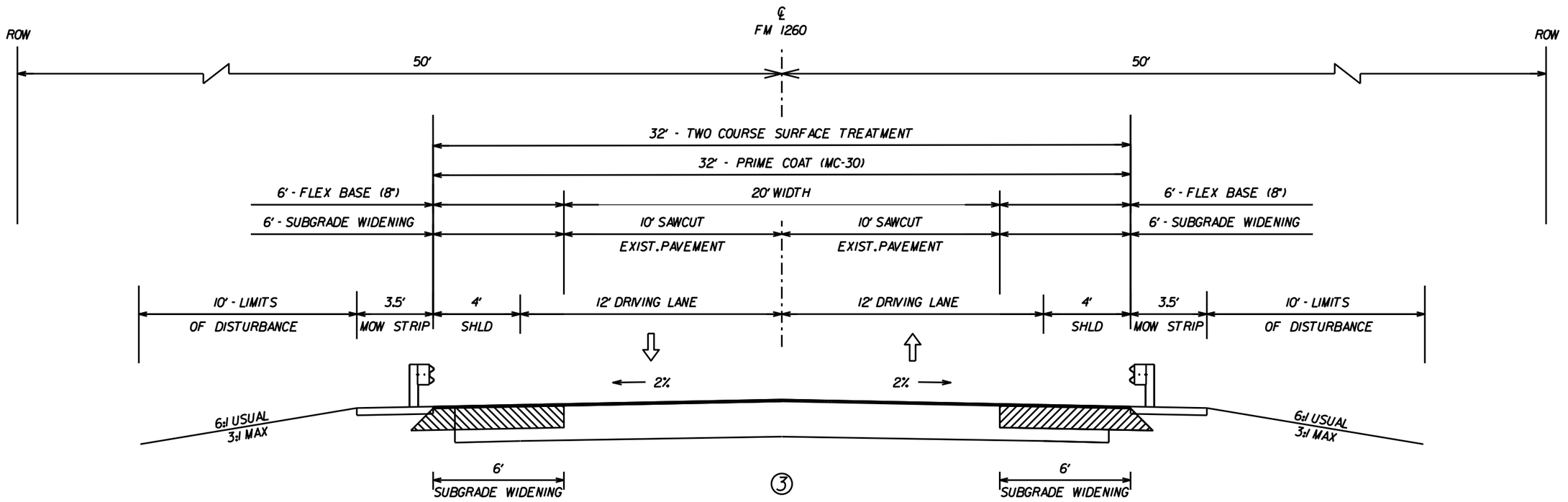
DATE: $DATE$ $TIME$
FILE: $FILE$



③

PROPOSED SECTION

STA. 250+10.00 TO STA. 251+60.00 = 150.00 FT.
STA. 253+60.00 TO STA. 255+10.00 = 150.00 FT.
300.00 FT.

PROPOSED BRIDGE

STA. 251+80.00 TO STA. 253+40.00 = 160.00 FT.

BRIDGE APPROACHES

STA. 251+60.00 TO STA. 251+80.00 = 20.00 FT.
STA. 253+40.00 TO STA. 253+60.00 = 20.00 FT.
40.00 FT.

TRANSITION FROM ③ TO ②

STA. 255+10.00 TO STA. 256+10.00 = 100.00 FT.

STATE OF TEXAS
CHARLES B. STEED
88647
LICENSED
PROFESSIONAL ENGINEER
Charles B. Steed, P.E.
05/09/2024

TYPICAL SECTIONS

FM 1260
@
EAST LELIA LAKE

Texas Department of Transportation

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GENERAL NOTES AND SUPPLEMENTAL INFORMATION

*BASIS FOR ESTIMATE		
ITEM	**DESCRIPTION**	**RATE**
168	VEGETATIVE WATERING	39,000 GAL/ACRE
216	PROOF ROLLING	1 HR/1000 FT
310	PRIME COAT (MC-30)	0.20 GAL/SY
316	ASPH (CRS-2P)	0.40 GAL/SY
316	AGGR (PER BID ITEM DESCRIPTION)	1:125 CY/SY

*RATES SHOWN IN THIS TABLE HAVE BEEN USED FOR PLAN QUANTITY CALCULATIONS AND MAY BE ADJUSTED BY THE ENGINEER DURING CONSTRUCTION FOR APPLICATION PURPOSES.

CONTRACTOR QUESTIONS ON THIS PROJECT ARE TO BE ADDRESSED TO THE FOLLOWING INDIVIDUAL(S):

LOUIS.MCDOW@TXDOT.GOV

QUESTIONS MAY BE SUBMITTED VIA THE LETTING PRE-BID Q&A WEB PAGE. THIS WEBPAGE CAN BE ACCESSED FROM THE NOTICE TO CONTRACTORS DASHBOARD LOCATED AT THE FOLLOWING ADDRESS:

HTTPS://TABLEAU.TXDOT.GOV/VIEWS/PROJECTINFORMATIONDASHBOARD/NOTICETOCONTRACTORS

ALL CONTRACTOR QUESTIONS WILL BE REVIEWED BY THE ENGINEER. ALL QUESTIONS AND ANY CORRESPONDING RESPONSES THAT ARE GENERATED WILL BE POSTED THROUGH THE SAME LETTING PRE-BID Q&A WEB PAGE.

THE LETTING PRE-BID Q&A WEB PAGE FOR EACH PROJECT CAN BE ACCESSED BY USING THE DASHBOARD TO NAVIGATE TO THE PROJECT YOU ARE INTERESTED IN BY SCROLLING OR FILTERING THE DASHBOARD USING THE CONTROLS ON THE LEFT. HOVER OVER THE BLUE HYPERLINK FOR THE PROJECT YOU WANT TO VIEW THE Q&A FOR AND CLICK ON THE LINK IN THE WINDOW THAT POPS UP.

ALL RELEVANT PROJECT DOCUMENTATION INCLUDING CTDS AND CROSS SECTIONS WILL STILL BE POSTED TO THE DISTRICTS FTP WEBSITE.

ITEM 5 - CONTROL OF THE WORK

CONSTRUCTION SURVEYING ON THIS CONTRACT WILL BE IN ACCORDANCE WITH ARTICLE 5.9.3, "METHOD C". THE CONTRACTOR SHALL PLACE CONSTRUCTION STAKES NEAR THE RIGHT-OF-WAY LINE AT INTERVALS OF NO MORE THAN 200', OR AS DIRECTED, WITH STATIONING.

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CORRECT ANY DEFICIENCIES IDENTIFIED DURING FINAL INSPECTION, INCLUDING REQUIRED PAPERWORK. SUBMIT ALL REQUIRED DOCUMENTATION WITHIN 14 DAYS OF FINAL ACCEPTANCE AS DIRECTED BY THE ENGINEER.

WHEN A PRECAST OR CAST-IN-PLACE CONCRETE ELEMENT IS INCLUDED IN THE PLANS, A PRECAST CONCRETE ALTERNATE MAY BE SUBMITTED IN ACCORDANCE WITH "STANDARD OPERATING PROCEDURE FOR ALTERNATE PRECAST PROPOSAL SUBMISSION" FOUND ONLINE AT THE FOLLOWING ADDRESS:

HTTPS://FTP.TXDOT.GOV/PUB/TXDOT-INFO/BRG/DESIGN/ALTERNATE-PRECAST-PROPOSAL-SUBMISSION.PDF

AN ACCEPTANCE OR DENIAL OF AN ALTERNATE IS AT THE SOLE DESCRETION OF THE ENGINEER. IMPACTS TO THE PROJECT SCHEDULE AND ANY ADDITIONAL COSTS RESULTING FROM THE USE OF ALTERNATES ARE THE SOLE RESPONSIBILITY OF THE CONTRACTOR.

ITEM 6 – CONTROL OF MATERIALS

TO COMPLY WITH THE LATEST PROVISIONS OF BUILD AMERICA, BUY AMERICA ACT (BABA ACT) OF THE BIPARTISAN INFRASTRUCTURE LAW, THE CONTRACTOR MUST SUBMIT A NOTARIZED ORIGINAL OF THE TXDOT CONSTRUCTION MATERIAL BUY AMERICA CERTIFICATION FORM FOR ALL ITEMS CLASSIFIED AS CONSTRUCTION MATERIALS. THIS FORM IS NOT REQUIRED FOR MATERIALS CLASSIFIED AS A MANUFACTURED PRODUCT.

REFER TO THE BUY AMERICA MATERIAL CLASSIFICATION SHEET FOR CLARIFICATION ON MATERIAL CATEGORIZATION.

THE BUY AMERICA MATERIAL CLASSIFICATION SHEET IS LOCATED AT THE BELOW LINK.

HTTPS://WWW.TXDOT.GOV/BUSINESS/RESOURCES/MATERIALS/BUY-AMERICA-MATERIAL-CLASSIFICATION-SHEET.HTML FOR CLARIFICATION ON MATERIAL CATEGORIZATION.

ITEM 7 - LEGAL RELATIONS AND RESPONSIBILITIES

PROVIDE INGRESS & EGRESS TO THE ADJACENT PROPERTIES IN AREAS UNDER CONSTRUCTION. PHASED CONSTRUCTION OF DRIVEWAYS AND STREETS SHALL BE REQUIRED TO PROVIDE UNINTERRUPTED ACCESS TO ADJACENT PROPERTIES. COORDINATE WORK WITH THE PROPERTY OWNERS BEFORE BEGINNING ANY CONSTRUCTION IN THE VICINITY OF THE DRIVE.

DO NOT INITIATE ACTIVITIES IN A PROJECT SPECIFIC LOCATION (PSL) ASSOCIATED WITH A U.S. ARMY CORPS OF ENGINEERS (USACE) PERMIT AREA THAT HAS NOT BEEN PREVIOUSLY EVALUATED BY THE USACE AS PART OF THE PERMIT REVIEW FOR THIS PROJECT. SUCH ACTIVITIES INCLUDE BUT ARE NOT LIMITED TO, HAUL ROADS, EQUIPMENT STAGING AREAS, BORROW AND DISPOSAL SITES. "ASSOCIATED", AS DEFINED HEREIN, INCLUDES MATERIALS DELIVERED TO OR FROM THE PSL. THE PERMIT AREA INCLUDES ALL WATERS OF THE U.S. OR ASSOCIATED WETLANDS AFFECTED BY PROJECT ACTIVITIES. SPECIAL RESTRICTIONS MAY BE REQUIRED FOR SUCH WORK. CONSULT WITH THE USACE REGARDING ACTIVITIES, INCLUDING PROJECT SPECIFIC LOCATIONS (PSLS) THAT HAVE NOT BEEN PREVIOUSLY EVALUATED BY THE USACE. PROVIDE THE DEPARTMENT WITH A COPY OF ALL CONSULTATION(S) OR APPROVAL(S) FROM THE USACE PRIOR TO INITIATING ACTIVITIES.

PROCEED WITH ACTIVITIES IN PSLS THAT DO NOT AFFECT A USACE PERMIT AREA IF A SELF DETERMINATION HAS BEEN MADE THAT THE PSL IS NON-JURISDICTIONAL OR PROPER USACE CLEARANCES HAVE BEEN OBTAINED IN JURISDICTIONAL AREAS OR HAVE BEEN PREVIOUSLY EVALUATED BY THE USACE AS PART OF THE PERMIT REVIEW FOR THIS PROJECT. DOCUMENT ANY DETERMINATION(S) THAT PROJECT ACTIVITIES DO NOT AFFECT A USACE PERMIT AREA. MAINTAIN COPIES OF DETERMINATION(S) FOR REVIEW BY THE DEPARTMENT OR ANY REGULATORY AGENCY.

DOCUMENT AND COORDINATE WITH THE USACE, IF REQUIRED, PRIOR TO ANY EXCAVATION HAULED FROM OR EMBANKMENT HAULED INTO A USACE PERMIT AREA BY EITHER (1) OR (2) BELOW.

1. RESTRICTED USE OF MATERIALS FOR THE PREVIOUSLY EVALUATED PERMIT AREAS.

DOCUMENT BOTH THE PROJECT SPECIFIC LOCATION (PSL) AND AUTHORIZATION. MAINTAIN COPIES FOR REVIEW BY THE DEPARTMENT OR ANY REGULATORY AGENCY. WHEN AN AREA WITHIN THE PROJECT LIMITS HAS BEEN EVALUATED BY THE USACE AS PART OF THE PERMIT PROCESS FOR THIS PROJECT:

- SUITABLE EXCAVATION OF REQUIRED MATERIAL IN THE AREAS SHOWN ON THE PLANS AND CROSS SECTIONS AS SPECIFIED IN ITEM 110 IS USED FOR PERMANENT OR TEMPORARY FILL (ITEM 132, EMBANKMENT) WITHIN A USACE PERMIT AREA;

- SUITABLE EMBANKMENT (ITEM 132) FROM WITHIN THE USACE PERMIT AREA IS USED AS FILL WITHIN A USACE EVALUATED AREA; AND,

- UNSUITABLE EXCAVATION OR EXCESS EXCAVATION [“WASTE”] (ITEM 110) THAT IS DISPOSED OF AT A LOCATION APPROVED BY THE ENGINEER WITHIN A USACE EVALUATED AREA.

2. CONTRACTOR MATERIALS FROM AREAS OTHER THAN PREVIOUSLY EVALUATED AREAS.

PROVIDE THE DEPARTMENT WITH A COPY OF ALL USACE COORDINATION OR APPROVAL(S) PRIOR TO INITIATING ANY ACTIVITIES FOR AN AREA WITHIN THE PROJECT LIMITS THAT HAS NOT BEEN EVALUATED BY THE USACE OR FOR ANY OFF RIGHT OF WAY LOCATIONS USED FOR THE FOLLOWING, BUT NOT LIMITED TO, HAUL ROADS, EQUIPMENT STAGING AREAS, BORROW AND DISPOSAL SITES:

- ITEM 132, EMBANKMENT, USED FOR TEMPORARY OR PERMANENT FILL WITHIN A USACE PERMIT AREA; AND,

- UNSUITABLE EXCAVATION OR EXCESS EXCAVATION [“WASTE”] (ITEM 110, EXCAVATION) THAT IS DISPOSED OF OUTSIDE A USACE EVALUATED AREA.

THE DISTURBED AREA IN THIS PROJECT, ALL PROJECT LOCATIONS IN THE CONTRACT, AND THE CONTRACTOR’S PROJECT SPECIFIC LOCATIONS (PSLS), WITHIN ONE (1) MILE OF THE PROJECT LIMITS, FOR THE CONTRACT WILL FURTHER ESTABLISH THE AUTHORIZATION REQUIREMENTS FOR STORM WATER DISCHARGES. THE DEPARTMENT WILL OBTAIN AN AUTHORIZATION TO DISCHARGE STORM WATER FROM THE TEXAS COMMISSION ON ENVIRONMENTAL QUALITY (TCEQ) FOR THE CONSTRUCTION ACTIVITIES SHOWN ON THE

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PLANS. THE CONTRACTOR IS TO OBTAIN REQUIRED AUTHORIZATION FROM THE TCEQ FOR CONTRACTOR PSLS FOR CONSTRUCTION SUPPORT ACTIVITIES ON OR OFF THE ROW. WHEN THE TOTAL AREA DISTURBED IN THE CONTRACT AND PSLS WITHIN ONE (1) MILE OF THE PROJECT LIMITS EXCEEDS FIVE (5) ACRES, PROVIDE A COPY OF THE CONTRACTOR’S NOI FOR PSLS ON THE ROW TO THE ENGINEER AND TO THE LOCAL GOVERNMENT THAT OPERATES A SEPARATE STORM SEWER SYSTEM.

MINIMIZE THE USE OF EQUIPMENT IN STREAMS AND RIPARIAN AREAS DURING CONSTRUCTION. WHEN POSSIBLE, EQUIPMENT ACCESS SHOULD BE FROM THE BANKS OR BRIDGE DECKS.

WHEN TEMPORARY STREAM CROSSINGS ARE UNAVOIDABLE, REMOVE STREAM CROSSINGS ONCE THEY ARE NO LONGER NEEDED AND STABILIZE BANKS AND SOILS AROUND THE CROSSING.

AVOID PLACING RIPRAP ACROSS STREAMS IF POSSIBLE. WHEN RIPRAP IS NECESSARY, THE PLACEMENT SHOULD NOT IMPEDE THE MOVEMENT OF AQUATIC AND TERRESTRIAL WILDLIFE UNDERNEATH THE BRIDGE.

CONTRACTORS SHOULD PLACE STAGING AREAS, STOCKPILES, AND OTHER PROJECT RELATED SITES IN PREVIOUSLY DISTURBED AREAS OUTSIDE OF THE RIPARIAN CORRIDOR BY AT LEAST 100 FEET WHEN EVER POSSIBLE.

“NO SIGNIFICANT TRAFFIC GENERATOR EVENTS IDENTIFIED”

ITEM 8 – PROSECUTION AND PROGRESS

WORKING DAYS WILL BE CHARGED IN ACCORDANCE WITH ARTICLE 8.3.1.4, STANDARD WORKWEEK.

PROVIDE A MINIMUM OF 2 WORKING DAYS ADVANCED NOTICE TO THE ENGINEER FOR WORK TO BE PERFORMED ON SATURDAYS AND/OR STATE HOLIDAYS. WORK ON SUNDAYS AND/OR NATIONAL HOLIDAYS WILL NOT BE PERMITTED.

WORK THAT RESTRICTS OR INTERFERES WITH TRAFFIC, TO INCLUDE MOBILE OPERATIONS OR SHORT-TERM LANE CLOSURES, WILL NOT BE ALLOWED ON THE FOLLOWING DATES DUE TO EXPECTED INCREASES IN HOLIDAY TRAFFIC:

- FRIDAY AND SATURDAY IMMEDIATELY PRECEDING EASTER SUNDAY
- FRIDAY AND SATURDAY IMMEDIATELY PRECEDING MEMORIAL DAY
- JULY 3RD AND JULY 5TH (INDEPENDENCE DAY HOLIDAY)
- FRIDAY AND SATURDAY IMMEDIATELY PRECEDING LABOR DAY
- WEDNESDAY IMMEDIATELY PRECEDING THANKSGIVING
- FRIDAY AND SATURDAY IMMDEATELY AFTER THANKSGIVING
- DECEMBER 23RD, 24TH, 25TH, AND 26TH (CHRISTMAS HOLIDAY)
- DECEMBER 31ST (NEW YEARS EVE)

SUBMIT WRITTEN REQUESTS TO THE ENGINEER FOR CONSIDERATION OF TEMPORARY SUSPENSION OF WORK AND/OR WORKING DAY CHARGES DUE TO CONDITIONS NOT UNDER THE CONTROL OF THE CONTRACTOR. SUCH REQUESTS WILL BE EVALUATED BY THE ENGINEER ON A CASE-BY-CASE BASIS AND A WRITTEN RESPONSE WILL BE PROVIDED TO THE CONTRACTOR.

COORDINATE WITH THE ENGINEER TO DETERMINE THE APPROPRIATE PROJECT SCHEDULE TYPE IN ACCORDANCE WITH ARTICLE 5.5 PRIOR TO SUBMISSION OF THE BASELINE SCHEDULE.

ITEM 132 – EMBANKMENT

EMBANKMENT MATERIALS SHOWN ON THE PLANS TO BE TREATED WITH CEMENT OR LIME WILL BE SAMPLED AND TESTED BY THE ENGINEER FOR SULFATE AND ORGANIC CONTENT IN ACCORDANCE WITH TEX-145-E & TEX-148-E, PRIOR TO TREATMENT. ONCE THE BORROW SOURCE HAS BEEN DETERMINED, PROVIDE THE ENGINEER A MINIMUM OF 30 CALENDAR DAYS NOTICE PRIOR TO THE SCHEDULED COMMENCEMENT DATE OF TREATMENT TO PROVIDE ADEQUATE TIME FOR TESTING AND APPROVAL.

MATERIAL WILL SAMPLED AND TESTED EVERY 5,000 CY. WHEN THE EMBANKMENT SOURCE HAS A SULFATE CONTENT GREATER THAN 3,000 PPM OR AN ORGANIC CONTENT GREATER THAN 1.0%, PROCEED AS DIRECTED BY THE ENGINEER. SUSPEND OPERATIONS WHEN SULFATE CONTENT IS GREATER THAN 7,000 PPM.

ITEM 134 - BACKFILL PAVEMENT EDGES

WINDROW APPROXIMATELY 4" OF EXISTING TOPSOIL PRIOR TO BEGINNING OPERATIONS. UPON COMPLETION OF OPERATIONS, RETURN THE WINDROWED MATERIAL TO THE SLOPES AND DITCHES AS A PERMANENT EROSION CONTROL MEASURE. THIS WORK WILL NOT BE PAID FOR DIRECTLY BUT WILL BE CONSIDERED SUBSIDIARY TO PERTINENT BID ITEMS.

SHOULDER UP PAVEMENT EDGES AT THE END OF EACH WORKING DAY TO ENSURE SLOPES OF 4:1 OR FLATTER OFF OF THE EDGE OF PAVEMENT. PAYMENT FOR BACKFILL OF PAVEMENT EDGES WILL ONLY BE MADE ONCE FOR THE FINAL ROADWAY SECTION.

APPLY EMULSIFIED ASPHALT TO THE BACKFILLED MATERIAL AFTER IT HAS BEEN ROLLED AND SEEDED.

ITEM 164 – SEEDING FOR EROSION CONTROL

ALL SEEDED AREAS OF THE PROJECT SHALL BE FERTILIZED WITH 60 POUNDS OF NITROGEN PER ACRE. FERTILIZER WILL NOT BE PAID FOR DIRECTLY BUT WILL BE SUBSIDIARY TO PERTINENT BID ITEMS.

ITEM 247- FLEXIBLE BASE

A MINIMUM PLASTICITY INDEX (PI) OF 3 IS REQUIRED.

FOR NEWLY CONSTRUCTED FLEXIBLE BASE SECTIONS GREATER THAN 1000' IN LENGTH, PERFORM RIDE QUALITY TESTING AND MAKE NECESSARY CORRECTIONS TO THE BASE SECTION IN ACCORDANCE WITH ARTICLE 247.4.6 PRIOR TO SURFACE CONSTRUCTION, REGARDLESS OF THE FINAL SURFACE MATERIAL. RIDE QUALITY TESTING WILL NOT BE PAID FOR DIRECTLY BUT WILL BE CONSIDERED SUBSIDIARY TO PERTINENT BID ITEMS.

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ITEM 316 – SEAL COAT

UTILIZE AN ASPHALT DISTRIBUTOR CAPABLE OF PROVIDING A TRANSVERSELY VARIED ASPHALT RATE. WHEN A TRAVNSVERSLEY VARIED RATE IS REQUIRED, THE APSHALT RATE OUTSIDE OF THE WHEEL PATHS WILL BE BETWEEN 22 AND 32% HIGHER THAN THE ASPHALT RATE APPLIED IN THE WHEEL PATHS. THE ENGINEER WILL SELECT THE PAVEMENTS WHERE THE TRANSVERSELY VARIED ASPHALT RATE IS REQUIRED, THE APPLICATION WILL BE DETERMINED BASED ON FIELD CONDITIONS AT THE TIME OF HE ASPHALT PLACEMENT. PROVIDE CALIBRATION DOCUMENTS TO THE ENGINEER THAT INCLUDE A DESCRIIPTION OF THE SPRAY BAR(S) AND NOZZLES USED AND THE PERCENTAGE DIFFERENCE IN ASPHALT RATE ACHIEVED BY EACH TESTED SPRAY BAR AND NOZZLE ARRANGEMENT. THE NOZZLES PROPOSED FOR USE SHALL BE CLEARLY STAMPED OR MARKED FROM THE FACTORY IDENTIFYING THE NOZZLE SIZE AND MANUFACTURER.

ASPHALT SEASON STARTS **MAY 15TH AND ENDS AUGUST 31ST.**

THE ENGINEER MUST AUTHORIZE WORK IF THE WIND EXCEEDS 20 MPH.

ITEM 422 – CONCRETE SUPERSTRUCTURES

USE OF A SELF-PROPELLED TRANSVERSE SCREED WILL BE REQUIRED FOR BRIDGE SLABS AND THE TOP SLABS OF DIRECT-DRIVE CULVERTS. THE USE OF LONGITUDINAL SCREEDS WILL NOT BE ALLOWED. THE USE OF MANUALLY OPERATED SCREEDS WILL NOT BE ALLOWED.

ITEM 425 – PRECAST PRESTRESSED CONCRETE STRUCTURAL MEMBERS

FOR BRIDGES WITH TYPE TX28, TX34, TX40, TX46, TX54, TX62 AND/OR TX70 PRESTRESSED CONCRETE GIRDERS, THE CONTRACTOR CAN SUBMIT AN ALTERNATE DESIGN FOR APPROVAL USING OTHER TXDOT PRESTRESSED CONCRETE GIRDER SHAPES. ALTERNATE DESIGNS MUST BE SIGNED, SEALED, AND DATED BY A LICENSED PROFESSIONAL ENGINEER AND SUBMITTED TO THE ENGINEER FOR REVIEW AND APPROVAL.

FOR ALTERNATE DESIGNS, USE THE SAME LIVE LOAD AS THE ORIGINAL DESIGN AND ADHERE TO THE CURRENT VERSIONS OF THE AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS AND THE TXDOT LRFD BRIDGE DESIGN MANUAL.

ALTERNATE BRIDGE DESIGNS CAN DIFFER FROM THE ORIGINAL DESIGN ONLY BY TYPE OF GIRDER USED. DO NOT RAISE THE ROADWAY GRADE OR LOWER THE STRUCTURE BOTTOM CHORD ELEVATION TO ACCOMMODATE THE ALTERNATE GIRDERS. NO OTHER CHANGE TO THE ORIGINAL DESIGN IS ALLOWED EXCEPT AS NECESSARY TO ACCOMMODATE THE ALTERNATE GIRDERS. SUBSTRUCTURE RE-DESIGN MAY BE NECESSARY TO ACCOMMODATE THE ALTERNATE GIRDERS. NO ADDITIONAL COMPENSATION WILL BE MADE FOR THESE ALTERNATE DESIGNS OR FOR ANY INCREASE IN QUANTITIES REQUIRED TO ACCOMMODATE THE ALTERNATE DESIGNS, INCLUDING QUANTITIES PAID FOR UNDER OTHER ITEMS.

ITEM 427 - SURFACE FINISHES FOR CONCRETE

PROVIDE A SURFACE AREA I RUB FINISH UNLESS OTHERWISE APPROVED BY THE ENGINEER.

ITEM 432 – RIPRAP

CONCRETE RUBBLE GENERATED FROM DEMOLITION OF THE EXISTING BRIDGE MAY BE USED FOR STONE PROTECTION RIPRAP ON THE PROJECT WITH THE ENGINEER'S APPROVAL.

ITEM 440 – REINFORCING STEEL

ALL REINFORCING STEEL LOCATED IN APPROACH SLABS, ABUTMENTS, BRIDGE DECKS, TOP SLABS OF DIRECT TRAFFIC CULVERTS, AND CAPS SHALL BE GALVANIZED. MATERIALS CONFORMING TO ARTICLE 440.2.14 OR 440.2.15 AS REFERENCED IN SPECIAL PROVISION 440-004 WILL BE ACCEPTABLE FOR USE.

MECHANICAL COUPLERS TO BE USED ON THE PROJECT SHALL BE SAMPLED AND TESTED IN ADVANCE OF PLACEMENT. SCHEDULE SAMPLING A MINIMUM OF 30 CALENDAR DAYS IN ADVANCE OF THE SCHEDULED USAGE DATE TO ALLOW ADEQUATE TIME FOR TESTING BY THE ENGINEER. THE CONTRACTOR SHALL ASSEMBLE THREE MECHANICAL COUPLER ASSEMBLIES PER QUANTITY OF 500, PER PRODUCER, TYPE, MODEL, AND SIZE IN CONFORMANCE WITH THE MANUFACTURER'S ASSEMBLY INSTRUCTIONS IN THE PRESENCE OF THE ENGINEER. ASSEMBLE MECHANICAL COUPLER TEST SPECIMENS WITH THE SAME EQUIPMENT, TOOLS, AND METHODS THAT WILL BE USED ON THE FINAL PRODUCT. PROVIDE COPIES OF REQUIRED "BUY AMERICA" DOCUMENTATION WITH EACH SAMPLE SUBMITTED FOR TESTING.

ITEM 502 - BARRICADES, SIGNS, AND TRAFFIC HANDLING

THE CONTRACTOR'S RESPONSIBLE PERSON FOR TCP COMPLIANCE SHALL BE AVAILABLE BY PHONE AND SHALL HAVE A RESPONSE TIME WITHIN 45 MINUTES.

WORK WILL NOT BE ALLOWED ON BOTH SIDES OF THE ROAD AT THE SAME TIME UNLESS OTHERWISE APPROVED BY THE ENGINEER.

ALL EQUIPMENT AND MATERIALS SHALL BE STORED OUTSIDE THE ROADWAY CLEAR ZONE.

EQUIP ALL WORK VEHICLES WITHIN 30 FEET OF THE TRAVELED WAY WITH A FUNCTIONING AMBER STROBE LIGHT OR ROTATING BEACON VISIBLE FROM ALL DIRECTIONS.

THE CONTRACTOR SHALL TAKE ACTION AT THE TIME OF RECEIPT OF THE BARRICADE INSPECTION IN ACORDANCE WITH THE DEFICICIENCY PRIORITY. MAKE CORRECTIONS WITHIN 1 CALENDAR DAY FOR A PRIORITY 1 DEFICIENCY, OR WITHIN 7 CALENDAR DAYS FOR A PRIORITY 2 DEFICIENCY. THE ENGINEER MAY REQUIRE THE TEMPORARY SUSPENSION OF WORK WITHOUT SUSPENSION OF TIME CHARGES FOR FAILURE TO MAKE CORRECTIONS WITHIN THE APPROPRIATE TIME FRAMES.

THE CONTRACTOR FORCE ACCOUNT "SAFETY CONTINGENCY" THAT HAS BEEN ESTABLISHED FOR THIS PROJECT IS INTENDED TO BE UTILIZED FOR WORK ZONE ENHANCEMENTS AND TO IMPROVE THE EFFECTIVENESS OF THE TRAFFIC CONTROL PLAN. THESE ENHANCEMENTS WILL BE MUTUALLY AGREED UPON BY THE ENGINEER AND THE CONTRACTOR'S RESPONSIBLE PERSON IN WRITING. THE ENGINEER MAY CHOOSE TO USE EXISTING BID ITEMS IF IT DOES NOT SLOW THE IMPLEMENTATION OR ENHANCEMENT.

CSJ: 0795-02-017, ETC. **SHEET:**

COUNTY: DONLEY

HIGHWAY: FM 1260

THE USE OF A PILOT CAR WILL BE REQUIRED FOR ONE-LANE, TWO-WAY TRAFFIC CONTROL. ONE-LANE, TWO-WAY TRAFFIC CONTROL WILL NOT BE PAID FOR DIRECTLY BUT WILL BE CONSIDERED SUBSIDIARY TO ITEM 502.

ITEM 506 – TEMPORARY EROSION, SEDIMENTATION, AND ENVIRONMENTAL CONTROLS

THE ENGINEER MAY REQUIRE THE TEMPORARY SUSPENSION OF WORK WITHOUT SUSPENSION OF TIME CHARGES FOR FAILURE TO MAKE CORRECTIONS TO DEFICIENCIES NOTED ON FORM 2118 WITHIN THE APPROPRIATE TIME FRAMES.

ITEM 666 - REFLECTORIZED PAVEMENT MARKINGS

THE CONTRACTOR SHALL PLACE GUIDE MARKS TO ESTABLISH THE LOCATION OF THE PROPOSED PAVEMENT MARKINGS. THE CONTRACTOR MAY USE YELLOW TABS SPACED AT 40' ON CENTER OR OTHER METHODS NOT NOTED IN THE PLANS. ALTERNATE METHODS SHALL BE SUBMITTED TO THE ENGINEER FOR APPROVAL PRIOR TO STRIPING. ANY ALTERNATE GUIDE MARKINGS PLACED WILL NOT BE PAID FOR DIRECTLY BUT WILL BE CONSIDERED SUBSIDIARY TO PERTINENT BID ITEMS.

ITEM 672 – RAISED PAVEMENT MARKERS

REMOVE EXISTING RAISED PAVEMENT MARKINGS AS THE WORK PROGRESSES, OR AS DIRECTED BY THE ENGINEER. REMOVAL SHALL TAKE PLACE IN CONCURRENCE WITH THE PROPOSED TCP PHASING UNLESS OTHERWISE DIRECTED. REMOVAL OF EXISTING RPMS WILL NOT BE PAID FOR DIRECTLY BUT WILL BE CONSIDERED SUBSIDIARY TO PERTINENT BID ITEMS.

ITEM 6185 – TRUCK MOUNTED ATTENUATOR (TMA) AND TRAILER ATTENUATOR (TA)

THERE WILL BE NO ADDITIONAL SHADOW VEHICLES OR TMA REQUIRED IN ADDITION TO THE SHADOW VEHICLES WITH TRUCK MOUNTED ATTENUATOR (TMA) THAT ARE SPECIFIED AS BEING REQUIRED ON THE TRAFFIC CONTROL PLAN STANDARDS FOR THIS PROJECT.

REFERENCE THE TABLE BELOW FOR TMA REQUIRED PER TCP STANDARD OPERATION. THE CONTRACTOR WILL BE RESPONSIBLE FOR DETERMINING IF ONE OR MORE OF THESE OPERATIONS WILL BE ONGOING AT THE SAME TIME TO DETERMINE THE TOTAL NUMBER OF TMA'S NEEDED FOR THE PROJECT.

BASIS OF ESTIMATE FOR MOBILE TMAs				
		TMA(MOBILE)		
PHASE	STANDARD	REQUIRED	ADDITIONAL	TOTAL
STRIPING	TCP (3-1)-13	2	1	3
RPM	TCP (3-3)-14	2	1	3
SUBG&CULV EXT.	TCP (2-1)-18	1	1	2
ACP PLACE	TCP (1-2)-18	1	1	2

Estimate & Quantity Sheet

CONTROLLING PROJECT ID 0795-02-017 **DISTRICT** Childress **COUNTY** Donley
HIGHWAY FM 1260

			CONTROL SECTION JOB		**0795-02-017**		**0795-03-010**		TOTAL EST.	TOTAL FINAL
			PROJECT ID		**A00130743**		**A00139523**			
			COUNTY		**Donley**		**Donley**			
			HIGHWAY		**FM 1260**		**FM 1260**			
ALT	**BID CODE**	**DESCRIPTION**	**UNIT**	EST.	FINAL	EST.	FINAL			
	106-6001	OBLITERATING ABANDONED ROAD	STA	22.000				22.000		
	110-6001	EXCAVATION (ROADWAY)	CY	5,746.000				5,746.000		
	110-6002	EXCAVATION (CHANNEL)	CY	2,667.000		1,160.000		3,827.000		
	112-6002	SUBGRADE WIDENING (DENS CONT)	STA			6.000		6.000		
	132-6002	EMBANKMENT (FINAL)(DENS CONT)(TY A)	CY	3,291.000				3,291.000		
	134-6004	BACKFILL (TY A OR B)	STA			6.000		6.000		
	150-6002	BLADING	HR	4.000		10.000		14.000		
	164-6034	DRILL SEEDING (PERM) (RURAL) (SANDY)	AC	2.050		0.640		2.690		
	164-6042	DRILL SEEDING (TEMP) (WARM)	AC	1.030		0.320		1.350		
	164-6044	DRILL SEEDING (TEMP) (COOL)	AC	1.030		0.320		1.350		
	168-6001	VEGETATIVE WATERING	MG	80.000		25.000		105.000		
	247-6064	FL BS (CMP IN PLC)(TY A GR 4) (6")	SY	7,267.000		1,696.000		8,963.000		
	310-6009	PRIME COAT (MC-30)	GAL	1,453.000		340.000		1,793.000		
	316-6024	ASPH (CRS-2P)	GAL	5,813.000		678.000		6,491.000		
	316-6080	AGGR(TY-B GR-5 SAC-A)	CY	117.000		13.000		130.000		
	401-6001	FLOWABLE BACKFILL	CY	72.000		72.000		144.000		
	416-6004	DRILL SHAFT (36 IN)	LF	2,640.000		420.000		3,060.000		
	420-6013	CL C CONC (ABUT)	CY	36.300		39.400		75.700		
	420-6029	CL C CONC (CAP)	CY	134.100		29.800		163.900		
	420-6037	CL C CONC (COLUMN)	CY	36.100		12.900		49.000		
	422-6001	REINF CONC SLAB	SF	20,400.000		5,440.000		25,840.000		
	422-6015	APPROACH SLAB	CY	54.500		52.600		107.100		
	425-6035	PRESTR CONC GIRDER (TX28)	LF	2,380.000				2,380.000		
	425-6036	PRESTR CONC GIRDER (TX34)	LF			634.000		634.000		
	432-6035	RIPRAP (STONE PROTECTION)(24 IN)	CY	277.000		247.000		524.000		
	432-6045	RIPRAP (MOW STRIP)(4 IN)	CY	40.000		20.000		60.000		
	450-6023	RAIL (TY SSTR)	LF	1,232.000		356.000		1,588.000		
	454-6018	SEALED EXPANSION JOINT (4 IN) (SEJ - M)	LF	132.000		66.000		198.000		
	496-6010	REMOV STR (BRIDGE 100 - 499 FT LENGTH)	EA			1.000		1.000		
	496-6011	REMOV STR (BRIDGE 500 - 999 FT LENGTH)	EA	1.000				1.000		
	500-6001	MOBILIZATION	LS	1.000				1.000		
	502-6001	BARRICADES, SIGNS AND TRAFFIC HANDLING	MO	15.000				15.000		
	506-6001	ROCK FILTER DAMS (INSTALL) (TY 1)	LF	300.000		100.000		400.000		
	506-6011	ROCK FILTER DAMS (REMOVE)	LF	300.000		100.000		400.000		
	506-6042	BIODEG EROSN CONT LOGS (INSTL) (18")	LF	500.000		200.000		700.000		
	533-6001	RUMBLE STRIPS (SHOULDER)	LF	4,200.000		1,020.000		5,220.000		
	533-6002	RUMBLE STRIPS (CENTERLINE)	LF	2,100.000		510.000		2,610.000		

Estimate & Quantity Sheet

CONTROLLING PROJECT ID 0795-02-017 **DISTRICT** Childress **COUNTY** Donley
HIGHWAY FM 1260

				CONTROL SECTION JOB	0795-02-017		0795-03-010		TOTAL EST.	TOTAL FINAL
				PROJECT ID	A00130743		A00139523			
				COUNTY	Donley		Donley			
				HIGHWAY	FM 1260		FM 1260			
ALT	BID CODE	DESCRIPTION	UNIT		EST.	FINAL	EST.	FINAL		
	540-6002	MTL W-BEAM GD FEN (STEEL POST)	LF		800.000		200.000		1,000.000	
	540-6006	MTL BEAM GD FEN TRANS (THRIE-BEAM)	EA		4.000		4.000		8.000	
	544-6001	GUARDRAIL END TREATMENT (INSTALL)	EA		4.000		4.000		8.000	
	552-6003	WIRE FENCE (TY C)	LF		1,876.000				1,876.000	
	658-6062	INSTL DEL ASSM (D-SW)SZ 1(BRF)GF2(BI)	EA		30.000		10.000		40.000	
	666-6174	REFL PAV MRK TY II (W) 6" (SLD)	LF		250.000				250.000	
	666-6182	REFL PAV MRK TY II (W) 24" (SLD)	LF		24.000				24.000	
	666-6210	REFL PAV MRK TY II (Y) 6" (SLD)	LF		11,200.000				11,200.000	
	666-6225	PAVEMENT SEALER 6"	LF		1,800.000		360.000		2,160.000	
	666-6309	RE PM W/RET REQ TY I (W)6"(SLD)(100MIL)	LF		5,400.000		1,420.000		6,820.000	
	666-6318	RE PM W/RET REQ TY I (Y)6"(BRK)(100MIL)	LF		675.000		178.000		853.000	
	672-6009	REFL PAV MRKR TY II-A-A	EA		415.000		53.000		468.000	
	678-6002	PAV SURF PREP FOR MRK (6")	LF		1,800.000		360.000		2,160.000	
	6001-6002	PORTABLE CHANGEABLE MESSAGE SIGN	EA		4.000		2.000		6.000	
	6185-6002	TMA (STATIONARY)	DAY		69.000				69.000	
	6185-6003	TMA (MOBILE OPERATION)	HR		27.000				27.000	
	18	SAFETY CONTINGENCY: CONTRACTOR FORCE ACCOUNT WORK (PARTICIPATING)	LS		1.000				1.000	
		EROSION CONTROL MAINTENANCE: CONTRACTOR FORCE ACCOUNT WORK (PART)	LS		1.000				1.000	

ROADWAY SUMMARY - FM 1260 @ SALT FORK OF RED RIVER

LOCATION	106 6001 OBLITERATING ABANDONED ROAD	110 6001 EXCAVATION (ROADWAY)	110 6002 EXCAVATION (CHANNEL)	132 6002 EMBANKMENT (FINAL) (DENS CONT) (TY A)	150 6002 BLADING	247 6064 FL BS (CMP IN PLC) (TY A GR 4) (6")	310 6009 PRIME COAT (MC-30) 0.2 GAL/SY	316 6024 ASPH (CRS-2P) 0.4 GAL/SY	316 6080 AGGR (TY-B GR-5 SAC-A) 1.25 CY/SY	432 6045 RIPRAP (MOW STRIP) (4 IN)	533 6001 RUMBLE STRIPS (SHOULDER)	533 6002 RUMBLE STRIPS (CENTERLINE)	540 6002 MTL W-BEAM GD FEN (STEEL POST)	540 6006 MTL BEAM GD FEN TRANS (THRIE-BEAM)	544 6001 GUARDRAIL END TREATMENT (INSTALL)	552 6003 WIRE FENCE (TY C)
	STA	CY	CY	CY	HR	SY	GAL	GAL	CY	CY	LF	LF	LF	EA	EA	LF
STA.468+50.00 TO STA.478+20.00	10	2,228	1,118	1,250	2	3,349	670	2,679	54	20	1,940	970	400	2	2	1876
STA.484+20.00 TO STA.495+50.00	12	3,518	1,549	2,041	2	3,918	784	3,134	63	20	2,260	1,130	400	2	2	
PROJECT TOTALS	22	5,746	2,667	3,291	4	7,267	1,453	5,813	117	40	4,200	2,100	800	4	4	1876

BRIDGE SUMMARY - FM 1260 @ SALT FORK OF RED RIVER

LOCATION	401 6001 FLOWABLE BACKFILL	416 6004 DRILL SHAFT (36 IN)	420 6013 CL C CONC (ABUT)	420 6029 CL C CONC (CAP)	420 6037 CL C CONC (COLUMN)	422 6001 REINF CONC SLAB	422 6015 APPROACH SLAB	425 6035 PRESTR CONC GIRDER (TX28)	432 6035 RIPRAP (STONE PROTECTION) (24 IN)	450 6023 RAIL (TY SSTR)	454 6018 SEALED EXPANSION JOINT (4 IN) (SEJ-M)	496 6011 REMOV STR (BRIDGE 500 - 999 FT LENGTH)
	CY	LF	CY	CY	CY	SF	CY	LF	CY	LF	LF	EA
2 - ABUTMENTS	72	480	36.3	-	-	-	54.5	-	27.7	32	-	-
9 - INTERIOR BENTS	-	2,160	-	134.1	36.1	-	-	-	-	-	-	-
2 - 180.00' PRESTRD.CONC.I-GIRDER UNITS	-	-	-	-	-	12,240	-	1,428	-	1,200	99	-
1 - 240.00' PRESTRD.CONC.I-GIRDER UNIT	-	-	-	-	-	8,160	-	952	-	1,200	33	-
PROJECT TOTALS	72	2,640	36.3	134.1	36.1	20,400	54.5	2,380	27.7	1,232	132	1

WORKZONE TRAFFIC CONTROL SUMMARY - FM 1260 @ SALT FORK OF RED RIVER

LOCATION	666 6174 REFL PAV MRK TY II (W) 6" (SLD)	666 6182 REFL PAV MRK TY II (W) 24" (SLD)	666 6210 REFL PAV MRK TY II (Y) 6" (SLD)	672 6009 REFL PAV MRKR TY II-A-A	6001 6002 PORTABLE CHANGEABLE MESSAGE SIGN	6085 6002 TMA (STATIONARY)	6085 6003 TMA (MOBILE OPERATION)
	LF	LF	LF	EA	EA	DAY	HR
STA.468+50.00 TO STA.495+50.00	250	24	11,200	280	2	69	27
PROJECT TOTALS	250	24	11,200	280	2	69	27

PAVEMENT MARKING SUMMARY - FM 1260 @ SALT FORK OF RED RIVER

LOCATION	658 6062 INSTL DEL ASSM (D-SW) SZ I (BRF) GF2 (BI)	666 6225 PAVEMENT SEALER 6"	666 6309 RE PM W/RET REQ TY I (W) 6" (SLD)(100MIL)	666 6318 RE PM W/RET REQ TY I (Y) 6" (BRK)(100MIL)	672 6009 REFL PAV MRKR TY II-A-A	678 6002 PAV SURF PREP FOR MRK (6")	6001 6002 PORTABLE CHANGEABLE MESSAGE SIGN
	EA	LF	LF	LF	EA	LF	EA
STA.468+50.00 TO STA.495+50.00	30	1,800	5,400	675	135	1,800	2
PROJECT TOTALS	30	1,800	5,400	675	135	1,800	2

EROSION CONTROL SUMMARY - FM 1260 @ SALT FORK OF RED RIVER

LOCATION	164 6034 DRILL SEEDING (PERM) (RURAL) (SANDY)	164 6042 DRILL SEEDING (TEMP) (WARM)	164 6044 DRILL SEEDING (TEMP) (COOL)	168 6001 VEGETATIVE WATERING	506 6001 ROCK FILTER DAMS (INSTALL) (TY 1)	506 6011 ROCK FILTER DAMS (REMOVE)	506 6042 BIODEG EROSN CONT LOGS (INSTL) (18")
	AC	AC	AC	MG	LF	LF	LF
STA.468+50.00 TO STA.495+50.00	2.05	1.03	1.03	80	300	300	500
PROJECT TOTALS	2.05	1.03	1.03	80	300	300	500

DATE: $DATE$ $TIME$
FILE: $FILE$

QUANTITY SUMMARY

FM 1260
@
SALT FORK OF RED RIVER

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SHEET 1 OF 2

CONT	SECT	JOB	HIGHWAY
0795	02	017,ETC.	FM 1260
DIST	COUNTY		SHEET NO.
25	DONLEY		13

ROADWAY SUMMARY - FM 1260 @ EAST LELIA LAKE

LOCATION	110 6002 EXCAVATION (CHANNEL)	112 6002 SUBGRADE WIDENING (DENS CONT)	134 6004 BACKFILL (TY A OR B)	150 6002 BLADING	247 6064 FL BS (CMP IN PLC) (TY A GR 4) (6")	310 6009 PRIME COAT (MC-30) 0.2 GAL/SY	316 6024 ASPH (CRS-2P) 0.4 GAL/SY	316 6080 AGGR (TY-B GR-5 SAC-A) 1.25 CY/SY	432 6045 RIPRAP (MON STRIP)(4 IN)	533 6001 RUMBLE STRIPS (SHOULDER)	533 6002 RUMBLE STRIPS (CENTERLINE)	540 6002 MTL W-BEAM GD FEN (STEEL POST)	540 6006 MTL BEAM GD FEN TRANS (THRIE-BEAM)	544 6001 GUARDRAIL END TREATMENT (INSTALL)
	CY	STA	STA	HR	SY	GAL	GAL	CY	CY	LF	LF	LF	EA	EA
STA.249+00.00 TO STA.251+80.00	554	3	3	5	863	173	345	7	10	520	260	100	2	2
STA.253+40.00 TO STA.256+10.00	606	3	3	5	833	167	333	6	10	500	250	100	2	2
PROJECT TOTALS	**1,160**	**6**	**6**	**10**	**1,696**	**340**	**678**	**13**	**20**	**1,020**	**510**	**200**	**4**	**4**

BRIDGE SUMMARY - FM 1260 @ EAST LELIA LAKE

LOCATION	401 6001 FLOWABLE BACKFILL	416 6004 DRILL SHAFT (36 IN)	420 6013 CL C CONC (ABUT) ①	420 6029 CL C CONC (CAP) ②	420 6037 CL C CONC (COLUMN)	422 6001 REINF CONC SLAB	422 6015 APPROACH SLAB	425 6036 PRESTR CONC GIRDER (TX34)	432 6035 RIPRAP (STONE PROTECTION) (24 IN)	450 6023 RAIL (TY SSTR)	454 6018 SEALED EXPANSION JOINT (4 IN) (SEJ-M)	496 6010 REMOV STR (BRIDGE 100 - 499 FT LENGTH)
	CY	LF	CY	CY	CY	SF	CY	LF	CY	LF	LF	EA
2 - ABUTMENTS	72	224	39.4	-	-	-	-	-	247	36	-	1
2 - INTERIOR BENTS	-	180	-	29.8	12.9	-	-	-	-	-	-	-
1 - 160.00' PRESTRD.CONC.I-GIRDER UNIT		-	-	-	-	5,440	52.6	634	-	320	66	-
PROJECT TOTALS	**72**	**420**	**39.4**	**29.8**	**12.9**	**5,440**	**52.6**	**634**	**247**	**356**	**66**	**1**

① QUANTITY INCLUDES CONCRETE 0.6 CY FOR SHEAR KEY.
② QUANTITY INCLUDES CONCRETE 1.2 CY FOR SHEAR KEY.

PAVEMENT MARKING SUMMARY - FM 1260 @ EAST LELIA LAKE

LOCATION	658 6062 INSTL DEL ASSM (D-SW) SZ I(BRF) GF2 (BI)	666 6225 PAVEMENT SEALER 6"	666 6309 RE PM W/RET REQ TY I(W)6" (SLDX100MIL)	666 6318 RE PM W/RET REQ TY I(Y)6" (BRKX100MIL)	672 6009 REFL PAV MRKR TY II-A-A	678 6002 PAV SURF PREP FOR MRK (6")	6001 6002 PORTABLE CHANGEABLE MESSAGE SIGN
	EA	LF	LF	LF	EA	LF	EA
STA.249+00.00 TO STA.256+10.00	10	360	1420	178	53	360	2
PROJECT TOTALS	**10**	**360**	**1420**	**178**	**53**	**360**	**2**

EROSION CONTROL SUMMARY - FM 1260 @ EAST LELIA LAKE

LOCATION	164 6034 DRILL SEEDING (PERM) (RURAL) (SANDY)	164 6042 DRILL SEEDING (TEMP) (WARM)	164 6044 DRILL SEEDING (TEMP) (COOL)	168 6001 VEGETATIVE WATERING	506 6001 ROCK FILTER DAMS (INSTALL) (TY 1)	506 6011 ROCK FILTER DAMS (REMOVE)	506 6042 BIODEG EROSN CONT LOGS (INSTL) (18")
	AC	AC	AC	MG	LF	LF	LF
STA.249+00.00 TO STA.256+10.00	0.64	0.32	0.32	25	100	100	200
PROJECT TOTALS	**0.64**	**0.32**	**0.32**	**25**	**100**	**100**	**200**

DATE: $DATE$ $TIME$
FILE: $FILE$

QUANTITY SUMMARY

FM 1260
@
EAST LELIA LAKE

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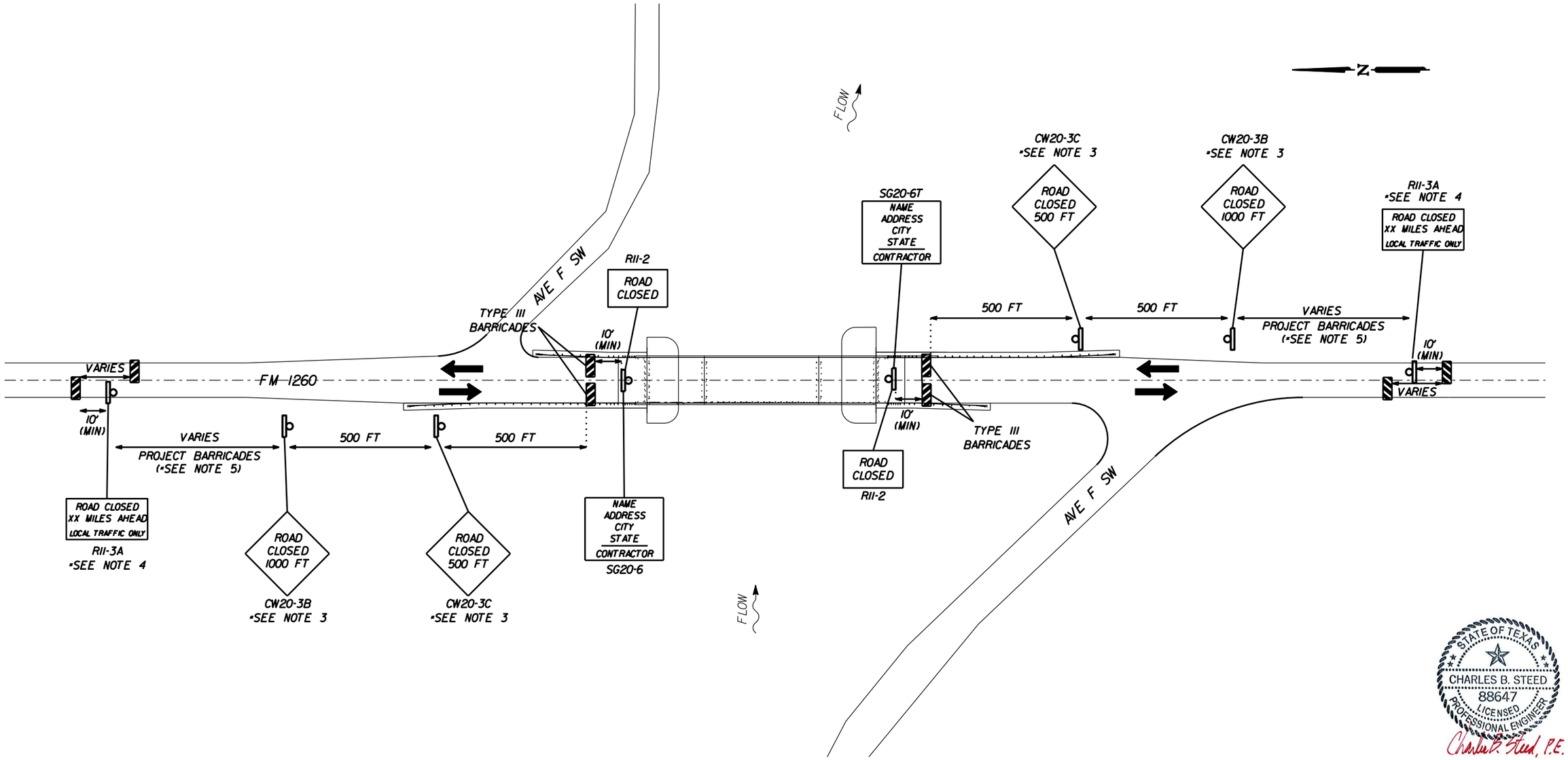
SHEET 2 OF 2

CONT	SECT	JOB	HIGHWAY
0795	02	017.ETC.	FM 1260
DIST	COUNTY		SHEET NO.
25	DONLEY		14



NOTES:

1) SIGN LOCATIONS AS SHOWN ON THIS LAYOUT ARE FOR THE CONTRACTOR'S INFORMATION ONLY. ACTUAL FIELD LOCATIONS SHALL BE DETERMINED BY THE ENGINEER.

2) THIS LAYOUT SHOWS ONLY THE MINIMUM SIGNING REQUIRED. AS FIELD CONDITIONS WARRANT, THE ENGINEER SHALL RETAIN THE RIGHT TO MOVE, ADD OR DELETE SIGNS AS DEEMED NECESSARY.

3) FOR AREAS WHERE THERE IS A SHORTER DISTANCE BETWEEN THE INTERSECTION AND THE ACTUAL CLOSURE LOCATION, THE ROAD CLOSED XX FT AHEAD SIGNS MAY BE REPLACED WITH A SINGLE ROAD CLOSED AHEAD (CW20-3D) SIGN.

4) IF THE ROAD IS OPEN FOR A SIGNIFICANT DISTANCE BEYOND THE INTERSECTION OR THERE ARE SIGNIFICANT ORIGIN/DESTINATION POINTS BEYOND THE INTERSECTION, THE SIGNS AND BARRICADES AT THIS LOCATION SHOULD BE LOCATED AT THE EDGE OF THE TRAVEL WAY.

5) SEE THE BARRICADE AND CONSTRUCTION (BC) STANDARD SHEETS FOR ADDITIONAL PROJECT BARRICADES, SIGNS, AND SPACING.

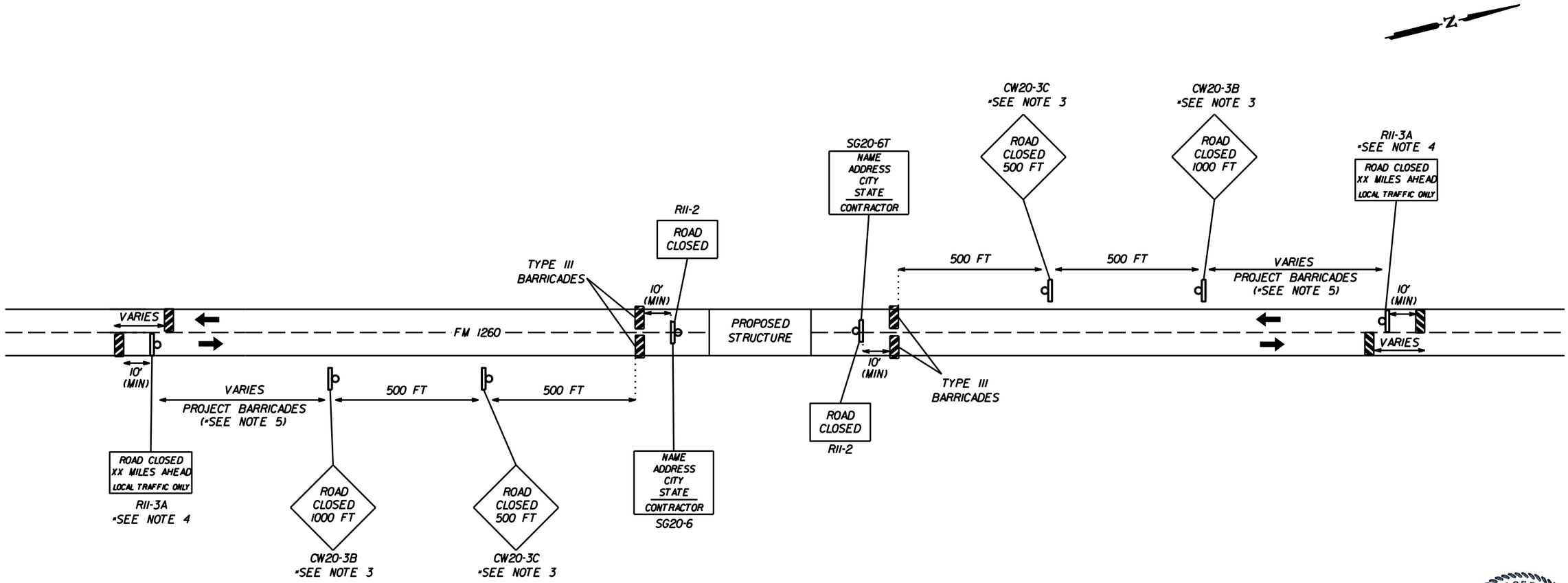
STATE OF TEXAS
CHARLES B. STEED
88647
LICENSED
PROFESSIONAL ENGINEER
Charles B. Steed, P.E.
05/09/2024

TRAFFIC CONTROL PLAN LAYOUT

FM 1260
@ EAST LELIA LAKE

NOT TO SCALE

CONT	SECT	JOB	HIGHWAY
0795	02	017,ETC.	FM 1260
DIST	COUNTY		SHEET NO.
25	DONLEY		15



NOTES:

1) SIGN LOCATIONS AS SHOWN ON THIS LAYOUT ARE FOR THE CONTRACTOR'S INFORMATION ONLY. ACTUAL FIELD LOCATIONS SHALL BE DETERMINED BY THE ENGINEER.

2) THIS LAYOUT SHOWS ONLY THE MINIMUM SIGNING REQUIRED. AS FIELD CONDITIONS WARRANT, THE ENGINEER SHALL RETAIN THE RIGHT TO MOVE, ADD OR DELETE SIGNS AS DEEMED NECESSARY.

3) FOR AREAS WHERE THERE IS A SHORTER DISTANCE BETWEEN THE INTERSECTION AND THE ACTUAL CLOSURE LOCATION, THE ROAD CLOSED XX FT AHEAD SIGNS MAY BE REPLACED WITH A SINGLE ROAD CLOSED AHEAD (CW20-3D) SIGN.

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5) SEE THE BARRICADE AND CONSTRUCTION (BC) STANDARD SHEETS FOR ADDITIONAL PROJECT BARRICADES, SIGNS, AND SPACING.

STATE OF TEXAS
CHARLES B. STEED
88647
LICENSED
PROFESSIONAL ENGINEER
Charles B. Steed, P.E.
05/09/2024

TRAFFIC CONTROL PLAN LAYOUT

FM 1260 @ SALT FORK of RED RIVER

CONT	SECT	JOB	HIGHWAY
0795	02	017,ETC.	FM 1260
DIST	COUNTY		SHEET NO.
25	DONLEY		15A

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

DATE: $DATE$ $TIME$
FILE: $FILE$

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Texas Department of Transportation

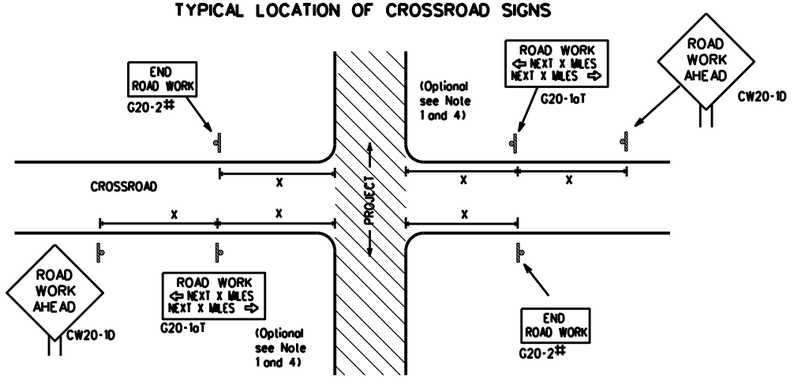
Traffic Safety Division Standard

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	0795	02	017,ETC.	FM 1260
4-03 7-13	DIST	COUNTY		SHEET NO.
9-07 8-14	025	DONLEY		16
5-10 5-21				

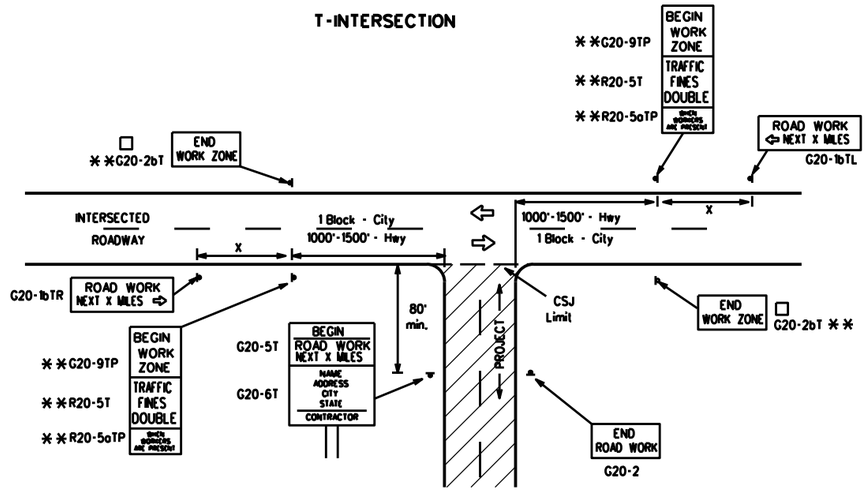
TYPICAL LOCATION OF CROSSROAD SIGNS



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 crossroad 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]

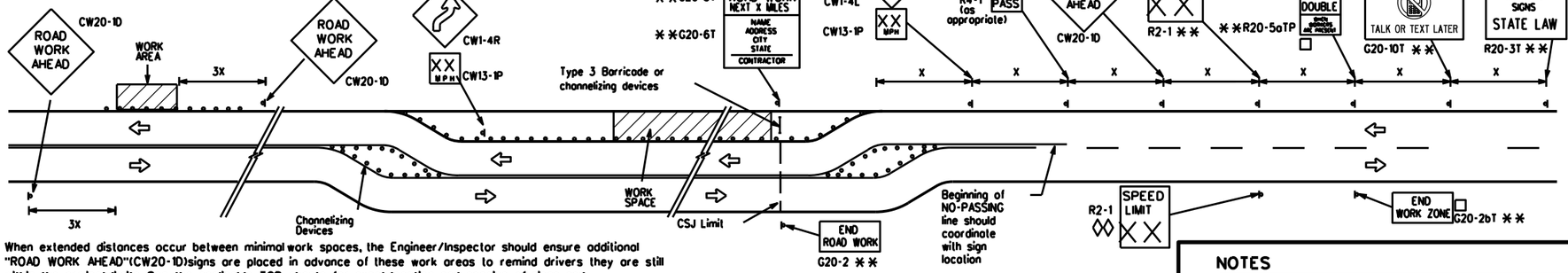
* For typical sign spacings on divided highways, expressways and freeways, see Part 6 of the "Texas Manual on Uniform Traffic Control Devices" (TMUTCD) typical application diagrams or TCP Standard Sheets.

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

GENERAL NOTES

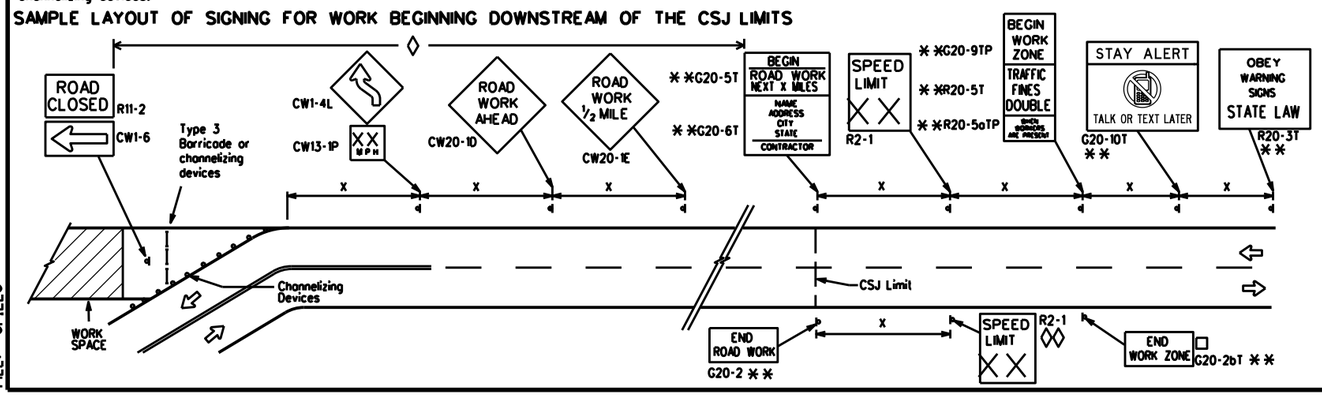
1. Special or larger size signs may be used as necessary.
2. Distance between signs should be increased as required to have 1500 feet advance warning.
3. Distance between signs should be increased as required to have 1/2 mile or more advance warning.
4. 36" x 36" "ROAD WORK AHEAD" (CW20-1D)signs may 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.

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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
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REVISIONS	0795	02	017,ETC.	FM 1260
9-07 8-14	DIST	COUNTY		SHEET NO.
7-13 5-21	025	DONLEY		17

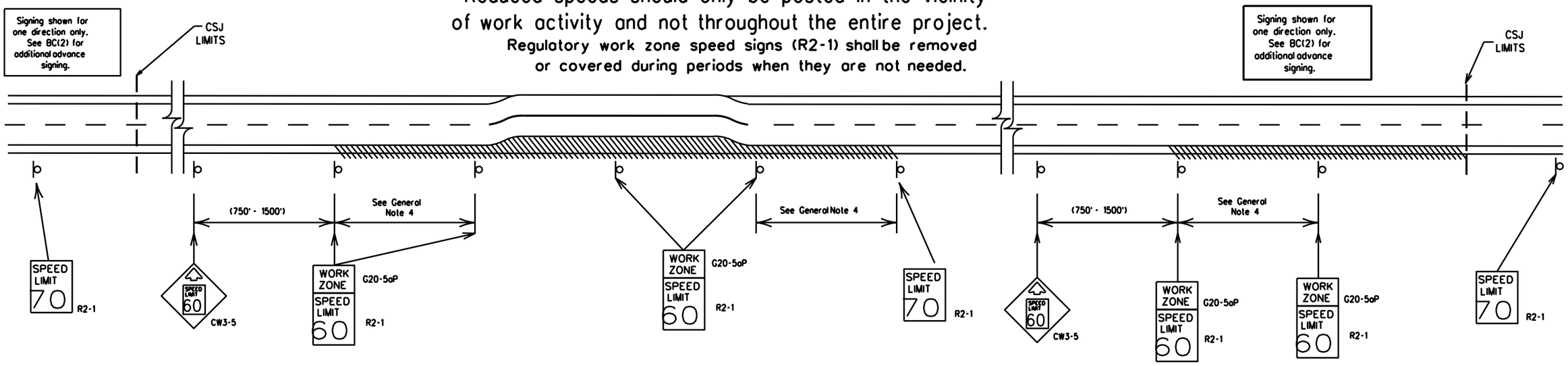
DATE: $DATE$ $TIME$
FILE: $FILE$

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. Law 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.

DATE: $DATE$ $TIME$
FILE: $FILE$

SHEET 3 OF 12

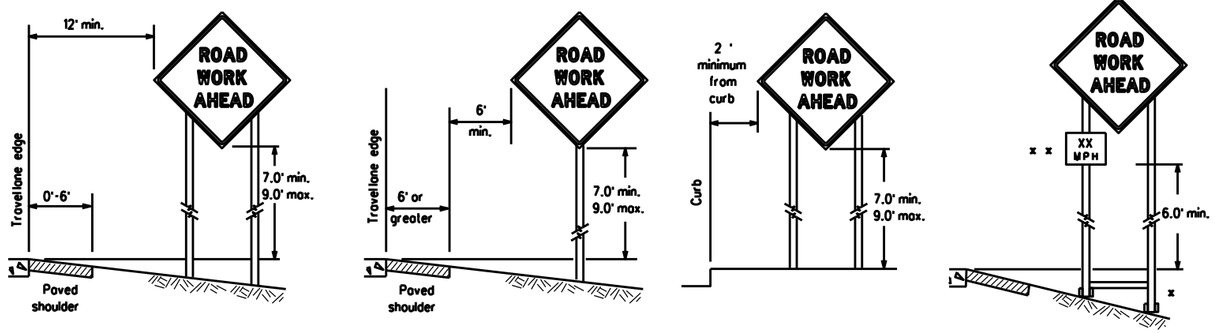
Texas Department of Transportation | Traffic Safety Division Standard

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	0795	02	017,ETC.	FM 1260
9-07 8-14	DIST	COUNTY		SHEET NO.
7-13 5-21	025	DONLEY		18

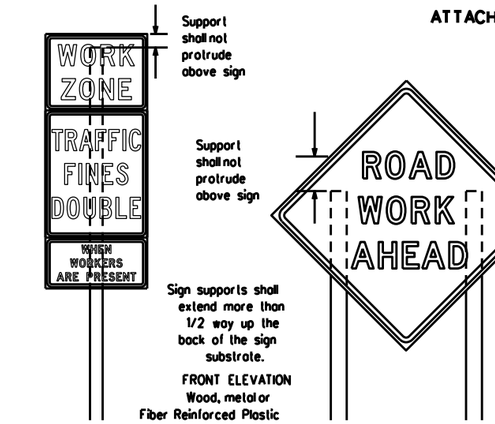
TYPICAL MINIMUM CLEARANCES FOR LONG TERM AND INTERMEDIATE TERM SIGNS



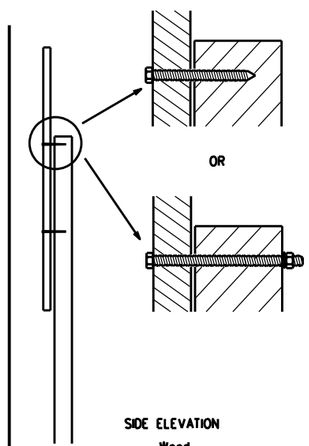
x When placing skid supports on unlevel ground, the leg post lengths must be adjusted so the sign appears straight and plumb. Objects shall NOT be placed under skids as a means of leveling.

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.

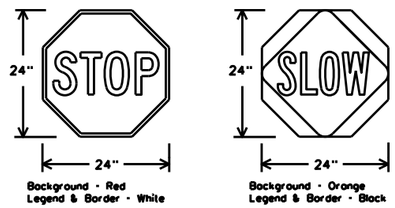


Attachment to wooden supports will be by bolts and nuts or screws. Use TxDOT's or manufacturer's recommended procedures for attaching sign substrates to other types of sign supports

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.

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BARRICADE AND CONSTRUCTION TEMPORARY SIGN NOTES

BC(4)-21

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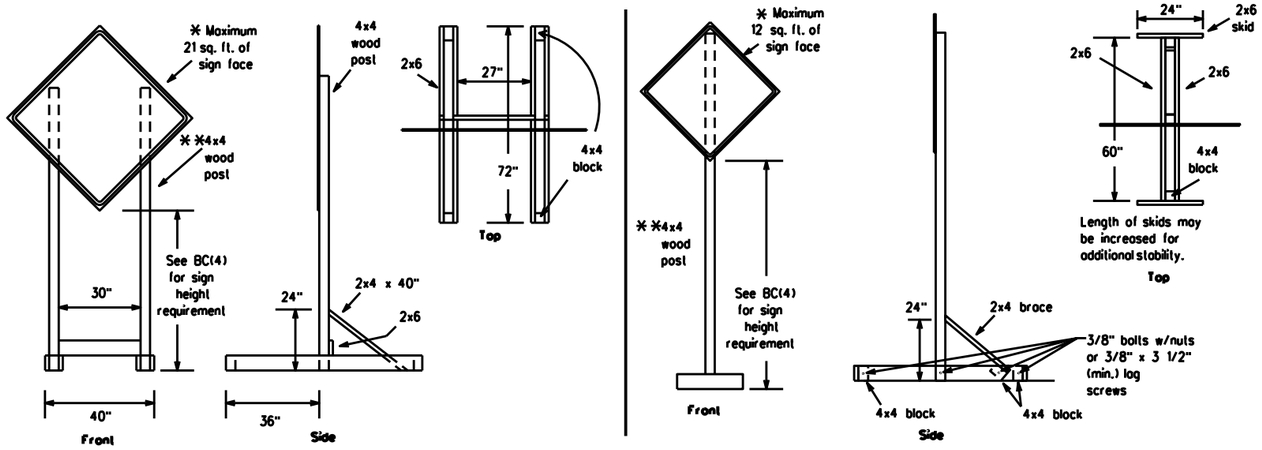
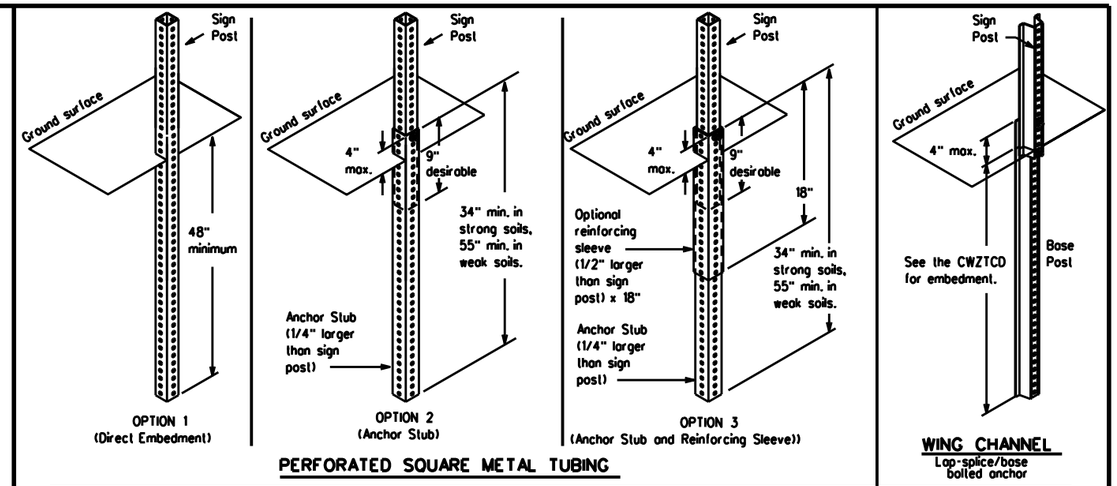


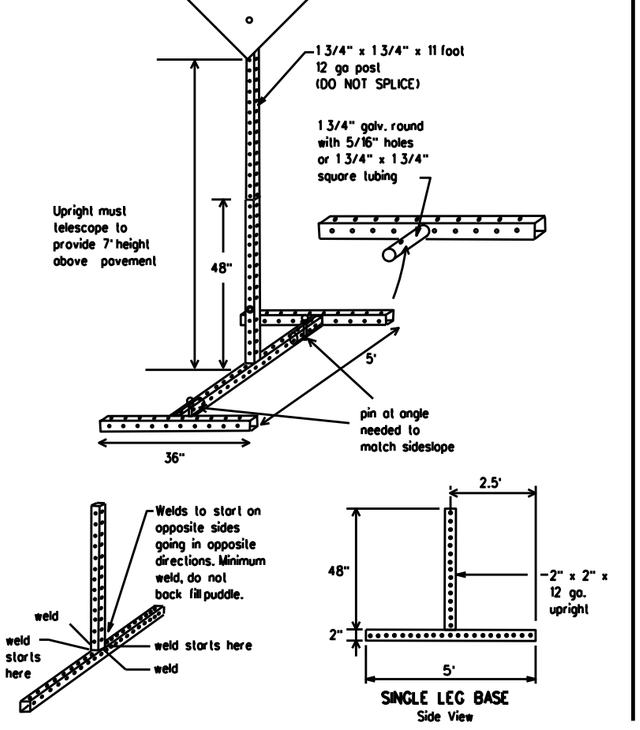
SKID MOUNTED WOOD SIGN SUPPORTS

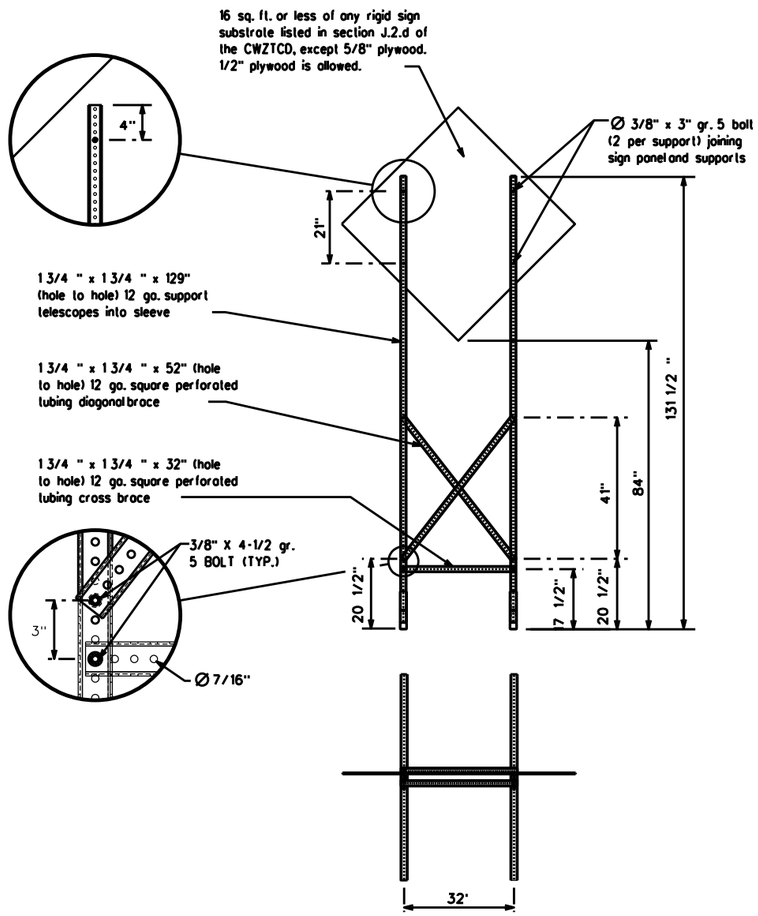
*** LONG/INTERMEDIATE TERM STATIONARY - PORTABLE SKID MOUNTED SIGN SUPPORTS**

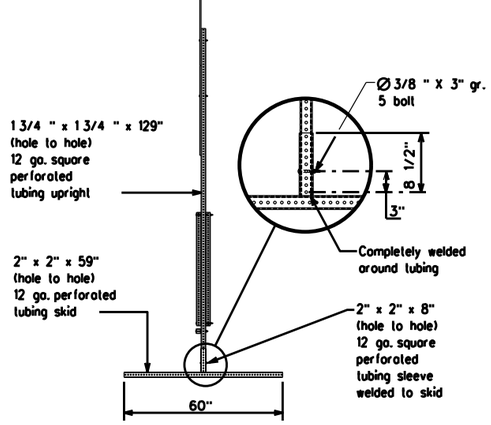


GROUND MOUNTED SIGN SUPPORTS

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







SKID MOUNTED PERFORATED SQUARE STEEL TUBING SIGN SUPPORTS

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

WEDGE ANCHORS

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

OTHER DESIGNS

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

GENERAL NOTES

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.

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Texas Department of Transportation

Traffic Safety Division Standard

BARRICADE AND CONSTRUCTION TYPICAL SIGN SUPPORT

BC(5)-21

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

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

WORD OR PHRASE	ABBREVIATION
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.

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Texas Department of Transportation

Traffic Safety Division Standard

BARRICADE AND CONSTRUCTION PORTABLE CHANGEABLE MESSAGE SIGN (PCMS)

BC(6)-21

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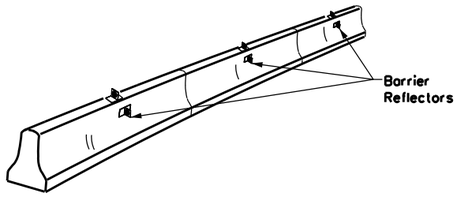
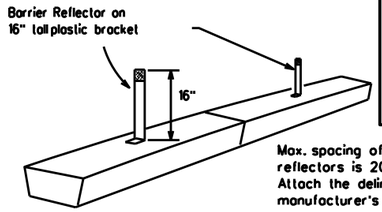
100

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.

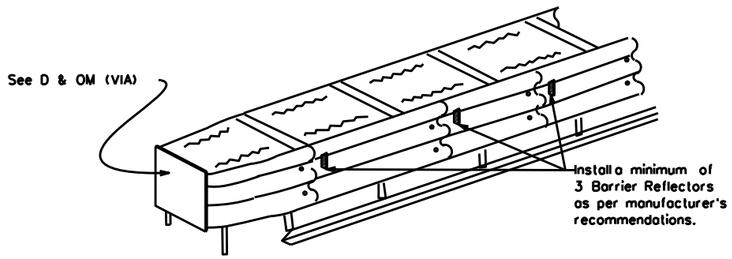


Max. spacing of barrier reflectors is 20 feet.
Attach the delineators as per manufacturer's recommendations.

LOW PROFILE CONCRETE BARRIER (LPCB) 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.

LOW PROFILE CONCRETE BARRIER (LPCB)

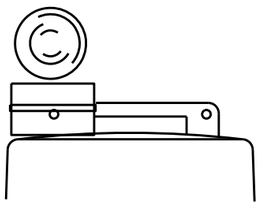


DELINEATION OF END TREATMENTS

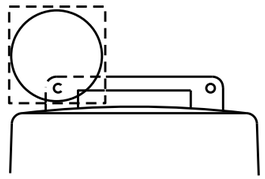
END TREATMENTS FOR CTB'S USED IN WORK ZONES

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

BARRIER REFLECTORS FOR CONCRETE TRAFFIC BARRIER AND ATTENUATORS



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



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

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.

WARNING LIGHTS MOUNTED ON PLASTIC DRUMS

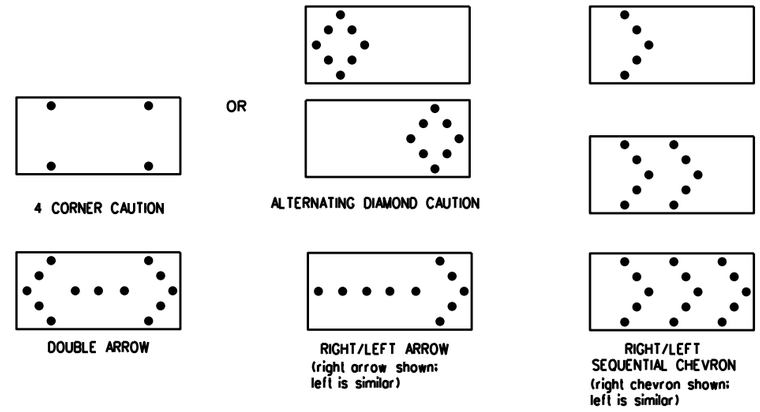
1. Type A flashing warning lights are intended to warn drivers that they are approaching or are in a potentially hazardous area.
2. Type A random flashing warning lights are not intended for delineation and shall not be used in a series.
3. A series of sequential flashing warning lights placed on channelizing 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 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:



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
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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.

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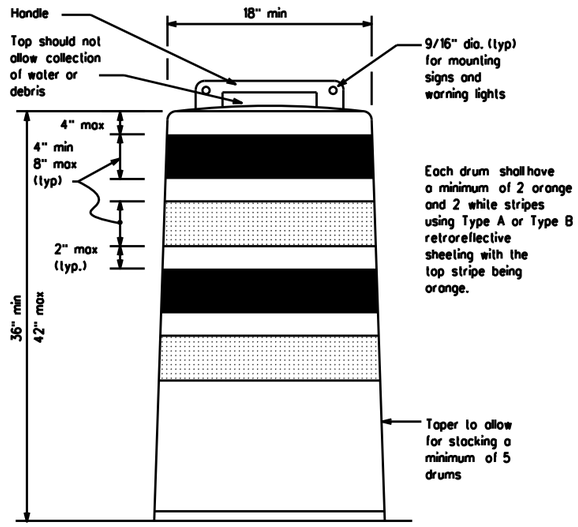
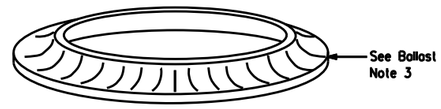
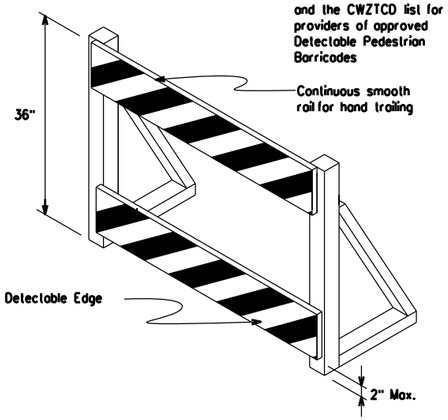
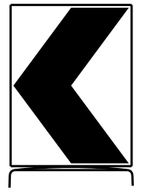




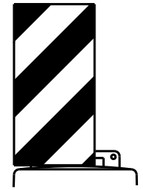


DETECTABLE PEDESTRIAN BARRICADES

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.

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
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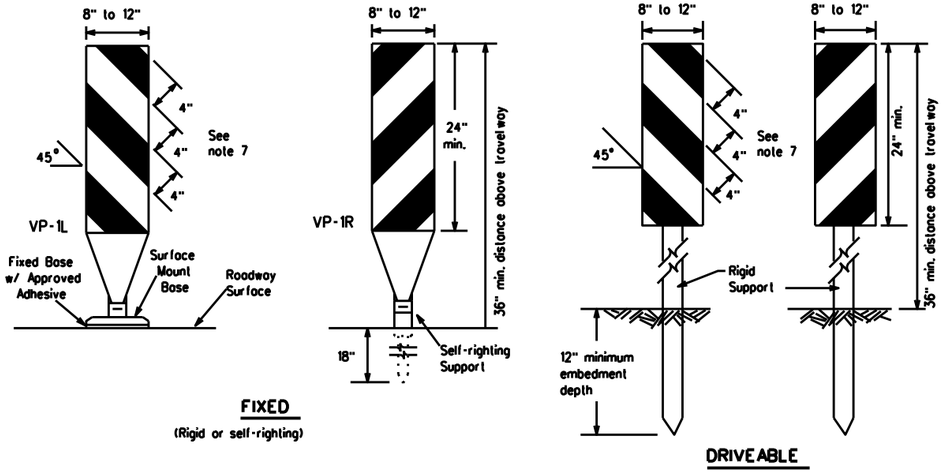
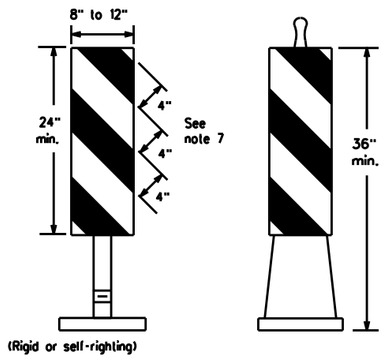


FIXED
(Rigid or self-righting)

DRIVEABLE

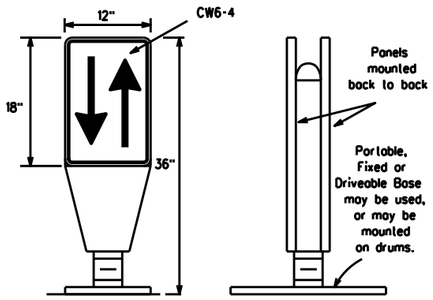


(Rigid or self-righting)

PORTABLE

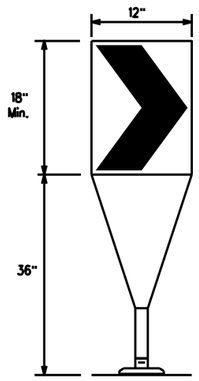
1. Vertical Panels (VP's) are normally used to channelize traffic or divide opposing lanes of traffic.
2. VP's may be used in daytime or nighttime situations. They may be used at the edge of shoulder drop-offs and other areas such as lane transitions where positive daytime and nighttime delineation is 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)



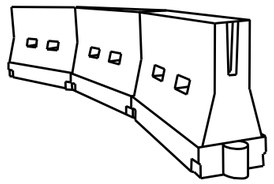
Fixed Base w/ Approved Adhesive (Driveable Base, or Flexible Support can be used)

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 ** 10' Offset	11' Offset	12' Offset	Suggested Maximum Spacing of Channelizing Devices: 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'

** 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

Texas Department of Transportation | Traffic Safety Division Standard

BARRICADE AND CONSTRUCTION CHANNELIZING DEVICES

BC(9)-21

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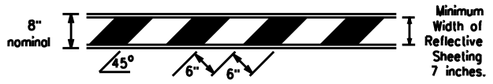
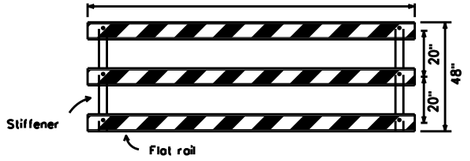
TYPE 3 BARRICADES

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.



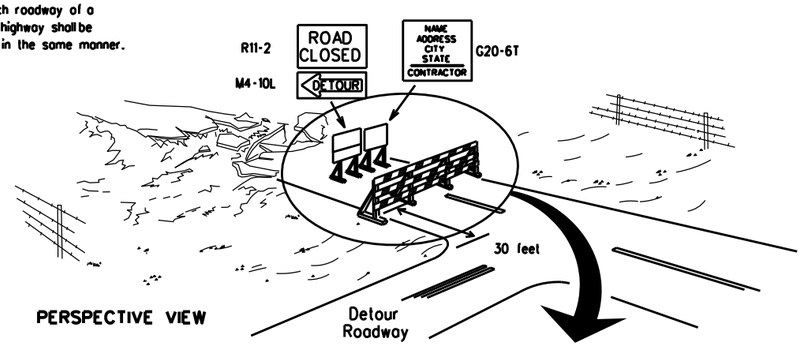
TYPICAL STRIPING DETAIL FOR BARRICADE RAIL



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

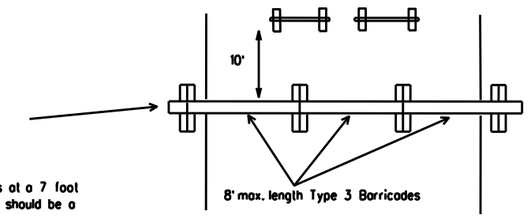
Each roadway of a divided highway shall be barricaded in the same manner.



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.

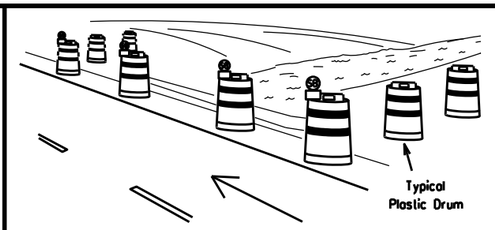
Barricade striping should slant downward in the direction of detour.



PLAN VIEW

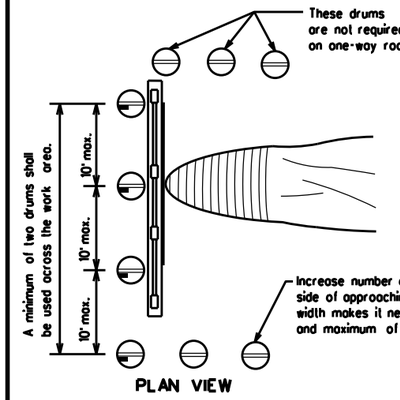
1. Signs should be mounted on independent supports at a 7 foot mounting height in center of roadway. The signs should be a minimum of 10 feet behind Type 3 Barricades.
2. Advance signing shall be as specified elsewhere in the plans.

TYPE 3 BARRICADE (POST AND SKID) TYPICAL APPLICATION



PERSPECTIVE VIEW

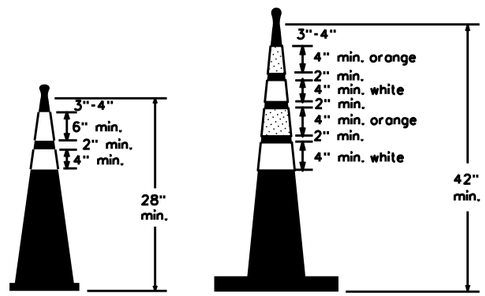
1. Where positive redirectional capability is provided, drums may be omitted.
2. Plastic construction fencing may be used with drums for safety as required in the plans.
3. Vertical Panels on flexible support may be substituted for drums when the shoulder width is less than 4 feet.
4. When the shoulder 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.



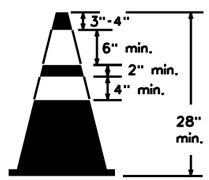
PLAN VIEW

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

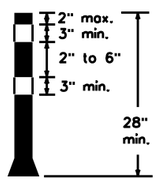
CULVERT WIDENING OR OTHER ISOLATED WORK WITHIN THE PROJECT LIMITS



Two-Piece cones



One-Piece cones

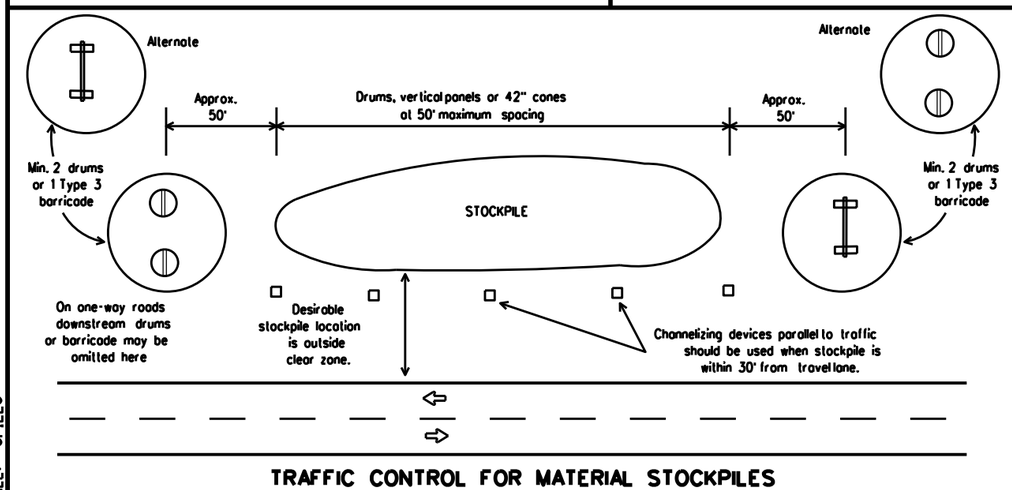


Tubular Marker

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

DATE: $DATE$
FILE: $FILE$
$TIME$

SHEET 10 OF 12

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
©TxDOT November 2002	CONT	SECT	JOB	HIGHWAY
REVISIONS	0795	02	017,ETC.	FM 1260
9-07 8-14	DIST	COUNTY		SHEET NO.
7-13 5-21	025	DONLEY		25

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.

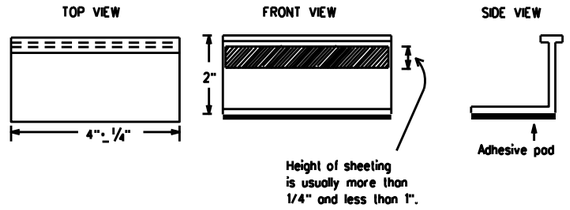
MAINTAINING WORK ZONE PAVEMENT MARKINGS

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).

DATE: $DATE$ $TIME$
FILE: $FILE$

Texas Department of Transportation | Traffic Safety Division Standard

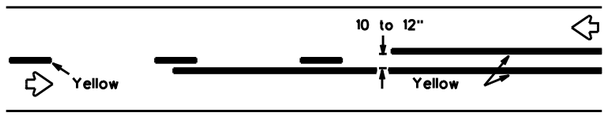
BARRICADE AND CONSTRUCTION PAVEMENT MARKINGS

BC(11)-21

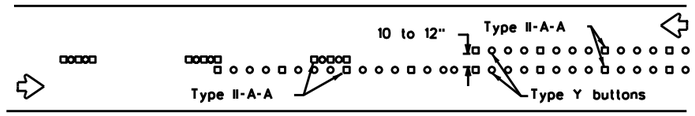
FILE: bc-21.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
© TxDOT February 1998	CONT	SECT	JOB	HIGHWAY
REVISIONS	0795	02	017,ETC.	FM 1260
2-98 9-07 5-21	DIST	COUNTY		SHEET NO.
1-02 7-13	025	DONLEY		26
11-02 8-14				

DATE: $DATE$ $TIME$
FILE: $FILE$

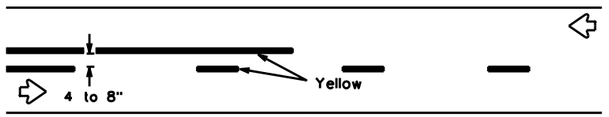
PAVEMENT MARKING PATTERNS



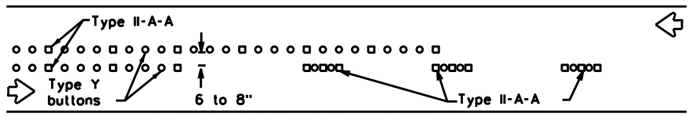
REFLECTORIZED PAVEMENT MARKINGS - PATTERN A



RAISED PAVEMENT MARKERS - PATTERN A



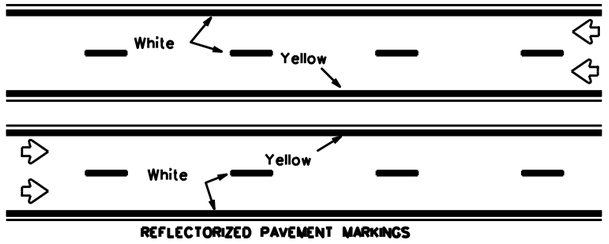
REFLECTORIZED PAVEMENT MARKINGS - PATTERN B



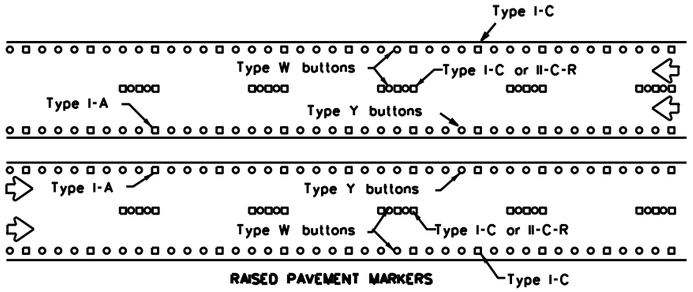
RAISED PAVEMENT MARKERS - PATTERN B

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



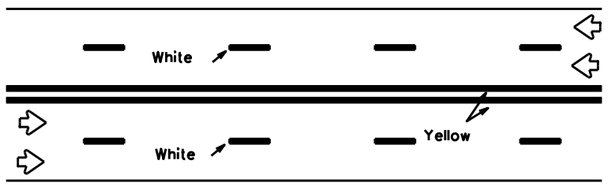
REFLECTORIZED PAVEMENT MARKINGS



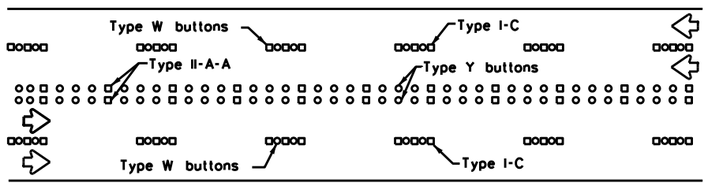
RAISED PAVEMENT MARKERS

Prefabricated markings may be substituted for reflectorized pavement markings.

EDGE & LANE LINES FOR DIVIDED HIGHWAY



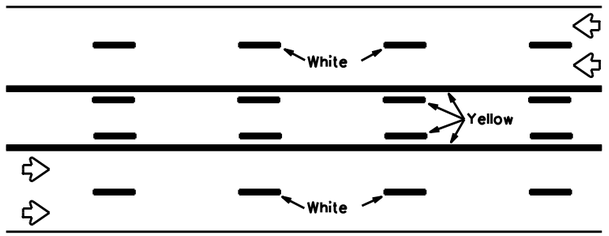
REFLECTORIZED PAVEMENT MARKINGS



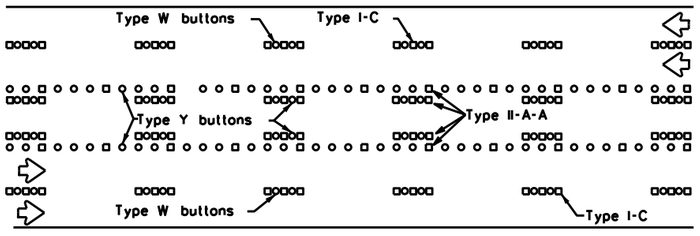
RAISED PAVEMENT MARKERS

Prefabricated markings may be substituted for reflectorized pavement markings.

LANE & CENTER LINES FOR MULTILANE UNDIVIDED HIGHWAYS



REFLECTORIZED PAVEMENT MARKINGS

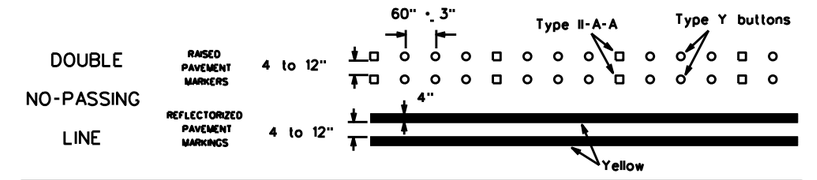


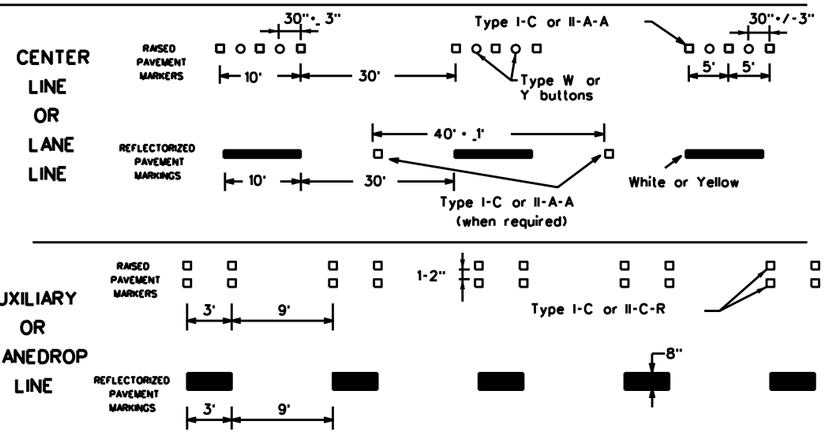
RAISED PAVEMENT MARKERS

Prefabricated markings may be substituted for reflectorized pavement markings.

TWO-WAY LEFT TURN LANE

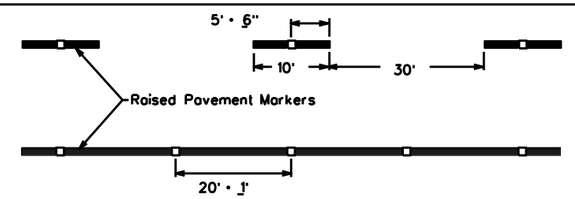
STANDARD WORK ZONE PAVEMENT MARKINGS DETAILS





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	0795	02	017,ETC.	FM 1260
	DIST	COUNTY		SHEET NO.
	025	DONLEY		27

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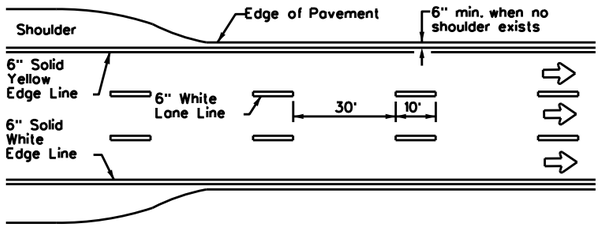
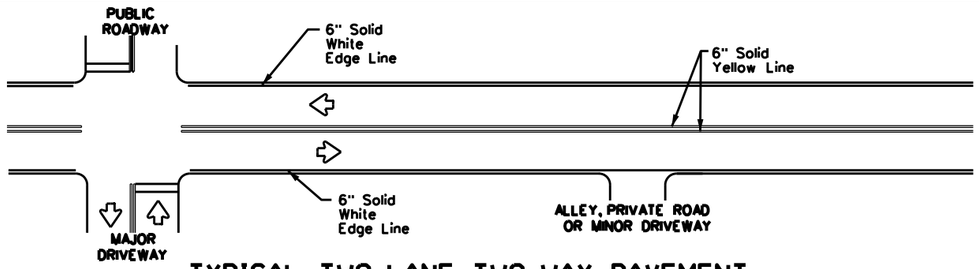
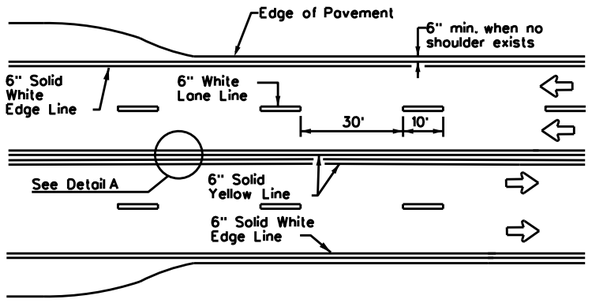
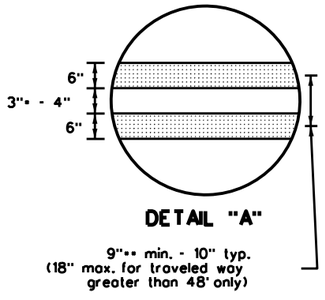


EDGE LINE AND LANE LINES ONE-WAY ROADWAY WITH OR WITHOUT SHOULDERS



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

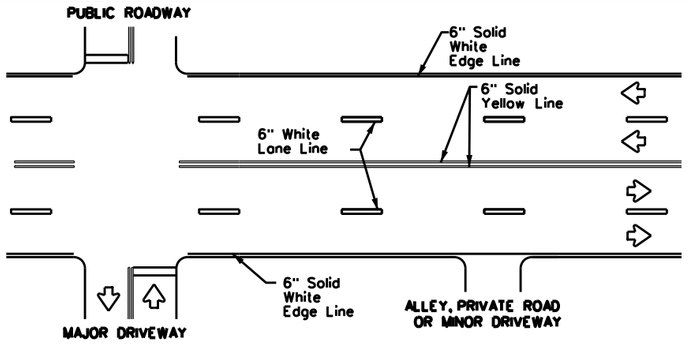




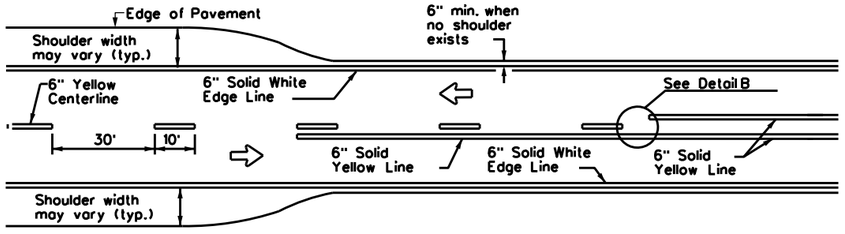
CENTERLINE AND LANE LINES FOUR LANE TWO-WAY ROADWAY WITH OR WITHOUT SHOULDERS

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

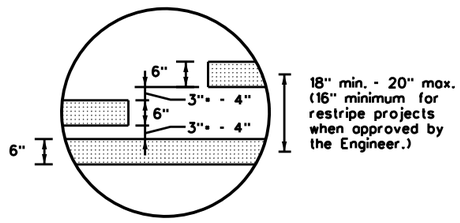
** 8" minimum for restripe projects when approved by the Engineer.



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

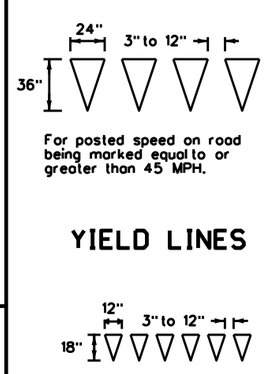


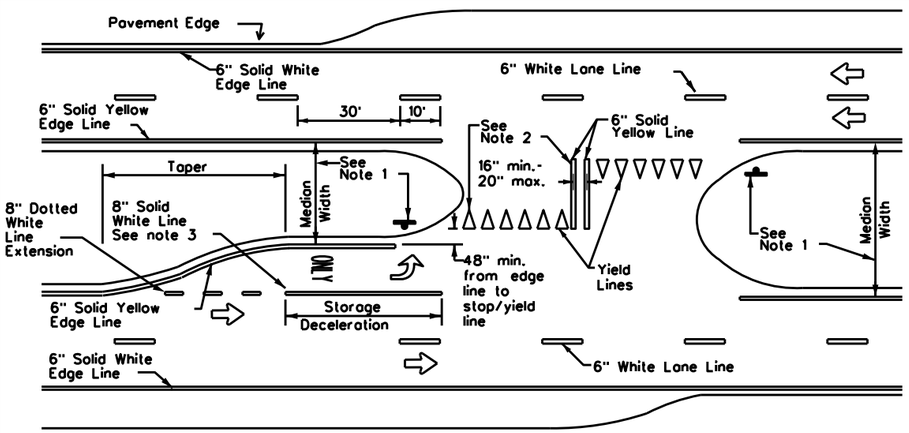
TWO LANE TWO-WAY ROADWAY WITH OR WITHOUT SHOULDERS



DETAIL "B"

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





FOUR LANE DIVIDED ROADWAY CROSSOVERS

NOTES

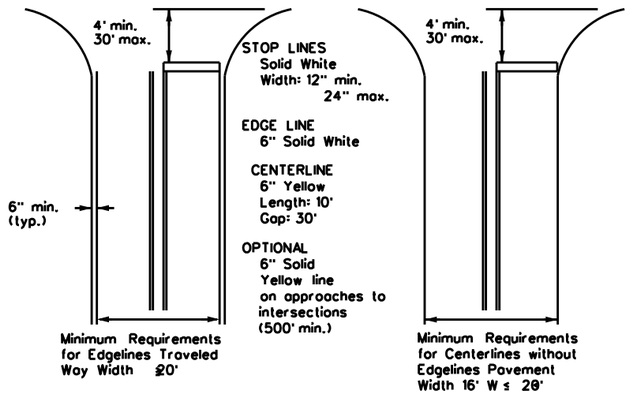
1. Where divided highways are separated by median widths at the median opening itself of 30 feet or more, median openings shall be signed as two separate intersections.
   Each median opening has two width measurements, with one measurement for each approach. The narrow median width will be the controlling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

GENERAL NOTES

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

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

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



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

GUIDE FOR PLACEMENT OF STOP LINES, EDGE LINE & CENTERLINE

Based on Traveled Way and Pavement Widths for Undivided Roadways

Texas Department of Transportation

Traffic Safety Division Standard

TYPICAL STANDARD PAVEMENT MARKINGS

PM(1)-22

FILE: pm1-22.dgn	DN:	CK:	DW:	CK:
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REVISIONS	0795	02	027,ETC.	FM 1260
11-78 8-00 6-20	DIST	COUNTY		SHEET NO.
8-95 3-03 12-22	25	DONLEY		28
5-00 2-12				

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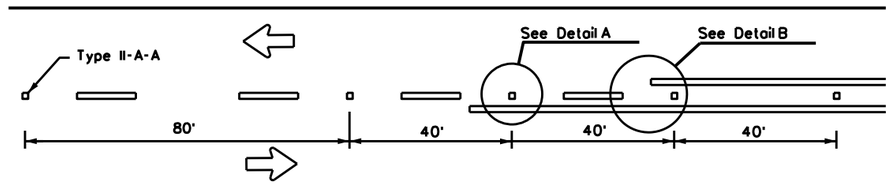
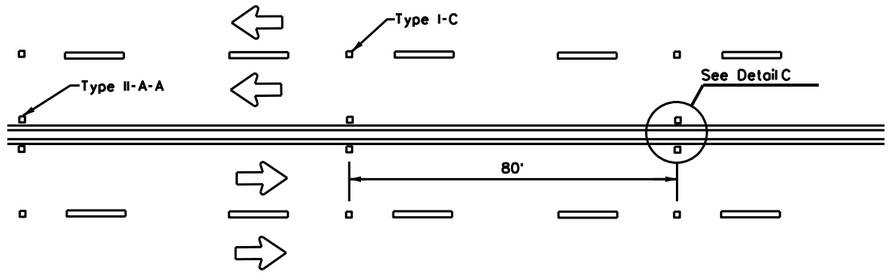
DATE: $DATE$ $TIME$
FILE: $FILE$

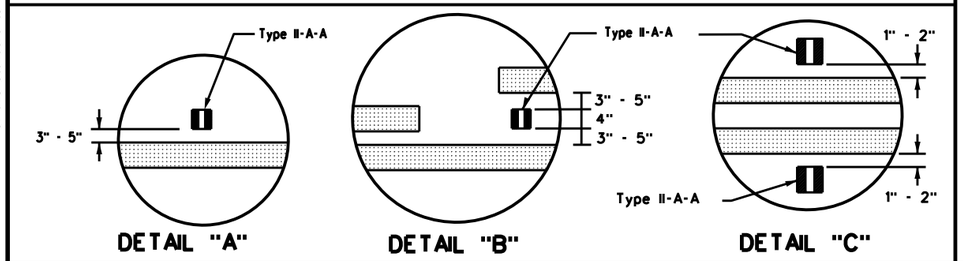
REFLECTIVE RAISED PAVEMENT MARKERS FOR VEHICLE POSITIONING GUIDANCE

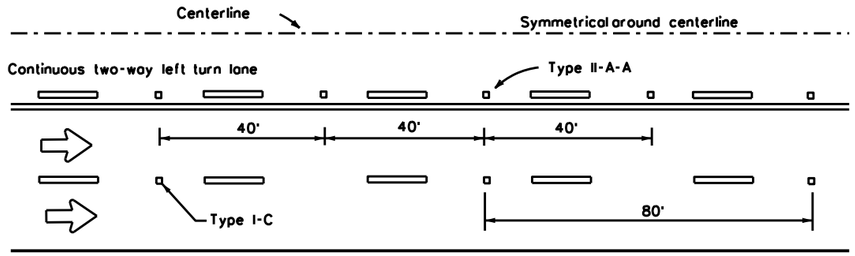


CENTERLINE FOR ALL TWO LANE TWO-WAY ROADWAYS

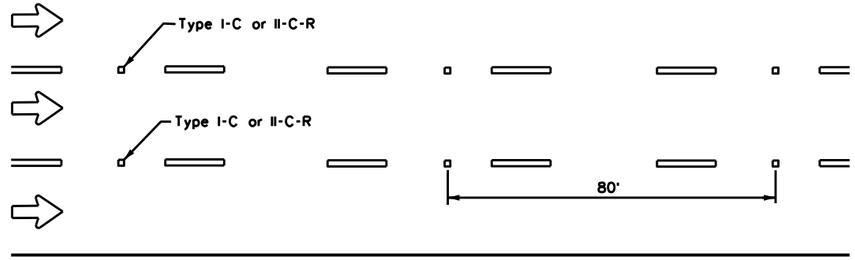


CENTERLINE & LANE LINES FOR FOUR LANE TWO-WAY ROADWAYS





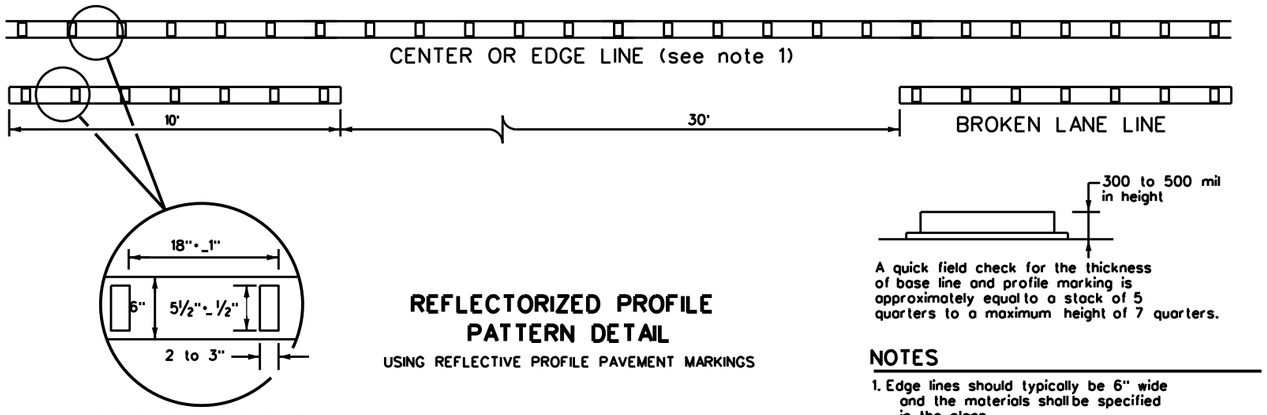
CENTERLINE AND LANE LINES FOR TWO-WAY LEFT TURN LANE



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

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

See Note 3.



A quick field check for the thickness of base line and profile marking is approximately equal to a stack of 5 quarters to a maximum height of 7 quarters.

REFLECTORIZED PROFILE PATTERN DETAIL

USING REFLECTIVE PROFILE PAVEMENT MARKINGS

NOTES

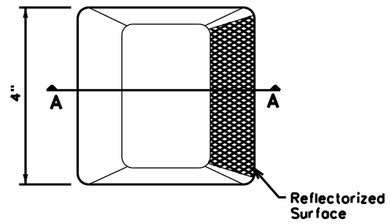
1. Edge lines should typically be 6" wide and the materials shall be specified in the plans.
2. Profile markings shall not be placed on roadways with a posted speed limit of 45 MPH or less.

GENERAL NOTES

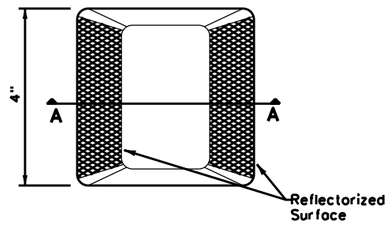
1. All raised pavement markers placed along broken lines shall be placed in line with and midway between the stripes.
2. On concrete pavements the raised pavement markers should be placed to one side of the longitudinal joints.
3. Use raised pavement marker Type I-C with undivided roadways, flush medians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

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

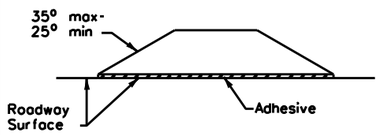
All pavement marking materials shall meet the required Departmental Material Specifications as specified by the plans.



Type I (Top View)



Type II (Top View)



SECTION A

RAISED PAVEMENT MARKERS

Texas Department of Transportation

Traffic Safety Division Standard

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

FILE: pm2-22.dgn	DN:	CK:	DW:	CK:
© TxDOT December 2022	CONT	SECT	JOB	HIGHWAY
REVISIONS 4-77 8-00 6-20 4-92 2-10 12-22 5-00 2-12	0795	02	027,ETC.	FM 1260
	DIST	COUNTY		SHEET NO.
	25	DONLEY		29

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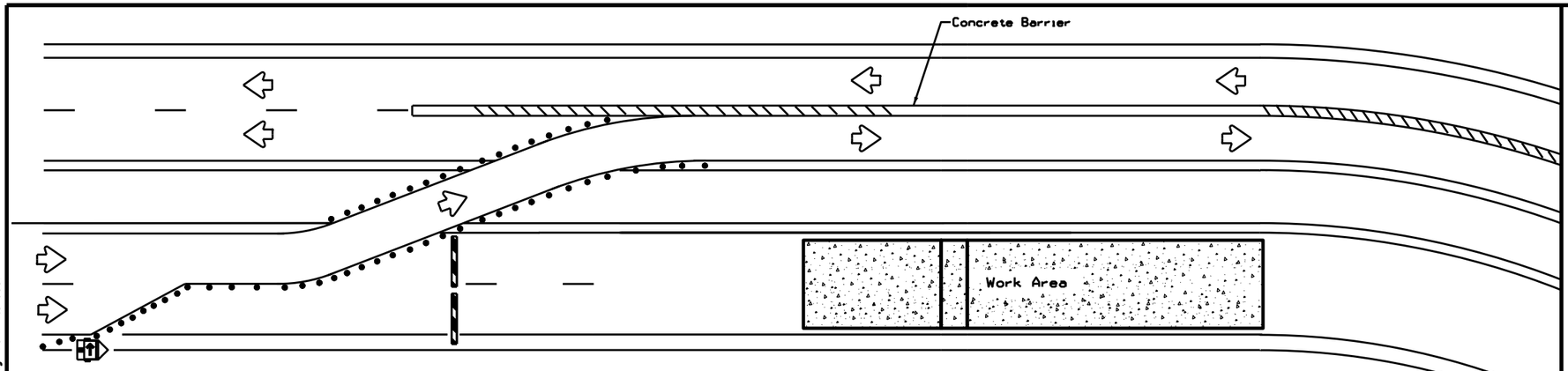


NOTES:

1. Length of Safety Glare screen will be specified elsewhere in the plans.
2. The cumulative nominal length of the modular safety glare screen units shall equal the length of the individual sections of temporary concrete traffic barrier on which they are installed so the joint between barrier sections will not be spanned by any one safety glare screen unit.
3. Screen Panel/blades will be designed such that reflective sheeting conforming with Departmental Material Specification DMS-8300, Sign Face Materials, Type B or C Yellow, minimum size of 2 inches by 12 inches can be attached to the edge of the panel/blade. The sheeting shall be attached to one glare screen panel/blade per section of concrete barrier not to exceed a spacing of 30 feet. Barrier reflectors are not necessary when panel/blades are installed with reflective sheeting as described.
4. Payment for these devices will be under statewide Special Specification "Modular Glare Screens for Headlight Barrier."
5. This detail is only intended to show types of locations where Glare Screens would be appropriate. Required signing and other devices shall be as shown elsewhere in the plans.

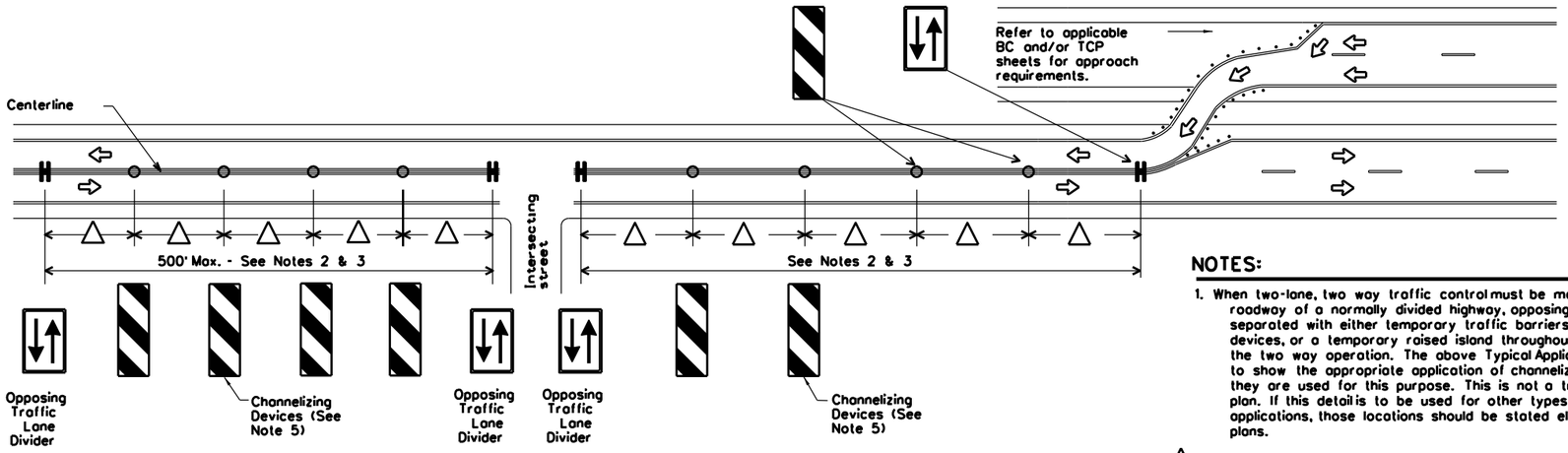
BARRIER DELINEATION WITH MODULAR GLARE SCREENS

LEGEND	
	Type 3 Barricade
• • •	Channelizing Devices
	Trailer Mounted Flashing Arrow Board
	Sign
\\\\	Safety glare screen

DEPARTMENTAL MATERIAL SPECIFICATIONS	
SIGN FACE MATERIALS	DMS-8300
DELINEATORS AND OBJECT MARKERS	DMS-8600
MODULAR GLARE SCREENS FOR HEADLIGHT BARRIER	DMS-8610

Only pre-qualified products shall be used. A copy of the Compliant Work Zone Traffic Control Devices List" CWZTCD) describes pre-qualified products and their sources and may be found at the following web address:

http://www.txdot.gov/business/resources/producer-list.html



VERTICAL PANELS & OPPOSING TRAFFIC LANE DIVIDERS (OTLD) SEPARATING TWO-WAY TRAFFIC ON NORMALLY DIVIDED HIGHWAYS

NOTES:

1. When two-lane, two way traffic control must be maintained on one roadway of a normally divided highway, opposing traffic shall be separated with either temporary traffic barriers, channelizing devices, or a temporary raised island throughout the length of the two way operation. The above Typical Application is intended to show the appropriate application of channelizing devices when they are used for this purpose. This is not a traffic control plan. If this detail is to be used for other types of roads or applications, those locations should be stated elsewhere in the plans.
2. △ Space devices according to the Tangent Spacing shown on the Device Spacing table on BC(9) but not exceeding 100'.
3. Every fifth device should be an OTLD except when spaced closer to accommodate an intersection. An OTLD should be the first device on each side of intersecting streets or roads.
4. Locations where surface mount bases with adhesives or self-righting devices will be required in order to maintain them in their proper position should be noted elsewhere in the plans.
5. Channelizing devices are to be vertical panels, 42" cones or tubular markers that are at least 36" tall. Tubular markers used to separate traffic should have a rubber base weighing at least 30 pounds. Tubular markers that are 42" tall or more shall have four bands of reflective material as detailed for 42" cones on BC(10). Tubular markers less than 42" but at least 36" tall shall have three bands of 3" wide white reflective material spaced 2" apart. Reflective material shall meet DMS-8300, Type A.

Texas Department of Transportation — Traffic Operations Division Standard

TRAFFIC CONTROL PLAN TYPICAL DETAILS

WZ(TD)-17

FILE: wztd-17.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
© TxDOT February 1998	CONT	SECT	JOB	HIGHWAY
REVISIONS 4-98 2-17 3-03 7-13	0795	02	027,ETC.	FM 1260
	DIST	COUNTY		SHEET NO.
	25	DONLEY		30

110

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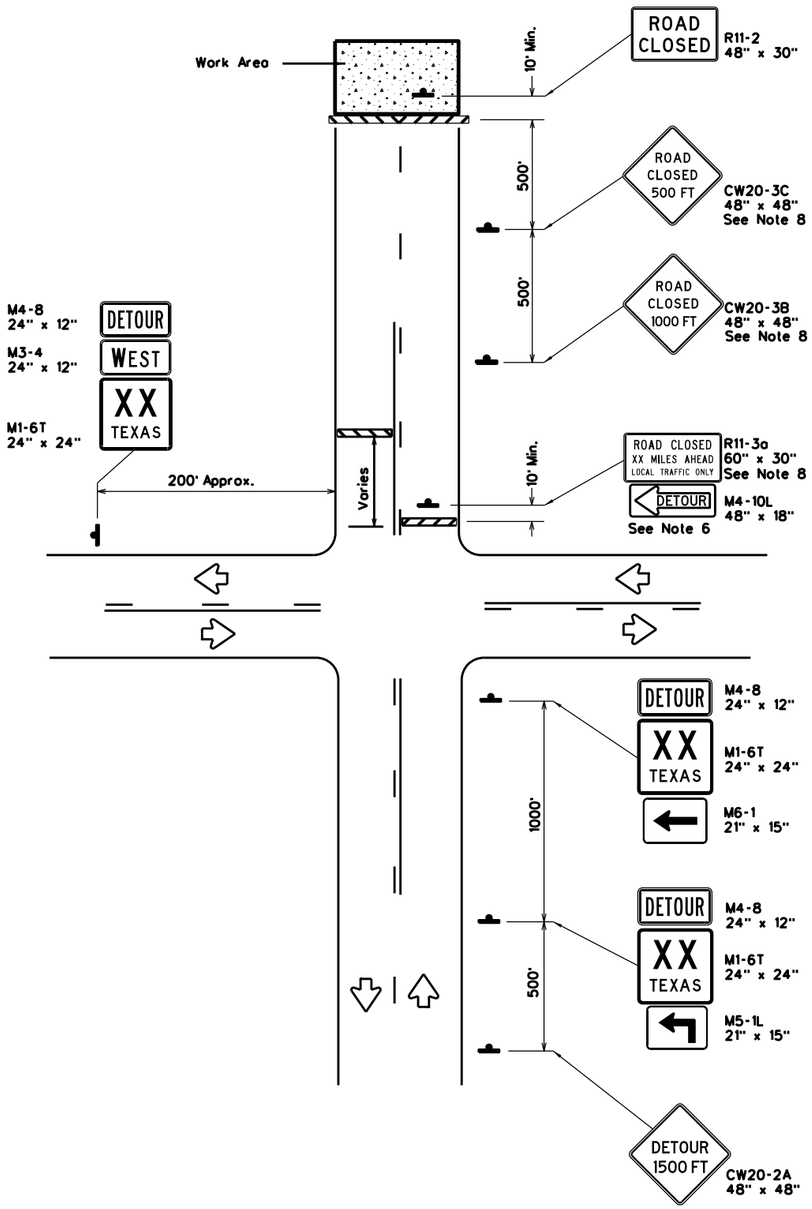
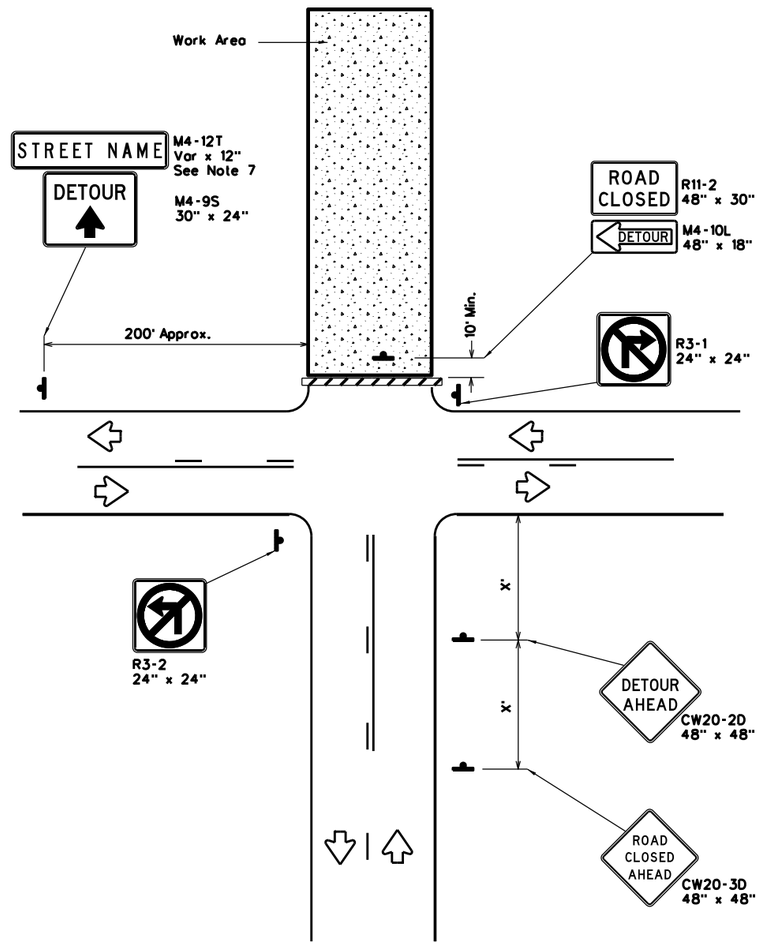
FILE: $FILE$



ROAD CLOSURE BEYOND THE INTERSECTION

Signing for a Numbered Route with an Off-Site Detour



ROAD CLOSURE AT THE INTERSECTION

Signing for an Un-numbered Route with an Off-Site Detour

LEGEND	
	Type 3 Barricade
	Sign

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

GENERAL NOTES

1. This sheet is intended to provide details for temporary work zone road closures. For permanent road closure details see the D&OM standards.
2. Barricades used shall meet the requirements shown on Barricade and Construction Standard BC(10) and listed on the Compliant Work Zone Traffic Control Devices list (CWZTCD).
3. Stockpiled materials shall not be placed on the traffic side of barricades.
4. Barricades at the road closure should extend from pavement edge to pavement edge.
5. Detour signing shown is intended to illustrate the type of signing that is appropriate for numbered routes or un-numbered routes as labeled. It does not indicate the full extent of detour signing required. Detour routes should be signed as shown elsewhere in the plans.
6. If the road is open for a significant distance beyond the intersection or there are significant origin/destination points beyond the intersection, the signs and barricades at this location should be located at the edge of the traveled way.
7. The Street Name (M4-12T) sign is to be placed above the DETOUR (M4-9S) sign.
8. For urban areas where there is a shorter distance between the intersection and the actual closure location, the ROAD CLOSED XX MILES AHEAD (R11-3a) sign may be replaced with a ROAD CLOSED TO THRU TRAFFIC (R11-4) sign. If adequate space does not exist between the intersection and the closure a single ROAD CLOSED AHEAD (CW20-3D) sign spaced as per the table above may replace the ROAD CLOSED 1000 FT (CW20-3B) and ROAD CLOSED 500 FT (CW20-3C) signs.
9. Signs and barricades shown shall be subsidiary to Item 502. Locations where these details will be required shall be as shown elsewhere in the plans.

Texas Department of Transportation

Traffic Operations Division Standard

WORK ZONE ROAD CLOSURE DETAILS

WZ(RCD)-13

FILE: wzrcd-13.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
© TxDOT August 1995	CONT	SECT	JOB	HIGHWAY
REVISIONS	0795	02	027,ETC.	FM 1260
1-97 4-98 7-13	DIST	COUNTY		SHEET NO.
2-98 3-03	25	DONLEY		31

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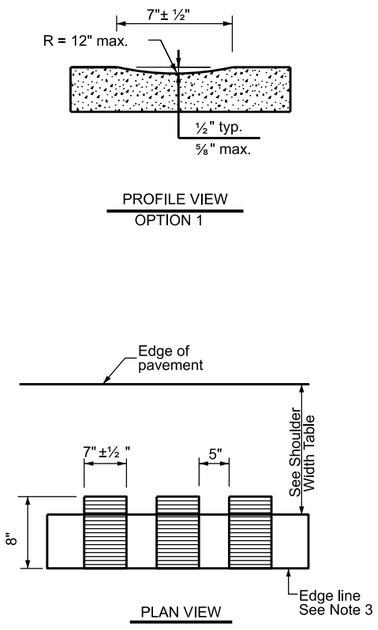
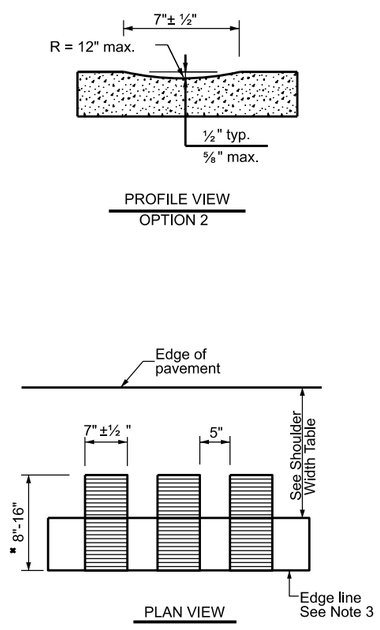
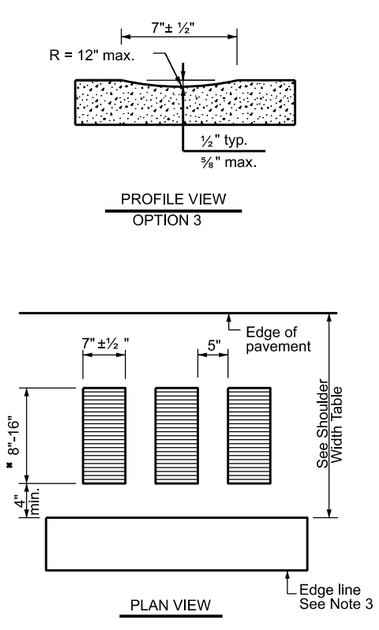


CONTINUOUS MILLED DEPRESSIONS (Rumble Strips)



CONTINUOUS MILLED DEPRESSIONS (Rumble Strips)



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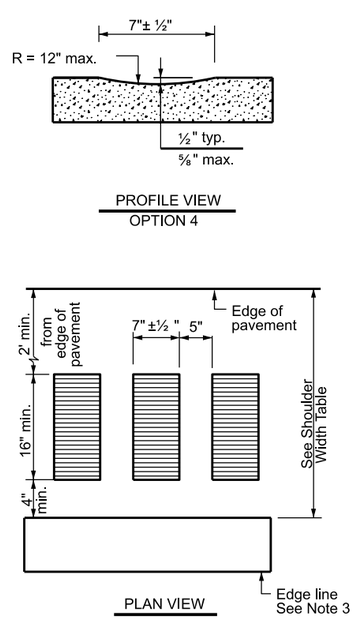
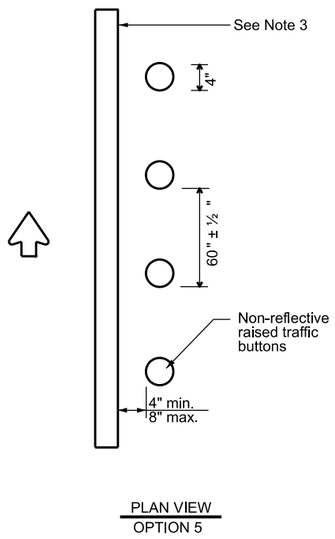
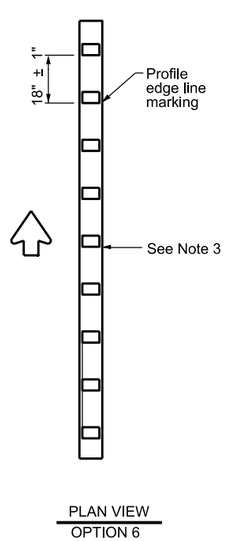


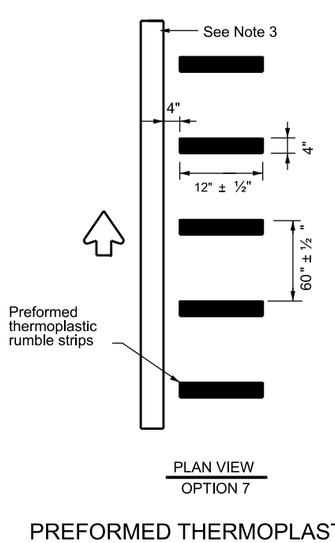
CONTINUOUS MILLED DEPRESSIONS (Rumble Strips)



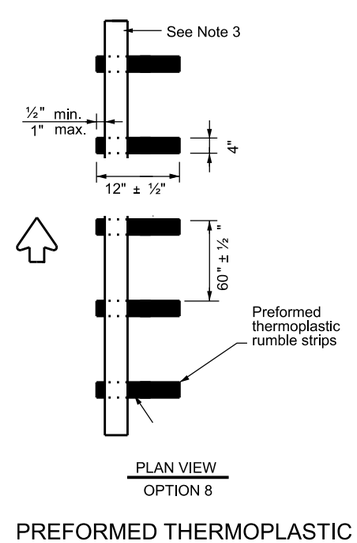
RAISED EDGE LINE (Rumble Strips)



PROFILE EDGE LINE MARKINGS (Rumble Strips)



PREFORMED THERMOPLASTIC EDGE LINE (Rumble Strips)



PREFORMED THERMOPLASTIC EDGE LINE (Rumble Strips)

SHOULDER WIDTH TABLE		
EQUAL TO OR LESS THAN 2 FEET	GREATER THAN 2 FEET LESS THAN 4 FEET	EQUAL TO OR GREATER THAN 4 FEET
Option 1, 5, 6 or 8	Option 1, 2, 3 5, 6 or 7	Option 2, 4, 5 6 or 7

GENERAL NOTES

1. Rumble strips and profile markings shall not be placed on roadways with a posted speed limit of 45 MPH or less.
2. Milled rumble strips are preferred when adequate pavement depth is available. If pavement thickness is less than 2 inches, milled rumble strips shall not be used. Rumble strips shall not be milled or depressed into bridge decks.
3. Use Standard Sheet PM(2) and FPM(1) for positioning, dimensioning, and spacing of all reflective raised pavement markers, pavement markings, and profile markings.
4. See the Shoulder Width Table below for determining what options may be used for edge line rumble strips.
5. Breaks in edge line rumble strips shall occur at least 50 feet and no more than 150 feet in advance of bridges, railroad crossings, intersections, or driveways with high usage of large trucks when installed on conventional highways.
6. Rumble strips shall not be placed across exit or entrance ramps, acceleration or deceleration lanes, crossovers, gore areas, or intersections with other roadways.
7. Consideration should be given to noise levels when edgeline rumble strips are to be installed near residential areas, schools, churches, etc. A 3/8 inch deep (minimum) milled rumble strip may be considered in these areas.
8. Consideration shall be given to bicyclists. See RS(6).

WHEN INSTALLING MILLED DEPRESSION EDGE LINE RUMBLE STRIPS:

9. See dimensions for milled rumble strips. Other shapes and dimensions may be used if approved by the Traffic Safety Division.
10. Pavement markings can be applied over milled shoulder rumble strips to create an edge line rumble strip.

WHEN INSTALLING RAISED OR PROFILE EDGE LINE RUMBLE STRIPS:

11. Raised rumble strips consisting of non-reflective raised traffic buttons may be used. Non-reflective raised traffic buttons can be affixed to asphalt or concrete with bitumen or adhesives, as per the manufacturer's recommendations.
12. Non-reflective traffic buttons shall be placed adjacent to the pavement marking delineating the edge line when used as a rumble strip. The color of the button should match the color of the adjacent edge line marking (white or yellow). The buttons will be paid for under Item 672, "Raised Pavement Markers." Non-reflective traffic buttons must meet the requirements of DMS-4300.
13. Non-reflective traffic buttons shall not be placed across exit or entrance ramps, acceleration and deceleration lanes, crossovers, gore areas or intersections with other roadways.
14. The minimum distance between the edge line and the buttons should be used if the shoulder is less than 8 feet in width.
15. Raised profile thermoplastic markings used as edge lines may substitute for buttons.

Texas Department of Transportation

Traffic Safety Division Standard

EDGE LINE RUMBLE STRIPS ON UNDIVIDED OR TWO LANE HIGHWAYS

RS(2)-23

FILE: rs(2)-23.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
© TxDOT January 2023	CONT	SECT	JOB	HIGHWAY
REVISIONS	0795	02	027,ETC.	FM 1260
10-13 1-23	DIST	COUNTY		SHEET NO.
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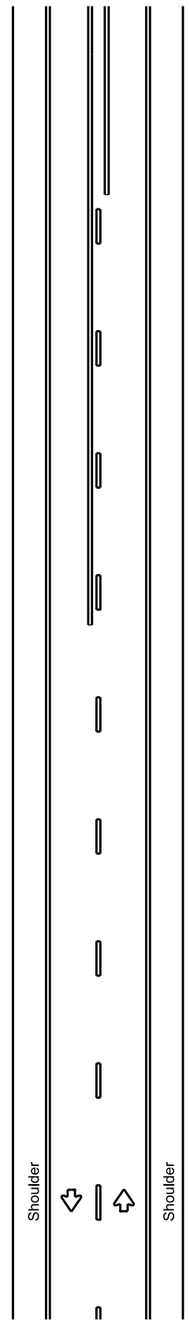
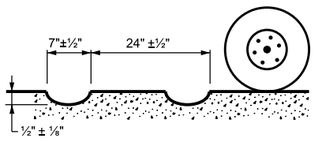
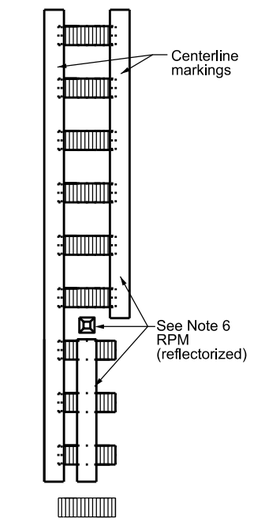
CENTERLINE RUMBLE STRIPS



TWO LANE TWO-WAY HIGHWAYS

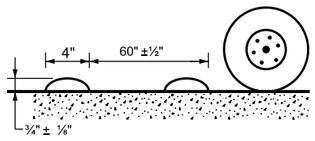


PROFILE VIEW

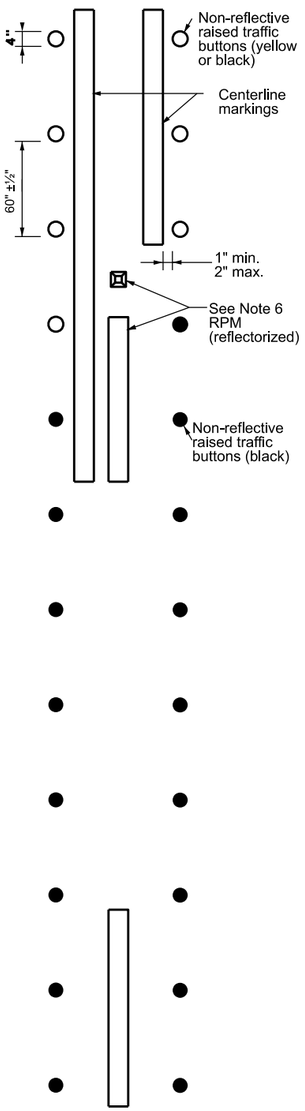


PLAN VIEW
OPTION 1

MILLED CENTERLINE RUMBLE STRIPS

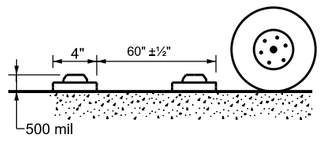


PROFILE VIEW

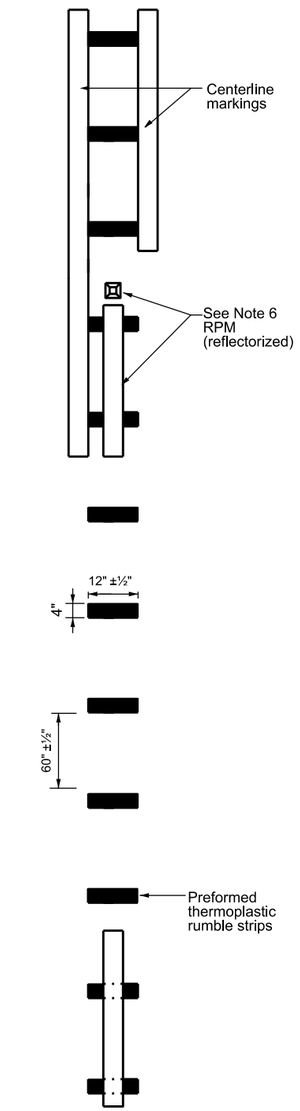


PLAN VIEW
OPTION 2

RAISED CENTERLINE RUMBLE STRIPS

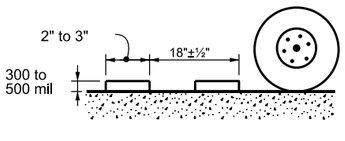


PROFILE VIEW

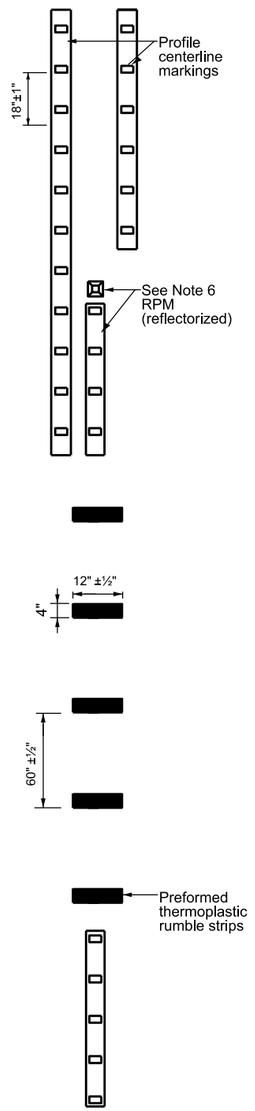


PLAN VIEW
OPTION 3

PREFORMED THERMOPLASTIC RUMBLE STRIPS



PROFILE VIEW



PLAN VIEW
OPTION 4

PROFILE CENTERLINE MARKINGS AND PREFORMED THERMOPLASTIC RUMBLE STRIPS

GENERAL NOTES

1. This standard sheet provides guidelines for installing centerline rumble strips on two-lane highways with or without shoulders.
2. Centerline and edge line rumble strips or profile markings shall not be placed on roadways with a posted speed limit of 45 MPH or less.
3. Milled rumble strips are preferred when adequate pavement depth is available. If pavement thickness is less than 2 inches, milled rumble strips shall not be used. Rumble strips shall not be milled or depressed into bridge decks.
4. See dimensions for milled rumble strips. Other shapes and dimensions may be used if approved by the Traffic Safety Division.
5. Breaks in milled centerline rumble strips shall occur at least 50 feet and no more than 150 feet in advance of bridges, railroad crossings, intersections or driveways with high usage of large trucks.
6. Use standard sheet PM(2) for positioning, dimensioning, and spacing of all reflective raised pavement markers, pavement markings and profile markings.
7. Consideration should be given to noise levels when centerline rumble strips are to be installed near residential areas, schools, churches, etc. A 3/8 inch deep (minimum) milled rumble strip may be considered in these areas.
8. Pavement markings must be applied over milled centerline rumble strips.

WHEN INSTALLING CENTERLINE RUMBLE STRIPS:

9. Raised rumble strips consisting of non-reflective raised traffic buttons may be used. Non-reflective raised traffic buttons can be affixed to asphalt or concrete with bitumen or adhesives, as per manufacturer's recommendations.
10. When using non-reflective raised traffic buttons as a centerline rumble strip, the button shall be placed adjacent to the pavement marking delineating the centerline. The buttons will be paid for under Item 672, "Raised Pavement Markers." Non-reflective traffic buttons must meet the requirements of DMS-4300.
11. The color of the button should be yellow for a continuous no passing roadway. Black buttons should be used in areas where passing is allowed.
12. Consideration shall be given to bicyclists. See RS(6).

WHEN INSTALLING EDGE LINE RUMBLE STRIPS WITH OR WITHOUT CENTERLINE RUMBLE STRIPS ON UNDIVIDED HIGHWAYS:

13. See standard sheet RS(2).

Texas Department of Transportation

Traffic Safety Division Standard

CENTERLINE RUMBLE STRIPS ON TWO LANE TWO-WAY HIGHWAYS RS(4)-23

FILE: rs(4)-23.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
©TxDOT January 2023	CONT	SECT	JOB	HIGHWAY
REVISIONS	0795	02	027,ETC.	FM 1260
10-13	DIST	COUNTY		SHEET NO.
1-23	25	DONLEY		32

DATE:
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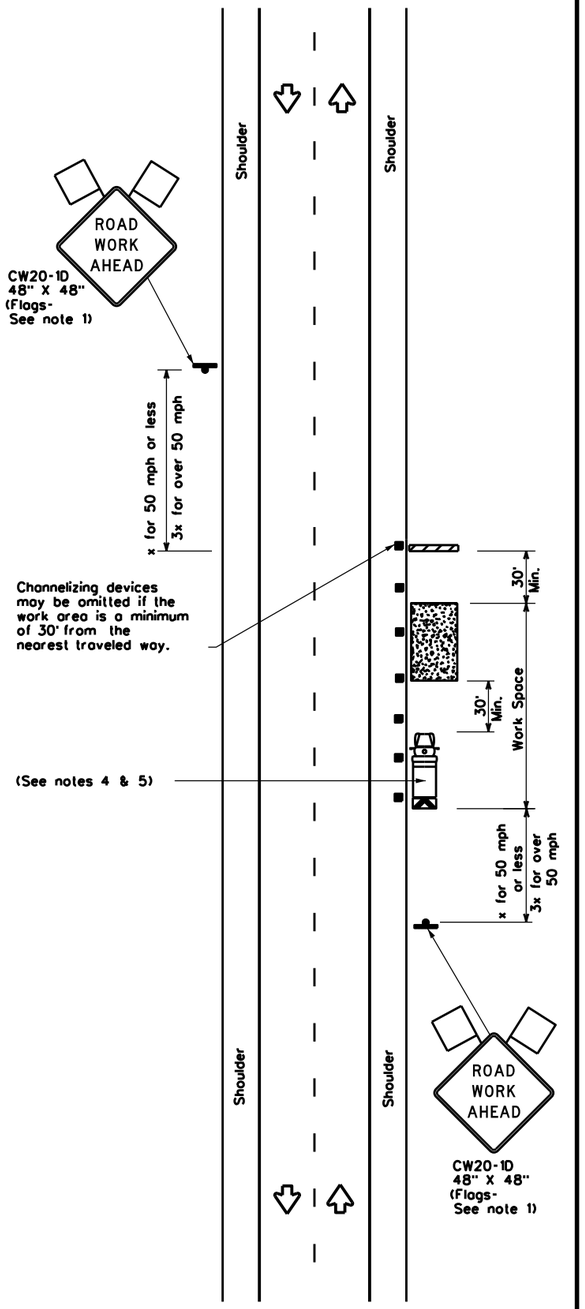
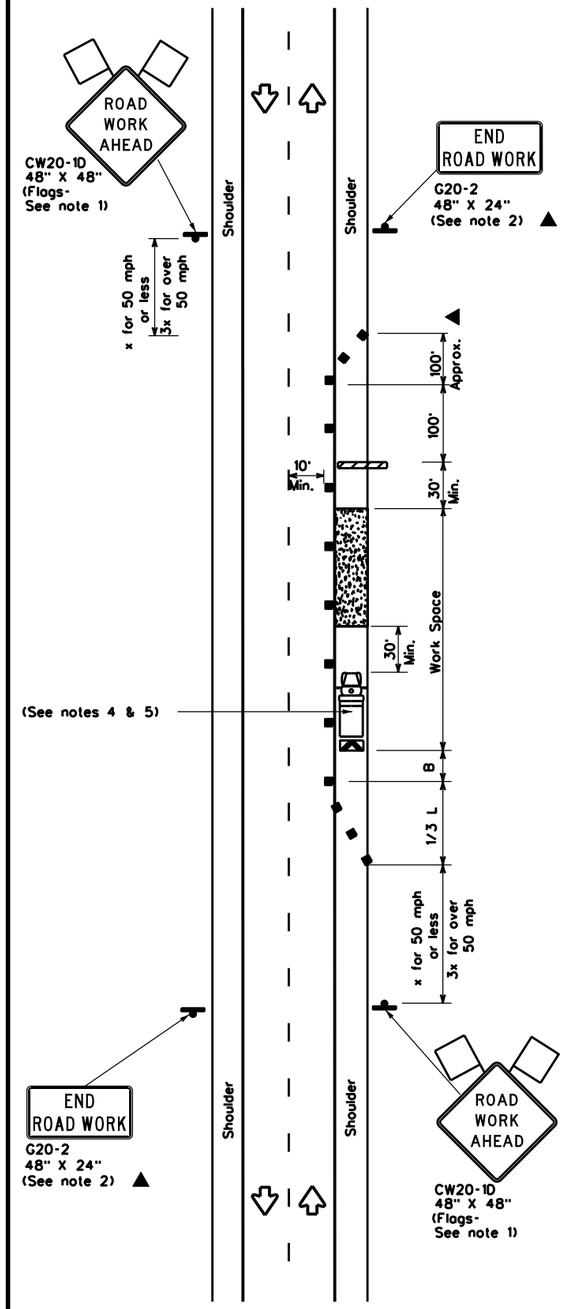


TCP (2-1a)

WORK SPACE NEAR SHOULDER

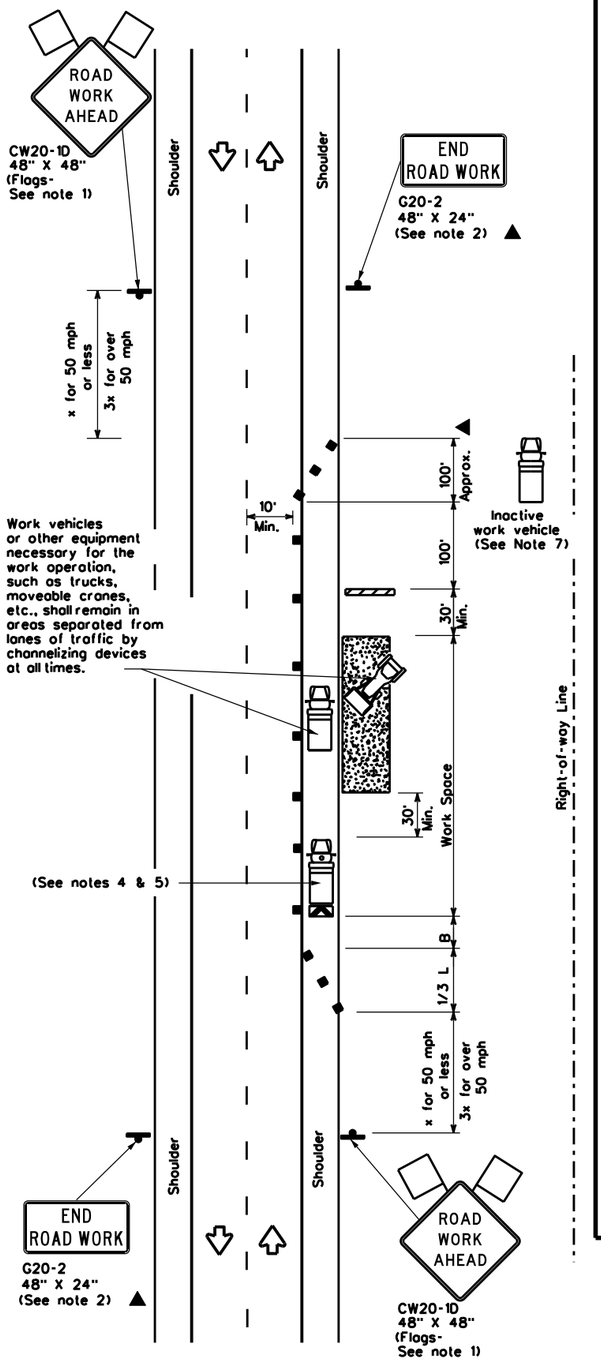
Conventional Roads



TCP (2-1b)

WORK SPACE ON SHOULDER

Conventional Roads



TCP (2-1c)

WORK VEHICLES ON SHOULDER

Conventional Roads

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

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

* Conventional Roads Only

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

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

GENERAL NOTES

1. Flags attached to signs where shown, are REQUIRED.
2. All traffic control devices illustrated are REQUIRED, except those denoted with the triangle symbol may be omitted when stated in the plans, or for routine maintenance work, when approved by the Engineer.
3. Stockpiled material should be placed a minimum of 30 feet from nearest traveled way.
4. Shadow Vehicle with TMA and high intensity rotating, flashing, oscillating or strobe lights. A Shadow Vehicle with a TMA should be used anytime it can be positioned 30 to 100 feet in advance of the area of crew exposure without adversely affecting the performance or quality of the work. If workers are no longer present but road or work conditions require the traffic control to remain in place, Type 3 Barricades or other channelizing devices may be substituted for the Shadow Vehicle and TMA.
5. Additional Shadow Vehicles with TMAs may be positioned off the paved surface, next to those shown in order to protect a wider work space.
6. See TCP(5-1) for shoulder work on divided highways, expressways and freeways.
7. Inactive work vehicles or other equipment should be parked near the right-of-way line and not parked on the paved shoulder.
8. CW21-5 "SHOULDER WORK" signs may be used in place of CW20-1D "ROAD WORK AHEAD" signs for shoulder work on conventional roadways.

Texas Department of Transportation

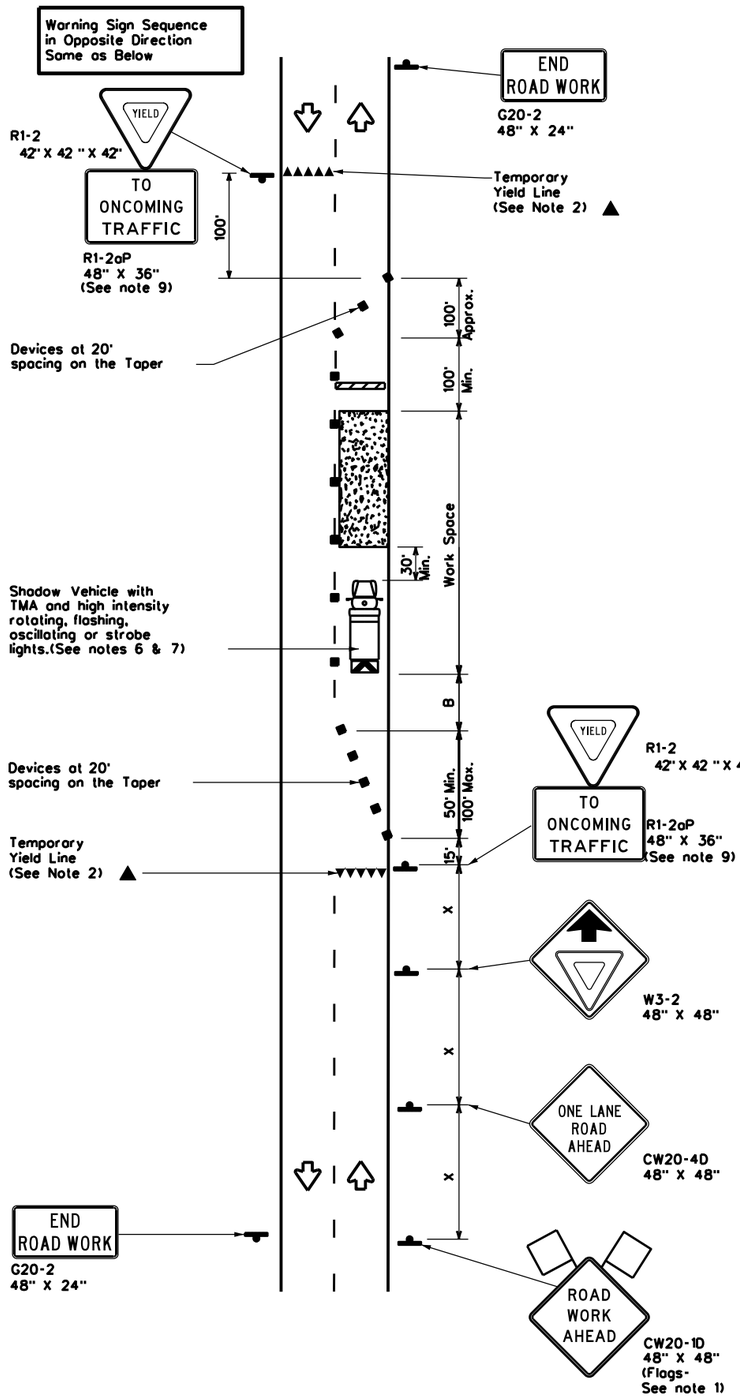
Traffic Operations Division Standard

TRAFFIC CONTROL PLAN CONVENTIONAL ROAD SHOULDER WORK

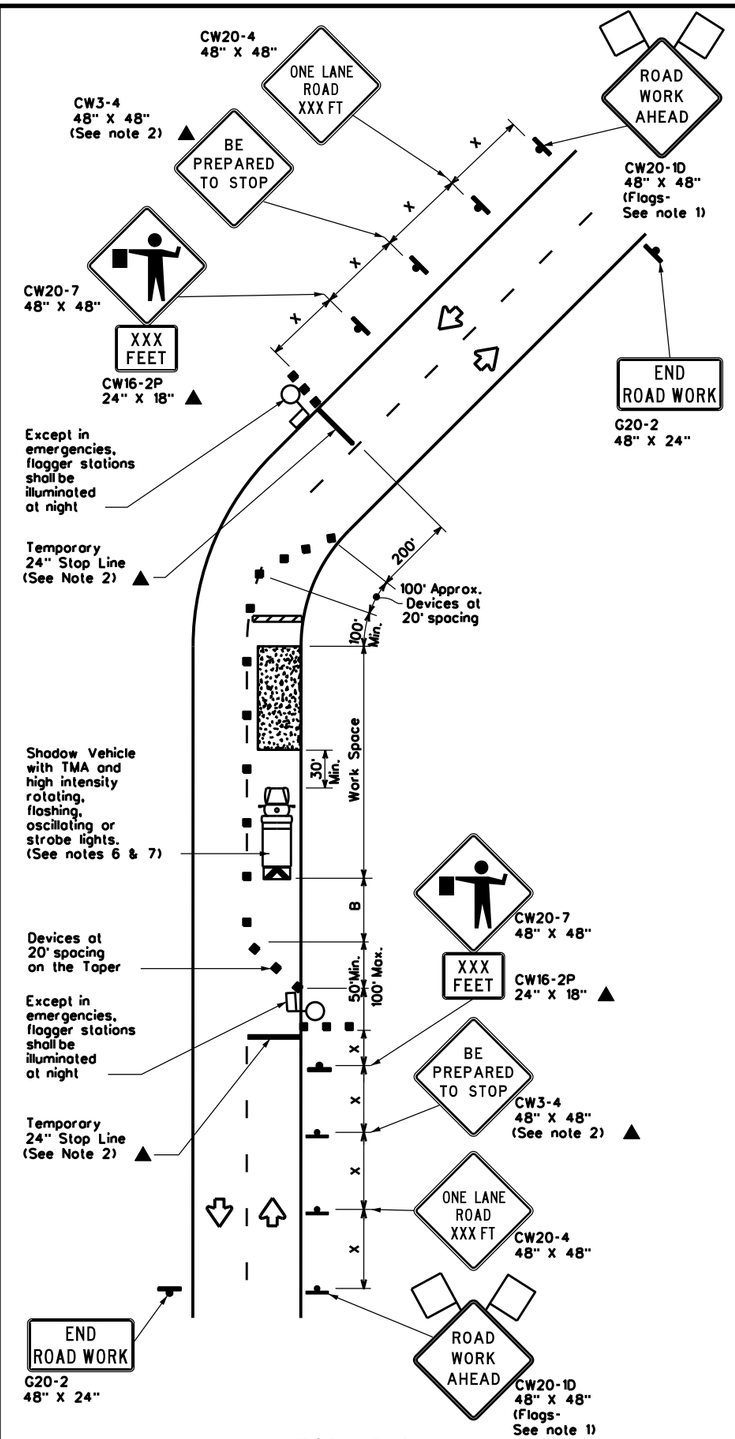
TCP(2-1)-18

FILE: tcp2-1-18.dgn	DN:	CK:	DW:	CK:
© TxDOT December 1985	CONT	SECT	JOB	HIGHWAY
REVISIONS	0795	02	027,ETC.	FM 1260
2-94 4-98	DIST	COUNTY		SHEET NO.
8-95 2-12	25	DONLEY		34
1-97 2-18				

DATE:
FILE:



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

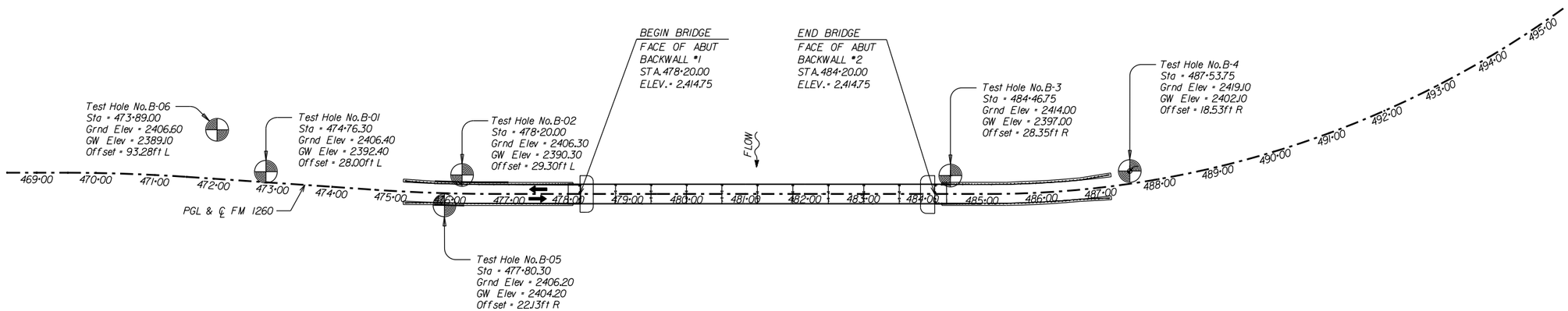
Traffic Operations Division Standard

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	0795	02	027,ETC.	FM 1260
	DIST	COUNTY		SHEET NO.
	25	DONLEY		35

HORIZONTAL AND VERTICAL CONTROL MAP
FM 1260
@
SALT FORK OF RED RIVER
DONLEY COUNTY, TEXAS



CONTROL POINT	NORTHING	EASTING	ELEVATION
CP#B-01	879666.441	3642560.171	2406.40
CP#B-02	879728.977	3642886.028	2406.30
CP#B-03	879839.556	3643512.883	2414.00
CP#B-04	879884.311	3643813.128	2419.10
CP#B-05	879774.493	3642847.791	2406.20
CP#B-06	879582.197	3642491.110	2406.60

THE PROJECT UNIT OF MEASURE IS U.S. SURVEY FEET. THE SURVEY WAS COMPLETED IN 2020.

COORDINATE SYSTEM : U.S. STATE PLANE 1983
HORIZONTAL DATUM : NORTH AMERICAN DATUM (NAD83)(CONUS)(MOL)
VERTICAL DATUM : NORTH AMERICAN DATUM OF 1988 (NAVD88)
GEODETIC ZONE : TEXAS NORTH (4201)
GEOID MODEL : TXGI2AUS
SURFACE ADJUSTMENT FACTOR (SAF) : 1.00 (NOT ADJUSTED)

NOTE: CONTROL POINTS ARE IRON RODS WITH PLASTIC YELLOW CAPS LABELED "TXDOT" ON TOP.

STATE OF TEXAS
CHARLES B. STEED
88647
LICENSED
PROFESSIONAL ENGINEER

Charles B. Steed, P.E.

05/09/2024

SURVEY CONTROL DATA

FM 1260
@
SALT FORK OF RED RIVER

Texas Department of Transportation

CONT	SECT	JOB	HIGHWAY
0795	02	017,etc.	FM 1260
DIST	COUNTY		SHEET NO.
CHS	DONLEY		36

Alignment Name: BL CL-9
Alignment Description:
Alignment Style: Alignment\Baseline
Station Northing Easting

Element: Linear
POT ( ) 46850.000 R1 3641942.197 879557.874
PC ( ) 46952.798 R1 3642043.448 879575.642
Tangential Direction: N9.954° E
Tangential Length: 102.798

Element: Circular
PC ( ) 46952.798 R1 3642043.448 879575.642
PI( ) 47053.143 R1 3642142.281 879592.994
CC ( ) 3641524.691 882530.452
PT ( ) 47153.413 R1 3642239.733 879616.911
Radius: 3000.002
Delta: 3.831° Right
Degree of Curvature (Arc): 1.910°
Length: 200.614

Tangent: 100.345
Chord: 200.577
Middle Ordinate: 1.677
External: 1.678
Back Tangent Direction: N9.958° E
Back Radial Direction: S80.042° E
Chord Direction: N11.873° E
Ahead Radial Direction: S76.211° E
Ahead Tangent Direction: N13.789° E

Element: Linear
PT ( ) 47153.413 R1 3642239.733 879616.911
PC ( ) 47473.579 R1 3642550.673 879693.221
Tangential Direction: N13.789° E
Tangential Length: 320.167

Element: Circular
PC ( ) 47473.579 R1 3642550.673 879693.221
PI( ) 47576.090 R1 3642650.229 879717.655
CC ( ) 3643265.715 876779.682
PT ( ) 47678.522 R1 3642751.222 879735.235
Radius: 3000.000
Delta: 3.914° Left
Degree of Curvature (Arc): 1.910°
Length: 204.943

Tangent: 102.511
Chord: 204.903
Middle Ordinate: 1.750
External: 1.751
Back Tangent Direction: N13.789° E
Back Radial Direction: S76.211° E
Chord Direction: N11.832° E
Ahead Radial Direction: S80.125° E
Ahead Tangent Direction: N9.875° E

Tangent: 102.511
Chord: 204.903
Middle Ordinate: 1.750
External: 1.751
Back Tangent Direction: N13.789° E
Back Radial Direction: S76.211° E
Chord Direction: N11.832° E
Ahead Radial Direction: S80.125° E
Ahead Tangent Direction: N9.875° E

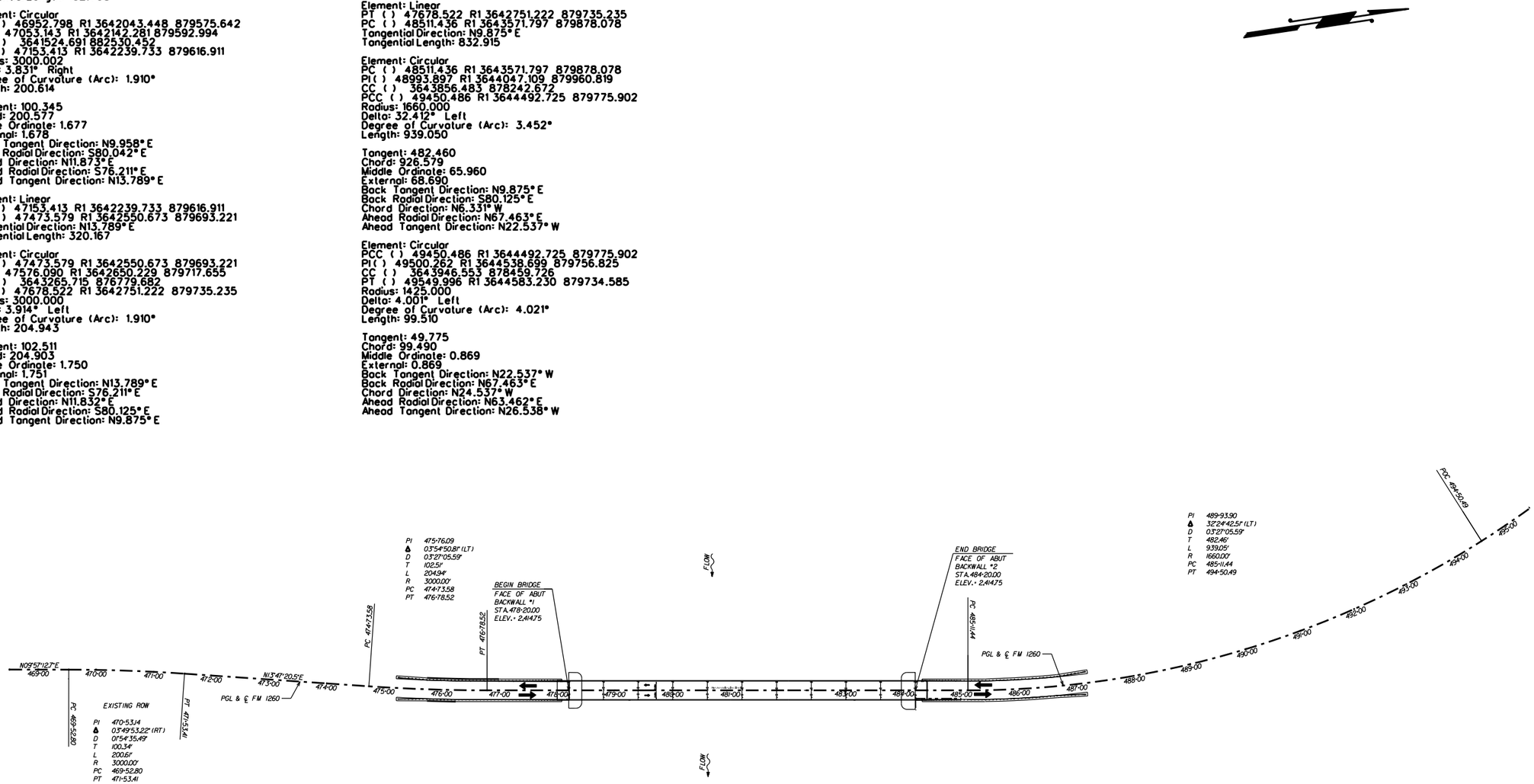
Element: Linear
PT ( ) 47678.522 R1 3642751.222 879735.235
PC ( ) 48511.436 R1 3643571.797 879878.078
Tangential Direction: N9.875° E
Tangential Length: 832.915

Element: Circular
PC ( ) 48511.436 R1 3643571.797 879878.078
PI( ) 48993.897 R1 3644047.109 879960.819
CC ( ) 3643856.483 878242.672
PCC ( ) 49450.486 R1 3644492.725 879775.902
Radius: 1660.000
Delta: 32.412° Left
Degree of Curvature (Arc): 3.452°
Length: 939.050

Tangent: 482.460
Chord: 926.579
Middle Ordinate: 65.960
External: 68.690
Back Tangent Direction: N9.875° E
Back Radial Direction: S80.125° E
Chord Direction: N6.331° W
Ahead Radial Direction: N67.463° E
Ahead Tangent Direction: N22.537° W

Element: Circular
PCC ( ) 49450.486 R1 3644492.725 879775.902
PI( ) 49500.262 R1 3644538.699 879756.825
CC ( ) 3643946.553 878459.726
PT ( ) 49549.996 R1 3644583.230 879734.585
Radius: 1425.000
Delta: 4.001° Left
Degree of Curvature (Arc): 4.021°
Length: 99.510

Tangent: 49.775
Chord: 99.490
Middle Ordinate: 0.869
External: 0.869
Back Tangent Direction: N22.537° W
Back Radial Direction: N67.463° E
Chord Direction: N24.537° W
Ahead Radial Direction: N63.462° E
Ahead Tangent Direction: N26.538° W



STATE OF TEXAS
CHARLES B. STEED
88647
LICENSED
PROFESSIONAL ENGINEER
Charles B. Steed, P.E.
05/09/2024

HORIZONTAL ALIGNMENT DATA

FM 1260
@
SALT FORK OF RED RIVER

SCALE:
1" = 100' PLAN VIEW

Texas Department of Transportation

CONT	SECT	JOB	HIGHWAY
0795	02	017,etc.	FM 1260
DIST	COUNTY		SHEET NO.
CHS	DONLEY		37

CK:
DN:
CK:
DN:

SUPERELEVATION TABLE

STATION	CROSS SLOPE	MODE
46850.000	-0.008	Start Point
46868.318	0.000	Level Crown
46912.318	0.020	Reverse Crown
46973.918	0.048	Full Super
47132.293	0.048	Full Super
47193.893	0.020	Reverse Crown
47237.893	0.000	Level Crown
47281.893	-0.020	Normal Crownl
47345.099	-0.020	Normal Crown
47494.699	-0.048	Full Super
47657.402	-0.048	Full Super
47807.002	-0.020	Normal Crown
48361.836	-0.020	Normal Crown
48537.836	-0.060	Full Super
49450.486	-0.060	Full Super
49523.596	-0.060	Full Super
49549.996	-0.048	End Point

PI 475+76.09
Δ 03°54'50.81" (LT)
D 03°27'05.59"
T 102.51'
L 204.94'
R 3000.00'
PC 474+73.58
PT 476+78.52

BEGIN PROJECT & TRANSITION
STA. 468+50.00
ELEV. = 2416.44

POT 468+50.00

END TRANSITION
STA. 470+30.00

N09°57'12.7"E

N13°47'20.5"E

PC 474+73.58

PT 476+78.52

BEGIN BRIDGE
FACE OF ABUT
BACKWALL #1
STA. 478+20.00
ELEV. = 2,414.75

FLOW

EXISTING ROW

PROPOSED ROW

469+00 470+00 471+00 472+00 473+00 474+00 475+00 476+00 477+00 478+00 479+00 480+00 481+00

PGL & ℄ FM 1260

MATCHLINE STA. 468+50.00

MATCHLINE STA. 482+00.00

PC 469+52.80

PT 471+53.41

PI 470+53.14
Δ 03°49'53.22" (RT)
D 01°54'35.49"
T 100.34'
L 200.61'
R 3000.00'
PC 469+52.80
PT 471+53.41

05/09/2024

SHEET TOTALS			
EST.	FINAL	UNIT	DESCRIPTION

BEGIN PROJECT
STA. 468+50.00
ELEV. = 2416.44

BEGIN GRADE CHANGE
STA. 469+00.00
ELEV. = 2416.56

VPI

VPC 469+98.35
EL 2416.45

VPT 471+13.89
EL 2416.10

STA 470+56.72
EL 2416.38'
ex -0.05'
K 312
L 115.54'

STA 473+95.16
EL 2414.75'
ex 0.06'
K 206
L 99.40'

VPC 473+45.47
EL 2414.99

VPT 274+14.86'
EL 2414.75

BEGIN BRIDGE
FACE OF ABUT
BACKWALL #1
STA. 478+20.00
ELEV. = 2,414.75

PGL & ℄ FM 1260

-0.111% -0.111% -0.481% -0.481% -0.481% +0.000% +0.000%

EXISTING GRADE

2425 2420 2415 2410 2405 2400

	469+00	470+00	471+00	472+00	473+00	474+00	475+00	476+00	477+00	478+00	479+00	480+00	481+00	482+00
EXISTING	2416.56		2415.87		2415.23		2414.69		2413.31		2411.92	2411.27	2410.81	2410.81	2404.28	2403.19	2403.38	2403.97	
PROPOSED	**2416.56**		**2416.44**		**2415.17**	**2415.69**	**2415.21**		**2414.80**	**2414.75**	**2414.75**	**2414.75**	**2414.75**	**2414.75**	**2414.75**	**2414.75**	**2414.75**	**2414.75**	**2414.75**

PLAN & PROFILE LAYOUT

STA. 468+50.00
TO
STA. 482+00.00

SCALE: HORIZONTAL 1"=100'
VERTICAL 1"=10'

SHEET 1 OF 2

STATE OF TEXAS
CHARLES B. STEED
88647
LICENSED
PROFESSIONAL ENGINEER
Charles B. Steed, P.E.
05/09/2024

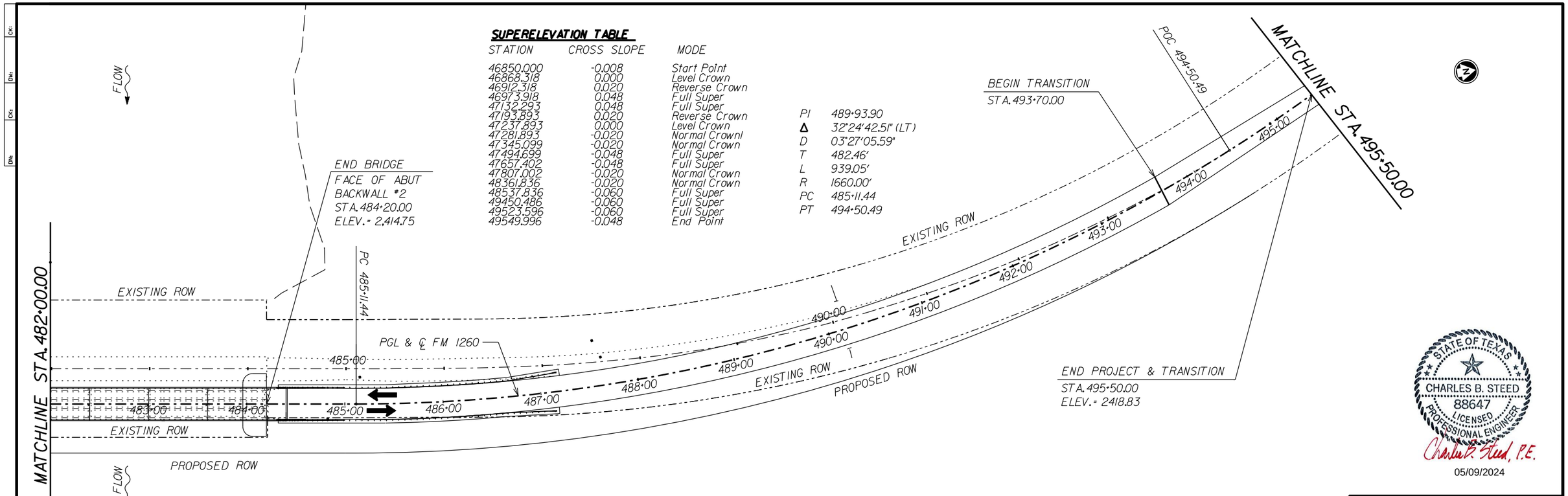
Texas Department of Transportation

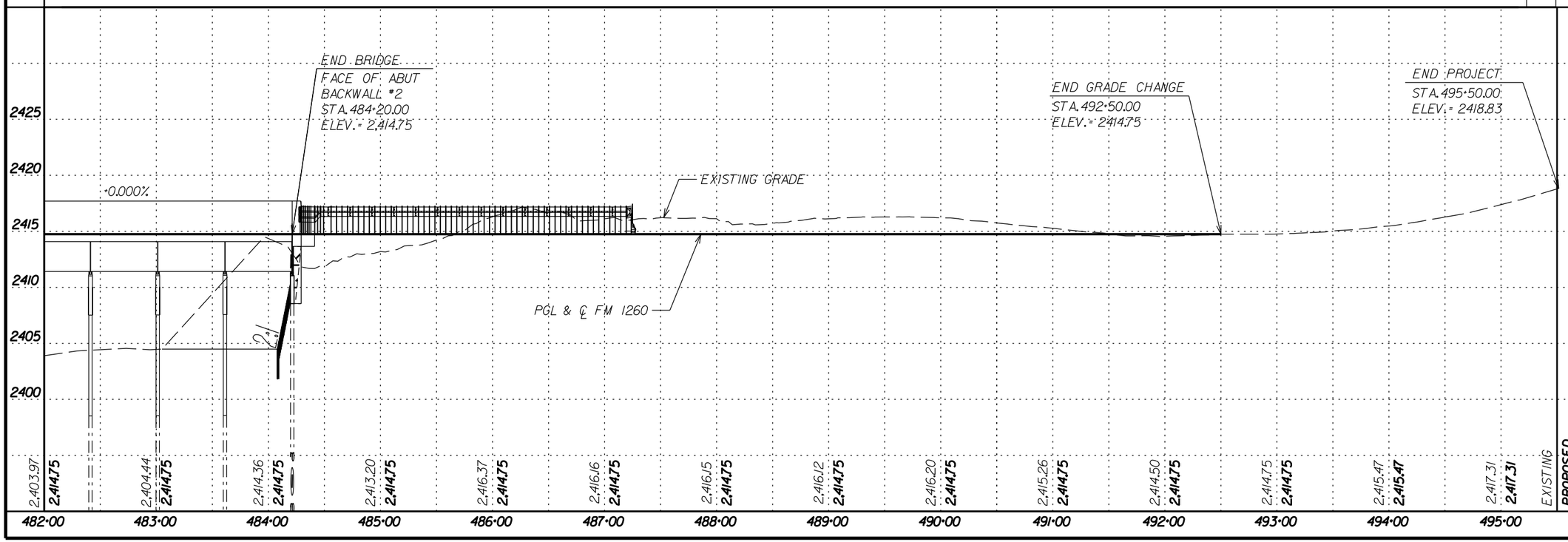
CONT	SECT	JOB	HIGHWAY
0795	02	017, ETC.	FM 1260
DIST	COUNTY		SHEET NO.
25	DONLEY		38

SUPERELEVATION TABLE

STATION	CROSS SLOPE	MODE
46850.000	-0.008	Start Point
46868.318	0.000	Level Crown
46912.318	0.020	Reverse Crown
46973.918	0.048	Full Super
47132.293	0.048	Full Super
47193.893	0.020	Reverse Crown
47237.893	0.000	Level Crown
47281.893	-0.020	Normal Crownl
47345.099	-0.020	Normal Crown
47494.699	-0.048	Full Super
47657.402	-0.048	Full Super
47807.002	-0.020	Normal Crown
48361.836	-0.020	Normal Crown
48537.836	-0.060	Full Super
49450.486	-0.060	Full Super
49523.596	-0.060	Full Super
49549.996	-0.048	End Point

PI	489+93.90
Δ	32°24'42.51" (LT)
D	03°27'05.59"
T	482.46'
L	939.05'
R	1660.00'
PC	485+11.44
PT	494+50.49





STATE OF TEXAS
CHARLES B. STEED
88647
LICENSED
PROFESSIONAL ENGINEER

Charles B. Steed, P.E.

05/09/2024

SHEET TOTALS			
EST.	FINAL	UNIT	DESCRIPTION

PLAN & PROFILE LAYOUT

STA. 482+00.00
TO
STA. 495+50.00

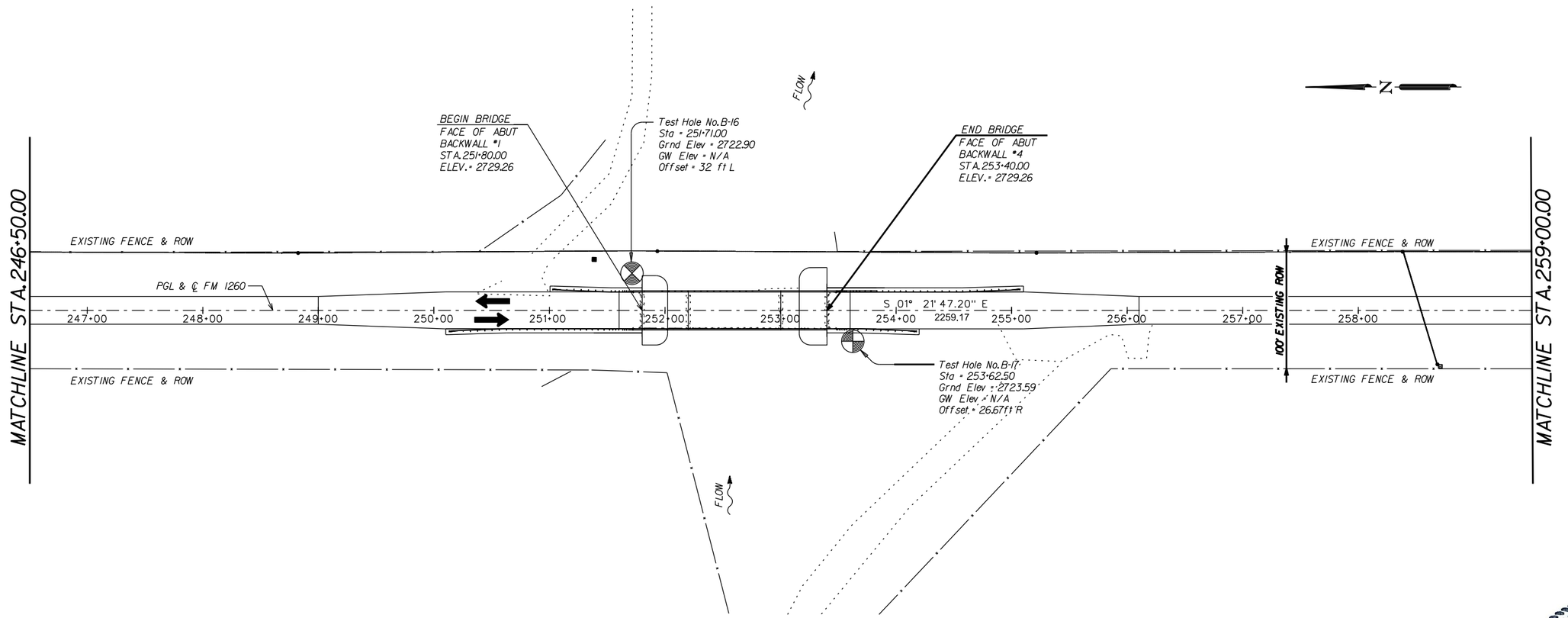
SCALE: HORIZONTAL 1"=100'
VERTICAL 1"=10'

SHEET 2 OF 2

Texas Department of Transportation

CONT	SECT	JOB	HIGHWAY
0795	02	017. ETC.	FM 1260
DIST	COUNTY		SHEET NO.
25	DONLEY		39

HORIZONTAL AND VERTICAL CONTROL MAP
US 287 NB @ BAYLOR CREEK
CHILDRESS COUNTY, TEXAS



CONTROL POINT	NORTHING	EASTING	ELEVATION
CP#1	3589517.6611	857552.2644	2723.59
CP#2	3589743.6737	857633.4311	2722.90

THE PROJECT UNIT OF MEASURE IS U.S. SURVEY FEET. THE SURVEY WAS COMPLETED IN 2020.

COORDINATE SYSTEM : U.S. STATE PLANE 1983
HORIZONTAL DATUM : NORTH AMERICAN DATUM (NAD83XCONUSXMOL)
VERTICAL DATUM : NORTH AMERICAN DATUM OF 1988 (NAVD88)
GEODETIC ZONE : TEXAS NORTH (4201)
GEOID MODEL : TXGI2AUS
SURFACE ADJUSTMENT FACTOR (SAF) : 1.00 (NOT ADJUSTED)

NOTE: CONTROL POINTS ARE IRON RODS WITH PLASTIC YELLOW CAPS LABELED "TXDOT" ON TOP.

STATE OF TEXAS
CHARLES B. STEED
88647
LICENSED
PROFESSIONAL ENGINEER

Charles B. Steed, P.E.

05/09/2024

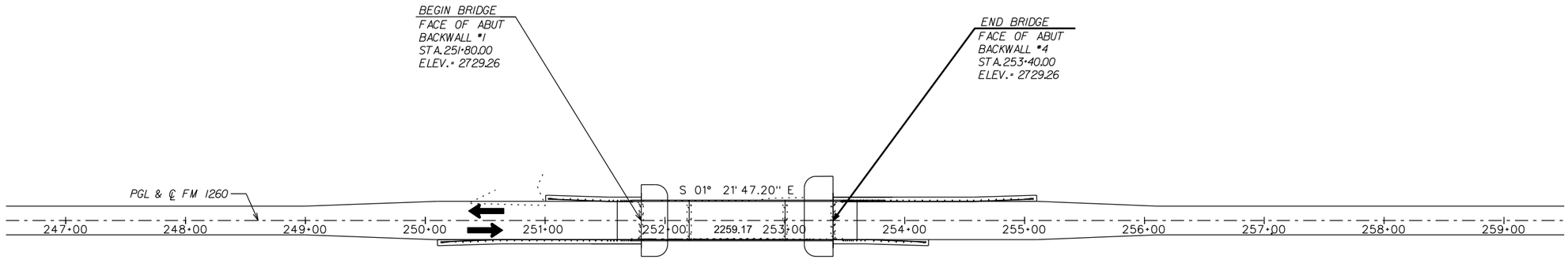
SURVEY CONTROL DATA

FM 1260 @ EAST LELIA LAKE

Texas Department of Transportation

CONT	SECT	JOB	HIGHWAY
0795	02	017,etc.	FM 1260
DIST	COUNTY		SHEET NO.
CHS	DONLEY		40

DATE:
FILE:



Alignment Name: BL CL-
Alignment Description:
Alignment Style: Alignment\Baseline
Station Northing Easting

Element: Linear
POT ( ) 24112.490 R1 3590768.580 857565.060
POT ( ) 26371.659 R1 3588510.050 857618.802
Tangential Direction: S1.363°E
Tangential Length: 2259.169

STATE OF TEXAS
CHARLES B. STEED
88647
LICENSED
PROFESSIONAL ENGINEER

Charles B. Steed, P.E.

05/09/2024

HORIZONTAL ALIGNMENT DATA

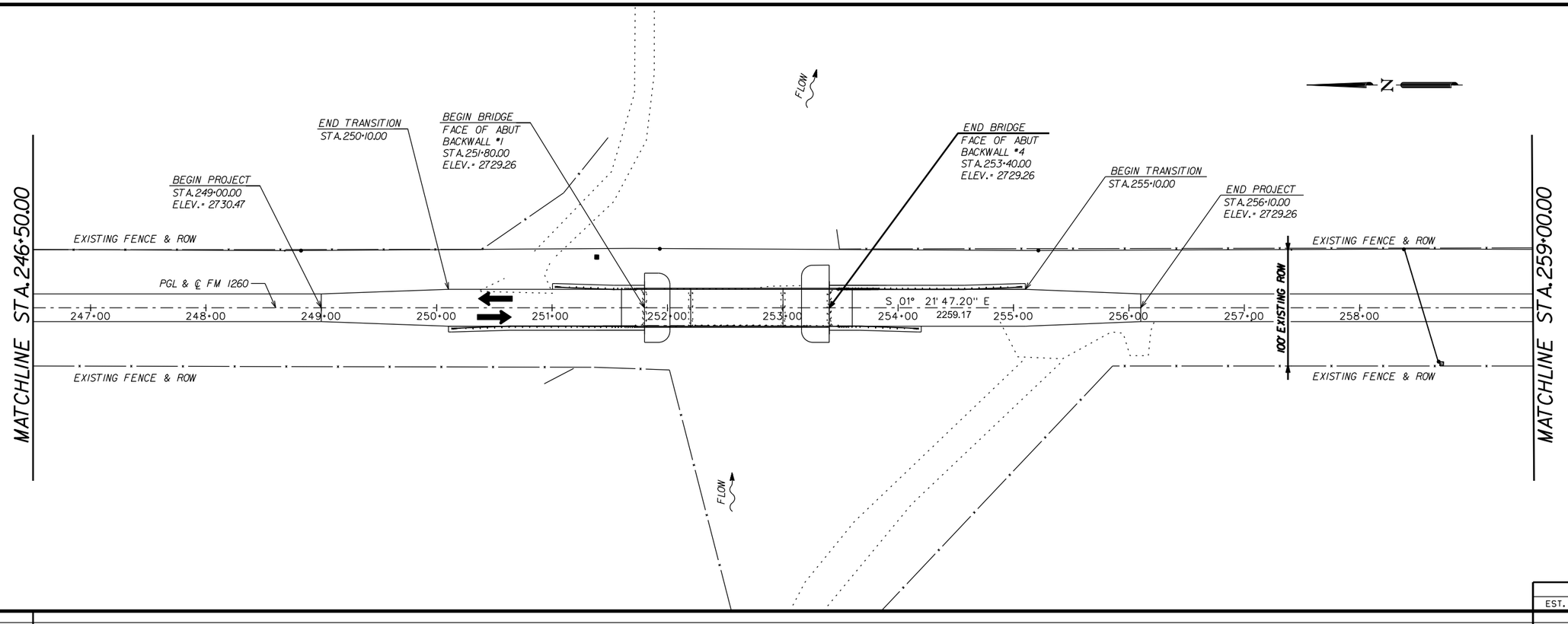
FM 1260 @ EAST LELIA LAKE

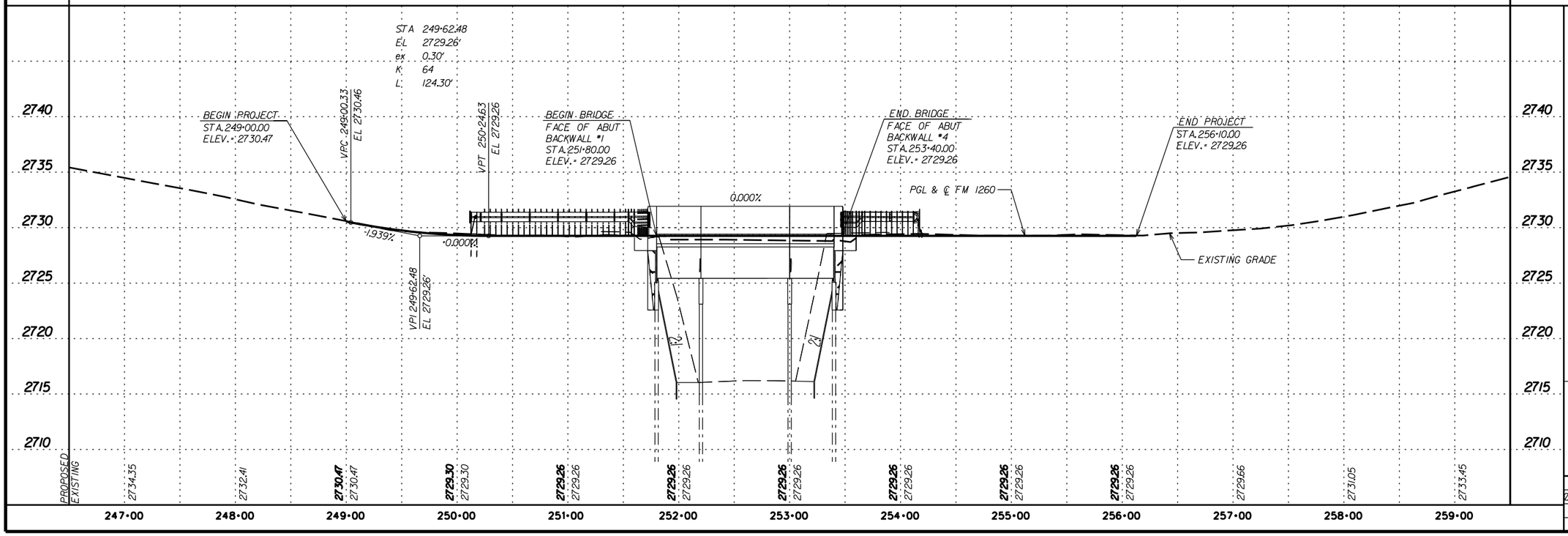
SCALE:
1"=100' PLAN VIEW

Texas Department of Transportation

CONT	SECT	JOB	HIGHWAY
0795	02	017,etc.	FM 1260
DIST	COUNTY		SHEET NO.
CHS	DONLEY		41

CK:
DN:
CK:
DN:





STATE OF TEXAS
CHARLES B. STEED
88647
LICENSED
PROFESSIONAL ENGINEER
Charles B. Steed, P.E.
05/09/2024

SHEET TOTALS		
EST. FINAL	UNIT	DESCRIPTION

PLAN & PROFILE LAYOUT

FM 1260 @ EAST LELIA LAKE

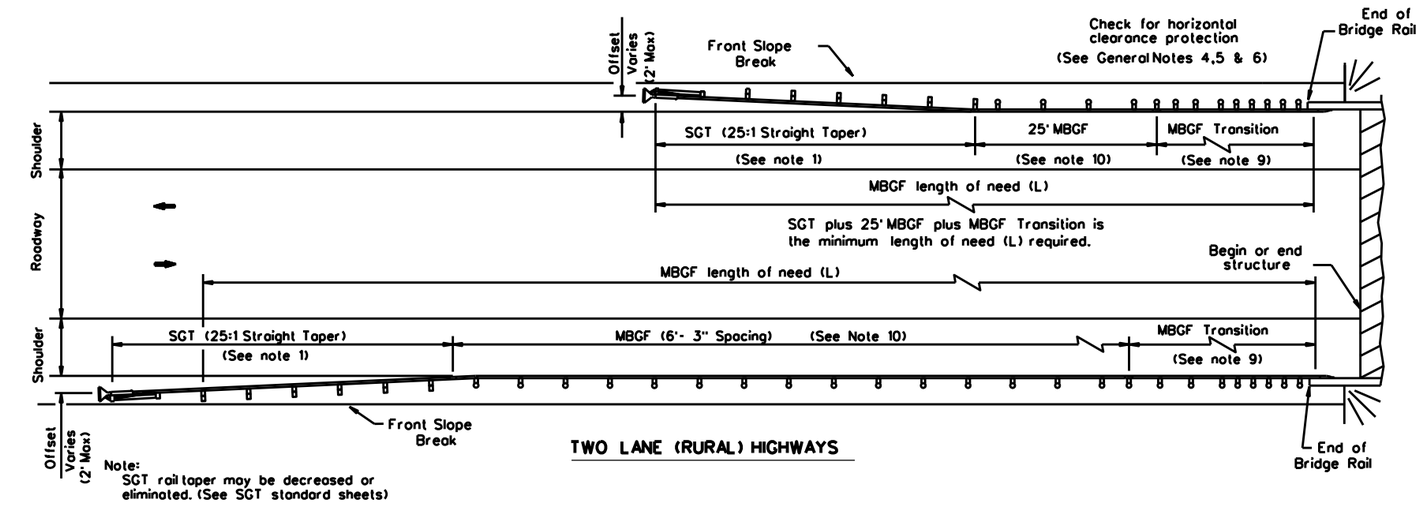
STA. 249+00.00
TO
STA. 256+10.00

SCALE: HORIZONTAL 1"=100'
VERTICAL 1"=10'

Texas Department of Transportation

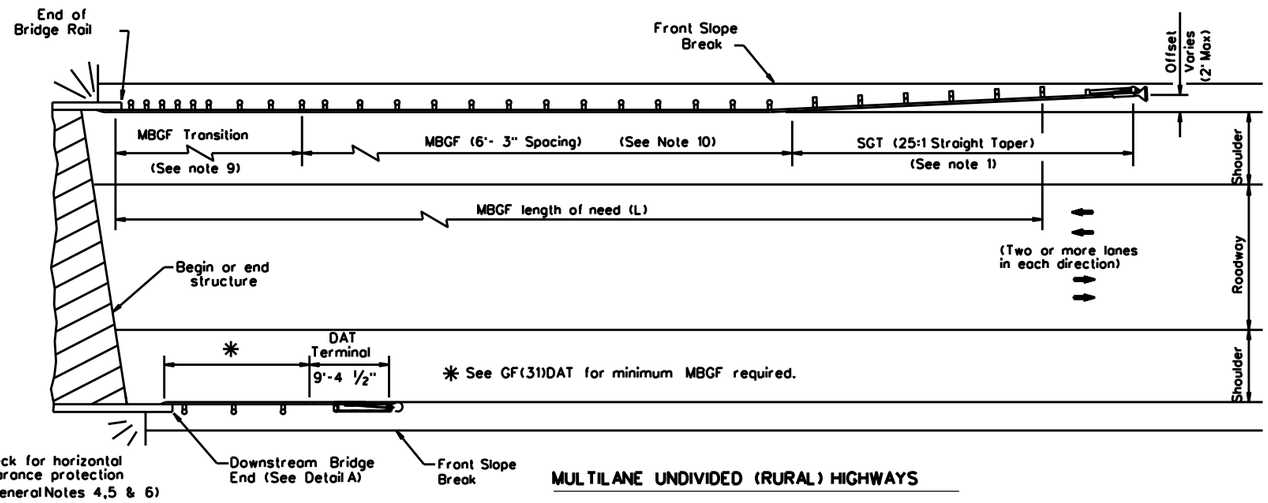
CONT	SECT	JOB	HIGHWAY
0795	02	017, ETC.	FM 1260
DIST	COUNTY		SHEET NO.
25	DONLEY		42

DATE:
FILE:

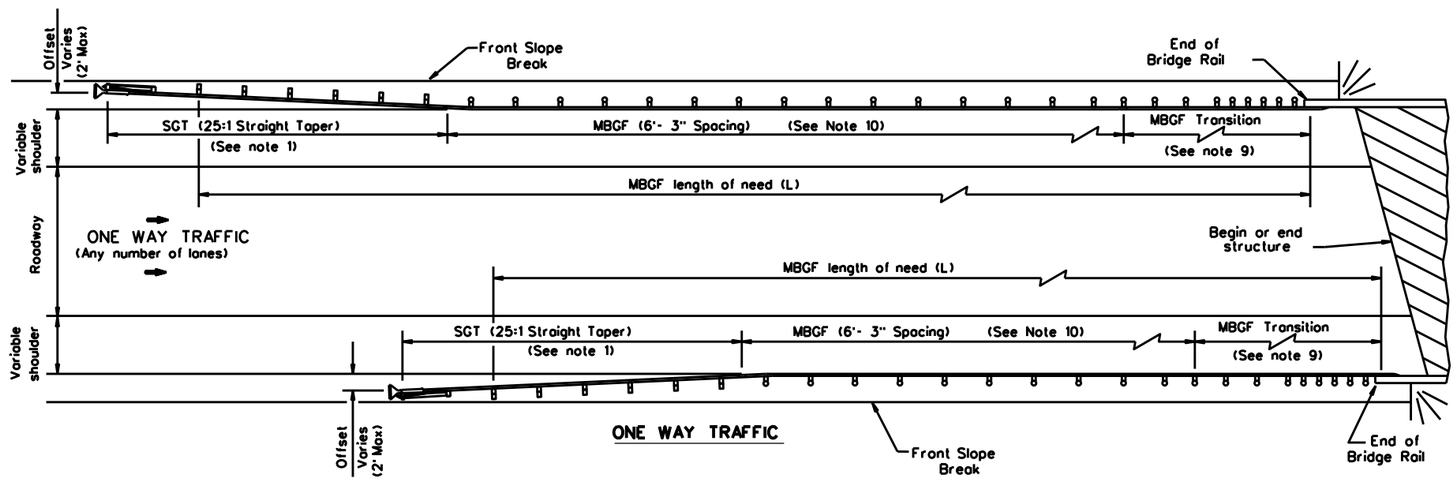


TWO LANE (RURAL) HIGHWAYS

Note:
SGT rail taper may be decreased or eliminated. (See SGT standard sheets)



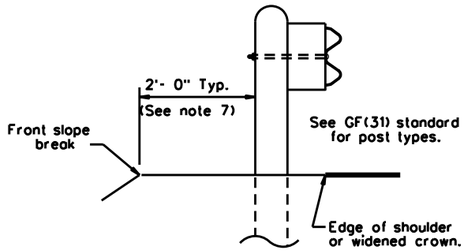
MULTILANE UNDIVIDED (RURAL) HIGHWAYS



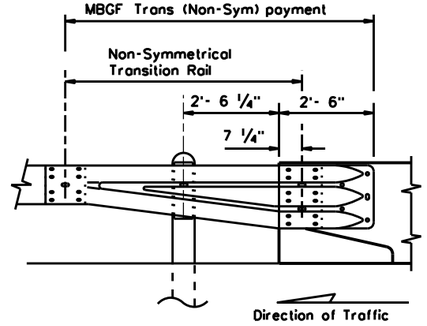
ONE WAY TRAFFIC

GENERAL NOTES

1. For more detail: See GF(31), SGT( )31, GF(31)TR, and GF(31)TL2 standard sheets.
2. Quantities of metal beam guard fence (MBGF) at individual bridge ends are as shown in the plans.
3. Use average daily traffic (ADT) for the current year to determine MBGF length of need in accordance with the Roadway Design Manual unless otherwise specified. Where significant traffic volume growth is anticipated on low volume (0-750 ADT) highways, use length determinations for the higher volume category.
4. MBGF may not be required to shield departure end of bridge unless other obstacles within the horizontal clearance limits or opposing traffic indicate a MBGF consideration.
5. Downstream anchor terminals (DAT) are only for downstream end anchorage use, outside the horizontal clearance area of opposing traffic.
6. Direct connection of MBGF to concrete rails are only for downstream rail connections outside the horizontal clearance area of opposing traffic. (This requires a minimum of three standard line posts plus the DAT terminal, See Detail A)
7. The crown shall be widened to accommodate MBGF. Typically the "front slope" break should be 2'- 0" from the back of the MBGF post. This applies to new construction on new alignment or where existing roadway cross section is to be widened to increase roadway width. This does not apply to rehabilitation work where existing roadway crown width is to be retained (See Typical Cross Section at MBGF).
8. For restrictive bridge widths: The MBGF should be properly transitioned from the existing bridge rail to the adjoining MBGF (See MBGF Transition Standards). Metal beam guard fence at these bridge location(s) shall be flared at the rate of 25:1 or flatter, and be of the length necessary to locate the terminal end at the 2 ft."maximum" offset from the shoulder edge in the approach direction.
9. Transition length and post spacing will vary depending on the transition type. Transition type will be shown elsewhere in the plans.
10. A minimum 25' length of MBGF will be required.



TYPICAL CROSS SECTION AT MBGF



Note:
All rail elements shall be lapped in the direction of adjacent traffic.

DETAIL A
Showing Downstream Rail Attachment

Texas Department of Transportation

Design Division Standard

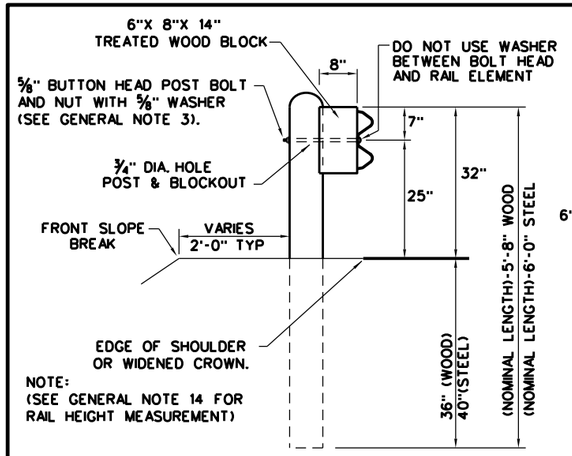
BRIDGE END DETAILS

(METAL BEAM GUARD FENCE APPLICATIONS TO RIGID RAILS)

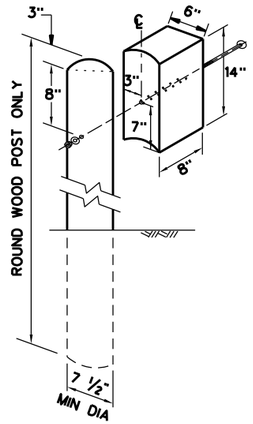
BED-14

FILE: bed14.dgn	DN: TxDOT	CK: AM	DW: BD/VP	CK: CGL
© TxDOT: December 2011	CONT	SECT	JOB	HIGHWAY
REVISIONS	0795	02	017, ETC.	FM 1260
REVISED APRIL 2014 SEE (MEMO 0414)	DIST	COUNTY		SHEET NO.
	25	DONLEY		43

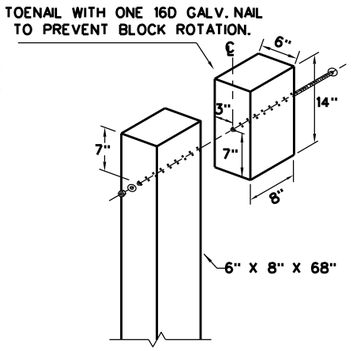
DATE:
FILE:



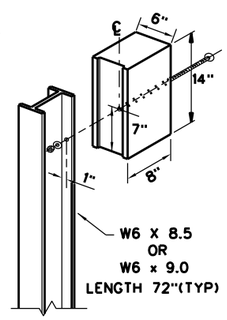
TYPICAL POST PLACEMENT



WOOD BLOCK TO ROUND WOOD POST

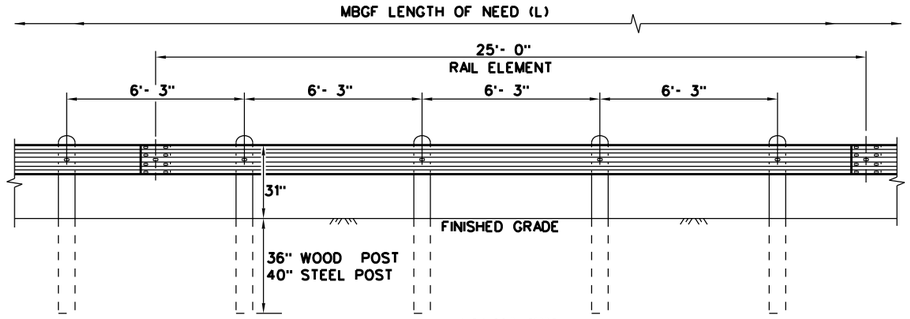


WOOD BLOCK TO RECTANGULAR WOOD POST



ROUTED WOOD BLOCK TO I-BEAM STEEL POST

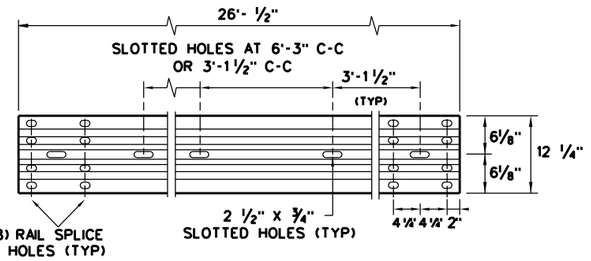
NOTE: * "WOOD" INDICATES DIMENSIONS FOR BOTH ROUND AND RECTANGULAR WOOD POST SYSTEMS.



DIRECTION OF TRAFFIC

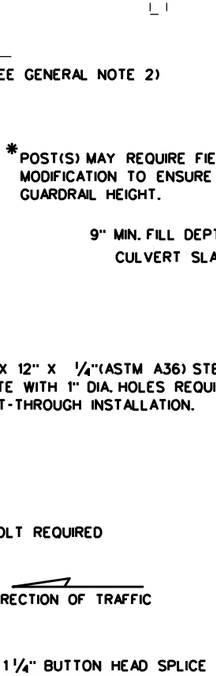
ELEVATION
MID-SPAN RAIL SPLICE

SHOWING A 25'- 0" SECTION OF W-BEAM RAIL. (SEE GENERAL NOTE 2)



ELEVATION 25'- 0"(NOM.) W-BEAM SECTION

NOTES: SEE GENERAL NOTE 2 FOR ALLOWABLE RAIL TYPES.
SEE RAIL SPLICE DETAIL FOR REQUIRED HARDWARE.



* POST(S) MAY REQUIRE FIELD MODIFICATION TO ENSURE PROPER GUARDRAIL HEIGHT.

LOW FILL CULVERT POST

NOTE: TWO INSTALLATION OPTIONS.

1. BOLT-THROUGH OPTION: REQUIRES A 6" MIN. SLAB THICKNESS. 7/8" DIA (ASTM A449) HEAVY HEX BOLTS WITH TWO HARDENED WASHER EACH AND HEAVY HEX NUTS.
NOTE: BOLT LENGTH = SLAB PLUS 2 1/4" MIN.

2. EPOXY ANCHOR OPTION: THIS OPTION MAY ONLY BE USED IF THE CULVERT SLAB IS 9" MIN. THICK. THREADED ANCHOR RODS MUST BE 7/8" DIA. ASTM A449 OR A193 GRADE B7 WITH HEAVY HEX NUT, AND ONE HARDENED WASHER EACH. EMBED ANCHOR RODS 6" WITH HILTI HIT RE 500 EPOXY ADHESIVE. OTHER TYPE III CLASS C EPOXY ADHESIVES MEETING THE REQUIREMENTS OF DMS-6100, "EPOXIES AND ADHESIVES", MAY BE USED IF IT CAN BE DEMONSTRATED THAT THEY MEET OR EXCEED THE STRENGTH OF HILTI HIT RE 500 WITH THE SAME EMBEDMENT DEPTH AND THREADED ROD DIA. FOLLOW THE MANUFACTURER'S REQUIREMENTS FOR INSTALLING EPOXIED THREADED RODS. EXTEND RODS 1/4" MIN. BEYOND NUT.

NOTE: CULVERTS OF 25 FT. OR LESS, SEE GF(31)LS STANDARD FOR "LONG SPAN" OPTION.

NOTE: TRANSISTIONS TO BRIDGE RAILS OR TRAFFIC BARRIERS.
SEE GF(31)TL3 TR STANDARD FOR HIGH-SPEED TL-3 TRANSITIONS.
SEE GF(31)TL2 TR STANDARD FOR LOW-SPEED TL-2 TRANSITIONS.

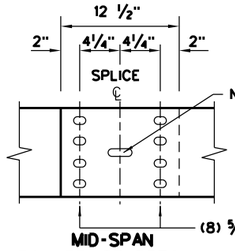
NOTE:
FOUR TYPES OF BUTTON-HEAD GUARD RAIL BOLTS COME WITH A RECCESSED NUT.

SPLICE BOLT LENGTH — VARIES
FBB01 = 1 1/4"
FBB02 = 2"
5/8"

POST & BLOCK LENGTH
FBB03 = 10"
FBB04 = 18"

BUTTON HEAD BOLT

NOTE: SEE GENERAL NOTE 3 FOR SPLICE & POST BOLT DETAILS.



DIRECTION OF TRAFFIC

MID-SPAN RAIL SPLICE DETAIL

NOTE: GF(31), MID-SPAN RAIL SPLICES ARE REQUIRED WITH 6'-3" POST SPACINGS.

GENERAL NOTES

1. THE TYPE OF POST (ROUND WOOD POST, RECTANGULAR WOOD POST, OR STEEL POST) WILL BE AS SHOWN IN THE PLANS. THE EXACT POSITION OF MBGF SHALL BE SHOWN IN THE PLANS OR AS DIRECTED BY THE ENGINEER. STEEL POSTS TO BE GALVANIZED IN ACCORDANCE WITH ITEM 445, "GALVANIZING."
2. RAIL ELEMENTS SHALL MEET THE REQUIREMENTS OF ITEM 540,"METAL BEAM GUARD FENCE" EXCEPT AS MODIFIED IN THE PLANS. THE CONTRACTOR MAY FURNISH RAIL ELEMENTS OF 25'- 0", OR 12'- 6" (NOM.) LENGTHS. RAIL ELEMENTS MAY HAVE SLOTTED HOLES AT 3'-1 1/2" C-C OR 6'-3" C-C. A SPECIAL LENGTH OF RAIL MAY BE MANUFACTURED TO ACCOMMODATE THE DOWNSTREAM ANCHOR TERMINAL (DAT) AND THE TRANSITION SECTIONS OF GUARDRAIL.
3. BUTTON HEAD "POST BOLTS & NUTS" SHALL MEET THE REQUIREMENTS OF (ASTM A307), AND SHALL BE OF SUFFICIENT LENGTH TO EXTEND THROUGH THE FULL THICKNESS OF THE NUT AND 5/8" WASHER (FWC16a) AND NOT MORE THAN 1" BEYOND IT. TRIM REMAINING BOLT LENGTH TO MEET REQUIRED LENGTH.
4. FITTINGS (BOLTS, NUTS, AND WASHERS) SHALL BE GALVANIZED IN ACCORDANCE WITH ITEM 445,"GALVANIZING." FITTINGS SHALL BE SUBSIDIARY TO THE BID ITEM.
5. CROWN SHALL BE WIDENED TO ACCOMMODATE THE METAL BEAM GUARD FENCE.
6. THE LATERAL APPROACH TO THE GUARD FENCE, SHALL HAVE A MAXIMUM SLOPE OF 1V:10H.
7. IF SHOWN ELSEWHERE IN THE PLANS OR AS DIRECTED BY THE ENGINEER, THE GUARD FENCE MAY BE FLARED AT A RATE OF 25:1 OR FLATTER.
8. UNLESS OTHERWISE SHOWN IN THE PLANS, GUARD FENCE PLACED IN THE VICINITY OF CURBS SHALL BE POSITIONED SO THAT THE FACE OF CURB IS LOCATED DIRECTLY BELOW OR BEHIND THE FACE OF THE RAIL. RAIL PLACED OVER CURBS SHALL BE INSTALLED SO THAT THE POST BOLT IS LOCATED APPROXIMATELY 25 INCHES ABOVE THE GUTTER PAN OR EDGE OF SHOULDER.
9. APPLICATIONS IN SOLID ROCK ARE ONLY ALLOWED WITH STEEL POSTS. IF SOLID ROCK IS ENCOUNTERED WITHIN 0 TO 18" OF THE FINISHED GRADE, DRILL A 24" DIA. HOLE, 24" INTO THE ROCK. IF SOLID ROCK IS ENCOUNTERED BELOW 18", DRILL A 12" DIA. HOLE, 12" INTO THE ROCK OR TO THE STANDARD EMBEDMENT DEPTH, WHICHEVER MAYBE LESS. ANY EXCESS POST LENGTH, AFTER MEETING THESE DEPTHS, MAY BE FIELD CUT TO ENSURE PROPER GUARDRAIL MOUNTING HEIGHT. BACKFILL WITH COARSE AGGREGATE MATERIAL.
10. POSTS SHALL NOT BE SET IN CONCRETE, OF ANY DEPTH.
11. SPECIAL FABRICATION WILL BE REQUIRED AT INSTALLATION LOCATIONS HAVING A CURVATURE OF LESS THAN 150 FT. RADIUS.
12. UNLESS OTHERWISE SHOWN IN THE PLANS, A COMPOSITE MATERIAL BLOCK THAT MEETS THE REQUIREMENTS OF DMS-7210,"COMPOSITE MATERIAL POSTS AND BLOCKS FOR METAL BEAM GUARD FENCE" MAY BE SUBSTITUTED FOR BLOCKS OF SIMILAR DIMENSIONS. THE CONSTRUCTION DIVISION, TXDOT MAINTAINS A MATERIAL PRODUCER LIST (MPL) FOR PRODUCERS OF MATERIALS CONFORMING TO DMS-7210 ONLY PRODUCERS ON THE MPL MAY FURNISH COMPOSITE MATERIAL BLOCKS.
13. FOR THE LOW FILL CULVERT OPTION, POSTS LOCATED PARTIALLY OR WHOLLY BETWEEN PRECAST BOX CULVERT UNITS, THE USE OF A CAST-IN-PLACE CONCRETE CLOSURE BETWEEN BOXES IS REQUIRED. THE LENGTH OF THE CAST-IN-PLACE CONCRETE CLOSURE SHALL ACCOMMODATE THE PLACEMENT OF THE LOW FILL CULVERT OPTION. SEE CONCRETE CLOSURE DETAILS ON BRIDGE STANDARD SCP-MD.
14. GUARDRAIL HEIGHT MEASUREMENT: WHEN THE GUARDRAIL IS LOCATED ABOVE PAVEMENT, MEASURE THE HEIGHT FROM THE PAVEMENT TO THE TOP OF THE W-BEAM RAIL. WHEN THE GUARDRAIL IS LOCATED UP TO 2 FT. OFF OF THE EDGE OF PAVEMENT OR FOR A PAVEMENT OVERLAY, USE A 10-FOOT STRAIGHTEDGE TO EXTEND THE PAVEMENT/SHOULDER SLOPE TO THE BACK OF RAIL, MEASURE FROM THE BOTTOM OF STRAIGHTEDGE TO THE TOP OF RAIL. FOR GUARDRAIL LOCATED DOWN A 10:1 SLOPE, MEASURE FROM THE NOMINAL TERRAIN.

Texas Department of Transportation

Design Division Standard

METAL BEAM GUARD FENCE
TL-3 MASH COMPLIANT
GF(31)-19

FILE: gf3119.dgn	DN: TxDOT	CK: KM	DW: VP	CK: CGL/AG
©TxDOT: NOVEMBER 2019	CONT	SECT	JOB	HIGHWAY
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	25	DONLEY		44

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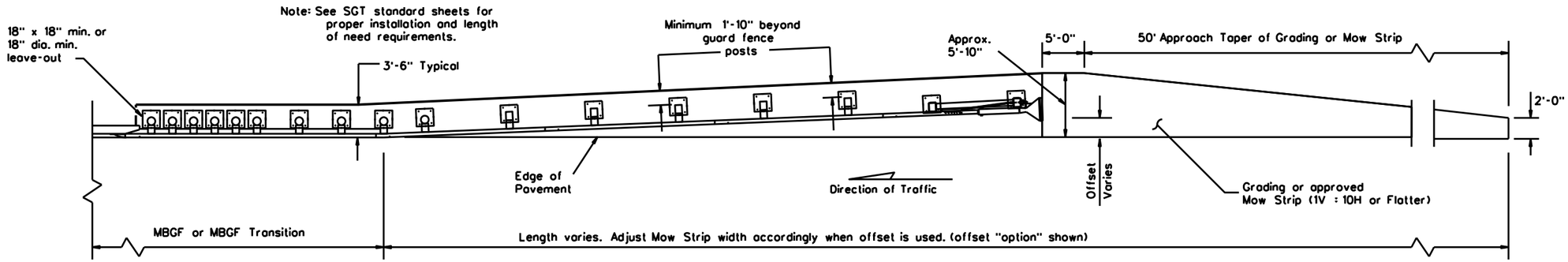
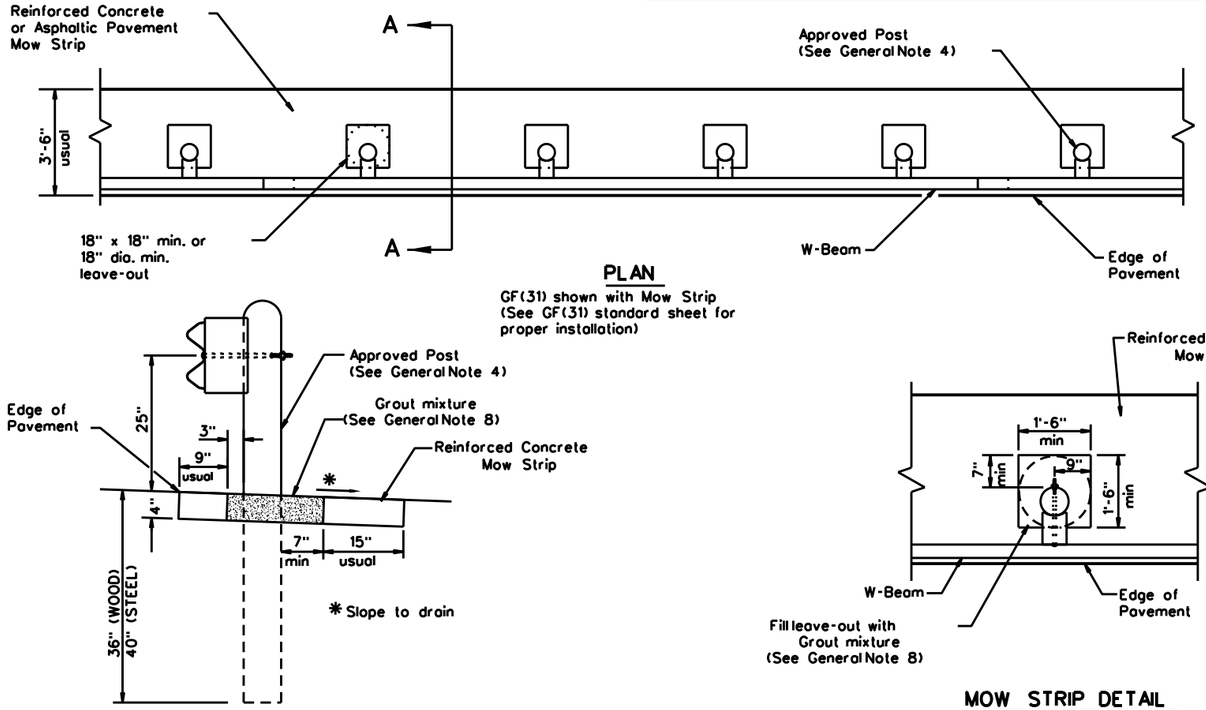


GRADING AND MOW STRIP AT GUARDRAIL END TREATMENTS

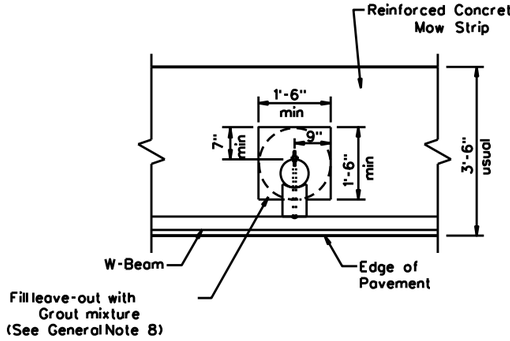


PLAN

GF(31) shown with Mow Strip
(See GF(31) standard sheet for
proper installation)

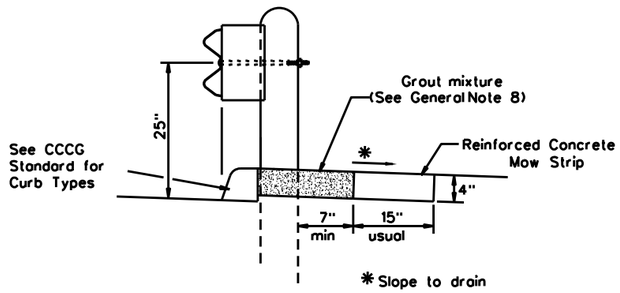
SECTION A-A

Typical



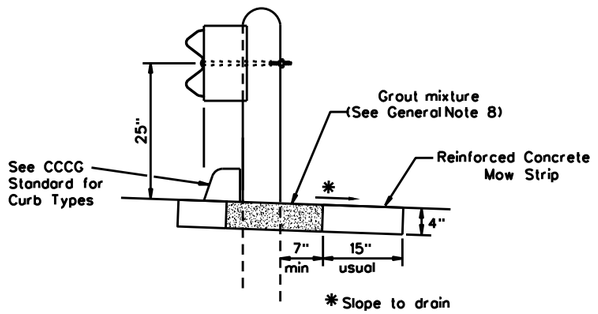
MOW STRIP DETAIL

Reinforced Concrete Mow Strip
with 18" x 18" Squore or
18" Dia. minimum leave-out.



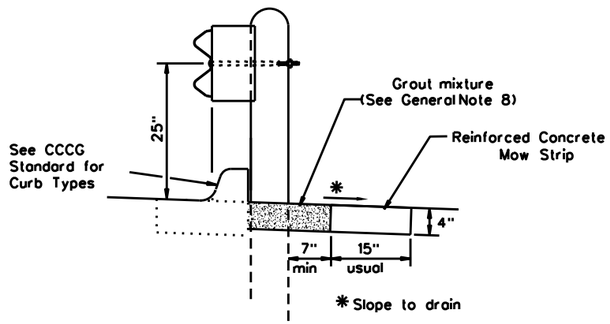
CURB OPTION (1)

This option will increase the post
embedment throughout the system.



CURB OPTION (2)

Curb shown on top of mow strip



CURB OPTION (3)

Note: Site Condition(s)

Site conditions may exist where grading is required for the proper installation of metal guard fence and end treatments.

Approach grading or mow strip may be decreased or eliminated, as directed by the Engineer.

GENERAL NOTES

1. This mow strip design is for use with metal beam guard fence, guard fence transitions, and guard fence end treatments. See applicable GF(31) MBGF or GF(31) Transition Standard sheet for additional information.
2. Mow strips shall be reinforced concrete with (wire mesh or synthetic fiber), as shown on the plans and will be paid for under the pertinent bid item. Reinforced concrete shall be placed in accordance with Item 432, "Riprap." The use of the synthetic fiber in lieu of steel reinforcing is acceptable, provided the fiber producer is on the Department Material Producer List (MPL), maintained by TxDOT, Construction Division.
3. The leave-out behind the post shall be a minimum of 7".
4. Only steel (W6 x 8.5 or W6 x 9.0), or 7 ½" Dia. round wood posts are acceptable for use in the mow strip. See GF(31) Standard for additional details.
5. Other curb placement options may be used. Curbs are not considered part of the mow strip and will be paid for under other pertinent bid item.
6. Thickness of the mow strip will be 4".
7. The limits of payment for reinforced concrete will include leave-outs for the posts.
8. The leave-outs shall be filled with a Grout mixture consisting of: 2719 pounds sand, 188 pounds Type I or II cement, and 550 pounds of water per cubic yard, with a 28-day compressive strength of approximately 230 psi or less. Provide grout with a consistency that will flow into and completely fill all voids. Due to auger size, larger leave-out dimensions are acceptable from both an impact performance and maintenance repair standpoint (Suggested Maximum leave-out of 20"). Payment for furnishing and placing the grout mixture will be subsidiary to the pay item of riprap mow strip.

Texas Department of Transportation

Design Division Standard

METAL BEAM GUARD FENCE (MOW STRIP) TL-3 MASH COMPLIANT

GF(31)MS-19

FILE: gf31ms19.dgn	DN: TxDOT	CK: KM	DW: VP	CK: CGL/AG
©TxDOT: NOVEMBER 2019	CONT	SECT	JOB	HIGHWAY
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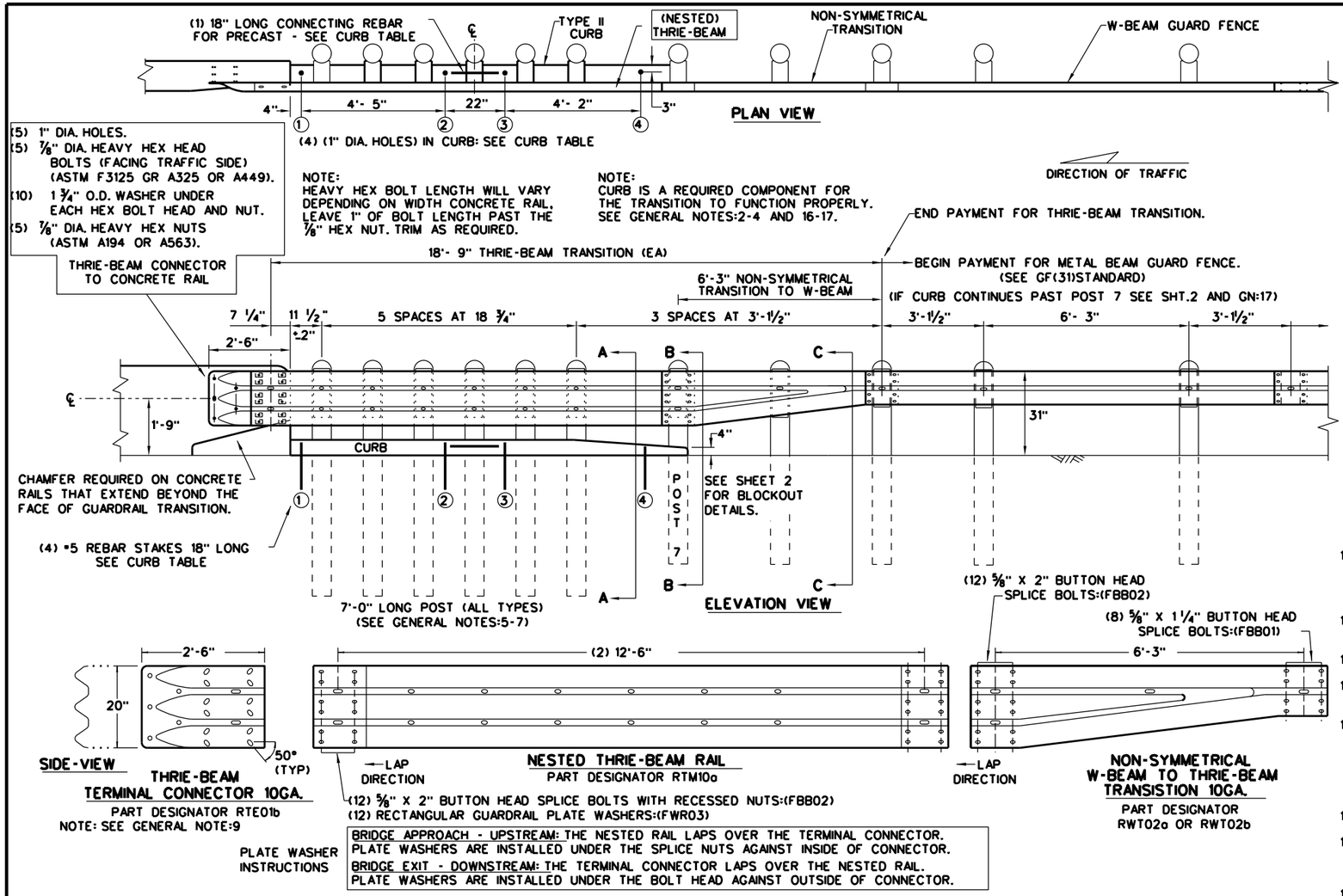
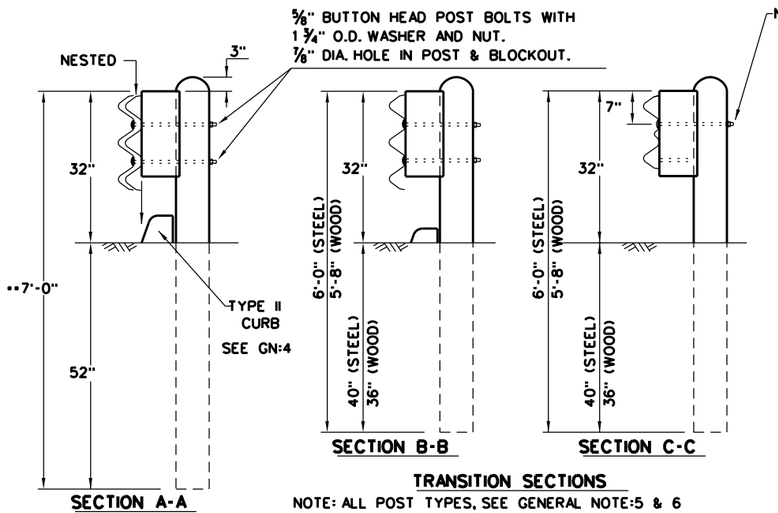


GENERAL NOTES

1. CONTACT THE DESIGN DIVISION FOR DRAINAGE CUT OUT OPTIONS NEEDED WITHIN THE CURB SECTION OF THE THRIE-BEAM TRANSITION. (512) 416-2678
2. CONCRETE CURB MAY BE CAST-IN-PLACE OR PRECAST AS SHOWN ON THIS SHEET. WHEN USED IN CONJUNCTION WITH THE THRIE-BEAM TRANSITIONS, CURB SHALL BE TYPE II (5- ¾" HEIGHT); SEE CURRENT CCCG STANDARD SHEET FOR FURTHER DETAILS. IF OTHER CURB HEIGHTS ARE SHOWN IN THE PLANS IN CONJUNCTION WITH THE TRANSITION, THE CURB HEIGHT MAY BE FROM 4" TO 8" WITH A RELATIVELY VERTICAL FACE. CONCRETE CURB SHALL BE CONTINUOUS TO THE SEVENTH POST UNLESS OTHERWISE SHOWN IN THE PLANS. SEE GENERAL NOTE:17 FOR CIRCUMSTANCES WHERE CURB CONTINUES PAST POST 7.
3. CONCRETE CURB TYPE II SUBSIDIARY TO "METAL BEAM GUARD FENCE TRANSITION". IF NO ADDITIONAL CURB IS INDICATED BEYOND THE TRANSITION, THEN ANY CURB HEIGHT GREATER THAN 4" WILL BE TAPERED DOWN BEGINNING AT THE LAST 7 FT. POST TO A MAXIMUM HEIGHT OF 4" AT POST 7. IF SHOWN ELSEWHERE IN THE PLANS, ADDITIONAL CURB UNDERNEATH GUARDRAIL WILL BE PAID FOR BY THE LINEAR FOOT.
4. UNLESS OTHERWISE SHOWN IN THE PLANS, TRANSITIONS SHALL BE PLACED WITH THE BLOCKOUT FACE IN FRONT OF OR DIRECTLY ABOVE THE CURB FACE. SEE SECTION A-A.
5. FOR ROUND WOOD POST SYSTEMS, ALL ROUND WOOD POSTS SHALL BE 7 ½" DIA. MINIMUM THROUGHOUT THE THRIE-BEAM TRANSITION.
6. THE TYPE OF POST (ROUND WOOD POST, RECTANGULAR WOOD POST OR STEEL POST) WILL BE AS SHOWN IN THE PLANS. REFER TO GF(31) STANDARD SHEET.
7. THE POST LENGTH SHALL BE MARKED ON ALL 7'- 0" LONG POSTS BY THE MANUFACTURER. THE MARK SHALL BE LOCATED WITHIN THE TOP 1 FT. REGION OF THE POST, AT LEAST ⅝" IN HEIGHT, AND VISIBLE AFTER INSTALLATION. WOODEN POSTS SHALL BE MARKED WITH A BRAND, AND STEEL POSTS WITH A STENCIL BEFORE GALVANIZING.
8. POSTS SHALL NOT BE SET IN CONCRETE, OF ANY DEPTH.
9. RAIL ELEMENTS SHALL MEET THE REQUIREMENTS OF ITEM 540,"METAL BEAM GUARD FENCE" EXCEPT AS MODIFIED ON THE PLANS. THE THRIE-BEAM TERMINAL CONNECTOR AND THE THRIE-BEAM TRANSITION TO W-BEAM SHALL BE OF THE SAME MATERIAL, BUT SHALL NOT BE LESS THAN 10 GAUGE. CONTRACTOR SHALL VERIFY THAT THE LOCATIONS OF BOLT HOLES MATCH THOSE IN THE THRIE-BEAM TERMINAL CONNECTOR PRIOR TO ORDERING MATERIALS.
10. BUTTON HEAD "POST BOLTS & NUTS" SHALL MEET THE REQUIREMENTS OF (ASTM A307), AND SHALL BE OF SUFFICIENT LENGTH TO EXTEND THROUGH THE FULL THICKNESS OF THE NUT AND ⅝" WASHER (FWC16a) AND NOT MORE THAN 1" BEYOND IT. TRIM REMAINING BOLT LENGTH TO MEET REQUIRED LENGTH.
11. FITTINGS (BOLTS, NUTS, AND WASHERS) SHALL BE GALVANIZED IN ACCORDANCE WITH ITEM 445,"GALVANIZING". FITTINGS SHALL BE SUBSIDIARY TO THE BID ITEM.
12. CROWN SHALL BE WIDENED TO ACCOMMODATE TRANSITIONS.
13. WHERE SOLID ROCK IS ENCOUNTERED, CONTACT THE DESIGN DIVISION FOR ADDITIONAL GUIDANCE. (512) 416-2678
14. UNLESS OTHERWISE SHOWN IN THE PLANS, A COMPOSITE MATERIAL BLOCK THAT MEETS THE REQUIREMENTS OF DMS-7210, "COMPOSITE MATERIAL POSTS AND BLOCKS FOR METAL BEAM GUARD FENCE" MAY BE SUBSTITUTED FOR BLOCKS OF SIMILAR DIMENSIONS. TXDOT'S MATERIALS AND TESTS DIVISION MAINTAINS A MATERIAL PRODUCER LIST (MPL) FOR PRODUCERS OF MATERIALS CONFORMING TO DMS-7210. ONLY PRODUCERS ON THE MPL CAN FURNISH COMPOSITE MATERIAL BLOCKS.
15. REFER TO GF(31)STANDARD SHEET & BRIDGE RAILING DETAILS FOR ADDITIONAL DETAILS.
16. THE INSTALLATION OF THE TYPE II CURB IS CRITICAL FOR THE PERFORMANCE OF THE THRIE-BEAM TRANSITION SYSTEM. THE CURB PREVENTS (VEHICLE WHEEL SNAGGING) AT THE CONCRETE RAIL AND IS REQUIRED TO MEET MASH CRASH TEST CRITERIA.
17. IF CURB EXTENDS BEYOND POST 7, 25' OF NESTED W-BEAM GUARDRAIL SHALL BE INSTALLED BEYOND THE PAY LIMITS OF THRIE-BEAM TRANSITION SECTION, (SEE SHT.2). PAYMENT FOR THIS 25' SECTION WILL BE BY LINEAR FOOT, PAY ITEM "0540 6XXX MTL W-BEAM GD FEN (NESTED)(TIM POST)" OR "540 6XXX MTL W-BEAM GD FEN (NESTED)(STEEL POST)" AS APPLICABLE FOR POST TYPE. SEE SHT.2 FOR ADDITIONAL INFORMATION.



THRIE-BEAM TERMINAL - CURB TABLE

PRECAST CURB FULL LENGTH EQUALS 12'- 2"
THE PRECAST CURB MAY BE FORMED INTO TWO SECTIONS.

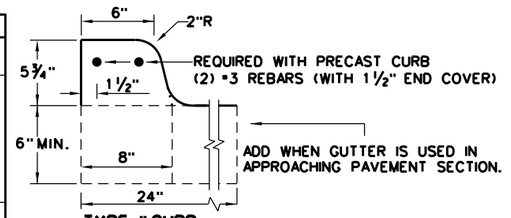
CURB (1) LENGTH 5'- 8"
CURB (2) LENGTH 6'- 6"
TAPER CURB (2) TO A HEIGHT OF 4" AT POST 7

CONNECTING PRECAST CURB SECTIONS (1) & (2):
FORM OR CORE 1" DIA. HOLE 9" LONG INTO EACH CURB END.
USE (1) #5 GR.60 REBAR 18" LONG TO CONNECT BOTH CURBS.

SECURING PRECAST OR CAST-IN-PLACE TO FINISHED GRADE : *
FORM OR CORE (4) 1" DIA. HOLES, SEE PLAN AND ELEVATION VIEWS FOR HOLE LOCATIONS. DRIVE (4) #5 GR.60 REBAR STAKES 18" LONG INTO THE GROUND AND ½" BELOW TOP OF CURB.
FILL HOLES WITH APPROVED GROUT MIXTURE.

* NOTES: NOT NEEDED FOR CAST-IN-PLACE.
SEE TYPE II CURB DETAIL FOR REBAR AND COVER REQUIREMENTS.
PERCUSSION DRILLING IS NOT PERMITTED WITH:
TYPE II CURB, BRIDGE RAIL OR CONCRETE TRAFFIC RAIL.

TYPE II CURB DETAILS



NOTE: OPTIONS FOR TYPE II CURB:
1. PRECAST
2. CAST-IN-PLACE

HIGH-SPEED TRANSITION

SHEET 1 OF 2

Texas Department of Transportation

Design Division Standard

METAL BEAM GUARD FENCE THRIE-BEAM TRANSITION TL-3 MASH COMPLIANT

GF(31)TR TL3-20

FILE: gf31trtl320.dgn	DN: TxDOT	CK: KM	DW: VP	CK: CGL/AG
©TxDOT: NOVEMBER 2020	CONT	SECT	JOB	HIGHWAY
REVISIONS	0795	02	017, ETC.	FM 1260
	DIST	COUNTY		SHEET NO.
	25	DONLEY		46

DATE:
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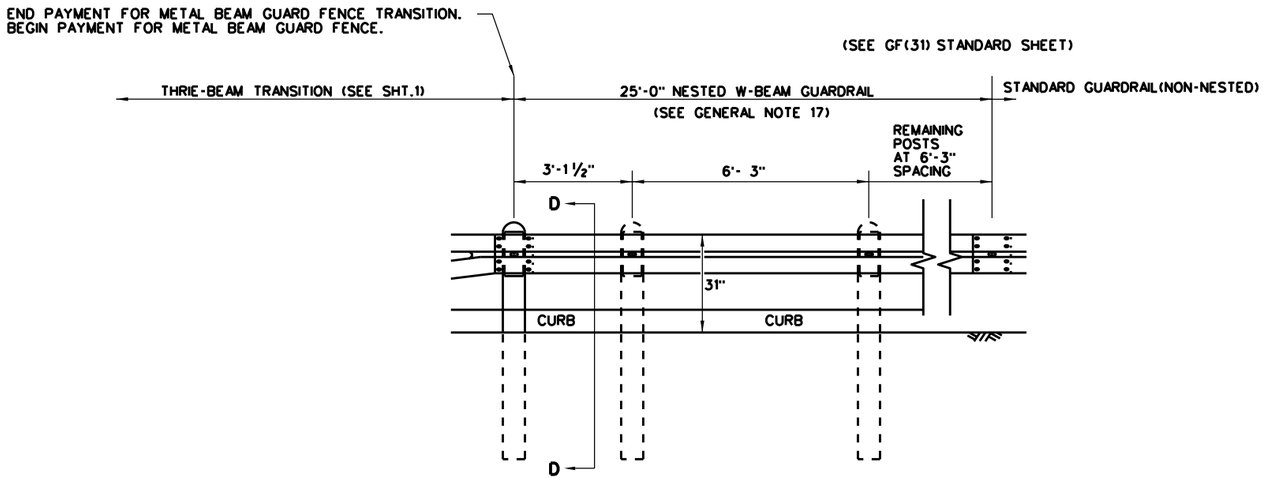
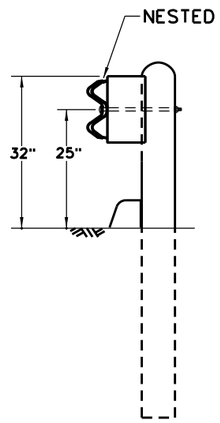
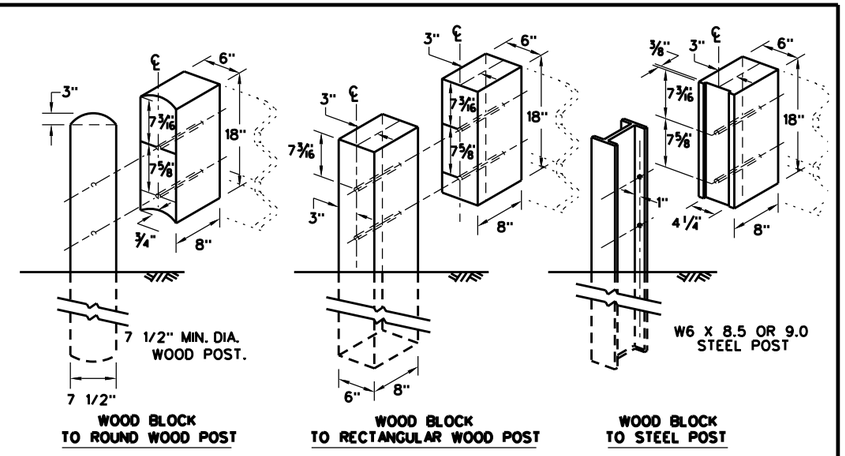
REQUIRED ALTERNATIVE FOR CONTINUOUS CURB EXTENDING PAST POST 7 (SEE SHT. 1 GENERAL NOTE 17)



ELEVATION VIEW



SECTION D-D



THRIE BEAM TRANSITION BLOCKOUT DETAILS

HIGH-SPEED TRANSITION

SHEET 2 OF 2

Texas Department of Transportation | Design Division Standard

METAL BEAM GUARD FENCE THRIE-BEAM TRANSITION TL-3 MASH COMPLIANT

GF(31)TR TL3-20

FILE: gf31trtl320.dgn	DN: TxDOT	CK: KM	DW: KM	CK: CGL/AG
©TxDOT: NOVEMBER 2020	CONT	SECT	JOB	HIGHWAY
REVISIONS	0795	02	017, ETC.	FM 1260
	DIST	COUNTY		SHEET NO.
	25	DONLEY		47

DATE:
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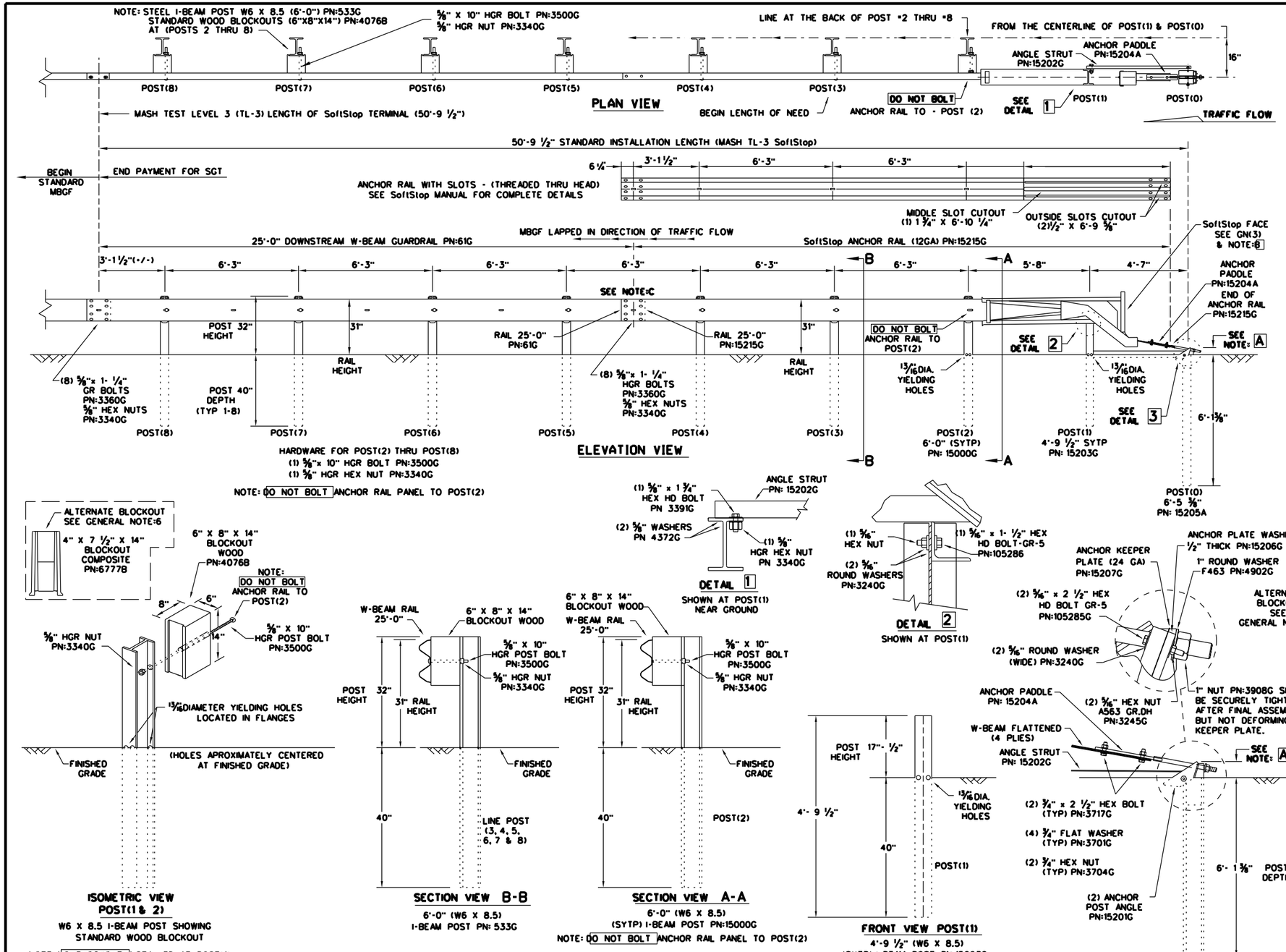

GENERAL NOTES

1. FOR SPECIFIC INFORMATION REGARDING INSTALLATION AND TECHNICAL GUIDANCE OF THE SYSTEM, CONTACT: TRINITY HIGHWAY AT 1(888)323-6374. 2525 N. STEMMONS FREEWAY, DALLAS, TX 75207
2. FOR INSTALLATION, REPAIR AND MAINTENANCE REFER TO THE: SoftStop END TERMINAL, PRODUCT DESCRIPTION ASSEMBLY MANUAL. PN:6202378
3. APPLY HIGH INTENSITY REFLECTIVE SHEETING, "OBJECT MARKER" ON THE FRONT FACE OF THE DEVICE PER MANUFACTURER'S RECOMMENDATIONS. OBJECT MARKER SHALL CONFORM TO THE STANDARDS REQUIRED IN TEXAS MUTCD.
4. FOR POST (LEAVE-OUT) INSTALLATION AND GUIDANCE SEE TXDOT'S LATEST ROADWAY MOW STRIP STANDARD.
5. HARDWARE (BOLTS, NUTS, & WASHERS) SHALL BE GALVANIZED IN ACCORDANCE WITH ITEM 445,"GALVANIZING". FITTINGS SHALL BE SUBSIDIARY TO THE BID ITEM.
6. A COMPOSITE MATERIAL BLOCKOUT THAT MEETS THE REQUIREMENTS OF DMS-7210, MAY BE SUBSTITUTED FOR BLOCKOUTS OF SIMILAR DIMENSIONS. SEE CONSTRUCTION DIVISION MATERIAL PRODUCER LIST (MPL) FOR CERTIFIED PRODUCERS.
7. IF SOLID ROCK IS ENCOUNTERED SEE THE MANUFACTURER'S INSTALLATION MANUAL AND REFER TO THE LATEST ROADWAY MBGF STANDARD FOR INSTALLATION GUIDANCE.
8. POSTS SHALL NOT BE SET IN CONCRETE.
9. IT IS ACCEPTABLE TO INSTALL THE SoftStop IMPACT HEAD PARALLEL TO THE GRADE LINE OR WITH AN UPWARD TILT.
10. DO NOT ATTACH THE SoftStop SYSTEM DIRECTLY TO A RIGID BARRIER.
11. UNDER NO CIRCUMSTANCES SHALL THE GUARDRAIL WITHIN THE SoftStop SYSTEM BE CURVED.
12. A FLARE RATE OF UP TO 25:1 MAY BE USED TO PREVENT THE TERMINAL HEAD FROM ENCROACHING ON THE SHOULDER. THE FLARE MAY BE DECREASED OR ELIMINATED FOR SPECIFIC INSTALLATIONS, IF DIRECTED BY THE ENGINEER.

NOTE:A	THE INSTALLATION HEIGHT OF FULLY ASSEMBLED ANCHOR POST WILL VARY FROM 3-¾" MIN. TO 4" MAX. ABOVE FINISHED GRADE.
NOTE:B	PART PN:58528 RIGHT-SIDE (HIGH INTENSITY REFLECTIVE SHEETING) PART PN:58518 LEFT-SIDE (HIGH INTENSITY REFLECTIVE SHEETING)
NOTE:C	W-BEAM SPLICE LOCATED BETWEEN LINE POST(4)AND LINE POST(5) GUARDRAIL PANEL 25'-0" PN:61G ANCHOR RAIL 25'-0" PN:15215G LAP GUARDRAIL IN DIRECTION OF TRAFFIC FLOW.

PART	QTY	MAIN SYSTEM COMPONENTS
6202378	1	PRODUCT DESCRIPTION ASSEMBLY MANUAL (LATEST REV.)
15208A	1	SoftStop HEAD (SEE MANUAL FOR RIGHT-LEFT APPROACH)
15215G	1	SoftStop ANCHOR RAIL (12GA) WITH CUTOUT SLOTS
61G	1	SoftStop DOWNSTREAM W-BEAM RAIL (12GA) (25'- 0")
15205A	1	POST #0 - ANCHOR POST (6'- 5 ⅜")
15203G	1	POST #1 - (SYTP) (4'- 9 ½")
15000G	1	POST #2 - (SYTP) (6'- 0")
533G	6	POST #3 THRU #8 - I-BEAM (W6 x 8.5) (6'- 0")
40768	7	BLOCKOUT - WOOD (ROUTED) (6" x 8" x 14")
67778	7	BLOCKOUT - COMPOSITE (4" x 7 ½" x 14")
15204A	1	ANCHOR PADDLE
15207G	1	ANCHOR KEEPER PLATE (24 GA)
15206G	1	ANCHOR PLATE WASHER (½" THICK)
15201G	2	ANCHOR POST ANGLE (10" LONG)
15202G	1	ANGLE STRUT
		HARDWARE
4902G	1	1" ROUND WASHER F436
3908G	1	1" HEAVY HEX NUT A563 GR.DH
3717G	2	¾" x 2 ½" HEX BOLT A325
3701G	4	¾" ROUND WASHER F436
3704G	2	¾" HEAVY HEX NUT A563 GR.DH
3360G	16	⅝" x 1¼" W-BEAM RAIL SPLICE BOLTS HGR
3340G	25	⅝" W-BEAM RAIL SPLICE NUTS HGR
3500G	7	⅝" x 10" HGR POST BOLT A307
3391G	1	⅝" x 1 ¾" HEX HD BOLT A325
4489G	1	⅝" x 9" HEX HD BOLT A325
4372G	4	⅝" WASHER F436
105285G	2	⅝" x 2 ½" HEX HD BOLT GR-5
105286G	1	⅝" x 1 ½" HEX HD BOLT GR-5
3240G	6	⅝" ROUND WASHER (WIDE)
3245G	3	⅝" HEX NUT A563 GR.DH
5852B	1	HIGH INTENSITY REFLECTIVE SHEETING - SEE NOTE:B

NOTE:
THIS STANDARD IS A BASIC REPRESENTATION OF THE SoftStop END TERMINAL, IT IS NOT INTENDED TO REPLACE THE PRODUCT DESCRIPTION ASSEMBLY MANUAL.

Texas Department of Transportation

Design Division Standard

TRINITY HIGHWAY
SOFTSTOP END TERMINAL
MASH - TL-3
SGT(10S)31-16

FILE: sgt10s3116	DN: TxDOT	CK: KM	DW: VP	CK: MB/VP
© TxDOT: JULY 2016	CONT	SECT	JOB	HIGHWAY
REVISIONS	0795	02	017, ETC.	FM 1260
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	25	DONLEY		48

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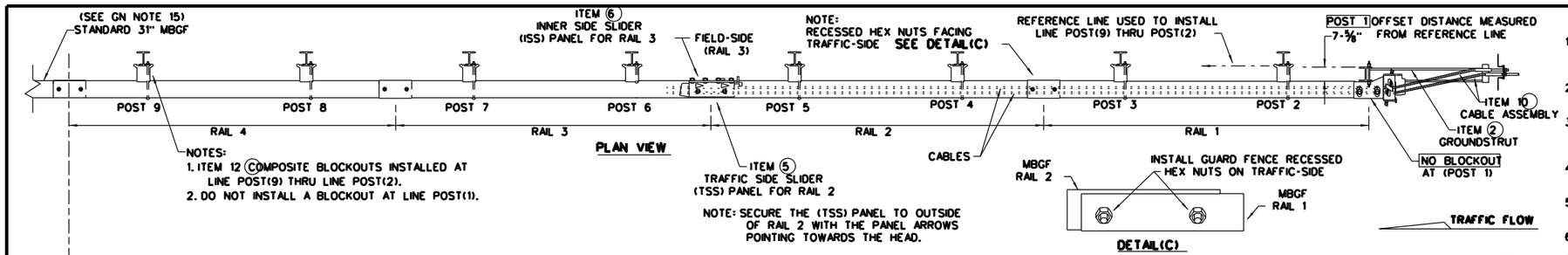
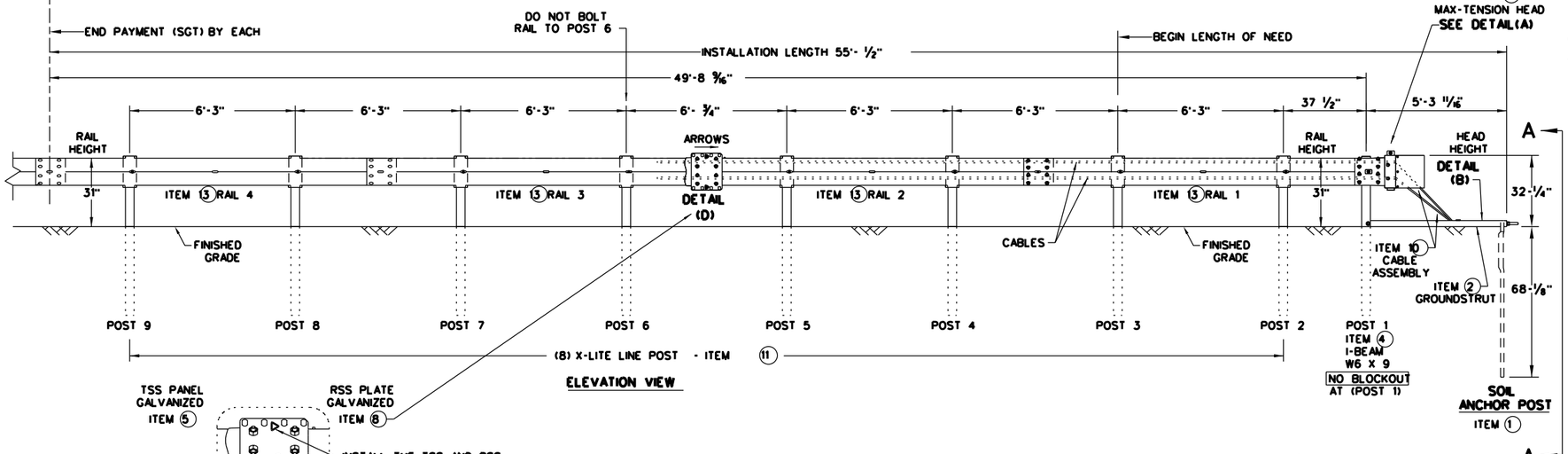
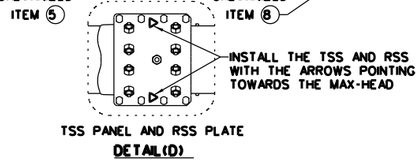
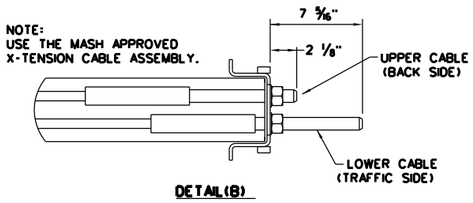
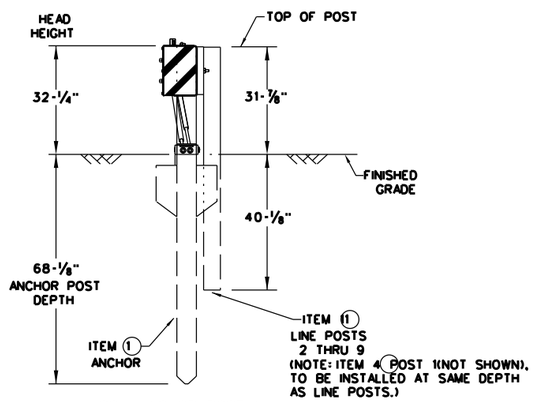
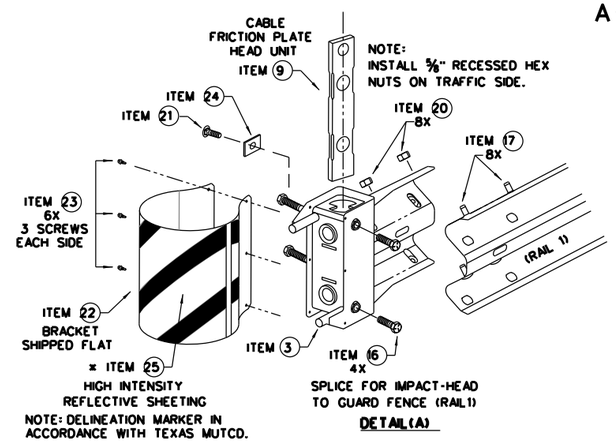












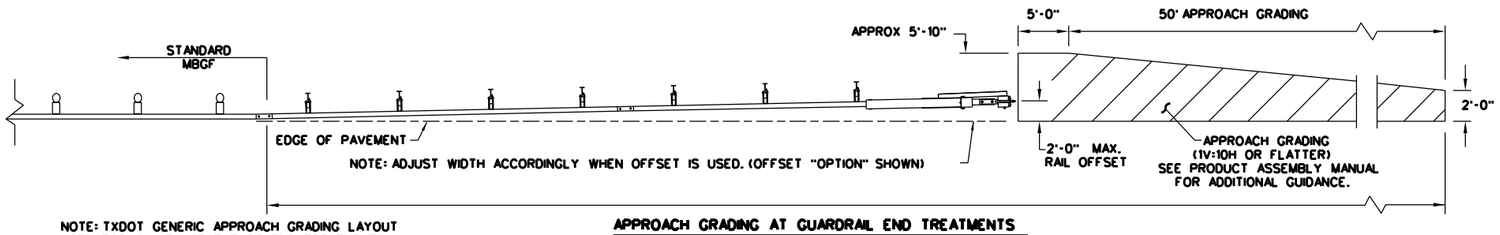
GENERAL NOTES

1. FOR SPECIFIC INFORMATION REGARDING INSTALLATION AND TECHNICAL GUIDANCE OF THE SYSTEM, CONTACT: LINDSAY TRANSPORTATION SOLUTIONS (LTS) - BARRIER SYSTEMS, INC. AT (707) 374-6800
2. FOR INSTALLATION, REPAIR, & MAINTENANCE REFER TO THE: MAX-TENSION INSTALLATION INSTRUCTION MANUAL. P/N MANMAX REV D (ECN 3516).
3. APPLY HIGH INTENSITY REFLECTIVE SHEETING, "OBJECT MARKER" ON THE FRONT FACE OF THE DEVICE PER MANUFACTURE'S RECOMMENDATIONS. OBJECT MARKER SHALL CONFORM TO THE STANDARDS REQUIRED IN TEXAS MUTCD.
4. FOR POST (LEAVE-OUT) INSTALLATION AND GUIDANCE SEE TXDOT'S LATEST ROADWAY MOW STRIP STANDARD.
5. ALL STEEL COMPONENTS ARE GALVANIZED PER ASTM A123 OR EQUIVALENT UNLESS OTHERWISE STATED.
6. SYSTEM SHOWN USING STEEL WIDE FLANGE POST WITH COMPOSITE BLOCKOUTS.
7. COMPOSITE MATERIAL BLOCKOUT THAT MEETS THE REQUIREMENTS OF DMS-7210, MAY BE SUBSTITUTED FOR BLOCKOUTS SIMILAR DIMENSIONS. SEE CONSTRUCTION DIVISION MATERIAL PRODUCER LIST(MPL)FOR CERTIFIED PRODUCERS.
8. REFER TO INSTALLATION MANUAL FOR SPECIFIC PANEL LAPPING GUIDANCE.
9. IF SOLID ROCK IS ENCOUNTERED SEE THE MANUFACTURER'S INSTALLATION MANUAL FOR INSTALLATION GUIDANCE.
10. POSTS SHALL NOT BE SET IN CONCRETE.
11. A DRIVING CAP WITH A TIMBER OR PLASTIC INSERT SHALL BE USED WHEN DRIVING POST TO PREVENT DAMAGE TO THE GALVANIZING ON TOP OF THE POST.
12. MAX-TENSION SYSTEM SHALL NEVER BE INSTALLED WITHIN A CURVED SECTION OF GUARDRAIL.
13. IF A DELINEATION MARKER IS REQUIRED, MARKER SHALL BE IN ACCORDANCE WITH TEXAS MUTCD.
14. THE SYSTEM IS SHOWN WITH 12'-6" MBGF PANELS, 25'-0" MBGF PANELS ARE ALSO ALLOWED.
15. A MINIMUM OF 12'-6" OF 12GA. MBGF IS REQUIRED IMMEDIATELY DOWNSTREAM OF THE MAX-TENSION SYSTEM.

ITEM #	PART NUMBER	DESCRIPTION	QTY
1	BSI-1610060-00	SOIL ANCHOR - GALVANIZED	1
2	BSI-1610061-00	GROUND STRUT - GALVANIZED	1
3	BSI-1610062-00	MAX-TENSION IMPACT HEAD	1
4	BSI-1610063-00	W6x9 I-BEAM POST 6FT.-GALVANIZED	1
5	BSI-1610064-00	TSS PANEL - TRAFFIC SIDE SLIDER	1
6	BSI-1610065-00	ISS PANEL - INNER SIDE SLIDER	1
7	BSI-1610066-00	TOOTH - GEOMET	1
8	BSI-1610067-00	RSS PLATE - REAR SIDE SLIDER	1
9	8061058	CABLE FRICTION PLATE - HEAD UNIT	1
10	BSI-1610069-00	CABLE ASSEMBLY - MASH X-TENSION	2
11	BSI-1012078-00	X-LITE LINE POST-GALVANIZED	8
12	8090534	8" W-BEAM COMPOSITE-BLOCKOUT XT110	8
13	BSI-4004386	12'-6" W-BEAM GUARD FENCE PANELS 12GA.	4
14	BSI-1102027-00	X-LITE SQUARE WASHER	1
15	BSI-2001886	⅝" X 7" THREAD BOLT HH (GR.5)GEOMET	1
16	BSI-2001885	¾" X 3" ALL-THREAD BOLT HH (GR.5)GEOMET	4
17	4001115	⅝" X 1¼" GUARD FENCE BOLTS (GR.2)MGAL	48
18	2001840	⅝" X 10" GUARD FENCE BOLTS MGAL	8
19	2001636	⅝" WASHER F436 STRUCTURAL MGAL	2
20	4001116	⅝" RECESSED GUARD FENCE NUT (GR.2)MGAL	59
21	BSI-2001888	⅝" X 2" ALL THREAD BOLT (GR.5)GEOMET	1
22	BSI-1701063-00	DELINEATION MOUNTING (BRACKET)	1
23	BSI-2001887	¼" X ¾" SCREW SD HH 410SS	7
24	4002051	GUARDRAIL WASHER RECT AASHTO FWR03	1
25	SEE NOTE BELOW	HIGH INTENSITY REFLECTIVE SHEETING	1
26	4002337	8" W-BEAM TIMBER-BLOCKOUT, PDB01B	8
27	BSI-4004431	25' W-BEAM GUARDRAIL PANEL,8-SPACE,12GA.	2
28	MANMAX Rev-(D)	MAX-TENSION INSTALLATION INSTRUCTIONS	1

x TO BE PROVIDED BY DISTRIBUTOR OR CONTRACTOR.

x x ALTERNATIVE ITEMS NOT SHOWN.
ITEM(26) 8" WOOD-BLOCKOUTS
ITEM(27) 25'GUARD FENCE PANELS



TRAFFIC FLOW

NOTE:
THIS STANDARD IS A BASIC REPRESENTATION OF THE MAX-TENSION END TERMINAL, IT IS NOT INTENDED TO REPLACE THE PRODUCT DESCRIPTION ASSEMBLY MANUAL.

Texas Department of Transportation

Design Division Standard

MAX-TENSION END TERMINAL
MASH - TL-3
SGT(11S)31-18

FILE: sgt11s3118.dgn	DN: TxDOT	CK: KM	DW: TxDOT	CK: CL
© TxDOT: FEBRUARY 2018	CONT	SECT	JOB	HIGHWAY
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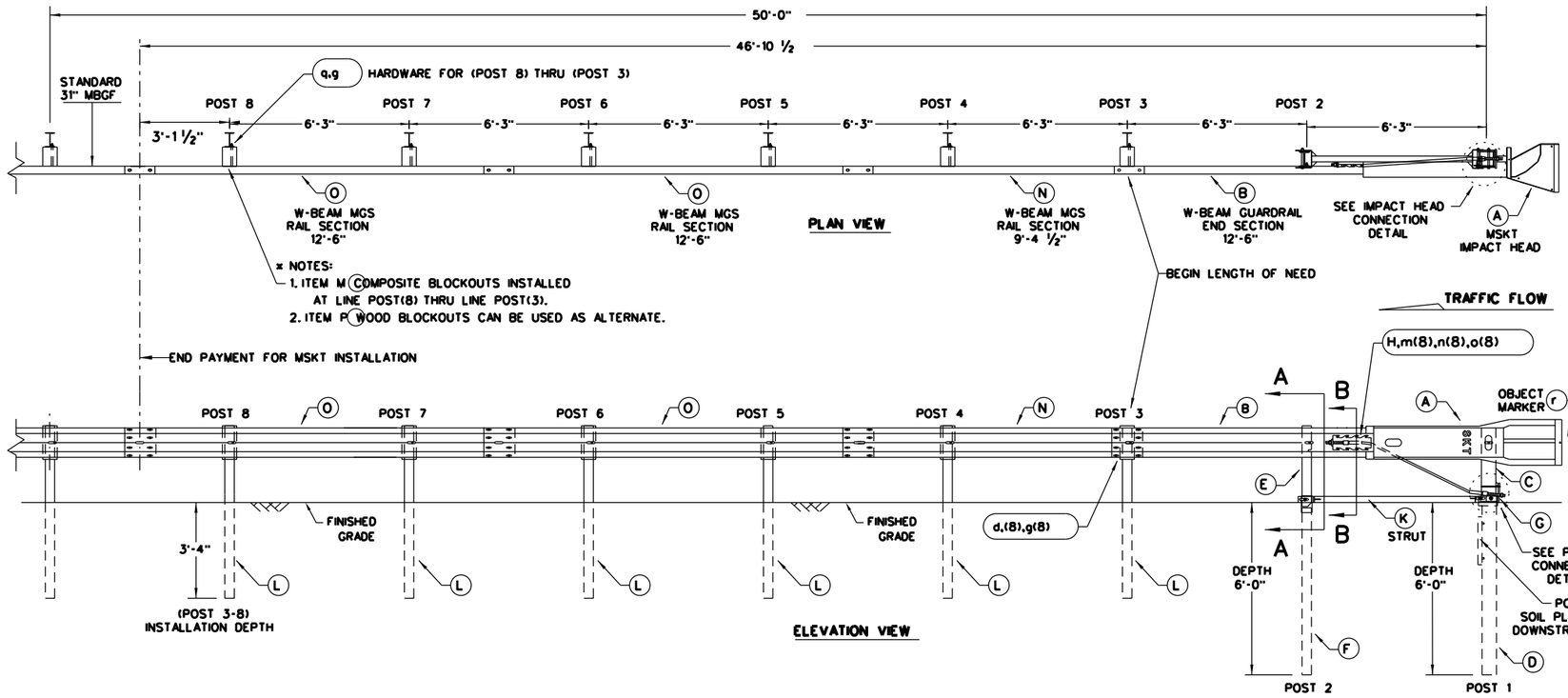


NOTE: SEE (GENERAL NOTE 14) FOR DRIVING CAP INFORMATION.

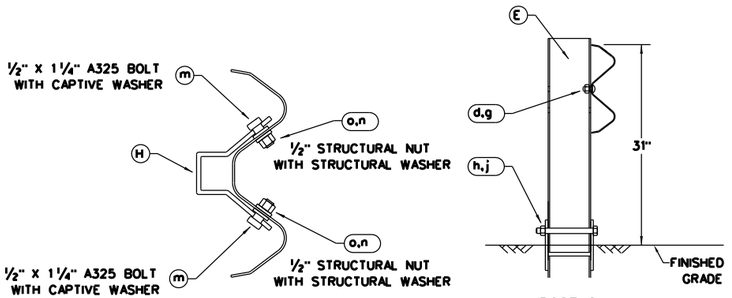
GENERAL NOTES

1. FOR SPECIFIC INFORMATION REGARDING INSTALLATION AND TECHNICAL GUIDANCE OF THE SYSTEM, CONTACT: ROAD SYSTEMS, INC. (432)263-2435. 3616 OLD HOWARD COUNTY AIRPORT, BIG SPRING, TX 79720
2. FOR INSTALLATION, REPAIR AND MAINTENANCE REFER TO THE: MSKT END TERMINAL, PRODUCT DESCRIPTION ASSEMBLY MANUAL (PUBLICATION-062717).
3. APPLY HIGH INTENSITY REFLECTIVE SHEETING, "OBJECT MARKER" ON THE FRONT FACE OF THE DEVICE PER MANUFACTURER'S RECOMMENDATIONS. OBJECT MARKER SHALL CONFORM TO THE STANDARDS REQUIRED IN TEXAS MUTCD.
4. FOR POST (LEAVE-OUT) INSTALLATION AND GUIDANCE SEE TXDOT'S LATEST ROADWAY MOW STRIP STANDARD.
5. HARDWARE (BOLTS, NUTS, & WASHERS) SHALL BE GALVANIZED IN ACCORDANCE WITH ITEM 445, "GALVANIZING". FITTINGS SHALL BE SUBSIDIARY TO THE BID ITEM.
6. SYSTEM SHOWN USING STEEL WIDE FLANGE POSTS WITH COMPOSITE BLOCKOUTS.
7. A COMPOSITE MATERIAL BLOCKOUTS THAT MEETS THE REQUIREMENTS OF DMS-7210, MAY BE SUBSTITUTED FOR BLOCKOUTS OF SIMILAR DIMENSIONS. SEE CONSTRUCTION DIVISION MATERIAL PRODUCER LIST (MPL) FOR CERTIFIED PRODUCERS.
8. IF SOLID ROCK IS ENCOUNTERED IN THE AREA OF (POST 1) AND / OR (POST 2) CONTACT THE MANUFACTURER, & REFER TO THE LATEST ROADWAY MBGF STANDARD FOR INSTALLATION GUIDANCE.
9. POSTS SHALL NOT BE SET IN CONCRETE.
10. SYSTEM MUST BE ATTACHED TO STANDARD 31" MBGF.
11. UNDER NO CIRCUMSTANCES SHALL THE GUARDRAIL WITHIN THE MSKT SYSTEM BE CURVED.
12. A FLARE RATE OF UP TO 25:1 MAY BE USED TO PREVENT THE TERMINAL HEAD FROM ENCROACHING ON THE SHOULDER. THE FLARE MAY BE DECREASED OR ELIMINATED FOR SPECIFIC INSTALLATIONS, IF DIRECTED BY THE ENGINEER.
13. THE SYSTEM IS SHOWN WITH TWO 12'-6" MBGF PANELS, ONE 25'-0" MBGF PANEL IS ALSO ALLOWED IN THEIR PLACE.
14. A DRIVING CAP WITH A TIMBER OR PLASTIC INSERT SHALL BE USED WHEN DRIVING POSTS 3-8 TO PREVENT DAMAGE TO THE GALVANIZING ON TOP OF THE POST. SPECIAL DRIVING CAP TO BE USED ON LOWER POSTS 1 & 2 TO PREVENT DAMAGE TO THE WELDED PLATES.

ITEM	QTY	MAIN SYSTEM COMPONENTS	ITEM NUMBERS
A	1	MSKT IMPACT HEAD	MS3000
B	1	W-BEAM GUARDRAIL END SECTION, 12 Go.	SF1303
C	1	POST 1 - TOP (6" X 6" X ⅛" TUBE)	MTPHP1A
D	1	POST 1 - BOTTOM (6' W6X15)	MTPHP1B
E	1	POST 2 - ASSEMBLY TOP	UHP2A
F	1	POST 2 - ASSEMBLY BOTTOM (6' W6X9)	HP2B
G	1	BEARING PLATE	E750
H	1	CABLE ANCHOR BOX	S760
J	1	BCT CABLE ANCHOR ASSEMBLY	E770
K	1	GROUND STRUT	MS785
L	6	W6x9 OR W6x8.5 STEEL POST	P621
M	6	COMPOSITE BLOCKOUTS	CBSP-14
N	1	W-BEAM MGS RAIL SECTION (9'-4 ½")	G12025
O	2	W-BEAM MGS RAIL SECTION (12'-6")	G1203A
P	6	WOOD BLOCKOUT 6" X 8" X 14"	P675
Q	1	W-BEAM MGS RAIL SECTION (25'-0")	G1209
SMALL HARDWARE			
a	2	⅝" x 1" HEX BOLT (GRD 5)	B5160104A
b	4	⅝" WASHER	W0516
c	2	⅝" HEX NUT	N0516
d	25	⅞" Dia. x 1¼" SPLICE BOLT (POST 2)	B580122
e	2	⅞" Dia. x 9" HEX BOLT (GRD A449)	B580904A
f	3	⅞" WASHER	W050
g	33	⅞" Dia. H.G.R NUT	N050
h	1	¾" Dia. x 8 ½" HEX BOLT (GRD A449)	B340854A
j	1	¾" Dia. HEX NUT	N030
k	2	1 ANCHOR CABLE HEX NUT	N100
l	2	1 ANCHOR CABLE WASHER	W100
m	8	½" x 1¼" A325 BOLT WITH CAPTIVE WASHER	SB12A
n	8	½" STRUCTURAL NUTS	N012A
o	8	1 ⅛" O.D. x ⅝" I.D. STRUCTURAL WASHERS	W012A
p	1	BEARING PLATE RETAINER TIE	CT-100ST
q	6	⅝" x 10" H.G.R. BOLT	B581002
r	1	OBJECT MARKER 18" X 18"	E3151

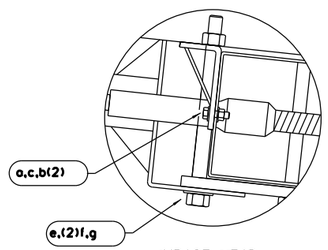
SEE NOTES: *

ALTERNATIVE ITEMS NOT SHOWN. * *
* ITEM(P) 8" WOOD-BLOCKOUT
* * ITEM(Q) 25'GUARD FENCE PANEL

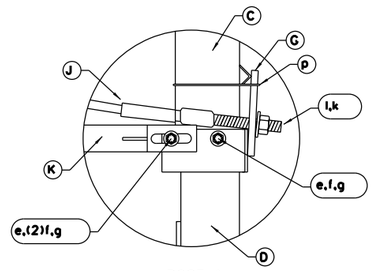


SECTION B-B
ANCHOR BRACKET

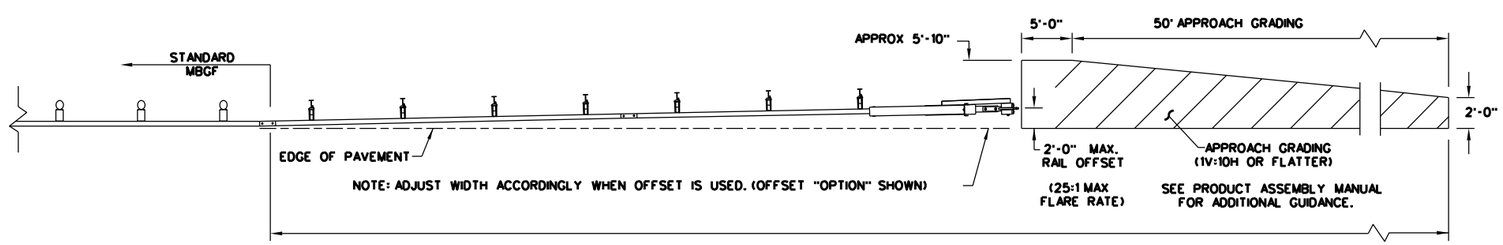
POST 2
SECTION A-A



IMPACT HEAD
CONNECTION DETAIL



POST 1
CONNECTION DETAIL



APPROACH GRADING AT GUARDRAIL END TREATMENTS

NOTE: TXDOT GENERIC APPROACH GRADING LAYOUT USED FOR ALL TANGENT TYPE END TREATMENTS.

NOTE: THIS STANDARD IS A BASIC REPRESENTATION OF THE MSKT END TERMINAL, IT IS NOT INTENDED TO REPLACE THE PRODUCT DESCRIPTION ASSEMBLY MANUAL.

Texas Department of Transportation

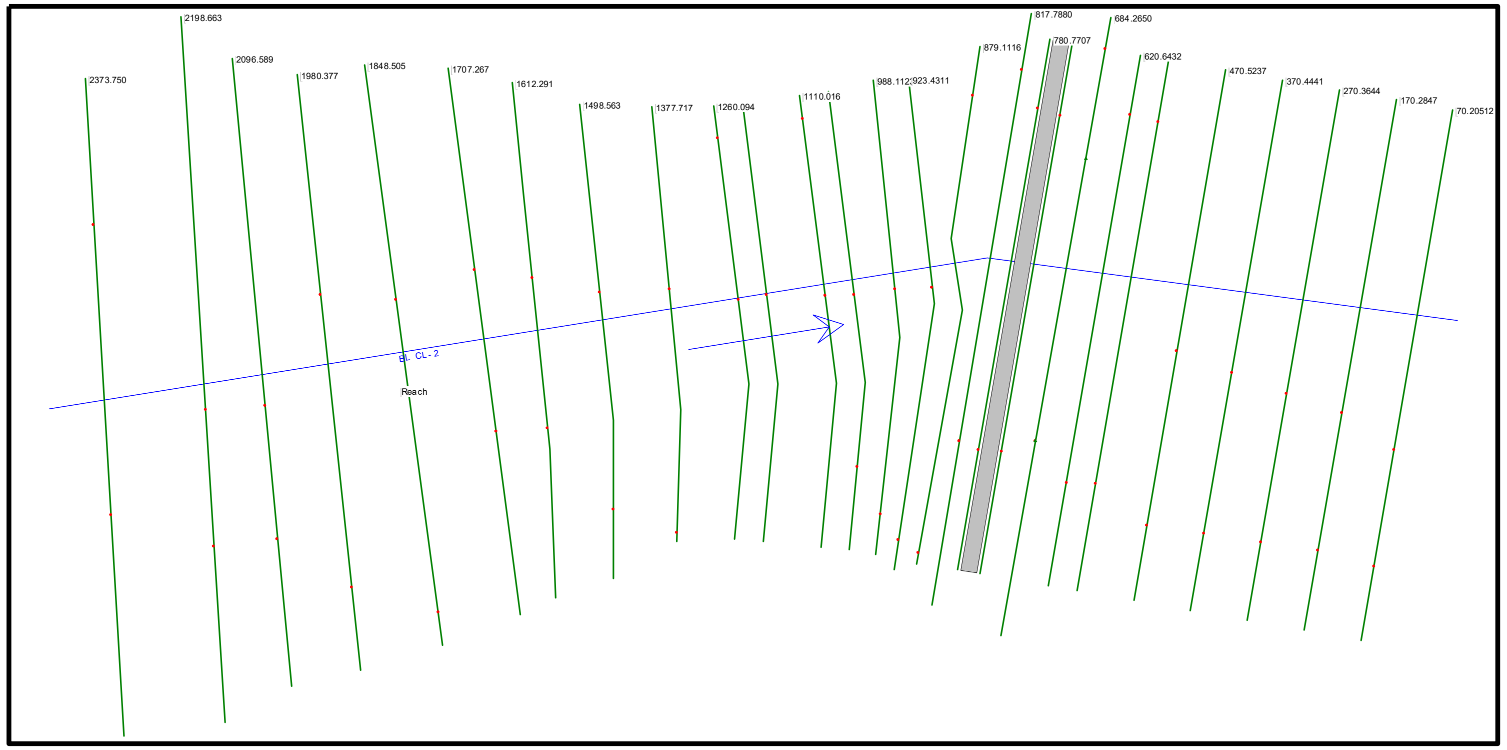
Design Division Standard

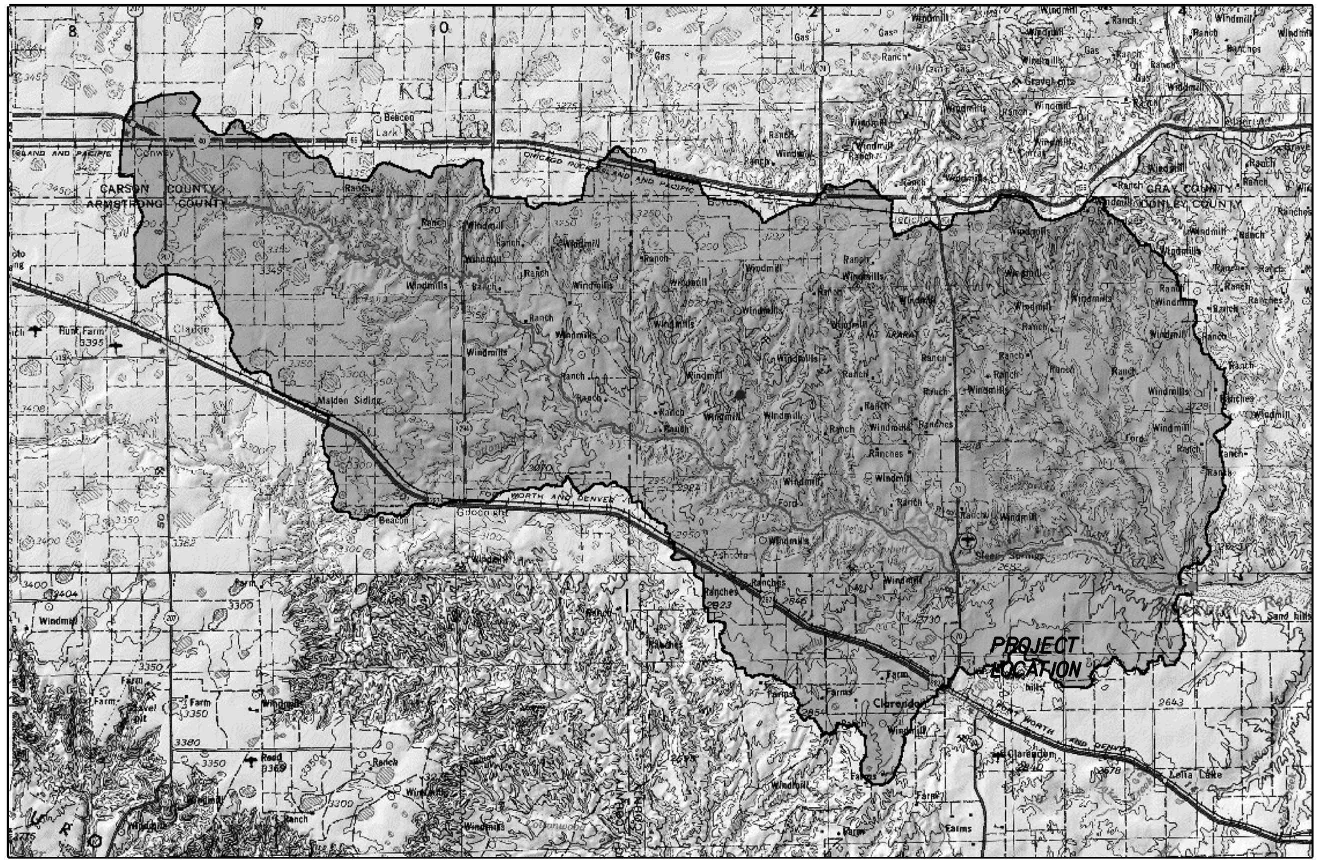
SINGLE GUARDRAIL TERMINAL

MSKT-MASH-TL-3

SGT(12S)31-18

FILE: sgt12s3118.dgn	DN: TxDOT	CK: KM	DW: VP	CK: CL	
© TxDOT: APRIL 2018	CONT	SECT	JOB	HIGHWAY	
REVISIONS	0795	02	017, ETC.	FM 1260	
	DIST	COUNTY		SHEET NO.	
	25	DONLEY		50	

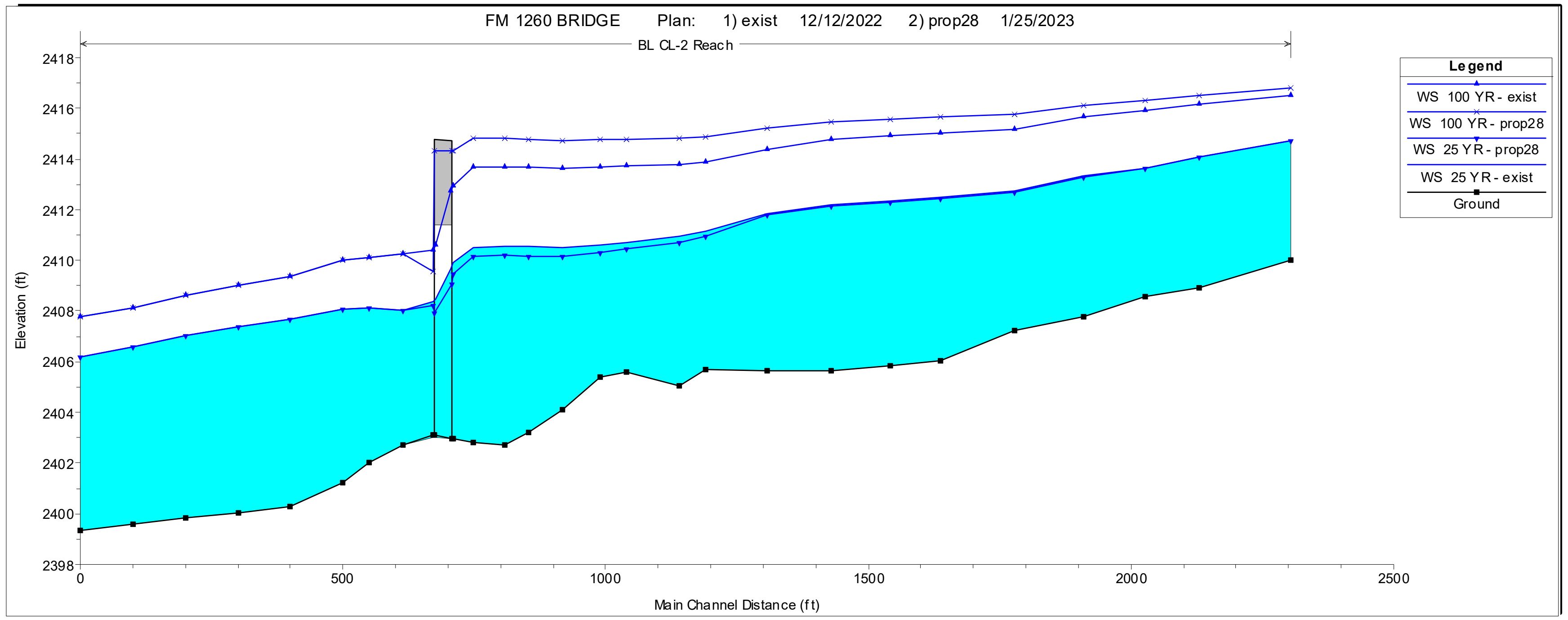




USGS USGS THE NATIONAL MAP: NATIONAL BOUNDARIES DATASET, 3DEP ELEVATION PROGRAM, GEOGRAPHIC NAMES INFORMATION SYSTEM, NATIONAL HYDROGRAPHY DATASET, NATIONAL LAND COVER DATABASE, NATIONAL STRUCTURES DATASET, AND NATIONAL TRANSPORTATION DATASET; USGS GLOBAL ECOSYSTEMS; U.S. CENSUS BUREAU TIGER/LINE DATA; USFS ROAD DATA; NATURAL EARTH DATA; U.S. DEPARTMENT OF STATE HUMANITARIAN INFORMATION UNIT; AND NOAA NATIONAL CENTERS FOR ENVIRONMENTAL INFORMATION, U.S. COASTAL RELIEF MODEL. DATA REFRESHED APRIL, 2023.

MANNING'S n

LEFT	CHANNEL	RIGHT
0.04	0.03	0.04



Reach	River Sta	Profile	Plan	Vel Total (ft/s)	W.S. Elev (ft)	Q Total (cfs)
Reach	817.7880	25 YR	exist	4.45	2410.51	23212.00
Reach	817.7880	25 YR	prop28	4.76	2410.14	23212.00
Reach	817.7880	100 YR	exist	4.99	2413.69	41041.00
Reach	817.7880	100 YR	prop28	4.39	2414.81	41041.00
Reach	780.7707	25 YR	exist	7.38	2409.90	23212.00
Reach	780.7707	25 YR	prop28	7.77	2409.47	23212.00
Reach	780.7707	100 YR	exist	8.37	2412.92	41041.00
Reach	780.7707	100 YR	prop28	6.97	2414.32	41041.00
Reach	760. BR U	25 YR	exist	8.02	2409.67	23212.00
Reach	760. BR U	25 YR	prop28	9.01	2409.06	23212.00
Reach	760. BR U	100 YR	exist	8.86	2412.76	41041.00
Reach	760. BR U	100 YR	prop28	10.48	2414.32	41041.00
Reach	760. BR D	25 YR	exist	11.86	2408.49	23212.00
Reach	760. BR D	25 YR	prop28	11.00	2407.91	23212.00
Reach	760. BR D	100 YR	exist	14.00	2410.61	41041.00
Reach	760. BR D	100 YR	prop28	10.03	2414.32	41041.00
Reach	740.7388	25 YR	exist	11.77	2408.36	23212.00
Reach	740.7388	25 YR	prop28	9.51	2408.23	23212.00
Reach	740.7388	100 YR	exist	13.95	2410.40	41041.00
Reach	740.7388	100 YR	prop28	12.69	2409.56	41041.00
Reach	684.2650	25 YR	exist	8.26	2408.01	23212.00
Reach	684.2650	25 YR	prop28	8.26	2408.01	23212.00
Reach	684.2650	100 YR	exist	7.99	2410.28	41041.00
Reach	684.2650	100 YR	prop28	8.00	2410.28	41041.00

STATE OF TEXAS
CHARLES B. STEED
88647
LICENSED
PROFESSIONAL ENGINEER
Charles B. Steed, P.E.
05/09/2024

NOTES:

1: HEC-RAS 6.0.3 USED FOR HYDRAULIC ANALYSIS AND DESIGN.

2: STEADY FLOW BOUNDARY CONDITIONS ARE BASED ON NORMAL DEPTH WITH A DOWNSTREAM SLOPE OF 0.01223 PERCENT.

HYDRAULIC DATA

FM 1260 @ SALT FORK REDRIVER

CONT	SECT	JOB	HIGHWAY
0795	02	017,ETC.	FM 1260
DIST		COUNTY	SHEET NO.
CHS		DONLEY	51

DATE:
FILE:

CK:
DW:
CK:
DN:

Test Hole No.B-06
Sta = 473+89.00
Grnd Elev = 2406.60
GW Elev = 2389.10
Offset = 93.28ft L

STATE OF TEXAS
HUNTER SETH WALTON
131306
LICENSED
PROFESSIONAL ENGINEER

Bridge Design
2-5-2024

ALL ABUTMENTS & BENTS ARE AT BEARING S80°07'30.34"E (TYP)

STATE OF TEXAS
AMINTA M. FLORES
149681
LICENSED
PROFESSIONAL ENGINEER

Foundation Design
2-5-2024

EXISTING ROW

EXISTING BRIDGE (TO BE REMOVED)
NBI: 25-065-0-0795-02-013
5 SPAN PAN AND GIRDER ON CONCRETE CAPS AND COLUMNS
BEGIN STA. 478+20.00
END STA. 484+20.00
TOTAL LENGTH = 600.00'
TOTAL WIDTH = 28.25'

FLOW

Test Hole No.B-01
Sta = 474+76.30
Grnd Elev = 2406.40
GW Elev = 2392.40
Offset = 28.00ft L

PT 476+78.52

BEGIN BRIDGE
FACE OF ABUT BACKWALL #1
STA. 478+20.00
ELEV. = 2,414.75

LIMITS OF EXCAVATION (CHANNEL)

RIPRAP (PROTECTION STONE) (24") (THICKNESS = 36")

BENT #2
STA. 478+80.00
ELEV. = 2,414.75

BENT #3
STA. 479+40.00
ELEV. = 2,414.75

BENT #4
STA. 480+00.00
ELEV. = 2,414.75

BENT #5
STA. 480+60.00
ELEV. = 2,414.75

SADDLE 3.45% (TYP)

Test Hole No.B-02
Sta = 478+20.00
Grnd Elev = 2406.30
GW Elev = 2390.30
Offset = 29.30ft L

R 10

3'

2:1

℄ GIRDER #1

NOMINAL FACE OF SSTR RAIL

APPROACH SLAB
BAS-A (CHS)

SHEAR KEY SHEAR KEY

2.00%

SHEAR KEY SHEAR KEY

SHEAR KEY

N09°52'29.7"E

476+00

477+00

478+00

20'

SEJ-M (4")

479+00

480+00

34" OVERALL

32' ROADWAY

11' LANE

11' LANE

5' SHLDR

1'

90°

℄ GIRDER #4

NOMINAL FACE OF SSTR RAIL

SEJ-M (4")

Test Hole No.B-05
Sta = 477+88.30
Grnd Elev = 2406.20
GW Elev = 2404.20
Offset = 22.13ft R

R 10

82'

EXISTING ROW

RIPRAP (PROTECTION STONE) (24") (THICKNESS = 36")

PROPOSED ROW

FLOW

GENERAL NOTES:

1. BEAM END CONDITION - "D" DENOTES DOWEL AT EXTERIOR GIRDERS.
2. SEE BORING LOG FOR TEST HOLE INFORMATION
3. CONTRACTOR SHALL VERIFY ALL DIMENSIONS IN THE FIELD PRIOR TO ORDERING MATERIALS.
4. THE CONTRACTOR SHALL BE ADVISED THAT GROUND WATER AND INUNDATION DUE TO FLOODING MAY BE EXPERIENCE DURING DRILLED SHAFT CONSTRUCTION. THE USE OF CASING AND OR DRILLING SLURRY, IN ACCORDANCE WITH TXDOT ITEM 416, MAY BE NECESSARY.

PLAN

MATCHLINE STA. 481+00.00

℄
FM 1260
34'-OVERALL
32'-ROADWAY
5' SHLDR | 11' LANE | 11' LANE | 5' SHLDR
1' | 1'
SSTR (TYP) | PGL | SSTR (TYP)
2% | 2%
GIRDER #1
GIRDER #4

TYPICAL SUPERSTRUCTURE SECTION

PRESTR CONC I-GIRDER(Tx28)(TYP)
SUPERSTRUCTURE INV/OPR RATINGS: 1.24/1.82
HL-93 LOADING

HYDRAULIC DATA

25 YEAR	100 YEAR
Q = 23,212.00 CFS	Q = 41,041.00 CFS
V = 9.01 FT/S	V = 8.86 FT/S
WSE = 2,409.06 FT	WSE = 2,414.32 FT

OVERALL BRIDGE LENGTH = 600'
20' APPROACH SLAB BAS-A (CHS)
1 - 600' PRESTRESSED I-GIRDER UNIT (Tx28) (60' - 60'- 60'- 60'- 60'- 60'- 60'- 60'- 60'- 60')
END RAIL FOR PAYMENT
OVERALL LENGTH OF SSTR RAIL = 616.00' (EACH SIDE)

BEGIN BRIDGE
FACE OF ABUT BACKWALL #1
STA. 478+20.00
ELEV. = 2,414.75

EXCAVATION (CHANNEL)

BENT #2
STA. 478+80.00
ELEV. = 2,414.75

BENT #3
STA. 479+40.00
ELEV. = 2,414.75

BENT #4
STA. 480+00.00
ELEV. = 2,414.75

BENT #5
STA. 480+60.00
ELEV. = 2,414.75

℄ STRUCTURE, PGL & FM 1260

6'

SSTR RAIL

0.0000%

EXISTING GRADE

FLOWABLE FILL

2:1

PROP. WSEL (100-YR) = 2,414.32

EXIST. WSEL (100-YR) = 2,412.76

PROP. WSEL (25-YEAR) = 2,409.06

EXIST. WSEL (25-YEAR) = 2,409.67

EXISTING GRADE

RIPRAP (PROTECTION STONE) (24") (THICKNESS = 36")

DRILL SHAFT TESTING NOTES:

PERFORM THE NONDESTRUCTIVE TESTING (NDT) METHOD TERMED THERMAL INTEGRITY PROFILER (TIP)(ITEM 4021-6001) TESTING TO CHECK THE INTEGRITY OF DESIGNATED PRODUCTION DRILLED SHAFTS AS SHOWN IN THE TABLE BELOW. TESTING SHALL BE COORDINATED WITH THE ENGINEER A MINIMUM OF ON WEEK PRIOR TO THE DESIRED TESTING DATE. THE ENGINEER WILL CHOOSE THE DRILLED SHAFTS TO BE TESTED.

ITEM CODE	DESCRIPTION	LOCATION	DRILLED SHAFT DIA. (IN)	UNIT	TOTAL
4021-6001	THERMAL INTEGRITY PROFILER (TIP) TESTING OF DRILLED SHAFTS	ABUTMENT 1	36	EA	1.
		BENT 2	36	EA	1.
		BENT 5	36	EA	1.
		BENT 10	36	EA	1.
		ABUTMENT 1	36	EA	1.

4 ~ 36" DIA. CONCRETE DRILLED SHAFTS x 60'
TIP ELEV. = 2448.56

3 ~ 36" DIA. CONCRETE DRILLED SHAFTS x 80'
TIP ELEV. = 2322.17

3 ~ 36" DIA. CONCRETE DRILLED SHAFTS x 80'
TIP ELEV. = 2322.17

3 ~ 36" DIA. CONCRETE DRILLED SHAFTS x 80'
TIP ELEV. = 2322.17

3 ~ 36" DIA. CONCRETE DRILLED SHAFTS x 80'
TIP ELEV. = 2322.17

ELEVATION

2460 2440 2420 2400 2380 2360 2340 2320 2300

477+00 478+00 479+00 480+00 481+00

STATE OF TEXAS
CHARLES B. STEED
88647
LICENSED
PROFESSIONAL ENGINEER

05/09/2024

BRIDGE LAYOUT

FM 1260 @ SALT FORK OF RED RIVER

STA. 478+20.00
TO
STA. 484+20.00

NBI NO. 25-065-0-0795-02-160
DESIGN SPEED = 65 MPH
AADT (2021) = 14
AADT (2041) = 20
FUNCTIONAL CLASS:
RURAL UNDIVIDED (CONVENTIONAL)

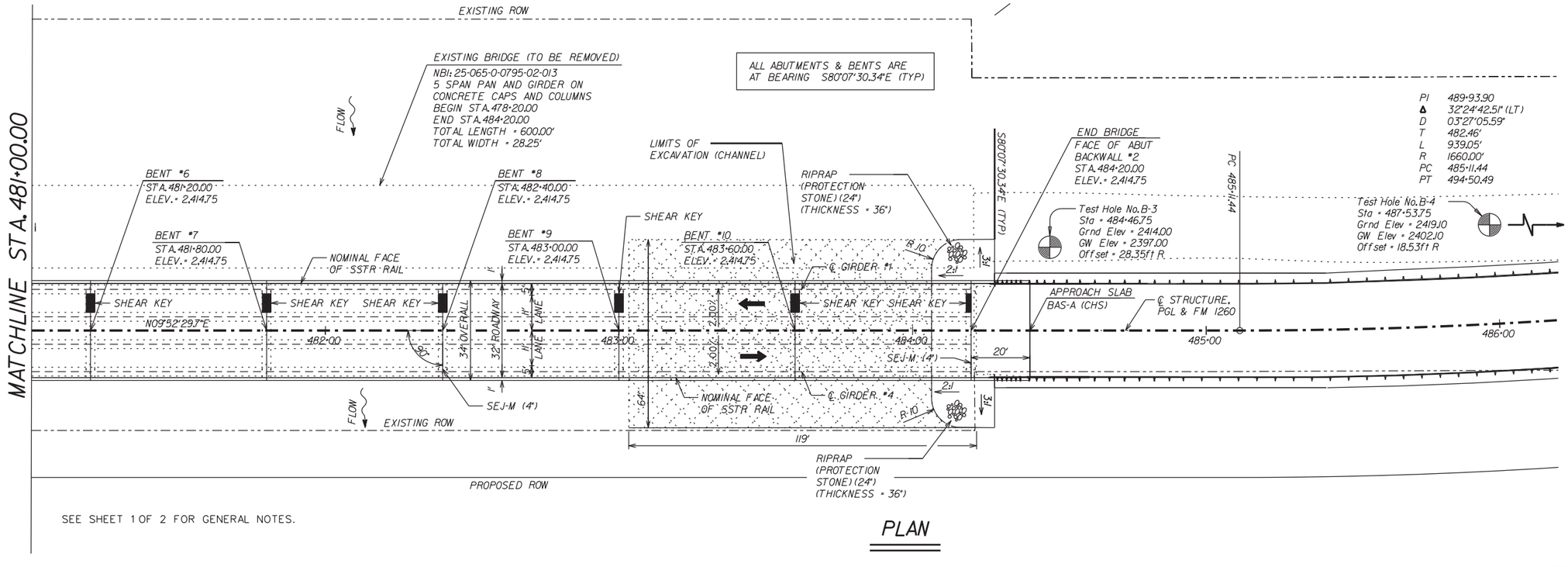
SCALE:
1" = 40' HORIZONTAL
1" = 40' VERTICAL

Texas Department of Transportation

SHEET 1 OF 2

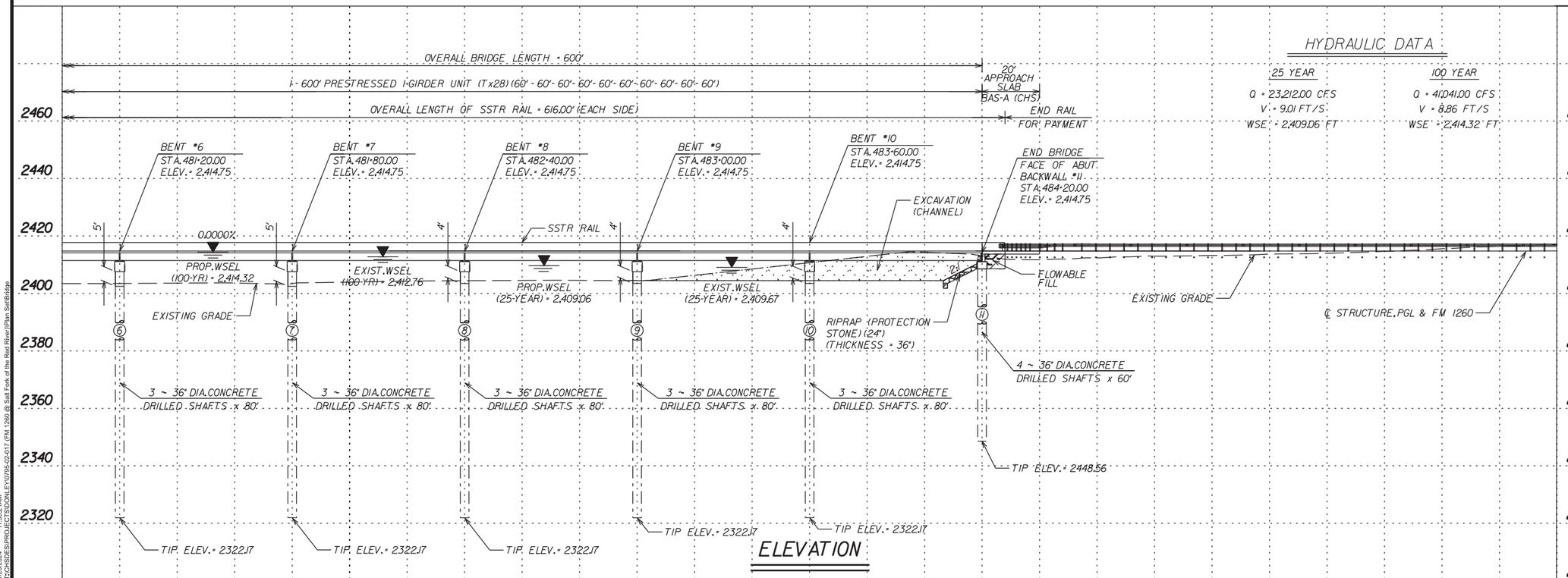
CONT	SECT	JOB	HIGHWAY
0795	02	017,ETC.	FM1260
DIST	COUNTY		SHEET NO.
CHS	DONLEY		52

DATE: 1/26/2024 11:35:21AM
FILE: T:\CHS\DES\PROJECTS\DONLEY\0795-02-017 (FM 1260 @ Salt Fork of the Red River)\Plan Set\Bridge



SEE SHEET 1 OF 2 FOR GENERAL NOTES.

PLAN



ELEVATION

HYDRAULIC DATA

25 YEAR	100 YEAR
Q = 23,212.00 CFS	Q = 41,041.00 CFS
V = 9.01 FT/S	V = 8.86 FT/S
WSE = 2,409.06 FT	WSE = 2,414.32 FT

HUNTER SETH WALTON
131306
LICENSED PROFESSIONAL ENGINEER
Bridge Design
02/05/2024

AMINTA M. FLORES
149681
LICENSED PROFESSIONAL ENGINEER
Foundation Design
02/05/2024

SUPERSTRUCTURE INV/OPR RATINGS: 1.24/1.82

HL-93 LOADING

CHARLES B. STEED
88647
LICENSED PROFESSIONAL ENGINEER
05/09/2024

BRIDGE LAYOUT

FM 1620 @ SALT FORK OF RED RIVER

STA. 478+20.00
TO
STA. 484+20.00

NBI NO. 25-065-0-0795-02-160
DESIGN SPEED = 65 MPH
AADT (2021) = 14
AADT (2041) = 20
FUNCTIONAL CLASS:
RURAL UNDIVIDED (CONVENTIONAL)

SCALE:
1" = 40' HORIZONTAL
1" = 40' VERTICAL

Texas Department of Transportation

SHEET 2 OF 2

CONT	SECT	JOB	HIGHWAY
0795	02	017	FM 1260
DIST	COUNTY		SHEET NO.
CHS	DONLEY		53

DATE: 1/26/2024 11:35:21AM
FILE: T:\CHS\DES\PROJECTS\DONLEY\0795-02-017 (FM 1260 @ Salt Fork of the Red River)\Plan Set\Bridge

DRILLING LOG

WinCore Version 3.1

County	Donley	Hole	B-01	District	Childress
Highway	FM 1260	Structure	Bridge	Date	02/20/20
CSJ	0795-02-017	Station		Grnd. Elev.	2406.40 ft
		Offset		GW Elev.	2392.40 ft

Elev. (ft)	LOG	Texas Cone Penetrometer	Strata Description	Triaxial Test: Lateral Press. (psi)	Triaxial Test: Deviator Stress (psi)	Properties: MC	LL	PI	Wet Den. (pcf)	Additional Remarks
2405.9			PAVEMENT, 2.25" asphaltic concrete, 4" base			9.6	22	7		SS: 3-5-3 Passing No. 200 Sieve: 22%
			SAND, silty, clayey, trace gravel, dense, moist, brown, gray, black and red, with calcareous deposits and iron staining. [Fill] (SC-SM)							SS: 7-11-13
		35 (6) 50 (6)								SS: 10-13-15
5										
										SS: 20-17-16
2399.4			SAND, clayey, slightly compact, moist, red, calcareous. [Terrace Deposits] (SC)							SS: 8-10-14 Passing No. 200 Sieve: 43%
						16.1	38	19		
		16 (6) 12 (6)								
10										
2392.9										SS: 10-15-18
		19 (6) 18 (6)	SAND, poorly graded, loose to compact, wet, tan to brown, coarse, with gray clay pockets, with trace gravel. [Terrace Deposits] (SP)							
15										
										SS: 30-25-27 Passing No. 200 Sieve: 2%
						17.4				
		6 (6) 5 (6)								
20										
										SS: 13-28-50
		32 (6) 18 (6)								
25										
										SS: 50/5"
		5 (6) 7 (6)								- wet, below 30 feet
30										
										SS: 3-9-9 Passing No. 200 Sieve: 2%
						16				
		20 (6) 22 (6)								
35										

Remarks: Split-spoon values are not standard (170-lb hammer). Boring advanced by dry drilling techniques to 15 ft, and then wet coring methods were used to advance the boring to 100 ft.
Groundwater was encountered at 14.0 feet.
(N,E)=(3642560.171, 879666.441).

Driller: Terra Logger: TGZ Organization: HVJ SCTX

DRILLING LOG

WinCore Version 3.1

County	Donley	Hole	B-01	District	Childress
Highway	FM 1260	Structure	Bridge	Date	02/20/20
CSJ	0795-02-017	Station		Grnd. Elev.	2406.40 ft
		Offset		GW Elev.	2392.40 ft

Elev. (ft)	LOG	Texas Cone Penetrometer	Strata Description	Triaxial Test: Lateral Press. (psi)	Triaxial Test: Deviator Stress (psi)	Properties: MC	LL	PI	Wet Den. (pcf)	Additional Remarks
			SAND, poorly graded, loose to compact, wet, tan to brown, coarse, with gray clay pockets, with trace gravel. [Terrace Deposits] (SP)							
										SS: 11-38-40
		25 (6) 20 (6)								
40										
										SS: 8-14-25
		26 (6) 30 (6)								
45										
		25 (6) 23 (6)								
50										
2353.4										
			SAND, silty sand, slighlty compact to compact, dark gray, brown and red, wet, with gravel seams. [Terrace Deposits] (SM)							SS: 10-12-13 Passing No. 200 Sieve: 22%
		26 (6) 30 (6)				19.4	20	5		
55										
		29 (6) 32 (6)								
60										
		39 (6) 31 (6)								
65										
		22 (6) 20 (6)								
70										

Remarks: Split-spoon values are not standard (170-lb hammer). Boring advanced by dry drilling techniques to 15 ft, and then wet coring methods were used to advance the boring to 100 ft.
Groundwater was encountered at 14.0 feet.
(N,E)=(3642560.171, 879666.441).

Driller: Terra Logger: TGZ Organization: HVJ SCTX

g:\hvj shared common\austin\austin projects\ag 18 10302.1 txdot childress district\gint\group 9 csj 0795-02-017 fm 1260-br.gpj

DRILLING LOG

WinCore Version 3.1

County	Donley	Hole	B-01	District	Childress
Highway	FM 1260	Structure	Bridge	Date	02/20/20
CSJ	0795-02-017	Station		Grnd. Elev.	2406.40 ft
		Offset		GW Elev.	2392.40 ft

Elev. (ft)	Texas Cone Penetrometer	Strata Description	Triaxial Test: Lateral Press. (psi)	Triaxial Test: Deviator Stress (psi)	Properties: MC	LL	PI	Wet Den. (pcf)	Additional Remarks
		SAND, silty sand, slighlty compact to compact, dark gray, brown and red, wet, with gravel seams. [Terrace Deposits] (SM)							SS: 8-9-8
75	12 (6) 9 (6)								SS: 7-10-9
80	36 (6) 45 (6)								
2320.4 85	47 (6) 50 (6)	SHALE, weathered, soft to hard, red with bluish gray inclusions, moist. [Quartermaster Formation]							
90	50 (5.5) 50 (1.5)								SS: 50/6"
95	50 (2) 50 (0)								SS: 50/5.5"
2306.4 100	50 (0.5) 50 (0)								

Remarks: Split-spoon values are not standard (170-lb hammer). Boring advanced by dry drilling techniques to 15 ft, and then wet coring methods were used to advance the boring to 100 ft.
Groundwater was encountered at 14.0 feet.
(N,E)=(3642560.171, 879666.441).

Driller: Terra Logger: TGZ Organization: HVJ SCTX

DRILLING LOG

WinCore Version 3.1

County	Donley	Hole	B-02	District	Childress
Highway	FM 1260	Structure	Bridge	Date	02/22/20
CSJ	0795-02-017	Station		Grnd. Elev.	2406.30 ft
		Offset		GW Elev.	2390.30 ft

Elev. (ft)	Texas Cone Penetrometer	Strata Description	Triaxial Test: Lateral Press. (psi)	Triaxial Test: Deviator Stress (psi)	Properties: MC	LL	PI	Wet Den. (pcf)	Additional Remarks
2405.4		PAVEMENT, 2.25" asphaltic concrete, 8" base							SS: 6-10-10
		SAND, silty, clayey, with gravel, compact, moist, red, gray and brown, with calcareous deposits and iron staining. [Fill] (SC-SM)							SS: 7-10-7
5	31 (6) 33 (6)				6.6	16	4		Passing No. 200 Sieve: 22%
2398.8		SAND, poorly graded, with clay pockets, compact, gray. [Alluvium] (SP)							SS: 6-9-9
10	32 (6) 34 (6)								SS: 7-11-15
2392.3		SAND, well graded, slightly compact to compact, moist, tan to brown, coarse. [Alluvium] (SW)			16.6				SS: 7-11-16 Passing No. 200 Sieve: 2%
15	24 (6) 24 (6)								
20	15 (6) 12 (6)								SS: 8-12-19
25	17 (6) 19 (6)				11.9				SS: 10-19-22 Passing No. 200 Sieve: 3%
2378.3		SAND, clayey, slightly compact, tan to brown, moist. [Alluvium] (SC)							
30	26 (6) 21 (6)				15.3	34	19		Passing No. 200 Sieve: 21%
2371.3 35	26 (6) 26 (6)								

Remarks: Split-spoon values are not standard (170-lb hammer). Boring advanced by dry drilling techniques using hollow stem augers to 10 ft, and then wet coring methods were used to advance the boring to 100 ft.
Groundwater was encountered at 16 feet, and at 15 feet at 5 minutes. Cave in at 15 feet after drilling.
(N,E)=(3642886.028, 879728.977).

Driller: Terra Logger: TGZ Organization: HVJ SCTX

DRILLING LOG

WinCore Version 3.1

County	Donley	Hole	B-02	District	Childress
Highway	FM 1260	Structure	Bridge	Date	02/22/20
CSJ	0795-02-017	Station		Grnd. Elev.	2406.30 ft
		Offset		GW Elev.	2390.30 ft

Elev. (ft)	LOG	Texas Cone Penetrometer	Strata Description	Triaxial Test: Lateral Press. (psi)	Triaxial Test: Deviator Stress (psi)	Properties: MC	LL	PI	Wet Den. (pcf)	Additional Remarks
			SAND, poorly graded, slighlty compact to dense, trace gravel, tan with pockets of clay. [Alluvium] (SP)							
									17.9	Passing No. 200 Sieve: 3%
40		14 (6) 13 (6)								
									19.3	
45		50 (2.8) 50 (2.3)								
50		34 (6) 40 (6)								
									23.7	SS: 4-7-12
55		20 (6) 12 (6)								
										SS: 3-5-10
60		14 (6) 12 (6)								SS: 4-7-7
65		18 (6) 11 (6)								SS: 3-4-5
2336.3										
70		27 (6) 23 (6)								

Remarks: Split-spoon values are not standard (170-lb hammer). Boring advanced by dry drilling techniques using hollow stem augers to 10 ft, and then wet coring methods were used to advance the boring to 100 ft.
Groundwater was encountered at 16 feet, and at 15 feet at 5 minutes. Cave in at 15 feet after drilling.
(N,E)=(3642886.028, 879728.977).

Driller: Terra Logger: TGZ Organization: HVJ SCTX

DRILLING LOG

WinCore Version 3.1

County	Donley	Hole	B-02	District	Childress
Highway	FM 1260	Structure	Bridge	Date	02/22/20
CSJ	0795-02-017	Station		Grnd. Elev.	2406.30 ft
		Offset		GW Elev.	2390.30 ft

Elev. (ft)	LOG	Texas Cone Penetrometer	Strata Description	Triaxial Test: Lateral Press. (psi)	Triaxial Test: Deviator Stress (psi)	Properties: MC	LL	PI	Wet Den. (pcf)	Additional Remarks
			CLAY, lean, wet, very stiff, red. [Alluvium] (CL)							SS: 1-0-3
2331.3		24 (6) 21 (6)								
75			SAND, gravelly, compact, poorly graded, wet. [Alluvium] (SP)							SS: 5-10-11
80		22 (6) 22 (6)								
2321.3		50 (3) 50 (2.5)	SHALE, weathered, soft to hard, red with bluish gray inclusions, moist. [Quartermaster Formation]							
85										
90		50 (5) 50 (4)								SS: 50/5"
95		50 (1) 50 (1)								SS: 50/4"
2306.3										
100		50 (2.5) 50 (2)								

Remarks: Split-spoon values are not standard (170-lb hammer). Boring advanced by dry drilling techniques using hollow stem augers to 10 ft, and then wet coring methods were used to advance the boring to 100 ft.
Groundwater was encountered at 16 feet, and at 15 feet at 5 minutes. Cave in at 15 feet after drilling.
(N,E)=(3642886.028, 879728.977).

Driller: Terra Logger: TGZ Organization: HVJ SCTX

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DRILLING LOG

WinCore Version 3.1

County	Donley	Hole	B-03	District	Childress
Highway	FM 1260	Structure	Bridge	Date	02/23/20
CSJ	0795-02-017	Station		Grnd. Elev.	2414.00 ft
		Offset		GW Elev.	2397.00 ft

Elev. (ft)	LOG	Texas Cone Penetrometer	Strata Description	Triaxial Test: Lateral Press. (psi)	Triaxial Test: Deviator Stress (psi)	Properties: MC	Properties: LL	Properties: PI	Properties: Wet Den. (pcf)	Additional Remarks
2413.5			PAVEMENT, 1.75" asphaltic concrete, 4.5" base							SS: 4-5-4
			SAND, clayey, compact, moist, yellowish red, gray and tan, trace gravel and roots, with calcareous deposits. [Fill] (SC)							PP = 2.5 tsf
						14.9	33	16		Passing No. 200 Sieve: 45%
		30 (6) 39 (6)								
5										
2407.5			SAND, clayey, loose, moist, brown and gray, with clay pockets. [Terrace Deposits] (SC)							SS: 5-9-8
										SS: 4-4-4
		7 (6) 6 (6)								
10										- calcareous below 10 feet
										SS: 1-1-1
						23.8		10		Passing No. 200 Sieve: 44%
		8 (6) 10 (6)								
15										
2395.5			SAND, poorly graded, slightly compact to compact, wet, tan, gray and green, with clay pockets, fine. [Terrace Deposits] (SP)							SS: 3-4-7
		18 (6) 15 (6)								
20										
										SS: 14-17-7
		37 (6) 30 (6)								- with white clay pockets below 25 feet
25										
										SS: 7-10-13
						16.1				
		22 (6) 19 (6)								
30										
										SS: 9-16-16
		36 (6) 36 (6)								
35										

Remarks: Split-spoon values are not standard (170-lb hammer). Boring advanced by dry drilling techniques to 16 ft, and then wet coring methods were used to advance the boring to 92.5 ft.
Groundwater was encountered at 17.0 feet, and at 15.0 feet after ten minutes.
(N,E)=(3643512.883,879839.556).

Driller: Terra Logger: TGZ Organization: HVJ SCTX

DRILLING LOG

WinCore Version 3.1

County	Donley	Hole	B-03	District	Childress
Highway	FM 1260	Structure	Bridge	Date	02/23/20
CSJ	0795-02-017	Station		Grnd. Elev.	2414.00 ft
		Offset		GW Elev.	2397.00 ft

Elev. (ft)	LOG	Texas Cone Penetrometer	Strata Description	Triaxial Test: Lateral Press. (psi)	Triaxial Test: Deviator Stress (psi)	Properties: MC	Properties: LL	Properties: PI	Properties: Wet Den. (pcf)	Additional Remarks
			SAND, poorly graded, slightly compact to compact, wet, tan, gray and green, with clay pockets, fine. [Terrace Deposits] (SP)							SS: 18-22-31
		26 (6) 25 (6)								
40										
2371.0			CLAY, sandy, lean, soft to stiff, very-moist, red, calcareous. [Terrace Deposits] (CL)							PP = 0.5 tsf
				2.8		27.5	32	12	119	Passing No. 200 Sieve: 65%
		4 (6) 5 (6)								
45										
										SS: 2-3-6
		4 (6) 4 (6)								
50										
										SS: 2-1-3
						14.5				
		13 (6) 14 (6)								
55										
2356.0			SAND, poorly graded, loose to compact, gray, reddish brown, brown and yellowish red, with gravel seams. [Terrace Deposits] (SP)							PP = 0.25 tsf
						20.8	24	1		Passing No. 200 Sieve: 8%
		7 (6) 7 (6)								
60										
										SS: 4-5-6
		9 (6) 4 (6)								
65										
										SS: WOH
		9 (6) 10 (6)								
70										

Remarks: Split-spoon values are not standard (170-lb hammer). Boring advanced by dry drilling techniques to 16 ft, and then wet coring methods were used to advance the boring to 92.5 ft.
Groundwater was encountered at 17.0 feet, and at 15.0 feet after ten minutes.
(N,E)=(3643512.883,879839.556).

Driller: Terra Logger: TGZ Organization: HVJ SCTX

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DRILLING LOG

WinCore Version 3.1

County	Donley	Hole	B-03	District	Childress
Highway	FM 1260	Structure	Bridge	Date	02/23/20
CSJ	0795-02-017	Station		Grnd. Elev.	2414.00 ft
		Offset		GW Elev.	2397.00 ft

Elev. (ft)	LOG	Texas Cone Penetrometer	Strata Description	Triaxial Test: Lateral Press. (psi)	Triaxial Test: Deviator Stress (psi)	Properties: MC	LL	PI	Wet Den. (pcf)	Additional Remarks
			SAND, poorly graded, loose to compact, gray, reddish brown, brown and yellowish red, with gravel seams. [Terrace Deposits] (SP)							SS: WOH
75		34 (6) 31 (6)								SS: 5-15-12
80		13 (6) 16 (6)								SS: WOH-6-5
85		16 (6) 38 (6)								SS: 5-8-16
90		20 (6) 34 (6)								SS: 14-29-33 - ferrous staining below 92 feet
2321.5										

Remarks: Split-spoon values are not standard (170-lb hammer). Boring advanced by dry drilling techniques to 16 ft, and then wet coring methods were used to advance the boring to 92.5 ft.
Groundwater was encountered at 17.0 feet, and at 15.0 feet after ten minutes.
(N,E)=(3643512.883,879839.556).

Driller: Terra Logger: TGZ Organization: HVJ SCTX

DRILLING LOG

WinCore Version 3.1

County	Donley	Hole	B-04	District	Childress
Highway	FM 1260	Structure	Bridge	Date	02/25/20
CSJ	0795-02-017	Station		Grnd. Elev.	2419.10 ft
		Offset		GW Elev.	2402.10 ft

Elev. (ft)	LOG	Texas Cone Penetrometer	Strata Description	Triaxial Test: Lateral Press. (psi)	Triaxial Test: Deviator Stress (psi)	Properties: MC	LL	PI	Wet Den. (pcf)	Additional Remarks
2418.5			PAVEMENT, 2.25" asphaltic concrete, 5.25" base							SS: 4-7-8 Passing No. 200 Sieve: 32%
			SAND, clayey, trace gravel, loose to slightly compact, moist, red, green and tan, with calcareous deposits. [Terrace Deposits] (SC)			17.6	34	16		
5		22 (6) 17 (6)								SS: 5-6-7
10		8 (6) 7 (6)								SS: 2-3-3
2405.6			SAND, poorly graded, very loose to compact, wet, gray, tan, brown, coarse, with trace gravel, fine to coarse. [Terrace Deposits] (SP)			21.3	34	20		SS: 2-3-2 Passing No. 200 Sieve: 39%
15		4 (6) 6 (6)								
20		13 (6) 11 (6)								SS: 6-7-8
25		22 (6) 24 (6)								SS: 8-6-7
30		13 (6) 18 (6)								SS: 8-16-14 Passing No. 200 Sieve: 5%
35		4 (6) 3 (6)				18				

Remarks: Split-spoon values are not standard (170-lb hammer). Boring advanced by dry drilling techniques to 20 ft, and then wet coring methods were used to advance the boring to 90 ft.
Groundwater was encountered at 17.0 feet, and at 16.0 feet after ten minutes.
(N,E)=(3643813.128,879884.311).

Driller: Terra Logger: TGZ Organization: HVJ SCTX

DRILLING LOG

WinCore Version 3.1

County	Donley	Hole	B-04	District	Childress
Highway	FM 1260	Structure	Bridge	Date	02/25/20
CSJ	0795-02-017	Station		Grnd. Elev.	2419.10 ft
		Offset		GW Elev.	2402.10 ft

Elev. (ft)	LOG	Texas Cone Penetrometer	Strata Description	Triaxial Test: Lateral Press. (psi)	Triaxial Test: Deviator Stress (psi)	Properties: MC	LL	PI	Wet Den. (pcf)	Additional Remarks
			SAND, poorly graded, very loose to compact, wet, gray, tan, brown, coarse, with trace gravel, fine to coarse. [Terrace Deposits] (SP)							
										SS: 9-8-8
40		17 (6) 14 (6)								
										SS: 1-2-3
45		5 (6) 5 (6)								
2371.1			CLAY, sandy, moist, soft, red and yellowish red, trace calcareous deposits. [Terrace Deposits] (CL)			29.7	29	8		SS: 1-3-2 Passing No. 200 Sieve: 70%
2369.1 50		5 (6) 8 (6)	SAND, clayey, loose, moist, red, calcareous. [Terrace Deposits] (SC)							
										SS: 3-6-7
55		6 (6) 13 (6)								
2361.1			SAND, poorly graded, loose to compact, with gravel seams, brown and gray. [Terrace Deposits] (SP)			21.6	26	9		SS: 2-4-6 Passing No. 200 Sieve: 19%
60		24 (6) 22 (6)								
										SS: 3-7-12
65		9 (6) 11 (6)								
										SS: 5-11-17
70		16 (6) 8 (6)								

Remarks: Split-spoon values are not standard (170-lb hammer). Boring advanced by dry drilling techniques to 20 ft, and then wet coring methods were used to advance the boring to 90 ft.
Groundwater was encountered at 17.0 feet, and at 16.0 feet after ten minutes.
(N,E)=(3643813.128,879884.311).

Driller: Terra Logger: TGZ Organization: HVJ SCTX

DRILLING LOG

WinCore Version 3.1

County	Donley	Hole	B-04	District	Childress
Highway	FM 1260	Structure	Bridge	Date	02/25/20
CSJ	0795-02-017	Station		Grnd. Elev.	2419.10 ft
		Offset		GW Elev.	2402.10 ft

Elev. (ft)	LOG	Texas Cone Penetrometer	Strata Description	Triaxial Test: Lateral Press. (psi)	Triaxial Test: Deviator Stress (psi)	Properties: MC	LL	PI	Wet Den. (pcf)	Additional Remarks
			SAND, poorly graded, loose to compact, with gravel seams, brown and gray. [Terrace Deposits] (SP)							SS: 2-1-8
2347.1			CLAY, very stiff, very moist, dark gray, trace sand, with calcareous deposits. [Terrace Deposits] (CL) (CL)							
75		32 (6) 26 (6)								SS: 50/6"
2339.1 80		50 (3) 50 (1)	SHALE, weathered, soft to hard, reddish brown and gray, with sand layers. [Quartermaster Formation]							SS: 50/6"
85		50 (0.5) 50 (0.3)								SS: 50/6"
2329.1 90		50 (1) 50 (1)								

Remarks: Split-spoon values are not standard (170-lb hammer). Boring advanced by dry drilling techniques to 20 ft, and then wet coring methods were used to advance the boring to 90 ft.
Groundwater was encountered at 17.0 feet, and at 16.0 feet after ten minutes.
(N,E)=(3643813.128,879884.311).

Driller: Terra Logger: TGZ Organization: HVJ SCTX

DRILLING LOG

WinCore Version 3.1

County	Donley	Hole	B-05	District	Childress
Highway	FM 1260	Structure	Bridge	Date	05/5/20
CSJ	0795-02-017	Station		Grnd. Elev.	2406.20 ft
		Offset		GW Elev.	2404.20 ft

Elev. (ft)	LOG	Texas Cone Penetrometer	Strata Description	Triaxial Test: Lateral Press. (psi)	Triaxial Test: Deviator Stress (psi)	Properties: MC	Properties: LL	Properties: PI	Properties: Wet Den. (pcf)	Additional Remarks
2404.2			CLAY, sandy, moist, very stiff, brown and red, trace gravel. [Alluvium] (CL)							PP = 3.5 tsf
			SAND, poorly graded, loose to compact, wet, tan to brown, coarse, with clay pockets and gravel seams. [Alluvium] (SP)							SS: 2-9-9 Passing No. 200 Sieve: 3%
		9 (6) 11 (6)				16.4				
5										Grab sample
										Grab sample
		5 (6) 10 (6)								
10										Grab sample
		11 (6) 13 (6)								
15										SS: 1-1-2
						18.7				Passing No. 200 Sieve: 2%
		8 (6) 13 (6)								
20										SS: WOH
		13 (6) 19 (6)								
25										SS: 4-7-8
		25 (6) 19 (6)								
30										SS: WOH
		20 (6) 18 (6)								
35										

Remarks: Split-spoon values are not standard (170-lb hammer). Boring advanced by dry drilling techniques to 10 ft, and then wet coring methods were used to advance the boring to 90 ft.
Groundwater was encountered at 2.0 feet at 0 minutes and after ten minutes. Grass cover.
(N,E)=(3642847.791, 879774.493).

Driller: Chris **Logger: ZJM** **Organization: HVJ SCTX**

DRILLING LOG

WinCore Version 3.1

County	Donley	Hole	B-05	District	Childress
Highway	FM 1260	Structure	Bridge	Date	05/5/20
CSJ	0795-02-017	Station		Grnd. Elev.	2406.20 ft
		Offset		GW Elev.	2404.20 ft

Elev. (ft)	LOG	Texas Cone Penetrometer	Strata Description	Triaxial Test: Lateral Press. (psi)	Triaxial Test: Deviator Stress (psi)	Properties: MC	Properties: LL	Properties: PI	Properties: Wet Den. (pcf)	Additional Remarks
			SAND, poorly graded, loose to compact, wet, tan to brown, coarse, with clay pockets and gravel seams. [Alluvium] (SP)							
		16 (6) 13 (6)								
40										
		16 (6) 15 (6)								
45										
		20 (6) 23 (6)								
50										
2353.2			CLAY, lean, soft, dark gray, wet. [Alluvium] (CL)							SS: 6-6-5
		6 (6) 8 (6)								
55										
		50 (6) 29 (6)								
2346.2 60			SAND, poorly graded, compact to very dense, brown, wet, with gravel seams. [Alluvium] (SP)							
		28 (6) 28 (6)								
65										
		50 (4) 50 (5)								
70										

Remarks: Split-spoon values are not standard (170-lb hammer). Boring advanced by dry drilling techniques to 10 ft, and then wet coring methods were used to advance the boring to 90 ft.
Groundwater was encountered at 2.0 feet at 0 minutes and after ten minutes. Grass cover.
(N,E)=(3642847.791, 879774.493).

Driller: Chris **Logger: ZJM** **Organization: HVJ SCTX**

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DRILLING LOG

WinCore Version 3.1

County	Donley	Hole	B-05	District	Childress
Highway	FM 1260	Structure	Bridge	Date	05/5/20
CSJ	0795-02-017	Station		Grnd. Elev.	2406.20 ft
		Offset		GW Elev.	2404.20 ft

Elev. (ft)	LOG	Texas Cone Penetrometer	Strata Description	Triaxial Test: Lateral Press. (psi)	Triaxial Test: Deviator Stress (psi)	Properties: MC	LL	PI	Wet Den. (pcf)	Additional Remarks
			SAND, poorly graded, compact to very dense, brown, wet, with gravel seams. [Alluvium] (SP)							SS: 9-14-12 - with a clay seam between 72 and 75 feet
		50 (3) 50 (0.5)								
2331.2 75			SHALE, weathered, moderately hard to hard, red with bluish gray inclusions, very moist. [Quartermaster Formation]							SS: 50/6"
		50 (2) 50 (1)								
80										SS: 50/5"
		50 (1.5) 50 (0.5)								
85										SS: 50/5"
		50 (1) 50 (0)								
2316.2 90										

Remarks: Split-spoon values are not standard (170-lb hammer). Boring advanced by dry drilling techniques to 10 ft, and then wet coring methods were used to advance the boring to 90 ft.
Groundwater was encountered at 2.0 feet at 0 minutes and after ten minutes. Grass cover.
(N,E)=(3642847.791, 879774.493).

Driller: Chris Logger: ZJM Organization: HVJ SCTX

DRILLING LOG

WinCore Version 3.1

County	Donley	Hole	B-06	District	Childress
Highway	FM 1260	Structure	Bridge	Date	05/2/20
CSJ	0795-02-017	Station		Grnd. Elev.	2406.60 ft
		Offset		GW Elev.	2389.10 ft

Elev. (ft)	LOG	Texas Cone Penetrometer	Strata Description	Triaxial Test: Lateral Press. (psi)	Triaxial Test: Deviator Stress (psi)	Properties: MC	LL	PI	Wet Den. (pcf)	Additional Remarks
			SAND, poorly graded, loose, moist, light brown, with gravel seams. [Alluvium] (SP)							PP = N/A
										PP = N/A
		7 (6) 8 (6)								PP = N/A
5										
										PP = N/A
										3.3
										Passing No. 200 Sieve: 4%
		7 (6) 7 (6)								PP = N/A
10										
2394.1			CLAY, sandy, lean, soft, dark gray, wet. [Alluvium] (CL)							PP = N/A
		6 (6) 5 (6)								
15										SS: WOH
2389.6			SAND, poorly graded, loose to compact, gray, wet, with gravel seams. [Alluvium] (SP)							
		8 (6) 9 (6)								SS: WOH-1-2
20										
		25 (6) 28 (6)								SS: 6-13-19
25										24.5
										Passing No. 200 Sieve: 5%
		20 (6) 19 (6)								
30										SS: WOH
		15 (6) 20 (6)								
35										

Remarks: Split-spoon values are not standard (170-lb hammer). Boring advanced by dry drilling techniques to 35 ft, and then wet coring methods were used to advance the boring to 90 ft.
Groundwater was encountered at 17.5 feet. Grass cover.
(N,E)=(3642491.110, 879582.197).

Driller: Chris Logger: ZJM Organization: HVJ SCTX

DRILLING LOG

WinCore Version 3.1

County	Donley	Hole	B-06	District	Childress
Highway	FM 1260	Structure	Bridge	Date	05/2/20
CSJ	0795-02-017	Station		Grnd. Elev.	2406.60 ft
		Offset		GW Elev.	2389.10 ft

Elev. (ft)	LOG	Texas Cone Penetrometer	Strata Description	Triaxial Test: Lateral Press. (psi)	Triaxial Test: Deviator Stress (psi)	Properties: MC	LL	PI	Wet Den. (pcf)	Additional Remarks
			SAND, poorly graded, loose to compact, gray, wet, with gravel seams. [Alluvium] (SP)							SS: WOH-5-6
		19 (6) 33 (6)								
40										SS: WOH-11-13
		21 (6) 30 (6)								
45										
		25 (6) 16 (6)								
2356.6 50			CLAY, lean, very soft, red, very moist to wet. [Alluvium] (CL)							SS: 7-2-2
		2 (6) 3 (6)								
55										SS: WOH
		9 (6) 18 (6)								
2346.6 60			SAND, poorly graded to well graded, loose to compact, reddish brown, gray, with clay pockets, with gravel seams, wet. [Alluvium] (SP) (SW)							
		12 (6) 8 (6)								
65										SS: WOH-WOH-8
		7 (6) 6 (6)								
70										

Remarks: Split-spoon values are not standard (170-lb hammer). Boring advanced by dry drilling techniques to 35 ft, and then wet coring methods were used to advance the boring to 90 ft.
Groundwater was encountered at 17.5 feet. Grass cover.
(N,E)=(3642491.110, 879582.197).

Driller: Chris Logger: ZJM Organization: HVJ SCTX

DRILLING LOG

WinCore Version 3.1

County	Donley	Hole	B-06	District	Childress
Highway	FM 1260	Structure	Bridge	Date	05/2/20
CSJ	0795-02-017	Station		Grnd. Elev.	2406.60 ft
		Offset		GW Elev.	2389.10 ft

Elev. (ft)	LOG	Texas Cone Penetrometer	Strata Description	Triaxial Test: Lateral Press. (psi)	Triaxial Test: Deviator Stress (psi)	Properties: MC	LL	PI	Wet Den. (pcf)	Additional Remarks
			SAND, poorly graded to well graded, loose to compact, reddish brown, gray, with clay pockets, with gravel seams, wet. [Alluvium] (SP) (SW)							
		25 (6) 29 (6)								
75										
		16 (6) 9 (6)								
80										
		50 (2.5) 50 (2)								
85										
2318.6			SHALE, highly weathered, soft, red, very moist. [Quartermaster Formation]							
2316.6 90		50 (6) 50 (6)								

Remarks: Split-spoon values are not standard (170-lb hammer). Boring advanced by dry drilling techniques to 35 ft, and then wet coring methods were used to advance the boring to 90 ft.
Groundwater was encountered at 17.5 feet. Grass cover.
(N,E)=(3642491.110, 879582.197).

Driller: Chris Logger: ZJM Organization: HVJ SCTX

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ESTIMATED QUANTITIES

BID ITEM / BID CODE / BRIDGE ELEMENT \ BID ITEM DESCRIPTION	0401 6001 FLOWABLE BACKFILL	0416 6004 DRILL SHAFT (36 IN)	0420 6013 CL C CONC (ABUT) (1)	0420 6029 CL C CONC (CAP) (2)	0420 6037 CL C CONC (COLUMN)	0422 6001 REINF CONC SLAB	0422 6015 APPROACH SLAB	0425 6035 PRESTR CONC GIRDER (TX28)	0450 6023 RAIL (TY SSTR)	0454 6018 SEALED EXPANSION JOINT (4 IN) (SEJ – M)	0496 6011 REMOV STR (BRIDGE 500 – 999 FT LENGTH)
	CY	LF	CY	CY	CY	SF	CY	LF	LF	LF	EA
3 - ABUTMENTS	72	480	36.3				54.5		32.0		
9- INTERIOR BENTS		2160		134.1	36.1						
2 - 180.00' PRESTRESSED CONC. I-GIRDER UNITS						12240		1428.00	720.0	99	
1 - 240.00' PRESTRESSED CONC. I-GIRDER UNIT						8160		952.00	480.0	33	
OVERALL TOTALS:	72	2640	36.3	134.1	36.1	20400	54.5	2380.00	1232.0	132	1

(1) Quantity includes concrete 0.6 CY for Shear Key.

(2) Quantity includes concrete 5.4 CY for Shear Key.

BEARING SEAT ELEVATIONS (FT)

	GIRDER 1	GIRDER 2	GIRDER 3	GIRDER 4
ABUT 1 (FWD)	2410.908	2411.094	2411.094	2410.908
BENT 2 (BK)	2410.908	2411.094	2411.094	2410.908
(FWD)	2410.908	2411.094	2411.094	2410.908
BENT 3 (BK)	2410.908	2411.094	2411.094	2410.908
(FWD)	2410.908	2411.094	2411.094	2410.908
BENT 4 (BK)	2410.908	2411.094	2411.094	2410.908
(FWD)	2410.908	2411.094	2411.094	2410.908
BENT 5 (BK)	2410.908	2411.094	2411.094	2410.908
(FWD)	2410.908	2411.094	2411.094	2410.908
BENT 6 (BK)	2410.908	2411.094	2411.094	2410.908
(FWD)	2410.908	2411.094	2411.094	2410.908
BENT 7 (BK)	2410.908	2411.094	2411.094	2410.908
(FWD)	2410.908	2411.094	2411.094	2410.908
BENT 8 (BK)	2410.908	2411.094	2411.094	2410.908
(FWD)	2410.908	2411.094	2411.094	2410.908
BENT 9 (BK)	2410.908	2411.094	2411.094	2410.908
(FWD)	2410.908	2411.094	2411.094	2410.908
BENT 10 (BK)	2410.908	2411.094	2411.094	2410.908
(FWD)	2410.908	2411.094	2411.094	2410.908
ABUT 11 (BK)	2410.908	2411.094	2411.094	2410.908

BEAM SLOPE (FT/FT)

	GIRDER 1	GIRDER 2	GIRDER 3	GIRDER 4
SPAN 1	0.0000	0.0000	0.0000	0.0000
SPAN 2	0.0000	0.0000	0.0000	0.0000
SPAN 3	0.0000	0.0000	0.0000	0.0000
SPAN 4	0.0000	0.0000	0.0000	0.0000
SPAN 5	0.0000	0.0000	0.0000	0.0000
SPAN 6	0.0000	0.0000	0.0000	0.0000
SPAN 7	0.0000	0.0000	0.0000	0.0000
SPAN 8	0.0000	0.0000	0.0000	0.0000
SPAN 9	0.0000	0.0000	0.0000	0.0000
SPAN 10	0.0000	0.0000	0.0000	0.0000

STATE OF TEXAS
HUNTER SETH WALTON
131306
LICENSED
PROFESSIONAL ENGINEER

2-5-2024

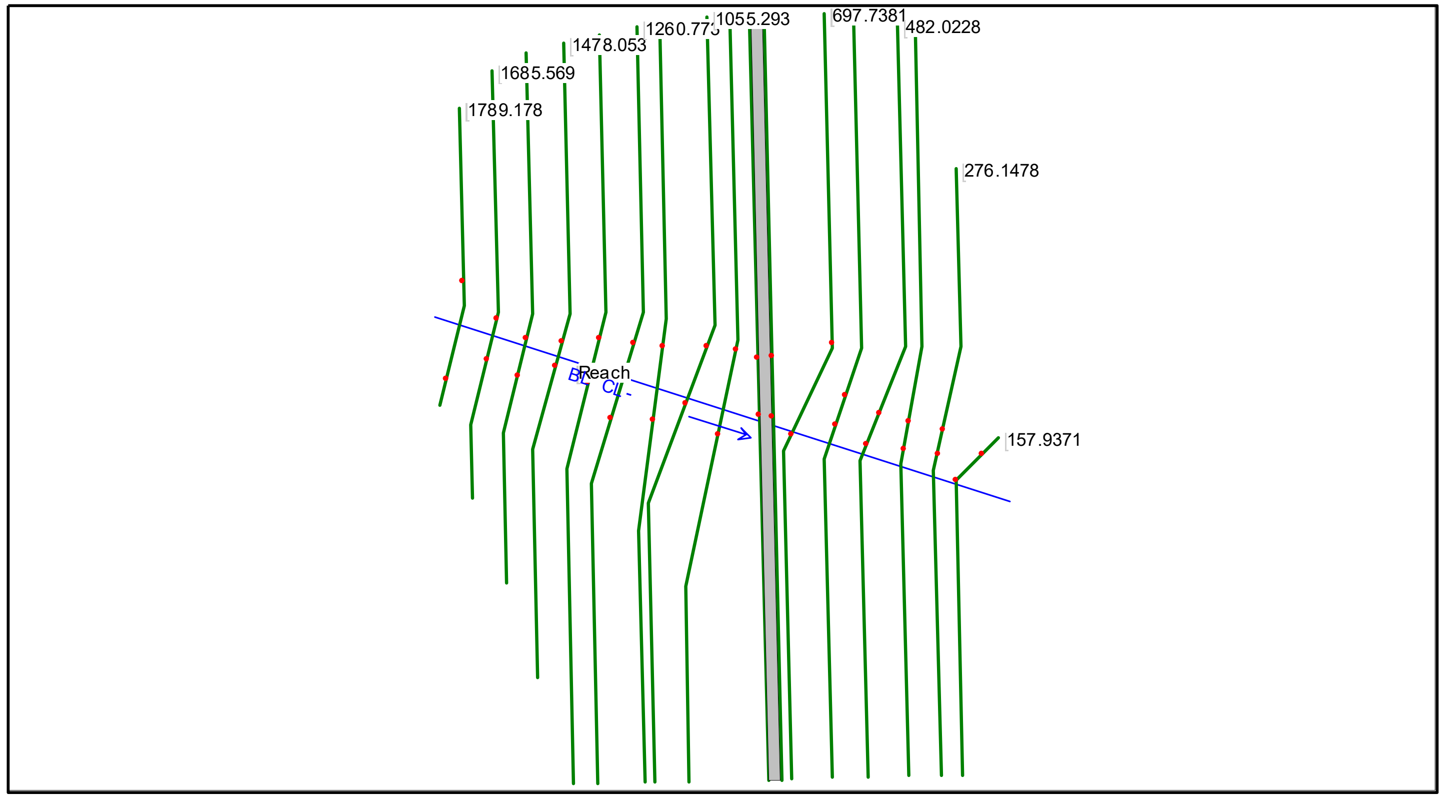
Texas Department of Transportation — Bridge Division

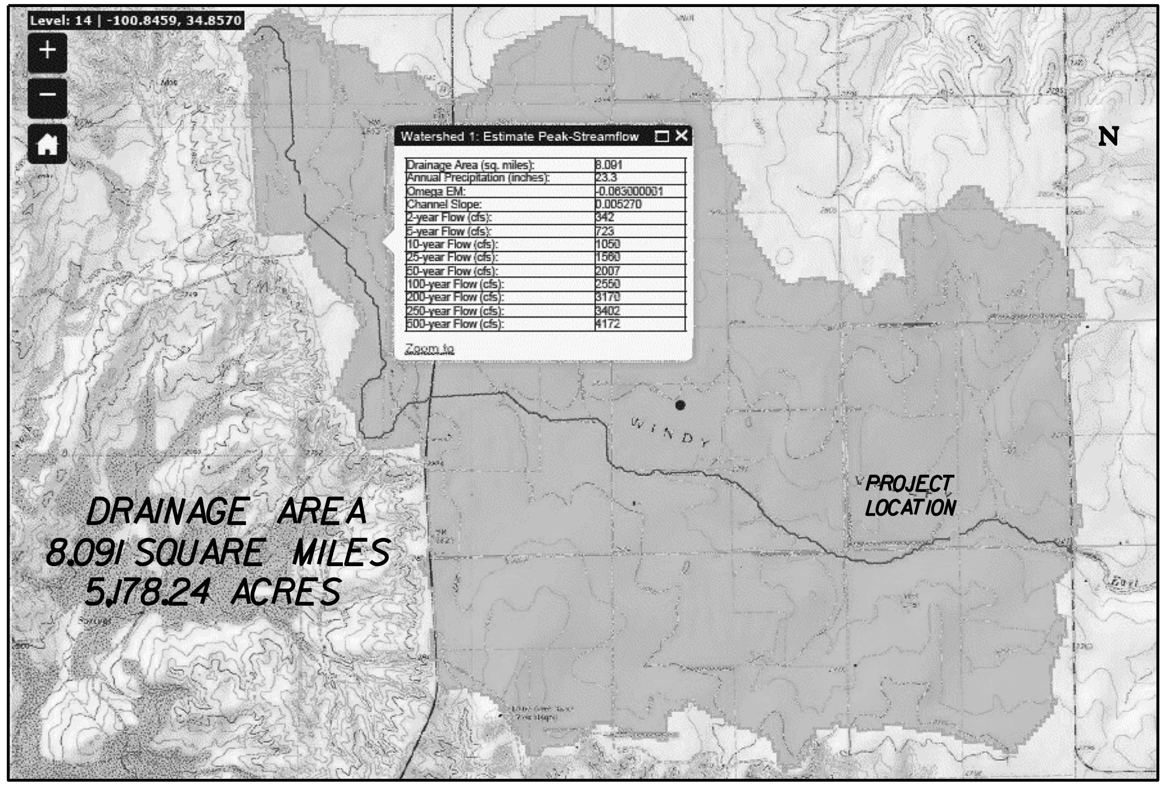
ESTIMATED QUANTITIES AND BEARING SEAT ELEVATIONS

SALT FORK OF RED RIVER BRIDGE

FILE: FM1260_BRG_8250eq01.dgn	DN: LP	CK: MB	DW: LJC	CK: LP
©TxDOT DECEMBER 2023	CONT	SECT	JOB	HIGHWAY
REVISIONS	0795	02	017	FM1260
	DIST	COUNTY		SHEET NO.
	CHS	DONLEY		63

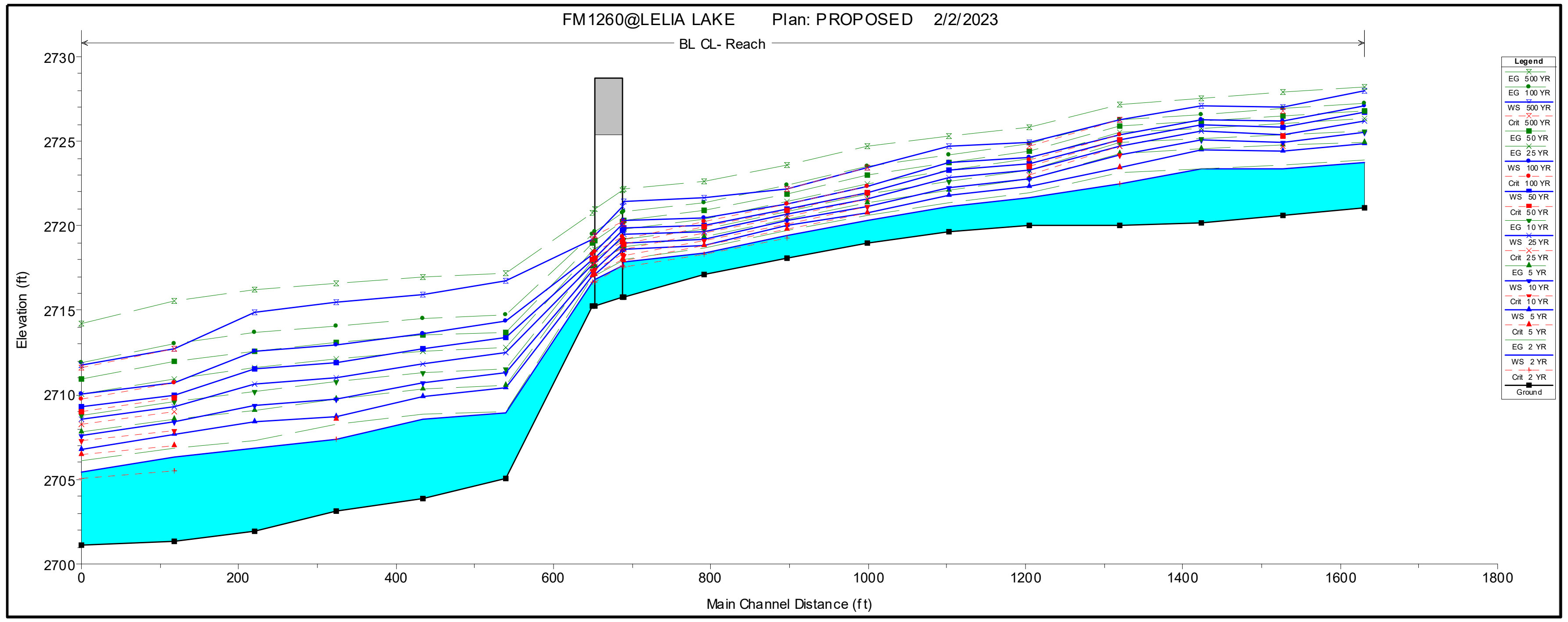
DATE: 2/5/2024 11:34:41 AM
FILE: pw://txdot.projectwiseonline.com:TxDOT5/Documents/25 - CHS/Design Projects/079502017/4 - Design/Plan Set/7. Bridge/FM1260_BRG_8250eq01.dgn





MANNING'S n

LEFT	CHANNEL	RIGHT
0.04	0.03	0.04



Reach	River Sta	Profile	Plan	Vel Total (ft/s)	W.S. Elev (ft)	Q Total (cfs)
Reach	948.7398	100 YR	EX	6.32	2720.91	2550.00
Reach	948.7398	100 YR	PROP	7.59	2720.48	2550.00
Reach	948.7398	500 YR	EX	6.24	2722.33	4172.00
Reach	948.7398	500 YR	PROP	7.76	2721.69	4172.00
Reach	847.1848	100 YR	EX	4.80	2720.83	2550.00
Reach	847.1848	100 YR	PROP	5.56	2720.33	2550.00
Reach	847.1848	500 YR	EX	5.74	2722.15	4172.00
Reach	847.1848	500 YR	PROP	6.70	2721.45	4172.00
Reach	827 BR U	100 YR	EX	6.48	2720.52	2550.00
Reach	827 BR U	100 YR	PROP	6.44	2720.11	2550.00
Reach	827 BR U	500 YR	EX	7.78	2721.70	4172.00
Reach	827 BR U	500 YR	PROP	7.80	2721.14	4172.00
Reach	827 BR D	100 YR	EX	9.33	2719.15	2550.00
Reach	827 BR D	100 YR	PROP	8.64	2718.46	2550.00
Reach	827 BR D	500 YR	EX	10.74	2720.26	4172.00
Reach	827 BR D	500 YR	PROP	10.03	2719.40	4172.00
Reach	806.8238	100 YR	EX	9.24	2719.03	2550.00
Reach	806.8238	100 YR	PROP	8.49	2718.35	2550.00
Reach	806.8238	500 YR	EX	10.56	2720.11	4172.00
Reach	806.8238	500 YR	PROP	9.92	2719.22	4172.00
Reach	697.7381	100 YR	EX	4.63	2714.39	2550.00
Reach	697.7381	100 YR	PROP	4.63	2714.39	2550.00
Reach	697.7381	500 YR	EX	5.16	2716.75	4172.00
Reach	697.7381	500 YR	PROP	5.16	2716.75	4172.00

05/09/2024

HYDRAULIC DATA SHEET

FM 1260
@
EAST LELIA LAKE

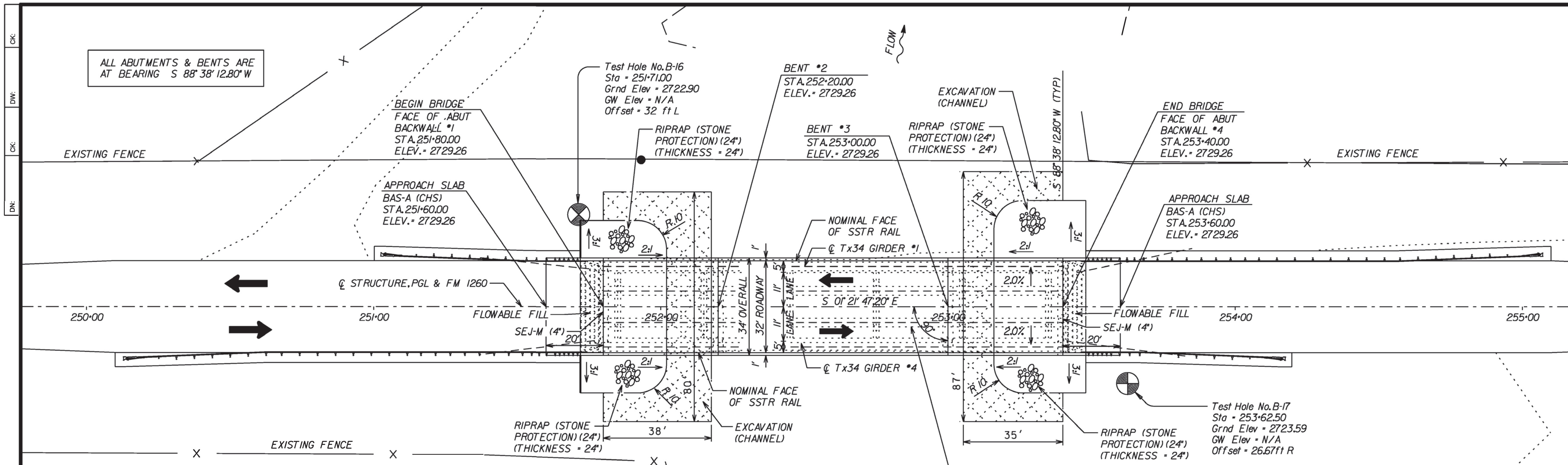
NOTES:

1: HEC-RAS USED FOR HYDRAULIC ANALYSIS AND DESIGN.

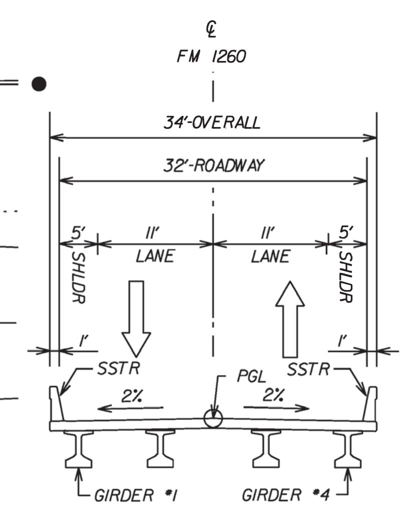
2: STEADY FLOW BOUNDARY CONDITIONS ARE BASED ON NORMAL DEPTH WITH A DOWNSTREAM SLOPE OF 0.01223 PERCENT.

CONT	SECT	JOB	HIGHWAY
0795	02	017, ETC.	FM 1260
DIST		COUNTY	SHEET NO.
CHS		DONLEY	64

DATE:
FILE:



PLAN



TYPICAL SUPERSTRUCTURE SECTION

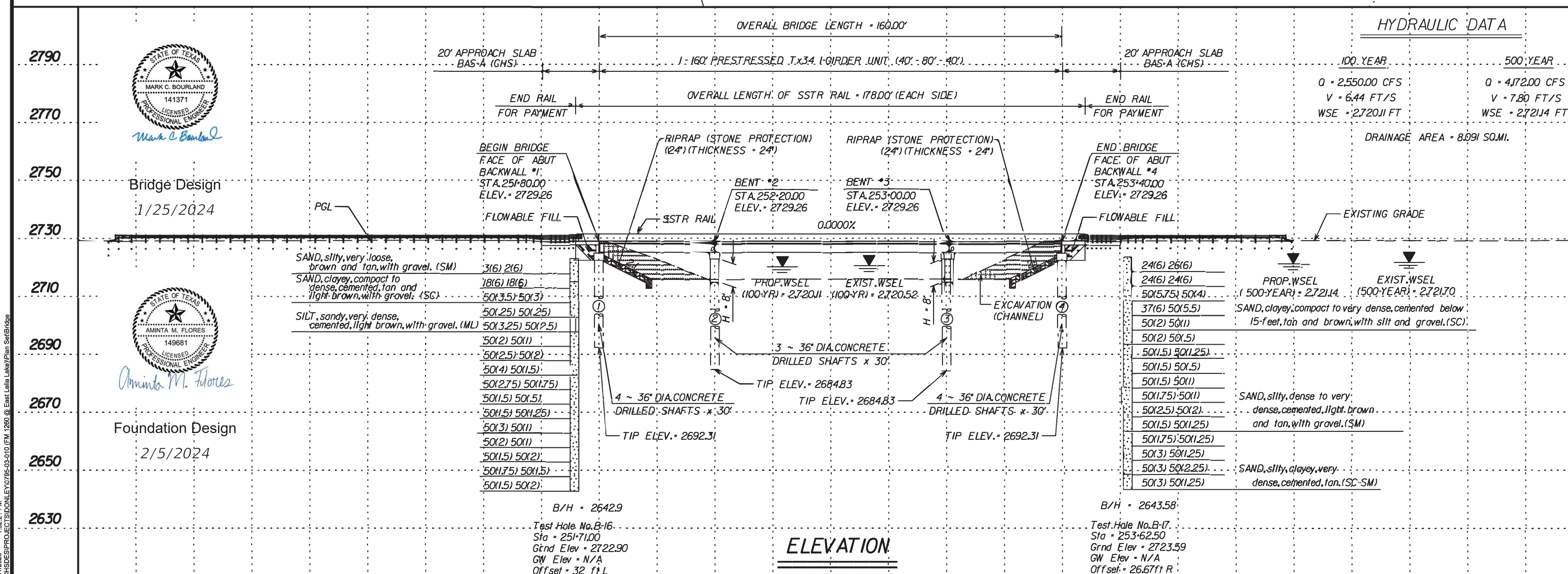
PRESTR CONC I-GIRDER(Tx34)(TYP)

SUPERSTRUCTURE INV/OPR RATINGS:
40' SPAN 1.77/2.29
80' SPAN 1.23/1.67

HL-93 LOADING

GENERAL NOTES:

1. BEAM END CONDITION - "D" DENOTES DOWEL AT EXTERIOR GIRDERS.
2. SEE BORING LOG FOR TEST HOLE INFORMATION
3. DRILLED SHAFTS CASING OR SLURRY MAY BE NEEDED, DUE TO THE PRESENCE OF GROUNDWATER.
4. FOUND DRILLED SHAFTS AT THE ELEVATIONS (LENGTHS) SHOWN OR DEEPER (LONGER) TO OBTAIN A MINIMUM OF 2 DRILLED SHAFT DIAMETER PENETRATION INTO HARD SAND/ROCK'.
5. CONTRACTOR SHALL VERIFY ALL DIMENSIONS IN THE FIELD PRIOR TO ORDERING MATERIALS.
6. THE CONTRACTOR SHALL BE ADVISED THAT GROUND WATER AND INUNDATION DUE TO FLOODING MAY BE EXPERIENCED DURING DRILLED SHAFT CONSTRUCTION. THE USE OF CASING AND OR DRILLING SLURRY, IN ACCORDANCE WITH TXDOT ITEM 416, MAY BE NECESSARY.



ELEVATION

Bridge Design
1/25/2024

Foundation Design
2/5/2024

HYDRAULIC DATA

100 YEAR	500 YEAR
Q = 2,550.00 CFS	Q = 4,172.00 CFS
V = 6.44 FT/S	V = 7.80 FT/S
WSE = 2,720.11 FT	WSE = 2,721.14 FT

DRAINAGE AREA = 8.091 SQ.MI.

CHARLES B. STEED 88647 LICENSED PROFESSIONAL ENGINEER
Charles B. Steed, P.E.
01/23/2024

BRIDGE LAYOUT
FM 1260 @ EAST LELIA LAKE

STA. 251+80.00 TO STA. 253+40.00

NBI NO. 25-065-0-0795-03-162

DESIGN SPEED = 70 MPH
ADT (2021) = 138
ADT (2041) = 193
FUNCTIONAL CLASS: RURAL UNDIVIDED (CONVENTIONAL)
SCALE: 1" = 40' HORIZONTAL, 1" = 40' VERTICAL

Texas Department of Transportation

CONT	SECT	JOB	HIGHWAY
0795	02	017, ETC.	FM 1260
DIST		COUNTY	SHEET NO.
CHS		DONLEY	65

DATE: 12/11/2023 1:52:21 PM
FILE: T:\CHS\DES\PROJECTS\DONLEY\0795-03-010 (FM 1260 @ East Lelia Lake)\Plan Set\Bridge

ESTIMATED QUANTITIES

BID ITEM / BID CODE	0401 6001	0416 6004	0420 6013	0420 6029	0420 6037	0422 6001	0422 6015	0425 6036	0450 6023	0454 6018	0496 6010
BID ITEM DESCRIPTION / BRIDGE ELEMENT	FLOWABLE BACKFILL	DRILL SHAFT (36 IN)	CL C CONC (ABUT) (1)	CL C CONC (CAP) (2)	CL C CONC (COLUMN)	REINF CONC SLAB	APPROACH SLAB	PRESTR CONC GIRDER (TX34)	RAIL (TY SSTR)	SEALED EXPANSION JOINT (4 IN) (SEJ – M)	REMOV STR (BRIDGE 100 – 499 FT LENGTH)
	CY	LF	CY	CY	CY	SF	CY	LF	LF	LF	EA
2 - ABUTMENTS	72	240	39.4						36.0		1
2 - INTERIOR BENT		180		29.8	12.9						
1 - 160.00' PRESTRESSED CONC. GIRDER UNIT						5440	52.6	634.00	320.0	66	
OVERALL TOTALS:	72	420	39.4	29.8	12.9	5440	52.6	634.00	356.0	66	1

(1) Quantity includes concrete 0.6 CY for Shear Key.

(2) Quantity includes concrete 1.2 CY for Shear Key.

BEARING SEAT ELEVATIONS (FT)

	GIRDER 1	GIRDER 2	GIRDER 3	GIRDER 4
ABUT 1 (FWD)	2724.918	2725.104	2725.104	2724.918
	GIRDER 1	GIRDER 2	GIRDER 3	GIRDER 4
BENT 2 (BK)	2724.918	2725.104	2725.104	2724.918
(FWD)	2724.918	2725.104	2725.104	2724.918
	GIRDER 1	GIRDER 2	GIRDER 3	GIRDER 4
BENT 3 (BK)	2724.918	2725.104	2725.104	2724.918
(FWD)	2724.918	2725.104	2725.104	2724.918
	GIRDER 1	GIRDER 2	GIRDER 3	GIRDER 4
ABUT 4 (BK)	2724.918	2725.104	2725.104	2724.918

BEAM SLOPE (FT/FT)

	GIRDER 1	GIRDER 2	GIRDER 3	GIRDER 4
SPAN 1	0.0000	0.0000	0.0000	0.0000
	GIRDER 1	GIRDER 2	GIRDER 3	GIRDER 4
SPAN 2	0.0000	0.0000	0.0000	0.0000
	GIRDER 1	GIRDER 2	GIRDER 3	GIRDER 4
SPAN 3	0.0000	0.0000	0.0000	0.0000

STATE OF TEXAS
MARK C. BOURLAND
141371
LICENSED
PROFESSIONAL ENGINEER
Mark C Bourland
12/20/2023

Texas Department of Transportation — Bridge Division

ESTIMATED QUANTITIES & BEARING SEAT ELEVATION

EAST LELIA LAKE BRIDGE

FILE: FM1260_BRG_8251eq01.dgn	DN: MCB	CK: EFC	DW: LJC	CK: MCB
© TxDOT DECEMBER 2023	CONT	SECT	JOB	HIGHWAY
REVISIONS	0795	03	010	FM1260
	DIST	COUNTY		SHEET NO.
	CHS	DONLEY		66

DATE: 12/20/2023 1:34:30 PM
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DATE: 12/15/2023 3:24:13 PM
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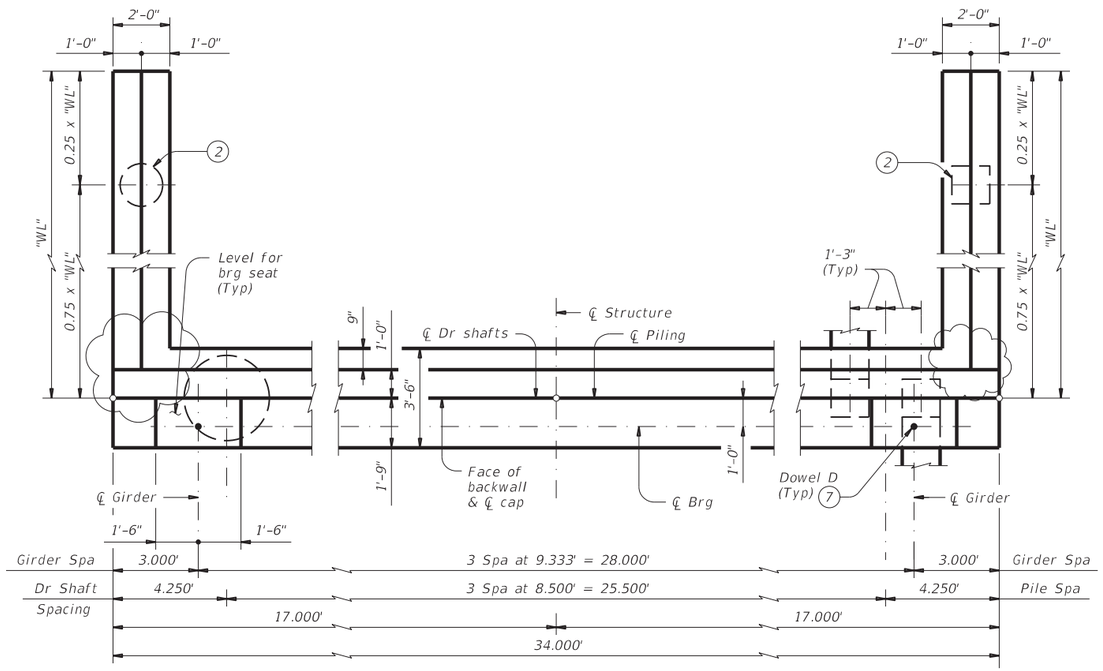
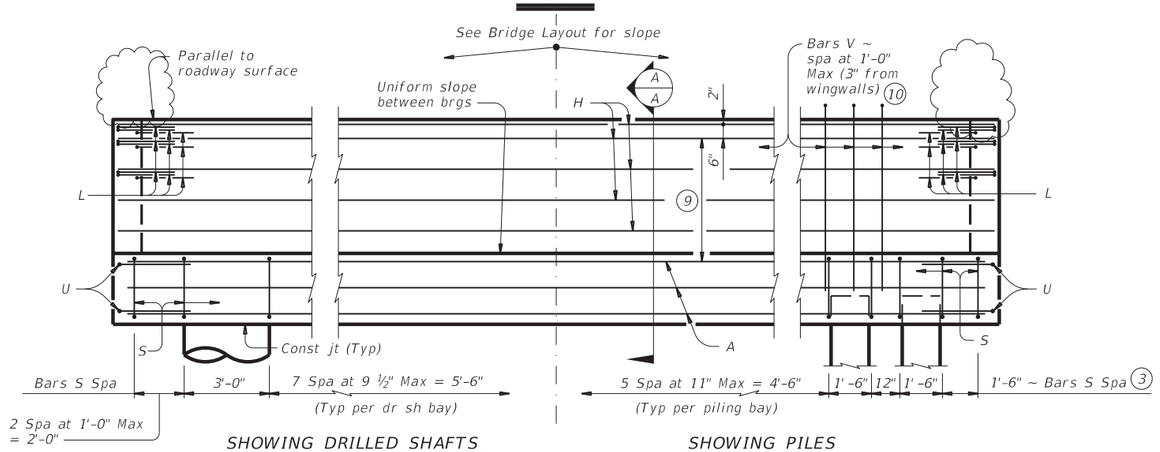


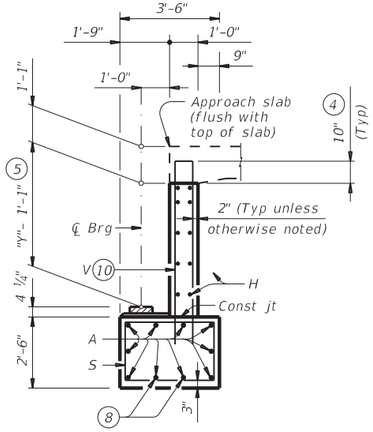
SHOWING DRILLED SHAFTS — SHOWING PILES

PLAN (1)



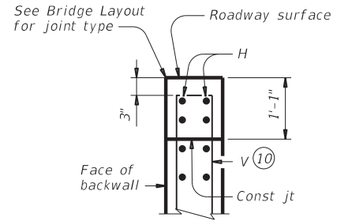
SHOWING DRILLED SHAFTS — SHOWING PILES

ELEVATION



SECTION A-A

(With approach slab) (6)



BACKWALL DETAIL

(Without approach slab) (6)

TABLE OF FOUNDATION LOADS

Span Length	All Girder Types	
Ft	Tons/Shaft	Tons/Pile
40	53	47
45	56	49
50	60	51
55	63	53
60	66	54
65	70	56
70	73	58
75	76	59
80	79	61
85	82	62
90	86	64
95	89	66
100	92	67
105	95	69
110	98	70
115	101	72
120	104	74

(1) See Table A for variable dimensions based on header slope and girder type.

(2) See Table A to determine if wingwall foundations are required.

(3) For piling larger than 16" adjust Bars S spacing as required to avoid piling.

(4) Increase as required to maintain 3" from finished grade.

(5) See Span details for "Y" value.

(6) See Bridge Layout to determine if approach slab is present.

(7) Omit Dowels D at end of multi-span unit. Adjust reinforcing steel total accordingly.

(8) With pile foundations, move Bars A shown to clear piles.

(9) Spacing based on girder type:
Tx28 ~ 3 spaces at 1'-0" Max
Tx34 ~ 3 spaces at 1'-0" Max
Tx40 ~ 4 spaces at 1'-0" Max
Tx46 ~ 4 spaces at 1'-0" Max
Tx54 ~ 5 spaces at 1'-0" Max

(10) Field bend as needed to clear piles.

GENERAL NOTES:

See Bridge Layout for header slope and foundation type, size and length.

See Common Foundation Details (FD) standard sheet for all foundation details and notes.

See Concrete Riprap (CRR) standard sheet or Stone Riprap (SRR) standard sheet for riprap attachment details, if applicable.

See applicable rail details for rail anchorage in wingwalls.

These abutment details may be used with standard SIG-32 only.

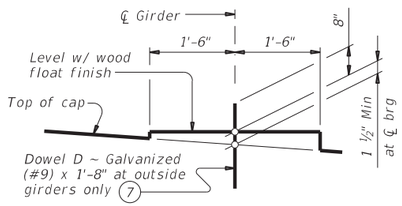
Cover dimensions are clear dimensions, unless noted otherwise.
Reinforcing bar dimensions shown are out-to-out of bar.

MATERIAL NOTES:

Provide Class C concrete (f'c = 3,600 psi).
Provide Class C (HPC) concrete if shown elsewhere in the plans.
Provide Grade 60 reinforcing steel.
Galvanize dowel bars D.

TABLE A

Header Slope	Girder Type	Wingwall Type	Wingwall Lgth "WL"
2:1	Tx28	Cantilevered	8.000'
	Tx34	Cantilevered	9.000'
	Tx40	Cantilevered	10.000'
	Tx46	Cantilevered	11.000'
	Tx54	Cantilevered	12.000'
3:1	Tx28	Cantilevered	12.000'
	Tx34	Founded	13.000'
	Tx40	Founded	15.000'
	Tx46	Founded	16.000'
	Tx54	Founded	18.000'



BEARING SEAT DETAIL

(Bearing surface must be clean and free of all loose material before placing bearing pad.)

STATE OF TEXAS
HUNTER SETH WALTON
131306
LICENSED
PROFESSIONAL ENGINEER

12-15-23

HL93 LOADING — SHEET 1 OF 3

Texas Department of Transportation — Bridge Division Standard

ABUTMENTS
TYPE TX28 THRU TX54
PRESTR CONC I-GIRDERS
32' ROADWAY

AIG-32 (MOD)

FILE: FM1260_BRG_8250ab01.dgn	DN: TAR	CK: KCM	DW: JTR	CK: TAR
©TxDOT August 2017	CONT	SECT	JOB	HIGHWAY
REVISIONS MOD - LP -Adjust Wingwalls for BAS-A(CHS)	0795	02	017	FM1260
	DIST	COUNTY		SHEET NO.
	CHS	DONLEY		67

DATE: 12/15/2023 3:23:45 PM
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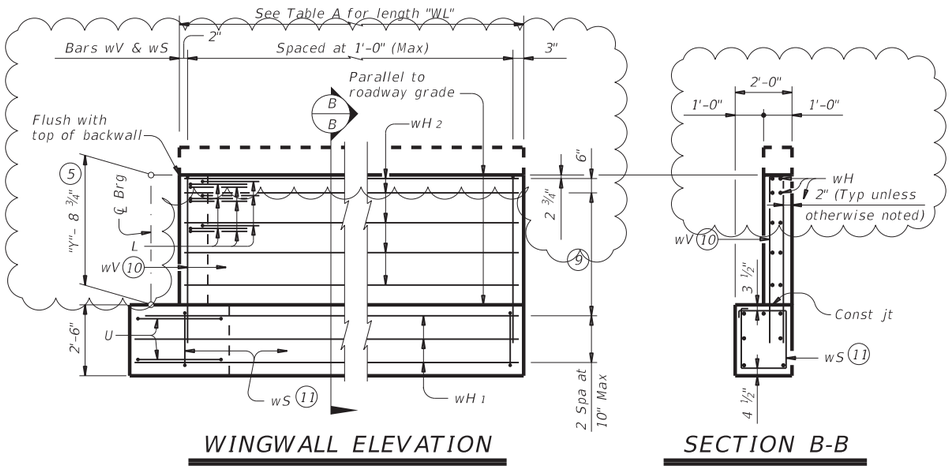
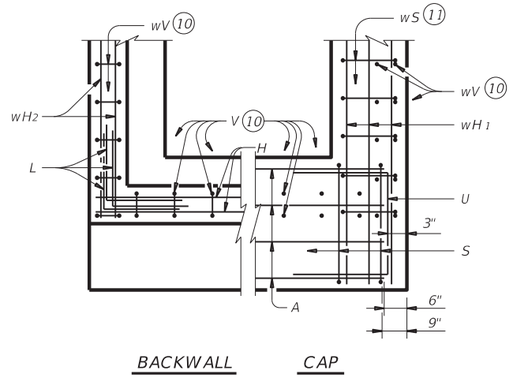


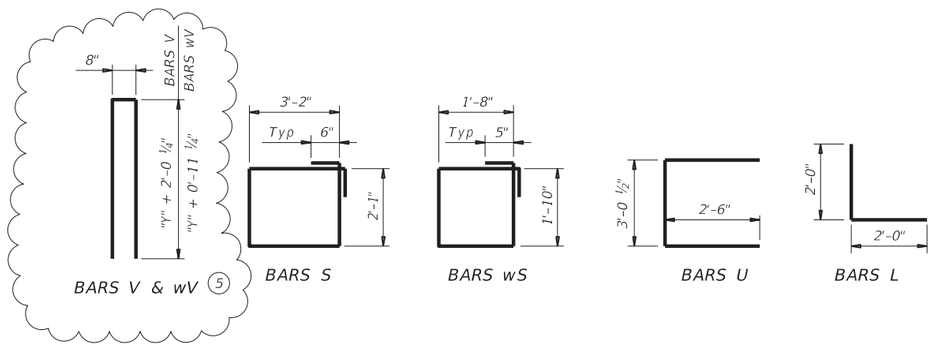
WINGWALL ELEVATION

SECTION B-B



BACKWALL CAP

CORNER DETAILS



(5) See Span details for "Y" value.

(9) Spacing based on girder type:
Tx28 ~ 3 spaces at 1'-0" Max
Tx34 ~ 3 spaces at 1'-0" Max
Tx40 ~ 4 spaces at 1'-0" Max
Tx46 ~ 4 spaces at 1'-0" Max
Tx54 ~ 5 spaces at 1'-0" Max

(10) Field bend as needed to clear piles.

(11) Adjust as required to avoid piling.

STATE OF TEXAS
HUNTER SETH WALTON
131306
LICENSED
PROFESSIONAL ENGINEER
12-15-23

HL93 LOADING SHEET 2 OF 3

Texas Department of Transportation
Bridge Division Standard

ABUTMENTS
TYPE TX28 THRU TX54
PRESTR CONC I-GIRDERS
32' ROADWAY

AIG-32 (MOD)

FILE: FM1260_BRG_8250ab01.dgn	DN: TAR	CK: KCM	DW: JTR	CK: TAR
©TxDOT August 2017	CONT	SECT	JOB	HIGHWAY
REVISIONS MOD - LP -Adjust Wingwalls for BAS-A(CHS)	0795	02	017	FM1260
	DIST	COUNTY		SHEET NO.
	CHS	DONLEY		68

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TABLES OF ESTIMATED QUANTITIES WITH 2:1 HEADER SLOPE

TYPE Tx28 Girders

Bar	No.	Size	Length	Weight
A	10	#11	33'-0"	1,753
D (7)	2	#9	1'-8"	11
H	8	#6	33'-8"	405
L	18	#6	4'-0"	108
S	30	#5	11'-6"	360
U	4	#6	8'-1"	49
V	33	#5	11'-4"	390
wH1	14	#6	9'-5"	108
wH2	16	#6	7'-8"	185
wS	18	#4	7'-10"	94
wV	18	#5	9'-2"	172
Reinforcing Steel		Lb		3,725
Class "C" Concrete		CY		17.8

TYPE Tx34 Girders

Bar	No.	Size	Length	Weight
A	10	#11	33'-0"	1,753
D (7)	2	#9	1'-8"	11
H	8	#6	33'-8"	405
L	18	#6	4'-0"	108
S	30	#5	11'-6"	360
U	4	#6	8'-1"	49
V	33	#5	12'-4"	425
wH1	14	#6	10'-5"	219
wH2	20	#6	8'-8"	260
wS	20	#4	7'-10"	105
wV	20	#5	12'-3"	257
Reinforcing Steel		Lb		3,952
Class "C" Concrete		CY		20.1

TYPE Tx40 Girders

Bar	No.	Size	Length	Weight
A	10	#11	33'-0"	1,753
D (7)	2	#9	1'-8"	11
H	10	#6	33'-8"	506
L	18	#6	4'-0"	108
S	30	#5	11'-6"	360
U	4	#6	8'-1"	49
V	33	#5	13'-4"	459
wH1	14	#6	11'-5"	240
wH2	24	#6	9'-8"	348
wS	22	#4	7'-10"	115
wV	22	#5	13'-4"	306
Reinforcing Steel		Lb		4,255
Class "C" Concrete		CY		21.8

TYPE Tx46 Girders

Bar	No.	Size	Length	Weight
A	10	#11	33'-0"	1,753
D (7)	2	#9	1'-8"	11
H	10	#6	33'-8"	506
L	18	#6	4'-0"	108
S	30	#5	11'-6"	360
U	4	#6	8'-1"	49
V	33	#5	14'-4"	493
wH1	14	#6	12'-5"	261
wH2	24	#6	10'-8"	385
wS	24	#4	7'-10"	126
wV	24	#5	14'-4"	359
Reinforcing Steel		Lb		4,411
Class "C" Concrete		CY		23.5

TYPE Tx54 Girders

Bar	No.	Size	Length	Weight
A	10	#11	33'-0"	1,753
D (7)	2	#9	1'-8"	11
H	12	#6	33'-8"	607
L	18	#6	4'-0"	108
S	30	#5	11'-6"	360
U	4	#6	8'-1"	49
V	33	#5	15'-8"	539
wH1	14	#6	13'-5"	282
wH2	28	#6	11'-8"	491
wS	26	#4	7'-10"	136
wV	26	#5	15'-8"	425
Reinforcing Steel		Lb		4,761
Class "C" Concrete		CY		25.6

TABLES OF ESTIMATED QUANTITIES WITH 3:1 HEADER SLOPE

TYPE Tx28 Girders

Bar	No.	Size	Length	Weight
A	10	#11	33'-0"	1,753
D (7)	2	#9	1'-8"	11
H	8	#6	33'-8"	405
L	18	#6	4'-0"	108
S	30	#5	11'-6"	360
U	4	#6	8'-1"	49
V	33	#5	11'-4"	390
wH1	14	#6	13'-5"	282
wH2	20	#6	11'-8"	350
wS	26	#4	7'-10"	136
wV	26	#5	11'-4"	307
Reinforcing Steel		Lb		4,151
Class "C" Concrete		CY		21.1

TYPE Tx34 Girders

Bar	No.	Size	Length	Weight
A	10	#11	33'-0"	1,753
D (7)	2	#9	1'-8"	11
H	8	#6	33'-8"	405
L	18	#6	4'-0"	108
S	30	#5	11'-6"	360
U	4	#6	8'-1"	49
V	33	#5	12'-4"	425
wH1	14	#6	14'-5"	303
wH2	20	#6	12'-8"	381
wS	28	#4	7'-10"	147
wV	28	#5	12'-4"	360
Reinforcing Steel		Lb		4,302
Class "C" Concrete		CY		22.8

TYPE Tx40 Girders

Bar	No.	Size	Length	Weight
A	10	#11	33'-0"	1,753
D (7)	2	#9	1'-8"	11
H	10	#6	33'-8"	506
L	18	#6	4'-0"	108
S	30	#5	11'-6"	360
U	4	#6	8'-1"	49
V	33	#5	13'-4"	459
wH1	14	#6	16'-5"	345
wH2	24	#6	14'-8"	529
wS	32	#4	7'-10"	167
wV	32	#5	13'-4"	445
Reinforcing Steel		Lb		4,732
Class "C" Concrete		CY		25.3

TYPE Tx46 Girders

Bar	No.	Size	Length	Weight
A	10	#11	33'-0"	1,753
D (7)	2	#9	1'-8"	11
H	10	#6	33'-8"	506
L	18	#6	4'-0"	108
S	30	#5	11'-6"	360
U	4	#6	8'-1"	49
V	33	#5	14'-4"	493
wH1	14	#6	17'-5"	366
wH2	24	#6	15'-8"	565
wS	34	#4	7'-10"	178
wV	34	#5	14'-4"	508
Reinforcing Steel		Lb		4,897
Class "C" Concrete		CY		27.2

TYPE Tx54 Girders

Bar	No.	Size	Length	Weight
A	10	#11	33'-0"	1,753
D (7)	2	#9	1'-8"	11
H	12	#6	33'-8"	607
L	18	#6	4'-0"	108
S	30	#5	11'-6"	360
U	4	#6	8'-1"	49
V	33	#5	15'-8"	539
wH1	14	#6	19'-5"	408
wH2	28	#6	17'-8"	743
wS	38	#4	7'-10"	199
wV	38	#5	15'-8"	621
Reinforcing Steel		Lb		5,398
Class "C" Concrete		CY		30.4

(7) *Omit Dowels D at end of multi-span unit.*
Adjust reinforcing steel total accordingly.

HL93 LOADING

STATE OF TEXAS
HUNTER SETH WALTON
131306
LICENSED
PROFESSIONAL ENGINEER

12-15-23

Texas Department of Transportation

Bridge Division Standard

ABUTMENTS
TYPE TX28 THRU TX54
PRESTR CONC I-GIRDERS
32' ROADWAY

AIG-32 (MOD)

FILE: FM1260_BRG_8250ab01.dgn	DN: TAR	CK: KCM	DW: JTR	CK: TAR
©TxDOT August 2017	CONT	SECT	JOB	HIGHWAY
REVISIONS MOD - LP -Adjust Wingwalls for BAS-A(CHS)	0795	02	017	FM1260
	DIST	COUNTY		SHEET NO.
	CHS	DONLEY		69

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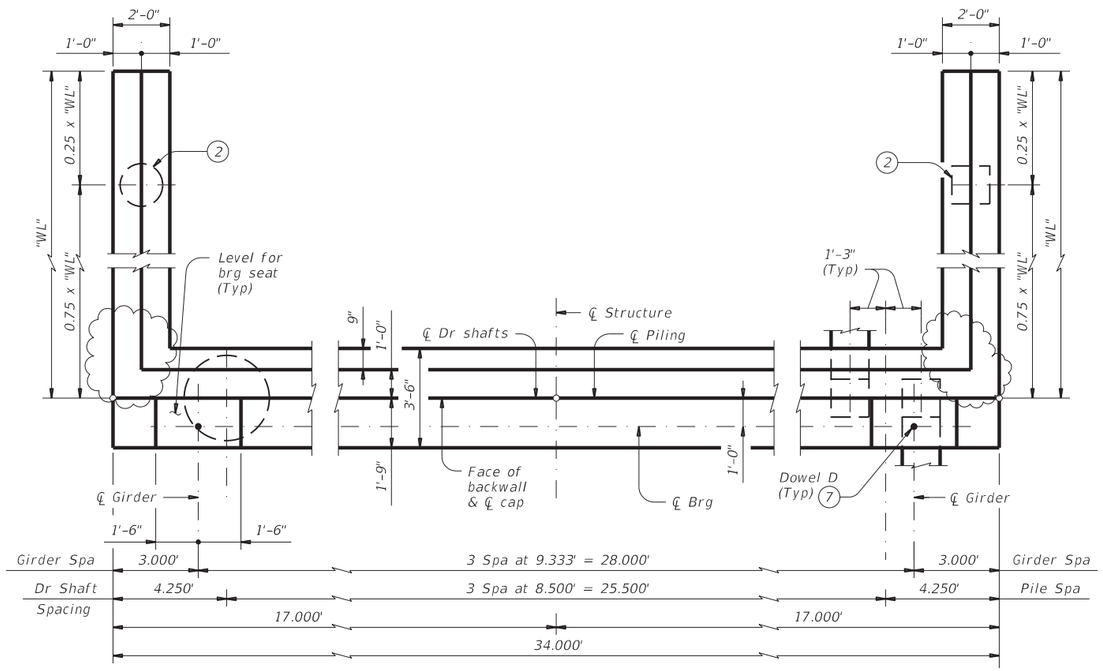
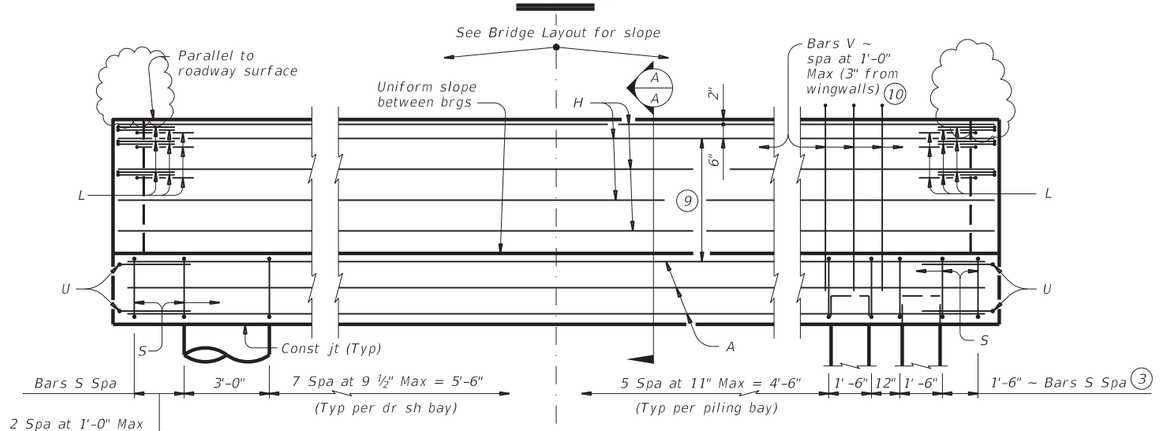


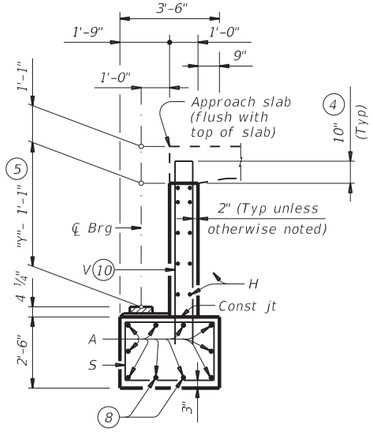
SHOWING DRILLED SHAFTS — SHOWING PILES

PLAN (1)



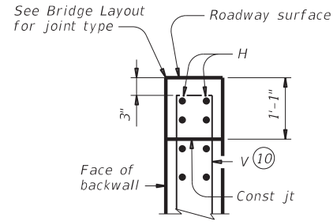
SHOWING DRILLED SHAFTS — SHOWING PILES

ELEVATION



SECTION A-A

(With approach slab) (6)



BACKWALL DETAIL

(Without approach slab) (6)

TABLE OF FOUNDATION LOADS

Span Length	All Girder Types	
Ft	Tons/Shaft	Tons/Pile
40	53	47
45	56	49
50	60	51
55	63	53
60	66	54
65	70	56
70	73	58
75	76	59
80	79	61
85	82	62
90	86	64
95	89	66
100	92	67
105	95	69
110	98	70
115	101	72
120	104	74

(1) See Table A for variable dimensions based on header slope and girder type.

(2) See Table A to determine if wingwall foundations are required.

(3) For piling larger than 16" adjust Bars S spacing as required to avoid piling.

(4) Increase as required to maintain 3" from finished grade.

(5) See Span details for "Y" value.

(6) See Bridge Layout to determine if approach slab is present.

(7) Omit Dowels D at end of multi-span unit. Adjust reinforcing steel total accordingly.

(8) With pile foundations, move Bars A shown to clear piles.

(9) Spacing based on girder type:
Tx28 ~ 3 spaces at 1'-0" Max
Tx34 ~ 3 spaces at 1'-0" Max
Tx40 ~ 4 spaces at 1'-0" Max
Tx46 ~ 4 spaces at 1'-0" Max
Tx54 ~ 5 spaces at 1'-0" Max

(10) Field bend as needed to clear piles.

GENERAL NOTES:

Designed according to AASHTO LRFD Bridge Design Specifications.

See Bridge Layout for header slope and foundation type, size and length.

See Common Foundation Details (FD) standard sheet for all foundation details and notes.

See Concrete Riprap (CRR) standard sheet or Stone Riprap (SRR) standard sheet for riprap attachment details, if applicable.

See applicable rail details for rail anchorage in wingwalls.

These abutment details may be used with standard SIG-32 only.

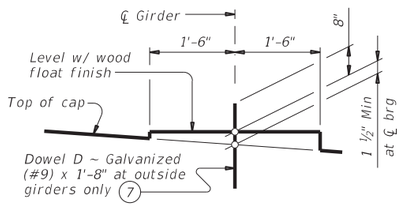
Cover dimensions are clear dimensions, unless noted otherwise.
Reinforcing bar dimensions shown are out-to-out of bar.

MATERIAL NOTES:

Provide Class C concrete (f'c = 3,600 psi).
Provide Class C (HPC) concrete if shown elsewhere in the plans.
Provide Grade 60 reinforcing steel.
Galvanize dowel bars D.

TABLE A

Header Slope	Girder Type	Wingwall Type	Wingwall Lgth "WL"
2:1	Tx28	Cantilevered	8.000'
	Tx34	Cantilevered	9.000'
	Tx40	Cantilevered	10.000'
	Tx46	Cantilevered	11.000'
	Tx54	Cantilevered	12.000'
3:1	Tx28	Cantilevered	12.000'
	Tx34	Founded	13.000'
	Tx40	Founded	15.000'
	Tx46	Founded	16.000'
	Tx54	Founded	18.000'



BEARING SEAT DETAIL

(Bearing surface must be clean and free of all loose material before placing bearing pad.)

STATE OF TEXAS
MARK C. BOURLAND
141371
LICENSED
PROFESSIONAL ENGINEER
12-15-23

HL93 LOADING — SHEET 1 OF 3

Texas Department of Transportation — Bridge Division Standard

ABUTMENTS
TYPE TX28 THRU TX54
PRESTR CONC I-GIRDERS
32' ROADWAY

AIG-32 (MOD)

FILE: FM1260_BRG_8251ab01.dgn	DN: TAR	CK: KCM	DW: JTR	CK: TAR
©TxDOT August 2017	CONT	SECT	JOB	HIGHWAY
REVISIONS MOD - I.P -Adjust Wingwalls for BAS-A(CHS)	0795	03	010	FM1260
	DIST	COUNTY		SHEET NO.
	CHS	DONLEY		70

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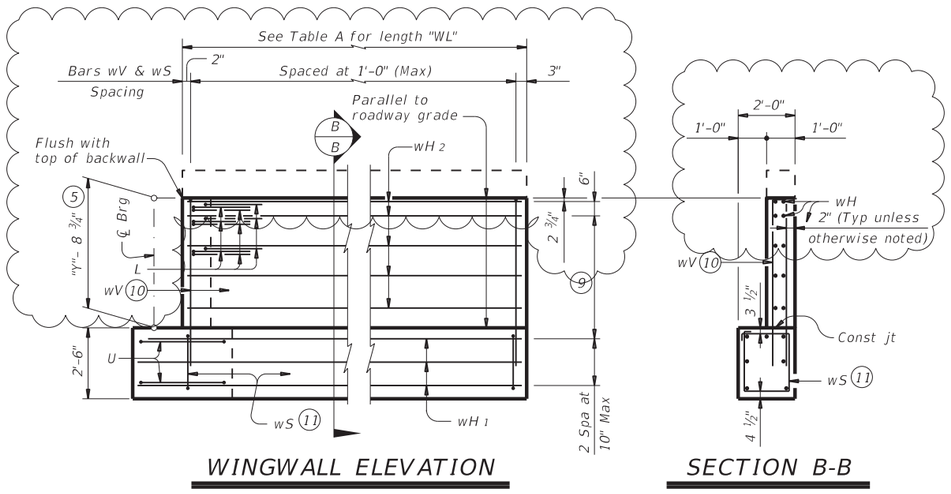
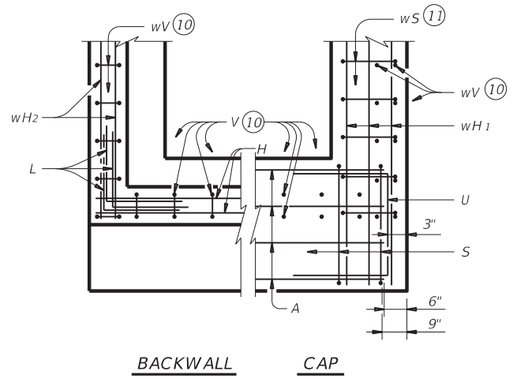


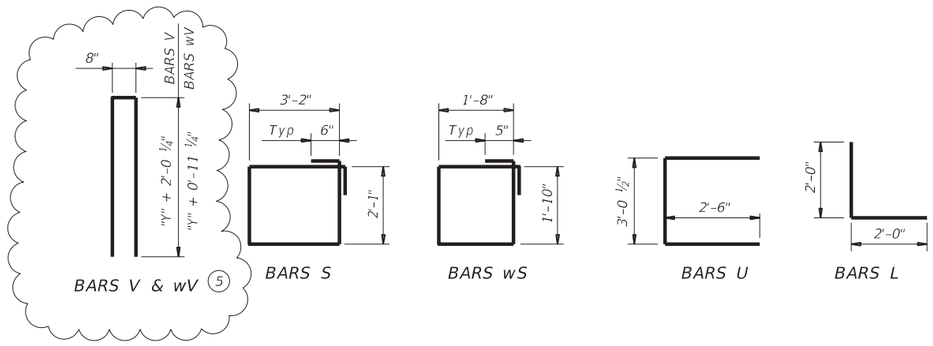
WINGWALL ELEVATION

SECTION B-B



BACKWALL CAP

CORNER DETAILS



(5) See Span details for "Y" value.

(9) Spacing based on girder type:
Tx28 ~ 3 spaces at 1'-0" Max
Tx34 ~ 3 spaces at 1'-0" Max
Tx40 ~ 4 spaces at 1'-0" Max
Tx46 ~ 4 spaces at 1'-0" Max
Tx54 ~ 5 spaces at 1'-0" Max

(10) Field bend as needed to clear piles.

(11) Adjust as required to avoid piling.

STATE OF TEXAS
MARK C. BOURLAND
141371
LICENSED
PROFESSIONAL ENGINEER
Mark C Bourland
12-15-23

HL93 LOADING SHEET 2 OF 3

Texas Department of Transportation
Bridge Division Standard

ABUTMENTS
TYPE TX28 THRU TX54
PRESTR CONC I-GIRDERS
32' ROADWAY

AIG-32 (MOD)

FILE: FM1260_BRG_8251ab01	DN: TAR	CK: KCM	DW: JTR	CK: TAR			
©TxDOT August 2017	CONT	SECT	JOB	HIGHWAY			
REVISIONS MOD - MB - Adjust Wingwalls for BAS-A(CHS)	0795	03	010	FM1260			
	DIST	COUNTY		SHEET NO.			
	CHS	DONLEY		71			

TABLES OF ESTIMATED QUANTITIES WITH 2:1 HEADER SLOPE

TYPE Tx28 Girders

Bar	No.	Size	Length	Weight
A	10	#11	33'-0"	1,753
D (7)	2	#9	1'-8"	11
H	8	#6	33'-8"	405
L	18	#6	4'-0"	108
S	30	#5	11'-6"	360
U	4	#6	8'-1"	49
V	33	#5	11'-4"	390
wH1	14	#6	9'-5"	198
wH2	20	#6	7'-8"	230
wS	18	#4	7'-10"	94
wV	18	#5	11'-4"	213
Reinforcing Steel		Lb		3,811
Class "C" Concrete		CY		18.5

TYPE Tx34 Girders

Bar	No.	Size	Length	Weight
A	10	#11	33'-0"	1,753
D (7)	2	#9	1'-8"	11
H	8	#6	33'-8"	405
L	18	#6	4'-0"	108
S	30	#5	11'-6"	360
U	4	#6	8'-1"	49
V	33	#5	12'-4"	425
wH1	14	#6	10'-5"	219
wH2	16	#6	8'-8"	208
wS	20	#4	7'-10"	105
wV	20	#5	10'-2"	212
Reinforcing Steel		Lb		3,855
Class "C" Concrete		CY		19.4

TYPE Tx40 Girders

Bar	No.	Size	Length	Weight
A	10	#11	33'-0"	1,753
D (7)	2	#9	1'-8"	11
H	10	#6	33'-8"	506
L	18	#6	4'-0"	108
S	30	#5	11'-6"	360
U	4	#6	8'-1"	49
V	33	#5	13'-4"	459
wH1	14	#6	11'-5"	240
wH2	24	#6	9'-8"	348
wS	22	#4	7'-10"	115
wV	22	#5	13'-4"	306
Reinforcing Steel		Lb		4,255
Class "C" Concrete		CY		21.8

TYPE Tx46 Girders

Bar	No.	Size	Length	Weight
A	10	#11	33'-0"	1,753
D (7)	2	#9	1'-8"	11
H	10	#6	33'-8"	506
L	18	#6	4'-0"	108
S	30	#5	11'-6"	360
U	4	#6	8'-1"	49
V	33	#5	14'-4"	493
wH1	14	#6	12'-5"	261
wH2	24	#6	10'-8"	385
wS	24	#4	7'-10"	126
wV	24	#5	14'-4"	359
Reinforcing Steel		Lb		4,411
Class "C" Concrete		CY		23.5

TYPE Tx54 Girders

Bar	No.	Size	Length	Weight
A	10	#11	33'-0"	1,753
D (7)	2	#9	1'-8"	11
H	12	#6	33'-8"	607
L	18	#6	4'-0"	108
S	30	#5	11'-6"	360
U	4	#6	8'-1"	49
V	33	#5	15'-8"	539
wH1	14	#6	13'-5"	282
wH2	28	#6	11'-8"	491
wS	26	#4	7'-10"	136
wV	26	#5	15'-8"	425
Reinforcing Steel		Lb		4,761
Class "C" Concrete		CY		25.6

TABLES OF ESTIMATED QUANTITIES WITH 3:1 HEADER SLOPE

TYPE Tx28 Girders

Bar	No.	Size	Length	Weight
A	10	#11	33'-0"	1,753
D (7)	2	#9	1'-8"	11
H	8	#6	33'-8"	405
L	18	#6	4'-0"	108
S	30	#5	11'-6"	360
U	4	#6	8'-1"	49
V	33	#5	11'-4"	390
wH1	14	#6	13'-5"	282
wH2	20	#6	11'-8"	350
wS	26	#4	7'-10"	136
wV	26	#5	11'-4"	307
Reinforcing Steel		Lb		4,151
Class "C" Concrete		CY		21.1

TYPE Tx34 Girders

Bar	No.	Size	Length	Weight
A	10	#11	33'-0"	1,753
D (7)	2	#9	1'-8"	11
H	8	#6	33'-8"	405
L	18	#6	4'-0"	108
S	30	#5	11'-6"	360
U	4	#6	8'-1"	49
V	33	#5	12'-4"	425
wH1	14	#6	14'-5"	303
wH2	20	#6	12'-8"	381
wS	28	#4	7'-10"	147
wV	28	#5	12'-4"	360
Reinforcing Steel		Lb		4,302
Class "C" Concrete		CY		22.8

TYPE Tx40 Girders

Bar	No.	Size	Length	Weight
A	10	#11	33'-0"	1,753
D (7)	2	#9	1'-8"	11
H	10	#6	33'-8"	506
L	18	#6	4'-0"	108
S	30	#5	11'-6"	360
U	4	#6	8'-1"	49
V	33	#5	13'-4"	459
wH1	14	#6	16'-5"	345
wH2	24	#6	14'-8"	529
wS	32	#4	7'-10"	167
wV	32	#5	13'-4"	445
Reinforcing Steel		Lb		4,732
Class "C" Concrete		CY		25.3

TYPE Tx46 Girders

Bar	No.	Size	Length	Weight
A	10	#11	33'-0"	1,753
D (7)	2	#9	1'-8"	11
H	10	#6	33'-8"	506
L	18	#6	4'-0"	108
S	30	#5	11'-6"	360
U	4	#6	8'-1"	49
V	33	#5	14'-4"	493
wH1	14	#6	17'-5"	366
wH2	24	#6	15'-8"	565
wS	34	#4	7'-10"	178
wV	34	#5	14'-4"	508
Reinforcing Steel		Lb		4,897
Class "C" Concrete		CY		27.2

TYPE Tx54 Girders

Bar	No.	Size	Length	Weight
A	10	#11	33'-0"	1,753
D (7)	2	#9	1'-8"	11
H	12	#6	33'-8"	607
L	18	#6	4'-0"	108
S	30	#5	11'-6"	360
U	4	#6	8'-1"	49
V	33	#5	15'-8"	539
wH1	14	#6	19'-5"	408
wH2	28	#6	17'-8"	743
wS	38	#4	7'-10"	199
wV	38	#5	15'-8"	621
Reinforcing Steel		Lb		5,398
Class "C" Concrete		CY		30.4

(7) Omit Dowels D at end of multi-span unit.
Adjust reinforcing steel total accordingly.

HL93 LOADING

SHEET 3 OF 3

STATE OF TEXAS
MARK C. BOURLAND
141371
LICENSED
PROFESSIONAL ENGINEER
12-15-23

Texas Department of Transportation

Bridge Division Standard

ABUTMENTS
TYPE TX28 THRU TX54
PRESTR CONC I-GIRDERS
32' ROADWAY

AIG-32 (MOD)

FILE: FM1260_BRG_8251ab01	DN: TAR	CK: KCM	DW: JTR	CK: TAR
©TxDOT August 2017	CONT	SECT	JOB	HIGHWAY
REVISIONS MOD - MB -Adjust Wingwalls for BAS-A(CHS)	0795	03	010	FM1260
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	CHS	DONLEY		72

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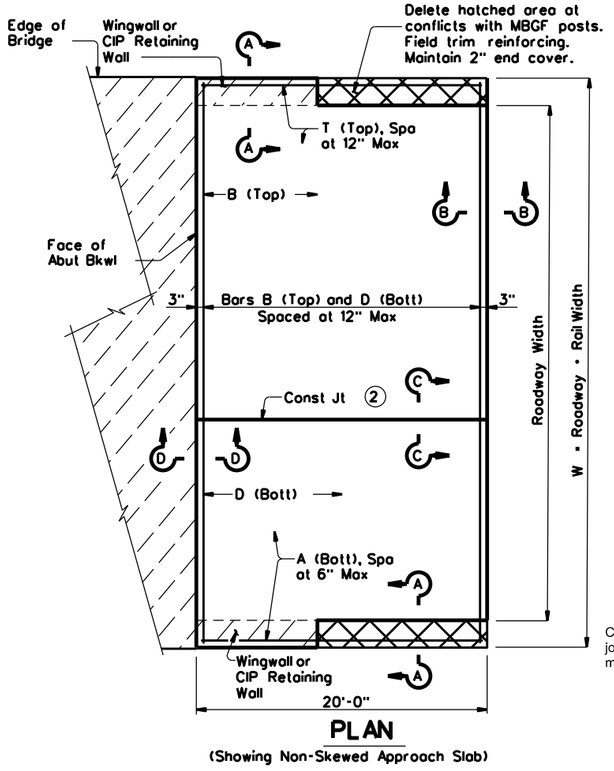
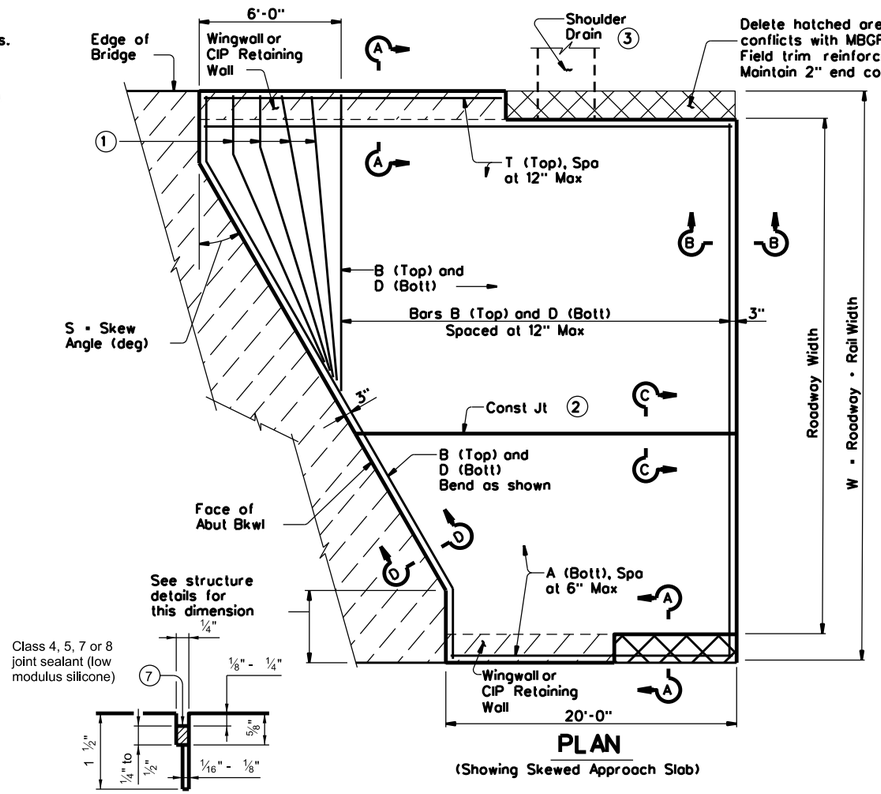


PLAN

(Showing Non-Skewed Approach Slab)



PLAN

(Showing Skewed Approach Slab)

LONGITUDINAL SAW CUT JOINT DETAIL

BAR TABLE	
BAR	SIZE
A	#8
B	#5
D	#5
T	#5

APPROXIMATE QUANTITIES ④

Reinf steel weight = 8.5 Lbs/SF of Approach Slab

Volume of Appr Slab Conc (CY) = 0.802W + 0.02W $\tan^2 S$

W = Width of Approach Slab (ft)

S = Skew Angle (deg)

① Flare Bars B and D in this region (1'-6" Max Spa, 3" Min Spa). Minimum flared bar length = 2'-6". Bend bars as necessary.

② Provide longitudinal construction joints that align with longitudinal construction joints in the bridge slab with bridges built in stages. Other longitudinal construction joints must receive approval of the Engineer.

③ See details elsewhere in plans for shoulder drain location and details.

④ For Contractor's information only. Quantities shown are for one approach slab only.

⑤ Multiple piece tie bars are acceptable at longitudinal construction joints provided minimum laps shown are achieved.

⑥ See details elsewhere in plans for required cross-slope.

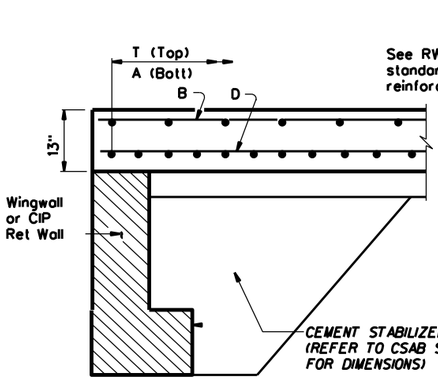
⑦ Place in accordance with Item 438.

⑧ OMITTED

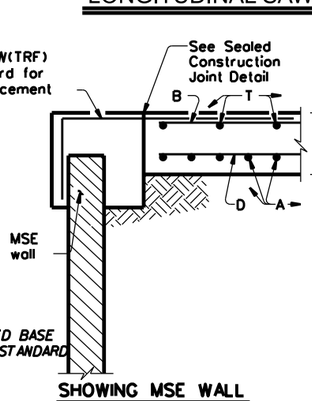
GENERAL NOTES:

1. Construct approach slab in accordance with Item 422.
2. Concrete shall be Class "S" with a minimum compressive strength of 4,000 psi.
3. All reinforcing steel shall be Grade 60.
4. Construct the subgrade or subbase from the bridge for a minimum distance of 100 feet prior to the approach slab, unless otherwise indicated on the plans.
5. Compact and finish the subgrade or foundation for the approach slab to the typical cross-section and to the lines and grades shown on the plans.
6. Cure for 4 days using water or membranE curing per Item 422.
7. All details shown herein are subsidiary to bridge approach slab.

Cover dimensions are clear dimensions, unless noted otherwise.

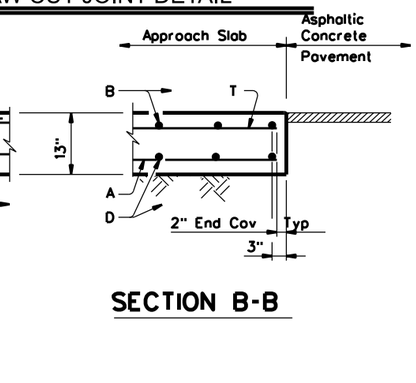


SHOWING WINGWALL OR CIP RETAINING WALL

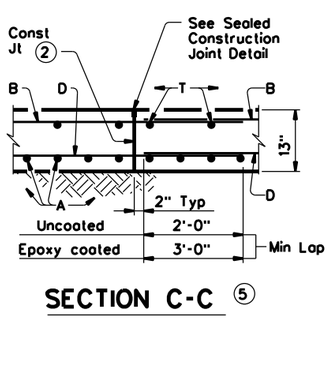


SHOWING MSE WALL

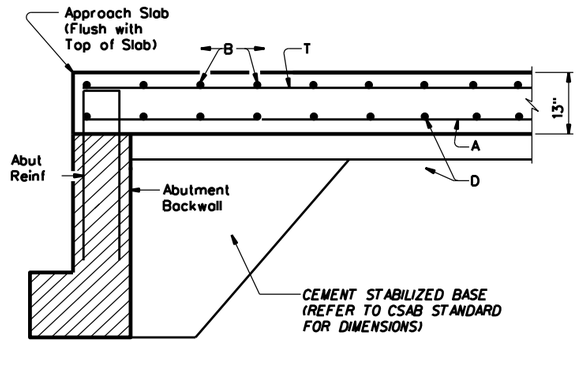
SECTION A-A



SECTION B-B



SECTION C-C ⑤



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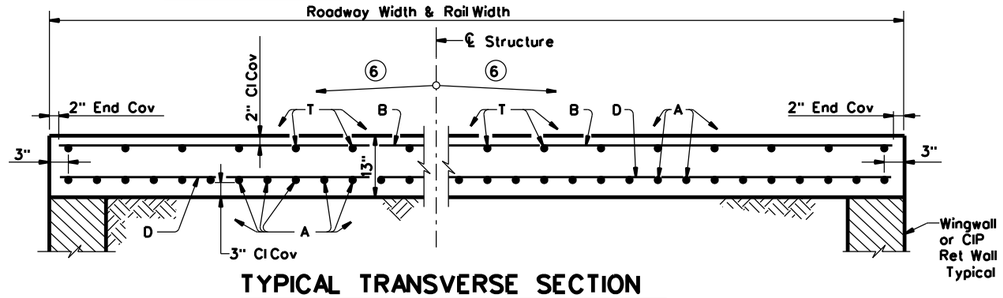
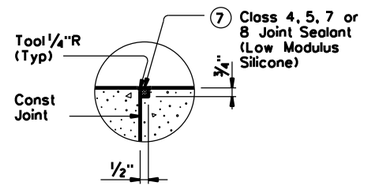


TYPICAL TRANSVERSE SECTION



SEALED CONSTRUCTION JOINT DETAIL

Texas Department of Transportation

BRIDGE APPROACH SLAB

ASPHALTIC CONCRETE PAVEMENT

BAS-A (CHS)

FILE: STDB10A.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
©TxDOT September 2006	DISTRICT	FEDERAL AID PROJECT		SHEET
REVISIONS 7/19/2021 Revised for Statewide Standard 9-28-2022 Revised for Statewide Standard	25	BR 2B24(268)		73
	COUNTY	CONTROL	SECT	JOB	HIGHWAY
	DONLEY	0795	02	017,ETC.	FM 1260

STDB10A

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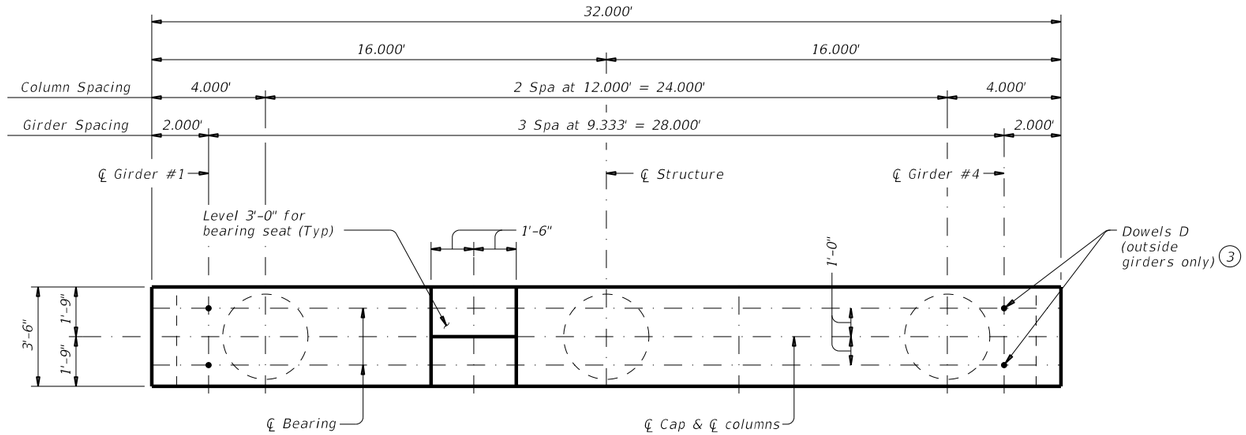
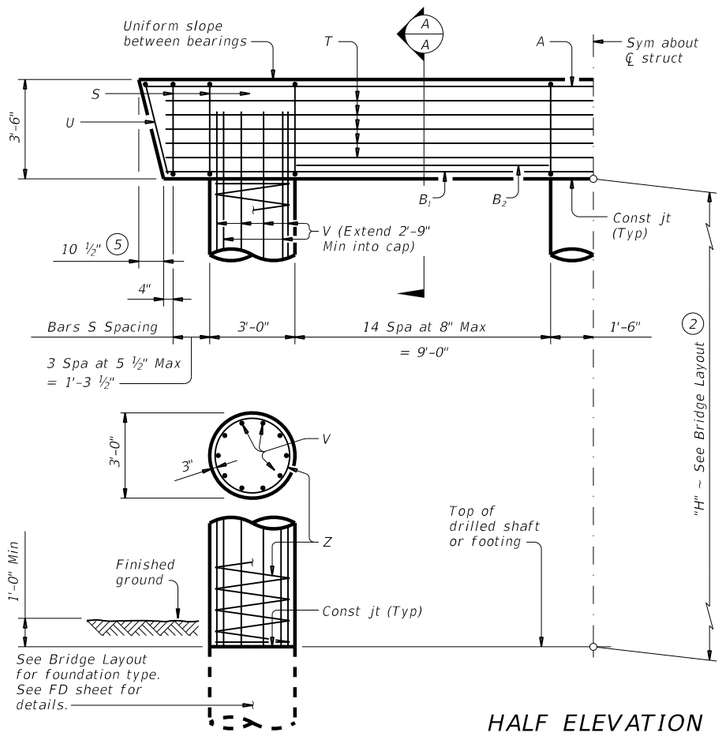
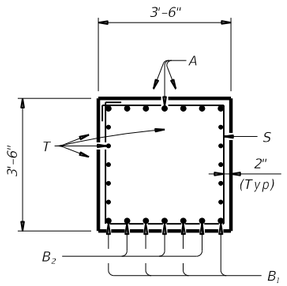


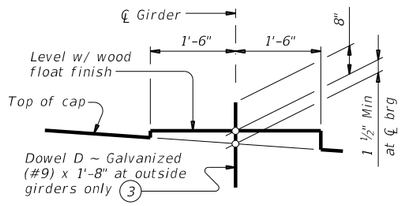
PLAN



HALF ELEVATION

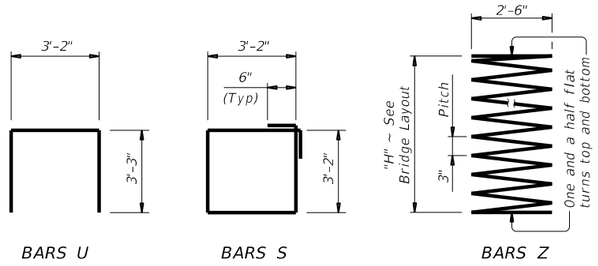


SECTION A-A



BEARING SEAT DETAIL

(Bearing surface must be clean and free of all loose material before placing bearing pad.)



1. Quantities shown are based on an "H" value of 36'. For each linear foot variation in "H" value, make the following adjustments:
   Bars V length, 1'-0"
   Bars Z length, 31'-5"
   Reinforcing steel, 165 Lb
   Class "C" conc (col), 0.78 CY
2. This standard may not be used for "H" heights exceeding 36'. In areas of very soft soil or where scour is anticipated, allowable "H" heights must be evaluated by the Engineer prior to the use of this standard.
3. Omit Dowels D at end of multi-span units. Adjust reinforcing steel total accordingly.
4. Foundation Loads based on "H" = 36'.
5. Measured parallel to top of cap cross-slope.

TABLE OF ESTIMATED QUANTITIES 1

Bar	No.	Size	Length	Weight
A	7	#11	31'- 6"	1,172
B_1	4	#11	30'- 0"	638
B_2	6	#11	9'- 0"	287
D 3	4	#9	1'- 8"	23
S	38	#5	13'- 8"	627
T	10	#5	30'- 0"	313
U	2	#5	9'- 8"	20
V	30	#9	38'- 9"	3,953
Z	3	#4	1154'- 7"	2,314
Reinforcing Steel			Lb	9,262
Class "C" Concrete (Cap)			CY	14.3
Class "C" Concrete (Col)			CY	28.3

FOUNDATION LOADS 4

Span Average	Drilled Shaft Loads	Pile Load (Tons/Pile)		
		3 Pile Ftg	4 Pile Ftg	5 Pile Ftg
Ft	Tons/Shaft			
40	113	41	31	26
45	121	44	33	27
50	130	47	36	29
55	138	49	38	31
60	147	52	40	33
65	155	55	42	34
70	163	58	44	36
75	172	61	46	38
80	180	63	48	39
85	188	66	50	41
90	196	69	52	42
95	205	72	54	44
100	213	74	56	46
105	221	77	58	47
110	229	80	60	49
115	237	82	62	51
120	245	85	64	52

GENERAL NOTES:

Designed according to AASHTO LRFD Bridge Design Specifications.
See Bridge Layout for foundation type, size and length.
See Common Foundation Details (FD) standard sheet for all foundation details and notes.
See Shear Key (IGSK) standard sheet for all shear key details and notes, if applicable.
Bent selected must be based on the average span length rounded up to the next 5 ft increment.
These bent details may be used with standard SIG-32 only.

Cover dimensions are clear dimensions, unless noted otherwise.
Reinforcing bar dimensions shown are out-to-out of bar.

MATERIAL NOTES:

Provide Class C concrete (f'c = 3,600 psi).
Provide Class C (HPC) concrete if shown elsewhere in the plans.
Provide Grade 60 reinforcing steel.
Galvanize dowel bars D.

HL93 LOADING

Texas Department of Transportation

Bridge Division Standard

INTERIOR BENTS
TYPE TX28 THRU TX54
PRESTR CONC I-GIRDERS
32' ROADWAY

BIG-32

FILE: IG-BIG3200-17.dgn	DN: TAR	CK: SDB	DW: JTR	CK: TAR
©TxDOT August 2017	CONT	SECT	JOB	HIGHWAY
REVISIONS	0795	02	017	FM1260
	DIST	COUNTY		SHEET NO.
	CHS	DONLEY		74

DATE: 12/1/2023 2:47:00 PM
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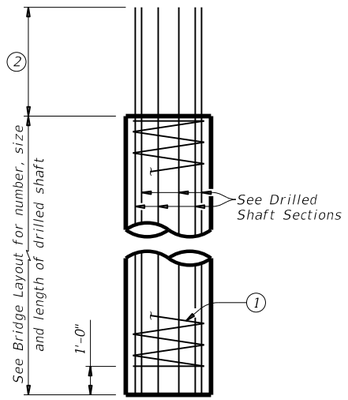
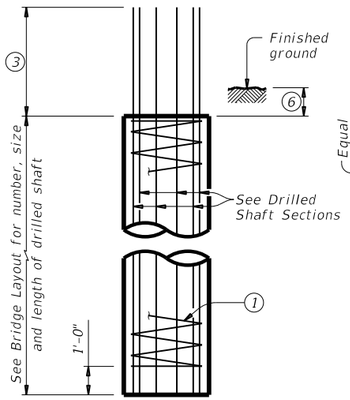
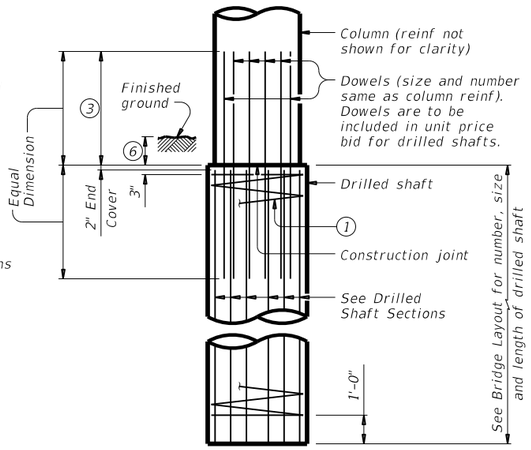


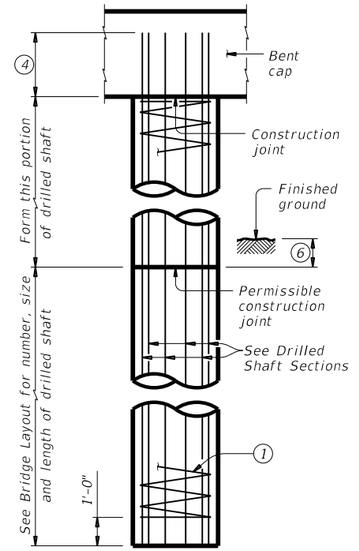
ABUTMENTS, WINGWALLS AND MULTI-DRILLED SHAFT FOOTINGS



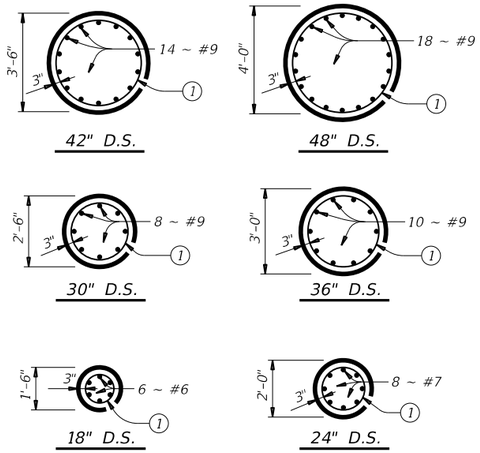
INTERIOR BENTS DRILLED SHAFT DIA EQUAL TO COLUMN DIA



INTERIOR BENTS DRILLED SHAFT DIA GREATER THAN COLUMN DIA



OPTIONAL INTERIOR BENT DRILLED SHAFT DETAIL (5)

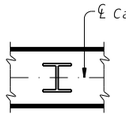


DRILLED SHAFT SECTIONS

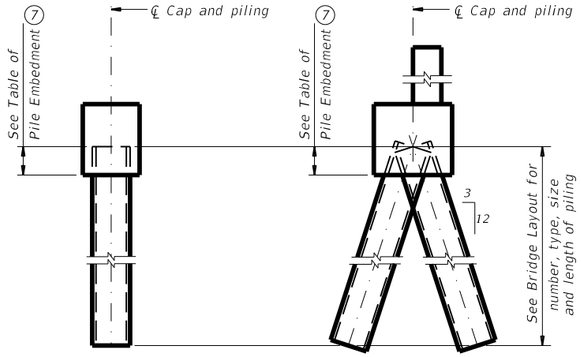
DRILLED SHAFT DETAILS

TABLE OF PILE EMBEDMENT	
Pile Type	Embedment Depth (Ft)
16" Sq Concrete 18" Sq Concrete HP14 Steel HP16 Steel	1'-0"
20" Sq Concrete 24" Sq Concrete HP18 Steel	1'-6"

See Prestressed Concrete Piling (CP) standard for additional details on concrete pile embedment.

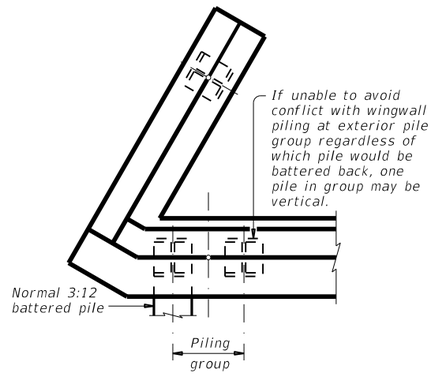


ORIENTATION OF STEEL H-PILING

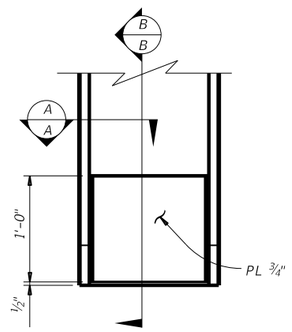


VERTICAL PILE BATTERED PILE

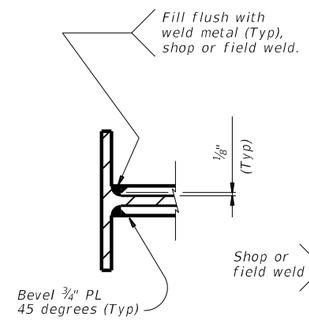
PILING DETAILS
(Concrete or steel H)



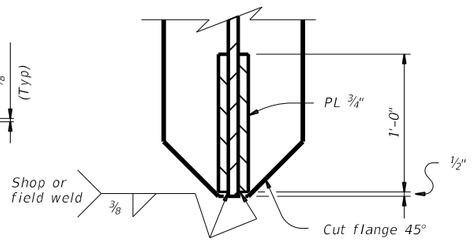
DETAIL "A"
(Showing plan view of a 30° skewed abutment)



ELEVATION

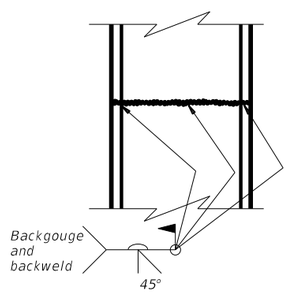


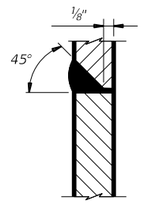
SECTION A-A



SECTION B-B

STEEL H-PILE TIP REINFORCEMENT
See Item 407 "Steel Piling" to determine when tip reinforcement is required and for options to the details shown.





SECTION THRU FLANGE OR WEB

STEEL H-PILE SPLICE DETAIL
Use when required.

(1) #3 spiral at 6" pitch (one and a half flat turns top and bottom).

(2) Min extension into supported element:
#6 Bars = 1'-11"
#7 Bars = 2'-0"
#9 Bars = 2'-3"

(3) Min lap with column reinf:
#7 Bars = 2'-11"
#9 Bars = 3'-9"
#11 Bars = 4'-8"

(4) Min extension into supported element:
#6 Bars = 1'-11"
#7 Bars = 2'-3"
#9 Bars = 2'-9"

(5) Drilled shafts may extend to the bottom of bent caps for "H" heights of 6 ft and less (as shown on the Bridge Layout), if approved. This option can only be used when the drilled shaft diameter equals the column diameter. Obtain approval of the forming method above the ground line prior to construction. No adjustments in payment will be made if this option is used.

(6) 1'-0" Min, unless shown otherwise on plans.

(7) Or as shown on plans.

SHEET 1 OF 2

Texas Department of Transportation | Bridge Division Standard

COMMON FOUNDATION DETAILS

FD

FILE: MS-FD-20.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
©TxDOT April 2019	CONT	SECT	JOB	HIGHWAY
REVISIONS	0795	02	017	FM1260
01-20: Added #11 bars to the FD bars.	DIST	COUNTY		SHEET NO.
	CHS	DONLEY		75

DATE: 12/1/2023 2:47:01 PM
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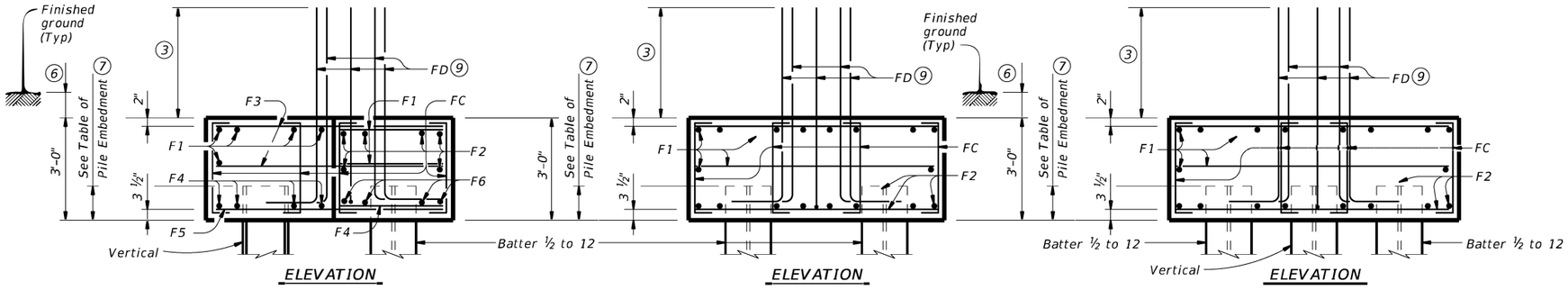
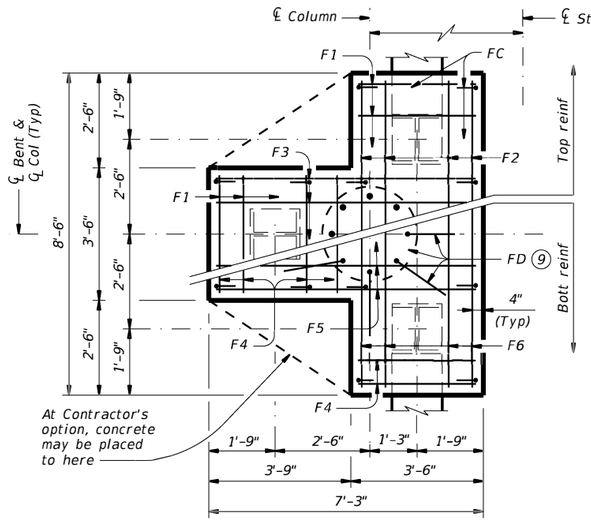
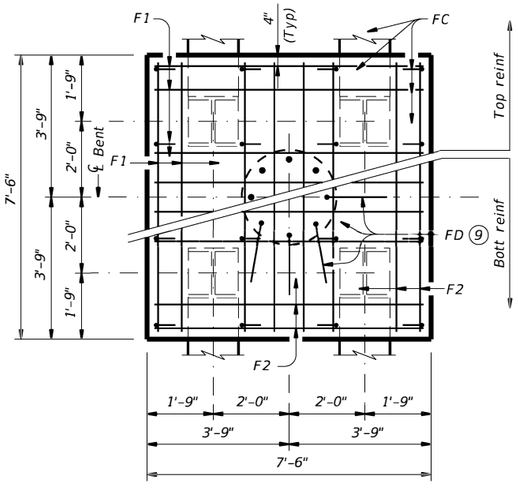
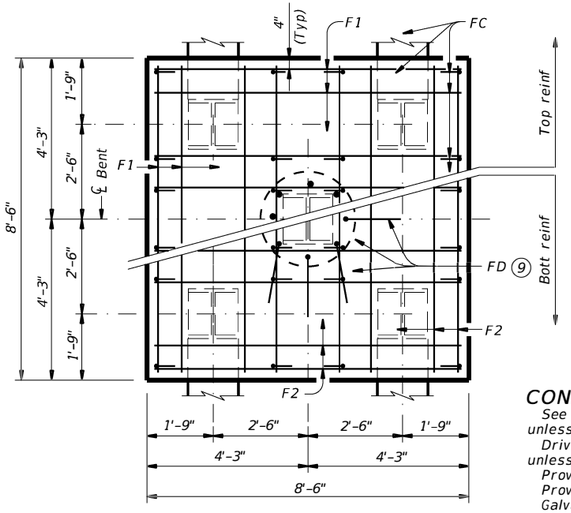








THREE PILE FOOTING (8)

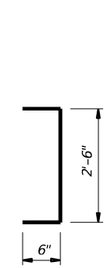
For 36" Dia and smaller columns.

FOUR PILE FOOTING (8)

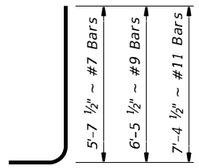
For 42" Dia and smaller columns.

FIVE PILE FOOTING (8)

For 42" Dia and smaller columns.



BARS FC



BARS FD (9)

(3) Min lap with column reinforcing:
#7 Bars = 2'-11"
#9 Bars = 3'-9"
#11 Bars = 4'-8"

(6) 1'-0" Min, unless shown otherwise on plans.

(7) Or as shown on plans.

(8) See Bridge Layout for type, size and length of piling.

(9) Number and size of FD bars must match column reinforcing. Tie FD bars to the top of the bottom reinforcing mat.

(10) Adjust FD quantity, size and weight as needed to match column reinforcing.

TABLE OF FOOTING QUANTITIES FOR 30" COLUMNS

ONE 3 PILE FOOTING

Bar	No.	Size	Length	Weight
F1	11	#4	3'- 2"	23
F2	6	#4	8'- 2"	33
F3	6	#4	6'- 11"	28
F4	8	#9	3'- 2"	86
F5	4	#9	6'- 11"	94
F6	4	#9	8'- 2"	111
FC	12	#4	3'- 6"	28
FD (10)	8	#9	8'- 1"	220
Reinforcing Steel			Lb	623
Class "C" Concrete			CY	4.8

ONE 4 PILE FOOTING

Bar	No.	Size	Length	Weight
F1	20	#4	7'- 2"	96
F2	16	#8	7'- 2"	306
FC	16	#4	3'- 6"	37
FD (10)	8	#9	8'- 1"	220
Reinforcing Steel			Lb	659
Class "C" Concrete			CY	6.3

ONE 5 PILE FOOTING

Bar	No.	Size	Length	Weight
F1	20	#4	8'- 2"	109
F2	16	#9	8'- 2"	444
FC	24	#4	3'- 6"	56
FD (10)	8	#9	8'- 1"	220
Reinforcing Steel			Lb	829
Class "C" Concrete			CY	8.0

CONSTRUCTION NOTES:

See Bridge Layout for foundation type required. Use these foundation details unless shown otherwise.

Drive piling under abutment wingwalls to a minimum resistance of 10 Tons/Pile unless shown otherwise.

Provide Class C Concrete (f'c = 3,600 psi), unless shown otherwise.

Provide Grade 60 reinforcing steel.

Galvanize reinforcing if shown elsewhere in the plans.

Provide bar laps for drilled shaft reinforcing, where required, as follows:

Uncoated or galvanized (#6) ~ 2'-6"
Uncoated or galvanized (#7) ~ 2'-11"
Uncoated or galvanized (#9) ~ 3'-9"

GENERAL NOTES:

Designed according to AASHTO LRFD Bridge Design Specifications.

Cover dimensions are clear dimensions, unless noted otherwise.
Reinforcing bar dimensions shown are out-to-out of bar.

DESIGNER NOTES:

Do not use the drilled shaft details shown on this standard for retaining wall, noise wall, barrier, or sign foundations without structural evaluation.

Do not use the footings shown on this standard in direct contact with salt water or exposed to salt water spray.

Maximum allowable pile loads for the footings shown are:

72 Tons/Pile with 24" Dia Columns
80 Tons/Pile with 30" Dia Columns
100 Tons/Pile with 36" Dia Columns
120 Tons/Pile with 42" Dia Columns

Texas Department of Transportation

Bridge Division Standard

COMMON FOUNDATION DETAILS

FD

FILE: MS-FD-20.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
©TxDOT April 2019	CONT	SECT	JOB	HIGHWAY
REVISIONS	0795	02	017	FM1260
01-20: Added #11 bars to the FD bars.	DIST	COUNTY		SHEET NO.
	CHS	DONLEY		76

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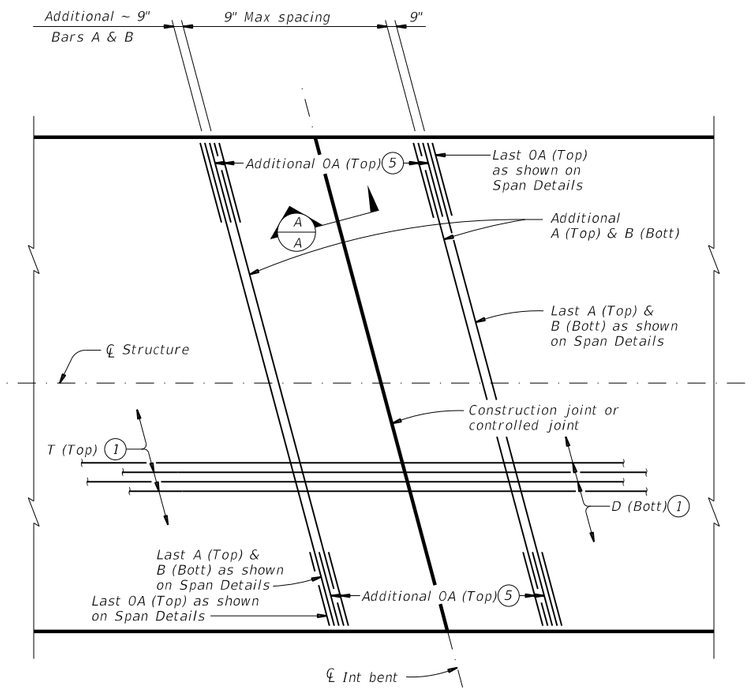
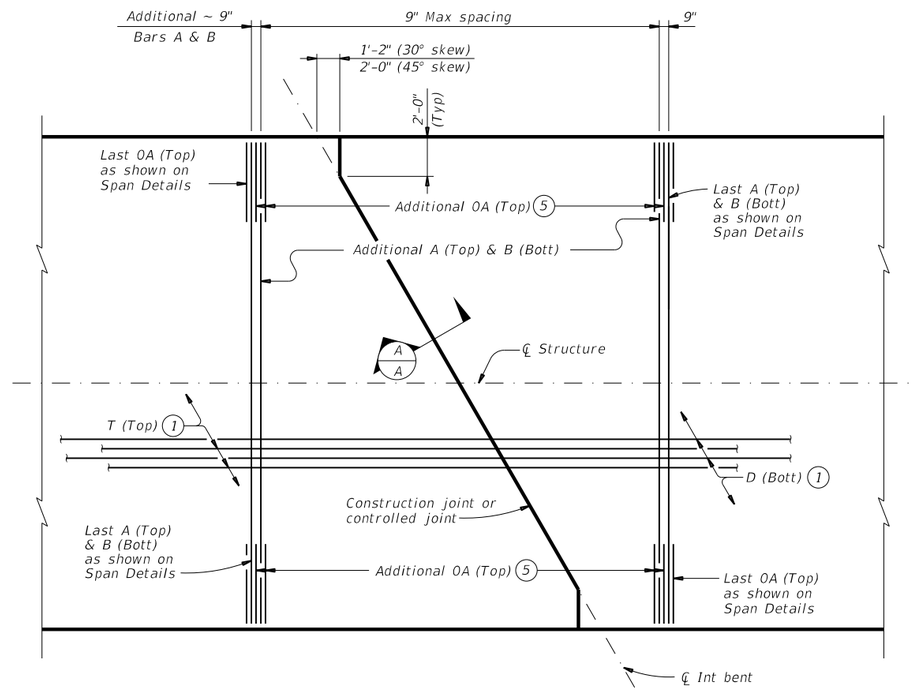


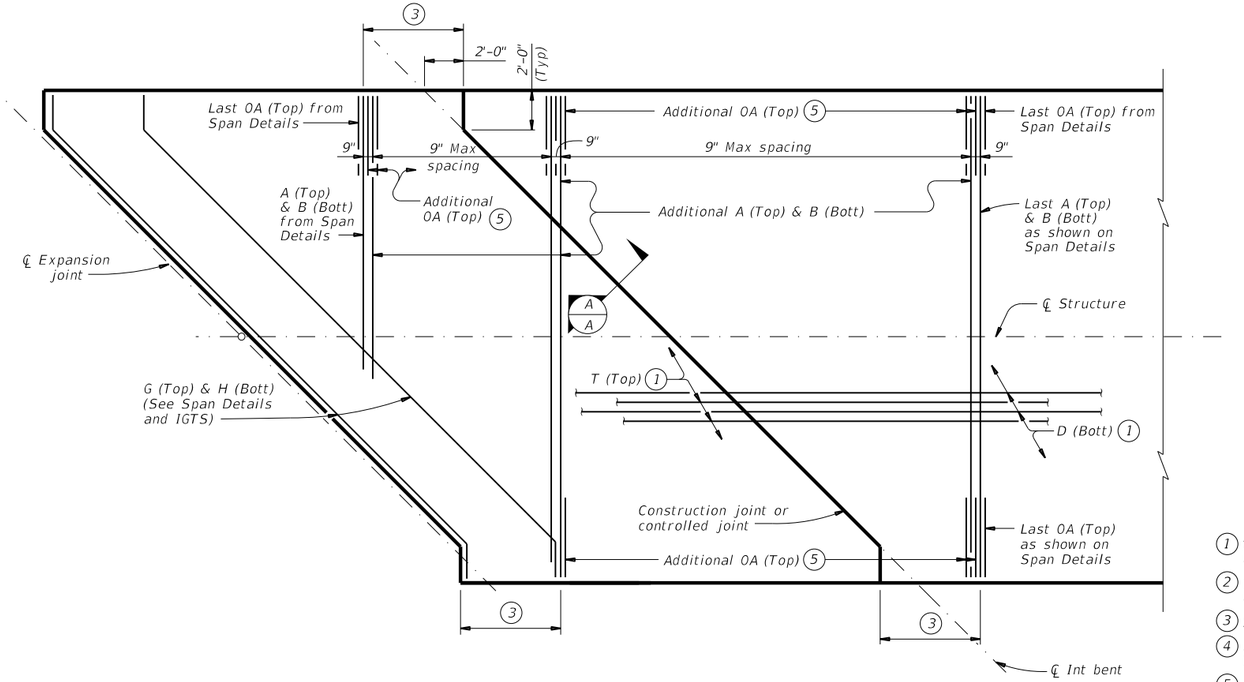
PLAN FOR 0° OR 15° SKEW

(Showing 15° skew)



PLAN FOR 30° OR 45° SKEW

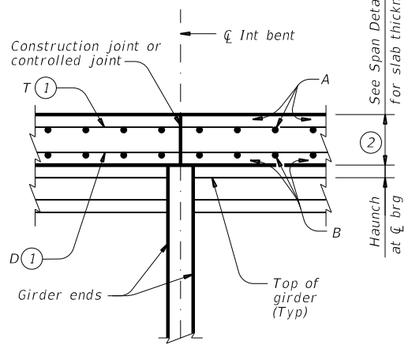
(Showing 30° skew)



PLAN FOR 45° SKEW 4

(Showing short span condition.)

BARS OA (#5)



SECTION A-A

Bars 0A (Top) not shown for clarity.

1. Top and bottom mats must be continuous through joint.
2. Maintain a constant slab thickness over the bent.
3. 5'-4" as shown on Span Details.
4. Use these details when no full slab width bars A and B are shown on Span Details.
5. Bars 0A (Top) at 9" Max spacing between Bars A (Top).
6. Values in table assume a temperature change of 70° F after erection when calculating thermal movement in one direction (not total).

TABLE OF ⑥ ALLOWABLE UNIT LENGTH

Max Rdwy Grade, Percent	Unit Length Factor
0.00	4.1
1.00	3.9
2.00	3.7
3.00	3.5
4.00	3.3
5.00	3.1

Unit length must not exceed the length of the shortest end span times the Unit Length Factor shown in table or 400', whichever is less.

BAR TABLE

BAR	SIZE
A	#4
B	#4
D	#4
T	#4
0A	#5

The details shown on this sheet are applicable for two and three span units comprised of the same girder type.
Units may be comprised of different span lengths. See "Table of Allowable Unit Length".

GENERAL NOTES:

Designed according to AASHTO LRFD Bridge Design Specifications.

This standard is drawn showing right forward skew. See Bridge Layout for actual skew direction.

CONSTRUCTION NOTES:

Where multi-span units are indicated on the Bridge Layout, the thickened slab end details and reinforcement shown on IGTS standard (Bars AA, G, H, J, K, and M) and on the Span Details will be omitted where slabs are continuous over interior bents. At these locations, the slab details and reinforcement will be as shown on this sheet or on PCP standard (if using this option).

Thickened slab end reinforcement and details still apply at expansion joint locations (ends of units).

See Span Details for remainder of slab reinforcement and details.

MATERIAL NOTES:

Provide Grade 60 reinforcing steel.

Provide Class "S" concrete (f'_c = 4,000 psi). Provide Class "S" (HPC) if shown elsewhere on the plans.

Provide bar laps, where required, as follows:
Uncoated ~ #4 = 1'-7"
Epoxy Coated ~ #4 = 2'-5"

The details shown on this sheet are applicable for use only with the Prestressed Concrete I-Girder Standard Designs shown on standards IGSD-24, IGSD-28, IGSD-30, IGSD-32, IGSD-34, IGSD-38, IGSD-40 and IGSD-44.

HL93 LOADING

Texas Department of Transportation

Bridge Division Standard

CONTINUOUS SLAB DETAILS

PRESTR CONC I-GIRDER SPANS

IGCS

FILE: IG-IGCS-23.dgn	DN: JMH	CK: TxDOT	DW: JTR	CK: TxDOT
©TxDOT August 2017	CONT	SECT	JOB	HIGHWAY
REVISIONS	0795	02	017	FM1260
10-19: Added bubble note 6.	DIST	COUNTY		SHEET NO.
01-23: Added 34' Rdwy.	CHS	DONLEY		77

DATE: 12/1/2023 2:47:13 PM
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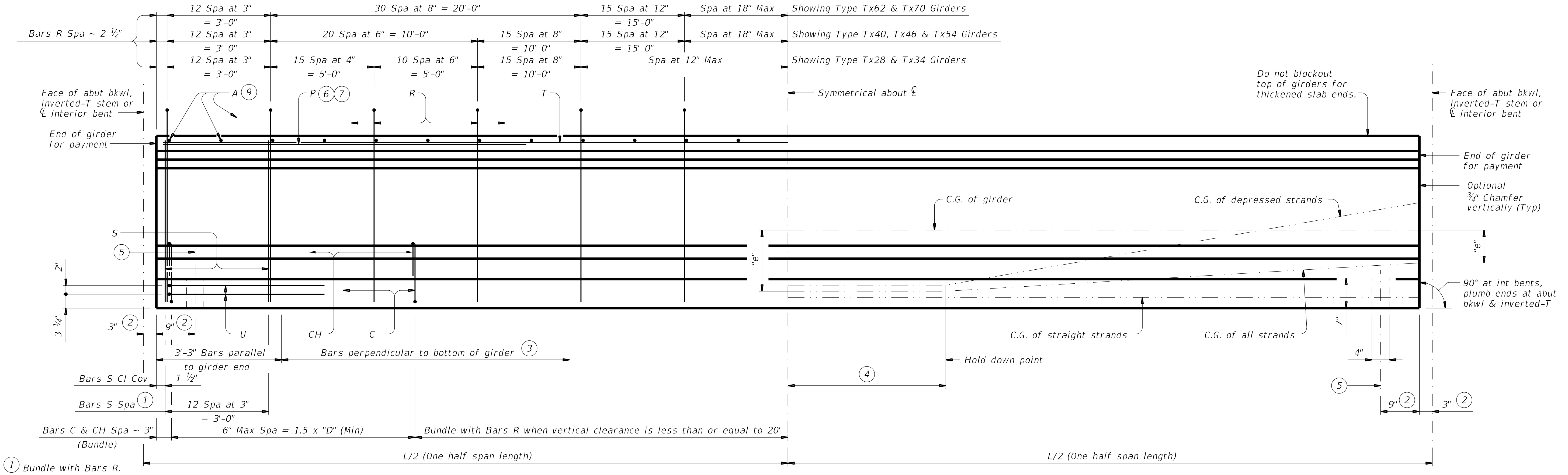
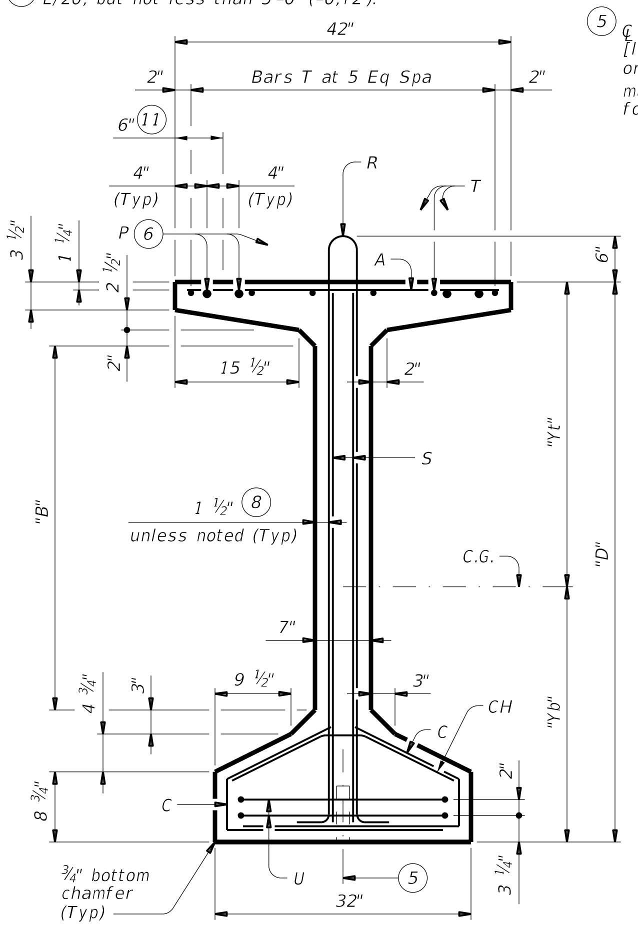
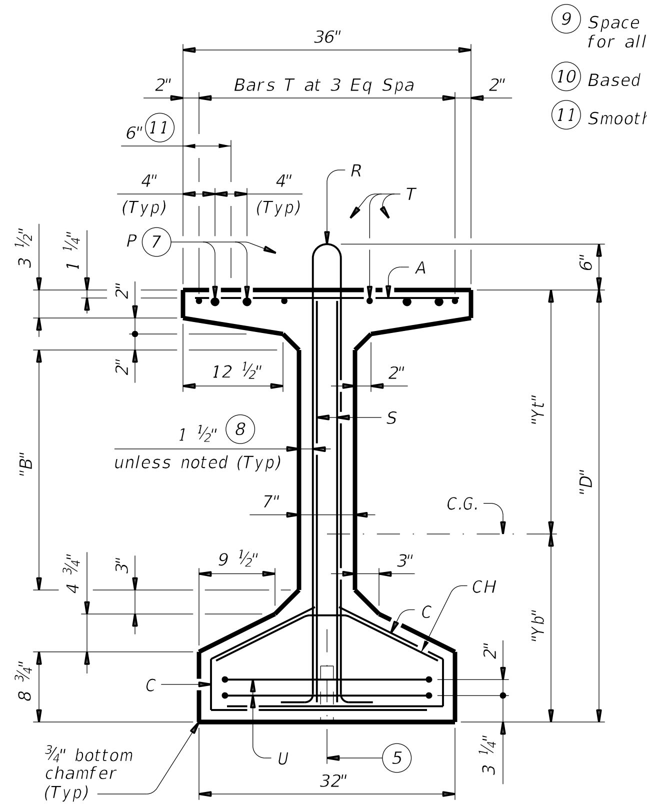


GIRDER ELEVATION

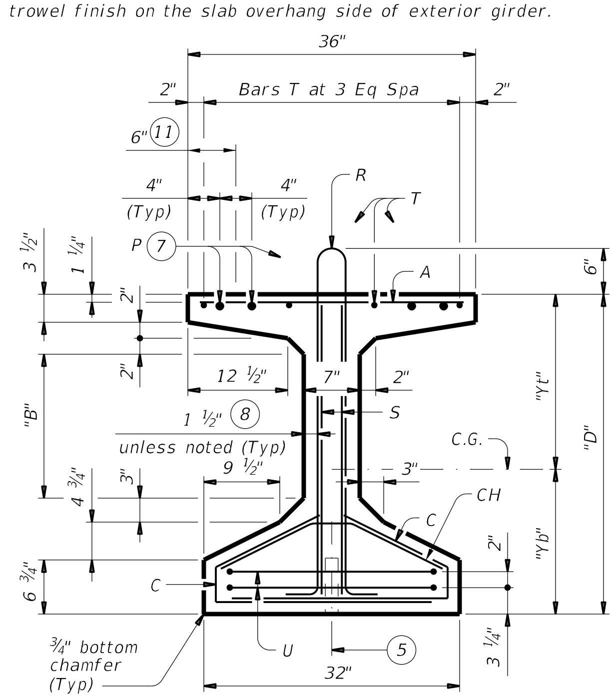
1. Bundle with Bars R.
2. Measured along ℄ Girder at interior bents; perpendicular to abutment bkwl or inverted-T stem.
3. The average of the top and bottom spacing of Bars R cannot exceed the required spacing.
4. L/20, but not less than 5'-0" (-0,+2').
5. ℄ 4" x 1 ½" Vertical Slotted Hole at doweled girder end [labeled (D) on Bridge Layout]. Required for outside girder only or as shown on substructure details. Anchorage holes may be tapered (4 ¾" x 1 ⅝") at base. If holes are formed with sheet metal, forms may be left in place.
6. Bars P (#6 x 15'-0") required in Tx62 and Tx70 girders. At the fabricator's option bars larger than #6 may be used. When L is less than 50 ft, Bars P are to be the same length as Bars T.
7. Bars P (#6 x 15'-0") are only required in Tx28, Tx34, Tx40, Tx46, and Tx54 girders when "e" at girder ends exceeds 0.25 x "D". At the fabricator's option bars larger than #6 may be used. When L is less than 50 ft, Bars P are to be the same length as Bars T.
8. 1 ⅜" Clear Cover to Bars S.
9. Space Bars A at 6" Max for girders requiring overhang bracket hangers. Space at 12" Max for all other girders. Tie to Bars R as necessary. See standard IGMS for "Deck Forming Notes".
10. Based on 155 pcf total weight of concrete and reinforcing steel.
11. Smooth trowel finish on the slab overhang side of exterior girder.



TYPE Tx62 & Tx70



TYPE Tx46 & Tx54



TYPE Tx28, Tx34 & Tx40

GIRDER DIMENSIONS AND SECTION PROPERTIES

Girder Type	"D" (in.)	"B" (in.)	"Yt" (in.)	"Yb" (in.)	Area (in.²)	"Ix" (in.⁴)	"Iy" (in.⁴)	Weight (10) (plf)
Tx28	28	6	15.02	12.98	585	52,772	40,559	630
Tx34	34	12	18.49	15.51	627	88,355	40,731	675
Tx40	40	18	21.90	18.10	669	134,990	40,902	720
Tx46	46	22	25.90	20.10	761	198,089	46,478	819
Tx54	54	30	30.49	23.51	817	299,740	46,707	880
Tx62	62	37 ½	33.72	28.28	910	463,072	57,351	980
Tx70	70	45 ½	38.09	31.91	966	628,747	57,579	1,040

GENERAL NOTES:

Designed according to AASHTO LRFD Bridge Design Specifications.
Provide Class H concrete.
Provide Grade 60 reinforcing steel.
An equal area of deformed Welded Wire Reinforcement (WWR) (ASTM A1064) may be substituted for Bars A, C, R or T unless otherwise noted.
It is permissible for bars or strands to come in contact with materials used in forming anchor holes.
When vertical clearance of the span is less than or equal to 20', provide additional Bars C and CH in every girder of that span.

Cover dimensions are clear dimensions, unless noted otherwise.
Reinforcing bar dimensions shown are out-to-out of bar.

HL93 LOADING

SHEET 1 OF 2

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PRESTRESSED CONCRETE I-GIRDER DETAILS

IGD

FILE: IG-IGD-23.dgn	DN: TxDOT	CK: JMH	DW: JTR	CK: TAR
©TxDOT August 2017	CONT	SECT	JOB	HIGHWAY
REVISIONS	0795	02	017	FM1260
10-19: Added Bars C and CH full length for VC<= 20' 3-23: Clarified C and CH requirement	DIST	COUNTY		SHEET NO.
	CHS	DONLEY		78

DATE: 12/1/2023 2:47:13 PM
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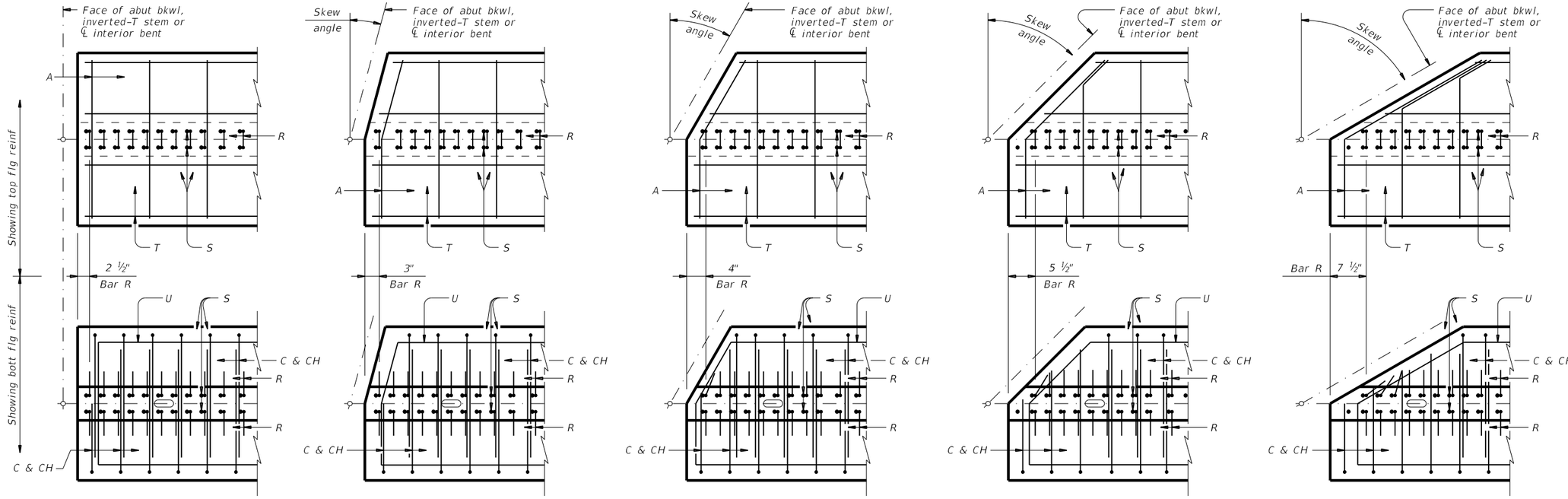
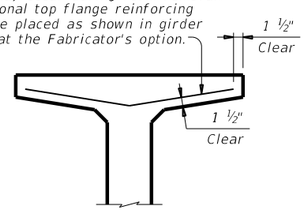
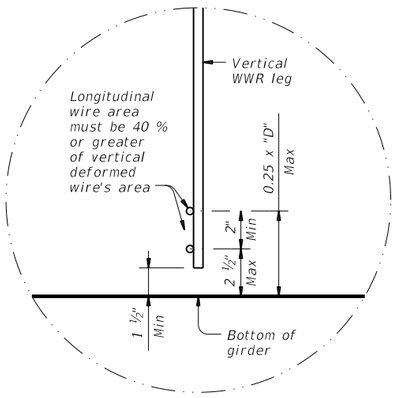


PLAN OF GIRDER ENDS (12)

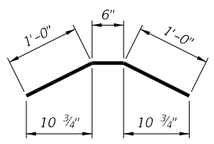
To control top flange cracking that may occur during form removal, additional top flange reinforcing may be placed as shown in girder ends at the Fabricator's option.



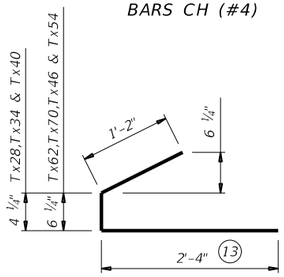
OPTIONAL TOP FLANGE REINFORCING DETAIL



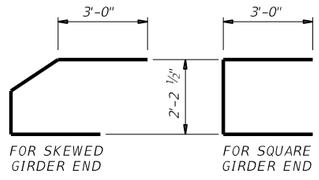
OPTIONAL WELDED WIRE REINFORCEMENT (WWR) DETAIL



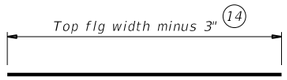
BARS CH (#4)



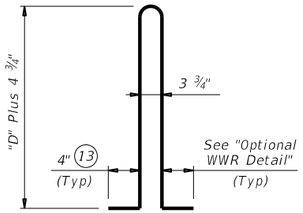
BARS C (#4)



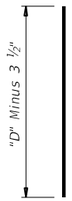
BARS U (#5)



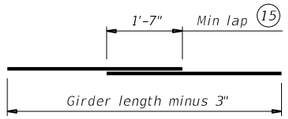
BARS A (#3)



BARS R (#4) (16)



BARS S (#6)



BARS T (#4)

(12) Reinforcing patterns shown are provided as guides to determine reinforcement placement in skewed ends. Place Bars S as close to girder end as cover requirements permit, which may prevent them to be bundled with Bars R.

(13) Bars may be cut or bent at skewed end as required.

(14) Increase as necessary for bars at skewed end.

(15) No portion of bar less than 10 ft.

(16) For Welded Wire Reinforcement (WWR) option, area of Bars R may be reduced in proportion to the increase in reinforcement yield strength over 60 ksi. Yield strength of WWR is limited to 75 ksi.

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Texas Department of Transportation — Bridge Division Standard

PRESTRESSED CONCRETE I-GIRDER DETAILS

IGD

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REVISIONS	0795	02	017	FM1260
10-19: Added Bars C and CH full length for VC<= 20'	DIST	COUNTY		SHEET NO.
3-23: Clarified C and CH requirement	CHS	DONLEY		79

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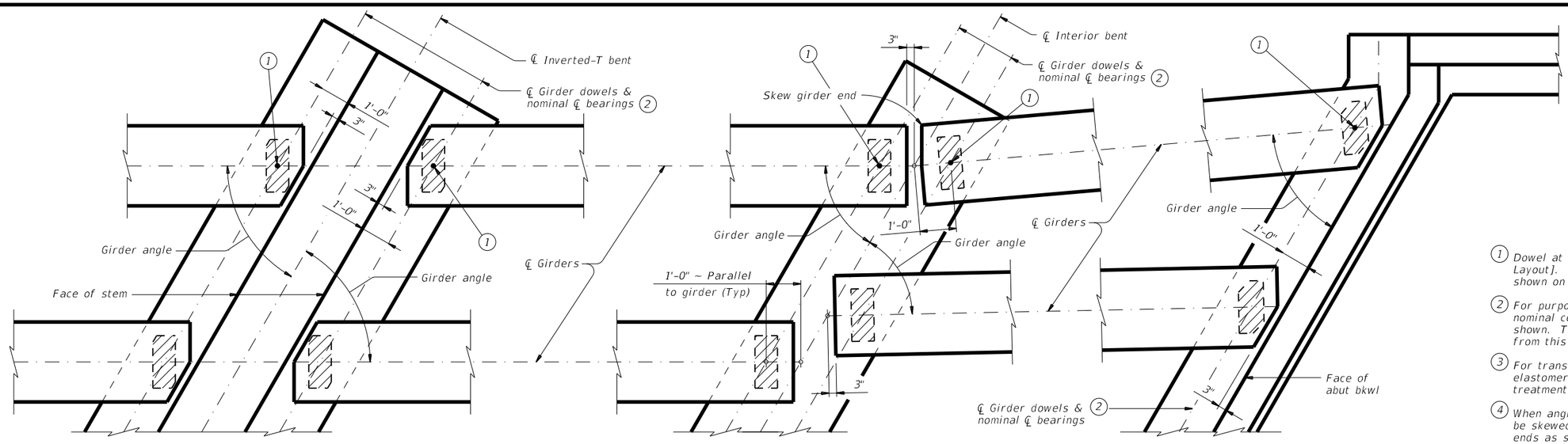


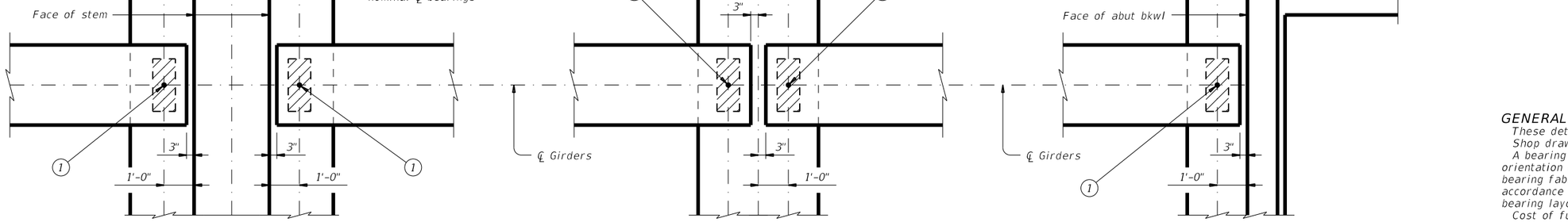
(1) Dowel at doweled girder end [labeled (D) on Bridge Layout]. Required for outside girder only or as shown on substructure details.

(2) For purposes of computing bearing seat elevations, nominal centerline of bearing must be defined as shown. The actual center of bearing pad may vary from this line.

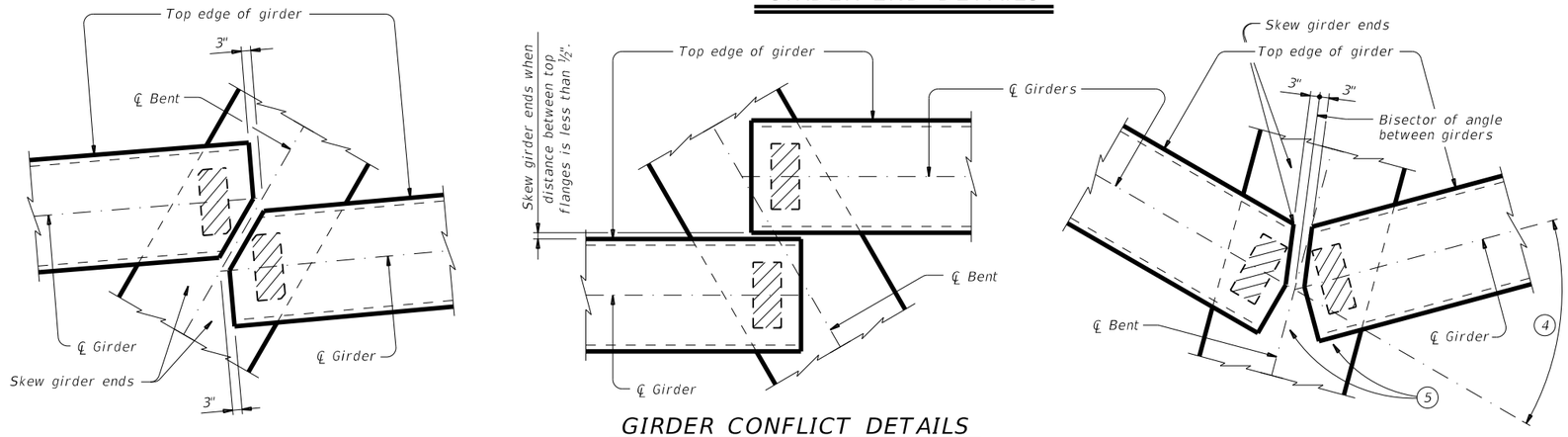
(3) For transition bents with backwall, girder and elastomeric bearings must receive the same treatment as shown for abutments.

(4) When angle exceeds 0°, one or both girders ends must be skewed to maintain the clearance between girder ends as shown in view.

(5) See Table of Bearing Pad Dimensions for bearing size. Girder end skew angles in Table not applicable for this situation. Table reflects girder conflicts of this type on radial bents only.



GIRDER END DETAILS



GIRDER CONFLICT DETAILS

GENERAL NOTES:

These details accommodate skew angles up to 60°.

Shop drawings for approval are required.

A bearing layout which identifies location and orientation of all bearings must be developed by the bearing fabricator. Permanently mark each bearing in accordance with the bearing layout. A copy of the bearing layout is to be provided to the Engineer.

Cost of furnishing and installing elastomeric bearings, including beveled and embedded steel plates, must be included in unit price bid for "Prestressed Concrete Girders".

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Texas Department of Transportation

Bridge Division Standard

ELASTOMERIC BEARING AND GIRDER END DETAILS
PRESTR CONCRETE I-GIRDERS

IGEB

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©TxDOT August 2017	CONT	SECT	JOB	HIGHWAY
REVISIONS	0795	02	017	FM1260
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	CHS	DONLEY		80

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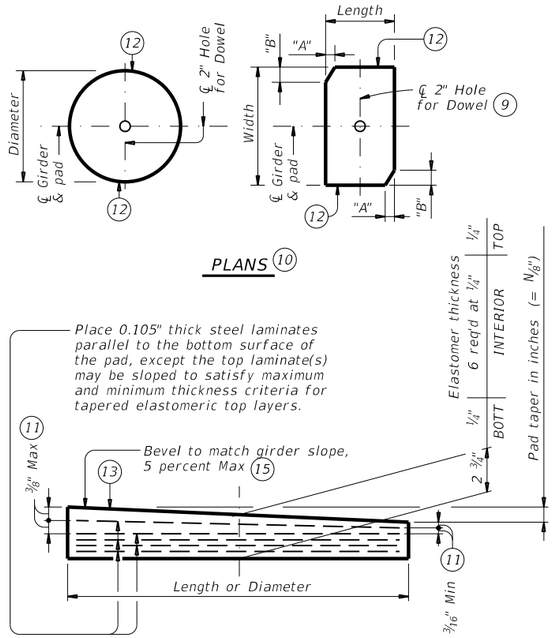


LAMINATED ELASTOMERIC BEARING PAD

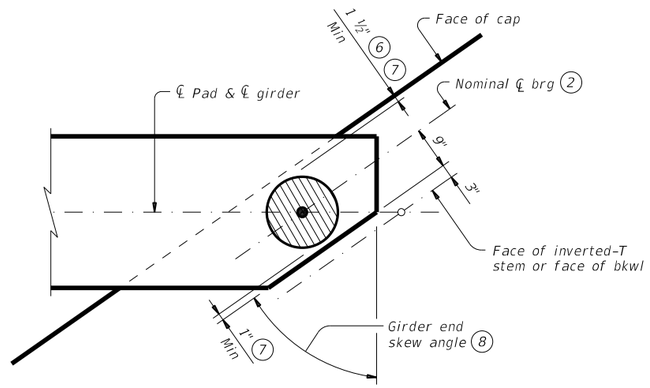
(50 DUROMETER)

TABLE OF MINIMUM SUBSTRUCTURE DIMENSIONS (14)

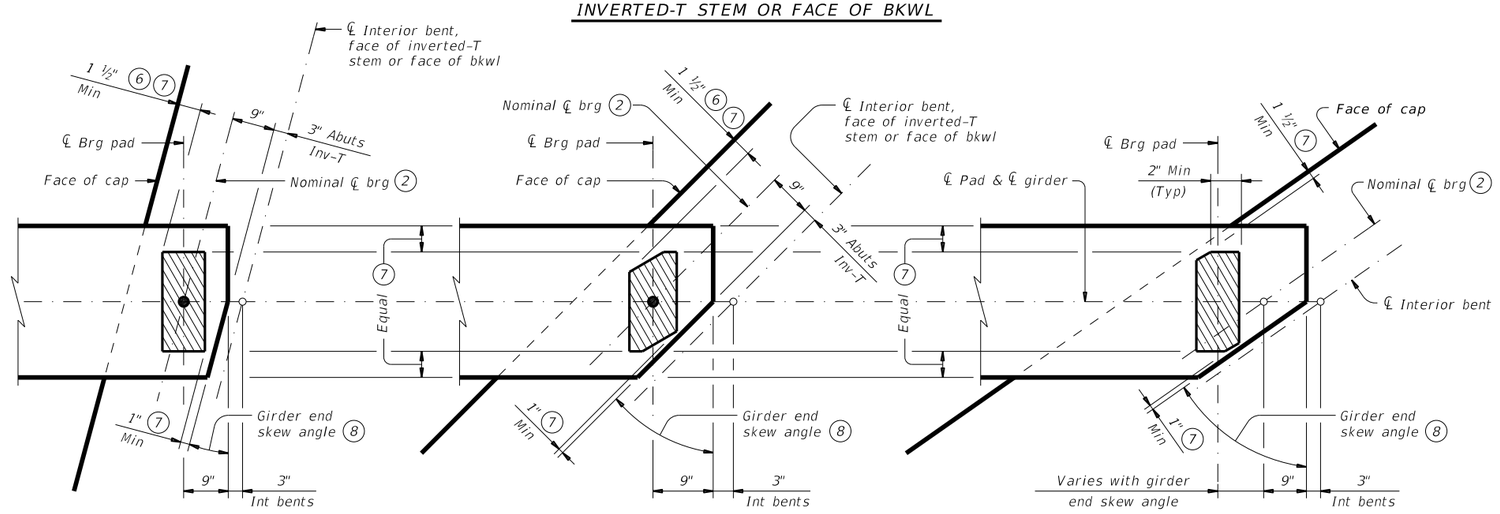
Girder Type	Abutments	Int Bents	Inv-T Bents
	Face of Bkwl to Face of Cap	Overall Cap Width	Corbel Width
Tx28 thru Tx54	1'-9"	3'-6"	1'-10 ½"
Tx62 & Tx70	2'-0"	4'-0"	2'-1 ½"

TABLE OF BEARING PAD DIMENSIONS

Bent Type	Girder Type	Bearing Type (13)	Girder End Skew Angle Range	Pad Size Lgth x Width	Pad Clip Dimensions "A"	Pad Clip Dimensions "B"
ABUTMENTS, INVERTED-T AND TRANSITION BENTS WITH BACKWALLS	Tx28,Tx34, Tx40,Tx46 & Tx54	G-1-"N"	0° thru 21°	8" x 21"	---	---
		G-2-"N"	21°+ thru 30°	8" x 21"	1 ½"	2 ½"
		G-3-"N"	30°+ thru 45°	9" x 21"	4 ½"	4 ½"
		G-4-"N"	45°+ thru 60°	15" Dia	---	---
	Tx62 & Tx70	G-5-"N"	0° thru 21°	9" x 21"	---	---
		G-6-"N"	21°+ thru 30°	9" x 21"	1 ½"	2 ½"
		G-7-"N"	30°+ thru 45°	10" x 21"	4 ½"	4 ½"
		G-8-"N"	45°+ thru 60°	10" x 21"	7 ¼"	4 ¼"
CONVENTIONAL INTERIOR BENTS	Tx28,Tx34, Tx40,Tx46 & Tx54	---	---	---	---	---
		---	---	---	---	---
		G-1-"N"	0° thru 60°	8" x 21"	---	---
	Tx62 & Tx70	G-5-"N"	0° thru 60°	9" x 21"	---	---
CONVENTIONAL INTERIOR BENTS WITH SKEWED GIRDER ENDS (GIRDER CONFLICTS) (16)	Tx28,Tx34, Tx40,Tx46 & Tx54	G-1-"N"	0° thru 18°	8" x 21"	---	---
		G-2-"N"	18°+ thru 30°	8" x 21"	1 ½"	2 ½"
		G-9-"N"	30°+ thru 45°	8" x 21"	3"	3"
		G-10-"N"	45°+ thru 60°	9" x 21"	6"	3 ½"
	Tx62 & Tx70	G-5-"N"	0° thru 18°	9" x 21"	---	---
		G-5-"N"	18°+ thru 30°	9" x 21"	---	---
		G-11-"N"	30°+ thru 45°	9" x 21"	1 ½"	1 ½"
		G-12-"N"	45°+ thru 60°	9" x 21"	3"	1 ¾"



ROUND BEARINGS FOR SKEWED GIRDER ENDS AT FACE OF INVERTED-T STEM OR FACE OF BKWL



SKEWED GIRDER ENDS AT INT BENTS, FACE OF INVERTED-T STEM OR FACE OF BKWL

SKEWED GIRDER ENDS AT CONVENTIONAL INTERIOR BENTS (16)

(NO GIRDER DOWELS)

BEARING PAD PLACEMENT DIAGRAMS

(2) For purposes of computing bearing seat elevations, nominal centerline of bearing must be defined as shown. The actual center of bearing pad may vary from this line.

(6) 3" for inverted-T.

(7) Place centerline pad as near nominal centerline bearing as possible between limits shown.

(8) Girder end skew angle is equal to 90° minus the girder angle except at some conflicting girders.

(9) Provide 2" dia hole only at locations required. See Substructure details for location.

(10) See Table of Bearing Pad Dimensions for dimensions.

(11) Maximum and minimum layer thicknesses shown are for elastomer only, on tapered layers.

(12) Locate Permanent Mark here.

(13) Indicate BEARING TYPE on all pads. For tapered pads, locate BEARING TYPE on the high side. The Fabricator must include the value of "N" (amount of taper in ⅛" increments) in this mark.
Examples: N=0, (for 0" taper)
N=1, (for ⅛" taper)
N=2, (for ¼" taper)
(etc.)
Fabricated pad top surface slope must not vary from plan girder slope by more than $\left(\frac{0.0625"}{\text{Length or Dia}}\right)$ IN/IN.

(14) Substructure dimensions must satisfy the minimums provided to accommodate the elastomeric bearings shown on this standard.

(15) See sheet 3 of 3 for beveled plate use when slopes exceed 5 percent.

(16) If girder end is skewed for a girder conflict at an interior bent and a beveled sole plate is required, use bearing type for abutments at this location. Location of bearing centerline is to be set as for abutments in this case.

HL93 LOADING SHEET 2 OF 3

Texas Department of Transportation

Bridge Division Standard

ELASTOMERIC BEARING AND GIRDER END DETAILS

PRESTR CONCRETE I-GIRDERS

IGEB

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	0795	02	017	FM1260
	DIST	COUNTY		SHEET NO.
	CHS	DONLEY		81

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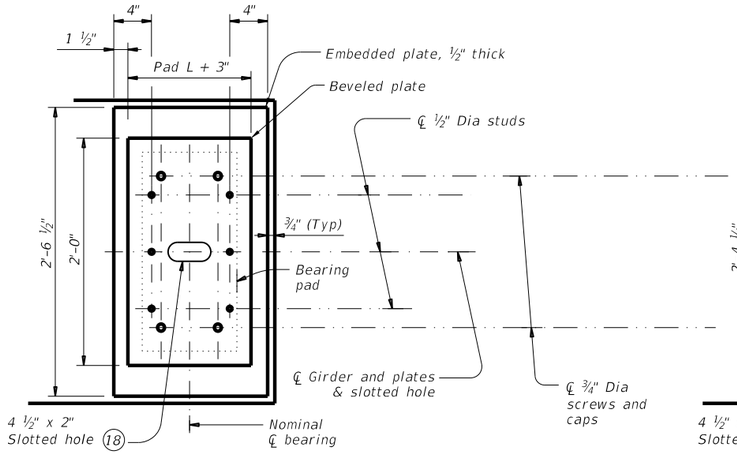
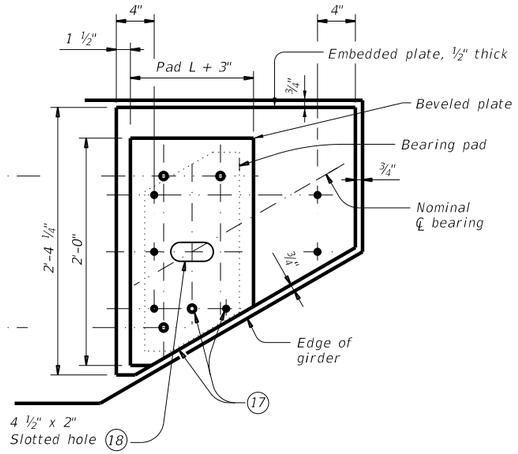
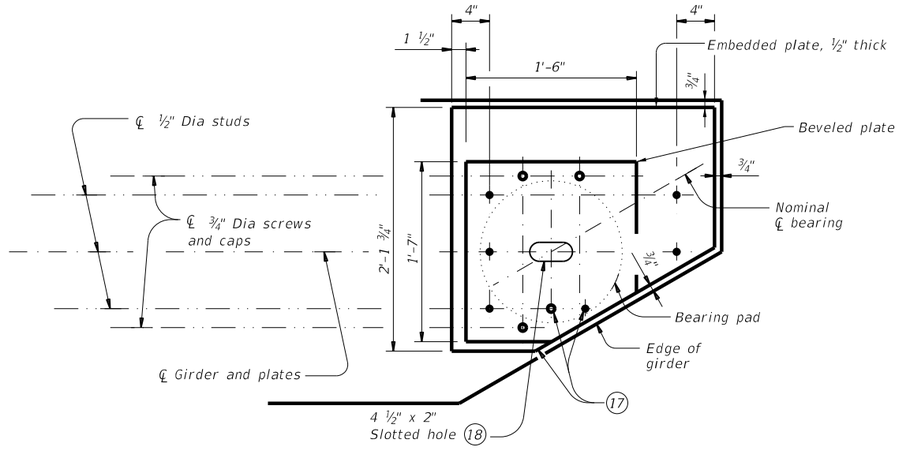


NORMAL GIRDER END
RECTANGULAR BEARING PAD

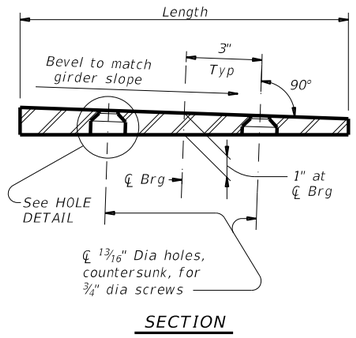


SKEWED GIRDER END
CLIPPED RECTANGULAR BEARING PAD

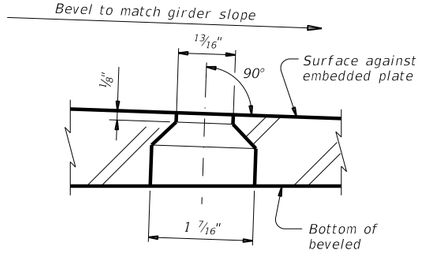


SKEWED GIRDER END
15" DIA BEARING PAD

PLAN VIEW OF SOLE PLATE DETAILS



SECTION

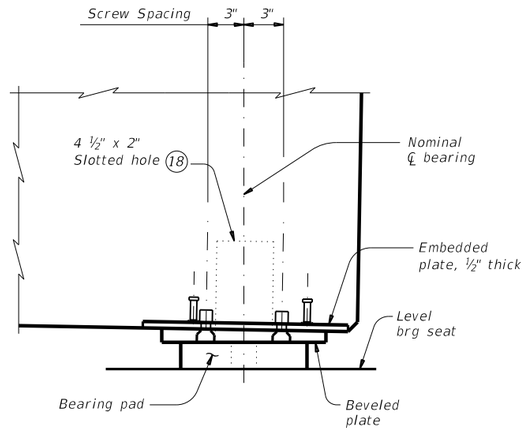


HOLE DETAIL

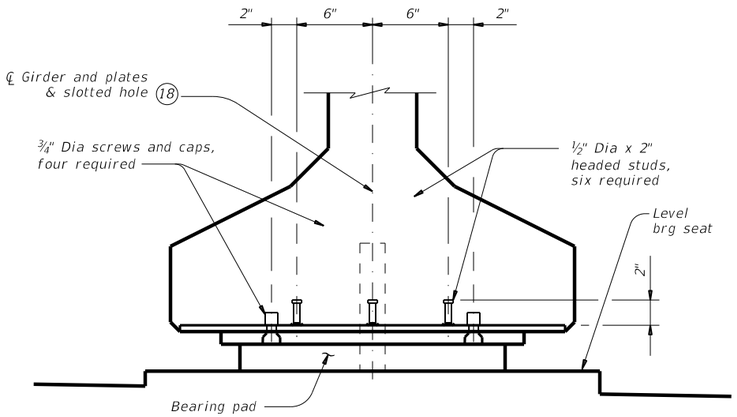
(17) Cut beveled and embedded plates to match girder end skew. Adjust location of screw and stud as shown when necessary.

(18) Slotted hole is required at doweled girder end locations.

BEVELED PLATE DETAILS



SIDE ELEVATION



END ELEVATION
Showing normal girder end.

GIRDER DETAILS

SOLE PLATE NOTES:

Provide constant thickness elastomeric bearings with beveled and embedded steel sole plates in accordance with these details when the girder slope exceeds 5 percent or if otherwise required in the plans. Provide for all girders in the span.

On the shop drawings, dimension sole plates to the nearest 1/16" based on required thickness at centerline of bearing and slope of girder. Thickness tolerance variation from the approved shop drawings is 1/16"+/-, except variation from a plane parallel to the theoretical top surface can not exceed 1/16" total. Bearing surface tolerances listed in Item 424 apply to embedded and beveled plates.

Steel plate must conform to ASTM A36, A572 Gr 50, or A709 Gr 36 or Gr 50. Hot dip galvanize both the embedded plate and beveled sole plate after fabrication. Seal weld caps to embedded plate before galvanizing.

When determining if relocation of screw holes and studs are necessary for skewed girder ends, minimum clearance from screw or stud centerline to plate edge is 1.25".

Tap threads in the embedded plate only. Drill and tap prior to galvanizing.

¾" Dia screws must be electroplated, socket flat head countersunk cap screws conforming to ASTM F835. Electroplating must conform to ASTM B633, SC 2, Type I. Provide screws long enough to maintain a ¾" minimum embedment into the embedded plate and galvanized cap. Provide galvanized steel caps (16 ga Min) with a nominal 1" inside diameter and deep enough to accommodate the screws, but not less than ½" deep or deeper than 1".

Install beveled sole plates prior to shipping girders. Installed screw heads must not protrude below the bottom of the beveled plate.

HL93 LOADING SHEET 3 OF 3

Texas Department of Transportation

Bridge Division Standard

ELASTOMERIC BEARING AND GIRDER END DETAILS
PRESTR CONCRETE I-GIRDERS

IGEB

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	DIST	COUNTY		SHEET NO.
	CHS	DONLEY		82

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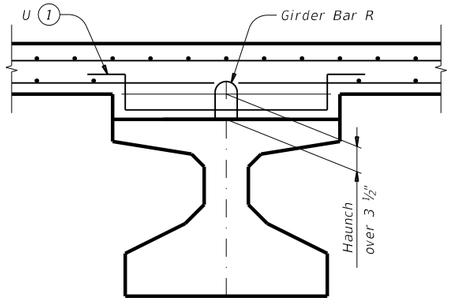
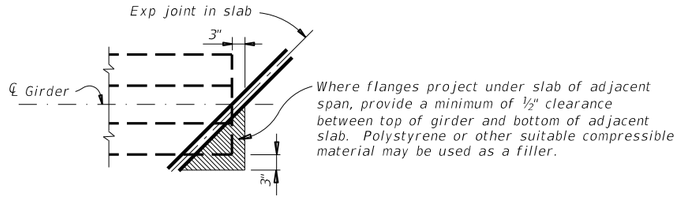
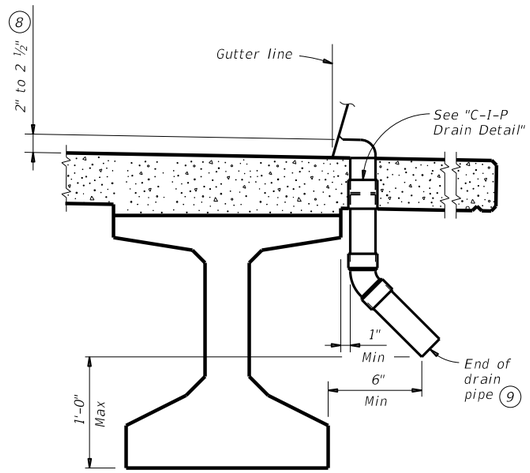


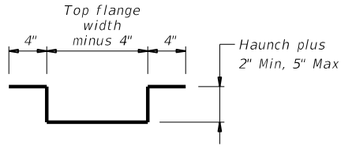
HAUNCH REINFORCING DETAIL



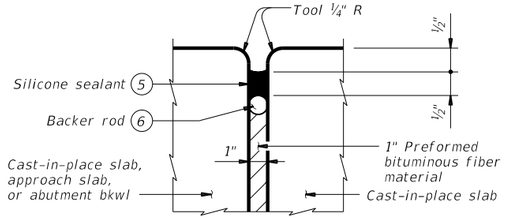
TREATMENT AT GIRDER END FOR SKEWED SPANS



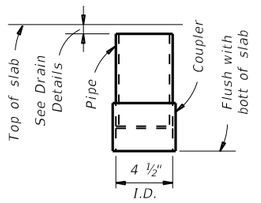
DRAIN DETAIL (10)



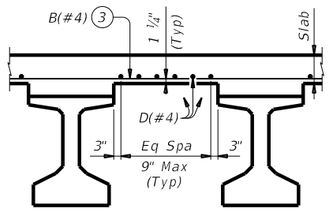
BARS U (#4)



TYPE A JOINT DETAIL (7)



C-I-P DRAIN DETAIL (2)



TYPICAL PART TRANSVERSE SLAB SECTION WITHOUT PCP (4)

Top reinforcing steel not shown for clarity.

(1) Space Bars U with girder Bars R in all areas where measured haunch exceeds 3 ½".

(2) Roughen outside of PVC with coarse rasp or equal to ensure bond with cast-in-place concrete.

(3) Bars B(#4) spaced at 9" Max with 2" end cover. Overhang option, Contractor's may end alternating bars B(#4) at centerline outside girder.

(4) Provide Grade 60 reinforcing steel. Provide bar laps, where required, as follows:
Uncoated ~ #4 = 1'-7"
Epoxy coated ~ #4 = 2'-5"

(5) Class 7 silicone sealant that conforms to DMS-6310. Install when ambient temperature is between 55°F and 85°F and rising. Engineer to determine allowable hours for sealant application.

(6) 1 ¼" backer rod must be compatible with joint sealant. Use of multiple pieces to create a backer rod cross section is not permitted. Top of backer rod must be convex as shown.

(7) The maximum distance between Type A expansion joints is 100'. See Bridge Layout for location of joints.

(8) Drain entrance formed in rail or sidewalk.

(9) Water may not be discharged onto girders.

(10) All drain pipe and fittings to be 4" diameter (Sch 40) PVC. See Item 481 "Pipe for Drains" for pipe, connections and solvent welding. Bend reinforcing steel to clear PVC 1". Drain length and location is as directed by the Engineer. Drains are not permitted over roadways or railways, or within 10'-0" of bent caps. Degrease outside of exposed PVC, apply acrylic water base primer, then coat with same surface finishing material as used for outside girder face. Variations of the above designs, as required for the type of rail used and its location on the structure, may be installed with the approval and direction of the Engineer.

GENERAL NOTES:

Designed according to AASHTO LRFD Bridge Design Specifications.

Payment for Type A joint will be as per Item 454, "Bridge Expansion Joints."

All other items (reinforcing steel, drains, etc.) shown on this sheet are subsidiary to other bid items.

Cover dimensions are clear dimensions, unless noted otherwise.

Reinforcing bar dimensions shown are out-to-out of bar.

DECK FORMWORK NOTES:

Overhang bracket hangers are limited to a safe working load of 3,600 lbs, applied to and along the axis of a coil rod at 45 degrees from vertical, regardless of higher loads permitted by hanger manufacturers. Do not place a hanger less than 12" from girder end. Space hangers accordingly.

Texas Department of Transportation

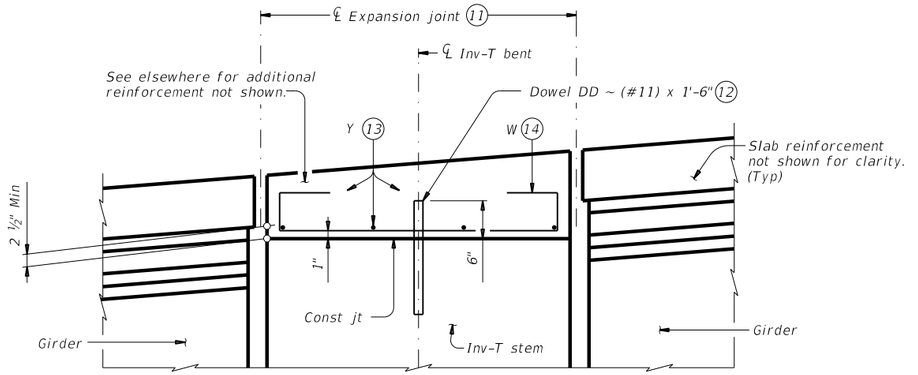
Bridge Division Standard

MISCELLANEOUS SLAB DETAILS

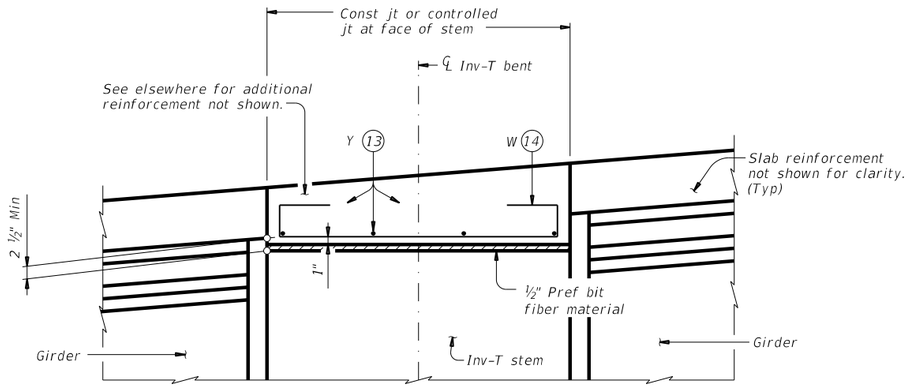
PRESTR CONCRETE I-GIRDERS

IGMS

FILE: IG-IGMS-19.dgn	DN: TxDOT	CK: TxDOT	DW: JTR	CK: TxDOT		
©TxDOT August 2017	CONT	SECT	JOB		HIGHWAY	
REVISIONS	0795	02	017		FM1260	
10-19: Modified Note 7. Type A now a pay item.	DIST	COUNTY			SHEET NO.	
	CHS	DONLEY			83	

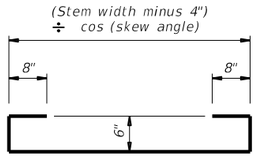


SHOWING EXPANSION JOINTS

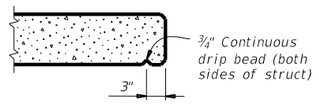


SHOWING CONST JTS OR CONTROLLED JTS

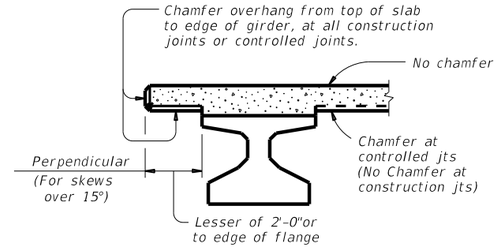
REINFORCEMENT OVER INV-T BENTS



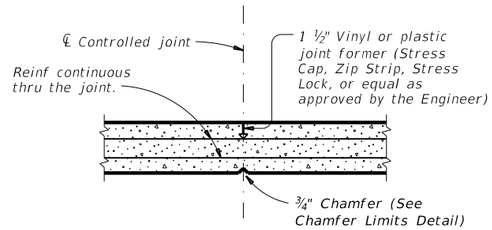
BARS W (#4)



DRIP BEAD DETAIL



CHAMFER LIMITS DETAIL (15)



CONTROLLED JOINT DETAIL

(Saw-cutting is not allowed)

(11) See Layout for joint type.

(12) Dowels DD (#11) spaced at 5 Ft Max. See Inv-T bents for quantity and location.

(13) Space Bars Y (#4) at 12" Max. Use 2" end cover. Number of Bars Y must satisfy spacing limit. Place parallel to bent.

(14) Space Bars W at 12" Max (3" from end of cap). Tilt if necessary to maintain cover requirements. Place parallel to longitudinal slab reinforcement.

(15) See Span details for type of joint and joint locations.

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SHEET 2 OF 2

Texas Department of Transportation

Bridge Division Standard

MISCELLANEOUS SLAB DETAILS

PRESTR CONCRETE I-GIRDERS

IGMS

FILE: IG-IGMS-19.dgn	DN: TxDOT	CK: TxDOT	DW: JTR	CK: TxDOT
©TxDOT August 2017	CONT	SECT	JOB	HIGHWAY
REVISIONS	0795	02	017	FM1260
10-19: Modified Note 7, Type A now a pay item.	DIST	COUNTY		SHEET NO.
	CHS	DONLEY		84

DATE: 12/1/2023 2:47:31 PM
FILE: pw://txdot.projectwiseonline.com:TxDOT5/Documents/25 - CHS/Design Projects/079502017 4 - Design/Plan Set/7. Bridge/IG-IGSD32-21.dgn

STRUCTURE	DESIGNED GIRDERS								DEPRESSED STRAND PATTERN		CONCRETE		OPTIONAL DESIGN					LOAD RATING FACTORS			
	SPAN NO.	GIRDER NO.	GIRDER TYPE	PRESTRESSING STRANDS					NO.	TO END	RELEASE STRGTH (1)	MINIMUM 28 DAY COMP STRGTH	DESIGN LOAD COMP STRESS (TOP ℄) (SERVICE I)	DESIGN LOAD TENSILE STRESS (BOTT ℄) (SERVICE III)	REQUIRED MINIMUM ULTIMATE MOMENT CAPACITY (STRENGTH I)	LIVE LOAD DISTRIBUTION FACTOR (2)		STRENGTH I		SERVICE III
				NON-STD STRAND PATTERN	TOTAL NO.	SIZE (in)	STRGTH fpu (ksi)	"e" ℄ (in)	"e" END (in)			f'ci (ksi)	f'c (ksi)	fct(ksi)	fcb(ksi)	(kip-ft)	Moment	Shear	Inv	Opr	Inv
Type Tx28 Girders 32' Roadway 8.5" Slab	40	ALL	Tx28		14	0.6	270	10.48	9.34	2	10.5	4.000	5.000	1.189	-1.700	1731	0.850	1.070	1.58	2.04	2.01
	45	ALL	Tx28		14	0.6	270	10.48	9.34	2	10.5	4.000	5.400	1.507	-2.077	1717	0.820	1.080	1.48	1.91	1.57
	50	ALL	Tx28		16	0.6	270	10.23	9.23	4	8.5	4.000	5.800	1.853	-2.508	2040	0.800	1.080	1.39	1.80	1.30
	55	ALL	Tx28		18	0.6	270	10.04	8.26	4	12.5	4.100	6.400	2.247	-2.980	2377	0.780	1.090	1.26	1.69	1.07
	60	ALL	Tx28		22	0.6	270	9.75	7.57	4	16.5	4.800	6.900	2.655	-3.462	2715	0.760	1.090	1.24	1.82	1.05
	65	ALL	Tx28		26	0.6	270	9.56	7.71	4	16.5	5.600	7.300	3.104	-3.978	3064	0.740	1.100	1.09	1.76	1.07
Type Tx34 Girders 32' Roadway 8.5" Slab	40	ALL	Tx34		12	0.6	270	13.01	13.01			4.000	5.000	0.934	-1.303	1975	0.880	1.050	1.77	2.29	2.35
	45	ALL	Tx34		14	0.6	270	13.01	12.15	2	8.5	4.000	5.000	1.180	-1.588	2124	0.850	1.060	1.75	2.27	2.11
	50	ALL	Tx34		16	0.6	270	12.76	11.76	4	8.5	4.000	5.000	1.437	-1.907	2248	0.830	1.060	1.64	2.13	1.82
	55	ALL	Tx34		16	0.6	270	12.76	11.76	4	8.5	4.000	5.000	1.739	-2.263	2449	0.810	1.060	1.37	1.77	1.35
	60	ALL	Tx34		18	0.6	270	12.57	11.23	4	10.5	4.000	5.500	2.068	-2.640	2806	0.790	1.070	1.30	1.72	1.17
	65	ALL	Tx34		22	0.6	270	12.28	7.92	4	28.5	4.000	6.000	2.424	-3.039	3173	0.770	1.070	1.59	2.08	1.34
	70	ALL	Tx34		26	0.6	270	12.09	8.09	4	30.5	4.700	6.500	2.807	-3.458	3548	0.750	1.080	1.08	1.81	1.04
	75	ALL	Tx34		30	0.6	270	11.81	7.41	6	28.5	5.200	6.700	3.195	-3.894	3951	0.740	1.080	1.44	1.93	1.12
	80	ALL	Tx34		34	0.6	270	11.48	7.25	6	30.5	5.800	7.000	3.633	-4.373	4378	0.730	1.080	1.23	1.67	1.05
Type Tx40 Girders 32' Roadway 8.5" Slab	40	ALL	Tx40		12	0.6	270	15.60	15.60			4.000	5.000	0.768	-1.053	2052	0.910	1.030	2.02	2.62	2.88
	45	ALL	Tx40		14	0.6	270	15.60	15.60			4.700	5.000	0.967	-1.282	2430	0.880	1.040	2.01	2.61	2.63
	50	ALL	Tx40		14	0.6	270	15.60	15.60			4.500	5.000	1.195	-1.554	2558	0.860	1.040	1.91	2.48	2.29
	55	ALL	Tx40		16	0.6	270	15.35	14.35	4	8.5	4.000	5.000	1.442	-1.834	2685	0.830	1.050	1.60	2.07	1.79
	60	ALL	Tx40		18	0.6	270	15.16	13.82	4	10.5	4.000	5.000	1.687	-2.118	2875	0.810	1.050	1.57	2.03	1.61
	65	ALL	Tx40		18	0.6	270	15.16	13.82	4	10.5	4.000	5.000	1.978	-2.447	3277	0.800	1.060	1.31	1.70	1.22
	70	ALL	Tx40		20	0.6	270	15.00	13.40	4	12.5	4.000	5.200	2.288	-2.783	3666	0.780	1.060	1.13	1.68	1.08
	75	ALL	Tx40		24	0.6	270	14.77	9.77	4	34.5	4.100	5.700	2.619	-3.135	4064	0.760	1.060	1.60	2.07	1.26
	80	ALL	Tx40		28	0.6	270	14.60	10.60	4	32.5	4.900	6.000	2.964	-3.509	4498	0.750	1.070	1.27	1.99	1.14
	85	ALL	Tx40		32	0.6	270	14.23	8.60	6	36.5	5.100	6.200	3.328	-3.900	4944	0.740	1.070	1.29	2.04	1.08
	90	ALL	Tx40		36	0.6	270	13.93	9.27	6	34.5	5.900	6.600	3.695	-4.294	5394	0.730	1.070	1.33	1.75	1.07
Type Tx46 Girders 32' Roadway 8.5" Slab	40	ALL	Tx46		12	0.6	270	17.60	17.60			4.000	5.000	0.678	-0.844	2150	0.950	1.020	2.22	2.88	3.41
	45	ALL	Tx46		14	0.6	270	17.60	17.60			4.500	5.000	0.846	-1.024	2543	0.920	1.020	2.22	2.88	3.17
	50	ALL	Tx46		14	0.6	270	17.60	17.60			4.500	5.000	1.041	-1.235	3012	0.890	1.030	1.82	2.36	2.47
	55	ALL	Tx46		16	0.6	270	17.35	16.35	4	8.5	4.000	5.000	1.257	-1.465	3277	0.870	1.030	1.77	2.30	2.22
	60	ALL	Tx46		16	0.6	270	17.35	16.35	4	8.5	4.000	5.000	1.489	-1.701	3221	0.840	1.040	1.51	1.95	1.77
	65	ALL	Tx46		18	0.6	270	17.16	15.83	4	10.5	4.000	5.000	1.732	-1.957	3424	0.830	1.040	1.48	1.92	1.59
	70	ALL	Tx46		18	0.6	270	17.16	15.83	4	10.5	4.000	5.000	2.001	-2.227	3834	0.810	1.040	1.26	1.64	1.23
	75	ALL	Tx46		20	0.6	270	17.00	15.40	4	12.5	4.000	5.000	2.289	-2.510	4254	0.790	1.040	1.16	1.63	1.10
	80	ALL	Tx46		24	0.6	270	16.77	14.10	4	20.5	4.000	5.100	2.579	-2.804	4703	0.780	1.050	1.28	1.83	1.14
	85	ALL	Tx46		28	0.6	270	16.60	11.46	4	40.5	4.200	5.500	2.905	-3.125	5181	0.770	1.050	1.38	1.98	1.14
	90	ALL	Tx46		32	0.6	270	16.23	9.48	6	42.5	4.400	5.700	3.234	-3.438	5624	0.750	1.050	1.46	2.11	1.13
	95	ALL	Tx46		34	0.6	270	16.07	11.13	6	34.5	5.000	5.900	3.582	-3.777	6117	0.740	1.060	1.49	2.12	1.12
	100	ALL	Tx46		38	0.6	270	15.81	11.39	6	34.5	5.600	6.600	3.961	-4.139	6635	0.730	1.060	1.31	1.78	1.03

NON-STANDARD STRAND PATTERNS

PATTERN	STRAND ARRANGEMENT AT ℄ OF GIRDER

(1) Based on the following allowable stresses (ksi):

Compression = 0.65 f'ci

Tension = $0.24\sqrt{f'ci}$

Optional designs must likewise conform.

(2) Portion of full HL93.

DESIGN NOTES:

Designed according to AASHTO LRFD Bridge Design Specifications. Load rated using Load and Resistance Factor Rating according to AASHTO Manual for Bridge Evaluation.

Optional designs for girders 120 feet or longer must have a calculated residual camber equal to or greater than that of the designed girder.

Prestress losses for the designed girders have been calculated for a relative humidity of 60 percent. Optional designs must likewise conform.

FABRICATION NOTES:

Provide Class H concrete.

Provide Grade 60 reinforcing steel bars.

Use low relaxation strands, each pretensioned to 75 percent of fpu.

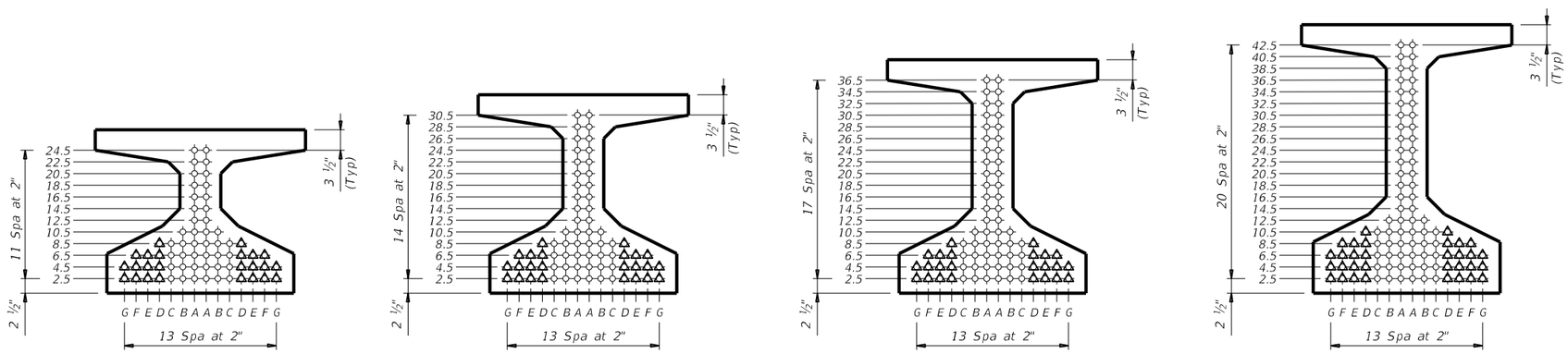
Strand debonding must comply with Item 424.4.2.2.2.4. Full-length debonded strands are only permitted in positions marked Δ. Double wrap full-length debonded strands in outer most position of each row.

When shown on this sheet, the Fabricator has the option of furnishing either the designed girder or an approved optional design. All optional design submittals must be signed, sealed and dated by a Professional Engineer registered in the State of Texas.

Seal cracks in girder ends exceeding 0.005" in width as directed by the Engineer. The fabricator is permitted to decrease the spacing of Bars R and S by providing additional bars to help limit crack width provided the decreased spacing results in no less than 1" clear between bars. The fabricator must take an approved corrective action if cracks greater than 0.005" form on a repetitive basis.

DEPRESSED STRAND DESIGNS:

Locate strands for the designed girder as low as possible on the 2" grid system unless a non-standard strand pattern is indicated. Fill row "2.5", then row "4.5", then row "6.5", etc., beginning each row in the "A" position and working outward until the required number of strands is reached. All strands in the "A" position must be depressed, maintaining the 2" spacing so that, at the girder ends, the upper two strands are in the position shown in the table.



HL93 LOADING SHEET 1 OF 2

Texas Department of Transportation — Bridge Division Standard

PRESTRESSED CONCRETE I-GIRDER STANDARD DESIGNS

32' ROADWAY

IGSD-32

FILE: IG-IGSD32-21.dgn	DN: EFC	CK: AJF	DW: EFC	CK: TAR
©TxDOT August 2017	CONT	SECT	JOB	HIGHWAY
REVISIONS 10-19: Redesigned girders. 1-21: Added load rating.	0795	02	017	FM1260
	DIST	COUNTY		SHEET NO.
	CHS	DONLEY		85

DATE: 12/1/2023 2:47:32 PM
FILE: pw://txdot.projectwiseonline.com:TxDOTS/Documents/25 - CHS/Design Projects/079502017/4 - Design/Plan Set/7. Bridge/IG-IGSD32-21.dgn

STRUCTURE	DESIGNED GIRDERS									DEPRESSED STRAND PATTERN		CONCRETE		OPTIONAL DESIGN					LOAD RATING FACTORS			
	SPAN NO.	GIRDER NO.	GIRDER TYPE	PRESTRESSING STRANDS						NO.	TO END	RELEASE STRGTH (1) f'ci (ksi)	MINIMUM 28 DAY COMP STRGTH f'c (ksi)	DESIGN LOAD COMP STRESS (TOP ℄) (SERVICE I) fct(ksi)	DESIGN LOAD TENSILE STRESS (BOTT ℄) (SERVICE III) fcb(ksi)	REQUIRED MINIMUM ULTIMATE MOMENT CAPACITY (STRENGTH I) (kip-ft)	LIVE LOAD DISTRIBUTION FACTOR (2)		STRENGTH I		SERVICE III
				NON-STD STRAND PATTERN	TOTAL NO.	SIZE (in)	STRGTH fpu (ksi)	"e" ℄ (in)	"e" END (in)		(in)						Moment	Shear	Inv	Opr	Inv
Type Tx54 Girders 32' Roadway 8.5" Slab	40	ALL	Tx54		12	0.6	270	21.01	21.01			4.000	5.000	0.561	-0.686	2216	0.980	1.010	2.55	3.30	4.09
	45	ALL	Tx54		12	0.6	270	21.01	21.01			4.000	5.000	0.703	-0.835	2629	0.950	1.010	2.12	2.75	3.32
	50	ALL	Tx54		14	0.6	270	21.01	21.01			4.000	5.000	0.858	-1.003	3108	0.920	1.020	2.10	2.73	3.05
	55	ALL	Tx54		16	0.6	270	20.76	20.26	4	6.5	4.000	5.000	1.035	-1.189	3629	0.900	1.020	2.05	2.66	2.77
	60	ALL	Tx54		16	0.6	270	20.76	20.26	4	6.5	4.000	5.000	1.224	-1.381	3931	0.870	1.020	1.76	2.28	2.27
	65	ALL	Tx54		18	0.6	270	20.56	19.23	4	10.5	4.000	5.000	1.430	-1.588	4159	0.850	1.020	1.75	2.26	2.09
	70	ALL	Tx54		18	0.6	270	20.56	19.23	4	10.5	4.000	5.000	1.653	-1.815	4103	0.840	1.030	1.49	1.93	1.68
	75	ALL	Tx54		20	0.6	270	20.41	18.81	4	12.5	4.000	5.000	1.877	-2.035	4399	0.820	1.030	1.50	1.94	1.56
	80	ALL	Tx54		20	0.6	270	20.41	18.81	4	12.5	4.000	5.000	2.129	-2.284	4880	0.810	1.030	1.29	1.67	1.23
	85	ALL	Tx54		22	0.6	270	20.28	18.46	4	14.5	4.000	5.000	2.392	-2.534	5339	0.790	1.040	1.30	1.68	1.12
	90	ALL	Tx54		26	0.6	270	20.08	16.39	4	28.5	4.000	5.000	2.665	-2.800	5839	0.780	1.040	1.22	1.67	1.00
	95	ALL	Tx54		28	0.6	270	20.01	14.29	4	44.5	4.000	5.000	2.951	-3.075	6353	0.770	1.040	1.38	1.86	1.03
	100	ALL	Tx54		32	0.6	270	19.63	12.51	6	44.5	4.300	5.200	3.262	-3.370	6892	0.760	1.040	1.42	1.99	1.03
	105	ALL	Tx54		36	0.6	270	19.34	12.01	6	50.5	4.700	5.400	3.574	-3.667	7434	0.750	1.040	1.48	2.10	1.05
	110	ALL	Tx54		40	0.6	270	19.11	12.51	6	50.5	5.300	6.100	3.899	-3.973	7988	0.740	1.050	1.53	2.19	1.08
	115	ALL	Tx54		44	0.6	270	18.83	11.55	8	48.5	5.600	6.400	4.252	-4.301	8569	0.730	1.050	1.29	1.74	1.03
	120	ALL	Tx54	*	48	0.6	270	18.42	10.09	10	50.5	5.800	7.700	4.619	-4.640	9165	0.720	1.050	1.28	1.69	1.01
Type Tx62 Girders 32' Roadway 8.5" Slab	60	ALL	Tx62		16	0.6	270	25.53	25.53			4.000	5.000	0.961	-1.157	4309	0.900	1.010	1.98	2.56	2.74
	65	ALL	Tx62		16	0.6	270	25.53	25.53			4.000	5.000	1.121	-1.331	4614	0.880	1.010	1.69	2.19	2.26
	70	ALL	Tx62		18	0.6	270	25.33	25.33			4.000	5.000	1.292	-1.514	4894	0.860	1.020	1.71	2.21	2.12
	75	ALL	Tx62		18	0.6	270	25.33	25.33			4.000	5.000	1.475	-1.705	4844	0.840	1.020	1.48	1.92	1.75
	80	ALL	Tx62		20	0.6	270	25.18	24.38	4	8.5	4.000	5.000	1.659	-1.903	5116	0.830	1.020	1.49	1.93	1.64
	85	ALL	Tx62		20	0.6	270	25.18	24.38	4	8.5	4.000	5.000	1.866	-2.120	5578	0.820	1.020	1.29	1.67	1.32
	90	ALL	Tx62		20	0.6	270	25.18	24.38	4	8.5	4.500	5.500	2.080	-2.338	6072	0.800	1.030	1.31	1.70	1.23
	95	ALL	Tx62		24	0.6	270	24.94	22.94	4	16.5	4.000	5.000	2.310	-2.574	6621	0.790	1.030	1.31	1.70	1.12
	100	ALL	Tx62		26	0.6	270	24.85	22.39	4	20.5	4.000	5.000	2.531	-2.805	7159	0.780	1.030	1.27	1.70	1.03
	105	ALL	Tx62		30	0.6	270	24.58	14.18	6	58.5	4.800	5.800	2.771	-3.050	7723	0.770	1.030	1.64	2.16	1.31
	110	ALL	Tx62		34	0.6	270	24.25	15.42	6	56.5	4.200	5.000	3.020	-3.304	8301	0.760	1.030	1.60	2.10	1.21
	115	ALL	Tx62		36	0.6	270	24.11	17.44	6	46.5	4.700	5.600	3.291	-3.576	8909	0.750	1.030	1.53	2.04	1.13
	120	ALL	Tx62		40	0.6	270	23.88	16.68	6	54.5	5.100	6.000	3.545	-3.835	9493	0.740	1.040	1.63	2.12	1.47
	125	ALL	Tx62		44	0.6	270	23.60	14.87	8	56.5	5.300	6.100	3.836	-4.124	10128	0.730	1.040	1.51	2.04	1.35
	130	ALL	Tx62		48	0.6	270	23.28	15.28	8	56.5	5.800	6.700	4.144	-4.438	10849	0.730	1.040	1.44	1.80	1.11

NON-STANDARD STRAND PATTERNS

PATTERN	STRAND ARRANGEMENT AT ℄ OF GIRDER
*	2.5(14),4.5(14),6.5(14),8.5(4),10.5(2)

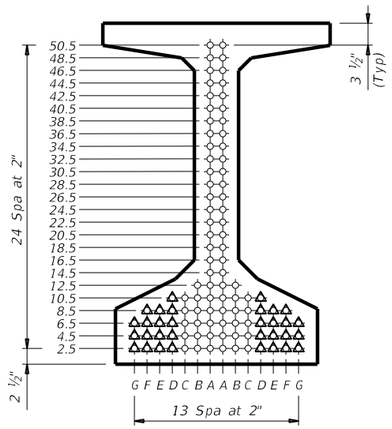
(1) Based on the following allowable stresses (ksi):

Compression = 0.65 f'ci

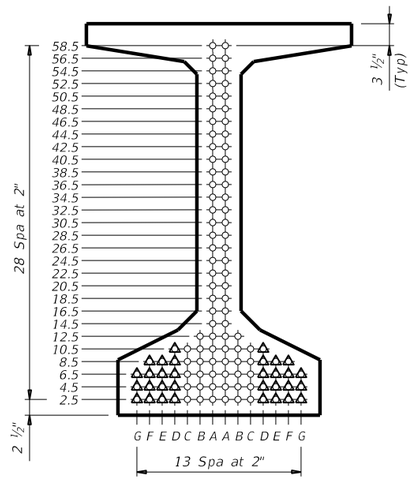
Tension = $0.24\sqrt{f'ci}$

Optional designs must likewise conform.

(2) Portion of full HL93.



TYPE Tx54



TYPE Tx62

HL93 LOADING

Texas Department of Transportation

Bridge Division Standard

PRESTRESSED CONCRETE I-GIRDER STANDARD DESIGNS

32' ROADWAY

IGSD-32

FILE: IG-IGSD32-21.dgn	DN: EFC	CK: AJF	DW: EFC	CK: TAR
©TxDOT August 2017	CONT	SECT	JOB	HIGHWAY
REVISIONS 10-19: Redesigned girders. 1-21: Added load rating.	0795	02	017	FM1260
	DIST	COUNTY		SHEET NO.
	CHS	DONLEY		86

DATE: 12/1/2023 2:47:38 PM
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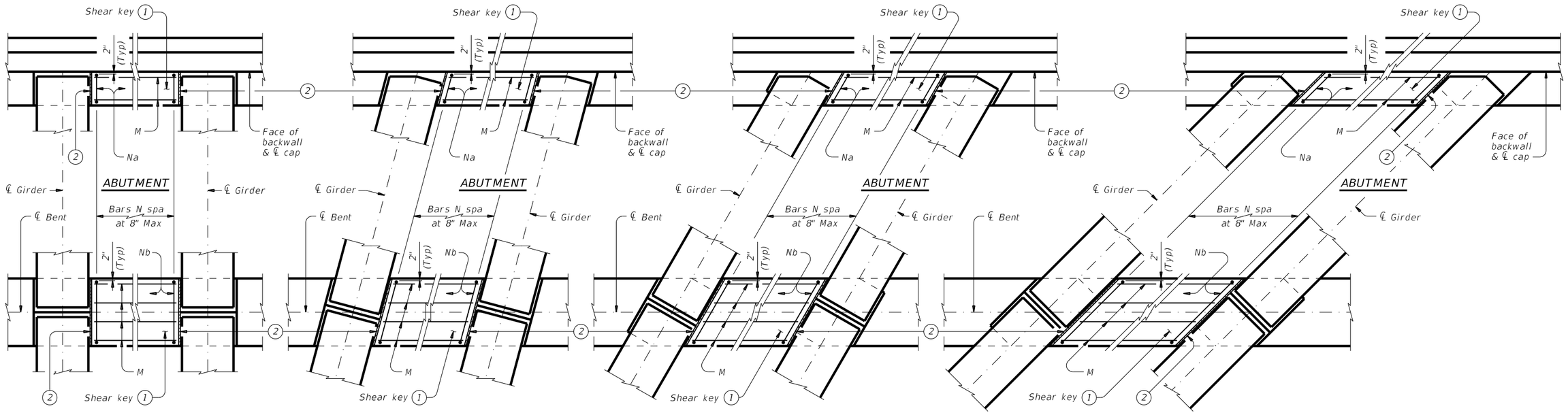


PARTIAL PLANS WITH NO SKEW

Showing shear keys on 3'-6" wide caps. 4'-0" caps similar.

PARTIAL PLANS WITH 15° SKEW

Showing shear keys on 3'-6" wide caps. 4'-0" caps similar.

PARTIAL PLANS WITH 30° SKEW

Showing shear keys on 3'-6" wide caps. 4'-0" caps similar.

PARTIAL PLANS WITH 45° SKEW

Showing shear keys on 3'-6" wide caps. 4'-0" caps similar.

(1) Place shear keys on the upstream side of structure between outside girder and next adjacent girder, unless shown otherwise on plans.

(2) UHMW polyethylene wear pad. (Typ)

(3) Leave a ¼" gap plus or minus between girder and face of wear pad. Cast wear pad with shear key, smooth side facing girder. Care must be taken to keep concrete from flowing under girder. Slope top of shear keys in accordance with Item 420.4.9, "Treatment and Finishing of Horizontal Surfaces."

(4) Measure at higher bearing seat elevation forward or back. Dimension based on typical bearing pad and bearing seat. Increase as necessary to maintain 5" overlap.

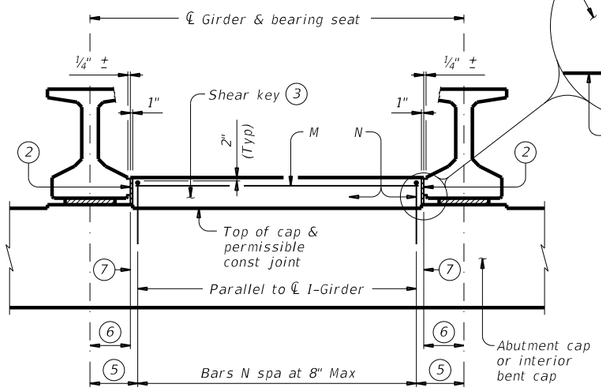
(5) With No Skew = 1'-8 ¼", measured along ℄ cap.
With Skew = 1'-8 ¼" ⨯ Cos Skew, measured along ℄ cap.

(6) With No Skew = 1'-4 ¼", measured along ℄ cap.
With Skew = 1'-4 ¼" ⨯ Cos Skew, measured along ℄ cap.

(7) Face of UHMW polyethylene wear pad. Smooth side of pad facing girder.

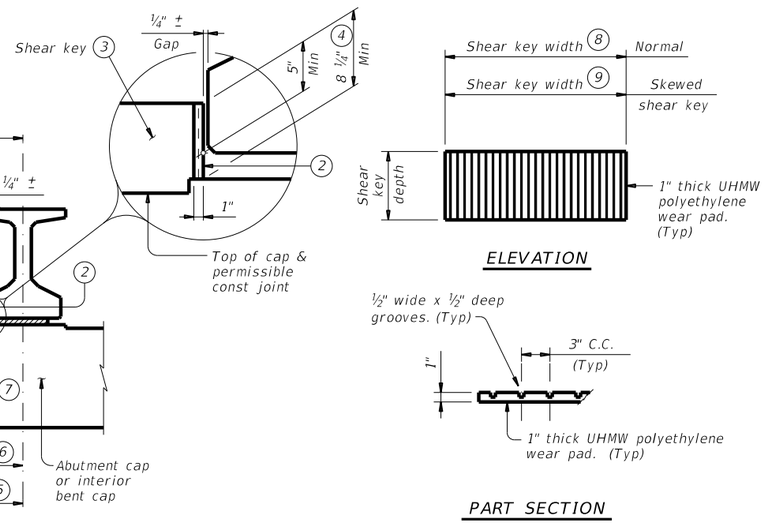
(8) Abutments = ½ Cap width.
Interior bents = Cap width.

(9) Abutments = ½ Cap width ⨯ Cos Skew.
Interior bents = Cap width ⨯ Cos Skew.

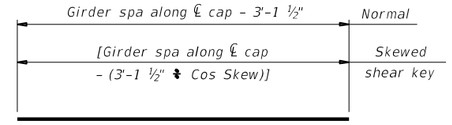


PARTIAL ELEVATION OF ABUTMENT OR INTERIOR BENT CAP (1)

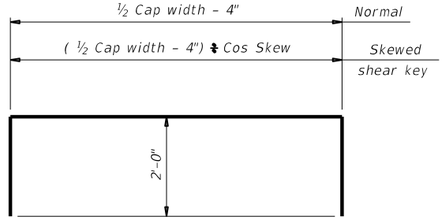
Showing shear key with girder Type Tx46. Other I-Girder types similar.



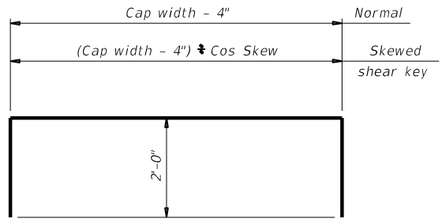
ULTRA HIGH MOLECULAR WEIGHT (UHMW) POLYETHYLENE WEAR PAD DETAILS



BARS M (#5)



BARS Na (#5)
(For abutments)



BARS Nb (#5)
(For interior bents)

CONSTRUCTION NOTES:

Provide Class "C" concrete (f'c = 3,600 psi). Provide Class "C" (HPC) if shown elsewhere on the plans.
Provide Grade 60 reinforcing steel.
Provide epoxy coated reinforcing steel for shear key if abutment or interior bent reinforcing steel is epoxy coated.
Provide Ultra High Molecular Weight (UHMW) polyethylene wear pads in accordance with ASTM D6712.

GENERAL NOTES:

Designed according to AASHTO LRFD Bridge Design Specifications.
Details showing skew are drawn showing right forward skew. See Bridge Layout for actual skew direction.
These details are limited to bridges skewed 45 degrees and less.
This standard is only applicable for I-Girders.
Modify details for bearing conditions, and girder spacing not shown on this standard. Details do not account for sole plate or pedestal bearing seat.
Include shear key concrete in abutment or bent concrete for payment.
UHMW polyethylene wear pads are subsidiary to Class "C" concrete.

Cover dimensions are clear dimensions, unless noted otherwise.
Reinforcing bar dimensions shown are out-to-out of bar.

Texas Department of Transportation

Bridge Division Standard

SHEAR KEY DETAILS
PRESTR CONCRETE I-GIRDERS

IGSK

FILE: IG-IGSK-17.dgn	DN: TxDOT	CK: TxDOT	DW: JTR	CK: AES
©TxDOT August 2017	CONT	SECT	JOB	HIGHWAY
REVISIONS	0795	02	017	FM1260
	DIST	COUNTY		SHEET NO.
	CHS	DONLEY		87

DATE: 12/1/2023 2:47:44 PM
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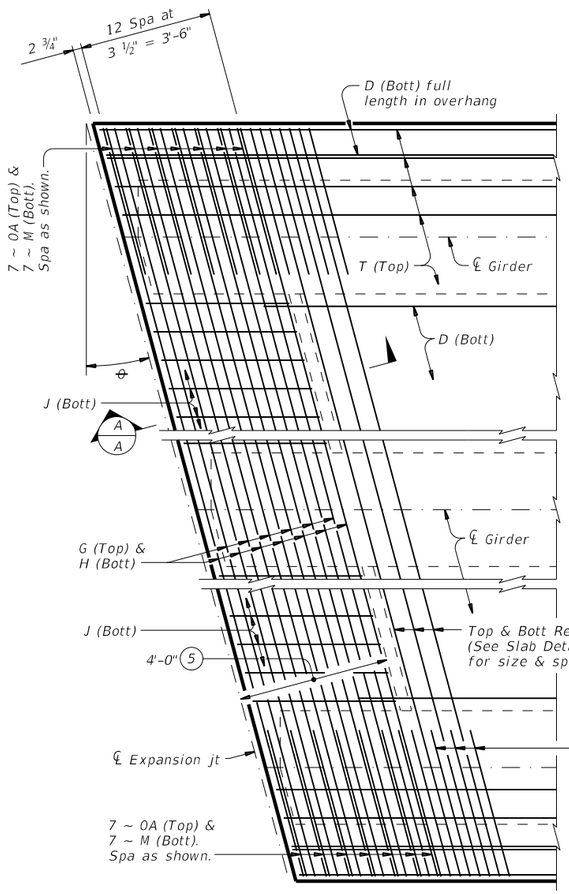
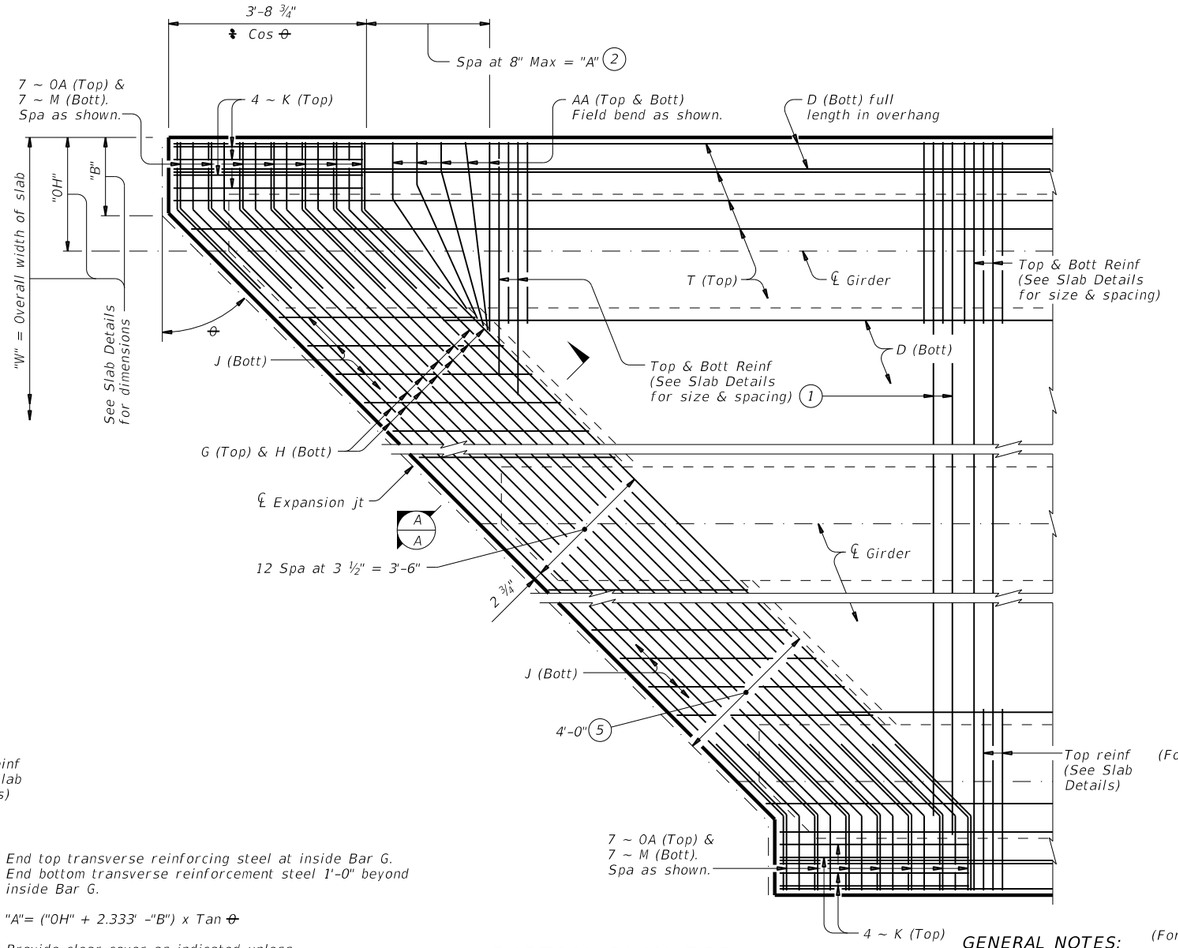


PARTIAL PLAN FOR SLABS WITHOUT BREAKBACK



PARTIAL PLAN FOR SLABS WITH BREAKBACK

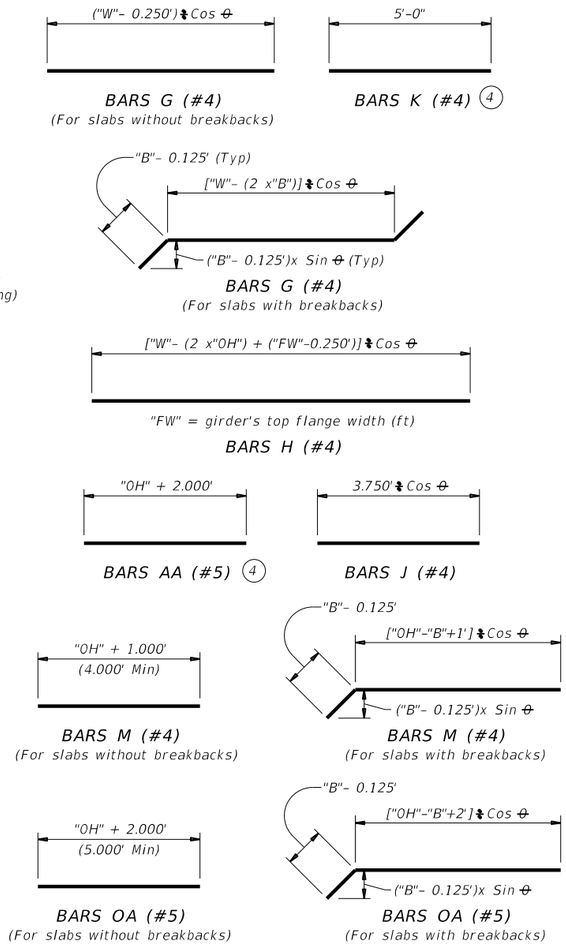
(1) End top transverse reinforcing steel at inside Bar G. End bottom transverse reinforcement steel 1'-0" beyond inside Bar G.

(2) "A"= ("0H" + 2.333' -"B") x Tan θ

(3) Provide clear cover as indicated unless otherwise shown on Span Details.

(4) Only required on slabs with breakbacks.

(5) Thickened slab end dimensioned perpendicular to face of bkwl, centerline interior bent or face of inverted-T stem.



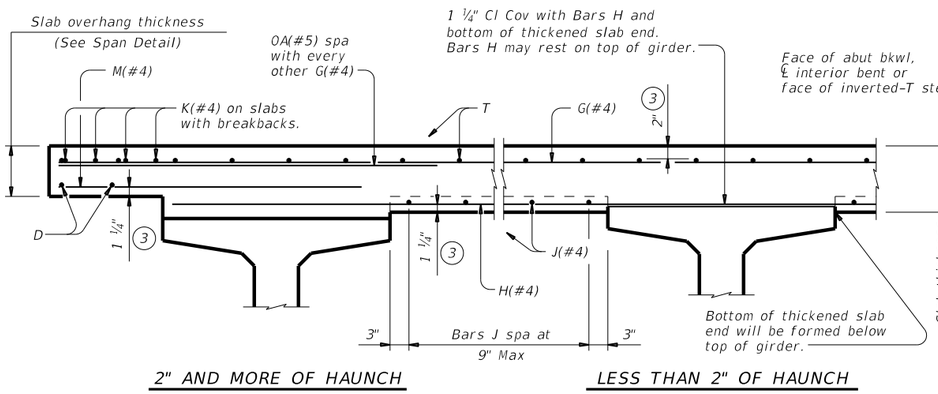
GENERAL NOTES:

Designed according to AASHTO LRFD Bridge Design Specifications.
These details are restricted to Prestressed Concrete I-Girder Spans.
These details are to be used in conjunction with the Span Details and PCP standard (if prestressed concrete panels are used).
When Option 2 from PCP standard is used, provide Bars AA, G, K and 0A in the slab.

MATERIAL NOTES:

Provide Grade 60 reinforcing steel.
If slab reinforcing steel is shown on the Slab Details to be epoxy coated, then Bars AA, G, K, H, J, M and 0A must be epoxy coated.
Provide bar laps, where required, as follows:
Uncoated ~ #4 = 1'-7"
Epoxy Coated ~ #4 = 2'-5"

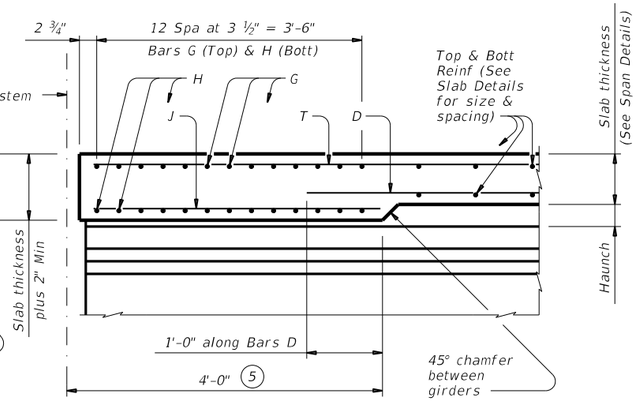
Cover dimensions are clear dimensions, unless noted otherwise.
Reinforcing bar dimensions shown are out-to-out of bar.



2" AND MORE OF HAUNCH — LESS THAN 2" OF HAUNCH

TYPICAL TRANSVERSE SECTION

(Showing Prestressed Conc I-Girders at ℄ Brg)



SECTION A-A

(Showing with 2" and more of haunch)

HL93 LOADING

Texas Department of Transportation — Bridge Division Standard

THICKENED SLAB END DETAILS
PRESTRESSED CONCRETE I-GIRDER SPANS

IGTS

FILE: IG-IGTS-17.dgn	DN: TxDOT	CK: TxDOT	DW: JTR	CK: TxDOT
©TxDOT August 2017	CONT	SECT	JOB	HIGHWAY
REVISIONS	0795	02	017	FM1260
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	CHS	DONLEY		88

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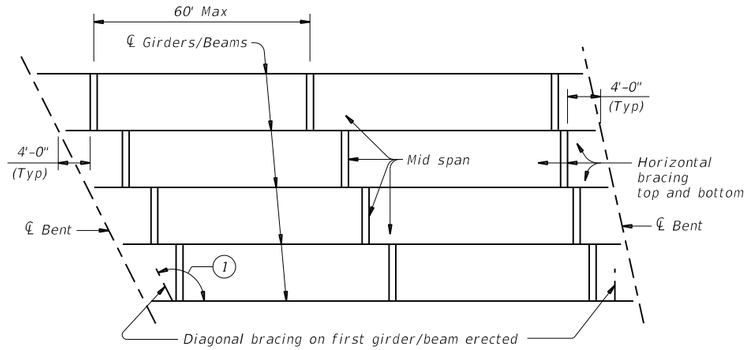
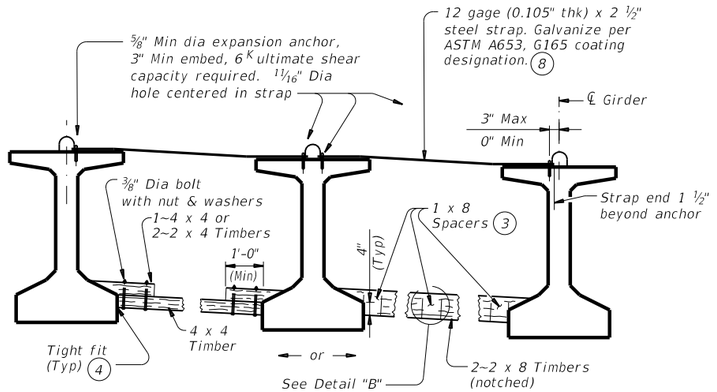
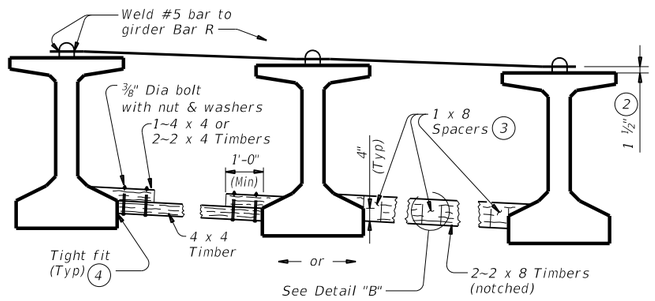


ERECTION BRACING



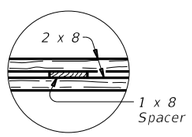
FOR ERECTION BRACING, OPTION 1

(This option is not allowed when slab is formed with PMDF or plywood.)



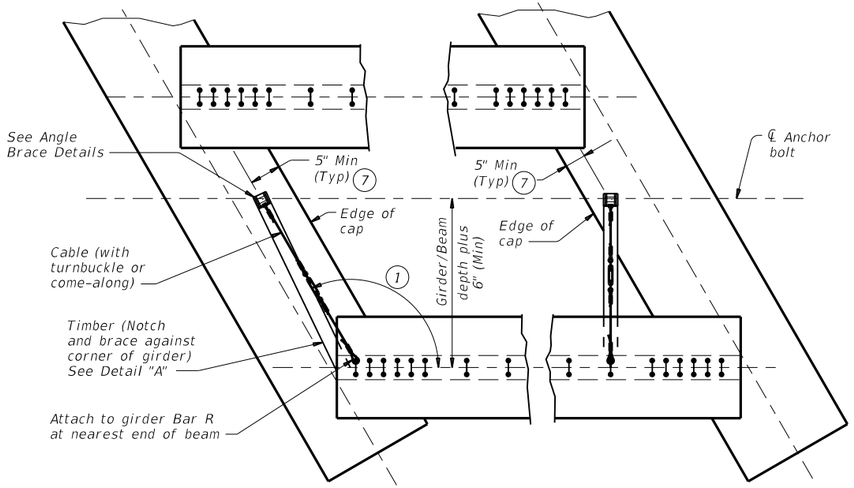
FOR ERECTION BRACING, OPTION 2

HORIZONTAL BRACING DETAILS (5)

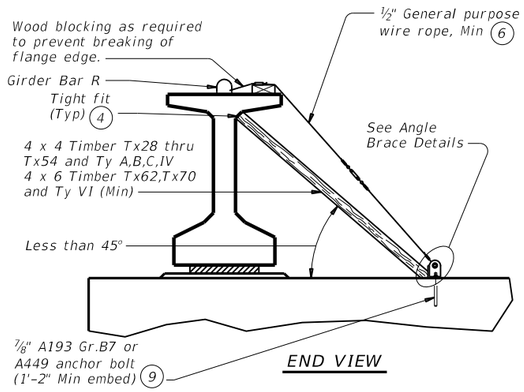


PLAN

DETAIL "B"



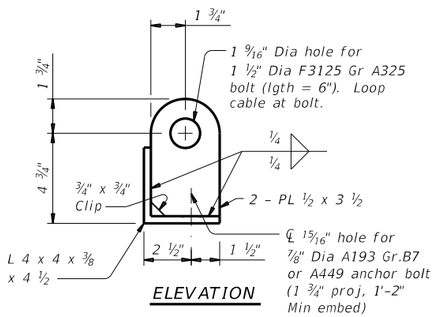
PLAN



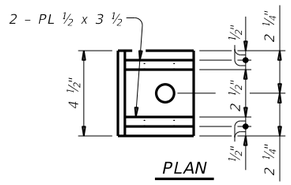
END VIEW

DIAGONAL BRACING DETAILS (5)

(To be used on both ends of the first girder/beam erected in the span in each phase.)



ELEVATION



PLAN

ANGLE BRACE DETAILS

HAULING & ERECTION:

The Contractor's attention is directed to the possible lateral instability of prestressed concrete girders and beams over 130' long, especially during hauling and erection. The use of the following methods to improve stability is encouraged: Locate lifting devices at the maximum practical distance from girder ends; use external lateral stiffening devices during hauling and erection; lift with vertical lines using two machines; and take care in handling to minimize inertial and impact forces.

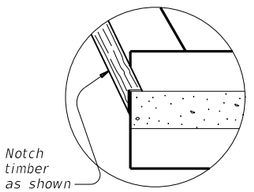
ERECTION BRACING:

Erection bracing details shown are considered the minimum for fulfilling the bracing requirements of Item 425.

Required erection bracing must be placed immediately after erection of each girder and remain in place until additional bracing as required for slab placement is in place. This standard is needed in all cases to meet requirements for Slab Placement Bracing.

PHASED CONSTRUCTION:

Place erection and slab placement bracing for all girders in a phase as shown in these details. For phases after first, also place erection and slab placement bracing between outer girder of completed phase and adjacent girder of current phase. When the phase construction joint is between girders, top bracing can be omitted.



DETAIL "A"

(1) If angle shown exceeds 120 degrees, move diagonal brace to other side of girder/beam and place square to girder/beam. This may prevent exterior girder from being erected first.

(2) Place and weld #5 bars as shown during erection. If forming deck with prestressed panels, bars can be temporarily removed, one at a time, during panel erection. Re-install bar prior to additional panel erection. Bars can rest on panels and be bent down and welded to girder Bars R (See Sheet 2 of 2).

(3) Clear distance between spacers must not exceed 3'. Nail together with 16d nails.

(4) Use wedges as necessary to obtain tight fit. Nail wedges to timbers.

(5) Pressure treated landscape timbers can not be used.

(6) All hardware used with cable must be able to develop a minimum 25 kips breaking strength. Use thimbles at all loops in cable. Install cable clamps with saddles bearing against the live end and U-bolts bearing aginst the dead end.

(7) It is acceptable to tie anchor bolts to cap reinforcement.

(8) Prior to installing, field bend strap to lay flush on both girders' top flange and slope between flange tips.

(9) Anchor bolt may be drilled and epoxied in place. Provide 25k minimum pullout. Core drill hole.

Texas Department of Transportation

Bridge Division Standard

MINIMUM ERECTION AND BRACING REQUIREMENTS

PRESTRESSED CONCRETE I-GIRDERS AND I-BEAMS

MEBR(C)

FILE: IG-MEBR(C)-17.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
©TxDOT August 2017 REVISIONS	CONT	SECT	JOB	HIGHWAY
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	DIST	COUNTY		SHEET NO.
	CHS	DONLEY		89

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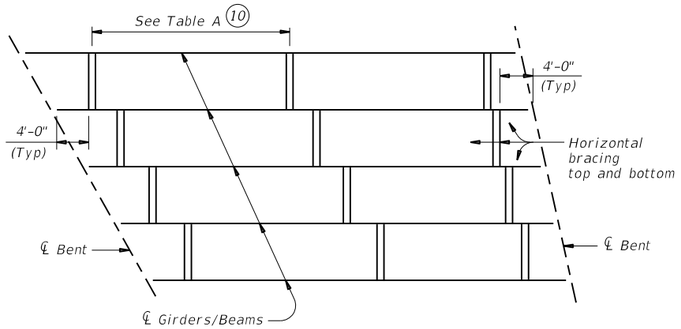


SLAB PLACEMENT BRACING

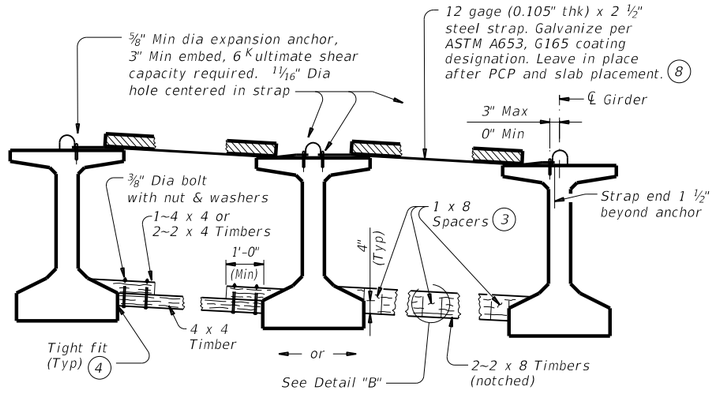
TABLE A

OPTION 1-RIGID BRACING (STEEL STRAP)

Girder or Beam Type	Maximum Bracing Spacing	
	Slab Overhang less than 4'-0" (11)	Slab Overhang 4'-0" and greater (11)
Tx28	¼ points	¼ points
Tx34	¼ points	¼ points
Tx40	¼ points	⅛ points
Tx46	¼ points	⅛ points
Tx54	¼ points	⅛ points
Tx62	¼ points	⅛ points
Tx70	¼ points	⅛ points
A	⅛ points	⅛ points
B	⅛ points	⅛ points
C	⅛ points	⅛ points
IV	¼ points	⅛ points
VI	¼ points	⅛ points

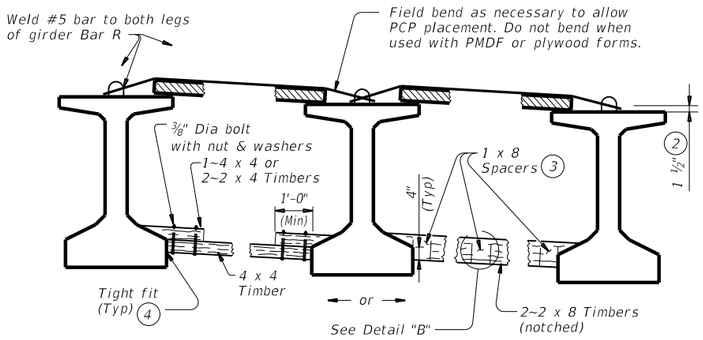
OPTION 2-FLEXIBLE BRACING (NO. 5 OVER PCP)

Girder or Beam Type	Maximum Bracing Spacing	
	Slab Overhang less than 4'-0" (11)	Slab Overhang 4'-0" and greater (11)
Tx28	¼ points	⅛ points
Tx34	¼ points	⅛ points
Tx40	¼ points	⅛ points
Tx46	¼ points	⅛ points
Tx54	¼ points	⅛ points
Tx62	¼ points	⅛ points
Tx70	¼ points	⅛ points
A	2.0 ft	1.5 ft
B	3.0 ft	2.0 ft
C	4.5 ft	2.0 ft
IV	¼ points	4.0 ft
VI	¼ points	4.0 ft



FOR SLAB PLACEMENT BRACING, OPTION 1 - RIGID

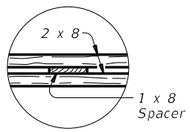
(Showing slab formed with PCP. This option is not allowed when slab is formed with PMDF or plywood.)



FOR SLAB PLACEMENT BRACING, OPTION 2 - FLEXIBLE

(Showing slab formed with PCP.)

HORIZONTAL BRACING DETAILS (5)



PLAN

DETAIL "B"

(2) Place and weld #5 bars as shown during erection. If forming deck with prestressed panels, bars can be temporarily removed, one at a time, during panel erection. Re-install bar prior to additional panel erection. Bars can rest on panels and be bent down and welded to girder Bars R.

(3) Clear distance between spacers must not exceed 3'. Nail together with 16d nails.

(4) Use wedges as necessary to obtain tight fit. Nail wedges to timbers.

(5) Pressure treated landscape timbers can not be used.

(8) Prior to installing, field bend strap to lay flush on both girders' top flange and slope between flange tips.

(10) Bracing spacing (¼ and ⅛ points) measured between first and last typical brace location.

(11) Measure slab overhang from centerline of girder or beam. When overhang varies in span, determine bracing spacing based on largest overhang.

SLAB PLACEMENT BRACING:

The details for slab placement bracing are considered minimum for fulfilling the requirements of Specification Items 422 and 425.

Required slab placement bracing must remain in place until slab concrete has attained a compressive strength of 3000 psi.

GENERAL NOTES:

Bracing details for spans longer than 150' are not provided. The Contractor must submit proposed bracing details for such conditions to the Engineer for approval prior to erection.

Systems equal to or better than those shown may be used provided details of such systems are submitted to and approved by the Engineer prior to erection.

Use of these systems or details does not relieve the Contractor of the responsibility for the adequacy of the bracing and the safety of the structure.

Removal of bracing for short periods of time to align girders and beams is permissible.

All turn-buckles, come-alongs, anchors and other connections must be capable of developing the full strength of the cable shown.

Furnish anchor bolts and nuts in accordance with Item 449, "Anchor Bolts".

Texas Department of Transportation

Bridge Division Standard

MINIMUM ERECTION AND BRACING REQUIREMENTS

PRESTRESSED CONCRETE I-GIRDERS AND I-BEAMS

MEBR(C)

FILE: IG-MEBR(C)-17.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
©TxDOT August 2017	CONT	SECT	JOB	HIGHWAY
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	DIST	COUNTY		SHEET NO.
	CHS	DONLEY		90

DATE: 12/1/2023 2:47:57 PM
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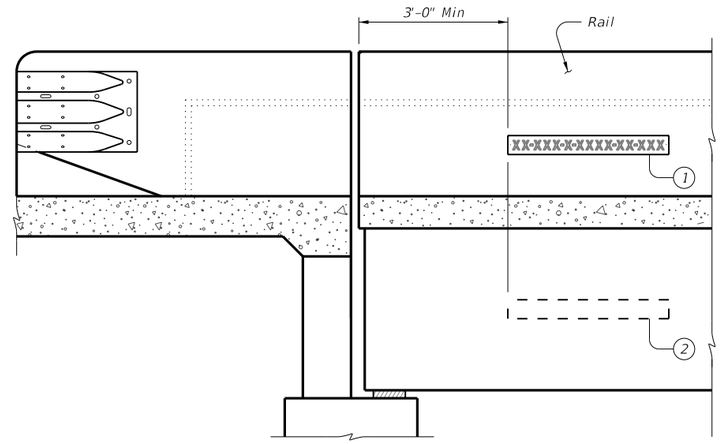
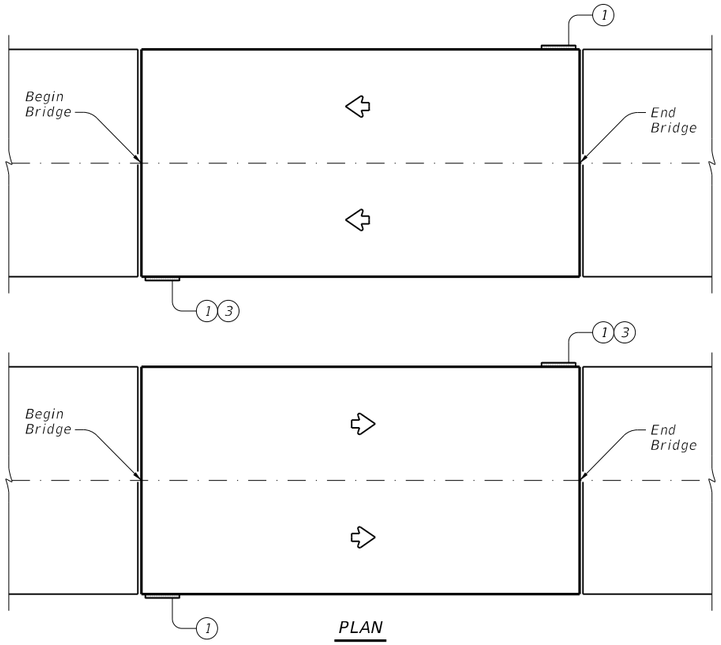
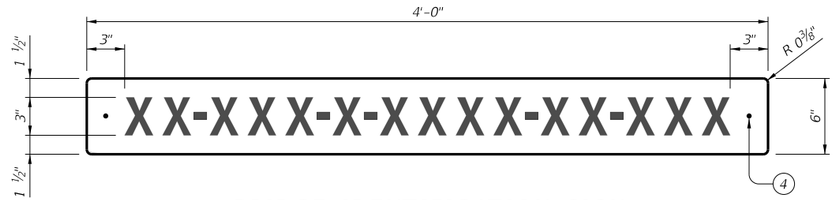


ELEVATION

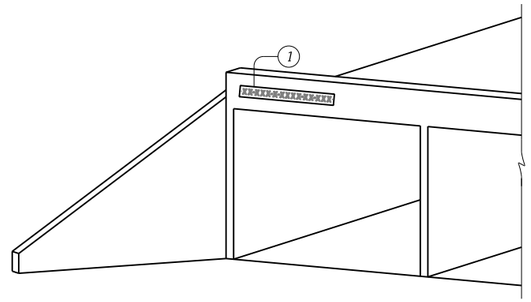


PLAN

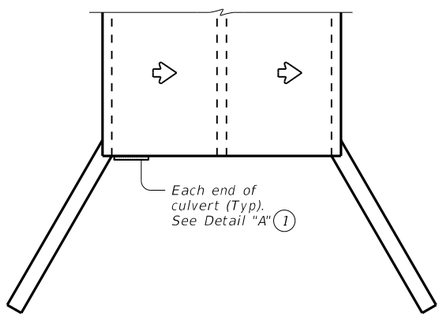
BRIDGE SIGN LOCATIONS



BRIDGE IDENTIFICATION SIGN

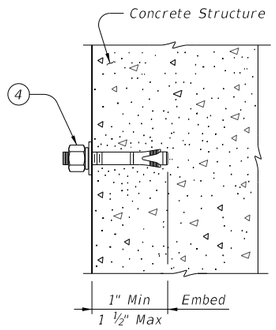


DETAIL "A"



PLAN

BRIDGE CLASS CULVERT SIGN PLACEMENT



ANCHOR DETAIL

SHEETING REQUIREMENTS

Usage	Color	Sign Face Material
Background	White	Type B or C Sheeting
Letters and Symbols	Black	Type B or C Sheeting

(1) Bridge identification sign location

(2) Alternate sign placement location for exterior concrete beams.

(3) If adjacent bridges are less than 2 feet apart, these signs may be omitted.

(4) ¼" Diameter stainless steel expansion anchor with hex nut, washer, and spring-lock washer.

SIGN NOTES:

Standard sign designs can be found in the Standard Highway Sign Designs for Texas (SHSD).

Use the Clearview Alphabet CV-2W for the letters and symbols.

MATERIAL NOTES:

Provide lateral spacing between letters and numerals conforming with the SHSD, and any approved changes thereto. Provide a balanced appearance when spacing is not shown.

Provide aluminum sign blanks with a minimum thickness of 0.080" that meet the requirements of DMS-7110.

Provide sign face materials that meet the requirements of DMS-8300 and the sheeting requirements shown in the table.

Provide ¼" diameter stainless steel expansion anchors with one hex head nut, one flat washer, and one helical spring-lock washer each.

Use torque controlled mechanical expansion anchors that are approved for use in cracked concrete by the International Code Council, Evaluation Service (ICC-ES). Provide anchor products that have a designated ICC-ES Evaluation Report number. The approval status must be maintained on the ICC-ES website under Division 031600 for Concrete Anchors.

Unless otherwise approved by the Engineer: do not use adhesive anchors; do not use expansion anchors that are not included in the ICC-ES approval list; and do not use expansion anchors that are only approved for use in uncracked concrete.

Use anchors manufactured with stainless steel expansion wedges. Anchors manufactured with carbon steel expansion wedges are not allowed. Anchor bodies can be either zinc-plated carbon steel or stainless steel. For application in marine environments, provide both stainless steel anchor bodies and expansion wedges.

GENERAL NOTES:

Prior to hole drilling, locate rebar to ensure clearing of existing reinforcement and/or strands.

Prior to installation, obtain approval of sign locations from the Engineer. Avoid placement of sign over travel lanes and pedestrian walkways. Submit proposed installation method to Engineer prior to beginning work. Install anchors as shown on plans and in accordance with the anchor manufacturer's published installation instructions.

Do not install anchors sections of members under tension.

For new construction, the signs and anchors are subsidiary to the bridge. For installations on existing structures, the signs and anchors are paid under Item 442, "Metal for Structures." Each sign weighs 28 lbs.

Texas Department of Transportation

Bridge Division Standard

NBIS BRIDGE IDENTIFICATION SIGN STANDARD

NBIS

FILE: MS-NBIS-23.dgn	DN: TAR	CK: TxDOT	DW: JER	CK: TAR
©TxDOT March 2023 REVISIONS	CONT	SECT	JOB	HIGHWAY
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	DIST	COUNTY		SHEET NO.
	CHS	DONLEY		91

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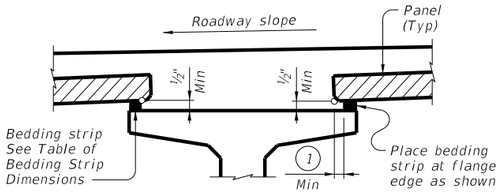
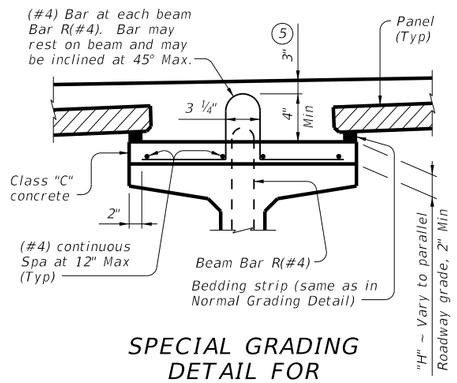


NORMAL GRADING DETAIL (3)

Showing prestressed concrete I-girders.
(Other beam types similar)



SPECIAL GRADING DETAIL FOR CONCRETE BEAMS

Showing prestressed concrete I-girders.
(Other beam types similar)

TABLE OF BEDDING STRIP DIMENSIONS		
WIDTH	HEIGHT (4)	
	Min	Max
1" (Min)	½"	2"
1 ¼"	½"	2 ½"
1 ½"	½"	3"
1 ¾"	½"	3 ½"
2"	½"	4"
2 ¼"	½"	4 ½" (2)
2 ½"	½"	5" (2)
2 ¾"	½"	5 ½" (2)
3" (Max)	½"	6" (2)

(1) 2" Min for I-girders, 1 ½" Min for all other beam types.

(2) Allowed for prestressed concrete I-girders, not allowed on other beam types.

(3) To reduce the quantity of cast-in-place concrete, bedding strip thickness may be increased in ¼" increments. Bedding strips must be comprised of one layer. Bond bedding strips to the beams with an adhesive compatible with bedding strips. Bedding strips over 2.5" high may need to be bonded to panels. The same thickness strip must be used under any one panel edge and the maximum change in thickness between adjacent panels is ¼". Alternatively, bedding strips may be cut to grade. Panels may be supported by an alternate method, using a commercial product, if approved by the Engineer of Bridge Design, Bridge Division. If bedding strips exceed 6" high for I-Girders, 4" high for all other beam types, use Special Grading Detail for Concrete Beams or submit an alternate method to the Bridge Division for approval.

(4) Height must not exceed twice the width.

(5) Provide clear cover as indicated unless otherwise shown on Span Details.

(6) See Span Details and Thickened Slab End Details for top slab reinforcement and clear cover. Transverse top slab reinforcement may rest on top of prestressed concrete panels if necessary to maintain clear cover.

(7) Space Bars UP(#4) with Beam Bars R(#4) in all areas where measured haunch exceeds 3 ½" with I-girders, and 3" for all other beam types. Epoxy coating for Bars UP is not required.

(8) Do not locate construction joints on top of a panel.

(9) Butt adjacent bedding strips together with adhesive. Cut v-notches, approx ¼" deep, in the top of the bedding strips at 8' o.c..

CONSTRUCTION NOTES:

Erected panels must bear uniformly on bedding strips of extruded polystyrene placed along top flange edges.

Placing panels to minimize joint openings is recommended.

If additional blocking is needed, special grading details for supporting the panels and extra reinforcing between beam and slab will be considered subsidiary to deck construction.

Bars U, shown on PCP-FAB, may be bent over or cut off if necessary.

Care must be taken to ensure proper cleaning of construction debris and consolidation of concrete material under the edges of the panels. Bedding strips must be placed at beam flange edges so that adequate space is provided for the mortar to flow a minimum of 1 ½" under the panels as the slab concrete is placed.

To allow the proper amount of mortar to flow between beam and panel, the minimum vertical opening must be at least ½". Roadway cross-slope reduces the opening available for entry of the mortar. Bedding strips varying in thickness across the beam are therefore required.

For clear span between U-beams less than or equal to 18", see Permissible Slab Forming Detail on Miscellaneous Slab Detail sheets, UBMS.

MATERIAL NOTES:

Provide Grade 60 reinforcing steel in the cast-in-place slab. See Table of Reinforcing Steel for size and spacing of reinforcement.

If the top and bottom layer of reinforcing steel is shown on the Span Details to be epoxy coated, then the D, E, P, & Z bars must be epoxy coated.

Provide bar Laps, where required, as follows:
Uncoated ~ #4 = 1'-7"
Epoxy Coated ~ #4 = 2'-5"

GENERAL NOTES:

Designed according to AASHTO LRFD Bridge Design Specifications.

Panel placement may follow either Option 1 or Option 2 except Option 1 must be used if the skew exceeds 45 degrees.

Use of Prestressed Concrete Panels is not permitted for horizontally curved steel plate or tub girders. See Span Details for other possible restrictions on their use.

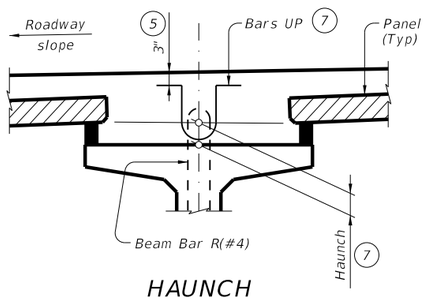
These details are to be used in conjunction with the Span Details, PCP-FAB and other applicable standard drawings.

When panel support (bedding strips) deviates from what is shown herein, provide details signed and sealed by a professional Engineer.

Any additional reinforcement or concrete required on this standard is considered subsidiary to the bid Item "Reinforced Concrete Slab".

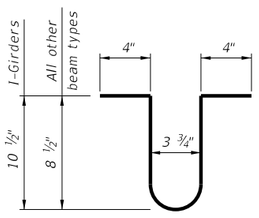
Cover dimensions are clear dimensions, unless noted otherwise.

Reinforcing bar dimensions shown are out-to-out of bar.

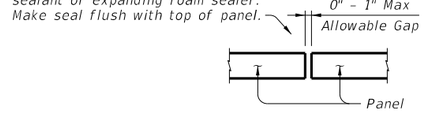


HAUNCH REINFORCING DETAIL

Showing prestressed concrete I-girders.
(Other beam types similar)

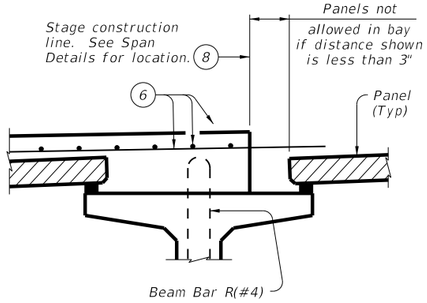


BARS UP (#4) (7)

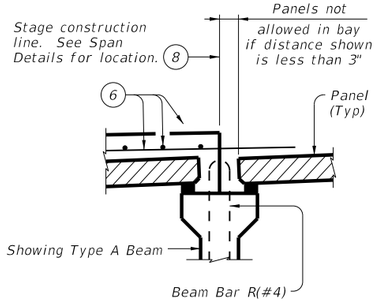


PANEL JOINTS

(Panel reinforcing not shown for clarity.
The gap cannot be considered as a panel fabrication tolerance. Adjust panel placement to minimize joint openings.)



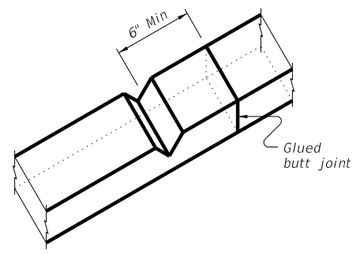
PRESTR CONC I-GIRDERS



PRESTR CONC I-BEAMS

STAGE CONSTRUCTION LIMITATIONS

(Other beam types similar)



BEDDING STRIP DETAIL (9)

HL93 LOADING SHEET 1 OF 4

Texas Department of Transportation — Bridge Division Standard

PRESTRESSED CONCRETE PANELS
DECK DETAILS

PCP

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©TxDOT April 2019	CONT	SECT	JOB	HIGHWAY
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3/2023: Removed top flange tension limit.	DIST	COUNTY		SHEET NO.
	CHS	DONLEY		92

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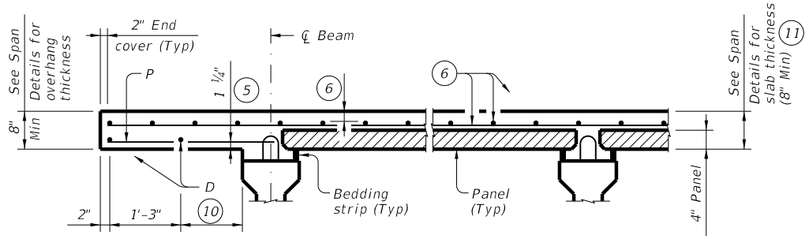
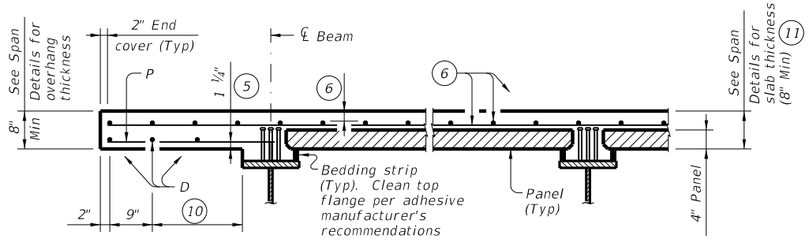
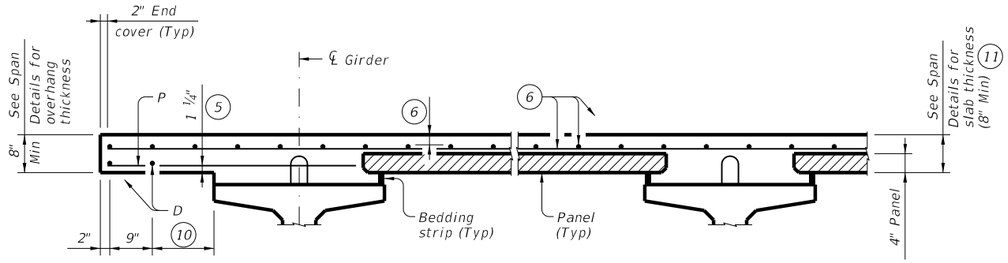


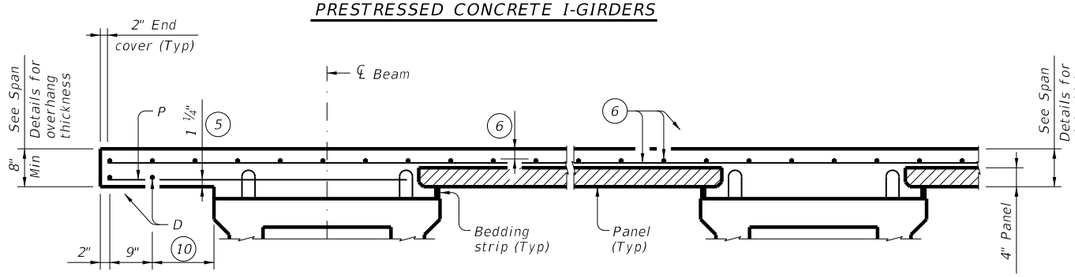
PRESTRESSED CONCRETE I-BEAMS



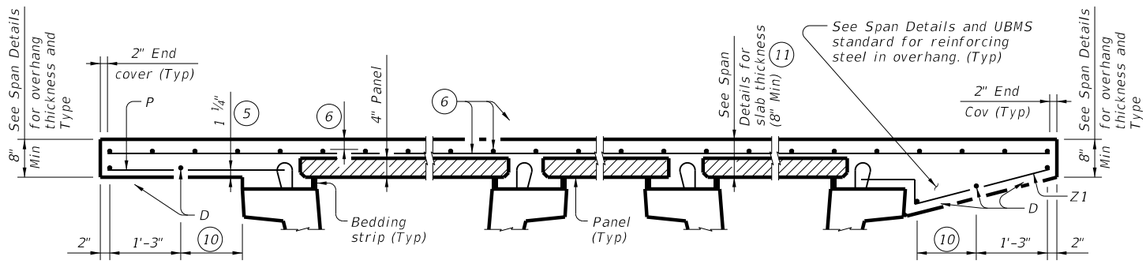
STEEL BEAMS (13)



PRESTRESSED CONCRETE I-GIRDERS



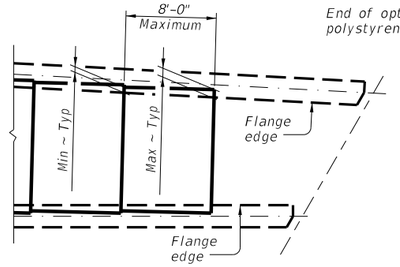
PRESTRESSED CONCRETE X-BEAMS



NORMAL OVERHANG WITH PRESTR CONC U-BEAMS

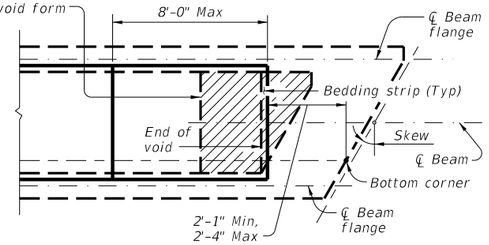
SLOPED OVERHANG WITH PRESTR CONC U-BEAMS

TYPICAL PART TRANSVERSE SECTIONS



AT FLARED BEAMS OR GIRDERS

See PCP-FAB standard for Min and Max dimensions based on beam/girder type.



OVER CONC U-BEAMS

PART PLANS OF PANEL PLACEMENT

(5) Provide clear cover as indicated unless otherwise shown on Span Details.

(6) See Span Details and Thickened Slab End Details for top slab reinforcement and clear cover. Transverse top slab reinforcement may rest on top of prestressed concrete panels if necessary to maintain clear cover.

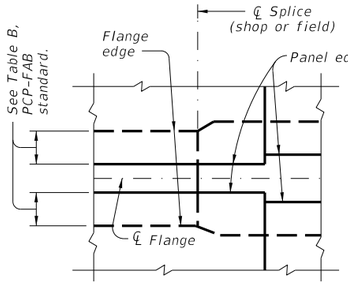
(9) Butt adjacent bedding strips together with adhesive. Cut v-notches, approx ¼" deep, in the top of the bedding strips at 8' o.c..

(10) Equally space additional bar if more than 1'-3" Max.

(11) The actual thickness constructed may exceed the slab thickness shown on the Span Details but the extra thickness may be no more than 2" (1" for prestressed concrete U-beams and steel beams). Bearing seat elevations or finished grade may be adjusted.

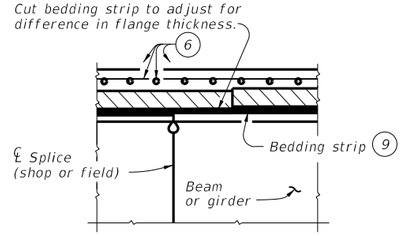
(12) Field adjust Bars Z1(#4) to match actual slope of slab overhangs. Width of slab overhang will vary along span with curved slab edges. Adjust Bar Z1(#4) dimensions to maintain proper cover. Bars Z2(#4) are located at Inverted-Tee stems only.

(13) Panels are allowed over top tension flanges, as approved by the Engineer. See Span Details for additional top mat reinforcement required in tension zones. Location of concrete placement sequence boundaries and bolted field splices should be considered by the contractor in determining panel limits.



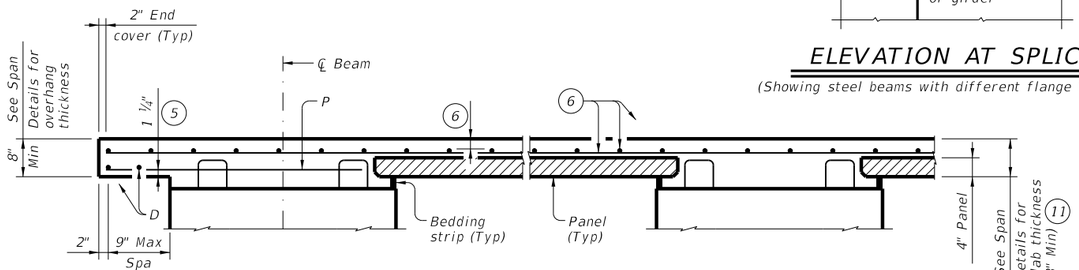
PLAN AT SPLICE

(Showing steel beams with flange width transition)



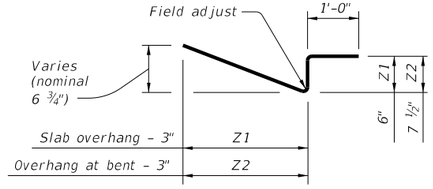
ELEVATION AT SPLICE

(Showing steel beams with different flange thickness)



PRESTRESSED CONCRETE SPREAD SLAB BEAMS

Bars P over exterior beams are still required when no overhang is used. In this case, only one Bar D, 2" from slab edge, is required.



BARS Z (#4) (12)

HL93 LOADING SHEET 2 OF 4

Texas Department of Transportation

Bridge Division Standard

PRESTRESSED CONCRETE PANELS
DECK DETAILS

PCP

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3/2023: Removed top flange tension limit.	DIST	COUNTY		SHEET NO.
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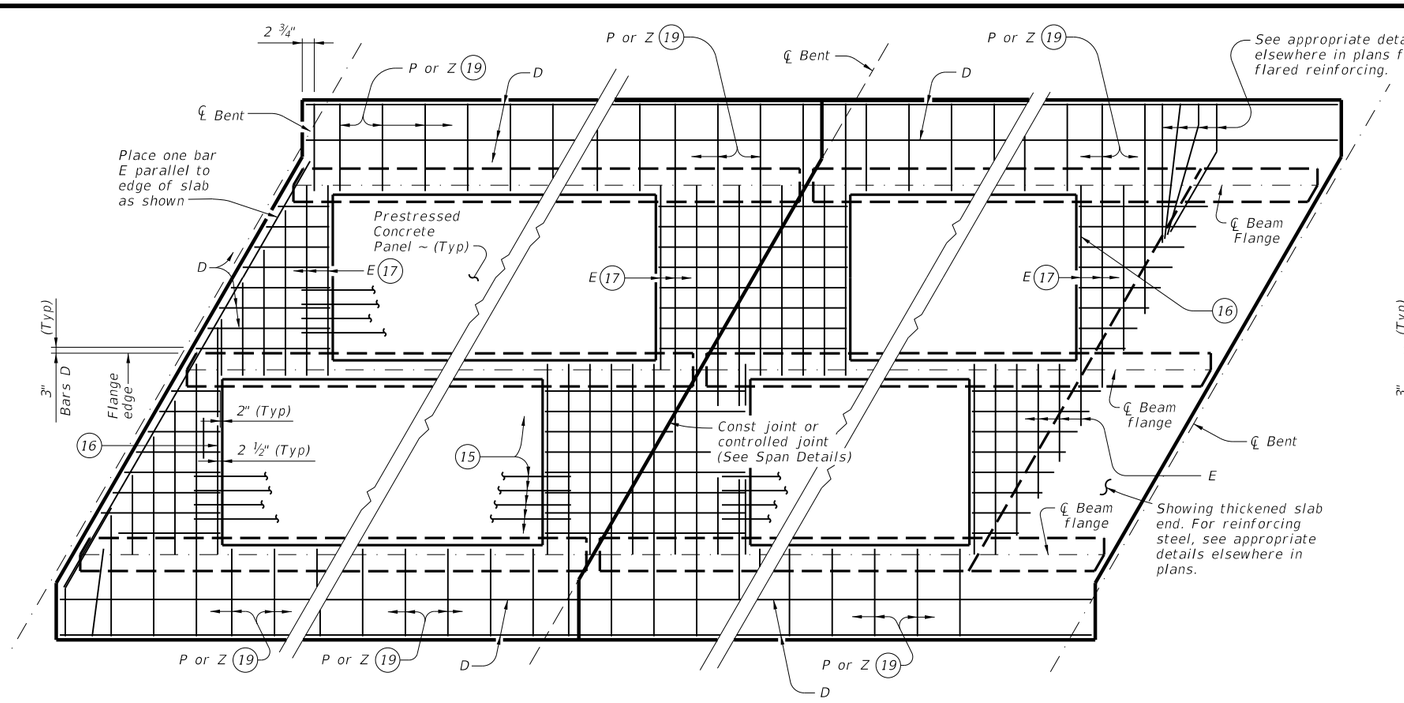
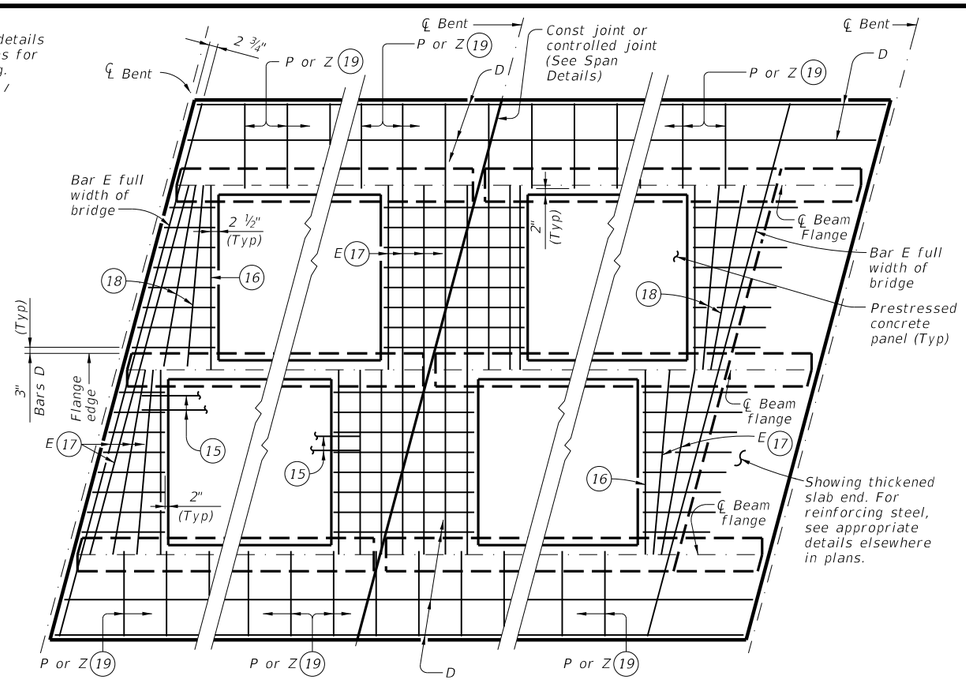


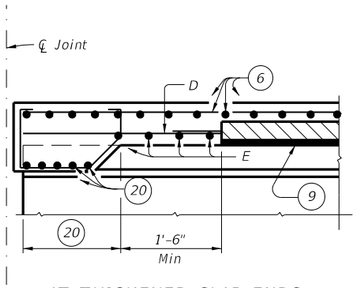
AT ALL SPAN ENDS UNLESS NOTED OTHERWISE | AT INTERIOR BENTS | AT THICKENED END SLABS

OPTION 1 ~ PLAN OF SLABS WITH NORMAL REINFORCEMENT

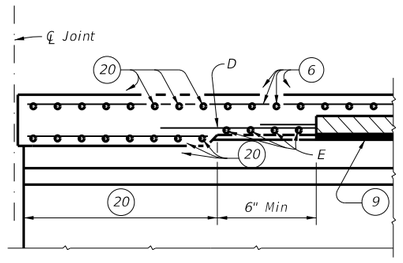


AT ALL SPAN ENDS UNLESS NOTED OTHERWISE | AT INTERIOR BENTS | AT THICKENED END SLABS

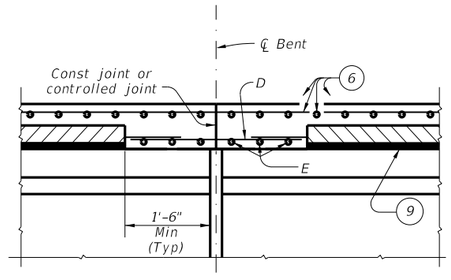
OPTION 1 ~ PLAN OF SLABS WITH SKEWED REINFORCEMENT



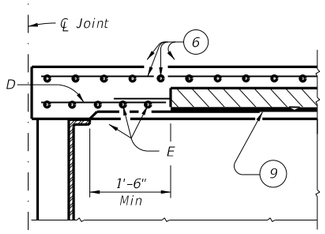
AT THICKENED SLAB ENDS FOR PRESTR CONCRETE U-BEAMS



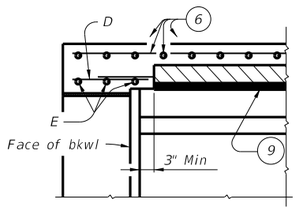
AT THICKENED SLAB ENDS FOR PRESTR CONCRETE I-BEAMS AND STEEL BEAMS



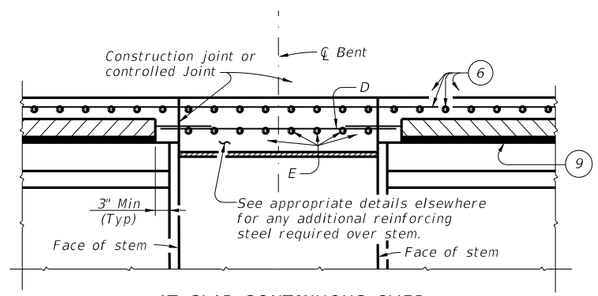
AT SLAB CONTINUOUS OVER CONVENTIONAL INTERIOR BENTS FOR ALL SIMPLE SPAN BEAMS



AT CONVENTIONAL END DIAPHRAGMS FOR STEEL BEAMS



AT SLAB OVER ABUTMENT BACKWALL FOR ALL BEAMS



AT SLAB CONTINUOUS OVER INVERTED-T BENTS FOR ALL BEAMS

OPTION 1 ~ ELEVATIONS AT BEAM ENDS

(6) See Span Details and Thickened Slab End Details for top slab reinforcement and clear cover. Transverse top slab reinforcement may rest on top of prestressed concrete panels if necessary to maintain clear cover.

(9) Butt adjacent bedding strips together with adhesive. Cut v-notches, approx ¼" deep, in the top of the bedding strips at 8' o.c.

(14) Max Spacing as listed unless otherwise shown.

(15) At connection with cast-in-place slab, extend longitudinal panel reinforcement. See PCP-FAB for details.

(16) Maintain one Bar E(#4) parallel to panel ends (Typ).

(17) Bars E(#4) not continuous over beam flanges must overlap beam flange 6" Min.

(18) Add flared Bars E(#4) (Min Spa = 6", Max Spa = 12") as required at panel ends.

(19) Where possible, Bars E(#4) may be extended into overhangs to replace Bars P(#4). Bars Z(#4) are required for sloped overhangs with U-Beams.

(20) See appropriate thickened slab end details for reinforcing and limits of thickened slab end.

TABLE OF REINFORCING STEEL (14)

BAR	SIZE	Max Spa (in.)
D	#4	9
E	#4	9
P	#4	18
UP	#4	~
Z	#4	18

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Texas Department of Transportation | Bridge Division Standard

PRESTRESSED CONCRETE PANELS
DECK DETAILS

PCP

FILE: MS-PCP-23.dgn	DN: TxDOT	CK: TxDOT	DW: JTR	CK: JMH
©TxDOT April 2019	CONT	SECT	JOB	HIGHWAY
REVISIONS	0795	02	017	FM1260
3/2023: Removed top flange tension limit.	DIST	COUNTY		SHEET NO.
	CHS	DONLEY		94

DATE: 12/1/2023 2:48:04 PM
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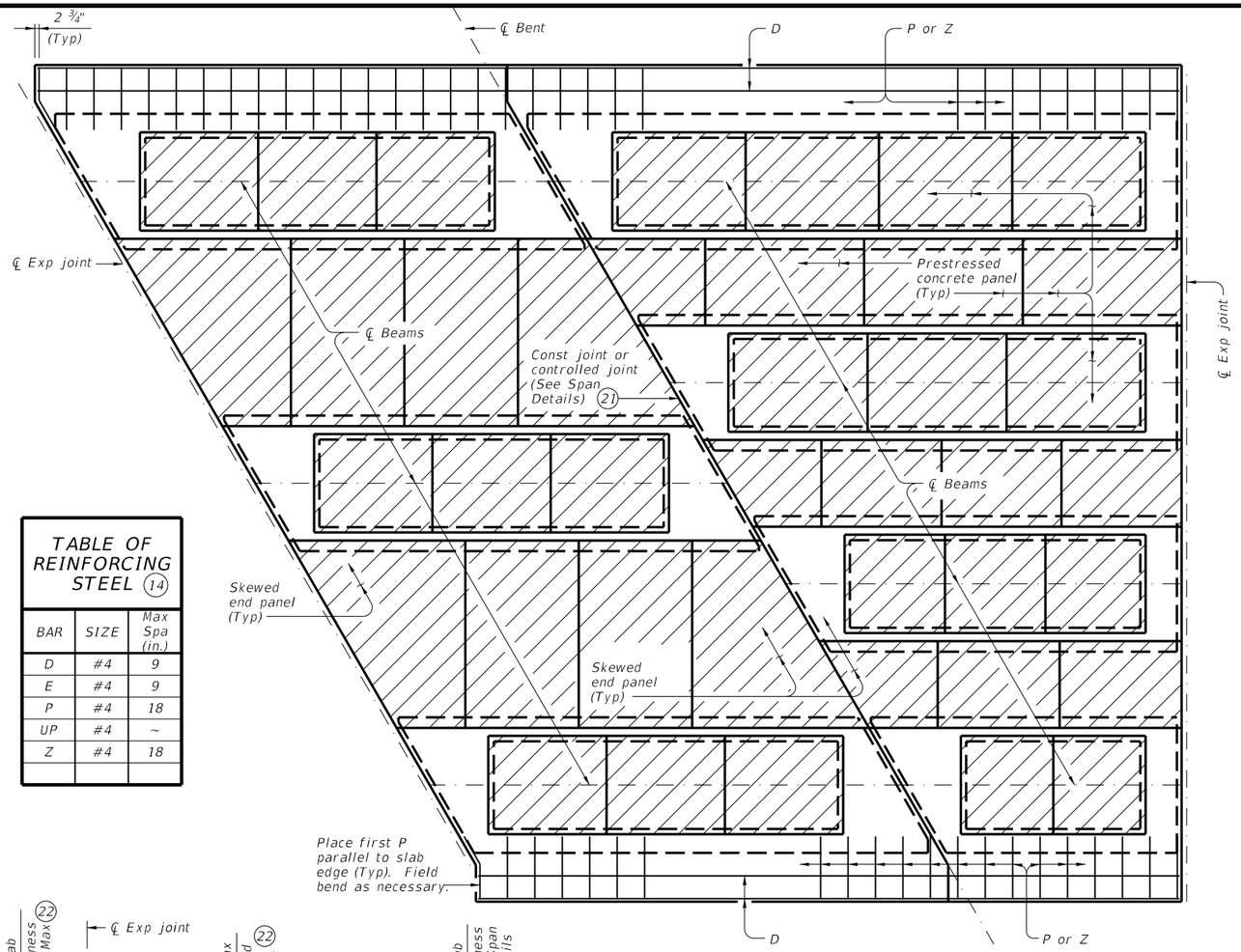
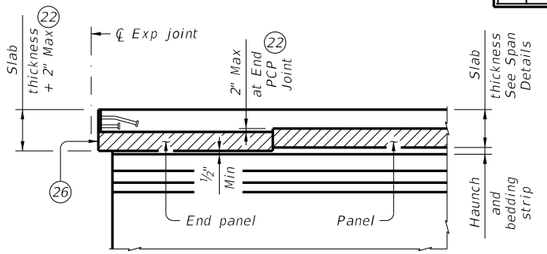


OPTION 2 ~ PLAN OF SLAB

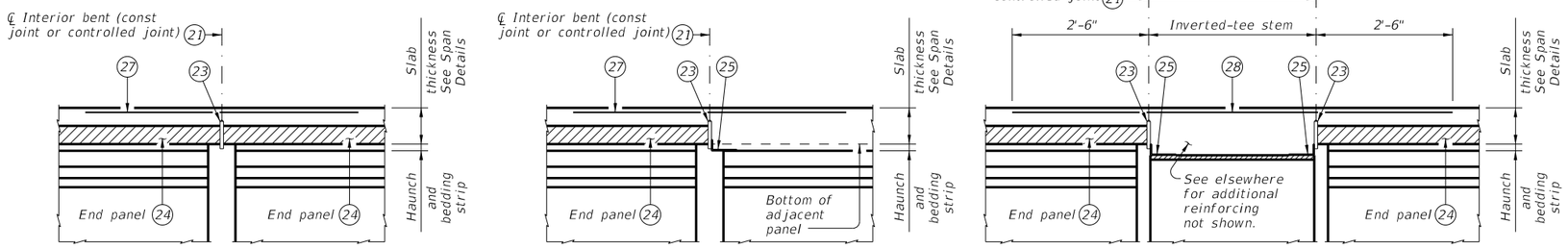
(Showing U-Beams; other beams similar)

TABLE OF REINFORCING STEEL (14)		
BAR	SIZE	Max Spa (in.)
D	#4	9
E	#4	9
P	#4	18
UP	#4	~
Z	#4	18



JOINTS (BETWEEN BEAMS/GIRDERS OR AT INV-T STEM)

For SEJ-B, SEJ-M, SEJ-S(0), AJ, and Type A expansion joints only.



CONVENTIONAL INTERIOR BENT

Panel against panel between beams/girders.

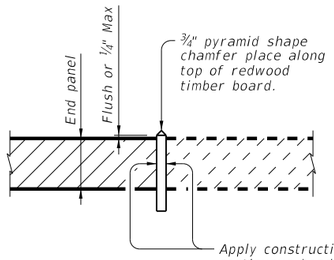
CONVENTIONAL INTERIOR BENT

Panel against beam/girder end in adjacent span.

INVERTED-T BENT

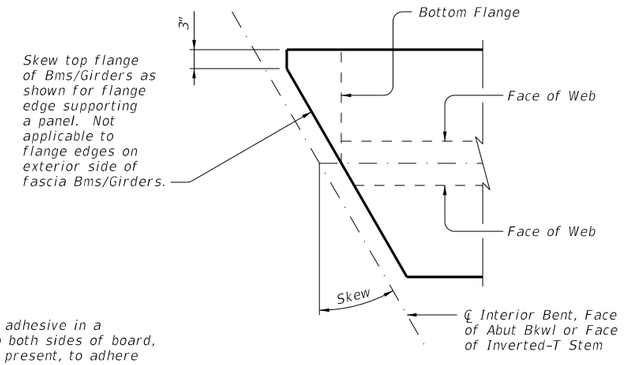
Panels against inverted-tee stem

OPTION 2 ~ ELEVATIONS AT BEAM ENDS (6)



ELEVATION EXAMPLE OF END PANEL AND TIMBER BOARD (23)

See "Option 2 ~ Elevation At Beam Ends".



OPTION 2 ~ SHOWING MODIFICATION TO BEAM/GIRDER TOP FLANGE FOR SKEWS OVER 5°

Showing I-Beam/I-Girder, U-Beams and Steel Beams similar.

(6) See Span Details and Thickened Slab End Details for top slab reinforcement and clear cover. Transverse top slab reinforcement may rest on top of prestressed concrete panels if necessary to maintain clear cover.

(14) Max Spacing as listed unless otherwise shown.

(21) 1 ½" Vinyl or plastic joint former at controlled joints (Stress Cap, Zip Strip, Stress Lock, or equal as approved by the Engineer.)

(22) End panel may be set up to 2" lower to accommodate expansion joint hardware, provided bedding strip is not less than ½" thick.

(23) ¾" thick redwood timber board, leave in place. Redwood timber board placed flush with top of panel or within ¼" Max above panel. Place ¾" pyramid shape chamfer along top of timber board. See "Elevation Example of End Panel and Timber Board". Place straight, within ¼" of centerline of bent or face of inverted-tee, across bridge width and end board at exterior flange edge of fascia beams/girders. Do not extend into overhang.

(24) Place panel within ½" of ¾" thick board.

(25) Permanent galvanized steel sheet form. Removable formwork is acceptable.

(26) Place end panel within ½" of expansion joint opening. End panel cannot encroach on required expansion joint opening.

(27) Place additional (#4) bar 5'-0" in length between every slab Bars T. Center (#4) bar on Joint.

(28) Place additional (#4) bar continuous 2'-6" beyond each side of Inverted-T Stem between every slab bars T.

SPECIAL OPTION 2 CONSTRUCTION NOTES:

When Option 2 is chosen bottom mat of thickened end slab reinforcing is not required. Use the same top mat as shown on the Thickened Slab End Details sheet.

Placing panels adjacent to expansion joints and bent centerlines prior to completing interior panel placement is recommended. Saw cutting panels to fit is acceptable when approved by the Engineer. Minimum distance from a saw cut edge to a panel strand is 1 ½".

Do not extend the longitudinal panel reinforcement into the cast-in-place slab.

Top flanges of beams and girders on skewed bridges must be modified as shown on this drawing. The Contractor is responsible for coordinating this modification with the beam fabricator prior to submitting shop drawings for approval.

Fabricator may optionally skew the whole end. When electing to skew whole end, girder end details and bearing type at conventional interior bent must be changed to use condition at abutment. Fabricator must coordinate change in bearing type, bearing centerline location, and dowel location with Engineer and Contractor. Show appropriate changes on girder and bearing shop drawings.

Bending of anchor studs of expansion joints shown on standards AJ, SEJ-B, SEJ-M, and SEJ-S(0) is permissible if necessary to clear top of end panels. The Contractor is responsible for coordinating modifications with the joint fabricator. Submit shop drawings for approval when modifications to expansion joint hardware are made.

Bedding strips under skewed end panels must conform to the requirements of Item 422 except their minimum compressive strength must be 60 psi.

Provide Bars AA, G, K and OA from standard IGTS in the slab.

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Texas Department of Transportation | Bridge Division Standard

PRESTRESSED CONCRETE PANELS
DECK DETAILS

PCP

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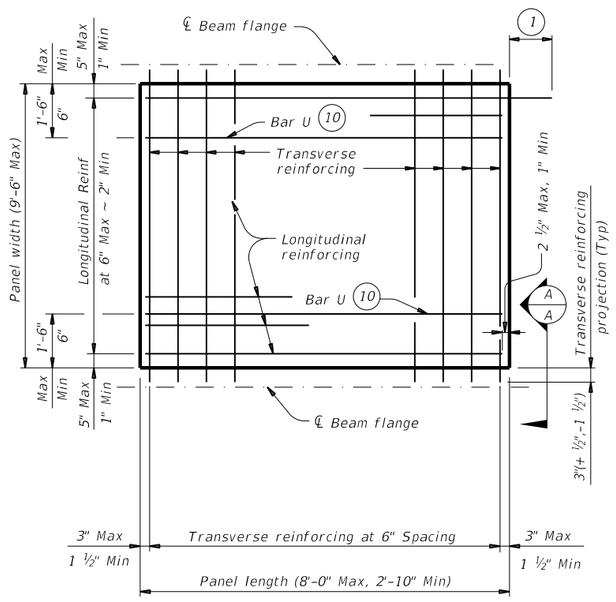
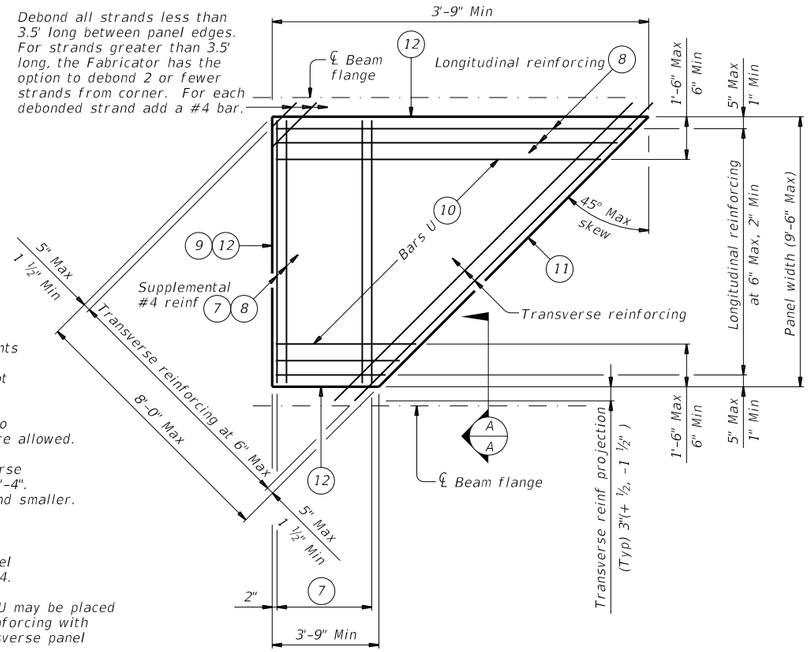


TYPICAL NON-SKEWED PANEL PLAN



TYPICAL SKEWED END PANEL PLAN

(Only to be used with details shown elsewhere in the plans.)

1. At connection with cast-in-place slab, extend longitudinal panel reinforcement 1'-0" (+2",-0") past panel end. Alternatively, provide (#3) x 2'-0" dowels at 6" Max Spacing and extend dowels 1'-0" past panel end.
2. Four loops required per panel.
3. Four loops required per panel. ⅜" or ½" strands may be used.
4. Normal dimensions must be used on spans with parallel beams. Maximum and Minimum dimensions apply only to spans with flared beams.
5. See Normal Grading Detail on PCP standard for lap requirements and bedding strip dimensions. Some laps shown in tables cannot utilize all bedding strip widths.
6. One Splice allowed per panel. No more than two sheets of WWR are allowed.
7. Provide (#4) bars under transverse reinforcing, 10 Spaces at 4" = 3'-4". Omit for 5 degree (1:12) skew and smaller.
8. End Cover 2 ½" Max, 1" Min.
9. Recess strands on indicated panel edge in accordance with Item 424.
10. At the fabricator's option, Bars U may be placed parallel to transverse panel reinforcing with horizontal legs in plane of transverse panel reinforcing.
11. Use length of indicated panel edge as panel width for purpose of determining type of transverse reinforcing.
12. Timber form work permissible this edge.

Debond all strands less than 3.5' long between panel edges. For strands greater than 3.5' long, the Fabricator has the option to debond 2 or fewer strands from corner. For each debonded strand add a #4 bar.

TABLE A (4) (5)

Beam Type	Normal (In.)	Min (In.)	Max (In.)
A	3	2 ½	3 ½
B	3	2 ½	3 ½
C	4	3	4 ½
IV	6	4	7 ½
VI	6 ½	4 ½"	8 ½
U40 - 54	5 ½	5 ½	7
Tx28-70	6	5	7 ½
XB20 - 40	4	3	4 ½
XSB12 - 15	4	3	4 ½

TABLE B (4) (5)

Top Flange Width	Normal (In.)	Min (In.)	Max (In.)
11" to 12"	2 ¾	2 ½	2 ¾
Over 12" to 15"	3 ¼	3	3 ¼
Over 15" to 18"	4	3	4 ¾
Over 18"	5	3 ½	6 ¼

GENERAL NOTES:

Provide Class H concrete for panels. Release strength f'ci=3,500 psi. Minimum 28 day strength f'c=5,000 psi.

Provide ¾" chamfer along bottom edge of panel on beam side.

Do not use epoxy-coated reinforcing steel bar or strand in panels.

Remove laitance from top panel surface.

Finish top of panel to a roughness between a No. 6 and No. 9 concrete surface profile, inclusive, as specified by the International Concrete Repair Institute (ICRI).

Shop drawings for the fabrication of panels will not require the Engineer's approval if fabrication is in accordance with the details shown on this standard.

A panel layout which identifies location of each panel must be developed by the Fabricator. Permanently mark each panel in accordance with the panel layout. A copy of the layout is to be provided to the Engineer.

TRANSVERSE PANEL REINFORCEMENT:

For panel widths over 5', use ⅜" or ½" Dia (270k) prestressing strands with a tension of 14.4 kips per strand.

For panel widths over 3'-6" up to and including 5', use ⅜" or ½" Dia (270k) prestressing strands with a tension of 14.4 kip per strand. Optionally, (#4) Grade 60 reinforcing bars may be used in lieu of prestressed strands.

For panel widths up to 3'-6", use (#4) Grade 60 reinforcing bars (prestressed strands alone are not allowed).

Place transverse panel reinforcement at panel centroid and space at 6" Max.

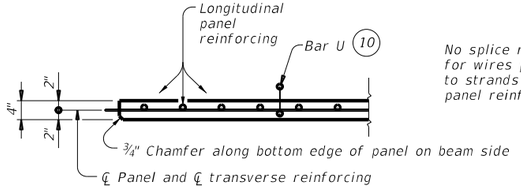
LONGITUDINAL PANEL REINFORCEMENT:

Any of the following options may be used for longitudinal panel reinforcement:

1. (#3) Grade 60 reinforcing steel at 6" Max Spacing. No splices allowed.
2. ⅜" Dia prestressing strands at 4 ½" Max Spacing (unstressed). No splices allowed.
3. ½" Dia prestressing strands at 6" Max Spacing (unstressed). No splices allowed.
4. Deformed Welded Wire Reinforcement (WWR) (ASTM A1064) providing 0.22 sq in per foot of panel width. Wires larger than D11 not permitted. Provide transverse wires to ensure proper handling of reinforcing. One splice per panel is allowed. See WWR Splice Detail.

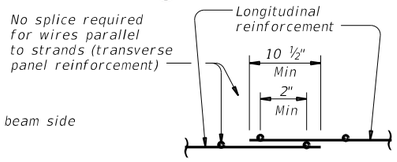
No combination of longitudinal reinforcement options in a panel is allowed.

Place longitudinal panel reinforcement above or below transverse panel reinforcement. Must be placed above transverse panel reinforcement for skewed end panels with supplemental (#4) reinforcement.

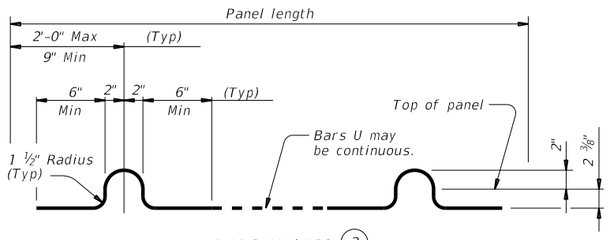


SECTION A-A

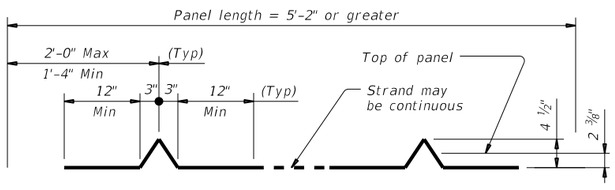
(Not showing supplemental #4 bars for skewed end panels.)



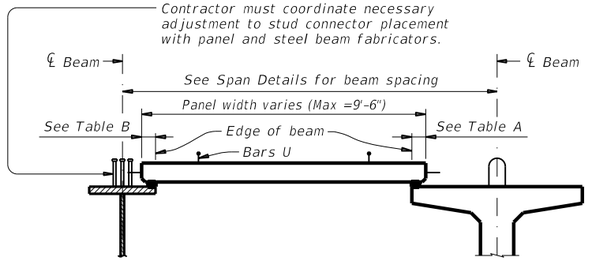
WELDED WIRE REINFORCEMENT (WWR) SPLICE DETAIL (6)



BARS U (#3) (2)



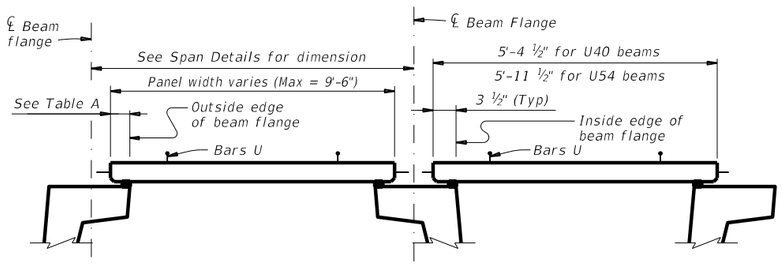
OPTIONAL STRAND FOR BARS U (3)



STEEL BEAMS

PRESTRESSED CONCRETE BEAMS OR GIRDERS

Typ unless noted otherwise



PRESTRESSED CONCRETE U-BEAMS

TYPICAL SECTIONS FOR DETERMINING PANEL WIDTH

HL93 LOADING

Texas Department of Transportation

Bridge Division Standard

PRESTRESSED CONCRETE PANEL FABRICATION DETAILS

PCP-FAB

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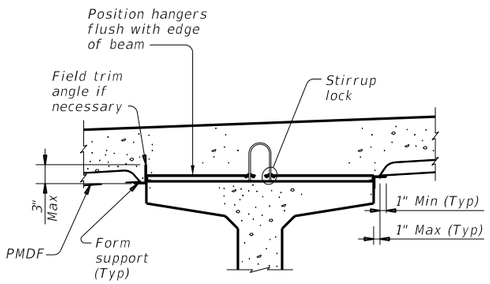
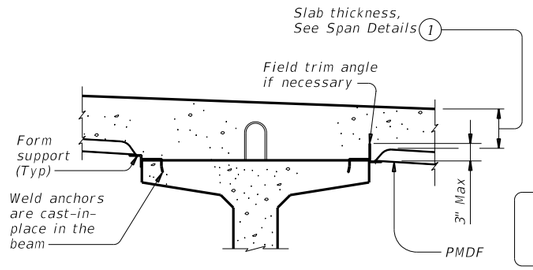
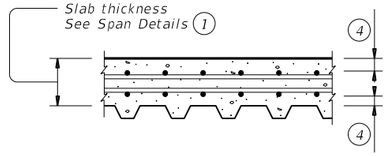


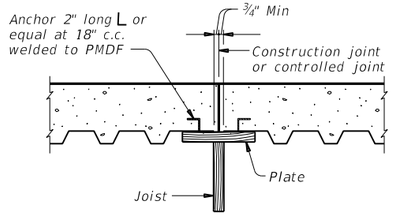
PRESTR CONC I-BEAMS AND I-GIRDERS WITH STIRRUP LOCKS



PRESTR CONC I-BEAMS AND I-GIRDERS WITH WELD ANCHORS

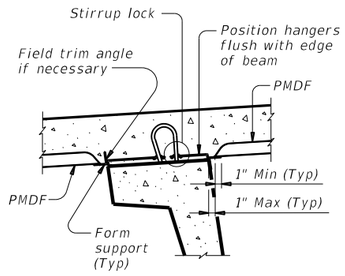


TYP LONGITUDINAL SLAB SECTION

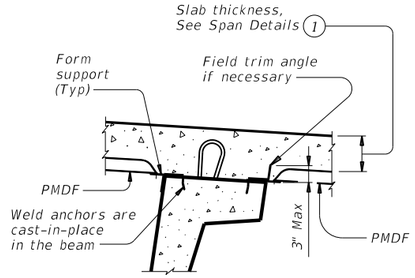


Note: In spans where PMD forms are used, timber forms must be used at construction joints. Adequate provision must be made to support edge of metal form and to provide anchorage of metal form to slab concrete where joined to wood forms.

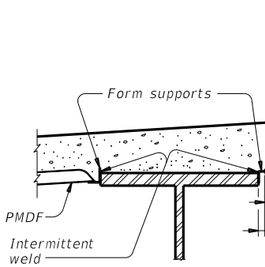
SECTION THRU CONSTRUCTION JOINT



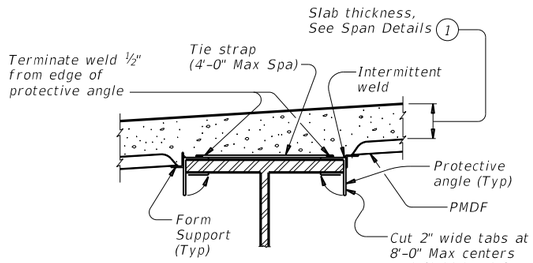
U-BEAMS WITH STIRRUP LOCKS



U-BEAMS WITH WELD ANCHORS

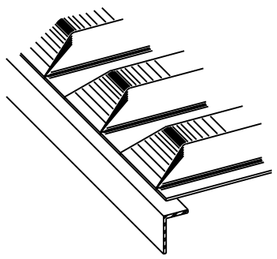


STEEL BEAMS AT COMPRESSION FLANGES



STEEL BEAMS AT TENSION FLANGES (2)

TYPICAL TRANSVERSE SECTIONS



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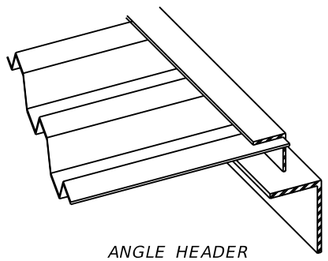
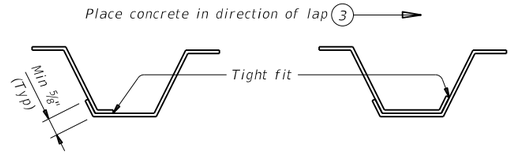


ANGLE HEADER

NOTE: This type is to be used for skewed ends only.

TYPES OF END CLOSURES



SIDE LAP DETAILS

(1) Slab thickness minus 5/8" if corrugations match reinforcing bars.

(2) Welding of form supports to tension flanges will not be permitted. Other methods of providing wind hold down resistance for PMDF in tension flange zones will be considered. At least one layer of sheet metal must be provided between the flange and the weld joint.

(3) The direction of concrete placement will be such that the upper layer of the form overlap is loaded first.

(4) See Span details for cover requirements.

FOR PRESTR CONC U-BEAM AND STEEL GIRDER BRIDGES:
Unless shown elsewhere in the plans, size, spacing, and orientation of bottom mat of slab reinforcement must match the top mat of reinforcing shown on the span details except all bottom mat bars are to be #5. Bottom mat reinforcement and additional concrete is subsidiary to Item 422 "Concrete Superstructures."

FOR PRESTR CONC TX-GIRDER BRIDGES:
See Miscellaneous Slab Details, Prestr Concrete I-Girders (IGMS) standard sheet for bottom mat reinforcing.

GENERAL NOTES:

Steel for Permanent Metal Deck Forms (PMDF) and support angles shall conform to ASTM A653, structural steel (SS), with coating designation G165. Steel must have a minimum yield strength of 33 ksi. Minimum thickness of PMDF is 20 gage and that of support angles and protective angles is 12 gage.

Submit two copies of forming plans for PMDF to the Engineer. These plans must show all essential details of proposed form sheets, closures, fasteners, supports, connectors, special conditions and size and location of welds. These plans must clearly show areas of tension flanges for steel beams and provisions for protecting the tension flanges from welding notch effects by inclusion of separating sheet metal or other positive method. These plans must be designed, signed, and sealed by a licensed professional engineer. Department approval of these plans is not required, but the Department reserves the right to require modifications to the plans. The Contractor is responsible for the adequacy of these plans.

The details and notes shown on this standard are to be used as a guide in preparation of the forming plans.

All material, labor, tools and incidentals necessary to form a bridge deck with Permanent Metal Deck Forms is considered subsidiary to Item 422, "Concrete Superstructures".

DESIGN NOTES:

As a minimum, PMDF and support angles must be designed for the dead load of the form, reinforcement and concrete plus 50 psf for construction loads. Flexural stresses due to these design loads must not exceed 75 percent of the yield strength of the steel. Allowable stress for weld metal must be 12,400 psi.

Maximum deflection under the weight of forms, reinforcement and concrete or 120 psf, whichever is greater, shall not exceed the following:

1/180 of the form design span, but not more than 0.50", for design spans of 10' or less.

1/240 of the form design span, but not more than 0.75", for design spans greater than 10'.

1/240 of the form design span, but not more than 0.75", for all design spans of railroad overpass bridge spans fully or partially over railroad right-of-way, and for all bridge spans of railroad underpass structures.

The form design span must not be less than the clear distance between beam flanges, measured parallel to the form flutes, minus 2".

CONSTRUCTION NOTES:

Form sheets must not be permitted to rest directly on the top of beam flanges. Form sheets must be securely fastened to form supports and must have a minimum bearing length of one inch at each end. Form supports must be placed in direct contact with beam flanges.

All attachments must be made by permissible welds, screws, bolts, clips or other means shown on the forming plans. All sheet metal assembly screws must be installed with torque-limiting devices to prevent stripping. Only welds or bolts must be used to support vertical loads.

Welding and welds must be in accordance with the provisions of Item 448, "Structural Field Welding", pertaining to fillet welds. All welds must be made by a qualified welder in accordance with Item 448.

All permanently exposed form metal, where the galvanized coating has been damaged, must be thoroughly cleaned and repaired in accordance with Item 445, "Galvanizing". Minor heat discoloration in areas of welds need not be touched up.

Flutes must line up uniformly across the entire width of the structure where main reinforcing steel is located in the flute.

Construction joints will not be permitted unless shown on the plans. The location of and forming details for any construction joint used must be shown on the forming plans. Forms below a construction joint must be removed after curing of the slab.

A sequence for uniform vibration of concrete must be approved by the Engineer prior to concrete placement. Attention must be given to prevent damage to the forms, yet provide proper vibration to prevent voids or honeycomb in the flutes and at headers and/or construction joints.

Texas Department of Transportation

Bridge Division Standard

PERMANENT METAL DECK FORMS

PMDF

FILE: MS-PMDF-21.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
©TxDOT April 2019	CONT	SECT	JOB	HIGHWAY
REVISIONS	0795	02	017	FM1260
02-20: Modified box note by adding steel beams/girders and subsidiary.	DIST	COUNTY		SHEET NO.
12-21: Updated max deflection for RR.	CHS	DONLEY		97

DATE: 12/1/2023 2:48:17 PM
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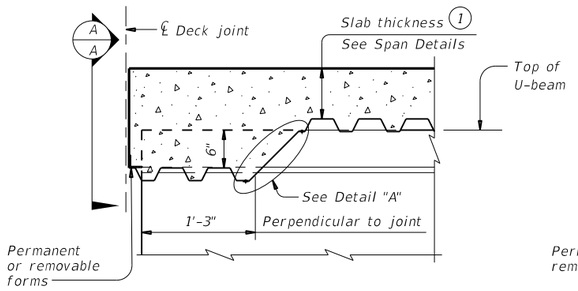
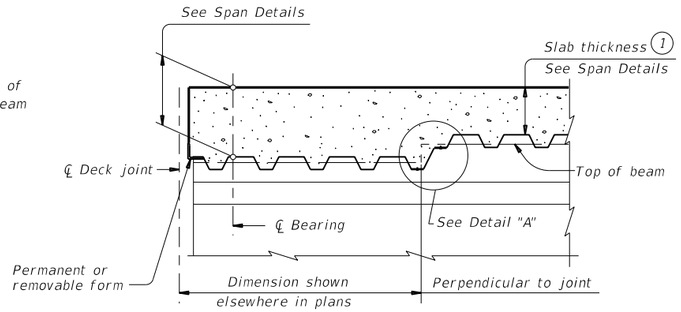
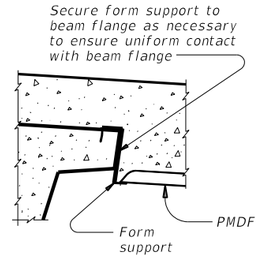


AT THICKENED SLAB END FOR U-BEAMS

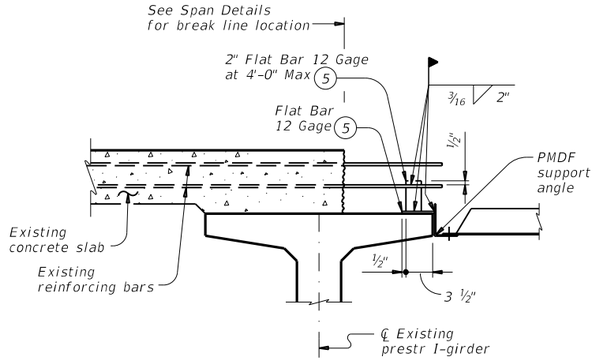


AT THICKENED SLAB END FOR PRESTRESSED I-BEAMS, I-GIRDERS AND STEEL BEAMS

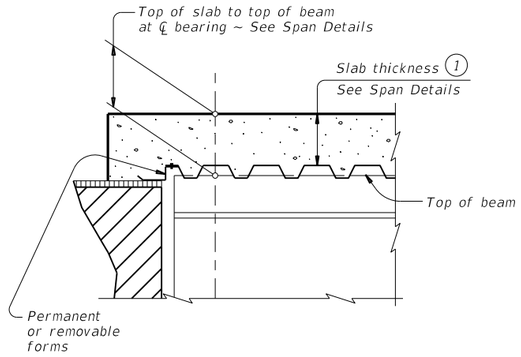
Showing I-beam block-out. No block-out for I-girders or steel beams.



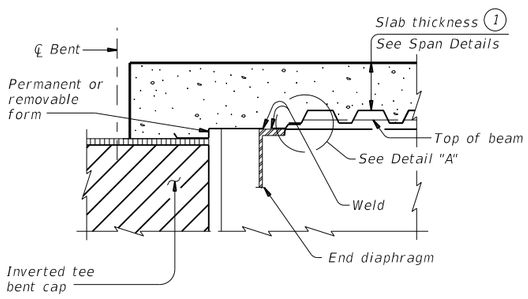
SECTION A-A



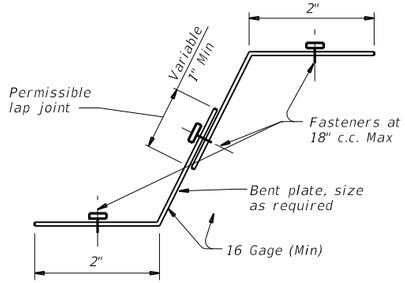
SHOWING PRESTRESSED CONCRETE I-BEAMS, I-GIRDERS AND U-BEAMS



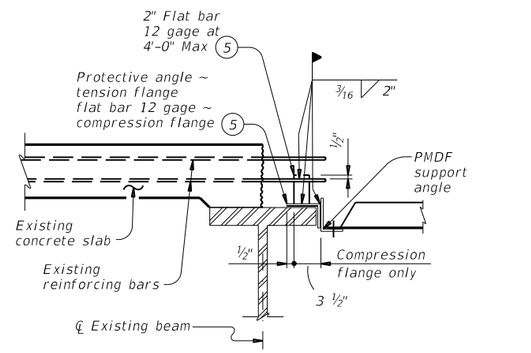
AT SLAB OVER ABUTMENT BACKWALL OR INVERTED-T STEM FOR CONCRETE BEAMS WITHOUT THICKENED SLAB END



AT SLAB OVER INVERTED-T STEM FOR STEEL BEAMS WITHOUT THICKENED SLAB END

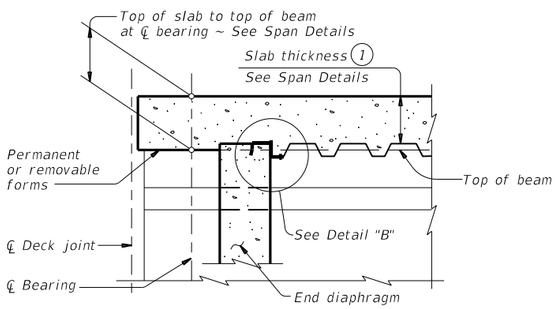


DETAIL "A"

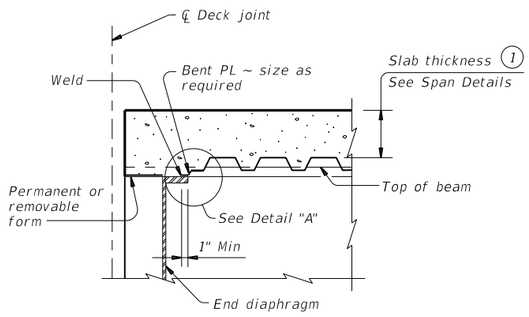


SHOWING STEEL BEAMS

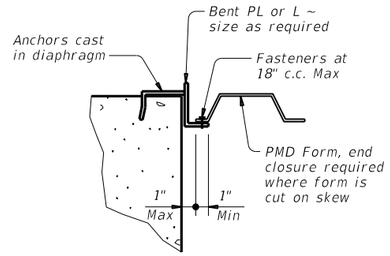
WIDENING DETAILS



AT CONCRETE END DIAPHRAGM FOR PRESTRESSED I-BEAMS AND STEEL BEAMS



AT END DIAPHRAGM FOR STEEL BEAMS WITHOUT THICKENED SLAB END



DETAIL "B"

(1) Slab thickness minus 5/8" if corrugations match reinforcing bars

(5) Minimum yield stress of 12 gage bars shall be 40 ksi

DETAILS AT ENDS OF BEAMS

SHEET 2 OF 2

Texas Department of Transportation

Bridge Division Standard

PERMANENT METAL DECK FORMS

PMDF

FILE: MS-PMDF-21.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
©TxDOT April 2019	CONT	SECT	JOB	HIGHWAY
REVISIONS	0795	02	017	FM1260
02-20: Modified box note by adding steel beams/girders and subsidiary; 12-21: Updated max deflection for RR.	DIST	COUNTY		SHEET NO.
	CHS	DONLEY		98

DATE: 12/1/2023 2:48:29 PM
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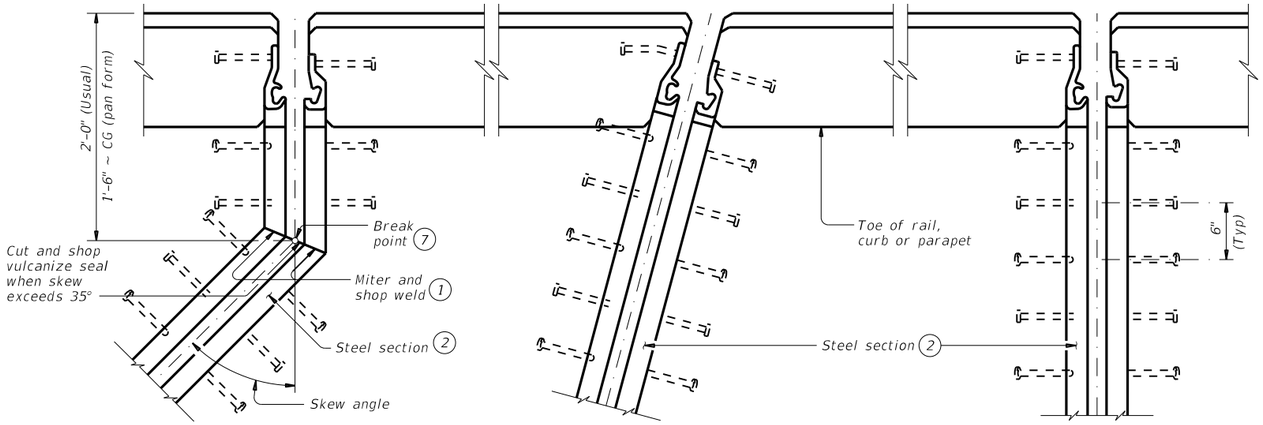
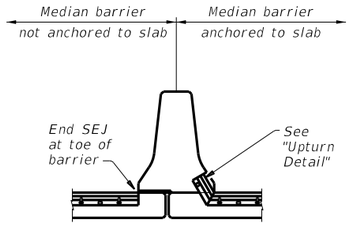
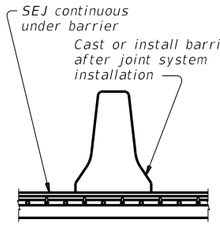


SHOWING SKEWS WITH SLAB BREAKBACKS | SHOWING SKEWS WITHOUT SLAB BREAKBACKS | SHOWING WITHOUT SKEWS AND SLAB BREAKBACKS

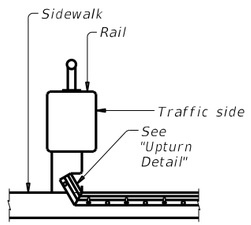
PLANS OF END CONDITIONS



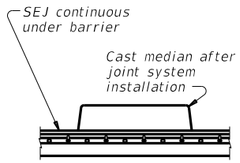
WITH OPEN DECK JOINT BELOW MEDIAN BARRIER



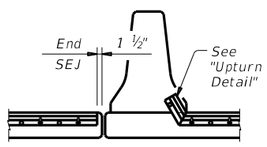
AT MEDIAN BARRIER



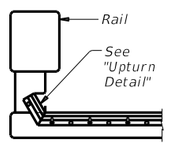
AT SIDEWALK BEHIND BRIDGE RAIL



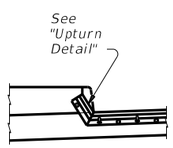
AT RAISED MEDIAN



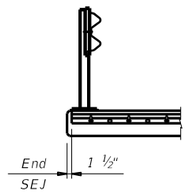
WITH OPEN DECK JOINT ADJACENT TO MEDIAN BARRIER



AT CONCRETE BRIDGE RAIL

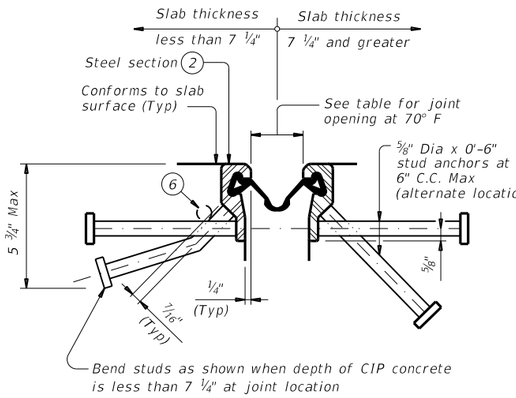


AT SIDEWALK

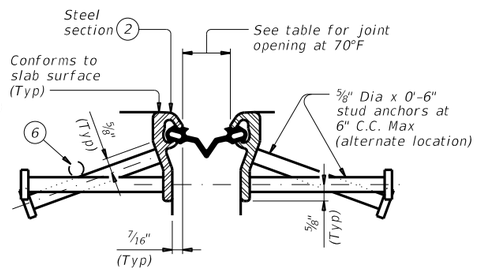


AT STEEL POST BRIDGE RAIL

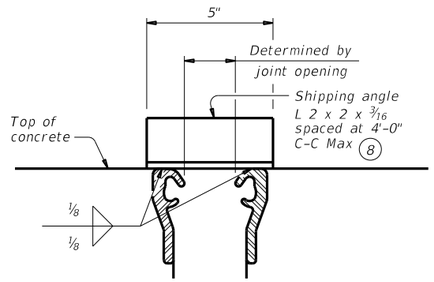
TYPICAL SECTIONS (5)



SECTION THRU WATSON BOWMAN ACME (SE-400 OR SE-500) JOINTS



SECTION THRU D.S. BROWN (A2R-400 OR A2R-XTRA) JOINTS



SHOWING D.S. BROWN (Ty SSCM2)
(All joints are similar.) (Studs are not shown for clarity.)

SHIPPING ANGLE

An alternate method of securing joint sections may be used if approved by the Bridge Division. Erection bolts are not allowed.

TABLE OF SEALED EXPANSION JOINT INFORMATION

MANUFACTURER	STEEL SECTION (2)	STRIP SEAL			
		4" JOINT		5" JOINT	
		Seal Type	Joint Opening (3)	Seal Type	Joint Opening (3)
D.S. Brown	Type SSCM2	A2R-400	1 ¾"	A2R-XTRA	2"
Watson Bowman Acme	Type R	SE-400	1 ¾"	SE-500	2"

REDUCED LONGITUDINAL MOVEMENT RANGE

SKEW (deg)	JOINT SIZE	
	4"	5"
0	4.0"	5.0"
15	4.0"	5.0"
30	3.5"	4.3"
45	2.8"	3.5"

DESIGN NOTES:

Joints installed on a skew have reduced ability to accommodate longitudinal movement. Use table values to determine the correct joint size for skewed installations.

For other skews over 25 degrees, calculate reduced movement range by multiplying joint size by cosine (skew).

(1) Remove all burrs which will be in contact with seal prior to making splice.

(2) Shape of steel section shown is typical. Variations in sections must be approved by the Engineer.

(3) These openings are also the recommended minimum installation openings.

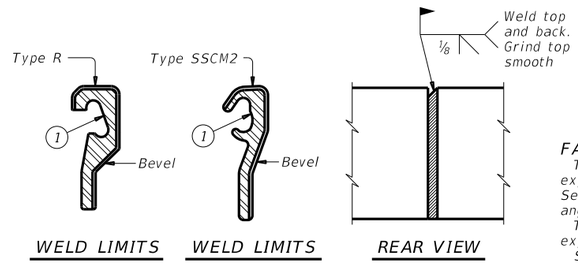
(4) Reduce for sidewalk or parapet heights less than 6".

(5) Other conditions affecting the joint profile should be noted elsewhere.

(6) Move transverse bars that are in conflict with SEJ studs, in either the bridge slab or approach slab, to rest at the junction of the studs.

(7) See Span details for location of break point.

(8) Align shipping angle perpendicular to joint.



WELD LIMITS | WELD LIMITS | REAR VIEW

FIELD SPLICE DETAIL

FABRICATION NOTES:

Temporarily shop assemble corresponding sections of sealed expansion joints (SEJ), check for fit, and match mark for shipment. Secure corresponding sections together for shipment with shipping angle. Do not use erection bolts.

The seal must be continuous and included in the price bid for sealed expansion joint.

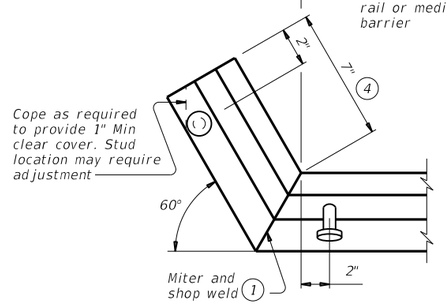
Ship steel sections in convenient lengths of 10'-0" Min and 24'-0" Max unless necessary for staged construction or widenings. One shop splice is permitted in each shipping length provided no piece is less than 2'-0" long and sufficient studs are added to limit the stud to shop splice distance to 2" Min and 4" Max.

Weld studs in accordance with AWS D1.1.

Butt weld all shop and field splices and grind smooth areas in contact with seal. Make all necessary field splice joint preparations in the shop.

Paint the entire steel section with System II or IV primer in accordance with Item 446, "Field Cleaning and Painting Steel", unless required to galvanize when shown in the plans. Provide galvanizing in accordance with Item 445, "Galvanizing". Provide paints in accordance with Item 446.2. Prepare steel and apply paint in accordance with Item 446.4.7.3 and 446.4.7.4.

Shop drawings for the fabrication of sealed expansion joints will not require the Engineer's approval if fabrication is in accordance with the details shown on this standard.



UPTURN DETAIL

CONSTRUCTION NOTES:

Secure the sealed expansion joint in position and place to the proper grade and alignment by welding braces to adjacent reinforcing steel, to prestressed beam stirrups, or to anchors cast in concrete diaphragms. Include cost of temporary bracing in the price bid for sealed expansion joint.

Remove shipping angle immediately after each joint half is secured in place. Grind smooth, and touch up with organic zinc-rich paint.

Clean and prepare seal cavity for seal installation as per the Manufacturer's installation procedures.

GENERAL NOTES:

Provide sealed expansion joints in the size and at locations shown on the plans.

Minimum slab and overhang thickness required for the use of SEJ-M is 6 ½".

Texas Department of Transportation

Bridge Division Standard

SEALED EXPANSION JOINT TYPE M
WITHOUT OVERLAY

SEJ-M

FILE: MS-SEJ-M-19.dgn	DN: TxDOT	CK: TxDOT	DW: JTR	CK: JMH
©TxDOT April 2019 REVISIONS	CONT	SECT	JOB	HIGHWAY
	0795	02	017	FM1260
	DIST	COUNTY		SHEET NO.
	CHS	DONLEY		99

DATE: 12/1/2023 2:48:35 PM
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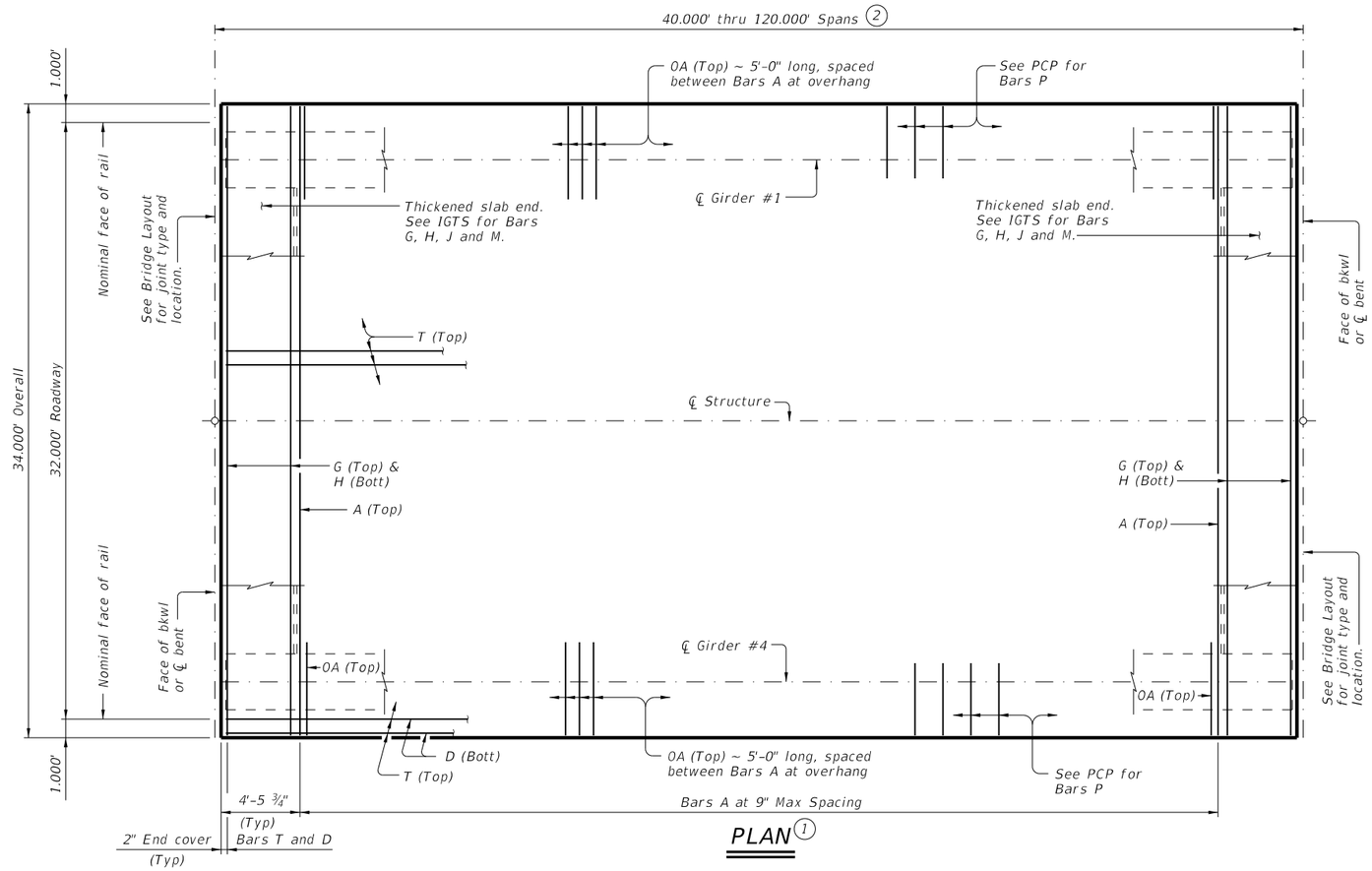
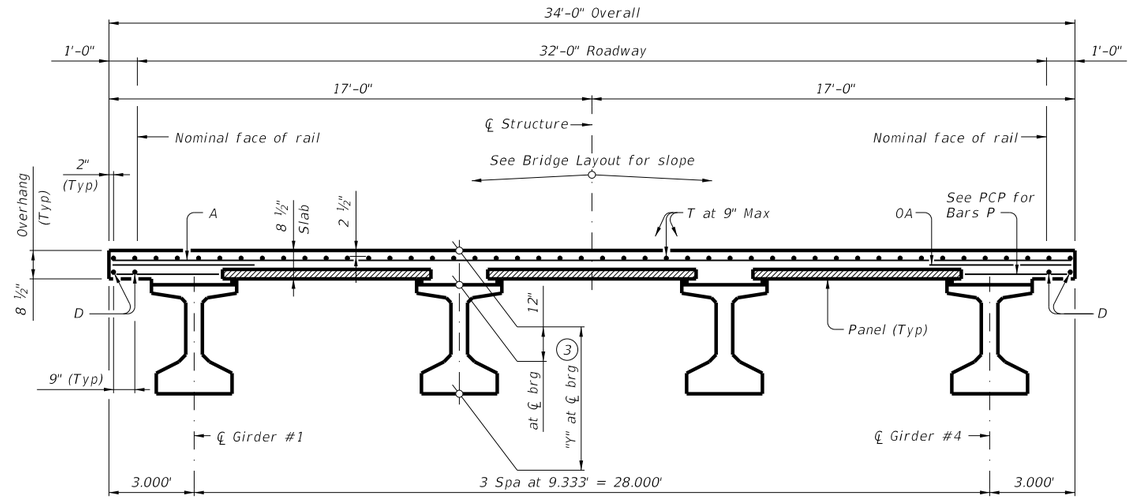


PLAN (1)



TYPICAL TRANSVERSE SECTION

(Showing girder type Tx46)

BAR TABLE	
BAR	SIZE
A	#4
D	#4
G	#4
H	#4
J	#4
M	#4
0A	#5
P	#4
T	#4

TABLE OF SECTION DEPTHS	
GIRDER TYPE	"Y" AT ℄ BRG (3)
	Ft/In
Tx28	3'-4"
Tx34	3'-10"
Tx40	4'-4"
Tx46	4'-10"
Tx54	5'-6"

(1) If multi-span units (with slab continuous over interior bents) are indicated on the Bridge Layout, see standard IGCS for adjustment to slab reinforcement and quantities.

(2) Span lengths for prestressed concrete I-Girder type:
Type Tx28 for spans lengths 40.000' thru 65.000'.
Type Tx34 for spans lengths 40.000' thru 80.000'.
Type Tx40 for spans lengths 40.000' thru 90.000'.
Type Tx46 for spans lengths 40.000' thru 100.000'.
Type Tx54 for spans lengths 40.000' thru 120.000'.

(3) "Y" value shown is based on theoretical girder camber, dead load deflection from an 8 ½" concrete slab, a constant roadway grade, and using precast panels (PCP). The Contractor will adjust this value as necessary for any roadway vertical curve.

HL93 LOADING SHEET 1 OF 2

Texas Department of Transportation | Bridge Division Standard

PRESTRESSED CONCRETE I-GIRDER SPANS (TYPE Tx28 THRU Tx54)

32' ROADWAY

SIG-32

FILE: IG-SIG3200-23.dgn	DN: JMH	CK: ASB	DW: JTR	CK: TAR
©TxDOT August 2017	CONT	SECT	JOB	HIGHWAY
REVISIONS	0795	02	017	FM1260
10-19: Increased "X" and "Y" Values. 01-23: Removed PCP(0) reference.	DIST	COUNTY		SHEET NO.
	CHS	DONLEY		100

DATE: 12/1/2023 2:48:35 PM
FILE: pw://txdot.projectwiseonline.com:TxDOT5/Documents/25 - CHS/Design Projects/079502174 - Design/Plan Set/7. Bridge/IG-SIG3200-23.dgn

TABLE OF DEAD LOAD DEFLECTIONS

TYPE Tx28 GIRDERS

SPAN LENGTH	"A"	"B"
Ft	Ft	Ft
40	0.011	0.015
45	0.017	0.024
50	0.026	0.037
55	0.040	0.056
60	0.057	0.080
65	0.079	0.111

TYPE Tx34 GIRDERS

SPAN LENGTH	"A"	"B"
Ft	Ft	Ft
40	0.006	0.009
45	0.010	0.014
50	0.016	0.022
55	0.024	0.033
60	0.034	0.048
65	0.047	0.066
70	0.064	0.090
75	0.085	0.120
80	0.111	0.156

TYPE Tx40 GIRDERS

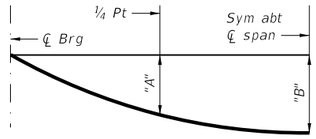
SPAN LENGTH	"A"	"B"
Ft	Ft	Ft
40	0.004	0.006
45	0.006	0.009
50	0.011	0.015
55	0.016	0.022
60	0.022	0.031
65	0.031	0.043
70	0.042	0.059
75	0.056	0.078
80	0.073	0.102
85	0.093	0.131
90	0.118	0.165

TYPE Tx46 GIRDERS

SPAN LENGTH	"A"	"B"
Ft	Ft	Ft
40	0.003	0.004
45	0.004	0.006
50	0.007	0.010
55	0.011	0.015
60	0.015	0.021
65	0.021	0.030
70	0.028	0.040
75	0.038	0.053
80	0.049	0.069
85	0.063	0.089
90	0.080	0.113
95	0.100	0.140
100	0.123	0.173

TYPE Tx54 GIRDERS

SPAN LENGTH	"A"	"B"
Ft	Ft	Ft
40	0.002	0.003
45	0.003	0.004
50	0.005	0.007
55	0.007	0.010
60	0.010	0.014
65	0.014	0.020
70	0.019	0.027
75	0.025	0.035
80	0.033	0.046
85	0.042	0.059
90	0.053	0.074
95	0.066	0.093
100	0.081	0.114
105	0.100	0.140
110	0.120	0.169
115	0.144	0.202
120	0.172	0.241



DEAD LOAD DEFLECTION DIAGRAM

Calculated deflections shown are due to the concrete slab on interior girders only (Ec = 5000 ksi). Adjust values as required for exterior girders and if optional slab forming is used. These values may require field verification.

TABLE OF ESTIMATED QUANTITIES

SPAN LENGTH	REINF CONCRETE SLAB	Prestressed Concrete Girders			TOTAL (5) REINF STEEL
		ABUT TO (4) INT BT	INT BT TO (4) INT BT	ABUT TO (4) ABUT	
Ft	SF	LF	LF	LF	Lb
40	1,360	158.00	158.00	158.00	3,128
45	1,530	178.00	178.00	178.00	3,519
50	1,700	198.00	198.00	198.00	3,910
55	1,870	218.00	218.00	218.00	4,301
60	2,040	238.00	238.00	238.00	4,692
65	2,210	258.00	258.00	258.00	5,083
70	2,380	278.00	278.00	278.00	5,474
75	2,550	298.00	298.00	298.00	5,865
80	2,720	318.00	318.00	318.00	6,256
85	2,890	338.00	338.00	338.00	6,647
90	3,060	358.00	358.00	358.00	7,038
95	3,230	378.00	378.00	378.00	7,429
100	3,400	398.00	398.00	398.00	7,820
105	3,570	418.00	418.00	418.00	8,211
110	3,740	438.00	438.00	438.00	8,602
115	3,910	458.00	458.00	458.00	8,993
120	4,080	478.00	478.00	478.00	9,384

(4) *Fabricator will adjust lengths for girder slopes as required.*

(5) *Reinforcing steel weight is calculated using an approximate factor of 2.3 lbs/SF.*

MATERIAL NOTES:

Provide Class S concrete (f'c = 4,000 psi).
Provide Class S (HPC) concrete if shown elsewhere in the plans.
Provide Grade 60 reinforcing steel.
Provide bar laps, where required, as follows:
Uncoated ~ #4 = 1'-7"
Epoxy coated ~ #4 = 2'-5"
Deformed welded wire reinforcement (WWR) (ASTM A1064) of equal size and spacing may be substituted for Bars A, D, OA, P or T unless noted otherwise.

GENERAL NOTES:

Designed according to AASHTO LRFD Bridge Design Specifications.
Multi-span units, with slab continuous over interior bents, may be formed with the details shown on this sheet and the I-Girder Continuous Slab Detail (IGCS) standard.
See I-Girder Thickened Slab End Details (IGTS) standard for details and quantity adjustments.
See Prestressed Concrete Panels (PCP) standard and Prestressed Concrete Panel Fabrication Details (PCP-FAB) standard for panel details not shown.
See I-Girder Miscellaneous Slab Details (IGMS) standard for miscellaneous details.
See applicable rail details for rail anchorage in slab.
See Permanent Metal Deck Forms (PMDF) standard for details and quantity adjustments if this option is used.
This standard does not support the use of transition bents.

Cover dimensions are clear dimensions, unless noted otherwise.

HL93 LOADING SHEET 2 OF 2

Texas Department of Transportation | Bridge Division Standard

PRESTRESSED CONCRETE I-GIRDER SPANS (TYPE Tx28 THRU Tx54)

32' ROADWAY

SIG-32

FILE: IG-SIG3200-23.dgn	DN: JMH	CK: ASB	DW: JTR	CK: TAR
©TxDOT August 2017	CONT	SECT	JOB	HIGHWAY
REVISIONS	0795	02	017	FM1260
10-19: Increased "X" and "Y" Values. 01-23: Removed PCP(0) reference.	DIST	COUNTY		SHEET NO.
	CHS	DONLEY		101

DATE: 12/1/2023 2:48:41 PM
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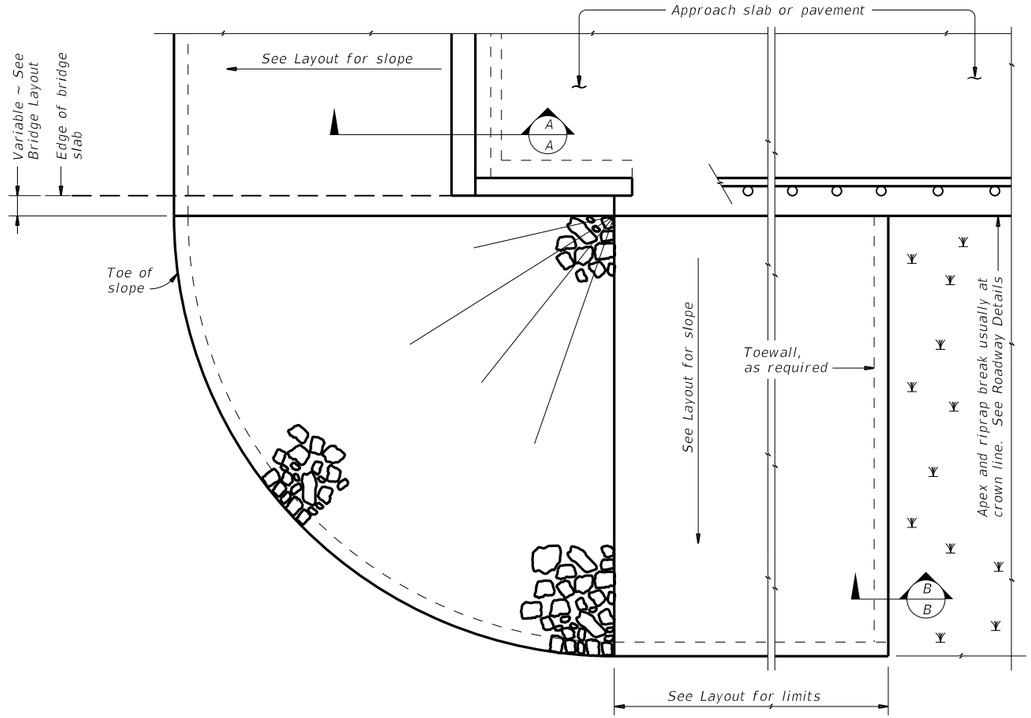
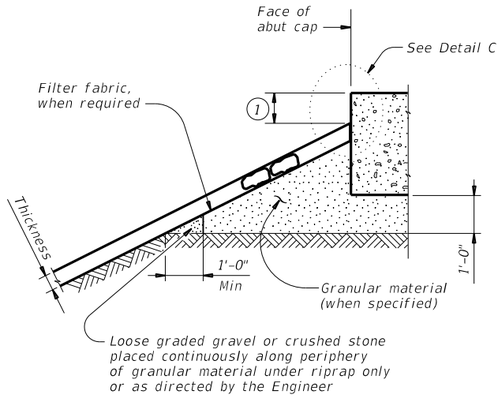
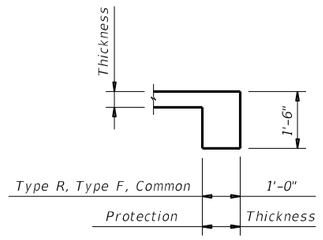


PLAN

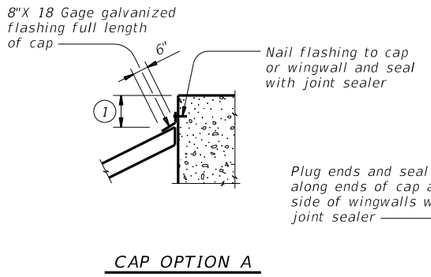


SECTION A-A AT CAP



SECTION B-B

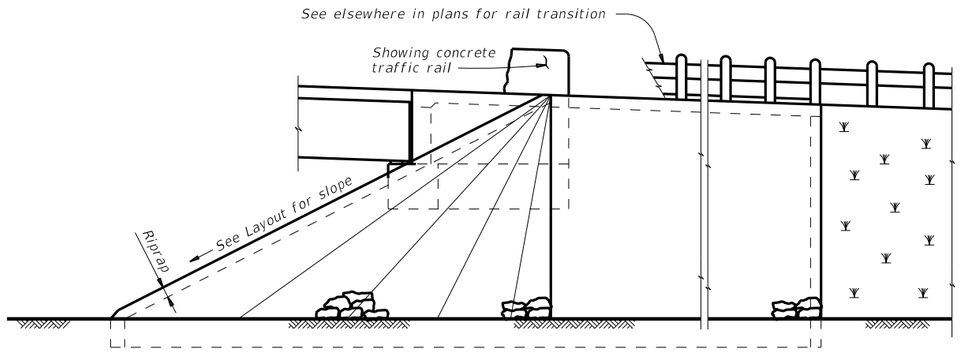
Provide toewall when shoulder drain is located adjacent to limits of stone riprap. Omit toewall when thickness of protection riprap is greater than 18".



CAP OPTION A

CAP OPTION B

DETAIL C



ELEVATION

GENERAL NOTES:
Refer to Item 432, "Riprap" for stone size and gradation, and construction details. See Layout for limits and thickness of riprap specified.
See elsewhere in plans for locations and details of shoulder drains.

(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.

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Bridge Division Standard

STONE RIPRAP

SRR

FILE: MS-SRR-19.dgn	DN: AES	CK: JGD	DW: BWH	CK: AES
©TxDOT April 2019	CONT	SECT	JOB	HIGHWAY
REVISIONS	0795	02	017	FM1260
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	CHS	DONLEY		102

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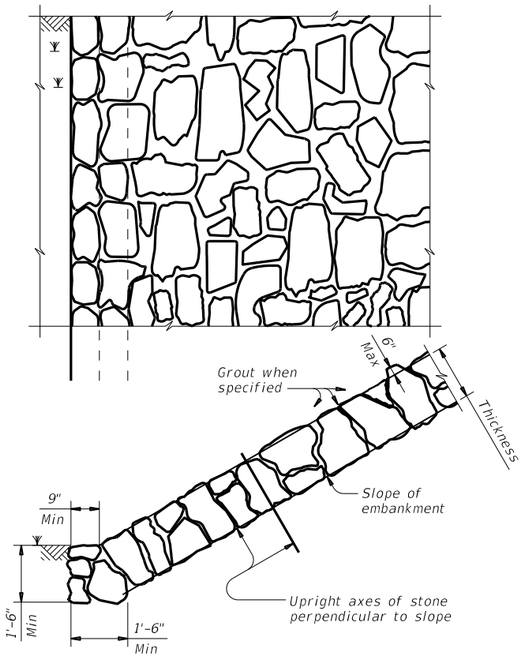


FIGURE 1 ~ TYPE R STONE RIPRAP

dry or grouted

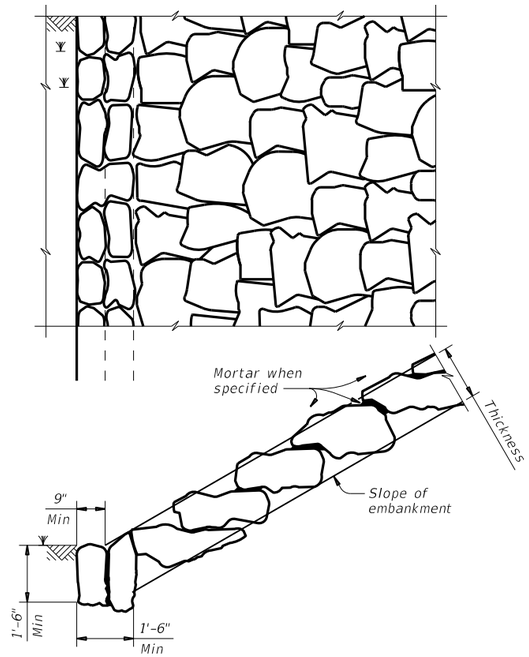


FIGURE 2 ~ TYPE F STONE RIPRAP

dry or mortared

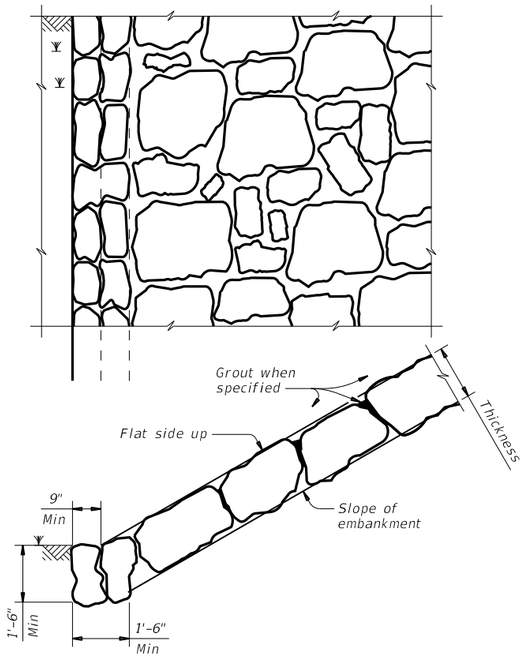


FIGURE 3 ~ TYPE F STONE RIPRAP

grouted

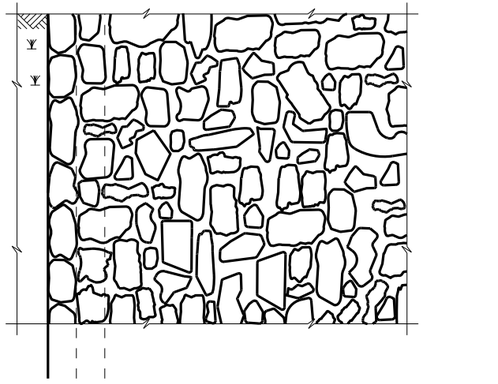


FIGURE 4 ~ COMMON STONE RIPRAP

dry or grouted

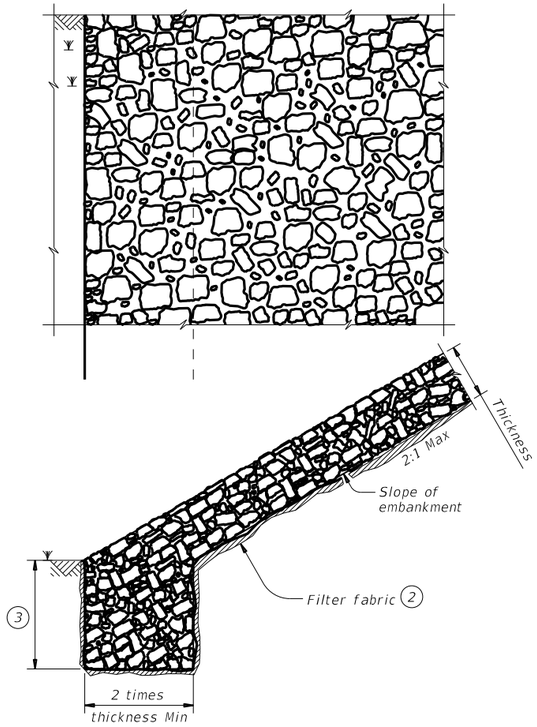


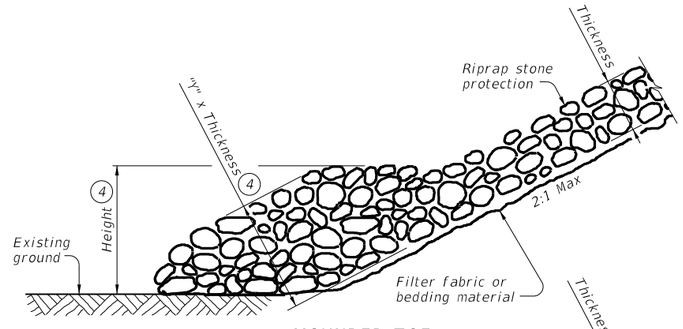
FIGURE 5 ~ PROTECTION STONE RIPRAP (5)

(2) Provide bedding material instead of filter fabric if shown elsewhere in plans. See Layout for thickness of bedding material.

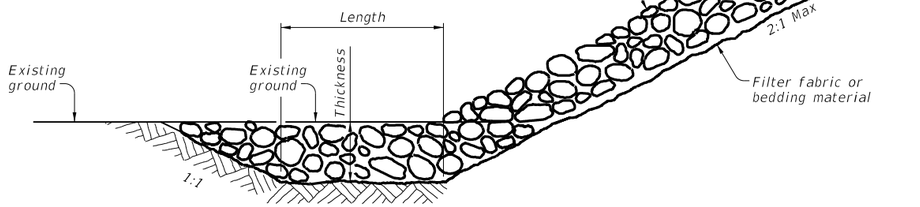
(3) Minimum toe depth is the larger of the maximum scour depth or 2 times the riprap thickness.

(4) "Y" and Height need to be defined. 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)

SHEET 2 OF 2

Texas Department of Transportation

Bridge Division Standard

STONE RIPRAP

SRR

FILE: MS-SRR-19.dgn	DN: AES	CK: JGD	DW: BWH	CK: AES
©TxDOT April 2019	CONT	SECT	JOB	HIGHWAY
REVISIONS	0795	02	017	FM1260
	DIST	COUNTY		SHEET NO.
	CHS	DONLEY		103

DATE: 12/1/2023 2:48:48 PM
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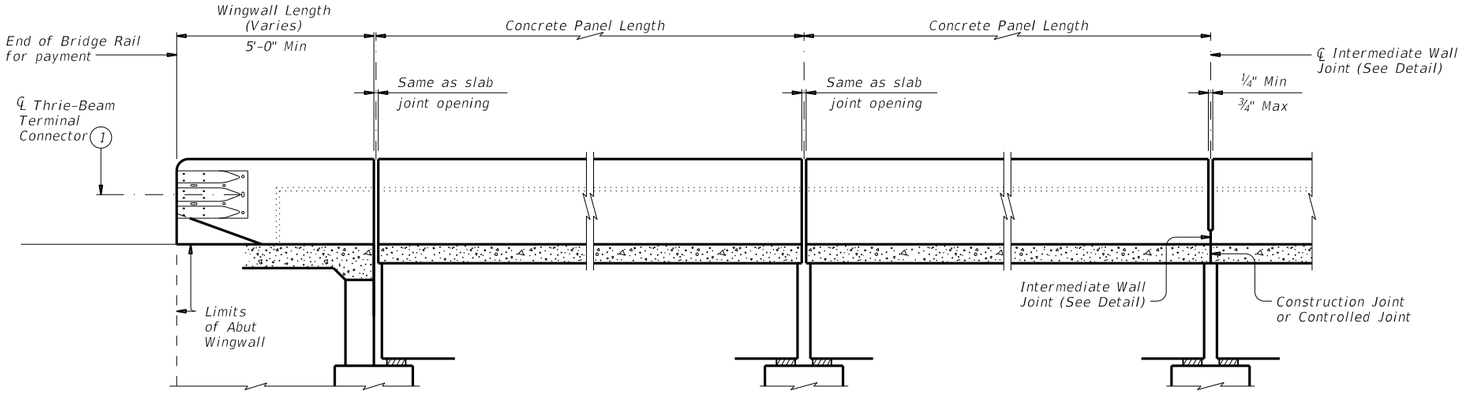
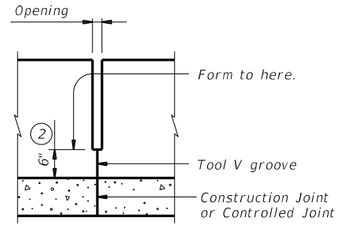


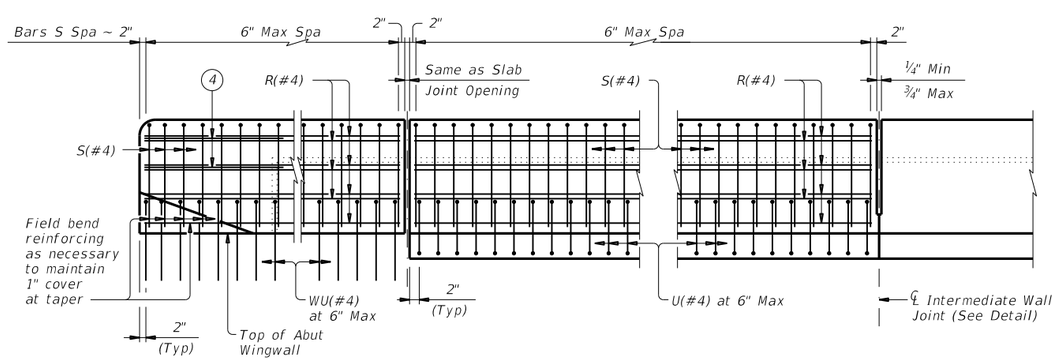
AT ABUTMENTS | AT BENTS WITH SLAB EXP JOINTS | AT BENTS WITHOUT SLAB EXP JOINTS

ROADWAY ELEVATION OF RAIL

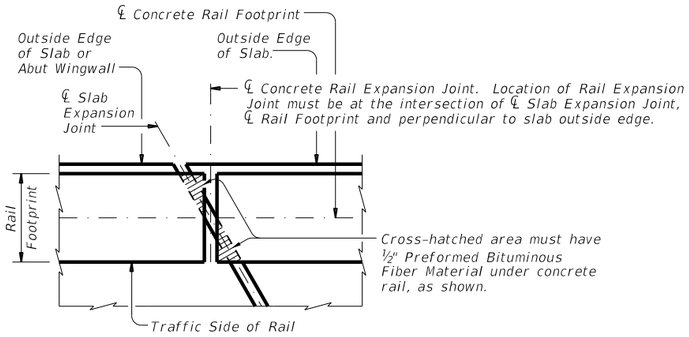


INTERMEDIATE WALL JOINT DETAIL

Provide at all interior bents without slab expansion joints.



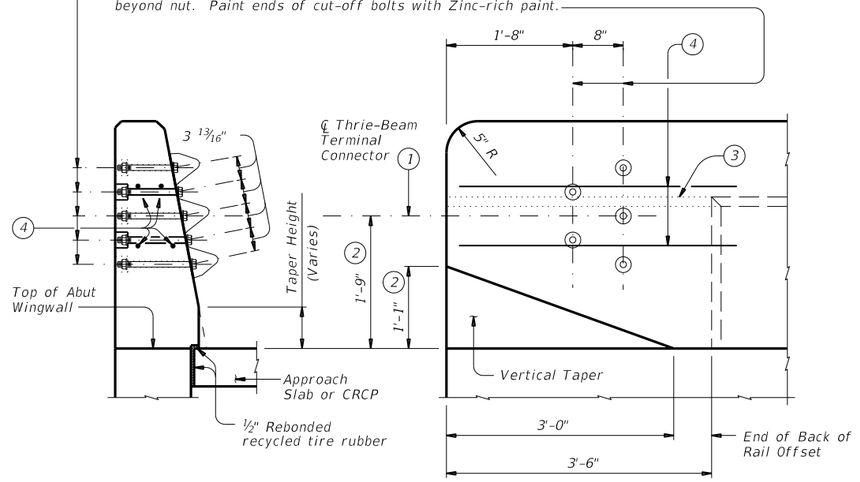
ELEVATION SHOWING TYPICAL REINFORCING PLACEMENT



PLAN OF RAIL AT EXPANSION JOINTS

Example showing Slab Expansion Joints without breakbacks.

℄ 5 ~ 1" Dia holes and 2 ½" Dia x 2" deep recesses. Form or core holes and recesses. Percussion drilling is not permitted. Adjust placement of reinforcing steel as necessary to avoid bolt holes and recesses. Bolt recesses are only required when pedestrian sidewalks are adjacent to back of rail. Tighten the 5 Terminal Connection Bolts in a well distributed pattern so to prevent damage or distortion of the Thrie-Beam Connection and the MBGF Transition. Cut bolts off after installation so as to extend no more than ¾" beyond nut. Paint ends of cut-off bolts with Zinc-rich paint.



SECTION | ELEVATION

TERMINAL CONNECTION DETAILS

1. Terminal Connectors and associated hardware are to be paid for under the Item "Metal Beam Guard Fence." Attach Metal Beam Guard Fence Transitions to the bridge rail and extend along the embankment unless otherwise shown in the plans.
2. Increase 2" for structures with Overlay.
3. Back of rail offset may, with Engineer's approval, be continued to the end of the railing.
4. Place 4 additional Bars R(#4) 3'-8" in length inside Bars S(#4) and centered 2'-0" from end of rail when Terminal Connections are required.

Texas Department of Transportation | Bridge Division Standard

TRAFFIC RAIL SINGLE SLOPE

TYPE SSTR

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REVISIONS	0795	02	017	FM1260
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	CHS	DONLEY		104

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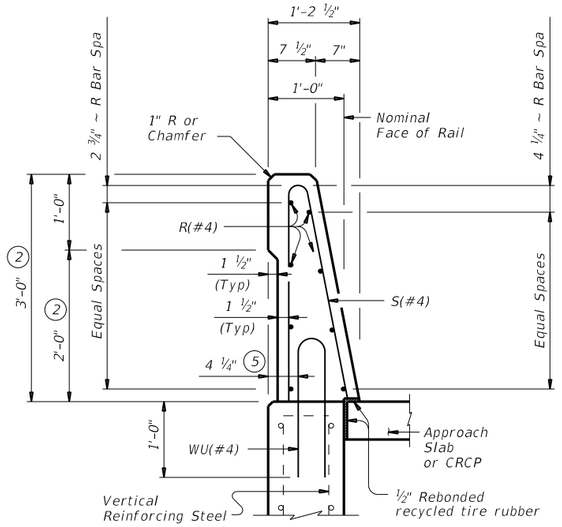
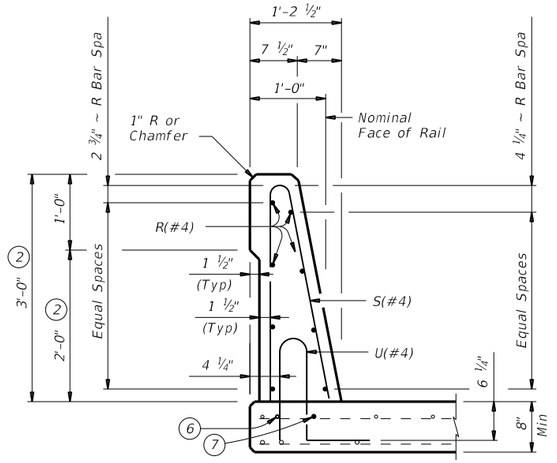
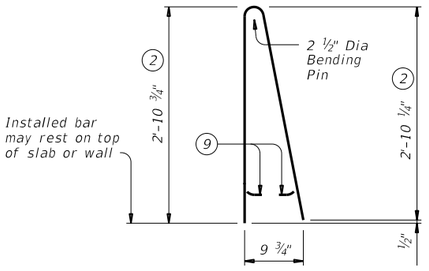


ON ABUTMENT WINGWALLS OR CIP RETAINING WALLS

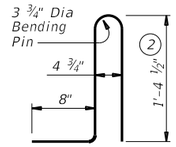


ON BRIDGE SLAB

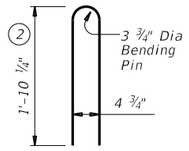
SECTIONS THRU RAIL



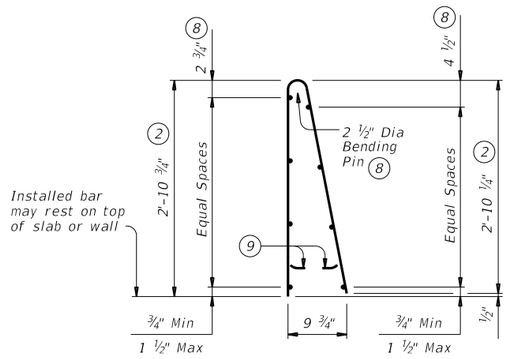
BARS S (#4)



BARS U (#4)

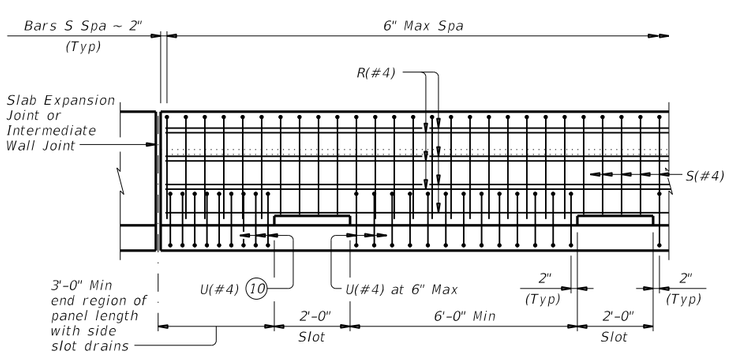


BARS WU (#4)



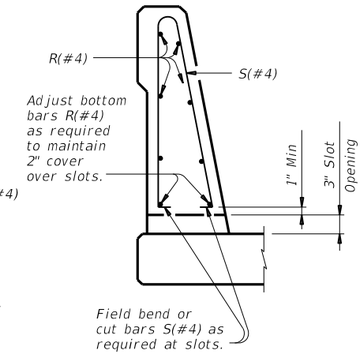
OPTIONAL WELDED WIRE REINFORCEMENT (WWR)

DESCRIPTION	LONGITUDINAL WIRES	VERTICAL WIRES
Minimum (Cumulative Total) Wire Area	1.067 Sq In.	0.267 Sq In. per Ft
	No. of Wires	Spacing
Minimum	8	4"
Maximum	10	8"
Maximum Wire Size Differential	The smaller wire must have an area of 40% or more of the larger wire.	



OPTIONAL SIDE SLOT DRAIN DETAIL

Note: Side Slot Drains may be used where shown elsewhere on the plans or as directed by the Engineer. Drains should not be placed over railroad tracks, lower roadways, or sidewalks. When this rail is used as a separator between a roadway surface and a sidewalk surface, side drain slots will not be permitted.



SECTION THRU OPTIONAL SIDE SLOT DRAIN

(2) Increase 2" for structures with Overlay.

(5) 5 ¼" when vertical reinforcing has closer clear cover over horizontal reinforcing in abutment wingwalls or retaining walls on traffic side of wall.

(6) As an aid in supporting reinforcement, additional longitudinal bars may be used in the slab with the approval of the Engineer. Such bars must be furnished at the Contractor's expense.

(7) Top longitudinal slab bar may be adjusted laterally 3" plus or minus to tie reinforcing.

(8) No longitudinal wires may be within upper bend.

(9) Bend or cut as required to clear drain slots.

(10) Space U(#4) bars at 4" Max when end region of panel length is less than 6'-0" to side slot drain. Space U(#4) bars at 6" Max when end region of panel length is 6'-0" and greater to side slot drain.

CONSTRUCTION NOTES:

This railing may be constructed by the slipform process when approved by the Engineer, with equipment approved by the Engineer. Provide sensor control for both line and grade. Tack welding to provide bracing for slipform operations is acceptable. Welding may be performed at a minimum spacing of 3 ft between the cage and the anchorage. It is permissible to weld to bars U, WU and S at any location on the cage. If increased bracing is needed, provide additional anchorage devices and weld in the upper two thirds of the cage. Paint welded areas on epoxy coated and/or galvanized reinforcing with an organic zinc rich paint in accordance with Item 445 "Galvanizing".

If rail is slipformed, apply an heavy epoxy bead 1" behind toe of traffic side of rail to concrete deck just prior to slip forming. Provide a ⅜" width x ¼" tall heavy epoxy bead with Type III, Class C or a Type V epoxy.

The back of railing must be vertical unless otherwise shown in the plans or approved by the Engineer.

MATERIAL NOTES:

Provide Class "C" concrete. Provide Class "C" (HPC) if required elsewhere.

Provide Grade 60 reinforcing steel.

Epoxy coat or galvanize all reinforcing steel if slab bars are epoxy coated or galvanized.

Deformed Welded Wire Reinforcement (WWR) (ASTM A1064) of equal size and spacing may be substituted for Bars U and WU unless noted otherwise. Deformed WWR (ASTM A1064) may be substituted for Bars R and S, as shown. Combinations of reinforcing steel and WWR or configurations of WWR other than shown are permitted if conditions in the table are satisfied. Provide the same laps as required for reinforcing bars.

Provide bar laps, where required, as follows:

Uncoated or galvanized ~ #4 = 1'-7"
Epoxy coated ~ #4 = 2'-5"

GENERAL NOTES:

This rail has been successfully evaluated by full-scale crash test to meet MASH TL-4 criteria. This rail can be used for speeds of 50 mph and greater when a TL-3 rated guard fence transition is used. When a TL-2 rated guard fence transition is used, this rail can only be used for speeds of 45 mph and less.

Do not use this railing on bridges with expansion joints providing more than 5" movement.

Rail anchorage details shown on this standard may require modification for select structure types. See appropriate details elsewhere in plans for these modifications.

Shop drawings will not be required for this rail.

Average weight of railing with no overlay is 376 plf.

Cover dimensions are clear dimensions, unless noted otherwise.

Reinforcing bar dimensions shown are out-to-out of bar.

Texas Department of Transportation

Bridge Division Standard

TRAFFIC RAIL SINGLE SLOPE

TYPE SSTR

FILE: RL-SSTR-19.dgn	DN: TxDOT	CK: TxDOT	DW: JTR	CK: TxDOT
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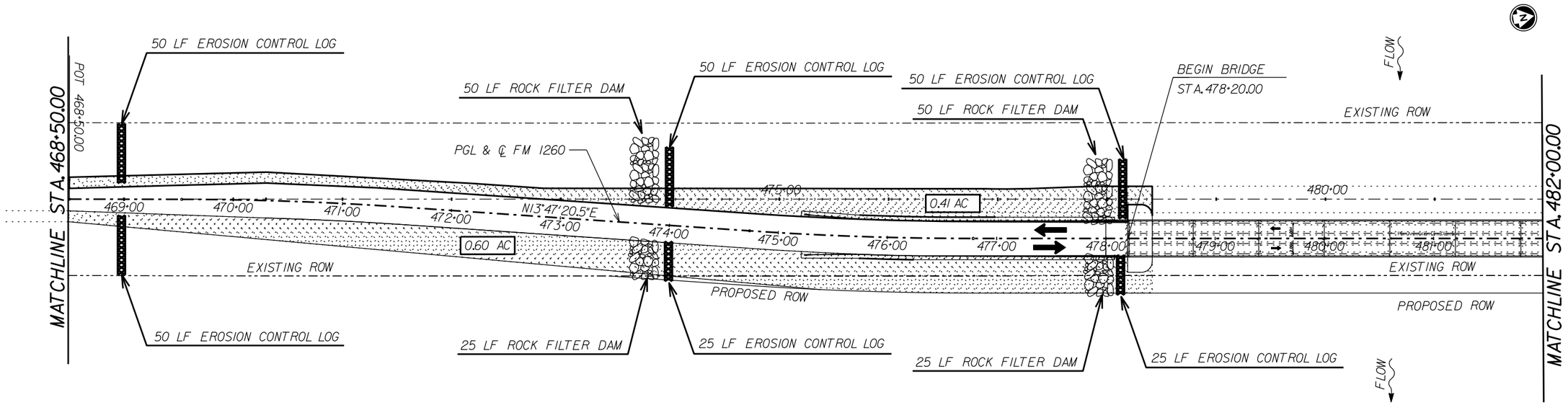
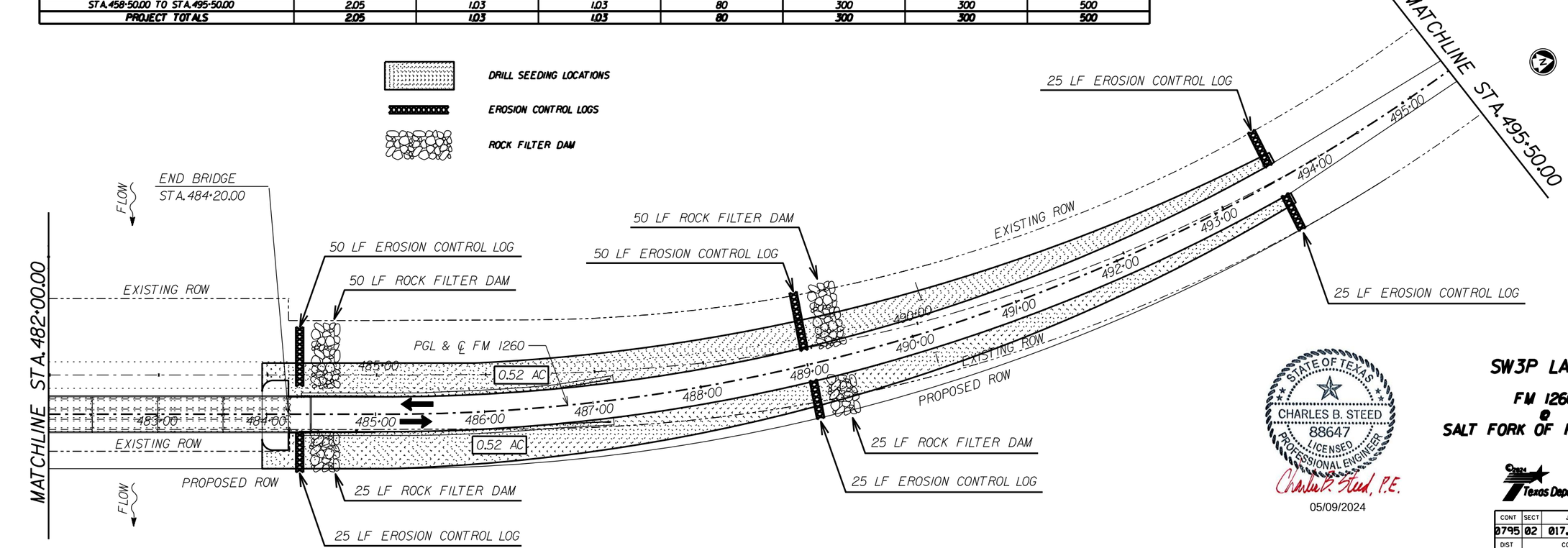
	CHS	DONLEY		105



EROSION CONTROL SUMMARY

LOCATION	164 6034 DRILL SEEDING (PERM) (RURAL) (SANDY)	164 6042 DRILL SEEDING (TEMP) (WARM)	164 6044 DRILL SEEDING (TEMP) (COOL)	168 6001 VEGETATIVE WATERING	506 6001 ROCK FILTER DAMS (INSTALL) (TY 1)	506 6011 ROCK FILTER DAMS (REMOVE)	506 6042 BIOGRD EROSN CONT LOGS (18" DIA) INSTALL
	AC	AC	AC	MG	LF	LF	LF
STA. 458+50.00 TO STA. 495+50.00	2.05	1.03	1.03	80	300	300	500
PROJECT TOTALS	2.05	1.03	1.03	80	300	300	500



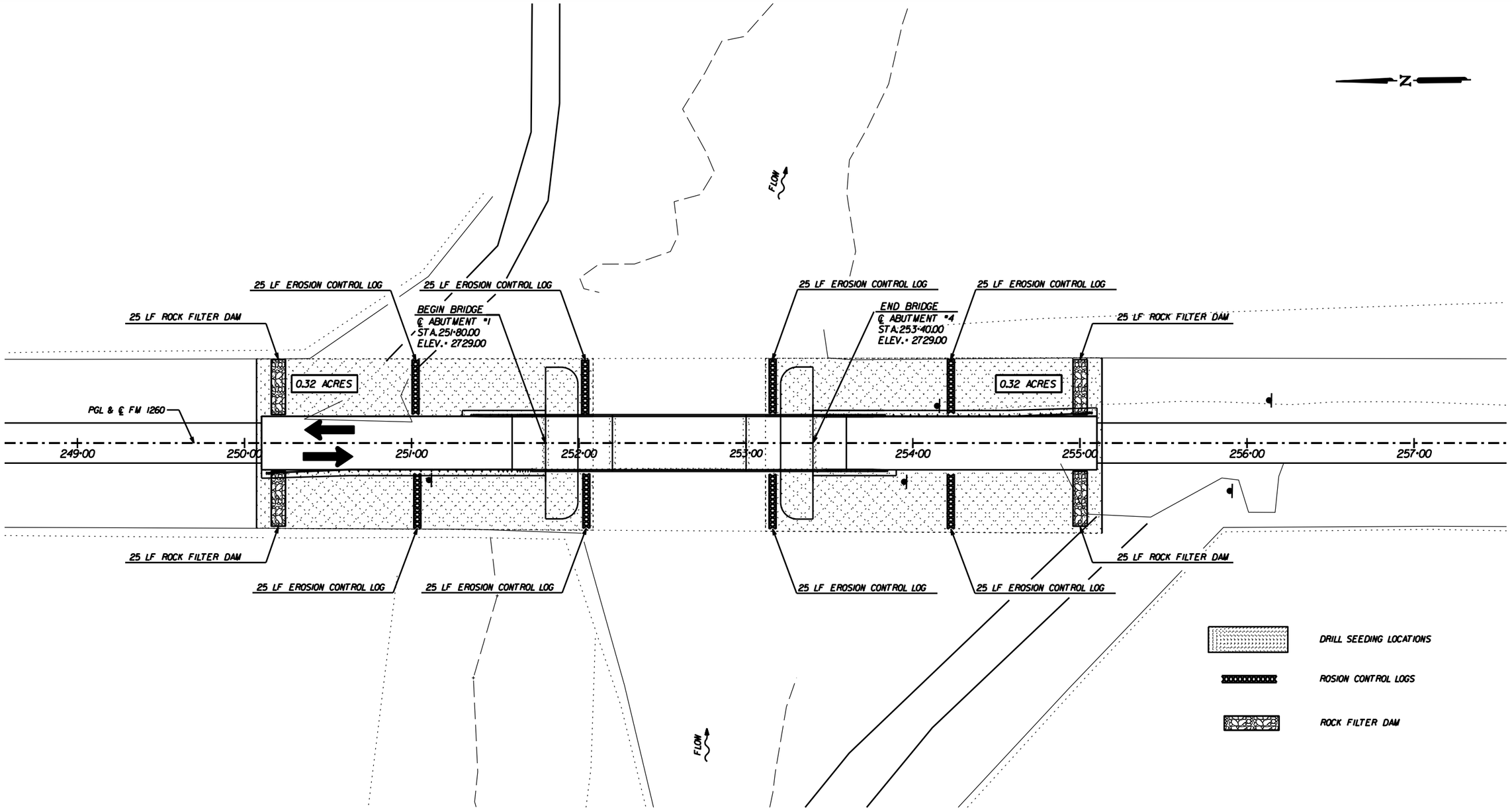
STATE OF TEXAS
CHARLES B. STEED
88647
LICENSED
PROFESSIONAL ENGINEER
Charles B. Steed, P.E.
05/09/2024

SW3P LAYOUT
FM 1260 @ SALT FORK OF RED RIVER

Texas Department of Transportation

CONT	SECT	JOB	HIGHWAY
0795	02	017,ETC.	FM 1260
DIST	COUNTY		SHEET NO.
25	DONLEY		106

DATE:
FILE:



EROSION CONTROL SUMMARY

LOCATION	164 6034	164 6042	164 6044	168 6001	506 6001	506 6011	506 6042
	DRILL SEEDING (PERM) (RURAL) (SANDY)	DRILL SEEDING (TEMP) (WARM)	DRILL SEEDING (TEMP) (COOL)	VEGETATIVE WATERING	ROCK FILTER DAMS (INSTALL) (TY I)	ROCK FILTER DAMS (REMOVE)	BIOGRD EROSN CONT LOGS (18" DIA) INSTALL
	AC	AC	AC	MG	LF	LF	LF
STA. 249+00.00 TO STA. 256+10.00	0.64	0.32	0.32	25	100	100	200
PROJECT TOTALS	0.64	0.32	0.32	25	100	100	200

STATE OF TEXAS
CHARLES B. STEED
88647
LICENSED
PROFESSIONAL ENGINEER

Charles Steed, P.E.

05/09/2024

SW3P LAYOUT
FM 1260 @ EAST LELIA LAKE

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CONT	SECT	JOB	HIGHWAY
0795	02	017, ETC.	FM 1260
DIST	COUNTY		SHEET NO.
CHS	DONLEY		107

DATE:
FILE:

STORMWATER POLLUTION PREVENTION PLAN (SWP3):

This SWP3 has been developed in accordance with the TPDES Construction General Permit TXR150000 (CGP). The Texas Department of Transportation (TxDOT) ensures that project specifications include adequate best management practices (BMPs) for this project.

For all projects with soil disturbing activity and for projects 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 projects environmental permits, issues, and commitments (EPICs). A copy of the CGP is included in Attachment 2.12 of the SWP3 binder.

1.0 SITE/PROJECT DESCRIPTION

1.1 PROJECT CONTROL SECTION JOB (CSJ):
0795-02-017

1.2 PROJECT LIMITS:
From: @ SALT FORK OF RED RIVER

To:

1.3 PROJECT COORDINATES:
BEGIN: (Lat) 34.9942188 ,(Long) -100.7532076

END: (Lat) 34.9925926 ,(Long) -100.7535727

1.4 TOTAL PROJECT AREA (Acres): 5

1.5 TOTAL AREA TO BE DISTURBED (Acres): 2.05

1.6 NATURE OF CONSTRUCTION ACTIVITY:
CONCRETE BRIDGE CONSTRUCTION AND EARTHWORK

1.7 MAJOR SOIL TYPES:

Soil Type	Description
Likes loamy fine sand, 1 to 8 % slopes	Likes and similar soils: 95% Drainage class: Somewhat excessively drained Runoff class: Very low
Lincoln loamy fine sand, dry, 0 to 1 percent slopes, frequently flooded	Lincoln, dry, and similar soils: 90% Drainage class: Somewhat excessively drained Runoff class: Negligible

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 2.5.)

- ☐ 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
Salt Fork Red River	Salt Fork Red River (0222): Impaired for bacteria

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

1.12 ROLES AND RESPONSIBILITIES: TxDOT

- X Development of plans and specifications
- X Submit Notice of Intent (NOI) to TCEQ (≥5 acres)
- X Post Construction Site Notice
- X Submit NOI/CSN to local MS4
- X Perform SWP3 inspections
- X Maintain SWP3 records and update to reflect daily operations
- X Complete and submit Notice of Termination to TCEQ
- X Maintain SWP3 records for 3 years
- ☐ Other: _____
- ☐ Other: _____
- ☐ Other: _____

1.13 ROLES AND RESPONSIBILITIES: CONTRACTOR

- X Day To Day Operational Control
- X Submit Notice of Intent (NOI) to TCEQ (≥5 acres)
- X Post Construction Site Notice
- X Submit NOI/CSN to local MS4
- X Maintain schedule of major construction activities
- X Install, maintain and modify BMPs
- X Complete and submit Notice of Termination to TCEQ
- X Maintain SWP3 records for 3 years
- ☐ Other: _____
- ☐ Other: _____
- ☐ Other: _____

1.14 LOCAL MUNICIPAL SEPARATE STORM SEWER SYSTEM (MS4) OPERATOR COORDINATION:

MS4 Entity

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05/09/2024

STORMWATER POLLUTION PREVENTION PLAN (SWP3)

 July 2023 Sheet 1 of 2

Texas Department of Transportation

FED. RD. DIV. NO.	PROJECT NO.		SHEET NO.
	BR 2B24(268), etc.		108
STATE	STATE DIST.	COUNTY	
TEXAS	25	DONLEY	
CONT.	SECT.	JOB	HIGHWAY NO.
0795	02	017, etc.	FM 1260

STORMWATER POLLUTION PREVENTION PLAN (SWP3):

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

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

2.1 EROSION CONTROL AND SOIL STABILIZATION BMPs:

T / P

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

2.2 SEDIMENT CONTROL BMPs:

T / P

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

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

Sediment control BMPs requiring design capacity calculations (See SWP3 Attachment 1.3.):

T / P

- ☐ ☐ Sediment Trap
  - ☐ Calculated volume runoff from 2-year, 24-hour storm for each acre of disturbed area
  - ☐ 3,600 cubic feet of storage per acre drained
- ☐ ☐ Sedimentation Basin
  - ☐ Not required (<10 acres disturbed)
  - ☐ Required (>10 acres) and implemented.
    - ☐ Calculated volume runoff from 2-year, 24-hour storm for each acre of disturbed area
    - ☐ 3,600 cubic feet of storage per acre drained
  - ☐ Required (>10 acres), but not feasible due to:
    - ☐ Available area/Site geometry
    - ☐ Site slope/Drainage patterns
    - ☐ Site soils/Geotechnical factors
    - ☐ Public safety
    - ☐ Other: _____

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: _____
- ☐ Other: _____

2.6 VEGETATED BUFFER ZONES:

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

Type	Stationing	
	From	To

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

2.7 ALLOWABLE NON-STORMWATER DISCHARGES:

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

2.8 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 2.5 of this SWP3.

When dewatering activities are present, a daily inspection will be conducted once per day during those activities and documented in accordance with CGP and TxDOT requirements.

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 2.5 of this SWP3.

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STORMWATER POLLUTION PREVENTION PLAN (SWP3)

July 2023 Sheet 2 of 2

Texas Department of Transportation

FED. RD. DIV. NO.	PROJECT NO.		SHEET NO.
	BR 2B24(268), etc.		109
STATE	STATE DIST.	COUNTY	
TEXAS	25	DONLEY	
CONT.	SECT.	JOB	HIGHWAY NO.
0795	02	017, etc.	FM 1260

STORMWATER POLLUTION PRVENTION PLAN (SWP3):

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

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

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

1.0 SITE/PROJECT DESCRIPTION

1.1 PROJECT CONTROL SECTION JOB (CSJ):
0795-03-010

1.2 PROJECT LIMITS:
From: @ EAST LELIA LAKE CREEK

To:

1.3 PROJECT COORDINATES:
BEGIN: (Lat) 34.8467264 ,(Long) -100.8286803

END: (Lat) 34.8463202 ,(Long) -100.8286729

1.4 TOTAL PROJECT AREA (Acres): 1.5

1.5 TOTAL AREA TO BE DISTURBED (Acres): 0.64

1.6 NATURE OF CONSTRUCTION ACTIVITY:
BRIDGE REPLACEMENT

1.7 MAJOR SOIL TYPES:

Soil Type	Description
Miles fine sandy loam, 1 to 3 % slopes	Miles and similar soils: 85% Drainage class: Well drained Runoff class: Low
Miles fine sandy loam, 3 to 5 % slopes	Miles and similar soils: 85% Drainage class: Well drained Runoff class: Low

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.)

- X Mobilization
- X Install sediment and erosion controls
- ☐ Blade existing topsoil into windrows, prep ROW, clear and grub
- ☐ Remove existing pavement
- X 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
- X Install proposed pavement per plans
- ☐ Install culverts, culvert extensions, SETs
- X Install mow strip, MBGF, bridge rail
- X Place flex base
- ☐ Rework slopes, grade ditches
- ☐ Blade windrowed material back across slopes
- X Revegetation of unpaved areas
- X Achieve site stabilization and remove sediment and erosion control measures
- ☐ Other: _____
- ☐ Other: _____
- ☐ Other: _____

1.10 POTENTIAL POLLUTANTS AND SOURCES:

- X Sediment laden stormwater from stormwater conveyance over disturbed area
- X Fuels, oils, and lubricants from construction vehicles, equipment, and storage
- ☐ Solvents, paints, adhesives, etc. from various construction activities
- X 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
- ☐ 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
East Lelia Lake Creek	Lelia Lake Creek (0222A): Impaired for bacteria

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

1.12 ROLES AND RESPONSIBILITIES: TxDOT

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

1.13 ROLES AND RESPONSIBILITIES: CONTRACTOR

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

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05/09/2024

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

Texas Department of Transportation

FED. RD. DIV. NO.	PROJECT NO.		SHEET NO.
	BR 2B24(268), etc.		110
STATE	STATE DIST.	COUNTY	
TEXAS	25	DONLEY	
CONT.	SECT.	JOB	HIGHWAY NO.
0795	02	017, etc.	FM 1260

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

2.2 SEDIMENT CONTROL BMPs:

T / P

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

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

2.3 PERMANENT CONTROLS:

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

BMPs To Be Left In Place Post Construction:

Type	Stationing	
	From	To

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

2.4 OFFSITE VEHICLE TRACKING CONTROLS:

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

2.5 POLLUTION PREVENTION MEASURES:

- [X] Chemical Management
- [X] Concrete and Materials Waste Management
- [X] Debris and Trash Management
- [X] Dust Control
- [X] 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 INSPECTIONS:

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

2.9 MAINTENANCE:

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

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

Texas Department of Transportation

FED. RD. DIV. NO.	PROJECT NO.		SHEET NO.
	BR 2B24(268), etc.		111
STATE	STATE DIST.	COUNTY	
TEXAS	25	DONLEY	
CONT.	SECT.	JOB	HIGHWAY NO.
0795	02	017, etc.	FM 1260

DATE:
FILE:

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.

☐ No Action Required ☒ Required Action

Action No.

1. Prevent stormwater pollution by controlling erosion and sedimentation in accordance with TPDES Permit TXR 150000
2. Comply with the SW3P and revise when necessary to control pollution or required by the Engineer.
3. Post Construction Site Notice (CSN) with SW3P information on or near the site, accessible to the public and TCEQ, EPA or other inspectors.
4. When Contractor project specific locations (PSL's) increase disturbed soil area to 5 acres or more, submit NOI to TCEQ and the Engineer.

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

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

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

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

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

1. NON-PCN - NON-PCN, NWP #14 AT US 287 (NB) OVER BAYLOR CREEK
2. NON-PCN -

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	☒ Erosion Control Logs	☐ Erosion Control Compost
☐ Blankets/Matting	☒ Rock Filter Dams	☐ Mulch Filter Berm and Socks
☒ Mulch	☐ Construction Exits	☐ Compost Filter Berm and Socks
☐ Sodding	☐ Sand Bag Berm	☒ Vegetation Lined Ditches

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.

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. Minimize impacts to existing vegetation in the project area: impacted vegetation should be replaced with in-kind native vegetation. Trim trees instead of removal (when possible). Re-vegetation proposed for the project would be in compliance with Executive Order 13112 on Invasive Species and the Executive Memorandum on Beneficial Landscapes.

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

☐ No Action Required ☒ Required Action

Action No.

1. Texas Horned Lizard - Potential occurrence in the project area. If the Texas Horned Lizard is found in the project area: avoid harming the species and allow species to safely leave the project area. This should include avoiding harvester ant mounds in the selection of project specific locations (PSLs). Avoid or minimize disturbing or removing downed trees, rotting stumps, and leaf litter where feasible.
2. Plains Spotted Skunk - Avoid harming species if encountered and avoid unnecessary impacts to dens.
3. Migratory birds Do not disturb, destroy, or remove active nests including nesting birds during the nesting season. Avoid impacts to birds, their eggs, and their young. Avoid the removal of unoccupied, inactive nests, as practicable.

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.

VI. HAZARDOUS MATERIALS OR CONTAMINATION ISSUES

General (applies to all projects):
Comply with the Hazard Communication Act (the Act) for personnel who will be working with hazardous materials by conducting safety meetings prior to beginning construction and making workers aware of potential hazards in the workplace. Ensure that all workers are provided with personal protective equipment appropriate for any hazardous materials used.

Obtain and keep on-site Material Safety Data Sheets (MSDS) for all hazardous products used on the project, which may include, but are not limited to the following categories: Paints, acids, solvents, asphalt products, chemical additives, fuels and concrete curing compounds or additives. Provide protected storage, off bare ground and covered, for products which may be hazardous. Maintain product labelling as required by the Act.

Maintain an adequate supply of on-site spill response materials, as indicated in the MSDS. In the event of a spill, take actions to mitigate the spill as indicated in the MSDS, in accordance with safe work practices, and contact the District Spill Coordinator immediately. The Contractor shall be responsible for the proper containment and cleanup of all product spills.

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 [continued]

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. Removal, containment, and disposal will be in compliance with all federal, state, and local laws.
2. wait for plan review

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05/09/2024

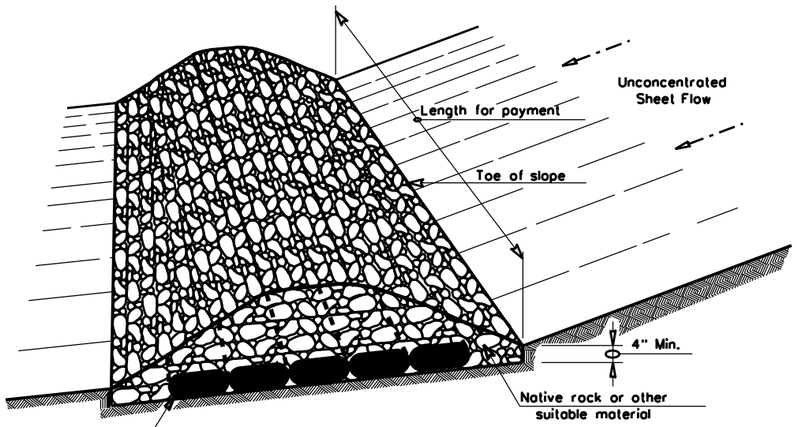
Texas Department of Transportation

Design Division Standard

ENVIRONMENTAL PERMITS, ISSUES AND COMMITMENTS

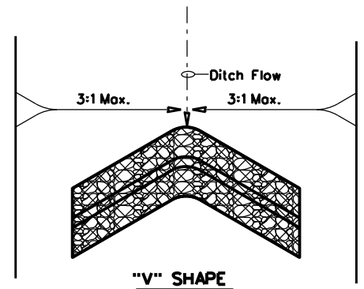
EPIC

FILE: epic.dgn	DN: TxDOT	CK: RG	DW: VP	CK: AR
©TxDOT: February 2015	CONT	SECT	JOB	HIGHWAY
REVISIONS	0795	25	017,ETC.	FM 1260
12-12-2011 (DS)	DIST	COUNTY		SHEET NO.
05-07-14 ADDED NOTE SECTION IV.	25	DONLEY		112
01-23-2015 SECTION I CHANGED ITEM 1122 TO ITEM 506, ADDED GRASSY SWALES.				



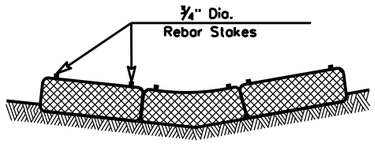
FILTER DAM AT TOE OF SLOPE

RFD1

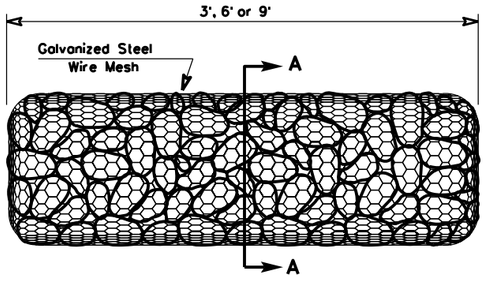


"V" SHAPE
PLAN VIEW

PLAN VIEW

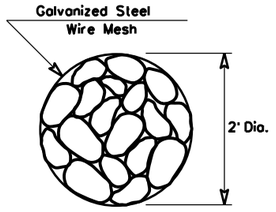


SECTION B-B

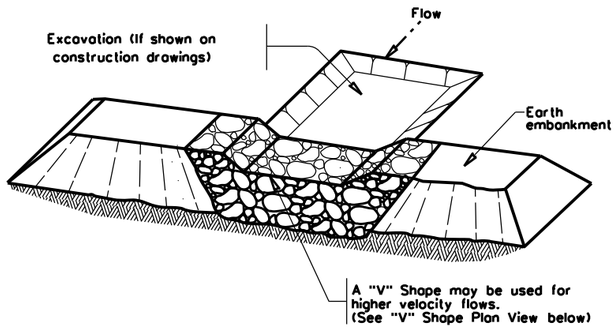


TYPE 4 (SACK GABIONS)

RFD4

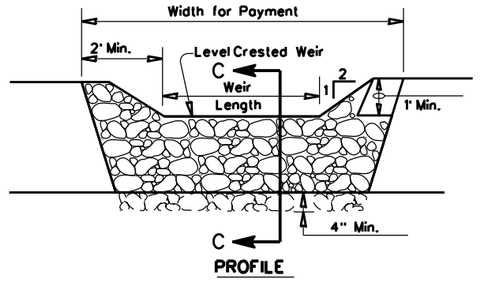


SECTION A-A

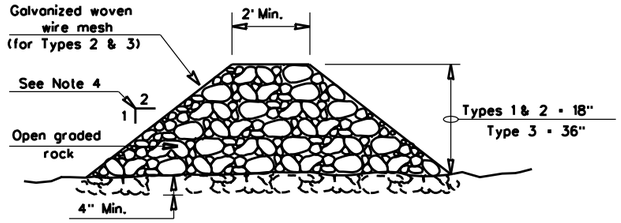


FILTER DAM AT SEDIMENT TRAP

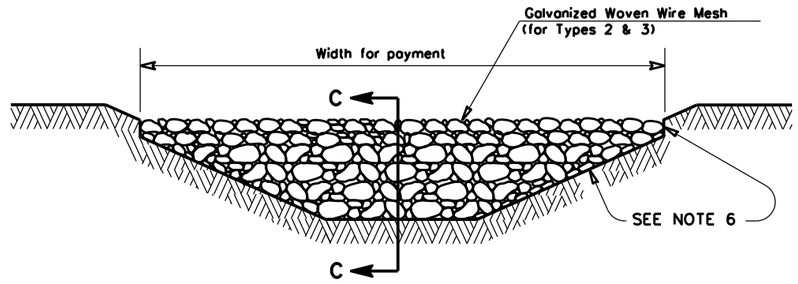
RFD1 OR RFD2



PROFILE



SECTION C-C



FILTER DAM AT CHANNEL SECTIONS

RFD1 OR RFD2 OR RFD3

ROCK FILTER DAM USAGE GUIDELINES

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

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

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

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

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

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

GENERAL NOTES

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

PLAN SHEET LEGEND

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

Texas Department of Transportation

Design Division Standard

TEMPORARY EROSION, SEDIMENT AND WATER POLLUTION CONTROL MEASURES

ROCK FILTER DAMS

EC(2)-16

FILE: ec216	DN: TxDOT	CK: KM	DW: VP	DN/CK: LS			
© TxDOT: JULY 2016	CONT	SECT	JOB	HIGHWAY			
REVISIONS	0795	02	017,ETC.	FM 1260			
	DIST	COUNTY		SHEET NO.			
	25	DONLEY		113			

DATE: $DATE$
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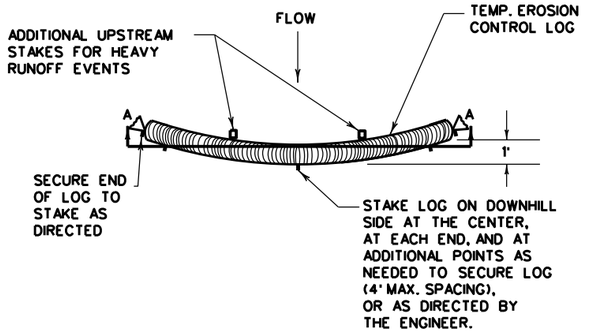
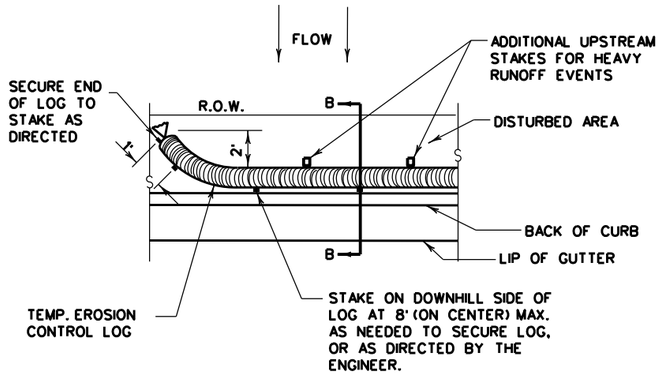


PLAN VIEW



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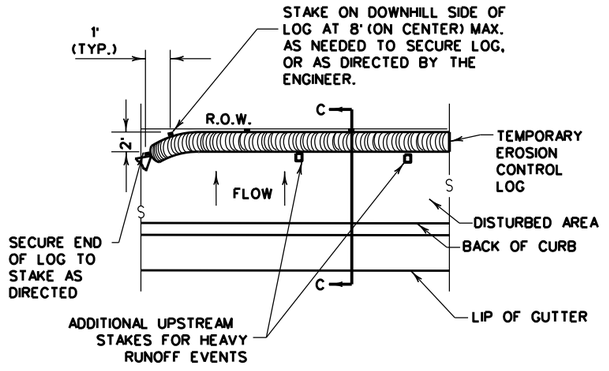
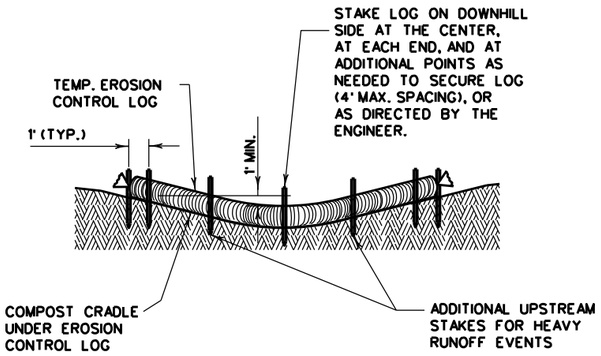


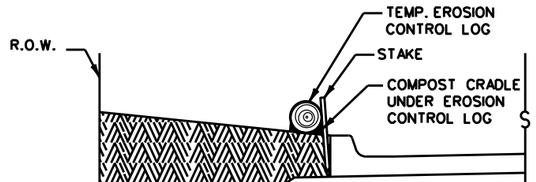
PLAN VIEW



SECTION A-A

EROSION CONTROL LOG DAM

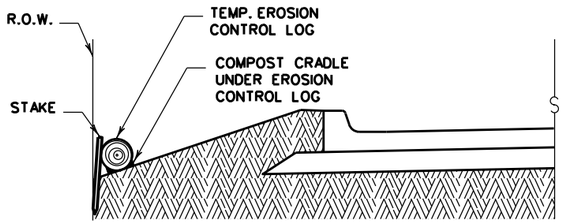
CL-D



SECTION B-B

EROSION CONTROL LOG AT BACK OF CURB

CL-BOC



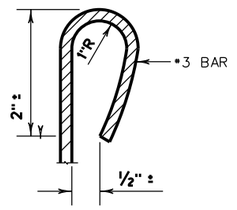
SECTION C-C

EROSION CONTROL LOG AT EDGE OF RIGHT-OF-WAY

CL-ROW

LEGEND

- CL-D — EROSION CONTROL LOG DAM
- CL-BOC — EROSION CONTROL LOG AT BACK OF CURB
- CL-ROW — EROSION CONTROL LOG AT EDGE OF RIGHT-OF-WAY
- CL-SST — EROSION CONTROL LOGS ON SLOPES STAKE AND TRENCHING ANCHORING
- CL-SSL — EROSION CONTROL LOGS ON SLOPES STAKE AND LASHING ANCHORING
- CL-DI — EROSION CONTROL LOG AT DROP INLET
- CL-CI — EROSION CONTROL LOG AT CURB INLET
- CL-GI — EROSION CONTROL LOG AT CURB & GRATE INLET



REBAR STAKE DETAIL

SEDIMENT BASIN & TRAP USAGE GUIDELINES

An erosion control log sediment trap may be used to filter sediment out of runoff draining from an unstabilized area.

Log Traps: The drainage area for a sediment trap should not exceed 5 acres. The trap capacity should be 1800 CF/Acre (0.5" over the drainage area).

Control logs should be placed in the following locations:

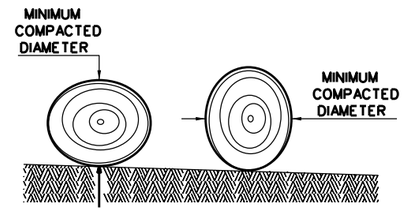
1. Within drainage ditches spaced as needed or min. 500' on center
2. Immediately preceding ditch inlets or drain inlets
3. Just before the drainage enters a water course
4. Just before the drainage leaves the right of way
5. Just before the drainage leaves the construction limits where drainage flows away from the project.

The logs should be cleaned when the sediment has accumulated to a depth of 1/2 the log diameter.

Cleaning and removal of accumulated sediment deposits is incidental and will not be paid for separately.

GENERAL NOTES:

1. EROSION CONTROL LOGS SHALL BE INSTALLED IN ACCORDANCE WITH MANFACTURER'S RECOMMENDATIONS, OR AS DIRECTED BY THE ENGINEER.
2. LENGTHS OF EROSION CONTROL LOGS SHALL BE IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS AND AS REQUIRED FOR THE PURPOSE INTENDED.
3. UNLESS OTHERWISE DIRECTED, USE BIODEGRADABLE OR PHOTODEGRADABLE CONTAINMENT MESH ONLY WHERE LOG WILL REMAIN IN PLACE AS PART OF A VEGETATIVE SYSTEM. FOR TEMPORARY INSTALLATIONS, USE RECYCLABLE CONTAINMENT MESH.
4. FILL LOGS WITH SUFFICIENT FILTER MATERIAL TO ACHIEVE THE MINIMUM COMPACTED DIAMETER SPECIFIED IN THE PLANS WITHOUT EXCESSIVE DEFORMATION.
5. STAKES SHALL BE 2" X 2" WOOD OR #3 REBAR, 2'-4' LONG, EMBEDDED SUCH THAT 2" PROTRUDES ABOVE LOG, OR AS DIRECTED BY THE ENGINEER.
6. DO NOT PLACE STAKES THROUGH CONTAINMENT MESH.
7. COMPOST CRADLE MATERIAL IS INCIDENTAL & WILL NOT BE PAID FOR SEPARATELY.
8. SANDBAGS USED AS ANCHORS SHALL BE PLACED ON TOP OF LOGS & SHALL BE OF SUFFICIENT SIZE TO HOLD LOGS IN PLACE.
9. TURN THE ENDS OF EACH ROW OF LOGS UPSLOPE TO PREVENT RUNOFF FROM FLOWING AROUND THE LOG.
10. FOR HEAVY RUNOFF EVENTS, ADDITIONAL UPSTREAM STAKES MAY BE NECESSARY TO KEEP LOG FROM FOLDING IN ON ITSELF.



DIAMETER MEASUREMENTS OF EROSION CONTROL LOGS SPECIFIED IN PLANS

SHEET 1 OF 3

Texas Department of Transportation

Design Division Standard

TEMPORARY EROSION, SEDIMENT AND WATER POLLUTION CONTROL MEASURES

EROSION CONTROL LOG

EC(9)-16

FILE: ec916	DN: TxDOT		CK: KM	DW: LS/PT		CK: LS
© TxDOT: JULY 2016	CONT	SECT	JOB		HIGHWAY	
REVISIONS	0795	02	017, ETC.		FM 1260	
	DIST	COUNTY				SHEET NO.
	CHS	DONLEY				114

DATE:
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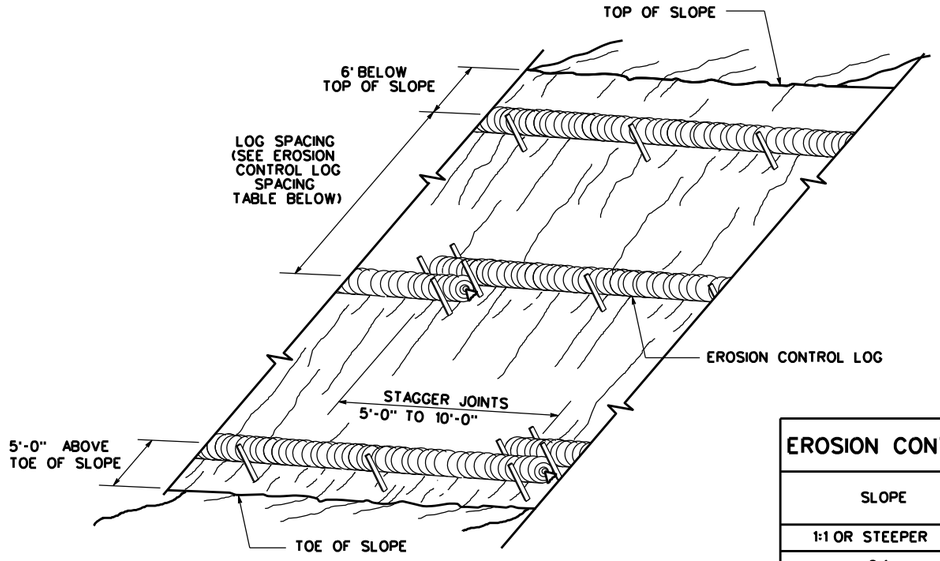
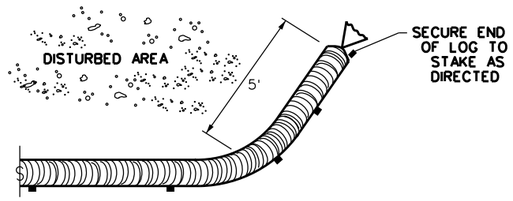


EROSION CONTROL LOGS ON SLOPES
STAKE AND TRENCHING ANCHORING

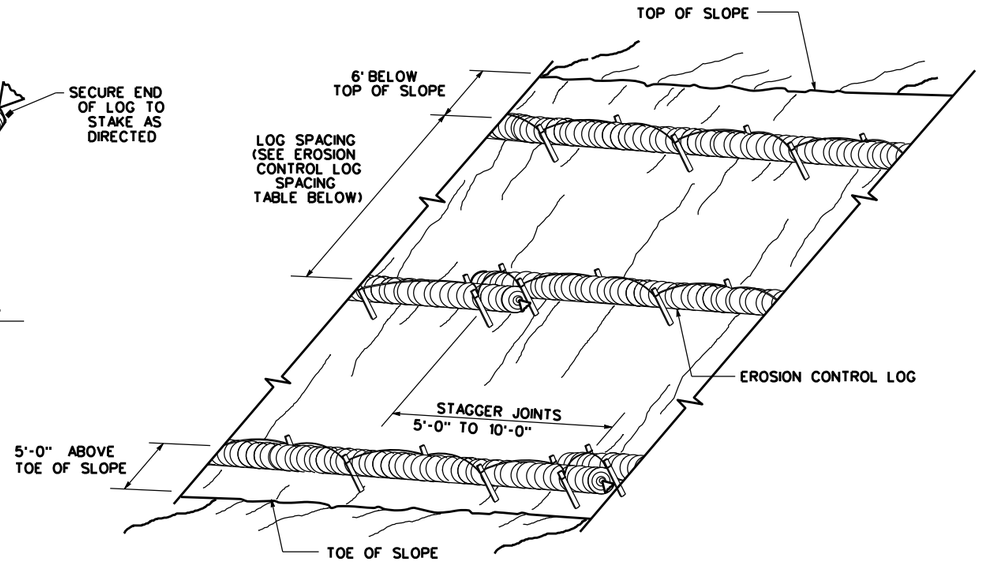
CL-SST



END SECTION RAP DETAIL

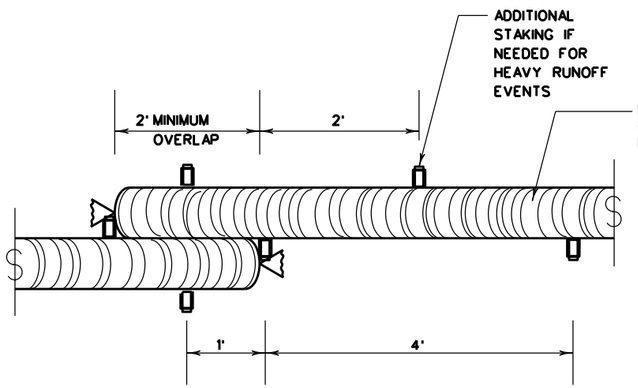
EROSION CONTROL LOG SPACING TABLE				
SLOPE	LOG DIAMETER			
	6"	8"	12"	18"
1:1 OR STEEPER	5'	10'	15'	20'
2:1	10'	20'	30'	40'
3:1	15'	30'	45'	60'
4:1 OR FLATTER	20'	40'	60'	80'

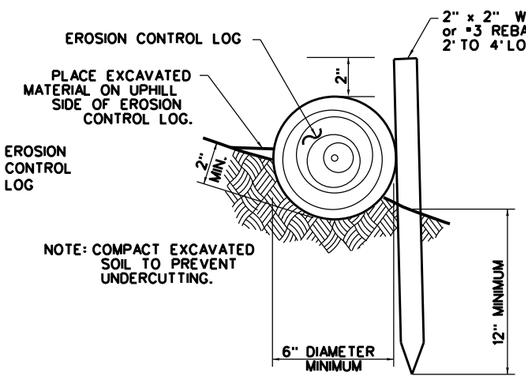
* ADJUSTMENTS CAN BE MADE FOR SOIL TYPE:
SOFT, LOAMY SOILS-ADJUST ROWS CLOSER TOGETHER:
HARD, ROCKY SOILS- ADJUST ROWS FARTHER APART



EROSION CONTROL LOGS ON SLOPES
STAKE AND LASHING ANCHORING

CL-SSL

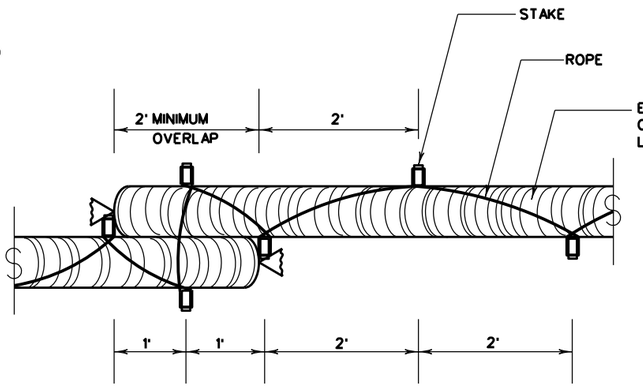


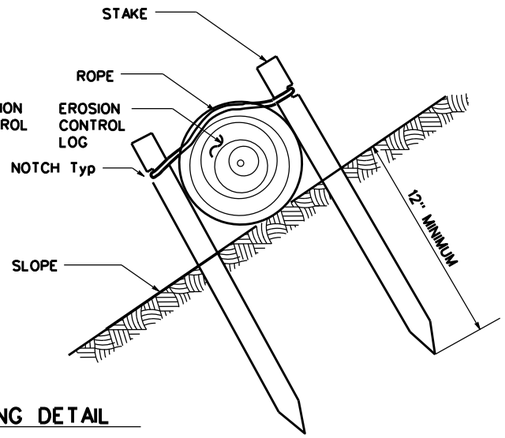


STAKE AND TRENCHING ANCHORING DETAIL

CL-SST

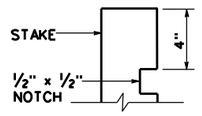
TRENCH DEPTH TABLE	
LOG DIAMETER	DEPTH
6"	2"
8"	3"
12"	4"
18"	5"





STAKE AND LASHING ANCHORING DETAIL

CL-SSL



STAKE NOTCH DETAIL

Texas Department of Transportation

Design Division Standard

TEMPORARY EROSION, SEDIMENT AND WATER POLLUTION CONTROL MEASURES
EROSION CONTROL LOG
EC(9)-16

FILE: ec116	DN: TxDOT	CK: KM	DW: LS/PT	CK: LS
© TxDOT: JULY 2016	CONT	SECT	JOB	HIGHWAY
REVISIONS	0795	02	017, ETC.	FM 1260
	DIST	COUNTY		SHEET NO.
	CHS	DONLEY		115

DATE:
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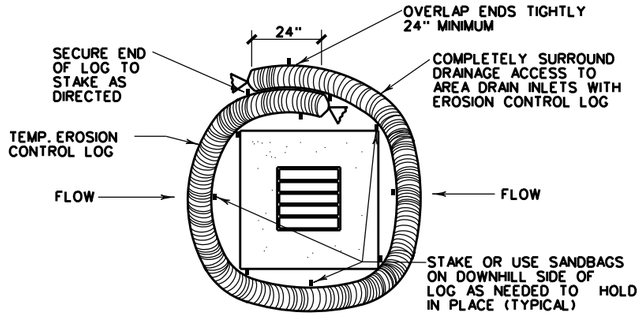
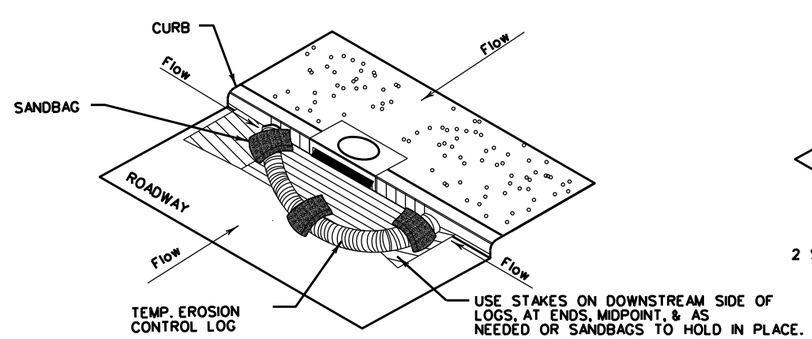


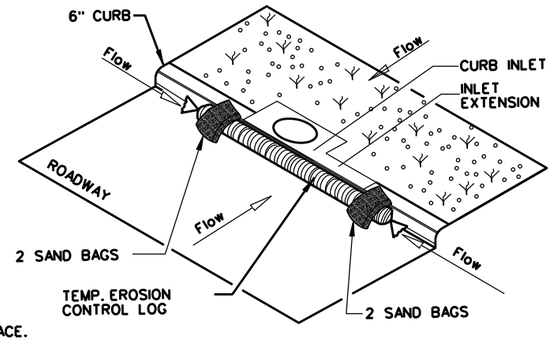
EROSION CONTROL LOG AT DROP INLET

CL-DI



EROSION CONTROL LOG AT CURB INLET

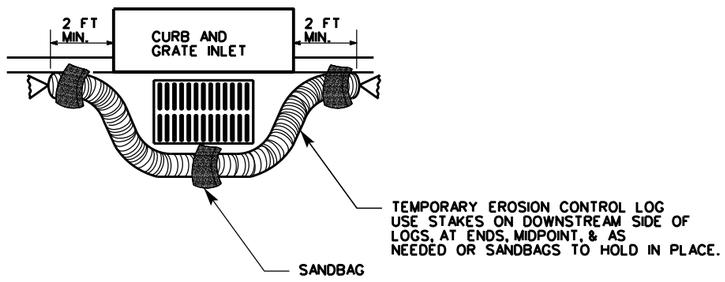
CL-CI



EROSION CONTROL LOG AT CURB INLET

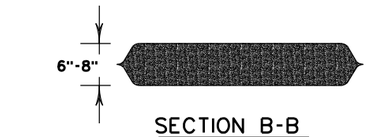
CL-CI

NOTE:
EROSION CONTROL LOGS USED AT CURB INLETS SHOULD ONLY BE USED IF THEY WILL NOT IMPEDE TRAFFIC OR FLOOD THE ROADWAY OR WHEN THE STORM SEWER SYSTEM IS NOT FULLY FUNCTIONAL.

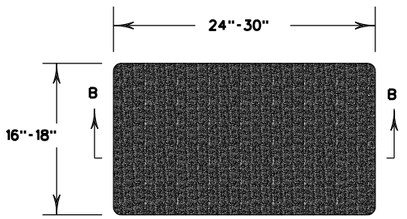


EROSION CONTROL LOG AT CURB & GRADE INLET

CL-GI



SECTION B-B



SANDBAG DETAIL

SHEET 3 OF 3

Texas Department of Transportation

Design Division Standard

TEMPORARY EROSION, SEDIMENT AND WATER POLLUTION CONTROL MEASURES

EROSION CONTROL LOG

EC(9)-16

FILE: ec916	DN: TxDOT		CK: KM		DW: LS/PT		CK: LS
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REVISIONS	0795	02	017, ETC.		FM 1260		
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	CHS	DONLEY					116