FED. RD. DIV. NO.	PROJECT NO.		SHEET NO.
6	STP 2021(242)SRS		1
STATE	STATE DIST.	COUNTY	
TEXAS	BMT	JASPER	
CONT.	SECT.	JOB	HIGHWAY NO.
0920	12	047	VARIOUS

STATE OF TEXAS
DEPARTMENT OF TRANSPORTATION

PLANS OF PROPOSED
STATE HIGHWAY IMPROVEMENT

FEDERAL AID PROJECT PROJECT NO.: STP 2021(242)SRS
CSJ: 0920-12-047

JASPER COUNTY
VARIOUS

NET LENGTH OF ROADWAY = 6226.49 FT = 1.18 MI
NET LENGTH OF BRIDGE = 0.00 FT = 0.00 MI
NET LENGTH OF PROJECT = 6226.49 FT = 1.18 MI

LIMITS FROM: ON FM 2799 FROM MAIN ST
TO: PARK LANE

FOR THE CONSTRUCTION OF PEDESTRIAN SIDEWALKS AND CURB RAMPS CONSISTING OF CONSTRUCT PEDESTRIAN INFRASTRUCTURE AT THE CITY OF JASPER IN THE BEAUMONT DISTRICT

INDEX OF SHEETS

SEE SHEET 2 FOR INDEX OF SHEETS

CSJ: 0920-12-047
A: END PARK STA 103+18.93
B: BEGIN PARK STA 101+59.89
END FM 2799 (HOUSTON) STA 45+26.51
C: BEGIN FM 2799 (HOUSTON) STA 23+70.12
END PEACHTREE STA 229+10.28
D: BEGIN PEACHTREE STA 202+55.92
E: BEGIN CAVIN STA 300+64.72
F: END CAVIN STA 311+93.99

1" = 1/3 MILE

DESIGN SPEED = VARIES (30 MPH MIN)
AREA OF DISTURBED SOIL = 2.12 AC
ADT: 4038 (2020)
5653 (2040)
ACCESSIBILITY STANDARDS = PROWAG

REGISTERED ACCESSIBILITY SPECIALIST (RAS) INSPECTION REQUIRED
TDLR NO. TABS2022011154

FINAL PLANS

LETTING DATE: _____

DATE CONTRACTOR BEGAN WORK: _____

DATE WORK WAS COMPLETED & ACCEPTED: _____

FINAL CONTRACT COST: $ _____

CONTRACTOR: _____

FINAL PLANS STATEMENT:

THE CONSTRUCTION WORK WAS PERFORMED IN ACCORDANCE WITH THE PLANS.

P.E. _____
AREA ENGINEER DATE

SUBMITTED FOR LETTING 2/2/2022
DocuSigned by:
EDDC9C01CB6E4E8... PROJECT ENGINEER

RECOMMENDED FOR LETTING 2/3/2022
DocuSigned by: Adam Jack
81DC430BA99F4E1... DIRECTOR OF TRANSPORTATION PLANNING & DEVELOPMENT

APPROVED FOR LETTING 2/6/2022
DocuSigned by: Martin W. Wyatt, P.E.
578CD749506D4F0... DISTRICT ENGINEER

CITY OF JASPER
Denise Kelley
CITY MANAGER

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, MAY, 2012)

EXCEPTIONS: NONE
EQUATIONS: NONE
R.R. CROSSINGS: N/A

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LEVELS DISPLAYED
1

Plotted on: 1/26/2022

Design Filename: P:\122\42\01\Design\Civil\General\1224201ind01.dgn

SHEET NO.	DESCRIPTION
	GENERAL
1	TITLE SHEET
2	INDEX OF SHEETS
3	PROJECT LOCATION MAP
4-7	TYPICAL SECTIONS
8-8G	GENERAL NOTES
9-9A	ESTIMATE & QUANTITIES
10-13	SUMMARY OF ROADWAY QUANTITIES
14	SUMMARY OF INCIDENTAL QUANTITIES & BASIS OF ESTIMATE
15	SUMMARY OF SMALL SIGNS
	TRAFFIC CONTROL PLAN
16	TMA AND TA SUMMARY SHEET
17-28	* BC (1) - 21 THROUGH BC (12) - 21
29	* WZ (TD) - 17
30	* WZ (UL) - 13
31	* WZ (RCD) - 13
32	* WZ (RS)-22
33	* WZ (BRK) - 13
34	* TCP (1 - 1) - 18
35	* TCP (1 - 4) - 18
36	* TCP (2 - 2) - 18
	ROADWAY
37	SURVEY CONTROL INDEX SHEET
38-39	HORIZONTAL ALIGNMENT DATA SHEET
40	SAMPLE PLAN LAYOUT AND LEGEND OF SYMBOLS
41-49	SPECIAL DETAILS
50	BUILDING WALL DETAIL
51	PARK SIDEWALK PLAN & PROFILE
52-59	FM 2799 SIDEWALK PLAN & PROFILE
60-68	PEACHTREE SIDEWALK PLAN & PROFILE
69-72	CAVIN SIDEWALK PLAN & PROFILE
73	PEACHTREE INTERSECTION DETAIL
74	TREE PROTECTION
75	ARMOR CURB SLOT WITH CONCRETE FOUNDATION
76-77	* TRB-15(1) & TRB-15(2)
78	* CCCG - 21
79-82	* PED - 18
83-85	* PRD - 13
86	* MB - 14 (2)
87	* MB - 14 (2A)
88	* MB - 14 (2B)
89-92	* MB(1)-21 THROUGH MB(4)-21
	RETAINING WALL
93	* RW1 (L) A
94	* RW1 (L) B
95	* RW1 (L) C
96	* RW2
	TRAFFIC ITEMS
97	* D & OM (1) - 20
98	* D & OM (2) - 20
99	* SMD (GEN) - 08
100-102	* SMD (SLIP - 1) - 08 THROUGH SMD (SLIP - 3) - 08
103-106	* PM (1) - 20 THROUGH PM (4) - 20
	ENVIRONMENTAL ISSUES
107	SW3P EXAMPLE LAYOUT
108	EPIC
109	SW3P-I
110	INLET PROTECTION SILT FENCE
111	* SW3P-A
112	* EC (1) - 16
113	* EC (2) - 16
114-116	* EC (9) - 16

DESIGN

STATE OF TEXAS · TYLER PAYNE DUBE · 118612 · LICENSED PROFESSIONAL ENGINEER

TYLER PAYNE DUBE, P.E. — 1/26/2022 DATE

☒ THE STANDARDS SHEETS SPECIFICALLY IDENTIFIED ON THIS SHEET HAVE BEEN SELECTED BY ME OR UNDER MY RESPONSIBLE SUPERVISION AS BEING APPLICABLE TO THIS PROJECT.

APPROVAL

STATE OF TEXAS · JOHN A. TYLER · 105193 · LICENSED PROFESSIONAL ENGINEER

JOHN A. TYLER, P.E. — 1/26/2022 DATE

REV. NO.	DATE	DESCRIPTION	BY

PAPE-DAWSON ENGINEERS

SAN ANTONIO | AUSTIN | HOUSTON | FORT WORTH | DALLAS

2000 NW LOOP 410 | SAN ANTONIO, TX 78213 | 210.375.9000

TEXAS ENGINEERING FIRM #470 | TEXAS SURVEYING FIRM #10028800

INDEX OF SHEETS

SHEET 1 OF 1

DGN:	FED. RD. DIV. NO.	STATE	FEDERAL AID PROJECT NO.			HIGHWAY NO.
CHK DGN:	6	TEXAS				VARIOUS
DWG:	DIST.	COUNTY	CONT. NO.	SECT. NO.	JOB NO.	SHEET NO.
CHK DWG:	BMT	JASPER	0920	12	047	2

Plotted on: 1/25/2022

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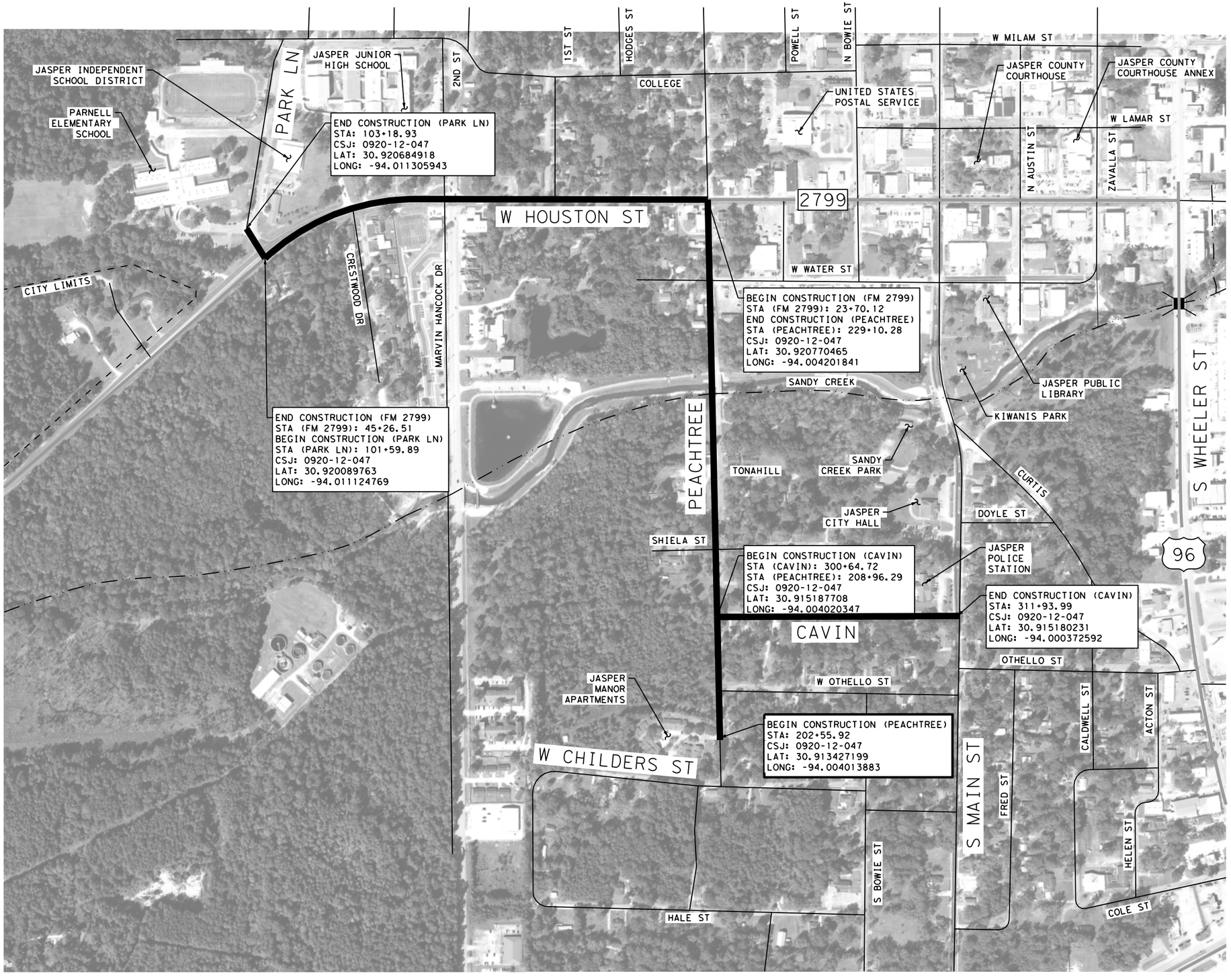
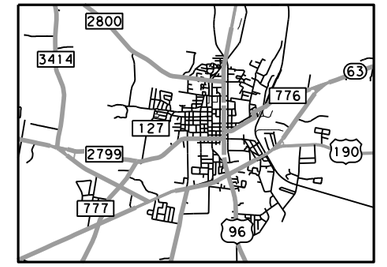




DESIGN

STATE OF TEXAS
TYLER PAYNE DUBE
118612
LICENSED PROFESSIONAL ENGINEER

TYLER PAYNE DUBE, P.E. — 1/25/2022 DATE

APPROVAL

STATE OF TEXAS
JOHN A. TYLER
105193
LICENSED PROFESSIONAL ENGINEER

JOHN A. TYLER, P.E. — 1/25/2022 DATE

NOT TO SCALE

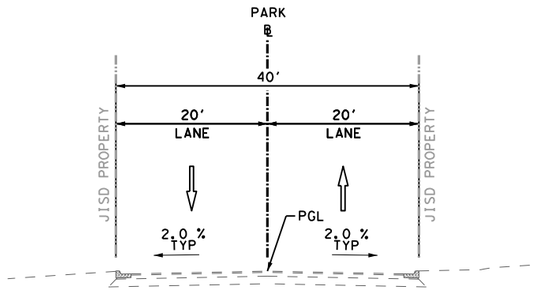
REV. NO.	DATE	DESCRIPTION	BY

PAPE-DAWSON ENGINEERS
SAN ANTONIO | AUSTIN | HOUSTON | FORT WORTH | DALLAS
2000 NW LOOP 410 | SAN ANTONIO, TX 78213 | 210.375.9000
TEXAS ENGINEERING FIRM #470 | TEXAS SURVEYING FIRM #10028800

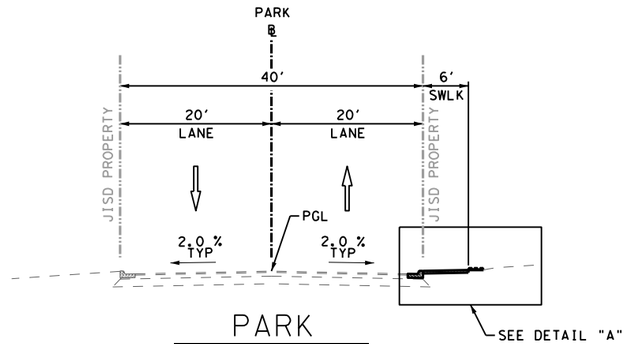
PROJECT LOCATION MAP

SHEET 1 OF 1

DGN:	FED. RD. DIV. NO.	STATE	FEDERAL AID PROJECT NO.			HIGHWAY NO.
CHK DGN:	6	TEXAS				VARIOUS
DWG:	DIST.	COUNTY	CONT. NO.	SECT. NO.	JOB NO.	SHEET NO.
CHK DWG:	BMT	JASPER	0920	12	047	3



PARK
EXISTING STA 100+80 - 103+19



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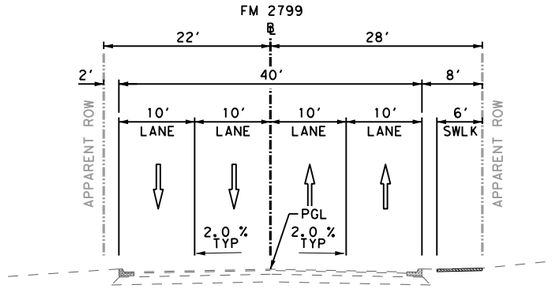

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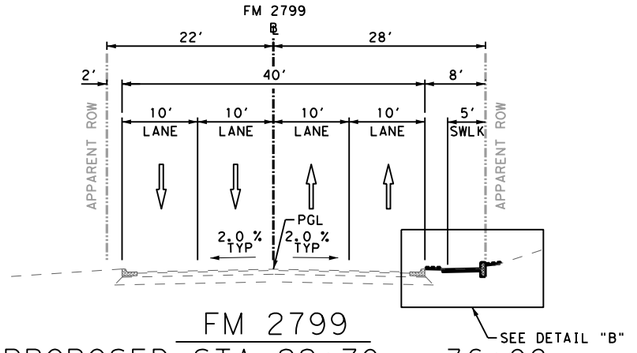

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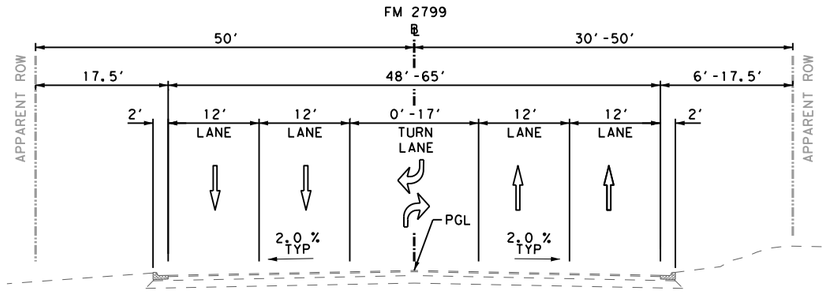

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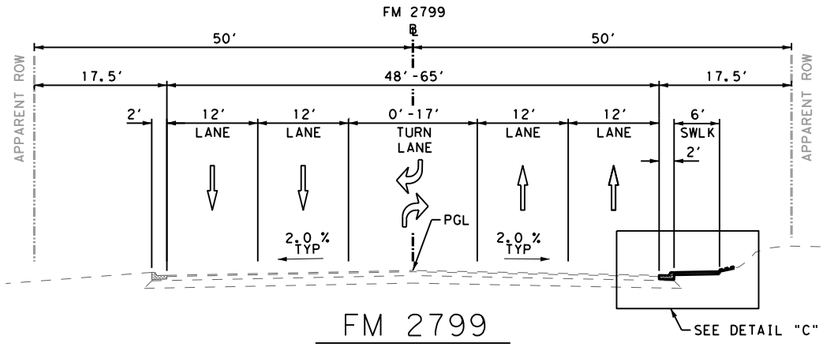

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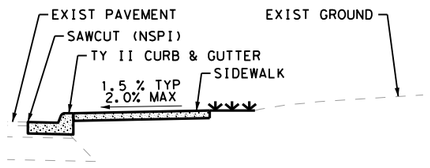

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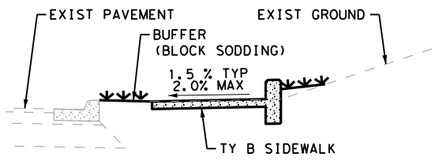

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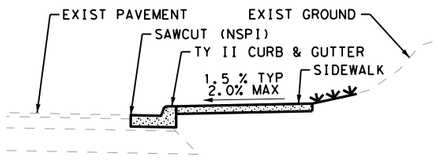

DETAIL "C"
NTS

NOTES:

1. RELOCATE EXISTING SIGNS AS SHOWN ON THE PLANS, REFER TO SMD(GEN)-08 FOR PLACEMENT DETAILS. WHEN PLACED WITHIN THE SIDEWALK, 4' MIN HORIZONTAL CLEARANCE REQUIRED BETWEEN EDGE OF SLIPBASE PLATE AND EDGE OF ACCESSIBLE ROUTE.
2. VERIFY VERTICAL CLEARANCE PER SMD(GEN)-08 FOR SIGN VERTICAL ADJUSTMENT LOCATIONS, REPLACE POLE AND SIGN MOUNT HARDWARE AS NEEDED.
3. SAWCUT WHERE INDICATED PRIOR TO REMOVAL OF EXISTING MATERIAL, NO SEPARATE PAY ITEM (NSPI). THIS WORK IS CONSIDERED SUBSIDIARY TO THE VARIOUS ITEMS.
4. ITEM 531 PAYMENT INCLUDES REMOVAL AND DISPOSAL OF EXISTING CONCRETE. REMOVAL OF EXISTING CONCRETE INCLUDING BUT NOT LIMITED TO CURB OR CURB & GUTTER WHOLLY CONTAINED WITHIN THE LIMITS OF ITEM 531 ELEMENTS ARE NOT PAID FOR SEPARATELY.

DESIGN

STATE OF TEXAS · TYLER PAYNE DUBE · 118612 · LICENSED PROFESSIONAL ENGINEER

TYLER PAYNE DUBE, P.E. — 1/25/2022 DATE

APPROVAL

STATE OF TEXAS · JOHN A. TYLER · 105193 · LICENSED PROFESSIONAL ENGINEER

JOHN A. TYLER, P.E. — 1/25/2022 DATE

NOT TO SCALE

REV. NO.	DATE	DESCRIPTION	BY

PAPE-DAWSON ENGINEERS

SAN ANTONIO | AUSTIN | HOUSTON | FORT WORTH | DALLAS
2000 NW LOOP 410 | SAN ANTONIO, TX 78213 | 210.375.9000
TEXAS ENGINEERING FIRM #470 | TEXAS SURVEYING FIRM #10028800

Texas Department of Transportation

TYPICAL SECTIONS

SHEET 1 OF 4

DGN:	FED. RD. DIV. NO.	STATE	FEDERAL AID PROJECT NO.			HIGHWAY NO.
CHK DGN:	6	TEXAS				VARIOUS
DWG:	DIST.	COUNTY	CONT. NO.	SECT. NO.	JOB NO.	SHEET NO.
CHK DWG:	BMT	JASPER	0920	12	047	4

Plotted on: 1/25/2022

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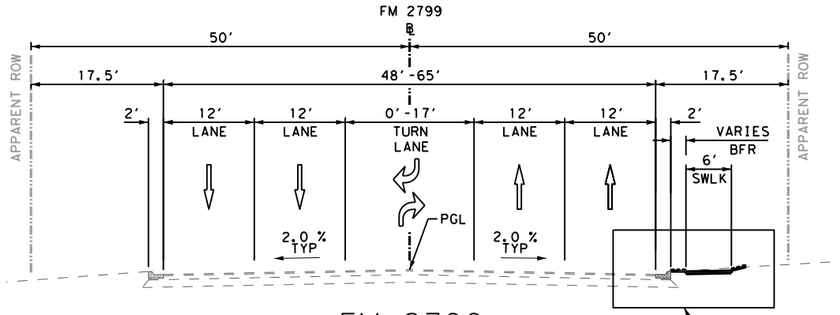

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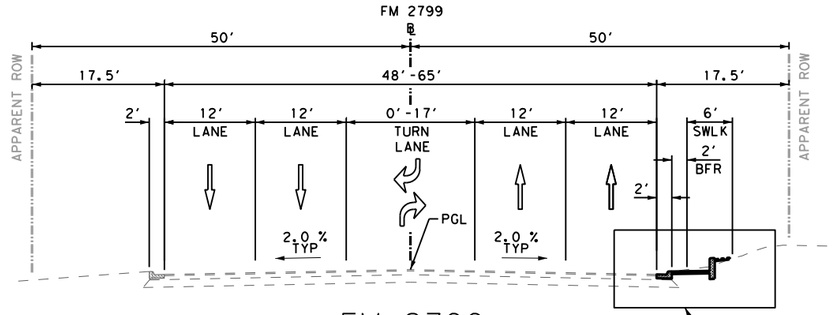

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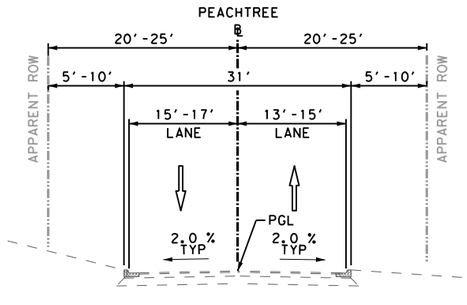
PROPOSED STA 41+29 - 45+27



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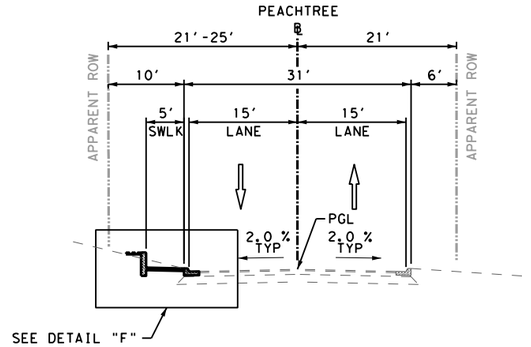
EXSTING STA 202+56 - 215+58
EXSTING STA 225+35 - 229+28



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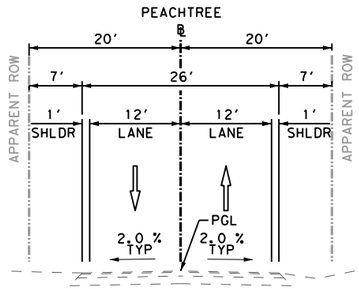
PROPOSED STA 202+56 - 206+02



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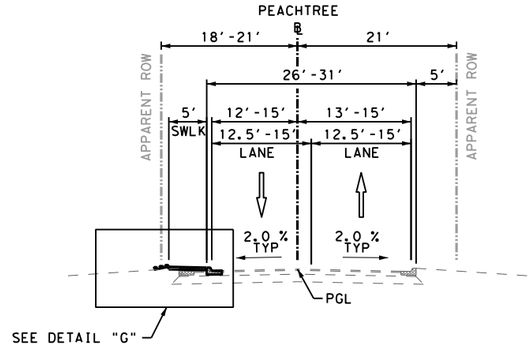
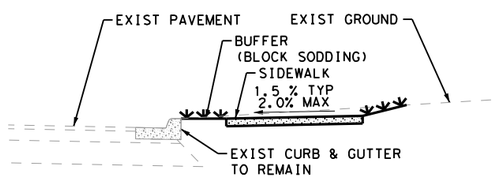
EXSTING STA 215+58 - 225+35



PEACHTREE
PROPOSED STA 206+02 - 209+29



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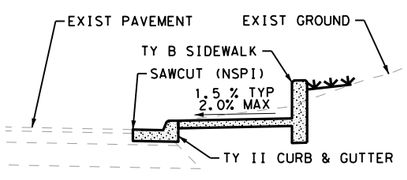

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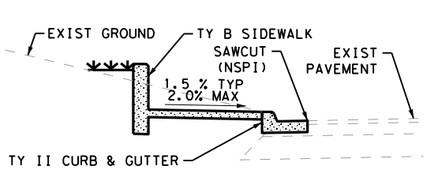

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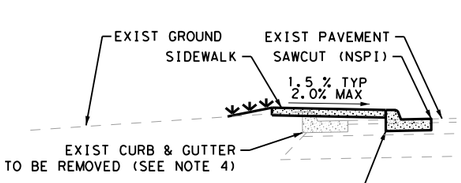

DETAIL "G"
NTS

NOTES:

1. RELOCATE EXISTING SIGNS AS SHOWN ON THE PLANS, REFER TO SMD(GEN)-08 FOR PLACEMENT DETAILS. WHEN PLACED WITHIN THE SIDEWALK, 4' MIN HORIZONTAL CLEARANCE REQUIRED BETWEEN EDGE OF SLIPBASE PLATE AND EDGE OF ACCESSIBLE ROUTE.
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DESIGN

STATE OF TEXAS — TYLER PAYNE DUBE — 118612 — LICENSED PROFESSIONAL ENGINEER

TYLER PAYNE DUBE, P.E. — 1/25/2022 DATE

APPROVAL

STATE OF TEXAS — JOHN A. TYLER — 105193 — LICENSED PROFESSIONAL ENGINEER

JOHN A. TYLER, P.E. — 1/25/2022 DATE

NOT TO SCALE

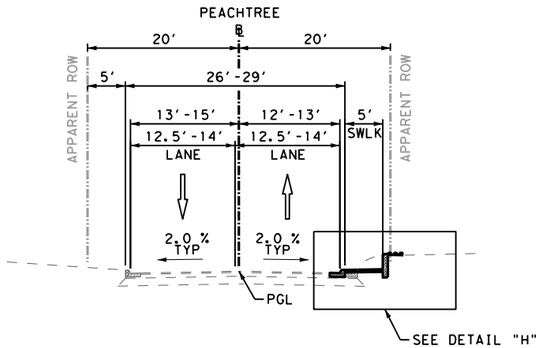
REV. NO.	DATE	DESCRIPTION	BY

PAPE-DAWSON ENGINEERS
SAN ANTONIO | AUSTIN | HOUSTON | FORT WORTH | DALLAS
2000 NW LOOP 410 | SAN ANTONIO, TX 78213 | 210.375.9000
TEXAS ENGINEERING FIRM #470 | TEXAS SURVEYING FIRM #10028800

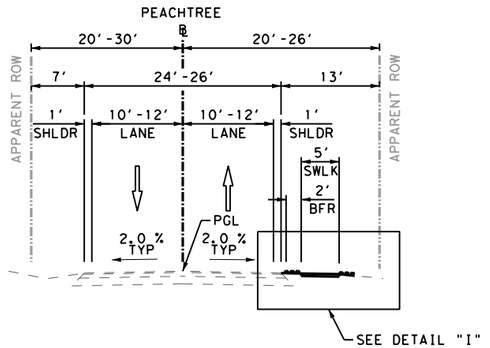
TYPICAL SECTIONS

SHEET 2 OF 4

DGN:	FED. RD. DIV. NO.	STATE	FEDERAL AID PROJECT NO.			HIGHWAY NO.
CHK DGN:	6	TEXAS				VARIOUS
DWG:	DIST.	COUNTY	CONT. NO.	SECT. NO.	JOB NO.	SHEET NO.
CHK DWG:	BMT	JASPER	0920	12	047	5



PEACHTREE
PROPOSED STA 209+29 - 215+73



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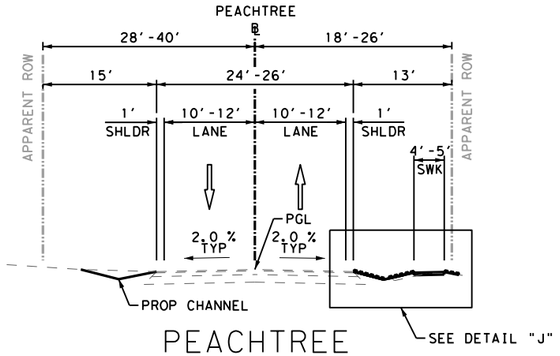
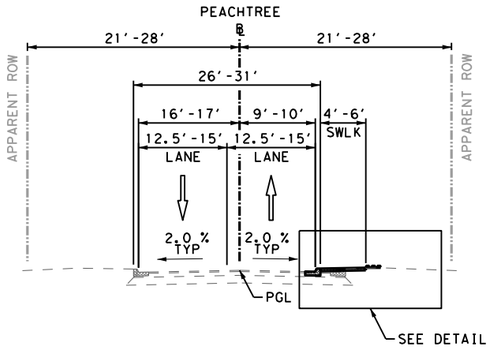
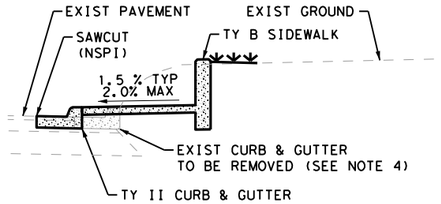
PROPOSED STA 215+73 - 220+00



PEACHTREE
PROPOSED STA 220+00 - 225+35



PEACHTREE
PROPOSED STA 225+35 - 229+28



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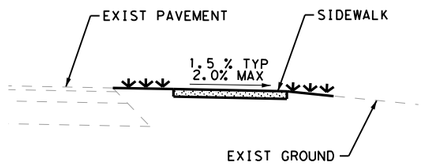

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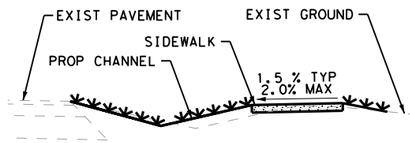

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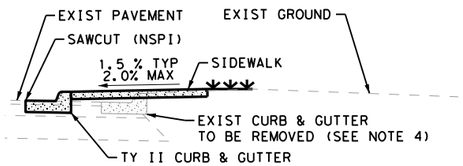
NTS



DETAIL "K"
NTS

NOTES:

1. RELOCATE EXISTING SIGNS AS SHOWN ON THE PLANS, REFER TO SMD(GEN)-08 FOR PLACEMENT DETAILS. WHEN PLACED WITHIN THE SIDEWALK, 4' MIN HORIZONTAL CLEARANCE REQUIRED BETWEEN EDGE OF SLIPBASE PLATE AND EDGE OF ACCESSIBLE ROUTE.
2. VERIFY VERTICAL CLEARANCE PER SMD(GEN)-08 FOR SIGN VERTICAL ADJUSTMENT LOCATIONS, REPLACE POLE AND SIGN MOUNT HARDWARE AS NEEDED.
3. SAWCUT WHERE INDICATED PRIOR TO REMOVAL OF EXISTING MATERIAL, NO SEPARATE PAY ITEM (NSPI). THIS WORK IS CONSIDERED SUBSIDIARY TO THE VARIOUS ITEMS.
4. ITEM 531 PAYMENT INCLUDES REMOVAL AND DISPOSAL OF EXISTING CONCRETE. REMOVAL OF EXISTING CONCRETE INCLUDING BUT NOT LIMITED TO CURB OR CURB & GUTTER WHOLLY CONTAINED WITHIN THE LIMITS OF ITEM 531 ELEMENTS ARE NOT PAID FOR SEPARATELY.

DESIGN

STATE OF TEXAS · TYLER PAYNE DUBE · 118612 · LICENSED PROFESSIONAL ENGINEER

TYLER PAYNE DUBE, P.E. — 1/25/2022 DATE

APPROVAL

STATE OF TEXAS · JOHN A. TYLER · 105193 · LICENSED PROFESSIONAL ENGINEER

JOHN A. TYLER, P.E. — 1/25/2022 DATE

NOT TO SCALE

REV. NO.	DATE	DESCRIPTION	BY

PAPE-DAWSON ENGINEERS
SAN ANTONIO | AUSTIN | HOUSTON | FORT WORTH | DALLAS
2000 NW LOOP 410 | SAN ANTONIO, TX 78213 | 210.375.9000
TEXAS ENGINEERING FIRM #470 | TEXAS SURVEYING FIRM #10028800

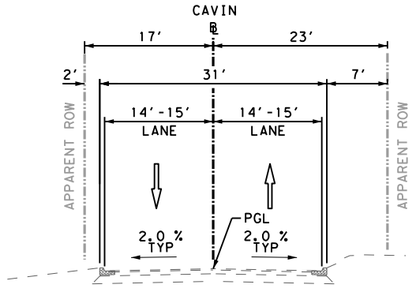
TYPICAL SECTIONS

SHEET 3 OF 4

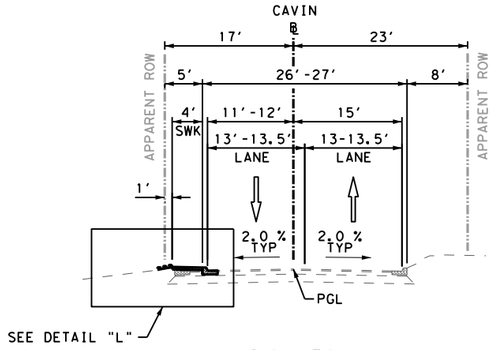
DGN:	FED. RD. DIV. NO.	STATE	FEDERAL AID PROJECT NO.			HIGHWAY NO.
CHK DGN:	6	TEXAS				VARIOUS
DWG:	DIST.	COUNTY	CONT. NO.	SECT. NO.	JOB NO.	SHEET NO.
CHK DWG:	BMT	JASPER	0920	12	047	6

Plotted on: 1/25/2022

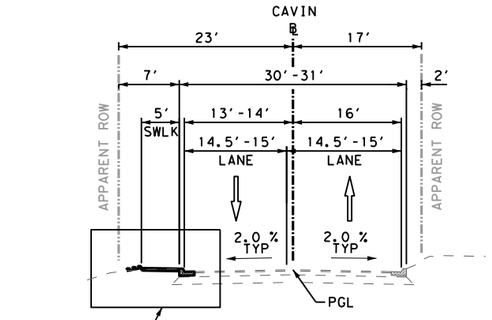
Design Filename: P:\122\42\01\Design\Civil\General\122401typ01.dgn



CAVIN
EXSTING STA 300+50 - 311+94



CAVIN
PROPOSED STA 300+50 - 308+18



CAVIN
PROPOSED STA 308+18 - 311+94

NOTES:

1. RELOCATE EXISTING SIGNS AS SHOWN ON THE PLANS, REFER TO SMD(GEN)-08 FOR PLACEMENT DETAILS. WHEN PLACED WITHIN THE SIDEWALK, 4' MIN HORIZONTAL CLEARANCE REQUIRED BETWEEN EDGE OF SLIPBASE PLATE AND EDGE OF ACCESSIBLE ROUTE.
2. VERIFY VERTICAL CLEARANCE PER SMD(GEN)-08 FOR SIGN VERTICAL ADJUSTMENT LOCATIONS, REPLACE POLE AND SIGN MOUNT HARDWARE AS NEEDED.
3. SAWCUT WHERE INDICATED PRIOR TO REMOVAL OF EXISTING MATERIAL, NO SEPARATE PAY ITEM (NSPI). THIS WORK IS CONSIDERED SUBSIDIARY TO THE VARIOUS ITEMS.
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DESIGN

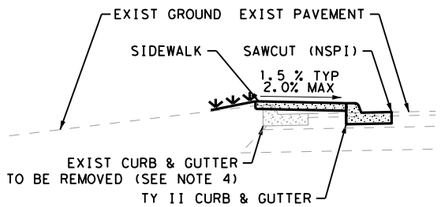
STATE OF TEXAS
TYLER PAYNE DUBE
118612
LICENSED
PROFESSIONAL ENGINEER

TYLER PAYNE DUBE, P.E. — 1/25/2022 DATE

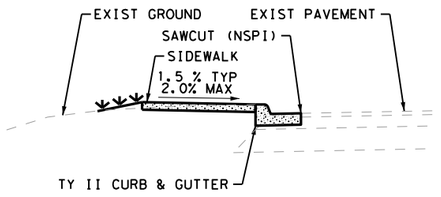
APPROVAL

STATE OF TEXAS
JOHN A. TYLER
105193
LICENSED
PROFESSIONAL ENGINEER

JOHN A. TYLER, P.E. — 1/25/2022 DATE



DETAIL "L"
NTS



DETAIL "M"
NTS

NOT TO SCALE

REV. NO.	DATE	DESCRIPTION	BY

PAPE-DAWSON ENGINEERS
SAN ANTONIO | AUSTIN | HOUSTON | FORT WORTH | DALLAS
2000 NW LOOP 410 | SAN ANTONIO, TX 78213 | 210.375.9000
TEXAS ENGINEERING FIRM #470 | TEXAS SURVEYING FIRM #10028800

TYPICAL SECTIONS

SHEET 4 OF 4

DGN:	FED. RD. DIV. NO.	STATE	FEDERAL AID PROJECT NO.			HIGHWAY NO.
CHK DGN:	6	TEXAS				VARIOUS
DWG:	DIST.	COUNTY	CONT. NO.	SECT. NO.	JOB NO.	SHEET NO.
CHK DWG:	BMT	JASPER	0920	12	047	7

GENERAL NOTES:
Contractor questions on this project are to be addressed to the following individual(s):

Name Clint Jones, P.E. –Jasper Area Engineer
Email Clint.Jones@txdot.gov
Name Jim Grissom – Assistant Area Engineer
Email Jim.Grissom@txdot.gov

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

All contractor questions will be reviewed by the Area Engineer or Assistant Area Engineer. Once a response is developed, it will be posted to TxDOT's Public FTP at the following Address: https://ftp.dot.state.tx.us/pub/txdot-info/Pre-Letting%20Responses/

All questions submitted that generate a response will be posted through this site. The site is organized by District, Project Type (Construction or Maintenance), Letting Date, CCSJ/Project Name.

Assume full responsibility for the preservation of all sod, shrubbery, and trees at the site during construction. Carefully preserve and replace, in their original position, all sod and shrubbery removed. Replace all Contractor damaged sod or shrubbery at the Contractor's own expense.

Maintain adequate drainage throughout the limits of the project during all construction phases. Provide a weekly a list of equipment, including idle equipment, used on the project each week.

Item 000 Utilities
Consider the locations of underground utilities depicted on the plans as approximate and employ responsible care to avoid damaging, or accommodate utility facilities. Depending upon scope and magnitude of planned construction activities, advanced field confirmation by the utility owner or operator may be prudent. Where possible, protect and preserve permanent signs, markers, and designations of underground facilities. If utility damage (breaks, leaks, nicks, dents, gouges, etc.) occurs, contact the utility facility owner or operator immediately. In the event utility lines needing unforeseen adjustments are encountered during construction operations, alter operations and continue to prosecute the contract in such a manner that will allow utility adjustments to be made by others.

Certain utilities cannot be adjusted on this project until formwork operations are complete. The following utilities will require adjustment after formwork operations have been completed:
Various water valve/meter cover adjustments to proposed grade

Item 4 Scope of Work
Remove all vegetation from pavement edges, intersections and driveways before planing or ACP operations. This work will not be paid for directly but will be subsidiary to the various bid items.

It is the Contractor's responsibility to field verify all drainage structure's shown in the plans.

It is the Contractor's responsibility to mark the location of all existing pavement markings and place proposed pavement markings back in the same location or as shown in the plans.

Item 5 Control of the Work
Station the project before commencing work. Mark the stations every 100 feet. Maintain stationing throughout the duration of the project. Remove the station markings at the completion of the project. Consider this work to be subsidiary to the various bid items of the contract.

Verify all horizontal and vertical control, approach grades to structures and driveways before beginning work. Notify the Engineer immediately if discrepancies are discovered.

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 https://www.txdot.gov/inside-txdot/forms-publications/consultants-contractors/publications/bridge.html#design. Acceptance or denial of an alternate is at the sole discretion of the Engineer. Impact 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
Flammable/combustible materials must be stored at a designated location as approved.

Do not store flammable/combustible materials under or adjacent to Bridge class structures. Daily removal of these materials will be considered incidental work.

Mixing of materials, storing of materials, storing of equipment, or repairing of equipment on top of concrete pavement or bridge decks will not be permitted unless specifically authorized.

Item 7 Legal Relations and Responsibilities
Furnish all materials, labor and incidentals required to provide for traffic across the highway and for temporary ingress and egress to private property in accordance with article 7.2.4 of the standard specifications at no additional cost to the state. Maintain ingress and egress to the adjacent property at all times. Consider this work to be subsidiary to the various bid items of the contract.

The Contractor will be completely responsible for the immediate removal of any material that gets upon any vehicle as a result of their operation.

Personal vehicles of the Contractor's employees will not be parked within the right of way at any time including any section closed to public traffic, unless the vehicle is being used for construction procedures. However, the Contractor's employees may park on the right of way at sites where the Contractor has their office, equipment and materials storage yard.
The following significant traffic generator events have been identified in the project limits:

- JISD Parnell Elementary School Field Day (Spring 2022)
- JISD Early Release (May 26, 2022)
- Jasper Christmas in the Park (November 26, 2022)

Item 8 Prosecution and Progress
Compute and charge working days in accordance with Section 8.3.1.4 Standard Workweek.

Adjoining projects may be in progress during the construction of a portion of this project. Plan and prosecute the sequence of construction and the traffic control plan with adjacent construction projects, if applicable. Manage construction of all phases to minimize disruption to traffic.

Notify the Engineer 72 hours in advance of any temporary or permanent lane, ramp or connector affected by closures, detours, or restrictions to lane widths, alterations to vertical clearances or modifications to alignment/radii. Any other modification to the roadway that may adversely affect the mobility of oversized/overweight trucks will require 5 business day advance written notice to the Engineer.

For all travel lanes, ramps, or connector closures, provide information regarding dates, times, typical work hours, type of closure, reason for closure, and expected project duration to the Jasper Area Office. This information will be provided 72 hours in advance of the closure to the Jasper Area Office. If approved, the Jasper Area Office will forward the information to the Public Information Officer for the Beaumont District.

Maintain at least one lane open to traffic during construction, unless otherwise approved.

Schedule work so that all travel lanes are open during non-working hours, nights and weekends, unless otherwise approved.

All edges must be backfilled by the end of the day with a 3:1 or flatter slope. No drop offs will be left overnight.

Complete all work at one corridor before proceeding to a new corridor unless otherwise approved. If additional corridors are approved, erect barricades only for those additional corridors. Maintain barricades at each of these corridors until all work at the site is completed and accepted.

The Engineer will suspend time charges after completion of all work and removal of the barricades. The Department will grant final acceptance when all performance periods are complete. The number of working days for final acceptance will be 14 working days after the completion of the project.

Accrue Contract time charges through the Contractor's completion of the final punch list. Time will not be suspended until all work is completed.

Provide a sequence of work with an estimated project schedule to the Engineer at the preconstruction meeting. By noon of each Wednesday, provide the Engineer a written outline of the proposed work schedule for the following week. This outline will also list the times and places for any proposed traffic control changes.

Monthly critical path method (CPM) updates are a very important aspect of managing the progress of this project. CPM planning schedule software will be required on this project as stipulated in the special provisions to the plans. An updated electronic schedule will be provided to the Engineer by the tenth day of each month. The Engineer may withhold the monthly estimate if the schedule update has not been received.

For this project, create and maintain the critical path method (CPM) schedule.

Work will not be permitted when impending bad weather or low temperatures may impair the quality of work.

The construction sequence may be modified as directed and approved.

Working days will be charged during the observed curing times, even if no other work is being performed.

Item 100 Preparing Right of Way
When tree trimming or tree/brush removal is required from February 15 to September 30, the contractor will provide a qualified biologist with a Bachelor's Degree in biology and demonstrated bird nest survey experience to conduct nesting surveys before work can begin and until vegetation work is completed to ensure compliance with the Migratory Bird Treaty Act (MBTA). See EPIC sheet for details.

Heavy equipment rutting will be graded to the existing terrain profile. Consider this work to be subsidiary to the various bid items of the contract.

Item 104 Removing Concrete
Provide full-depth saw cutting for removal of existing concrete driveways. Consider this work to be subsidiary to the various bid items of the contract.

Sawing of concrete or asphalt is not paid for directly, but is considered subsidiary to this item. See typical sections and Plan & Profile sheets for areas where saw cutting is required.

Item 105 Removing Treated and Untreated Base and Asphalt Pavement
Stockpiling and salvage of existing material is not anticipated. Haul and dispose of material in accordance with applicable local and state regulations.

Item 110 Excavation
No earthwork cross-sections, computer printouts, data files or other volumetric earthwork information was developed for this project.

Do not windrow or stockpile material next to or along the roadway. Remove excess material from the project daily.

Transition the ditch grades and channel bottom widths at structure locations.

Excavated material may be used as Embankment as approved by the Engineer and must meet Type A Embankment requirements. Use only approved channel excavation in the embankment.

Item 132 Embankment
Compaction method specified as "ordinary" compaction.

It is the Contractor's responsibility to advise the Engineer of the location of the material source enough in advance to avoid delay due to testing requirements.

Embankment Type A will conform to the following specification requirements:

- Liquid Limit – 45 maximum
- Plasticity Index – 15 maximum
- A cohesionless sand will not be permitted

All slopes requiring embankment will be tracked immediately upon final grading to prevent erosion. Tracking consists of operating a tracked vehicle or equipment up and down the slopes leaving track marks perpendicular to the direction of the slope. See the EC(1) standard for tracking details. Tracking slopes to prevent erosion will not be measured or paid for directly, but will be subsidiary to pertinent Items.

Item 160 Topsoil
All slopes requiring topsoil will be tracked immediately upon final grading to prevent erosion. Tracking consists of operating a tracked vehicle or equipment up and down the slopes leaving track marks perpendicular to the direction of the slope. See EC(1) for Tracking details. Tracking slopes to prevent erosion will not be measured or paid for directly, but will be subsidiary to pertinent Items.

Place topsoil in accordance with the SW3P, in phases, as partial completion of the improvements is achieved.

Item 162 Sodding for Erosion Control
Furnish and place St. Augustine sod.

Item 168 Vegetative Watering
Equip water trucks with sprinkler systems capable of covering the entire area to be seeded or sodded from the roadway.

Water all newly placed sod or seeded areas the same day of installation. Thereafter, maintain the sod or seeded areas in a well-watered condition and at no time allow the areas to dry to the condition that water stress is evident.

Mechanical watering may not be required during periods of adequate moisture as determined by the Engineer.

Furnish and apply water at a rate of 6.788 Mega gallons per acre per cycle or as directed on the plans.

Comply with stabilization requirements for 70% grass coverage; uniform vegetative coverage is required. During this period, meter and operate water equipment under pumping pressure capable of delivering the required quantities of water necessary. For permanent sodding each cycle will be executed weekly for 12 weeks, unless directed otherwise.

Provide a log book showing daily water usage and receipts of water applied, in addition to metering the water equipment.

Item 216 Proof Rolling
Perform proof rolling when the moisture content of the subgrade soil is near optimum or at the moisture content at which compaction was achieved. Operate the roller briefly to determine its effect on the subgrade. If consistent lateral displacement occurs, use a lower stress level. After an acceptable stress level is established, make two complete passes over the subgrade.

Do not proof roll over culverts, pipes or other conduits that may be damaged by the proof roller, and in areas where there is not enough maneuvering space.

Proof roll areas as directed.

Item 300 Asphalts, Oils, and Emulsions
Furnish non-tracking tack coat meeting the requirements of SP 300-020.

Item 320 Equipment for Asphalt Concrete Pavement
Use of motor grader is allowed.

A field laboratory is not required for this project.

Item 340 Dense Graded Hot Mix Asphalt (Small Quantity)
Prepare Mix Designs using the Superpave Gyratory compactor.

Item 351 Flexible Pavement Structure Repair
The repair areas will require full depth saw-cut when milling is not used. Consider this work to be subsidiary to the various bid items of the contract.

Provide Flexible Pavement Repair with Item 340, Type B (PG 64-22) unless approved otherwise.

Place Hot Mix with a constant longitudinal surface grade and tie in flush with the existing surface at each end and both sides of the repair area.

Unless otherwise directed, place new ASB with maximum 4” lifts. The minimum patch sizes will be 6’ in width and 10’ in length.

Match the existing cross slope in the repair areas, unless directed otherwise.

All repair locations must be filled the same day they are excavated. No open cut areas will be allowed overnight.

All excavated materials will be removed from the project daily.

Ordinary compaction will be used on this project.

Seal the perimeter of the repair areas with hot poured rubber in accordance with Item 712. Consider this work to be subsidiary to the various bid items of the contract.

Item 354 Planing and Texturing Pavement
Where the underlying flexible base is exposed during the planing operation, prime this area with an asphalt at a rate as directed and patch with an approved HMA material, at the end of the day’s operation in which it occurs. These items of work will not be paid for directly but will be subsidiary to Item 354.

Retain ownership of planed materials.

If the Engineer determines an adjacent driveway needs to be tapered back to prevent a drop-off an additional pass will need to be made to taper the driveway as directed or for a distance of 24” into the driveway. This work will be measured and paid for under Item 354.

Item 420 Concrete Substructures
Construct concrete steps, as shown in the plans or as directed by the Engineer, measured by the cubic yard and paid for as Item 420 Concrete Substructures.

Item 432 Riprap
In large areas of riprap, provide one-half (1/2)-inch thick expansion joint material at approximately 15-foot intervals, or as determined by the Engineer.

Place asphalt expansion joint material between proposed riprap and utility poles, guy wires, vent pipes, stand pipes and as directed.

Place felt or filter fabric at open joints as required by the Engineer. This will be considered subsidiary.

Item 502 Barricades, Signs, and Traffic Handling
Construct all work zone signs, sign supports, and barricades from material other than wood unless approved otherwise. Metal posts, if used, are to be galvanized. Aluminum signs, if used, will meet the following minimum thickness requirements:

Square Feet	Minimum Thickness
Less than 7.5	0.080 inches
7.5 to 15	0.100 inches
Greater than 15	0.125 inches

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

Restrict work to one side of the roadway at a time.

The following roadways have been determined to be high volume for the purpose identified in Note 4 of the "Typical Location of Crossroad Signs" on the BC(2) standard sheet: FM 2799

The following roadways have been determined to be low volume for the purpose identified in Note 2 of the "Typical Location of Crossroad Signs" on the BC(2) standard sheet: Peachtree, Cavin, Park

Use drums, Opposing Traffic Lane Dividers (OTLDs), and 42" cones as channelizing devices.

Remove all traffic control devices from the right of way when they are not in use. Devices scheduled to be used within 3 days may be placed along the shoulder of the roadway or along the right of way when not in use, or stored in other approved areas on the project. Cover any

construction signs that are not in effect and are installed in a fashion that will not allow them to be removed from the right of way easily.

Provide construction fencing as directed and approved at all work locations to protect pedestrian or bicycle traffic. This material and its placement will be considered subsidiary to Item 502.

Arrange construction operations to prevent the hauling of materials through the completed pavement sections unless otherwise approved.

Provide all flaggers and pilot vehicle drivers with two-way radio communication capability. Provide flaggers at each side road intersection.

Item 506 Temporary Erosion, Sedimentation, and Environmental Controls
Construct all side slopes on rock filter dams with 6:1 slopes.

The Contractor is prohibited from removing grass vegetation throughout the entire project limits and then ceasing construction for long periods, typically over three weeks. The Contractor schedule will be developed based on staged vegetation removal, limiting disturbed soil to no more than 25 percent at one time, unless otherwise approved. Should the Contractor not be able to adequately control sediment and erosion for areas disturbed, the Department will substantially reduce the size of areas that the Contractor may disturb soil.

Should the project be evaluated to have sediment control problems as a result of the Contractor disturbing excessive amounts of soil, the Contractor will be required to immediately re-vegetate (sod and water) those disturbed areas at no cost to the Department.

When specified, the Contractor will implement storm water pollution prevention plan measures using the Items listed below as specified in Item 506 and as directed:

- Temporary Sediment Control Fence
- Vertical Tracking
- Rock Filter Dams
- Erosion Control Logs
- Inlet Protection Silt Fence

The Contractor will designate a cleanout area for concrete trucks. No other area will be allowed without approval of the Engineer.

Item 530 Intersections, Driveways, and Turnouts
Welded wire fabric will not be allowed for reinforcing concrete driveways. Use reinforcing steel consisting of No.4 bars meeting the requirements of grade 60 reinforcing steel. Place bars on 12 in. centers in each direction, supported on reinforcing chairs.

Unless otherwise directed, install 1/2 in. pre-molded expansion joint material between existing concrete and new concrete.

Use Class A Concrete for all concrete driveways.

High early strength concrete for proposed driveways to be available as deemed necessary and as directed.

Item 531 Sidewalks
Overlay across the ends of any curb ramps must not create a barrier to their use. Changes in level up to ¼" may be vertical; between ¼" and ½" must be beveled with a slope no greater than 1:2; greater than ½" will require a "ramp".

Construct ¼-inch thick score joints at a maximum 6-foot spacing and expansion joints at a maximum 40-foot spacing. For steel reinforcement, use 12-inch spacing with #3 bars or 6x6 – D6 welded wire fabric sheets. Welded wire fabric rolls are not permitted.

The curb ramp locations shown in the plans have taken into account the geometric features of the intersection, utilities, traffic signals, and the pavement markings. If anything changes during construction, the location of curb ramps must be adjusted to ensure they meet PROWAG requirements.

The furnishing and installation of the sand cushion in proposed sidewalks, curb ramps, and driveways will not be paid for directly but will be subsidiary to this bid item.

Truncated dome pavers are prohibited.
All detectable warning surfaces are to be prefabricated panels constructed of cast iron or composite materials of contrasting color to the surrounding material, as approved by the Engineer.

Proposed curb ramps, sidewalks, curbs, and riprap are to be doweled 8in minimum, unless otherwise shown, into existing concrete using ½-in reinforcement placed on 12 in centers.

Curb wall along ramps and landings, unless otherwise shown on the plans, is not paid for separately but is subsidiary to the ramp or landing. If the wall extends above the plane of the ramp, retaining wall should be utilized unless otherwise noted on the plans. See special details sheets for more information.

Areas labeled with a "T" on the construction drawings allow the Contractor to transition to existing conditions. Slope and grade of all transitions must be approved by the Engineer.

For driveways and turnouts, coarse aggregate Grade No. 3 through No. 8 conforming to the gradation requirements specified in the Item, "Hydraulic Cement Concrete" will be permitted.

Construct ADA-compliant curb ramps based upon referenced design criteria, PROWAG and TxDOT Pedestrian Facilities Standards. Consider the locations of existing traffic and pedestrian control devices including loop detectors and pedestrian push buttons during curb ramp construction at signalized intersections, and construct ramps to allow such existing facilities to remain undisturbed and reused to the fullest extent possible while providing for full ADA compliance. All corners are unique and it may be necessary to use various combinations of ramp, landing, wall, and flare elements to achieve an ADA-compliant ramp configuration.

Review the curb ramp location and layout with the inspector prior to demolition so that both parties agree that the curb ramp can be installed properly. Should it become apparent at any time during the ramp layout and construction process that a curb ramp cannot be installed as indicated on the plans, promptly notify the Engineer.

Any approval, inspection, or checking of the Contractor's layout and the acceptance of all or any part of it shall not relieve the Contractor of his responsibility to secure the proper dimensions, grades and elevations of the various parts of the work.

Construction of each curb ramp is to be completed within seven (7) working days after start of construction process. Construction process of curb ramps shall include: demolition of existing conditions, placement of concrete or brick, removal of lips, street surface patching in front of the curb or ramp, adjustment of counter slope within 24-inches of the bottom of the ramp or curb and gutter, street level landings, backfill, placement of topsoil, grading and sodding, and clean-up. All other related work such as adjustment of crosswalk, special heat-welds, asphalt overlays, and other work that does not affect accessibility shall be completed per a schedule pre-approved by the Engineer.

Contractor is to match existing concrete color and texturing at various locations determined by the Engineer.

The furnishing and installation of pipe underdrains, filter material, and other incidentals to ensure proper drainage of special concrete sidewalk with retaining wall per Concrete Sidewalk (Special)(Type B) will not be paid for directly but shall be considered subsidiary to this bid item and in accordance with Item 556.

Removal of existing concrete, surfaces, asphalt, base material, sign posts, miscellaneous materials, and all incidentals is included in this pay item within the footprint of the proposed work.

In areas where there is no curb fillet or concrete pavement, saw cut the existing curb and gutter and remove the curb.

When lack of right of way width or obstructions creates insufficient space, the ramp may be relocated within the right of way when authorized by the Engineer.

All deficient ramps will be removed and replaced at the Contractor's expense.

For curb ramps, form tooled joints on each side of the ramp section where it meets a flare or curb wall, at each break in ramp slope or geometry, and at intervals equivalent to the width of the sidewalk for the purpose of cracking control. Place expansion joint material between proposed ramps and existing concrete.

Place expansion joint material between proposed sidewalk and utility poles, guy wires, vent pipes, stand pipes and as directed.

Schedule work such that two-way traffic is provided through all intersections and intersecting streets at all times, unless otherwise authorized by the Engineer.

Limit operations such that no more than 12 separate curb ramp locations are under construction and incomplete at any time, unless otherwise authorized by the Engineer.

Item 556 Pipe Underdrains
Use Type B or C filter material.

Item 560 Mailbox Assemblies
Retain and reuse or, if necessary, replace newspaper holders removed, relocated, or damaged by construction operations for placement on new mailbox assemblies in accordance with mailbox standard sheets. Consider this work subsidiary to this Item.

Repair and, if necessary, replace mailboxes damaged by construction operations. Consider this work subsidiary to this Item.

Coordinate and verify temporary and final mailbox locations with the Engineer and the US Postmaster.

Item 636 Signs and/or Item 644 Small Roadside Sign Assemblies and/or Item 647 Large Roadside Sign Supports and Assemblies
Remove and retain ownership of all existing signs and sign posts within the project that are not to remain. Remove the signs from the posts. Replace any signs or post damaged by the Contractor at his/her entire expense. Consider this work to be subsidiary to the various bid items of the contract.

Item 677 Eliminating Existing Pavement Markings and Markers
Remove all contaminants and loose material. Consider this work to be subsidiary to the various bid items of the contract.

Remove existing raised pavement markers before the addition of the asphaltic pavement. Dispose of the removed markers from the project at the end of each workday. Consider this work to be subsidiary to the various bid items of the contract.

Item 6001 Portable Changeable Message Sign
Provide all portable changeable message signs and arrow panels with a photoelectric device to allow for automatic dimming of operations to approximately 50% of their normal brightness when ambient light drops to approximately five footcandles, and then increase back again for daytime operations.

2 electronic portable changeable message sign unit(s) will be required. Individual or collective use of signs will be required by the Engineer when deemed necessary to supplement the traffic control plan.

Each sign must have programmed in its permanent memory the following 15 messages:

1. Right Lane
2. Left Lane
3. Closed Ahead
4. Two Lane
5. Detour Ahead
6. Thru Traffic
7. Prepare To Stop
8. Merging Traffic
9. Expect 15 Minute Delay
10. Merge Right
11. Merge Left

Item 6185

Shadow vehicles with TMA and high intensity rotating, flashing, oscillating or strobe lights are required. Use one TMA preceding every stationary work zone and two TMA's for mobile operations.

Estimate & Quantity Sheet

CONTROLLING PROJECT ID 0920-12-047 **DISTRICT** Beaumont **COUNTY** Jasper
HIGHWAY Various

						TOTAL EST.	TOTAL FINAL
		CONTROL SECTION JOB		**0920-12-047**			
		PROJECT ID		**A00132964**			
		COUNTY		**Jasper**			
		HIGHWAY		**Various**			
ALT	**BID CODE**	**DESCRIPTION**	**UNIT**	EST.	FINAL		
	100-6002	PREPARING ROW	STA	65.000		65.000	
	104-6015	REMOVING CONC (SIDEWALKS)	SY	52.000		52.000	
	104-6017	REMOVING CONC (DRIVEWAYS)	SY	992.000		992.000	
	104-6026	REMOVE CONC (GUTTER)	LF	111.000		111.000	
	104-6029	REMOVING CONC (CURB OR CURB & GUTTER)	LF	1,576.000		1,576.000	
	105-6037	REMOVING STAB BASE AND ASPH PAV(0"-16")	SY	848.000		848.000	
	110-6001	EXCAVATION (ROADWAY)	CY	185.000		185.000	
	132-6001	EMBANKMENT (FINAL)(ORD COMP)(TY A)	CY	90.000		90.000	
	160-6003	FURNISHING AND PLACING TOPSOIL (4")	SY	3,475.000		3,475.000	
	162-6002	BLOCK SODDING	SY	3,475.000		3,475.000	
	168-6001	VEGETATIVE WATERING	MG	58.500		58.500	
	216-6001	PROOF ROLLING	HR	8.000		8.000	
	351-6006	FLEXIBLE PAVEMENT STRUCTURE REPAIR(10")	SY	51.000		51.000	
	354-6021	PLANE ASPH CONC PAV(0" TO 2")	SY	106.000		106.000	
	420-6002	CL A CONC (MISC)	CY	0.500		0.500	
	420-6074	CL C CONC (MISC)	CY	3.400		3.400	
	420-6132	CL A CONC (STEPS)	CY	1.000		1.000	
	423-6008	RETAINING WALL (CAST - IN - PLACE)	SF	5,643.000		5,643.000	
	432-6003	RIPRAP (CONC)(6 IN)	CY	8.000		8.000	
	450-6048	RAIL (HANDRAIL)(TY B)	LF	172.000		172.000	
	471-6003	GRATE & FRAME	EA	12.000		12.000	
	479-6001	ADJUSTING MANHOLES	EA	3.000		3.000	
	500-6001	MOBILIZATION	LS	1.000		1.000	
	502-6001	BARRICADES, SIGNS AND TRAFFIC HANDLING	MO	8.000		8.000	
	506-6002	ROCK FILTER DAMS (INSTALL) (TY 2)	LF	43.000		43.000	
	506-6011	ROCK FILTER DAMS (REMOVE)	LF	43.000		43.000	
	506-6035	SANDBAGS FOR EROSION CONTROL	EA	906.000		906.000	
	506-6038	TEMP SEDMT CONT FENCE (INSTALL)	LF	174.000		174.000	
	506-6039	TEMP SEDMT CONT FENCE (REMOVE)	LF	174.000		174.000	
	506-6041	BIODEG EROSN CONT LOGS (INSTL) (12")	LF	2,000.000		2,000.000	
	506-6043	BIODEG EROSN CONT LOGS (REMOVE)	LF	2,000.000		2,000.000	
	529-6008	CONC CURB & GUTTER (TY II)	LF	2,814.000		2,814.000	
	529-6020	CONC CURB & GUTTER (ARMOR CURB)	LF	14.000		14.000	
	529-6030	CONC CURB & GUTTER (VALLEY GUTTER)	LF	197.000		197.000	
	530-6004	DRIVEWAYS (CONC)	SY	1,376.000		1,376.000	
	530-6005	DRIVEWAYS (ACP)	SY	57.000		57.000	
	531-6001	CONC SIDEWALKS (4")	SY	1,795.000		1,795.000	

Estimate & Quantity Sheet

CONTROLLING PROJECT ID 0920-12-047 **DISTRICT** Beaumont **COUNTY** Jasper
HIGHWAY Various

							TOTAL EST.	TOTAL FINAL
			CONTROL SECTION JOB		**0920-12-047**			
			PROJECT ID		**A00132964**			
			COUNTY		**Jasper**			
			HIGHWAY		**Various**			
ALT	**BID CODE**	**DESCRIPTION**	**UNIT**		EST.	FINAL		
	531-6018	CURB RAMPS (TY 1)	SY		17.000		17.000	
	531-6019	CURB RAMPS (TY 2)	SY		60.000		60.000	
	531-6020	CURB RAMPS (TY 3)	SY		78.000		78.000	
	531-6022	CURB RAMPS (TY 5)	SY		30.000		30.000	
	531-6023	CURB RAMPS (TY 6)	SY		45.000		45.000	
	531-6024	CURB RAMPS (TY 7)	SY		31.000		31.000	
	531-6027	CURB RAMPS (TY 10)	SY		63.000		63.000	
	531-6033	CONC SIDEWALKS (SPECIAL) (TYPE B)	SY		1,256.000		1,256.000	
	560-6025	RELOCATE EXISTING MAILBOX	EA		11.000		11.000	
	644-6001	IN SM RD SN SUP&AM TY10BWG(1)SA(P)	EA		9.000		9.000	
	644-6068	RELOCATE SM RD SN SUP&AM TY 10BWG	EA		11.000		11.000	
	644-6076	REMOVE SM RD SN SUP&AM	EA		4.000		4.000	
	668-6076	PREFAB PAV MRK TY C (W) (24") (SLD)	LF		195.000		195.000	
	677-6007	ELIM EXT PAV MRK & MRKS (24")	LF		72.000		72.000	
	678-6008	PAV SURF PREP FOR MRK (24")	LF		390.000		390.000	
	752-6005	TREE REMOVAL (4" - 12" DIA)	EA		10.000		10.000	
	752-6007	TREE REMOVAL (18" - 24" DIA)	EA		1.000		1.000	
	3076-6003	D-GR HMA TY-B PG64-22 (EXEMPT)	TON		186.000		186.000	
	3076-6066	TACK COAT	GAL		124.000		124.000	
	3076-6072	D-GR HMA TY-D PG 76-22 (EXEMPT)	TON		60.000		60.000	
	6001-6001	PORTABLE CHANGEABLE MESSAGE SIGN	DAY		120.000		120.000	
	6185-6002	TMA (STATIONARY)	DAY		120.000		120.000	
	7196-6011	ADJUST VALVE BOX	EA		5.000		5.000	
	7196-6068	ADJUST METER BOX	EA		9.000		9.000	
	18	SAFETY CONTINGENCY: CONTRACTOR FORCE ACCOUNT WORK (PARTICIPATING)	LS		1.000		1.000	
		ENVIRONMENTAL: CONTRACTOR FORCE ACCOUNT WORK (PARTICIPATING)	LS		1.000		1.000	

Plotted on: 1/25/2022

ROADWAY

	ITEM	0100-6002	0104-6015	0104-6017	0104-6026	0104-6029	0105-6037	0110-6001
	DESCRIPTION	PREPARING ROW	REMOVING CONC (SIDEWALKS)	REMOVING CONC (DRIVEWAYS)	REMOVE CONC (GUTTER)	REMOVING CONC (CURB OR CURB & GUTTER)	REMOVING STAB BASE AND ASPH PAV(0"-16")	EXCAVATION (ROADWAY)
SHT NO		STA	SY	SY	LF	LF	SY	CY
49	PARK LANE SHEET (1 OF 1)	4				370		
50	FM 2799 W HOUSTON ST SHEET (1 OF 8)	2		80		23		
51	FM 2799 W HOUSTON ST SHEET (2 OF 8)	3		93		8		
52	FM 2799 W HOUSTON ST SHEET (3 OF 8)	3	22	58		6		
53	FM 2799 W HOUSTON ST SHEET (4 OF 8)	3	14	49		6		
54	FM 2799 W HOUSTON ST SHEET (5 OF 8)	3	14			24		
55	FM 2799 W HOUSTON ST SHEET (6 OF 8)	3		49		15		
56	FM 2799 W HOUSTON ST SHEET (7 OF 8)	3		100				
57	FM 2799 W HOUSTON ST SHEET (8 OF 8)	2						
58	S PEACHTREE ST SHEET(1 OF 9)	3		181		192		
59	S PEACHTREE ST SHEET(2 OF 9)	3				212		
60	S PEACHTREE ST SHEET(3 OF 9)	3		46		122		
61	S PEACHTREE ST SHEET(4 OF 9)	3		34		8		
62	S PEACHTREE ST SHEET(5 OF 9)	3		32		20		
63	S PEACHTREE ST SHEET(6 OF 9)	3						
64	S PEACHTREE ST SHEET(7 OF 9)	3					27	60.0
65	S PEACHTREE ST SHEET(8 OF 9)	3		32	111	88	595	125.0
66	S PEACHTREE ST SHEET(9 OF 9)	3	2			36	150	
67	CAVIN ST SHEET (1 OF 4)	3		58				
68	CAVIN ST SHEET (2 OF 4)	3		78		52		
69	CAVIN ST SHEET (3 OF 4)	3		28		202	76	
70	CAVIN ST SHEET (4 OF 4)	3		74		192		
	TOTALS	65	52	992	111	1576	848	185.0

	ITEM	0132-6001	0160-6003	0162-6002	0168-6001*	0216-6001	0351-6006	0354-6021
	DESCRIPTION	EMBANKMENT (FINAL) (ORD COMP) (TY A)	FURNISHING AND PLACING TOPSOIL (4")	BLOCK SODDING	VEGETATIVE WATERING	PROOF ROLLING	FLEXIBLE PAVEMENT STRUCTURE REPAIR(10")	PLANE ASPH CONC PAV(0" TO 2")
SHT NO		CY	SY	SY	SY	HR	SY	SY
49	PARK LANE SHEET (1 OF 1)		165	165	165			
50	FM 2799 W HOUSTON ST SHEET (1 OF 8)		111	111	111			106
51	FM 2799 W HOUSTON ST SHEET (2 OF 8)		166	166	166			
52	FM 2799 W HOUSTON ST SHEET (3 OF 8)		145	145	145		31	
53	FM 2799 W HOUSTON ST SHEET (4 OF 8)		145	145	145		20	
54	FM 2799 W HOUSTON ST SHEET (5 OF 8)		118	118	118			
55	FM 2799 W HOUSTON ST SHEET (6 OF 8)		99	99	99			
56	FM 2799 W HOUSTON ST SHEET (7 OF 8)		156	156	156			
57	FM 2799 W HOUSTON ST SHEET (8 OF 8)		56	56	56			
58	S PEACHTREE ST SHEET(1 OF 9)		109	109	109			
59	S PEACHTREE ST SHEET(2 OF 9)		105	105	105			
60	S PEACHTREE ST SHEET(3 OF 9)		159	159	159			
61	S PEACHTREE ST SHEET(4 OF 9)		99	99	99			
62	S PEACHTREE ST SHEET(5 OF 9)		106	106	106			
63	S PEACHTREE ST SHEET(6 OF 9)		182	182	182			
64	S PEACHTREE ST SHEET(7 OF 9)	40.0	360	360	360			
65	S PEACHTREE ST SHEET(8 OF 9)	50.0	683	683	683	8.0		
66	S PEACHTREE ST SHEET(9 OF 9)		126	126	126			
67	CAVIN ST SHEET (1 OF 4)		79	79	79			
68	CAVIN ST SHEET (2 OF 4)		94	94	94			
69	CAVIN ST SHEET (3 OF 4)		105	105	105			
70	CAVIN ST SHEET (4 OF 4)		107	107	107			
	TOTALS	90.0	3475	3475	3475	8.0	51	106

NOTES:
* FOR CONTRACTOR INFORMATION ONLY. SEE BASIS OF ESTIMATE FOR BID ITEM QUANTITY PAYMENT TOTALS ON SHEET 14

REV. NO.	DATE	DESCRIPTION	BY

PAPE-DAWSON ENGINEERS
SAN ANTONIO | AUSTIN | HOUSTON | FORT WORTH | DALLAS
2000 NW LOOP 410 | SAN ANTONIO, TX 78213 | 210.375.9000
TEXAS ENGINEERING FIRM #470 | TEXAS SURVEYING FIRM #10028800

SUMMARY OF ROADWAY QUANTITIES

SHEET 1 OF 4

DGN:	FED. RD. DIV. NO.	STATE	FEDERAL AID PROJECT NO.			HIGHWAY NO.
CHK DGN:	6	TEXAS				VARIOUS
DWG:	DIST.	COUNTY	CONT. NO.	SECT. NO.	JOB NO.	SHEET NO.
CHK DWG:	BMT	JASPER	0920	12	047	10

Design Filename: P:\122\42\01\Design\Civil\General\1224201sumrdwy.dgn

ROADWAY

	ITEM	0420-6002	0420-6074	0420-6132	0423-6008	0432-6003	0450-6048	0471-6003
	DESCRIPTION	CL A CONC (MISC)	CL C CONC (MISC)	CL A CONC (STEPS)	RETAINING WALL (CAST - IN - PLACE)	RIPRAP (CONC) (6 IN)	RAIL (HANDRAIL) (TY B)	GRATE & FRAME
SHT NO		CY	CY	CY	SF	CY	LF	EA
49	PARK LANE SHEET (1 OF 1)				24			
50	FM 2799 W HOUSTON ST SHEET (1 OF 8)				254			
51	FM 2799 W HOUSTON ST SHEET (2 OF 8)				462			
52	FM 2799 W HOUSTON ST SHEET (3 OF 8)				462			
53	FM 2799 W HOUSTON ST SHEET (4 OF 8)				232			
54	FM 2799 W HOUSTON ST SHEET (5 OF 8)							
55	FM 2799 W HOUSTON ST SHEET (6 OF 8)			1.0	522			
56	FM 2799 W HOUSTON ST SHEET (7 OF 8)	0.5			651		18	
57	FM 2799 W HOUSTON ST SHEET (8 OF 8)				504			
58	S PEACHTREE ST SHEET(1 OF 9)				579			
59	S PEACHTREE ST SHEET(2 OF 9)		2.1		200			9
60	S PEACHTREE ST SHEET(3 OF 9)				324			
61	S PEACHTREE ST SHEET(4 OF 9)				402			
62	S PEACHTREE ST SHEET(5 OF 9)				33			
63	S PEACHTREE ST SHEET(6 OF 9)							
64	S PEACHTREE ST SHEET(7 OF 9)		1.3		580		146	3
65	S PEACHTREE ST SHEET(8 OF 9)				40	8.0	8	
66	S PEACHTREE ST SHEET(9 OF 9)							
67	CAVIN ST SHEET (1 OF 4)				374			
68	CAVIN ST SHEET (2 OF 4)							
69	CAVIN ST SHEET (3 OF 4)							
70	CAVIN ST SHEET (4 OF 4)							
	TOTALS	0.5	3.4	1.0	5643	8.0	172	12

	ITEM	0479-6001	0529-6008	0529-6020	0529-6030	0530-6004	0530-6005	0531-6001
	DESCRIPTION	ADJUSTING MANHOLES	CONC CURB & GUTTER (TY II)	CONC CURB & GUTTER (ARMOR CURB)	CONC CURB & GUTTER (VALLEY GUTTER)	DRIVEWAYS (CONC)	DRIVEWAYS (ACP)	CONC SIDEWALKS (4")
SHT NO		EA	LF	LF	LF	SY	SY	SY
49	PARK LANE SHEET (1 OF 1)		429					288
50	FM 2799 W HOUSTON ST SHEET (1 OF 8)	1	23			80		15
51	FM 2799 W HOUSTON ST SHEET (2 OF 8)		8			93		24
52	FM 2799 W HOUSTON ST SHEET (3 OF 8)		6			58		4
53	FM 2799 W HOUSTON ST SHEET (4 OF 8)		6			49		76
54	FM 2799 W HOUSTON ST SHEET (5 OF 8)		24			46		121
55	FM 2799 W HOUSTON ST SHEET (6 OF 8)		15			74		9
56	FM 2799 W HOUSTON ST SHEET (7 OF 8)					100		32
57	FM 2799 W HOUSTON ST SHEET (8 OF 8)							
58	S PEACHTREE ST SHEET(1 OF 9)		192			181		39
59	S PEACHTREE ST SHEET(2 OF 9)		286	14				119
60	S PEACHTREE ST SHEET(3 OF 9)	1	394			46		97
61	S PEACHTREE ST SHEET(4 OF 9)		215			34		51
62	S PEACHTREE ST SHEET(5 OF 9)		176			34		104
63	S PEACHTREE ST SHEET(6 OF 9)					53		157
64	S PEACHTREE ST SHEET(7 OF 9)					27		68
65	S PEACHTREE ST SHEET(8 OF 9)	1	101		197	94		101
66	S PEACHTREE ST SHEET(9 OF 9)		155			93	57	120
67	CAVIN ST SHEET (1 OF 4)		180			58		
68	CAVIN ST SHEET (2 OF 4)		210			78		116
69	CAVIN ST SHEET (3 OF 4)		202			104		124
70	CAVIN ST SHEET (4 OF 4)		192			74		130
	TOTALS	3	2814	14	197	1376	57	1795

NOTES:
* FOR CONTRACTOR INFORMATION ONLY. SEE BASIS OF ESTIMATE FOR BID ITEM QUANTITY PAYMENT TOTALS ON SHEET 14

REV. NO.	DATE	DESCRIPTION	BY

PAPE-DAWSON ENGINEERS
SAN ANTONIO | AUSTIN | HOUSTON | FORT WORTH | DALLAS
2000 NW LOOP 410 | SAN ANTONIO, TX 78213 | 210.375.9000
TEXAS ENGINEERING FIRM #470 | TEXAS SURVEYING FIRM #10028800

SUMMARY OF ROADWAY QUANTITIES

SHEET 2 OF 4

DGN:	FED. RD. DIV. NO.	STATE	FEDERAL AID PROJECT NO.			HIGHWAY NO.
CHK DGN:	6	TEXAS				VARIOUS
DWG:	DIST.	COUNTY	CONT. NO.	SECT. NO.	JOB NO.	SHEET NO.
CHK DWG:	BMT	JASPER	0920	12	047	11

Plotted on: 1/25/2022

ROADWAY

	ITEM	0531-6018	0531-6019	0531-6020	0531-6022	0531-6023	0531-6024	0531-6027
	DESCRIPTION	CURB RAMPS (TY 1)	CURB RAMPS (TY 2)	CURB RAMPS (TY 3)	CURB RAMPS (TY 5)	CURB RAMPS (TY 6)	CURB RAMPS (TY 7)	CURB RAMPS (TY 10)
SHT NO		SY	SY	SY	SY	SY	SY	SY
49	PARK LANE SHEET (1 OF 1)		15	19				
50	FM 2799 W HOUSTON ST SHEET (1 OF 8)	17				20		
51	FM 2799 W HOUSTON ST SHEET (2 OF 8)							
52	FM 2799 W HOUSTON ST SHEET (3 OF 8)						12	
53	FM 2799 W HOUSTON ST SHEET (4 OF 8)						10	
54	FM 2799 W HOUSTON ST SHEET (5 OF 8)			38		25		
55	FM 2799 W HOUSTON ST SHEET (6 OF 8)							
56	FM 2799 W HOUSTON ST SHEET (7 OF 8)							
57	FM 2799 W HOUSTON ST SHEET (8 OF 8)							
58	S PEACHTREE ST SHEET(1 OF 9)							
59	S PEACHTREE ST SHEET(2 OF 9)							
60	S PEACHTREE ST SHEET(3 OF 9)		22					
61	S PEACHTREE ST SHEET(4 OF 9)							24
62	S PEACHTREE ST SHEET(5 OF 9)							26
63	S PEACHTREE ST SHEET(6 OF 9)				14			
64	S PEACHTREE ST SHEET(7 OF 9)				16			
65	S PEACHTREE ST SHEET(8 OF 9)						9	13
66	S PEACHTREE ST SHEET(9 OF 9)			21				
67	CAVIN ST SHEET (1 OF 4)		23					
68	CAVIN ST SHEET (2 OF 4)							
69	CAVIN ST SHEET (3 OF 4)							
70	CAVIN ST SHEET (4 OF 4)							
	TOTALS	17	60	78	30	45	31	63

	ITEM	0531-6033	0560-6025	0644-6001	0644-6068	0644-6076	0668-6076	0677-6007
	DESCRIPTION	CONC SIDEWALKS (SPECIAL) (TYPE B)	RELOCATE EXISTING MAILBOX	IN SM RD SN SUP&AM TY10BWG(1)SA(P)	RELOCATE SM RD SN SUP&AM TY 10BWG	REMOVE SM RD SN SUP&AM	PREFAB PAV MRK TY C (W) (24") (SLD)	ELIM EXT PAV MRK & MRKS (24")
SHT NO		SY	EA	EA	EA	EA	LF	LF
49	PARK LANE SHEET (1 OF 1)	7		2	2		70	
50	FM 2799 W HOUSTON ST SHEET (1 OF 8)	77					15	
51	FM 2799 W HOUSTON ST SHEET (2 OF 8)	129			1			
52	FM 2799 W HOUSTON ST SHEET (3 OF 8)	127			1			
53	FM 2799 W HOUSTON ST SHEET (4 OF 8)	62			1			
54	FM 2799 W HOUSTON ST SHEET (5 OF 8)				2			
55	FM 2799 W HOUSTON ST SHEET (6 OF 8)	170						
56	FM 2799 W HOUSTON ST SHEET (7 OF 8)	135						
57	FM 2799 W HOUSTON ST SHEET (8 OF 8)	109						
58	S PEACHTREE ST SHEET(1 OF 9)	101						
59	S PEACHTREE ST SHEET(2 OF 9)	56						
60	S PEACHTREE ST SHEET(3 OF 9)	58	1		1			
61	S PEACHTREE ST SHEET(4 OF 9)	73	2		1			
62	S PEACHTREE ST SHEET(5 OF 9)	2		1				
63	S PEACHTREE ST SHEET(6 OF 9)			1		1	40	36
64	S PEACHTREE ST SHEET(7 OF 9)	64		1		1	40	36
65	S PEACHTREE ST SHEET(8 OF 9)	5		1			18	
66	S PEACHTREE ST SHEET(9 OF 9)		1		1			
67	CAVIN ST SHEET (1 OF 4)	81	2	1	1		12	
68	CAVIN ST SHEET (2 OF 4)		3					
69	CAVIN ST SHEET (3 OF 4)		2	1				
70	CAVIN ST SHEET (4 OF 4)			1				
	TOTALS	1256	11	9	11	2	195	72

NOTES:
* FOR CONTRACTOR INFORMATION ONLY. SEE BASIS OF ESTIMATE FOR BID ITEM QUANTITY PAYMENT TOTALS ON SHEET 14

REV. NO.	DATE	DESCRIPTION	BY

PAPE-DAWSON ENGINEERS
SAN ANTONIO | AUSTIN | HOUSTON | FORT WORTH | DALLAS
2000 NW LOOP 410 | SAN ANTONIO, TX 78213 | 210.375.9000
TEXAS ENGINEERING FIRM #470 | TEXAS SURVEYING FIRM #10028800

SUMMARY OF ROADWAY QUANTITIES

SHEET 3 OF 4

DGN:	FED. RD. DIV. NO.	STATE	FEDERAL AID PROJECT NO.			HIGHWAY NO.
CHK DGN:	6	TEXAS				VARIOUS
DWG:	DIST.	COUNTY	CONT. NO.	SECT. NO.	JOB NO.	SHEET NO.
CHK DWG:	BMT	JASPER	0920	12	047	12

Design Filename: P:\122\42\01\Design\Civil\General\1224201sumrdwy.dgn

ROADWAY

	ITEM	0678-6008	0752-6005	0752-6007	3076-6003*	3076-6066*	3076-6072*	7196-6011
SHT NO	DESCRIPTION	PAV SURF PREP FOR MRK (24")	TREE REMOVAL (4" - 12" DIA)	TREE REMOVAL (18" - 24" DIA)	D-GR HMA TY-B PG64-22 (EXEMPT)	TACK COAT	D-GR HMA TY-D PG 76-22 (EXEMPT)	ADJUST VALVE BOX
		LF	EA	EA	SY	SY	SY	EA
49	PARK LANE SHEET (1 OF 1)	70						
50	FM 2799 W HOUSTON ST SHEET (1 OF 8)	15				106	106	
51	FM 2799 W HOUSTON ST SHEET (2 OF 8)							
52	FM 2799 W HOUSTON ST SHEET (3 OF 8)					31	31	
53	FM 2799 W HOUSTON ST SHEET (4 OF 8)					20	20	
54	FM 2799 W HOUSTON ST SHEET (5 OF 8)							
55	FM 2799 W HOUSTON ST SHEET (6 OF 8)							
56	FM 2799 W HOUSTON ST SHEET (7 OF 8)							1
57	FM 2799 W HOUSTON ST SHEET (8 OF 8)							1
58	S PEACHTREE ST SHEET(1 OF 9)							
59	S PEACHTREE ST SHEET(2 OF 9)							
60	S PEACHTREE ST SHEET(3 OF 9)							1
61	S PEACHTREE ST SHEET(4 OF 9)							
62	S PEACHTREE ST SHEET(5 OF 9)							
63	S PEACHTREE ST SHEET(6 OF 9)	40						
64	S PEACHTREE ST SHEET(7 OF 9)	40						1
65	S PEACHTREE ST SHEET(8 OF 9)	18	4		538	1076	538	
66	S PEACHTREE ST SHEET(9 OF 9)							
67	CAVIN ST SHEET (1 OF 4)	12		1				
68	CAVIN ST SHEET (2 OF 4)							
69	CAVIN ST SHEET (3 OF 4)		6					1
70	CAVIN ST SHEET (4 OF 4)							
	TOTALS	195	10	1	538	1233	695	5

	ITEM	7196-6068
SHT NO	DESCRIPTION	ADJUST METER BOX
		EA
49	PARK LANE SHEET (1 OF 1)	
50	FM 2799 W HOUSTON ST SHEET (1 OF 8)	1
51	FM 2799 W HOUSTON ST SHEET (2 OF 8)	1
52	FM 2799 W HOUSTON ST SHEET (3 OF 8)	1
53	FM 2799 W HOUSTON ST SHEET (4 OF 8)	
54	FM 2799 W HOUSTON ST SHEET (5 OF 8)	
55	FM 2799 W HOUSTON ST SHEET (6 OF 8)	
56	FM 2799 W HOUSTON ST SHEET (7 OF 8)	
57	FM 2799 W HOUSTON ST SHEET (8 OF 8)	
58	S PEACHTREE ST SHEET(1 OF 9)	
59	S PEACHTREE ST SHEET(2 OF 9)	
60	S PEACHTREE ST SHEET(3 OF 9)	
61	S PEACHTREE ST SHEET(4 OF 9)	
62	S PEACHTREE ST SHEET(5 OF 9)	
63	S PEACHTREE ST SHEET(6 OF 9)	
64	S PEACHTREE ST SHEET(7 OF 9)	
65	S PEACHTREE ST SHEET(8 OF 9)	
66	S PEACHTREE ST SHEET(9 OF 9)	1
67	CAVIN ST SHEET (1 OF 4)	1
68	CAVIN ST SHEET (2 OF 4)	1
69	CAVIN ST SHEET (3 OF 4)	
70	CAVIN ST SHEET (4 OF 4)	3
	TOTALS	9

NOTES:
* FOR CONTRACTOR INFORMATION ONLY. SEE BASIS OF ESTIMATE FOR BID ITEM QUANTITY PAYMENT TOTALS ON SHEET 14

REV. NO.	DATE	DESCRIPTION	BY

PAPE-DAWSON ENGINEERS
SAN ANTONIO | AUSTIN | HOUSTON | FORT WORTH | DALLAS
2000 NW LOOP 410 | SAN ANTONIO, TX 78213 | 210.375.9000
TEXAS ENGINEERING FIRM #470 | TEXAS SURVEYING FIRM #10028800

SUMMARY OF ROADWAY QUANTITIES

SHEET 4 OF 4

DGN:	FED. RD. DIV. NO.	STATE	FEDERAL AID PROJECT NO.			HIGHWAY NO.
CHK DGN:	6	TEXAS				VARIOUS
DWG:	DIST.	COUNTY	CONT. NO.	SECT. NO.	JOB NO.	SHEET NO.
CHK DWG:	BMT	JASPER	0920	12	047	13

INCIDENTAL

	ITEM	0502-6001	0506-6002	0506-6011	0506-6035	0506-6038	0506-6039	0506-6041
	DESCRIPTION	BARRICADES, SIGNS AND TRAFFIC HANDLING	ROCK FILTER DAMS (INSTALL) (TY 2)	ROCK FILTER DAMS (REMOVE)	SANDBAGS FOR EROSION CONTROL	TEMP SEDMT CONT FENCE (INSTALL)	TEMP SEDMT CONT FENCE (REMOVE)	BIODEG EROSN CONT LOGS (INSTL) (12")
SHT NO		MO	LF	LF	EA	LF	LF	LF
X	INCIDENTAL QUANTITIES	8	43	43	906	174	174	2000
	TOTALS	8	43	43	906	174	174	2000

	ITEM	0506-6043	6001-6001	6185-6002
	DESCRIPTION	BIODEG EROSN CONT LOGS (REMOVE)	PORTABLE CHANGEABLE MESSAGE SIGN	TMA (STATIONARY)
SHT NO		LF	DAY	DAY
X	INCIDENTAL QUANTITIES	2000	120	120
	TOTALS	2000	120	120

BASIS OF ESTIMATE

					PLAN MEASUREMENT		PAY MEASUREMENT	
ITEM	DESCRIPTION	RATE	UNIT	NO. OF CYC	QUANTITY	UNIT	QUANTITY	UNIT
0168-6001	VEGETATIVE WATERING	6.788	MG/AC/CYC	12	3475	SY	58.5	MG
3076-6003	D-GR HMA TY-B PG64-22 (EXEMPT)	690	LBS/SY	N/A	538	SY	186	TON
3076-6066	TACK COAT	0.1	GAL/SY	N/A	1233	SY	124	GAL
3076-6072	D-GR HMA TY-D PG 76-22 (EXEMPT)	172.5	LBS/SY	N/A	695	SY	60	TON

NOTE:

1. INCIDENTAL QUANTITIES ARE NOT SPECIFIC TO ANY PLAN SHEET AND MAY BE LEVERAGED AS DIRECTED BY THE ENGINEER.

REV. NO.	DATE	DESCRIPTION	BY

PAPE-DAWSON ENGINEERS
SAN ANTONIO | AUSTIN | HOUSTON | FORT WORTH | DALLAS
2000 NW LOOP 410 | SAN ANTONIO, TX 78213 | 210.375.9000
TEXAS ENGINEERING FIRM #470 | TEXAS SURVEYING FIRM #10028800

SUMMARY OF INCIDENTAL QUANTITIES & BASIS OF ESTIMATE

SHEET 1 OF 1

DGN:	FED. RD. DIV. NO.	STATE	FEDERAL AID PROJECT NO.			HIGHWAY NO.
CHK DGN:	6	TEXAS				VARIOUS
DWG:	DIST.	COUNTY	CONT. NO.	SECT. NO.	JOB NO.	SHEET NO.
CHK DWG:	BMT	JASPER	0920	12	047	14

SUMMARY OF SMALL SIGNS

SM RD SGN ASSM TY XXXXX (X) XX (X-XXXX)

PLAN SHEET NO.	SIGN NO.	SIGN NOMENCLATURE	SIGN	DIMENSIONS	FLAT ALUMINUM (TYPE A)	EXAL ALUMINUM (TYPE G)	POST TYPE FRP = Fiberglass TWT = Thin-Wall 10BWG = 10 BWG S80 = Sch 80	POSTS 1 or 2	ANCHOR TYPE UA=Universal Conc UB=Universal Bolt SA=Slipbase-Conc SB=Slipbase-Bolt WS=Wedge Steel WP=Wedge Plastic	MOUNTING DESIGNATION PREFABRICATED P = "Plain" T = "T" U = "U"	1EXT or 2EXT = # of Ext BM = Extruded Wind Beam WC = 1.12 #/ft Wing Channel EXAL= Extruded Alum Sign Panels	BRIDGE MOUNT CLEARANCE SIGNS (See Note 2) TY = TYPE TY N TY S
51	1	S1-1 SW16-7P		36X36 24x12	✓		10 BWG	1	SA	P		
51	2	S1-1 SW16-7P		36X36 24x12	✓		10 BWG	1	SA	P		
64	1	W11-15 W11-15P W16-9P		36X36 24x18 24x12	✓		10 BWG	1	SA	P		
65	1	W11-15 W11-15P W16-7P		36X36 24x18 24x12	✓		10 BWG	1	SA	P		
66	1	W11-15 W11-15P W16-7P		36X36 24x18 24x12	✓		10 BWG	1	SA	P		
67	1	W11-15 W11-15P W16-9P		36X36 24x18 24x12	✓		10 BWG	1	SA	P		
69	1	R8-3aTR		24x30	✓		10 BWG	1	SA	P		
71	1	R8-3aTR		24x30	✓		10 BWG	1	SA	P		
72	1	R8-3aTL		24x30	✓		10 BWG	1	SA	P		

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

The Standard Highway Sign Designs for Texas (SHSD) can be found at the following website.

http://www.txdot.gov/

NOTE:

1. Sign supports shall be located as shown on the plans, except that the Engineer may shift the sign supports, within design guidelines, where necessary to secure a more desirable location or to avoid conflict with utilities. Unless otherwise shown on the plans, the Contractor shall stake and the Engineer will verify all sign support locations.
2. For installation of bridge mount clearance signs, see Bridge Mounted Clearance Sign Assembly (BMCS)Standard Sheet.
3. For Sign Support Descriptive Codes, see Sign Mounting Details Small Roadside Signs General Notes & Details SMD(GEN).

SHEET 1 OF 1

Texas Department of Transportation

Traffic Operations Division Standard

SUMMARY OF SMALL SIGNS

SOSS

FILE:	sums16.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
© TxDOT	May 1987	CONT	SECT	JOB	HIGHWAY
REVISIONS		0920	12	047	VARIOUS
4-16		DIST	COUNTY		SHEET NO.
8-16		BMT	JASPER		15

Plotted on: 1/25/2022
Design Filename: P:\122\42\01\Design\Civil\Traffic\1224201_SOSS.dgn

LOC NO.	TCP PHASE	SPECIFIC TCP PLAN SHEET OR TCP STANDARD SHEET	FURNISH TMA/TA	RELOCATE/REUSE TMA/TA	TOTAL TMA/TA PER SET UP	DURATION OF TMA/TA SET UP	6185 6002 TMA (STATIONARY)	6185 6005 TMA (MOBILE OPERATION)
		SHEET NUMBER	EA	EA	EA	DAYS PER TMA/TA USE	DAY	DAY
N/A	ALL	TCP(1-1)-18, TCP(1-4)-18, TCP (2-2)-18	1		1	120	120	
		TOTALS	1				120	

NOTE.
FURNISH TMA/TA - THE NUMBER OF ATTENUATORS BEING FURNISHED FOR THE SPECIFIC TCP.
RELOCATE/REUSE TMA/TA - THE NUMBER OF ATTENUATORS BEING REUSED FROM A PREVIOUS TCP FOR THE SPECIFIC TCP.
TOTAL TMA/TA PER SET UP = (FURNISH TMA/TA) + (RELOCATE/REUSE TMA/TA)
DURATION OF TMA/TA SET UP - THE NUMBER OF DAYS THE ATTENTUATORS WILL BE USED FOR THE SPECIFIC TCP.
TMA/TA (STATIONARY) = (TOTAL TMA/TA PER SET UP) X (THE DURATION OF TMA/TA SET UP)
TMA/TA (MOBILE OPERATION) = (TOTAL TMA/TA PER SET UP) X (THE DURATION OF TMA/TA SET UP)

TRUCK MOUNTED ATTENUATOR (TMA) AND TRAILER ATTENUATOR (TA) SUMMARY SHEET

FILE: tma.dgn	DN: TxDOT	CK:		CK:
© TxDOT	CONT	SECT	JOB	HIGHWAY
REVISIONS 3/2018	0920	12	047	VARIOUS
	DIST	COUNTY		
	BMT	JASPER		
	FEDERAL AID PROJECT			SHEET NO.
				16

DATE: 1/25/2022 4:38:04 PM
FILE: P:\122\42\01\Design\Civil\Standards\TCP\bc-21.dgn

BARRICADE AND CONSTRUCTION (BC) STANDARD SHEETS GENERAL NOTES:

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

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

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

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

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

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

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

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

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

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

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

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

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

WORKER SAFETY NOTES:

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

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

COMPLIANT WORKZONE TRAFFIC CONTROL DEVICES

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

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

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

SHEET 1 OF 12

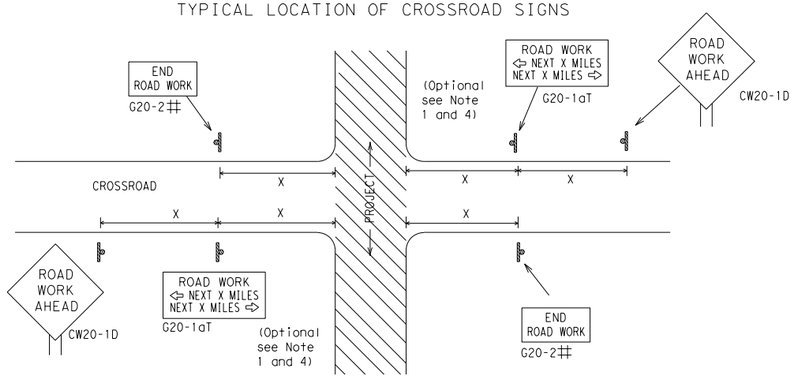
Texas Department of Transportation | Traffic Safety Division Standard

BARRICADE AND CONSTRUCTION GENERAL NOTES AND REQUIREMENTS

BC(1)-21

FILE: bc-21.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
© TxDOT November 2002	CONT	SECT	JOB	HIGHWAY
REVISIONS 4-03 7-13	0920	12	047	VARIOUS
9-07 8-21	DIST	COUNTY		SHEET NO.
5-10 5-21	BMT	JASPER		17

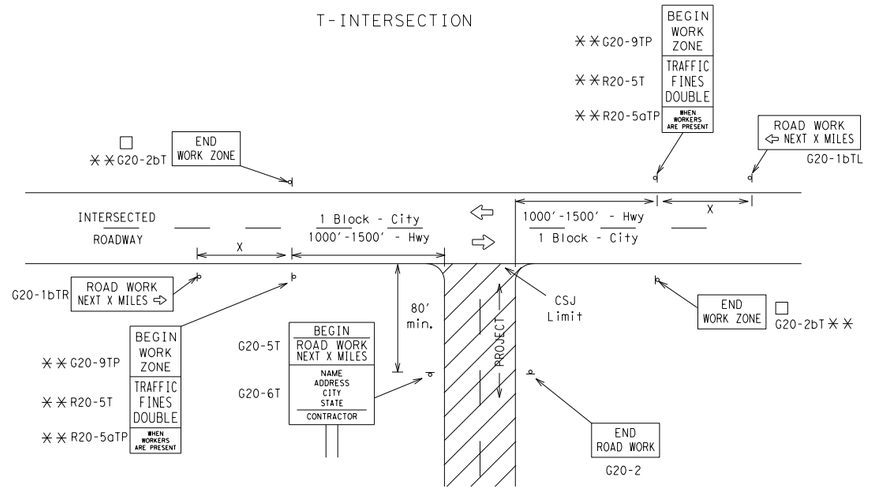
TYPICAL LOCATION OF CROSSROAD SIGNS



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]

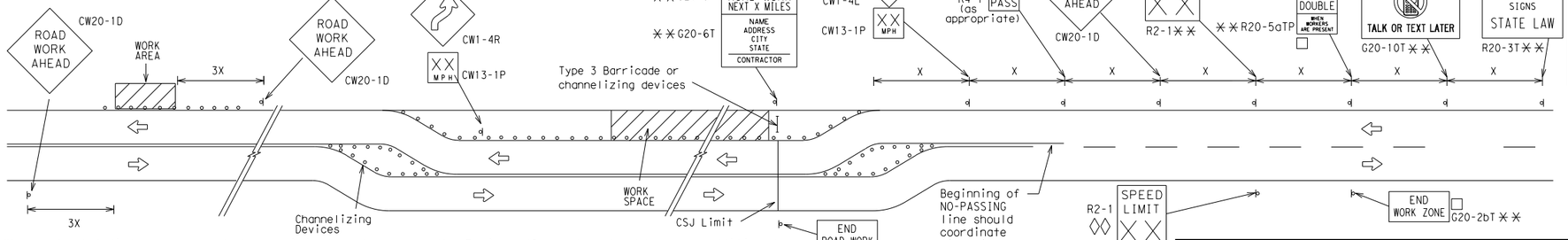
✳ For typical sign spacings on divided highways, expressways and freeways, see Part 6 of the "Texas Manual on Uniform Traffic Control Devices" (TMUTCD) typical application diagrams or TCP Standard Sheets.

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

GENERAL NOTES

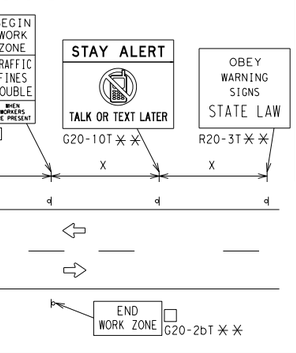
1. Special or larger size signs may be used as necessary.
2. Distance between signs should be increased as required to have 1500 feet advance warning.
3. Distance between signs should be increased as required to have 1/2 mile or more advance warning.
4. 36" x 36" "ROAD WORK AHEAD" (CW20-1D)signs may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

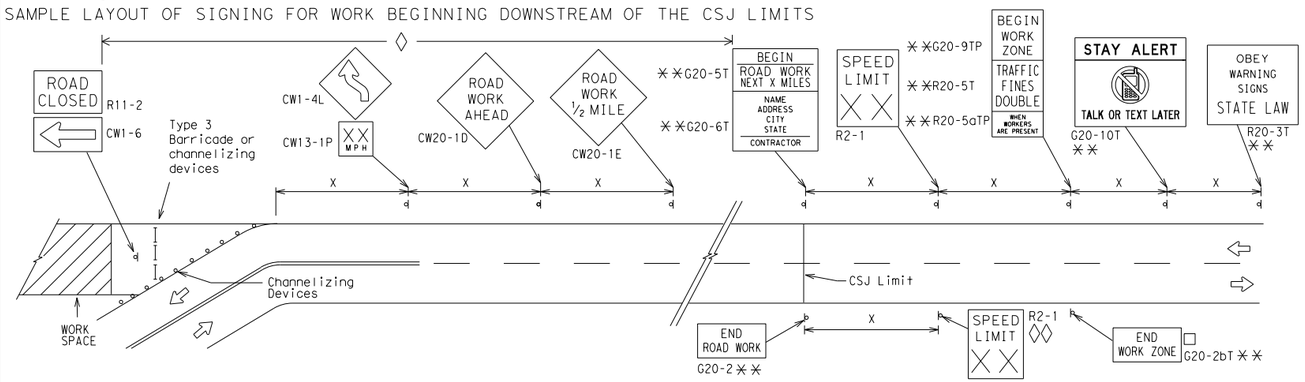


When extended distances occur between minimal work spaces, the Engineer/Inspector should ensure additional "ROAD WORK AHEAD"(CW20-1D)signs are placed in advance of these work areas to remind drivers they are still within the project limits. See the applicable TCP sheets for exact location and spacing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

SAMPLE LAYOUT OF SIGNING FOR WORK BEGINNING AT THE CSJ LIMITS



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



NOTES

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

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

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

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

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

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

Texas Department of Transportation

Traffic Safety Division Standard

BARRICADE AND CONSTRUCTION PROJECT LIMIT

BC(2)-21

FILE: bc-21.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
©TxDOT November 2002	CONT	SECT	JOB	HIGHWAY
REVISIONS	0920	12	047	VARIOUS
9-07 8-21	DIST	COUNTY		SHEET NO.
7-13 5-21	BMT	JASPER		18

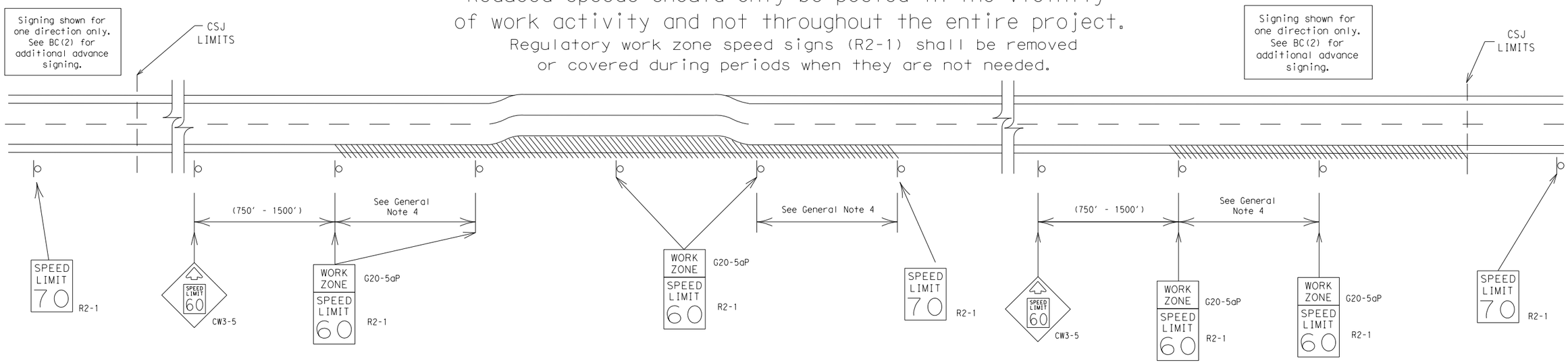
DATE: 1/25/2022 4:38:05 PM
FILE: P:\122420\01\Design\Civil\Standards\TCP\bc-21.dgn

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.

Texas Department of Transportation | Traffic Safety Division Standard

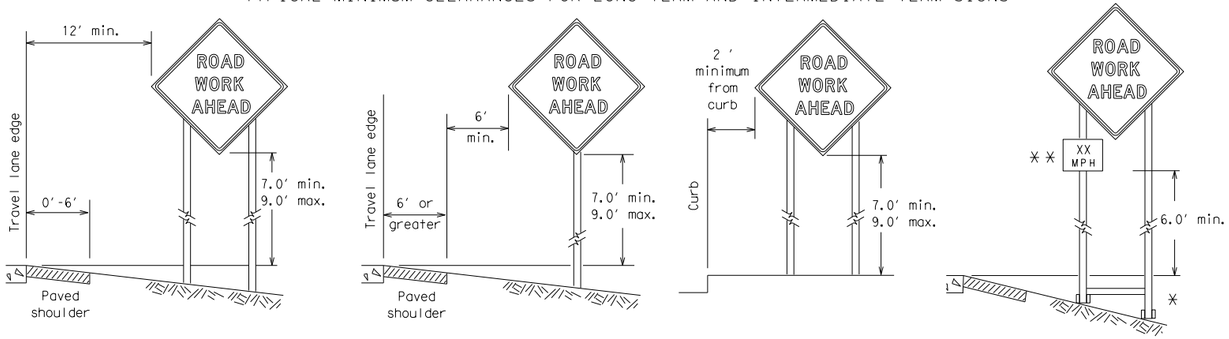
BARRICADE AND CONSTRUCTION WORK ZONE SPEED LIMIT

BC(3)-21

FILE: bc-21.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
©TxDOT November 2002	CONT	SECT	JOB	HIGHWAY
REVISIONS	0920	12	047	VARIOUS
9-07 8-21	DIST	COUNTY		SHEET NO.
7-13 5-21	BMT	JASPER		19

DATE: 1/25/2022 4:38:06 PM
FILE: P:\1224201\Design\Civil\Standards\TCP\bc-21.dgn

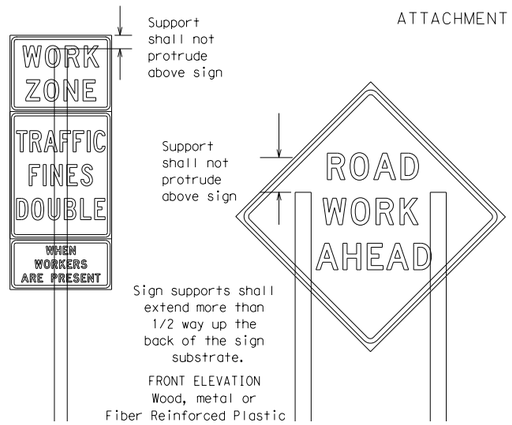
TYPICAL MINIMUM CLEARANCES FOR LONG TERM AND INTERMEDIATE TERM SIGNS

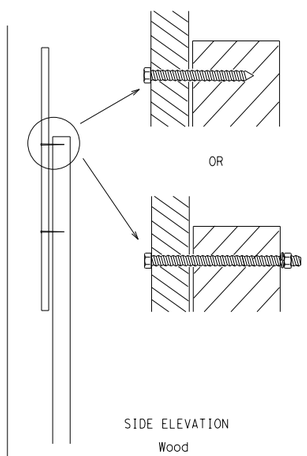


⁎ When placing skid supports on unlevel ground, the leg post lengths must be adjusted so the sign appears straight and plumb. Objects shall NOT be placed under skids as a means of leveling.

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

ATTACHMENT FOR SIGN SUPPORTS





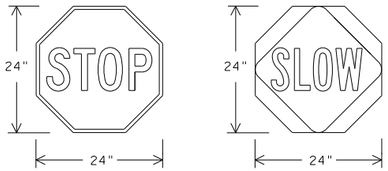
Attachment to wooden supports will be by bolts and nuts or screws. Use TxDOT's or manufacturer's recommended procedures for attaching sign substrates to other types of sign supports

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.

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.

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 tightness of the weave.
3. All wooden individual sign panels fabricated from 2 or more pieces shall have one or more plywood cleat, 1/2" thick by 6" wide, fastened to the back of the sign and extending fully across the sign. The cleat shall be attached to the back of the sign using wood screws that do not penetrate the face of the sign panel. The screws shall be placed on both sides of the splice and spaced at 6" centers. The Engineer may approve other methods of splicing the sign face.

REFLECTIVE SHEETING

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

SIGN LETTERS

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

REMOVING OR COVERING

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

SIGN SUPPORT WEIGHTS

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

FLAGS ON SIGNS

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

Texas Department of Transportation | Traffic Safety Division Standard

BARRICADE AND CONSTRUCTION TEMPORARY SIGN NOTES

BC(4)-21

FILE: bc-21.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
©TxDOT November 2002	CONT	SECT	JOB	HIGHWAY
REVISIONS	0920	12	047	VARIOUS
9-07 8-21	DIST	COUNTY		SHEET NO.
7-13 5-21	BMT	JASPER		20

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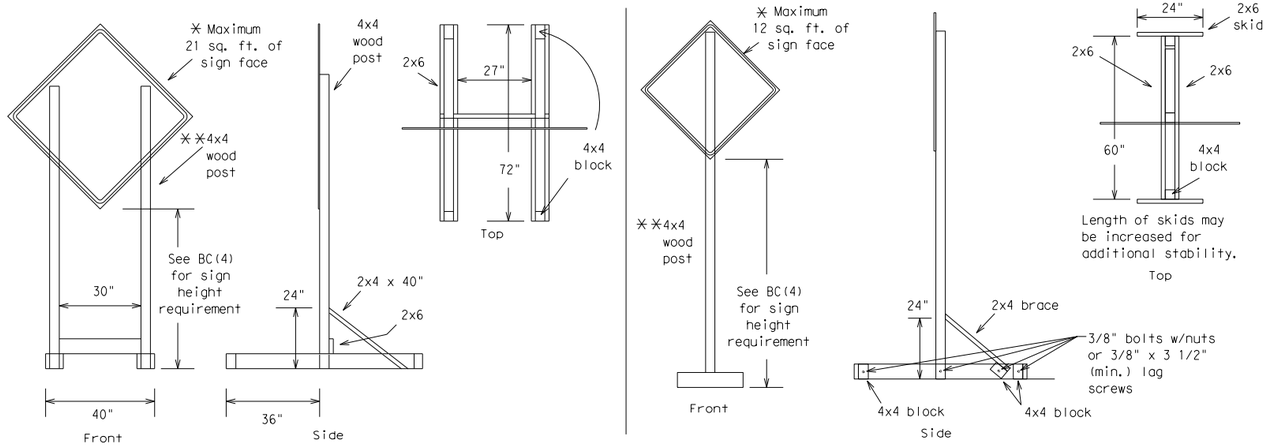
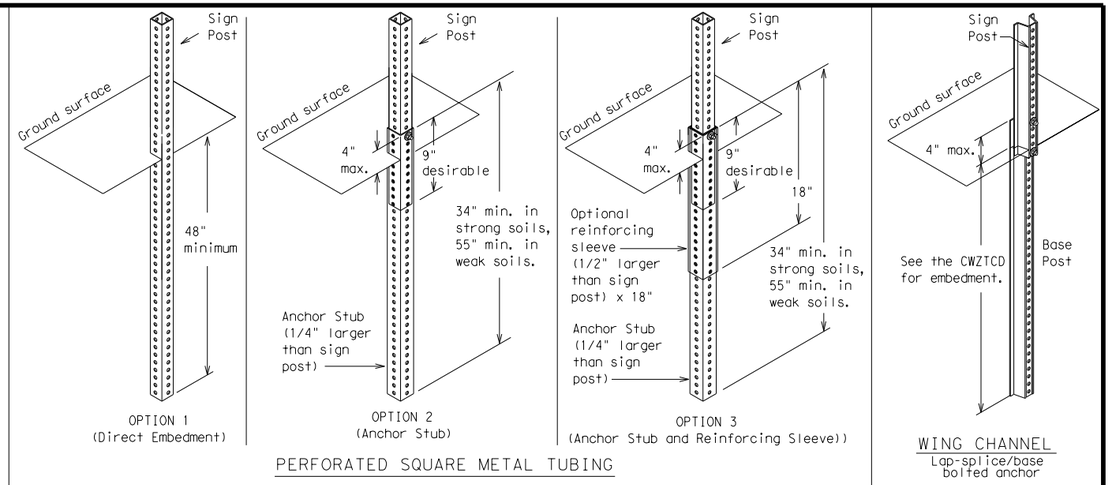


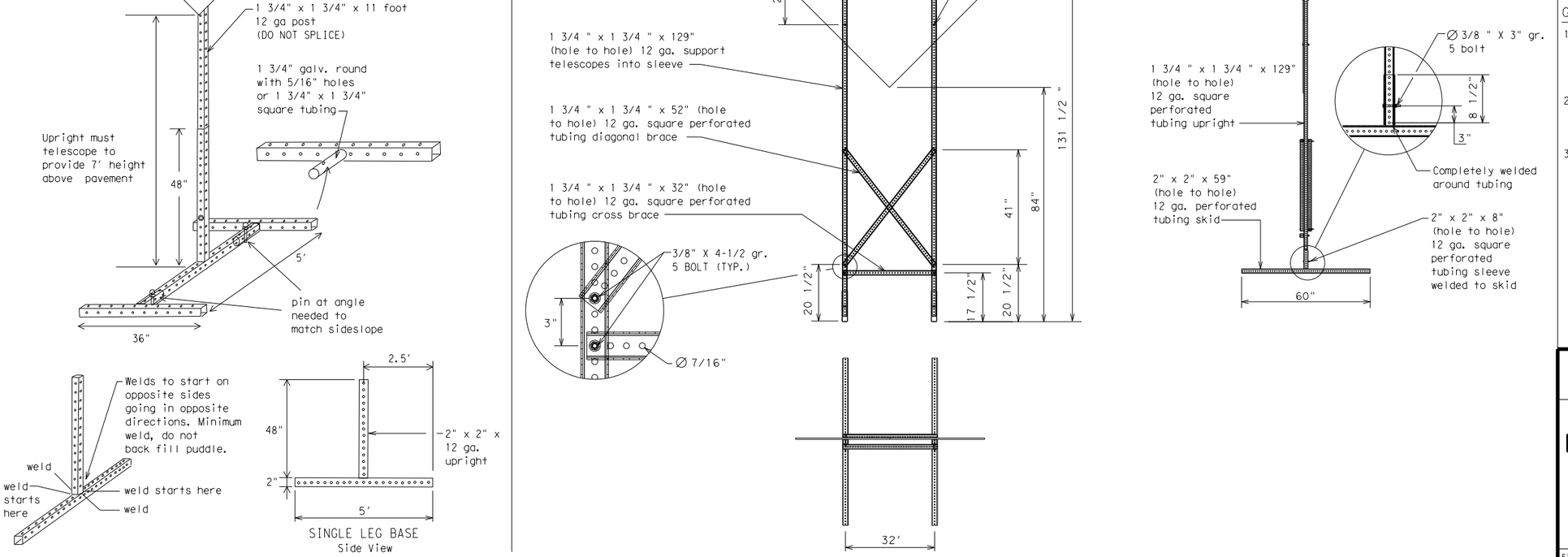
SKID MOUNTED WOOD SIGN SUPPORTS

* 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.

Texas Department of Transportation

Traffic Safety Division Standard

BARRICADE AND CONSTRUCTION TYPICAL SIGN SUPPORT

BC(5)-21

FILE: bc-21.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
©TxDOT November 2002	CONT	SECT	JOB	HIGHWAY
REVISIONS	0920	12	047	VARIOUS
9-07 8-21	DIST	COUNTY		SHEET NO.
7-13 5-21	BMT	JASPER		21

DATE: 1/25/2022 4:38:08 PM
FILE: P:\122\42\01\Design\Civil\Standards\TCP\bc-21.dgn

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.

Texas Department of Transportation

Traffic Safety Division Standard

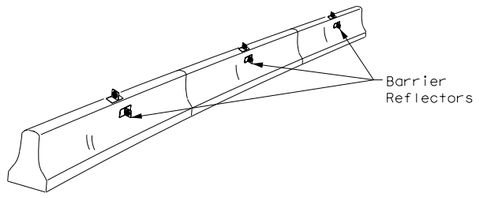
BARRICADE AND CONSTRUCTION PORTABLE CHANGEABLE MESSAGE SIGN (PCMS)

BC(6)-21

FILE: bc-21.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
©TxDOT November 2002	CONT	SECT	JOB	HIGHWAY
REVISIONS	0920	12	047	VARIOUS
9-07 8-21	DIST	COUNTY		SHEET NO.
7-13 5-21	BMT	JASPER		22

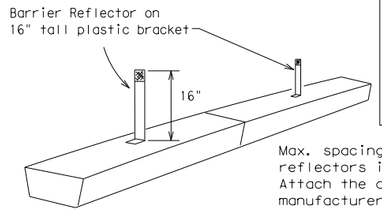
100

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.

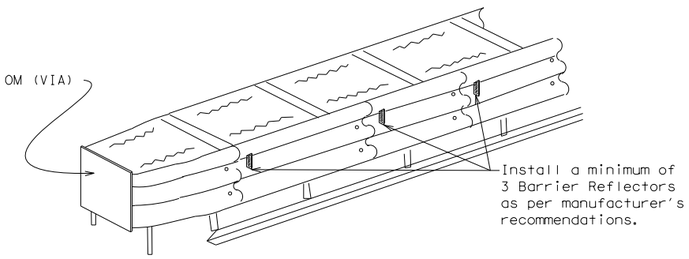


Max. spacing of barrier reflectors is 20 feet. Attach the delineators as per manufacturer's recommendations.

LOW PROFILE CONCRETE BARRIER (LPCB)

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.

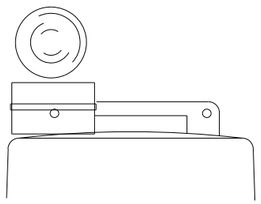


DELINEATION OF END TREATMENTS

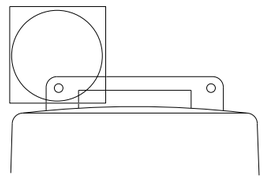
END TREATMENTS FOR CTB'S USED IN WORK ZONES

End treatments used on CTB's in work zones shall meet the apppropriate 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_{FL} or C_{FL} 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

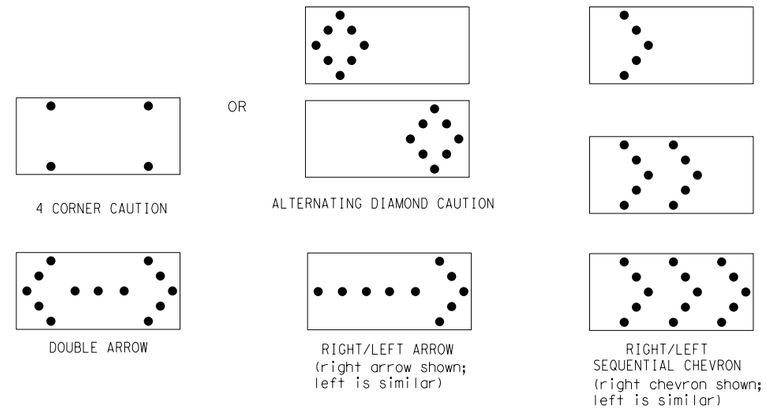
1. Type A flashing warning lights are intended to warn drivers that they are approaching or are in a potentially hazardous area.
2. Type A random flashing warning lights are not intended for delineation and shall not be used in a series.
3. A series of sequential flashing warning lights placed on channelizing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

Texas Department of Transportation

Traffic Safety Division Standard

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

BC(7)-21

FILE: bc-21.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
© TxDOT November 2002	CONT	SECT	JOB	HIGHWAY
REVISIONS	0920	12	047	VARIOUS
9-07 8-21	DIST	COUNTY		SHEET NO.
7-13 5-21	BMT	JASPER		23

GENERAL NOTES

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

GENERAL DESIGN REQUIREMENTS

Pre-qualified plastic drums shall meet the following requirements:

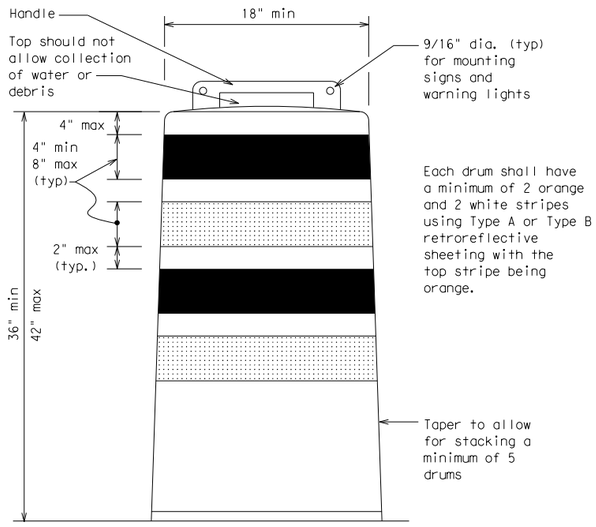
1. Plastic drums shall be a two-piece design; the "body" of the drum shall be the top portion and the "base" shall be the bottom.
2. The body and base shall lock together in such a manner that the body separates from the base when impacted by a vehicle traveling at a speed of 20 MPH or greater but prevents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

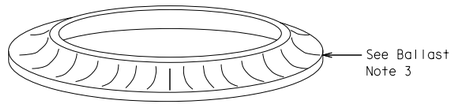
RETROREFLECTIVE SHEETING

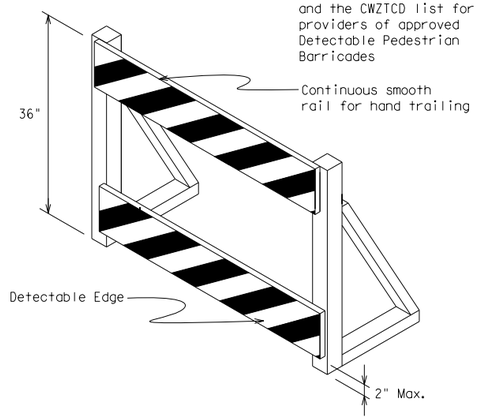
1. The stripes used on drums shall be constructed of sheeting meeting the color and retroreflectivity requirements of Departmental Materials Specification DMS-8300, "Sign Face Materials." Type A or Type B reflective sheeting shall be supplied unless otherwise specified in the plans.
2. The sheeting shall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

BALLAST

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

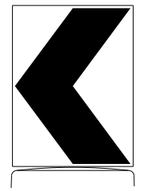




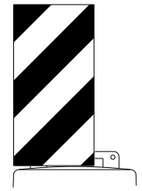


DETECTABLE PEDESTRIAN BARRICADES

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



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



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

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

SIGNS, CHEVRONS, AND VERTICAL PANELS MOUNTED ON PLASTIC DRUMS

1. Signs used on plastic drums shall be manufactured using substrates listed on the CWZTCD.
2. Chevrons and other work zone signs with an orange background shall be manufactured with Type B_{FL} or Type C_{FL} Orange 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
©TxDOT November 2002	CONT	SECT	JOB	HIGHWAY
REVISIONS	0920	12	047	VARIOUS
4-03 8-21	DIST	COUNTY		SHEET NO.
9-07 5-21	BMT	JASPER		24
7-13				

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DATE: 1/25/2022 4:38:09 PM
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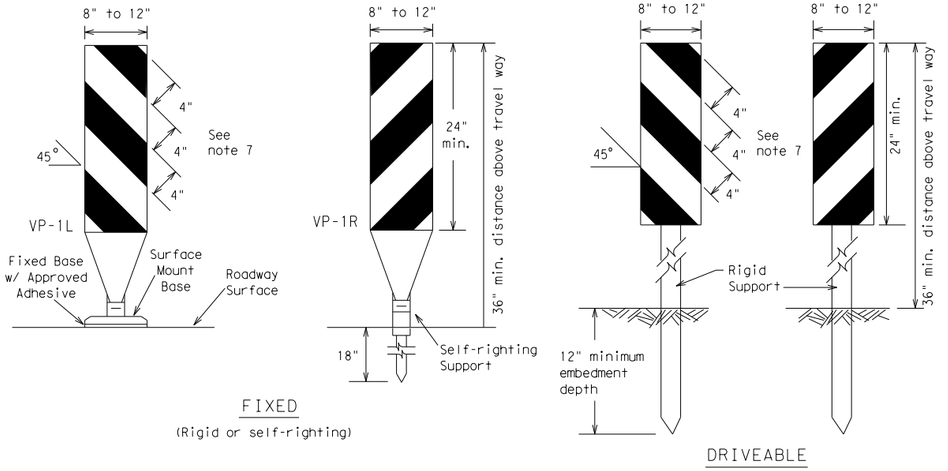
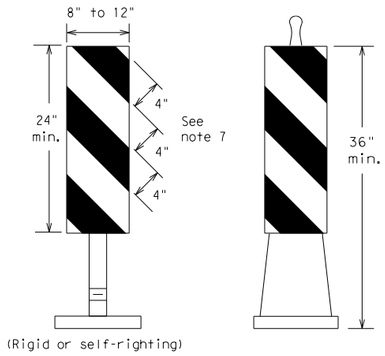


FIXED

(Rigid or self-righting)

DRIVEABLE

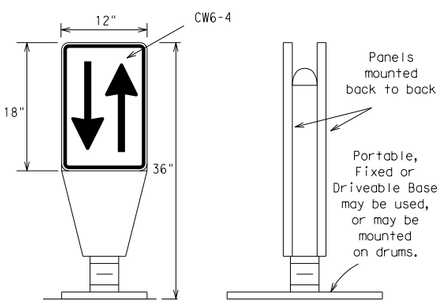


(Rigid or self-righting)

PORTABLE

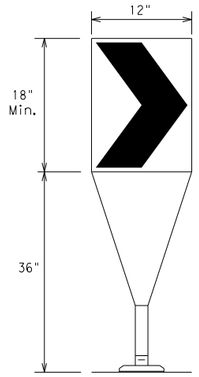
1. Vertical Panels (VP's) are normally used to channelize traffic or divide opposing lanes of traffic.
2. VP's may be used in daytime or nighttime situations. They may be used at the edge of shoulder drop-offs and other areas such as lane transitions where positive daytime and nighttime delineation is 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_{FL} or Type C_{FL} conforming to Departmental Material Specification DMS-8300, unless noted otherwise. The legend shall meet the requirements of DMS-8300.

OPPOSING TRAFFIC LANE DIVIDERS (OTLD)



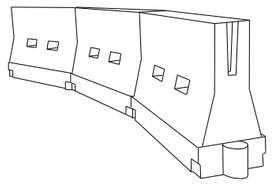
Fixed Base w/ Approved Adhesive (Driveable Base, or Flexible Support can be used)

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

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

SUGGESTED MAXIMUM SPACING OF CHANNELIZING DEVICES AND MINIMUM DESIRABLE TAPER LENGTHS

SHEET 9 OF 12

Texas Department of Transportation | Traffic Safety Division Standard

BARRICADE AND CONSTRUCTION CHANNELIZING DEVICES

BC(9)-21

FILE: bc-21.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
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REVISIONS	0920	12	047	VARIOUS
9-07 8-21	DIST	COUNTY		SHEET NO.
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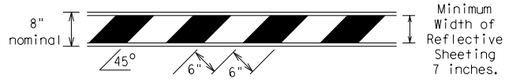
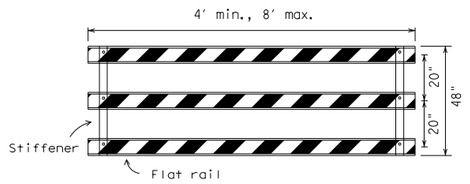
TYPE 3 BARRICADES

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.



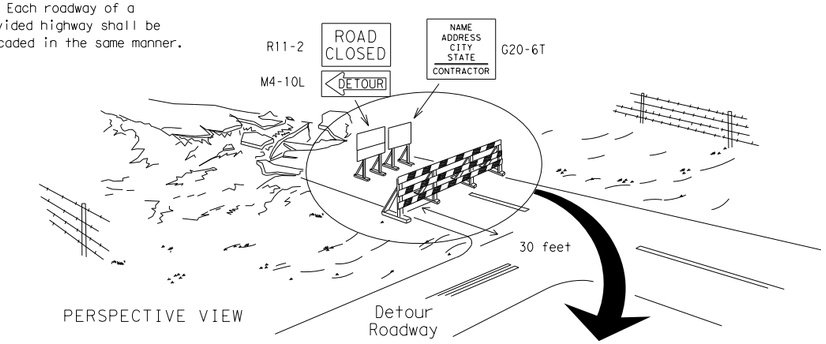
TYPICAL STRIPING DETAIL FOR BARRICADE RAIL



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

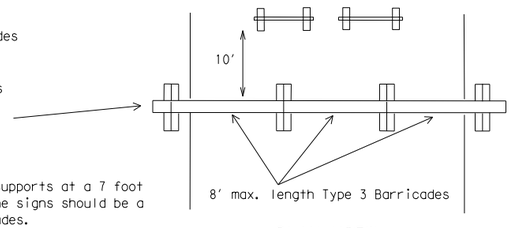
Each roadway of a divided highway shall be barricaded in the same manner.



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.

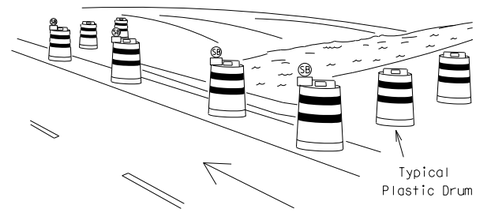
Barricade striping should slant downward in the direction of detour.



PLAN VIEW

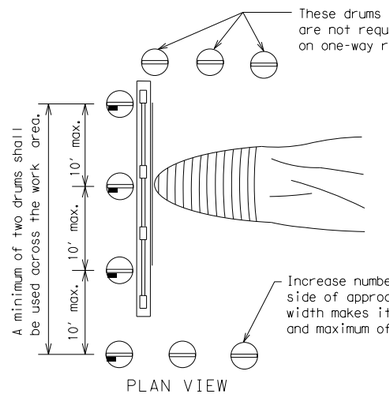
1. Signs should be mounted on independent supports at a 7 foot mounting height in center of roadway. The signs should be a minimum of 10 feet behind Type 3 Barricades.
2. Advance signing shall be as specified elsewhere in the plans.

TYPE 3 BARRICADE (POST AND SKID) TYPICAL APPLICATION



PERSPECTIVE VIEW

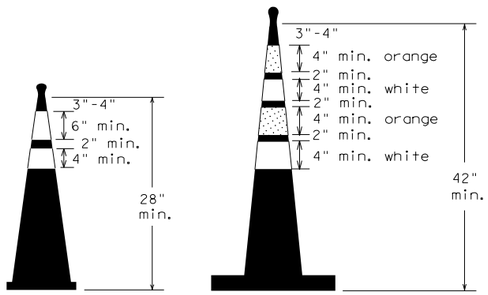
1. Where positive redirectional capability is provided, drums may be omitted.
2. Plastic construction fencing may be used with drums for safety as required in the plans.
3. Vertical Panels on flexible support may be substituted for drums when the shoulder width is less than 4 feet.
4. When the shoulder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



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

PLAN VIEW

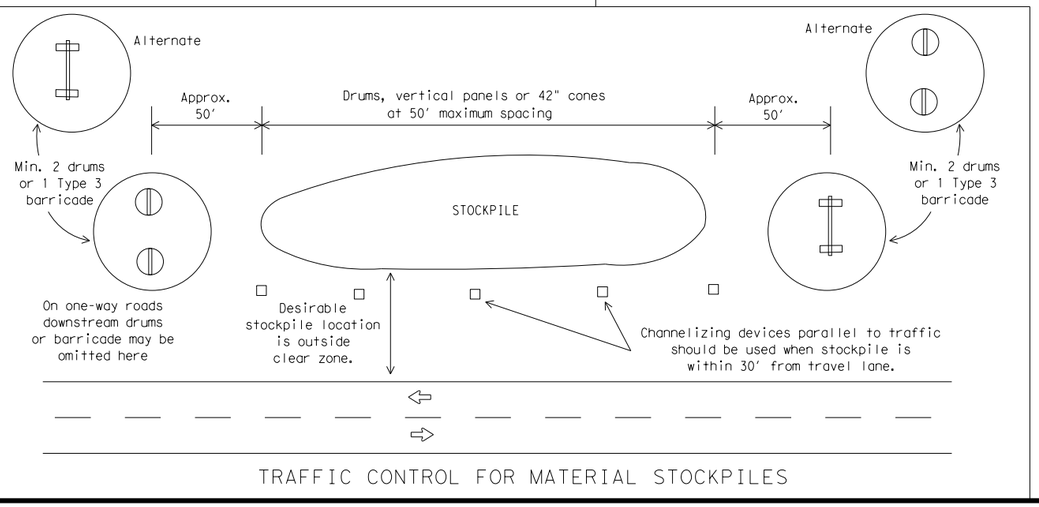
CULVERT WIDENING OR OTHER ISOLATED WORK WITHIN THE PROJECT LIMITS



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

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
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WORK ZONE PAVEMENT MARKINGS

GENERAL

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

RAISED PAVEMENT MARKERS

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

PREFABRICATED PAVEMENT MARKINGS

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

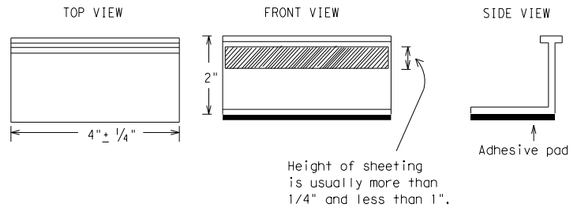
MAINTAINING WORK ZONE PAVEMENT MARKINGS

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

REMOVAL OF PAVEMENT MARKINGS

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

Temporary Flexible-Reflective Roadway Marker Tabs



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

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

RAISED PAVEMENT MARKERS USED AS GUIDEMARKS

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

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

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

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

Texas Department of Transportation | Traffic Safety Division Standard

BARRICADE AND CONSTRUCTION PAVEMENT MARKINGS

BC(11)-21

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	BMT	JASPER		27

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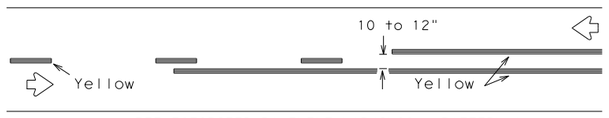
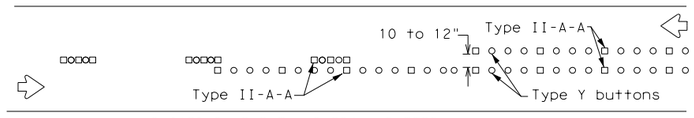
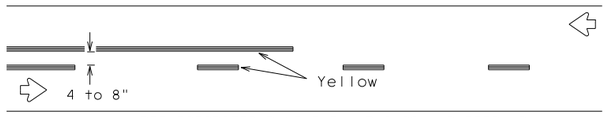
PAVEMENT MARKING PATTERNS



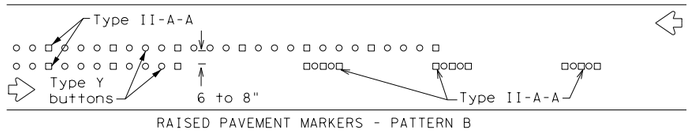
REFLECTORIZED PAVEMENT MARKINGS - PATTERN A



RAISED PAVEMENT MARKERS - PATTERN A



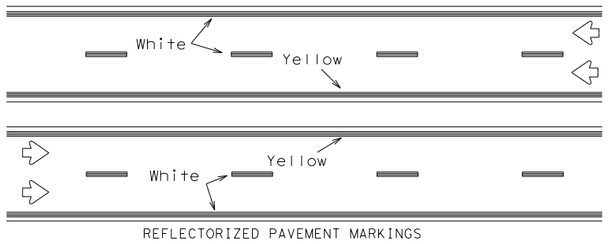
REFLECTORIZED PAVEMENT MARKINGS - PATTERN B



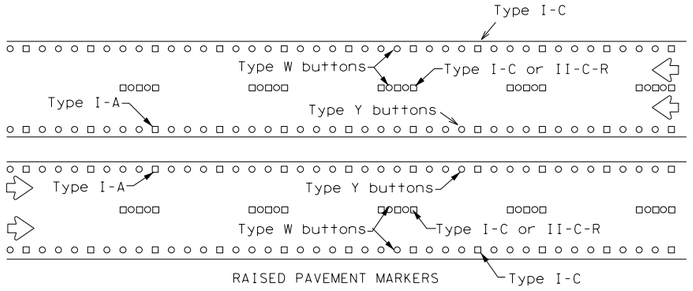
RAISED PAVEMENT MARKERS - PATTERN B

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

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



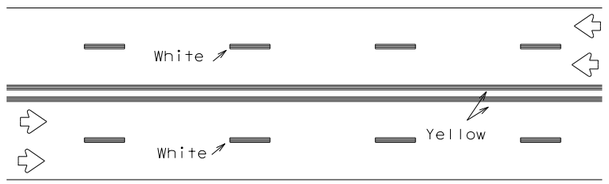
REFLECTORIZED PAVEMENT MARKINGS



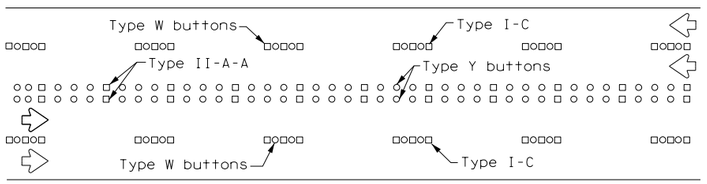
RAISED PAVEMENT MARKERS

Prefabricated markings may be substituted for reflectorized pavement markings.

EDGE & LANE LINES FOR DIVIDED HIGHWAY



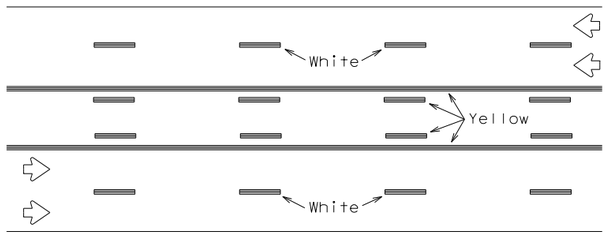
REFLECTORIZED PAVEMENT MARKINGS



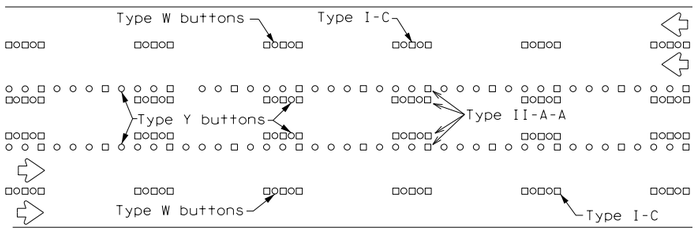
RAISED PAVEMENT MARKERS

Prefabricated markings may be substituted for reflectorized pavement markings.

LANE & CENTER LINES FOR MULTILANE UNDIVIDED HIGHWAYS



REFLECTORIZED PAVEMENT MARKINGS



RAISED PAVEMENT MARKERS

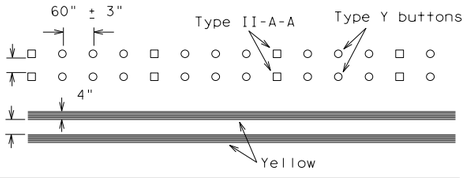
Prefabricated markings may be substituted for reflectorized pavement markings.

TWO-WAY LEFT TURN LANE

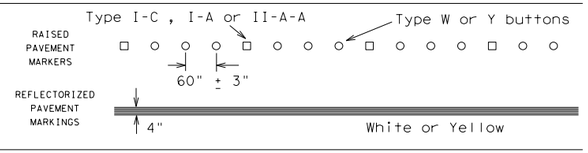
STANDARD WORK ZONE PAVEMENT MARKINGS DETAILS

SOLID LINES

DOUBLE NO-PASSING LINE

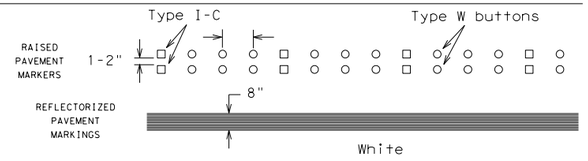


EDGE LINE OR SINGLE NO-PASSING LINE



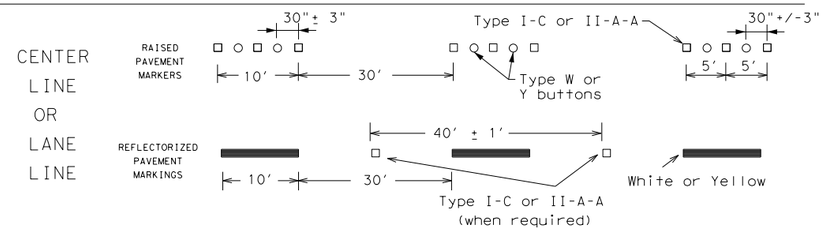
WIDE LINE

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

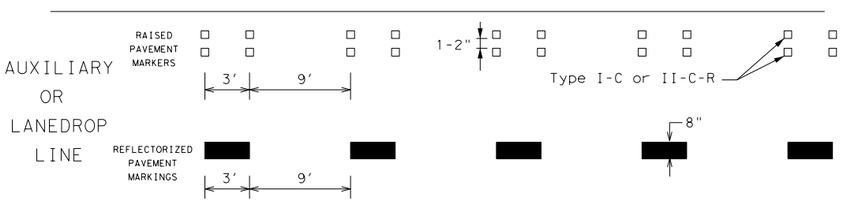


BROKEN LINES

CENTER LINE OR LANE LINE

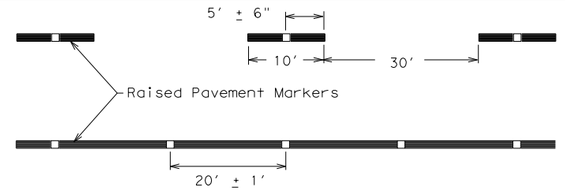


AUXILIARY OR LANEDROP LINE



REMOVABLE MARKINGS WITH RAISED PAVEMENT MARKERS

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



Centerline only - not to be used on edge lines

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

SHEET 12 OF 12

Texas Department of Transportation

Traffic Safety Division Standard

BARRICADE AND CONSTRUCTION PAVEMENT MARKING PATTERNS

BC(12)-21

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2-98 7-13	DIST	COUNTY		SHEET NO.
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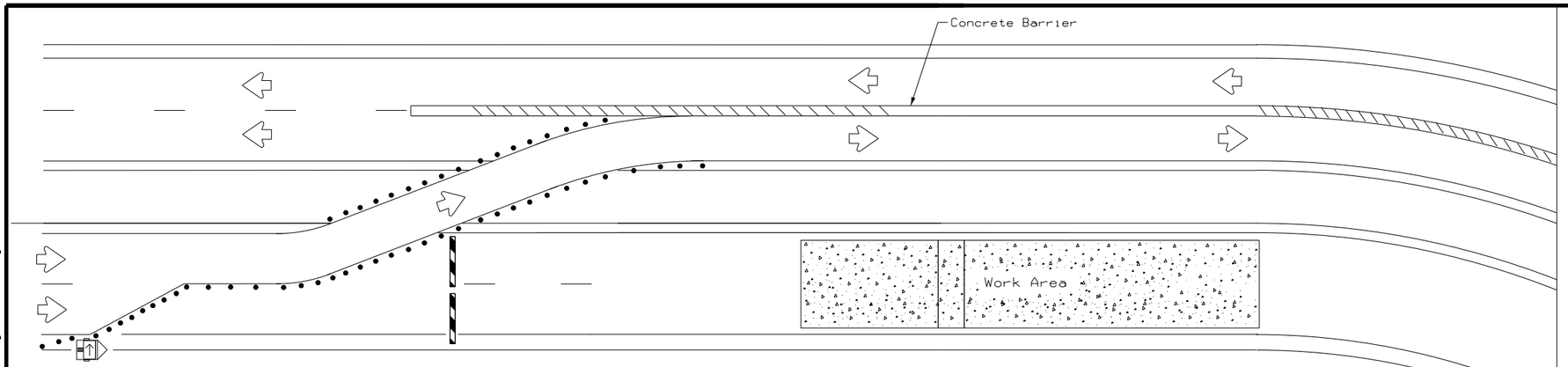


NOTES:

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.

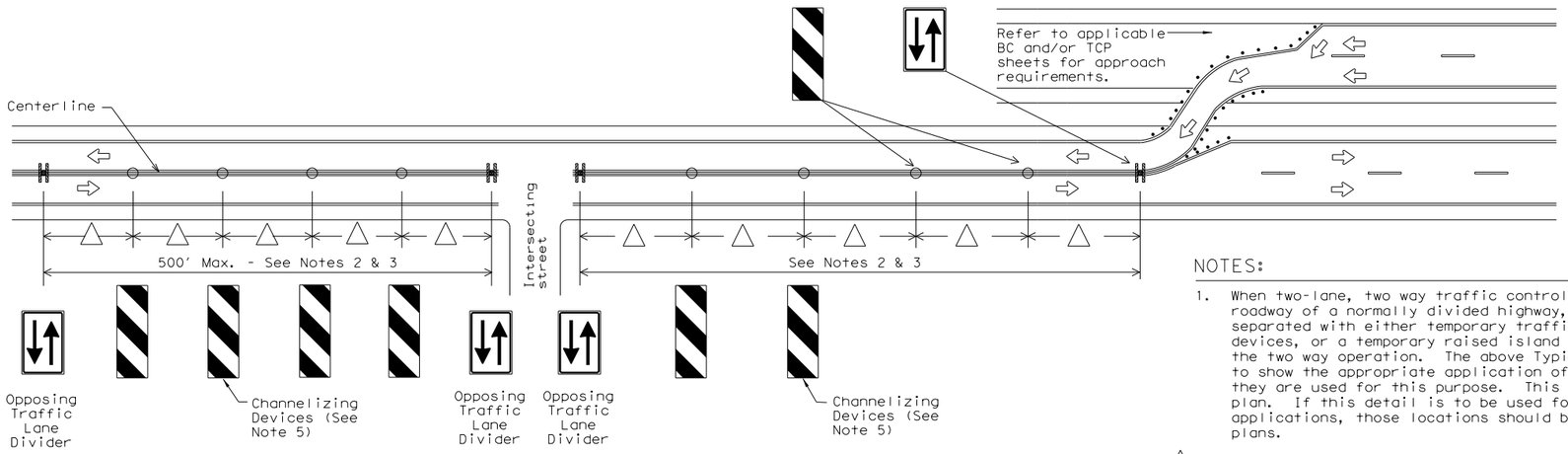
BARRIER DELINEATION WITH MODULAR GLARE SCREENS

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		0920	12	047	VARIOUS
4-98 2-17		DIST	COUNTY		SHEET NO.
3-03		BMT	JASPER		29
7-13					

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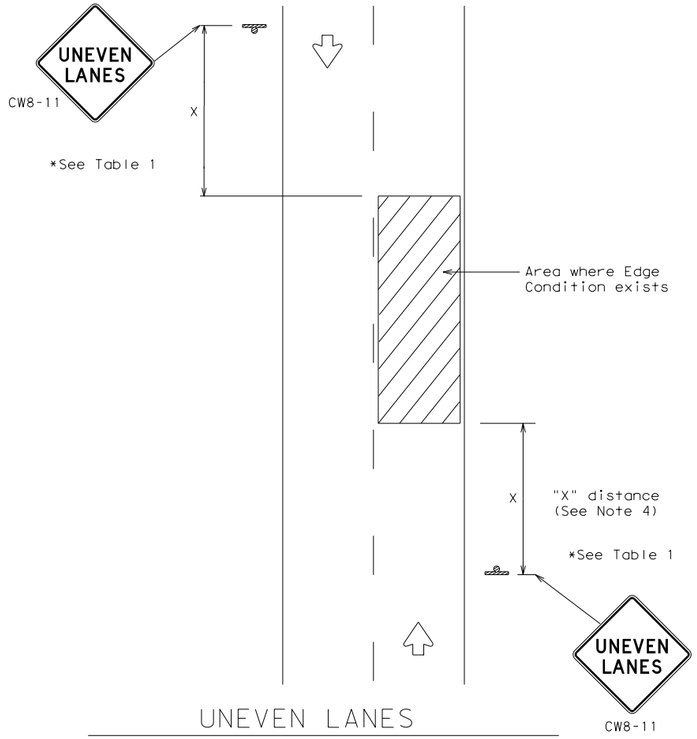
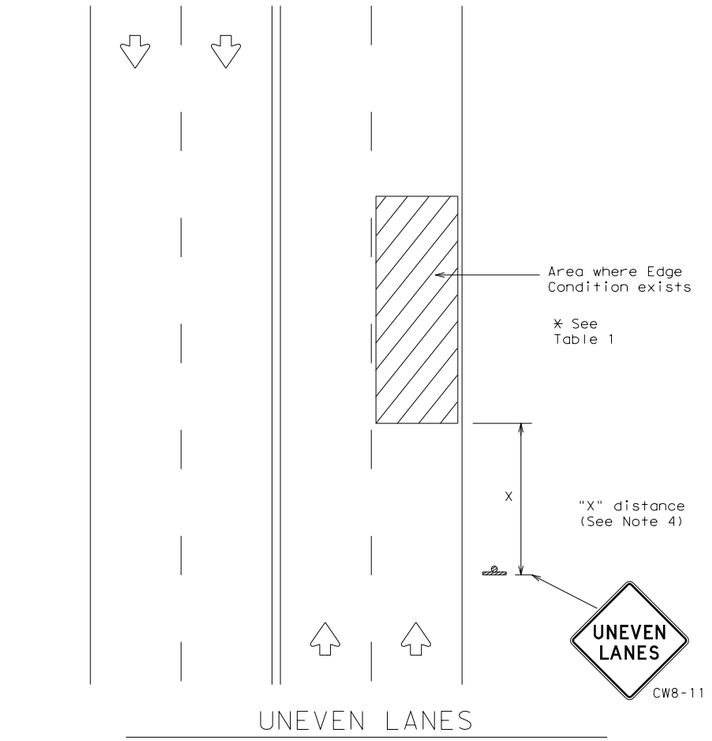
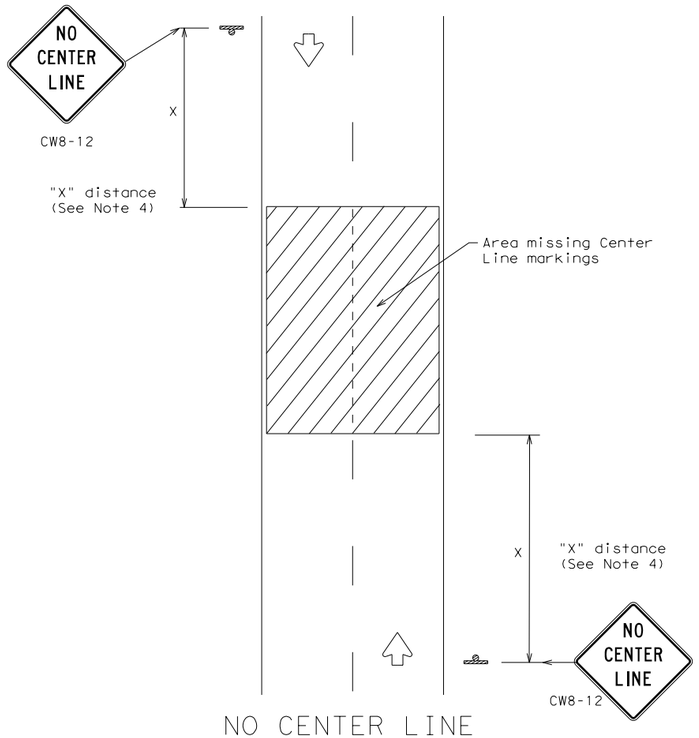


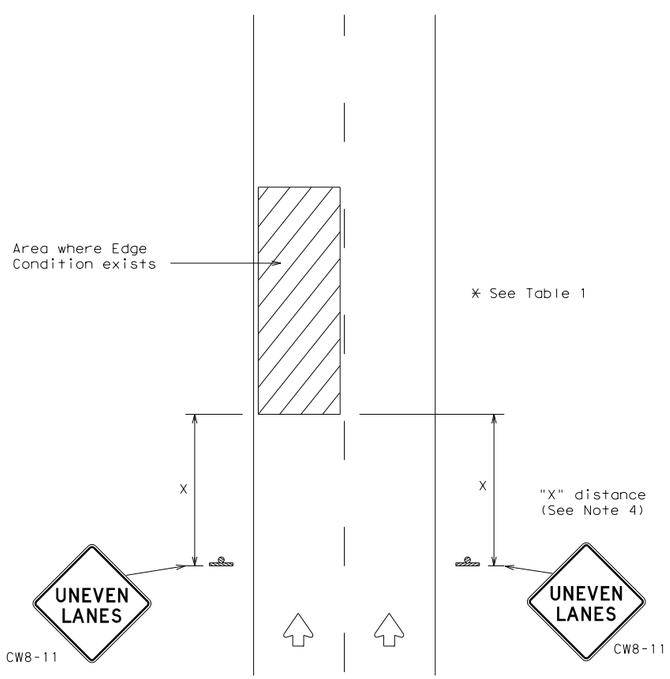
UNEVEN LANES
TWO LANE CONVENTIONAL ROAD



UNEVEN LANES
FOUR LANE CONVENTIONAL ROAD



NO CENTER LINE
TWO LANE CONVENTIONAL ROAD



UNEVEN LANES
DIVIDED ROADWAY

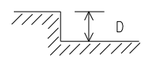
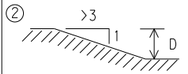
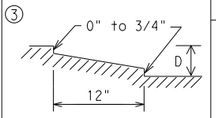
DEPARTMENTAL MATERIAL SPECIFICATIONS	
PERMANENT PREFABRICATED PAVEMENT MARKINGS	DMS-8240
TEMPORARY (REMOVABLE) PREFABRICATED PAVEMENT MARKINGS	DMS-8241
SIGN FACE MATERIALS	DMS-8300

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

GENERAL NOTES

1. If spalling or holes occur, ROUGH ROAD (CW8-8) signs should be placed in advance of the condition and be repeated every two miles where the condition persists.
2. UNEVEN LANES (CW8-11) signs shall be installed in advance of the condition and repeated every mile. Signs installed along the uneven lane condition may be supplemented with the NEXT XX MILES (CW7-3aP) plaque or Advisory Speed (CW13-1P) plaque.
3. NO CENTER LINE (CW8-12) signs and temporary pavement markings as per the WZ(STPM) standard shall be installed if yellow centerlines separating two way traffic are obscured or obliterated. Repeat NO CENTER LINE signs every two miles where the center line markings are not in place. The signs and markings shall remain in place until permanent pavement markings are installed.
4. Signs shall be spaced at the distances recommended as per BC standards.
5. Additional signs may be required as directed by the Engineer. Signs shall remain in place until final surface is applied. Signs shall be considered subsidiary to Item 502 "BARRICADES, SIGNS AND TRAFFIC HANDLING."
6. Signs shall be fabricated and mounted on supports as shown on the BC standards and/or listed on the "Compliant Work Zone Traffic Control Devices" list.
7. Short term markings shall not be used to simulate edge lines.
8. All signs shall be constructed in accordance with the details found in the "Standard Highway Sign Designs for Texas," latest edition.

TABLE 1

Edge Condition	Edge Height (D)	* Warning Devices
① 	Less than or equal to: 1¼" (maximum-planing) 1½" (typical-overlay)	Sign: CW8-11
	Distance "D" may be a maximum of 1 1/4 " for planing operations and 2" for overlay operations if uneven lanes with edge condition 1 are open to traffic after work operations cease.	
② 	Less than or equal to 3"	Sign: CW8-11
③  Notched Wedge Joint	Distance "D" may be a maximum of 3" if uneven lanes with edge condition 2 or 3 are open to traffic after work operations cease. Uneven lanes should not be open to traffic when "D" is greater than 3".	

TRAFFIC CONTROL DURING PLANING, OVERLAY AND LEVELING OPERATIONS ARE SHOWN ELSEWHERE IN THE PLANS.

MINIMUM WARNING SIGN SIZE	
Conventional roads	36" x 36"
Freeways/expressways, divided roadways	48" x 48"

Texas Department of Transportation

Traffic Operations Division Standard

SIGNING FOR UNEVEN LANES

WZ(UL)-13

FILE: wzul-13.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
©TxDOT April 1992	CONT	SECT	JOB	HIGHWAY
REVISIONS	0920	12	047	VARIOUS
8-95 2-98 7-13	DIST	COUNTY		SHEET NO.
1-97 3-03	BMT	JASPER		30

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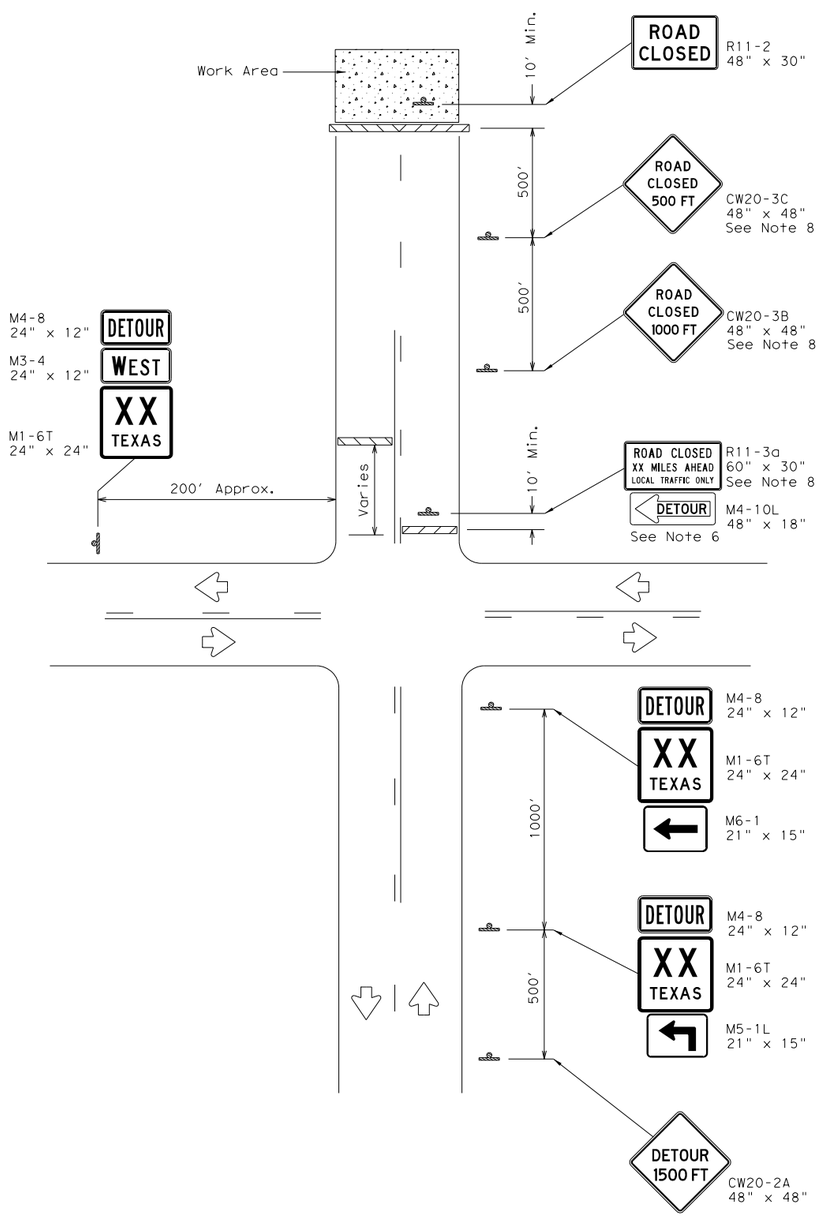
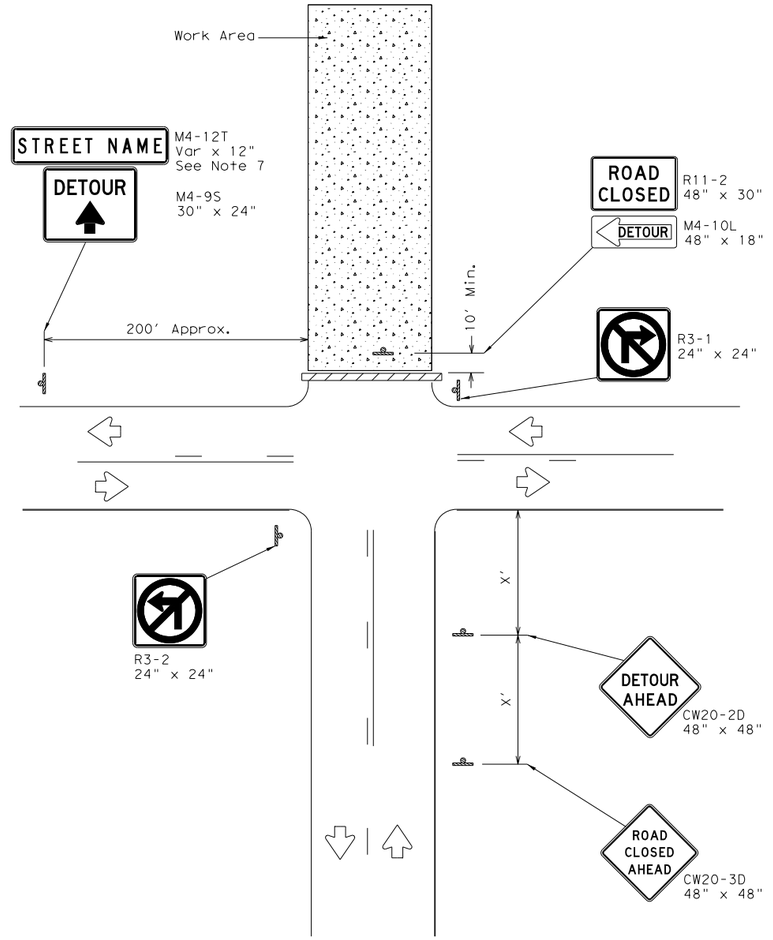


ROAD CLOSURE BEYOND THE INTERSECTION

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
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1-97 4-98 7-13	DIST	COUNTY		SHEET NO.
2-98 3-03	BMT	JASPER		31

DATE: 1/26/2022 2:20:45 PM
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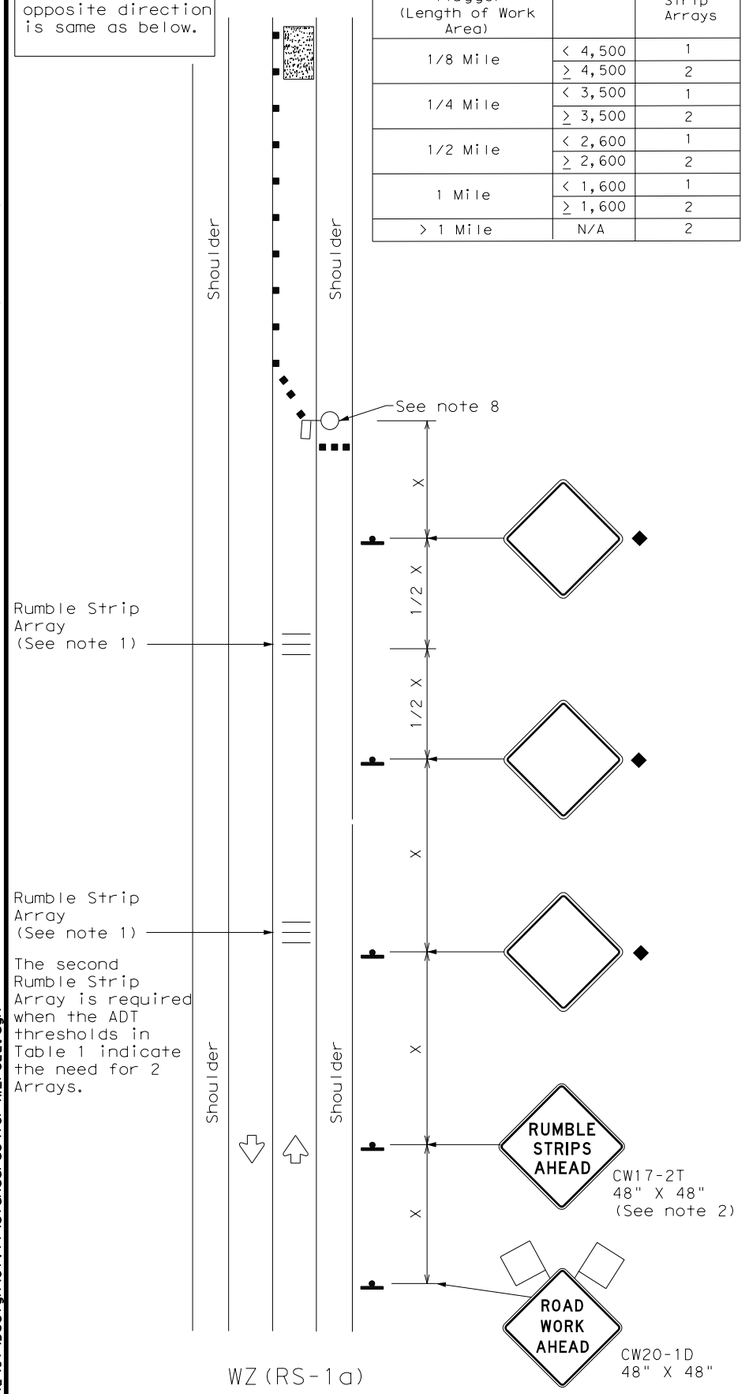
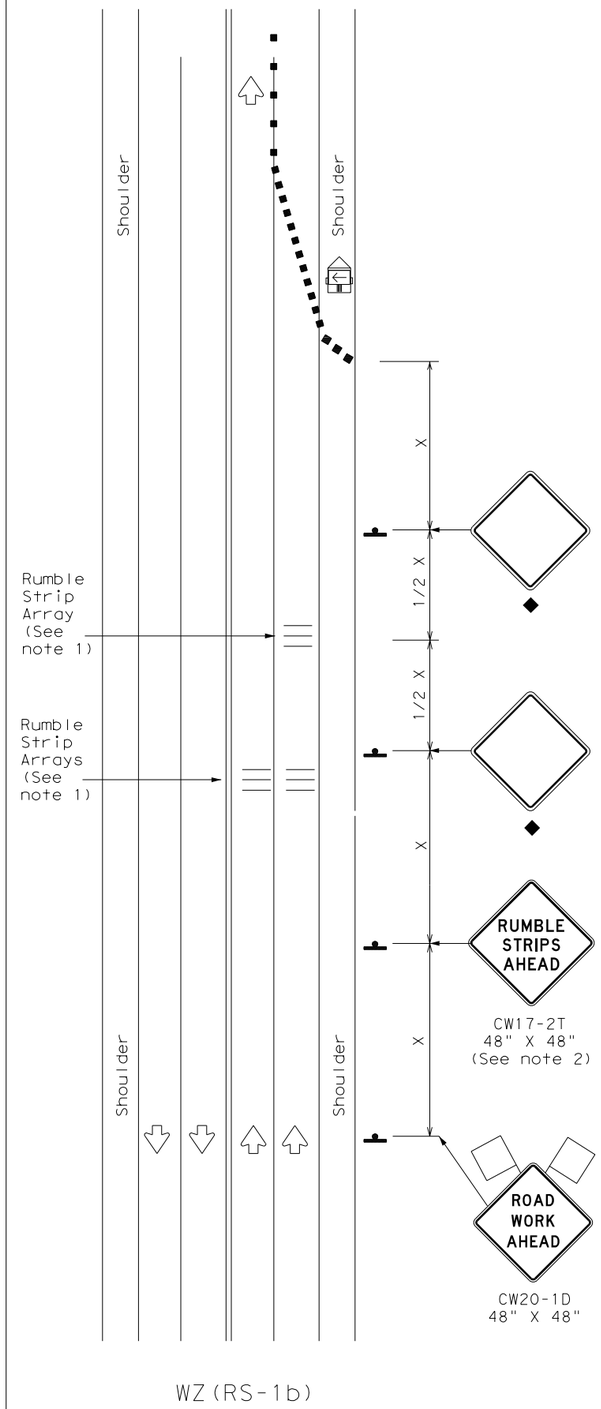
Warning sign and rumble strip sequence in opposite direction is same as below.

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



WZ(RS-1a)

RUMBLE STRIPS ON ONE-LANE TWO-WAY APPLICATION



WZ(RS-1b)

RUMBLE STRIPS FOR LANE CLOSURE ON CONVENTIONAL ROADWAY

GENERAL NOTES

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

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

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

* Conventional Roads Only

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

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

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

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

TABLE 2	
Speed	Approximate distance between strips in an array
≤ 40 MPH	10'
> 40 MPH & ≤ 55 MPH	15'
= 60 MPH	20'
≥ 65 MPH	* 35' +

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TEMPORARY RUMBLE STRIPS

WZ(RS)-22

FILE: wzrs22.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
©TxDOT November 2012	CONT	SECT	JOB	HIGHWAY
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	BMT	JASPER		32

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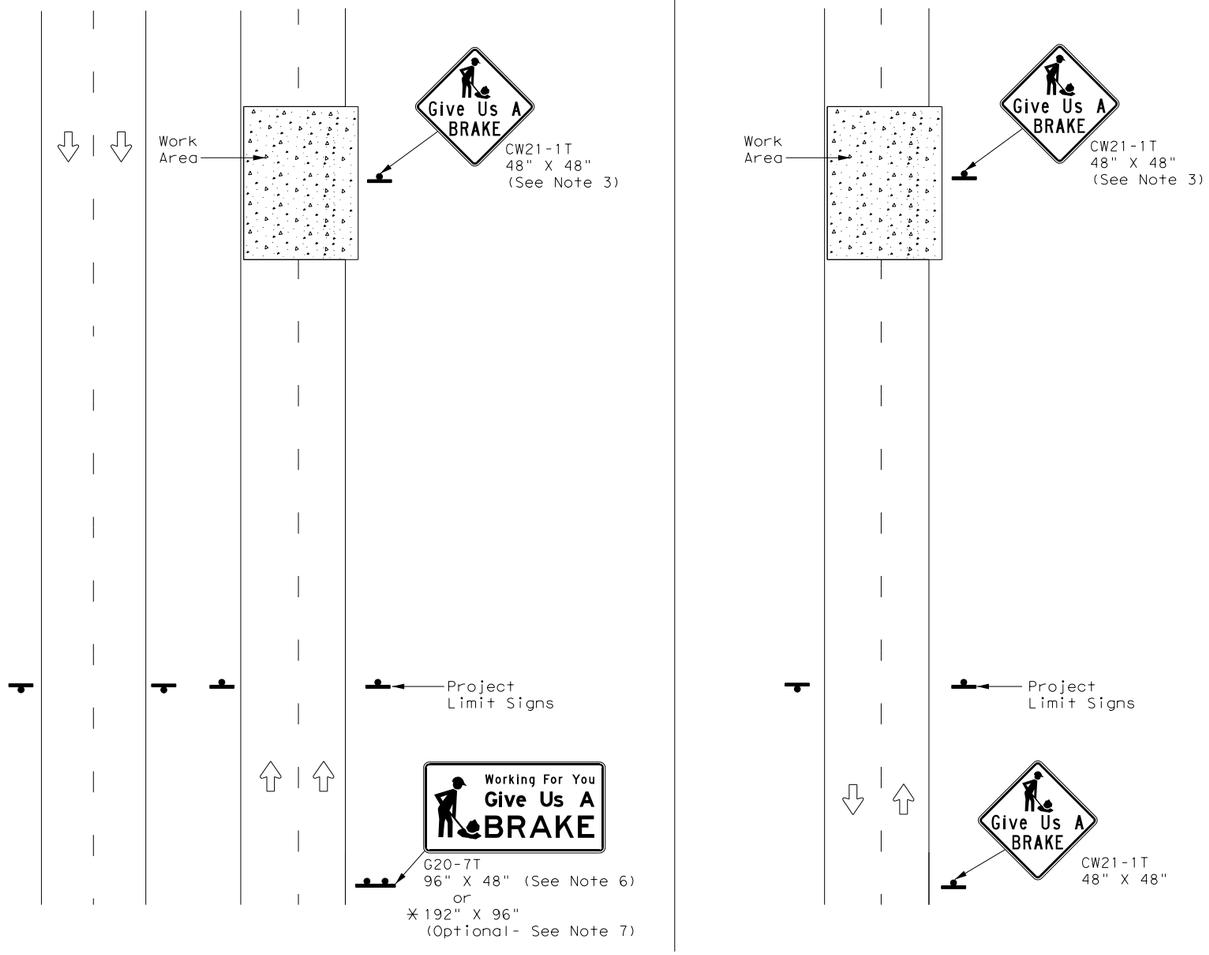

DIVIDED HIGHWAY

UNDIVIDED HIGHWAY

SIGNS ARE SHOWN FOR ONE DIRECTION OF TRAVEL

* When the optional larger WORKING FOR YOU GIVE US A BRAKE (G20-7T) 192" x 96" sign is required, the locations shall be noted elsewhere in the plans.

SUMMARY OF LARGE SIGNS

BACKGROUND COLOR	SIGN DESIGNATION	SIGN	SIGN DIMENSIONS	REFLECTIVE SHEETING	SQ FT	GALVANIZED STRUCTURAL STEEL			DRILLED SHAFT 24" DIA. (LF)
						Size	(LF) ①	(LF) ②	
Orange	G20-7T	Working For You Give Us A BRAKE	96" X 48"	Type B_{FL} or C_{FL}	32	▲	▲	▲	▲
Orange	G20-7T	Working For You Give Us A BRAKE	192" X 96"	Type B_{FL} or C_{FL}	128	W8x18	16	17	12

▲ See Note 6 Below

LEGEND	
	Sign
	Large Sign
	Traffic Flow

DEPARTMENTAL MATERIAL SPECIFICATIONS	
PLYWOOD SIGN BLANKS	DMS-7100
ALUMINUM SIGN BLANKS	DMS-7110
SIGN FACE MATERIALS	DMS-8300

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

GENERAL NOTES

1. See BC and SMD sheets for additional sign support details.
2. Sign locations shall be approved by the Engineer.
3. For projects more than two miles in length, Give Us a BRAKE signs should be repeated halfway through the project. The Give Us a Brake (CW21-1T) may be used for this purpose.
4. Work zone speed limits are sometimes used in conjunction with GIVE US A BRAKE signing. See BC(3) for location and spacing of construction speed zone signing when required.
5. Give Us a Brake (CW21-1T) signs and supports shall be considered subsidiary to Item 502, "Barricades, Signs and Traffic Handling."
6. The 96" X 48" Working For You Give Us A BRAKE (G20-7T) may use a 1/2" or 5/8" plywood substrate or 0.125" aluminum sheeting substrate and may be supported by two 4" x 6" wood posts with drilled holes for breakaway as per BC(5) and will be subsidiary to Item 502.
7. The Working For You Give Us A BRAKE (G20-7T) 192" X 96" sign shall be paid for under the following specification items:
   Item 636 - Aluminum Signs
   Item 647 - Large Roadside Sign Supports and Assemblies.
   Item 416 - Drilled Shaft Foundations
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.

Texas Department of Transportation

Traffic Operations Division Standard

WORK ZONE "GIVE US A BRAKE" SIGNS

WZ(BRK)-13

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6-96 5-98 7-13	DIST	COUNTY		SHEET NO.
8-96 3-03	BMT	JASPER		33

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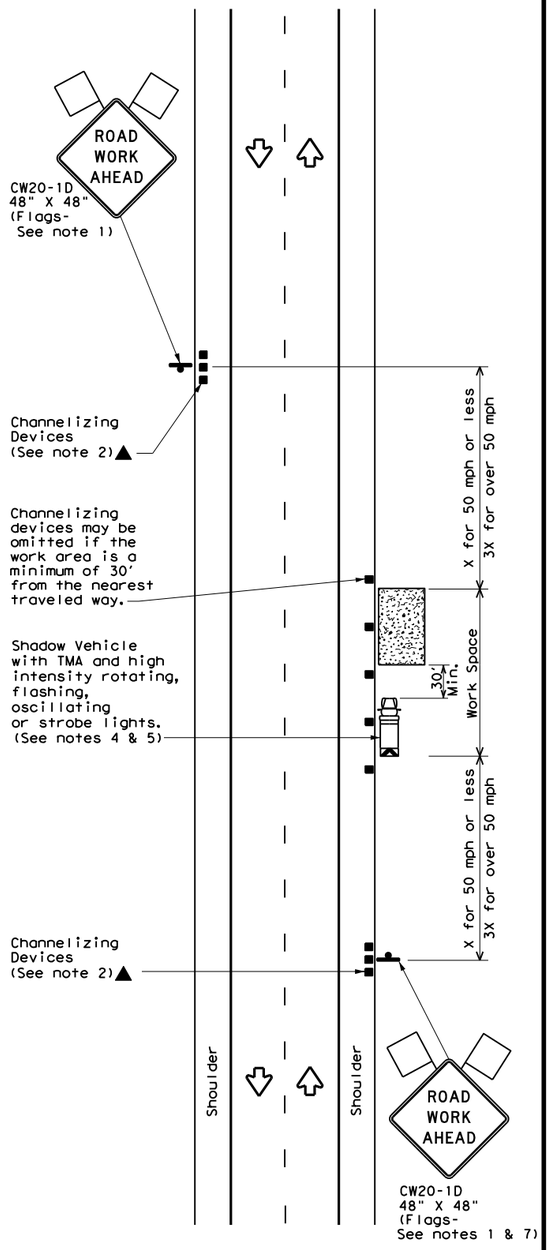
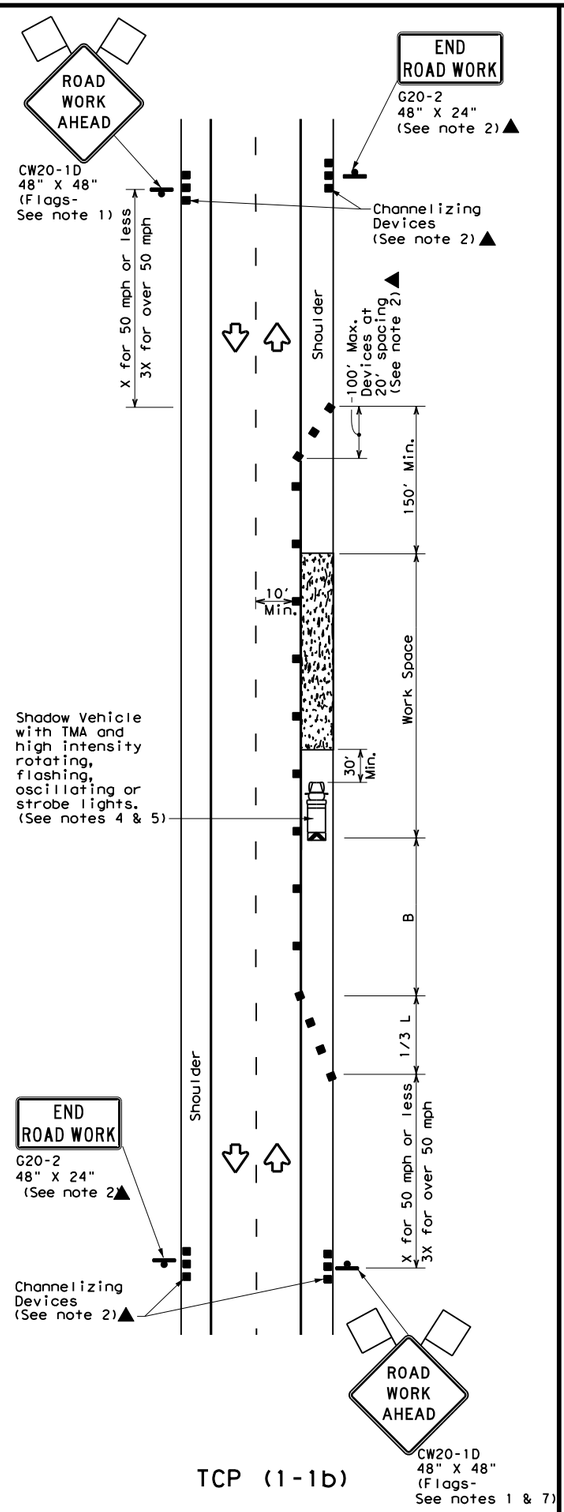


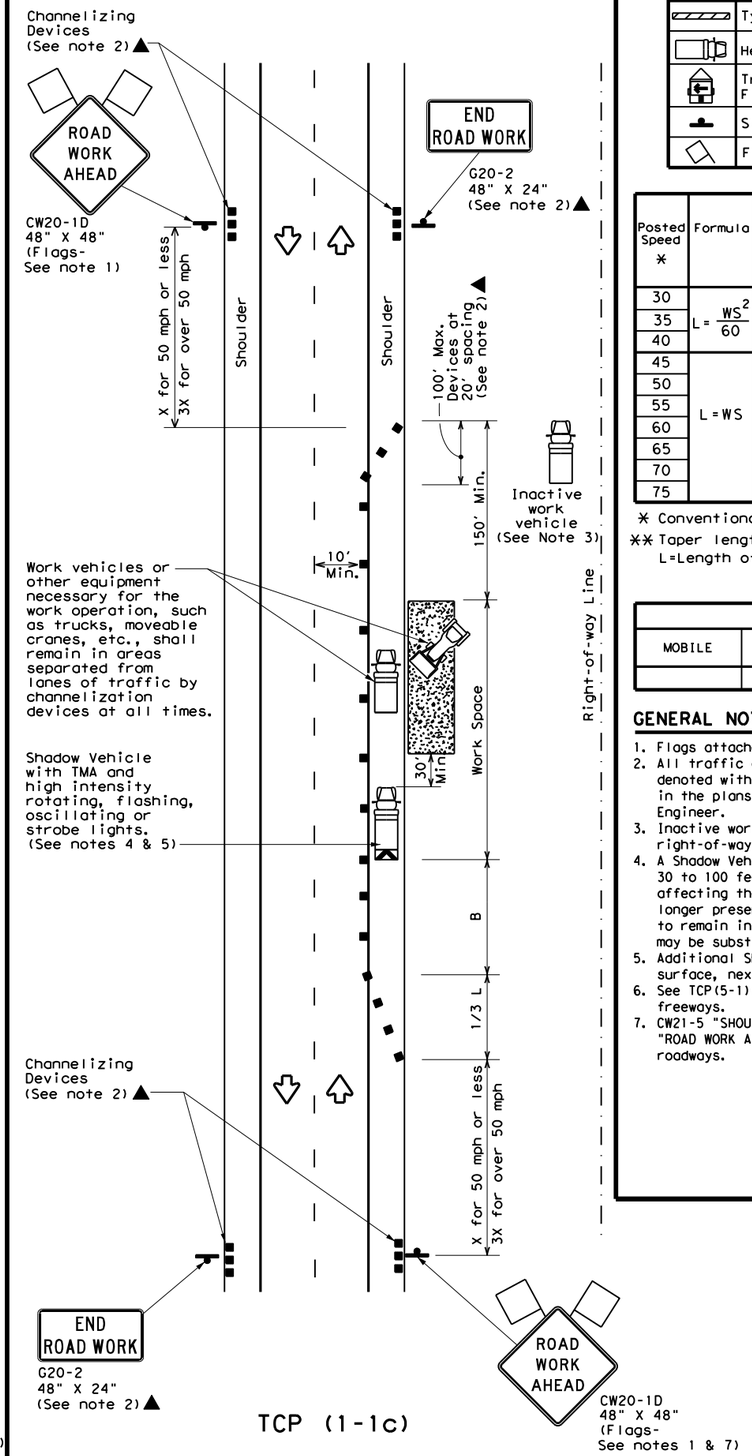
TCP (1-1a)

WORK SPACE NEAR SHOULDER
Conventional Roads



TCP (1-1b)

WORK SPACE ON SHOULDER
Conventional Roads



TCP (1-1c)

WORK VEHICLES ON SHOULDER
Conventional Roads

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

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

* Conventional Roads Only

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

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

GENERAL NOTES

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

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Traffic Operations Division Standard

TRAFFIC CONTROL PLAN CONVENTIONAL ROAD SHOULDER WORK

TCP(1-1)-18

FILE: tcp1-1-18.dgn	DN:	CK:	DW:	CK:
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REVISIONS 2-94 4-98	0920	12	047	VARIOUS
8-95 2-12	DIST	COUNTY		SHEET NO.
1-97 2-18	BMT	JASPER		34

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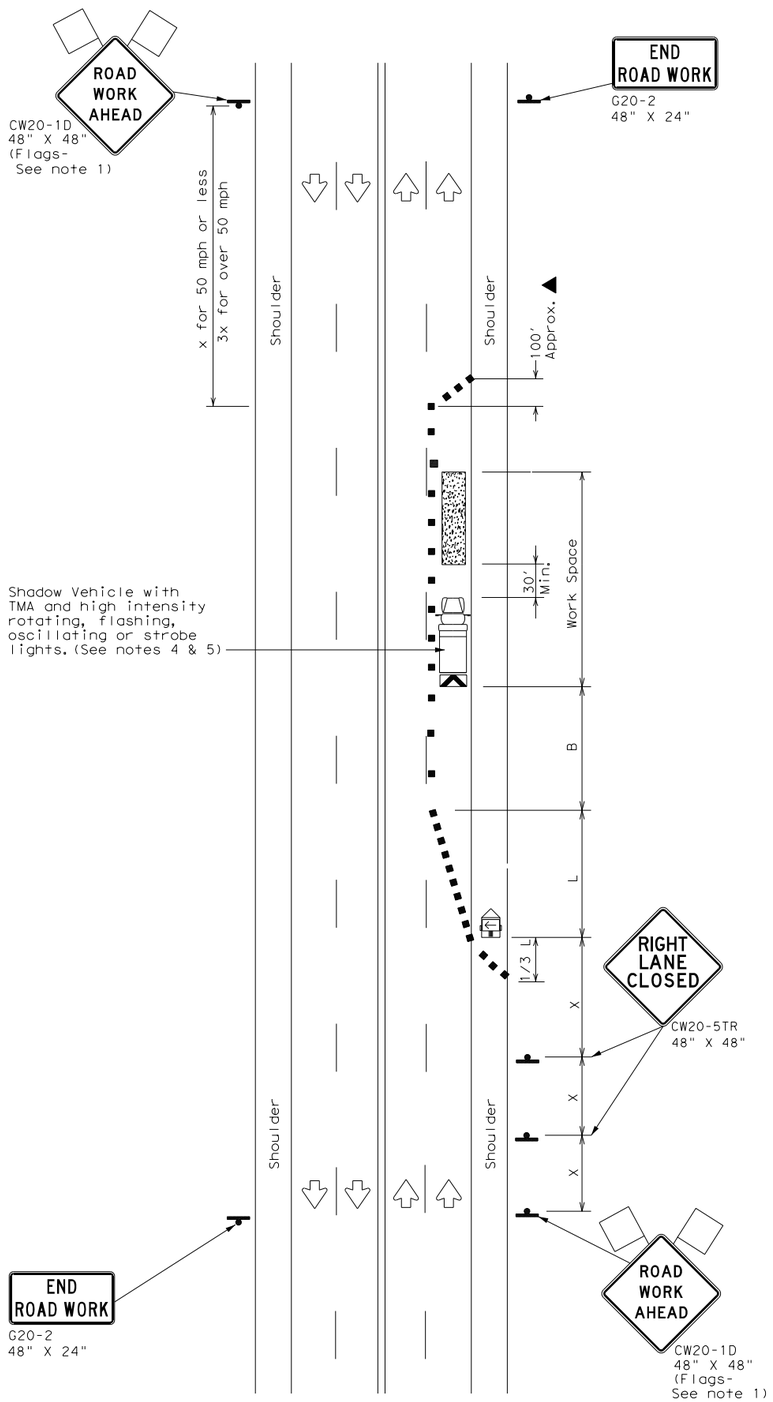
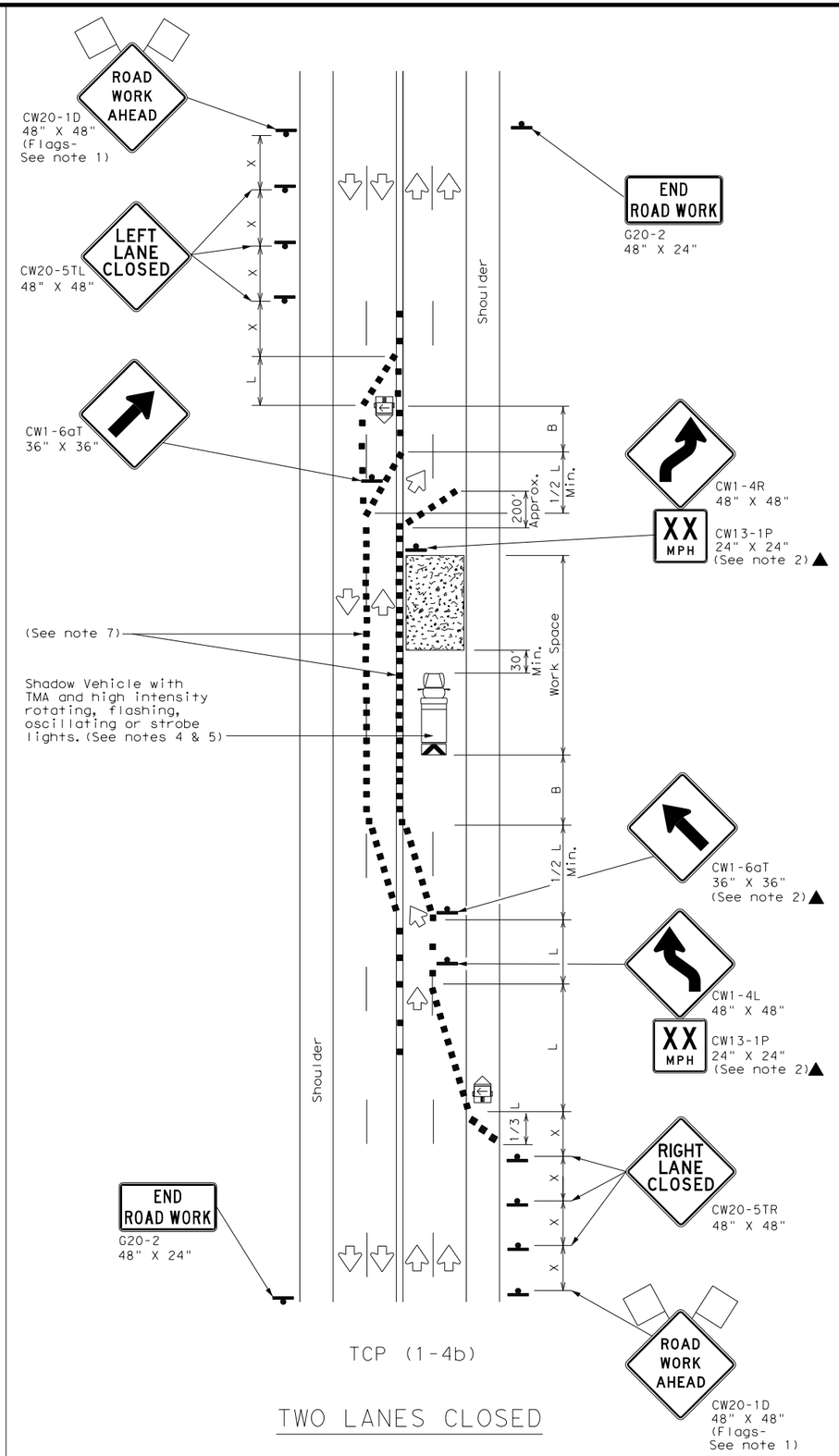


TCP (1-4a)

ONE LANE CLOSED



TCP (1-4b)

TWO LANES CLOSED

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

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

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

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

GENERAL NOTES

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

TCP (1-4a)

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

TCP (1-4b)

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

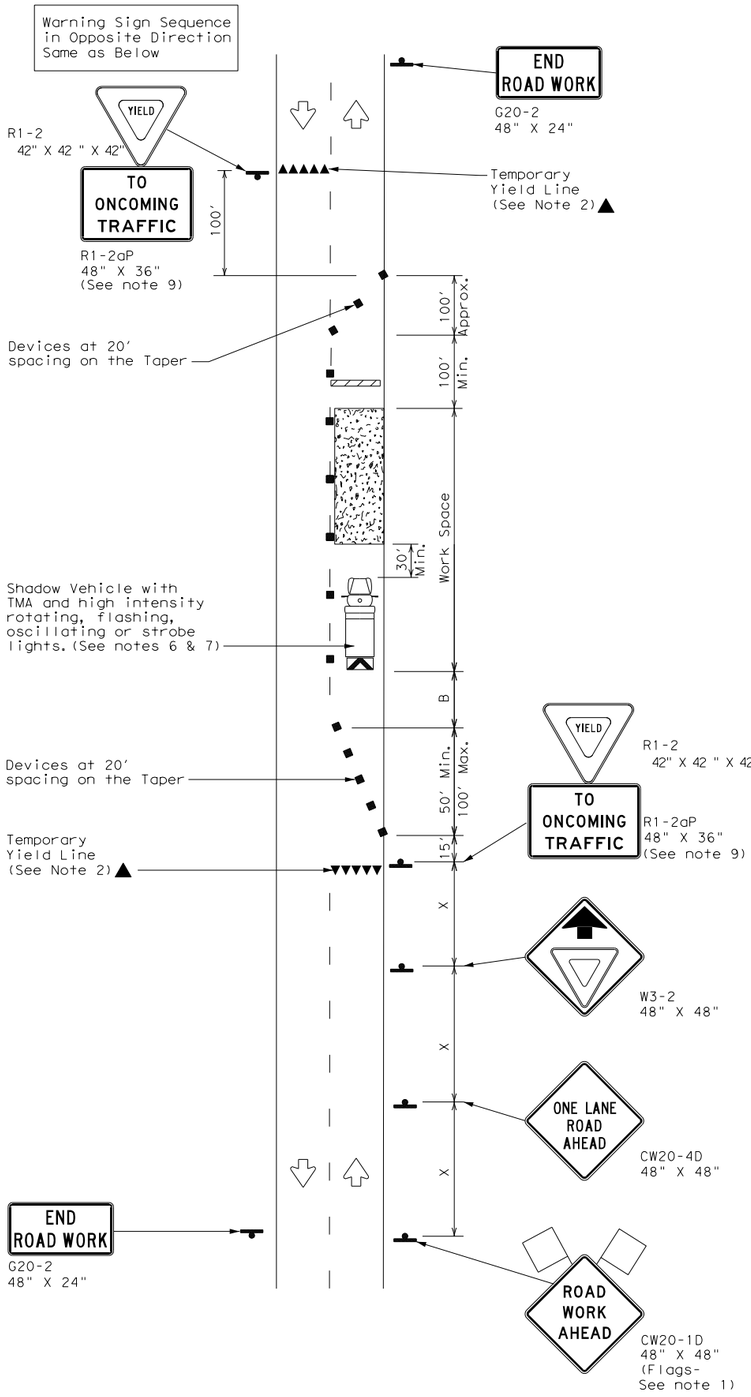
Texas Department of Transportation

Traffic Operations Division Standard

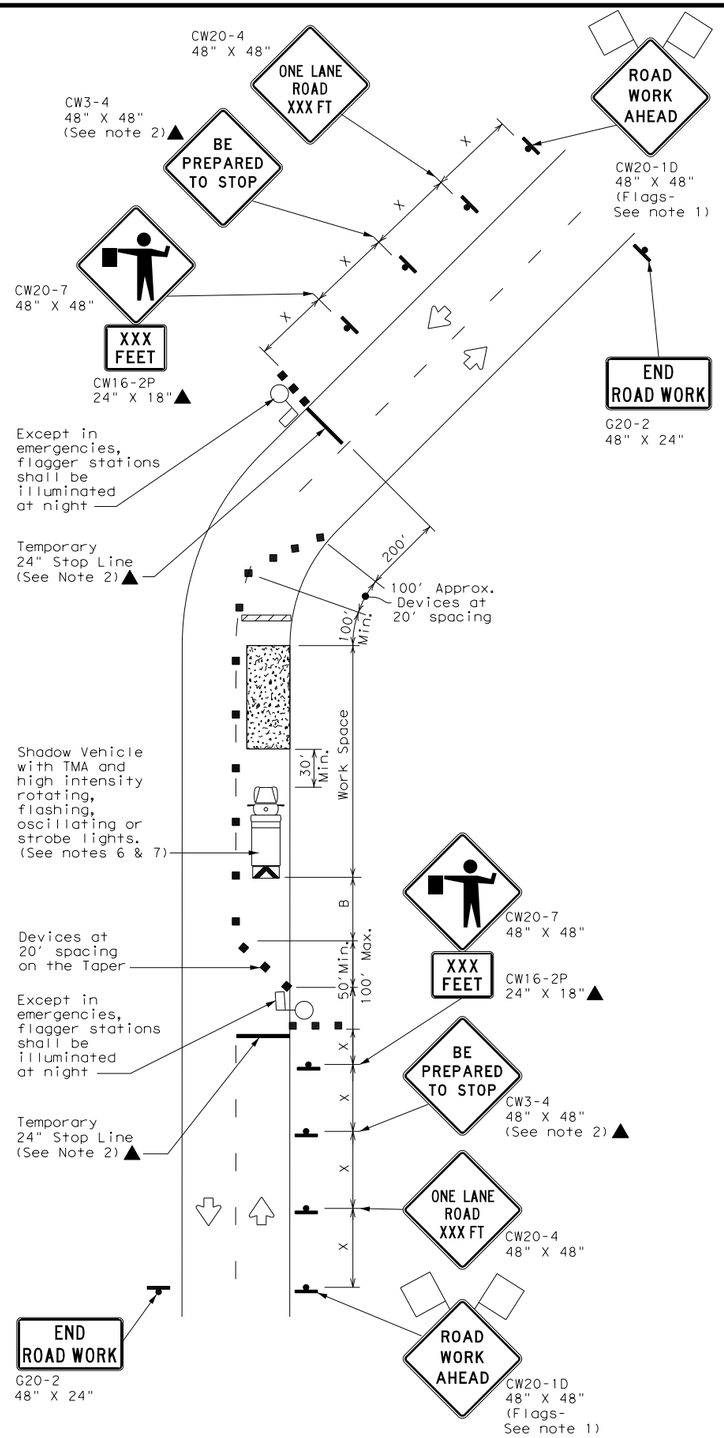
TRAFFIC CONTROL PLAN LANE CLOSURES ON MULTILANE CONVENTIONAL ROADS

TCP(1-4)-18

FILE: tcp1-4-18.dgn	DN:	CK:	DW:	CK:
© TxDOT December 1985	CONT	SECT	JOB	HIGHWAY
REVISIONS	0920	12	047	VARIOUS
2-94 4-98	DIST	COUNTY		SHEET NO.
8-95 2-12	BMT	JASPER		35
1-97 2-18				



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



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

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

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

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

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

GENERAL NOTES

1. Flags attached to signs where shown, are REQUIRED.
2. All traffic control devices illustrated are REQUIRED, except those denoted with the triangle symbol may be omitted when stated elsewhere in the plans, or for routine maintenance work, when approved by the Engineer.
3. The CW3-4 "BE PREPARED TO STOP" sign may be installed after the CW20-4 "ONE LANE ROAD XXX FT" sign, but proper sign spacing shall be maintained.
4. Flaggers should use two-way radios or other methods of communication to control traffic.
5. Length of work space should be based on the ability of flaggers to communicate.
6. A Shadow Vehicle with a TMA should be used anytime it can be positioned 30 to 100 feet in advance of the area of crew exposure without adversely affecting the performance or quality of the work. If workers are no longer present but road or work conditions require the traffic control to remain in place, Type 3 Barricades or other channelizing devices may be substituted for the Shadow Vehicle and TMA.
7. Additional Shadow Vehicles with TMAs may be positioned off the paved surface, next to those shown in order to protect a wider work space.

TCP (2-2a)

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

TCP (2-2b)

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

Texas Department of Transportation
Traffic Operations Division Standard

TRAFFIC CONTROL PLAN
ONE-LANE TWO-WAY
TRAFFIC CONTROL

TCP(2-2)-18

FILE: tcp2-2-18.dgn	DN:	CK:	DW:	CK:
©TxDOT December 1985	CONT	SECT	JOB	HIGHWAY
REVISIONS 8-95 3-03	0920	12	047	VARIOUS
1-97 2-12	DIST	COUNTY		SHEET NO.
4-98 2-18	BMT	JASPER		36

DATE: 1/25/2022 4:38:37 PM
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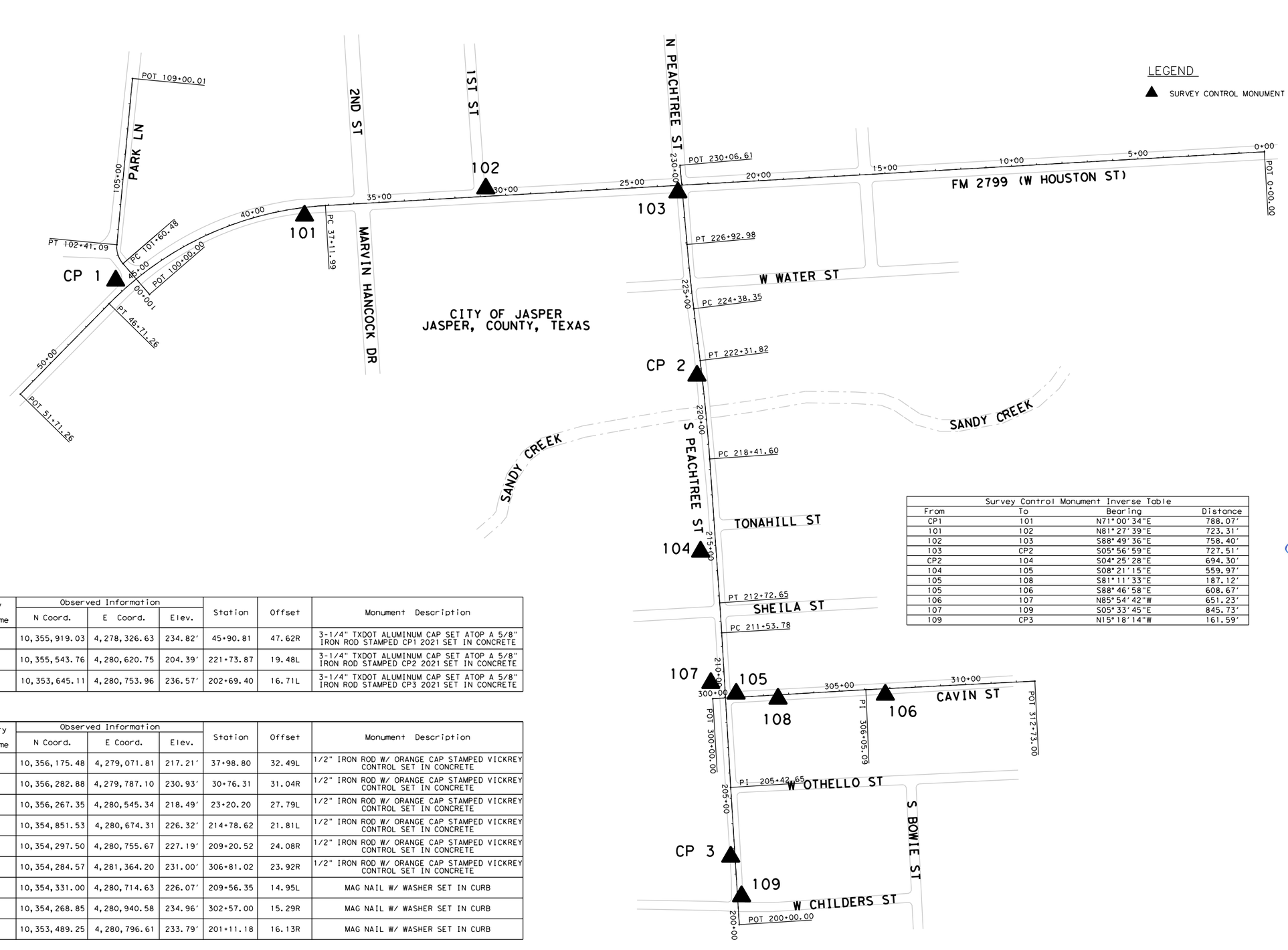


From	To	Bearing	Distance
CP1	101	N71°00'34"E	788.07'
101	102	N81°27'39"E	723.31'
102	103	S88°49'36"E	758.40'
103	CP2	S05°56'59"E	727.51'
CP2	104	S04°25'28"E	694.30'
104	105	S08°21'15"E	559.97'
105	108	S81°11'33"E	187.12'
105	106	S88°46'58"E	608.67'
106	107	N85°54'42"W	651.23'
107	109	S05°33'45"E	845.73'
109	CP3	N15°18'14"W	161.59'

NOTES:

1. ALL COORDINATES SHOWN ARE BASED ON NAD 83 (2011 ADJUSTMENT, EPOCH 2010.00) TEXAS COORDINATE SYSTEM, CENTRAL ZONE 4203.

2. PRIMARY CONTROL WAS ESTABLISHED UTILIZING REDUNDANT OBSERVATIONS BASED ON THE TxDOT REAL-TIME NETWORK (RTN), WITH OBSERVATIONS FLOWING FROM RTN NEWTON_TXNE. SECONDARY CONTROL WAS ESTABLISHED UTILIZING OPTICAL MEASUREMENTS WITH TOTAL STATION.

3. ALL ELEVATIONS ARE REFERENCED TO THE NORTH AMERICAN VERTICAL DATUM (NAVD88) AND DERIVED FROM DIGITAL DIFFERENTIAL LEVELING.

4. ALL COORDINATES SHOWN ARE IN SURFACE VALUES AND MAY BE CONVERTED TO GRID DIVIDING BY A SURFACE ADJUSTMENT FACTOR OF 1.00012 ALL MEASUREMENTS ARE IN U.S. SURVEY FEET.

5. CONTROL VALUES MEET SPECIFICATIONS FOR TxDOT LEVEL 2 AND 3 GPS SURVEYS.

STATE OF TEXAS
REGISTERED
ROBERT M ANGUIANO
6347
PROFESSIONAL
LAND SURVEYOR
05/03/2021

THE CONTROL POINTS SHOWN HEREIN WERE DETERMINED BY A SURVEY MADE ON THE GROUND AND UNDER MY SUPERVISION.

Primary Control Point Name	Observed Information			Station	Offset	Monument Description
	N Coord.	E Coord.	Elev.			
CP1	10,355,919.03	4,278,326.63	234.82'	45+90.81	47.62R	3-1/4" TXDOT ALUMINUM CAP SET ATOP A 5/8" IRON ROD STAMPED CP1 2021 SET IN CONCRETE
CP2	10,355,543.76	4,280,620.75	204.39'	221+73.87	19.48L	3-1/4" TXDOT ALUMINUM CAP SET ATOP A 5/8" IRON ROD STAMPED CP2 2021 SET IN CONCRETE
CP3	10,353,645.11	4,280,753.96	236.57'	202+69.40	16.71L	3-1/4" TXDOT ALUMINUM CAP SET ATOP A 5/8" IRON ROD STAMPED CP3 2021 SET IN CONCRETE

Secondary Control Point Name	Observed Information			Station	Offset	Monument Description
	N Coord.	E Coord.	Elev.			
101	10,356,175.48	4,279,071.81	217.21'	37+98.80	32.49L	1/2" IRON ROD W/ ORANGE CAP STAMPED VICKREY CONTROL SET IN CONCRETE
102	10,356,282.88	4,279,787.10	230.93'	30+76.31	31.04R	1/2" IRON ROD W/ ORANGE CAP STAMPED VICKREY CONTROL SET IN CONCRETE
103	10,356,267.35	4,280,545.34	218.49'	23+20.20	27.79L	1/2" IRON ROD W/ ORANGE CAP STAMPED VICKREY CONTROL SET IN CONCRETE
104	10,354,851.53	4,280,674.31	226.32'	214+78.62	21.81L	1/2" IRON ROD W/ ORANGE CAP STAMPED VICKREY CONTROL SET IN CONCRETE
105	10,354,297.50	4,280,755.67	227.19'	209+20.52	24.08R	1/2" IRON ROD W/ ORANGE CAP STAMPED VICKREY CONTROL SET IN CONCRETE
106	10,354,284.57	4,281,364.20	231.00'	306+81.02	23.92R	1/2" IRON ROD W/ ORANGE CAP STAMPED VICKREY CONTROL SET IN CONCRETE
107	10,354,331.00	4,280,714.63	226.07'	209+56.35	14.95L	MAG NAIL W/ WASHER SET IN CURB
108	10,354,268.85	4,280,940.58	234.96'	302+57.00	15.29R	MAG NAIL W/ WASHER SET IN CURB
109	10,353,489.25	4,280,796.61	233.79'	201+11.18	16.13R	MAG NAIL W/ WASHER SET IN CURB

THE SURVEY CONTROL INFORMATION HAS BEEN ACCEPTED AND INCORPORATED INTO THIS PS&E.

GRAPHIC SCALE
0' 100' 200' 400'
SCALE: 1"=200' (22" x 34")
SCALE: 1"=400' (11" x 17")

UNIT OF MEASUREMENT: U.S. SURVEY FEET

Texas Department of Transportation

VICKREY & ASSOCIATES, LLC.
CONSULTING ENGINEERS
CIVIL • ENVIRONMENTAL • SURVEY
12940 Country Parkway
San Antonio, TX 78216
Telephone: (210) 349-3271
TBPELS #10004100

SURVEY CONTROL INDEX SHEET

PAGE 1 OF 1

FED. RD. DIV. NO.	STATE	FEDERAL AID PROJECT NO.			HIGHWAY NO.
	TEXAS				VARIOUS
STATE DIST. NO.	COUNTY	CONTROL NO.	SECTION NO.	JOB NO.	SHEET NO.
BMT	JASPER	0920	12	047	37

Plotted on: 1/25/2022

Design Filename: P:\122\42\01\Design\Civil\General\1224201_hain_dat001.dgn

FM 2799

Chain HOUBL contains:
HOUBL1 CUR HOUBL 3 HOUBL5

Beginning chain HOUBL description
Feature: Geom Centerline

Point HOUBL1 N 10,356,427.68 E 4,282,860.16 Sta 0+00.00

Course from HOUBL1 to PC HOUBL 3 S 86° 43′ 27" W Dist 3,711.99

Curve HOUBL 3		Curve Data				
P.I. Station	42+14.64	N	10,356,186.84	E	4,278,652.40
Delta =	42° 16′ 43" (LT)				
Degree =	4° 24′ 27"				
Tangent =	502.65				
Length =	959.27				
Radius =	1,300.00				
External =	93.79				
Long Chord =	937.66				
Mid. Ord. =	87.48				
P.C. Station	37+11.99	N	10,356,215.57	E	4,279,154.24
P.T. Station	46+71.26	N	10,355,827.99	E	4,278,300.43
C.C.		N	10,354,917.69	E	4,279,228.52

Back = S 86° 43′ 27" W
Ahead = S 44° 26′ 44" W
Chord Bear = S 65° 35′ 05" W

Course from PT HOUBL 3 to HOUBL5 S 44° 26′ 44" W Dist 500.00

Point HOUBL5 N 10,355,471.03 E 4,277,950.31 Sta 51+71.26

Ending chain HOUBL description

PARK

Chain PRKBL contains:
PRKBL1 CUR PRKBL_3 PRKBL5

Beginning chain PRKBL description
Feature: Geom_Centerline

Point PRKBL1 N 10,355,864.71 E 4,278,459.81 Sta 100+00.00

Course from PRKBL1 to PC PRKBL_3 N 40° 48′ 57" W Dist 160.48

Curve PRKBL_3		Curve Data				
P.I. Station	102+03.12	N	10,356,018.44	E	4,278,327.04
Delta =	46° 11′ 00" (RT)				
Degree =	57° 17′ 45"				
Tangent =	42.64				
Length =	80.61				
Radius =	100.00				
External =	8.71				
Long Chord =	78.44				
Mid. Ord. =	8.01				
P.C. Station	101+60.48	N	10,355,986.17	E	4,278,354.91
P.T. Station	102+41.09	N	10,356,060.89	E	4,278,331.03
C.C.		N	10,356,051.53	E	4,278,430.59

Back = N 40° 48′ 57" W
Ahead = N 5° 22′ 04" E
Chord Bear = N 17° 43′ 26" W

Course from PT PRKBL_3 to PRKBL5 N 5° 22′ 04" E Dist 658.92

Point PRKBL5 N 10,356,716.92 E 4,278,392.67 Sta 109+00.01

Ending chain PRKBL description

CAVIN

Chain CAVNBL contains:
CAVNBL1 CAVNBL3 CAVNBL4

Beginning chain CAVNBL description
Feature: Geom_Centerline

Point CAVNBL1 N 10,354,268.96 E 4,280,683.13 Sta 300+00.00

Course from CAVNBL1 to CAVNBL3 N 86° 37′ 09" E Dist 605.09

Point CAVNBL3 N 10,354,304.64 E 4,281,287.16 Sta 306+05.09

Course from CAVNBL3 to CAVNBL4 N 87° 07′ 01" E Dist 667.92

Point CAVNBL4 N 10,354,338.24 E 4,281,954.23 Sta 312+73.00

Ending chain CAVNBL description

DESIGN

STATE OF TEXAS · TYLER PAYNE DUBE · 118612 · LICENSED PROFESSIONAL ENGINEER

TYLER PAYNE DUBE, P.E. — 1/25/2022 DATE

APPROVAL

STATE OF TEXAS · JOHN A. TYLER · 105193 · LICENSED PROFESSIONAL ENGINEER

JOHN A. TYLER, P.E. — 1/25/2022 DATE

REV. NO.	DATE	DESCRIPTION	BY

PAPE-DAWSON ENGINEERS
SAN ANTONIO | AUSTIN | HOUSTON | FORT WORTH | DALLAS
2000 NW LOOP 410 | SAN ANTONIO, TX 78213 | 210.375.9000
TEXAS ENGINEERING FIRM #470 | TEXAS SURVEYING FIRM #10028800

HORIZONTAL ALIGNMENT DATA SHEET

SHEET 1 OF 2

DGN:	FED. RD. DIV. NO.	STATE	FEDERAL AID PROJECT NO.			HIGHWAY NO.
CHK DGN:	6	TEXAS				VARIOUS
DWG:	DIST.	COUNTY	CONT. NO.	SECT. NO.	JOB NO.	SHEET NO.
CHK DWG:	BMT	JASPER	0920	12	047	38

Plotted on: 1/25/2022

Design Filename: P:\122\42\01\Design\Civil\General\1224201_hain_dat002.dgn

PEACHTREE

Chain PCHTRBL contains:
PCHTRBL1 PCHTRBL3 CUR PCHTRBL_5 CUR PCHTRBL_8 CUR PCHTRBL_11 PCHTRBL13

Beginning chain PCHTRBL description
Feature: Geom_Centerline

Point PCHTRBL1 N 10,353,377.28 E 4,280,787.45 Sta 200+00.00

Course from PCHTRBL1 to PCHTRBL3 N 3° 34′ 43" W Dist 542.65

Point PCHTRBL3 N 10,353,918.87 E 4,280,753.58 Sta 205+42.65

Course from PCHTRBL3 to PC PCHTRBL_5 N 3° 19′ 48" W Dist 611.13

Curve Data

Curve PCHTRBL_5						
P.I. Station		212+13.22	N	10,354,588.30	E	4,280,714.63
Delta	=	0° 40′ 52" (LT)				
Degree	=	0° 34′ 23"				
Tangent	=	59.43				
Length	=	118.86				
Radius	=	10,000.00				
External	=	0.18				
Long Chord	=	118.86				
Mid. Ord.	=	0.18				
P.C. Station		211+53.78	N	10,354,528.97	E	4,280,718.08
P.T. Station		212+72.65	N	10,354,647.59	E	4,280,710.47
C.C.			N	10,353,948.13	E	4,270,734.97
Back	= N	3° 19′ 48" W				
Ahead	= N	4° 00′ 39" W				
Chord Bear	= N	3° 40′ 13" W				

Course from PT PCHTRBL_5 to PC PCHTRBL_8 N 4° 00′ 39" W Dist 568.95

Curve Data

Curve PCHTRBL_8						
P.I. Station		220+36.76	N	10,355,409.83	E	4,280,657.03
Delta	=	2° 58′ 52" (LT)				
Degree	=	0° 45′ 50"				
Tangent	=	195.16				
Length	=	390.22				
Radius	=	7,500.00				
External	=	2.54				
Long Chord	=	390.18				
Mid. Ord.	=	2.54				
P.C. Station		218+41.60	N	10,355,215.15	E	4,280,670.68
P.T. Station		222+31.82	N	10,355,603.53	E	4,280,633.27
C.C.			N	10,354,690.55	E	4,273,189.05
Back	= N	4° 00′ 39" W				
Ahead	= N	6° 59′ 31" W				
Chord Bear	= N	5° 30′ 05" W				

Course from PT PCHTRBL_8 to PC PCHTRBL_11 N 6° 59′ 31" W Dist 206.53

Curve Data

Curve PCHTRBL_11						
P.I. Station		225+65.68	N	10,355,934.91	E	4,280,592.63
Delta	=	1° 56′ 43" (RT)				
Degree	=	0° 45′ 50"				
Tangent	=	127.33				
Length	=	254.63				
Radius	=	7,500.00				
External	=	1.08				
Long Chord	=	254.62				
Mid. Ord.	=	1.08				
P.C. Station		224+38.35	N	10,355,808.53	E	4,280,608.13
P.T. Station		226+92.98	N	10,356,061.74	E	4,280,581.43
C.C.			N	10,356,721.51	E	4,288,052.35
Back	= N	6° 59′ 31" W				
Ahead	= N	5° 02′ 48" W				
Chord Bear	= N	6° 01′ 10" W				

Course from PT PCHTRBL_11 to PCHTRBL13 N 5° 02′ 48" W Dist 313.63

Point PCHTRBL13 N 10,356,374.15 E 4,280,553.84 Sta 230+06.61

Ending chain PCHTRBL description

DESIGN

STATE OF TEXAS · TYLER PAYNE DUBE · 118612 · LICENSED PROFESSIONAL ENGINEER

TYLER PAYNE DUBE, P.E. — 1/25/2022 DATE

APPROVAL

STATE OF TEXAS · JOHN A. TYLER · 105193 · LICENSED PROFESSIONAL ENGINEER

JOHN A. TYLER, P.E. — 1/25/2022 DATE

REV. NO.	DATE	DESCRIPTION	BY

PAPE-DAWSON ENGINEERS
SAN ANTONIO | AUSTIN | HOUSTON | FORT WORTH | DALLAS
2000 NW LOOP 410 | SAN ANTONIO, TX 78213 | 210.375.9000
TEXAS ENGINEERING FIRM #470 | TEXAS SURVEYING FIRM #10028800

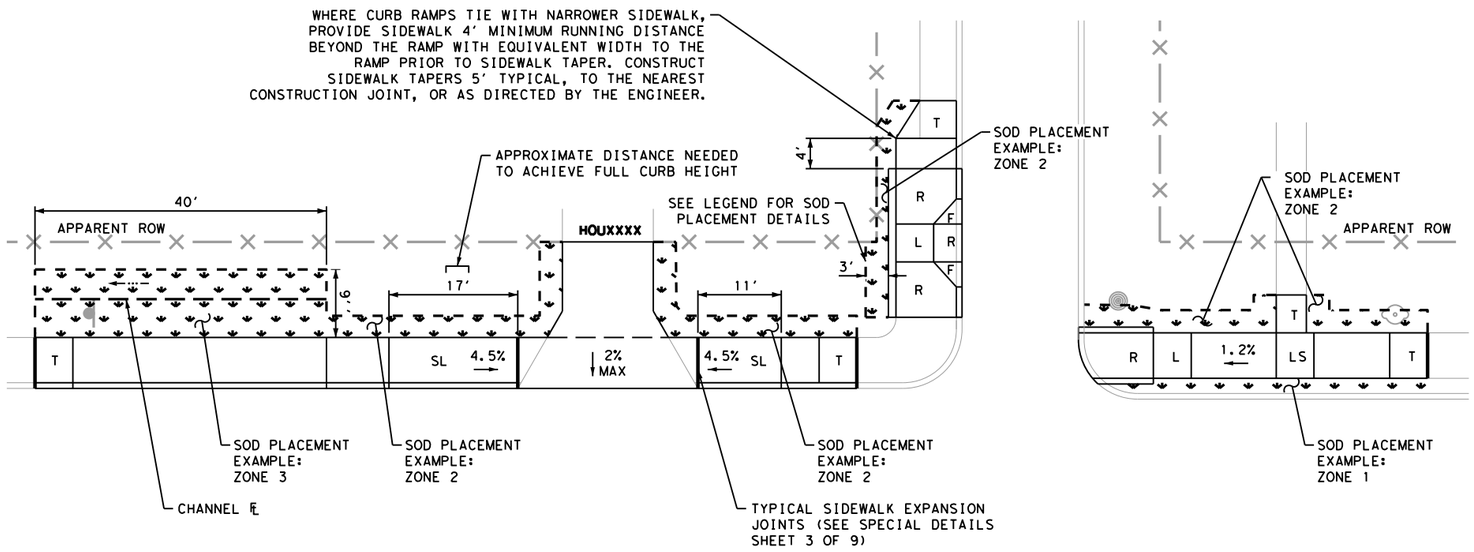
HORIZONTAL ALIGNMENT DATA SHEET

SHEET 2 OF 2

DGN:	FED. RD. DIV. NO.	STATE	FEDERAL AID PROJECT NO.			HIGHWAY NO.
CHK DGN:	6	TEXAS				VARIOUS
DWG:	DIST.	COUNTY	CONT. NO.	SECT. NO.	JOB NO.	SHEET NO.
CHK DWG:	BMT	JASPER	0920	12	047	39

Plotted on: 1/25/2022

SAMPLE PLAN LAYOUT



LEGEND OF SYMBOLS

	DRAINAGE FLOW DIRECTION		PI POINT
FH	FIRE HYDRANT		UTILITY POLE
GM	GAS METER		SEWER CLEANOUT
GV	GAS VALVE		SIGN
	GUY ANCHOR		TREE/BUSHES
IR	IRRIGATION	WM	WATER METER
MB	MAIL BOX	WV	WATER VALVE
MH	MANHOLE	X.X%	EXISTING ROADWAY OR DRIVEWAY SLOPE
NSPI	NO SEPARATE PAY ITEM	X.X%	PROPOSED ROADWAY, SIDEWALK OR DRIVEWAY SLOPE
G	EX UNDERGROUND GAS	℄	BASE LINE
W	EX UNDERGROUND WATER	PGL	PROFILE GRADE LINE
SS	EX UNDERGROUND STORM SEWER		TRAFFIC FLOW ARROW
UE	EX UNDERGROUND ELECTRIC	APPARENT ROW	APPARENT RIGHT OF WAY LINE
OE	EX OVERHEAD ELECTRIC		DRAINAGE FLOW ARROW
	EXISTING FENCE	XX-X	DRIVEWAY ID
CTV	CABLE PEDESTAL	TOC	TOP OF CURB
T	TELEPHONE MANHOLE	FOC	FACE OF CURB
	FUTURE WORK BY OTHERS		BLOCK SOD
	EXISTING FEATURES	HOUXXXX	DRIVEWAY ID

PLANAR SLOPE DESIGNATIONS

- F = FLARE (10:1 OR LESS) MEASURED AT FACE OF CURB
- R = RAMP (CROSS SLOPE NOT TO EXCEED 2 PERCENT; LONGITUDINAL NOT TO EXCEED 8.3 PERCENT)
- L = LANDING (SHALL NOT EXCEED 2 PERCENT SLOPE IN ANY DIRECTION)
- L1 = SHARED LANDING (SHALL NOT EXCEED 2 PERCENT SLOPE IN ANY DIRECTION)
- LS = LEVEL SIDEWALK (SHALL NOT EXCEED 2 PERCENT SLOPE IN ANY DIRECTION)
- SL = SLOPED SIDEWALK. IF INDICATED, CONSTRUCT SLOPED SIDEWALK AT LONGITUDINAL SLOPE SHOWN ON THE PLANS. OTHERWISE LONGITUDINAL SLOPES MAY NOT EXCEED 5 PERCENT, CROSS SLOPES MAY NOT EXCEED 2 PERCENT
- T = TAPER SIDEWALK WIDTH TO NEAREST EXISTING PANEL JOINT (5' TYP)
- SDWK = SIDEWALK
- DRWY = DRIVEWAY

TYPICAL LIMITS OF SOD PLACEMENT ARE AS FOLLOWS:

ZONE 1: PLACE SOD BETWEEN THE BACK OF CURB AND PROPOSED IMPROVEMENTS (SIDEWALK, DRIVEWAY, RIPRAP, ETC.)

ZONE 2: PLACE SOD 3' BEYOND PROPOSED IMPROVEMENTS

IF THE SPACE BETWEEN THE IMPROVEMENTS AND THE ROW IS LESS THAN 3', PLACE SOD BETWEEN PROPOSED IMPROVEMENTS AND THE ROW

ZONE 3: PLACE SOD WITHIN THE LIMITS OF SOIL DISTURBANCE DUE TO EXCAVATION OR EMBANKMENT AS DIMENSIONED ON THE PLANS

PLACE SOD AS DIRECTED BY THE ENGINEER

NOTES
1. FLARE (F), RAMP (R), AND LANDING (L), DIRECTLY IN CONTACT WITH THE CURB RAMP ARE PAID FOR UNDER ITEM 531 "CURB RAMPS"
2. LEVEL SIDEWALK (LS) AND RAMPS (R) NOT DIRECTLY IN CONTACT WITH THE CURB RAMP ARE PAID FOR UNDER ITEM 531 "SIDEWALK"

DESIGN

STATE OF TEXAS · TYLER PAYNE DUBE · 118612 · LICENSED PROFESSIONAL ENGINEER

TYLER PAYNE DUBE, P.E. — 1/25/2022 DATE

APPROVAL

STATE OF TEXAS · JOHN A. TYLER · 105193 · LICENSED PROFESSIONAL ENGINEER

JOHN A. TYLER, P.E. — 1/25/2022 DATE

NOT TO SCALE

REV. NO.	DATE	DESCRIPTION	BY

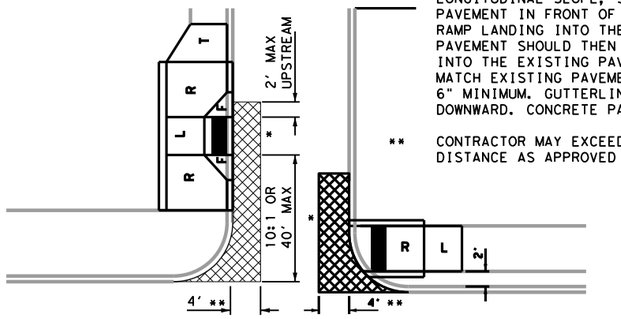
PAPE-DAWSON ENGINEERS
SAN ANTONIO | AUSTIN | HOUSTON | FORT WORTH | DALLAS
2000 NW LOOP 410 | SAN ANTONIO, TX 78213 | 210.375.9000
TEXAS ENGINEERING FIRM #470 | TEXAS SURVEYING FIRM #10028800

SAMPLE PLAN LAYOUT AND LEGEND OF SYMBOLS

DGN:	FED. RD. DIV. NO.	STATE	FEDERAL AID PROJECT NO.			HIGHWAY NO.
CHK DGN:	6	TEXAS				VARIOUS
DWG:	DIST.	COUNTY	CONT. NO.	SECT. NO.	JOB NO.	SHEET NO.
CHK DWG:	BMT	JASPER	0920	12	047	40

Design Filename: P:\122\42\01\Design\Civil\General\1224201sample01.dgn

CONCRETE ROADWAY OR CURB AND GUTTER SECTION

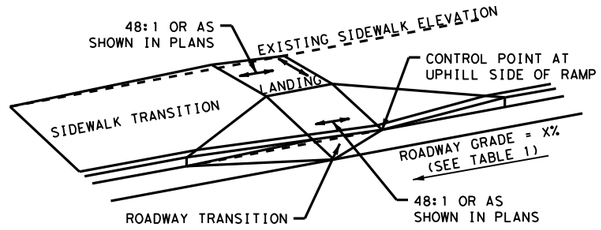


* SAW CUT (NSPI)

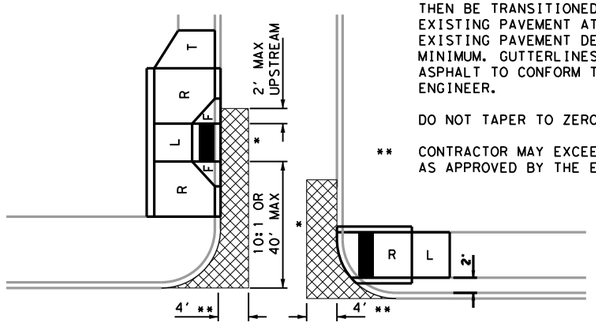
IN AREAS OF ROADWAY CROSS SLOPES EXCEEDING 48:1 LONGITUDINAL SLOPE, SAW CUT AND EXCAVATE 4' OF PAVEMENT IN FRONT OF RAMP AND TRANSITION THE RAMP LANDING INTO THE EXISTING PAVEMENT. THE PAVEMENT SHOULD THEN BE TRANSITIONED HORIZONTALLY INTO THE EXISTING PAVEMENT AT 10:1. PAVEMENT SHOULD MATCH EXISTING PAVEMENT DEPTH BUT NOT LESS THAN 6" MINIMUM. GUTTERLINES SHOULD NOT BE ADJUSTED DOWNWARD. CONCRETE PAVEMENT TO CONFORM TO ITEM 360.

** CONTRACTOR MAY EXCEED CROSS SLOPE TRANSITION DISTANCE AS APPROVED BY THE ENGINEER.

ROADWAY TRANSITION



ASPHALT/SEALCOAT ROADWAY



* SAW CUT (NSPI)

IN AREAS OF ROADWAY CROSS SLOPES EXCEEDING 48:1 LONGITUDINAL SLOPE, EXCAVATE 2' OF PAVEMENT IN FRONT OF RAMP AND TRANSITION THE RAMP LANDING INTO THE EXISTING PAVEMENT. THE PAVEMENT SHOULD THEN BE TRANSITIONED HORIZONTALLY INTO THE EXISTING PAVEMENT AT 10:1. PAVEMENT SHOULD MATCH EXISTING PAVEMENT DEPTH BUT NOT LESS THAN 2" MINIMUM. GUTTERLINES SHOULD NOT BE ADJUSTED DOWNWARD. ASPHALT TO CONFORM TO ITEM 340 AS DIRECTED BY THE ENGINEER.

DO NOT TAPER TO ZERO MINIMUM 1 1/2" DEPTH @ TIE-IN

** CONTRACTOR MAY EXCEED CROSS SLOPE TRANSITION DISTANCE AS APPROVED BY THE ENGINEER.

CURB ELEVATION

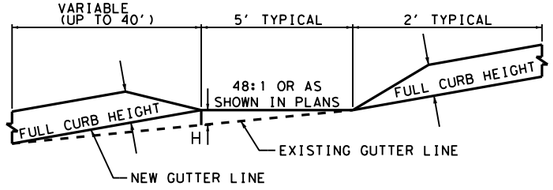


TABLE 1		
DIFFERENTIAL BETWEEN RAMP AND ROADWAY LONGITUDINAL SLOPE	H	
1%	0.04'	0.50"
2%	0.08'	1.00"
3%	0.12'	1.50"
4%	0.16'	2.00"
5%	0.20'	2.40"
6%	0.24	2.90"

DESIGN

STATE OF TEXAS — TYLER PAYNE DUBE — 118612 — LICENSED PROFESSIONAL ENGINEER

TYLER PAYNE DUBE, P.E. — 1/25/2022 DATE

APPROVAL

STATE OF TEXAS — JOHN A. TYLER — 105193 — LICENSED PROFESSIONAL ENGINEER

JOHN A. TYLER, P.E. — 1/25/2022 DATE

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SPECIAL DETAILS

SHEET 1 OF 9

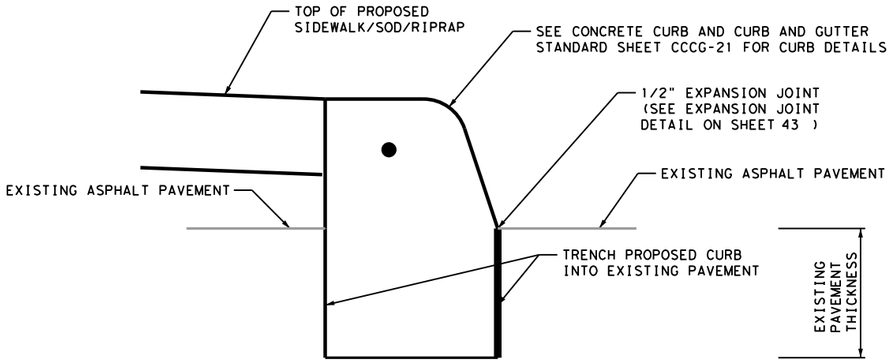
DGN:	FED. RD. DIV. NO.	STATE	FEDERAL AID PROJECT NO.			HIGHWAY NO.
CHK DGN:	6	TEXAS				VARIOUS
DWG:	DIST.	COUNTY	CONT. NO.	SECT. NO.	JOB NO.	SHEET NO.
CHK DWG:	BMT	JASPER	0920	12	047	41

Plotted on: 1/25/2022

Design Filename: P:\122\42\01\Design\Civil\General\1224201sample03.dgn

CURB TRENCH DETAIL

USE WHEN INSTALLING A CURB INTO EXISTING ASPHALT PAVEMENT

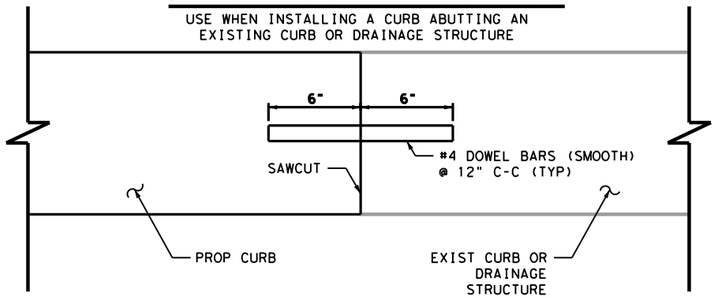


NOTES:

1. VERTICAL DOWELING PROPOSED CURB INTO EXISTING PAVEMENT IS NOT PERMITTED
2. NO ADDITIONAL PAYMENT SHALL BE MADE FOR ADDITIONAL CONCRETE REQUIRED TO MATCH EXISTING PAVEMENT THICKNESS

CURB TIE-IN DETAIL

USE WHEN INSTALLING A CURB ABUTTING AN EXISTING CURB OR DRAINAGE STRUCTURE

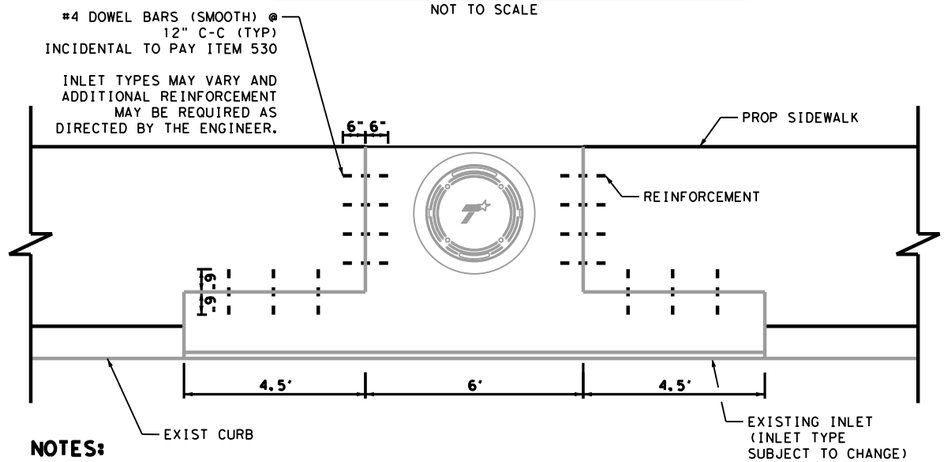


NOTES:

1. DOWEL BARS TO BE DRILLED INTO EXISTING CONCRETE.
2. GROUT OR EPOXY BARS INTO EXISTING CONCRETE AS APPROVED BY THE ENGINEER.

INLET DOWELING DETAIL

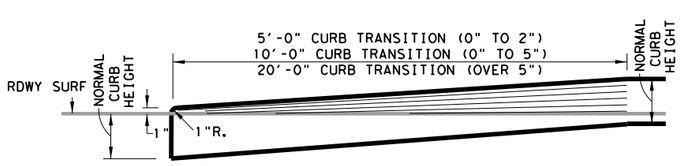
NOT TO SCALE



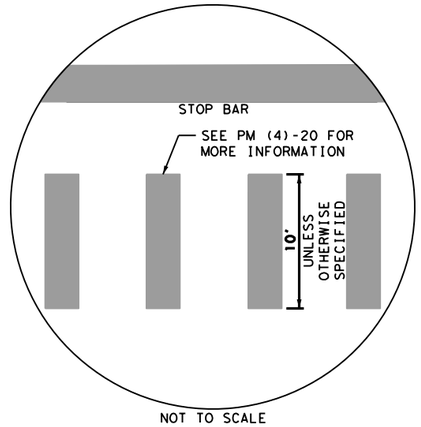
NOTES:

1. DOWEL BARS TO BE DRILLED INTO EXISTING CONCRETE.
2. GROUT OR EPOXY BARS INTO EXISTING CONCRETE AS APPROVED BY THE ENGINEER.

TYPICAL TRANSITION FOR CONCRETE CURB ENDS



HIGH VISIBILITY LONGITUDINAL CROSSWALK DETAIL



NOT TO SCALE

DESIGN

STATE OF TEXAS — TYLER PAYNE DUBE — 118612 — LICENSED PROFESSIONAL ENGINEER

TYLER PAYNE DUBE, P.E. — 1/25/2022 DATE

APPROVAL

STATE OF TEXAS — JOHN A. TYLER — 105193 — LICENSED PROFESSIONAL ENGINEER

JOHN A. TYLER, P.E. — 1/25/2022 DATE

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REV. NO.	DATE	DESCRIPTION	BY

PAPE-DAWSON ENGINEERS

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TEXAS ENGINEERING FIRM #470 | TEXAS SURVEYING FIRM #10028800

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SPECIAL DETAILS

SHEET 2 OF 9

DGN:	FED. RD. DIV. NO.	STATE	FEDERAL AID PROJECT NO.			HIGHWAY NO.
CHK DGN:	6	TEXAS				VARIOUS
DWG:	DIST.	COUNTY	CONT. NO.	SECT. NO.	JOB NO.	SHEET NO.
CHK DWG:	BMT	JASPER	0920	12	047	42

Plotted on: 1/25/2022

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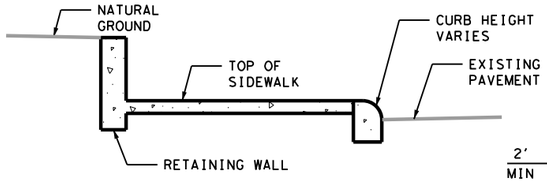
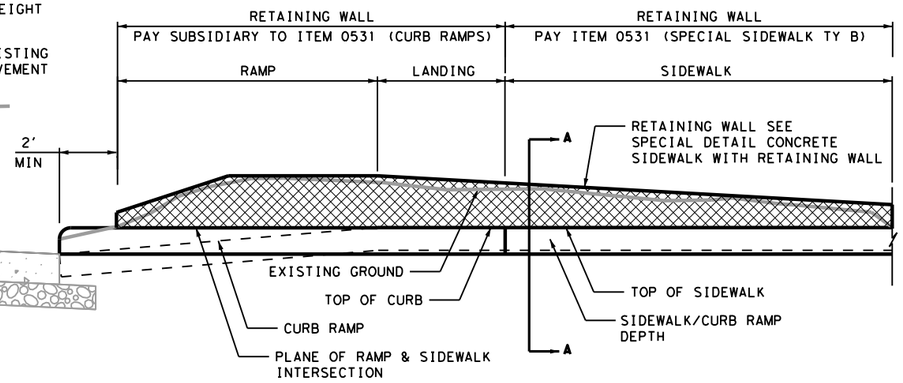
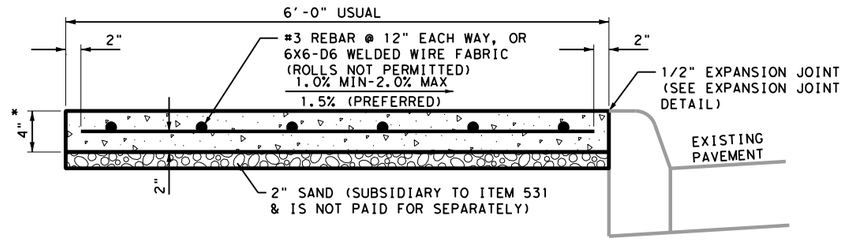
SECTION A-A



RETAINING WALL DETAIL



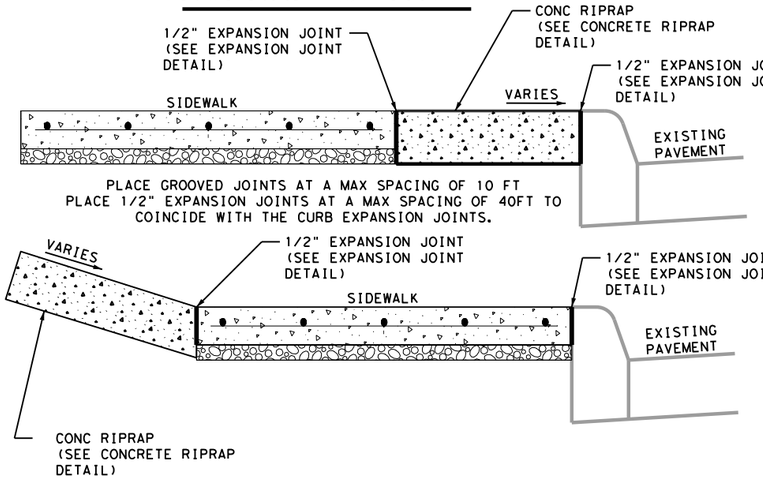
SIDEWALK DETAILS



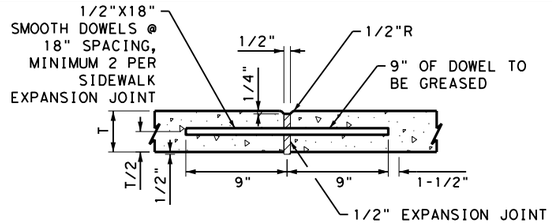
PLACE GROOVED JOINTS IN THE SIDEWALK AT A MAX SPACING OF 6 FT
PLACE 1/2" EXPANSION JOINTS AT A MAX SPACING OF 40FT TO COINCIDE WITH THE CURB EXPANSION JOINTS.

* UNLESS OTHERWISE SHOWN

RIPRAP DETAIL



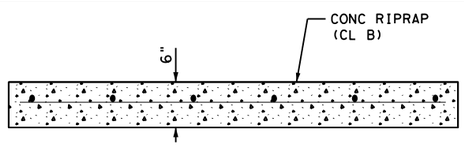
SIDEWALK EXPANSION JOINT DETAIL



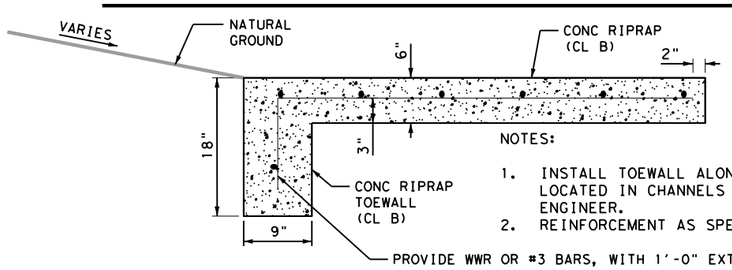
NOTES:

1. SIDEWALK EXPANSION JOINT DOWELS ARE CONSIDERED SUBSIDIARY TO ITEM 531.
2. SIDEWALK EXPANSION JOINTS SHALL BE INSTALLED AT MAXIMUM 40 FT INTERVALS, COINCIDE WITH CURB EXPANSION JOINT, CONNECTIONS TO EXISTING CONCRETE, CONNECTIONS TO PROPOSED CONCRETE DRIVEWAYS, WHERE DAILY WORK TERMINATES, AND AS DIRECTED BY THE ENGINEER.

CONCRETE RIPRAP DETAIL



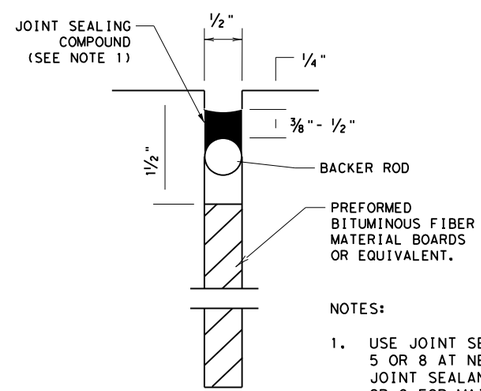
CONCRETE RIPRAP W/ TOEWALL DETAIL



NOTES:

1. INSTALL TOEWALL ALONG PERIMETER OF RIPRAP LOCATED IN CHANNELS OR AS DIRECTED BY THE ENGINEER.
2. REINFORCEMENT AS SPECIFIED IN ITEM 432.

EXPANSION JOINT DETAIL



NOTES:

1. USE JOINT SEALANT CLASS 5 OR 8 AT NEW JOINTS. USE JOINT SEALANT CLASS 4, 5, 7, OR 8 FOR MAINTAINING EXISTING JOINTS.

DESIGN

STATE OF TEXAS — TYLER PAYNE DUBE — 118612 — LICENSED PROFESSIONAL ENGINEER

TYLER PAYNE DUBE, P.E. — 1/25/2022 DATE

APPROVAL

STATE OF TEXAS — JOHN A. TYLER — 105193 — LICENSED PROFESSIONAL ENGINEER

JOHN A. TYLER, P.E. — 1/25/2022 DATE

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SPECIAL DETAILS

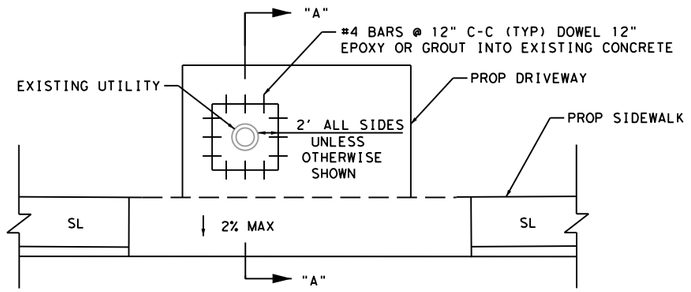
SHEET 3 OF 9

DGN:	FED. RD. DIV. NO.	STATE	FEDERAL AID PROJECT NO.			HIGHWAY NO.
CHK DGN:	6	TEXAS				VARIOUS
DWG:	DIST.	COUNTY	CONT. NO.	SECT. NO.	JOB NO.	SHEET NO.
CHK DWG:	BMT	JASPER	0920	12	047	43

UTILITY BLOCKOUT

NOTES:

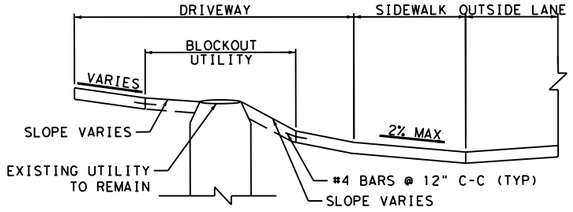
1. GROUT OR EPOXY BARS INTO EXISTING CONCRETE AS APPROVED BY THE ENGINEER.



SEQUENCE OF WORK:
1. REMOVE EXISTING CONCRETE OR ASPHALT WITHIN LIMITS OF PROPOSED WORK. CONSTRUCT FORMWORK FOR PROPOSED IMPROVEMENTS, INCLUDING UTILITY BLOCKOUT AS SHOWN. EXISTING UTILITY RIM TO REMAIN UNDISTURBED.

2. CONSTRUCT PROPOSED IMPROVEMENTS EXCEPT WITHIN UTILITY BLOCKOUT AREA. ALLOW TIME TO CURE, REMOVE FORMWORK.

3. DOWEL REINFORCEMENT AS SHOWN. CONSTRUCT IMPROVEMENTS WITHIN UTILITY BLOCKOUT AREA FLUSH WITH RIM OF UTILITY AND SURROUNDING (COMPLETED) IMPROVEMENTS.



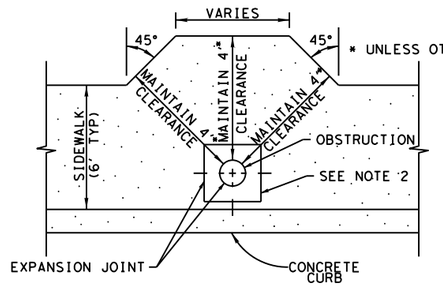
SECTION "A-A"

OBSTRUCTION CONFLICT

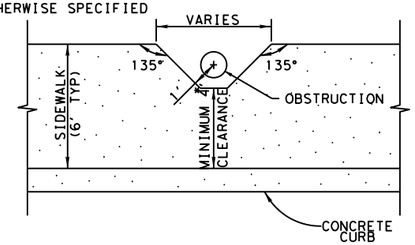
NOTES:

1. UTILIZE DETAIL AT OBSTRUCTION ENCROACHMENTS INTO THE PEDESTRIAN ACCESS ROUTE. A MINIMUM UNOBSTRUCTED CLEARANCE OF 4', UNLESS OTHERWISE SPECIFIED, SHOULD BE MAINTAINED AROUND THE OBSTRUCTION MEASURED FROM THE MOST RESTRICTIVE LOCATION OR AS APPROVED BY THE ENGINEER

2. IF OBSTRUCTION IS LOCATED WITHIN THE SIDEWALK, CONSTRUCT 2' SQUARE CONSTRUCTION JOINT CENTERED ON OBSTRUCTION TO FACILITATE FUTURE MAINTENANCE WITHOUT FULL SIDEWALK PANEL REMOVAL/REPLACEMENT



OBSTRUCTION IN SIDEWALK



OBSTRUCTION OUTSIDE SIDEWALK

DESIGN

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TYLER PAYNE DUBE, P.E. — 1/25/2022 DATE

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SPECIAL DETAILS

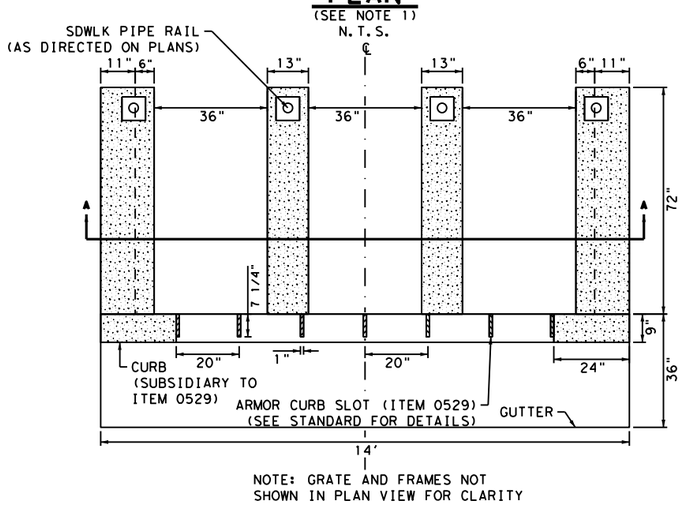
SHEET 4 OF 9

DGN:	FED. RD. DIV. NO.	STATE	FEDERAL AID PROJECT NO.			HIGHWAY NO.
CHK DGN:	6	TEXAS				VARIOUS
DWG:	DIST.	COUNTY	CONT. NO.	SECT. NO.	JOB NO.	SHEET NO.
CHK DWG:	BMT	JASPER	0920	12	047	44

SIDEWALK (TYPE A) DETAIL

PLAN

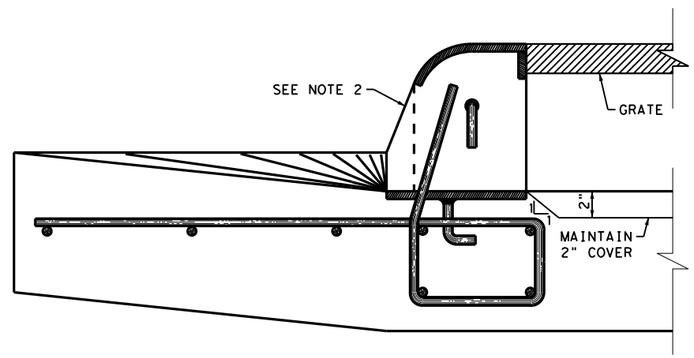
(SEE NOTE 1)
N.T.S.



NOTE: GRATE AND FRAMES NOT SHOWN IN PLAN VIEW FOR CLARITY

ARMOR CURB SLOT DETAIL

N.T.S.



NOTES:

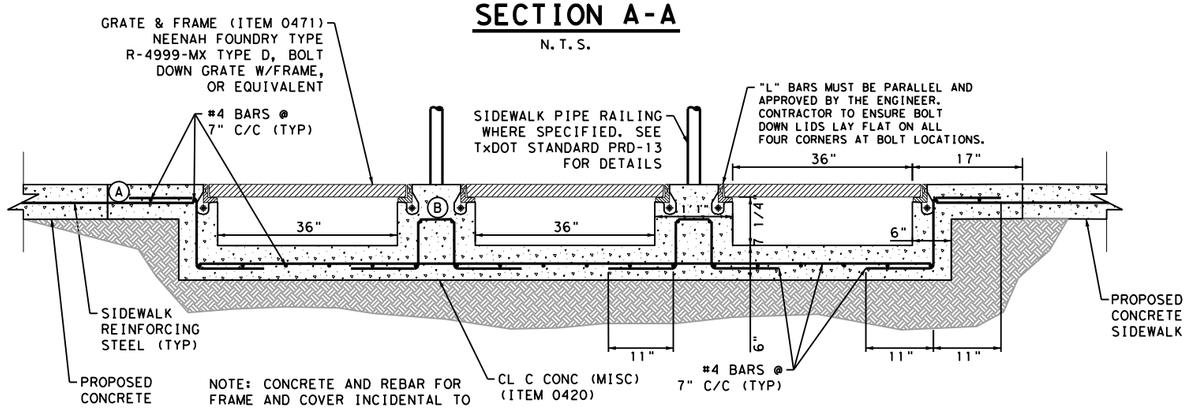
1) SIDEWALK (TY A) IS PAID SEPARATELY UNDER THE FOLLOWING PAY ITEMS UNLESS OTHERWISE SHOW:

   ITEM 0104-6029 REMOVING CONC (CURB OR CURB & GUTTER)
   ITEM 0471-6003 GRATE & FRAME
   ITEM 0529-6020 CONC CURB & GUTTER (ARMOR CURB)
   ITEM 0420-6074 CL C CONC (MISC)

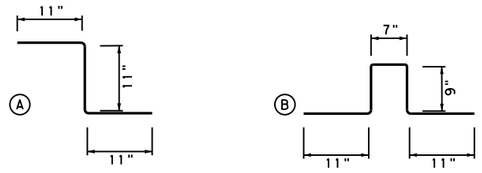
2) SEE ARMOR CURB SLOT DETAIL FOR ADDITIONAL INFORMATION

SECTION A-A

N.T.S.



NOTE: CONCRETE AND REBAR FOR FRAME AND COVER INCIDENTAL TO ITEM 0531.



REINFORCING STEEL DETAIL

TABLE OF REINFORCING STEEL			
BAR	SIZE	SPAN	NO.
A	#4	2'-9"	20
B	#4	3'-11"	20

PEACHTREE
SEE SHEET 61
FOR SIDEWALK TYPE A
LOCATION

DESIGN

STATE OF TEXAS — TYLER PAYNE DUBE — 118612 — LICENSED PROFESSIONAL ENGINEER

TYLER PAYNE DUBE, P.E. — 1/25/2022 DATE

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SPECIAL DETAILS

SHEET 5 OF 9

DGN:	FED. RD. DIV. NO.	STATE	FEDERAL AID PROJECT NO.			HIGHWAY NO.
CHK DGN:	6	TEXAS				VARIOUS
DWG:	DIST.	COUNTY	CONT. NO.	SECT. NO.	JOB NO.	SHEET NO.
CHK DWG:	BMT	JASPER	0920	12	047	45

Plotted on: 1/25/2022

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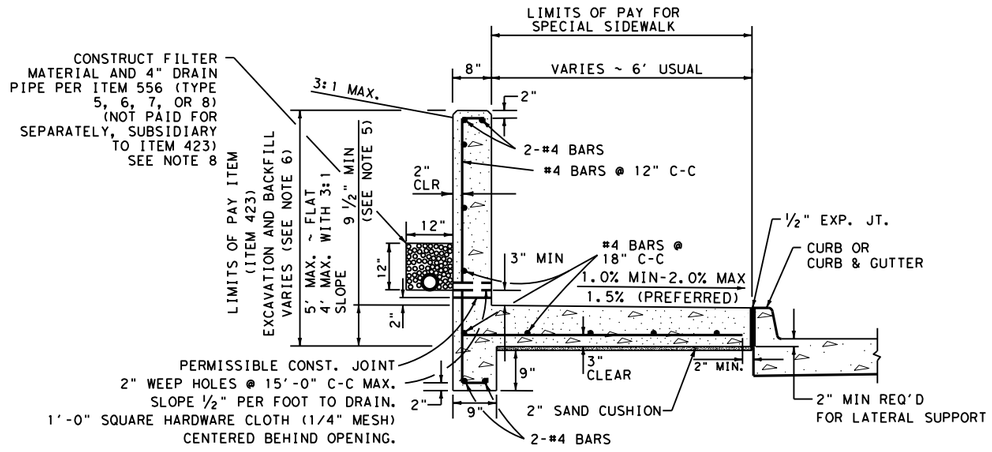
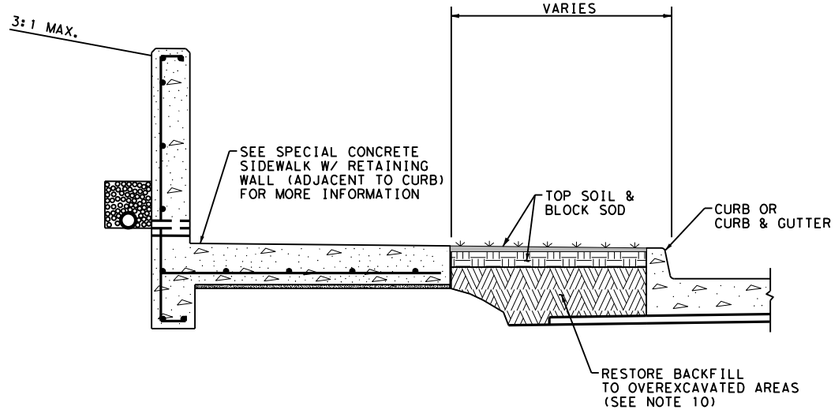
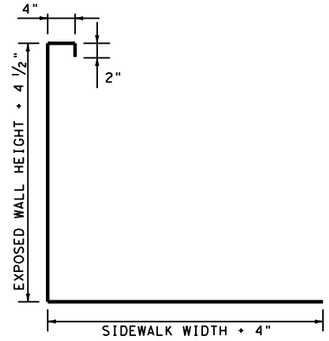
CONCRETE SIDEWALK (SPECIAL) (TY B)
SPECIAL CONCRETE SIDEWALK W/ RETAINING WALL



ADJACENT TO CURB

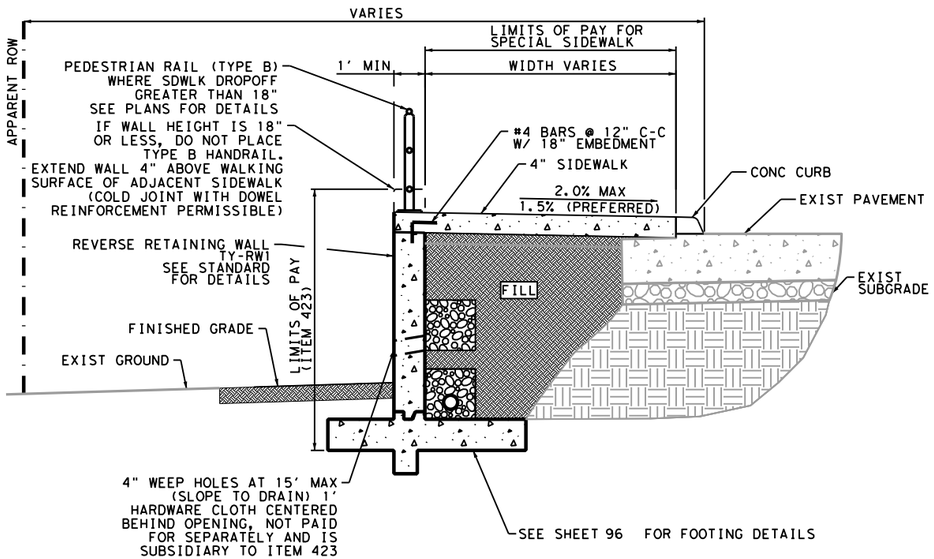


SEPARATED FROM CURB



REINFORCING STEEL DETAIL

CONCRETE SIDEWALK (SPECIAL) (TY B)
SPECIAL CONCRETE SIDEWALK W/ REVERSE RETAINING WALL



NOTES:

1. SEE PLAN SHEETS FOR LOCATIONS OF SIDEWALKS AND RETAINING WALLS.
2. LONGITUDINAL SLOPE OF SIDEWALKS SHALL NOT EXCEED 5% EXCEPT IN CASES WHERE THE ADJACENT ROADWAY SLOPE EXCEEDS 5%. IF ROADWAY SLOPE EXCEEDS 5%, LONGITUDINAL SLOPE OF SIDEWALK MAY MATCH THAT OF ROADWAY.
3. IF SIDEWALK WIDTH IS LESS THAN 5', PROVIDE 5' x 5' PASSING AREAS AT INTERVALS NOT TO EXCEED 200' SPACING.
4. WHERE SIDEWALK WITH RETAINING WALL IS SPECIFIED, RETAINING WALL WILL BE PAID FOR UNDER ITEM, "RETAINING WALL(CAST-IN-PLACE)", ITEM 0423-6008 WITH LIMITS OF PAY AS SHOWN HEREON. ESTIMATED FACE OF RETAINING WALL IS INDICATED ON THE PLANS.
5. CONCRETE SIDEWALK (SPECIAL) (TY B) THICKNESS IS PERMITTED TO BE 6" IN AREAS WHERE WALL HEIGHTS ARE LESS THAN OR EQUAL TO 3' AS MEASURED FROM TOP OF SIDEWALK TO TOP OF WALL. THE SIDEWALK THICKNESS SHALL BE CONSTRUCTED AS INDICATED ON DETAIL FOR WALL HEIGHTS IN EXCESS OF 3' OR WHERE WALLS OF ANY HEIGHT ARE TO BE CONSTRUCTED ADJACENT TO PARKING.
6. EXCAVATION, HAULING, AND DISPOSAL OF EXCAVATED MATERIAL IS NOT PAID FOR SEPARATELY, CONSIDERED SUBSIDIARY TO ITEM 531.
7. EXCAVATED MATERIAL MAY BE USED AS EMBANKMENT IF APPROVED BY THE AREA ENGINEER.
8. SLOPE TO DRAIN AND TERMINATE AT WALL LIMITS OR AS DIRECTED BY THE ENGINEER. IF, IN THE OPINION OF THE ENGINEER, THE USE OF AN UNDERDRAIN IS IMPRACTICAL, WEEP HOLES MAY BE USED (NSPI).
9. CHAMFER ALL EXPOSED CORNERS 3/4".
10. WHERE OVER-EXCAVATION IS REQUIRED TO FORM CURB AND/OR SIDEWALK, RESTORE AND COMPACT BACKFILL UP TO LIMITS OF TOPSOIL BEFORE BACKFILLING BEHIND WALL.

DESIGN

STATE OF TEXAS — TYLER PAYNE DUBE — 118612 — LICENSED PROFESSIONAL ENGINEER

TYLER PAYNE DUBE, P.E. — 1/25/2022 DATE

APPROVAL

STATE OF TEXAS — JOHN A. TYLER — 105193 — LICENSED PROFESSIONAL ENGINEER

JOHN A. TYLER, P.E. — 1/25/2022 DATE

NOT TO SCALE

REV. NO.	DATE	DESCRIPTION	BY

PAPE-DAWSON ENGINEERS
SAN ANTONIO | AUSTIN | HOUSTON | FORT WORTH | DALLAS
2000 NW LOOP 410 | SAN ANTONIO, TX 78213 | 210.375.9000
TEXAS ENGINEERING FIRM #470 | TEXAS SURVEYING FIRM #10028800

SPECIAL DETAILS

SHEET 6 OF 9

DGN:	FED. RD. DIV. NO.	STATE	FEDERAL AID PROJECT NO.			HIGHWAY NO.
CHK DGN:	6	TEXAS				VARIOUS
DWG:	DIST.	COUNTY	CONT. NO.	SECT. NO.	JOB NO.	SHEET NO.
CHK DWG:	BMT	JASPER	0920	12	047	46

Plotted on: 1/25/2022

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Plotted on: 1/25/2022

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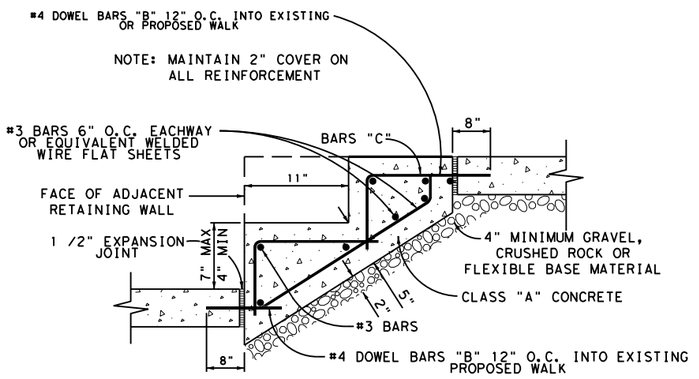
CONCRETE STEPS (ITEM 420)



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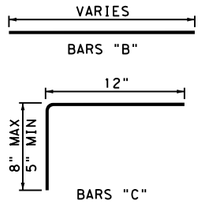
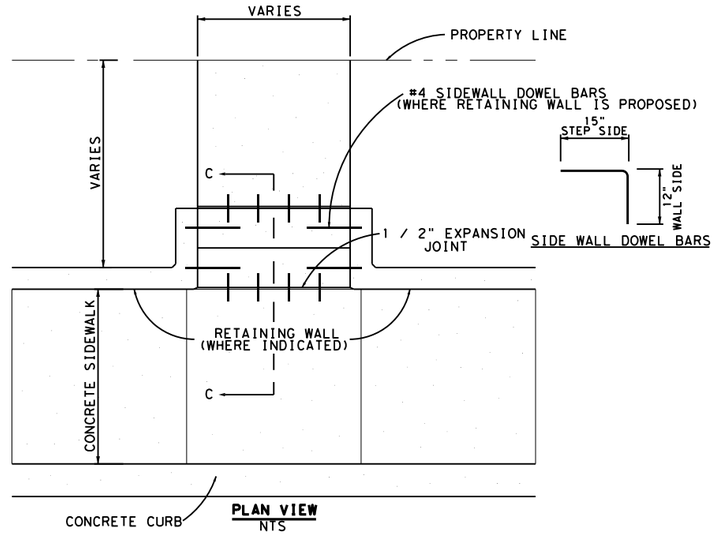
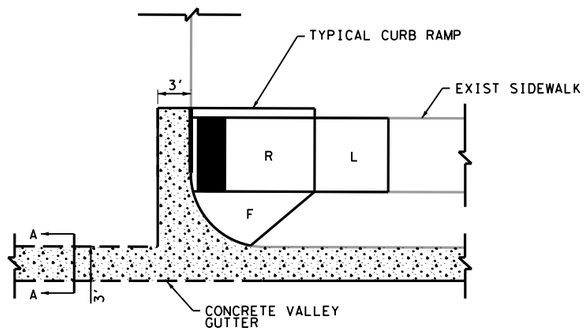




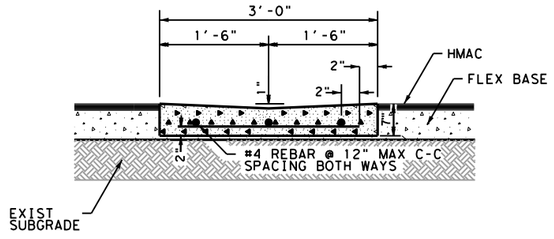
PLAN VIEW
NTS

CONC CURB & GUTTER (VALLEY GUTTER) (ITEM 529)

TO BE USED WHERE REQUIRED TO CONVEY DRAINAGE ACROSS STREETS



PLAN
N. T. S.



SECTION A-A
N. T. S.

DESIGN

STATE OF TEXAS — TYLER PAYNE DUBE — 118612 — LICENSED PROFESSIONAL ENGINEER

TYLER PAYNE DUBE, P.E. — 1/25/2022 DATE

APPROVAL

STATE OF TEXAS — JOHN A. TYLER — 105193 — LICENSED PROFESSIONAL ENGINEER

JOHN A. TYLER, P.E. — 1/25/2022 DATE

NOT TO SCALE

REV. NO.	DATE	DESCRIPTION	BY

PAPE-DAWSON ENGINEERS

SAN ANTONIO | AUSTIN | HOUSTON | FORT WORTH | DALLAS
2000 NW LOOP 410 | SAN ANTONIO, TX 78213 | 210.375.9000
TEXAS ENGINEERING FIRM #470 | TEXAS SURVEYING FIRM #10028800

SPECIAL DETAILS

SHEET 7 OF 9

DGN:	FED. RD. DIV. NO.	STATE	FEDERAL AID PROJECT NO.			HIGHWAY NO.
CHK DGN:	6	TEXAS				VARIOUS
DWG:	DIST.	COUNTY	CONT. NO.	SECT. NO.	JOB NO.	SHEET NO.
CHK DWG:	BMT	JASPER	0920	12	047	47

Plotted on: 1/25/2022

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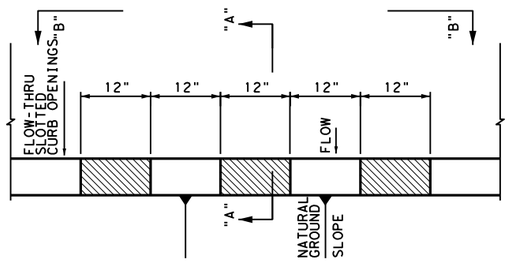
SLOTTED CURB DETAIL

N. T. S.



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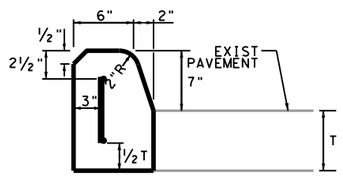
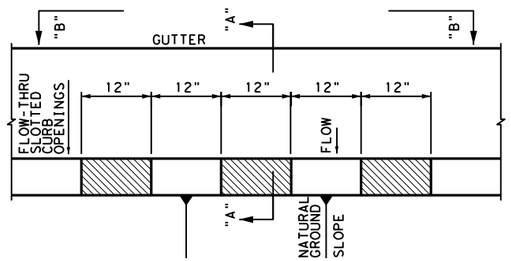


SECTION "A-A"
N. T. S.

SECTION "B-B"
N. T. S.

SLOTTED CURB AND GUTTER DETAIL

N. T. S.



PLAN VIEW
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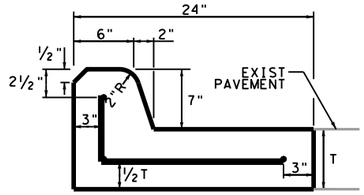


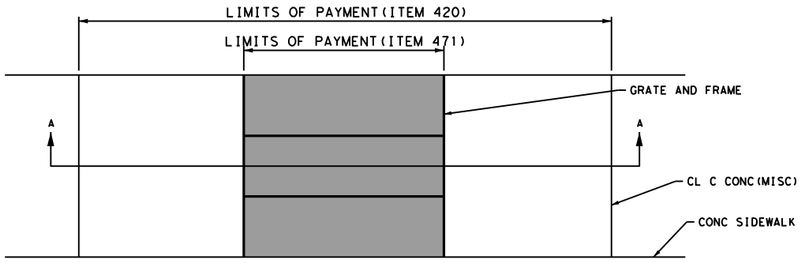
SECTION "A-A"
N. T. S.

SECTION "B-B"
N. T. S.

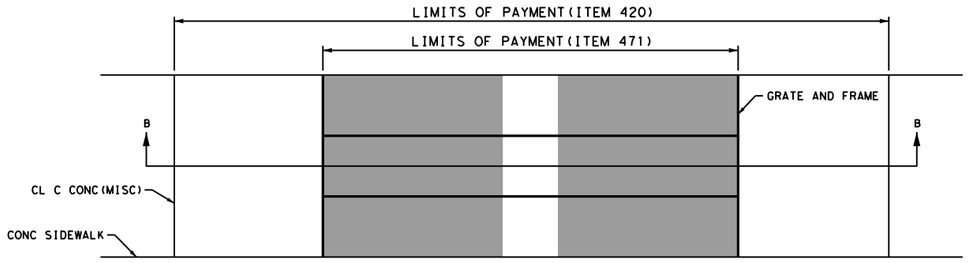
GRATE & FRAME DETAIL

N. T. S

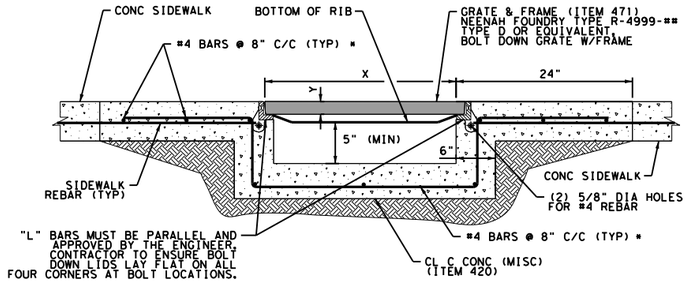
* REINFORCEMENT IS SUBSIDIARY TO ITEM 420.



SINGLE CHANNEL PLAN VIEW
N. T. S

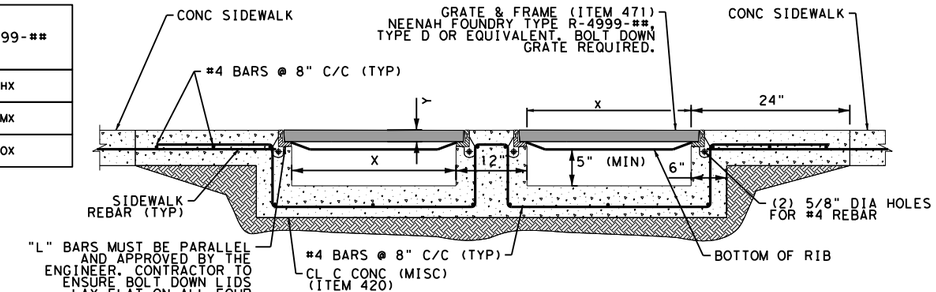


DUAL CHANNEL PLAN VIEW
N. T. S



SECTION A-A
N. T. S

GRATE LENGTH	X	Y	R-4999-##
24"	24"	1.5"	HX
36"	36"	2.0"	MX
48"	48"	2.0"	OX



SECTION B-B
N. T. S

DESIGN

STATE OF TEXAS — TYLER PAYNE DUBE — 118612 — LICENSED PROFESSIONAL ENGINEER

TYLER PAYNE DUBE, P.E. — 1/25/2022 DATE

APPROVAL

STATE OF TEXAS — JOHN A. TYLER — 105193 — LICENSED PROFESSIONAL ENGINEER

JOHN A. TYLER, P.E. — 1/25/2022 DATE

NOT TO SCALE

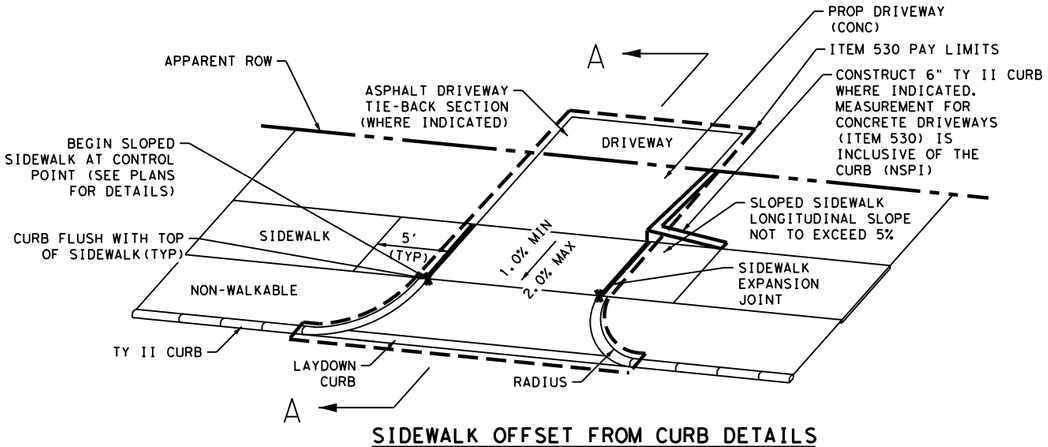
REV. NO.	DATE	DESCRIPTION	BY

PAPE-DAWSON ENGINEERS
SAN ANTONIO | AUSTIN | HOUSTON | FORT WORTH | DALLAS
2000 NW LOOP 410 | SAN ANTONIO, TX 78213 | 210.375.9000
TEXAS ENGINEERING FIRM #470 | TEXAS SURVEYING FIRM #10028800

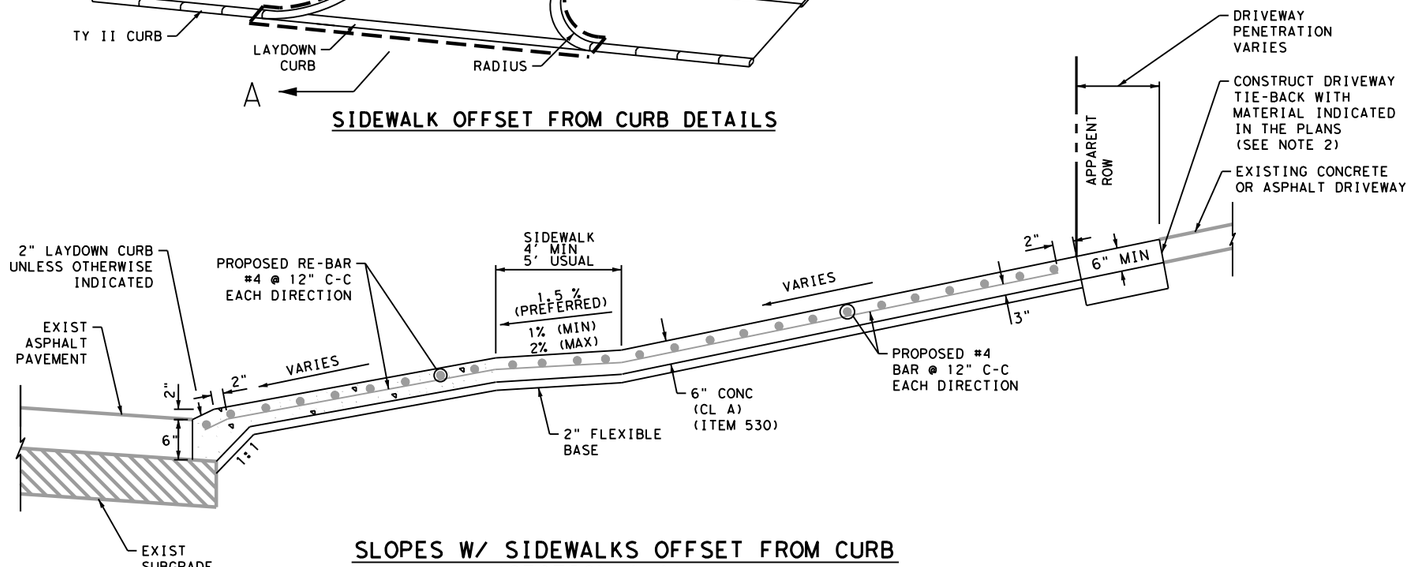
SPECIAL DETAILS

SHEET 8 OF 9

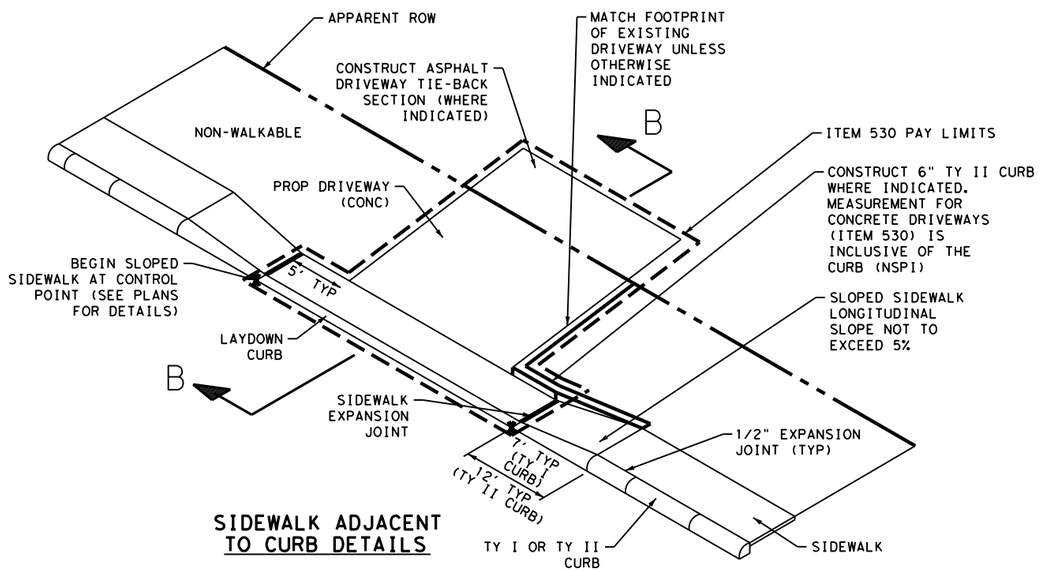
DGN:	FED. RD. DIV. NO.	STATE	FEDERAL AID PROJECT NO.			HIGHWAY NO.
CHK DGN:	6	TEXAS				VARIOUS
DWG:	DIST.	COUNTY	CONT. NO.	SECT. NO.	JOB NO.	SHEET NO.
CHK DWG:	BMT	JASPER	0920	12	047	48



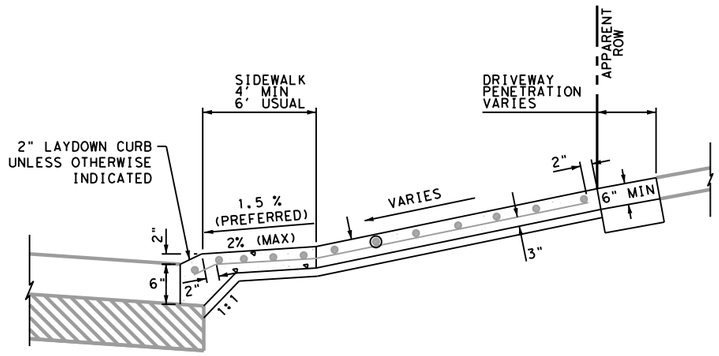
SIDEWALK OFFSET FROM CURB DETAILS



SLOPES W/ SIDEWALKS OFFSET FROM CURB (SECTION A-A)



SIDEWALK ADJACENT TO CURB DETAILS



DRIVEWAY SLOPES W/ SIDEWALKS ADJACENT TO CURB (SECTION B-B)

LEGEND

X CONTROL POINT

NOTES:

1) SLOPED SIDEWALK SEGMENT LENGTHS ARE SHOWN TO CONSERVATIVELY ACCOMMODATE STANDARD CURB HEIGHTS ON LEVEL STREETS. SOME SLOPED SIDEWALK SEGMENTS MAY REQUIRE ADDITIONAL LENGTH TO ENSURE LONGITUDINAL SLOPES DO NOT EXCEED 5%. WITH THE APPROVAL OF THE ENGINEER, THE CONTRACTOR MAY EXTEND THE SLOPED SIDEWALK SEGMENT TO THE NEXT PLANAR ELEMENT (LS, L, SL, R, T, ETC.) OR UNTIL THE SLOPED SIDEWALK REACHES CURB HEIGHT, WHICHEVER IS SHORTER.

2) IF DRIVEWAY TIE-BACK IS SPECIFIED AS CONCRETE, SAWCUT EXISTING CONCRETE AT THE TIE-IN LOCATION MIN. 1/2", THEN BREAKBACK, CLEAN, AND EXPOSE 18" STEEL REINFORCING IN EXISTING CONCRETE. INSTALL FLEXIBLE BASE AS INDICATED. CONSTRUCT CONCRETE DRIVEWAY PER ITEM 530.

IF DRIVEWAY TIE-BACK IS SPECIFIED AS ASPHALT, SAWCUT EXISTING ASPHALT AT THE TIE-IN LOCATION. INSTALL 6" FLEXIBLE BASE OR ASPHALTIC CONCRETE BASE (SUBSIDIARY TO ITEM 530). CONSTRUCT ASPHALT DRIVEWAY (PG 64-22 SAC C) PER ITEM 530.

DESIGN

STATE OF TEXAS — TYLER PAYNE DUBE — 118612 — LICENSED PROFESSIONAL ENGINEER

TYLER PAYNE DUBE, P.E. — 1/25/2022 DATE

APPROVAL

STATE OF TEXAS — JOHN A. TYLER — 105193 — LICENSED PROFESSIONAL ENGINEER

JOHN A. TYLER, P.E. — 1/25/2022 DATE

NOT TO SCALE

REV. NO.	DATE	DESCRIPTION	BY

PAPE-DAWSON ENGINEERS
SAN ANTONIO | AUSTIN | HOUSTON | FORT WORTH | DALLAS
2000 NW LOOP 410 | SAN ANTONIO, TX 78213 | 210.375.9000
TEXAS ENGINEERING FIRM #470 | TEXAS SURVEYING FIRM #10028800

SPECIAL DETAILS

SHEET 9 OF 9

DGN:	FED. RD. DIV. NO.	STATE	FEDERAL AID PROJECT NO.			HIGHWAY NO.
CHK DGN:	6	TEXAS				VARIOUS
DWG:	DIST.	COUNTY	CONT. NO.	SECT. NO.	JOB NO.	SHEET NO.
CHK DWG:	BMT	JASPER	0920	12	047	49

Plotted on: 1/25/2022
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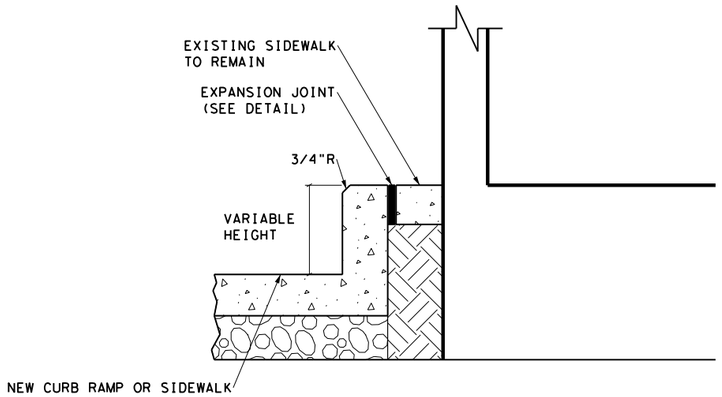
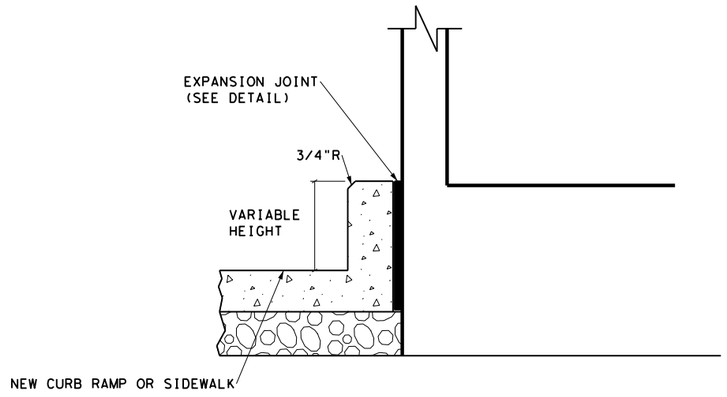
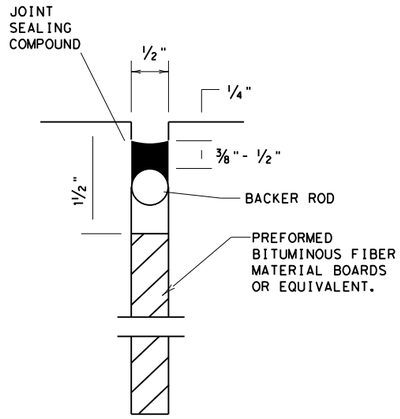


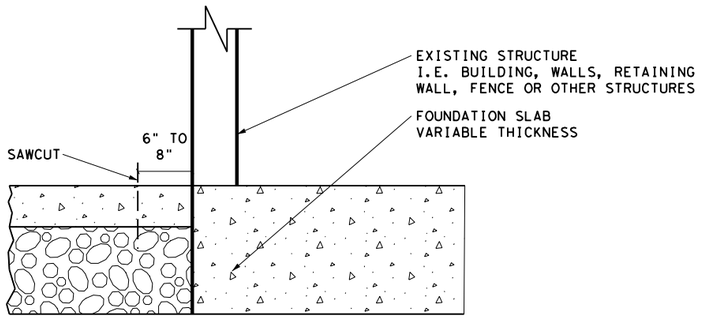
ADJACENT SIDEWALK
TO REMAIN DETAIL



ADJACENT SIDEWALK
REMOVED DETAIL



EXPANSION
JOINT DETAIL



SAWCUT DETAIL

PAVING OPTION @ BUILDING FACE

NOT TO SCALE

GENERAL PROTECTION NOTES FOR BUILDINGS AND HISTORIC STRUCTURES:

1. SAW CUT EXISTING SIDEWALK 6 TO 8 INCHES AWAY FROM PROTECTED BUILDING/STRUCTURE TO MINIMIZE POTENTIAL DAMAGE PRIOR TO DEMOLITION OF WALK.

2. CONTRACTOR IS RESPONSIBLE FOR PREVENTING DAMAGE TO ALL BUILDINGS AND STRUCTURES DURING THE ENTIRE CONSTRUCTION PROJECT. IF DIRECTED BY ENGINEER TO HAND REMOVE EXISTING PAVING ADJACENT TO HISTORIC STRUCTURES, PROTECT FOUNDATION, MATERIALS, ELEVATION AND ENTRYWAYS. DO NOT REMOVE EXISTING MATERIALS IF FACADE (BRICK/STONE, ETC.) UTILIZES THE MATERIALS TO BE REMOVED AS A FOOTING, FOUNDATION OR SUPPORT. IF THIS CONDITION IS OBSERVED, IMMEDIATELY CONTACT ENGINEER AND DO NOT EXCAVATE FURTHER. SEPARATE PAYMENT WILL NOT BE MADE FOR HAND REMOVAL.

3. REPAIR OR REPLACE IN KIND, AT CONTRACTORS EXPENSE, ANY DAMAGE TO HISTORIC OR NON-HISTORIC MATERIAL THAT RESULTS FROM AN ACT OF OMISSION ON THE PART OF OR ON BEHALF OF THE CONTRACTOR. CONTRACTOR IS REPONSIBLE FOR LOCATING A REPLACEMENT SOURCE FOR HISTORIC AND NON-HISTORIC MATERIALS DAMAGED IN THE PROCESS OF CONSTRUCTION. INFORM TXDOT ENVIRONMENTAL AFFAIRS DIVISION (ENV) OF PROPOSED REPAIRS AND/OR DAMAGED AREAS IN ORDER TO FACILITATE CONSULTATION WITH TEXAS HISTORICAL COMMISSION. MATERIAL AND SOURCE SHALL BE APPROVED BY TXDOT ENV PRIOR TO REPLACEMENT.

4. PROTECT BUILDINGS AND STRUCTURE FROM CONCRETE SPLASH UTILIZING A MATERIAL APPROVED BY THE ENGINEER. ANY CONCRETE SPLASH AS A RESULT OF CONSTRUCTION ACTIVITIES MUST BE REMOVED FROM THE BUILDING OR STRUCTURE AT CONTRACTORS EXPENSE. NO PAYMENT WILL BE MADE FOR BUILDING PROTECTION.

5. REFER TO HISTORIC BUILDING PROTECTION NOTES, EPIC (ENVIRONMENTAL PERMITS, ISSUES AND COMMITMENTS) SHEET FOR FURTHER DIRECTION INFORMATION.

DESIGN

STATE OF TEXAS · TYLER PAYNE DUBE · 118612 · LICENSED PROFESSIONAL ENGINEER

TYLER PAYNE DUBE, P.E. — 1/25/2022 DATE

APPROVAL

STATE OF TEXAS · JOHN A. TYLER · 105193 · LICENSED PROFESSIONAL ENGINEER

JOHN A. TYLER, P.E. — 1/25/2022 DATE

NOT TO SCALE

REV. NO.	DATE	DESCRIPTION	BY

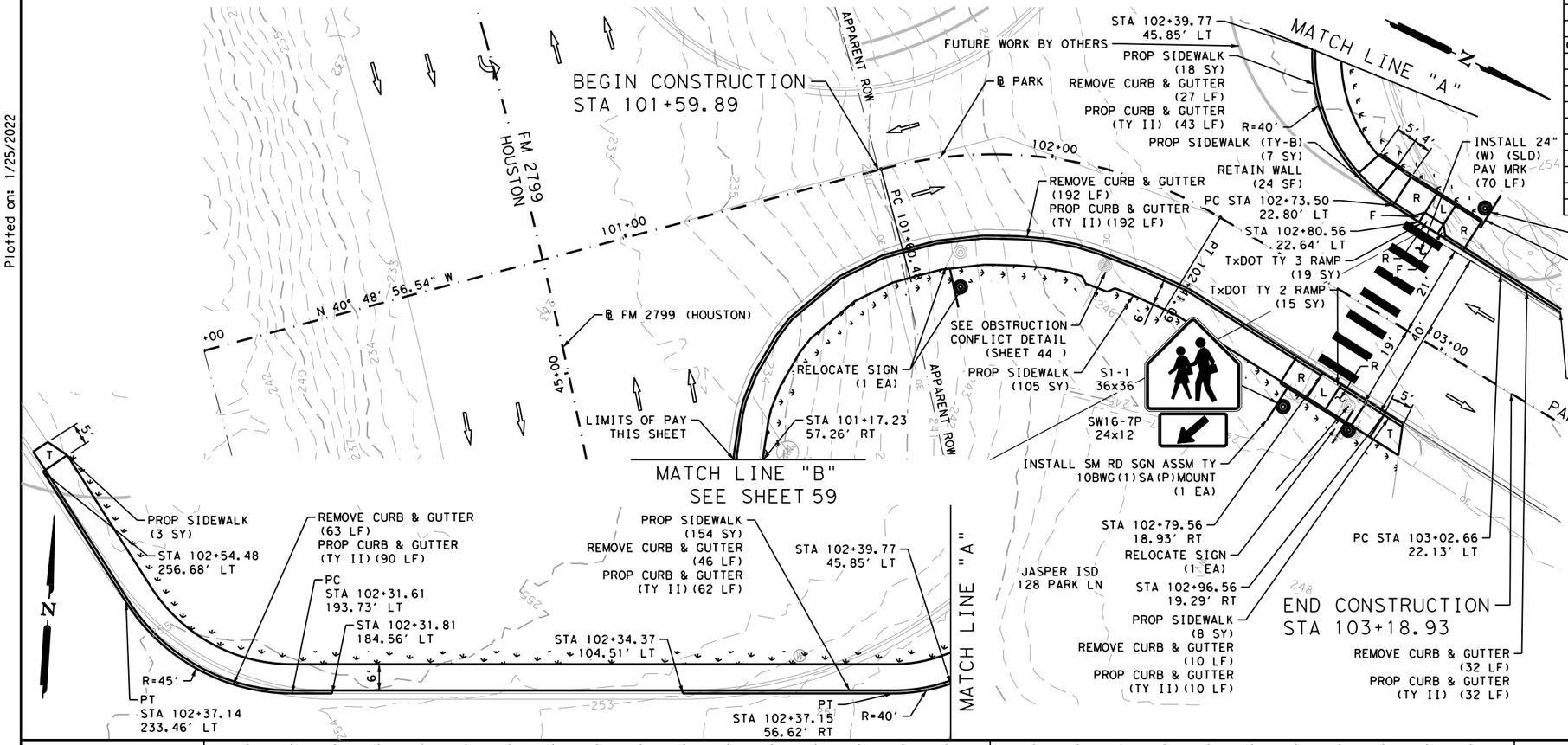
PAPE-DAWSON ENGINEERS
SAN ANTONIO | AUSTIN | HOUSTON | FORT WORTH | DALLAS
2000 NW LOOP 410 | SAN ANTONIO, TX 78213 | 210.375.9000
TEXAS ENGINEERING FIRM #470 | TEXAS SURVEYING FIRM #10028800

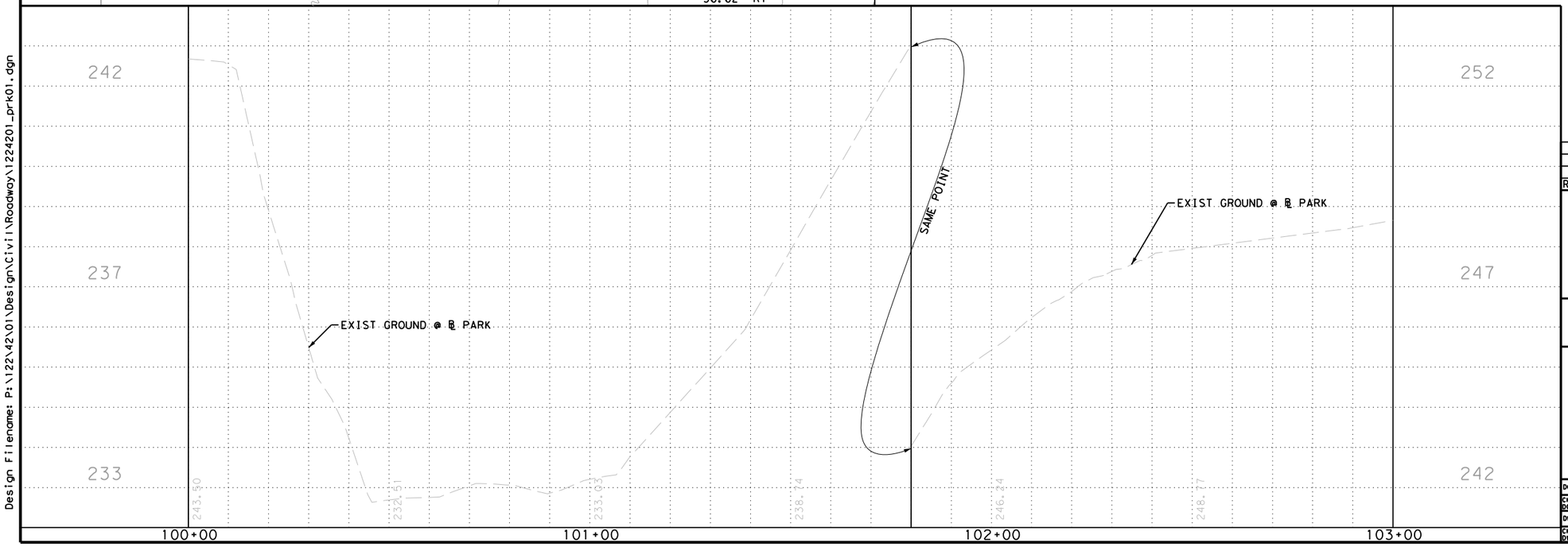
BUILDING WALL DETAIL

DGN:	FED. RD. DIV. NO.	STATE	FEDERAL AID PROJECT NO.			HIGHWAY NO.
CHK DGN:	6	TEXAS				VARIOUS
DWG:	DIST.	COUNTY	CONT. NO.	SECT. NO.	JOB NO.	SHEET NO.
CHK DWG:	BMT	JASPER	0920	12	047	50

Plotted on: 1/25/2022

ITEM	DESCRIPTION	UNIT	QTY
0100-6002	PREPARING ROW	STA	4
0104-6029	REMOVING CONC (CURB OR CURB & GUTTER)	LF	370
0160-6003	FURNISHING AND PLACING TOPSOIL (4")	SY	165
0162-6002	BLOCK SODDING	SY	165
0168-6001*	VEGETATIVE WATERING	SY	165
0423-6008	RETAINING WALL (CAST - IN - PLACE)	SF	24
0529-6008	CONC CURB & GUTTER (TY II)	LF	429
0531-6001	CONC SIDEWALKS (4")	SY	288
0531-6019	CURB RAMPS (TY 2)	SY	15
0531-6020	CURB RAMPS (TY 3)	SY	19
0531-6033	CONC SIDEWALKS (SPECIAL) (TYPE B)	SY	7
0644-6001	IN SM RD SN SUP&AM TY10BWG(1)SA(P)	EA	2
0644-6068	RELOCATE SM RD SN SUP&AM TY 10BWG	EA	2
0668-6076	PREFAB PAV MRK TY C (W) (24") (SLD)	LF	70
0678-6008	PAV SURF PREP FOR MRK (24")	LF	70





DESIGN

STATE OF TEXAS — TYLER PAYNE DUBE — 118612 — LICENSED PROFESSIONAL ENGINEER

TYLER PAYNE DUBE, P.E. — 1/25/2022 DATE

APPROVAL

STATE OF TEXAS — JOHN A. TYLER — 105193 — LICENSED PROFESSIONAL ENGINEER

JOHN A. TYLER, P.E. — 1/25/2022 DATE

0 15 30

SCALE: PLAN 1"= 30' PROFILE 1"= 10'

REV. NO.	DATE	DESCRIPTION	BY

PAPE-DAWSON ENGINEERS
SAN ANTONIO I AUSTIN I HOUSTON I FORT WORTH I DALLAS
2000 NW LOOP 410 I SAN ANTONIO, TX 78213 I 210.375.9000
TEXAS ENGINEERING FIRM #470 I TEXAS SURVEYING FIRM #10028800

PARK

SIDEWALK PLAN & PROFILE

BEGIN WORK TO END WORK

SHEET 1 OF 1

DGN:	FED. RD. DIV. NO.	STATE	FEDERAL AID PROJECT NO.			HIGHWAY NO.
CHK DGN:	6	TEXAS				VARIOUS
DWG:	DIST.	COUNTY	CONT. NO.	SECT. NO.	JOB NO.	SHEET NO.
CHK DWG:	BMT	JASPER	0920	12	047	51

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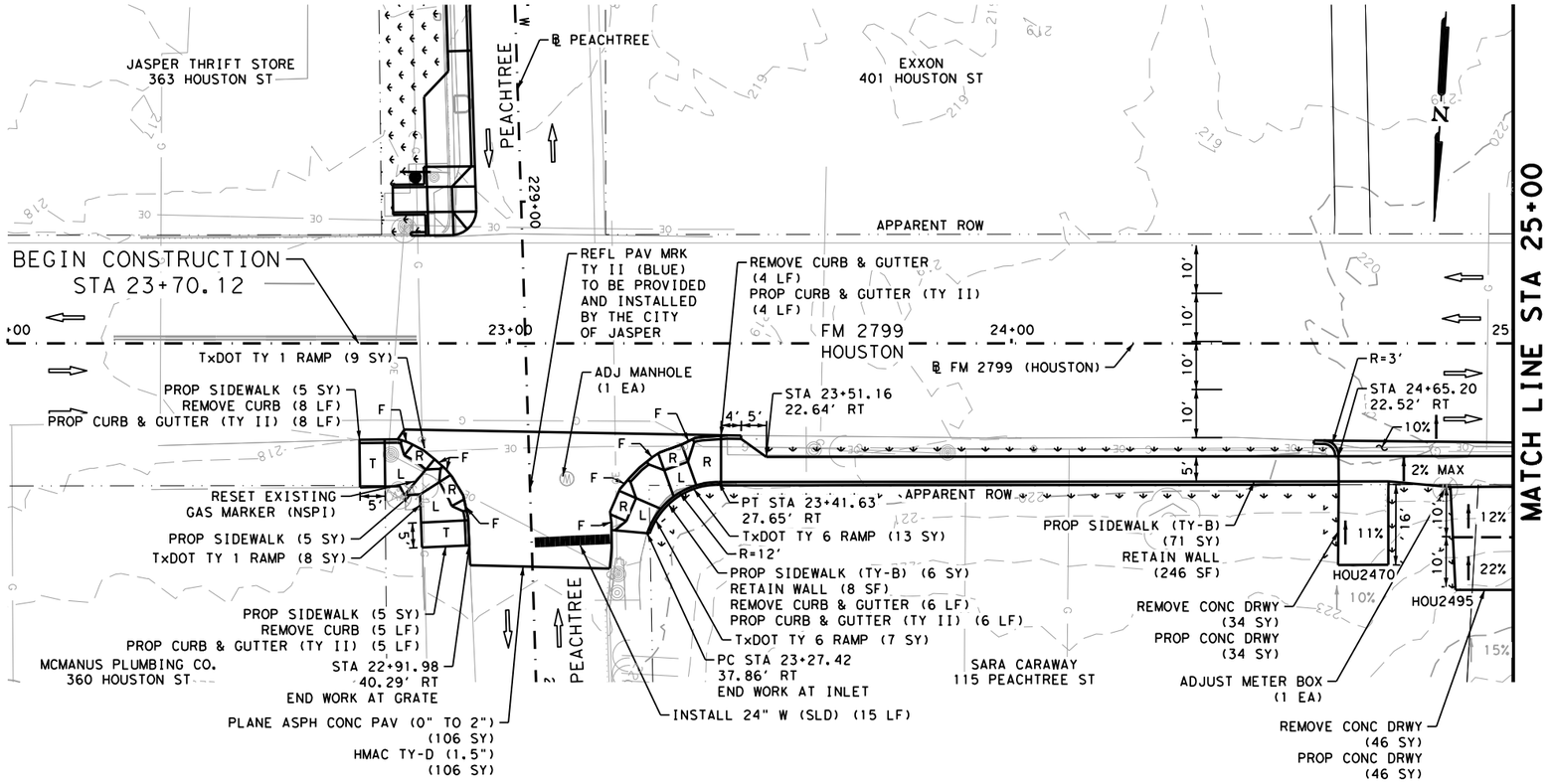
Plotted on: 1/25/2022



ITEM	DESCRIPTION	UNIT	QTY
0100-6002	PREPARING ROW	STA	2
0104-6017	REMOVING CONC (DRIVEWAYS)	SY	80
0104-6029	REMOVING CONC (CURB OR CURB & GUTTER)	LF	23
0160-6003	FURNISHING AND PLACING TOPSOIL (4")	SY	111
0162-6002	BLOCK SODDING	SY	111
0168-6001*	VEGETATIVE WATERING	SY	111
0354-6021	PLANE ASPH CONC PAV(0" TO 2")	SY	106
0423-6008	RETAINING WALL (CAST - IN - PLACE)	SF	254
0479-6001	ADJUSTING MANHOLES	EA	1
0529-6008	CONC CURB & GUTTER (TY II)	LF	23
0530-6004	DRIVEWAYS (CONC)	SY	80
0531-6001	CONC SIDEWALKS (4")	SY	15
0531-6018	CURB RAMPS (TY 1)	SY	17
0531-6023	CURB RAMPS (TY 6)	SY	20
0531-6033	CONC SIDEWALKS (SPECIAL) (TYPE B)	SY	77
0668-6076	PREFAB PAV MRK TY C (W) (24") (SLD)	LF	15
0678-6008	PAV SURF PREP FOR MRK (24")	LF	15
3076-6066*	TACK COAT	SY	106
3076-6072*	D-GR HMA TY-D PG 76-22 (EXEMPT)	SY	106
7196-6068	ADJUST METER BOX	EA	1

NOTES:
* FOR CONTRACTOR INFORMATION ONLY
1. THE EXISTENCE AND LOCATION OF ALL UTILITIES AND DRAINAGE STRUCTURES INDICATED IN THE PLANS ARE TAKEN FROM THE BEST RECORDS AVAILABLE AND ARE NOT GUARANTEED TO BE ACCURATE. CONTRACTOR SHALL COORDINATE WITH ALL UTILITY COMPANIES TO FIELD VERIFY UTILITIES PRIOR TO BEGINNING CONSTRUCTION.
2. EXISTING FEATURES ARE SHOWN SCREENED BACK; i.e. FADED
3. SEE SAMPLE PLAN LAYOUT AND LEGEND OF SYMBOLS FOR MORE INFORMATION

DESIGN

STATE OF TEXAS · TYLER PAYNE DUBE · 118612 · LICENSED PROFESSIONAL ENGINEER

TYLER PAYNE DUBE, P.E. — 1/25/2022 DATE

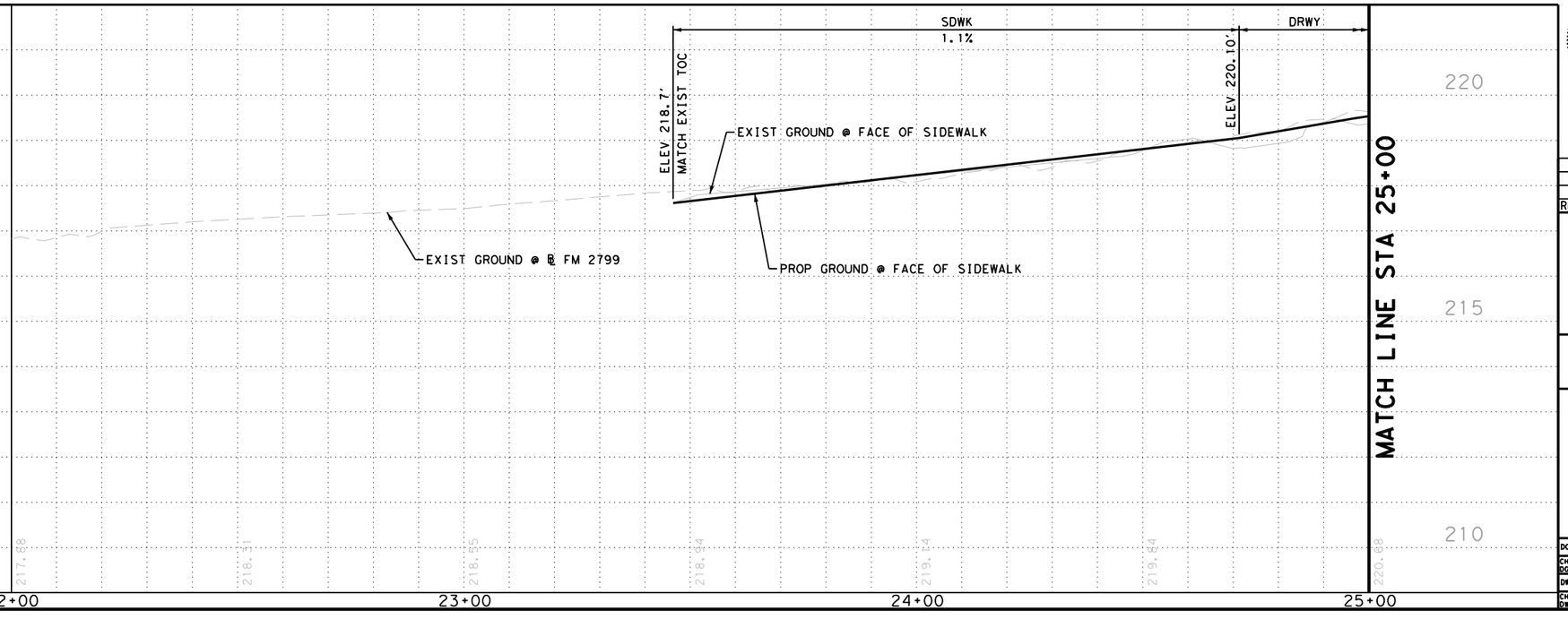
APPROVAL

STATE OF TEXAS · JOHN A. TYLER · 105193 · LICENSED PROFESSIONAL ENGINEER

JOHN A. TYLER, P.E. — 1/25/2022 DATE

0 15 30

SCALE: PLAN 1"= 30' PROFILE 1"= 10'



REV. NO.	DATE	DESCRIPTION	BY

PAPE-DAWSON ENGINEERS

SAN ANTONIO | AUSTIN | HOUSTON | FORT WORTH | DALLAS
2000 NW LOOP 410 | SAN ANTONIO, TX 78213 | 210.375.9000
TEXAS ENGINEERING FIRM #470 | TEXAS SURVEYING FIRM #10028800

FM 2799

SIDEWALK PLAN & PROFILE

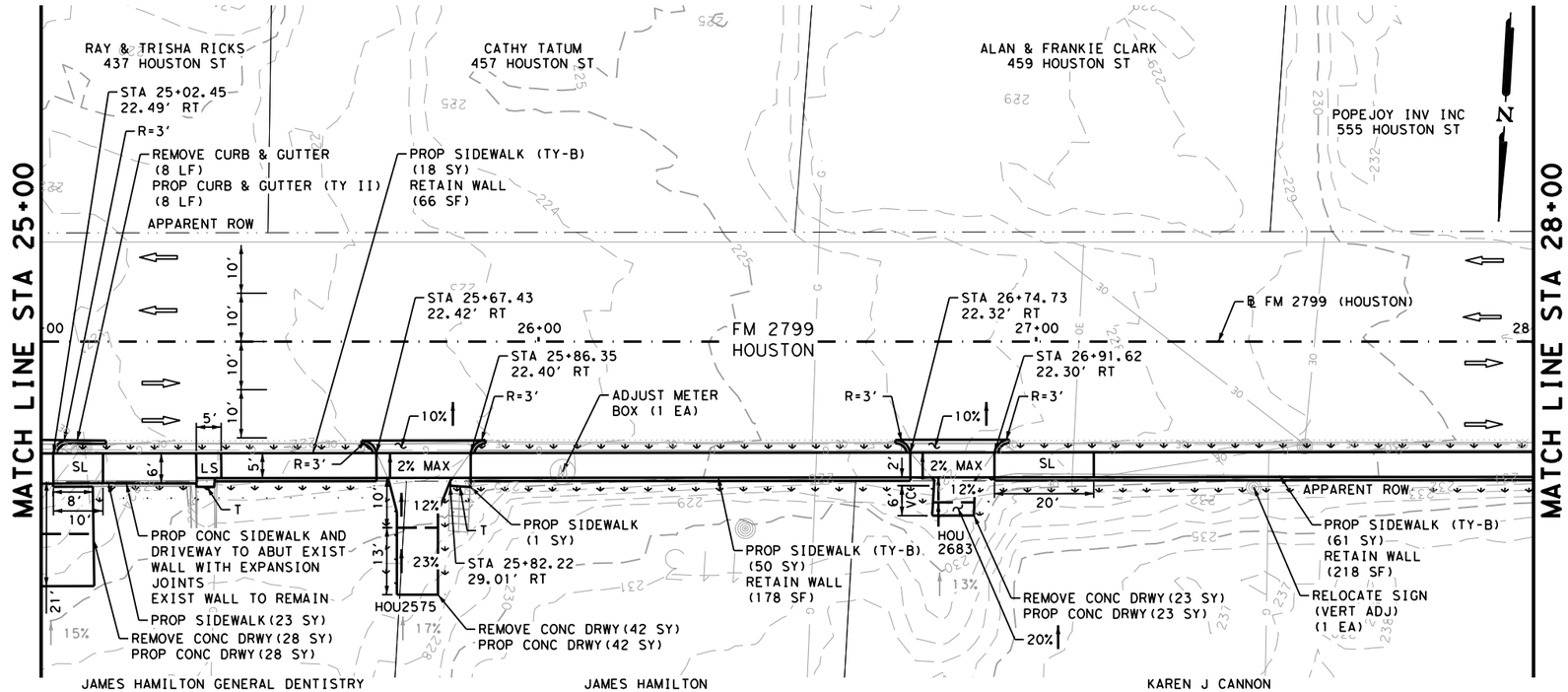
BEGIN WORK TO STA 25+00

SHEET 1 OF 8

DGN:	FED. RD. DIV. NO.	STATE	FEDERAL AID PROJECT NO.			HIGHWAY NO.
CHK DGN:	6	TEXAS				VARIOUS
DWG:	DIST.	COUNTY	CONT. NO.	SECT. NO.	JOB NO.	SHEET NO.
CHK DWG:	BMT	JASPER	0920	12	047	52

Design Filename: P:\122\42\01\Design\Civil\Roadway\1224201_hou01.dgn

Plotted on: 1/25/2022



ITEM	DESCRIPTION	UNIT	QTY
0100-6002	PREPARING ROW	STA	3
0104-6017	REMOVING CONC (DRIVEWAYS)	SY	93
0104-6029	REMOVING CONC (CURB OR CURB & GUTTER)	LF	8
0160-6003	FURNISHING AND PLACING TOPSOIL (4")	SY	166
0162-6002	BLOCK SODDING	SY	166
0168-6001*	VEGETATIVE WATERING	SY	166
0423-6008	RETAINING WALL (CAST - IN - PLACE)	SF	462
0529-6008	CONC CURB & GUTTER (TY II)	LF	8
0530-6004	DRIVEWAYS (CONC)	SY	93
0531-6001	CONC SIDEWALKS (4")	SY	24
0531-6033	CONC SIDEWALKS (SPECIAL) (TYPE B)	SY	129
0644-6068	RELOCATE SM RD SN SUP&AM TY 10BWG	EA	1
7196-6068	ADJUST METER BOX	EA	1

NOTES:
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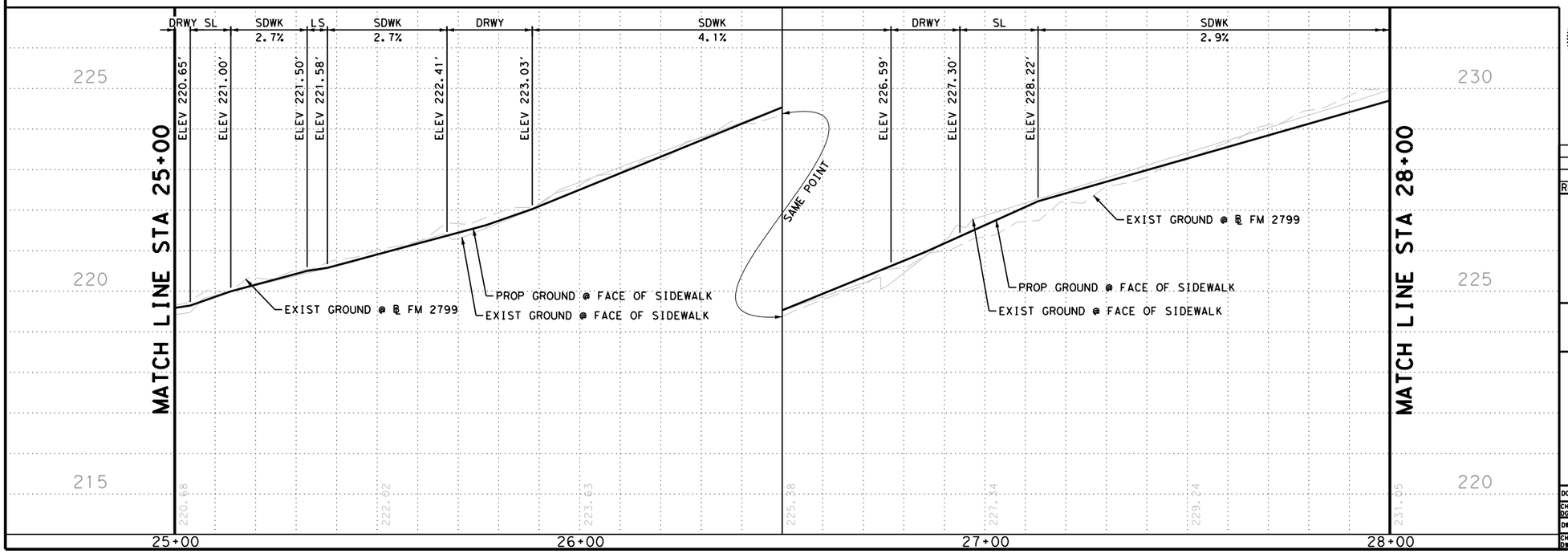

DESIGN

STATE OF TEXAS · TYLER PAYNE DUBE · 118612 · LICENSED PROFESSIONAL ENGINEER

TYLER PAYNE DUBE, P.E. — 1/25/2022 DATE

APPROVAL

STATE OF TEXAS · JOHN A. TYLER · 105193 · LICENSED PROFESSIONAL ENGINEER

JOHN A. TYLER, P.E. — 1/25/2022 DATE

0 15 30

SCALE: PLAN 1"= 30' PROFILE 1"= 10'

REV. NO.	DATE	DESCRIPTION	BY

PAPE-DAWSON ENGINEERS
SAN ANTONIO | AUSTIN | HOUSTON | FORT WORTH | DALLAS
2000 NW LOOP 410 | SAN ANTONIO, TX 78213 | 210.375.9000
TEXAS ENGINEERING FIRM #470 | TEXAS SURVEYING FIRM #10028800

FM 2799

SIDEWALK PLAN & PROFILE

STA 25+00 TO STA 28+00

SHEET 2 OF 8

DGN:	FED. RD. DIV. NO.	STATE	FEDERAL AID PROJECT NO.			HIGHWAY NO.
CHK DGN:	6	TEXAS				VARIOUS
DWG:	DIST.	COUNTY	CONT. NO.	SECT. NO.	JOB NO.	SHEET NO.
CHK DWG:	BMT	JASPER	0920	12	047	53

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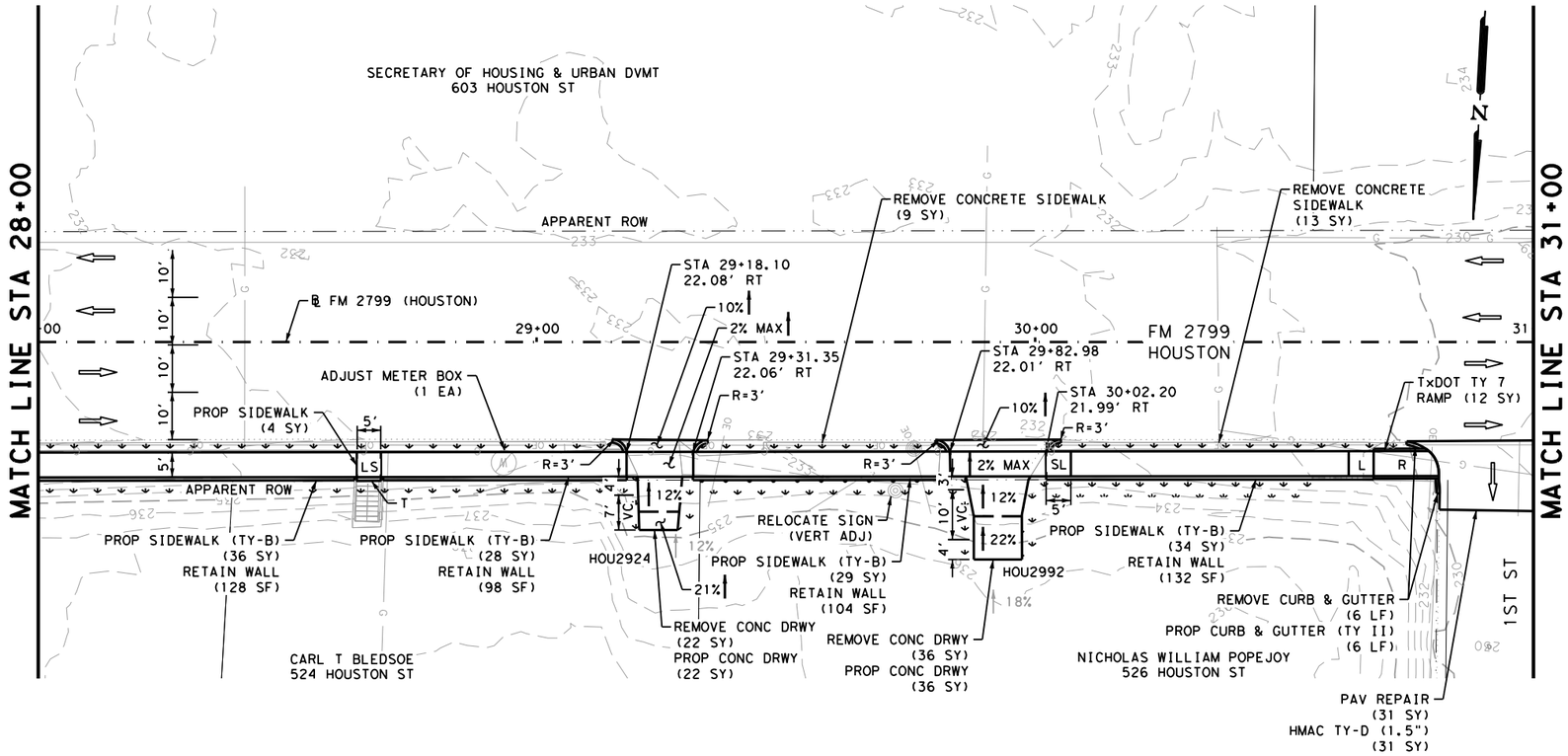
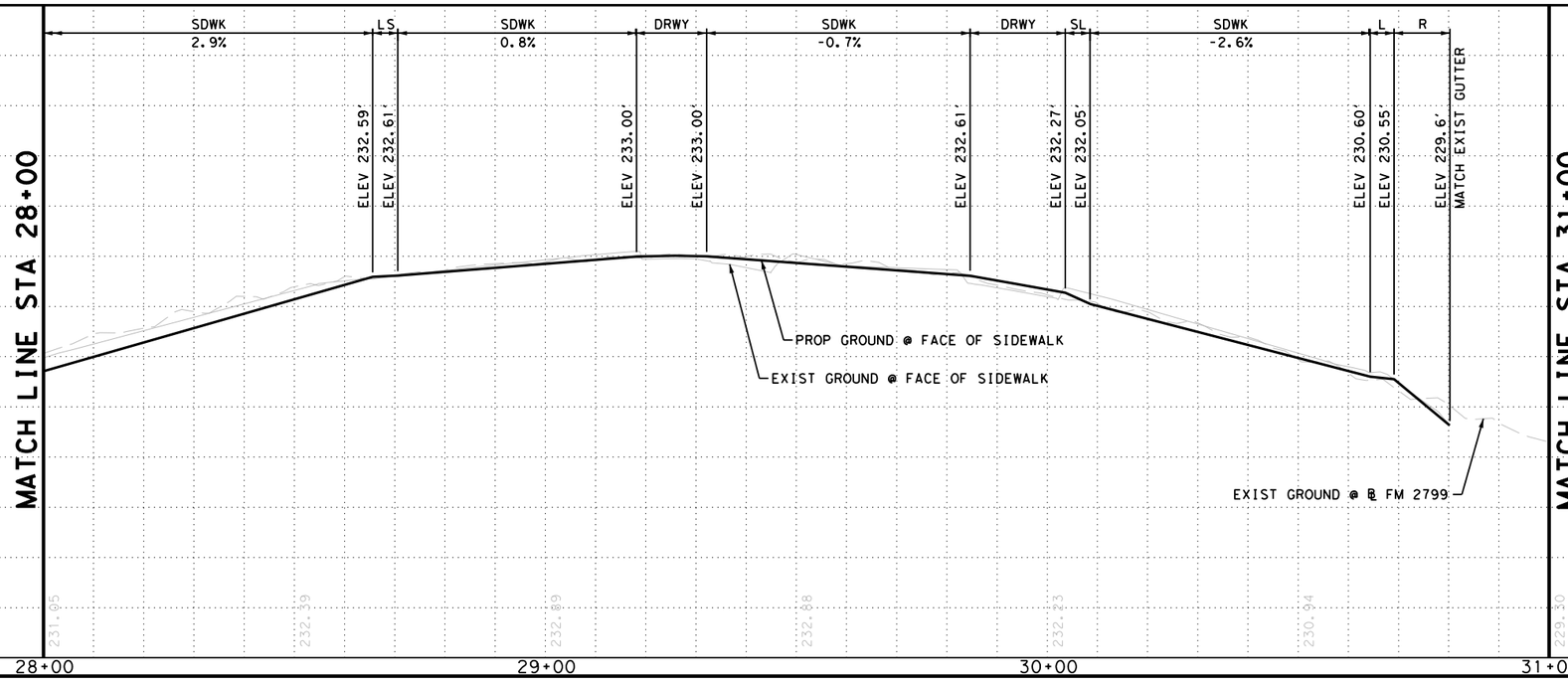
Plotted on: 1/25/2022





ITEM	DESCRIPTION	UNIT	QTY
0100-6002	PREPARING ROW	STA	3
0104-6015	REMOVING CONC (SIDEWALKS)	SY	22
0104-6017	REMOVING CONC (DRIVEWAYS)	SY	58
0104-6029	REMOVING CONC (CURB OR CURB & GUTTER)	LF	6
0160-6003	FURNISHING AND PLACING TOPSOIL (4")	SY	145
0162-6002	BLOCK SODDING	SY	145
0168-6001*	VEGETATIVE WATERING	SY	145
0351-6006	FLEXIBLE PAVEMENT STRUCTURE REPAIR(10")	SY	31
0423-6008	RETAINING WALL (CAST - IN - PLACE)	SF	462
0529-6008	CONC CURB & GUTTER (TY II)	LF	6
0530-6004	DRIVEWAYS (CONC)	SY	58
0531-6001	CONC SIDEWALKS (4")	SY	4
0531-6024	CURB RAMPS (TY 7)	SY	12
0531-6033	CONC SIDEWALKS (SPECIAL) (TYPE B)	SY	127
0644-6068	RELOCATE SM RD SN SUP&AM TY 10BWG	EA	1
3076-6066*	TACK COAT	SY	31
3076-6072*	D-GR HMA TY-D PG 76-22 (EXEMPT)	SY	31
7196-6068	ADJUST METER BOX	EA	1

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DESIGN

STATE OF TEXAS · TYLER PAYNE DUBE · 118612 · LICENSED PROFESSIONAL ENGINEER

TYLER PAYNE DUBE, P.E. — 1/25/2022 DATE

APPROVAL

STATE OF TEXAS · JOHN A. TYLER · 105193 · LICENSED PROFESSIONAL ENGINEER

JOHN A. TYLER, P.E. — 1/25/2022 DATE

0 15 30

SCALE: PLAN 1"= 30' PROFILE 1"= 10'

REV. NO.	DATE	DESCRIPTION	BY

PAPE-DAWSON ENGINEERS
SAN ANTONIO | AUSTIN | HOUSTON | FORT WORTH | DALLAS
2000 NW LOOP 410 | SAN ANTONIO, TX 78213 | 210.375.9000
TEXAS ENGINEERING FIRM #470 | TEXAS SURVEYING FIRM #10028800

FM 2799

SIDEWALK PLAN & PROFILE

STA 28+00 TO STA 31+00

SHEET 3 OF 8

DGN:	FED. RD. DIV. NO.	STATE	FEDERAL AID PROJECT NO.			HIGHWAY NO.
CHK DGN:	6	TEXAS				VARIOUS
DWG:	DIST.	COUNTY	CONT. NO.	SECT. NO.	JOB NO.	SHEET NO.
CHK DWG:	BMT	JASPER	0920	12	047	54

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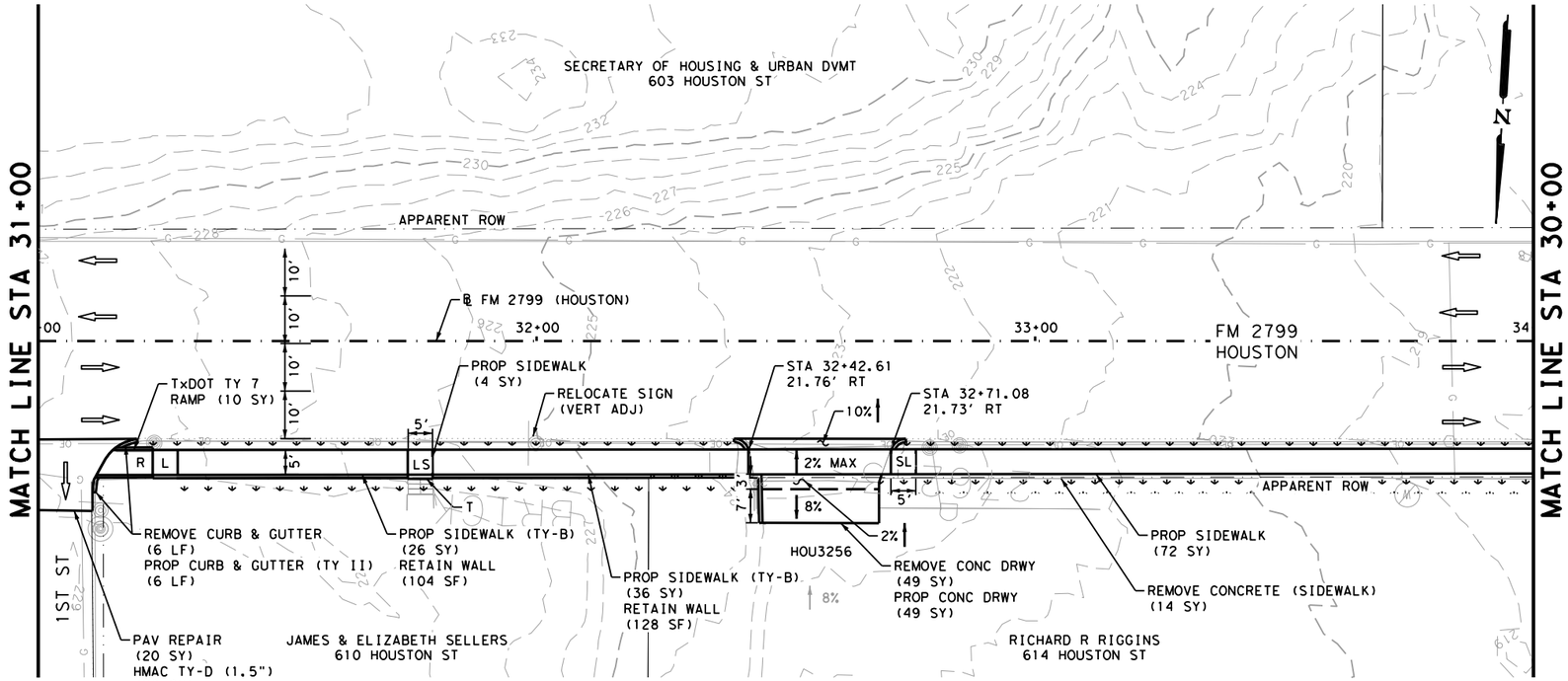
Plotted on: 1/25/2022



ITEM	DESCRIPTION	UNIT	QTY
0100-6002	PREPARING ROW	STA	3
0104-6015	REMOVING CONC (SIDEWALKS)	SY	14
0104-6017	REMOVING CONC (DRIVEWAYS)	SY	49
0104-6029	REMOVING CONC (CURB OR CURB & GUTTER)	LF	6
0160-6003	FURNISHING AND PLACING TOPSOIL (4")	SY	145
0162-6002	BLOCK SODDING	SY	145
0168-6001*	VEGETATIVE WATERING	SY	145
0351-6006	FLEXIBLE PAVEMENT STRUCTURE REPAIR(10")	SY	20
0423-6008	RETAINING WALL (CAST - IN - PLACE)	SF	232
0529-6008	CONC CURB & GUTTER (TY II)	LF	6
0530-6004	DRIVEWAYS (CONC)	SY	49
0531-6001	CONC SIDEWALKS (4")	SY	76
0531-6024	CURB RAMPS (TY 7)	SY	10
0531-6033	CONC SIDEWALKS (SPECIAL) (TYPE B)	SY	62
0644-6068	RELOCATE SM RD SN SUP&AM TY 10BWG	EA	1
3076-6066*	TACK COAT	SY	20
3076-6072*	D-GR HMA TY-D PG 76-22 (EXEMPT)	SY	20

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DESIGN

STATE OF TEXAS · TYLER PAYNE DUBE · 118612 · LICENSED PROFESSIONAL ENGINEER

TYLER PAYNE DUBE, P.E. — 1/25/2022 DATE

APPROVAL

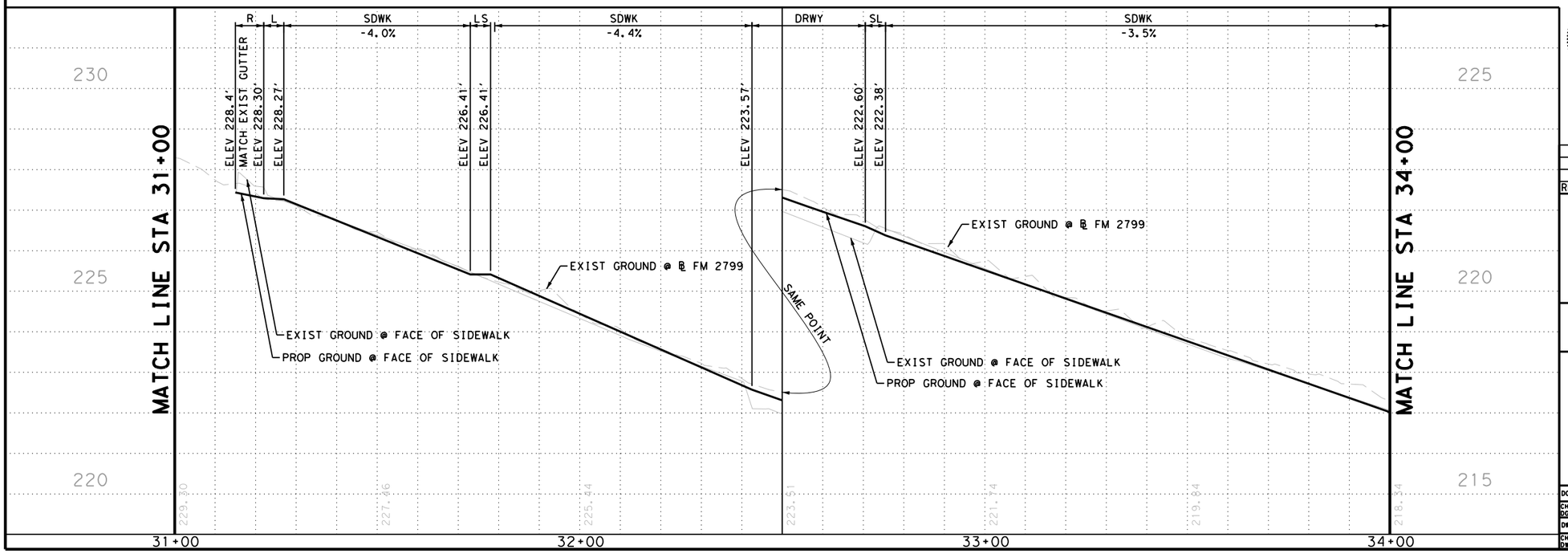
STATE OF TEXAS · JOHN A. TYLER · 105193 · LICENSED PROFESSIONAL ENGINEER

JOHN A. TYLER, P.E. — 1/25/2022 DATE

0 15 30

SCALE: PLAN 1"= 30' PROFILE 1"= 10'

REV. NO.	DATE	DESCRIPTION	BY



PAPE-DAWSON ENGINEERS
SAN ANTONIO | AUSTIN | HOUSTON | FORT WORTH | DALLAS
2000 NW LOOP 410 | SAN ANTONIO, TX 78213 | 210.375.9000
TEXAS ENGINEERING FIRM #470 | TEXAS SURVEYING FIRM #10028800

FM 2799

SIDEWALK PLAN & PROFILE

STA 31+00 TO STA 34+00

SHEET 4 OF 8

DGN:	FED. RD. DIV. NO.	STATE	FEDERAL AID PROJECT NO.			HIGHWAY NO.
CHK DGN:	6	TEXAS				VARIOUS
DWG:	DIST.	COUNTY	CONT. NO.	SECT. NO.	JOB NO.	SHEET NO.
CHK DWG:	BMT	JASPER	0920	12	047	55

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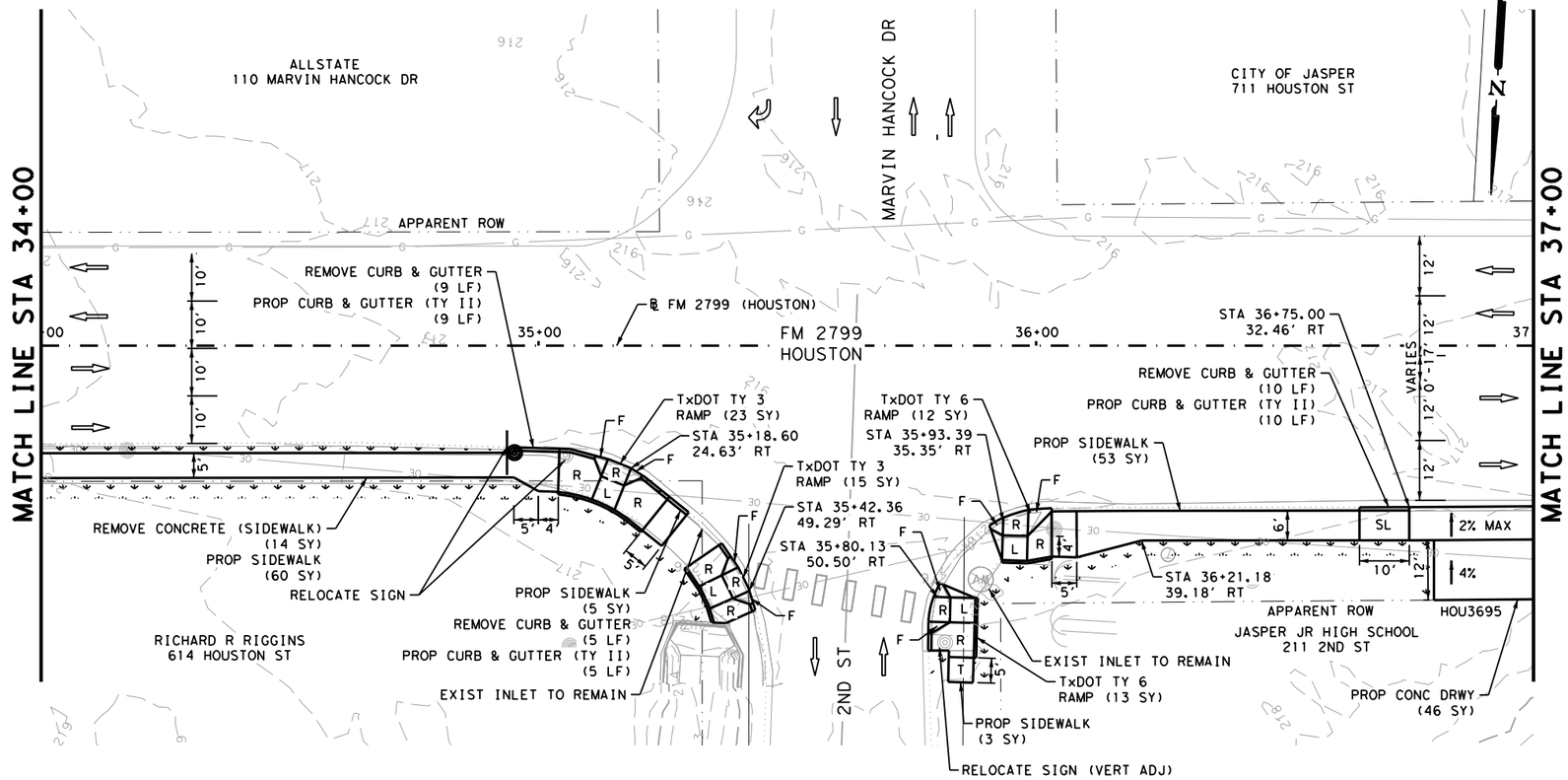
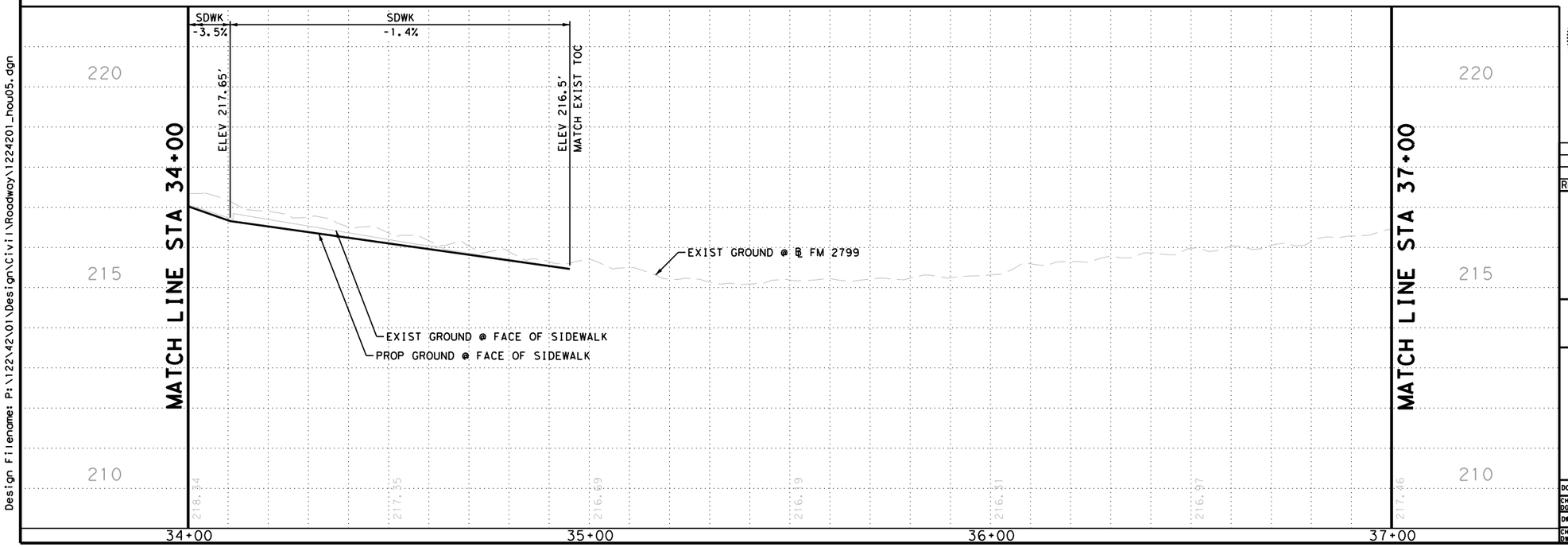
Plotted on: 1/25/2022





ITEM	DESCRIPTION	UNIT	QTY
0100-6002	PREPARING ROW	STA	3
0104-6015	REMOVING CONC (SIDEWALKS)	SY	14
0104-6029	REMOVING CONC (CURB OR CURB & GUTTER)	LF	24
0160-6003	FURNISHING AND PLACING TOPSOIL (4")	SY	118
0162-6002	BLOCK SODDING	SY	118
0168-6001*	VEGETATIVE WATERING	SY	118
0529-6008	CONC CURB & GUTTER (TY II)	LF	24
0530-6004	DRIVEWAYS (CONC)	SY	46
0531-6001	CONC SIDEWALKS (4")	SY	121
0531-6020	CURB RAMPS (TY 3)	SY	38
0531-6023	CURB RAMPS (TY 6)	SY	25
0644-6068	RELOCATE SM RD SN SUP&AM TY 10BWG	EA	2

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DESIGN

STATE OF TEXAS · TYLER PAYNE DUBE · 118612 · LICENSED PROFESSIONAL ENGINEER

TYLER PAYNE DUBE, P.E. — 1/25/2022 DATE

APPROVAL

STATE OF TEXAS · JOHN A. TYLER · 105193 · LICENSED PROFESSIONAL ENGINEER

JOHN A. TYLER, P.E. — 1/25/2022 DATE

0 15 30

SCALE: PLAN 1"= 30' PROFILE 1"= 10'

REV. NO.	DATE	DESCRIPTION	BY

PAPE-DAWSON ENGINEERS
SAN ANTONIO | AUSTIN | HOUSTON | FORT WORTH | DALLAS
2000 NW LOOP 410 | SAN ANTONIO, TX 78213 | 210.375.9000
TEXAS ENGINEERING FIRM #470 | TEXAS SURVEYING FIRM #10028800

FM 2799

SIDEWALK PLAN & PROFILE

STA 34+00 TO STA 37+00

SHEET 5 OF 8

DGN:	FED. RD. DIV. NO.	STATE	FEDERAL AID PROJECT NO.			HIGHWAY NO.
CHK DGN:	6	TEXAS				VARIOUS
DWG:	DIST.	COUNTY	CONT. NO.	SECT. NO.	JOB NO.	SHEET NO.
CHK DWG:	BMT	JASPER	0920	12	047	56

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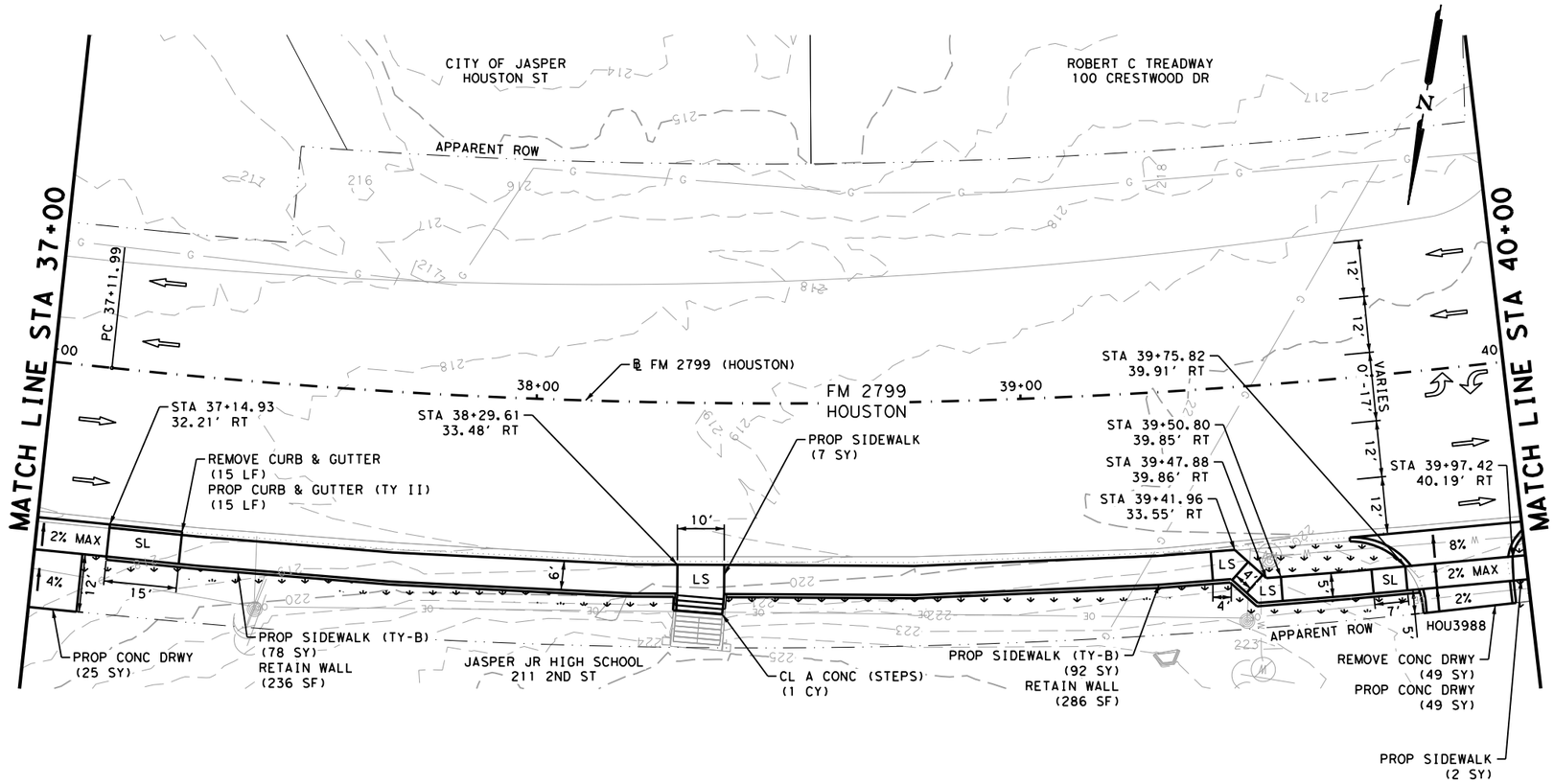
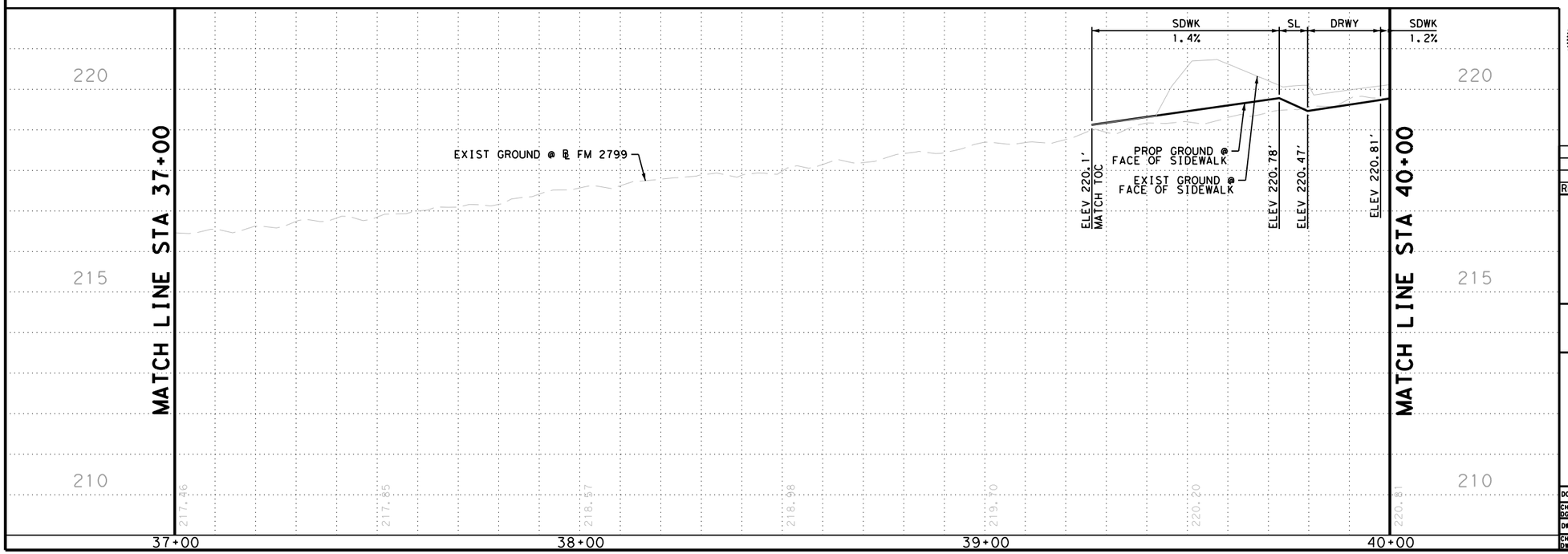
Plotted on: 1/25/2022





ITEM	DESCRIPTION	UNIT	QTY
0100-6002	PREPARING ROW	STA	3
0104-6017	REMOVING CONC (DRIVEWAYS)	SY	49
0104-6029	REMOVING CONC (CURB OR CURB & GUTTER)	LF	15
0160-6003	FURNISHING AND PLACING TOPSOIL (4")	SY	99
0162-6002	BLOCK SODDING	SY	99
0168-6001*	VEGETATIVE WATERING	SY	99
0420-6132	CL A CONC (STEPS)	CY	1.0
0423-6008	RETAINING WALL (CAST - IN - PLACE)	SF	522
0529-6008	CONC CURB & GUTTER (TY II)	LF	15
0530-6004	DRIVEWAYS (CONC)	SY	74
0531-6001	CONC SIDEWALKS (4")	SY	9
0531-6033	CONC SIDEWALKS (SPECIAL) (TYPE B)	SY	170

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DESIGN

STATE OF TEXAS · TYLER PAYNE DUBE · 118612 · LICENSED PROFESSIONAL ENGINEER

TYLER PAYNE DUBE, P.E. — 1/25/2022 DATE

APPROVAL

STATE OF TEXAS · JOHN A. TYLER · 105193 · LICENSED PROFESSIONAL ENGINEER

JOHN A. TYLER, P.E. — 1/25/2022 DATE

0 15 30

SCALE: PLAN 1"= 30' PROFILE 1"= 10'

REV. NO.	DATE	DESCRIPTION	BY

PAPE-DAWSON ENGINEERS
SAN ANTONIO | AUSTIN | HOUSTON | FORT WORTH | DALLAS
2000 NW LOOP 410 | SAN ANTONIO, TX 78213 | 210.375.9000
TEXAS ENGINEERING FIRM #470 | TEXAS SURVEYING FIRM #10028800

FM 2799

SIDEWALK PLAN & PROFILE

STA 37+00 TO STA 40+00

SHEET 6 OF 8

DGN:	FED. RD. DIV. NO.	STATE	FEDERAL AID PROJECT NO.			HIGHWAY NO.
CHK DGN:	6	TEXAS				VARIOUS
DWG:	DIST.	COUNTY	CONT. NO.	SECT. NO.	JOB NO.	SHEET NO.
CHK DWG:	BMT	JASPER	0920	12	047	57

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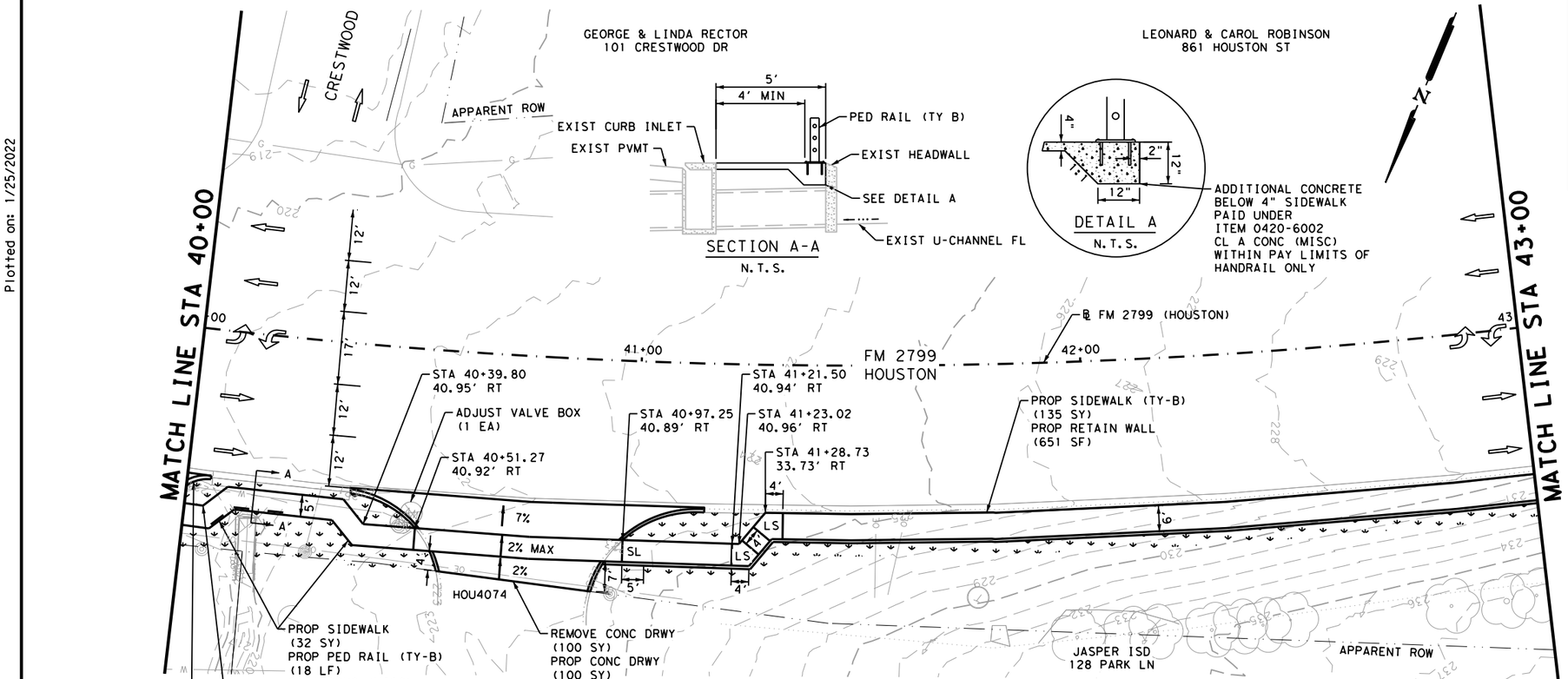
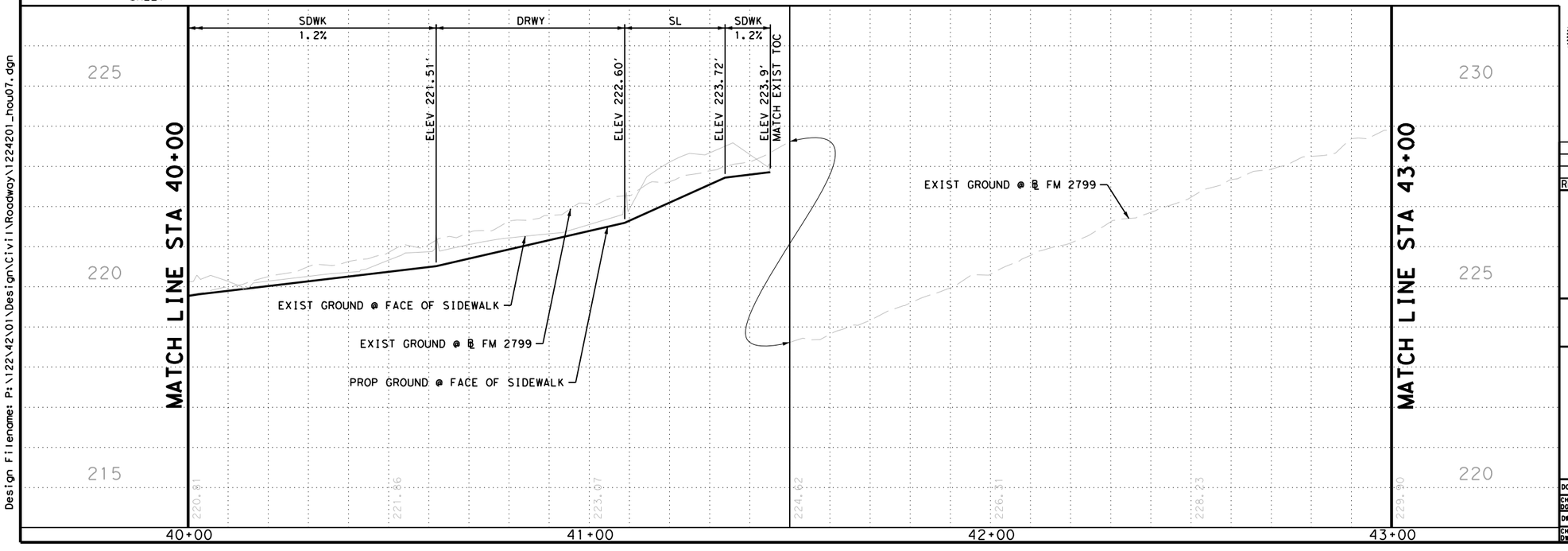
Plotted on: 1/25/2022





ITEM	DESCRIPTION	UNIT	QTY
0100-6002	PREPARING ROW	STA	3
0104-6017	REMOVING CONC (DRIVEWAYS)	SY	100
0160-6003	FURNISHING AND PLACING TOPSOIL (4")	SY	156
0162-6002	BLOCK SODDING	SY	156
0168-6001*	VEGETATIVE WATERING	SY	156
0420-6002	CL A CONC (MISC)	CY	0.5
0423-6008	RETAINING WALL (CAST - IN - PLACE)	SF	651
0450-6048	RAIL (HANDRAIL)(TY B)	LF	18
0530-6004	DRIVEWAYS (CONC)	SY	100
0531-6001	CONC SIDEWALKS (4")	SY	32
0531-6033	CONC SIDEWALKS (SPECIAL) (TYPE B)	SY	135
7196-6011	ADJUST VALVE BOX	EA	1

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DESIGN

STATE OF TEXAS · TYLER PAYNE DUBE · 118612 · LICENSED PROFESSIONAL ENGINEER

TYLER PAYNE DUBE, P.E. — 1/25/2022 DATE

APPROVAL

STATE OF TEXAS · JOHN A. TYLER · 105193 · LICENSED PROFESSIONAL ENGINEER

JOHN A. TYLER, P.E. — 1/25/2022 DATE

0 15 30

SCALE: PLAN 1"= 30' PROFILE 1"= 10'

REV. NO.	DATE	DESCRIPTION	BY

PAPE-DAWSON ENGINEERS
SAN ANTONIO | AUSTIN | HOUSTON | FORT WORTH | DALLAS
2000 NW LOOP 410 | SAN ANTONIO, TX 78213 | 210.375.9000
TEXAS ENGINEERING FIRM #470 | TEXAS SURVEYING FIRM #10028800

FM 2799

SIDEWALK PLAN & PROFILE

STA 40+00 TO STA 43+00

SHEET 7 OF 8

DGN:	FED. RD. DIV. NO.	STATE	FEDERAL AID PROJECT NO.			HIGHWAY NO.
CHK DGN:	6	TEXAS				VARIOUS
DWG:	DIST.	COUNTY	CONT. NO.	SECT. NO.	JOB NO.	SHEET NO.
CHK DWG:	BMT	JASPER	0920	12	047	58

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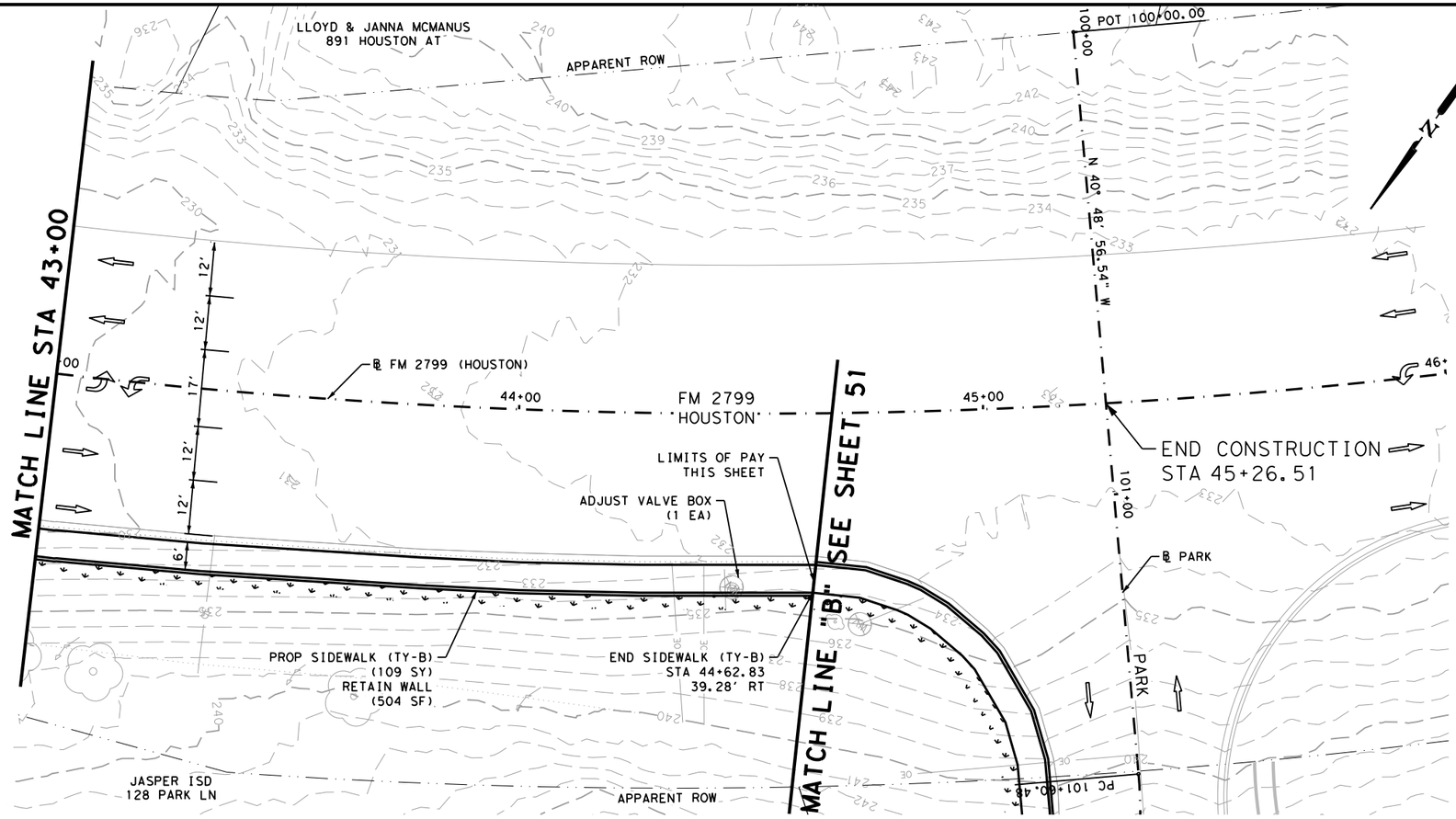

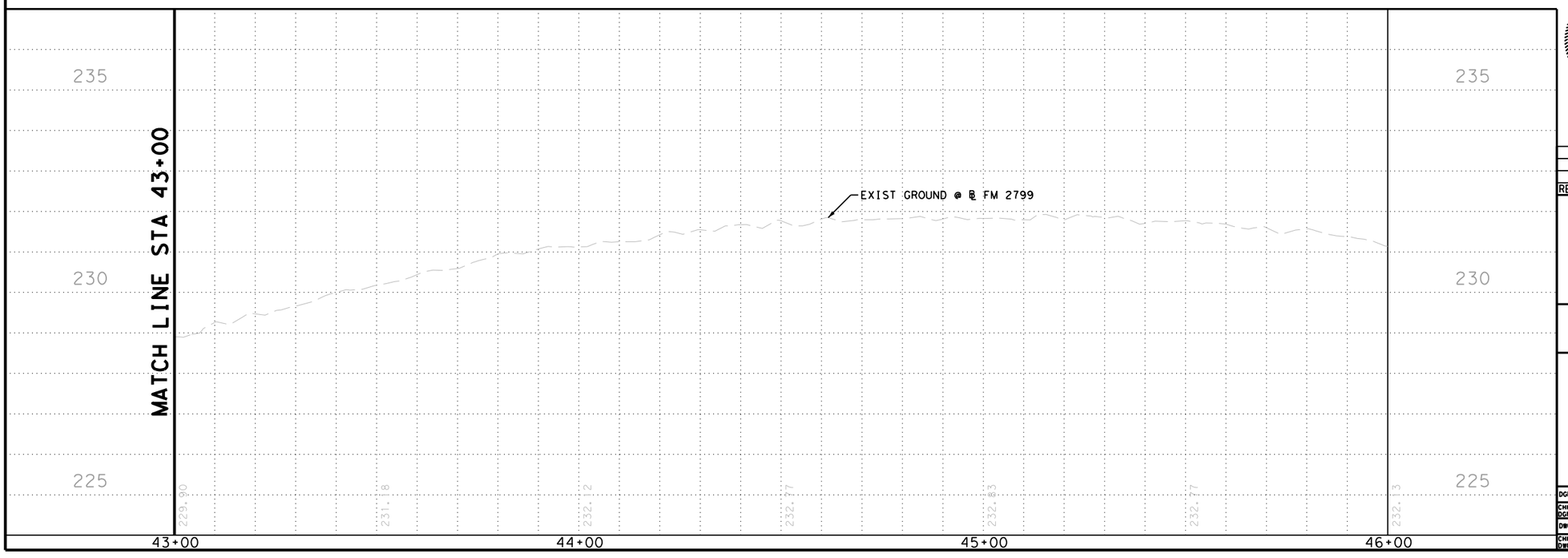

ITEM	DESCRIPTION	UNIT	QTY
0100-6002	PREPARING ROW	STA	2
0160-6003	FURNISHING AND PLACING TOPSOIL (4")	SY	56
0162-6002	BLOCK SODDING	SY	56
0168-6001*	VEGETATIVE WATERING	SY	56
0423-6008	RETAINING WALL (CAST - IN - PLACE)	SF	504
0531-6033	CONC SIDEWALKS (SPECIAL) (TYPE B)	SY	109
7196-6011	ADJUST VALVE BOX	EA	1

NOTES:
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2. EXISTING FEATURES ARE SHOWN SCREENED BACK; i.e. FADED
3. SEE SAMPLE PLAN LAYOUT AND LEGEND OF SYMBOLS FOR MORE INFORMATION

DESIGN

STATE OF TEXAS
TYLER PAYNE DUBE
118612
LICENSED PROFESSIONAL ENGINEER

TYLER PAYNE DUBE, P.E. — 1/25/2022 DATE

APPROVAL

STATE OF TEXAS
JOHN A. TYLER
105193
LICENSED PROFESSIONAL ENGINEER

JOHN A. TYLER, P.E. — 1/25/2022 DATE

0 15 30

SCALE: PLAN 1"= 30' PROFILE 1"= 10'

REV. NO.	DATE	DESCRIPTION	BY

PAPE-DAWSON ENGINEERS
SAN ANTONIO | AUSTIN | HOUSTON | FORT WORTH | DALLAS
2000 NW LOOP 410 | SAN ANTONIO, TX 78213 | 210.375.9000
TEXAS ENGINEERING FIRM #470 | TEXAS SURVEYING FIRM #10028800

FM 2799

SIDEWALK PLAN & PROFILE

STA 43+00 TO END WORK

SHEET 8 OF 8

DGN:	FED. RD. DIV. NO.	STATE	FEDERAL AID PROJECT NO.			HIGHWAY NO.
CHK DGN:	6	TEXAS				VARIOUS
DWG:	DIST.	COUNTY	CONT. NO.	SECT. NO.	JOB NO.	SHEET NO.
CHK DWG:	BMT	JASPER	0920	12	047	59

Plotted on: 1/25/2022

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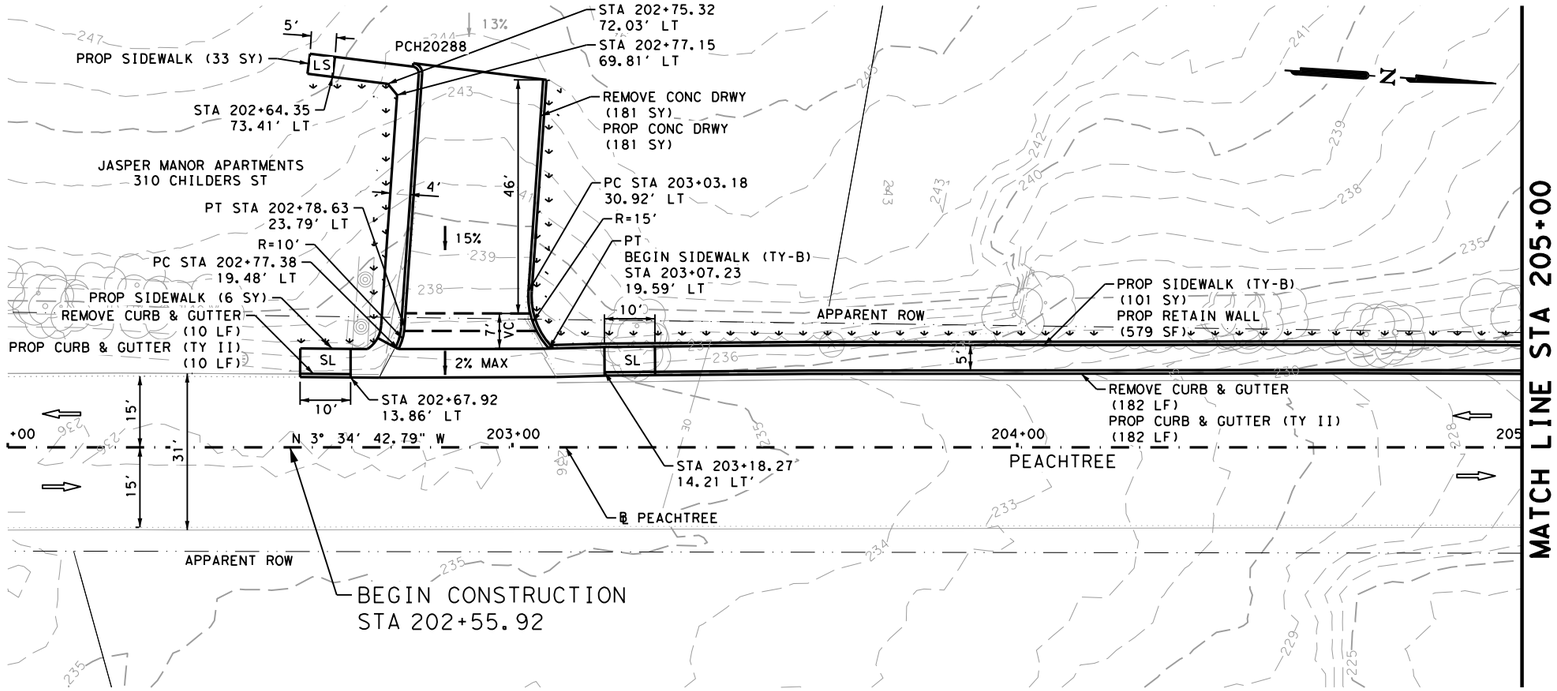

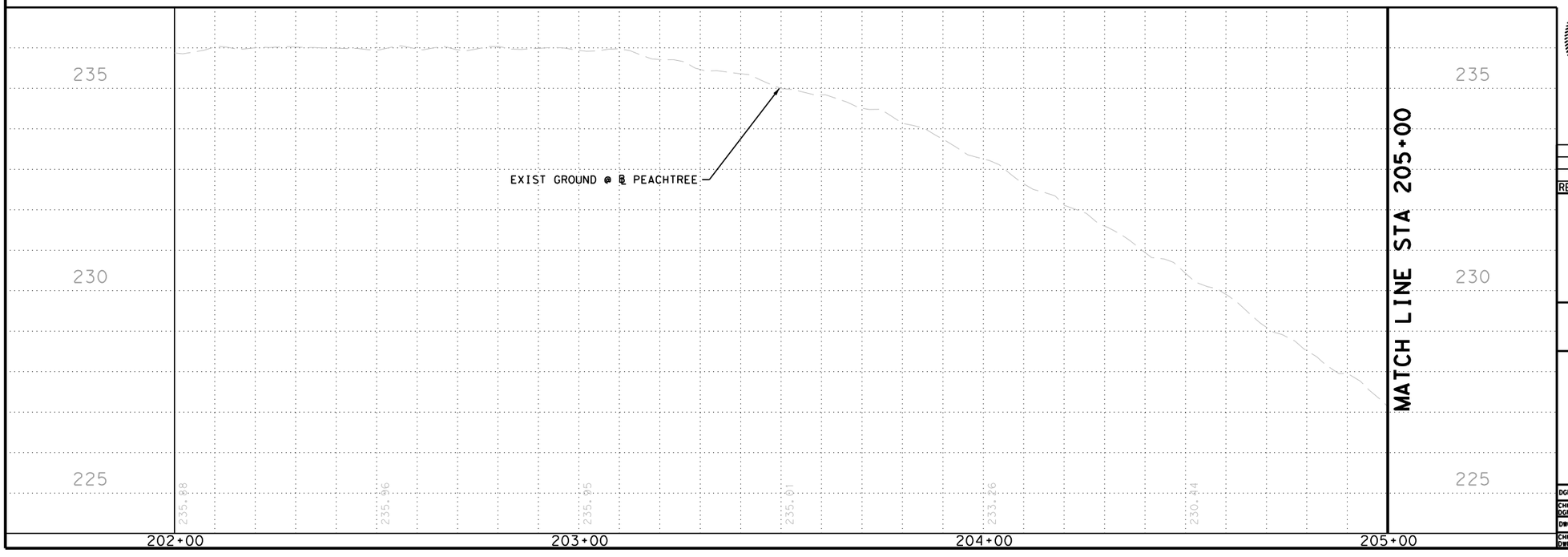

ITEM	DESCRIPTION	UNIT	QTY
0100-6002	PREPARING ROW	STA	3
0104-6017	REMOVING CONC (DRIVEWAYS)	SY	181
0104-6029	REMOVING CONC (CURB OR CURB & GUTTER)	LF	192
0160-6003	FURNISHING AND PLACING TOPSOIL (4")	SY	109
0162-6002	BLOCK SODDING	SY	109
0168-6001*	VEGETATIVE WATERING	SY	109
0423-6008	RETAINING WALL (CAST - IN - PLACE)	SF	579
0529-6008	CONC CURB & GUTTER (TY II)	LF	192
0530-6004	DRIVEWAYS (CONC)	SY	181
0531-6001	CONC SIDEWALKS (4")	SY	39
0531-6033	CONC SIDEWALKS (SPECIAL) (TYPE B)	SY	101

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DESIGN

STATE OF TEXAS · TYLER PAYNE DUBE · 118612 · LICENSED PROFESSIONAL ENGINEER

TYLER PAYNE DUBE, P.E. — 1/25/2022 DATE

APPROVAL

STATE OF TEXAS · JOHN A. TYLER · 105193 · LICENSED PROFESSIONAL ENGINEER

JOHN A. TYLER, P.E. — 1/25/2022 DATE

0 15 30

SCALE: PLAN 1"= 30' PROFILE 1"= 10'

REV. NO.	DATE	DESCRIPTION	BY

PAPE-DAWSON ENGINEERS
SAN ANTONIO | AUSTIN | HOUSTON | FORT WORTH | DALLAS
2000 NW LOOP 410 | SAN ANTONIO, TX 78213 | 210.375.9000
TEXAS ENGINEERING FIRM #470 | TEXAS SURVEYING FIRM #10028800

PEACHTREE

SIDEWALK PLAN & PROFILE

BEGIN WORK TO STA 205+00

SHEET 1 OF 9

DGN:	FED. RD. DIV. NO.	STATE	FEDERAL AID PROJECT NO.			HIGHWAY NO.
CHK DGN:	6	TEXAS				VARIOUS
DWG:	DIST.	COUNTY	CONT. NO.	SECT. NO.	JOB NO.	SHEET NO.
CHK DWG:	BMT	JASPER	0920	12	047	60

Plotted on: 1/25/2022

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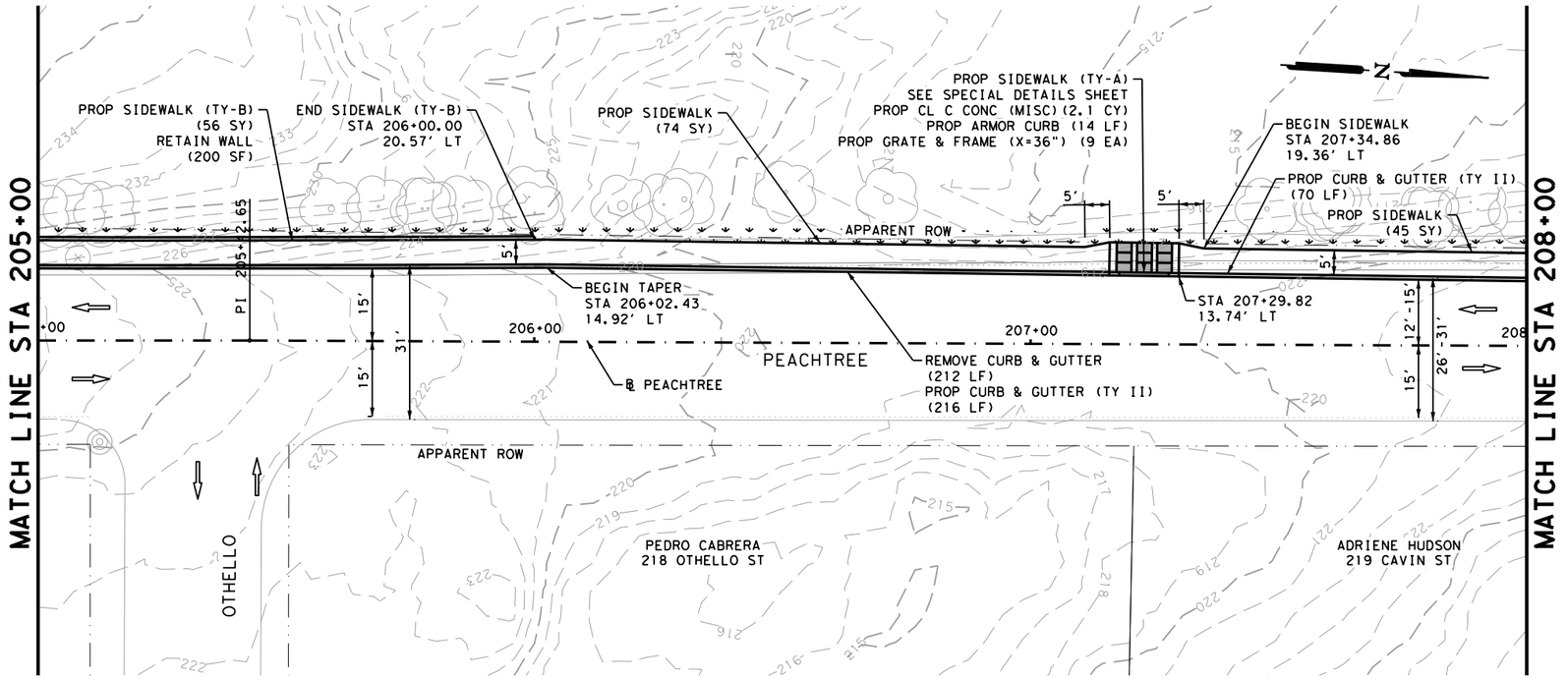
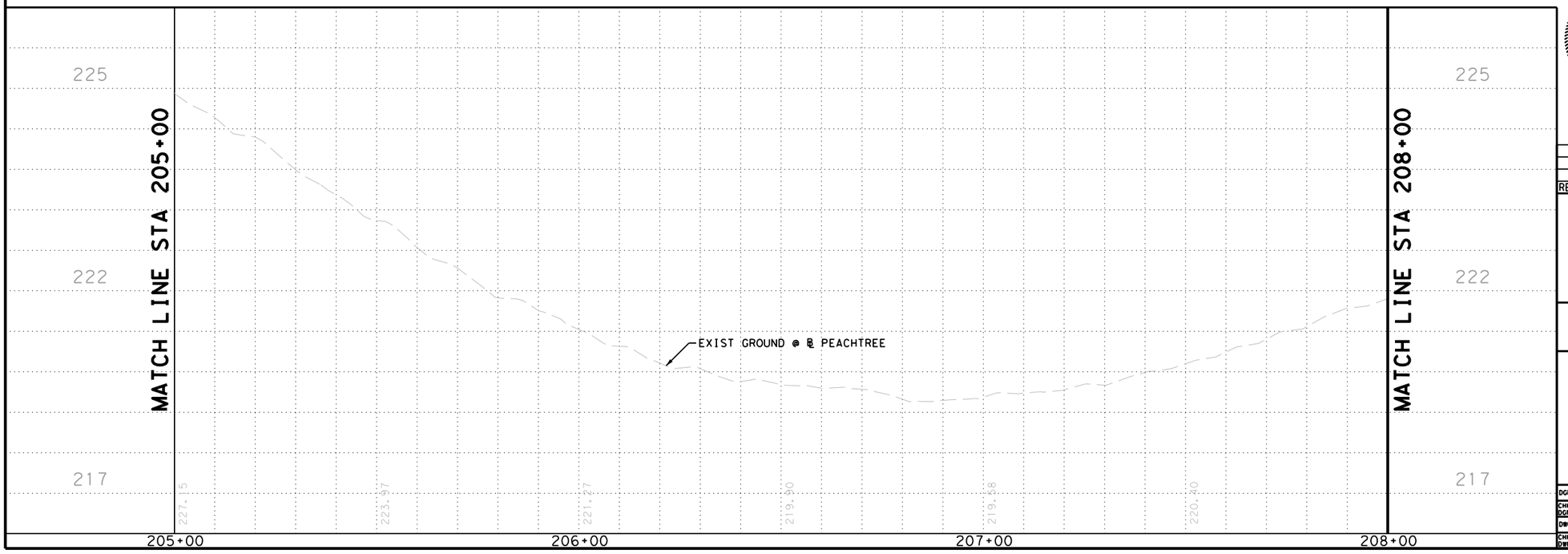
Plotted on: 1/25/2022





ITEM	DESCRIPTION	UNIT	QTY
0100-6002	PREPARING ROW	STA	3
0104-6029	REMOVING CONC (CURB OR CURB & GUTTER)	LF	212
0160-6003	FURNISHING AND PLACING TOPSOIL (4")	SY	105
0162-6002	BLOCK SODDING	SY	105
0168-6001*	VEGETATIVE WATERING	SY	105
0420-6074	CL C CONC (MISC)	CY	2.1
0423-6008	RETAINING WALL (CAST - IN - PLACE)	SF	200
0471-6003	GRATE & FRAME	EA	9
0529-6008	CONC CURB & GUTTER (TY II)	LF	286
0529-6020	CONC CURB & GUTTER (ARMOR CURB)	LF	14
0531-6001	CONC SIDEWALKS (4")	SY	119
0531-6033	CONC SIDEWALKS (SPECIAL) (TYPE B)	SY	56

NOTES:
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DESIGN

STATE OF TEXAS · TYLER PAYNE DUBE · 118612 · LICENSED PROFESSIONAL ENGINEER

TYLER PAYNE DUBE, P.E. — 1/25/2022 DATE

APPROVAL

STATE OF TEXAS · JOHN A. TYLER · 105193 · LICENSED PROFESSIONAL ENGINEER

JOHN A. TYLER, P.E. — 1/25/2022 DATE

0 15 30

SCALE: PLAN 1"= 30' PROFILE 1"= 10'

REV. NO.	DATE	DESCRIPTION	BY

PAPE-DAWSON ENGINEERS
SAN ANTONIO | AUSTIN | HOUSTON | FORT WORTH | DALLAS
2000 NW LOOP 410 | SAN ANTONIO, TX 78213 | 210.375.9000
TEXAS ENGINEERING FIRM #470 | TEXAS SURVEYING FIRM #10028800

PEACHTREE

SIDEWALK PLAN & PROFILE

STA 205+00 TO STA 208+00

SHEET 2 OF 9

DGN:	FED. RD. DIV. NO.	STATE	FEDERAL AID PROJECT NO.			HIGHWAY NO.
CHK DGN:	6	TEXAS				VARIOUS
DWG:	DIST.	COUNTY	CONT. NO.	SECT. NO.	JOB NO.	SHEET NO.
CHK DWG:	BMT	JASPER	0920	12	047	61

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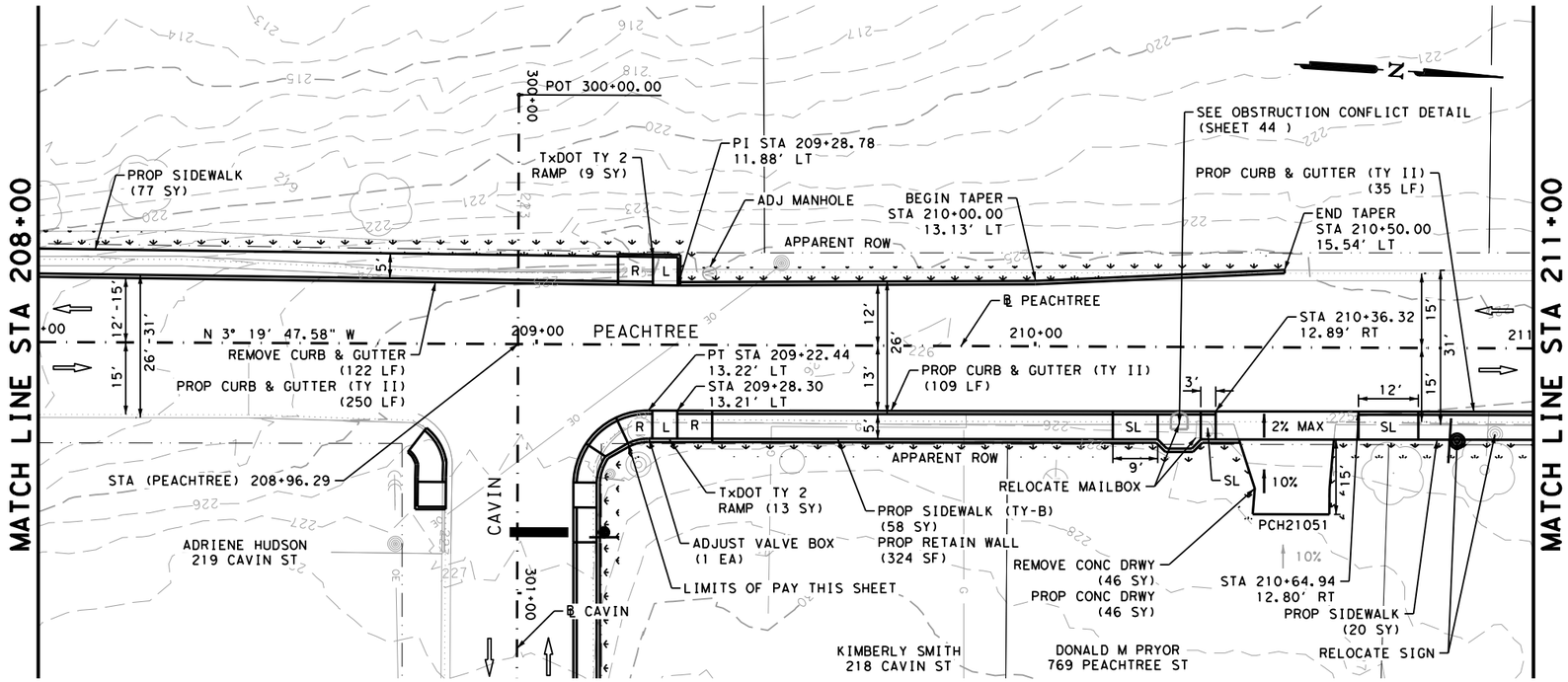
Plotted on: 1/25/2022



ITEM	DESCRIPTION	UNIT	QTY
0100-6002	PREPARING ROW	STA	3
0104-6017	REMOVING CONC (DRIVEWAYS)	SY	46
0104-6029	REMOVING CONC (CURB OR CURB & GUTTER)	LF	122
0160-6003	FURNISHING AND PLACING TOPSOIL (4")	SY	159
0162-6002	BLOCK SODDING	SY	159
0168-6001*	VEGETATIVE WATERING	SY	159
0423-6008	RETAINING WALL (CAST - IN - PLACE)	SF	324
0479-6001	ADJUSTING MANHOLES	EA	1
0529-6008	CONC CURB & GUTTER (TY II)	LF	394
0530-6004	DRIVEWAYS (CONC)	SY	46
0531-6001	CONC SIDEWALKS (4")	SY	97
0531-6019	CURB RAMPS (TY 2)	SY	22
0531-6033	CONC SIDEWALKS (SPECIAL) (TYPE B)	SY	58
0560-6025	RELOCATE EXISTING MAILBOX	EA	1
0644-6068	RELOCATE SM RD SN SUP&AM TY 10BWG	EA	1
7196-6011	ADJUST VALVE BOX	EA	1

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DESIGN

STATE OF TEXAS · TYLER PAYNE DUBE · 118612 · LICENSED PROFESSIONAL ENGINEER

TYLER PAYNE DUBE, P.E. — 1/25/2022 DATE

APPROVAL

STATE OF TEXAS · JOHN A. TYLER · 105193 · LICENSED PROFESSIONAL ENGINEER

JOHN A. TYLER, P.E. — 1/25/2022 DATE

0 15 30

SCALE: PLAN 1"= 30' PROFILE 1"= 10'

REV. NO.	DATE	DESCRIPTION	BY

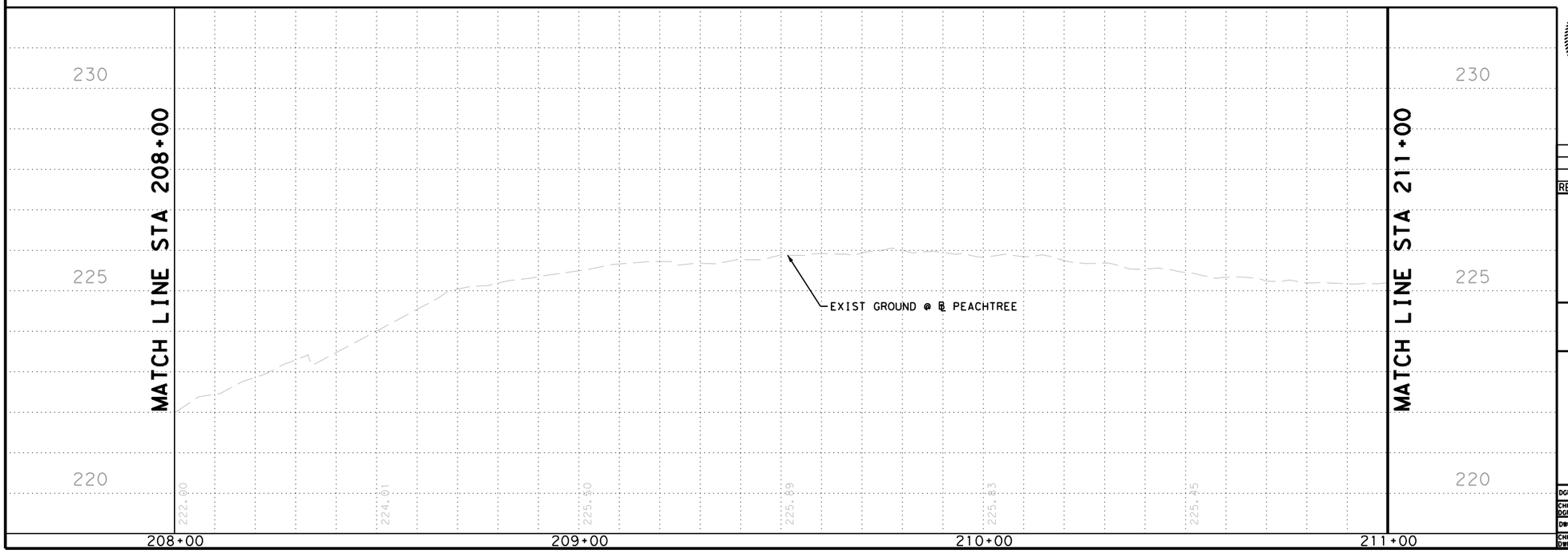
PAPE-DAWSON ENGINEERS
SAN ANTONIO | AUSTIN | HOUSTON | FORT WORTH | DALLAS
2000 NW LOOP 410 | SAN ANTONIO, TX 78213 | 210.375.9000
TEXAS ENGINEERING FIRM #470 | TEXAS SURVEYING FIRM #10028800

PEACHTREE

SIDEWALK PLAN & PROFILE

STA 208+00 TO STA 211+00

SHEET 3 OF 9



DGN:	FED. RD. DIV. NO.	STATE	FEDERAL AID PROJECT NO.			HIGHWAY NO.
CHK DGN:	6	TEXAS				VARIOUS
DWG:	DIST.	COUNTY	CONT. NO.	SECT. NO.	JOB NO.	SHEET NO.
CHK DWG:	BMT	JASPER	0920	12	047	62

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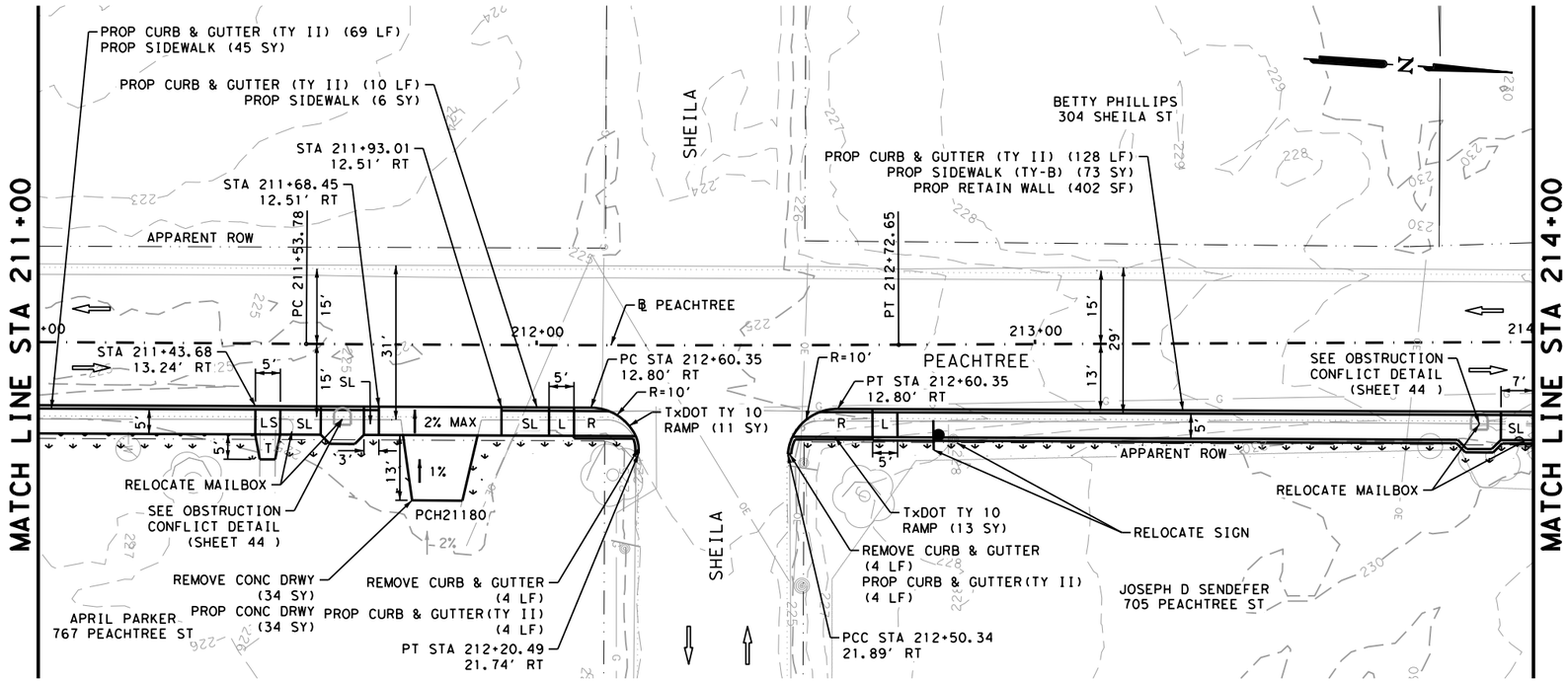

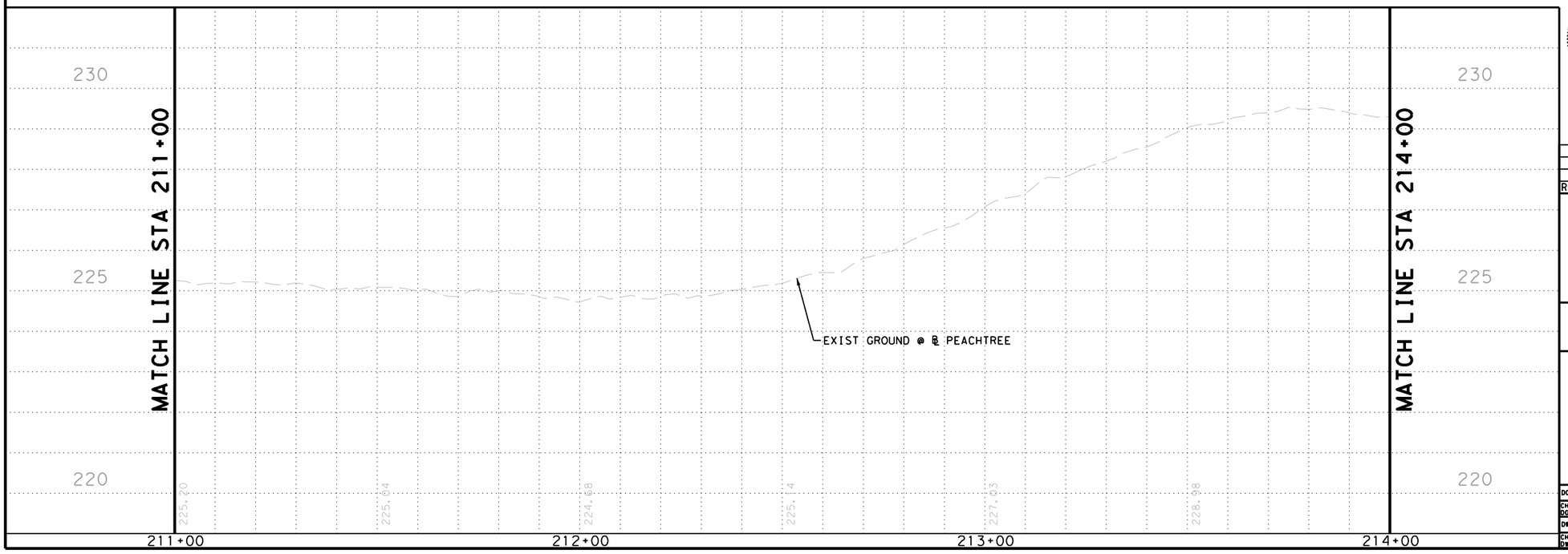

ITEM	DESCRIPTION	UNIT	QTY
0100-6002	PREPARING ROW	STA	3
0104-6017	REMOVING CONC (DRIVEWAYS)	SY	34
0104-6029	REMOVING CONC (CURB OR CURB & GUTTER)	LF	8
0160-6003	FURNISHING AND PLACING TOPSOIL (4")	SY	99
0162-6002	BLOCK SODDING	SY	99
0168-6001*	VEGETATIVE WATERING	SY	99
0423-6008	RETAINING WALL (CAST - IN - PLACE)	SF	402
0529-6008	CONC CURB & GUTTER (TY II)	LF	215
0530-6004	DRIVEWAYS (CONC)	SY	34
0531-6001	CONC SIDEWALKS (4")	SY	51
0531-6027	CURB RAMPS (TY 10)	SY	24
0531-6033	CONC SIDEWALKS (SPECIAL) (TYPE B)	SY	73
0560-6025	RELOCATE EXISTING MAILBOX	EA	2
0644-6068	RELOCATE SM RD SN SUP&AM TY 10BWG	EA	1

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DESIGN

STATE OF TEXAS · TYLER PAYNE DUBE · 118612 · LICENSED PROFESSIONAL ENGINEER

TYLER PAYNE DUBE, P.E. — 1/25/2022 DATE

APPROVAL

STATE OF TEXAS · JOHN A. TYLER · 105193 · LICENSED PROFESSIONAL ENGINEER

JOHN A. TYLER, P.E. — 1/25/2022 DATE

0 15 30

SCALE: PLAN 1"= 30' PROFILE 1"= 10'

REV. NO.	DATE	DESCRIPTION	BY

PAPE-DAWSON ENGINEERS
SAN ANTONIO | AUSTIN | HOUSTON | FORT WORTH | DALLAS
2000 NW LOOP 410 | SAN ANTONIO, TX 78213 | 210.375.9000
TEXAS ENGINEERING FIRM #470 | TEXAS SURVEYING FIRM #10028800

PEACHTREE

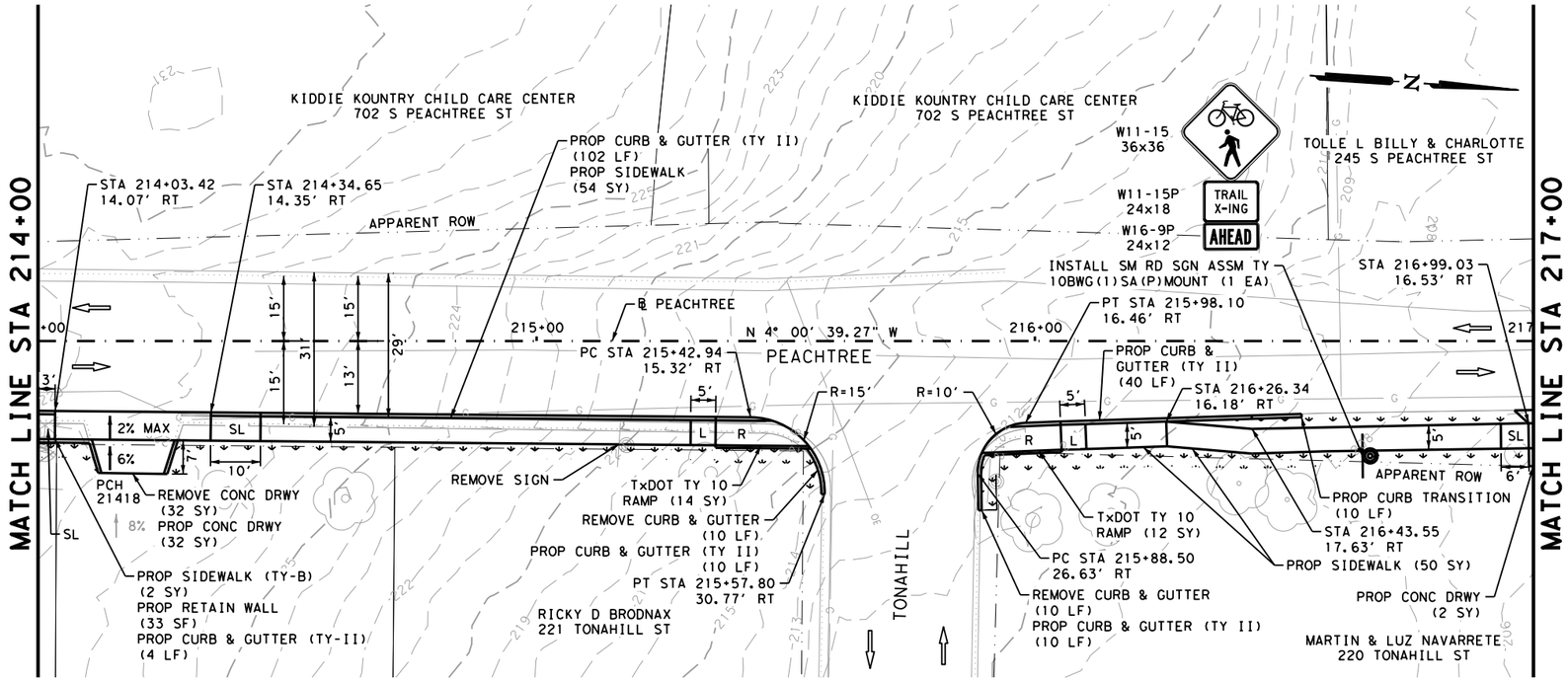
SIDEWALK PLAN & PROFILE

STA 211+00 TO STA 214+00

SHEET 4 OF 9

DGN:	FED. RD. DIV. NO.	STATE	FEDERAL AID PROJECT NO.			HIGHWAY NO.
CHK DGN:	6	TEXAS				VARIOUS
DWG:	DIST.	COUNTY	CONT. NO.	SECT. NO.	JOB NO.	SHEET NO.
CHK DWG:	BMT	JASPER	0920	12	047	63

Plotted on: 1/25/2022



ITEM	DESCRIPTION	UNIT	QTY
0100-6002	PREPARING ROW	STA	3
0104-6017	REMOVING CONC (DRIVEWAYS)	SY	32
0104-6029	REMOVING CONC (CURB OR CURB & GUTTER)	LF	20
0160-6003	FURNISHING AND PLACING TOPSOIL (4")	SY	106
0162-6002	BLOCK SODDING	SY	106
0168-6001*	VEGETATIVE WATERING	SY	106
0423-6008	RETAINING WALL (CAST - IN - PLACE)	SF	33
0529-6008	CONC CURB & GUTTER (TY II)	LF	176
0530-6004	DRIVEWAYS (CONC)	SY	34
0531-6001	CONC SIDEWALKS (4")	SY	104
0531-6027	CURB RAMPS (TY 10)	SY	26
0531-6033	CONC SIDEWALKS (SPECIAL) (TYPE B)	SY	2
0644-6001	IN SM RD SN SUP&AM TY10BWG(1)SA(P)	EA	1

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DESIGN

STATE OF TEXAS · TYLER PAYNE DUBE · 118612 · LICENSED PROFESSIONAL ENGINEER

TYLER PAYNE DUBE, P.E. — 1/25/2022 DATE

APPROVAL

STATE OF TEXAS · JOHN A. TYLER · 105193 · LICENSED PROFESSIONAL ENGINEER

JOHN A. TYLER, P.E. — 1/25/2022 DATE

0 15 30

SCALE: PLAN 1"= 30' PROFILE 1"= 10'

REV. NO.	DATE	DESCRIPTION	BY

PAPE-DAWSON ENGINEERS
SAN ANTONIO | AUSTIN | HOUSTON | FORT WORTH | DALLAS
2000 NW LOOP 410 | SAN ANTONIO, TX 78213 | 210.375.9000
TEXAS ENGINEERING FIRM #470 | TEXAS SURVEYING FIRM #10028800

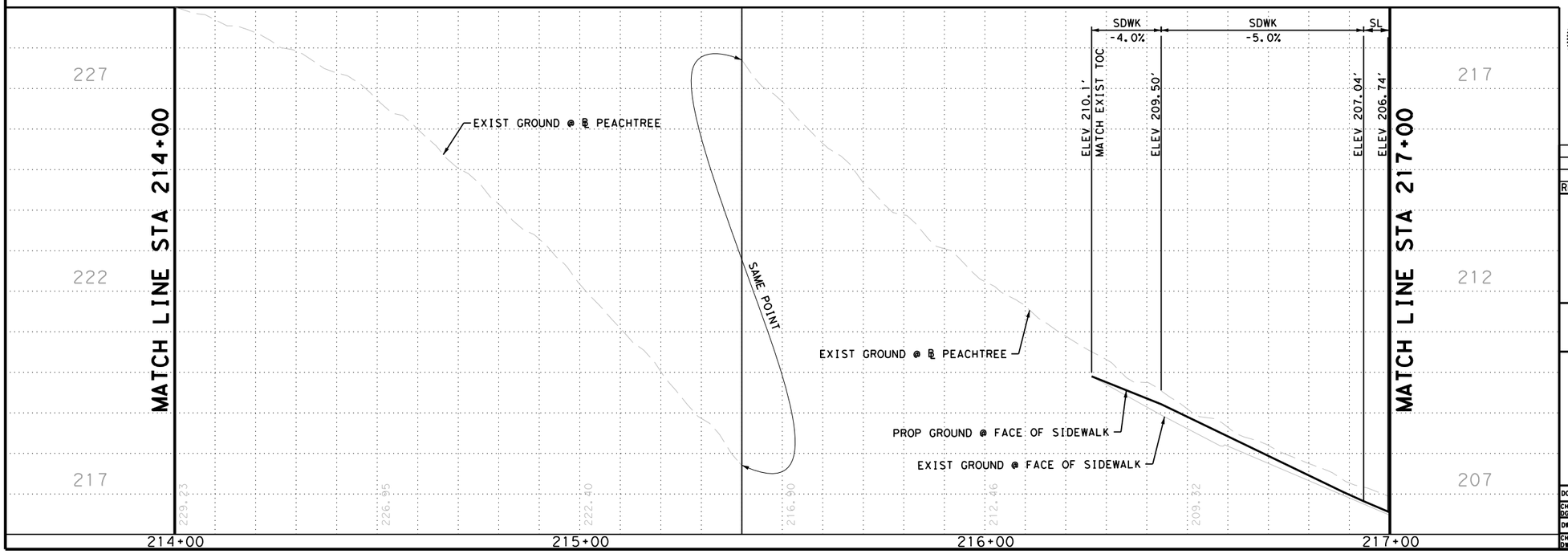
PEACHTREE

SIDEWALK PLAN & PROFILE

STA 214+00 TO STA 217+00

SHEET 5 OF 9

DGN:	FED. RD. DIV. NO.	STATE	FEDERAL AID PROJECT NO.			HIGHWAY NO.
CHK DGN:	6	TEXAS				VARIOUS
DWG:	DIST.	COUNTY	CONT. NO.	SECT. NO.	JOB NO.	SHEET NO.
CHK DWG:	BMT	JASPER	0920	12	047	64



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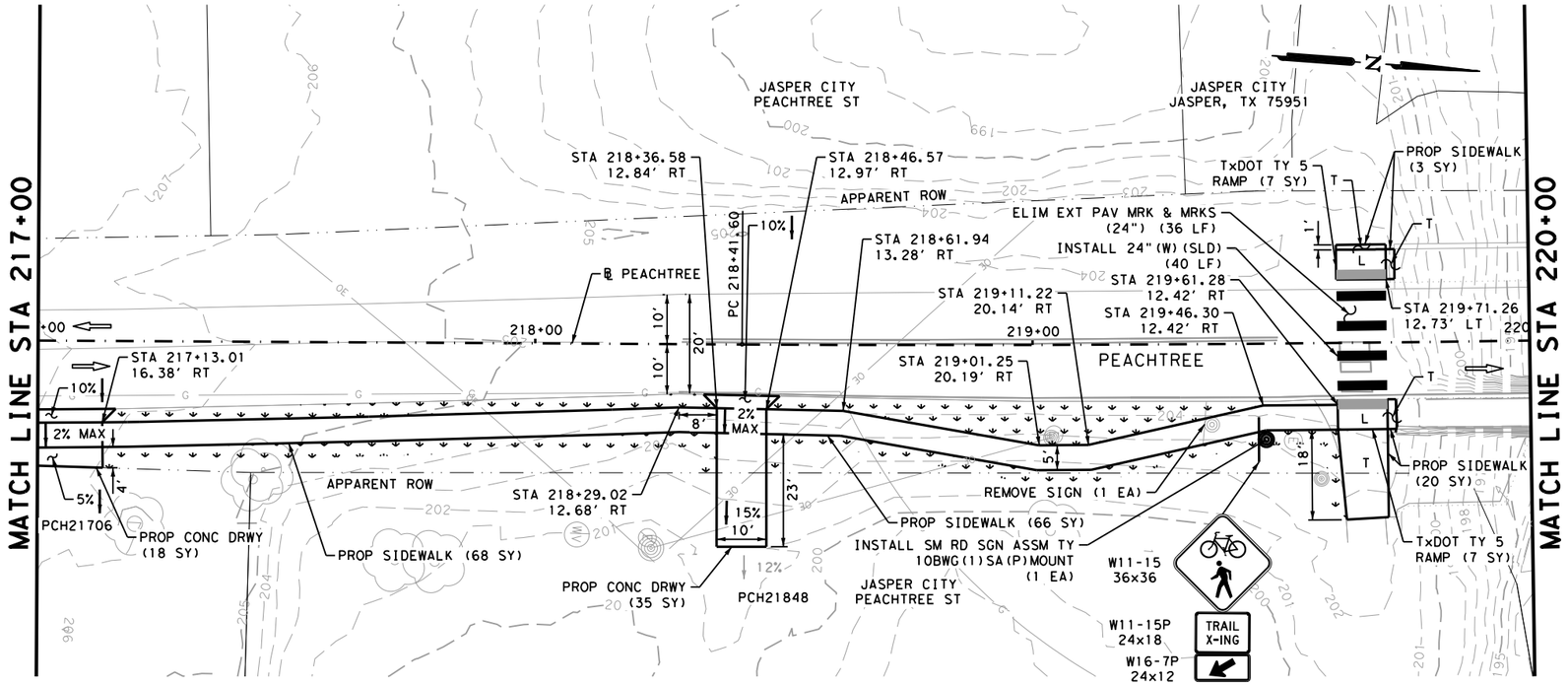

ITEM	DESCRIPTION	UNIT	QTY
0100-6002	PREPARING ROW	STA	3
0160-6003	FURNISHING AND PLACING TOPSOIL (4")	SY	182
0162-6002	BLOCK SODDING	SY	182
0168-6001*	VEGETATIVE WATERING	SY	182
0530-6004	DRIVEWAYS (CONC)	SY	53
0531-6001	CONC SIDEWALKS (4")	SY	157
0531-6022	CURB RAMPS (TY 5)	SY	14
0644-6001	IN SM RD SN SUP&AM TY10BWG(1)SA(P)	EA	1
0644-6076	REMOVE SM RD SN SUP&AM	EA	1
0668-6076	PREFAB PAV MRK TY C (W) (24") (SLD)	LF	40
0677-6007	ELIM EXT PAV MRK & MRKS (24")	LF	36
0678-6008	PAV SURF PREP FOR MRK (24")	LF	40

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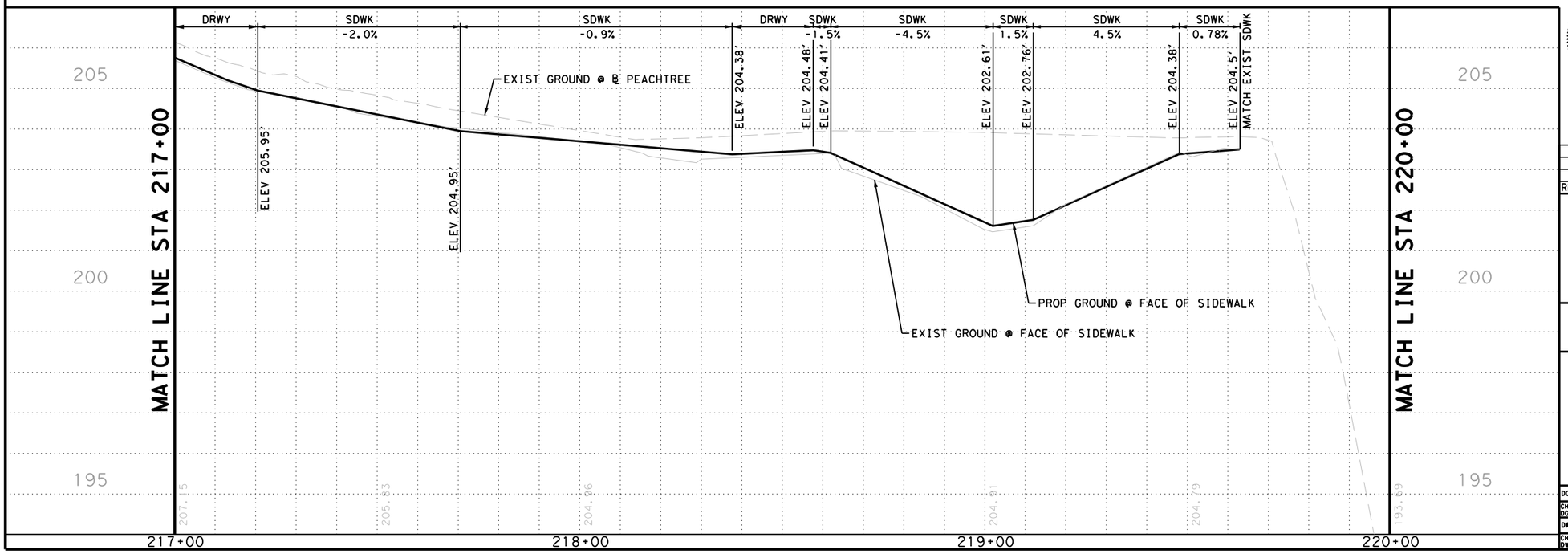

DESIGN

TYLER PAYNE DUBE, P.E. — 1/25/2022 DATE

APPROVAL

JOHN A. TYLER, P.E. — 1/25/2022 DATE

0 15 30

SCALE: PLAN 1"= 30' PROFILE 1"= 10'

REV. NO.	DATE	DESCRIPTION	BY

PAPE-DAWSON ENGINEERS

SAN ANTONIO | AUSTIN | HOUSTON | FORT WORTH | DALLAS
2000 NW LOOP 410 | SAN ANTONIO, TX 78213 | 210.375.9000
TEXAS ENGINEERING FIRM #470 | TEXAS SURVEYING FIRM #10028800

Texas Department of Transportation

PEACHTREE

SIDEWALK PLAN & PROFILE

STA 217+00 TO STA 220+00

SHEET 6 OF 9

DGN:	FED. RD. DIV. NO.	STATE	FEDERAL AID PROJECT NO.			HIGHWAY NO.
CHK DGN:	6	TEXAS				VARIOUS
DWG:	DIST.	COUNTY	CONT. NO.	SECT. NO.	JOB NO.	SHEET NO.
CHK DWG:	BMT	JASPER	0920	12	047	65

Plotted on: 1/25/2022

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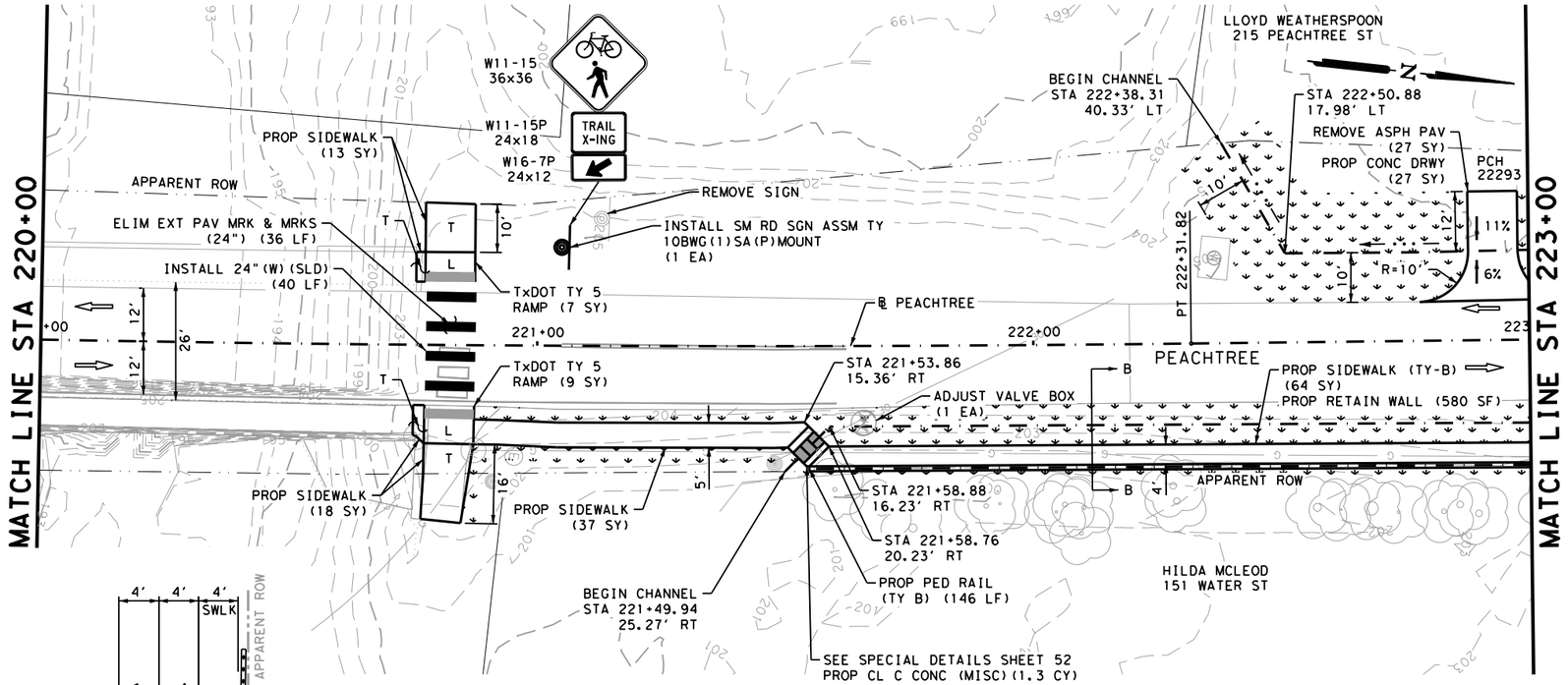

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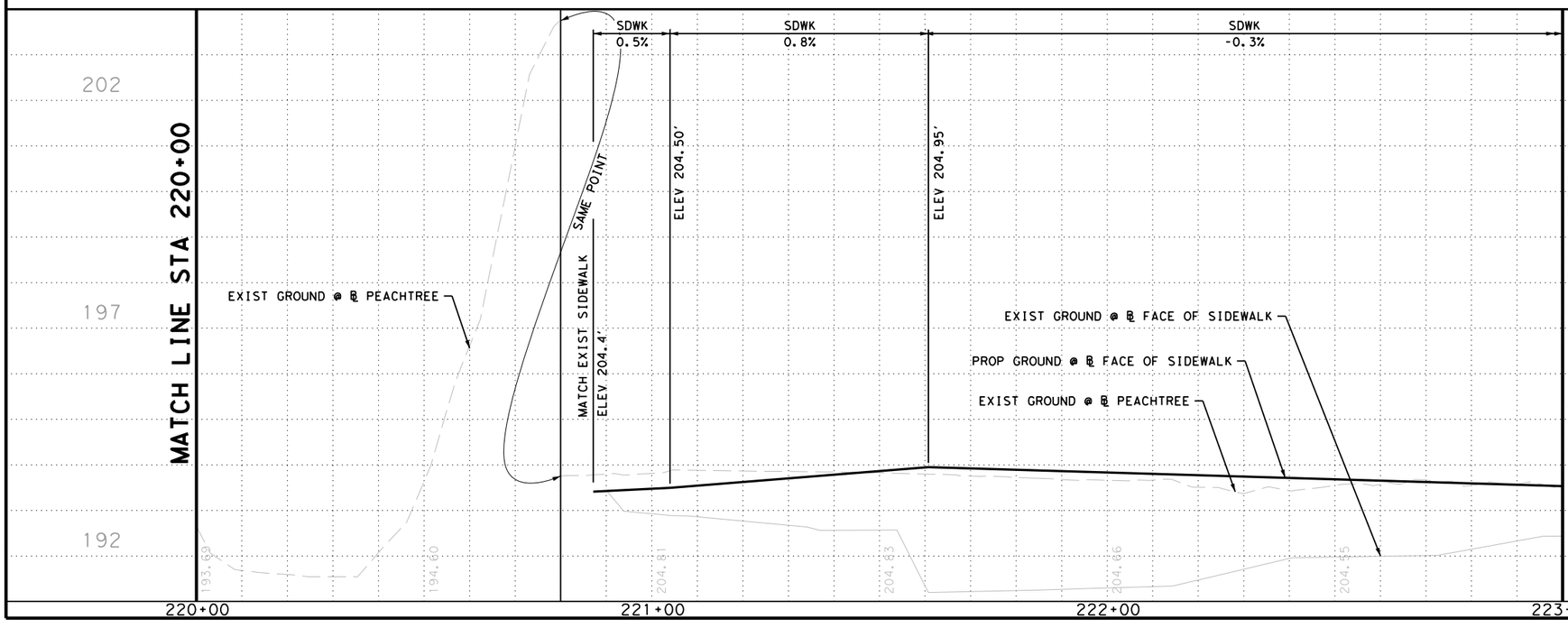
N.T.S.



ITEM	DESCRIPTION	UNIT	QTY
0100-6002	PREPARING ROW	STA	3
0105-6037	REMOVING STAB BASE AND ASPH PAV(0"-16")	SY	27
0110-6001	EXCAVATION (ROADWAY)	CY	60.0
0132-6001	EMBANKMENT (FINAL)(ORD COMP)(TY A)	CY	40.0
0160-6003	FURNISHING AND PLACING TOPSOIL (4")	SY	360
0162-6002	BLOCK SODDING	SY	360
0168-6001*	VEGETATIVE WATERING	SY	360
0420-6074	CL C CONC (MISC)	CY	1.3
0423-6008	RETAINING WALL (CAST - IN - PLACE)	SF	580
0450-6048	RAIL (HANDRAIL)(TY B)	LF	146
0471-6003	GRATE & FRAME	EA	3
0530-6004	DRIVEWAYS (CONC)	SY	27
0531-6001	CONC SIDEWALKS (4")	SY	68
0531-6022	CURB RAMPS (TY 5)	SY	16
0531-6033	CONC SIDEWALKS (SPECIAL) (TYPE B)	SY	64
0644-6001	IN SM RD SN SUP&AM TY10BWG(1)SA(P)	EA	1
0644-6076	REMOVE SM RD SN SUP&AM	EA	1
0668-6076	PREFAB PAV MRK TY C (W) (24") (SLD)	LF	40
0677-6007	ELIM EXT PAV MRK & MRKS (24")	LF	36
0678-6008	PAV SURF PREP FOR MRK (24")	LF	40
7196-6011	ADJUST VALVE BOX	EA	1

NOTES:
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3. SEE SAMPLE PLAN LAYOUT AND LEGEND OF SYMBOLS FOR MORE INFORMATION

DESIGN

STATE OF TEXAS · TYLER PAYNE DUBE · 118612 · LICENSED PROFESSIONAL ENGINEER

TYLER PAYNE DUBE, P.E. — 1/25/2022 DATE

APPROVAL

STATE OF TEXAS · JOHN A. TYLER · 105193 · LICENSED PROFESSIONAL ENGINEER

JOHN A. TYLER, P.E. — 1/25/2022 DATE

0 15 30

SCALE: PLAN 1"= 30' PROFILE 1"= 10'

REV. NO.	DATE	DESCRIPTION	BY

PAPE-DAWSON ENGINEERS
SAN ANTONIO | AUSTIN | HOUSTON | FORT WORTH | DALLAS
2000 NW LOOP 410 | SAN ANTONIO, TX 78213 | 210.375.9000
TEXAS ENGINEERING FIRM #470 | TEXAS SURVEYING FIRM #10028800

PEACHTREE

SIDEWALK PLAN & PROFILE

STA 220+00 TO STA 223+00

SHEET 7 OF 9

DGN:	FED. RD. DIV. NO.	STATE	FEDERAL AID PROJECT NO.			HIGHWAY NO.
CHK DGN:	6	TEXAS				VARIOUS
DWG:	DIST.	COUNTY	CONT. NO.	SECT. NO.	JOB NO.	SHEET NO.
CHK DWG:	BMT	JASPER	0920	12	047	66

Plotted on: 1/25/2022

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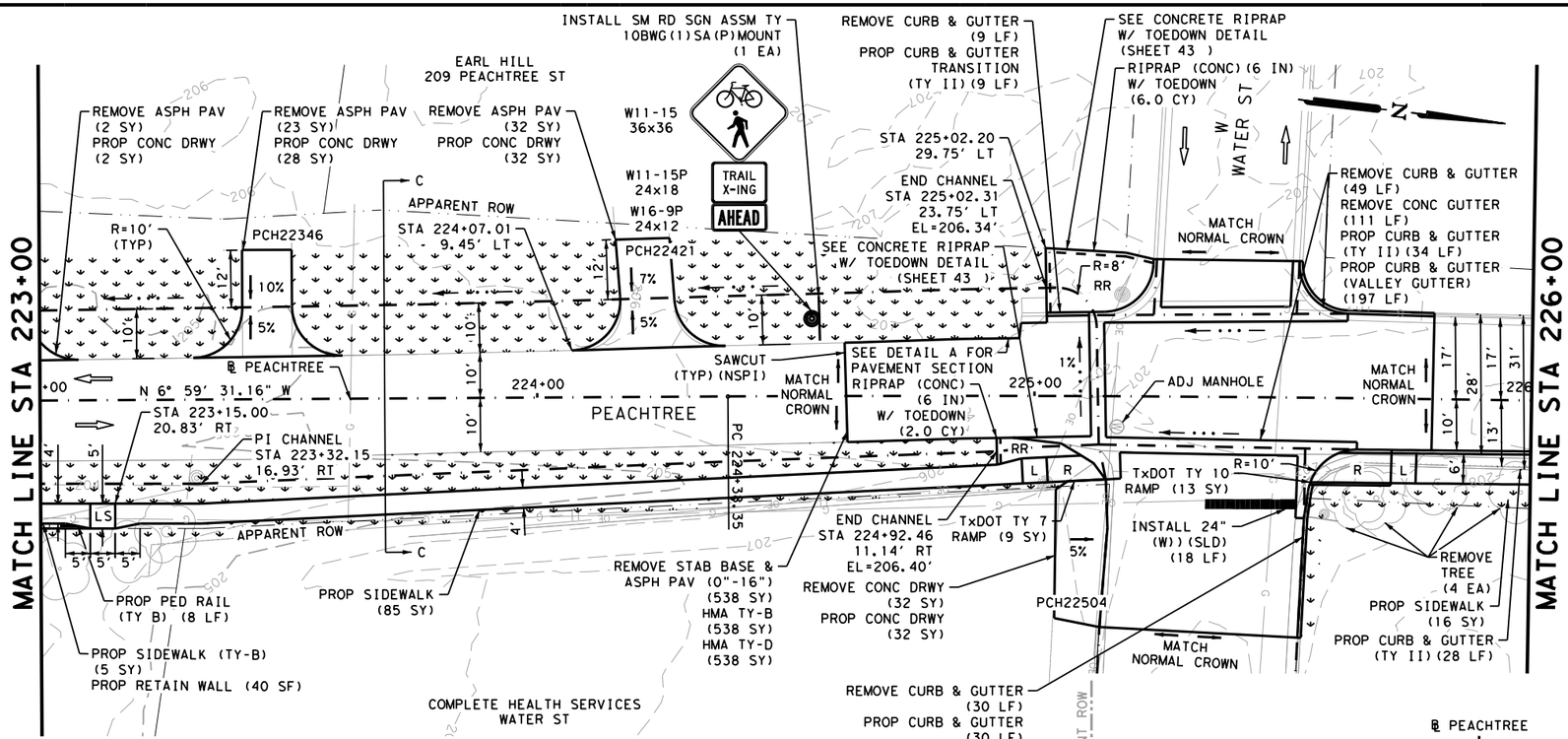
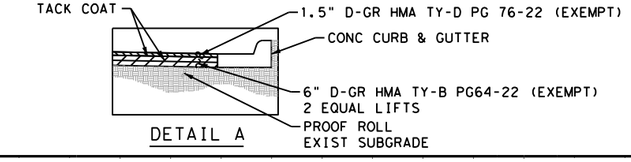
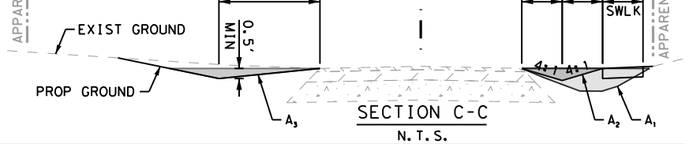
Plotted on: 1/25/2022



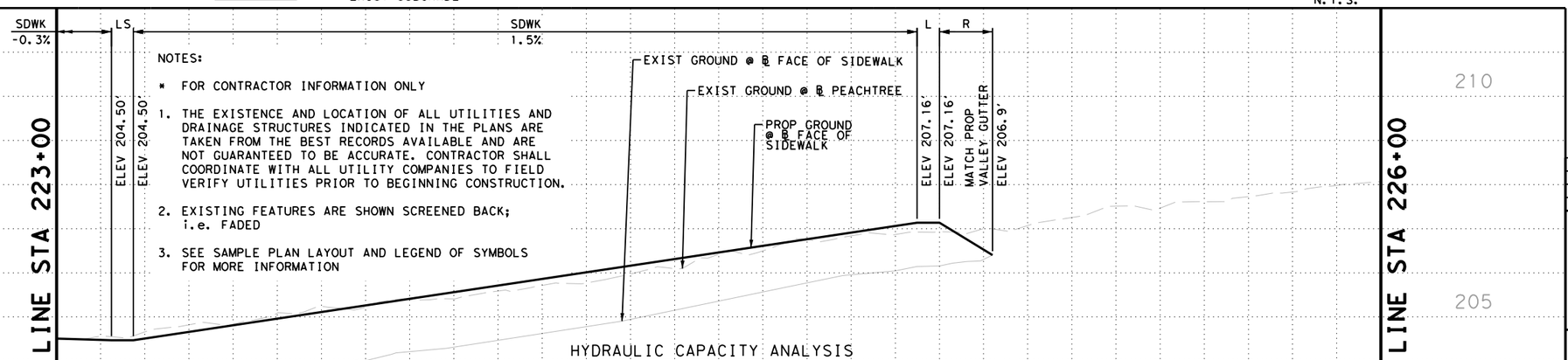


DETAIL A



SECTION C-C
N. T. S.

ITEM	DESCRIPTION	UNIT	QTY
0100-6002	PREPARING ROW	STA	3
0104-6017	REMOVING CONC (DRIVEWAYS)	SY	32
0104-6026	REMOVE CONC (GUTTER)	LF	111
0104-6029	REMOVING CONC (CURB OR CURB & GUTTER)	LF	88
0105-6037	REMOVING STAB BASE AND ASPH PAV(0"-16")	SY	595
0110-6001	EXCAVATION (ROADWAY)	CY	125.0
0132-6001	EMBANKMENT (FINAL)(ORD COMP)(TY A)	CY	50.0
0160-6003	FURNISHING AND PLACING TOPSOIL (4")	SY	683
0162-6002	BLOCK SODDING	SY	683
0168-6001*	VEGETATIVE WATERING	SY	683
0216-6001	PROOF ROLLING	HR	8.0
0423-6008	RETAINING WALL (CAST - IN - PLACE)	SF	40
0432-6003	RIPRAP (CONC)(6 IN)	CY	8.0
0450-6048	RAIL (HANDRAIL)(TY B)	LF	8
0479-6001	ADJUSTING MANHOLES	EA	1
0529-6008	CONC CURB & GUTTER (TY II)	LF	101
0529-6030	CONC CURB & GUTTER (VALLEY GUTTER)	LF	197
0530-6004	DRIVEWAYS (CONC)	SY	94
0531-6001	CONC SIDEWALKS (4")	SY	101
0531-6024	CURB RAMPS (TY 7)	SY	9
0531-6027	CURB RAMPS (TY 10)	SY	13
0531-6033	CONC SIDEWALKS (SPECIAL) (TYPE B)	SY	5
0644-6001	IN SM RD SN SUP&AM TY10BWG(1)SA(P)	EA	1
0668-6076	PREFAB PAV MRK TY C (W) (24") (SLD)	LF	18
0678-6008	PAV SURF PREP FOR MRK (24")	LF	18
0752-6005	TREE REMOVAL (4" - 12" DIA)	EA	4
3076-6003*	D-GR HMA TY-B PG64-22 (EXEMPT)	SY	538
3076-6066*	TACK COAT	SY	1076
3076-6072*	D-GR HMA TY-D PG 76-22 (EXEMPT)	SY	538



NOTES:

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HYDRAULIC CAPACITY ANALYSIS

SEE SECTION C-C FOR AREAS OF INTEREST

$$Q = \frac{z}{n} A R^{2/3} S^{1/2} \qquad \text{TxDOT HDM (09/2019) EQN 6 – 3}$$

$$R = \frac{A}{WP}$$

$z = 1.486$ *CONSTANT*
n = *MANNING'S ROUGHNESS COEFFICIENT*
A = *CROSS – SECTIONAL AREA (SF)*
R = *HYDRAULIC RADIUS (FT)*
S = *CHANNEL SLOPE (FT/FT)*

Q_1 = *PRE – PROJECT CONVEYANCE CAPACITY*

$Q_2 + Q_3$ = *POST – PROJECT CONVEYANCE CAPACITY*

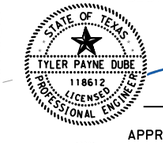
$Q_2 + Q_3 > Q_1$

$13.5 + 9.5 > 19.5$

$23 > 19.5$

AREA OF INTEREST	z	n	A	WP	R	S	Q
			SF	*FT*	*FT*	*FT/FT*	*CFS*
1	1.49	0.03	6.1	13.5	0.45	0.012	19.5
2	1.49	0.03	4.0	8.2	0.49	0.012	13.5
3	1.49	0.03	3.9	15.5	0.3	0.012	9.5

DESIGN



TYLER PAYNE DUBE, P.E. — 1/25/2022 DATE

APPROVAL

JOHN A. TYLER, P.E. — 1/25/2022 DATE

0 15 30

SCALE: PLAN 1"= 30' PROFILE 1"= 10'

REV. NO.	DATE	DESCRIPTION	BY

PAPE-DAWSON ENGINEERS
SAN ANTONIO | AUSTIN | HOUSTON | FORT WORTH | DALLAS
2000 NW LOOP 410 | SAN ANTONIO, TX 78213 | 210.375.9000
TEXAS ENGINEERING FIRM #470 | TEXAS SURVEYING FIRM #10028800

PEACHTREE

SIDEWALK PLAN & PROFILE

STA 223+00 TO STA 226+00

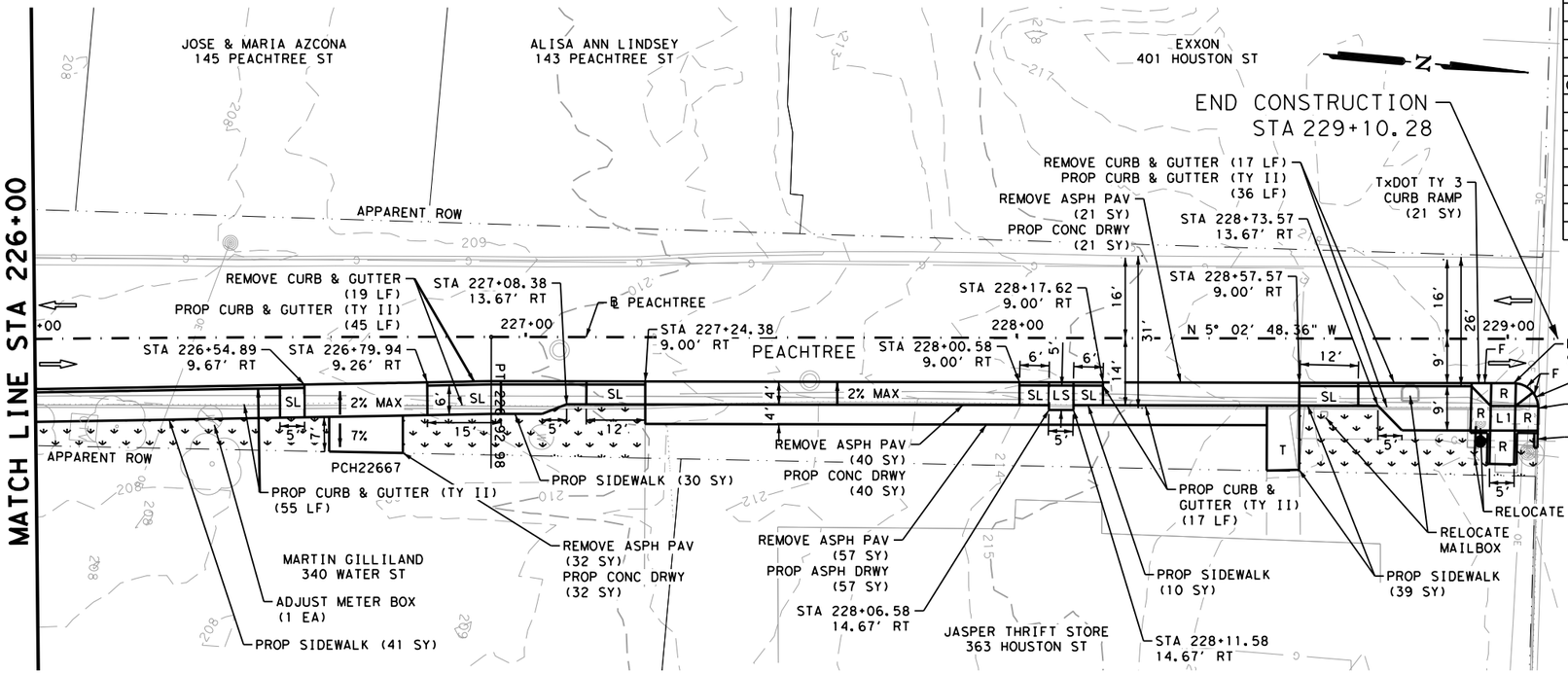
SHEET 8 OF 9

DGN:	FED. RD. DIV. NO.	STATE	FEDERAL AID PROJECT NO.			HIGHWAY NO.
CHK DGN:	6	TEXAS				VARIOUS
DWG:	DIST.	COUNTY	CONT. NO.	SECT. NO.	JOB NO.	SHEET NO.
CHK DWG:	BMT	JASPER	0920	12	047	67

Design Filename: P:\122\42\01\Design\Civil\Roadway\1224201_pch08.dgn

Plotted on: 1/25/2022

ITEM	DESCRIPTION	UNIT	QTY
0100-6002	PREPARING ROW	STA	3
0104-6015	REMOVING CONC (SIDEWALKS)	SY	2
0104-6029	REMOVING CONC (CURB OR CURB & GUTTER)	LF	36
0105-6037	REMOVING STAB BASE AND ASPH PAV(0"-16")	SY	150
0160-6003	FURNISHING AND PLACING TOPSOIL (4")	SY	126
0162-6002	BLOCK SODDING	SY	126
0168-6001*	VEGETATIVE WATERING	SY	126
0529-6008	CONC CURB & GUTTER (TY II)	LF	155
0530-6004	DRIVEWAYS (CONC)	SY	93
0530-6005	DRIVEWAYS (ACP)	SY	57
0531-6001	CONC SIDEWALKS (4")	SY	120
0531-6020	CURB RAMPS (TY 3)	SY	21
0560-6025	RELOCATE EXISTING MAILBOX	EA	1
0644-6068	RELOCATE SM RD SN SUP&AM TY 10BWG	EA	1
7196-6068	ADJUST METER BOX	EA	1



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DESIGN

STATE OF TEXAS — TYLER PAYNE DUBE — 118612 — LICENSED PROFESSIONAL ENGINEER

TYLER PAYNE DUBE, P.E. — 1/25/2022 DATE

APPROVAL

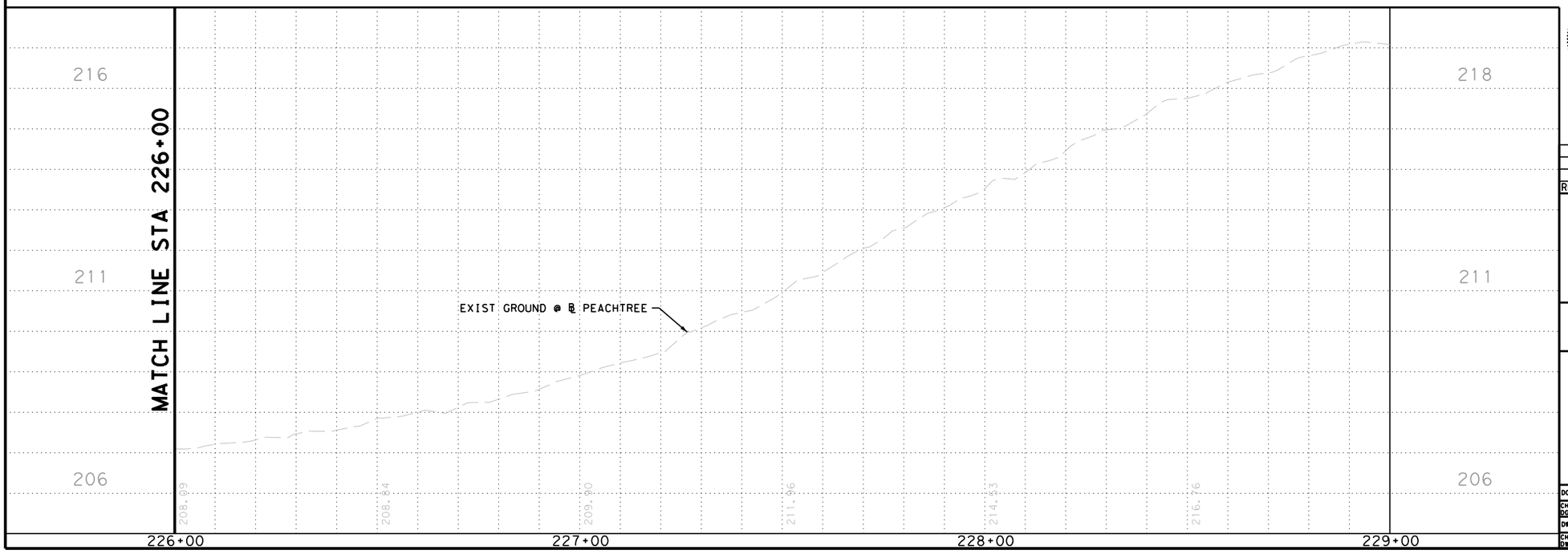
STATE OF TEXAS — JOHN A. TYLER — 105193 — LICENSED PROFESSIONAL ENGINEER

JOHN A. TYLER, P.E. — 1/25/2022 DATE

0 15 30

SCALE: PLAN 1"= 30' PROFILE 1"= 10'

REV. NO.	DATE	DESCRIPTION	BY



PAPE-DAWSON ENGINEERS
SAN ANTONIO | AUSTIN | HOUSTON | FORT WORTH | DALLAS
2000 NW LOOP 410 | SAN ANTONIO, TX 78213 | 210.375.9000
TEXAS ENGINEERING FIRM #470 | TEXAS SURVEYING FIRM #10028800

PEACHTREE

SIDEWALK PLAN & PROFILE

STA 226+00 TO END WORK

SHEET 9 OF 9

DGN:	FED. RD. DIV. NO.	STATE	FEDERAL AID PROJECT NO.			HIGHWAY NO.
CHK DGN:	6	TEXAS				VARIOUS
DWG:	DIST.	COUNTY	CONT. NO.	SECT. NO.	JOB NO.	SHEET NO.
CHK DWG:	BMT	JASPER	0920	12	047	68

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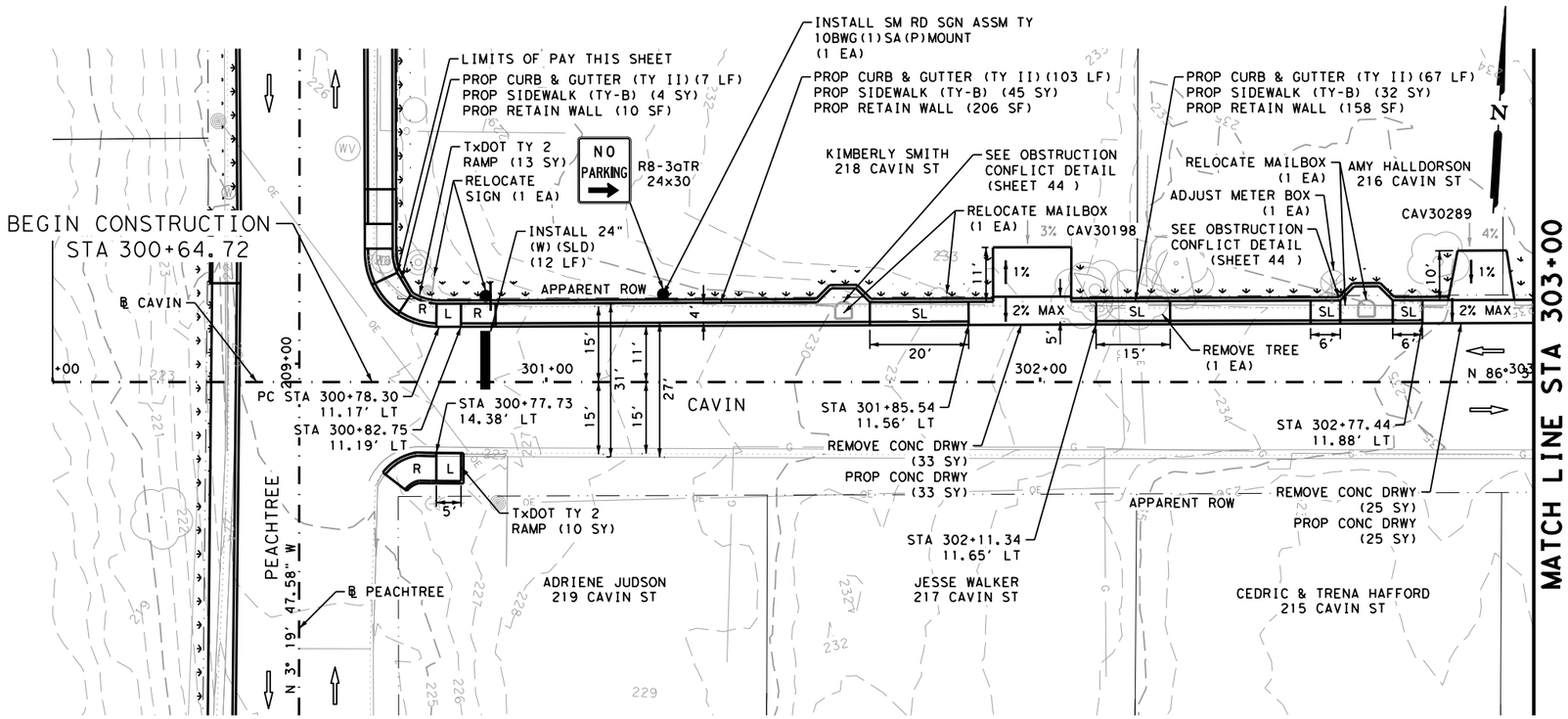

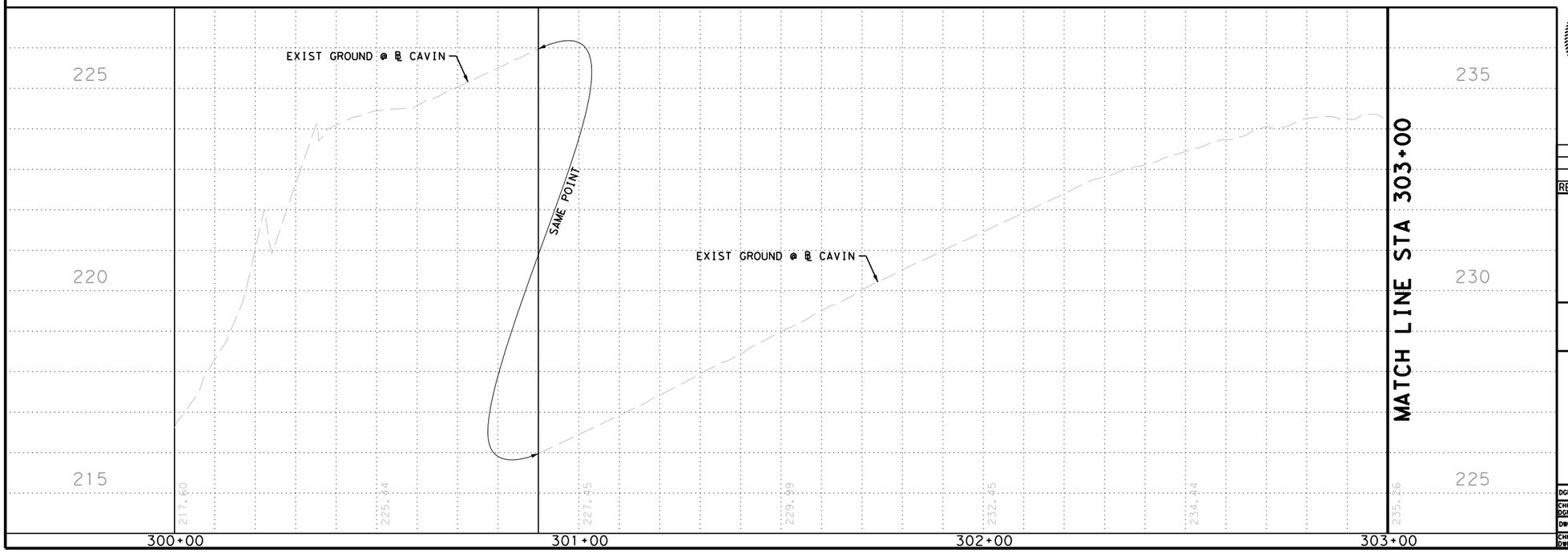

ITEM	DESCRIPTION	UNIT	QTY
0100-6002	PREPARING ROW	STA	3
0104-6017	REMOVING CONC (DRIVEWAYS)	SY	58
0160-6003	FURNISHING AND PLACING TOPSOIL (4")	SY	79
0162-6002	BLOCK SODDING	SY	79
0168-6001*	VEGETATIVE WATERING	SY	79
0423-6008	RETAINING WALL (CAST - IN - PLACE)	SF	374
0529-6008	CONC CURB & GUTTER (TY II)	LF	180
0530-6004	DRIVEWAYS (CONC)	SY	58
0531-6019	CURB RAMPS (TY 2)	SY	23
0531-6033	CONC SIDEWALKS (SPECIAL) (TYPE B)	SY	81
0560-6025	RELOCATE EXISTING MAILBOX	EA	2
0644-6001	IN SM RD SN SUP&AM TY10BWG(1)SA(P)	EA	1
0644-6068	RELOCATE SM RD SN SUP&AM TY 10BWG	EA	1
0668-6076	PREFAB PAV MRK TY C (W) (24") (SLD)	LF	12
0678-6008	PAV SURF PREP FOR MRK (24")	LF	12
0752-6007	TREE REMOVAL (18" - 24" DIA)	EA	1
7196-6068	ADJUST METER BOX	EA	1

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DESIGN

STATE OF TEXAS · TYLER PAYNE DUBE · 118612 · LICENSED PROFESSIONAL ENGINEER

TYLER PAYNE DUBE, P.E. — 1/25/2022 DATE

APPROVAL

STATE OF TEXAS · JOHN A. TYLER · 105193 · LICENSED PROFESSIONAL ENGINEER

JOHN A. TYLER, P.E. — 1/25/2022 DATE

0 15 30

SCALE: PLAN 1"= 30' PROFILE 1"= 10'

REV. NO.	DATE	DESCRIPTION	BY

PAPE-DAWSON ENGINEERS
SAN ANTONIO | AUSTIN | HOUSTON | FORT WORTH | DALLAS
2000 NW LOOP 410 | SAN ANTONIO, TX 78213 | 210.375.9000
TEXAS ENGINEERING FIRM #470 | TEXAS SURVEYING FIRM #10028800

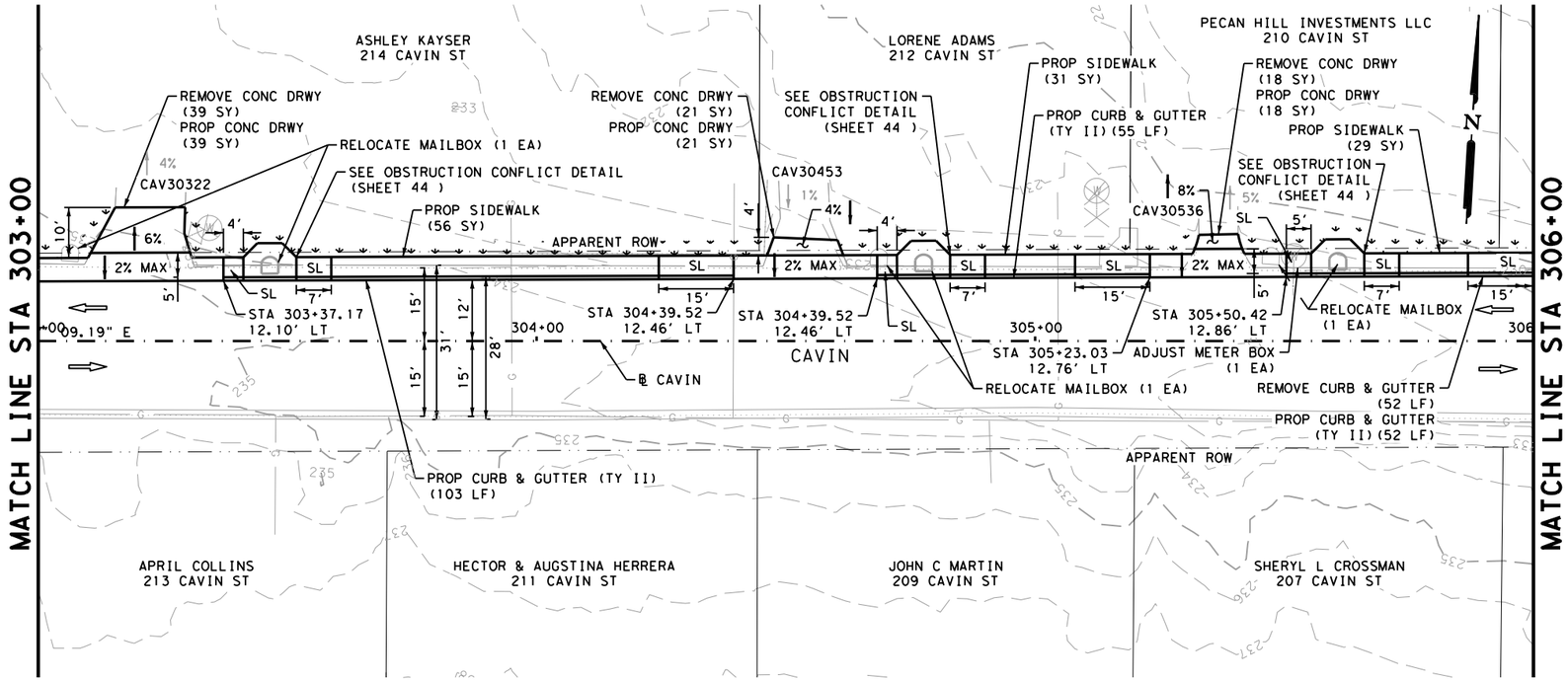
CAVIN

SIDEWALK PLAN & PROFILE

BEGIN WORK TO STA 303+00

SHEET 1 OF 4

DGN:	FED. RD. DIV. NO.	STATE	FEDERAL AID PROJECT NO.			HIGHWAY NO.
CHK DGN:	6	TEXAS				VARIOUS
DWG:	DIST.	COUNTY	CONT. NO.	SECT. NO.	JOB NO.	SHEET NO.
CHK DWG:	BMT	JASPER	0920	12	047	69



ITEM	DESCRIPTION	UNIT	QTY
0100-6002	PREPARING ROW	STA	3
0104-6017	REMOVING CONC (DRIVEWAYS)	SY	78
0104-6029	REMOVING CONC (CURB OR CURB & GUTTER)	LF	52
0160-6003	FURNISHING AND PLACING TOPSOIL (4")	SY	94
0162-6002	BLOCK SODDING	SY	94
0168-6001*	VEGETATIVE WATERING	SY	94
0529-6008	CONC CURB & GUTTER (TY II)	LF	210
0530-6004	DRIVEWAYS (CONC)	SY	78
0531-6001	CONC SIDEWALKS (4")	SY	116
0560-6025	RELOCATE EXISTING MAILBOX	EA	3
7196-6068	ADJUST METER BOX	EA	1

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DESIGN

STATE OF TEXAS · TYLER PAYNE DUBE · 118612 · LICENSED PROFESSIONAL ENGINEER

TYLER PAYNE DUBE, P.E. — 1/25/2022 DATE

APPROVAL

STATE OF TEXAS · JOHN A. TYLER · 105193 · LICENSED PROFESSIONAL ENGINEER

JOHN A. TYLER, P.E. — 1/25/2022 DATE

0 15 30

SCALE: PLAN 1"= 30' PROFILE 1"= 10'

REV. NO.	DATE	DESCRIPTION	BY

PAPE-DAWSON ENGINEERS
SAN ANTONIO | AUSTIN | HOUSTON | FORT WORTH | DALLAS
2000 NW LOOP 410 | SAN ANTONIO, TX 78213 | 210.375.9000
TEXAS ENGINEERING FIRM #470 | TEXAS SURVEYING FIRM #10028800

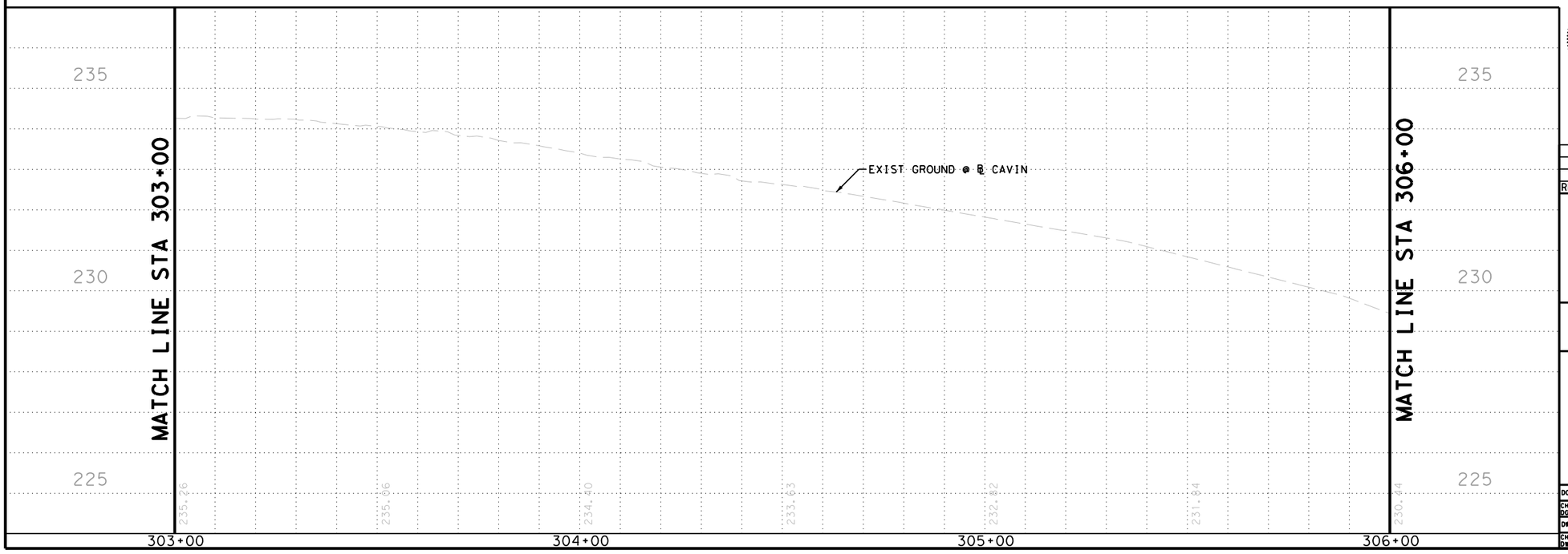
CAVIN

SIDEWALK PLAN & PROFILE

STA 303+00 TO STA 306+00

SHEET 2 OF 4

DGN:	FED. RD. DIV. NO.	STATE	FEDERAL AID PROJECT NO.			HIGHWAY NO.
CHK DGN:	6	TEXAS				VARIOUS
DWG:	DIST.	COUNTY	CONT. NO.	SECT. NO.	JOB NO.	SHEET NO.
CHK DWG:	BMT	JASPER	0920	12	047	70



Plotted on: 1/25/2022

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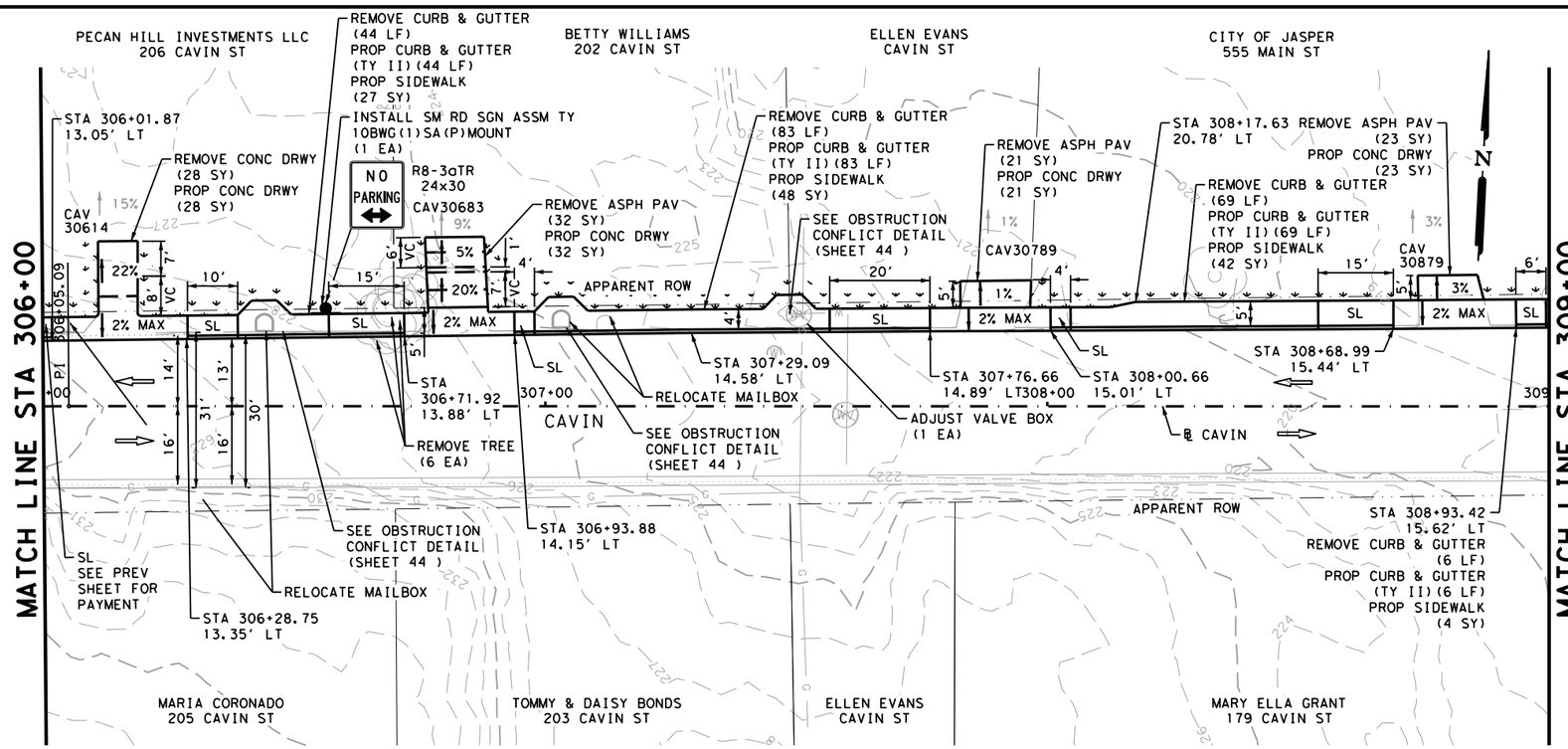

ITEM	DESCRIPTION	UNIT	QTY
0100-6002	PREPARING ROW	STA	3
0104-6017	REMOVING CONC (DRIVEWAYS)	SY	28
0104-6029	REMOVING CONC (CURB OR CURB & GUTTER)	LF	202
0105-6037	REMOVING STAB BASE AND ASPH PAV(0"-16")	SY	76
0160-6003	FURNISHING AND PLACING TOPSOIL (4")	SY	105
0162-6002	BLOCK SODDING	SY	105
0168-6001*	VEGETATIVE WATERING	SY	105
0529-6008	CONC CURB & GUTTER (TY II)	LF	202
0530-6004	DRIVEWAYS (CONC)	SY	104
0531-6001	CONC SIDEWALKS (4")	SY	124
0560-6025	RELOCATE EXISTING MAILBOX	EA	2
0644-6001	IN SM RD SN SUP&AM TY10BWG(1)SA(P)	EA	1
0752-6005	TREE REMOVAL (4" - 12" DIA)	EA	6
7196-6011	ADJUST VALVE BOX	EA	1

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DESIGN

STATE OF TEXAS
TYLER PAYNE DUBE
118612
LICENSED
PROFESSIONAL ENGINEER

TYLER PAYNE DUBE, P.E. — 1/25/2022 DATE

APPROVAL

STATE OF TEXAS
JOHN A. TYLER
105193
LICENSED
PROFESSIONAL ENGINEER

JOHN A. TYLER, P.E. — 1/25/2022 DATE

0 15 30

SCALE: PLAN 1"= 30' PROFILE 1"= 10'

REV. NO.	DATE	DESCRIPTION	BY

PAPE-DAWSON ENGINEERS
SAN ANTONIO | AUSTIN | HOUSTON | FORT WORTH | DALLAS
2000 NW LOOP 410 | SAN ANTONIO, TX 78213 | 210.375.9000
TEXAS ENGINEERING FIRM #470 | TEXAS SURVEYING FIRM #10028800

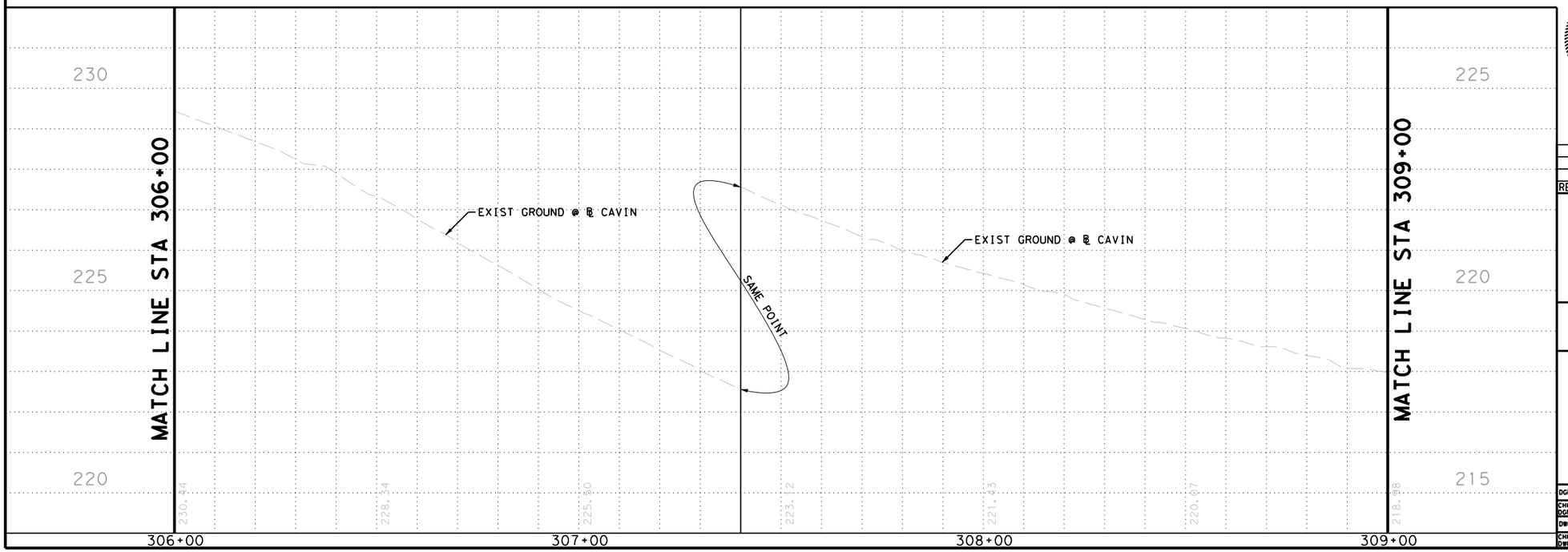
CAVIN

SIDEWALK PLAN & PROFILE

STA 306+00 TO STA 309+00

SHEET 3 OF 4

DGN:	FED. RD. DIV. NO.	STATE	FEDERAL AID PROJECT NO.			HIGHWAY NO.
CHK DGN:	6	TEXAS				VARIOUS
DWG:	DIST.	COUNTY	CONT. NO.	SECT. NO.	JOB NO.	SHEET NO.
CHK DWG:	BMT	JASPER	0920	12	047	71



Plotted on: 1/25/2022

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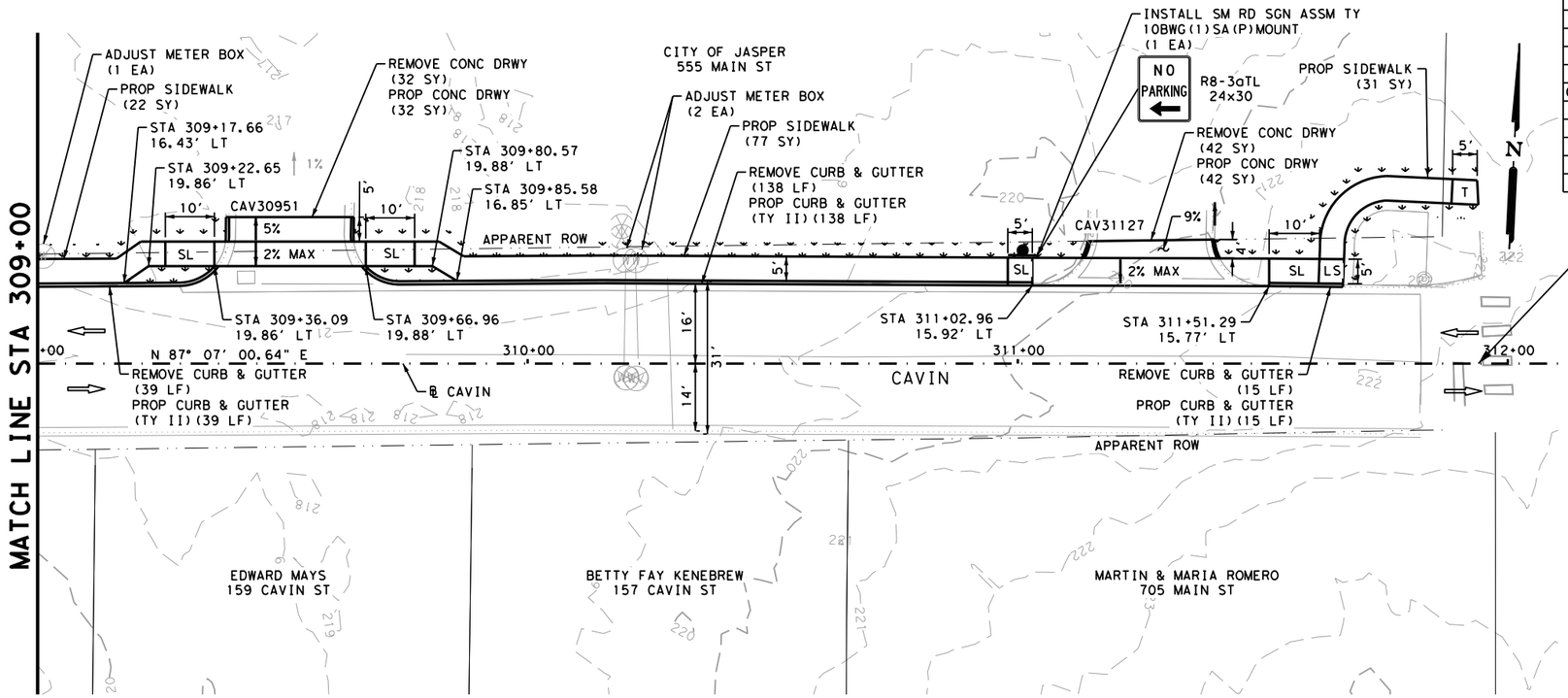
Plotted on: 1/25/2022

ITEM	DESCRIPTION	UNIT	QTY
0100-6002	PREPARING ROW	STA	3
0104-6017	REMOVING CONC (DRIVEWAYS)	SY	74
0104-6029	REMOVING CONC (CURB OR CURB & GUTTER)	LF	192
0160-6003	FURNISHING AND PLACING TOPSOIL (4")	SY	107
0162-6002	BLOCK SODDING	SY	107
0168-6001*	VEGETATIVE WATERING	SY	107
0529-6008	CONC CURB & GUTTER (TY II)	LF	192
0530-6004	DRIVEWAYS (CONC)	SY	74
0531-6001	CONC SIDEWALKS (4")	SY	130
0644-6001	IN SM RD SN SUP&AM TY10BWG(1)SA(P)	EA	1
7196-6068	ADJUST METER BOX	EA	3



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DESIGN

STATE OF TEXAS · TYLER PAYNE DUBE · 118612 · LICENSED PROFESSIONAL ENGINEER

TYLER PAYNE DUBE, P.E. — 1/25/2022 DATE

APPROVAL

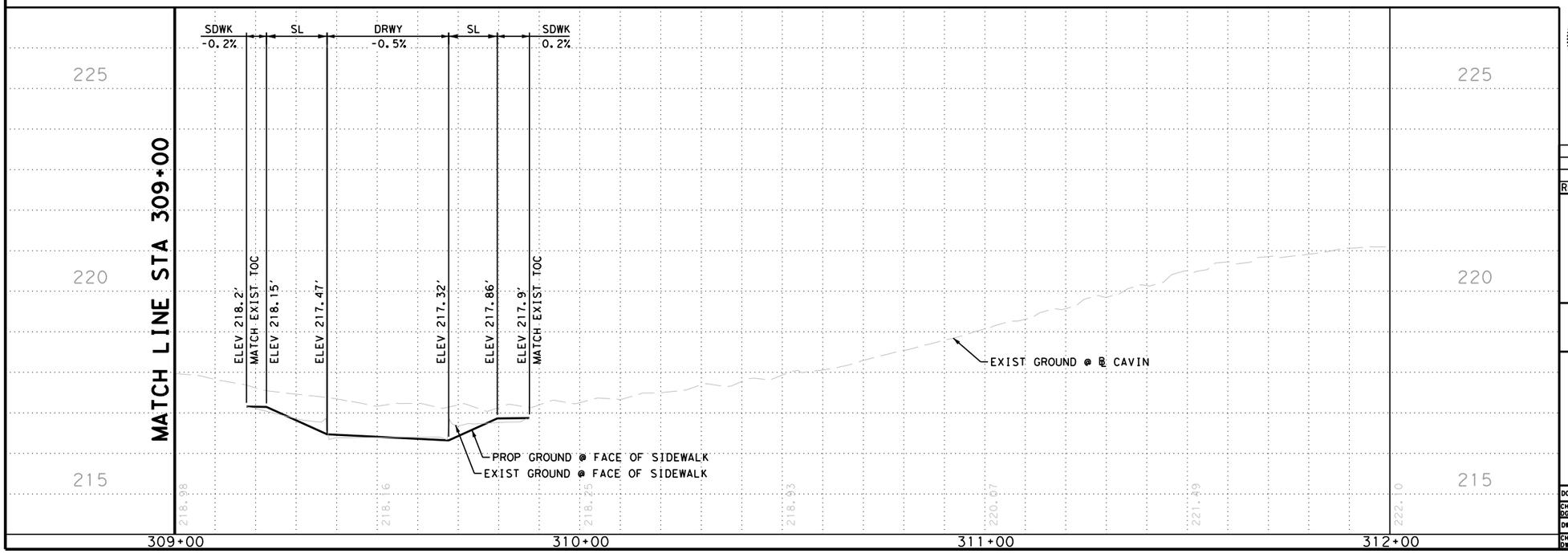
STATE OF TEXAS · JOHN A. TYLER · 105193 · LICENSED PROFESSIONAL ENGINEER

JOHN A. TYLER, P.E. — 1/25/2022 DATE

0 15 30

SCALE: PLAN 1"= 30' PROFILE 1"= 10'

REV. NO.	DATE	DESCRIPTION	BY



PAPE-DAWSON ENGINEERS
SAN ANTONIO | AUSTIN | HOUSTON | FORT WORTH | DALLAS
2000 NW LOOP 410 | SAN ANTONIO, TX 78213 | 210.375.9000
TEXAS ENGINEERING FIRM #470 | TEXAS SURVEYING FIRM #10028800

CAVIN

SIDEWALK PLAN & PROFILE

STA 309+00 TO END WORK

SHEET 4 OF 4

DGN:	FED. RD. DIV. NO.	STATE	FEDERAL AID PROJECT NO.			HIGHWAY NO.
CHK DGN:	6	TEXAS				VARIOUS
DWG:	DIST.	COUNTY	CONT. NO.	SECT. NO.	JOB NO.	SHEET NO.
CHK DWG:	BMT	JASPER	0920	12	047	72

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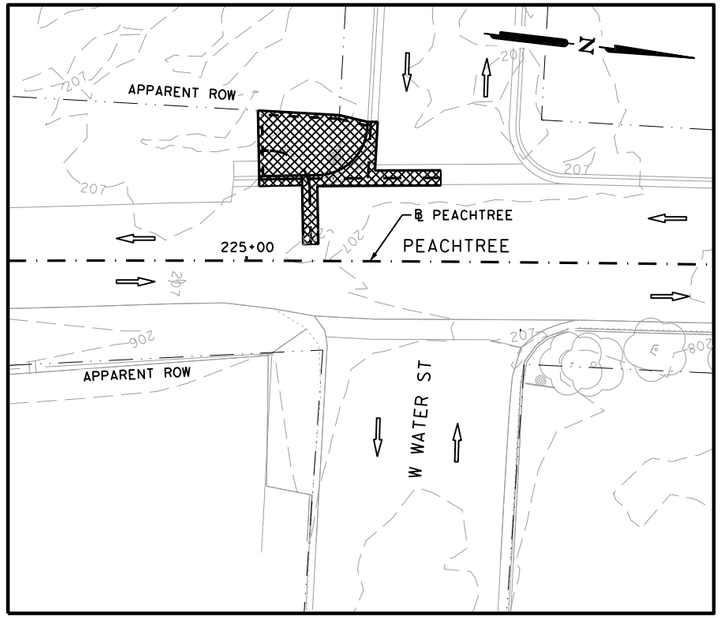
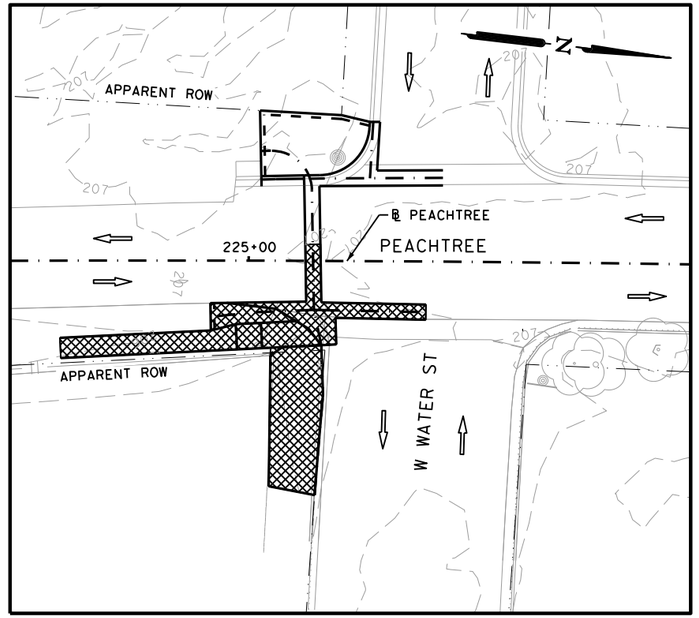
Plotted on: 1/25/2022



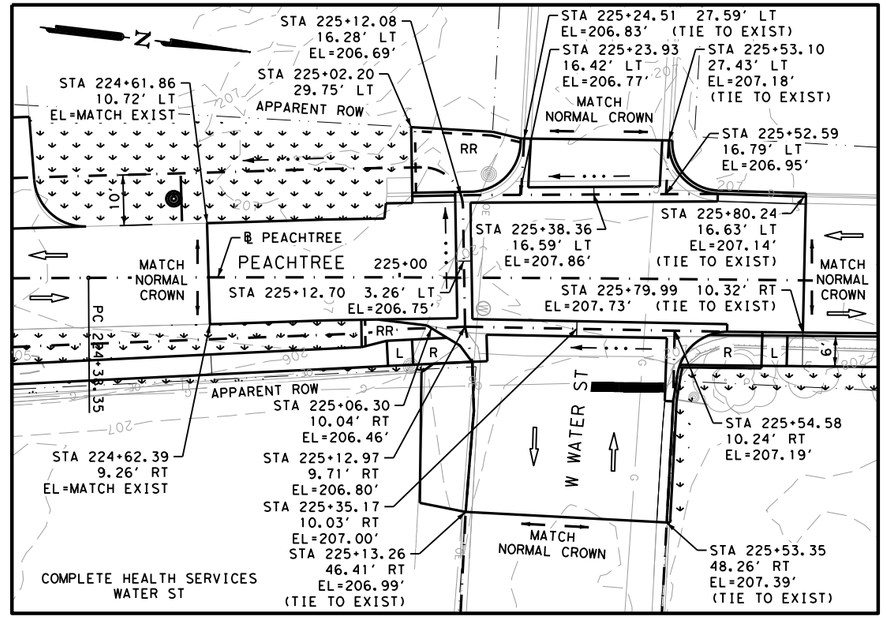
INTERSECTION CONSTRUCTION LIMITS: PHASE 1

1. ESTABLISH TRAFFIC CONTROL DEVICES PER TCP (2-2b)
2. CONSTRUCT CHANNEL AND DRIVEWAY IMPROVEMENTS FROM DOWNSTREAM TO UPSTREAM. THEN CONSTRUCT CURB, AND VALLEY GUTTER TO THE LIMITS SHOWN ABOVE
3. NO DROPOFFS ARE PERMITTED OUTSIDE WORK HOURS. BACKFILL AS NEEDED (NSPI)

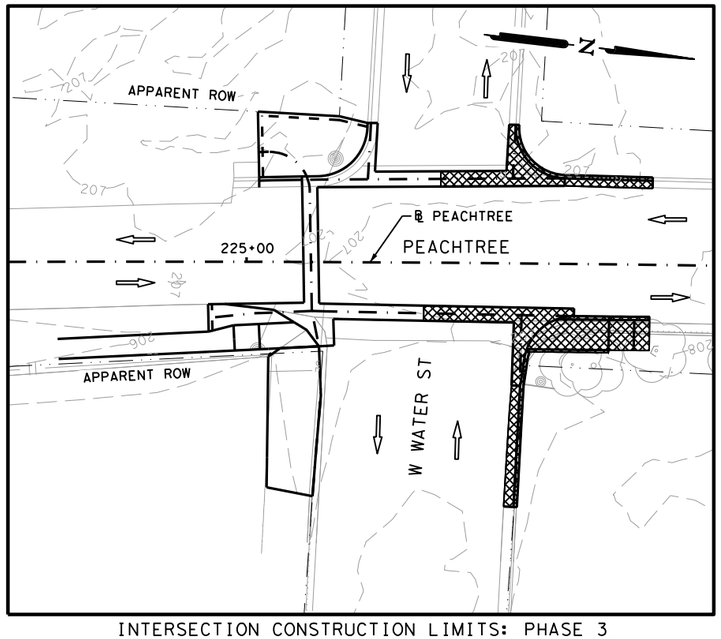


INTERSECTION CONSTRUCTION LIMITS: PHASE 2

1. ESTABLISH TRAFFIC CONTROL DEVICES PER TCP (2-2b)
2. CONSTRUCT SIDEWALK, DRIVEWAY, CURB, AND VALLEY GUTTER TO THE LIMITS SHOWN ABOVE
3. NO DROPOFFS ARE PERMITTED OUTSIDE WORK HOURS. BACKFILL AS NEEDED (NSPI)

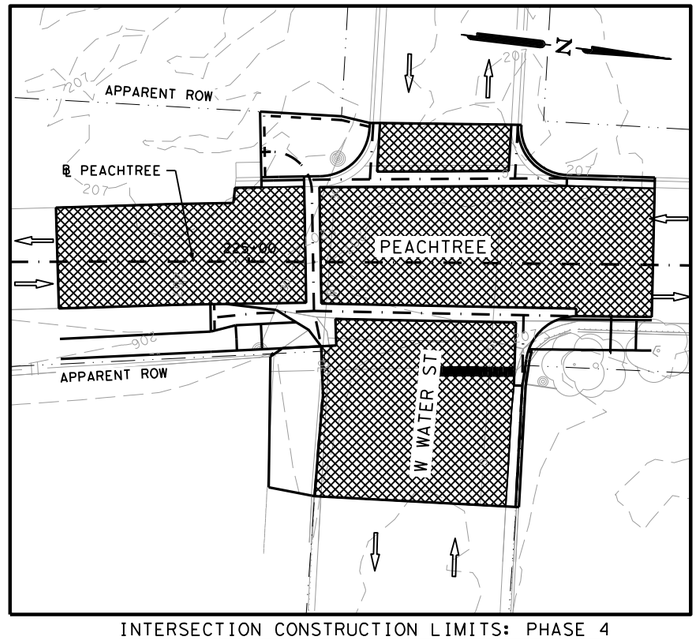


INTERSECTION DETAIL



INTERSECTION CONSTRUCTION LIMITS: PHASE 3

1. ESTABLISH TRAFFIC CONTROL DEVICES PER TCP (2-2b)
2. CONSTRUCT SIDEWALK, CURB, AND VALLEY GUTTER TO THE LIMITS SHOWN ABOVE
3. NO DROPOFFS ARE PERMITTED OUTSIDE WORK HOURS. BACKFILL AS NEEDED (NSPI)



INTERSECTION CONSTRUCTION LIMITS: PHASE 4

1. COORDINATE ROAD CLOSURE WITH ADJACENT RESIDENTS AT LEAST 72 HOURS IN ADVANCE OF CONSTRUCTION
2. ESTABLISH TRAFFIC CONTROL DEVICES PER WZ (RCD)-13
3. CONSTRUCT D-GR HMA TO THE LIMITS SHOWN ABOVE
4. NO DROPOFFS ARE PERMITTED OUTSIDE WORK HOURS. BACKFILL AS NEEDED (NSPI)

PHASED CONSTRUCTION LIMITS

NOTES:
* FOR CONTRACTOR INFORMATION ONLY
1. THE EXISTENCE AND LOCATION OF ALL UTILITIES AND DRAINAGE STRUCTURES INDICATED IN THE PLANS ARE TAKEN FROM THE BEST RECORDS AVAILABLE AND ARE NOT GUARANTEED TO BE ACCURATE. CONTRACTOR SHALL COORDINATE WITH ALL UTILITY COMPANIES TO FIELD VERIFY UTILITIES PRIOR TO BEGINNING CONSTRUCTION.
2. EXISTING FEATURES ARE SHOWN SCREENED BACK; i.e. FADED
3. SEE SAMPLE PLAN LAYOUT AND LEGEND OF SYMBOLS FOR MORE INFORMATION

DESIGN

STATE OF TEXAS · TYLER PAYNE DUBE · 118612 · LICENSED PROFESSIONAL ENGINEER

TYLER PAYNE DUBE, P.E. — 1/25/2022 DATE

APPROVAL

STATE OF TEXAS · JOHN A. TYLER · 105193 · LICENSED PROFESSIONAL ENGINEER

JOHN A. TYLER, P.E. — 1/25/2022 DATE

0 15 30

SCALE: PLAN 1"= 30'

REV. NO.	DATE	DESCRIPTION	BY

PAPE-DAWSON ENGINEERS
SAN ANTONIO | AUSTIN | HOUSTON | FORT WORTH | DALLAS
2000 NW LOOP 410 | SAN ANTONIO, TX 78213 | 210.375.9000
TEXAS ENGINEERING FIRM #470 | TEXAS SURVEYING FIRM #10028800

PEACHTREE

INTERSECTION DETAIL

WATER ST

SHEET 1 OF 1

DGN:	FED. RD. DIV. NO.	STATE	FEDERAL AID PROJECT NO.			HIGHWAY NO.
CHK DGN:	6	TEXAS				VARIOUS
DWG:	DIST.	COUNTY	CONT. NO.	SECT. NO.	JOB NO.	SHEET NO.
CHK DWG:	BMT	JASPER	0920	12	047	73

Design Filename: P:\122\42\01\Design\Civil\Roadway\1224201_int01.dgn

GENERAL NOTES FOR TREE PROTECTION

1. PROTECT AND INSURE THE CONTINUED GOOD HEALTH OF EXISTING TREES IDENTIFIED ON THE PLANS OR DIRECTED BY THE ENGINEER. PRESERVE ALL EXISTING VEGETATION WITHIN THE PREFERRED ROOT PROTECTION ZONE.

2. SECURE THE SERVICES OF A TREE CARE SPECIALIST TO PERFORM OR OVERSEE ANY OPERATION INVOLVING LIMB PRUNING, ROOT PRUNING, CHEMICAL APPLICATION, OR ASSESSMENT OF THE CONDITION OF TREES OR EFFECTS OF CONSTRUCTION ON TREES DESIGNATED FOR PROTECTION.

3. WITHIN THE PREFERRED ROOT PROTECTION ZONE, NONE OF THE FOLLOWING ACTIVITIES ARE ALLOWED:

PARKING OF ANY VEHICLES; ERECTION OF ANY SHED OR STRUCTURE; STORAGE OF ANY EQUIPMENT OR MATERIALS; USE BY PEOPLE FOR ANY REASON; DUMPING OF ANY LITTER, WASTE MATERIALS, OR LIQUIDS; IMPOUNDMENT OF WATER; ADDITION OF FILL-SOIL; EXCAVATION, BORING, OR TRENCHING OF ANY TYPE

DEFINITIONS

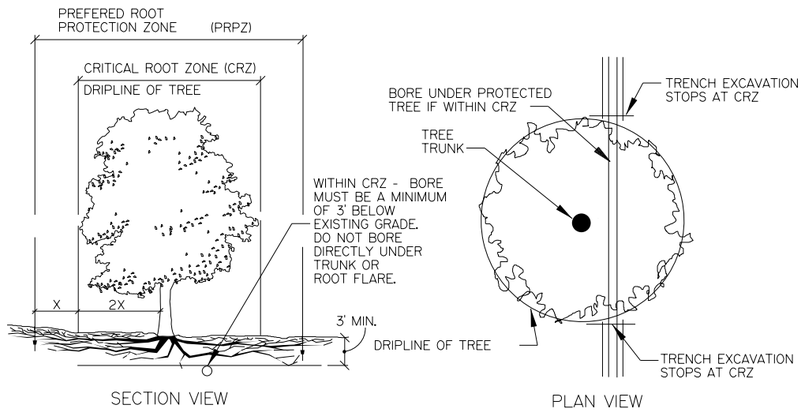
1. DRIPLINE - THE LINE ON THE GROUND DIRECTLY BELOW THE OUTER TIPS OR ENDS OF THE TREE LIMBS.

2. CRITICAL ROOT ZONE (CRZ) - THE GROUND AREA EXTENDING OUT FROM THE TREE TRUNK TO THE DRIPLINE.

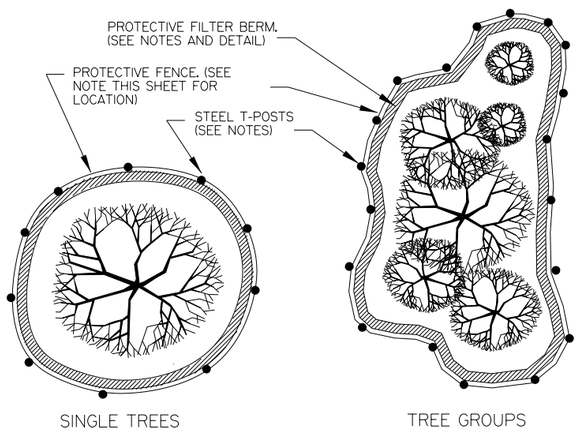
3. PREFERRED ROOT PROTECTION ZONE (PRPZ) - THE GROUND AREA EXTENDING OUT FROM THE TREE TRUNK A DISTANCE EQUAL TO ONE AND ONE HALF OF THE DISTANCE FROM THE TRUNK TO THE DRIPLINE.

4. TREE CARE SPECIALIST - CERTIFIED ARBORIST OR PROFESSIONAL URBAN FORESTER.

5. O.C. - ON CENTER



TRENCHING PAST TREES



PLAN VIEW OF FENCING LAYOUT

CONSTRUCTION METHODS

1. PRIOR TO THE START OF CONSTRUCTION, MARK ALL TREES OR OTHER FEATURES INDICATED ON THE PLANS TO BE PROTECTED WITH YELLOW FLAGGING FOR APPROVAL BY THE ENGINEER.

2. PRIOR TO CONSTRUCTION, PRUNE PROTECTED TREES AS FOLLOWS:
   A. REMOVE ANY DISEASED OR DEAD LIMBS AND CORRECT ANY PREVIOUS IMPROPER PRUNING
   B. REMOVE LIMBS FOR NECESSARY EQUIPMENT ACCESS (AS APPROVED BY THE ENGINEER).
   C. REMOVE LIMBS THAT WILL BE WITHIN TWENTY FEET (20) VERTICAL CLEARANCE OF VEHICLE TRAVEL LANES.
   D. REMOVE LIMBS THAT WILL BE WITHIN TEN FEET (10) VERTICAL CLEARANCE OF PEDESTRIAN AREAS.

3. PERFORM PRUNING USING ONLY TOOLS SPECIFICALLY DESIGNED FOR THE JOB AND IN ACCORDANCE WITH ANSI A300 PRUNING STANDARD. PRUNED MATERIAL BECOMES THE PROPERTY OF THE CONTRACTOR AND WILL BE DISPOSED OF OFF-SITE.

4. ERECT PROTECTIVE FENCING AT ALL TREES, GROUPS OF TREES, OR OTHER FEATURES AS SHOWN ON THE PLANS, OR DESIGNATED BY THE ENGINEER, OR OTHERWISE INDICATED FOR PROTECTION.

5. ERECT PROTECTIVE FENCING FOR TREES AT THE EDGE OF THE PRPZ. PLACE FENCING IN OTHER LOCATIONS ONLY WITH THE APPROVAL OF THE ENGINEER. THE FENCE MATERIAL SHALL BE CHAIN-LINK FENCE.
   A. CHAIN-LINK FENCING SHALL BE SIX-FOOT (6) IN HEIGHT AND SUPPORTED BY EIGHT-FOOT (8) STEEL T-POSTS SPACED SIX FEET (6) O.C., DRIVEN A MINIMUM OF 20" INTO EXISTING GRADE.
   B. THE FENCING SHALL BE CONTINUOUS BETWEEN POSTS AND SHALL BE FIRMLY ATTACHED TO THE POSTS WITH A MINIMUM OF 4 WIRE TIES.

6. PREPARE SIGNS WITH THE FOLLOWNG WORDING, AND INSTALL AT A MINIMUM OF 50' ON CENTER ALONG THE PROTECTIVE FENCING:
   PROTECTED AREA
   DO NOT ENTER
   THIS FENCE MAY NOT BE REMOVED OR MODIFIED WITHOUT THE PERMISSION OF THE ENGINEER
   CONTACT (PHONE NUMBER)

7. IF IT BECOMES NECESSARY TO LOCATE THE PROTECTIVE FENCING WITHIN SIX FEET (6) OF THE TRUNK OF A TREE, SECURE WOOD PLANKING TO THE TRUNK. THE PLANKING SHALL BE NOMINAL 2X4 DIMENSION LUMBER SECURED WITH A ROPE, BAND, OR STRAP OF SUFFICIENT DURABILITY TO REMAIIN IN PLACE FOR THE DURATION OF THE PROJECT. INSTALL PLANKS TO A HEIGHT OF TEN FEET (10) OR TO THE LOWEST MAJOR BRANCHES WHICHEVER IS LOWEST. DO NOT USE NAILS, SCREWS, OR ANY OTHER DAMAGING ATTACHMENTS UNDER ANY CIRCUMSTANCES.

8. ERECT A FILTER BERM COMPOSED OF WOOD CHIPS TO THE DIMENSIONS AND LOCATION SHOWN IN THE DETAILS. USE WOOD CHIPS LESS THAN OR EQUAL TO 5 IN. IN LENGTH WITH 95% PSSING A 2-IN. SCREEN AND LESS THAN 30% PASSING A 1-IN. SCREEN.

9. IMMEDIATELY REMOVE ANY CONCRETE, LIME OR OTHER CHEMICALS ACCIDENTALLY SPILLED WITHIN THE PROTECTED ROOT ZONE. IMMEDIATELY TREAT FOR ACCIDENTAL DAMAGE TO ANY TREE AS DIRECTED BY THE ENGINEER. SECURE THE SERVICES OF A TREE CARE SPECIALIST TO ASSESS AND/OR TREAT FOR THE DAMAGE.

10. MAINTAIN ALL TREE PROTECTION MATERIALS THROUGHOUT ENTIRE LENGTH OF PROJECT. REPAIR ANY DAMAGED TREE PROTECTION MATERIALS IMMEDIATELY AT THE CONTRACTOR'S EXPENSE. ADDITIONAL COMPOST OR MULCH MATERIALS MAY BE REQUIRED.

11. NO TRENCHING, EXCAVATING, FILLING, OR COMPACTION IS ALLOWED WITHIN THE CRITICAL ROOT ZONE EXCEPT AS SPECIFICALLY IDENTIFIED IN THE PLANS OR APPROVED BY THE ENGINEER.

12. IF ROOT REMOVAL OR EXCAVATION IS UNAVOIDABLE WITHIN THE PREFERRED ROOT PROTECTION ZONE, HAND-DIG TO EXPOSE MAJOR TREE ROOTS OF ONE-INCH (1") DIAMETER OR GREATER. ONCE EXPOSED, PRUNE ROOTS WITH SHARP, CLEAN TOOLS DESIGNED FOR THAT PURPOSE. BACKFILL EXPOSED ROOT ENDS AS SOON AS POSSIBLE OR COVERED WITH SIX INCHES (6") SHREDDED HARDWOOD MULCH WITHIN THE SAME DAY OF EXCAVATION.

13. PRUNE ANY ROOTS EXPOSED BY CONSTRUCTION FLUSH WITH THE SOIL. BACKFILL ROOT AREAS WITH GOOD QUALITY TOPSOIL AS SOON AS POSSIBLE. IF EXPOSED ROOTS ARE NOT TO BE BACKFILLED WITHIN TWO DAYS, COVER THEM WITH A MINIMUM OF SIX INCHES (6") OF SHREDDED HARDWOOD MULCH.

14. SHOULD ACCESS ACROSS THE CRITICAL ROOT ZONE BE NECESSARY, OPEN ONLY THAT PORTION NEEDED FOR ACCESS AND THE COMPLETION OF THE TASK. INSTALL SIX INCHES (6") OF SHREDDED HARDWOOD BARK IN ACCESS AREAS BEFORE ANY WHEELED OR TRACKED VEHICES ENTER THE CRITICAL ROOT ZONE. REPLACE PROTECTIVE FENCING TO ITS ORIGINAL POSITIONS AS SOON AS POSSIBLE AFTER THE CONSTRUCTION TASK IS COMPLETED AND REMOVE THE BARK MULCH LAYER AND STOCKPILE OUTSIDE THE CRITICAL ROOT ZONE.

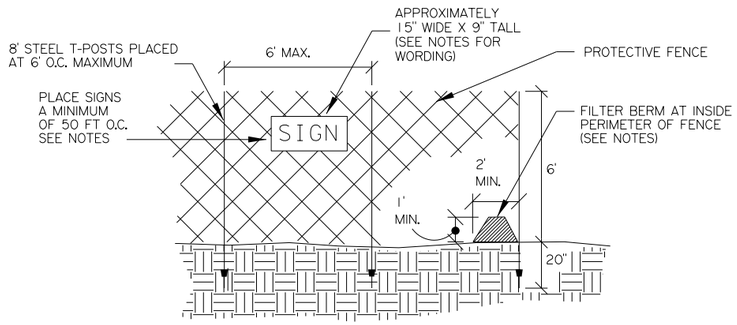
15. FOR PROPOSED UNDERGROUND UTILITIES SHOWN ELSEWHERE IN THE PLANS THAT CROSS THE CRITICAL ROOT ZONE, BORE AT A MINIMUM OF THREE FEET (3) BELOW EXISTING GRADE. TRENCH FOR BORE SHALL NOT INTRUDE INTO CRITICAL ROOT ZONE.

POST CONSTRUCTION

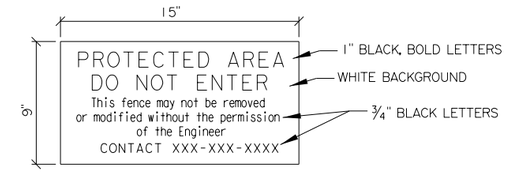
1. UPON THE COMPLETION OF CONSTRUCTION ACTIVITIES, CONDUCT A FINAL ASSESSMENT BY A TREE CARE SPECIALIST TO DETERMINE THE HEALTH AND CONDITION OF THE TREES. THE SPECIALIST SHOULD PROVIDE RECOMMENDATIONS FOR THE FOLLOWING INSPECTION ITEMS FOR NEEDED POST-CONSTRUCTION MEASURES:
   A. DAMAGE TO ANY PART OF THE TREE
   B. CHANGES IN SOILS STRUCTURE SUCH AS COMPACTION, FILLS, EROSION, OR LOSS OF ORGANIC MATTER

IMPLEMENT THE RECOMMENDATIONS MADE BY THE TREE CARE SPECIALIST AS DIRECTED. AT A MINIMUM, PERFORM THE FOLLOWING:
   A. REMOVE TREES THAT MAY HAVE DIED DURING CONSTRUCTION
   B. REMOVE ANY FILL SOIL FROM ROOT ZONES
   C. REPAIR AREAS DAMAGED DURING CONSTRUCTION

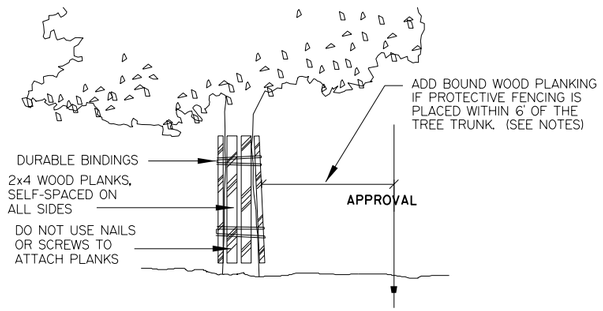
2. AFTER ALL CONSTRUCTION ACTIVITIES HAVE CEASED, REMOVE ALL TREE PROTECTION MATERIALS FROM THE PROJECT SITE. MULCH MAY BE SPREAD OVER THE SITE IN A TWO-INCH THICK MAXIMUM LAYER.



PROTECTIVE FENCE AND SIGN PLACEMENT



SIGNAGE FOR PROTECTED AREAS



WOOD PLANKING INSTALLATION

APPROVAL

STATE OF TEXAS
JOHN A. TYLER
105193
LICENSED
PROFESSIONAL ENGINEER

JOHN A. TYLER, P.E. — 1/26/2022 DATE

THIS WORK AND ALL ASSOCIATED MATERIALS WILL NOT BE PAID FOR DIRECTLY, BUT WILL BE SUBSIDIARY TO ITEM 100 - PREPARING RIGHT OF WAY.

NOT TO SCALE

Texas Department of Transportation

TREE PROTECTION

T:Engdata/Standards/SATreeProtection.dgn

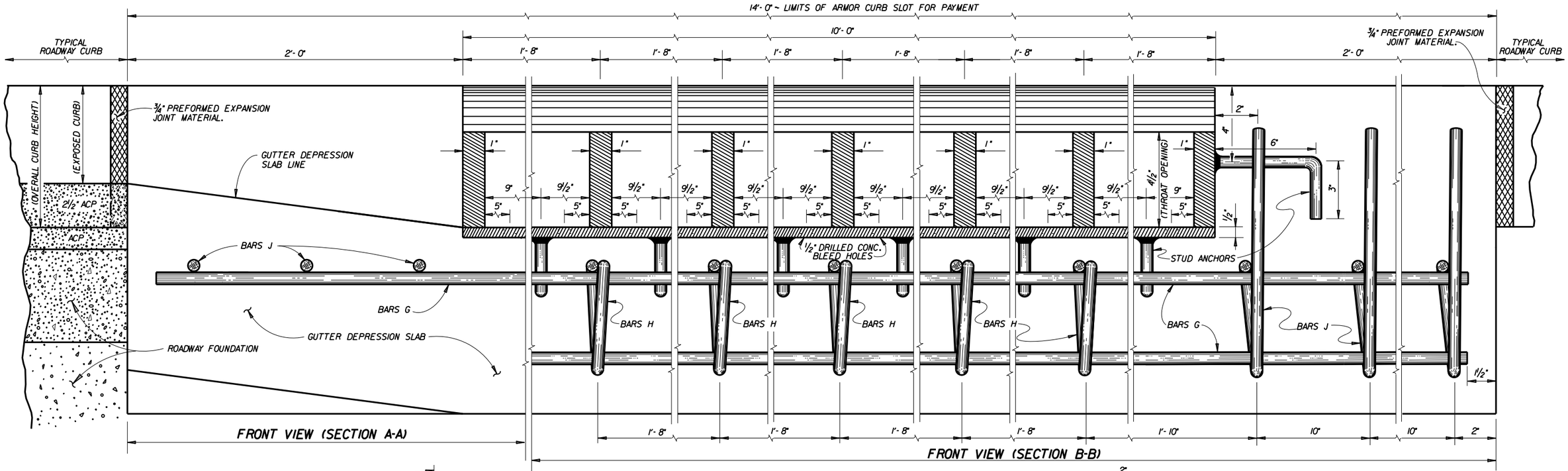
ORIGINAL DRAWING DATE: 12-18-18

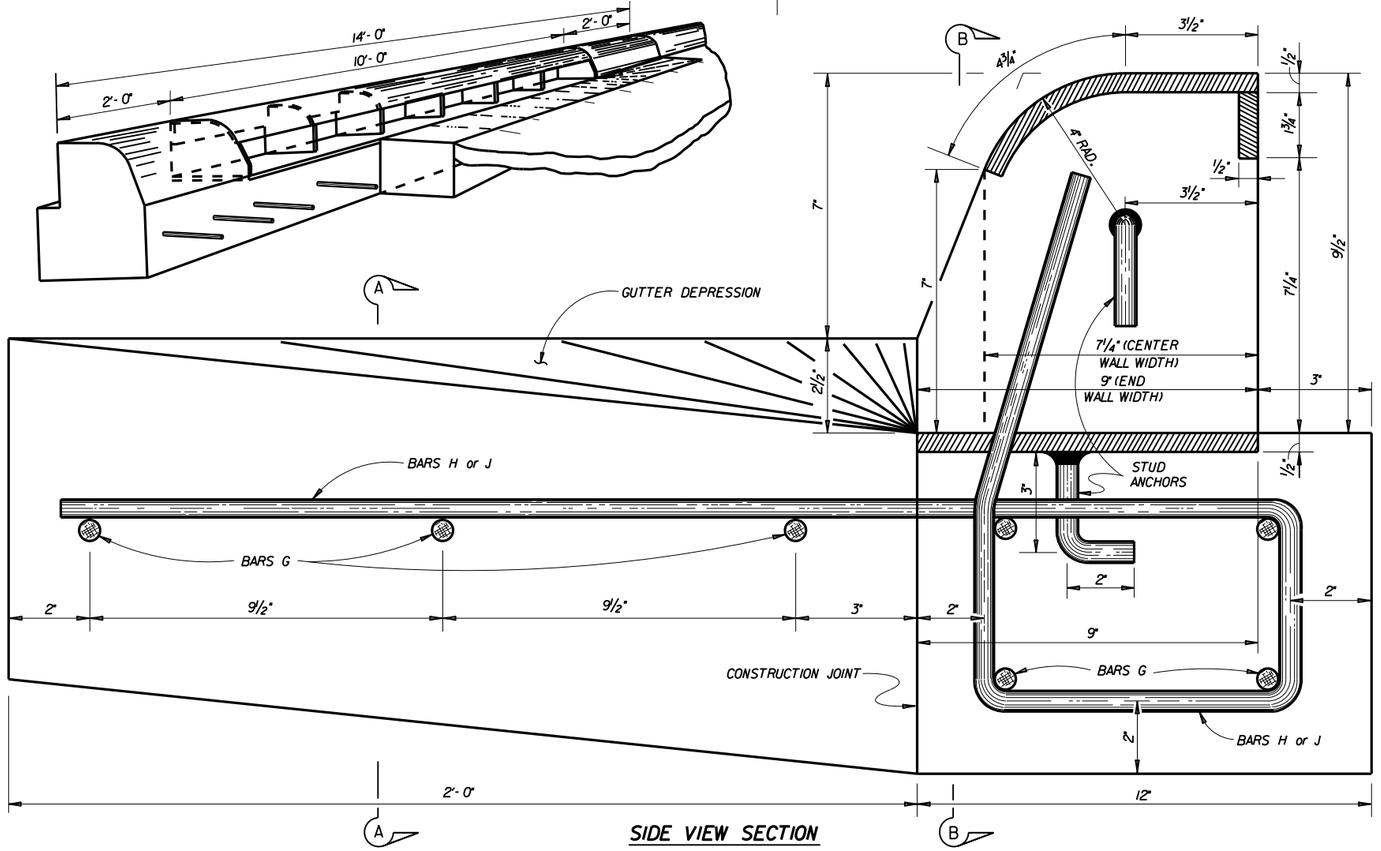
REVISIONS

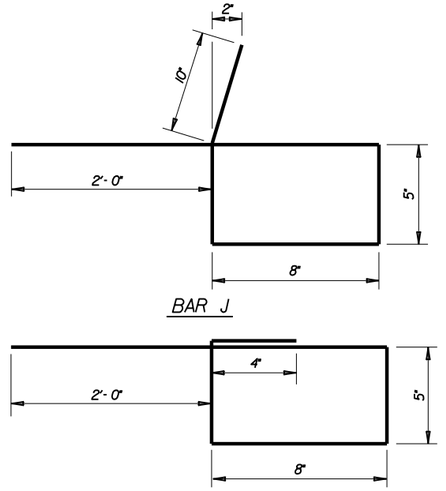
PREPARED BY AND FOR USE OF TxDoT.

STATE DISTRICT	FEDERAL REGION	FEDERAL AID PROJECT #	SHEET
BMT	6		74

COUNTY	CONTROL	SECTION	JOB	HIGHWAY
JASPER	0920	12	047	VARIOUS







ESTIMATED QUANTITIES FOR REINFORCING STEEL

BAR	NO.	SIZE	SPAC.	LENGTH	WEIGHT
G	7	#4	SHOWN	13'-9"	64
H	5	#4	1'-8"	4'-6"	15
J	6	#4	8"	5'-0"	20
TOTAL WEIGHT *				LBS.	99
CONCRETE FOR FOUNDATION *				C.Y.	0.47
CONCRETE FOR GUTTER DEPRESSION *				C.Y.	0.78

STRUCTURAL STEEL FOR ARMOR CURB SLOT		
STUD ANCHORS (1/2" DIA.)	LBS.	3.5
STEEL PLATE	LBS.	451
TOTAL WEIGHT *	LBS.	454.5

* FOR CONTRACTORS INFO ONLY.

GENERAL NOTES:

ALL CONCRETE SHALL BE CL."A".

ALL DIMENSIONS RELATING TO REINFORCING STEEL ARE TO CENTER OF BARS.

ALL SIDES OF ARMOR CURB SLOT AND STUD ANCHORS SHALL BE 1/4" FILLET WELDS.

ALL EXPOSED STRUCTURAL STEEL (ARMOR) SHALL BE GALVANIZED.

ALL EXPOSED EDGES ON ARMOR CURB SHALL RECEIVE A 1/8" BEVEL.

THE SHAPE OF THE TYPICAL ROADWAY CURB SHALL TRANSITION TO THE ARMOR CURB AS APPROVED BY THE ENGINEER.

APPROVAL

STATE OF TEXAS — JOHN A. TYLER — 105193 — LICENSED PROFESSIONAL ENGINEER

JOHN A. TYLER, P.E. — 1/26/2022 DATE

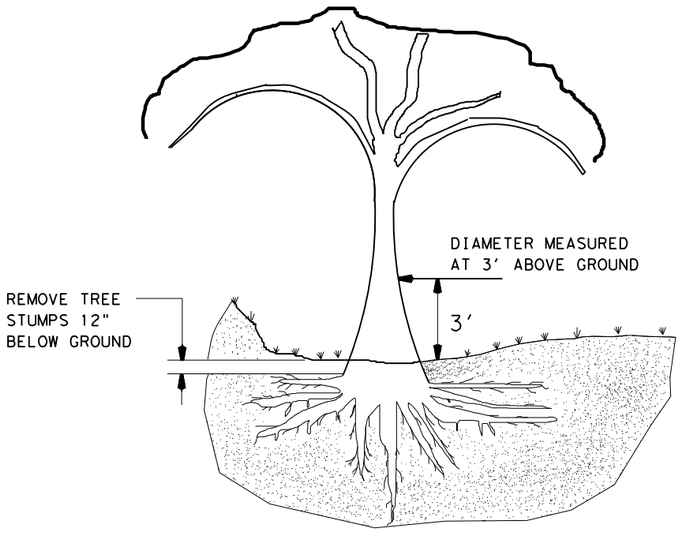
Texas Department of Transportation

ARMOR CURB SLOT
WITH CONCRETE FOUNDATION

FED. RD. DIV. NO.	PROJECT NO.		SHEET NO.
6			75
STATE	STATE DISTRICT	COUNTY	
TEXAS	BMT	JASPER	
CONT.	SECT.	JOB	HIGHWAY NO.
0920	12	047	VARIOUS

10/95
REV. 07/01

STRUCTURE DESIGN
/BRIDGE/STDS/ARMORCURB.DGN

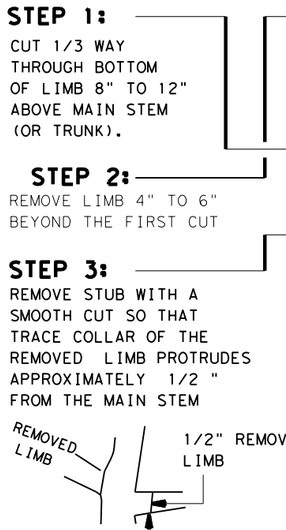


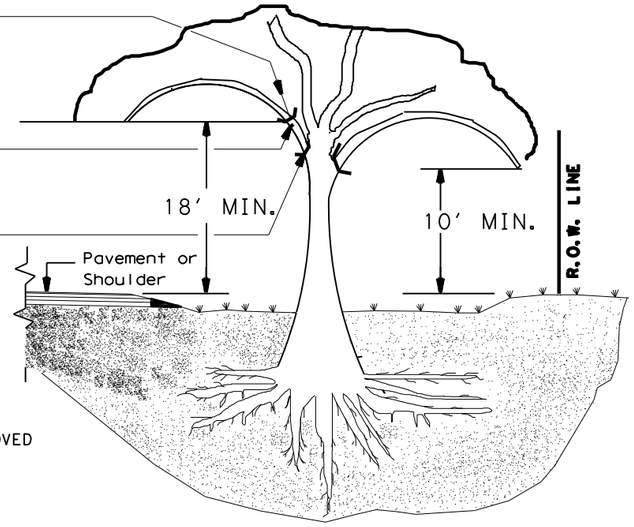
TREE REMOVAL

STEP 1:
CUT 1/3 WAY THROUGH BOTTOM OF LIMB 8" TO 12" ABOVE MAIN STEM (OR TRUNK).

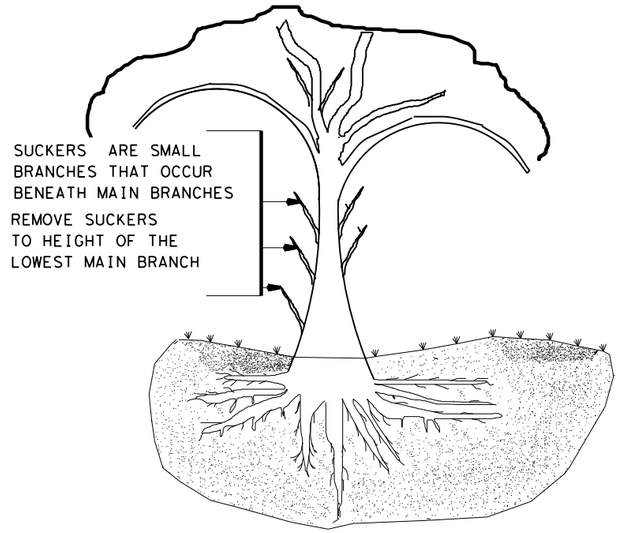
STEP 2:
REMOVE LIMB 4" TO 6" BEYOND THE FIRST CUT

STEP 3:
REMOVE STUB WITH A SMOOTH CUT SO THAT TRACE COLLAR OF THE REMOVED LIMB PROTRUDES APPROXIMATELY 1/2 " FROM THE MAIN STEM

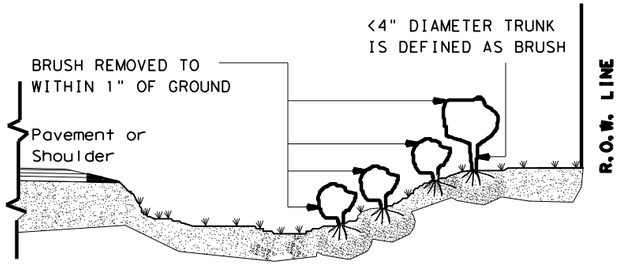




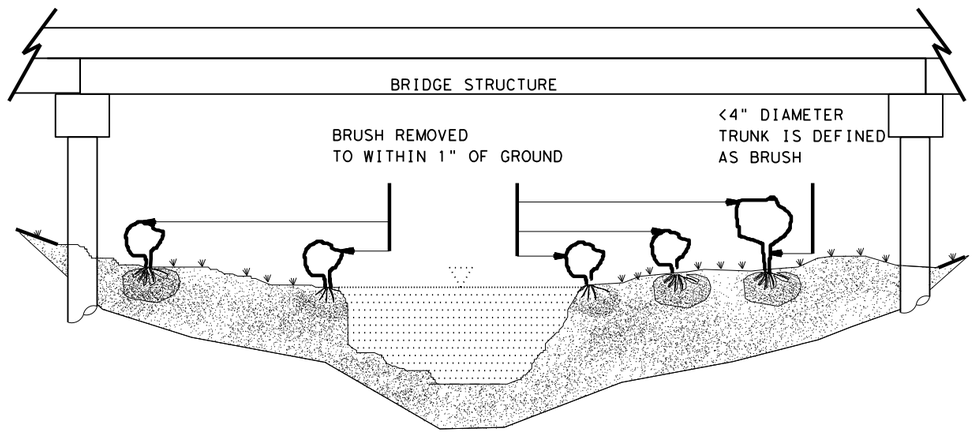
TREE TRIMMING



STEPS 1, 2 AND 3 APPLY WHEN REMOVING LIMBS 2" IN DIAMETER OR LARGER.



BRUSH REMOVAL



BRUSH REMOVAL UNDER BRIDGE AND IN CHANNEL

GENERAL NOTES:

TREE TRIMMING

1. TRIM AND REMOVE ALL TREE LIMBS ON THE PAVEMENT SIDE OF THE TRUNK 18' ABOVE THE PAVEMENT OR BRIDGE DECK ELEVATION, UNLESS OTHERWISE SHOWN ON THE PLANS.

2. TRIM AND REMOVE ALL TREE LIMBS BETWEEN THE TRUNK AND R.O.W. LINE 10' ABOVE NATURAL GROUND, TERRAIN OR OTHER STRUCTURE ELEVATION, UNLESS OTHERWISE SHOWN ON THE PLANS.

TREE REMOVAL

3. FOR TREES MARKED FOR REMOVAL, THE DIAMETER OF TREES ARE DETERMINED BY MEASUREMENT OF THE TRUNK CIRCUMFERENCE 3' ABOVE THE GROUND. TREES WITH TRUNKS OF LESS THAN 4" DIAMETER ARE CONSIDERED TO BE BRUSH. TREES WITH MULTIPLE TRUNKS AT THE POINT OF MEASUREMENT ARE MEASURED AND PAID FOR SEPARATELY.

4. MEASUREMENTS FOR PAYMENT OF TREE DIAMETERS ARE DIVIDED INTO THE RANGES SHOWN IN TABLE 1.

TABLE 1
TREE TRUNK SIZE FOR TREE REMOVAL PAYMENT

PAY ITEM	RANGE FOR PAY ITEMS			
	TRUNK DIAMETER *		TRUNK CIRCUMFERENCE	
	LOWER LIMIT IS GREATER THAN	UPPER LIMIT IS LESS THAN OR EQUAL TO	LOWER LIMIT IS GREATER THAN	UPPER LIMIT IS LESS THAN OR EQUAL TO
752 6005	4	12	12 1/2	37 1/2
752 6006	12	18	37 1/2	56 1/2
752 6007	18	24	56 1/2	75 1/2
752 6008	24	30	75 1/2	94
752 6009	30	36	94	113
752 6010	36	42	113	132
752 6011	42	48	132	151
752 6012	48	60	151	188 1/2
752 6013	60	72	188 1/2	226
752 6019	72	84	226	264
	84	GREATER THAN 84	264	NOT APPLICABLE

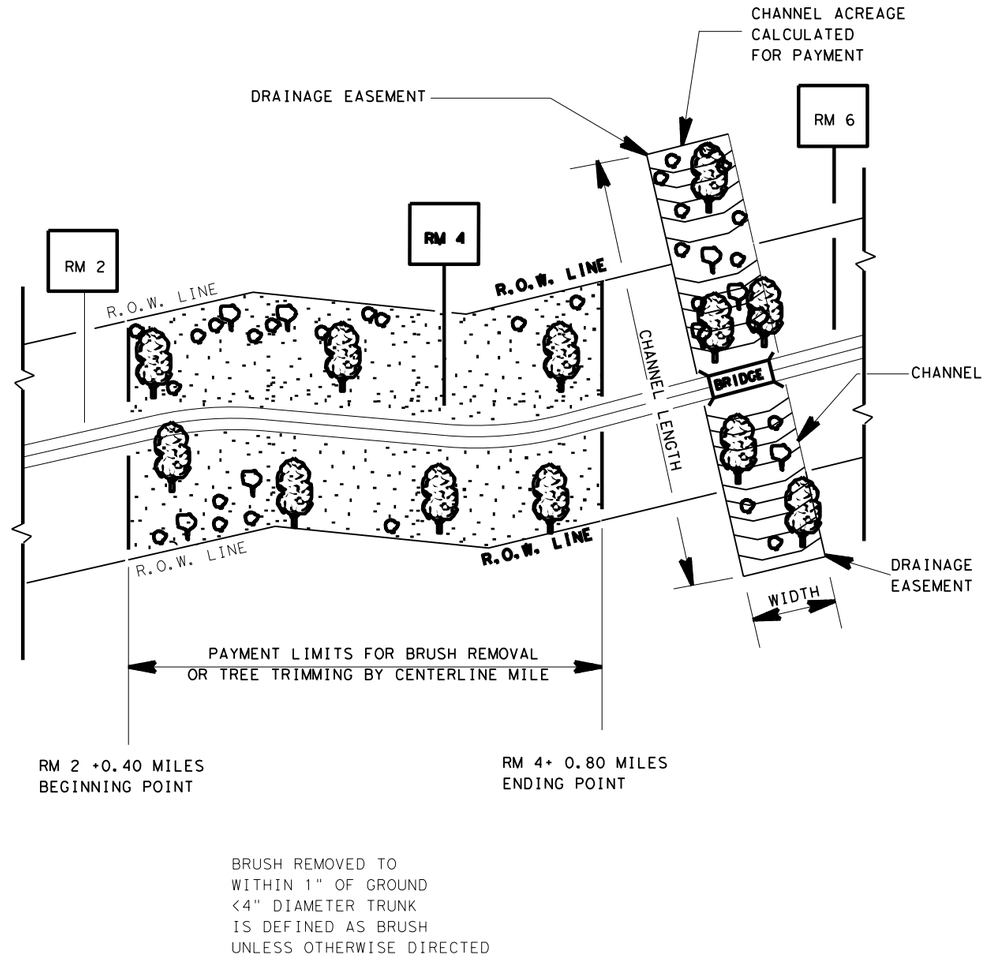
*SEE GENERAL NOTE #3.

Texas Department of Transportation | Maintenance Division Standard

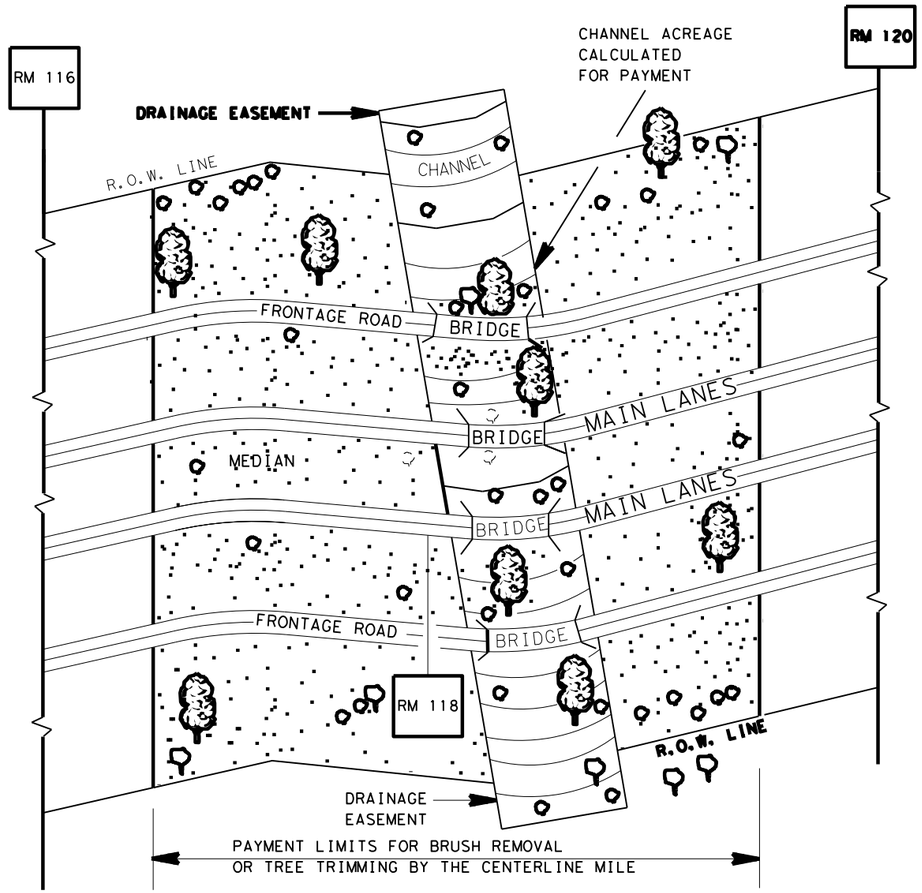
TREE AND BRUSH REMOVAL

TRB-15(1)

FILE:	DN: JEO	CK: LJB	DW: JEO	CK:
©TxDOT MARCH 2015	CONT	SECT	JOB	HIGHWAY
REVISIONS	0920	12	047	VARIOUS
Revised table 1 to 2014 Specification	DIST	COUNTY		SHEET NO.
	BMT	JASPER		76



EXAMPLE: UNDIVIDED HIGHWAY



EXAMPLE: DIVIDED HIGHWAY WITH FRONTAGE ROADS

GENERAL NOTES:

TREE TRIMMING AND BRUSH REMOVAL

1. PAYMENT BY THE CENTERLINE MILE IS MADE TO THE NEAREST 1/100 (0.01) MILE.
2. LIMITS OF WORK ARE SHOWN AS DISTANCES FROM REFERENCE MARKERS (RM).
3. PAY ITEMS BY THE CENTERLINE MILE INCLUDE ALL TREE TRIMMING OR BRUSH REMOVAL IN THE RIGHT OF WAY ON BOTH SIDES OF THE HIGHWAY. FOR DIVIDED HIGHWAYS, THE MEDIAN IS INCLUDED. FOR HIGHWAYS WITH FRONTAGE ROADS, THE AREAS BETWEEN THE FRONTAGE ROADS AND MAIN LANES, AND THE AREAS OUTSIDE OF THE FRONTAGE ROADS ARE INCLUDED.
4. BRUSH REMOVAL AND TREE TRIMMING UNDER BRIDGES, IN AND ALONG CHANNELS AND EASEMENTS ARE PAID FOR BY THE ACRE FOR AREAS DESIGNATED ON THE PLANS.

LEVELS DISPLAYED
1

Texas Department of Transportation
Maintenance Division
Standard Plans

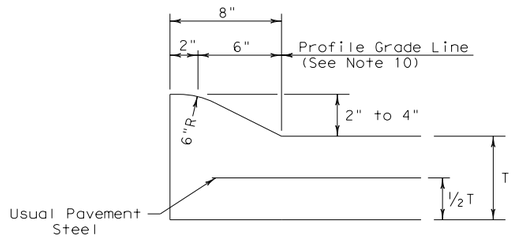
TREE AND BRUSH REMOVAL

TRB-15(2)

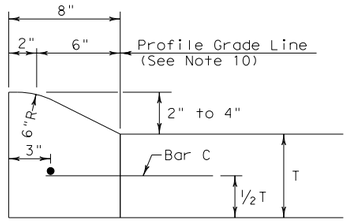
NOT TO SCALE — SHEET 2 OF 2

FILE: TRB-15(2).DGN	DRAWN: JEO / MODIFIED:		CHECKED: DW; LJB	DW: -	CK: -	NEG NO.:		
© TxDOT APRIL 2015		STATE DISTRICT	FEDERAL REGION	FEDERAL AID PROJECT				SHEET
REVISED: 5/13/2004	LJB	BMT						77
REVISED: 9/24/2004	LJB	COUNTY			CONTROL	SECTION	JOB	HIGHWAY
REVISED: APRIL 2015	JEO	JASPER			0920	12	047	VARIOUS

DATE: 1/25/2022
FILE: P:\122\42\01\Design\Civil\Standards\Roadway\cccg21.dgn



TYPE I CURB (MONOLITHIC)
2" - 4" HEIGHT



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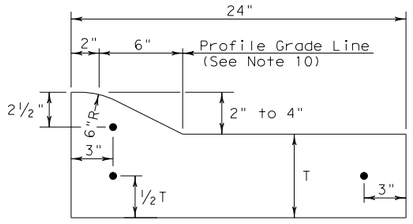
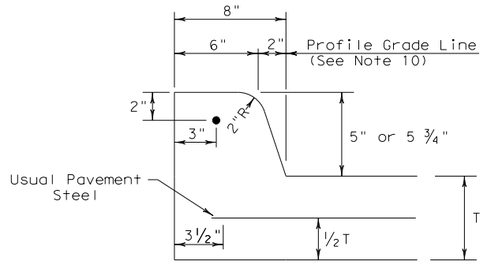


TYPE I CURB AND GUTTER
2" - 4" HEIGHT



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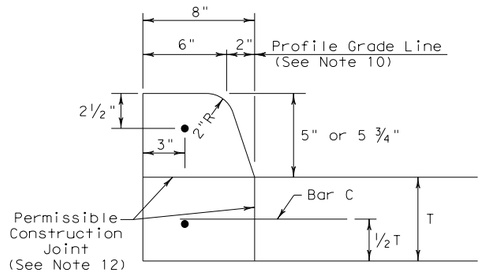
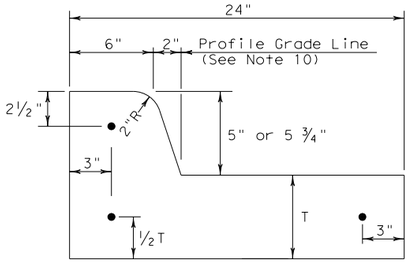
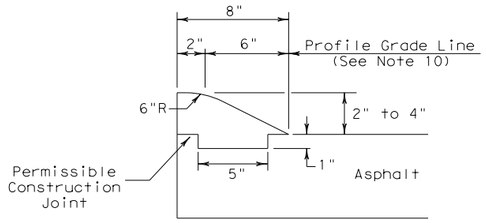
5" - 5 ¾" HEIGHT



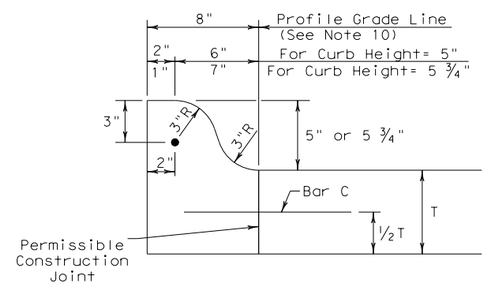
TYPE II CURB
5" - 5 ¾" HEIGHT



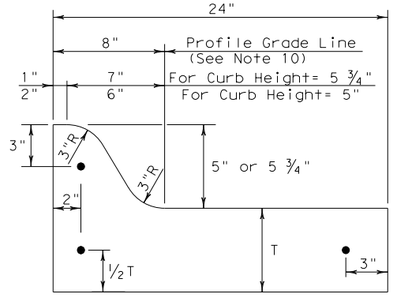
TYPE II CURB AND GUTTER
5" - 5 ¾" HEIGHT



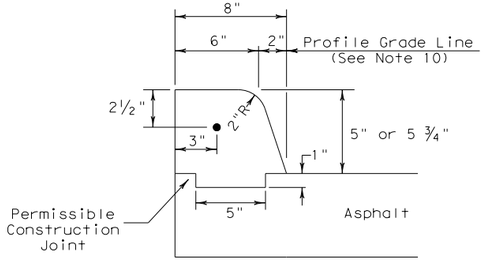
TYPE III CURB (KEYED)
2" - 4" HEIGHT



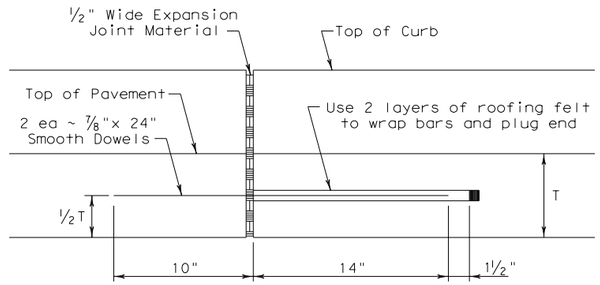
TYPE IIa CURB
5" - 5 ¾" HEIGHT



TYPE IIa CURB AND GUTTER
5" - 5 ¾" HEIGHT

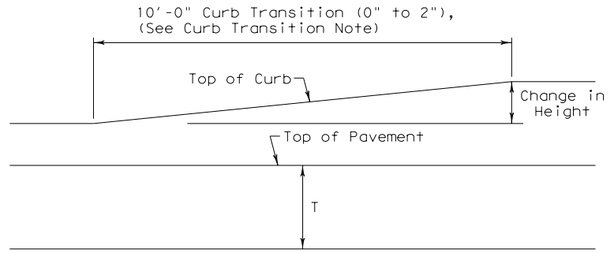


TYPE IV CURB (KEYED)
5" - 5 ¾" HEIGHT



EXPANSION JOINT DETAIL

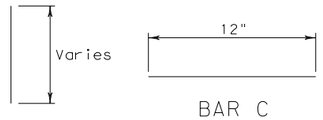
CURB TRANSITION NOTE:
Field conditions may require a longer or shorter transition, and shall be shown elsewhere in the plans, or as directed by the Engineer.



CURB TRANSITION
Note: To be paid for as Highest Curb

GENERAL NOTES

1. All materials and construction shall be in accordance with Item 529, "Concrete Curb, Gutter, and Combined Curb and Gutter."
2. Concrete shall be Class A.
3. When reinforcing bars are used, they shall be No.4 unless otherwise shown. The use of fiber reinforced concrete in lieu of reinforcing steel is acceptable. Use fibers meeting the requirements of DMS 4550, "Fibers for Concrete," and dose fibers in accordance with Material Producers List (MPL) "Fibers for Class A and B Concrete Applications."
4. Round exposed sharp edges with a rounding tool, to a minimum radius of ¼ inch.
5. All existing curbs and driveways to be removed shall be sawed or removed at existing joints.
6. Where concrete curb is to be placed on existing concrete pavement, Bar B may be drilled and the grouted in place, or may be inserted into fresh concrete.
7. Expansion and contraction joints shall be constructed to match pavement joints in all curbs and curb and gutter adjacent to jointed concrete pavement. Where placement of curb or curb and gutter is not adjacent to concrete pavement, expansion joints shall be provided at structures, curb returns at streets, and at locations directed by The Engineer.
8. Vertical and horizontal dowel bars and transverse reinforcing bars shall be placed at four feet C~C.
9. Dimension 'T' shown is the thickness of concrete pavement. When curb is installed adjacent to flexible pavement dimension 'T' is 8" maximum.
10. Usual profile grade line. Refer to typical sections and plan-profile sheets for exact locations.
11. One-half inch expansion joint material shall be provided where curb or curb and gutter is adjacent to sidewalk or riprap.
12. When horizontal permissible construction joints are used, the longitudinal pavement steel shall be placed in accordance with pavement details shown elsewhere in the plans. Reinforcing steel for curb section shall then conform to that required for concrete curb.
13. Bar B used as needed to support curb reinforcing steel during concrete placement.



BAR B

BAR C

Texas Department of Transportation

Design Division Standard

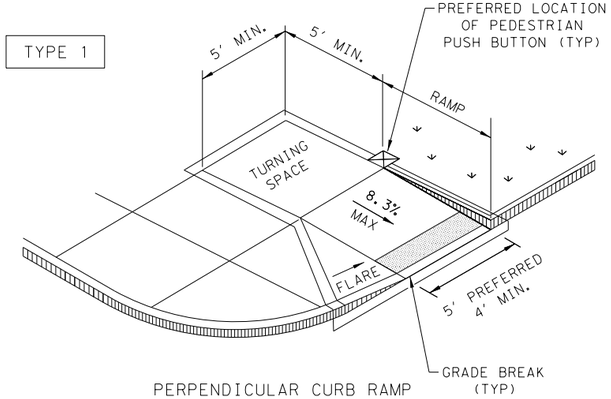
CONCRETE CURB AND CURB AND GUTTER

CCCG-21

FILE: cccg21.dgn	DN: TXDOT	CK: AN	DW: SS	CK: KM
© TxDOT: FEBRUARY 2021	CONT	SECT	JOB	HIGHWAY
REVISIONS	0920	12	047	VARIOUS
	DIST	COUNTY		SHEET NO.
	BMT	JASPER		78

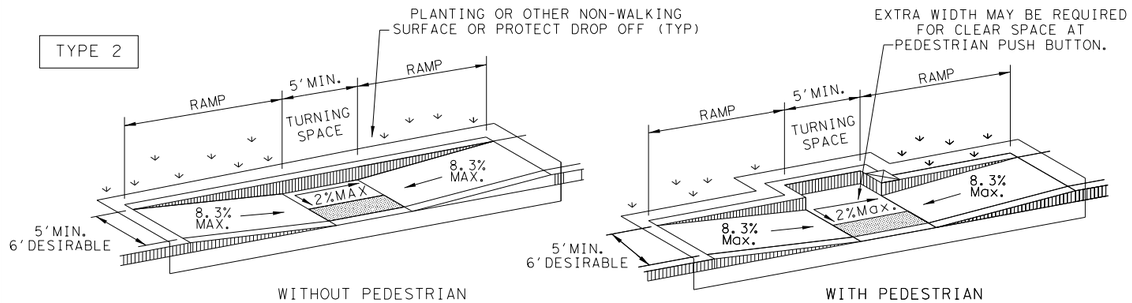
DATE: 1/25/2022
FILE: P:\122X42X01\Design\Civil\Standards\Roadway\ped18.dgn

TYPE 1



PERPENDICULAR CURB RAMP

TYPE 2

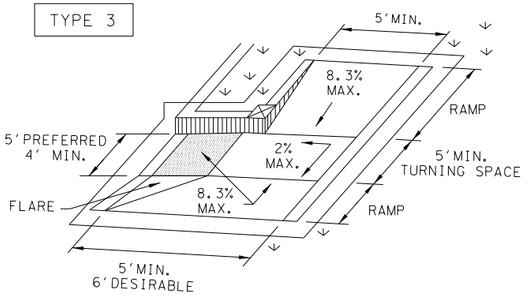


WITHOUT PEDESTRIAN PUSH BUTTON

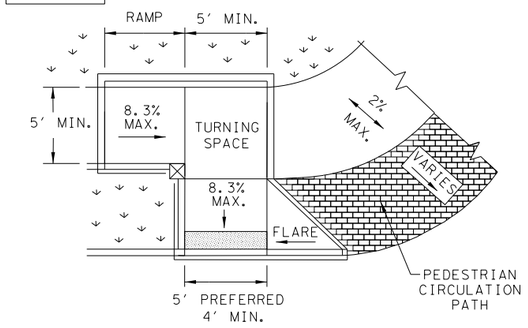
WITH PEDESTRIAN PUSH BUTTON

PARALLEL CURB RAMP

TYPE 3

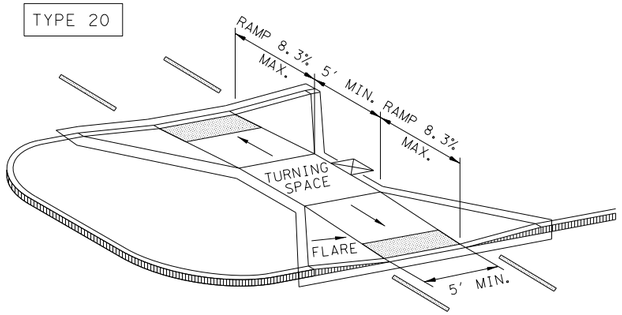


TYPE 6



COMBINATION CURB RAMPS

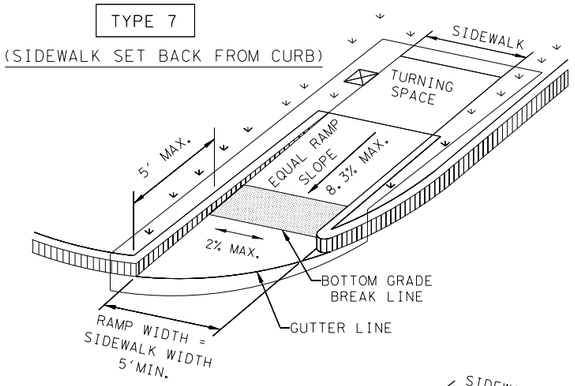
TYPE 20



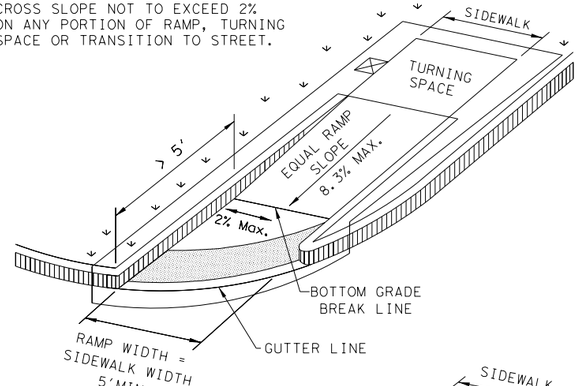
CURB RAMPS AT MEDIAN ISLANDS

TYPE 7

(SIDEWALK SET BACK FROM CURB)

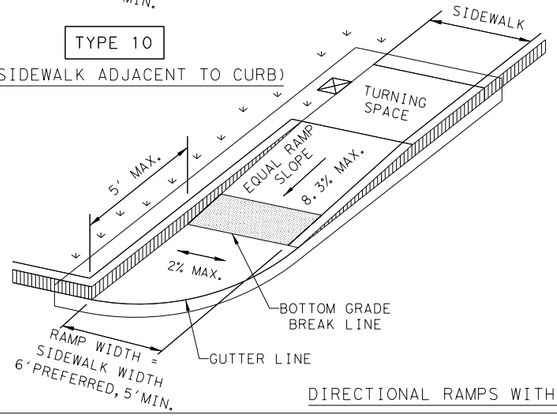


CROSS SLOPE NOT TO EXCEED 2% ON ANY PORTION OF RAMP, TURNING SPACE OR TRANSITION TO STREET.

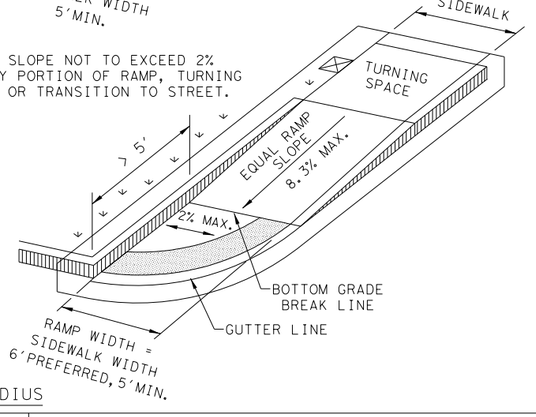


TYPE 10

(SIDEWALK ADJACENT TO CURB)

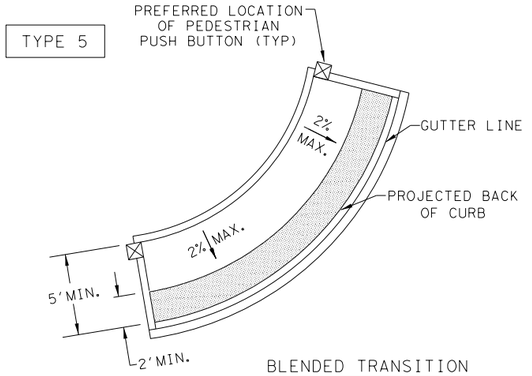


CROSS SLOPE NOT TO EXCEED 2% ON ANY PORTION OF RAMP, TURNING SPACE OR TRANSITION TO STREET.



DIRECTIONAL RAMPS WITHIN RADIUS

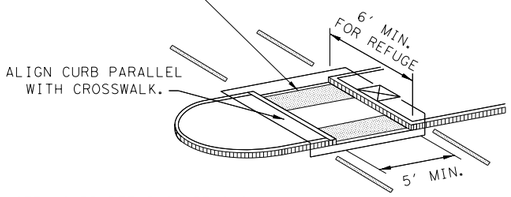
TYPE 5



BLENDED TRANSITION
(FLUSH LANDING)

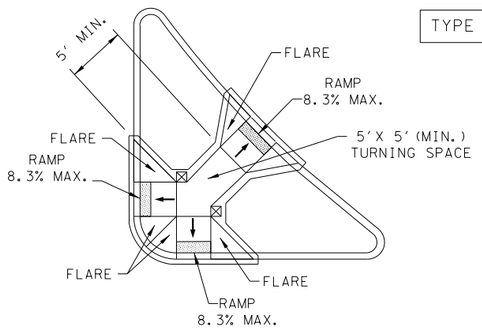
INSTALL DETECTABLE WARNING SURFACE AT EACH END OF THE CUT-THROUGH RAMP WITH A MINIMUM 2' USUAL SIDEWALK SURFACE BETWEEN. IF MEDIAN IS LESS THAN 6' WIDE, ELIMINATE DETECTABLE WARNING SURFACES.

TYPE 21



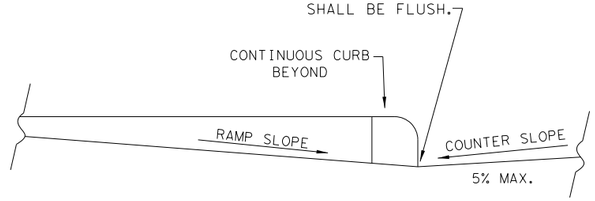
NOTE: CURB DETAILS ARE SHOWN ELSEWHERE IN THE PLANS.

TYPE 22



COMBINATION ISLAND RAMPS

BOTTOM GRADE BREAK OF CURB RAMP WILL NORMALLY BE AT GUTTER LINE. SURFACE SLOPES AT GRADE BREAKS SHALL BE FLUSH.



TYPICAL SECTION OF PERPENDICULAR CURB RAMP AT CONNECTION TO ROADWAY

NOTES / LEGEND:

SEE GENERAL NOTES ON SHEET 2 OF 4 FOR MORE INFORMATION.

DENOTES PLANTING OR NON-WALKING SURFACE NOT PART OF PEDESTRIAN CIRCULATION PATH.

DETECTABLE WARNING SURFACE

DENOTES PREFERRED LOCATION OF PEDESTRIAN PUSH BUTTON IF APPLICABLE.

GUTTER LINE

GRADE BREAK

RAMP LIMITS OF PAYMENT

SHEET 1 OF 4

Texas Department of Transportation

Design Division Standard

PEDESTRIAN FACILITIES CURB RAMPS

PED-18

FILE: ped18	DN: TxDOT	DW: VP	CK: KM	CK: PK & JG
© TxDOT: MARCH, 2002	CONT	SECT	JOB	HIGHWAY
REVISIONS	0920	12	047	VARIOUS
REVISED 08,2005 REVISED 06,2012 REVISED 01,2018	DIST	COUNTY		SHEET NO.
	BMT	JASPER		79

DATE: 1/25/2022
FILE: P:\122\42\01\Design\Civil\Standards\Roadway\ped18.dgn

GENERAL NOTES

CURB RAMPS

1. Install a curb ramp or blended transition at each pedestrian street crossing.
2. All slopes shown are maximum allowable. Cross slopes of 1.5% and lesser running should be used. Adjust curb ramp length or grade of approach sidewalks as directed.
3. Maximum allowable cross slope on sidewalk and curb ramp surfaces is 2%.
4. The minimum sidewalk width is 5′. Where the sidewalk is adjacent to the back of curb, a 6′ sidewalk width is desirable. Where a 5′ sidewalk cannot be provided due to site constraints, sidewalk width may be reduced to 4′ for short distances. 5′x 5′ passing areas at intervals not to exceed 200′ are required.
5. Turning Spaces shall be 5′x 5′ minimum. Cross slope shall be maximum 2%.
6. Clear space at the bottom of curb ramps shall be a minimum of 4′x 4′ wholly contained within the crosswalk and wholly outside the parallel vehicular travel path.
7. Provide flared sides where the pedestrian circulation path crosses the curb ramp. Flared sides shall be sloped at 10% maximum, measured parallel to the curb. Returned curbs may be used only where pedestrians would not normally walk across the ramp, either because the adjacent surface is planted, substantially obstructed, or otherwise protected.
8. Additional information on curb ramp location, design, light reflective value and texture may be found in the latest draft of the Proposed Guidelines for Pedestrian Facilities in the Public Right of Way (PROWAG) as published by the U.S. Architectural and Transportation Barriers Compliance Board (Access Board).
9. To serve as a pedestrian refuge area, the median should be a minimum of 6′ wide, measured from back of curbs. Medians should be designed to provide accessible passage over or through them.
10. Small channelization islands, which do not provide a minimum 5′x 5′ landing at the top of curb ramps, shall be cut through level with the surface of the street.
11. Crosswalk dimensions, crosswalk markings and stop bar locations shall be as shown elsewhere in the plans. At intersections where crosswalk markings are not required, curb ramps shall align with theoretical crosswalks unless otherwise directed.
12. Provide curb ramps to connect the pedestrian access route at each pedestrian street crossing. Handrails are not required on curb ramps.
13. Curb ramps and landings shall be constructed and paid for in accordance with Item 531 "Sidewalks".
14. Place concrete at a minimum depth of 5" for ramps, flares and landings, unless otherwise directed.
15. Furnish and install No. 3 reinforcing steel bars at 18" o.c. both ways, unless otherwise directed.
16. Provide a smooth transition where the curb ramps connect to the street.
17. Curbs shown on sheet 1 within the limits of payment are considered part of the curb ramp for payment, whether it is concrete curb, gutter, or combined curb and gutter.
18. Existing features that comply with applicalble standards may remain in place unless otherwise shown on the plans.

DETECTABLE WARNING MATERIAL

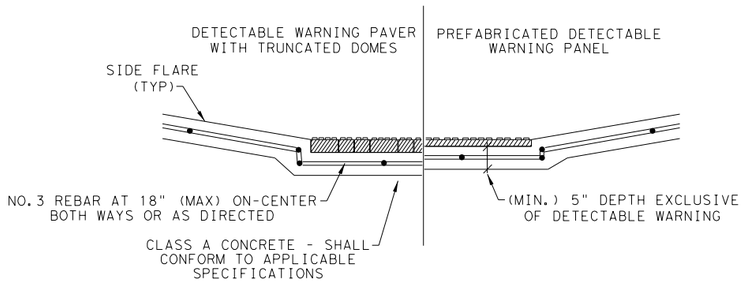
19. Curb ramps must contain a detectable warning surface that consists of raised truncated domes complying with PROWAG. The surface must contrast visually with adjoining surfaces, including side flares. Furnish and install an approved cast-in-place dark brown or dark red detectable warning surface material adjacent to uncolored concrete, unless specified elsewhere in the plans.
20. Detectable Warning Materials must meet TxDOT Departmental Materials Specification DMS 4350 and be listed on the Material Producer List. Install products in accordance with manufacturer's specifications.
21. Detectable warning surfaces must be firm, stable and slip resistant.
22. Detectable warning surfaces shall be a minimum of 24 inches in depth in the direction of pedestrian travel, and extend the full width of the curb ramp or landing where the pedestrian access route enters the street.
23. Detectable warning surfaces shall be located so that the edge nearest the curb line is at the back of curb and neither end of that edge is greater than 5 feet from the back of curb. Detectable warning surfaces may be curved along the corner radius.
24. Shaded areas on Sheet 1 of 4 indicate the approximate location for the detectable warning surface for each curb ramp type.

DETECTABLE WARNING PAVERS (IF USED)

25. Furnish detectable warning paver units meeting all requirements of ASTM C-936, C-33. Lay in a two by two unit basket weave pattern or as directed.
26. Lay full-size units first followed by closure units consisting of at least 25 percent (25%) of a full unit. Cut detectable warning paver units using a power saw.

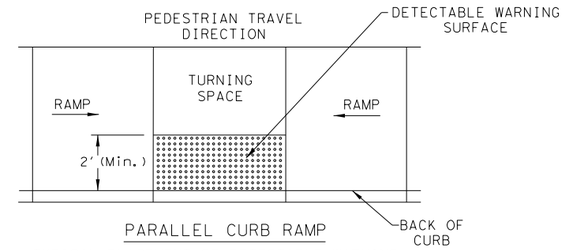
SIDEWALKS

27. Provide clear ground space at operable parts, including pedestrian push buttons. Operable parts shall be placed within unobstructed reach range specified in PROWAG section R406.
28. Place traffic signal or illumination poles, ground boxes, controller boxes, signs, drainage facilities and other items so as not to obstruct the pedestrian access route or clear ground space.
29. Street grades and cross slopes shall be as shown elsewhere in the plans.
30. Changes in level greater than 1/4 inch are not permitted.
31. The least possible grade should be used to maximize accessibility. The running slope of sidewalks and crosswalks within the public right of way may follow the grade of the parallel roadway. Where a continuous grade greater than five percent (5%) must be provided, handrails may be desirable to improve accessibility. Handrails may also be needed to protect pedestrians from potentially hazardous conditions. If provided, handrails shall comply with PROWAG R409.
32. Handrail extensions shall not protrude into the usable landing area or into intersecting pedestrian routes.
33. Driveways and turnouts shall be constructed and paid for in accordance with Item "Intersections, Driveways and Turnouts". Sidewalks shall be constructed and paid for in accordance with Item, "Sidewalks".
34. Sidewalk details are shown elsewhere in the plans.



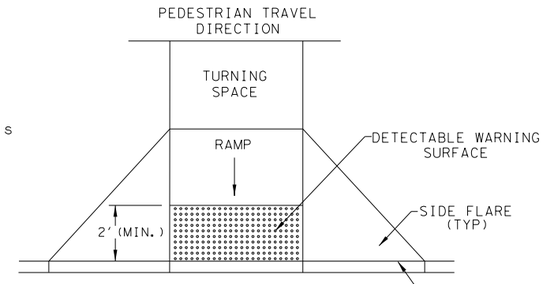
SECTION VIEW DETAIL
CURB RAMP AT DETECTIBLE WARNINGS

DETECTABLE WARNING SURFACE DETAILS



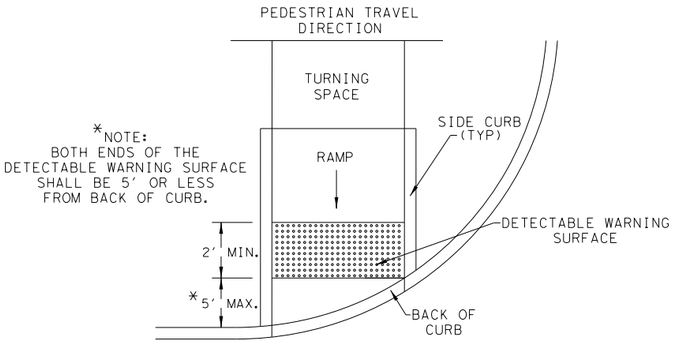
PARALLEL CURB RAMP

TYPICAL PLACEMENT OF DETECTABLE WARNING SURFACE ON LANDING AT STREET EDGE.



PERPENDICULAR CURB RAMP

TYPICAL PLACEMENT OF DETECTABLE WARNING SURFACE ON SLOPING RAMP RUN.



DIRECTIONAL CURB RAMP

TYPICAL PLACEMENT OF DETECTABLE WARNING SURFACE ON SLOPING RAMP RUN.

Texas Department of Transportation

Design Division Standard

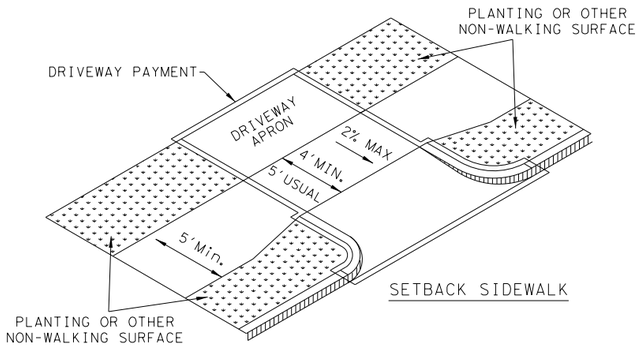
PEDESTRIAN FACILITIES CURB RAMPS

PED-18

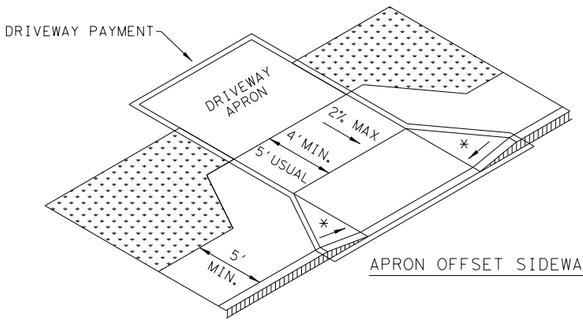
FILE: ped18	DN: TxDOT		DW: VP	CK: KM	CK: PK & JG
© TxDOT: MARCH, 2002	CONT	SECT	JOB		HIGHWAY
REVISIONS	0920	12	047		VARIOUS
REVISED 08,2005 REVISED 06,2012 REVISED 01,2018	DIST	COUNTY			SHEET NO.
	BMT	JASPER			80

DATE: 1/25/2022
FILE: P:\122\42\01\Design\Civil\Standards\Roadway\ped18.dgn

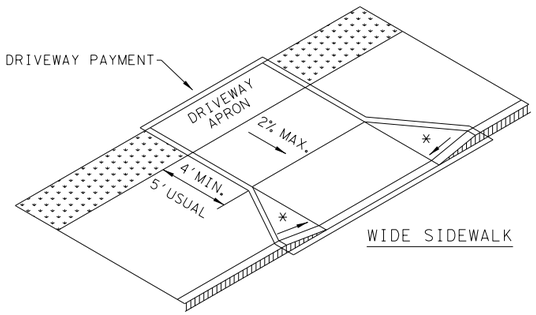
SIDEWALK TREATMENT AT DRIVEWAYS



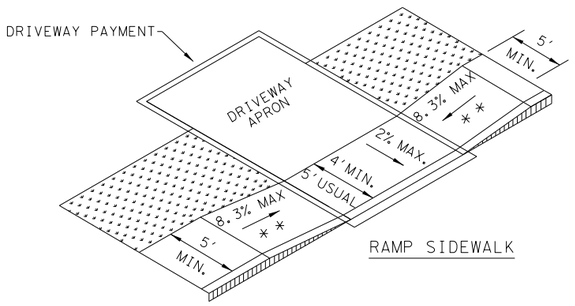
SETBACK SIDEWALK



APRON OFFSET SIDEWALK



WIDE SIDEWALK

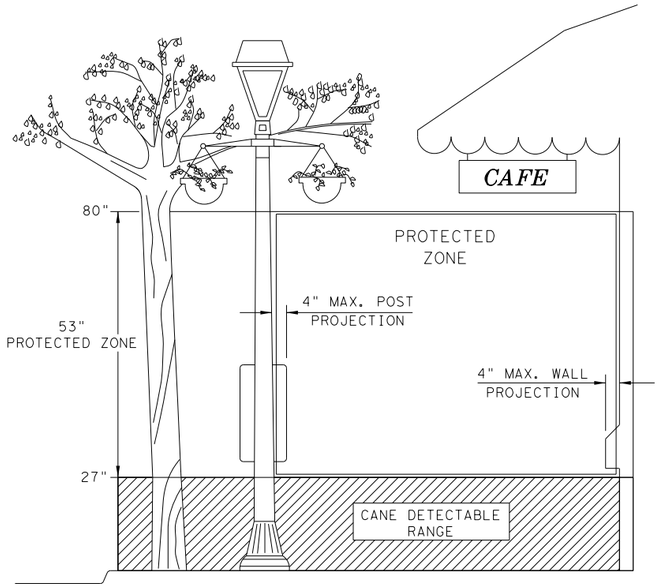


RAMP SIDEWALK

NOTES:

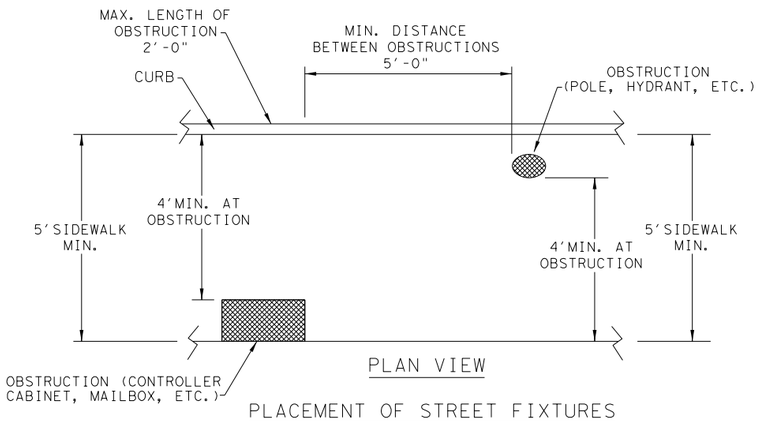
* WHERE DRIVEWAYS CROSS THE PEDESTRIAN ROUTE, SIDES SHALL BE FLARED AT 10% MAX SLOPE.

* * IF CURB HEIGHT IS GREATER THAN 6 INCHES, USE GRADE LESS THAN OR EQUAL TO 5%. HANDRAIL AND DETECTABLE WARNING ARE NOT REQUIRED.



PROTECTED ZONE

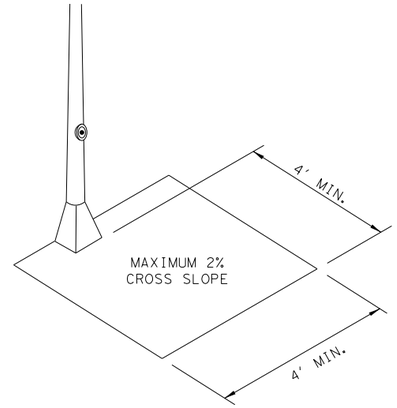
NOTE: IN PEDESTRIAN CIRCULATION AREA, MAXIMUM 4" PROJECTION FOR POST OR WALL MOUNTED OBJECTS BETWEEN 27" AND 80" ABOVE THE SURFACE.



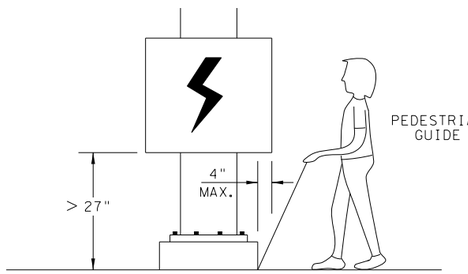
PLAN VIEW

PLACEMENT OF STREET FIXTURES

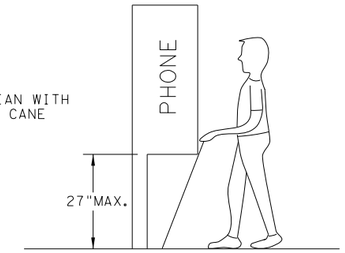
NOTE: ITEMS NOT INTENDED FOR PUBLIC USE. MINIMUM 4' X 4' CLEAR GROUND SPACE REQUIRED AT PUBLIC USE FIXTURES.



CLEAR SPACE ADJACENT TO PEDESTRIAN PUSH BUTTON



WHEN AN OBSTRUCTION OF A HEIGHT GREATER THAN 27" FROM THE SURFACE WOULD CREATE A PROTRUSION OF MORE THAN 4" INTO THE PEDESTRIAN CIRCULATION AREA, CONSTRUCT ADDITIONAL CURB OR FOUNDATION AT THE BOTTOM TO PROVIDE A MAXIMUM 4" OVERHANG.



PROTRUDING OBJECTS OF A HEIGHT ≤ 27" ARE DETECTABLE BY CANE AND DO NOT REQUIRE ADDITIONAL TREATMENT.

DETECTION BARRIER FOR VERTICAL CLEARANCE < 80"

Texas Department of Transportation | Design Division Standard

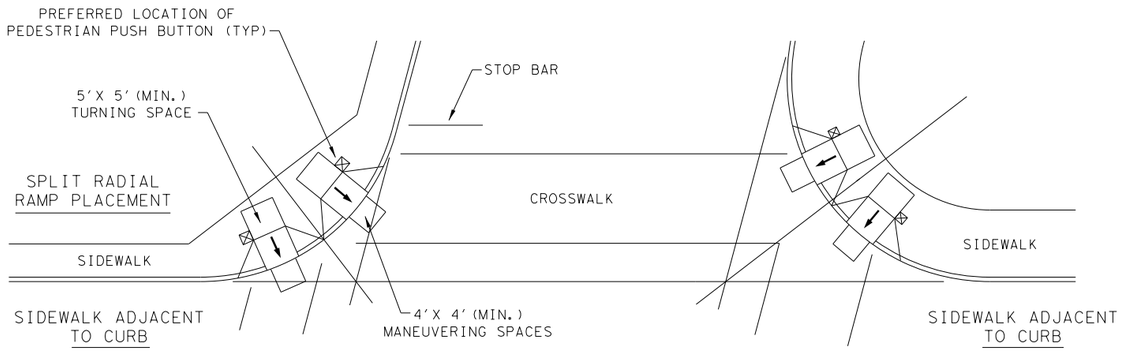
PEDESTRIAN FACILITIES CURB RAMPS

PED-18

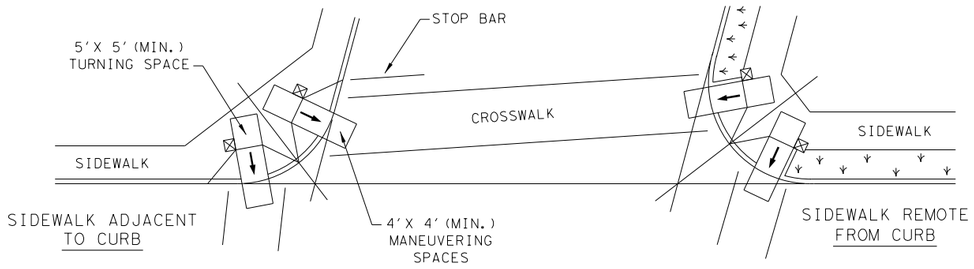
FILE: ped18	DN: TxDOT		DW: VP	CK: KM	CK: PK & JG
© TxDOT: MARCH, 2002	CONT	SECT	JOB		HIGHWAY
REVISIONS	0920	12	047		VARIOUS
REVISED 08,2005 REVISED 06,2012 REVISED 01,2018	DIST	COUNTY			SHEET NO.
	BMT	JASPER			81

DATE: 1/25/2022
FILE: P:\122142\01\Design\Civil\Standards\Roadway\ped18.dgn

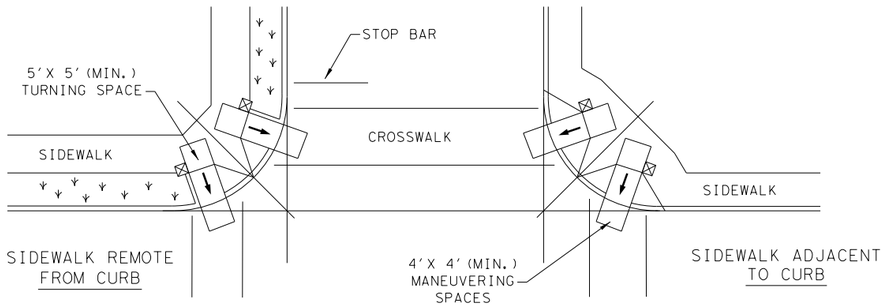
TYPICAL CROSSING LAYOUTS
SEE SHEET 1 OF 4 FOR DETAILS AND DIMENSIONS



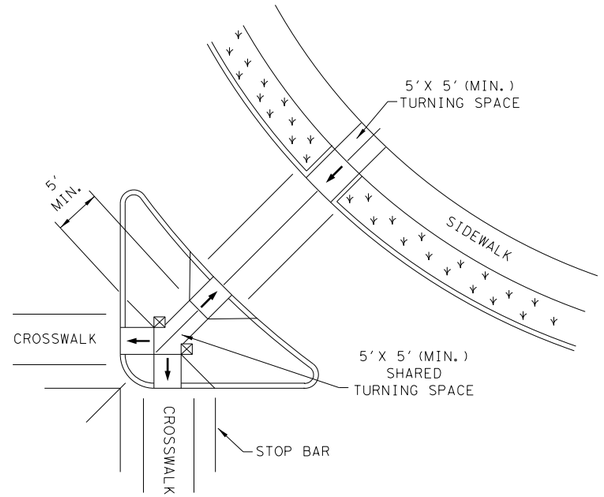
SKEWED INTERSECTION WITH "LARGE" RADIUS



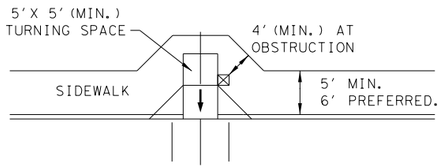
SKEWED INTERSECTION WITH "SMALL" RADIUS

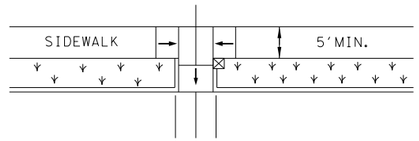


NORMAL INTERSECTION WITH "SMALL" RADIUS



AT INTERSECTION
W/FREE RIGHT TURN & ISLAND





MID-BLOCK PLACEMENT
PERPENDICULAR RAMPS

LEGEND:

SHOWS DOWNWARD SLOPE. →

DENOTES PREFERRED LOCATION OF PEDESTRIAN PUSH BUTTON (IF APPLICABLE). ☒

DENOTES PLANTING OR NON-WALKING SURFACE NOT PART OF PEDESTRIAN CIRCULATION PATH.

SHEET 4 OF 4

Texas Department of Transportation | Design Division Standard

PEDESTRIAN FACILITIES CURB RAMPS

PED-18

FILE: ped18	DN: TxDOT	DW: VP	CK: KM	CK: PK & JG
© TxDOT: MARCH, 2002	CONT	SECT	JOB	HIGHWAY
REVISIONS	0920	12	047	VARIOUS
REVISED 08,2005 REVISED 06,2012 REVISED 01,2018	DIST	COUNTY		SHEET NO.
	BMT	JASPER		82

DATE: 1/25/2022
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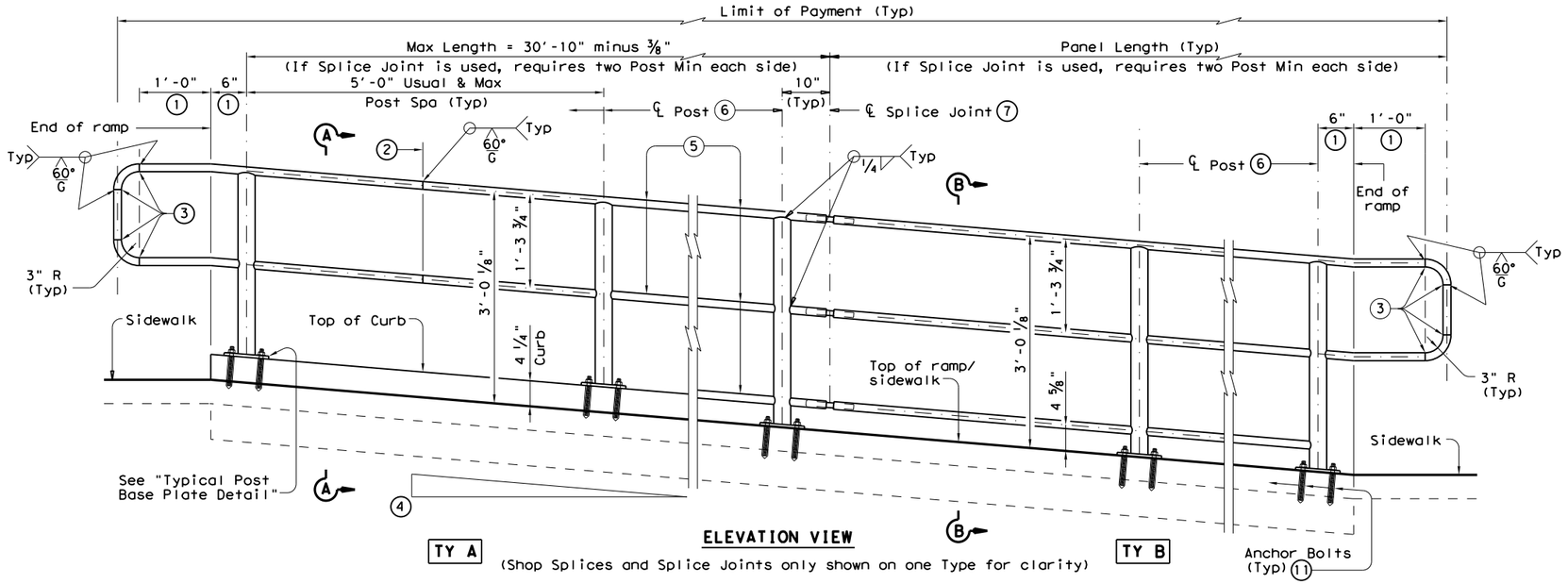
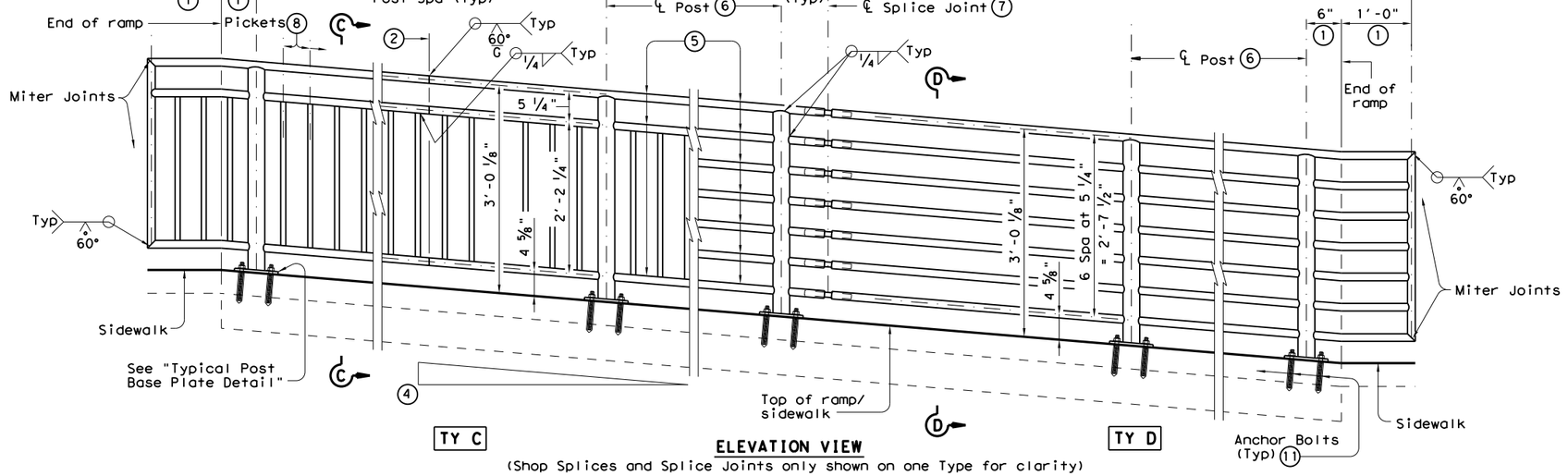


ELEVATION VIEW

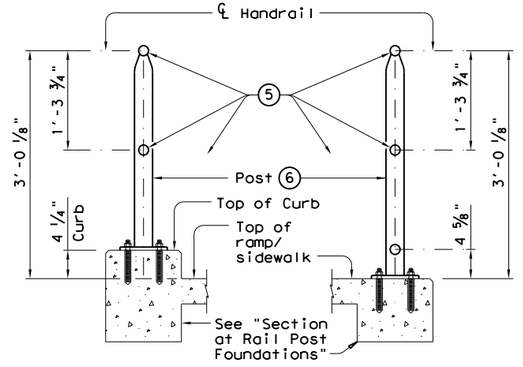
(Shop Splices and Splice Joints only shown on one Type for clarity)



ELEVATION VIEW

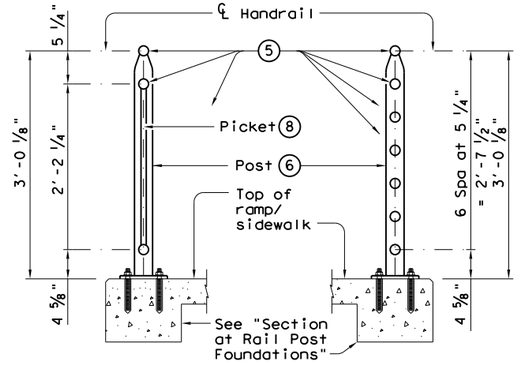
(Shop Splices and Splice Joints only shown on one Type for clarity)

RECOMMENDED USAGE (9) (10)	
Dropoff Height/ Condition	Recommended Rail Options
< 30" dropoff	TY A, TY B, TY C, or TY D
≥ 30" dropoff, or along Bike Path	TY E or TY F



SECTION A-A
(Showing Handrail **TY A**)

SECTION B-B
(Showing Handrail **TY B**)



SECTION C-C
(Showing Handrail **TY C**)

SECTION D-D
(Showing Handrail **TY D**)

(1) Parallel to ground.

(2) One shop splice per panel is permitted with minimum 85 percent penetration. The weld may be square groove or single vee groove. Grind smooth.

(3) Shop splice is permitted with minimum 85 percent penetration. The weld may be square groove or single vee groove. Grind smooth.

(4) See Ramp Details located elsewhere in plans for ramp slope and dimensions. Maximum ramp slope will not exceed 8.3 percent. Level landing required for each 30" rise if grade exceeds 5 percent.

(5) 1 ½" Dia. Standard Pipe (1.900" O.D., 0.145" wall thickness). Parallel to ramp / sidewalk. Provide holes as needed in 1 ½" Dia. pipe for galvanizing drainage and venting.

(6) 2 ½" Dia. Standard Pipe (2.875" O.D., 0.203" wall thickness). See "Post Mount Detail" for crimping and trimming post to fit Dia. of top rail. Provide holes as needed in post for galvanizing drainage and venting. Plumb all posts.

(7) See "Handrail Fabrication Details" for Splice Joints.

(8) ℄ ⅝" Dia. Round Bar equal spacing at 4 ½" Max. Plumb all pickets.

(9) When needed for accessibility (grade > 5 percent) or as needed for pedestrian safety.

(10) Not to be used on bridges.

(11) See "General Notes" for anchor bolt information.

SHEET 1 OF 3

Texas Department of Transportation

Design Division Standard

PEDESTRIAN HANDRAIL DETAILS

PRD-13

FILE: prd13.dgn	DN: TxDOT	CK: AM	DW: JTR	CK: CGL
©TxDOT Decmeber 2006	CONT	SECT	JOB	HIGHWAY
REVISIONS REVISED MAY, 2013 (VP)	0920	12	047	VARIOUS
	DIST	COUNTY		SHEET NO.
	BMT	JASPER		83

DATE: 1/25/2022
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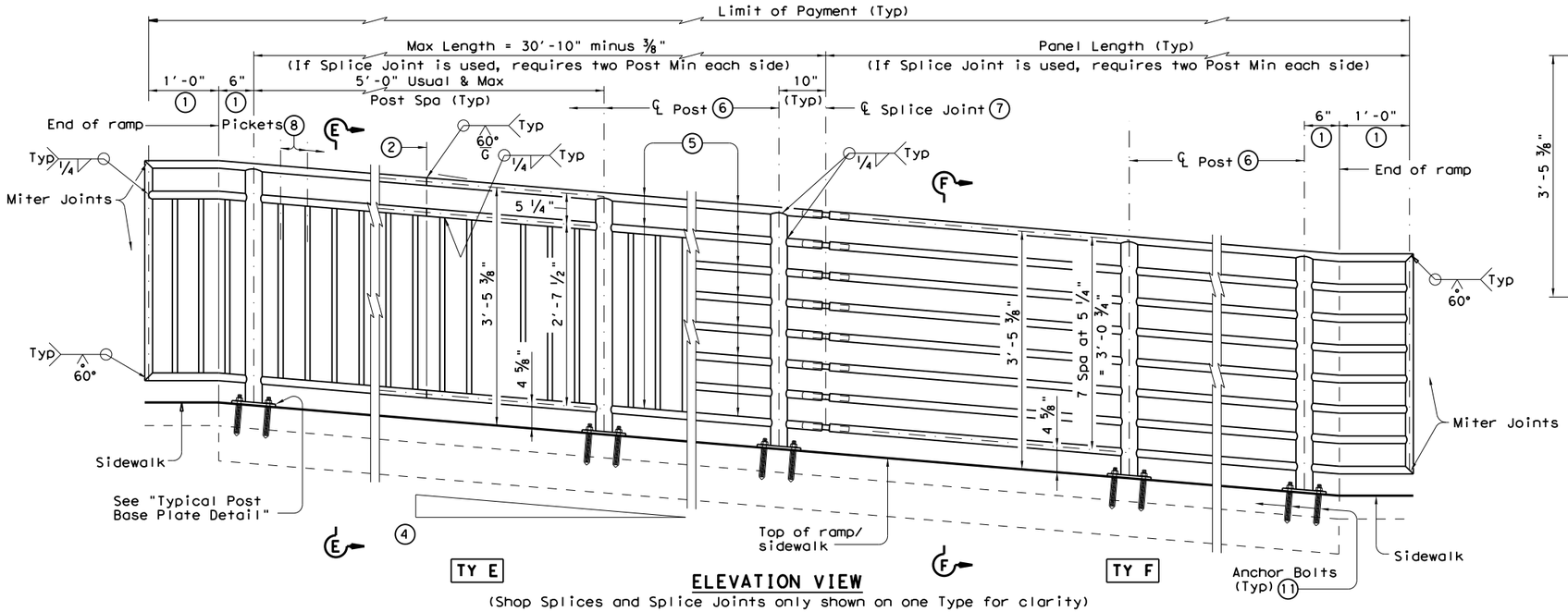
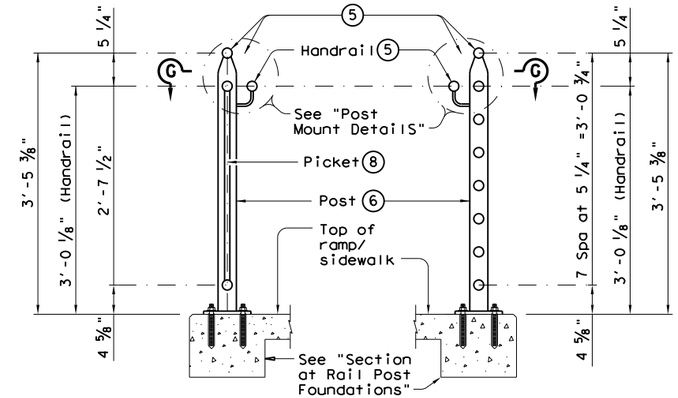
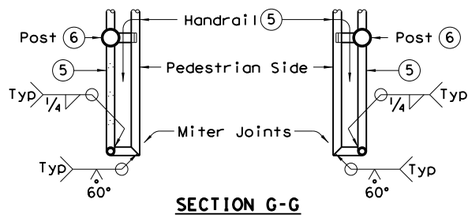


ELEVATION VIEW
(Shop Splices and Splice Joints only shown on one Type for clarity)

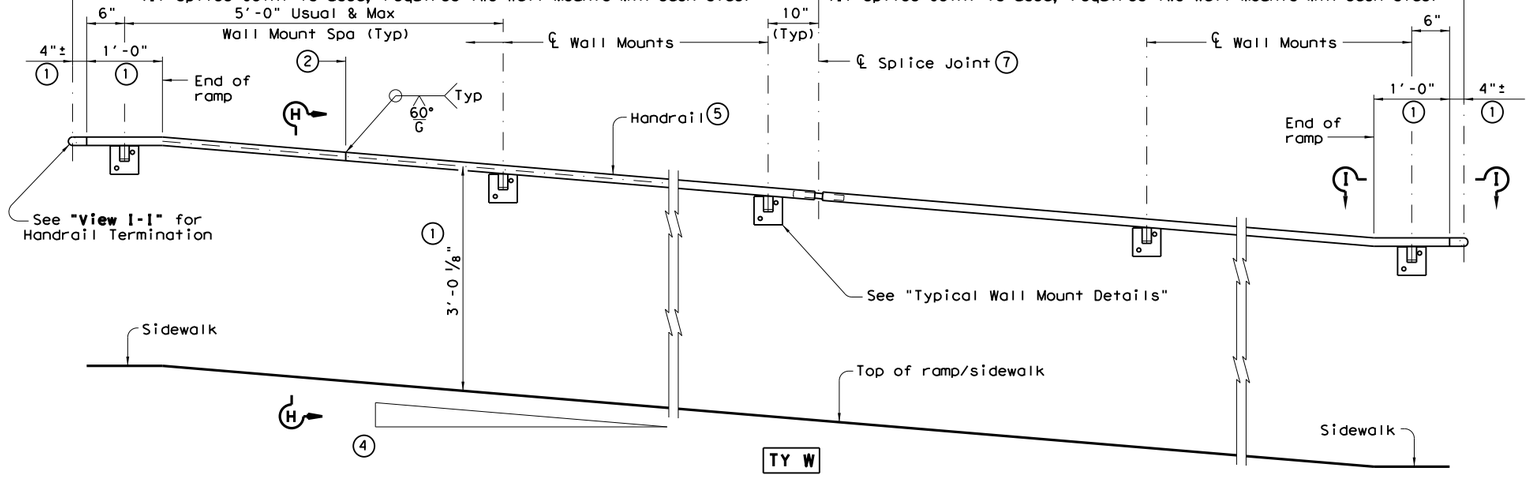


SECTION E-E
(Showing Handrail **TY E**)

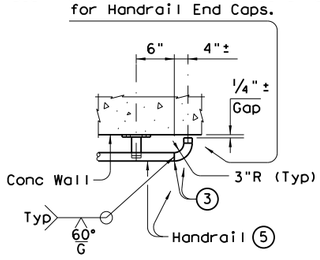
SECTION F-F
(Showing Handrail **TY F**)



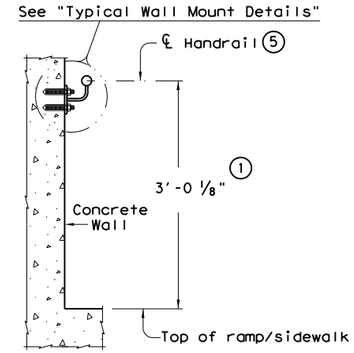
SECTION G-G
(Showing Handrail Termination)



ELEVATION VIEW



VIEW I-I
(Showing Handrail Termination)



SECTION H-H
(Showing Handrail **TY W**)

1. Parallel to ground.
2. One shop splice per panel is permitted with minimum 85 percent penetration. The weld may be square groove or single vee groove. Grind smooth.
3. Shop splice is permitted with minimum 85 percent penetration. The weld may be square groove or single vee groove. Grind smooth.
4. See Ramp Details located elsewhere in plans for ramp slope and dimensions. Maximum ramp slope will not exceed 8.3 percent. Level landing required for each 30" rise if grade exceeds 5 percent.
5. 1 ½" Dia. Standard Pipe (1.900" O.D., 0.145" wall thickness). Parallel to ramp / sidewalk. Provide holes as needed in 1 ½" Dia. pipe for galvanizing drainage and venting.
6. 2 ½" Dia. Standard Pipe (2.875" O.D., 0.203" wall thickness). See "Post Mount Detail" for crimping and trimming post to fit Dia. of top rail. Provide holes as needed in post for galvanizing drainage and venting. Plumb all posts.
7. See "Handrail Fabrication Details" for Splice Joints.
8. ℄ ⅝" Dia. Round Bar equal spacing at 4 ½" Max. Plumb all pickets.
11. See "General Notes" for anchor bolt information.

Texas Department of Transportation — Design Division Standard

PEDESTRIAN HANDRAIL DETAILS

PRD-13

FILE: prd13.dgn	DN: TxDOT	CK: AM	DW: JTR	CK: CGL
©TxDOT December 2006	CONT	SECT	JOB	HIGHWAY
REVISIONS	0920	12	047	VARIOUS
REVISED MAY, 2013 (VP)	DIST	COUNTY		SHEET NO.
	BMT	JASPER		84

DATE: 1/25/2022
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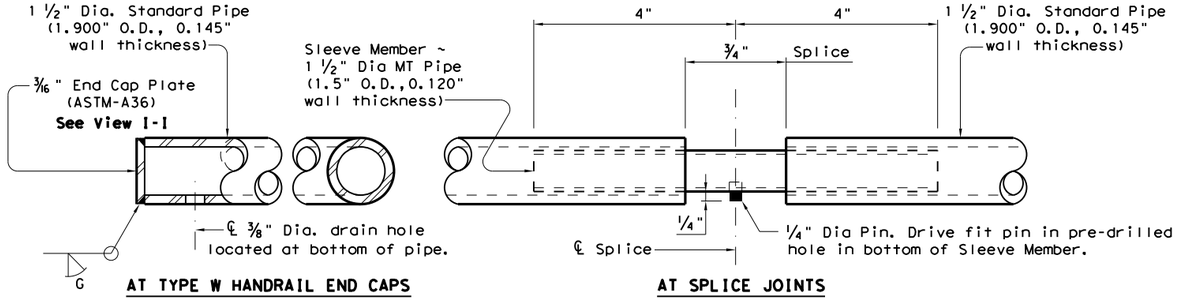
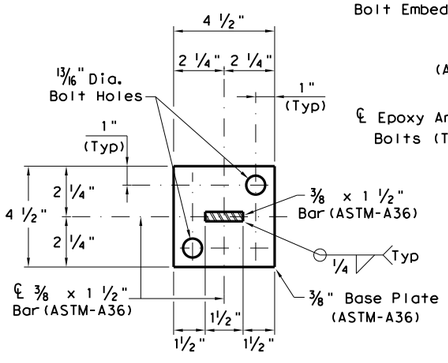
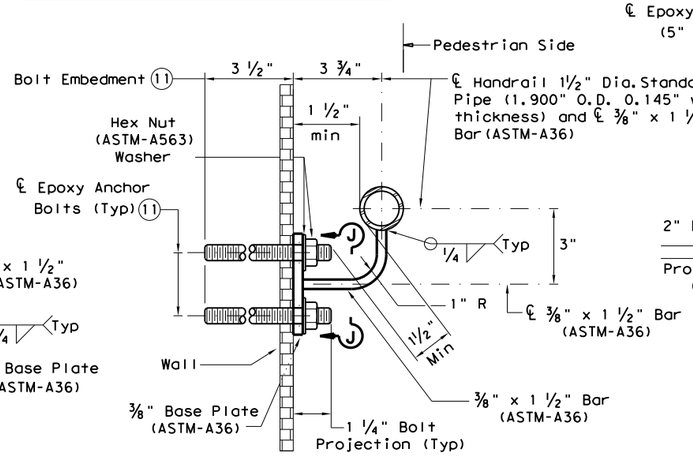


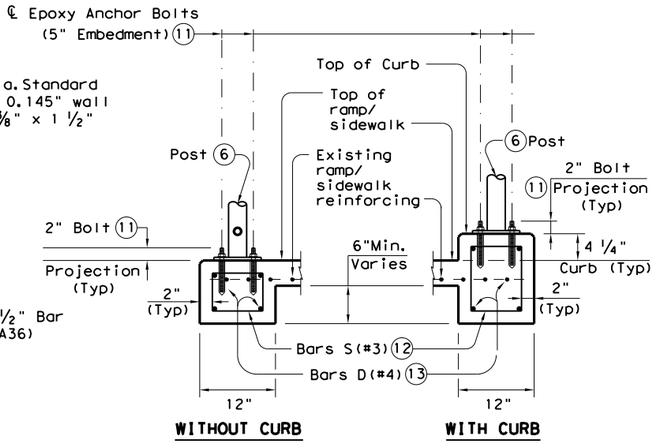
HANDRAIL FABRICATION DETAILS



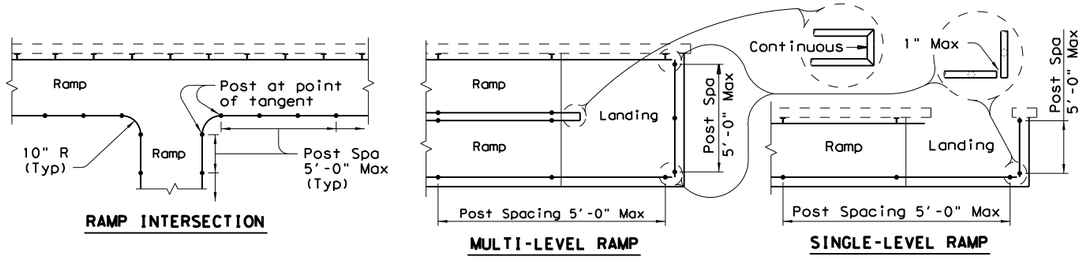
SECTION J-J
(Anchor Bolts not shown for clarity)



SECTION AT WALL MOUNT



SECTION AT RAIL POST FOUNDATIONS



PLAN SHOWING RAIL AT RAMP CONDITIONS

GENERAL NOTES

Designed according to ADAAG, Texas Accessibility Standards, Uniform Building Code, and AASHTO LRFD Specifications.

Handrail anchorage details shown on this standard may require modification for select structure types. See appropriate details elsewhere in plans for these modifications.

Pipe will conform to ASTM-A53 Grade B or A500 Grade B. Steel plates and steel bars will conform to ASTM-A36. Mechanical tubing (MT) will conform to ASTM A513 Grade 1015 or higher. Galvanize all steel components except reinforcing steel unless noted otherwise.

Concrete for foundations will be in accordance with Item 531 "Sidewalks". All reinforcing steel must be Grade 60. Bar laps, where required, will be as follows: Uncoated ~ #4 = 1'-5" Epoxy coated ~ #4 = 2'-1"

When the plans require painted steel, follow the requirements for painting galvanized steel in Item 446, "Cleaning and Painting Steel". Sleeve Members will receive galvanization and only get field painted after installation unless directed otherwise by Engineer.

Epoxy Anchor bolts for wall mount and post base plate will be ⅝" Dia. ASTM A36 threaded rods with one hex nut and one hardened steel washer at each bolt. ⅝" Dia. threaded rod embedment depth for wall mounts is 3 ½" and embedment depth for post base plate is 5".

Embed threaded rods into concrete with a Type III (Class C) epoxy meeting the requirements of DMS-6100, "Epoxies and Adhesives". Mix and dispense adhesive with the manufacturer's static mixing nozzle/dual cartridge system. Core drill holes (percussion drilling not permitted).

At the contractor's option the post base plate anchor bolts may be cast with the Ramp/Sidewalk (See Cast-in-Place Anchor Bolt Options).

Optional cast-in-place anchor bolts will be ⅝" Dia ASTM A307 Grade A bolts (or A36 threaded rods with one tack welded hex nut each) with one hex nut and one hardened steel washer at each bolt. Embedment depth of cast-in-place bolt will be 8" for post base plate.

Handrails and any wall or other surface adjacent to them will be free of any sharp or abrasive elements.

Submit shop drawings to the Engineer unless otherwise noted. For curved handrail applications, fabricate the handrail to the curve if radius is less than 600 ft. Shop drawings are required when rail is fabricated to the curve.

For all handrails, erection drawings will be submitted to the Engineer for approval to ensure proper installation.

Drawings will show handrail mount locations with bolts setting, spacing, ramp slope, and/or splice joint locations, and handrail lengths with identification showing where each handrail goes on the layout.

Payment for concrete sidewalks or curb ramps will be paid for in accordance with Item 531 "Sidewalks".

Payment for all items shown is to be included in unit price bid in accordance with Item 450 "Railing" of the type specified.

All exposed edges will be rounded or chamfered to approximately ⅛" by grinding.

TYPICAL WALL MOUNT DETAILS

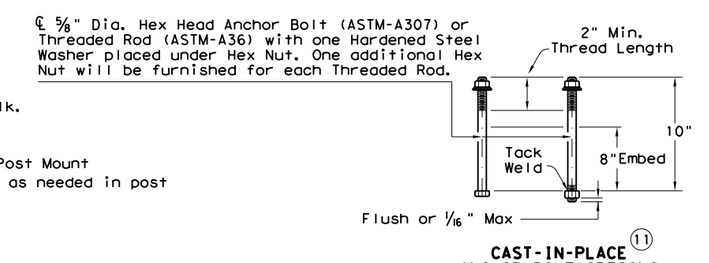
(5) 1 ½" Dia. Standard Pipe (1.900" O.D., 0.145" wall thickness). Parallel to ramp/sidewalk. Provide holes as needed in 1 ½" Dia. pipe for galvanizing drainage and venting.

(6) 2 ½" Dia. Standard Pipe (2.875" O.D., 0.203" wall thickness). Plumb all posts. See "Post Mount Detail" for crimping and trimming post to fit the diamenter of top rail. Provide holes as needed in post for galvanizing drainage and venting.

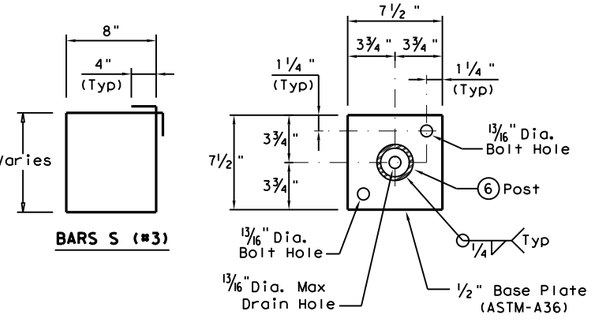
(11) See "General Notes" for anchor bolt information.

(12) Bars S(#3) spaced at 12" Max (Spaced 3" from outside edge of overall length of Ramp/Sidewalk).

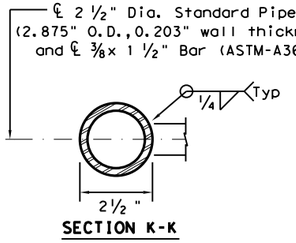
(13) Provide 1 ½" end cover to Bars D(#4) from outside edge of overall length of Ramp/Sidewalk.



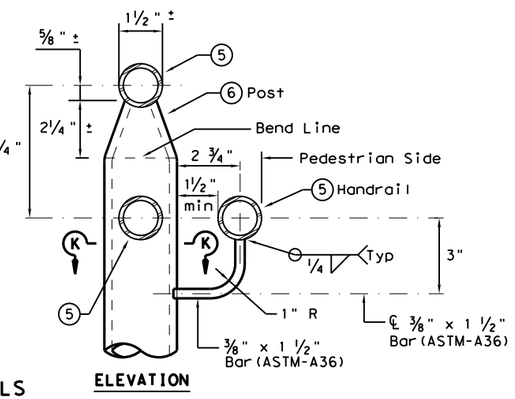
CAST-IN-PLACE ANCHOR BOLT OPTIONS
(Used for Post Base Plate only)



TYPICAL POST BASE PLATE DETAIL



SECTION K-K



ELEVATION

POST MOUNT DETAILS

SHEET 3 OF 3

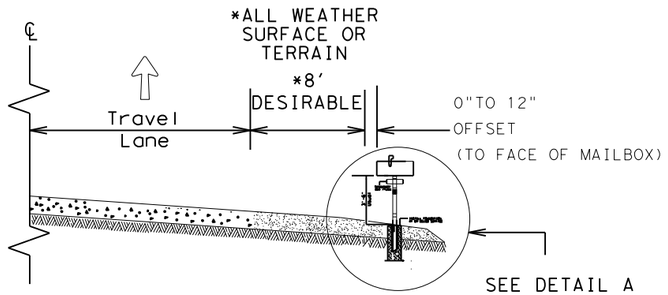
Texas Department of Transportation

Design Division Standard

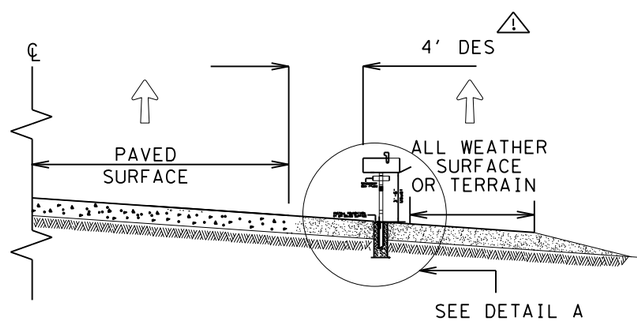
PEDESTRIAN HANDRAIL DETAILS

PRD-13

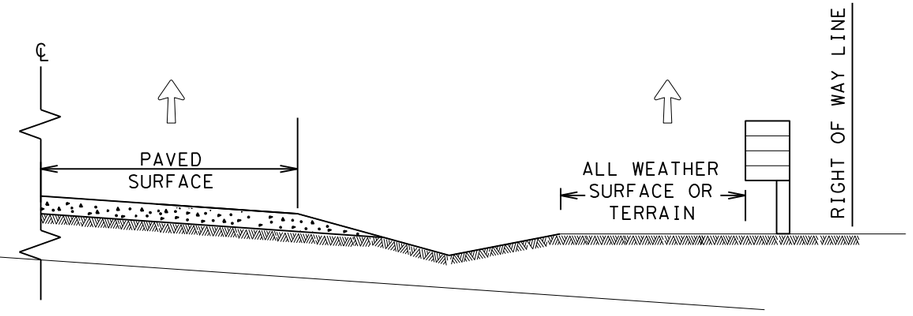
FILE: prd13.dgn	DN: TxDOT	CK: AM	DW: JTR	CK: CGL
©TxDOT December 2006	CONT	SECT	JOB	HIGHWAY
REVISIONS	0920	12	047	VARIOUS
REVISED MAY, 2013 (VP)	DIST	COUNTY		SHEET NO.
	BMT	JASPER		85



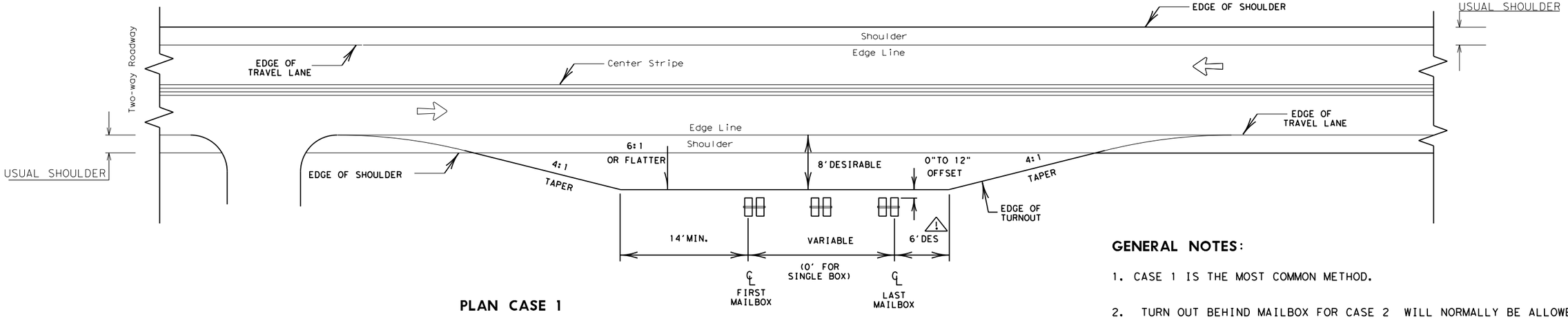
CASE 1. OFF TRAVEL WAY DELIVERY



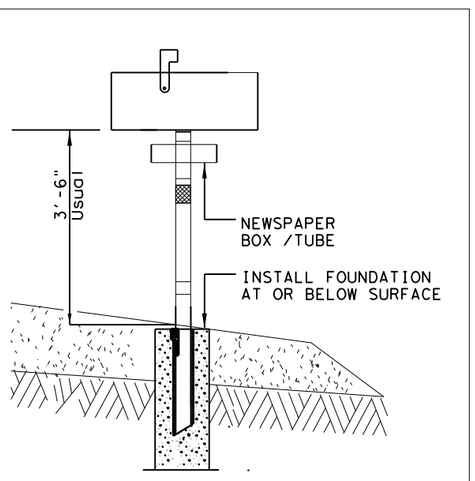
CASE 2. BACK SIDE DELIVERY



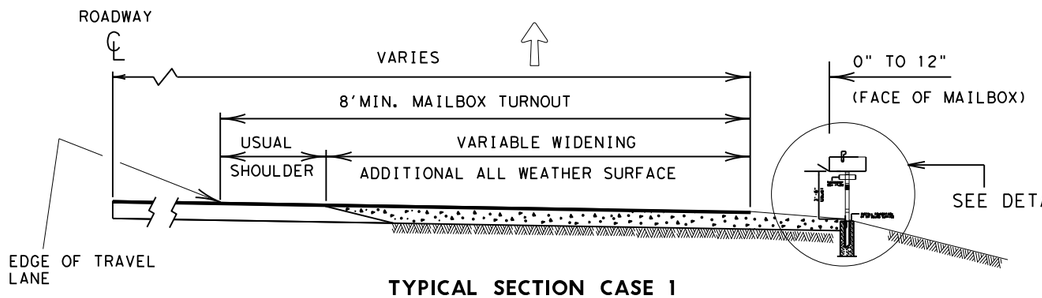
CASE 3. DELIVERY NEAR RIGHT OF WAY LINE



PLAN CASE 1



DETAIL A



TYPICAL SECTION CASE 1

MAIL DELIVERY VEHICLE TRAVEL DIRECTION

GENERAL NOTES:

1. CASE 1 IS THE MOST COMMON METHOD.
2. TURN OUT BEHIND MAILBOX FOR CASE 2 WILL NORMALLY BE ALLOWED FOR NATURAL TERRAIN THAT WILL SERVE AS AN ALL WEATHER SURFACE.
3. ALL WEATHER DRIVEWAYS FOR CASE 3 MAILBOXES LOCATED AT THE RIGHT OF WAY LINE SHOULD NORMALLY BE PLACED IN CONJUNCTION WITH COUNTY ROADS OR OTHER CONNECTING COMMUNITY ROADS OR STREETS. IF THE NUMBER OF MAILBOXES EXCEEDS FOUR, A COMMUNITY MAIL BOX SHOULD BE ENCOURAGED AT THESE LOCATIONS.

Texas Department of Transportation

Maintenance Division Standard

Guideline

MAILBOX SIDE ROAD PLACEMENT AND TURNOUTS
MB-14(2)

FILE: MB14(2).DGN	DN: JEO		CK:	DW: JEO		CK:
© TxDOT MAY 2014	CONT	SECT	JOB		HIGHWAY	
REVISIONS DECEMBER 2012-NEW TXDOT TITLE BLOCK	0920	12	047		VARIOUS	
	DIST	COUNTY			SHEET NO.	
	BMT	JASPER			86	

DATE: 1/25/2022 4:41:49 PM
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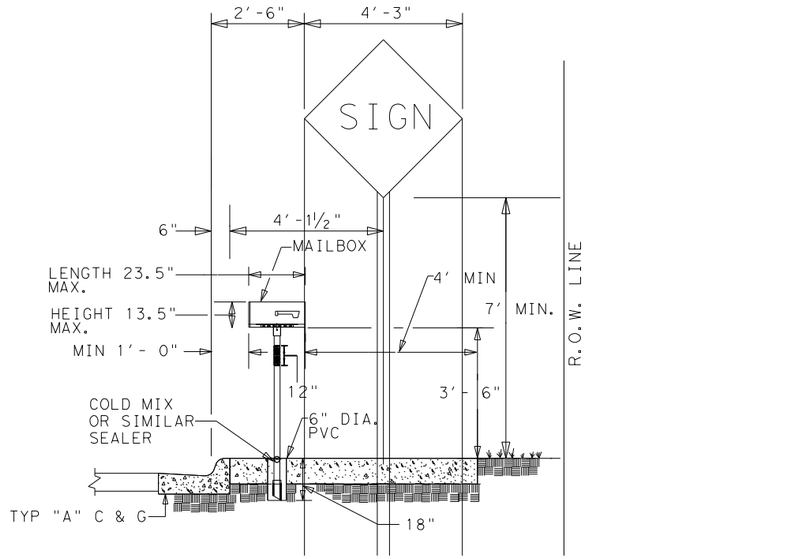
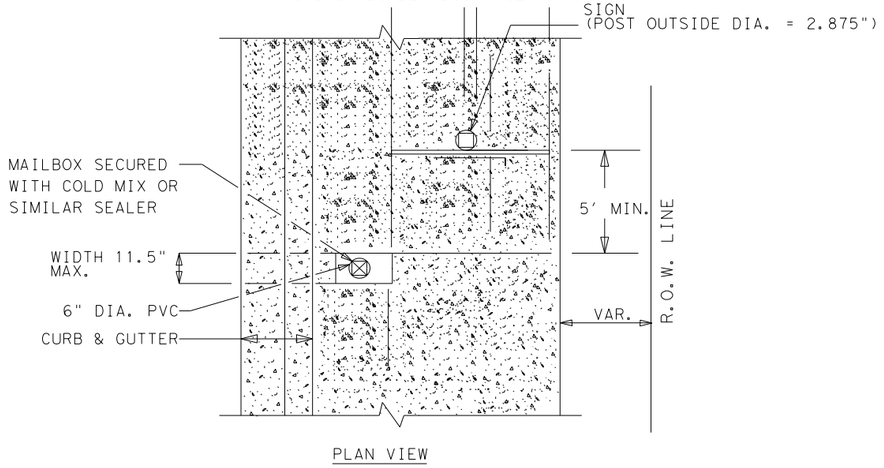
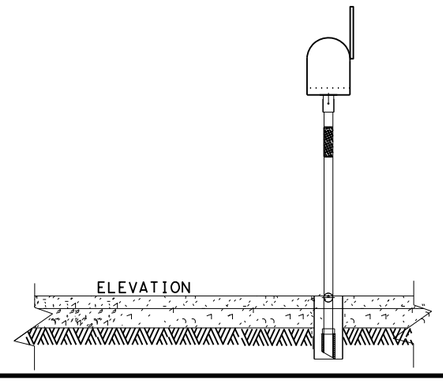
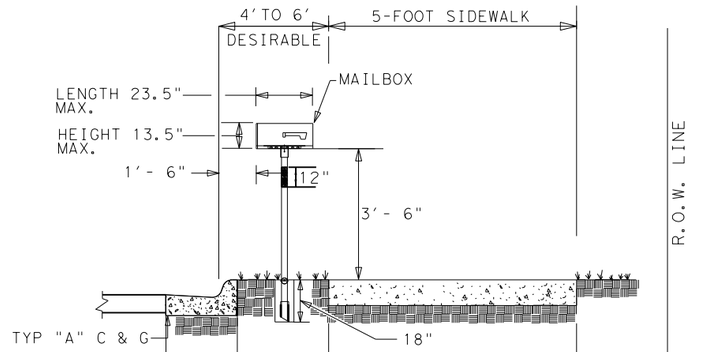


MAILBOX SIDEWALK INSTALLATION RELATIVE TO ANY OTHER OBSTRUCTION SUCH AS A SIGN
(MINIMUM BORDER DISTANCE)

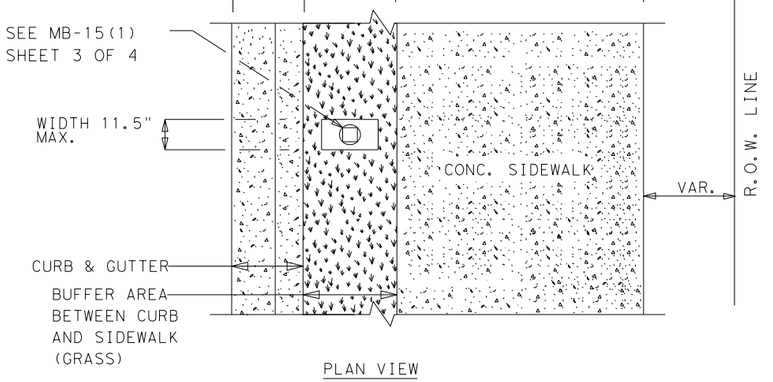


PLAN VIEW





MAILBOX SIDEWALK INSTALLATION
(DESIRABLE BORDER DISTANCE)



PLAN VIEW

DATE: 1/25/2022 4:41:50 PM
FILE: P:\122\42\01\Design\Civil\Standards\Roadway\mb-14(2).dgn

Texas Department of Transportation | Maintenance Division Standard

SINGLE MAILBOX PLACEMENT BEHIND CURBS WITH OR WITHOUT SIDEWALKS

MB-14(2A)

FILE: MB-14(2A)	DN:	CK:	DW:	CK:
	CONT	SECT	JOB	HIGHWAY
REVISIONS	0920	12	047	VARIOUS
	DIST	COUNTY		SHEET NO.
	BMT	JASPER		87

DATE: 1/25/2022 4:41:50 PM
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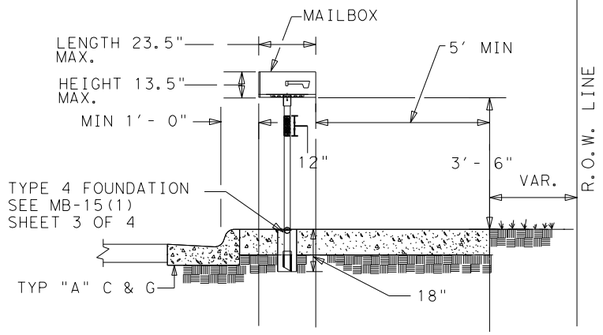
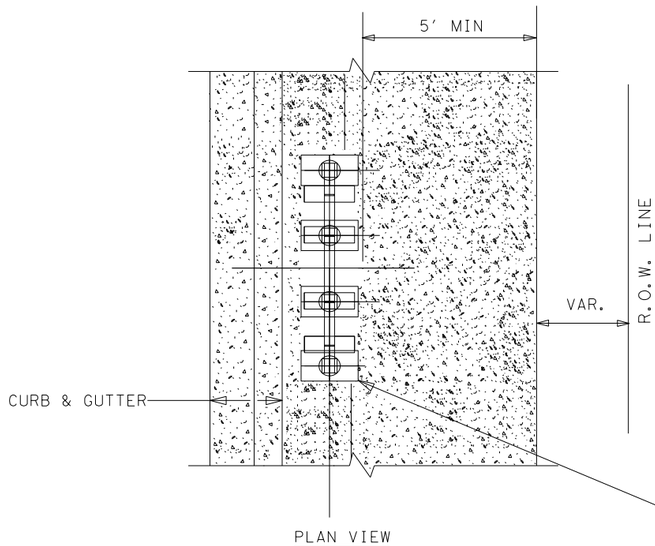
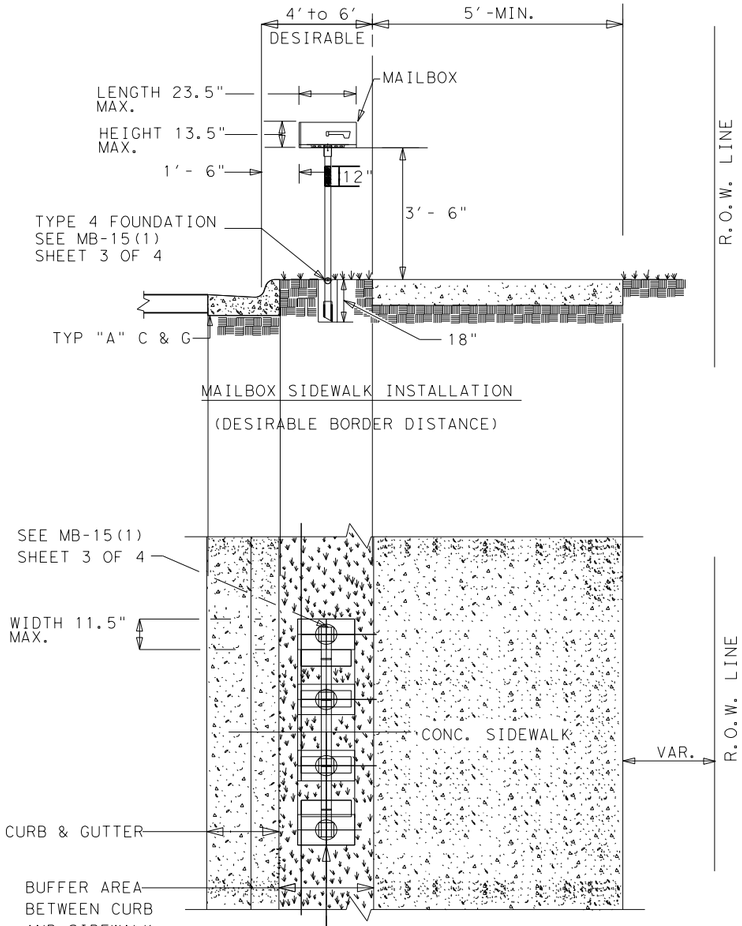


MAILBOX SIDEWALK INSTALLATION RELATIVE TO ANY OTHER OBSTRUCTION SUCH AS A SIGN
(MINIMUM BORDER DISTANCE)

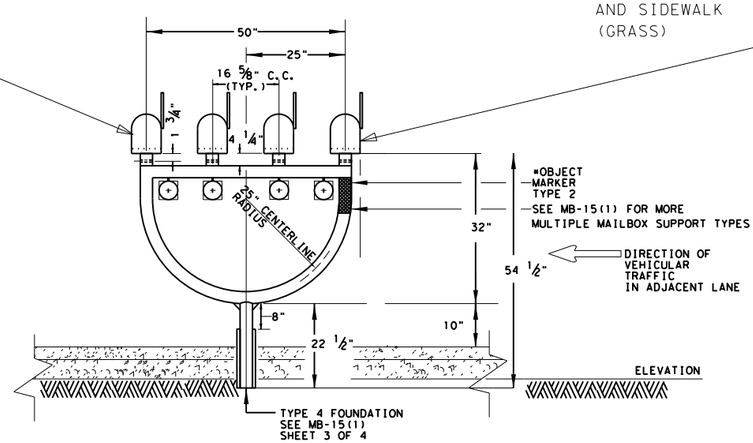


PLAN VIEW



MAILBOX SIDEWALK INSTALLATION
(DESIRABLE BORDER DISTANCE)

PLAN VIEW



SHEET 3 OF 3

Texas Department of Transportation

Maintenance Division Standard

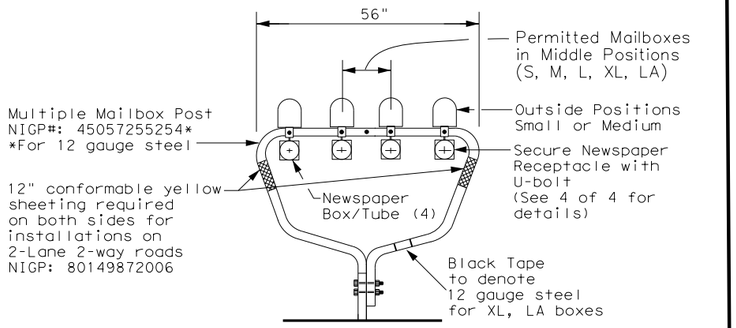
MULTIPLE MAILBOX PLACEMENT BEHIND CURBS WITH OR WITHOUT SIDEWALKS

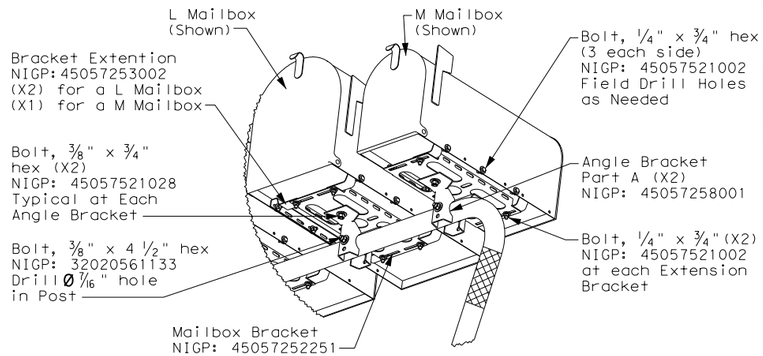
MB-14(2B)

FILE: MB-14(2A)	DN:	CK:	DW:	CK:
© TxDOT MAY 2014	CONT	SECT	JOB	HIGHWAY
REVISIONS	0920	12	047	VARIOUS
	DIST	COUNTY		SHEET NO.
	BMT	JASPER		88

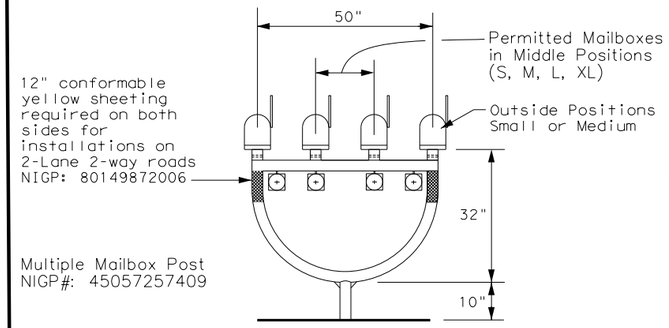
DATE:
FILE:

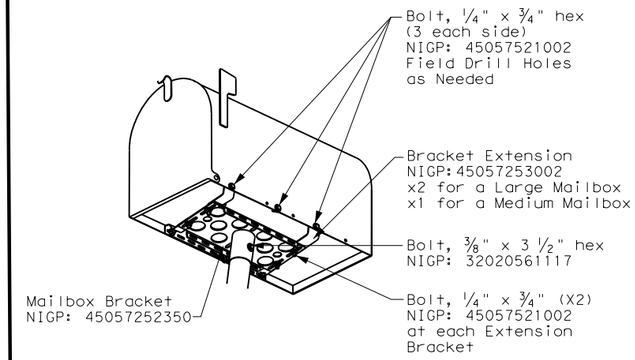
TYPE 1 - MULTIPLE





TYPE 4 - MULTIPLE





MAILBOX SIZES

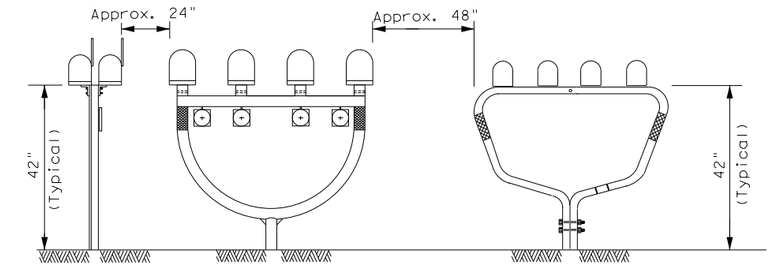
MAILBOX SIZE	TYPICAL DIMENSIONS			MAX **
	LENGTH	WIDTH	HEIGHT	WEIGHT
SMALL	19 1/2"	6"	7"	6 LBS
MEDIUM	22 1/2" *	8" *	11 1/2" *	8 LBS
LARGE	23 1/2"	11 1/2"	13 1/2"	11 LBS
EXTRA LARGE	18"	14"	12"	13 LBS
LOCKABLE	18"	11 1/2"	15"	23 LBS

* See Note 1.
** Excluding Molded Plastic on 4 X 4 Post

GENERAL NOTES:

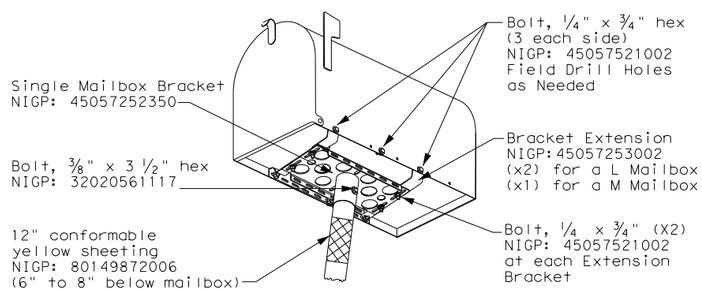
1. Dimensions shown (length, width, and height) are typical, not maximums. However, anytime a medium size mailbox is mounted on a single/double mount or on the outside position on a multi mount, the dimensions shown are maximums.
2. Mailboxes shall be made of light weight sheet metal or light weight plastic. Heavy steel, cast iron or decorative mailboxes shall not be used on the state highway system.

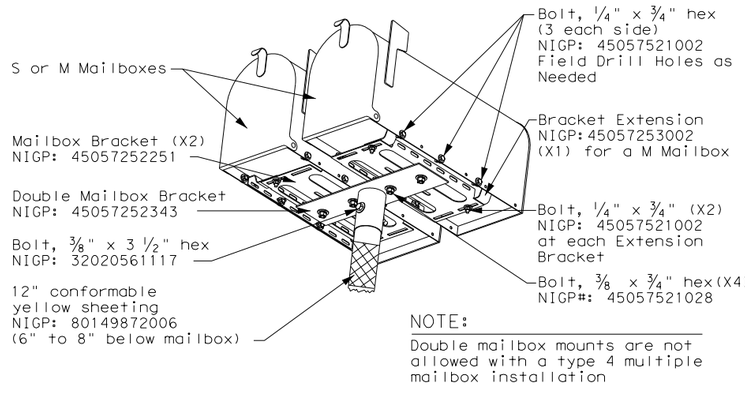
TYPICAL INSTALLATION MEASUREMENTS



NOTE:
Mailbox installations in sidewalk areas shall be in accordance with the latest TxDOT Design Standard sheets PED-Pedestrian Facilities Curb Ramps.

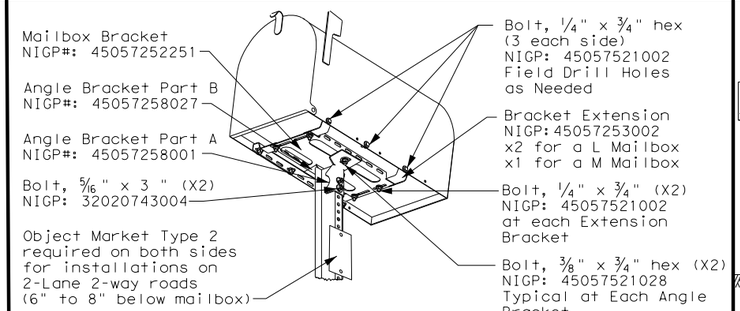
TYPE 2 and 4 - SINGLE/DOUBLE

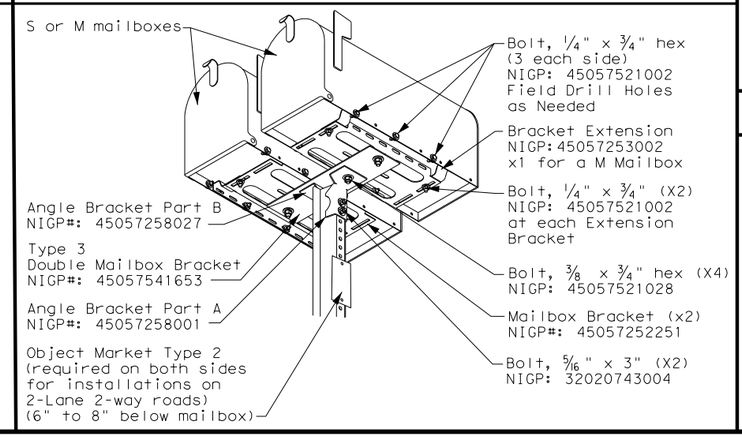




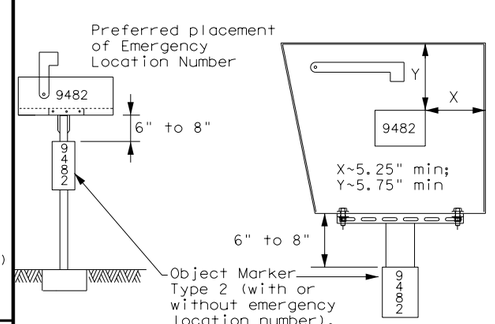
NOTE:
Double mailbox mounts are not allowed with a type 4 multiple mailbox installation

TYPE 3 - SINGLE/DOUBLE





PLACEMENT OF EMERGENCY LOCATION NUMBER

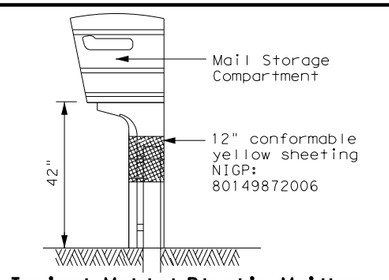


NOTES:

1. Location numbers are provided by homeowner. Minimum size 1" height.
2. Location number is typically placed on the mailbox in a contrasting color.
3. Black numbers may be placed on the Type 2 object marker if the numbers cannot be placed on the mailbox.
4. Alternatively, a green or blue plate with white numbers attached may be mounted below the object marker. Other contrasting color configuration, as approved, may be used.
5. See 3 of 4 for Foundation details.
6. See 4 of 4 for Hardware details.

SHEET 1 OF 4

TYPE 5



Typical Molded Plastic Mailbox

Texas Department of Transportation

Maintenance Division Standard

MAILBOX MOUNTING AND ASSEMBLY

MB(1)-21

FILE: MB-21.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
©TxDOT March 2004	CONT	SECT	JOB	HIGHWAY
REVISIONS 2/2005 11/2009 4/2015 6/2005 1/2011 11/2006 7/2014	0920	12	047	VARIOUS
	DIST	COUNTY		SHEET NO.
	BMT	JASPER		89

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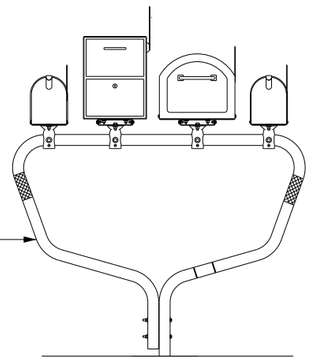
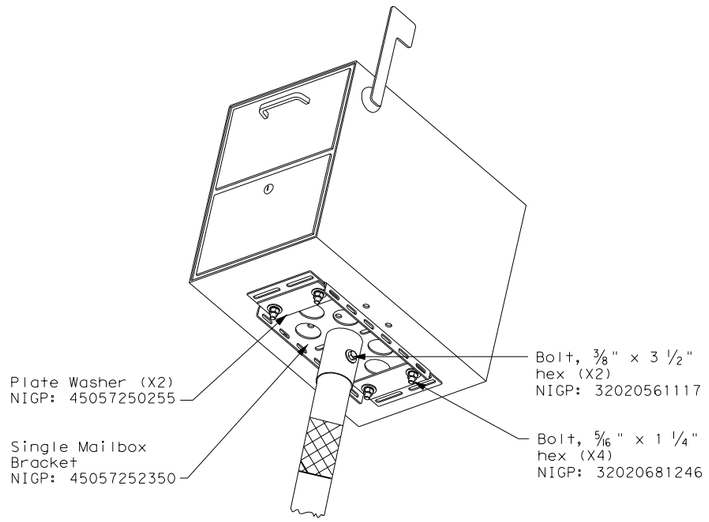
DATE:
FILE:

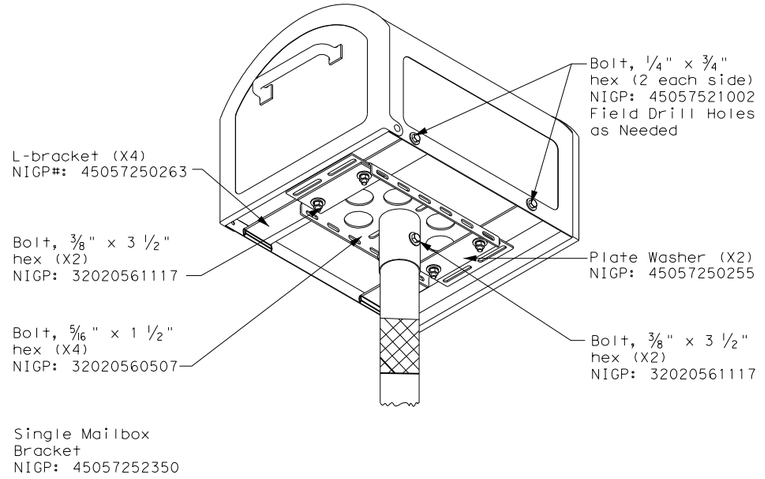
TYPE 1- MULTI LOCKABLE AND XL MAILBOX



TYPE 2/4 - SINGLE LOCKABLE MAILBOX

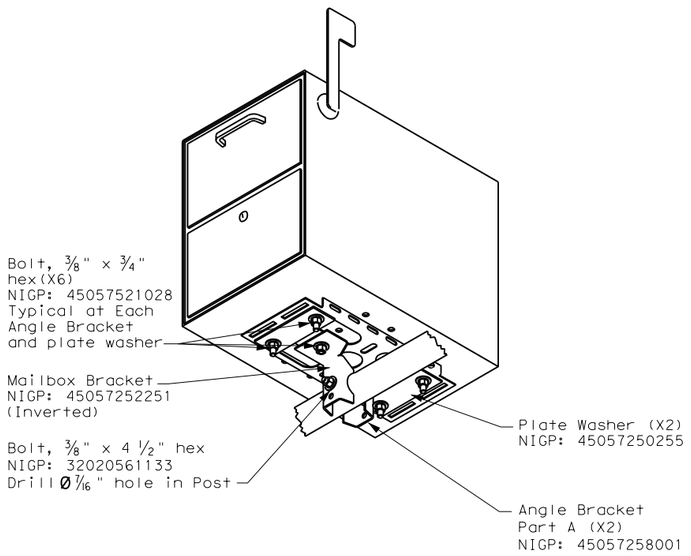


TYPE 2/4 - SINGLE XL MAILBOX

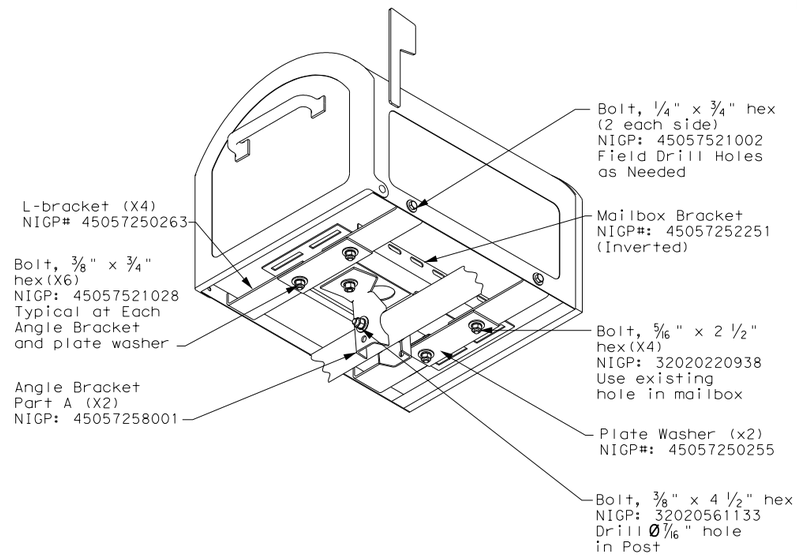


NOTE:
Follow same configuration when mounting an XL mailbox on a Type 4 multi post.

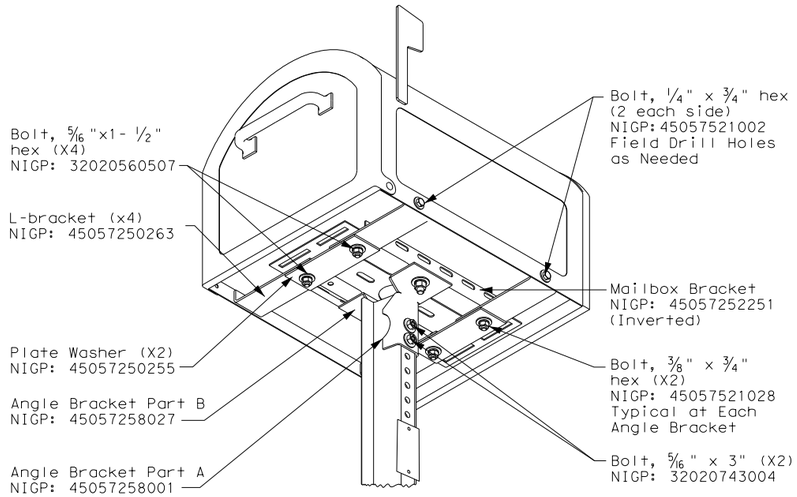
TYPE 1 MULTI – LOCKABLE ARCHITECTURAL (LA)



TYPE 1 MULTI – XL MAILBOX



TYPE 3 - XL MAILBOX MOUNTING



Texas Department of Transportation

Maintenance Division Standard

XL AND LOCKABLE ARCHITECTURAL MAILBOX ASSEMBLY

MB(2)-21

FILE: MB-21.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
© TxDOT March 2004	CONT	SECT	JOB	HIGHWAY
REVISIONS 2/2005 11/2009 4/2015 6/2005 1/2011 11/2006 7/2014	0920	12	047	VARIOUS
	DIST	COUNTY		SHEET NO.
	BMT	JASPER		90

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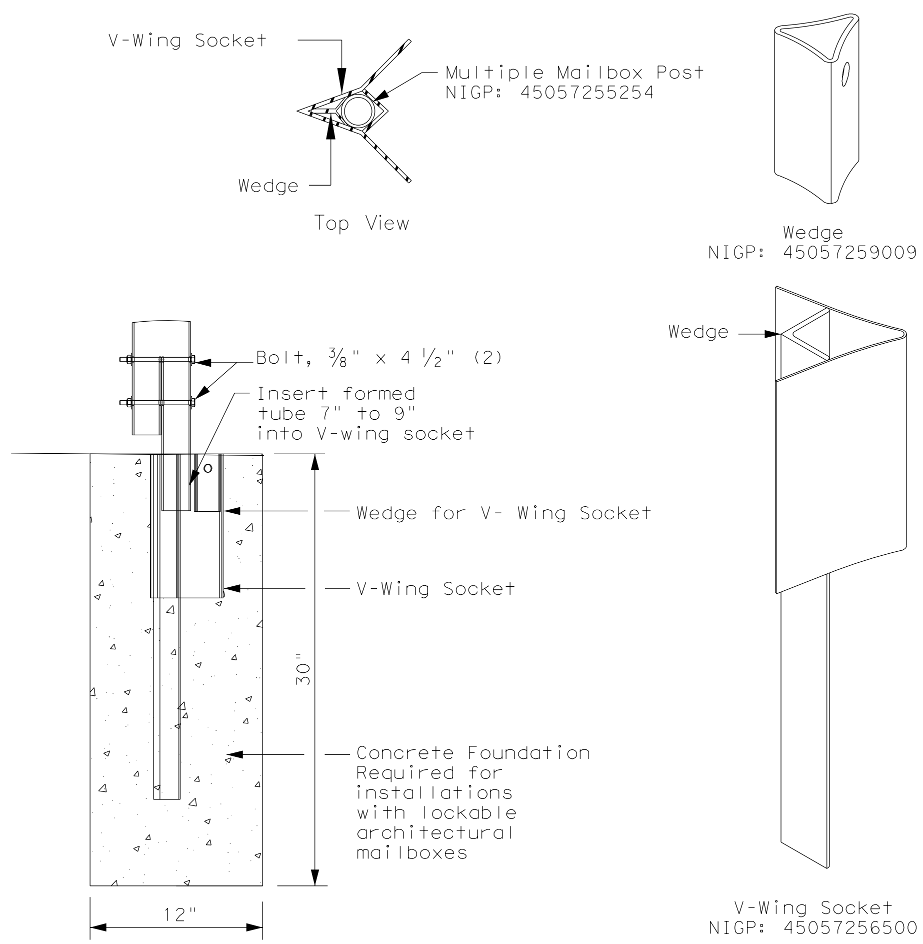
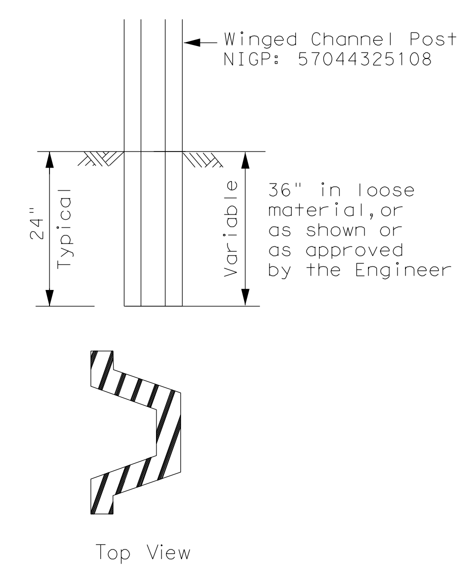
TYPE 1 - SUPPORT/FOUNDATION
Thin Wall Tube w/ V-LOC Anchorage



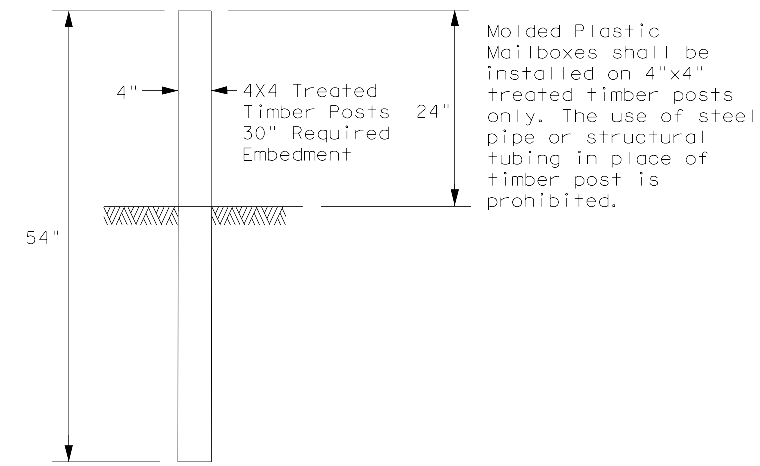
TYPE 3 - SUPPORT/FOUNDATION



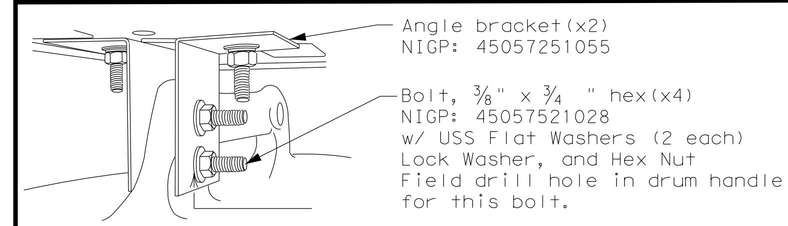
NOTES:

1. Attach Object Marker (OM) facing direction of traffic.
2. OM will also be required on opposite side if installed on a 2-Lane, 2-Way roadway.

TYPE 5 - SUPPORT/FOUNDATION



TYPE 6 - TEMPORARY MAILBOX SUPPORT



Plastic Drum NIGP: 55093383655
Rubber Collar NIGP: 55093387102

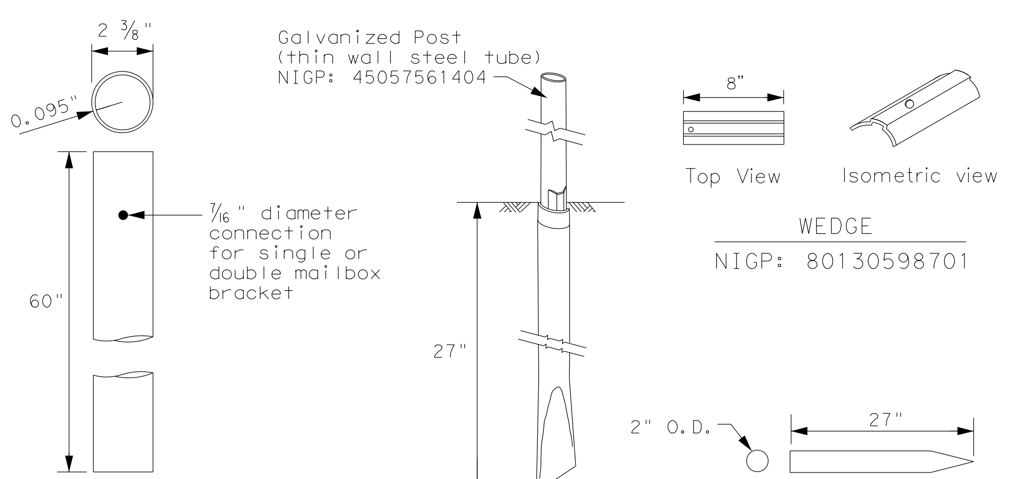
NOTES:

1. Place on approved plastic drum as shown in the Compliant Work Zone Traffic Control Devices (CWZTCD).
2. Existing attachment hardware shall be used unless damaged. Damaged hardware shall be replaced.

GENERAL NOTES:

1. Erect post plumb or vertical.
2. When galvanized part is required galvanize in accordance with Item 445.
3. Use a concrete footing as shown or when directed. Concrete footing will be required when soils do not hold the support/foundations in a stable condition, only on Type 1, Type 2, and Type 4

TYPE 2 - SUPPORT/FOUNDATION
Thin Wall Steel Tube w/Wedge Anchor System

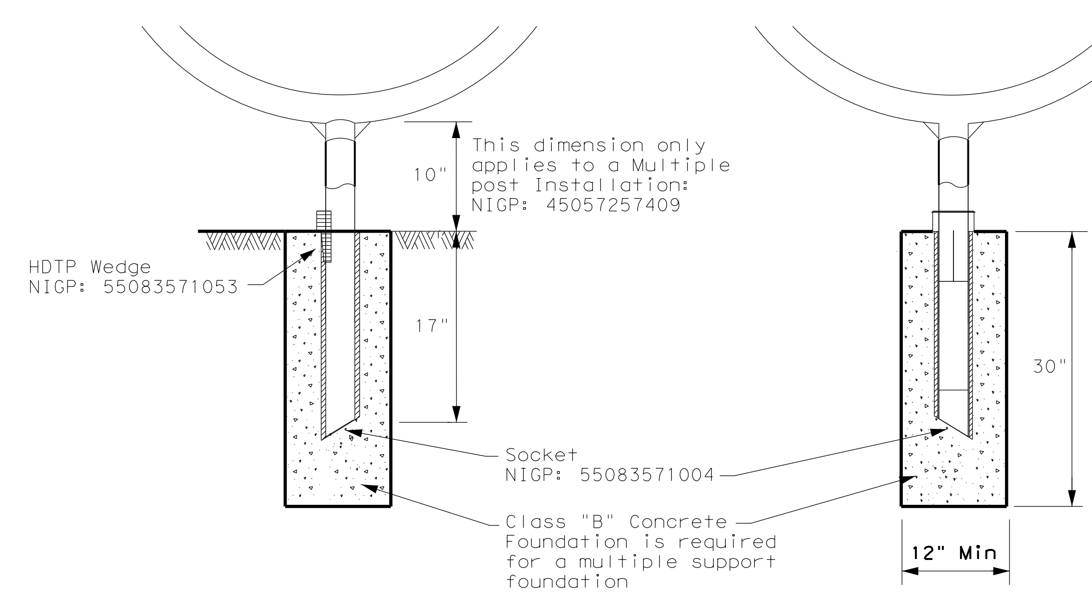


WEDGE
NIGP: 80130598701

MAILBOX POST

WEDGE ANCHOR
NIGP: 80130238407

TYPE 4 - SUPPORT/FOUNDATION
Whitecoated steel post NIGP: 45057561107
Multiple post NIGP: 45057257409
Recycled Rubber post (RR) NIGP: 45057561057



SHEET 3 OF 4

Texas Department of Transportation

Maintenance Division Standard

MAILBOX SUPPORT AND FOUNDATION

MB(3)-21

FILE: MB-21.dgn	DN:	CK:	DW:	CK:
© TxDOT March 2004	CONT	SECT	JOB	HIGHWAY
REVISIONS 2/2005 6/2005 11/2006 11/2009 1/2011 7/2014 4/2015	0920	12	047	VARIOUS
	DIST		COUNTY	SHEET NO.
	BMT		JASPER	91

DATE: 1/25/2022 4:41:54 PM
FILE: P:\1022\42\01\Design\01 Standards\Roadway\Roadway\mb-21.dgn

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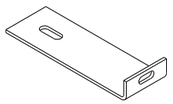
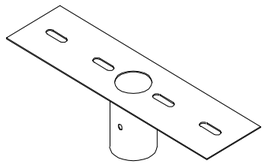
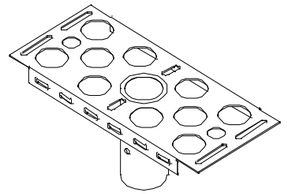
TYPE	TYPE 1	TYPE 2	TYPE 3	TYPE 4			TYPE 5	TYPE 6
Configuration	Multiple	Single or Double	Single or Double	Single	Double	Multiple	Single	Single
Mailbox Size NIGP #	Outside Position: S or M Inside Position: S, M, L, XL, or LA	Single: S, M, L, XL, or LA Double: SS, SM, MM	Single: S, M, L, or XL Double: SS, SM, MM	S, M, L, XL, or LA	SS, SM, or MM	Outside Position: S or M Inside Position: S, M, L, or XL	Molded Plastic	S, or M
Mailbox Post NIGP #	45057255254 (Galvanized Multiple)	45057561404 (Thin Walled Gavanize)	57044325108 (Wing Channel Post)	45057561107 (Thin walled white powder coated) 45057561057 (Recycled Rubber Post: S or M only)	45057561107 (Thin Walled White Powder Coated)	45057257409 (White Powder Coated Multiple)	4x4 Timber	Construction Barrel
Post and Mailbox Hardware NIGP #	45057259009 (Wedge) 45057256500 (V-Wing Socket) 45057253002 (Bracket Extension) 45057252251 (Mailbox Bracket) 45057258001 (Part A Angle Bracket x2) 45057250255 (Plate Washer for XL/LA x2) 45057250263 (L-Bracket for XL x4)	80130598701 (Wedge) 80130238407 (Wedge Anchor) 45057253002 (Bracket Extension) 45057252343 (Double MB Bracket) 45057252350 (S. Mailbox Bracket) 45057252251 (Mailbox Bracket) 45057250255 (Plate Washer for XL/LA x2) 45057250263 (L-Bracket forXL x4)	45057541653 (Type 3 Double Mailbox Bracket) 45057252251 (Mailbox Bracket) 45057253002 (Bracket Extension) 45057258001 (Part A Angle Bracket) 45057258027 (Part B Angle Bracket) 45057250255 (Plate Washer for XL x2) 45057250263 (L-Bracket for XL x4)	55083571053 (Wedge) 55083571004 (Socket) 45057252350 (Single Mailbox Bracket) 45057253002 (Bracket Extension) 45057250255 (Plate Washer for XL/LA x2) 45057250263 (L-Bracket for XL x4)	55083571053 (Wedge) 55083571004 (Socket) 45057253002 (Bracket Extension) 45057252343 (Double Mount Bracket) 45057252251 (Mailbox Bracket x2)	55083571053 (Wedge) 55083571004 (Socket) 45057253002 (Bracket Extension) 45057252350 (Single Mount Bracket) 45057250255 (Plate Washer for XL x2) 45057250263 (L-Bracket for XL x4)	None	45057251055 Angle Bracket (x2)
Foundation Used	Class B Concrete (Required for LA Mailboxes)	Class B Concrete (Required for LA Mailboxes)	None	Class B Concrete (not used with recycled rubber post, required for LA Mailboxes)	Class B Concrete (not required)	Class B Concrete	None	None



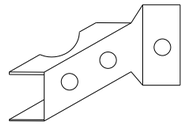
NIGP: 45057250263
L-Bracket x4 for
XL sized mailboxes



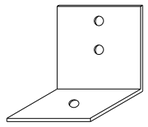
NIGP: 45057252343
Double Mailbox Bracket
For Type 2 and Type 4
double mount



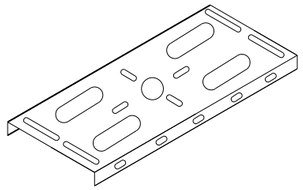
NIGP: 45057252350
Single Mailbox Bracket
For Type 2 single and for
Type 4 single and multi mount



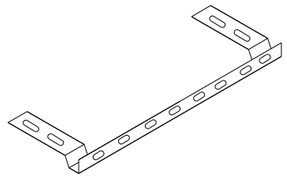
NIGP: 45057258001
Part "A" Angle Bracket
For Type 1 multi (2 per mailbox)
and Type 3 single and double



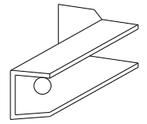
NIGP: 45057251055
Type 6 Angle Bracket
(2 per mailbox)



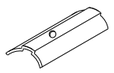
NIGP: 45057252251
Mailbox Bracket
For Type 1 multi and
any double mount (use 2)



NIGP: 45057253002
Bracket Extension
Use 1 for a medium Mailbox
Use 2 for a Large Mailbox



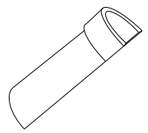
NIGP: 45057258027
Part "B" Angle Bracket
For Type 3 single
and double



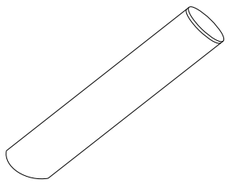
NIGP: 80130598701
Wedge for Type 2

NIGP: 45057250255
Plate Washer for Architecural
and XL Mailboxes

NIGP: 45057541653
Type 3 double mailbox bracket

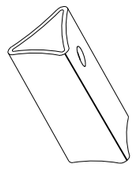


NIGP: 55083571053
Type 4 Mailbox Wedge

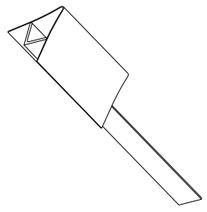


NIGP: 55083571004
Type 4 Mailbox Socket

NIGP: 80130238407
Type 2 Wedge Anchor



NIGP: 45057259009
Wedge for Type 1 V-wing Socket



NIGP: 45057256500
V-wing Socket for
Type 1 Foundation

NIGP #	OBJECT MARKERS AND CONFORMABLE SHEETING
55008311759	Type 2 OM 4"x4" (3 Needed) for Type 3 Wing Channel Post
55008312906	Type 2 OM 6"x12" (1 needed) for Type 3 Wing Channel Post
80149872006	12" Conformable Reflective Yellow Sheeting for Flexible Posts

NOTES:

1. Type 2 object marker in accordance with Traffic Engineering Standard Delineators & Object Markers.
2. A light weight receptacle for newspaper delivery can be attached to mailbox posts if the receptacle does not touch the mailbox, present a hazard to traffic or delivery of the mail, extend beyond the front of the mailbox, or display advertising, except the publication title.

BID CODES FOR CONTRACTS

MB-(X) ASSM TY (XXX) (X)

Type of Mailbox
- S = Single
- D = Double
- M = Multiple
- MP = Molded Plastic

Type of Post
- WC = Winged Channel Post
- RR = Recycled Rubber
- TWW = Thin Walled White Tubing
- TWG = Thin Walled Galvanized Tubing
- TIM = Timber

Type of Foundation
- Ty 1 = V-Loc
- Ty 2 = Wedge Anchor Steel System
- Ty 3 = Winged Channel post
- Ty 4 = Wedge Anchor Plastic System
- Ty 5 = 4 X 4 Post

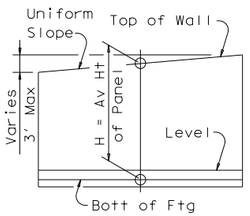
Texas Department of Transportation — Maintenance Division Standard

NIGP PARTS LIST AND COMPATIBILITY

MB(4)-21

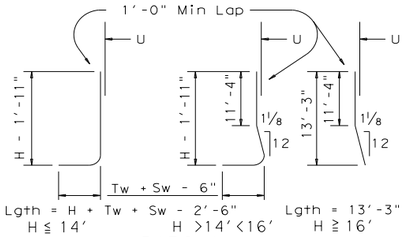
FILE: MB-21.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
©TxDOT March 2004	CONT	SECT	JOB	HIGHWAY
REVISIONS 2/2005 11/2009 4/2015 6/2005 1/2011 11/2006 7/2014	0920	12	047	VARIOUS
	DIST	COUNTY		SHEET NO.
	BMT	JASPER		92

DATE: 1/25/2022 4:41:54 PM
FILE: P:\122V42\01\Design\Civil\Standards\Roadway\mb-21(1).dgn

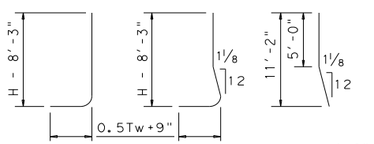


H DEFINITION

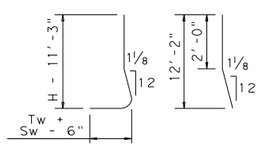
Wall Height "H"	PROPERTIES							REINFORCING STEEL FOR ONE 32′ PANEL (DESIGN A)																												QUANTITY FOR ONE 32′ PANEL		Wall Height "H"
	WALL DIMENSIONS						Max Soil Press	A1 ~ 26 #5 at 15" c-c		A2 ~ 25 #6 at 15" c-c		A3 ~ 25 #7 at 15" c-c		A4 ~ 26 #8 at 15" c-c		A5 ~ 25 #9 at 15" c-c		A6 ~ 25 #11 at 15" c-c		A7 ~ 26 #11 at 15" c-c		B ~ 26 #5 at 15" c-c		C					D (#5) at 12" c-c		Dowel F at 12" c-c		H (#5) at 12" c-c		T (#5) at 12" c-c		U ~ 26 #5 at 15" c-c		CONC (CY)	REINF (LB)	
(Ft)	Fw	Tw	Sw	Hw	Ft	Kw	T/SF	Lgth	Wt	Lgth	Wt	Lgth	Wt	Lgth	Wt	Lgth	Wt	Lgth	Wt	Lgth	Wt	Lgth	Wt	Size	No	Spa	Lgth	Wt	No	Wt	No	Wt	No	Wt	No	Wt	Lgth	Wt			(Ft)
2	1′-8"	8"	1′-0"	0	9"	9"	0.11																						4	131	3	24			2	66	3′-4"	90	3.6	312	2
3	2′-0"	1′-0"	1′-0"	0	9"	9"	0.15																						6	197	4	32	2	66	2	66	5′-4"	145	5.1	506	3
4	2′-8"	1′-4"	1′-0"	4"	1′-0"	9"	0.21	3′-10"	104													3′-6"	95	#4	26	15"	1′-10"	32	8	263	6	48	2	66	2	66	7′-4"	199	7.4	873	4
5	3′-6"	1′-9"	1′-0"	9"	1′-0"	9"	0.23	5′-3"	142													4′-6"	122	#4	26	15"	2′-3"	39	10	329	7	56	2	66	3	99	8′-4"	226	9.6	1079	5
6	4′-3"	2′-2"	1′-0"	1′-1"	1′-0"	9"	0.24	6′-8"	181													5′-6"	149	#4	26	15"	2′-8"	46	12	394	8	64	3	99	3	99	8′-4"	226	11.6	1259	6
7	5′-0"	2′-6"	1′-0"	1′-6"	1′-0"	9"	0.27	8′-0"	217													6′-6"	176	#4	26	15"	3′-0"	52	14	460	9	72	3	99	3	99	8′-4"	226	13.7	1401	7
8	5′-8"	2′-10"	1′-0"	1′-10"	1′-0"	9"	0.30	9′-4"	253													7′-6"	203	#4	26	15"	3′-4"	58	16	526	10	80	3	99	4	131	8′-4"	226	15.7	1575	8
9	6′-4"	3′-2"	1′-0"	2′-2"	1′-0"	9"	0.33	10′-8"	284													8′-6"	231	#4	26	15"	3′-8"	64	18	591	11	88	3	99	4	131	8′-4"	226	17.7	1714	9
10	7′-0"	3′-6"	1′-0"	2′-6"	1′-0"	9"	0.36	12′-0"	325	4′-2"	156											9′-6"	258	#4	38	10"	4′-0"	102	20	657	12	96	4	131	4	131	8′-4"	226	19.6	2082	10
11	7′-9"	3′-10"	1′-0"	2′-11"	1′-0"	9"	0.39	13′-4"	362	5′-4"	200											10′-6"	285	#6	38	10"	4′-4"	247	22	723	13	104	4	131	5	164	8′-4"	226	21.7	2436	11
12	8′-6"	4′-3"	1′-0"	3′-3"	1′-0"	9"	0.40	14′-9"	400	6′-7"	247											11′-6"	312	#6	38	10"	4′-9"	271	24	789	14	112	4	131	5	164	8′-4"	226	23.8	2651	12
13	9′-2"	4′-7"	1′-0"	3′-7"	1′-0"	9"	0.43	16′-1"	436	7′-8"	288	6′-9"	345									12′-6"	339	#7	38	10"	5′-1"	395	26	854	15	120	5	164	6	197	8′-4"	226	25.8	3364	13
14	9′-10"	4′-11"	1′-0"	3′-11"	1′-0"	1′-0"	0.47	17′-5"	472	8′-11"	335	8′-1"	413									13′-6"	366	#8	38	10"	5′-5"	550	28	920	16	128	5	164	6	197	8′-4"	226	28.2	3771	14
15	10′-6"	5′-3"	1′-1 1/8"	4′-1 7/8"	1′-0"	1′-0"	0.50	18′-10"	511	10′-1"	379	9′-6"	485									14′-6"	393	#9	38	10"	5′-9"	743	30	986	17	136	6	197	6	197	8′-4"	226	30.3	4253	15
16	11′-2"	5′-7"	1′-2"	4′-5"	1′-3"	1′-3"	0.55	13′-3"	359	11′-2"	419	10′-11"	558	8′-5"	584							15′-6"	420	#9	38	10"	6′-1"	786	32	1051	18	144	6	197	7	230	8′-4"	226	36.0	4974	16
17	11′-10"	5′-11"	1′-3 1/8"	4′-7 7/8"	1′-3"	1′-3"	0.58	13′-3"	359	12′-5"	466	12′-4"	630	9′-10"	683							16′-6"	447	#9	38	10"	6′-5"	829	34	1117	19	152	7	230	7	230	8′-4"	226	38.5	5369	17
18	12′-6"	6′-3"	1′-4"	4′-11"	1′-6"	1′-3"	0.63	13′-3"	359	13′-7"	510	13′-9"	703	11′-2"	775							17′-6"	475	#9	38	10"	6′-9"	872	34	1117	19	152	7	230	8	263	8′-4"	226	44.3	5682	18
19	13′-3"	6′-7"	1′-5"	5′-3"	1′-6"	1′-6"	0.66	13′-3"	359	14′-9"	554	15′-2"	775	12′-8"	879							18′-6"	502	#9	38	10"	7′-2"	926	36	1183	20	160	7	230	8	263	8′-4"	226	48.1	6057	19
20	13′-10"	6′-11"	1′-6 1/4"	5′-4 3/4"	1′-6"	1′-6"	0.70	13′-3"	359	15′-11"	598	16′-7"	847	14′-1	978							19′-6"	529	#10	38	10"	7′-5"	1213	38	1248	21	168	8	263	8	263	8′-4"	226	50.9	6692	20
21	14′-6"	7′-3"	1′-7"	5′-8"	1′-9"	1′-6"	0.75	13′-3"	359	11′-2"	419	18′-0"	920	15′-5"	1070	9′-7"	815					20′-6"	556	#10	38	10"	7′-9"	1267	40	1314	22	176	8	263	9	296	8′-4"	226	57.7	7681	21
22	15′-2"	7′-7"	1′-8 1/8"	5′-10 7/8"	1′-9"	1′-6"	0.78	13′-3"	359	11′-2"	419	19′-5"	992	16′-11"	1174	10′-11"	928					21′-6"	583	#10	38	10"	8′-1"	1322	42	1380	23	184	8	263	9	296	8′-4"	226	61.0	8126	22
23	16′-0"	8′-0"	1′-9 1/4"	6′-2 3/4"	1′-9"	1′-6"	0.79	13′-3"	359	11′-2"	419	20′-11"	1069	18′-5"	1278	12′-4"	1048					22′-6"	610	#8	76	5"	8′-6"	1725	44	1446	24	192	9	296	10	329	8′-4"	226	64.8	8997	23
24	16′-6"	8′-3"	1′-10 1/8"	6′-4 7/8"	2′-0"	1′-6"	0.86	13′-3"	359	11′-2"	419	22′-3"	1137	19′-9"	1371	13′-7"	1155					23′-6"	637	#8	76	5"	8′-9"	1776	46	1511	25	200	9	296	10	329	8′-4"	226	72.4	9416	24
25	17′-3"	8′-7"	1′-11 1/4"	6′-8 3/4"	2′-0"	1′-6"	0.89	13′-3"	359	11′-2"	419	12′-2"	622	21′-2"	1469	15′-0"	1275	6′-1"	808			24′-6"	664	#8	76	5"	9′-2"	1860	48	1577	26	208	9	296	10	329	8′-4"	226	76.4	10112	25
26	18′-0"	9′-0"	2′-0 1/8"	6′-11 1/8"	2′-3"	1′-6"	0.93	13′-3"	359	11′-2"	419	12′-2"	622	22′-8"	1574	16′-4"	1388	7′-1"	941			25′-6"	692	#8	76	5"	9′-6"	1928	50	1643	27	217	10	329	11	361	8′-4"	226	85.2	10698	26
27	18′-6"	9′-4"	2′-1 1/4"	7′-0 3/4"	2′-3"	1′-6"	0.97	13′-3"	359	11′-2"	419	12′-2"	622	24′-1"	1672	17′-8"	1502	8′-1"	1074			26′-6"	719	#9	76	5"	9′-10"	2541	52	1708	28	225	10	329	11	361	8′-4"	226	89.0	11757	27
28	19′-3"	9′-7"	2′-2 3/8"	7′-5 5/8"	2′-3"	1′-9"	1.00	13′-3"	359	11′-2"	419	12′-2"	622	25′-5"	1764	19′-0"	1615	9′-1"	1206			27′-6"	746	#9	76	5"	10′-1"	2606	54	1774	29	233	10	329	12	394	8′-4"	226	94.5	12293	28
29	20′-0"	10′-0"	2′-3 1/2"	7′-8 1/2"	2′-3"	1′-9"	1.02	13′-3"	359	11′-2"	419	12′-2"	622	27′-0"	1874	20′-5"	1735	10′-1"	1339			28′-6"	773	#9	76	5"	10′-5"	2692	56	1840	30	241	11	361	12	394	8′-4"	226	99.2	12874	29
30	20′-6"	10′-4"	2′-4 5/8"	7′-9 3/8"	2′-3"	1′-9"	1.06	13′-3"	359	11′-2"	419	12′-2"	622	14′-4"	995	21′-9"	1849	11′-1"	1472	17′-0"	2348	29′-6"	800	#10	76	5"	10′-9"	3516	58	1906	31	249	11	361	12	394	8′-4"	226	103.3	15515	30
31	21′-3"	10′-7"	2′-5 3/4"	8′-2 1/4"	2′-3"	1′-9"	1.09	13′-3"	359	11′-2"	419	12′-2"	622	14′-4"	995	23′-0"	1955	12′-1"	1605	18′-4"	2533	30′-6"	827	#10	76	5"	11′-2"	3652	60	1971	32	257	11	361	13	427	8′-4"	226	108.2	16209	31
32	22′-0"	11′-0"	2′-6 1/2"	8′-5 1/2"	2′-6"	1′-9"	1.13	13′-3"	359	11′-2"	419	12′-2"	622	14′-4"	995	24′-5"	2075	13′-1"	1738	19′-10"	2740	31′-6"	854	#10	76	5"	11′-6"	3761	60	1971	32	257	12	394	13	427	8′-4"	226	118.9	16837	32



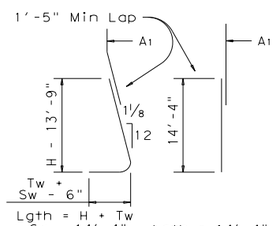
BARS A1



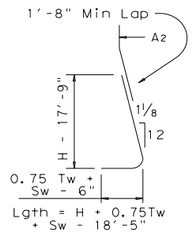
BARS A2



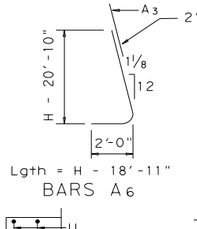
BARS A3



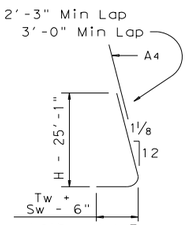
BARS A4



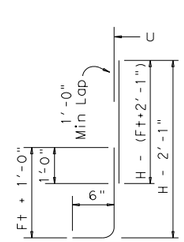
BARS A5



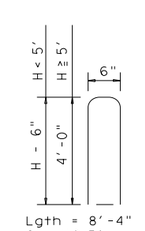
BARS A6



BARS A7

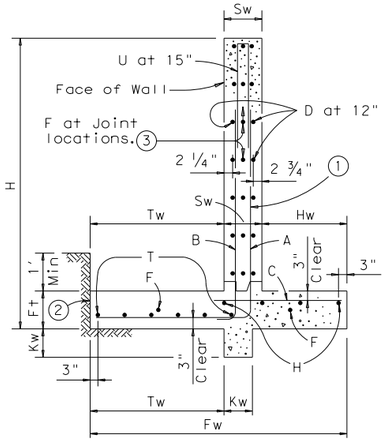


BARS B

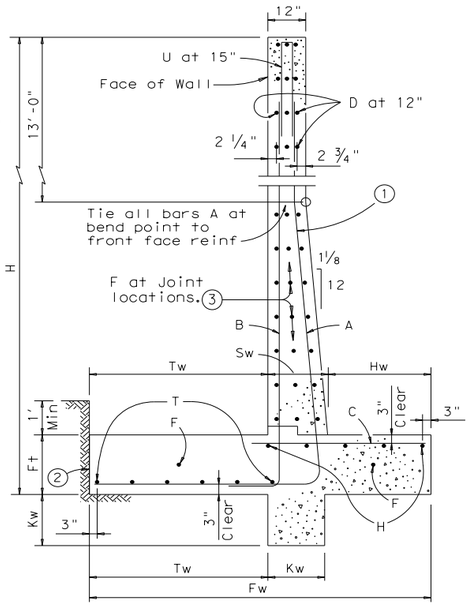


BARS U

1. Place vertical bars inside of horizontal bars (Typ both faces).
2. Place footing toe against undisturbed soil.
3. See standard RW 2 for size.

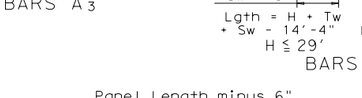


H ≤ 14′



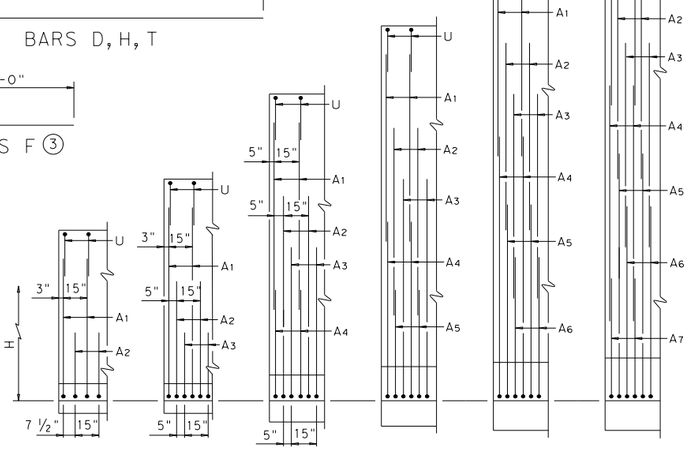
H > 14′

SECTIONS



BARS D, H, T

BARS F ③



PARTIAL WALL ELEVATIONS

(Showing vertical reinforcing pattern in back face)

GENERAL NOTES:

All concrete to be Class "C".
All reinforcing steel to be Grade 60.
For notes and details not shown on this sheet see sheet RW2.
Quantities are based on "H" being average height of panel.
Retaining Walls are designed to be coded as follows on Retaining Wall Layout Sheets.

HC - 21 - 28
LA - 28 - 32

- Panel Length ~ 32′ is standard; 28′ requires special quantities
- Average Height "H" of panel
- Design - A = no surcharge or slope above wall; B = slopes up to 4:1; C = traffic surcharge and/or slopes up to 2.5:1
- Footing pressure design ~ L = low, H = high

Texas Department of Transportation

Bridge Division Standard

RETAINING WALLS

RW 1(L)A

FILE: rwstde05.dgn	DN: TxDOT	CK: TxDOT	DW: GHO	CK: MPM
©TxDOT March 2010 REVISIONS	CONT	SECT	JOB	HIGHWAY
	0920	12	047	VARIOUS
	DIST	COUNTY		SHEET NO.
	BMT	JASPER		93

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DATE: 1/25/2022 4:41:57 PM
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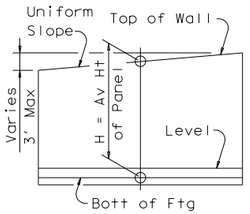
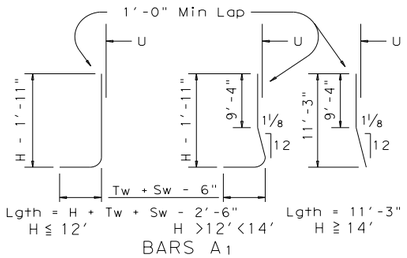


H DEFINITION

Wall Height "H"	PROPERTIES						Max Soil Press	REINFORCING STEEL FOR ONE 32' PANEL (DESIGN B)																										QUANTITY FOR ONE 32' PANEL		Wall Height "H"
	WALL DIMENSIONS							A1 ~ 26 #5 at 15" c-c		A2 ~ 25 #6 at 15" c-c		A3 ~ 25 #7 at 15" c-c		A4 ~ 26 #8 at 15" c-c		A5 ~ 25 #9 at 15" c-c		A6 ~ 25 #11 at 15" c-c		A7 ~ 26 #11 at 15" c-c		B ~ 26 #5 at 15" c-c		C					D (#5) at 12" c-c		Dowel F at 12" c-c		H (#5) at 12" c-c		T (#5) at 12" c-c		U ~ 26 #5 at 15" c-c			
(Ft)	Fw	Tw	Sw	Hw	Ft	Kw	T/SF	Lgth	Wt	Lgth	Wt	Lgth	Wt	Lgth	Wt	Lgth	Wt	Lgth	Wt	Lgth	Wt	Lgth	Wt	Size	No	Spa	Lgth	Wt	No	Wt	No	Wt	No	Wt	No	Wt	Lgth	Wt	CONC (CY)	REINF (LB)	(Ft)
2	2'-8"	1'-4"	1'-0"	4"	1'-0"	9"	0.15																	#4	26	15"	1'-10"	32	4	131	4	32	2	66	2	66	3'-4"	90	5.0	418	2
3	3'-6"	1'-9"	1'-0"	9"	1'-0"	9"	0.18																	#4	26	15"	2'-3"	39	6	197	5	40	2	66	3	99	5'-4"	145	7.2	586	3
4	4'-3"	2'-2"	1'-0"	1'-1"	1'-0"	9"	0.21	4'-8"	127													3'-6"	95	#4	26	15"	2'-8"	46	8	263	6	48	3	99	3	99	7'-4"	199	9.3	976	4
5	5'-0"	2'-6"	1'-0"	1'-6"	1'-0"	9"	0.24	6'-0"	163													4'-6"	122	#4	26	15"	3'-0"	52	10	329	7	56	3	99	3	99	8'-4"	226	11.3	1146	5
6	5'-8"	2'-10"	1'-0"	1'-10"	1'-0"	9"	0.28	7'-4"	199													5'-6"	149	#4	26	15"	3'-4"	58	12	394	8	64	3	99	4	131	8'-4"	226	13.3	1321	6
7	6'-4"	3'-2"	1'-0"	2'-2"	1'-0"	9"	0.31	8'-8"	235													6'-6"	176	#4	26	15"	3'-8"	64	14	460	9	72	3	99	4	131	8'-4"	226	15.3	1463	7
8	7'-0"	3'-6"	1'-0"	2'-6"	1'-0"	9"	0.35	10'-0"	271	4'-2"	156											7'-6"	203	#4	38	10"	4'-0"	102	16	526	10	80	4	131	4	131	8'-4"	226	17.3	1825	8
9	7'-9"	3'-10"	1'-0"	2'-11"	1'-0"	9"	0.38	11'-4"	307	5'-4"	200											8'-6"	231	#6	38	10"	4'-4"	247	18	591	11	88	4	131	5	164	8'-4"	226	19.3	2185	9
10	8'-6"	4'-3"	1'-0"	3'-3"	1'-0"	9"	0.40	12'-9"	346	6'-7"	247											9'-6"	258	#6	38	10"	4'-9"	271	20	657	12	96	4	131	5	164	8'-4"	226	21.4	2396	10
11	9'-2"	4'-7"	1'-0"	3'-7"	1'-0"	9"	0.43	14'-1"	382	7'-8"	288	6'-9"	345									10'-6"	285	#7	38	10"	5'-1"	395	22	723	13	104	5	164	6	197	8'-4"	226	23.4	3103	11
12	9'-10"	4'-11"	1'-0"	3'-11"	1'-0"	1'-0"	0.46	15'-5"	418	8'-11"	335	8'-1"	413									11'-6"	312	#8	38	10"	5'-5"	550	24	789	14	112	5	164	6	197	8'-4"	226	25.9	3515	12
13	10'-6"	5'-3"	1'-1 1/8"	4'-1 7/8"	1'-0"	1'-0"	0.50	16'-10"	456	10'-1"	379	9'-6"	485									12'-6"	339	#9	38	10"	5'-9"	743	26	854	15	120	6	197	6	197	8'-4"	226	27.9	3996	13
14	11'-2"	5'-7"	1'-2"	4'-5"	1'-3"	1'-3"	0.55	11'-3"	307	11'-2"	419	10'-11"	558	8'-5"	584							13'-6"	366	#9	38	10"	6'-1"	786	28	920	16	128	6	197	7	230	8'-4"	226	33.7	4721	14
15	11'-10"	5'-11"	1'-3 1/8"	4'-7 7/8"	1'-3"	1'-3"	0.59	11'-3"	307	12'-5"	466	12'-4"	630	9'-10"	683							14'-6"	393	#9	38	10"	6'-5"	829	30	986	17	136	7	230	7	230	8'-4"	226	36.1	5116	15
16	12'-6"	6'-3"	1'-4"	4'-11"	1'-6"	1'-3"	0.64	11'-3"	307	13'-7"	510	13'-9"	703	11'-2"	775							15'-6"	420	#9	38	10"	6'-9"	872	30	986	17	136	7	230	8	263	8'-4"	226	41.9	5427	16
17	13'-3"	6'-7"	1'-5"	5'-3"	1'-6"	1'-6"	0.67	11'-3"	307	14'-9"	554	15'-2"	775	12'-8"	879							16'-6"	447	#9	38	10"	7'-2"	926	32	1051	18	144	7	230	8	263	8'-4"	226	45.7	5802	17
18	13'-10"	6'-11"	1'-6 1/4"	5'-4 3/4"	1'-6"	1'-6"	0.71	11'-3"	307	15'-11"	598	16'-7"	847	14'-1	978							17'-6"	475	#10	38	10"	7'-5"	1213	34	1117	19	152	8	263	8	263	8'-4"	226	48.5	6439	18
19	14'-6"	7'-3"	1'-7"	5'-8"	1'-9"	1'-6"	0.76	11'-3"	307	11'-2"	419	18'-0"	920	15'-5"	1070	9'-7"	815					18'-6"	502	#10	38	10"	7'-9"	1267	36	1183	20	160	8	263	9	296	8'-4"	226	55.4	7428	19
20	15'-2"	7'-7"	1'-8 1/8"	5'-10 7/8"	1'-9"	1'-6"	0.80	11'-3"	307	11'-2"	419	19'-5"	992	16'-11"	1174	10'-11"	928					19'-6"	529	#10	38	10"	8'-1"	1322	38	1248	21	168	8	263	9	296	8'-4"	226	58.7	7872	20
21	16'-0"	8'-0"	1'-9 1/4"	6'-2 3/4"	1'-9"	1'-6"	0.81	11'-3"	307	11'-2"	419	20'-11"	1069	18'-5"	1278	12'-4"	1048					20'-6"	556	#8	76	5"	8'-6"	1725	40	1314	22	176	9	296	10	329	8'-4"	226	62.4	8743	21
22	16'-6"	8'-3"	1'-10 1/8"	6'-4 7/8"	2'-0"	1'-6"	0.88	11'-3"	307	11'-2"	419	22'-3"	1137	19'-9"	1371	13'-7"	1155					21'-6"	583	#8	76	5"	8'-9"	1776	42	1380	23	184	9	296	10	329	8'-4"	226	70.0	9163	22
23	17'-3"	8'-7"	1'-11 1/4"	6'-8 3/4"	2'-0"	1'-6"	0.91	11'-3"	307	11'-2"	419	12'-2"	622	21'-2"	1469	15'-0"	1275	6'-1"	808			22'-6"	610	#8	76	5"	9'-2"	1860	44	1446	24	192	9	296	10	329	8'-4"	226	74.0	9859	23
24	18'-0"	9'-0"	2'-0 1/8"	6'-11 7/8"	2'-3"	1'-6"	0.95	11'-3"	307	11'-2"	419	12'-2"	622	22'-8"	1574	16'-4"	1388	7'-1"	941			23'-6"	637	#8	76	5"	9'-6"	1928	46	1511	25	200	10	329	11	361	8'-4"	226	82.9	10443	24
25	18'-6"	9'-4"	2'-1 1/4"	7'-0 3/4"	2'-3"	1'-6"	0.99	11'-3"	307	11'-2"	419	12'-2"	622	24'-1"	1672	17'-8"	1502	8'-1"	1074			24'-6"	664	#9	76	5"	9'-10"	2541	48	1577	26	208	10	329	11	361	8'-4"	226	86.6	11502	25
26	19'-3"	9'-7"	2'-2 3/8"	7'-5 5/8"	2'-3"	1'-9"	1.03	11'-3"	307	11'-2"	419	12'-2"	622	25'-5"	1764	19'-0"	1615	9'-1"	1206			25'-6"	692	#9	76	5"	10'-1"	2606	50	1643	27	217	10	329	12	394	8'-4"	226	92.1	12040	26
27	20'-0"	10'-0"	2'-3 1/2"	7'-8 1/2"	2'-3"	1'-9"	1.05	11'-3"	307	11'-2"	419	12'-2"	622	27'-0"	1874	20'-5"	1735	10'-1"	1339			26'-6"	719	#9	76	5"	10'-5"	2692	52	1708	28	225	11	361	12	394	8'-4"	226	96.8	12621	27
28	20'-6"	10'-4"	2'-4 5/8"	7'-9 3/8"	2'-3"	1'-9"	1.09	11'-3"	307	11'-2"	419	12'-2"	622	14'-4"	995	21'-9"	1849	11'-1"	1472	17'-0"	2348	27'-6"	746	#10	76	5"	10'-9"	3516	54	1774	29	233	11	361	12	394	8'-4"	226	100.9	15261	28
29	21'-3"	10'-7"	2'-5 3/4"	8'-2 1/4"	2'-3"	1'-9"	1.12	11'-3"	307	11'-2"	419	12'-2"	622	14'-4"	995	23'-0"	1955	12'-1"	1605	18'-4"	2533	28'-6"	773	#10	76	5"	11'-2"	3652	56	1840	30	241	11	361	13	427	8'-4"	226	105.8	15955	29
30	22'-0"	11'-0"	2'-6 1/2"	8'-5 1/2"	2'-6"	1'-9"	1.16	11'-3"	307	11'-2"	419	12'-2"	622	14'-4"	995	24'-5"	2075	13'-1"	1738	19'-10"	2740	29'-6"	800	#10	76	5"	11'-6"	3761	56	1840	30	241	12	394	13	427	8'-4"	226	116.5	16584	30



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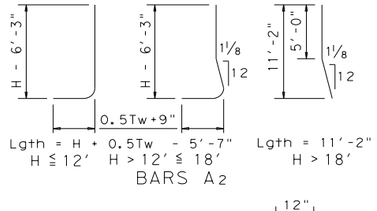

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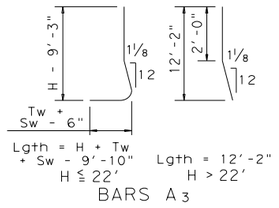

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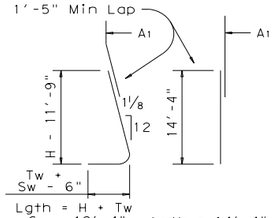

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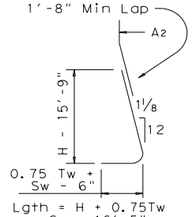

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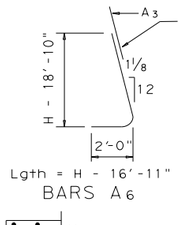

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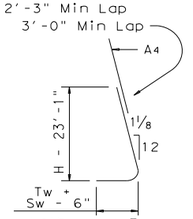

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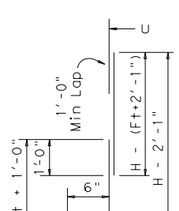

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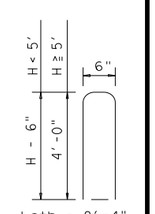
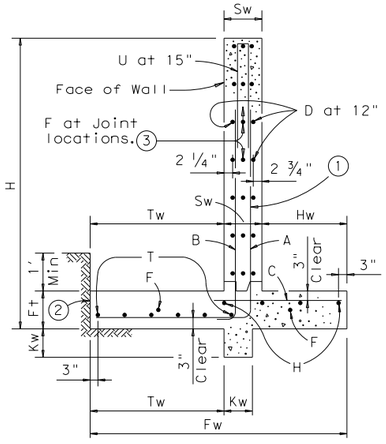
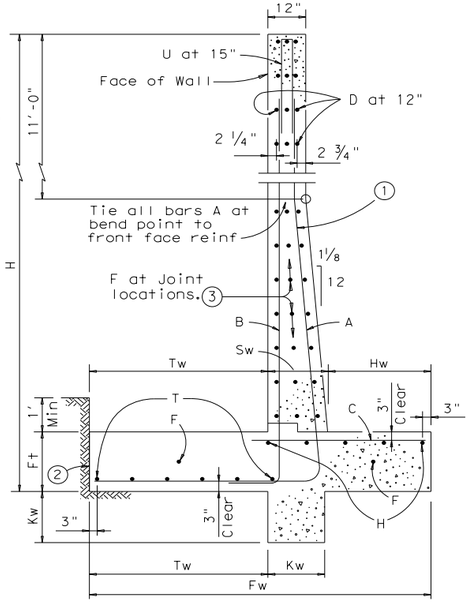


BARS U

1. Place vertical bars inside of horizontal bars (Typ both faces).
2. Place footing toe against undisturbed soil.
3. See standard RW 2 for size.

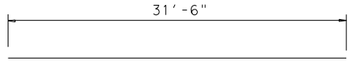


H ≤ 12'

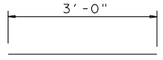


H > 12'

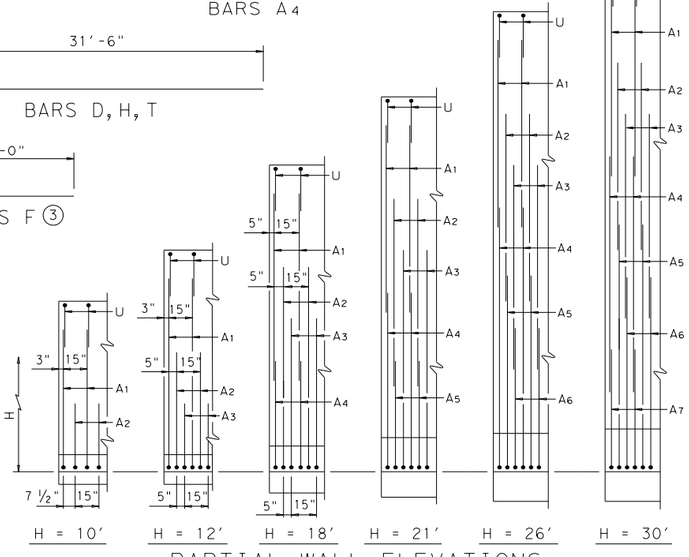
SECTIONS



BARS D, H, T



BARS F ③



PARTIAL WALL ELEVATIONS

(Showing vertical reinforcing pattern in back face)

GENERAL NOTES:

All concrete to be Class "C".
All reinforcing steel to be Grade 60.
For notes and details not shown on this sheet see sheet RW2.
Quantities are based on "H" being average height of panel.
Retaining Walls are designed to be coded as follows on Retaining Wall Layout Sheets.

HC - 21 - 28
LA - 28 - 32

- Panel Length ~ 32' is standard; 28' requires special quantities
- Average Height "H" of panel
- Design - A = no surcharge or slope above wall; B = slopes up to 4:1; C = traffic surcharge and/or slopes up to 2.5:1
- Footing pressure design ~ L = low, H = high

Texas Department of Transportation

Bridge Division Standard

RETAINING WALLS

RW 1(L)B

FILE:	rwstde06.dgn	DN: TxDOT	CK: TxDOT	DW: GHO	CK: MPM
©TxDOT	March 2010	CONT	SECT	JOB	HIGHWAY
REVISIONS		0920	12	047	VARIOUS
		DIST	COUNTY		SHEET NO.
		BMT	JASPER		94

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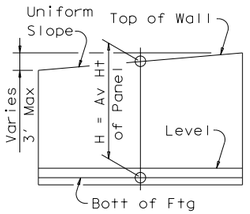
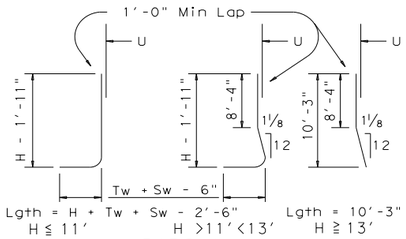
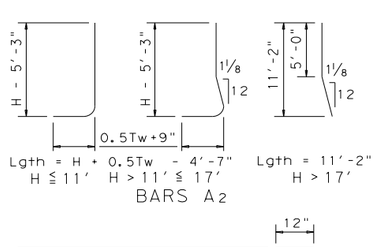


H DEFINITION

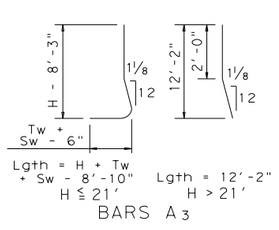
Wall Height "H"	PROPERTIES							REINFORCING STEEL FOR ONE 32' PANEL (DESIGN C)																												QUANTITY FOR ONE 32' PANEL		Wall Height "H"
	WALL DIMENSIONS						Max Soil Press	A1 ~ 26 #5 at 15" c-c		A2 ~ 25 #6 at 15" c-c		A3 ~ 25 #7 at 15" c-c		A4 ~ 26 #8 at 15" c-c		A5 ~ 25 #9 at 15" c-c		A6 ~ 25 #11 at 15" c-c		A7 ~ 26 #11 at 15" c-c		B ~ 26 #5 at 15" c-c		C					D (#5) at 12" c-c		Dowel F at 12" c-c		H (#5) at 12" c-c		T (#5) at 12" c-c		U ~ 26 #5 at 15" c-c			
(Ft)	Fw	Tw	Sw	Hw	Ft	Kw	T/SF	Lgth	Wt	Lgth	Wt	Lgth	Wt	Lgth	Wt	Lgth	Wt	Lgth	Wt	Lgth	Wt	Lgth	Wt	Size	No	Spa	Lgth	Wt	No	Wt	No	Wt	No	Wt	No	Wt	Lgth	Wt	CONC (CY)	REINF (LB)	(Ft)
2	3'-6"	1'-9"	1'-0"	9"	1'-0"	9"	0.14																	#4	26	15"	2'-3"	39	4	131	4	32	2	66	3	99	3'-4"	90	6.0	458	2
3	4'-3"	2'-2"	1'-0"	1'-1"	1'-0"	9"	0.17																	#4	26	15"	2'-8"	46	6	197	5	40	3	99	3	99	5'-4"	145	8.1	626	3
4	5'-0"	2'-6"	1'-0"	1'-6"	1'-0"	9"	0.20	5'-0"	136													3'-6"	95	#4	26	15"	3'-0"	52	8	263	6	48	3	99	3	99	7'-4"	199	10.1	991	4
5	5'-8"	2'-10"	1'-0"	1'-10"	1'-0"	9"	0.24	6'-4"	172													4'-6"	122	#4	26	15"	3'-4"	58	10	329	7	56	3	99	4	131	8'-4"	226	12.1	1193	5
6	6'-4"	3'-2"	1'-0"	2'-2"	1'-0"	9"	0.28	7'-8"	208													5'-6"	149	#4	26	15"	3'-8"	64	12	394	8	64	3	99	4	131	8'-4"	226	14.1	1336	6
7	7'-0"	3'-6"	1'-0"	2'-6"	1'-0"	9"	0.32	9'-0"	244	4'-2"	156											6'-6"	176	#4	38	10"	4'-0"	102	14	460	9	72	4	131	4	131	8'-4"	226	16.1	1698	7
8	7'-9"	3'-10"	1'-0"	2'-11"	1'-0"	9"	0.35	10'-4"	280	5'-4"	200											7'-6"	203	#6	38	10"	4'-4"	247	16	526	10	80	4	131	5	164	8'-4"	226	18.1	2056	8
9	8'-6"	4'-3"	1'-0"	3'-3"	1'-0"	9"	0.37	11'-9"	319	6'-7"	247											8'-6"	231	#6	38	10"	4'-9"	271	18	591	11	88	4	131	5	164	8'-4"	226	20.2	2268	9
10	9'-2"	4'-7"	1'-0"	3'-7"	1'-0"	9"	0.41	13'-1"	355	7'-8"	288	6'-9"	345									9'-6"	258	#7	38	10"	5'-1"	395	20	657	12	96	5	164	6	197	8'-4"	226	22.2	2981	10
11	9'-10"	4'-11"	1'-0"	3'-11"	1'-0"	1'-0"	0.44	14'-5"	391	8'-11"	335	8'-1"	413									10'-6"	285	#8	38	10"	5'-5"	550	22	723	13	104	5	164	6	197	8'-4"	226	24.7	3382	11
12	10'-6"	5'-3"	1'-1 1/8"	4'-1 7/8"	1'-0"	1'-0"	0.45	15'-10"	429	10'-1"	379	9'-6"	485									11'-6"	312	#9	38	10"	5'-9"	743	24	789	14	112	6	197	6	197	8'-4"	226	26.7	3868	12
13	11'-2"	5'-7"	1'-2"	4'-5"	1'-3"	1'-3"	0.54	10'-3"	278	11'-2"	419	10'-11"	558	8'-5"	584							12'-6"	339	#9	38	10"	6'-1"	786	26	854	15	120	6	197	7	230	8'-4"	226	32.5	4591	13
14	11'-10"	5'-11"	1'-3 1/8"	4'-7 7/8"	1'-3"	1'-3"	0.57	10'-3"	278	12'-5"	466	12'-4"	630	9'-10"	683							13'-6"	366	#9	38	10"	6'-5"	829	28	920	16	128	7	230	7	230	8'-4"	226	34.9	4986	14
15	12'-6"	6'-3"	1'-4"	4'-11"	1'-6"	1'-3"	0.63	10'-3"	278	13'-7"	510	13'-9"	703	11'-2"	775							14'-6"	393	#9	38	10"	6'-9"	872	28	920	16	128	7	230	8	263	8'-4"	226	40.8	5298	15
16	13'-3"	6'-7"	1'-5"	5'-3"	1'-6"	1'-6"	0.66	10'-3"	278	14'-9"	554	15'-2"	775	12'-8"	879							15'-6"	420	#9	38	10"	7'-2"	926	30	986	17	136	7	230	8	263	8'-4"	226	44.5	5672	16
17	13'-10"	6'-11"	1'-6 1/4"	5'-4 3/4"	1'-6"	1'-6"	0.70	10'-3"	278	15'-11"	598	16'-7"	847	14'-1	978							16'-6"	447	#10	38	10"	7'-5"	1213	32	1051	18	144	8	263	8	263	8'-4"	226	47.3	6308	17
18	14'-6"	7'-3"	1'-7"	5'-8"	1'-9"	1'-6"	0.76	10'-3"	278	11'-2"	419	18'-0"	920	15'-5"	1070	9'-7"	815					17'-6"	475	#10	38	10"	7'-9"	1267	34	1117	19	152	8	263	9	296	8'-4"	226	54.2	7298	18
19	15'-2"	7'-7"	1'-8 1/8"	5'-10 7/8"	1'-9"	1'-6"	0.79	10'-3"	278	11'-2"	419	19'-5"	992	16'-11"	1174	10'-11"	928					18'-6"	502	#10	38	10"	8'-1"	1322	36	1183	20	160	8	263	9	296	8'-4"	226	57.5	7743	19
20	16'-0"	8'-0"	1'-9 1/4"	6'-2 3/4"	1'-9"	1'-6"	0.80	10'-3"	278	11'-2"	419	20'-11"	1069	18'-5"	1278	12'-4"	1048					19'-6"	529	#8	76	5"	8'-6"	1725	38	1248	21	168	9	296	10	329	8'-4"	226	61.3	8613	20
21	16'-6"	8'-3"	1'-10 1/8"	6'-4 7/8"	2'-0"	1'-6"	0.88	10'-3"	278	11'-2"	419	22'-3"	1137	19'-9"	1371	13'-7"	1155					20'-6"	556	#8	76	5"	8'-9"	1776	40	1314	22	176	9	296	10	329	8'-4"	226	68.8	9033	21
22	17'-3"	8'-7"	1'-11 1/4"	6'-8 3/4"	2'-0"	1'-6"	0.91	10'-3"	278	11'-2"	419	12'-2"	622	21'-2"	1469	15'-0"	1275	6'-1"	808			21'-6"	583	#8	76	5"	9'-2"	1860	42	1380	23	184	9	296	10	329	8'-4"	226	72.8	9729	22
23	18'-0"	9'-0"	2'-0 1/8"	6'-11 7/8"	2'-3"	1'-6"	0.95	10'-3"	278	11'-2"	419	12'-2"	622	22'-8"	1574	16'-4"	1388	7'-1"	941			22'-6"	610	#8	76	5"	9'-6"	1928	44	1446	24	192	10	329	11	361	8'-4"	226	81.7	10314	23
24	18'-6"	9'-4"	2'-1 1/4"	7'-0 3/4"	2'-3"	1'-6"	0.99	10'-3"	278	11'-2"	419	12'-2"	622	24'-1"	1672	17'-8"	1502	8'-1"	1074			23'-6"	637	#9	76	5"	9'-10"	2541	46	1511	25	200	10	329	11	361	8'-4"	226	85.4	11372	24
25	19'-3"	9'-7"	2'-2 3/8"	7'-5 5/8"	2'-3"	1'-9"	1.03	10'-3"	278	11'-2"	419	12'-2"	622	25'-5"	1764	19'-0"	1615	9'-1"	1206			24'-6"	664	#9	76	5"	10'-1"	2606	48	1577	26	208	10	329	12	394	8'-4"	226	91.0	11909	25
26	20'-0"	10'-0"	2'-3 1/2"	7'-8 1/2"	2'-3"	1'-9"	1.05	10'-3"	278	11'-2"	419	12'-2"	622	27'-0"	1874	20'-5"	1735	10'-1"	1339			25'-6"	692	#9	76	5"	10'-5"	2692	50	1643	27	217	11	361	12	394	8'-4"	226	95.6	12491	26
27	20'-6"	10'-4"	2'-4 5/8"	7'-9 3/8"	2'-3"	1'-9"	1.09	10'-3"	278	11'-2"	419	12'-2"	622	14'-4"	995	21'-9"	1849	11'-1"	1472	17'-0"	2348	26'-6"	719	#10	76	5"	10'-9"	3516	52	1708	28	225	11	361	12	394	8'-4"	226	99.7	15132	27
28	21'-3"	10'-7"	2'-5 3/4"	8'-2 1/4"	2'-3"	1'-9"	1.13	10'-3"	278	11'-2"	419	12'-2"	622	14'-4"	995	23'-0"	1955	12'-1"	1605	18'-4"	2533	27'-6"	746	#10	76	5"	11'-2"	3652	54	1774	29	233	11	361	13	427	8'-4"	226	104.6	15825	28
29	22'-0"	11'-0"	2'-6 1/2"	8'-5 1/2"	2'-6"	1'-9"	1.17	10'-3"	278	11'-2"	419	12'-2"	622	14'-4"	995	24'-5"	2075	13'-1"	1738	19'-10"	2740	28'-6"	773	#10	76	5"	11'-6"	3761	54	1774	29	233	12	394	13	427	8'-4"	226	115.3	16454	29



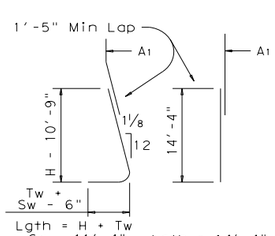
BARS A1



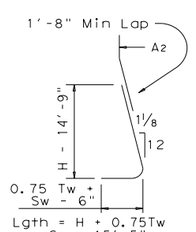
BARS A2



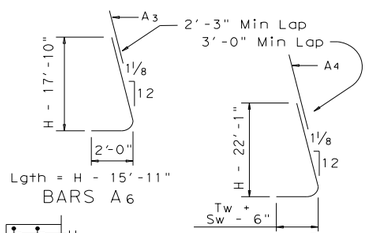
BARS A3



BARS A4

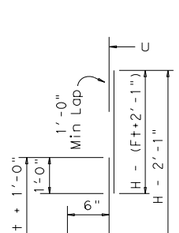


BARS A5

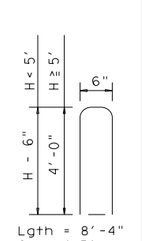


BARS A6

BARS A7

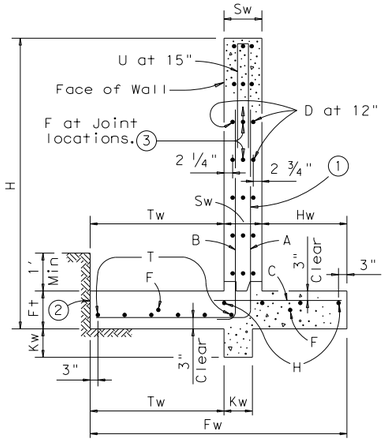


BARS B

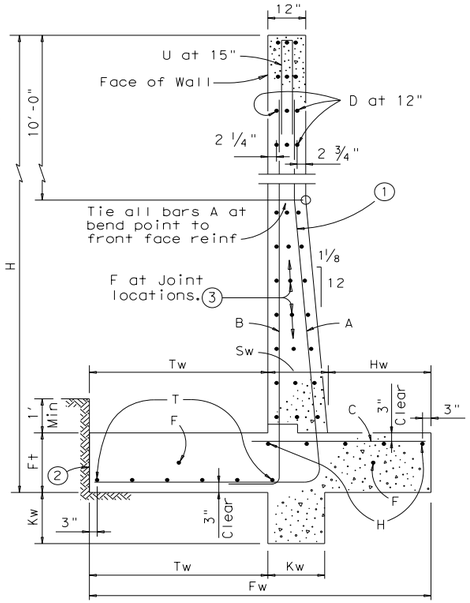


BARS U

1. Place vertical bars inside of horizontal bars (Typ both faces).
2. Place footing toe against undisturbed soil.
3. See standard RW 2 for size.

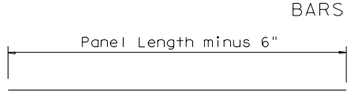


H ≤ 11'

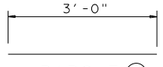


H > 11'

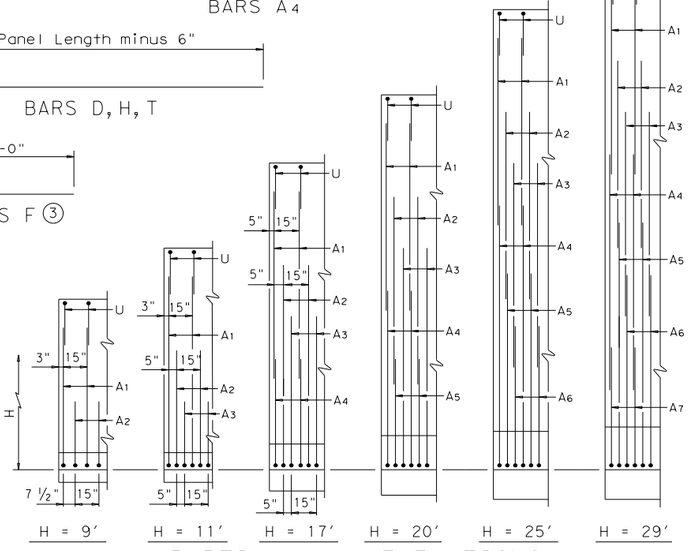
SECTIONS



BARS D, H, T



BARS F ③



PARTIAL WALL ELEVATIONS

(Showing vertical reinforcing pattern in back face)

GENERAL NOTES:

All concrete to be Class "C".
All reinforcing steel to be Grade 60.
For notes and details not shown on this sheet see sheet RW2.
Quantities are based on "H" being average height of panel.
Retaining Walls are designed to be coded as follows on Retaining Wall Layout Sheets.

HC - 21 - 28
LA - 28 - 32

- Panel Length ~ 32' is standard; 28' requires special quantities
- Average Height "H" of panel
- Design - A = no surcharge or slope above wall; B = slopes up to 4:1; C = traffic surcharge and/or slopes up to 2.5:1
- Footing pressure design ~ L = low, H = high

Texas Department of Transportation

Bridge Division Standard

RETAINING WALLS

RW 1(L)C

FILE: rwstde07.dgn	DN: TxDOT	CK: TxDOT	DW: GHO	CK: MPM
©TxDOT March 2010	CONT	SECT	JOB	HIGHWAY
REVISIONS	0920	12	047	VARIOUS
	DIST	COUNTY		SHEET NO.
	BMT	JASPER		95

DATE: 1/25/2022 4:42:03 PM
FILE: P:\122\42\01\Design\Civil\Standards\Retaining Walls\rwstde07.dgn

DATE: 1/25/2022 4:42:05 PM
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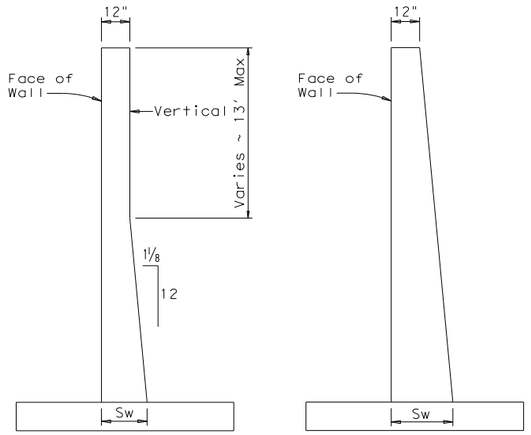
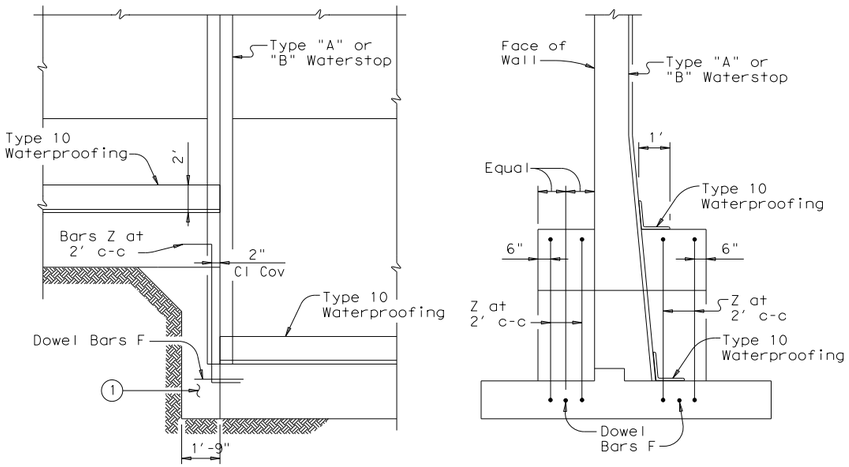


AS DETAILED ALL HEIGHTS
(Basis for payment)

FRONT FACE VERTICAL BACK FACE SLOPED

ALTERNATE STEM SLOPE DETAILS

Walls with slopes other than those shown may be used after approval by the Engineer. Sw shall not be less than shown in Table on Sheet 1. No payment will be made for excess concrete due to changing of slope of wall stem.

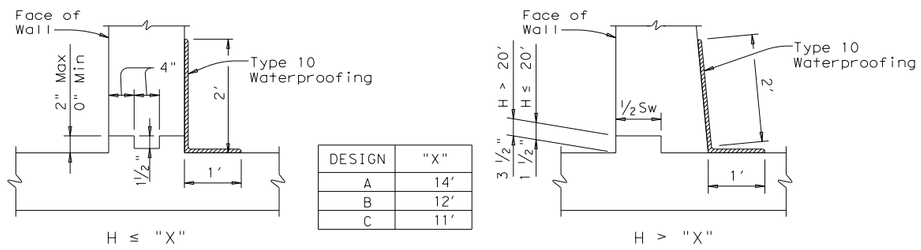


PARTIAL ELEVATION

PARTIAL SECTION

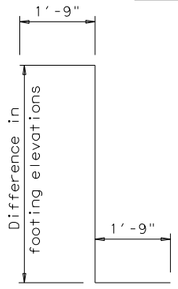
SHOWING WATERSTOP AT FOOTING JOINT

(1) Unreinforced Class "C" Concrete when difference in top of footing elevations is less than 6'. Omit when Dowel Bars F can be placed between adjacent footings with 4" cover top and bottom.



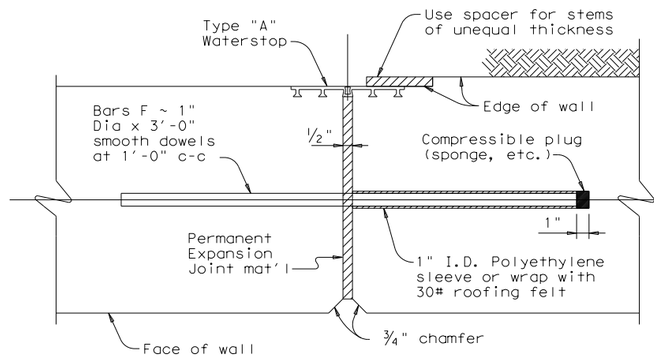
DESIGN	"X"
A	14'
B	12'
C	11'

JOINT AND WATERSTOP DETAILS

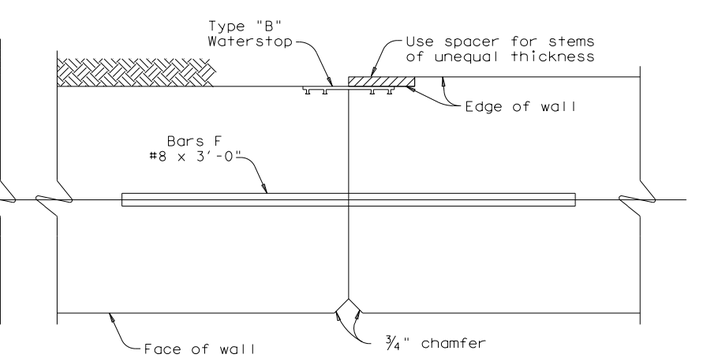


BARS Z (#5)

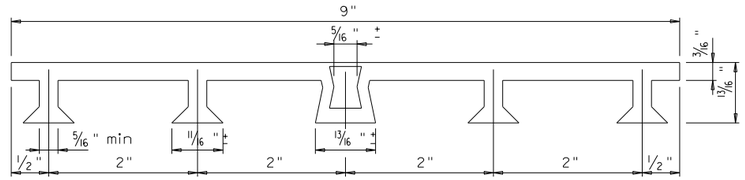
Omit Bars Z when difference in top of footing elevations is less than 6'.



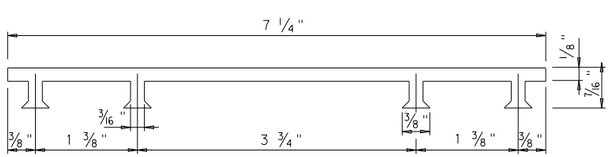
EXPANSION JOINT



CONSTRUCTION JOINT



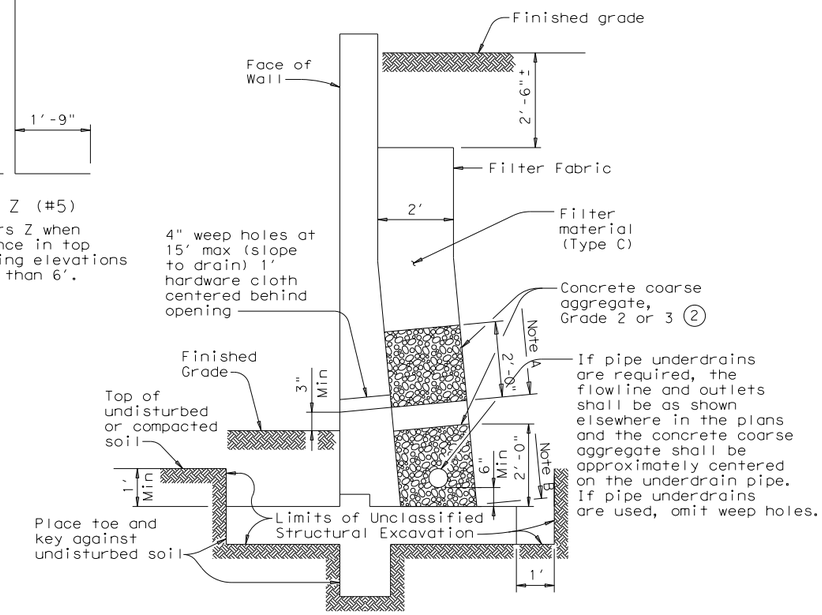
PVC WATERSTOP TYPE "A"



PVC WATERSTOP TYPE "B"

Note: Dimensions and shapes may vary slightly depending on manufacturer.

(2) Crushed blast furnace slag, recycled crushed hydraulic cement concrete or combination there of may not be used.



DRAINAGE DETAILS AND EXCAVATION DIAGRAM

Note A: Stop coarse aggregate at this level when weep holes are used.

Note B: Use coarse aggregate to here with filter material above when underdrains are used.

GENERAL NOTES:

Walls are designed assuming unit weight of soil = 120 pcf, and coefficient of horizontal earth pressure = 0.33.

Walls are designed to provide a minimum factor of safety against sliding of 1.5. The undisturbed or compacted soil depth in front of walls, from bottom of Key up, shall not be less than Kw + Ft + 1'.

Retaining walls are detailed to be placed on grades up thru 10% with footing level, with no changes in reinforcing steel. Steeper grades can be accommodated by shortening Bars A1 and B and increasing length of legs of Bars U by the same amount. No change in Quantities will be involved

Retaining walls may be placed on Horizontal Curves by adjusting lengths of footing Bars T and H. Minor revisions of Concrete Quantities may be required.

Designed in accordance with current AASHTO Standard and Interim Specifications.

All concrete to be Class "C".

All reinforcing steel to be Grade 60.

Texas Department of Transportation

Bridge Division Standard

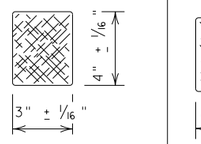
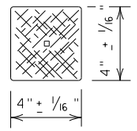
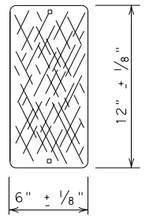
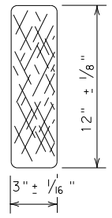
RETAINING WALL MISCELLANEOUS DETAILS

RW 2

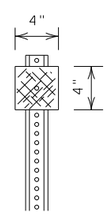
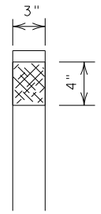
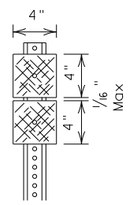
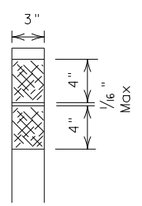
FILE: rwstdetl.dgn	DN: TxDOT	CK: TxDOT	DW: JGD	CK: MJG
©TxDOT March 2010	CONT	SECT	JOB	HIGHWAY
REVISIONS	0920	12	047	VARIOUS
04-11: Added Note 2.	DIST	COUNTY		SHEET NO.
	BMT	JASPER		96

DATE:
FILE:

REFLECTOR UNIT SIZES FOR DELINEATORS AND OBJECT MARKERS

	SIZE 1	SIZE 2	SIZE 3	SIZE 4
DEVICE				
SHEETING	Yellow, White or Red Type B or C reflective sheeting			
NOTE	1. Size 1 and 4 - Direct applied reflective sheeting for use on flexible post (flx). 2. Size 2 and 3 - For use on wing channel (wc) post only. Use approved metal, plastic or fiberglass backplate with 17/64" mounting holes.			

DELINEATORS

	SINGLE		DOUBLE	
DEVICE				
	1-Size 2 reflector unit	1-Size 1 reflector unit	2-Size 2 reflector units	2-Size 1 reflector units
SHEETING	Yellow, White or Red Type B or C Reflective Sheeting			
POST TYPE	WC	YFLX, WFLX	WC	YFLX, WFLX
MOUNT TYPE	GND	GND, SRF	GND	GND, SRF

D & OM DESCRIPTIVE CODES

INSTL DEL ASSM (D-XX)SZ X (XXXX)XXX(XX)

NUMBER OF REFLECTORS
- S = Single
- D = Double

COLOR OF REFLECTORS
- W = White
- Y = Yellow
- R = Red

REFLECTOR UNIT SIZE
- 1 or 2

TYPE OF POST OR DELINEATOR
- WC = Wing Channel Post
- YFLX = Yellow Flexible Post
- WFLX = White Flexible Post
- BRF = Barrier Reflector

TYPE OF MOUNT
- GND = Embedded (drivable or set in concrete)
- CTB = Concrete Barrier Mount
- GF1 or GF2 = Guard Fence Attachment
- SRF = Surface Mount

DIRECTION
If Required
- BI = Bi-Directional
- BR = Bi-Directional with red on back

INSTL OM ASSM (OM-XX) (XXXX)XXX(XX)

TYPE OF OBJECT MARKER
- 1, 2, 3, or 4

NUMBER OF REFLECTORS OR DIRECTION
- X = 3-Size 2 reflector units (Type 2 only)
- Y = 1-Size 3 reflector unit (Type 2 only)
- Z = 3-Size 1 or 1-Size 4 reflector unit(s)(Type 2 only)
- L = Left Side (Type 3 Object Marker only)
- R = Right Side (Type 3 Object Marker only)
- C = Center (Type 3 Object Marker only)

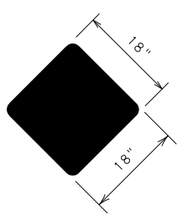
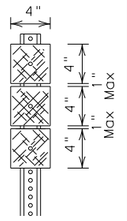
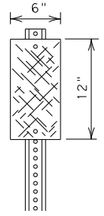
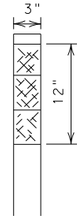
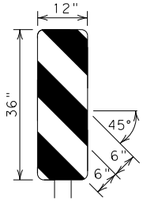
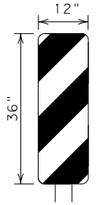
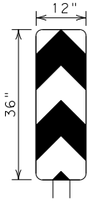
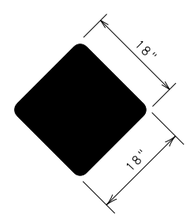
TYPE OF POST
- WC = Wing Channel Post
- WFLX = White Flexible Post
- TWT = Thin Walled Tubing

TYPE OF MOUNT
- GND = Embedded (drivable)
- SRF = Surface Mount
- WAS = Wedge Anchor Steel
- WAP = Wedge Anchor Plastic

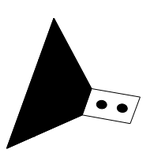
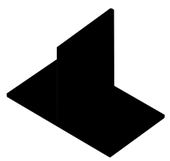
DIRECTION
If Required
- BI = Bi-Directional

DEPARTMENTAL MATERIAL SPECIFICATIONS	
FLEXIBLE DELINEATOR & OBJECT MARKER POSTS (EMBEDDED & SURFACE MOUNT TYPES)	DMS-4400
SIGN FACE MATERIALS	DMS-8300
DELINEATORS, OBJECT MARKERS AND BARRIER REFLECTORS	DMS-8600

OBJECT MARKERS

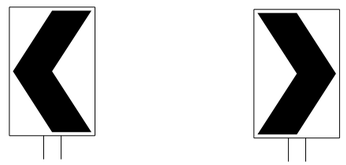
	Type 1 (OM-1)	Type 2 (OM-2)			Type 3 (OM-3)			Type 4 (OM-4)
	OM-1	OM-2X	OM-2Y	OM-2Z	OM-3L	OM-3R	OM-3C	OM-4
DEVICE								
		3-Size 2 reflector units	1-Size 3 reflector unit	3-Size 1 reflector units or 1-Size 4 reflector unit				
SHEETING	Yellow-Type B_{FL} or C_{FL} Sheeting	Yellow - Type B or C Sheeting			Alternating acrylic black and retroflective yellow - Type B_{FL} or C_{FL} Sheeting			Red -Type B_{FL} or C_{FL} Sheeting
POST TYPE	TWT	WC	WC	WFLX	TWT			TWT
MOUNT TYPE	WAS, WAP	GND	GND	GND, SRF	WAS, WAP			WAS, WAP

BARRIER REFLECTORS (BRF)

	GF1	GF2	CTB
DEVICE			
	1. Barrier reflectors shall meet the requirements of DMS 8600. 2. Approved Barrier Reflectors are listed on the "Barrier Reflectors" Material Producer List at: www.txdot.gov.		
SHEETING	Yellow, White, Red		
NOTE	1. Reflective sheeting shall have a minimum dimension of 3 inches and minimum surface area of 9 square inches.		

CHEVRONS

DEVICE



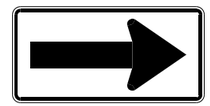
W1-8

SIZE (W x L)	18"x 24" (Conventional)	24"x 30" (Conventional Oversize)	30"x 36" (Expressway)	36" x 48" (Freeway)
MOUNTING HEIGHT	4'-0" or 7'-0"		7'-0" Only	

NOTE
1. CHEVRON (W1-8) signs and ONE DIRECTION LARGE ARROW (W1-6) Signs shall be installed per Sign Mounting Details (SMD) Standard Sheets and paid under Item 644 (Small Roadside Sign Assemblies).
2. When there is a need to increase conspicuity, the Texas version of the ONE DIRECTION LARGE ARROW sign (W1-9T) may be used instead of the ONE DIRECTION LARGE ARROW (W1-6).

ONE DIRECTION LARGE ARROW

DEVICE



W1-6

SIZE (W x L)	48" x 24" (Conventional)	60" x 30" (Expressway & Freeway)
MOUNTING HEIGHT	7'-0"	

NOTE:

Delineator and object marker substrates and sign substrates shall be 0.080" Aluminum sign blank to conform to ASTM B-209 Alloy 6061-T6 or approved alternative.

Texas Department of Transportation

Traffic Safety Division Standard

DELINEATOR & OBJECT MARKER MATERIAL DESCRIPTION

D & OM(1)-20

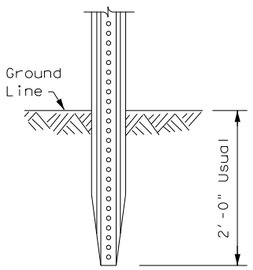
FILE: dom1-20.dgn	DN: TXDOT	CK: TXDOT	DW: TXDOT	CK: TXDOT
©TxDOT August 2004	CONT	SECT	JOB	HIGHWAY
REVISIONS	0920	12	047	VARIOUS
10-09 3-15	DIST	COUNTY		SHEET NO.
4-10 7-20	BMT	JASPER		97

20A

POST TYPE AND SUPPORT FOUNDATION DETAILS

WING CHANNEL (WC)

GND

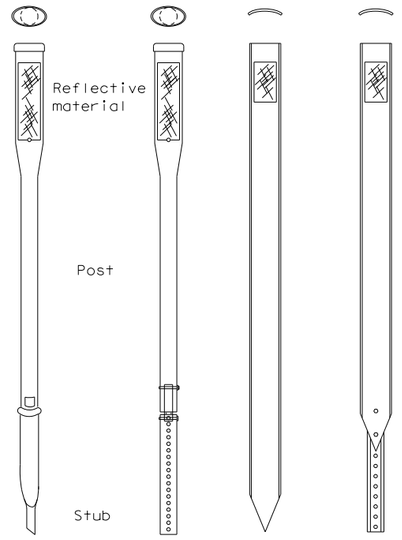


NOTES

1. Embedded Wing Channel (WC) post option may be used for Type 2 Object Markers and Delineators only.
2. 1.12 lbs/ft steel per ASTM A 1011 SS Gr. 50, or ASTM A499.

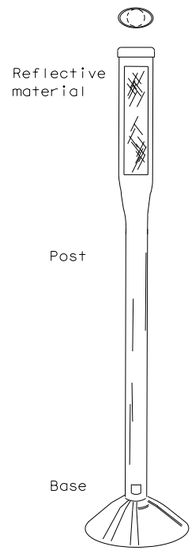
FLEXIBLE POSTS (YFLX, WFLX)

GND



EMBEDDED

SRF



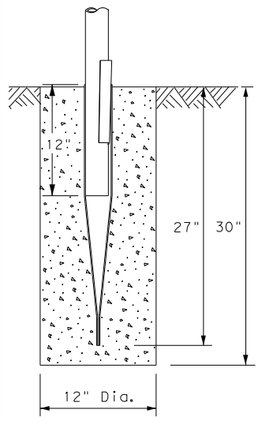
SURFACE MOUNT

NOTES

1. See "Flexible Delineator and Object Marker Posts" Material Producer List for approved devices.
2. Install per manufacturer's recommendations.
3. Post length may vary to meet field conditions.
4. When using yellow delineators with flexible posts to separate opposing direction of travel, such as centerline or median use, the flexible posts shall be yellow.

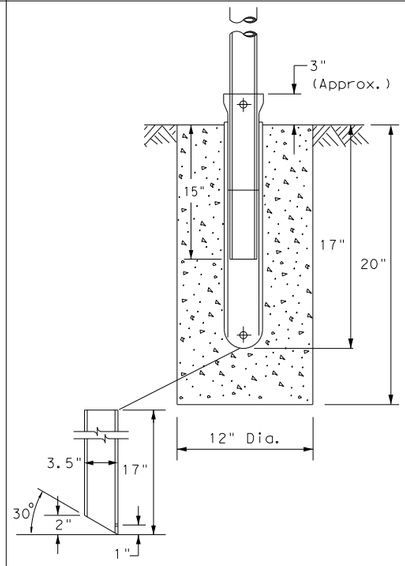
WEDGE ANCHOR SYSTEMS

WAS



STEEL

WAP



PLASTIC

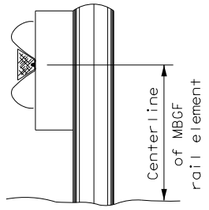
NOTE

1. Install per manufacturer's recommendations.

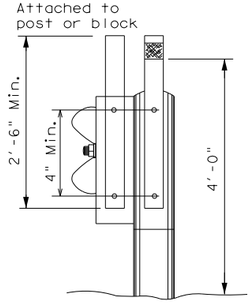
TYPE OF BARRIER MOUNTS

GUARD FENCE ATTACHMENT

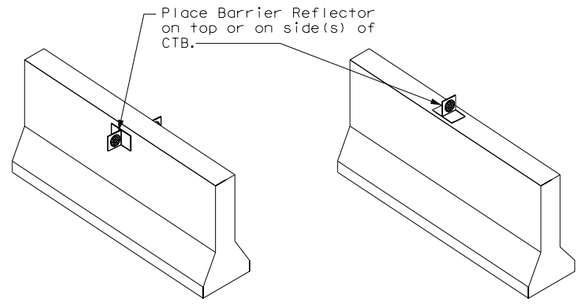
GF1



GF2



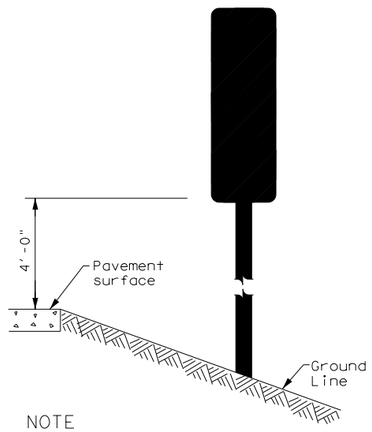
CONCRETE TRAFFIC BARRIER (CTB)



GENERAL NOTES

1. Place delineators on a section of roadway at a consistent distance from the edge of pavement.
2. Where a restriction prevents consistent placement from the pavement edge, place the affected object markers in line with the innermost edge of the obstruction.
3. When Type 2 object markers and delineators are more than 8'-0" from the edge of the pavement, it may not be possible to maintain a height of approximately 4'-0". If this is the case, place the object marker or delineator as close to the desired height as possible.
4. Install all delineators, object markers and barrier reflectors in accordance with the manufacturer's recommendation.
5. Barrier reflectors should be installed a minimum of 18 inches above the edge of the pavement surface.
6. Diagonal stripes on Type 3 object markers shall slope down toward the intended travel lane.

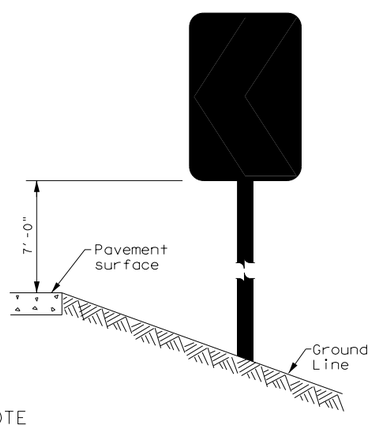
TYPES 1, 3, AND 4 OBJECT MARKERS AND CHEVRONS



NOTE

Mounting at 4 feet to the bottom of the chevron is permitted for chevrons that will not exceed a height of 6'-6" to the top of the chevron (sizes 24" x 30" and smaller)

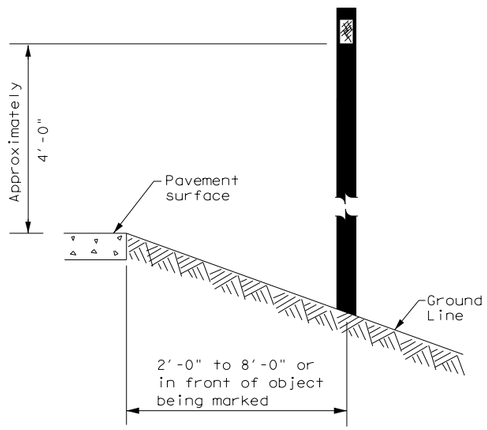
CHEVRONS AND ONE DIRECTION LARGE ARROW SIGN



NOTE

Chevrons 30" x 36" and larger shall be mounted at a height of 7' to the bottom of the chevron. Chevron sign and ONE DIRECTION LARGE ARROW sign (W1-9T) shall be installed per SMD standard sheets and paid under item 644.

DELINEATORS AND TYPE 2 OBJECT MARKERS



See general notes 1, 2 and 3.

Texas Department of Transportation

Traffic Safety Division Standard

DELINEATOR & OBJECT MARKER INSTALLATION

D & OM(2)-20

FILE: dom2-20.dgn	DN: TXDOT	CK: TXDOT	DW: TXDOT	CK: TXDOT
© TxDOT August 2004	CONT	SECT	JOB	HIGHWAY
REVISIONS	0920	12	047	VARIOUS
10-09 3-15	DIST	COUNTY		SHEET NO.
4-10 7-20	BMT	JASPER		98

20B

DATE:
FILE:

SIGN SUPPORT DESCRIPTIVE CODES

(Descriptive Codes correspond to project estimate and quantities sheets)

SM RD SGN ASSM TY XXXXX(X)XX(X-XXXX)

Post Type

FRP = Fiberglass Reinforced Plastic Pipe (see SMD(FRP))
TWT = Thin-Walled Tubing (see SMD(TWT))
10BWG = 10 BWG Tubing (see SMD(SLIP-1) to (SLIP-3))
S80 = Schedule 80 Pipe (see SMD(SLIP-1) to (SLIP-3))

Number of Posts (1 or 2)

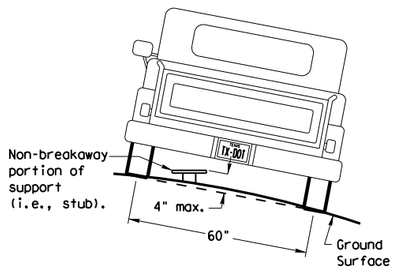
Anchor Type

UA = Universal Anchor - Concreted (see SMD(FRP) and (TWT))
UB = Universal Anchor - Bolted down (see SMD(FRP) and (TWT))
WS = Wedge Anchor Steel - (see SMD(TWT))
WP = Wedge Anchor Plastic (see SMD(TWT))
SA = Slipbase - Concreted (see SMD(SLIP-1) to (SLIP-3))
SB = Slipbase - Bolted Down (see SMD(SLIP-1) to (SLIP-3))

Sign Mounting Designation

P = Prefab. "Plain" (see SMD(SLIP-1) to (SLIP-3), (TWT), (FRP))
T = Prefab. "T" (see SMD(SLIP-1) to (SLIP-3), (TWT))
U = Prefab. "U" (see SMD(SLIP-1) to (SLIP-3))
IF REQUIRED
1EXT or 2EXT = Number of Extensions (see SMD(SLIP-1) to (SLIP-3), (TWT))
BM = Extruded Wind Beam (see SMD(SLIP-1) to (SLIP-3))
WC = 1.12 #/ft Wing Channel (see SMD(SLIP-1) to (SLIP-3))
EXAL = Extruded Aluminum Sign Panels (see SMD(SLIP-1))

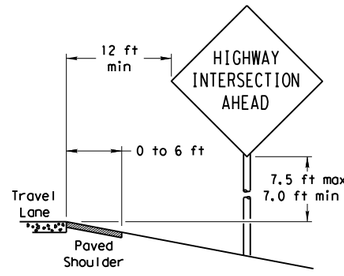
REQUIRED CLEARANCE FOR BREAKAWAY SUPPORT



To avoid vehicle undercarriage snagging, any substantial remains of a breakaway support, when it is broken away, should not project more than 4 inches above a 60-inch chord (i.e., typical space between wheel paths).

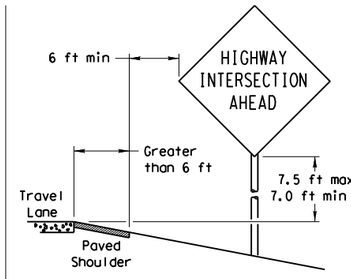
SIGN LOCATION

PAVED SHOULDERS



LESS THAN 6 FT. WIDE

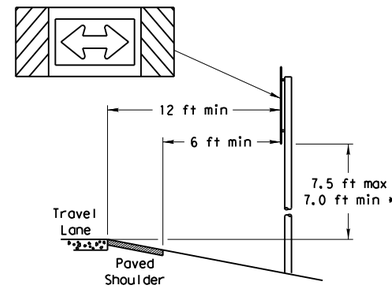
When the shoulder is 6 ft. or less in width, the sign must be placed at least 12 ft. from the edge of the travel lane.



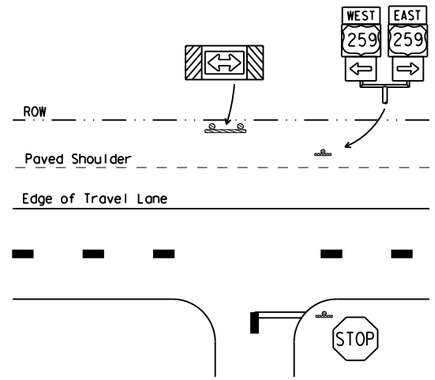
GREATER THAN 6 FT. WIDE

When the shoulder is greater than 6 ft in width, the sign must be placed at least 6 ft. from the edge of the shoulder.

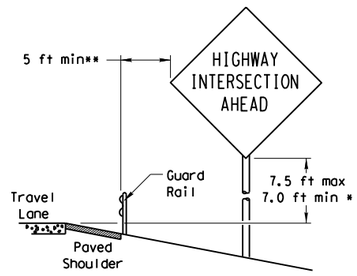
T-INTERSECTION



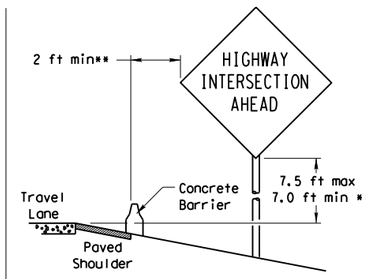
When this sign is needed at the end of a two-lane, two way roadway, the right edge of the sign should be in line with the centerline of the roadway. Place as close to ROW as practical.



BEHIND BARRIER



BEHIND GUARDRAIL



BEHIND CONCRETE BARRIER

**Sign clearance based on distance required for proper guard rail or concrete barrier performance.

* Signs shall be mounted using the following condition that results in the greatest sign elevation:

(1) a minimum of 7 to a maximum of 7.5 feet above the edge of the travel lane or

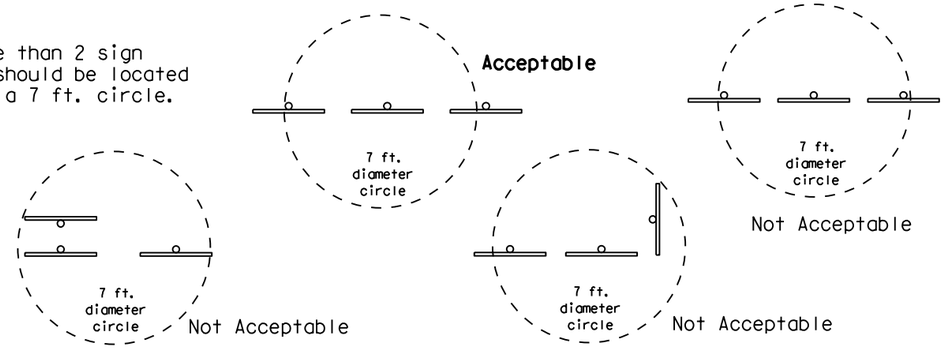
(2) a minimum of 7 to a maximum of 7.5 feet above the grade at the base of the support when sign is installed on the backslope.

The maximum values may be increased when directed by the Engineer.

See the Traffic Operations Division website for detailed drawings of sign clamps, Triangular Slipbase System components and Wedge Anchor System components.

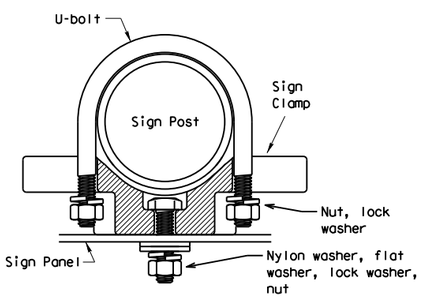
The website address is:
http://www.txdot.gov/publications/traffic.htm

No more than 2 sign posts should be located within a 7 ft. circle.



TYPICAL SIGN ATTACHMENT DETAIL

Single Signs

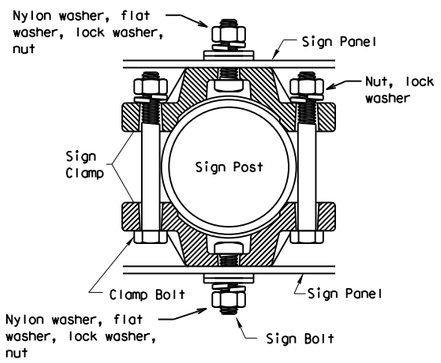


Bolts used to mount sign panels to the clamp are 5/16-18 UNC galvanized square head with nut, nylon washer, flat washer and lock washer. The bolt length is 1 inch for aluminum.

When two sign clamps are used to mount signs back-to-back, use a 5/16-18 UNC galvanized hex head per ASTM A307 with nut and helical-spring lock washer. The approximate bolt lengths for various post sizes and sign clamp types are given in the table at right. The bolt length may need to be adjusted depending upon field conditions.

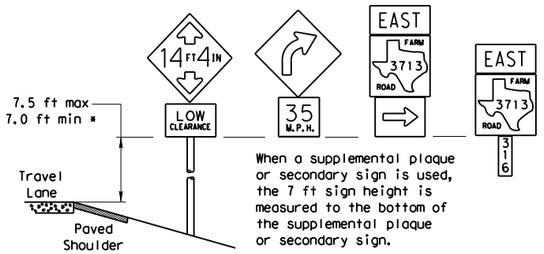
Sign clamps may be either the specific size clamp or the universal clamp.

Back-to-Back Signs



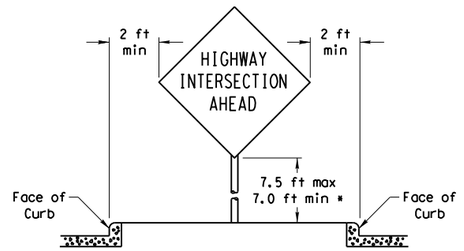
Pipe Diameter	Approximate Bolt Length	
	Specific Clamp	Universal Clamp
2" nominal	3"	3 or 3 1/2"
2 1/2" nominal	3 or 3 1/2"	3 1/2 or 4"
3" nominal	3 1/2 or 4"	4 1/2"

SIGNS WITH PLAQUES



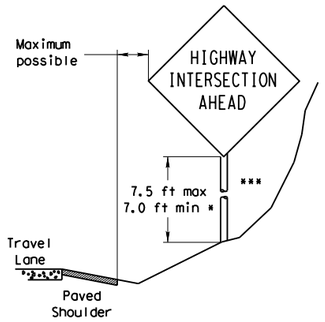
When a supplemental plaque or secondary sign is used, the 7 ft sign height is measured to the bottom of the supplemental plaque or secondary sign.

CURB & GUTTER OR RAISED ISLAND



RESTRICTED RIGHT-OF-WAY

(When 6 ft min. is not possible.)



Right-of-way restrictions may be created by rocks, water, vegetation, forest, buildings, a narrow island, or other factors.

In situations where a lateral restriction prevents the minimum horizontal clearance from the edge of the travel lane, signs should be placed as far from the travel lane as practical.

*** Post may be shorter if protected by guardrail or if Engineer determines the post could not be hit due to extreme slope.

Texas Department of Transportation
Traffic Operations Division

SIGN MOUNTING DETAILS SMALL ROADSIDE SIGNS GENERAL NOTES & DETAILS

SMD(GEN)-08

DN: TXDOT	CK: TXDOT	DW: TXDOT	CK: TXDOT

REVISIONS	CONT	SECT	JOB	HIGHWAY
9-08	0920	12	047	VARIOUS
	DIST	COUNTY		SHEET NO.
	BMT	JASPER		99

DATE: 1/25/2022 4:42:13 PM
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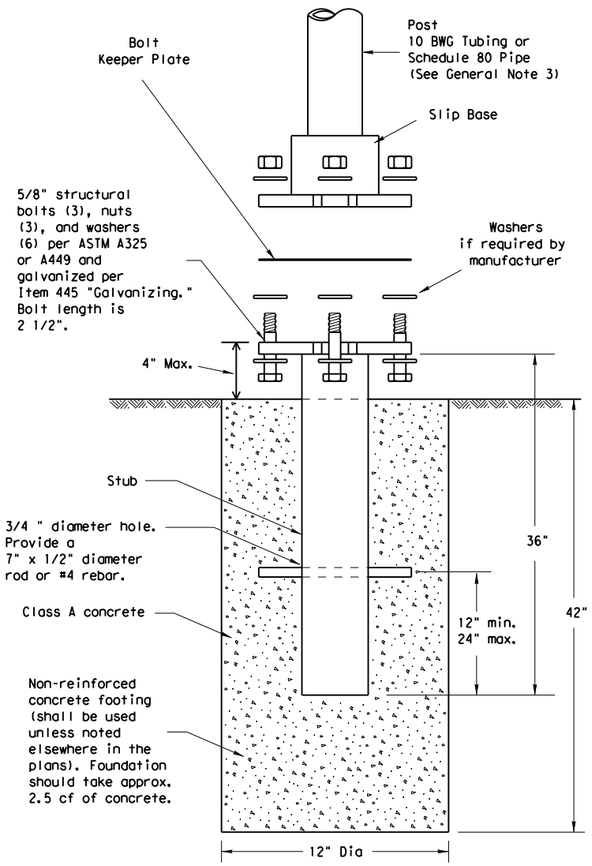
TRIANGULAR SLIPBASE INSTALLATION GENERAL REQUIREMENTS



SM RD SGN ASSM TY XXXXX(X)SA(X-XXXX)

NOTE

There are various devices approved for the Triangular Slipbase System. Please reference the Material Producer List for approved slip base systems. http://www.txdot.gov/business/producer_list.htm The devices shall be installed per manufacturers' recommendations. Installation procedures shall be provided to the Engineer by Contractor.

GENERAL NOTES:

1. Slip base shall be permanently marked to indicate manufacturer. Method, design, and location of marking are subject to approval of the TxDOT Traffic Standards Engineer.
2. Material used as post with this system shall conform to the following specifications:
   10 BWG Tubing (2.875" outside diameter)
   - 0.134" nominal wall thickness
   - Seamless or electric-resistance welded steel tubing or pipe
   - Steel shall be HSLAS Gr 55 per ASTM A1011 or ASTM A1008
   - Other steels may be used if they meet the following:
     - 55,000 PSI minimum yield strength
     - 70,000 PSI minimum tensile strength
     - 20% minimum elongation in 2"
   - Wall thickness (uncoated) shall be within the range of 0.122" to 0.138"
   - Outside diameter (uncoated) shall be within the range of 2.867" to 2.883"
   - Galvanization per ASTM A123 or ASTM A653 G210. For precoated steel tubing (ASTM A653), recoat tube outside diameter weld seam by metallizing with zinc wire per ASTM B833.

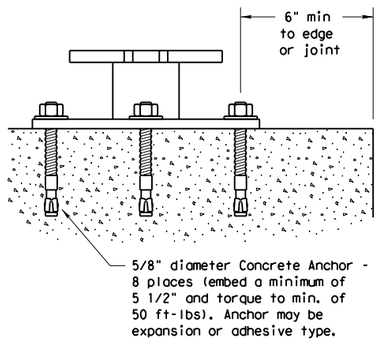
   Schedule 80 Pipe (2.875" outside diameter)
   - 0.276" nominal wall thickness
   - Steel tubing per ASTM A500 Gr C
   - Other seamless or electric-resistance welded steel tubing or pipe with equivalent outside diameter and wall thickness may be used if they meet the following:
     - 46,000 PSI minimum yield strength
     - 62,000 PSI minimum tensile strength
     - 21% minimum elongation in 2"
   - Wall thickness (uncoated) shall be within the range of 0.248" to 0.304"
   - Outside diameter (uncoated) shall be within the range of 2.855" to 2.895"
   - Galvanization per ASTM A123
3. See the Traffic Operations Division website for detailed drawings of sign clamps and Texas Universal Triangular Slipbase System components. The website address is: http://www.txdot.gov/publications/traffic.htm
4. Sign supports shall not be spliced except where shown. Sign support posts shall not be spliced.

ASSEMBLY PROCEDURE

Foundation
1. Prepare 12-inch diameter by 42-inch deep hole. If solid rock is encountered, the depth of the foundation may be reduced such that it is embedded a minimum of 18 inches into the solid rock.
2. The Engineer may permit batches of concrete less than 2 cubic yards to be mixed with a portable, motor-driven concrete mixer. For small placements less than 0.5 cubic yards, hand mixing in a suitable container may be allowed by Engineer. Concrete shall be Class A.
3. Push the pipe end of the slip base stub into the center of the concrete. Rotate the stub back and forth while pushing it down into the concrete to assure good contact between the concrete and stub. Continue to work the stub into the concrete until it is between 2 to 4 inches above the ground.
4. Plumb the stub. Allow a minimum of 4 days to set, unless otherwise directed by the Engineer.
5. The triangular slipbase system is multidirectional and is designed to release when struck from any direction.

Support
1. Cut support so that the bottom of the sign will be 7 to 7.5 feet above the edge of the travelway (i.e., edge of the closest lane) when slip plate is below the edge of pavement or 7 to 7.5 feet above slip plate when the slip plate is above the edge of the travelway. The cut shall be plumb and straight.
2. Attach sign to support using connections shown. When multiple signs are installed on the same support, ensure the minimum clearance between each sign is maintained. See SMD(SLIP-2) for clearances based on sign types.

CONCRETE ANCHOR



SM RD SGN ASSM TY XXXXX(X)SB(X-XXXX)

Concrete anchor consists of 5/8" diameter stud bolt with UNC series bolt threads on the upper end. Heavy hex nut per ASTM A563, and hardened washer per ASTM F436. The stud bolt shall have a minimum yield and ultimate tensile strength of 50 and 75 KSI, respectively. Nuts, bolts and washers shall be galvanized per Item 445, "Galvanizing." Adhesive type anchors shall have stud bolts installed with Type III epoxy per DMS-6100, "Epoxies and Adhesives." Adhesive anchors may be loaded after adequate epoxy cure time per the manufacturer's recommendations. Top of bolt shall extend at least flush with top of the nut when installed. The anchor, when installed in 4000 psi normal-weight concrete with a 5 1/2" minimum embedment, shall have a minimum allowable tension and shear of 3900 and 3100 psi, respectively.

Texas Department of Transportation
Traffic Operations Division

SIGN MOUNTING DETAILS SMALL ROADSIDE SIGNS TRIANGULAR SLIPBASE SYSTEM

SMD(SLIP-1)-08

DN: TXDOT	CK: TXDOT	DW: TXDOT	CK: TXDOT

REVISIONS
9-08

CONT	SECT	JOB	HIGHWAY
0920	12	047	VARIOUS

DIST	COUNTY	SHEET NO.
BMT	JASPER	100

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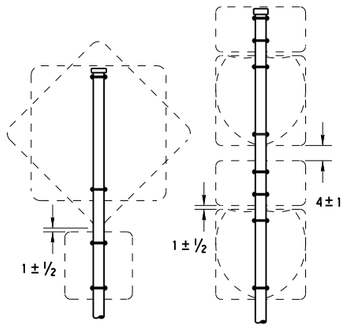
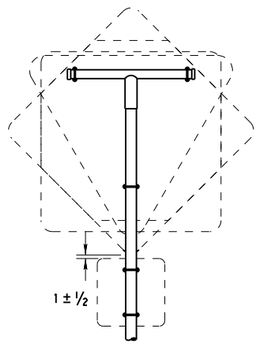


SM RD SGN ASSM TY XXXXX(1)XX(P)



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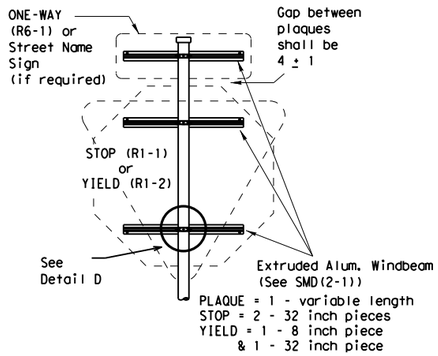
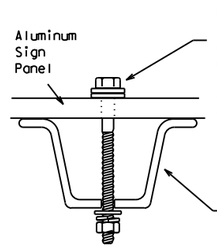


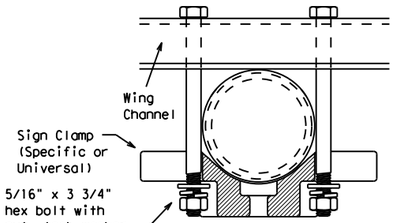
PLAQUE = 1 - variable length
STOP = 2 - 32 inch pieces
YIELD = 1 - 8 inch piece
& 1 - 32 inch piece

SM RD SGN ASSM TY XXXXX(1)XX(P-BM)



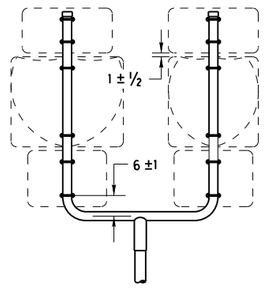
Top View

Detail A



Top View

Detail B



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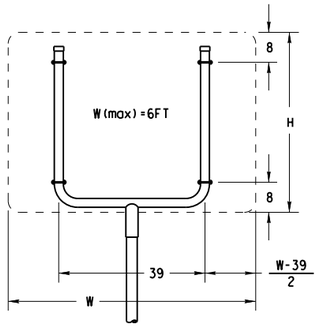

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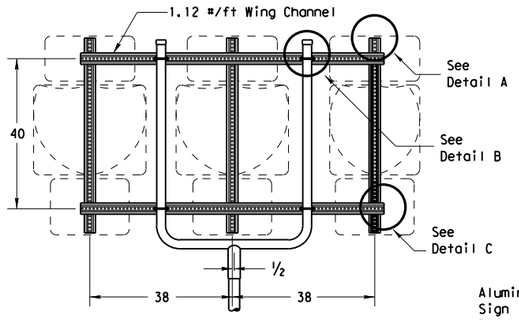
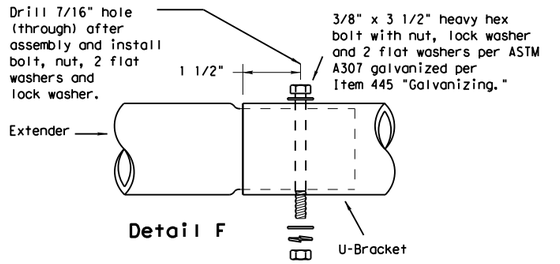
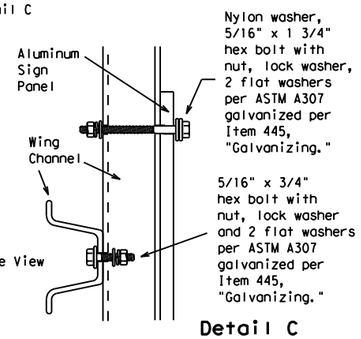


SM RD SGN ASSM TY XXXXX(1)XX(U-WC)
(See Note 11)

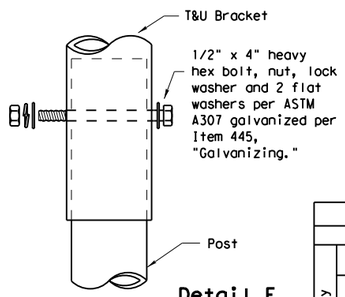


Detail F

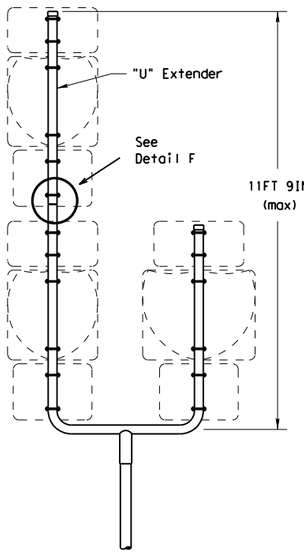
Splices shall only be allowed behind the sign substrate.



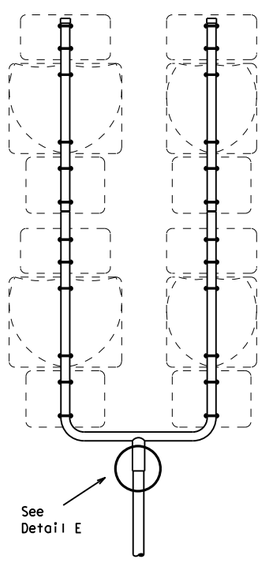
Detail C



Detail E



SM RD SGN ASSM TY S80(1)XX(U-1EXT)



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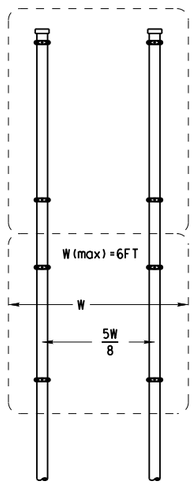
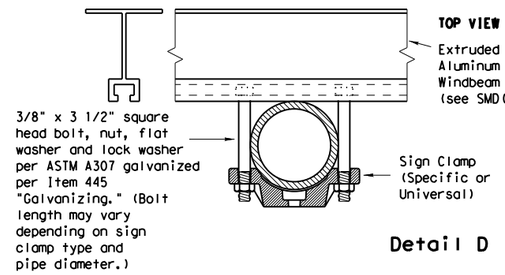
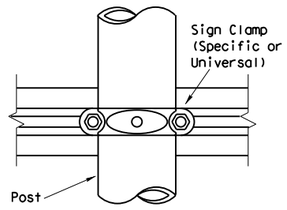


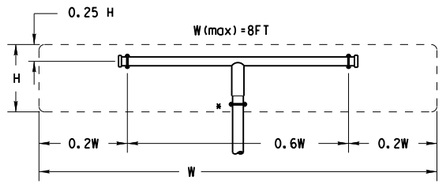
SM RD SGN ASSYM TY XXXXX(2)XX(P)

SIDE VIEW



Detail D

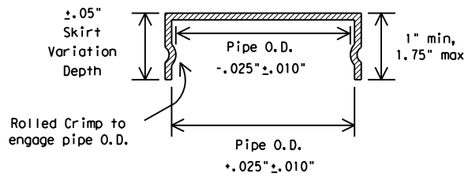




SM RD SGN ASSM TY XXXXX(1)XX(T)
(* - See Note 12)

All dimensions are in english unless detailed otherwise.

FRICTION CAP DETAIL



Friction caps may be manufactured from hot rolled or cold rolled steel sheets. The minimum sheet metal thickness shall be 24 gauge for all cap sizes.

The rim edges shall be reasonably straight and smooth. Caps shall be sized and formed in such a manner as to produce a drive-on friction fit and have no tendency to rock when seated on the pipe. The depth shall be sufficient to give positive protection against entrance of rainwater. They shall be free of sharp creases or indentations and show no evidence of metal fracture.

Caps shall have an electrodeposited coating of zinc in accordance with the requirements of ASTM B633 Class FE/ZN 8.

GENERAL NOTES:

1.

SIGN SUPPORT	# OF POSTS	MAX. SIGN AREA
10 BWG	1	16 SF
10 BWG	2	32 SF
Sch 80	1	32 SF
Sch 80	2	64 SF

2. The Engineer may require that a Schedule 80 post be used in place of a 10 BWG where a sign height is abnormally high due to a fill slope.
3. Sign supports shall not be spliced except where shown. Sign support posts shall not be spliced.
4. Aluminum sign blanks shall conform to Departmental Material Specifications DMS-7110 and shall have the following minimum thicknesses: 0.080 for signs less than 7.5 sq. ft., 0.100 for signs 7.5 to 15 sq. ft., and 0.125 for signs greater than 15 sq. ft.
5. Signs that require specific supports due to reasons in addition to windloading are indicated on the "REQUIRED SUPPORT" table on this sheet.
6. For horizontal rectangular signs fabricated from flat aluminum, T-brackets are used for signs 24 inches or less in height. U-brackets are used for signs of greater height.
7. When two triangular slipbase supports are used to support a single sign, they shall not be "rigidly" connected to each other except through the sign panel. This will allow each support to act independently when impacted by an errant vehicle.
8. Wing channel shall meet ASTM A 1011 SS Gr 50 and be galvanized per ASTM A 123.
9. Excess pipe, wing channel, or windbeam shall be cut off so that it does not extend beyond the sign panel (i.e., excess support shall not be visible when the sign is viewed from the front.) Repair galvanized coating at cut support ends per Item 445, "Galvanizing."
10. Additional route markers may be added vertically, provided the total sign area does not exceed the maximum allowable amount per Note 1.
11. Additional sign clamp required on the "T-bracket" post for 24 inch height signs. Place the clamp 3 inches above bottom of sign when possible.
12. Post open ends shall be fitted with Friction Caps.
13. Sign blanks shall be the sizes and shapes shown on the plans.

REQUIRED SUPPORT

	SIGN DESCRIPTION	SUPPORT
Regulatory	48-inch STOP sign (R1-1)	TY 10BWG(1)XX(T) TY 10BWG(1)XX(P-BM)
	60-inch YIELD sign (R1-2)	TY 10BWG(1)XX(T) TY 10BWG(1)XX(P-BM)
	48x16-inch ONE-WAY sign (R6-1)	TY 10BWG(1)XX(T) TY 10BWG(1)XX(P-BM)
	36x48, 48x36, and 48x48-inch signs	TY 10BWG(1)XX(T)
	48x60-inch signs	TY S80(1)XX(T)
Warning	48x48-inch signs (diamond or square)	TY 10BWG(1)XX(T)
	48x60-inch signs	TY S80(1)XX(T)
	48-inch Advance School X-ing sign (S1-1)	TY 10BWG(1)XX(T)
	48-inch School X-ing sign (S2-1)	TY 10BWG(1)XX(T)
	Large Arrow sign (W1-6 & W1-7)	TY 10BWG(1)XX(T)

Texas Department of Transportation
Traffic Operations Division

SIGN MOUNTING DETAILS SMALL ROADSIDE SIGNS TRIANGULAR SLIPBASE SYSTEM

SMD(SLIP-2)-08

DN: TXDOT	CK: TXDOT	DW: TXDOT	CK: TXDOT

REVISIONS	CONT	SECT	JOB	HIGHWAY
9-08	0920	12	047	VARIOUS
	DIST	COUNTY		SHEET NO.
	BMT	JASPER		101

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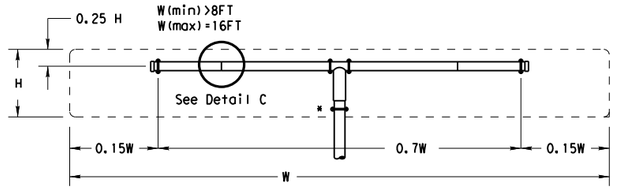
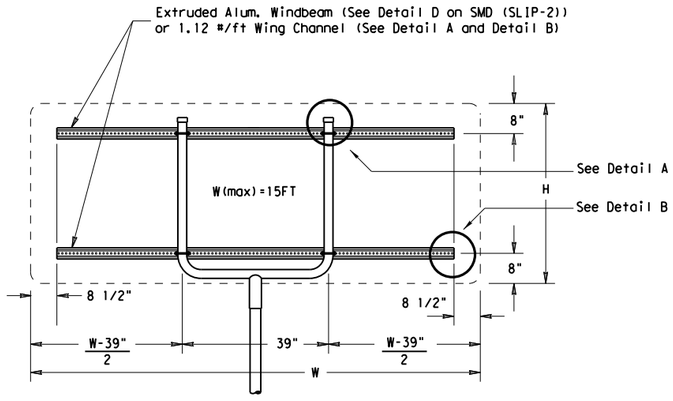
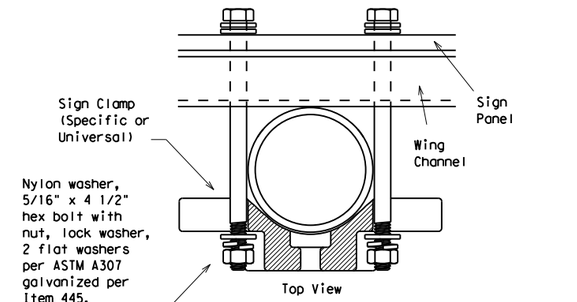


SM RD SGN ASSM TY XXXXX(1)XX(T-2EXT)

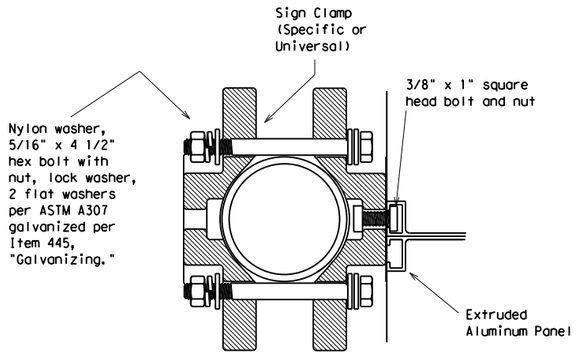
(* - See Note 12)



SM RD SGN ASSM TY XXXXX(1)XX(U-XX)

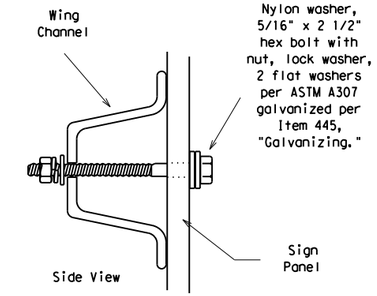


Detail A

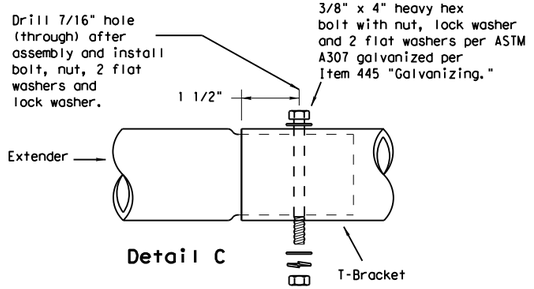


Detail D

EXTRUDED ALUMINUM SIGN WITH T BRACKET

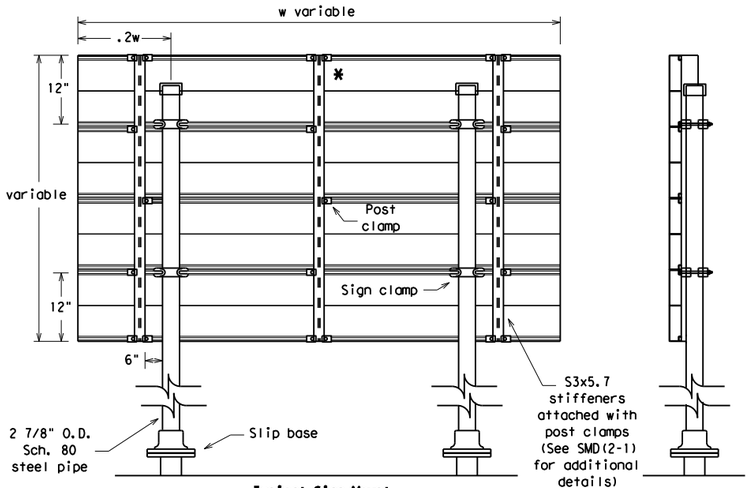


Detail B



Detail C

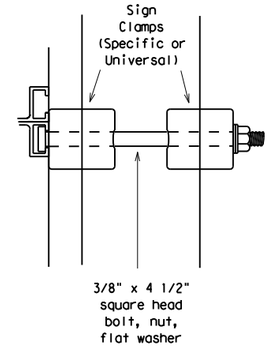
Splices shall only be allowed behind the sign substrate.



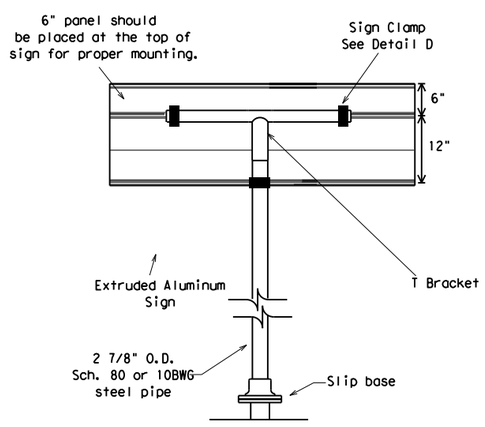
Typical Sign Mount

SM RD SGN ASSM TY S80(2)XX(P-EXAL)

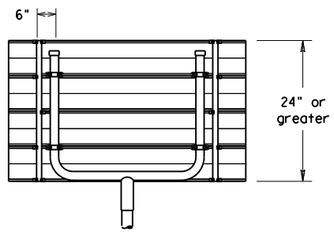
* Additional stiffener placed at approximate center of signs when sign width is greater than 10'.



Detail E



Extruded Aluminum Sign
With T Bracket



Use Extruded Alum. Windbeam as stiffeners
See SMD (2-1) for additional details

See Detail E
for clamp installation

GENERAL NOTES:

SIGN SUPPORT	# OF POSTS	MAX. SIGN AREA
10 BWG	1	16 SF
10 BWG	2	32 SF
Sch 80	1	32 SF
Sch 80	2	64 SF

1. The Engineer may require that a Schedule 80 post be used in place of a 10 BWG where a sign height is abnormally high due to a fill slope.
2. Sign supports shall not be spliced except where shown. Sign support posts shall not be spliced.
3. Aluminum sign blanks shall conform to Departmental Material Specifications DMS-7110 and shall have the following minimum thicknesses: 0.080 for signs less than 7.5 sq. ft., 0.100 for signs 7.5 to 15 sq. ft., and 0.125 for signs greater than 15 sq. ft.
4. Signs that require specific supports due to reasons in addition to windloading are indicated on the "REQUIRED SUPPORT" table on this sheet.
5. For horizontal rectangular signs fabricated from flat aluminum, T-brackets are used for signs 24 inches or less in height. U-brackets are used for signs of greater height.
6. When two triangular slipbase supports are used to support a single sign, they shall not be "rigidly" connected to each other except through the sign panel. This will allow each support to act independently when impacted by an errant vehicle.
7. Wing channel shall meet ASTM A 1011 SS Gr 50 and be galvanized per ASTM A 123.
8. Excess pipe, wing channel, or windbeam shall be cut off so that it does not extend beyond the sign panel (i.e., excess support shall not be visible when the sign is viewed from the front.) Repair galvanized coating at cut support ends per Item 445, "Galvanizing."
9. Sign blanks shall be the sizes and shapes shown on the plans.
10. Additional sign clamp required on the "T-bracket" post for 24 inch high signs. Place the clamp 3 inches above bottom of sign when possible.
11. Post open ends shall be fitted with Friction Caps.

REQUIRED SUPPORT

	SIGN DESCRIPTION	SUPPORT
Regulatory	48-inch STOP sign (R1-1)	TY 10BWG(1)XX(T) TY 10BWG(1)XX(P-BM)
	60-inch YIELD sign (R1-2)	TY 10BWG(1)XX(T) TY 10BWG(1)XX(P-BM)
	48x16-inch ONE-WAY sign (R6-1)	TY 10BWG(1)XX(T) TY 10BWG(1)XX(P-BM)
	36x48, 48x36, and 48x48-inch signs	TY 10BWG(1)XX(T)
	48x60-inch signs	TY S80(1)XX(T)
Warning	48x48-inch signs (diamond or square)	TY 10BWG(1)XX(T)
	48x60-inch signs	TY S80(1)XX(T)
	48-inch Advance School X-ing sign (S1-1)	TY 10BWG(1)XX(T)
	48-inch School X-ing sign (S2-1)	TY 10BWG(1)XX(T)
	Large Arrow sign (W1-6 & W1-7)	TY 10BWG(1)XX(T)

Texas Department of Transportation
Traffic Operations Division

SIGN MOUNTING DETAILS SMALL ROADSIDE SIGNS TRIANGULAR SLIPBASE SYSTEM

SMD(SLIP-3)-08

REVISIONS
9-08

DN: TXDOT	CK: TXDOT	DW: TXDOT	CK: TXDOT

CONT	SECT	JOB	HIGHWAY
0920	12	047	VARIOUS

DIST	COUNTY	SHEET NO.
BMT	JASPER	102

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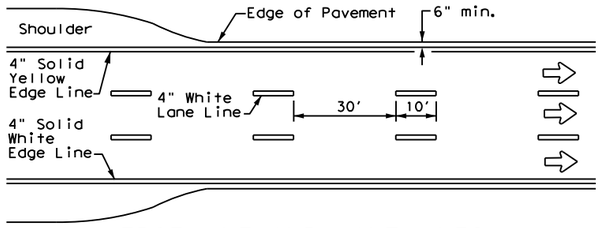
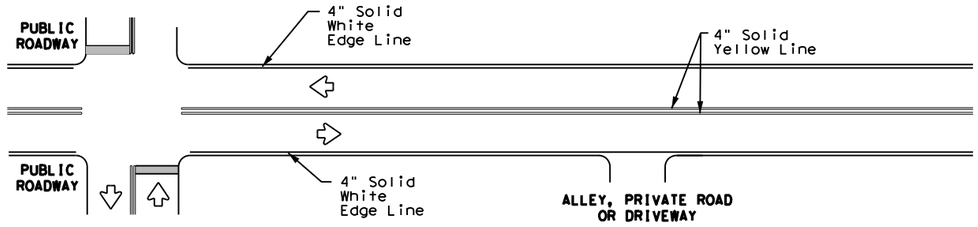
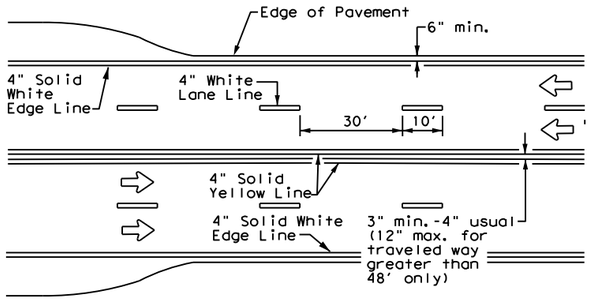


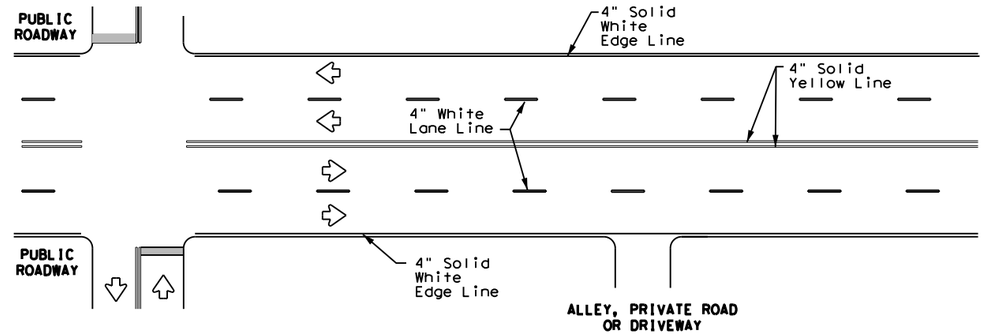
EDGE LINE AND LANE LINES ONE-WAY ROADWAY WITH OR WITHOUT SHOULDERS



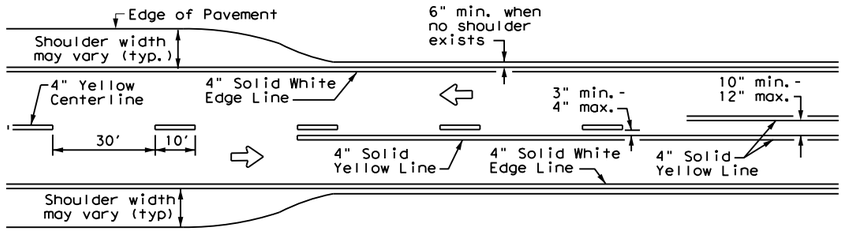
TYPICAL TWO-LANE, TWO-WAY PAVEMENT MARKINGS THROUGH INTERSECTIONS



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

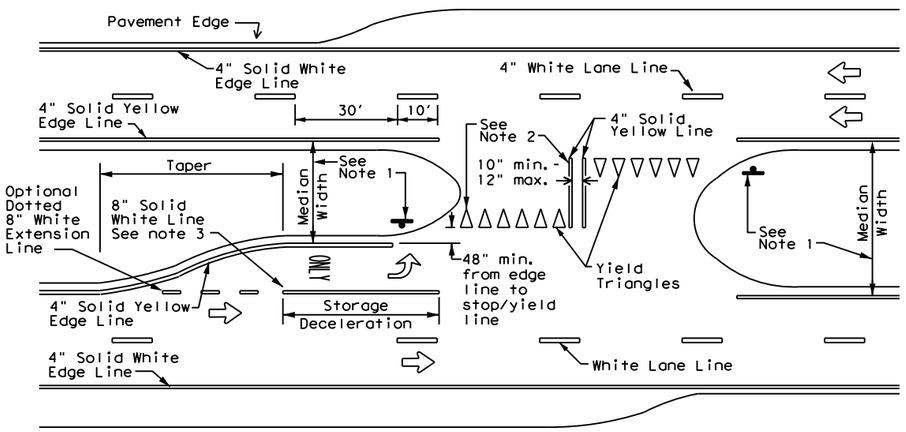


TYPICAL MULTI-LANE, TWO-WAY PAVEMENT MARKINGS THROUGH INTERSECTIONS



TWO LANE TWO-WAY ROADWAY WITH OR WITHOUT SHOULDERS

YIELD LINES



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 are optional as determined by the Engineer.

2. Install median striping (double yellow centerlines and stop bars/yield triangles) when a 50' or greater median centerline can be placed. Stop bars shall only be used with stop signs. Yield traingles 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.

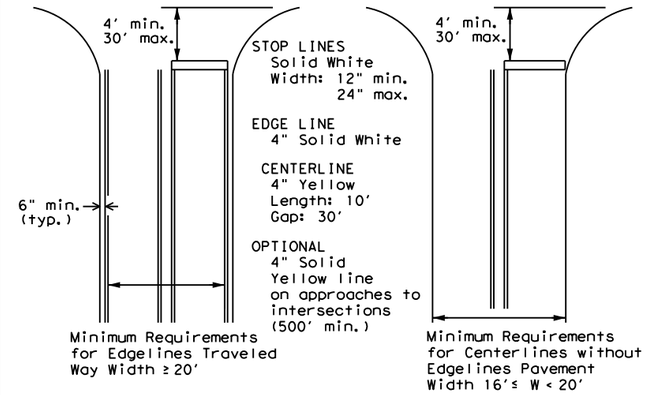
GENERAL NOTES

1. Edgeline striping shall be as shown in the plans or as directed by the Engineer. The edgeline should not be placed less less than 6 inches from the edge of pavement. This distance may vary due to pavement raveling or other conditions. Edgelines 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 inside of edgeline to the inside of edgeline 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.



GUIDE FOR PLACEMENT OF STOP LINES, EDGE LINE & CENTERLINE

Based on Traveled Way and Pavement Widths for Undivided Highways

Texas Department of Transportation

Traffic Safety Division Standard

TYPICAL STANDARD PAVEMENT MARKINGS

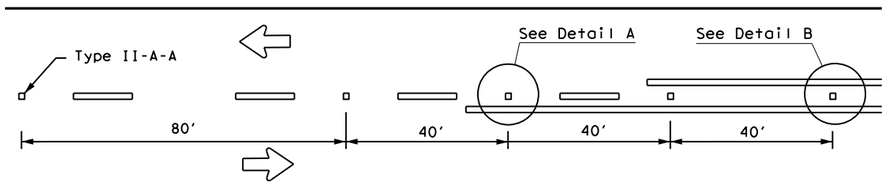
PM(1)-20

FILE: pm1-20.dgn	DN:	CK:	DW:	CK:
© TxDOT November 1978	CONT	SECT	JOB	HIGHWAY
REVISIONS 8-95 3-03	0920	12	047	VARIOUS
5-00 2-12	DIST	COUNTY		SHEET NO.
8-00 6-20	BMT	JASPER		103

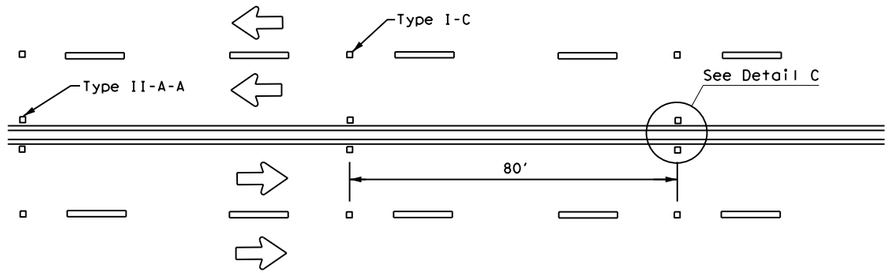
22A

DATE: 1/25/2022 4:42:38 PM
FILE: P:\122\42\01\Design\Civil\Standards\PavementMarkers\pm1-20.dgn

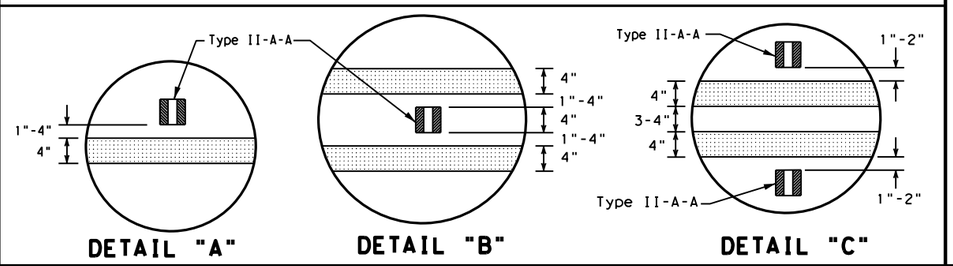
REFLECTIVE RAISED PAVEMENT MARKERS FOR VEHICLE POSITIONING GUIDANCE



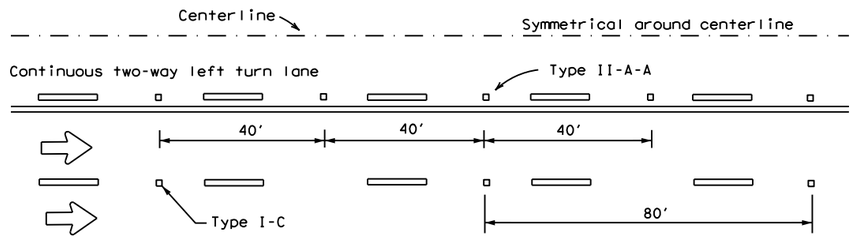
CENTERLINE FOR ALL TWO LANE ROADWAYS



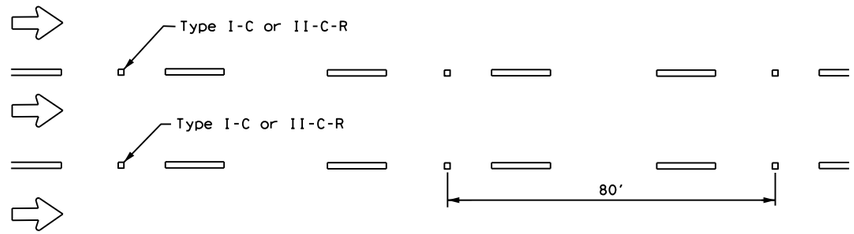
CENTERLINE & LANE LINES FOR FOUR LANE TWO-WAY HIGHWAYS



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



CENTERLINE AND LANE LINES FOR TWO-WAY LEFT TURN LANE

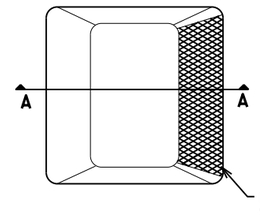


LANE LINES FOR ONE-WAY ROADWAY (NON-FREEWAY FACILITIES)

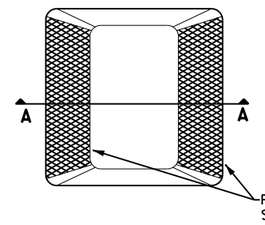
Raised pavement markers Type II-C-R shall have clear face toward normal traffic and red face toward wrong-way traffic.

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

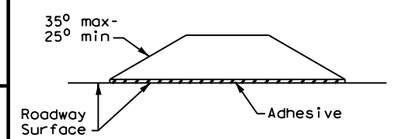
All pavement marking materials shall meet the required Departmental Material Specifications as specified by the plans.



Type I (Top View)

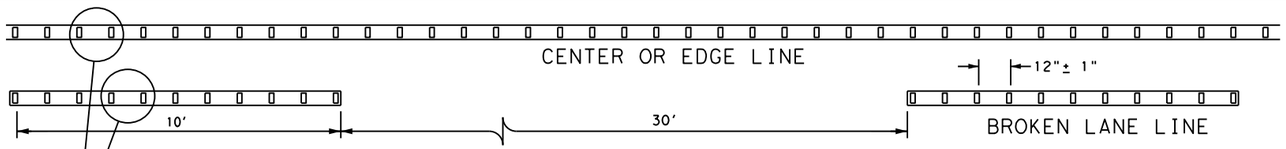


Type II (Top View)



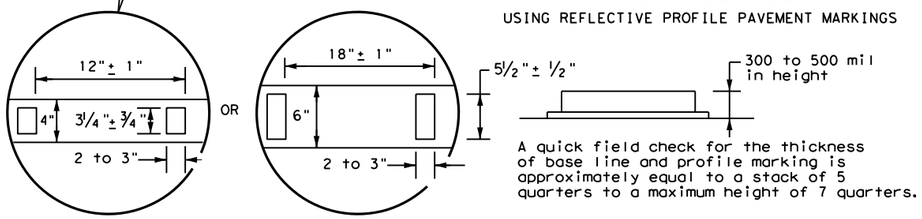
SECTION A

RAISED PAVEMENT MARKERS



REFLECTORIZED PROFILE PATTERN DETAIL

USING REFLECTIVE PROFILE PAVEMENT MARKINGS



4" EDGE LINE, CENTER LINE OR LANE LINE

OPTIONAL 6" EDGE LINE, CENTER LINE OR LANE LINE

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.

NOTE

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 in 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.

Texas Department of Transportation

Traffic Safety Division Standard

POSITION GUIDANCE USING RAISED MARKERS RELECTORIZED PROFILE MARKINGS PM(2)-20

FILE: pm2-20.dgn	DN:	CK:	DW:	CK:
©TxDOT April 1977	CONT	SECT	JOB	HIGHWAY
REVISIONS 4-92 2-10	0920	12	047	VARIOUS
5-00 2-12	DIST	COUNTY		SHEET NO.
8-00 6-20	BMT	JASPER		104

22B

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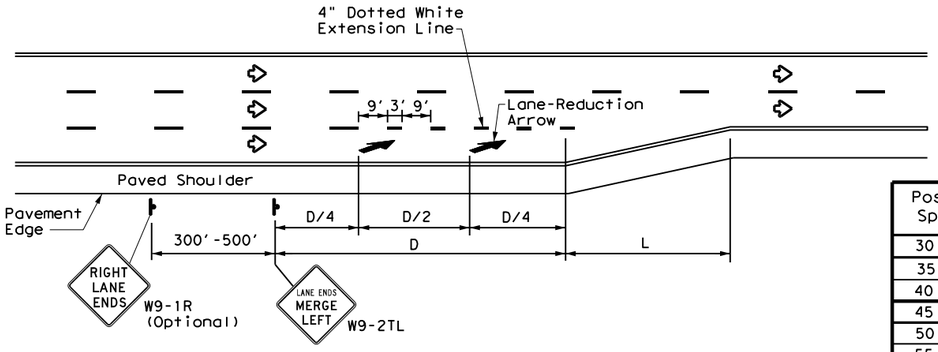
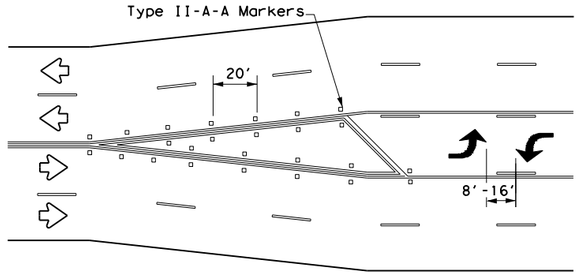


LANE REDUCTION

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

NOTES

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



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

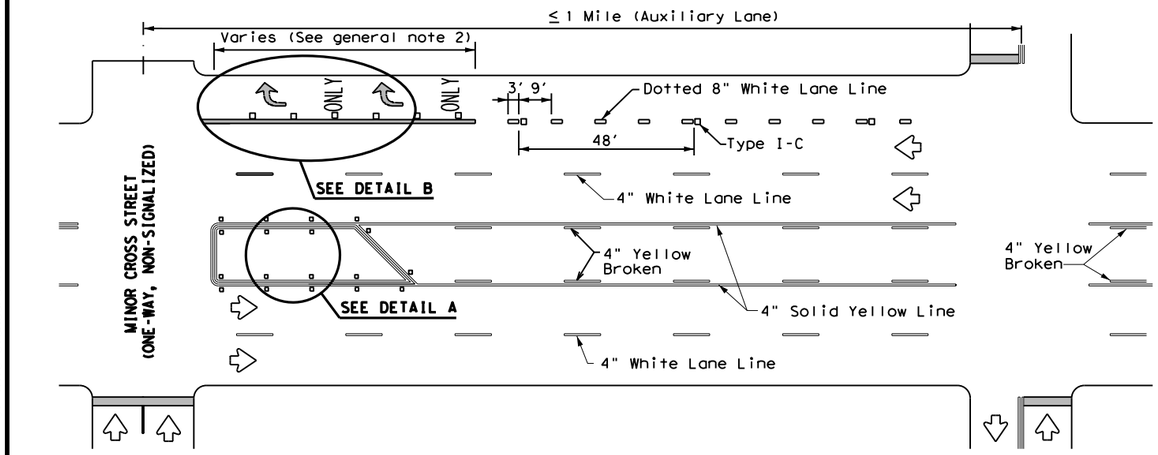
TYPICAL TRANSITION FOR TWLTL AND DIVIDED HIGHWAY

GENERAL NOTES

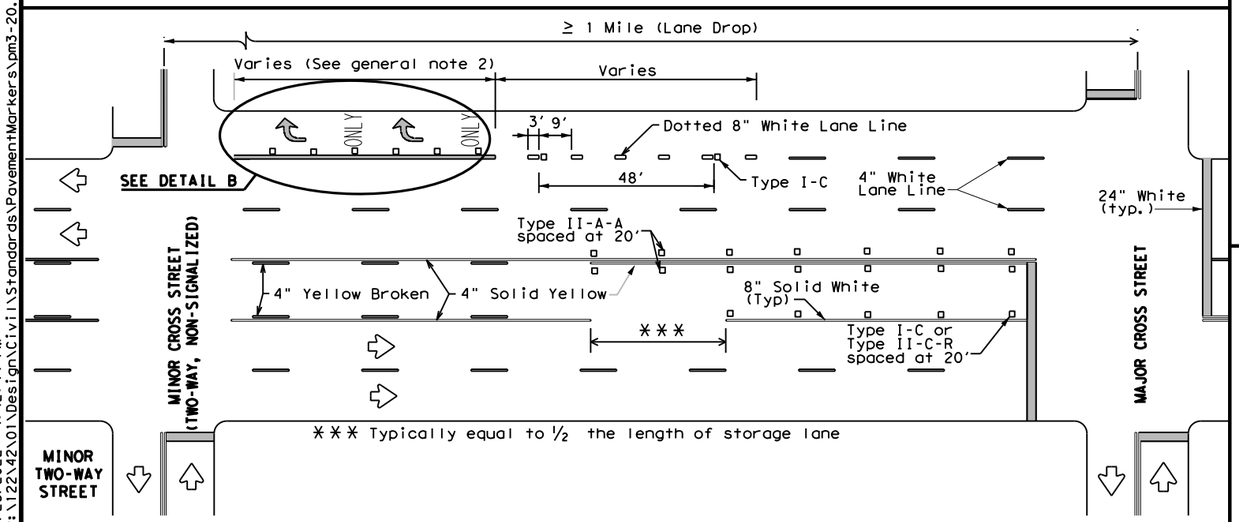
1. Lane use word and arrow markings shall be used where through lanes approaching an intersection become mandatory turn lanes. Lane use word and arrow markings should be used in auxiliary lanes of substantial length. Lane use arrow markings or word and arrow markings may be used in other lanes and turn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

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

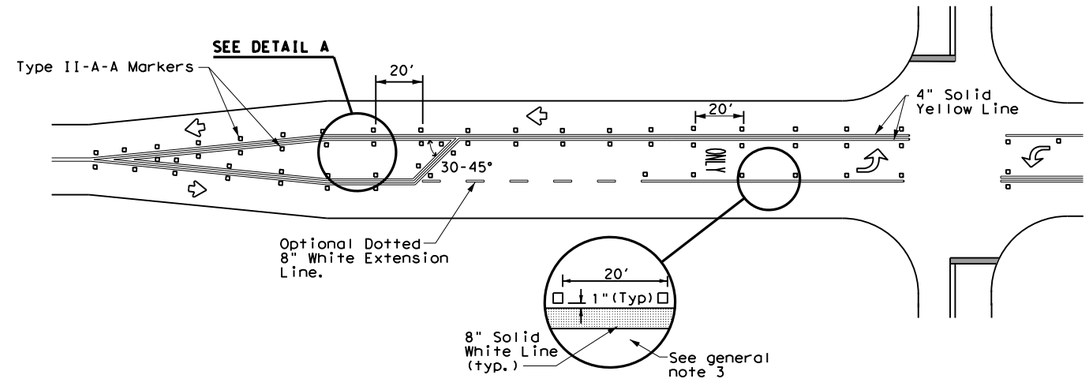
All pavement marking materials shall meet the required Departmental Material Specifications as specified by the plans.



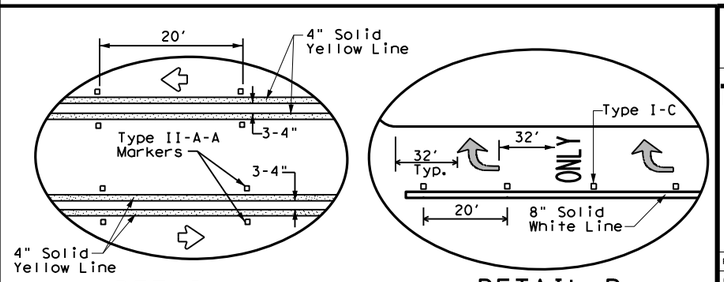
TYPICAL TWLTL AT ONE-WAY STREET AND RIGHT TURN AUXILIARY LANE



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



TYPICAL TWO-LANE HIGHWAY INTERSECTION WITH LEFT TURN BAYS



Texas Department of Transportation

Traffic Safety Division Standard

TWO-WAY LEFT TURN LANES, RURAL LEFT TURN BAYS, AND LANE REDUCTION PAVEMENT MARKINGS PM(3)-20

FILE: pm3-20.dgn	DN:	CK:	DW:	CK:
©TxDOT April 1998	CONT	SECT	JOB	HIGHWAY
REVISIONS	0920	12	047	VARIOUS
5-00 2-10	DIST	COUNTY		SHEET NO.
8-00 2-12	BMT	JASPER		105
3-03 6-20				

220

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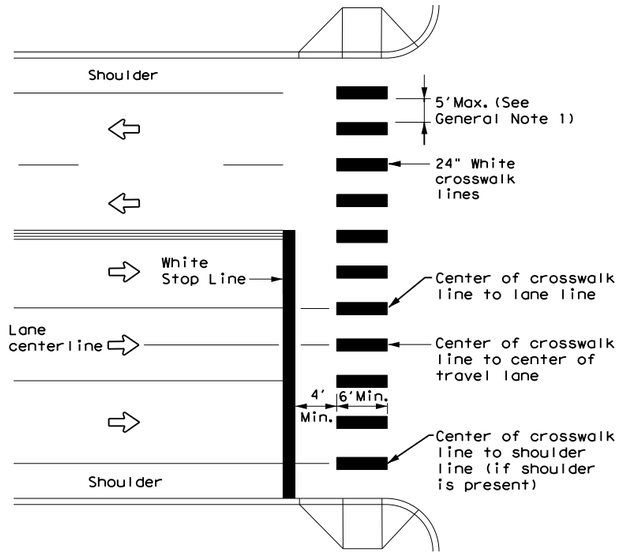


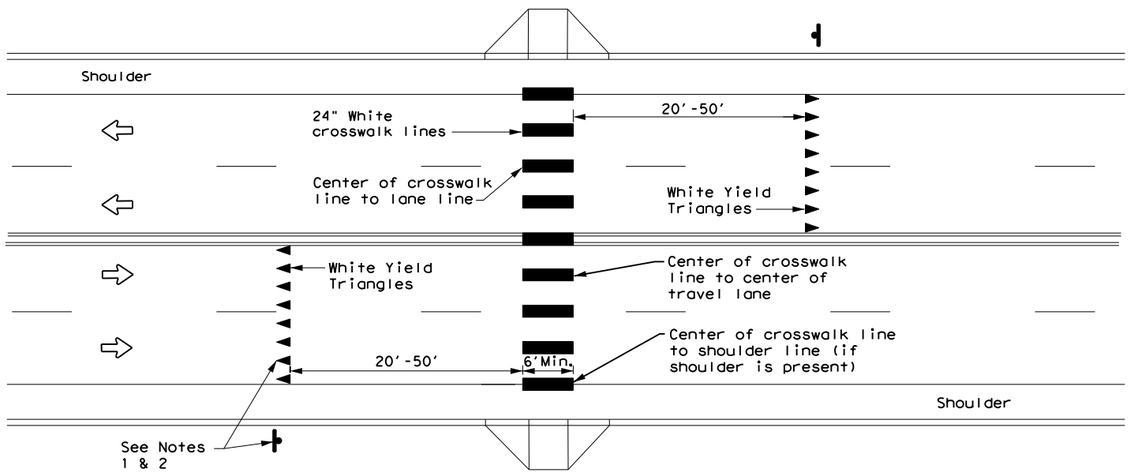
HIGH-VISIBILITY LONGITUDINAL CROSSWALK AT CONTROLLED APPROACH

GENERAL NOTES

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

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

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



UNSIGNALIZED MID BLOCK HIGH-VISIBILITY LONGITUDINAL CROSSWALK

NOTES

1. Use yield triangles with "Yield Here to Pedestrians" signs at unsignalized mid block crosswalks.
2. Use stop bars with "Stop Here on Red" signs at mid block crosswalks controlled by traffic signals or pedestrian hybrid beacons.

Texas Department of Transportation

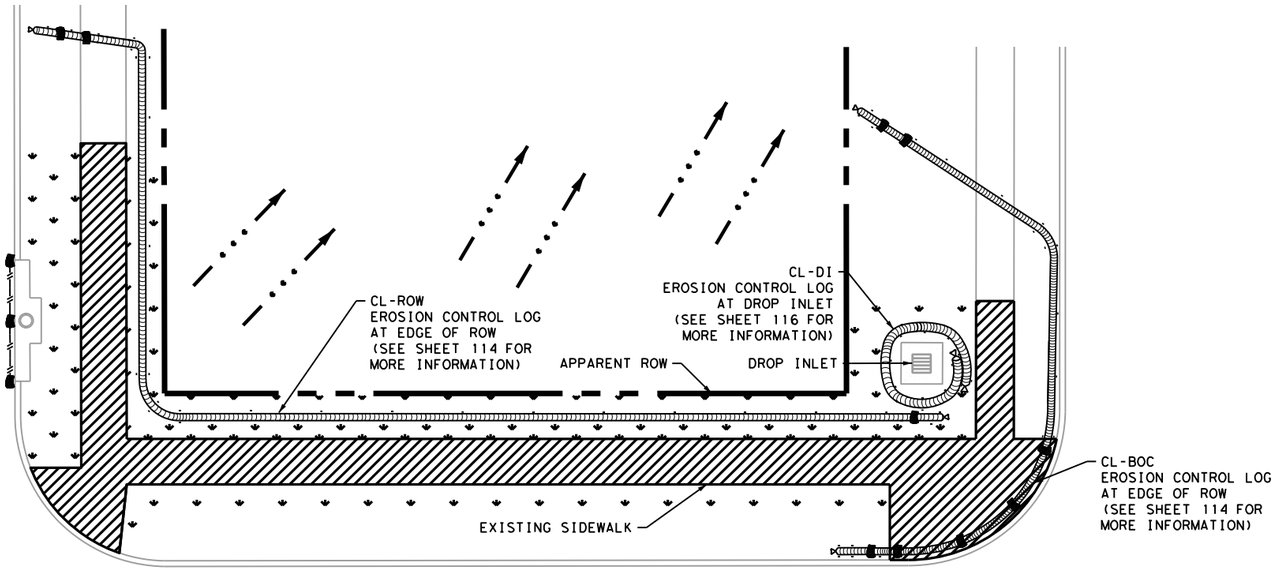
Traffic Safety Division Standard

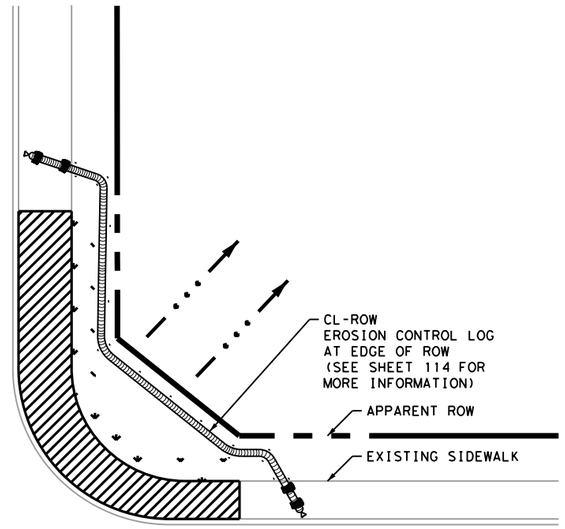
CROSSWALK PAVEMENT MARKINGS

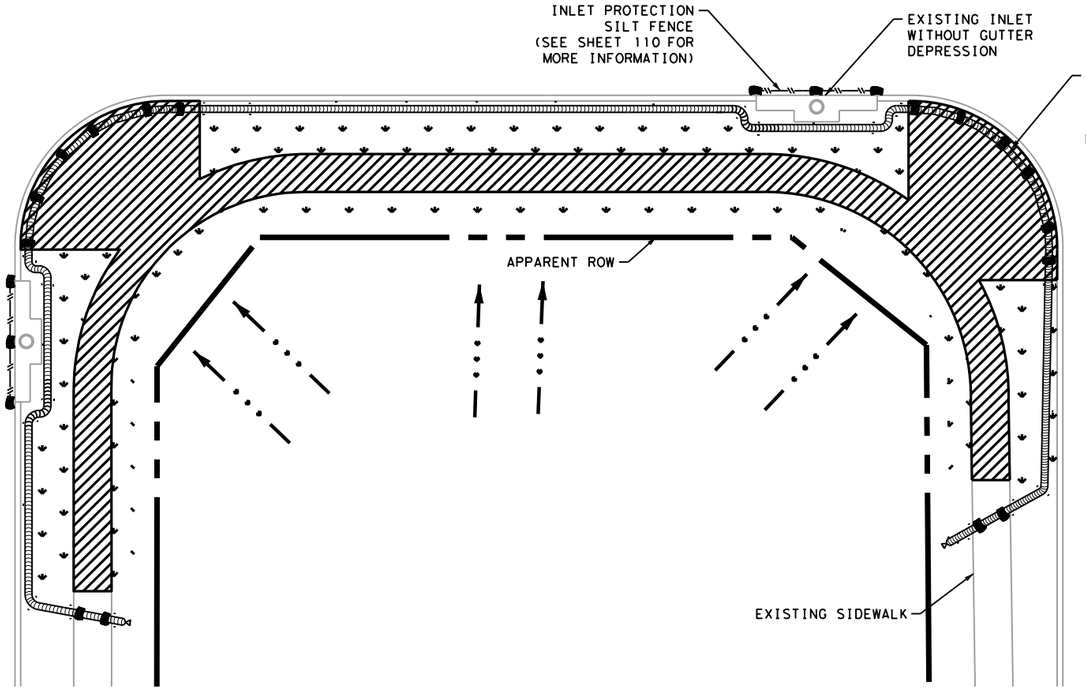
PM(4)-20

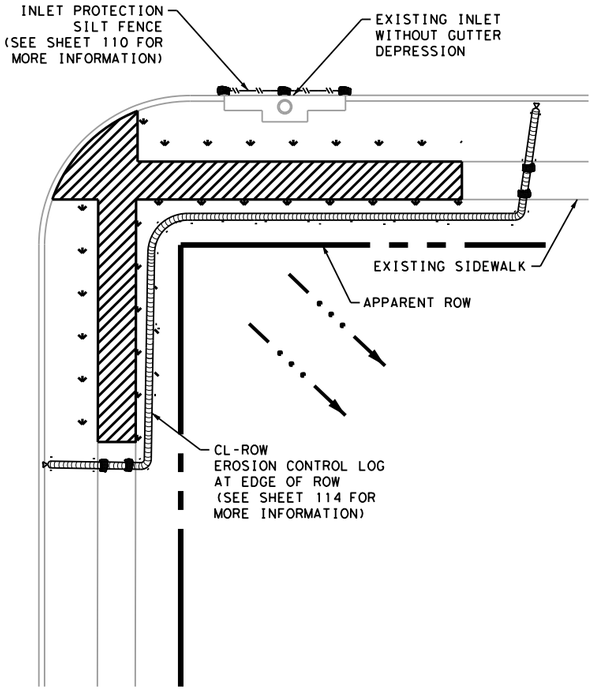
FILE: pm4-20.dgn	DN:	CK:	DW:	CK:
© TxDOT June 2020	CONT	SECT	JOB	HIGHWAY
REVISIONS	0920	12	047	VARIOUS
	DIST	COUNTY		SHEET NO.
	BMT	JASPER		106

22D









LEGEND

- BLOCK SODDING
- FLOW DIRECTION
- SILT FENCE
- EROSION CONTROL LOG
- WOOD OR METAL STAKES (AS APPROVED BY THE ENGINEER)
- SANDBAGS
- EXISTING FEATURES
- PROPOSED WORK AREA

NOTES:

REFERENCE ENVIRONMENTAL PERMITS, ISSUES, AND COMMITMENTS (EPIC)AND STORM WATER POLLUTION PREVENTION PLAN (SW3P) SHEETS FOR SPECIFIC CONSTRUCTION CONSIDERATIONS OR REQUIREMENTS.

EXAMPLES SHOWN ON THE SHEET ARE FOR GENERAL GUIDANCE AND MAY BE MODIFIED AS DIRECTED BY THE ENGINEER.

SITE CONDITIONS MAY DICTATE ADDITIONAL COUNTERMEASURES AS DIRECTED BY THE ENGINEER.

USE ADDITIONAL STAKES OR SAND BAGS AS NEEDED TO HOLD IN PLACE (NSPI)

INSTALLATION OF COUNTERMEASURES MUST BE APPROVED BY THE ENGINEER PRIOR TO PLACEMENT.

DESIGN

STATE OF TEXAS · TYLER PAYNE DUBE · 118612 · LICENSED PROFESSIONAL ENGINEER

TYLER PAYNE DUBE, P.E. — 1/25/2022 DATE

APPROVAL

STATE OF TEXAS · JOHN A. TYLER · 105193 · LICENSED PROFESSIONAL ENGINEER

JOHN A. TYLER, P.E. — 1/25/2022 DATE

REV. NO.	DATE	DESCRIPTION	BY

PAPE-DAWSON ENGINEERS
SAN ANTONIO | AUSTIN | HOUSTON | FORT WORTH | DALLAS
2000 NW LOOP 410 | SAN ANTONIO, TX 78213 | 210.375.9000
TEXAS ENGINEERING FIRM #470 | TEXAS SURVEYING FIRM #10028800

SW3P EXAMPLE LAYOUT

SHEET 1 OF 1

DGN:	FED. RD. DIV. NO.	STATE	FEDERAL AID PROJECT NO.			HIGHWAY NO.
CHK DGN:	6	TEXAS				VARIOUS
DWG:	DIST.	COUNTY	CONT. NO.	SECT. NO.	JOB NO.	SHEET NO.
CHK DWG:	BMT	JASPER	0920	12	047	107

DATE: 2/4/2022 5:06:34 AM
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I. STORMWATER POLLUTION PREVENTION-CLEAN WATER ACT SECTION 402

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

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

1. TxDOT - Beaumont District

☐ 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 as required by the Engineer.
3. This project disturbs more than one but less than five acres. The Contractor is required to post a Construction Site Notice in a manner which meets TCEQ Permit 150000 requirements and conforms to TxDOT standards. Contractor shall provide a copy of the Construction Site Notice to any adjacent non-TxDOT MS4 Operator. Contractor is responsible for acquiring permits from any adjacent non-TxDOT MS4 Operator. Contact the Beaumont District Construction Office with questions regarding TCEQ Permit 150000.
4. Take measures to prevent construction materials and debris including, but not limited to wastewater (i.e., cooling liquid, etc.) associated with concrete removal from entering any inlets, ditches, or waterways.

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, including Regional conditions for the State of Texas, 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: Permit # _____

☐ 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. Maintain a neat and clean worksite next to the water and do not allow any debris to fall into the water.
2. Comply with "Work In or Near Waters/Wetlands Regulatory Requirements and Best Management Practices" section found in the Beaumont District Environmental Field Guide.

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

Best Management Practices:

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

III. CULTURAL RESOURCES

☐ No Action Required ☒ Required Action

Action No.

1. 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.

IV. VEGETATION RESOURCES

☐ No Action Required ☒ Required Action

Action No.

1. 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.

2. Comply with "Vegetation and Habitat Impacts: Regulatory Requirements and Best Management Practices" section found in the Beaumont District Environmental Field Guide.

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. If any listed species are noted in the project area, work shall cease and the TxDOT Inspector or DEQC must be notified immediately. Do not harm any encountered species.
2. If caves or sinkholes are discovered on site, cease work in the area and contact the TxDOT Inspector or DEQC for guidance.
3. Comply with "Wildlife: Regulatory Requirements and Best Management Practices" section found in the Beaumont District Environmental Field Guide.
4. Contractor shall maintain compliance with the Migratory Bird Treaty Act (MBTA) and (TPW) Code Section 64.002. For compliance with MBTA and TPW Code, bridge demolition, clearing of vegetation, and tree trimming activities are to be scheduled from October 1 to February 14 (outside of migratory bird nesting season). Contractor is responsible for securing a qualified biologist to conduct a nest survey for any bridge demolition, tree trimming, or vegetation clearing that occurs during migratory bird nesting season. The qualified biologist must submit a survey protocol for approval by District environmental staff prior to construction. A nesting survey will remain valid up to five days. Any activity not completed within 5 days of a nesting survey will require another survey. Migratory bird nesting season is from February 15 to September 30. No removal of active nests is allowed during migratory bird nesting season; therefore, any structure or vegetation containing an active nest may not be disturbed, cleared, or trimmed. No removal of inactive nests is allowed during migratory bird nesting season except by an approved, qualified biologist. Contractor is responsible for ensuring all nests on bridge structures are removed prior to the start of nesting season. The full TxDOT MBTA guidance may be found here:

   https://ftp.txdot.gov/pub/txdot-info/env/toolkit/350-01-gui.pdf

5. Pavement Maintenance Program BMPs from the Maintenance EA Best Management Practices Summary Report shall be reviewed and implemented where appropriate.

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

☐ No Action Required ☒ Required Action

General (applies to all projects):

Comply with the Hazard Communication Act (the Act) for personnel who will be working with hazardous materials by conducting safety meetings prior to beginning construction and making workers aware of potential hazards in the workplace. Ensure that all workers are provided with personal protective equipment appropriate for any hazardous materials used.

Obtain and keep on-site Material Safety Data Sheets (MSDS) for all hazardous products used on the project, which may include, but are not limited to the following categories: Paints, acids, solvents, asphalt products, chemical additives, fuels and concrete curing compounds or additives. Provide protected storage, off bare ground and covered, for products which may be hazardous. Maintain product labelling as required by the Act.

Maintain an adequate supply of on-site spill response materials, as indicated in the MSDS. In the event of a spill, take actions to mitigate the spill as indicated in the MSDS, in accordance with safe work practices, and contact the District Spill Coordinator immediately. The Contractor shall be responsible for the proper containment and cleanup of all product spills.

Contact the Engineer if any of the following are detected:

* Dead or distressed vegetation (not identified as normal)
* Trash piles, drums, canister, barrels, etc.
* Undesirable smells or odors
* Evidence of leaching or seepage of substances
* Any other evidence indicating possible hazardous materials or contamination discovered on site.

List below any bridge class structure(s), not including box culverts, being replaced, rehabilitated, removed, extended or modified as part of this project, or state "None", if applicable.
If "None", then no further action is required. Otherwise TxDOT is responsible for completing asbestos assessment/inspection and evaluation for presence of lead.

Provide results below:

Structure Location	PSN	Element	Lead	Asbestos
None				

If Asbestos is present, then TxDOT must retain a DSHS licensed asbestos consultant to assist with the notification, develop abatement/mitigation procedures, and perform management activities as necessary.

If Asbestos is not present, then TxDOT is still required to notify DSHS 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.

Hazardous Materials or Contamination Issues Specific to this Project:

Action No.

1. Comply with TxDOT Standard Specification 7.12 and Special Provision 006-012 if evidence of hazardous materials or contamination is noted during construction.
2. Notify TxDOT Inspector or DEQC of any hazardous materials spills including fuel, hydraulic fluid, etc.

VII. OTHER ENVIRONMENTAL ISSUES

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

☐ No Action Required ☒ Required Action

Action No.

1. Comply with "General Construction" section found in the Beaumont District Environmental Field Guide.

Ashley Bogrand
APPROVED BY

February 04, 2022
DATE

DISTRICT ENVIRONMENTAL DEPARTMENT

Texas Department of Transportation

Beaumont District Standard

ENVIRONMENTAL PERMITS, ISSUES AND COMMITMENTS

EPIC

FILE: epic.dgn	DN: TxDOT	CK: AM	DW: VP	CK: AR
©TxDOT February 2019	CONT	SECT	JOB	HIGHWAY
	0920	12	047	VARIOUS
	DIST	COUNTY		SHEET NO.
	BMT	JASPER		108

SITE DESCRIPTION

Notes:

(1) The Site Description is accomplished using various sheets, each revealing separate details. This Index Sheet's purpose is to point the user to the appropriate location where the information required by the TPDES CGP can be found.

(2) The project limits shown on the Title Sheet and limits of TxDOT Right Of Way shall also be the limits of coverage of the SW3P.

NATURE OF ACTIVITY: Pedestrian improvements including sidewalks and ADA curb ramps

INTENDED SEQUENCE OF MAJOR SOIL DISTURBING ACTIVITIES: Remove existing concrete (sidewalk, curb & gutter, driveway, etc.), prepare base, set forms for proposed improvements, pour concrete, place topsoil and sod, re-establish vegetation

TOTAL AREA OF SITE: 8.0 AC AREA TO BE DISTURBED: 2.12 AC

If area of disturbance can be expected to exceed 1.0 acres, Beaumont District Standard SW3P-B should be included in the plans.

PRE-CONSTRUCTION RUNOFF CO-EFFICIENT: 0.51

POST-CONSTRUCTION RUNOFF CO-EFFICIENT: 0.86

EXISTING SOIL DESCRIPTION: DUB Doucette-Boykin association, undulating; SBE Shankler-Boykin assoc., hilly. Loamy residuum weathered from sandstone and shale

GENERAL LOCATION MAP: See Title Sheet

RECEIVING WATERS: SEGMENT NUMBER 0603A

SEGMENT NAME Sandy Creek

LOCATION OF WETLAND OR SPECIAL AQUATIC SITES: None

DRAINAGE PATTERNS: North to south, to Sandy Creek

TYPICAL AREAS OF SOIL DISTURBANCE: Within ROW at existing infrastructure including sidewalks, ADA curb ramps, and driveways

TYPICAL AREAS WHICH WILL NOT BE DISTURBED: See Plan & Profile Sheets

LOCATION OF OFF-SITE SURFACE RECEIVING WATERS: Sandy Creek

LOCATIONS WHERE STABILIZATION PRACTICES WILL OCCUR: See SW3P Example Layout or as needed/as directed by the Engineer

LOCATIONS OF OFF-SITE STORAGE OF MATERIALS AND EQUIPMENT, WASTE, BORROW; OR DEDICATED MATERIAL PROCESSING PLANTS: To be determined by Contractor.

LOCATIONS WHERE STORM WATER DISCHARGES TO SURFACE WATERS: See Peachtree Plan & Profile sheets

LOCATION OF POLLUTION CONTROL MEASURES: See SW3P Example Layout or as needed/as directed by the Engineer

CONTROLS

SOIL STABILIZATION PRACTICES

INTERIM:

____	TEMPORARY SEEDING	X	PRESERVATION OF NATURAL RESOURCES
____	MULCHING (Hay or Straw)	____	FLEXIBLE CHANNEL LINER
____	BUFFER ZONES	____	OTHER

PERMANENT:

____	SEEDING	____	RETENTION BLANKET
X	BLOCK SOD	____	CHANNEL LINER
____	OTHER		

STRUCTURAL PRACTICES (T/P)*

T	SILT FENCE	____	PAVED FLUMES
____	HAY BALES	____	ROCK BEDDING AT CONSTRUCTION EXIT
T	ROCK BERMS	____	TIMBER MATTING AT CONSTRUCTION EXIT
____	PIPE SLOPE DRAINS	____	SEDIMENT TRAPS
____	CHANNEL LINERS	____	SEDIMENT BASINS
____	STORM SEWERS	P	CURB and GUTTER
T	STORM INLET SEDIMENT TRAP	____	VELOCITY CONTROL DEVICES
____	STONE OUTLET STRUCTURES	T	EROSION CONTROL LOGS
____	DIVERSION, INTERCEPTOR, or PERIMETER SWALES		
____	DIVERSION, INTERCEPTOR, or PERIMETER DIKES		

* T means Temporary - P means Permanent

PERMANENT POST CONSTRUCTION TSS CONTROLS

____ RETENTION / IRRIGATION
____ EXTENDED DETENTION BASINS
____ VEGETATIVE FILTER STRIPS / VEGETATIVE SWALES
____ CONSTRUCTED WETLANDS
____ WET BASINS

OTHER CONTROLS

____ WATERING FOR DUST CONTROLS
X SEDIMENT REMOVAL FROM ROADWAY (SWEEPING)
X LOADED TRUCKS WILL BE COVERED WITH TARP

The above indicated practices are proposed to control pollutants in storm water discharges. These practices are based on information contained in TxDOT Storm Water Management Guidelines. The Schedule of implementation of these practices will be based on the intended Sequence of Major Soil Disturbing Activities. Stabilization measures shall be initiated no later than 14 days after construction activity of that portion of the site has temporarily or permanently ceased.

Describe construction and waste materials expected to be stored on site and proposed controls to reduce pollutants from these materials (include storage practices spill prevention and response. To be determined by Contractor.

Describe pollutant sources from areas other than construction and measures implemented at those sites to minimize pollutant discharges. All waste material will be disposed of in accordance with all State Laws and Regulations. No construction waste will be buried on sites.

Describe measures necessary to protect listed endangered or threatened species, or critical habitat. See EPIC

INFORMATION

MAINTENANCE:

All erosion and sediment control and other protective measures identified in the SW3P must be maintained in effective operating conditions. If site inspections required by this permit identify BMP's that are not operating effectively, maintenance shall be performed before the next anticipated storm event, or as necessary to maintain the continued effectiveness of storm water controls. If maintenance prior to the next anticipated storm event is unpracticable, maintenance must be scheduled and accomplished as soon as practical.

INSPECTION:

Qualified personnel shall inspect disturbed areas of the construction site that have not been finally stabilized, areas used for storage of materials that are exposed to precipitation, structural control measures, and locations where vehicles enter or exit the site.

Inspection Cycle Option:

- ☐ 1. At least every 14 calendar days or within 24 hrs after 0.5 inches or more of rainfall.
- ☒ 2. At least every 7 calendar days.
- ☐ 3. At least monthly(Engineer & DEQC approved revision to SW3P required).

a). Disturbed areas that are exposed to precipitation shall be inspected for evidence of, or the potential for, pollutants entering the drainage system. Sediment and erosion control measures identified on the SW3P shall be observed to ensure that they are operating correctly. Locations where vehicles enter or exit the site shall be inspected for evidence of offsite sediment tracking. Sediments must be removed from sediment control structures no later than the time that the design capacity has been reduced by 50%.

b). Based on the result of the inspection, the SW3P shall be revised to include (show on Site Map) additional or modified BMP's designed to correct the observed deficiency. Revisions to the SW3P must be completed within seven (7) calendar days following the inspection.

c). A report summarizing the scope, date, name and qualifications of inspector, and major observations relating to the implementation of the SW3P shall be produced and retained as part of the SW3P for 3 years from date of final stabilization.

d). The following records must be maintained and either attached to or referenced in the SW3P, and made readily available upon request to the parties in Part III.D.1 of the CGP: 1). The dates when major grading activities occur; 2). The dates when construction activities temporarily or permanently cease on a portion of the site and; 3). The dates when stabilization measures are initiated.

INSPECTOR PAPERWORK CHECKLIST:

- ☐ Contact Form (1)
- ☐ Notice of Intent (1)(2)
- ☐ SW3P Certification Statement (signed by AE) (2)
- ☐ Delegation of Signature Authority (all Inspectors signing reports) (2)(3)
- ☐ TPDES General Permit (2)(3)
- ☐ Environmental Document (2)
- ☐ Inspection and Maintenance Report (2)(3)
- ☐ Notice of Termination (2)
- ☐ SW3P Plan (2)(3)
- ☐ Inspector Qualification Form (2)(3)
- ☐ Project Diary(2)(3)

(1) The information should be displayed on the Project Bulletin Board.
(2) The information should be a part of the permanent SW3P file maintained at the Area Office.
(3) The information should be maintained at the Field Office.

STORM WATER POLLUTION PREVENTION PLAN is consistent with requirements specified in applicable sediment and erosion site plans or site permits, or storm water management site plans or site permits approved by State, Tribal or local officials (i.e. MS4 Permits).

Any reportable quantity of Hazardous Material release must be reported to the National Response Center at 1-800-424-8802. In addition the Beaumont District "Hazardous Material Spill Information Form" must be completed and mailed to the EPA Regional Office in Dallas, Tx.

A copy of the Construction General Permit is part of the SW3P.

APPROVAL

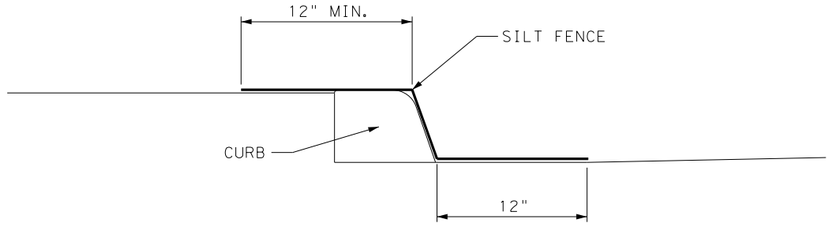
STATE OF TEXAS — JOHN A. TYLER — 105193 — LICENSED PROFESSIONAL ENGINEER

JOHN A. TYLER, P.E. — 1/26/2022 DATE

Texas Department of Transportation
BEAUMONT DISTRICT

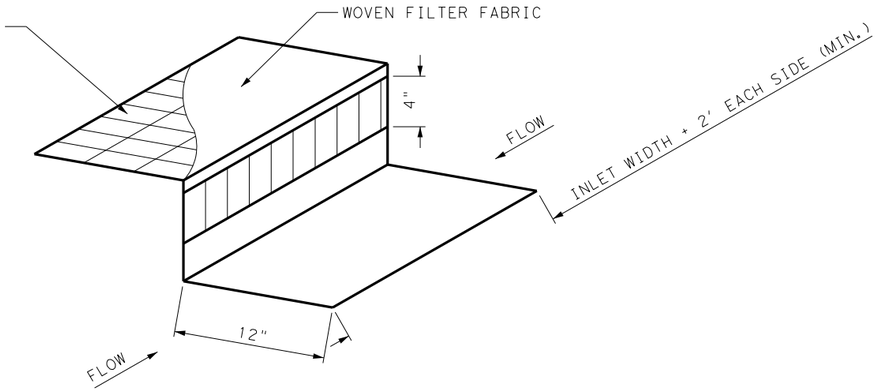
SW3P INDEX
(SW3P-I)

REVISIONS	FED.RD. DIV.NO.	PROJECT NO.		SHEET NO.
05/22/02 VW 11/08/02 VW 03/06/03 VW 06/11/04 VW 09/15/15 MV	6			109
	STATE	STATE DIST.NO.	COUNTY	
	TEXAS	BMT	JASPER	
	CONT.	SECT.	JOB	HIGHWAY NO.
	0920	12	047	VARIOUS

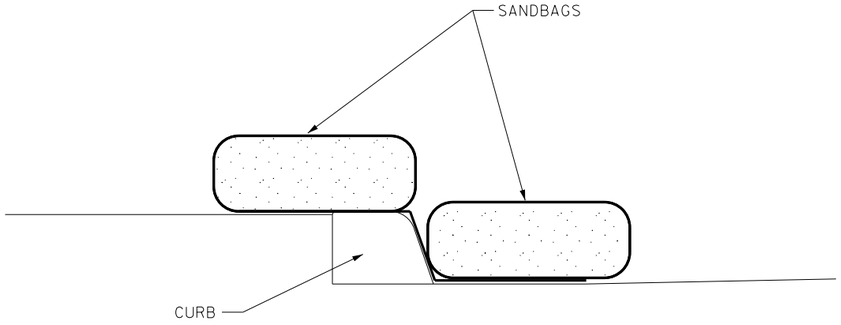


SILT FENCE DETAIL

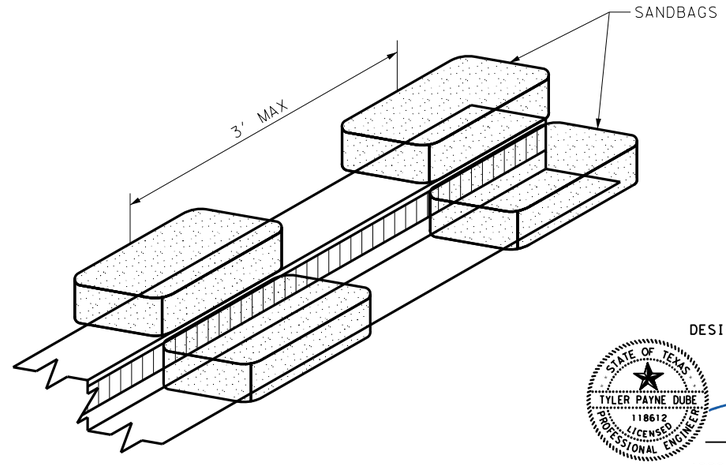
GALVANIZED WELDED WIRE MESH (W.W.M.) (12.5 GA. SWG MIN.) WITH A MAXIMUM OPENING SIZE OF 2" X 4" OR WOVEN MESH (W.M.)



SILT FENCE PLAN

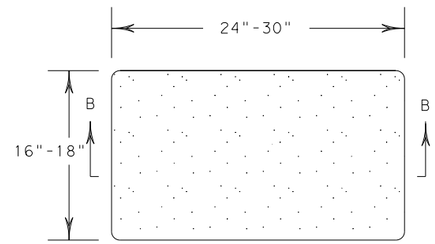


ANCHORAGE DETAIL

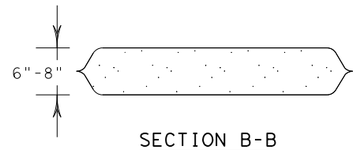


ANCHORAGE PLAN

NOTES:
1. REMOVE SECTION OF FILTER FABRIC AS SHOWN OR AS DIRECTED. FASTEN FABRIC TO EXPOSED WIRE WITH HOG RINGS OR CORD AT A MAXIMUM SPACING OF 15".
2. PLACE SANDBAGS AS SHOWN AT A MAXIMUM OF 3' ON CENTER BOTH IN THE GUTTER AND ON THE INLET. SUBMIT ALTERNATIVE ANCHORING METHODS FOR APPROVAL PRIOR TO INSTALLATION.
3. INSPECT INLETS DAILY. REMOVE ACCUMULATED SEDIMENT 2" OR MORE DEEP. REPAIR OR REPLACE DAMAGED INLET PROTECTION AS NECESSARY.



SANDBAG DETAIL



SECTION B-B

DESIGN

STATE OF TEXAS
TYLER PAYNE DUBE
118612
LICENSED
PROFESSIONAL ENGINEER

TYLER PAYNE DUBE, P.E. — 1/26/2022 DATE

APPROVAL

STATE OF TEXAS
JOHN A. TYLER
105193
LICENSED
PROFESSIONAL ENGINEER

JOHN A. TYLER, P.E. — 1/26/2022 DATE

INLET PROTECTION SILT FENCE

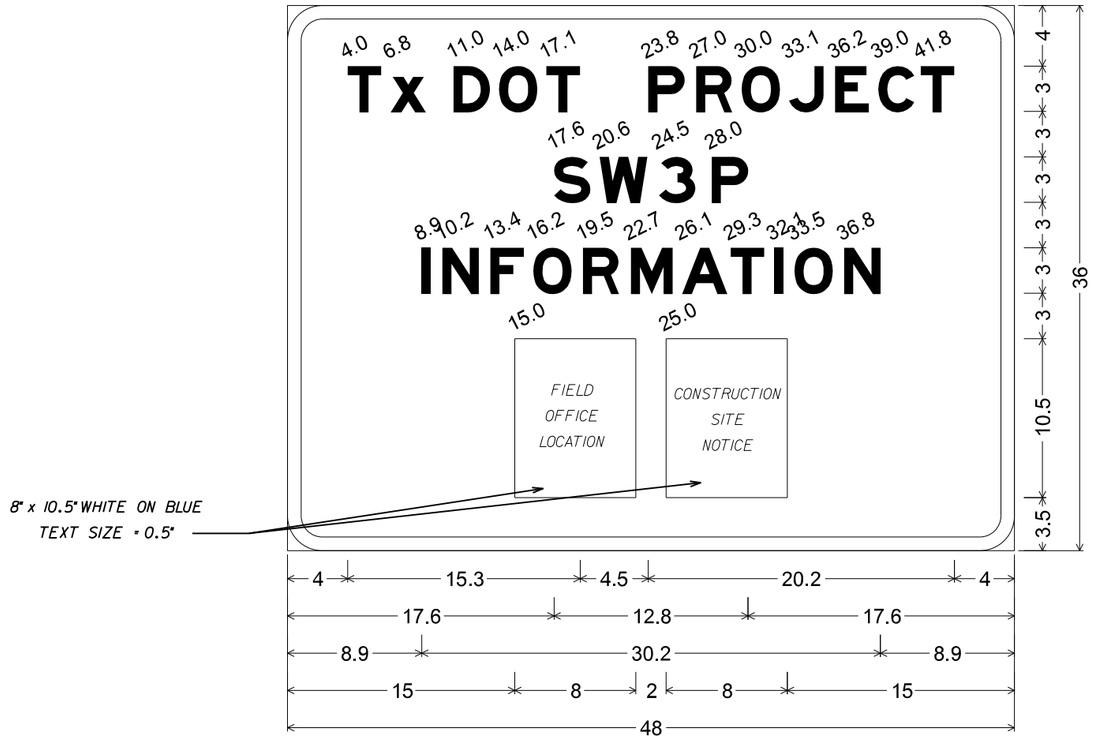
Texas Department of Transportation

CONT	SECT	JOB	HIGHWAY
0920	12	047	VARIOUS
DIST	COUNTY		SHEET NO.
BMT	JASPER		110

DATE: 1/26/2022 8:51:27 AM
FILE: P:\122\42\01\Design\Civil\Standards\SW3P\INLET PROTECTION SILT FENCE.dgn

NOTE:

Each SW3P Notification Board will include laminated copies of the Field Office Location and Construction Site Notice. Notification Boards are to be constructed from chloroplast and placed at a location within the right-of-way but outside the clear zone as directed by the Engineer. This work will not be paid for directly, but will be considered subsidiary to other items.



2.3" Radius, 0.9" Border, White on Blue;
[TxDOT PROJECT] E Mod; [SW3P] E Mod; [INFORMATION] E Mod;

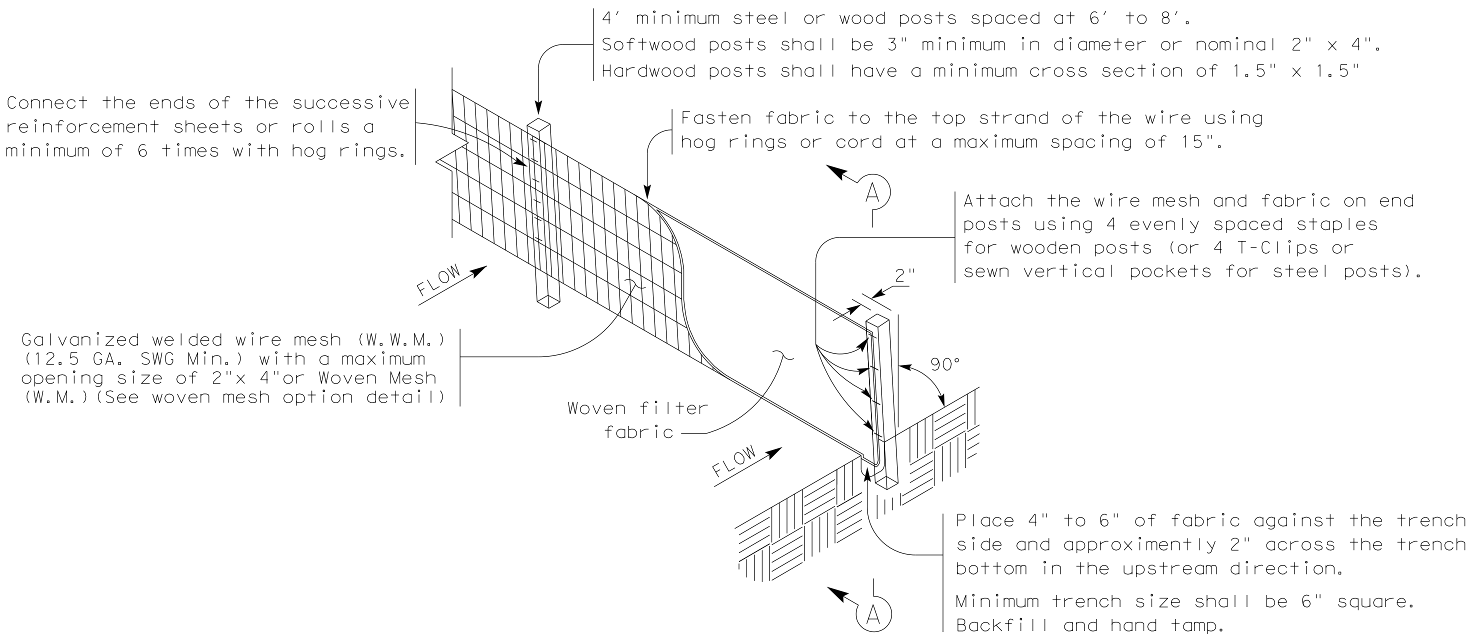
Texas Department of Transportation

BEAUMONT DISTRICT

SW3P
NOTIFICATION BOARD
DETAIL

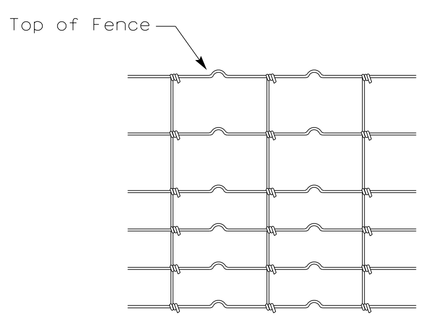
(SW3P-A)

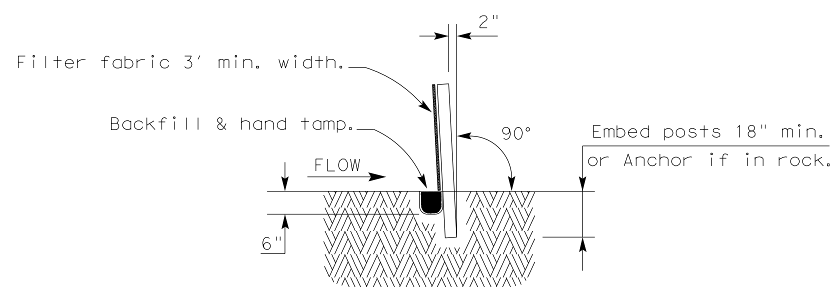
REVISIONS	FHWA TEXAS DIVISION	FEDERAL AID PROJECT NO.		SHEET NO.
				111
	STATE	DISTRICT	COUNTY	
	TEXAS	BMT	JASPER	
	CONTROL	SECTION	JOB	HIGHWAY NO.
	0920	12	047	VARIOUS



TEMPORARY SEDIMENT CONTROL FENCE

SCF





SECTION A-A

HINGE JOINT KNOT WOVEN MESH (OPTION) DETAIL

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

SEDIMENT CONTROL FENCE USAGE GUIDELINES

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

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

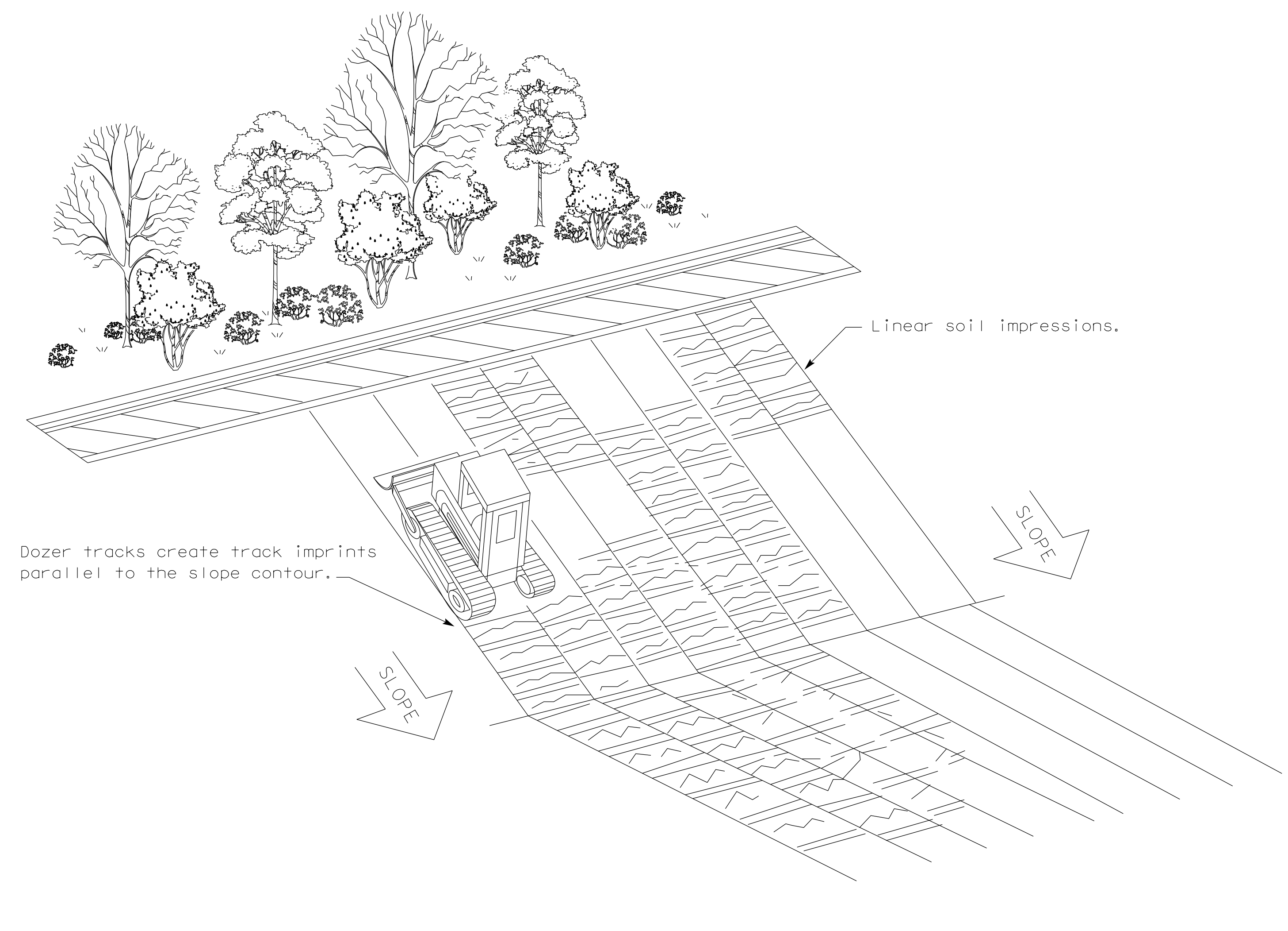
LEGEND

Sediment Control Fence

SCF

GENERAL NOTES

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



VERTICAL TRACKING

Texas Department of Transportation — Design Division Standard

TEMPORARY EROSION, SEDIMENT AND WATER POLLUTION CONTROL MEASURES

FENCE & VERTICAL TRACKING

EC(1)-16

FILE: ec116	DN: TxDOT	CK: KM	DW: VP	DN/CK: LS
© TxDOT: JULY 2016	CONT	SECT	JOB	HIGHWAY
REVISIONS	0920	12	047	VARIOUS
	DIST		COUNTY	SHEET NO.
	BMT		JASPER	112

DATE: 1/25/2022
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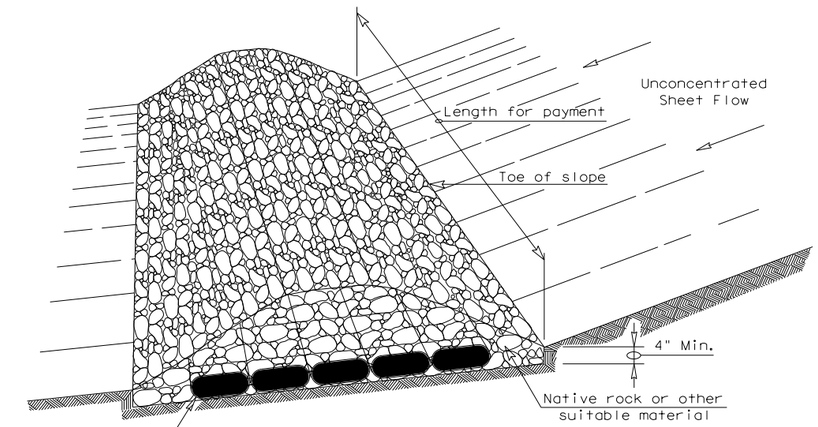
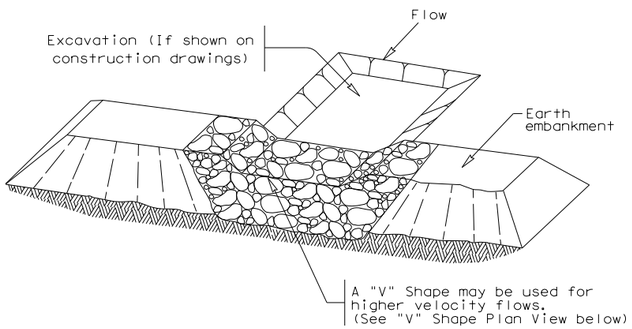


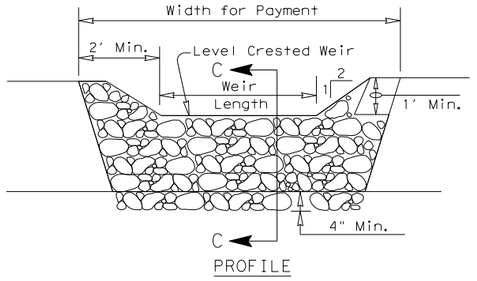
FILTER DAM AT TOE OF SLOPE

RFD1

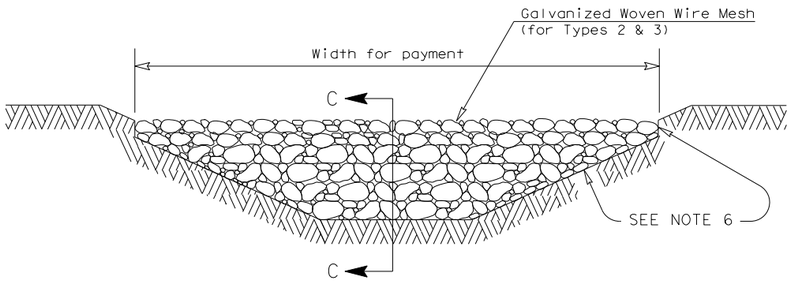


FILTER DAM AT SEDIMENT TRAP

RFD1 — OR — RFD2

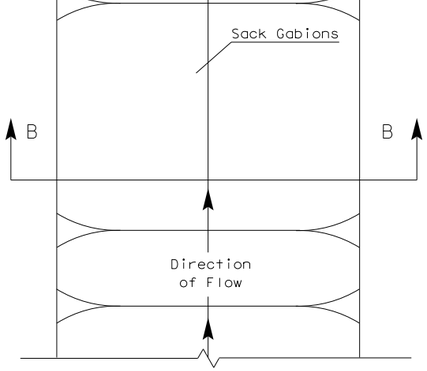


PROFILE

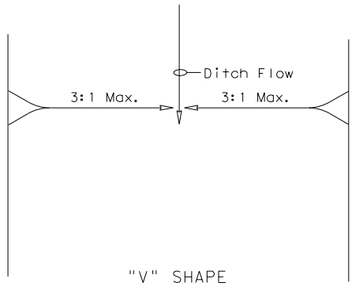


FILTER DAM AT CHANNEL SECTIONS

RFD1 — OR — RFD2 — OR — RFD3



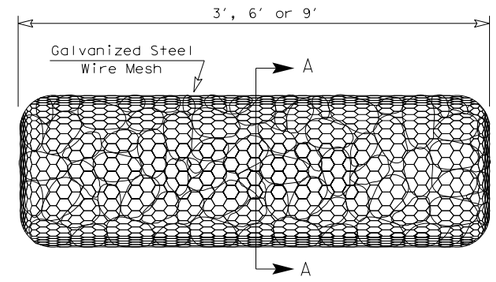
PLAN VIEW



"V" SHAPE
PLAN VIEW

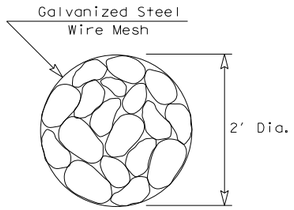
¾" Dia.
Rebar Stakes

SECTION B-B

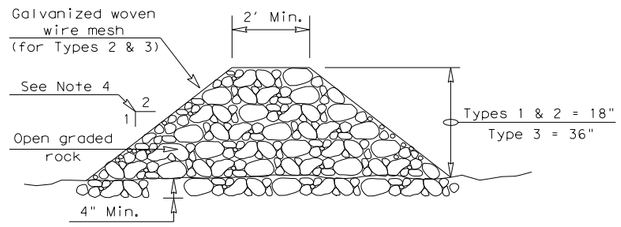


TYPE 4 (SACK GABIONS)

RFD4



SECTION A-A



SECTION C-C

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	0920	12	047		VARIOUS	
	DIST	COUNTY			SHEET NO.	
	BMT	JASPER			113	

DATE: 1/25/2022
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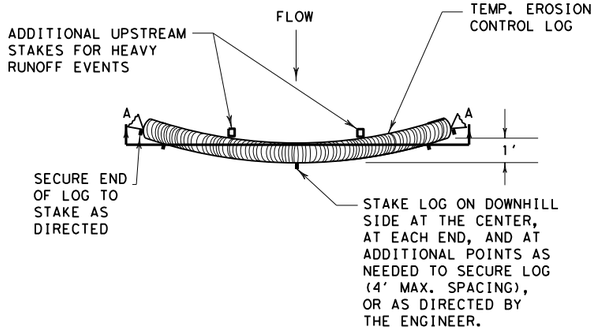
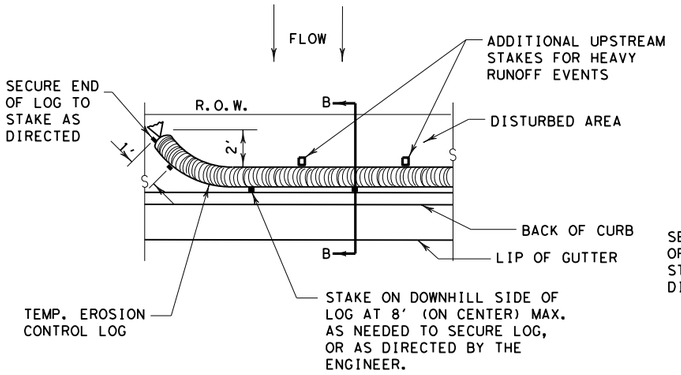


PLAN VIEW



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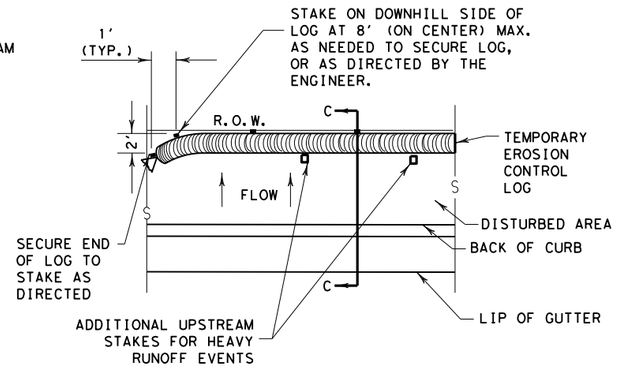

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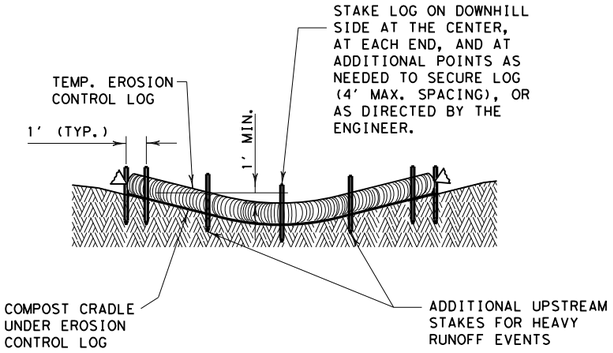
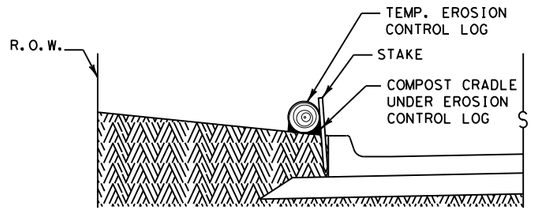


SECTION A-A

EROSION CONTROL LOG DAM

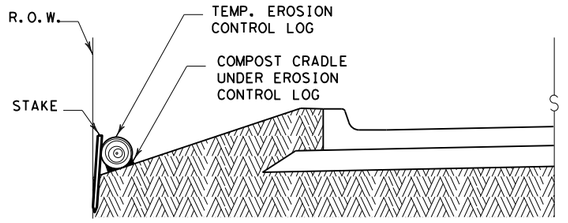
CL-D



SECTION B-B

EROSION CONTROL LOG AT BACK OF CURB

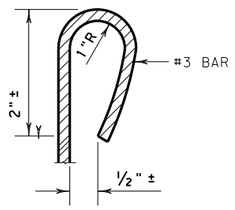
CL-BOC



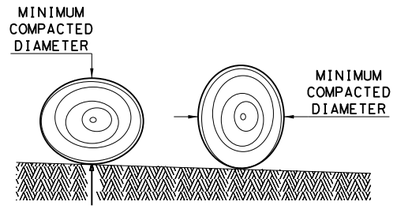
SECTION C-C

EROSION CONTROL LOG AT EDGE OF RIGHT-OF-WAY

CL-ROW



REBAR STAKE DETAIL



DIAMETER MEASUREMENTS OF EROSION CONTROL LOGS SPECIFIED IN PLANS

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.

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

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.

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	0920	12	047	VARIOUS
	DIST	COUNTY		SHEET NO.
	BMT	JASPER		114

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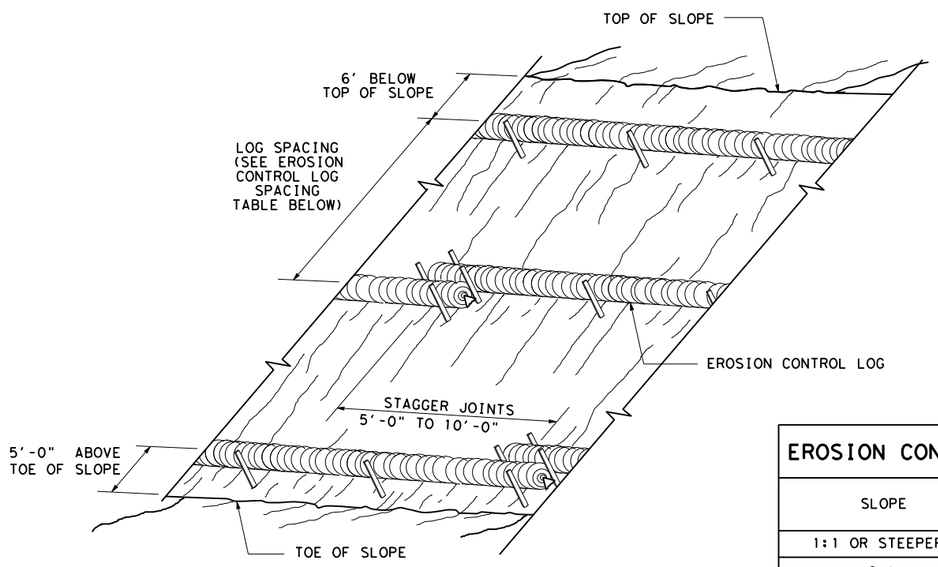
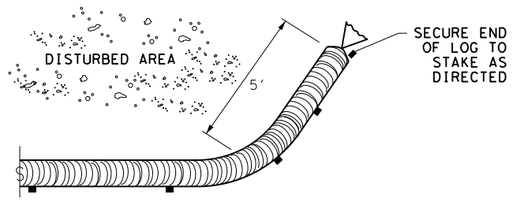


EROSION CONTROL LOGS ON SLOPES
STAKE AND TRENCHING ANCHORING

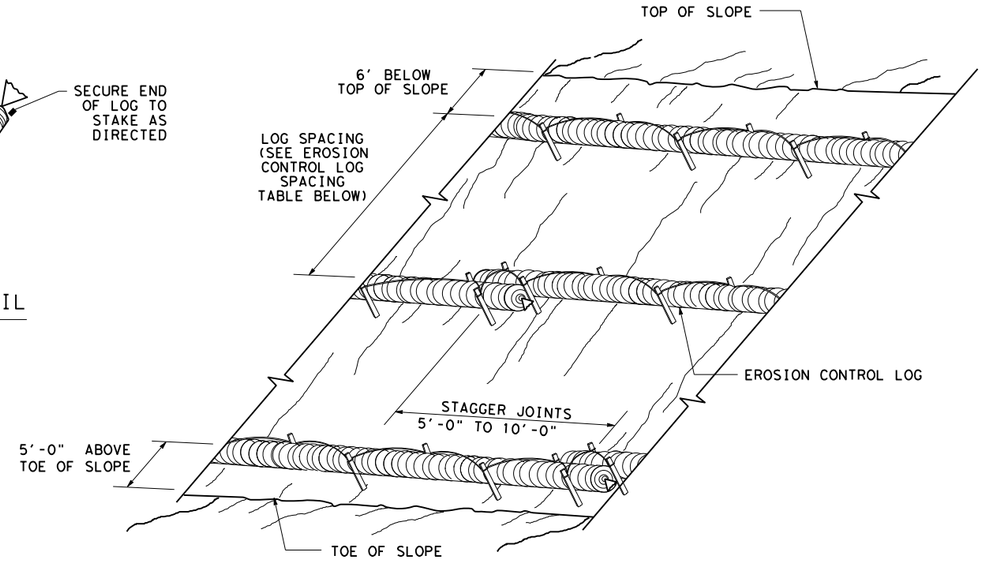
CL-SST



END SECTION RAP DETAIL

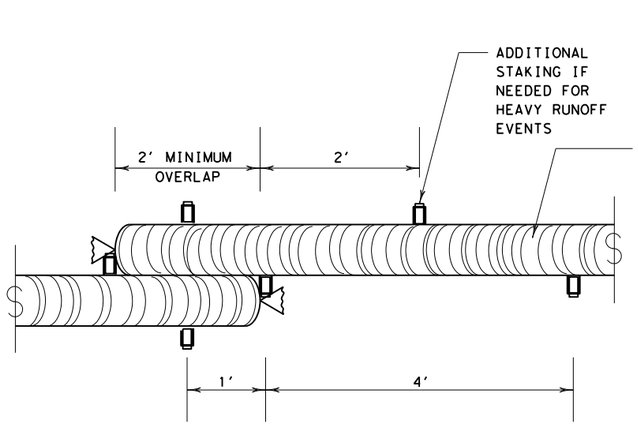
EROSION CONTROL LOG SPACING TABLE				
SLOPE	LOG DIAMETER			
	6"	8"	12"	18"
1:1 OR STEEPER	5'	10'	15'	20'
2:1	10'	20'	30'	40'
3:1	15'	30'	45'	60'
4:1 OR FLATTER	20'	40'	60'	80'

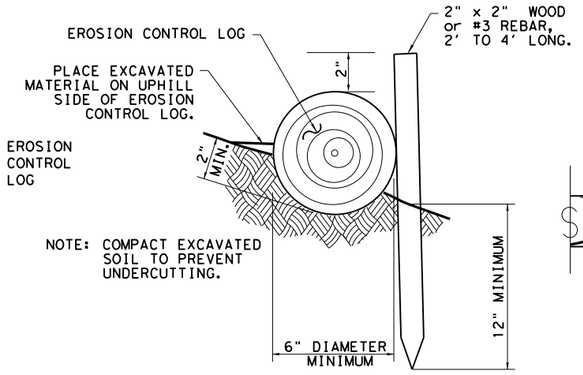
* ADJUSTMENTS CAN BE MADE FOR SOIL TYPE:
SOFT, LOAMY SOILS-ADJUST ROWS CLOSER TOGETHER;
HARD, ROCKY SOILS- ADJUST ROWS FARTHER APART



EROSION CONTROL LOGS ON SLOPES
STAKE AND LASHING ANCHORING

CL-SSL

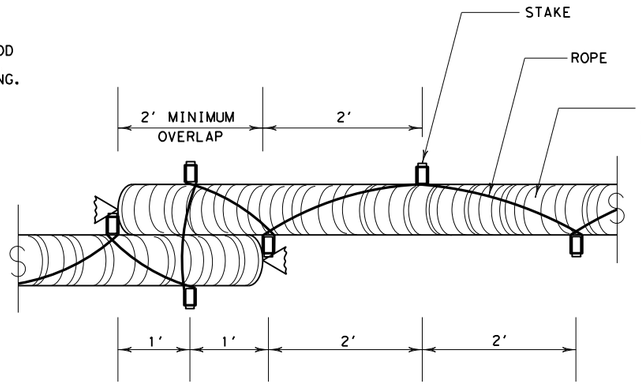


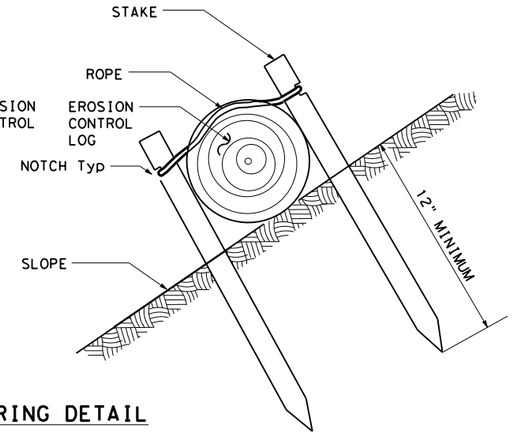


STAKE AND TRENCHING ANCHORING DETAIL

CL-SST

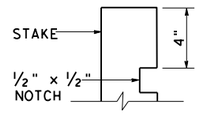
TRENCH DEPTH TABLE	
LOG DIAMETER	DEPTH
6"	2"
8"	3"
12"	4"
18"	5"





STAKE AND LASHING ANCHORING DETAIL

CL-SSL



STAKE NOTCH DETAIL

SHEET 2 OF 3

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	
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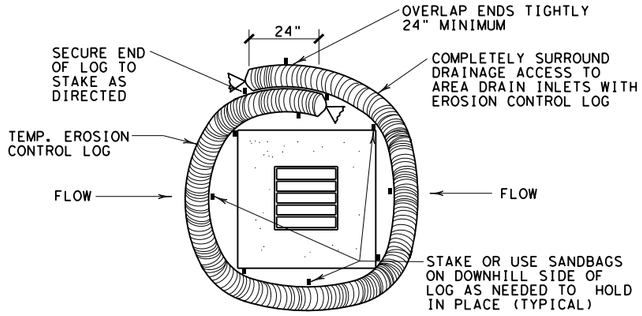
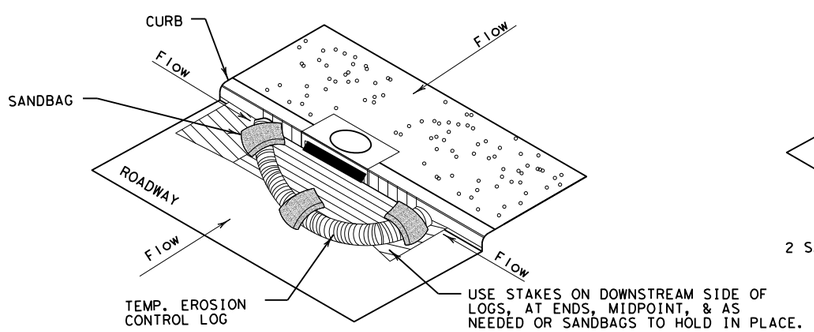


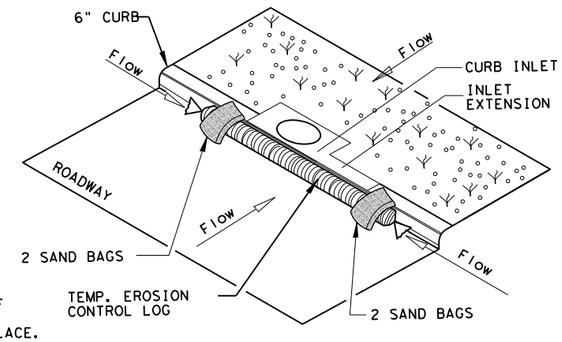
EROSION CONTROL LOG AT DROP INLET

CL-DI



EROSION CONTROL LOG AT CURB INLET

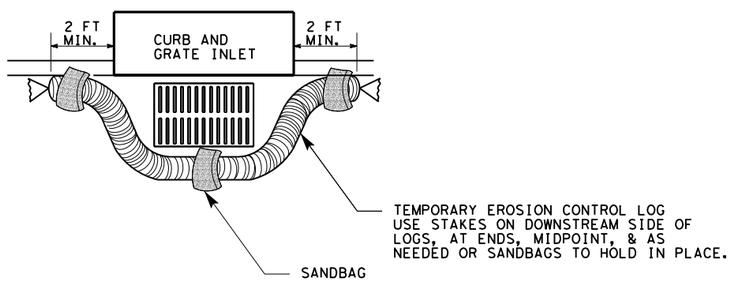
CL-CI



EROSION CONTROL LOG AT CURB INLET

CL-CI

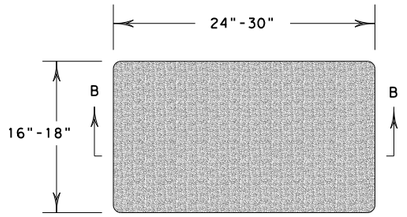
NOTE:
EROSION CONTROL LOGS USED AT CURB INLETS SHOULD ONLY BE USED IF THEY WILL NOT IMPEDE TRAFFIC OR FLOOD THE ROADWAY OR WHEN THE STORM SEWER SYSTEM IS NOT FULLY FUNCTIONAL.



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	0920	12	047	VARIOUS
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	BMT	JASPER		116