CONT	SECT	JOB	HIGHWAY
1586	01	079	FM 907
DIST	COUNTY		SHEET NO.
PHR	HIDALGO		1

STATE OF TEXAS
DEPARTMENT OF TRANSPORTATION

PLANS OF PROPOSED
STATE HIGHWAY IMPROVEMENT

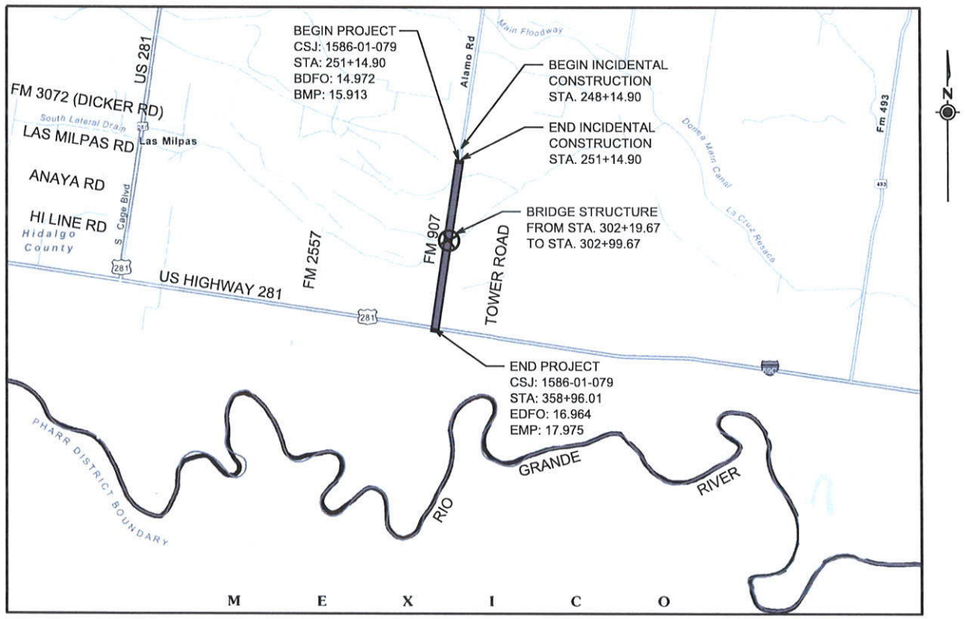
FEDERAL AID PROJECT NUMBER
BR 2022(665)
CSJ: 1586-01-079

NET LENGTH OF PROJECT = 10,781.11 FEET = 2.041 MILES
- ROADWAY = 10,701.11 FEET = 2.026 MILES
- BRIDGE = 80.0 FEET = 0.015 MILES

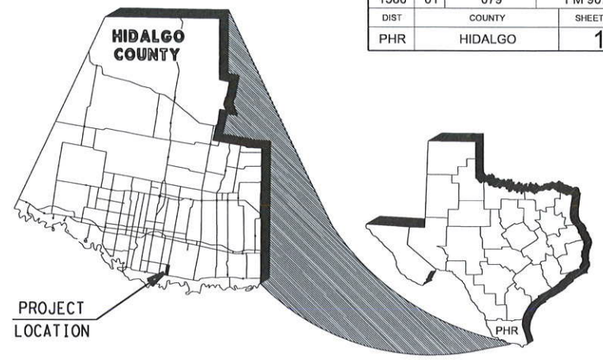
HIDALGO COUNTY
FM 907

LIMITS FROM: FM 3072 (DICKER ROAD)
TO: U.S. 281 (MILITARY ROAD)

FOR THE REHABILITATION OF AN EXISTING ROADWAY CONSISTING OF GRADING, LIME TREATMENT SUBGRADE, CEMENT TREATMENT FLEXIBLE BASE, ASPH. CONCRETE PAVEMENT AND STRIPING & RAISED PAVEMENT MARKERS



LOCATION MAP: NOT TO SCALE



PROJECT DATA

EXCEPTIONS:
NONE

EQUATION:
NONE

POSTED SPEED:
60 MPH

DESIGN SPEED:
60 MPH

RAILROAD CROSSINGS:
NONE

INCIDENTAL CONSTRUCTION:
STA. 248+14.90 TO STA. 251+14.90 (FM 907)
STA. 10+00.00 TO STA. 12+34.37 (WEST ANAYA RD.)
STA. 10+42.53 TO STA. 12+75.00 (EAST ANAYA RD.)

TRAFFIC DATA

HIGHWAY FUNCTIONAL CLASS:
MINOR ARTERIAL

FROM: FM 3072 (DICKER RD)
TO: US 281 (MILITARY RD)

TRAFFIC VOLUMES: 2020 ADT 4,196
2040 ADT 5,874

PERCENT TRUCKS: 17.2% ADT

INDEX OF SHEETS

SHEET NO.	DESCRIPTION
1	TITLE SHEET
2	INDEX OF SHEETS

FINAL PLANS

DATE OF LETTING: _____

DATE WORK BEGAN: _____

DATE WORK COMPLETED: _____

DATE WORK ACCEPTED: _____

FINAL CONTRACT COST: _____

CONTRACTOR: _____

LIST OF APPROVED FIELD CHANGES, CHANGE ORDERS & SUPPLEMENTAL AGREEMENTS:

THIS IS TO CERTIFY THAT ALL CONSTRUCTION SUBSTANTIAL WORK WAS PERFORMED IN ACCORDANCE WITH THE PLANS SPECIFICATIONS AND CONTRACT.ALL PROPOSED CONSTRUCTION WAS COMPLETED UNLESS OTHERWISE NOTED.

_____ _____
RENE GARZA, P.E. DATE
PHARR AREA ENGINEER

LOCAL ENTITIES

CONCURRENCE: DATE: 5/2/22

Sonny Arispe
HIDALGO COUNTY IRRIGATION DISTRICT NO. 2

CONCURRENCE: DATE:

HIDALGO COUNTY DRAINAGE DISTRICT NO. 1

TDLR INSPECTION NOT REQUIRED

SPECIFICATIONS ADOPTED BY THE TEXAS DEPARTMENT OF TRANSPORTATION ON 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).

RECOMMENDED FOR LETTING: DATE: 3/30/2022

DocuSigned by: Pedro R. Alvarez
EABA335C2DAA48C...
DISTRICT ENGINEER

SUBMITTED FOR LETTING: DATE: 3/30/2022

DocuSigned by: Romualdo Mena Jr
8D365A956E70440...
DISTRICT CENTRAL DESIGN SUPERVISOR

FILE: c:\txdot\pw*online\txdot5\jose.rodriguez5\d0304074\FM 907 TitleSheet.dgn
DATE: 3/8/2022 9:12:24 AM

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6-8	PROPOSED TYPICAL SECTIONS
9	SEAL COAT MATERIAL SELECTION TABLE "UNDERSEAL"
10-17,17A,17B	GENERAL NOTES AND SPECIFICATION DATA
18-19,19A,19B	ESTIMATE & QUANTITY SHEETS
20-23	SUMMARY TABLES OF ESTIMATED QUANTITIES
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40-42	TRAFFIC CONTROL DETOUR LAYOUT
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# 52	[S] BC (2)-21
# 53	[S] BC (3)-21
# 54	[S] BC (4)-21
# 55	[S] BC (5)-21
# 56	[S] BC (6)-21
# 57	[S] BC (7)-21
# 58	[S] BC (8)-21
# 59	[S] BC (9)-21
# 60	[S] BC (10)-21
# 61	[S] BC (11)-21
# 62	[S] BC (12)-21
# 63	[S] TCP (1-2)-18
# 64	[S] TCP (2-1)-18
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# 257	[S] EC (3)-16
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# 261-262	[D] BIRD EXCLUSION DETAILS

LEGEND

[S] STATE STANDARDS
[D] DISTRICT STANDARDS

THE STANDARD SHEETS SPECIFICALLY IDENTIFIED WITH A " ## " HAVE BEEN ISSUED BY ME AND ARE APPLICABLE TO THIS PROJECT.

STATE OF TEXAS
AGUSTIN RAMIREZ
96453
LICENSED PROFESSIONAL ENGINEER

Agustin Ramirez, P.E.
4/27/2022

THE STANDARD SHEETS SPECIFICALLY IDENTIFIED WITH A " # " HAVE BEEN ISSUED BY ME AND ARE APPLICABLE TO THIS PROJECT.

STATE OF TEXAS
JOSE A. RODRIGUEZ
117308
LICENSED PROFESSIONAL ENGINEER

04/27/22

Pharr District Central Design

Texas Department of Transportation

FM 907

INDEX OF SHEETS

SHEET 1 OF 1

CONT	SECT	JOB	HIGHWAY
1586	01	079	FM 907
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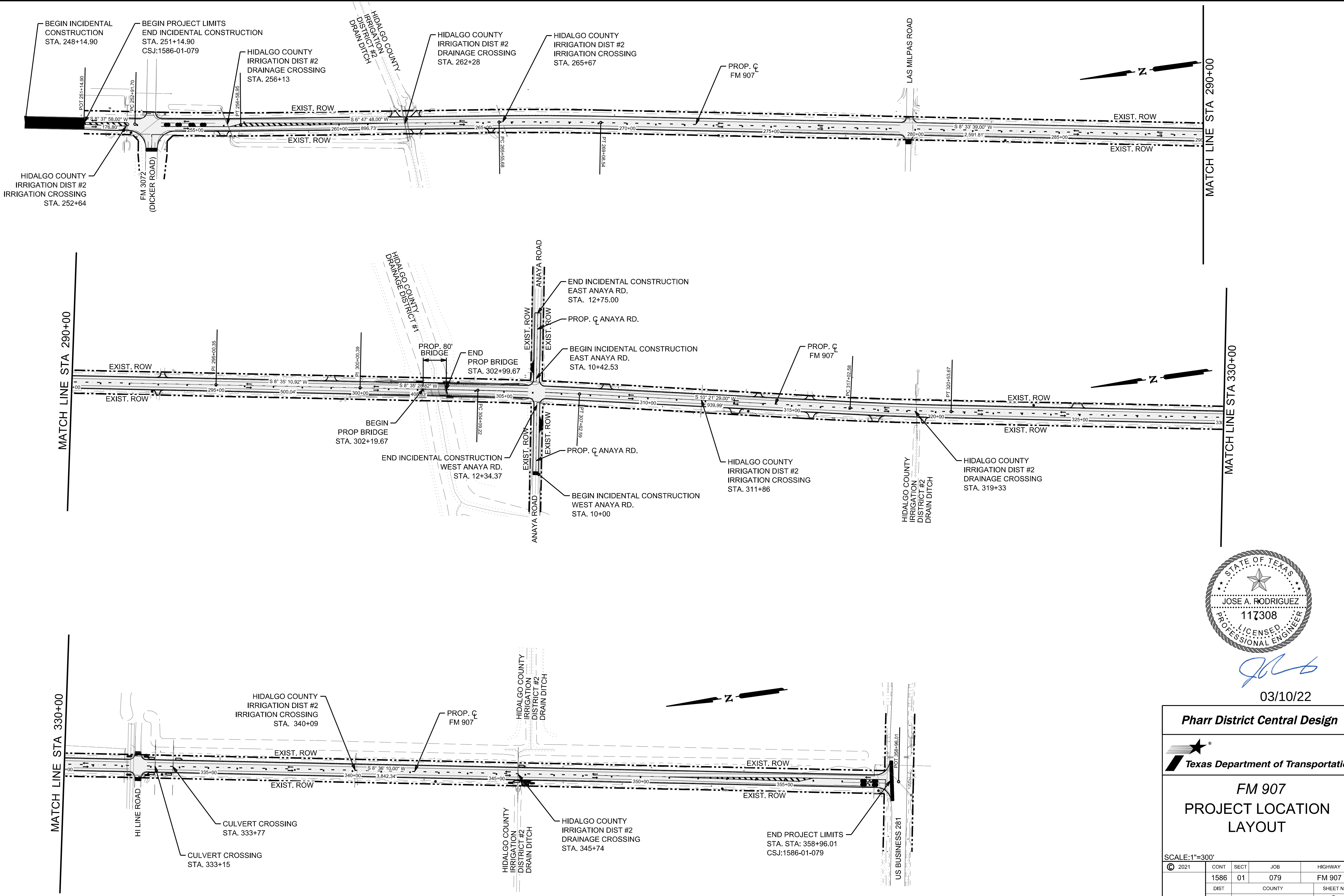

Pharr District Central Design

Texas Department of Transportation

FM 907

PROJECT LOCATION LAYOUT

SCALE:1"=300'

© 2021	CONT	SECT	JOB	HIGHWAY
	1586	01	079	FM 907
	DIST	COUNTY		SHEET NO.
	PHR	HIDALGO		3

DATE: 3/3/2022 9:28:21 AM
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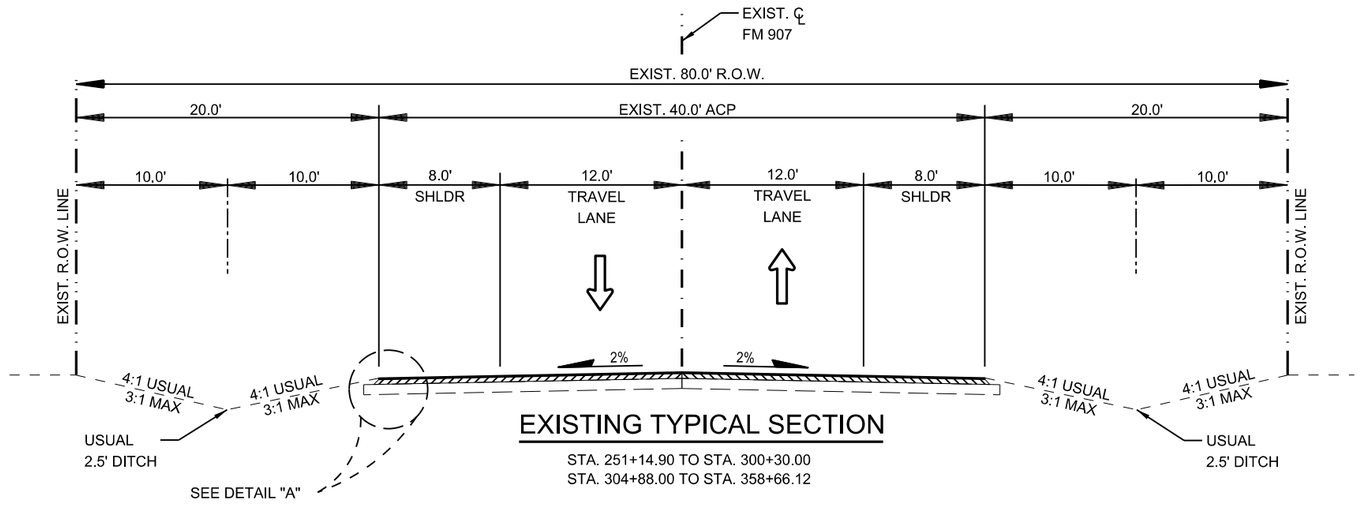
GENERAL NOTES

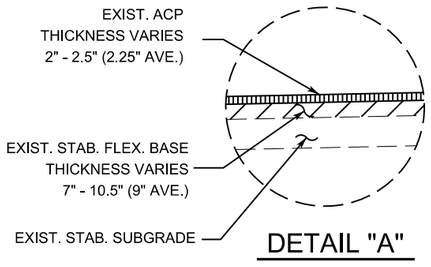
THE EXISTING ACP IS TO BE SALVAGE IN ACCORDANCE WITH ITEM 305, ALL SURPLUS RAP WILL REMAIN THE PROPERTY OF THE CONTRACTOR.

THE EXISTING BASE MATERIAL TO BE SALVAGE IN ACCORDANCE WITH ITEM 251, ANY EXCESS BASE MATERIAL SHALL BECOME PROPERTY OF THE CONTRACTOR.

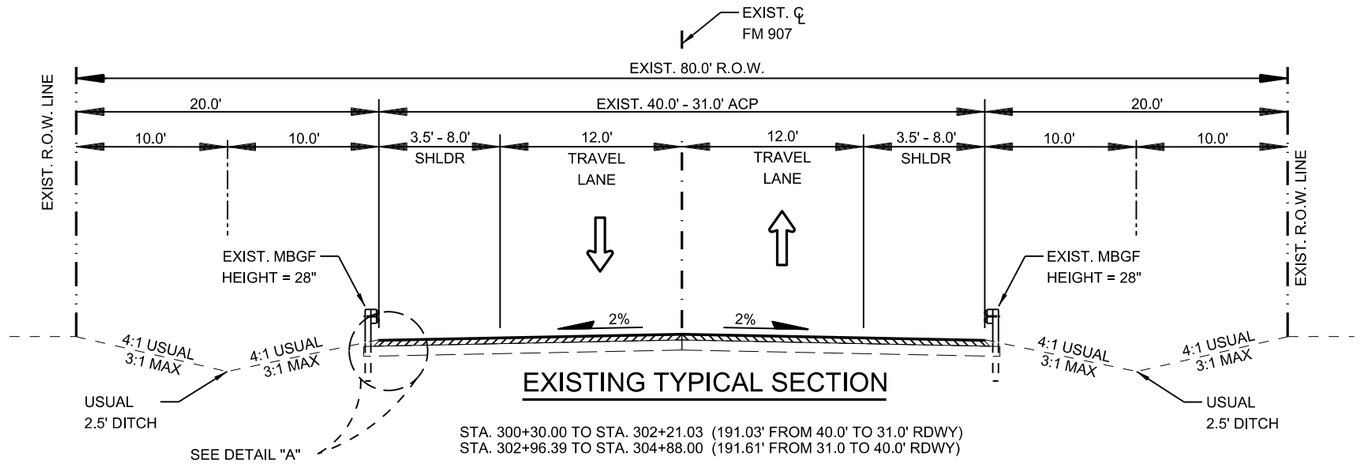


EXISTING TYPICAL SECTION

STA. 251+14.90 TO STA. 300+30.00
STA. 304+88.00 TO STA. 358+66.12

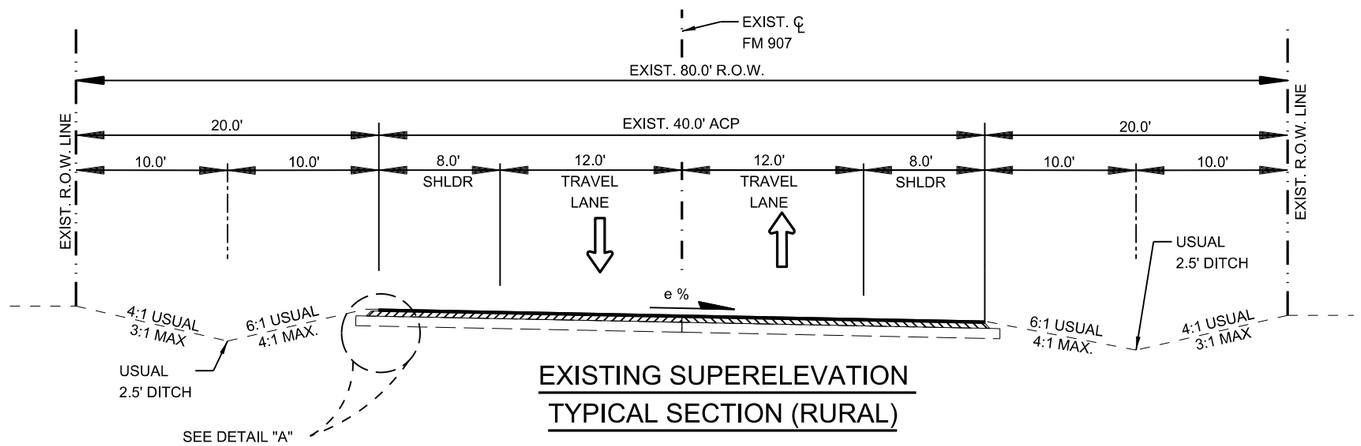


DETAIL "A"



EXISTING TYPICAL SECTION

STA. 300+30.00 TO STA. 302+21.03 (191.03' FROM 40.0' TO 31.0' RDWY)
STA. 302+96.39 TO STA. 304+88.00 (191.61' FROM 31.0 TO 40.0' RDWY)



EXISTING SUPERELEVATION TYPICAL SECTION (RURAL)

STATE OF TEXAS
JOSE A. RODRIGUEZ
117308
LICENSED PROFESSIONAL ENGINEER

09/07/21

Pharr District Central Design

Texas Department of Transportation

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EXISTING TYPICAL SECTIONS

SCALE: N.T.S.

SHEET 1 OF 2

© 2021	CONT	SECT	JOB	HIGHWAY
	1586	01	079	FM 907
	DIST	COUNTY		SHEET NO.
	PHR	HIDALGO		4

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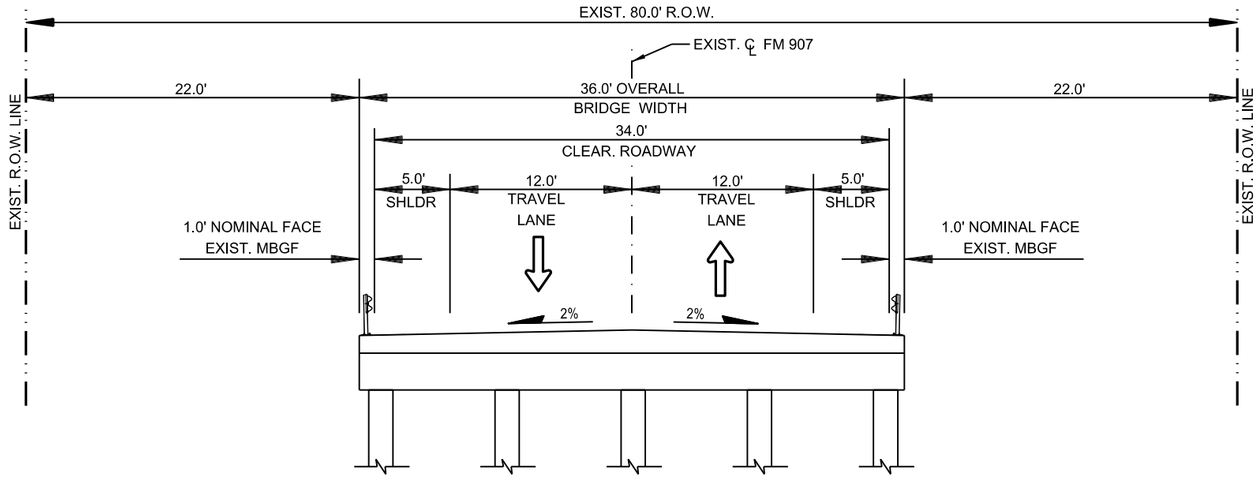
GENERAL NOTES

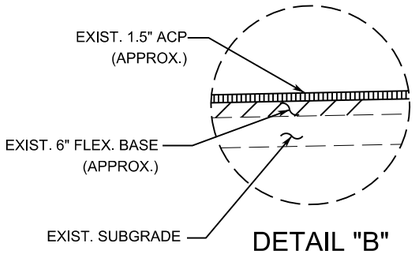
THE EXISTING ACP IS TO BE SALVAGE IN ACCORDANCE WITH ITEM 305, ALL SURPLUS RAP WILL REMAIN THE PROPERTY OF THE CONTRACTOR.

THE EXISTING BASE MATERIAL TO BE SALVAGE IN ACCORDANCE WITH ITEM 251, ANY EXCESS BASE MATERIAL SHALL BECOME PROPERTY OF THE CONTRACTOR.

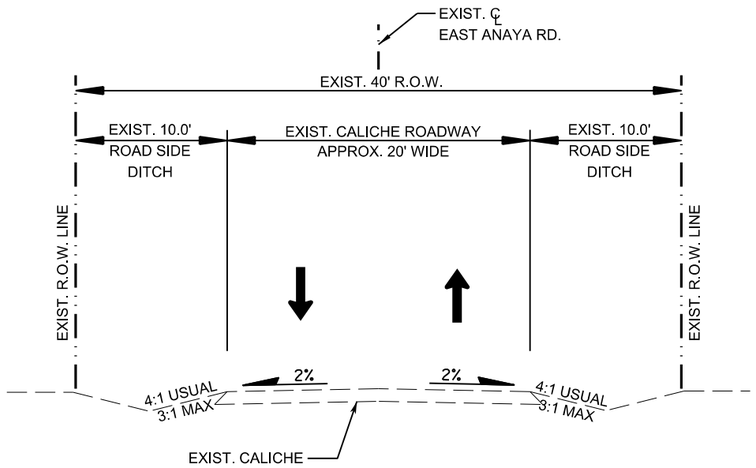


EXISTING BRIDGE TYPICAL SECTION

STA. 302+21.03 TO 302+96.39

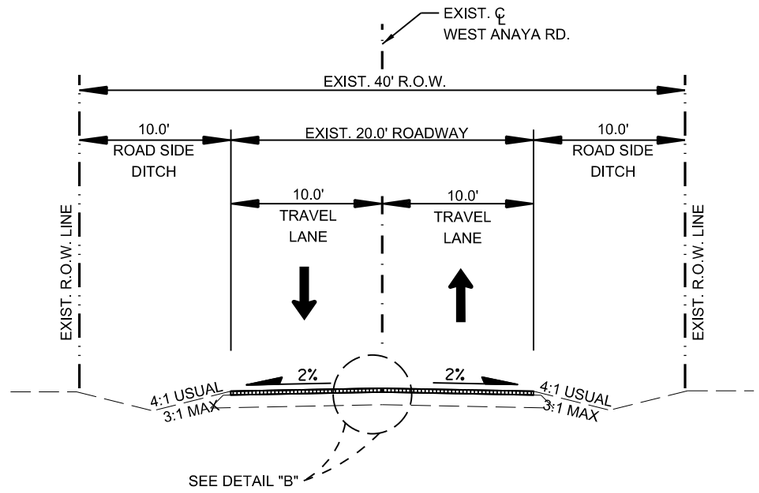


DETAIL "B"



EXIST EAST ANAYA RD. TYPICAL SECTION

STA. 10+42.53 TO STA. 12+75.00



EXIST WEST ANAYA RD. TYPICAL SECTION

STA. 10+00.00 TO STA. 12+34.37

STATE OF TEXAS
JOSE A. RODRIGUEZ
117308
LICENSED
PROFESSIONAL ENGINEER

09/07/21

Pharr District Central Design

Texas Department of Transportation

FM 907

EXISTING TYPICAL SECTIONS

SCALE: N.T.S.

SHEET 2 OF 2

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1586	01	079	FM 907
DIST	COUNTY		SHEET NO.
PHR	HIDALGO		5

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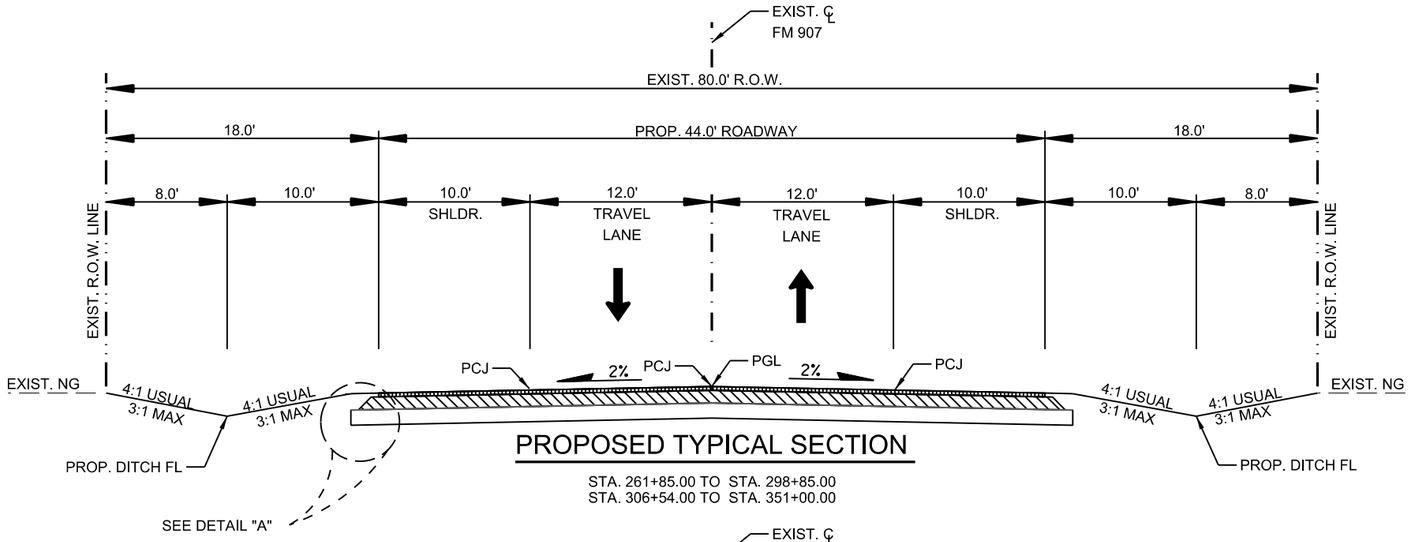
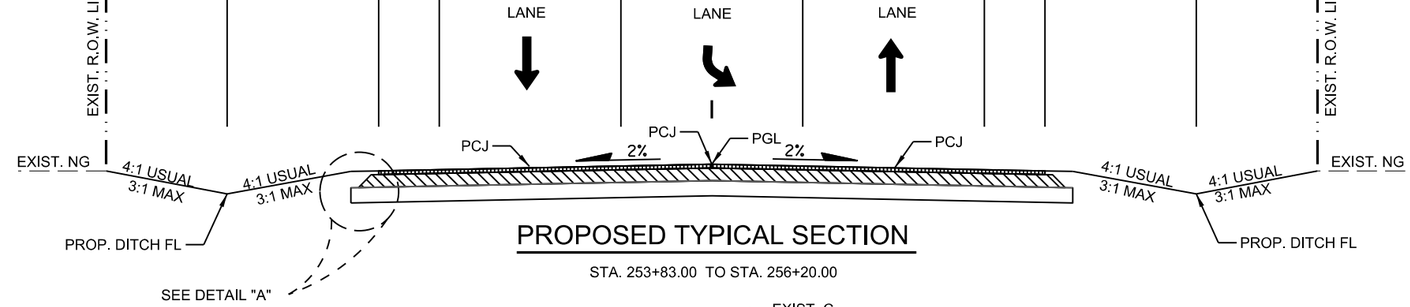


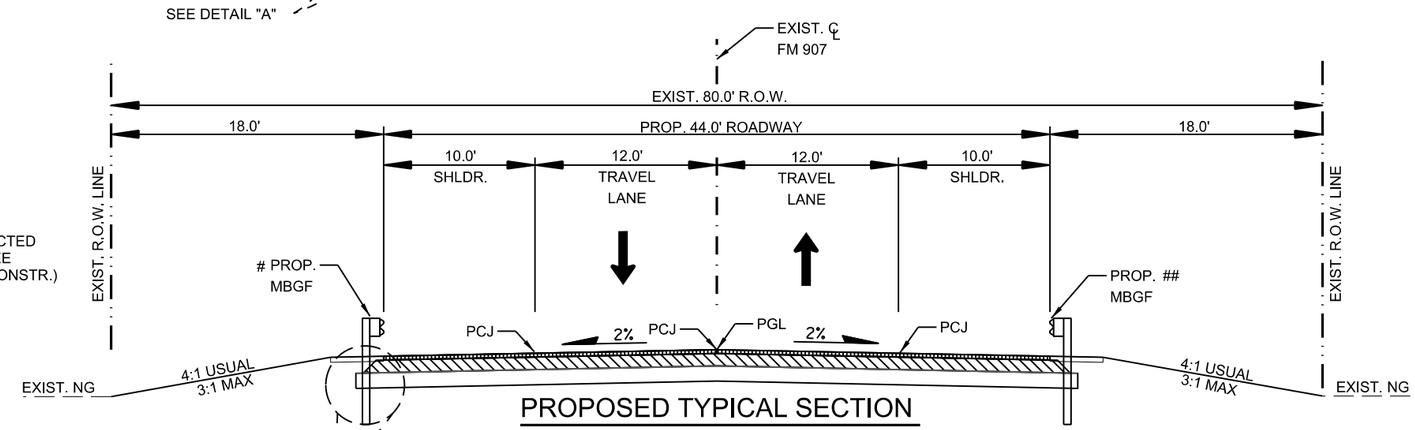
PROPOSED TYPICAL SECTION

STA. 261+85.00 TO STA. 298+85.00
STA. 306+54.00 TO STA. 351+00.00



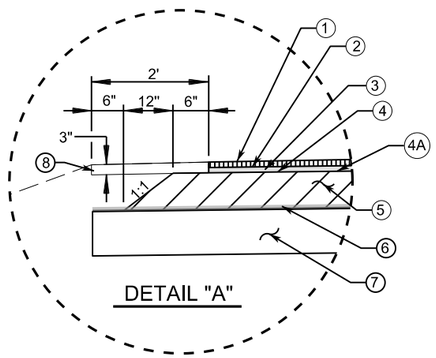
PROPOSED TYPICAL SECTION

STA. 253+83.00 TO STA. 256+20.00



PROPOSED TYPICAL SECTION

STA. 298+85.00 TO STA. 302+19.67
STA. 302+99.67 TO STA. 303+89.96
STA. 305+65.47 TO STA. 306+54.00
\# STA. 301+04.98 TO STA. 302+00.40
STA. 300+16.82 TO STA. 302+12.23
\# STA. 303+07.76 TO STA. 303+75.00
STA. 303+19.55 TO STA. 303+89.96



DETAIL "A"

LEGEND:

(1)	PROPOSED 1.5" SP-D PG 76-22 SAC A	TO BE CONSTRUCTED ON PHASE IV (SEE SEQUENCE OF CONSTR.)
(2)	PROPOSED BONDING COURSE	
(3)	PROPOSED 1.5" SP-D PG 76-22 SAC A	
(4)	PROPOSED 1 COURSE UNDERSEAL TRT.	
(4A)	PROPOSED MC-30 PRIME COAT	
(5)	PROPOSED 12" TY E GR 4 W/ 2 % CEMENT ADMIX BY WT FLEX BASE (2 EQ LIFTS)	
(6)	TYPE II GEOGRID	
(7)	PROPOSED 12" LIME TREATED SUBGRADE W/ 6% LIME ADMIX BY WT. (LIMED SUBGRADE SHALL BE CURED FOR A MIN. OF FIVE DAYS PER STANDARD SPECIFICATION 260.4.8)	
(8)	PROPOSED TY "A" BACKFILL (ITEM 134) (NOT APPLICABLE AT DRIVEWAYS, ROADWAY TURNOUTS, AND AT PROPOSED CONCRETE MOWSTRIP LOCATIONS)	

GENERAL NOTES

PCJ - DENOTES PERMISSIBLE CONSTRUCTION JOINT

PGL - DENOTES PROFILE GRADE LINE

WHERE POSSIBLE AND UNLESS OTHERWISE DIRECTED BY THE ENGINEER, PERMISSIBLE CONSTRUCTION JOINTS SHALL FALL ON STRIPING LINES AS SHOWN ON STRIPING DETAILS.

WHERE REQUIRED BY FIXTURES OR UNUSUAL CONDITIONS THE GOVERNING SLOPES MAY BE VARIED WHEN SPECIFICALLY DIRECTED BY THE ENGINEER.

THE SUBGRADE SHALL BE SHAPED, BLADED, ROLLED AND PROOF ROLLED A MINIMUM DISTANCE OF 24" BEYOND THE EDGE OF THE PROPOSED BASE COURSE.

A STATION EQUALS 100 FT.

114 LBS/SY IS EQUIVALENT TO 1" OF ACP

1-COURSE SURF. TREATM. - ASPH (TIER II)0.30 GAL/SY (APPROX) W/ AGGREGATE (TY-D GR 4P)(SAC-B) AT 1 CY/120 SY

PRIME COAT - 0.20 GAL/SY

BONDING COURSE - 0.07 GAL/SY (FOR ESTIMATING PURPOSES ONLY - RATE TO BE DETERMINED AND SET IN THE FIELD BY THE ENGINEER)

FLEXIBLE BASE WT - 3375 LBS/CY (APPROX)(COMPACTED)
SUBGRADE WT - 2970 LBS/CY (APPROX)(COMPACTED)

ALL GRADING SHALL BE WITHIN THE R.O.W. LIMITS

SAW CUT WILL BE SUBSIDIARY TO THE OTHER ROADWAY ITEMS.

A 3:1 MAX SLOPE SHALL BE PROVIDED AT THE END OF EACH WORKING DAY ON ALL EXPOSED EDGES OF ROADWAY CONSTRUCTION OR EXCAVATION.

MIN. COVER OF 4" OF NEW FLEX. BASE WILL BE REQUIRED WHERE SALVAGE IS PART OF FLEX BASE.

THE EXISTING BITUMINOUS MATERIAL IS TO BE SALVAGE IN ACCORDANCE WITH ITEM 305.

ANY EXCESS MATERIAL SHALL BECOME PROPERTY OF THE CONTRACTOR AND SHALL BE HAULED OFF.

STATE OF TEXAS
JOSE A. RODRIGUEZ
117308
LICENSED
PROFESSIONAL ENGINEER

03/10/22

Pharr District Central Design

Texas Department of Transportation

FM 907

PROPOSED TYPICAL SECTIONS

SCALE: N.T.S. SHEET 1 OF 3

© 2021	CONT	SECT	JOB	HIGHWAY
	1586	01	079	FM 907
	DIST	COUNTY		SHEET NO.
	PHR	HIDALGO		6

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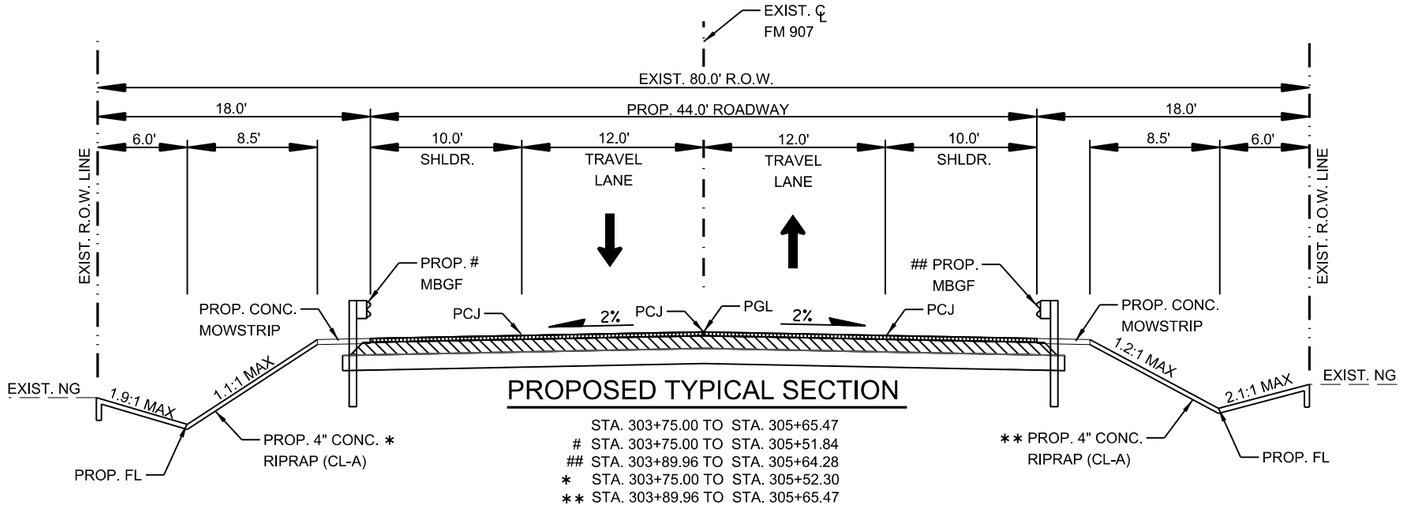
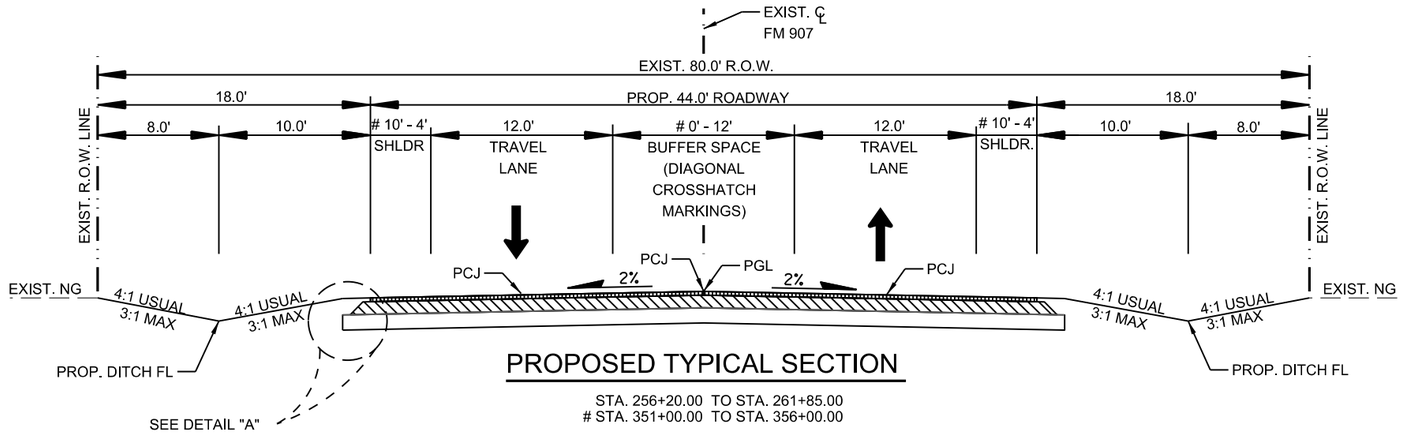


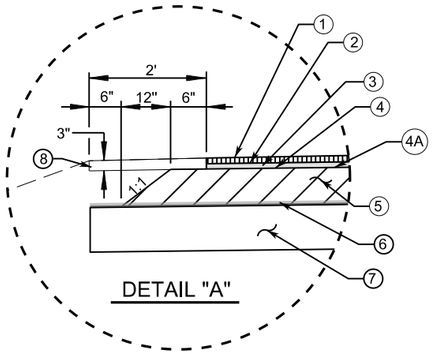
PROPOSED TYPICAL SECTION

STA. 303+75.00 TO STA. 305+65.47
\# STA. 303+75.00 TO STA. 305+51.84
STA. 303+89.96 TO STA. 305+64.28
∗ STA. 303+75.00 TO STA. 305+52.30
∗∗ STA. 303+89.96 TO STA. 305+65.47



PROPOSED TYPICAL SECTION

STA. 256+20.00 TO STA. 261+85.00
\# STA. 351+00.00 TO STA. 356+00.00



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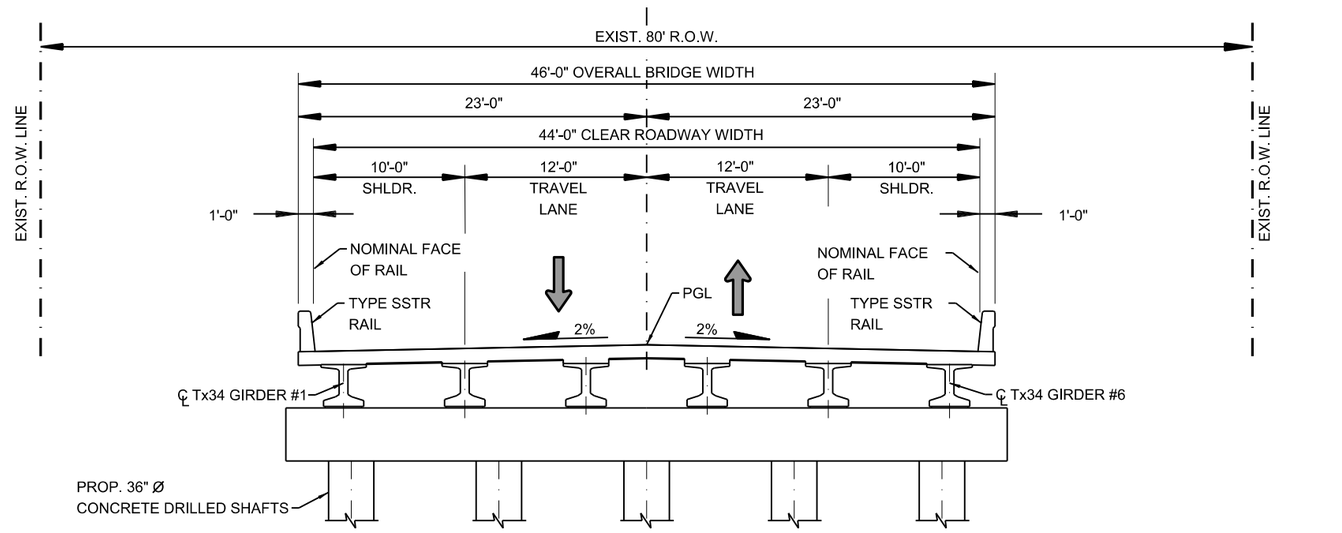

PROPOSED BRIDGE TYPICAL SECTION

STA. 302+19.67 TO STA. 302+99.67

LEGEND:

1. PROPOSED 1.5" SP-D PG 76-22 SAC A — TO BE CONSTRUCTED ON PHASE IV (SEE SEQUENCE OF CONSTR.)
2. PROPOSED BONDING COURSE — TO BE CONSTRUCTED ON PHASE IV (SEE SEQUENCE OF CONSTR.)
3. PROPOSED 1.5" SP-D PG 76-22 SAC A
4. PROPOSED 1 COURSE UNDERSEAL TRT.
4A. PROPOSED MC-30 PRIME COAT
5. PROPOSED 12" TY E GR 4 W/ 2 % CEMENT ADMIX BY WT FLEX BASE (2 EQ LIFTS)
6. TYPE II GEOGRID
7. PROPOSED 12" LIME TREATED SUBGRADE W/ 6% LIME ADMIX BY WT. (LIMED SUBGRADE SHALL BE CURED FOR A MIN. OF FIVE DAYS PER STANDARD SPECIFICATION 260.4.8)
8. PROPOSED TY "A" BACKFILL (ITEM 134) (NOT APPLICABLE AT DRIVEWAYS, ROADWAY TURNOUTS, AND AT PROPOSED CONCRETE MOWSTRIP LOCATIONS)

GENERAL NOTES

PCJ - DENOTES PERMISSIBLE CONSTRUCTION JOINT

PGL - DENOTES PROFILE GRADE LINE

WHERE POSSIBLE AND UNLESS OTHERWISE DIRECTED BY THE ENGINEER, PERMISSIBLE CONSTRUCTION JOINTS SHALL FALL ON STRIPING LINES AS SHOWN ON STRIPING DETAILS.

WHERE REQUIRED BY FIXTURES OR UNUSUAL CONDITIONS THE GOVERNING SLOPES MAY BE VARIED WHEN SPECIFICALLY DIRECTED BY THE ENGINEER.

THE SUBGRADE SHALL BE SHAPED, BLADED, ROLLED AND PROOF ROLLED A MINIMUM DISTANCE OF 24" BEYOND THE EDGE OF THE PROPOSED BASE COURSE.

A STATION EQUALS 100 FT.

114 LBS/SY IS EQUIVALENT TO 1" OF ACP

1-COURSE SURF. TREATM. - ASPH (TIER II)0.30 GAL/SY (APPROX) W/ AGGREGATE (TY-D GR 4P)(SAC-B) AT 1 CY/120 SY

PRIME COAT - 0.20 GAL/SY

BONDING COURSE - 0.07 GAL/SY (FOR ESTIMATING PURPOSES ONLY - RATE TO BE DETERMINED AND SET IN THE FIELD BY THE ENGINEER)

FLEXIBLE BASE WT - 3375 LBS/CY (APPROX)(COMPACTED)
SUBGRADE WT - 2970 LBS/CY (APPROX)(COMPACTED)

ALL GRADING SHALL BE WITHIN THE R.O.W. LIMITS

SAW CUT WILL BE SUBSIDIARY TO THE OTHER ROADWAY ITEMS.

A 3:1 MAX SLOPE SHALL BE PROVIDED AT THE END OF EACH WORKING DAY ON ALL EXPOSED EDGES OF ROADWAY CONSTRUCTION OR EXCAVATION.

MIN. COVER OF 4" OF NEW FLEX. BASE WILL BE REQUIRED WHERE SALVAGE IS PART OF FLEX BASE.

THE EXISTING BITUMINOUS MATERIAL IS TO BE SALVAGE IN ACCORDANCE WITH ITEM 305.

ANY EXCESS MATERIAL SHALL BECOME PROPERTY OF THE CONTRACTOR AND SHALL BE HAULED OFF.

STATE OF TEXAS
JOSE A. RODRIGUEZ
117308
LICENSED PROFESSIONAL ENGINEER

03/10/22

Pharr District Central Design

Texas Department of Transportation

FM 907

PROPOSED TYPICAL SECTIONS

SCALE: N.T.S. SHEET 2 OF 3

© 2021	CONT	SECT	JOB	HIGHWAY
	1586	01	079	FM 907
	DIST	COUNTY		SHEET NO.
	PHR	HIDALGO		7

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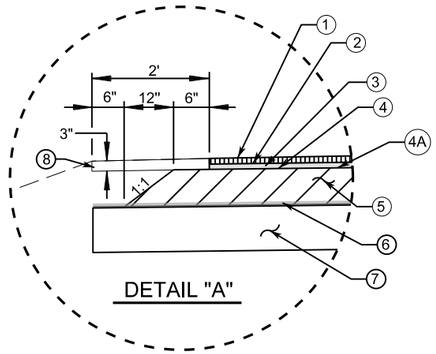

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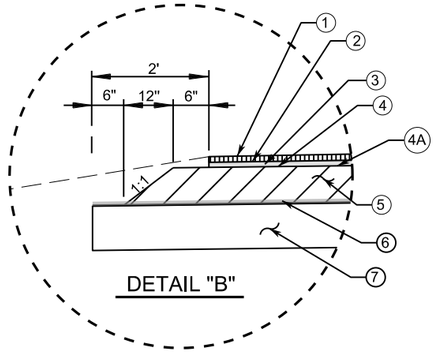

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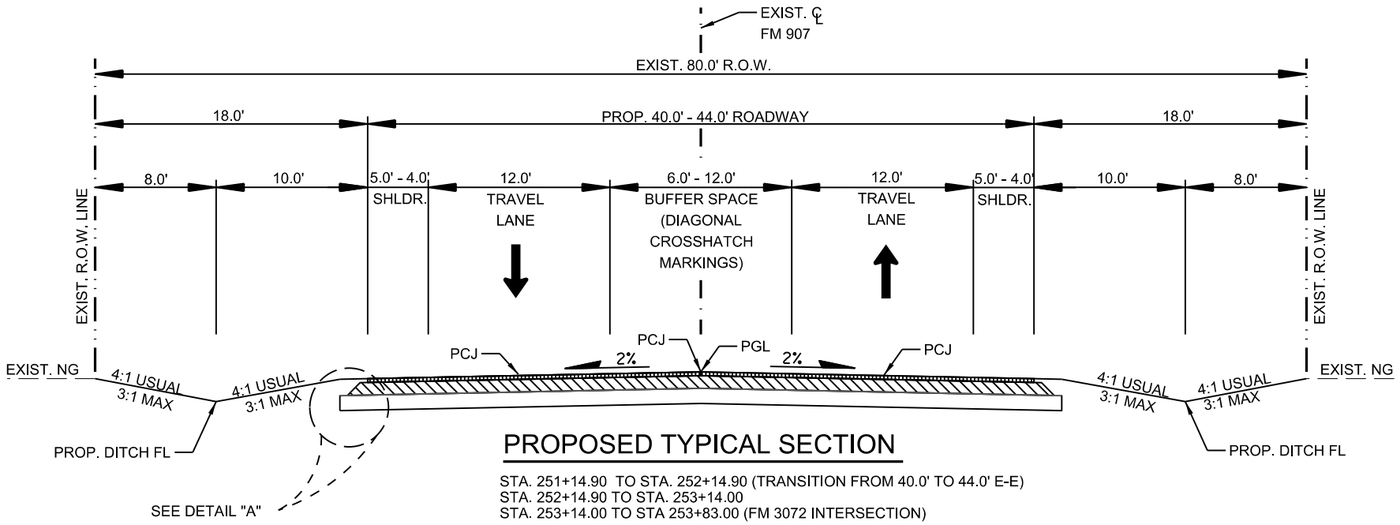
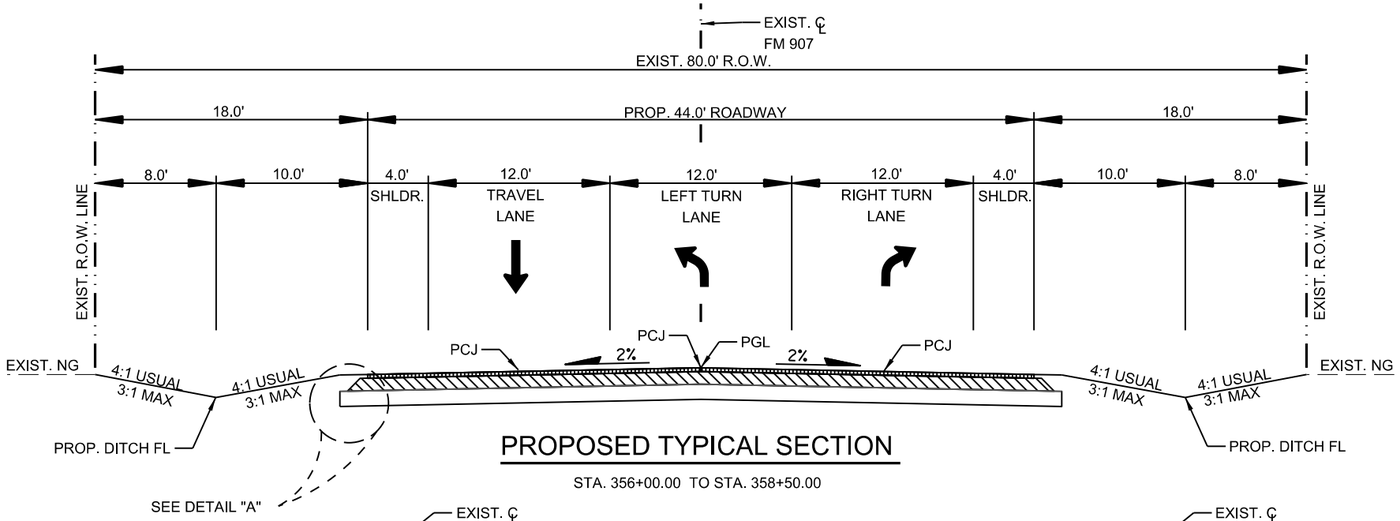


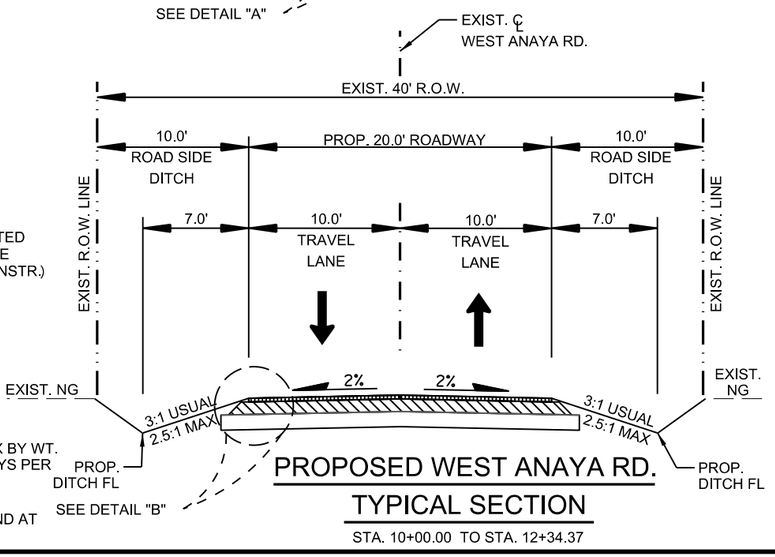
PROPOSED TYPICAL SECTION

STA. 251+14.90 TO STA. 252+14.90 (TRANSITION FROM 40.0' TO 44.0' E-E)
STA. 252+14.90 TO STA. 253+14.00
STA. 253+14.00 TO STA 253+83.00 (FM 3072 INTERSECTION)



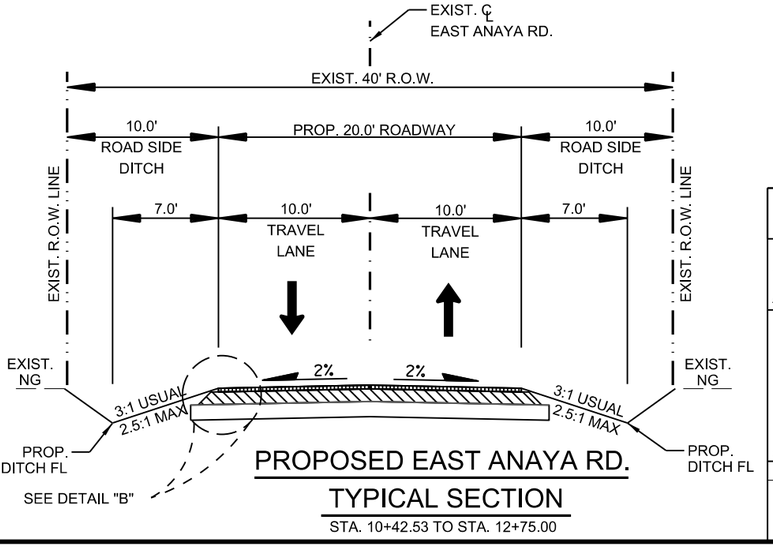
PROPOSED TYPICAL SECTION

STA. 356+00.00 TO STA. 358+50.00



PROPOSED WEST ANAYA RD.
TYPICAL SECTION

STA. 10+00.00 TO STA. 12+34.37



PROPOSED EAST ANAYA RD.
TYPICAL SECTION

STA. 10+42.53 TO STA. 12+75.00

LEGEND:

(1)	PROPOSED 1.5" SP-D PG 76-22 SAC A	TO BE CONSTRUCTED ON PHASE IV (SEE SEQUENCE OF CONSTR.)
(2)	PROPOSED BONDING COURSE	
(3)	PROPOSED 1.5" SP-D PG 76-22 SAC A	
(4)	PROPOSED 1 COURSE UNDERSEAL TRT.	
(4A)	PROPOSED MC-30 PRIME COAT	
(5)	PROPOSED 12" TY E GR 4 W/ 2 % CEMENT ADMIX BY WT FLEX BASE (2 EQ LIFTS)	
(6)	TYPE II GEOGRID	
(7)	PROPOSED 12" LIME TREATED SUBGRADE W/ 6% LIME ADMIX BY WT. (LIMED SUBGRADE SHALL BE CURED FOR A MIN. OF FIVE DAYS PER STANDARD SPECIFICATION 260.4.8)	
(8)	PROPOSED TY "A" BACKFILL (ITEM 134) (NOT APPLICABLE AT DRIVEWAYS, ROADWAY TURNOUTS, AND AT PROPOSED CONCRETE MOWSTRIP LOCATIONS)	

GENERAL NOTES

PCJ - DENOTES PERMISSIBLE CONSTRUCTION JOINT

PGL - DENOTES PROFILE GRADE LINE

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WHERE REQUIRED BY FIXTURES OR UNUSUAL CONDITIONS THE GOVERNING SLOPES MAY BE VARIED WHEN SPECIFICALLY DIRECTED BY THE ENGINEER.

THE SUBGRADE SHALL BE SHAPED, BLADED, ROLLED AND PROOF ROLLED A MINIMUM DISTANCE OF 24" BEYOND THE EDGE OF THE PROPOSED BASE COURSE.

A STATION EQUALS 100 FT.

114 LBS/SY IS EQUIVALENT TO 1" OF ACP

1-COURSE SURF. TREATM. - ASPH (TIER II)0.30 GAL/SY (APPROX) W/ AGGREGATE (TY-D GR 4P)(SAC-B) AT 1 CY/120 SY

PRIME COAT - 0.20 GAL/SY

BONDING COURSE - 0.07 GAL/SY (FOR ESTIMATING PURPOSES ONLY - RATE TO BE DETERMINED AND SET IN THE FIELD BY THE ENGINEER)

FLEXIBLE BASE WT - 3375 LBS/CY (APPROX)(COMPACTED)
SUBGRADE WT - 2970 LBS/CY (APPROX)(COMPACTED)

ALL GRADING SHALL BE WITHIN THE R.O.W. LIMITS

SAW CUT WILL BE SUBSIDIARY TO THE OTHER ROADWAY ITEMS.

A 3:1 MAX SLOPE SHALL BE PROVIDED AT THE END OF EACH WORKING DAY ON ALL EXPOSED EDGES OF ROADWAY CONSTRUCTION OR EXCAVATION.

MIN. COVER OF 4" OF NEW FLEX. BASE WILL BE REQUIRED WHERE SALVAGE IS PART OF FLEX BASE.

THE EXISTING BITUMINOUS MATERIAL IS TO BE SALVAGE IN ACCORDANCE WITH ITEM 305.

ANY EXCESS MATERIAL SHALL BECOME PROPERTY OF THE CONTRACTOR AND SHALL BE HAULED OFF.

STATE OF TEXAS
JOSE A. RODRIGUEZ
117308
LICENSED PROFESSIONAL ENGINEER

09/07/21

Pharr District Central Design

Texas Department of Transportation

FM 907

PROPOSED TYPICAL SECTIONS

SCALE: N.T.S. SHEET 3 OF 3

© 2021	CONT	SECT	JOB	HIGHWAY
	1586	01	079	FM 907
	DIST	COUNTY		SHEET NO.
	PHR	HIDALGO		8

DATE: 8/31/2021 3:45:22 PM
FILE: c:\txdot\pw_online\txdot5\pwonline_juan.avilad\0304074\Proposed Typical Section.dgn

SEAL COAT MATERIAL SELECTION TABLE

Contractor:
1) Provide materials according to the alternates selected for the roadway tier designations specified at various roadway locations shown on the plans;
2) Alternately supply selected binders from a higher tier, but only if the type of material is allowed for the designated tier; payment will only be made for the tier designated for the pavement;
3) Supply the aggregate type, grade and surface aggregate class that is shown to be allowed with the binder used; and
4) Adhere to the application season selected.

☐ Tier 1: Heavy Use (>5,000 ADT) Use only the selected materials.

	Asphalt Rubber (A-R)	Asphalt Cement (A-C)
Type	☐ A-R Only	☐ A-C Only
Asphalt	☐ A-R Ty II ☐ SP 300-016&039 ☐ A-R Ty III	☐ AC-20-5TR ☐ AC-20XP ☐ AC-15P
Aggregate Type	☐ Ty PA ☐ Ty PB ☐ Ty PC ☐ Ty PD ☐ Ty PE ☐ Ty PL	☐ Ty PA ☐ Ty PB ☐ Ty PC ☐ Ty PD ☐ Ty PE ☐ Ty PL
Aggregate Grade	☐ 3S ☐ 3non-lw ☐ 3 lw ☐ 4S ☐ 4P ☐ SP 302-013	☐ 3S ☐ 4S ☐ 5 ☐ 3non-lw ☐ 4P ☐ 5S ☐ 3 lw ☐ SP 302-1
Aggregate SAC	☐ A ☐ B	☐ A ☐ B

☒ Tier 2: Moderate Use (500-5,000 ADT)

Use this materials or any selected Tier 1 materials combinations of the allowed types

	Asphalt Cement (A-C)	Asphalt Emulsion
Type	☒ A-C Only	☐ Emulsion Only
Asphalt	☒ AC-10-2TR ☒ AC-5 W/2% SBR ☒ AC-10 ☒ AC-10 W/2% SBR ☐ AC-15P	☐ CHFRS-2P ☐ CRS-2P ☐ HFRS-2P ☐ SP 300-016&039
Aggregate Type	☐ Ty PA ☐ Ty PB ☐ Ty PC ☐ Ty PD ☐ Ty PE ☐ Ty PL ☒ Allow uncoated aggregate	☐ Ty A ☐ Ty B ☐ Ty C ☐ Ty D ☐ Ty E ☐ Ty L
Aggregate Grade	☐ 3S ☐ 4S ☐ 5 ☐ 3non-lw ☒ 4P ☐ 5S ☐ 3 lw ☒ SP 302-008	☐ 3S ☐ 4S ☐ 5S ☐ 3non-lw ☐ 4P ☐ 5 ☐ 3 lw ☐ SP 302-013
Aggregate SAC	☐ A ☒ B	☐ A ☐ B

☐ Tier 3: Moderate Use (<500 ADT) Use this materials or any selected Tier 1 or Tier 2 materials combinations of the allowed types

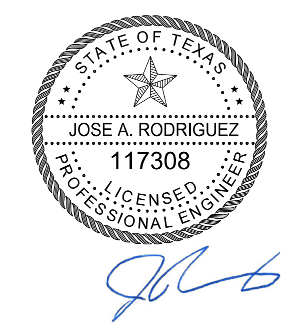
	Asphalt Cement (A-C)	Asphalt Emulsion
Type	☐ A-C Only	☐ Emulsion Only
Asphalt	☐ AC-10-2TR ☐ AC-5 W/2% SBR ☐ AC-20XP ☐ SP 300-016&039 ☐ AC-10 W/2% SBR ☐ AC-15P	☐ CRS-2 ☐ CRS-2H ☐ HFRS-2 ☐ SP 300-016&039
Aggregate Type	☐ Ty PA ☐ Ty PB ☐ Ty PC ☐ Ty PD ☐ Ty PE ☐ Ty PL	☐ Ty A ☐ Ty B ☐ Ty C ☐ Ty D ☐ Ty E ☐ Ty L
Aggregate Grade	☐ 3S ☐ 4S ☐ 5 ☐ 3non-lw ☐ 4P ☐ 5S ☐ 3 lw ☐ SP 302-013	☐ 3S ☐ 4S ☐ ☐ 3non-lw ☐ 4P ☐ 5 ☐ 3 lw ☐ SP 302-013
Aggregate SAC	☐ A ☐ B	☐ A ☐ B

Seasonal Alternates: Use these materials for work in cooler conditions as directed.

☒ CRS-2 ☒ HFRS-2 ☐ CRS-1P ☐ RS-1P ☐ RC-250 ☐ MC-800 ☐ AC-12-5-TR ☐ SP 300-016&032

Seal Coat Seasons: Refer to Item 316 for temperature and weather restrictions.

☒ Season 4: CRP, LRD, PHR	Apr 1 to Sept 30



03/10/22

Texas Department of Transportation
Design Division (Roadway)

SEAL COAT MATERIAL
SELECTION TABLE
"UNDERSEAL"

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© TxDOT June 2011	DIST: PHR	FEDERAL AID PROJECT		SHEET: 9
REVISIONS: September 2020	COUNTY: HIDALGO	CONTROL: 1586	SECT: 01	JOB: 079
				HIGHWAY: FM 907

FILE: c:\txdot\pw-online\txdot5\pwonline-juan.avila\d0304074\SCTABLE-UNDERSEAL11-17.dgn
DATE: 2/18/2022 8:30:10 AM

2014 SPECS GENERAL NOTES:

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General Requirements and Covenants to ITEMS 1 thru 9

For all pits or quarries, comply with the "Texas Aggregate Quarry and Pit Safety Act."

Provide on a weekly basis a list of equipment, including idle equipment, utilized on the project that week.

The 1-800 call services for utility locations do not include TxDOT facilities. Contact the Pharr District Signal Section (956-702-6225) for coordination regarding TxDOT underground lines.

ITEM 2: Instructions to Bidders

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

Rene Garza, P.E., Pharr Area Engineer; Rene.Garza@txdot.gov

Jesus Noriega, P.E., Assist. Area Engineer; Jesus.Noriega@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 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, and CCSJ/Project Name.

ITEM 5: Control of the Work

The responsibility for the construction surveying on this contract will be in accordance with Article 5.9.1., "Method A."

Prior to contract letting, bidders may obtain a free computerized transfer of files (from the Engineer's office) that contains the earthwork information. If copies of the actual cross-sections in additional to, or instead of the electronic files are requested, they will be available at the Engineer's office for borrowing by copying companies for the purpose of making copies for the bidder at the bidder's expense.

"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. Impacts to the project schedule and any additional costs resulting from the use of alternates are the sole responsibility of the Contractor."

ITEM 7: Legal Relations and Responsibilities

No significant traffic generator events identified.

ITEM 8: Prosecution and Progress

Where road closures or detours around structures are necessary to accomplish proposed work, the removal of existing structures and/or cutting of existing pavement will not be permitted until all precast members for the proposed structure have been cast, tested, and approved for use.

TxDOT is required to provide 10 working days advanced written notice of all proposed bridge widening, rehabilitation, or demolition work to the Texas Department of State Health Services (TDSHS) to allow them the opportunity to both verify information provided regarding asbestos containing materials and abatement and observe the demolition/renovation work. Considering that this notice will be provided TDSHS at the beginning of the project for all affected bridge work based on start and finish dates included in the Contractor's original submitted work schedule, any schedule changes proposed by the Contractor shall be submitted to TxDOT at least 15 days prior to the revised or original start date to accommodate the required coordination with TDSHS.

Working days will be computed and charged in accordance with Article 8.3.1.6. defined as follows:

Work and time charges will continue until the start of the bird nesting season. Upon the start of the bird nesting season, work and time charges will stop for a maximum period of 120-Working days for the bird nesting season delay to be completed. Time charges in accordance with Article 8.3.1.4. will resume at the end of the 120-day bird nesting season delay or earlier if mutually agreed in writing by the Engineer and Contractor.

Prepare progress schedules using the Critical Path Method (CPM).

ITEM 100: Preparing Right of Way

Preparation of right of way will be done in accordance with the construction phasing shown on the Traffic Control Plans. Performance of this item will not be allowed outside of the project's current construction phase without prior approval by the Engineer.

Removal of all existing vegetation and trees within the ROW will be subsidiary to prep ROW.

ITEM 132: Embankment

Embankment (DENS CONT) shall be Type C with a max. PI of 40. Material used as embankment material in the top two feet below the bottom of Flexible Base shall meet the following requirements based on preliminary tests and such other tests found necessary by the Engineer.

1. The material shall be such as to produce a well-bonded embankment and shall have a minimum PI of 8 and a maximum PI of 30.

It is the Contractor's responsibility to advise the Engineer of the location of the source sufficiently in advance to avoid delay.

ITEM 134: Backfilling Pavement Edges

Areas to be backfilled shall extend approximately 3-ft out from the edges of the proposed overlay. Final slopes shall be uniform and smooth. The 100-foot station payment includes backfilling of both sides.

Backfill Ty A shall not contain particles more than two inches in size and shall have a minimum PI of 10 and a maximum PI of 20.

Any additional backfill material necessary due to pre-existing edge conditions or to replace existing fill removed during blading operations will not be paid for directly. It will be considered subsidiary to this bid Item.

ITEM 160: Topsoil

Use topsoil as needed and directed by the Project Engineer for select problem areas. Unless otherwise approved by the Project Engineer, use topsoil from approved sources outside the right of way as per standard specifications. Existing topsoil is to be salvaged and retained for re-use on the project as topsoil.

ITEM 166: Fertilizer

Fertilizer rate is based on a rate of 100 Lbs. of Nitrogen per acre. The Nitrogen-Phosphorous Potassium (NPK) ratio shall include a minimum of 5% Phosphorous and 5% Potassium.

Fertilizer shall be homogenized.

Project Number:

County: Hidalgo **Control:** 1586-01-079

Highway: FM 907

ITEM 247: Flexible Base

Flexible Base (TY E GR 4) caliche shall conform to the following requirements:

Retained on Sq. Sieve	Percent Retained
2”	0
½”	20-60
No. 4	40-75
No. 40	70-90
Max. PI:	15
Max. Wet Ball PI:	15
Wet Ball Mill Max Amount:	50
Min. Comp. Strength PSI:	150 at 15 PSI lateral pressure
Triaxial Test	Tex-117-E

The Wet Ball Test (Tex-116-E) shall be run and the Plasticity Index of the material passing the No.40 sieve shall be determined (Wet Ball PI).

The percent of density as determined by Compaction Ratio (Tex-113-E) for the new Flexible Base shall be a minimum of 98%.

The Contractor's attention is called to the fact that certain existing and/or proposed structures may be within the limits of the Flexible Base. It shall be the Contractor's responsibility to perform construction operations without damage to these structures.

For water added under Item 247, the sulfate content will not exceed 3000-ppm and the chloride content will not exceed 3000-ppm.

Perform base ride quality testing for all base with only one lift of ACP or a seal coat as the final surface in accordance with Item 247. Perform base ride quality testing before placing the ACP or seal coat.

ITEM 251: Reworking Base Courses

Quantities of Flexible Base to be salvaged, shown on the typical sections, are for estimating purposes only. All acceptable base material encountered in existing base is to be salvaged as directed by the Engineer regardless of the quantities involved.

Salvaged base shall be used in the bottom course on any of the proposed roadway and/or turnout sections.

Salvaged base may be used on any of the proposed driveway sections.

All surplus salvage base not used on the project will remain the property of the Contractor, unless otherwise directed by Engineer.

ITEM 260: Lime Treatment (Road-Mixed)

The Contractor's attention is called to the fact that certain existing and/or proposed structures are within the limits of the lime-treated Subgrade. Unless otherwise directed by the Engineer, these structures shall be installed before the final rolling of this Subgrade. It shall be the Contractor's responsibility to perform the proper lime treating operation without damage to these structures.

The slurry method of applying lime will be required, except when the lime is to be added to naturally wet materials as directed by the Engineer.

For this project, the Engineer will direct a random number of lime trucks to be check weighed.

The percent of density as determined by Tex-121-E for the new and salvage Flexible Base shall be a minimum of 98% for all courses.

In order to avoid damaging the Geogrid, add lime to the first lift of new base and/or salvage base at a central mixing site or mixing plant away from the construction area. The Engineer shall approve the site or plant location and method of mixing.

Proof roll all constructed lime treated subgrade and bases courses in accordance with Item 216, “Proof Rolling.” Correct soft spots as directed. Correction of soft spots in the subgrade or base courses will be at the Contractor’s expense.

Contractor is to place an underseal and/or pavement course as indicated on plans within 14 calendar days of initial prime coat application. Otherwise, reapply prime coat as directed by the Engineer. Reapplication of the prime coat will be at the Contractor’s expense.

Allow the mixture to mellow for a minimum period of 48 hours for all types of lime utilized. Additional time might be required due to sulfate and organic testing requirements, as directed by Engineer.

ITEM 275: Cement Treatment (Road-Mixed)

The percent of density as determined by Tex-120-E for the new and salvage Flexible Base shall be a minimum of 98% for all courses.

Proof roll all constructed cement treated subgrade and bases courses in accordance with Item 216, “Proof Rolling.” Correct soft spots as directed. Correction of soft spots in the subgrade or base courses will be at the Contractor’s expense.

In order to avoid damaging the Geogrid, add cement to the first lift of new base and/or salvage base at a central mixing site or mixing plant away from the construction area. The Engineer shall approve the site or plant location and method of mixing.

Contractor is to place an underseal and/or pavement course as indicated on plans within 14 calendar days of initial prime coat application. Otherwise, reapply prime coat as directed by the Engineer. Reapplication of the prime coat will be at the Contractor’s expense.

ITEM 3096: Asphalts, Oils, and Emulsions

Temporary ramps/detours and driveways may use Performance Grade Binder 64-22.

ITEM 301: Asphalt Antistripping Agents

Hydrated Lime shall be added as an Antistripping additive between the rates of 1% minimum and 2.0% maximum by weight for Items 292, 346, 3076 and 3077. If the Hamburg Wheel Test cannot be met within these limits, Liquid Antistripping agents as approved by the Engineer may be used in conjunction with lime for Items 346, 3076, and 3077.

ITEM 302: Aggregates for Surface Treatments

Loc.	County	CSJ	Highway	Tier	SAC
1	Hidalgo	1586-01-079	FM 907	II	B

* Crushed gravel will not be allowed on the above locations noted with (*).

The aggregate for the surface treatment shall be surface dry before application unless otherwise directed by the Engineer.

ITEM 305: Salvaging, Hauling, and Stockpiling Reclaimable Asphalt Pavement

Stockpile **2,865 cubic yards** of material generated from the project at designated site located 1.37 miles north of the City of Edcouch, Texas at **Latitude: 26°18’49”N Longitude: 97°57’39”W**. Contractor shall coordinate the stockpiling area with the TxDOT Edcouch Maintenance Office. Ensure this material meets the requirements of Item 305 when stockpiled at above specified location.

ITEM 310: Prime Coat

The Contractor shall exercise diligence in the application of asphalt by the use of flagging and rolling procedures to keep from spraying or splattering the traveling public with asphaltic material.

All existing Flexible Base, which may become exposed by the milling operation, shall be primed at the rate of 0.2 Gal/SY.

Do not apply subsequent courses over the initial prime coat no earlier than 12 hours after the prime coat was applied, unless otherwise authorized or directed by the Engineer.

ITEM 314: Emulsified Asphalt Treatment

The Contractor shall exercise diligence in the application of emulsified asphalt by the use of flagging to keep from spraying or splattering the traveling public with asphaltic material.

ITEM 316: Seal Coat

In addition to cleaning by brooming of paved surfaces to be sealed as required by this Item, blading may also be necessary to clean dirt and grass from edges of the pavement and/or turnout areas. The cost of this blading will not be paid for directly but will be considered subsidiary to the various bid Items of the project.

The type and grade of asphalt as shown on the plans and/or as directed by the Engineer, shall be used on these projects. Asphalt cement will be used during the warm season. An emulsified asphalt will be used during the cooler season if permitted in writing by the Engineer. The emulsified asphalt, if used, shall be HFRS 2P. Estimated quantities shown for the bid Item is based on an average of the estimated rates of application for asphaltic cement and emulsified asphalt. These rates should be used for estimating and comparison purposes only.

The one or two-course surface treatment shall be in place for a sufficient period of time in the opinion of the Engineer, for the surface treatment to properly dry and cure before placing the Asphaltic Concrete Pavement.

Traffic will not be permitted on the surface treatment unless authorized by the Engineer.

When emulsified asphalt is used, do not apply subsequent courses over the surface treatment any earlier than the day after the surface treatment was applied, unless otherwise authorized or directed by the Engineer.

Contractor is to place ACP layer(s) as indicated on plans within 14-calendar days of seal coat placement unless otherwise directed by the Engineer.

ITEM 3077: Superpave Mixtures

The Contractor shall exercise diligence in the application of "Bonding Course" by the use of flagging and rolling procedures to keep from spraying or splattering the traveling public with asphaltic material.

Blading (not to exceed more than 3-ft from the pavement edge) may also be necessary to clean dirt and grass from pavement edges and turnout areas as work under this bid Item. The cost of this blading will not be paid for directly but shall be considered subsidiary to this bid Item.

RAP (recycled asphalt pavement) to be recycled will be stockpiled separately from other project sources and Contractor owned RAP. Each stockpile will be clearly marked by the Contractor indicating project source.

The Contractor shall exercise diligence during milling operations in order to avoid contamination.

The RAP stockpiles are subjected to PI and decantation requirements as specified under this Item.

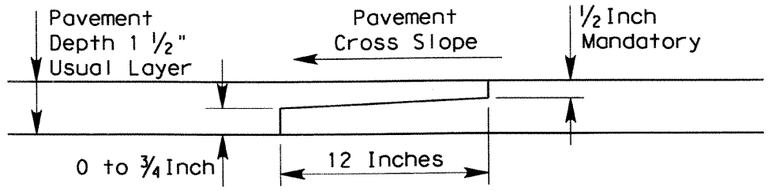
Recycled asphaltic pavement to be salvaged as shown in plans will be available for use as RAP in the hot mix for this project.

A portion of RAP generated from this project will remain the property of the State. This quantity can be found on the Estimate and Quantity Tables under Item 305 or Item 354.

Level-up will be placed before the surface course. An asphaltic concrete spreading and finishing machine and/or motor graders; when approved by the Engineer may be used to place the ACP level-up.

Aggregates used on shoulders and ramps are required to meet SAC requirements.

All unconfined longitudinal joints shall be constructed with a joint maker providing a maximum ½-inch vertical edge and a minimum 6:1 edge taper or as approved by the Engineer. The Engineer may waive this requirement when no impacts to the traveling public are foreseen.



NOTCHED WEDGE JOINT

The engineer may allow for variances to the dimensions shown.

Public and private driveways need to have a smooth vertical transition between the edge of pavement and the existing driveways. The Contractor is to add a vertical taper if needed which will be subsidiary to Item 3077.

The use of RAP and RAS (recycled asphalt shingles) will not be allowed as part of the mix design for the final riding surface.

Use a release agent from the Department's MPL to clean and to coat the inside of truck beds for hauling equipment. Hauling equipment shall be cleaned prior to hauling material to job site. Submit a copy of the bill of lading to the Engineer as part of the QCP. Ensure the pavement is free from any spillage of hydraulic oil or diesel from construction equipment. The Department may reject trucks that contain any foreign material and suspend production if the pavement is contaminated by any pollutants mentioned above.

The percentage of RAS used in the total mix shall not exceed 3% when allowed.

SAC B aggregate must have material properties that require 10 or less on the magnesium sulfate soundness test and 20 or less on the Micro-Deval test.

ITEM 3084: Bonding Course

The minimum application rates are listed in Table BC.

The target shear bond strengths are listed in Table BCS. The informational test cores shall be taken once a shift for first 5 lots of placement or a change to placement method of bonding course, bonding material, or hot mix material. The remaining informational test cores shall be taken once every 3 lots for surface mix. Informational tests are not required for non-surface mix beyond the first 5 lots unless there is a change to placement method of bonding course, bonding material, or hot mix material. Results from these informational tests will not be used for specification compliance.

Table BC

Material	Minimum Application Rate (gal. per square yard)
TRAIL – Emulsified Asphalt	0.06
TRAIL – Hot Asphalt	0.12
Spray Applied Underseal Membrane	0.10

Table BCS (For Informational Tests)

Material	Target Shear Bond Strength (Tex-249-F psi)
SMA – Stone-Matrix Asphalt	60.0
All Other Materials	40.0

ITEM 354: Planing and Texturing Pavement

Contractor is to place seal coat or ACP layer(s) as indicated on plans within 14-calendar days of planing/milling operation unless otherwise directed by the Engineer.

All planing/milling operation drop offs greater than 1-inch need to have a 3:1 slope taper unless otherwise directed by the Engineer. The cost of the 3:1 slope taper is subsidiary to Item 354.

For full width planing/milling locations, Contractor is to place seal coat or ACP layer(s) as indicated on the plans within 2-calendar days of the planing/milling operation unless otherwise directed by the Engineer. Contractor will not be allowed to move onto the next planing/milling location or seal coat/ACP overlay location until the exposed area is covered as per above. Contractor cannot get paid for the planing/milling operation until exposed area is covered as per above.

ITEM 400: Excavation and Backfill for Structures

If the Contractor elects to cut pavement (existing/detour) for structural work beyond that required by the construction phasing shown in the plans and approved by the Engineer, it shall be restored at his expense and backfilled to its original condition or better in accordance with Item 400.

Unless shown otherwise in the plans, use a 1-ft depth for Item 400 Structural Excavation (Special) for gravel bedding needed below drainage structures with unstable material.

Structural Excavation Special (Gravel):

Use durable natural stone when tested in accordance with Tex-411-A, has weight loss of no more than 18% after 5 cycles of magnesium sulfate solution. Provide gravel conforming to an aggregate Grade No. 1 as shown on Table 4 of Article 421.2.

ITEM 416: Drilled Shaft Foundations

Payment for furnishing and installing anchor bolts mounted in drill shafts will be included in the unit price bid for the various diameter drill shafts.

The Contractor shall coordinate with the utility companies to verify utility locations before drilling foundations.

The Contractor shall form, or provide a smooth finish, the portions of drilled shaft that project above the ground line. Place a ¾ inch chamfer on the top edge of each pole foundation. This work will not be paid for directly but will be considered subsidiary to this bid Item.

All drilled shaft foundations will be based on the lengths shown on the plans or those established in writing. Adequate calculations for measurements of foundations have been made in accordance with Article 9.1. of the Standard Specifications. Increases or decreases in the quantities required by change in design will be measured as specified and the revised quantities will be the basis for payment.

In the presence of excess ground water and/or unstable conditions in sub-grade soils prevents excavation to the line and depths indicated on the plans for "Drilled Shaft Foundation", other proposed methods of foundation installation such as casing, etc. shall be submitted for review and approved by the Engineer.

ITEM 420: Concrete Substructures

Pay bent concrete as plan quantity.

ITEM 421: Hydraulic Cement Concrete

Provide Sulfate Resistant Concrete for all concrete piling and drilled shafts.

Provide equipment at the batch plant for determining the free moisture and/or absorption of aggregates in accordance with applicable TXDOT Test.

Provide the following items for concrete batch inspection in accordance with specifications outlined in DMS-10101, "Computer Equipment":

(1) One Desktop Microcomputer or One Laptop Microcomputer
(2) One Integrated Printer/Scanner/Copier/Fax Unit
(3) Contractor-Furnished Software
(4) Hardware

Submit to the Engineer for approval the project locations for all Portland Cement concrete washout areas prior to starting any concrete work.

Fiber Reinforced Concrete is not permitted.

ITEM 427: Surface Finishes for Concrete

Provide surface finishes for concrete as follows:

(1) Bridge overpass and underpass structures – surface area I, opaque sealer coating (color to be determined by the Engineer).

(2) Bridge waterway crossings and bridge class box culvert structures – surface area II, opaque sealer coating (color to be determined by the Engineer).

Concrete traffic barrier/railing (roadway and bridge) and retaining wall coping - opaque sealer coating (color to be determined by the Engineer) to all exposed surfaces.

ITEM 432: Riprap

Provide Class "A" concrete minimum for riprap aprons placed around all box culvert and pipe safety end treatments. Provide ¼-inch thick dummy joints at least every 15-ft for riprap aprons placed around box and pipe culverts.
Do not use fiber reinforced concrete RIPRAP on side slopes equal to or steeper than 6:1 unless approved by the Engineer.

ITEM 464: Reinforced Concrete Pipe

Use tongue and groove pipe where the RCP extends into the lime treated subgrade. The 4-foot depth restriction for heavy equipment passage over pipe structures is voided. The Contractor will be responsible for any construction damage to these facilities.

Do not use mortar joints.

All reinforced concrete pipe shall include rubber gaskets unless shown otherwise on the plans or directed by the Engineer.

ITEM 465: Junction Boxes, Manholes, and Inlets

For TY PSL with RG, FG, or SFG lid inlets, provide Class B concrete riprap with (6"x6" W3xW3 (No. 6 gauge) welded wire fabric) for any side that is touching the natural ground. The riprap will be 4-in thick and 3-ft wide with an 8-in deep by 6-in wide toe unless otherwise shown in the plans. The cost will be subsidiary to Item 465, unless otherwise shown in the plans.

For all inlet extensions, provide a temporary circular curb/inlet extension opening for drainage during construction. The circular opening will be a 4-in Diameter by 2-in deep slot that matches the statewide PCO standard. Fill curb circular curb/inlet extension opening with epoxy and mortar as per Item 429 Concrete Structure Repair specifications. Epoxy and mortar are subsidiary to Item 465.

ITEM 467: Safety End Treatment

All Type II SET's shall have riprap, Class "A" minimum, aprons as shown on the plans. The Contractor may submit an alternate precast SET design for approval by the Engineer.

ITEM 502: Barricades, Signs, and Traffic Handling

Shadow vehicles equipped with Truck-Mounted Attenuators are required for traffic handling. See notes for Item 6185: Truck Mounted Attenuator/Trailer Attenuator, for additional references pertaining to the TMAs.

Replace/relocate all regulatory signs removed due to construction operations with the same sign on fixed support(s) immediately upon its removal. First obtain Project Engineer approval before removing any regulatory roadway sign. Required flaggers are to be available to direct traffic during sign intermediate down time.

Relocate any Directional Sign Assemblies removed during construction operations immediately upon their removal.

These signs shall be relocated to a location in accordance with the Latest Version of the "Texas Manual on Uniform Traffic Control Devices". In no case will a sign be removed without a replacement sign and support(s) being readily available and a location established. Removal and relocation of these signs required for traffic control will not be paid for directly but shall be considered subsidiary to Item 502.

From the beginning to the end of the project, all traffic control devices need to be in acceptable condition as per the Texas Quality Guidelines for Work Zone Traffic Control Devices.

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

ITEM 504: Field Office and Laboratory

Furnish (1) Field Office (Type C).

The Contractor will furnish a Type D Structure (Asphalt Mix Laboratory) modified by the following.

Laboratory room:

The other room of this building will be used as a laboratory and will include access to a bathroom facility from the interior. The laboratory and bathroom facility will have the walls, ceiling and floor insulated such that the air temperature can always be maintained at 76 degrees Fahrenheit.

Furnish for the Department's use in the asphalt laboratory one (1) desktop computer.

ITEM 506: Temporary Erosion, Sedimentation, and Environmental Controls

Before starting each phase of construction, review with the Engineer the SW3P used for temporary erosion control as outlined on the plans. Before construction, place the temporary erosion and sedimentation control features as shown on the SW3P. Location of Construction Exits are to be approved by the Engineer. After completing earthwork operations, restore and reseed the disturbed areas in accordance with the Department's specifications for permanent or temporary erosion control. Before starting grading operations and during the project duration, place the temporary or permanent erosion control measures to prevent sediment from leaving the right of way.

The Contractor Force Account "Erosion Control Maintenance" that has been established for this project is intended to be utilized for work zone Best Management Practice (BMP) maintenance, to improve the effectiveness of the Environmental Controls that may need maintenance attention and/or require replacement while the project is still under the construction stage. These procedures will be mutually agreed upon by the Engineer and the Contractor's Responsible Person based on weekly or more frequent BMP management reviews on the project. The "Erosion Control Maintenance" is not intended to be used in lieu of bid Items established by the contract.

ITEM 508: Constructing Detours

Flexible Base, prime coat, and Asphaltic Concrete Pavement used for detours shall meet the requirements of Items 247, 310 and 3076 respectively, except for measurement and payment.

ITEM 530: Intersections, Driveways, and Turnouts

Prime coat shall meet the requirements of Item 310.

Daily testing requirements for Hot Mix Asphaltic Concrete Pavements for drives, commercial entrances and/or turnouts may be waived by the Engineer.

Public and private driveways need to have a smooth vertical transition tie-in between the proposed driveway and the existing driveway. The Contractor is to add a vertical taper if needed which will be subsidiary to Item 530.

ITEM 540: Metal Beam Guard Fence

The optional terminal anchor post with the terminal connector will be required as shown on the Metal Beam Guard Fence Standard.

Galvanize the rail elements supplied for this project using a Type II Zinc Coating.

ITEM 542: Removing Metal Beam Guard Fence

Dispose all metal beam guard fence materials unless shown otherwise in the plans.

ITEM 544: Guardrail End Treatments

Label “end treatment type” on backside of unit at time of installation.

ITEM 552: Wire Fence

Contractor is to repair any wire fence that is damaged by the Contractor’s construction operations to insure the retention of livestock, if any, in their respective pastures along the project.

Project Number:

County: Hidalgo **Control:** 1586-01-079

Highway: FM 907

ITEM 560: Mailbox Assemblies

Coordinate and verify final mailbox locations with TxDOT and the US Postmaster.

ITEM 585: Ride Quality for Pavement Surfaces

Use Surface Test Type "B" for service roads and ramps.

Quality control results shall be submitted to TxDOT the next working day after each day’s paving.

Pavement areas with public turnout intersections that carry major traffic volumes will not be subjected to inertial profiler testing. These areas shall be evaluated using the 10-ft. straightedge.

Diamond grinding shall be used to remove localized roughness.

Use Surface Test Type B pay adjustment schedule **1** to evaluate ride quality of the travel lanes in accordance with Item 585, “Ride Quality for Pavement Surfaces.” This includes ramps and service road travel lanes.

ITEMS 636: Signs

Complete sign blanks and panels shall be handled and stored at the job site in such a manner that corners, edges and faces are not damaged. Finished sign blanks shall be stored in either a weatherproof warehouse or outside and off the ground in a vertical position. All paper, cardboard and chemically treated separators and packaging shall be removed prior to outside storage.

ITEM 644: Small Roadside Sign Assemblies

All signs shall be installed as shown in the plans and in accordance with the current edition of the "Texas Manual on Uniform Traffic Control Devices" and the “Sign Crew Field Book” (SCFB).

All signs shall be erected according to the locations shown on the signing layout sheets except that a sign may be shifted in order to secure a more desirable location. All sign locations will be staked as shown in the plans and as approved. It is the intent of the plans to erect all roadside traffic signs with the sign edge a minimum of 6 feet from the edge of the shoulder, or if none, 12 feet from the edge of the travel lane. In curb and gutter sections, the sign edge shall be a minimum of 2 feet from the face of the curb.

Project Number:

County: Hidalgo **Control:** 1586-01-079

Highway: FM 907

For this project, aluminum type sign blanks as provided for under Item 636 will be required for all proposed signing installed under Item 644. Aluminum sign blanks less than 7.5 square feet shall be 0.08-inch-thick, sign blanks 7.5 to 15 square feet shall be 0.100-inch-thick and sign blanks greater than 15 square feet shall be 0.125 inch thick.

All excess excavation shall be spread uniformly inside the right of way as directed and shall be included in the price of these Items.

Sign types which design details are not shown on the plans shall conform with the latest edition of the Department's "Standard Highway Sign Design for Texas" Manual.

Signs shown to be removed shall include the complete sign installation and separate the sign post at the concrete foundation. The concrete foundation shall be disposed in accordance with this bid Item. Except for concrete foundations, all removed sign panels, sign posts, and hardware shall remain then property of the Department. All removed sign installations shall be completely disassembled. All salvageable sections of sign panels shall be recycled by TxDOT. The removed sign material will be required to be hauled to the maintenance yard closest to the project. No signs shall be removed without prior approval.

Existing signs shown to be removed and relocated within this project shall first be identified in the field before they are removed and relocated to their new installation position as determined in the plans. The complete sign assembly shall be removed and the sign with post shall be separated at the concrete foundation. The concrete foundation shall be disposed off in accordance with this bid Item. No sign shall be removed without prior approval.

All excess excavation shall be spread uniformly inside the right of way as directed and shall be included in the price of this Item.

ITEM 658: Delineator and Object Marker Assemblies

Delineator assemblies shall be installed 8 feet from the edge of the shoulder unless restricted by some obstruction, in which case, the delineator assembly shall be placed between 2 and 8 feet from the edge of the shoulder.

Bi-directional object markers shall be in accordance with the D&OM standard sheets. The Contractor is directed to the standards when instructed where and how to install the object markers.

ITEMS 662 and 666: Work Zone Pavement Markings and Retroreflectorized Pavement Markings

All permanent pavement markings and work zone pavement markings for this project under these Items shall be 0.100 inches (100 mil) thick thermoplastic.

Any permanent pavement markings or non-removal work zone pavement markings lacking reflectivity in accordance with the requirements of Tex 828-B, or that fail to meet minimum retro reflectivity requirements for longitudinal pavement markings when required, will be addressed per the requirements of the specification. The roadway will be re-striped at no additional compensation.

Pavement surface preparation for markings and markers will not be paid for directly but shall be considered subsidiary to Item 666.

Prior to any striping operations, an on-site coordination meeting between all the parties involved will be required to review striping details and requirements to ensure quality work.

The beads used on this project shall meet the requirements of Departmental Materials Specification DMS-8290, Glass Traffic Beads Texas Type II & III. Use a 50% Type II/ 50% Type III mix utilizing a double drop system with Type III beads dropped first.

ITEM 677: Eliminating Existing Pavement Markings and Markers

Asphalt and aggregate types and grades shall be as approved in writing when a surface treatment is used to eliminate existing pavement markings.

ITEM 1007: Irrigation Wells, Gates and Valves

If the Contractor elects, a larger size item may be furnished and installed at no extra cost to the State.

ITEM 3084 – Bonding Course

The minimum application rates are listed in Table BC.

The target shear bond strengths are listed in Table BCS. The informational test cores shall be taken once a shift for first 5 lots of placement or a change to placement method of bonding course, bonding material, or hot mix material. The remaining informational test cores shall be taken once every 3 lots for surface mix. Informational tests are not required for non-surface mix beyond the first 5 lots unless there is a change to placement method of bonding course, bonding material, or hot mix material. Results from these informational tests will not be used for specification compliance.

Table BC

Material	Minimum Application Rate (gal. per square yard)
TRAIL – Emulsified Asphalt	0.06
TRAIL – Hot Asphalt	0.12
Spray Applied Underseal Membrane	0.10

Table BCS (For Informational Tests)

Material	Target Shear Bond Strength (Tex-249-F psi)
SMA – Stone-Matrix Asphalt	60.0
All Other Materials	40.0

ITEM 5001: Geogrid Base Reinforcement

Provide a construction plan to the Engineer detailing how the base will be lime treated without damaging the Geogrid Base Reinforcement placed on top of the subgrade.

ITEM 5088: Bird Exclusion Methods

Contractor's attention is directed to the plan's EPIC sheets, Bird Exclusion Detail standard sheets and shall refer to the Migratory Bird Treaty Act requirements. Also, refer to the TPWD BMPSs sheets for specific adherence to the environmental requirements of the Best Management Practices.

ITEM 6185: Truck Mounted Attenuator/Trailer Attenuator

In addition to the shadow vehicles with truck mounted attenuator (TMA) that are specified as being required on the traffic control plan for the project, provide 2 additional shadow vehicle(s) with TMA as per TCP (1-2) -18 as detailed on General Note 6 of this standard sheet;
or as per TCP (2-1) -18 as detailed on General Note 5 of this standard sheet;
or as per TCP (2-3) -18 as detailed on General Note 8 of this standard sheet.

Therefore, 3 total shadow vehicles with TMA will be required on this project for the type of work as shown on the plans. The Contractor will be responsible for determining if one or more of his construction operations will be ongoing at the same time and thus determine the total number of TMAs needed for the project.

Estimate & Quantity Sheet

CONTROLLING PROJECT ID 1586-01-079 **DISTRICT** Pharr **COUNTY** Hidalgo
HIGHWAY FM 907

			CONTROL SECTION JOB		**1586-01-079**	TOTAL EST.	TOTAL FINAL
			PROJECT ID		**A00128105**		
			COUNTY		**Hidalgo**		
			HIGHWAY		**FM 907**		
ALT	**BID CODE**	**DESCRIPTION**	**UNIT**	EST.	FINAL		
	100-6002	PREPARING ROW	STA	114.000		114.000	
	105-6013	REMOVING STAB BASE & ASPH PAV (9")	SY	2,337.000		2,337.000	
	110-6001	EXCAVATION (ROADWAY)	CY	9,195.000		9,195.000	
	110-6002	EXCAVATION (CHANNEL)	CY	130.000		130.000	
	132-6006	EMBANKMENT (FINAL)(DENS CONT)(TY C)	CY	4,023.000		4,023.000	
	134-6001	BACKFILL (TY A)	STA	107.000		107.000	
	160-6005	FURNISHING AND PLACING TOPSOIL	CY	50.000		50.000	
	164-6023	CELL FBR MLCH SEED(PERM)(RURAL)(CLAY)	SY	41,997.000		41,997.000	
	164-6029	CELL FBR MLCH SEED(TEMP)(WARM)	SY	41,997.000		41,997.000	
	168-6001	VEGETATIVE WATERING	MG	766.000		766.000	
	204-6003	SPRINKLING (DUST CONTROL)	MG	456.000		456.000	
	247-6225	FL BS (RDWY DEL)(TY E GR 4)(FNAL POS)	CY	7,153.000		7,153.000	
	251-6056	RWRK BS MTL(TY B)(8")(DEN CNT)(ORG POS)	CY	11,730.000		11,730.000	
	260-6011	LIME TRT (EXST MATL) (12")	SY	58,010.000		58,010.000	
	260-6043	LIME (HYD, COM OR QK)(SLURRY)	TON	1,723.000		1,723.000	
	275-6001	CEMENT	TON	638.000		638.000	
	275-6023	CEMENT TREAT(MX EXST MTL & NW BS)(12")	SY	56,650.000		56,650.000	
	305-6060	SALV,HAUL & STKPL RCL APH PV (2" TO 3")	SY	45,810.000		45,810.000	
	310-6009	PRIME COAT (MC-30)	GAL	10,845.000		10,845.000	
	316-6005	ASPH (TIER II)	GAL	16,266.000		16,266.000	
	316-6531	AGGR (TY-B GR-4P SAC-B)	CY	458.000		458.000	
	354-6041	PLANE ASPH CONC PAV (1.5")	SY	1,629.000		1,629.000	
	400-6005	CEM STABIL BKFL	CY	295.400		295.400	
	400-6006	CUT & RESTORING PAV	SY	72.000		72.000	
	400-6010	STRUCT EXCAV (SPECIAL)	CY	169.000		169.000	
	402-6001	TRENCH EXCAVATION PROTECTION	LF	2,016.000		2,016.000	
	416-6001	DRILL SHAFT (18 IN)	LF	152.000		152.000	
	416-6004	DRILL SHAFT (36 IN)	LF	650.000		650.000	
	420-6013	CL C CONC (ABUT)	CY	62.600		62.600	
	422-6001	REINF CONC SLAB	SF	3,680.000		3,680.000	
	425-6036	PRESTR CONC GIRDER (TX34)	LF	476.890		476.890	
	432-6001	RIPRAP (CONC)(4 IN)	CY	62.000		62.000	
	432-6002	RIPRAP (CONC)(5 IN)	CY	131.000		131.000	
	432-6031	RIPRAP (STONE PROTECTION)(12 IN)	CY	57.900		57.900	
	432-6045	RIPRAP (MOW STRIP)(4 IN)	CY	47.000		47.000	
	450-6023	RAIL (TY SSTR)	LF	216.000		216.000	
	454-6020	SEALED EXPANSION JOINT (4 IN) (SEJ - B)	LF	94.100		94.100	

Estimate & Quantity Sheet

CONTROLLING PROJECT ID 1586-01-079 **DISTRICT** Pharr **COUNTY** Hidalgo
HIGHWAY FM 907

						TOTAL EST.	TOTAL FINAL
		CONTROL SECTION JOB		**1586-01-079**			
		PROJECT ID		**A00128105**			
		COUNTY		**Hidalgo**			
		HIGHWAY		**FM 907**			
ALT	**BID CODE**	**DESCRIPTION**	**UNIT**	EST.	FINAL		
	464-6003	RC PIPE (CL III)(18 IN)	LF	1,388.000		1,388.000	
	464-6005	RC PIPE (CL III)(24 IN)	LF	1,082.000		1,082.000	
	464-6060	RC PIPE (CL IV) (24 IN) (SPL)	LF	260.000		260.000	
	464-6069	RC PIPE (CL IV) (18") (SPL)	LF	415.000		415.000	
	465-6126	INLET (COMPL)(PSL)(FG)(3FTX3FT-3FTX3FT)	EA	6.000		6.000	
	467-6356	SET (TY II) (18 IN) (RCP) (3: 1) (C)	EA	2.000		2.000	
	467-6363	SET (TY II) (18 IN) (RCP) (6: 1) (P)	EA	43.000		43.000	
	467-6395	SET (TY II) (24 IN) (RCP) (6: 1) (P)	EA	6.000		6.000	
	496-6004	REMOV STR (SET)	EA	47.000		47.000	
	496-6007	REMOV STR (PIPE)	LF	2,795.000		2,795.000	
	496-6009	REMOV STR (BRIDGE 0 - 99 FT LENGTH)	EA	1.000		1.000	
	500-6001	MOBILIZATION	LS	1.000		1.000	
	502-6001	BARRICADES, SIGNS AND TRAFFIC HANDLING	MO	17.000		17.000	
	506-6021	CONSTRUCTION EXITS (INSTALL) (TY 2)	SY	546.000		546.000	
	506-6024	CONSTRUCTION EXITS (REMOVE)	SY	546.000		546.000	
	506-6038	TEMP SEDMT CONT FENCE (INSTALL)	LF	1,120.000		1,120.000	
	506-6039	TEMP SEDMT CONT FENCE (REMOVE)	LF	1,120.000		1,120.000	
	506-6041	BIODEG EROSN CONT LOGS (INSTL) (12")	LF	2,700.000		2,700.000	
	506-6043	BIODEG EROSN CONT LOGS (REMOVE)	LF	2,700.000		2,700.000	
	530-6005	DRIVEWAYS (ACP)	SY	923.000		923.000	
	540-6001	MTL W-BEAM GD FEN (TIM POST)	LF	500.000		500.000	
	540-6006	MTL BEAM GD FEN TRANS (THRIE-BEAM)	EA	4.000		4.000	
	542-6001	REMOVE METAL BEAM GUARD FENCE	LF	600.000		600.000	
	544-6001	GUARDRAIL END TREATMENT (INSTALL)	EA	4.000		4.000	
	544-6003	GUARDRAIL END TREATMENT (REMOVE)	EA	4.000		4.000	
	560-6011	MAILBOX INSTALL-S (TWW-POST) TY 4	EA	2.000		2.000	
	636-6001	ALUMINUM SIGNS (TY A)	SF	86.000		86.000	
	644-6027	IN SM RD SN SUP&AM TYS80(1)SA(P)	EA	22.000		22.000	
	644-6030	IN SM RD SN SUP&AM TYS80(1)SA(T)	EA	11.000		11.000	
	644-6033	IN SM RD SN SUP&AM TYS80(1)SA(U)	EA	2.000		2.000	
	644-6075	RELOCATE SM RD SN SUP&AM(SIGN ONLY)	EA	1.000		1.000	
	644-6076	REMOVE SM RD SN SUP&AM	EA	27.000		27.000	
	658-6060	REMOVE DELIN & OBJECT MARKER ASSMS	EA	27.000		27.000	
	658-6061	INSTL DEL ASSM (D-SW)SZ 1(BRF)GF2	EA	12.000		12.000	
	658-6100	INSTL OM ASSM (OM-2Z)(WFLX)GND(BI)	EA	12.000		12.000	
	662-6004	WK ZN PAV MRK NON-REMOV (W)4"(SLD)	LF	9,940.000		9,940.000	
	662-6034	WK ZN PAV MRK NON-REMOV (Y)4"(SLD)	LF	9,940.000		9,940.000	

Estimate & Quantity Sheet

CONTROLLING PROJECT ID 1586-01-079 **DISTRICT** Pharr **COUNTY** Hidalgo
HIGHWAY FM 907

			CONTROL SECTION JOB		**1586-01-079**	TOTAL EST.	TOTAL FINAL
			PROJECT ID		**A00128105**		
			COUNTY		**Hidalgo**		
			HIGHWAY		**FM 907**		
ALT	**BID CODE**	**DESCRIPTION**	**UNIT**	EST.	FINAL		
	662-6063	WK ZN PAV MRK REMOV (W)4"(SLD)	LF	360.000		360.000	
	662-6095	WK ZN PAV MRK REMOV (Y)4"(SLD)	LF	360.000		360.000	
	662-6111	WK ZN PAV MRK SHT TERM (TAB)TY Y-2	EA	1,650.000		1,650.000	
	666-6036	REFL PAV MRK TY I (W)8"(SLD)(100MIL)	LF	338.000		338.000	
	666-6048	REFL PAV MRK TY I (W)24"(SLD)(100MIL)	LF	150.000		150.000	
	666-6054	REFL PAV MRK TY I (W)(ARROW)(100MIL)	EA	4.000		4.000	
	666-6078	REFL PAV MRK TY I (W)(WORD)(100MIL)	EA	4.000		4.000	
	666-6141	REFL PAV MRK TY I (Y)12"(SLD)(100MIL)	LF	533.000		533.000	
	666-6312	RE PM W/RET REQ TY I (Y)4"(BRK)(100MIL)	LF	2,350.000		2,350.000	
	666-6315	RE PM W/RET REQ TY I (Y)4"(SLD)(100MIL)	LF	9,881.000		9,881.000	
	666-6342	REF PROF PAV MRK TY I(W)4"(SLD)(100MIL)	LF	21,266.000		21,266.000	
	672-6007	REFL PAV MRKR TY I-C	EA	18.000		18.000	
	672-6009	REFL PAV MRKR TY II-A-A	EA	506.000		506.000	
	672-6017	TRAFFIC BUTTON TY Y	EA	493.000		493.000	
	672-6018	TRAFFIC BUTTON TY B	EA	2,917.000		2,917.000	
	677-6001	ELIM EXT PAV MRK & MRKS (4")	LF	5,510.000		5,510.000	
	678-6001	PAV SURF PREP FOR MRK (4")	LF	328.000		328.000	
	1007-6007	IRRIGATION VALVE (12")	EA	2.000		2.000	
	1008-6001	PRSSR IRRIG PVC PIPE (18")	LF	202.000		202.000	
	1008-6002	PRSSR IRRIG PVC PIPE (24")	LF	193.000		193.000	
	1008-6003	PRSSR IRRIG PVC PIPE (12")	LF	89.000		89.000	
	3077-6065	SP MIXESSP-DSAC-A PG76-22	TON	9,424.000		9,424.000	
	3084-6001	BONDING COURSE	GAL	3,910.000		3,910.000	
	5001-6002	GEOGRID BASE REINFORCEMENT (TY II)	SY	56,650.000		56,650.000	
	5088-6001	BIRD EXCLUSION METHOD	SF	2,713.000		2,713.000	
	6001-6002	PORTABLE CHANGEABLE MESSAGE SIGN	EA	6.000		6.000	
	6038-6001	MULTIPOLYMER PAV MRK (W)(4")(SLD)	LF	164.000		164.000	
	6038-6014	MULTIPOLYMER PAV MRK (Y)(4")(SLD)	LF	164.000		164.000	
	6185-6002	TMA (STATIONARY)	DAY	266.000		266.000	
	6185-6005	TMA (MOBILE OPERATION)	DAY	30.000		30.000	
	7016-6088	CASING (STEEL) (20 IN) (OPEN TRENCH)	LF	72.000		72.000	
	7016-6090	CASING (STEEL) (24 IN) (OPEN TRENCH)	LF	140.000		140.000	
	7016-6092	CASING (STEEL) (30 IN) (OPEN TRENCH)	LF	140.000		140.000	
	08	CONTRACTOR FORCE ACCOUNT WORK (NON-PARTICIPATING)	LS	1.000		1.000	
	18	SAFETY CONTINGENCY: CONTRACTOR FORCE ACCOUNT WORK (PARTICIPATING)	LS	1.000		1.000	

Estimate & Quantity Sheet

CONTROLLING PROJECT ID 1586-01-079 **DISTRICT** Pharr **COUNTY** Hidalgo
HIGHWAY FM 907

		CONTROL SECTION JOB		**1586-01-079**		TOTAL EST.	TOTAL FINAL
		PROJECT ID		**A00128105**			
		COUNTY		**Hidalgo**			
		HIGHWAY		**FM 907**			
ALT	**BID CODE**	**DESCRIPTION**	**UNIT**	EST.	FINAL		
	18	EROSION CONTROL MAINTENANCE: CONTRACTOR FORCE ACCOUNT WORK (PART)	LS	1.000		1.000	

SUMMARY OF ROADWAY ITEMS

	LOCATION	LENGTH	(&) EXIST. STAB BASE (7" - 10.5") (9" AVER.)	105 6013 REMOVING STAB BASE & ASPH PAV (9")	(&) REMOVING STAB BASE & ASPH PAV (9")	(&) PROP FL BS MATL INFO ONLY AREA	(&) TOTAL REQUIRED FL BS MATL	(&) MIN REQUIRED NEW FL BS MATL	247 6225 FL BS (RDWY DEL) (TY E GR 4)	251 6056 RWRK BS MTL (TY B) (8") (DEN CNT)	5001 6002 GEOGRID BASE REINFOR CEMENT	275 6001 CEMENT (2%	275 6023 CEMENT TREAT (MX EXIST MTL & NW BASE)	260 6011 LIME TRT (EXST MATL)	260 6043 LIME (HYD, COM, OR QK) (SLURRY))	305 6060 (**) SALV, HAUL & STKPL RCL APH PV	(&) (**) EXIST. RAP (2" - 2.5")	310 6009 PRIME COAT (MC - 30)	316 6005 ASPH (TIER II)	316 6531 AGGR (TY-B GR-4P) (SAC-B)	3077 6065 SP MIXES SP-D SAC-A PG 76-22	3084 6001 (&&) BONDING COURSE
			(##)	(*)	(*)		(12")	(4")		(##)	(TY II)	BY WT)	(12")	(12")	(6% BY WT)	(2" TO 3")	(2.25" AVER.)	(0.2 GAL/SY)	(0.30 GAL/SY)	(1 CY/120 SY)	(171 #/SY) (1.5" THICK)	(0.07 GAL/SY)
	FM 907	(LF)	(CY)	(SY)	(CY)	(SY)	(CY)	(CY)	(CY)	(CY)	(SY)	(TON)	(SY)	(SY)	(TON)	(SY)	CY	(GAL)	(GAL)	(CY)	(TON)	(GAL)
	(CSJ 1586-01-079)	EST.	EST.	EST.	EST.	EST.	EST.	EST.	EST.	EST.	EST.	EST.	EST.	EST.	EST.	EST.		EST.	EST.	EST.	EST.	EST.
	PHASE I (STA 251+14.90 TO STA 255+00)																					
	FM 907	385	447	0	0	1,918	639	213	213	426	1,918	22	1,918	1,979	59	1,703	106	372	557	16	159	0
	FM 3072 TURNOUT	0	100	0	0	465	155	52	52	103	465	5	465	490	15	379	24	88	132	4	38	0
(###)	DICKER RD. TURNOUT	0	26	103	26	106	35	12	17	18	106	1	106	117	3	94	6	19	29	1	9	0
	SUBTOTAL PHASE I:	385	573	103	26	2,489	829	277	282	547	2,489	28	2,489	2,586	77	2,176	136	479	718	21	206	0
	PHASE II (STA 255+00 TO STA 310+00)																					
	FM 907	5,420	5,605	0	0	27,623	9,208	3,069	3,922	5,286	27,623	311	27,623	28,746	854	21,352	1,335	5,300	7,949	221	2,266	0
(###)	LAS MILPAS RD. TURNOUTS	0	56	223	56	148	49	16	16	33	148	2	148	166	5	201	13	26	39	2	12	0
(###)	ANAYA RD. TURNOUTS	0	26	104	26	148	49	16	16	33	148	2	148	166	5	100	6	26	39	2	12	0
(###)	EAST ANAYA RD. (INCIDENTAL)	232	0	0	0	567	189	63	63	126	567	6	567	619	18	0	0	103	155	5	45	0
(###)	WEST ANAYA RD. (INCIDENTAL)	234	143	572	143	572	191	64	64	127	572	6	572	624	19	520	33	104	156	5	45	0
	SUBTOTAL PHASE II:	5,886	5,830	899	225	29,058	9,686	3,228	4,081	5,605	29,058	327	29,058	30,321	901	22,173	1,387	5,559	8,338	235	2,380	0
	PHASE III - STEP A (STA 310+00 TO STA 358+67.49)																					
	FM 907	4,867.49	2,925	560	140	12,456	4,152	1,384	1,384	2,768	12,456	140	12,456	12,456	370	10,617	664	2,388	3,581	100	1,021	0
(###)	HI-LINE RD. TURNOUT	0	19	77	19	76	25	8	8	17	76	1	76	76	2	69	4	13	20	1	6	0
	SUBTOTAL PHASE III - STEP A:	4,867.49	2,944	637	159	12,532	4,177	1,392	1,392	2,785	12,532	141	12,532	12,532	372	10,686	668	2,401	3,601	101	1,027	0
	PHASE III - STEP B (STA 310+00 TO STA 358+67.49)																					
	FM 907	4,867.49	2,950	628	157	12,506	4,169	1,390	1,390	2,779	12,506	141	12,506	12,506	371	10,713	670	2,395	3,592	100	1,024	0
(###)	HI-LINE RD. TURNOUT	0	18	70	18	65	22	7	8	14	65	1	65	65	2	62	4	11	17	1	5	0
	SUBTOTAL PHASE III - STEP B:	4,867.49	2,968	698	175	12,571	4,191	1,397	1,398	2,793	12,571	142	12,571	12,571	373	10,775	674	2,406	3,609	101	1,029	0
	PHASE IV (STA 251+14.90 TO STA 358+67.49)																					
	PHASE IV																				4,782	3,910
	PROJECT TOTAL:	**11,138.49**	**12,315**	**2,337**	**585**	**56,650**	**18,883**	**6,294**	**7,153**	**11,730**	**56,650**	**638**	**56,650**	**58,010**	**1,723**	**45,810**	**2,865**	**10,845**	**16,266**	**458**	**9,424**	**3,910**

NOTES:

- **(##)** REWORK (SALVAGE) MATERIAL IS CALCULATED FROM EXISTING AVERAGE OF 9" STAB BASE PAID UNDER ITEM 251. (FOR ESTIMATING PURPOSES ONLY)
- **(###)** EXISTING BASE MATERIAL IS NOT CONSIDERED SALVAGABLE MATERIAL AND SHALL NOT BE UTILITZED AS REWORK BASE MATERIAL. MATERIAL SHALL BECOME PROPERTY OF THE CONTRACTOR TO BE HAULED OFF AFTER PROJECT COMPLETION, TO BE PAID UNDER ITEM 105.
- **(*)** SURPLUS OF SALVAGE MATERIAL SHALL BECOME PROPERTY OF THE CONTRACTOR TO BE HAULED OFF AFTER PROJECT COMPLETION, TO BE PAID UNDER ITEM 105.
- **(**)** ALL SALVAGED RAP MATERIAL IS PAID UNDER ITEM 305 AND SHALL BECOME PROPERTY OF TXDOT AND HAULED TO A DESIGNATED SITE LOCATED APPROX. 1.37 MILES NORTH OF THE CITY OF EDCOUCH, TEXAS (LATITUDE: 26°18'49" N, LONGITUDE: 97°57'39"W). COORDINATE THE STOCKPILING AREA WITH THE TXDOT EDCOUCH MAINTENANCE OFFICE.
- **(&)** FOR CONTRACTOR INFORMATION ONLY. (NON-PAY)
- **(&&)** BONDING COURSE (TACK COAT) RATE SHOWN IS PROVIDED FOR ESTIMATING PURPOSES ONLY. APPLICATION RATE SHALL BE DETERMINED AND SET IN THE FIELD BY THE ENGINEER PER PERTINENT ITEM 3077.

EST. WT OF FLEXIBLE BASE = 3375 #/CY COMPACTED DRY WEIGHT
EST. WT OF SUBGRADE = 2970 #/CY (COMPACTED)

SUMMARY OF EARTHWORK AND OTHER ROADWAY ITEMS

LOCATION	100 6002 PREPARING ROW (STA) EST.	204 6003 SPRINKLING (DUST CONTROL) (4MG / STA) (MG) EST.	110 6001 EXCAVATION (ROADWAY) (CY) EST.	132 6006 EMBANKMENT (FINAL) (DENS CONT) (TY C) (CY) EST.	134 6001 BACKFILL (TY A) (STA) EST.	500 6001 MOBILIZATION (LS) EST.	5088 6001 BIRD EXCLUSION METHOD (SF) EST.
FM 907							
(CSJ 1586-01-079)							
STA. 251+14.90 TO STA. 358+96.01	107	428	8,899	3,955	107	1	
STA. 302+21.03 TO STA. 302+96.39	1	4					2,713
SUBTOTAL FM 907:	108	432	8,899	3,955	107	1	2,713
ANAYA ROAD							
(INCIDENTAL CONSTRUCTION)							
STA. 10+00.00 TO STA. 12+34.37 (WEST ANAYA RD.)	3	12	129	3			
STA. 10+42.53 TO STA. 12+75.00 (EAST ANAYA RD.)	3	12	167	65			
SUBTOTAL ANAYA ROAD:	6	24	296	68	0	0	0
PROJECT TOTAL:	114	456	9,195	4,023	107	1	2,713

STATE OF TEXAS
JOSE A. RODRIGUEZ
117308
LICENSED
PROFESSIONAL ENGINEER

04/27/22

Pharr District Central Design

Texas Department of Transportation

FM 907

SUMMARY TABLES OF ESTIMATED QUANTITIES

SHEET 1 OF 4

CONT	SECT	JOB	HIGHWAY
1586	01	079	FM 907
DIST	COUNTY		SHEET NO.
PHR	HIDALGO		20

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SUMMARY OF ROADWAY ITEMS (CONT.)

LOCATION	354 6041	432 6045	530 6005	540 6001	540 6006	544 6001	542 6001	544 6003	560 6011
	PLANE ASPH CONC PAV (1.5")	RIPRAP (MOW STRIP) (4 IN)	PRIVATE DRWY DRIVEWAYS (ACP)	MTL W-BEAM GD FEN (TIM POST)	MTL W-BEAM GD FEN TRANS (THRIE-BEAM)	GUARDRAIL END TREATMENT (INSTALL)	REMOVE METAL BEAM GUARD FENCE	GUARDRAIL END TREATMENT (REMOVE)	MAILBOX INSTALL-S (TWW-POST) TY 4
FM 907	(SY)	(CY)	(SY)	(LF)	(EA)	(EA)	(LF)	(EA)	(EA)
(CSJ 1586-01-079)	EST	EST	EST	EST	EST	EST	EST	EST	EST
P&P 1 of 21	1384								
P&P 2 of 21			55						
P&P 3 of 21			186						
P&P 4 of 21									
P&P 5 of 21									
P&P 6 of 21	22								
P&P 7 of 21									
P&P 8 of 21			71						
P&P 9 of 21		21	59	150	2	2	300	2	
P&P 10 of 21		26	56	350	2	2	300	2	
P&P 11 of 21			97						1
P&P 12 of 21			191						1
P&P 13 of 21			66						
P&P 14 of 21	47								
P&P 15 of 21									
P&P 16 of 21									
P&P 17 of 21			65						
P&P 18 of 21									
P&P 19 of 21	153								
WEST ANAYA RD(P&P 20 of 21)	23		42						
EAST ANAYA RD(P&P 21 of 21)			35						
PROJECT TOTAL:	**1629**	**47**	**923**	**500**	**4**	**4**	**600**	**4**	**2**

SUMMARY OF TRAFFIC CONTROL PLAN

LOCATION	502 6001	662 6004	662 6111	662 6034	662 6063	662 6095	677 6001	6001 6002	6185 6002	6185 6005
	BARRICADES, SIGNS AND TRAFFIC HANDLING	WK ZN PAV MRK NON-REMOV (W) 4" (SLD)	WK ZN PAV MRK SHT TERM (TAB) TY Y-2	WK ZN PAV MRK NON-REMOV (Y) 4" (SLD)	WK ZN PAV MRK REMOV (W) 4" (SLD)	WK ZN PAV MRK REMOV (Y) 4" (SLD)	ELIM EXT PAV MRK & MRKS (4")	PORTABLE CHANGEABLE MESSAGE SIGN	TMA (STATIONARY)	TMA (MOBILE OPERATION)
FM 907	(MO)	(LF)	(EA)	(LF)	(LF)	(LF)	(LF)	(EA)	(DAY)	(DAY)
(CSJ 1586-01-079)	EST.	EST.	EST.	EST.	EST.	EST.	EST.	EST.	EST.	EST.
PHASE I (STA 251+14.90 TO STA 255+00)										
TOTAL PH I:	0									
PHASE II (STA 255+00 TO STA 310+00)										
TOTAL PH II										
PHASE III (STA 310+00 TO STA 358+67.49)										
STEP - A		4790		4790	360	360	4790			
STEP - B		5150		5150			720			
TOTAL PH III		9940		9940	360	360	5510			
PHASE IV (STA 248+14.90 TO STA 358+67.49)										
	0									
TOTAL PH IV										
THROUGHOUT PROJECT	17		1650					6	266	30
PROJECT TOTAL	**17**	**9940**	**1650**	**9940**	**360**	**360**	**5510**	**6**	**266**	**30**

SUMMARY OF UTILITY AND DRAINAGE ITEMS

LOCATION	402 6001	432 6001	432 6002	464 6003	464 6005	465 6126	467 6363	467 6395	496 6004	496 6007
	TRENCH EXCAVATION PROTECTION	RIPRAP (CONC) (4IN)	RIPRAP (CONC) (5IN)	RC PIPE (CL III) 18"	RC PIPE (CL III) 24"	INLET (COMPL) (PSL)(FG) (3FTx3FT-3FTx3FT)	SET (TY II) (18 IN) (RCP) (6:1) (P)	SET (TY II) (24 IN) (RCP) (6:1) (P)	REMOVE STR(SET)	REMOVE STR(PIPE)
FM 907	(LF)	(CY)	(CY)	(LF)	(LF)	(EA)	(EA)	(EA)	(EA)	(LF)
(CSJ 1586-01-079)	EST			EST	EST	EST	EST	EST	EST	EST
U&D 1 of 21				188			4		4	144
U&D 2 of 21				88			2		2	52
U&D 3 of 21				198			6		6	122
U&D 4 of 21										
U&D 5 of 21										
U&D 6 of 21				96			4		4	74
U&D 7 of 21										
U&D 8 of 21				56			4		4	40
U&D 9 of 21	737		22		737			2	5	544
U&D 10 of 21	231	62		140	345	2	4	4	8	288
U&D 11 of 21				112			4		4	96
U&D 12 of 21				80			3		2	36
U&D 13 of 21				44			2		2	36
U&D 14 of 21				100			4		4	76
U&D 15 of 21										
U&D 16 of 21										
U&D 17 of 21				94			2		2	78
U&D 18 of 21										
U&D 19 of 21										
WEST ANAYA RD (UD 20 of 21)				52			2			58
EAST ANAYA RD (UD 21 of 21)				140			2			53
PROJECT TOTAL:	**968**	**62**	**22**	**1388**	**1082**	**2**	**43**	**6**	**47**	**1697**

STATE OF TEXAS
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117308
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04/27/22

Pharr District Central Design

Texas Department of Transportation

FM 907

SUMMARY TABLES OF ESTIMATED QUANTITIES

SHEET 2 OF 4

CONT	SECT	JOB	HIGHWAY
1586	01	079	FM 907
DIST	COUNTY		SHEET NO.
PHR	HIDALGO		21

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SUMMARY OF DRAINAGE/CULVERT AND IRRIGATION STRUCTURE ITEMS

LOCATION	110 6002 EXCAVATION (CHANNEL) (CY) EST.	* 400 6001 STRUCT EXCAV (CY) EST.	400 6005 CEM STABIL BKFL (CY) EST.	400 6006 CUT & RESTORE PVMT. (SY) EST.	400 6010 STRUCT EXCAV (SPECIAL) (CY) EST.	402 6001 TRENCH EXCAVATION PROTECTION (LF) EST.	432 6002 RIPRAP (CONCRETE) (5 IN) (CY) EST.	464 6069 RC PIPE (CL IV) (SPL) (18") (LF) EST.	464 6060 RC PIPE (CL IV) (SPL) (24") (LF) EST.	465 6126 INLET (COMPL) (PSL) (FG) (3FT X 3FT) (EA) EST.	467 6356 SET TY II (18") (RCP) (3:1) (C) (EA) EST.	496 6007 REMOVE STRUCT PIPE (LF) EST.	1007 6007 IRRIGATION VALVE (12') (EA) EST.	1008 6001 PRSSR IRRIG PVC PIPE (18") (LF) EST.	1008 6002 PRSSR IRRIG PVC PIPE (24") (LF) EST.	1008 6003 PRSSR IRRIG PVC PIPE (12") (LF) EST.	7016 6088 CASING STEEL (OPEN TRENCH) (20") (LF) EST.	7016 6090 CASING STEEL (OPEN TRENCH) (24") (LF) EST.	7016 6092 CASING STEEL (OPEN TRENCH) (30") (LF) EST.
DRAINAGE & CULVERTS																			
DRAINAGE SHEET 1 OF 4	38	110	10		19	127	30	127	-	-	-	116	-	-	-	-	-	-	-
DRAINAGE SHEET 2 OF 4	73	220	19		39	130	59	-	260	-	-	241	-	-	-	-	-	-	-
DRAINAGE SHEET 3 OF 4		64	9		11	76	-	72	-	2	-	72	-	-	-	-	-	-	-
DRAINAGE SHEET 4 OF 4	19	145	9		15	105	20	100	-	1	-	68	-	-	-	-	-	-	-
CULVERT SHEET 1 OF 2		80	9		10	72	-	64	-	1	-	64	-	-	-	-	-	-	-
CULVERT SHEET 2 OF 2		28	9		8	60	-	52	-	-	2	48	-	-	-	-	-	-	-
IRRIGATION CROSSINGS																			
IRRIG. SHEET 1 OF 5		72	20		14	97	-	-	-	-	-	92	-	-	97	-	-	-	70
IRRIG. SHEET 2 OF 5		101	20		15	96	-	-	-	-	-	108	-	-	96	-	-	-	70
IRRIG. SHEET 3 OF 5		44	12	20	10	80	-	-	-	-	-	80	-	-	-	80	72	-	-
IRRIG. SHEET 4 OF 5		89	16	26	14	101	-	-	-	-	-	103	1	101	-	5	-	70	-
IRRIG. SHEET 5 OF 5		75	16	26	14	104	-	-	-	-	-	106	1	101	-	4	-	70	-
PROJECT TOTAL	**130**	**1,028**	**149**	**72**	**169**	**1,048**	**109**	**415**	**260**	**4**	**2**	**1,098**	**2**	**202**	**193**	**89**	**72**	**140**	**140**

NOTES:
* FOR CONTRACTOR INFORMATION ONLY (NON-PAY).

SUMMARY OF PAVEMENT MARKINGS

PAVEMENT MARKING LAYOUTS	666-6036 REFL PAV MRK TY I (W) (8") (SLD) (100 MIL) (LF) EST	666-6048 REFL PAV MRK TY I (W) (24") (SLD) (100 MIL) (LF) EST	666-6054 REFL PAV MRK TY I (W) (ARROW) (100 MIL) (EA) EST	666-6078 REFL PAV MRK TY I (W) (WORD) (100 MIL) (EA) EST	666-6141 REFL PAV MRK TY I (Y) (12") (SLD) (100 MIL) (LF) EST	666-6312 RE PM W/RET REQ TY I (Y) (4") (BRK) (100 MIL) (LF) EST	666-6315 RE PM W/RET REQ TY I (Y) (4") (SLD) (100 MIL) (LF) EST	666-6342 REF PROF PAV MRK TY I (W)4"(SLD)(100MIL) (LF) EST	672-6007 REFL PAV MRK TY I-C (EA) EST	672-6009 REFL PAV MRK TY II-A-A (EA) EST	672-6017 TRAFFIC BUTTON TY Y (EA) EST	672-6018 TRAFFIC BUTTON TY B (EA) EST	678 6001 PAV SURF PREP FOR MRK (4") (LF) EST	6038-6001 MULTIPOLYMER PAV MRK (W)(4")(SLD) (LF) EST	6038-6014 MULTIPOLYMER PAV MRK (Y)(4")(SLD) (LF) EST
FM 907 (CSJ 1586-01-079)															
SHEET 1 OF 4	188	77	2	2	337	610	4280	6644	10	227	100	814	-	-	-
SHEET 2 OF 4	-	-	-	-	-	800	2420	6920	-	89	340	900	328	164	164
SHEET 3 OF 4	150	51	2	2	196	810	2677	7702	8	178	53	1203	-	-	-
SHEET 4 OF 4	-	22	-	-	-	130	504	-	-	12	-	-	-	-	-
PROJECT TOTAL=	**338**	**150**	**4**	**4**	**533**	**2350**	**9881**	**21266**	**18**	**506**	**493**	**2917**	**328**	**164**	**164**

SUMMARY OF DELINEATORS & OBJECT MARKERS

PAVEMENT MARKING LAYOUTS	658 6061 INSTL DEL ASSM (D-SW) SZ 1(BRF) GF2 (EA) EST	658 6100 INSTL OM ASSM (OM-2Z) (WFLX) GND (BI) (EA) EST	658 6060 REMOVE DELIN & OBJECT MARKER ASSMS (EA) EST
FM 907 (CSJ 1586-01-079)			
SHEET 1 OF 4	-	4	2
SHEET 2 OF 4	12	-	16
SHEET 3 OF 4	-	8	9
SHEET 4 OF 4	-	-	-
PROJECT TOTAL=	**12**	**12**	**27**

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STATE OF TEXAS
JOSE A. RODRIGUEZ
117308
LICENSED PROFESSIONAL ENGINEER

04/28/22

Pharr District Central Design

Texas Department of Transportation

FM 907

SUMMARY TABLES OF ESTIMATED QUANTITIES

SHEET 3 OF 4

CONT	SECT	JOB	HIGHWAY
1586	01	079	FM 907
DIST	COUNTY		SHEET NO.
PHR	HIDALGO		22

SUMMARY OF SMALL SIGNS

FM 907 SIGNING LAYOUTS	644 6027 IN SM RD SN SUP&AM TYS80(1) SA (P) EA EST	644 6030 IN SM RD SN SUP&AM TYS80(1) SA (T) EA EST	644 6033 IN SM RD SN SUP&AM TYS80(1) SA (U) EA EST	644 6075 RELOCATE SM RD SN SUP&AM (SIGN ONLY) EA EST	644 6076 REMOVE SM RD SN SUP&AM EA EST	636 6001 ALUMINUM SIGNS (TY A) SF EST
FM 907 (CSJ 1586-01-079)						
SHEET 1 OF 5	7	2	1	-	6	12
SHEET 2 OF 5	3	2	-	-	4	15
SHEET 3 OF 5	6	2	-	-	6	12
SHEET 4 OF 5	4	2	-	-	5	11
SHEET 5 OF 5	2	3	1	1	6	36
PROJECT TOTAL=	**22**	**11**	**2**	**1**	**27**	**86**

SUMMARY OF EROSION CONTROL DEVICES

FM 907	160-6005 ## FURNISH & PLACING TOPSOIL (CY) EST.	164-6023 * CELL FBR MLCH SEED (PERM) (RURAL) (CLAY) (SY) EST.	164-6029 CELL FBR MLCH SEED (TEMP) (WARM) (SY) EST.	166 NON-PAY FERTILIZER ** (TON) EST.	168-6001 VEGETATIVE WATERING (MG) EST.	506-6021 CONSTRUCT EXITS (INSTALL) (TY 2) *** (SY) EST.	506-6024 CONSTRUCT EXITS (REMOVE) (SY) EST.	506-6038 TEMP. SEDIMENT CONTROL FENCE (INSTALL) (LF) EST.	506-6039 TEMP. SEDIMENT CONTROL FENCE (REMOVE) (LF) EST.	506-6041 BIODEGR. EROSN CONTRL LOGS (12") (INSTALL) (LF) EST.	506-6043 BIODEGR. EROSN CONTRL LOGS (REMOVE) (LF) EST.
FM 907 (CSJ 1586-01-079)											
SHEET 1 OF 4	-	12,340	12,340	0.13	225	156	156	-	-	1,020	1,020
SHEET 2 OF 4	-	13,530	13,530	0.14	247	156	156	1,120	1,120	720	720
SHEET 3 OF 4		14,151	14,151	0.15	258	-	-	-	-	840	840
SHEET 4 OF 4	-	1,976	1,976	0.02	36	234	234	-		120	120
THROUGHOUT PROJECT	50	-	-			-	-	-	-	-	-
PROJECT TOTAL=	**50**	**41,997**	**41,997**	**0.44**	**766**	**546**	**546**	**1,120**	**1,120**	**2,700**	**2,700**

TOPSOIL TO BE USED AS NEEDED AND AS DIRECTED BY THE ENGINEER FOR SELECT PROBLEM AREAS.

* PERMANENT SEEDING TO BE DONE AFTER ROADWAY CONSTRUCTION IS COMPLETE

** FOR CONTRACTOR INFORMATION ONLY, FERTILIZER QUANTITIES (TON) ARE BASED ON A RATE OF 100 LBS OF NITROGEN PER ACRE NPK 10-5-5

*** CONSTRUCTION EXIT MIN AREA = 78 SY (50'X14') , LOCATIONS ARE APPROXIMATE AND MAY BE MODIFIED IN THE FIELD AS APPROVED BY ENGINEER

VEGETATIVE WATERING APLICATION RATE = 88,300 GAL/ACRE @ 13 CYCLES / 1000 (MG)
LOG MAX LENGTH = 30 FEET
STD LENGTH = 10 FEET WEIGHT = 33 LBS

EROSION CONTROL DEVICES MAY BE MODIFIED TO MEET FIELD CONDITIONS OR AS DIRECTED BY THE ENGINEER.
CONTRACTOR SHALL CONSULT WITH THE FIELD ENGINEER BEFORE ANY EROSION CONTROL DEVICE IS INSTALLED.

DATE: 3/30/2022 3:19:55 PM
FILE: c:\txdot\pw_online\txdot5\arleene.garcia\d0304074\FM 907 SUMMARY OF ESTIMATED QUANTITIES.dgn

STATE OF TEXAS
JOSE A. RODRIGUEZ
117308
LICENSED PROFESSIONAL ENGINEER

03/31/22

Pharr District Central Design

Texas Department of Transportation

FM 907

SUMMARY TABLES OF ESTIMATED QUANTITIES

SHEET 4 OF 4

CONT	SECT	JOB	HIGHWAY
1586	01	079	FM 907
DIST	COUNTY		SHEET NO.
PHR	HIDALGO		23

Baseline Station	Cut Shrink/ Swell Factor	Station Cut Area	Station Cut Volume	Adjusted Station Cut	Fill Shrink/ Swell Factor	Station Fill Area	Station Fill Volume	Adjusted Station Fill	Mass Ordinate
252+00.0000 R1	1	55	0	0	0	0	0	0	
Station Total:				0				0	0
253+00.0000 R1	1	76	242.7	242.7	1	1	2.5	2.5	
Station Total:				242.7				2.5	240.3
254+00.0000 R1	1	84	295.6	295.6	1	2	6.6	6.6	
Station Total:				295.6				6.6	529.2
255+00.0000 R1	1	72	287.8	287.8	1	2	8.6	8.6	
Station Total:				287.8				8.6	808.4
256+00.0000 R1	1	58	240.2	240.2	1	4	12.4	12.4	
Station Total:				240.2				12.4	1036.2
257+00.0000 R1	1	56	210.5	210.5	1	4	14.9	14.9	
Station Total:				210.5				14.9	1231.9
258+00.0000 R1	1	55	204.7	204.7	1	3	13.4	13.4	
Station Total:				204.7				13.4	1423.2
259+00.0000 R1	1	56	204.8	204.8	1	5	16.3	16.3	
Station Total:				204.8				16.3	1611.7
260+00.0000 R1	1	63	220	220	1	3	14.6	14.6	
Station Total:				220				14.6	1817
261+00.0000 R1	1	68	243.3	243.3	1	2	9.2	9.2	
Station Total:				243.3				9.2	2051.2
262+00.0000 R1	1	52	223.3	223.3	1	3	9.9	9.9	
Station Total:				223.3				9.9	2264.6
263+00.0000 R1	1	51	192.3	192.3	1	6	17.1	17.1	
Station Total:				192.3				17.1	2439.8
264+00.0000 R1	1	50	187.7	187.7	1	5	20.1	20.1	
Station Total:				187.7				20.1	2607.4
265+00.0000 R1	1	70	222.6	222.6	1	1	10.2	10.2	
Station Total:				222.6				10.2	2819.9
266+00.0000 R1	1	78	275	275	1	1	3.5	3.5	
Station Total:				275				3.5	3091.3
267+00.0000 R1	1	73	280.7	280.7	1	3	8	8	
Station Total:				280.7				8	3364
268+00.0000 R1	1	62	251.5	251.5	1	6	17.4	17.4	
Station Total:				251.5				17.4	3598.1
269+00.0000 R1	1	61	227.6	227.6	1	7	24.7	24.7	
Station Total:				227.6				24.7	3801
270+00.0000 R1	1	52	208.8	208.8	1	8	27.8	27.8	
Station Total:				208.8				27.8	3982.1
271+00.0000 R1	1	49	186.8	186.8	1	8	29	29	
Station Total:				186.8				29	4139.9
272+00.0000 R1	1	51	184.8	184.8	1	6	26.3	26.3	
Station Total:				184.8				26.3	4298.5
273+00.0000 R1	1	54	194.6	194.6	1	5	20.8	20.8	
Station Total:				194.6				20.8	4472.3
274+00.0000 R1	1	54	199.2	199.2	1	5	18.1	18.1	
Station Total:				199.2				18.1	4653.4
275+00.0000 R1	1	60	210.9	210.9	1	3	15	15	
Station Total:				210.9				15	4849.3
276+00.0000 R1	1	58	219.2	219.2	1	3	11.7	11.7	
Station Total:				219.2				11.7	5056.8
277+00.0000 R1	1	63	224.7	224.7	1	3	11.1	11.1	
Station Total:				224.7				11.1	5270.3
278+00.0000 R1	1	63	234.4	234.4	1	3	11.5	11.5	
Station Total:				234.4				11.5	5493.2
279+00.0000 R1	1	65	237.6	237.6	1	2	9.4	9.4	
Station Total:				237.6				9.4	5721.4
280+00.0000 R1	1	91	289.6	289.6	1	0	3.9	3.9	
Station Total:				289.6				3.9	6007.1

NOTE:
SHRINKAGE OR SWELLING FACTORS WERE NOT CONSIDERED IN DETERMINING QUANTITIES. VOLUMES WERE MEASURED AS ORIGINAL AND FINAL POSITIONS. THE CONTRACTOR SHALL BE RESPONSIBLE FOR DETERMINING VALUES WHEN NEEDED.

SEE PAGE 5 OF 5 FOR GRAND SUMMARY TOTAL OF EARTHWORK QUANTITIES.

STATE OF TEXAS
JOSE A. RODRIGUEZ
117308
LICENSED PROFESSIONAL ENGINEER

03/31/22

Pharr District Central Design

Texas Department of Transportation

FM 907

SUMMARY TABLES OF ESTIMATED EARTHWORK QUANTITIES

CONT	SECT	JOB	HIGHWAY
1586	01	079	FM 907
DIST	COUNTY		SHEET NO.
PHR	HIDALGO		24

DATE: 3/30/2022 10:12:14 AM
FILE: c:\txdot\pw_online\txdot5\jose.rodrigue25\d0304079\FM 907 EW.dgn

Baseline Station	Cut Shrink/ Swell Factor	Station Cut Area	Station Cut Volume	Adjusted Station Cut	Fill Shrink/ Swell Factor	Station Fill Area	Station Fill Volume	Adjusted Station Fill	Mass Ordinate
281+00.0000 R1	1	70	298.6	298.6	1	1	2.8	2.8	
Station Total:				298.6				2.8	6303
282+00.0000 R1	1	62	243.6	243.6	1	2	6.7	6.7	
Station Total:				243.6				6.7	6539.8
283+00.0000 R1	1	72	247.7	247.7	1	2	8.8	8.8	
Station Total:				247.7				8.8	6778.7
284+00.0000 R1	1	67	258.4	258.4	1	2	8.3	8.3	
Station Total:				258.4				8.3	7028.8
285+00.0000 R1	1	69	253	253	1	4	10.7	10.7	
Station Total:				253				10.7	7271.1
286+00.0000 R1	1	66	249.7	249.7	1	3	12.1	12.1	
Station Total:				249.7				12.1	7508.7
287+00.0000 R1	1	59	230.3	230.3	1	5	14.7	14.7	
Station Total:				230.3				14.7	7724.4
288+00.0000 R1	1	52	204.2	204.2	1	5	19.1	19.1	
Station Total:				204.2				19.1	7909.4
289+00.0000 R1	1	58	202.6	202.6	1	4	17.3	17.3	
Station Total:				202.6				17.3	8094.7
290+00.0000 R1	1	59	215.6	215.6	1	4	13.9	13.9	
Station Total:				215.6				13.9	8296.5
291+00.0000 R1	1	67	233	233	1	2	10.5	10.5	
Station Total:				233				10.5	8519
292+00.0000 R1	1	77	266.2	266.2	1	0	4.9	4.9	
Station Total:				266.2				4.9	8780.2
293+00.0000 R1	1	68	267.6	267.6	1	2	4.1	4.1	
Station Total:				267.6				4.1	9043.8
294+00.0000 R1	1	71	256.7	256.7	1	1	5.4	5.4	
Station Total:				256.7				5.4	9295.1
295+00.0000 R1	1	67	255.8	255.8	1	3	7.1	7.1	
Station Total:				255.8				7.1	9543.8
296+00.0000 R1	1	70	254.9	254.9	1	1	6.8	6.8	
Station Total:				254.9				6.8	9791.8
297+00.0000 R1	1	84	285.6	285.6	1	0	2.4	2.4	
Station Total:				285.6				2.4	10075
298+00.0000 R1	1	66	277.4	277.4	1	1	2.8	2.8	
Station Total:				277.4				2.8	10349.6
299+00.0000 R1	1	12	143.7	143.7	1	87	162.9	162.9	
Station Total:				143.7				162.9	10330.4
300+00.0000 R1	1	0	21.9	21.9	1	115	374.8	374.8	
Station Total:				21.9				374.8	9977.5
301+00.0000 R1	1	0	0.0	0.0	1	153	496.6	496.6	
Station Total:				0.0				496.6	9480.9
302+00.0000 R1	1	0	0	0	1	155	569.5	569.5	
Station Total:				0				569.5	8911.3
302+19.6700 R1	1	0	0	0	1	191	125.9	125.9	
Station Total:				0				125.9	8785.5
302+99.6700 R1	1	0	0	0	1	189	0	0	
Station Total:				0				0	8785.5
303+00.0000 R1	1	0	0	0	1	187	2.3	2.3	
Station Total:				0				2.3	8783.2
304+00.0000 R1	1	15	28.3	28.3	1	141	606.3	606.3	
Station Total:				28.3				606.3	8205.2
305+00.0000 R1	1	16	57.4	57.4	1	105	454.6	454.6	
Station Total:				57.4				454.6	7808.1
306+00.0000 R1	1	1	30.1	30.1	1	58	301.7	301.7	
Station Total:				30.1				301.7	7536.4
307+00.0000 R1	1	48	90.7	90.7	1	2	9.8	9.8	
Station Total:				90.7				9.8	7617.3

NOTE:
SHRINKAGE OR SWELLING FACTORS WERE NOT CONSIDERED IN DETERMINING QUANTITIES. VOLUMES WERE MEASURED AS ORIGINAL AND FINAL POSITIONS. THE CONTRACTOR SHALL BE RESPONSIBLE FOR DETERMINING VALUES WHEN NEEDED.

SEE PAGE 5 OF 5 FOR GRAND SUMMARY TOTAL OF EARTHWORK QUANTITIES.

STATE OF TEXAS
JOSE A. RODRIGUEZ
117308
LICENSED PROFESSIONAL ENGINEER

03/31/22

Pharr District Central Design

Texas Department of Transportation

FM 907

SUMMARY TABLES OF ESTIMATED EARTHWORK QUANTITIES

CONT	SECT	JOB	HIGHWAY
1586	01	079	FM 907
DIST	COUNTY		SHEET NO.
PHR	HIDALGO		25

DATE: 3/30/2022 10:12:33 AM
FILE: c:\txdot\pw_online\txdot5\jose.rodriguez5\d0304079\FM 907 EW.dgn

Baseline Station	Cut Shrink/ Swell Factor	Station Cut Area	Station Cut Volume	Adjusted Station Cut	Fill Shrink/ Swell Factor	Station Fill Area	Station Fill Volume	Adjusted Station Fill	Mass Ordinate
308+00.0000 R1	1	69	216.5	216.5	1	0	4.6	4.6	
Station Total:				216.5				4.6	7829.2
309+00.0000 R1	1	71	259	259	1	0	0.7	0.7	
Station Total:				259				0.7	8087.5
310+00.0000 R1	1	74	268.9	268.9	1	0	0.6	0.6	
Station Total:				268.9				0.6	8355.8
311+00.0000 R1	1	77	278.5	278.5	1	0	0.5	0.5	
Station Total:				278.5				0.5	8633.8
312+00.0000 R1	1	74	277.9	277.9	1	0	0	0	
Station Total:				277.9				0	8911.7
313+00.0000 R1	1	60	246.6	246.6	1	0	0.7	0.7	
Station Total:				246.6				0.7	9157.6
314+00.0000 R1	1	85	267.8	267.8	1	0	0.7	0.7	
Station Total:				267.8				0.7	9424.7
315+00.0000 R1	1	75	297	297	1	0	0	0	
Station Total:				297				0	9721.7
316+00.0000 R1	1	91	308.9	308.9	1	0	0	0	
Station Total:				308.9				0	10030.6
317+00.0000 R1	1	77	311.4	311.4	1	0	0.1	0.1	
Station Total:				311.4				0.1	10341.9
318+00.0000 R1	1	59	251.4	251.4	1	2	3.2	3.2	
Station Total:				251.4				3.2	10590.1
319+00.0000 R1	1	65	229.4	229.4	1	2	6.6	6.6	
Station Total:				229.4				6.6	10812.9
320+00.0000 R1	1	76	261.3	261.3	1	0	4.2	4.2	
Station Total:				261.3				4.2	11070.0
321+00.0000 R1	1	71	272.7	272.7	1	0	1.3	1.3	
Station Total:				272.7				1.3	11341.4
322+00.0000 R1	1	68	256.8	256.8	1	0	1	1	
Station Total:				256.8				1	11597.2
323+00.0000 R1	1	71	257.1	257.1	1	0	0.5	0.5	
Station Total:				257.1				0.5	11853.8
324+00.0000 R1	1	72	266.1	266.1	1	0	0.5	0.5	
Station Total:				266.1				0.5	12119.4
325+00.0000 R1	1	76	275.5	275.5	1	1	1.4	1.4	
Station Total:				275.5				1.4	12393.5
326+00.0000 R1	1	58	249.1	249.1	1	1	3.1	3.1	
Station Total:				249.1				3.1	12639.5
327+00.0000 R1	1	60	219.3	219.3	1	1	3.3	3.3	
Station Total:				219.3				3.3	12855.5
328+00.0000 R1	1	70	240.9	240.9	1	0	1.2	1.2	
Station Total:				240.9				1.2	13095.2
329+00.0000 R1	1	75	267.6	267.6	1	0	0	0	
Station Total:				267.6				0	13362.8
330+00.0000 R1	1	77	280.9	280.9	1	0	0.3	0.3	
Station Total:				280.9				0.3	13643.4
331+00.0000 R1	1	86	302.6	302.6	1	0	0.4	0.4	
Station Total:				302.6				0.4	13945.6
332+00.0000 R1	1	75	298.9	298.9	1	0	0.3	0.3	
Station Total:				298.9				0.3	14244.2
333+00.0000 R1	1	55	241.6	241.6	1	10	18.8	18.8	
Station Total:				241.6				18.8	14467.0
334+00.0000 R1	1	66	224.2	224.2	1	2	22.5	22.5	
Station Total:				224.2				22.5	14668.7
335+00.0000 R1	1	68	248.3	248.3	1	1	5.1	5.1	
Station Total:				248.3				5.1	14911.9
336+00.0000 R1	1	58	234.9	234.9	1	2	4.7	4.7	
Station Total:				234.9				4.7	15142.1

NOTE:
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SEE PAGE 5 OF 5 FOR GRAND SUMMARY TOTAL OF EARTHWORK QUANTITIES.

STATE OF TEXAS
JOSE A. RODRIGUEZ
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03/31/22

Pharr District Central Design

Texas Department of Transportation

FM 907

SUMMARY TABLES OF ESTIMATED EARTHWORK QUANTITIES

CONT	SECT	JOB	HIGHWAY
1586	01	079	FM 907
DIST	COUNTY		SHEET NO.
PHR	HIDALGO		26

DATE: 3/30/2022 10:12:51 AM
FILE: c:\txdot\pw_online\txdot5\jose.rodriguez5\d0304079\FM 907 EW.dgn

Baseline Station	Cut Shrink/ Swell Factor	Station Cut Area	Station Cut Volume	Adjusted Station Cut	Fill Shrink/ Swell Factor	Station Fill Area	Station Fill Volume	Adjusted Station Fill	Mass Ordinate
337+00.0000 R1	1	59	217.6	217.6	1	2	7.9	7.9	
Station Total:				217.6				7.9	15351.8
338+00.0000 R1	1	59	219.1	219.1	1	2	7.3	7.3	
Station Total:				219.1				7.3	15563.6
339+00.0000 R1	1	56	212.9	212.9	1	3	8.6	8.6	
Station Total:				212.9				8.6	15767.9
340+00.0000 R1	1	60	214.6	214.6	1	0	6.3	6.3	
Station Total:				214.6				6.3	15976.2
341+00.0000 R1	1	58	218.1	218.1	1	2	3.7	3.7	
Station Total:				218.1				3.7	16190.6
342+00.0000 R1	1	60	217.7	217.7	1	1	4.6	4.6	
Station Total:				217.7				4.6	16403.7
343+00.0000 R1	1	61	224.2	224.2	1	1	3.6	3.6	
Station Total:				224.2				3.6	16624.3
344+00.0000 R1	1	65	233.8	233.8	1	2	5	5	
Station Total:				233.8				5	16853.1
345+00.0000 R1	1	66	241.9	241.9	1	1	5.6	5.6	
Station Total:				241.9				5.6	17089.4
346+00.0000 R1	1	58	228.3	228.3	1	10	20.9	20.9	
Station Total:				228.3				20.9	17296.8
347+00.0000 R1	1	66	229.4	229.4	1	1	19.8	19.8	
Station Total:				229.4				19.8	17506.4
348+00.0000 R1	1	63	239.8	239.8	1	1	3.4	3.4	
Station Total:				239.8				3.4	17742.8
349+00.0000 R1	1	62	232.5	232.5	1	1	4.1	4.1	
Station Total:				232.5				4.1	17971.2
350+00.0000 R1	1	62	230.1	230.1	1	1	3.8	3.8	
Station Total:				230.1				3.8	18197.5
351+00.0000 R1	1	58	221.7	221.7	1	1	3.4	3.4	
Station Total:				221.7				3.4	18415.8
352+00.0000 R1	1	55	209.5	209.5	1	3	8.2	8.2	
Station Total:				209.5				8.2	18617.1
353+00.0000 R1	1	58	209.8	209.8	1	2	10.7	10.7	
Station Total:				209.8				10.7	18816.2
354+00.0000 R1	1	57	211.9	211.9	1	4	12.3	12.3	
Station Total:				211.9				12.3	19015.8
355+00.0000 R1	1	53	202.9	202.9	1	3	12.5	12.5	
Station Total:				202.9				12.5	19206.2
356+00.0000 R1	1	51	192.9	192.9	1	5	13.9	13.9	
Station Total:				192.9				13.9	19385.2
357+00.0000 R1	1	50	187.9	187.9	1	9	25.7	25.7	
Station Total:				187.9				25.7	19547.4
358+00.0000 R1	1	56	196.5	196.5	1	1	18.6	18.6	
Station Total:				196.5				18.6	19725.3
358+77.3134 R1	1	0	79.9	79.9	1	0	1.7	1.7	
Station Total:				79.9				1.7	19803.5
Grand Total (FM 907):			23758.0				3954.7		

NOTE:
SHRINKAGE OR SWELLING FACTORS WERE NOT CONSIDERED IN DETERMINING QUANTITIES. VOLUMES WERE MEASURED AS ORIGINAL AND FINAL POSITIONS. THE CONTRACTOR SHALL BE RESPONSIBLE FOR DETERMINING VALUES WHEN NEEDED.

SEE PAGE 5 OF 5 FOR GRAND SUMMARY TOTAL OF EARTHWORK QUANTITIES.

STATE OF TEXAS
JOSE A. RODRIGUEZ
117308
LICENSED
PROFESSIONAL ENGINEER

03/31/22

Pharr District Central Design

Texas Department of Transportation

FM 907

SUMMARY TABLES OF ESTIMATED EARTHWORK QUANTITIES

CONT	SECT	JOB	HIGHWAY
1586	01	079	FM 907
DIST	COUNTY		SHEET NO.
PHR	HIDALGO		27

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WEST ANAYA ROAD (INCIDENTAL CONSTRUCTION)

Baseline Station	Cut Shrink/ Swell Factor	Station Cut Area	Station Cut Volume	Adjusted Station Cut	Fill Shrink/ Swell Factor	Station Fill Area	Station Fill Volume	Adjusted Station Fill	Mass Ordinate
10+00.0000 R1	1	43	0	0	0	0	0	0	
Station Total:				0				0	0
11+00.0000 R1	1	38	149.9	149.9	1	0	0.1	0.1	
Station Total:				149.9				0.1	149.8
12+00.0000 R1	1	29	123.7	123.7	1	0	0.2	0.2	
Station Total:				123.7				0.2	273.3
12+50.0000 R1	1	4	30.8	30.8	1	3	3	3	
Station Total:				30.8				3	301.1
Grand Total (Anaya West Rd.):			304.5				3.3		

EAST ANAYA ROAD (INCIDENTAL CONSTRUCTION)

Baseline Station	Cut Shrink/ Swell Factor	Station Cut Area	Station Cut Volume	Adjusted Station Cut	Fill Shrink/ Swell Factor	Station Fill Area	Station Fill Volume	Adjusted Station Fill	Mass Ordinate
10+24.4436 R1	1	0	0	0	1	9	0	0	
Station Total:				0				0	0
11+00.0000 R1	1	12	17.3	17.3	1	14	32.7	32.7	
Station Total:				17.3				32.7	-15.4
12+00.0000 R1	1	25	69.8	69.8	1	2	29.4	29.4	
Station Total:				69.8				29.4	25.1
12+75.0000 R1	1	32	79.4	79.4	1	0	2.6	2.6	
Station Total:				79.4				2.6	101.8
Grand Total (Anaya East Rd.):			166.6				64.7		

NOTE:
SHRINKAGE OR SWELLING FACTORS WERE NOT CONSIDERED IN DETERMINING QUANTITIES. VOLUMES WERE MEASURED AS ORIGINAL AND FINAL POSITIONS. THE CONTRACTOR SHALL BE RESPONSIBLE FOR DETERMINING VALUES WHEN NEEDED.

	ITEM 110-6001	ITEM 132-6006
ROADWAY:	EXCAVATION (ROADWAY)	EMBANKMENT (FILL DIRT)
FM 907	23,758	3,955
WEST ANAYA RD. (INCIDENTAL CONSTRUCTION)	305	3
EAST ANAYA RD. (INCIDENTAL CONSTRUCTION)	167	65
GRAND TOTALS:	24,230	4,023

GRAND TOTAL OF EARTHWORK QUANTITIES (ROADWAY)

EXCAVATION (ROADWAY) = TOTAL EXCAVATION - EXISTING BASE MATERIAL - EXISTING ACP

FM 907 SUBTOTALS:

EXCAVATION (ROADWAY) = 23,758 CY - 12,027 CY - 2,832 CY = 8,899 CY

EMBANKMENT (FINAL) (DENS CONT) (TY C) = 3,955 CY

WEST ANAYA ROAD SUBTOTALS (INCIDENTAL CONSTRUCTION):

EXCAVATION (ROADWAY) = 305 CY - 143 CY - 33 CY = 129 CY

EMBANKMENT (FINAL) (DENS CONT) (TY C) = 3 CY

EAST ANAYA ROAD SUBTOTALS (INCIDENTAL CONSTRUCTION):

EXCAVATION (ROADWAY) = 167 CY - 0 CY - 0 CY = 167 CY

EMBANKMENT (FINAL) (DENS CONT) (TY C) = 65 CY

PROJECT TOTAL:

TOTAL EXCAVATION (ROADWAY) = 8,899 CY + 129 CY + 167 CY = 9,195 CY (ITEM 110-6001)

TOTAL EMBANKMENT (FINAL) (DENS CONT) (TY C) = 3,955 CY + 3 CY + 65 CY = 4,023 CY (ITEM 132-6006)

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03/31/22

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Texas Department of Transportation

FM 907

SUMMARY TABLES OF ESTIMATED EARTHWORK QUANTITIES

SHEET 5 OF 5

CONT	SECT	JOB	HIGHWAY
1586	01	079	FM 907
DIST	COUNTY		SHEET NO.
PHR	HIDALGO		28

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TRAFFIC CONTROL PLAN COVER SHEET

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Texas Department of Transportation

FM 907

TRAFFIC CONTROL PLAN
COVER SHEET

CONT	SECT	JOB	HIGHWAY
1586	01	079	FM 907
DIST	COUNTY		SHEET NO.
PHR	HIDALGO		29

TCP GENERAL NOTES - F.M. 907

GENERAL NOTES AND SPECIFICATIONS DATA:

USE A POWER-BROOM WHEN CLEANING THE ROADWAY AS NEEDED.

REMOVE & DISPOSE ALL MATERIAL NOT DEEMED SALVAGEABLE BY THE ENGINEER, UNLESS OTHERWISE SHOWN ON THE PLANS.
ON EXISTING PAVEMENT THAT WILL REMAIN IN PLACE, SAND BLAST OR SURFACE TREAT TO REMOVE EXISTING STRIPING.

DO NOT BLOCK DRAINAGE WHEN HANDLING & STOCKPILING EXCAVATED MATERIAL.
MAINTAIN ACCESS TO DRIVEWAYS AND INTERSECTIONS THROUGH ALL PHASES OF CONSTRUCTION, UNLESS OTHERWISE CALLED ON THE PLANS AND/OR SPECIFICATIONS.
MAINTAIN POSITIVE DRAINAGE DURING ALL PHASES OF CONSTRUCTION.

COMPLETE THE PROPOSED DRIVEWAYS THAT COINCIDE WITH THEIR PHASE BEFORE PROCEEDING WITH THE NEXT PHASE AND/OR STEP, UNLESS DIRECTED BY THE ENGINEER.

TRAFFIC CONTROL DEVICES:

AT THE COMMENCEMENT OF THE PROJECT, ALL TRAFFIC CONTROL DEVICES SHALL BE IN ACCEPTABLE CONDITION, AND MAINTAINED THROUGHOUT THE DURATION OF THE PROJECT, AS PER GUIDELINES FOR TEMPORARY TRAFFIC CONTROL DEVICES AND FEATURES.
NOTIFY THE AREA ENGINEER (AE) IN WRITING (E-MAIL IS ACCEPTABLE) ONCE THE TRAFFIC CONTROL PLAN (TCP) AND ALL TRAFFIC CONTROL DEVICES HAVE BEEN INSTALLED AS PER PLANS ON THE PROJECT SO THAT THE DEPARTMENT'S RESPONSIBLE PERSON ACCOMPANIED BY THE CONTRACTOR'S RESPONSIBLE PERSON CAN CONDUCT A NIGHT INSPECTION ON THE SAID TCP AND TRAFFIC CONTROL DEVICES. COMMENCEMENT OF WORK WILL NOT BE AUTHORIZED NOR ALLOWED UNTIL THE AE NOTIFIES THE CONTRACTOR IN WRITING (E-MAIL IS ACCEPTABLE) TO PROCEED WITH THE WORK.
CONTRACTOR SHALL HAVE A SUFFICIENT AMOUNT OF TRAFFIC CONTROL DEVICES IN ACCEPTABLE CONDITION TO REPLACE ANY DAMAGED TRAFFIC CONTROL DEVICE WITHIN 24 HOURS OF NOTIFICATION.
PROVIDE ADDITIONAL SIGNS AND BARRICADES AS NECESSARY TO ADDRESS FIELD CONSTRUCTABILITY & VISIBILITY. THESE ADDITIONAL SIGNS WILL BE CONSIDERED SUBSIDIARY TO ITEM 502.
REMOVE OR COMPLETELY COVER ALL EXISTING SIGNS WHICH ARE IN CONFLICT WITH THE TRAFFIC CONTROL PLAN.
ADJUST STOP SIGNS AS NEEDED ON INTERSECTING STREETS DURING THE VARIOUS CONSTRUCTION PHASES. DO NOT REMOVE ANY EXISTING STOP SIGNS UNTIL TEMPORARY SIGNS ARE IN PLACE.
COORDINATE THE TRAFFIC CONTROL PLAN AND THE VARIOUS SEQUENCES OF CONSTRUCTION WITH ADJACENT CONSTRUCTION PROJECTS IF APPLICABLE, TO ENSURE THE UNINTERRUPTED AND SAFE FLOW OF TRAFFIC.

NOTIFY THE ENGINEER IN WRITING WHEN MAJOR TRAFFIC CHANGES ARE TO BE MADE. NOTIFICATIONS MUST BE GIVEN A MINIMUM OF THREE (3) WORKING DAYS PRIOR TO THE CHANGE.

ALL WORK ZONE PAVEMENT MARKINGS FOR THIS PROJECT SHALL BE 0.100 INCHES (100 MIL) THICK THERMOPLASTIC.

SAFETY:

PROTECT EXPOSED PITS THAT MUST REMAIN OPEN DURING NON-WORKING HOURS AS PER OSHA REQUIREMENTS.
PEDESTRIAN SAFETY, PLASTIC CONSTRUCTION FENCING, A MINIMUM 4 FEET HIGH, SHALL BE USED AROUND OPEN EXCAVATIONS.

ALL WORK SHALL BE DONE EXPEDITIOUSLY DURING DAYLIGHT HOURS, OR AS DIRECTED BY THE AREA ENGINEER. NECESSARY EXPERIENCED FLAGGERS AND APPROPRIATE SIGNING TO SAFELY GUIDE TRAFFIC THROUGH THE WORK AREA WILL BE REQUIRED AT NO ADDITIONAL COST.

PROJECT SPECIFIC NOTES:

THE TRAFFIC CONTROL PLAN AND VARIOUS PHASES AND SEQUENCES OF CONSTRUCTION SERVE AS GUIDE FOR THE SAFE TRAFFIC HANDLING DURING CONSTRUCTION OF THE PROJECT ROADWAY. THE TCP DOES NOT ATTEMPT TO ADDRESS EVERY ASPECT OF CONSTRUCTION THAT IS REQUIRED DURING EACH OF THE PROPOSED PHASES OF CONSTRUCTION. THE TCP DOES NOT RELIEVE THE CONTRACTOR OF THE RESPONSIBILITY OF CONSTRUCTING THE COMPLETE ROADWAYS AND OTHER RELATED ITEMS, AS NOTED ON THE PLANS AND SPECIFICATIONS.

THE CONTRACTOR SHALL NOTIFY THE PROPER CITY, COUNTY, E.M.S., FIRE DEPARTMENT, POLICE DEPARTMENT, TEXAS D.P.S. AND TxDOT OFFICIALS WHEN MAJOR TRAFFIC CHANGES ARE TO BE MADE. NOTIFICATIONS MUST BE GIVEN A MINIMUM OF THREE (3) DAYS PRIOR TO THE CHANGE. IN ADDITION, THE CONTRACTOR SHALL PROVIDE A WRITTEN WORK PLAN TO THE AREA ENGINEER FOR APPROVAL.

EXISTING ROADWAY SHALL BE CLOSED DURING CONSTRUCTION TO THRU AND COMMERCIAL TRUCK TRAFFIC AS PER PHASES OF CONSTRUCTION AS SHOWN ON THE TRAFFIC CONTROL PLANS AND DETOUR LAYOUTS UNTIL COMPLETION.

ROADWAY SHALL BE USED BY LOCAL TRAFFIC ONLY IF SPECIFICALLY CALLED FOR ON THE TRAFFIC CONTROL PLANS AND/OR SEQUENCE OF CONSTRUCTION. THE CONTRACTOR SHALL MAINTAIN THE ROADWAY IN ONE LANE WEATHER PASSABLE CONDITION DURING DAILY OPERATIONS (MIN 11.0 FT WIDE LANE) AND THE LOCAL TRAFFIC WILL BE SHIFTED AS SHOWN ON THE TCP TYPICAL SECTION FOR EACH PHASE.

STATE OF TEXAS
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LICENSED PROFESSIONAL ENGINEER

09/07/21

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FM 907

TRAFFIC CONTROL PLAN
GENERAL NOTES

SCALE: N.T.S. SHEET 1 OF 2

© 2021	CONT	SECT	JOB	HIGHWAY
	1586	01	079	FM 907
	DIST	COUNTY		SHEET NO.
	PHR	HIDALGO		30

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CONTRACTOR SHALL USE PLASTIC DRUMS AND/OR VERTICAL PANELS DURING OPERATIONS. CONTRACTOR MUST FOLLOW TxDOT BC STANDARDS AND TxDOT TCP (1-2)-18 STANDARDS FOR PROPER SIGNAGE AND SIGNS SPACING.

WHEN CONNECTING PROPOSED ROADWAY AND/OR DETOURS TO SECTIONS OF EXISTING PAVEMENT BEING USED BY TRAFFIC, AND SUCH OPERATIONS RESULTS IN A DROP-OFF OF MORE THAN 2-INCHES, A 3:1 SLOPE WILL BE REQUIRED. SEE TXDOT GUIDELINES FOR WARNING AND PROTECTIVE DEVICES FOR PAVEMENT "DROP-OFFS". THIS WORK SHALL BE DONE EXPEDITIOUSLY DURING DAYLIGHT HOURS OR AS APPROVED BY THE ENGINEER. NECESSARY FLAGGERS AND APPROPRIATE SIGNING TO SAFELY GUIDE TRAFFIC THROUGH THE WORK AREA WILL BE REQUIRED.

EXISTING AND ABOVE GROUND UTILITIES AND TOPOGRAPHY HAVE BEEN PLOTTED BY DIRECT FIELD INFORMATION PROVIDED AND AS SPOTTED BY UTILITY LOCATE REQUESTS. THE CONTRACTOR WILL BE RESPONSIBLE FOR ESTABLISHING THEIR EXACT LOCATION, DEPTH, AND SIZE. THE CONTRACTOR SHALL NOTIFY AND COORDINATE WITH THE UTILITY COMPANIES 72 HOURS PRIOR TO THE COMMENCEMENT OF ANY EXCAVATION WORK. THE CONTRACTOR WILL ALSO BE RESPONSIBLE, AT THEIR EXPENSE, FOR THE REPLACEMENT OR REPAIR OF ALL DISRUPTED, DAMAGED, AND/OR SEVERED SYSTEMS, GAS LINES, POWER LINES, TELEPHONE CABLES, FIBER OPTIC, AND/OR ANY OTHER UTILITY LINES.

THE CONTRACTOR SHALL FURNISH AND INSTALL SIX (6) PORTABLE CHANGEABLE MESSAGE SIGNS (PCMS), TO INFORM THE PUBLIC OF ANY CHANGES IN TRAFFIC DURING ALL CONSTRUCTION PHASES; THIS PCMS SHOULD BE PLACED AS PER SEQUENCE OF CONSTRUCTION. UPON COMPLETION OF THE PROJECT THE PORTABLE CHANGEABLE MESSAGE SIGNS SHALL REMAIN THE PROPERTY OF THE CONTRACTOR.

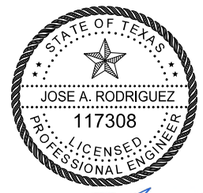
THE PORTABLE CHANGEABLE MESSAGE SINGS AND ALL RELATED COSTS FOR SETUP, RELOCATION, MAINTENANCE, REMOVAL, AND INCIDENTALS SHALL BE PAID UNDER ITEM 6001 "PORTABLE CHANGEABLE MESSAGE SIGN". THE CONTRACTOR SHALL BE RESPONSIBLE FOR UPDATING MESSAGES.

TEMPORARY WORK ZONE PAVEMENT MARKINGS INSTALLED AFTER THE COMPLETION OF WORK, AND WHICH ARE TO BE REMOVED ON A SUBSEQUENT SEQUENCE OF WORK, SHALL BE REMOVABLE. ALL NON-REMOVABLE WORK ZONE PAVEMENT MARKINGS SHALL BE THERMOPLASTIC (100 MIL THICKNESS).

THE CONTRACTOR SHALL PROTECT THE PAVEMENT FROM ALL DAMAGE AS DIRECTED BY THE ENGINEER WHEN MOVING ALL EQUIPMENT THAT IS NOT LICENSED FOR OPERATION ON PUBLIC HIGHWAYS, ON OR ACROSS ANY PAVEMENT.

THE CONTRACTOR SHALL KEEP ALL PAVEMENT SURFACES CLEAR AND FREE OF DIRT AND DEBRIS AT ALL TIMES, INCLUDING DURING AND AFTER HAULING OPERATIONS.

CONSTRUCTION OF DRAINAGE/CULVERT CROSSINGS AND IRRIGATION CROSSINGS SHALL BE DONE AS PER APPROPRIATE PHASING OF CONSTRUCTION USING OPEN-CUT METHOD UNLESS OTHERWISE NOTED ON THE PLANS. THE CONTRACTOR SHALL BACKFILL ALL OPEN-CUT SECTIONS AT THE END OF EACH DAY. DURING CUT & RESTORE OPERATIONS, THE CONTRACTOR SHALL ONLY CLOSE ONE LANE AT A TIME.



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Texas Department of Transportation

FM 907

TRAFFIC CONTROL PLAN
GENERAL NOTES

SCALE: N.T.S. SHEET 2 OF 2

© 2021	CONT	SECT	JOB	HIGHWAY
	1586	01	079	FM 907
	DIST	COUNTY		SHEET NO.
	PHR	HIDALGO		31

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IN LIEU OF IMPLEMENTING THE TCP PLANS INLCUDED FOR THIS PROJECT, THE CONTRACTOR MAY OPT AND SUBMIT AN ALTERNATE CONSTRUCTION SEQUENCE AND TRAFFIC CONTROL PLAN, SIGNED AND SEALED BY A PROFESSIONAL ENGINEER LICENSED IN THE STATE OF TEXAS. SUCH PLANS SHALL BE SUBMITTED TO THE ENGINEER FOR CONSIDERATION. HOWEVER, THE CONTRACTOR MUST FOLLOW THE TCP CONSTRUCTION PHASES AS SHOWN ON THE TCP PLANS.

THE CONTRACTOR SHALL BE PROHIBITED FROM WORKING SIMULTANOUSLY ON MULTIPLE PHASES. THE CONTRACTOR SHALL COMPLETE ALL STEPS IN EACH PHASE PRIOR TO INITIATING AND COMMENCING THE SUBSEQENT CONSTRUCTION PHASE.

IN ADDITION TO THE GENERAL NOTES REQUIREMENTS, THE FOLLOWING PROVISIONS GOVERN THIS CONTRACT.

SEQUENCE OF CONSTRUCTION.

CONSTRUCT THE FM 907 ROADWAY IMPROVEMENTS IN FOUR (4) MAIN PHASES AS NOTED IN THIS NARRATIVE.

INSTALL PROJECT LIMIT SIGNS, ADVANCE WARNING SIGNS, AND CROSSROAD BARRICADES/SIGNS AS SHOWN ON THE TRAFFIC CONTROL PLANS (TCP), AND IN ACCORDANCE WITH THE TEXAS MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (TMUTCD), LATEST EDITION, AND/OR AS DIRECTED BY THE ENGINEER. THESE SIGNS SHALL BE ERECTED AND PLACED PRIOR TO COMMENCING ANY PROPOSED ROADWAY CONSTRUCTION AND SHALL REMAIN IN PLACE FOR THE DURATION OF THE PROJECT AND UNTIL FINAL ACCEPTANCE OF THE PROJECT BY TXDOT.
PORTABLE CHANGEABLE MESSAGE BOARDS SHALL BE PLACED TO NOTIFY TRAVELING PUBLIC ON PLANNED ROADWAY CLOSURE DATE(S) OR MOVEMENTS RESTRICTIONS A MINIMUM OF FIVE (5) WORKING DAYS IN ADVANCE OF ROADWAY CLOSURE.

PHASE I: STA 251+14.90 TO STA 255+00 (FM 3072 INTERSECTION) (0.07 MILES):

1. INSTALL THE DETOUR SIGNS, TRAFFIC CONTROL DEVICES, AND SW3P ELEMENTS AS SHOWN ON THE PLANS OR AS DIRECTED BY THE ENGINEER. CONSTRUCTION WORK SHALL NOT BEGIN UNTIL THE ENGINEER HAS PROVIDED WRITTEN APPROVAL.
2. DETOUR TRAFFIC THROUGH U.S. BUSINESS HIGHWAY 83, F.M. 2557 (STEWART ROAD), AND U.S. 281 (MILITARY ROAD). USE DETOUR PLAN PHASE I.
3. DURING THIS PHASE, ACCESS TO F.M. 907 SHALL NOT BE ALLOWED FROM F.M. 3072 AND U.S. 281. CONTRACTOR SHALL PLACE DETOUR SIGNS AND TRAFFIC CONTROL DEVICES AS SHOWN ON THE DETOUR LAYOUT.
4. ROADWAY SHALL BE CLOSED DURING CONSTRUCTION TO THRU TRAFFIC. THRU TRAFFIC WILL NOT BE ALLOWED.
5. REMOVE AND REPLACE EXISTING IRRIGATION LINE CROSSINGS AS SHOWN ON THE PLANS.
6. CONSTRUCT PAVEMENT STRUCTURE AS SHOWN ON THE PLANS.
7. CONSTRUCT DRIVEWAYS AND TURNOUTS, REMOVE AND REPLACE EXISTING SAFETY END TREATMENT (S.E.T.) AS SHOWN ON PLANS.
8. PLACE 1.5-INCHES OF SUPER PAVE COURSE.
9. PRIOR TO CONCLUDING THIS PHASE, CLEAN AND RESHAPE THE FORESLOPES OF THE EXISTING ROADSIDE DITCHES, AND PLACE TEMPORARY AND/OR PERMANENT SEEDING.
10. REMOVE ROAD CLOSURE SETUPS AND PROCEED TO NEXT PHASE.

PHASE II: STA 255+00 TO STA 310+00 (1.04 MILES):

1. INSTALL THE DETOUR SIGNS, TRAFFIC CONTROL DEVICES, AND SW3P ELEMENTS AS SHOWN ON THE PLANS OR AS DIRECTED BY THE ENGINEER. CONSTRUCTION WORK SHALL NOT BEGIN UNTIL THE ENGINEER HAS PROVIDED WRITTEN APPROVAL.
2. DETOUR TRAFFIC THROUGH F.M. 3072 (DICKER ROAD), F.M. 2557 (STEWART ROAD), AND U.S. 281 (MILITARY ROAD). REMOVE PREVIOUS PHASE I DETOUR SIGNS AS NECESSARY AND IMPLEMENT DETOUR PLAN PHASE II.
3. DURING THIS PHASE, ACCESS TO F.M. 907 SHALL NOT BE ALLOWED FROM LAS MILPAS ROAD AND ANAYA ROAD. CONTRACTOR SHALL PLACE DETOUR SIGNS AND TRAFFIC CONTROL DEVICES AS SHOWN ON THE DETOUR LAYOUT.
4. ROADWAY SHALL BE CLOSED DURING CONSTRUCTION TO THRU TRAFFIC. THERE ARE NO LOCAL TRAFFIC IN THIS PHASE.
5. REMOVE AND REPLACE EXISTING IRRIGATION LINE CROSSINGS AS SHOWN ON THE PLANS.
6. REMOVE AND REPLACE EXISTING DRAINAGE CROSSINGS AS SHOWN ON THE PLANS.
7. REMOVE AND REPLACE EXISTING BRIDGE, INCLUDING ALL APPURTENANT BRIDGE CONSTRUCTION ELEMENTS AS SPECIFIED IN THE BRIDGE SECTION OF THESE PLANS.
8. CONSTRUCT PAVEMENT STRUCTURE FOR FM 907 AS SHOWN ON THE PLANS, INCLUDING THE PAVEMENT STRUCTURE FOR EAST ANAYA RD. AND WEST ANAYA RD.
9. CONSTRUCT DRIVEWAYS, REMOVE AND REPLACE EXISTING SAFETY END TREATMENT (S.E.T.) AS SHOWN ON PLANS.
10. PLACE 1.5-INCHES OF SUPER PAVE COURSE.
11. PRIOR TO CONCLUDING THIS PHASE, CLEAN AND RESHAPE EAST SIDE AND WEST SIDE FORESLOPES OF THE EXISTING ROADSIDE DITCHES, AND PLACE TEMPORARY AND/OR PERMANENT SEEDING.
12. MAINTAIN ROAD CLOSURE SETUP AT STA. 255+00 AND STA. 358+50 AND PROCEED TO NEXT PHASE.

PHASE III - STEP A: STA 310+00 TO STA 358+67.49 (WEST SIDE CONST.) (0.92 MILES):

1. INSTALL THE DETOUR SIGNS, TRAFFIC CONTROL DEVICES, AND SW3P ELEMENTS AS SHOWN ON THE PLANS OR AS DIRECTED BY THE ENGINEER. CONSTRUCTION WORK SHALL NOT BEGIN UNTIL THE ENGINEER HAS PROVIDED WRITTEN APPROVAL. THIS PHASE SHALL NOT BEGIN UNTIL PREVIOUS PHASE HAS BEEN COMPLETED.
2. MAINTAIN DETOUR THROUGH F.M. 3072 (DICKER ROAD), F.M. 2557 (STEWART ROAD), AND U.S. 281 (MILITARY ROAD).
3. ROADWAY SHALL BE CLOSED DURING CONSTRUCTION TO ALL SOUTH-BOUND TRAFFIC (DAY AND NIGHT) FROM ANAYA ROAD TO SOUTH END OF THIS PHASE (STA 358+67.49). REFER TO THE DETOUR LAYOUT FOR THIS PHASE.
4. LOCAL TRAFFIC SHALL ONLY BE ALLOWED ACCESS FROM THE SOUTH END OF THIS PHASE. ALL EGRESSING LOCAL TRAFFIC SHALL BE DIRECTED NORTH-BOUND.

STATE OF TEXAS
JOSE A. RODRIGUEZ
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LICENSED PROFESSIONAL ENGINEER

09/07/21

Pharr District Central Design

Texas Department of Transportation

FM 907

TRAFFIC CONTROL PLAN
SEQUENCE OF CONSTRUCTION

CONT	SECT	JOB	HIGHWAY
1586	01	079	FM 907
DIST	COUNTY		SHEET NO.
PHR	HIDALGO		32

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5. REMOVE AND REPLACE EXISTING IRRIGATION LINE CROSSINGS AS SHOWN ON THE PLANS.

6. REMOVE AND REPLACE EXISTING DRAINAGE CROSSINGS AS SHOWN ON THE PLANS.

7. CONSTRUCT PAVEMENT STRUCTURE AS SHOWN ON THE PLANS.

8. CONSTRUCT DRIVEWAYS, REMOVE AND REPLACE EXISTING SAFETY END TREATMENT (S.E.T.) AS SHOWN ON PLANS.

9. PLACE 1.5-INCHES OF SUPER PAVE COURSE.

10. PRIOR TO CONCLUDING THIS STEP CLEAN AND RESHAPE WEST SIDE FORESLOPES OF THE EXISTING ROADSIDE DITCHES, AND PLACE TEMPORARY AND/OR PERMANENT SEEDING.

PHASE III - STEP B: STA 310+00 TO STA 358+67.49 (EAST SIDE CONST.) (0.92 MILES):

1. SHIFT TRAFFIC AS SHOWN IN TCP TYPICAL SECTIONS.

2. MAINTAIN THE DETOUR SIGNS, TRAFFIC CONTROL DEVICES, AND SW3P ELEMENTS AS SHOWN ON THE PLANS OR AS DIRECTED BY THE ENGINEER. CONSTRUCTION WORK SHALL NOT BEGIN UNTIL THE PREVIOUS STEP HAS BEEN COMPLETED.

3. MAINTAIN DETOUR THROUGH F.M. 3072 (DICKER ROAD), F.M. 2557 (STEWART ROAD), AND U.S. 281 (MILITARY ROAD).

4. MAINTAIN ROADWAY CLOSURE TO THRU TRAFFIC FROM ANAYA ROAD TO SOUTH END OF THIS PHASE (STA 358+67.49). REFER TO DETOUR LAYOUT.

5. LOCAL TRAFFIC SHALL ONLY BE ALLOWED ACCESS FROM THE SOUTH END OF THIS PHASE. ALL EGRESSING LOCAL TRAFFIC SHALL BE DIRECTED NORTH-BOUND.

6. CONSTRUCT PAVEMENT STRUCTURE AS SHOWN ON THE PLANS.

7. CONSTRUCT DRIVEWAYS, REMOVE AND REPLACE EXISTING SAFETY END TREATMENT (S.E.T.) AS SHOWN ON PLANS.

8. PLACE 1.5-INCHES OF SUPER PAVE COURSE.

9. PRIOR TO CONCLUDING THIS STEP CLEAN AND RESHAPE EAST SIDE FORESLOPES OF THE EXISTING ROADSIDE DITCHES, AND PLACE TEMPORARY AND/OR PERMANENT SEEDING.

10. ADJUST THE ROAD CLOSURE SETUPS AS REQUIRED AND PROCEED TO NEXT PHASE.

PHASE IV - STA. 251+14.90 TO STA. 358+67.49 (FINAL SURFACE COURSE) (2.04 MILES):

1. PLACE FINAL SURFACE COURSE OF 1.5-INCHES OF SUPER PAVE FOR THE FULL WIDTH AND LENGTH OF THE ROADWAY.

2. SEE PAVEMENT TRANSITION DETAILS FOR CONNECTION WITH EXISTING PAVEMENT. MILLING OPERATIONS SHALL BE DONE AT NON-PEAK HOURS, NON-STOP WORK.

3. INSTALL PERMANENT PAVEMENT MARKINGS, MARKERS, OBJECT DELINEATORS, AND TRAFFIC REGULATORY SIGNS.

4. PLACE FINAL SEEDING AS SHOWN AND SPECIFIED ON THE PLANS.

5. PROCEED WITH FINAL CLEAN UP OF ENTIRE PROJECT LIMITS.

6. UPON WRITTEN APPROVAL AND ACCEPTANCE BY THE ENGINEER, CONTRACTOR SHALL REMOVE ALL TEMPORARY TRAFFIC CONTROL DEVICES AND ADVANCED WARNING SIGNS.

7. OPEN ALL TRAVEL LANES FROM BEGINNING TO END OF PROJECT (F.M. 3072 TO U.S. 281).

09/07/21

Pharr District Central Design

Texas Department of Transportation

FM 907

TRAFFIC CONTROL PLAN
SEQUENCE OF CONSTRUCTION

SHEET 2 OF 2

CONT	SECT	JOB	HIGHWAY
1586	01	079	FM 907
DIST	COUNTY		SHEET NO.
PHR	HIDALGO		33

DATE: 8/30/2021 5:03:21 PM
FILE: c:\txdot\pw_online\txdot5\pwonline_juan.avila\d0304078\FM 907 TCP SEQ CONSTR.dgn

R20-3T (48"X42")
OBEY WARNING SIGNS STATE LAW
1

G20-10T (60"x48")
STAY ALERT
TALK OR TEXT LATER
2

BEGIN WORK ZONE G20-9TP (24"x24")
TRAFFIC FINES DOUBLE R20-5T (24"x30")
WHEN WORKERS ARE PRESENT R20-5aTP (24"x12")
3

CW20-1D (48"x48")
ROAD WORK AHEAD
4

CW20-2D (48"x48")
DETOUR AHEAD
5

CW20-2A (48"x48")
DETOUR 1500 FT
6

BEGIN ROAD WORK NEXT 2 MILES G20-5T (48x24)
NAME ADDRESS CITY STATE CONTRACTOR G20-6T (48x30)
7

G20-6T (48"x30")
NAME ADDRESS CITY STATE CONTRACTOR
8

WORK ZONE G20-5aP (24"x18")
TRAFFIC FINES DOUBLE R20-5T (24"x30")
WHEN WORKERS ARE PRESENT R20-5aTP (24"x12")
9

WORK ZONE G20-5aP (24"x18")
SPEED LIMIT 50 R2-1 (24"x30")
10

CW20-3D (48"x48")
ROAD CLOSED AHEAD
11

CW20-3C (48"x48")
ROAD CLOSED 500 FT
12

CW20-3B (48"x48")
ROAD CLOSED 1000 FT
13

CW20-3F (48"x48")
ROAD CLOSED 1 MILE
14

G20-2bT (36"x18")
END WORK ZONE
15

G20-2 (36"x18")
END ROAD WORK
16

M4-8A (24"x18")
END DETOUR
17

R11-2 (48"x30")
ROAD CLOSED
18

ROAD CLOSED R11-2 (48"x30")
DETOUR M4-10R (48"x18")
19

R11-4 (60"x30")
ROAD CLOSED TO THRU TRAFFIC
20

ROAD CLOSED TO THRU TRAFFIC R11-4 (60"x30")
DETOUR M4-10L (48"x18")
21

ROAD CLOSED 5 MILES AHEAD LOCAL TRAFFIC ONLY R11-3a (60"x30")
DETOUR M4-10R (48"x18")
22

ROAD CLOSED 1.5 MILES AHEAD LOCAL TRAFFIC ONLY R11-3a (60"x30")
DETOUR M4-10L (48"x18")
23

G20-1T (48"x18")
ROAD WORK NEXT 2 MILES
24

G20-1bTR (72"x24")
ROAD WORK NEXT 2 MILES →
25

G20-1bTL (72"x24")
ROAD WORK ← NEXT 2 MILES
26

R11-2aT (48"x30")
BRIDGE CLOSED
27

R11-3b (60"x30")
BRIDGE OUT ¼ MILES AHEAD
28

R11-3b (60"x30")
BRIDGE OUT ½ MILES AHEAD
29

R3-1 (24"x24")
30

R3-2 (24"x24")
31

CW1-4R (36"x36")
32

R5-1 (30"x30")
DO NOT ENTER
33

R5-1a (36"x24")
WRONG WAY
34

R6-1L (36"x12")
ONE WAY
35

R6-1R (36"x12")
ONE WAY
36

DETOUR M4-8 (24"x12")
NORTH M3-1 (24"x12")
FARM 907 ROAD M1-6F (24"x24")
M5-1L (21"x15")
37

DETOUR M4-8 (24"x12")
NORTH M3-1 (24"x12")
FARM 907 ROAD M1-6F (24"x24")
M6-1 (21"x15")
38

DETOUR M4-8 (24"x12")
NORTH M3-1 (24"x12")
FARM 907 ROAD M1-6F (24"x24")
M6-1 (21"x15")
39

DETOUR M4-8 (24"x12")
NORTH M3-1 (24"x12")
FARM 907 ROAD M1-6F (24"x24")
M6-3 (21"x15")
40

END DETOUR M4-8a (24"x18")
NORTH M3-1 (24"x12")
FARM 907 ROAD M1-6F (24"x24")
M6-4 (21"x15")
41

DETOUR M4-8 (24"x12")
281 M1-4 (30"x24")
M5-1R (21"x15")
42

DETOUR M4-8 (24"x12")
281 M1-4 (30"x24")
M6-1 (21"x15")
43

DETOUR M4-8 (24"x12")
281 M1-4 (30"x24")
M6-1 (21"x15")
44

DETOUR M4-8 (24"x12")
281 M1-4 (30"x24")
M6-3 (21"x15")
45

END DETOUR M4-8a (24"x18")
281 M1-4 (30"x24")
M6-4 (21"x15")
46

TY 3 (C) BARRICADE
47

PORTABLE CHANGEABLE MESSAGE SIGNS
1.- The Engineer shall approve all messages used on portable changeable message signs (PCMS)
2.- The location of PCMS shall be approved by Engineer prior to start construction.

PCMS
FM 907 ROAD CLOSED | USE DETOUR ROUTE
PHASE 1 | PHASE 2
48

PCMS
S. FM 907 ROAD CLOSED | USE ALTERNATE ROUTE
PHASE 1 | PHASE 2
49

CW3 - 1 (48"X48")
50

R1 - 1 (36"x36")
STOP
51

STATE OF TEXAS
JOSE A. RODRIGUEZ
117308
LICENSED PROFESSIONAL ENGINEER

09/07/21

Pharr District Central Design

Texas Department of Transportation

FM 907

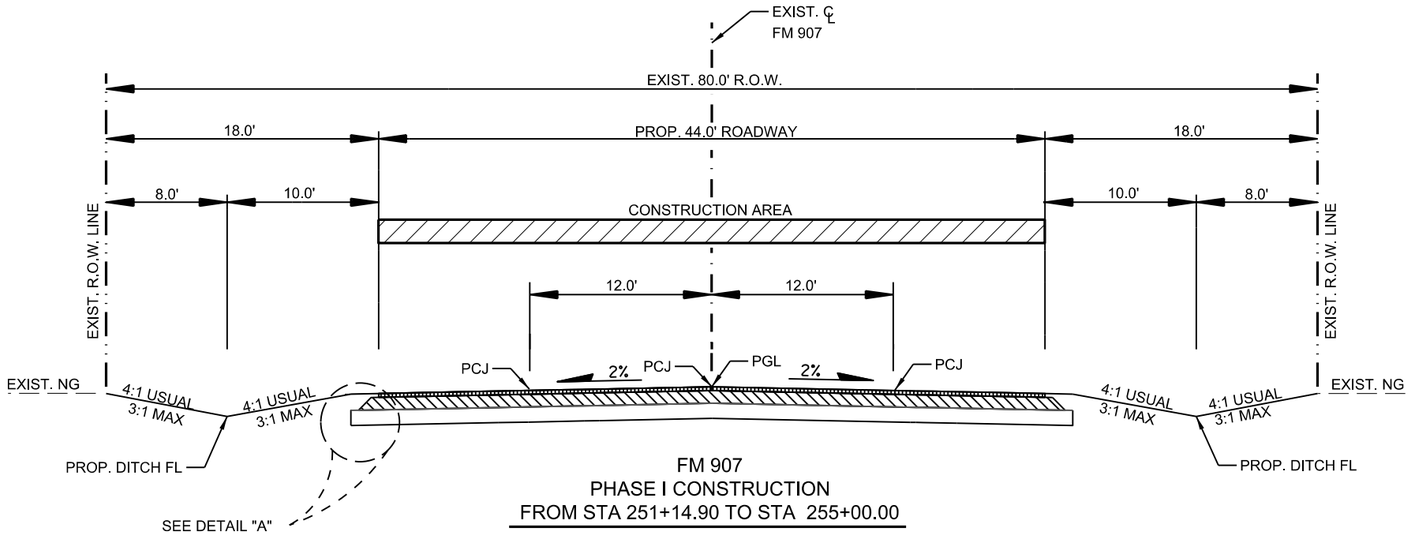
TRAFFIC CONTROL PLAN SIGNS

SCALE: N.T.S.

© 2021	CONT	SECT	JOB	HIGHWAY
	1586	01	079	FM 907
	DIST	COUNTY		SHEET NO.
	PHR	HIDALGO		34

DATE: 8/30/2021 5:03:33 PM
FILE: c:\txdot\pw_online\txdot5\pwonline_juan.avila\d0304078\FM 907 TCP SIGNS.dgn

LEGEND	
	CONSTRUCTION AREA
A	WORK ZONE PVMT MARK (NON-REM) 4" WHITE SOLID
B	WORK ZONE PVMT MARK (NON-REM) 4" YELLOW SOLID
C	ELIMINATE EXIST. 4" PAVEMENT MARKING
	DRUMS WITH REFLECTORS. SPACED AS PER BC(9)-21 AND TCP TxDOT STANDARDS
	VERTICAL PANEL (PORTABLE). SPACED AS PER PER BC(9)-21 AND TCP TxDOT STANDARDS.
	DROP OFFS GREATER THAN OR EQUAL TO 2" MUST BE PROTECTED BY A 3:1 OR FLATTER SLOPE WHEN NO ROAD WORK IS BEING DONE IN THE IMMEDIATE AREA. (EDGE COND I)
	MATCH EXISTING/ADJACENT CROSS SLOPE AND ELEVATION
	EXISTING TRAFFIC DIRECTION
	PROPOSED TRAFFIC DIRECTION



FM 907
PHASE I CONSTRUCTION
FROM STA 251+14.90 TO STA 255+00.00

STA. 248+14.90 TO STA. 251+14.90 (INDICENTAL CONSTRUCTION)
STA. 251+14.90 TO STA. 252+14.90 (TRANSITION 40' TO 44' RDWY)
STA. 252+14.90 TO STA. 255+00.00

GENERAL NOTES

PCJ - DENOTES PERMISSIBLE CONSTRUCTION JOINT

PGL - DENOTES PROFILE GRADE LINE

WHERE POSSIBLE AND UNLESS OTHERWISE DIRECTED BY THE ENGINEER, PERMISSIBLE CONSTRUCTION JOINTS SHALL FALL ON STRIPING LINES AS SHOWN ON STRIPING DETAILS.

WHERE REQUIRED BY FIXTURES OR UNUSUAL CONDITIONS THE GOVERNING SLOPES MAY BE VARIED WHEN SPECIFICALLY DIRECTED BY THE ENGINEER.

THE SUBGRADE SHALL BE SHAPED, BLADED, ROLLED AND PROOF ROLLED A MINIMUM DISTANCE OF 24" BEYOND THE EDGE OF THE PROPOSED BASE COURSE.

A STATION EQUALS 100 FT.

114 LBS/SY IS EQUIVALENT TO 1" OF ACP

1-COURSE SURF. TREATM. - ASPH (TIER II)0.30 GAL/SY (APPROX) W/ AGGREGATE (TY-D GR 4P)(SAC-B) AT 1 CY/120 SY

PRIME COAT - 0.20 GAL/SY

BONDING COURSE - 0.07 GAL/SY (FOR ESTIMATING PURPOSES ONLY - RATE TO BE DETERMINED AND SET IN THE FIELD BY THE ENGINEER)

FLEXIBLE BASE WT - 3375 LBS/CY (APPROX)(COMPACTED)
SUBGRADE WT - 2970 LBS/CY (APPROX)(COMPACTED)

ALL GRADING SHALL BE WITHIN THE R.O.W. LIMITS

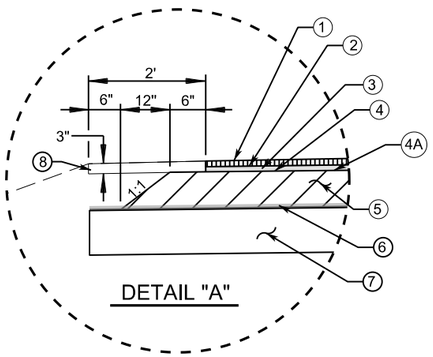
SAW CUT WILL BE SUBSIDIARY TO THE OTHER ROADWAY ITEMS.

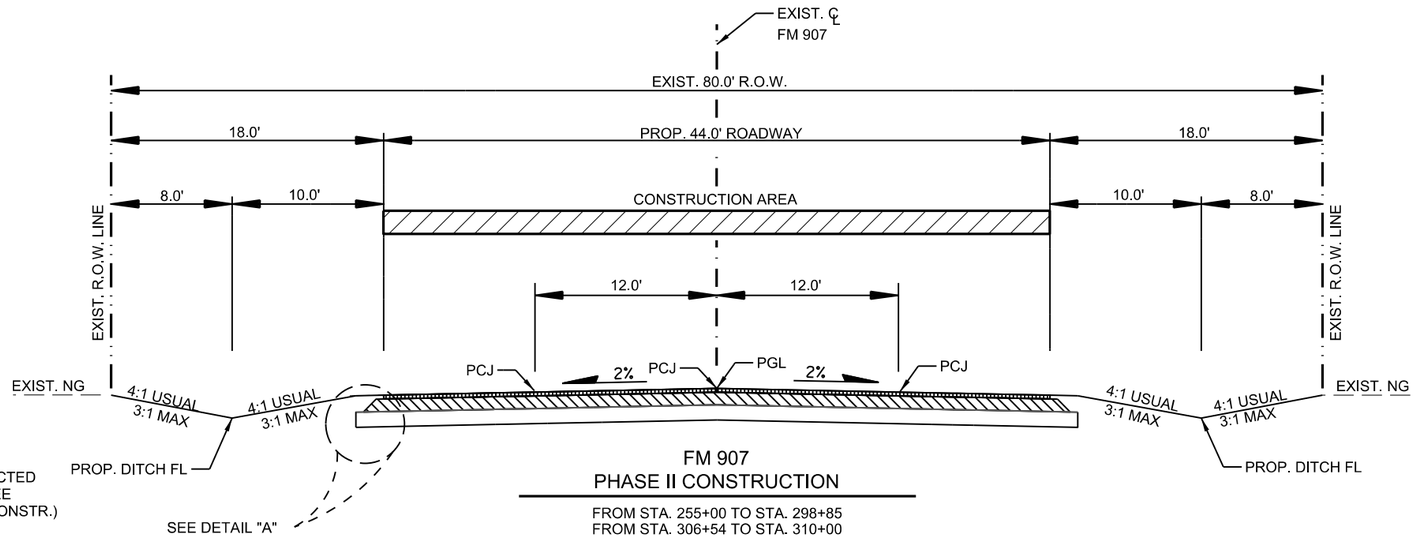
A 3:1 MAX SLOPE SHALL BE PROVIDED AT THE END OF EACH WORKING DAY ON ALL EXPOSED EDGES OF ROADWAY CONSTRUCTION OR EXCAVATION.

MIN. COVER OF 4" OF NEW FLEX. BASE WILL BE REQUIRED WHERE SALVAGE IS PART OF FLEX BASE.

THE EXISTING BITUMINOUS MATERIAL IS TO BE SALVAGE IN ACCORDANCE WITH ITEM 305.

ANY EXCESS MATERIAL SHALL BECOME PROPERTY OF THE CONTRACTOR AND SHALL BE HAULED OFF.





FM 907
PHASE II CONSTRUCTION

FROM STA. 255+00 TO STA. 298+85
FROM STA. 306+54 TO STA. 310+00

LEGEND:

1. PROPOSED 1.5" SP-D PG 76-22 SAC A — TO BE CONSTRUCTED ON PHASE IV (SEE SEQUENCE OF CONSTR.)
2. PROPOSED BONDING COURSE — TO BE CONSTRUCTED ON PHASE IV (SEE SEQUENCE OF CONSTR.)
3. PROPOSED 1.5" SP-D PG 76-22 SAC A
4. PROPOSED 1 COURSE UNDERSEAL TRT.
4A. PROPOSED MC-30 PRIME COAT
5. PROPOSED 12" TY E GR 4 W/ 2 % CEMENT ADMIX BY WT FLEX BASE (2 EQ LIFTS)
6. TYPE II GEOGRID
7. PROPOSED 12" LIME TREATED SUBGRADE W/ 6% LIME ADMIX BY WT. (LIMED SUBGRADE SHALL BE CURED FOR A MIN. OF FIVE DAYS PER STANDARD SPECIFICATION 260.4.8)
8. PROPOSED TY "A" BACKFILL (ITEM 134) (NOT APPLICABLE AT DRIVEWAYS, ROADWAY TURNOUTS, AND AT PROPOSED CONCRETE MOWSTRIP LOCATIONS)

STATE OF TEXAS
JOSE A. RODRIGUEZ
117308
LICENSED PROFESSIONAL ENGINEER
03/10/22

Pharr District Central Design

Texas Department of Transportation

FM 907

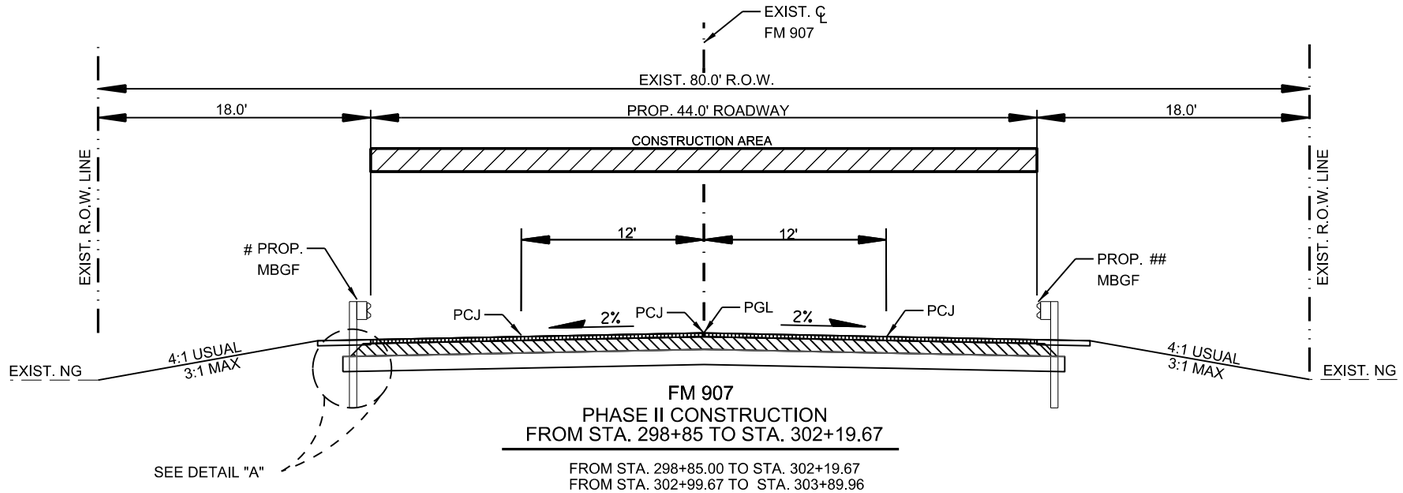
TRAFFIC CONTROL PLAN
PROPOSED TYPICAL SECTIONS
PHASE I & II

SCALE: N.T.S.

CONT	SECT	JOB	HIGHWAY
1586	01	079	FM 907
DIST	COUNTY		SHEET NO.
PHR	HIDALGO		35

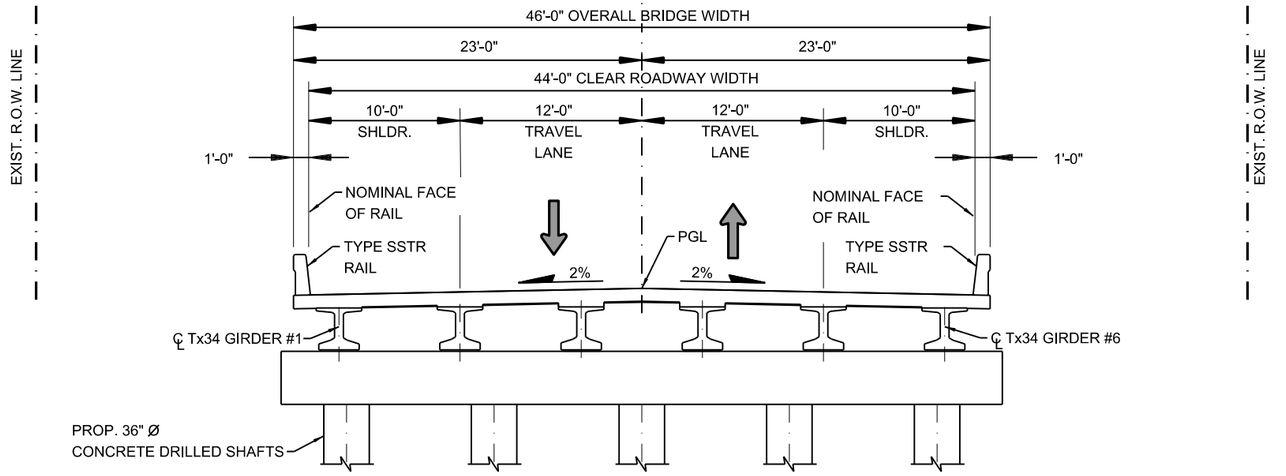
DATE: 2/18/2022 8:41:29 AM
FILE: c:\txdot\pw_online\txdot5\pwonline_juan.avila\d0304078\Proposed Typical Section TCP PH I.dgn

LEGEND	
	CONSTRUCTION AREA
A	WORK ZONE PVMT MARK (NON-REM) 4" WHITE SOLID
B	WORK ZONE PVMT MARK (NON-REM) 4" YELLOW SOLID
C	ELIMINATE EXIST. 4" PAVEMENT MARKING
	DRUMS WITH REFLECTORS. SPACED AS PER BC(9)-21 AND TCP TxDOT STANDARDS
	VERTICAL PANEL (PORTABLE). SPACED AS PER PER BC(9)-21 AND TCP TxDOT STANDARDS.
	DROP OFFS GREATER THAN OR EQUAL TO 2" MUST BE PROTECTED BY A 3:1 OR FLATTER SLOPE WHEN NO ROAD WORK IS BEING DONE IN THE IMMEDIATE AREA. (EDGE COND I)
	MATCH EXISTING/ADJACENT CROSS SLOPE AND ELEVATION
	EXISTING TRAFFIC DIRECTION
	PROPOSED TRAFFIC DIRECTION



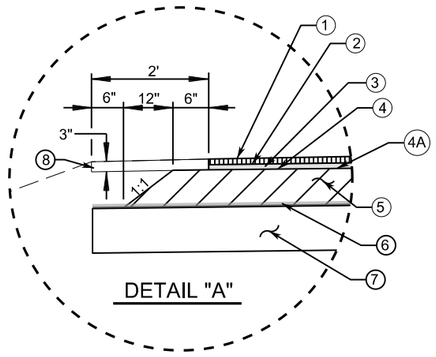
FM 907
PHASE II CONSTRUCTION
FROM STA. 298+85 TO STA. 302+19.67

FROM STA. 298+85.00 TO STA. 302+19.67
FROM STA. 302+99.67 TO STA. 303+89.96
FROM STA. 305+65.47 TO STA. 306+54.00
FROM STA. 301+04.98 TO STA. 302+00.40
FROM STA. 300+16.82 TO STA. 302+12.23
FROM STA. 303+07.76 TO STA. 303+75.00
FROM STA. 303+19.55 TO STA. 303+89.96



FM 907
PROPOSED BRIDGE TYPICAL SECTION
PHASE II CONSTRUCTION
FROM STA. 302+19.67 TO STA. 302+99.67

FROM STA. 302+19.67 TO STA. 302+99.67



DETAIL "A"

LEGEND:

1. PROPOSED 1.5" SP-D PG 76-22 SAC A — TO BE CONSTRUCTED ON PHASE IV (SEE SEQUENCE OF CONSTR.)
2. PROPOSED BONDING COURSE
3. PROPOSED 1.5" SP-D PG 76-22 SAC A
4. PROPOSED 1 COURSE UNDERSEAL TRT.
4A. PROPOSED MC-30 PRIME COAT
5. PROPOSED 12" TY E GR 4 W/ 2 % CEMENT ADMIX BY WT FLEX BASE (2 EQ LIFTS)
6. TYPE II GEOGRID
7. PROPOSED 12" LIME TREATED SUBGRADE W/ 6% LIME ADMIX BY WT. (LIMED SUBGRADE SHALL BE CURED FOR A MIN. OF FIVE DAYS PER STANDARD SPECIFICATION 260.4.8)
8. PROPOSED TY "A" BACKFILL (ITEM 134) (NOT APPLICABLE AT DRIVEWAYS, ROADWAY TURNOUTS, AND AT PROPOSED CONCRETE MOWSTRIP LOCATIONS)

GENERAL NOTES

PCJ - DENOTES PERMISSIBLE CONSTRUCTION JOINT

PGL - DENOTES PROFILE GRADE LINE

WHERE POSSIBLE AND UNLESS OTHERWISE DIRECTED BY THE ENGINEER, PERMISSIBLE CONSTRUCTION JOINTS SHALL FALL ON STRIPING LINES AS SHOWN ON STRIPING DETAILS.

WHERE REQUIRED BY FIXTURES OR UNUSUAL CONDITIONS THE GOVERNING SLOPES MAY BE VARIED WHEN SPECIFICALLY DIRECTED BY THE ENGINEER.

THE SUBGRADE SHALL BE SHAPED, BLADED, ROLLED AND PROOF ROLLED A MINIMUM DISTANCE OF 24" BEYOND THE EDGE OF THE PROPOSED BASE COURSE.

A STATION EQUALS 100 FT.

114 LBS/SY IS EQUIVALENT TO 1" OF ACP

1-COURSE SURF. TREATM. - ASPH (TIER II)0.30 GAL/SY (APPROX) W/ AGGREGATE (TY-D GR 4P)(SAC-B) AT 1 CY/120 SY

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SAW CUT WILL BE SUBSIDIARY TO THE OTHER ROADWAY ITEMS.

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MIN. COVER OF 4" OF NEW FLEX. BASE WILL BE REQUIRED WHERE SALVAGE IS PART OF FLEX BASE.

THE EXISTING BITUMINOUS MATERIAL IS TO BE SALVAGE IN ACCORDANCE WITH ITEM 305.

ANY EXCESS MATERIAL SHALL BECOME PROPERTY OF THE CONTRACTOR AND SHALL BE HAULED OFF.

STATE OF TEXAS
JOSE A. RODRIGUEZ
117308
LICENSED PROFESSIONAL ENGINEER

03/10/22

Pharr District Central Design

Texas Department of Transportation

FM 907

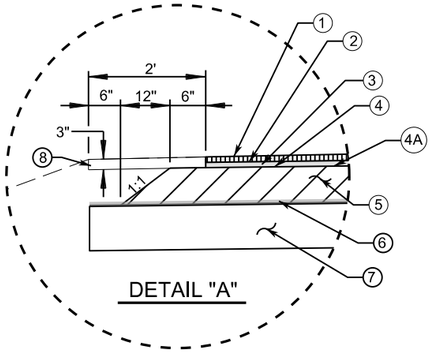
TRAFFIC CONTROL PLAN
PROPOSED TYPICAL SECTIONS
PHASE II

SCALE: N.T.S.

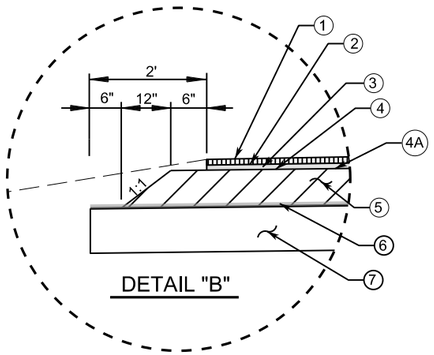
© 2021	CONT	SECT	JOB	HIGHWAY
	1586	01	079	FM 907
	DIST	COUNTY		SHEET NO.
	PHR	HIDALGO		36

DATE: 3/10/2022 7:50:37 AM
FILE: c:\txdot\pw_online\txdot5\arleene.garcia\d0304078\Proposed Typical Section TCP PH II.dgn

LEGEND	
	CONSTRUCTION AREA
A	WORK ZONE PVMT MARK (NON-REM) 4" WHITE SOLID
B	WORK ZONE PVMT MARK (NON-REM) 4" YELLOW SOLID
C	ELIMINATE EXIST. 4" PAVEMENT MARKING
	DRUMS WITH REFLECTORS. SPACED AS PER BC(9)-21 AND TCP TxDOT STANDARDS
	VERTICAL PANEL (PORTABLE). SPACED AS PER PER BC(9)-21 AND TCP TxDOT STANDARDS.
	DROP OFFS GREATER THAN OR EQUAL TO 2" MUST BE PROTECTED BY A 3:1 OR FLATTER SLOPE WHEN NO ROAD WORK IS BEING DONE IN THE IMMEDIATE AREA. (EDGE COND I)
	MATCH EXISTING/ADJACENT CROSS SLOPE AND ELEVATION
	EXISTING TRAFFIC DIRECTION
	PROPOSED TRAFFIC DIRECTION



DETAIL "A"



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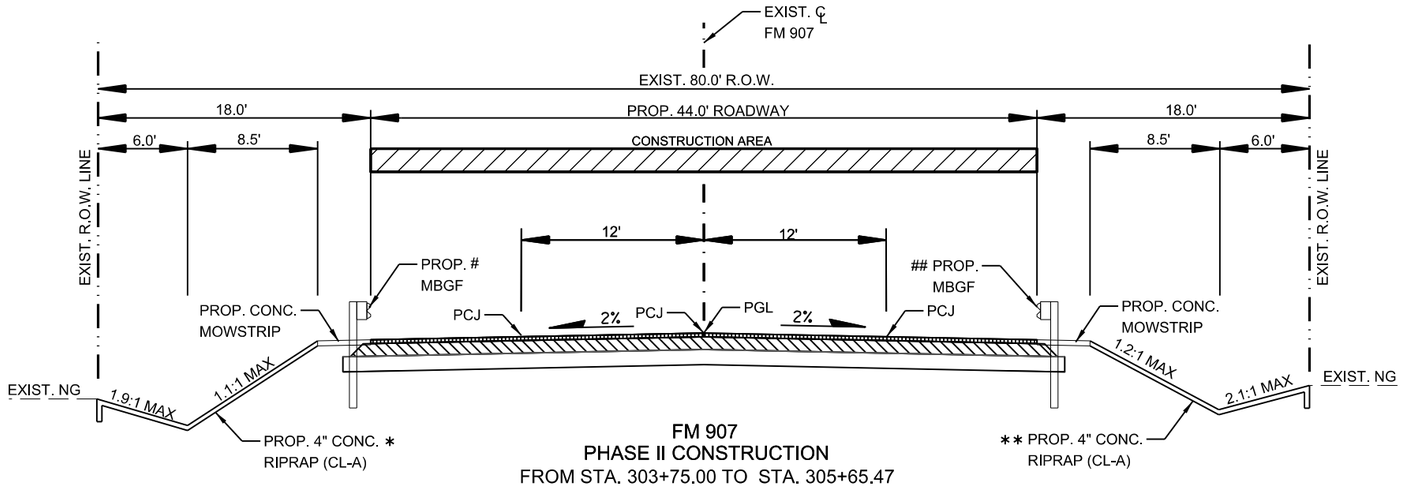

FM 907
PHASE II CONSTRUCTION
FROM STA. 303+75.00 TO STA. 305+65.47
\# FROM STA. 303+75.00 TO STA. 305+51.84
FROM STA. 303+89.96 TO STA. 305+64.28
∗ FROM STA. 303+75.00 TO STA. 305+52.30
∗∗ FROM STA. 303+89.96 TO STA. 305+65.47

WEST ANAYA ROAD
PHASE II
INCIDENTAL CONSTRUCTION
FROM STA 10+00 TO STA 12+34.37

EAST ANAYA ROAD
PHASE II
INCIDENTAL CONSTRUCTION
FROM STA 10+42.53 TO STA 12+75

GENERAL NOTES

PCJ - DENOTES PERMISSIBLE CONSTRUCTION JOINT

PGL - DENOTES PROFILE GRADE LINE

WHERE POSSIBLE AND UNLESS OTHERWISE DIRECTED BY THE ENGINEER, PERMISSIBLE CONSTRUCTION JOINTS SHALL FALL ON STRIPING LINES AS SHOWN ON STRIPING DETAILS.

WHERE REQUIRED BY FIXTURES OR UNUSUAL CONDITIONS THE GOVERNING SLOPES MAY BE VARIED WHEN SPECIFICALLY DIRECTED BY THE ENGINEER.

THE SUBGRADE SHALL BE SHAPED, BLADED, ROLLED AND PROOF ROLLED A MINIMUM DISTANCE OF 24" BEYOND THE EDGE OF THE PROPOSED BASE COURSE.

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BONDING COURSE - 0.07 GAL/SY (FOR ESTIMATING PURPOSES ONLY - RATE TO BE DETERMINED AND SET IN THE FIELD BY THE ENGINEER)

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SUBGRADE WT - 2970 LBS/CY (APPROX)(COMPACTED)

ALL GRADING SHALL BE WITHIN THE R.O.W. LIMITS

SAW CUT WILL BE SUBSIDIARY TO THE OTHER ROADWAY ITEMS.

A 3:1 MAX SLOPE SHALL BE PROVIDED AT THE END OF EACH WORKING DAY ON ALL EXPOSED EDGES OF ROADWAY CONSTRUCTION OR EXCAVATION.

MIN. COVER OF 4" OF NEW FLEX. BASE WILL BE REQUIRED WHERE SALVAGE IS PART OF FLEX BASE.

THE EXISTING BITUMINOUS MATERIAL IS TO BE SALVAGE IN ACCORDANCE WITH ITEM 305.

ANY EXCESS MATERIAL SHALL BECOME PROPERTY OF THE CONTRACTOR AND SHALL BE HAULED OFF.

LEGEND:

1. PROPOSED 1.5" SP-D PG 76-22 SAC A — TO BE CONSTRUCTED ON PHASE IV (SEE SEQUENCE OF CONSTR.)
2. PROPOSED BONDING COURSE — TO BE CONSTRUCTED ON PHASE IV (SEE SEQUENCE OF CONSTR.)
3. PROPOSED 1.5" SP-D PG 76-22 SAC A
4. PROPOSED 1 COURSE UNDERSEAL TRT.
4A. PROPOSED MC-30 PRIME COAT
5. PROPOSED 12" TY E GR 4 W/ 2 % CEMENT ADMIX BY WT FLEX BASE (2 EQ LIFTS)
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8. PROPOSED TY "A" BACKFILL (ITEM 134) (NOT APPLICABLE AT DRIVEWAYS, ROADWAY TURNOUTS, AND AT PROPOSED CONCRETE MOWSTRIP LOCATIONS)

STATE OF TEXAS
JOSE A. RODRIGUEZ
117308
LICENSED PROFESSIONAL ENGINEER

03/10/22

Pharr District Central Design

Texas Department of Transportation

FM 907

TRAFFIC CONTROL PLAN
PROPOSED TYPICAL SECTIONS
PHASE II

SCALE: N.T.S.

CONT	SECT	JOB	HIGHWAY
1586	01	079	FM 907
DIST	COUNTY		SHEET NO.
PHR	HIDALGO		37

DATE: 3/10/2022 7:51:15 AM
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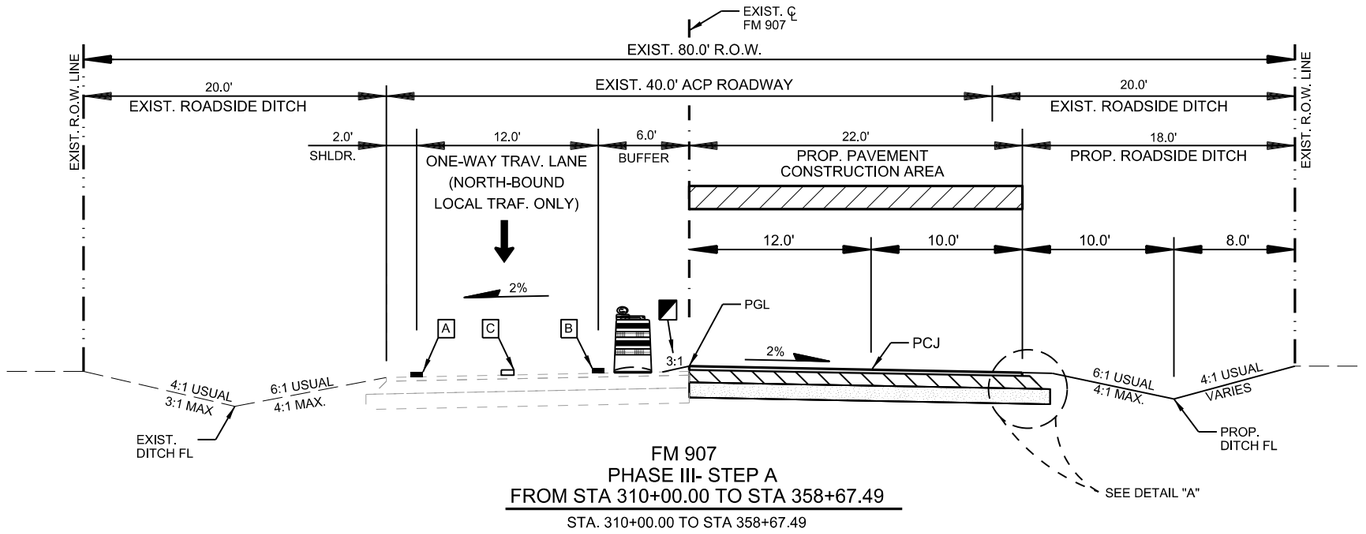
LEGEND	
	CONSTRUCTION AREA
A	WORK ZONE PVMT MARK (NON-REM) 4" WHITE SOLID
B	WORK ZONE PVMT MARK (NON-REM) 4" YELLOW SOLID
C	ELIMINATE EXIST. 4" PAVEMENT MARKING
	DRUMS WITH REFLECTORS. SPACED AS PER BC(9)-21 AND TCP TxDOT STANDARDS
	VERTICAL PANEL (PORTABLE). SPACED AS PER PER BC(9)-21 AND TCP TxDOT STANDARDS.
	DROP OFFS GREATER THAN OR EQUAL TO 2" MUST BE PROTECTED BY A 3:1 OR FLATTER SLOPE WHEN NO ROAD WORK IS BEING DONE IN THE IMMEDIATE AREA. (EDGE COND I)
	MATCH EXISTING/ADJACENT CROSS SLOPE AND ELEVATION
	EXISTING TRAFFIC DIRECTION
	PROPOSED TRAFFIC DIRECTION



FM 907
PHASE III- STEP A
FROM STA 310+00.00 TO STA 358+67.49

STA. 310+00.00 TO STA 358+67.49

GENERAL NOTES

PCJ - DENOTES PERMISSIBLE CONSTRUCTION JOINT

PGL - DENOTES PROFILE GRADE LINE

WHERE POSSIBLE AND UNLESS OTHERWISE DIRECTED BY THE ENGINEER, PERMISSIBLE CONSTRUCTION JOINTS SHALL FALL ON STRIPING LINES AS SHOWN ON STRIPING DETAILS.

WHERE REQUIRED BY FIXTURES OR UNUSUAL CONDITIONS THE GOVERNING SLOPES MAY BE VARIED WHEN SPECIFICALLY DIRECTED BY THE ENGINEER.

THE SUBGRADE SHALL BE SHAPED, BLADED, ROLLED AND PROOF ROLLED A MINIMUM DISTANCE OF 24" BEYOND THE EDGE OF THE PROPOSED BASE COURSE.

A STATION EQUALS 100 FT.

114 LBS/SY IS EQUIVALENT TO 1" OF ACP

1-COURSE SURF. TREATM. - ASPH (TIER II)0.30 GAL/SY (APPROX) W/ AGGREGATE (TY-D GR 4P)(SAC-B) AT 1 CY/120 SY

PRIME COAT - 0.20 GAL/SY

BONDING COURSE - 0.07 GAL/SY (FOR ESTIMATING PURPOSES ONLY - RATE TO BE DETERMINED AND SET IN THE FIELD BY THE ENGINEER)

FLEXIBLE BASE WT - 3375 LBS/CY (APPROX)(COMPACTED)
SUBGRADE WT - 2970 LBS/CY (APPROX)(COMPACTED)

ALL GRADING SHALL BE WITHIN THE R.O.W. LIMITS

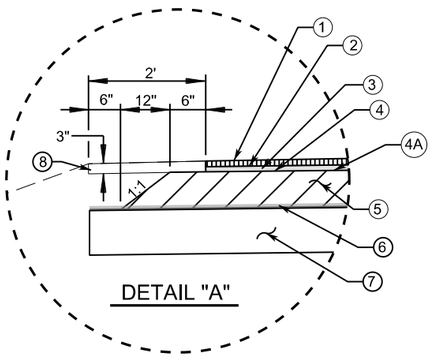
SAW CUT WILL BE SUBSIDIARY TO THE OTHER ROADWAY ITEMS.

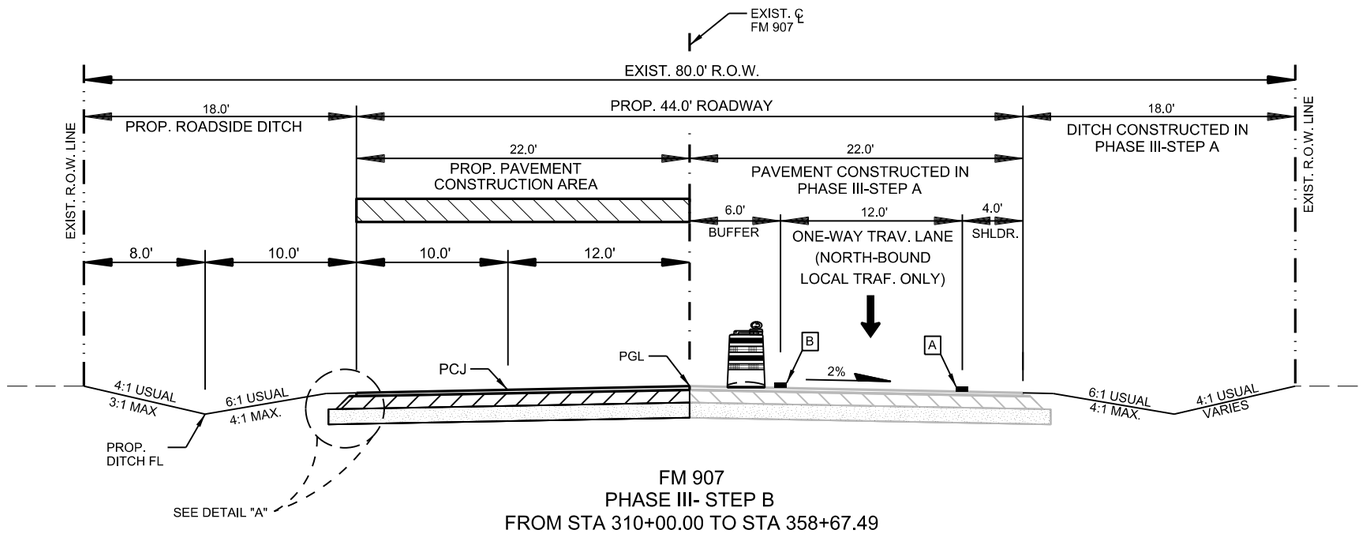
A 3:1 MAX SLOPE SHALL BE PROVIDED AT THE END OF EACH WORKING DAY ON ALL EXPOSED EDGES OF ROADWAY CONSTRUCTION OR EXCAVATION.

MIN. COVER OF 4" OF NEW FLEX. BASE WILL BE REQUIRED WHERE SALVAGE IS PART OF FLEX BASE.

THE EXISTING BITUMINOUS MATERIAL IS TO BE SALVAGE IN ACCORDANCE WITH ITEM 305.

ANY EXCESS MATERIAL SHALL BECOME PROPERTY OF THE CONTRACTOR AND SHALL BE HAULED OFF.





FM 907
PHASE III- STEP B
FROM STA 310+00.00 TO STA 358+67.49

STA. 310+00.00 TO STA. 358+67.49

LEGEND:

1. PROPOSED 1.5" SP-D PG 76-22 SAC A — TO BE CONSTRUCTED ON PHASE IV (SEE SEQUENCE OF CONSTR.)
2. PROPOSED BONDING COURSE — TO BE CONSTRUCTED ON PHASE IV (SEE SEQUENCE OF CONSTR.)
3. PROPOSED 1.5" SP-D PG 76-22 SAC A
4. PROPOSED 1 COURSE UNDERSEAL TRT.
4A. PROPOSED MC-30 PRIME COAT
5. PROPOSED 12" TY E GR 4 W/ 2 % CEMENT ADMIX BY WT FLEX BASE (2 EQ LIFTS)
6. TYPE II GEOGRID
7. PROPOSED 12" LIME TREATED SUBGRADE W/ 6% LIME ADMIX BY WT. (LIMED SUBGRADE SHALL BE CURED FOR A MIN. OF FIVE DAYS PER STANDARD SPECIFICATION 260.4.8)
8. PROPOSED TY "A" BACKFILL (ITEM 134) (NOT APPLICABLE AT DRIVEWAYS, ROADWAY TURNOUTS, AND AT PROPOSED CONCRETE MOWSTRIP LOCATIONS)

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STATE OF TEXAS
JOSE A. RODRIGUEZ
117308
LICENSED PROFESSIONAL ENGINEER

09/07/21

Pharr District Central Design

Texas Department of Transportation

FM 907

TRAFFIC CONTROL PLAN
PROPOSED TYPICAL SECTIONS
PHASE III

SCALE: N.T.S.

© 2021	CONT	SECT	JOB	HIGHWAY
	1586	01	079	FM 907
	DIST	COUNTY		SHEET NO.
	PHR	HIDALGO		38

PHASE I CONSTRUCTION
(385.1 FT.) (0.07 MILES)

PHASE II CONSTRUCTION
(5,500 FT.) (1.04 MILES)

STA. 251+14.90
BEGIN PROJECT LIMITS
CSJ:1560-01-079

END PHASE I CONSTRUCTION
BEGIN PHASE II CONSTRUCTION
STA. 255+00.00

HIDALGO COUNTY IRRIGATION
DISTRICT NO. 2 DITCH

POT 251+14.90
PC 252+91.70
PT 256+58.95
PC 285+55.68
PT 269+08.54

EXIST. R.O.W.
FM 907
S 8° 37' 58.00" W
S 6° 47' 48.00" W
176.80'
896.73'
255+00
260+00
265+00
270+00
275+00
280+00
EXIST. R.O.W.

HIDALGO COUNTY IRRIGATION
DISTRICT NO. 2 DITCH

LAS MILPAS ROAD

MATCH EXISTING PAVEMENT
BEGIN PHASE I
CONSTRUCTION LIMITS
STA. 251+14.90

BEGIN INCIDENTAL
CONSTRUCTION
STA. 248+14.90

FM 3072
(DICKER ROAD)

PHASE II CONSTRUCTION
(5,500 FT.) (1.04 MILES)

PHASE III CONSTRUCTION
(4,896.01 FT.) (0.93 MILES)

END INCIDENTAL CONSTRUCTION
EAST ANAYA ROAD
STA. 12+75.00

END PROP. BRIDGE
STA. 302+99.67

BEGIN INCIDENTAL CONSTRUCTION
EAST ANAYA ROAD
STA. 10+42.53

END PHASE II CONSTRUCTION
BEGIN PHASE III CONSTRUCTION
@ STA. 310+00.00

PI 295+00.35
PI 300+00.39
PC 317+02.58
PT 320+53.67
PC 304+09.22
PT 307+62.59

EXIST. R.O.W.
FM 907
S 8° 35' 10.92" W
S 8° 35' 26.82" W
S 10° 21' 29.00" W
295+00
300+00
305+00
310+00
315+00
320+00
500.04'
404.84'
939.99'
EXIST. R.O.W.
EXIST. R.O.W.

BEGIN
PROP. BRIDGE
STA. 302+19.67

HIDALGO COUNTY DRAINAGE
DISTRICT NO. 1 DITCH

EAST ANAYA ROAD

END INCIDENTAL CONSTRUCTION
WEST ANAYA ROAD
STA. 12+34.37

BEGIN INCIDENTAL CONSTRUCTION
WEST ANAYA ROAD
STA. 10+00.00

PHASE III CONSTRUCTION
(4,896.01 FT.) (0.93 MILES)

HIDALGO COUNTY IRRIGATION
DISTRICT NO. 2 DITCH

EXIST. R.O.W.
FM 907
335+00
340
350+00
355+00
EXIST. R.O.W.

HI LINE ROAD

HIDALGO COUNTY IRRIGATION
DISTRICT NO. 2 DITCH

POT 358+96.01

STA. 358+96.01
END PROJECT LIMITS
CSJ:1586-01-079

MATCH EXISTING PAVEMENT
END PHASE III CONSTRUCTION
@ STA. 358+67.49

HIGHWAY 281
MILITARY HIGHWAY

STATE OF TEXAS
JOSE A. RODRIGUEZ
117308
LICENSED
PROFESSIONAL ENGINEER

03/10/22

Pharr District Central Design

Texas Department of Transportation

FM 907
TRAFFIC CONTROL PLAN
PHASING
LAYOUT

SCALE:N.T.S.

CONT	SECT	JOB	HIGHWAY
1586	01	079	FM 907
DIST	COUNTY		SHEET NO.
PHR	HIDALGO		39

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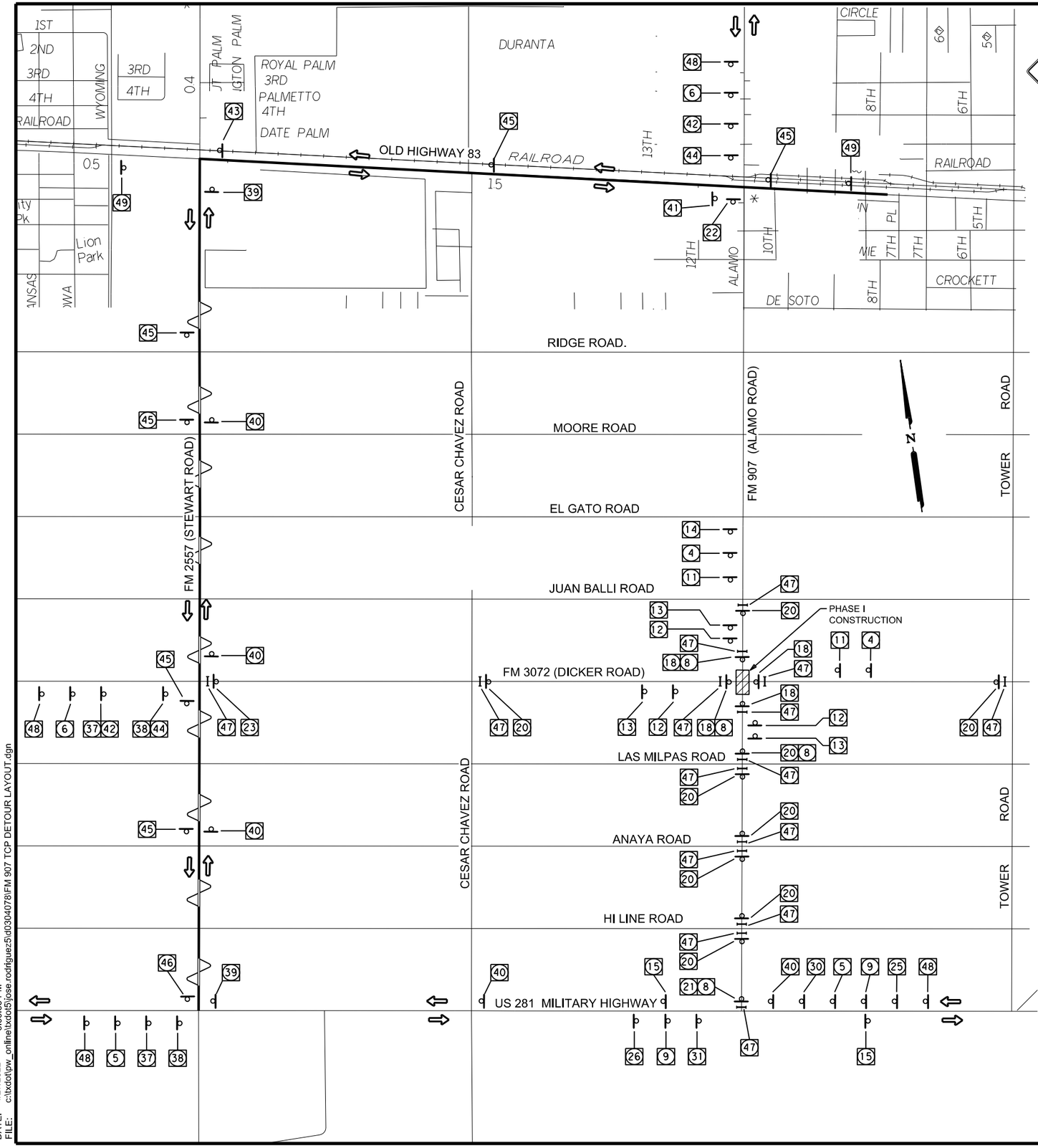

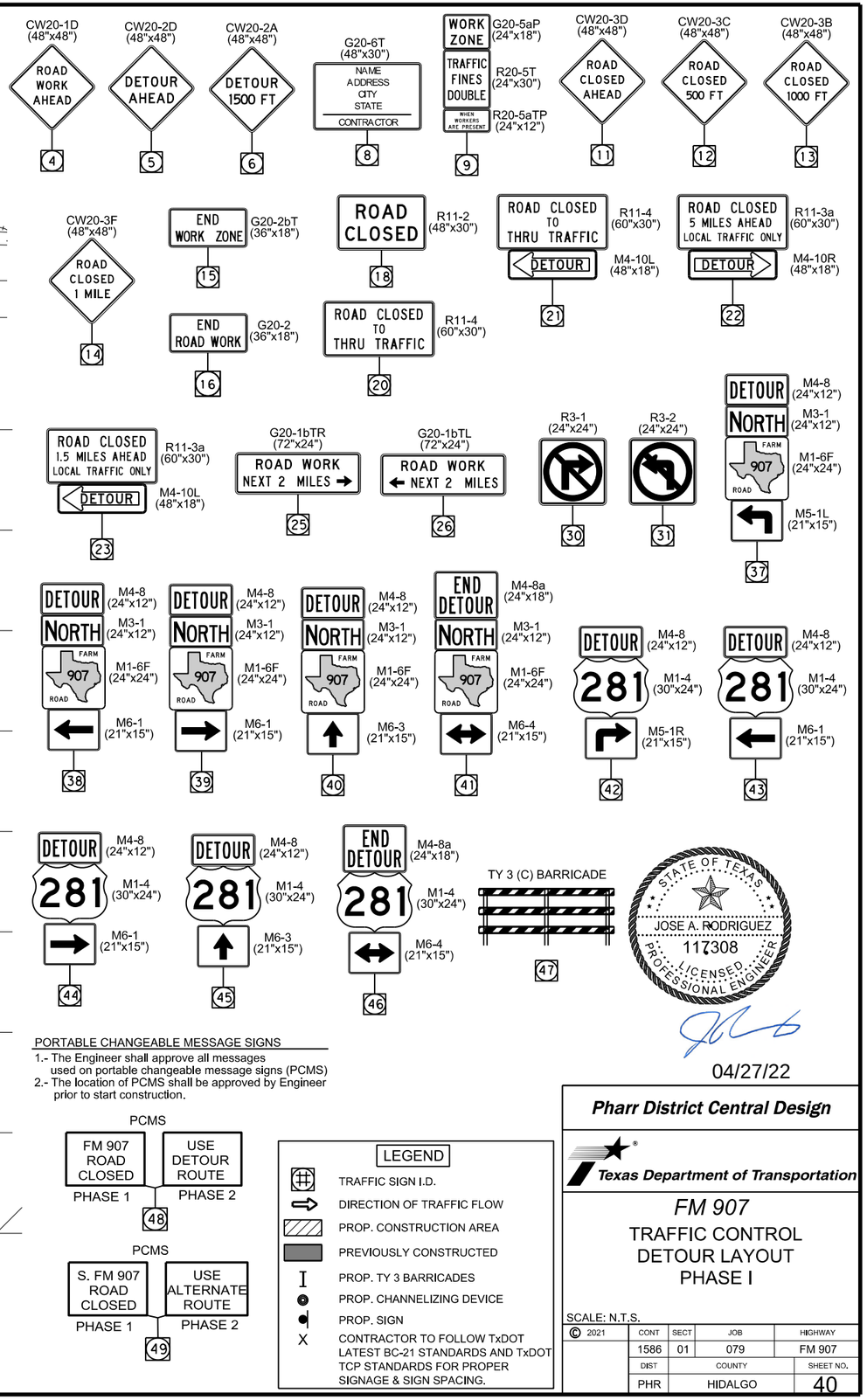

PORTABLE CHANGEABLE MESSAGE SIGNS

1.- The Engineer shall approve all messages used on portable changeable message signs (PCMS)
2.- The location of PCMS shall be approved by Engineer prior to start construction.

PCMS

FM 907 ROAD CLOSED	USE DETOUR ROUTE
PHASE 1	PHASE 2

48

PCMS

S. FM 907 ROAD CLOSED	USE ALTERNATE ROUTE
PHASE 1	PHASE 2

49

LEGEND

- TRAFFIC SIGN I.D.
- DIRECTION OF TRAFFIC FLOW
- PROP. CONSTRUCTION AREA
- PREVIOUSLY CONSTRUCTED
- PROP. TY 3 BARRICADES
- PROP. CHANNELIZING DEVICE
- PROP. SIGN
- CONTRACTOR TO FOLLOW TxDOT LATEST BC-21 STANDARDS AND TxDOT TCP STANDARDS FOR PROPER SIGNAGE & SIGN SPACING.

STATE OF TEXAS
JOSE A. RODRIGUEZ
117308
LICENSED PROFESSIONAL ENGINEER

04/27/22

Pharr District Central Design

Texas Department of Transportation

FM 907
TRAFFIC CONTROL DETOUR LAYOUT PHASE I

SCALE: N.T.S.

CONT	SECT	JOB	HIGHWAY
1586	01	079	FM 907
DIST	COUNTY		SHEET NO.
PHR	HIDALGO		40

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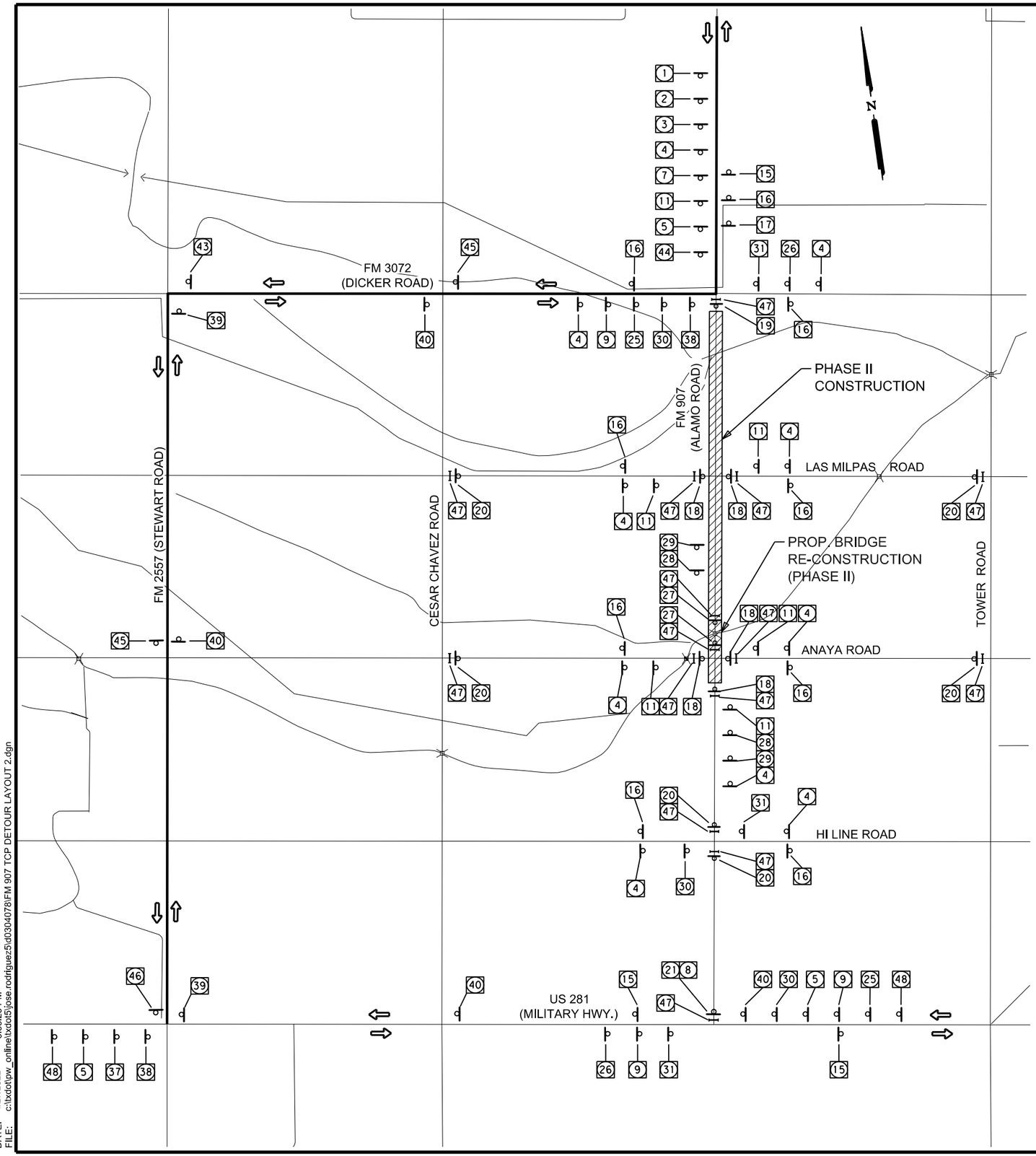

R20-3T (48"X42") — OBEY WARNING SIGNS STATE LAW — 1

G20-10T (60"x48") — STAY ALERT / TALK OR TEXT LATER — 2

BEGIN WORK ZONE (G20-9TP 24"x24") / TRAFFIC FINES DOUBLE (R20-5T 24"x30") / WHEN WORKERS ARE PRESENT (R20-5aTP 24"x12") — 3

CW20-1D (48"x48") — ROAD WORK AHEAD — 4

CW20-2D (48"x48") — DETOUR AHEAD — 5

BEGIN ROAD WORK NEXT 2 MILES (G20-5T 48x24) / NAME ADDRESS CITY STATE / CONTRACTOR (G20-6T 48x30) — 7

G20-6T (48"x30") — NAME ADDRESS CITY STATE / CONTRACTOR — 8

WORK ZONE (G20-5aP 24"x18") / TRAFFIC FINES DOUBLE (R20-5T 24"x30") / WHEN WORKERS ARE PRESENT (R20-5aTP 24"x12") — 9

CW20-3D (48"x48") — ROAD CLOSED AHEAD — 11

G20-2bT (36"x18") — END WORK ZONE — 15

G20-2 (36"x18") — END ROAD WORK — 16

M4-8A (24"x18") — END DETOUR — 17

R11-2 (48"x30") — ROAD CLOSED — 18

ROAD CLOSED (R11-2 48"x30") / DETOUR (M4-10R 48"x18") — 19

R11-4 (60"x30") — ROAD CLOSED TO THRU TRAFFIC — 20

ROAD CLOSED TO THRU TRAFFIC (R11-4 60"x30") / DETOUR (M4-10L 48"x18") — 21

G20-1bTR (72"x24") — ROAD WORK NEXT 2 MILES → — 25

G20-1bTL (72"x24") — ROAD WORK ← NEXT 2 MILES — 26

R11-2aT (48"x30") — BRIDGE CLOSED — 27

R11-3b (60"x30") — BRIDGE OUT ¼ MILES AHEAD — 28

R11-3b (60"x30") — BRIDGE OUT ½ MILES AHEAD — 29

R3-1 (24"x24") — 30

R3-2 (24"x24") — 31

DETOUR (M4-8 24"x12") / NORTH (M3-1 24"x12") / FARM 907 ROAD (M1-6F 24"x24") / M5-1L (21"x15") — 37

DETOUR (M4-8 24"x12") / NORTH (M3-1 24"x12") / FARM 907 ROAD (M1-6F 24"x24") / M6-1 (21"x15") — 38

DETOUR (M4-8 24"x12") / NORTH (M3-1 24"x12") / FARM 907 ROAD (M1-6F 24"x24") / M6-1 (21"x15") — 39

DETOUR (M4-8 24"x12") / NORTH (M3-1 24"x12") / FARM 907 ROAD (M1-6F 24"x24") / M6-3 (21"x15") — 40

DETOUR (M4-8 24"x12") / 281 (M1-4 30"x24") / M6-1 (21"x15") — 43

DETOUR (M4-8 24"x12") / 281 (M1-4 30"x24") / M6-1 (21"x15") — 44

DETOUR (M4-8 24"x12") / 281 (M1-4 30"x24") / M6-3 (21"x15") — 45

END DETOUR (M4-8a 24"x18") / 281 (M1-4 30"x24") / M6-4 (21"x15") — 46

TY 3 (C) BARRICADE — 47

STATE OF TEXAS — JOSE A. RODRIGUEZ — 117308 — LICENSED PROFESSIONAL ENGINEER

04/27/22

PORTABLE CHANGEABLE MESSAGE SIGNS

1.- The Engineer shall approve all messages used on portable changeable message signs (PCMS)
2.- The location of PCMS shall be approved by Engineer prior to start construction.

PCMS

PHASE 1	PHASE 2
FM 907 ROAD CLOSED	USE DETOUR ROUTE

48

LEGEND

- TRAFFIC SIGN I.D.
- DIRECTION OF TRAFFIC FLOW
- PROP. CONSTRUCTION AREA
- PREVIOUSLY CONSTRUCTED
- PROP. TY 3 BARRICADES
- PROP. CHANNELIZING DEVICE
- PROP. SIGN
- X — CONTRACTOR TO FOLLOW TxDOT LATEST BC-21 STANDARDS AND TxDOT TCP STANDARDS FOR PROPER SIGNAGE & SIGN SPACING.

Pharr District Central Design

Texas Department of Transportation

FM 907
TRAFFIC CONTROL DETOUR LAYOUT PHASE II

SCALE: N.T.S.

CONT	SECT	JOB	HIGHWAY
1586	01	079	FM 907
DIST	COUNTY		SHEET NO.
PHR	HIDALGO		41

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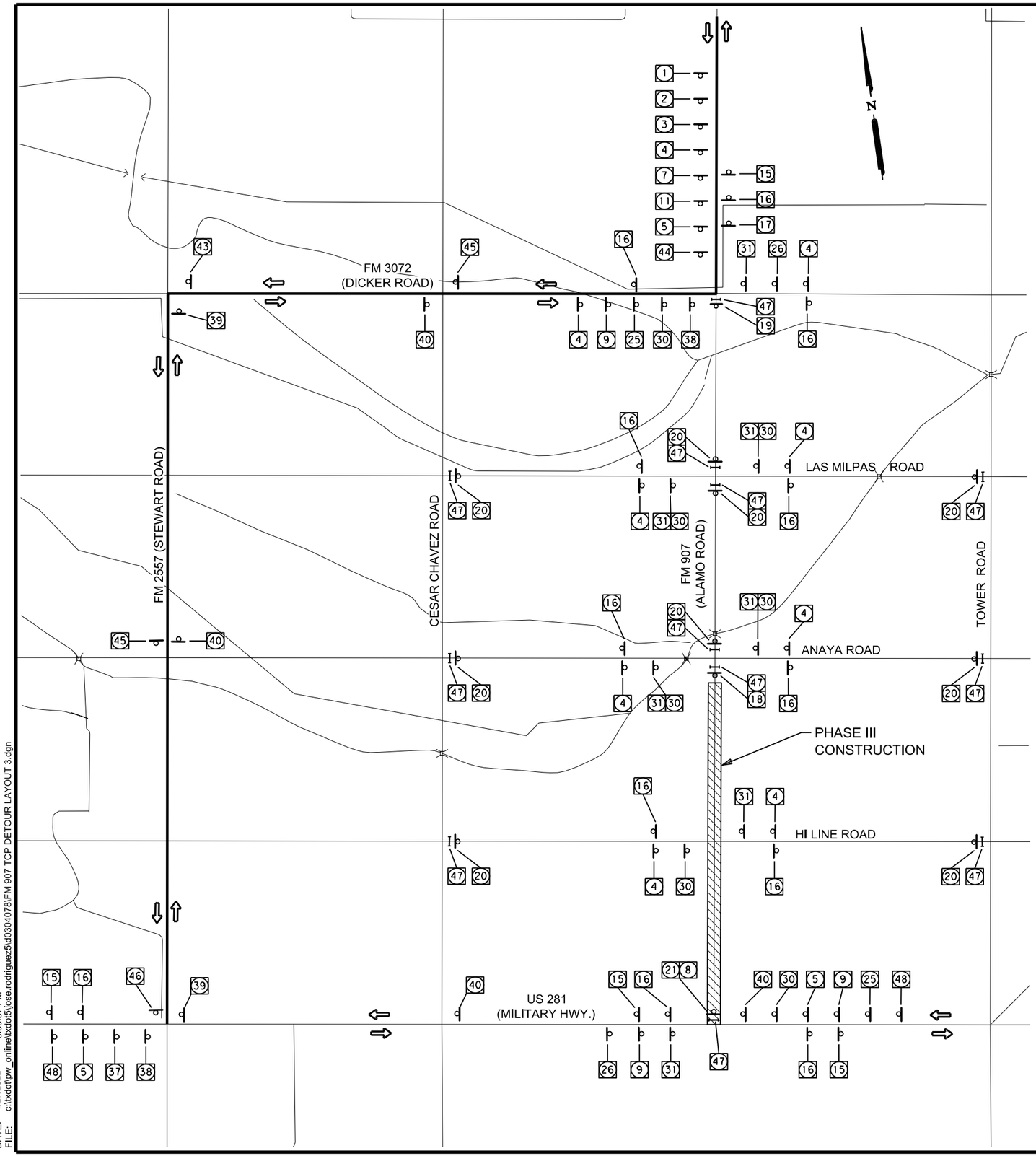

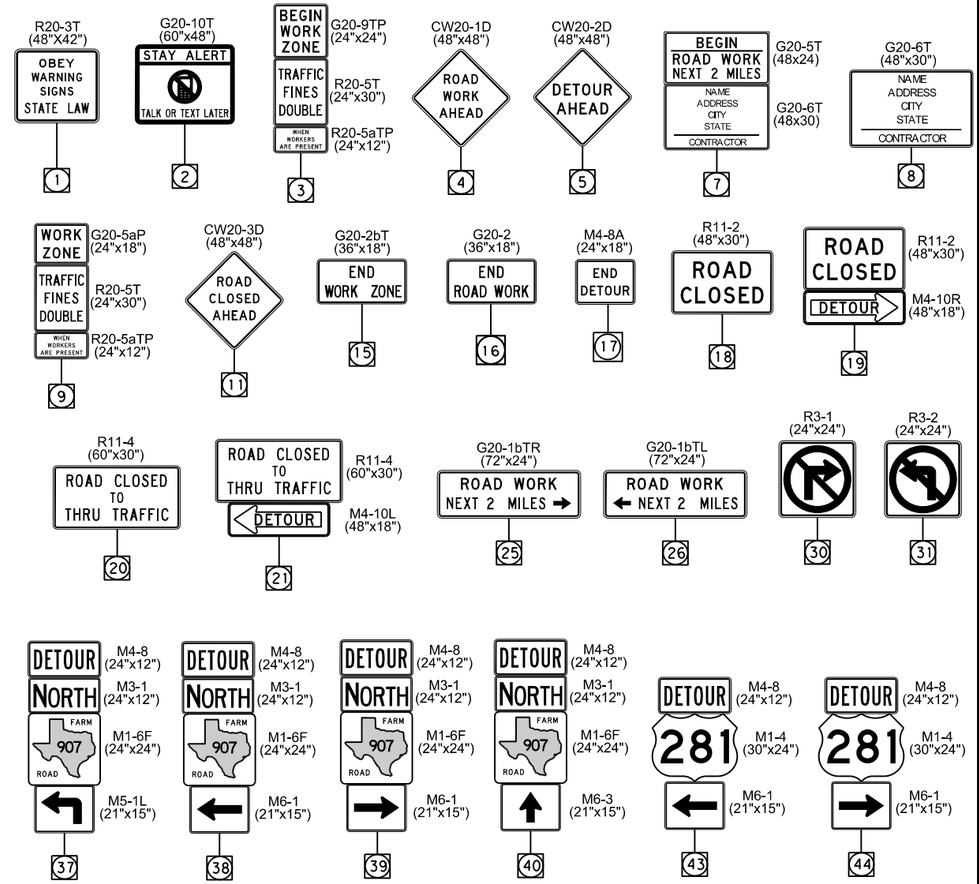

PORTABLE CHANGEABLE MESSAGE SIGNS

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2.- The location of PCMS shall be approved by Engineer prior to start construction.

PCMS

FM 907 ROAD CLOSED	USE DETOUR ROUTE
PHASE 1	PHASE 2

48

LEGEND

- TRAFFIC SIGN I.D.
- DIRECTION OF TRAFFIC FLOW
- PROP. CONSTRUCTION AREA
- PREVIOUSLY CONSTRUCTED
- PROP. TY 3 BARRICADES
- PROP. CHANNELIZING DEVICE
- PROP. SIGN
- CONTRACTOR TO FOLLOW TxDOT LATEST BC-21 STANDARDS AND TxDOT TCP STANDARDS FOR PROPER SIGNAGE & SIGN SPACING.

STATE OF TEXAS
JOSE A. RODRIGUEZ
117308
LICENSED PROFESSIONAL ENGINEER

04/27/22

Pharr District Central Design

Texas Department of Transportation

FM 907
TRAFFIC CONTROL DETOUR LAYOUT PHASE III

SCALE: N.T.S.

CONT	SECT	JOB	HIGHWAY
1586	01	079	FM 907
DIST	COUNTY		SHEET NO.
PHR	HIDALGO		42

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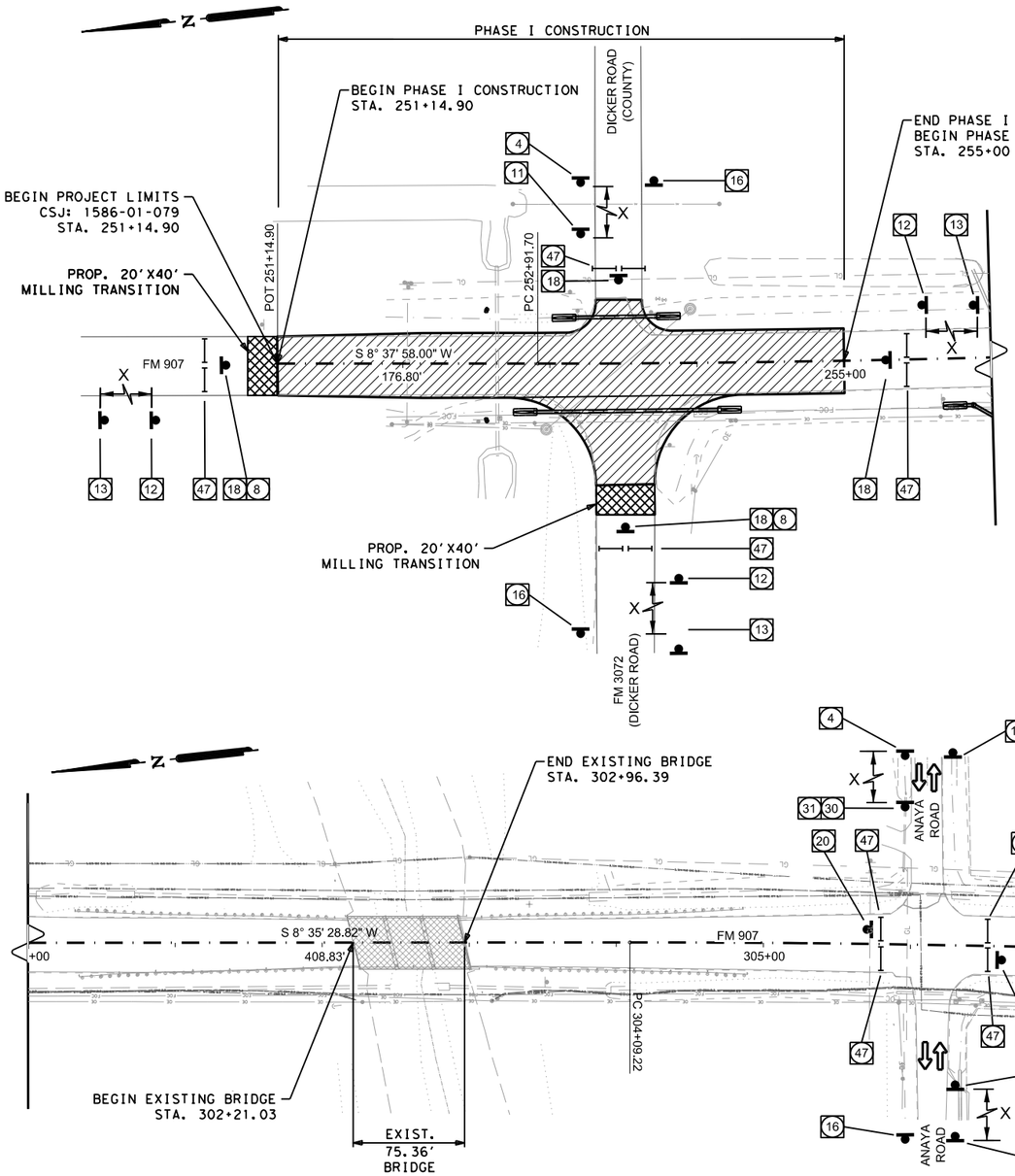

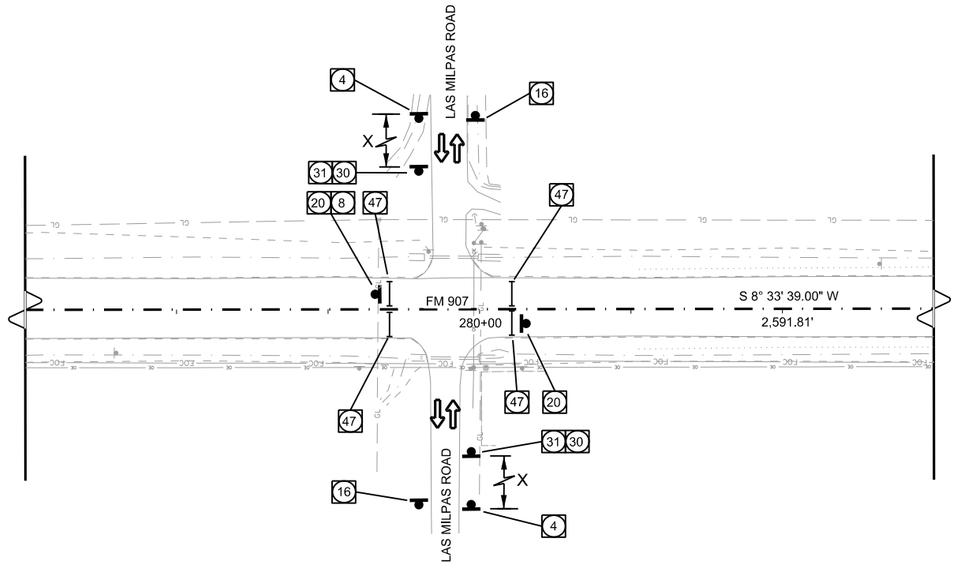

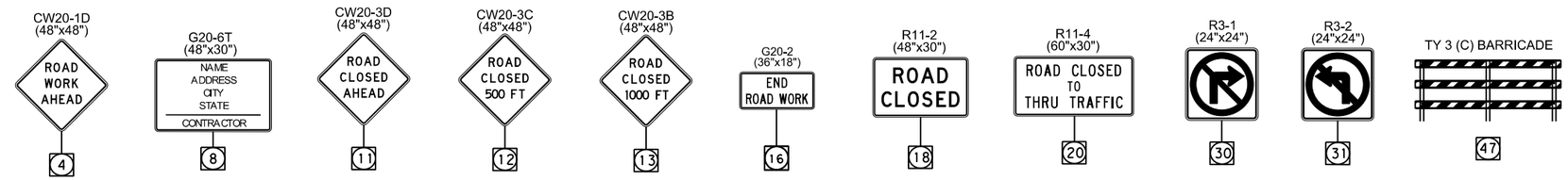

LEGEND

- TRAFFIC SIGN I.D.
- DIRECTION OF TRAFFIC FLOW
- PROP. CONSTRUCTION AREA
- PREVIOUSLY CONSTRUCTED
- PROP. TY 3 BARRICADES
- PROP. CHANNELIZING DEVICE
- PROP. SIGN
- X — CONTRACTOR TO FOLLOW TxDOT LATEST BC-21 STANDARDS AND TxDOT TCP STANDARDS FOR PROPER SIGNAGE & SIGN SPACING.

STATE OF TEXAS
JOSE A. RODRIGUEZ
117308
LICENSED
PROFESSIONAL ENGINEER

04/27/22

Pharr District Central Design

Texas Department of Transportation

FM 907

TRAFFIC CONTROL PLAN
PHASE I

SCALE: 1"=100' SHEET 1 OF 2

© 2021	CONT	SECT	JOB	HIGHWAY
	1586	01	079	FM 907
	DIST	COUNTY		SHEET NO.
	PHR	HIDALGO		43

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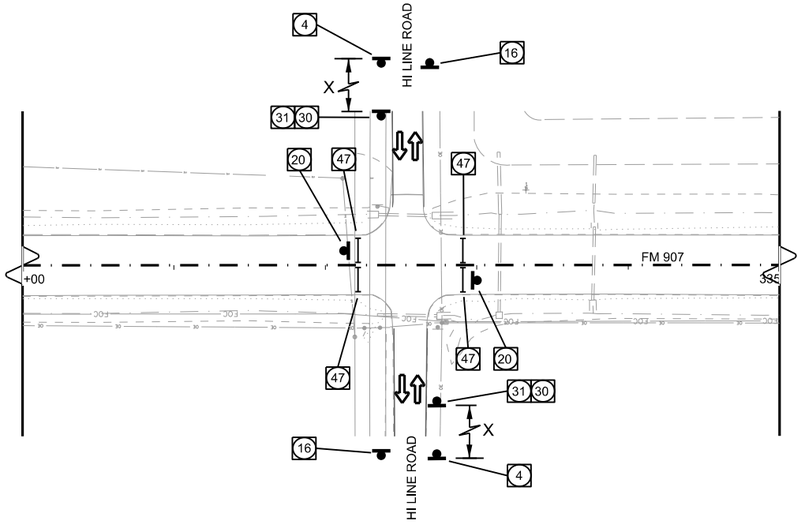
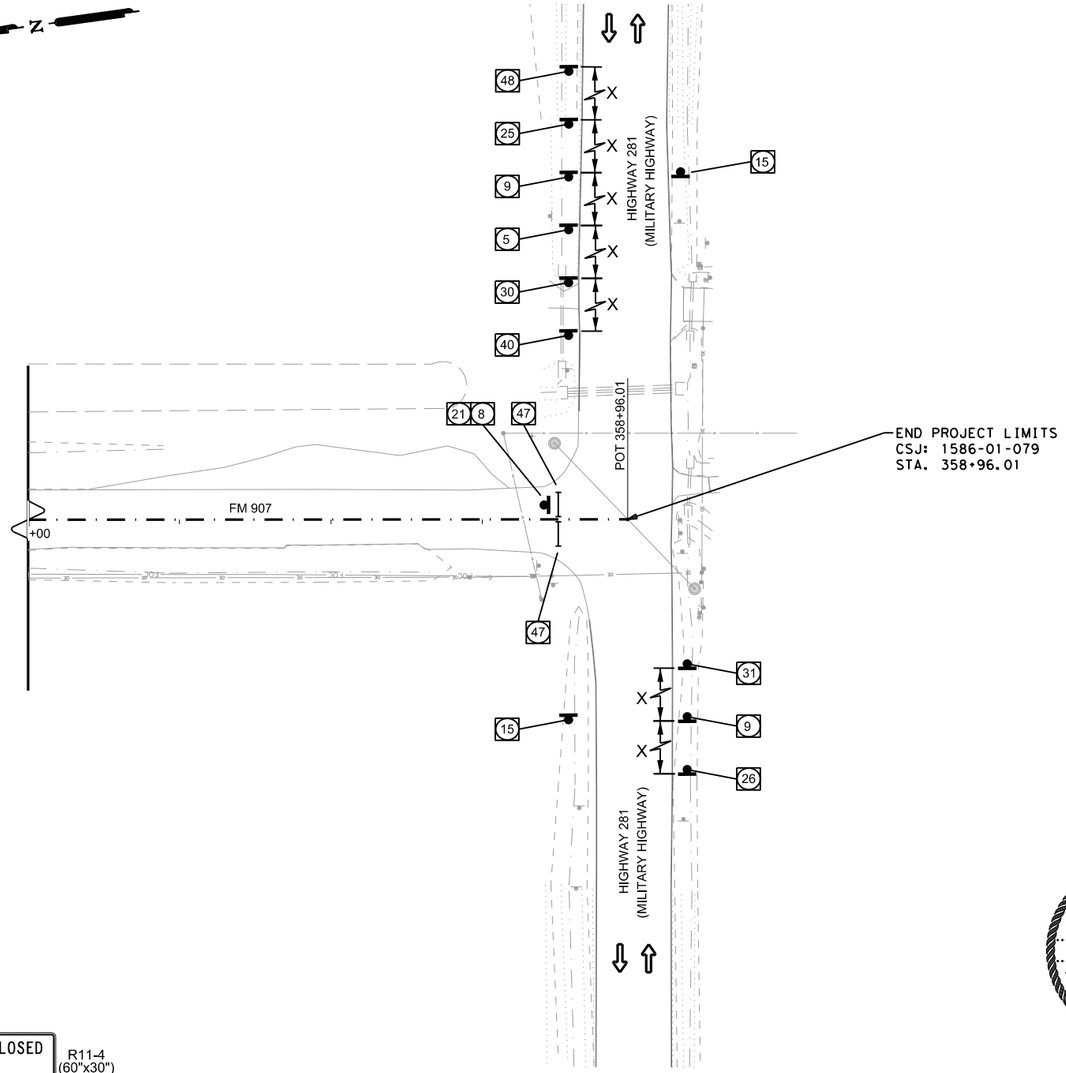
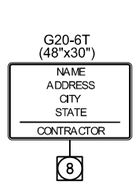


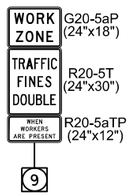


CW20-1D (48"x48")

CW20-2D (48"x48")



G20-6T (48"x30")

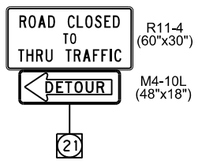


G20-5aP (24"x18")
R20-5T (24"x30")
R20-5aTP (24"x12")

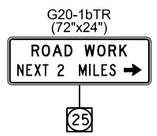
G20-2bT (36"x18")

G20-2 (36"x18")

R11-4 (60"x30")



R11-4 (60"x30")
M4-10L (48"x18")

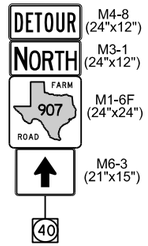


G20-1bTR (72"x24")

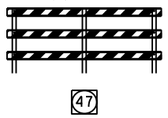
G20-1bTL (72"x24")

R3-1 (24"x24")

R3-2 (24"x24")



M4-8 (24"x12")
M3-1 (24"x12")
M1-6F (24"x24")
M6-3 (21"x15")

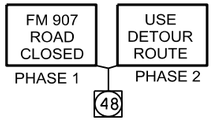


TY 3 (C) BARRICADE

PORTABLE CHANGEABLE MESSAGE SIGNS

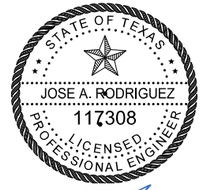
1.- The Engineer shall approve all messages used on portable changeable message signs (PCMS).
2.- The location of PCMS shall be approved by Engineer prior to start construction.

PCMS



LEGEND

- TRAFFIC SIGN I.D.
- DIRECTION OF TRAFFIC FLOW
- PROP. CONSTRUCTION AREA
- PREVIOUSLY CONSTRUCTED
- PROP. TY 3 BARRICADES
- PROP. CHANNELIZING DEVICE
- PROP. SIGN
- X CONTRACTOR TO FOLLOW TxDOT LATEST BC-21 STANDARDS AND TxDOT TCP STANDARDS FOR PROPER SIGNAGE & SIGN SPACING.



04/27/22

Pharr District Central Design

Texas Department of Transportation

FM 907

TRAFFIC CONTROL PLAN
PHASE I

SCALE: 1"=100' SHEET 2 OF 2

© 2021	CONT	SECT	JOB	HIGHWAY
	1586	01	079	FM 907
	DIST	COUNTY		SHEET NO.
	PHR	HIDALGO		44

DATE: 4/27/2022 4:02:02 PM
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BEGIN PROJECT LIMITS
CSJ: 1586-01-079
STA. 251+14.90

POT 251+14.90

PC 252+91.70

S 8° 37' 58.00" W
176.80'

255+00

(DICKER ROAD)

FM 3072 (DICKER ROAD)

PHASE II CONSTRUCTION

END PHASE I CONSTRUCTION
BEGIN PHASE II CONSTRUCTION
STA. 255+00

LAS MILPAS ROAD

280+00

S 8° 33' 39.00" W
2,591.81'

END INCIDENTAL CONSTRUCTION
ANAYA ROAD EAST
STA. 12+75

PHASE II CONSTRUCTION

END PROP. BRIDGE
RE-CONSTRUCTION
STA. 302+99.67

BEGIN INCIDENTAL CONSTRUCTION
ANAYA ROAD EAST
STA. 10+42.53

END PHASE II CONSTRUCTION
STA. 310+00

ANAYA ROAD

S 8° 35' 28.82" W
408.83'

+00

305+00

310+00

PC 304+09.22

PT 307+62.59

BEGIN PROP. BRIDGE
RE-CONSTRUCTION
STA. 302+19.67

PROP.
80' BRIDGE

END INCIDENTAL CONSTRUCTION
ANAYA ROAD WEST
STA. 12+34.37

BEGIN INCIDENTAL CONSTRUCTION
ANAYA ROAD WEST
STA. 10+00

R20-3T (48"X42") — OBEY WARNING SIGNS STATE LAW — 1
G20-10T (60"x48") — STAY ALERT / TALK OR TEXT LATER — 2
BEGIN WORK ZONE / TRAFFIC FINES DOUBLE / WHEN WORKERS ARE PRESENT — G20-9TP (24"x24"), R20-5T (24"x30"), R20-5aTP (24"x12") — 3
CW20-1D (48"x48") — ROAD WORK AHEAD — 4
CW20-2D (48"x48") — DETOUR AHEAD — 5
BEGIN ROAD WORK NEXT 2 MILES / NAME ADDRESS CITY STATE / CONTRACTOR — G20-5T (48x24), G20-6T (48x30) — 7
WORK ZONE / TRAFFIC FINES DOUBLE / WHEN WORKERS ARE PRESENT — G20-5aP (24"x18"), R20-5T (24"x30"), R20-5aTP (24"x12") — 9
CW20-3D (48"x48") — ROAD CLOSED AHEAD — 11
G20-2bT (36"x18") — END WORK ZONE — 15
G20-2 (36"x18") — END ROAD WORK — 16
M4-8A (24"x18") — END DETOUR — 17
R11-2 (48"x30") — ROAD CLOSED — 18
ROAD CLOSED / DETOUR — R11-2 (48"x30"), M4-10R (48"x18") — 19
G20-1bTR (72"x24") — ROAD WORK NEXT 2 MILES — 25
DETOUR / NORTH / FARM 907 ROAD — M4-8 (24"x12"), M3-1 (24"x12"), M1-6F (24"x24") — 38
DETOUR / 281 — M4-8 (24"x12"), M1-4 (30"x24"), M6-1 (21"x15") — 44
G20-1bTL (72"x24") — ROAD WORK NEXT 2 MILES — 26
R11-2aT (48"x30") — BRIDGE CLOSED — 27
R11-3b (60"x30") — BRIDGE OUT ¼ MILES AHEAD — 28
R11-3b (60"x30") — BRIDGE OUT ½ MILES AHEAD — 29
R3-1 (24"x24") — 30
R3-2 (24"x24") — 31
M6-1 (21"x15") — 38

TY 3 (C) BARRICADE — 47

LEGEND
- TRAFFIC SIGN I.D.
- DIRECTION OF TRAFFIC FLOW
- PROP. CONSTRUCTION AREA
- PREVIOUSLY CONSTRUCTED
- PROP. TY 3 BARRICADES
- PROP. CHANNELIZING DEVICE
- PROP. SIGN
- X — CONTRACTOR TO FOLLOW TxDOT LATEST BC-21 STANDARDS AND TxDOT TCP STANDARDS FOR PROPER SIGNAGE & SIGN SPACING.

STATE OF TEXAS
JOSE A. RODRIGUEZ
117308
LICENSED PROFESSIONAL ENGINEER

04/27/22

Pharr District Central Design

Texas Department of Transportation

FM 907

TRAFFIC CONTROL PLAN PHASE II

SCALE: 1"=100' — SHEET 1 OF 2

© 2021	CONT	SECT	JOB	HIGHWAY
	1586	01	079	FM 907
	DIST	COUNTY		SHEET NO.
	PHR	HIDALGO		45

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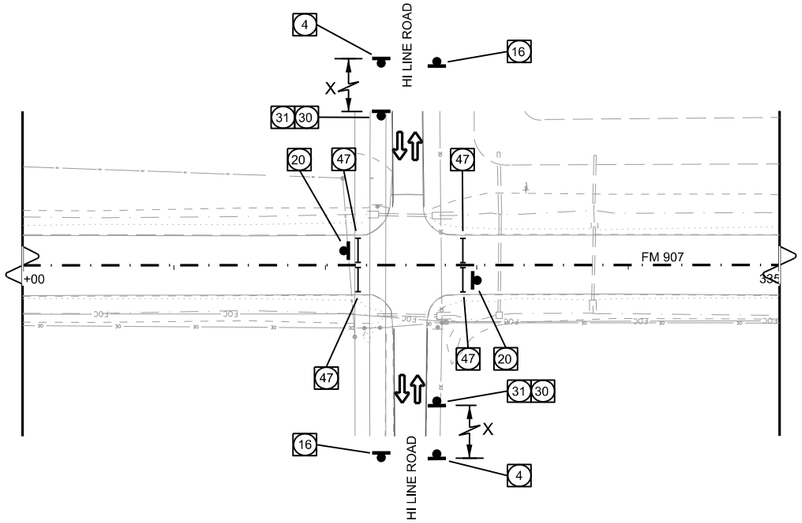

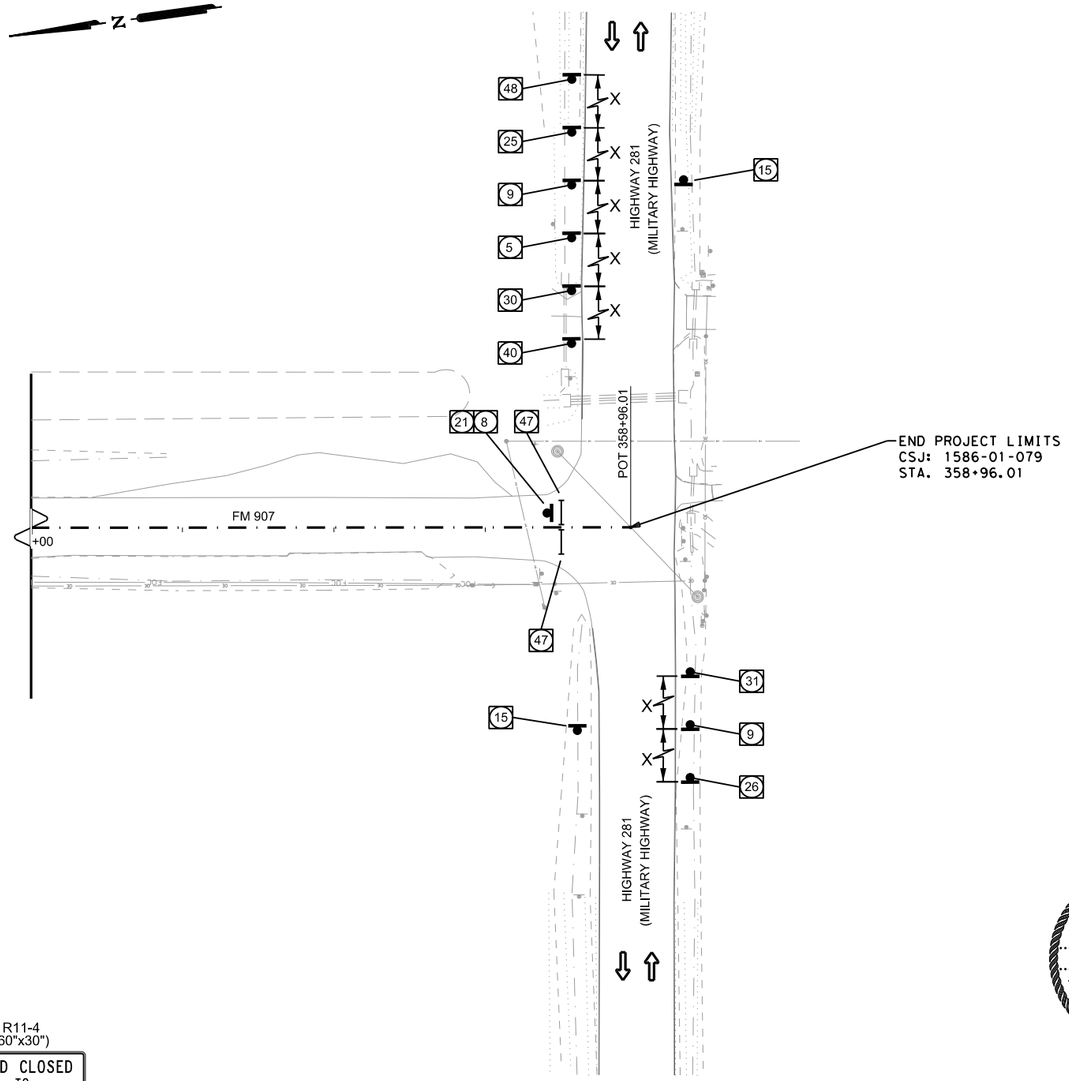

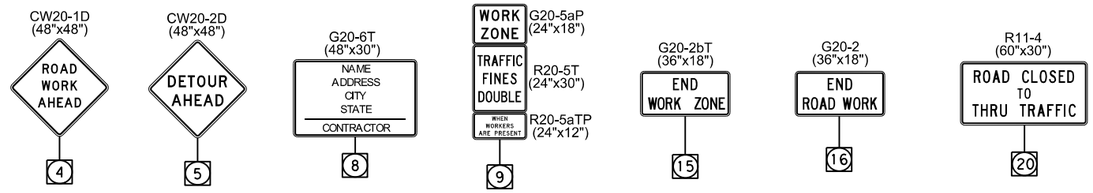

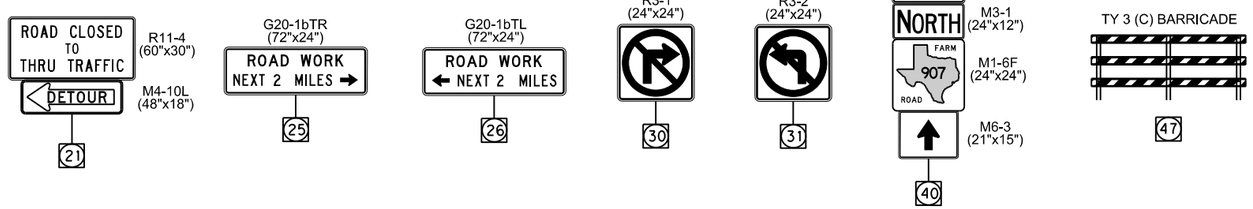

PORTABLE CHANGEABLE MESSAGE SIGNS

1.- The Engineer shall approve all messages used on portable changeable message signs (PCMS).
2.- The location of PCMS shall be approved by Engineer prior to start construction.

PCMS

FM 907 ROAD CLOSED	USE DETOUR ROUTE
PHASE 1	PHASE 2

LEGEND

- TRAFFIC SIGN I.D.
- DIRECTION OF TRAFFIC FLOW
- PROP. CONSTRUCTION AREA
- PREVIOUSLY CONSTRUCTED
- PROP. TY 3 BARRICADES
- PROP. CHANNELIZING DEVICE
- PROP. SIGN
- X CONTRACTOR TO FOLLOW TxDOT LATEST BC-21 STANDARDS AND TxDOT TCP STANDARDS FOR PROPER SIGNAGE & SIGN SPACING.

STATE OF TEXAS
JOSE A. RODRIGUEZ
117308
LICENSED PROFESSIONAL ENGINEER

04/27/22

Pharr District Central Design

Texas Department of Transportation

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TRAFFIC CONTROL PLAN
PHASE II

SCALE: 1"=100' SHEET 2 OF 2

© 2021	CONT	SECT	JOB	HIGHWAY
	1586	01	079	FM 907
	DIST	COUNTY		SHEET NO.
	PHR	HIDALGO		46

DATE: 4/27/2022 4:04:39 PM
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BEGIN PROJECT LIMITS
CSJ: 1586-01-079
STA. 251+14.90

POT 251+14.90

PC 252+91.70

S 8° 37' 58.00" W
176.80'

255+00

END PHASE I CONSTRUCTION
BEGIN PHASE II CONSTRUCTION
STA. 255+00

(DICKER ROAD)

FM 3072
(DICKER ROAD)

LAS MILPAS ROAD

S 8° 33' 39.00" W
2,591.81'

280+00

LAS MILPAS ROAD

R20-3T (48"X42") — OBEY WARNING SIGNS STATE LAW — 1
G20-10T (60"x48") — STAY ALERT / TALK OR TEXT LATER — 2
BEGIN WORK ZONE — G20-9TP (24"x24")
TRAFFIC FINES DOUBLE — R20-5T (24"x30")
WHEN WORKERS ARE PRESENT — R20-5aTP (24"x12") — 3
CW20-1D (48"x48") — ROAD WORK AHEAD — 4
CW20-2D (48"x48") — DETOUR AHEAD — 5

BEGIN ROAD WORK NEXT 2 MILES — G20-5T (48x24)
NAME / ADDRESS / CITY / STATE / CONTRACTOR — G20-6T (48x30) — 7

WORK ZONE / TRAFFIC FINES DOUBLE / WHEN WORKERS ARE PRESENT — G20-5aP (24"x18") / R20-5T (24"x30") / R20-5aTP (24"x12") — 9

NEWLY RE-CONSTRUCTED BRIDGE
(PHASE II)

S 8° 35' 28.82" W
408.83'

+00

305+00

PC 304+09.22

PT 307+62.59

ANAYA ROAD

END PHASE II CONSTRUCTION
BEGIN PHASE III CONSTRUCTION
STA. 310+00

310+00

12' T.L.

PROP. WORK ZONE PVMT. MARKING (REM) 4" WHITE SOLID

PROP. WORK ZONE PVMT. MARKING (REM) 4" YELLOW SOLID

PROP. WORK ZONE PVMT. MARKING (NON-REM) 4" WHITE SOLID

PROP. WORK ZONE PVMT. MARKING (NON-REM) 4" YELLOW SOLID

PROP. TRAFFIC BARRELS W/ REFLECTOR (REFER TO BC STANDARDS FOR SPACING)

PHASE III CONSTRUCTION STEP - A

ELIMINATE EXIST. 4" PVMT. MARKING

CW20-3D (48"x48") — ROAD CLOSED AHEAD — 11
CW20-3C (48"x48") — ROAD CLOSED 500 FT — 12
G20-2bT (36"x18") — END WORK ZONE — 15
G20-2 (36"x18") — END ROAD WORK — 16
M4-8A (24"x18") — END DETOUR — 17
R11-2 (48"x30") — ROAD CLOSED — 18
ROAD CLOSED / DETOUR — R11-2 (48"x30") / M4-10R (48"x18") — 19
ROAD CLOSED TO THRU TRAFFIC — R11-4 (60"x30") — 20

DETOUR / NORTH / FARM 907 ROAD — M4-8 (24"x12") / M3-1 (24"x12") / M1-6F (24"x24") / M6-1 (21"x15") — 38
DETOUR 281 — M4-8 (24"x12") / M1-4 (30"x24") / M6-1 (21"x15") — 44

TY 3 (C) BARRICADE — 47

CW3 - 1 (48"X48") — 50
R1 - 1 (36"x36") — STOP — 51

G20-1bTR (72"x24") — ROAD WORK NEXT 2 MILES → — 25
G20-1bTL (72"x24") — ROAD WORK ← NEXT 2 MILES — 26
R3-1 (24"x24") — 30
R3-2 (24"x24") — 31
R5-1 (30"x30") — DO NOT ENTER — 33
R5-1a (36"x24") — WRONG WAY — 34

LEGEND
- TRAFFIC SIGN I.D.
- DIRECTION OF TRAFFIC FLOW
- PROP. CONSTRUCTION AREA
- PREVIOUSLY CONSTRUCTED
- PROP. TY 3 BARRICADES
- PROP. CHANNELIZING DEVICE
- PROP. SIGN
- X — CONTRACTOR TO FOLLOW TxDOT LATEST BC-21 STANDARDS AND TxDOT TCP STANDARDS FOR PROPER SIGNAGE & SIGN SPACING.

STATE OF TEXAS
JOSE A. RODRIGUEZ
117308
LICENSED
PROFESSIONAL ENGINEER

04/27/22

Pharr District Central Design

Texas Department of Transportation

FM 907

TRAFFIC CONTROL PLAN
PHASE III
STEP - A

SCALE: 1"=100' — SHEET 1 OF 2

© 2021	CONT	SECT	JOB	HIGHWAY
	1586	01	079	FM 907
	DIST	COUNTY		SHEET NO.
	PHR	HIDALGO		47

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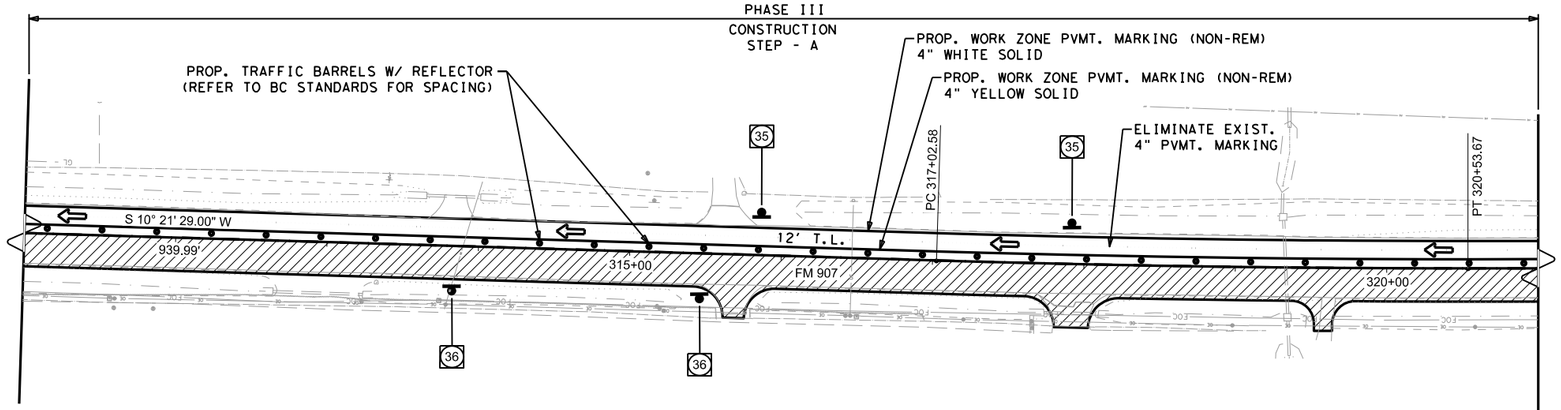

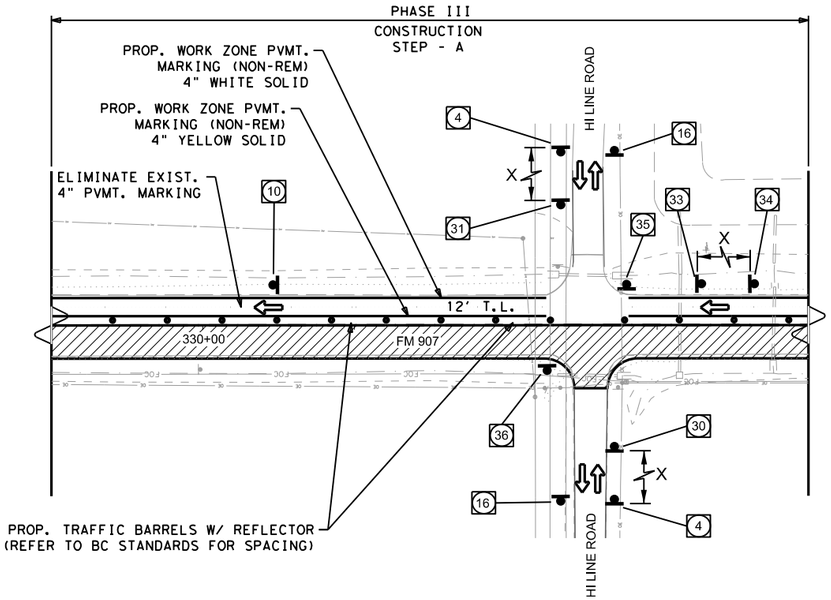

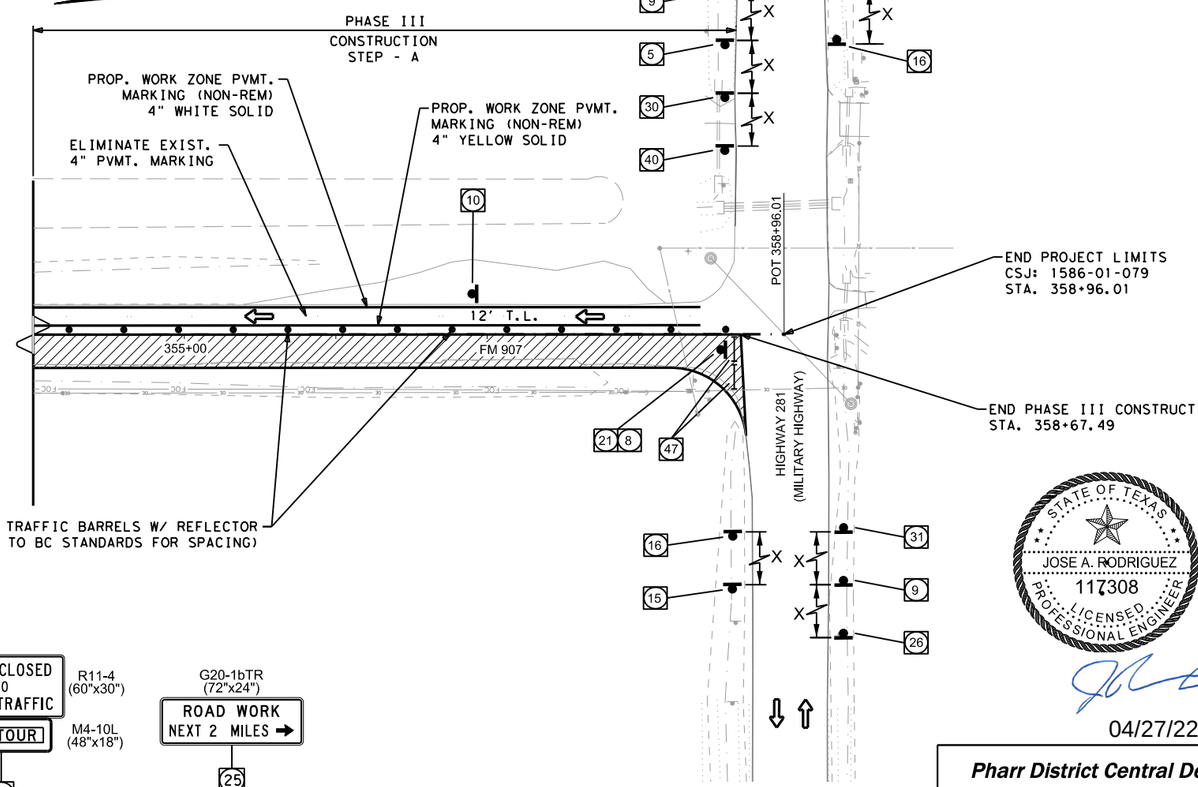

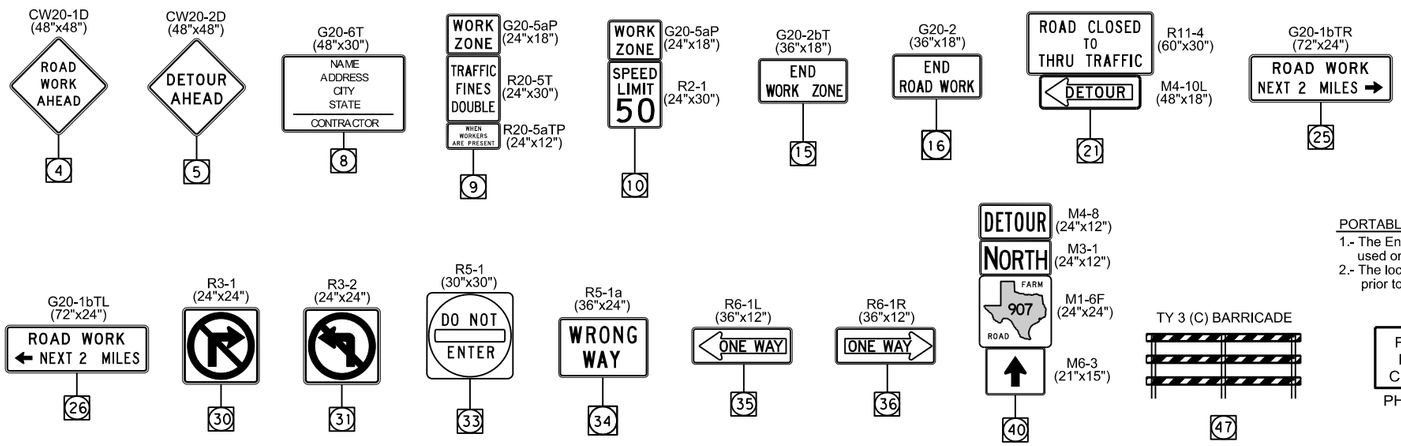

PORTABLE CHANGEABLE MESSAGE SIGNS

1.- The Engineer shall approve all messages used on portable changeable message signs (PCMS).
2.- The location of PCMS shall be approved by Engineer prior to start construction.

LEGEND

- TRAFFIC SIGN I.D.
- DIRECTION OF TRAFFIC FLOW
- PROP. CONSTRUCTION AREA
- PREVIOUSLY CONSTRUCTED
- PROP. TY 3 BARRICADES
- PROP. CHANNELIZING DEVICE
- PROP. SIGN
- X CONTRACTOR TO FOLLOW TxDOT LATEST BC-21 STANDARDS AND TxDOT TCP STANDARDS FOR PROPER SIGNAGE & SIGN SPACING.

STATE OF TEXAS
JOSE A. RODRIGUEZ
117308
LICENSED PROFESSIONAL ENGINEER

04/27/22

Pharr District Central Design

Texas Department of Transportation

FM 907

TRAFFIC CONTROL PLAN
PHASE III
STEP - A

SCALE: 1"=100' SHEET 2 OF 2

© 2021	CONT	SECT	JOB	HIGHWAY
	1586	01	079	FM 907
	DIST	COUNTY		SHEET NO.
	PHR	HIDALGO		48

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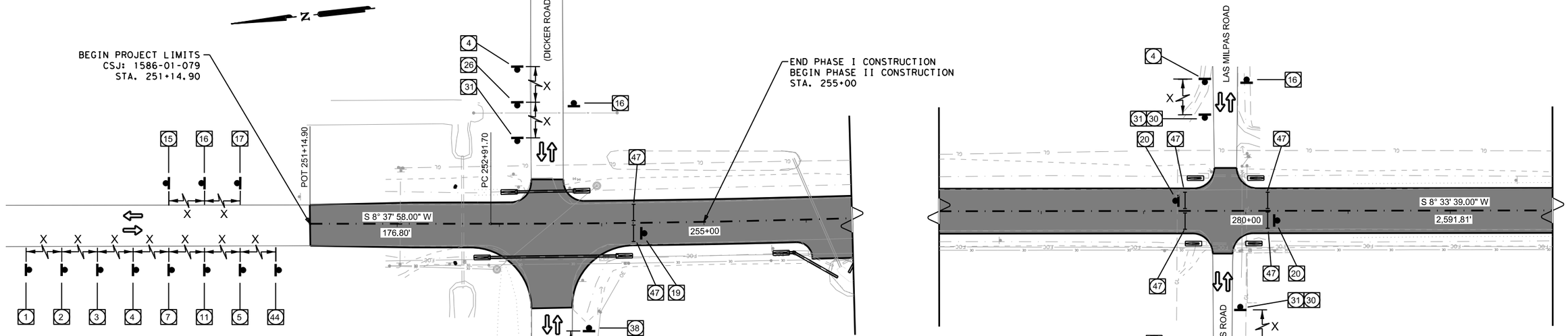

R20-3T (48"X42") OBEY WARNING SIGNS STATE LAW — 1

G20-10T (60"x48") STAY ALERT / TALK OR TEXT LATER — 2

BEGIN WORK ZONE / TRAFFIC FINES DOUBLE / WHEN WORKERS ARE PRESENT — G20-9TP (24"x24"), R20-5T (24"x30"), R20-5aTP (24"x12") — 3

CW20-1D (48"x48") ROAD WORK AHEAD — 4

CW20-2D (48"x48") DETOUR AHEAD — 5

BEGIN ROAD WORK NEXT 2 MILES — G20-5T (48x24)

NAME / ADDRESS / CITY / STATE / CONTRACTOR — G20-6T (48x30) — 7

WORK ZONE / TRAFFIC FINES DOUBLE / WHEN WORKERS ARE PRESENT — G20-5aP (24"x18"), R20-5T (24"x30"), R20-5aTP (24"x12") — 9

CW20-3D (48"x48") ROAD CLOSED AHEAD — 11

CW20-3C (48"x48") ROAD CLOSED 500 FT — 12

G20-2bT (36"x18") END WORK ZONE — 15

G20-2 (36"x18") END ROAD WORK — 16

M4-8A (24"x18") END DETOUR — 17

R11-2 (48"x30") ROAD CLOSED — 18

ROAD CLOSED / DETOUR — R11-2 (48"x30"), M4-10R (48"x18") — 19

ROAD CLOSED TO THRU TRAFFIC — R11-4 (60"x30") — 20

DETOUR / NORTH / FARM 907 ROAD — M4-8 (24"x12"), M3-1 (24"x12"), M1-6F (24"x24") — 38

M6-1 (21"x15") — 38

DETOUR / 281 — M4-8 (24"x12"), M1-4 (30"x24") — 44

M6-1 (21"x15") — 44

G20-1bTR (72"x24") ROAD WORK NEXT 2 MILES → — 25

G20-1bTL (72"x24") ROAD WORK ← NEXT 2 MILES — 26

R3-1 (24"x24") — 30

R3-2 (24"x24") — 31

CW1-4R (36"x36") — 32

R5-1 (30"x30") DO NOT ENTER — 33

R5-1a (36"x24") WRONG WAY — 34

CW3 - 1 (48"X48") — 50

R1 - 1 (36"x36") STOP — 51

LEGEND

- TRAFFIC SIGN I.D.
- DIRECTION OF TRAFFIC FLOW
- PROP. CONSTRUCTION AREA
- PREVIOUSLY CONSTRUCTED
- PROP. TY 3 BARRICADES
- PROP. CHANNELIZING DEVICE
- PROP. SIGN
- X CONTRACTOR TO FOLLOW TxDOT LATEST BC-21 STANDARDS AND TxDOT TCP STANDARDS FOR PROPER SIGNAGE & SIGN SPACING.

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PROFESSIONAL ENGINEER

04/27/22

Pharr District Central Design

Texas Department of Transportation

FM 907

TRAFFIC CONTROL PLAN
PHASE III
STEP - B

SCALE: 1"=100' SHEET 1 OF 2

© 2021	CONT	SECT	JOB	HIGHWAY
	1586	01	079	FM 907
	DIST	COUNTY		SHEET NO.
	PHR	HIDALGO		49

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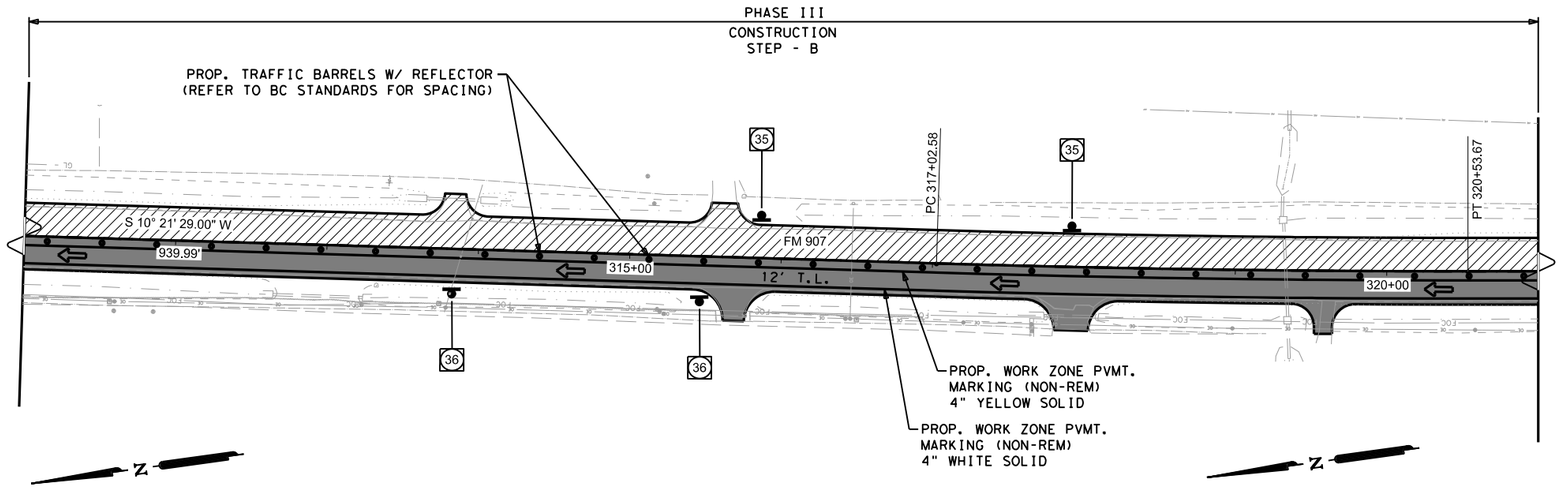

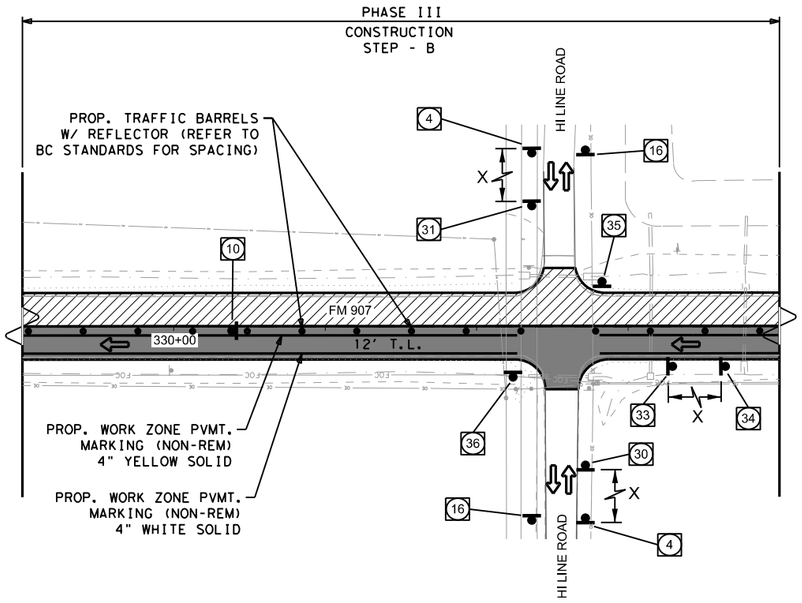

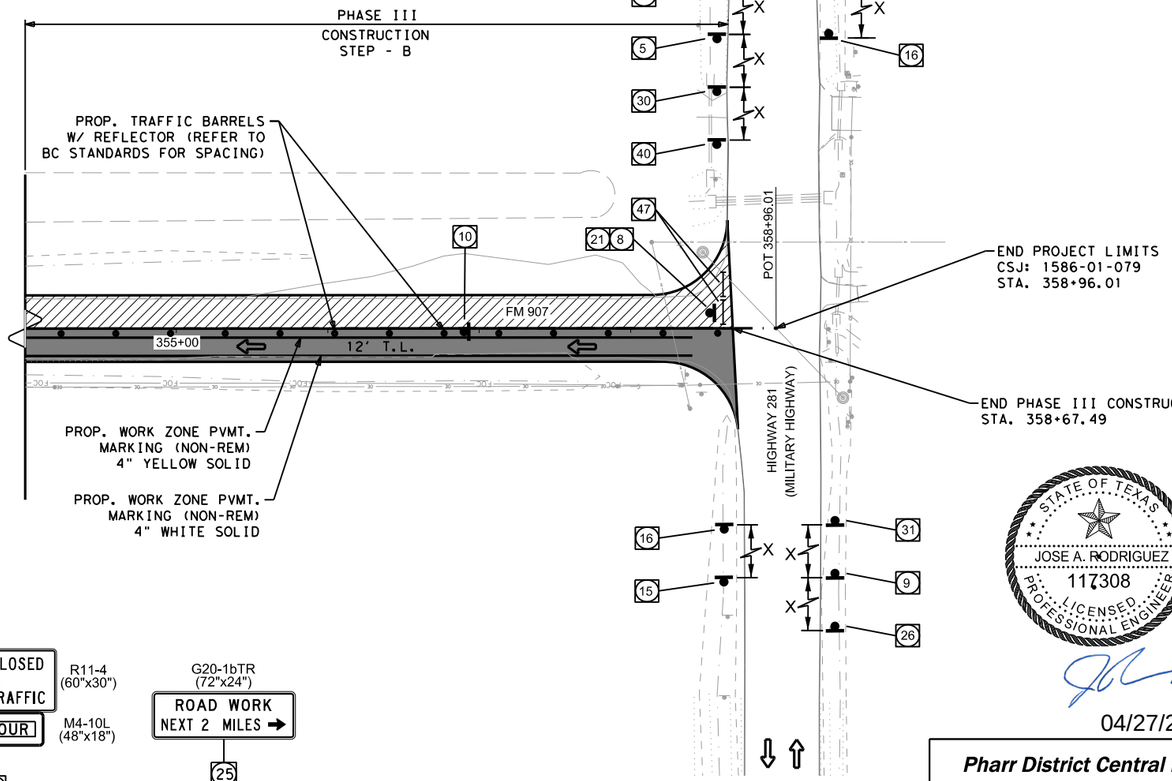

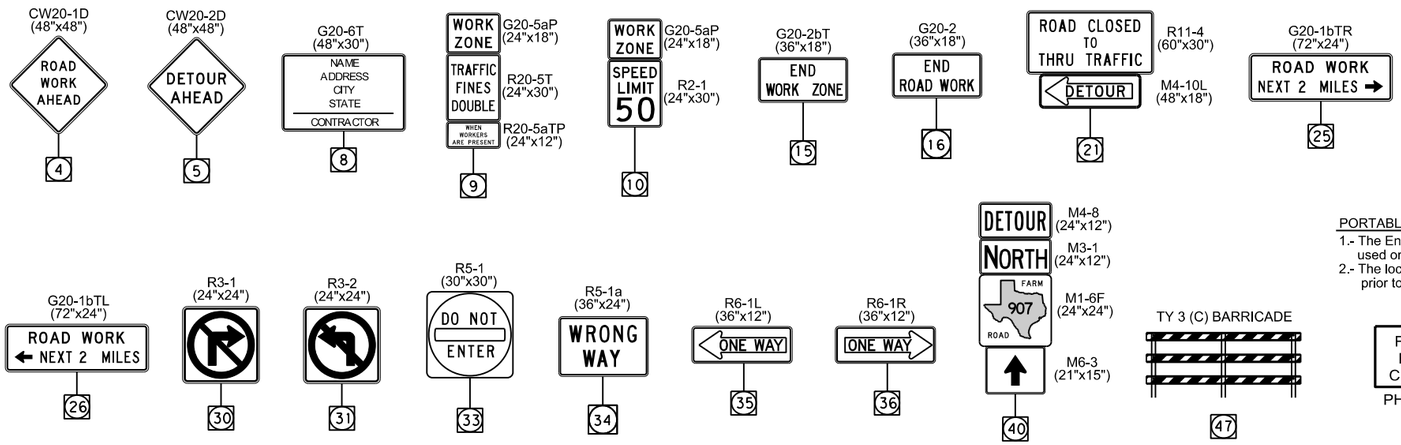

PORTABLE CHANGEABLE MESSAGE SIGNS

1.- The Engineer shall approve all messages used on portable changeable message signs (PCMS).
2.- The location of PCMS shall be approved by Engineer prior to start construction.

PCMS

FM 907 ROAD CLOSED	USE DETOUR ROUTE
PHASE 1	PHASE 2

48

LEGEND

- TRAFFIC SIGN I.D.
- DIRECTION OF TRAFFIC FLOW
- PROP. CONSTRUCTION AREA
- PREVIOUSLY CONSTRUCTED
- I PROP. TY 3 BARRICADES
- PROP. CHANNELIZING DEVICE
- PROP. SIGN
- X CONTRACTOR TO FOLLOW TxDOT LATEST BC-21 STANDARDS AND TxDOT TCP STANDARDS FOR PROPER SIGNAGE & SIGN SPACING.

STATE OF TEXAS
JOSE A. RODRIGUEZ
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PROFESSIONAL ENGINEER

04/27/22

Pharr District Central Design

Texas Department of Transportation

FM 907

TRAFFIC CONTROL PLAN
PHASE III
STEP - B

SCALE: 1"=100' SHEET 2 OF 2

CONT	SECT	JOB	HIGHWAY
1586	01	079	FM 907
DIST	COUNTY		SHEET NO.
PHR	HIDALGO		50

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BARRICADE AND CONSTRUCTION (BC) STANDARD SHEETS GENERAL NOTES:

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

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

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

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

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

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

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

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

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

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

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

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

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

WORKER SAFETY NOTES:

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

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

COMPLIANT WORKZONE TRAFFIC CONTROL DEVICES

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

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

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

Texas Department of Transportation

Traffic Safety Division Standard

BARRICADE AND CONSTRUCTION GENERAL NOTES AND REQUIREMENTS

BC(1)-21

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REVISIONS	1586	01	079	FM 907
4-03 7-13	DIST	COUNTY		SHEET NO.
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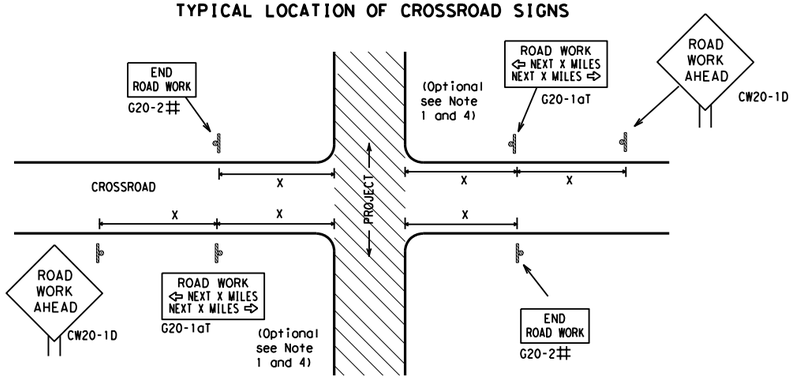
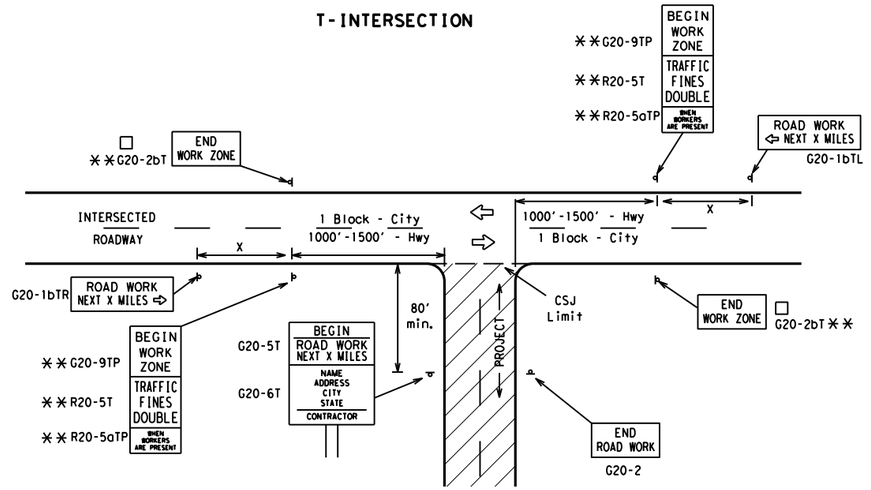
TYPICAL LOCATION OF CROSSROAD SIGNS



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

1. The typical minimum signing on a 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.

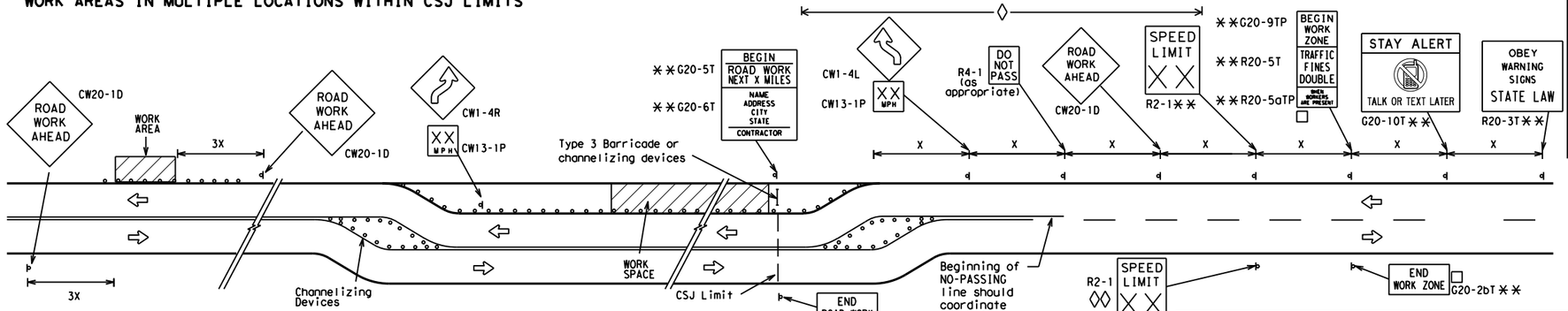
△ Minimum distance from work area to first Advance Warning sign nearest the work area and/or distance between each additional sign.

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.

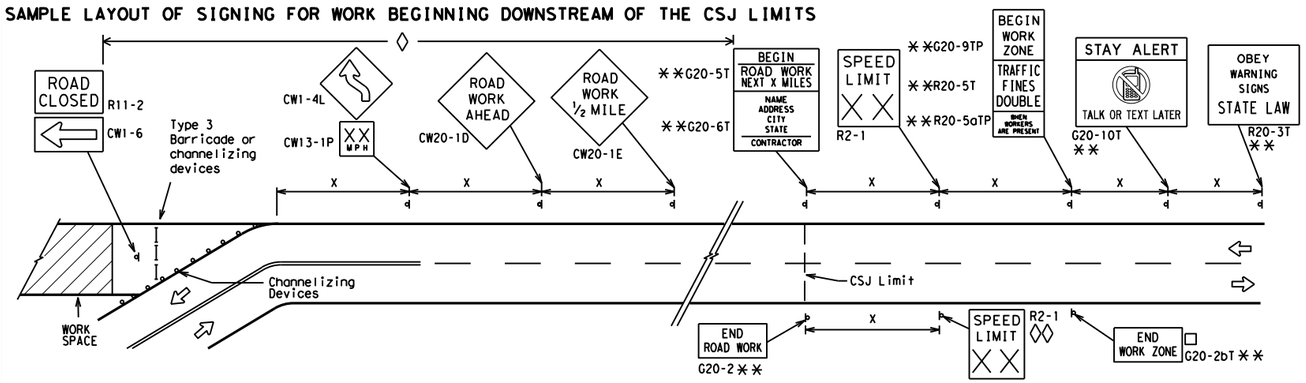
WORK AREAS IN MULTIPLE LOCATIONS WITHIN CSJ LIMITS

SAMPLE LAYOUT OF SIGNING FOR WORK BEGINNING AT THE CSJ LIMITS



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

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



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

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7-13 5-21	PHR	HIDALGO		52

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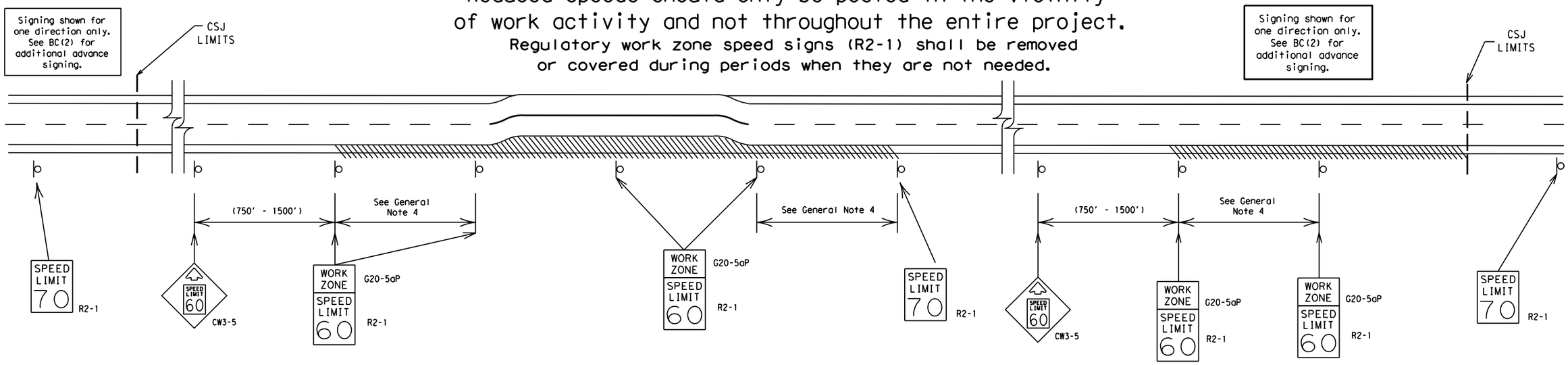
TYPICAL APPLICATION OF WORK ZONE SPEED LIMIT SIGNS

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

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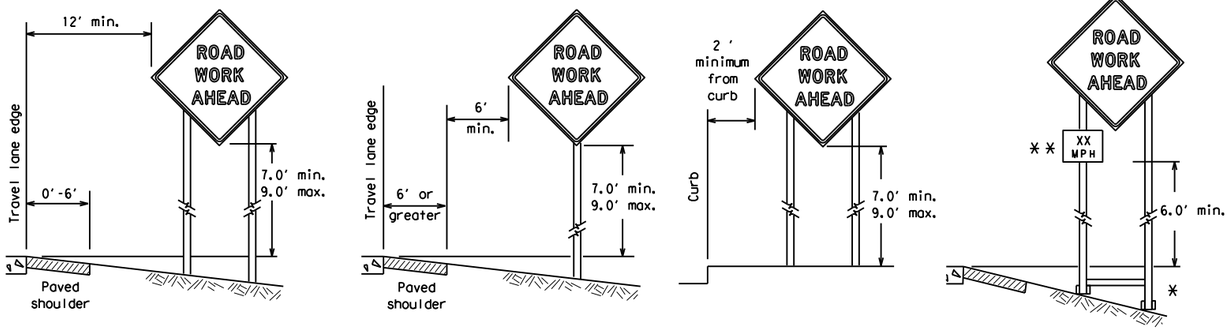
7-13 5-21	PHR	HIDALGO		53

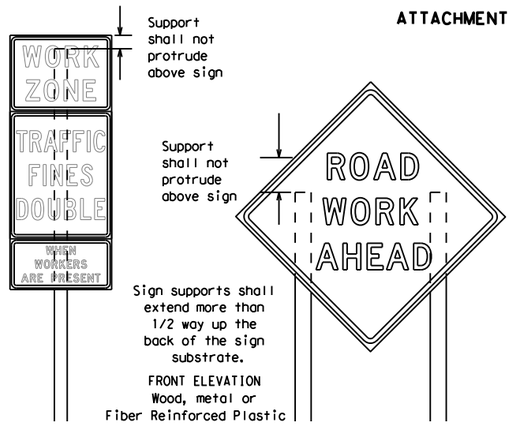
TYPICAL MINIMUM CLEARANCES FOR LONG TERM AND INTERMEDIATE TERM SIGNS

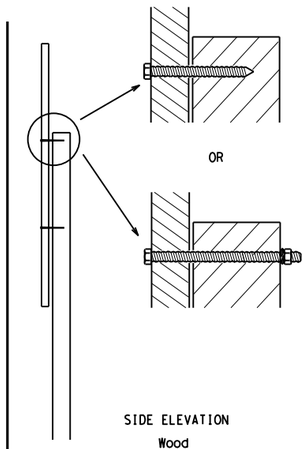


* When placing skid supports on unlevel ground, the leg post lengths must be adjusted so the sign appears straight and plumb. Objects shall NOT be placed under skids as a means of leveling.

** 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





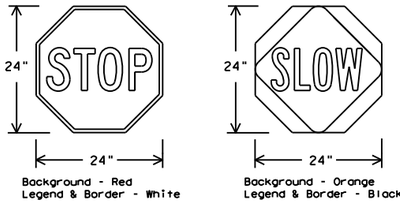
Attachment to wooden supports will be by bolts and nuts or screws. Use TxDOT's or manufacturer's recommended procedures for attaching sign substrates to other types of sign supports

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

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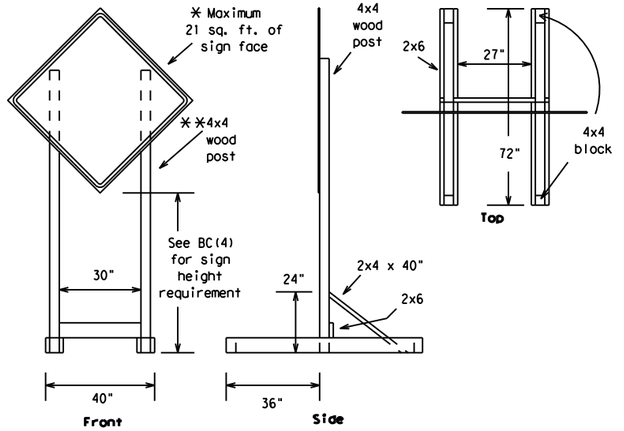
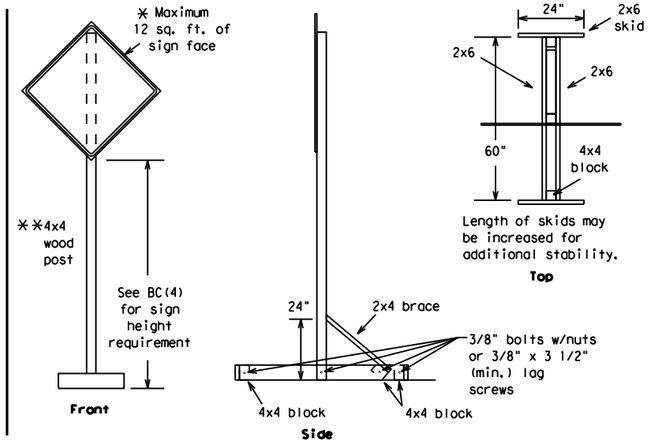
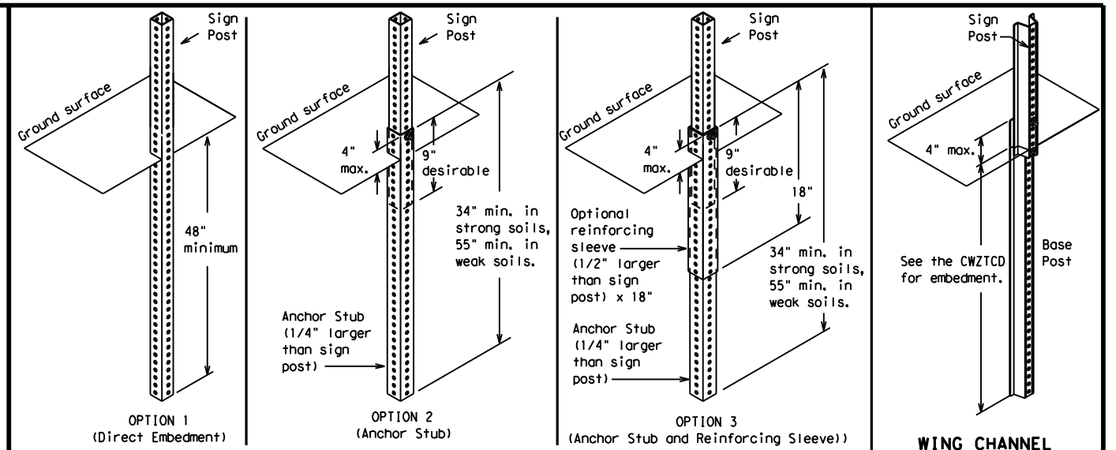




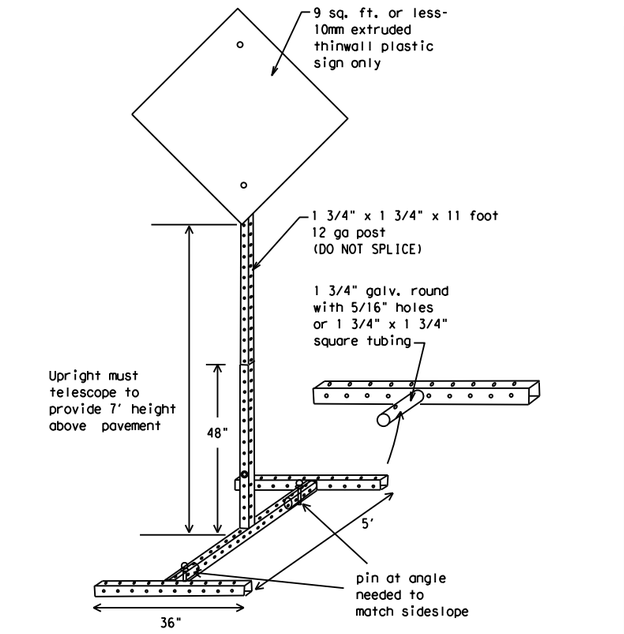
SKID MOUNTED WOOD SIGN SUPPORTS

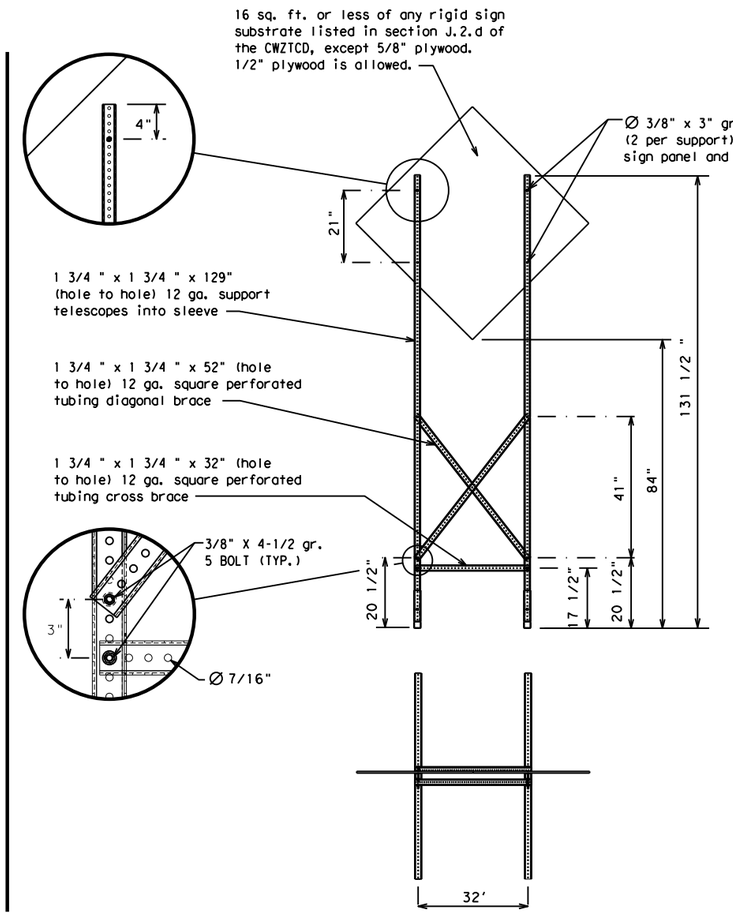
* LONG/INTERMEDIATE TERM STATIONARY - PORTABLE SKID MOUNTED SIGN SUPPORTS

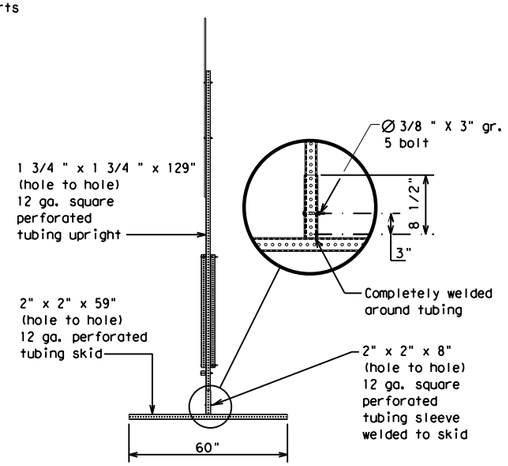


GROUND MOUNTED SIGN SUPPORTS

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







SKID MOUNTED PERFORATED SQUARE STEEL TUBING SIGN SUPPORTS

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

WEDGE ANCHORS

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

OTHER DESIGNS

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

GENERAL NOTES

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

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

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

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

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Texas Department of Transportation | Traffic Safety Division Standard

BARRICADE AND CONSTRUCTION TYPICAL SIGN SUPPORT

BC(5)-21

FILE: bc-21.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
©TxDOT November 2002	CONT	SECT	JOB	HIGHWAY
REVISIONS	1586	01	079	FM 907
9-07 8-14	DIST	COUNTY		SHEET NO.
7-13 5-21	PHR	HIDALGO		55

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

PORTABLE CHANGEABLE MESSAGE SIGNS

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

WORD OR PHRASE	ABBREVIATION
Access Road	ACCS RD
Alternate	ALT
Avenue	AVE
Best Route	BEST RTE
Boulevard	BLVD
Bridge	BRDG
Cannot	CANT
Center	CTR
Construction Ahead	CONST AHD
CROSSING	XING
Detour Route	DETOUR RTE
Do Not	DONT
East	E
Eastbound	(route) E
Emergency	EMER
Emergency Vehicle	EMER VEH
Entrance, Enter	ENT
Express Lane	EXP LN
Expressway	EXPWY
XXXX Feet	XXXX FT
Fog Ahead	FOG AHD
Freeway	FRWY, FWY
Freeway Blocked	FWY BLKD
Friday	FRI
Hazardous Driving	HAZ DRIVING
Hazardous Material	HAZMAT
High-Occupancy	HOV
Vehicle Highway	HWY
Hour(s)	HR, HRS
Information	INFO
It Is	ITS
Junction	JCT
Left	LFT
Left Lane	LFT LN
Lane Closed	LN CLOSED
Lower Level	LWR LEVEL
Maintenance	MAINT

WORD OR PHRASE	ABBREVIATION
Major	MAJ
Miles	MI
Miles Per Hour	MPH
Minor	MNR
Monday	MON
Normal	NORM
North	N
Northbound	(route) N
Parking	PKING
Road	RD
Right Lane	RT LN
Saturday	SAT
Service Road	SERV RD
Shoulder	SHLDR
Slippery	SLIP
South	S
Southbound	(route) S
Speed	SPD
Street	ST
Sunday	SUN
Telephone	PHONE
Temporary	TEMP
Thursday	THURS
To Downtown	TO DWNTN
Traffic	TRAF
Travelers	TRVLRS
Tuesday	TUES
Time Minutes	TIME MIN
Upper Level	UPR LEVEL
Vehicles (s)	VEH, VEHS
Warning	WARN
Wednesday	WED
Weight Limit	WT LIMIT
West	W
Westbound	(route) W
Wet Pavement	WET PVMT
Will Not	WONT

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

RECOMMENDED PHASES AND FORMATS FOR PCMS MESSAGES DURING ROADWORK ACTIVITIES

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

Phase 1: Condition Lists

Road/Lane/Ramp Closure List

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

Other Condition List

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

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

Phase 2: Possible Component Lists

Action to Take/Effect on Travel List

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

Location List

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

Warning List

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

** Advance Notice List

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

** 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

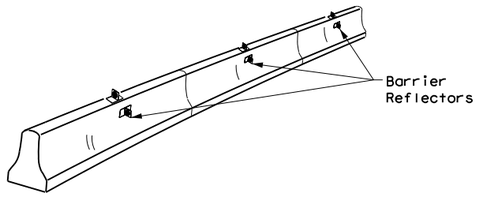
BARRICADE AND CONSTRUCTION PORTABLE CHANGEABLE MESSAGE SIGN (PCMS)

BC(6)-21

FILE: bc-21.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
© TxDOT November 2002	CONT	SECT	JOB	HIGHWAY
REVISIONS	1586	01	079	FM 907
9-07 8-14	DIST	COUNTY		SHEET NO.
7-13 5-21	PHR	HIDALGO		56

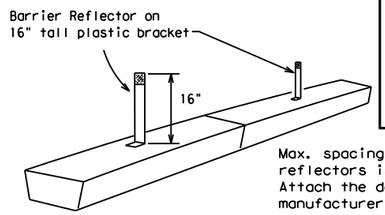
100

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



CONCRETE TRAFFIC BARRIER (CTB)

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

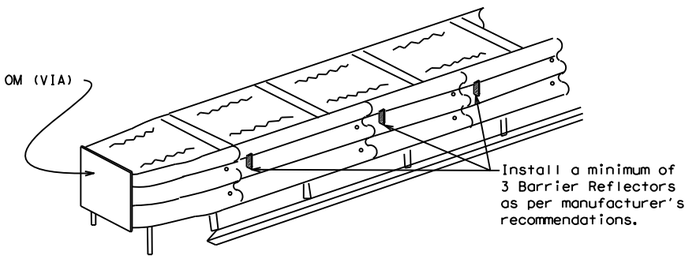


Max. spacing of barrier reflectors is 20 feet. Attach the delineators as per manufacturer's recommendations.

LOW PROFILE CONCRETE BARRIER (LPCB) USED IN WORK ZONES

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

LOW PROFILE CONCRETE BARRIER (LPCB)

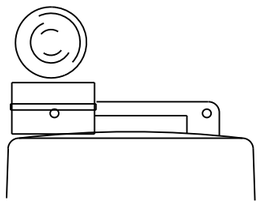


DELINEATION OF END TREATMENTS

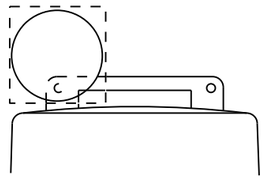
END TREATMENTS FOR CTB'S USED IN WORK ZONES

End treatments used on CTB's in work zones shall meet the 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

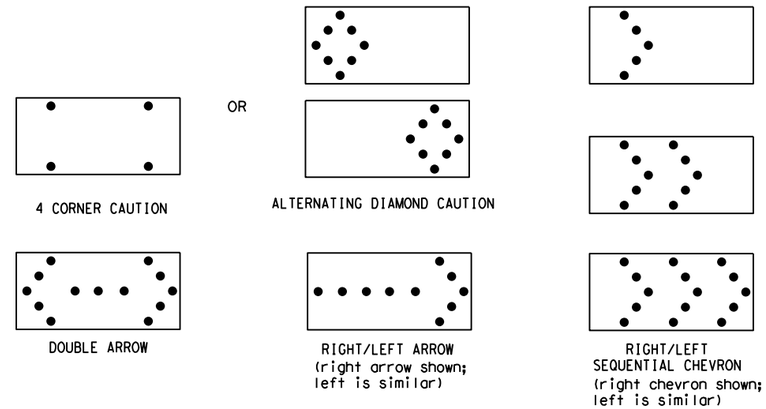
1. Type A flashing warning lights are intended to warn drivers that they are approaching or are in a potentially hazardous area.
2. Type A random flashing warning lights are not intended for delineation and shall not be used in a series.
3. A series of sequential flashing warning lights placed on channelizing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

SHEET 7 OF 12

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	1586	01	079	FM 907
9-07 8-14	DIST	COUNTY		SHEET NO.
7-13 5-21	PHR	HIDALGO		57

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GENERAL NOTES

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

GENERAL DESIGN REQUIREMENTS

Pre-qualified plastic drums shall meet the following requirements:

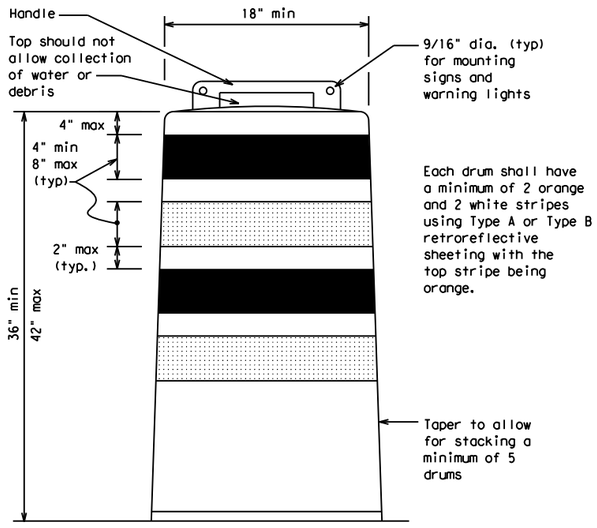
1. Plastic drums shall be a two-piece design; the "body" of the drum shall be the top portion and the "base" shall be the bottom.
2. The body and base shall lock together in such a manner that the body separates from the base when impacted by a vehicle traveling at a speed of 20 MPH or greater but prevents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

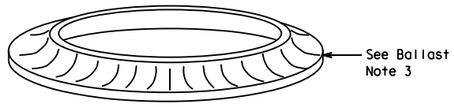
RETROREFLECTIVE SHEETING

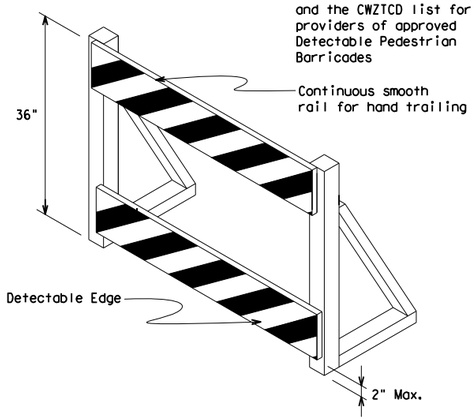
1. The stripes used on drums shall be constructed of sheeting meeting the color and retroreflectivity requirements of Departmental Materials Specification DMS-8300, "Sign Face Materials," Type A or Type B reflective sheeting shall be supplied unless otherwise specified in the plans.
2. The sheeting shall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

BALLAST

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

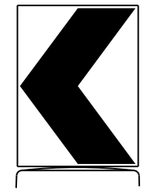




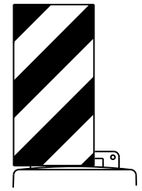


DETECTABLE PEDESTRIAN BARRICADES

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



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



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

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

SIGNS, CHEVRONS, AND VERTICAL PANELS MOUNTED ON PLASTIC DRUMS

1. Signs used on plastic drums shall be manufactured using substrates listed on the CWZTCD.
2. Chevrons and other work zone signs with an orange background shall be manufactured with Type B_{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.

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BARRICADE AND CONSTRUCTION CHANNELIZING DEVICES

BC(8)-21

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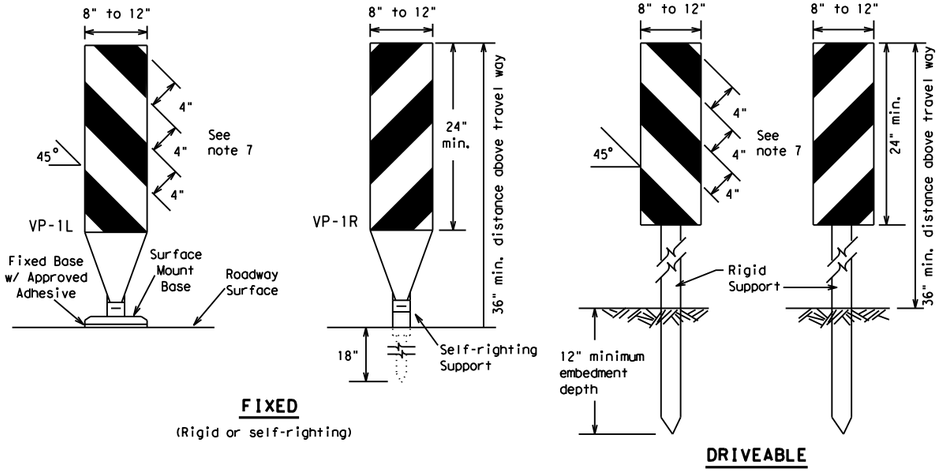
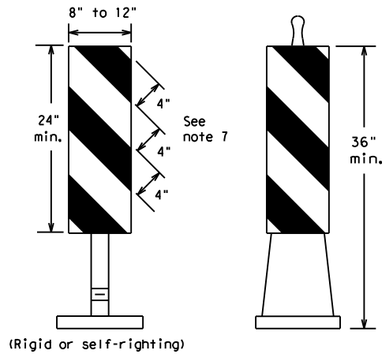


FIXED
(Rigid or self-righting)

DRIVEABLE

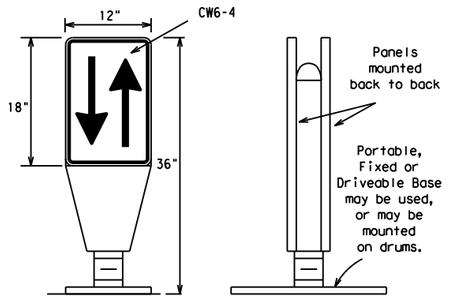


(Rigid or self-righting)

PORTABLE

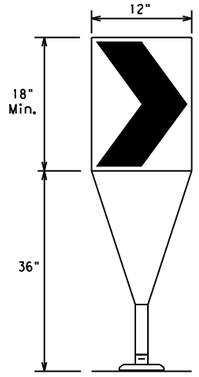
1. Vertical Panels (VP's) are normally used to channelize traffic or divide opposing lanes of traffic.
2. VP's may be used in daytime or nighttime situations. They may be used at the edge of shoulder drop-offs and other areas such as lane transitions where positive daytime and nighttime delineation is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



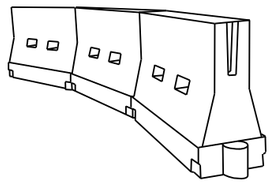
Fixed Base w/ Approved Adhesive (Driveable Base, or Flexible Support can be used)

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

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

SUGGESTED MAXIMUM SPACING OF CHANNELIZING DEVICES AND MINIMUM DESIRABLE TAPER LENGTHS

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BARRICADE AND CONSTRUCTION CHANNELIZING DEVICES

BC(9)-21

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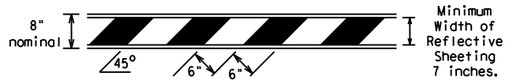
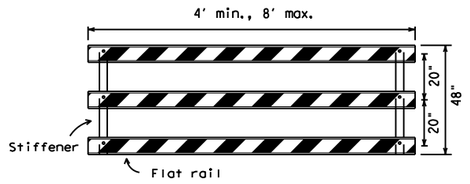
TYPE 3 BARRICADES

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

Barricades shall NOT be used as a sign support.



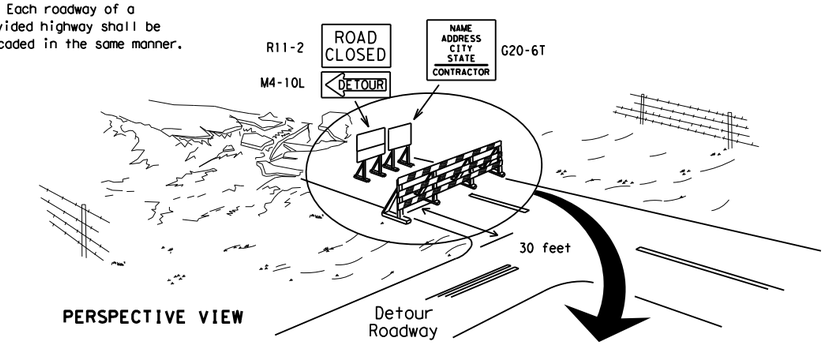
TYPICAL STRIPING DETAIL FOR BARRICADE RAIL



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

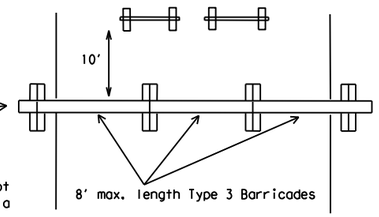
TYPICAL PANEL DETAIL FOR SKID OR POST TYPE BARRICADES

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



PERSPECTIVE VIEW

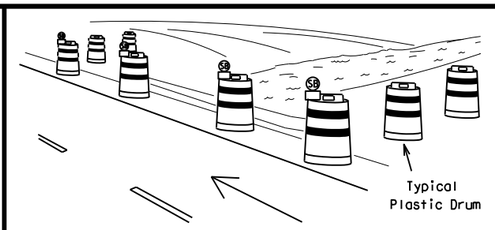
The three rails on Type 3 barricades shall be reflectorized orange and reflective white stripes on one side facing one-way traffic and both sides for two-way traffic.
Barricade striping should slant downward in the direction of detour.



PLAN VIEW

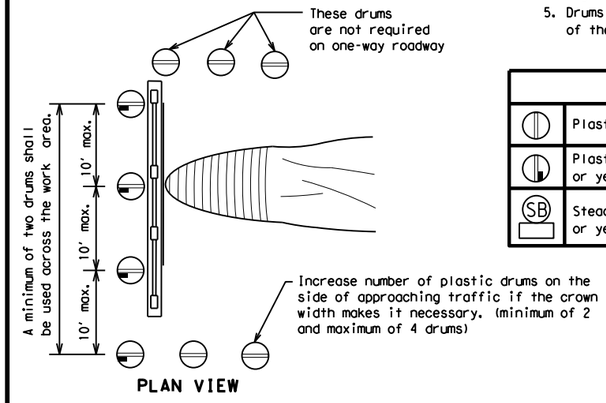
1. Signs should be mounted on independent supports at a 7 foot mounting height in center of roadway. The signs should be a minimum of 10 feet behind Type 3 Barricades.
2. Advance signing shall be as specified elsewhere in the plans.

TYPE 3 BARRICADE (POST AND SKID) TYPICAL APPLICATION



PERSPECTIVE VIEW

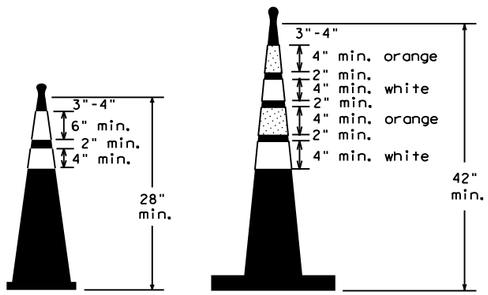
1. Where positive redirectional capability is provided, drums may be omitted.
2. Plastic construction fencing may be used with drums for safety as required in the plans.
3. Vertical Panels on flexible support may be substituted for drums when the shoulder width is less than 4 feet.
4. When the shoulder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



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

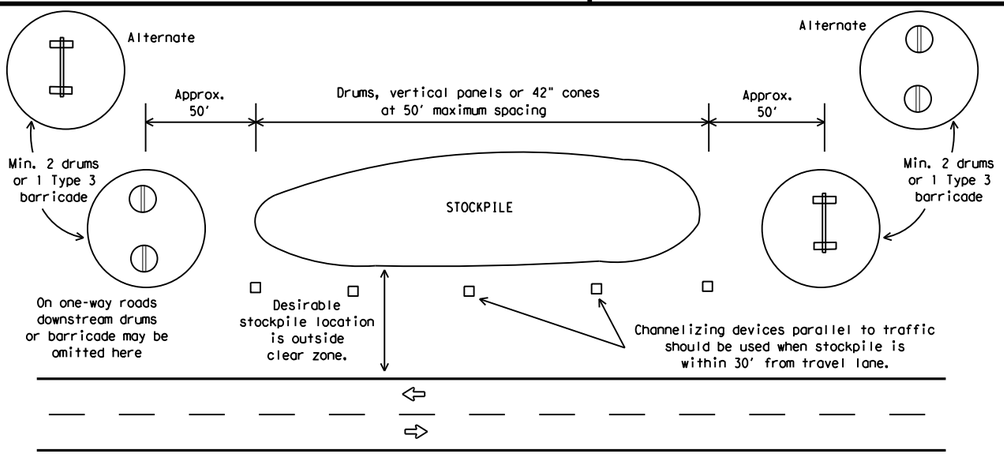
PLAN VIEW

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

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BARRICADE AND CONSTRUCTION CHANNELIZING DEVICES

BC(10)-21

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WORK ZONE PAVEMENT MARKINGS

GENERAL

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

RAISED PAVEMENT MARKERS

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

PREFABRICATED PAVEMENT MARKINGS

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

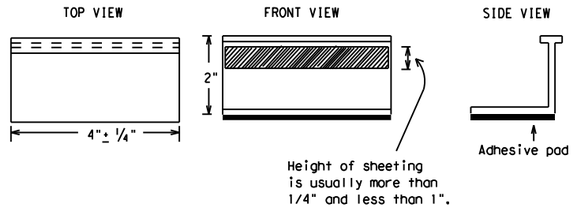
MAINTAINING WORK ZONE PAVEMENT MARKINGS

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

REMOVAL OF PAVEMENT MARKINGS

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

Temporary Flexible-Reflective Roadway Marker Tabs



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

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

RAISED PAVEMENT MARKERS USED AS GUIDEMARKS

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

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

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

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

Texas Department of Transportation

Traffic Safety Division Standard

BARRICADE AND CONSTRUCTION PAVEMENT MARKINGS

BC(11)-21

FILE: bc-21.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
©TxDOT February 1998	CONT	SECT	JOB	HIGHWAY
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2-98 9-07 5-21	DIST	COUNTY		SHEET NO.
1-02 7-13	PHR	HIDALGO		61
11-02 8-14				

105

DATE: 8/30/2021 5:08:34 PM
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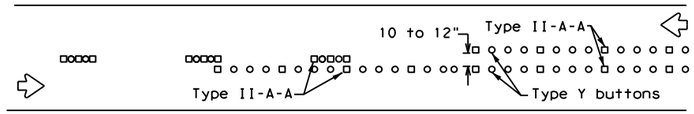
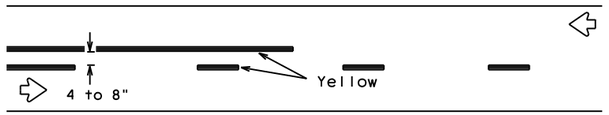
PAVEMENT MARKING PATTERNS

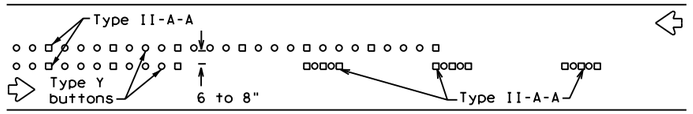
REFLECTORIZED PAVEMENT MARKINGS - PATTERN A



RAISED PAVEMENT MARKERS - PATTERN A



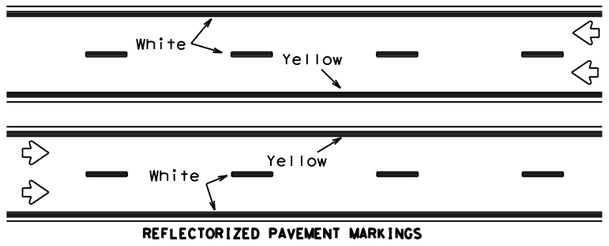
REFLECTORIZED PAVEMENT MARKINGS - PATTERN B



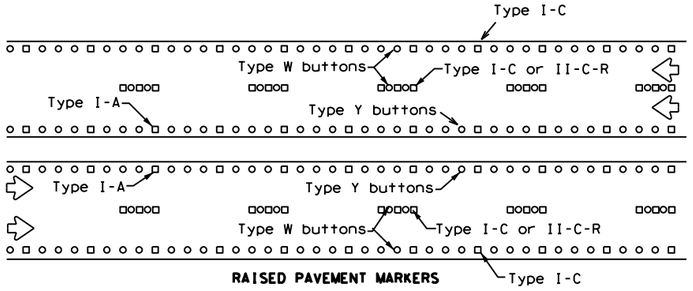
RAISED PAVEMENT MARKERS - PATTERN B

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

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



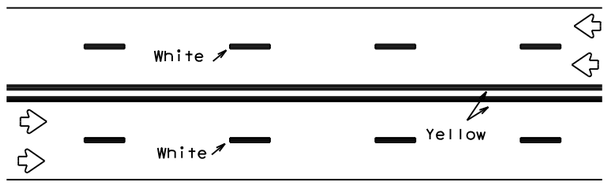
REFLECTORIZED PAVEMENT MARKINGS



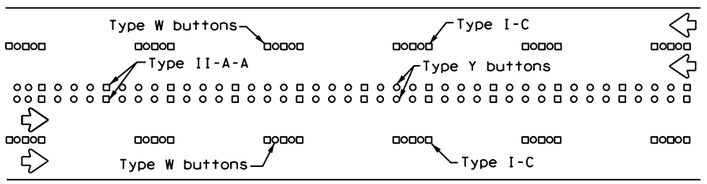
RAISED PAVEMENT MARKERS

Prefabricated markings may be substituted for reflectorized pavement markings.

EDGE & LANE LINES FOR DIVIDED HIGHWAY



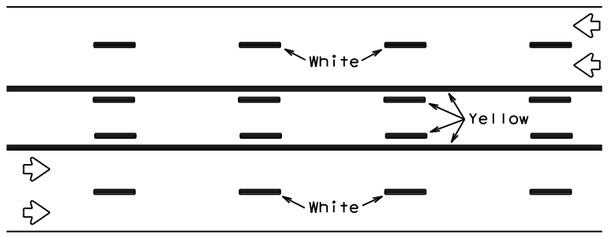
REFLECTORIZED PAVEMENT MARKINGS



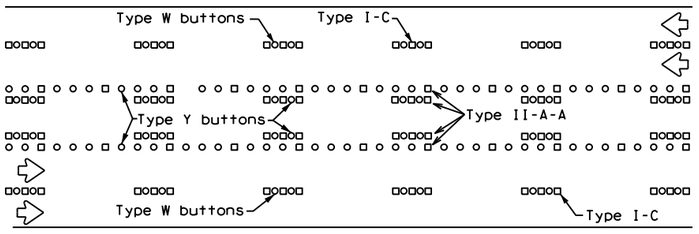
RAISED PAVEMENT MARKERS

Prefabricated markings may be substituted for reflectorized pavement markings.

LANE & CENTER LINES FOR MULTILANE UNDIVIDED HIGHWAYS



REFLECTORIZED PAVEMENT MARKINGS



RAISED PAVEMENT MARKERS

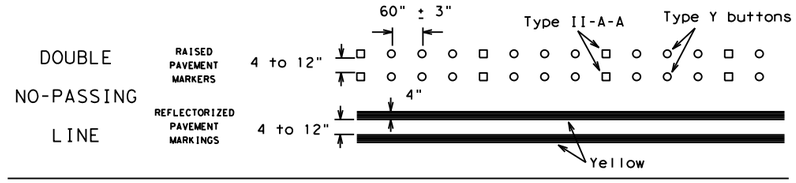
Prefabricated markings may be substituted for reflectorized pavement markings.

TWO-WAY LEFT TURN LANE

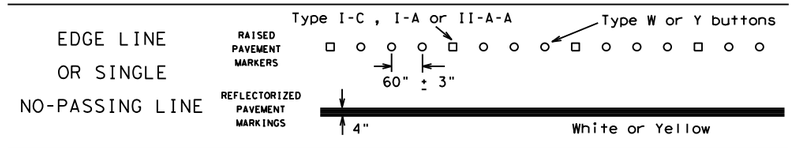
STANDARD WORK ZONE PAVEMENT MARKINGS DETAILS

SOLID LINES

DOUBLE NO-PASSING LINE

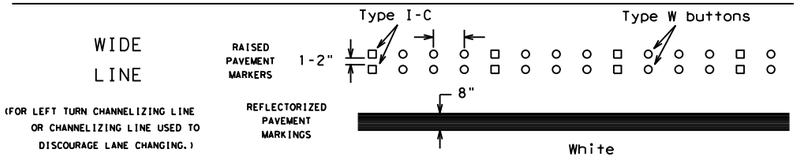


EDGE LINE OR SINGLE NO-PASSING LINE



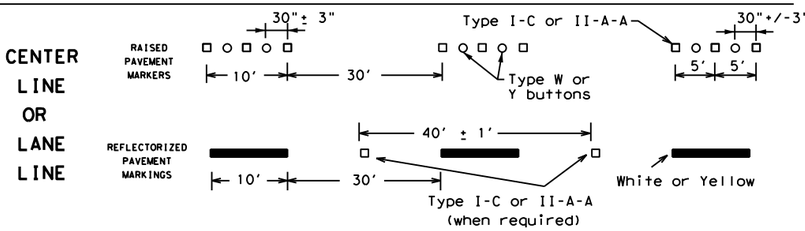
WIDE LINE

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

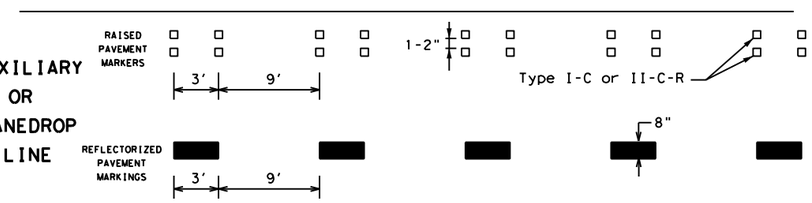


BROKEN LINES

CENTER LINE OR LANE LINE

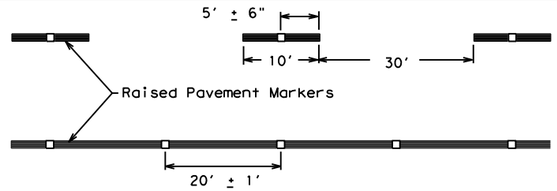


AUXILIARY OR LANEDROP LINE



REMOVABLE MARKINGS WITH RAISED PAVEMENT MARKERS

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



Centerline only - not to be used on edge lines

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

Texas Department of Transportation

Traffic Safety Division Standard

BARRICADE AND CONSTRUCTION PAVEMENT MARKING PATTERNS

BC(12)-21

FILE: bc-21.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
© TxDOT February 1998	CONT	SECT	JOB	HIGHWAY
REVISIONS 1-97 9-07 5-21 2-98 7-13 11-02 8-14	1586	01	079	FM 907
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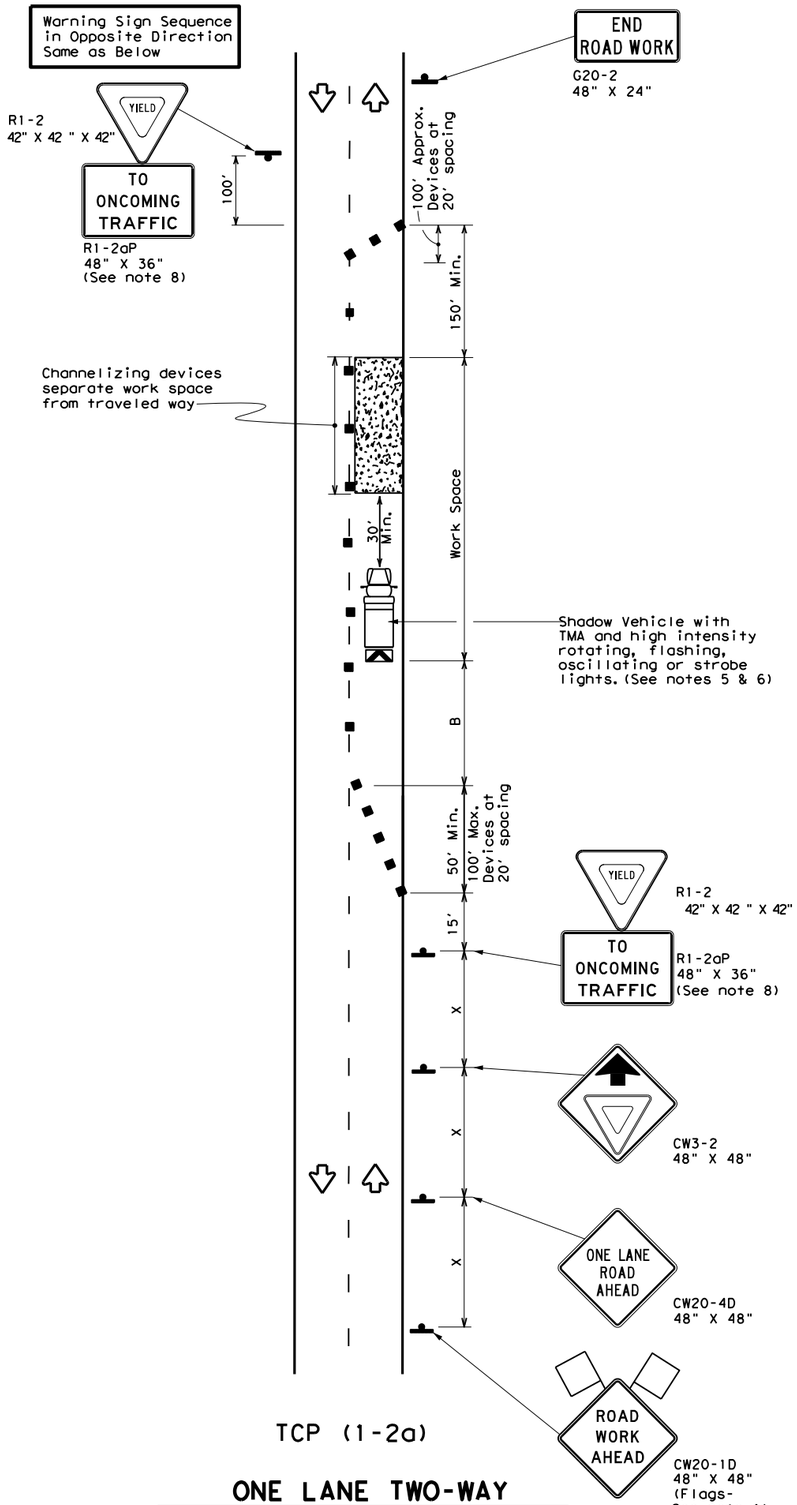
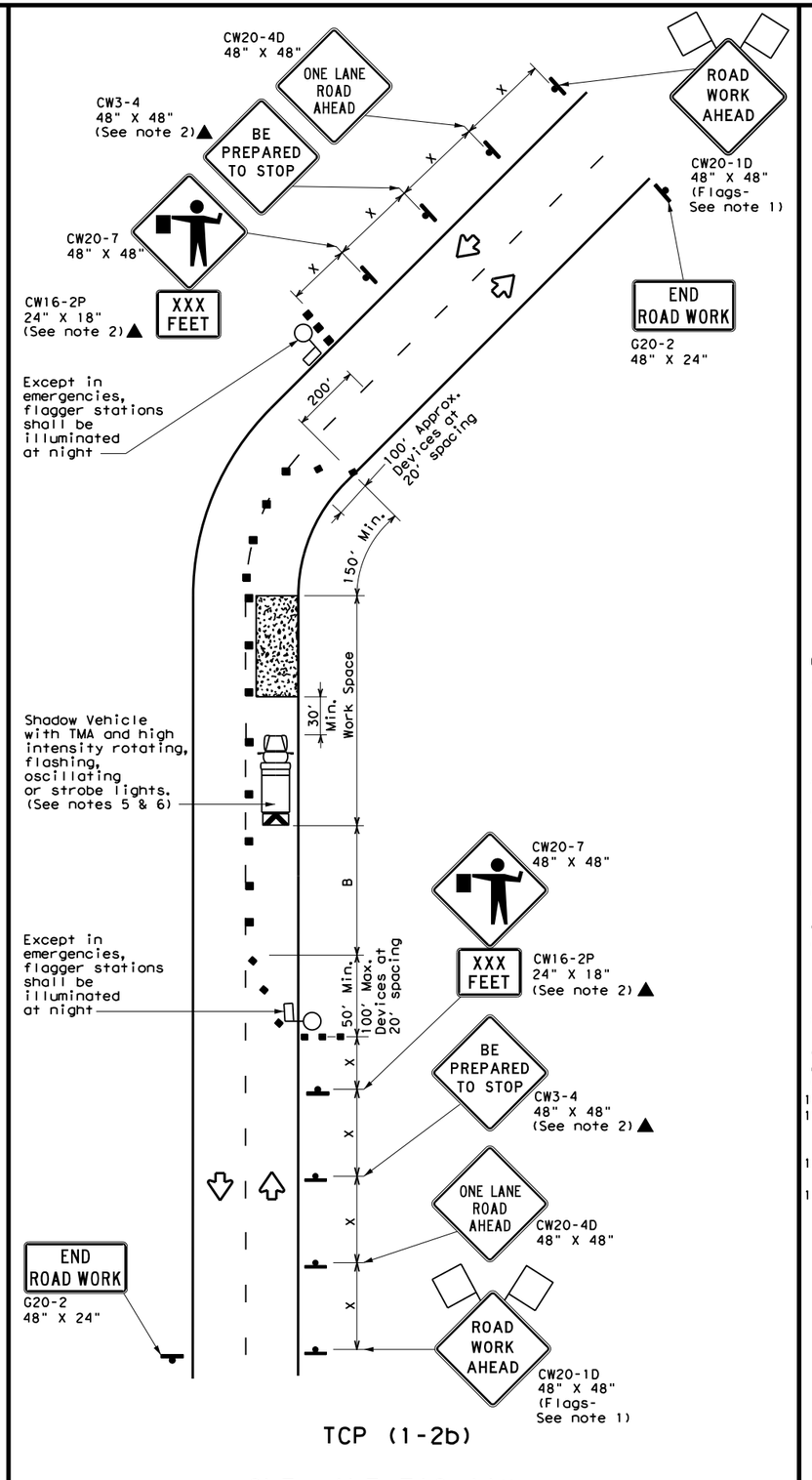


TCP (1-2a)

ONE LANE TWO-WAY CONTROL WITH YIELD SIGNS

(Less than 2000 ADT - See note 7)



TCP (1-2b)

ONE LANE TWO-WAY CONTROL WITH FLAGGERS

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

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

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

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

GENERAL NOTES

1. Flags attached to signs where shown are REQUIRED.
2. All traffic control devices illustrated are REQUIRED, except those denoted with the triangle symbol may be omitted when stated elsewhere in the plans, or for routine maintenance work, when approved by the Engineer.
3. The CW3-4 "BE PREPARED TO STOP" sign may be installed after the CW20-4D "ONE LANE ROAD AHEAD" sign, but proper sign spacing shall be maintained.
4. Sign spacing may be increased or an additional CW20-1D "ROAD WORK AHEAD" sign may be used if advance warning ahead of the flagger or R1-2 "YIELD" sign is less than 1500 feet.
5. A Shadow Vehicle with a TMA should be used anytime it can be positioned 30 to 100 feet in advance of the area of crew exposure without adversely affecting the performance or quality of the work. If workers are no longer present but road or work conditions require the traffic control to remain in place, Type 3 Barricades or other channelizing devices may be substituted for the Shadow Vehicle and TMA.
6. Additional Shadow Vehicles with TMAs may be positioned off the paved surface, next to those shown in order to protect wider work spaces.

TCP (1-2a)

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

TCP (1-2b)

9. Flaggers should use two-way radios or other methods of communication to control traffic.
10. Length of work space should be based on the ability of flaggers to communicate.
11. If the work space is located near a horizontal or vertical curve, the buffer distances should be increased in order to maintain adequate stopping sight distance to the flagger and a queue of stopped vehicles (see table above).
12. Channelizing devices on the center-line may be omitted when a pilot car is leading traffic and approved by the Engineer.
13. Flaggers should use 24" STOP/SLOW paddles to control traffic. Flags should be limited to emergency situations.

Texas Department of Transportation

Traffic Operations Division Standard

TRAFFIC CONTROL PLAN ONE-LANE TWO-WAY TRAFFIC CONTROL

TCP(1-2)-18

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© TxDOT December 1985	CONT	SECT	JOB	HIGHWAY
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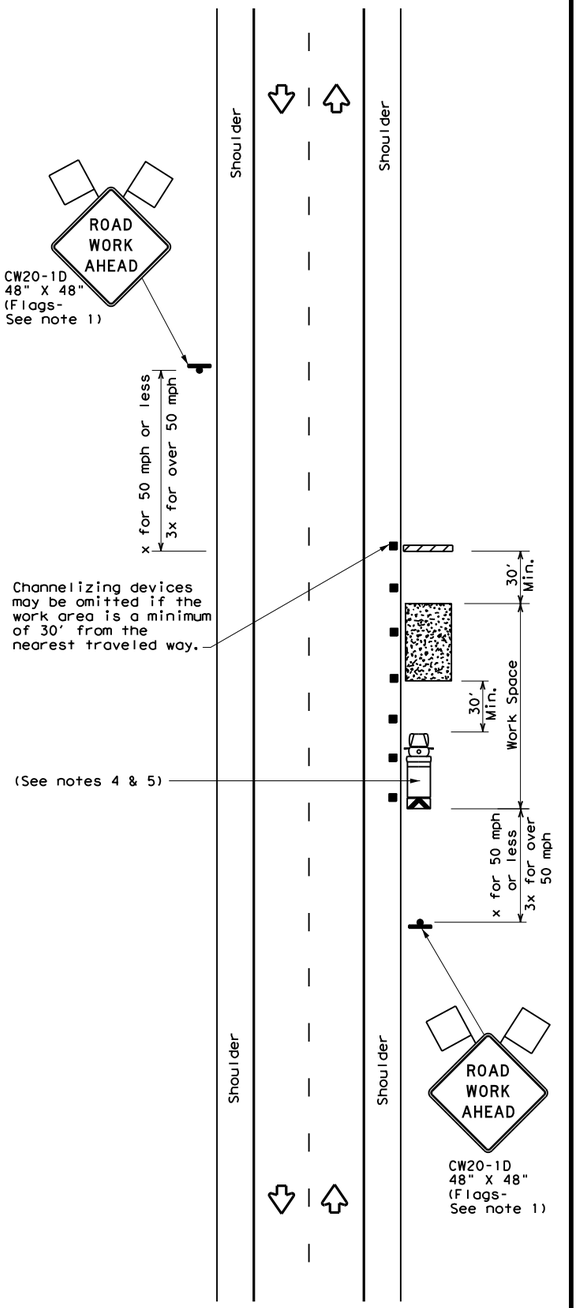
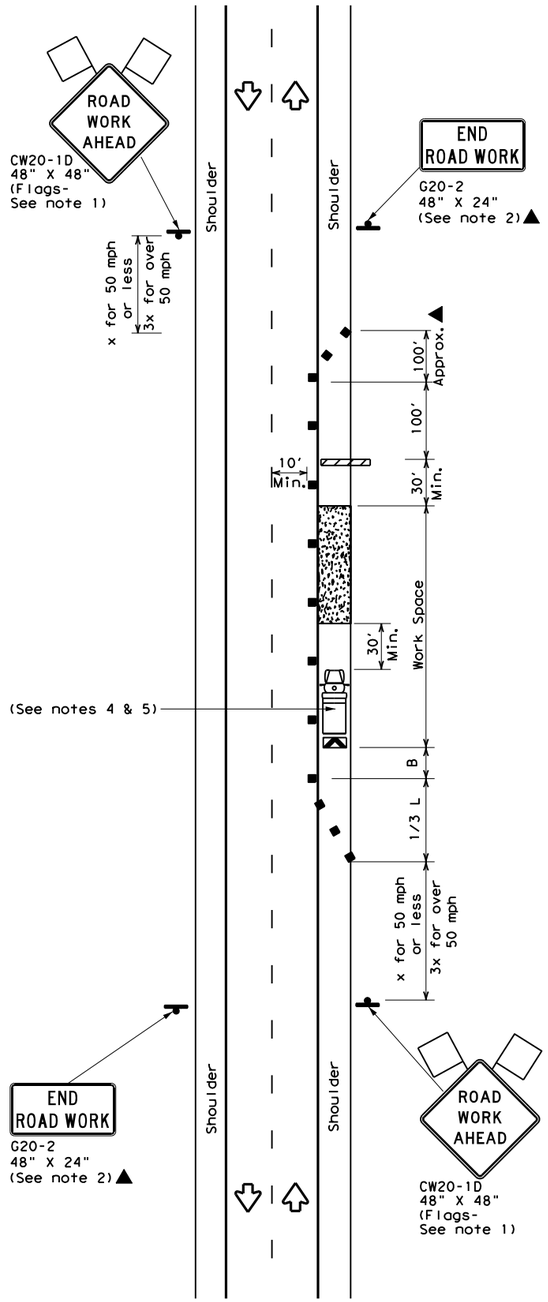


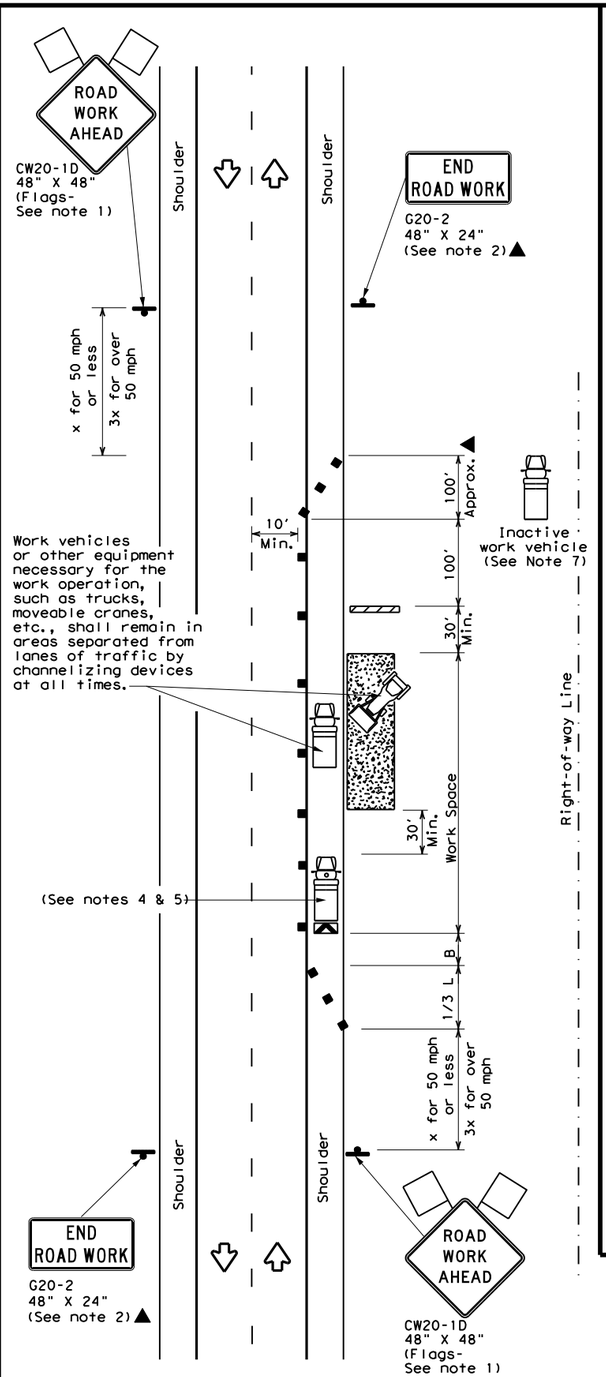
TCP (2-1a)

WORK SPACE NEAR SHOULDER
Conventional Roads



TCP (2-1b)

WORK SPACE ON SHOULDER
Conventional Roads



TCP (2-1c)

WORK VEHICLES ON SHOULDER
Conventional Roads

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

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

* Conventional Roads Only

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

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

GENERAL NOTES

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

Texas Department of Transportation

Traffic Operations Division Standard

TRAFFIC CONTROL PLAN CONVENTIONAL ROAD SHOULDER WORK

TCP(2-1)-18

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8-95 2-12	PHR	HIDALGO		64
1-97 2-18				

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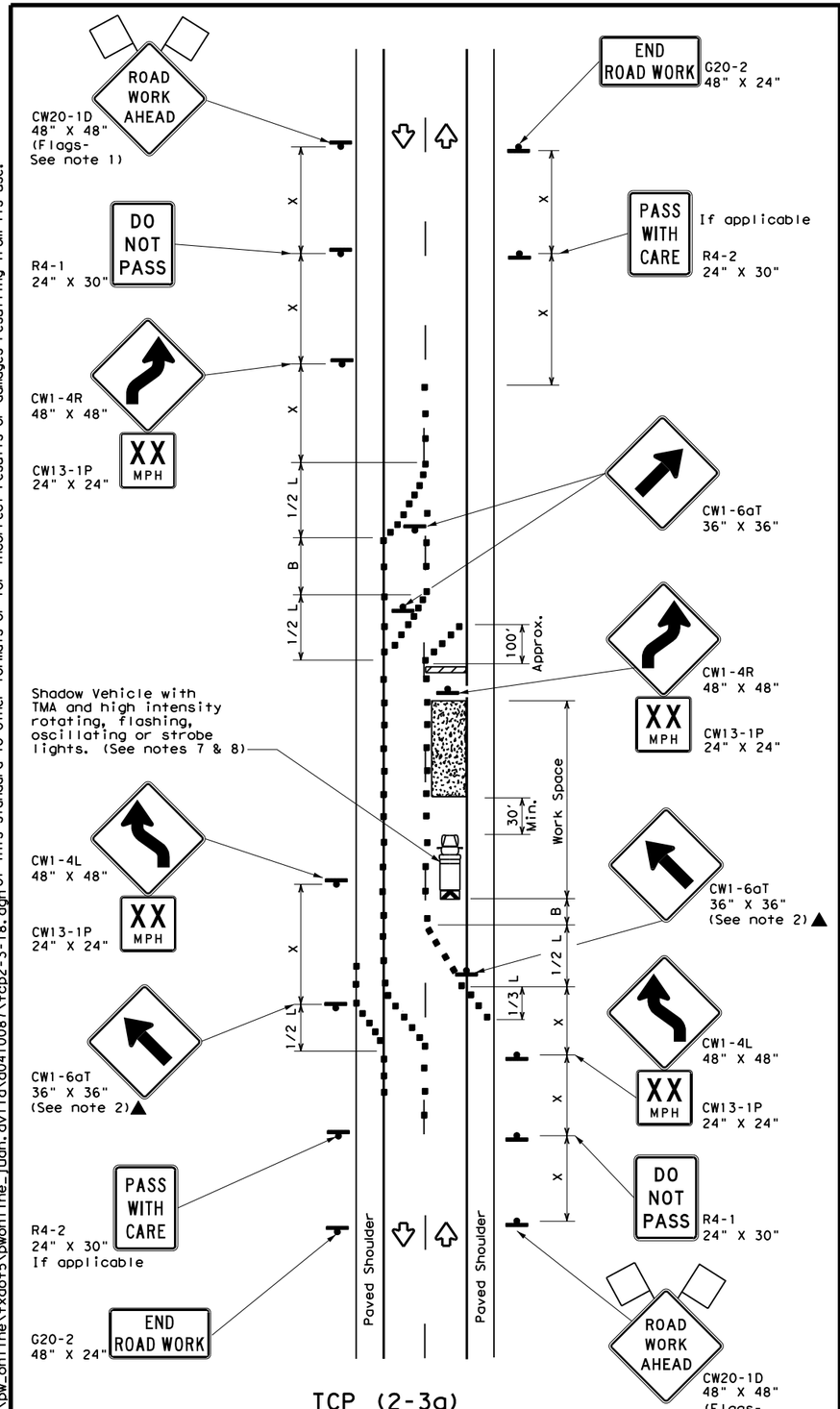
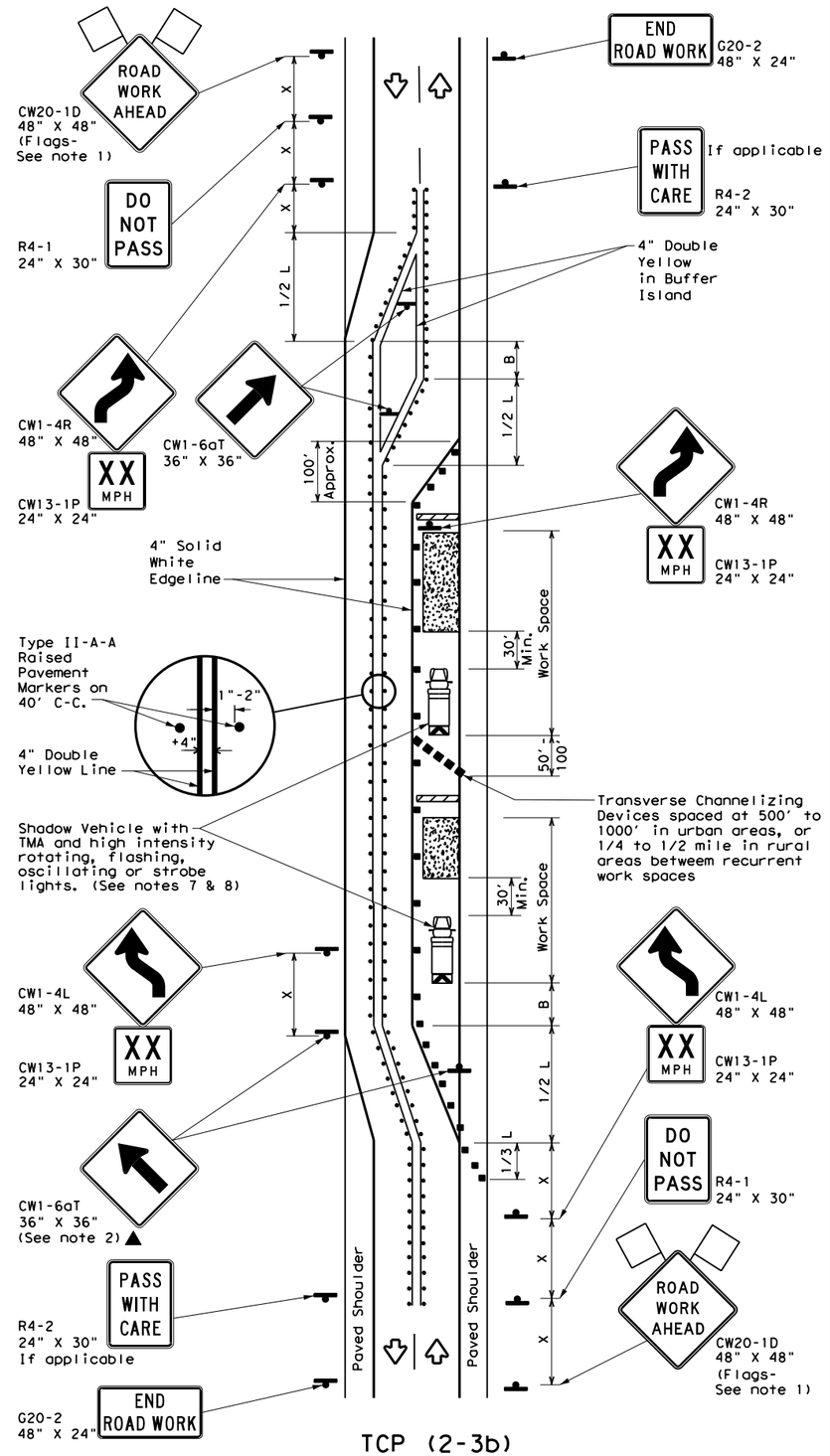


TCP (2-3a)
2-LANE ROADWAY WITH PAVED SHOULDERS

ONE LANE CLOSED
ADEQUATE FIELD OF VIEW



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

ONE LANE CLOSED
INADEQUATE FIELD OF VIEW

LEGEND			
	Type 3 Barricade	■ ■	Channelizing Devices
	Heavy Work Vehicle		Truck Mounted Attenuator (TMA)
	Trailer Mounted Flashing Arrow Board	....	Raised Pavement Markers Ty II-AA
	Sign		Traffic Flow
	Flag		Flagger

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

* Conventional Roads Only

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

TYPICAL USAGE				
MOBILE	SHORT DURATION	SHORT TERM STATIONARY	INTERMEDIATE TERM STATIONARY	LONG TERM STATIONARY
				TCP(2-3b)ONLY
			✓	✓

GENERAL NOTES

1. Flags attached to signs where shown, are REQUIRED.
2. All traffic control devices illustrated are REQUIRED, except those denoted with the triangle symbol may be omitted when stated elsewhere in the plans, or for routine maintenance work, when approved by the Engineer.
3. When work space will be in place less than three days existing pavement markings may remain in place. Channelizing devices shall be used to separate traffic.
4. Flagger control should NOT be used unless roadway conditions or heavy traffic volume require additional emphasis to safely control traffic. Flagger should be positioned at end of traffic queue.
5. The R4-1 "DO NOT PASS," R4-2 " PASS WITH CARE" and construction regulatory speed zone signs may be installed within CW20-1D "ROAD WORK AHEAD" signs. Proper spacing of signs shall be maintained.
6. Conflicting pavement marking shall be removed for long term projects.
7. A Shadow Vehicle with a TMA should be used anytime it can be positioned 30 to 100 feet in advance of the area of crew exposure without adversely affecting the performance or quality of the work. If workers are no longer present but road or work conditions require the traffic control to remain in place, Type 3 Barricades or other channelizing devices may be substituted.
8. Additional Shadow Vehicles with TMAs may be positioned off the paved surface, next to those shown in order to protect a wider work space.

TCP (2-3a)

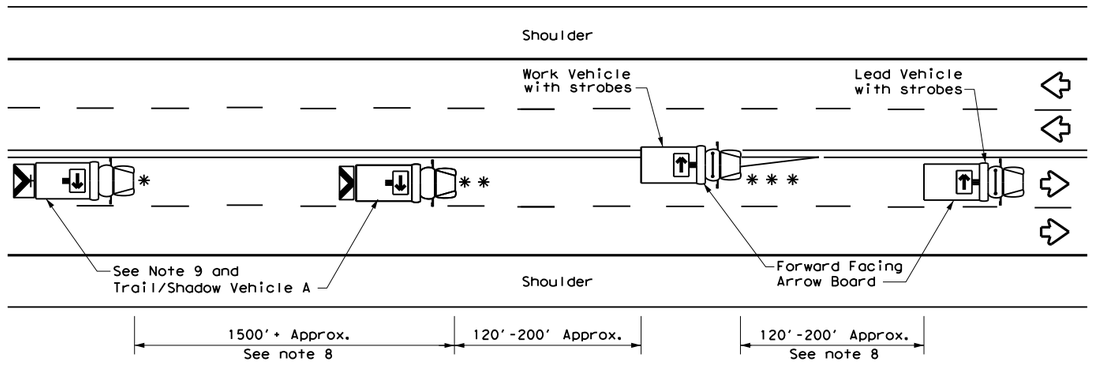
9. Conflicting pavement markings shall be removed for long-term projects. For shorter durations where traffic is directed over a yellow centerline, channelizing devices which separate two-way traffic should be spaced on tapers at 20' or 15' if posted speeds are 35 mph or slower, and for tangent sections, at 1/2(S) where S is the speed in mph. This tighter device spacing is intended for the area of the conflicting markings, not the entire work zone.

Texas Department of Transportation — Traffic Operations Division Standard

TRAFFIC CONTROL PLAN TRAFFIC SHIFTS ON TWO-LANE ROADS

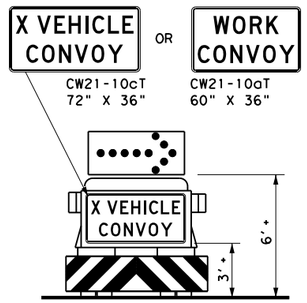
TCP(2-3)-18

FILE: tcp(2-3)-18.dgn	DN:	CK:	DW:	CK:
© TxDOT December 1985	CONT	SECT	JOB	HIGHWAY
REVISIONS	1586	01	079	FM 907
8-95 3-03	DIST	COUNTY		SHEET NO.
1-97 2-12	PHR	HIDALGO		65
4-98 2-18				



TCP (3-1a)

UNDIVIDED MULTILANE ROADWAY



TRAIL/SHADOW VEHICLE A

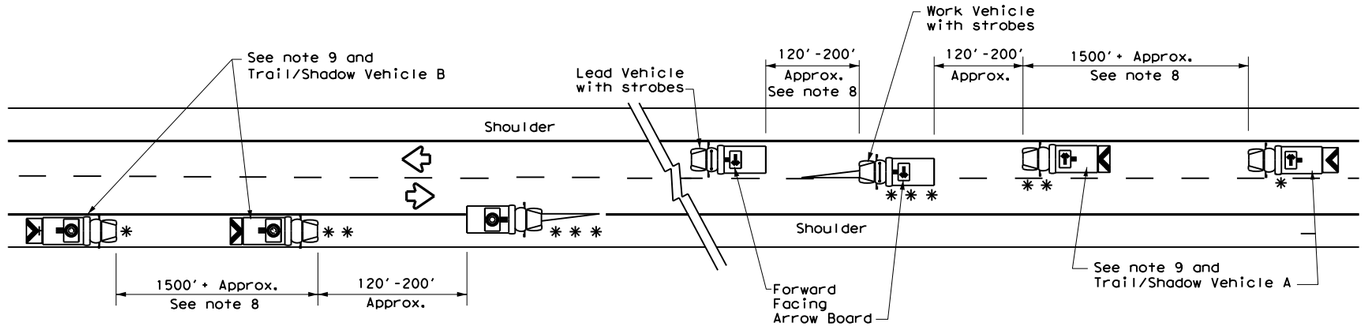
with RIGHT Directional display Flashing Arrow Board

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

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

GENERAL NOTES

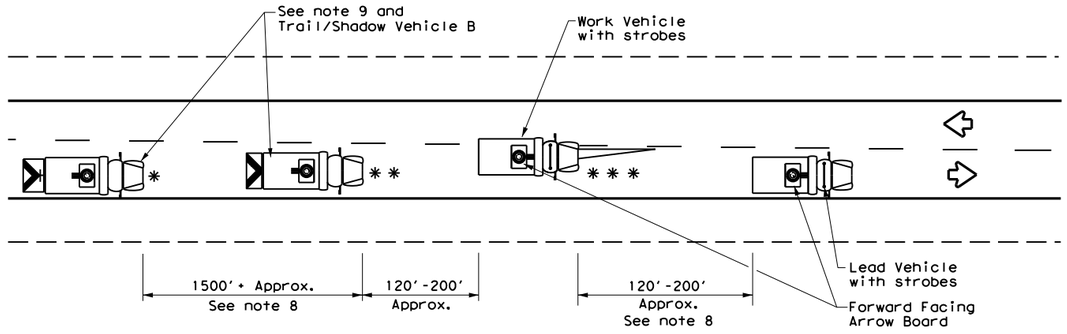
1. TRAIL, SHADOW, and LEAD vehicles shall be equipped with arrow boards as illustrated. When a LEAD vehicle is not used the WORK vehicle must be equipped with an arrow board. The Engineer will determine if the LEAD VEHICLE and/or TRAIL VEHICLE are required based on prevailing roadway conditions, traffic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



WORK ON SHOULDER — WORK ON TRAVEL LANE

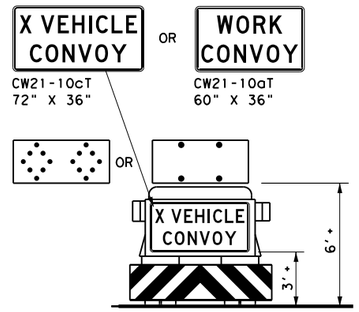
TCP (3-1b)

TWO-WAY ROADWAY WITH PAVED SHOULDERS



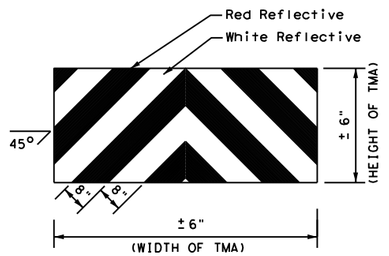
TCP (3-1c)

TWO-WAY ROADWAY WITHOUT PAVED SHOULDERS



TRAIL/SHADOW VEHICLE B

with Flashing Arrow Board in CAUTION display



STRIPING FOR TMA

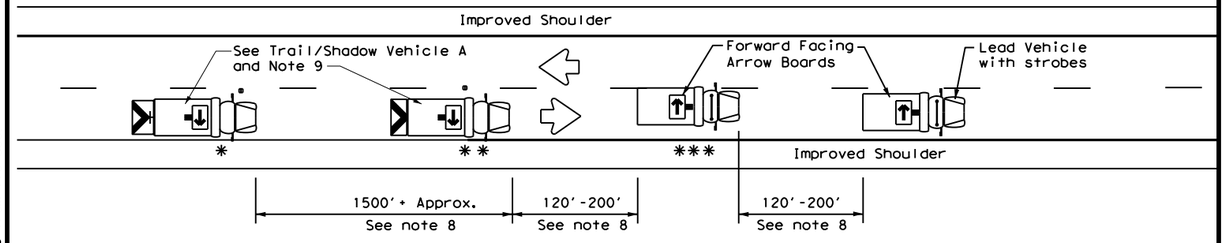
Texas Department of Transportation

Traffic Operations Division Standard

TRAFFIC CONTROL PLAN MOBILE OPERATIONS UNDIVIDED HIGHWAYS

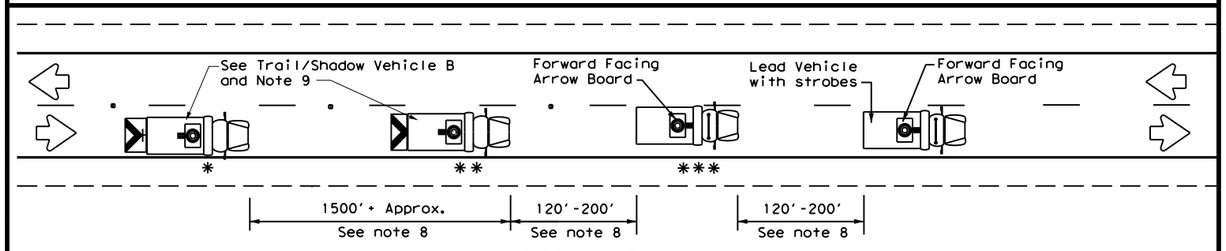
TCP(3-1)-13

FILE: tcp3-1.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
©TxDOT December 1985	CONT	SECT	JOB	HIGHWAY
REVISIONS 2-94 4-98 8-95 7-13 1-97	1586	01	079	FM 907
	DIST	COUNTY		SHEET NO.
	PHR	HIDALGO		66



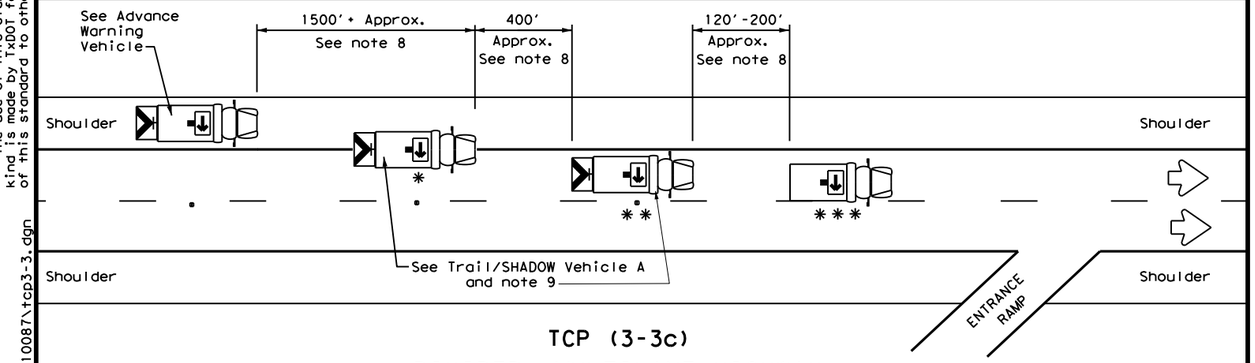
TCP (3-3a)

TWO LANE HIGHWAY WITH PAVED SHOULDERS
(WORK ON TRAVEL LANE)



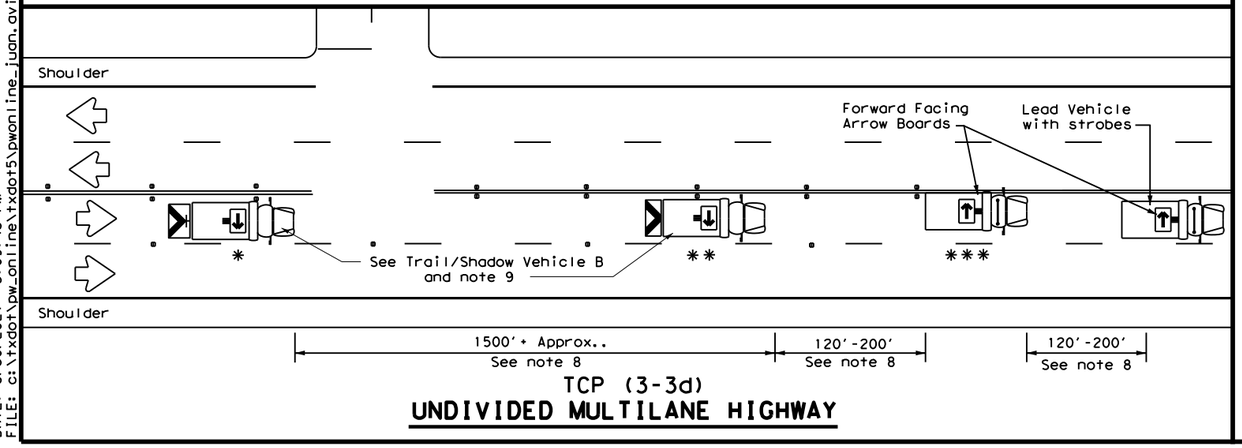
TCP (3-3b)

TWO LANE HIGHWAY WITHOUT PAVED SHOULDERS
(WORK ON TRAVEL LANE)



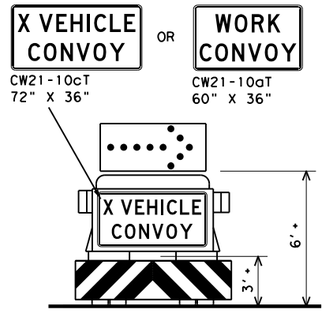
TCP (3-3c)

DIVIDED MULTILANE HIGHWAY



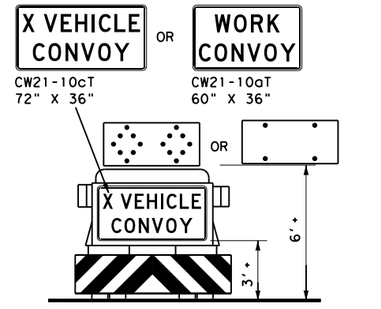
TCP (3-3d)

UNDIVIDED MULTILANE HIGHWAY



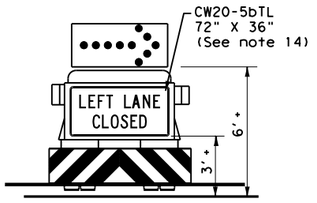
TRAIL/SHADOW VEHICLE A

with RIGHT Directional display
Flashing Arrow Board

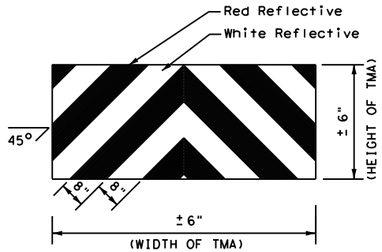


TRAIL/SHADOW VEHICLE B

with Flashing Arrow Board
in Caution Mode



ADVANCE WARNING VEHICLE



STRIPING FOR TMA

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

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

GENERAL NOTES

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

Texas Department of Transportation

Traffic Operations Division Standard

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

FILE: tcp3-3.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
©TxDOT September 1987	CONT	SECT	JOB	HIGHWAY
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2-94 4-98	DIST	COUNTY		SHEET NO.
8-95 7-13	PHR	HIDALGO		67
1-97 7-14				

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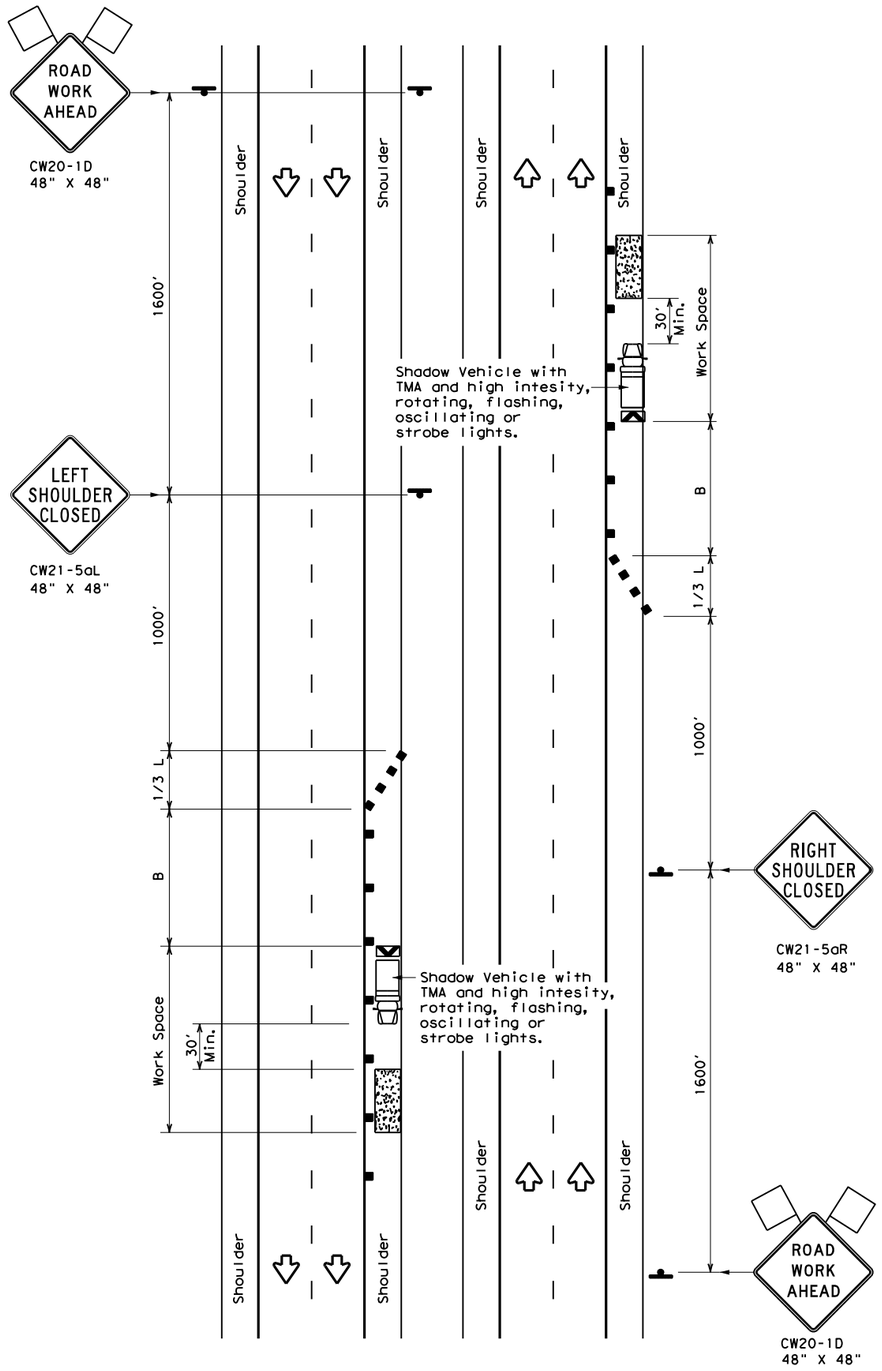
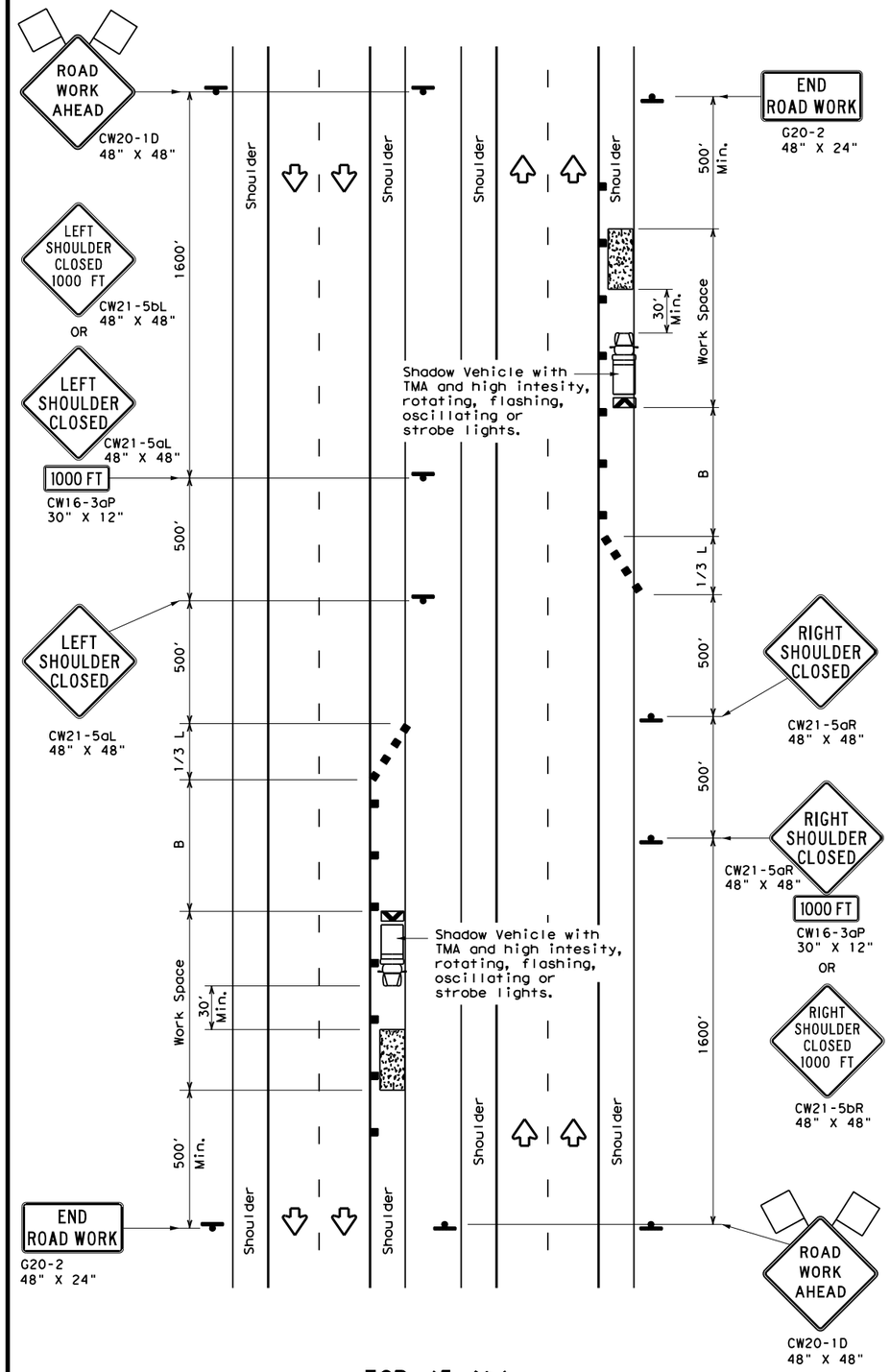


TCP (5-1a)

WORK AREA ON SHOULDER



TCP (5-1b)

WORK AREA ON SHOULDER

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	Suggested Longitudinal Buffer Space "B"
30	$L=\frac{WS^2}{60}$	150'	165'	180'	30'	60'	90'
35		205'	225'	245'	35'	70'	120'
40		265'	295'	320'	40'	80'	155'
45	L=WS	450'	495'	540'	45'	90'	195'
50		500'	550'	600'	50'	100'	240'
55		550'	605'	660'	55'	110'	295'
60		600'	660'	720'	60'	120'	350'
65		650'	715'	780'	65'	130'	410'
70		700'	770'	840'	70'	140'	475'
75		750'	825'	900'	75'	150'	540'
80		800'	880'	960'	80'	160'	615'

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

TYPICAL USAGE

MOBILE	SHORT DURATION	SHORT TERM STATIONARY	INTERMEDIATE TERM STATIONARY	LONG TERM STATIONARY
	TCP(5-1a)	TCP(5-1b)	TCP(5-1b)	

GENERAL NOTES

1. A Shadow Vehicle with a TMA should be used anytime it can be positioned 30' to 100' in advance of the area of crew exposure without adversely effecting the performance or quality of the work. Type 3 barricades or drums may be substituted when workers on foot are no longer present when approved by the Engineer.
2. 28" tall or taller one-piece cones will be allowed only for Short Duration or Short Term stationary operations when workers are present to maintain the devices upright and in proper location. Intermediate Term stationary work areas should use Drums, Vertical Panels or 42" tall two-piece cones.

Texas Department of Transportation

Traffic Operations Division Standard

TRAFFIC CONTROL PLAN SHOULDER WORK FOR FREEWAYS / EXPRESSWAYS

TCP(5-1)-18

FILE: tcp5-1-18.dgn	DN:	CK:	DW:	CK:
©TxDOT February 2012	CONT	SECT	JOB	HIGHWAY
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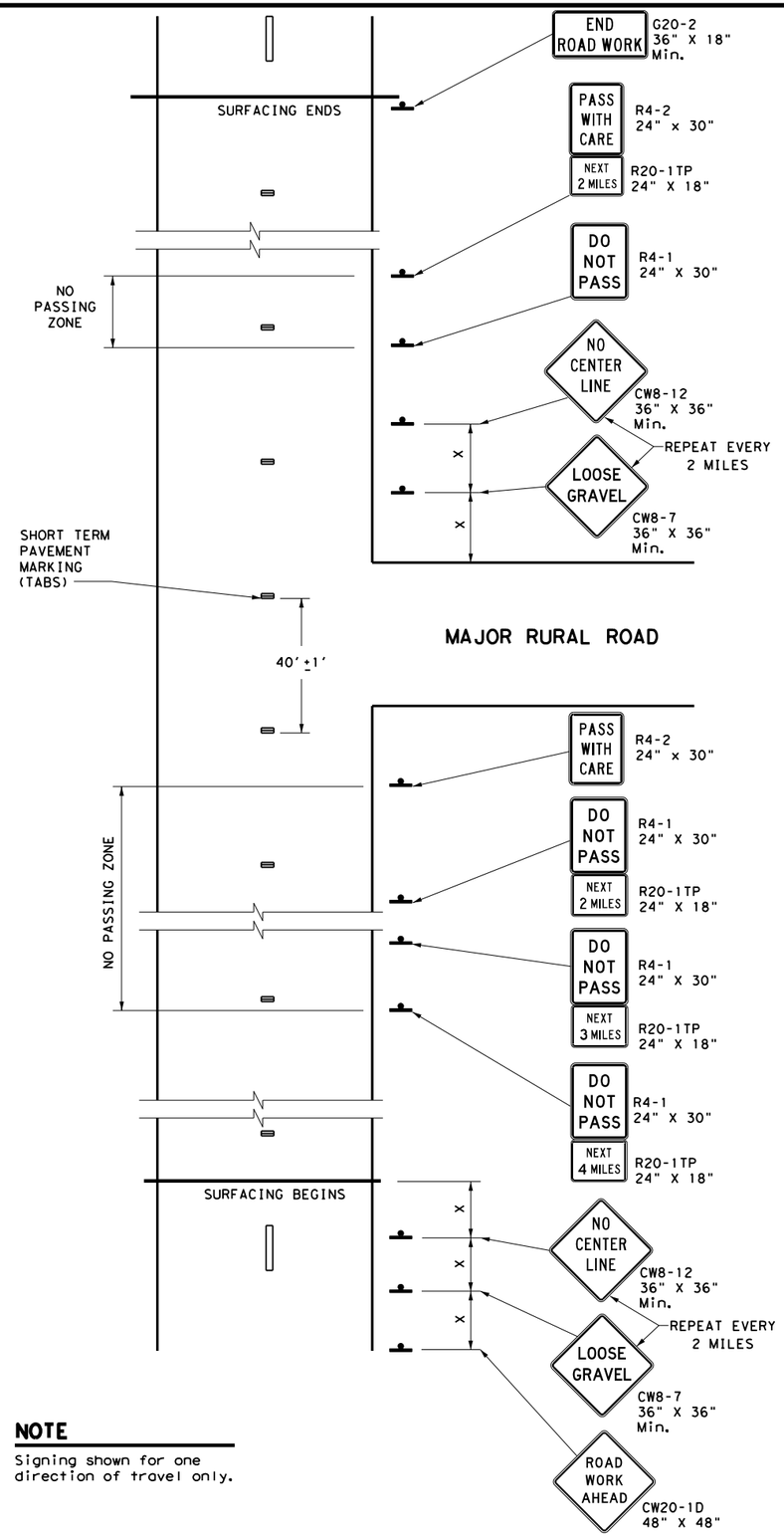
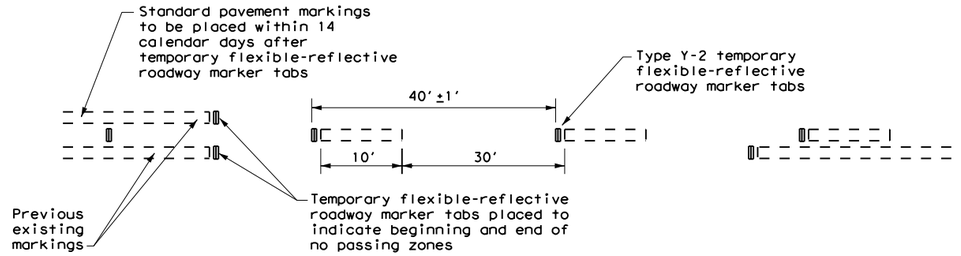


NOTE

Signing shown for one direction of travel only.

NO PASSING ZONES ON TWO-LANE TWO-WAY ROADS



TABS ON CENTERLINES OF TWO-LANE TWO-WAY ROADS

For seal coat, micro-surface or similar operations

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

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

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

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

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

"NO CENTER LINE" SIGN (CW8-12)

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

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

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

"LOOSE GRAVEL" SIGN (CW8-7)

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

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

PAVEMENT MARKINGS

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

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

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

COORDINATION OF SIGN LOCATIONS

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

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

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

* Conventional Roads Only

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

GENERAL NOTES

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

Texas Department of Transportation

Traffic Operations Division Standard

TRAFFIC CONTROL DETAILS FOR SURFACING OPERATIONS

TCP(7-1)-13

FILE: tcp7-1.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
©TxDOT March 1991	CONT	SECT	JOB	HIGHWAY
REVISIONS	1586	01	079	FM 907
4-92 4-98	DIST	COUNTY		SHEET NO.
1-97 7-13	PHR	HIDALGO		69

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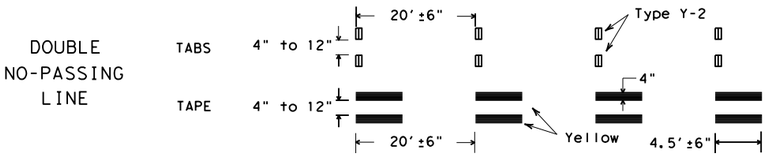
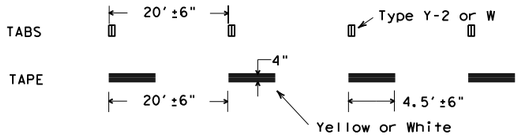
WORK ZONE SHORT TERM PAVEMENT MARKINGS DETAILS

SOLID LINES

DOUBLE NO-PASSING LINE

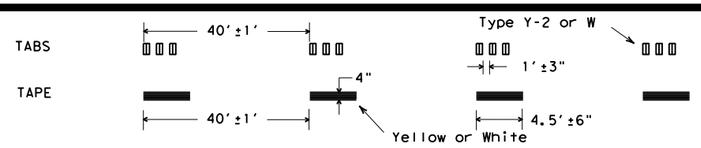


SINGLE NO-PASSING LINE or CHANNELIZATION LINE



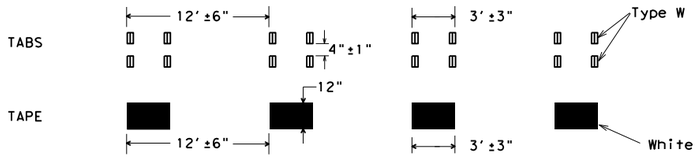
BROKEN LINES

(FOR CENTER LINE OR LANE LINE)

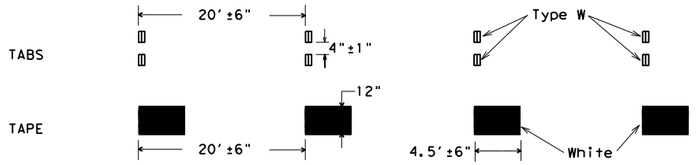


WIDE DOTTED LINES

(FOR LANE DROP LINES)



WIDE GORE MARKINGS



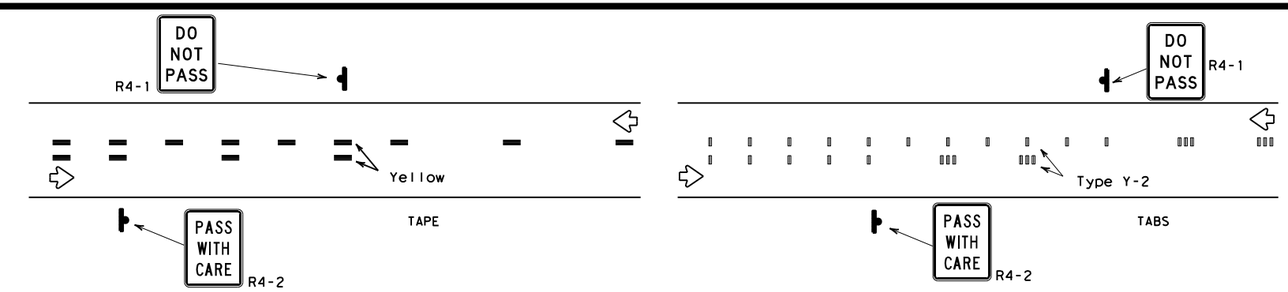
NOTES:

1. Short term pavement markings may be prefabricated markings (stick down tape) or temporary flexible-reflective roadway marker tabs unless otherwise specified elsewhere in plans.
2. Short term pavement markings shall NOT be used to simulate edge lines.
3. Dimensions indicated on this sheet are typical and approximate. Variations in size and height may occur between markers or devices made by manufacturers, by as much as 1/4 inch, unless otherwise noted.
4. Temporary flexible-reflective roadway marker tabs will require normal maintenance replacement when used on roadways with an ADT per lane of up to 7500 vehicles with no more than 10% truck mix. When roadways exceed these values, additional maintenance replacement of devices should be planned.
5. No segment of roadway open to traffic shall remain without permanent pavement markings for a period greater than 14 calendar days. The Contractor will be responsible for maintaining short term pavement markings until permanent pavement markings are in place. When the Contractor is responsible for placement of permanent pavement markings, no segment of roadway shall remain without permanent pavement markings for a period greater than 14 calendar days unless weather conditions prohibit placement. Permanent pavement markings shall be placed as soon as weather permits.
6. For two lane, two-way roadways, DO NOT PASS signs shall be erected to mark the beginning of sections where passing is prohibited and PASS WITH CARE signs shall be erected to mark the beginning of sections where passing is permitted. Signs shall be in accordance with the "Texas Manual on Uniform Traffic Control Devices" (TMUTCD) and may be used to indicate the limits of no-passing zones for up to 14 calendar days. Permanent pavement markings should then be placed.
7. For low volume two lane, two-way roadways of 4000 ADT or less, no-passing lines may be omitted when approved by the Engineer. DO NOT PASS and PASS WITH CARE signs shall be erected (see note 6).
8. For exit gores where a lane is being dropped place wide gore markings or retroreflective channelizing devices to guide motorist through the exit. If channelizing devices are to be used it should be noted elsewhere in the plans. One piece cones are not allowed for this purpose.

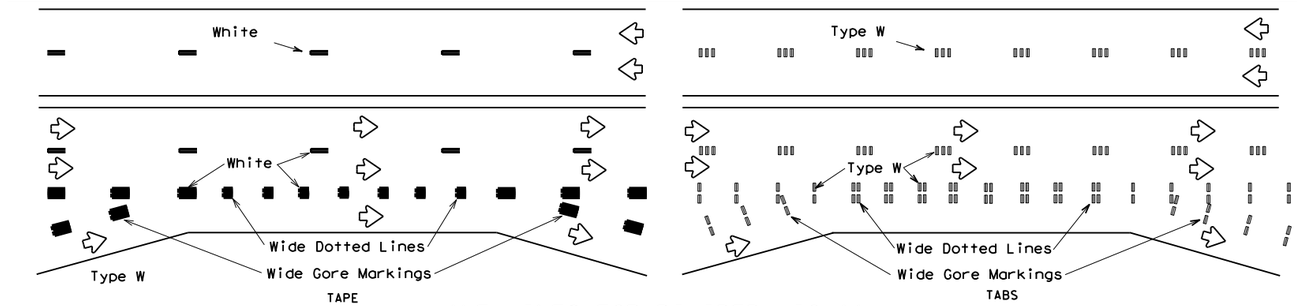
TEMPORARY FLEXIBLE, REFLECTIVE ROADWAY MARKER TABS (TABS)

1. Temporary flexible-reflective roadway marker tabs detailed on this sheet will be designated Type Y-2 (two amber reflective surfaces with yellow body); Type Y (one amber reflective surface with yellow body); and Type W (one white or silver reflective surface with white body). Additional details may be found on BC(11).
2. Tabs shall meet requirements of Departmental Material Specification DMS-8242.
3. When dry, tabs shall be visible for a minimum distance of 200 feet during normal daylight hours and when illuminated by automobile low-beam head light at night, unless sight distance is restricted by roadway geometrics.
4. No two consecutive tabs nor four tabs per 1000 feet of line shall be missing or fail to meet the visual performance requirements of Note 3.

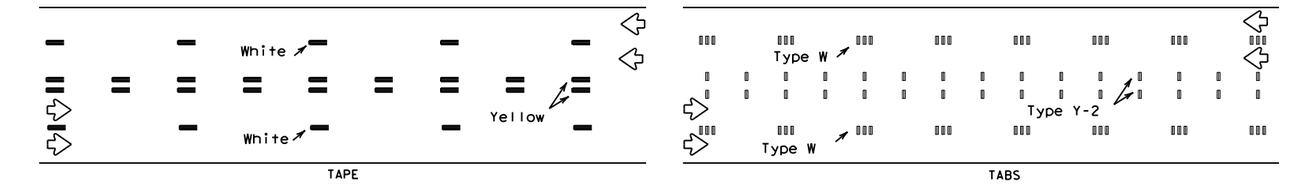
WORK ZONE SHORT TERM PAVEMENT MARKINGS PATTERNS



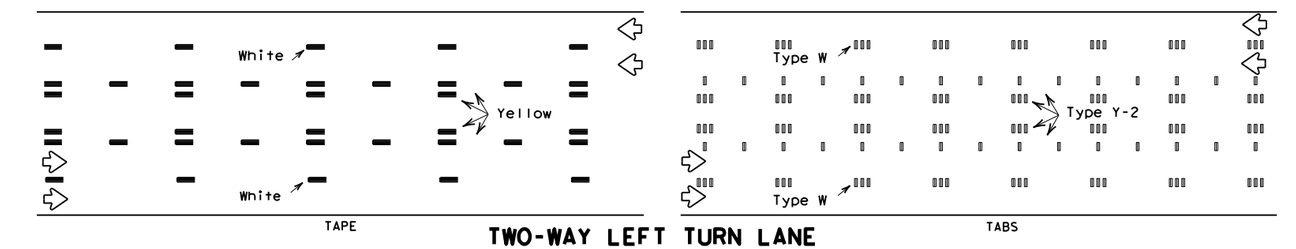
CENTER LINE & NO-PASSING ZONE BARRIER LINES FOR TWO LANE TWO-WAY HIGHWAYS



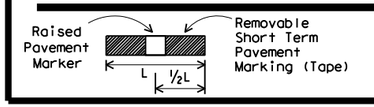
LANE LINES FOR DIVIDED HIGHWAY



LANE & CENTER LINES FOR MULTILANE UNDIVIDED HIGHWAYS



TWO-WAY LEFT TURN LANE



If raised pavement markers are used to supplement REMOVABLE short term markings, the markers shall be applied to the top of the tape at the approximate mid length of the tape. This allows an easier removal of raised markers and tape.

PREFABRICATED PAVEMENT MARKINGS

1. Temporary Removable Prefabricated Pavement Markings shall meet the requirements of DMS-8241.
2. Non-removable Prefabricated Pavement Markings shall meet the requirements of either DMS-8240 "Permanent Prefabricated Pavement Markings" or DMS-8243 "Temporary Costruction-Grade Prefabricated Pavement Markings."

RAISED PAVEMENT MARKERS

1. All raised pavement markers used for work zone markings shall meet the requirements of Item 672, "RAISED PAVEMENT MARKERS" and DMS-4200.

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

1. DMSs referenced above can be found along with embedded links to their respective MPLs at the following website:
   http://www.txdot.gov/business/contractors_consultants/material_specifications/default.htm

Texas Department of Transportation

Traffic Operations Division Standard

WORK ZONE SHORT TERM PAVEMENT MARKINGS

WZ(STPM)-13

FILE:	wzstpm-13.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
©TxDOT	April 1992	CONT	SECT	JOB	HIGHWAY
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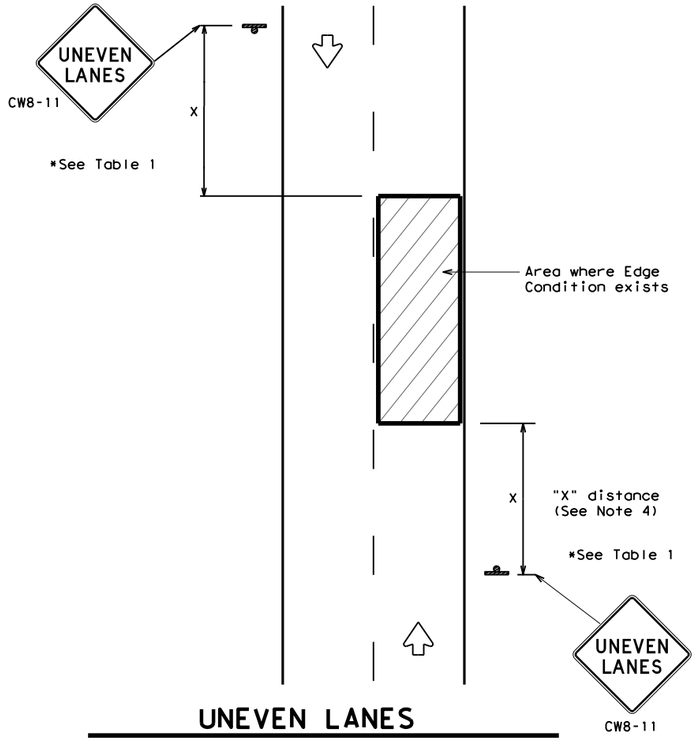
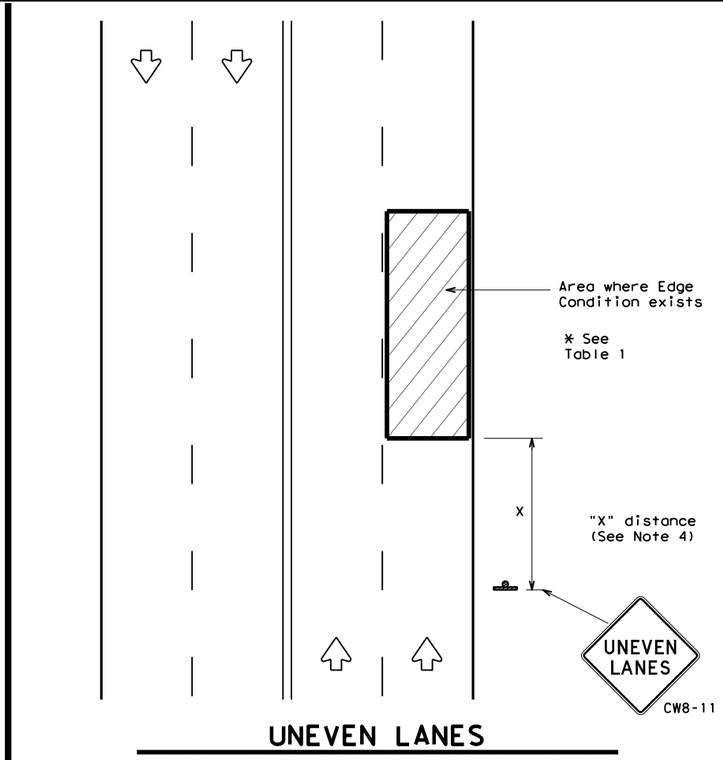
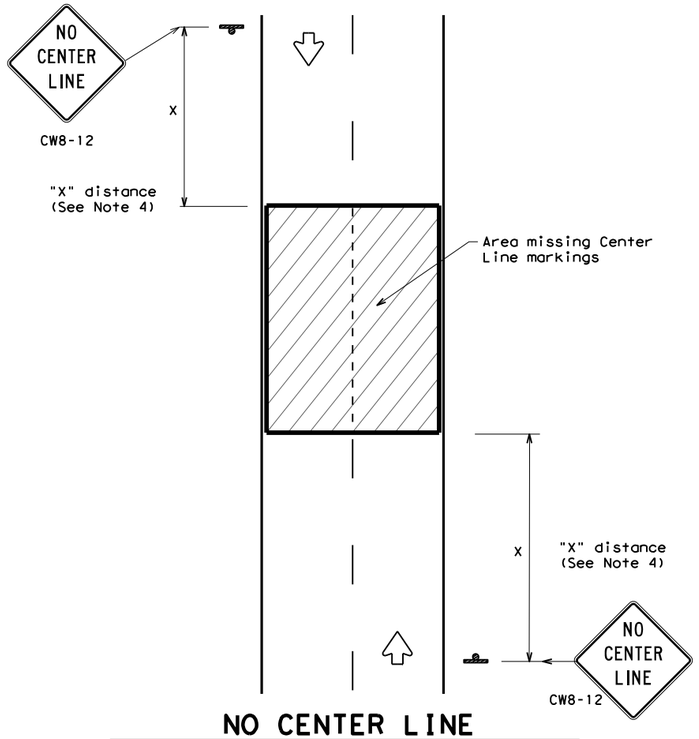
7-13					



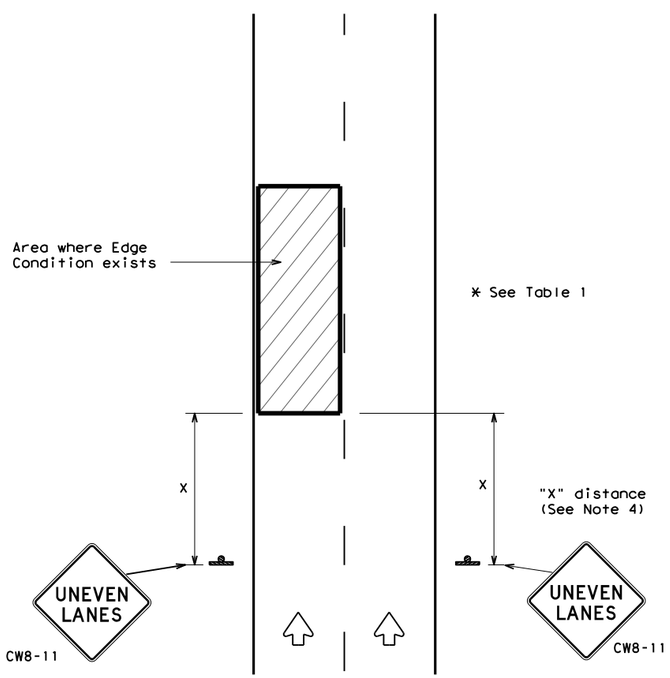
UNEVEN LANES
TWO LANE CONVENTIONAL ROAD



UNEVEN LANES
FOUR LANE CONVENTIONAL ROAD



NO CENTER LINE
TWO LANE CONVENTIONAL ROAD



UNEVEN LANES
DIVIDED ROADWAY

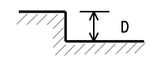
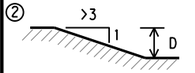
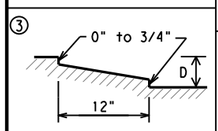
DEPARTMENTAL MATERIAL SPECIFICATIONS	
PERMANENT PREFABRICATED PAVEMENT MARKINGS	DMS-8240
TEMPORARY (REMOVABLE) PREFABRICATED PAVEMENT MARKINGS	DMS-8241
SIGN FACE MATERIALS	DMS-8300

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
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1-97 3-03	PHR	HIDALGO		71

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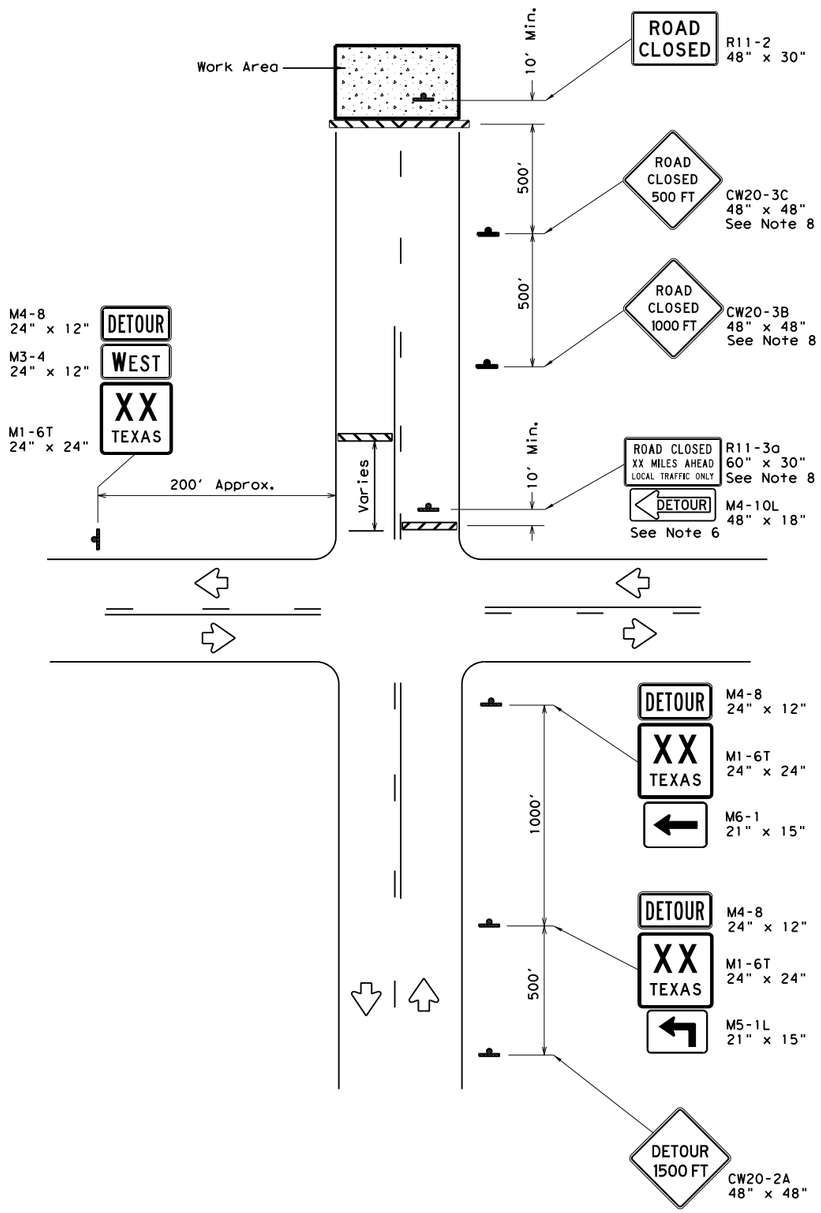
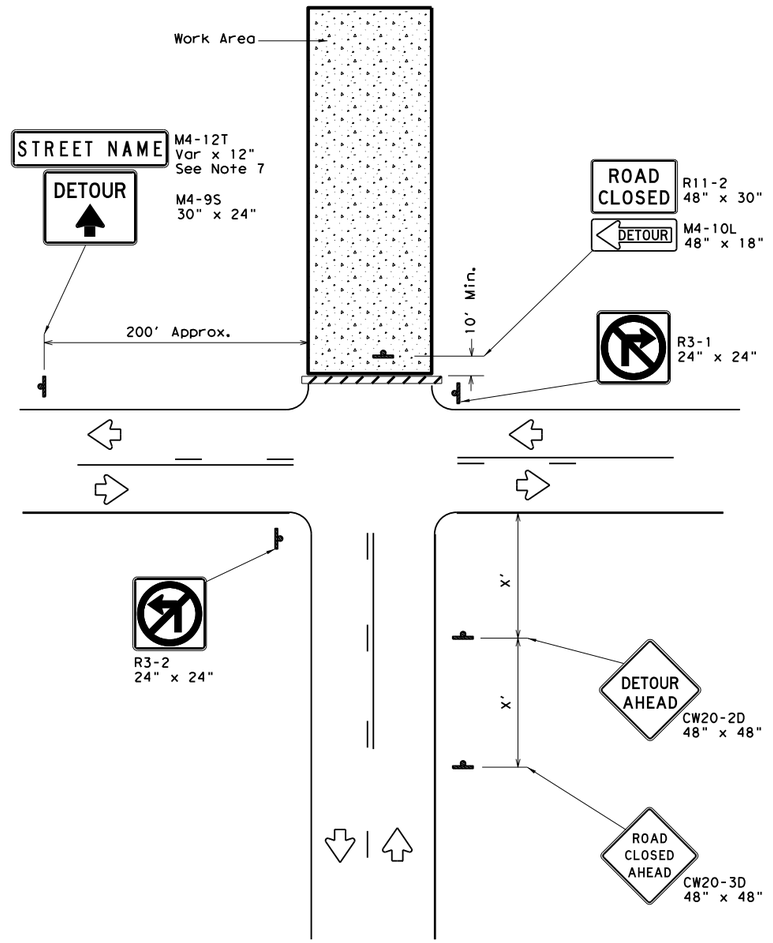


ROAD CLOSURE BEYOND THE INTERSECTION

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

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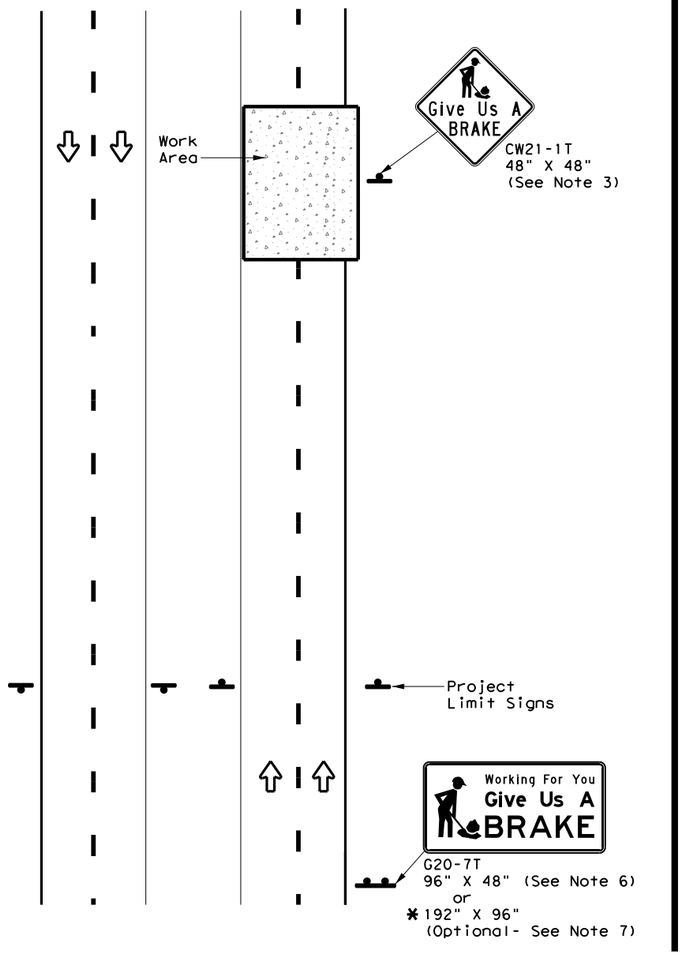
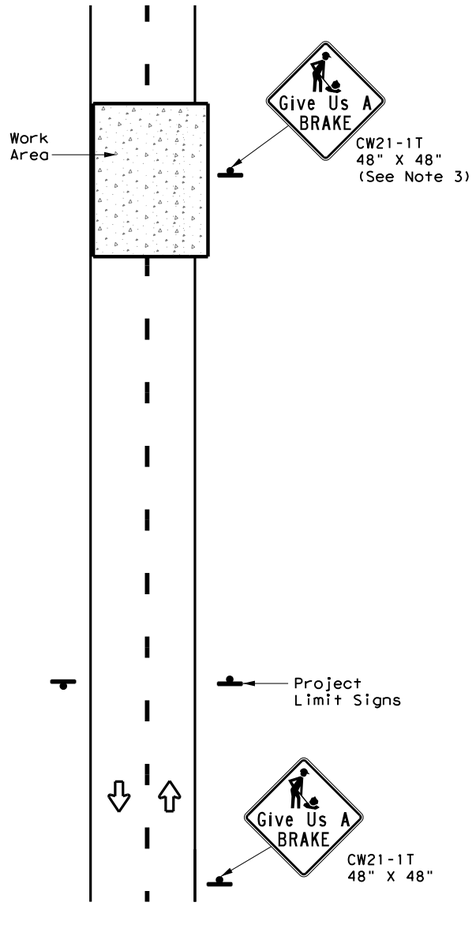


DIVIDED HIGHWAY



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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8-96 3-03	PHR	HIDALGO		73

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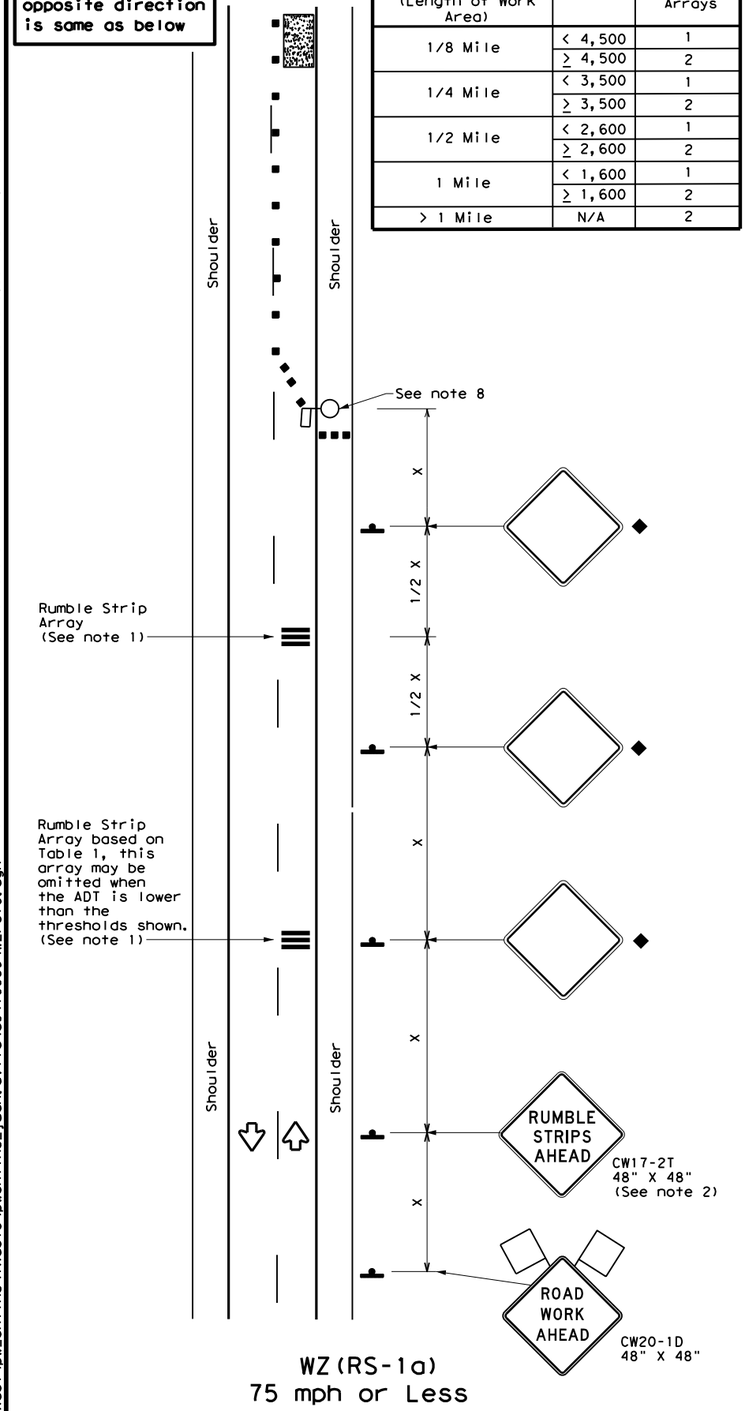
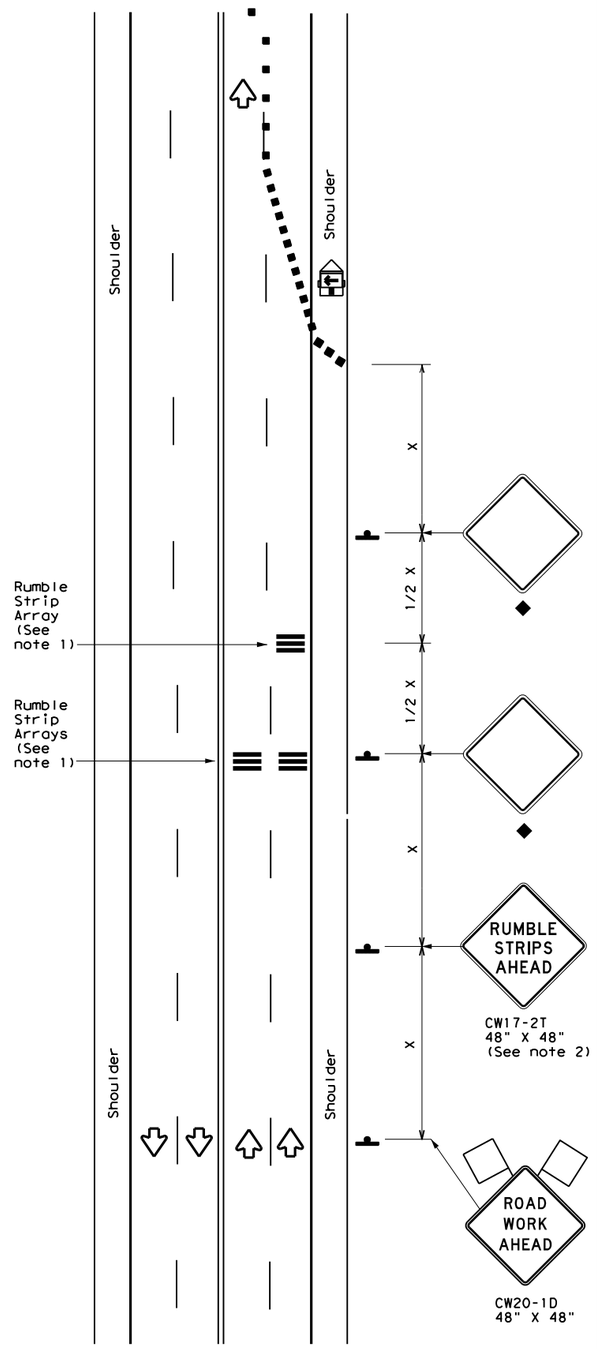
Warning sign and rumble strip sequence in opposite direction is same as below

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)
75 mph or Less

RUMBLE STRIPS ON ONE-LANE TWO-WAY APPLICATION



WZ(RS-1b)
75 mph or Less

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. Removal of the Temporary Rumble Strips should be accomplished before removing the advance 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 AFAD or a portable traffic signal.
9. Temporary Rumble Strips may be used on freeways or expressways based on engineering judgment.

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.**

TABLE 2	
Speed	Approximate distance between strips in an Array
≤ 40 MPH	10'
> 40 MPH & ≤ 55 MPH	15'
> 55 MPH	20'

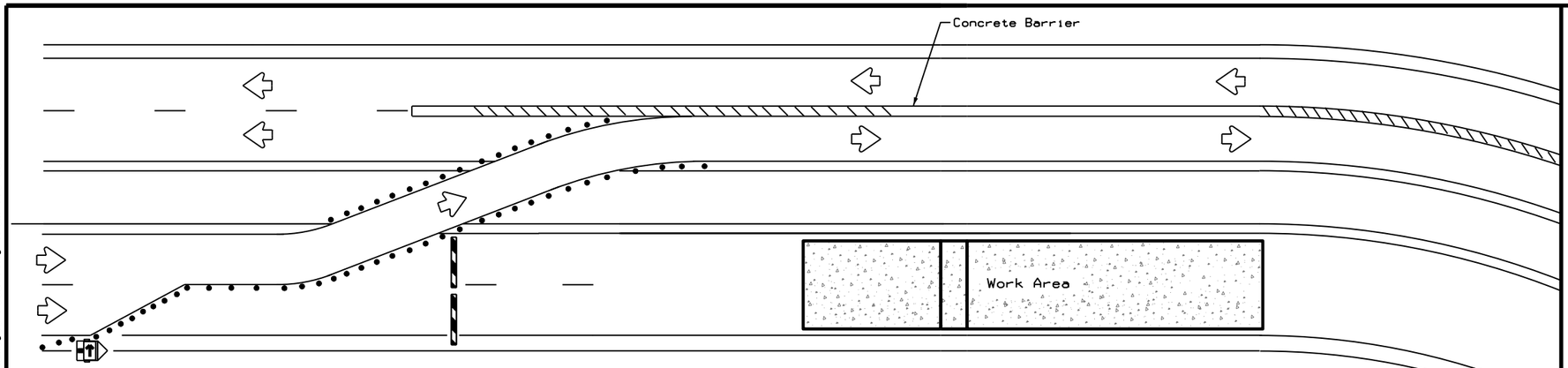
Texas Department of Transportation

Traffic Operations Division Standard

TEMPORARY RUMBLE STRIPS

WZ(RS)-16

FILE: wzrs16.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
©TxDOT November 2012	CONT	SECT	JOB	HIGHWAY
REVISIONS	1586	01	079	FM 907
2-14 4-16	DIST	COUNTY		SHEET NO.
	PHR	HIDALGO		74



NOTES:

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

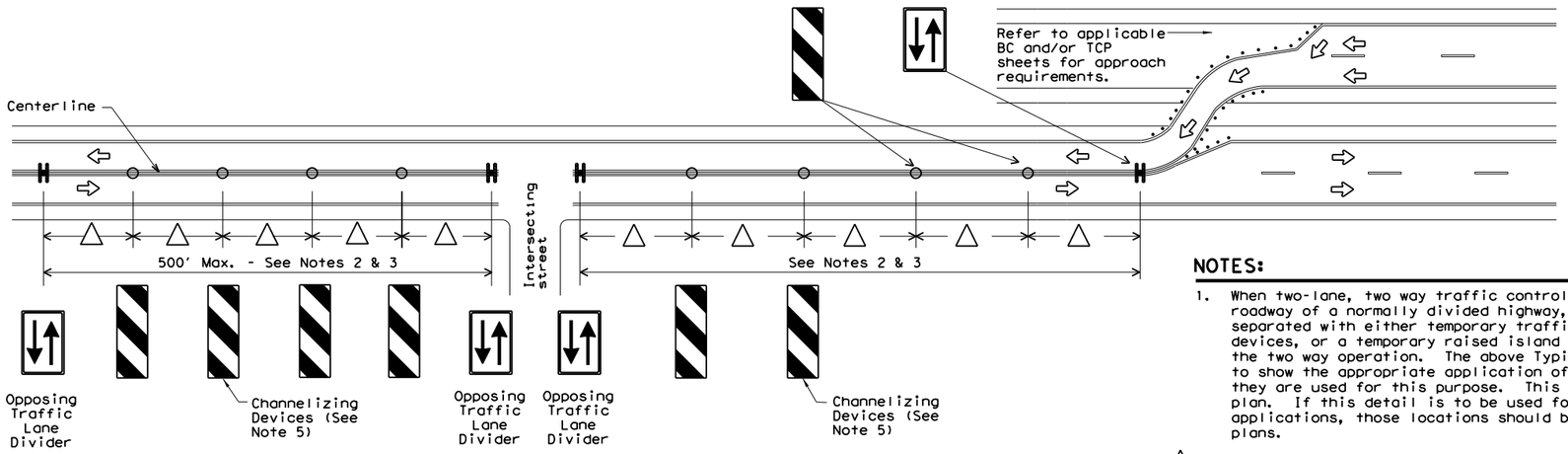
BARRIER DELINEATION WITH MODULAR GLARE SCREENS

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

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

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

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



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

NOTES:

1. When two-lane, two way traffic control must be maintained on one roadway of a normally divided highway, opposing traffic shall be separated with either temporary traffic barriers, channelizing devices, or a temporary raised island throughout the length of the two way operation. The above Typical Application is intended to show the appropriate application of channelizing devices when they are used for this purpose. This is not a traffic control plan. If this detail is to be used for other types of roads or applications, those locations should be stated elsewhere in the plans.

△2. Space devices according to the Tangent Spacing shown on the Device Spacing table on BC(9) but not exceeding 100'.

3. Every fifth device should be an OTLD except when spaced closer to accommodate an intersection. An OTLD should be the first device on each side of intersecting streets or roads.
4. Locations where surface mount bases with adhesives or self-righting devices will be required in order to maintain them in their proper position should be noted elsewhere in the plans.
5. Channelizing devices are to be vertical panels, 42" cones or tubular markers that are at least 36" tall. Tubular markers used to separate traffic should have a rubber base weighing at least 30 pounds. Tubular markers that are 42" tall or more shall have four bands of reflective material as detailed for 42" cones on BC(10). Tubular markers less than 42" but at least 36" tall shall have three bands of 3" wide white reflective material spaced 2" apart. Reflective material shall meet DMS-8300, Type A.

Texas Department of Transportation

Traffic Operations Division Standard

TRAFFIC CONTROL PLAN TYPICAL DETAILS

WZ(TD)-17

FILE: wztd-17.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
©TxDOT February 1998	CONT	SECT	JOB	HIGHWAY
REVISIONS 4-98 2-17 3-03 7-13	1586	01	079	FM 907
	DIST	COUNTY		SHEET NO.
	PHR	HIDALGO		75

110

ROADWAY
COVER SHEET

DATE: 8/30/2021 5:14:24 PM
FILE: c:\txdot\pw_online\txdot5\pwonline_juan.avila\d0304079\ROADWAY_COVER.dgn

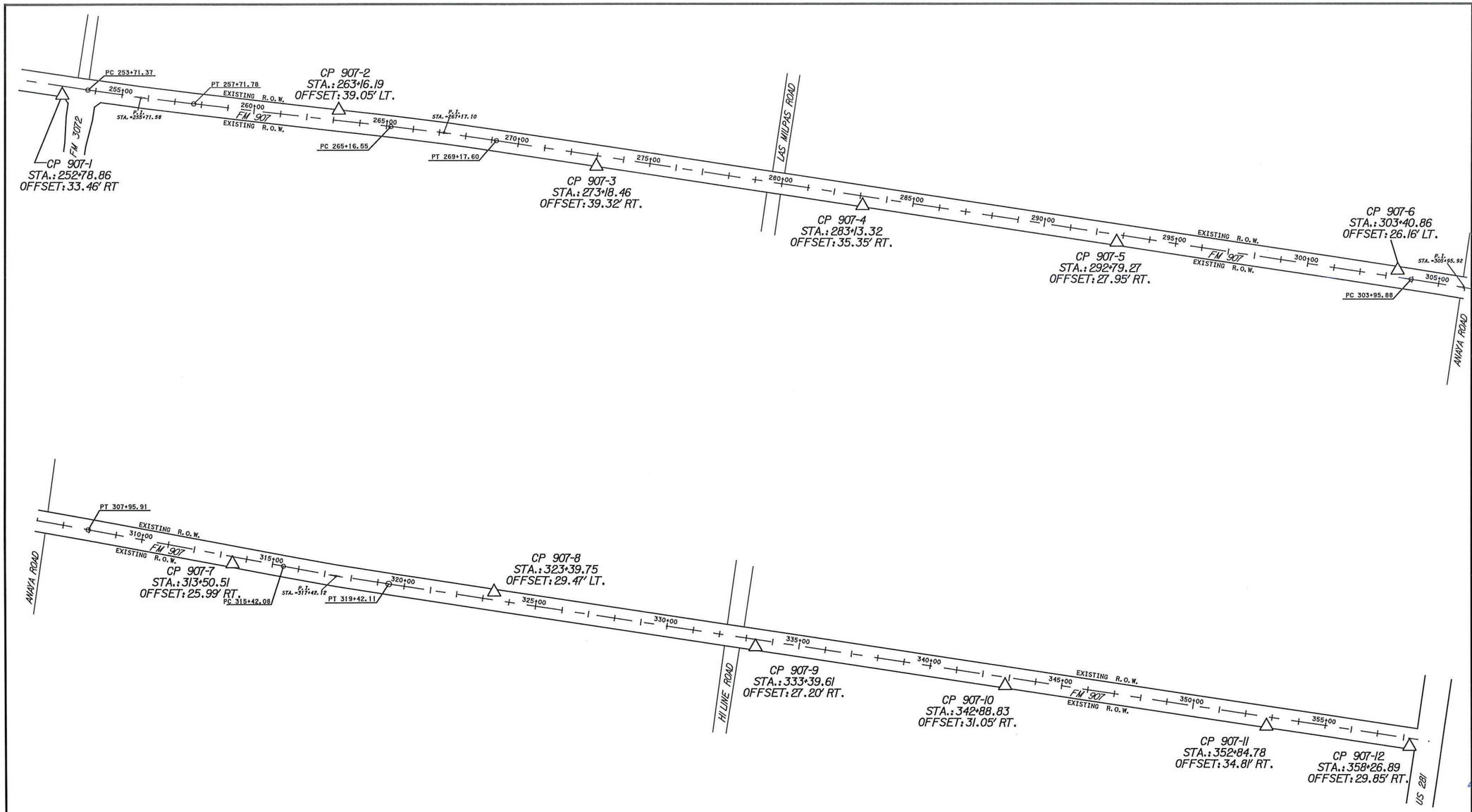
Pharr District Central Design

Texas Department of Transportation

FM 907

ROADWAY
COVER SHEET

CONT	SECT	JOB	HIGHWAY
1586	01	079	FM 907
DIST	COUNTY		SHEET NO.
PHR	HIDALGO		76



PRIMARY CONTROL				
POINT #	NORTH	EAST	ELEV.	DESCRIPTION
907-1	16,567,963.80	1,104,024.73	82.35	SET 5/8" IRON ROD WITH TxDOT ALUMINUM CONTROL CAP
907-2	16,566,925.55	1,103,966.87	81.96	SET 5/8" IRON ROD WITH TxDOT ALUMINUM CONTROL CAP
907-3	16,565,942.74	1,103,752.75	84.32	SET 5/8" IRON ROD WITH TxDOT ALUMINUM CONTROL CAP
907-4	16,564,958.53	1,103,607.52	83.25	SET 5/8" IRON ROD WITH TxDOT ALUMINUM CONTROL CAP
907-5	16,564,002.39	1,103,470.01	81.70	SET 5/8" IRON ROD WITH TxDOT ALUMINUM CONTROL CAP
907-6	16,562,944.68	1,103,364.34	79.85	SET 5/8" IRON ROD WITH TxDOT ALUMINUM CONTROL CAP
907-7	16,561,959.52	1,103,135.57	83.59	SET 5/8" IRON ROD WITH TxDOT ALUMINUM CONTROL CAP
907-8	16,560,974.50	1,103,028.45	84.75	SET 5/8" IRON ROD WITH TxDOT ALUMINUM CONTROL CAP
907-9	16,559,994.44	1,102,822.51	83.51	SET 5/8" IRON ROD WITH TxDOT ALUMINUM CONTROL CAP
907-10	16,559,056.53	1,102,676.39	84.57	SET 5/8" IRON ROD WITH TxDOT ALUMINUM CONTROL CAP
907-11	16,558,072.40	1,102,523.34	86.73	SET 5/8" IRON ROD WITH TxDOT ALUMINUM CONTROL CAP
907-12	16,557,535.67	1,102,446.97	88.23	SET 5/8" IRON ROD WITH TxDOT ALUMINUM CONTROL CAP

0 50 100

SCALE 1" = 200' 22" x 34"
SCALE 1" = 400' 11" x 17"

NOTES:

1.) PRIMARY CONTROL (HORIZONTAL) WAS ESTABLISHED USING GPS METHODS CONFORMING TO THE "TXDOT SURVEY MANUAL 2016-1".

2.) BEARINGS ARE BASED ON GRID NORTH, TEXAS STATE PLANE COORDINATE SYSTEM, TEXAS SOUTH ZONE 4205, NAD83 (2011) EPOCH: 2010.

3.) COORDINATES AND DISTANCES SHOWN ARE SURFACE COORDINATES BASED ON A PROJECT COORDINATE SYSTEM ESTABLISHED BY APPLYING A SURFACE ADJUSTMENT FACTOR OF 1.00004 TO STATE PLANE GRID COORDINATES NAD83 (2011) EPOCH: 2010, TEXAS STATE PLANE COORDINATE SYSTEM, SOUTH ZONE 4205, U.S. SURVEY FEET.

PROJECT COORDINATES = GRID COORDINATES x 1.00004

4.) THE VERTICAL VALUES ARE BASED ON NAVD88, GEOID 12A, USING DIGITAL LEVELS HOLDING THE GPS ELEVATION OF CONTROL POINT 907-5.

LEGEND

△ PRIMARY CONTROL POINT

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

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

STATE OF TEXAS
REGISTERED
R. CLAY SWETMAN
5397
PROFESSIONAL
LAND SURVEYOR

9/28/2020

R. CLAY SWETMAN
REGISTERED PROFESSIONAL LAND SURVEYOR NO. 5397

DATE

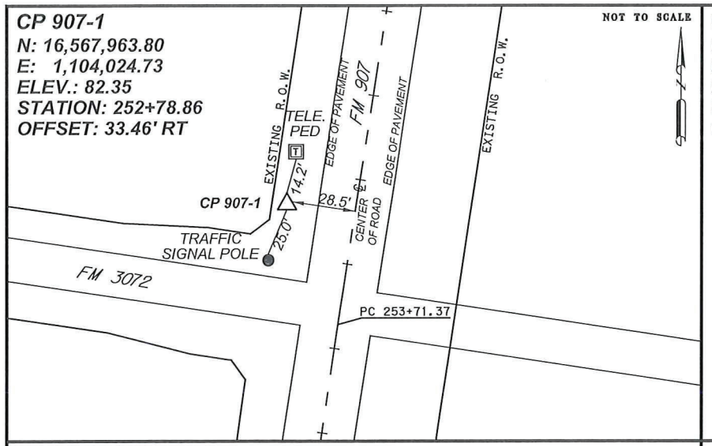
CDS muery
ENGINEERS | SURVEYORS
100 NE Loop 410, Ste. 300 | San Antonio, TX 78216
(210) 581-1111 | TBPE No. F-1733 | TBPLS No. 100495-00

Texas Department of Transportation

FM 907
SURVEY CONTROL INDEX SHEET

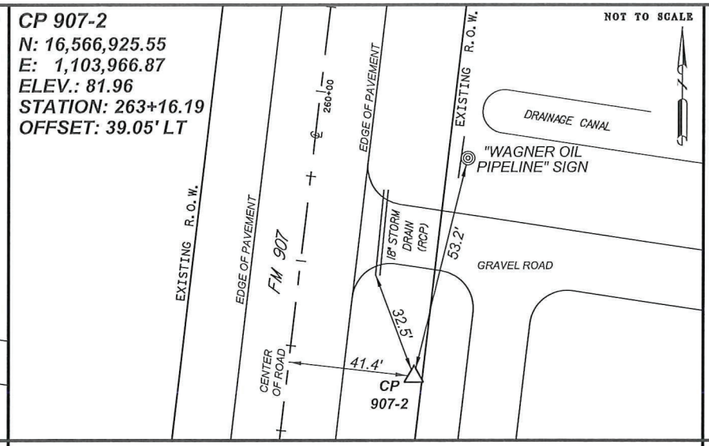
FED. RD. DIV. NO.	FEDERAL AID PROJECT NO.		SHEET NO.
6			77
STATE	DIST.	COUNTY	
TEXAS	PHR	HIDALGO	
CONT.	SECT.	JOB	HIGHWAY NO.
1586	01	079	FM 907

CP 907-1
N: 16,567,963.80
E: 1,104,024.73
ELEV.: 82.35
STATION: 252+78.86
OFFSET: 33.46' RT



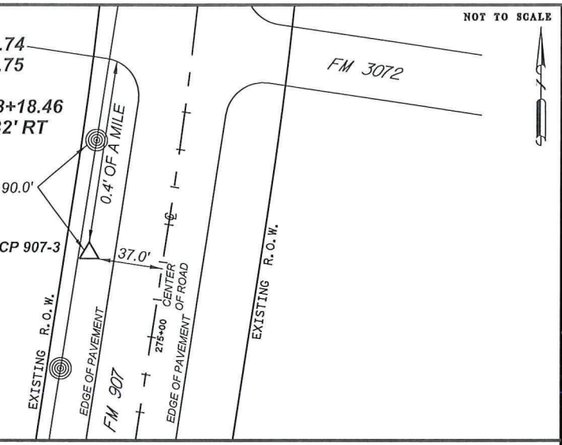
CP 907-1 IS A 5/8" IRON ROD WITH ALUMINUM CAP SET IN CONCRETE ON THE WEST SIDE OF FM HIGHWAY 907 AT THE NORTHWEST CORNER OF FM HIGHWAY 907 AND FM HIGHWAY 3072.

CP 907-2
N: 16,566,925.55
E: 1,103,966.87
ELEV.: 81.96
STATION: 263+16.19
OFFSET: 39.05' LT



CP 907-2 IS A 5/8" IRON ROD WITH ALUMINUM CAP SET IN CONCRETE ON THE EAST SIDE OF FM HIGHWAY 907, APPROXIMATELY 0.2 OF A MILE SOUTH OF THE INTERSECTION OF FM HIGHWAY 907 AND FM HIGHWAY 3072.

CP 907-3
N: 16,565,942.74
E: 1,103,752.75
ELEV.: 84.32
STATION: 273+18.46
OFFSET: 39.32' RT



CP 907-3 IS A 5/8" IRON ROD WITH ALUMINUM CAP SET IN CONCRETE ON THE WEST SIDE OF FM HIGHWAY 907, APPROXIMATELY 0.4 OF A MILE SOUTH OF THE INTERSECTION OF FM HIGHWAY 907 AND FM HIGHWAY 3072.

NOTES:

1.) PRIMARY CONTROL (HORIZONTAL) WAS ESTABLISHED USING GPS METHODS CONFORMING TO THE "TxDOT SURVEY MANUAL 2016-1".

2.) BEARINGS ARE BASED ON GRID NORTH, TEXAS STATE PLANE COORDINATE SYSTEM, TEXAS SOUTH ZONE 4205, NAD83 (2011) EPOCH: 2010.

3.) COORDINATES AND DISTANCES SHOWN ARE SURFACE COORDINATES BASED ON A PROJECT COORDINATE SYSTEM ESTABLISHED BY APPLYING A SURFACE ADJUSTMENT FACTOR OF 1.00004 TO STATE PLANE GRID COORDINATES NAD83 (2011) EPOCH: 2010, TEXAS STATE PLANE COORDINATE SYSTEM, SOUTH ZONE 4205, U.S. SURVEY FEET.

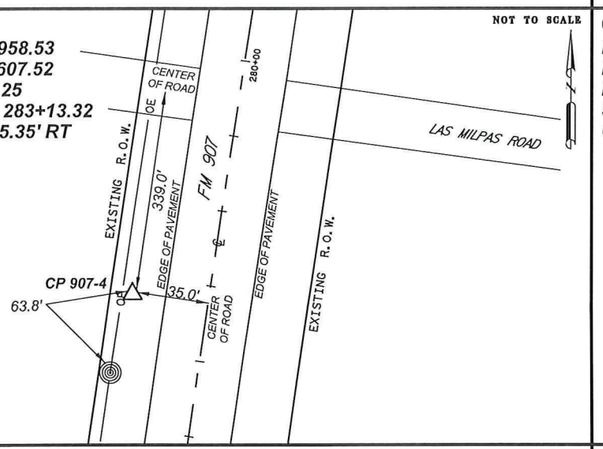
PROJECT COORDINATES = GRID COORDINATES x 1.00004

4.) THE VERTICAL VALUES ARE BASED ON NAVD88, GEOID 12A, USING DIGITAL LEVELS HOLDING THE GPS ELEVATION OF CONTROL POINT 907-5.

LEGEND

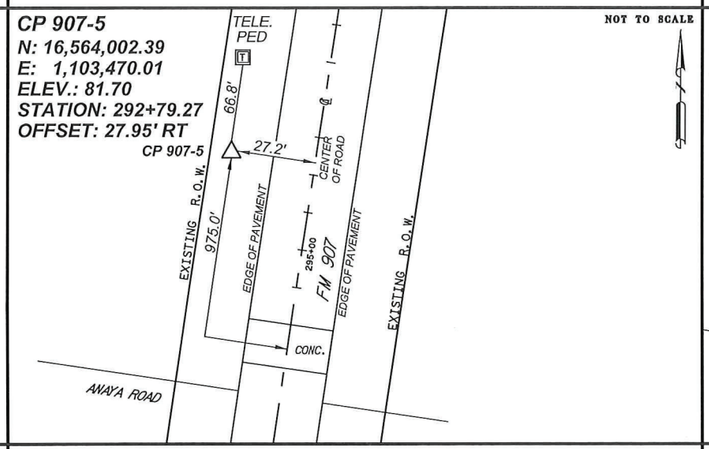
- PRIMARY CONTROL POINT
- MAILBOX
- POWER POLE
- SIGN
- TELEPHONE PEDESTAL
- TREE

CP 907-4
N: 16,564,958.53
E: 1,103,607.52
ELEV.: 83.25
STATION: 283+13.32
OFFSET 35.35' RT



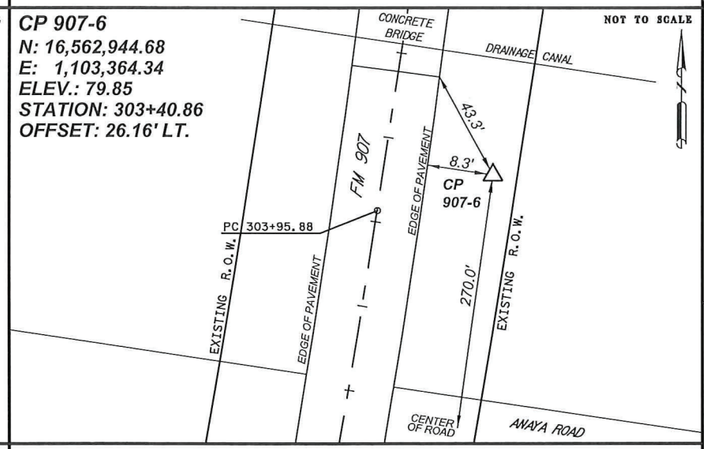
CP 907-4 IS A 5/8" IRON ROD WITH ALUMINUM CAP SET IN CONCRETE ON THE WEST SIDE OF FM HIGHWAY 907, APPROXIMATELY 0.5 OF A MILE SOUTH OF THE INTERSECTION OF FM HIGHWAY 907 AND FM HIGHWAY 3072.

CP 907-5
N: 16,564,002.39
E: 1,103,470.01
ELEV.: 81.70
STATION: 292+79.27
OFFSET: 27.95' RT



CP 907-5 IS A 5/8" IRON ROD WITH ALUMINUM CAP SET IN CONCRETE ON THE WEST SIDE OF FM HIGHWAY 907, APPROXIMATELY 0.2 OF A MILE NORTH OF THE INTERSECTION OF FM HIGHWAY 907 AND ANAYA ROAD.

CP 907-6
N: 16,562,944.68
E: 1,103,364.34
ELEV.: 79.85
STATION: 303+40.86
OFFSET: 26.16' LT.



CP 907-6 IS A 5/8" IRON ROD WITH ALUMINUM CAP SET IN CONCRETE ON THE WEST SIDE OF FM HIGHWAY 907, APPROXIMATELY 0.1 OF A MILE NORTH OF THE INTERSECTION OF FM HIGHWAY 907 AND ANAYA ROAD.

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

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

STATE OF TEXAS
REGISTERED
R. CLAY SWETMAN
5397
PROFESSIONAL
LAND SURVEYOR

9/28/2020

R. CLAY SWETMAN — DATE
REGISTERED PROFESSIONAL LAND SURVEYOR NO. 5397

CDS Muery
ENGINEERS | SURVEYORS
100 NE Loop 410, Ste. 300 | San Antonio, TX 78216
(210) 581-1111 | TBPE No. F-1733 | TBPLS No. 100495-00

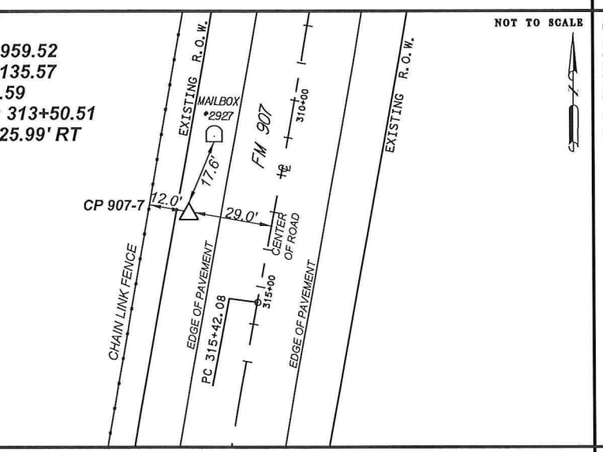
Texas Department of Transportation

FM 907
HORIZONTAL & VERTICAL CONTROL SHEET

FED. RD. DIV. NO.	FEDERAL AID PROJECT NO.	SHEET NO.
6		78

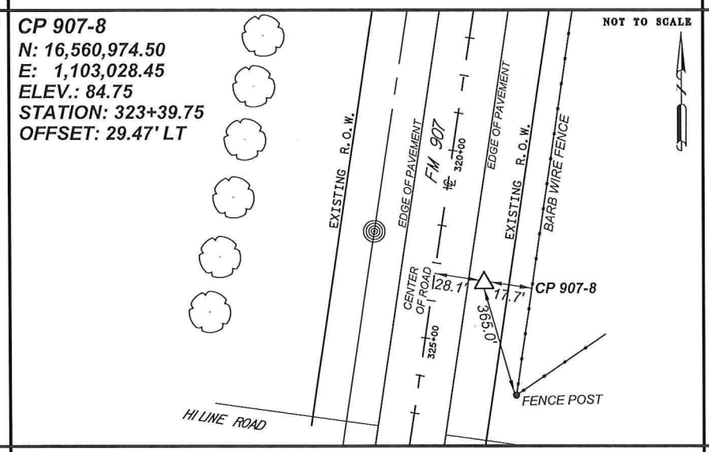
STATE	DIST.	COUNTY	
TEXAS	PHR	HIDALGO	
CONT.	SECT.	JOB	HIGHWAY NO.
1586	01	079	FM 907

CP 907-7
N: 16,561,959.52
E: 1,103,135.57
ELEV.: 83.59
STATION: 313+50.51
OFFSET: 25.99' RT



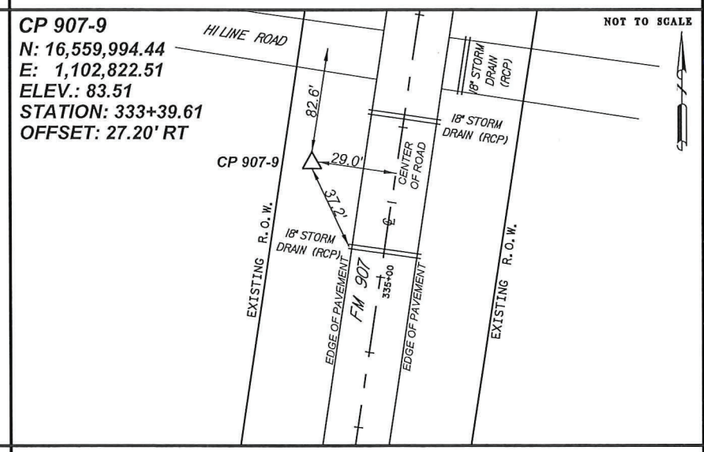
CP 907-7 IS A 5/8" IRON ROD WITH ALUMINUM CAP SET IN CONCRETE ON THE WEST SIDE OF FM HIGHWAY 907, APPROXIMATELY 0.1 OF A MILE SOUTH OF THE INTERSECTION OF FM HIGHWAY 907 AND ANAYA ROAD.

CP 907-8
N: 16,560,974.50
E: 1,103,028.45
ELEV.: 84.75
STATION: 323+39.75
OFFSET: 29.47' LT



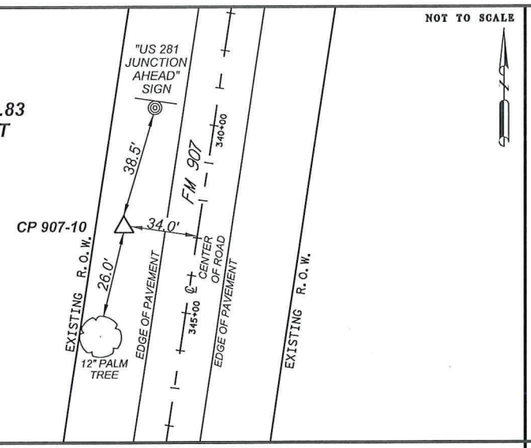
CP 907-8 IS A 5/8" IRON ROD WITH ALUMINUM CAP SET IN CONCRETE ON THE WEST SIDE OF FM HIGHWAY 907, APPROXIMATELY 0.2 OF A MILE NORTH OF THE INTERSECTION OF FM HIGHWAY 907 AND HI LINE ROAD.

CP 907-9
N: 16,559,994.44
E: 1,102,822.51
ELEV.: 83.51
STATION: 333+39.61
OFFSET: 27.20' RT



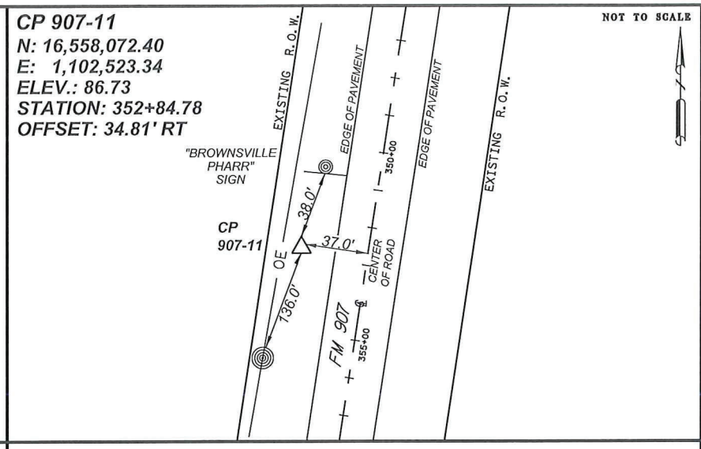
CP 907-9 IS A 5/8" IRON ROD WITH ALUMINUM CAP SET IN CONCRETE ON THE WEST SIDE OF FM HIGHWAY 907, AT THE SOUTHWEST CORNER OF THE INTERSECTION OF FM HIGHWAY 907 AND US HI LINE ROAD.

CP 907-10
N: 16,559,056.53
E: 1,102,676.39
ELEV.: 84.57
STATION: 342+88.83
OFFSET: 31.05' RT



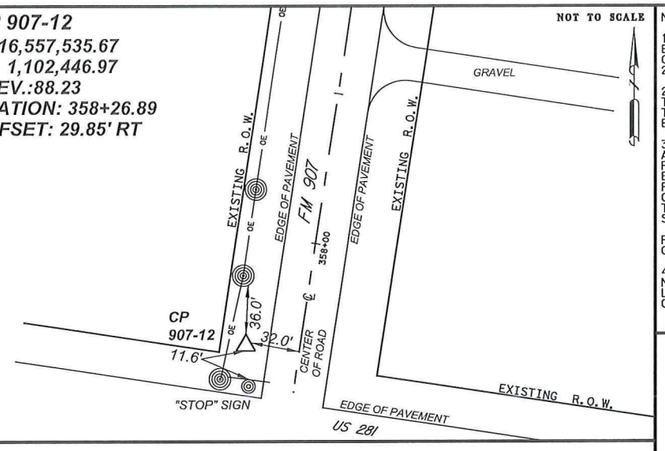
CP 907-10 IS A 5/8" IRON ROD WITH ALUMINUM CAP SET IN CONCRETE ON THE WEST SIDE OF FM HIGHWAY 907, APPROXIMATELY 0.3 OF A MILE NORTH OF THE INTERSECTION OF FM HIGHWAY 907 AND US HIGHWAY 281.

CP 907-11
N: 16,558,072.40
E: 1,102,523.34
ELEV.: 86.73
STATION: 352+84.78
OFFSET: 34.81' RT



CP 907-11 IS A 5/8" IRON ROD WITH ALUMINUM CAP SET IN CONCRETE ON THE WEST SIDE OF FM HIGHWAY 907, APPROXIMATELY 0.1 OF A MILE NORTH OF THE INTERSECTION OF FM HIGHWAY 907 AND US HIGHWAY 281.

CP 907-12
N: 16,557,535.67
E: 1,102,446.97
ELEV.:88.23
STATION: 358+26.89
OFFSET: 29.85' RT



CP 907-12 IS A 5/8" IRON ROD WITH ALUMINUM CAP SET IN CONCRETE ON THE WEST SIDE OF FM HIGHWAY 907, AT THE NORTHWEST CORNER OF THE INTERSECTION OF FM HIGHWAY 907 AND US HIGHWAY 281.

NOTES:

1.) PRIMARY CONTROL (HORIZONTAL) WAS ESTABLISHED USING GPS METHODS CONFORMING TO THE "TxDOT SURVEY MANUAL 2016-1".

2.) BEARINGS ARE BASED ON GRID NORTH, TEXAS STATE PLANE COORDINATE SYSTEM, TEXAS SOUTH ZONE 4205, NAD83 (2011) EPOCH: 2010.

3.) COORDINATES AND DISTANCES SHOWN ARE SURFACE COORDINATES BASED ON A PROJECT COORDINATE SYSTEM ESTABLISHED BY APPLYING A SURFACE ADJUSTMENT FACTOR OF 1.00004 TO STATE PLANE GRID COORDINATES NAD83 (2011) EPOCH: 2010, TEXAS STATE PLANE COORDINATE SYSTEM, SOUTH ZONE 4205, U.S. SURVEY FEET.

PROJECT COORDINATES = GRID COORDINATES x 1.00004

4.) THE VERTICAL VALUES ARE BASED ON NAVD88, GEOID 12A, USING DIGITAL LEVELS HOLDING THE GPS ELEVATION OF CONTROL POINT 907-5.

LEGEND

- PRIMARY CONTROL POINT
- MAILBOX
- POWER POLE
- SIGN
- TELEPHONE PEDESTAL
- TREE

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

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

STATE OF TEXAS
REGISTERED
R. CLAY SWETMAN
5397
PROFESSIONAL
LAND SURVEYOR

9/28/2020

R. CLAY SWETMAN — DATE
REGISTERED PROFESSIONAL LAND SURVEYOR NO. 5397

CDS muery
ENGINEERS | SURVEYORS
100 NE Loop 410, Ste. 300 | San Antonio, TX 78216
(210) 581-1111 | TBPE No. F-1733 | TBPLS No. 100495-00

Texas Department of Transportation

FM 907
HORIZONTAL & VERTICAL CONTROL SHEET

FED. RD. DIV. NO.	FEDERAL AID PROJECT NO.	SHEET NO.
6		79

STATE	DIST.	COUNTY	
TEXAS	PHR	HIDALGO	
CONT.	SECT.	JOB	HIGHWAY NO.
1586	01	079	FM 907

Beginning chain FM907__SUR description

==========

Point 1010 N 16,568,121.3716 E 1,104,079.1033 Sta 251+14.90

Course from 1010 to PC FM907__SUR1 S 8° 37' 58.00" W Dist 176.7954

Curve Data

Curve FM907__SUR1
P.I. Station 254+75.34 N 16,567,765.0181 E 1,104,025.0014
Delta = 1° 50' 10.00" (LT)
Degree = 0° 29' 59.86"
Tangent = 183.6416
Length = 367.2517
Radius = 11,460.0768
External = 1.4713
Long Chord = 367.2360
Mid. Ord. = 1.4711
P.C. Station 252+91.70 N 16,567,946.5792 E 1,104,052.5661
P.T. Station 256+58.95 N 16,567,582.6671 E 1,104,003.2681
C.C. N 16,566,226.4106 E 1,115,382.8079
Back = S 8° 37' 58.00" W
Ahead = S 6° 47' 48.00" W
Chord Bear = S 7° 42' 53.00" W

Course from PT FM907__SUR1 to PC FM907__SUR2 S 6° 47' 48.00" W Dist 896.7294

Curve Data

Curve FM907__SUR2
P.I. Station 267+32.12 N 16,566,517.0348 E 1,103,876.2620
Delta = 1° 45' 51.00" (RT)
Degree = 0° 29' 59.86"
Tangent = 176.4448
Length = 352.8617
Radius = 11,460.0768
External = 1.3582
Long Chord = 352.8478
Mid. Ord. = 1.3581
P.C. Station 265+55.68 N 16,566,692.2396 E 1,103,897.1436
P.T. Station 269+08.54 N 16,566,342.5559 E 1,103,849.9965
C.C. N 16,568,048.4961 E 1,092,517.6037
Back = S 6° 47' 48.00" W
Ahead = S 8° 33' 39.00" W
Chord Bear = S 7° 40' 43.50" W

Course from PT FM907__SUR2 to 1011 S 8° 33' 39.00" W Dist 2,591.8126

Point 1011 N 16,563,779.6203 E 1,103,464.1808 Sta 295+00.35

Course from 1011 to 1012 S 8° 35' 10.92" W Dist 500.0401

Point 1012 N 16,563,285.1847 E 1,103,389.5248 Sta 300+00.39

Course from 1012 to PC FM907__SUR3 S 8° 35' 28.82" W Dist 408.8305

Curve Data

Curve FM907__SUR3
P.I. Station 305+85.92 N 16,562,706.2244 E 1,103,302.0549
Delta = 1° 46' 00.18" (RT)
Degree = 0° 29' 59.86"
Tangent = 176.7000
Length = 353.3719
Radius = 11,460.0768
External = 1.3622
Long Chord = 353.3579
Mid. Ord. = 1.3620
P.C. Station 304+09.22 N 16,562,880.9417 E 1,103,328.4513
P.T. Station 307+62.59 N 16,562,532.4041 E 1,103,270.2844
C.C. N 16,564,592.9151 E 1,091,996.9684
Back = S 8° 35' 28.82" W
Ahead = S 10° 21' 29.00" W
Chord Bear = S 9° 28' 28.91" W

Course from PT FM907__SUR3 to PC FM907__SUR4 S 10° 21' 29.00" W Dist 939.9881

Curve Data

Curve FM907__SUR4
P.I. Station 318+78.14 N 16,561,435.0400 E 1,103,069.7107
Delta = 1° 45' 19.00" (LT)
Degree = 0° 29' 59.86"
Tangent = 175.5556
Length = 351.0838
Radius = 11,460.0768
External = 1.3446
Long Chord = 351.0700
Mid. Ord. = 1.3444
P.C. Station 317+02.58 N 16,561,607.7346 E 1,103,101.2754
P.T. Station 320+53.67 N 16,561,261.4595 E 1,103,043.4505
C.C. N 16,559,547.2237 E 1,114,374.5914
Back = S 10° 21' 29.00" W
Ahead = S 8° 36' 10.00" W
Chord Bear = S 9° 28' 49.50" W

Course from PT FM907__SUR4 to 1013 S 8° 36' 10.00" W Dist 3,842.3417

Point 1013 N 16,557,462.3475 E 1,102,468.7004 Sta 358+96.01

==========

Ending chain FM907__SUR description

STATE OF TEXAS
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09/07/21

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Texas Department of Transportation

FM 907

HORIZONTAL
CONTROL DATA

CONT	SECT	JOB	HIGHWAY
1586	01	079	FM 907
DIST	COUNTY		SHEET NO.
PHR	HIDALGO		80

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Beginning chain AYANA_EAST description

==========

Point 1019 N 16,562,681.6337 E 1,103,296.5419 Sta 10+00.00

Course from 1019 to 1020 S 80° 23' 58.20" E Dist 42.5332

Point 1020 N 16,562,674.5401 E 1,103,338.4794 Sta 10+42.53

Course from 1020 to 1021 S 81° 26' 06.80" E Dist 356.3886

Point 1021 N 16,562,621.4641 E 1,103,690.8936 Sta 13+98.92

==========

Ending chain AYANA_EAST description

Beginning chain AYANA_WEST description

==========

Point 1029 N 16,562,718.3548 E 1,103,021.8697 Sta 10+00.00

Course from 1029 to 1030 S 81° 33' 20.67" E Dist 234.3684

Point 1030 N 16,562,683.9385 E 1,103,253.6974 Sta 12+34.37

Course from 1030 to 1031 S 80° 22' 30.16" E Dist 42.6278

Point 1031 N 16,562,676.8112 E 1,103,295.7252 Sta 12+77.00

==========

Ending chain AYANA_WEST description

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HORIZONTAL
CONTROL DATA

© 2021	CONT	SECT	JOB	HIGHWAY
	1586	01	079	FM 907
	DIST	COUNTY		SHEET NO.
	PHR	HIDALGO		81

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LEGEND

- DOUBLE SUPPORT SIGN
- FIRE HYDRANT
- FIBER OPTIC MARKER SIGN
- GUY ANCHOR
- MAILBOX
- GAS VALVE NATURAL
- OE — OVERHEAD ELECTRIC POWER LINE
- PHONE MARKER SIGN
- PIPELINE MARKER SIGN
- POWER POLE
- SIGN AND POLE (SINGLE)
- JUNCTION BOX TELEPHONE
- TELEPHONE PEDESTAL
- WATER VALVE
- CENTER OF ROAD, CROWN
- DRIVEWAY
- DITCH BOTTOM
- DITCH TOP
- EDGE OF ASPHALT
- EDGE OF GRAVEL
- FENCE (GENERIC)
- GRADE BREAK
- PAINT STRIPE SOLID WHITE
- PAINT STRIPE DASHED YELLOW
- PAINT STRIPE SOLID YELLOW
- REINFORCED CONCRETE PIPE (RCP)
- SAFETY END TREATMENT
- WOODS, TREES EDGE
- GRAVEL ROAD
- GATE
- IRRIGATION STAND PIPE
- ABUTMENT
- BRIDGE ARMOR JOINT
- BRIDGE BENT
- BRIDGE CENTERLINE
- BRIDGE RAIL (METAL, CONC.)
- COLUMN
- EDGE OF CONCRETE
- POST (GENERIC)
- CONTROL POINT
- CORRUGATED METAL PIPE (CMP)
- DROP INLET
- HEDGE LINE
- CULVERT
- DIRECTION OF FLOW
- FOC — UNDERGROUND FIBER OPTIC
- GL — UNDERGROUND GAS/PIPELINE

AT&T - QLB	ATT-COMM-QLB
WINDSTREAM - QLB	WIND-COMM-QLB
TGS 6" PIPELINE	6IN-TGS-GAS-QLB
WAGNER OIL 3.5" PL - QLB	3.5IN-WAG-GAS-QLC
MHWSC 4" WATER LINE- QLC	4IN-MHWSC-WTR-QLC
MHWSC 12" WATER LINE - QLC	12IN-MHWSC-WTR-QLC
HCID2 12" IRRIGATION LINE - QLC	12IN-HCID2-WTR-QLC
HCID2 15" IRRIGATION LINE - QLC	15IN-HCID2-WTR-QLC
HCID2 18" IRRIGATION LINE - QLC	18IN-HCID2-WTR-QLC
HCID2 21" IRRIGATION LINE - QLC	21IN-HCID2-WTR-QLC
HCID2 24" IRRIGATION LINE - QLC	24IN-HCID2-WTR-QLC

OWNERSHIP:	OWNER:	CONTACT:	PHONE:
COMMUNICATIONS	AT&T	BRANDON LUNA	956-630-8651
COMMUNICATIONS	WINDSTREAM	MIKE JOLLEY	281-490-9353
PIPELINE	TEXAS GAS SERVICE	RENE CASARES	956-357-2331
PIPELINE	WAGNER OIL GAS CO.	JAMES MCKEE	956-373-7282
WATER	MILITARY HIGHWAY WATER SUPPLY CO.	DAVID GARCIA	956-376-0467
IRRIGATION	HIDALGO COUNTY IRRIGATION DISTRICT #2	JAVIER LOPEZ	956-787-1422

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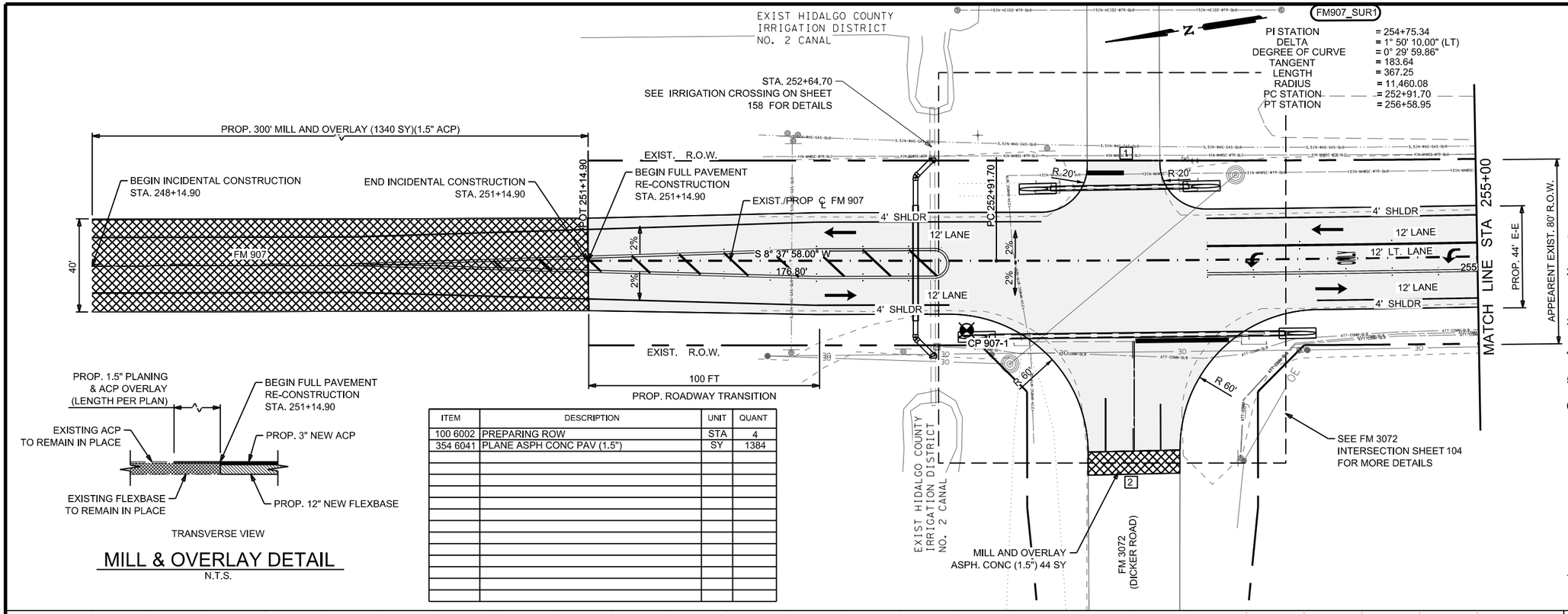
Pharr District Central Design

Texas Department of Transportation

FM 907

UTILITY GENERAL
LEGEND

CONT	SECT	JOB	HIGHWAY
1586	01	079	FM 907
DIST	COUNTY		SHEET NO.
PHR	HIDALGO		82



TRANSVERSE VIEW

MILL & OVERLAY DETAIL

N.T.S.

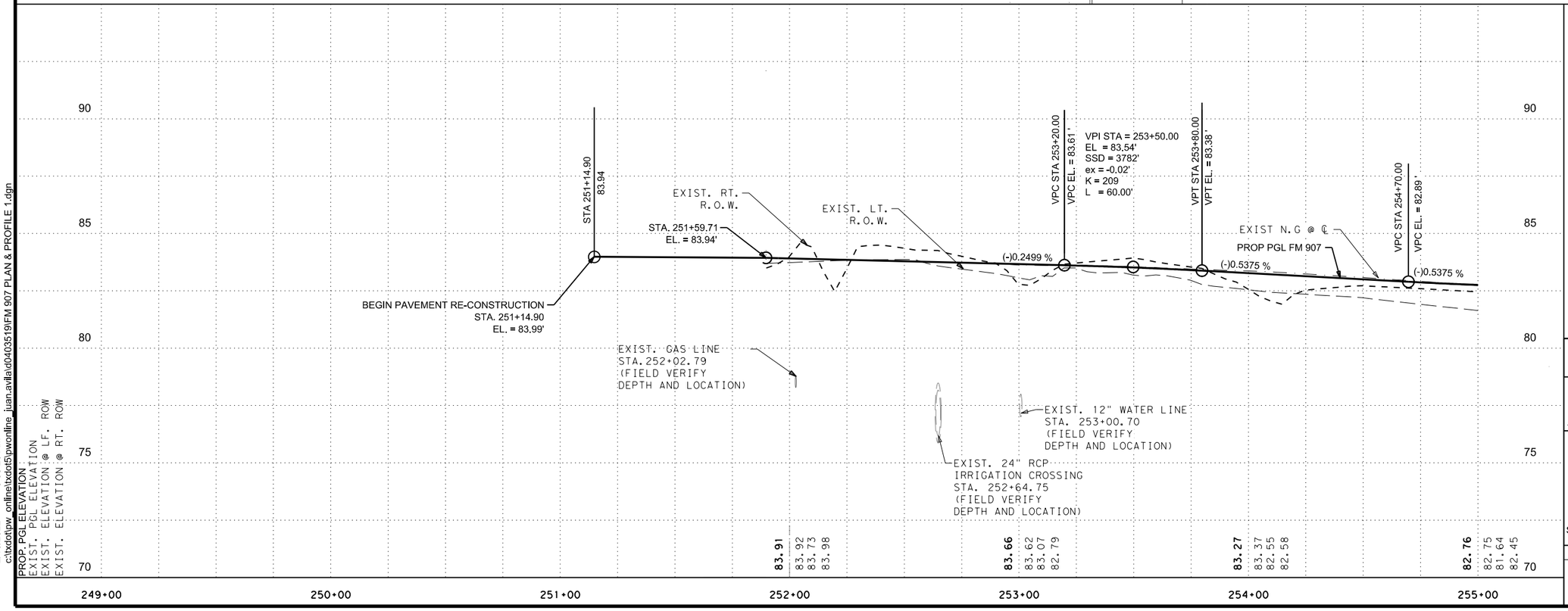
ITEM	DESCRIPTION	UNIT	QUANT
100 6002	PREPARING ROW	STA	4
354 6041	PLANE ASPH CONC PAV (1.5")	SY	1384

LEGEND:

- E-E — EDGE OF PAVEMENT TO EDGE OF PAVEMENT
- (#) — DRIVEWAY NUMBER
- [#] — TURNOUT NUMBER
- PROP. ASPHALT DRIVEWAY
- PROP. CONCRETE DRIVEWAY
- PROPOSED SIDEWALK
- PROP. MILLING/OVERLAY (1.5")
- DIRECTION OF TRAFFIC FLOW
- HORIZONTAL & VERTICAL CONTROL BENCHMARKS (SEE SURVEY CONTROL SHEETS FOR DETAILS)

GENERAL NOTES:

1. SEE HORIZONTAL & VERTICAL CONTROL DATA SHEET FOR PROPOSED & EXISTING CENTERLINE DATA.
2. ALL EXISTING DRIVEWAYS & TURNOUTS THAT ARE NOT HATCHED ON SHEETS ARE TO REMAIN IN PLACE UNLESS OTHERWISE DIRECTED BY THE ENGINEER.
3. SEE SURVEY DATA SHEET FOR BM STA, OFFSET, ELEVATION, ETC.
4. SEE PROPOSED TYPICAL SECTIONS FOR ROADWAY REHAB WIDTH.
5. EXISTING SAFETY END TREATMENT TO REMAIN IN PLACE OTHER WISE NOTED.
6. EXISTING UNDERGROUND UTILITIES AND TOPOGRAPHY HAVE BEEN PLOTTED BY DIRECT FIELD INFORMATION, AND AS SPOTTED BY UTILITY LOCATED REQUEST. CONTRACTOR SHALL COORDINATE WITH THE APPROPRIATE UTILITY COMPANIES TO VERIFY THE EXACT LOCATION IN THE FIELD PRIOR. TO CONSTRUCTION. THE CONTRACTOR WILL BE RESPONSIBLE FOR THE REPLACEMENT OR REPAIR OF ALL CUT OR BROKEN WATER LINES, IRRIGATION LINES, FORCE MAINS, SPRINKLERS SYSTEMS, GAS LINES, POWER LINE, TELEPHONE CABLE, AND/OR ANY OTHER UTILITIES.
7. CONTRACTOR IS RESPONSIBLE FOR SUPPLYING/ REPLACING MAILBOXES.



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EXIST. LT. R.O.W.
EXIST. RT. R.O.W.

STATE OF TEXAS
JOSE A. RODRIGUEZ
117308
LICENSED PROFESSIONAL ENGINEER

03/10/22

Pharr District Central Design

Texas Department of Transportation

FM 907

ROADWAY
PLAN & PROFILE

SCALE: HOR 1" = 50'
VERT 1" = 5'

SHEET 1 OF 21

© 2021	CONT	SECT	JOB	HIGHWAY
	1586	01	079	FM 907
	DIST	COUNTY		SHEET NO.
	PHR	HIDALGO		83

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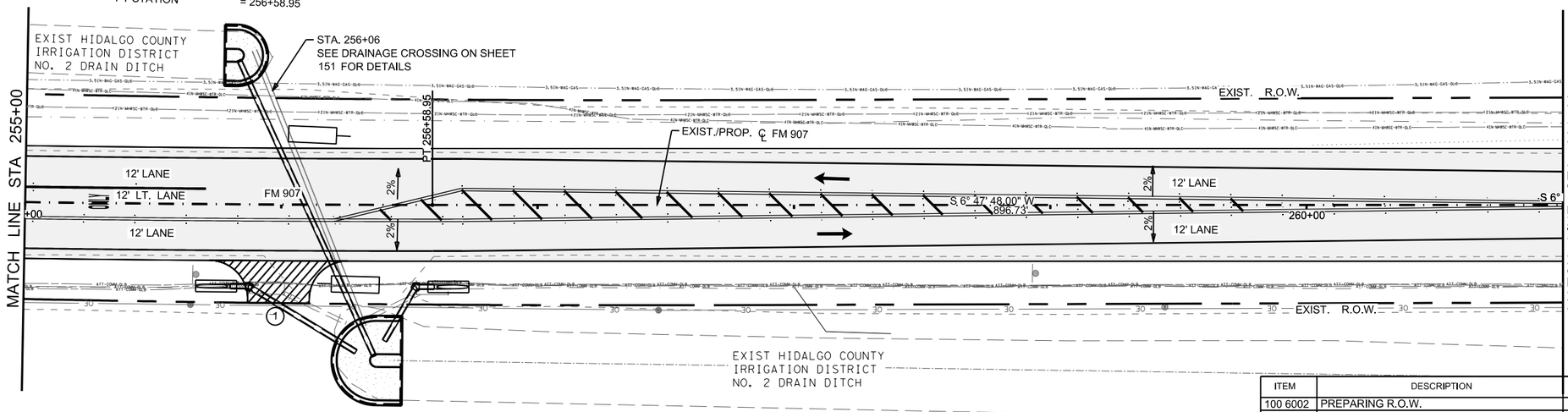
FM907_SUR1

PI STATION	= 254+75.34
DELTA	= 1° 50' 10.00" (LT)
DEGREE OF CURVE	= 0° 29' 59.86"
TANGENT	= 183.64
LENGTH	= 367.25
RADIUS	= 11,460.08
PC STATION	= 252+91.70
PT STATION	= 256+58.95



ITEM	DESCRIPTION	UNIT	QUANT
100 6002	PREPARING R.O.W.	STA	6
530 6005	DRIVEWAYS (ACP)	SY	55

LEGEND:

- E-E — EDGE OF PAVEMENT TO EDGE OF PAVEMENT
- (#) — DRIVEWAY NUMBER
- [#] — TURNOUT NUMBER
- PROP. ASPHALT DRIVEWAY
- PROP. CONCRETE DRIVEWAY
- PROPOSED SIDEWALK
- PROP. MILLING/OVERLAY (1.5")
- DIRECTION OF TRAFFIC FLOW
- HORIZONTAL & VERTICAL CONTROL BENCHMARKS (SEE SURVEY CONTROL SHEETS FOR DETAILS)

GENERAL NOTES:

1. SEE HORIZONTAL & VERTICAL CONTROL DATA SHEET FOR PROPOSED & EXISTING CENTERLINE DATA.
2. ALL EXISTING DRIVEWAYS & TURNOUTS THAT ARE NOT HATCHED ON SHEETS ARE TO REMAIN IN PLACE UNLESS OTHERWISE DIRECTED BY THE ENGINEER.
3. SEE SURVEY DATA SHEET FOR BM STA, OFFSET, ELEVATION, ETC.
4. SEE PROPOSED TYPICAL SECTIONS FOR ROADWAY REHAB WIDTH.
5. EXISTING SAFETY END TREATMENT TO REMAIN IN PLACE OTHER WISE NOTED.
6. EXISTING UNDERGROUND UTILITIES AND TOPOGRAPHY HAVE BEEN PLOTTED BY DIRECT FIELD INFORMATION, AND AS SPOTTED BY UTILITY LOCATED REQUEST. CONTRACTOR SHALL COORDINATE WITH THE APPROPRIATE UTILITY COMPANIES TO VERIFY THE EXACT LOCATION IN THE FIELD PRIOR. TO CONSTRUCTION. THE CONTRACTOR WILL BE RESPONSIBLE FOR THE REPLACEMENT OR REPAIR OF ALL CUT OR BROKEN WATER LINES, IRRIGATION LINES, FORCE MAINS, SPRINKLERS SYSTEMS, GAS LINES, POWER LINE, TELEPHONE CABLE, AND/OR ANY OTHER UTILITIES.
7. CONTRACTOR IS RESPONSIBLE FOR SUPPLYING/ REPLACING MAILBOXES.

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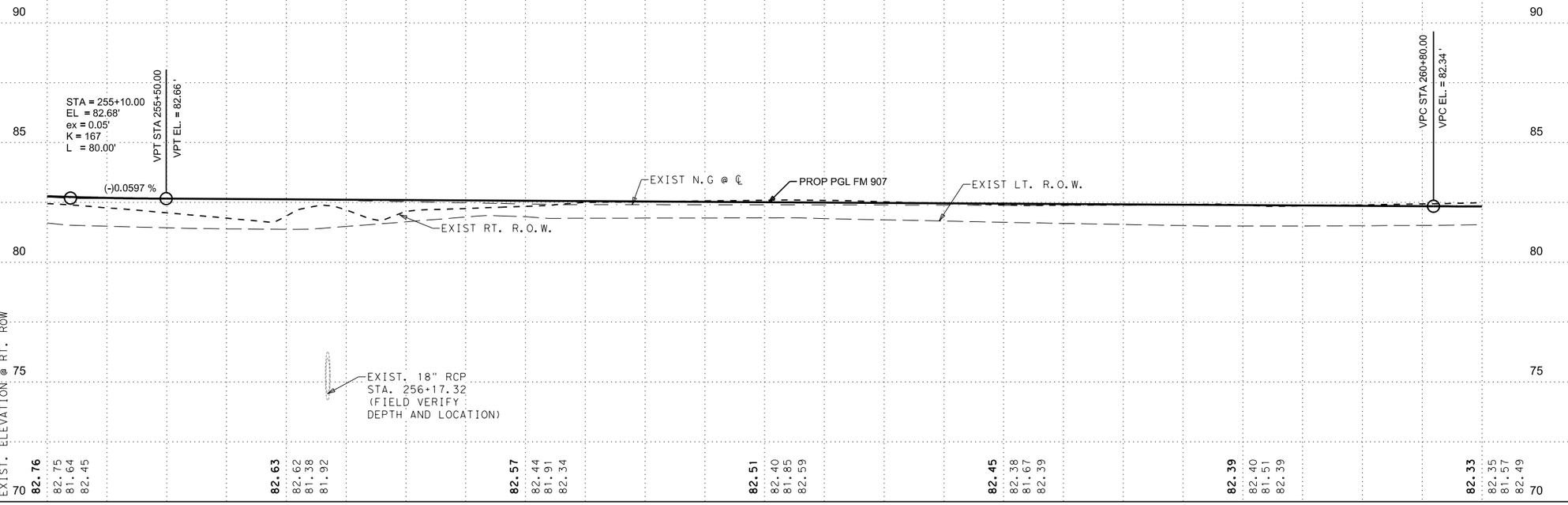
EXIST. RT. R.O.W.



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STATE OF TEXAS
JOSE A. RODRIGUEZ
117308
LICENSED PROFESSIONAL ENGINEER

09/07/21

Pharr District Central Design

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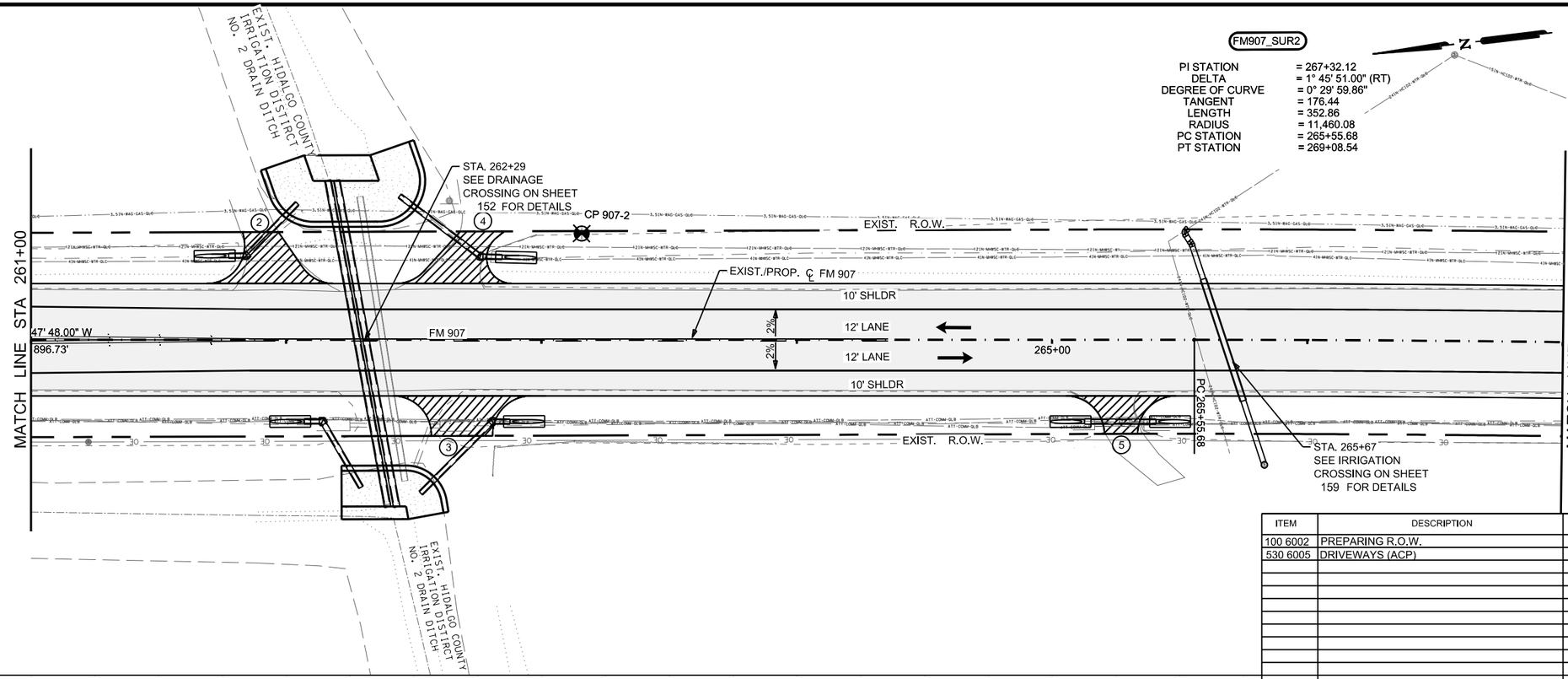
FM 907

ROADWAY
PLAN & PROFILE

SCALE: HOR 1" = 50'
VERT 1" = 5'

SHEET 2 OF 21

CONT	SECT	JOB	HIGHWAY
1586	01	079	FM 907
DIST	COUNTY		SHEET NO.
PHR	HIDALGO		84



FM907_SUR2

PI STATION	= 267+32.12
DELTA	= 1° 45' 51.00" (RT)
DEGREE OF CURVE	= 0° 29' 59.86"
TANGENT	= 176.44
LENGTH	= 352.86
RADIUS	= 11,460.08
PC STATION	= 265+55.68
PT STATION	= 269+08.54

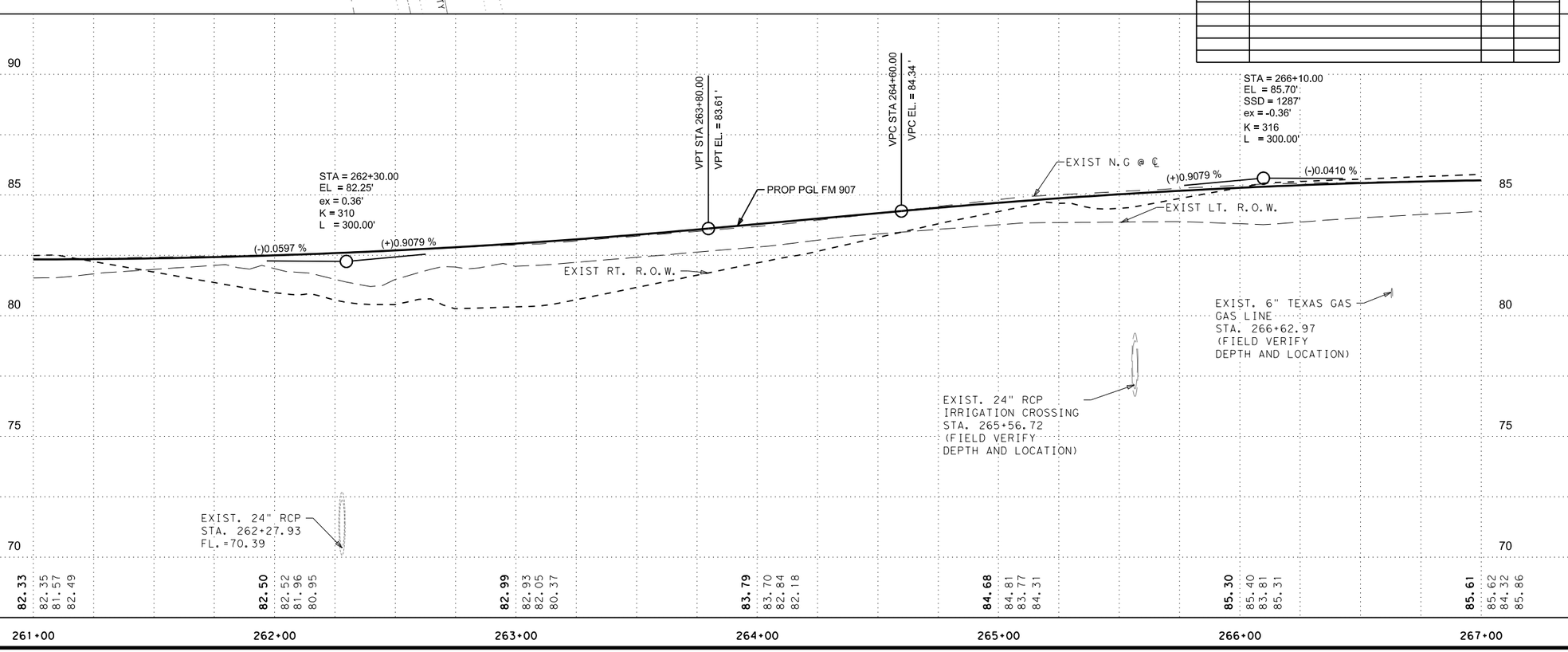
LEGEND:

- E-E — EDGE OF PAVEMENT TO EDGE OF PAVEMENT
- (#) — DRIVEWAY NUMBER
- [#] — TURNOUT NUMBER
- PROP. ASPHALT DRIVEWAY
- PROP. CONCRETE DRIVEWAY
- PROPOSED SIDEWALK
- PROP. MILLING/OVERLAY (1.5")
- DIRECTION OF TRAFFIC FLOW
- HORIZONTAL & VERTICAL CONTROL BENCHMARKS (SEE SURVEY CONTROL SHEETS FOR DETAILS)

GENERAL NOTES:

1. SEE HORIZONTAL & VERTICAL CONTROL DATA SHEET FOR PROPOSED & EXISTING CENTERLINE DATA.
2. ALL EXISTING DRIVEWAYS & TURNOUTS THAT ARE NOT HATCHED ON SHEETS ARE TO REMAIN IN PLACE UNLESS OTHERWISE DIRECTED BY THE ENGINEER.
3. SEE SURVEY DATA SHEET FOR BM STA, OFFSET, ELEVATION, ETC.
4. SEE PROPOSED TYPICAL SECTIONS FOR ROADWAY REHAB WIDTH.
5. EXISTING SAFETY END TREATMENT TO REMAIN IN PLACE OTHER WISE NOTED.
6. EXISTING UNDERGROUND UTILITIES AND TOPOGRAPHY HAVE BEEN PLOTTED BY DIRECT FIELD INFORMATION, AND AS SPOTTED BY UTILITY LOCATED REQUEST. CONTRACTOR SHALL COORDINATE WITH THE APPROPRIATE UTILITY COMPANIES TO VERIFY THE EXACT LOCATION IN THE FIELD PRIOR. TO CONSTRUCTION. THE CONTRACTOR WILL BE RESPONSIBLE FOR THE REPLACEMENT OR REPAIR OF ALL CUT OR BROKEN WATER LINES, IRRIGATION LINES, FORCE MAINS, SPRINKLERS SYSTEMS, GAS LINES, POWER LINE, TELEPHONE CABLE, AND/OR ANY OTHER UTILITIES.
7. CONTRACTOR IS RESPONSIBLE FOR SUPPLYING/ REPLACING MAILBOXES.

ITEM	DESCRIPTION	UNIT	QUANT
100 6002	PREPARING R.O.W.	STA	6
530 6005	DRIVEWAYS (ACP)	SY	186



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EXIST. LT. R.O.W.
EXIST. RT. R.O.W.

STATE OF TEXAS
JOSE A. RODRIGUEZ
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LICENSED PROFESSIONAL ENGINEER

09/07/21

Pharr District Central Design

Texas Department of Transportation

FM 907

ROADWAY
PLAN & PROFILE

SCALE: HOR 1" = 50'
VERT 1" = 5'

SHEET 3 OF 21

© 2021	CONT	SECT	JOB	HIGHWAY
	1586	01	079	FM 907
	DIST	COUNTY		SHEET NO.
	PHR	HIDALGO		85

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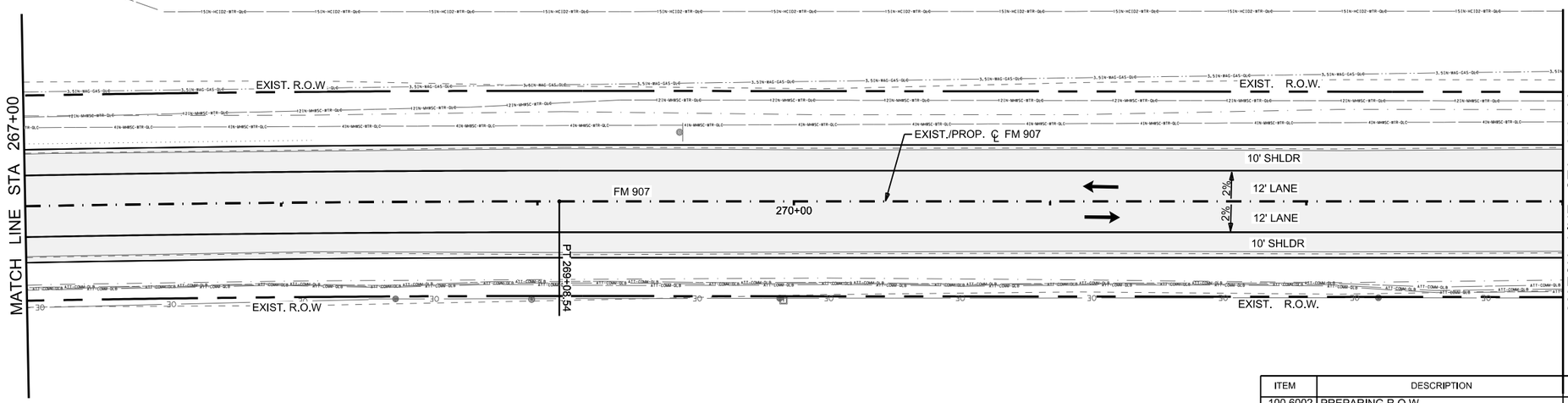
FM907_SUR2

PI STATION	= 267+32.12
DELTA	= 1° 45' 51.00" (RT)
DEGREE OF CURVE	= 0° 29' 59.86"
TANGENT	= 176.44
LENGTH	= 352.86
RADIUS	= 11,460.08
PC STATION	= 265+55.68
PT STATION	= 269+08.54



LEGEND:

E-E	EDGE OF PAVEMENT TO EDGE OF PAVEMENT
#	DRIVEWAY NUMBER
#	TURNOUT NUMBER
	PROP. ASPHALT DRIVEWAY
	PROP. CONCRETE DRIVEWAY
	PROPOSED SIDEWALK
	PROP. MILLING/OVERLAY (1.5")
	DIRECTION OF TRAFFIC FLOW
	HORIZONTAL & VERTICAL CONTROL BENCHMARKS (SEE SURVEY CONTROL SHEETS FOR DETAILS)

GENERAL NOTES:

1. SEE HORIZONTAL & VERTICAL CONTROL DATA SHEET FOR PROPOSED & EXISTING CENTERLINE DATA.
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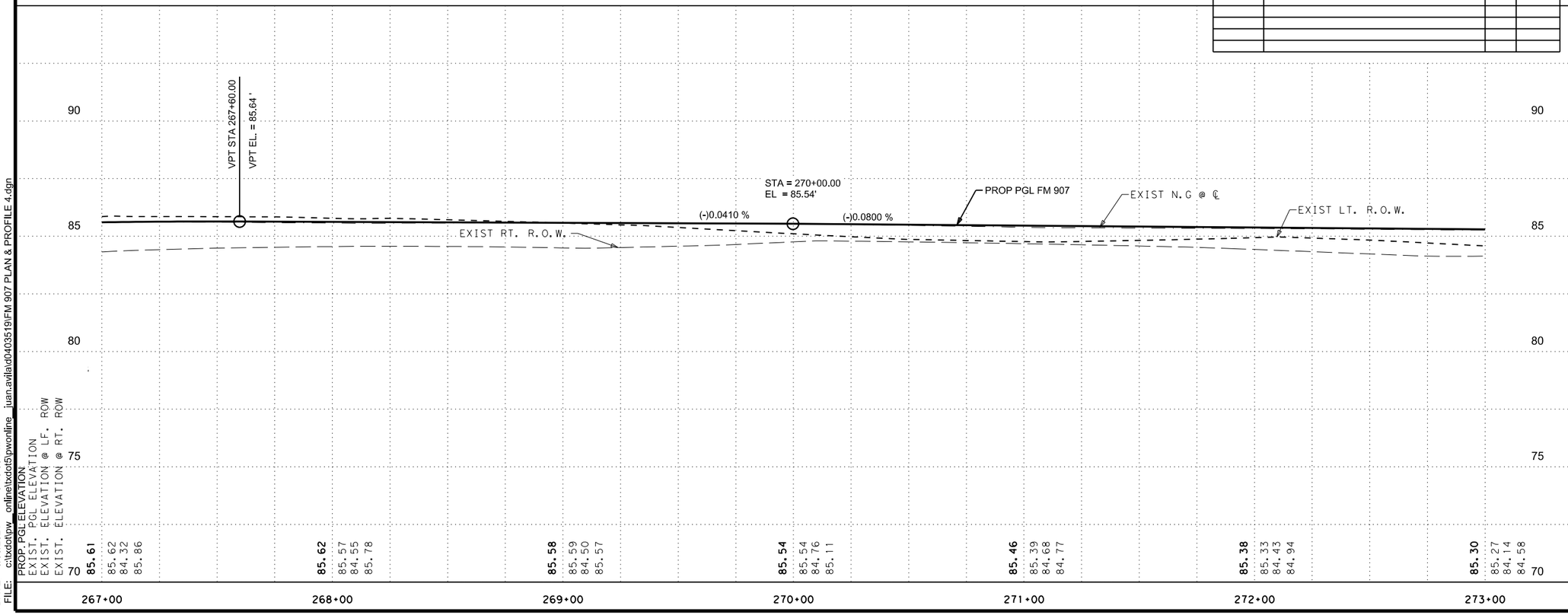
7. CONTRACTOR IS RESPONSIBLE FOR SUPPLYING/ REPLACING MAILBOXES.

ITEM	DESCRIPTION	UNIT	QUANT
100 6002	PREPARING R.O.W.	STA	6



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EXIST. LT. R.O.W.
EXIST. RT. R.O.W.

STATE OF TEXAS
JOSE A. RODRIGUEZ
117308
LICENSED PROFESSIONAL ENGINEER

09/07/21

Pharr District Central Design

Texas Department of Transportation

FM 907

ROADWAY
PLAN & PROFILE

SCALE: HOR 1" = 50'
VERT 1" = 5'

SHEET 4 OF 21

© 2021	CONT	SECT	JOB	HIGHWAY
	1586	01	079	FM 907
	DIST	COUNTY		SHEET NO.
	PHR	HIDALGO		86

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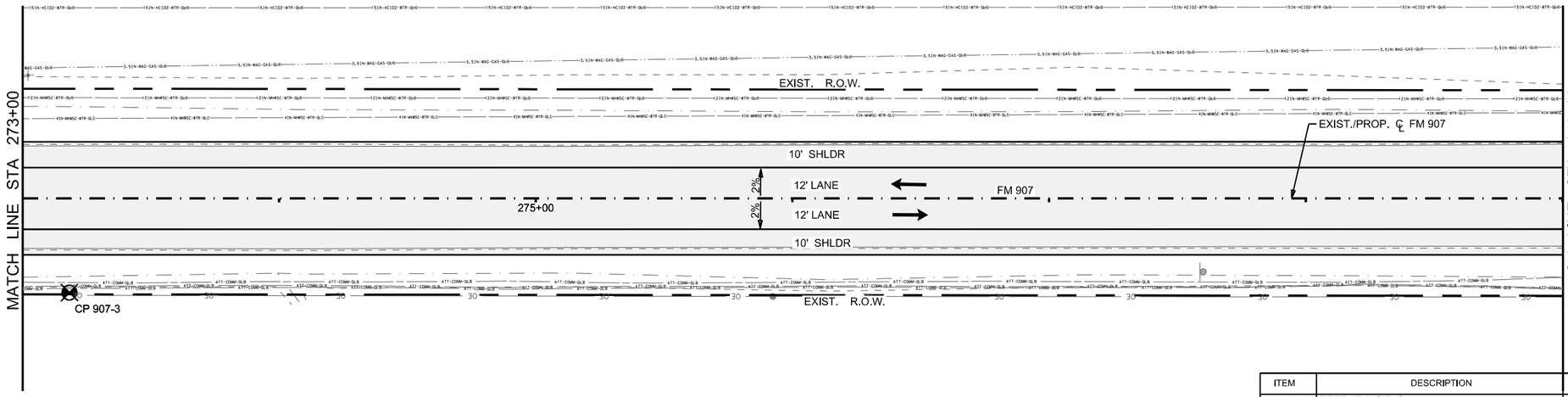

LEGEND:

E-E	EDGE OF PAVEMENT TO EDGE OF PAVEMENT
#	DRIVEWAY NUMBER
#	TURNOUT NUMBER
	PROP. ASPHALT DRIVEWAY
	PROP. CONCRETE DRIVEWAY
	PROPOSED SIDEWALK
	PROP. MILLING/OVERLAY (1.5")
	DIRECTION OF TRAFFIC FLOW
	HORIZONTAL & VERTICAL CONTROL BENCHMARKS (SEE SURVEY CONTROL SHEETS FOR DETAILS)

GENERAL NOTES:

1. SEE HORIZONTAL & VERTICAL CONTROL DATA SHEET FOR PROPOSED & EXISTING CENTERLINE DATA.
2. ALL EXISTING DRIVEWAYS & TURNOUTS THAT ARE NOT HATCHED ON SHEETS ARE TO REMAIN IN PLACE UNLESS OTHERWISE DIRECTED BY THE ENGINEER.
3. SEE SURVEY DATA SHEET FOR BM STA, OFFSET, ELEVATION, ETC.
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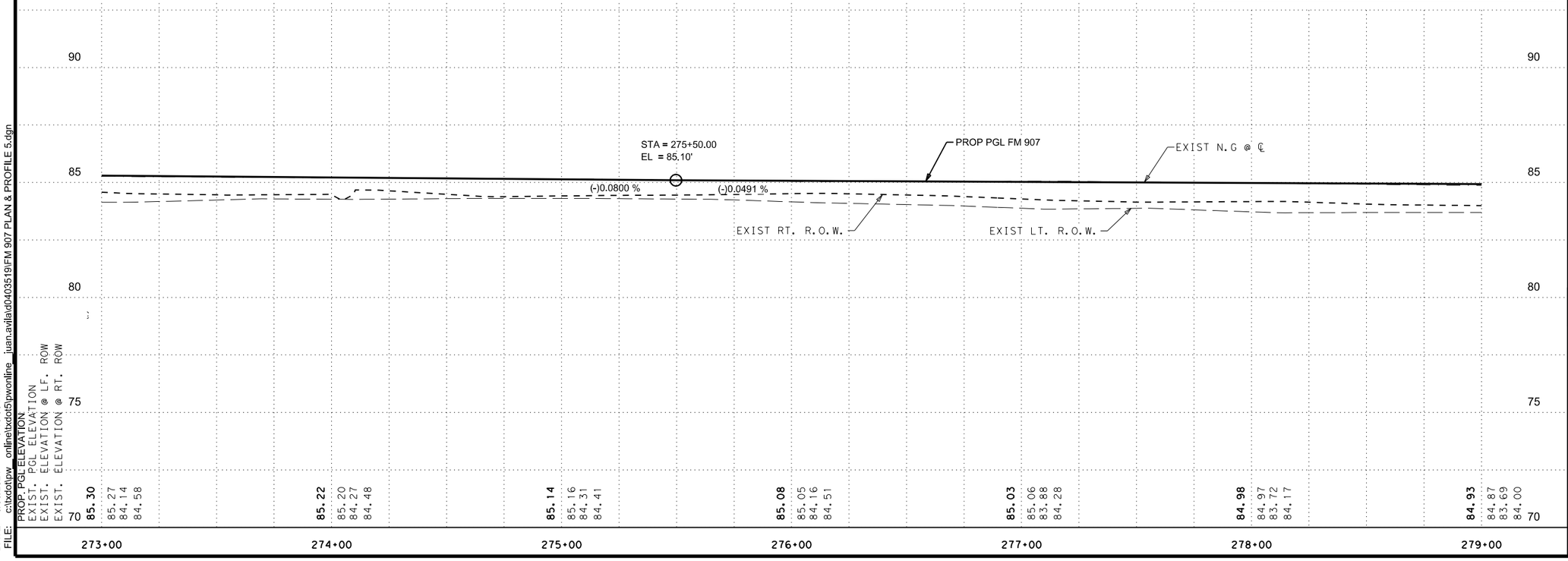
7. CONTRACTOR IS RESPONSIBLE FOR SUPPLYING/ REPLACING MAILBOXES.

ITEM	DESCRIPTION	UNIT	QUANT
100 6002	PREPARING R.O.W.	STA	6



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EXIST. LT. R.O.W.

EXIST. RT. R.O.W.

STATE OF TEXAS
JOSE A. RODRIGUEZ
117308
LICENSED PROFESSIONAL ENGINEER

09/07/21

Pharr District Central Design

Texas Department of Transportation

FM 907

ROADWAY
PLAN & PROFILE

SCALE: HOR 1" = 50'
VERT 1" = 5'

SHEET 5 OF 21

CONT	SECT	JOB	HIGHWAY
1586	01	079	FM 907
DIST	COUNTY		SHEET NO.
PHR	HIDALGO		87

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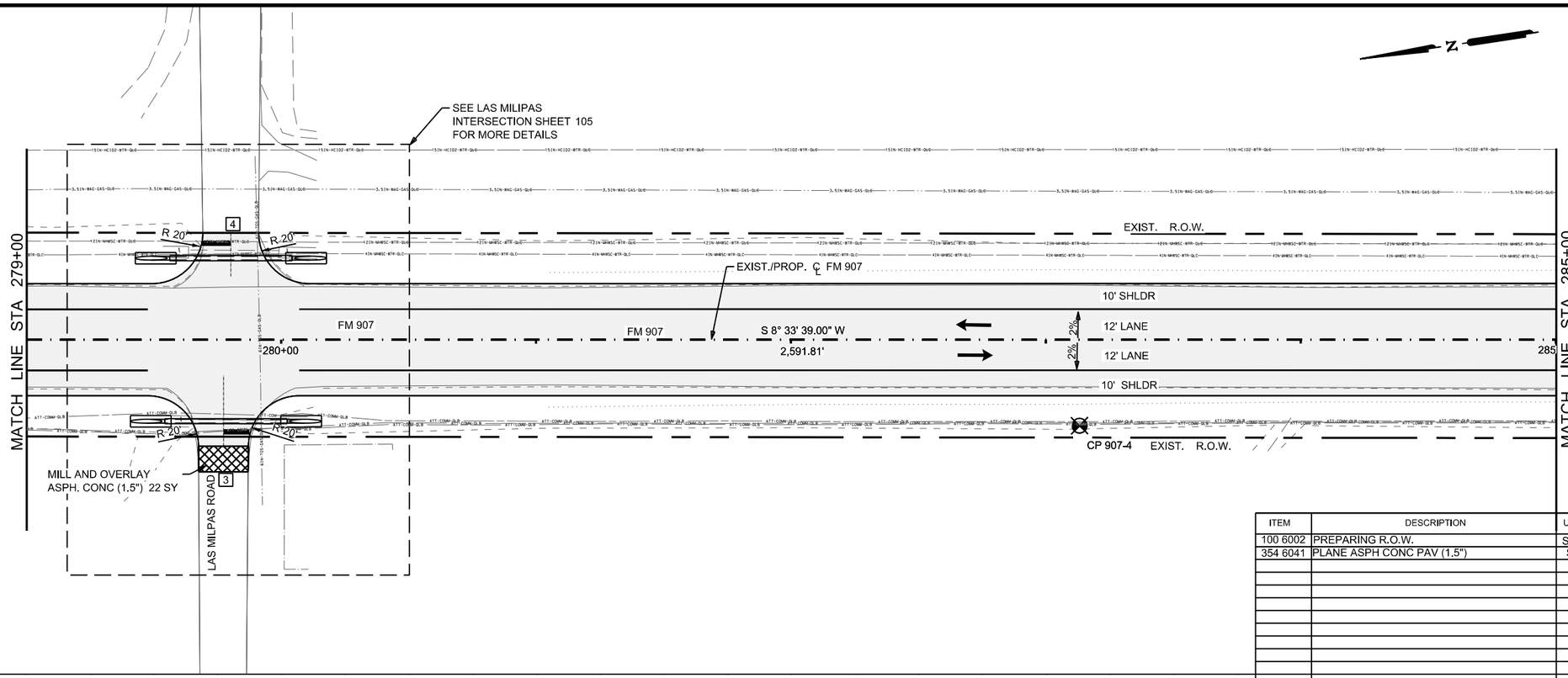

LEGEND:

- E-E — EDGE OF PAVEMENT TO EDGE OF PAVEMENT
- (#) — DRIVEWAY NUMBER
- [#] — TURNOUT NUMBER
- PROP. ASPHALT DRIVEWAY
- PROP. CONCRETE DRIVEWAY
- PROPOSED SIDEWALK
- PROP. MILLING/OVERLAY (1.5")
- DIRECTION OF TRAFFIC FLOW
- HORIZONTAL & VERTICAL CONTROL BENCHMARKS (SEE SURVEY CONTROL SHEETS FOR DETAILS)

GENERAL NOTES:

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4. SEE PROPOSED TYPICAL SECTIONS FOR ROADWAY REHAB WIDTH.
5. EXISTING SAFETY END TREATMENT TO REMAIN IN PLACE OTHER WISE NOTED.
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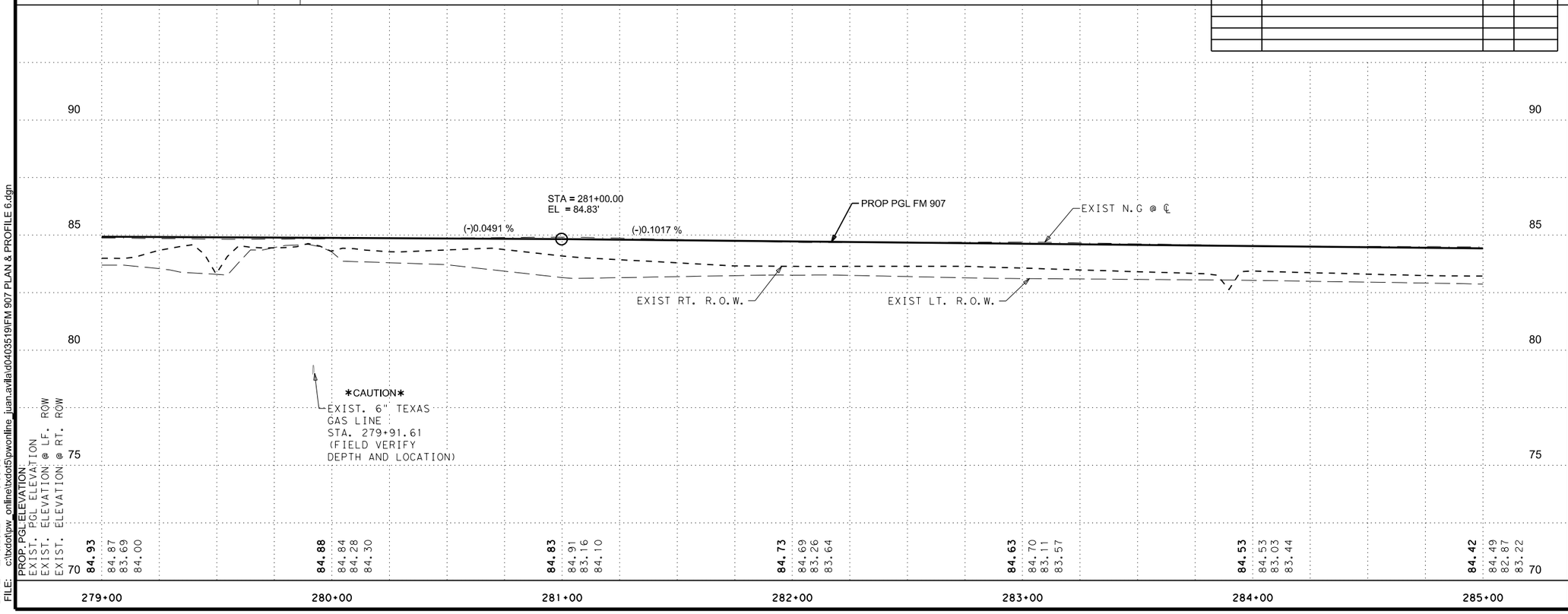
7. CONTRACTOR IS RESPONSIBLE FOR SUPPLYING/ REPLACING MAILBOXES.

ITEM	DESCRIPTION	UNIT	QUANT
100 6002	PREPARING R.O.W.	STA	6
354 6041	PLANE ASPH CONC PAV (1.5")	SY	22



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EXIST. LT. R.O.W.
EXIST. RT. R.O.W.

STATE OF TEXAS
JOSE A. RODRIGUEZ
117308
LICENSED PROFESSIONAL ENGINEER

03/10/22

Pharr District Central Design

Texas Department of Transportation

FM 907

ROADWAY
PLAN & PROFILE

SCALE: HOR 1" = 50'
VERT 1" = 5'

SHEET 6 OF 21

© 2021	CONT	SECT	JOB	HIGHWAY
	1586	01	079	FM 907
	DIST	COUNTY		SHEET NO.
	PHR	HIDALGO		88

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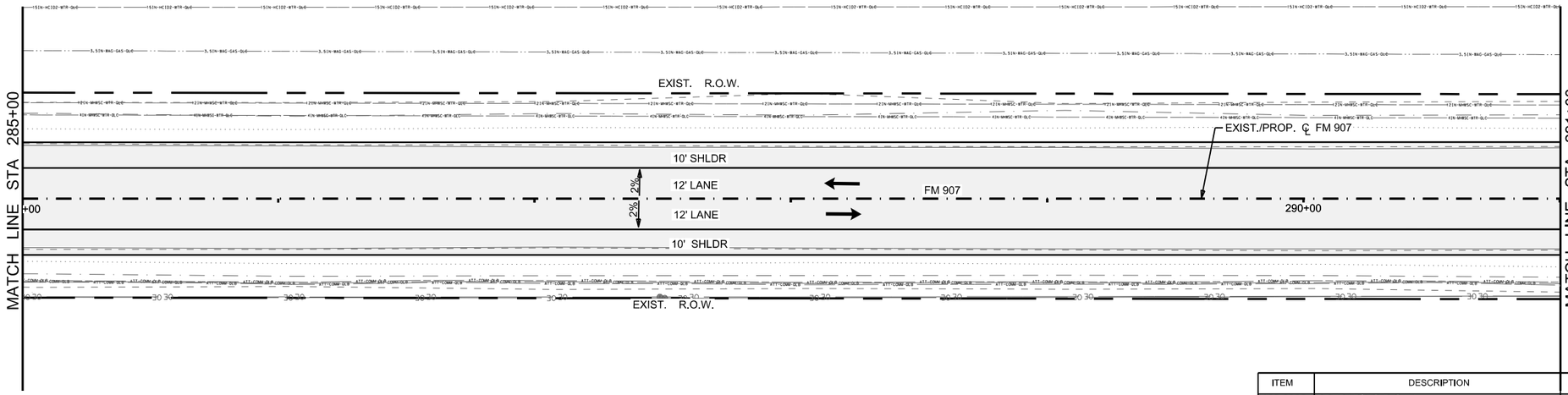

LEGEND:

- E-E — EDGE OF PAVEMENT TO EDGE OF PAVEMENT
- DRIVEWAY NUMBER
- TURNOUT NUMBER
- PROP. ASPHALT DRIVEWAY
- PROP. CONCRETE DRIVEWAY
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- PROP. MILLING/OVERLAY (1.5")
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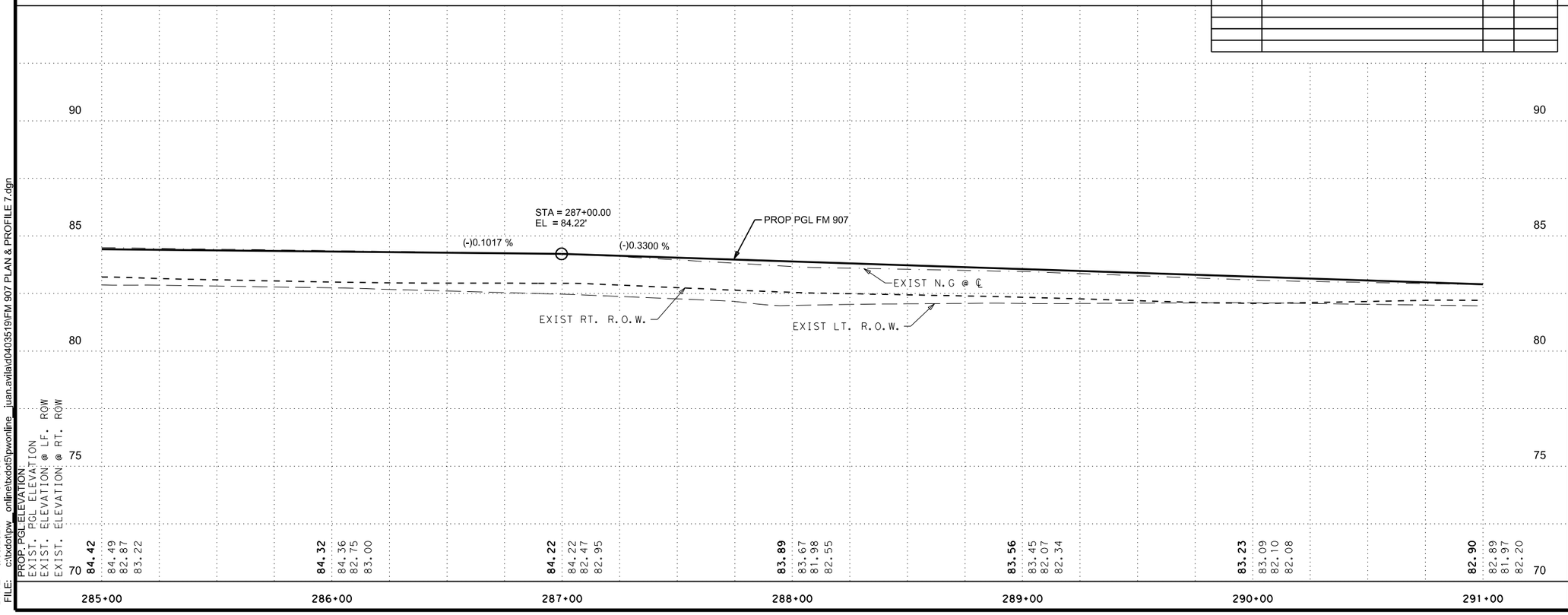
ITEM	DESCRIPTION	UNIT	QUANT
100 6002	PREPARING R.O.W.	STA	6



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EXIST. LT. R.O.W.
EXIST. RT. R.O.W.

STATE OF TEXAS
JOSE A. RODRIGUEZ
117308
LICENSED PROFESSIONAL ENGINEER

09/07/21

Pharr District Central Design

Texas Department of Transportation

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ROADWAY
PLAN & PROFILE

SCALE: HOR 1" = 50'
VERT 1" = 5'

SHEET 7 OF 21

© 2021	CONT	SECT	JOB	HIGHWAY
	1586	01	079	FM 907
	DIST	COUNTY		SHEET NO.
	PHR	HIDALGO		89

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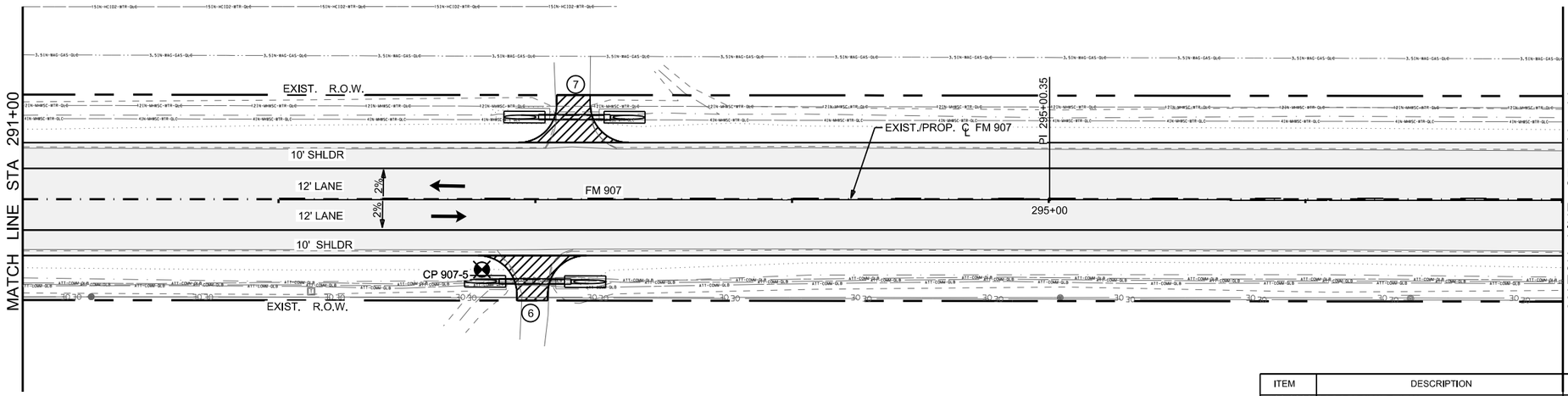

ITEM	DESCRIPTION	UNIT	QUANT
100 6002	PREPARING R.O.W.	STA	6
530 6005	DRIVEWAYS (ACP)	SY	71

LEGEND:

- E-E — EDGE OF PAVEMENT TO EDGE OF PAVEMENT
- (#) — DRIVEWAY NUMBER
- [#] — TURNOUT NUMBER
- PROP. ASPHALT DRIVEWAY
- PROP. CONCRETE DRIVEWAY
- PROPOSED SIDEWALK
- PROP. MILLING/OVERLAY (1.5")
- DIRECTION OF TRAFFIC FLOW
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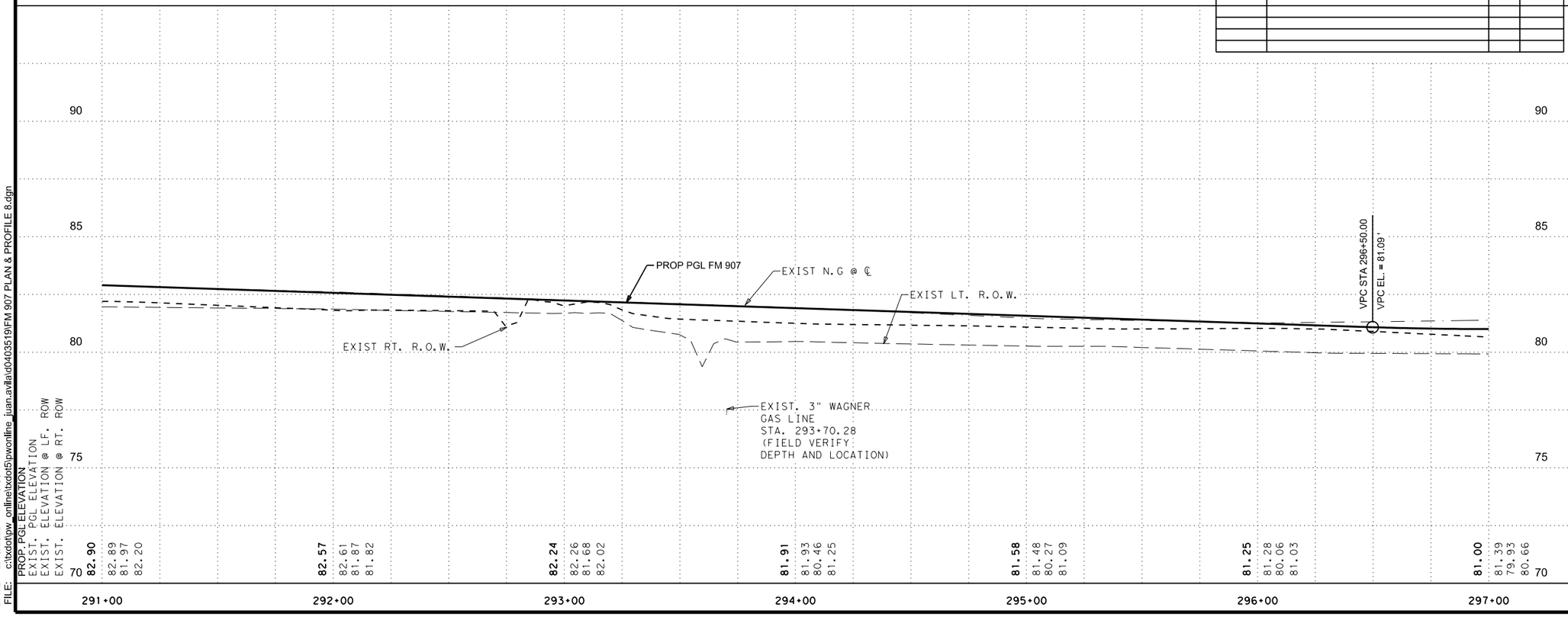

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EXIST. LT. R.O.W.
EXIST. RT. R.O.W.

STATE OF TEXAS
JOSE A. RODRIGUEZ
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LICENSED PROFESSIONAL ENGINEER

03/10/22

Pharr District Central Design

Texas Department of Transportation

FM 907

ROADWAY
PLAN & PROFILE

SCALE: HOR 1" = 50'
VERT 1" = 5'

SHEET 8 OF 21

CONT	SECT	JOB	HIGHWAY
1586	01	079	FM 907
DIST	COUNTY		SHEET NO.
PHR	HIDALGO		90

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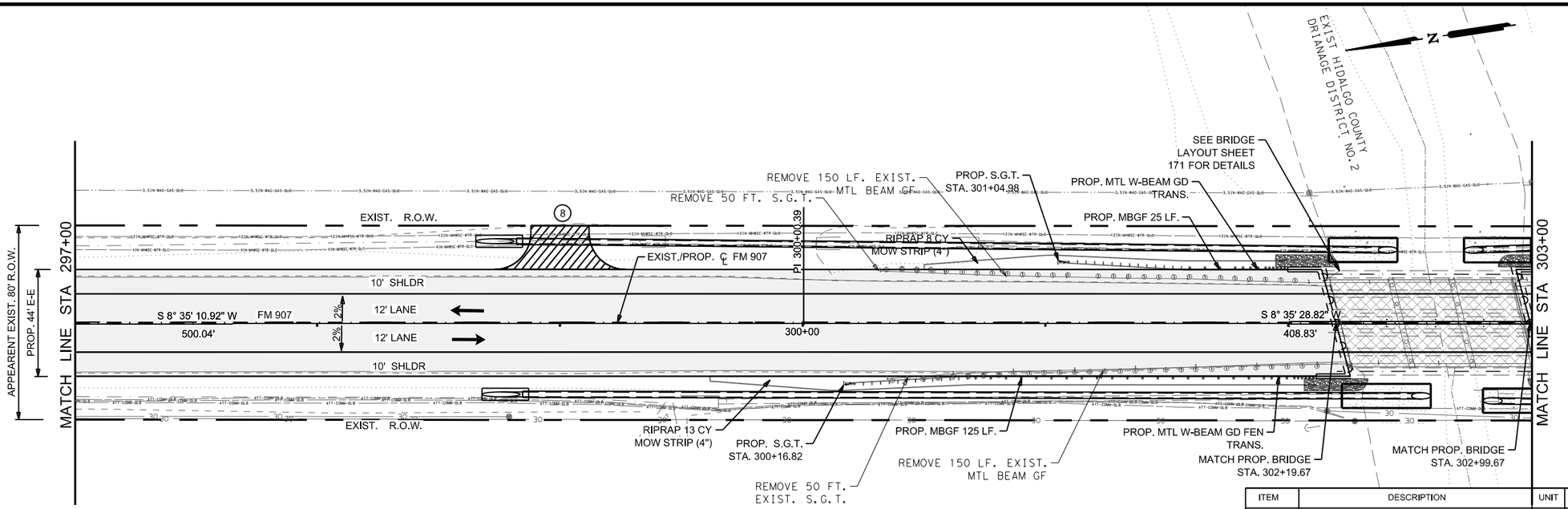

ITEM	DESCRIPTION	UNIT	QUANT
100 6002	PREPARING R.O.W.	STA	6
432 6045	RIPRAP (MOW STRIP) (4 IN)	CY	21
530 6005	DRIVEWAYS (ACP)	SY	59
540 6001	MLT W-BEAM GD FEN (TIM POST)	LF	150
540 6006	MLT W-BEAM GD FEN TRANS (THRIE-BEAM)	EA	2
542 6001	REMOVE METAL BEAM GUARD FENCE	LF	300
544 6001	GUARDRAIL END TREATMENT (INSTALL)	EA	2
544 6003	REMOVE GUARDRAIL END TREATMENT	EA	2

LEGEND:

- E-E — EDGE OF PAVEMENT TO EDGE OF PAVEMENT
- (#) — DRIVEWAY NUMBER
- [#] — TURNOUT NUMBER
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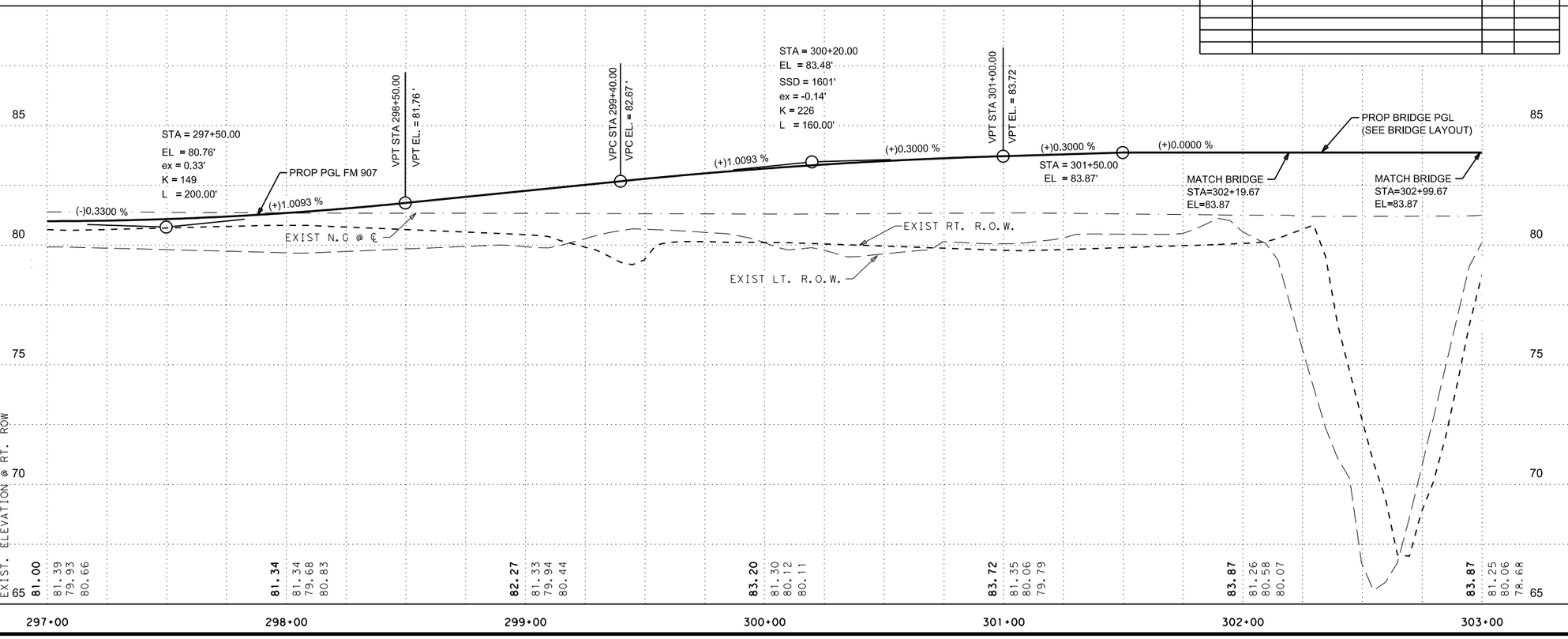

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EXIST. RT. R.O.W.

STATE OF TEXAS
JOSE A. RODRIGUEZ
117308
LICENSED PROFESSIONAL ENGINEER

09/07/21

Pharr District Central Design

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ROADWAY
PLAN & PROFILE

SCALE: HOR 1" = 50'
VERT 1" = 5'

SHEET 9 OF 21

© 2021	CONT	SECT	JOB	HIGHWAY
	1586	01	079	FM 907
	DIST	COUNTY		SHEET NO.
	PHR	HIDALGO		91

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FM907_SUR3

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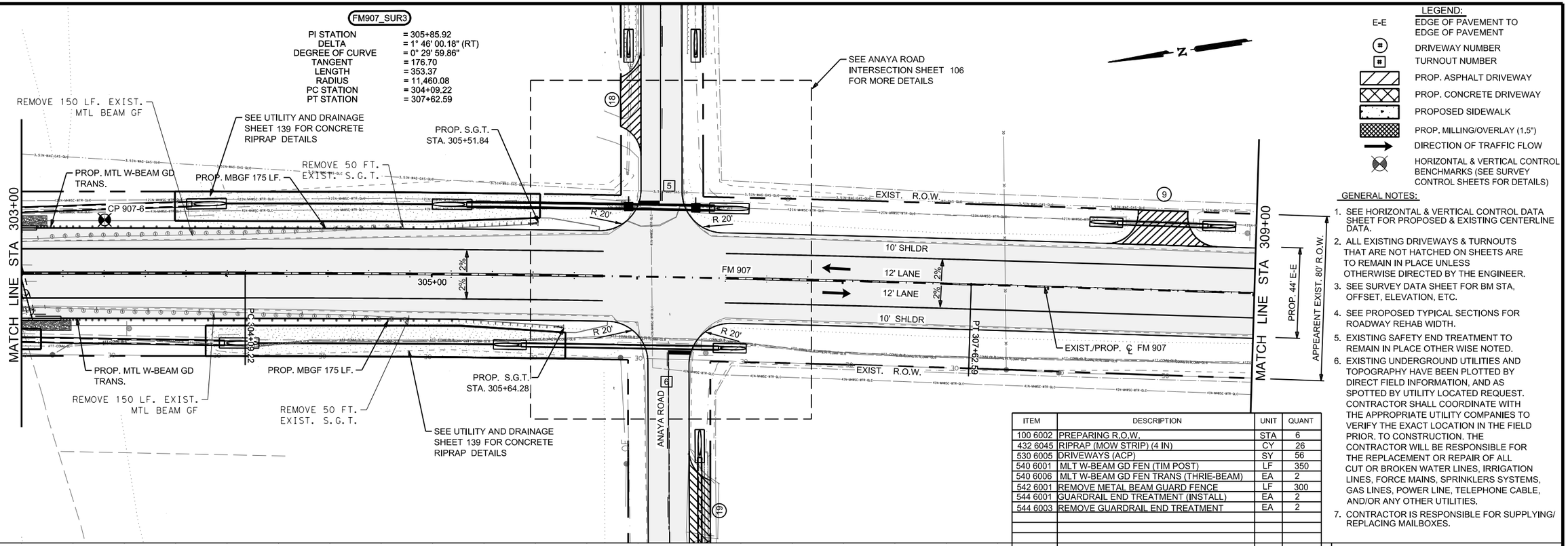
DELTA	= 1° 46' 00.18" (RT)
DEGREE OF CURVE	= 0° 29' 59.86"
TANGENT	= 176.70
LENGTH	= 353.37
RADIUS	= 11,460.08
PC STATION	= 304+09.22
PT STATION	= 307+62.59



LEGEND:

E-E	EDGE OF PAVEMENT TO EDGE OF PAVEMENT
(#)	DRIVEWAY NUMBER
[#]	TURNOUT NUMBER
	PROP. ASPHALT DRIVEWAY
	PROP. CONCRETE DRIVEWAY
	PROPOSED SIDEWALK
	PROP. MILLING/OVERLAY (1.5")
	DIRECTION OF TRAFFIC FLOW
	HORIZONTAL & VERTICAL CONTROL BENCHMARKS (SEE SURVEY CONTROL SHEETS FOR DETAILS)

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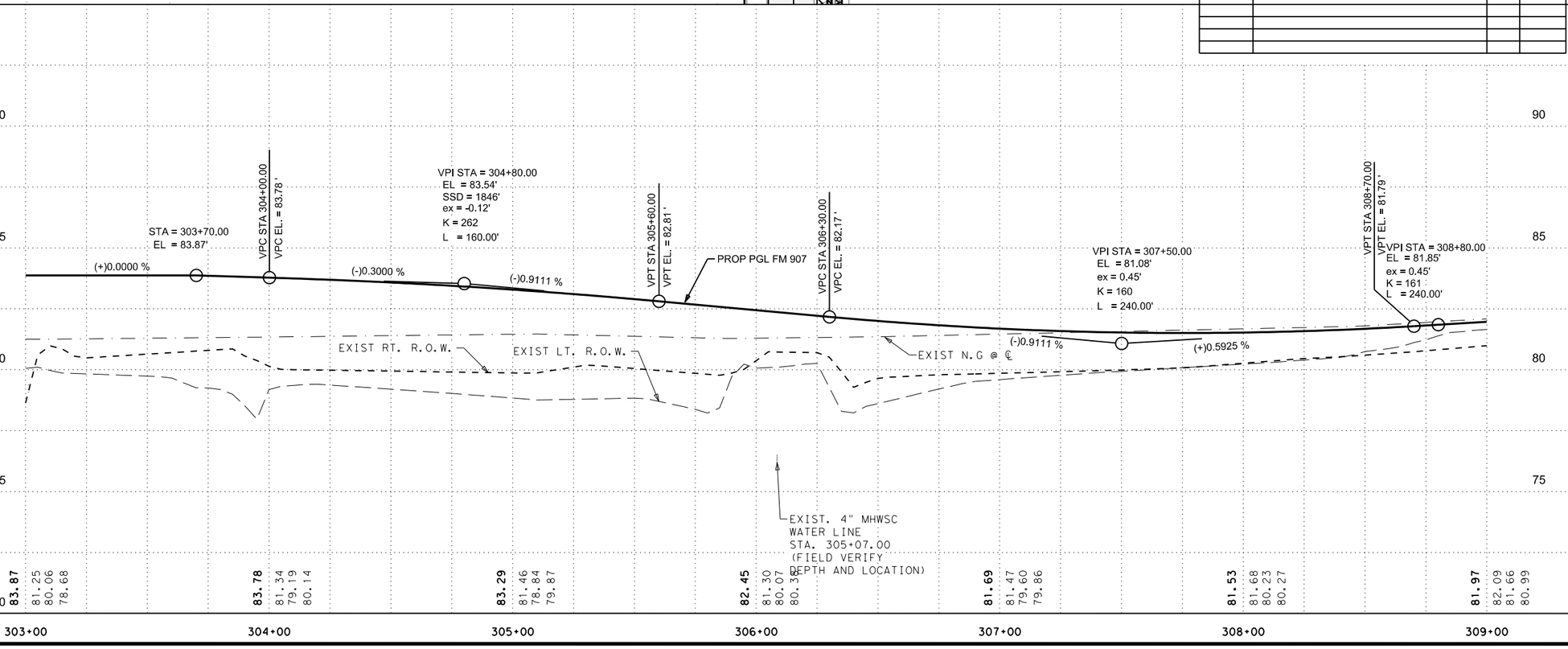
ITEM	DESCRIPTION	UNIT	QUANT
100 6002	PREPARING R.O.W.	STA	6
432 6045	RIPRAP (MOW STRIP) (4 IN)	CY	26
530 6005	DRIVEWAYS (ACP)	SY	56
540 6001	MLT W-BEAM GD FEN (TIM POST)	LF	350
540 6006	MLT W-BEAM GD FEN TRANS (THRIE-BEAM)	EA	2
542 6001	REMOVE METAL BEAM GUARD FENCE	LF	300
544 6001	GUARDRAIL END TREATMENT (INSTALL)	EA	2
544 6003	REMOVE GUARDRAIL END TREATMENT	EA	2



PGL
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EXIST. LT. R.O.W.
EXIST. RT. R.O.W.

STATE OF TEXAS
JOSE A. RODRIGUEZ
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LICENSED PROFESSIONAL ENGINEER

03/10/22

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ROADWAY
PLAN & PROFILE

SCALE: HOR 1" = 50'
VERT 1" = 5'

SHEET 10 OF 21

© 2021	CONT	SECT	JOB	HIGHWAY
	1586	01	079	FM 907
	DIST	COUNTY		SHEET NO.
	PHR	HIDALGO		92

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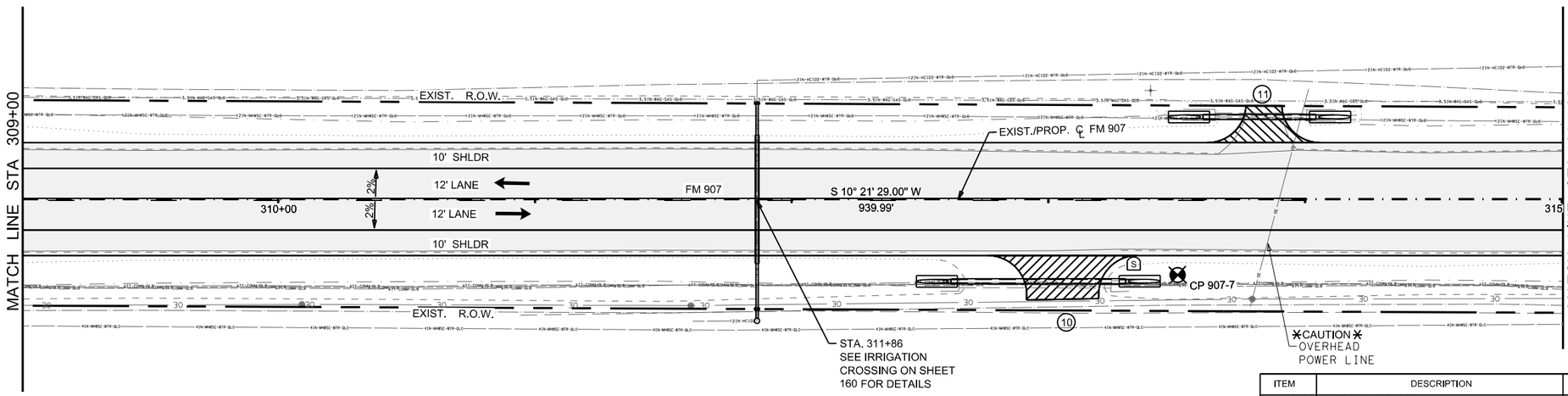

LEGEND:

E-E	EDGE OF PAVEMENT TO EDGE OF PAVEMENT
#	DRIVEWAY NUMBER
#	TURNOUT NUMBER
	PROP. ASPHALT DRIVEWAY
	PROP. CONCRETE DRIVEWAY
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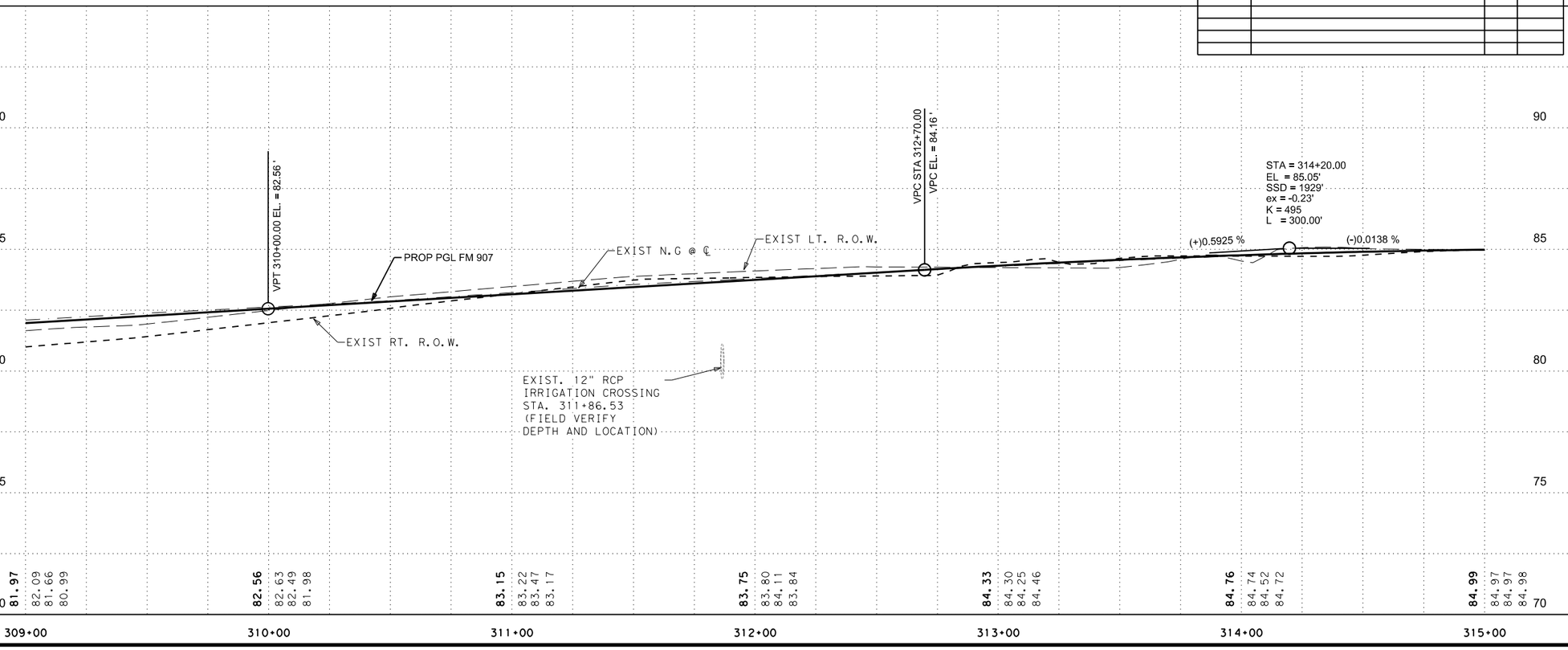
ITEM	DESCRIPTION	UNIT	QUANT
100 6002	PREPARING R.O.W.	STA	6
530 6005	DRIVEWAYS (ACP)	SY	97
560 6011	MAILBOX INSTALL-S (TWW-POST) TY 4	EA	1



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EXIST. RT. R.O.W.

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ROADWAY
PLAN & PROFILE

SCALE: HOR 1" = 50'
VERT 1" = 5'

SHEET 11 OF 21

© 2021	CONT	SECT	JOB	HIGHWAY
	1586	01	079	FM 907
	DIST	COUNTY		SHEET NO.
	PHR	HIDALGO		93

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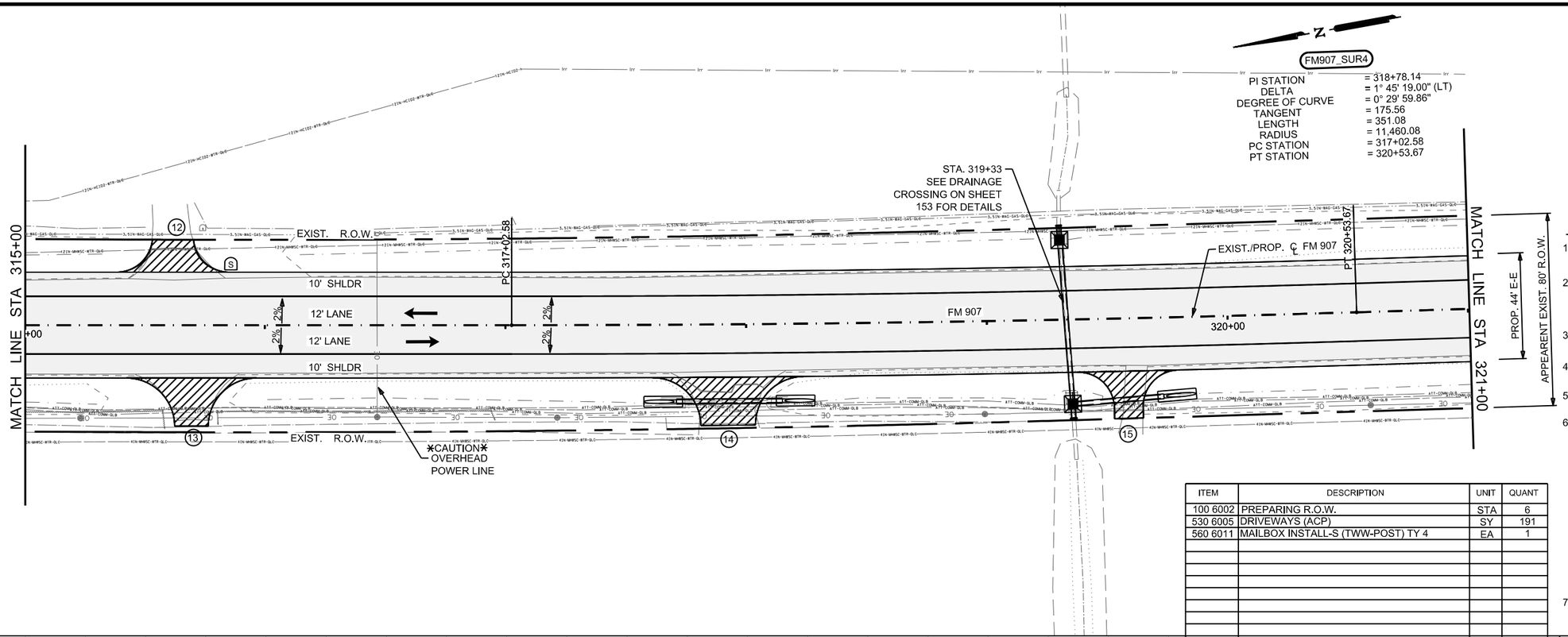

LEGEND:

E-E	EDGE OF PAVEMENT TO EDGE OF PAVEMENT
(#)	DRIVEWAY NUMBER
[#]	TURNOUT NUMBER
	PROP. ASPHALT DRIVEWAY
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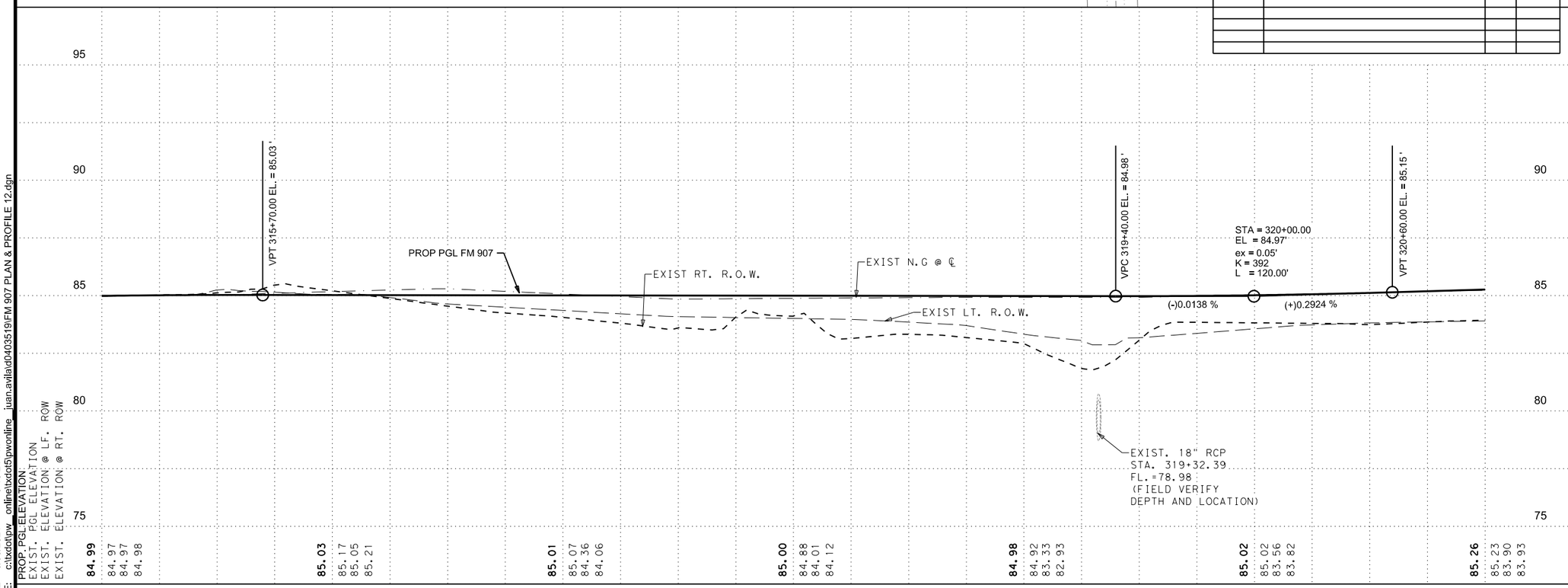
ITEM	DESCRIPTION	UNIT	QUANT
100 6002	PREPARING R.O.W.	STA	6
530 6005	DRIVEWAYS (ACP)	SY	191
560 6011	MAILBOX INSTALL-S (TWW-POST) TY 4	EA	1



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09/07/21

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ROADWAY
PLAN & PROFILE

SCALE: HOR 1" = 50'
VERT 1" = 5'

SHEET 12 OF 21

© 2021	CONT	SECT	JOB	HIGHWAY
	1586	01	079	FM 907
	DIST	COUNTY		SHEET NO.
	PHR	HIDALGO		94

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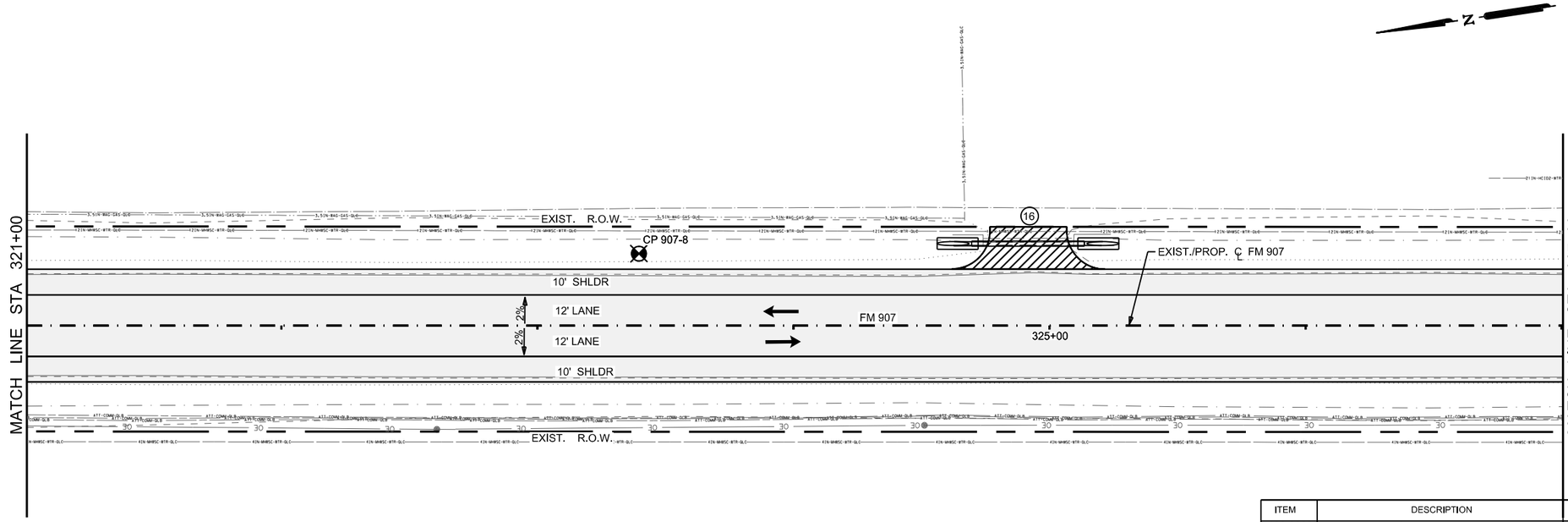

LEGEND:

- E-E — EDGE OF PAVEMENT TO EDGE OF PAVEMENT
- # — DRIVEWAY NUMBER
- # — TURNOUT NUMBER
- PROP. ASPHALT DRIVEWAY
- PROP. CONCRETE DRIVEWAY
- PROPOSED SIDEWALK
- PROP. MILLING/OVERLAY (1.5")
- DIRECTION OF TRAFFIC FLOW
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GENERAL NOTES:

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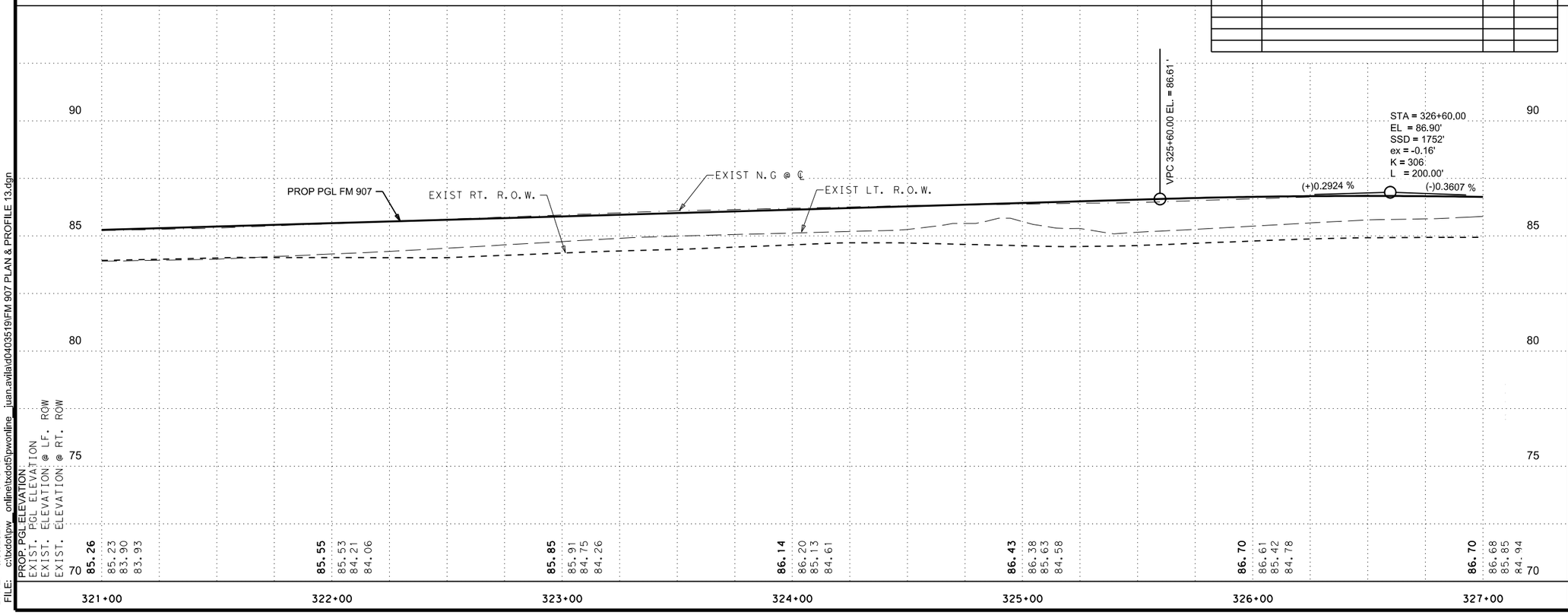
2. ALL EXISTING DRIVEWAYS & TURNOUTS THAT ARE NOT HATCHED ON SHEETS ARE TO REMAIN IN PLACE UNLESS OTHERWISE DIRECTED BY THE ENGINEER.
3. SEE SURVEY DATA SHEET FOR BM STA, OFFSET, ELEVATION, ETC.
4. SEE PROPOSED TYPICAL SECTIONS FOR ROADWAY REHAB WIDTH.
5. EXISTING SAFETY END TREATMENT TO REMAIN IN PLACE OTHER WISE NOTED.
6. EXISTING UNDERGROUND UTILITIES AND TOPOGRAPHY HAVE BEEN PLOTTED BY DIRECT FIELD INFORMATION, AND AS SPOTTED BY UTILITY LOCATED REQUEST. CONTRACTOR SHALL COORDINATE WITH THE APPROPRIATE UTILITY COMPANIES TO VERIFY THE EXACT LOCATION IN THE FIELD PRIOR. TO CONSTRUCTION. THE CONTRACTOR WILL BE RESPONSIBLE FOR THE REPLACEMENT OR REPAIR OF ALL CUT OR BROKEN WATER LINES, IRRIGATION LINES, FORCE MAINS, SPRINKLERS SYSTEMS, GAS LINES, POWER LINE, TELEPHONE CABLE, AND/OR ANY OTHER UTILITIES.
7. CONTRACTOR IS RESPONSIBLE FOR SUPPLYING/ REPLACING MAILBOXES.

ITEM	DESCRIPTION	UNIT	QUANT
100 6002	PREPARING R.O.W.	STA	6
530 6005	DRIVEWAYS (ACP)	SY	66



PGL
EXIST. NG @ PGL
EXIST. LT. R.O.W.
EXIST. RT. R.O.W.

STATE OF TEXAS
JOSE A. RODRIGUEZ
117308
LICENSED PROFESSIONAL ENGINEER

09/07/21

Pharr District Central Design

Texas Department of Transportation

FM 907

ROADWAY
PLAN & PROFILE

SCALE: HOR 1" = 50'
VERT 1" = 5'

SHEET 13 OF 21

© 2021	CONT	SECT	JOB	HIGHWAY
	1586	01	079	FM 907
	DIST	COUNTY		SHEET NO.
	PHR	HIDALGO		95

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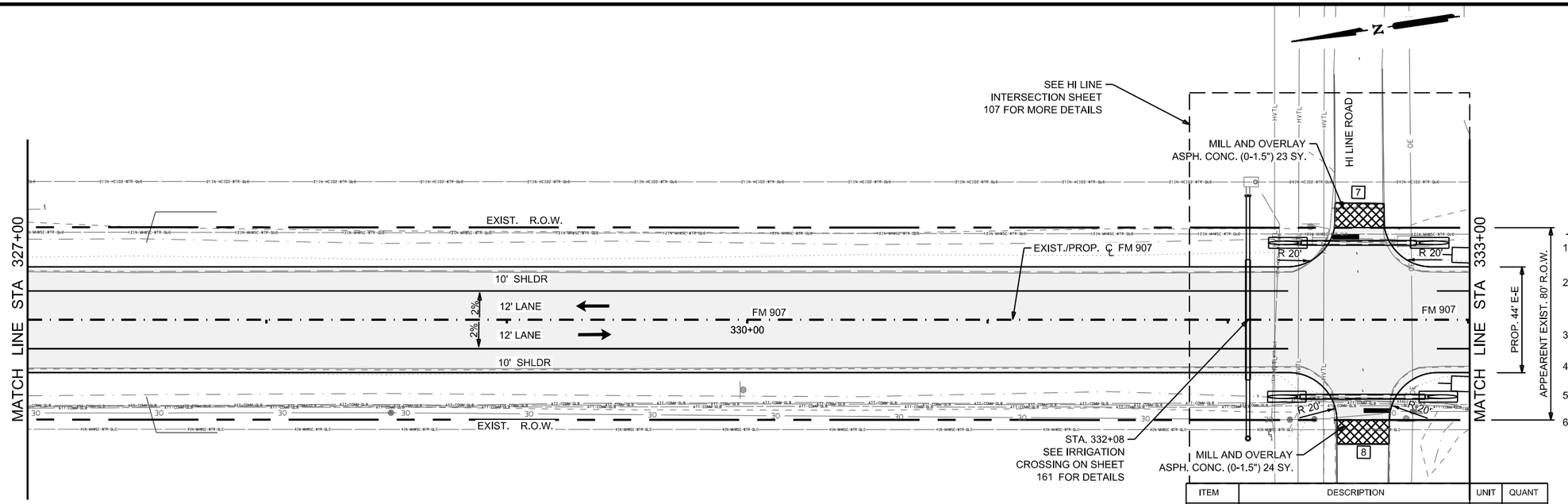

LEGEND:

- E-E — EDGE OF PAVEMENT TO EDGE OF PAVEMENT
- DRIVEWAY NUMBER
- TURNOUT NUMBER
- PROP. ASPHALT DRIVEWAY
- PROP. CONCRETE DRIVEWAY
- PROPOSED SIDEWALK
- PROP. MILLING/OVERLAY (1.5")
- DIRECTION OF TRAFFIC FLOW
- HORIZONTAL & VERTICAL CONTROL BENCHMARKS (SEE SURVEY CONTROL SHEETS FOR DETAILS)

GENERAL NOTES:

1. SEE HORIZONTAL & VERTICAL CONTROL DATA SHEET FOR PROPOSED & EXISTING CENTERLINE DATA.
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3. SEE SURVEY DATA SHEET FOR BM STA, OFFSET, ELEVATION, ETC.
4. SEE PROPOSED TYPICAL SECTIONS FOR ROADWAY REHAB WIDTH.
5. EXISTING SAFETY END TREATMENT TO REMAIN IN PLACE OTHER WISE NOTED.
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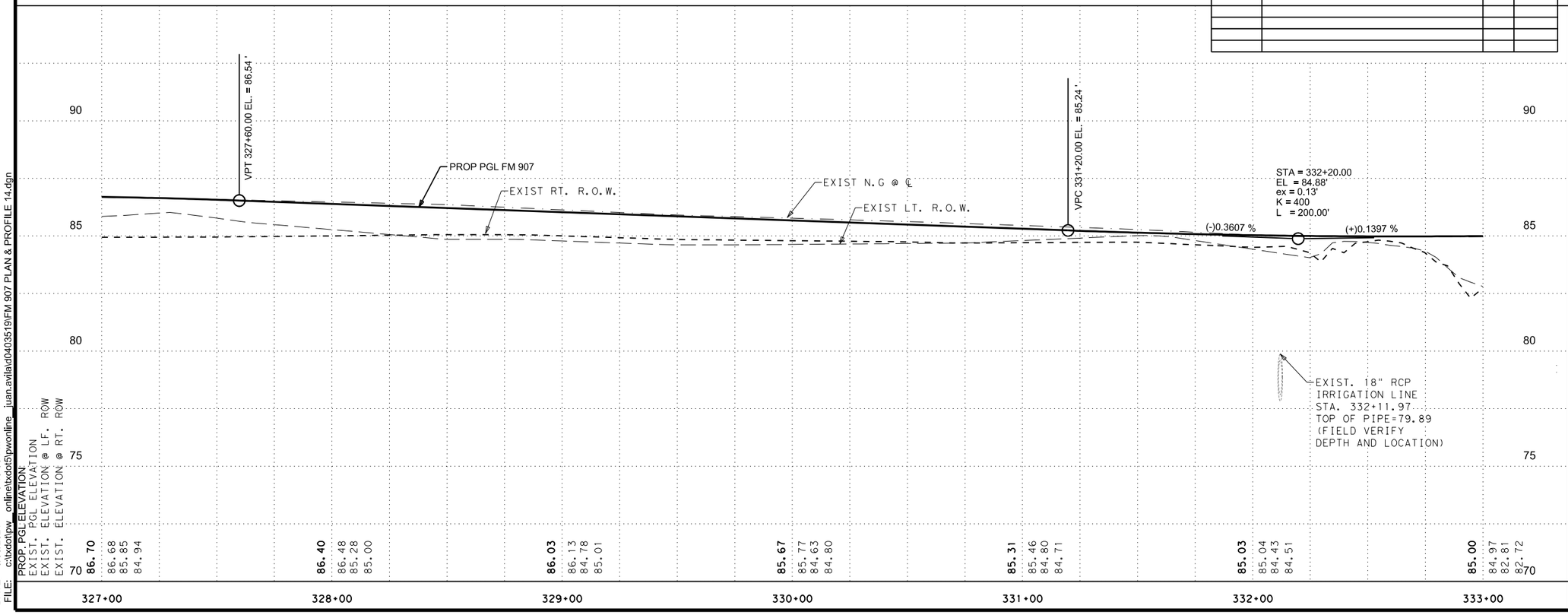
7. CONTRACTOR IS RESPONSIBLE FOR SUPPLYING/ REPLACING MAILBOXES.

ITEM	DESCRIPTION	UNIT	QUANT
100 6002	PREPARING R.O.W.	STA	6
354 6041	PLANE ASPH CONC PAV (1.5")	SY	47



PGL
EXIST. NG @ PGL
EXIST. LT. R.O.W.
EXIST. RT. R.O.W.

STATE OF TEXAS
JOSE A. RODRIGUEZ
117308
LICENSED PROFESSIONAL ENGINEER

09/07/21

Pharr District Central Design

Texas Department of Transportation

FM 907

ROADWAY
PLAN & PROFILE

SCALE: HOR 1" = 50'
VERT 1" = 5'

SHEET 14 OF 21

© 2021	CONT	SECT	JOB	HIGHWAY
	1586	01	079	FM 907
	DIST	COUNTY		SHEET NO.
	PHR	HIDALGO		96

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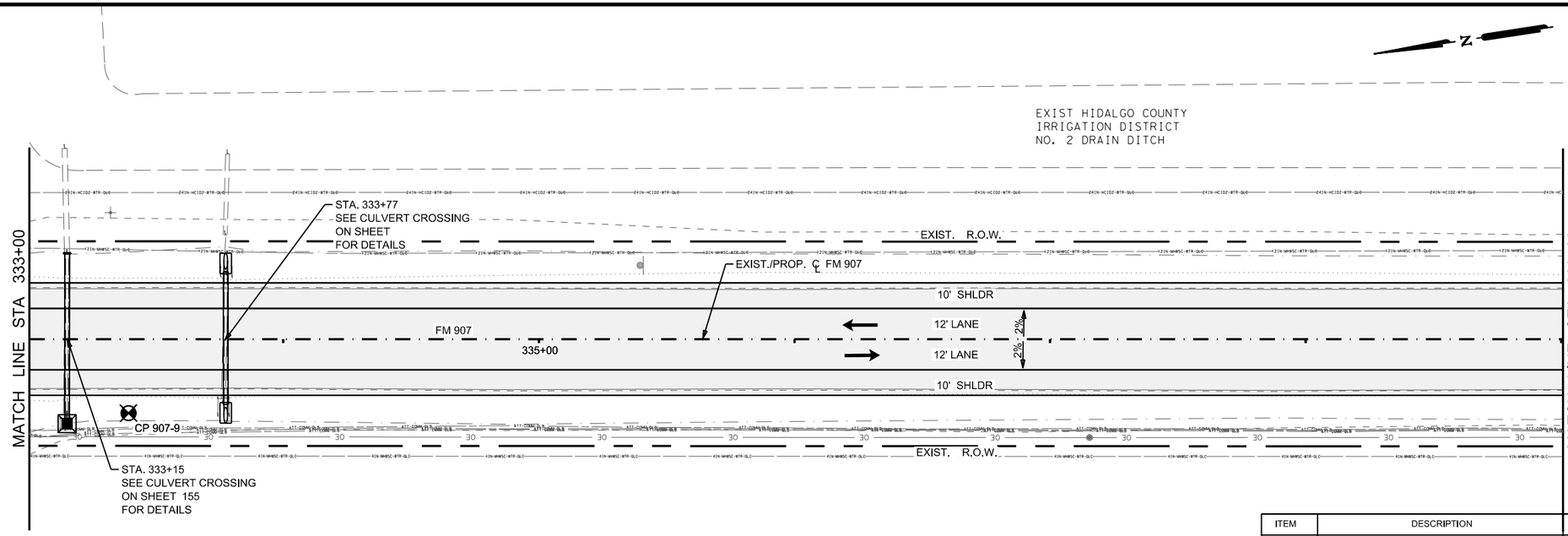

LEGEND:

- E-E — EDGE OF PAVEMENT TO EDGE OF PAVEMENT
- DRIVEWAY NUMBER
- TURNOUT NUMBER
- PROP. ASPHALT DRIVEWAY
- PROP. CONCRETE DRIVEWAY
- PROPOSED SIDEWALK
- PROP. MILLING/OVERLAY (1.5")
- DIRECTION OF TRAFFIC FLOW
- HORIZONTAL & VERTICAL CONTROL BENCHMARKS (SEE SURVEY CONTROL SHEETS FOR DETAILS)

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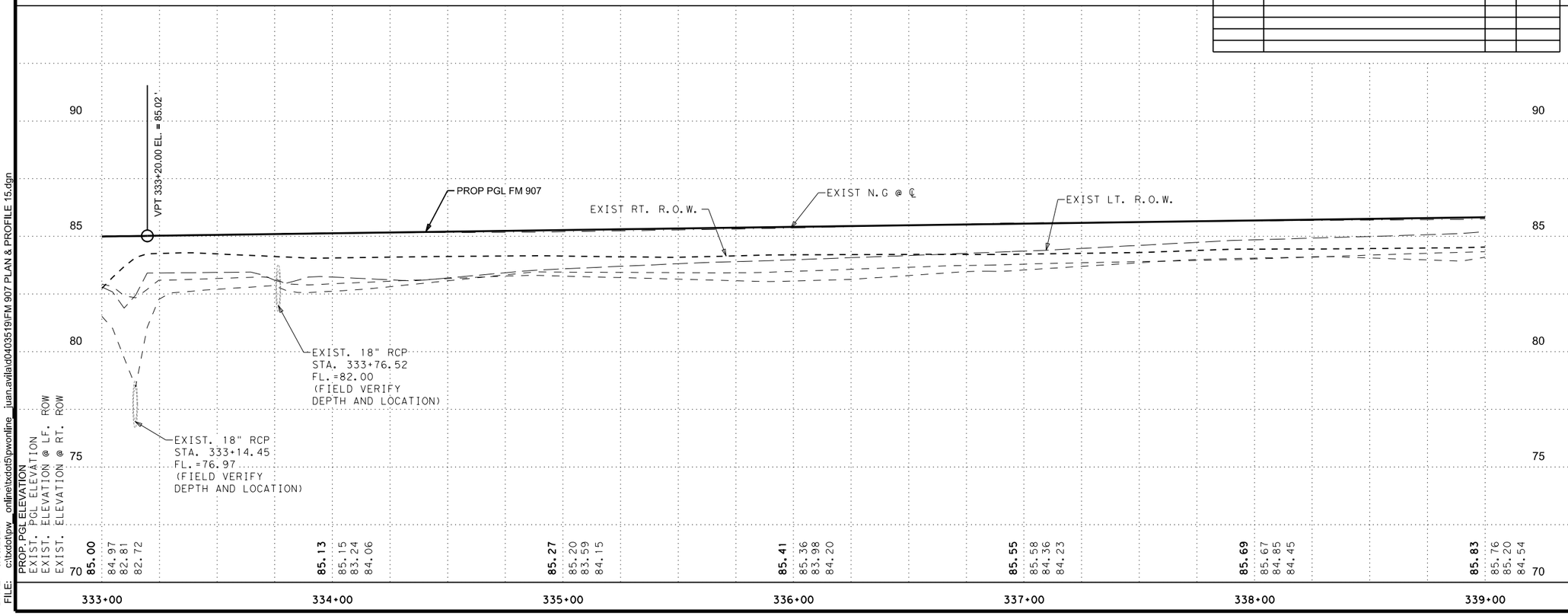
7. CONTRACTOR IS RESPONSIBLE FOR SUPPLYING/ REPLACING MAILBOXES.

ITEM	DESCRIPTION	UNIT	QUANT
100 6002	PREPARING R.O.W.	STA	6



PGL
EXIST. NG @ PGL
EXIST. LT. R.O.W.
EXIST. RT. R.O.W.

STATE OF TEXAS
JOSE A. RODRIGUEZ
117308
LICENSED PROFESSIONAL ENGINEER

09/07/21

Pharr District Central Design

Texas Department of Transportation

FM 907

ROADWAY
PLAN & PROFILE

SCALE: HOR 1" = 50'
VERT 1" = 5'

SHEET 15 OF 21

CONT	SECT	JOB	HIGHWAY
1586	01	079	FM 907
DIST	COUNTY		SHEET NO.
PHR	HIDALGO		97

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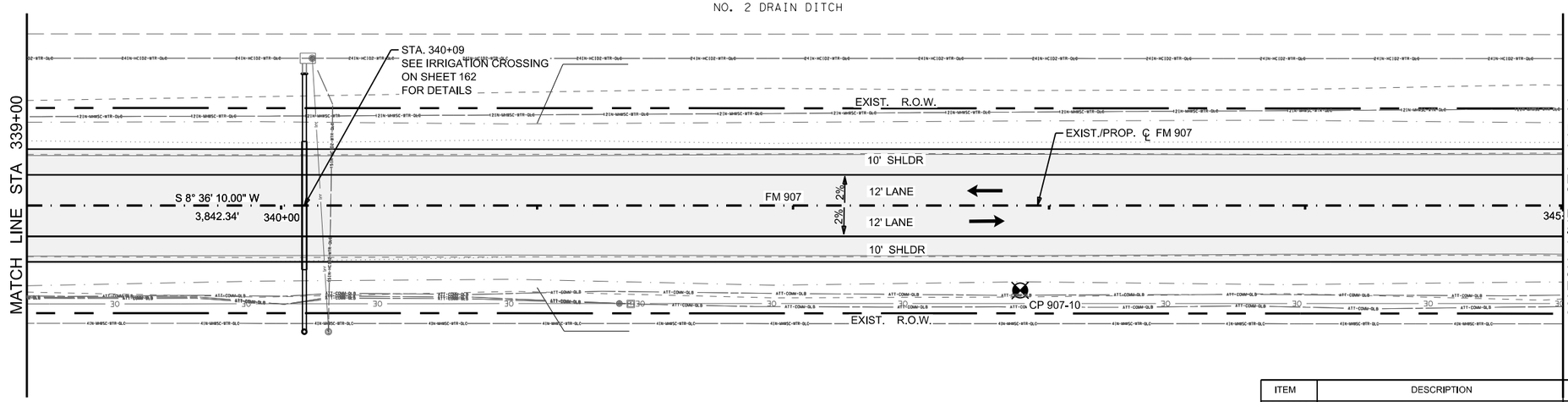

LEGEND:

- E-E — EDGE OF PAVEMENT TO EDGE OF PAVEMENT
- DRIVEWAY NUMBER
- TURNOUT NUMBER
- PROP. ASPHALT DRIVEWAY
- PROP. CONCRETE DRIVEWAY
- PROPOSED SIDEWALK
- PROP. MILLING/OVERLAY (1.5")
- DIRECTION OF TRAFFIC FLOW
- HORIZONTAL & VERTICAL CONTROL BENCHMARKS (SEE SURVEY CONTROL SHEETS FOR DETAILS)

GENERAL NOTES:

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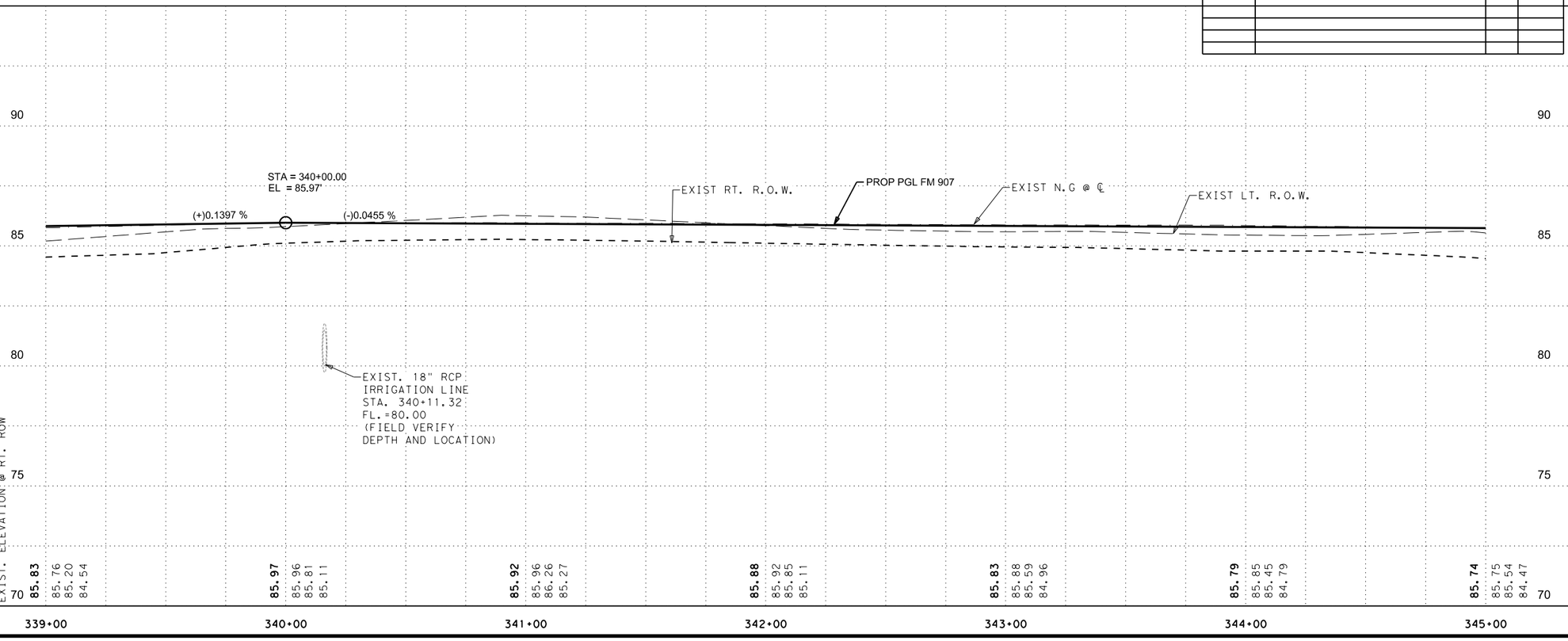
7. CONTRACTOR IS RESPONSIBLE FOR SUPPLYING/ REPLACING MAILBOXES.

ITEM	DESCRIPTION	UNIT	QUANT
100 6002	PREPARING R.O.W.	STA	6



PGL
EXIST. NG @ PGL
EXIST. LT. R.O.W.
EXIST. RT. R.O.W.

STATE OF TEXAS
JOSE A. RODRIGUEZ
117308
LICENSED
PROFESSIONAL ENGINEER

09/07/21

Pharr District Central Design

Texas Department of Transportation

FM 907

ROADWAY
PLAN & PROFILE

SCALE: HOR 1" = 50'
VERT 1" = 5'

SHEET 16 OF 21

© 2021	CONT	SECT	JOB	HIGHWAY
	1586	01	079	FM 907
	DIST	COUNTY		SHEET NO.
	PHR	HIDALGO		98

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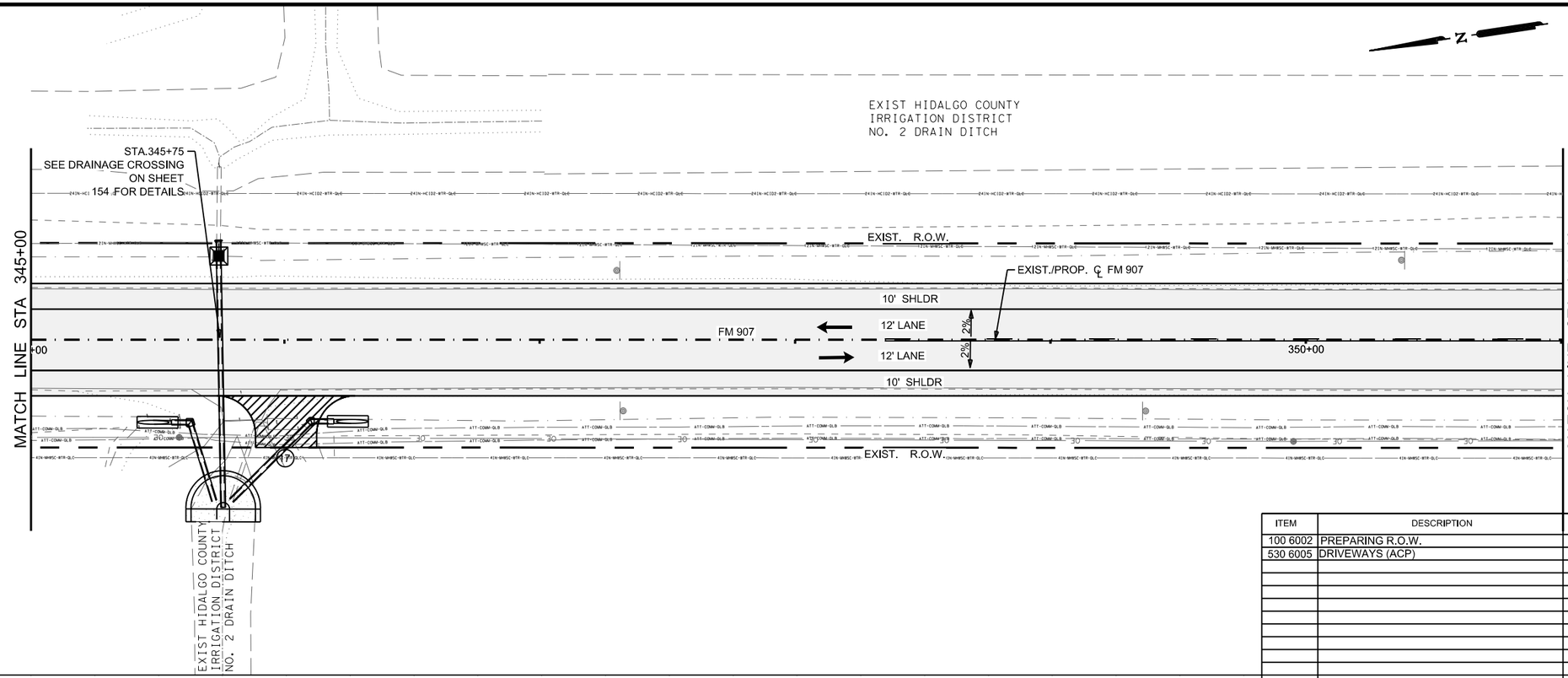

LEGEND:

E-E	EDGE OF PAVEMENT TO EDGE OF PAVEMENT
#	DRIVEWAY NUMBER
#	TURNOUT NUMBER
	PROP. ASPHALT DRIVEWAY
	PROP. CONCRETE DRIVEWAY
	PROPOSED SIDEWALK
	PROP. MILLING/OVERLAY (1.5")
	DIRECTION OF TRAFFIC FLOW
	HORIZONTAL & VERTICAL CONTROL BENCHMARKS (SEE SURVEY CONTROL SHEETS FOR DETAILS)

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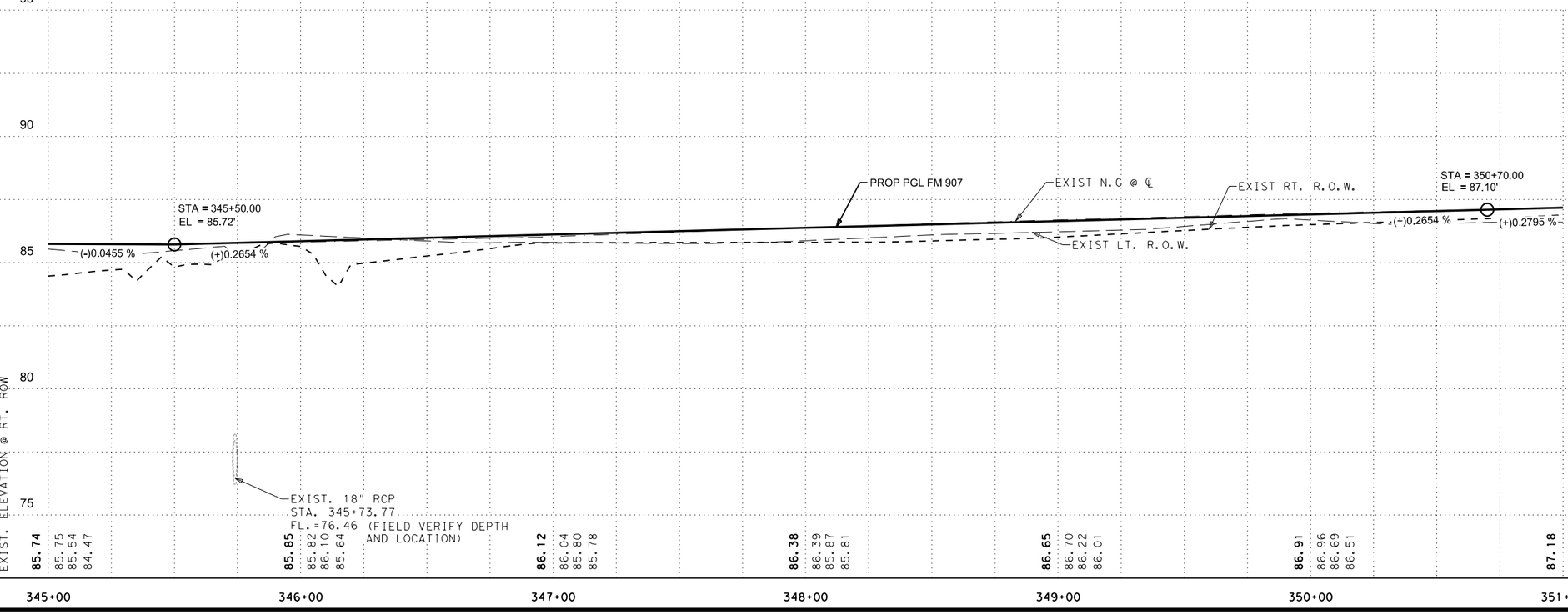
ITEM	DESCRIPTION	UNIT	QUANT
100 6002	PREPARING R.O.W.	STA	6
530 6005	DRIVEWAYS (ACP)	SY	65



PGL
EXIST. NG @ PGL
EXIST. LT. R.O.W.
EXIST. RT. R.O.W.

STATE OF TEXAS
JOSE A. RODRIGUEZ
117308
LICENSED
PROFESSIONAL ENGINEER

09/07/21

Pharr District Central Design

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ROADWAY
PLAN & PROFILE

SCALE: HOR 1" = 50'
VERT 1" = 5'

SHEET 17 OF 21

© 2021	CONT	SECT	JOB	HIGHWAY
	1586	01	079	FM 907
	DIST	COUNTY		SHEET NO.
	PHR	HIDALGO		99

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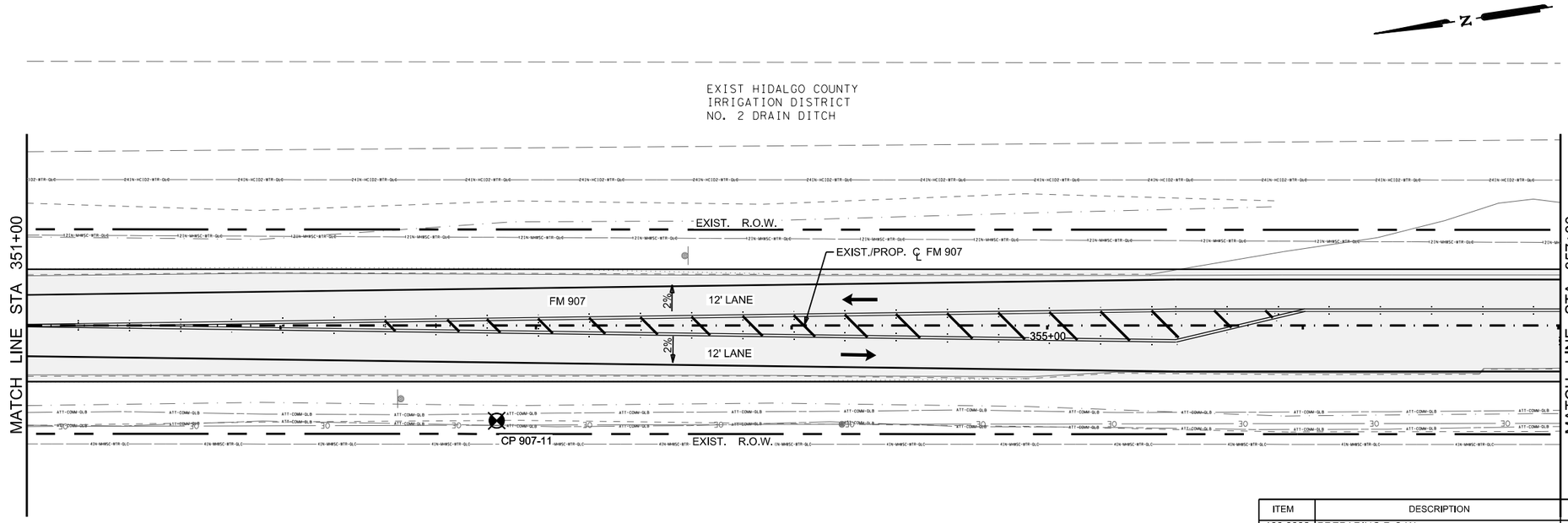

LEGEND:

E-E	EDGE OF PAVEMENT TO EDGE OF PAVEMENT
#	DRIVEWAY NUMBER
#	TURNOUT NUMBER
	PROP. ASPHALT DRIVEWAY
	PROP. CONCRETE DRIVEWAY
	PROPOSED SIDEWALK
	PROP. MILLING/OVERLAY (1.5")
	DIRECTION OF TRAFFIC FLOW
	HORIZONTAL & VERTICAL CONTROL BENCHMARKS (SEE SURVEY CONTROL SHEETS FOR DETAILS)

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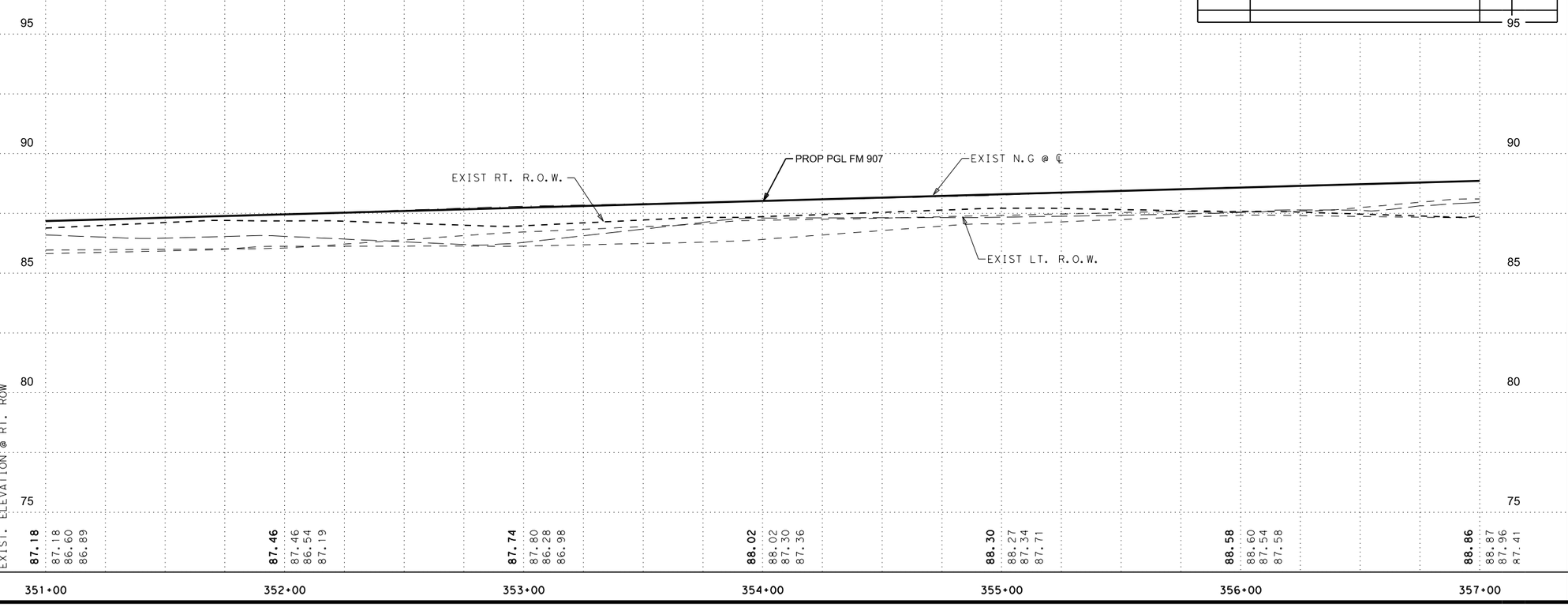
7. CONTRACTOR IS RESPONSIBLE FOR SUPPLYING/ REPLACING MAILBOXES.

ITEM	DESCRIPTION	UNIT	QUANT
100 6002	PREPARING R.O.W.	STA	6



PGL
EXIST. NG @ PGL
EXIST. LT. R.O.W.
EXIST. RT. R.O.W.

STATE OF TEXAS
JOSE A. RODRIGUEZ
117308
LICENSED PROFESSIONAL ENGINEER

09/07/21

Pharr District Central Design

Texas Department of Transportation

FM 907

ROADWAY
PLAN & PROFILE

SCALE: HOR 1" = 50'
VERT 1" = 5'

SHEET 18 OF 21

© 2021	CONT	SECT	JOB	HIGHWAY
	1586	01	079	FM 907
	DIST	COUNTY		SHEET NO.
	PHR	HIDALGO		100

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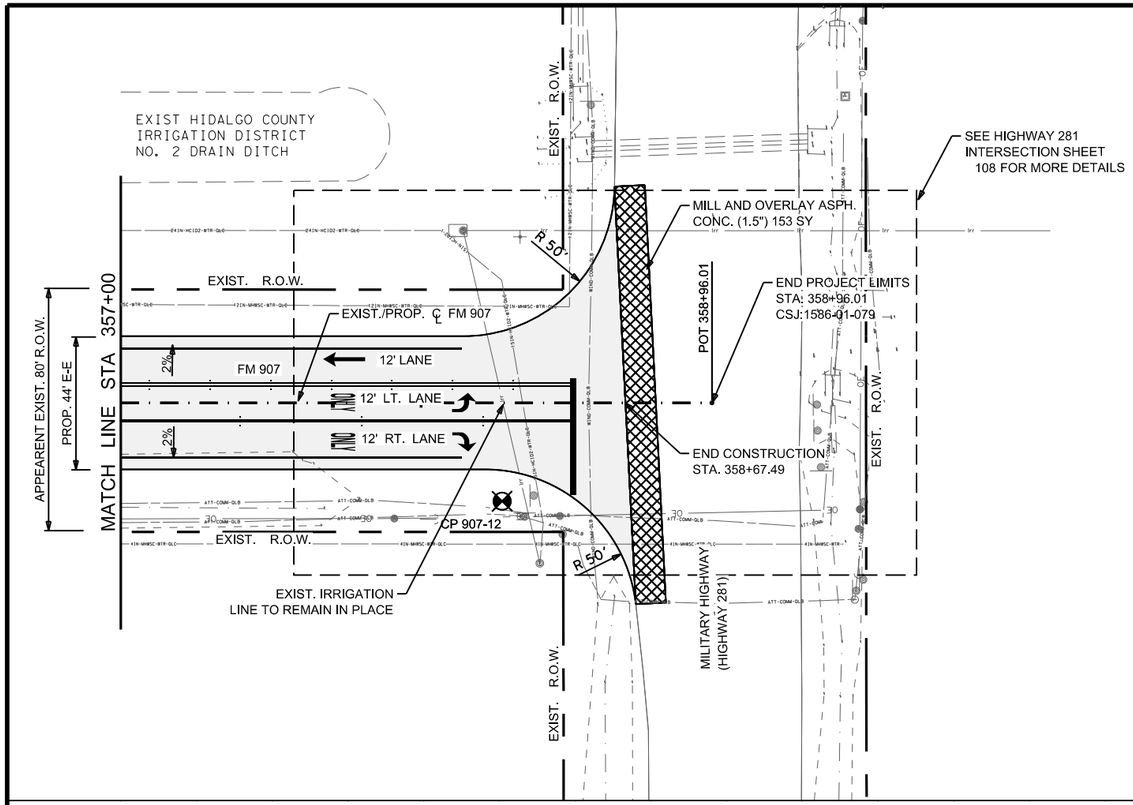

ITEM	DESCRIPTION	UNIT	QUANT
100 6002	PREPARING R.O.W.	STA	2
354 6041	PLANE ASPH CONC PAV (1.5")	SY	153

LEGEND:

- E-E — EDGE OF PAVEMENT TO EDGE OF PAVEMENT
- (#) — DRIVEWAY NUMBER
- [#] — TURNOUT NUMBER
- PROP. ASPHALT DRIVEWAY
- PROP. CONCRETE DRIVEWAY
- PROPOSED SIDEWALK
- PROP. MILLING/OVERLAY (1.5")
- DIRECTION OF TRAFFIC FLOW
- HORIZONTAL & VERTICAL CONTROL BENCHMARKS (SEE SURVEY CONTROL SHEETS FOR DETAILS)

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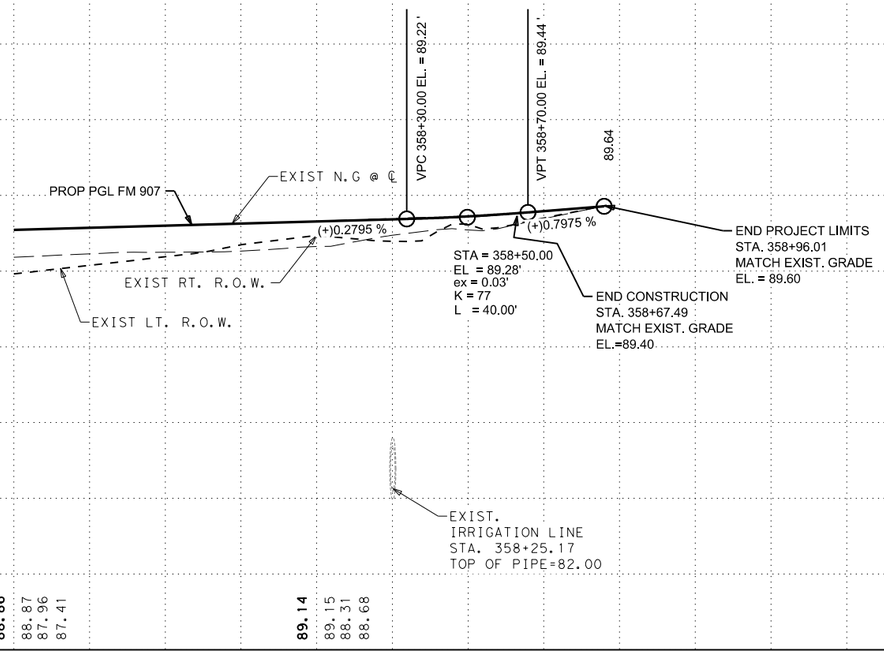

PROP. PGL ELEVATION
EXIST. PGL ELEVATION
EXIST. ELEVATION: @ LF. ROW
EXIST. ELEVATION: @ RT. ROW

88.86	88.87	87.96
	87.41	
89.14	89.15	88.31
	88.68	

PGL
EXIST. NG @ PGL
EXIST. LT. R.O.W.
EXIST. RT. R.O.W.

STATE OF TEXAS
JOSE A. RODRIGUEZ
117308
LICENSED PROFESSIONAL ENGINEER

09/07/21

Pharr District Central Design

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FM 907

ROADWAY
PLAN & PROFILE

SCALE: HOR 1" = 50'
VERT 1" = 5'

SHEET 19 OF 21

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CONT	SECT	JOB	HIGHWAY
1586	01	079	FM 907
DIST	COUNTY		SHEET NO.
PHR	HIDALGO		101

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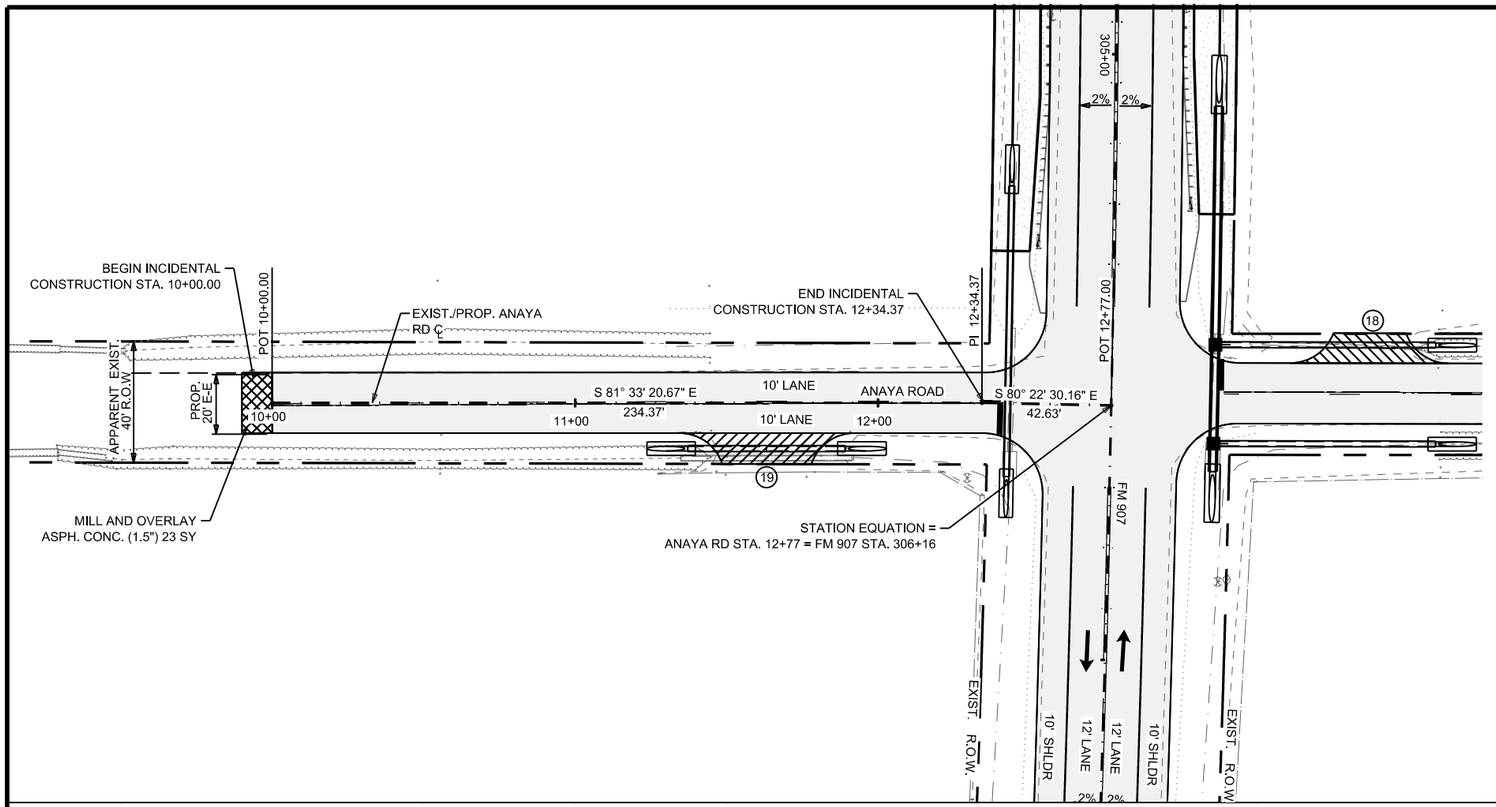

ITEM	DESCRIPTION	UNIT	QUANT
100 6002	PREPARING R.O.W.	STA	3
354 6041	PLANE ASPH CONC (1.5")	SY	25
530 6005	DRIVEWAYS (ACP)	SY	42

LEGEND:

- E-E — EDGE OF PAVEMENT TO EDGE OF PAVEMENT
- (#) — DRIVEWAY NUMBER
- [#] — TURNOUT NUMBER
- PROP. ASPHALT DRIVEWAY
- PROP. CONCRETE DRIVEWAY
- PROPOSED SIDEWALK
- PROP. MILLING/OVERLAY (1.5")
- DIRECTION OF TRAFFIC FLOW
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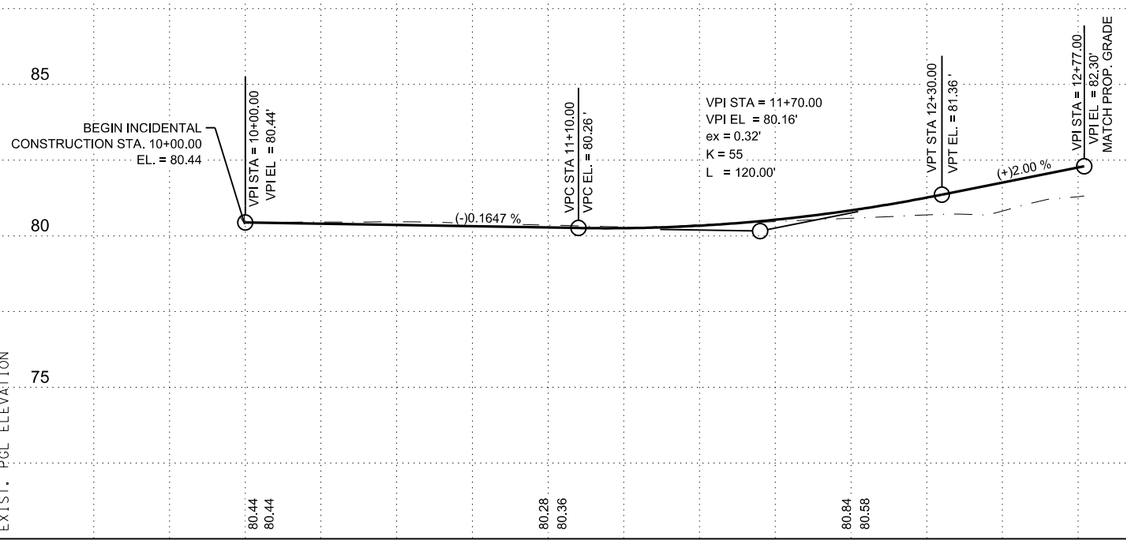

PGL
EXIST. NG @ PGL
EXIST. LT. R.O.W.
EXIST. RT. R.O.W.

STATE OF TEXAS
JOSE A. RODRIGUEZ
117308
LICENSED PROFESSIONAL ENGINEER

03/10/22

Pharr District Central Design

Texas Department of Transportation

FM 907

WEST ANAYA RD.
PLAN AND PROFILE

SCALE: HOR 1" = 50'
VERT 1" = 5'

SHEET 20 OF 21

CONT	SECT	JOB	HIGHWAY
1586	01	079	FM 907
DIST	COUNTY		SHEET NO.
PHR	HIDALGO		102

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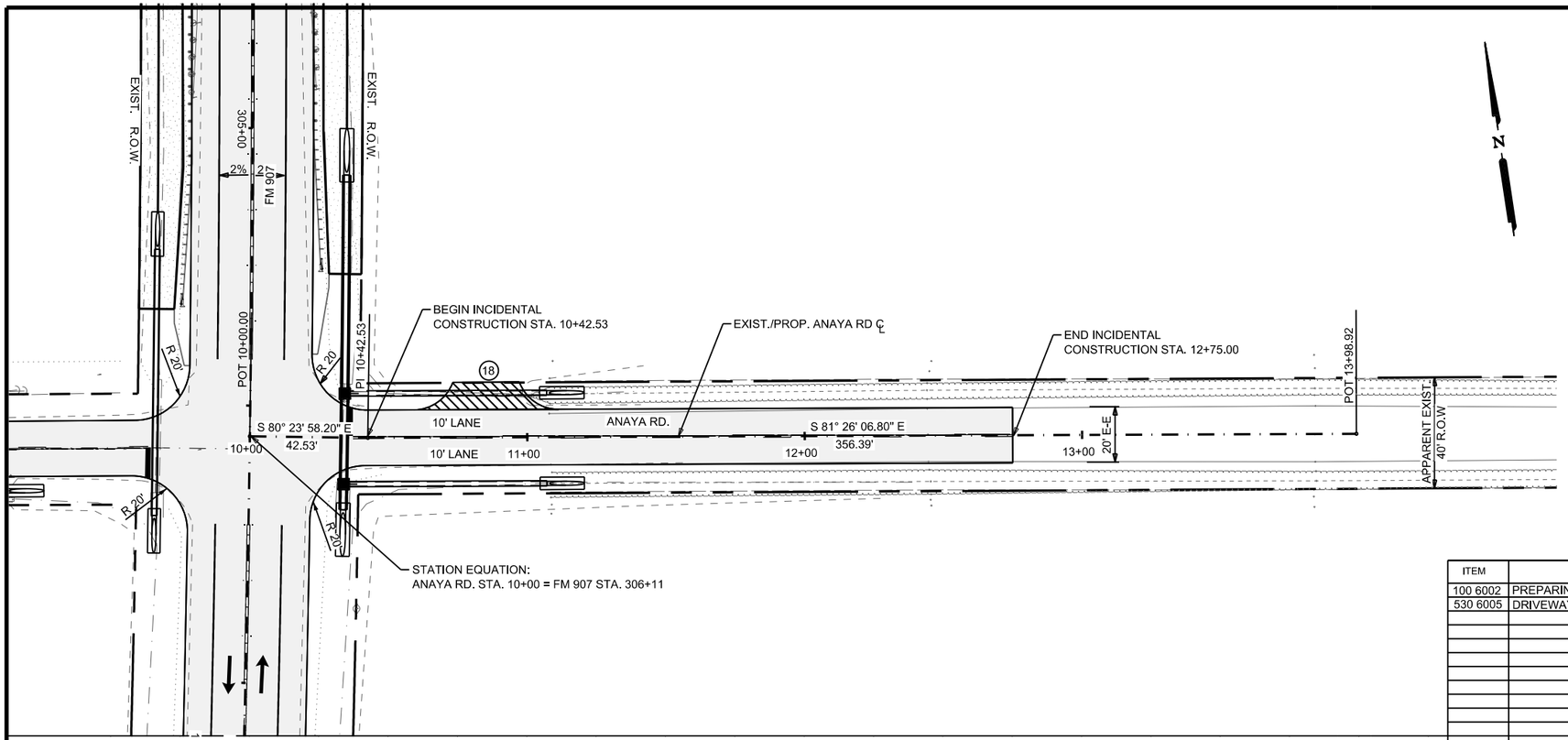
PROP. PGL ELEVATION
EXIST. PGL ELEVATION



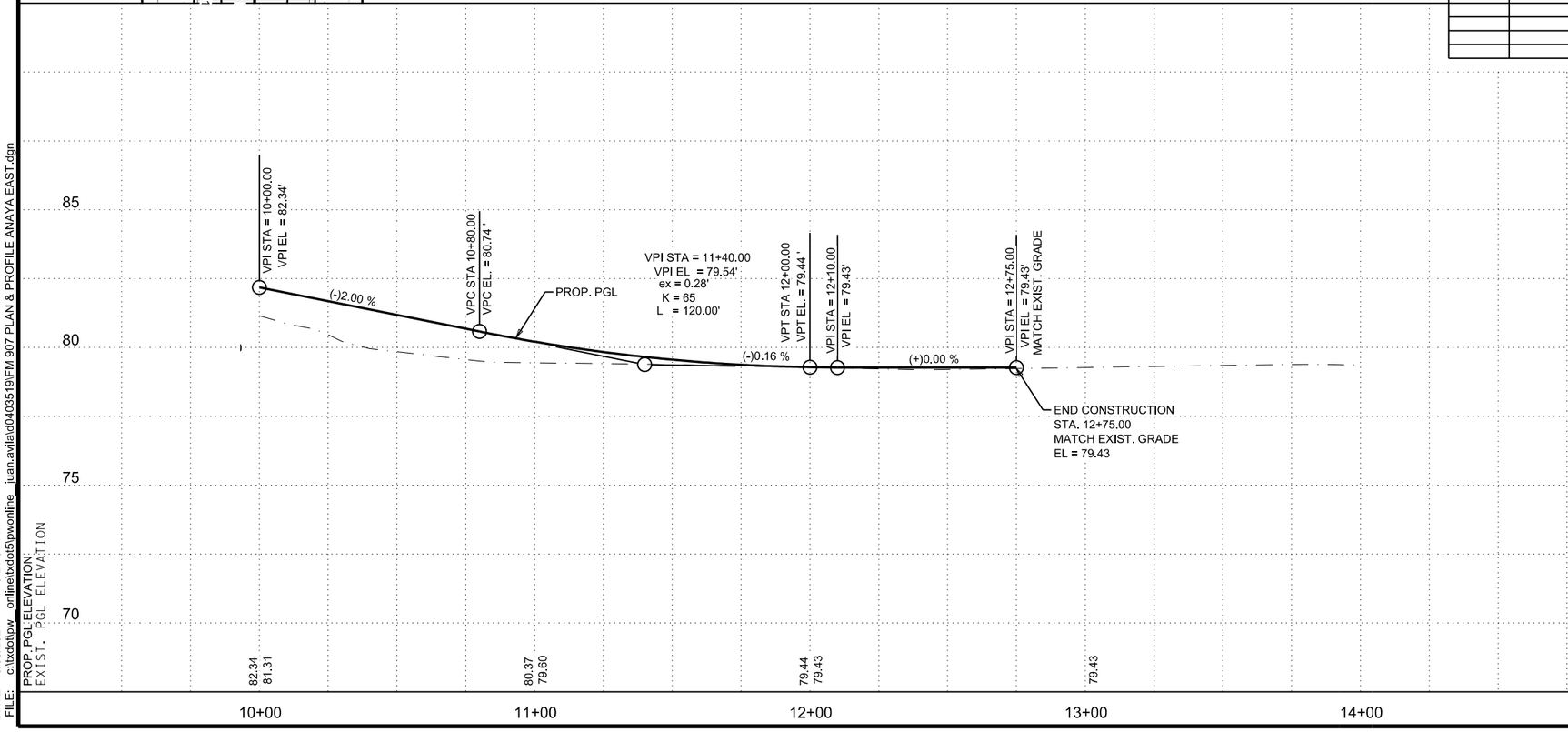
LEGEND:

E-E	EDGE OF PAVEMENT TO EDGE OF PAVEMENT
#	DRIVEWAY NUMBER
#	TURNOUT NUMBER
	PROP. ASPHALT DRIVEWAY
	PROP. CONCRETE DRIVEWAY
	PROPOSED SIDEWALK
	PROP. MILLING/OVERLAY (1.5")
	DIRECTION OF TRAFFIC FLOW
	HORIZONTAL & VERTICAL CONTROL BENCHMARKS (SEE SURVEY CONTROL SHEETS FOR DETAILS)

GENERAL NOTES:

1. SEE HORIZONTAL & VERTICAL CONTROL DATA SHEET FOR PROPOSED & EXISTING CENTERLINE DATA.
2. ALL EXISTING DRIVEWAYS & TURNOUTS THAT ARE NOT HATCHED ON SHEETS ARE TO REMAIN IN PLACE UNLESS OTHERWISE DIRECTED BY THE ENGINEER.
3. SEE SURVEY DATA SHEET FOR BM STA, OFFSET, ELEVATION, ETC.
4. SEE PROPOSED TYPICAL SECTIONS FOR ROADWAY REHAB WIDTH.
5. EXISTING SAFETY END TREATMENT TO REMAIN IN PLACE OTHER WISE NOTED.
6. EXISTING UNDERGROUND UTILITIES AND TOPOGRAPHY HAVE BEEN PLOTTED BY DIRECT FIELD INFORMATION, AND AS SPOTTED BY UTILITY LOCATED REQUEST. CONTRACTOR SHALL COORDINATE WITH THE APPROPRIATE UTILITY COMPANIES TO VERIFY THE EXACT LOCATION IN THE FIELD PRIOR. TO CONSTRUCTION. THE CONTRACTOR WILL BE RESPONSIBLE FOR THE REPLACEMENT OR REPAIR OF ALL CUT OR BROKEN WATER LINES, IRRIGATION LINES, FORCE MAINS, SPRINKLERS SYSTEMS, GAS LINES, POWER LINE, TELEPHONE CABLE, AND/OR ANY OTHER UTILITIES.
7. CONTRACTOR IS RESPONSIBLE FOR SUPPLYING/ REPLACING MAILBOXES.

ITEM	DESCRIPTION	UNIT	QUANT
100 6002	PREPARING R.O.W.	STA	4
530 6005	DRIVEWAYS (ACP)	SY	35



PROP. PGL ELEVATION
EXIST. PGL ELEVATION

PGL
EXIST. NG @ PGL
EXIST. LT. R.O.W.
EXIST. RT. R.O.W.

STATE OF TEXAS
JOSE A. RODRIGUEZ
117308
LICENSED PROFESSIONAL ENGINEER

09/07/21

Pharr District Central Design

Texas Department of Transportation

FM 907

EAST ANAYA RD.
PLAN AND PROFILE

SCALE: HOR 1" = 50'
VERT 1" = 5'

SHEET 21 OF 21

© 2021	CONT	SECT	JOB	HIGHWAY
	1586	01	079	FM 907
	DIST	COUNTY		SHEET NO.
	PHR	HIDALGO		103

DATE: 8/30/2021 5:21:01 PM
FILE: c:\txdot\pw_online\txdot5\pwonline_juan.avila\d0403519\FM 907 PLAN & PROFILE ANAYA EAST.dgn

LEGEND:

- PROPOSED ROAD
- PROPOSED PLANING (0-1½")
- BENCH MARK
- (#) DRIVEWAY NUMBER
- [#] ROAD NUMBER

FM907_SUR1

PI STATION	= 254+75.34
DELTA	= 1° 50' 10.00" (LT)
DEGREE OF CURVE	= 0° 29' 59.86"
TANGENT	= 183.64
LENGTH	= 367.25
RADIUS	= 11,460.08
PC STATION	= 252+91.70
PT STATION	= 256+58.95

NOTES:
1. ALL DIMENSION ARE BASED OF FM 907 ROAD ALIGNMENT.
2. FOR DETAILED ROADWAY DIMENSIONS SEE THE PROJECT TYPICAL SECTIONS AND ASSOCIATED PLAN AND PROFILE SHEETS.
3. FOR TRAFFIC SIGNAL LOCATION SEE SIGNAL LAYOUTS.
4. SEE DRIVEWAYS/TURNOUT TABLE FOR DIMENSIONS, RADIUS & QUANTITIES.
5.- FOR MILLING AND OVERLAY DEPTH SEE PLANNING @ ACP OVERLAY DETAILS IN TYPICAL SECTIONS SHEETS.

EXIST HIDALGO COUNTY IRRIGATION DISTRICT NO. 2 CANAL
15IN-HCID2-WTR-QLC
EXIST GAS LINE
3.5IN-WAG-GAS-QLC
EXIST. IRRIGATION LINE
4IN-MHWSC-WTR-QLC
EXIST. R.O.W.
EXIST WATER LINE
12IN-MHWSC-WTR-QLC
R 20
EXIST OVERHEAD BEACON LINE
4' SHOULDER
12' LANE
PC 252+91.70
PROP. PGL FM 907
FM 907
12' LT. LANE
255+00
2%
S 8° 37' 58.00" W
176.80'
CP 907-1
EXIST FIBER OPTIC LINE
EXIST OVERHEAD ELECTRICAL LINE
ATT-COMM-QLB
OE
R 60
EXIST HIDALGO COUNTY IRRIGATION DISTRICT NO. 2 CANAL
PLANE ASPH. CONC. (1.5) 44 SY
FM 3072 (DICKER RD)

STATE OF TEXAS
JOSE A. RODRIGUEZ
117308
LICENSED PROFESSIONAL ENGINEER

09/07/21

Pharr District Central Design

Texas Department of Transportation

FM 907
INTERSECTION LAYOUT

FM 907 & FM 3072
DICKER ROAD LAYOUT

SCALE: 1" = 30'

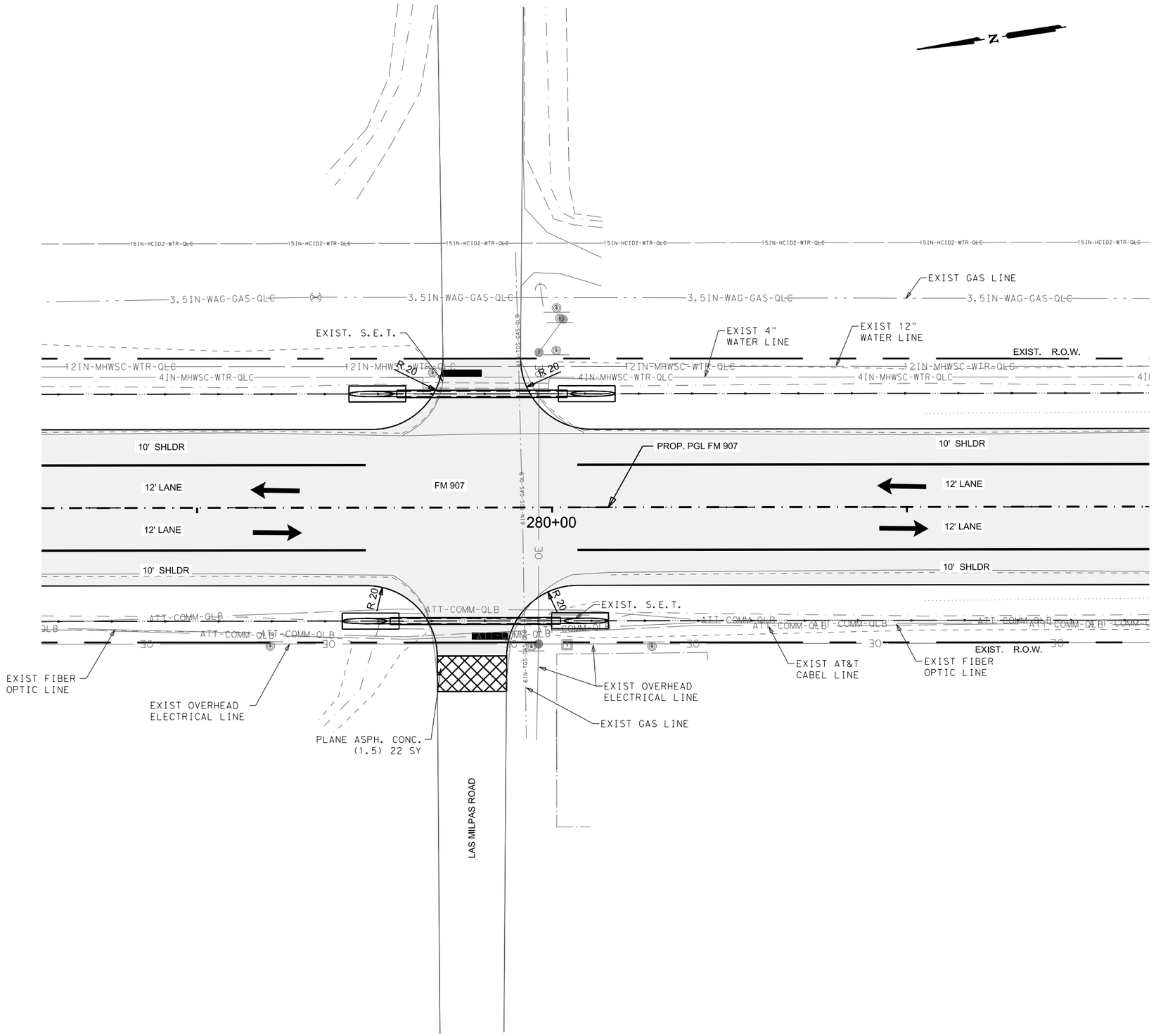
CONT	SECT	JOB	HIGHWAY
1586	01	079	FM 907
DIST	COUNTY		SHEET NO.
PHR	HIDALGO		104

DATE: 8/30/2021 5:21:22 PM
FILE: c:\txdot\pw_online\txdot5\pwonline_juan.avila\d0403518\FM 907 Dicker Intersection.dgn

LEGEND:

- PROPOSED ROAD
- PROPOSED PLANING (0-1½")
- BENCH MARK
- DRIVEWAY NUMBER
- ROAD NUMBER

NOTES:
1. ALL DIMENSION ARE BASED OF FM 907 ROAD ALIGNMENT.
2. FOR DETAILED ROADWAY DIMENSIONS SEE THE PROJECT TYPICAL SECTIONS AND ASSOCIATED PLAN AND PROFILE SHEETS.
3. FOR TRAFFIC SIGNAL LOCATION SEE SIGNAL LAYOUTS.
4. SEE DRIVEWAYS/TURNOUT TABLE FOR DIMENSIONS, RADIUS & QUANTITIES.
5. FOR MILLING AND OVERLAY DEPTH SEE PLANNING @ ACP OVERLAY DETAILS IN TYPICAL SECTIONS SHEETS.



STATE OF TEXAS
JOSE A. RODRIGUEZ
117308
LICENSED PROFESSIONAL ENGINEER

09/07/21

Pharr District Central Design

Texas Department of Transportation

FM 907
INTERSECTION LAYOUT

FM 907 & LAS MILPAS
ROAD LAYOUT

SCALE: 1" = 30'

CONT	SECT	JOB	HIGHWAY
1586	01	079	FM 907
DIST	COUNTY		SHEET NO.
PHR	HIDALGO		105

DATE: 8/30/2021 5:21:30 PM
FILE: c:\txdot\pw_online\txdot5\pwonline_juan.avila\d0403518\FM 907 LAS MILPAS Intersection.dgn

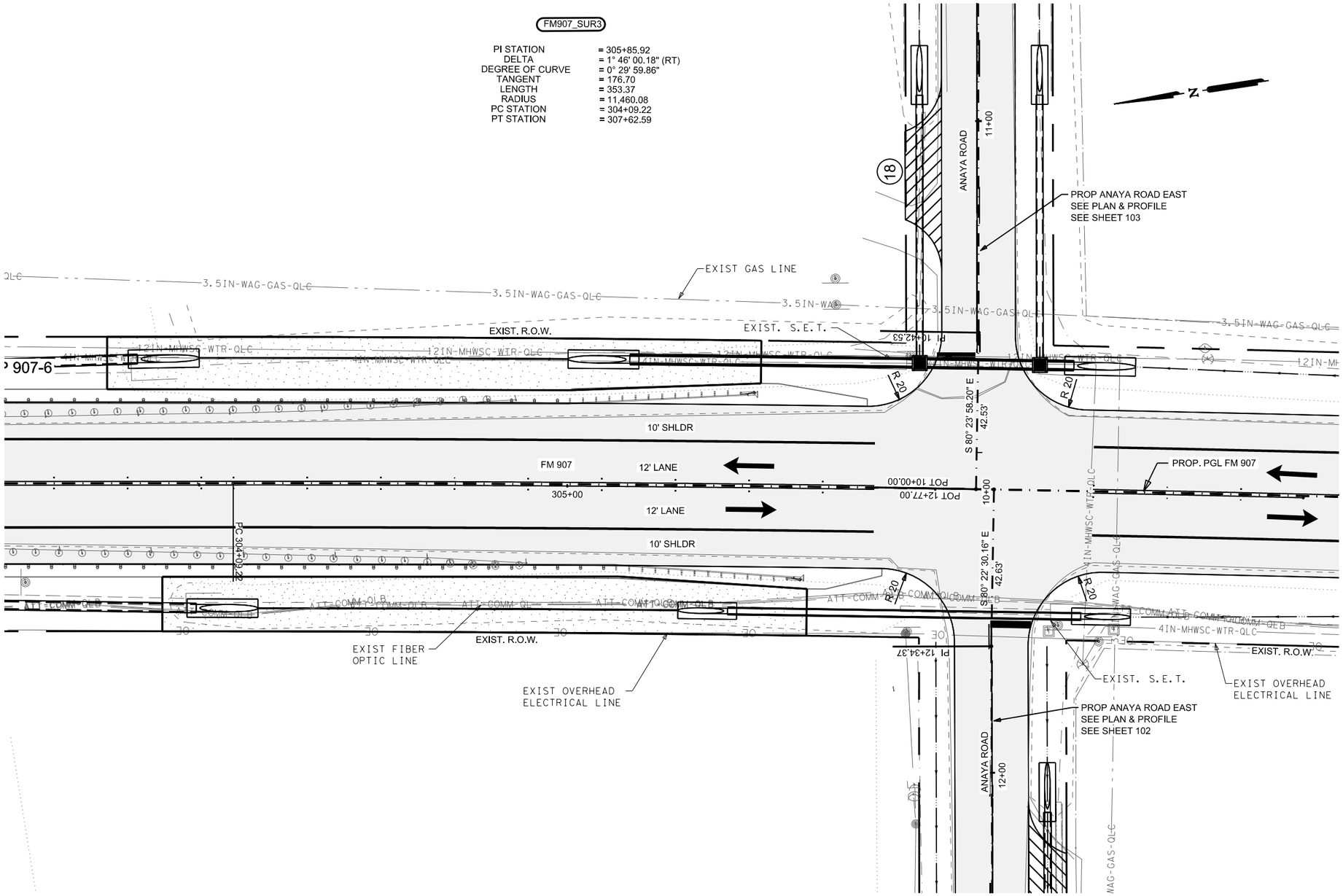
FM907_SUR3

PI STATION	= 305+85.92
DELTA	= 1° 46' 00.18" (RT)
DEGREE OF CURVE	= 0° 29' 59.86"
TANGENT	= 176.70
LENGTH	= 353.37
RADIUS	= 11,460.08
PC STATION	= 304+09.22
PT STATION	= 307+62.59

LEGEND:

- PROPOSED ROAD
- PROPOSED PLANING (0-1½")
- BENCH MARK
- DRIVEWAY NUMBER
- ROAD NUMBER

NOTES:
1. ALL DIMENSION ARE BASED OF FM 907 ROAD ALIGNMENT.
2. FOR DETAILED ROADWAY DIMENSIONS SEE THE PROJECT TYPICAL SECTIONS AND ASSOCIATED PLAN AND PROFILE SHEETS.
3. FOR TRAFFIC SIGNAL LOCATION SEE SIGNAL LAYOUTS.
4. SEE DRIVEWAYS/TURNOUT TABLE FOR DIMENSIONS, RADIUS & QUANTITIES.
5.- FOR MILLING AND OVERLAY DEPTH SEE PLANNING @ ACP OVERLAY DETAILS IN TYPICAL SECTIONS SHEETS.



STATE OF TEXAS
JOSE A. RODRIGUEZ
117308
LICENSED PROFESSIONAL ENGINEER

09/07/21

Pharr District Central Design

Texas Department of Transportation

FM 907
INTERSECTION LAYOUT
FM 907 & ANAYA
ROAD LAYOUT

SCALE: 1" = 30'

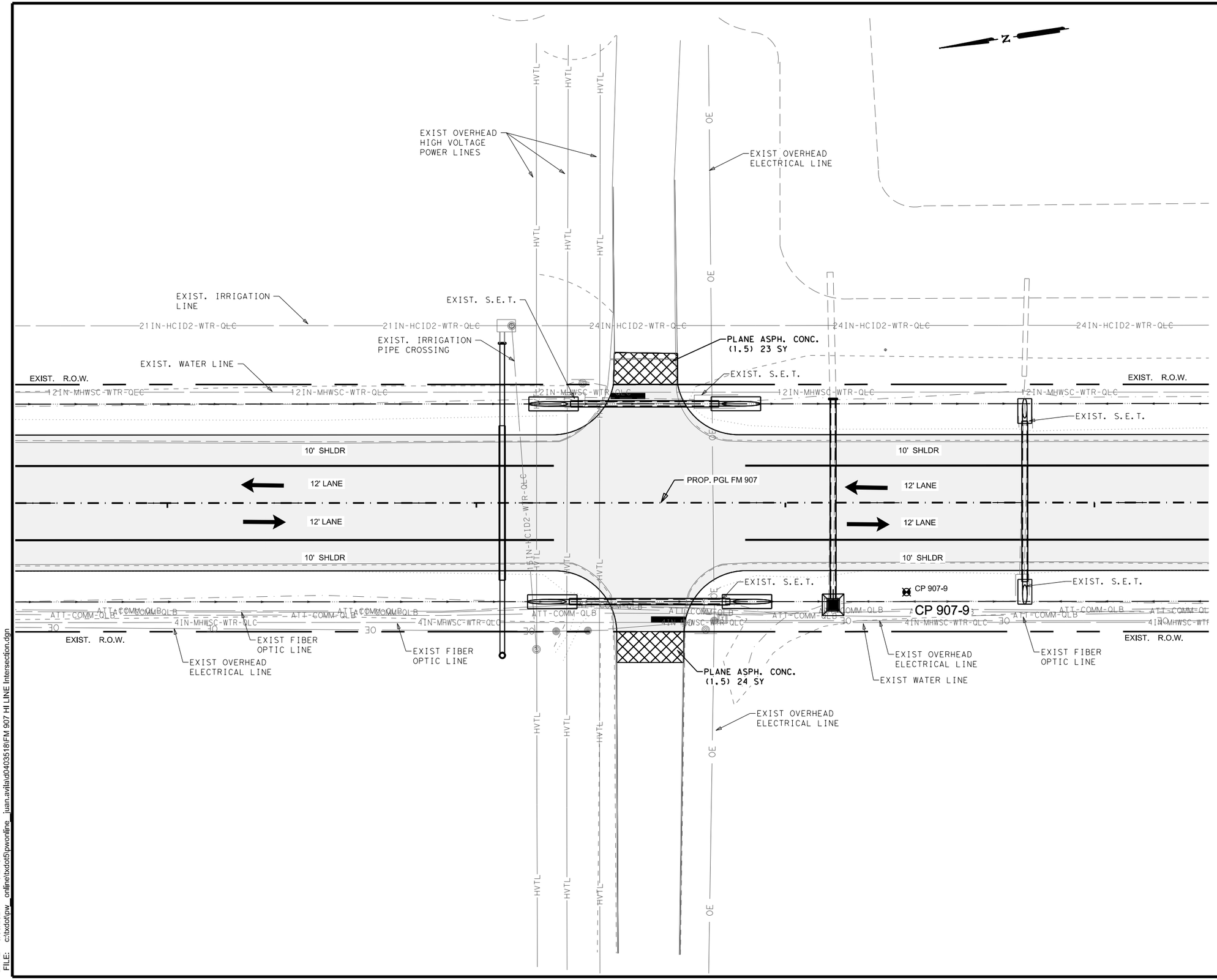
© 2021	CONT	SECT	JOB	HIGHWAY
	1586	01	079	FM 907
	DIST	COUNTY		SHEET NO.
	PHR	HIDALGO		106

DATE: 8/30/2021 5:21:49 PM
FILE: c:\txdot\pw_online\txdot5\pwonline_juan.avila\d0403516\FM 907 ANAYA Intersection.dgn

LEGEND:

- PROPOSED ROAD
- PROPOSED PLANING (0-1½")
- BENCH MARK
- (#) DRIVEWAY NUMBER
- [#] ROAD NUMBER

NOTES:
1. ALL DIMENSION ARE BASED OF FM 907 ROAD ALIGNMENT.
2. FOR DETAILED ROADWAY DIMENSIONS SEE THE PROJECT TYPICAL SECTIONS AND ASSOCIATED PLAN AND PROFILE SHEETS.
3. FOR TRAFFIC SIGNAL LOCATION SEE SIGNAL LAYOUTS.
4. SEE DRIVEWAYS/TURNOUT TABLE FOR DIMENSIONS, RADIUS & QUANTITIES.
5.- FOR MILLING AND OVERLAY DEPTH SEE PLANNING @ ACP OVERLAY DETAILS IN TYPICAL SECTIONS SHEETS.



STATE OF TEXAS
JOSE A. RODRIGUEZ
117308
LICENSED PROFESSIONAL ENGINEER

09/07/21

Pharr District Central Design

Texas Department of Transportation

FM 907
INTERSECTION LAYOUT
FM 907 & HI LINE
ROAD LAYOUT

SCALE: 1" = 30'

© 2021	CONT	SECT	JOB	HIGHWAY
	1586	01	079	FM 907
	DIST	COUNTY		SHEET NO.
	PHR	HIDALGO		107

DATE: 8/30/2021 5:21:57 PM
FILE: c:\txdot\pw_online\txdot5\pwonline_juan.avila\d0403518\FM 907 HI LINE Intersection.dgn

LEGEND:

- PROPOSED ROAD
- PROPOSED PLANING (0-1½")
- BENCH MARK
- (#) DRIVEWAY NUMBER
- [#] ROAD NUMBER

NOTES:
1. ALL DIMENSION ARE BASED OF FM 907 ROAD ALIGNMENT.
2. FOR DETAILED ROADWAY DIMENSIONS SEE THE PROJECT TYPICAL SECTIONS AND ASSOCIATED PLAN AND PROFILE SHEETS.
3. FOR TRAFFIC SIGNAL LOCATION SEE SIGNAL LAYOUTS.
4. SEE DRIVEWAYS/TURNOUT TABLE FOR DIMENSIONS, RADIUS & QUANTITIES.
5.- FOR MILLING AND OVERLAY DEPTH SEE PLANNING @ ACP OVERLAY DETAILS IN TYPICAL SECTIONS SHEETS.

EXIST. IRRIGATION DISTIRCT NO. # 2 DRAIN DITCH

EXIST IRRIGATION LINE

EXIST. R.O.W.

EXIST WATER LINE

EXIST. IRRIGATION LINE

4' SHLDR

PROP. PGL FM 907

FM 907

12' LANE

12' LT. LANE

ONLY

12' RT. LANE

4' SHLDR

R 50

POT 358+96.01

EXIST FLASHING BEACON

138'

PLANE ASPH. CONC. (1.5") 149 SY

CP 907-12

EXIST. R.O.W.

EXIST OVERHEAD ELECTRICAL LINE

EXIST FIBER OPTIC LINE

EXIST WATER LINE

EXIST PHONE LINE

EXIST. R.O.W.

10'

MILITARY HIGHWAY (HIGHWAY 281)

EXIST. R.O.W.

STATE OF TEXAS
JOSE A. RODRIGUEZ
117308
LICENSED PROFESSIONAL ENGINEER

09/07/21

Pharr District Central Design

Texas Department of Transportation

FM 907

INTERSECTION LAYOUT

FM 907 & MILITARY HIGHWAY ROAD LAYOUT

SCALE: 1" = 30'

© 2021	CONT	SECT	JOB	HIGHWAY
	1586	01	079	FM 907
	DIST	COUNTY		SHEET NO.
	PHR	HIDALGO		108

DATE: 8/30/2021 5:22:05 PM
FILE: c:\txdot\pw_online\txdot\pwonline_juan.avila\d0403518\FM 907 MILITARY Intersection.dgn

PRIVATE DRIVEWAYS

PLAN & PROFILE PAGE NO.	DWY. ID #	STATION	OFFSET	EXIST. DRVWY WIDTH (FT.)	PROP. WIDTH @ EDGE OF PAVEMENT (FT.)	PROP. WIDTH @ R.O.W. LINE (FT.)	PROP. RAD. (FT)		ITEM 530 6005 DRWY (ACP) (SY)	ITEM 464 6003 RC PIPE (CL III) (LF)	ITEM 467 6363 PROP. S.E.T. (TY II) (6:1) (P) (EA)	ITEM 496 6007 REMOVE STR. (PIPE) (LF)	ITEM 496 6004 REMOVE STR. (S.E.T.) (EA)	ITEM 560 6011 MAILBOX INSTALL (SINGLE) (EA)
							LEFT	RIGHT	PRB-1	18"	18"	18"		
2 of 21	1	255+99	RT	42	54	24	15	15	55	88	2	52	2	
3 of 21	2	261+90	LT	14	49	14	15	15	52	36	1	32	1	
3 of 21	3	262+69	RT	29	59	29	15	15	52	88	2	40	2	
3 of 21	4	262+76	LT	17	45	17	15	10	50	48	1	30	1	
3 of 21	5	265+27	RT	13	43	13	15	15	32	28	2	20	2	
8 of 21	6	292+99	RT	10	42	12	15	15	34	28	2	20	2	
8 of 21	7	293+15	LT	13	43	13	15	15	37	28	2	20	2	
9 of 21	8	299+00	LT	24	54	24	15	15	59			62	2	
10 of 21	9	308+54	LT	24	54	24	15	15	56	44	2	36	2	
11 of 21	10	313+05	RT	28	58	28	15	15	64	68	2	60	2	1
11 of 21	11	313+84	LT	14	44	14	15	15	33	44	2	36	2	
12 of 21	12	315+61	LT	17	47	17	15	15	35					1
12 of 21	13	315+69	RT	14	54	14	20	20	50					
12 of 21	14	317+92	RT	22	62	22	20	20	69	44	2	42	2	
12 of 21	15	319+58	RT	8	42	12	15	15	37	36	1			
13 of 21	16	324+93	LT	30	60	30	15	15	66	44	2	34	2	
17 of 21	17	346+00	RT	24	54	24	15	15	65	90	2	74	2	
	ANAYA EAST INTERSECTION (P&P 21)													
21 of 21	18	10+85	LT	24	28	24	15	15	35	70	1	53		
	ANAYA WEST INTERSECTION (P&P 20)													
20 of 21	19	11+63	RT	28	58	28	15	15	42	52	2	57		
		TOTAL							923	836	28	668	26	2

DATE: 8/30/2021 5:22:23 PM
FILE: c:\txdot\pw_online\txdot5\pwonline_juan.avila\d0304079\FM 907 Private and Public Driveway Tables.dgn

Pharr District Central Design

Texas Department of Transportation

FM 907

PRIVATE DRIVEWAY TABLE

SHEET 1 OF 1

CONT	SECT	JOB	HIGHWAY
1586	01	079	FM 907
DIST	COUNTY		SHEET NO.
PHR	HIDALGO		109

PUBLIC ROADWAY TURNOUTS																
PLAN & PROFILE PAGE NO.	DWY. ID #	STATION	OFFSET	DESCRIPTION	EXIST. DRVWY WIDTH (FT.)	PROP. RAD. (FT)	PROP. WIDTH @ R.O.W. LINE (FT.)	ITEM 464		ITEM 467		ITEM 467		ITEM 467
								6003	6005	6362	6389	6007		6007
								PROP. RCP (III) (FT.)		PROP. S.E.T. (TY II)(EA.)		REMOVE STR. (PIPE)		REMOVE STR. (S.E.T)
										(6:1)	(6:1)			
								18"	24"	18"	24"	18"	24"	(EA)
1 of 21	1	253+47	LT	DICKER ROAD	31	20	31	60		2		52		2
1 of 21	2	253+51	RT	FM 3072 (DICKER ROAD)	40	60	40	128		2		92		2
6 of 21	3	279+77	RT	LAS MILPAS ROAD	20	20	20	48		2		39		2
6 of 21	4	279+80	LT	LAS MILPAS ROAD	22	20	22	48		2		35		2
10 of 21	5	306+11	LT	ANAYA ROAD	20	20	20		114		2		31	2
10 of 21	6	306+15	RT	ANAYA ROAD	20	20	20	96		2		41		2
14 of 21	7	332+54	LT	HI LINE ROAD	20	20	20	48		2		36		2
14 of 21	8	332+56	RT	HI LINE ROAD	22	20	22	52		2		40		2
CSJ: 1586-01-079				TOTAL				480	114	14	2	335	31	16

DATE: 8/30/2021 5:22:24 PM
FILE: c:\txdot\pw_online\txdot5\pwonline_juan.avila\d0304079\FM 907 Private and Public Driveway Tables.dgn

Pharr District Central Design

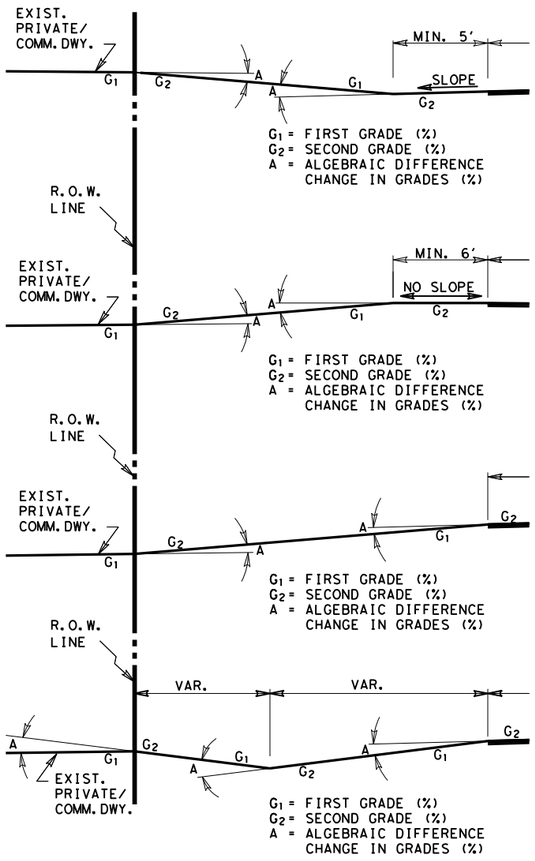
Texas Department of Transportation

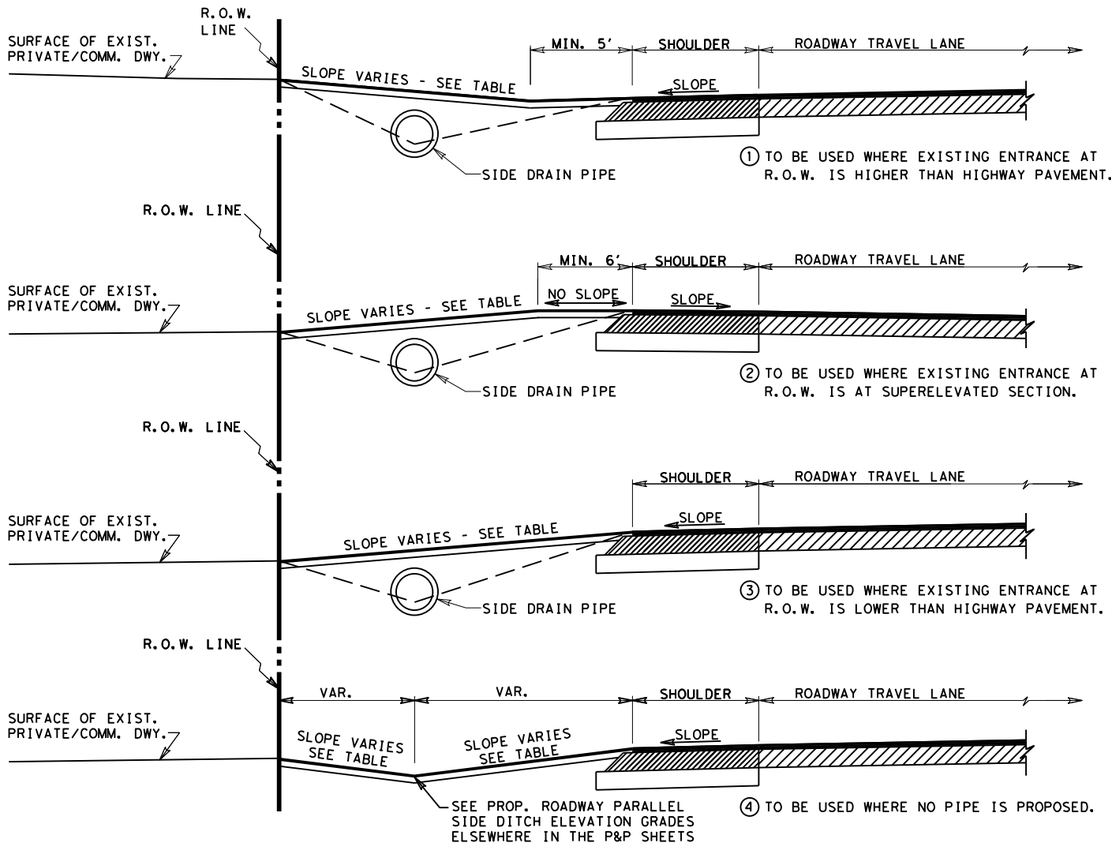
FM 907

PUBLIC ROADWAY TURNOUT TABLE

SHEET 1 OF 1

CONT	SECT	JOB	HIGHWAY
1586	01	079	FM 907
DIST	COUNTY		SHEET NO.
PHR	HIDALGO		110

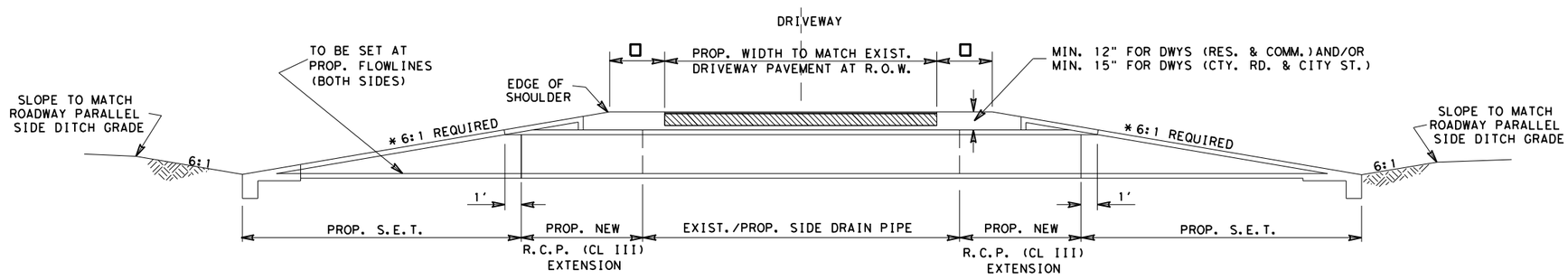




TYPICAL ENTRANCE PROFILE FOR DRIVEWAYS W/OUT C&G

PROPOSED DRIVEWAY SLOPE TABLE
COMMERCIAL DRIVEWAYS @ 12:1 MAX.
RESIDENTIAL DRIVEWAYS @ 8:1 MAX.

PROP. DWY ALGEBRAIC DIFFERENCE TABLE
COMMERCIAL DRIVEWAYS @ A = 6% DESIRABLE
RESIDENTIAL DRIVEWAYS @ A = 8% DESIRABLE
FORMULA, A=G2-G1



□ - 1' MIN. ON DRIVEWAYS (RES. & COMM.)
2' MIN. ON DRIVEWAYS (COUNTY RD. & CITY ST.)

* - 6:1 SLOPE REQUIRED

NOTES:

ALL ENTRANCES CONSTRUCTED ON THIS PROJECT ARE SUBJECT TO CONCURRENCE WITH EXISTING GOVERNING REGULATIONS AS SET OUT BY THE STATE - TEXAS TRANSPORTATION COMMISSION.

ENTRANCE'S BASE AND SURFACING MAY BE EXTENDED BEYOND R.O.W. LINE AS REQUIRED TO MEET EXISTING DRIVEWAY GRADE IN A SATISFACTORY MANNER OF WHICH NO STEEPER THAN 12:1 FOR COMMERCIAL DRIVEWAY AND 8:1 FOR RESIDENTIAL DRIVEWAY SLOPE WILL BE CONSTRUCTED.

ALL FLEXIBLE BASE USED FOR PRIVATE DRIVES & COMMERCIAL DRIVES WILL NOT REQUIRE LIME TREATMENT.

EXACT LOCATIONS, DIMENSIONS, AND TYPE TO BE ESTABLISHED DURING CONSTRUCTION BY THE ENGINEER.

PROP. WIDTH OF DRIVEWAYS TO MATCH EXISTING WIDTH AT R.O.W. LINE.

114 #/SY ACP (COMPACTED) IS EQUAL TO 1 IN. DEPTH,
171 #/SY ACP (COMPACTED) IS EQUAL TO 1½ IN. DEPTH.

SIDE DRAIN PIPES TO BE INSTALLED WHERE ROADWAY DITCH DRAINAGE IS NECESSARY, AS INDICATED ON PLANS AND/OR AS DIRECTED BY THE ENGINEER.

SIDE DRAIN PIPES TO BE INSTALLED WITH A MINIMUM OF 12" COVER WITH PROPOSED RESIDENTIAL & COMMERCIAL DRIVEWAY MATERIAL OR 15" COVER WITH PROPOSED COUNTY ROAD & CITY STREET ROADWAY MATERIAL.

AVERAGE DRIVEWAY DIMENSIONS SHOWN ON TABLE OF DRIVEWAYS (ELSEWHERE IN PLANS) ARE FOR ESTIMATING PURPOSES ONLY. ACTUAL DRIVEWAY DIMENSIONS MAY BE CHANGED BY THE ENGINEER BASED ON EXISTING FIELD CONDITIONS.

THE RATE OF PRIME COAT SHALL BE 0.10 GAL/SY FOR PRIVATE AND/OR COMMERCIAL DRIVEWAYS AND 0.20 GAL/SY FOR PUBLIC DRIVEWAYS (COUNTY ROADS AND/OR CITY STREETS).

TYPICALLY A CHANGE IN GRADE OF THREE PERCENT (3%) OR LESS AND A DISTANCE BETWEEN CHANGES IN GRADE OF AT LEAST ELEVEN FEET (11') ACCOMMODATES MOST VEHICLES. HOWEVER, LITERATURE SUGGESTS THAT A SIX PERCENT (6%) TO EIGHT PERCENT (8%) CHANGE IN GRADE MAY OPERATE EFFECTIVELY. INDIVIDUAL SITE CONDITIONS SHOULD BE EVALUATED TO ACCOMMODATE THE VEHICLE FLEET USING THE DRIVEWAY.

PHARR DISTRICT STANDARD

TEXAS DEPARTMENT OF TRANSPORTATION

DRIVEWAY PROFILE DETAILS

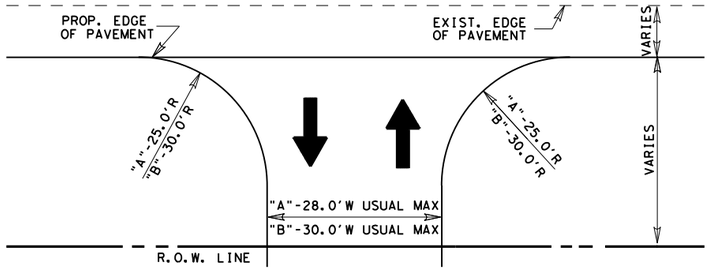
REV. 3/2020

DRIVEWAY1.DGN

FED. RD. DIV. NO.	FED AID PROJECT NO.	FILE NO.	SHEET NO.
6			111

STATE	STATE DIST. NO.	COUNTY	CONT.	SECT.	JOB	HIGHWAY NO.
TEXAS	21	HIDALGO	1586	01	079	FM 907

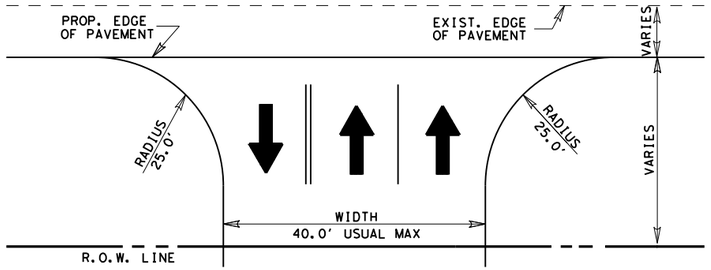
DESIGNS FOR TWO-WAY COMMERCIAL DRIVEWAYS



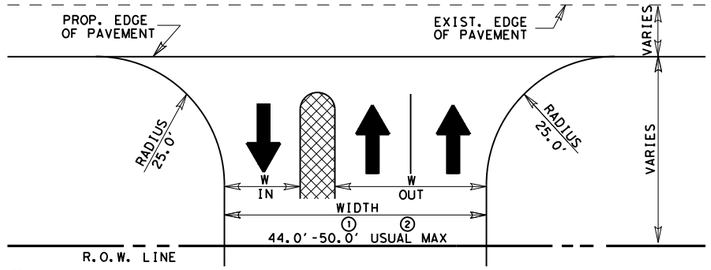
"A"- ONE ENTRY LANE AND ONE EXIT LANE, FEWER THAN 4 LARGE VEHICLES PER HOUR

"B"- ONE ENTRY LANE AND ONE EXIT LANE, 4 OR MORE SINGLE UNIT VEHICLES① PER HOUR

① - *DRIVEWAY DESIGNS FOR LARGER VEHICLES WILL BE CONSIDERED ON A CASE BY CASE BASIS*

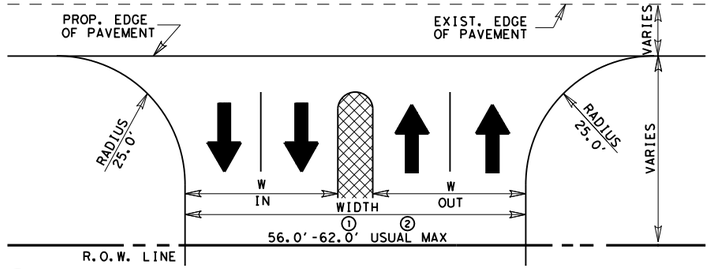


ONE ENTRY LANE AND TWO EXIT LANES (WITHOUT DIVIDERS)



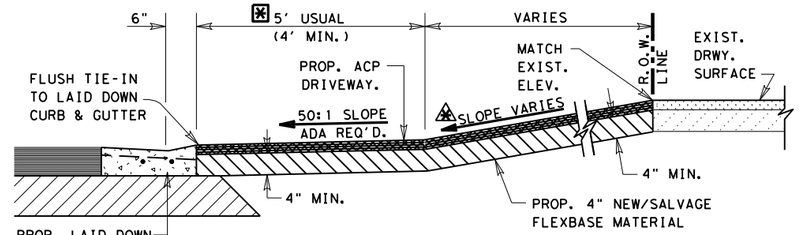
① - *4.0' WIDE DIVIDER, FACE-TO-FACE CURBS*
② - *10.0' WIDE DIVIDER, FACE-TO-FACE-CURBS*

ONE ENTRY LANE AND TWO EXIT LANES (WITH A DIVIDER)



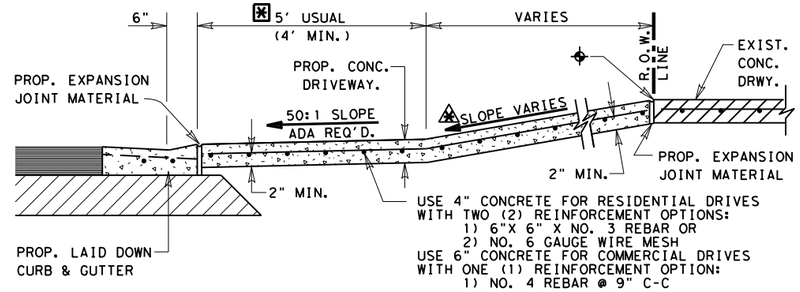
① - *4.0' WIDE DIVIDER, FACE-TO-FACE CURBS*
② - *10.0' WIDE DIVIDER, FACE-TO-FACE-CURBS*

TWO ENTRY LANES AND TWO EXIT LANES (WITH A DIVIDER)



TYPICAL ASPH. CONC. PVM'T. DRIVEWAY SECTION

N.T.S.



TYPICAL CONCRETE DRIVEWAY SECTION

N.T.S.

⌖ CONCRETE SHALL BE SAW CUT TO THE LIMITS OF REMOVAL WHERE APPLICABLE.

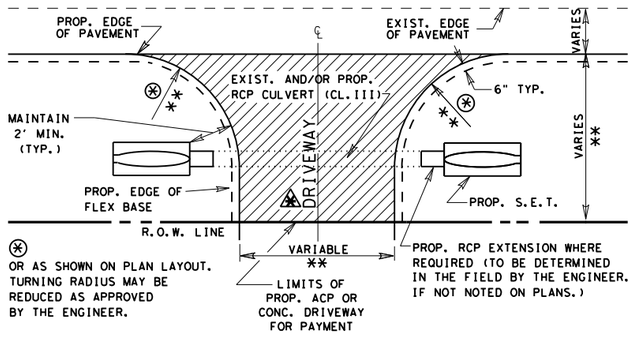
⊠ PROP./FUTURE SIDEWALK CROSSING LOCATION UNLESS SHOWN ELSEWHERE ON P&P SHEETS. SEE P&P SHEETS FOR PROP. SIDEWALK LOCATION IF SIDEWALKS ARE INCLUDED AS PART OF PROJECT. REFER TO STATE STANDARDS - PEDESTRIAN FACILITIES - FOR ADDITIONAL REQUIREMENTS.

⚠ ENTRANCE'S BASE AND SURFACING MAY BE EXTENDED BEYOND R.O.W. LINE AS REQUIRED TO MEET EXISTING GRADE IN A SATISFACTORY MANNER OF WHICH NO STEEPER THAN 12:1 FOR COMMERCIAL DRIVEWAY AND 8:1 FOR RESIDENTIAL DRIVEWAY SLOPE WILL BE CONSTRUCTED.

PROP. DWY ALGEBRAIC DIFFERENCE TABLE
COMMERCIAL DRIVEWAYS @ A = 6% MAX. RESIDENTIAL DRIVEWAYS @ A = 8% MAX.

PROPOSED DRIVEWAY SLOPE TABLE
COMMERCIAL DRIVEWAYS @ 12:1 MAX. RESIDENTIAL DRIVEWAYS @ 8:1 MAX.

PRIVATE AND COMMERCIAL DRIVES WITHOUT CURB & GUTTER



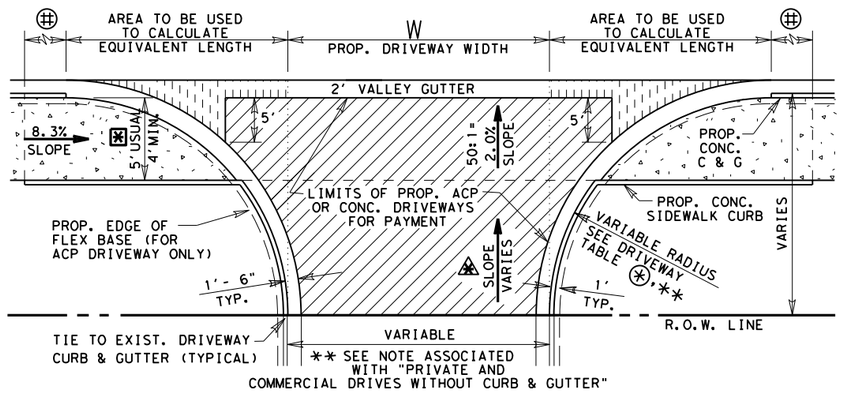
⌖ OR AS SHOWN ON PLAN LAYOUT. TURNING RADIUS MAY BE REDUCED AS APPROVED BY THE ENGINEER.

PLAN OF PRIVATE AND COMMERCIAL DRIVES

** FOR PRIVATE RESIDENTIAL DRIVES, TRY TO MATCH EXISTING WITH A MINIMUM WIDTH OF 12 FT. AND A MAXIMUM WIDTH OF 24 FT. WITH 15 FT. USUAL RADIUS. FOR COMMERCIAL DRIVES, USE ABOVE COMMERCIAL DRIVEWAY DETAILS.

⚠ SEE TYPICAL DRIVEWAY SECTIONS NOTES FOR DRIVEWAY SLOPE CRITERIA.

PRIVATE AND COMMERCIAL DRIVES WITH CURB & GUTTER



PLAN OF PRIVATE AND COMMERCIAL DRIVES

SEE P&P SHEETS FOR LOCATIONS OF DRIVES
N.T.S.

⊠ PROP./FUTURE CONC. SIDEWALK LOCATION UNLESS SHOWN ELSEWHERE ON P&P SHEETS. REFER TO STATE STANDARDS - PEDESTRIAN FACILITIES - FOR ADDITIONAL REQUIREMENTS.

⊕ LIMITS OF SLOPE FOR PROP. CONC. CURB BASED ON 8.3% SLOPE FOR SIDEWALK.

⚠ SEE TYPICAL DRIVEWAY SECTIONS NOTES FOR DRIVEWAY SLOPE CRITERIA.

LF EQUIVALENT TABLE FOR PAYMENT LIMITS OF 2' VALLEY GUTTER

LF OF VALLEY GUTTER= W + X1 + X2

WHERE X1 AND X2 MAY VARY DEPENDING ON RADIUS

Prop. Driveway Radius	X1 or X2 (Sq Ft Area / 2') Equivalent LF Length
5'	1
8'	2
10'	4
12'	6
15'	9
18'	12
20'	15
22'	18
25'	24
28'	30
30'	34

SEE DRIVEWAY TABLE FOR LIMITS OF LAID DOWN CURB TO BE PAID FOR AS CURB AND GUTTER

DRIVEWAY TYPES

TY PB-1
EXIST. PRIVATE OR COMMERCIAL DRIVEWAYS TO BE CONSTRUCTED AS SHOWN WITH 4" NEW AND/OR SALVAGE FLEX. BASE, PRIMED AND SURFACED WITH 171#/SY ACP.

CONCRETE (RESIDENTIAL)
EXIST. PRIVATE DRIVEWAYS TO BE CONSTRUCTED AS SHOWN WITH 4" CONCRETE. TO BE PAID FOR BY THE SQ.YD.

CONCRETE (COMMERCIAL)
EXIST. BUSINESS DRIVEWAYS TO BE CONSTRUCTED AS SHOWN WITH 6" CONCRETE. TO BE PAID FOR BY THE SQ.YD.

PHARR DISTRICT STANDARD

TEXAS DEPARTMENT OF TRANSPORTATION

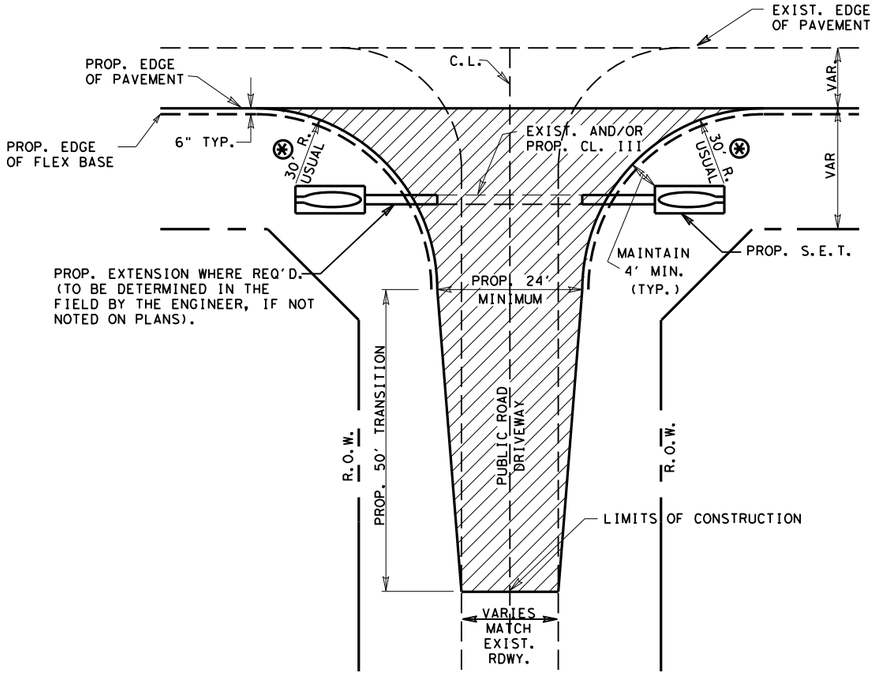
DRIVEWAY DETAILS PRIVATE (RESIDENTIAL-COMMERCIAL)

REV. 09/21

DRIVEWAY2.DGN

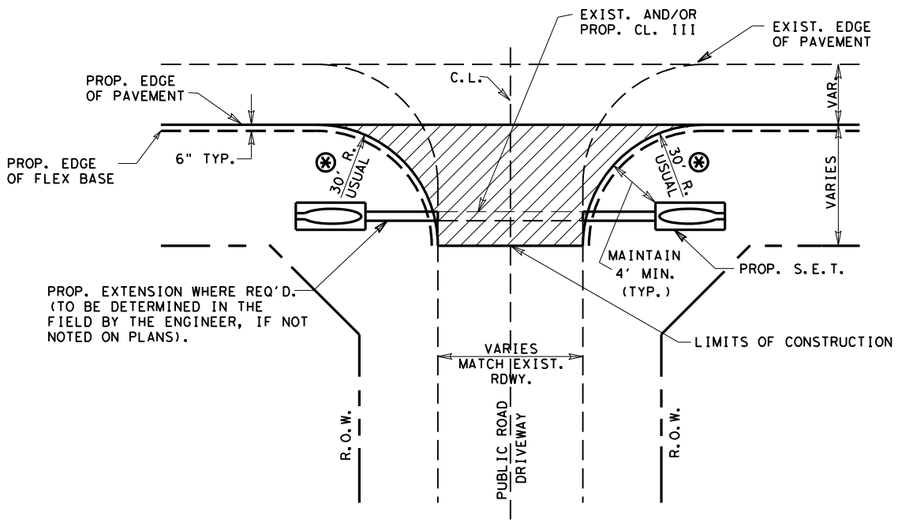
FED. RD. DIV. NO.	PROJECT NO.		FILE NO.			SHEET NO.
6						112
STATE	STATE DIST. NO.	COUNTY	CONT.	SECT.	JOB	HIGHWAY NO.
TEXAS	21	HIDALGO	1586	01	079	FM 907

DATE: 2/18/2022
FILE: c:\txdot\pw_online\txdot5\pwonline_juan.avila\d0410085\DRIVEWAY2.dgn



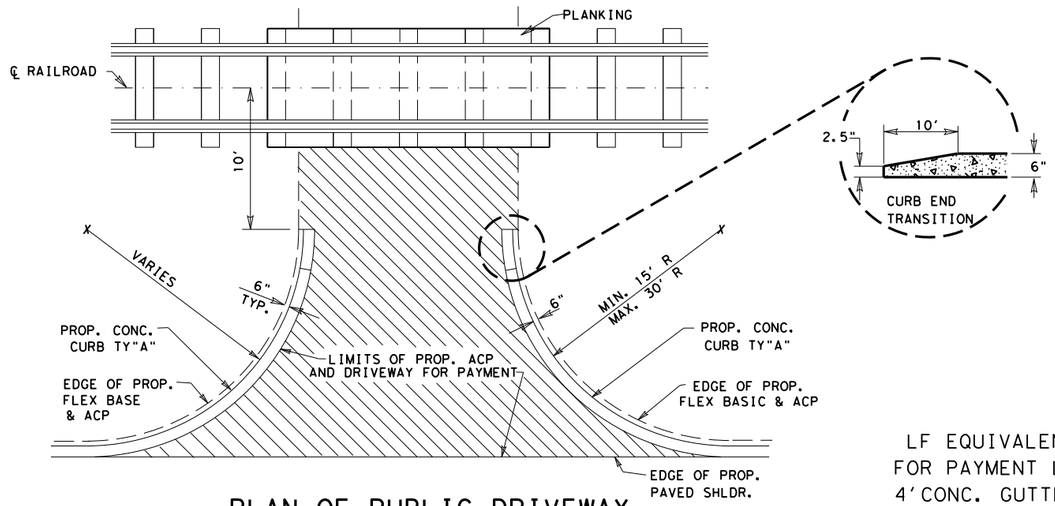
TYPICAL DETAIL

(WHEN EXIST. ROADWAY WIDTH LESS THAN 24'.)

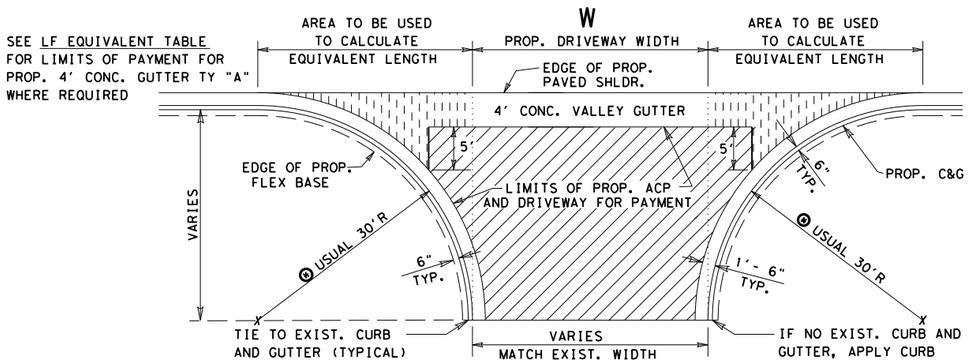


TYPICAL DETAIL

(WHEN EXIST. ROADWAY WIDTH EQUAL TO OR GREATER THAN 24'.)



PLAN OF PUBLIC DRIVEWAY ADJACENT TO R.R. CROSSING



PLAN OF PUBLIC DRIVEWAY

LF EQUIVALENT TABLE FOR PAYMENT LIMITS OF 4'CONC. GUTTER TY."A"

LF OF VALLEY GUTTER= W + X1 + X2

WHERE X1 AND X2 MAY VARY DEPENDING ON RADIUS

Prop. Driveway Radius	X1 or X2 (Sq Ft Area / 4') Equivalent LF Length
10	3
15	7
20	12
25	19
30	27
35	37
40	48
45	61
50	75
55	91
60	109
65	127
70	148
75	170

TY PBS1

EXIST. UNPAVED PUBLIC DRIVEWAYS TO BE CONSTRUCTED AS SHOWN WITH 12" LIME TREAT. SUBGRADE, 8" FLEX. BASE 1% LIME, THEN PRIMED AND SURFACED WITH 171#/SY ACP.

TY PBS2

EXIST. DRIVEWAY TO BE CONSTRUCTED SAME AS PROPOSED ROADWAY.

GENERAL NOTES:

AVERAGE DIMENSIONS SHOWN ON TABLE OF DRIVEWAYS ARE FOR ESTIMATING PURPOSES ONLY.

LOCATIONS LISTED ON THE TABLE ARE APPROXIMATE, EXACT LOCATIONS, DIMENSIONS, AND TYPE TO BE ESTABLISHED DURING CONSTRUCTION BY THE ENGINEER AS REQUIRED.

⊛ SEE DRIVEWAY TABLE, TURNING RADIUS MAY BE REDUCED AS APPROVED BY THE ENGINEER.

SEE TABLE OF DRIVEWAYS FOR TOTAL LENGTH OF PROP. 4' CONC. VALLEY GUTTER FOR EACH LOCATION.

PHARR DISTRICT STANDARD

TEXAS DEPARTMENT OF TRANSPORTATION

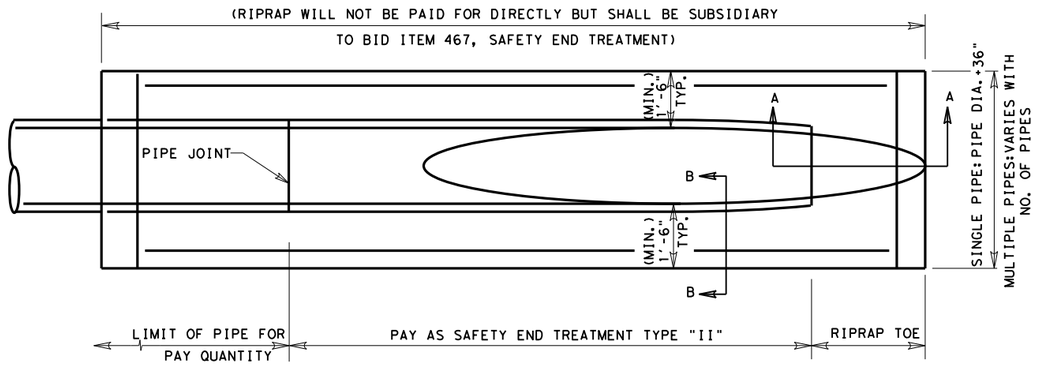
DRIVEWAY DETAILS PUBLIC (COUNTY ROAD-CITY STREET)

REV. 8/19

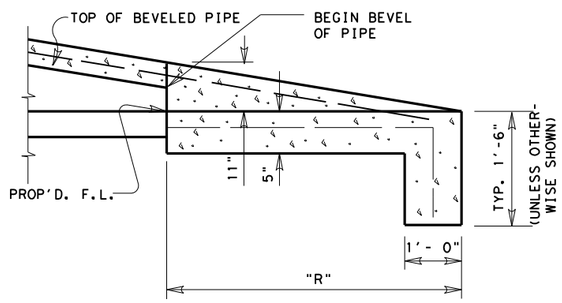
DRIVEWAY3.DGN

FED. RD. DIV. NO.	FED AID PROJECT NO.		FILE NO.			SHEET NO.
6						113
STATE	STATE DIST. NO.	COUNTY	CONT.	SECT.	JOB	HIGHWAY NO.
TEXAS	21	HIDALGO	1586	01	079	FM 907

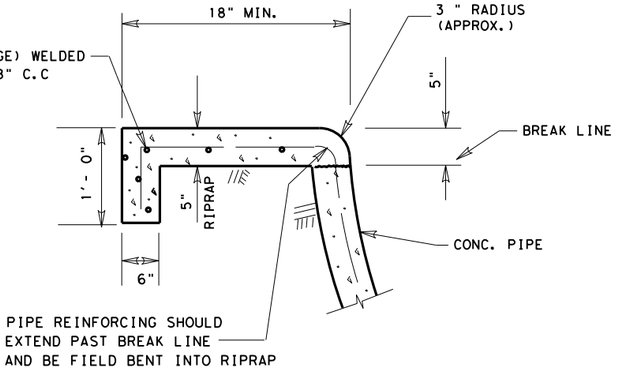
DATE: 2/18/2022
FILE: c:\txdot\pw_online\txdot5\pwonline_juan.avilad\d410085\DRIVEWAY3.dgn



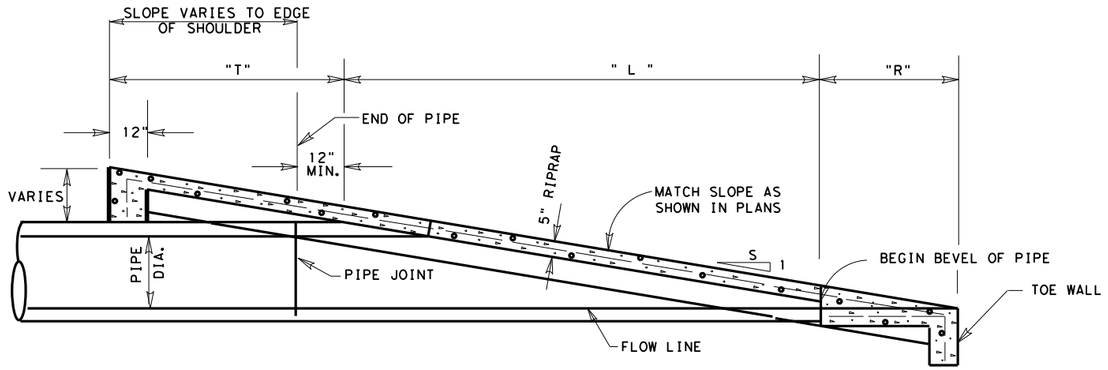
PLAN VIEW



SEC. A-A



SEC. B-B



ELEVATION
SAFETY END TREATMENT

SAFETY END TREATMENT PIPE LENGTHS

PIPE DIA. (IN.)	"L"			
	3:1	4:1	5:1	6:1
12	2'-0"	2'-8"	3'-4"	4'-0"
15	2'-9"	3'-8"	4'-7"	5'-6"
18	3'-6"	4'-8"	5'-10"	7'-0"
24	5'-1½"	6'-10"	8'-6½"	10'-3"
30	6'-9"	9-0"	11'-3"	13'-6"
36	8'-6"	11'-4"	14'-2"	17'-0"
42	10'-1½"	13'-6"	16'-10½"	20'-3"
48	11'-9"	15'-8"	19'-7"	23'-6"

⊛ DRIVEWAYS & TURNOUTS ARE 6:1 ONLY

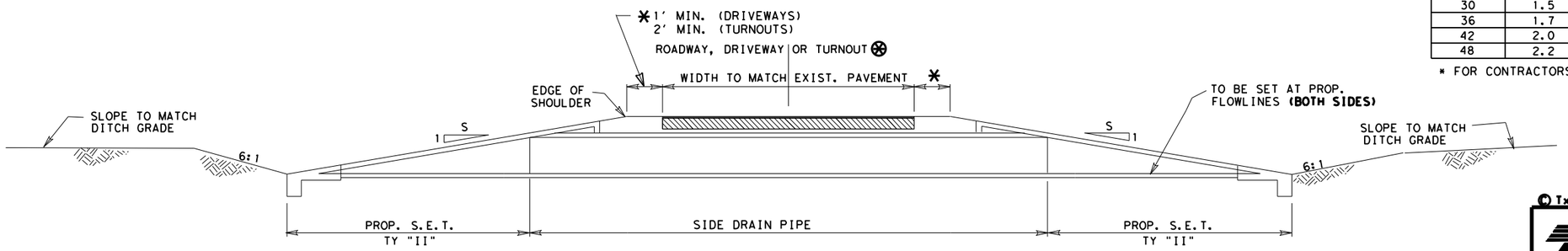
RIPRAP TOE LENGTHS

SLOPE	" R "	"T"
3:1	2'-9"	1'-9"
4:1	3'-8"	2'-4"
5:1	4'-7"	2'-11"
6:1	5'-6"	3'-6"

ESTIMATED RIPRAP VOLUME (CY)

PIPE DIA. (IN.)				
	3:1	4:1	5:1	6:1
12	.9	1.1	1.3	1.6
15	1.0	1.2	1.5	1.8
18	1.1	1.4	1.6	1.9
24	1.3	1.6	2.0	2.3
30	1.5	1.9	2.3	2.7
36	1.7	2.2	2.7	3.2
42	2.0	2.5	3.1	3.6
48	2.2	2.8	3.4	4.1

* FOR CONTRACTORS INFORMATION ONLY (SINGLE PIPE)



TYPICAL SIDEDRAIN SECTION

NOTE:

ALL EXCAVATION AND BACKFILL REQUIRED AT ALL PIPE SIDE DRAIN CONNECTIONS, ADJUSTMENTS AND/OR EXTENSIONS WILL NOT BE PAID FOR DIRECTLY BUT SHALL BE SUBSIDIARY TO THE BID ITEMS INVOLVED AND IN ACCORDANCE WITH ITEM 400 "STRUCTURAL EXCAVATION".

PHARR DISTRICT STANDARDS

TEXAS DEPARTMENT OF TRANSPORTATION

SAFETY END TREATMENT DETAILS

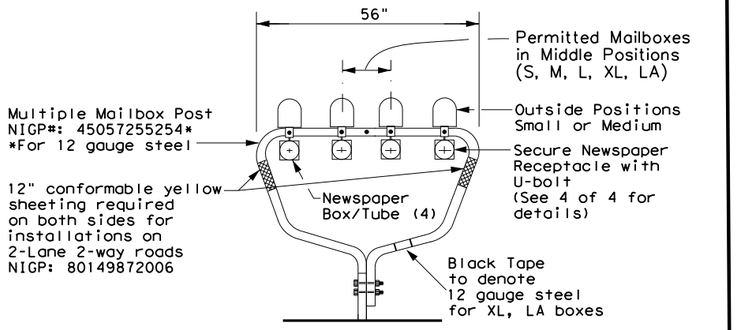
REV. 9/16

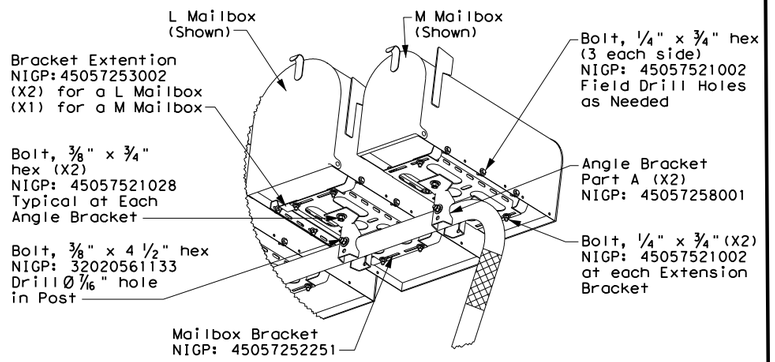
SET. DGN

FED. RD. DIV. NO.	FED AID PROJECT NO.	FILE NO.	SHEET NO.
6			114

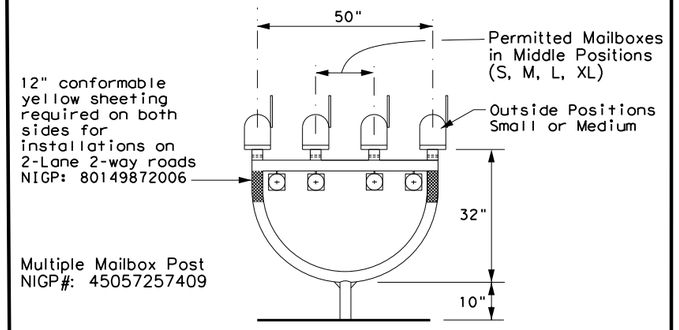
STATE	STATE DIST. NO.	COUNTY	CONT.	SECT.	JOB	HIGHWAY NO.
TEXAS	21	HIDALGO	1586	01	079	FM 907

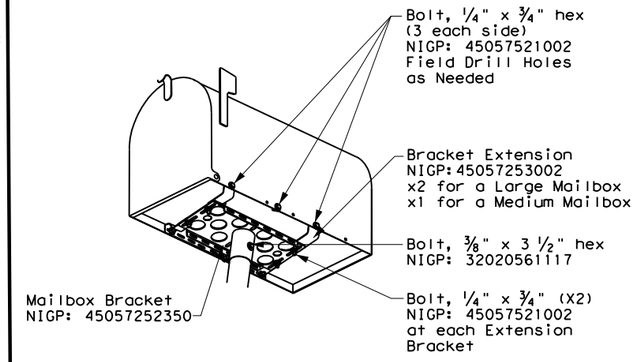
TYPE 1 - MULTIPLE





TYPE 4 - MULTIPLE





MAILBOX SIZES

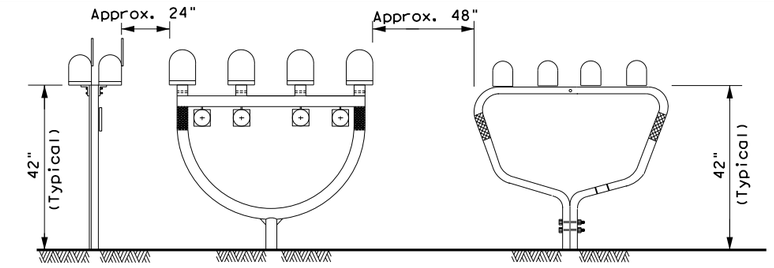
MAILBOX SIZE	TYPICAL DIMENSIONS			MAX **
	LENGTH	WIDTH	HEIGHT	WEIGHT
SMALL	19 1/2"	6"	7"	6 LBS
MEDIUM	22 1/2" *	8" *	11 1/2" *	8 LBS
LARGE	23 1/2"	11 1/2"	13 1/2"	11 LBS
EXTRA LARGE	18"	14"	12"	13 LBS
LOCKABLE	18"	11 1/2"	15"	23 LBS

* 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.

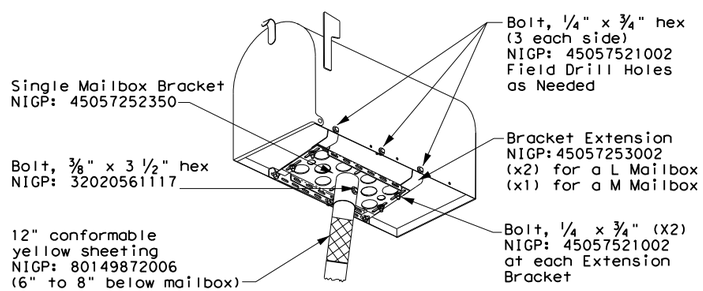
TYPICAL INSTALLATION MEASUREMENTS

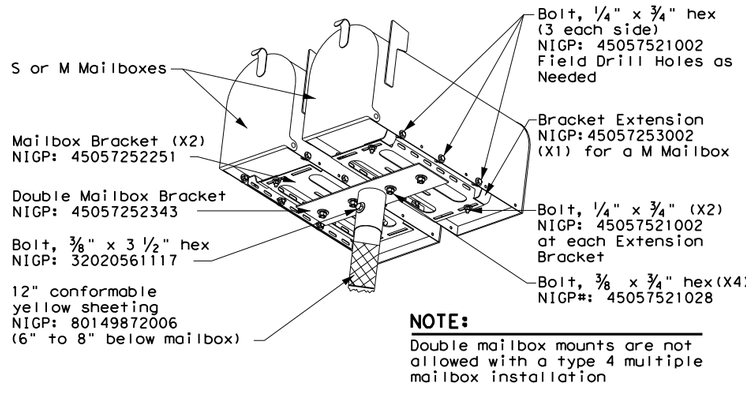


NOTE:

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

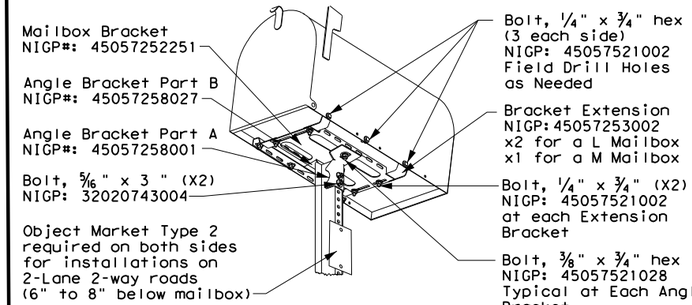


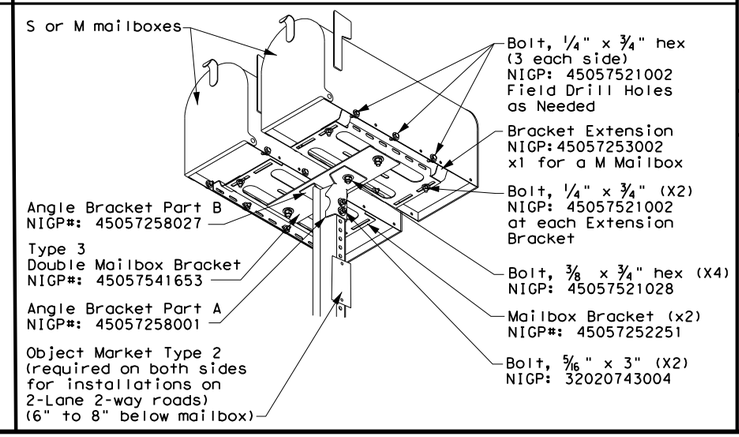


NOTE:

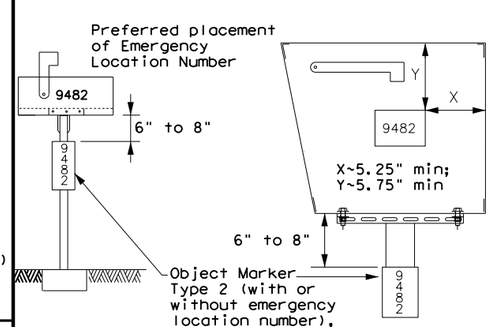
Double mailbox mounts are not allowed with a type 4 multiple mailbox installation

TYPE 3 - SINGLE/DOUBLE





PLACEMENT OF EMERGENCY LOCATION NUMBER

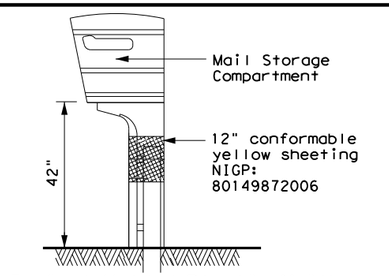


NOTES:

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	1586	01	079	FM 907
	DIST	COUNTY		SHEET NO.
	PHR	HIDALGO		115

DATE: 2/18/2022 9:01:06 AM
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DATE: 2/18/2022 9:01:07 AM
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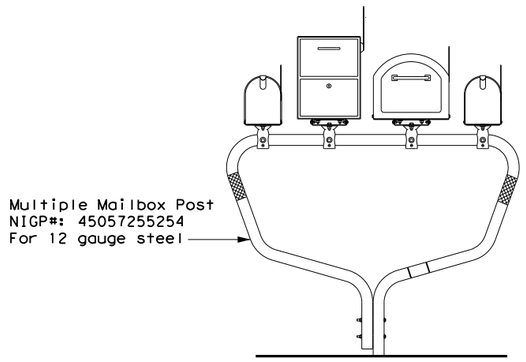
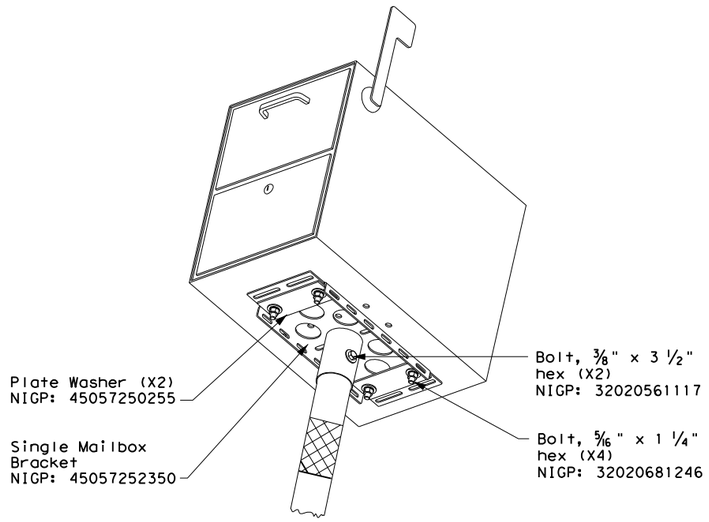
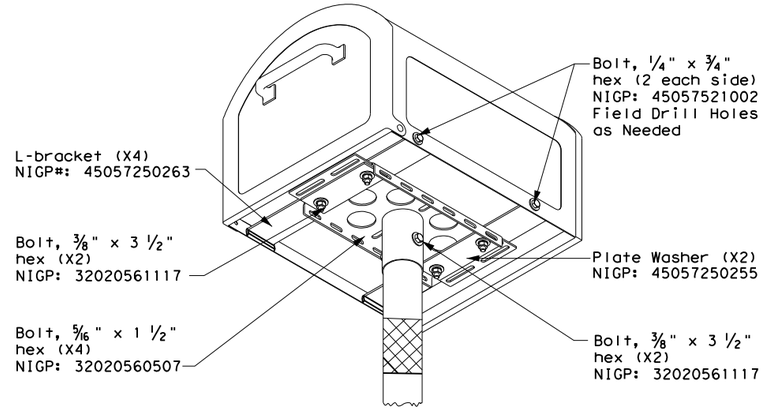
TYPE 1- MULTI LOCKABLE AND XL MAILBOX



TYPE 2/4 - SINGLE LOCKABLE MAILBOX

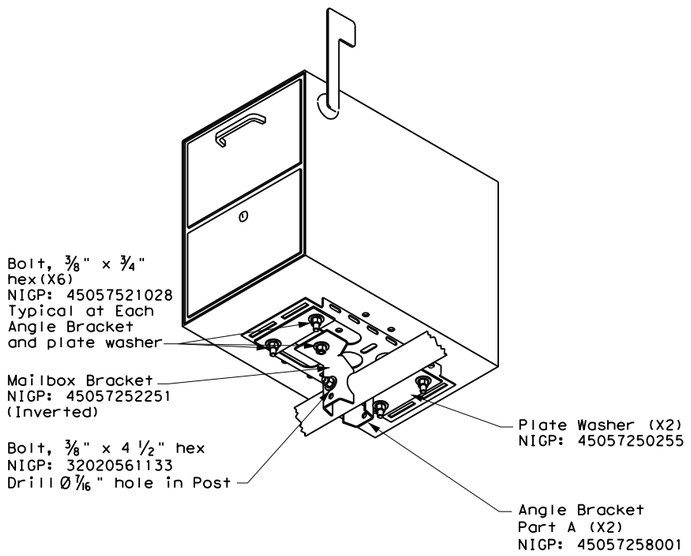


TYPE 2/4 - SINGLE XL MAILBOX

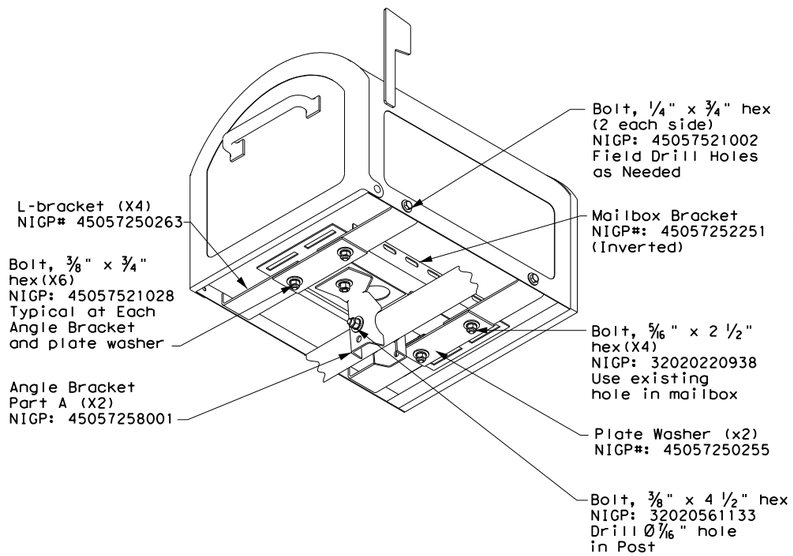


NOTE:
Follow same configuration when mounting an XL mailbox on a Type 4 multi post.

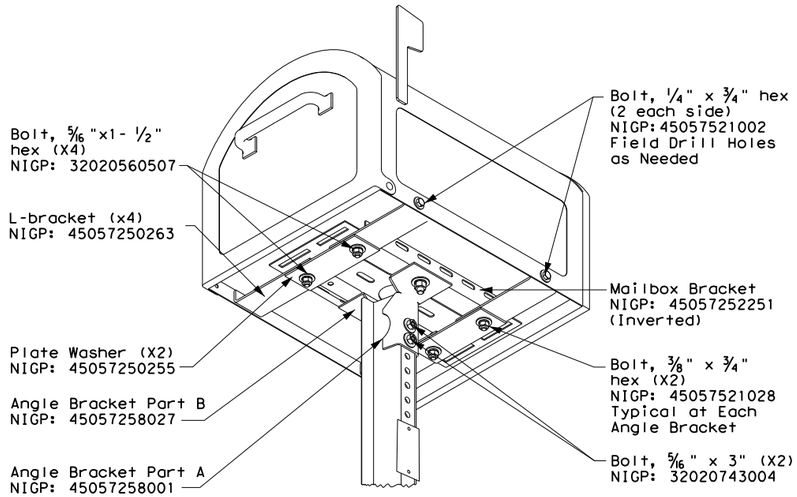
TYPE 1 MULTI – LOCKABLE ARCHITECTURAL (LA)



TYPE 1 MULTI – XL MAILBOX



TYPE 3 - XL MAILBOX MOUNTING



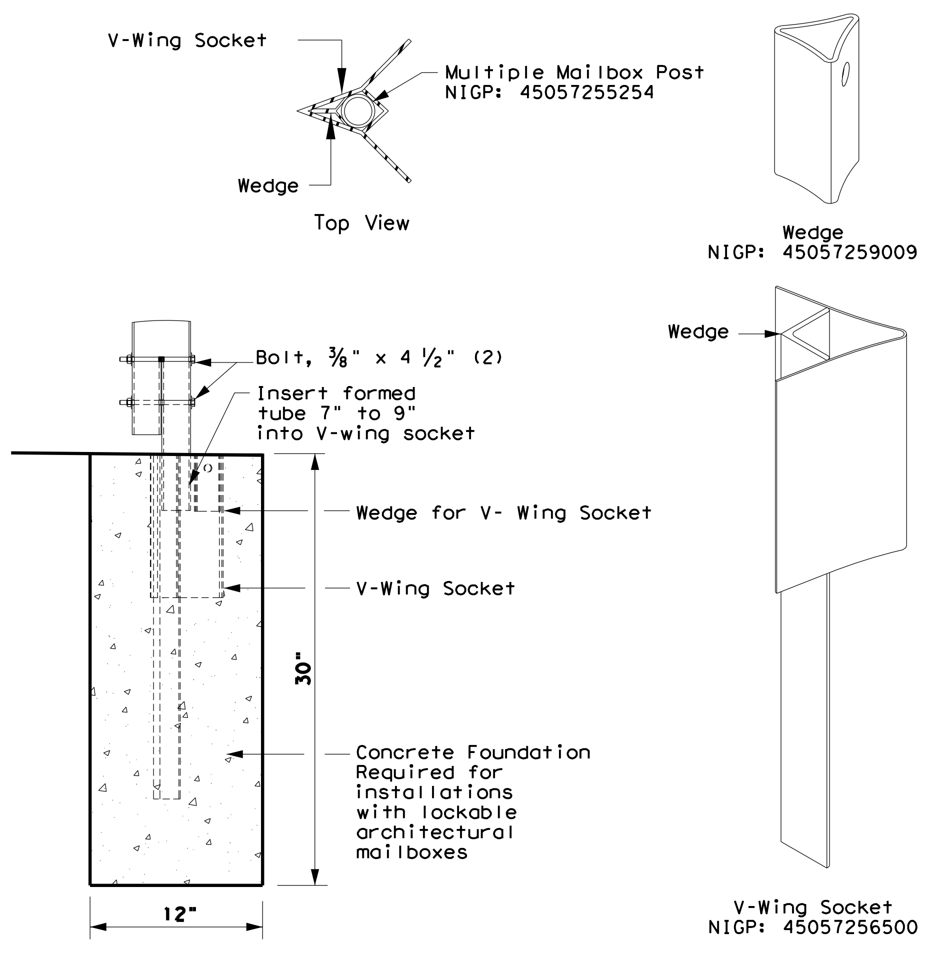
Texas Department of Transportation | Maintenance Division Standard

XL AND LOCKABLE ARCHITECTURAL MAILBOX ASSEMBLY

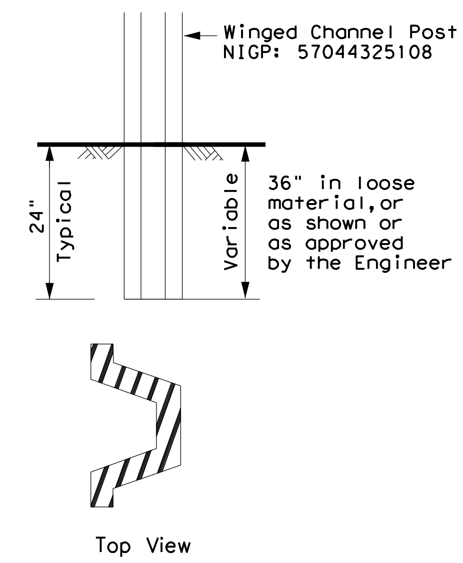
MB(2)-21

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	1586	01	079	FM 907
	DIST	COUNTY		SHEET NO.
	PHR	HIDALGO		116

TYPE 1 - SUPPORT/FOUNDATION
Thin Wall Tube w/ V-LOC Anchorage



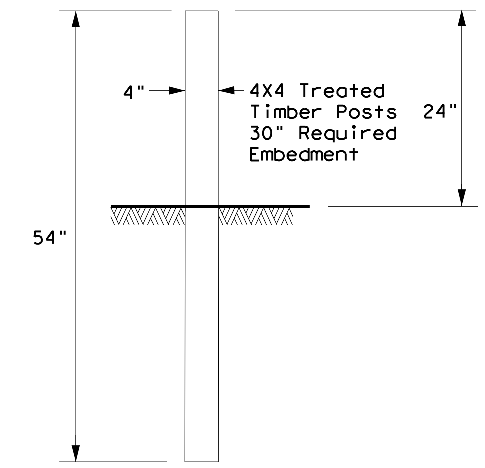
TYPE 3 - SUPPORT/FOUNDATION



NOTES:

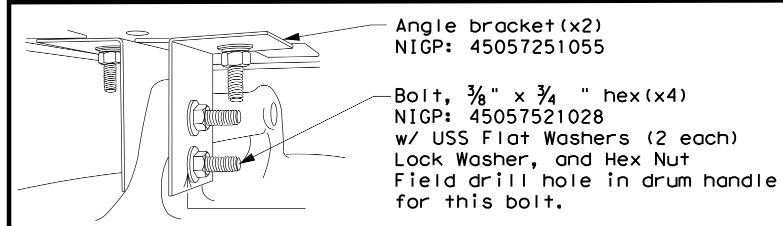
1. Attach Object Marker(OM) facing direction of traffic.
2. OM will also be required on opposite side if installed on a 2-Lane, 2-Way roadway.

TYPE 5 - SUPPORT/FOUNDATION



Molded Plastic Mailboxes shall be installed on 4"x4" treated timber posts only. The use of steel pipe or structural tubing in place of timber post is prohibited.

TYPE 6 - TEMPORARY MAILBOX SUPPORT



Plastic Drum NIGP: 55093383655
Rubber Collar NIGP: 55093387102

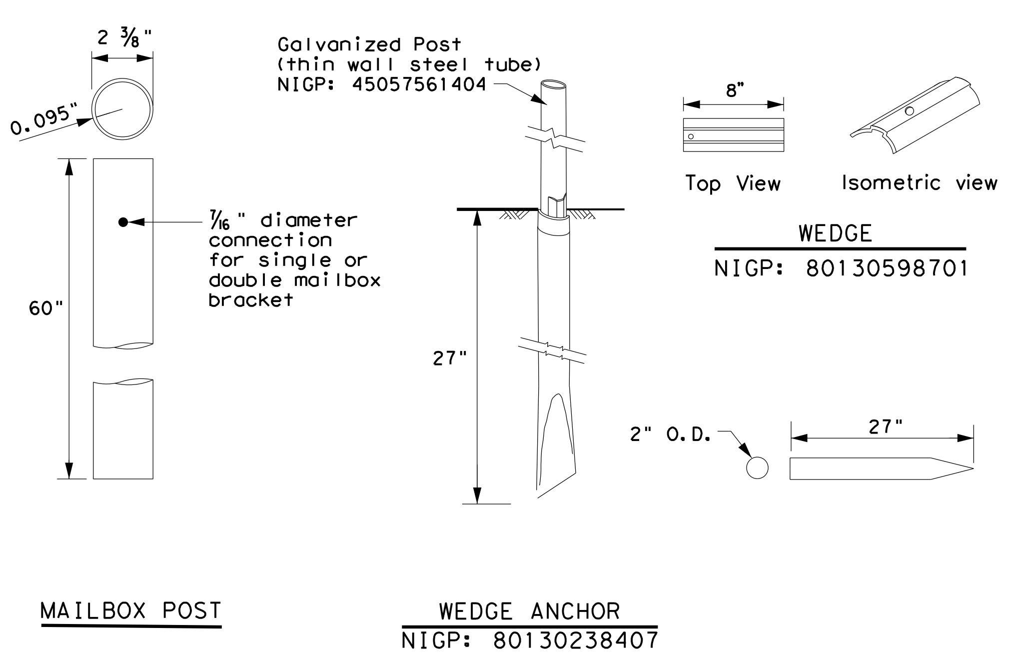
NOTES:

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.

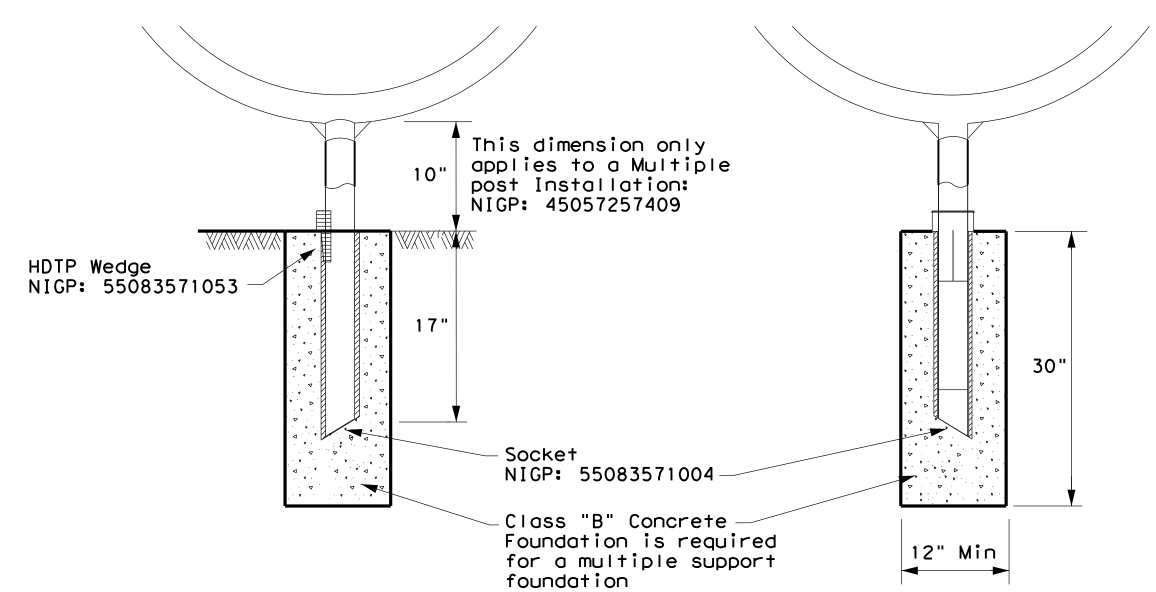
GENERAL NOTES:

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



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 11/2009 4/2015	1586	01	079	FM 907
6/2005 1/2011	DIST		COUNTY	SHEET NO.
11/2006 7/2014	PHR		HIDALGO	117

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DATE: 2/18/2022 9:01:09 AM
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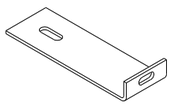
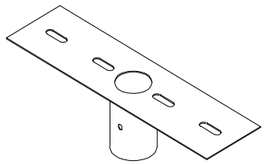
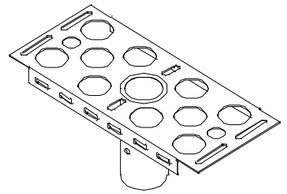
TYPE	TYPE 1	TYPE 2	TYPE 3	TYPE 4			TYPE 5	TYPE 6
Configuration	Multiple	Single or Double	Single or Double	Single	Double	Multiple	Single	Single
Mailbox Size NIGP #	Outside Position: S or M Inside Position: S, M, L, XL, or LA	Single: S, M, L, XL, or LA Double: SS, SM, MM	Single: S, M, L, or XL Double: 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



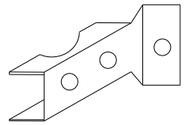
NIGP: 45057250263
L-Bracket x4 for
XL sized mailboxes



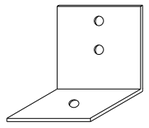
NIGP: 45057252343
Double Mailbox Bracket
For Type 2 and Type 4
double mount



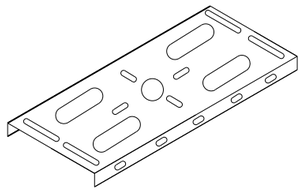
NIGP: 45057252350
Single Mailbox Bracket
For Type 2 single and for
Type 4 single and multi mount



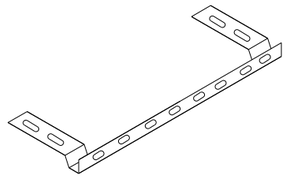
NIGP: 45057258001
Part "A" Angle Bracket
For Type 1 multi (2 per mailbox)
and Type 3 single and double



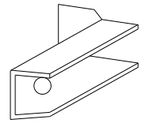
NIGP: 45057251055
Type 6 Angle Bracket
(2 per mailbox)



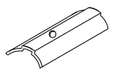
NIGP: 45057252251
Mailbox Bracket
For Type 1 multi and
any double mount (use 2)



NIGP: 45057253002
Bracket Extension
Use 1 for a medium Mailbox
Use 2 for a Large Mailbox



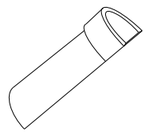
NIGP: 45057258027
Part "B" Angle Bracket
For Type 3 single
and double



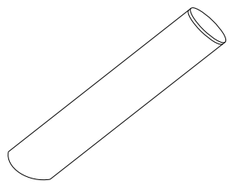
NIGP: 80130598701
Wedge for Type 2

NIGP: 45057250255
Plate Washer for Architecural
and XL Mailboxes

NIGP: 45057541653
Type 3 double mailbox bracket

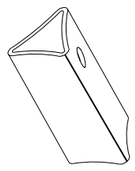


NIGP: 55083571053
Type 4 Mailbox Wedge

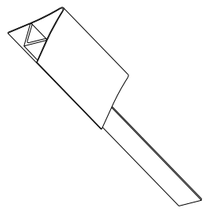


NIGP: 55083571004
Type 4 Mailbox Socket

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

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NIGP PARTS LIST AND COMPATIBILITY

MB(4)-21

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©TxDOT March 2004	CONT	SECT	JOB	HIGHWAY
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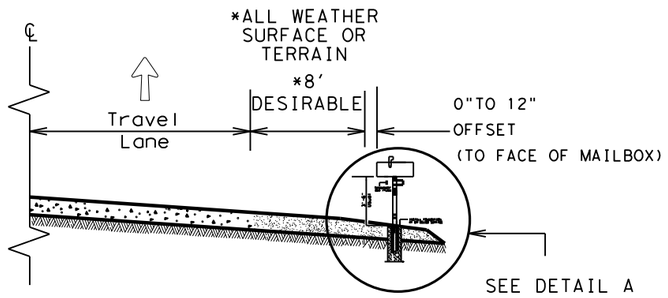
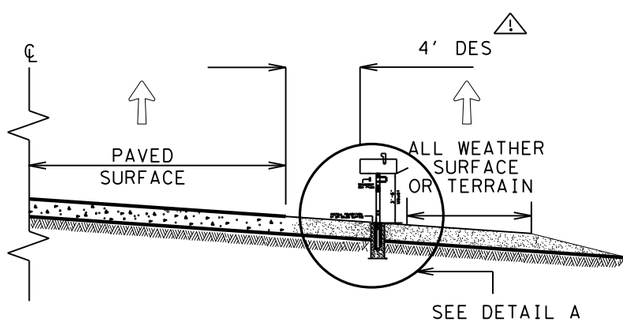
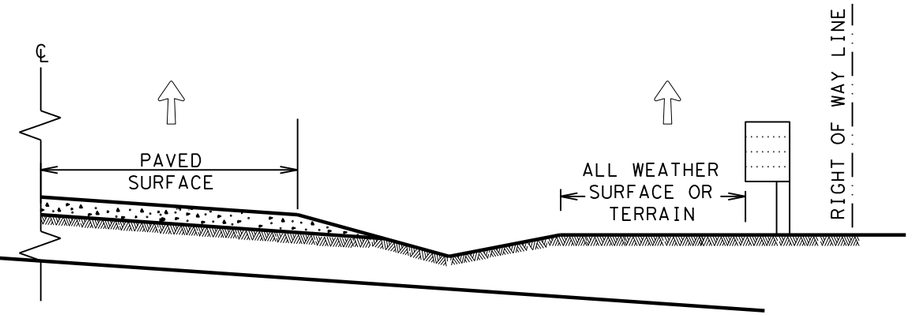


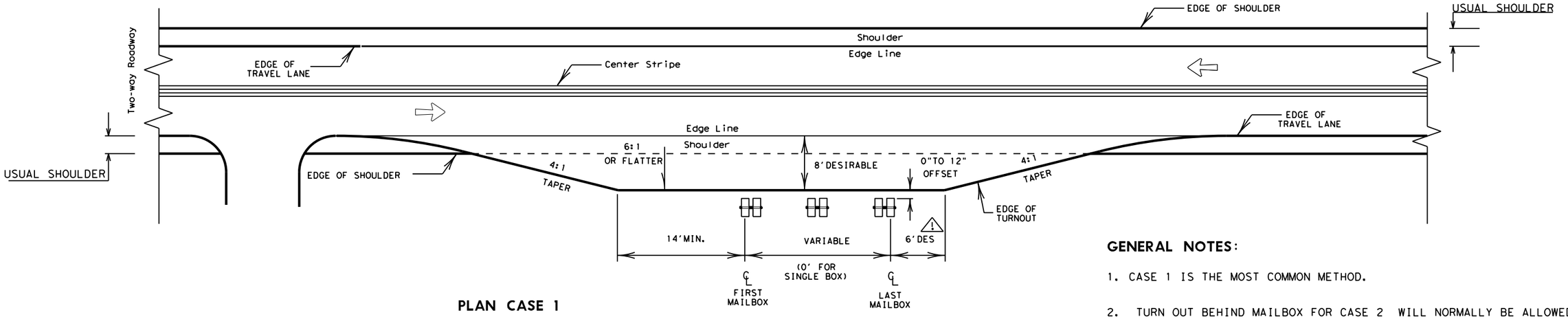
CASE 1. OFF TRAVEL WAY DELIVERY



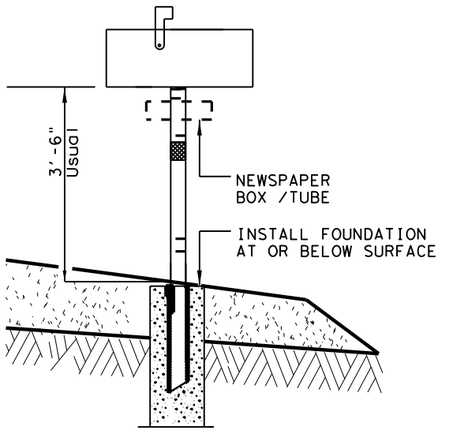
CASE 2. BACK SIDE DELIVERY



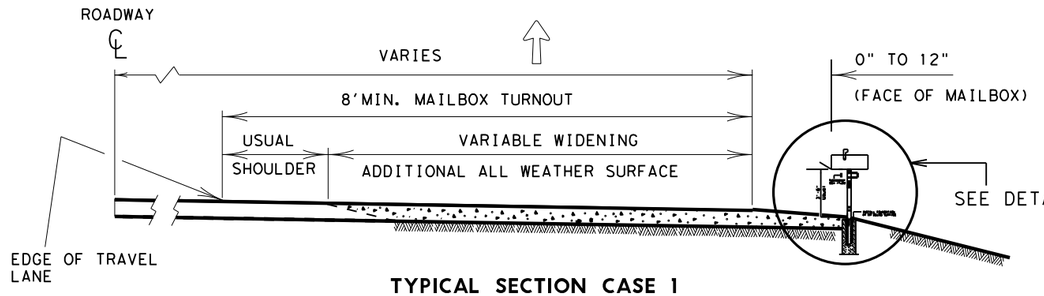
CASE 3. DELIVERY NEAR RIGHT OF WAY LINE



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	
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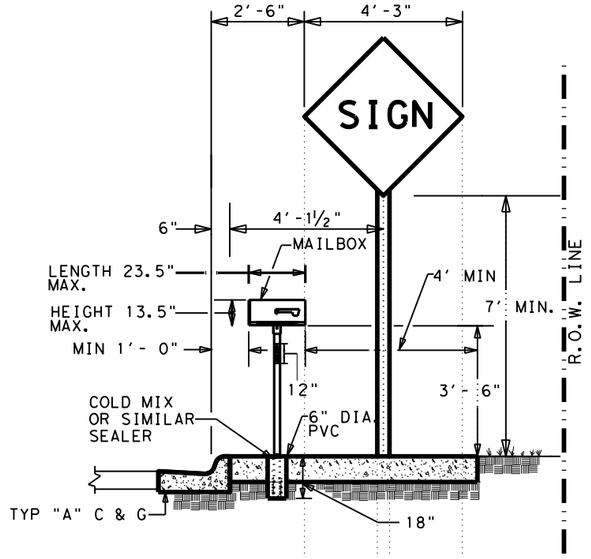
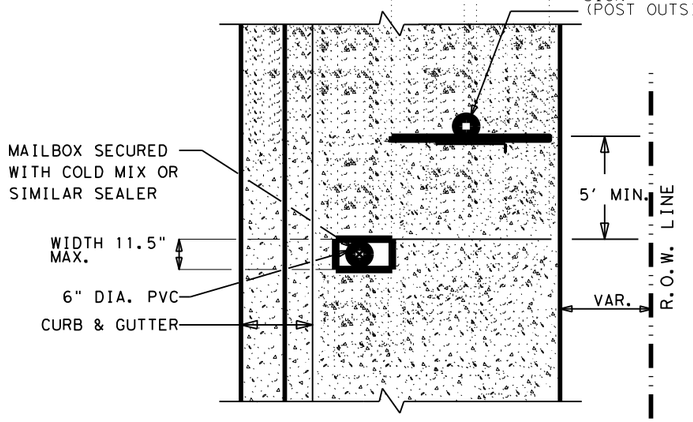
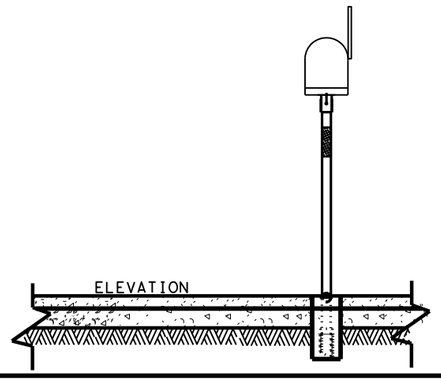
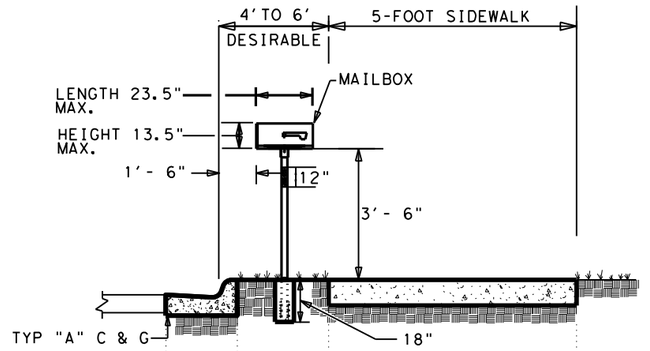


MAILBOX SIDEWALK INSTALLATION RELATIVE TO ANY OTHER OBSTRUCTION SUCH AS A SIGN
(MINIMUM BORDER DISTANCE)

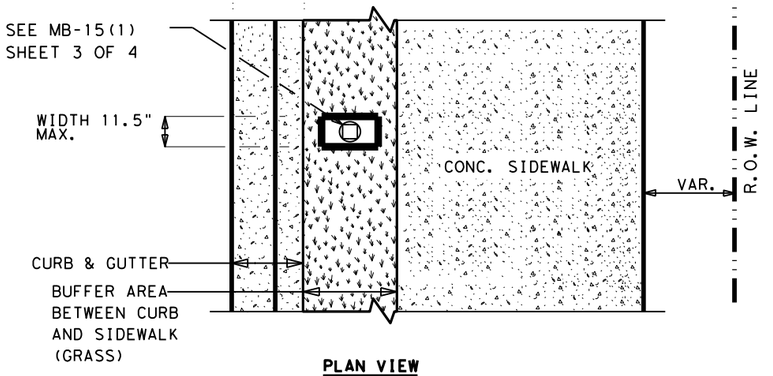


PLAN VIEW





MAILBOX SIDEWALK INSTALLATION
(DESIRABLE BORDER DISTANCE)



PLAN VIEW

Texas Department of Transportation | Maintenance Division Standard

SINGLE MAILBOX PLACEMENT BEHIND CURBS WITH OR WITHOUT SIDEWALKS

MB-14(2A)

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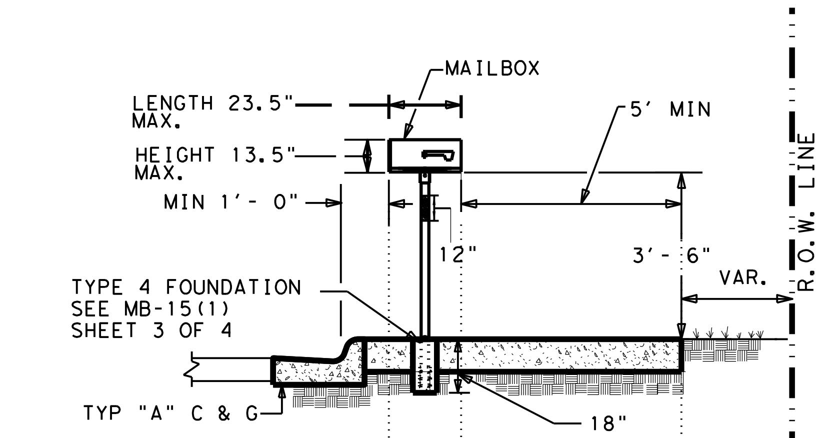
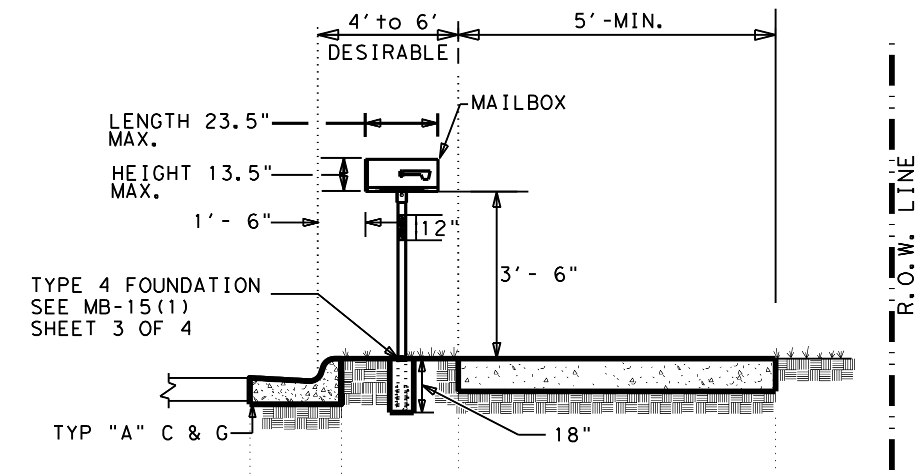
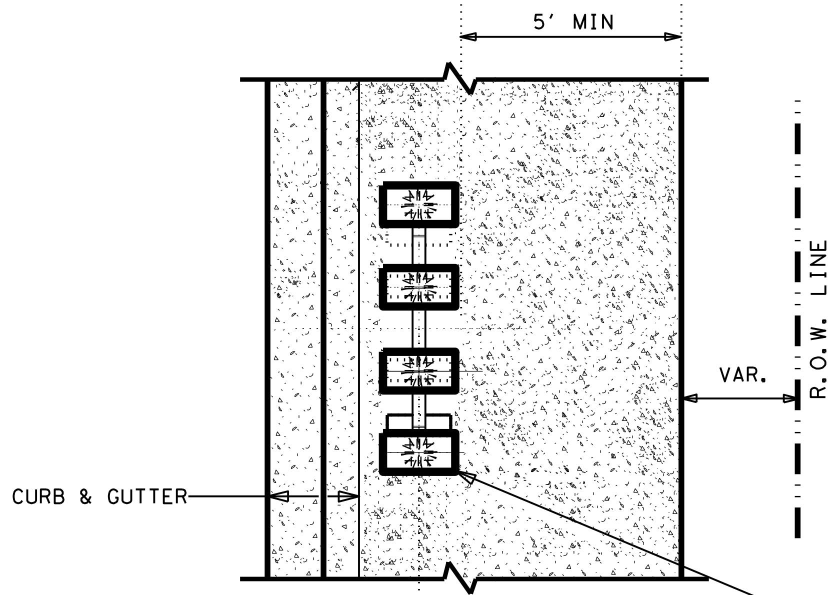


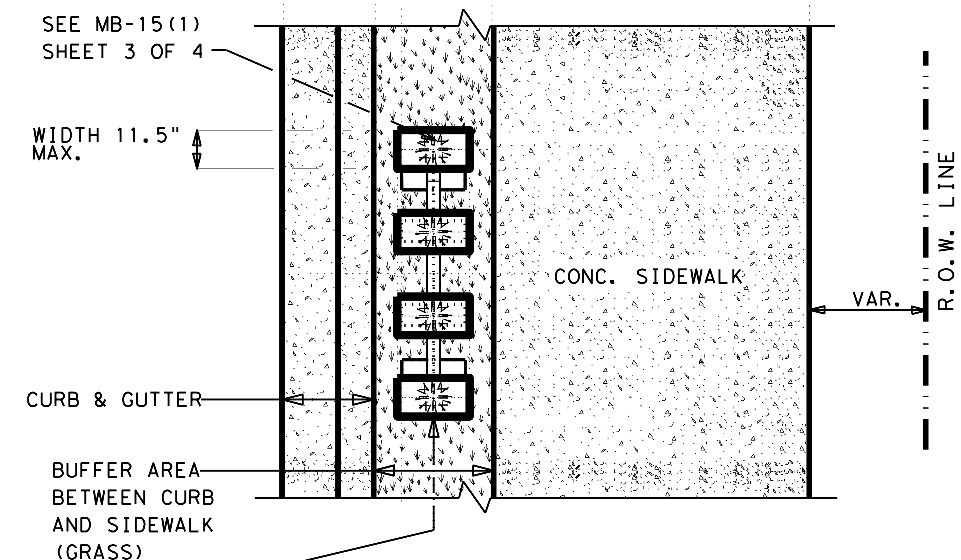
MAILBOX SIDEWALK INSTALLATION RELATIVE TO ANY OTHER OBSTRUCTION SUCH AS A SIGN
(MINIMUM BORDER DISTANCE)



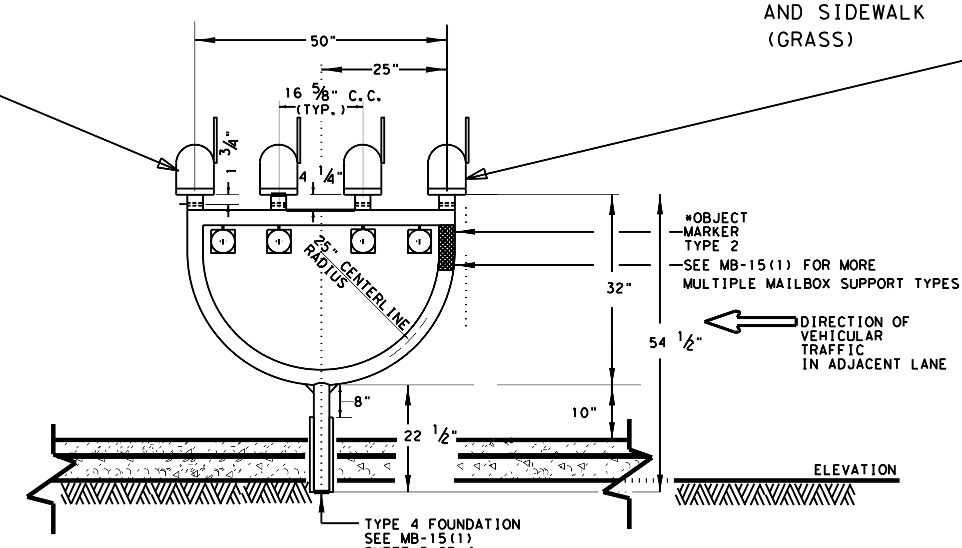
MAILBOX SIDEWALK INSTALLATION
(DESIRABLE BORDER DISTANCE)



PLAN VIEW



PLAN VIEW



SHEET 3 OF 3

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MULTIPLE MAILBOX PLACEMENT BEHIND CURBS WITH OR WITHOUT SIDEWALKS

MB-14(2B)

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© TxDOT MAY 2014	CONT	SECT	JOB	HIGHWAY
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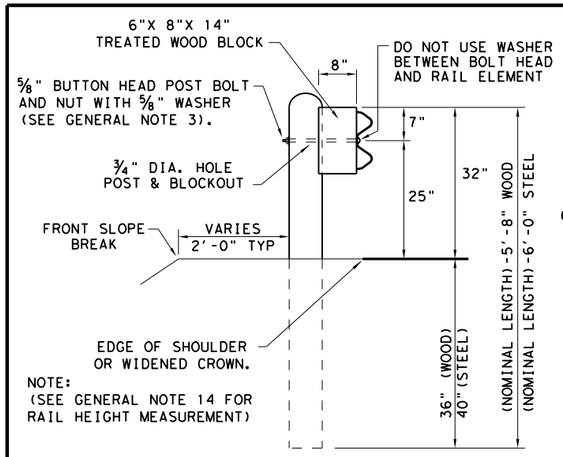
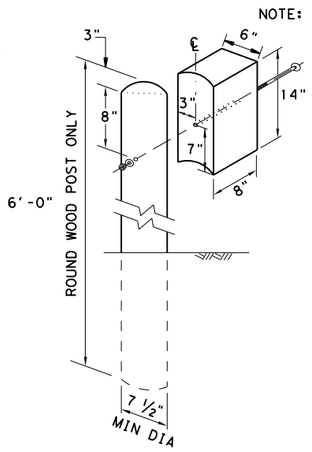
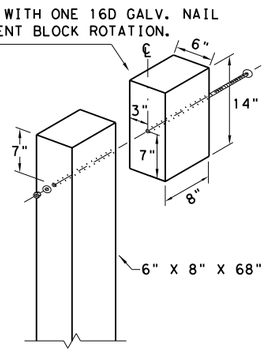


TYPICAL POST PLACEMENT

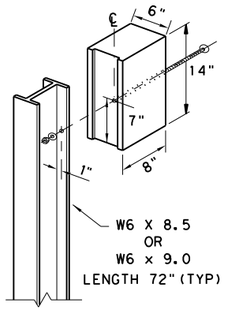


WOOD BLOCK TO ROUND WOOD POST

NOTE: TOENAIL WITH ONE 16D GALV. NAIL TO PREVENT BLOCK ROTATION.

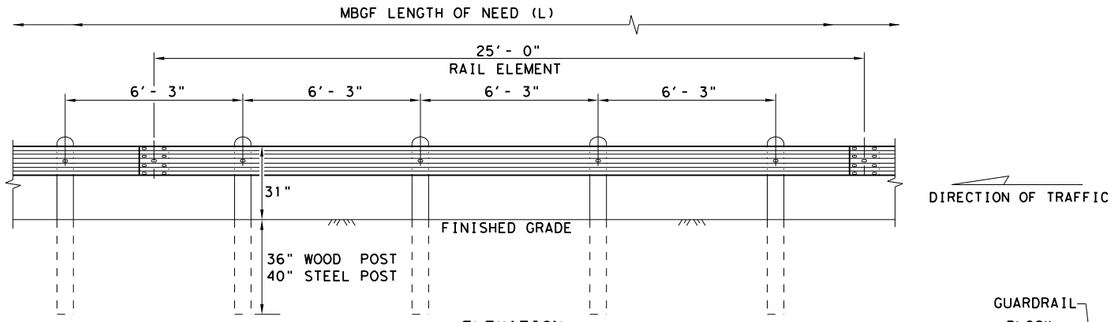


WOOD BLOCK TO RECTANGULAR WOOD POST



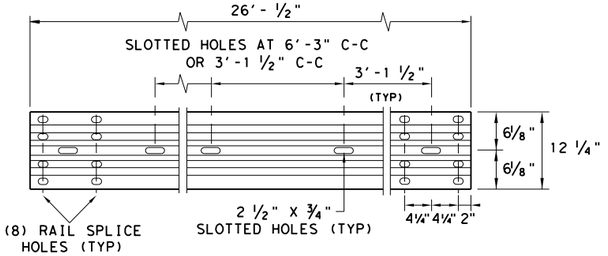
ROUTED WOOD BLOCK TO I-BEAM STEEL POST

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



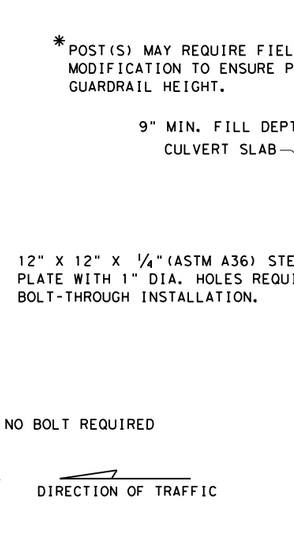
ELEVATION
MID-SPAN RAIL SPLICE

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



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

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



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

STEEL POST CONNECTION TO CULVERT SLAB (USE WHEN THERE IS LESS THAN 36" COVER OVER CULVERT SLAB).

12" X 12" X ¼" (ASTM A36) STEEL BOTTOM PLATE WITH 1" DIA. HOLES REQUIRED WITH BOLT-THROUGH INSTALLATION.

LOW FILL CULVERT POST

NOTE: TWO INSTALLATION OPTIONS.

1. BOLT-THROUGH OPTION: REQUIRES A 6" MIN. SLAB THICKNESS. ⅞" DIA (ASTM A449) HEAVY HEX BOLTS WITH TWO HARDENED WASHER EACH AND HEAVY HEX NUTS.
   NOTE: BOLT LENGTH = SLAB PLUS 2 ¼" MIN.

2. EPOXY ANCHOR OPTION: THIS OPTION MAY ONLY BE USED IF THE CULVERT SLAB IS 9" MIN. THICK. THREADED ANCHOR RODS MUST BE ⅞" DIA. ASTM A449 OR A193 GRADE B7 WITH HEAVY HEX NUT, AND ONE HARDENED WASHER EACH. EMBED ANCHOR RODS 6" WITH HILTI HIT RE 500 EPOXY ADHESIVE. OTHER TYPE III CLASS C EPOXY ADHESIVES MEETING THE REQUIREMENTS OF DMS-6100, "EPOXIES AND ADHESIVES", MAY BE USED IF IT CAN BE DEMONSTRATED THAT THEY MEET OR EXCEED THE STRENGTH OF HILTI HIT RE 500 WITH THE SAME EMBEDMENT DEPTH AND THREADED ROD DIA. FOLLOW THE MANUFACTURER'S REQUIREMENTS FOR INSTALLING EPOXIED THREADED RODS. EXTEND RODS ¼" MIN. BEYOND NUT.

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

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

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

SPLICE BOLT LENGTH — VARIES

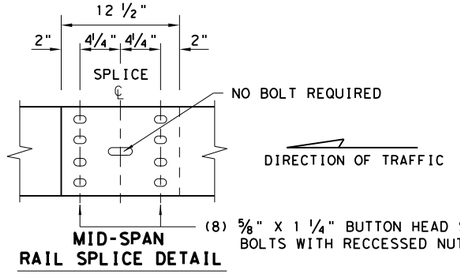
FBB01 = 1 ¼"
FBB02 = 2"

⅝"

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

BUTTON HEAD BOLT

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



MID-SPAN RAIL SPLICE DETAIL

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

GENERAL NOTES

1. THE TYPE OF POST (ROUND WOOD POST, RECTANGULAR WOOD POST, OR STEEL POST) WILL BE AS SHOWN IN THE PLANS. THE EXACT POSITION OF MBGF SHALL BE SHOWN IN THE PLANS OR AS DIRECTED BY THE ENGINEER. STEEL POSTS TO BE GALVANIZED IN ACCORDANCE WITH ITEM 445, "GALVANIZING."
2. RAIL ELEMENTS SHALL MEET THE REQUIREMENTS OF ITEM 540, "METAL BEAM GUARD FENCE" EXCEPT AS MODIFIED IN THE PLANS. THE CONTRACTOR MAY FURNISH RAIL ELEMENTS OF 25'- 0", OR 12'- 6" (NOM.) LENGTHS. RAIL ELEMENTS MAY HAVE SLOTTED HOLES AT 3'-1 ½" C-C OR 6'-3" C-C. A SPECIAL LENGTH OF RAIL MAY BE MANUFACTURED TO ACCOMMODATE THE DOWNSTREAM ANCHOR TERMINAL (DAT) AND THE TRANSITION SECTIONS OF GUARDRAIL.
3. BUTTON HEAD "POST BOLTS & NUTS" SHALL MEET THE REQUIREMENTS OF (ASTM A307), AND SHALL BE OF SUFFICIENT LENGTH TO EXTEND THROUGH THE FULL THICKNESS OF THE NUT AND ⅝" WASHER (FWC16a) AND NOT MORE THAN 1" BEYOND IT. TRIM REMAINING BOLT LENGTH TO MEET REQUIRED LENGTH.
4. FITTINGS (BOLTS, NUTS, AND WASHERS) SHALL BE GALVANIZED IN ACCORDANCE WITH ITEM 445, "GALVANIZING." FITTINGS SHALL BE SUBSIDIARY TO THE BID ITEM.
5. CROWN SHALL BE WIDENED TO ACCOMMODATE THE METAL BEAM GUARD FENCE.
6. THE LATERAL APPROACH TO THE GUARD FENCE, SHALL HAVE A MAXIMUM SLOPE OF 1V:10H.
7. IF SHOWN ELSEWHERE IN THE PLANS OR AS DIRECTED BY THE ENGINEER, THE GUARD FENCE MAY BE FLARED AT A RATE OF 25:1 OR FLATTER.
8. UNLESS OTHERWISE SHOWN IN THE PLANS, GUARD FENCE PLACED IN THE VICINITY OF CURBS SHALL BE POSITIONED SO THAT THE FACE OF CURB IS LOCATED DIRECTLY BELOW OR BEHIND THE FACE OF THE RAIL. RAIL PLACED OVER CURBS SHALL BE INSTALLED SO THAT THE POST BOLT IS LOCATED APPROXIMATELY 25 INCHES ABOVE THE GUTTER PAN OR EDGE OF SHOULDER.
9. APPLICATIONS IN SOLID ROCK ARE ONLY ALLOWED WITH STEEL POSTS. IF SOLID ROCK IS ENCOUNTERED WITHIN 0 TO 18" OF THE FINISHED GRADE, DRILL A 24" DIA. HOLE, 24" INTO THE ROCK. IF SOLID ROCK IS ENCOUNTERED BELOW 18", DRILL A 12" DIA. HOLE, 12" INTO THE ROCK OR TO THE STANDARD EMBEDMENT DEPTH, WHICHEVER MAYBE LESS. ANY EXCESS POST LENGTH, AFTER MEETING THESE DEPTHS, MAY BE FIELD CUT TO ENSURE PROPER GUARDRAIL MOUNTING HEIGHT. BACKFILL WITH COARSE AGGREGATE MATERIAL.
10. POSTS SHALL NOT BE SET IN CONCRETE, OF ANY DEPTH.
11. SPECIAL FABRICATION WILL BE REQUIRED AT INSTALLATION LOCATIONS HAVING A CURVATURE OF LESS THAN 150 FT. RADIUS.
12. UNLESS OTHERWISE SHOWN IN THE PLANS, A COMPOSITE MATERIAL BLOCK THAT MEETS THE REQUIREMENTS OF DMS-7210, "COMPOSITE MATERIAL POSTS AND BLOCKS FOR METAL BEAM GUARD FENCE" MAY BE SUBSTITUTED FOR BLOCKS OF SIMILAR DIMENSIONS. THE CONSTRUCTION DIVISION, TXDOT MAINTAINS A MATERIAL PRODUCER LIST (MPL) FOR PRODUCERS OF MATERIALS CONFORMING TO DMS-7210 ONLY PRODUCERS ON THE MPL MAY FURNISH COMPOSITE MATERIAL BLOCKS.
13.

Texas Department of Transportation

Design Division Standard

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

FILE: gf3119.dgn	DN: TxDOT	CK: KM	DW: VP	CK: CGL/AG
©TxDOT: NOVEMBER 2019	CONT	SECT	JOB	HIGHWAY
REVISIONS	1586	01	079	FM 907
	DIST	COUNTY		SHEET NO.
	PHR	HIDALGO		120

DATE: 8/30/2021
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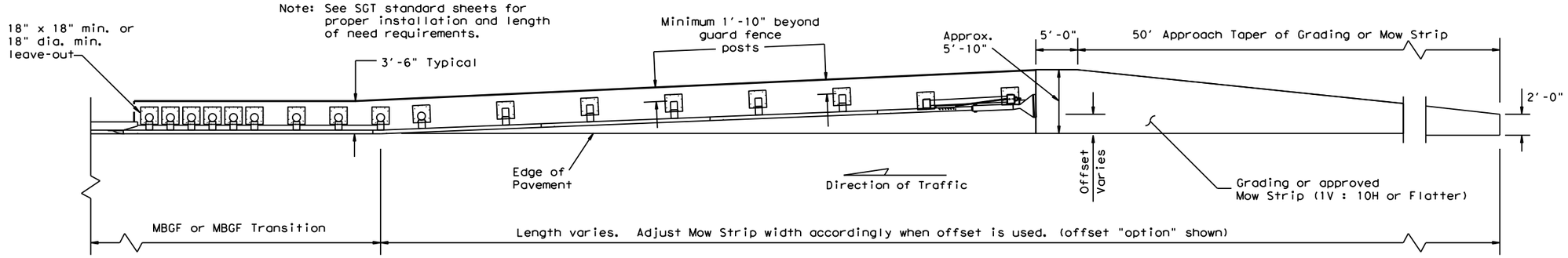
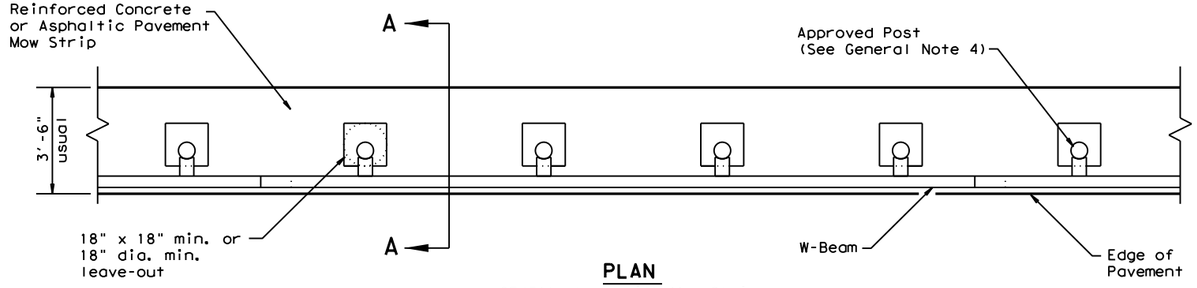
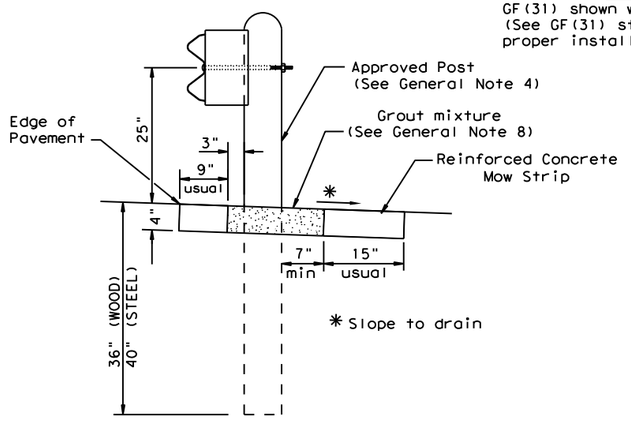


GRADING AND MOW STRIP AT GUARDRAIL END TREATMENTS



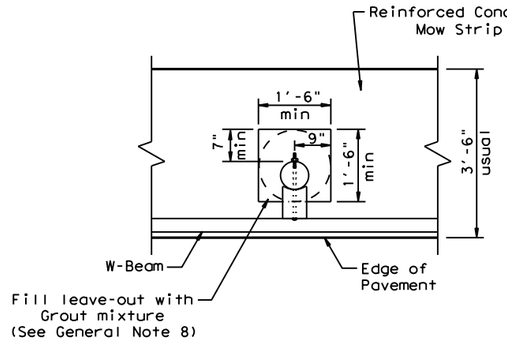
PLAN

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



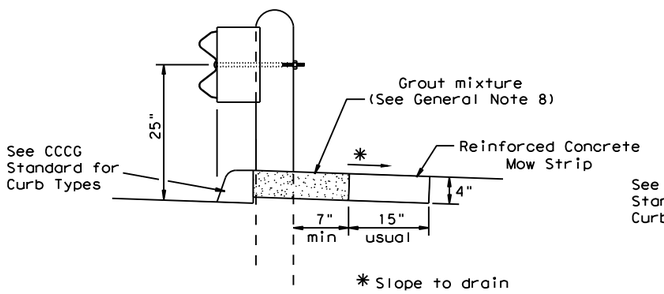
SECTION A-A

Typical



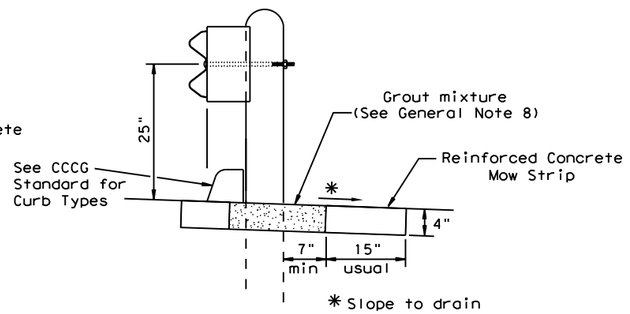
MOW STRIP DETAIL

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



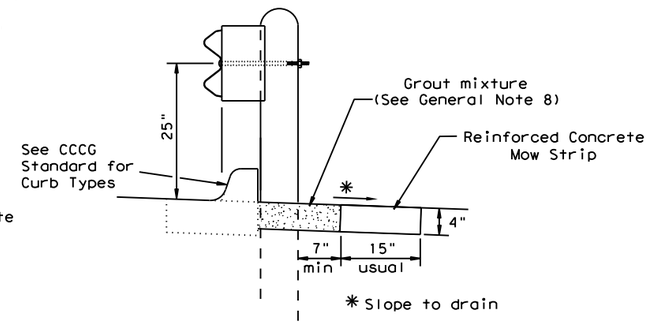
CURB OPTION (1)

This option will increase the post embedment throughout the system.



CURB OPTION (2)

Curb shown on top of mow strip



CURB OPTION (3)

Note: Site Condition(s)

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

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

GENERAL NOTES

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

Texas Department of Transportation

Design Division Standard

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

GF(31)MS-19

FILE: gf31ms19.dgn	DN: TxDOT	CK: KM	DW: VP	CK: CGL/AG
©TxDOT: NOVEMBER 2019	CONT	SECT	JOB	HIGHWAY
REVISIONS	1586	01	079	FM 907
	DIST	COUNTY		SHEET NO.
	PHR	HIDALGO		121

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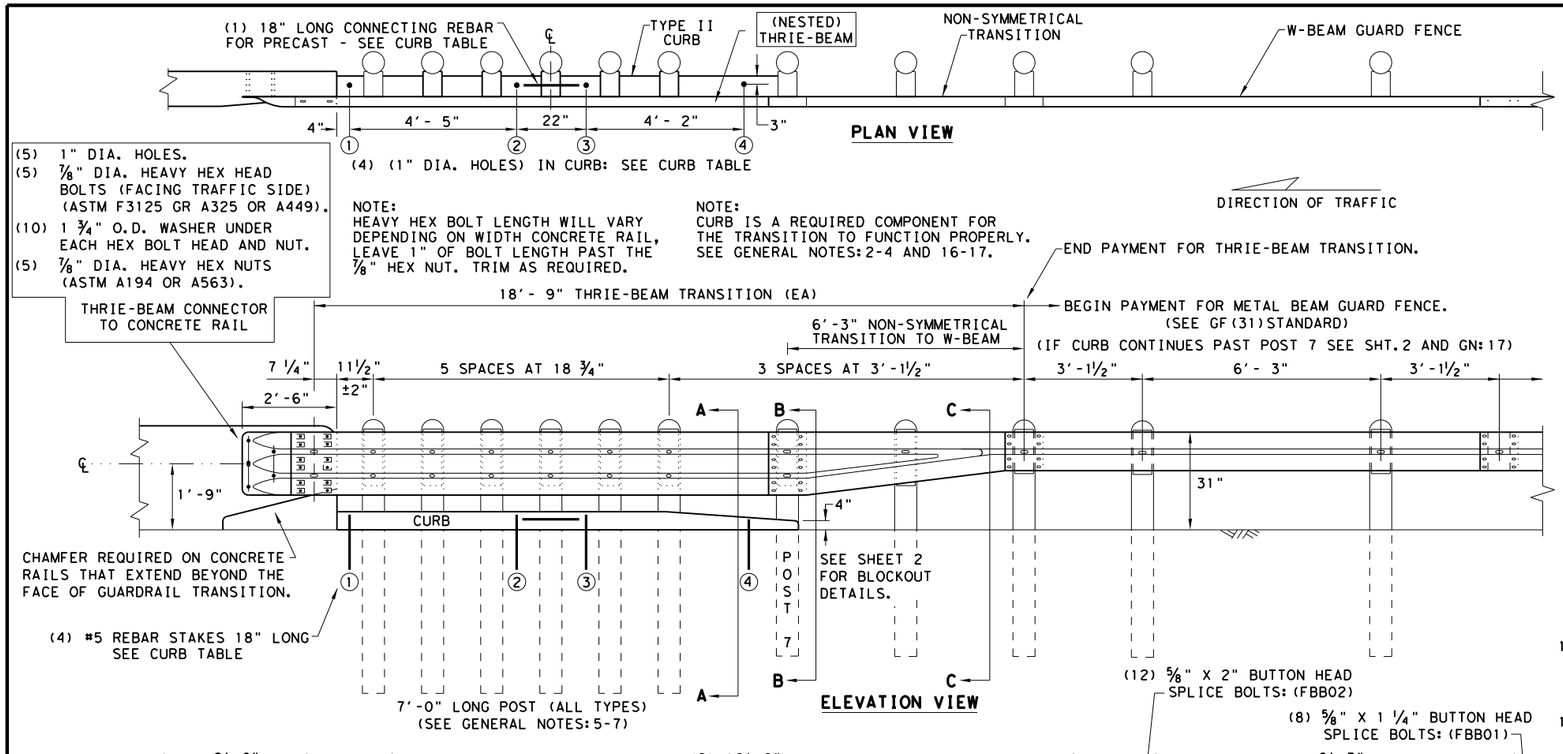


GENERAL NOTES

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

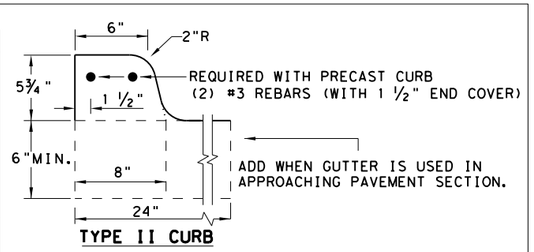
THRIE-BEAM TERMINAL - CURB TABLE

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

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

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

SECURING PRECAST OR CAST-IN-PLACE TO FINISHED GRADE *:
FORM OR CORE (4) 1" DIA. HOLES, SEE PLAN AND ELEVATION VIEWS FOR HOLE LOCATIONS. DRIVE (4) #5 GR.60 REBAR STAKES 18" LONG INTO THE GROUND AND 1/2" BELOW TOP OF CURB.
FILL HOLES WITH APPROVED GROUT MIXTURE.



TYPE II CURB

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

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

TYPE II CURB DETAILS

HIGH-SPEED TRANSITION

SHEET 1 OF 2

Texas Department of Transportation — Design Division Standard

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

GF(31)TR TL3-20

FILE: gf31trt1320.dgn	DN: TxDOT	CK: KM	DW: VP	CK: CGL/AG	
©TxDOT: NOVEMBER 2020	CONT	SECT	JOB	HIGHWAY	
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	PHR	HIDALGO		122	

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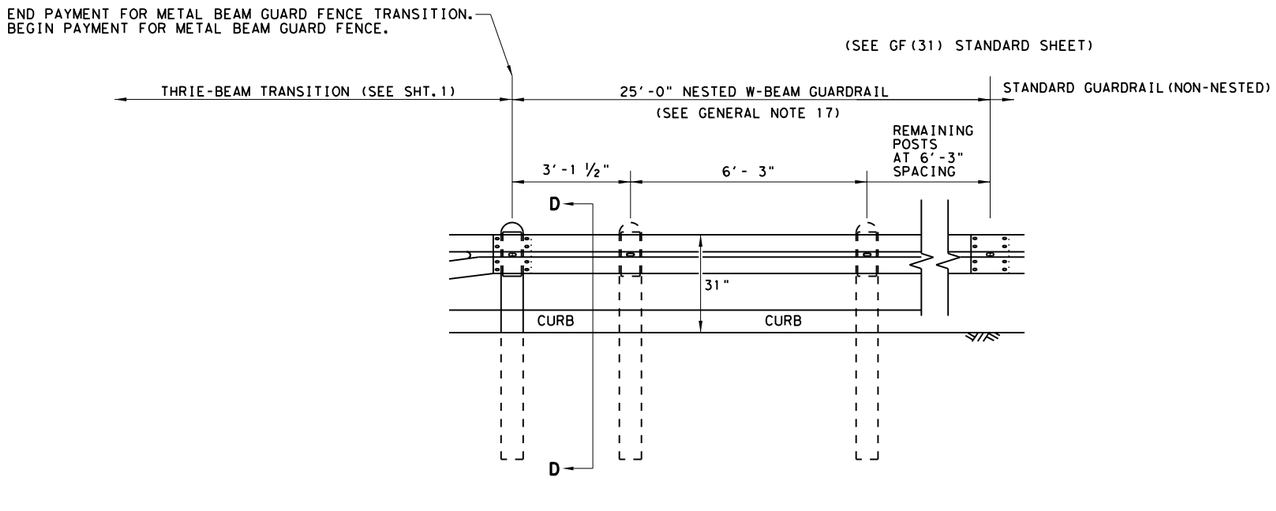
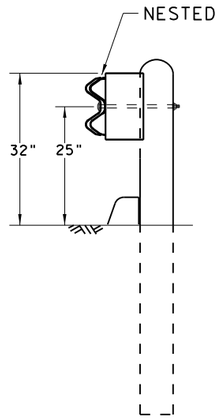
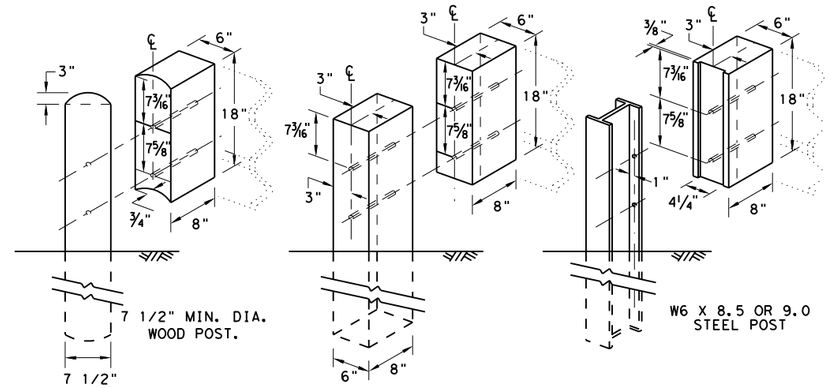
REQUIRED ALTERNATIVE FOR CONTINUOUS CURB EXTENDING PAST POST 7 (SEE SHT. 1 GENERAL NOTE 17)



ELEVATION VIEW



SECTION D-D



THRIE BEAM TRANSITION BLOCKOUT DETAILS

HIGH-SPEED TRANSITION

SHEET 2 OF 2

Texas Department of Transportation | Design Division Standard

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

GF(31)TR TL3-20

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©TxDOT: NOVEMBER 2020	CONT	SECT	JOB	HIGHWAY	
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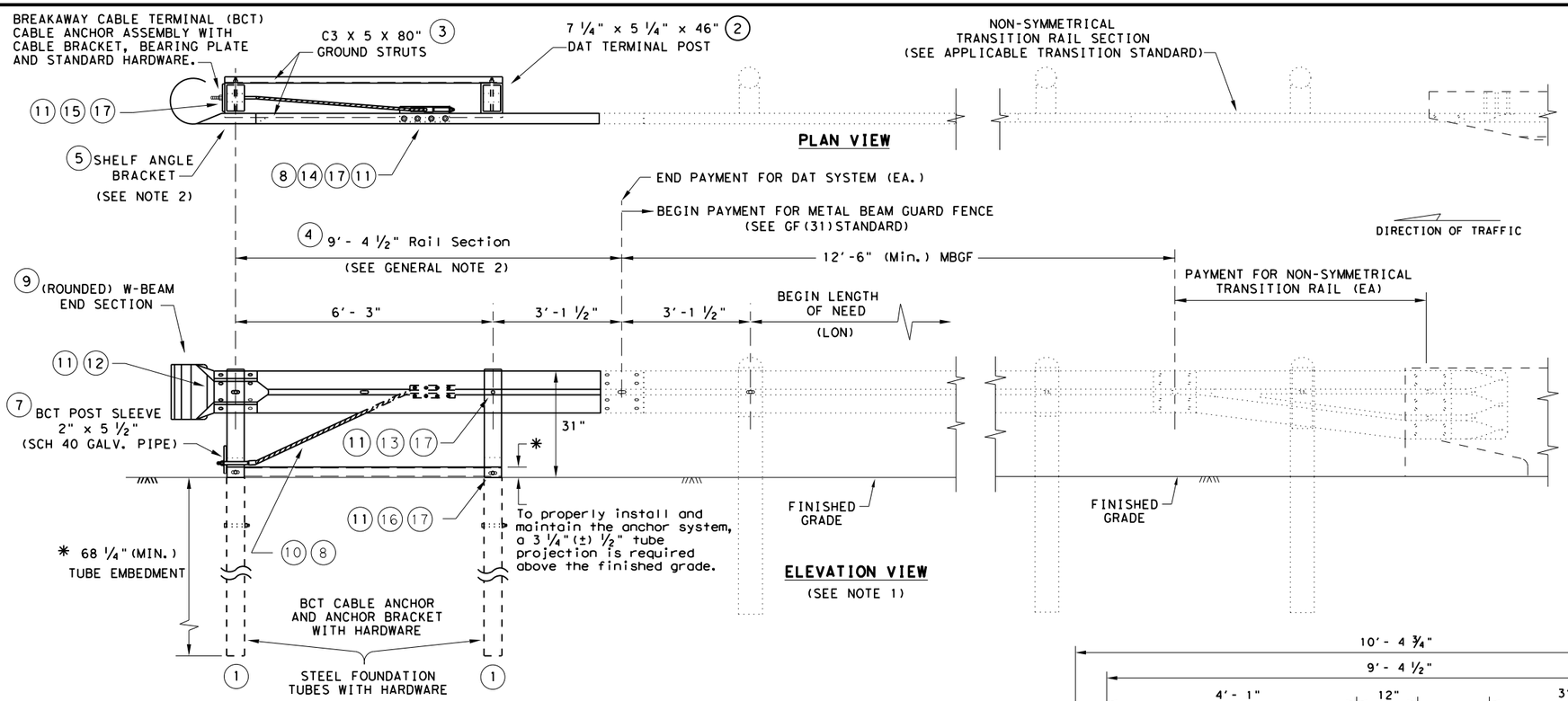


DOWNSTREAM ANCHOR TERMINAL (DAT)

NOTE: ONLY FOR DOWNSTREAM USE, WHEN LOCATED OUTSIDE THE HORIZONTAL CLEARANCE AREA OF OPPOSING TRAFFIC.

GENERAL NOTES

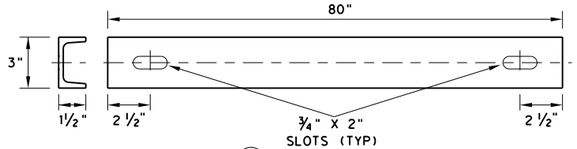
1. THE DETAIL SHOWN IS THE MINIMUM LENGTH OF NEED (LON) FOR A DOWNSTREAM ANCHOR TERMINAL (DAT) CONNECTED TO A CONCRETE RAIL.
2. THE RAIL SECTION AT THE END POST IS SUPPORTED BY THE SHELF ANGLE BRACKET. THE RAIL ELEMENT IS NOT ATTACHED TO THE END POST.
3. THE FOUNDATION TUBES SHALL NOT PROJECT MORE THAN 3 3/4" ABOVE THE FINISHED GRADE.
4. ALL HARDWARE FOR DAT SHALL BE ASTM A307 UNLESS OTHERWISE SHOWN.
5. REFER TO GF(31) SHEET FOR TERMINAL CONNECTION DETAILS.

MOW STRIP INSTALLATION

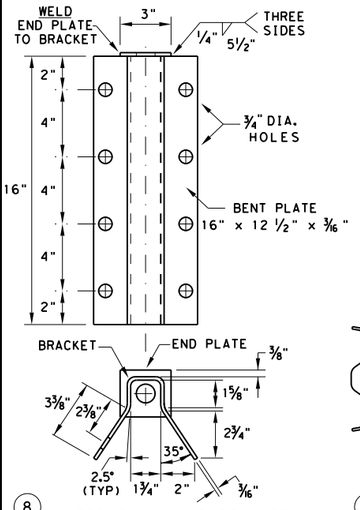
IF A MOW STRIP IS REQUIRED WITH THE DAT INSTALLATION THE LEAVE-OUT AREA AROUND THE STEEL FOUNDATION TUBES AND THE TWO CHANNEL STRUTS MAY BE OMITTED. THIS WILL REQUIRE A FULL POUR AT THE FOUNDATION TUBES.

#	(DAT) PARTS LIST	QTY
(1)	STEEL FOUNDATION TUBE	2
(2)	DAT TERMINAL POST	2
(3)	CHANNEL STRUT	2
(4)	TERMINAL RAIL ELEMENT	1
(5)	SHELF ANGLE BRACKET	1
(6)	BCT BEARING PLATE	1
(7)	BCT POST SLEEVE	1
(8)	GUARDRAIL ANCHOR BRACKET	1
(9)	(ROUNDED) W-BEAM END SECTION	1
(10)	BCT CABLE ANCHOR	1
(11)	RECESSED NUT, GUARDRAIL	20
(12)	1 1/4" BUTTON HEAD BOLT	4
(13)	10" BUTTON HEAD BOLT	2
(14)	5/8" X 2" HEX HEAD BOLT	8
(15)	5/8" X 8" HEX HEAD BOLT	4
(16)	5/8" X 10" HEX HEAD BOLT	2
(17)	5/8" FLAT WASHER	18

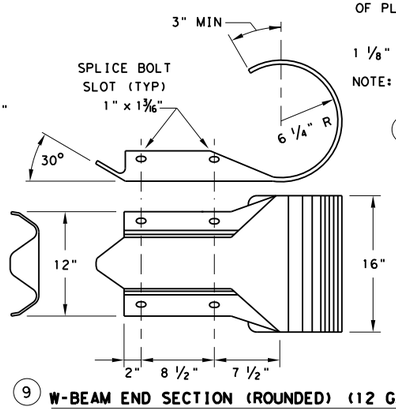
(4) TERMINAL RAIL ELEMENT FOR DAT



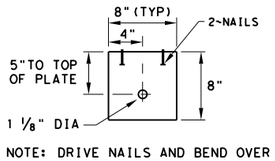
(3) CHANNEL STRUT
C3 X 5 X 80", GRADE A36



(8) GUARDRAIL ANCHOR BRACKET

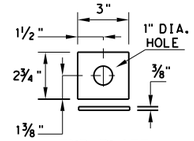


(9) W-BEAM END SECTION (ROUNDED) (12 GA.)

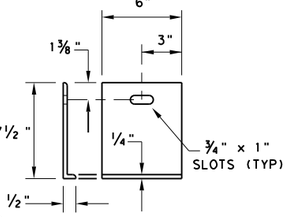


NOTE: DRIVE NAILS AND BEND OVER TO PREVENT PLATE ROTATION

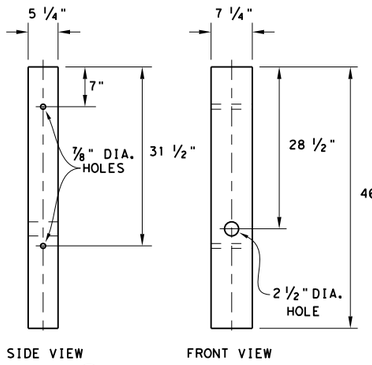
(6) BEARING PLATE
8"x 8"x 5/8" R



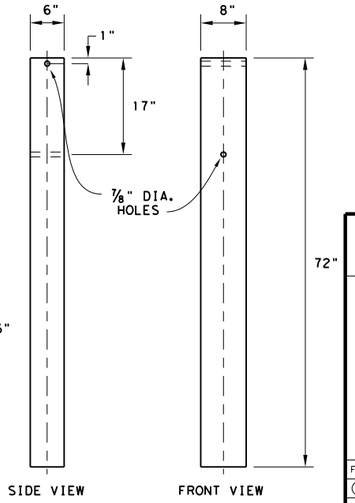
END PLATE



(5) SHELF ANGLE BRACKET



(2) TERMINAL POST
7 1/4"x 5 1/4"x 46" WOOD POST



(1) STEEL FOUNDATION TUBE
6"x 8"x 1/8" x 72" STEEL TUBE

Texas Department of Transportation

Design Division Standard

METAL BEAM GUARD FENCE
(DOWNSTREAM ANCHOR TERMINAL)
TL-3 MASH COMPLIANT

GF(31)DAT-19

FILE: gf31dat19.dgn	DN: TxDOT	CK: KM	DW: VP	CK: CGL/AG
©TxDOT: NOVEMBER 2019	CONT	SECT	JOB	HIGHWAY
REVISIONS	1586	01	079	FM 907
	DIST	COUNTY		SHEET NO.
	PHR	HIDALGO		124

DATE: 8/30/2021
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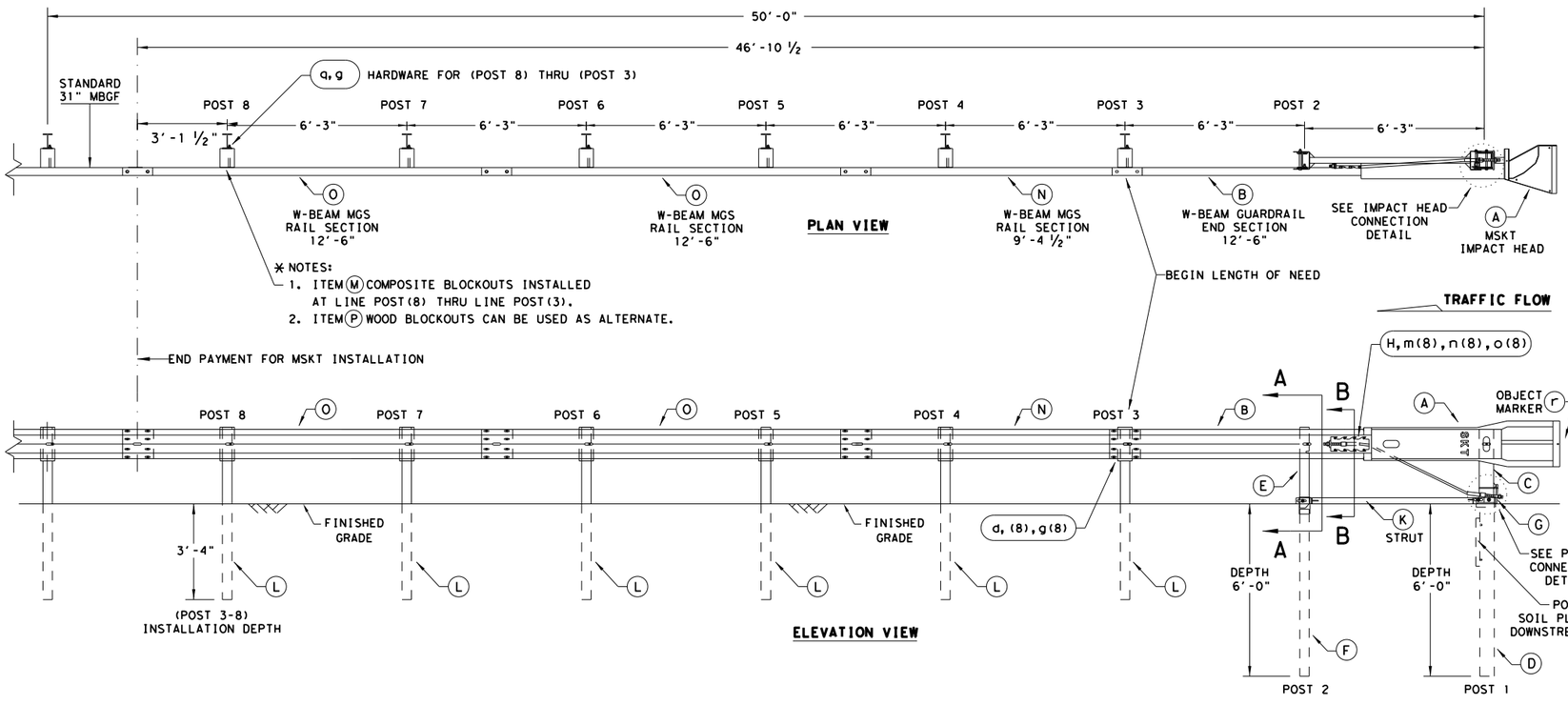
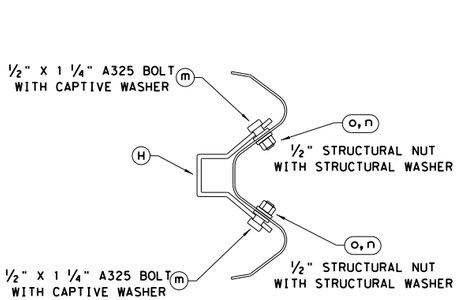
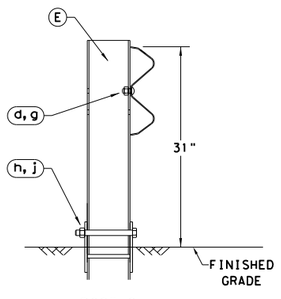
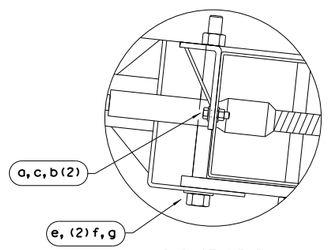
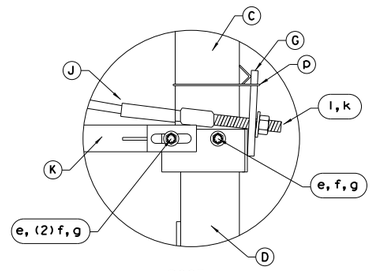


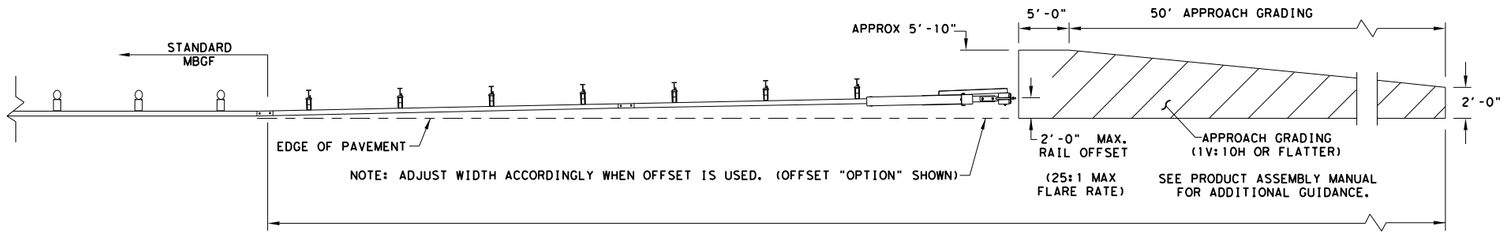
NOTE: SEE (GENERAL NOTE 14) FOR DRIVING CAP INFORMATION.











NOTE: ADJUST WIDTH ACCORDINGLY WHEN OFFSET IS USED. (OFFSET "OPTION" SHOWN)

APPROACH GRADING AT GUARDRAIL END TREATMENTS

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

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

GENERAL NOTES

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

ITEM	QTY	MAIN SYSTEM COMPONENTS	ITEM NUMBERS
A	1	MSKT IMPACT HEAD	MS3000
B	1	W-BEAM GUARDRAIL END SECTION, 12 Ga.	SF1303
C	1	POST 1 - TOP (6" X 6" X ⅛" TUBE)	MTPHP1A
D	1	POST 1 - BOTTOM (6' W6X15)	MTPHP1B
E	1	POST 2 - ASSEMBLY TOP	UHP2A
F	1	POST 2 - ASSEMBLY BOTTOM (6' W6X9)	HP2B
G	1	BEARING PLATE	E750
H	1	CABLE ANCHOR BOX	S760
J	1	BCT CABLE ANCHOR ASSEMBLY	E770
K	1	GROUND STRUT	MS785
L	6	W6x9 OR W6x8.5 STEEL POST	P621
M	6	COMPOSITE BLOCKOUTS	CBSP-14
N	1	W-BEAM MGS RAIL SECTION (9'-4 ½")	G12025
O	2	W-BEAM MGS RAIL SECTION (12'-6")	G1203A
P	6	WOOD BLOCKOUT 6" X 8" X 14"	P675
Q	1	W-BEAM MGS RAIL SECTION (25'-0")	G1209
		SMALL HARDWARE	
a	2	⅝" x 1" HEX BOLT (GRD 5)	B5160104A
b	4	⅝" WASHER	W0516
c	2	⅝" HEX NUT	N0516
d	25	⅝" Dia. x 1 ¼" SPLICE BOLT (POST 2)	B580122
e	2	⅝" Dia. x 9" HEX BOLT (GRD A449)	B580904A
f	3	⅝" WASHER	W050
g	33	⅝" Dia. H.G.R NUT	N050
h	1	¾" Dia. x 8 ½" HEX BOLT (GRD A449)	B340854A
j	1	¾" Dia. HEX NUT	N030
k	2	1 ANCHOR CABLE HEX NUT	N100
l	2	1 ANCHOR CABLE WASHER	W100
m	8	½" x 1 ¼" A325 BOLT WITH CAPTIVE WASHER	SB12A
n	8	½" STRUCTURAL NUTS	N012A
o	8	1 1/16" O.D. x 9/16" I.D. STRUCTURAL WASHERS	W012A
p	1	BEARING PLATE RETAINER TIE	CT-100ST
q	6	⅝" x 10" H.G.R. BOLT	B581002
r	1	OBJECT MARKER 18" X 18"	E3151

SEE NOTES: *

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

Texas Department of Transportation

Design Division Standard

SINGLE GUARDRAIL TERMINAL

MSKT-MASH-TL-3

SGT(12S)31-18

FILE: sgt12s3118.dgn	DN: TxDOT	CK: KM	DW: VP	CK: CL
© TxDOT: APRIL 2018	CONT	SECT	JOB	HIGHWAY
REVISIONS	1586	01	079	FM 907
	DIST	COUNTY		SHEET NO.
	PHR	HIDALGO		125

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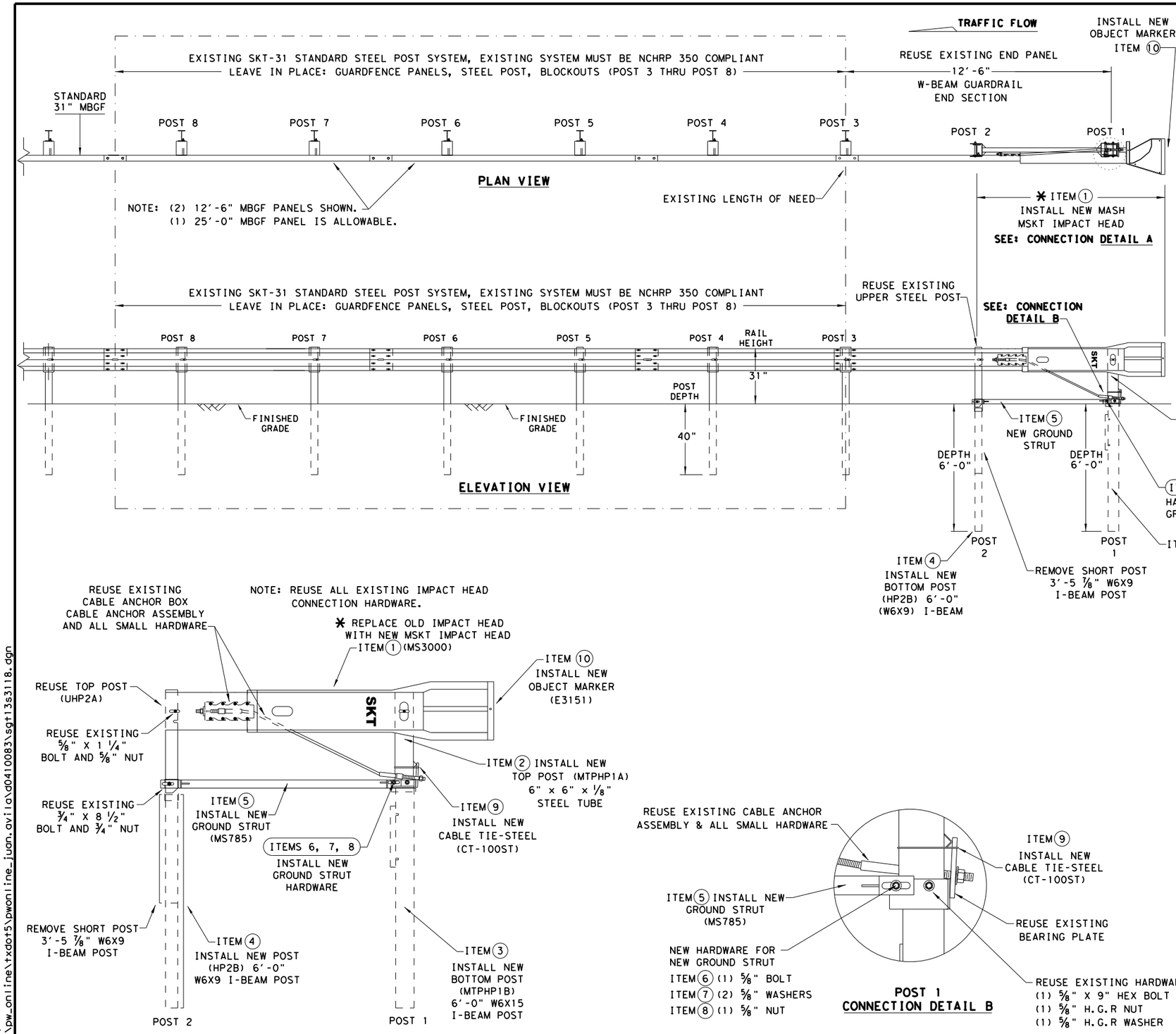

GENERAL NOTES

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2. FOR INSTALLATION, REPAIR AND MAINTENANCE REFER TO; MSKT END TERMINAL, PRODUCT DESCRIPTION ASSEMBLY MANUAL (PUBLICATION~062717).
3. APPLY HIGH INTENSITY REFLECTIVE SHEETING, "OBJECT MARKER" ON THE FRONT FACE OF THE DEVICE PER MANUFACTURER'S RECOMMENDATIONS. OBJECT MARKER SHALL CONFORM TO THE STANDARDS REQUIRED IN TEXAS MUTCD.
4. FOR POST (LEAVE-OUT) INSTALLATION AND GUIDANCE SEE TXDOT'S LATEST ROADWAY MOW STRIP STANDARD.
5. HARDWARE (BOLTS, NUTS, & WASHERS) SHALL BE GALVANIZED IN ACCORDANCE WITH ITEM 445, "GALVANIZING". FITTINGS SHALL BE SUBSIDIARY TO THE BID ITEM.
6. IF SOLID ROCK IS ENCOUNTERED IN THE AREA OF (POST 1) AND / OR (POST 2) CONTACT THE MANUFACTURER, AND REFER TO THE LATEST ROADWAY MBGF STANDARD FOR INSTALLATION GUIDANCE.
7. POSTS SHALL NOT BE SET IN CONCRETE.
8. THE EXISTING SKT 31" STANDARD STEEL POST SYSTEM MUST BE THOROUGHLY INSPECTED, AND DETERMINED TO BE INTACT, AND FREE OF ANY DAMAGE OR DEFECTS BEFORE RETROFITTING. THIS INSPECTION INCLUDES COMPLETING THE MSKT RETROFIT INSPECTION CHECKLIST FOR THE EXISTING SKT 31" STEEL POST NCHRP 350 SYSTEM. ALL EXISTING, AND REUSABLE PARTS MUST BE FREE OF ANY DAMAGE FOR A MASH COMPLIANT RETROFIT.
9. UNDER NO CIRCUMSTANCES SHALL THE GUARDRAIL WITHIN THE MSKT SYSTEM BE CURVED.
10. A FLARE RATE OF UP TO 25:1 MAY BE USED TO PREVENT THE TERMINAL HEAD FROM ENCROACHING ON THE SHOULDER. THE FLARE MAY BE DECREASED OR ELIMINATED FOR SPECIFIC INSTALLATIONS, IF DIRECTED BY THE ENGINEER.
11. SPECIAL DRIVING CAP TO BE USED WHEN DRIVING (LOWER POSTS 1 & 2) TO PREVENT DAMAGE TO THE WELDED PLATES.

CONNECTION DETAIL A
IMPACT HEAD (POST 1 & POST 2)

POST 1
CONNECTION DETAIL B

ITEMS	QTY	MAIN SYSTEM COMPONENTS	PART NUMBERS
* 1	1	MSKT IMPACT HEAD	MS3000
2	1	POST 1 - TOP (6" X 6" X 1/8" TUBE)	MTPHP1A
3	1	POST 1 - BOTTOM (6' W6X15)	MTPHP1B
4	1	POST 2 - ASSEMBLY BOTTOM (6' W6X9)	HP2B
5	1	GROUND STRUT	MS785
6	1	5/8" X 9" HEX BOLT (GRD A449)	B580904A
7	2	5/8" WASHERS	W050
8	1	5/8" H.G.R NUT	N050
9	1	CABLE TIE-STEEL	CT-100ST
* 10	1	OBJECT MARKER 18" X 18"	E3151

COMPONENTS REQUIRED TO RETROFIT: EXISTING 31" STEEL POST (NCHRP 350 SKT) GUARDRAIL TERMINAL WITH THE NEW 31" (MASH COMPLIANT MSKT IMPACT HEAD).

*** IF THE EXISTING NCHRP 350 (31" STEEL POST SKT) ALREADY HAS THE MSKT IMPACT HEAD THERE IS NO NEED TO REPLACE THE IMPACT HEAD OR OBJECT MARKER AS LONG AS IT IS NOT DAMAGED.**

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

Texas Department of Transportation
Design Division Standard

RETROFIT STANDARD SKT 31" STEEL POST SYSTEM TO MASH MSKT

SGT(13S)31-18

FILE: sgt13s3118.dgn	DN: TxDOT	CK: KM	DW: VP	CK: CL
© TxDOT: APRIL 2018	CONT	SECT	JOB	HIGHWAY
REVISIONS	1586	01	079	FM 907
	DIST	COUNTY		SHEET NO.
	PHR	HIDALGO		126

DATE:
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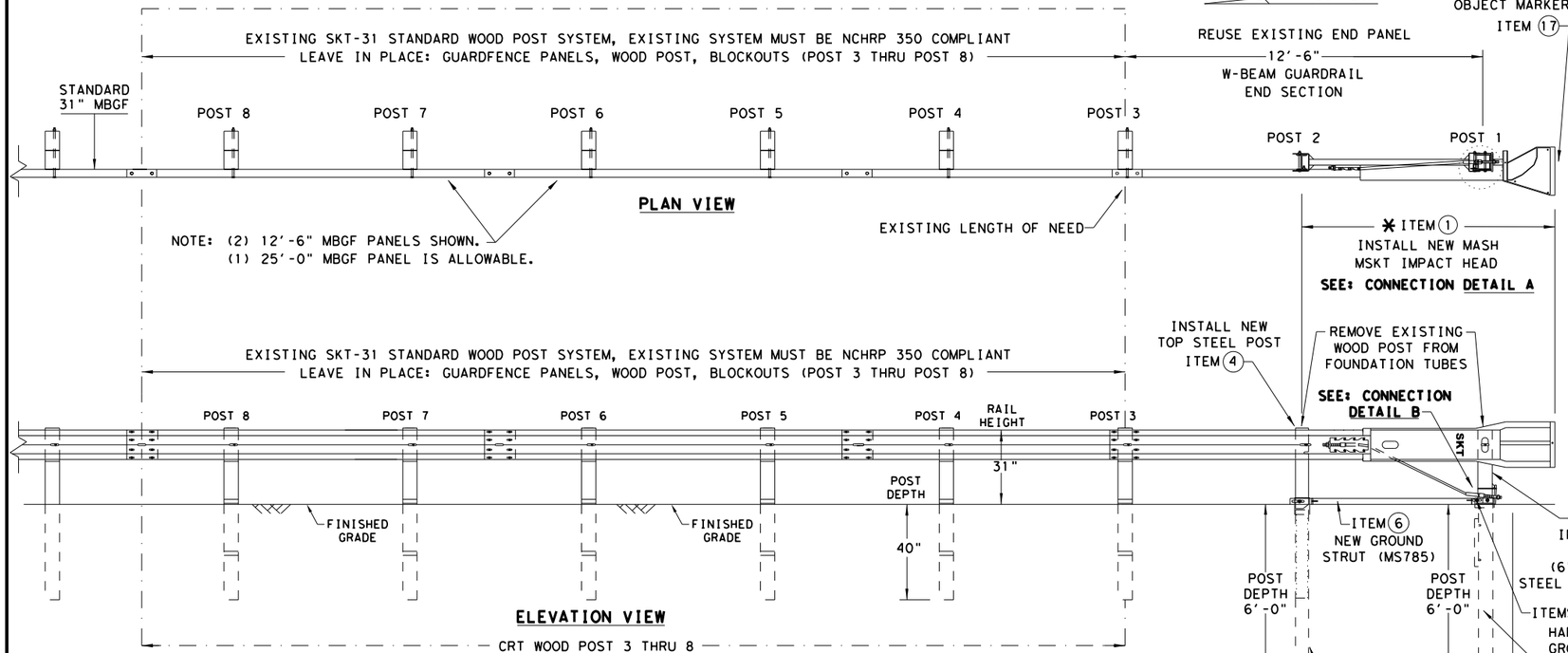

** NOTE: EXTRA SOIL COMPACTION WILL BE NEEDED AROUND NEW (POSTS 1 & 2) DUE TO THE REMOVAL OF THE STEEL FOUNDATION TUBES.

GENERAL NOTES

1. FOR SPECIFIC INFORMATION REGARDING INSTALLATION AND TECHNICAL GUIDANCE OF THE SYSTEM, CONTACT: ROAD SYSTEMS, INC. (432)263-2435. 3616 OLD HOWARD COUNTY AIRPORT, BIG SPRING, TX 79720
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5. HARDWARE (BOLTS, NUTS, & WASHERS) SHALL BE GALVANIZED IN ACCORDANCE WITH ITEM 445, "GALVANIZING". FITTINGS SHALL BE SUBSIDIARY TO THE BID ITEM.
6. IF SOLID ROCK IS ENCOUNTERED IN THE AREA OF (POST 1) AND / OR (POST 2) CONTACT THE MANUFACTURER, AND REFER TO THE LATEST ROADWAY MBGF STANDARD FOR INSTALLATION GUIDANCE.
7. POSTS SHALL NOT BE SET IN CONCRETE.
8. THE EXISTING SKT 31" STANDARD WOOD POST SYSTEM MUST BE THOROUGHLY INSPECTED, AND DETERMINED TO BE INTACT, AND FREE OF ANY DAMAGE OR DEFECTS BEFORE RETROFITTING. THIS INSPECTION INCLUDES COMPLETING THE MSKT RETROFIT INSPECTION CHECKLIST FOR THE EXISTING SKT 31" WOOD POST NCHRP 350 SYSTEM. ALL EXISTING, AND REUSABLE PARTS MUST BE FREE OF ANY DAMAGE FOR A MASH COMPLIANT RETROFIT.
9. UNDER NO CIRCUMSTANCES SHALL THE GUARDRAIL WITHIN THE MSKT SYSTEM BE CURVED.
10. A FLARE RATE OF UP TO 25:1 MAY BE USED TO PREVENT THE TERMINAL HEAD FROM ENCROACHING ON THE SHOULDER. THE FLARE MAY BE DECREASED OR ELIMINATED FOR SPECIFIC INSTALLATIONS, IF DIRECTED BY THE ENGINEER.
11. SPECIAL DRIVING CAP TO BE USED WHEN DRIVING (LOWER POSTS 1 & 2) TO PREVENT DAMAGE TO THE WELDED PLATES.

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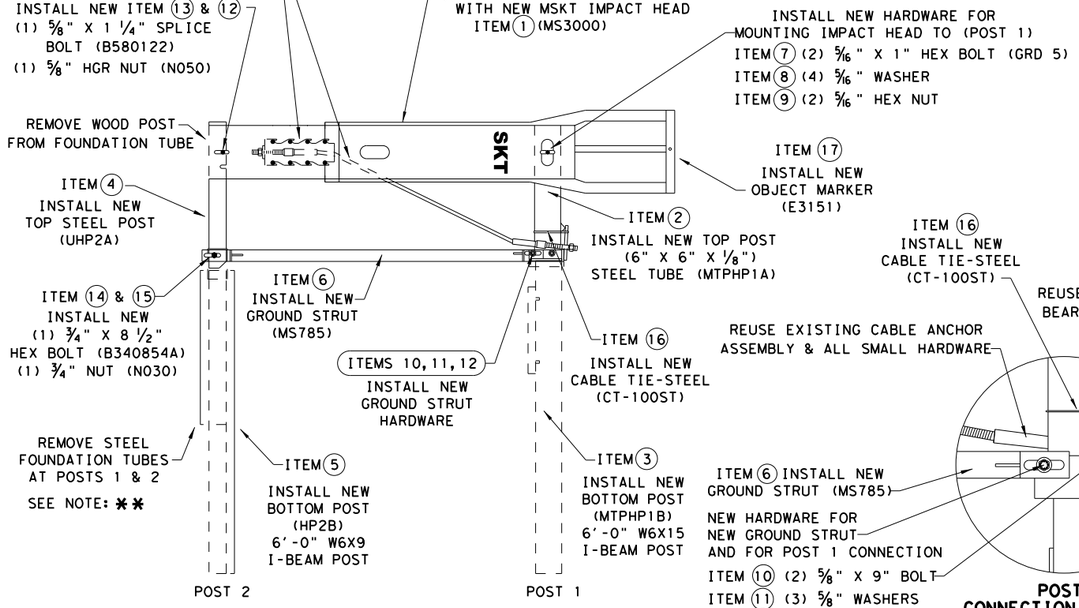
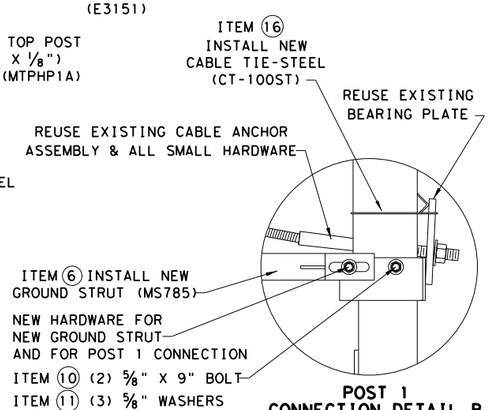
1	1	MSKT IMPACT HEAD	MS3000
2	1	POST 1 - TOP (6" X 6" X 1/8" TUBE)	MTPHP1A
3	1	POST 1 - BOTTOM (6' W6X15)	MTPHP1B
4	1	POST 2 - ASSEMBLY TOP	UHP2A
5	1	POST 2 - ASSEMBLY BOTTOM (6' W6X9)	HP2B
6	1	GROUND STRUT	MS785
7	2	5/16" X 1" HEX BOLT (GRD 5)	B516014A
8	4	5/16" WASHERS	W0516
9	2	5/16" HEX NUT	N0516
10	2	5/8" X 9" HEX BOLT (GRD A449)	B580904A
11	3	5/8" WASHERS	W050
12	3	5/8" H.G.R NUT	N050
13	1	5/8" X 1 1/4" SPLICE BOLT	B580122
14	1	3/4" X 8 1/2" HEX BOLT (GRD 5)	B340854A
15	1	3/4" HEX NUT	N030
16	1	CABLE TIE-STEEL	CT-100ST
* 17	1	OBJECT MARKER 18" X 18"	E3151

COMPONENTS REQUIRED TO RETROFIT: EXISTING 31" WOOD POST (NCHRP 350 SKT) GUARDRAIL TERMINAL WITH THE NEW 31" (MASH COMPLIANT MSKT IMPACT HEAD).

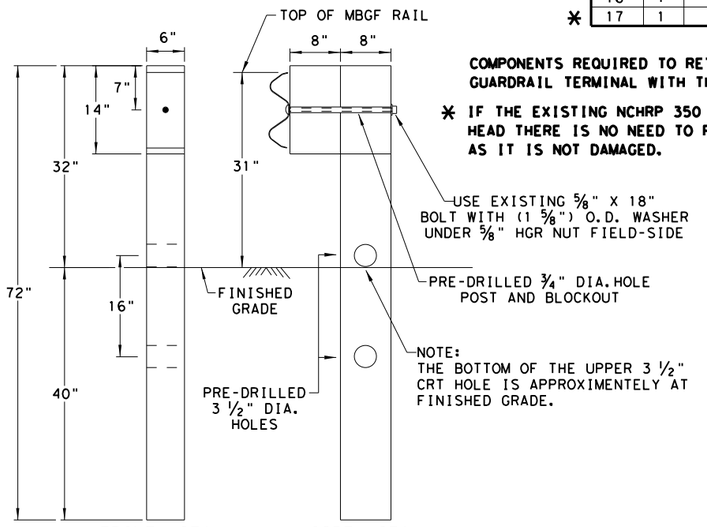
*** IF THE EXISTING NCHRP 350 (31" WOOD POST SKT) ALREADY HAS THE MSKT IMPACT HEAD THERE IS NO NEED TO REPLACE THE IMPACT HEAD OR OBJECT MARKER AS LONG AS IT IS NOT DAMAGED.**



CONNECTION DETAIL A
IMPACT HEAD (POST 1 & POST 2)



POST 1
CONNECTION DETAIL B



FRONT VIEW **SIDE VIEW**
EXISTING WOOD POSTS 3-8
CONTROLLED RELEASE TERMINAL (CRT)

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

Texas Department of Transportation

Design Division Standard

RETROFIT STANDARD SKT 31" WOOD POST SYSTEM TO MASH MSKT

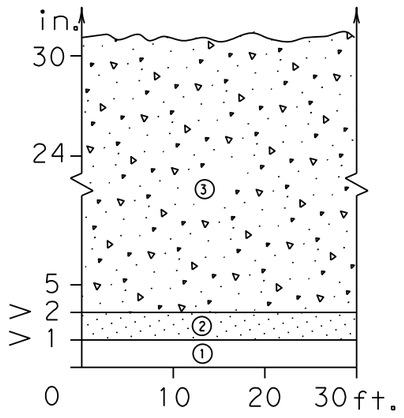
SGT(14W)31-18

FILE: sgt14w3118.dgn	DN: TxDOT	CK: KM	DW: VP	CK: CL
©TxDOT: APRIL 2018	CONT	SECT	JOB	HIGHWAY
REVISIONS	1586	01	079	FM 907
	DIST	COUNTY		SHEET NO.
	PHR	HIDALGO		127

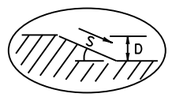
DATE:
FILE:

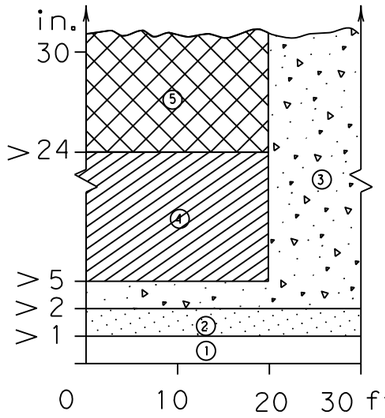
DEFINITION OF TREATMENT ZONES FOR VARIOUS EDGE CONDITIONS

Edge Height (D) in Inches versus Lateral Clearance (Y) in Feet

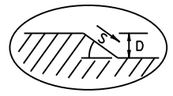


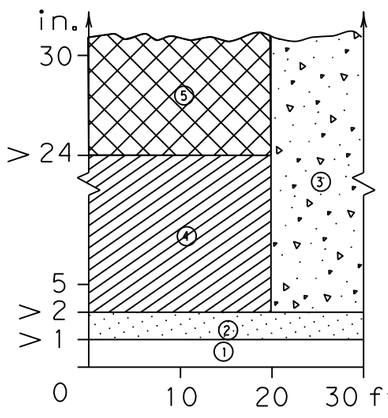
Edge Condition I
S = (3:1) (or flatter)



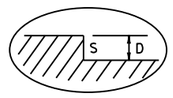


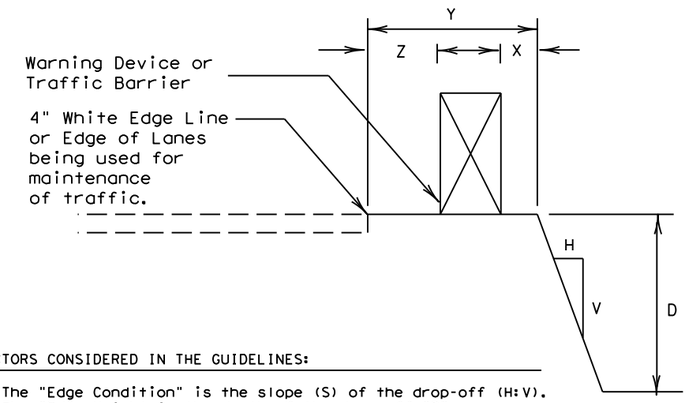
Edge Condition II
S = ((2.99):1) to (1:1)





Edge Condition III
S is steeper than (1:1)





FACTORS CONSIDERED IN THE GUIDELINES:

1. The "Edge Condition" is the slope (S) of the drop-off (H:V). The "Edge Height is the depth of the drop-off "D".

2. Distance "X" is to be the maximum practical under job conditions. Two feet minimum for high speed conditions. Distance "Y" is the lateral clearance from edge of travel lane to edge of dropoff. Distance "Z" does not have a minimum.

3. In addition to the factors considered in the guidelines, each construction zone drop-off situation should be analyzed individually, taking into account other variables, such as: traffic mix, posted speed in the construction zone, horizontal curvature, and the practicality of the treatment options.

4. The conditions for indicating the use of positive or protective barriers are given by Zone-5 and Figure-1. Traffic barriers are primarily applicable for high speed conditions. Urban areas with speeds of 30 mph or less may have a lesser need for signing, delineation, and barriers. Right-angled edges, however, with "D" greater than 2 inches and located within a lateral offset of 6 feet, may indicate a higher level of treatment.

5. If the distance "Y" must be less than 3 feet, the use of a positive barrier may not be feasible. In such a case, consider either: 1) narrowing the lanes to a desired 11 to 12 feet or 10 foot minimum (see CW20-8 sign), or 2) provide an edge slope such as Edge Condition I.

Zone	Treatment Types Guidelines:
①	No treatment.
②	CW 8-11 "Uneven Lanes" signs.
③	CW 8-9a "Shoulder Drop-Off" or CW 8-11 signs plus vertical panels.
④	CW 8-9a or CW 8-11, signs plus drums. Where restricted space precludes the use of drums, use vertical panels. An edge fill may be provided to change the edge slope to that of the preferable Edge Condition I.
⑤	Check indications (Figure-1) for positive barrier. Where positive barrier is not indicated, the treatment shown above for Zone- 4 may be used after consideration of other applicable factors.

Edge Condition Notes:

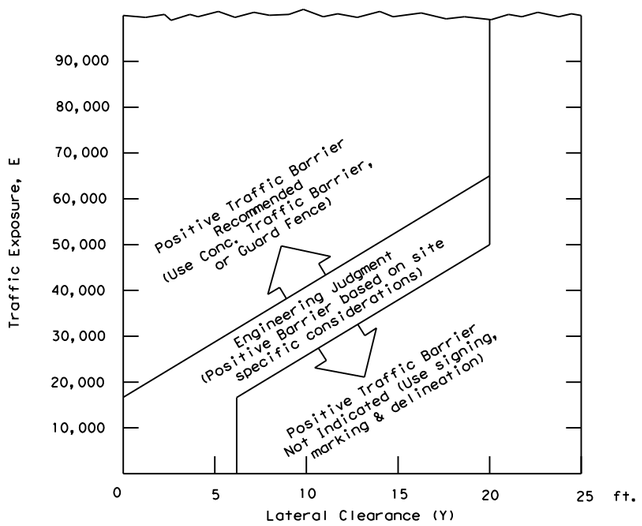
1. Edge Condition I: Most vehicles are able to traverse an edge condition with a slope rate of (3 to 1) or flatter. The slope must be constructed with a compacted material capable of supporting vehicles.

2. Edge Condition II: Most vehicles are able to traverse an edge condition with a slope between (2.99 to 1) and (1to 1) so long as "D" does not exceed 5 inches. Under-carriage drag on most automobiles will occur when "D" exceeds 6 inches. As "D" exeeds 24 inches, the possibility for rollover is greater in most vehicles.

3. Edge Condition III: When slopes are greater than (1 to 1) and where "D" is greater than 2 inches, a more difficult control factor may exist for some vehicles, if not properly treated. For example, where "D" is greater than 2 inches and up to 24 inches different types of vehicles may experience different steering control at different edge heights. Automobiles might experience more steering control differential when "D" is greater than 2 inches and up to 5 inches. Trucks, particularly those with high loads, have more steering control differential when "D" is greater than 5 inches and up to 24 inches. When "D" exceeds 24 inches, the possibility of rollover is greater for most vehicles.

4. Milling or overlay operations that result in Edge Condition III should not be in place without appropriate warning treatments, and these conditions should not be left in place for extended periods of time.

FIGURE-1: CONDITIONS INDICATING USE OF POSITIVE BARRIER FOR ZONE 5 (▨)



1 E = ADT x T
Where ADT is that portion of the average daily traffic volume traveling within 20 feet (generally two adjacent lanes) of the edge dropoff condition; and, T is the duration time in years of the dropoff condition.

2 Figure-1 provides a practical approach to the use of positive barriers for the protection of vehicles from pavement drop-offs. Other factors, such as the presence of heavy machinery, construction workers, or the mix and volume of traffic may make the use of positive barriers appropriate, even when the edge condition alone may not justify the use of a barrier.

3 An approved end treatment should be provided for any positive barrier end located within a lateral offset of 20 feet from the edge of the travel lane.

These guidelines apply to temporary traffic control areas or work zones where continuous pavement edges or drop-offs exists parallel and adjacent to a lane used by traffic. The edge conditions may be present between shoulders and travel lanes, between adjacent or opposing travel lanes, or at intermediate points across the width of the paved surface. Due to the variability in construction operations, tolerances in the variables may be allowed by the engineer. These guidelines do not apply to short term operations. These guidelines do not constitute a rigid standard or policy; rather, they are guidance to be used in conjunction with engineering judgement. These guidelines may be updated on the Design Division's on-line manuals.

STATE OF TEXAS
JOSE A. RODRIGUEZ
117308
LICENSED PROFESSIONAL ENGINEER

Date 03/10/22

Texas Department of Transportation
Traffic Operations Division

TREATMENT FOR VARIOUS EDGE CONDITIONS

DN: TXDOT	CK: TXDOT	DW: TXDOT	CK: TXDOT

REVISIONS
03-01
08-01 correct typos

CONT	SECT	JOB	HIGHWAY
1586	01	079	FM 907
DIST	COUNTY		SHEET NO.
PHR	HIDALGO		128

UTILITY & DRAINAGE COVER SHEET

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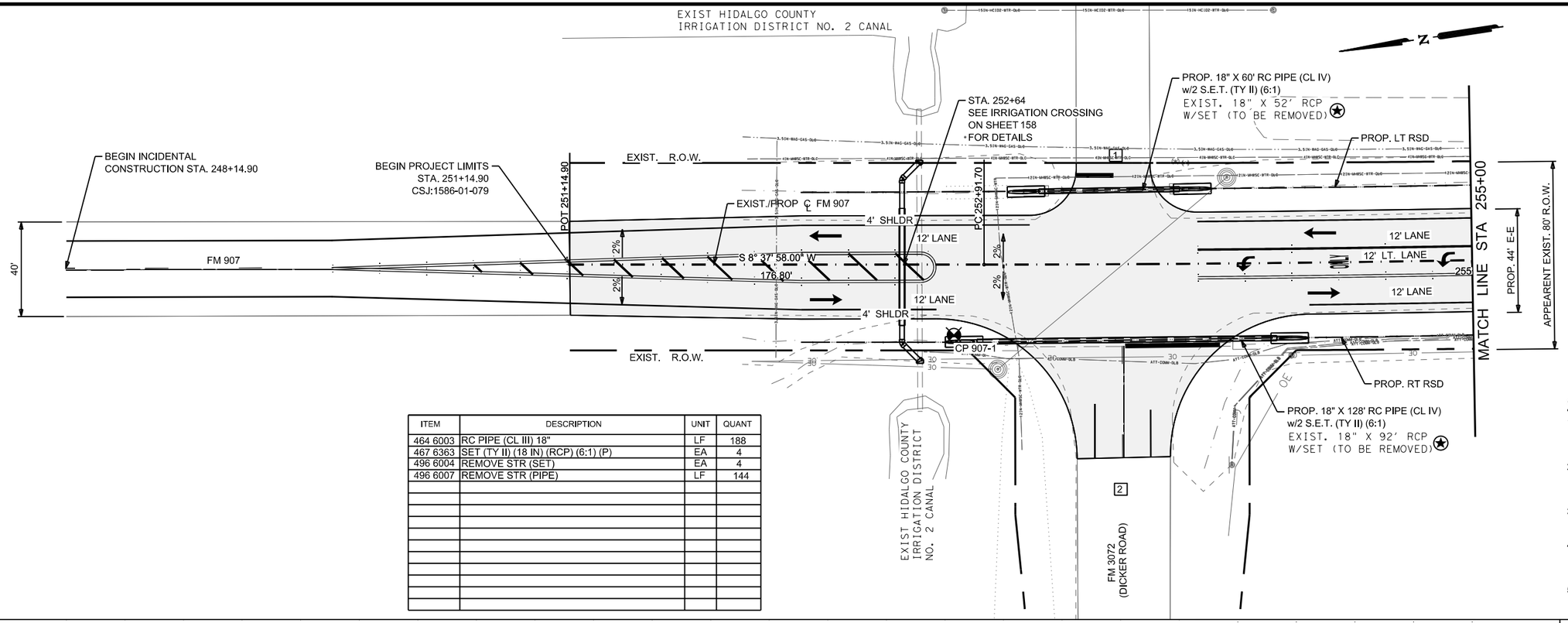
Pharr District Central Design

Texas Department of Transportation

FM 907

DRAINAGE
COVER SHEET

CONT	SECT	JOB	HIGHWAY
1586	01	079	FM 907
DIST	COUNTY		SHEET NO.
PHR	HIDALGO		129



ITEM	DESCRIPTION	UNIT	QUANT
464 6003	RC PIPE (CL III) 18"	LF	188
467 6363	SET (TY II) (18 IN) (RCP) (6:1) (P)	EA	4
496 6004	REMOVE STR (SET)	EA	4
496 6007	REMOVE STR (PIPE)	LF	144

LEGEND

- PROP. SAFETY END TREATMENT
- EXIST. SAFETY END TREATMENT
- PROP. ASPHALT DRIVEWAY
- PROP. MILLING/OVERLAY (1.5")
- DIRECTION OF TRAFFIC FLOW
- DIRECTION OF DITCH
- ℄ DIRECTION OF DITCH
- LT. LEFT
- RT. RIGHT
- R.O.W. RIGHT OF WAY
- E.O.P. EDGE OF PAVEMENT
- RSD ROAD SIDE DITCH
- HP HIGH POINT
- E-E EDGE OF PAVEMENT TO EDGE OF PAVEMENT
- ★ TO BE REMOVED UNDER ITEM 496

GENERAL NOTES

1. SEE "HORIZONTAL CONTROL DATA" SHEETS FOR ALIGNMENT DATA AND " SURVEY CONTORL INDEX SHEETS" FOR BENCHMARK INFORMATION.
2. SEE CROSS SECTION SHEETS FOR DITCH AND STRUCTURES OFFSETS, ELEVATION AND ADDITIONAL INFORMATION.
3. SEE SUMMARY TABEL FOR PROPOSED DRIVEWAY, RCP CL III CULVERT AND S.E.T. INFORMATION.
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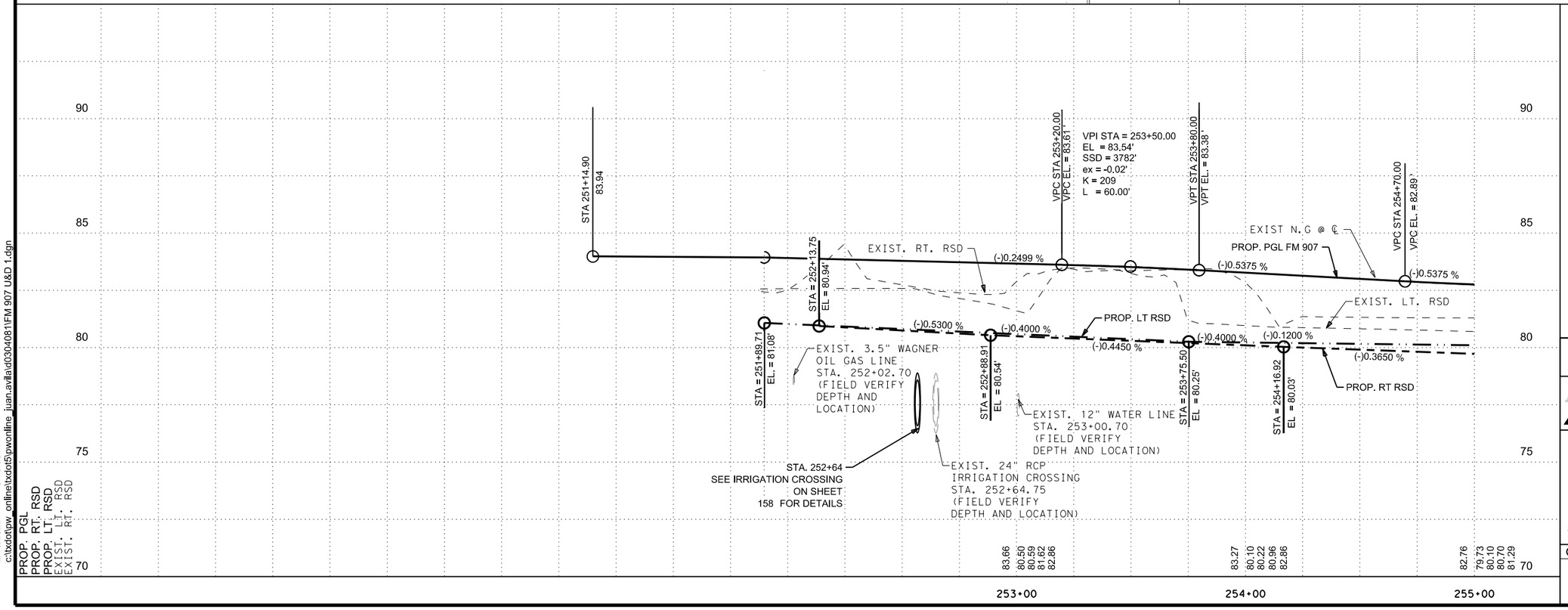
5. THE CONTRACTOR SHALL COORDINATE WITH ALL UTILITY COMPANIES TO FIELD VERIFY EXISTING UTILITIES PRIOR TO CONSTRUCTION.



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PROP. LT. RSD
EXIST. LT. RSD
EXIST. RT. RSD

PGL
PROP. RT. RSD
PROP. LT. RSD
EXIST. LT. RSD
EXIST. RT. RSD

JOSE A. RODRIGUEZ
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LICENSED PROFESSIONAL ENGINEER
STATE OF TEXAS

03/10/22

Pharr District Central Design

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UTILITY AND DRAINAGE PLAN & PROFILE

SCALE: HOR. 1"=50'
VERT. 1"=5'

SHEET 1 OF 21

© 2021	CONT	SECT	JOB	HIGHWAY
	1586	01	079	FM 907
	DIST	COUNTY		SHEET NO.
	PHR	HIDALGO		130

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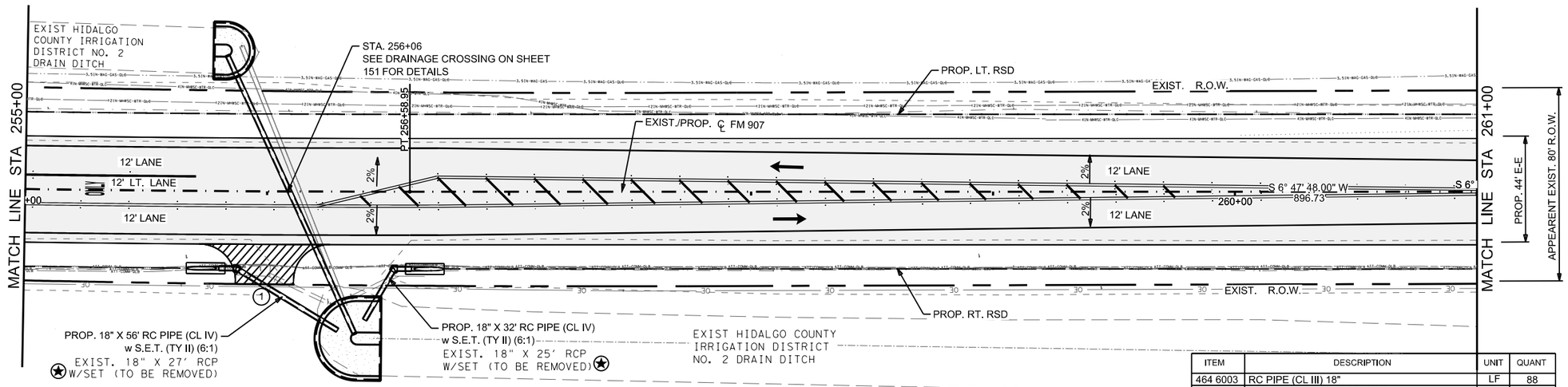

LEGEND

- PROP. SAFETY END TREATMENT
- EXIST. SAFETY END TREATMENT
- PROP. ASPHALT DRIVEWAY
- PROP. MILLING/OVERLAY (1.5")
- DIRECTION OF TRAFFIC FLOW
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- RSD ROAD SIDE DITCH
- HP HIGH POINT
- E-E EDGE OF PAVEMENT TO EDGE OF PAVEMENT
- ★ TO BE REMOVED UNDER ITEM 496

ITEM	DESCRIPTION	UNIT	QUANT
464 6003	RC PIPE (CL III) 18"	LF	88
467 6363	SET (TY II) (18 IN) (RCP) (6:1) (P)	EA	2
496 6004	REMOVE STR (SET)	EA	2
496 6007	REMOVE STR (PIPE)	LF	52

GENERAL NOTES

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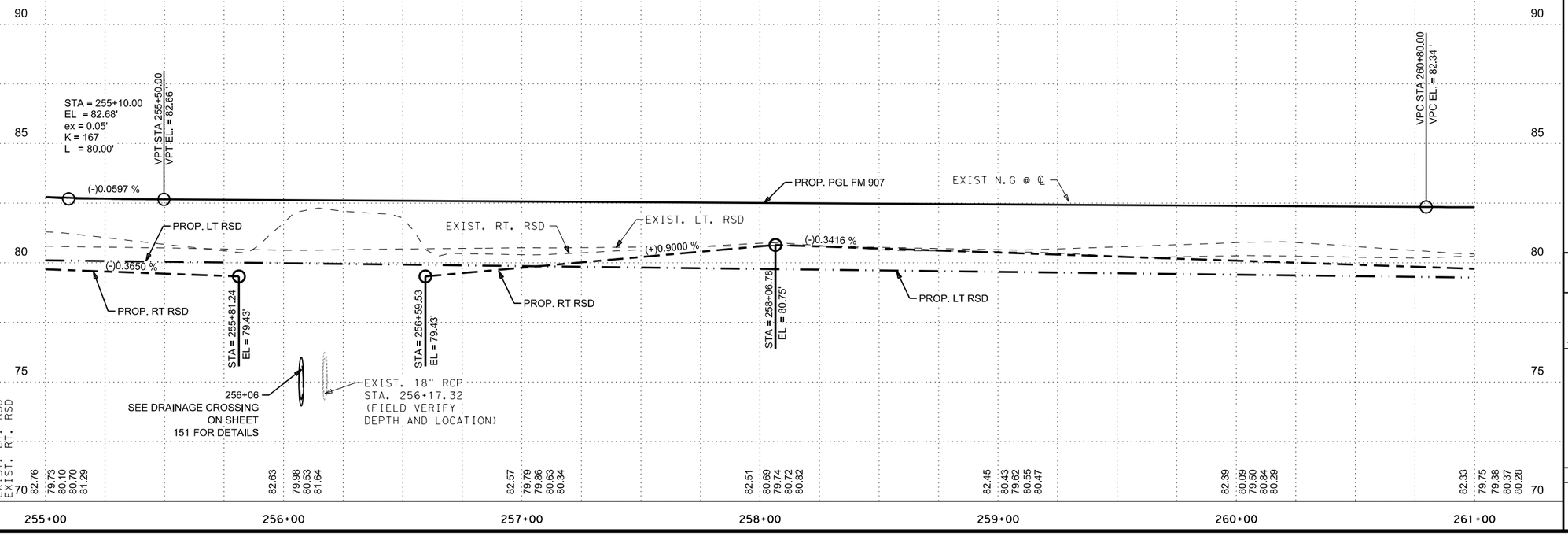

PGL
PROP. RT. RSD
PROP. LT. RSD
EXIST. LT. RSD
EXIST. RT. RSD

STATE OF TEXAS
JOSE A. RODRIGUEZ
117308
LICENSED PROFESSIONAL ENGINEER

03/10/22

Pharr District Central Design

Texas Department of Transportation

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UTILITY AND DRAINAGE PLAN & PROFILE

SCALE: HOR. 1"=50'
VERT. 1"=5'

SHEET 2 OF 21

CONT	SECT	JOB	HIGHWAY
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PHR	HIDALGO		131

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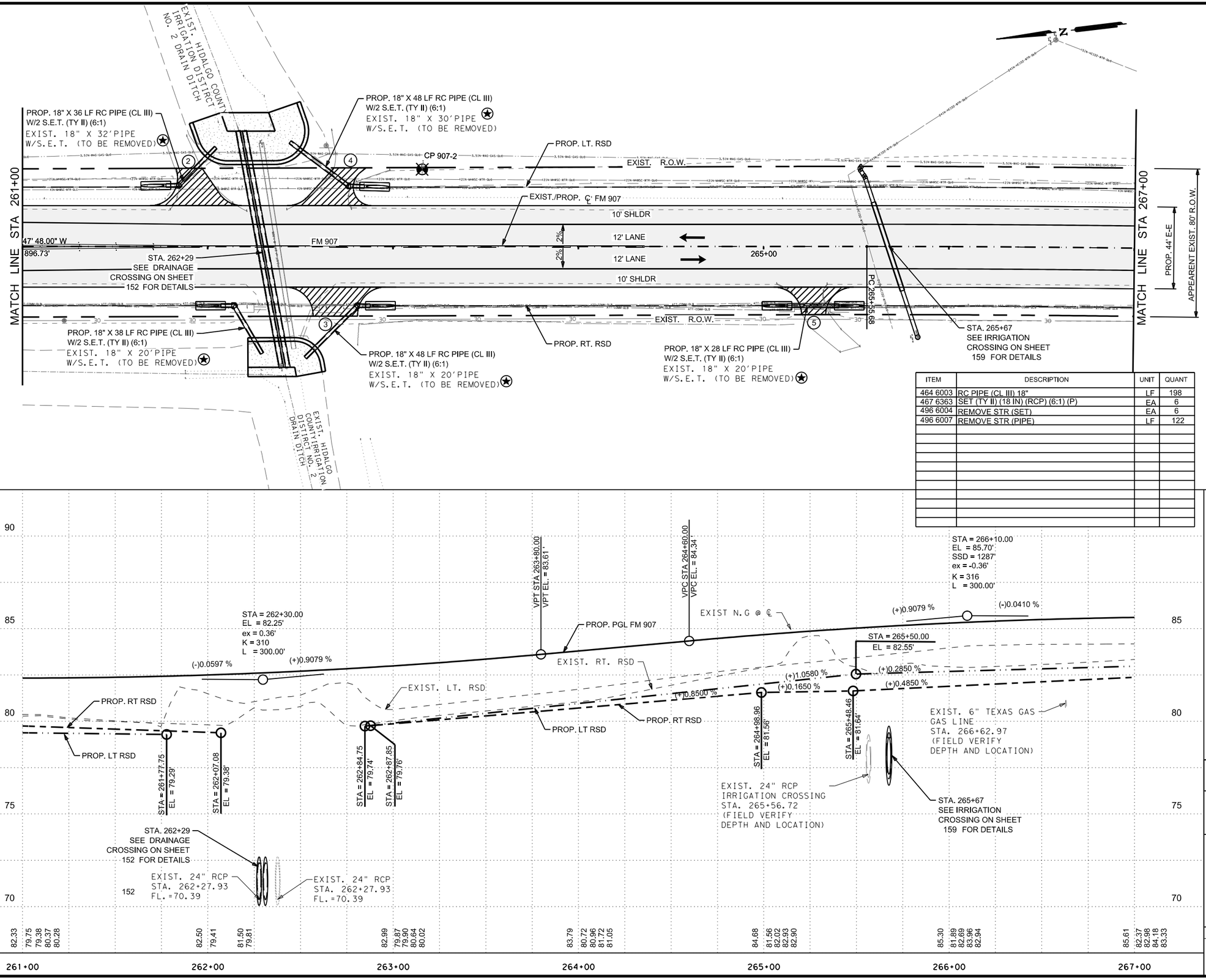

LEGEND

- PROP. SAFETY END TREATMENT
- EXIST. SAFETY END TREATMENT
- PROP. ASPHALT DRIVEWAY
- PROP. MILLING/OVERLAY (1.5")
- DIRECTION OF TRAFFIC FLOW
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- E.O.P. EDGE OF PAVEMENT
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- HP HIGH POINT
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- ★ TO BE REMOVED UNDER ITEM 496

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ITEM	DESCRIPTION	UNIT	QUANT
464 6003	RC PIPE (CL III) 18"	LF	198
467 6363	SET (TY II) (18 IN) (RCP) (6:1) (P)	EA	6
496 6004	REMOVE STR (SET)	EA	6
496 6007	REMOVE STR (PIPE)	LF	122

PGL
PROP. RT. RSD
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EXIST. RT. RSD

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UTILITY AND DRAINAGE PLAN & PROFILE

SCALE: HOR. 1"=50'
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SHEET 3 OF 21

© 2021	CONT	SECT	JOB	HIGHWAY
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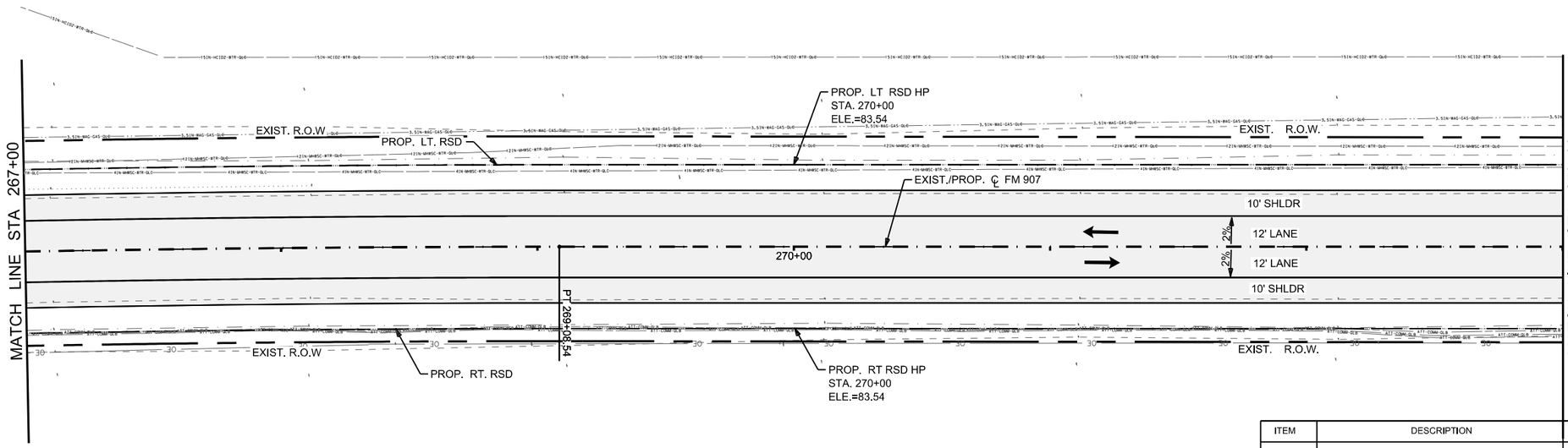

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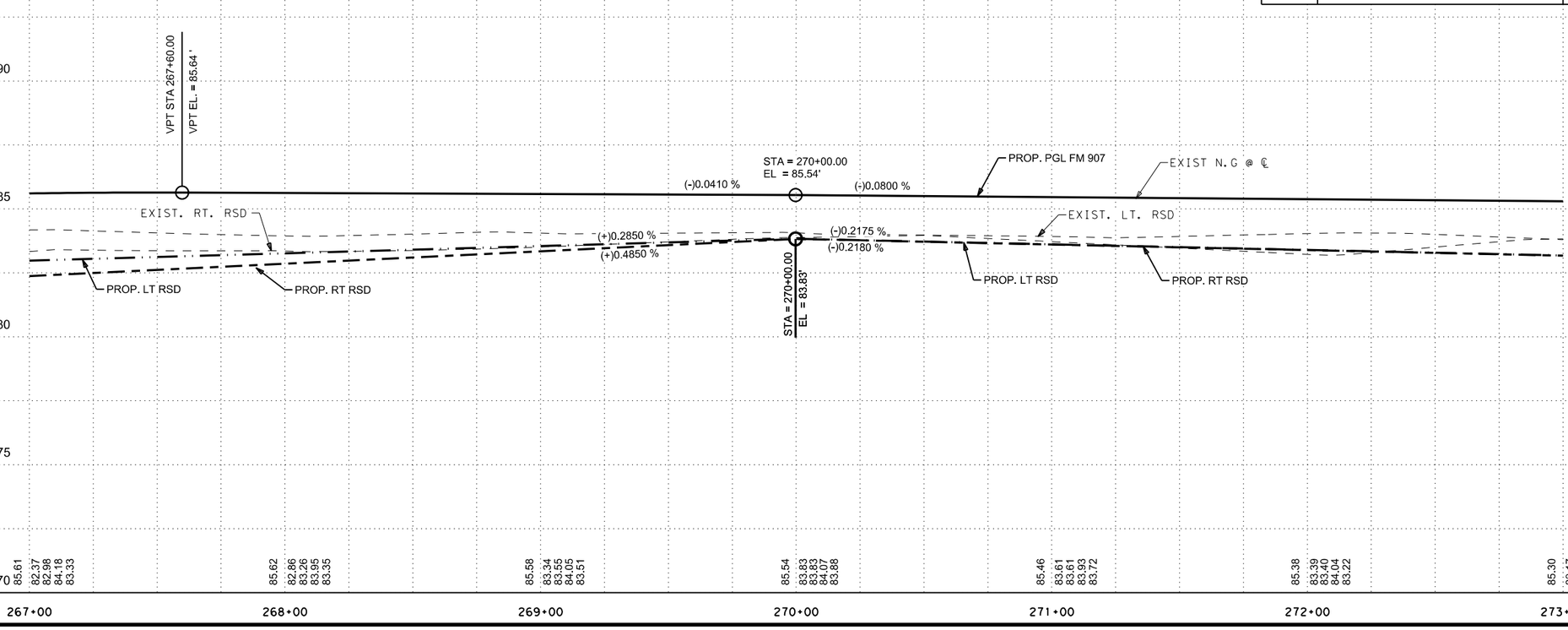

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UTILITY AND DRAINAGE PLAN & PROFILE

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SHEET 4 OF 21

CONT	SECT	JOB	HIGHWAY
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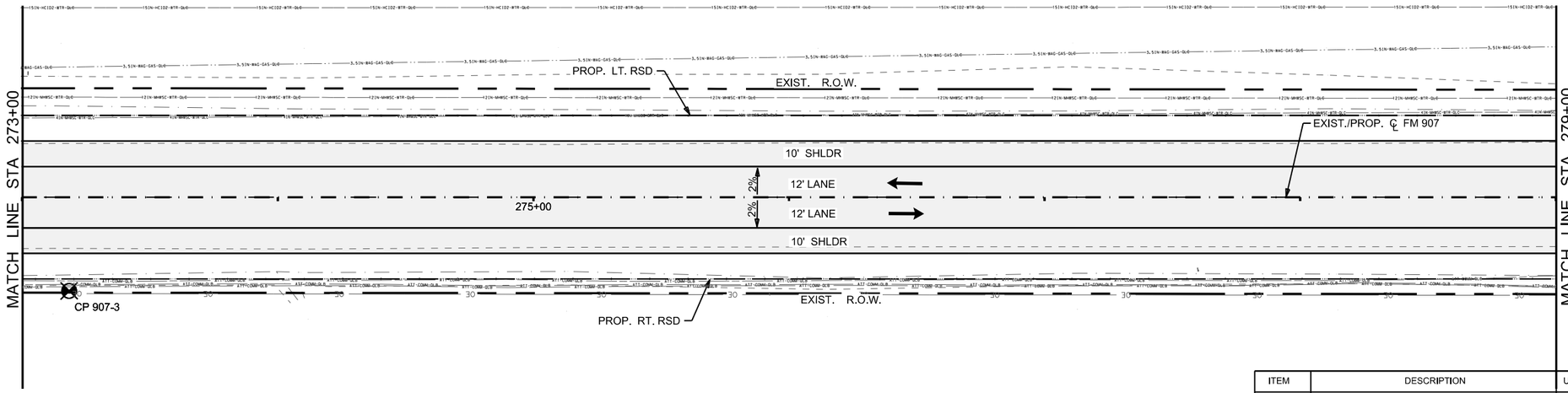

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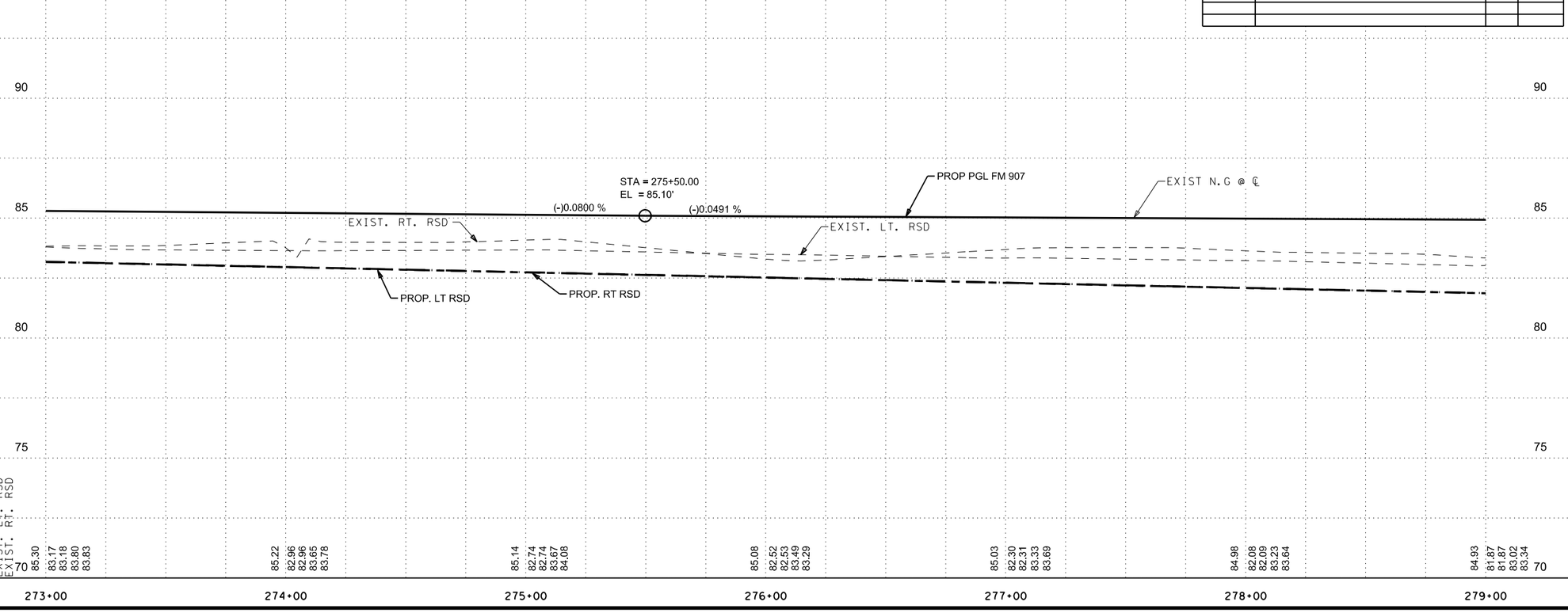
ITEM	DESCRIPTION	UNIT	QUANT



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JOSE A. RODRIGUEZ
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UTILITY AND DRAINAGE PLAN & PROFILE

SCALE: HOR. 1"=50'
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SHEET 5 OF 21

CONT	SECT	JOB	HIGHWAY
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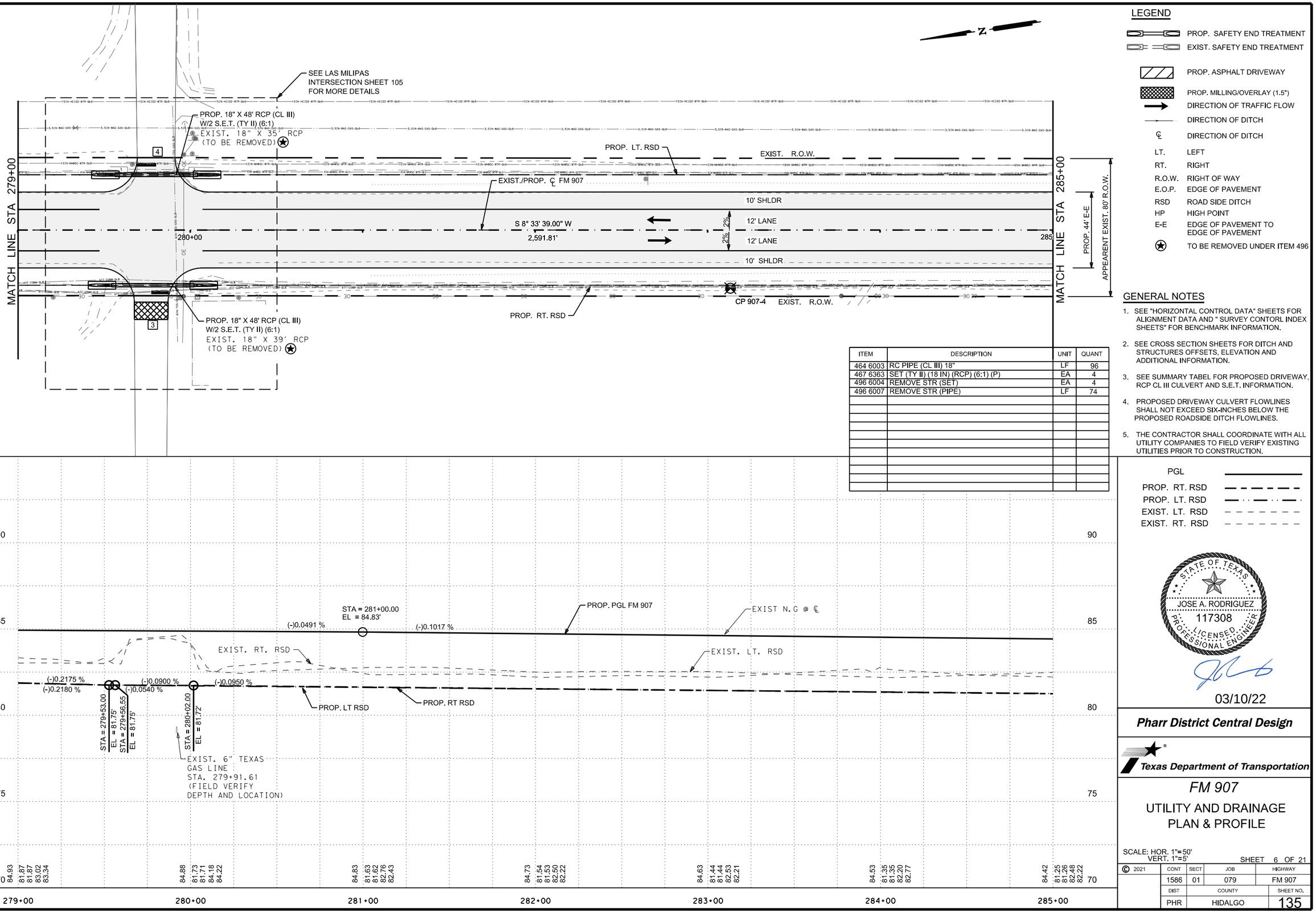

LEGEND

- PROP. SAFETY END TREATMENT
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ITEM	DESCRIPTION	UNIT	QUANT
464 6003	RC PIPE (CL III) 18"	LF	96
467 6363	SET (TY II) (18 IN) (RCP) (6:1) (P)	EA	4
496 6004	REMOVE STR (SET)	EA	4
496 6007	REMOVE STR (PIPE)	LF	74

GENERAL NOTES

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- PGL
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- PROP. LT. RSD
- EXIST. LT. RSD
- EXIST. RT. RSD

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UTILITY AND DRAINAGE PLAN & PROFILE

SCALE: HOR. 1"=50'
VERT. 1"=5'

SHEET 6 OF 21

CONT	SECT	JOB	HIGHWAY
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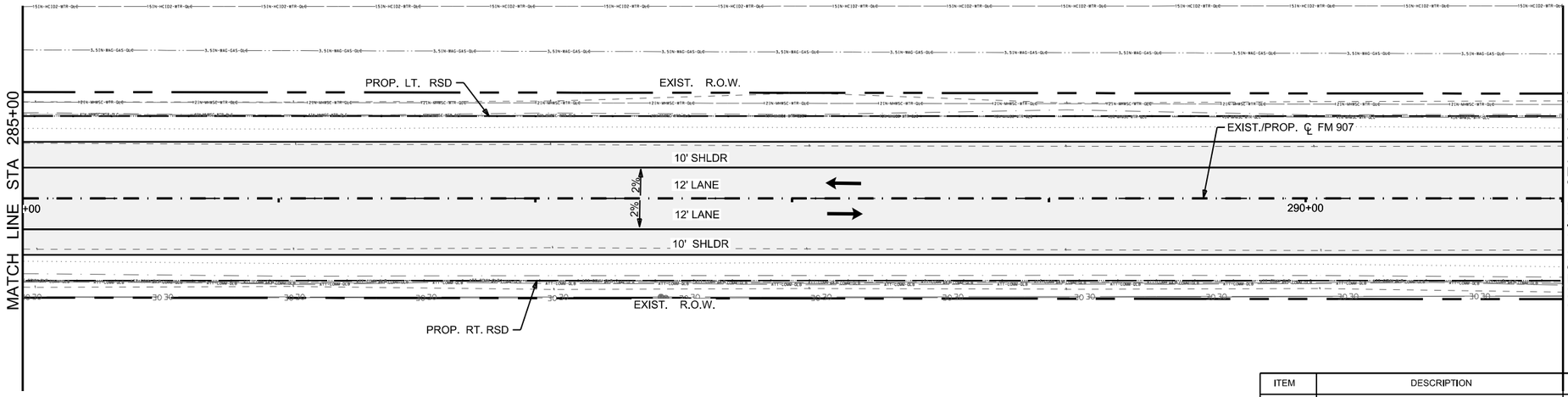

LEGEND

- PROP. SAFETY END TREATMENT
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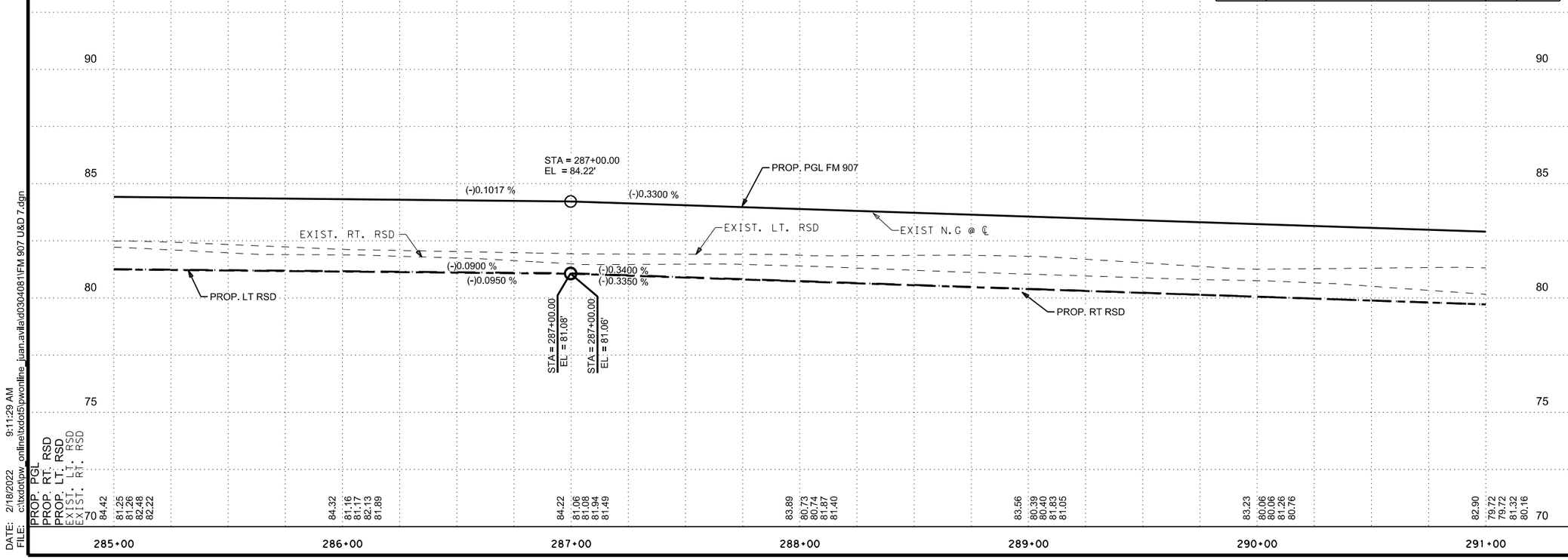
ITEM	DESCRIPTION	UNIT	QUANT



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JOSE A. RODRIGUEZ
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03/10/22

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UTILITY AND DRAINAGE PLAN & PROFILE

SCALE: HOR. 1"=50'
VERT. 1"=5'

SHEET 7 OF 21

CONT	SECT	JOB	HIGHWAY
1586	01	079	FM 907
DIST	COUNTY		SHEET NO.
PHR	HIDALGO		136

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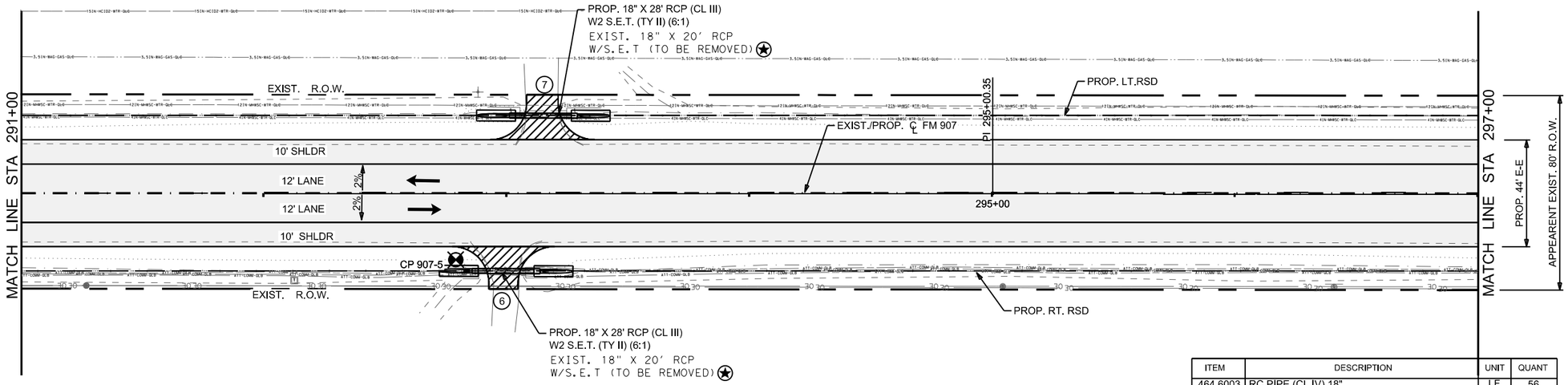


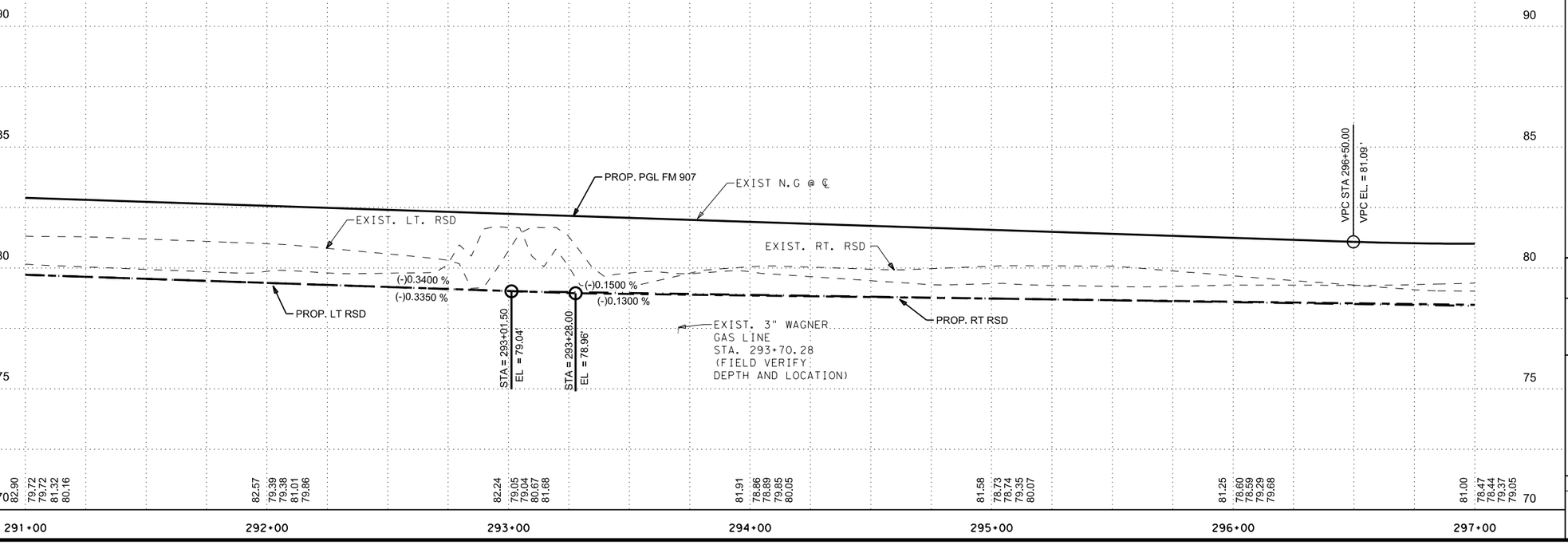
LEGEND

- PROP. SAFETY END TREATMENT
- EXIST. SAFETY END TREATMENT
- PROP. ASPHALT DRIVEWAY
- PROP. MILLING/OVERLAY (1.5")
- DIRECTION OF TRAFFIC FLOW
- DIRECTION OF DITCH
- ℄ DIRECTION OF DITCH
- LT. LEFT
- RT. RIGHT
- R.O.W. RIGHT OF WAY
- E.O.P. EDGE OF PAVEMENT
- RSD ROAD SIDE DITCH
- HP HIGH POINT
- E-E EDGE OF PAVEMENT TO EDGE OF PAVEMENT
- ★ TO BE REMOVED UNDER ITEM 496

GENERAL NOTES

1. SEE "HORIZONTAL CONTROL DATA" SHEETS FOR ALIGNMENT DATA AND " SURVEY CONTORL INDEX SHEETS" FOR BENCHMARK INFORMATION.
2. SEE CROSS SECTION SHEETS FOR DITCH AND STRUCTURES OFFSETS, ELEVATION AND ADDITIONAL INFORMATION.
3. SEE SUMMARY TABEL FOR PROPOSED DRIVEWAY, RCP CL III CULVERT AND S.E.T. INFORMATION.
4. PROPOSED DRIVEWAY CULVERT FLOWLINES SHALL NOT EXCEED SIX-INCHES BELOW THE PROPOSED ROADSIDE DITCH FLOWLINES.
5. THE CONTRACTOR SHALL COORDINATE WITH ALL UTILITY COMPANIES TO FIELD VERIFY EXISTING UTILITIES PRIOR TO CONSTRUCTION.

ITEM	DESCRIPTION	UNIT	QUANT
464 6003	RC PIPE (CL IV) 18"	LF	56
467 6363	SET (TY II) (18 IN) (RCP) (6:1) (P)	EA	4
496 6004	REMOVE STR (SET)	EA	4
496 6007	REMOVE STR (PIPE)	LF	40



PGL
PROP. RT. RSD
PROP. LT. RSD
EXIST. LT. RSD
EXIST. RT. RSD

STATE OF TEXAS
JOSE A. RODRIGUEZ
117308
LICENSED PROFESSIONAL ENGINEER

03/10/22

Pharr District Central Design

Texas Department of Transportation

FM 907

UTILITY AND DRAINAGE PLAN & PROFILE

SCALE: HOR. 1"=50'
VERT. 1"=5'

SHEET 8 OF 21

CONT	SECT	JOB	HIGHWAY
1586	01	079	FM 907
DIST	COUNTY		SHEET NO.
PHR	HIDALGO		137

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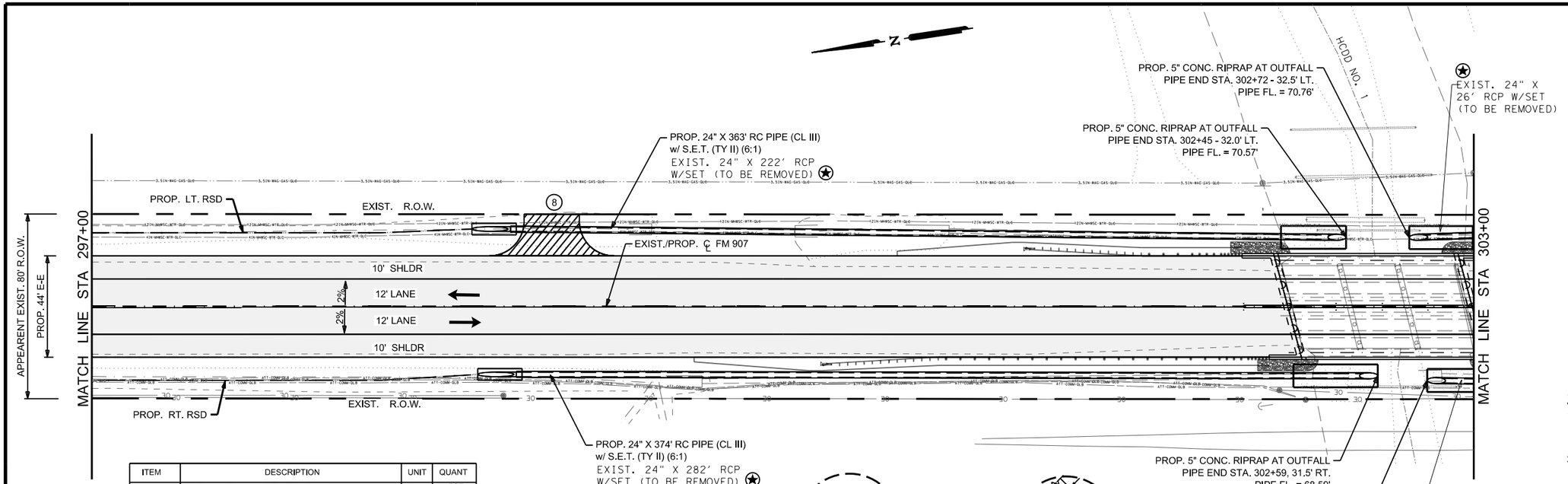

ITEM	DESCRIPTION	UNIT	QUANT
402 6001	TRENCH EXCAV, PROTECTION	LF	737
432 6002	RIPRAP (CONC)(5 IN)	CY	22
464 6005	RC PIPE (CL III) 24"	LF	737
467 6395	SET (TY II) (24 IN) (RCP) (6:1) (P)	EA	2
496 6004	REMOVE STR (SET)	EA	5
496 6007	REMOVE STR (PIPE)	LF	544

LEGEND

	PROP. SAFETY END TREATMENT
	EXIST. SAFETY END TREATMENT
	PROP. ASPHALT DRIVEWAY
	PROP. MILLING/OVERLAY (1.5")
	DIRECTION OF TRAFFIC FLOW
	DIRECTION OF DITCH
℄	DIRECTION OF DITCH
LT.	LEFT
RT.	RIGHT
R.O.W.	RIGHT OF WAY
E.O.P.	EDGE OF PAVEMENT
RSD	ROAD SIDE DITCH
HP	HIGH POINT
E-E	EDGE OF PAVEMENT TO EDGE OF PAVEMENT
★	TO BE REMOVED UNDER ITEM 496

GENERAL NOTES

1. SEE "HORIZONTAL CONTROL DATA" SHEETS FOR ALIGNMENT DATA AND " SURVEY CONTORL INDEX SHEETS" FOR BENCHMARK INFORMATION.
2. SEE CROSS SECTION SHEETS FOR DITCH AND STRUCTURES OFFSETS, ELEVATION AND ADDITIONAL INFORMATION.
3. SEE SUMMARY TABEL FOR PROPOSED DRIVEWAY, RCP CL III CULVERT AND S.E.T. INFORMATION.
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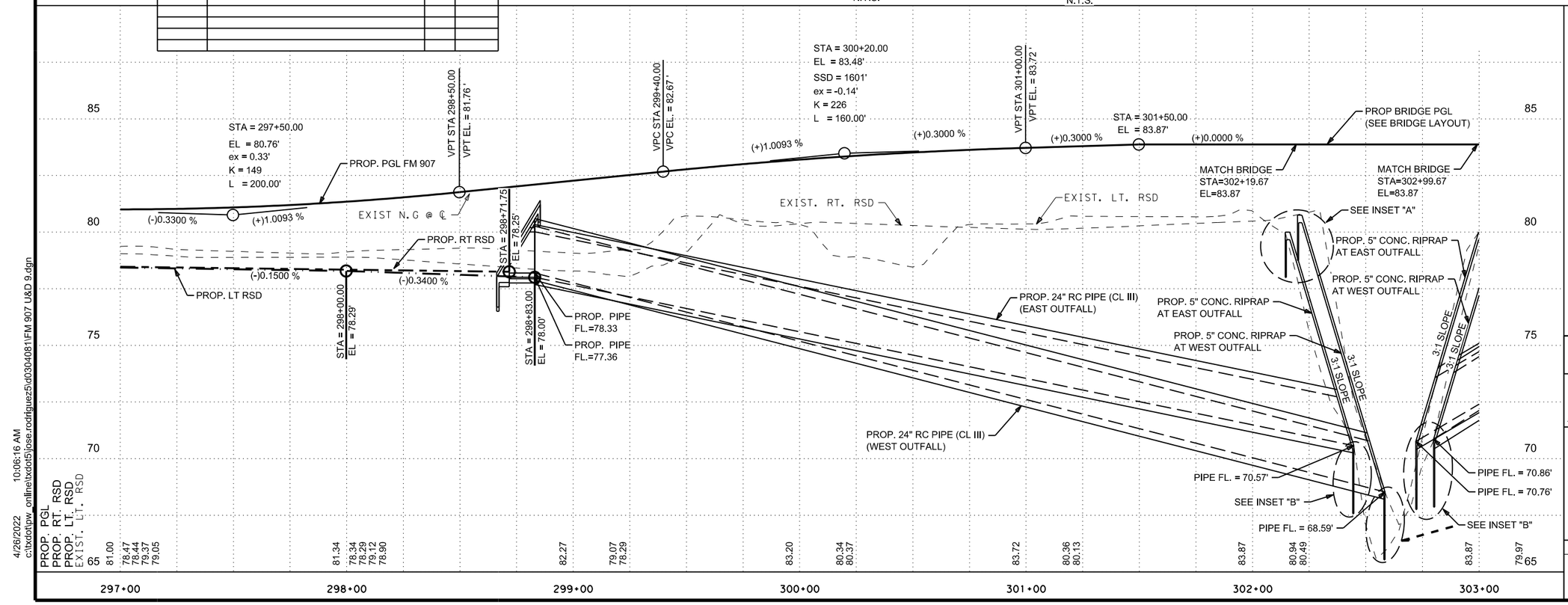

PGL
PROP. RT. RSD
PROP. LT. RSD
EXIST. LT. RSD
EXIST. RT. RSD

STATE OF TEXAS
JOSE A. RODRIGUEZ
117308
LICENSED PROFESSIONAL ENGINEER

04/27/22

Pharr District Central Design

Texas Department of Transportation

FM 907

UTILITY AND DRAINAGE
PLAN & PROFILE

SCALE: HOR. 1"=50'
VERT. 1"=5'

SHEET 9 OF 21

© 2021	CONT	SECT	JOB	HIGHWAY
	1586	01	079	FM 907
	DIST	COUNTY		SHEET NO.
	PHR	HIDALGO		138

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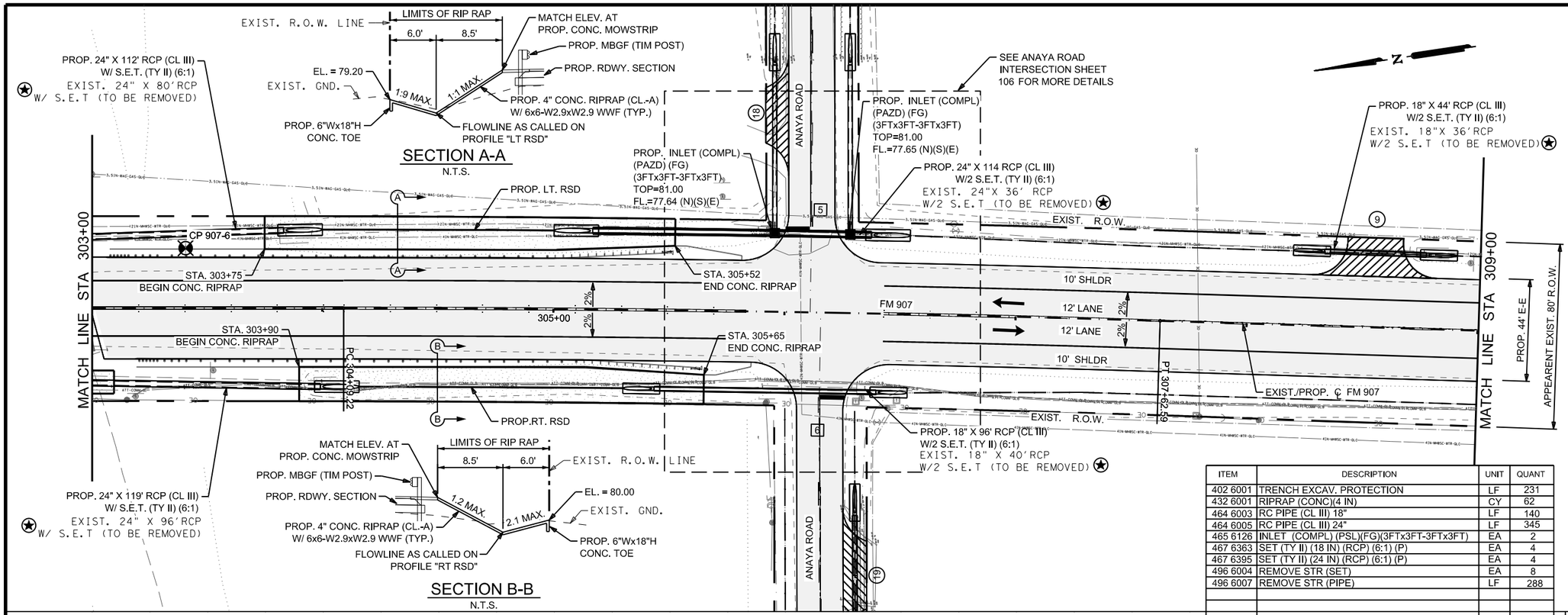

ITEM	DESCRIPTION	UNIT	QUANT
402 6001	TRENCH EXCAV. PROTECTION	LF	231
432 6001	RIPRAP (CONC)(4 IN)	CY	62
464 6003	RC PIPE (CL III) 18"	LF	140
464 6005	RC PIPE (CL III) 24"	LF	345
465 6126	INLET (COMPL) (PSL)(FG)(3FTx3FT-3FTx3FT)	EA	2
467 6363	SET (TY II) (18 IN) (RCP) (6:1) (P)	EA	4
467 6395	SET (TY II) (24 IN) (RCP) (6:1) (P)	EA	4
496 6004	REMOVE STR (SET)	EA	8
496 6007	REMOVE STR (PIPE)	LF	288

GENERAL NOTES

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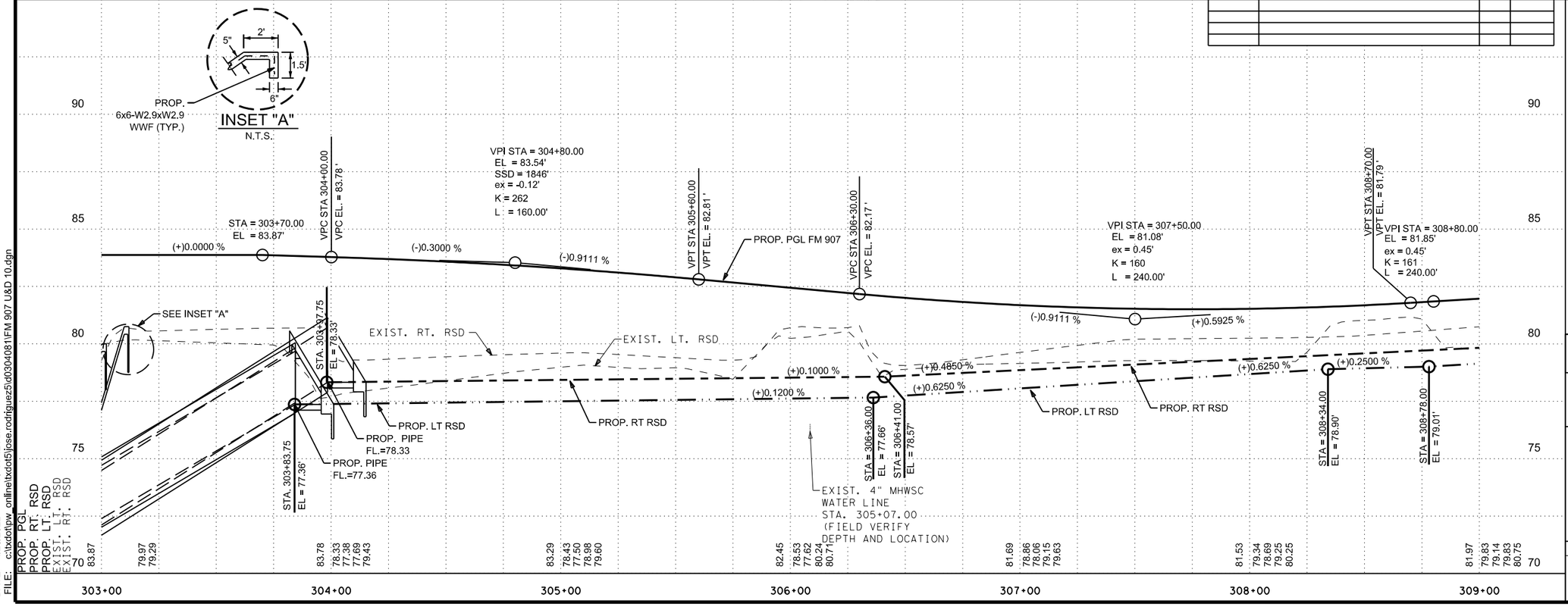
5. THE CONTRACTOR SHALL COORDINATE WITH ALL UTILITY COMPANIES TO FIELD VERIFY EXISTING UTILITIES PRIOR TO CONSTRUCTION.



PGL
PROP. RT. RSD
PROP. LT. RSD
EXIST. LT. RSD
EXIST. RT. RSD

STATE OF TEXAS
JOSE A. RODRIGUEZ
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04/27/22

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UTILITY AND DRAINAGE PLAN & PROFILE

SCALE: HOR. 1"=50'
VERT. 1"=5'

SHEET 10 OF 21

© 2021	CONT	SECT	JOB	HIGHWAY
	1586	01	079	FM 907
	DIST	COUNTY		SHEET NO.
	PHR	HIDALGO		139

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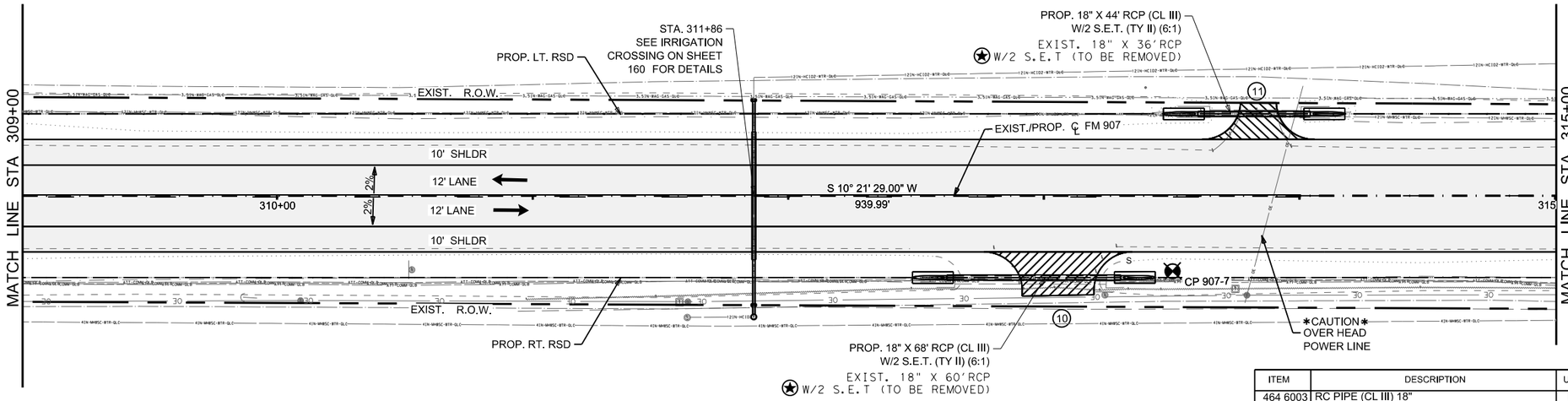

LEGEND

- PROP. SAFETY END TREATMENT
- EXIST. SAFETY END TREATMENT
- PROP. ASPHALT DRIVEWAY
- PROP. MILLING/OVERLAY (1.5")
- DIRECTION OF TRAFFIC FLOW
- DIRECTION OF DITCH
- ℄ DIRECTION OF DITCH
- LT. LEFT
- RT. RIGHT
- R.O.W. RIGHT OF WAY
- E.O.P. EDGE OF PAVEMENT
- RSD ROAD SIDE DITCH
- HP HIGH POINT
- E-E EDGE OF PAVEMENT TO EDGE OF PAVEMENT
- ★ TO BE REMOVED UNDER ITEM 496

ITEM	DESCRIPTION	UNIT	QUANT
464 6003	RC PIPE (CL III) 18"	LF	112
467 6363	SET (TY II) (18 IN) (RCP) (6:1) (P)	EA	4
496 6004	REMOVE STR (SET)	EA	4
496 6007	REMOVE STR (PIPE)	LF	96

GENERAL NOTES

1. SEE "HORIZONTAL CONTROL DATA" SHEETS FOR ALIGNMENT DATA AND " SURVEY CONTORL INDEX SHEETS" FOR BENCHMARK INFORMATION.
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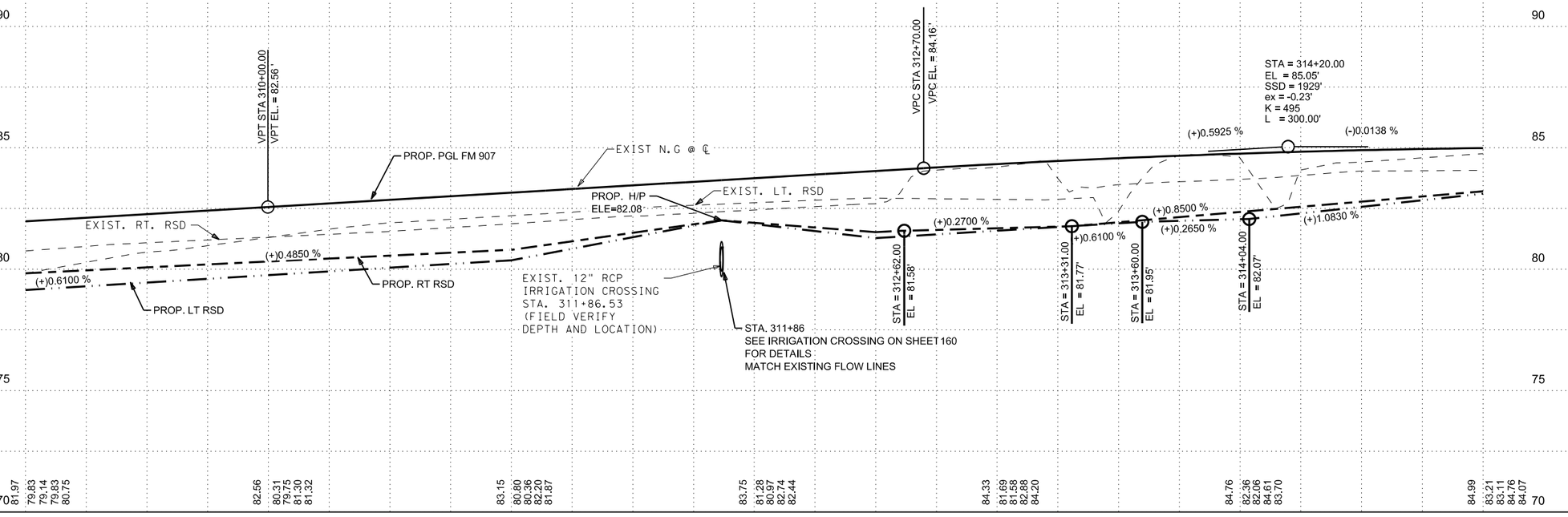
3. SEE SUMMARY TABEL FOR PROPOSED DRIVEWAY, RCP CL III CULVERT AND S.E.T. INFORMATION.
4. PROPOSED DRIVEWAY CULVERT FLOWLINES SHALL NOT EXCEED SIX-INCHES BELOW THE PROPOSED ROADSIDE DITCH FLOWLINES.
5. THE CONTRACTOR SHALL COORDINATE WITH ALL UTILITY COMPANIES TO FIELD VERIFY EXISTING UTILITIES PRIOR TO CONSTRUCTION.



PGL
PROP. RT. RSD
PROP. LT. RSD
EXIST. LT. RSD
EXIST. RT. RSD

STATE OF TEXAS
JOSE A. RODRIGUEZ
117308
LICENSED PROFESSIONAL ENGINEER

03/10/22

Pharr District Central Design

Texas Department of Transportation

FM 907

UTILITY AND DRAINAGE PLAN & PROFILE

SCALE: HOR. 1"=50'
VERT. 1"=5'

SHEET 11 OF 21

CONT	SECT	JOB	HIGHWAY
1586	01	079	FM 907
DIST	COUNTY		SHEET NO.
PHR	HIDALGO		140

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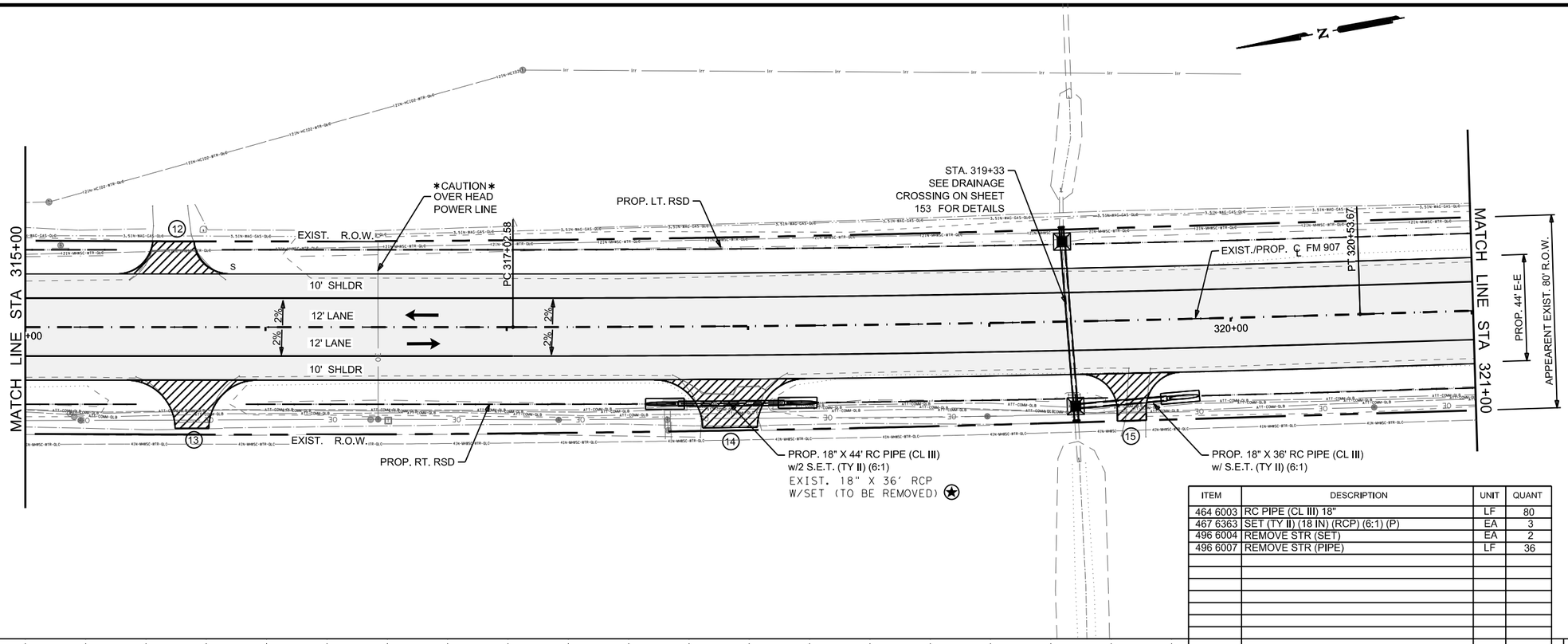

LEGEND

- PROP. SAFETY END TREATMENT
- EXIST. SAFETY END TREATMENT
- PROP. ASPHALT DRIVEWAY
- PROP. MILLING/OVERLAY (1.5")
- DIRECTION OF TRAFFIC FLOW
- DIRECTION OF DITCH
- ℄ DIRECTION OF DITCH
- LT. LEFT
- RT. RIGHT
- R.O.W. RIGHT OF WAY
- E.O.P. EDGE OF PAVEMENT
- RSD ROAD SIDE DITCH
- HP HIGH POINT
- E-E EDGE OF PAVEMENT TO EDGE OF PAVEMENT
- ★ TO BE REMOVED UNDER ITEM 496

GENERAL NOTES

1. SEE "HORIZONTAL CONTROL DATA" SHEETS FOR ALIGNMENT DATA AND " SURVEY CONTORL INDEX SHEETS" FOR BENCHMARK INFORMATION.
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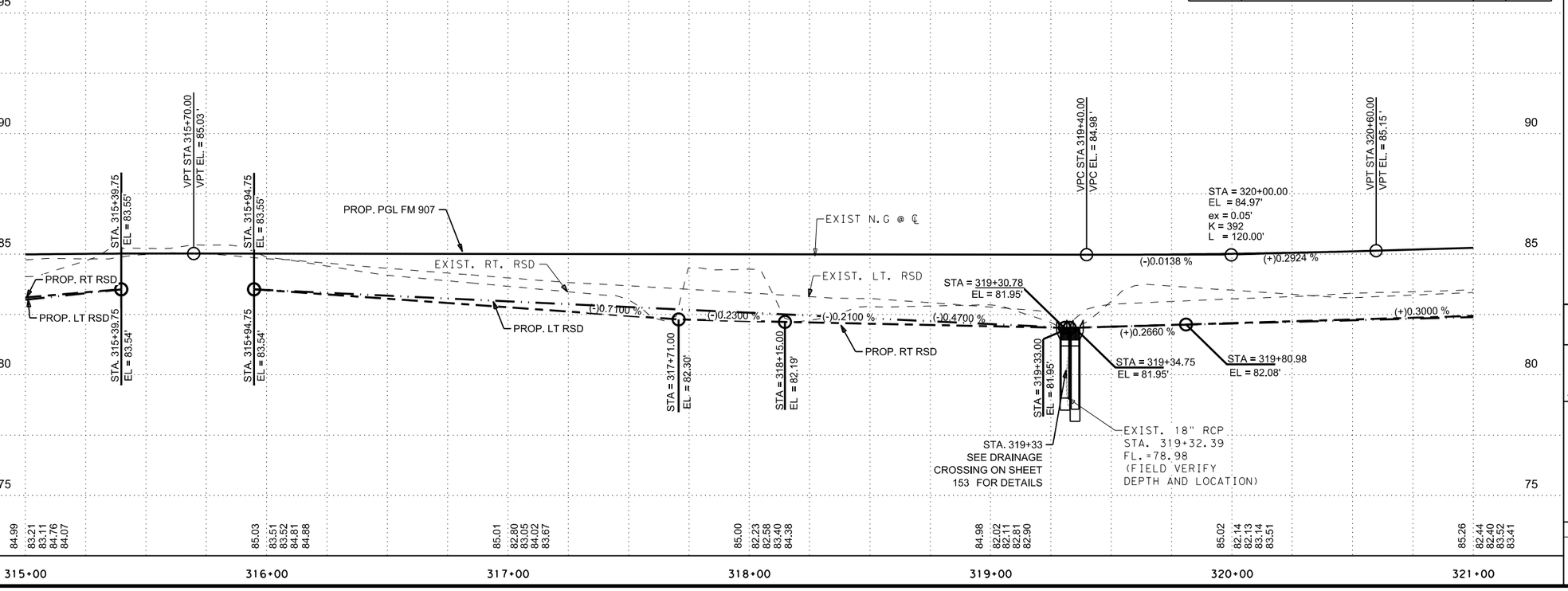
5. THE CONTRACTOR SHALL COORDINATE WITH ALL UTILITY COMPANIES TO FIELD VERIFY EXISTING UTILITIES PRIOR TO CONSTRUCTION.

ITEM	DESCRIPTION	UNIT	QUANT
464 6003	RC PIPE (CL III) 18"	LF	80
467 6363	SET (TY II) (18 IN) (RCP) (6:1) (P)	EA	3
496 6004	REMOVE STR (SET)	EA	2
496 6007	REMOVE STR (PIPE)	LF	36



PGL
PROP. RT. RSD
PROP. LT. RSD
EXIST. LT. RSD
EXIST. RT. RSD

STATE OF TEXAS
JOSE A. RODRIGUEZ
117308
LICENSED
PROFESSIONAL ENGINEER

03/10/22

Pharr District Central Design

Texas Department of Transportation

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UTILITY AND DRAINAGE PLAN & PROFILE

SCALE: HOR. 1"=50'
VERT. 1"=5'

SHEET 12 OF 21

© 2021	CONT	SECT	JOB	HIGHWAY
	1586	01	079	FM 907
	DIST	COUNTY		SHEET NO.
	PHR	HIDALGO		141

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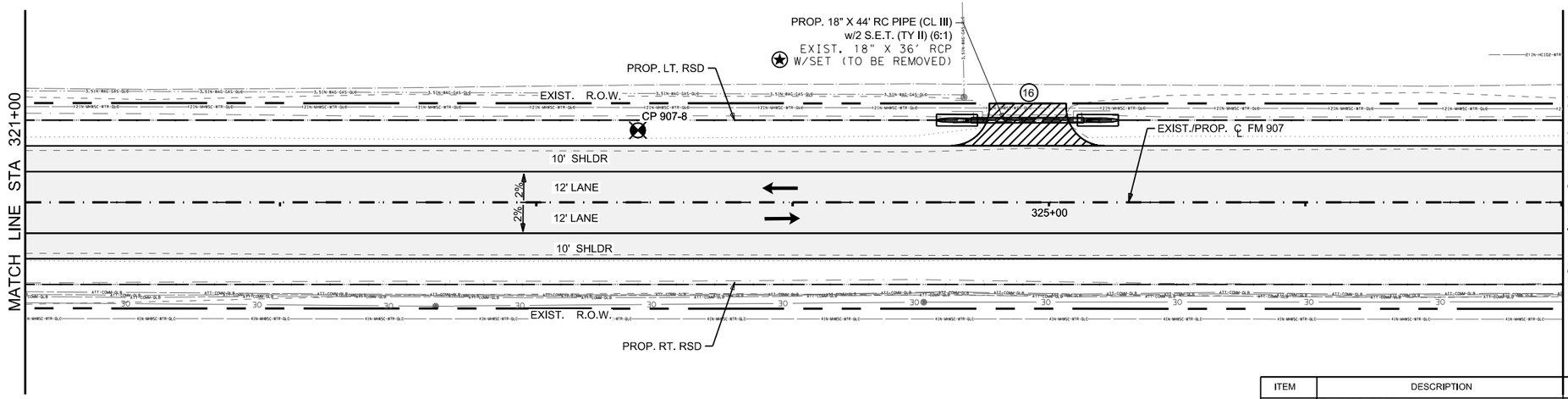

LEGEND

- PROP. SAFETY END TREATMENT
- EXIST. SAFETY END TREATMENT
- PROP. ASPHALT DRIVEWAY
- PROP. MILLING/OVERLAY (1.5")
- DIRECTION OF TRAFFIC FLOW
- DIRECTION OF DITCH
- ℄ DIRECTION OF DITCH
- LT. LEFT
- RT. RIGHT
- R.O.W. RIGHT OF WAY
- E.O.P. EDGE OF PAVEMENT
- RSD ROAD SIDE DITCH
- HP HIGH POINT
- E-E EDGE OF PAVEMENT TO EDGE OF PAVEMENT
- ★ TO BE REMOVED UNDER ITEM 496

GENERAL NOTES

1. SEE "HORIZONTAL CONTROL DATA" SHEETS FOR ALIGNMENT DATA AND " SURVEY CONTORL INDEX SHEETS" FOR BENCHMARK INFORMATION.
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3. SEE SUMMARY TABEL FOR PROPOSED DRIVEWAY, RCP CL III CULVERT AND S.E.T. INFORMATION.
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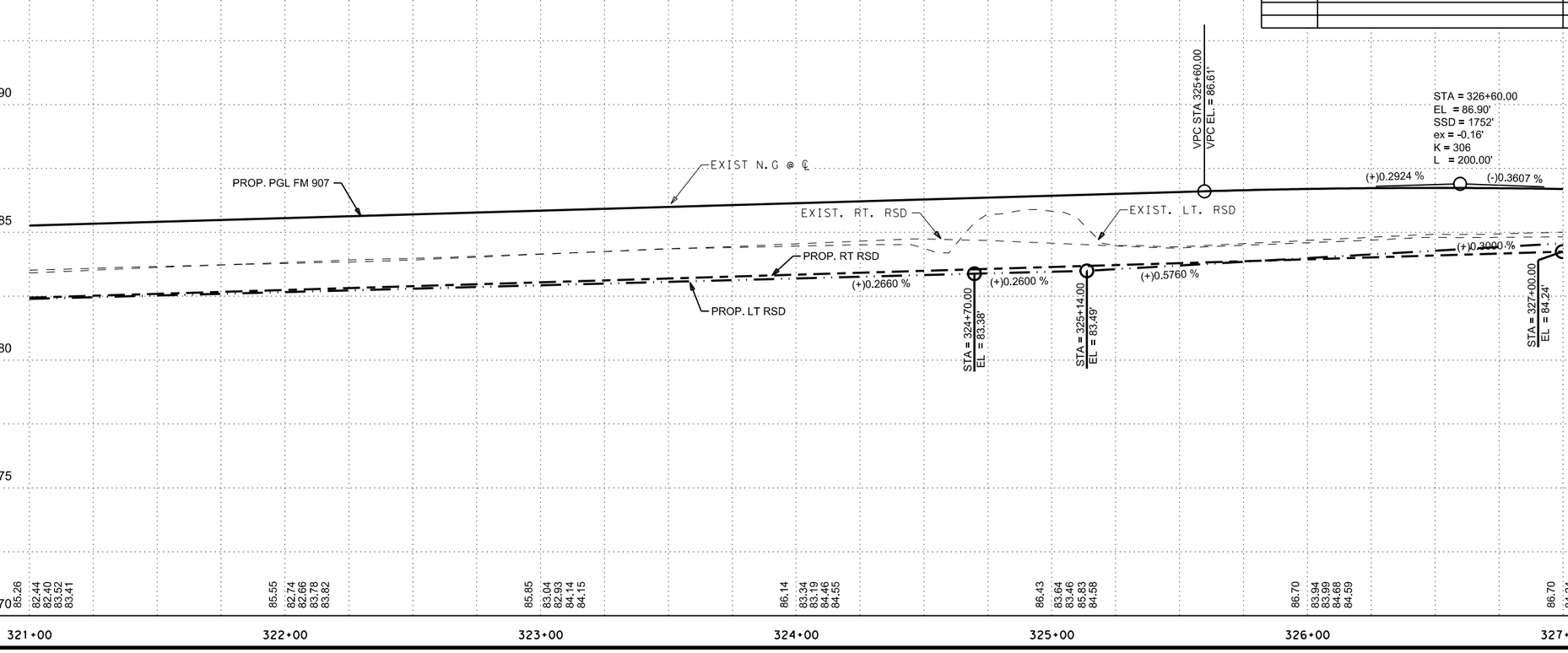
5. THE CONTRACTOR SHALL COORDINATE WITH ALL UTILITY COMPANIES TO FIELD VERIFY EXISTING UTILITIES PRIOR TO CONSTRUCTION.

ITEM	DESCRIPTION	UNIT	QUANT
464 6003	RC PIPE (CL III) 18"	LF	44
467 6363	SET (TY II) (18 IN) (RCP) (6:1) (P)	EA	2
496 6004	REMOVE STR (SET)	EA	2
496 6007	REMOVE STR (PIPE)	LF	36



PGL
PROP. RT. RSD
PROP. LT. RSD
EXIST. LT. RSD
EXIST. RT. RSD

STATE OF TEXAS
JOSE A. RODRIGUEZ
117308
LICENSED PROFESSIONAL ENGINEER

03/10/22

Pharr District Central Design

Texas Department of Transportation

FM 907

UTILITY AND DRAINAGE PLAN & PROFILE

SCALE: HOR. 1"=50'
VERT. 1"=5'

SHEET 13 OF 21

CONT	SECT	JOB	HIGHWAY
1586	01	079	FM 907
DIST	COUNTY		SHEET NO.
PHR	HIDALGO		142

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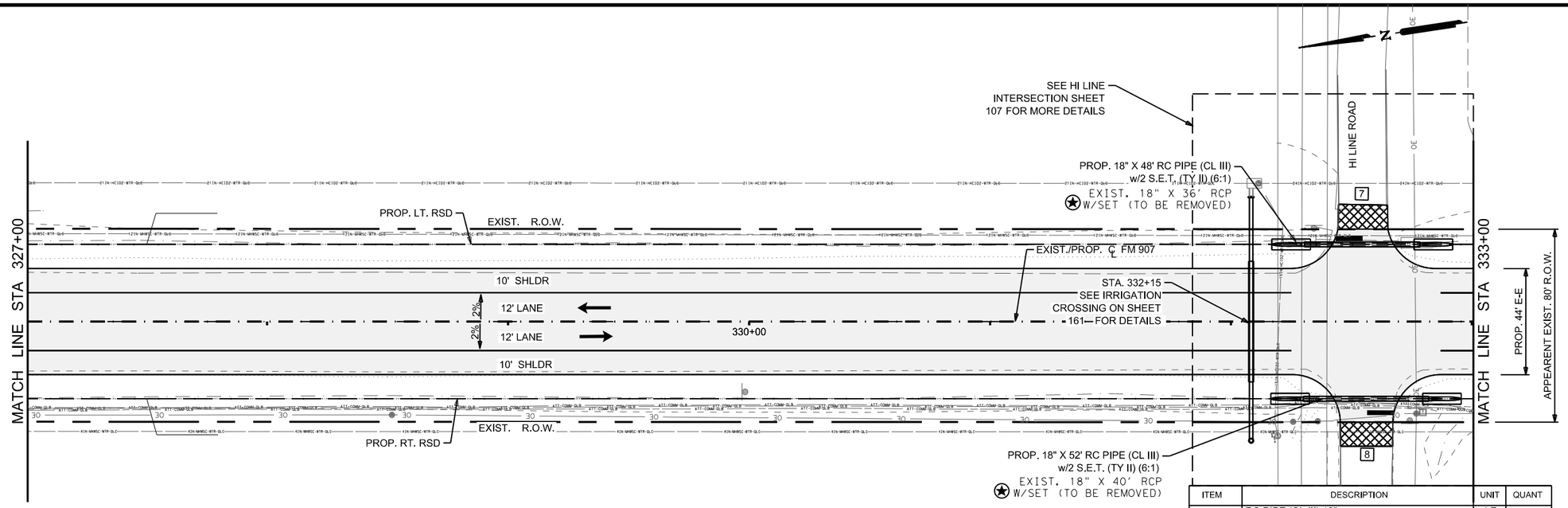

LEGEND

- PROP. SAFETY END TREATMENT
- EXIST. SAFETY END TREATMENT
- PROP. ASPHALT DRIVEWAY
- PROP. MILLING/OVERLAY (1.5")
- DIRECTION OF TRAFFIC FLOW
- DIRECTION OF DITCH
- ℄ DIRECTION OF DITCH
- LT. LEFT
- RT. RIGHT
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- RSD ROAD SIDE DITCH
- HP HIGH POINT
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- ★ TO BE REMOVED UNDER ITEM 496

ITEM	DESCRIPTION	UNIT	QUANT
464 6003	RC PIPE (CL III) 18"	LF	100
467 6357	SET (TY II) (18 IN) (RCP) (6:1) (P)	EA	4
496 6004	REMOVE STR (SET)	EA	4
496 6007	REMOVE STR (PIPE)	LF	76

GENERAL NOTES

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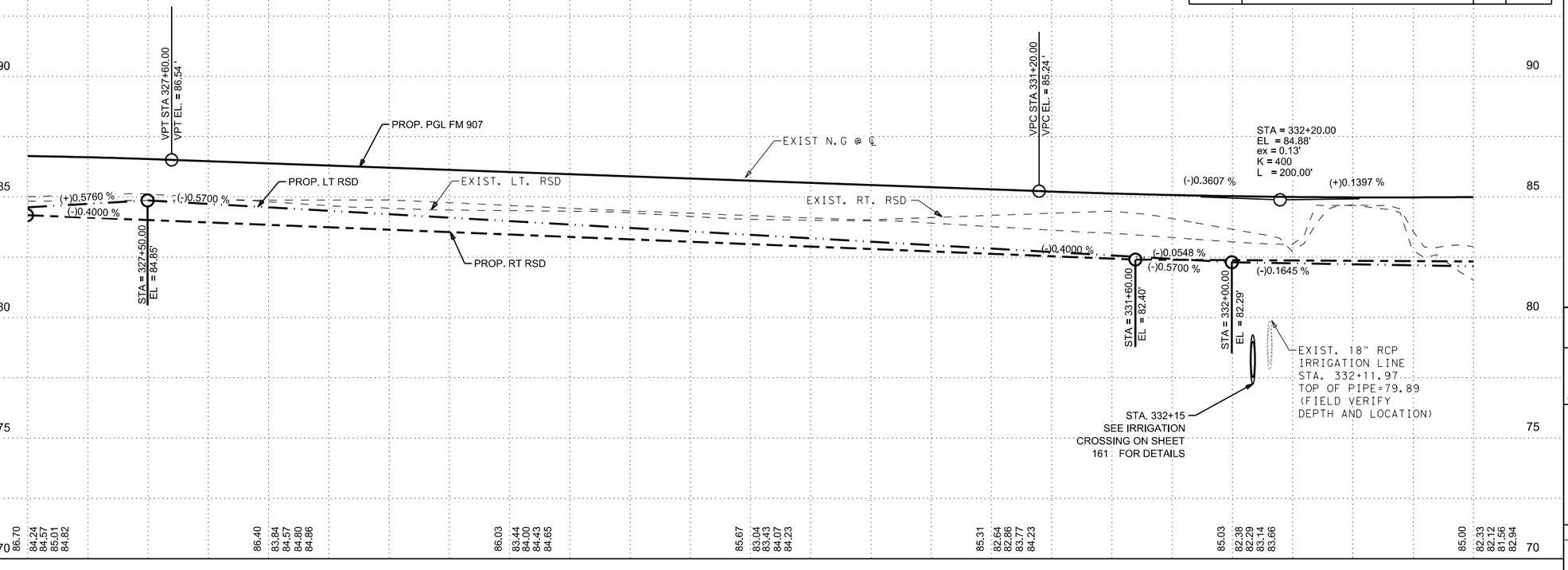

PGL
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PROP. LT. RSD
EXIST. LT. RSD
EXIST. RT. RSD

STATE OF TEXAS
JOSE A. RODRIGUEZ
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LICENSED PROFESSIONAL ENGINEER

03/10/22

Pharr District Central Design

Texas Department of Transportation

FM 907

UTILITY AND DRAINAGE PLAN & PROFILE

SCALE: HOR. 1"=50'
VERT. 1"=5'

SHEET 14 OF 21

CONT	SECT	JOB	HIGHWAY
1586	01	079	FM 907
DIST	COUNTY		SHEET NO.
PHR	HIDALGO		143

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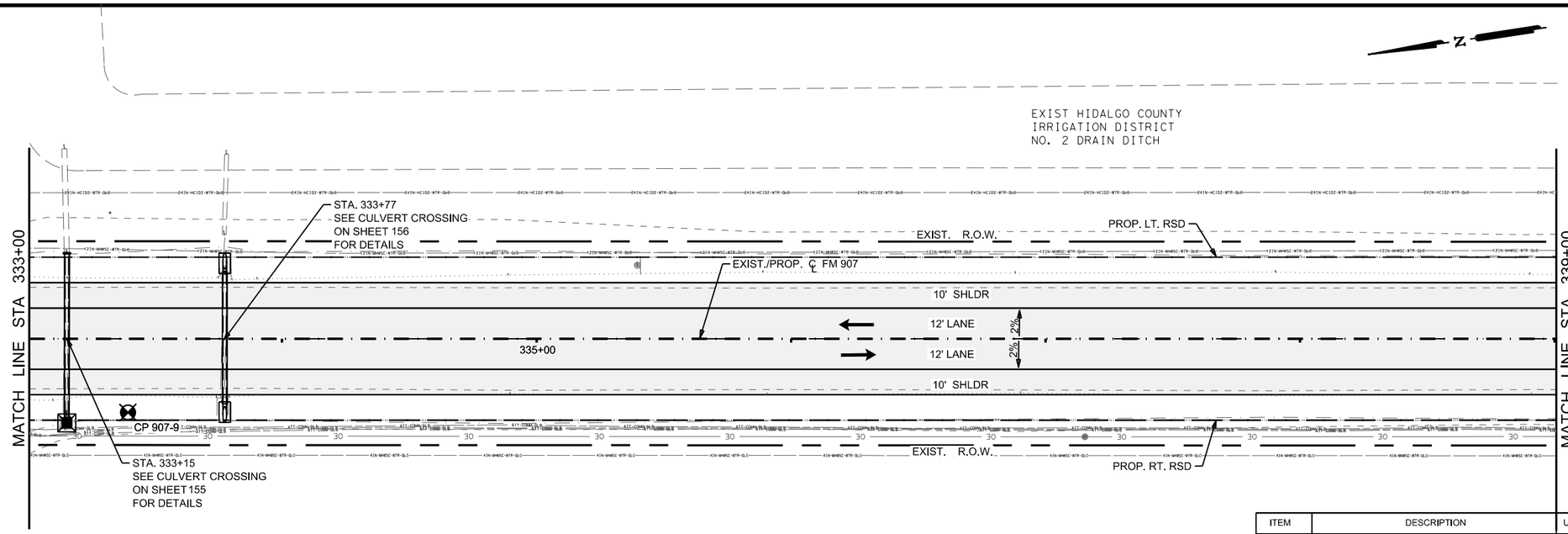

LEGEND

- PROP. SAFETY END TREATMENT
- EXIST. SAFETY END TREATMENT
- PROP. ASPHALT DRIVEWAY
- PROP. MILLING/OVERLAY (1.5")
- DIRECTION OF TRAFFIC FLOW
- DIRECTION OF DITCH
- ℄ DIRECTION OF DITCH
- LT. LEFT
- RT. RIGHT
- R.O.W. RIGHT OF WAY
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- RSD ROAD SIDE DITCH
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GENERAL NOTES

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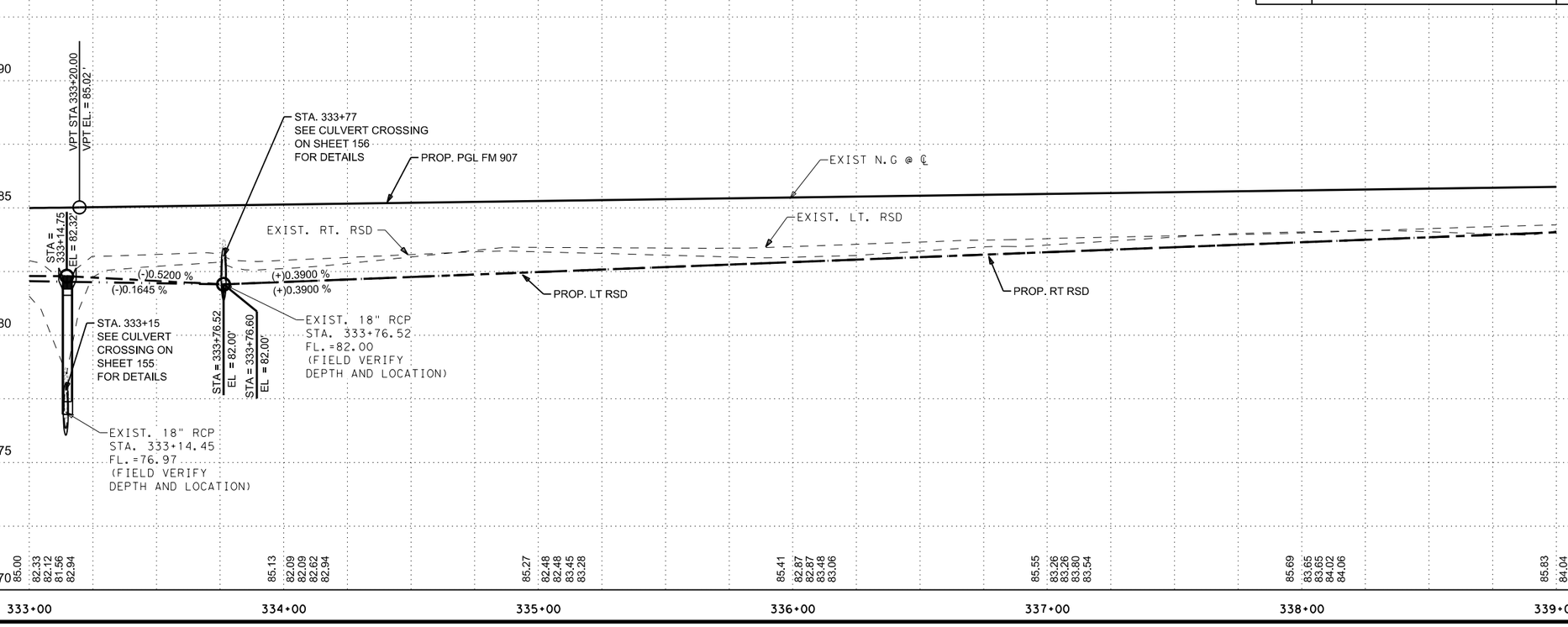
ITEM	DESCRIPTION	UNIT	QUANT



PROP. PGL
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PROP. LT. RSD
EXIST. LT. RSD
EXIST. RT. RSD

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85.69	83.65	83.65	84.02	84.06	85.83	84.04	84.04
84.34	84.10						

PGL
PROP. RT. RSD
PROP. LT. RSD
EXIST. LT. RSD
EXIST. RT. RSD

STATE OF TEXAS
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UTILITY AND DRAINAGE PLAN & PROFILE

SCALE: HOR. 1"=50'
VERT. 1"=5'

SHEET 15 OF 21

CONT	SECT	JOB	HIGHWAY
1586	01	079	FM 907
DIST	COUNTY		SHEET NO.
PHR	HIDALGO		144

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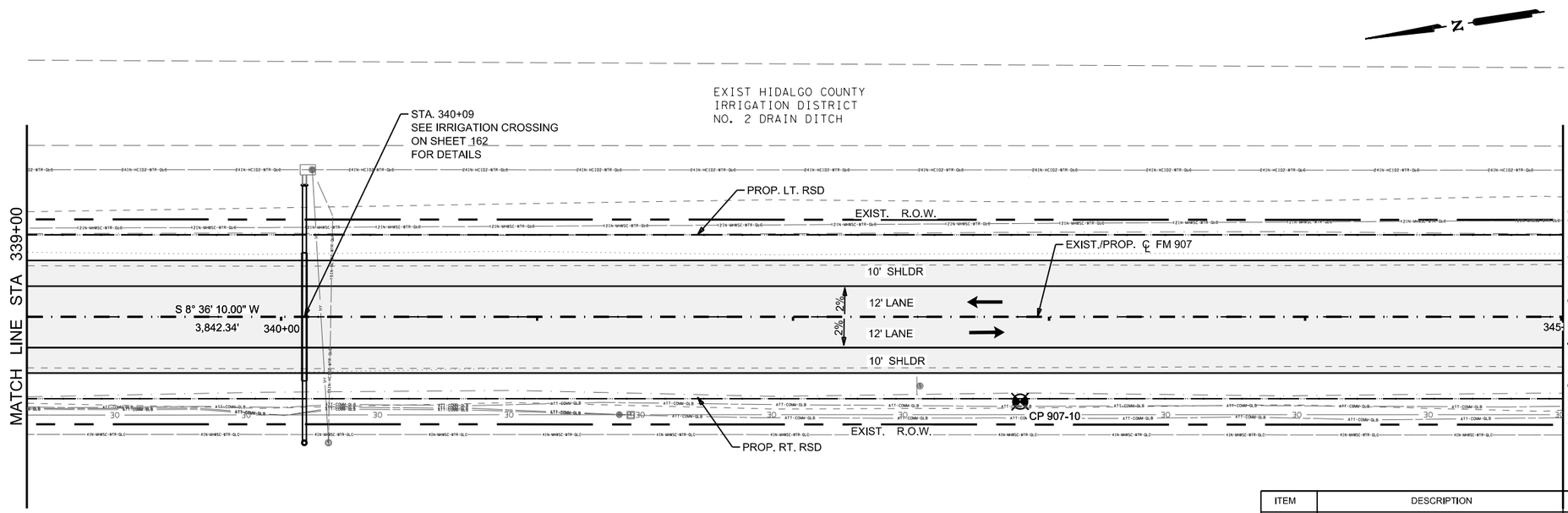


LEGEND

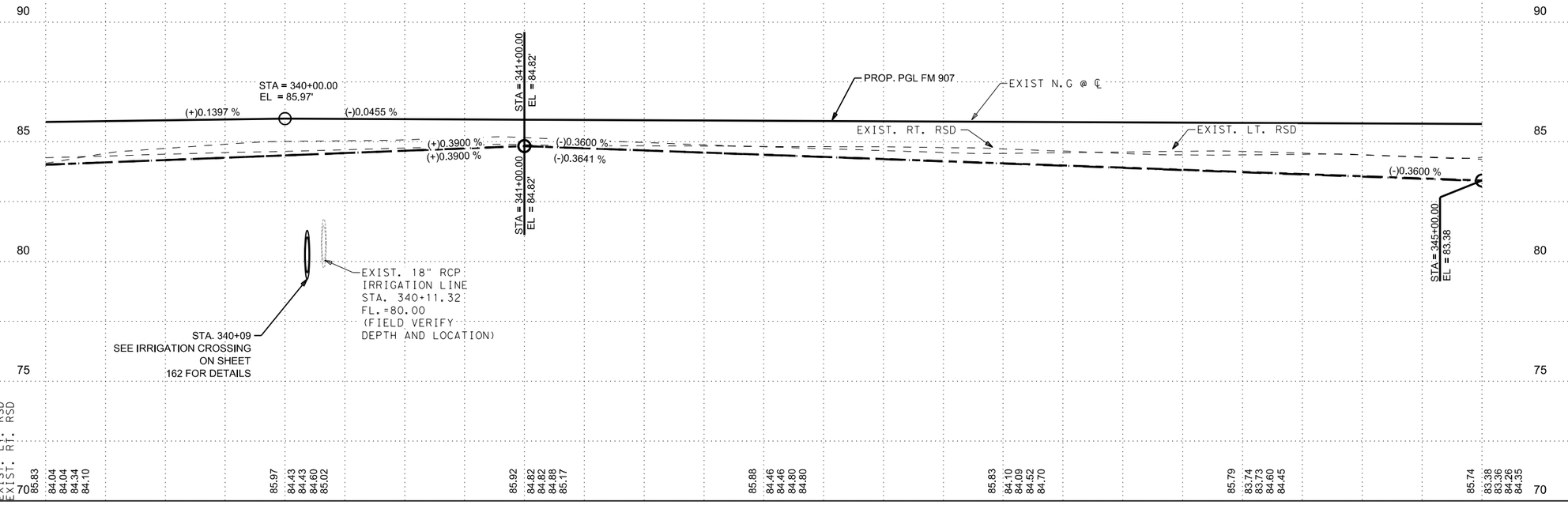
- PROP. SAFETY END TREATMENT
- EXIST. SAFETY END TREATMENT
- PROP. ASPHALT DRIVEWAY
- PROP. MILLING/OVERLAY (1.5")
- DIRECTION OF TRAFFIC FLOW
- DIRECTION OF DITCH
- ℄ DIRECTION OF DITCH
- LT. LEFT
- RT. RIGHT
- R.O.W. RIGHT OF WAY
- E.O.P. EDGE OF PAVEMENT
- RSD ROAD SIDE DITCH
- HP HIGH POINT
- E-E EDGE OF PAVEMENT TO EDGE OF PAVEMENT
- ★ TO BE REMOVED UNDER ITEM 496

GENERAL NOTES

1. SEE "HORIZONTAL CONTROL DATA" SHEETS FOR ALIGNMENT DATA AND " SURVEY CONTORL INDEX SHEETS" FOR BENCHMARK INFORMATION.
2. SEE CROSS SECTION SHEETS FOR DITCH AND STRUCTURES OFFSETS, ELEVATION AND ADDITIONAL INFORMATION.
3. SEE SUMMARY TABEL FOR PROPOSED DRIVEWAY, RCP CL III CULVERT AND S.E.T. INFORMATION.
4. PROPOSED DRIVEWAY CULVERT FLOWLINES SHALL NOT EXCEED SIX-INCHES BELOW THE PROPOSED ROADSIDE DITCH FLOWLINES.
5. THE CONTRACTOR SHALL COORDINATE WITH ALL UTILITY COMPANIES TO FIELD VERIFY EXISTING UTILITIES PRIOR TO CONSTRUCTION.

ITEM	DESCRIPTION	UNIT	QUANT

PGL
PROP. RT. RSD
PROP. LT. RSD
EXIST. LT. RSD
EXIST. RT. RSD



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JOSE A. RODRIGUEZ
117308
LICENSED PROFESSIONAL ENGINEER
STATE OF TEXAS

03/10/22

Pharr District Central Design

Texas Department of Transportation

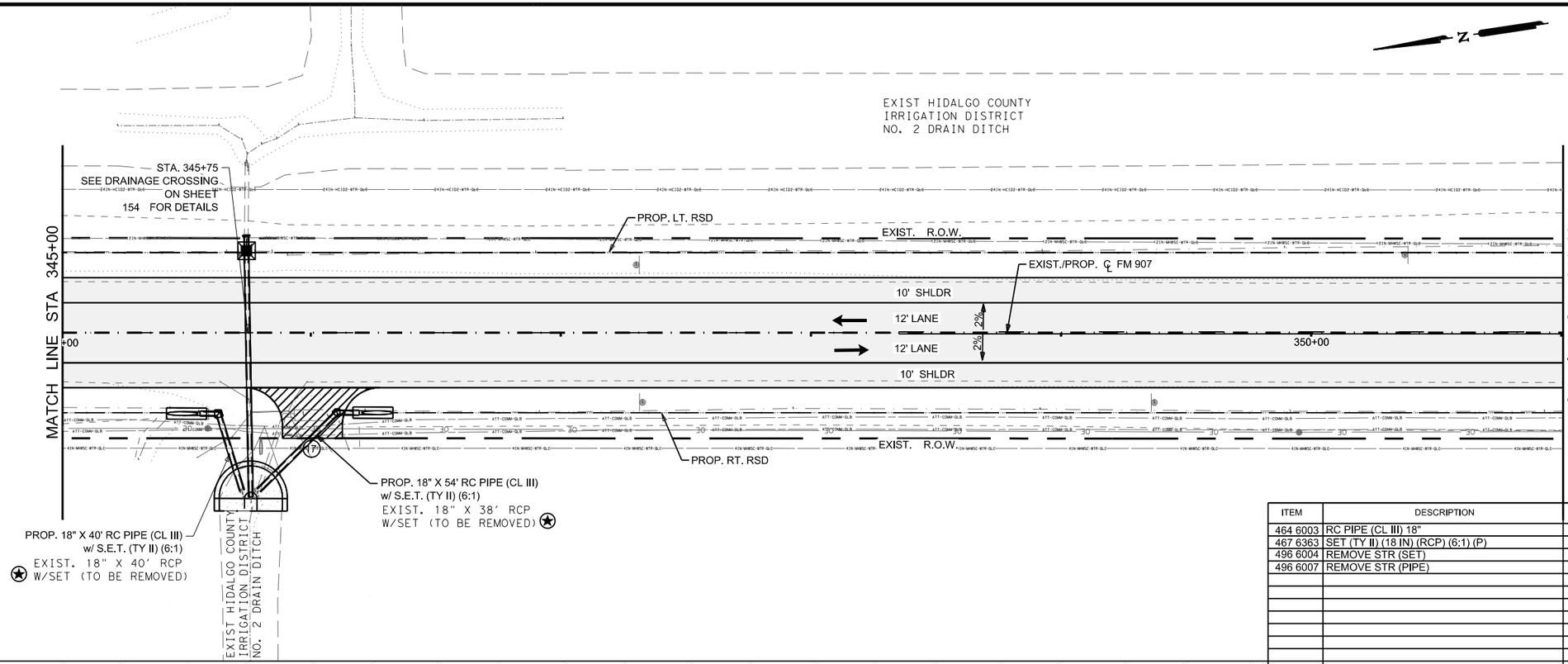
FM 907

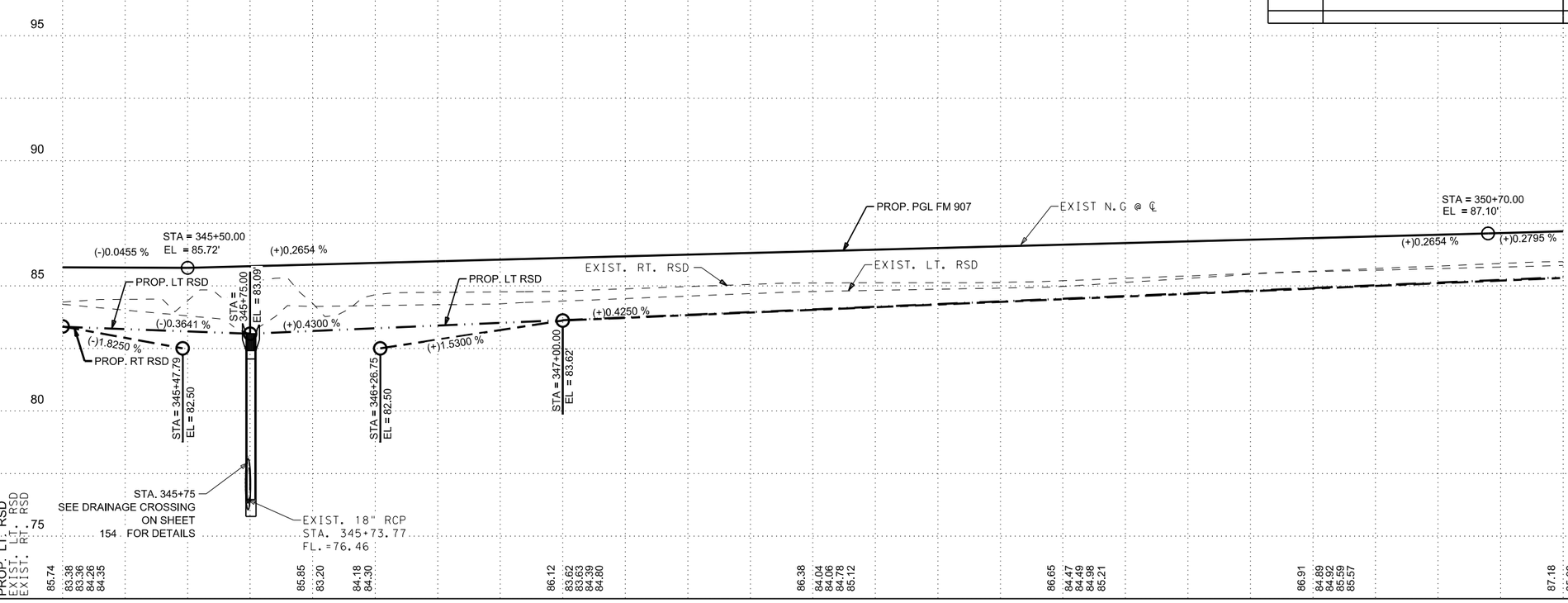
UTILITY AND DRAINAGE PLAN & PROFILE

SCALE: HOR. 1"=50'
VERT. 1"=5'

SHEET 16 OF 21

CONT	SECT	JOB	HIGHWAY
1586	01	079	FM 907
DIST	COUNTY		SHEET NO.
PHR	HIDALGO		145





LEGEND

- PROP. SAFETY END TREATMENT
- EXIST. SAFETY END TREATMENT
- PROP. ASPHALT DRIVEWAY
- PROP. MILLING/OVERLAY (1.5")
- DIRECTION OF TRAFFIC FLOW
- DIRECTION OF DITCH
- ℄ DIRECTION OF DITCH
- LT. LEFT
- RT. RIGHT
- R.O.W. RIGHT OF WAY
- E.O.P. EDGE OF PAVEMENT
- RSD ROAD SIDE DITCH
- HP HIGH POINT
- E-E EDGE OF PAVEMENT TO EDGE OF PAVEMENT
- ★ TO BE REMOVED UNDER ITEM 496

GENERAL NOTES

1. SEE "HORIZONTAL CONTROL DATA" SHEETS FOR ALIGNMENT DATA AND " SURVEY CONTORL INDEX SHEETS" FOR BENCHMARK INFORMATION.
2. SEE CROSS SECTION SHEETS FOR DITCH AND STRUCTURES OFFSETS, ELEVATION AND ADDITIONAL INFORMATION.
3. SEE SUMMARY TABEL FOR PROPOSED DRIVEWAY, RCP CL III CULVERT AND S.E.T. INFORMATION.
4. PROPOSED DRIVEWAY CULVERT FLOWLINES SHALL NOT EXCEED SIX-INCHES BELOW THE PROPOSED ROADSIDE DITCH FLOWLINES.
5. THE CONTRACTOR SHALL COORDINATE WITH ALL UTILITY COMPANIES TO FIELD VERIFY EXISTING UTILITIES PRIOR TO CONSTRUCTION.

ITEM	DESCRIPTION	UNIT	QUANT
464 6003	RC PIPE (CL III) 18"	LF	94
467 6363	SET (TY II) (18 IN) (RCP) (6:1) (P)	EA	2
496 6004	REMOVE STR (SET)	EA	2
496 6007	REMOVE STR (PIPE)	LF	78

PGL
PROP. RT. RSD
PROP. LT. RSD
EXIST. LT. RSD
EXIST. RT. RSD

STATE OF TEXAS
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UTILITY AND DRAINAGE PLAN & PROFILE

SCALE: HOR. 1"=50'
VERT. 1"=5'

SHEET 17 OF 21

© 2021	CONT	SECT	JOB	HIGHWAY
	1586	01	079	FM 907
	DIST	COUNTY		SHEET NO.
	PHR	HIDALGO		146

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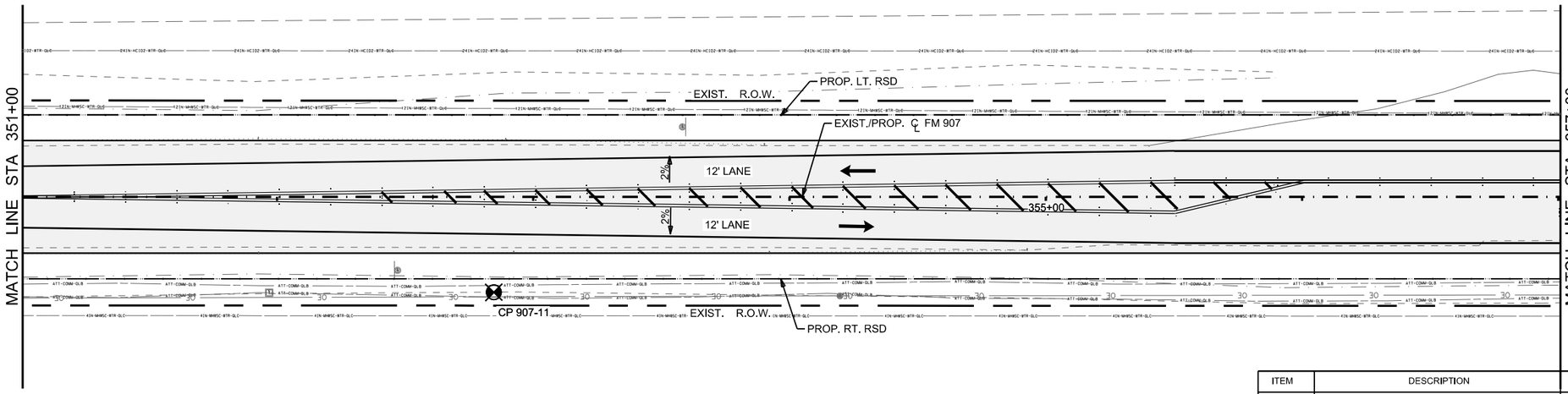

LEGEND

⊂⊃	PROP. SAFETY END TREATMENT
⊂⊃	EXIST. SAFETY END TREATMENT
▨	PROP. ASPHALT DRIVEWAY
▩	PROP. MILLING/OVERLAY (1.5")
➞	DIRECTION OF TRAFFIC FLOW
→	DIRECTION OF DITCH
℄	DIRECTION OF DITCH
LT.	LEFT
RT.	RIGHT
R.O.W.	RIGHT OF WAY
E.O.P.	EDGE OF PAVEMENT
RSD	ROAD SIDE DITCH
HP	HIGH POINT
E-E	EDGE OF PAVEMENT TO EDGE OF PAVEMENT
⊛	TO BE REMOVED UNDER ITEM 496

GENERAL NOTES

1. SEE "HORIZONTAL CONTROL DATA" SHEETS FOR ALIGNMENT DATA AND " SURVEY CONTORL INDEX SHEETS" FOR BENCHMARK INFORMATION.
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ITEM	DESCRIPTION	UNIT	QUANT

	351+00	352+00	353+00	354+00	355+00	356+00	357+00
PROP. PGL	87.18	87.46	87.74	88.02	88.30	88.58	88.86
PROP. RT. RSD	85.32	85.74	86.17	86.59	87.02	87.44	87.87
PROP. LT. RSD	85.35	85.78	86.21	86.64	87.07	87.50	87.93
EXIST. LT. RSD	85.97	86.06	86.72	87.21	87.42	87.56	88.11
EXIST. RT. RSD	85.82	86.13	86.13	86.41	87.06	87.42	87.34

PGL	———
PROP. RT. RSD	— — — —
PROP. LT. RSD	— · — · —
EXIST. LT. RSD	- - - - - -
EXIST. RT. RSD	- - - - - -

STATE OF TEXAS
JOSE A. RODRIGUEZ
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LICENSED PROFESSIONAL ENGINEER

03/10/22

Pharr District Central Design

Texas Department of Transportation

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UTILITY AND DRAINAGE
PLAN & PROFILE

SCALE: HOR. 1"=50'
VERT. 1"=5'

SHEET 18 OF 21

CONT	SECT	JOB	HIGHWAY
1586	01	079	FM 907
DIST		COUNTY	SHEET NO.
PHR		HIDALGO	147

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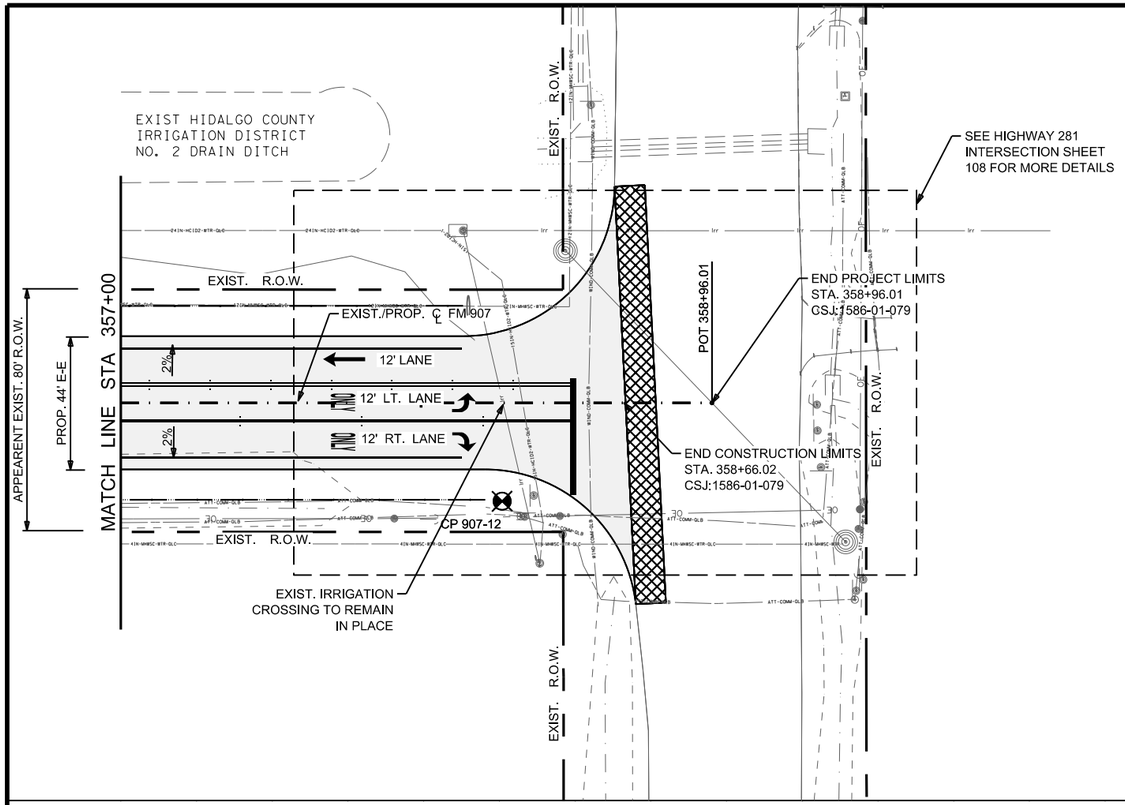

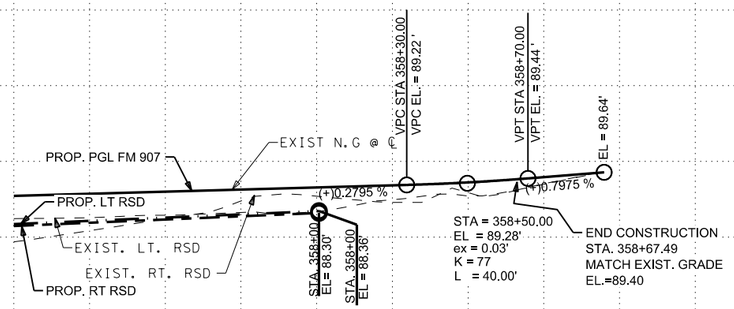

PROP. PGL
PROP. RT. RSD
PROP. LT. RSD
EXIST. LT. RSD
EXIST. RT. RSD
88.86
87.87
87.93
88.11
87.34
89.14
88.29
88.36
88.34
88.85

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LEGEND

	PROP. SAFETY END TREATMENT
	EXIST. SAFETY END TREATMENT
	PROP. ASPHALT DRIVEWAY
	PROP. MILLING/OVERLAY (1.5")
	DIRECTION OF TRAFFIC FLOW
	DIRECTION OF DITCH
℄	DIRECTION OF DITCH
LT.	LEFT
RT.	RIGHT
R.O.W.	RIGHT OF WAY
E.O.P.	EDGE OF PAVEMENT
RSD	ROAD SIDE DITCH
HP	HIGH POINT
E-E	EDGE OF PAVEMENT TO EDGE OF PAVEMENT
★	TO BE REMOVED UNDER ITEM 496

GENERAL NOTES

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ITEM	DESCRIPTION	UNIT	QUANT

PGL
PROP. RT. RSD
PROP. LT. RSD
EXIST. LT. RSD
EXIST. RT. RSD

STATE OF TEXAS
JOSE A. RODRIGUEZ
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03/10/22

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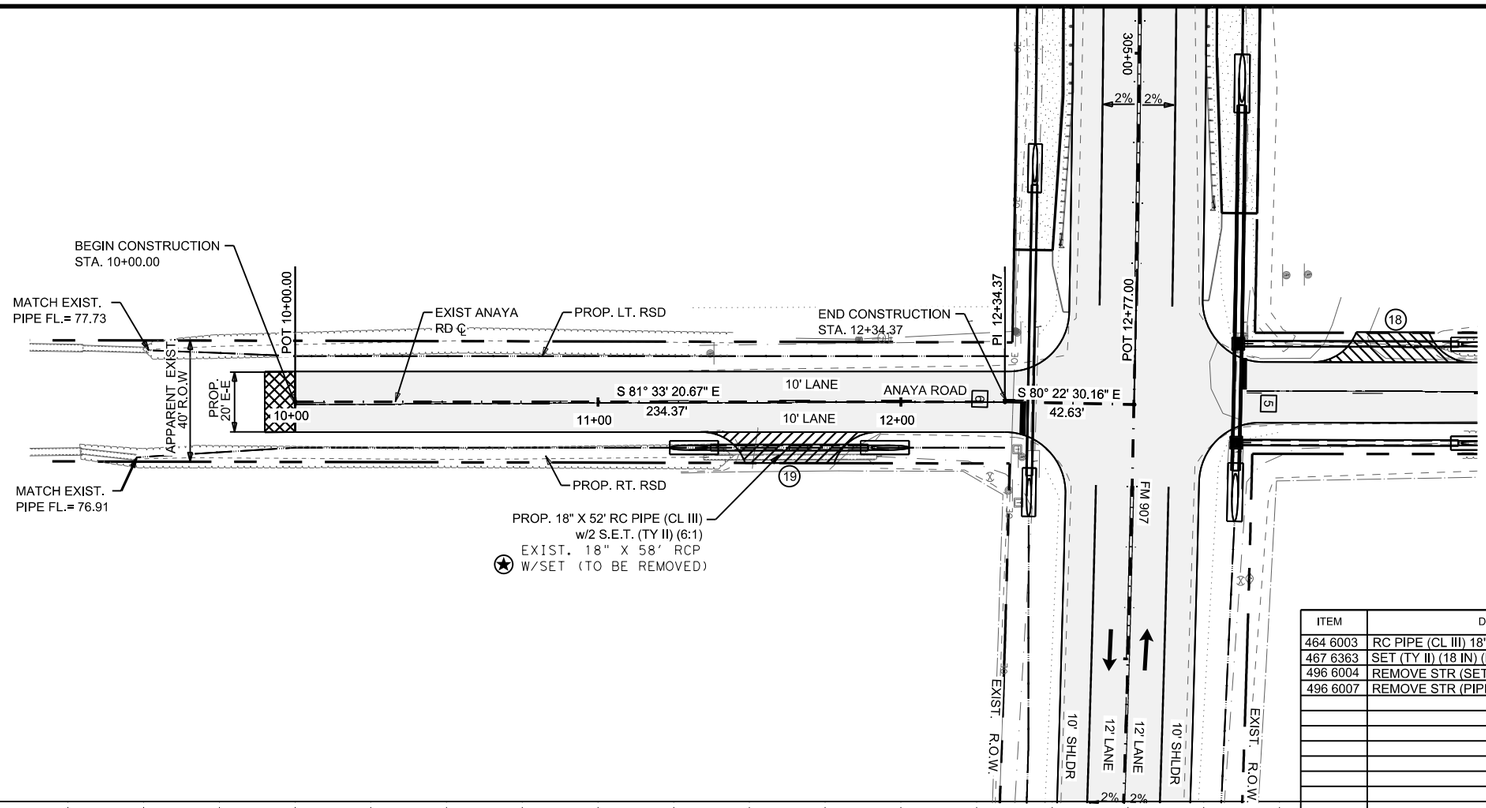
UTILITY AND DRAINAGE PLAN & PROFILE

SCALE: HOR. 1"=50'
VERT. 1"=5'

SHEET 19 OF 21

CONT	SECT	JOB	HIGHWAY
1586	01	079	FM 907
DIST	COUNTY		SHEET NO.
PHR	HIDALGO		148



LEGEND

- PROP. SAFETY END TREATMENT
- EXIST. SAFETY END TREATMENT
- PROP. ASPHALT DRIVEWAY
- PROP. MILLING/OVERLAY (1.5")
- DIRECTION OF TRAFFIC FLOW
- DIRECTION OF DITCH
- ℄ DIRECTION OF DITCH
- LT. LEFT
- RT. RIGHT
- R.O.W. RIGHT OF WAY
- E.O.P. EDGE OF PAVEMENT
- RSD ROAD SIDE DITCH
- HP HIGH POINT
- E-E EDGE OF PAVEMENT TO EDGE OF PAVEMENT
- ★ TO BE REMOVED UNDER ITEM 496

ITEM	DESCRIPTION	UNIT	QUANT
464 6003	RC PIPE (CL III) 18"	LF	52
467 6363	SET (TY II) (18 IN) (RCP) (6:1) (P)	EA	2
496 6004	REMOVE STR (SET)	EA	-
496 6007	REMOVE STR (PIPE)	LF	58

GENERAL NOTES

1. SEE "HORIZONTAL CONTROL DATA" SHEETS FOR ALIGNMENT DATA AND " SURVEY CONTORL INDEX SHEETS" FOR BENCHMARK INFORMATION.
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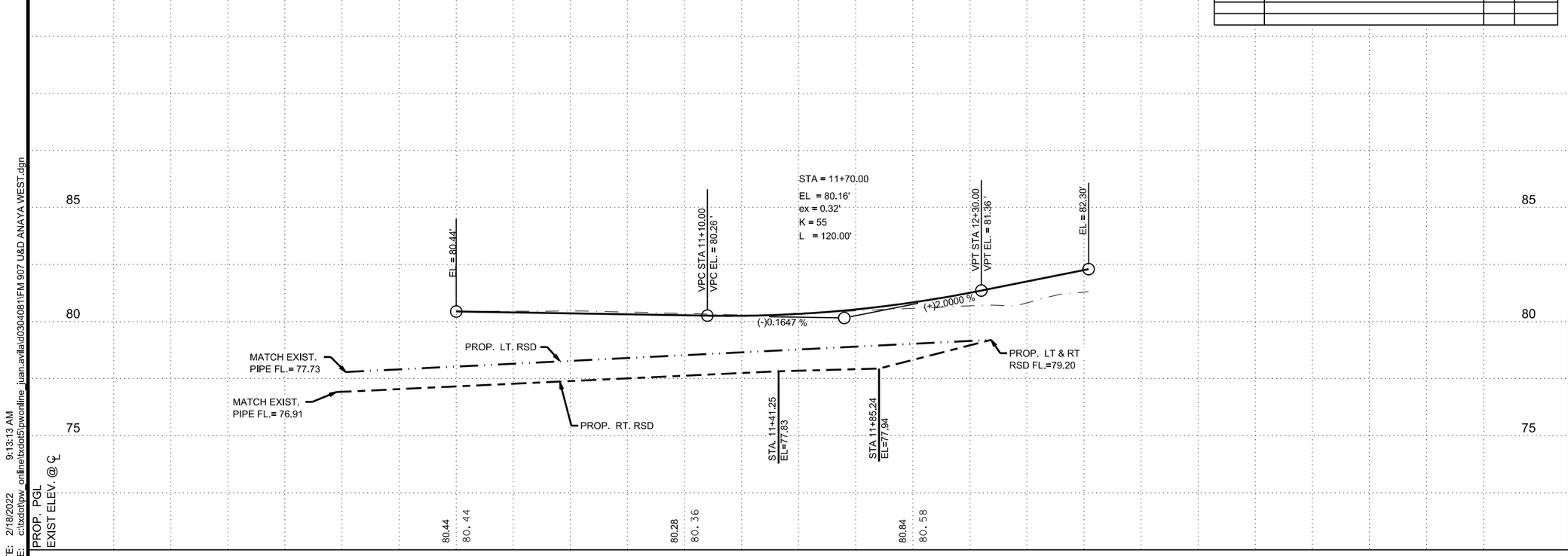

PGL
PROP. RT. RSD
PROP. LT. RSD

STATE OF TEXAS
JOSE A. RODRIGUEZ
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03/10/22

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Texas Department of Transportation

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UTILITY AND DRAINAGE PLAN & PROFILE

SCALE: HOR. 1"=50'
VERT. 1"=5'

SHEET 20 OF 21

CONT	SECT	JOB	HIGHWAY
1586	01	079	FM 907
DIST	COUNTY		SHEET NO.
PHR	HIDALGO		149

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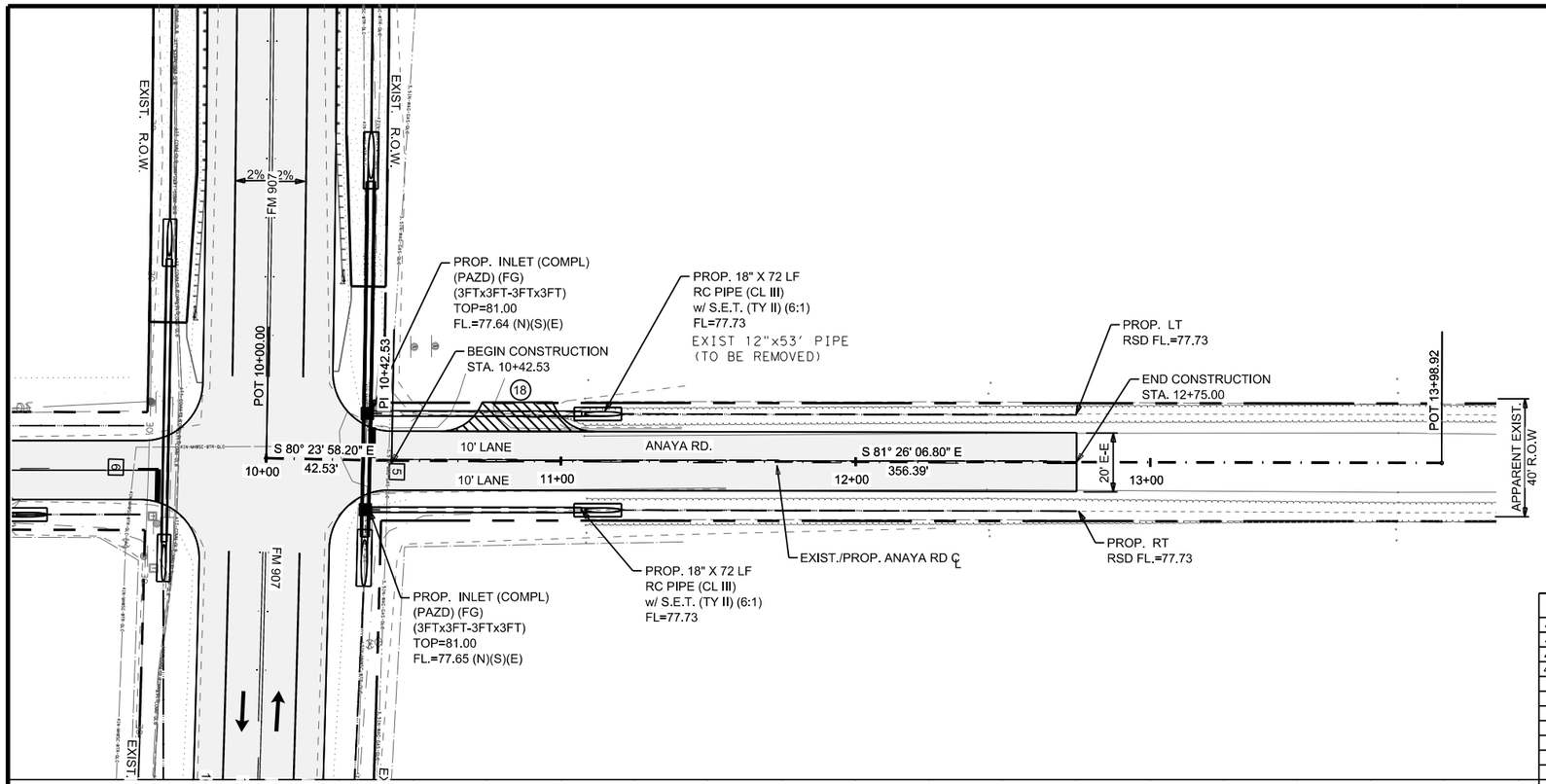

LEGEND

- PROP. SAFETY END TREATMENT
- EXIST. SAFETY END TREATMENT
- PROP. ASPHALT DRIVEWAY
- PROP. MILLING/OVERLAY (1.5")
- DIRECTION OF TRAFFIC FLOW
- DIRECTION OF DITCH
- ℄ DIRECTION OF DITCH
- LT. LEFT
- RT. RIGHT
- R.O.W. RIGHT OF WAY
- E.O.P. EDGE OF PAVEMENT
- RSD ROAD SIDE DITCH
- HP HIGH POINT
- E-E EDGE OF PAVEMENT TO EDGE OF PAVEMENT
- ⍟ TO BE REMOVED UNDER ITEM 496

ITEM	DESCRIPTION	UNIT	QUANT
464 6003	RC PIPE (CL III) 18"	LF	140
467 6363	SET (TY II) (18 IN) (RCP) (6:1) (P)	EA	2
496 6004	REMOVE STR (SET)	EA	-
496 6007	REMOVE STR (PIPE)	LF	53

GENERAL NOTES

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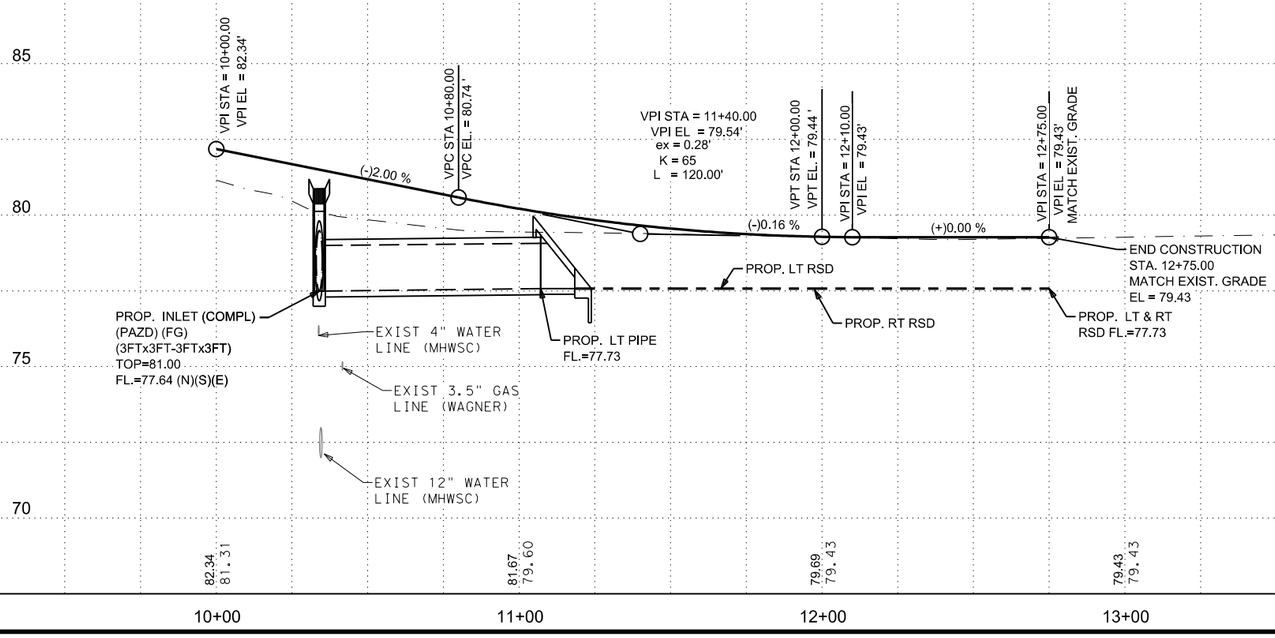
5. THE CONTRACTOR SHALL COORDINATE WITH ALL UTILITY COMPANIES TO FIELD VERIFY EXISTING UTILITIES PRIOR TO CONSTRUCTION.



PROP. PGL
EXIST ELEV. @ ℄

PGL
PROP. RT. RSD
PROP. LT. RSD

STATE OF TEXAS
JOSE A. RODRIGUEZ
117308
LICENSED PROFESSIONAL ENGINEER

03/10/22

Pharr District Central Design

Texas Department of Transportation

FM 907

UTILITY AND DRAINAGE PLAN & PROFILE

SCALE: HOR. 1"=50'
VERT. 1"=5'

SHEET 21 OF 21

© 2021	CONT	SECT	JOB	HIGHWAY
	1586	01	079	FM 907
	DIST	COUNTY		SHEET NO.
	PHR	HIDALGO		150

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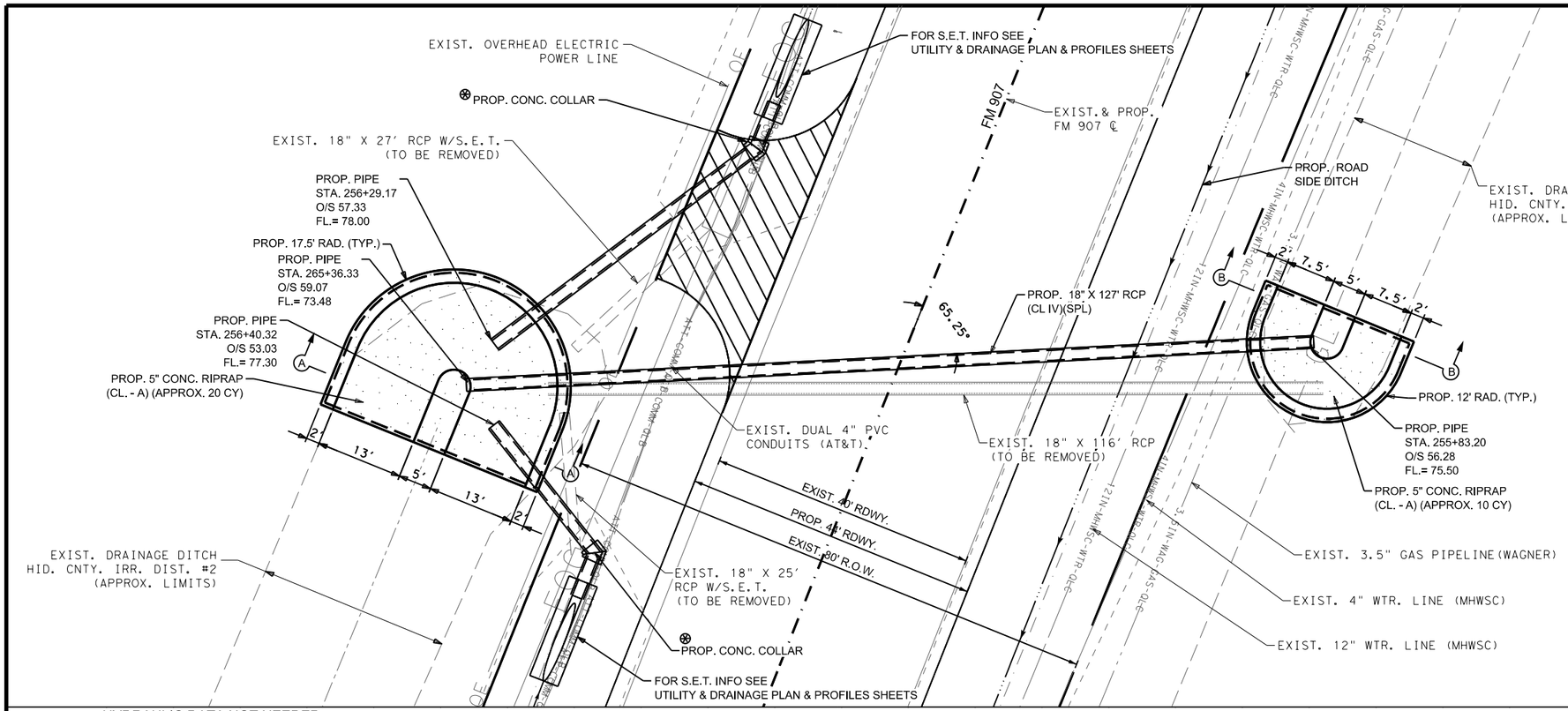
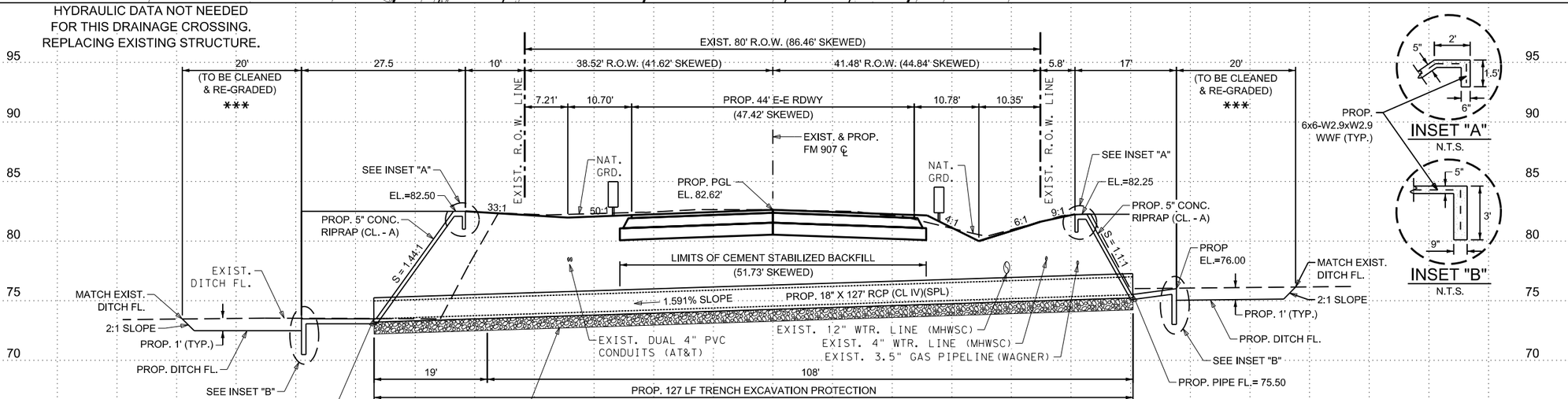


GENERAL NOTES

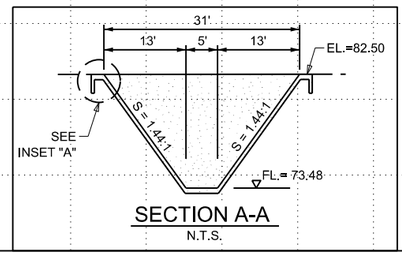
1. THE CONTRACTOR SHALL COORDINATE WITH H.C.I.D. NO.2 WATER OPERATIONS MANAGER JAVIER LOPEZ (PH: 956-787-1422) 72 HOURS PRIOR TO ANY WORK ON OR NEAR THE IRRIGATION STRUCTURES.
2. ALL UTILITIES ARE SHOWN FOR INFORMATION PURPOSES ONLY AND SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO VERIFY ALL HORIZONTAL AND VERTICAL INFORMATION.
3. PRIOR TO WORKING OUTSIDE THE ROW THE CONTRACTOR SHALL NOTIFY PROPERTY OWNER(S). CAUTION SHALL BE TAKEN NOT TO DAMAGE EXISTING FENCE, TREES, ETC. ANY DAMAGES DONE TO THEIR PROPERTY SHALL BE REPAIRED AT THE CONTRACTOR'S EXPENSE.
4. CONTRACTOR SHALL COORDINATE WITH UTILITY COMPANIES PRIOR TO START OF CONSTRUCTION. ALL DAMAGES AND SUBSEQUENT REPAIRS TO UTILITIES SHALL BE THE DIRECT RESPONSIBILITY OF THE CONTRACTOR AT THE CONTRACTOR'S EXPENSE.

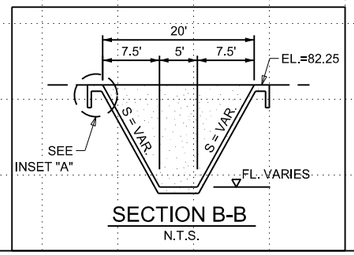
HYDRAULIC DATA NOT NEEDED FOR THIS DRAINAGE CROSSING. REPLACING EXISTING STRUCTURE.

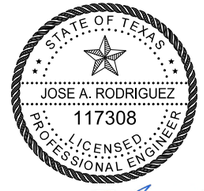


STA. 256+06

STA.	110 6002 *** EXCAVATION (CHAN.) (CY)	400 6001 ** STR. EXCAV. (NON-PAY) (CY)	400 6005 CEM STABIL BKFL	400 6006 CUT & REST. PVMT. (SY)	400 6010 STRUCT EXCAV (SPECIAL)	402 6001 TRENCH EXCAVATION PROTECTION	432 6002 RIPRAP (CONC) (5 IN)	ITEM 464 6069 RCP (CL IV) (SPL) 18"	ITEM 464 6060 RCP (CL IV) (SPL) 24"	465 6126 INLET (COMPL)(PSL)(FG)(3FT X3FT-3FT X3FT)	ITEM 467 6356 SET TY II (18") (RCP) (C) 3:1	ITEM 467 6362 SET TY II (18") (RCP) (C) 6:1	ITEM 467 6388 SET TY II (24") (RCP) (C) 3:1	ITEM 467 6394 SET TY II (24") (RCP) (C) 6:1	ITEM 496 6007 REMOVE STR. PIPE 18"	24"	30"	36"	42"
	CY	CY	CY	SY	CY	LF	CY	LF	LF	EA	EA	EA	EA	EA	LF	LF	LF	LF	LF
256+06	38	110	10		19	127	30	127							116				







09/07/21

Pharr District Central Design

Texas Department of Transportation

FM 907

DRAINAGE CROSSING DETAILS

SCALE: HOR. 1"=20'
VERT. 1"=10'

SHEET 1 OF 4

© 2021	CONT	SECT	JOB	HIGHWAY
	1586	01	079	FM 907
	DIST	COUNTY		SHEET NO.
	PHR	HIDALGO		151

DATE: 8/30/2021 5:29:23 PM
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EXIST. DRAINAGE DITCH HID. CNTY. IRR. DIST. #2 (APPROX. LIMTS)

PROP. CONC. COLLAR

FOR S.E.T. INFO SEE UTILITY & DRAINAGE PLAN & PROFILE SHEETS

PROP. CONC. COLLAR

FOR S.E.T. INFO SEE UTILITY & DRAINAGE PLAN & PROFILE SHEETS

PROP. 5" CONC. RIPRAP (CL. - A) (APPROX. 38 CY)

FM 907

EXIST.& PROP. FM 907 ℄

EXIST. 4" PVC CONDUIT & 1.5" CABLE (AT&T)

PROP. 2 - 24" X 130' RCP (CL IV)(SPL)

79.61°

PROP. PIPE STA. 262+29.34 O/S 57.70 FL. = 76.00

PROP. 5" CONC. RIPRAP (CL. - A) (APPROX. 21 CY)

PROP. PIPE STA. 262+39.76 O/S 65.41 FL. = 70.64

PROP. PIPE STA. 262+43.27 O/S65.40 FL. = 70.64

EXIST. DRAINAGE DITCH HID. CNTY. IRR. DIST. #2 (APPROX. LIMTS)

PROP. 18' RAD. (TYP.)

PROP. PIPE STA. 262+04.36 O/S 53.40 FL. = 76.00

PROP. PIPE STA. 262+16.32 O/S 62.46 FL. = 70.14

PROP. PIPE STA. 262+19.83 O/S 62.47 FL. = 70.14

EXIST. DRAINAGE DITCH HID. CNTY. IRR. DIST. #2 (APPROX. LIMTS)

EXIST. 24" X 129' RCP (TO BE REMOVED)

EXIST. 24" X 112' RCP (TO BE REMOVED)

PROP. 16' RAD. (TYP.)

EXIST. 4" WTR. LINE (MHWSC)

EXIST. 12" WTR. LINE (MHWSC)

PROP. PIPE STA. 262+52.82 O/S 60.10 FL. = 76.00

PROP. PIPE STA 262+44.46 O/S 56.32 FL. = 76.00

PROP. 18' RAD. (TYP.)

PROP. CONC. COLLAR

EXIST. 80' R.O.W.

EXIST. 40' RDWY.

PROP. 44' RDWY.

EXIST. OVERHEAD ELECTRIC POWER LINE

EXIST. 3.5" GAS PIPELINE(WAGNER)

FOR S.E.T. INFO SEE UTILITY & DRAINAGE PLAN & PROFILE SHEETS

PROP. CONC. COLLAR

FOR S.E.T. INFO SEE UTILITY & DRAINAGE PLAN & PROFILE SHEETS

LEGEND

- OBJ. MARK. ASSM (OM-2Z)(FLX) GND (BI)
- ⊛ NON-PAY ITEM SUBSIDIARY TO PERTINENT BID ITEMS
- ** (NON-PAY ITEM) FOR CONTRACTOR'S INFORMATION ONLY
- *** TO BE PAID UNDER ITEM 110

GENERAL NOTES

1. THE CONTRACTOR SHALL COORDINATE WITH H.C.I.D. NO.2 WATER OPERATIONS MANAGER JAVIER LOPEZ (PH: 956-787-1422) 72 HOURS PRIOR TO ANY WORK ON OR NEAR THE IRRIGATION STRUCTURES.
2. ALL UTILITIES ARE SHOWN FOR INFORMATION PURPOSES ONLY AND SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO VERIFY ALL HORIZONTAL AND VERTICAL INFORMATION.
3. PRIOR TO WORKING OUTSIDE THE ROW THE CONTRACTOR SHALL NOTIFY PROPERTY OWNER(S). CAUTION SHALL BE TAKEN NOT TO DAMAGE EXISTING FENCE, TREES, ETC. ANY DAMAGES DONE TO THEIR PROPERTY SHALL BE REPAIRED AT THE CONTRACTOR'S EXPENSE.
4. CONTRACTOR SHALL COORDINATE WITH UTILITY COMPANIES PRIOR TO START OF CONSTRUCTION. ALL DAMAGES AND SUBSEQUENT REPAIRS TO UTILITIES SHALL BE THE DIRECT RESPONSIBILITY OF THE CONTRACTOR AT THE CONTRACTOR'S EXPENSE.

HYDRAULIC DATA NOT NEEDED FOR THIS DRAINAGE CROSSING. REPLACING EXISTING STRUCTURE.

EXIST. R.O.W. LINE — EXIST. 80' R.O.W. (81.29' SKEWED) — EXIST. R.O.W. LINE

37.70' R.O.W. (38.31' SKEWED) — 42.30' R.O.W. (42.98' SKEWED)

15.73' (15.97' SKEWED) — PROP. 44' E-E RDWY (44.74' SKEWED) — 20.27' (20.58' SKEWED)

20' (TO BE CLEANED & RE-GRADED) *** — 21' — 11.50' — 2' — 28' — 20' (TO BE CLEANED & RE-GRADED) ***

EXIST. & PROP. FM 907 ℄

PROP. EL. = 81.00 — SEE INSET "A" — PROP. PGL EL. 82.61' — PROP. EL. = 82.00 — SEE INSET "A"

PROP. 5" CONC. RIPRAP (CL.-A) — 20:1 — 8:1 — 36:1 — PROP. 5" CONC. RIPRAP (CL.-A)

NAT. GRD.

EXIST. 12" WTR. LINE (MHWSC)

EXIST. 4" WTR. LINE (MHWSC)

EXIST. 4" PVC CONDUIT & 1.5" CABLE (AT&T)

S = 1.35:1 — S = 1.35:1

LIMITS OF CEMENT STABILIZED BACKFILL (48.80' SKEWED)

MATCH EXIST. DITCH FL. — EXIST. DITCH FL. — MATCH EXIST. DITCH FL.

PROP. EL. = 70.14 — EXIST. DITCH FL.

2:1 SLOPE — PROP. DITCH FL. — PROP. 1' (TYP.) — 2:1 SLOPE — PROP. DITCH FL. — PROP. 1' (TYP.)

PROP. 2 - 24" X 130' RCP (CL IV)(SPL) — 0.385% SLOPE

PROP. GRAVEL BEDDING (CL. - B) (PAID UNDER ITEM 400, STRUCT. EXCAV. SPECIAL)

EXIST. 3.5" GAS PIPELINE(WAGNER)

SEE INSET "B" — PROP. PIPE FL. = 70.64 — SEE INSET "B" — PROP. PIPE FL. = 70.14

PROP. 130 LF TRENCH EXCAVATION PROTECTION

INSET "A" N.T.S.

PROP. 6x6-W2.9xW2.9 WWF (TYP.)

INSET "B" N.T.S.

STA. 262+29

STA.	110 6002	400 6001	400 6005	400 6006	400 6010	402 6001	432 6002	ITEM 464 6069	ITEM 464 6060	465 6126	ITEM 467 6356	ITEM 467 6362	ITEM 467 6388	ITEM 467 6394	ITEM 496 6007				
	*** EXCAVATION (CHAN.) (CY)	** STR. EXCAV. (NON-PAY) (CY)	CEM STABIL BKFL	CUT & REST. PVMT. (SY)	STRUCT EXCAV (SPECIAL)	TRENCH EXCAVATION PROTECTION	RIPRAP (CONC) (5 IN)	RCP (CL IV) (SPL) 18"	RCP (CL IV) (SPL) 24"	INLET (COMPL)(PSL)(FG)(3FT X3FT-3FT TX3FT)	SET TY II (18") (RCP) (C) 3:1	SET TY II (18") (RCP) (C) 6:1	SET TY II (24") (RCP) (C) 3:1	SET TY II (24") (RCP) (C) 6:1	REMOVE STR. PIPE 18"	REMOVE STR. PIPE 24"	REMOVE STR. PIPE 30"	REMOVE STR. PIPE 36"	REMOVE STR. PIPE 42"
	CY	CY	CY	SY	CY	LF	CY	LF	LF	EA	EA	EA	EA	EA	LF	LF	LF	LF	LF
262+29	73	220	19		39	130	59		260							241			

SECTION A-A N.T.S.

56.5' — 16' — 24.5' — 16' — EL. = 82.00 — SEE INSET "A" — S = 1.35:1 — S = 1.35:1 — FL.= 70.14

STATE OF TEXAS — JOSE A. RODRIGUEZ — 117308 — LICENSED PROFESSIONAL ENGINEER

09/07/21

Pharr District Central Design

Texas Department of Transportation

FM 907

DRAINAGE CROSSING DETAILS

SCALE: HOR. 1"=20' VERT. 1"=10'

SHEET 2 OF 4

© 2021	CONT	SECT	JOB	HIGHWAY
	1586	01	079	FM 907
	DIST	COUNTY		SHEET NO.
	PHR	HIDALGO		152

DATE: 8/30/2021 5:29:32 PM
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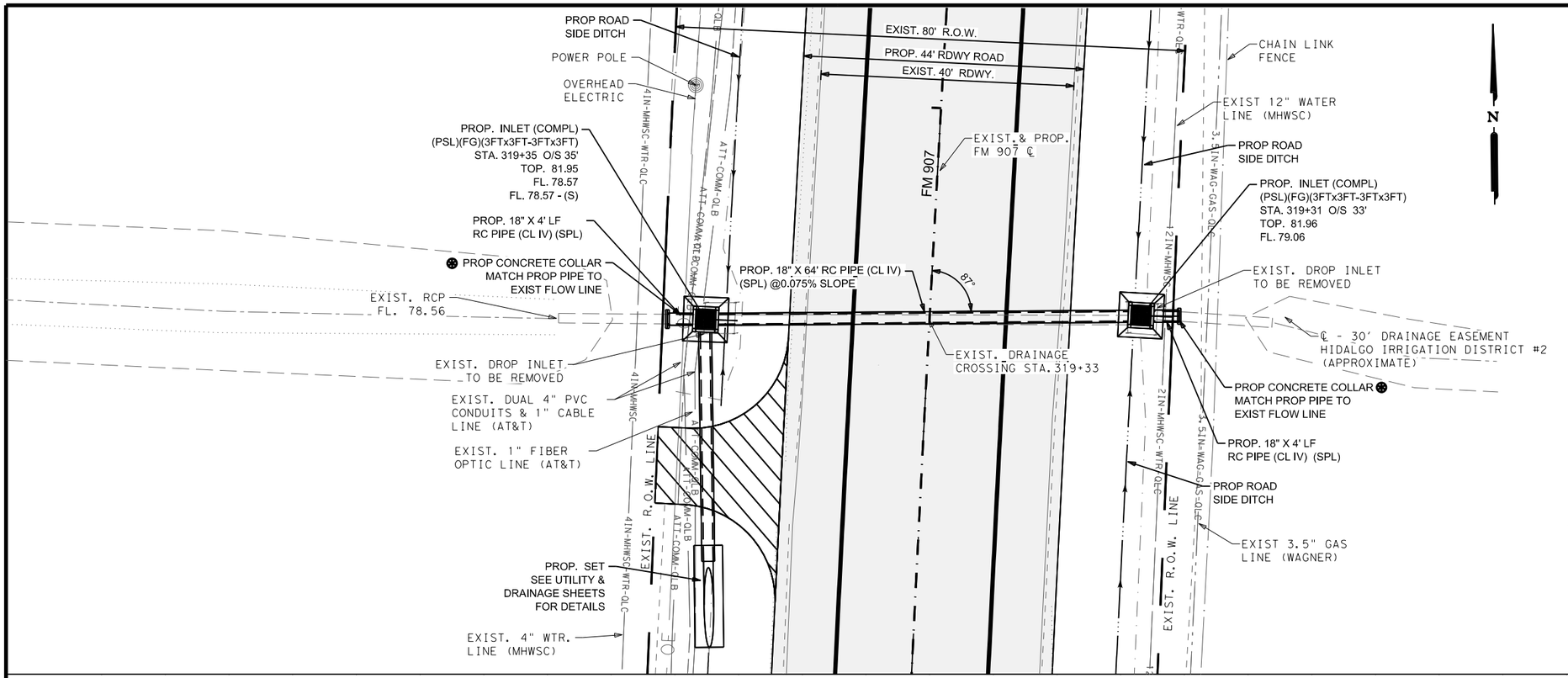

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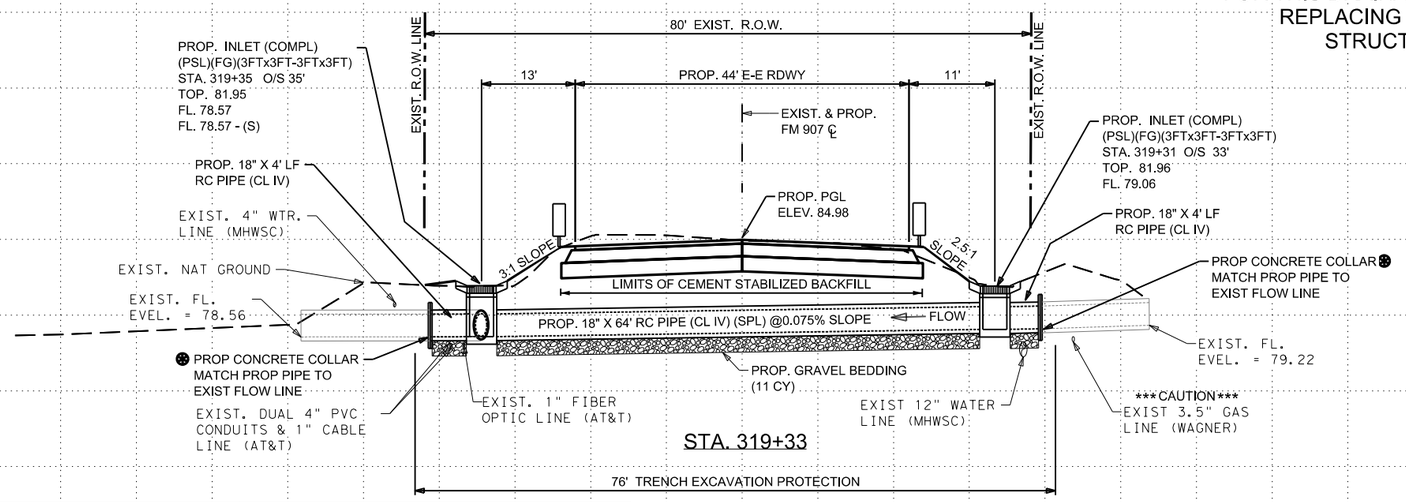

STA. 319+33

76' TRENCH EXCAVATION PROTECTION

STA.	400 6001 ** STR. EXCAV. (NON-PAY) (CY)	400 6005 CEM STABIL BKFL	400 6006 CUT & REST. PVMT. (SY)	400 6010 STRUCT EXCAV (SPECIAL)	402 6001 TRENCH EXCAVATION PROTECTION	432 6002 RIPRAP (CONC) (5 IN)	ITEM 464 6069 RCP (CL IV) (SPL) 18"	ITEM 464 6060 RCP (CL IV) (SPL) 24"	465 6126 INLET (COMPL) (PSL)(FG) (3FTX 3FT-3FTX 3FT)	ITEM 467 6356 SET TY II (18") (RCP) (C) 3:1	ITEM 467 6362 SET TY II (18") (RCP) (C) 6:1	ITEM 467 6388 SET TY II (24") (RCP) (C) 3:1	ITEM 467 6394 SET TY II (24") (RCP) (C) 6:1	ITEM 496 6007 REMOVE STR. PIPE 18"	24"	30"	36"	42"
	CY	CY	SY	CY	LF	CY	LF	LF	EA	EA	EA	EA	EA	LF	LF	LF	LF	LF
319+33	64	9		11	76		72		2					72				

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JOSE A. RODRIGUEZ
117308
LICENSED PROFESSIONAL ENGINEER
STATE OF TEXAS
09/07/21

Pharr District Central Design

Texas Department of Transportation

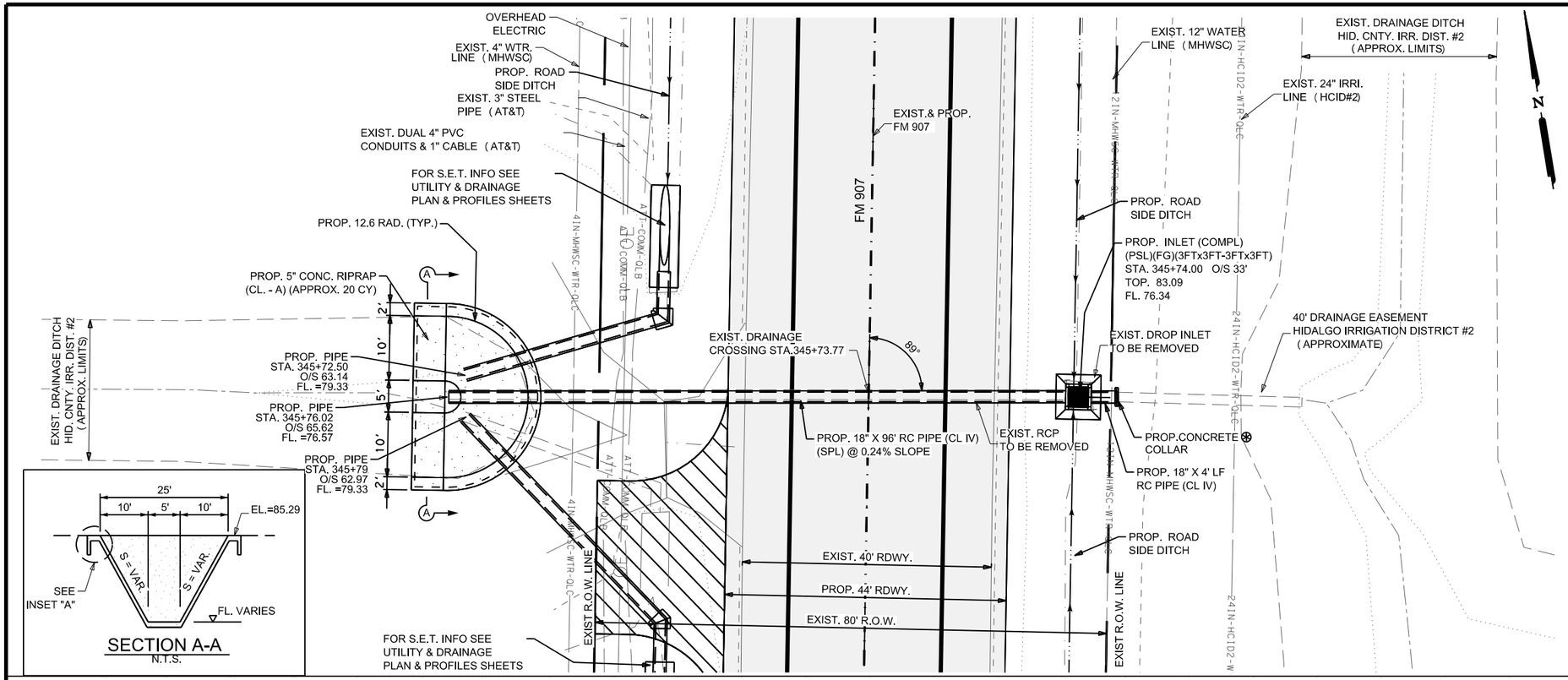
FM 907

DRAINAGE CROSSING DETAILS

SCALE: HOR. 1"= 20'
VERT. 1"= 10'

SHEET 3 OF 4

CONT	SECT	JOB	HIGHWAY
1586	01	079	FM 907
DIST	COUNTY		SHEET NO.
PHR	HIDALGO		153



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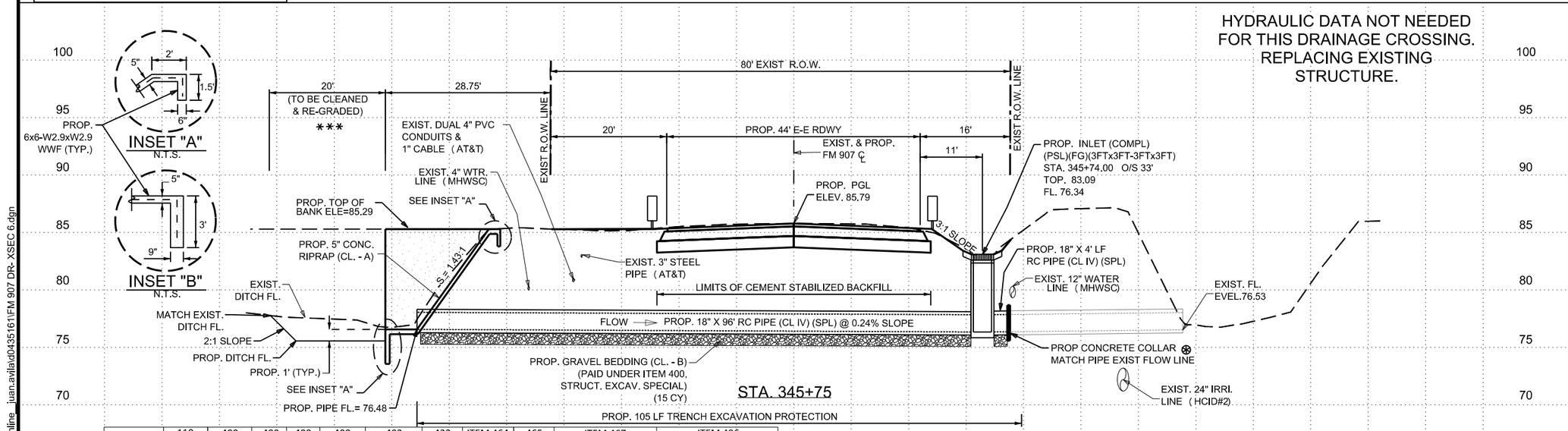

STA.	110 6002 *** EXCAVATION (CHAN.) (CY)	400 6001 ** STR. EXCAV. (NON-PAY) (CY)	400 6005 CEM STABIL BKFL	400 6006 CUT & REST. PVMT. (SY)	400 6010 STRUCT EXCAV (SPECIAL)	402 6001 TRENCH EXCAVATION PROTECTION	432 6002 RIPRAP (CONC) (5 IN)	ITEM 464 6069 RCP (CL IV) (SPL) 18"	ITEM 464 6060 RCP (CL IV) (SPL) 24"	465 6126 INLET (COMPL)(PSL)(FG)(3FTX3FT-3FTX3FT)	ITEM 467 6356 SET TY II (18") (RCP) (C) 3:1	ITEM 467 6362 SET TY II (18") (RCP) (C) 6:1	ITEM 467 6388 SET TY II (24") (RCP) (C) 3:1	ITEM 467 6394 SET TY II (24") (RCP) (C) 6:1	ITEM 496 6007 REMOVE STR. PIPE 18"	24"	30"	36"	42"
	CY	CY	CY	SY	CY	LF	CY	LF	LF	EA	EA	EA	EA	EA	LF	LF	LF	LF	LF
345+75	19	145	9		15	105	20	100		1					68				

HYDRAULIC DATA NOT NEEDED FOR THIS DRAINAGE CROSSING. REPLACING EXISTING STRUCTURE.

STATE OF TEXAS
JOSE A. RODRIGUEZ
117308
LICENSED PROFESSIONAL ENGINEER

09/07/21

Pharr District Central Design

Texas Department of Transportation

FM 907

DRAINAGE CROSSING DETAILS

SCALE: HOR. 1"= 20'
VERT. 1"= 10'

SHEET 4 OF 4

© 2021	CONT	SECT	JOB	HIGHWAY
	1586	01	079	FM 907
	DIST	COUNTY		SHEET NO.
	PHR	HIDALGO		154

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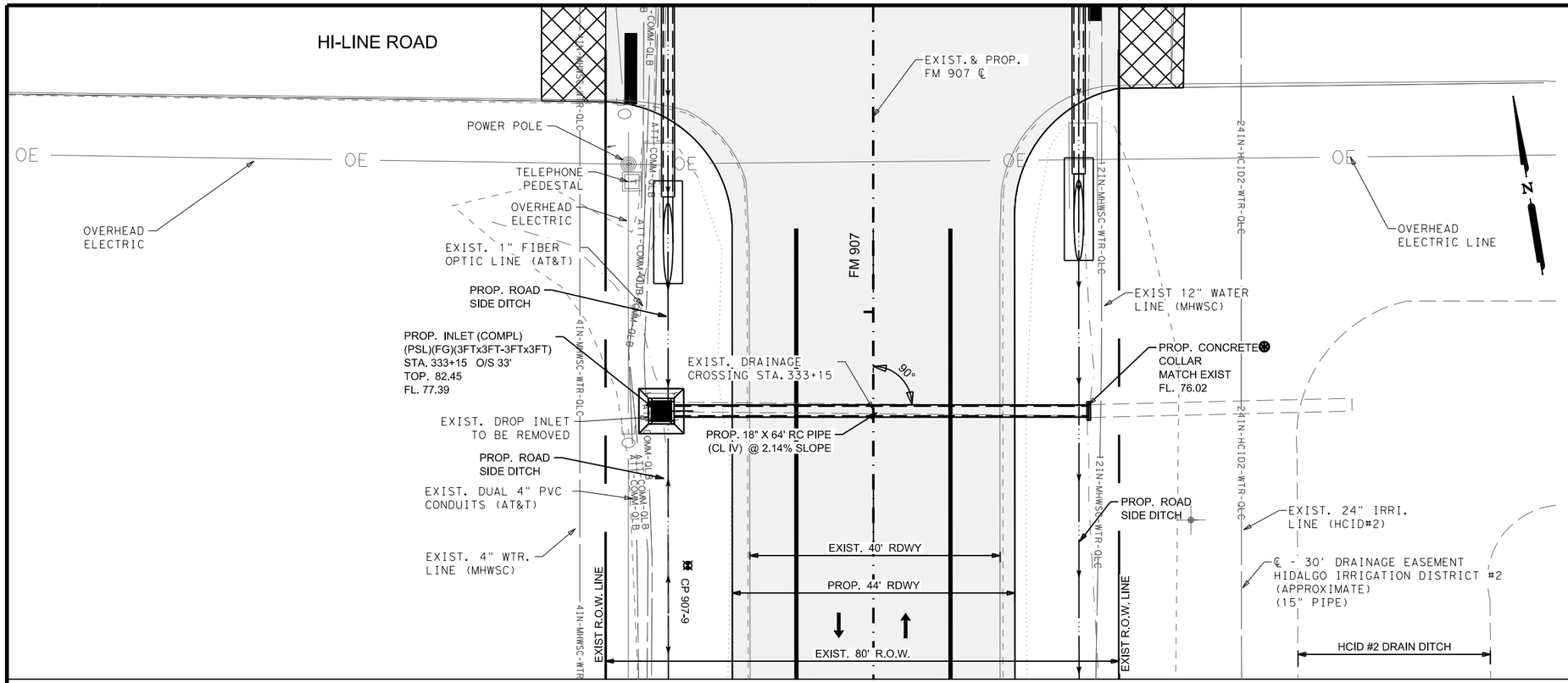

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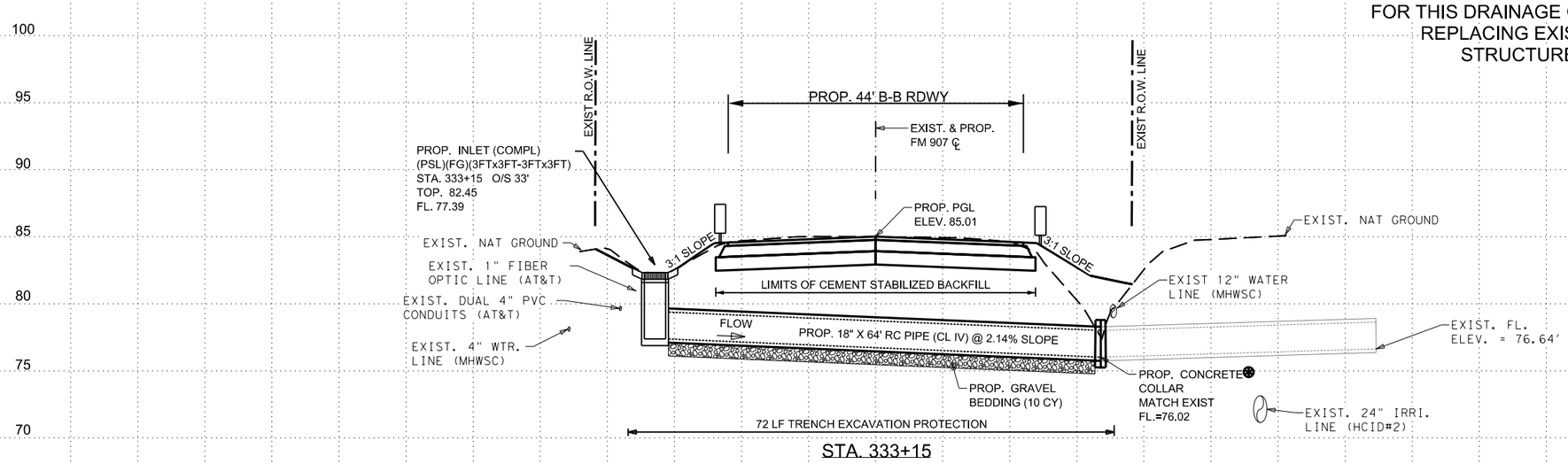

STA. 333+15

STA.	400 6001 ** STR. EXCAV. (NON-PAY) (CY)	400 6005 CEM STABIL BKFL	400 6006 CUT & REST. PVMT. (SY)	400 6010 STRUCT EXCAV (SPECIAL)	402 6001 TRENCH EXCAVATION PROTECTION	432 6002 RIPRAP (CONC) (5 IN)	ITEM 464 6069 RCP (CL IV) (SPL) 18"	ITEM 464 6060 RCP (CL IV) (SPL) 24"	465 6126 INLET (COMPL)(PSL)(FG)(3FTX3FT-3FTX3FT)	ITEM 467 6356 SET TY II (18") (RCP) (C) 3:1	ITEM 467 6362 SET TY II (18") (RCP) (C) 6:1	ITEM 467 6388 SET TY II (24") (RCP) (C) 3:1	ITEM 467 6394 SET TY II (24") (RCP) (C) 6:1	ITEM 496 6007 REMOVE STR. PIPE 18"	24"	30"	36"	42"
	CY	CY	SY	CY	LF	CY	LF	LF	EA	EA	EA	EA	EA	LF	LF	LF	LF	LF
333+15	80	9		10	72		64		1					64				

HYDRAULIC DATA NOT NEEDED FOR THIS DRAINAGE CROSSING. REPLACING EXISTING STRUCTURE.

JOSE A. RODRIGUEZ
117308
LICENSED PROFESSIONAL ENGINEER
STATE OF TEXAS

09/07/21

Pharr District Central Design

Texas Department of Transportation

FM 907

CULVERT CROSSING DETAILS

SCALE: HOR. 1"= 20'
VERT. 1"= 10'

SHEET 1 OF 2

CONT	SECT	JOB	HIGHWAY
1586	01	079	FM 907
DIST	COUNTY		SHEET NO.
PHR	HIDALGO		155

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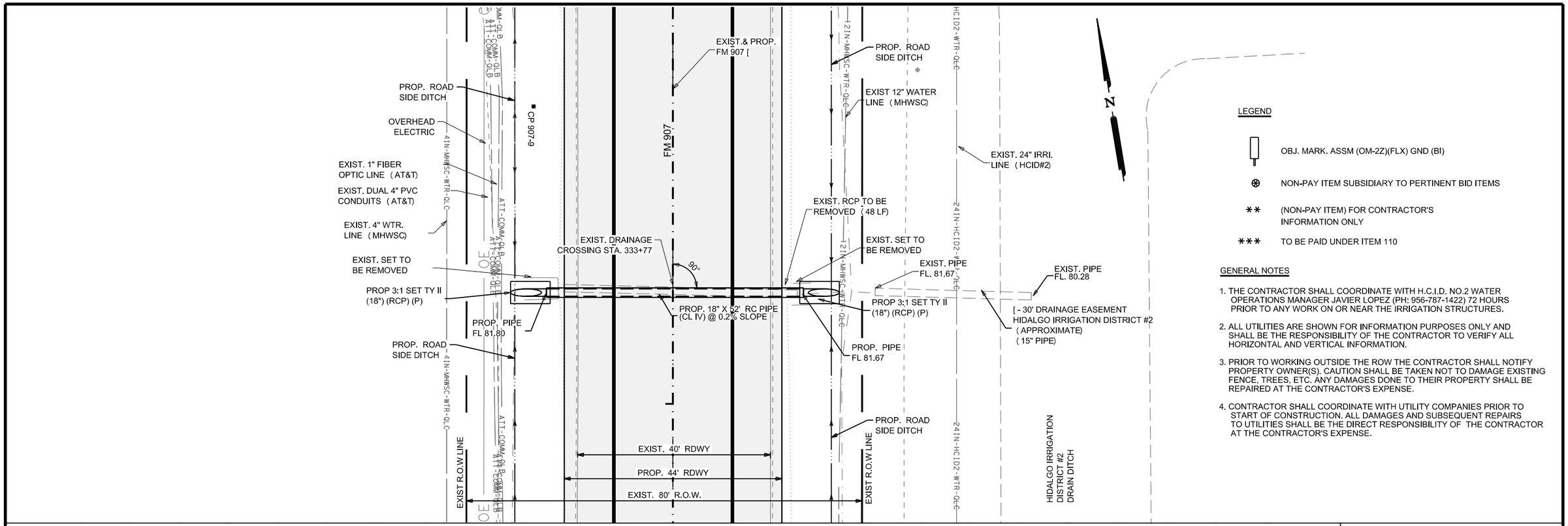

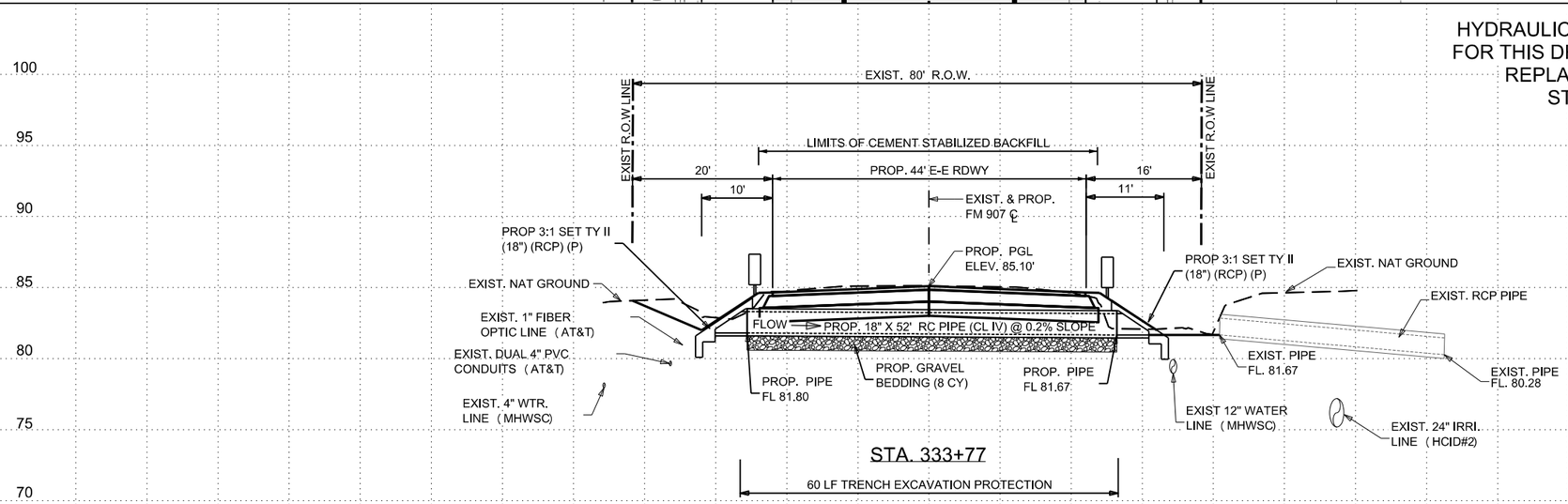

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	CY	CY	SY	CY	LF	CY	LF	LF	EA	EA	EA	EA	EA	LF	LF	LF	LF	LF
333+77	28	9		8	60		52			2				48				

HIDALGO COUNTY

JOSE A. RODRIGUEZ
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STATE OF TEXAS

09/07/21

Pharr District Central Design

Texas Department of Transportation

FM 907

CULVERT CROSSING DETAILS

SCALE: HOR. 1"= 20'
VERT. 1"= 10'

SHEET 2 OF 2

© 2021	CONT	SECT	JOB	HIGHWAY
	1586	01	079	FM 907
	DIST	COUNTY		SHEET NO.
	PHR	HIDALGO		156

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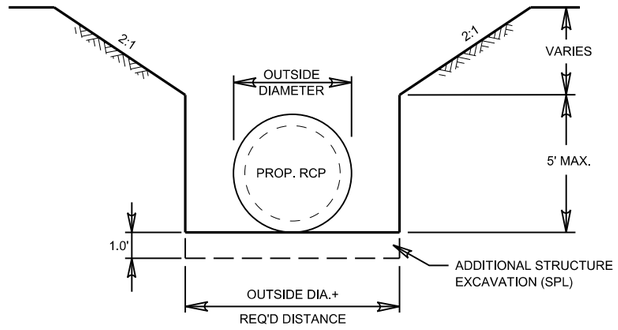
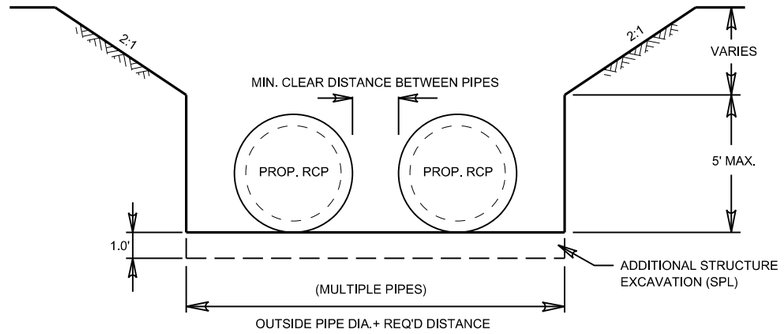
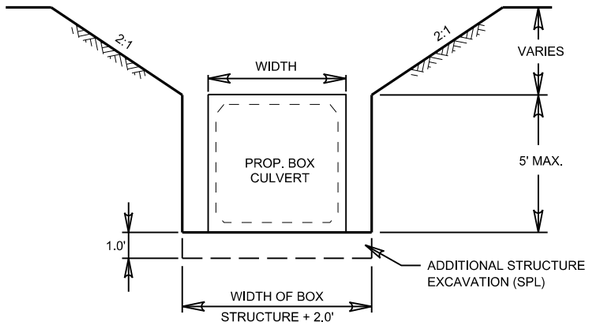
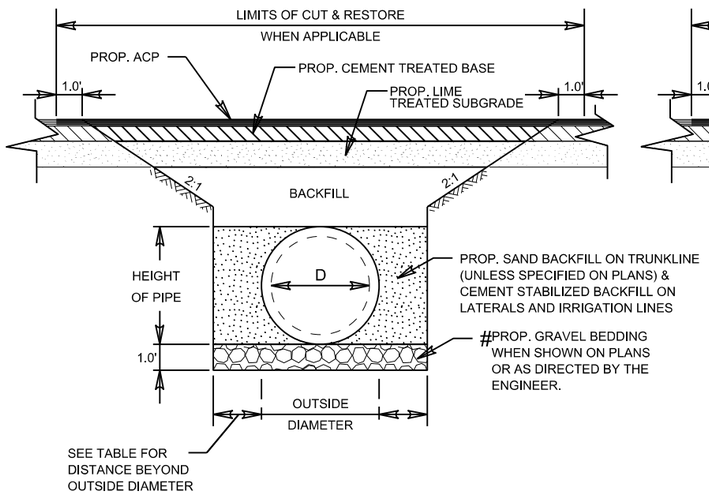


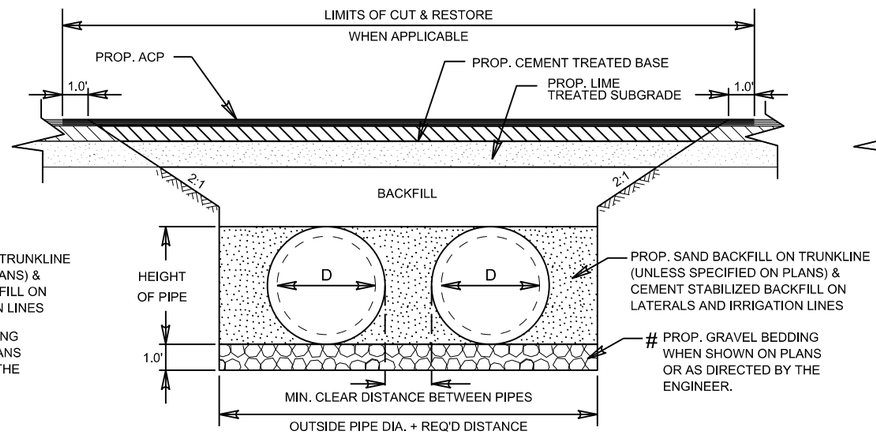


TYPICAL TRENCH
EXCAVATION PROTECTION
DETAIL

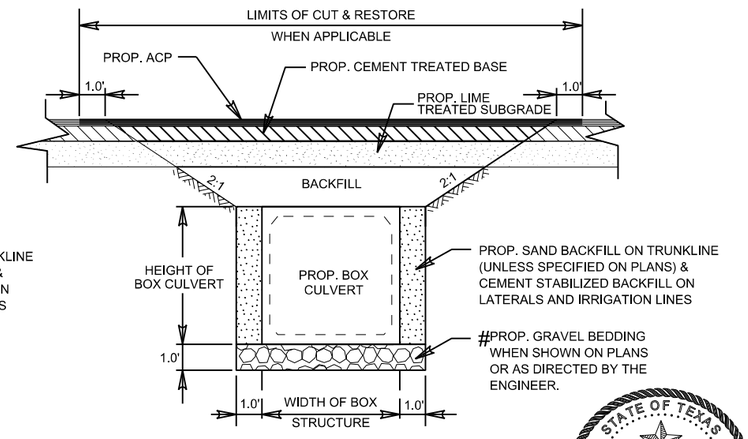


TYPICAL TRENCH
EXCAVATION PROTECTION
DETAIL





TYPICAL EXCAVATION
AND BACKFILL DETAIL FOR
SINGLE/MULTIPLE STRUCTURES



TYPICAL EXCAVATION
AND BACKFILL DETAIL
FOR SINGLE BOX CULVERT

BOUNDARIES OF STRUCTURAL EXCAVATION	
PIPE DIAMETER	DIST. BEYOND & PARALLEL TO OUTSIDE PIPE DIAMETER
18 in.	1 ft.
24 in.	1 ft.
30 in.	1 ft.
36 in.	1 ft.
42 in.	2 ft.
48 in.	2 ft.
54 in.	2 ft.
60 to 84 in.	2 ft.

MINIMUM CLEAR DISTANCE BETWEEN PIPES	
EQUIVALENT DIAMETER	MIN. CLEAR DISTANCE
18 in.	9 in.
24 in.	11 in.
30 in.	1 ft. 1 in.
36 in.	1 ft. 3 in.
42 in.	1 ft. 5 in.
48 in.	1 ft. 7 in.
54 in.	1 ft. 11 in.
60 to 84 in.	2 ft.

NOTE: THE EXCAVATION/BACKFILL SHALL EXTEND TO EACH SIDE BASED ON THE SIZE OF PIPE (SEE TABLE FOR DISTANCE BEYOND & PARALLEL TO OUTSIDE PIPE DIAMETER) THE SAND BACKFILL SHALL EXTEND 2.0' BEYOND THE OUTSIDE EDGE OF THE PROP. PAVEMENT/BEND.

"PROVIDE BEDDING MATERIAL IN LIEU OF THE USE OF FILTER FABRIC. THE ENGINEER MAY WAIVE GRADATION REQUIREMENTS OF TABLES 2 AND 3 IF AGGREGATE MATERIAL PROPERTIES ARE IN ACCORDANCE WITH ARTICLE 432.2.3"

STATE OF TEXAS
JOSE A. RODRIGUEZ
117308
LICENSED PROFESSIONAL ENGINEER

09/07/21

Texas Department of Transportation

FM 907
CULVERT BACKFILL DETAILS

PROJECT NO.							SHEET NO.
							157
FED. RD. DIV. NO.	STATE	DIST.	COUNTY	CONT.	SECT.	JOB	HIGHWAY NO.
	TEXAS	PHR	HIDALGO	1586	01	079	FM 907

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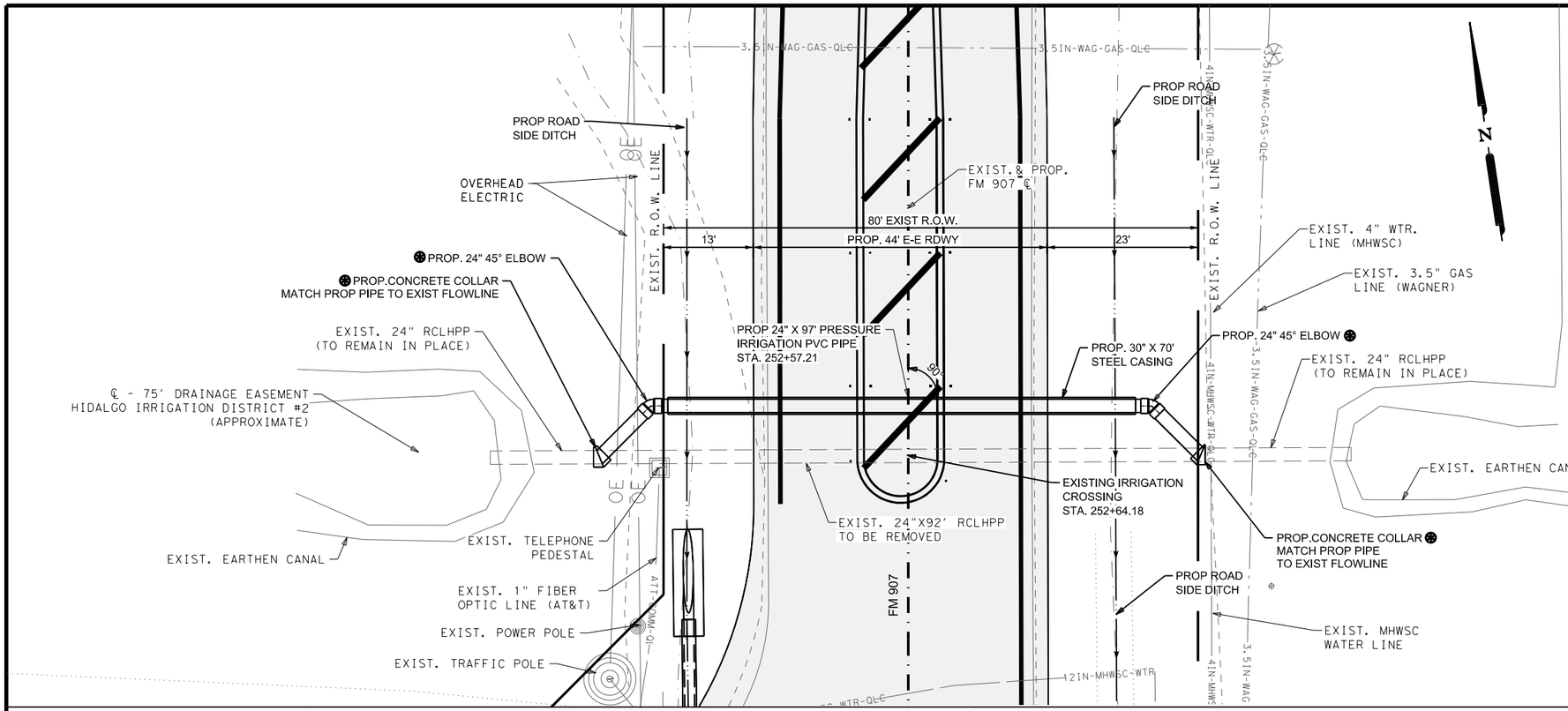

LEGEND

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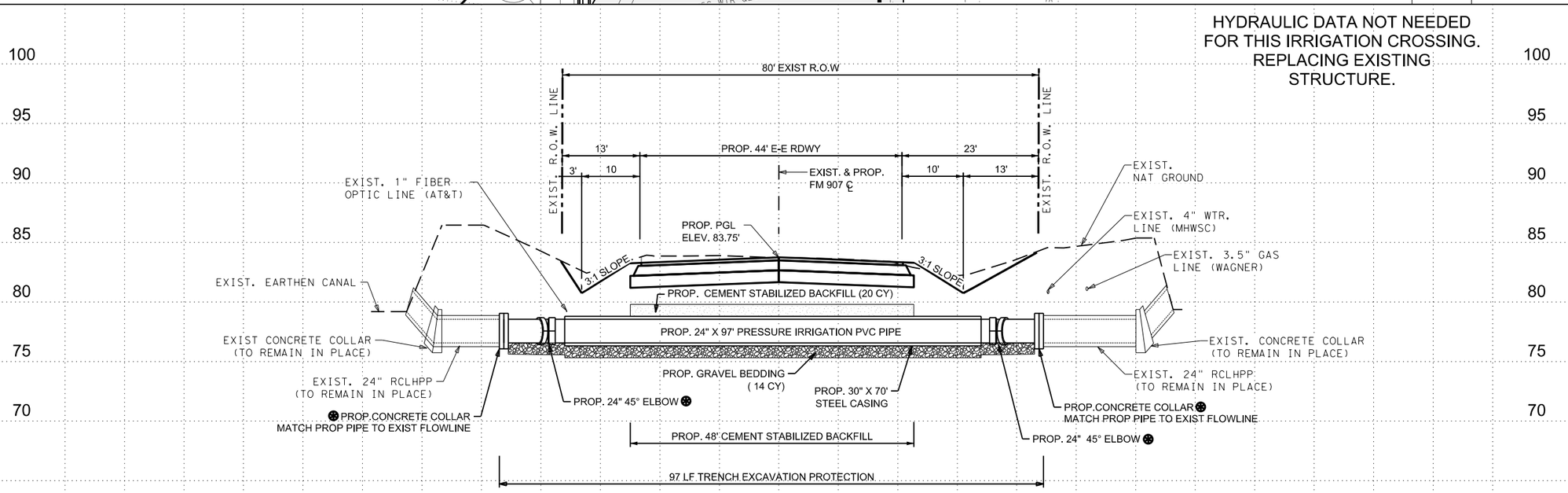
5. ALL PVC ELBOWS, AND CONNECTIONS SHALL BE SUBSIDIARY TO PERTINENT BID ITEMS.
6. SEE DRAINAGE DETAILS SHEET FOR IRRIGATION PIPE BEDDING AND BACKFILL DETAIL.

SHEET TOTALS			
ITEM	DESCRIPTION	UNIT	QUANTITY
400	STRUCT EXCAVATION	CY.	72
400	CEMENT STABIL BACKFILL	CY	20
400	STRUCT EXCAVATION (SPL)	CY	14
402	TRENCH EXCAV. PROTECTION	LF.	97
496	REMOVE STR (PIPE)	LF	92
1008	PRSSR IRRIG PVC PIPE (24")	LF	97
7016	CASING (STEEL) (30IN) OPEN TRENCH	LF	70

HYDRAULIC DATA NOT NEEDED FOR THIS IRRIGATION CROSSING. REPLACING EXISTING STRUCTURE.



STA. 252+64

STATE OF TEXAS
JOSE A. RODRIGUEZ
117308
LICENSED PROFESSIONAL ENGINEER

04/27/22

Pharr District Central Design

Texas Department of Transportation

FM 907

IRRIGATION CROSSING DETAILS

SCALE: HOR. 1"= 20'
VERT. 1"= 10'

SHEET 1 OF 5

© 2021	CONT	SECT	JOB	HIGHWAY
	1586	01	079	FM 907
	DIST	COUNTY		SHEET NO.
	PHR	HIDALGO		158

DATE: 4/26/2022 9:47:11 AM
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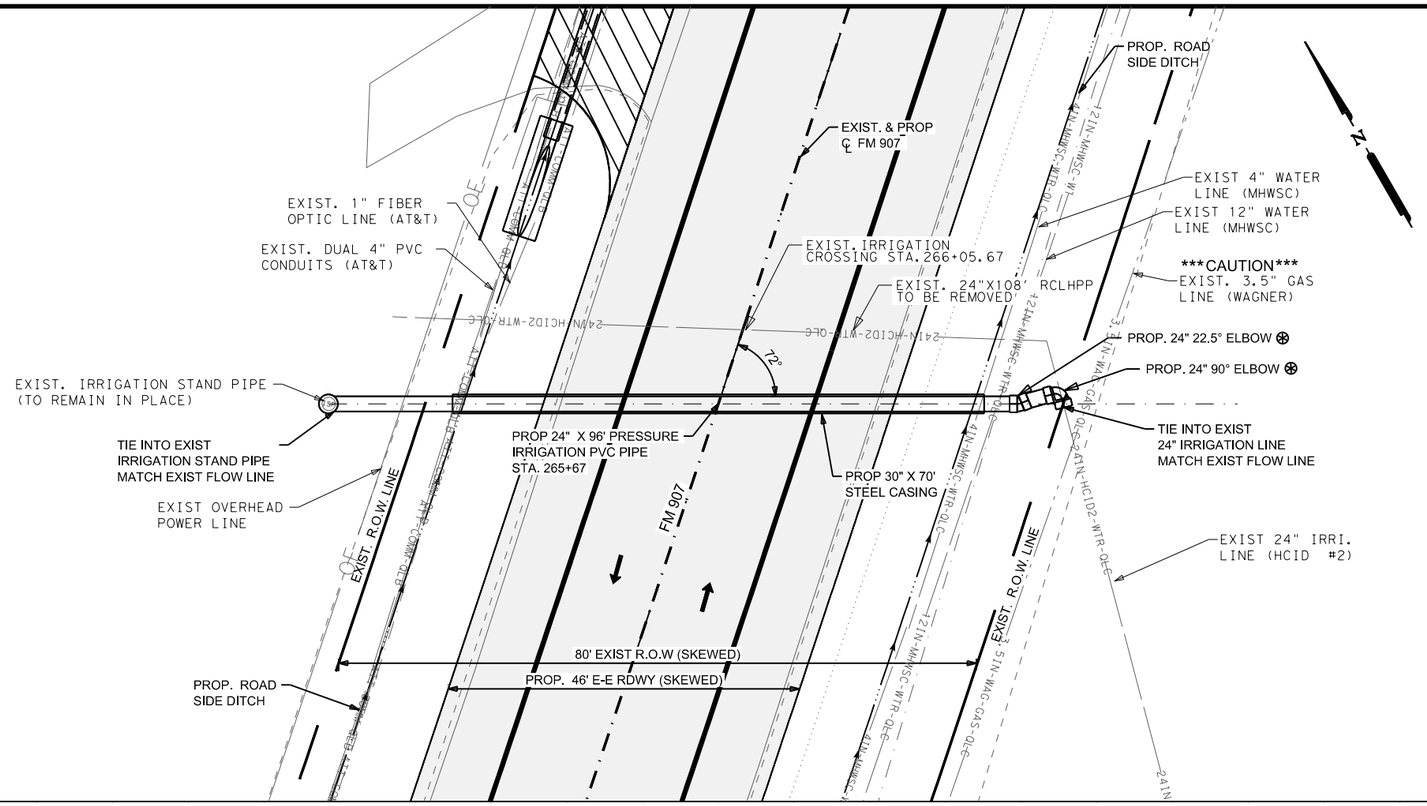

LEGEND

⊛ NON-PAY ITEM SUBSIDIARY TO PERTINENT BID ITEMS

** (NON-PAY ITEM) FOR CONTRACTOR'S INFORMATION ONLY

GENERAL NOTES

1. THE CONTRACTOR SHALL COORDINATE WITH H.C.I.D. NO.2 WATER OPERATIONS MANAGER JAVIER LOPEZ (PH: 956-787-1422) 72 HOURS PRIOR TO ANY WORK ON OR NEAR THE IRRIGATION STRUCTURES.
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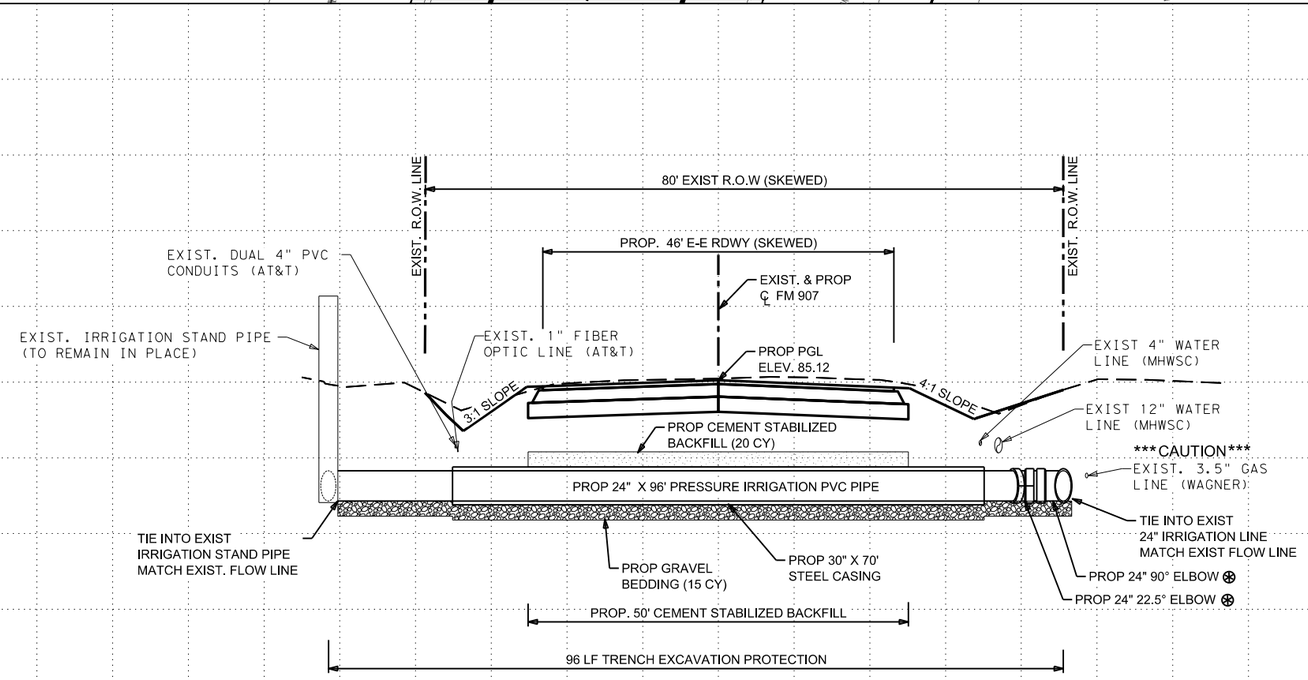
5. ALL PVC ELBOWS, AND CONNECTIONS SHALL BE SUBSIDIARY TO PERTINENT BID ITEMS.
6. SEE DRAINAGE DETAILS SHEET FOR IRRIGATION PIPE BEDDING AND BACKFILL DETAIL.

SHEET TOTALS

	ITEM	DESCRIPTION	UNIT	QUANTITY
**	400	STRUCT EXCAVATION	CY.	101
	400	CEMENT STABIL BACKFILL	CY	20
	400	STRUCT EXCAVATION (SPL)	CY	15
	402	TRENCH EXCAV. PROTECTION	LF.	96
	496	REMOVE STR (PIPE)	LF	108
	1008	PRSSR IRRIG PVC PIPE (24")	LF	96
	7016	CASING (STEEL) (30IN) OPEN TRENCH	LF	70



STA. 265+67

STATE OF TEXAS
JOSE A. RODRIGUEZ
117308
LICENSED PROFESSIONAL ENGINEER

04/27/22

Pharr District Central Design

Texas Department of Transportation

FM 907
IRRIGATION CROSSING DETAILS

SCALE: HOR. 1"= 20"
VERT. 1"=10"

SHEET 2 OF 5

© 2021	CONT	SECT	JOB	HIGHWAY
	1586	01	079	FM 907
	DIST	COUNTY		SHEET NO.
	PHR	HIDALGO		159

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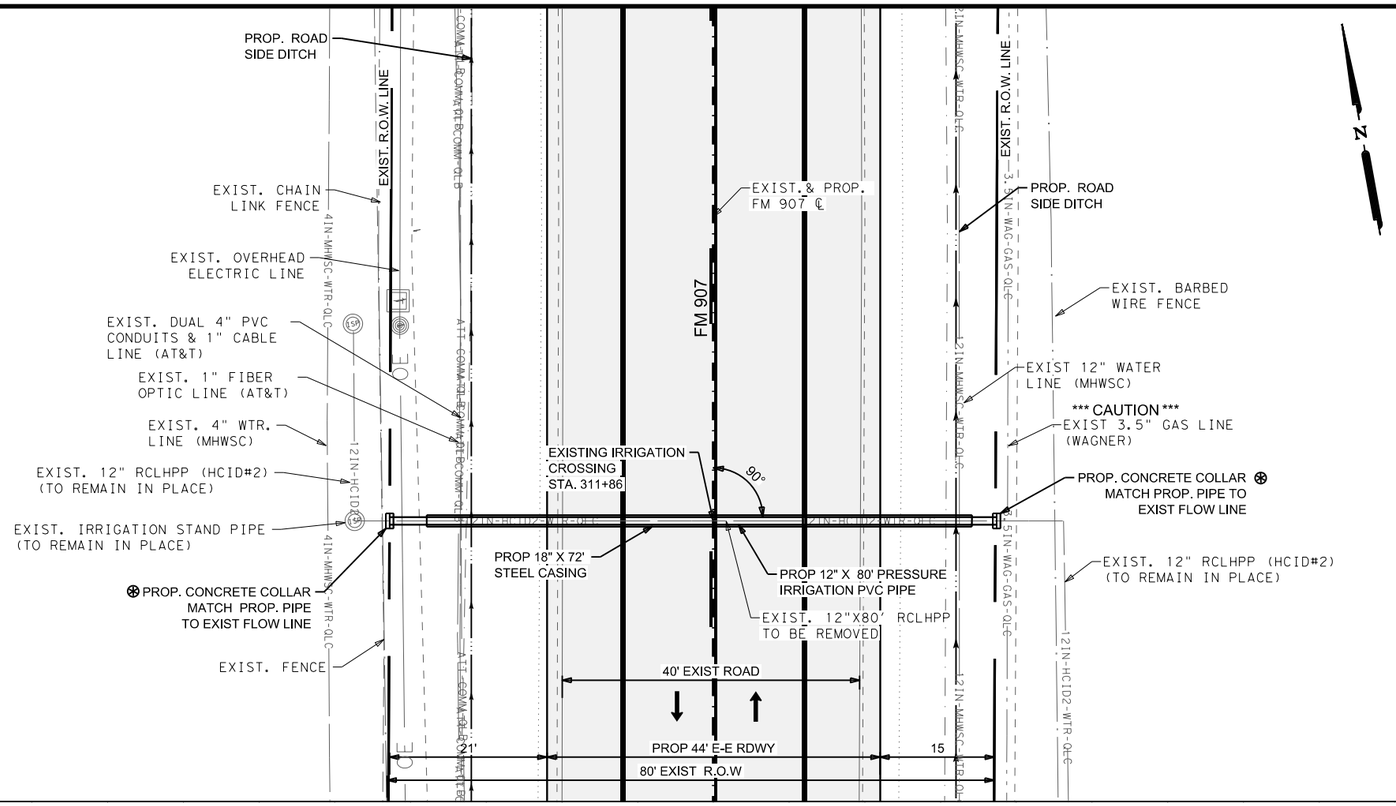

LEGEND

- ⊛ NON-PAY ITEM SUBSIDIARY TO PERTINENT BID ITEMS
- ◐ FOR PHASE III STEP-A CONSTRUCTION
- ** (NON-PAY ITEM) FOR CONTRACTOR'S INFORMATION ONLY

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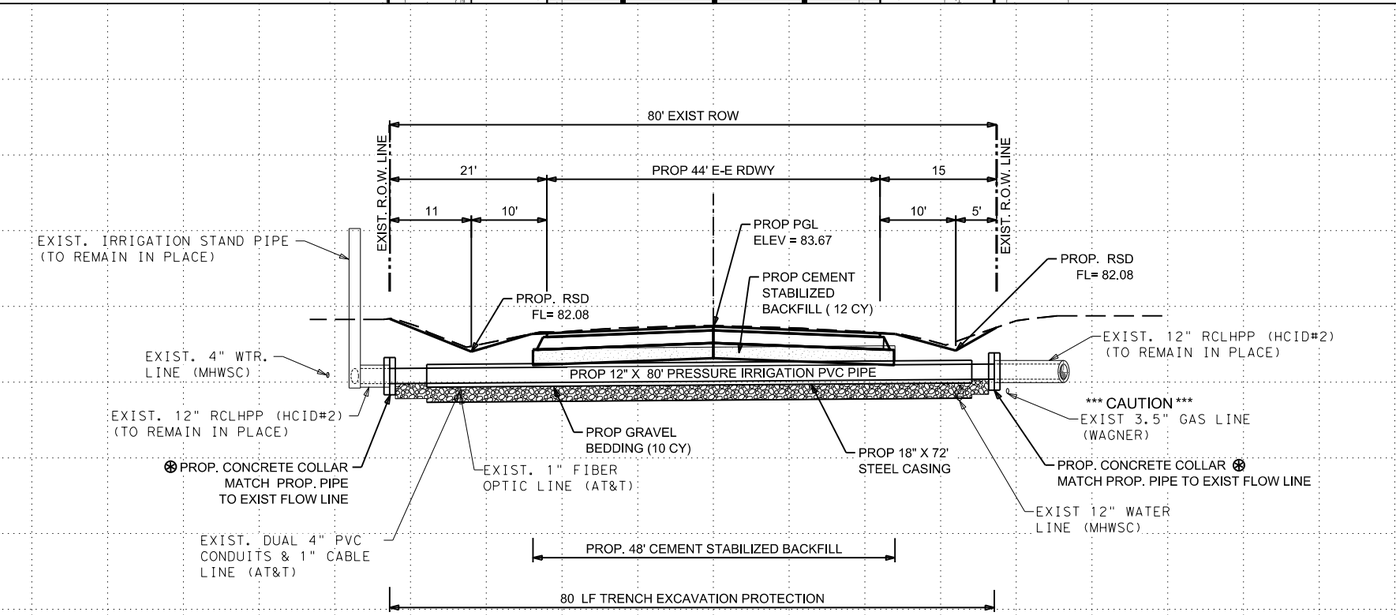
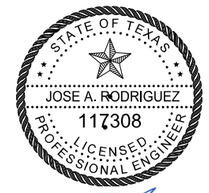
	SHEET TOTALS			
ITEM	DESCRIPTION	UNIT	QUANTITY	
** 400	STRUCT EXCAVATION	CY	44	
400	CEMENT STABIL BACKFILL	CY	12	
◐ 400	CUT & RESTORE PVMT.	SY	20	
400	STRUCT EXCAVATION (SPL)	CY	10	
402	TRENCH EXCAV. PROTECTION	LF	80	
496	REMOVE STR (PIPE)	LF	80	
1008	PRSSR IRRIG PVC PIPE (12")	LF	80	
7016	CASING (STEEL) (18IN) OPEN TRENCH	LF	72	



STA 311+86



04/27/22

Pharr District Central Design

Texas Department of Transportation

FM 907

IRRIGATION CROSSING DETAILS

SCALE: HOR. 1"=20'
VERT. 1"=10'

SHEET 3 OF 5

© 2021	CONT	SECT	JOB	HIGHWAY
	1586	01	079	FM 907
	DIST	COUNTY		SHEET NO.
	PHR	HIDALGO		160

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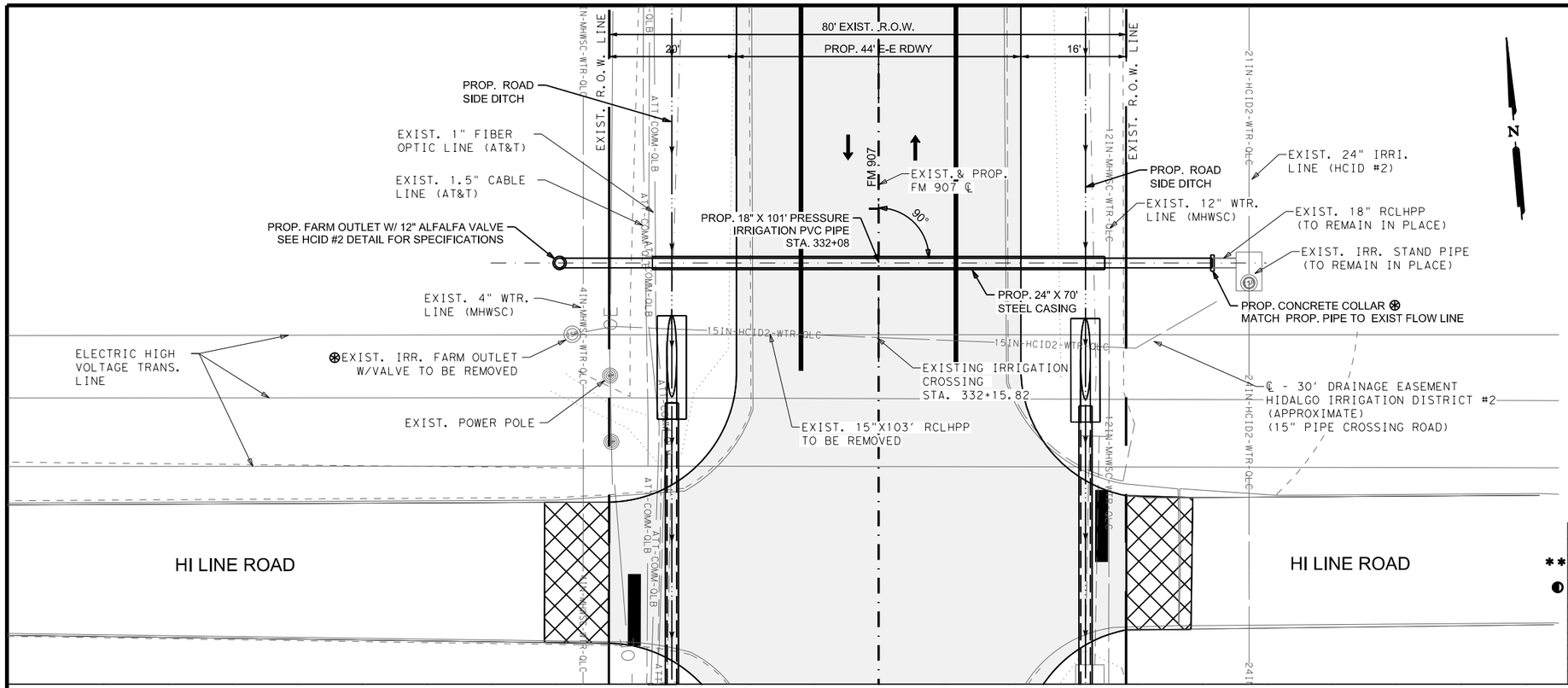

LEGEND

- ⊛ NON-PAY ITEM SUBSIDIARY TO PERTINENT BID ITEMS
- ◐ FOR PHASE III STEP-A CONSTRUCTION
- ** (NON-PAY ITEM) FOR CONTRACTOR'S INFORMATION ONLY

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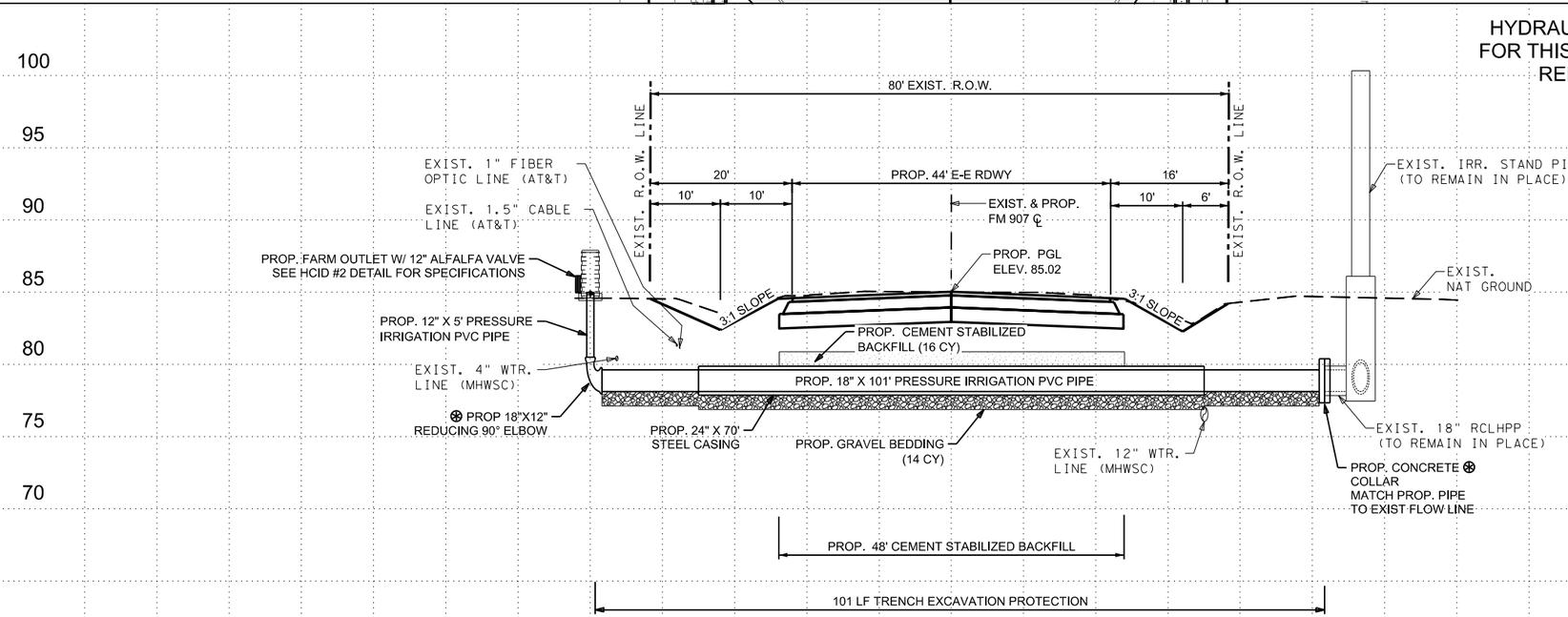
SHEET TOTALS

	ITEM	DESCRIPTION	UNIT	QUANTITY
**	400	STRUCT EXCAVATION	CY.	89
	400	CEMENT STABIL BACKFILL	CY	16
◐	400	CUT & RESTORE PVMT.	SY	26
	400	STRUCT EXCAVATION (SPL)	CY	14
	402	TRENCH EXCAV. PROTECTION	LF.	101
	496	REMOVE STR (PIPE)	LF	103
	1007	IRRIGATION VALVE (12")	EA	1
	1008	PRSSR IRRIG PVC PIPE (18")	LF	101
	1008	PRSSR IRRIG PVC PIPE (12")	LF	5
	7016	CASING (STEEL) (24IN) OPEN TRENCH	LF	70

HYDRAULIC DATA NOT NEEDED FOR THIS IRRIGATION CROSSING. REPLACING EXISTING STRUCTURE.



STA. 332+08

STATE OF TEXAS
JOSE A. RODRIGUEZ
117308
LICENSED PROFESSIONAL ENGINEER

04/27/22

Pharr District Central Design

Texas Department of Transportation

FM 907

IRRIGATION CROSSING DETAILS

SCALE: HOR. 1"=20'
VERT. 1"=10'

SHEET 4 OF 5

© 2021	CONT	SECT	JOB	HIGHWAY
	1586	01	079	FM 907
	DIST	COUNTY		SHEET NO.
	PHR	HIDALGO		161

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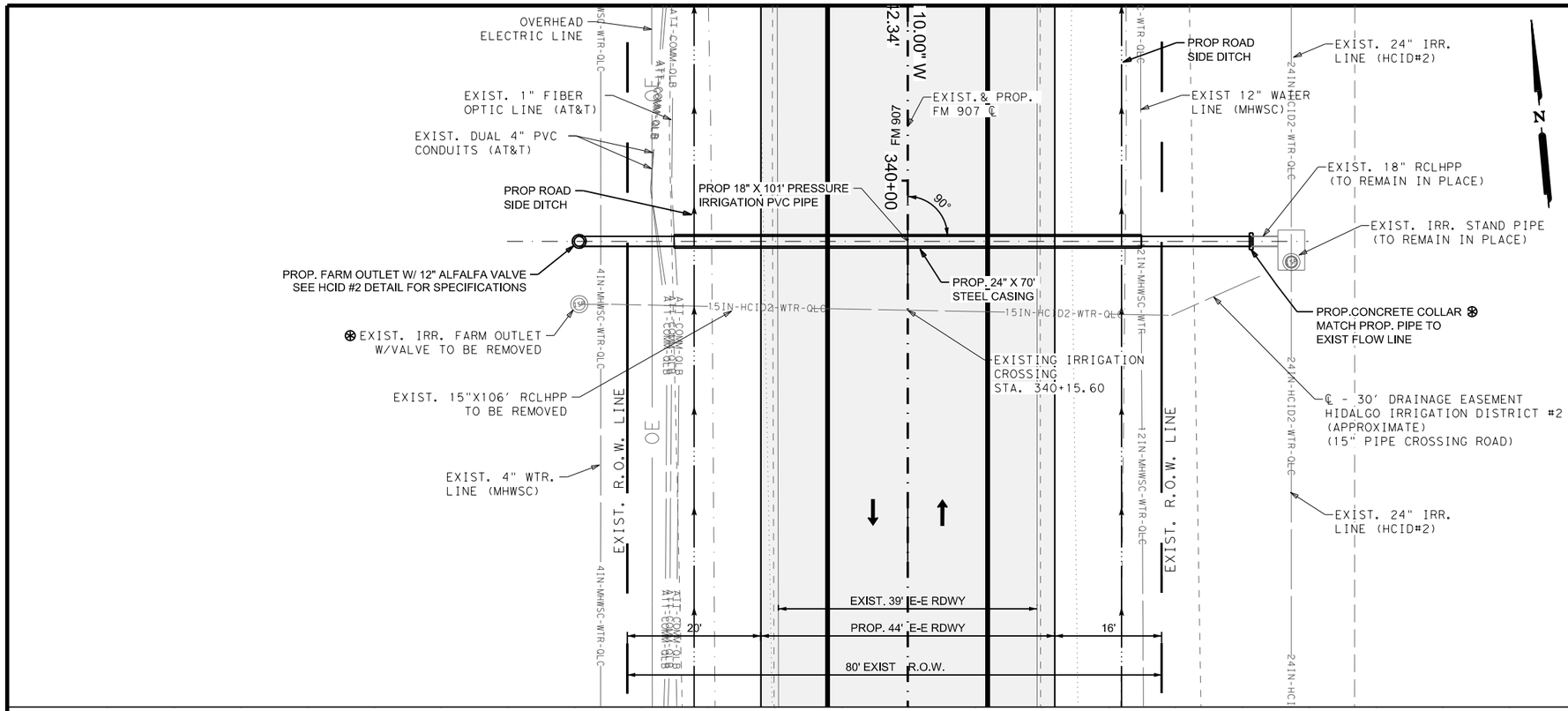

LEGEND

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◐ FOR PHASE III STEP-A CONSTRUCTION

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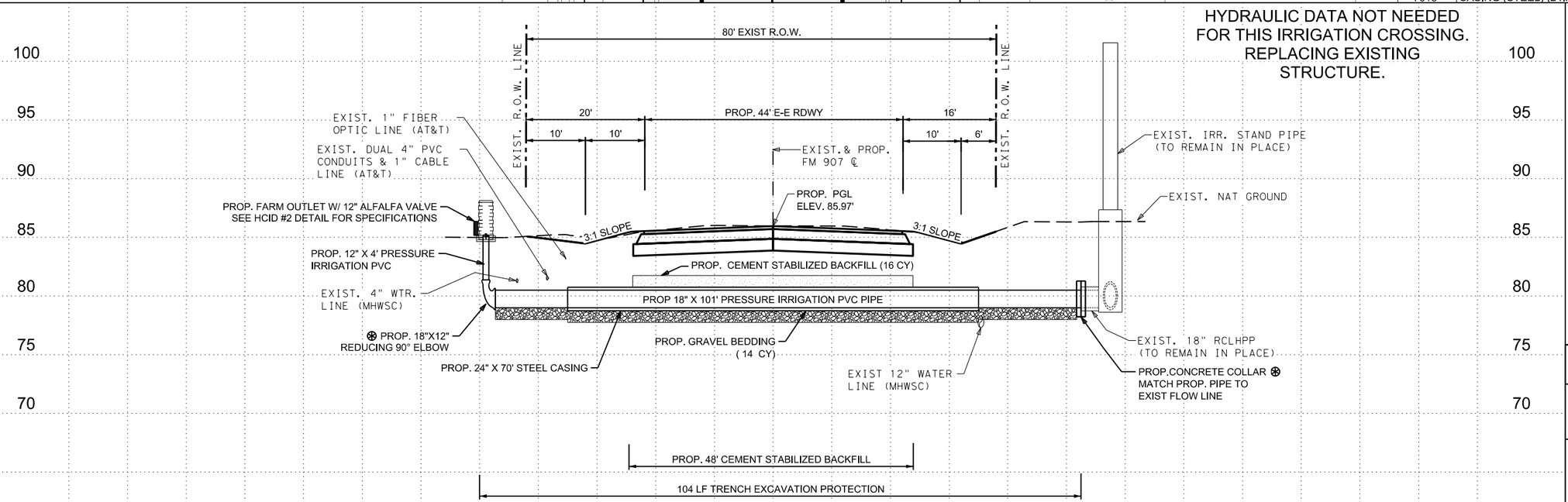
SHEET TOTALS

	ITEM	DESCRIPTION	UNIT	QUANTITY
**	400	STRUCT EXCAVATION	CY.	75
	400	CEMENT STABIL BACKFILL	CY	16
◐	400	CUT & RESTORE PVMT.	SY	26
	400	STRUCT EXCAVATION (SPL)	CY	14
	402	TRENCH EXCAV. PROTECTION	LF.	104
	496	REMOVE STR (PIPE)	LF	106
	1007	IRRIGATION VALVE (12")	EA	1
	1008	PRSSR IRRIG PVC PIPE (18")	LF	101
	1008	PRSSR IRRIG PVC PIPE (12")	LF	4
	7016	CASING (STEEL) (24IN) OPEN TRENCH	EA	70

HYDRAULIC DATA NOT NEEDED FOR THIS IRRIGATION CROSSING. REPLACING EXISTING STRUCTURE.



STA. 340+09

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STATE OF TEXAS
JOSE A. RODRIGUEZ
117308
LICENSED PROFESSIONAL ENGINEER

04/27/22

Pharr District Central Design

Texas Department of Transportation

FM 907

IRRIGATION CROSSING DETAILS

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VERT. 1"=10'

SHEET 5 OF 5

CONT	SECT	JOB	HIGHWAY
1586	01	079	FM 907
DIST	COUNTY		SHEET NO.
PHR	HIDALGO		162

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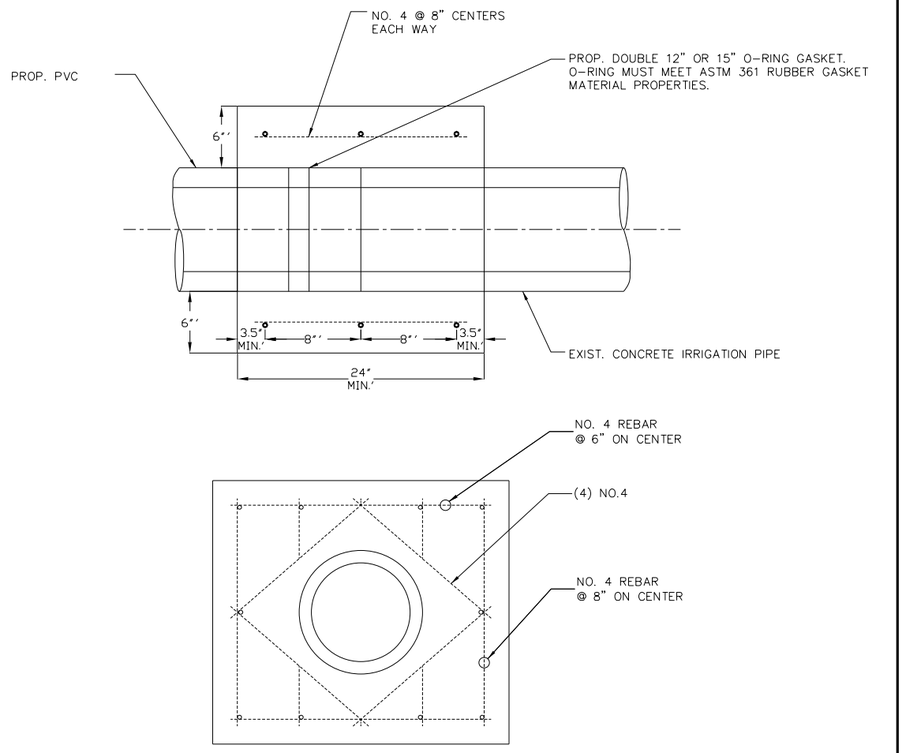


CONCRETE COLLAR DETAIL

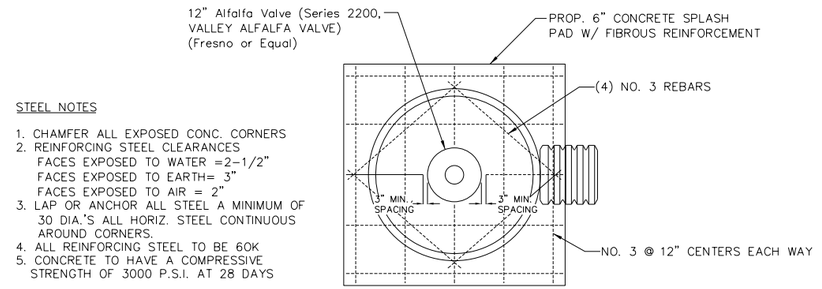
(PVC INTO EXIST. CONCRETE PIPE)

TYPICAL DETAILS
H.C.I.D. # 2
HIDALGO COUNTY, TEXAS

Sigler, Winston, Greenwood, & Associates, Inc.
CONSULTING ENGINEERS
WESLACO-McALLEN
TEXAS
SINCE 1945

NOTE:

1. CONCRETE COLLAR IS A NON-PAY ITEM AND IS SUBSIDIARY TO A PERTINENT BID ITEM.

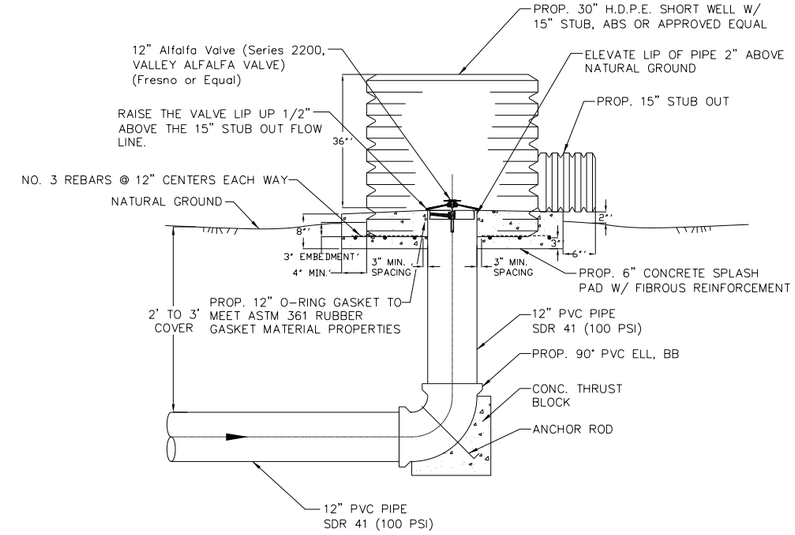


STEEL NOTES

1. CHAMFER ALL EXPOSED CONC. CORNERS
2. REINFORCING STEEL CLEARANCES
   FACES EXPOSED TO WATER =2-1/2"
   FACES EXPOSED TO EARTH= 3"
   FACES EXPOSED TO AIR = 2"
3. LAP OR ANCHOR ALL STEEL A MINIMUM OF 30 DIA.'S ALL HORIZ. STEEL CONTINUOUS AROUND CORNERS.
4. ALL REINFORCING STEEL TO BE 60K
5. CONCRETE TO HAVE A COMPRESSIVE STRENGTH OF 3000 P.S.I. AT 28 DAYS

NOTES
ALL REINFORCING STEEL TO BE # 5 @ 6" E.W.

TOP VIEW



TYPICAL FARM OUTLET

TYPICAL DETAILS
H.C.I.D. # 2
HIDALGO COUNTY, TEXAS

Sigler, Winston, Greenwood, & Associates, Inc.
CONSULTING ENGINEERS
WESLACO-McALLEN
TEXAS
SINCE 1945

NOTE:

1. FARM OUTLET, INCLUDING 12" ALFALFA VALVE, HDPE WELL, STUB OUT, AND CONCRETE SPLASH PAD TO BE PAID UNDER ITEM 1007.

IRRIGATION DETAILS
STANDARDS
PROVIDED BY
HIDALGO COUNTY
IRRIGATION
DISTRICT NO. 2

Pharr District Central Design

Texas Department of Transportation

FM 907
IRRIGATION DETAILS

CONT	SECT	JOB	HIGHWAY
1586	01	079	FM 907
DIST	COUNTY		SHEET NO.
PHR	HIDALGO		163

DATE: 4/20/2022 5:11:11 PM
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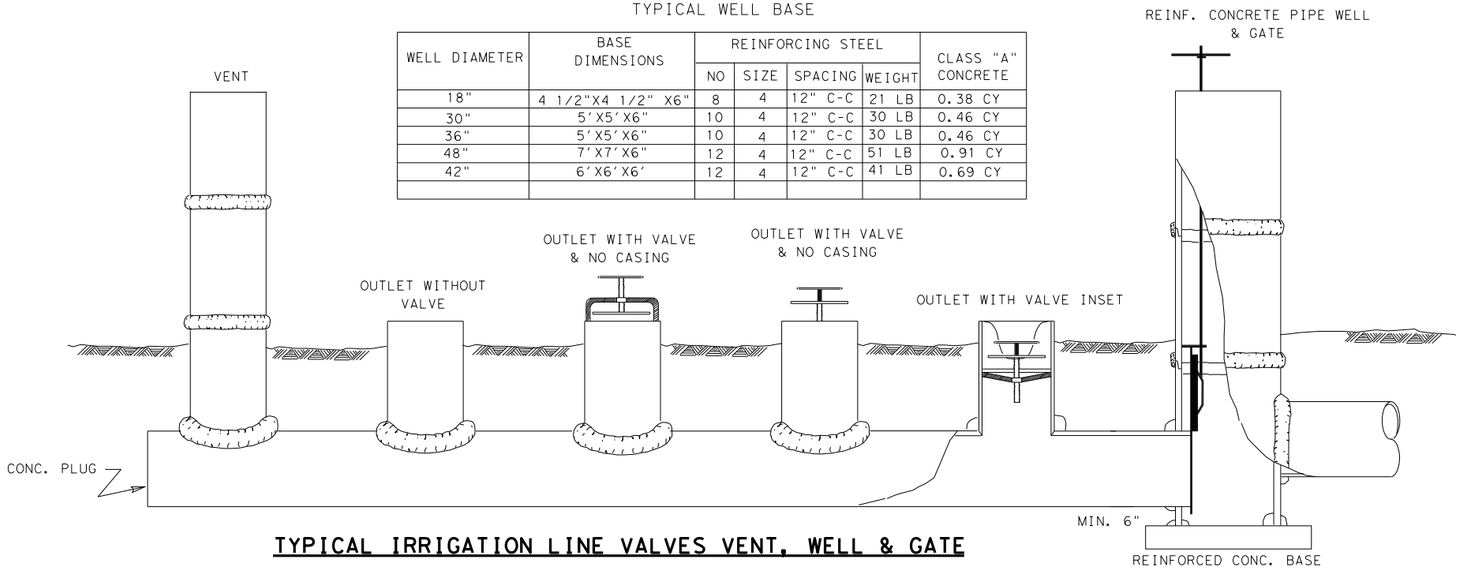
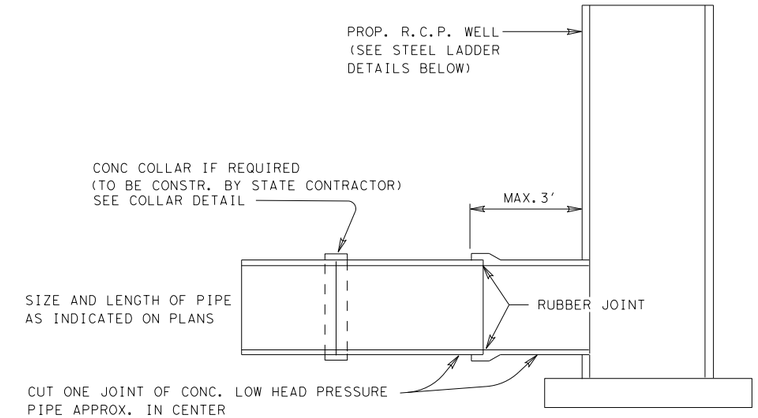
ESTIMATED QUANTITIES FOR
TYPICAL WELL BASE

WELL DIAMETER	BASE DIMENSIONS	REINFORCING STEEL				CLASS "A" CONCRETE
		NO	SIZE	SPACING	WEIGHT	
18"	4 1/2"X4 1/2" X6"	8	4	12" C-C	21 LB	0.38 CY
30"	5'X5'X6"	10	4	12" C-C	30 LB	0.46 CY
36"	5'X5'X6"	10	4	12" C-C	30 LB	0.46 CY
48"	7'X7'X6"	12	4	12" C-C	51 LB	0.91 CY
42"	6'X6'X6'	12	4	12" C-C	41 LB	0.69 CY



TYPICAL IRRIGATION LINE VALVES VENT, WELL & GATE



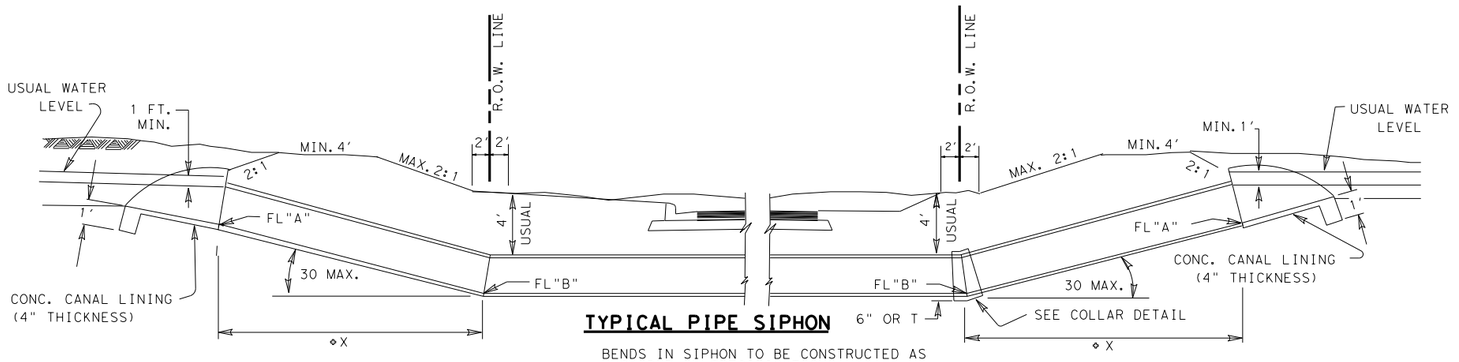
TYPICAL CONC. PIPE WELL DETAILS FOR CONNECTING CONC. LOW HEAD PRESSURE PIPE

GENERAL NOTES

HEIGHT OF RELOCATED WELLS AND VENTS TO BE EQUIVALENT TO THAT OF EXISTING STRUCTURES OR AS REQUIREDFOR PROPER OPERATION.

CONCRETE REQUIRED FOR BASE, PLUGS, OR CAPS WILL NOT BE PAID FOR DIRECTLY BUT SHALL BE CONSIDERED AS SUB-SIDIARY TO THE VARIOUS BID ITEMS OF THIS CONTRACT.

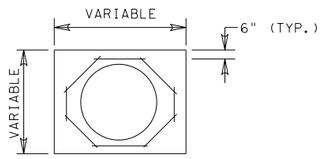
IN GENERAL THE PARTICULAR TYPE OR DESIGN OF THE EXISTING FACILITY TO BE EXTENDED OR RELOCATED SHALL BE DUPLICATED.

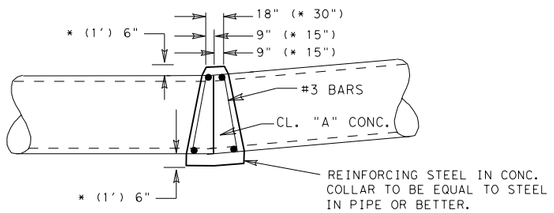


TYPICAL PIPE SIPHON

BENDS IN SIPHON TO BE CONSTRUCTED AS PROVIDED IN SPECIFICATIONS

* X AND FL "A" AS SHOWN ON PLANS ARE NOMINAL DESIGN DIMENSIONS AND MAY BE VARIED IN FIELD TO FIT EXISTING CONDITIONS.





DETAIL FOR CONC. COLLARS DRAINAGE STRUCTURES AND PIPE SIPHONS (HORIZ. & VERT. BENDS)

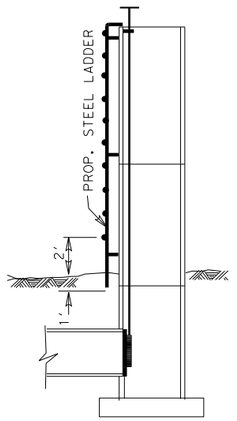
NOTE: PROP. CONC. COLLAR WILL NOT BE PAID FOR DIRECTLY BUT WILL BE SUBSIDIARY TO THE BIDS ITEMS INVOLVED.

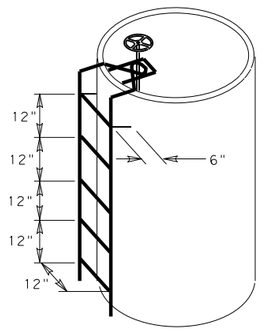
* FOR 42" AND LARGER PIPE

LADDER TO BE CONSTRUCTED OF ¾" DIA. REINF. STEEL. THE PARALLEL SIDEPIECES SPACED 12" APART TO BE HOOKED OVER TOP OF WELL AND STAND-OFFS WELDED AT TOP RUNG, AT THEIR MID-POINT AND BOTTOM. RUNGS TO BE WELDED TO SIDEPIECES AT 12" INTERVALS THE FIRST RUNG TO BE 2' FROM NATURAL GROUND.

STEEL LADDER TO BE PAID FOR AS SUBSIDIARY TO PRICE OF WELL.

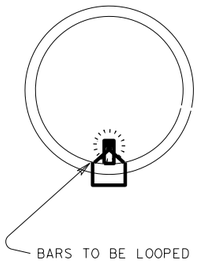
NOTE: COMMERCIAL FABRICATED OR CAST METAL STEPS MAY BE USED IF APPROVED BY THE ENGINEER AND/OR THE WATER DISTRICT INVOLVED.





STEEL LADDER DETAILS

TO BE USED ON ALL WELLS WITH GATES WHEN THE DISTANCE FROM NATURAL GROUND TO TOP OF WELL IS 6 FT. OR MORE.



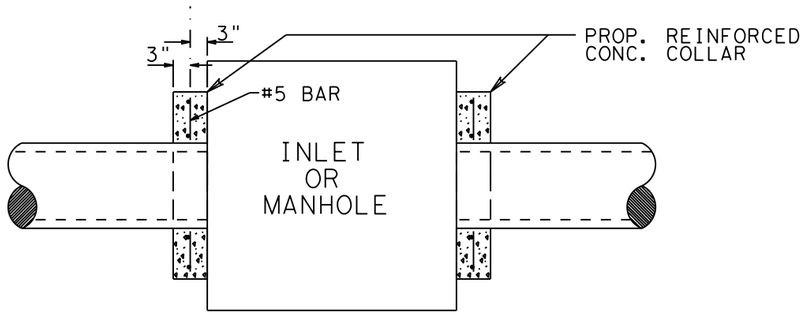
PHARR DISTRICT STANDARD

TEXAS DEPARTMENT OF TRANSPORTATION

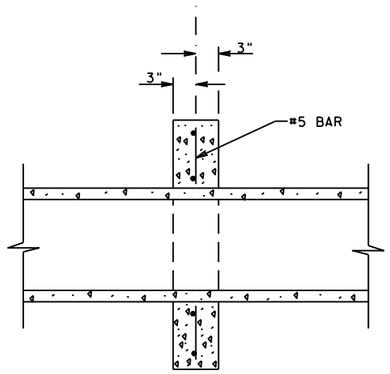
IRRIGATION CROSSING DETAIL

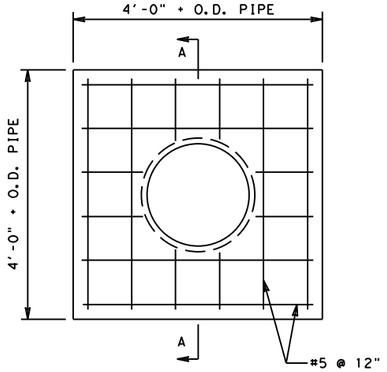
REV. 4/15 IRRIG1.DGN

FED.RD. DIV.NO.	FEDERAL AID PROJECT NO.		FILE NO.			SHEET NO.
6						164
STATE	STATE DIST. NO.	COUNTY	CONT.	SECT.	JOB	HIGHWAY NO.
TEXAS	21	HIDALGO	1586	01	079	FM 907



INLET OR MANHOLE CONNECTION
PLAN VIEW

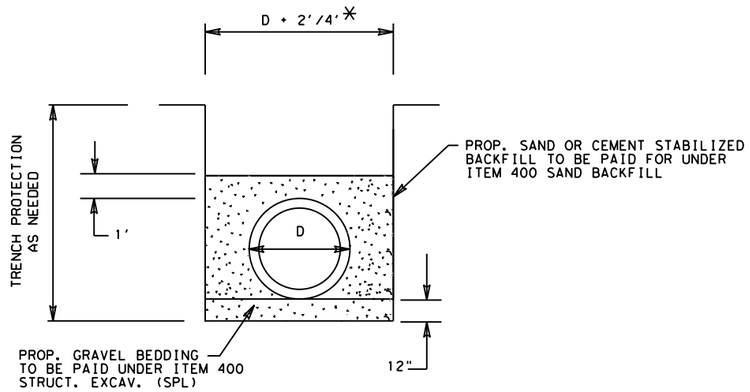




SECTION A-A

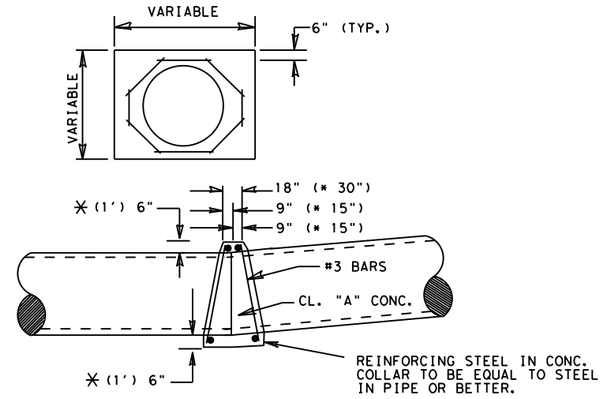
FRONT ELEVATION

CONCRETE PIPE COLLAR



✳ FOR PIPE 42" DIAMETER OR LESS PLACE 1'OF FILL
ON EACH SIDE OF THE PIPE.
FOR PIPE LARGER THAN 42" DIAMETER PLACE 2' OF FILL
ON EACH SIDE OF THE PIPE.

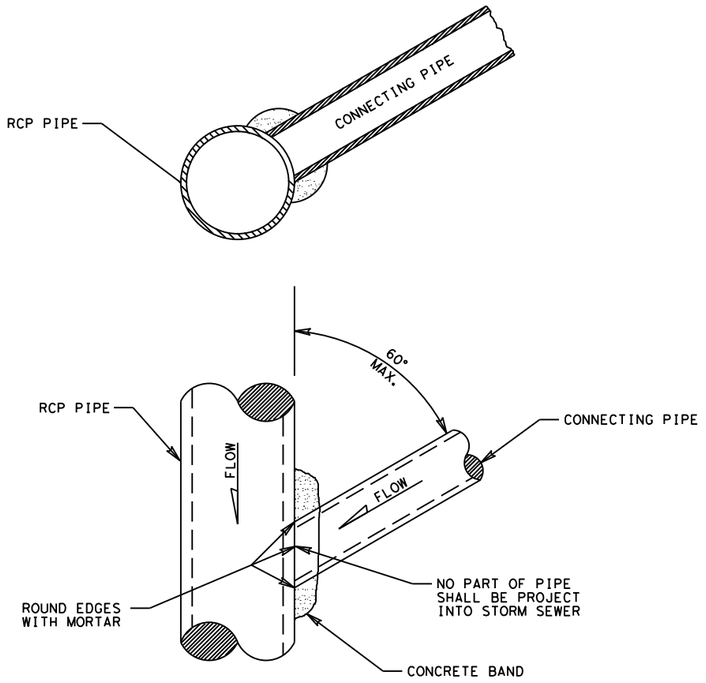
SPIRAL RIB CMP
TYPICAL BACKFILL DETAIL
GRAVEL & SAND



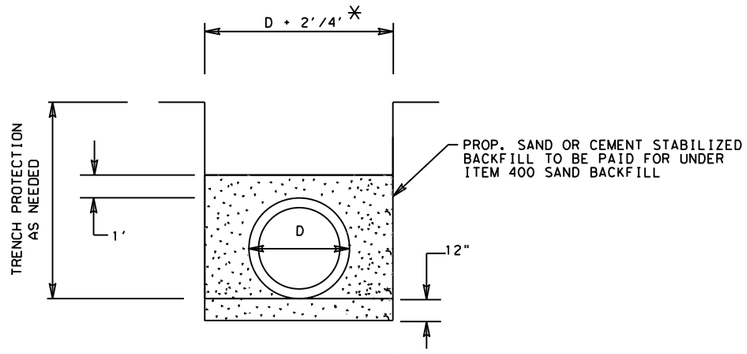
DETAIL FOR CONC. COLLARS
DRAINAGE STRUCTURES AND PIPE
SIPHONS (HORIZ. & VERT. BENDS)

NOTE: PROP. CONC. COLLAR WILL NOT BE PAID FOR DIRECTLY BUT WILL BE SUBSIDIARY TO THE BIDS ITEMS INVOLVED.

✳ FOR 42" DIAMETER AND LARGER PIPE



TYPICAL REINFORCED CONC. PIPE
CONNECTION WITHOUT MANHOLE



✳ FOR PIPE 42" DIAMETER OR LESS PLACE 1'OF FILL
ON EACH SIDE OF THE PIPE.
FOR PIPE LARGER THAN 42" DIAMETER PLACE 2' OF FILL
ON EACH SIDE OF THE PIPE.

REINFORCED CONCRETE PIPE
TYPICAL BACKFILL DETAIL-GRAVEL & SAND

PHARR DISTRICT STANDARD

TEXAS DEPARTMENT OF TRANSPORTATION

MISCELLANEOUS
PIPE STANDARD

REV. 2/19

MISC.PIPE.DGN

FED.RD. DIV.NO.	FEDERAL AID PROJECT NO.		FILE NO.			SHEET NO.
6						165
STATE	STATE DIST.NO.	COUNTY	CONT.	SECT.	JOB	HIGHWAY NO.
TEXAS	21	HIDALGO	1586	01	079	FM 907

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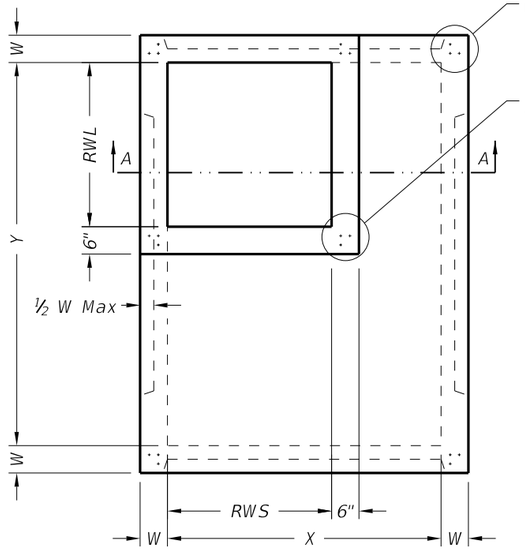
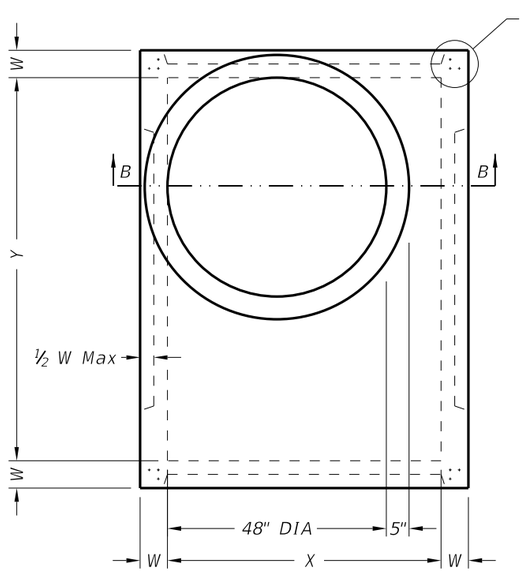


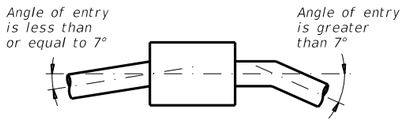
PLAN VIEW "A"

SQUARE REDUCED RISER OPTION



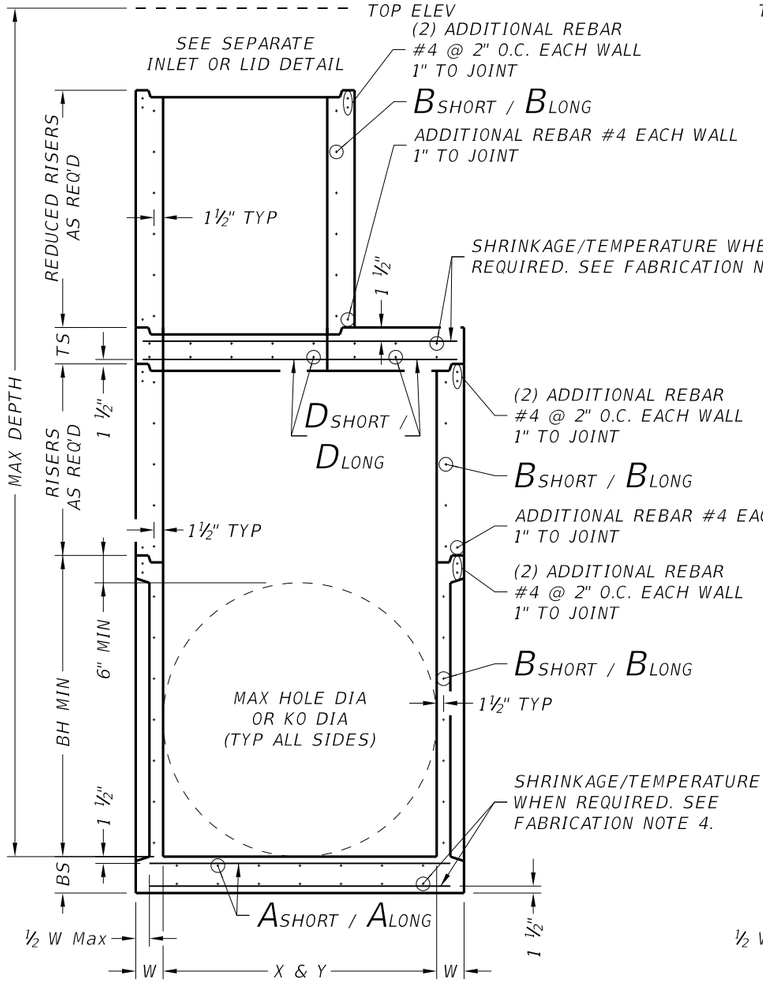
PLAN VIEW "B"

ROUND REDUCED RISER OPTION



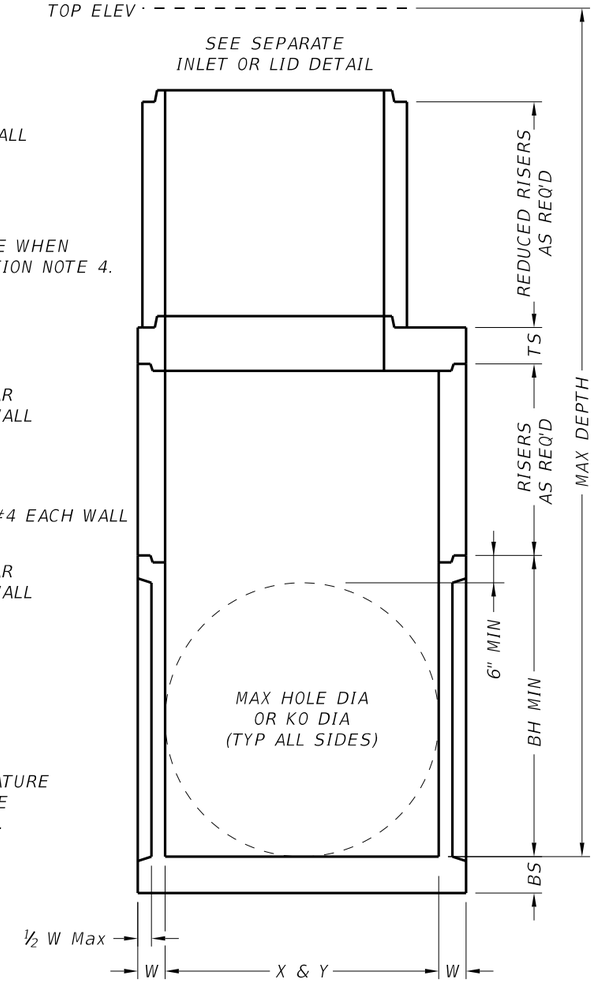
PIPE CONNECTION DETAIL

Connect pipes within 7° of normal to PB wall.
If necessary, use pipe elbow or curved
approach alignment to stay within this limit.



SECTION A-A

SQUARE REDUCED RISER OPTION



SECTION B-B

ROUND REDUCED RISER OPTION

FABRICATION NOTES:

1. Provide Class "H" concrete in accordance with Item 421 and having a minimum compressive strength of 5,000 psi.
2. Provide Grade 60 reinforcing steel or equivalent area of WWR.
3. Provide typical clear cover of 1 ½" to reinforcing steel at interior or exterior walls.
4. Walls or slabs with a thickness of 8" or greater require shrinkage and temperature reinforcing steel. Provide steel area = 0.11 in²/ft each way.
5. No substitution is allowed for vertical and horizontal #4 bars in corners.
6. Manufacture base and risers to nearest 3" increment.
7. Design tongue and groove joints for full closure on both shoulders. Minimum spigot depth is ¾".
8. Provide lifting devices in conformance with Manufacturer's recommendations.
9. See sheet PDD for sizes, dimensions, and reinforcing steel not shown.

INSTALLATION NOTES:

1. If required elsewhere. Inverts (benching) to be provided by Contractor. Concrete or mortar used for invert is subsidiary to specified inlet or manhole.
2. Seal tongue and groove joints with preformed or bulk mastic in conformance with Manufacturer's recommendations. Tongue and groove joints may be grouted no more than 1" between each section, or ½ the joint depth, whichever is greater.
3. Do not grout rubber gasket joints without Manufacturer's recommendation.
4. For rigid pipe, cut hole in thin wall panel (KO) 4" Max, 2" Min larger than pipe OD.
5. For flexible pipe, consult boot/seal Manufacturer's specification for placement tolerance and hole size. Center pipe in hole and install boot/seal per Manufacturer's specification.

GENERAL NOTES:

1. Precast Base consists of base slab, base unit, risers (as required), reducing slab (as required), and reduced risers (as required). See sheet PDD for sizes.
2. Designed according to ASTM C913.
3. Payment for precast base is subsidiary to the specified inlet, per Item 465, "Junction Boxes, Manholes, and Inlets."

Cover dimensions are clear dimensions, unless noted otherwise.

HL93 LOADING

Texas Department of Transportation

Bridge Division Standard

PRECAST BASE

PB

FILE: prestd01-20.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
©TxDOT February 2020	CONT	SECT	JOB	HIGHWAY
REVISIONS	1586	01	079	FM 907
	DIST	COUNTY		SHEET NO.
	PHR	HIDALGO		166

DATE: 8/30/2021 5:32:34 PM
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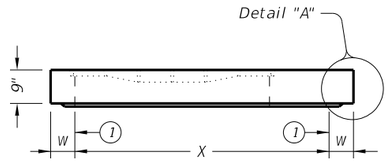
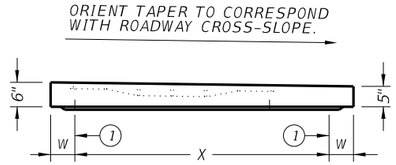
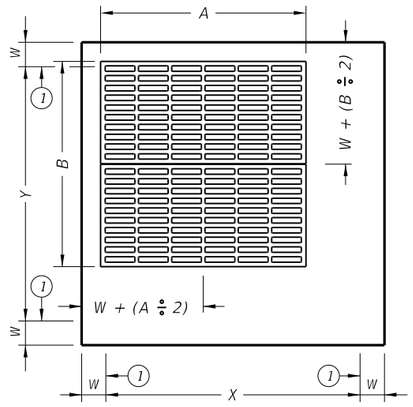


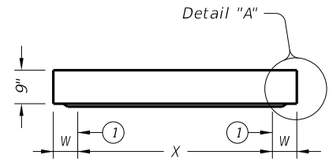
STYLE 'FG'



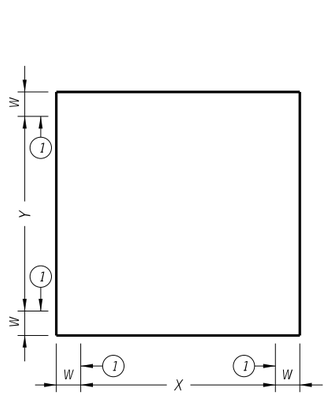
STYLE 'SFG'
ELEVATION VIEW



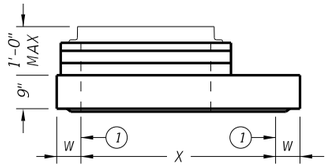
PLAN VIEW
CAST-IN FRAME & GRATE
STYLES 'FG' & 'SFG'



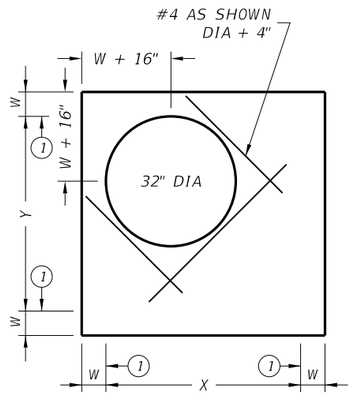
ELEVATION VIEW



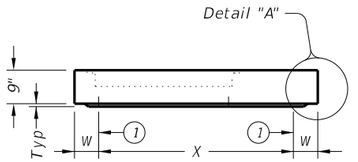
PLAN VIEW
NO OPENINGS
STYLE 'SL'



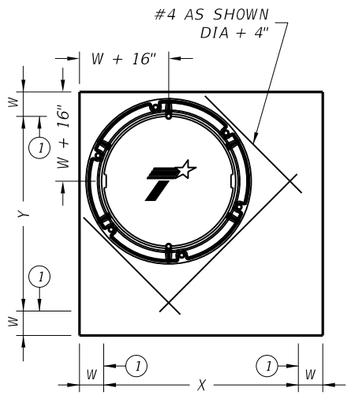
ELEVATION VIEW



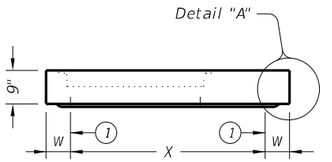
PLAN VIEW
SHIP LOOSE RING & COVER
STYLE 'RH'



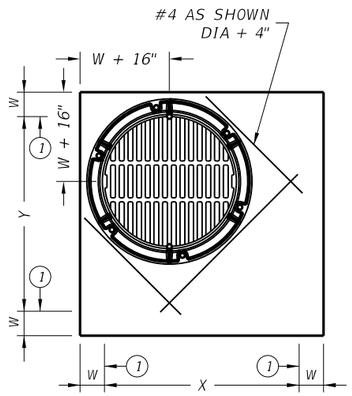
ELEVATION VIEW



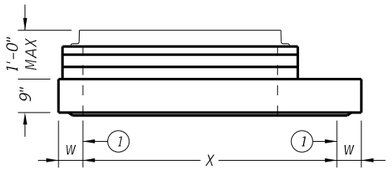
PLAN VIEW
32" DIA CAST-IN RING & COVER
STYLE 'RC'



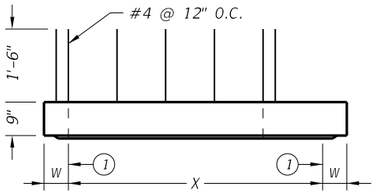
ELEVATION VIEW



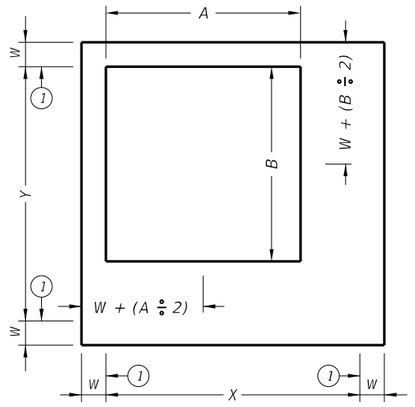
PLAN VIEW
32" DIA CAST-IN RING & GRATE
STYLE 'RG'



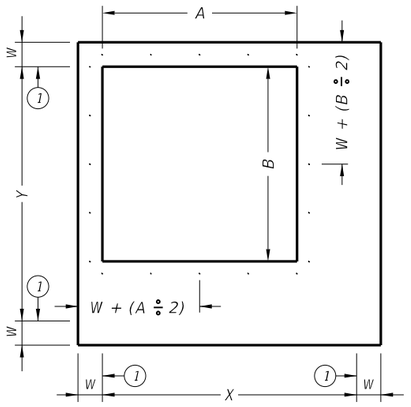
ELEVATION VIEW



ELEVATION VIEW



PLAN VIEW
SHIP LOOSE FRAME & GRATE
STYLE 'SH'



PLAN VIEW
EXPOSED REBAR
STYLE 'S1'

(1) Matches inside face of wall of precast base or riser below inlet.

HL93 LOADING SHEET 1 OF 2

Texas Department of Transportation
Bridge Division Standard

PRECAST SLAB LID

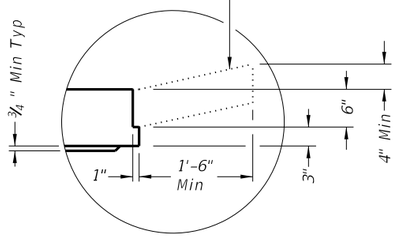
PSL

FILE: prestd05-20.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
©TxDOT February 2020	CONT	SECT	JOB	HIGHWAY
REVISIONS	1586	01	079	FM 907
	DIST	COUNTY		SHEET NO.
	PHR	HIDALGO		167

Style	Size (X x Y)	W (2)	A x B (nominal)	Short Span Reinf Steel Area	Long Span Reinf Steel Area
SL	3'x3'	6"	n/a	0.37 in²/ft	0.37 in²/ft
RH,RC,RG,SH,S1,FG	3'x3'	6"	3'x3' or 32" Dia	0.37 in²/ft	0.37 in²/ft
SFG	3'x3'	6"	3'x3'	0.32 in²/ft	0.32 in²/ft
SL	4'x4'	6"	n/a	0.34 in²/ft	0.34 in²/ft
RH,RC,RG,SH,S1,FG	4'x4'	6"	3'x3' or 32" Dia	0.41 in²/ft	0.41 in²/ft
SH,S1,FG	4'x4'	6"	4'x4'	0.41 in²/ft	0.41 in²/ft
SFG	4'x4'	6"	4'x4'	0.32 in²/ft	0.32 in²/ft
SL	3'x5'	6"	n/a	0.39 in²/ft	0.39 in²/ft
RH,RC,RG,SH,S1,FG	3'x5'	6"	3'x3' or 32" Dia	0.48 in²/ft	0.48 in²/ft
SH,S1,FG	3'x5'	6"	3'x5'	0.48 in²/ft	0.48 in²/ft
SFG	3'x5'	6"	3'x5'	0.32 in²/ft	0.32 in²/ft
SL	4'x5'	6"	n/a	0.42 in²/ft	0.42 in²/ft
RH,RC,RG,SH,S1,FG	4'x5'	6"	3'x3' or 32" Dia	0.42 in²/ft	0.42 in²/ft
SH,S1,FG	4'x5'	6"	4'x4'	0.63 in²/ft	0.63 in²/ft
SH,S1,FG	4'x5'	6"	3'x5'	0.66 in²/ft	0.66 in²/ft
SL	5'x5'	6"	n/a	0.36 in²/ft	0.36 in²/ft
RH,RC,RG,SH,S1,FG	5'x5'	6"	3'x3' or 32" Dia	0.43 in²/ft	0.43 in²/ft
SH,S1,FG	5'x5'	6"	4'x4'	0.63 in²/ft	0.63 in²/ft
SH,S1,FG	5'x5'	6"	3'x5'	0.63 in²/ft	0.63 in²/ft
SL	5'x6'	6"/8"	n/a	0.48 in²/ft	0.48 in²/ft
RH,RC,RG,SH,S1,FG	5'x6'	6"/8"	3'x3' or 32" Dia	0.48 in²/ft	0.48 in²/ft
SH,S1,FG	5'x6'	6"/8"	4'x4'	0.60 in²/ft	0.60 in²/ft
SH,S1,FG	5'x6'	6"/8"	3'x5'	0.60 in²/ft	0.60 in²/ft
SL	6'x6'	6"/8"	n/a	0.43 in²/ft	0.43 in²/ft
RH,RC,RG,SH,S1,FG	6'x6'	6"/8"	3'x3' or 32" Dia	0.56 in²/ft	0.56 in²/ft
SH,S1,FG	6'x6'	6"/8"	4'x4'	0.56 in²/ft	0.56 in²/ft
SH,S1,FG	6'x6'	6"/8"	3'x5'	0.59 in²/ft	0.59 in²/ft
SL	8'x8'	8"/10"	n/a	0.45 in²/ft	0.45 in²/ft
RH,RC,RG,SH,S1,FG	8'x8'	8"/10"	3'x3' or 32" Dia	0.45 in²/ft	0.45 in²/ft
SH,S1,FG	8'x8'	8"/10"	4'x4'	0.45 in²/ft	0.45 in²/ft
SH,S1,FG	8'x8'	8"/10"	3'x5'	0.45 in²/ft	0.45 in²/ft

(2) See sheet PDD for corresponding wall thickness (W) of base unit or riser.

Construct cast-in-place reinforced concrete apron, when shown elsewhere in plans. Use Class "A" concrete. Apron is subsidiary to PSL. Apron is 1'-6" Min width around precast zone drain.



DETAIL "A"

(Reinforcing not shown for clarity)

When an apron is to be cast around PSL, use detail above to create an apron ledge on all 4 sides.

FABRICATION NOTES:

1. Locate penetration (Style 'RH'), ring and cover (Style 'RC'), ring and grate (Style 'RG'), and frame and grate (Style 'FG') in a corner. Only one penetration is allowed per slab lid.
2. Provide Class "H" concrete in accordance with Item 421 and having a minimum compressive strength of 5,000 psi.
3. Provide Grade 60 reinforcing steel or equivalent area of WWR.
4. Provide clear cover of ¾" to reinforcing from lower outside shoulder of slab for structural reinforcement, and 2" from top of slab for shrinkage and temperature reinforcement. Place short span reinforcing closest to surface.
5. Slabs with a thickness of 8" or greater require shrinkage and temperature reinforcing. Provide steel area = 0.11 in²/ft each way.
6. No substitution is allowed for diagonal #4 bars around openings.
7. Design tongue and groove joints for full closure on both shoulders. Minimum spigot depth is ¾".
8. Provide lifting devices in conformance with Manufacturer's recommendations.

INSTALLATION NOTES:

1. Precast slab lids are intended for direct traffic and may be placed in roadway.
2. Seal tongue and groove joints with preformed or bulk mastic in conformance with Manufacturer's recommendations. Tongue and groove joints may be grouted no more than 1" between each section, or ½ the joint depth, whichever is greater.
3. Do not grout rubber gasket joints without Manufacturer's recommendation.
4. Initial installation of grade adjustment rings for Styles 'RH' and 'SH' is limited to 1'-0" Max as shown.
5. Grade adjustment rings for Styles 'RH' and 'SH' may be increased to 2'-0" Max when future construction affects final grade of structure. Make adjustments greater than 2'-0" with additional risers. Adjustments can be made up to Max depth shown on sheet PDD. Structure must be evaluated if Max depth will be exceeded.
6. Orient long dimension of grate slots perpendicular to traffic, unless noted otherwise on plans

GENERAL NOTES:

1. Designed according to ASTM C913.
2. Payment for lid is per Item 465, "Junction Boxes, Manholes, and Inlets" by type, style, size, and opening size (when applicable).

Cover dimensions are clear dimensions, unless noted otherwise.

HL93 LOADING SHEET 2 OF 2

Texas Department of Transportation

Bridge Division Standard

PRECAST SLAB LID

PSL

FILE: prestd05-20.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
©TxDOT February 2020	CONT	SECT	JOB	HIGHWAY
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	DIST	COUNTY		SHEET NO.
	PHR	HIDALGO		168

DATE: 8/30/2021 5:32:40 PM
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	Size	MAX DEPTH = 15 ft. to top of BASE SLAB										MAX DEPTH = 25 ft. to top of BASE SLAB										Min Height (See Gen Note 3)	Max HOLE DIA (See Fab Note 2)	Max KO DIA (See Fab Note 2)
		Base Slab			Base Unit or Riser Walls			Below Grade Slab (w/PJB) Reducing Slab (w/PB)				Base Slab			Base Unit or Riser Walls			Below Grade Slab (w/PJB) Reducing Slab (w/PB)						
		Short Span Reinf Steel Area	Long Span Reinf Steel Area	Thickness	Short Span Reinf Steel Area	Long Span Reinf Steel Area	Thickness	Reduced Riser Size	Short Span Reinf Steel Area	Long Span Reinf Steel Area	Thickness	Short Span Reinf Steel Area	Long Span Reinf Steel Area	Thickness	Short Span Reinf Steel Area	Long Span Reinf Steel Area	Thickness	Reduced Riser Size	Short Span Reinf Steel Area	Long Span Reinf Steel Area	Thickness			
	X x Y	Ashort	Along	BS	Bshort	Blong	W	RWSxRWL or ID	Dshort	Dlong	TS	Ashort	Along	BS	Bshort	Blong	W	RWSxRWL or ID	Dshort	Dlong	TS	BH MIN	HOLE DIA	KO DIA
	ft.	in^2/ft	in^2/ft	in.	in^2/ft	in^2/ft	in.	ft. **	in^2/ft	in^2/ft	in.	in^2/ft	in^2/ft	in.	in^2/ft	in^2/ft	in.	ft. **	in^2/ft	in^2/ft	in.	ft.	in.	in.
Precast Junction Box (PJB)	3x3	0.23	0.23	6	0.19	0.19	6	N/A	0.37	0.37	9	0.29	0.29	6	0.24	0.24	6	N/A	0.37	0.37	9	3.5	36	36
	4x4	0.29	0.29	6	0.24	0.24	6	N/A	0.41	0.41	9	0.47	0.47	6	0.38	0.38	6	N/A	0.41	0.41	9	4.5	48	48
	3x5	0.29	0.18	6	0.19	0.35	6	N/A	0.48	0.48	9	0.39	0.18	6	0.23	0.59	6	N/A	0.48	0.48	9	3.5	36/60	36/60
	4x5	0.36	0.18	6	0.22	0.34	6	N/A	0.42	0.42	9	0.53	0.26	6	0.39	0.59	6	N/A	0.42	0.42	9	4.5	48/60	48/60
	5x5	0.36	0.36	6	0.34	0.34	6	N/A	0.43	0.43	9	0.62	0.62	6	0.59	0.59	6	N/A	0.43	0.43	9	5.5	60	60
	5x6	0.27	0.27	9	0.34	0.45	6	N/A	0.48	0.48	9	0.47	0.45	9	0.38	0.54	8	N/A	0.48	0.48	9	5.5	60/72	60/72
	6x6	0.27	0.27	9	0.45	0.45	6	N/A	0.56	0.56	9	0.52	0.52	9	0.54	0.54	8	N/A	0.56	0.56	9	6.5	72	72
	8x8	0.46	0.46	9	0.51	0.51	8	N/A	0.45	0.45	12	0.87	0.87	9	0.59	0.59	10	N/A	0.45	0.45	12	8.5	96	72
Precast Base (PB)	3x3	0.23	0.23	6	0.19	0.19	6	N/A	N/A	N/A	N/A	0.29	0.29	6	0.24	0.24	6	N/A	N/A	N/A	N/A	3.5	36	36
	4x4	0.29	0.29	6	0.24	0.24	6	N/A	N/A	N/A	N/A	0.47	0.47	6	0.38	0.38	6	N/A	N/A	N/A	N/A	4.5	48	48
	3x5	0.29	0.18	6	0.19	0.35	6	3x3	0.30	0.34	9	0.39	0.18	6	0.23	0.59	6	3x3	0.40	0.40	9	3.5	36/60	36/60
	4x5	0.36	0.18	6	0.22	0.34	6	3x3	0.30	0.30	9	0.53	0.26	6	0.39	0.59	6	3x3	0.46	0.37	9	4.5	48/60	48/60
	4x5	0.36	0.18	6	0.22	0.34	6	4x4	0.30	0.30	9	0.53	0.26	6	0.39	0.59	6	4x4	0.39	0.39	9	4.5	48/60	48/60
	4x5	0.36	0.18	6	0.22	0.34	6	48"	0.39	0.39	9	0.53	0.26	6	0.39	0.59	6	48"	0.47	0.47	9	4.5	48/60	48/60
	4x5	0.36	0.18	6	0.22	0.34	6	3x5	0.33	0.40	9	0.53	0.26	6	0.39	0.59	6	3x5	0.48	0.48	9	4.5	48/60	48/60
	5x5	0.36	0.36	6	0.34	0.34	6	3x3	0.34	0.34	9	0.62	0.62	6	0.59	0.59	6	3x3	0.53	0.53	9	5.5	60	60
	5x5	0.36	0.36	6	0.34	0.34	6	4x4	0.36	0.36	9	0.62	0.62	6	0.59	0.59	6	4x4	0.64	0.64	9	5.5	60	60
	5x5	0.38	0.38	6	0.34	0.34	6	48"	0.36	0.36	9	0.62	0.62	6	0.59	0.59	6	48"	0.64	0.64	9	5.5	60	60
	5x5	0.36	0.36	6	0.34	0.34	6	3x5	0.34	0.40	9	0.62	0.62	6	0.59	0.59	6	3x5	0.53	0.53	9	5.5	60	60
	5x6	0.31	0.31	9	0.34	0.45	6	3x3	0.34	0.34	9	0.47	0.45	9	0.38	0.54	8	3x3	0.61	0.50	9	5.5	60/72	60/72
	5x6	0.27	0.27	9	0.34	0.45	6	4x4	0.36	0.45	9	0.47	0.45	9	0.38	0.54	8	4x4	0.74	0.57	9	5.5	60/72	60/72
	5x6	0.29	0.29	9	0.34	0.45	6	48"	0.36	0.45	9	0.47	0.45	9	0.38	0.54	8	48"	0.74	0.57	9	5.5	60/72	60/72
	5x6	0.29	0.29	9	0.34	0.45	6	3x5	0.45	0.45	9	0.47	0.45	9	0.38	0.54	8	3x5	0.61	0.61	9	5.5	60/72	60/72
	6x6	0.29	0.29	9	0.45	0.45	6	3x3	0.41	0.41	9	0.52	0.52	9	0.54	0.54	8	3x3	0.74	0.74	9	6.5	72	72
	6x6	0.27	0.27	9	0.45	0.45	6	4x4	0.45	0.45	9	0.52	0.52	9	0.54	0.54	8	4x4	0.87	0.87	9	6.5	72	72
	6x6	0.29	0.29	9	0.45	0.45	6	48"	0.45	0.45	9	0.52	0.52	9	0.54	0.54	8	48"	0.87	0.87	9	6.5	72	72
	6x6	0.29	0.29	9	0.45	0.45	6	3x5	0.45	0.45	9	0.52	0.52	9	0.54	0.54	8	3x5	0.87	0.87	9	6.5	72	72
	8x8	0.52	0.52	9	0.51	0.51	8	3x3	0.61	0.61	12	0.91	0.91	9	0.70	0.70	10	3x3	0.85	0.85	12	8.5	96	72
	8x8	0.52	0.52	9	0.51	0.51	8	4x4	0.70	0.70	12	0.87	0.87	9	0.70	0.70	10	4x4	1.01	1.01	12	8.5	96	72
	8x8	0.52	0.52	9	0.51	0.51	8	48"	0.70	0.70	12	0.87	0.87	9	0.70	0.70	10	48"	1.01	1.01	12	8.5	96	72
	8x8	0.52	0.52	9	0.51	0.51	8	3x5	0.70	0.85	12	0.87	0.87	9	0.70	0.70	10	3x5	1.01	1.01	12	8.5	96	72

** Unless otherwise indicated.

FABRICATION NOTES:
1. Maximum spacing of reinforcement is 8".
2. At manufacturer's option, provide cast or cored holes or thin wall panels (KO) to the maximum diameter shown for each. When no penetration is required, it is acceptable to provide a wall with no sectional reduction.

GENERAL NOTES:
1. Precast Junction Box consists of base slab, base unit, risers (as required), and below grade slab. See sheet PJB for details.
2. Precast Base consists of base slab, base unit, risers (as required), reducing slab (as required), and reduced risers (as required). See sheet PB for details.
3. Min Height shown is for stock base units. Use stock base units whenever practical. Smaller height base units can be used in special installation circumstances, when noted elsewhere in the plans. Absolute minimum height of base units is 2'-6".

HL93 LOADING

Texas Department of Transportation

Bridge Division Standard

DESIGN DATA FOR PRECAST BASE AND JUNCTION BOX

PDD

FILE: prestd10-20.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
©TxDOT February 2020	CONT	SECT	JOB	HIGHWAY
REVISIONS	1586	01	079	FM 907
	DIST	COUNTY		SHEET NO.
	PHR	HIDALGO		169

DATE: 8/30/2021 5:32:48 PM
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BRIDGE
COVER SHEET

DATE: 8/30/2021 5:33:04 PM
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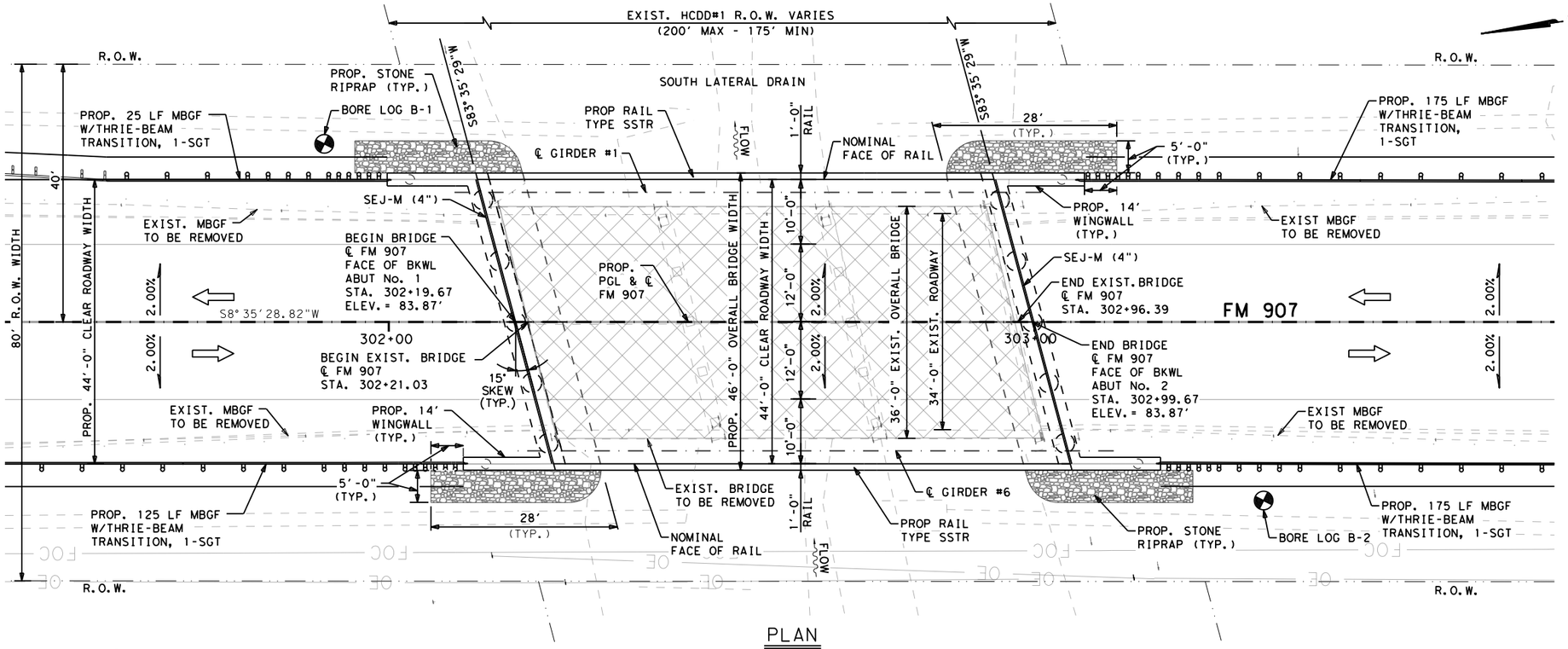
Pharr District Central Design

Texas Department of Transportation

FM 907

BRIDGE
COVER SHEET

CONT	SECT	JOB	HIGHWAY
1586	01	079	FM 907
DIST	COUNTY		SHEET NO.
PHR	HIDALGO		170



PLAN

LEGEND

- TRAFFIC FLOW ARROW
- EXISTING BRIDGE TO BE REMOVED
- WATER FLOW

GENERAL NOTES

1. SEE PLAN AND PROFILE SHEETS FOR PROP. ALIGNMENT DATA.
2. EXISTING BRIDGE TO BE REMOVED IN ACCORDANCE TO ITEM 496. "REMOVING STRUCTURES". NOTE THAT EXISTING FOUNDATIONS NEED TO BE REMOVED TO 2' BELOW GROUND LINE.
3. CONTRACTOR SHALL FIELD VERIFY LOCATION OF ALL UTILITIES. SEE U&D SHEETS FOR ALL UTILITIES LOCATIONS.
4. THE CONTRACTOR MUST FIELD VERIFY DIMENSIONS AND ELEVATIONS PRIOR TO CONSTRUCTION AND ORDERING OF MATERIALS.
5. SEE SURVEY CONTROL DATA SHEET FOR BENCHMARK INFORMATION.
6. TEST HOLE DATA PROVIDED BY RABA KISTNER, INC. ON DATE 11/17/2020.

DESIGN DATA

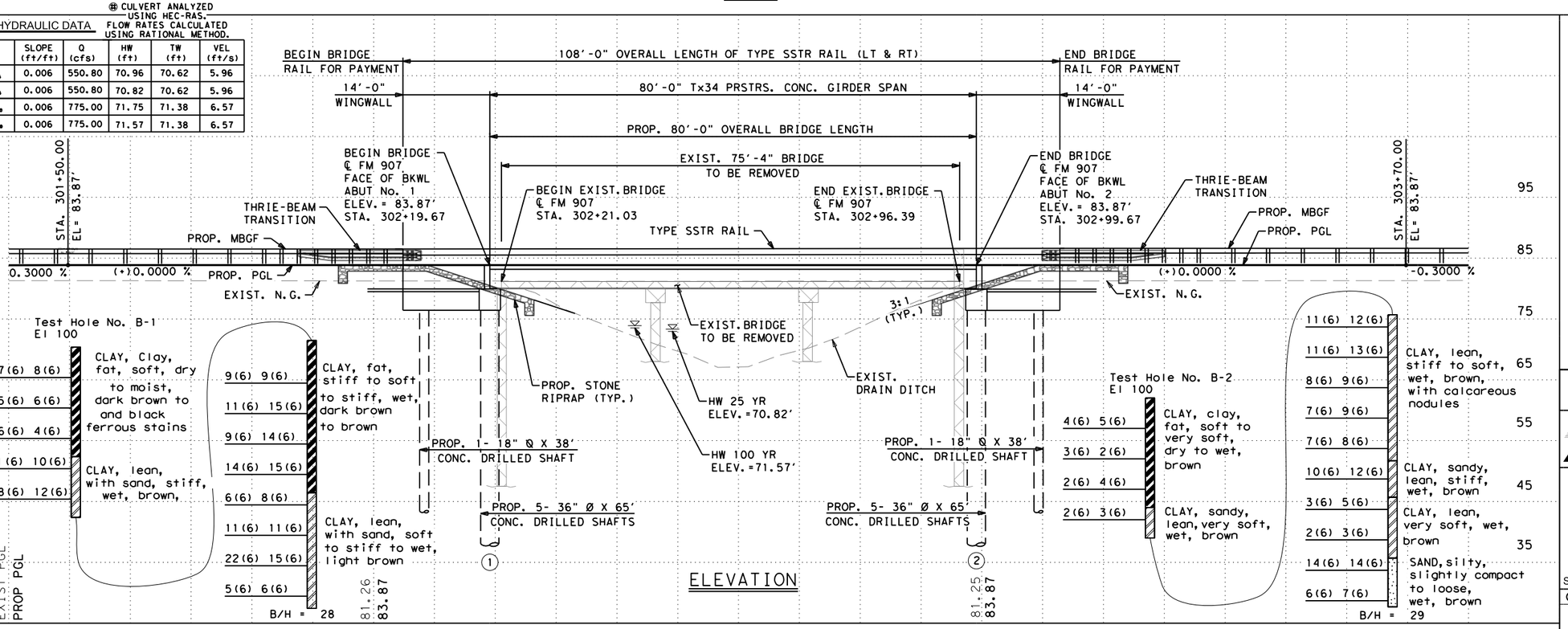
PROP. NBI: 21-109-0-1586-01-285
EXIST. NBI: 21-109-0-1586-01-006
FUNCTIONAL CLASS: MINOR ARTERIAL
ADT (2020): 3,094
ADT (2040): 4,332
DESIGN SPEED: 60 MPH
ROADWAY DESIGN MANUAL: CHAPTER 6, SECTION 1

HL93 LOADING

⊕ CULVERT ANALYZED USING HEC-RAS. FLOW RATES CALCULATED USING RATIONAL METHOD.

⊕ HYDRAULIC DATA

CHANNEL FLOW	SLOPE (ft/ft)	Q (cfs)	HW (ft)	TW (ft)	VEL (ft/s)
EXIST. Q_{25}	0.006	550.80	70.96	70.62	5.96
PROP. Q_{25}	0.006	550.80	70.82	70.62	5.96
EXIST. Q_{100}	0.006	775.00	71.75	71.38	6.57
PROP. Q_{100}	0.006	775.00	71.57	71.38	6.57



ELEVATION

STATE OF TEXAS
AGUSTIN RAMIREZ
96453
LICENSED PROFESSIONAL ENGINEER
Agustin Ramirez, P.E.
09/07/2021

Pharr District Central Design

Texas Department of Transportation

SOUTH LATERAL DRAIN BRIDGE REPLACEMENT

SCALE: 1"=20' SHEET 1 OF 1

© 2021	CONT	SECT	JOB	HIGHWAY
	1586	01	079	FM 907
	DIST	COUNTY		SHEET NO.
	PHR	HIDALGO		171

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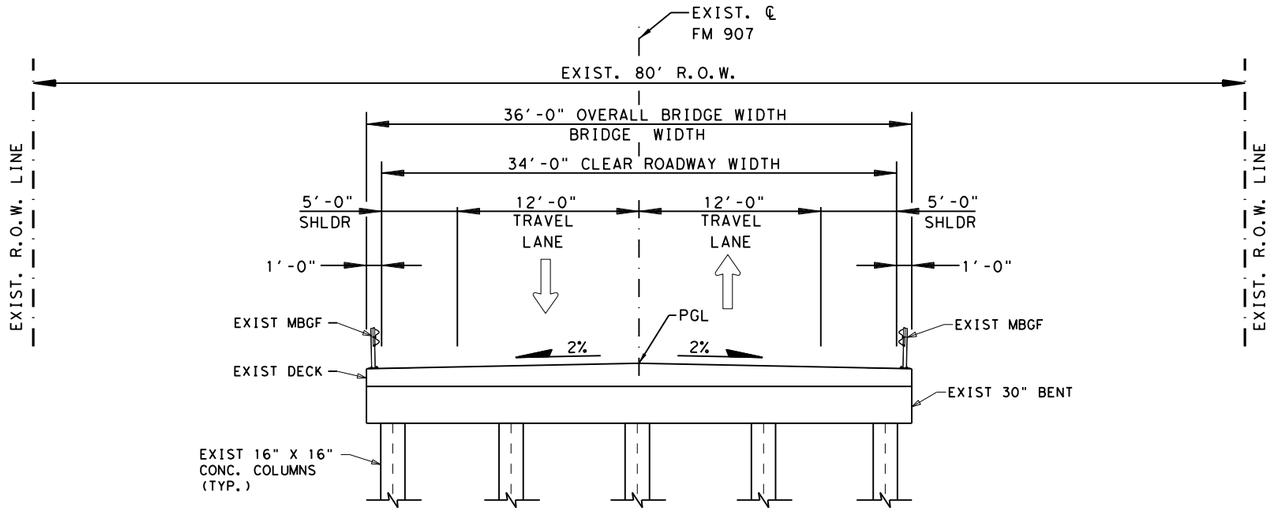
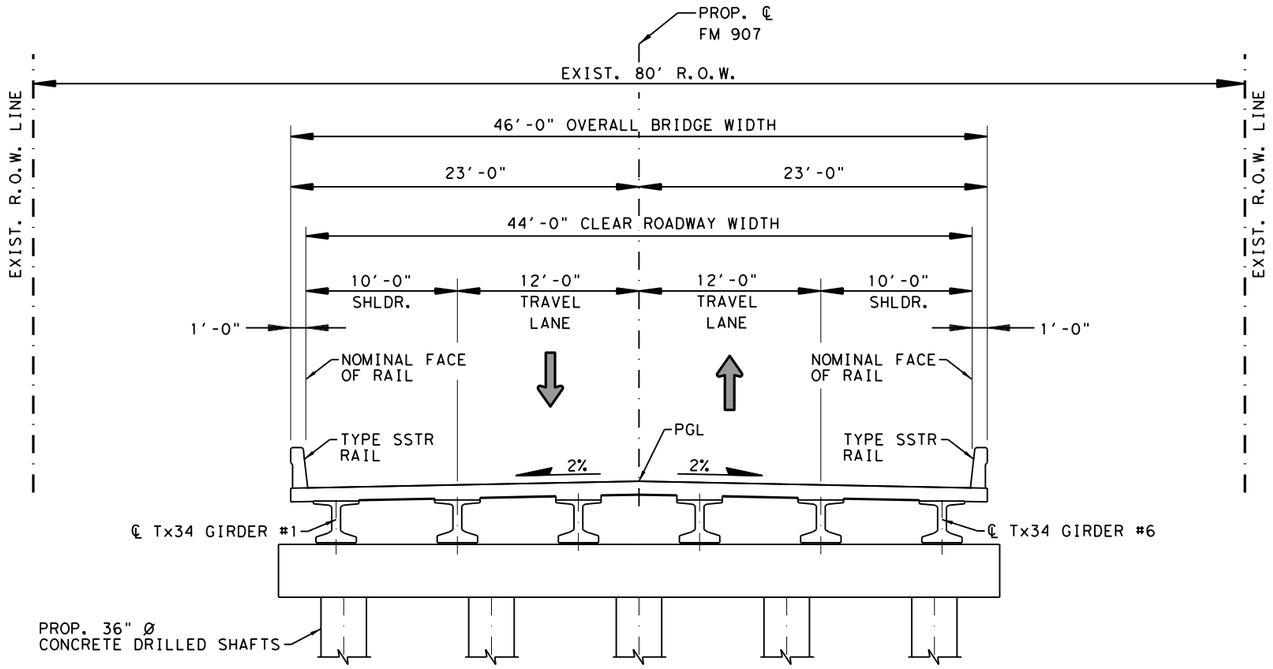


EXISTING BRIDGE TYPICAL SECTION

STA. 302+21.03 TO 302+96.39
N.T.S.



PROPOSED BRIDGE TYPICAL SECTION

BRIDGE STA. 302+19.67 TO STA. 302+99.67
N.T.S.

LEGEND

EXIST. TRAFFIC
PROP. TRAFFIC

EXIST. NBI: 21-109-0-1586-01-006
PROP. NBI: 21-109-0-1586-01-285

STATE OF TEXAS
AGUSTIN RAMIREZ
96453
LICENSED PROFESSIONAL ENGINEER

Agustin Ramirez, P.E.
09/07/2021

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Pharr District Central Design

Texas Department of Transportation

BRIDGE TYPICAL SECTIONS

CONT	SECT	JOB	HIGHWAY
1586	01	079	FM 907
DIST	COUNTY		SHEET NO.
PHR	HIDALGO		172

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SUMMARY OF ESTIMATED BRIDGE QUANTITIES

BID CODE	400-6005	416-6001	416-6004	420-6013	422-6001	425-6036	432-6031	450-6023	454-6020
DESCRIPTION	CEM STABIL BKFL	DRILL SHAFT (18 IN)	DRILL SHAFT (36 IN)	CL C CONC (ABUT)	REINF CONC SLAB	PRESTR CONC GIRDER (Tx34)	RIPRAP (STONE PROTECTION) (12 IN)	RAIL (TY SSTR)	SEALED EXPANSION JOINT (4 IN) (SEJ-B)
UNIT	Cubic Yard	Linear Feet	Linear Feet	Cubic Yard	Square Feet	Linear Feet	Cubic Yard	Linear Feet	Linear Feet
FM 907 BRIDGE REPLACEMENT	146.4	152.0	650.0	62.6	3,680.00	476.89	57.9	216.0	94.1
PROJECT TOTALS	**146.4**	**152.0**	**650.0**	**62.6**	**3,680.00**	**476.89**	**57.9**	**216.0**	**94.1**

BID CODE	496-6009	540-6001	540-6006	544-6001
DESCRIPTION	REMOV STR (BRIDGE 0-99 FT LENGTH)	MTL W-BEAM GD FEN (TIM POST)	MTL W-BEAM GD FEN TRANS (THRIE-BEAM)	GUARDRAIL END TREATMENT (INSTALL)
UNIT	Each	Linear Feet	Each	Each
FM 907 BRIDGE REPLACEMENT	1.0	500.0	4.0	4.0
PROJECT TOTALS	**1.0**	**500.0**	**4.0**	**4.0**

BEARING SEAT ELEVATIONS

	BEAM 1	BEAM 2	BEAM 3	BEAM 4	BEAM 5	BEAM 6
ABUT 1 (FWD)	79.282	79.442	79.602	79.602	79.442	79.282
ABUT 2 (BK)	79.282	79.442	79.602	79.602	79.442	79.282

STATE OF TEXAS
AGUSTIN RAMIREZ
96453
LICENSED
PROFESSIONAL ENGINEER

Agustin Ramirez, P.E.
09/07/2021

Pharr District Central Design

Texas Department of Transportation

SUMMARY OF ESTIMATED BRIDGE QUANTITIES/ BEARING SEAT ELEVATIONS

CONT	SECT	JOB	HIGHWAY
1586	01	079	FM 907
DIST	COUNTY		SHEET NO.
PHR	HIDALGO		173

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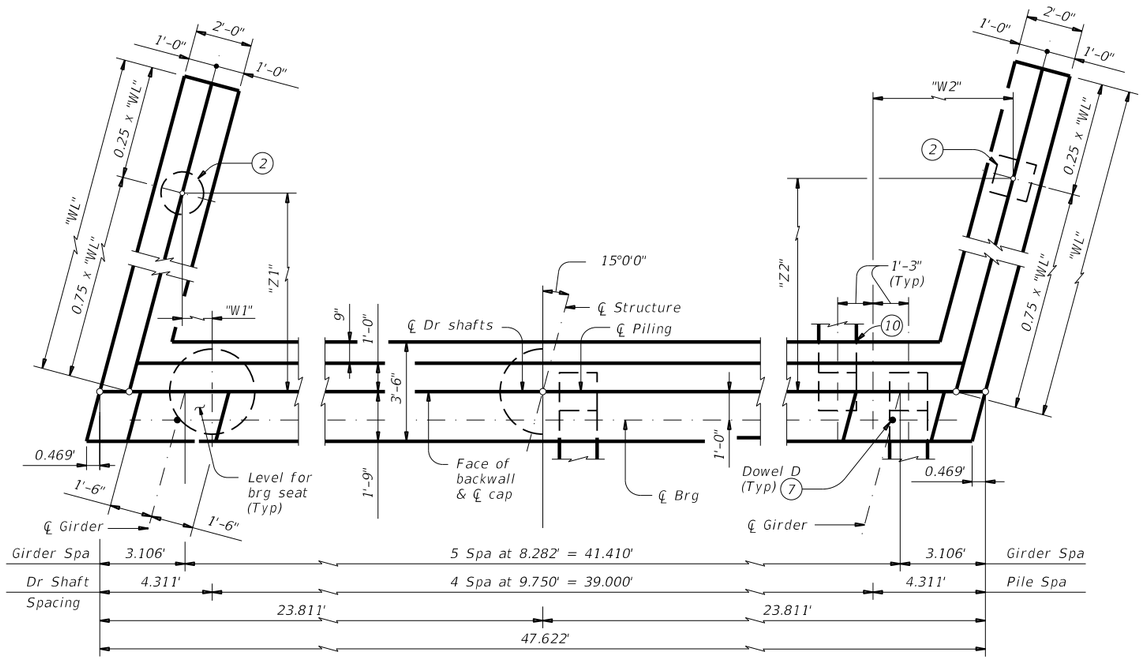
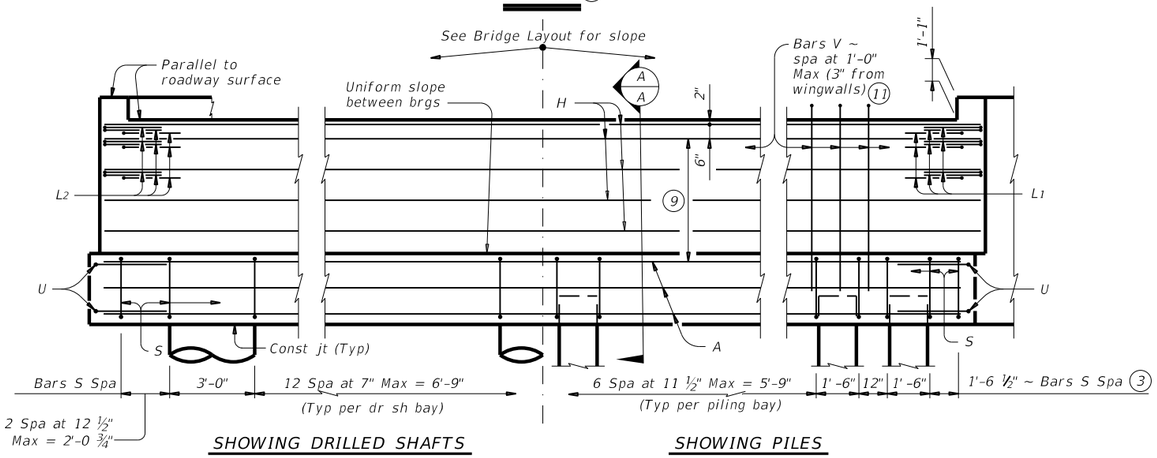


SHOWING DRILLED SHAFTS — SHOWING PILES

PLAN (1)

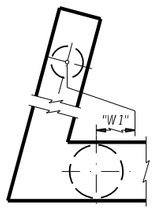


SHOWING DRILLED SHAFTS — SHOWING PILES

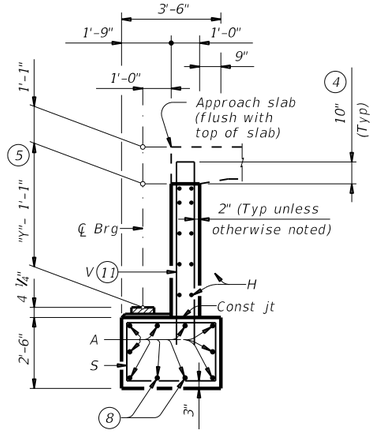
ELEVATION

TABLE A

Header Slope	Girder Type	Wingwall Type	Wingwall Lgth "WL"	"W1" (12)	"Z1"	"W2"	"Z2"
2:1	Tx28	Cantilevered	8.000'	Not Applicable			
	Tx34	Cantilevered	9.000'				
	Tx40	Cantilevered	10.000'				
	Tx46	Cantilevered	11.000'				
	Tx54	Founded	13.000'	0.753'	9.418'	5.800'	9.418'
3:1	Tx28	Cantilevered	12.000'	Not Applicable			
	Tx34	Founded	14.000'	0.558'	10.142'	5.994'	10.142'
	Tx40	Founded	15.000'	0.364'	10.867'	6.188'	10.867'
	Tx46	Founded	17.000'	-0.024'	12.316'	6.576'	12.316'
	Tx54	Founded	19.000'	-0.412'	13.764'	6.964'	13.764'

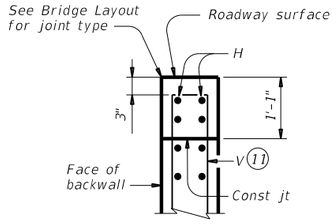


DETAIL A



SECTION A-A

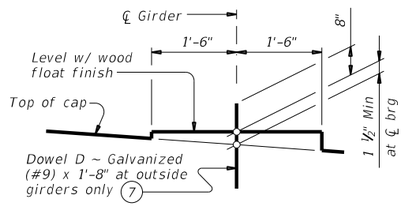
(With approach slab) (6)



BACKWALL DETAIL

(Without approach slab) (6)

1. See Table A for variable dimensions based on header slope and girder type.
2. See Table A to determine if wingwall foundations are required.
3. For piling larger than 16" adjust Bars S spacing as required to avoid piling.
4. Increase as required to maintain 3" from finished grade.
5. See Span details for "Y" value.
6. See Bridge Layout to determine if approach slab is present.
7. Omit Dowels D at end of multi-span unit. Adjust reinforcing steel total accordingly.
8. With pile foundations, move Bars A shown to clear piles.
9. Spacing based on girder type:
   Tx28 ~ 3 spaces at 1'-0" Max
   Tx34 ~ 3 spaces at 1'-0" Max
   Tx40 ~ 4 spaces at 1'-0" Max
   Tx46 ~ 4 spaces at 1'-0" Max
   Tx54 ~ 5 spaces at 1'-0" Max
10. See Detail A on FD standard.
11. Field bend as needed to clear piles.
12. Negative values for the "W1" dimension indicates a wingwall foundation on the other side of the cap foundation from what is shown in plan view. See Detail A.



BEARING SEAT DETAIL

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

TABLE OF FOUNDATION LOADS

Span Length	All Girder Types	
Ft	Tons/Shaft	Tons/Pile
40	55	51
45	59	53
50	63	55
55	67	57
60	70	59
65	74	61
70	77	63
75	81	65
80	84	66
85	88	68
90	91	70
95	94	72
100	98	73
105	101	75
110	105	77
115	108	79
120	111	80
125	115	82

GENERAL NOTES:

Designed according to AASHTO LRFD Bridge Design Specifications.

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

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

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

See applicable rail details for rail anchorage in wingwalls.

Details are drawn showing right forward skew. See Bridge Layout for actual skew direction.

These abutment details may be used with standard SIG-44-15 only.

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

MATERIAL NOTES:

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

HL93 LOADING — SHEET 1 OF 3

Texas Department of Transportation — Bridge Division Standard

ABUTMENTS
TYPE TX28 THRU TX54
PRESTR CONC I-GIRDERS
44' ROADWAY 15° SKEW

AIG-44-15

FILE: aig18sts-17.dgn	DN: TAR	CK: KCM	DW: JTR	CK: TAR
©TxDOT August 2017	CONT	SECT	JOB	HIGHWAY
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	DIST	COUNTY		SHEET NO.
	PHR	HIDALGO		174

DATE:
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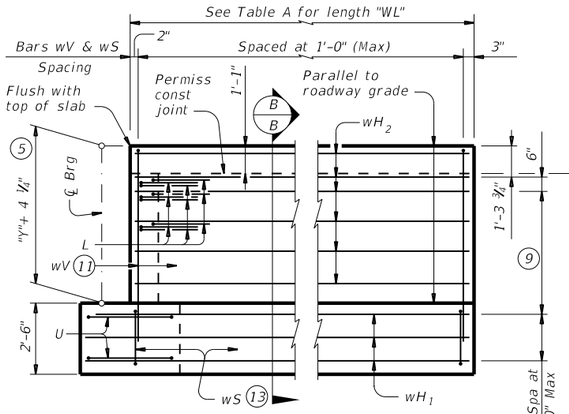
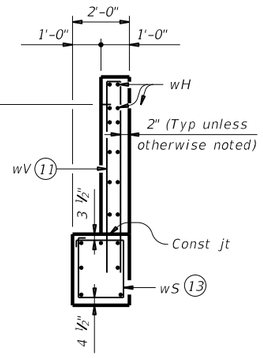
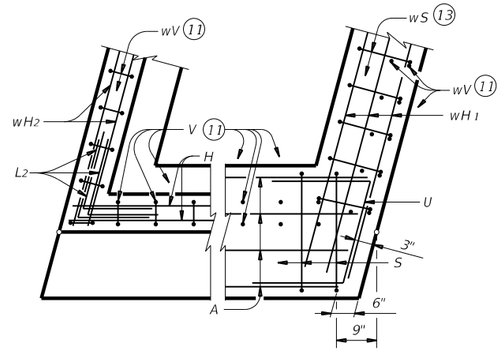


WINGWALL ELEVATION

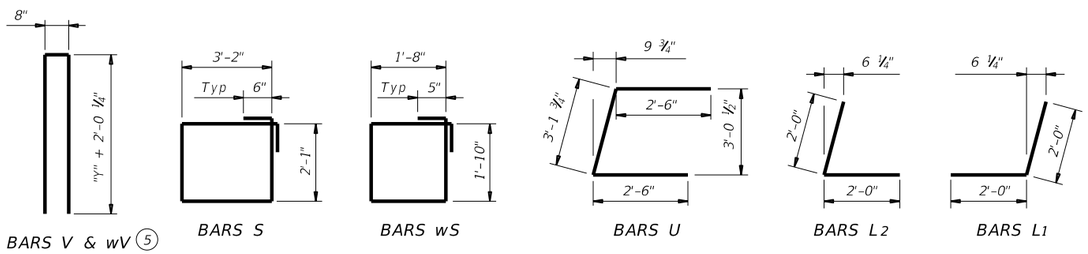


SECTION B-B



BACKWALL CAP

CORNER DETAILS



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

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

(11) Field bend as needed to clear piles.

(13) Adjust as required to avoid piling.

HL93 LOADING

Texas Department of Transportation

Bridge Division Standard

ABUTMENTS
TYPE TX28 THRU TX54
PRESTR CONC I-GIRDERS
44' ROADWAY 15° SKEW

AIG-44-15

FILE: aig18sts-17.dgn	DN: TAR	CK: KCM	DW: JTR	CK: TAR			
©TxDOT August 2017	CONT	SECT	JOB	HIGHWAY			
REVISIONS	1586	01	079	FM 907			
	DIST	COUNTY		SHEET NO.			
	PHR	HIDALGO		175			

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DATE:
FILE:

TABLES OF ESTIMATED QUANTITIES WITH 2:1 HEADER SLOPE (14)

TYPE Tx28 Girders

Bar	No.	Size	Length	Weight
A	10	#11	46'-7"	2,475
D (7)	2	#9	1'-8"	11
H	8	#6	47'-3"	568
L1	9	#6	4'-0"	54
L2	9	#6	4'-0"	54
S	58	#5	11'-6"	696
U	4	#6	8'-2"	49
V	47	#5	11'-4"	556
wH1	14	#6	9'-5"	198
wH2	20	#6	7'-8"	230
wS	18	#4	7'-10"	94
wV	18	#5	11'-4"	213

Reinforcing Steel	Lb	5,198
Class "C" Concrete	CY	24.3

TYPE Tx34 Girders

Bar	No.	Size	Length	Weight
A	10	#11	46'-7"	2,475
D (7)	2	#9	1'-8"	11
H	8	#6	47'-3"	568
L1	9	#6	4'-0"	54
L2	9	#6	4'-0"	54
S	58	#5	11'-6"	696
U	4	#6	8'-2"	49
V	47	#5	12'-4"	605
wH1	14	#6	10'-5"	219
wH2	20	#6	8'-8"	260
wS	20	#4	7'-10"	105
wV	20	#5	12'-4"	257

Reinforcing Steel	Lb	5,353
Class "C" Concrete	CY	26.1

TYPE Tx40 Girders

Bar	No.	Size	Length	Weight
A	10	#11	46'-7"	2,475
D (7)	2	#9	1'-8"	11
H	10	#6	47'-3"	710
L1	9	#6	4'-0"	54
L2	9	#6	4'-0"	54
S	58	#5	11'-6"	696
U	4	#6	8'-2"	49
V	47	#5	13'-4"	654
wH1	14	#6	11'-5"	240
wH2	24	#6	9'-8"	348
wS	22	#4	7'-10"	115
wV	22	#5	13'-4"	306

Reinforcing Steel	Lb	5,712
Class "C" Concrete	CY	28.0

TYPE Tx46 Girders

Bar	No.	Size	Length	Weight
A	10	#11	46'-7"	2,475
D (7)	2	#9	1'-8"	11
H	10	#6	47'-3"	710
L1	9	#6	4'-0"	54
L2	9	#6	4'-0"	54
S	58	#5	11'-6"	696
U	4	#6	8'-2"	49
V	47	#5	14'-4"	703
wH1	14	#6	12'-5"	261
wH2	24	#6	10'-8"	385
wS	24	#4	7'-10"	126
wV	24	#5	14'-4"	359

Reinforcing Steel	Lb	5,883
Class "C" Concrete	CY	30.0

TYPE Tx54 Girders

Bar	No.	Size	Length	Weight
A	10	#11	46'-7"	2,475
D (7)	2	#9	1'-8"	11
H	12	#6	47'-3"	852
L1	9	#6	4'-0"	54
L2	9	#6	4'-0"	54
S	58	#5	11'-6"	696
U	4	#6	8'-2"	49
V	47	#5	15'-8"	768
wH1	14	#6	14'-5"	303
wH2	28	#6	12'-8"	533
wS	28	#4	7'-10"	147
wV	28	#5	15'-8"	458

Reinforcing Steel	Lb	6,400
Class "C" Concrete	CY	33.3

TABLES OF ESTIMATED QUANTITIES WITH 3:1 HEADER SLOPE (14)

TYPE Tx28 Girders

Bar	No.	Size	Length	Weight
A	10	#11	46'-7"	2,475
D (7)	2	#9	1'-8"	11
H	8	#6	47'-3"	568
L1	9	#6	4'-0"	54
L2	9	#6	4'-0"	54
S	58	#5	11'-6"	696
U	4	#6	8'-2"	49
V	47	#5	11'-4"	556
wH1	14	#6	13'-5"	282
wH2	20	#6	11'-8"	350
wS	26	#4	7'-10"	136
wV	26	#5	11'-4"	307

Reinforcing Steel	Lb	5,538
Class "C" Concrete	CY	26.9

TYPE Tx34 Girders

Bar	No.	Size	Length	Weight
A	10	#11	46'-7"	2,475
D (7)	2	#9	1'-8"	11
H	8	#6	47'-3"	568
L1	9	#6	4'-0"	54
L2	9	#6	4'-0"	54
S	58	#5	11'-6"	696
U	4	#6	8'-2"	49
V	47	#5	12'-4"	605
wH1	14	#6	15'-5"	324
wH2	20	#6	13'-8"	411
wS	30	#4	7'-10"	157
wV	30	#5	12'-4"	386

Reinforcing Steel	Lb	5,790
Class "C" Concrete	CY	29.5

TYPE Tx40 Girders

Bar	No.	Size	Length	Weight
A	10	#11	46'-7"	2,475
D (7)	2	#9	1'-8"	11
H	10	#6	47'-3"	710
L1	9	#6	4'-0"	54
L2	9	#6	4'-0"	54
S	58	#5	11'-6"	696
U	4	#6	8'-2"	49
V	47	#5	13'-4"	654
wH1	14	#6	16'-5"	345
wH2	24	#6	14'-8"	529
wS	32	#4	7'-10"	167
wV	32	#5	13'-4"	445

Reinforcing Steel	Lb	6,189
Class "C" Concrete	CY	31.6

TYPE Tx46 Girders

Bar	No.	Size	Length	Weight
A	10	#11	46'-7"	2,475
D (7)	2	#9	1'-8"	11
H	10	#6	47'-3"	710
L1	9	#6	4'-0"	54
L2	9	#6	4'-0"	54
S	58	#5	11'-6"	696
U	4	#6	8'-2"	49
V	47	#5	14'-4"	703
wH1	14	#6	18'-5"	387
wH2	24	#6	16'-8"	601
wS	36	#4	7'-10"	188
wV	36	#5	14'-4"	538

Reinforcing Steel	Lb	6,466
Class "C" Concrete	CY	34.5

TYPE Tx54 Girders

Bar	No.	Size	Length	Weight
A	10	#11	46'-7"	2,475
D (7)	2	#9	1'-8"	11
H	12	#6	47'-3"	852
L1	9	#6	4'-0"	54
L2	9	#6	4'-0"	54
S	58	#5	11'-6"	696
U	4	#6	8'-2"	49
V	47	#5	15'-8"	768
wH1	14	#6	20'-5"	429
wH2	28	#6	18'-8"	785
wS	40	#4	7'-10"	209
wV	40	#5	15'-8"	654

Reinforcing Steel	Lb	7,036
Class "C" Concrete	CY	38.1

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

(14) Quantities shown are for one abutment only (with approach slab). With no approach slab, add 1.8 CY Class "C" concrete and 284 lbs reinforcing steel for 4 additional Bars H.

HL93 LOADING

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Bridge Division Standard

ABUTMENTS

TYPE TX28 THRU TX54

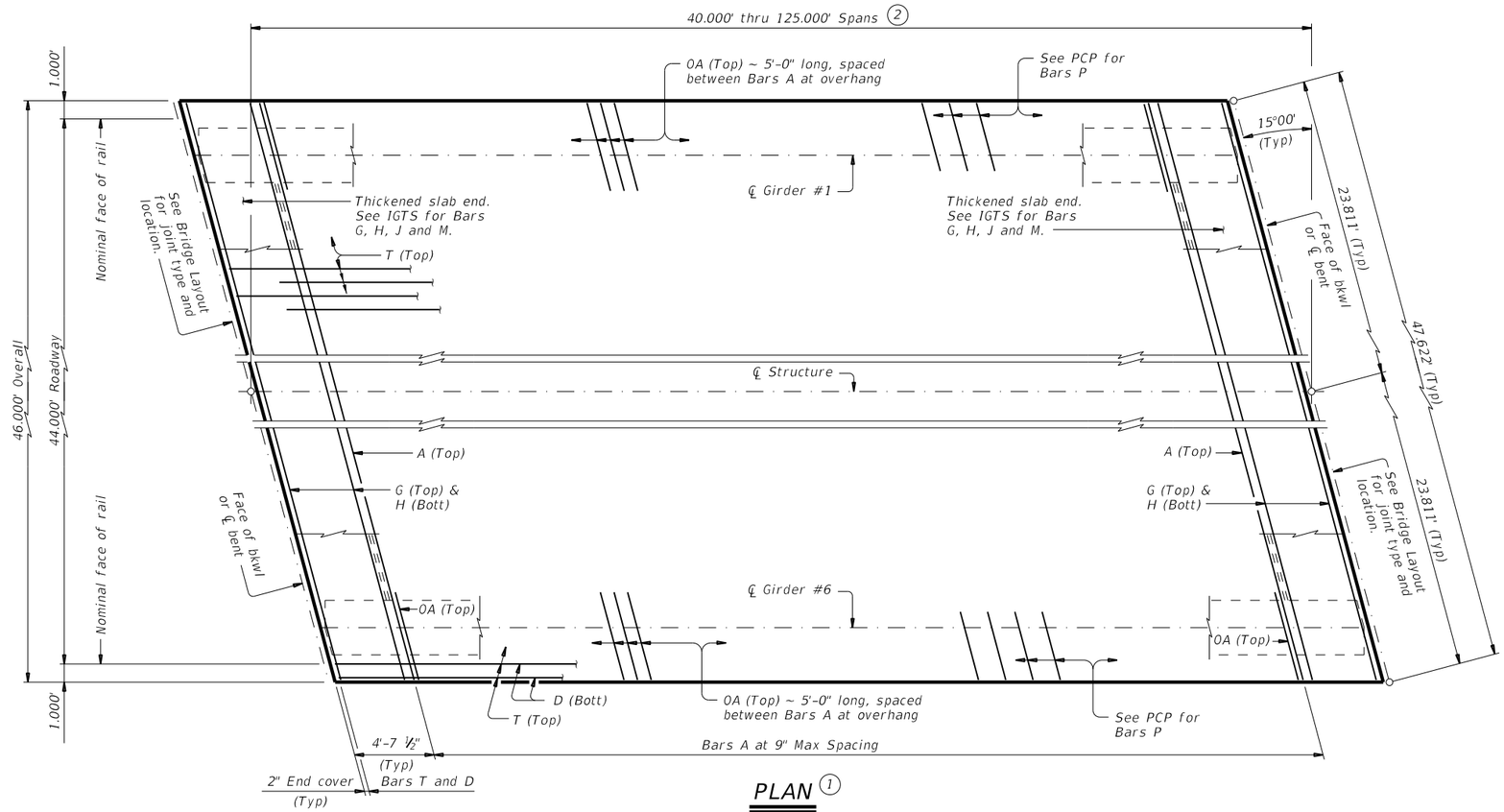
PRESTR CONC I-GIRDERS

44' ROADWAY 15° SKEW

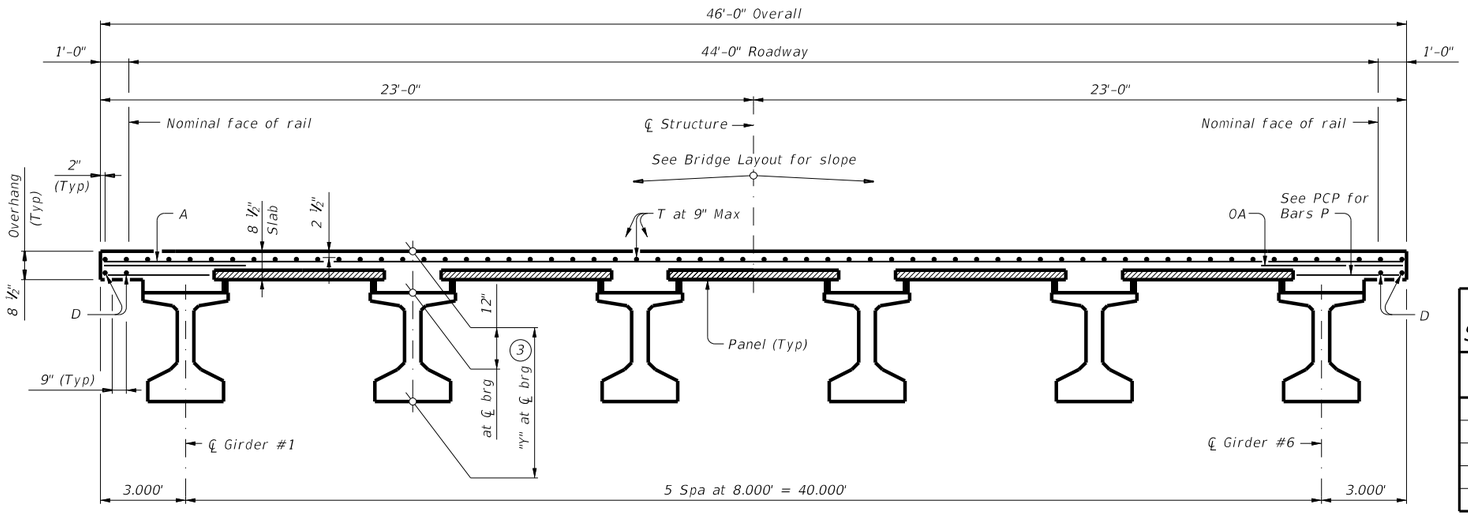
AIG-44-15

FILE: aig18sts-17.dgn	DN: TAR	CK: KCM	DW: JTR	CK: TAR		
©TxDOT August 2017	CONT	SECT	JOB	HIGHWAY		
REVISIONS	1586	01	079	FM 907		
	DIST	COUNTY		SHEET NO.		
	PHR	HIDALGO		175A		

DATE:
FILE:



PLAN (1)



TYPICAL TRANSVERSE SECTION

(Showing girder type Tx46)

BAR TABLE

BAR	SIZE
A	#4
D	#4
G	#4
H	#4
J	#4
M	#4
0A	#5
P	#4
T	#4

TABLE OF SECTION DEPTHS

GIRDER TYPE	"Y" AT ℄ BRG (3)
	Ft/In
Tx28	3'-4"
Tx34	3'-10"
Tx40	4'-4"
Tx46	4'-10"
Tx54	5'-6"

(1) If multi-span units (with slab continuous over interior bents) are indicated on the Bridge Layout, see standard IGCS for adjustment to slab reinforcement and quantities.

(2) Span lengths for prestressed concrete I-Girder type:
Type Tx28 for spans lengths 40.000' thru 70.000'.
Type Tx34 for spans lengths 40.000' thru 85.000'.
Type Tx40 for spans lengths 40.000' thru 95.000'.
Type Tx46 for spans lengths 40.000' thru 110.000'.
Type Tx54 for spans lengths 40.000' thru 125.000'.

(3) "Y" value shown is based on theoretical girder camber, dead load deflection from an 8 ½" concrete slab, a constant roadway grade, and using precast panels (PCP). The Contractor will adjust this value as necessary for any roadway vertical curve and/or if the precast overhang panel (PCP(0)) option is used.

HL93 LOADING SHEET 1 OF 2

Texas Department of Transportation

Bridge Division Standard

PRESTRESSED CONCRETE I-GIRDER SPANS (TYPE Tx28 THRU Tx54)

44' ROADWAY 15° SKEW

SIG-44-15

FILE: sig18sts-19.dgn	DN: JMH	CK: NRN	DW: JTR	CK: TAR
©TxDOT August 2017	CONT	SECT	JOB	HIGHWAY
REVISIONS 10-19: Increased "X" and "Y" Values	1586	01	079	FM 907
	DIST	COUNTY		SHEET NO.
	PHR	HIDALGO		176

DATE:
FILE:

TABLE OF DEAD LOAD DEFLECTIONS

TYPE Tx28 GIRDERS

SPAN LENGTH	"A"	"B"
Ft	Ft	Ft
40	0.009	0.013
45	0.015	0.021
50	0.023	0.032
55	0.034	0.048
60	0.048	0.068
65	0.068	0.095
70	0.092	0.129

TYPE Tx34 GIRDERS

SPAN LENGTH	"A"	"B"
Ft	Ft	Ft
40	0.006	0.008
45	0.009	0.012
50	0.014	0.019
55	0.020	0.028
60	0.029	0.041
65	0.041	0.057
70	0.055	0.077
75	0.073	0.102
80	0.095	0.134
85	0.122	0.171

TYPE Tx40 GIRDERS

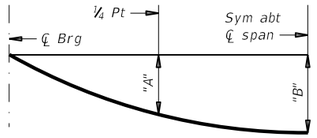
SPAN LENGTH	"A"	"B"
Ft	Ft	Ft
40	0.004	0.005
45	0.006	0.008
50	0.009	0.013
55	0.014	0.019
60	0.019	0.027
65	0.026	0.037
70	0.036	0.050
75	0.048	0.067
80	0.062	0.087
85	0.080	0.112
90	0.101	0.142
95	0.126	0.177

TYPE Tx46 GIRDERS

SPAN LENGTH	"A"	"B"
Ft	Ft	Ft
40	0.002	0.003
45	0.004	0.006
50	0.006	0.009
55	0.009	0.013
60	0.013	0.018
65	0.018	0.025
70	0.024	0.034
75	0.033	0.046
80	0.043	0.060
85	0.054	0.076
90	0.068	0.096
95	0.085	0.120
100	0.105	0.148
105	0.129	0.181
110	0.156	0.219

TYPE Tx54 GIRDERS

SPAN LENGTH	"A"	"B"
Ft	Ft	Ft
40	0.001	0.002
45	0.003	0.004
50	0.004	0.006
55	0.006	0.008
60	0.009	0.012
65	0.012	0.017
70	0.016	0.023
75	0.021	0.030
80	0.028	0.039
85	0.036	0.050
90	0.046	0.064
95	0.057	0.080
100	0.070	0.098
105	0.085	0.120
110	0.103	0.145
115	0.123	0.173
120	0.147	0.206
125	0.173	0.243



DEAD LOAD DEFLECTION DIAGRAM

Calculated deflections shown are due to the concrete slab on interior girders only (Ec = 5000 ksi). Adjust values as required for exterior girders and if optional slab forming is used. These values may require field verification.

TABLE OF ESTIMATED QUANTITIES

SPAN LENGTH	REINF CONCRETE SLAB	Prestressed Concrete Girders			TOTAL REINF STEEL (5)
		ABUT TO INT BT (4)	INT BT TO INT BT (4)	ABUT TO ABUT (4)	
Ft	SF	LF	LF	LF	Lb
40	1,840	236.95	237.00	236.89	4,232
45	2,070	266.95	267.00	266.89	4,761
50	2,300	296.95	297.00	296.89	5,290
55	2,530	326.95	327.00	326.89	5,819
60	2,760	356.95	357.00	356.89	6,348
65	2,990	386.95	387.00	386.89	6,877
70	3,220	416.95	417.00	416.89	7,406
75	3,450	446.95	447.00	446.89	7,935
80	3,680	476.95	477.00	476.89	8,464
85	3,910	506.95	507.00	506.89	8,993
90	4,140	536.95	537.00	536.89	9,522
95	4,370	566.95	567.00	566.89	10,051
100	4,600	596.95	597.00	596.89	10,580
105	4,830	626.95	627.00	626.89	11,109
110	5,060	656.95	657.00	656.89	11,638
115	5,290	686.95	687.00	686.89	12,167
120	5,520	716.95	717.00	716.89	12,696
125	5,750	746.95	747.00	746.89	13,225

(4) Fabricator will adjust lengths for girder slopes as required.

(5) Reinforcing steel weight is calculated using an approximate factor of 2.3 lbs/SF.

GENERAL NOTES:

Designed according to AASHTO LRFD Bridge Design Specifications.

Multi-span units, with slab continuous over interior bents, may be formed with the details shown on this sheet and standard IGCS.

See IGTS standard for Thickened Slab End details and quantity adjustments.

See PCP and PCP-FAB for panel details not shown.

See PCP(O) and PCP(O)-FAB for precast overhang panel details if this option is used.

See IGMS standard for miscellaneous details.

See applicable rail details for rail anchorage in slab.

See PMDF standard for details and quantity adjustments if this option is used.

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

This standard does not support the use of transition bents.

Cover dimensions are clear dimensions, unless noted otherwise.

MATERIAL NOTES:

Provide Class S concrete (f'c = 4,000 psi).

Provide Class S (HPC) concrete if shown elsewhere in the plans.

Provide Grade 60 reinforcing steel.

Provide bar laps, where required, as follows:

Uncoated ~ #4 = 1'-7"

Epoxy coated ~ #4 = 2'-5"

Deformed Welded Wire Reinforcement (WWR) (ASTM A1064) of equal size and spacing may be substituted for Bars A, D, OA, P or T unless noted otherwise.

HL93 LOADING

Texas Department of Transportation

Bridge Division Standard

PRESTRESSED CONCRETE I-GIRDER SPANS (TYPE Tx28 THRU Tx54)

44' ROADWAY 15° SKEW

SIG-44-15

FILE: sig18sts-19.dgn	DN: JMH	CK: NRN	DW: JTR	CK: TAR
©TxDOT August 2017	CONT	SECT	JOB	HIGHWAY
REVISIONS 10-19: Increased "X" and "Y" Values	1586	01	079	FM 907
	DIST	COUNTY		SHEET NO.
	PHR	HIDALGO		177

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DATE:
FILE:

STRUCTURE	SPAN NO.	GIRDER NO.	GIRDER TYPE	PRESTRESSING STRANDS: NON-STD STRAND PATTERN	TOTAL NO.	SIZE (in)	STRGTH fpu (ksi)	"e" ℄ (in)	"e" END (in)	DEPRESSED STRAND PATTERN: NO.	TO END (in)	CONCRETE: RELEASE STRGTH (1) f'ci (ksi)	MINIMUM 28 DAY COMP STRGTH f'c (ksi)	OPTIONAL DESIGN: DESIGN LOAD COMP STRESS (TOP ℄) (SERVICE I) fct(ksi)	DESIGN LOAD TENSILE STRESS (BOTT ℄) (SERVICE III) fcb(ksi)	REQUIRED MINIMUM ULTIMATE MOMENT CAPACITY (STRENGTH I) (kip-ft)	LIVE LOAD DISTRIBUTION FACTOR (2): Moment	Shear	LOAD RATING: STRENGTH I: Inv	Opr	SERVICE III: Inv
Type Tx28 Girders 44' Roadway 8.5" Slab	40	ALL	Tx28		12	0.6	270	10.48	10.48			4.700	5.000	1.118	-1.542	1586	0.760	0.960	1.71	2.22	2.09
	45	ALL	Tx28		12	0.6	270	10.48	10.48			4.500	5.500	1.403	-1.879	1555	0.740	0.970	1.39	1.80	1.53
	50	ALL	Tx28		14	0.6	270	10.48	9.62	2	8.5	4.000	5.200	1.733	-2.266	1813	0.710	0.970	1.37	1.78	1.34
	55	ALL	Tx28		16	0.6	270	10.23	9.23	4	8.5	4.000	5.600	2.083	-2.688	2121	0.700	0.980	1.31	1.69	1.13
	60	ALL	Tx28		20	0.6	270	9.88	6.28	4	22.5	4.000	6.300	2.478	-3.135	2424	0.680	0.980	1.60	2.07	1.30
	65	ALL	Tx28		24	0.6	270	9.65	6.31	4	24.5	4.700	6.500	2.879	-3.586	2725	0.660	0.980	1.45	1.94	1.12
	70	ALL	Tx28		28	0.6	270	9.48	6.62	4	24.5	5.600	7.000	3.340	-4.101	3068	0.650	0.990	1.28	1.82	1.11
Type Tx34 Girders 44' Roadway 8.5" Slab	40	ALL	Tx34		12	0.6	270	13.01	13.01			4.000	5.000	0.881	-1.184	1785	0.790	0.940	2.01	2.60	2.70
	45	ALL	Tx34		12	0.6	270	13.01	13.01			4.000	5.000	1.110	-1.440	1920	0.760	0.950	1.66	2.15	2.10
	50	ALL	Tx34		14	0.6	270	13.01	13.01			5.100	6.100	1.359	-1.735	2194	0.740	0.950	1.63	2.12	1.87
	55	ALL	Tx34		14	0.6	270	13.01	13.01			4.900	5.900	1.642	-2.056	2186	0.720	0.960	1.34	1.74	1.40
	60	ALL	Tx34		16	0.6	270	12.76	11.76	4	8.5	4.000	5.000	1.934	-2.383	2493	0.700	0.960	1.33	1.73	1.24
	65	ALL	Tx34		18	0.6	270	12.57	11.23	4	10.5	4.000	5.200	2.267	-2.754	2839	0.690	0.960	1.21	1.68	1.07
	70	ALL	Tx34		22	0.6	270	12.28	7.92	4	28.5	4.000	5.700	2.604	-3.128	3186	0.680	0.970	1.44	1.86	1.09
	75	ALL	Tx34		26	0.6	270	12.09	8.40	4	28.5	4.800	6.000	2.980	-3.521	3523	0.660	0.970	1.55	2.01	1.14
	80	ALL	Tx34		30	0.6	270	11.81	7.41	6	28.5	5.200	6.200	3.356	-3.927	3886	0.650	0.970	1.37	2.01	1.10
	85	ALL	Tx34		34	0.6	270	11.48	7.60	6	28.5	5.900	6.600	3.782	-4.375	4273	0.640	0.980	1.37	1.75	1.06
Type Tx40 Girders 44' Roadway 8.5" Slab	40	ALL	Tx40		10	0.6	270	15.60	15.60			4.000	5.000	0.727	-0.959	1847	0.820	0.930	1.84	2.39	2.77
	45	ALL	Tx40		12	0.6	270	15.60	15.60			4.000	5.000	0.913	-1.165	2181	0.790	0.930	1.90	2.47	2.61
	50	ALL	Tx40		14	0.6	270	15.60	15.60			4.500	5.500	1.125	-1.410	2588	0.770	0.940	1.87	2.42	2.34
	55	ALL	Tx40		14	0.6	270	15.60	15.60			4.300	5.300	1.347	-1.662	2519	0.750	0.940	1.55	2.01	1.84
	60	ALL	Tx40		16	0.6	270	15.35	14.35	4	8.5	4.000	5.000	1.598	-1.935	2633	0.730	0.950	1.54	2.00	1.66
	65	ALL	Tx40		16	0.6	270	15.35	14.35	4	8.5	4.000	5.000	1.868	-2.224	2927	0.710	0.950	1.31	1.70	1.29
	70	ALL	Tx40		18	0.6	270	15.16	14.27	4	8.5	4.000	5.000	2.144	-2.525	3287	0.700	0.950	1.30	1.69	1.16
	75	ALL	Tx40		20	0.6	270	15.00	13.40	4	12.5	4.000	5.000	2.451	-2.841	3637	0.680	0.950	1.31	1.76	1.03
	80	ALL	Tx40		24	0.6	270	14.77	9.43	4	36.5	4.000	5.400	2.758	-3.168	4013	0.670	0.960	1.31	1.89	1.09
	85	ALL	Tx40		28	0.6	270	14.60	10.03	4	36.5	4.800	5.600	3.106	-3.529	4415	0.660	0.960	1.42	2.03	1.12
	90	ALL	Tx40		32	0.6	270	14.23	8.60	6	36.5	5.100	5.700	3.445	-3.881	4809	0.650	0.960	1.51	2.11	1.11
	95	ALL	Tx40		34	0.6	270	14.07	10.19	6	28.5	5.800	6.800	3.829	-4.272	5232	0.640	0.970	1.40	1.85	1.02
Type Tx46 Girders 44' Roadway 8.5" Slab	40	ALL	Tx46		10	0.6	270	17.60	17.60			4.000	5.000	0.638	-0.765	1924	0.850	0.920	2.04	2.65	3.31
	45	ALL	Tx46		12	0.6	270	17.60	17.60			4.000	5.000	0.800	-0.930	2275	0.820	0.920	2.11	2.74	3.13
	50	ALL	Tx46		12	0.6	270	17.60	17.60			4.000	5.000	0.983	-1.120	2688	0.790	0.920	1.73	2.25	2.47
	55	ALL	Tx46		14	0.6	270	17.60	17.60			4.000	5.000	1.184	-1.328	3015	0.770	0.930	1.75	2.27	2.28
	60	ALL	Tx46		14	0.6	270	17.60	17.60			4.000	5.000	1.406	-1.555	2964	0.760	0.930	1.45	1.88	1.78
	65	ALL	Tx46		16	0.6	270	17.35	16.35	4	8.5	4.000	5.000	1.629	-1.779	3161	0.740	0.930	1.47	1.91	1.66
	70	ALL	Tx46		16	0.6	270	17.35	16.85	4	6.5	4.000	5.000	1.880	-2.022	3426	0.720	0.940	1.26	1.63	1.30
	75	ALL	Tx46		18	0.6	270	17.16	15.83	4	10.5	4.000	5.000	2.151	-2.287	3827	0.710	0.940	1.27	1.64	1.18
	80	ALL	Tx46		20	0.6	270	17.00	15.40	4	12.5	4.000	5.000	2.422	-2.552	4226	0.700	0.940	1.26	1.65	1.07
	85	ALL	Tx46		24	0.6	270	16.77	14.10	4	20.5	4.000	5.000	2.725	-2.843	4652	0.690	0.940	1.43	1.86	1.11
	90	ALL	Tx46		28	0.6	270	16.60	11.46	4	40.5	4.200	5.100	3.022	-3.129	5071	0.680	0.950	1.55	2.03	1.15
	95	ALL	Tx46		32	0.6	270	16.23	9.48	6	42.5	4.400	5.300	3.358	-3.445	5521	0.670	0.950	1.62	2.15	1.13
	100	ALL	Tx46		34	0.6	270	16.07	10.43	6	38.5	4.900	5.600	3.710	-3.774	5983	0.660	0.950	1.43	2.07	1.03
	105	ALL	Tx46		38	0.6	270	15.81	10.76	6	38.5	5.500	6.300	4.063	-4.103	6444	0.650	0.950	1.52	2.14	1.05
	110	ALL	Tx46		42	0.6	270	15.60	10.75	6	40.5	6.000	6.900	4.429	-4.443	6915	0.640	0.950	1.58	1.83	1.06

NON-STANDARD STRAND PATTERNS

PATTERN	STRAND ARRANGEMENT AT ℄ OF GIRDER

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

Compression = 0.65 f'ci

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

Optional designs must likewise conform.

(2) Portion of full HL93.

DESIGN NOTES:

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

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

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

FABRICATION NOTES:

Provide Class H concrete.

Provide Grade 60 reinforcing steel bars.

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

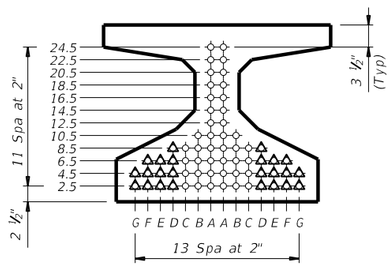
Strand debonding must comply with Item 424.4.2.2.2.4. Full-length debonded strands are only permitted in positions marked Δ. Double wrap full-length debonded strands in outer most position of each row.

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

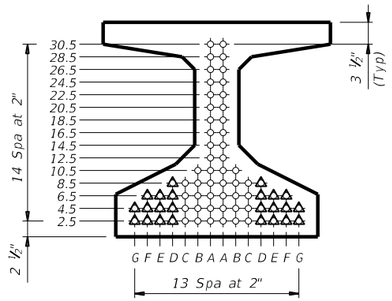
Seal cracks in girder ends exceeding 0.005" in width as directed by the Engineer. The fabricator is permitted to decrease the spacing of Bars R and S by providing additional bars to help limit crack width provided the decreased spacing results in no less than 1" clear between bars. The fabricator must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

DEPRESSED STRAND DESIGNS:

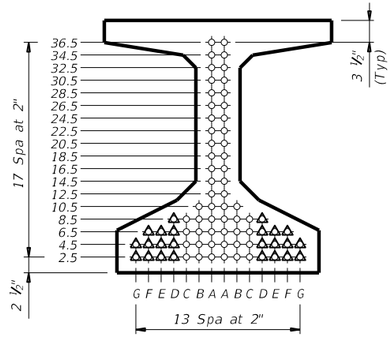
Locate strands for the designed girder as low as possible on the 2" grid system unless a non-standard strand pattern is indicated. Fill row "2.5", then row "4.5", then row "6.5", etc., beginning each row in the "A" position and working outward until the required number of strands is reached. All strands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



TYPE Tx28



TYPE Tx34



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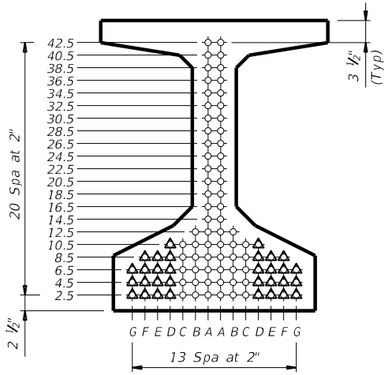

TYPE Tx46

HL93 LOADING

SHEET 1 OF 2

Texas Department of Transportation

Bridge Division Standard

PRESTRESSED CONCRETE I-GIRDER STANDARD DESIGNS

44' ROADWAY

IGSD-44

FILE: ig05stds-21.dgn	DN: EFC	CK: AJF	DW: EFC	CK: TAR
©TxDOT August 2017	CONT	SECT	JOB	HIGHWAY
REVISIONS: 10-19: Redesigned girders. 1-21: Added load rating.	1586	01	079	FM 907
	DIST	COUNTY		SHEET NO.
	PHR	HIDALGO		178

DISCLAIMER:
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DATE:
FILE:

STRUCTURE	DESIGNED GIRDERS								DEPRESSED STRAND PATTERN		CONCRETE		OPTIONAL DESIGN					LOAD RATING		
	SPAN NO.	GIRDER NO.	GIRDER TYPE	PRESTRESSING STRANDS					NO.	TO END	RELEASE STRGTH (1)	MINIMUM 28 DAY COMP STRGTH	DESIGN LOAD COMP STRESS (TOP ℄) (SERVICE I)	DESIGN LOAD TENSILE STRESS (BOTT ℄) (SERVICE III)	REQUIRED MINIMUM ULTIMATE MOMENT CAPACITY (STRENGTH I)	LIVE LOAD DISTRIBUTION FACTOR (2)		STRENGTH I		SERVICE III
				NON-STD STRAND PATTERN	TOTAL NO.	SIZE (in)	STRGTH fpu (ksi)	"e" ℄ (in)	"e" END (in)			f'ci (ksi)	f'c (ksi)	fct(ksi)	fcb(ksi)	(kip-ft)	Moment	Shear	Inv	Opr	Inv
Type Tx54 Girders 44' Roadway 8.5" Slab	40	ALL	Tx54		10	0.6	270	21.01	21.01			4.000	5.000	0.530	-0.623	1989	0.880	0.910	2.33	3.03	3.97
	45	ALL	Tx54		12	0.6	270	21.01	21.01			4.000	5.000	0.662	-0.758	2354	0.850	0.910	2.42	3.13	3.78
	50	ALL	Tx54		12	0.6	270	21.01	21.01			4.000	5.000	0.812	-0.912	2784	0.820	0.910	2.00	2.59	3.04
	55	ALL	Tx54		14	0.6	270	21.01	21.01			4.000	5.000	0.978	-1.081	3245	0.800	0.920	2.02	2.61	2.83
	60	ALL	Tx54		14	0.6	270	21.01	21.01			4.000	5.000	1.157	-1.259	3617	0.780	0.920	1.71	2.21	2.31
	65	ALL	Tx54		16	0.6	270	20.76	20.26	4	6.5	4.000	5.000	1.350	-1.447	3859	0.760	0.920	1.73	2.25	2.17
	70	ALL	Tx54		16	0.6	270	20.76	20.26	4	6.5	4.000	5.000	1.548	-1.644	3811	0.750	0.920	1.48	1.92	1.76
	75	ALL	Tx54		18	0.6	270	20.56	19.67	4	8.5	4.000	5.000	1.766	-1.851	4040	0.730	0.930	1.51	1.96	1.66
	80	ALL	Tx54		18	0.6	270	20.56	19.67	4	8.5	4.000	5.000	2.002	-2.076	4367	0.720	0.930	1.30	1.69	1.31
	85	ALL	Tx54		20	0.6	270	20.41	18.81	4	12.5	4.000	5.000	2.251	-2.312	4809	0.710	0.930	1.12	1.45	1.01
	90	ALL	Tx54		22	0.6	270	20.28	18.46	4	14.5	4.000	5.000	2.496	-2.545	5246	0.700	0.930	1.33	1.73	1.13
	95	ALL	Tx54		24	0.6	270	20.17	17.84	4	18.5	4.000	5.000	2.771	-2.802	5712	0.690	0.930	1.33	1.73	1.02
	100	ALL	Tx54		28	0.6	270	20.01	14.29	4	44.5	4.000	5.000	3.060	-3.069	6192	0.680	0.940	1.48	1.93	1.05
	105	ALL	Tx54		32	0.6	270	19.63	11.38	6	50.5	4.100	5.000	3.338	-3.327	6660	0.670	0.940	1.61	2.09	1.07
	110	ALL	Tx54		36	0.6	270	19.34	12.01	6	50.5	4.700	5.400	3.652	-3.613	7163	0.660	0.940	1.53	2.04	1.02
	115	ALL	Tx54		38	0.6	270	19.22	12.27	6	50.5	5.000	5.900	3.980	-3.910	7680	0.650	0.940	1.49	2.00	1.04
	120	ALL	Tx54		42	0.6	270	19.01	12.72	6	50.5	5.600	6.500	4.311	-4.222	8253	0.650	0.940	1.50	2.01	1.07
	125	ALL	Tx54		46	0.6	270	18.66	11.36	8	50.5	5.800	7.100	4.665	-4.539	8796	0.640	0.940	1.45	1.87	1.04
Type Tx62 Girders 44' Roadway 8.5" Slab	60	ALL	Tx62		14	0.6	270	25.78	25.78			4.000	5.000	0.911	-1.054	3863	0.800	0.910	1.93	2.51	2.79
	65	ALL	Tx62		14	0.6	270	25.78	25.78			4.000	5.000	1.063	-1.217	4246	0.790	0.910	1.63	2.12	2.28
	70	ALL	Tx62		16	0.6	270	25.53	25.53			4.000	5.000	1.224	-1.383	4540	0.770	0.910	1.68	2.18	2.18
	75	ALL	Tx62		16	0.6	270	25.53	25.53			4.000	5.000	1.398	-1.564	4494	0.760	0.920	1.44	1.87	1.78
	80	ALL	Tx62		18	0.6	270	25.33	25.33			4.000	5.000	1.567	-1.736	4780	0.740	0.920	1.50	1.94	1.73
	85	ALL	Tx62		18	0.6	270	25.33	25.33			4.000	5.000	1.760	-1.933	5010	0.730	0.920	1.30	1.68	1.40
	90	ALL	Tx62		18	0.6	270	25.33	25.33			4.000	5.000	1.965	-2.140	5488	0.720	0.920	1.12	1.45	1.10
	95	ALL	Tx62		20	0.6	270	25.18	24.78	4	6.5	4.000	5.000	2.179	-2.355	5980	0.710	0.920	1.15	1.49	1.04
	100	ALL	Tx62		24	0.6	270	24.94	23.28	4	14.5	4.000	5.000	2.405	-2.579	6487	0.700	0.920	1.36	1.76	1.14
	105	ALL	Tx62		26	0.6	270	24.85	22.70	4	18.5	4.000	5.000	2.620	-2.795	6978	0.690	0.930	1.37	1.78	1.07
	110	ALL	Tx62		30	0.6	270	24.58	17.78	6	40.5	4.000	5.000	2.864	-3.035	7510	0.680	0.930	1.52	1.97	1.10
	115	ALL	Tx62		34	0.6	270	24.25	15.42	6	56.5	4.200	5.000	3.119	-3.284	8055	0.670	0.930	1.50	1.95	1.00
	120	ALL	Tx62		36	0.6	270	24.11	15.78	6	56.5	4.500	5.300	3.357	-3.518	8575	0.660	0.930	1.63	2.11	1.07
	125	ALL	Tx62		40	0.6	270	23.88	16.08	6	58.5	5.000	5.900	3.637	-3.798	9210	0.660	0.930	1.58	2.04	1.02
	130	ALL	Tx62		42	0.6	270	23.78	16.35	6	58.5	5.300	6.200	3.888	-4.044	9750	0.650	0.930	1.40	2.16	1.05
	135	ALL	Tx62		46	0.6	270	23.43	14.73	8	58.5	5.500	6.400	4.180	-4.324	10345	0.640	0.940	1.46	1.90	1.05

NON-STANDARD STRAND PATTERNS

PATTERN	STRAND ARRANGEMENT AT ℄ OF GIRDER

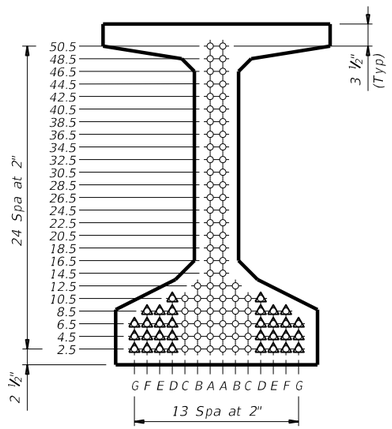
(1) Based on the following allowable stresses (ksi):

Compression = 0.65 f'ci

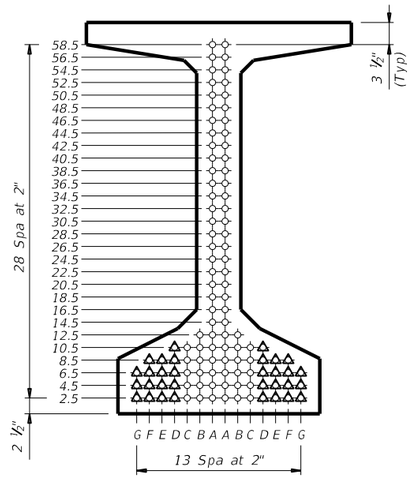
Tension = $0.24\sqrt{f'ci}$

Optional designs must likewise conform.

(2) Portion of full HL93.



TYPE Tx54



TYPE Tx62

HL93 LOADING

Texas Department of Transportation

Bridge Division Standard

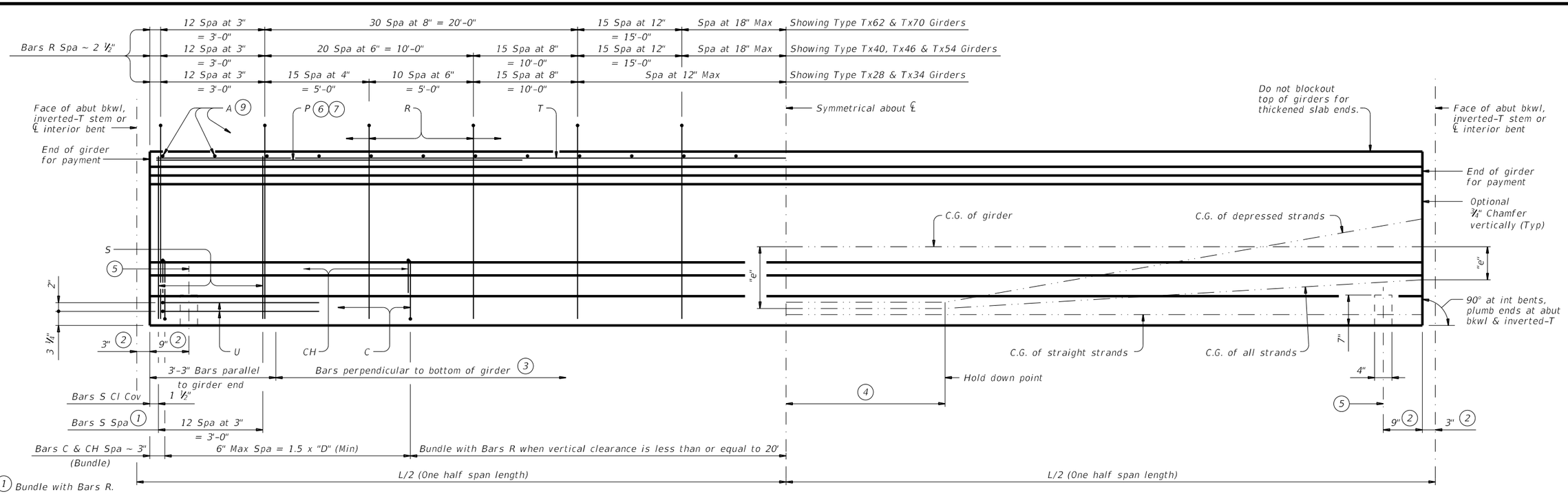
PRESTRESSED CONCRETE I-GIRDER STANDARD DESIGNS

44' ROADWAY

IGSD-44

FILE: ig05stds-21.dgn	DN: EFC	CK: AJF	DW: EFC	CK: TAR
©TxDOT August 2017	CONT	SECT	JOB	HIGHWAY
REVISIONS 10-19: Redesigned girders. 1-21: Added load rating.	1586	01	079	FM 907
	DIST	COUNTY		SHEET NO.
	PHR	HIDALGO		179

DATE:
FILE:



(1) Bundle with Bars R.

(2) Measured along ℄ Girder at interior bents; perpendicular to abutment bkwl or inverted-T stem.

(3) The average of the top and bottom spacing of Bars R cannot exceed the required spacing.

(4) L/20, but not less than 5'-0" (-0,+2').

(5) ℄ 4" x 1 ½" Vertical Slotted Hole at doweled girder end [labeled (D) on Bridge Layout]. Required for outside girder only or as shown on substructure details. Anchorage holes may be tapered (4 ¾" x 1 ⅝") at base. If holes are formed with sheet metal, forms may be left in place.

GIRDER ELEVATION

(6) Bars P (#6 x 15'-0") required in Tx62 and Tx70 girders. At the fabricator's option bars larger than #6 may be used. When L is less than 50 ft, Bars P are to be the same length as Bars T.

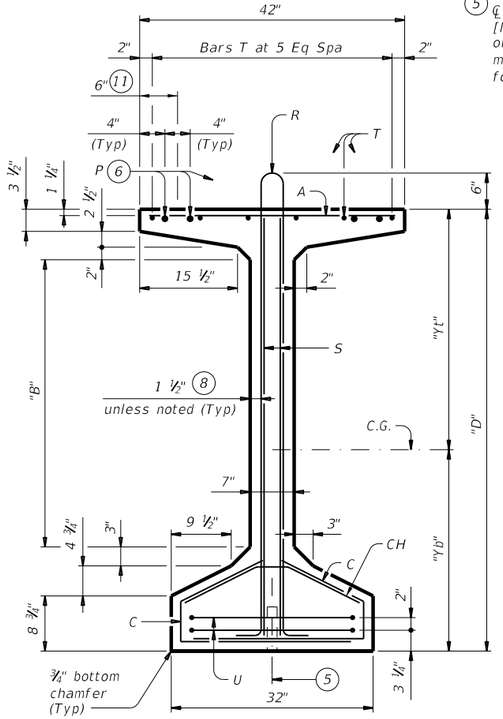
(7) Bars P (#6 x 15'-0") are only required in Tx28, Tx34, Tx40, Tx46, and Tx54 girders when "e" at girder ends exceeds 0.25 x "D". At the fabricator's option bars larger than #6 may be used. When L is less than 50 ft, Bars P are to be the same length as Bars T.

(8) 1 ⅜" Clear Cover to Bars S.

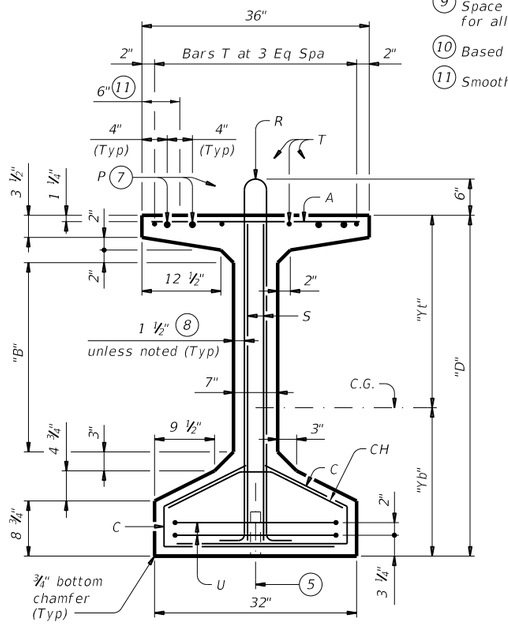
(9) Space Bars A at 6" Max for girders requiring overhang bracket hangers. Space at 12" Max for all other girders. Tie to Bars R as necessary. See standard IGMS for "Deck Forming Notes".

(10) Based on 155 pcf total weight of concrete and reinforcing steel.

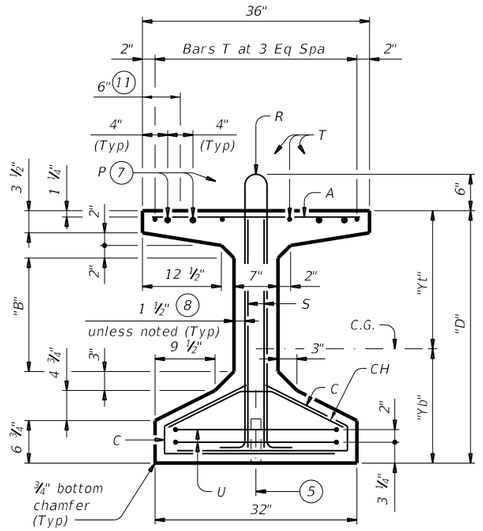
(11) Smooth trowel finish on the slab overhang side of exterior girder.



TYPE Tx62 & Tx70



TYPE Tx46 & Tx54



TYPE Tx28, Tx34 & Tx40

GIRDER DIMENSIONS AND SECTION PROPERTIES

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

GENERAL NOTES:

Designed according to AASHTO LRFD Bridge Design Specifications.
Provide Class H concrete.
Provide Grade 60 reinforcing steel.
An equal area of deformed Welded Wire Reinforcement (WWR) (ASTM A1064) may be substituted for Bars A, C, R or T unless otherwise noted.
It is permissible for bars or strands to come in contact with materials used in forming anchor holes.

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

HL93 LOADING

Texas Department of Transportation

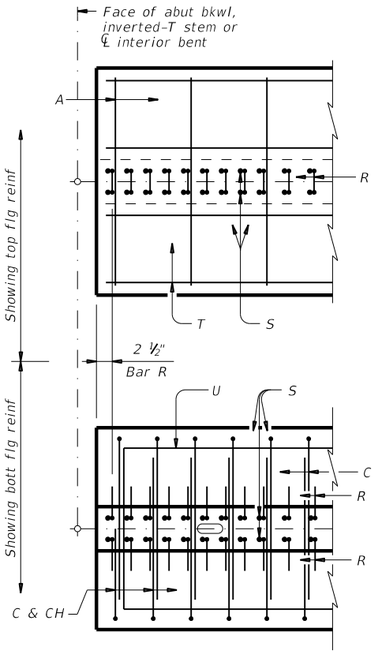
Bridge Division Standard

PRESTRESSED CONCRETE I-GIRDER DETAILS

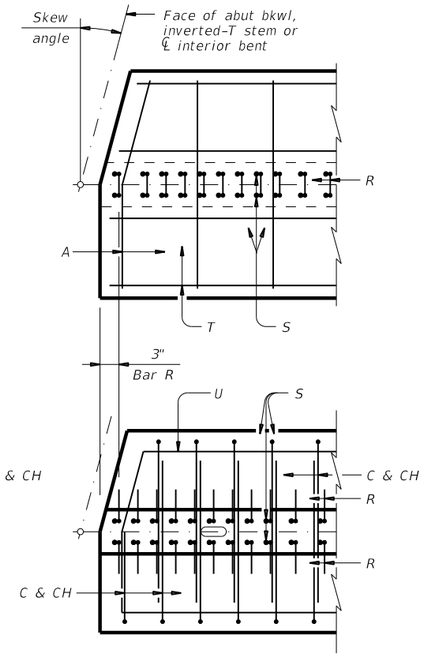
IGD

FILE: igdstds1-19.dgn	DN: TxDOT	CK: JMH	DW: JTR	CK: TAR
©TxDOT August 2017	CONT	SECT	JOB	HIGHWAY
REVISIONS	1586	01	079	FM 907
10-19: Added Bars C and CH full length for VC<= 20'	DIST	COUNTY		SHEET NO.
	PHR	HIDALGO		180

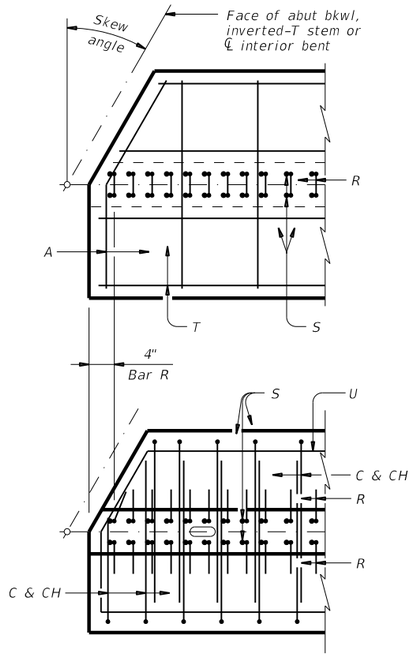
DATE:
FILE:



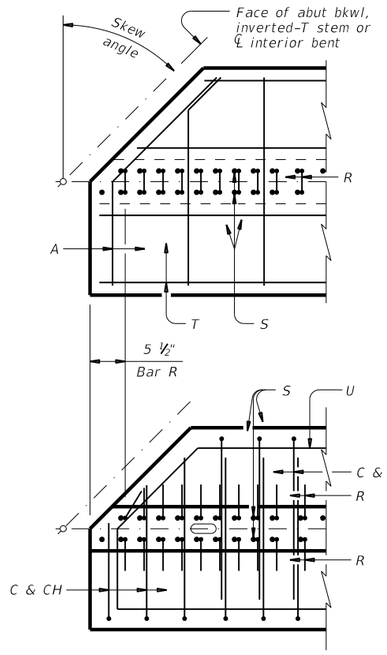
0° SKEW



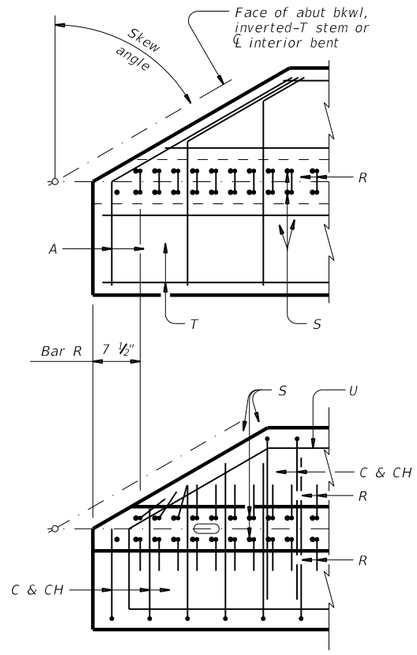
15° SKEW



30° SKEW



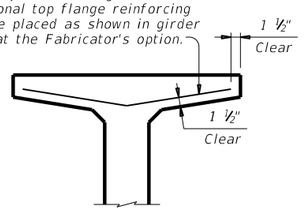
45° SKEW



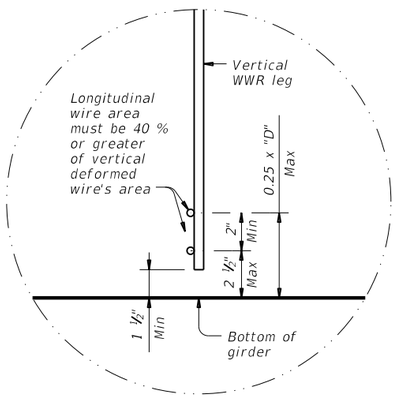
60° SKEW

PLAN OF GIRDER ENDS (12)

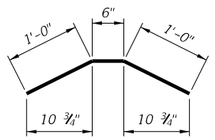
To control top flange cracking that may occur during form removal, additional top flange reinforcing may be placed as shown in girder ends at the Fabricator's option.



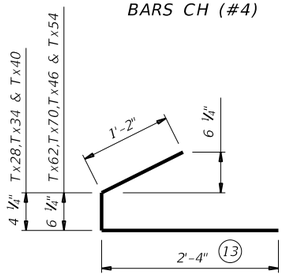
OPTIONAL TOP FLANGE REINFORCING DETAIL



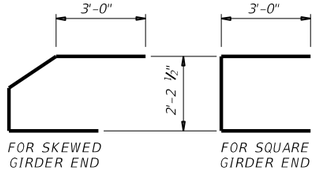
OPTIONAL WELDED WIRE REINFORCEMENT (WWR) DETAIL



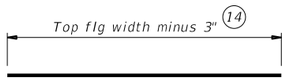
BARS CH (#4)



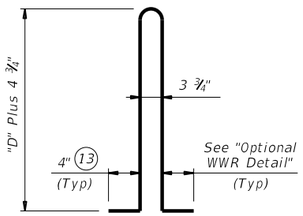
BARS C (#4)



BARS U (#5)

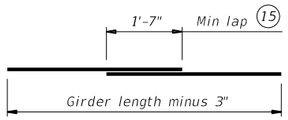


BARS A (#3)



BARS R (#4) (16)

BARS S (#6)



BARS T (#4)

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

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

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

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

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

HL93 LOADING SHEET 2 OF 2

Texas Department of Transportation

Bridge Division Standard

PRESTRESSED CONCRETE I-GIRDER DETAILS

IGD

FILE: igdstds1-19.dgn	DN: TxDOT	CK: JMH	DW: JTR	CK: TAR
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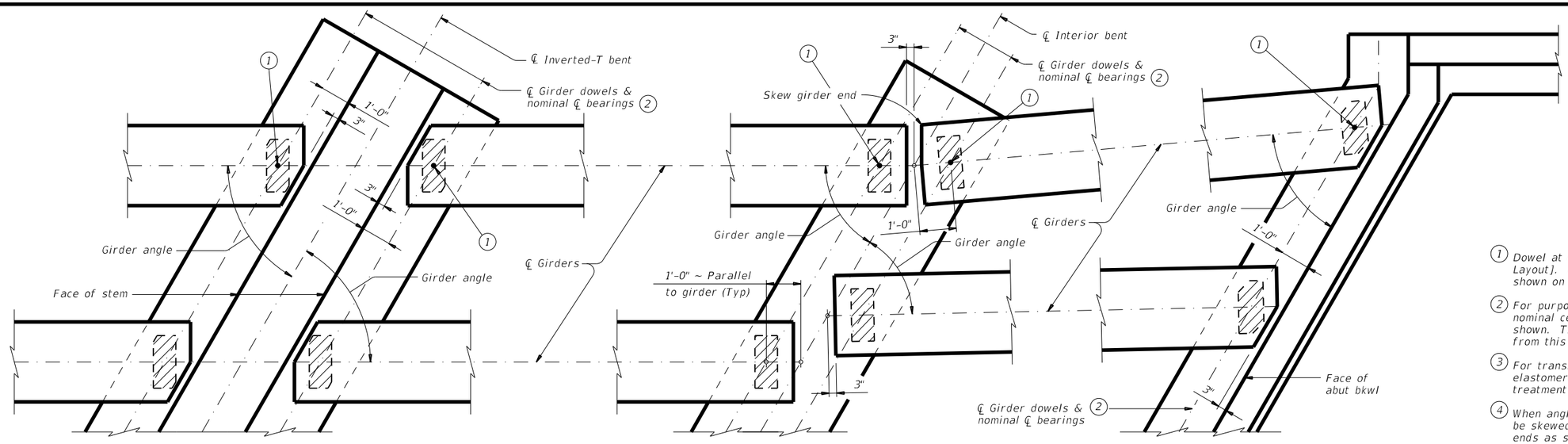
REVISIONS	1586	01	079	FM 907
10-19: Added Bars C and CH full length for VC<= 20'	DIST	COUNTY		SHEET NO.
	PHR	HIDALGO		181

DATE:
FILE:



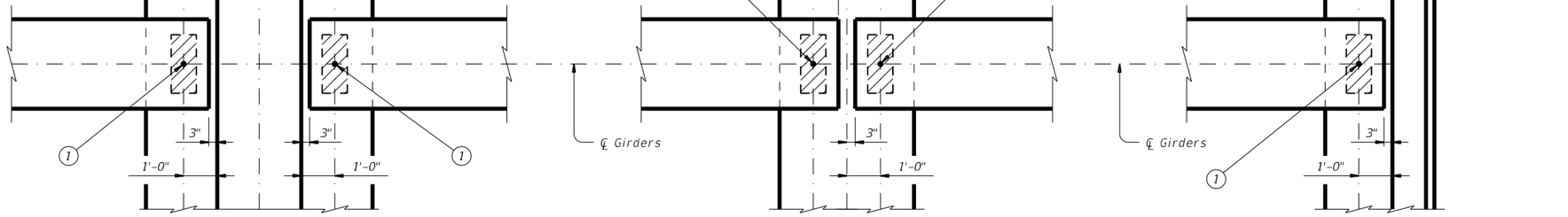
(1) Dowel at doweled girder end [labeled (D) on Bridge Layout]. Required for outside girder only or as shown on substructure details.

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

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

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

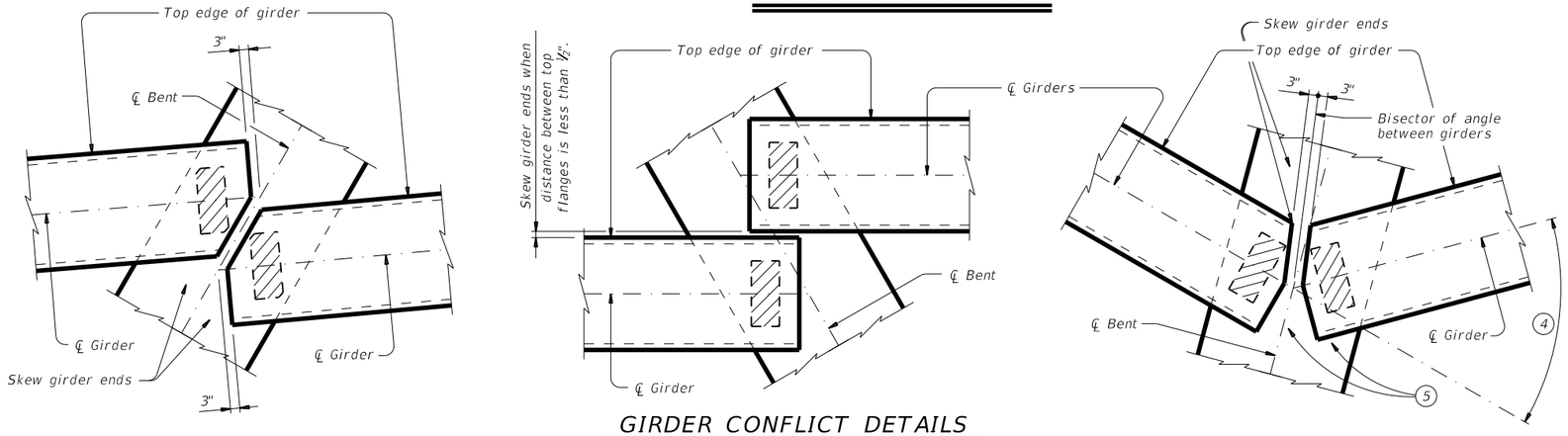
(5) See Table of Bearing Pad Dimensions for bearing size. Girder end skew angles in Table not applicable for this situation. Table reflects girder conflicts of this type on radial bents only.



GENERAL NOTES:

These details accommodate skew angles up to 60°.
Shop drawings for approval are required.
A bearing layout which identifies location and orientation of all bearings must be developed by the bearing fabricator. Permanently mark each bearing in accordance with the bearing layout. A copy of the bearing layout is to be provided to the Engineer.
Cost of furnishing and installing elastomeric bearings, including beveled and embedded steel plates, must be included in unit price bid for "Prestressed Concrete Girders".

GIRDER END DETAILS



GIRDER CONFLICT DETAILS

HL93 LOADING SHEET 1 OF 3

Texas Department of Transportation

Bridge Division Standard

ELASTOMERIC BEARING AND GIRDER END DETAILS

PRESTR CONCRETE I-GIRDERS

IGEB

FILE: igebsts1-17.dgn	DN: AEE	CK: JMH	DW: JTR	CK: TxDOT
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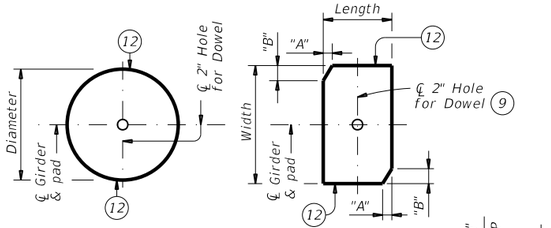
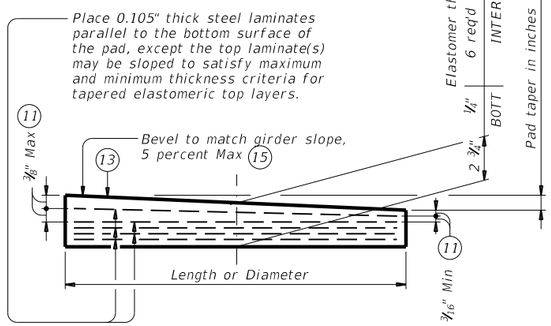


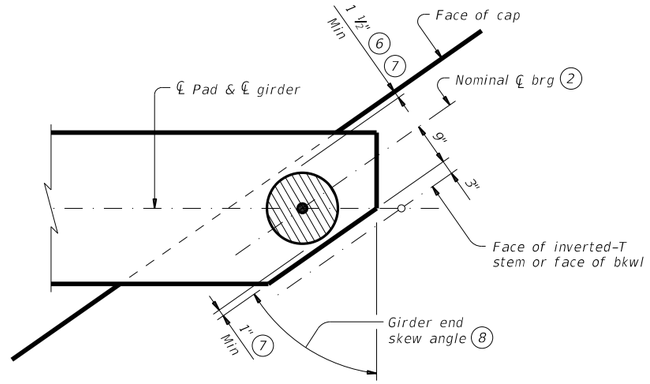
PLANS (10)



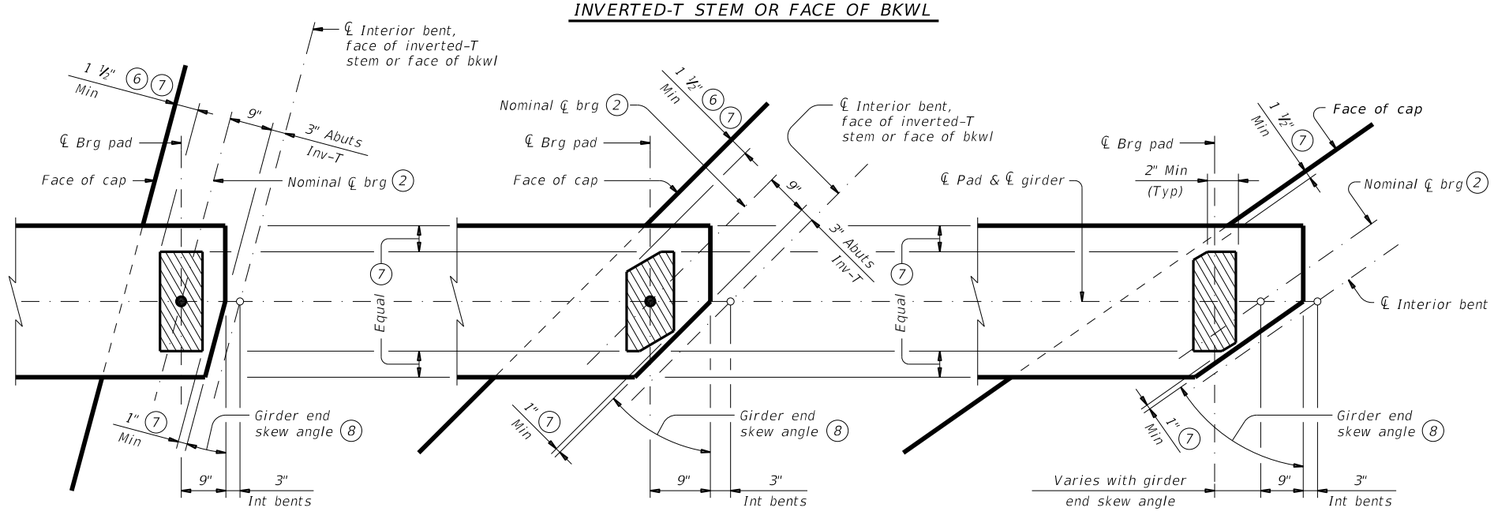
ELEVATION

LAMINATED ELASTOMERIC BEARING PAD

(50 DUROMETER)



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



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

SKEWED GIRDER ENDS AT CONVENTIONAL INTERIOR BENTS (16)

(NO GIRDER DOWELS)

BEARING PAD PLACEMENT DIAGRAMS

TABLE OF MINIMUM SUBSTRUCTURE DIMENSIONS (14)

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

TABLE OF BEARING PAD DIMENSIONS

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

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

(6) 3" for inverted-T.

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

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

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

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

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

(12) Locate Permanent Mark here.

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

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

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

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

HL93 LOADING SHEET 2 OF 3

Texas Department of Transportation

Bridge Division Standard

ELASTOMERIC BEARING AND GIRDER END DETAILS

PRESTR CONCRETE I-GIRDERS

IGEB

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	DIST	COUNTY		SHEET NO.
	PHR	HIDALGO		183

DATE:
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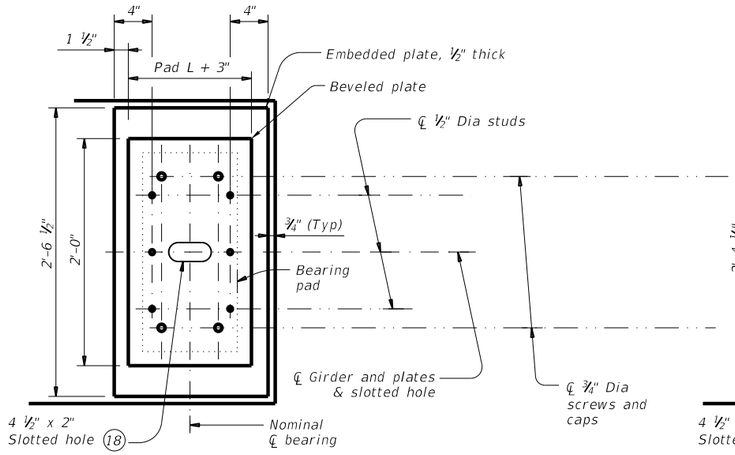
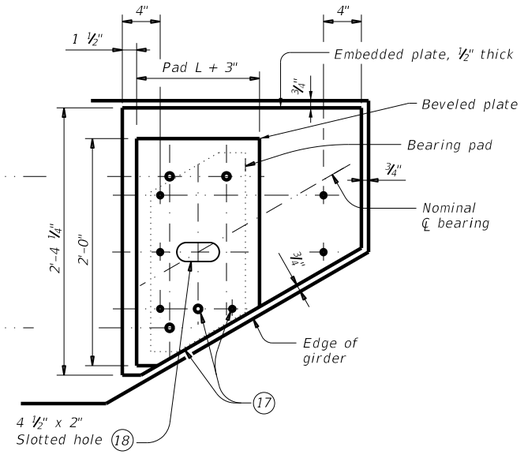
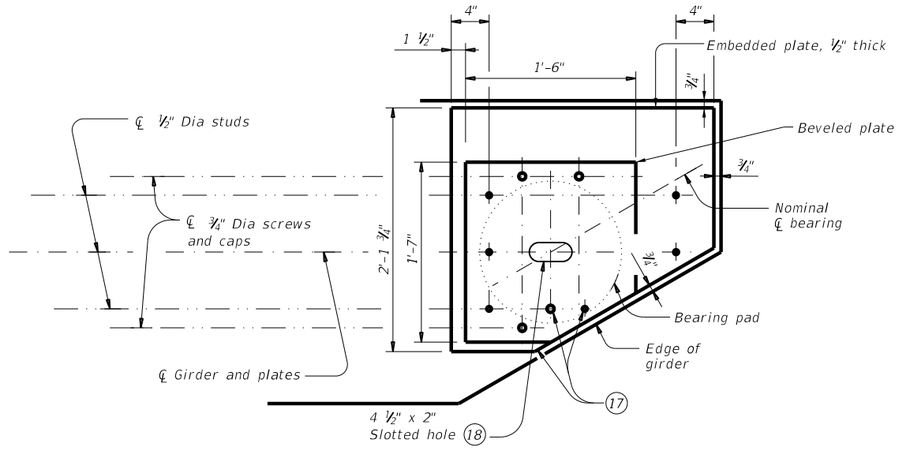


NORMAL GIRDER END
RECTANGULAR BEARING PAD

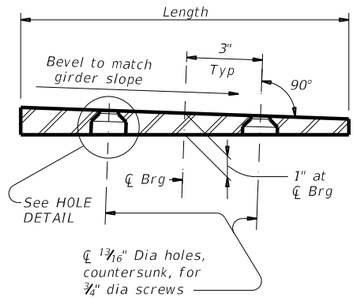


SKEWED GIRDER END
CLIPPED RECTANGULAR BEARING PAD

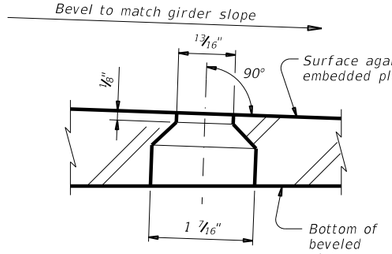


SKEWED GIRDER END
15" DIA BEARING PAD

PLAN VIEW OF SOLE PLATE DETAILS



SECTION



HOLE DETAIL

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

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

SOLE PLATE NOTES:

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

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

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

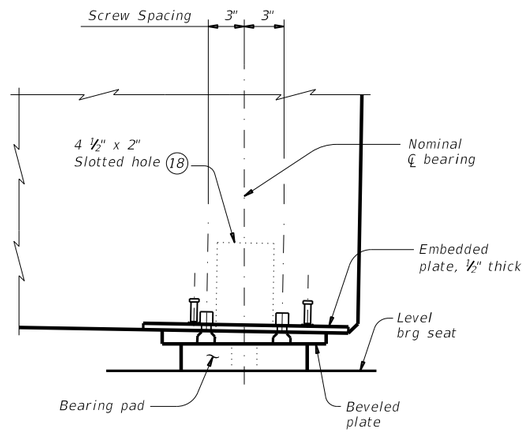
When determining if relocation of screw holes and studs are necessary for skewed girder ends, minimum clearance from screw or stud centerline to plate edge is 1.25".

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

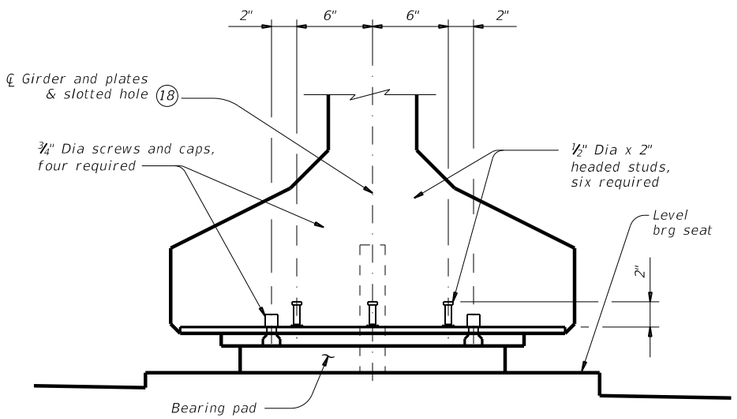
¾" Dia screws must be electroplated, socket flat head countersunk cap screws conforming to ASTM F835. Electroplating must conform to ASTM B633, SC 2, Type I. Provide screws long enough to maintain a ¾" minimum embedment into the embedded plate and galvanized cap. Provide galvanized steel caps (16 ga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

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

BEVELED PLATE DETAILS



SIDE ELEVATION



END ELEVATION
Showing normal girder end.

GIRDER DETAILS

HL93 LOADING SHEET 3 OF 3

Texas Department of Transportation
Bridge Division Standard

ELASTOMERIC BEARING AND GIRDER END DETAILS
PRESTR CONCRETE I-GIRDERS

IGEB

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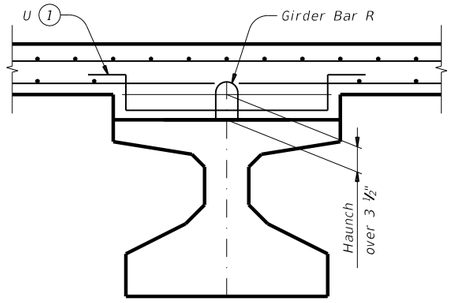
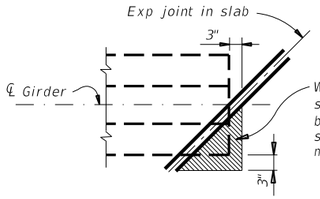
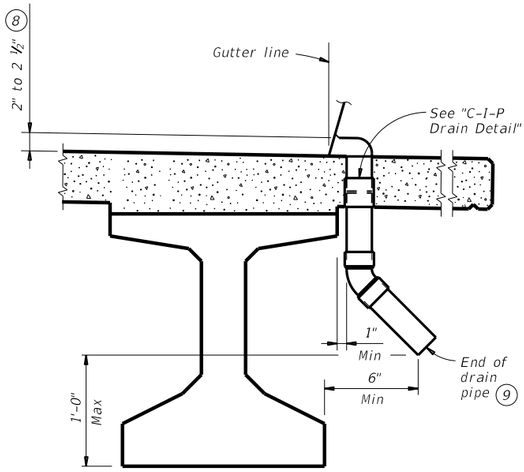


HAUNCH REINFORCING DETAIL

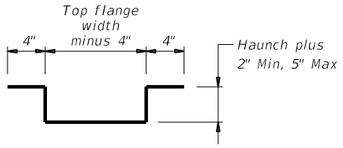


Where flanges project under slab of adjacent span, provide a minimum of ½" clearance between top of girder and bottom of adjacent slab. Polystyrene or other suitable compressible material may be used as a filler.

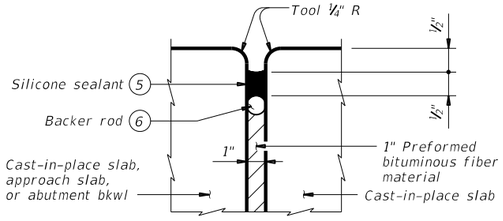
TREATMENT AT GIRDER END FOR SKEWED SPANS



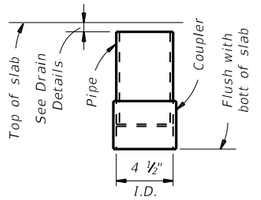
DRAIN DETAIL (10)



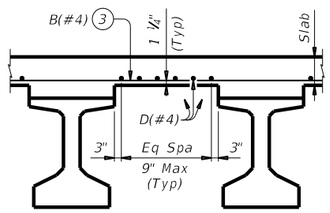
BARS U (#4)



TYPE A JOINT DETAIL (7)



C-I-P DRAIN DETAIL (2)



TYPICAL PART TRANSVERSE SLAB SECTION WITHOUT PCP (4)

Top reinforcing steel not shown for clarity.

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

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

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

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

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

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

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

(8) Drain entrance formed in rail or sidewalk.

(9) Water may not be discharged onto girders.

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

GENERAL NOTES:

Designed according to AASHTO LRFD Bridge Design Specifications.

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

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

Cover dimensions are clear dimensions, unless noted otherwise.

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

DECK FORMWORK NOTES:

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

Texas Department of Transportation

Bridge Division Standard

MISCELLANEOUS SLAB DETAILS

PRESTR CONCRETE I-GIRDERS

IGMS

FILE: igmssts1-19.dgn	DN: TxDOT	CK: TxDOT	DW: JTR	CK: TxDOT
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REVISIONS	1586	01	079	FM 907
10-19: Modified Note 7. Type A now a pay item.	DIST	COUNTY		SHEET NO.
	PHR	HIDALGO		185

DATE:
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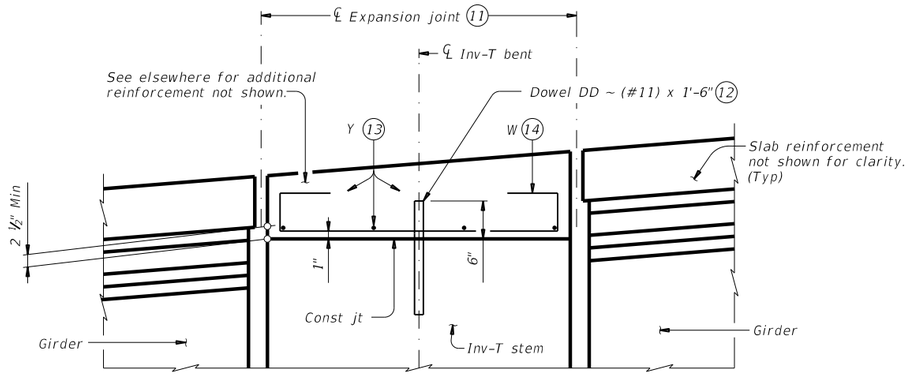
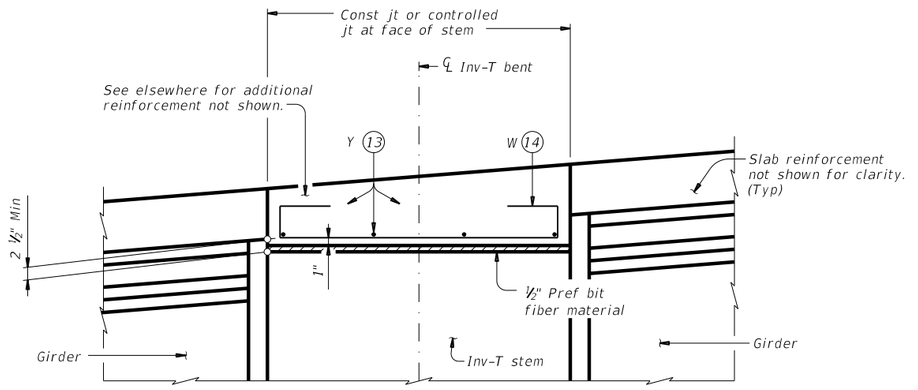
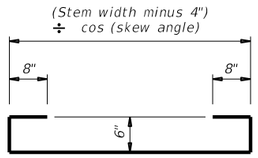


SHOWING EXPANSION JOINTS

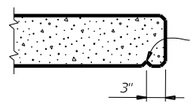


SHOWING CONST JTS OR CONTROLLED JTS

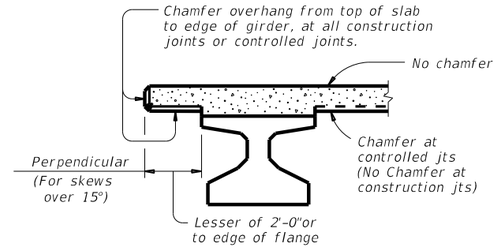
REINFORCEMENT OVER INV-T BENTS



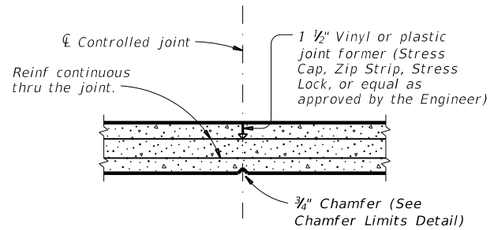
BARS W (#4)



DRIP BEAD DETAIL



CHAMFER LIMITS DETAIL (15)



CONTROLLED JOINT DETAIL

(Saw-cutting is not allowed)

(11) See Layout for joint type.

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

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

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

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

Texas Department of Transportation

Bridge Division Standard

MISCELLANEOUS SLAB DETAILS

PRESTR CONCRETE I-GIRDERS

IGMS

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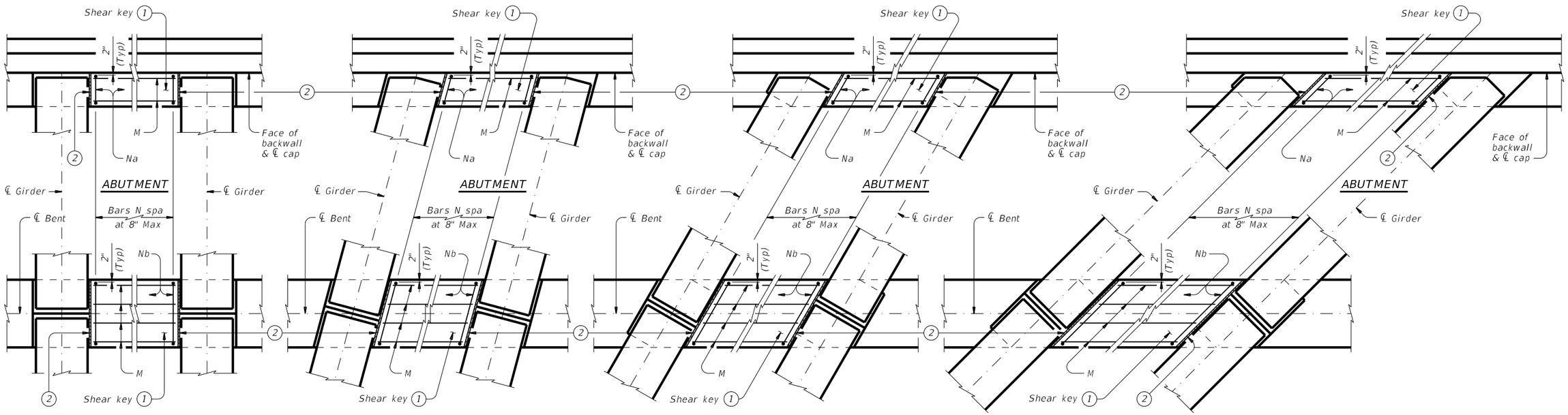
10-19: Modified Note 7, Type A now a pay item.	DIST	COUNTY		SHEET NO.
	PHR	HIDALGO		186



INTERIOR BENT

PARTIAL PLANS WITH NO SKEW

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

INTERIOR BENT

PARTIAL PLANS WITH 15° SKEW

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

INTERIOR BENT

PARTIAL PLANS WITH 30° SKEW

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

INTERIOR BENT

PARTIAL PLANS WITH 45° SKEW

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

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

(2) UHMW polyethylene wear pad. (Typ)

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

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

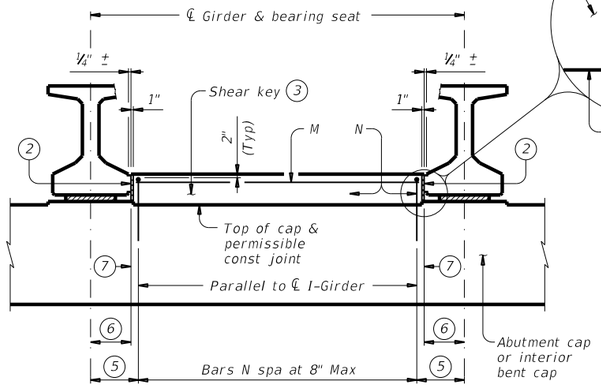
(5) With No Skew = 1'-8 ¼", measured along ℄ cap.
With Skew = 1'-8 ¼" ✱ Cos Skew, measured along ℄ cap.

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

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

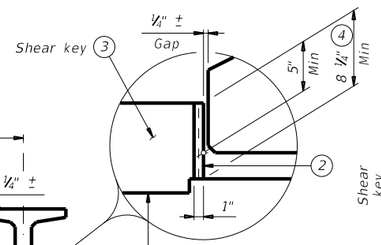
(8) Abutments = ½ Cap width.
Interior bents = Cap width.

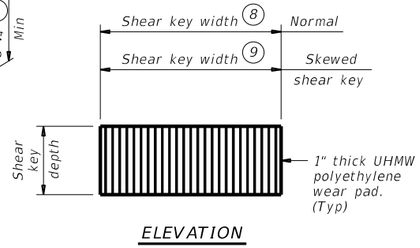
(9) Abutments = ½ Cap width ✱ Cos Skew.
Interior bents = Cap width ✱ Cos Skew.



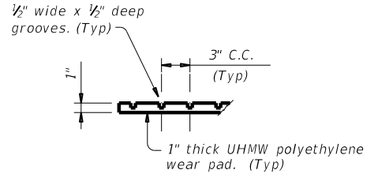
PARTIAL ELEVATION OF ABUTMENT OR INTERIOR BENT CAP (1)

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



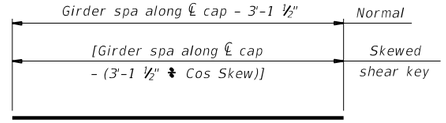


ELEVATION

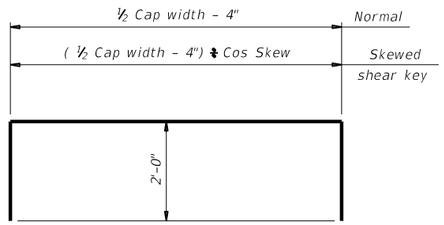


PART SECTION

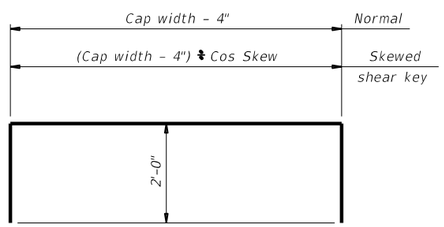
ULTRA HIGH MOLECULAR WEIGHT (UHMW) POLYETHYLENE WEAR PAD DETAILS



BARS M (#5)



BARS Na (#5)
(For abutments)



BARS Nb (#5)
(For interior bents)

CONSTRUCTION NOTES:

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

GENERAL NOTES:

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

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

Texas Department of Transportation

Bridge Division Standard

SHEAR KEY DETAILS
PRESTR CONCRETE I-GIRDERS

IGSK

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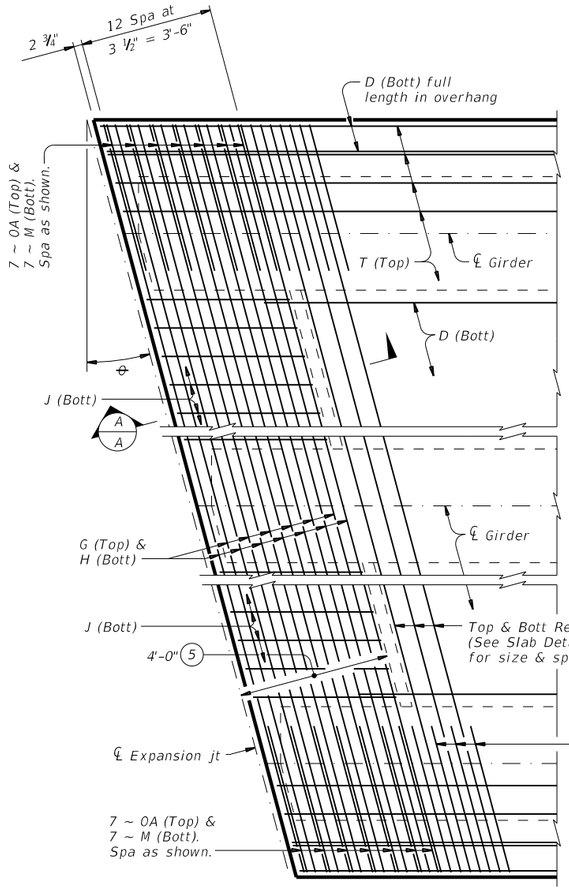
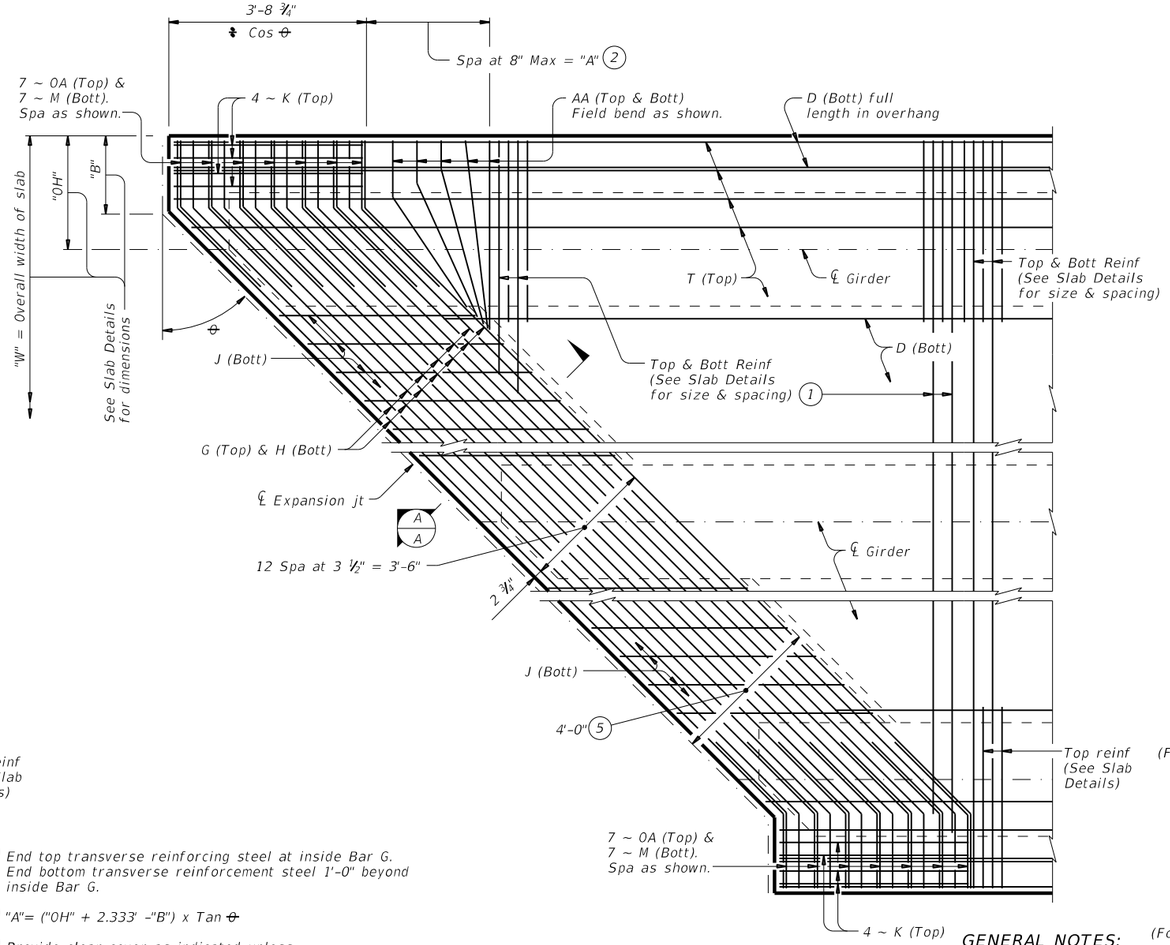


PARTIAL PLAN FOR SLABS WITHOUT BREAKBACK



PARTIAL PLAN FOR SLABS WITH BREAKBACK

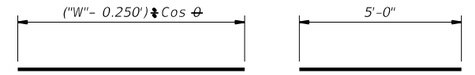
(1) End top transverse reinforcing steel at inside Bar G. End bottom transverse reinforcement steel 1'-0" beyond inside Bar G.

(2) "A"= ("0H" + 2.333' -"B") x Tan θ

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

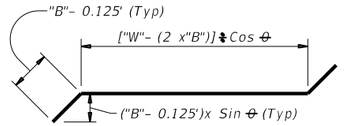
(4) Only required on slabs with breakbacks.

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

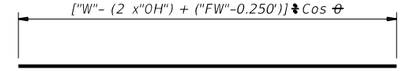


BARS G (#4)
(For slabs without breakbacks)

BARS K (#4) (4)



BARS G (#4)
(For slabs with breakbacks)

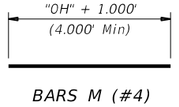


"FW" = girder's top flange width (ft)

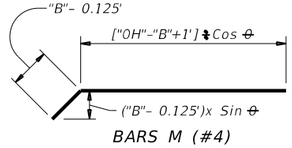
BARS H (#4)

BARS AA (#5) (4)

BARS J (#4)



BARS M (#4)
(For slabs without breakbacks)



BARS M (#4)
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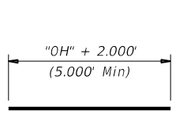
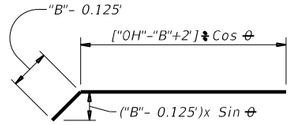


BARS OA (#5)
(For slabs without breakbacks)



BARS OA (#5)
(For slabs with breakbacks)

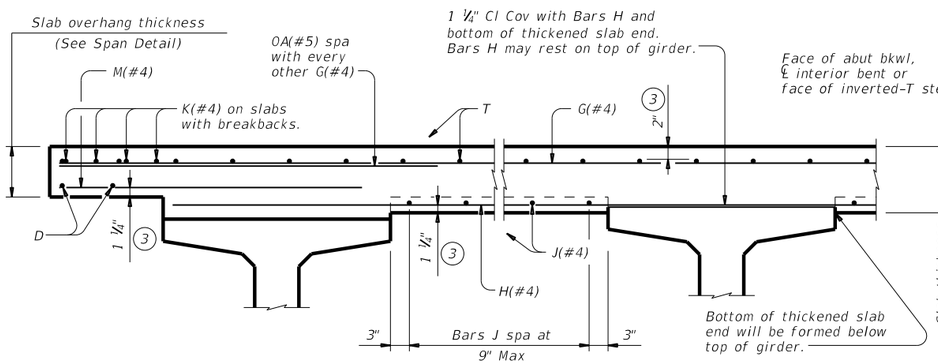
GENERAL NOTES:

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

MATERIAL NOTES:

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

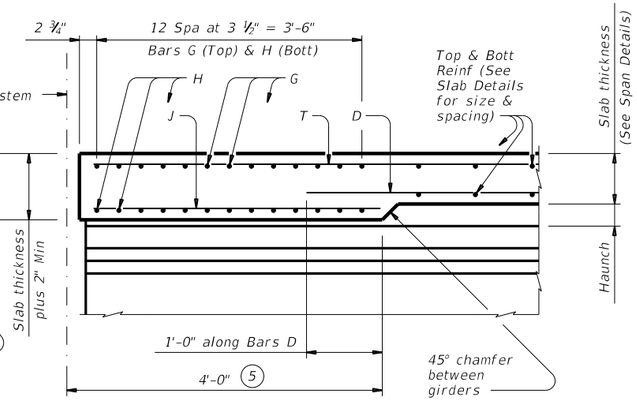
Cover dimensions are clear dimensions, unless noted otherwise.
Reinforcing bar dimensions shown are out-to-out of bar.



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

TYPICAL TRANSVERSE SECTION

(Showing Prestressed Conc I-Girders at ℄ Brg)



SECTION A-A

(Showing with 2" and more of haunch)

HL93 LOADING

Texas Department of Transportation — Bridge Division Standard

THICKENED SLAB END DETAILS

PRESTRESSED CONCRETE I-GIRDER SPANS

IGTS

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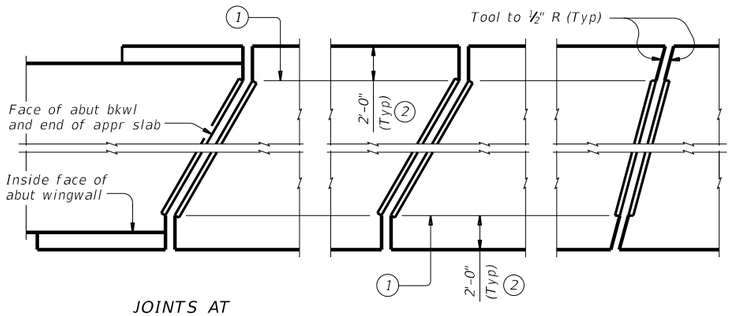
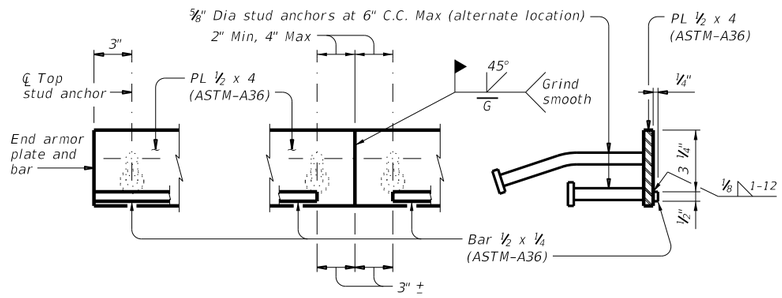


JOINTS AT ABUTMENTS | SKEWS OVER 15° | SKEWS THRU 15°

PLANS OF ARMOR PLATES



END VIEW | FIELD SPLICE | SECTION

(Studs are not shown for clarity.)

ELEVATION OF ARMOR PLATE

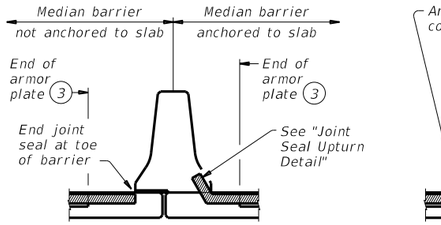
TABLE OF SEALED EXPANSION JOINT INFORMATION			
MANUFACTURER	STEEL SECTION (7)	STRIP SEAL 4" JOINT	
		Seal Type	Joint Opening (8)
D.S. Brown	As shown	V-400	2 ¼"
R.J. Watson	As shown	SF-400	2 ½"
SSI	As shown	SSS-400	2 ½"
Watson Bowman Acme	As shown	SPS-400	2"

REDUCED LONGITUDINAL MOVEMENT RANGE	
SKEW (deg)	JOINT SIZE 4"
0	4.0"
15	4.0"
30	3.5"
45	2.8"

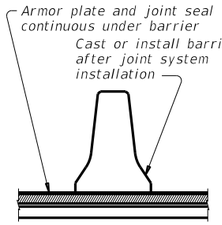
DESIGN NOTES:

Joints installed on a skew have reduced ability to accommodate longitudinal movement. Use table values to determine the correct joint size for skewed installations.

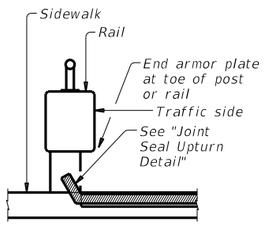
For other skews over 25 degrees, calculate reduced movement range by multiplying joint size by cosine (skew).



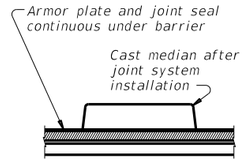
WITH OPEN DECK JOINT BELOW MEDIAN BARRIER



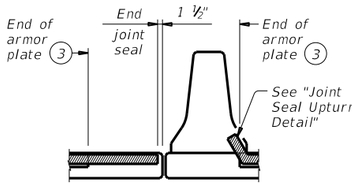
AT MEDIAN BARRIER



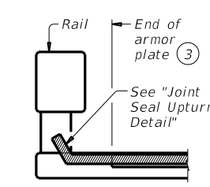
AT SIDEWALK BEHIND BRIDGE RAIL



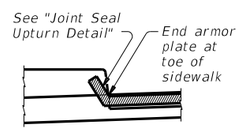
AT RAISED MEDIAN



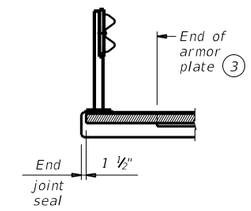
WITH OPEN DECK JOINT ADJACENT TO MEDIAN BARRIER



AT CONCRETE BRIDGE RAIL



AT SIDEWALK



AT STEEL POST BRIDGE RAIL

TYPICAL SECTIONS OF ARMOR PLATES AND SEALS (4)

1 At Fabricator's option, armor plate may extend up to 6" beyond this point for skews through 15°.

2 Unless shown otherwise, terminate armor plate at slab break point if break is more than 2'-0" from slab edge.

3 See "Plans of Armor Plates".

4 Other conditions affecting the joint profile should be noted elsewhere.

5 Align shipping angle perpendicular to joint.

6 Coat with Manufacturer's supplied epoxy primer above bar before installing sealant.

7 Shape of steel section shown is typical. Variations in sections must be approved by the Engineer.

8 These openings are also the recommended minimum installation openings.

FABRICATION NOTES:

Temporarily shop assemble corresponding sections of sealed expansion joints (SEJ), check for fit, and match mark for shipment. Secure corresponding sections together for shipment with shipping angle. Do not use erection bolts.

The seal must be continuous and included in the price bid for sealed expansion joint.

Ship steel sections in convenient lengths of 10'-0" Min and 24'-0" Max unless necessary for staged construction or widenings. One shop splice is permitted in each shipping length provided no piece is less than 2'-0" long and sufficient studs are added to limit the stud to shop splice distance to 2" Min and 4" Max.

Weld studs in accordance with AWS D1.1.

Butt weld all shop and field splices and grind smooth areas in contact with seal. Make all necessary field splice joint preparations in the shop.

Paint the entire steel section with System II or IV primer in accordance with Item 446, "Feild Cleaning and Painting Steel." Provide paints in accordance with Item 446.2. Prepare steel and apply paint in accordance with Item 446.4.7.3 and 446.4.7.4.

Shop drawings for the fabrication of sealed expansion joints will not require the Engineer's approval if fabrication is in accordance with the details shown on this standard.

CONSTRUCTION NOTES:

Secure the sealed expansion joint in position and place to the proper grade and alignment by welding braces to adjacent reinforcing steel, to prestressed beam stirrups, or to anchors cast in concrete diaphragms. Include cost of temporary bracing in the price bid for sealed expansion joint.

Remove shipping angle immediately after each joint half is secured in place. Grind smooth, and touch up with organic zinc-rich paint.

Clean and prepare seal cavity for seal installation as per the Manufacturer's installation procedures.

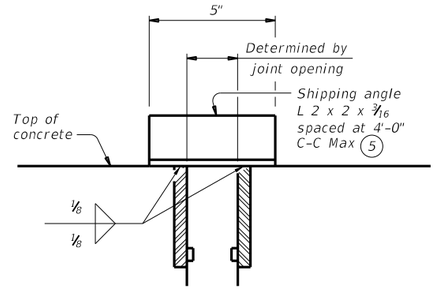
Splice and install seal in accordance with the Manufacturer's directions and with the adhesive provided by the Manufacturer.

Splice in joint seal may be performed in the field.

GENERAL NOTES:

Provide sealed expansion joints in the size and at locations shown on the plans.

Minimum slab and overhang thickness required for the use of SEJ-B is 6 ½".

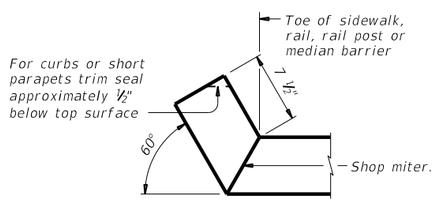


SHOWING ARMOR PLATE

(Studs not shown for clarity)

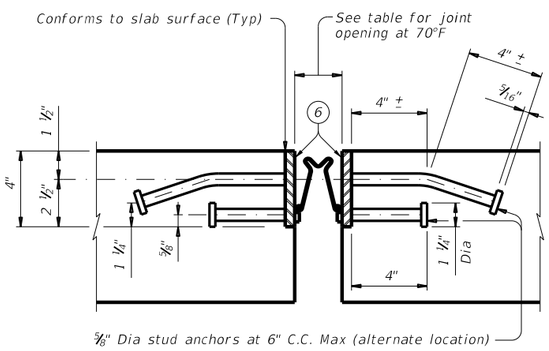
SHIPPING ANGLE

An alternate method of securing joint sections may be used if approved by the Bridge Division. Erection bolts are not allowed.



JOINT SEAL UPTURN DETAIL

Upturn seal only. Terminate armor plates as shown in "Plans of Armor Plates" and "Typical Sections of Armor Plates & Seals."



JOINT SECTION

Showing R J Watson strip seal. Other strip seals are similar.

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Bridge Division Standard

SEALED EXPANSION JOINT TYPE B WITHOUT OVERLAY

SEJ-B

FILE: sejbste1-19.dgn	DN: TxDOT	CK: TxDOT	DW: JTR	CK: JMH
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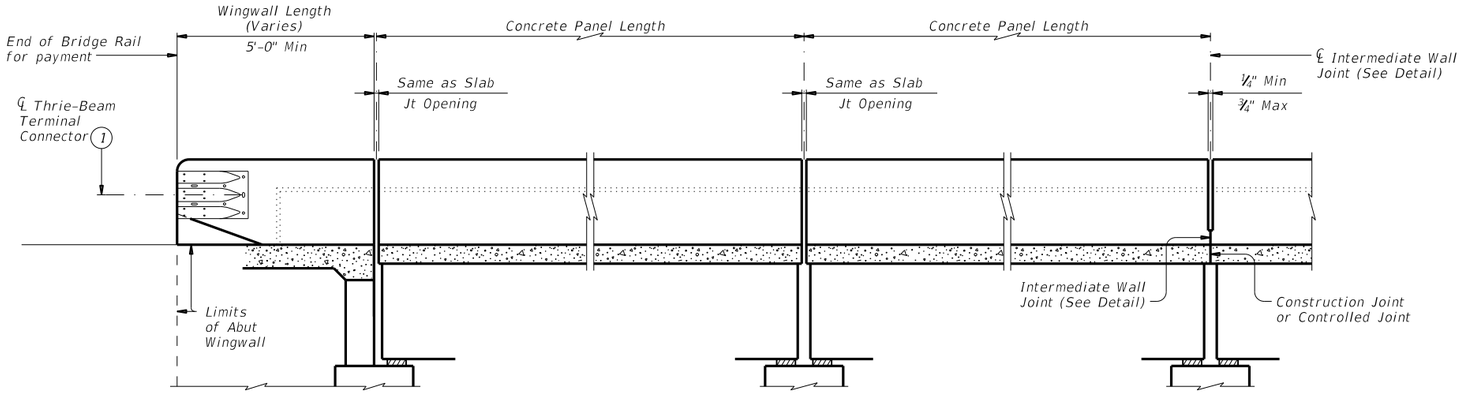
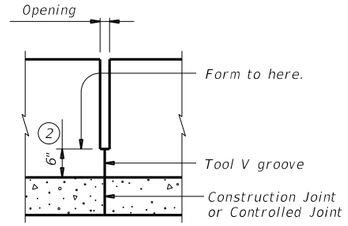
DATE:
FILE:



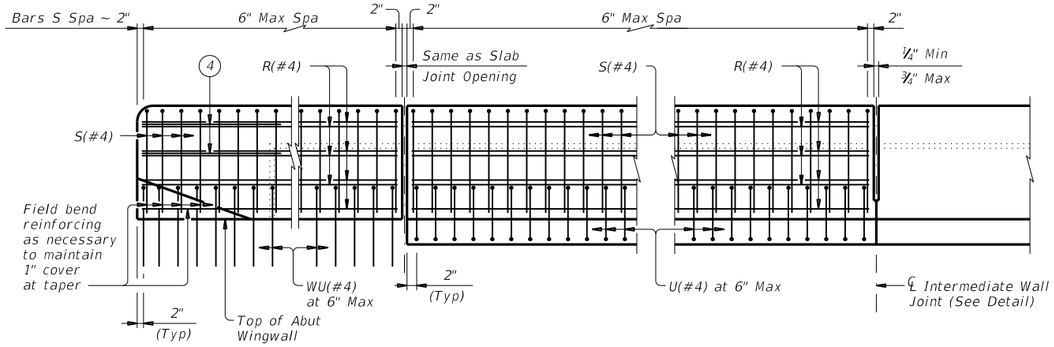
AT ABUTMENTS | AT BENTS WITH SLAB EXP JOINTS | AT BENTS WITHOUT SLAB EXP JOINTS

ROADWAY ELEVATION OF RAIL

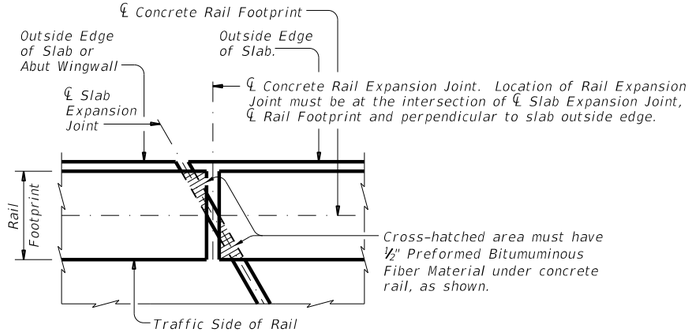


INTERMEDIATE WALL JOINT DETAIL

Provide at all interior bents without slab expansion joints.



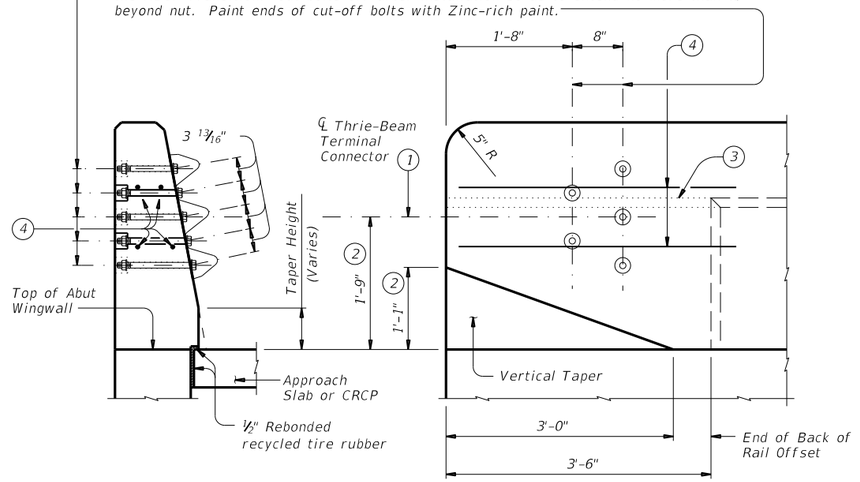
ELEVATION SHOWING TYPICAL REINFORCING PLACEMENT



PLAN OF RAIL AT EXPANSION JOINTS

Example showing Slab Expansion Joints without breakbacks.

℄ 5 ~ 1" Dia holes and 2 ½" Dia x 2" deep recesses. Form or core holes and recesses. Percussion drilling is not permitted. Adjust placement of reinforcing steel as necessary to avoid bolt holes and recesses. Bolt recesses are only required when pedestrian sidewalks are adjacent to back of rail. Tighten the 5 Terminal Connection Bolts in a well distributed pattern so to prevent damage or distortion of the Thrie-Beam Connection and the MBGF Transition. Cut bolts off after installation so as to extend no more than ¾" beyond nut. Paint ends of cut-off bolts with Zinc-rich paint.



SECTION | ELEVATION

TERMINAL CONNECTION DETAILS

(1) Terminal Connectors and associated hardware are to be paid for under the Item "Metal Beam Guard Fence". Attach Metal Beam Guard Fence Transitions to the bridge rail and extend along the embankment unless otherwise shown in the plans.

(2) Increase 2" for structures with Overlay.

(3) Back of rail offset may, with Engineer's approval, be continued to the end of the railing.

(4) Place 4 additional Bars R(#4) 3'-8" in length inside Bars S(#4) and centered 2'-0" from end of rail when Terminal Connections are required.

Texas Department of Transportation

Bridge Division Standard

TRAFFIC RAIL SINGLE SLOPE

TYPE SSTR

FILE:	rlstd014-19.dgn	DN: TxDOT	CK: TxDOT	DW: JTR	CK: TxDOT
©TxDOT	September 2019	CONT	SECT	JOB	HIGHWAY
REVISIONS		1586	01	079	FM 907
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		PHR	HIDALGO		190

DATE:
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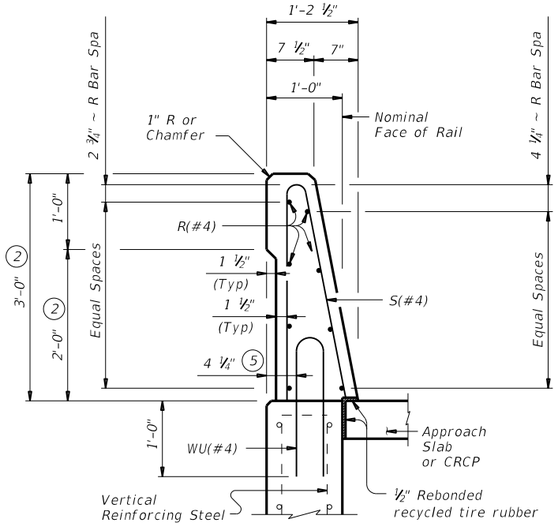
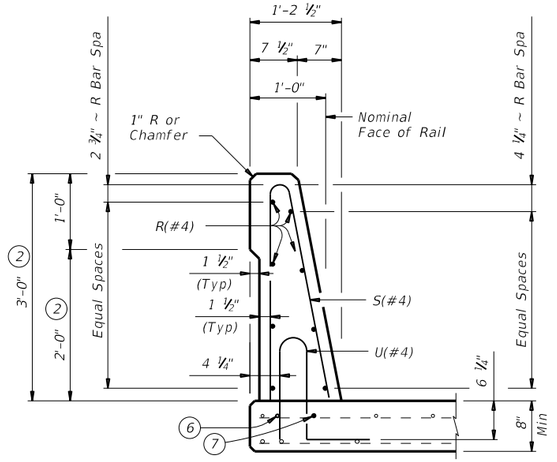


ON ABUTMENT WINGWALLS OR CIP RETAINING WALLS



ON BRIDGE SLAB

SECTIONS THRU RAIL

(2) Increase 2" for structures with Overlay.

(5) 5 ¼" when vertical reinforcing has closer clear cover over horizontal reinforcing in abutment wingwalls or retaining walls on traffic side of wall.

(6) As an aid in supporting reinforcement, additional longitudinal bars may be used in the slab with the approval of the Engineer. Such bars must be furnished at the Contractor's expense.

(7) Top longitudinal slab bar may be adjusted laterally 3" plus or minus to tie reinforcing.

(8) No longitudinal wires may be within upper bend.

(9) Bend or cut as required to clear drain slots.

(10) Space U(#4) bars at 4" Max when end region of panel length is less than 6'-0" to side slot drain. Space U(#4) bars at 6" Max when end region of panel length is 6'-0" and greator to side slot drain.

CONSTRUCTION NOTES:

This railing may be constructed by the slipform process when approved by the Engineer, with equipment approved by the Engineer. Provide sensor control for both line and grade. Tack welding to provide bracing for slipform operations is acceptable. Welding may be performed at a minimum spacing of 3 ft between the cage and the anchorage. It is permissible to weld to bars U, WU and S at any location on the cage. If increased bracing is needed, provide additional anchorage devices and weld in the upper two thirds of the cage. Paint welded areas on epoxy coated and/or galvanized reinforcing with an organic zinc rich paint in accordance with Item 445 "Galvanizing".

If rail is slipformed, apply an heavy epoxy bead 1" behind toe of traffic side of rail to concrete deck just prior to slip forming. Provide a ⅜" width x ¼" tall heavy epoxy bead with Type III, Class C or a Type V epoxy.

The back of railing must be vertical unless otherwise shown in the plans or approved by the Engineer.

MATERIAL NOTES:

Provide Class "C" concrete. Provide Class "C" (HPC) if required elsewhere.

Provide Grade 60 reinforcing steel.

Epoxy coat or galvanize all reinforcing steel if slab bars are epoxy coated or galvanized.

Deformed Welded Wire Reinforcement (WWR) (ASTM A1064) of equal size and spacing may be substituted for Bars U and WU unless noted otherwise. Deformed WWR (ASTM A1064) may be substituted for Bars R and S, as shown. Combinations of reinforcing steel and WWR or configurations of WWR other than shown are permitted if conditions in the table are satisfied. Provide the same laps as required for reinforcing bars.

Provide bar laps, where required, as follows:

Uncoated or galvanized ~ #4 = 1'-7"

Epoxy coated ~ #4 = 2'-5"

GENERAL NOTES:

This rail has been successfully evaluated by full-scale crash test to meet MASH TL-4 criteria. This rail can be used for speeds of 50 mph and greater when a TL-3 rated guard fence transition is used. When a TL-2 rated guard fence transition is used, this rail can only be used for speeds of 45 mph and less.

Do not use this railing on bridges with expansion joints providing more than 5" movement.

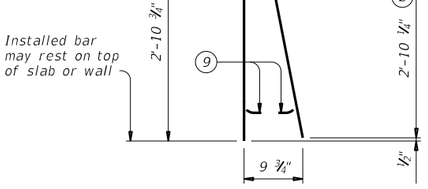
Rail anchorage details shown on this standard may require modification for select structure types. See appropriate details elsewhere in plans for these modifications.

Shop drawings will not be required for this rail.

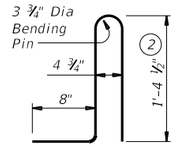
Average weight of railing with no overlay is 376 plf.

Cover dimensions are clear dimensions, unless noted otherwise.

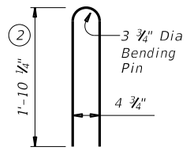
Reinforcing bar dimensions shown are out-to-out of bar.



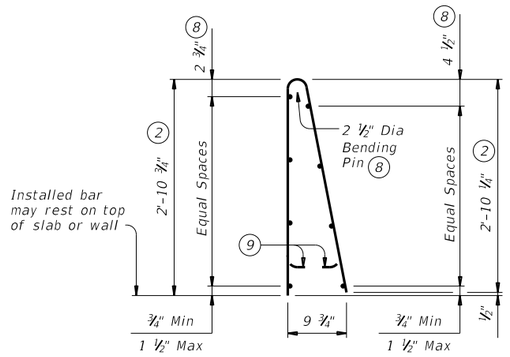
BARS S (#4)



BARS U (#4)

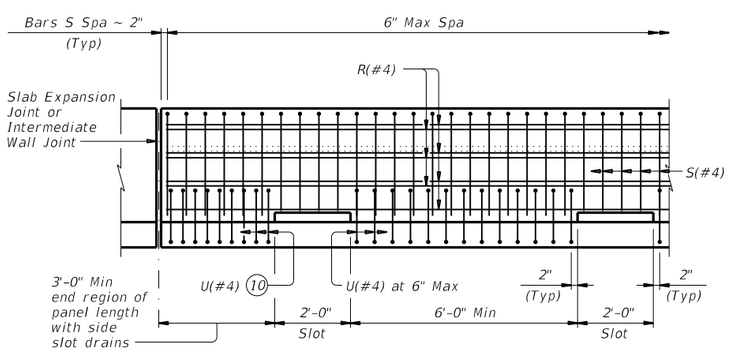


BARS WU (#4)



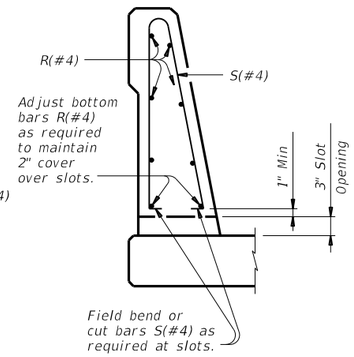
OPTIONAL WELDED WIRE REINFORCEMENT (WWR)

DESCRIPTION	LONGITUDINAL WIRES	VERTICAL WIRES
Minimum (Cumulative Total) Wire Area	1.067 Sq In.	0.267 Sq In. per Ft
	No. of Wires	Spacing
Minimum	8	4"
Maximum	10	8"
Maximum Wire Size Differential	The smaller wire must have an area of 40% or more of the larger wire.	



OPTIONAL SIDE SLOT DRAIN DETAIL

Note: Side Slot Drains may be used where shown elsewhere on the plans or as directed by the Engineer. Drains should not be placed over railroad tracks, lower roadways, or sidewalks. When this rail is used as a separator between a roadway surface and a sidewalk surface, side drain slots will not be permitted.



SECTION THRU OPTIONAL SIDE SLOT DRAIN

SHEET 2 OF 2

Texas Department of Transportation

Bridge Division Standard

TRAFFIC RAIL SINGLE SLOPE

TYPE SSTR

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		PHR	HIDALGO		191

DATE:
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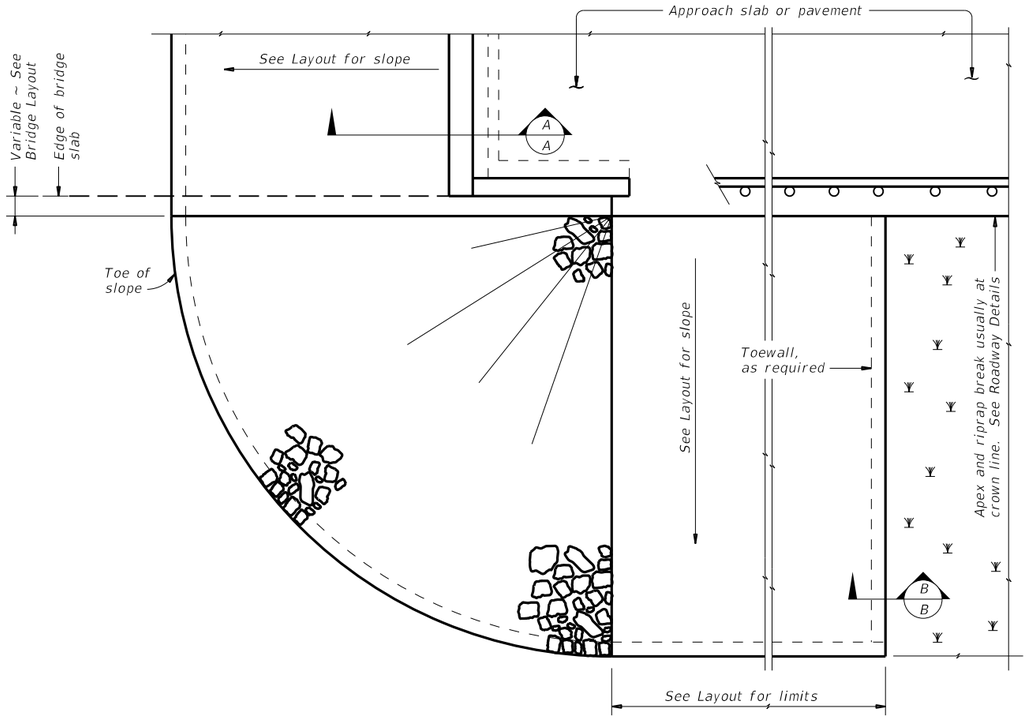
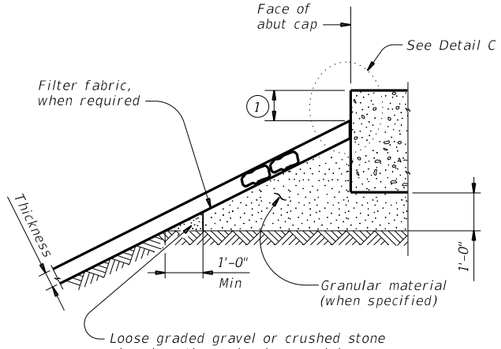
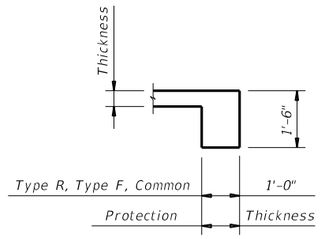


PLAN

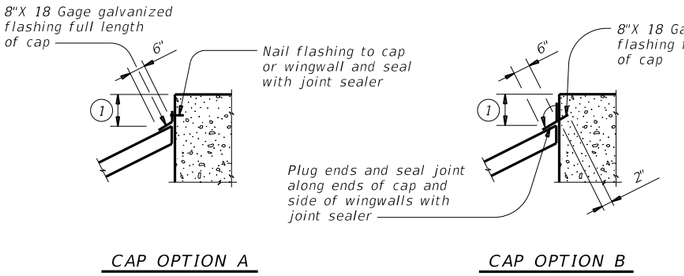


SECTION A-A AT CAP



SECTION B-B

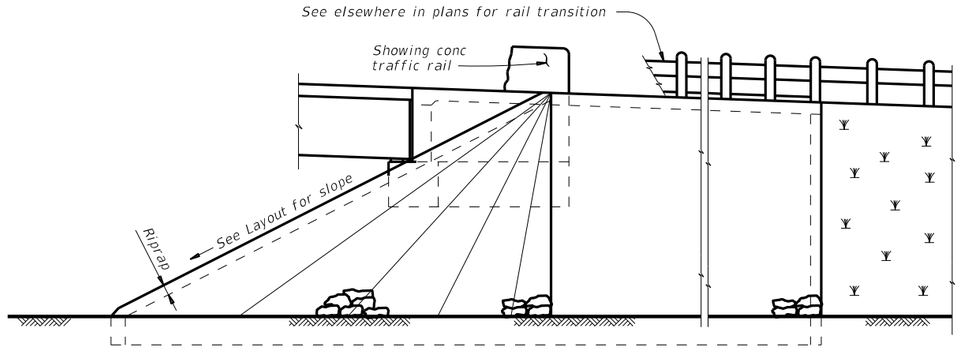
Provide toewall when shoulder drain is located adjacent to limits of stone riprap. Omit toewall when thickness of protection riprap is greater than 18".



CAP OPTION A

CAP OPTION B

DETAIL C



ELEVATION

(1) Top of cap to top of riprap dimension varies as directed by the Engineer. Provide 9" Min for beam/slab type bridges and 1'-6" for slab span, box beam, or slab beam bridges.

GENERAL NOTES:
Refer to Item 432, "Riprap" for stone size and gradation, and construction details. See Layout for limits and thickness of riprap specified.
See elsewhere in plans for locations and details of shoulder drains.

Texas Department of Transportation

Bridge Division Standard

STONE RIPRAP

SRR

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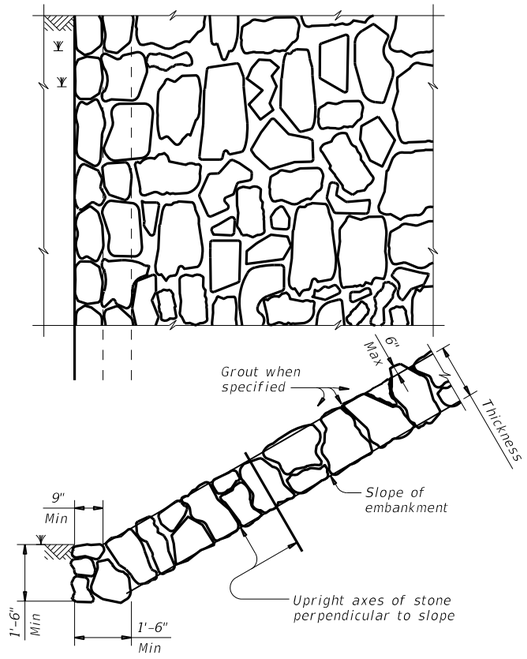


FIGURE 1 ~ TYPE R STONE RIPRAP

dry or grouted

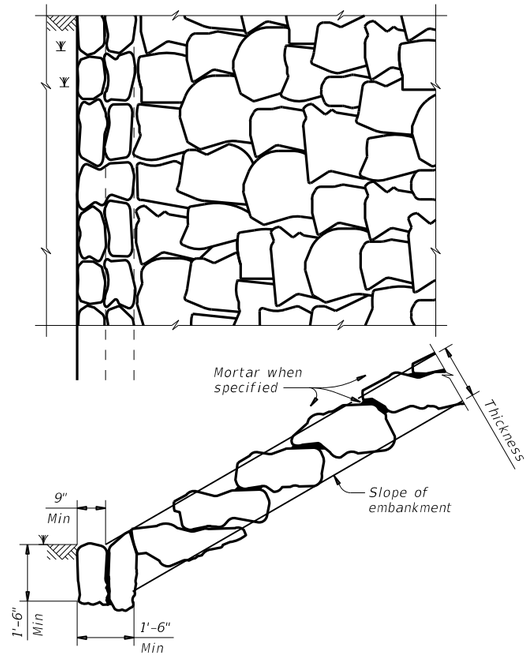


FIGURE 2 ~ TYPE F STONE RIPRAP

dry or mortared

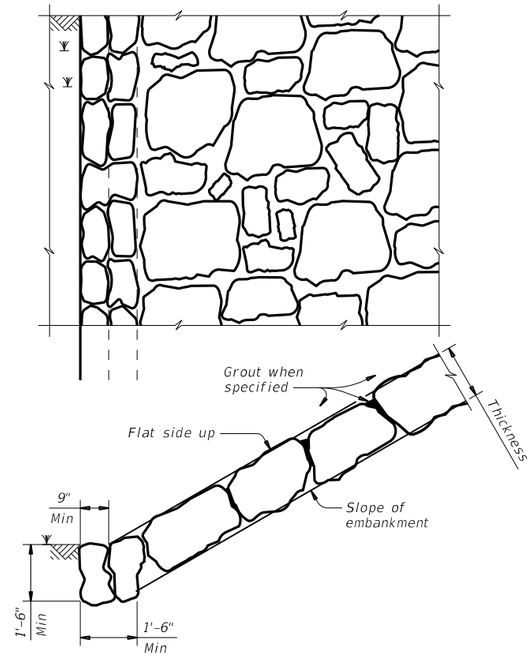


FIGURE 3 ~ TYPE F STONE RIPRAP

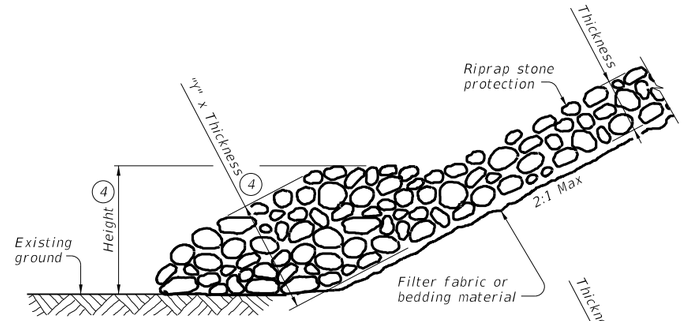
grouted

(2) Provide bedding material instead of filter fabric if shown elsewhere in plans. See Layout for thickness of bedding material.

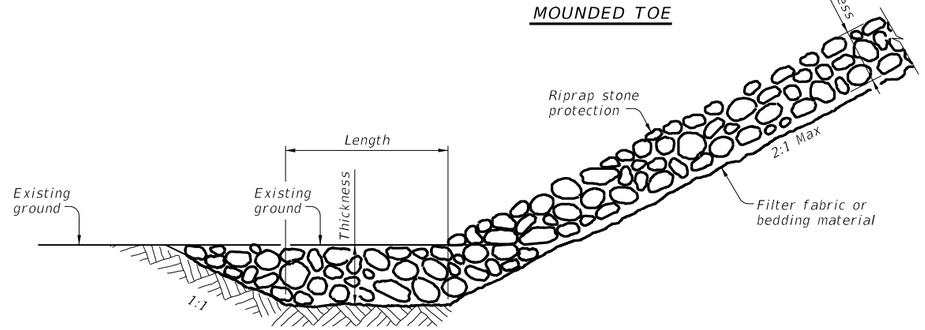
(3) Minimum toe depth is the larger of the maximum scour depth or 2 times the riprap thickness.

(4) "Y" and Height need to be defined. See layout or detail sheet for values if this option is used.

(5) List Stone Protection as size (XX inch) and thickness (YY inch) on the layout.
Example: Riprap (Stone Protection) XX inch, Thickness = YY inch.



MOUNDED TOE



EXTENDED ROCK FILLED TRENCH

PROTECTION STONE RIPRAP TOE OPTIONS (5)

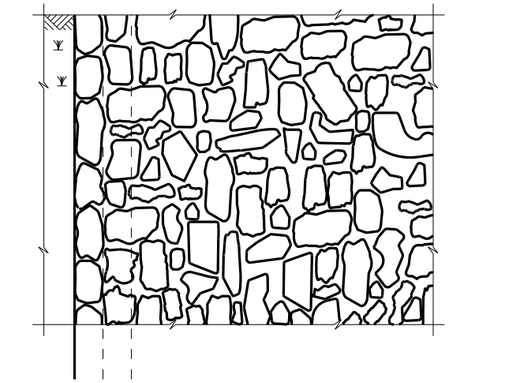


FIGURE 4 ~ COMMON STONE RIPRAP

dry or grouted

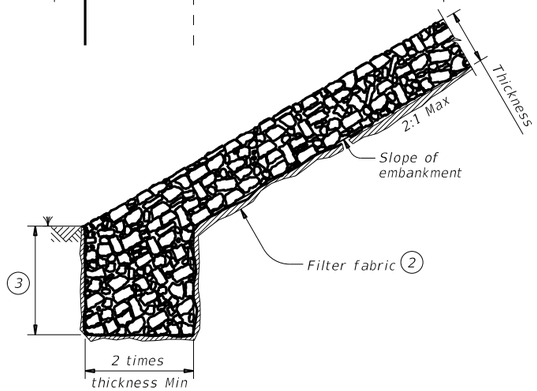


FIGURE 5 ~ PROTECTION STONE RIPRAP (5)

SHEET 2 OF 2

Texas Department of Transportation

Bridge Division Standard

STONE RIPRAP

SRR

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	PHR	HIDALGO		193

DATE:
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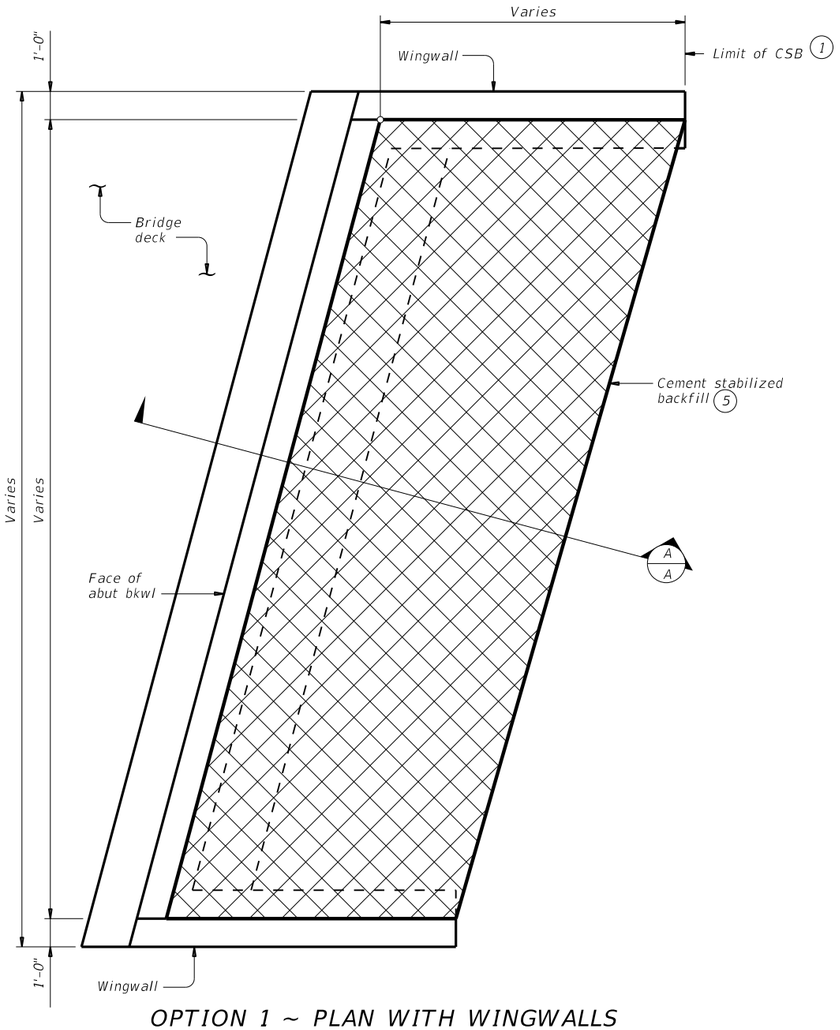
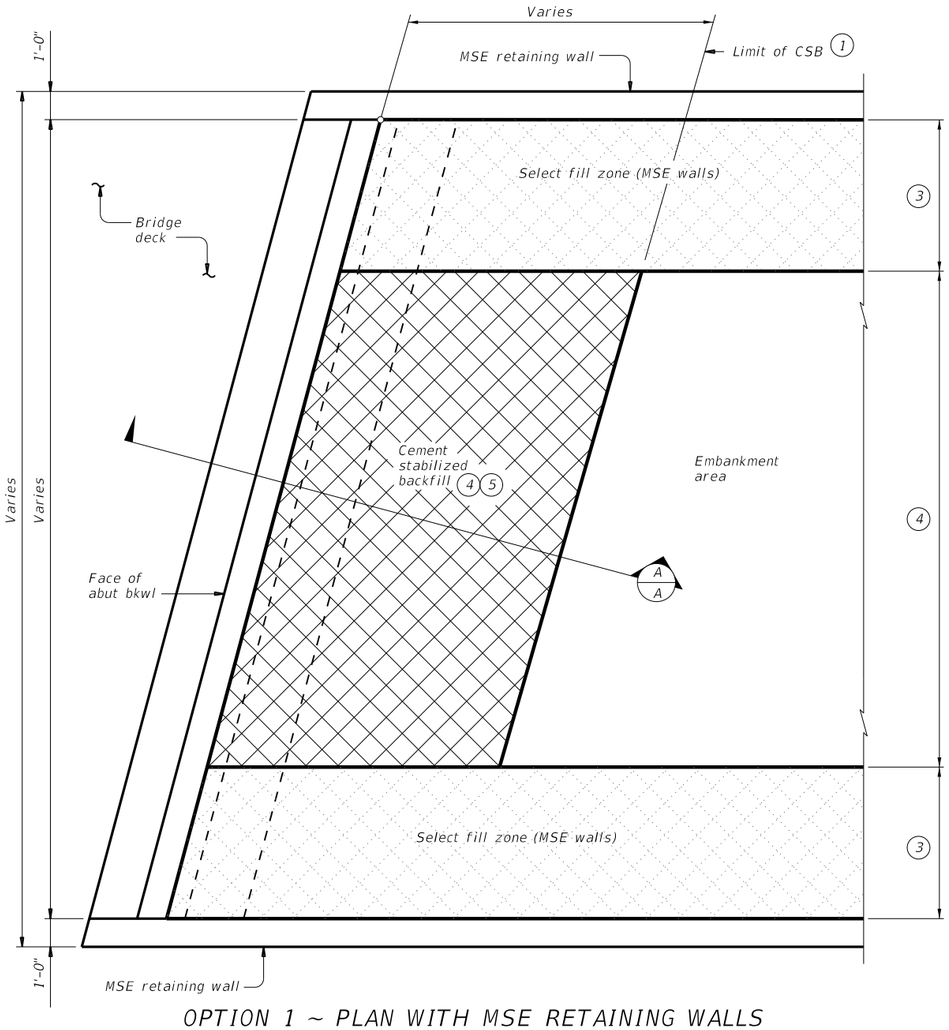
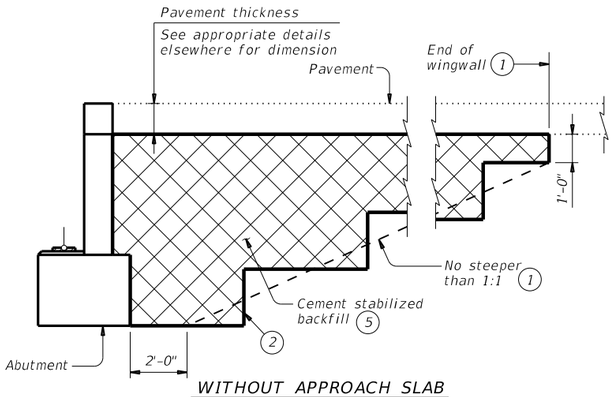


OPTION 1 ~ PLAN WITH WINGWALLS

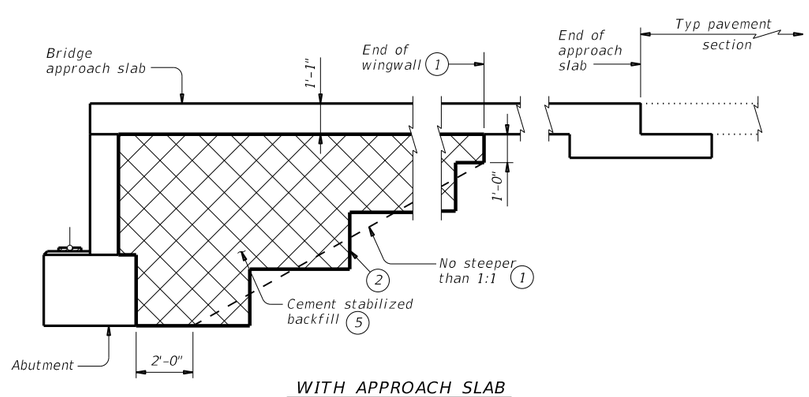
Cast-in-place retaining walls similar.



OPTION 1 ~ PLAN WITH MSE RETAINING WALLS



WITHOUT APPROACH SLAB



WITH APPROACH SLAB

(Showing BAS-C, BAS-A similar.)

SECTION A-A

(1) Usual limit of Cement Stabilized Backfill is at end of wingwall. Extend CSB limits as required to maintain a slope no steeper than 1:1 at bottom of backfill.

(2) Bench backfill as shown with 12" (approximate) bench depths.

(3) Where MSE retaining walls are present, adjust CSB limits to accommodate the select fill zone. See retaining wall details for additional information.

(4) When distance between select fill zones is less than 5'-0", MSE select fill may be substituted for cement stabilized backfill with approval from the Engineer.

(5) If shown in the plans flowable backfill can be used as a substitute for cement stabilized backfill with the following constraints:
a). If flowable backfill is to be placed over MSE backfill then a filter fabric will be placed over the MSE backfill prior to placement of the flowable fill; and
b). Place flowable fill in lifts not exceeding 2 feet in height, place each successive lift when the previous lift has stiffened/hardened (i.e. has lost its flowability).

GENERAL NOTES:

See the Bridge Layout for selected Option. Option 2 is intended for new construction requiring high plasticity embankment fill with a plasticity index (PI) greater than 30 or pavement built in poor native soil. Poor soils are defined as high plasticity clays or expansive clays. Option 1 is intended for construction only requiring PI controlled embankment fill or excavation in competent soils/rocks in order to construct the abutment.

Provide Cement Stabilized Backfill (CSB) meeting the requirements of Item 400, "Excavation and Backfill for Structures", to the limits shown at bridge abutments.

If required elsewhere in the plans, provide Flowable Backfill meeting the requirements of Item 401, "Flowable Backfill", to the limits shown at bridge abutments.

Details are drawn showing left forward skew. See Bridge Layout for actual skew direction.

These details do not apply when Concrete Block retaining walls are used in lieu of wingwalls.

Texas Department of Transportation

Bridge Division Standard

CEMENT STABILIZED ABUTMENT BACKFILL

BRIDGE ABUTMENT

CSAB

FILE: csabste1-20.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
©TxDOT April 2019	CONT	SECT	JOB	HIGHWAY
REVISIONS	1586	01	079	FM 907
02-20: Added Option 2.	DIST	COUNTY		SHEET NO.
	PHR	HIDALGO		194

DATE:
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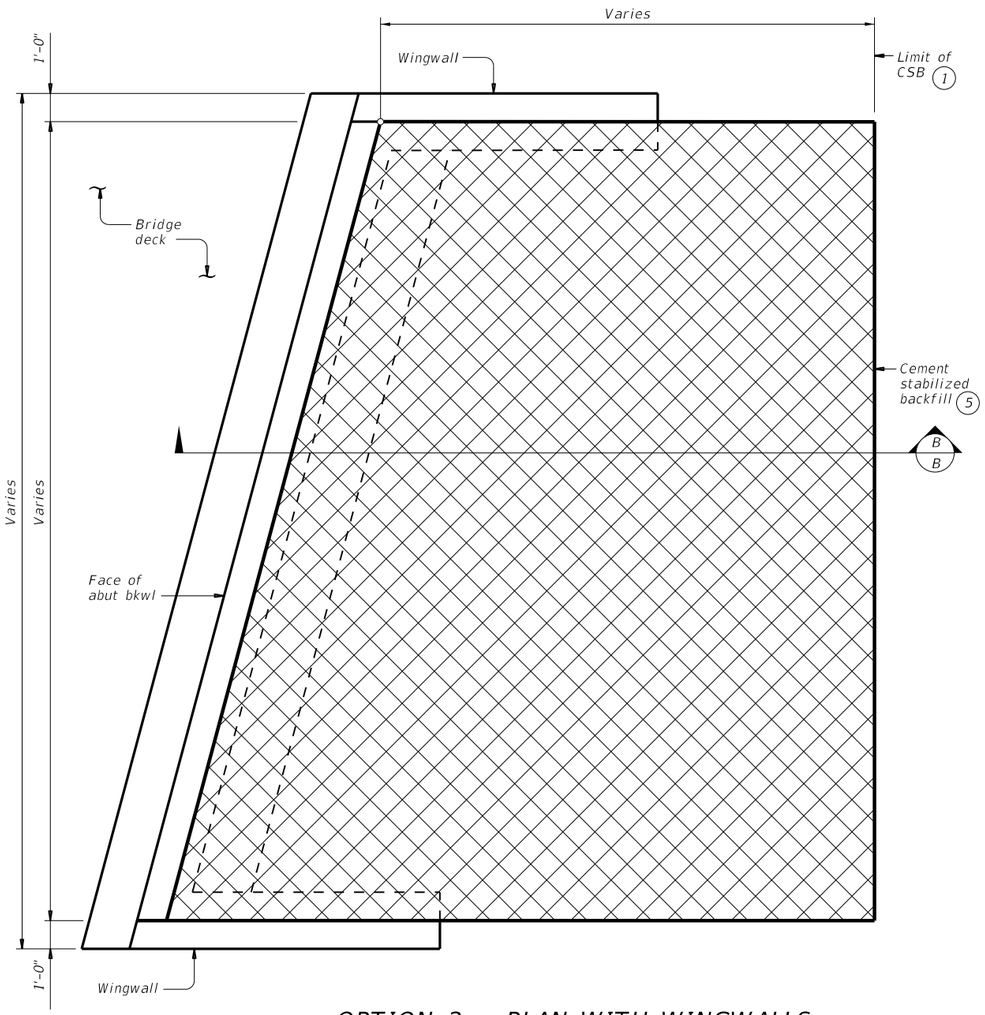
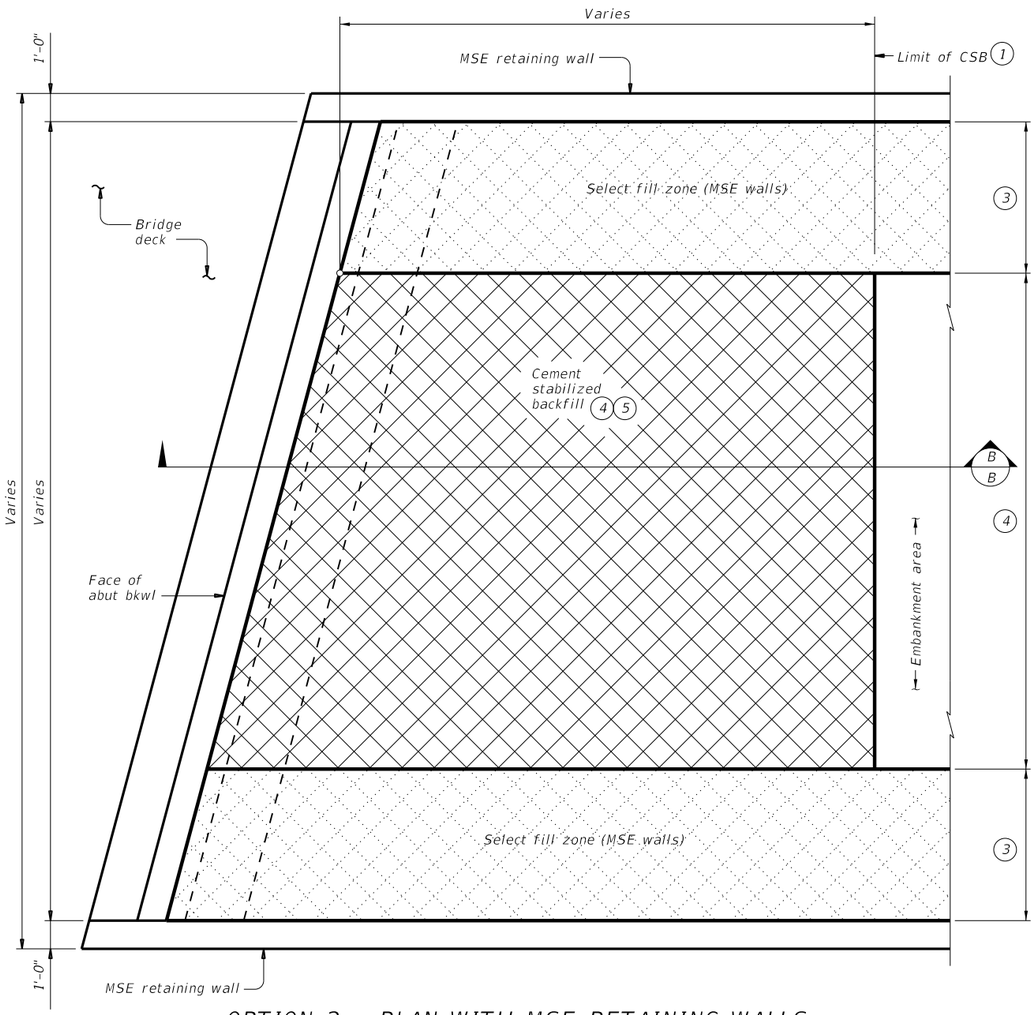


OPTION 2 ~ PLAN WITH WINGWALLS

Cast-in-place retaining walls similar.



OPTION 2 ~ PLAN WITH MSE RETAINING WALLS

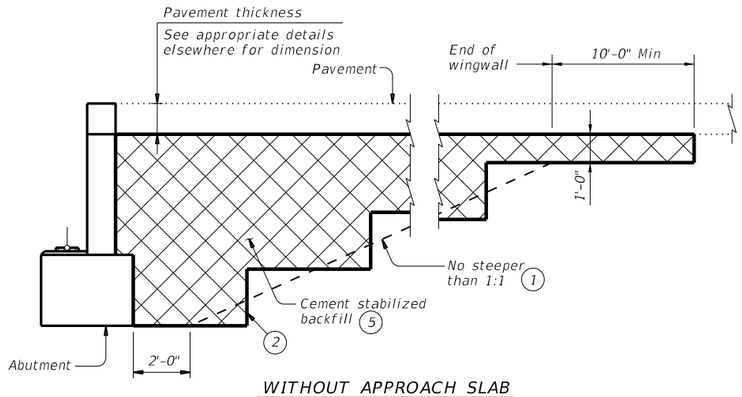
(1) Usual limit of Cement Stabilized Backfill is at end of wingwall. Extend CSB limits as required to maintain a slope no steeper than 1:1 at bottom of backfill.

(2) Bench backfill as shown with 12" (approximate) bench depths.

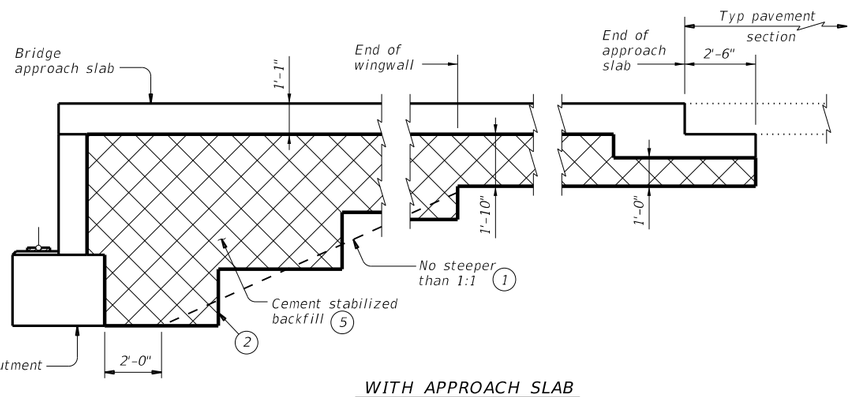
(3) Where MSE retaining walls are present, adjust CSB limits to accommodate the select fill zone. See retaining wall details for additional information.

(4) When distance between select fill zones is less than 5'-0", MSE select fill may be substituted for cement stabilized backfill with approval from the Engineer.

(5) If shown in the plans flowable backfill can be used as a substitute for cement stabilized backfill with the following constraints:
a). If flowable backfill is to be placed over MSE backfill then a filter fabric will be placed over the MSE backfill prior to placement of the flowable fill; and
b). Place flowable fill in lifts not exceeding 2 feet in height, place each successive lift when the previous lift has stiffened/hardened (i.e. has lost its flowability).



WITHOUT APPROACH SLAB



WITH APPROACH SLAB

(Showing BAS-C, BAS-A similar.)

SECTION B-B

SHEET 2 OF 2

Texas Department of Transportation

Bridge Division Standard

CEMENT STABILIZED ABUTMENT BACKFILL

BRIDGE ABUTMENT

CSAB

FILE: csabste1-20.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
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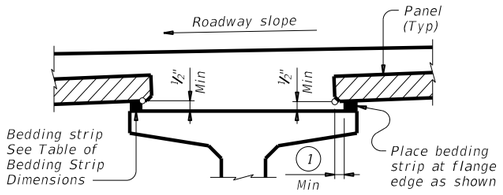
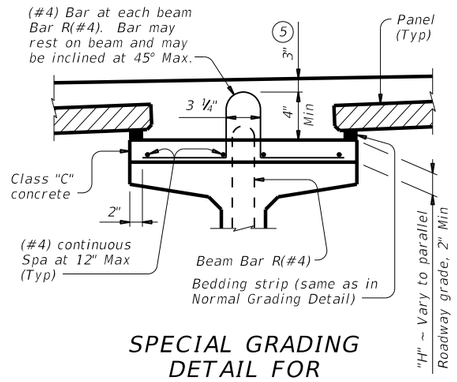


NORMAL GRADING DETAIL (3)

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



SPECIAL GRADING DETAIL FOR CONCRETE BEAMS

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

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

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

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

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

(4) Height must not exceed twice the width.

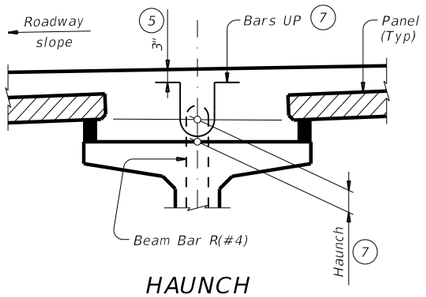
(5) Provide clear cover as indicated unless otherwise shown on Span Details.

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

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

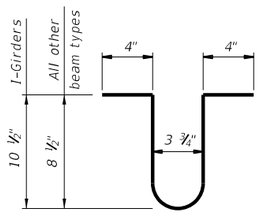
(8) Do not locate construction joints on top of a panel.

(9) Butt adjacent bedding strips together with adhesive. Cut v-notches, approx ¼" deep, in the top of the bedding strips at 8' o.c..

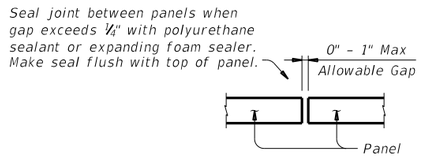


HAUNCH REINFORCING DETAIL

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

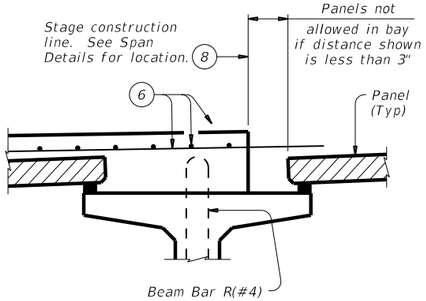


BARS UP (#4) (7)

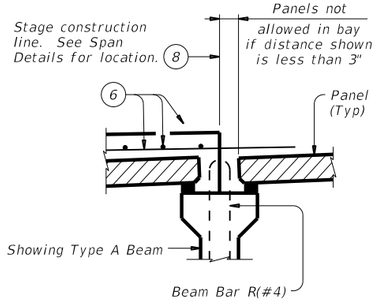


PANEL JOINTS

(Panel reinforcing not shown for clarity.
The gap cannot be considered as a panel fabrication tolerance. Adjust panel placement to minimize joint openings.)



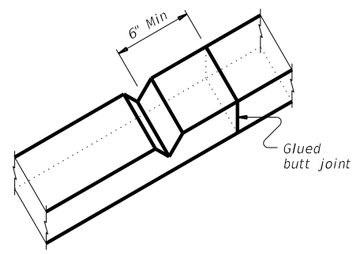
PRESTR CONC I-GIRDERS



PRESTR CONC I-BEAMS

STAGE CONSTRUCTION LIMITATIONS

(Other beam types similar)



BEDDING STRIP DETAIL (9)

CONSTRUCTION NOTES:

Erected panels must bear uniformly on bedding strips of extruded polystyrene placed along top flange edges.

Placing panels to minimize joint openings is recommended.

If additional blocking is needed, special grading details for supporting the panels and extra reinforcing between beam and slab will be considered subsidiary to deck construction.

Bars U, shown on PCP-FAB, may be bent over or cut off if necessary.

Care must be taken to ensure proper cleaning of construction debris and consolidation of concrete material under the edges of the panels. Bedding strips must be placed at beam flange edges so that adequate space is provided for the mortar to flow a minimum of 1 ½" under the panels as the slab concrete is placed.

To allow the proper amount of mortar to flow between beam and panel, the minimum vertical opening must be at least ½". Roadway cross-slope reduces the opening available for entry of the mortar. Bedding strips varying in thickness across the beam are therefore required.

For clear span between U-beams less than or equal to 18", see Permissible Slab Forming Detail on Miscellaneous Slab Detail sheets, UBMS.

MATERIAL NOTES:

Provide Grade 60 reinforcing steel in the cast-in-place slab. See Table of Reinforcing Steel for size and spacing of reinforcement.

If the top and bottom layer of reinforcing steel is shown on the Span Details to be epoxy coated, then the D, E, P, & Z bars must be epoxy coated.

Provide bar Laps, where required, as follows:

Uncoated ~ #4 = 1'-7"
Epoxy Coated ~ #4 = 2'-5"

GENERAL NOTES:

Designed according to AASHTO LRFD Bridge Design Specifications.

Panel placement may follow either Option 1 or Option 2 except Option 1 must be used if the skew exceeds 45 degrees.

Use of Prestressed Concrete Panels is not permitted for horizontally curved steel plate or tub girders. See Span Details for other possible restrictions on their use.

These details are to be used in conjunction with the Span Details, PCP-FAB and other applicable standard drawings.

When panel support (bedding strips) deviates from what is shown herein, provide details signed and sealed by a professional Engineer.

Any additional reinforcement or concrete required on this standard is considered subsidiary to the bid Item "Reinforced Concrete Slab".

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

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Bridge Division Standard

PRESTRESSED CONCRETE PANELS DECK DETAILS

PCP

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©TxDOT April 2019	CONT	SECT	JOB	HIGHWAY
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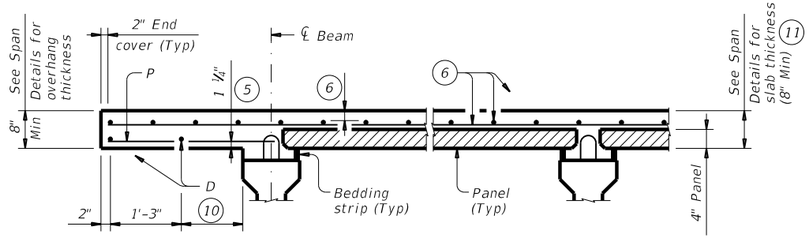
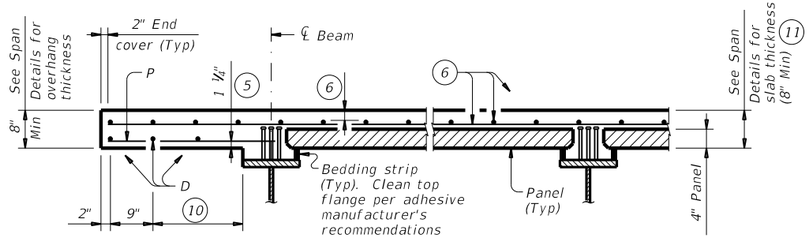
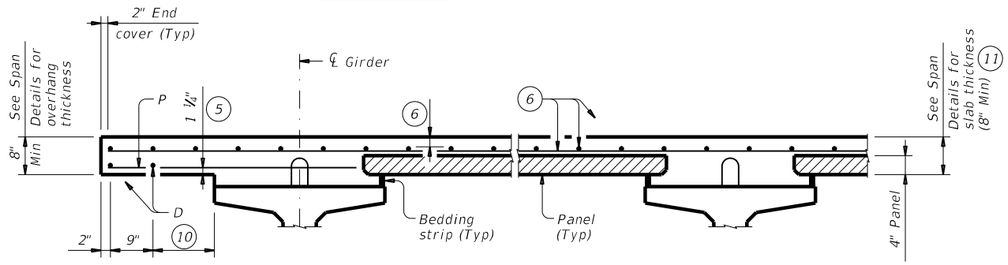


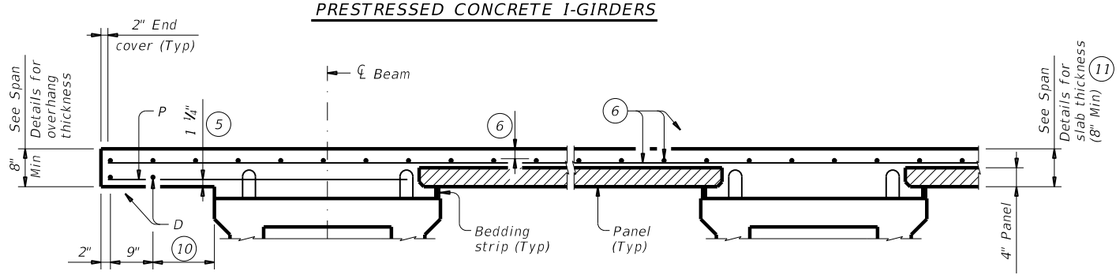
PRESTRESSED CONCRETE I-BEAMS



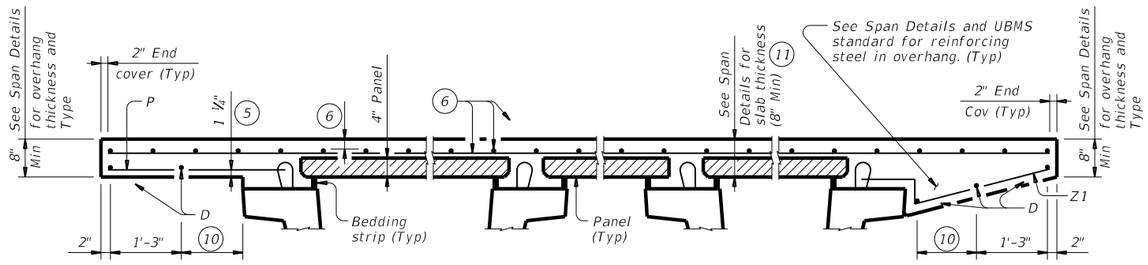
STEEL BEAMS



PRESTRESSED CONCRETE I-GIRDERS



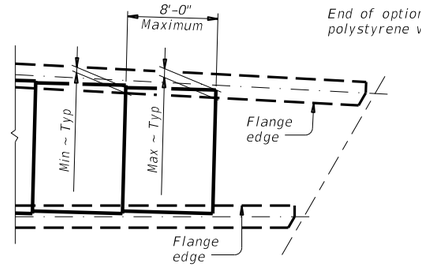
PRESTRESSED CONCRETE X-BEAMS



NORMAL OVERHANG WITH PRESTR CONC U-BEAMS

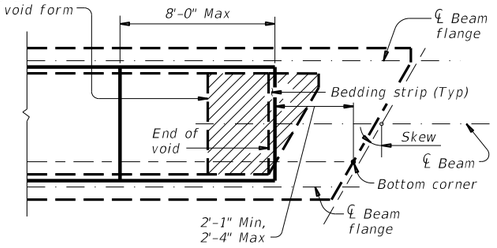
SLOPED OVERHANG WITH PRESTR CONC U-BEAMS

TYPICAL PART TRANSVERSE SECTIONS

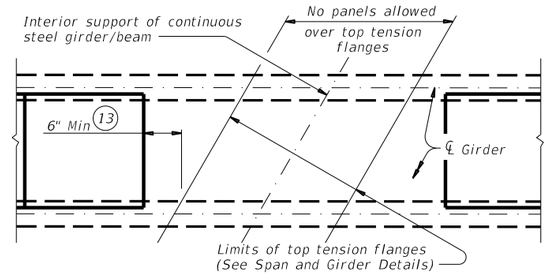


AT FLARED BEAMS OR GIRDERS

See PCP-FAB standard for Min and Max dimensions based on bemm/girder type.



OVER CONC U-BEAMS



AT INT SUPPORTS OF CONTINUOUS STEEL GIRDERS

PART PLANS OF PANEL PLACEMENT

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

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

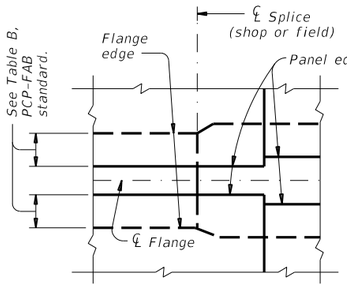
(9) Butt adjacent bedding strips together with adhesive. Cut v-notches, approx ¼" deep, in the top of the bedding strips at 8' o.c..

(10) Equally space additional bar if more than 1'-3" Max.

(11) The actual thickness constructed may exceed the slab thickness shown on the Span Details but the extra thickness may be no more than 2" (1" for prestressed concrete U-beams and steel beams). Bearing seat elevations or finished grade may be adjusted.

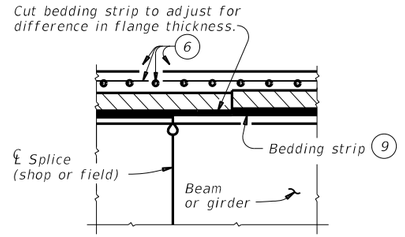
(12) Field adjust Bars Z1(#4) to match actual slope of slab overhangs. Width of slab overhang will vary along span with curved slab edges. Adjust Bar Z1(#4) dimensions to maintain proper cover. Bars Z2(#4) are located at Inverted-Tee stems only.

(13) Location of concrete placement sequence boundaries and bolted field splices should be considered by the contractor in determining panel limits.



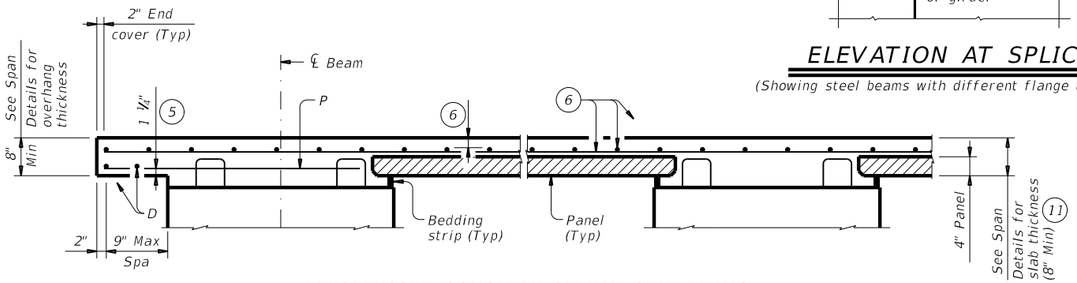
PLAN AT SPLICE

(Showing steel beams with flange width transition)



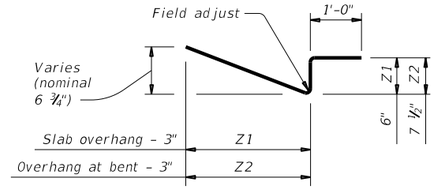
ELEVATION AT SPLICE

(Showing steel beams with different flange thickness)



PRESTRESSED CONCRETE SPREAD SLAB BEAMS

Bars P over exterior beams are still required when no overhang is used. In this case, only one Bar D, 2" from slab edge, is required.



BARS Z (#4) (12)

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Bridge Division Standard

PRESTRESSED CONCRETE PANELS
DECK DETAILS

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	PHR	HIDALGO		197

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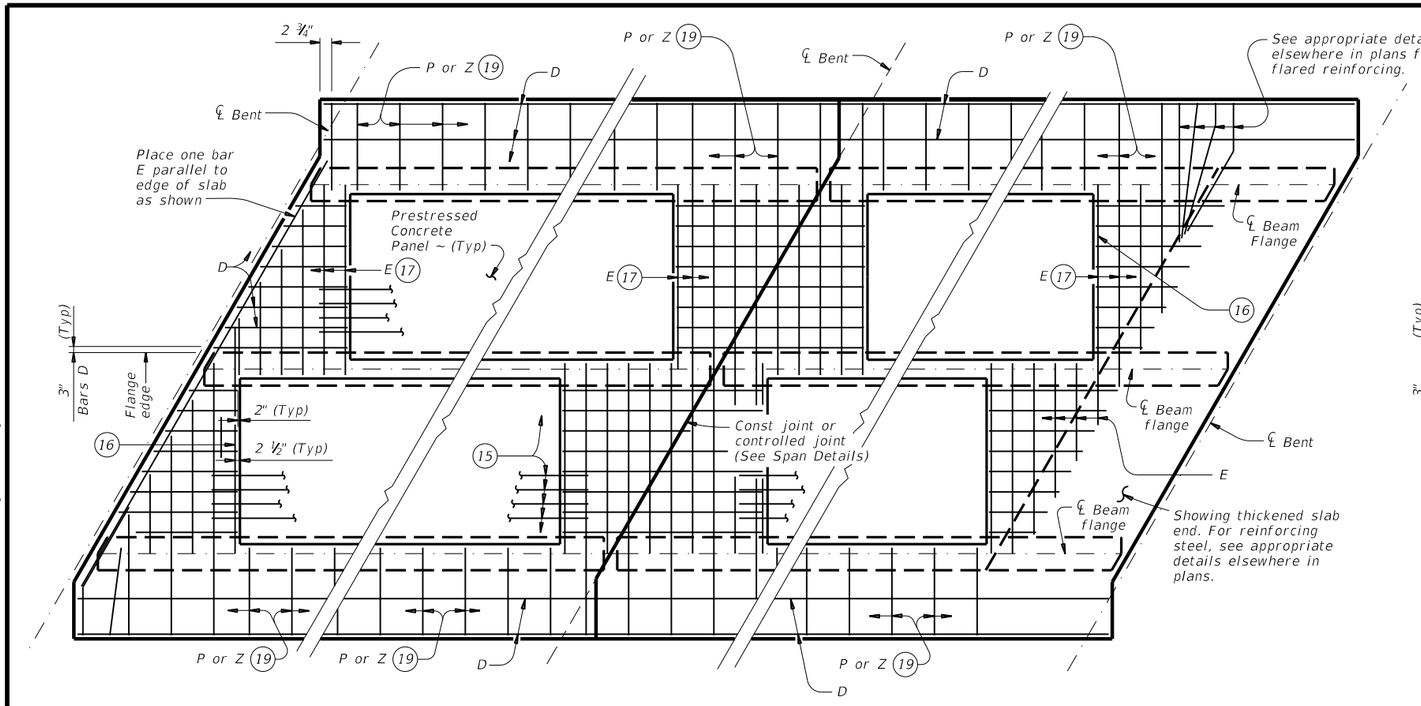
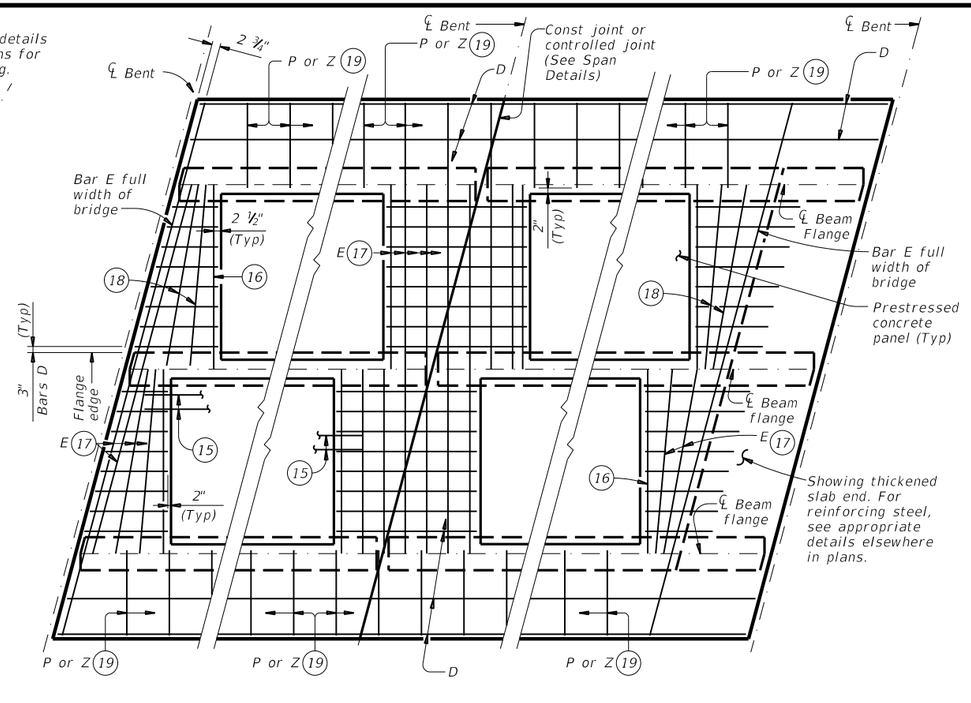


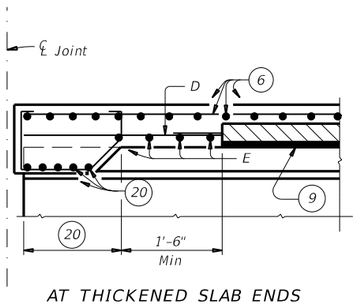
AT ALL SPAN ENDS UNLESS NOTED OTHERWISE | AT INTERIOR BENTS | AT THICKENED END SLABS

OPTION 1 ~ PLAN OF SLABS WITH NORMAL REINFORCEMENT

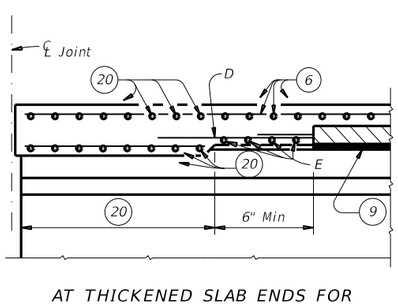


AT ALL SPAN ENDS UNLESS NOTED OTHERWISE | AT INTERIOR BENTS | AT THICKENED END SLABS

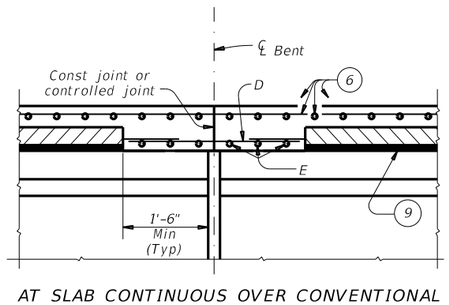
OPTION 1 ~ PLAN OF SLABS WITH SKEWED REINFORCEMENT



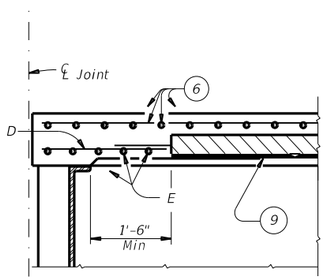
AT THICKENED SLAB ENDS FOR PRESTR CONC U-BMS



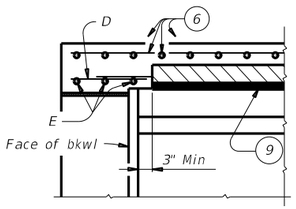
AT THICKENED SLAB ENDS FOR PRESTR CONC I-BMS AND STEEL BMS



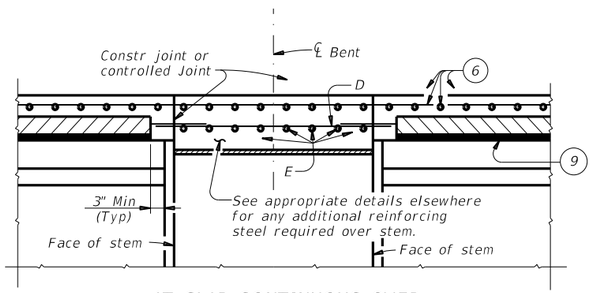
AT SLAB CONTINUOUS OVER CONVENTIONAL INTERIOR BENTS FOR ALL SIMPLE SPAN BMS



AT CONVENTIONAL END DIAPHRAGMS FOR STEEL BMS



AT SLAB OVER ABUTMENT BACKWALL FOR ALL BMS



AT SLAB CONTINUOUS OVER INVERTED-T BENTS FOR ALL BMS

OPTION 1 ~ ELEVATIONS AT BEAM ENDS

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

(9) Butt adjacent bedding strips together with adhesive. Cut v-notches, approx ¼" deep, in the top of the bedding strips at 8' o.c.

(14) Max Spacing as listed unless otherwise shown.

(15) At connection with cast-in-place slab, extend longitudinal panel reinforcement. See PCP-FAB for details.

(16) Maintain one Bar E(#4) parallel to panel ends (Typ).

(17) Bars E(#4) not continuous over beam flanges must overlap beam flange 6" Min.

(18) Add flared Bars E(#4) (Min Spa = 6", Max Spa = 12") as required at panel ends.

(19) Where possible, Bars E(#4) may be extended into overhangs to replace Bars P(#4). Bars Z(#4) are required for sloped overhangs with U-Beams.

(20) See appropriate thickened slab end details for reinforcing and limits of thickened slab end.

TABLE OF REINFORCING STEEL (14)

BAR	SIZE	Max Spa (in.)
D	#4	9
E	#4	9
P	#4	18
UP	#4	~
Z	#4	18

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Texas Department of Transportation

Bridge Division Standard

PRESTRESSED CONCRETE PANELS
DECK DETAILS

PCP

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DATE:
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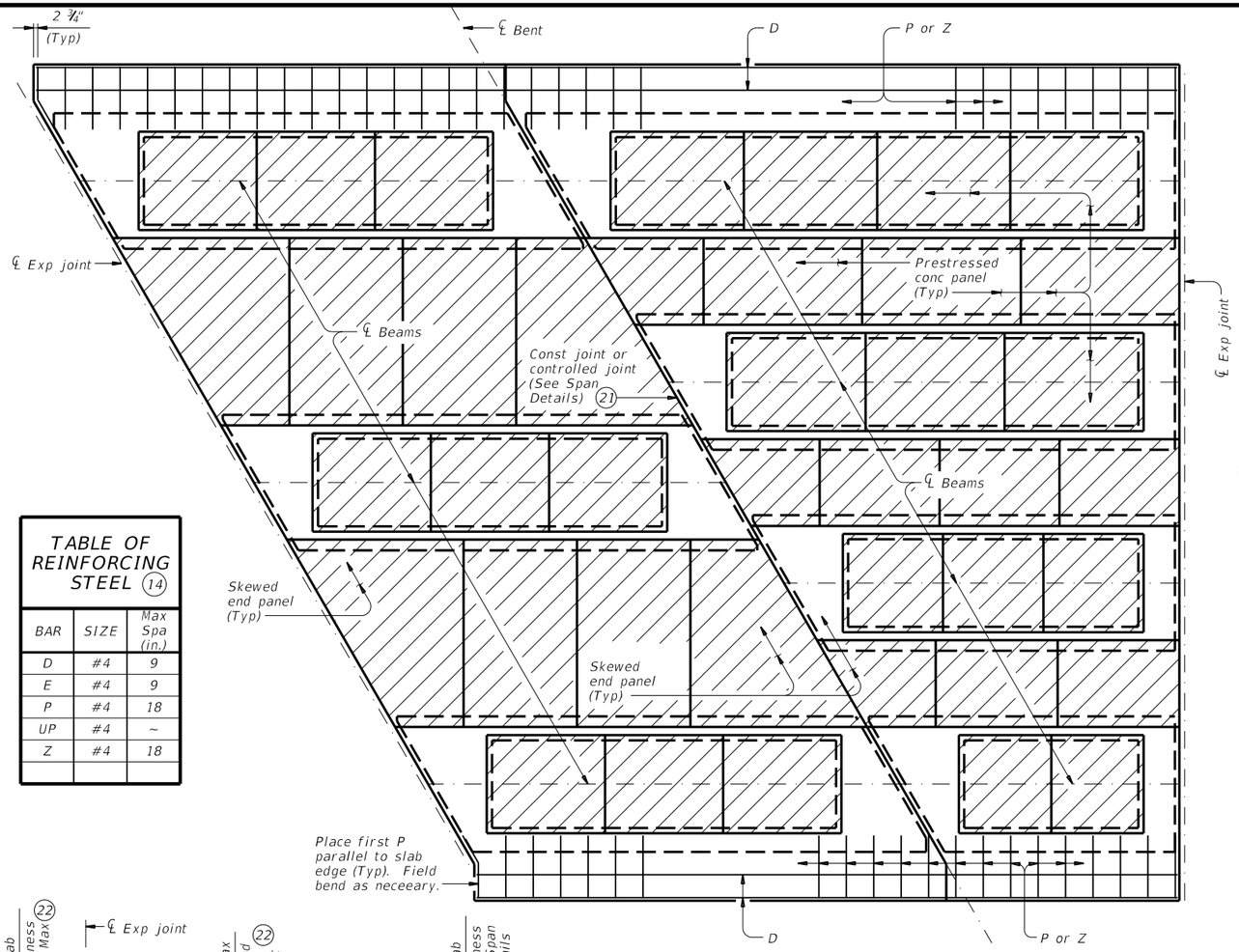
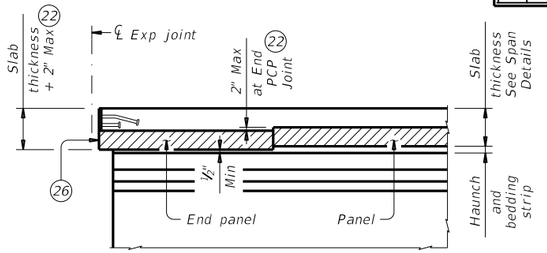


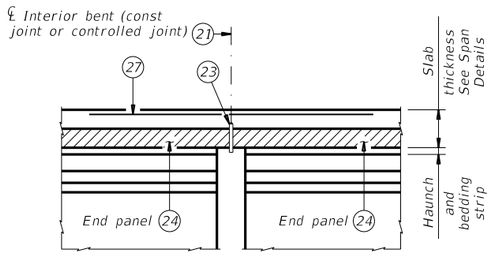
OPTION 2 ~ PLAN OF SLAB

(Showing U-Beams; other beams similar)



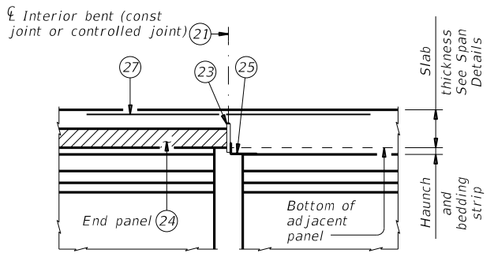
JOINTS (BETWEEN BEAMS/GIRDERS OR AT INV-T STEM)

For SEJ-A, SEJ-S(0), AJ, and Type A expansion joints only.



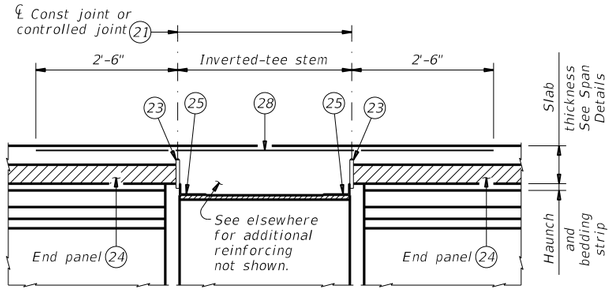
CONVENTIONAL INTERIOR BENT

Panel against panel between beams/girders.



CONVENTIONAL INTERIOR BENT

Panel against panel between beam/girder end in adacent span.

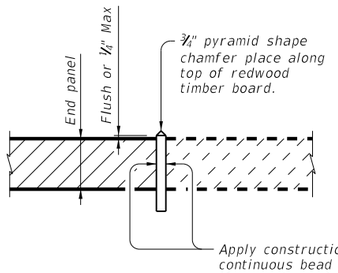


INVERTED-T BENT

Panels against inverted-tee stem

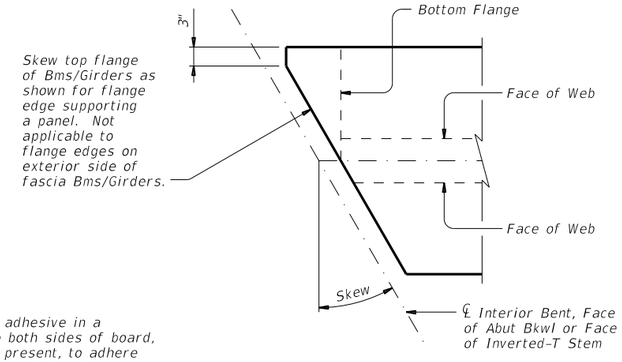
OPTION 2 ~ ELEVATIONS AT BEAM ENDS (6)

TABLE OF REINFORCING STEEL (14)		
BAR	SIZE	Max Spa (in.)
D	#4	9
E	#4	9
P	#4	18
UP	#4	~
Z	#4	18



ELEVATION EXAMPLE OF END PANEL AND TIMBER BOARD (23)

See "Option 2 ~ Elevation At Beam Ends".



OPTION 2 ~ SHOWING MODIFICATION TO BEAM/GIRDER TOP FLANGE FOR SKEWS OVER 5°

Showing I-Bm/I-Girder, U-Bms and Steel Bms similar.

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

(14) Max Spacing as listed unless otherwise shown.

(21) 1 ½" Vinyl or plastic joint former at controlled joints (Stress Cap, Zip Strip, Stress Lock, or equal as approved by the Engineer.)

(22) End panel may be set up to 2" lower to accommodate expansion joint hardware, provided bedding strip is not less than ½" thick.

(23) ¾" thick redwood timber board, leave in place. Redwood timber board placed flush with top of panel or within ¼" Max above panel. Place ¾" pyramid shape chamfer along top of timber board. See "Elevation Example of End Panel and Timber Board". Place straight, within ¼" of centerline of bent or face of inverted-tee, across bridge width and end board at exterior flange edge of fascia beams/girders. Do not extend into overhang.

(24) Place panel within ½" of ¾" thick board.

(25) Permanent galvanized steel sheet form. Removable formwork is acceptable.

(26) Place end panel within ½" of expansion joint opening. End panel cannot encroach on required expansion joint opening.

(27) Place additional (#4) bar 5'-0" in length between every slab bars T. Center (#4) bar on Joint.

(28) Place additional (#4) bar continuous 2'-6" beyond each side of Inverted-T Stem between every slab bars T.

SPECIAL OPTION 2 CONSTRUCTION NOTES:

When Option 2 is chosen bottom mat of thickened end slab reinforcing is not required. Use the same top mat as shown on the Thickened Slab End Details sheet.

Placing panels adjacent to expansion joints and bent centerlines prior to completing interior panel placement is recommended. Saw cutting panels to fit is acceptable when approved by the Engineer. Minimum distance from a saw cut edge to a panel strand is 1 ½".

Do not extend the longitudinal panel reinforcement into the cast-in-place slab.

Top flanges of beams and girders on skewed bridges must be modified as shown on this drawing. The Contractor is responsible for coordinating this modification with the beam fabricator prior to submitting shop drawings for approval.

Fabricator may optionally skew the whole end. When electing to skew whole end, girder end details and bearing type at conventional interior bent must be changed to use condition at abutment. Fabricator must coordinate change in bearing type, bearing centerline location, and dowel location with Engineer and Contractor. Show appropriate changes on girder and bearing shop drawings.

Bending of anchor studs of expansion joints shown on standards AJ, SEJ-A and SEJ-S(0) is permissible if necessary to clear top of end panels. The Contractor is responsible for coordinating modifications with the joint fabricator. Submit shop drawings for approval when modifications to expansion joint hardware are made.

Bedding strips under skewed end panels must conform to the requirements of Item 422 except their minimum compressive strength must be 60 psi.

Provide Bars AA, G, K and 0A from standard IGTS in the slab.

HL93 LOADING

Texas Department of Transportation

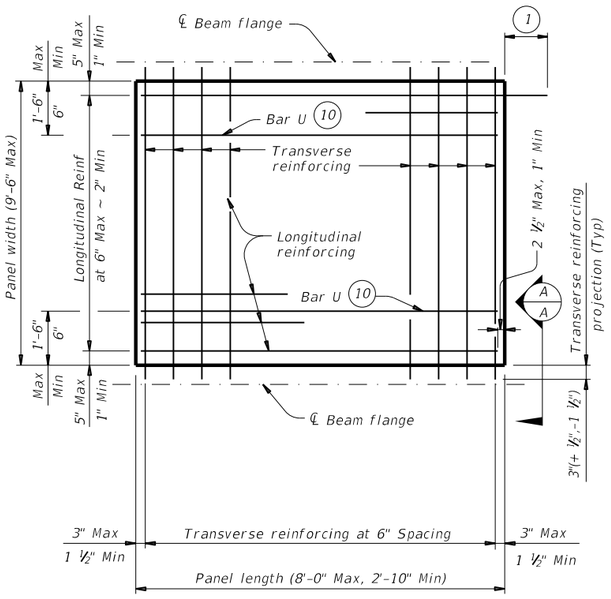
Bridge Division Standard

PRESTRESSED CONCRETE PANELS
DECK DETAILS

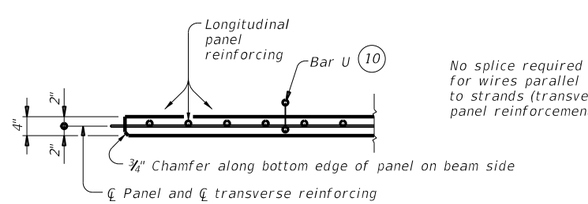
PCP

FILE: pcpstde1-19.dgn	DN: TxDOT	CK: TxDOT	DW: JTR	CK: JMH
©TxDOT April 2019 REVISIONS	CONT	SECT	JOB	HIGHWAY
	1586	01	079	FM 907
	DIST	COUNTY		SHEET NO.
	PHR	HIDALGO		199

DATE:
FILE:

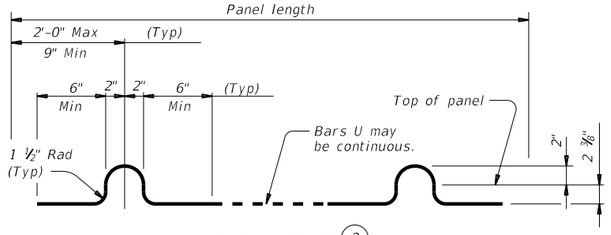


TYPICAL NON-SKEWED PANEL PLAN

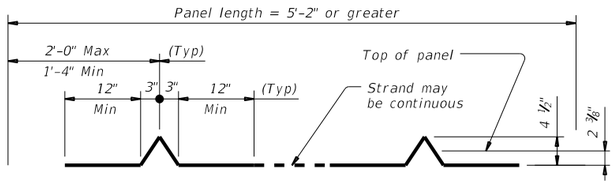


SECTION A-A

(Not showing supplemental #4 bars for skewed end panels.)

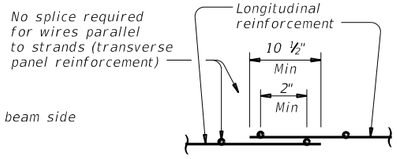


BARS U (#3) (2)



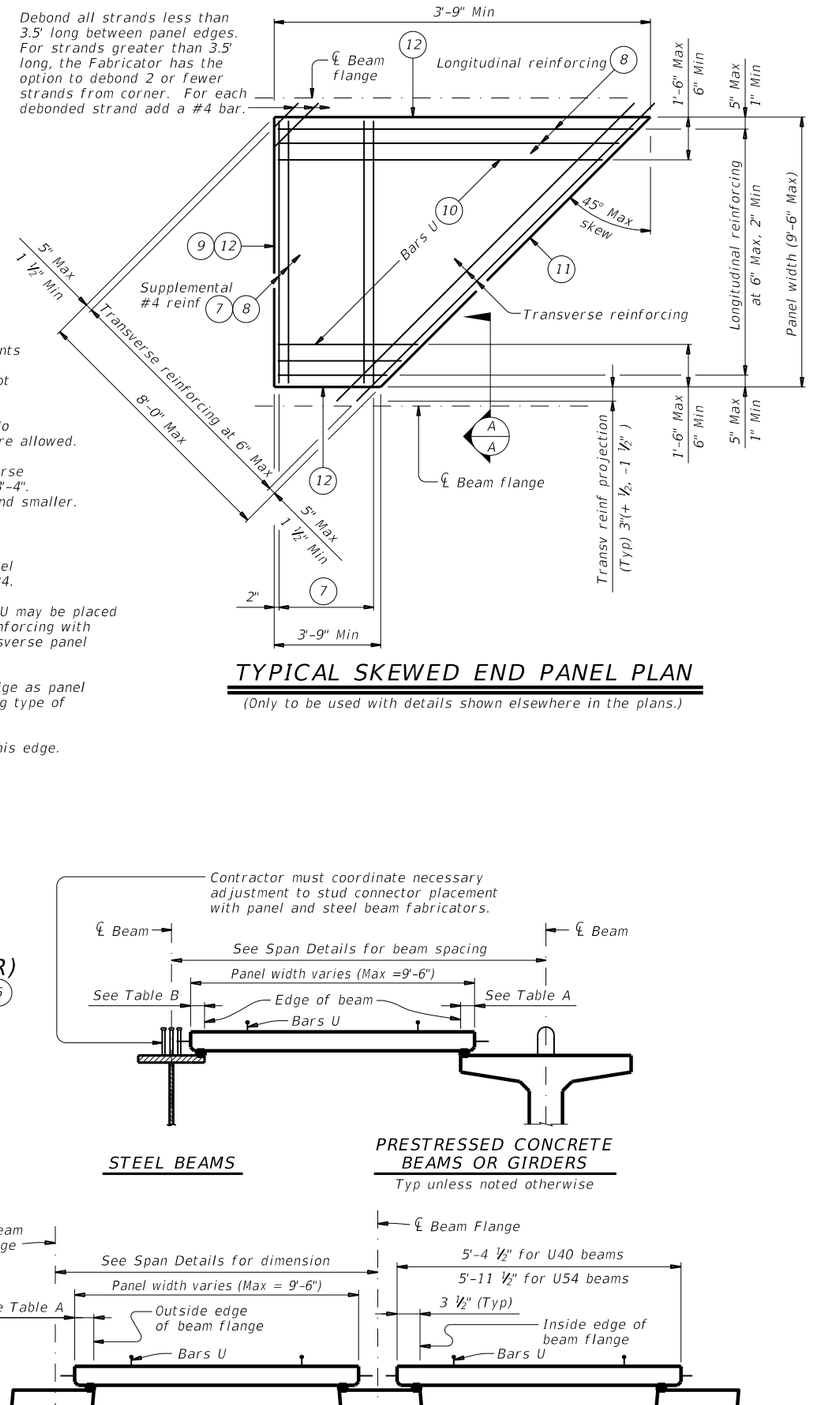
OPTIONAL STRAND FOR BARS U (3)

1. At connection with cast-in-place slab, extend longitudinal panel reinforcement 1'-0" (+2",-0") past panel end. Alternatively, provide (#3) x 2'-0" dowels at 6" Max Spacing and extend dowels 1'-0" past panel end.
2. Four loops required per panel.
3. Four loops required per panel. ⅜" or ½" strands may be used.
4. Normal dimensions must be used on spans with parallel beams. Maximum and Minimum dimensions apply only to spans with flared beams.
5. See Normal Grading Detail on PCP standard for lap requirements and bedding strip dimensions. Some laps shown in tables cannot utilize all bedding strip widths.
6. One Splice allowed per panel. No more than two sheets of WWR are allowed.
7. Provide (#4) bars under transverse reinforcing, 10 Spaces at 4" = 3'-4". Omit for 5 degree (1:12) skew and smaller.
8. End Cover 2 ½" Max, 1" Min.
9. Recess strands on indicated panel edge in accordance with Item 424.
10. At the fabricator's option, Bars U may be placed parallel to transverse panel reinforcing with horizontal legs in plane of transverse panel reinforcing.
11. Use length of indicated panel edge as panel width for purpose of determining type of transverse reinforcing.
12. Timber form work permissible this edge.



WELDED WIRE REINFORCEMENT (WWR) SPLICE DETAIL (6)

Debond all strands less than 3.5' long between panel edges. For strands greater than 3.5' long, the Fabricator has the option to debond 2 or fewer strands from corner. For each debonded strand add a #4 bar.



TYPICAL SKEWED END PANEL PLAN

(Only to be used with details shown elsewhere in the plans.)

TABLE A (4) (5)			
Beam Type	Normal (In.)	Min (In.)	Max (In.)
A	3	2 ½	3 ½
B	3	2 ½	3 ½
C	4	3	4 ½
IV	6	4	7 ½
VI	6 ½	4 ½"	8 ½
U40 – 54	5 ½	5 ½	7
Tx28-70	6	5	7 ½
XB20 – 40	4	3	4 ½
XSB12 – 15	4	3	4 ½

TABLE B (4) (5)			
Top Flange Width	Normal (In.)	Min (In.)	Max (In.)
11" to 12"	2 ¾	2 ½	2 ¾
Over 12" to 15"	3 ¼	3	3 ¼
Over 15" to 18"	4	3	4 ¾
Over 18"	5	3 ½	6 ¼

GENERAL NOTES:

Provide Class H concrete for panels. Release strength f'ci=3,500 psi. Minimum 28 day strength f'c=5,000 psi.

Provide ¾" chamfer along bottom edge of panel on beam side.

Do not use epoxy-coated reinforcing steel bar or strand in panels.

Remove laitance from top panel surface.

Finish top of panel to a roughness between a No. 6 and No. 9 concrete surface profile, inclusive, as specified by the International Concrete Repair Institute (ICRI).

Shop drawings for the fabrication of panels will not require the Engineer's approval if fabrication is in accordance with the details shown on this standard.

A panel layout which identifies location of each panel must be developed by the Fabricator. Permanently mark each panel in accordance with the panel layout. A copy of the layout is to be provided to the Engineer.

TRANSVERSE PANEL REINFORCEMENT:

For panel widths over 5', use ⅜" or ½" Dia (270k) prestressing strands with a tension of 14.4 kips per strand.

For panel widths over 3'-6" up to and including 5', use ⅜" or ½" Dia (270k) prestressing strands with a tension of 14.4 kip per strand. Optionally, (#4) Grade 60 reinforcing bars may be used in lieu of prestressed strands.

For panel widths up to 3'-6", use (#4) Grade 60 reinforcing bars (prestressed strands alone are not allowed).

Place transverse panel reinforcement at panel centroid and space at 6" Max.

LONGITUDINAL PANEL REINFORCEMENT:

Any of the following options may be used for longitudinal panel reinforcement:

1. (#3) Grade 60 reinforcing steel at 6" Max Spacing. No splices allowed.
2. ⅜" Dia prestressing strands at 4 ½" Max Spacing (unstressed). No splices allowed.
3. ½" Dia prestressing strands at 6" Max Spacing (unstressed). No splices allowed.
4. Deformed Welded Wire Reinforcement (WWR) (ASTM A1064) providing 0.22 sq in per foot of panel width. Wires larger than D11 not permitted. Provide transverse wires to ensure proper handling of reinforcing. One splice per panel is allowed. See WWR Splice Detail.

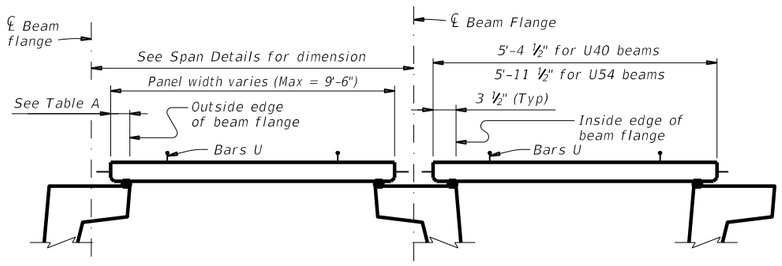
No combination of longitudinal reinforcement options in a panel is allowed.

Place longitudinal panel reinforcement above or below transverse panel reinforcement. Must be placed above transverse panel reinforcement for skewed end panels with supplemental (#4) reinforcement.

STEEL BEAMS

PRESTRESSED CONCRETE BEAMS OR GIRDERS

Typ unless noted otherwise



PRESTRESSED CONCRETE U-BEAMS

TYPICAL SECTIONS FOR DETERMINING PANEL WIDTH

HL93 LOADING

Texas Department of Transportation

Bridge Division Standard

PRESTRESSED CONCRETE PANEL FABRICATION DETAILS

PCP-FAB

FILE: pcpstde2-19.dgn	DN: TxDOT	CK: TxDOT	DW: JTR	CK: AES
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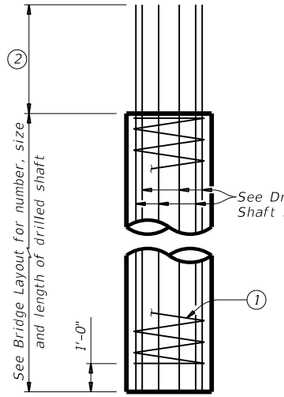
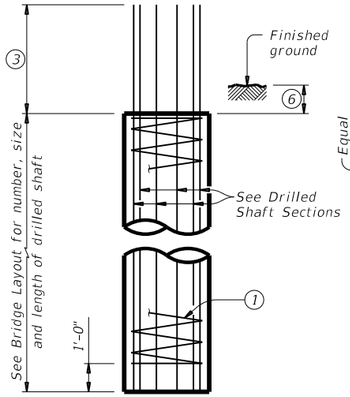
	PHR	HIDALGO		200

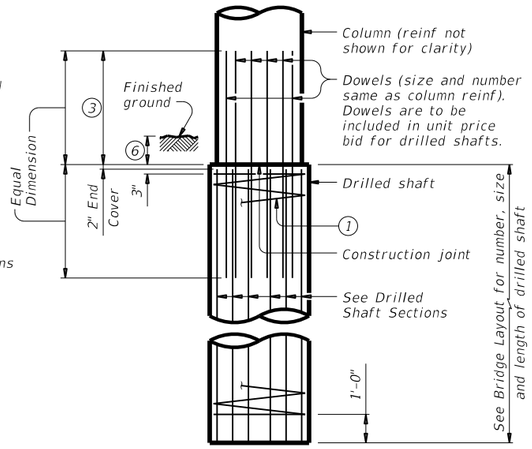
DATE:
FILE:



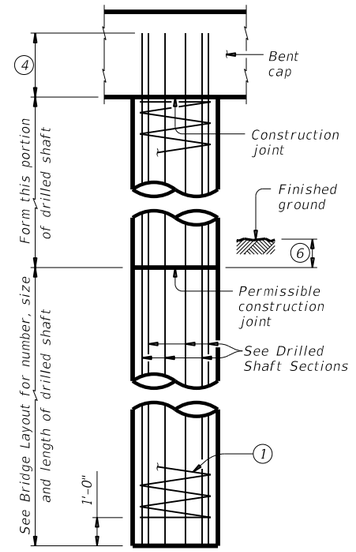
ABUTMENTS, WINGWALLS AND MULTI-DRILLED SHAFT FOOTINGS



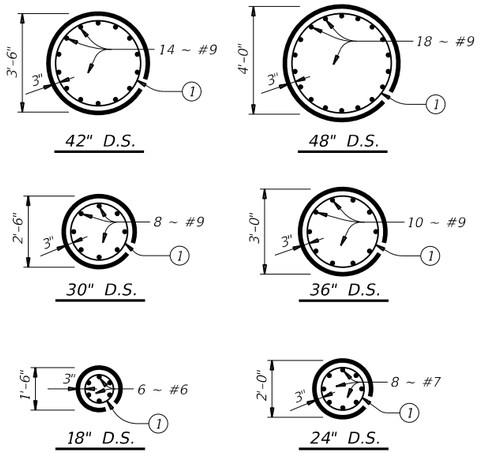
INTERIOR BENTS DRILLED SHAFT DIA EQUAL TO COLUMN DIA



INTERIOR BENTS DRILLED SHAFT DIA GREATER THAN COLUMN DIA



OPTIONAL INTERIOR BENT DRILLED SHAFT DETAIL (5)

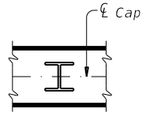


DRILLED SHAFT SECTIONS

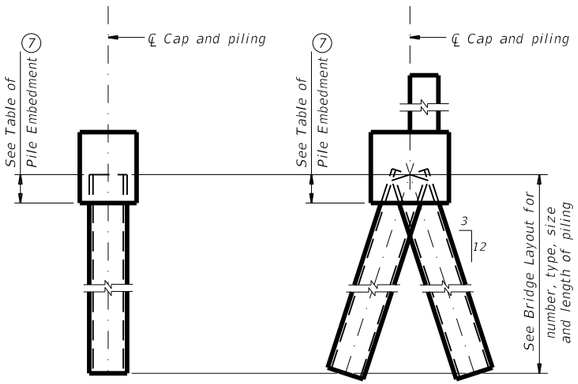
DRILLED SHAFT DETAILS

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

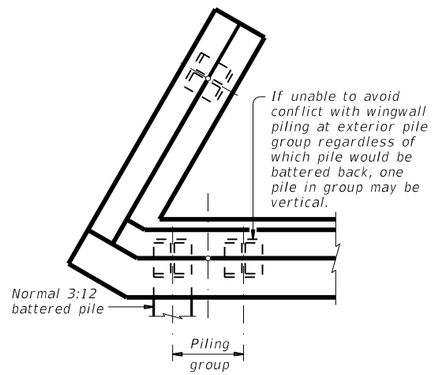
See Prestressed Concrete Piling (CP) standard for additional details on concrete pile embedment.



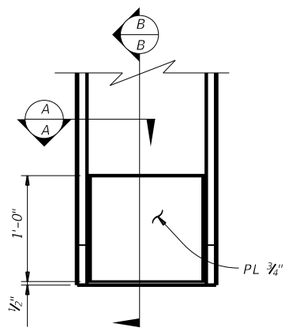
ORIENTATION OF STEEL H-PILING



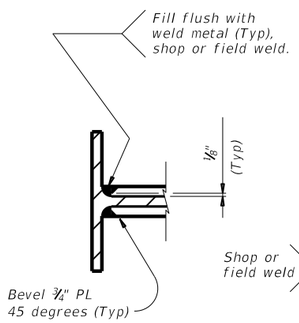
PILING DETAILS
(Concrete or steel H)



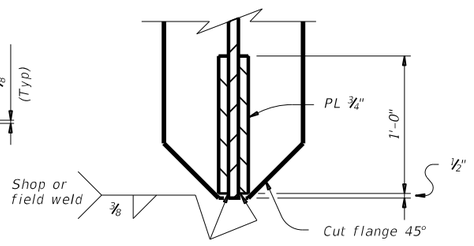
DETAIL "A"
(Showing plan view of a 30° skewed abutment)



ELEVATION



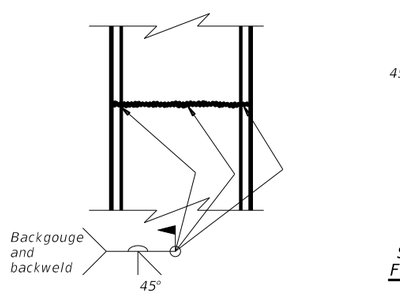
SECTION A-A

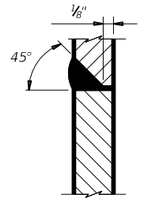


SECTION B-B

STEEL H-PILE TIP REINFORCEMENT

See Item 407 "Steel Piling" to determine when tip reinforcement is required and for options to the details shown.





SECTION THRU FLANGE OR WEB

STEEL H-PILE SPLICE DETAIL

Use when required.

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

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

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

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

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

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

(7) Or as shown on plans.

Texas Department of Transportation

Bridge Division Standard

COMMON FOUNDATION DETAILS

FD

FILE: fdstde01-20.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
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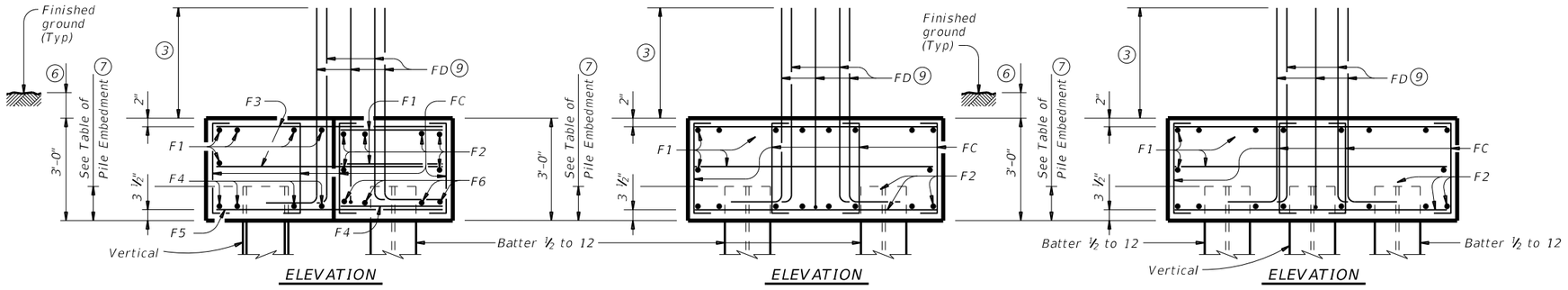
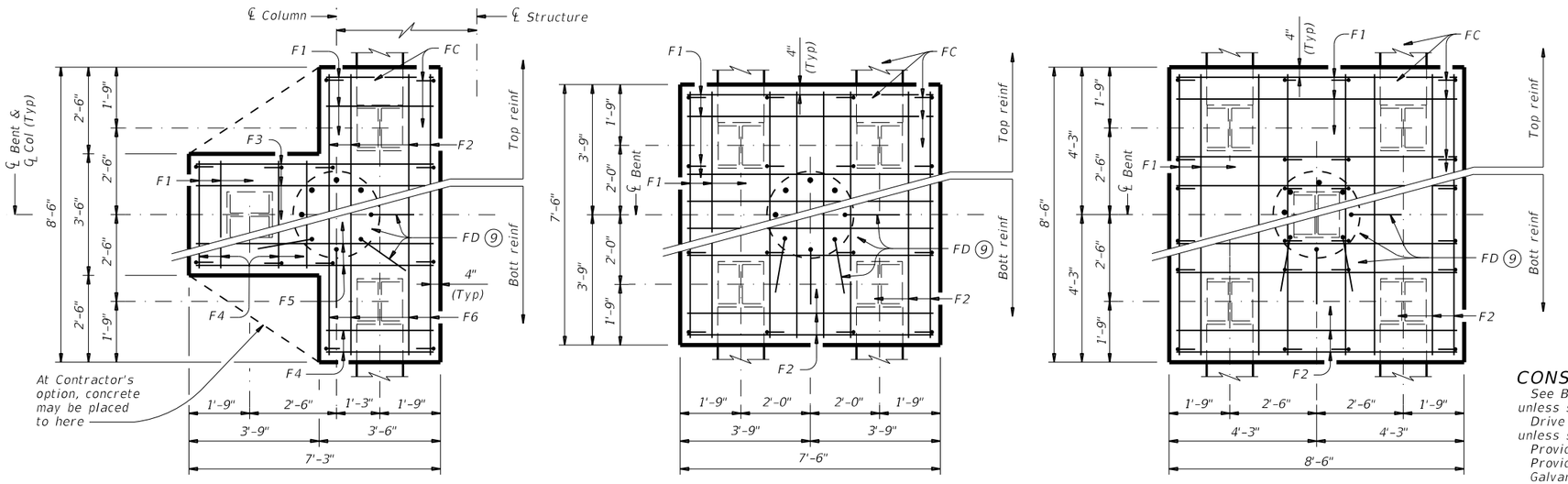
REVISIONS	1586	01	079	FM 907
01-20: Added #11 bars to the FD bars.	DIST	COUNTY		SHEET NO.
	PHR	HIDALGO		201

DATE:
FILE:





THREE PILE FOOTING (8)

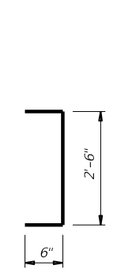
For 36" Dia and smaller columns.

FOUR PILE FOOTING (8)

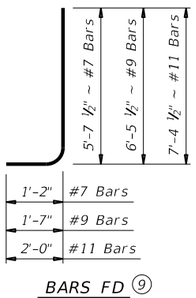
For 42" Dia and smaller columns.

FIVE PILE FOOTING (8)

For 42" Dia and smaller columns.



BARS FC



BARS FD (9)

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

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

(7) Or as shown on plans.

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

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

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

TABLE OF FOOTING QUANTITIES FOR 30" COLUMNS

ONE 3 PILE FOOTING

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

ONE 4 PILE FOOTING

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

ONE 5 PILE FOOTING

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

CONSTRUCTION NOTES:

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

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

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

Provide Grade 60 reinforcing steel.

Galvanize reinforcing if shown elsewhere in the plans.

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

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

GENERAL NOTES:

Designed according to AASHTO LRFD Bridge Design Specifications.

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

DESIGNER NOTES:

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

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

Maximum allowable pile loads for the footings shown are:

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

Texas Department of Transportation

Bridge Division Standard

COMMON FOUNDATION DETAILS

FD

FILE: fdstde01-20.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
©TxDOT April 2019	CONT	SECT	JOB	HIGHWAY
REVISIONS	1586	01	079	FM 907
01-20: Added #11 bars to the FD bars.	DIST	COUNTY		SHEET NO.
	PHR	HIDALGO		202

SIGNING
COVER SHEET

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Pharr District Central Design

Texas Department of Transportation

FM 907

SIGNING
COVER SHEET

CONT	SECT	JOB	HIGHWAY
1586	01	079	FM 907
DIST	COUNTY		SHEET NO.
PHR	HIDALGO		203

SUMMARY OF SMALL SIGNS

FM 907 SIGNING LAYOUTS	644 6027 IN SM RD SN SUP&AM TYS80(1) SA (P) LF EST	644 6030 IN SM RD SN SUP&AM TYS80(1) SA (T) LF EST	644 6033 IN SM RD SN SUP&AM TYS80(1) SA (U) LF EST	644 6075 RELOCATE SM RD SN SUP&AM (SIGN ONLY) LF EST	644 6076 REMOVE SM RD SN SUP&AM LF EST	636 6001 ALUMINUM SIGNS (TY A) SF EST
FM 907 (CSJ 1586-01-079)						
SHEET 1 OF 5	7	2	1	-	6	12
SHEET 2 OF 5	3	2	-	-	4	15
SHEET 3 OF 5	6	2	-	-	6	12
SHEET 4 OF 5	4	2	-	-	5	11
SHEET 5 OF 5	2	3	1	1	6	36
PROJECT TOTAL=	22	11	2	1	27	86

DATE: 8/30/2021 5:36:28 PM
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Pharr District Central Design

Texas Department of Transportation

FM 907

SMALL SIGN
ESTIMATED QUANTITIES

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1586	01	079	FM 907
DIST	COUNTY		SHEET NO.
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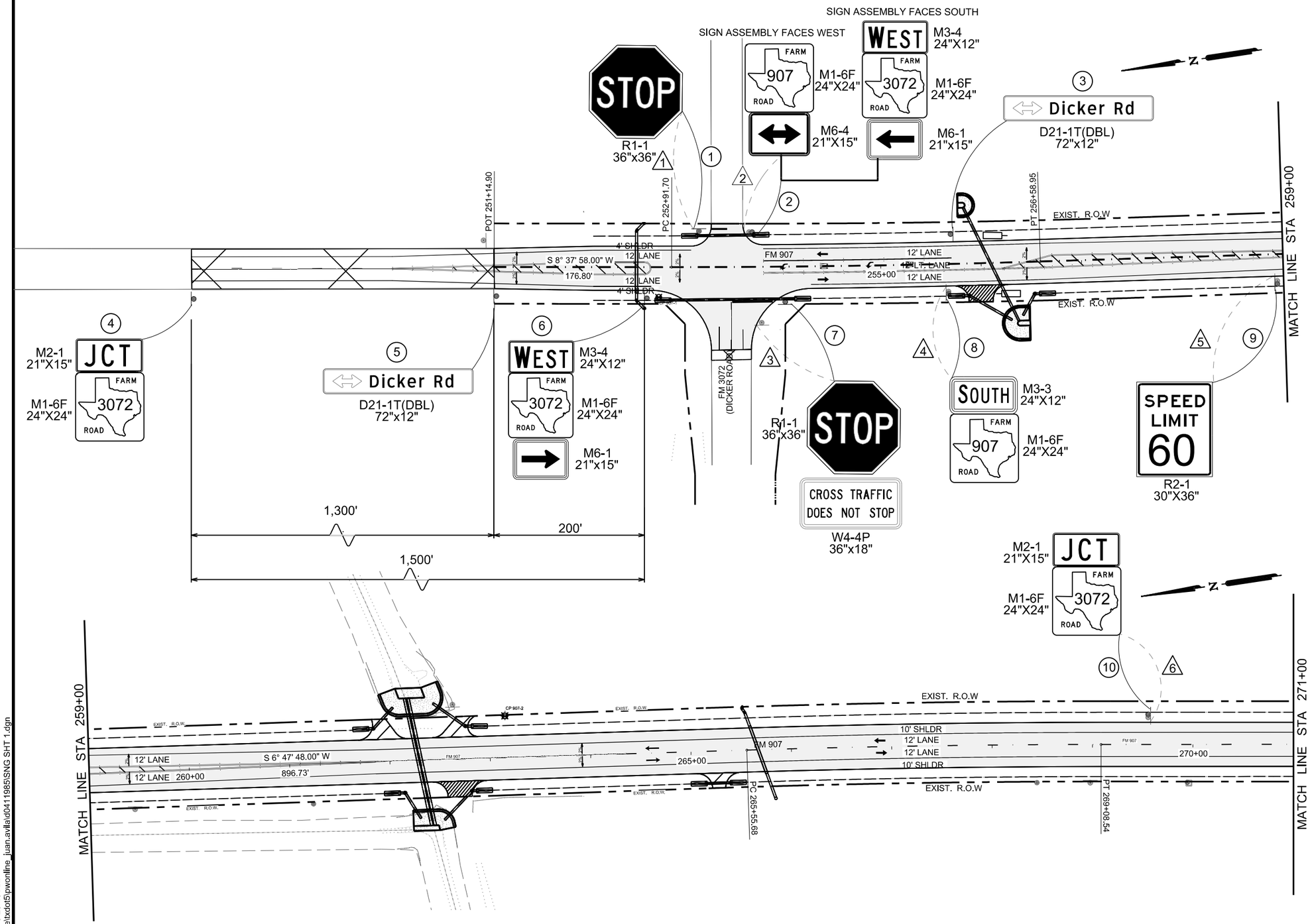

GENERAL NOTES:

PROPOSED SMALL SIGNS SHALL BE INSTALLED USING NEW POSTS AND PANELS.

REMOVAL OF EXISTING SMALL SIGNS SHALL INCLUDE POST AND PANEL. THE FOUNDATION SHALL BE REMOVED TO 2 FT BELOW FINISHED GRADE.

ALL SIGNS TO BE REMOVED ARE TO BE DELIVERED TO THE TXDOT MAINTENANCE YARD IN PHARR LOCATED AT:

521 WEST FERGUSON STREET
PHARR, TX 78577

ALL PROPOSED SMALL SIGNS TO BE INSTALLED OUTSIDE OF PROPOSED EDGE OF PAVEMENT PER STANDARD SHEET SMD(GEN)-08.

SEE APPLICABLE TXDOT SIGNING STANDARD SHEETS FOR ADDITIONAL INFORMATION.

LEGEND

- EXISTING SIGN TO REMAIN IN PLACE
- SIGN TO BE INSTALLED (ITEM 644)
- SIGN TO BE REMOVED (ITEM 644)
- EXISTING SIGN TO BE RELOCATED
- TRAFFIC FLOW INDICATOR
- PROPOSED SIGN
- EXISTING SIGN
- EXISTING STREET NAME SIGNS TO BE RELOCATED BY OTHERS
- NOT A TEXAS DEPARTMENT OF TRANSPORTATION STANDARD SIGN

STATE OF TEXAS
JOSE A. RODRIGUEZ
117308
LICENSED PROFESSIONAL ENGINEER

03/10/22

Pharr District Central Design

Texas Department of Transportation

FM 907

SIGNING LAYOUTS
BEGIN TO STA 271+00

SCALE: 1"=100' SHEET _1 OF _5

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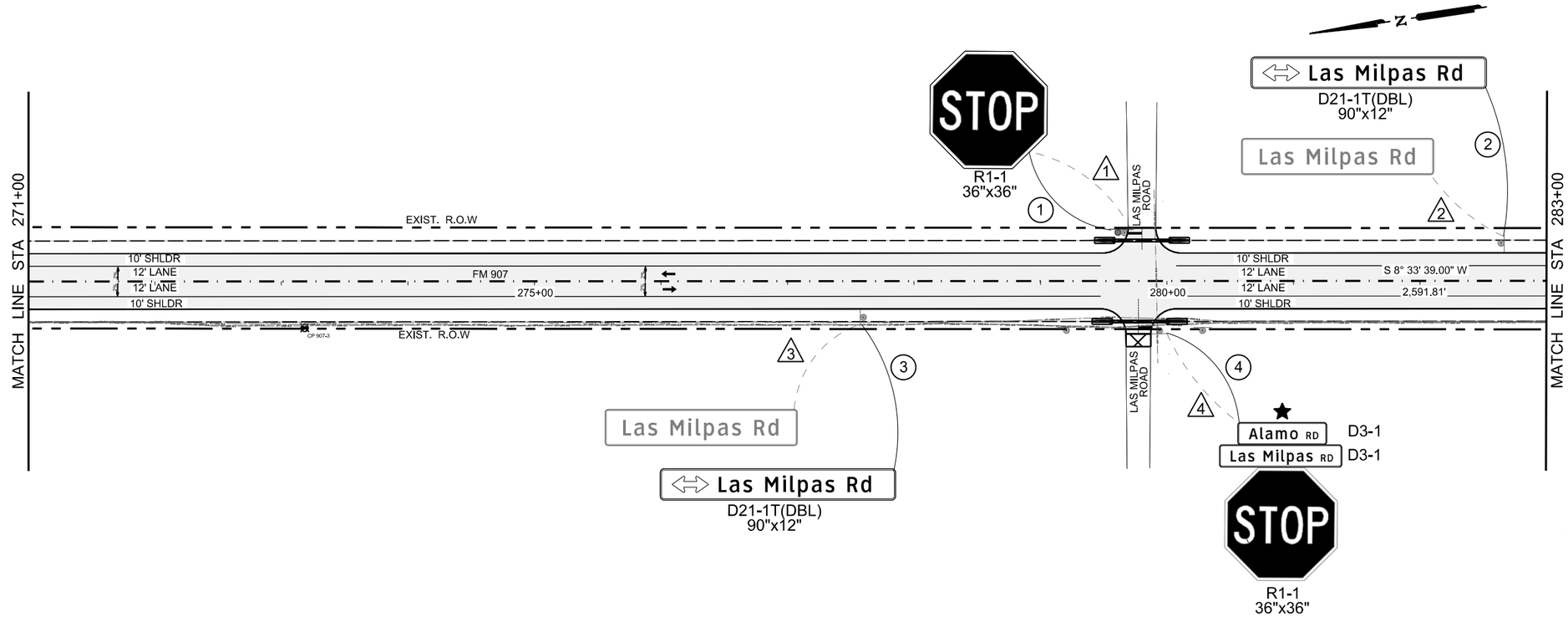

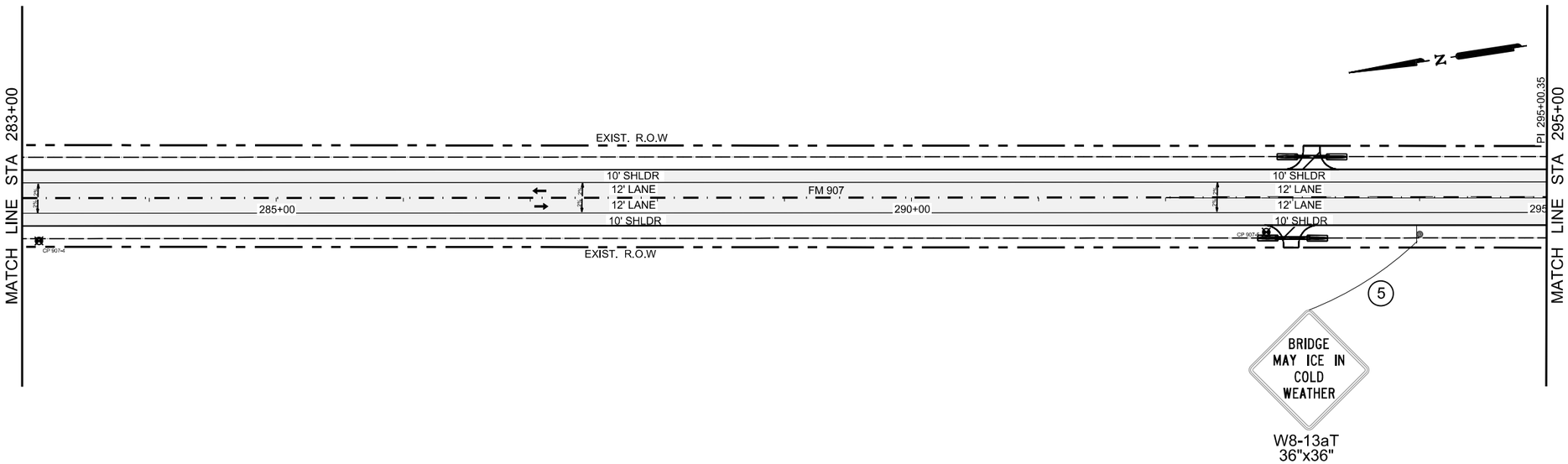

GENERAL NOTES:

PROPOSED SMALL SIGNS SHALL BE INSTALLED USING NEW POSTS AND PANELS.

REMOVAL OF EXISTING SMALL SIGNS SHALL INCLUDE POST AND PANEL. THE FOUNDATION SHALL BE REMOVED TO 2 FT BELOW FINISHED GRADE.

ALL SIGNS TO BE REMOVED ARE TO BE DELIVERED TO THE TXDOT MAINTENANCE YARD IN PHARR LOCATED AT:

521 WEST FERGUSON STREET
PHARR, TX 78577

ALL PROPOSED SMALL SIGNS TO BE INSTALLED OUTSIDE OF PROPOSED EDGE OF PAVEMENT PER STANDARD SHEET SMD(GEN)-08.

SEE APPLICABLE TXDOT SIGNING STANDARD SHEETS FOR ADDITIONAL INFORMATION.

LEGEND

- EXISTING SIGN TO REMAIN IN PLACE
- SIGN TO BE INSTALLED (ITEM 644)
- SIGN TO BE REMOVED (ITEM 644)
- EXISTING SIGN TO BE RELOCATED
- TRAFFIC FLOW INDICATOR
- PROPOSED SIGN
- EXISTING SIGN
- EXISTING STREET NAME SIGNS TO BE RELOCATED BY OTHERS
- NOT A TEXAS DEPARTMENT OF TRANSPORTATION STANDARD SIGN

STATE OF TEXAS
JOSE A. RODRIGUEZ
117308
LICENSED
PROFESSIONAL ENGINEER

03/10/22

Pharr District Central Design

Texas Department of Transportation

FM 907

SIGNING LAYOUTS
STA 271+00 TO STA 295+00

SCALE: 1"=100' SHEET _2 OF _5

© 2021	CONT	SECT	JOB	HIGHWAY
	1586	01	079	FM 907
	DIST	COUNTY		SHEET NO.
	PHR	HIDALGO		206

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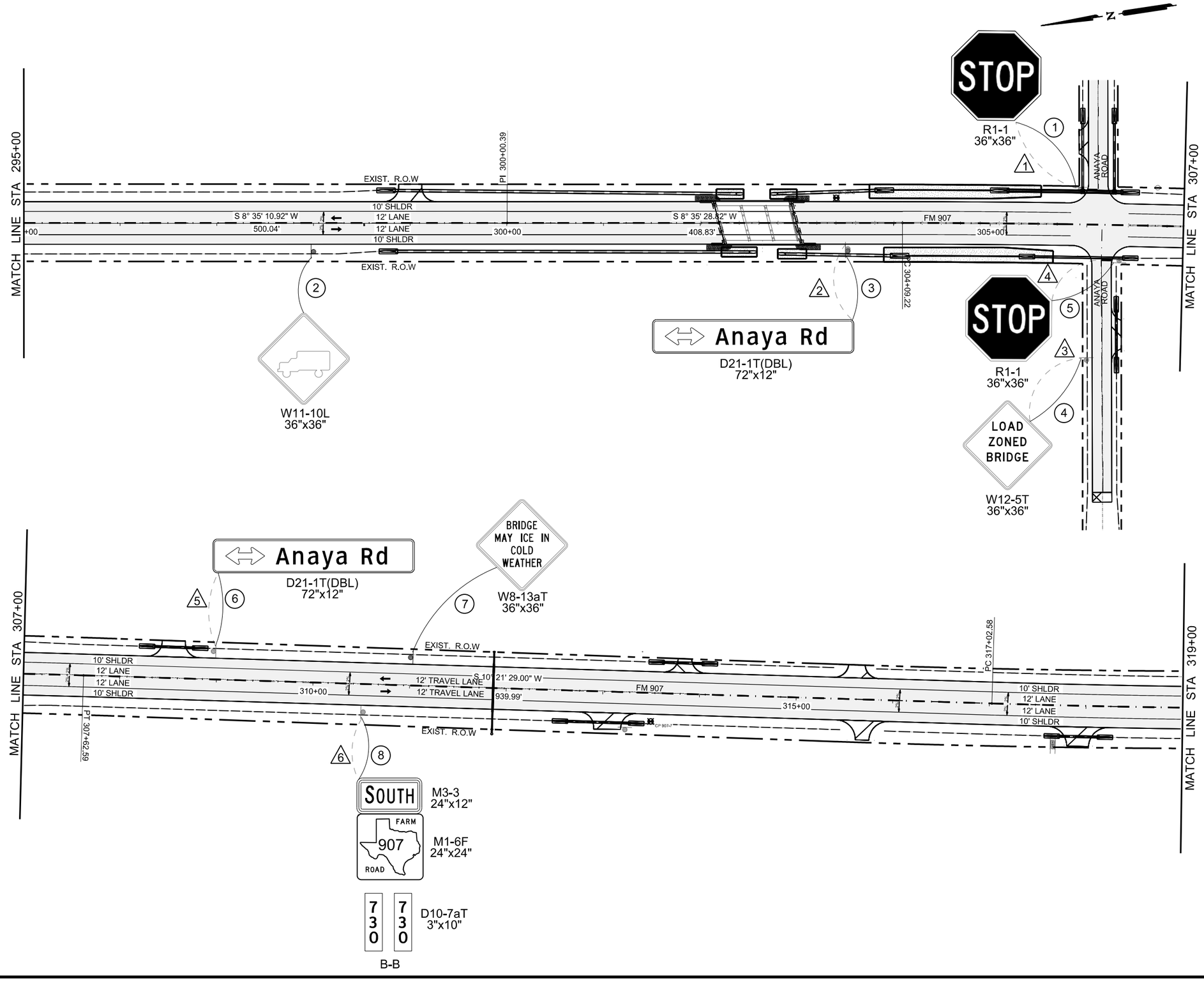

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521 WEST FERGUSON STREET
PHARR, TX 78577

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LEGEND

- EXISTING SIGN TO REMAIN IN PLACE
- SIGN TO BE INSTALLED (ITEM 644)
- SIGN TO BE REMOVED (ITEM 644)
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- PROPOSED SIGN
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- EXISTING STREET NAME SIGNS TO BE RELOCATED BY OTHERS
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STATE OF TEXAS
JOSE A. RODRIGUEZ
117308
LICENSED PROFESSIONAL ENGINEER

03/10/22

Pharr District Central Design

Texas Department of Transportation

FM 907

SIGNING LAYOUTS
STA 295+00 TO STA 319+00

SCALE: 1"=100' SHEET _3 OF _5

© 2021	CONT	SECT	JOB	HIGHWAY
	1586	01	079	FM 907
	DIST	COUNTY		SHEET NO.
	PHR	HIDALGO		207

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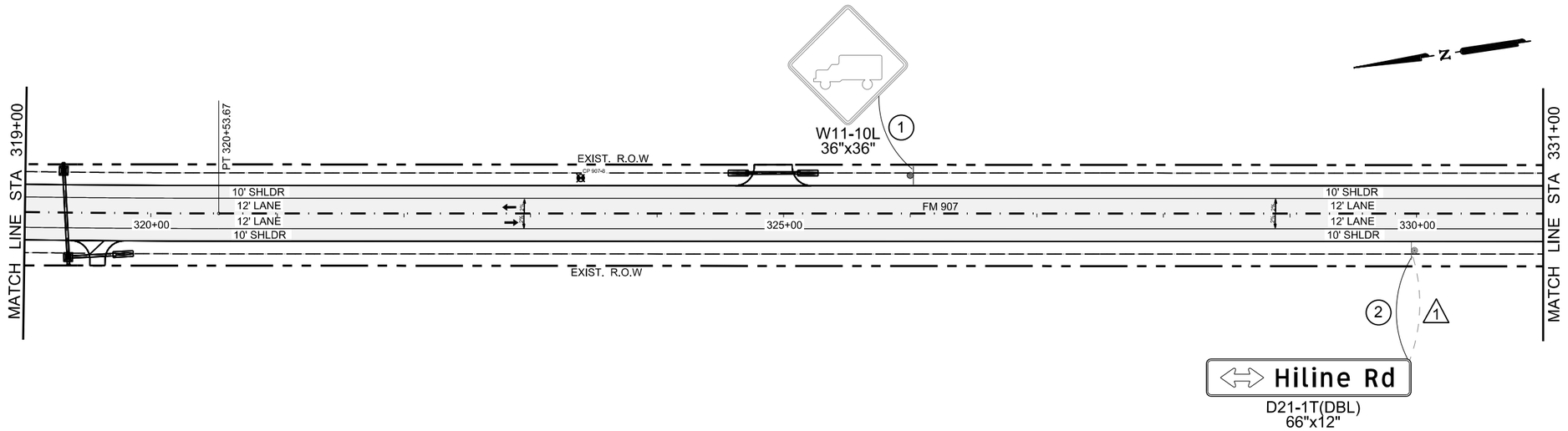

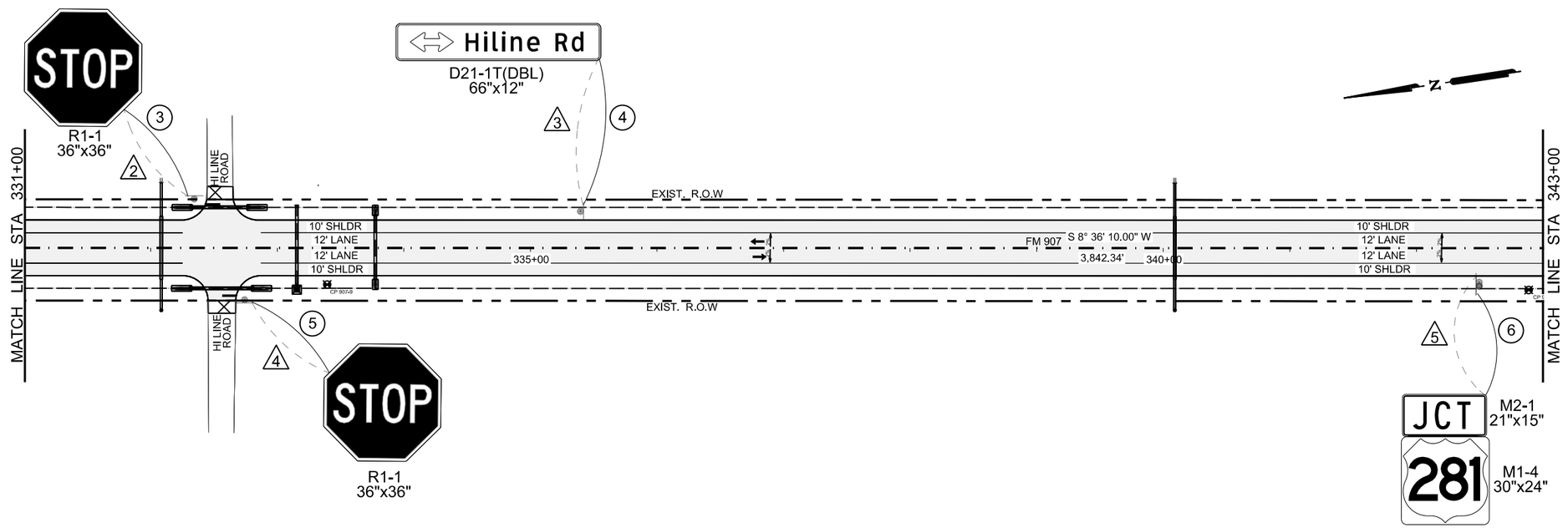

GENERAL NOTES:

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521 WEST FERGUSON STREET
PHARR, TX 78577

ALL PROPOSED SMALL SIGNS TO BE INSTALLED OUTSIDE OF PROPOSED EDGE OF PAVEMENT PER STANDARD SHEET SMD(GEN)-08.

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LEGEND

- EXISTING SIGN TO REMAIN IN PLACE
- SIGN TO BE INSTALLED (ITEM 644)
- SIGN TO BE REMOVED (ITEM 644)
- EXISTING SIGN TO BE RELOCATED
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- PROPOSED SIGN
- EXISTING SIGN
- EXISTING STREET NAME SIGNS TO BE RELOCATED BY OTHERS
- ★ NOT A TEXAS DEPARTMENT OF TRANSPORTATION STANDARD SIGN

STATE OF TEXAS
JOSE A. RODRIGUEZ
117308
LICENSED PROFESSIONAL ENGINEER

03/10/22

Pharr District Central Design

Texas Department of Transportation

FM 907

SIGNING LAYOUTS
STA 319+00 TO STA 343+00

SCALE: 1"=100' SHEET _4 OF _5

© 2021	CONT	SECT	JOB	HIGHWAY
	1586	01	079	FM 907
	DIST	COUNTY		SHEET NO.
	PHR	HIDALGO		208

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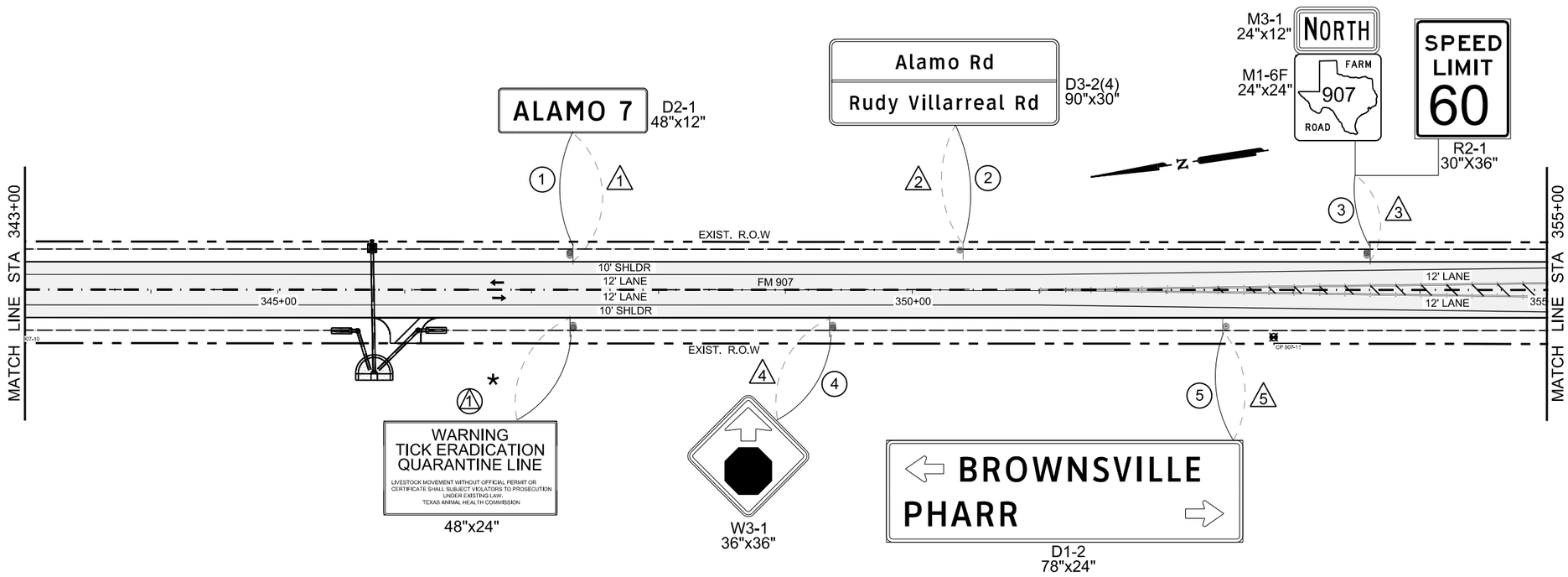

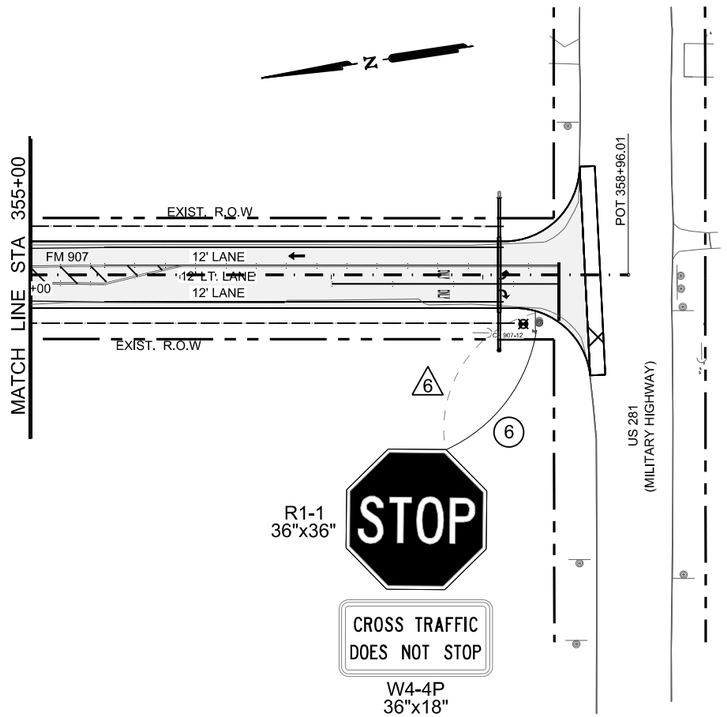

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521 WEST FERGUSON STREET
PHARR, TX 78577

ALL PROPOSED SMALL SIGNS TO BE INSTALLED OUTSIDE OF PROPOSED EDGE OF PAVEMENT PER STANDARD SHEET SMD(GEN)-08.

SEE APPLICABLE TXDOT SIGNING STANDARD SHEETS FOR ADDITIONAL INFORMATION.

LEGEND

- EXISTING SIGN TO REMAIN IN PLACE
- SIGN TO BE INSTALLED (ITEM 644)
- SIGN TO BE REMOVED (ITEM 644)
- EXISTING SIGN TO BE RELOCATED
- TRAFFIC FLOW INDICATOR
- PROPOSED SIGN
- EXISTING SIGN
- EXISTING STREET NAME SIGNS TO BE RELOCATED BY OTHERS
- ★ NOT A TEXAS DEPARTMENT OF TRANSPORTATION STANDARD SIGN

STATE OF TEXAS
JOSE A. RODRIGUEZ
117308
LICENSED PROFESSIONAL ENGINEER

03/10/22

Pharr District Central Design

Texas Department of Transportation

FM 907

SIGNING LAYOUTS
STA 343+00 TO END

SCALE: 1"=100' SHEET _5 OF _5

© 2021	CONT	SECT	JOB	HIGHWAY
	1586	01	079	FM 907
	DIST	COUNTY		SHEET NO.
	PHR	HIDALGO		209

DATE: 2/18/2022 9:30:27 AM
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SUMMARY OF SIGNS TO BE REMOVED

PLAN SHEET NO.	SIGN NO.	SIGN NOMENCLATURE	SIGN TEXT	DIMENSIONS (INCHES)	644 6076 REMOVE SM RD SN SUP&AM TY S80 EA
SHEET 1 OF 5					
	1	R1-1	STOP	30x30	1
	2	M1-6F M6-4 M3-4 M1-6F M6-1	FARM ROAD 907 DOUBLE ARROW WEST FARM ROAD 3072 LEFT ARROW	24x24 21x15 24x12 24x24 21x15	1
	3	R1-1	STOP	30x30	1
	4	M3-4 M1-6F	SOUTH FARM ROAD 907	24x12 24x24	1
	5	R2-1	SPEED LIMIT 60	24x30	1
	6	M2-1 M1-6F	JUNCTION FARM ROAD 3072	21x15 24x24	1
SHEET 2 OF 5					
	1	R1-1	STOP	30x30	1
	2	D3-1	LAS MILPAS RD	96x18	1
	3	D3-1	LAS MILPAS RD	96x18	1
	4	D3-1 D3-1 R1-1	(ALAMO RD LAS MILPAS RD) ★ STOP	48x12 66x12 30x30	1
SHEET 3 OF 5					
	1	R1-1	STOP	30x30	1
	2	D21-1T(DBL)	ANAYA RD	72x12	1
	3	W12-5T	LOAD ZONED BRIDGE	36x36	1
	4	R1-1	STOP	30x30	1
	5	D21-1T(DBL)	ANAYA RD	72x12	1
	6	M3-4 M1-6F D10-7aT D10-7aT	SOUTH FARM ROAD 907 B-B (MILE MARKER 736 MILE MARKER 736) B-B	24x12 24x24 3x10 3x10	1
SHEET 4 OF 5					
	1	D21-1T(DBL)	HILINE RD	66x12	1
	2	R1-1	STOP	30x30	1
	3	D21-1T(DBL)	HILINE RD	66x12	1
	4	R1-1	STOP	30x30	1
	5	M2-1 M1-4	JUNCTION US HIGHWAY 281	21x15 30x24	1
SHEET 5 OF 5					
	1	D2-1	ALAMO 7	60x18	1
	1	★	QUARANTINE LINE	48x24	1
	2	D3-2	ALAMO RD / RUDY VILLARREAL RD	96x36	1
	3	M3-1 M1-6F R2-1	NORTH FARM ROAD 907 SPEED LIMIT 60	24x12 24x24 24x30	1
	4	W3-1	STOP SIGN AHEAD	24x24	1
	5	D1-2	BROWNSVILLE/PHARR	102x30	1
	6	R1-1	STOP	30X30	1
				PROJECT TOTAL:	27

SUMMARY OF SIGNS TO BE RELOCATED

PLAN SHEET NO.	SIGN NO.	SIGN NOMENCLATURE	SIGN TEXT	DIMENSIONS (INCHES)	644 6075 RELOCATE SM RD SN SUP&AM (SIGN ONLY) EA
SHEET 5 OF 5					
	1	★	TICK ERADICATION QUARANTINE LINE	48x24	1
				PROJECT TOTAL:	1

LEGEND

★ EXISTING STREET NAME SIGNS TO BE RELOCATED BY OTHERS

★ NOT A TEXAS DEPARTMENT OF TRANSPORTATION STANDARD SIGN

STATE OF TEXAS
JOSE A. RODRIGUEZ
117308
LICENSED PROFESSIONAL ENGINEER

09/07/21

Pharr District Central Design

Texas Department of Transportation

FM 907

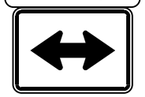
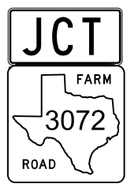
SUMMARY OF SMALL SIGNS TO BE REMOVED OR RELOCATED

CONT	SECT	JOB	HIGHWAY
1586	01	079	FM 907
DIST	COUNTY		SHEET NO.
PHR	HIDALGO		210

DATE: 8/30/2021 5:37:42 PM
FILE: c:\txdot\pw_online\txdot5\pwonline_juan.avila\d0411985\SUMMARY OF SIGNS TO BE RELOCATED.dgn

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"	MOUNTING DESIGNATION: 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
SHEET 1 OF 5												
	1	R1-1		36x36	X		S80	1	SA	P		
	2	M1-6F		24x24	X		S80	1	SA	U		
		M6-4		21x15	X							
		M3-4		24x12	X							
		M1-6F		24x24	X							
		M6-1		21x15	X							
	3	D21-1T(DBL)		72x12	X		S80	1	SA	T		
	4	M2-1		21x15	X		S80	1	SA	P		
		M1-6F		24x24	X							
	5	D21-1T(DBL)		72x12	X		S80	1	SA	T		

LEGEND

★ EXISTING STREET NAME SIGNS TO BE RELOCATED BY OTHERS

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).

Texas Department of Transportation — Traffic Operations Division Standard

FM 907

SUMMARY OF SMALL SIGNS

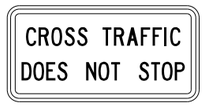
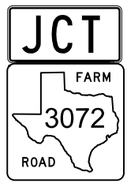
SHEET 1 OF 6

FILE: sums16.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
©TxDOT May 1987	CONT	SECT	JOB	HIGHWAY
REVISIONS 4-16 8-16	1586	01	079	FM 907
	DIST	COUNTY		SHEET NO.
	PHR	HIDALGO		211

18

DATE: 8/30/2021
FILE: c:\txdot\pw_online\txdot5\pwonline_juan.avila\d0411985\SOSS.dgn

SUMMARY OF SMALL SIGNS

PLAN SHEET NO.	SIGN NO.	SIGN NOMENCLATURE	SIGN	DIMENSIONS	FLAT ALUMINUM (TYPE A)	EXAL ALUMINUM (TYPE G)	SM RD SGN ASSM TY XXXXX (X) XX (X-XXXX) POST TYPE	POSTS	ANCHOR TYPE	MOUNTING DESIGNATION PREFABRICATED	MOUNTING DESIGNATION	BRIDGE MOUNT CLEARANCE SIGNS (See Note 2) TY = TYPE
							FRP = Fiberglass TWT = Thin-Wall 10BWG = 10 BWG S80 = Sch 80	1 or 2	UA=Universal Conc UB=Universal Bolt SA=Slipbase-Conc SB=Slipbase-Bolt WS=Wedge Steel WP=Wedge Plastic	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	TY N TY S
	6	M3-4		24x12	X		S80	1	SA	P		
		M1-6F		24x24	X							
		M6-1		21x15	X							
	7	R1-1		36x36	X		S80	1	SA	P		
		W4-4P		36x18	X							
	8	M3-3		24x12	X		S80	1	SA	P		
		M1-6F		24x24	X							
	9	R2-1		30x36	X		S80	1	SA	P		
	10	M2-1		21x15	X		S80	1	SA	P		
		M1-6F		24x24	X							

LEGEND

★ EXISTING STREET NAME SIGNS TO BE RELOCATED BY OTHERS

ALUMINUM SIGN BLANKS THICKNESS	
Square Feet	Minimum Thickness
Less than 7.5	0.080"
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Texas Department of Transportation | Traffic Operations Division Standard

FM 907

SUMMARY OF SMALL SIGNS

SHEET 2 OF 6

FILE: sums16.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
©TxDOT May 1987	CONT	SECT	JOB	HIGHWAY
REVISIONS	1586	01	079	FM 907
4-16	DIST	COUNTY		SHEET NO.
8-16	PHR	HIDALGO		212

18

DATE: 8/30/2021
FILE: c:\txdot\pw_online\txdot5\pwonline_juan.avila\d0411985\sosS.dgn

SUMMARY OF SMALL SIGNS

PLAN SHEET NO.	SIGN NO.	SIGN NOMENCLATURE	SIGN	DIMENSIONS	FLAT ALUMINUM (TYPE A)	EXAL ALUMINUM (TYPE G)	SM RD SGN ASSM TY XXXXX (X) XX (X-XXXX) POST TYPE	POSTS	ANCHOR TYPE	MOUNTING DESIGNATION PREFABRICATED	MOUNTING DESIGNATION	BRIDGE MOUNT CLEARANCE SIGNS (See Note 2)
							FRP = Fiberglass TWT = Thin-Wall 10BWG = 10 BWG S80 = Sch 80	1 or 2	UA=Universal Conc UB=Universal Bolt SA=Slipbase-Conc SB=Slipbase-Bolt WS=Wedge Steel WP=Wedge Plastic	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	TY = TYPE TY N TY S
SHEET 2 OF 5												
	1	R1-1		36x36	X		S80	1	SA	P		
	2	D21-1T(DBL)		90x12	X		S80	1	SA	T		
	3	D21-1T(DBL)		90x12	X		S80	1	SA	T		
	4	R1-1		36x36	X		S80	1	SA	P		
	5	W8-13aT		36x36	X		S80	1	SA	P		
SHEET 3 OF 5												
	1	R1-1		36x36	X		S80	1	SA	P		
	2	W11-10L		36x36	X		S80	1	SA	P		
	3	D21-1T(DBL)		72x12	X		S80	1	SA	T		

LEGEND

★ EXISTING STREET NAME SIGNS TO BE RELOCATED BY OTHERS

ALUMINUM SIGN BLANKS THICKNESS	
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7.5 to 15	0.100"
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3. For Sign Support Descriptive Codes, see Sign Mounting Details Small Roadside Signs General Notes & Details SMD(GEN).

Texas Department of Transportation | Traffic Operations Division Standard

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SUMMARY OF SMALL SIGNS

SHEET 3 OF 6

FILE:	sums16.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
© TxDOT	May 1987	CONT	SECT	JOB	HIGHWAY
REVISIONS		1586	01	079	FM 907
4-16		DIST	COUNTY		SHEET NO.
8-16		PHR	HIDALGO		213

18

DATE: 8/30/2021
FILE: c:\txdot\pw_online\txdot5\pwonline_juan.avila\d0411985\s0ss5.dgn

SUMMARY OF SMALL SIGNS

PLAN SHEET NO.	SIGN NO.	SIGN NOMENCLATURE	SIGN	DIMENSIONS	FLAT ALUMINUM (TYPE A)	EXAL ALUMINUM (TYPE G)	SM RD SGN ASSM TY XXXXX (X) XX (X-XXXX) POST TYPE	POSTS	ANCHOR TYPE	MOUNTING DESIGNATION PREFABRICATED	MOUNTING DESIGNATION	BRIDGE MOUNT CLEARANCE SIGNS (See Note 2) TY = TYPE
							FRP = Fiberglass TWT = Thin-Wall 10BWG = 10 BWG S80 = Sch 80	1 or 2	UA=Universal Conc UB=Universal Bolt SA=Slipbase-Conc SB=Slipbase-Bolt WS=Wedge Steel WP=Wedge Plastic	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	TY N TY S
	4	W12-5T		36x36	X		S80	1	SA	P		
	5	R1-1		36x36	X		S80	1	SA	P		
	6	D21-1T(DBL)		72x12	X		S80	1	SA	T		
	7	W8-13aT		36x36	X		S80	1	SA	P		
	8	M3-3 M1-6F D10-7aT D10-7aT		24x12 24x24 3x10 3x10	X X X X		S80	1	SA	P		
SHEET 4 OF 5	1	W11-10L		36x36	X		S80	1	SA	P		

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

DATE: 8/30/2021

LEGEND

★ EXISTING STREET NAME SIGNS TO BE RELOCATED BY OTHERS

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).

Texas Department of Transportation

Traffic Operations Division Standard

FM 907

SUMMARY OF SMALL SIGNS

SHEET 4 OF 6

FILE: sums16.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
©TxDOT May 1987	CONT	SECT	JOB	HIGHWAY
REVISIONS	1586	01	079	FM 907
4-16 8-16	DIST	COUNTY		SHEET NO.
	PHR	HIDALGO		214

18

SUMMARY OF SMALL SIGNS

PLAN SHEET NO.	SIGN NO.	SIGN NOMENCLATURE	SIGN	DIMENSIONS	FLAT ALUMINUM (TYPE A)	EXAL ALUMINUM (TYPE G)	SM RD SGN ASSM TY XXXXX (X) XX (X-XXXX)					BRIDGE MOUNT CLEARANCE SIGNS (See Note 2)
							POST TYPE	POSTS	ANCHOR TYPE	MOUNTING DESIGNATION		TY = TYPE
							FRP = Fiberglass TWT = Thin-Wall 10BWG = 10 BWG S80 = Sch 80	1 or 2	UA=Universal Conc UB=Universal Bolt SA=Slipbase-Conc SB=Slipbase-Bolt WS=Wedge Steel WP=Wedge Plastic	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	TY N TY S
	2	D21-1T(DBL)		66x12	X		S80	1	SA	T		
	3	R1-1		36x36	X		S80	1	SA	P		
	4	D21-1T(DBL)		66x12	X		S80	1	SA	T		
	5	R1-1		36x36	X		S80	1	SA	P		
	6	M2-1 M1-4		21x15 30x24	X		S80	1	SA	P		
SHEET 5 OF 5												
	1	D2-1		48x12	X		S80	1	SA	T		
	2	D3-2		90x24	X		S80	1	SA	T		

LEGEND

★ EXISTING STREET NAME SIGNS TO BE RELOCATED BY OTHERS

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.
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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).

Texas Department of Transportation | Traffic Operations Division Standard

FM 907

SUMMARY OF SMALL SIGNS

SHEET 5 OF 6

FILE: sums16.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
© TxDOT May 1987	CONT	SECT	JOB	HIGHWAY
REVISIONS	1586	01	079	FM 907
4-16	DIST	COUNTY		SHEET NO.
8-16	PHR	HIDALGO		215

TB

DATE: 8/30/2021
FILE: c:\txdot\pw_online\txdot5\pwonline_juan.avila\d0411985\SOSS.dgn

SUMMARY OF SMALL SIGNS

PLAN SHEET NO.	SIGN NO.	SIGN NOMENCLATURE	SIGN	DIMENSIONS	FLAT ALUMINUM (TYPE A)	EXAL ALUMINUM (TYPE G)	SM RD SGN ASSM TY XXXXX (X) XX (X-XXXX) POST TYPE	POSTS	ANCHOR TYPE	MOUNTING DESIGNATION		BRIDGE MOUNT CLEARANCE SIGNS (See Note 2) TY = TYPE TY N TY S
										PREFABRICATED	1EXT or 2EXT = # of Ext BM = Extruded Wind Beam WC = 1.12 #/ft Wing Channel EXAL= Extruded Alum Sign Panels	
							FRP = Fiberglass TWT = Thin-Wall 10BWG = 10 BWG S80 = Sch 80	1 or 2	UA=Universal Conc UB=Universal Bolt SA=Slipbase-Conc SB=Slipbase-Bolt WS=Wedge Steel WP=Wedge Plastic	P = "Plain" T = "T" U = "U"		
	3	M3-1	NORTH FARM 907 ROAD	24x12	X		S80	1	SA	U		
		M1-6F		24x24	X							
		R2-1	SPEED LIMIT 60	30x36	X							
	4	W3-1		36x36	X		S80	1	SA	P		
	5	D1-2	BROWNSVILLE PHARR	78x24	X		S80	1	SA	T		
	6	R1-1	STOP	36x36	X		S80	1	SA	P		
		W4-4P	CROSS TRAFFIC DOES NOT STOP	36x18								

LEGEND

★ EXISTING STREET NAME SIGNS TO BE RELOCATED BY OTHERS

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.
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3. For Sign Support Descriptive Codes, see Sign Mounting Details Small Roadside Signs General Notes & Details SMD(GEN).

Texas Department of Transportation | Traffic Operations Division Standard

FM 907

SUMMARY OF SMALL SIGNS

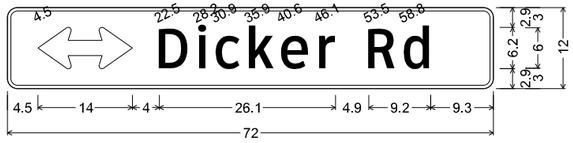
SHEET 6 OF 6

FILE:	sums16.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
© TxDOT	May 1987	CONT	SECT	JOB	HIGHWAY
REVISIONS		1586	01	079	FM 907
4-16		DIST	COUNTY		SHEET NO.
8-16		PHR	HIDALGO		216

18

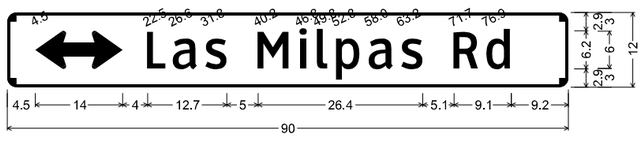
DATE: 8/30/2021
FILE: c:\txdot\pw_online\txdot5\pwonline_juan.avila\d0411985\sOSS.dgn

SHEET 1 OF 5 SIGN 3 & 4



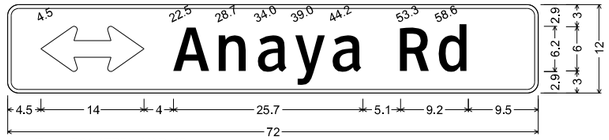
D21-1TDBL_VARx12;
1.5" Radius, 0.5" Border, White on, Green;
Double Headed Arrow Custom - 14.0" 0';
"Dicker Rd", ClearviewHwy-3-W;

SHEET 2 OF 5 SIGN 2 & 3



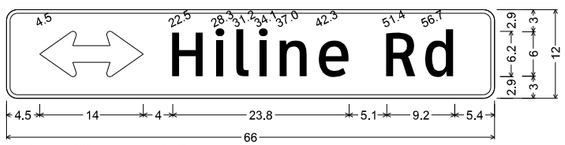
D21-1TDBL_VARx12;
1.5" Radius, 0.5" Border, White on, Green;
Double Headed Arrow Custom - 14.0" 0'; "Las Milpas Rd", ClearviewHwy-3-W;

SHEET 3 OF 5 SIGNS 2 & 4



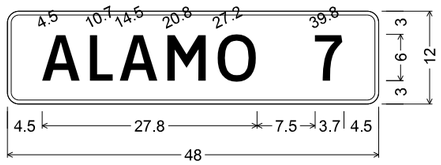
Identifier : D21-1TDBL_VARx12;
1.5" Radius, 0.5" Border, White on Green;
Double Headed Arrow Custom - 14.0" 0°; [Anaya Rd] ClearviewHwy-3-W;

SHEET 4 OF 5 SIGNS 1 & 3



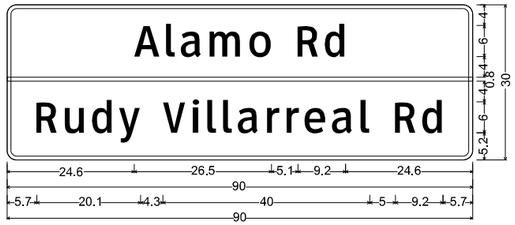
Identifier : D21-1TDBL_VARx12;
1.5" Radius, 0.5" Border, White on Green;
Double Headed Arrow Custom - 14.0" 0°; [Hiline Rd] ClearviewHwy-3-W;

SHEET 5 OF 5 SIGN 1



D2-1 6in;
1.5" Radius, 0.5" Border, White on, Green;
"ALAMO", ClearviewHwy-3-W;
"7", ClearviewHwy-3-W;

SHEET 5 OF 5 SIGN 2

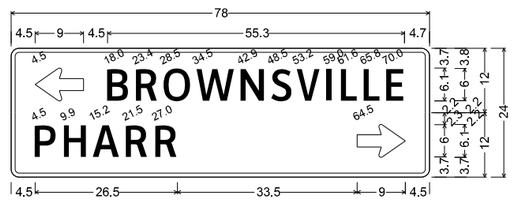


1.5" Radius, 0.8" Border, White on, Green;
"Alamo Rd", ClearviewHwy-3-W; "Rudy Villarreal Rd", ClearviewHwy-3-W;
Table of letter and object lefts

A 24.6	l 30.8	a 33.6	m 39.2	o 46.9	R 56.2	d 61.5

0.0																		
R 5.7	u 11.2	d 16.5	y 21.6	V 30.1	l 35.9	l 38.8	l 41.8	a 44.7	r 50.2	r 54.0	e 57.6	a 62.9	l 68.4	R 75.1	d 80.3			

SHEET 5 OF 5 SIGN 5



D1-2 6In LT-RT;

1.5" Radius, 0.8" Border, White on, Green;
Standard Arrow Custom 9.0" X 6.1" 180';
"BROWNSVILLE", ClearviewHwy-3-W 90% spacing;

1.5" Radius, 0.8" Border, White on, Green;
"PHARR", ClearviewHwy-3-W; Standard Arrow Custom 9.0" X 6.1" 0';

STATE OF TEXAS
JOSE A. RODRIGUEZ
117308
LICENSED PROFESSIONAL ENGINEER

09/07/21

Pharr District Central Design

Texas Department of Transportation

FM 907

SIGN DETAILS

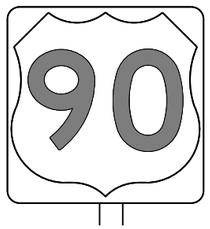
© 2021	CONT	SECT	JOB	HIGHWAY
	1586	01	079	FM 907
	DIST	COUNTY		SHEET NO.
	PHR	HIDALGO		217

DATE: 8/30/2021 5:38:08 PM
FILE: c:\txdot\pw_online\txdot5\pwonline_juan.avila\d0411985\SMALL SIGN DETAILS.dgn

DATE: 8/30/2021 5:38:24 PM
FILE: c:\txdot\pw_online\txdot5\pwonline_juan.avila\d0410086\tsr3-13.dgn

REQUIREMENTS FOR INDEPENDENT MOUNTED ROUTE SIGNS

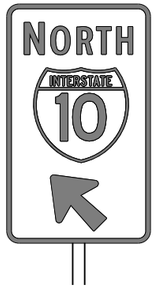
SHEETING REQUIREMENTS		
USAGE	COLOR	SIGN FACE MATERIAL
BACKGROUND	WHITE	TYPE A SHEETING
BACKGROUND	ALL OTHERS	TYPE B OR C SHEETING
LEGEND & BORDERS	WHITE	TYPE A SHEETING
LEGEND & BORDERS	BLACK	ACRYLIC NON-REFLECTIVE FILM
LEGEND & BORDERS	ALL OTHERS	TYPE B or C SHEETING



TYPICAL EXAMPLES

REQUIREMENTS FOR BLUE, BROWN & GREEN D AND I SERIES GUIDE SIGNS

SHEETING REQUIREMENTS		
USAGE	COLOR	SIGN FACE MATERIAL
BACKGROUND	ALL	TYPE B OR C SHEETING
LEGEND & BORDERS	WHITE	TYPE D SHEETING
LEGEND, SYMBOLS & BORDERS	ALL OTHERS	TYPE B OR C SHEETING



TYPICAL EXAMPLES

GENERAL NOTES

1. Signs to be furnished shall be as detailed elsewhere in the plans and/or as shown on sign tabulation sheet. Standard sign designs and arrow dimensions can be found in the "Standard Highway Sign Designs for Texas" (SHSD).

2. White legend shall use the Clearview Alphabet. The following Clearview fonts shall be used to replace the existing white Federal Highway Administration (FHWA) Standard Highway Alphabets, when not specified in the SHSD, or in the plans.

B	CV-1W
C	CV-2W
D	CV-3W
E	CV-4W
Emod	CV-5WR
F	CV-6W

3. Route sign legend (ie. IH, US, SH and FM shields) shall use the Federal Highway Administration (FHWA) Standard Highway Alphabets B, C, D, E, Emod or F).

4. Lateral spacing between letters and numerals shall conform with the SHSD, and any approved changes thereto. Lateral spacing of legend shall provide a balanced appearance when spacing is not shown.

5. Independent mounted route sign with white or colored legend and borders shall be applied by screening process with transparent color ink, transparent colored overlay film to white background sheeting or cut-out white sheeting to colored background sheeting, or combination thereof. White legend, symbols and borders on all other signs shall be cut-out white sheeting applied to colored background sheeting.

6. Information regarding borders and radii for signs is found in the "Standard Highway Sign Designs for Texas". Dimensions shown and described for borders and corner radii on parent sign are nominal. Borders may vary in width as much as 1/2 inch. Corner radii above 3 inches may vary in width as much as 1 inch. Borders and corner radii within a parent sign must be of matching widths. The sign area outside the corner radius should be trimmed or rounded.

7. Sign substrate shall be any material that meets the Departmental Material Specification requirements of DMS-7110 or approved alternative.

8. Mounting details of roadside signs are shown in the "SMD series" Standard Plan Sheets.

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

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/

Texas Department of Transportation

Traffic Operations Division Standard

TYPICAL SIGN REQUIREMENTS

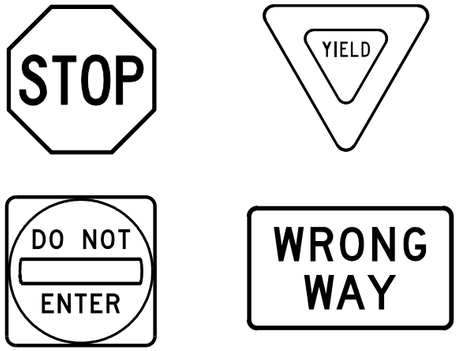
TSR(3)-13

FILE: tsr3-13.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
©TxDOT October 2003	CONT	SECT	JOB	HIGHWAY
REVISIONS	1586	01	079	FM 907
12-03 7-13	DIST	COUNTY		SHEET NO.
9-08	PHR	HIDALGO		218

DATE: 8/30/2021 5:38:32 PM
FILE: c:\txdot\pw_online\txdot5\pwonline_juan.avila\d0410086\tsr4-13.dgn

REQUIREMENTS FOR RED BACKGROUND REGULATORY SIGNS

(STOP, YIELD, DO NOT ENTER AND WRONG WAY SIGNS)



REQUIREMENTS FOR FOUR SPECIFIC SIGNS ONLY

SHEETING REQUIREMENTS		
USAGE	COLOR	SIGN FACE MATERIAL
BACKGROUND	RED	TYPE B OR C SHEETING
BACKGROUND	WHITE	TYPE B OR C SHEETING
LEGEND & BORDERS	WHITE	TYPE B OR C SHEETING
LEGEND	RED	TYPE B OR C SHEETING

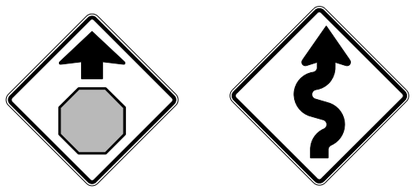
REQUIREMENTS FOR WHITE BACKGROUND REGULATORY SIGNS

(EXCLUDING STOP, YIELD, DO NOT ENTER AND WRONG WAY SIGNS)

TYPICAL EXAMPLES

SHEETING REQUIREMENTS		
USAGE	COLOR	SIGN FACE MATERIAL
BACKGROUND	WHITE	TYPE A SHEETING
BACKGROUND	ALL OTHERS	TYPE B OR C SHEETING
LEGEND, BORDERS AND SYMBOLS	BLACK	ACRYLIC NON-REFLECTIVE FILM
LEGEND, BORDERS AND SYMBOLS	ALL OTHER	TYPE B OR C SHEETING

REQUIREMENTS FOR WARNING SIGNS



TYPICAL EXAMPLES

SHEETING REQUIREMENTS		
USAGE	COLOR	SIGN FACE MATERIAL
BACKGROUND	FLOURESCENT YELLOW	TYPE B_{FL} OR C_{FL} SHEETING
LEGEND & BORDERS	BLACK	ACRYLIC NON-REFLECTIVE FILM
LEGEND & SYMBOLS	ALL OTHER	TYPE B OR C SHEETING

REQUIREMENTS FOR SCHOOL SIGNS

TYPICAL EXAMPLES

SHEETING REQUIREMENTS		
USAGE	COLOR	SIGN FACE MATERIAL
BACKGROUND	WHITE	TYPE A SHEETING
BACKGROUND	FLOURESCENT YELLOW GREEN	TYPE B_{FL} OR C_{FL} SHEETING
LEGEND, BORDERS AND SYMBOLS	BLACK	ACRYLIC NON-REFLECTIVE FILM
SYMBOLS	RED	TYPE B OR C SHEETING

GENERAL NOTES

1. Signs to be furnished shall be as detailed elsewhere in the plans and/or as shown on sign tabulation sheet. Standard sign designs and arrow dimensions can be found in the "Standard Highway Sign Designs for Texas" (SHSD).
2. Sign legend shall use the Federal Highway Administration (FHWA) Standard Highway Alphabets (B, C, D, E, Emod or F).
3. Lateral spacing between letters and numerals shall conform with the SHSD, and any approved changes thereto. Lateral spacing of legend shall provide a balanced appearance when spacing is not shown.
4. Black legend and borders shall be applied by screening process or cut-out acrylic non-reflective black film to background sheeting, or combination thereof.
5. White legend and borders shall be applied by screening process with transparent colored ink, transparent colored overlay film to white background sheeting or cut-out white sheeting to colored background sheeting, or combination thereof.
6. Colored legend shall be applied by screening process with transparent colored ink, transparent colored overlay film or colored sheeting to background sheeting, or combination thereof.
7. Sign substrate shall be any material that meets the Departmental Material Specification requirements of DMS-7110 or approved alternative.
8. Mounting details for roadside mounted signs are shown in the "SMD series" Standard Plan Sheets.

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

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

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

http://www.txdot.gov/

Texas Department of Transportation

Traffic Operations Division Standard

TYPICAL SIGN REQUIREMENTS

TSR(4)-13

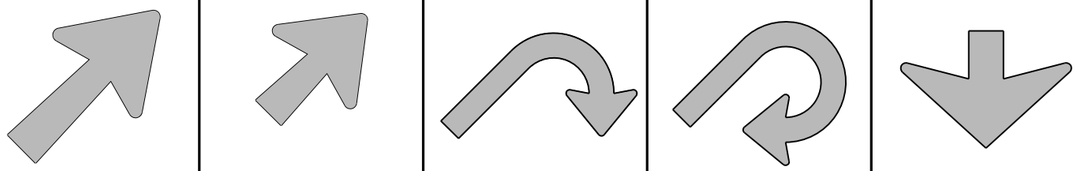
FILE: tsr4-13.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
© TxDOT October 2003	CONT	SECT	JOB	HIGHWAY
REVISIONS	1586	01	079	FM 907
12-03 7-13 9-08	DIST	COUNTY		SHEET NO.
	PHR	HIDALGO		219

4

DATE: 8/30/2021 5:38:39 PM
FILE: c:\txdot\pw_online\txdot5\pwonline_juan.avila\d0410086\tsr5-13.dgn

ARROW DETAILS

for Large Ground-Mounted and Overhead Guide Signs



TYPE	LETTER SIZE	USE
A-1	10.67" U/L and 10" Caps	Single Lane Exits
A-2	13.33" U/L and 12" Caps	
A-3	16" & 20" U/L	
B-1	10.67" U/L and 10" Caps	Multiple Lane Exits
B-2	13.33" U/L and 12" Caps	
B-3	16" & 20" U/L	

CODE	USED ON SIGN NO.
E-3	E5-1aT
E-4	E5-1bT

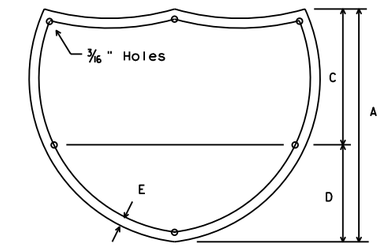
NOTE

Arrow dimensions are shown in the "Standard Highway Sign Designs for Texas" manual.

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

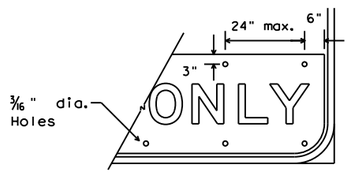
http://www.txdot.gov/

SIGN BLANK PUNCHING DETAILS FOR ATTACHMENTS WHEN SPECIFIED TO BE TYPE A ALUMINUM SIGNS (FOR MOUNTING TO GUIDE SIGN FACE)

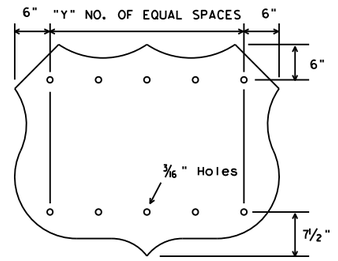


INTERSTATE ROUTE MARKERS

A	C	D	E
36	21	15	1 1/2
48	28	20	1 3/4

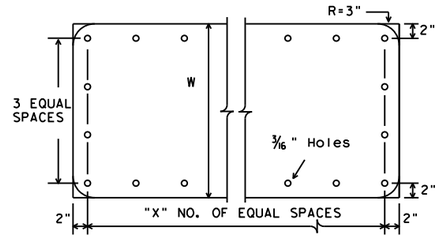


EXIT ONLY PANEL



U.S. ROUTE MARKERS

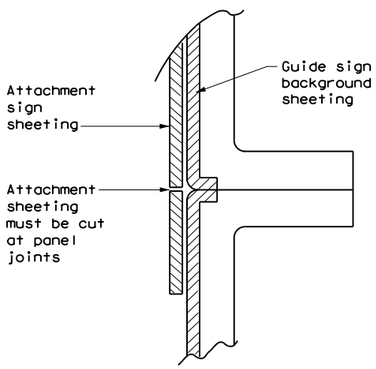
Sign Size	"Y"
24x24	2
30x24	3
36x36	3
45x36	4
48x48	4
60x48	5



STATE ROUTE MARKERS

No. of Digits	W	X
4	24	4
4	36	5
4	48	6
3	24	3
3	36	4
3	48	5

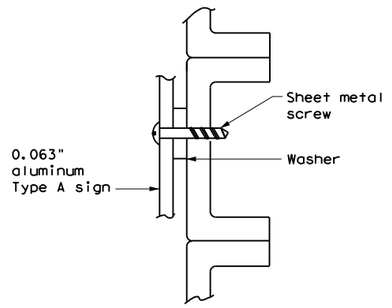
MOUNTING DETAILS OF ATTACHMENTS TO GUIDE SIGN FACE ("EXIT ONLY" AND "LEFT EXIT" PANELS, ROUTE MARKERS AND OTHER ATTACHMENTS)



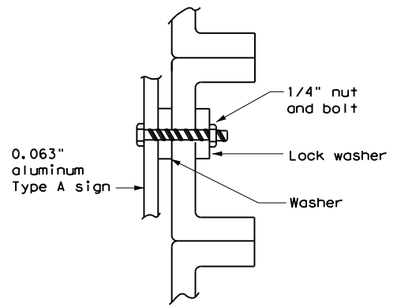
DIRECT APPLIED ATTACHMENT

NOTE:

1. Sheeting for legend, symbols, and borders must be cut at panel joints.
2. Direct applied attachment signs will be subsidiary to "Aluminum Signs" or "Fiberglass Signs".



SCREW ATTACHMENT



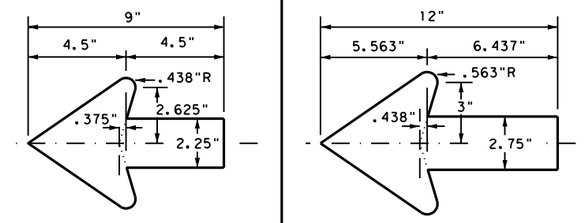
NUT/BOLT ATTACHMENT

NOTE:

Furnish Type A aluminum sign attachments only when specified in the plans. These signs will be paid for under "Aluminum Signs".

ARROW DETAILS

for Destination Signs (Type D)



Standard arrow to be used with 6 inch letters.

Standard arrow to be used with 8 inch letters.

Texas Department of Transportation

Traffic Operations Division Standard

TYPICAL SIGN REQUIREMENTS

TSR(5)-13

FILE: tsr5-13.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
©TxDOT October 2003	CONT	SECT	JOB	HIGHWAY
REVISIONS	1586	01	079	FM 907
12-03 7-13	DIST	COUNTY		SHEET NO.
9-08	PHR	HIDALGO		220

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)

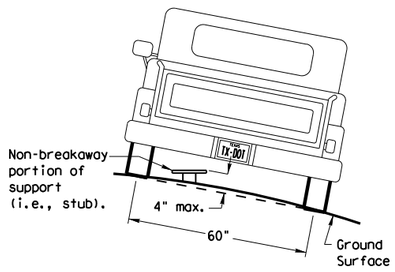
Anchor Type

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

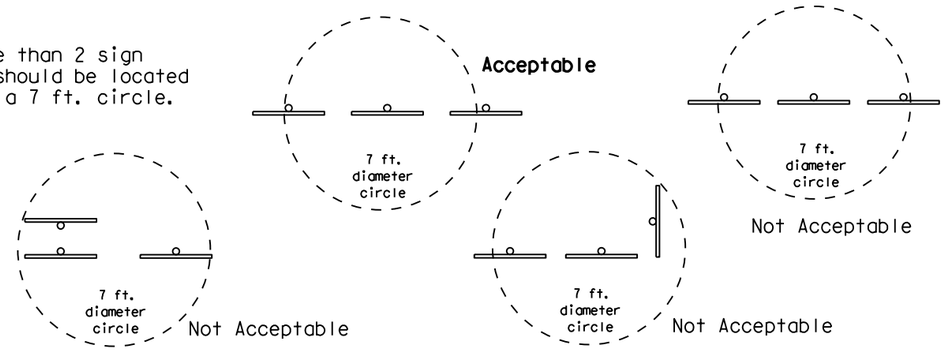
P = Prefab. "Plain" (see SMD(SLIP-1) to (SLIP-3), (TWT), (FRP))
T = Prefab. "T" (see SMD(SLIP-1) to (SLIP-3), (TWT))
U = Prefab. "U" (see SMD(SLIP-1) to (SLIP-3))
IF REQUIRED
1EXT or 2EXT = Number of Extensions (see SMD(SLIP-1) to (SLIP-3), (TWT))
BM = Extruded Wind Beam (see SMD(SLIP-1) to (SLIP-3))
WC = 1.12 #/ft Wing Channel (see SMD(SLIP-1) to (SLIP-3))
EXAL = Extruded Aluminum Sign Panels (see SMD(SLIP-1) to (SLIP-3))

REQUIRED CLEARANCE FOR BREAKAWAY SUPPORT



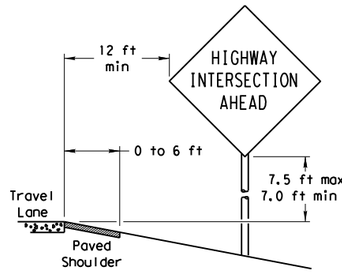
To avoid vehicle undercarriage snagging, any substantial remains of a breakaway support, when it is broken away, should not project more than 4 inches above a 60-inch chord (i.e., typical space between wheel paths).

No more than 2 sign posts should be located within a 7 ft. circle.



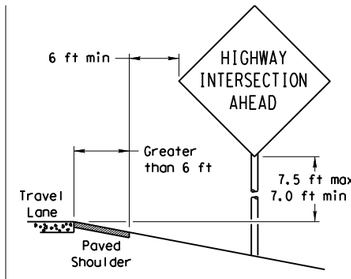
SIGN LOCATION

PAVED SHOULDERS



LESS THAN 6 FT. WIDE

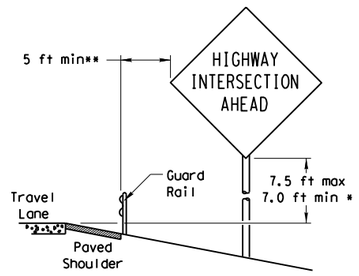
When the shoulder is 6 ft. or less in width, the sign must be placed at least 12 ft. from the edge of the travel lane.



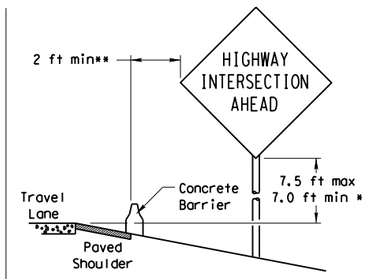
GREATER THAN 6 FT. WIDE

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.

BEHIND BARRIER



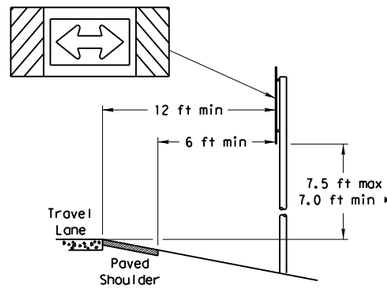
BEHIND GUARDRAIL



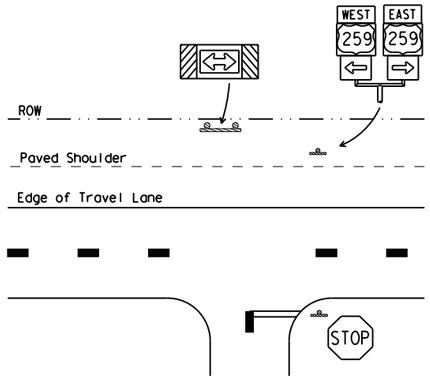
BEHIND CONCRETE BARRIER

**Sign clearance based on distance required for proper guard rail or concrete barrier performance.

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.



* 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.

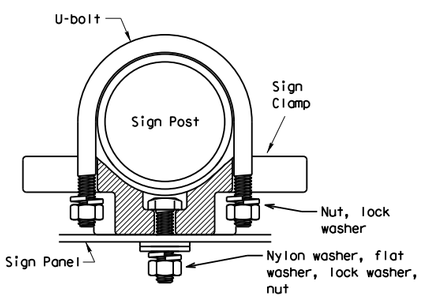
The maximum values may be increased when directed by the Engineer.

See the Traffic Operations Division website for detailed drawings of sign clamps, Triangular Slipbase System components and Wedge Anchor System components.

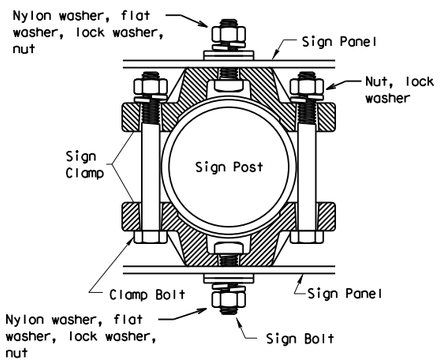
The website address is:
http://www.txdot.gov/publications/traffic.htm

TYPICAL SIGN ATTACHMENT DETAIL

Single Signs



Back-to-Back Signs



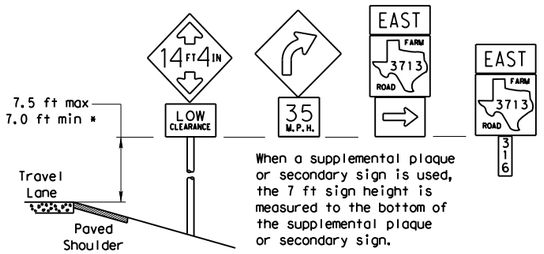
Bolts used to mount sign panels to the clamp are 5/16-18 UNC galvanized square head with nut, nylon washer, flat washer and lock washer. The bolt length is 1 inch for aluminum.

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.

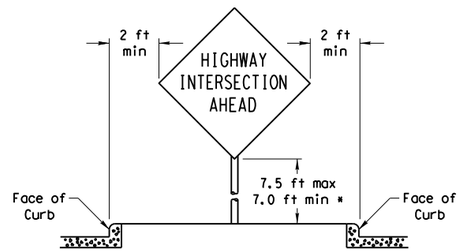
Pipe Diameter	Approximate Bolt Length	
	Specific Clamp	Universal Clamp
2" nominal	3"	3 or 3 1/2"
2 1/2" nominal	3 or 3 1/2"	3 1/2 or 4"
3" nominal	3 1/2 or 4"	4 1/2"

SIGNS WITH PLAQUES



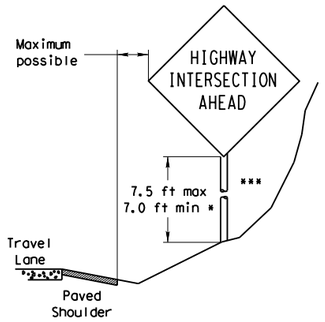
When a supplemental plaque or secondary sign is used, the 7 ft sign height is measured to the bottom of the supplemental plaque or secondary sign.

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

REVISIONS	DN: TXDOT	CK: TXDOT	DW: TXDOT	CK: TXDOT
9-08	CONT	SECT	JOB	HIGHWAY
	1586	01	079	FM 907
	DIST	COUNTY		SHEET NO.
	PHR	HIDALGO		221

DATE: 8/30/2021 5:38:47 PM
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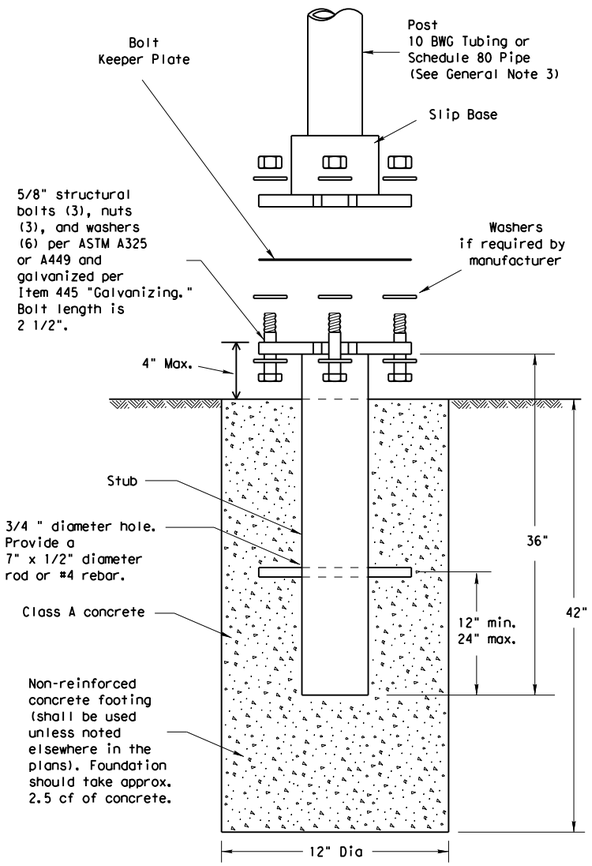
TRIANGULAR SLIPBASE INSTALLATION GENERAL REQUIREMENTS



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.

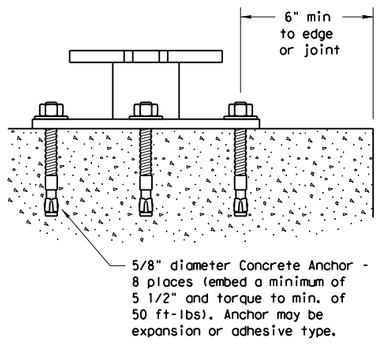
   Schedule 80 Pipe (2.875" outside diameter)
   - 0.276" nominal wall thickness
   - Steel tubing per ASTM A500 Gr C
   - Other seamless or electric-resistance welded steel tubing or pipe with equivalent outside diameter and wall thickness may be used if they meet the following:
     - 46,000 PSI minimum 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
1586	01	079	FM 907

DIST	COUNTY	SHEET NO.
PHR	HIDALGO	222

DATE: 8/30/2021 5:38:54 PM
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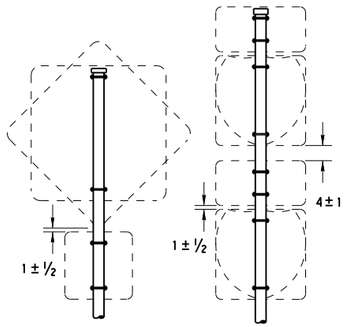
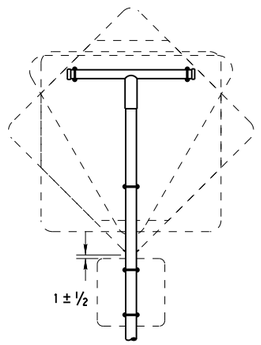
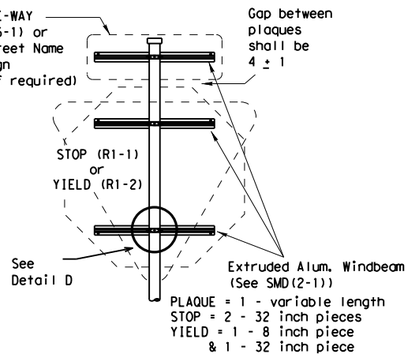


SM RD SGN ASSM TY XXXXX(1)XX(P)



SM RD SGN ASSM TY XXXXX(1)XX(T)



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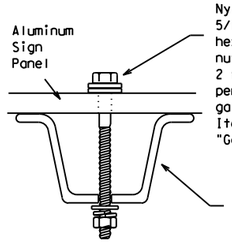
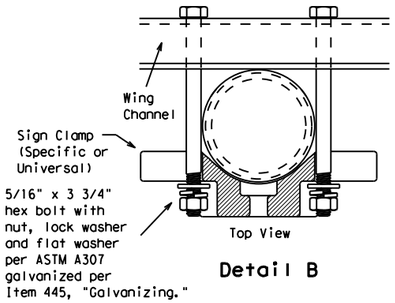
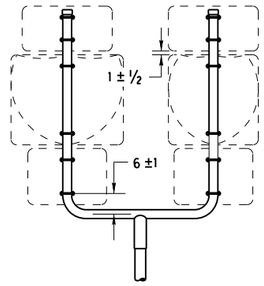


Detail A



Detail B



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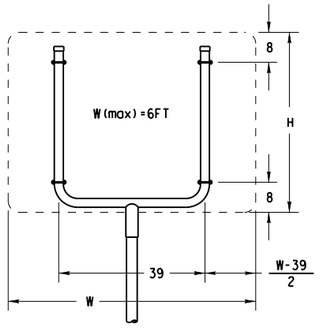

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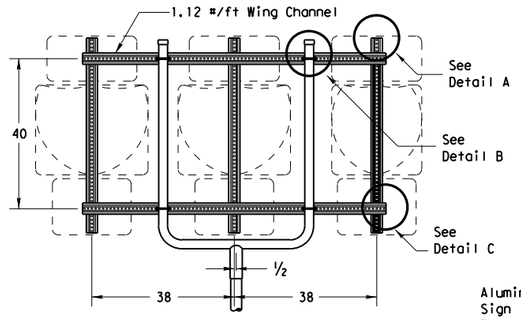
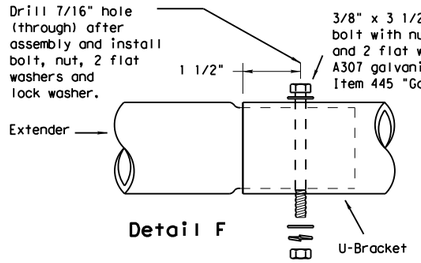
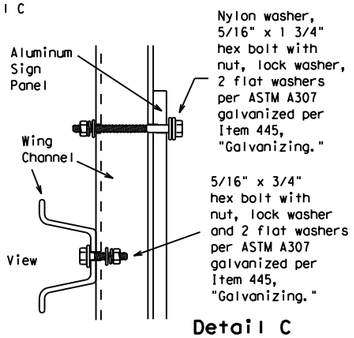


SM RD SGN ASSM TY XXXXX(1)XX(U-WC)
(See Note 11)

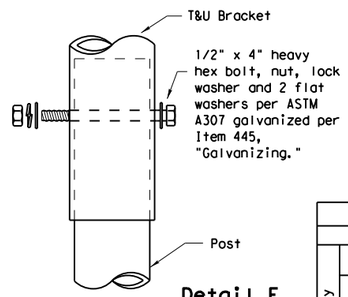


Detail F

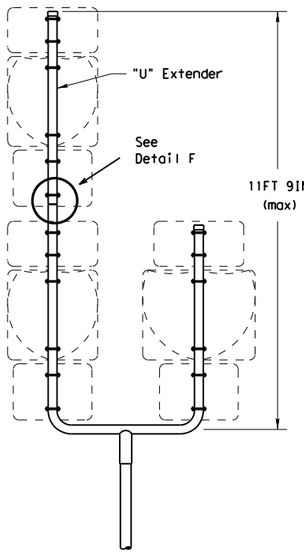
Splices shall only be allowed behind the sign substrate.



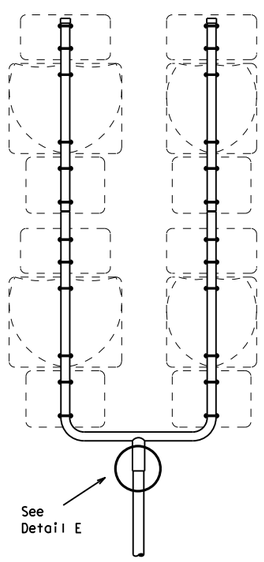
Detail C



Detail E



SM RD SGN ASSM TY S80(1)XX(U-1EXT)



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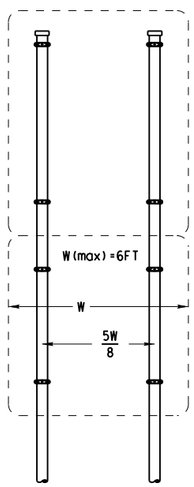
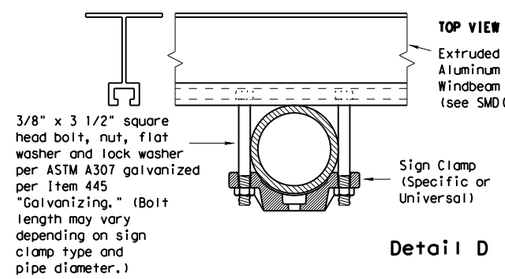
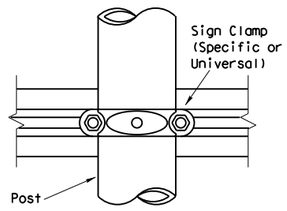


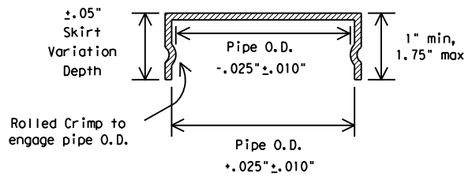
SM RD SGN ASSYM TY XXXXX(2)XX(P)



Detail D



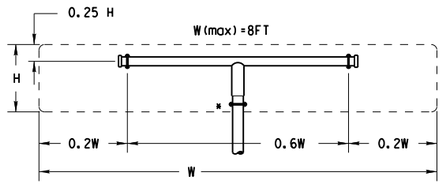
FRICTION CAP DETAIL



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.



SM RD SGN ASSM TY XXXXX(1)XX(T)
(* - See Note 12)

All dimensions are in english unless detailed otherwise.

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	1586	01	079	FM 907

DIST	COUNTY	SHEET NO.
PHR	HIDALGO	223

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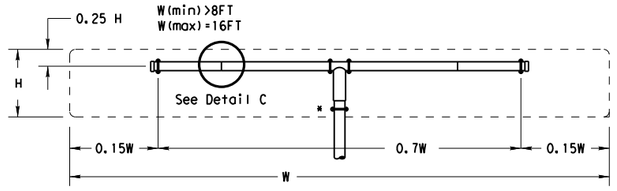
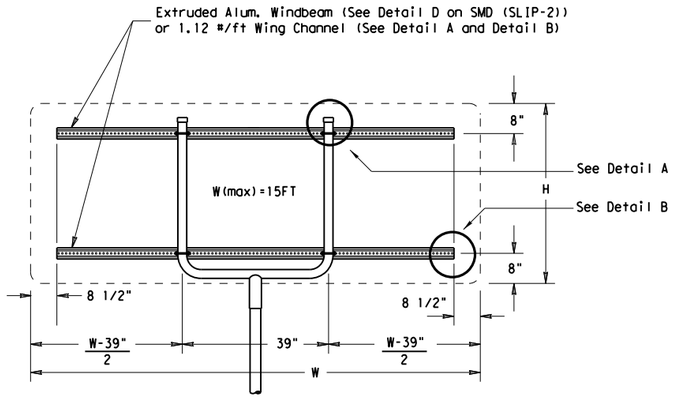
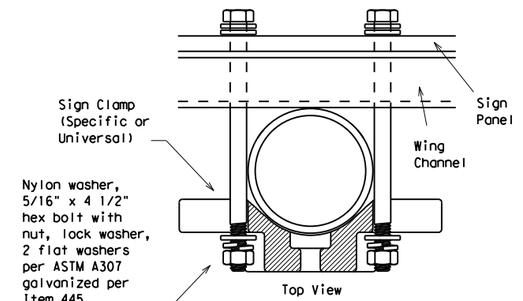


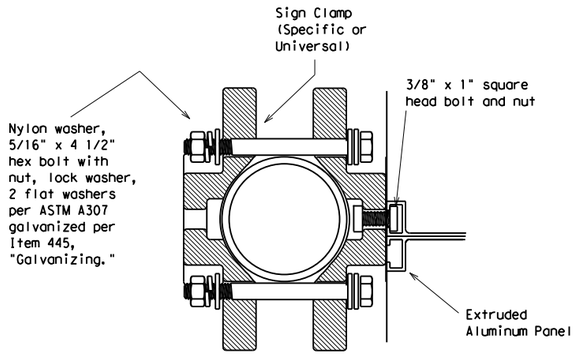
SM RD SGN ASSM TY XXXXX(1)XX(T-2EXT)
(* - See Note 12)



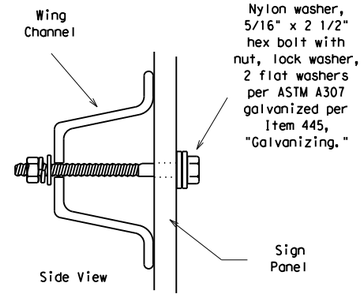
SM RD SGN ASSM TY XXXXX(1)XX(U-XX)



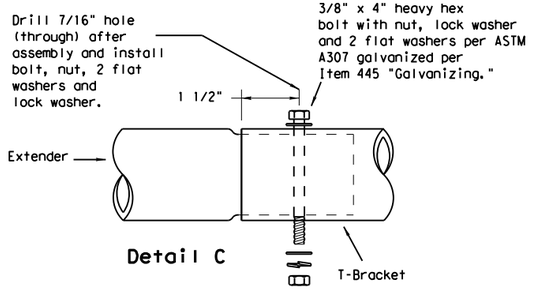
Detail A



Detail D
EXTRUDED ALUMINUM SIGN WITH T BRACKET

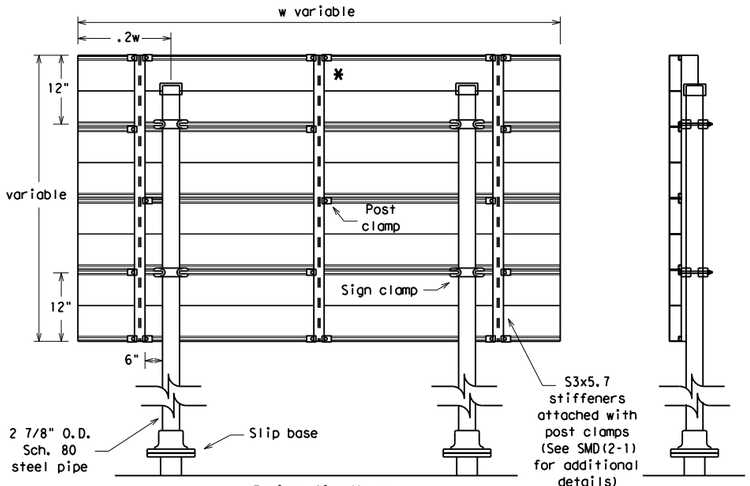


Detail B



Detail C

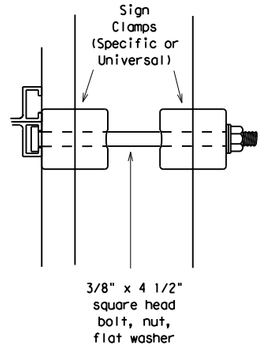
Splices shall only be allowed behind the sign substrate.



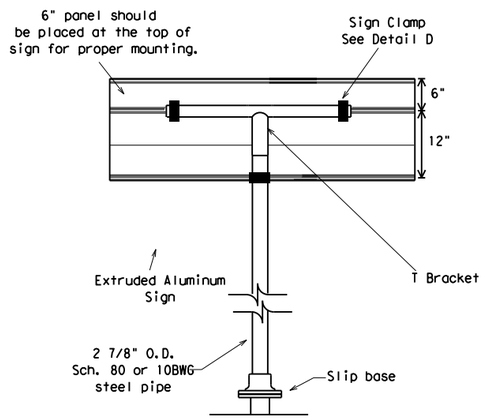
Typical Sign Mount

SM RD SGN ASSM TY S80(2)XX(P-EXAL)

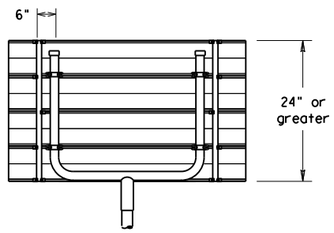
* Additional stiffener placed at approximate center of signs when sign width is greater than 10'.



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.
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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

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	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	DN: TXDOT	CK: TXDOT	DW: TXDOT	CK: TXDOT
9-08	CONT	SECT	JOB	HIGHWAY
	1586	01	079	FM 907
	DIST	COUNTY		SHEET NO.
	PHR	HIDALGO		224

PAVEMENT MARKINGS
COVER SHEET

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Pharr District Central Design

Texas Department of Transportation

FM 907

PAVEMENT MARKINGS
COVER SHEET

CONT	SECT	JOB	HIGHWAY
1586	01	079	FM 907
DIST	COUNTY		SHEET NO.
PHR	HIDALGO		225

A (FT)	B (FT)	C (FT)	D (FT)	E (FT)	F (FT)	G (FT)	H (EA)	I (EA)	J (EA)	K (EA)	L (EA)	M (EA)	N (EA)	P (FT)	Q (FT)	R (FT)
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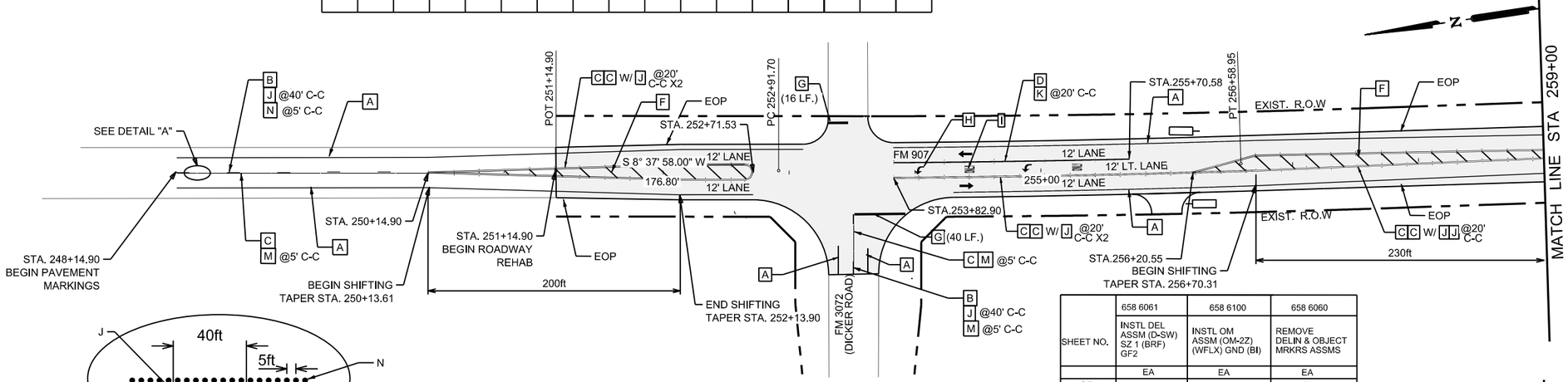
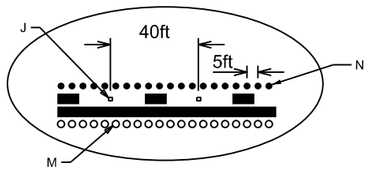
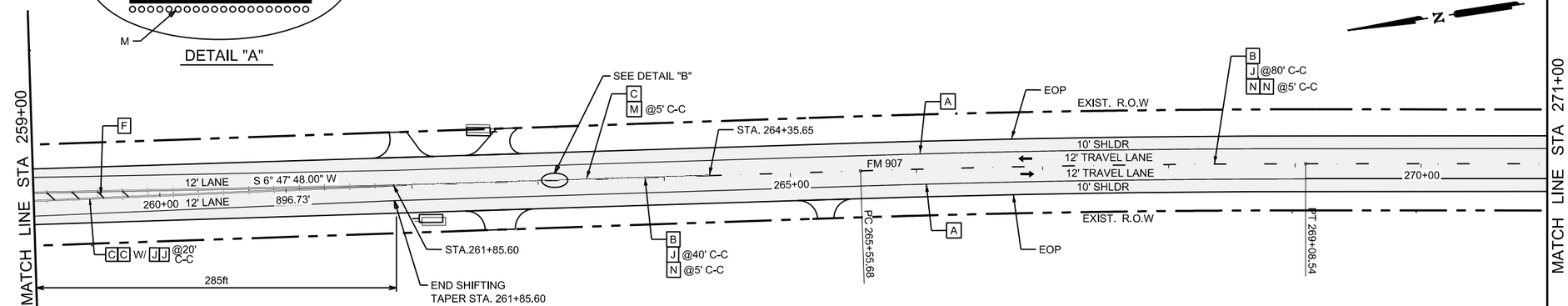
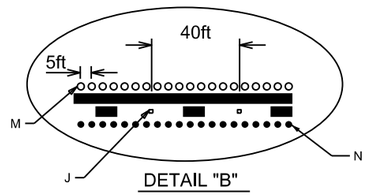




DETAIL "A"

SHEET NO.	658 6061 INSTL DEL ASSM (D-SW) SZ 1 (BRF) GF2	658 6100 INSTL OM ASSM (OM-2Z) (WFLX) GND (BI)	658 6060 REMOVE DELIN & OBJECT MRKRS ASSMS
	EA	EA	EA
1 OF 4	-	4	2





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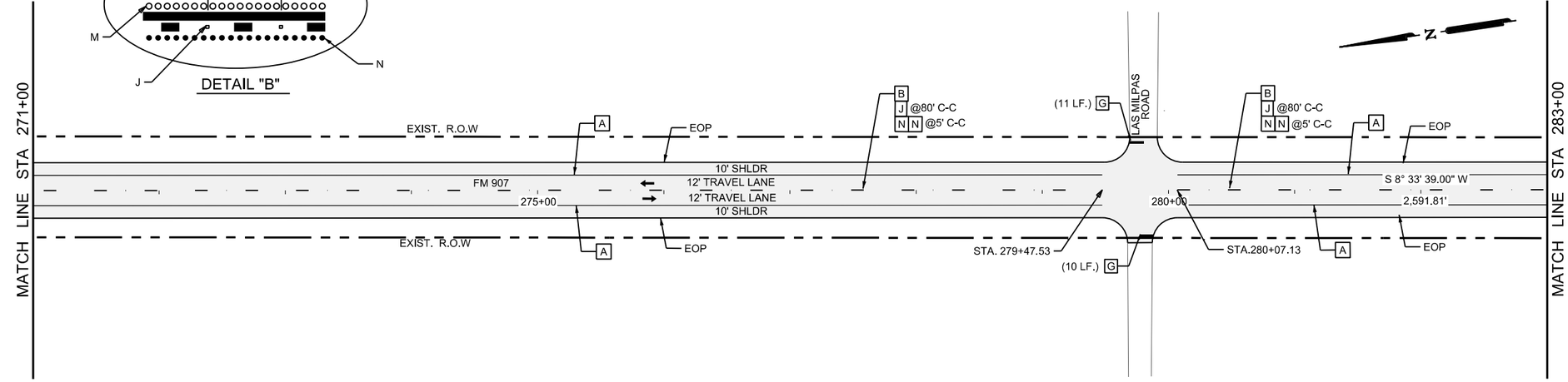

LEGEND

- A REF PROF PAV MRK TY I(W)4"(SLD)(100MIL)
- B RE PM W/RET REQ TY I (Y)4"(BRK)(100MIL)
- C RE PM W/RET REQ TY I (Y)4"(SLD)(100MIL)
- D REFL PAV MRK TY I (W)8"(SLD)(100MIL)
- E REFL PAV MRK TY I (W)12"(SLD)(100MIL)
- F REFL PAV MRK TY I (Y)12"(SLD)(100MIL)
- G REFL PAV MRK TY I (W)24"(SLD)(100MIL)
- H REFL PAV MRK TY I (W)(ARROW)(100MIL)
- I REFL PAV MRK TY I (W)(WORD)(100MIL)
- J REFL PAV MRKR TY II-A-A
- K REFL PAV MRKR TY I-C
- L REFL PAV MRK TY I (W)(RR XING)(100MIL)
- M TRAFFIC BUTTON TY Y
- N TRAFFIC BUTTON TY B
- P MULTIPOLYMER PAV MRK (W)(4")(SLD)
- Q MULTIPOLYMER PAV MRK (Y)(4")(SLD)
- R PAV SURF PREP FOR MRK (4")

ASSM (OM-2Z)(FLX) GND (BI)
EXIST. OM TO BE REMOVED
DEL ASSM (D-SW)SZ 1 (BRF) GF2
EXIST. DELINEATOR TO BE REMOVED
W/ WITH
@ AT
EOP EDGE OF PAVEMENT
C-C CENTER TO CENTER
← TRAFFIC FLOW

NOTES:

1. THE PAVEMENT SURFACE SHALL BE FREE OF DELETERIOUS MATERIAL BEFORE APPLICATION OF PERMANENT STRIPING AND PAVEMENT MARKERS. IF THE SURFACE NEEDS TO BE CLEANED, AS DETERMINED BY THE AREA ENGINEER, THE CONTRACTOR SHALL PREPARE SURFACE IN ACCORDANCE WITH ITEM 678, "PAVEMENT SURFACE PREPARATION FOR MARKINGS", EXCEPT FOR "MEASUREMENT" AND "PAYMENT". THE PREPARATION OF PAVEMENT SURFACE SHALL BE SUBSIDIARY TO ITEM 666, 668 AND 672.
2. ALL PERMANENT PAVEMENT MARKINGS SHALL BE 0.100 INCHES (100 MIL) THICK THERMOPLASTIC.
3. FOR RUMBLE STRIPS SEE SHEETS RS(3)-13 AND RS(4)-13 FOR MORE DETAILS. SEE PM(1-3)-20 FOR STANDARD PAVEMENT MARKING PLACEMENT DETAILS.

STATE OF TEXAS
JOSE A. RODRIGUEZ
117308
LICENSED PROFESSIONAL ENGINEER

03/10/22

Pharr District Central Design

Texas Department of Transportation

FM 907

PAVEMENT MARKING LAYOUT

SCALE: 1" = 100'

SHEET 1 OF 4

CONT	SECT	JOB	HIGHWAY
1586	01	079	FM 907
DIST	COUNTY		SHEET NO.
PHR	HIDALGO		226

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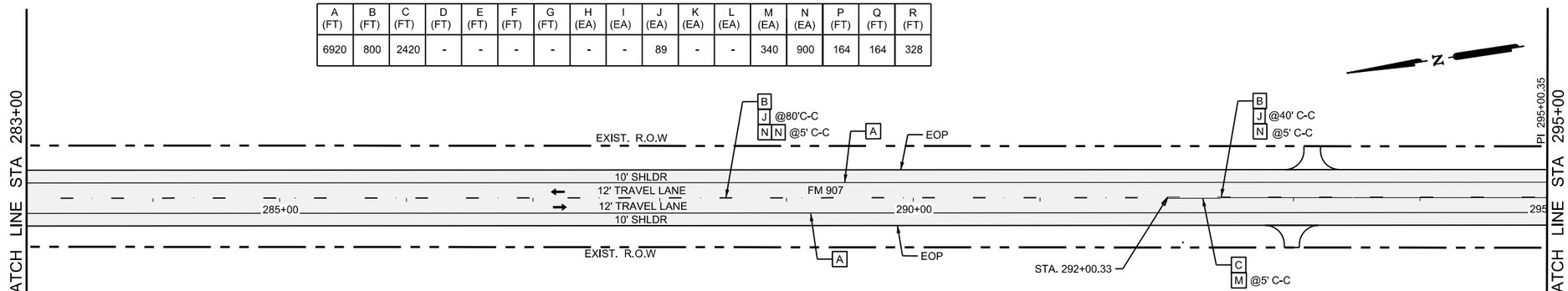
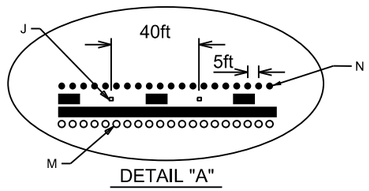
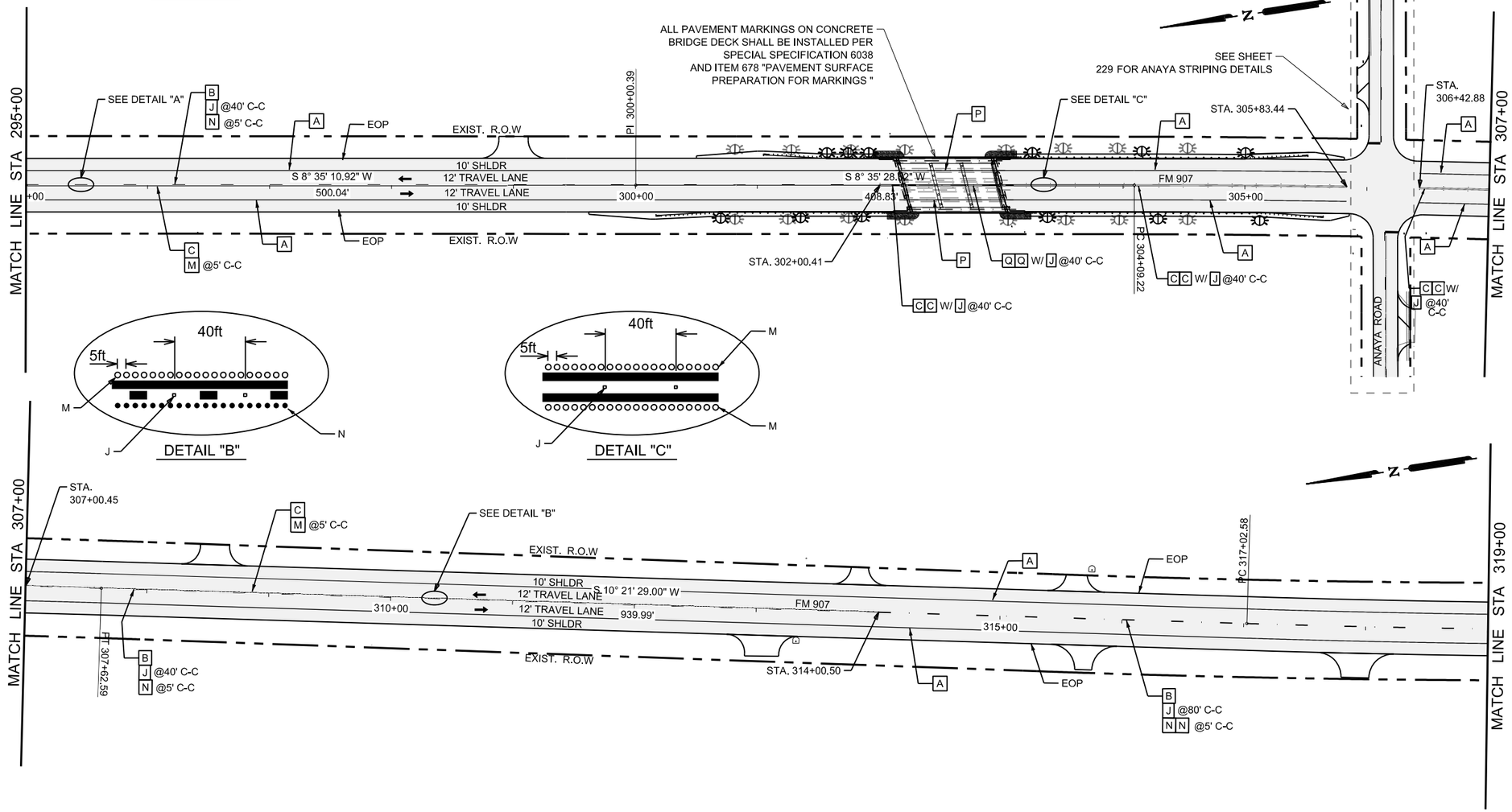




DETAIL "A"

SHEET NO.	658 6061 INSTL DEL ASSM (D-SW) SZ 1 (BRF) GF2	658 6100 INSTL OM ASSM (OM-2Z) (WFLX) GND (BI)	658 6060 REMOVE DELIN & OBJECT MRKRS ASSMS
	EA	EA	EA
2 OF 4	12	-	16



DETAIL "B"

DETAIL "C"

LEGEND

- A REF PROF PAV MRK TY I(W)4"(SLD)(100MIL)
- B RE PM W/RET REQ TY I (Y)4"(BRK)(100MIL)
- C RE PM W/RET REQ TY I (Y)4"(SLD)(100MIL)
- D REFL PAV MRK TY I (W)8"(SLD)(100MIL)
- E REFL PAV MRK TY I (W)12"(SLD)(100MIL)
- F REFL PAV MRK TY I (Y)12"(SLD)(100MIL)
- G REFL PAV MRK TY I (W)24"(SLD)(100MIL)
- H REFL PAV MRK TY I (W)(ARROW)(100MIL)
- I REFL PAV MRK TY I (W)(WORD)(100MIL)
- J REFL PAV MRKR TY II-A-A
- K REFL PAV MRKR TY I-C
- L REFL PAV MRK TY I (W)(RR XING)(100MIL)
- M TRAFFIC BUTTON TY Y
- N TRAFFIC BUTTON TY B
- P MULTIPOLYMER PAV MRK (W)(4")(SLD)
- Q MULTIPOLYMER PAV MRK (Y)(4")(SLD)
- R PAV SURF PREP FOR MRK (4")

ASSM (OM-2Z)(FLX) GND (BI)
EXIST. OM TO BE REMOVED
DEL ASSM (D-SW)SZ 1 (BRF) GF2
EXIST. DELINEATOR TO BE REMOVED
W/ WITH
@ AT
EOP EDGE OF PAVEMENT
C-C CENTER TO CENTER
TRAFFIC FLOW

NOTES:

1. THE PAVEMENT SURFACE SHALL BE FREE OF DELETERIOUS MATERIAL BEFORE APPLICATION OF PERMANENT STRIPING AND PAVEMENT MARKERS. IF THE SURFACE NEEDS TO BE CLEANED, AS DETERMINED BY THE AREA ENGINEER, THE CONTRACTOR SHALL PREPARE SURFACE IN ACCORDANCE WITH ITEM 678, "PAVEMENT SURFACE PREPARATION FOR MARKINGS", EXCEPT FOR "MEASUREMENT" AND "PAYMENT". THE PREPARATION OF PAVEMENT SURFACE SHALL BE SUBSIDIARY TO ITEM 666, 668 AND 672.
2. ALL PERMANENT PAVEMENT MARKINGS SHALL BE 0.100 INCHES (100 MIL) THICK THERMOPLASTIC.
3. FOR RUMBLE STRIPS SEE SHEETS RS(3)-13 AND RS(4)-13 FOR MORE DETAILS. SEE PM(1-3)-20 FOR STANDARD PAVEMENT MARKING PLACEMENT DETAILS.

STATE OF TEXAS
JOSE A. RODRIGUEZ
117308
LICENSED PROFESSIONAL ENGINEER

03/10/22

Pharr District Central Design

Texas Department of Transportation

FM 907

PAVEMENT MARKING LAYOUT

SCALE: 1" = 100' SHEET 2 OF 4

CONT	SECT	JOB	HIGHWAY
1586	01	079	FM 907
DIST	COUNTY		SHEET NO.
PHR	HIDALGO		227

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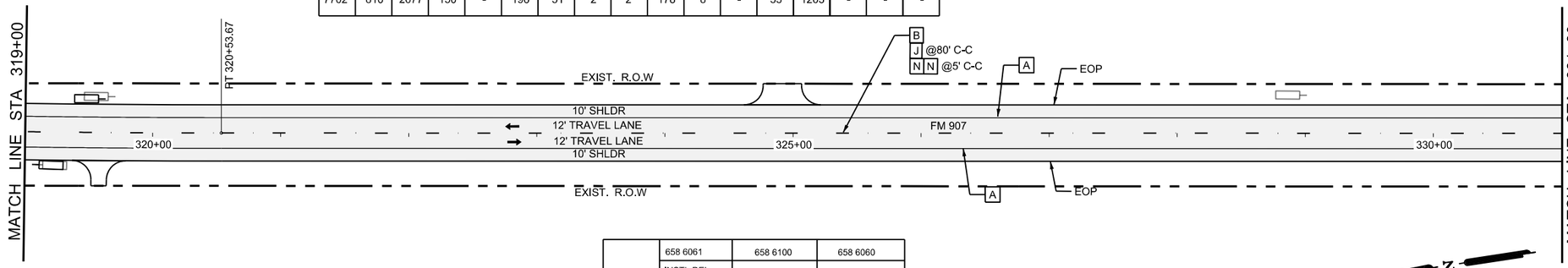
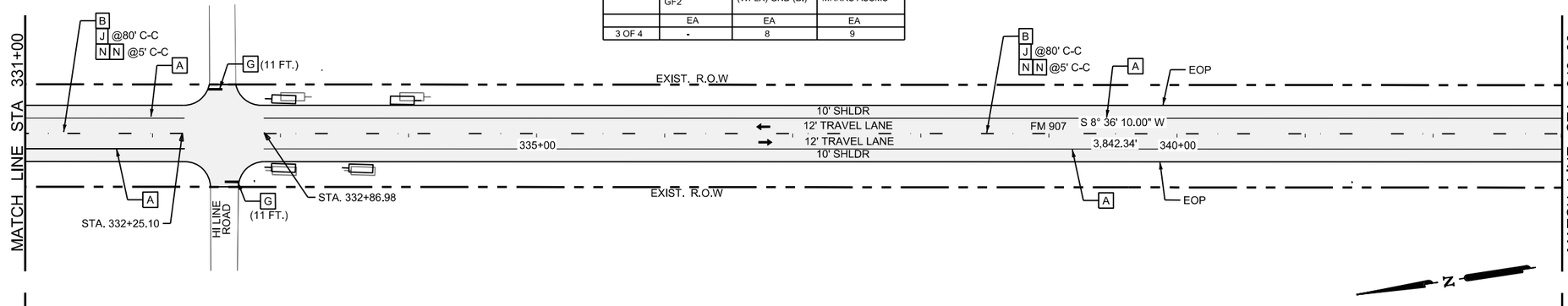
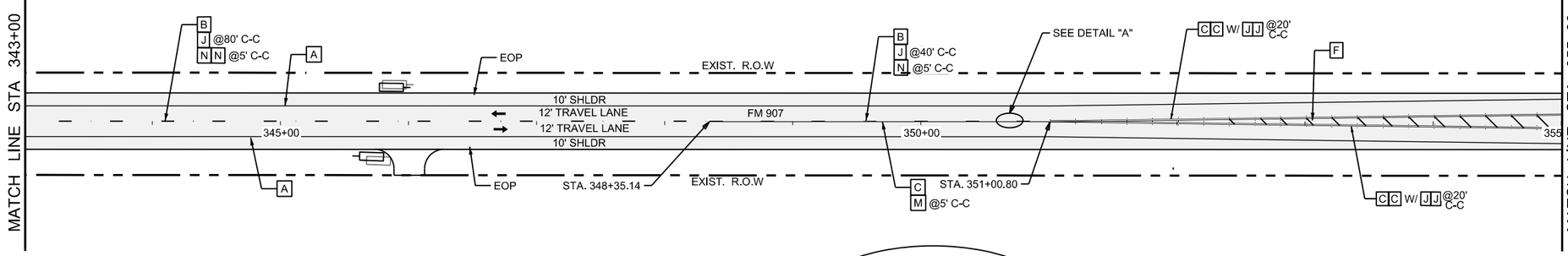
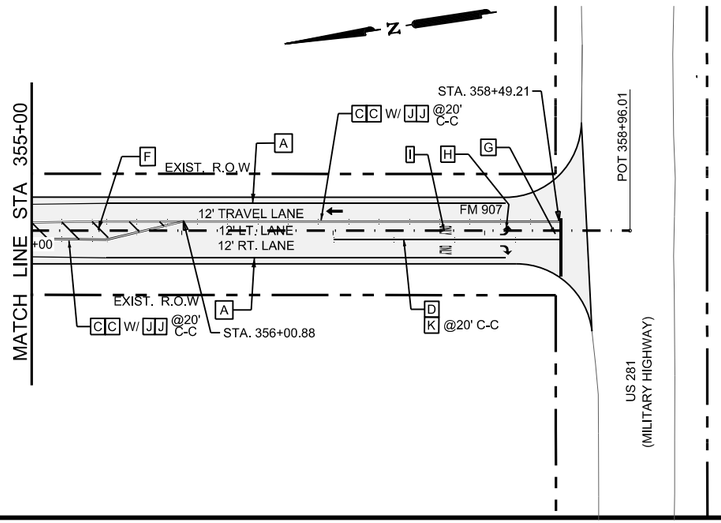
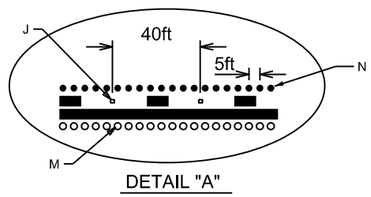


SHEET NO.	658 6061 INSTL DEL ASSM (D-SW) SZ 1 (BRF) GF2	658 6100 INSTL OM ASSM (OM-2Z) (WFLX) GND (BI)	658 6060 REMOVE DELIN & OBJECT MRKRS ASSMS
	EA	EA	EA
3 OF 4	-	8	9









DETAIL "A"

LEGEND

- A REF PROF PAV MRK TY I(W)4"(SLD)(100MIL)
- B RE PM W/RET REQ TY I (Y)4"(BRK)(100MIL)
- C RE PM W/RET REQ TY I (Y)4"(SLD)(100MIL)
- D REFL PAV MRK TY I (W)8"(SLD)(100MIL)
- E REFL PAV MRK TY I (W)12"(SLD)(100MIL)
- F REFL PAV MRK TY I (Y)12"(SLD)(100MIL)
- G REFL PAV MRK TY I (W)24"(SLD)(100MIL)
- H REFL PAV MRK TY I (W)(ARROW)(100MIL)
- I REFL PAV MRK TY I (W)(WORD)(100MIL)
- J REFL PAV MRKR TY II-A-A
- K REFL PAV MRKR TY I-C
- L REFL PAV MRK TY I (W)(RR XING)(100MIL)
- M TRAFFIC BUTTON TY Y
- N TRAFFIC BUTTON TY B
- P MULTIPOLYMER PAV MRK (W)(4")(SLD)
- Q MULTIPOLYMER PAV MRK (Y)(4")(SLD)
- R PAV SURF PREP FOR MRK (4")

ASSM (OM-2Z)(FLX) GND (BI)
EXIST. OM TO BE REMOVED
DEL ASSM (D-SW)SZ 1 (BRF) GF2
EXIST. DELINEATOR TO BE REMOVED
W/ WITH
@ AT
EOP EDGE OF PAVEMENT
C-C CENTER TO CENTER
TRAFFIC FLOW

NOTES:

1. THE PAVEMENT SURFACE SHALL BE FREE OF DELETERIOUS MATERIAL BEFORE APPLICATION OF PERMANENT STRIPING AND PAVEMENT MARKERS. IF THE SURFACE NEEDS TO BE CLEANED, AS DETERMINED BY THE AREA ENGINEER, THE CONTRACTOR SHALL PREPARE SURFACE IN ACCORDANCE WITH ITEM 678, "PAVEMENT SURFACE PREPARATION FOR MARKINGS", EXCEPT FOR "MEASUREMENT" AND "PAYMENT". THE PREPARATION OF PAVEMENT SURFACE SHALL BE SUBSIDIARY TO ITEM 666, 668 AND 672.
2. ALL PERMANENT PAVEMENT MARKINGS SHALL BE 0.100 INCHES (100 MIL) THICK THERMOPLASTIC.
3. FOR RUMBLE STRIPS SEE SHEETS RS(3)-13 AND RS(4)-13 FOR MORE DETAILS. SEE PM(1-3)-20 FOR STANDARD PAVEMENT MARKING PLACEMENT DETAILS.

STATE OF TEXAS
JOSE A. RODRIGUEZ
117308
LICENSED PROFESSIONAL ENGINEER

03/10/22

Pharr District Central Design

Texas Department of Transportation

FM 907

PAVEMENT MARKING LAYOUT

SCALE: 1" = 100'

SHEET 3 OF 4

© 2021	CONT	SECT	JOB	HIGHWAY
	1586	01	079	FM 907
	DIST	COUNTY		SHEET NO.
	PHR	HIDALGO		228

DATE: 2/23/2022 9:51:26 AM
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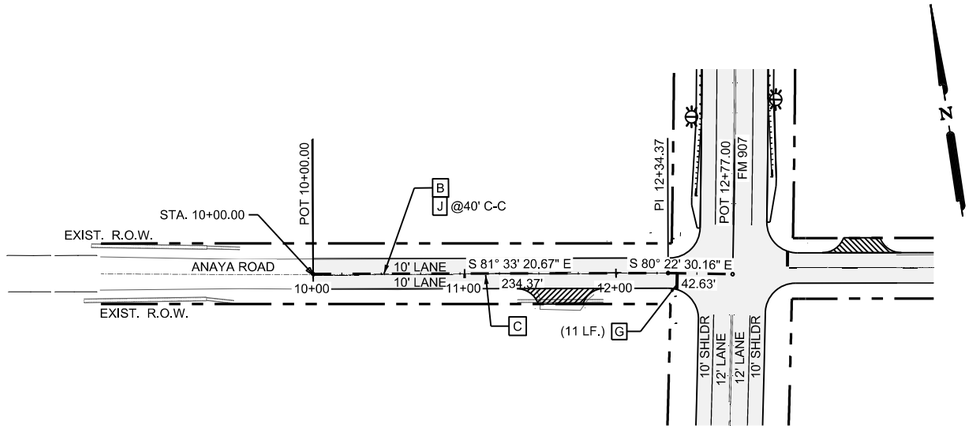
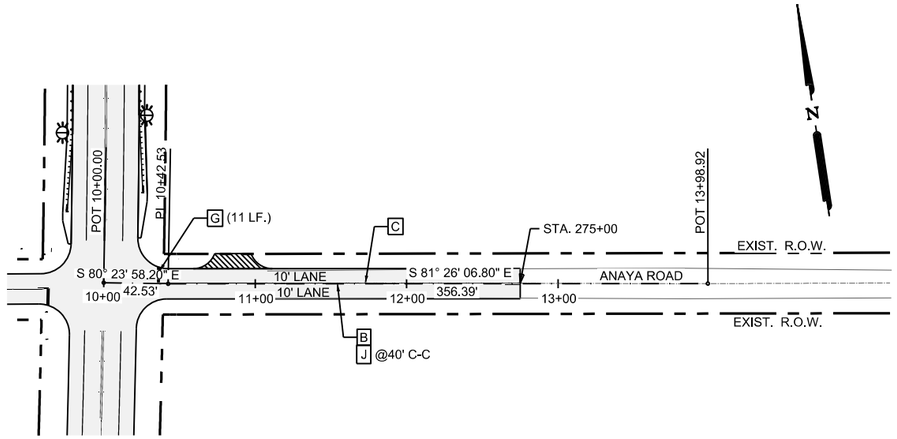
-	130	504	-	-	-	22	-	-	12	-	-	-	-	-	-	-

SHEET NO.	658 6061 INSTL DEL ASSM (D-SW) SZ 1 (BRF) GF2	658 6100 INSTL OM ASSM (OM-2Z) (WFLX) GND (BI)	658 6060 REMOVE DELIN & OBJECT MRKRS ASSMS
	EA	EA	EA
4 OF 4	-	-	-





LEGEND

- A REF PROF PAV MRK TY I(W)4"(SLD)(100MIL)
- B RE PM W/RET REQ TY I (Y)4"(BRK)(100MIL)
- C RE PM W/RET REQ TY I (Y)4"(SLD)(100MIL)
- D REFL PAV MRK TY I (W)8"(SLD)(100MIL)
- E REFL PAV MRK TY I (W)12"(SLD)(100MIL)
- F REFL PAV MRK TY I (Y)12"(SLD)(100MIL)
- G REFL PAV MRK TY I (W)24"(SLD)(100MIL)
- H REFL PAV MRK TY I (W)(ARROW)(100MIL)
- I REFL PAV MRK TY I (W)(WORD)(100MIL)
- J REFL PAV MRKR TY II-A-A
- K REFL PAV MRKR TY I-C
- L REFL PAV MRK TY I (W)(RR XING)(100MIL)
- M TRAFFIC BUTTON TY Y
- N TRAFFIC BUTTON TY B
- P MULTIPOLYMER PAV MRK (W)(4")(SLD)
- Q MULTIPOLYMER PAV MRK (Y)(4")(SLD)
- R PAV SURF PREP FOR MRK (4")

ASSM (OM-2Z)(FLX) GND (BI)
EXIST. OM TO BE REMOVED
DEL ASSM (D-SW)SZ 1 (BRF) GF2
EXIST. DELINEATOR TO BE REMOVED
W/ WITH
@ AT
EOP EDGE OF PAVEMENT
C-C CENTER TO CENTER
TRAFFIC FLOW

NOTES:

1. THE PAVEMENT SURFACE SHALL BE FREE OF DELETERIOUS MATERIAL BEFORE APPLICATION OF PERMANENT STRIPING AND PAVEMENT MARKERS. IF THE SURFACE NEEDS TO BE CLEANED, AS DETERMINED BY THE AREA ENGINEER, THE CONTRACTOR SHALL PREPARE SURFACE IN ACCORDANCE WITH ITEM 678, "PAVEMENT SURFACE PREPARATION FOR MARKINGS", EXCEPT FOR "MEASUREMENT" AND "PAYMENT". THE PREPARATION OF PAVEMENT SURFACE SHALL BE SUBSIDIARY TO ITEM 666, 668 AND 672.
2. ALL PERMANENT PAVEMENT MARKINGS SHALL BE 0.100 INCHES (100 MIL) THICK THERMOPLASTIC.
3. FOR RUMBLE STRIPS SEE SHEETS RS(3)-13 AND RS(4)-13 FOR MORE DETAILS. SEE PM(1-3)-20 FOR STANDARD PAVEMENT MARKING PLACEMENT DETAILS.

STATE OF TEXAS
JOSE A. RODRIGUEZ
117308
LICENSED
PROFESSIONAL ENGINEER

03/10/22

Pharr District Central Design

Texas Department of Transportation

FM 907

PAVEMENT MARKING LAYOUT

SCALE: 1" = 100' SHEET 4 OF 4

CONT	SECT	JOB	HIGHWAY
1586	01	079	FM 907
DIST	COUNTY		SHEET NO.
PHR	HIDALGO		229

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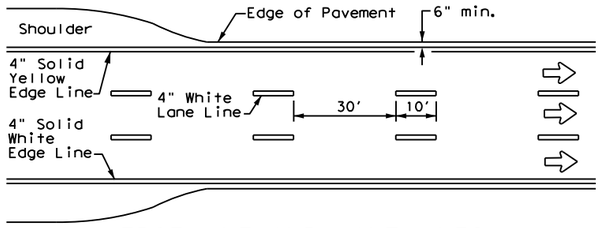
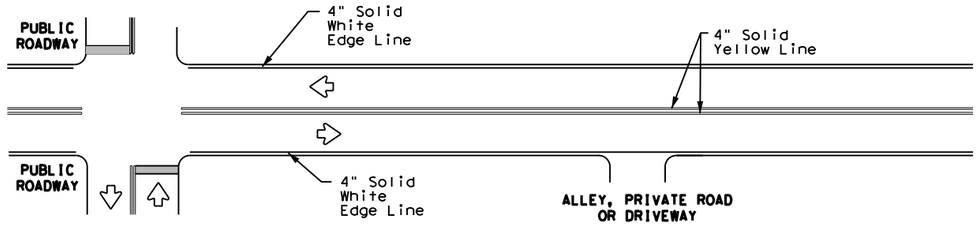
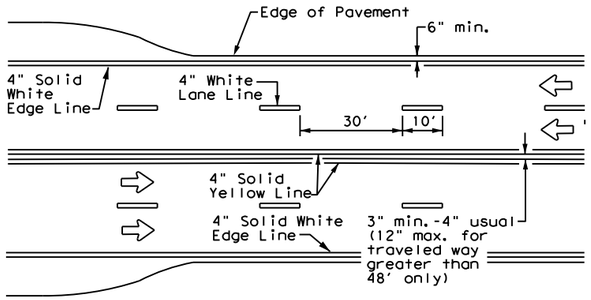


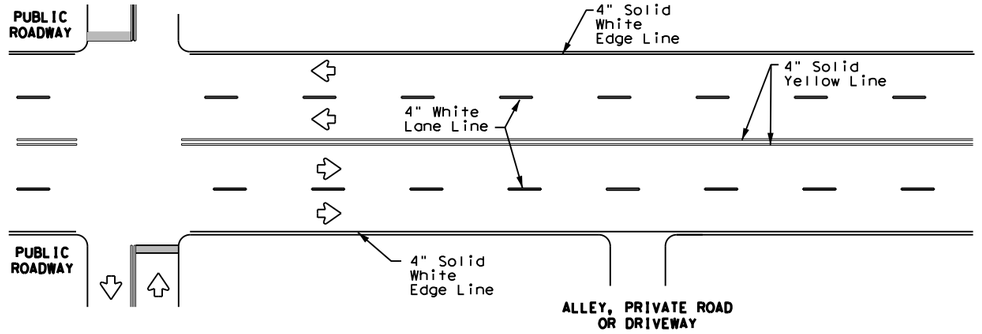
EDGE LINE AND LANE LINES ONE-WAY ROADWAY WITH OR WITHOUT SHOULDERS



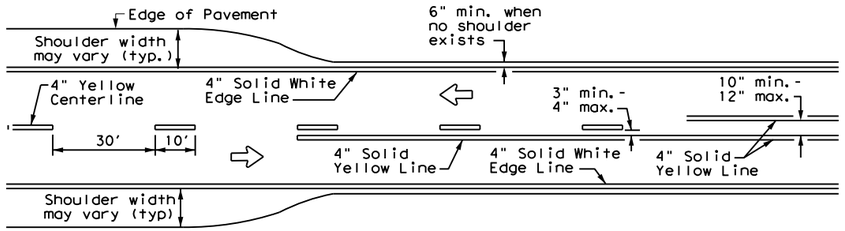
TYPICAL TWO-LANE, TWO-WAY PAVEMENT MARKINGS THROUGH INTERSECTIONS



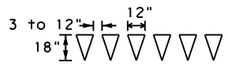
CENTERLINE AND LANE LINES FOUR LANE TWO-WAY ROADWAY WITH OR WITHOUT SHOULDERS



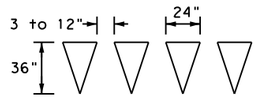
TYPICAL MULTI-LANE, TWO-WAY PAVEMENT MARKINGS THROUGH INTERSECTIONS



TWO LANE TWO-WAY ROADWAY WITH OR WITHOUT SHOULDERS

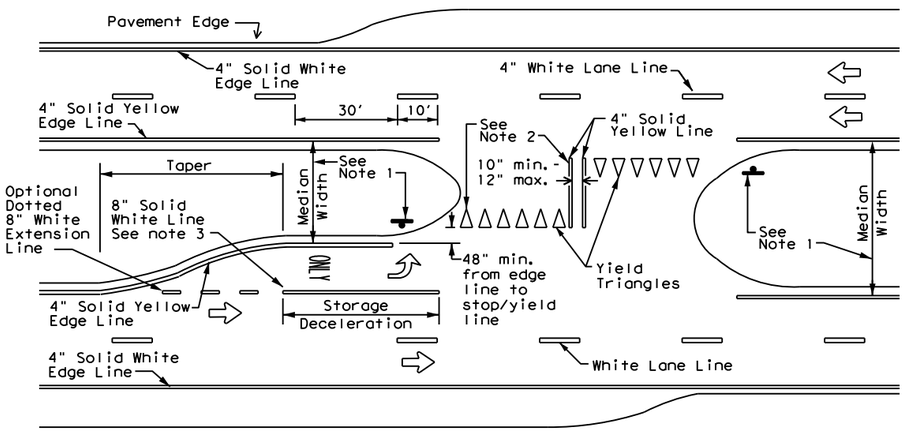


For posted speed on road being marked equal to or less than 40 MPH.



For posted speed on road being marked equal to or greater than 45 MPH.

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.

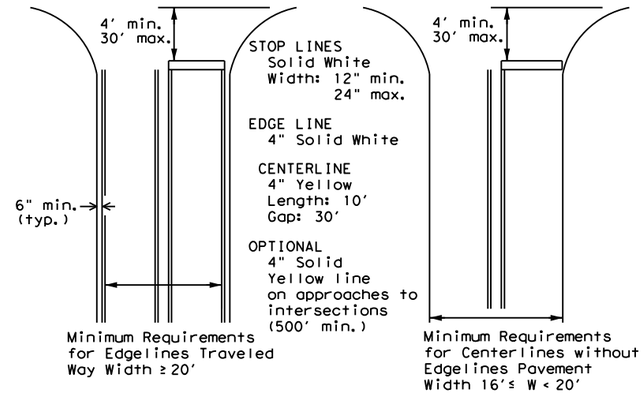
GENERAL NOTES

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	1586	01	079	FM 907
5-00 2-12	DIST	COUNTY		SHEET NO.
8-00 6-20	PHR	HIDALGO		230

22B

DATE: 8/30/2021 5:40:17 PM
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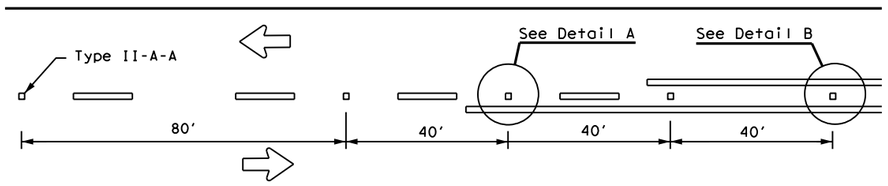
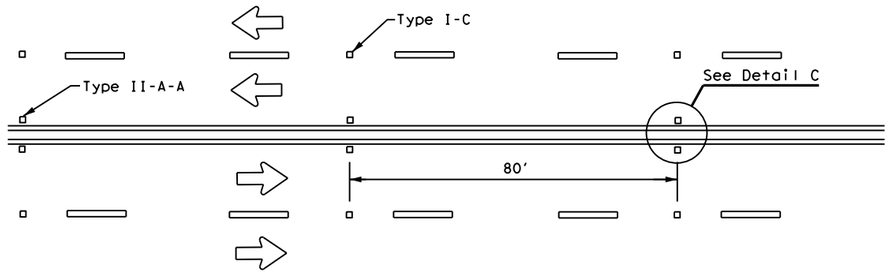
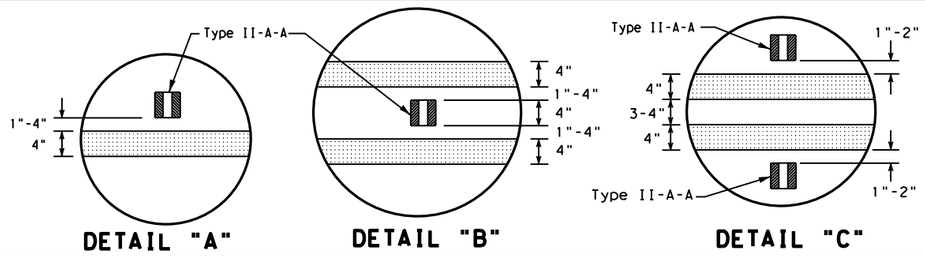
REFLECTIVE RAISED PAVEMENT MARKERS FOR VEHICLE POSITIONING GUIDANCE



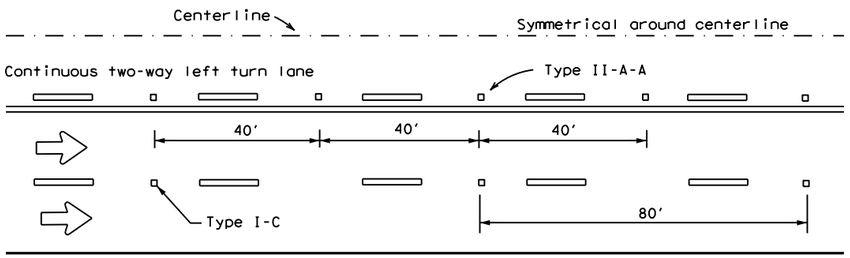
CENTERLINE FOR ALL TWO LANE ROADWAYS



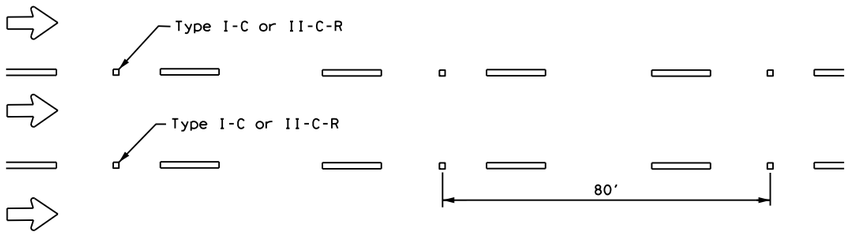
CENTERLINE & LANE LINES FOR FOUR LANE TWO-WAY HIGHWAYS



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

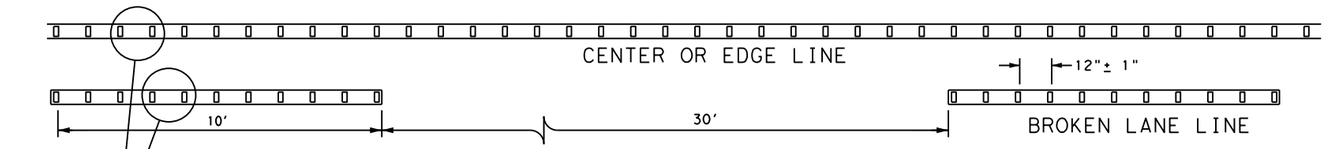


CENTERLINE AND LANE LINES FOR TWO-WAY LEFT TURN LANE



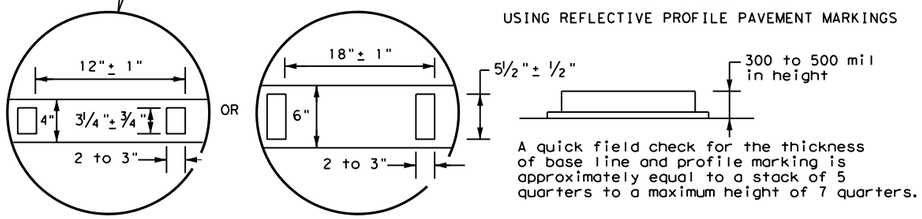
LANE LINES FOR ONE-WAY ROADWAY (NON-FREEWAY FACILITIES)

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



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

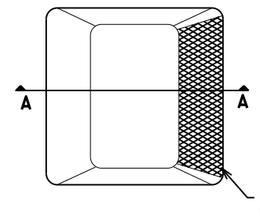
Profile markings shall not be placed on roadways with a posted speed limit of 45 MPH or less.

GENERAL NOTES

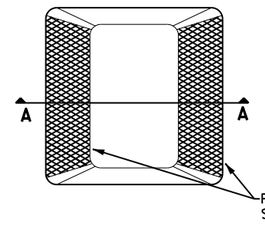
1. All raised pavement markers placed in broken lines shall be placed in line with and midway between the stripes.
2. On concrete pavements the raised pavement markers should be placed to one side of the longitudinal joints.

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

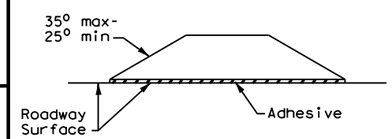
All pavement marking materials shall meet the required Departmental Material Specifications as specified by the plans.



Type I (Top View)



Type II (Top View)



SECTION A

RAISED PAVEMENT MARKERS

Texas Department of Transportation

Traffic Safety Division Standard

POSITION GUIDANCE USING RAISED MARKERS RELECTORIZED PROFILE MARKINGS PM(2)-20

FILE: pm2-20.dgn	DN:	CK:	DW:	CK:
©TxDOT April 1977	CONT	SECT	JOB	HIGHWAY
REVISIONS 4-92 2-10 5-00 2-12 8-00 6-20	1586	01	079	FM 907
	DIST	COUNTY		SHEET NO.
	PHR	HIDALGO		231

22B

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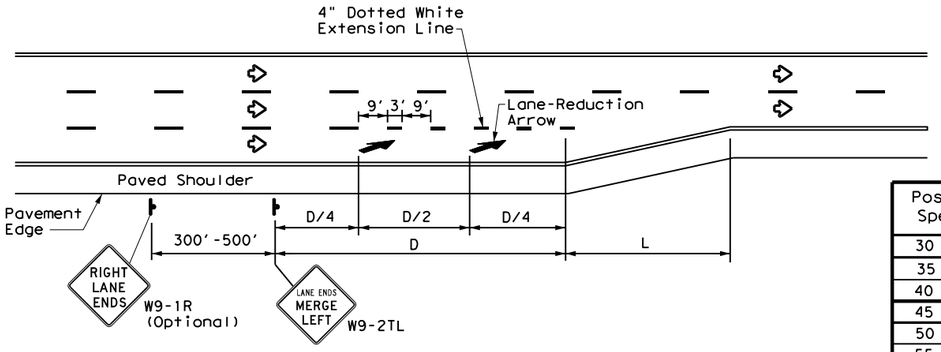
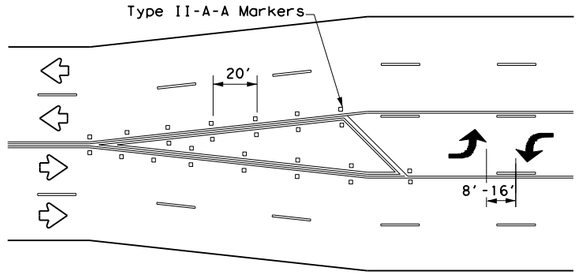


LANE REDUCTION

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.

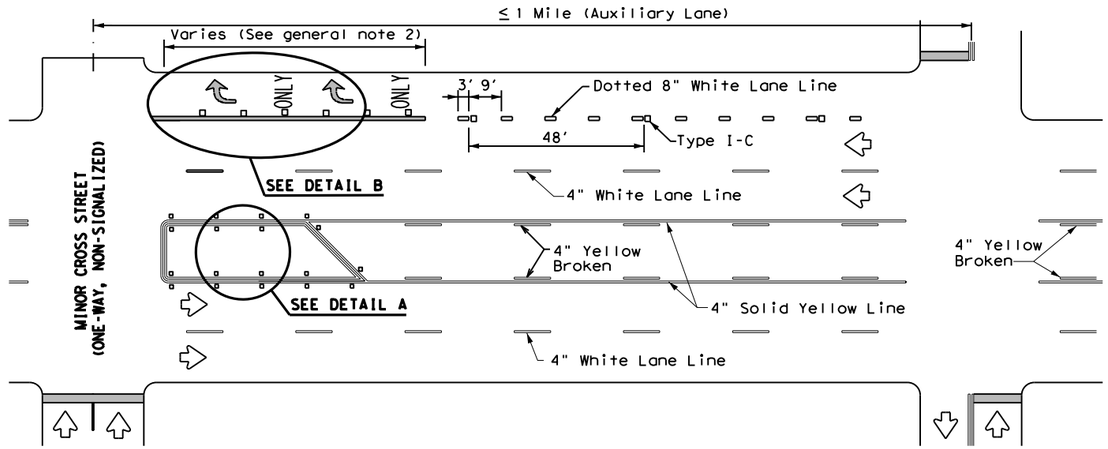
TYPICAL TRANSITION FOR TWLTL AND DIVIDED HIGHWAY

GENERAL NOTES

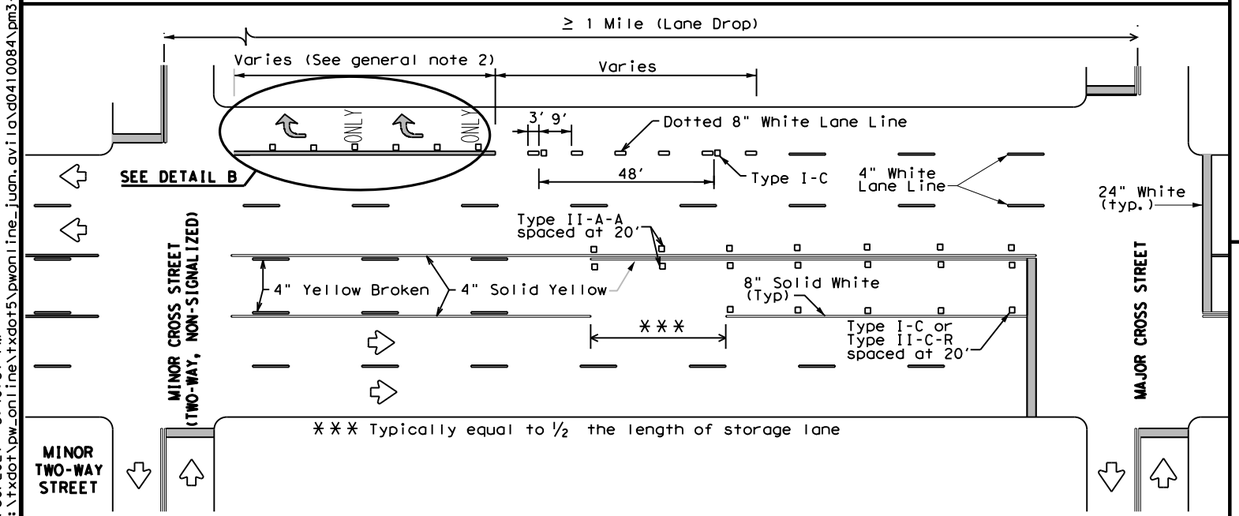
1. Lane use word and arrow markings shall be used where through lanes approaching an intersection become mandatory turn lanes. Lane use word and arrow markings should be used in auxiliary lanes of substantial length. Lane use arrow markings or word and arrow markings may be used in other lanes and turn 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

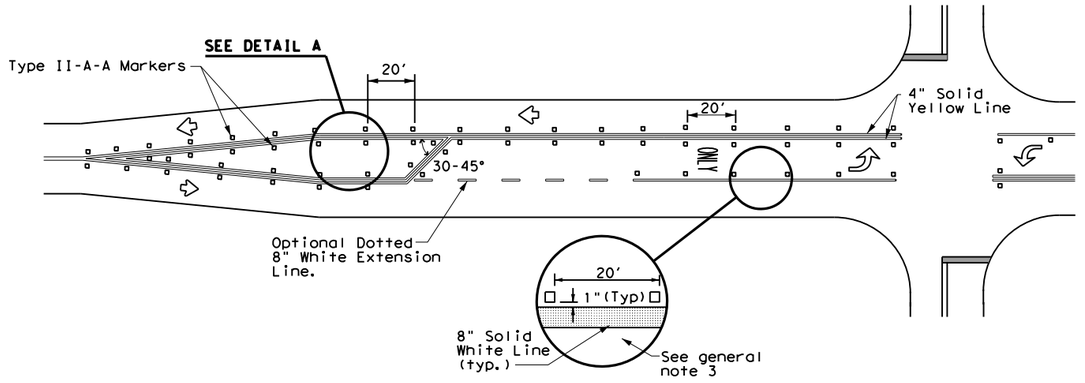
All pavement marking materials shall meet the required Departmental Material Specifications as specified by the plans.



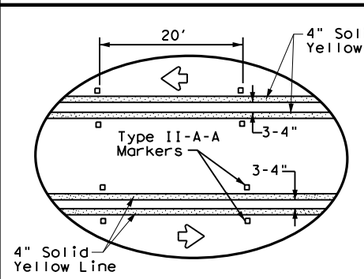
TYPICAL TWLTL AT ONE-WAY STREET AND RIGHT TURN AUXILIARY LANE



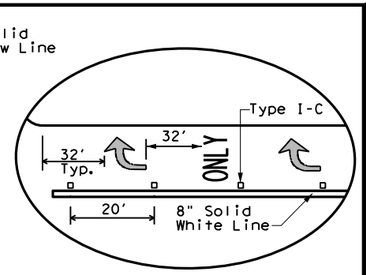
TYPICAL TWLTL AT TWO-WAY CROSS STREET AND RIGHT TURN LANE DROP



TYPICAL TWO-LANE HIGHWAY INTERSECTION WITH LEFT TURN BAYS



DETAIL A



DETAIL B

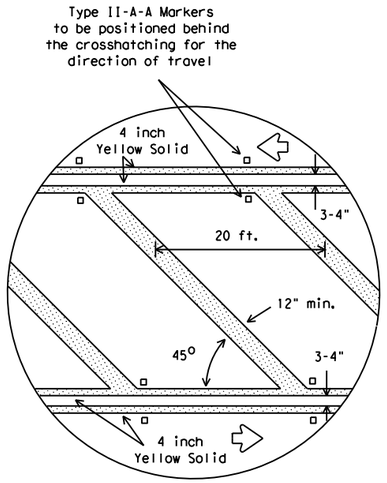
Texas Department of Transportation

Traffic Safety Division Standard

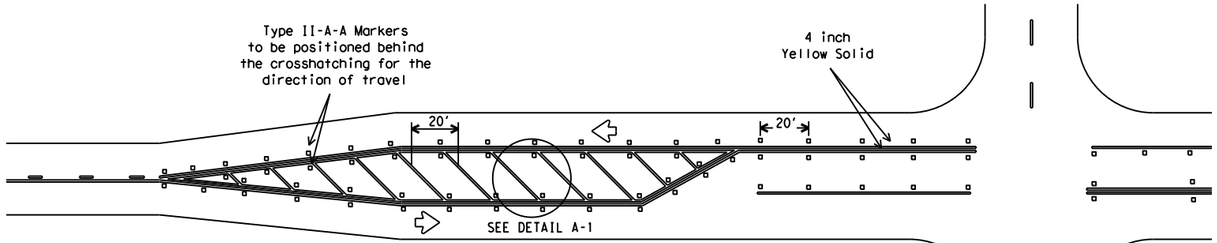
TWO-WAY LEFT TURN LANES, RURAL LEFT TURN BAYS, AND LANE REDUCTION PAVEMENT MARKINGS PM(3)-20

FILE: pm3-20.dgn	DN:	CK:	DW:	CK:
© TxDOT April 1998	CONT	SECT	JOB	HIGHWAY
REVISIONS	1586	01	079	FM 907
5-00 2-10	DIST	COUNTY		SHEET NO.
8-00 2-12	PHR	HIDALGO		232
3-03 6-20				

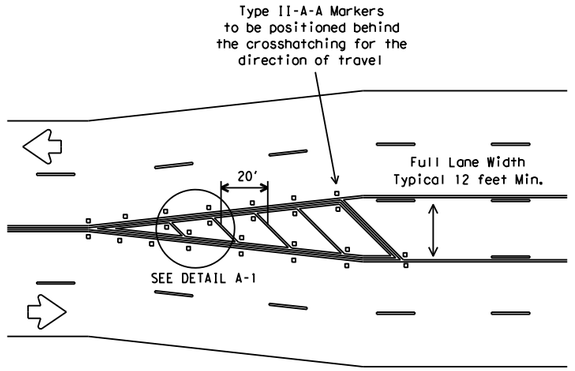
220



DETAIL A-1



TYPICAL TWO-LANE HIGHWAY INTERSECTION
WITH LEFT TURN BAYS



TYPICAL TRANSITION FOR TWLTL
AND DIVIDED HIGHWAY

STATE OF TEXAS
JOSE A. RODRIGUEZ
117308
LICENSED
PROFESSIONAL ENGINEER

09/07/21

Pharr District Central Design

Texas Department of Transportation

PAVEMENT MARKINGS FOR
TWO-WAY LEFT TURN LANES
DIVIDED HIGHWAYS AND
RURAL LEFT TURN BAYS

CONT	SECT	JOB	HIGHWAY
1586	01	079	FM 907
DIST	COUNTY		SHEET NO.
PHR	HIDALGO		233

DATE: 8/30/2021 5:40:41 PM
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DATE: 8/30/2021 5:40:48 PM
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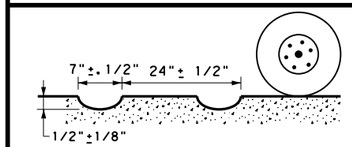
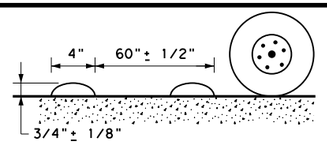
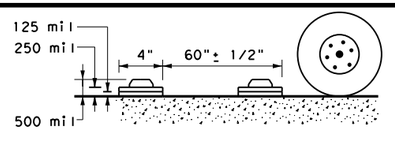
CENTERLINE RUMBLE STRIPS



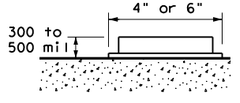
MILLED RUMBLE STRIPS



RAISED TRAFFIC BUTTONS

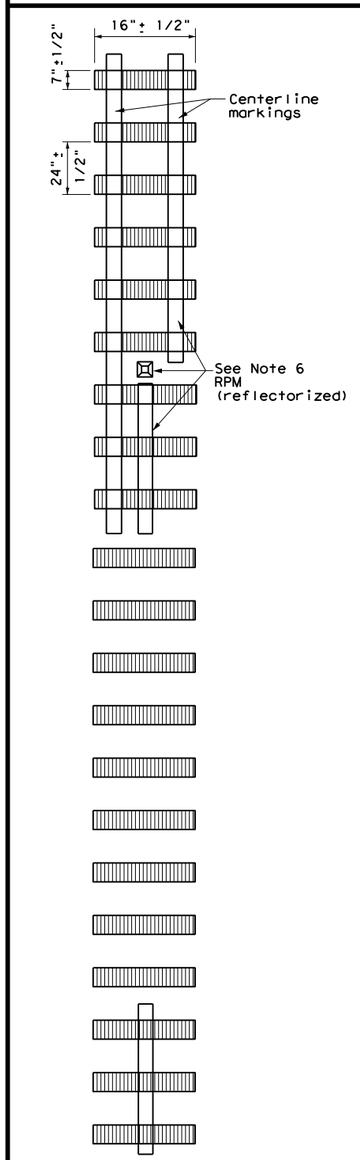


PREFORMED THERMOPLASTIC STRIPS



PROFILE MARKINGS

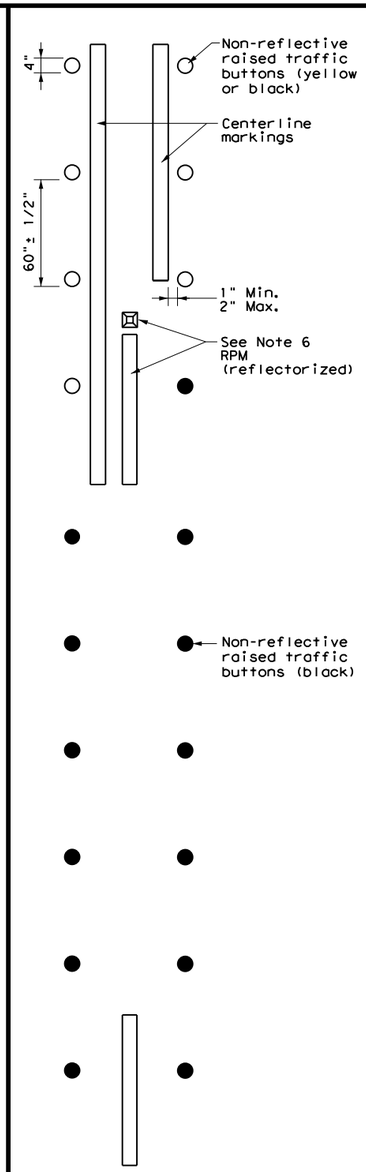
PROFILE VIEW



PLAN VIEW
OPTION 1

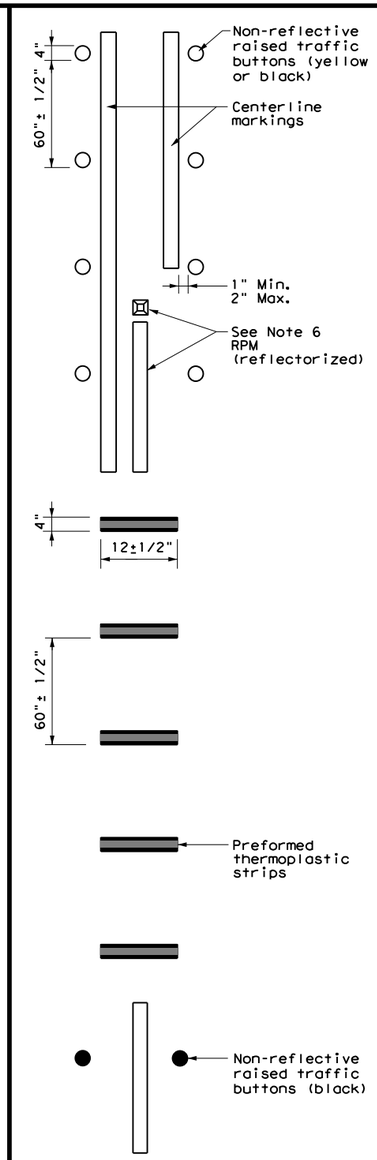
TWO LANE TWO-WAY ROADWAYS

MILLED CENTERLINE RUMBLE STRIPS



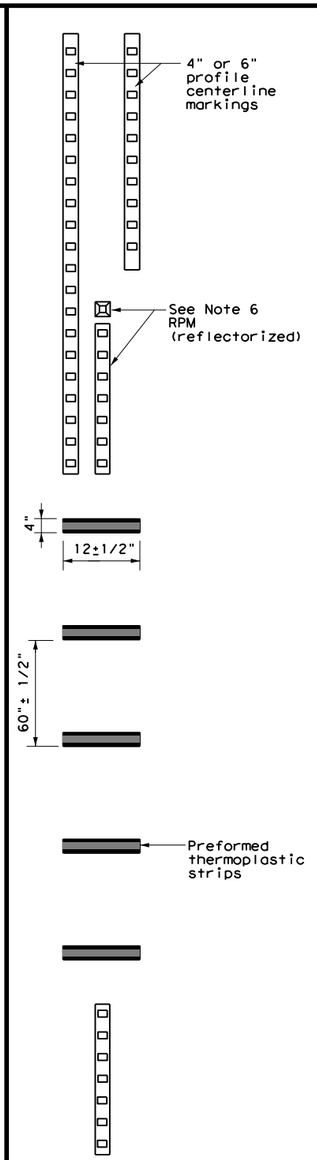
PLAN VIEW
OPTION 2

RAISED CENTERLINE RUMBLE STRIPS



PLAN VIEW
OPTION 3

RAISED CENTERLINE RUMBLE STRIPS AND PREFORMED THERMOPLASTIC STRIPS



PLAN VIEW
OPTION 4

PROFILE CENTERLINE MARKINGS AND PREFORMED THERMOPLASTIC STRIPS

GENERAL NOTES

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

WHEN INSTALLING CENTERLINE RUMBLE STRIPS:

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

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

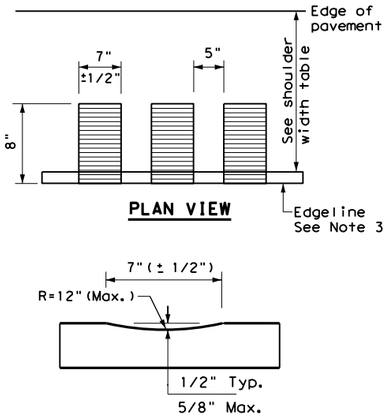
12. See standard sheet RS(4).

Texas Department of Transportation®
Traffic Operations Division Standard

CENTERLINE RUMBLE STRIPS ON TWO LANE TWO-WAY HIGHWAYS

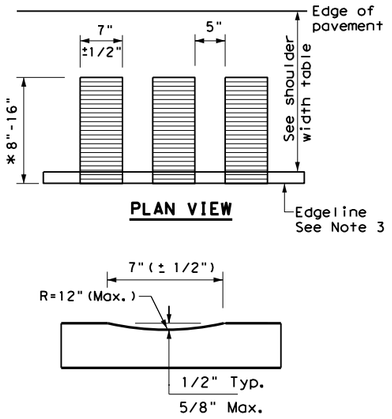
RS(3)-13

FILE: rs(3)-13.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
©TxDOT October 2013	CONT	SECT	JOB	HIGHWAY
REVISIONS	1586	01	079	FM 907
	DIST	COUNTY		SHEET NO.
	PHR	HIDALGO		234



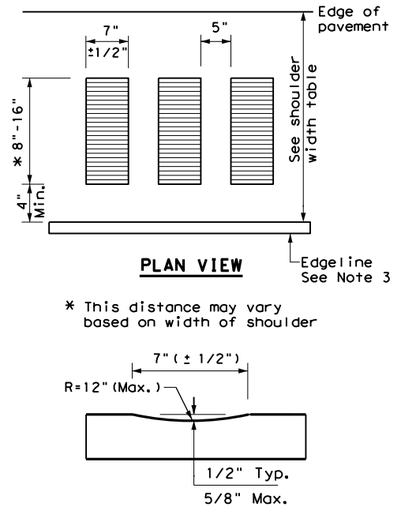
OPTION 1

CONTINUOUS MILLED DEPRESSIONS (Rumble Stripes)



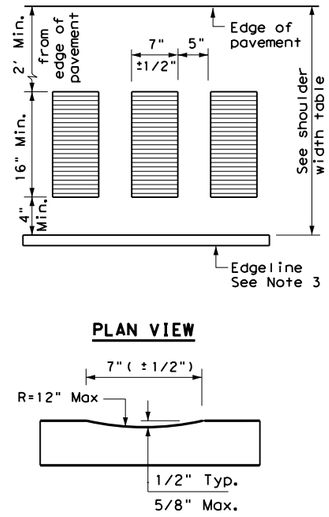
OPTION 2

CONTINUOUS MILLED DEPRESSIONS (Rumble Stripes)



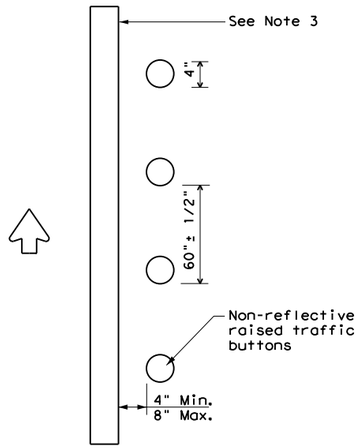
OPTION 3

CONTINUOUS MILLED DEPRESSIONS (Rumble Strips)



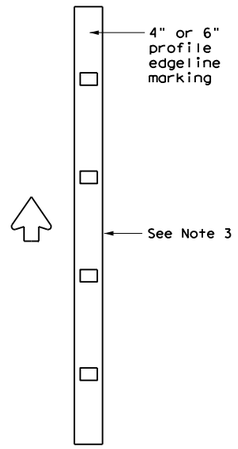
OPTION 4

CONTINUOUS MILLED DEPRESSIONS (Rumble Strips)



OPTION 5

RAISED EDGELINE RUMBLE STRIPS



OPTION 6

PROFILE EDGELINE MARKINGS

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

GENERAL NOTES

1. Rumble strips and profile markings shall not be placed on roadways with a posted speed limit of 45 MPH or less.
2. Milled rumble strips are preferred when adequate pavement depth is available. If pavement thickness is less than 2 inches, milled rumble strips shall not be used. Rumble strips shall not be milled or depressed into bridge decks.
3. Use Standard Sheet PM(2) for positioning, dimensioning, and spacing of all reflective raised pavement markers, pavement markings, and profile markings.
4. See the table below for determining what options may be used for edgeline rumble strips.

WHEN INSTALLING MILLED DEPRESSION EDGELINE RUMBLE STRIPS:

5. See dimensions for milled rumble strips. Other shapes and dimensions may be used if approved by the Traffic Operations Division.
6. Pavement markings can be applied over milled shoulder rumble strips to create an edgeline rumble stripe.
7. Breaks in edgeline rumble strips shall occur at least 50 feet and no more than 150 feet in advance of bridges, railroad crossings, intersections and driveways with high usage of large trucks when installed on conventional highways.
8. Rumble strips shall not be placed across exit or entrance ramps, acceleration and deceleration lanes, crossovers, gore areas or intersections with other roadways.
9. Consideration should be given to noise levels when edgeline rumble strips are installed near residential areas, schools, churches, etc. A minimum of 3/8 inches depth of milled rumble strip may be considered in these areas.
10. On roadways with high bicycle activity, consideration should be given before the installation of edgeline rumble strips. Things to consider include size of rumble strips, rumble strip material and location of rumble strips on the shoulder. If the designer determines that gaps are needed in the rumble strips due to bicycle use of the road, then follow the requirement shown in FHWA Technical Advisory T5040.39, or latest version. A detail of the spacing shall be included in the plans.

WHEN INSTALLING RAISED OR PROFILE EDGELINE RUMBLE STRIPS:

11. Raised rumble strips consisting of non-reflective raised traffic buttons may be used. Non-reflective raised traffic buttons can be affixed to asphalt or concrete with bitumen or adhesives, as per the manufacturer's recommendations.
12. Non-reflective traffic buttons shall be placed adjacent to the pavement marking delineating the edgeline when used as a rumble strip. The color of the button should match the color of the adjacent edgeline marking (white or yellow). The buttons will be paid for under Item 672, "Raised Pavement Markers." Non-reflective traffic buttons must meet the requirements of DMS-4300.
13. Non-reflective traffic buttons shall not be placed across exit or entrance ramps, acceleration and deceleration lanes, crossovers, gore areas or intersections with other roadways.
14. Breaks in edgeline rumble strips using raised traffic buttons shall occur at least 50 feet and no more than 150 feet in advance of bridges, railroad crossing, intersections and driveways with high usage of large trucks when installed on conventional highways.
15. The minimum distance between the edgeline and the buttons should be used if the shoulder is less than 8 feet in width.
16. Raised profile thermoplastic markings used as edgelines may substitute for buttons.

Texas Department of Transportation

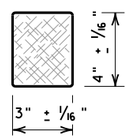
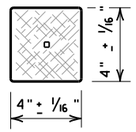
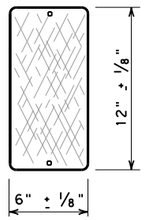
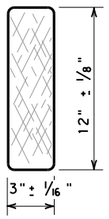
Traffic Operations Division Standard

EDGELINE RUMBLE STRIPS ON UNDIVIDED OR TWO LANE HIGHWAYS RS(4)-13

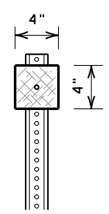
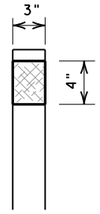
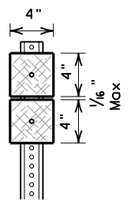
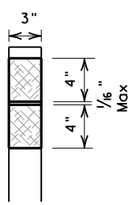
FILE: rs(4)-13.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
©TxDOT October 2013	CONT	SECT	JOB	HIGHWAY
REVISIONS	1586	01	079	FM 907
	DIST	COUNTY		SHEET NO.
	PHR	HIDALGO		235

DATE: 8/30/2021 5:40:55 PM
FILE: c:\txdot\pw_online\txdot5\pwonline_juan.avila\d0410084\rs(4)-13.dgn

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

OBJECT MARKERS

	Type 1 (OM-1)	Type 2 (OM-2)			Type 3 (OM-3)			Type 4 (OM-4)
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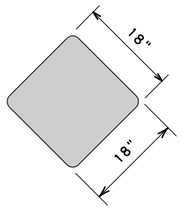
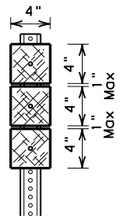
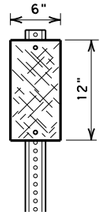
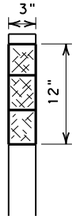
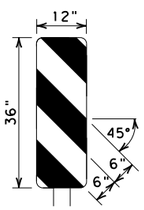
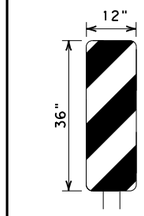
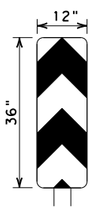
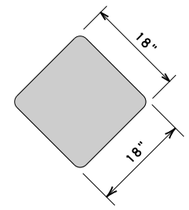
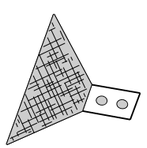
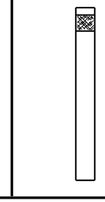
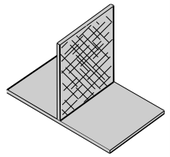
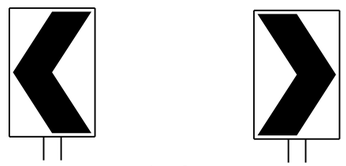
DEVICE								
		3-Size 2 reflector units	1-Size 3 reflector unit	3-Size 1 reflector units or 1-Size 4 reflector unit				
SHEETING	Yellow-Type B_{FL} or C_{FL} Sheeting	Yellow - Type B or C Sheeting			Alternating acrylic black and retroflective yellow - Type B_{FL} or C_{FL} Sheeting			Red -Type B_{FL} 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			
NOTE	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



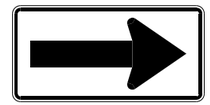
W1-8

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.

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

Texas Department of Transportation

Traffic Safety Division Standard

DELINEATOR & OBJECT MARKER MATERIAL DESCRIPTION

D & OM(1)-20

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20A

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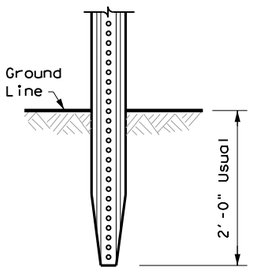
POST TYPE AND SUPPORT FOUNDATION DETAILS

WING CHANNEL (WC)

GND

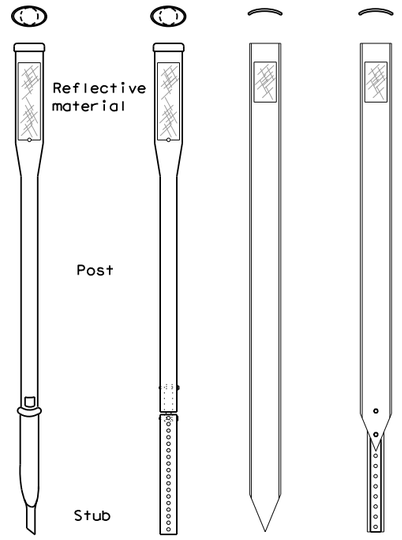


NOTES

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.

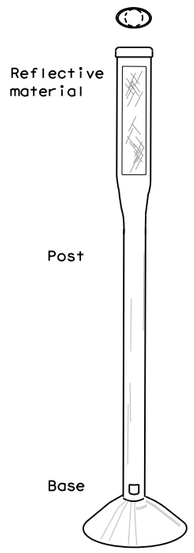
FLEXIBLE POSTS (YFLX, WFLX)

GND



EMBEDDED

SRF



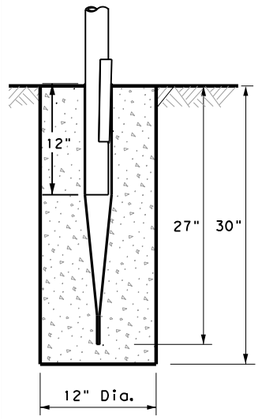
SURFACE MOUNT

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.

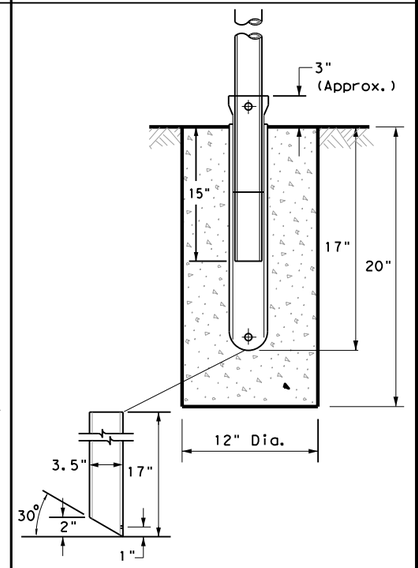
WEDGE ANCHOR SYSTEMS

WAS



STEEL

WAP



PLASTIC

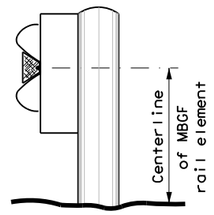
NOTE

1. Install per manufacturer's recommendations.

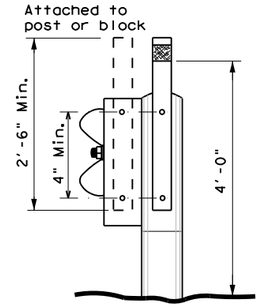
TYPE OF BARRIER MOUNTS

GUARD FENCE ATTACHMENT

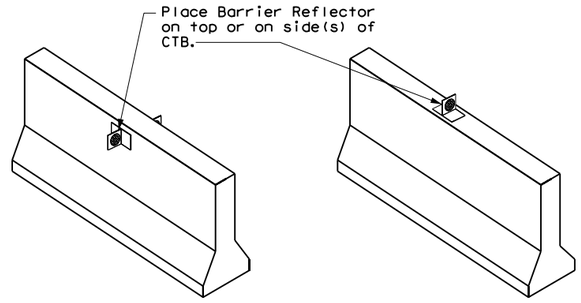
GF1



GF2



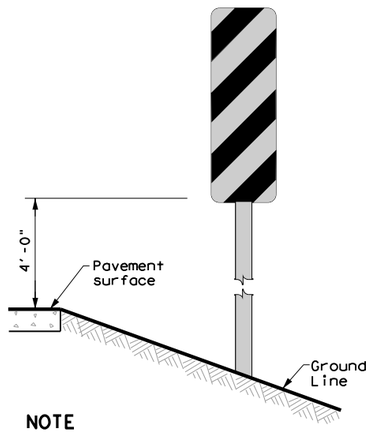
CONCRETE TRAFFIC BARRIER (CTB)



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.

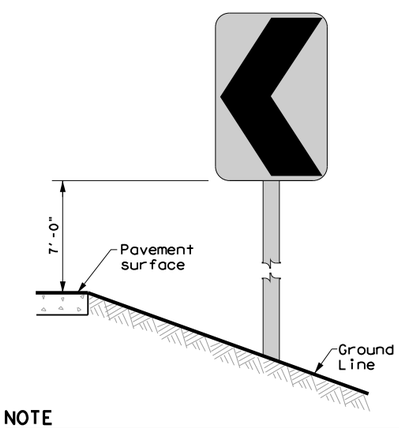
TYPES 1, 3, AND 4 OBJECT MARKERS AND CHEVRONS



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)

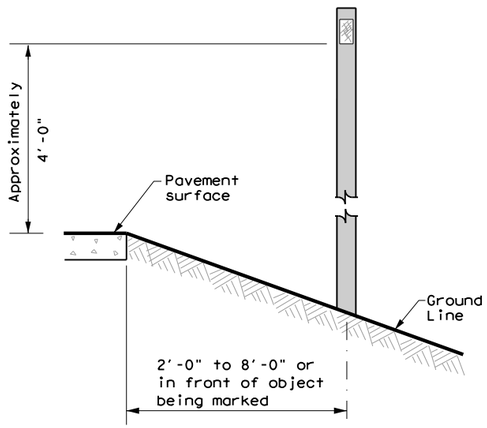
CHEVRONS AND ONE DIRECTION LARGE ARROW SIGN



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

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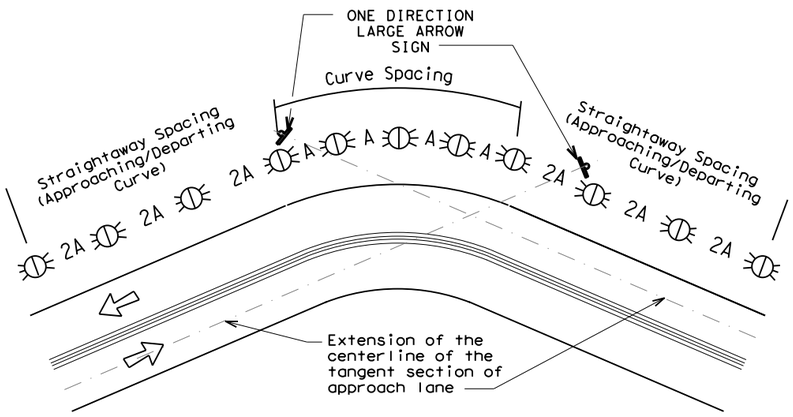
MINIMUM WARNING DEVICES AT CURVES WITH ADVISORY SPEEDS

Amount by which Advisory Speed is less than Posted Speed	Curve Advisory Speed	
	Turn (30 MPH or less)	Curve (35 MPH or more)
5 MPH & 10 MPH	• RPMs	• RPMs
15 MPH & 20 MPH	• RPMs and One Direction Large Arrow sign	• RPMs and Chevrons; or • RPMs and One Direction Large Arrow sign where geometric conditions or roadside obstacles prevent the installation of chevrons.
25 MPH & more	• RPMs and Chevrons; or • RPMs and One Direction Large Arrow sign where geometric conditions or roadside obstacles prevent the installation of chevrons	• RPMs and Chevrons

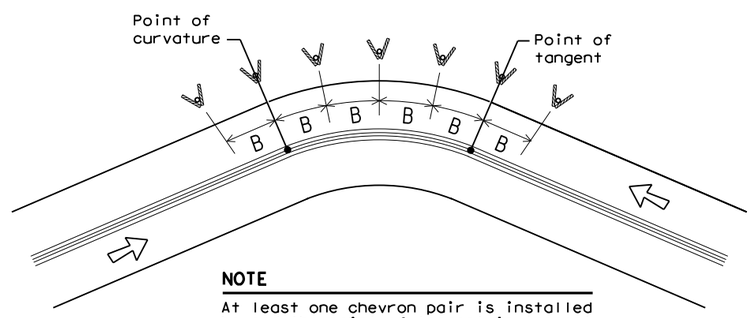
SUGGESTED SPACING FOR DELINEATORS ON HORIZONTAL CURVES



NOTE

ONE DIRECTION LARGE ARROW (W1-6) sign should be located at approximately and perpendicular to the extension of the centerline of the tangent section of approach lane.

SUGGESTED SPACING FOR CHEVRONS ON HORIZONTAL CURVES



NOTE

At least one chevron pair is installed beyond the point of tangent in tangent section.

DELINEATOR AND CHEVRON SPACING

WHEN DEGREE OF CURVE OR RADIUS IS KNOWN

Degree of Curve	FEET			
	Radius of Curve	Spacing in Curve	Spacing in Straightaway	Chevron Spacing in Curve
		A	2A	B
1	5730	225	450	—
2	2865	160	320	—
3	1910	130	260	200
4	1433	110	220	160
5	1146	100	200	160
6	955	90	180	160
7	819	85	170	160
8	716	75	150	160
9	637	75	150	120
10	573	70	140	120
11	521	65	130	120
12	478	60	120	120
13	441	60	120	120
14	409	55	110	80
15	382	55	110	80
16	358	55	110	80
19	302	50	100	80
23	249	40	80	80
29	198	35	70	40
38	151	30	60	40
57	101	20	40	40

Curve delineator approach and departure spacing should include 3 delineators spaced at 2A. This spacing should be used during design preparation or when the degree of curve is known.

DELINEATOR AND CHEVRON SPACING

WHEN DEGREE OF CURVE OR RADIUS IS NOT KNOWN

Advisory Speed (MPH)	Spacing in Curve	Spacing in Straightaway	Chevron Spacing in Curve
	A	2xA	B
65	130	260	200
60	110	220	160
55	100	200	160
50	85	170	160
45	75	150	120
40	70	140	120
35	60	120	120
30	55	110	80
25	50	100	80
20	40	80	80
15	35	70	40

If the degree of curve is not known, delineator spacing may be determined based on the Advisory Speed of the curve. Use the delineator curve spacing for each Advisory Speed (MPH).

DELINEATOR AND OBJECT MARKER APPLICATION AND SPACING

CONDITION	REQUIRED TREATMENT	MINIMUM SPACING
Frwy./Exp. Tangent	RPMs	See PM-series and FPM-series standard sheets
Frwy./Exp. Curve	Single delineators on right side	See delineator spacing table
Frwy/Exp.Ramp	Single delineators on at least one side of ramp (should be on outside of curves) (see Detail 3 on D&OM(4))	100 feet on ramp tangents Use delineator spacing table for ramp curves ("straightway spacing" does not apply to ramp curves)
Acceleration/Deceleration Lane	Double delineators (see Detail 3 on D&OM(4))	100 feet (See Detail 3 on D & OM (4))
Truck Escape Ramp	Single red delineators on both sides	50 feet
Bridge Rail (steel or concrete)and Metal Beam Guard Fence	Bi-Directional Delineators when undivided with one lane each direction Single Delineators when multiple lanes each direction	Equal spacing (100'max) but not less than 3 delineators
Concrete Traffic Barrier (CTB) or Steel Traffic Barrier	Barrier reflectors matching the color of the edge line	Equal spacing 100' max
Cable Barrier	Reflectors matching the color of the edge line	Every 5th cable barrier post (up to 100'max)
Guard Rail Terminus/Impact Head	Divided highway - Object marker on approach end Undivided 2-lane highways - Object marker on approach and departure end	Requires reflective sheeting provided by manufacturer per D & OM (VIA) or a Type 3 Object Marker (OM-3) in front of the terminal end See D & OM (5) and D & OM (6)
Bridges with no Approach Rail	Type 3 Object Marker (OM-3) at end of rail and 3 single delineators approaching rail	See D & OM(5)
Reduced Width Approaches to Bridge Rail	Type 2 and Type 3 Object Markers (OM-3) and 3 single delineators approaching bridge	Requires reflective sheeting provided by manufacturer per D & OM (VIA) or a Type 3 Object Marker (OM-3) in front of the terminal end See D & OM (5)
Culverts without MBGF	Type 2 Object Markers	See Detail 2 on D & OM(4)
Crossovers	Double yellow delineators and RPMs	See Detail 1 on D & OM (4)
Pavement Narrowing (lane merge) on Freeways/Expressway	Single delineators adjacent to affected lane for full length of transition	100 feet

NOTES

1. Unless indicated otherwise, the delineator or barrier reflector color shall conform to the color of the pavement edge line on the side of the road where the delineators or barrier reflectors are placed.
2. Barrier reflectors may be used to replace required delineators.
3. Single red delineators may be mounted on the back side of delineator posts for wrong way driver applications

LEGEND

	Bi-directional Delineator
	Delineator
	Sign

Texas Department of Transportation

Traffic Safety Division Standard

DELINEATOR & OBJECT MARKER PLACEMENT DETAILS

D & OM(3)-20

FILE: dom3-20.dgn	DN: TXDOT	CK: TXDOT	DW: TXDOT	CK: TXDOT
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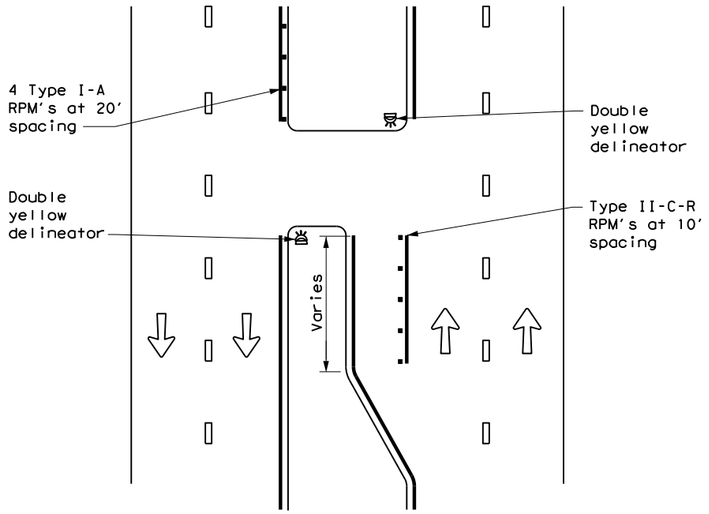
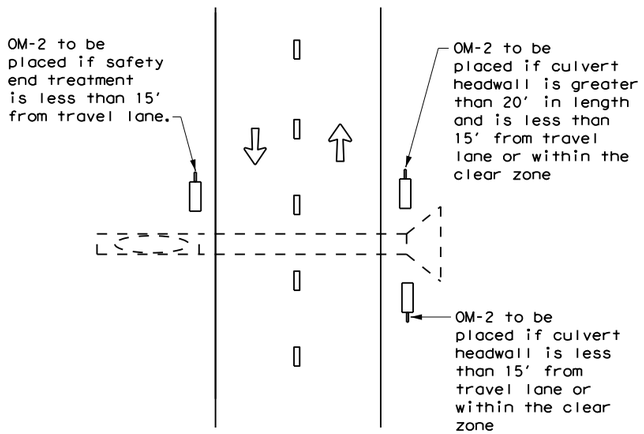
CROSSOVERS



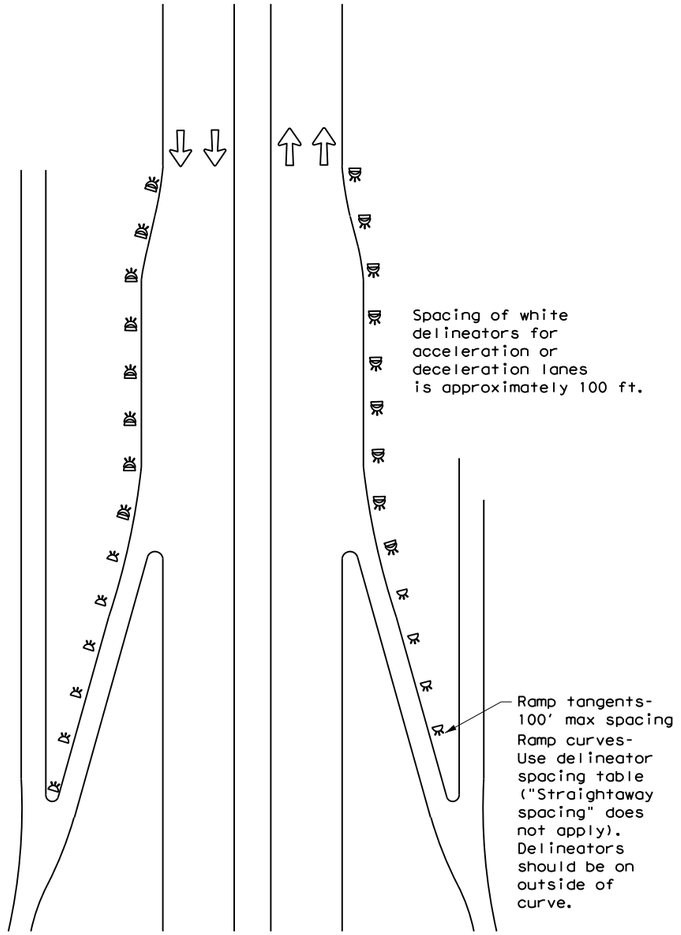
DETAIL 1

FOR CULVERTS WITHOUT MBGF



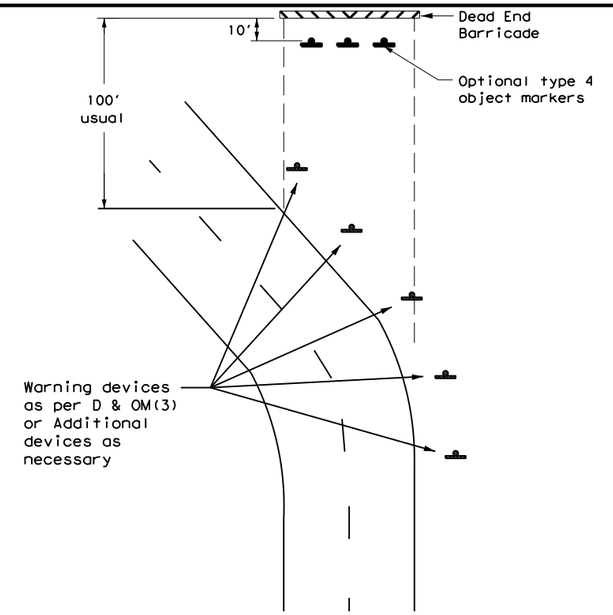
DETAIL 2

FREEWAY DELINEATION FOR RAMPS AND ACCELERATION/DECELERATION LANES



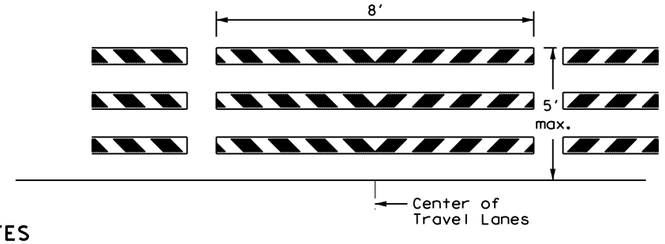
DETAIL 3

TYPICAL APPLICATION OF DEAD END BARRICADE



DETAIL 4

TYPICAL DEAD END BARRICADE INSTALLATION



NOTES

1. Barricade striping shall be red and white reflective sheeting for all permanent road closures.
2. Barricade striping is red and white sloping toward the center of the roadway.
3. Type 3 Barricade Supports should be anchored to soil or pavement as described in compliant Work Zone Traffic Control Devices List, section D.2.f and D.2.g.

DETAIL 5

LEGEND	
	Bidirectional Delineator
	Delineator
	OM-3
	Barricade
	Sign
	OM-2
	Double Delineator

Texas Department of Transportation

Traffic Safety Division Standard

DELINEATOR & OBJECT MARKER PLACEMENT DETAILS

D & OM(4)-20

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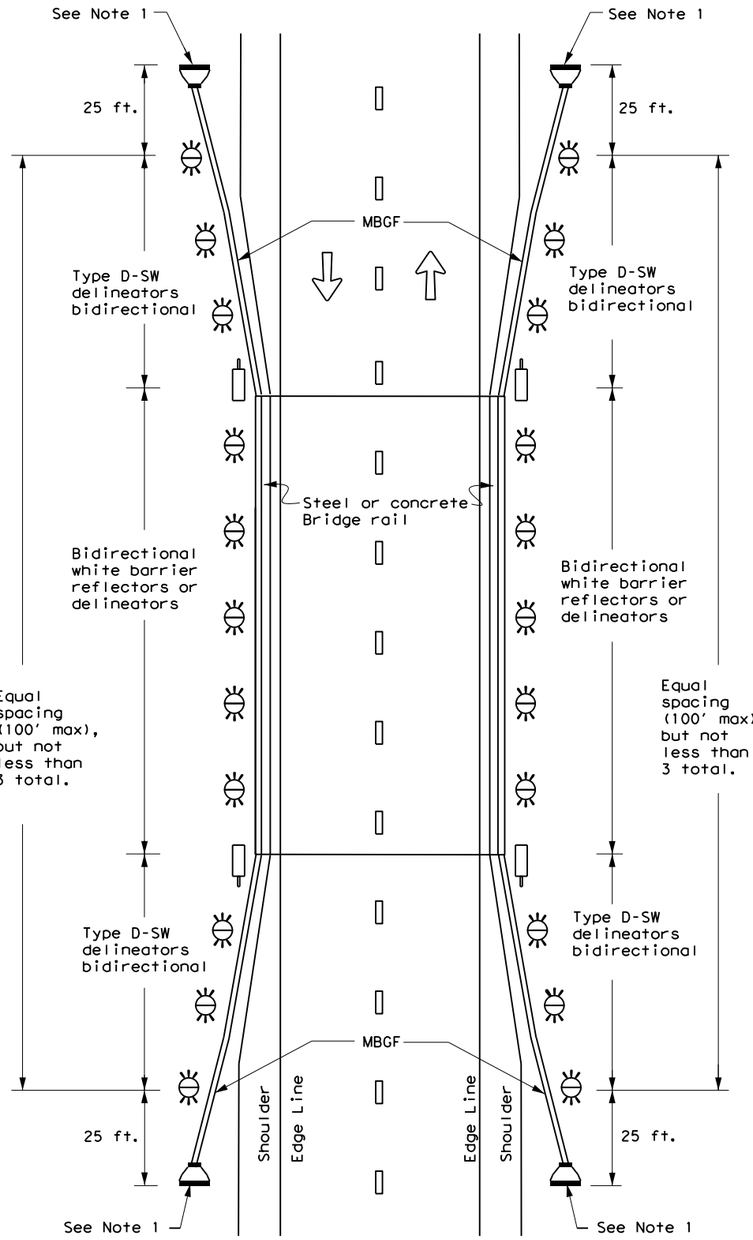
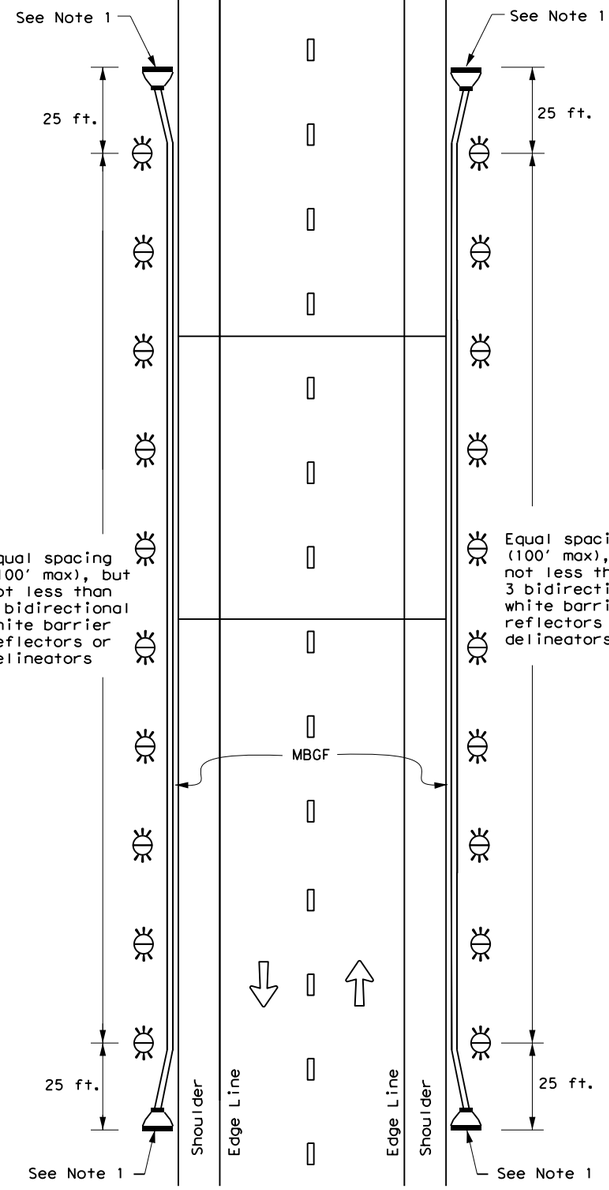
TWO-WAY, TWO LANE ROADWAY WITH REDUCED WIDTH APPROACH RAIL



NOTE:

1. Terminal ends require reflective sheeting provided by manufacturer per D & OM (VIA) or a Type 3 Object Marker (OM-3) in front of the terminal end.

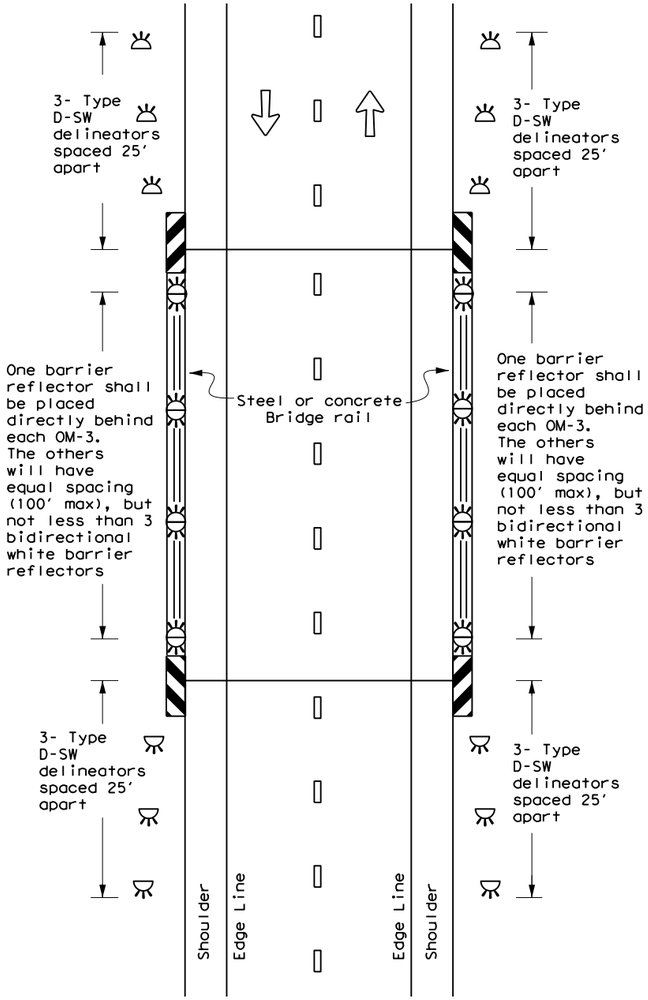
TWO-WAY, TWO LANE ROADWAY WITH METAL BEAM GUARD FENCE (MBGF)



NOTE:

1. Terminal ends require reflective sheeting provided by manufacturer per D & OM (VIA) or a Type 3 Object Marker (OM-3) in front of the terminal end.

TWO-WAY, TWO LANE ROADWAY BRIDGE WITH NO APPROACH RAIL



LEGEND

	Bidirectional Delineator
	Delineator
	OM-3
	OM-2
	Terminal End
	Traffic Flow

Texas Department of Transportation

Traffic Safety Division Standard

DELINEATOR & OBJECT MARKER PLACEMENT DETAILS

D & OM(5)-20

FILE: dom5-20.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
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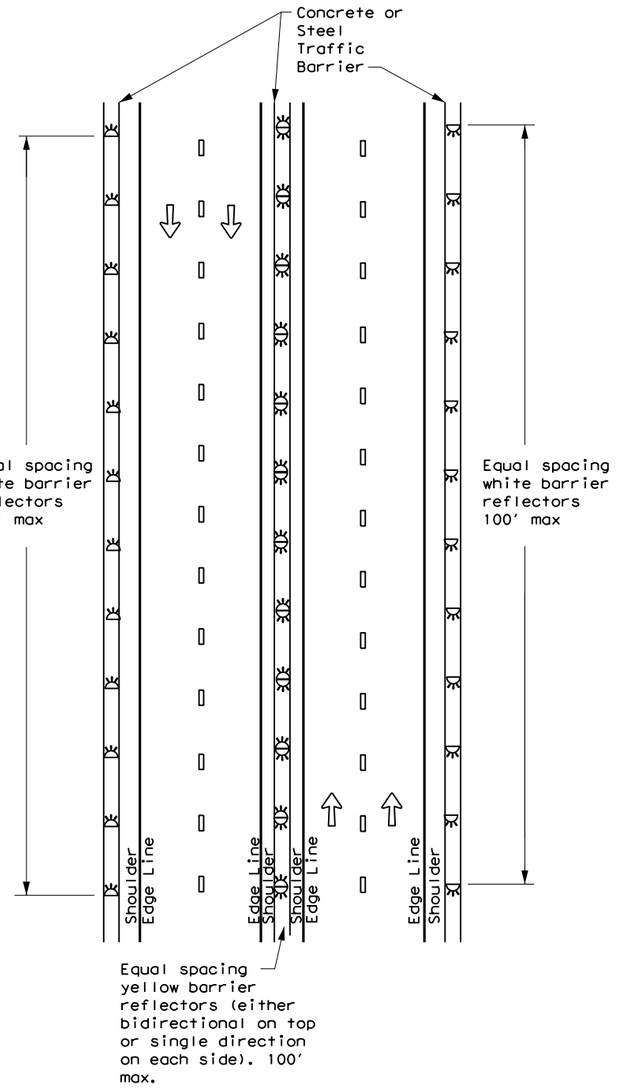
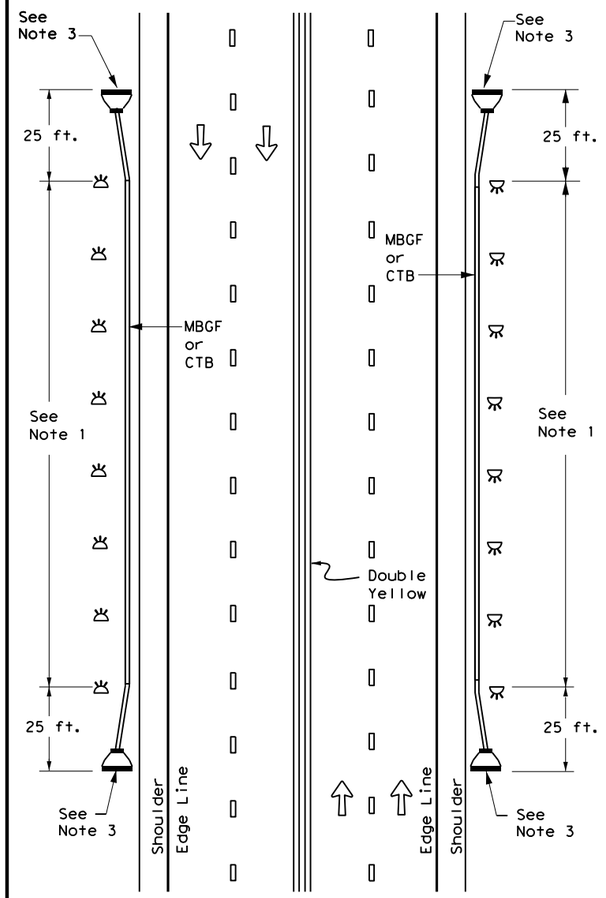
7-20	DIST	COUNTY		SHEET NO.
	PHR	HIDALGO		240

20E

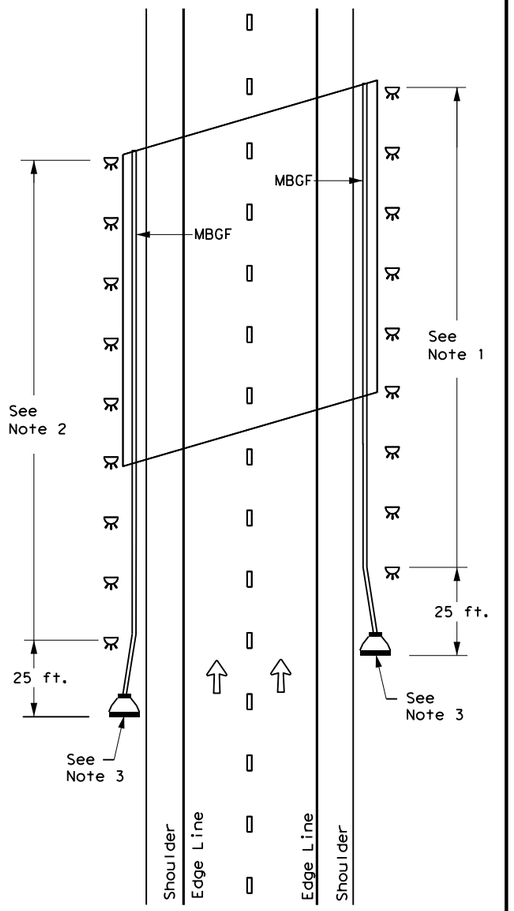
CONTINUOUS CONCRETE OR STEEL BARRIER



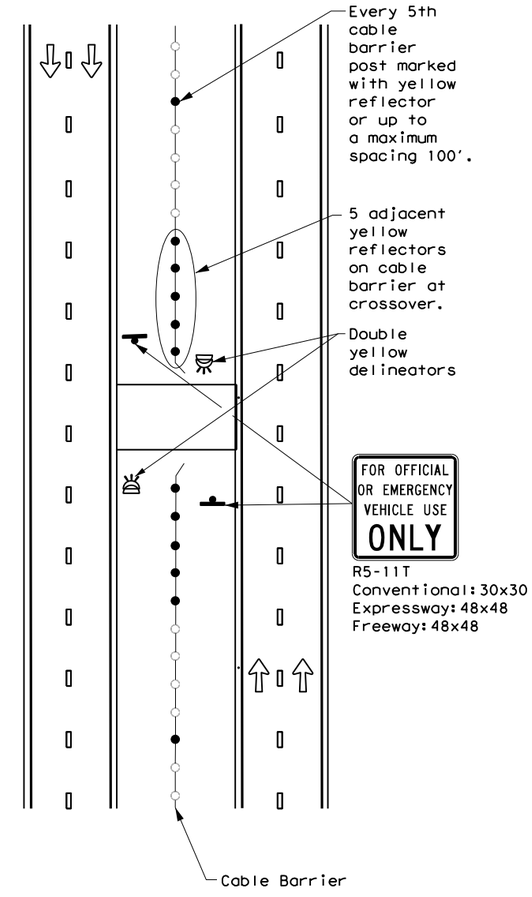
MULTI-LANE UNDIVIDED, TWO-WAY ROADWAY WITH METAL BEAM GUARD FENCE (MBGF)



DIVIDED ROADWAY WITH METAL BEAM GUARD FENCE (MBGF)



EMERGENCY CROSSOVER



NOTES

1. Equal spacing (100′ max), but not less than 3 single directional white barrier reflectors or delineators. On Continuos Barrier, equal spacing (100′ max.)
2. Equal spacing (100′ max), but not less than 3 single directional yellow barrier reflectors or delineators.
3. Terminal ends require reflective sheeting provided by manufacturer per D & OM (VIA) or a Type 3 Object Marker (OM-3)in front of the terminal end.

LEGEND

	Bidirectional Delineator
	Delineator
	OM-3
	OM-2
	Terminal End
	Traffic Flow

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Traffic Safety Division Standard

DELINEATOR & OBJECT MARKER PLACEMENT DETAILS

D & OM(6)-20

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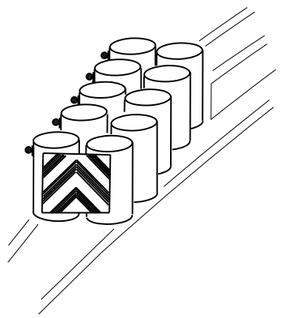
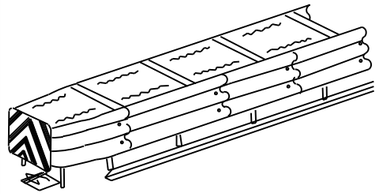
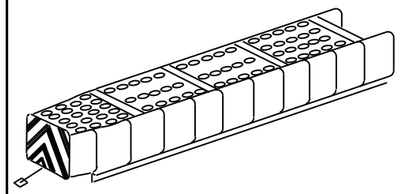
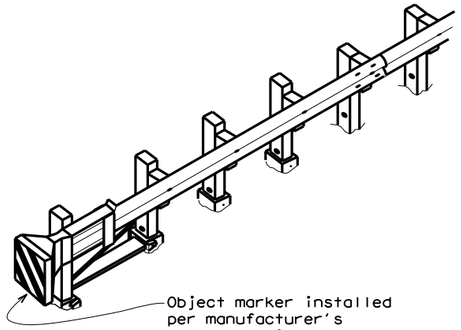
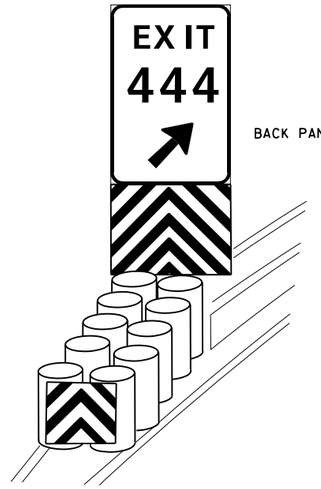
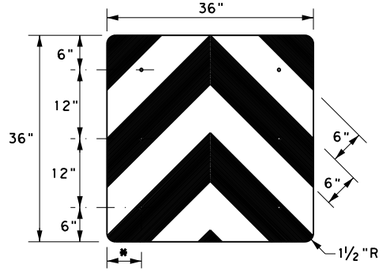


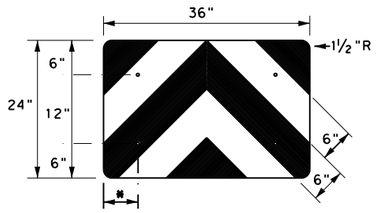




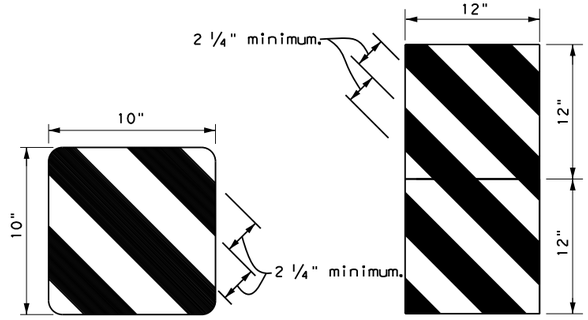




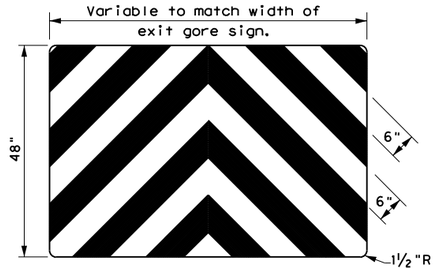


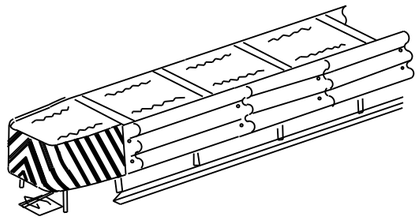


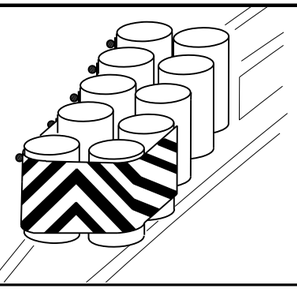
* Adjust to fit attenuator per manufacturer's recommendation, or as directed by the Engineer

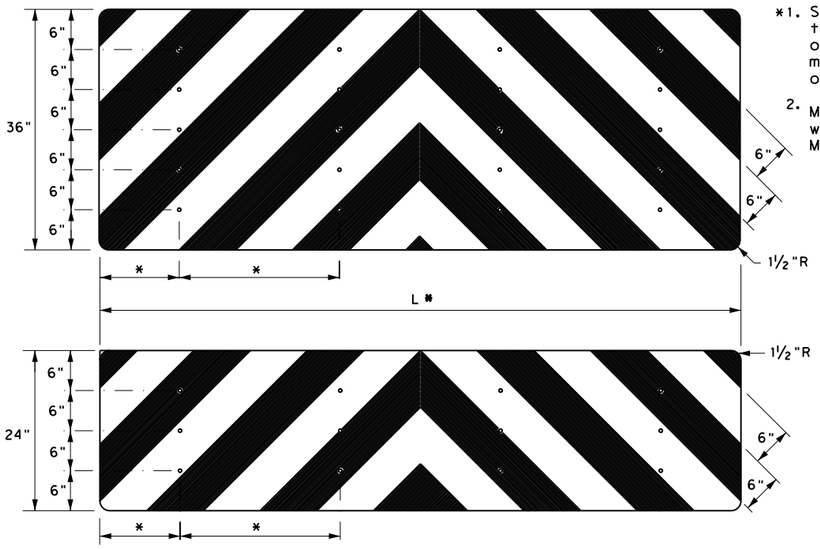


OBJECT MARKERS SMALLER THAN 3 FT^2









NOTES

*1. Spacing should be adjusted to attach through centerline of drum, per attenuator manufacturers recommendation, or as directed by the Engineer.

2. Mounting should be flush with top of attenuator. Minimum size 96" x 24".

NOTES

1. Object Markers shall conform to the Texas MUTCD and meet the color and reflectivity requirement of Department Material Specification DMS 8300. Background shall be yellow reflective sheeting (Type B or C) and Chevron shall be black.

2. Object Markers may be fabricated from adhesive backed reflective sheeting applied directly to guardrail end treatment, or applied directly to an "end cap" as per the manufacturer's recommendation. Direct applied sheeting shall provide a smooth surface and have no wrinkles, air bubbles, cuts or tears. A radius at the corners is not required for direct applied sheeting.

3. Object Marker size may be reduced to fit smaller devices. Width of alternating black and yellow stripes are typically 6". Object Markers smaller than 3ft may have reduced width stripes of a minimum of 2 ¼".

4. Pop rivets, screws, or nuts and bolts may be used to attach object markers and reflectors. Holes, slots or other openings may be cut or drilled through object markers to allow cable or other attachments.

5. Object Marker at nose of attenuator is subsidiary to the attenuator.

6. See D & OM (1-4) for required barrier reflectors.

Texas Department of Transportation

Traffic Safety Division Standard

DELINEATOR & OBJECT MARKER FOR VEHICLE IMPACT ATTENUATORS

D & OM(VIA)-20

FILE: domvia20.dgn	DN: TXDOT	CK: TXDOT	DW: TXDOT	CK: TXDOT
© TxDOT December 1989	CONT	SECT	JOB	HIGHWAY
REVISIONS	1586	01	079	FM 907
4-92 8-04	DIST	COUNTY		SHEET NO.
8-95 3-15	PHR	HIDALGO		242
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ENVIRONMENTAL
COVER SHEET

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Pharr District Central Design

Texas Department of Transportation

FM 907

ENVIRONMENTAL
COVER SHEET

CONT	SECT	JOB	HIGHWAY
1586	01	079	FM 907
DIST	COUNTY		SHEET NO.
PHR	HIDALGO		243

During the planning phase of project development, the following Environmental Permits, Issues and Commitments have been developed during coordination with resource agencies, local governmental entities and the general public. Any change orders and/or deviations from the final design must be reported to the Engineer prior to the commencement of construction activities as additional environmental clearances may be required.

I. Clean Water Act, Section 402; Stormwater Pollution Prevention

Action Items Required : ☐ No Action Required

1. ☒ The contractor must implement the SW3P by installing Best Management Practices (BMPs) as indicated in the construction plans and maintained appropriately throughout construction. BMPs must be in place prior to the start of construction. The SW3P may need to be revised as necessary as construction progresses.

2. ☒ For all construction PSL's off the ROW, the contractor must certify compliance with all applicable laws, rules and regulations pertaining to the preservation of cultural resources, natural resources and the environment.

3. ☒ Based on the acreage of impact, select the appropriate box below:

   ☐ This project will disturb less than 1 acre of soil and is not part of a larger common plan of development; therefore, a NOI and TPDES Site Notice are not required for this project.

   or

   ☐ This project will disturb equal to or more than 1 acre of soil but less than 5 acres; therefore a NOI is not required but a TPDES Site Notice is required. The Construction Site Notice (CSN) is required to be posted at the construction site in a publicly accessible location for review by the public, TCEQ, EPA and other Inspectors.

   or

   ☒ This project will disturb equal to or more than 5 acres of soil and will require a NOI and TPDES Site Notice. The NOI and Site Notice are required to be posted at the construction site in a publicly accessible location.

4. ☒ Need to address MS4 requirements (Cameron & Hidalgo Counties only) ☐ MS4 requirements not needed

II. Clean Water Act, Sections 401 and 404 Compliance

Action Items Rquired : ☐ No Action Required

1. ☒ Filling, dredging or excavating in any water bodies, rivers, creeks, streams, wetlands or wet areas is prohibited unless specified in the USACE permit and approved by the Engineer. The contractor shall adhere to all agreements, mitigation plans, and BMPs required by the NWP as regulated by the USACE.

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

   ☐ No Permit Required

   ☐ Nationwide Permit 14 - PCN not Required (less than 1/10th acre waters or wetlands affected)

   ☐ Nationwide Permit 14 - PCN Required (1/10th to <1/2 acre, 1/3 in tidal waters)

   ☐ Individual 404 Permit Required

   ☒ Other Nationwide Permit Required: NWP# 3A

2. ☒ The contractor is responsible for obtaining new or revised Section 404 permit(s) for Contractor initiated changes in construction methods that change Impacts To Waters Of The U.S., including wetlands. The Contractor will ensure that the water quality of the State will be maintained and not degraded.

3. ☒ Best Management Practices for applicable Section 401 General Conditions:

General Condition 12 - Categories I and II BMPs required

Category I (Erosion Control)

☐ Temporary Vegetation	☐ Interceptor Swale	☐ Mulch Filter Berms and/or Socks
☐ Blankets, Matting	☐ Diversion Dike	☒ Compost Filter Berms and/or Socks
☐ Mulch	☐ Erosion Control Compost	☐ Compost Blankets
☐ Sodding		

Category II (Sedimentation Control)

☒ Silt Fence	☐ Hay (Straw) Bale Dike	☐ Mulch Filter Berms and/or Socks
☐ Rock Berm	☐ Brush Berms	☒ Compost Filter Berms and/or Socks
☐ Triangular Filter Dike	☐ Sediment Basins	☐ Stone Outlet Sediment Traps
☐ Sand Bag Berm	☐ Erosion Control Compost	

General Condition 21 - Category III BMPs required

Category III (Post-Construction TSS Control)

☐ Vegetative Filter Strips	☐ Wet Basins	☐ Mulch Filter Berms and/or Socks
☐ Retention/Irrigation	☐ Grassy Swales	☒ Compost Filter Berms and/or Socks
☐ Extended Detention Basin	☐ Vegetation-Lined Ditches	☐ Sand Filter Systems
☐ Constructed Wetlands	☐ Erosion Control Compost	☐ Sedimentation Chambers

II. Clean Water Act, Sections 401 and 404 Compliance - Continued:

4. ☒ The Contractor's designated and qualified Contractor Responsible Person Environmental (CRPe) will monitor the project site daily to ensue compliance with SW3P and TPDES General Permit TXR 150000. Daily Monitoring Reports shall be provided to TxDOT within 48 hours, in accordance with Item 506.3.1.

5. ☒ Other Project Specific Actions:

   1. Contractor must sweep roadway & remove loose aggregate along C&G upon completed daily operations.
   2. Contractor shall not place removed aggregate along adjacent grass areas.

III. Cultural Resources

Action Items Required : ☐ No Action Required

1. ☒ Refer to the 2014 TxDOT Standard Specifications For Construction And Maintenance Of Highways, Streets, And Bridges, Item 7.7.1., 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.

2. ☐ Other Project Specific Actions:

IV. Vegetation Resources

Action Items Required : ☐ No Action Required

1. ☒ In accordance with the 2014 TxDOT Standard Specifications; Item 164 - Seeding For Erosion Control; provide and install temporary or permanent seeding for erosion control as shown on the plans or as directed by the Engineer for all seeding and replanting of right of way where possible. (Required for Urban Settings)

2. ☒ In accordance with Executive Order 13112 on invasive species and the Executive Memorandum on Beneficial Landscaping, native species of plants shall be used for all seeding and replanting of right of way where possible for rural roadways. (Required for Rural Settings)

3. ☒ Preserve vegetation where possible throughout the project and minimize clearing, grubbing and excavation within stream banks, bed and approach sections.

4. ☐ Other Project Specific Actions:

Pharr District Contact No. 956-702-6100 Revised 01/30/2017

List of Abbreviations

BMP: Best Management Practice	NWP: Nationwide Permit
CGP: Construction General Permit	PCN: Pre-Construction Notification
CRPe: Contractor Responsible Person Environmental	PSL: Project Specific Location
DSHS: Texas Department of State Health Services	SPCC: Spill Prevention Control and Countermeasure
FEMA: Federal Emergency Management Agency	SW3P: Storm Water Pollution Prevention Plan
FHWA: Federal Highway Administration	TCEQ: Texas Commission on Environmental Quality
MOA: Memorandum of Agreement	THC: Texas Historical Commission
MOU: Memorandum of Understanding	TPDES: Texas Pollutant Discharge Elimination System
MS4: Municipal Separate Stormwater Sewer System	TPWD: Texas Parks and Wildlife Department
MSAT: Mobile Source Air Toxic	TxDOT: Texas Department of Transportation
MBTA: Migratory Bird Treaty Act	T&E: Threatened and Endangered Species
NOI: Notice of Intent	USACE: U.S. Army Corp of Engineers
NOT: Notice of Termination	USFWS: U.S. Fish and Wildlife Service

Texas Department of Transportation

PHARR DISTRICT

ENVIRONMENTAL PERMITS, ISSUES AND COMMITMENTS (EPIC)

SHEET 1 OF 2

FED. RD. DIV. NO.	PROJECT NO.		HIGHWAY NO.
6			FM907
STATE	DISTRICT	COUNTY	
TEXAS	PHR	HIDALGO	
CONTROL	SECTION	JOB	SHEET NO.
1586	01	079	244

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V. Federal Listed, and Proposed Threatened and Endangered Species, Critical Habitat, State Listed Species, Candidate Species and Migratory Birds

Action Items Required : ☐ No Action Required

1. ☒ Under the Migratory Bird Treaty Act (MBTA) of 1918, codified at 16 U.S.C. § 703-712 and as enforced by the USFWS, the proposed construction work will not remove active nests from bridges, trees, ground and other structures during migratory bird nesting season, (February 1st. through October 1st.). If the Contractor needs to perform work within the right of way during nesting season, a qualified Biologist shall conduct a survey to determine if active nests are present. If present, the Contractor shall maintain a buffer zone around the nest(s) as directed by the Biologist. The buffer zone will be protected from clearing and disturbance until such time as the Biologist has determined that the nest(s) is no longer active. Prior to the nesting season, existing bridges and culverts should be treated against migratory bird nesting by utilizing Bird Exclusion Methods. Bird Exclusion Methods should be monitored and maintained throughout the nesting season. Refer to Standard Bird Exclusion Details.

2. ☒ There is the potential for the presence of state-listed species & species of concern in the project area and state law prohibits the taking (incidental or otherwise) of state-listed species. Taking is defined as the collection, hooking, hunting, netting, shooting, or share by any means or devices. If any listed species are observed, cease work in the immediate area, do not disturb species or habitat and contact the Engineer immediately.

3. ☒ Other Project Specific Actions:

This project has potential habitat for the following species:

Black Spotted Newt
South Texas Siren
White-Lipped Frog
Western Hog-Nosed Skunk

VI. Hazardous Materials on Contamination Issues

Action Items Required : ☒ No Action Required

General (applies to all projects):

Comply with the Hazard Communication Act (HCA) 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 HCA.

Maintain an adequate supply of on-site spill response materials as indicated in the MSDS. In the event of a spill, take immediate action to mitigate the spill as indicated in the MSDS and in accordance with safe work practices. Contact the TxDOT Pharr 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 (identified as not normal)
- Trash piles, drums, canisters, barrels, etc.
- Undesirable smells or odors
- Evidence of leaching or seepage of contaminant substances

Any other evidence indicating possible hazardous materials or contamination discovered on site.

1. ☒ If potentially hazardous material and/or contaminated media (i.e.: soil, groundwater, surface water, sediment, building materials) are unexpectedly encountered during construction, assure that such materials and contamination are handled according to applicable federal and state regulations, cease work in the immediate area and contact the Engineer immediately.

VI. Hazardous Materials on Contamination Issues - Continued:

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

☐ Yes ☒ No

If "No", then no further action required.
If "Yes", then TxDOT is responsible for completing an asbestos assessment/inspection.

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

☐ Yes ☐ No

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

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

4. ☐ The Contractor is responsible for providing the date(s) for abatement activities and/or demolition with careful coordination between the Engineer and an Asbestos Consultant in order to minimize construction delays and subsequent claims.

VII. Other Environmental Issues

Action Items Required : ☐ No Action Required

1. ☒ Noise

Contractor shall make every reasonable effort to minimize construction noise through abatement measures such as work hour controls and proper maintenance of equipment mufflers.

2. ☒ Air

Contractor shall practice common dust control techniques such as surface chemical treatment or watering of unpaved road surfaces and vehicle speed reduction shall be implemented to minimize and prevent airborne dust during construction.

Contractor should minimize MSAT by utilizing measures to encourage use of EPA required cleaner diesel fuels, limits on idling, increase use of cleaner burning diesel engines, and other emission limitation techniques, as appropriate.

Pharr District Contact No. 956-702-6100 Revised 01/30/2017

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Texas Department of Transportation

PHARR DISTRICT

ENVIRONMENTAL PERMITS, ISSUES AND COMMITMENTS (EPIC)

SHEET 2 OF 2

FED.RD. DIV.NO.	PROJECT NO.		HIGHWAY NO.
6			FM907
STATE	DISTRICT	COUNTY	
TEXAS	PHR	HIDALGO	SHEET NO.
CONTROL	SECTION	JOB	
1586	01	079	245

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TPWD BMPs

The Programmatic Agreement defines Best Management Practices (BMPs) to be implemented by Texas Department of Transportation (TxDOT) per §2.213 (Programmatic Agreements) of the 2017 Memorandum of Understanding (MOU) between TxDOT and Texas Parks and Wildlife Department (TPWD). These BMPs are measures that TxDOT and TPWD agree will result in avoidance and minimization of potential impacts to natural resources and in some cases apply to particular types of TxDOT projects.

The purpose of this section is to provide BMPs to minimize impacts to species or groups of species. Implementation of these BMPs by TxDOT eliminates the need for coordination under §2.206(1)of the MOU, except as noted.

Due diligence should be used to avoid killing or harming any wildlife species in the implementation of TxDOT projects.

☒ Bird BMPs (Required)

In addition to complying with the Migratory Bird Treaty Act (MBTA) perform the following BMPs:

- ☒ Prior to construction, perform daytime surveys for nests including under bridges and in culverts to determine if they are active before removal. Nests that are active should not be disturbed.
- ☒ Do not disturb, destroy, or remove active nests, including ground nesting birds, during the nesting season.
- ☒ Avoid the removal of unoccupied, inactive nests, as practicable.
- ☒ Prevent the establishment of active nests during the nesting season on TxDOT owned and operated facilities and structures proposed for replacement or repair.
- ☒ Do not collect, capture, relocate, or transport birds, eggs, young, or active nests without a permit.

☐ Bald Eagle *(Haliaeetus leucocephalus)*

- ☐ Bird BMPs and Bald and Golden Eagle Protection Act compliance

☐ Reddish Egret *(Egretta rufescens)* or
☐ White-faced Ibis *(Plegadis chihi)*

- ☐ Bird BMPs unless project is within 300 meters (984 feet)of a known colonial water bird rookery then coordinate with TPWD.

☐ Rookeries (Recommendations)

In general, nesting dates for herons and egrets range from early February to late August in Texas, depending on the species. Great Blue Herons (GBHE) are usually the first to nest. When GBHE get disrupted from the nest and abandon nesting, then the other species of herons and egrets may not attempt to nest at the colony that year. Breeding dates for rookery species are approximately as follows:

Species	Dates
Cattle Egret	Early April to late October
Little Blue Heron	Late March to late July
Snowy Egret	Late March to early August
Great Egret	Early March to early August
Black-crowned Night Heron	Early February to late July
Great Blue Heron	February to late August

☐ Rookeries (Recommendations) (Continued)

- ☐ Vegetation clearing in a primary buffer area of 300 meters (984 feet) from a heronry periphery should be avoided. Utilizing areas that have already been cleared within this buffer area may be acceptable depending on site-specific characteristics. Additionally, human foot-traffic or machinery use should not occur within this buffer area during the nesting season.
- ☐ Clearing activities or construction using heavy machinery in a secondary buffer area of 1,000 meters (3,281 feet) from the heronry periphery should be avoided during the breeding season (courting and nesting).

☐ Bat BMPs (Required)

To determine the appropriate BMP to avoid or minimize impacts to bats, review the habitat description for the species of interest on the TPWD Rare, Threatened, and Endangered Species of Texas by County List or other trusted resources. All bat surveys and other activities that include direct contact with bats shall comply with TPWD' recommended white-nose syndrome protocols located on the TPWD Wildlife Habitat Assessment Program website under "Project Design and Construction".

The following survey and exclusion protocols should be followed prior to commencement of construction activities. For the purposes of this document, structures are defined as bridges, culverts (concrete or metal), wells, and buildings.

- ☐ For activities that have the potential to impact structures, cliffs or caves, or trees; a qualified biologist will perform a habitat assessment and occupancy survey of the feature(s) with roost potential as early in the planning process as possible or within one year before project letting.
- ☐ For roosts where occupancy is strongly suspected but unconfirmed during the initial survey, revisit feature(s) at most four weeks prior to scheduled disturbance to confirm absence of bats.
- ☐ If bats are present or recent signs of occupation (i.e., piles of guano, distinct musky odor, or staining and rub marks at potential entry points) are observed, take appropriate measures to ensure that bats are not harmed, such as implementing non-lethal exclusion activities or timing or phasing of construction.
- ☐ Exclusion devices can be installed by a qualified individual between September 1 and March 31. Exclusion devices should be used for a minimum of seven days when minimum nighttime temperatures are above 50°F and minimum daytime temperatures are above 70°F. Prior to exclusion, ensure that alternate roosting habitat is available in the immediate area. If no suitable roosting habitat is available, installation of alternate roosts is recommended to replace the loss of an occupied roost. If alternate roost sites are not provided, bats may seek shelter in other inappropriate sites, such as buildings, in the surrounding area. See Additional Bat BMPs (Recommendations) for recommended acceptable methods for excluding bats from structures.
- ☐ If feature(s) used by bats are removed as a result of construction, replacement structures should incorporate bat-friendly design or artificial roosts should be constructed to replace these features, as practicable.
- ☐ Conversion of property containing cave or cliff features to transportation purposes should be avoided where feasible.

Pharr District Contact No. 956-702-6100

☐ Bat BMPs (Required)(Continued)

- ☐ Avoid unnecessary removal of dead fronds on native and ornamental palm trees in south Texas (Cameron, Hidalgo, Willacy, Kenedy, Brooks, Kleberg, Nueces, and San Patricio counties) from April 1st through October 31st. If removal of dead fronds is necessary at other times of the year, limit frond removal to extended warm periods (nighttime temperatures: 55°F for at least two consecutive nights), so bats can move away from the disturbance and find new roosts.
- ☐ Large hollow trees, snags (dead standing trees), and trees with shaggy bark should be surveyed for colonies and, if found, should not be disturbed until the bats are no longer occupying these features. Post-occupancy surveys should be conducted by a qualified biologist prior to tree removal from the landscape.
- ☐ Retain mature, large diameter hardwood forest species and native/ornamental palm trees where feasible.
- ☐ In all instances, avoid harm or death to bats. Bats should only be handled as a last resort and after communication with TPWD.

☐ Mexican Long-tongues Bat *(Choeronycteris mexicana)*

- ☐ Avoid unnecessary impacts to cacti and agave species.
- ☐ Bat BMPs.

☐ Additional Bat BMPs (Recommendations)

- ☐ Bat surveys of structures should include visual inspections of structural fissures (cracked or spalled concrete, damaged or split beams, split or damaged timber railings), crevices (expansion joints, space between parallel beams, spaces above supports piers), and alternative structures (drainage pipes, bolt cavities, open sections between support beams, swallow nests) for the presence of bats.
- ☐ Before excluding bats from any occupied structure, bat species, weather, temperature, season, and geographic location must be incorporated into any exclusion plans to avoid unnecessary harm or death to bats. Winter exclusion must entail a survey to confirm either, 1) bats are absent or 2) present but active (i.e. continuously active - not intermittently active due to arousals from hibernation).
- ☐ Avoid using materials that degrade quickly, like paper, steel wool or rags, to close holes.
- ☐ Avoid using products or making structural modifications that may block natural ventilation, like hanging plastic sheeting over an active roost entrance, thereby altering roost microclimate.
- ☐ Avoid using chemical and ultrasonic repellents.
- ☐ Avoid use of silicone, polyurethane or similar non-water-based caulk products.
- ☐ Avoid use of expandable foam products at occupied sites.
- ☐ Avoid the use of flexible netting attached with duct tape.

Revised 07/12/2017

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TCEQ: Texas Commission on Environmental Quality
THC: Texas Historical Commission
TPDES: Texas Pollutant Discharge Elimination System
TPWD: Texas Parks and Wildlife Department
TxDOT: Texas Department of Transportation
T&E: Threatened and Endangered Species
USACE: U.S. Army Corp of Engineers
USFWS: U.S. Fish and Wildlife Service

Texas Department of Transportation
PHARR DISTRICT

EPIC SHEET SUPPLEMENTALS

TPWD BMPs

SHEET 1 OF 3

FED.RD. DIV.NO.	PROJECT NO.		HIGHWAY NO.
6			FM907
STATE	DISTRICT	COUNTY	
TEXAS	PHR	HIDALGO	SHEET NO.
CONTROL	SECTION	JOB	
1586	01	079	246

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☐ Additional Bat BMPs (Recommendations) (Continued)

- ☐ In order to avoid entombing bats, exclusion activities should be only implemented by a qualified individual. A qualified individual or company should possess at least the following minimum qualifications:
  - Experience in bat exclusion (the individual, not just the company).
  - Proof of rabies pre-exposure vaccinations.
  - Demonstrated knowledge of the relevant bat species, including maternity season date range and habitat requirements.
  - Demonstrated knowledge of rabies and histoplasmosis in relation to bat roosts.
- ☐ Contact TPWD for additional resources and information to assist in executing successful bat exclusions that will avoid unnecessary harm or death in bats.

☐ Fossorial Mammal BMPs (Required)

- ☐ If black-tailed prairie dog (BTPD) burrows or pocket gopher mounds are to be excavated/directly impacted coordinate with TPWD WHAB.
- ☐ When a construction zone is adjacent to active BTPD burrows or pocket gopher mounds, erect barriers to discourage individuals moving through or into the construction area.
- ☐ When seeding or revegetation is planned in an area adjacent to BTPD burrows or pocket gopher mounds, a vegetative barrier should be considered in the planting to discourage dispersal into the ROW.

☐ Coues' Rice Rat *(Oryzomys couesi)*

- ☐ Minimize impacts to wetland, Resaca, oxbow lakes, and marsh habitats.
- ☐ Contractors will be advised of potential occurrence in the project area and to avoid harming the species if encountered.
- ☐ Water Quality BMPs.

☐ Plains Spotted Skunk *(Spilogale putorius interrupta)* or
☐ Swift Fox *(Vulpes velox)*

- ☐ Contractor will be advised of potential occurrence in the project area and to avoid harming the species if encountered and to avoid unnecessary impacts to dens.

☐ White nosed Coati *(Nasua narica)*/
☐ Yellow nosed Cotton Rat *(Sigmodon ochrognathus)*

- ☐ Contractors will be advised of potential occurrence in the project area and to avoid harming the species if encountered.

☒ Terrestrial Reptile BMPs (Required)

- ☒ Apply hydro mulching and/or hydro seeding in areas for soil stabilization and/or revegetation of disturbed areas where feasible. If hydro mulching and/or hydro seeding are not feasible due to site conditions, utilize erosion control blankets or mats that contain no netting or contain loosely woven, natural fiber netting is preferred. Plastic netting should be avoided to the extent practicable.
- ☒ For open trenches and excavated pits, install escape ramps at an angle of less than 45 degrees (1 :1) in areas left uncovered. Visually inspect excavation areas for trapped wildlife prior to backfilling.
- ☒ Inform contractors that if reptiles are found on project site allow species to safely leave the project area.
- ☒ Avoid or minimize disturbing or removing downed trees, rotting stumps, and leaf litter where feasible.
- ☒ Contractors will be advised of potential occurrence in the project area, and to avoid harming the species if encountered.

☒ Texas Tortoise *(Gopherus berlandieri)*

- ☒ Contractors will be advised of potential occurrence in the project area, and to avoid harming the species if encountered.
- ☒ Utility trenches should be covered overnight or visually inspected before filling to avoid burial of the species.
- ☒ Terrestrial Reptile BMPs.

☒ Texas Horned Lizard *(Phrynosoma cornutum)*

- ☒ Avoid harvester ant mounds in the selection of Project Specific Locations (PSLs) where feasible.
- ☒ Terrestrial Reptile BMPs.

☒ Additional Reptile BMPs (Recommendations)

- ☒ Due to increased activity (mating) of reptiles during the spring, construction activities like clearing or grading should attempt to be scheduled outside of the spring (April-May) season. Also, timing ground disturbing activities before October when reptiles become less active and may be using burrows in the project area is also encouraged.
- ☒ When designing roadways with curbs, consider using Type I or Type III curbs to provide a gentle slope to enable turtles and small animals to get out of roadways.
- ☐ If Texas Tortoises are present in a project area, they should be removed from the area. After removal of the tortoises, the area that will be disturbed during active construction and project specific locations should be fenced off to exclude tortoises and other reptiles. The exclusion fence should be constructed and maintained as follows:
  a. The exclusion fence should be constructed with metal flashing or drift fence material.
  b. Rolled erosion control mesh material should not be used.
  c. The exclusion fence should be buried at least 6 inches deep and be at least 24 inches high.
  d. The exclusion fence should be maintained for the life of the project and only removed after the construction is completed and the disturbed site has been revegetated.

☐ Amphibian and Aquatic Reptile BMPs (Required)

Unless absence of the species can be demonstrated, assume presence in suitable habitat and implement the following BMPs. Absence can only be demonstrated using TPWD-approved survey efforts (contact TPWD for minimum survey protocols for species and project site conditions).

- ☐ For projects within one mile of a known occupied location or observation of the species recorded from 1980 until the current year and suitable habitat is present, coordinate with TPWD.
- ☐ For new location roadway projects, coordinate with TPWD.
- ☐ For projects within existing right-of-way (ROW) when work is in water or will permanently impact a water feature and potential habitat exists for the target species complete the following:
  a) Contractors will be advised of potential occurrence in the project area, and to avoid harming the species if encountered.
  b) Minimize impacts to wetland, temporary and permanent open water features, including depressions, and riverine habitats.
  c) Maintain hydrologic regime and connections between wetlands and other aquatic features.

Pharr District Contact No. 956-702-6100

☒ Amphibian and Aquatic Reptile BMPs (Continued)

  d) Use barrier fencing to direct animal movements away from construction activities and areas of potential wildlife-vehicle collisions in construction areas directly adjacent, or that may directly impact, potential habitat for the target species.
  e) Apply hydromulching and/or hydroseeding in areas for soil stabilization and/or revegetation of disturbed areas where feasible. If hydromulching and/or hydroseeding are not feasible due to site conditions, using erosion control blankets or mats that contain no netting, or only contain loosely woven natural fiber netting is preferred. Plastic netting should be avoided to the extent practicable.
  f) Project specific locations (PSLs) proposed within state-owned ROW should be located in uplands away from aquatic features.
  g) When work is directly adjacent to the water, minimize impacts to shoreline basking sites (e.g., downed trees, sand bars, exposed bedrock) and overwinter sites (e.g., brush and debris piles, crayfish burrows) where feasible.
  h) Avoid or minimize disturbing or removing downed trees, rotting stumps, and leaf litter, which may be refugia for terrestrial amphibians, where feasible.
  i) If gutters and curbs are part of the roadway design, where feasible install gutters that do not include the side box inlet and include sloped (i.e. mountable) curbs to allow small animals to leave roadway. If this modification to the entire curb system is not possible, install sections of sloped curb on either side of the storm water drain for several feet to allow small animals to leave the roadway. Priority areas for these design recommendations are those with nearby wetlands or other aquatic features.

☒ For projects that require acquisition of additional ROW and work within that new ROW is in water or will permanently impact a water feature, implement a) - i) above plus j) -l) below, where applicable:

  j) For sections of roadway adjacent to wetlands or other aquatic features, install wildlife barriers that prevent climbing. Barriers should terminate at culvert openings in order to funnel animals under the road. The barriers should be of the same length as the adjacent feature or 80 feet long in each direction, or whichever is the lesser of the two.
  k) For culvert extensions and culvert replacement/installation, incorporate measures to funnel animals toward culverts such as concrete wingwalls and barrier walls with overhangs.
  l) When riprap or other bank stabilization devices are necessary, their placement should not impede the movement of terrestrial or aquatic wildlife through the water feature. Where feasible, biotechnical streambank stabilization methods using live native vegetation or a combination of vegetative and structural materials should be used.

Revised 07/12/2017

List of Abbreviations

BMP: Best Management Practice	MSAT: Mobile Source Air Toxic	TCEQ: Texas Commission on Environmental Quality
CGP: Construction General Permit	MBTA: Migratory Bird Treaty Act	THC: Texas Historical Commission
CRPe: Contractor Responsible Person Environmental	NOI: Notice of Intent	TPDES: Texas Pollutant Discharge Elimination System
DSHS: Texas Department of State Health Services	NOT: Notice of Termination	TPWD: Texas Parks and Wildlife Department
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MOU: Memorandum of Understanding	SPCC: Spill Prevention Control and Countermeasure	USFWS: U.S. Fish and Wildlife Service
MS4: Municipal Separate Stormwater Sewer System	SW3P: Storm Water Pollution Prevention Plan	

PHARR DISTRICT

EPIC SHEET SUPPLEMENTALS

TPWD BMPs

SHEET 2 OF 3

FED.RD. DIV.NO.	PROJECT NO.		HIGHWAY NO.
6			FM907
STATE	DISTRICT	COUNTY	
TEXAS	PHR	HIDALGO	SHEET NO.
CONTROL	SECTION	JOB	
1586	01	079	247

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☒ Sheep Frog *(Hypopachus variolosus)*

- ☒ Minimize disturbance to burrows or downed woody debris.
- ☒ Water Quality BMPs.
- ☒ Amphibian BMPs.

☒ South Texas Siren (Large Form) *(Siren sp 1)*

- ☒ Minimize impacts to warm, shallow waters with vegetative cover such as ponds and ditches.
- ☒ Water Quality BMPs.
- ☒ Amphibian BMPs.

☐ Freshwater Mussel BMPs (Required)

- ☐ When work is in the water; survey project footprints for state listed species where appropriate habitat exists.
- ☐ When work is in the water and mussels are discovered during surveys; relocate state listed and SGCN mussels under TPWD authorization and implement Water Quality BMPs.
- ☐ When work is adjacent to the water; Water Quality BMPs implemented as part of the SWPPP for a construction general permit or any conditions of the Section 401 water quality certification for the project will be implemented.

☐ Fish BMPs (Required)

- ☐ For projects within the range of a SGCN or State-Listed fish and work is adjacent to water: Use Water Quality BMPs. No TPWD Coordination required.
- ☐ For projects within the range of a SGCN or State-Listed fish, and work is in the water: TPWD coordination is required.

☒ Water Quality BMPs (Required)

In addition to BMPs required for a TCEQ Storm Water Pollution Prevention Plan and/or Section 401 water quality permit:

- ☒ Minimize the use of equipment in streams and riparian areas during construction. When possible, equipment access should be from banks, bridge decks, or barges.
- ☐ When temporary stream crossings are unavoidable, remove stream crossings once they are no longer needed and stabilize banks and soils around the crossing.

☒ Additional Water Quality BMPs (Recommendations)

- ☐ Wet-Bottomed detention ponds are recommended to benefit wildlife and downstream water quality. Consider potential wildlife-vehicle interactions when siting detention ponds.
- ☒ Rubbish found near bridges on TxDOT ROW should be removed and disposed of properly to minimize the risk of pollution. Rubbish does not include brush piles or snags.

☐ Aquatic Mitigation (Recommendations)

- ☐ In-kind compensatory mitigation should be considered for all unavoidable impacts to aquatic resources including, but not limited to streams, wetlands, oysters, seagrass and mudflats, regardless of their jurisdictional status.
- ☐ Compensatory mitigation plans should be developed in consultation with TPWD Transportation Conservation Coordinator.

☒ Stream Crossings (Recommendations)

- ☐ Use spanning bridges rather than culverts when feasible.
- ☐ If using a culvert, staggered culverts that concentrate low flows but provide conveyance of higher flows through staggered culverts placed at higher elevations is recommended.
- ☐ Bottomless culverts are recommended to allow for fish and other aquatic wildlife passage in the low flow channel. If bottomless culverts are not feasible, making a low flow channel for fish passage is recommended.
- ☐ Avoid placing riprap across stream channels and instead use alternative stabilization such as biotechnical stream bank stabilization methods including live native vegetation or a combination of vegetative and structural materials. When riprap or other bank stabilization devices are necessary, their placement should not impede the movement of aquatic and terrestrial wildlife underneath the bridge. In some instances, riprap may be buried, back-filled with topsoil and planted with native vegetation.
- ☐ Incorporate bat-friendly design into bridges and culverts.
- ☐ Design bridges for adequate vertical and horizontal clearances under the roadway to allow for terrestrial wildlife to safely pass under the road.
- ☒ A span wide enough to cross the stream and allow for dry ground and a natural surface path under the roadway is encouraged. For culverts, incorporation of an artificial ledge inside the culvert on one or both sides for use by terrestrial wildlife is recommended.
- ☒ Riparian buffer zones should remain undisturbed where possible.

☒ Vegetation BMPs (Recommendations)

- ☒ Minimize the amount of vegetation cleared. Removal of native vegetation, particularly mature native trees and shrubs should be avoided to the greatest extent practicable. Wherever practicable, impacted vegetation should be replaced with in-kind on-site replacement/restoration of native vegetation.
- ☐ To minimize adverse effects, activities should be planned to preserve mature trees, particularly acorn, nut or berry producing varieties. These types of vegetation have high value to wildlife as food and cover.
- ☐ It is strongly recommended that trees greater than 12 inches in diameter at breast height (dbh) that are removed be replaced. TPWD's experience indicates that for ecologically effective replacement, a ratio of three trees for every one (3:1) lost should be provided to the extent practicable either on-site or off-site. Trees less than 12 inches dbh should be replaced at a 1:1 ratio.
- ☐ Replacement trees should be of equal or better wildlife quality than those removed and be regionally adapted native species.
- ☐ When trees are planted, a maintenance plan that ensures at least an 85 percent survival rate after three (3) years should be developed for the replacement trees.
- ☒ The use of any non-native vegetation in landscaping and revegetation is discouraged. Locally adapted native species should be used.
- ☒ The use of seed mix that contains seeds from only locally adapted native species is recommended.
- ☒ Avoid vegetation clearing activities during the general bird nesting season, March through August, to minimize adverse impacts to birds.

☐ Invasive Species BMPs (Recommendations)

- ☐ For all work in waters listed in the distribution of Zebra mussels on http://texasinvasives .org/ as well as those waters specified in 31 TAC §57.972 and any TPWD emergency orders regarding prevention of the spread of Zebra mussels all machinery, equipment, or vehicles coming in contact with such waters should follow clean/drain/dry protocols to prevent the potential spread of invasive Zebra mussels.
- ☐ Care should be taken to avoid the spread of aquatic invasive plants (such as Giant Salvinia, Hydrilla, Hyacinth, Watermilfoil, Water Lettuce, and Alligatorweed) from infested water bodies into areas not currently infested. All machinery/equipment/vehicles coming in contact with waters containing aquatic invasive plant species should follow clean/drain/dry protocols to prevent the potential spread of invasive plants.
- ☐ Colonization by invasive plants should be actively prevented on disturbed sites in terrestrial habitats. Vegetation management should include removing invasive species as soon as practical while allowing the existing native plants to revegetate the disturbed areas. If using hay bales for sediment control, use locally grown weed-free hay to prevent the spread of invasive species. Leave the hay bales in place and allow them to break down, as this acts as mulch assisting in revegetation.

☐ Wildlife Crossings (Recommendations)

- ☐ Design roadways on new location to incorporate wildlife crossings, particularly in areas that bisect wildlife travel corridors or seasonal movement routes.
- ☐ Consider using cable median barrier instead of concrete traffic barrier when feasible to increase permeability for animals encountering barriers.

Pharr District Contact No. 956-702-6100

Revised 07/12/2017

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Texas Department of Transportation

PHARR DISTRICT

EPIC SHEET SUPPLEMENTALS

TPWD BMPs

SHEET 3 OF 3

FED.RD. DIV.NO.	PROJECT NO.		HIGHWAY NO.
6			FM907
STATE	DISTRICT	COUNTY	
TEXAS	PHR	HIDALGO	SHEET NO.
CONTROL	SECTION	JOB	
1586	01	079	248

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SITE DESCRIPTION

PROJECT LIMITS: FM 907
From: FM 3072 (DICKER ROAD) to: US 281 (MILITARY HIGHWAY)

PROJECT SITE MAPS:

- Project Location Map: Title Sheet (Sheet 1)
- Drainage Patterns: N/A
- Approx. Slopes Anticipated After Major Gradings and Areas of Soil Disturbance: Typ Sects
- Major Controls and Locations of Stabilization Practices: SW3P Site Map Sheets
- Project Specific Locations: To be specified by Project Field Office and located in the Project SW3P File
- Surface Waters and Discharge Locations: N/A

PROJECT DESCRIPTION: Rehabilitation of an existing road, consisting of grading, lime treatment subgrade, cement treatment flexible base, asphalt concrete pavement, remove and replace existing MBGF sections, and striping & pavement markers.

MAJOR SOIL DISTURBING ACTIVITIES: Excavation for the roadway, removal and replace of metal beam guard fence, re-grading of roadside ditches, cleanup of existing culvert crossing, remove and replace existing washout culvert riprap & installation of slope protection at the Resaca area embankments, erosion and sediment controls, top soil for final planting and seeding.

TOTAL PROJECT AREA: 20.2 Acres

TOTAL AREA TO BE DISTURBED: 10.2 Acres (50%)

WEIGHTED RUNOFF COEFFICIENT:
Before Construction: 0.50
After Construction: 0.50 (No Change on coefficient)

EXISTING CONDITION OF SOIL & VEGETATIVE Existing Soils: Harlingen clay, saline. Laredo silty clay loam 0-1 percent slopes, rarely flooded. Laredo silty clay loam, saline Laredo-Olmito complex, Laredo-Urban complex. Olmito silty clay. Tiocano clay, 0-1 percent sloped, occasionally ponded. Cameron silty clay.

NAME OF RECEIVING WATERS:
Stormwater runoff is directed via roadside ditches along FM 907 to multiple existing drain ditch outfalls with culvert crossings that drain in a northeast direction and contribute to the Arroyo Colorado Watershed. Stormwater runoff within the Arroyo Colorado ultimately discharges into the Laguna Madre and the Gulf of Mexico.

ENDANGERED SPECIES, DESIGNATED CRITICAL HABITAT AND HISTORICAL PROPERTY:
Federal and State listed species:
Black Spotted Newt
South Texas Siren
White-Lipped Frog
Western Hog-Nosed Skunk

No Historical properties were found.

The documentation satisfying TPDES Construction General Permit eligibility pertaining to the existence or of any protective action taken with regards to endangered species or designated critical habitat or historical property in this project area is contained in the project's Environmental Impact Study and can be viewed under the State Open Records Act at the address shown below:

TEXAS DEPARTMENT OF TRANSPORTATION
PHARR DISTRICT HEADQUARTERS
ATTN: ENVIRONMENTAL COORDINATOR
600 W. EXPRESSWAY 83
PHARR, TX 78577
PHONE: 956-702-6100

EROSION AND SEDIMENT CONTROLS

SOIL STABILIZATION PRACTICES: (Select T = Temporary or P = Permanent, as applicable)

- T TEMPORARY SEEDING
- ___ MULCHING (Hay or Straw)
- ___ BUFFER ZONES
- ___ PLANTING
- P SEEDING
- ___ SODDING
- ___ OTHER: (Specify Practice)
- ___ PRESERVATION OF NATURAL RESOURCES
- ___ FLEXIBLE CHANNEL LINER
- ___ RIGID CHANNEL LINER
- ___ SOIL RETENTION BLANKET
- ___ COMPOST MANUFACTURED COMPOST
- T BIODEGRADABLE EROSION CONTROL SOCKS

STRUCTURAL PRACTICES: (Select T = Temporary or P = Permanent, as applicable)

- T SILT FENCES
- T BIODEGRADABLE EROSION CONTROL SOCKS
- ___ HAY BALES
- ___ ROCK FILTER DAMS
- ___ DIVERSION, INTERCEPTOR, OR PERIMETER DIKES
- ___ DIVERSION, INTERCEPTOR, OR PERIMETER SWALES
- ___ DIVERSION DIKE AND SWALE COMBINATIONS
- ___ PIPE SLOPE DRAINS
- ___ PAVED FLUMES
- T ROCK BEDDING AT CONSTRUCTION EXIT
- T TIMBER MATTING AT CONSTRUCTION EXIT
- ___ PIPE MATTING OR EQUAL AT CONSTRUCTION EXIT
- ___ CHANNEL LINERS
- ___ SEDIMENT TRAPS
- ___ SEDIMENT BASINS
- T STORM INLET SEDIMENT TRAP
- ___ STONE OUTLET STRUCTURES
- ___ CURBS AND GUTTERS
- ___ STORM SEWERS
- ___ VELOCITY CONTROL DEVICES
- ___ OTHER: (Specify Practice)

STORM WATER MANAGEMENT: Storm water drainage will be provided by the existing cross culverts and roadway "V" ditches with 6:1 slopes usual and 4:1 max. These ditches run towards the low areas of the roadway and existing cross-culverts which ultimate lead to the existing outfalls.

STORM WATER MANAGEMENT ACTIVITIES:
The order of activities will be as follows:
1.- Install perimeter controls, clear R.O.W. on side where construction will take place
2. Install silt fence along roadway north and south side as indicated on SW3P Layouts.
3. Construct proposed roadway as per Sequence of Construction and maintain silt fences as needed.
4. Construct pavement roadway structure up to 1.5" SP-D 76-22 SAC B course as shown on TCP Steps A & B.
5. Regrade roadside ditches and seed each section completed with temp. seeding from roadway to R.O.W. after 1.5" SMA-D 76-22 SAC A surface course has been installed as shown on TCP Step C.
6. Once all construction activity is complete, permanent seeding on proposed areas shall be done according to plans or as instructed by engineer.
7. Final Clean Up.

NON-STORM WATER MANAGEMENT DISCHARGES:
Non-storm water discharges should be filtered, or held in retention basins, before being allowed to mix with storm water. These discharges consist of non-polluted ground water, spring water, foundation and/or footing drain water; and water used for dust control, pavement washing and vehicle wastewater containing no detergents.

OTHER REQUIREMENTS & PRACTICES

OTHER EROSION AND SEDIMENT CONTROLS:

MAINTENANCE: All erosion and sediment controls will be maintained in good working order. If a repair is necessary, it will be done at the earliest date possible, but no later than 7 calendar days after the surrounding exposed ground has dried sufficiently to prevent further damage from heavy equipment. The areas adjacent to creeks and drainage ways shall have priority followed by devices protecting storm sewer inlets.

INSPECTION: For areas of the construction site that have not been finally stabilized, area used for storage of materials, structural control measures, and locations where vehicles enter or exit the site, personnel provided by the permittee and familiar with the SW3P must inspect disturbed areas at least once every fourteen (14) calendar days and within twenty-four (24) hours of the end of a storm event 0.5 inches or greater.

WASTE MATERIALS: All waste materials will be collected and stored in a securely lidded dumpster. All trash and construction debris from the site will be deposited as necessary at a local dump. No construction waste material will be buried on site.

HAZARDOUS WASTE (INCLUDING SPILL REPORTING): At a minimum, any products in the following categories to be hazardous: Paints, Acids for cleaning masonry surfaces, Cleaning Solvents, Asphalt products, Chemical additives for soil stabilization, or Concrete curing compounds and additives. In the event of a spill which may be hazardous, the spill Coordinator should be contacted immediately. Emptying of excess concrete should not be allowed on site. Likewise, washout of concrete trucks should not be performed on site. These discharges are considered non-allowable non-storm water discharges. Concrete trucks should never be allowed to dump into storm drains or sanitary sewers.

SANITARY WASTE: All sanitary waste will be collected from the portable units as necessary or as required by local regulation by a licensed sanitary waste management contractor.

OFFSITE VEHICLE TRACKING: The Contractor shall be required, on a regular basis or as may be directed by the Engineer, to dampen haul roads for dust control, stabilize construction entrances and to remove excess dirt from the roadway.

MANAGEMENT PRACTICES:
1. Disposal areas, stockpiles, and haul roads shall be constructed in a manner that will minimize and control the amount of sediment that may enter receiving waters. Disposal areas shall not be located in any wetland, water body or stream bed.
2. Construction staging areas and vehicle maintenance areas shall be constructed by the Contractor in a manner to minimize the runoff of pollutants.
3. All waterways shall be cleared as soon as practicable of temporary embankment, temporary bridges, matting, falsework, piling, or debris or other obstructions placed during construction operations that are not a part of the finished work.

OTHER: Contractor shall adhere to the following:
1. Construction Materials List of materials stored on job site to be provided by Contractor.
2. The project SW3P File shall be located at the project field office or within the Contractor's mobile office at all times and shall contain the N.O.I., CGP, Signature Authorization, Certification/Qualification Statements, Inspection Reports, Required Maps, and the TPDES Permit, Part II. This File to be persented to authorized State and Federal Agents upon request.

STATE OF TEXAS
JOSE A. RODRIGUEZ
117308
LICENSED PROFESSIONAL ENGINEER

03/10/22

Signature of Registrant & Date

Texas Department of Transportation

TxDOT STORM WATER POLLUTION PREVENTION PLAN (SW3P)

REV. 2-20-14 SW3P.DGN

FED.RD. DIV.NO.	PROJECT NO.		SHEET NO.
6			249
STATE	DIST.	COUNTY	
TEXAS	PHARR	HIDALGO	
CONT.	SECT.	JOB	HIGHWAY NO.
1586	01	079	FM 907

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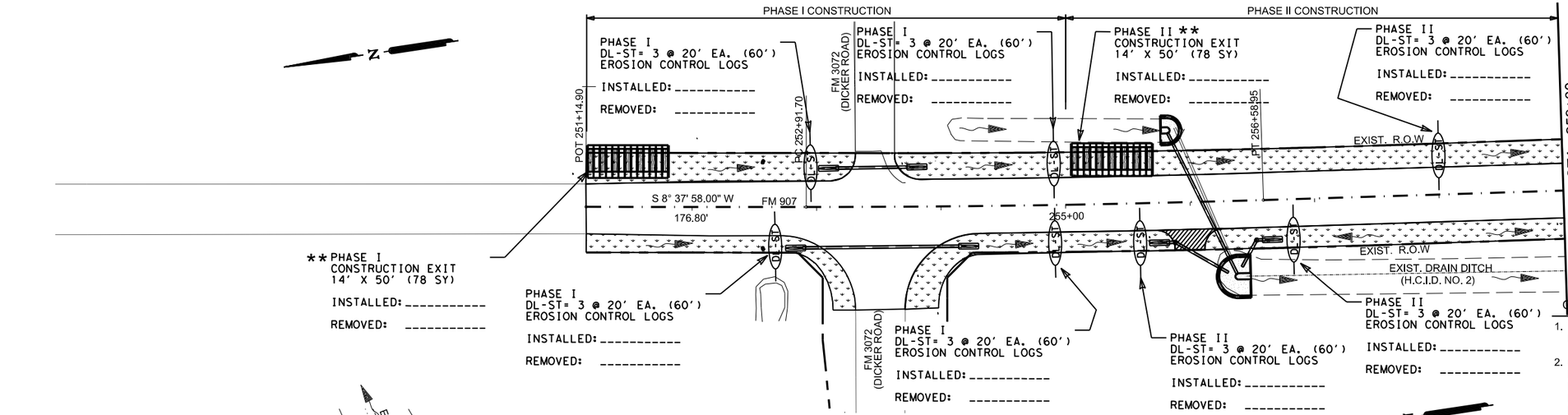

LEGEND:

- CULVERT LOCATION
- DIRECTION OF FLOW
- SEEDING AREA
- CONSTRUCTION EXIT (TYPE 2)
- CI-ST — CURB INLET SEDIMENT TRAP (15' EA)
- RFD1 — ROCK FILTER DAM (TYPE 1)
- RFD2 — ROCK FILTER DAM (TYPE 2)
- RFD4 — ROCK FILTER DAM (TYPE 1)
- SCF — TEMP SEDIMENT CONTROL FENCE
- DI-ST — DROP INLET SEDIMENT TRAP (LOG) (40' EA)
- DL-ST — DITCH LINE SEDIMENT TRAP (LOG)
- CL-D — EROSION CONTROL LOG DAM
- CL-DI — EROSION CONTROL LOG AT DROP INLET

GENERAL NOTES

1. THE CONTRACTOR MUST CONTACT THE ENGINEER BEFORE PLACEMENT OF ANY EROSION CONTROL DEVICES.
2. CONSTRUCTION EXITS ARE TO BE LOCATED AND INSTALLED BASED ON FIELD CONDITIONS AND AS APPROVED BY THE ENGINEER. THE LOCATION OF THE CONSTRUCTION EXIT SHOULD BE SUFFICIENT FOR CONTINUOUS USE BY THE CONTRACTOR DURING CONSTRUCTION.
3. EROSION CONTROL DEVICES SHALL ONLY BE PLACED DURING PHASE CONSTRUCTION. DEVICES SHALL NOT BE PLACED ALL AT THE SAME TIME.
4. EROSION CONTROL DEVICES MAY BE MODIFIED TO MEET FIELD CONDITIONS OR AS DIRECTED BY THE ENGINEER.
5. VEGETATIVE WATERING APPLICATION RATE = 88,300 GAL/AC @ 13 CYCLES.

ITEM	DESCRIPTION	UNIT	QUANT
164 6023	CELL FBR MLCH SEED (PERM)(RURAL)(CLAY)	SY	12340
164 6029	CELL FBR MLCH SEED (TEMP)(WARM)	SY	12340
* 166	FERTILIZER	TON	0.13
168 6001	VEGETATIVE WATERING	MG	225
169 6003	SOIL RETENTION BLANKETS (CL 1) (TY C)	SY	-
506 6004	ROCK FILTER DAM (TYPE 4) (INSTALL)	LF	-
506 6011	ROCK FILTER DAM (TYPE 4) (REMOVE)	LF	-
506 6021	CONSTRUCTION EXITS (INSTALL) (TY 2)	SY	156
506 6024	CONSTRUCTION EXITS (REMOVE)	SY	156
506 6038	TEMP. SEDIMENT CONTROL FENCE (INSTALL)	LF	-
506 6039	TEMP. SEDIMENT CONTROL FENCE (REMOVE)	LF	-
506 6041	BIODEGRADABLE EROSION CONTROL LOGS (12 INCH DIAM) (INSTALL)	LF	1020
506 6043	BIODEGRADABLE EROSION CONTROL LOGS (12 INCH DIAM) (REMOVE)	LF	1020

* FOR CONTRACTORS INFORMATION ONLY (NON-PAY ITEM)
** SEE GENERAL NOTE NO. 2 CONCERNING CONSTRUCTION EXIT PLACEMENT

STATE OF TEXAS
JOSE A. RODRIGUEZ
117308
LICENSED PROFESSIONAL ENGINEER

09/07/21

Pharr District Central Design

Texas Department of Transportation

FM 907

SW3P
LAYOUT

SCALE: 1" = 100' SHEET 1 OF 4

CONT	SECT	JOB	HIGHWAY
1586	01	079	FM 907
DIST	COUNTY		SHEET NO.
PHR	HIDALGO		250

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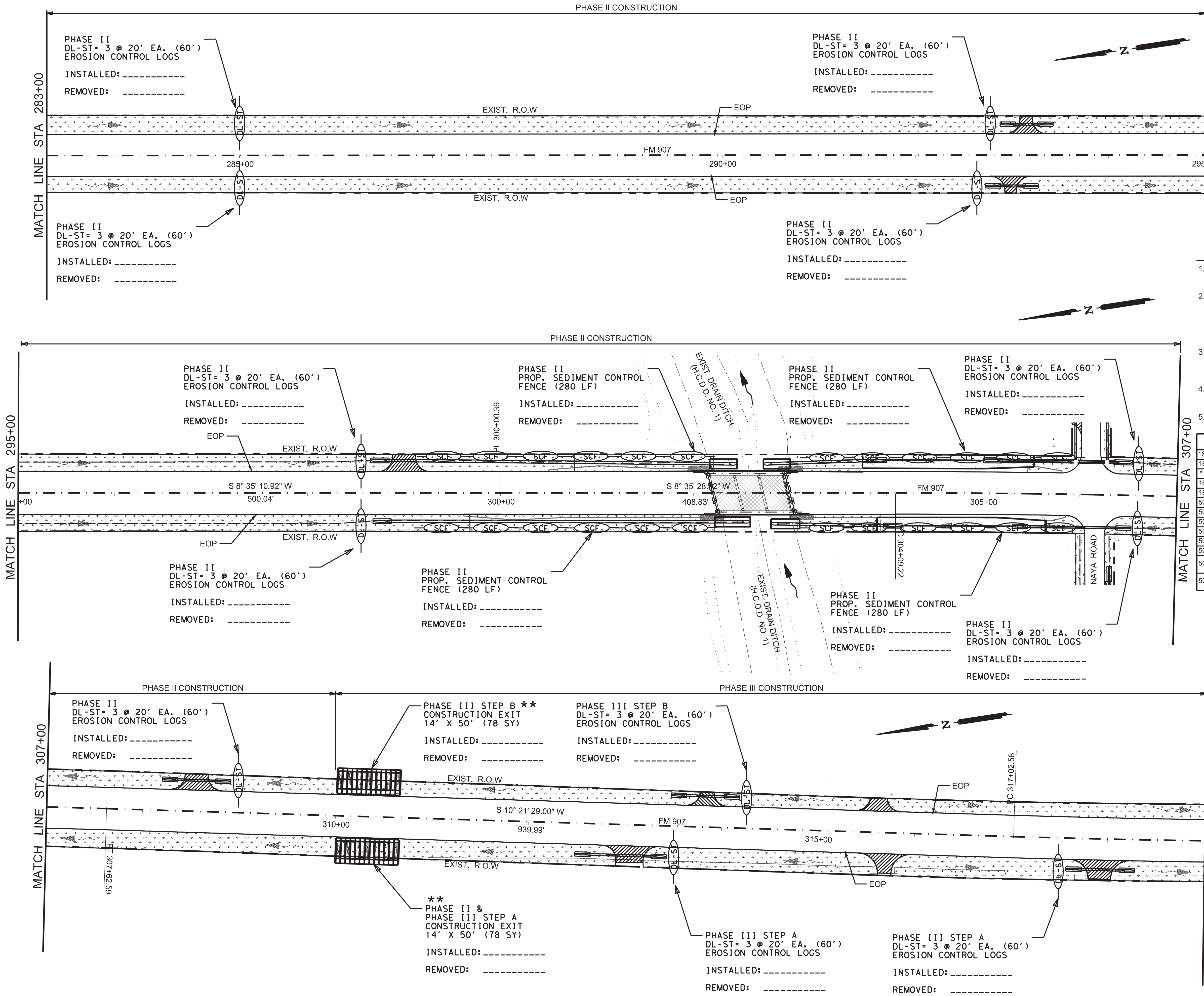

LEGEND:

- CULVERT LOCATION
- DIRECTION OF FLOW
- SEEDING AREA
- CONSTRUCTION EXIT (TYPE 2)
- CI-ST — CURB INLET SEDIMENT TRAP (15' EA)
- RFD1 — ROCK FILTER DAM (TYPE 1)
- RFD2 — ROCK FILTER DAM (TYPE 2)
- RFD4 — ROCK FILTER DAM (TYPE 1)
- SCF — TEMP SEDIMENT CONTROL FENCE
- DI-ST — DROP INLET SEDIMENT TRAP (LOG) (40' EA)
- DL-ST — DITCH LINE SEDIMENT TRAP (LOG)
- CL-D — EROSION CONTROL LOG DAM
- CL-DI — EROSION CONTROL LOG AT DROP INLET

GENERAL NOTES

1. THE CONTRACTOR MUST CONTACT THE ENGINEER BEFORE PLACEMENT OF ANY EROSION CONTROL DEVICES.
2. CONSTRUCTION EXITS ARE TO BE LOCATED AND INSTALLED BASED ON FIELD CONDITIONS AND AS APPROVED BY THE ENGINEER. THE LOCATION OF THE CONSTRUCTION EXIT SHOULD BE SUFFICIENT FOR CONTINUOUS USE BY THE CONTRACTOR DURING CONSTRUCTION.
3. EROSION CONTROL DEVICES SHALL ONLY BE PLACED DURING PHASE CONSTRUCTION. DEVICES SHALL NOT BE PLACED ALL AT THE SAME TIME.
4. EROSION CONTROL DEVICES MAY BE MODIFIED TO MEET FIELD CONDITIONS OR AS DIRECTED BY THE ENGINEER.
5. VEGETATIVE WATERING APPLICATION RATE = 88,300 GAL/AC @ 13 CYCLES.

ITEM	DESCRIPTION	UNIT	QUANT
164 6023	CELL FBR MLCH SEED (PERM)(RURAL)(CLAY)	SY	13,530
164 6029	CELL FBR MLCH SEED (TEMP)(WARM)	SY	13,530
* 166	FERTILIZER	TON	0.14
168 6001	VEGETATIVE WATERING	MG	247
169 6003	SOIL RETENTION BLANKETS (CL 1) (TY C)	SY	-
506 6004	ROCK FILTER DAM (TYPE 4) (INSTALL)	LF	-
506 6011	ROCK FILTER DAM (TYPE 4) (REMOVE)	LF	-
506 6021	CONSTRUCTION EXITS (INSTALL) (TY 2)	SY	156
506 6024	CONSTRUCTION EXITS (REMOVE)	SY	156
506 6038	TEMP. SEDIMENT CONTROL FENCE (INSTALL)	LF	1120
506 6039	TEMP. SEDIMENT CONTROL FENCE (REMOVE)	LF	1120
506 6041	BIODEGRADABLE EROSION CONTROL LOGS (12 INCH DIAM) (INSTALL)	LF	720
506 6043	BIODEGRADABLE EROSION CONTROL LOGS (12 INCH DIAM) (REMOVE)	LF	720

* FOR CONTRACTORS INFORMATION ONLY (NON-PAY ITEM)
** SEE GENERAL NOTE NO. 2 CONCERNING CONSTRUCTION EXIT PLACEMENT

STATE OF TEXAS
JOSE A. RODRIGUEZ
117308
LICENSED
PROFESSIONAL ENGINEER

03/31/22

Pharr District Central Design

Texas Department of Transportation

FM 907

SW3P
LAYOUT

SCALE: 1" = 100' SHEET 2 OF 4

© 2021	CONT	SECT	JOB	HIGHWAY
	1586	01	079	FM 907
	DIST		COUNTY	SHEET NO.
	PHR		HIDALGO	251

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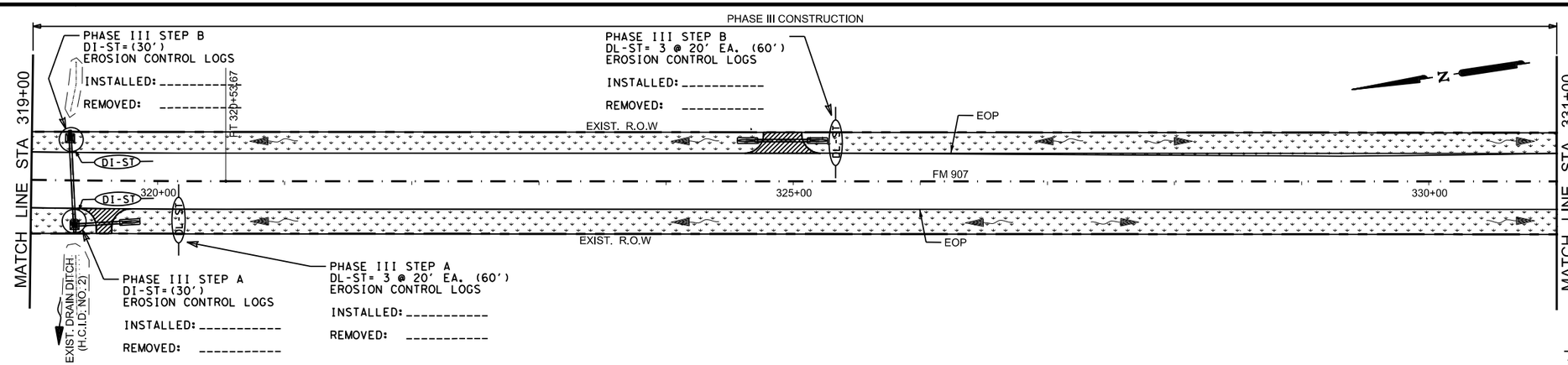

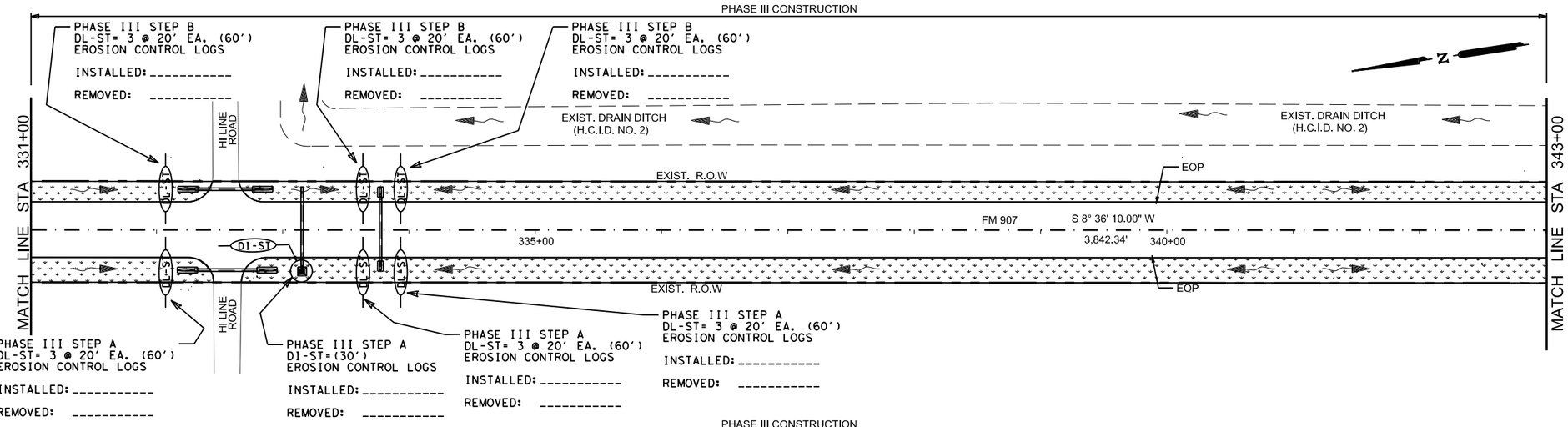

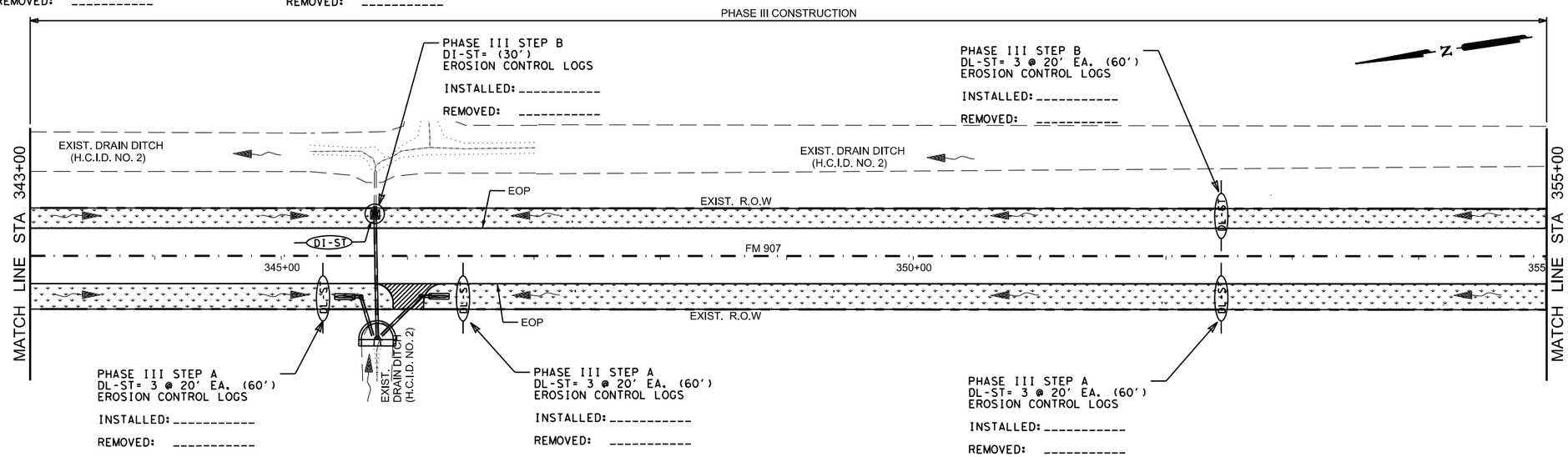

LEGEND:

- CULVERT LOCATION
- DIRECTION OF FLOW
- SEEDING AREA
- CONSTRUCTION EXIT (TYPE 2)
- CI-ST — CURB INLET SEDIMENT TRAP (15' EA)
- RFD1 — ROCK FILTER DAM (TYPE 1)
- RFD2 — ROCK FILTER DAM (TYPE 2)
- RFD4 — ROCK FILTER DAM (TYPE 1)
- SCF — TEMP SEDIMENT CONTROL FENCE
- DI-ST — DROP INLET SEDIMENT TRAP (LOG) (40' EA)
- DL-ST — DITCH LINE SEDIMENT TRAP (LOG)
- CL-D — EROSION CONTROL LOG DAM
- CL-DI — EROSION CONTROL LOG AT DROP INLET

GENERAL NOTES

1. THE CONTRACTOR MUST CONTACT THE ENGINEER BEFORE PLACEMENT OF ANY EROSION CONTROL DEVICES.
2. CONSTRUCTION EXITS ARE TO BE LOCATED AND INSTALLED BASED ON FIELD CONDITIONS AND AS APPROVED BY THE ENGINEER. THE LOCATION OF THE CONSTRUCTION EXIT SHOULD BE SUFFICIENT FOR CONTINUOUS USE BY THE CONTRACTOR DURING CONSTRUCTION.
3. EROSION CONTROL DEVICES SHALL ONLY BE PLACED DURING PHASE CONSTRUCTION. DEVICES SHALL NOT BE PLACED ALL AT THE SAME TIME.
4. EROSION CONTROL DEVICES MAY BE MODIFIED TO MEET FIELD CONDITIONS OR AS DIRECTED BY THE ENGINEER.
5. VEGETATIVE WATERING APPLICATION RATE = 88,300 GAL/AC @ 13 CYCLES.

ITEM	DESCRIPTION	UNIT	QUANT
164 6023	CELL FBR MLCH SEED (PERM)(RURAL)(CLAY)	SY	14,151
164 6029	CELL FBR MLCH SEED (TEMP)(WARM)	SY	14,151
* 166	FERTILIZER	TON	0.15
168 6001	VEGETATIVE WATERING	MG	258
169 6003	SOIL RETENTION BLANKETS (CL 1) (TY C)	SY	-
506 6004	ROCK FILTER DAM (TYPE 4) (INSTALL)	LF	-
506 6011	ROCK FILTER DAM (TYPE 4) (REMOVE)	LF	-
506 6021	CONSTRUCTION EXITS (INSTALL) (TY 2)	SY	-
506 6024	CONSTRUCTION EXITS (REMOVE)	SY	-
506 6038	TEMP. SEDIMENT CONTROL FENCE (INSTALL)	LF	-
506 6039	TEMP. SEDIMENT CONTROL FENCE (REMOVE)	LF	-
506 6041	BIODEGRADABLE EROSION CONTROL LOGS (12 INCH DIAM) (INSTALL)	LF	840
506 6043	BIODEGRADABLE EROSION CONTROL LOGS (12 INCH DIAM) (REMOVE)	LF	840

* FOR CONTRACTORS INFORMATION ONLY (NON-PAY ITEM)
** SEE GENERAL NOTE NO. 2 CONCERNING CONSTRUCTION EXIT PLACEMENT

STATE OF TEXAS
JOSE A. RODRIGUEZ
117308
LICENSED PROFESSIONAL ENGINEER

09/07/21

Pharr District Central Design

Texas Department of Transportation

FM 907

SW3P
LAYOUT

SCALE: 1" = 100'

SHEET 3 OF 4

CONT	SECT	JOB	HIGHWAY
1586	01	079	FM 907
DIST	COUNTY		SHEET NO.
PHR	HIDALGO		252

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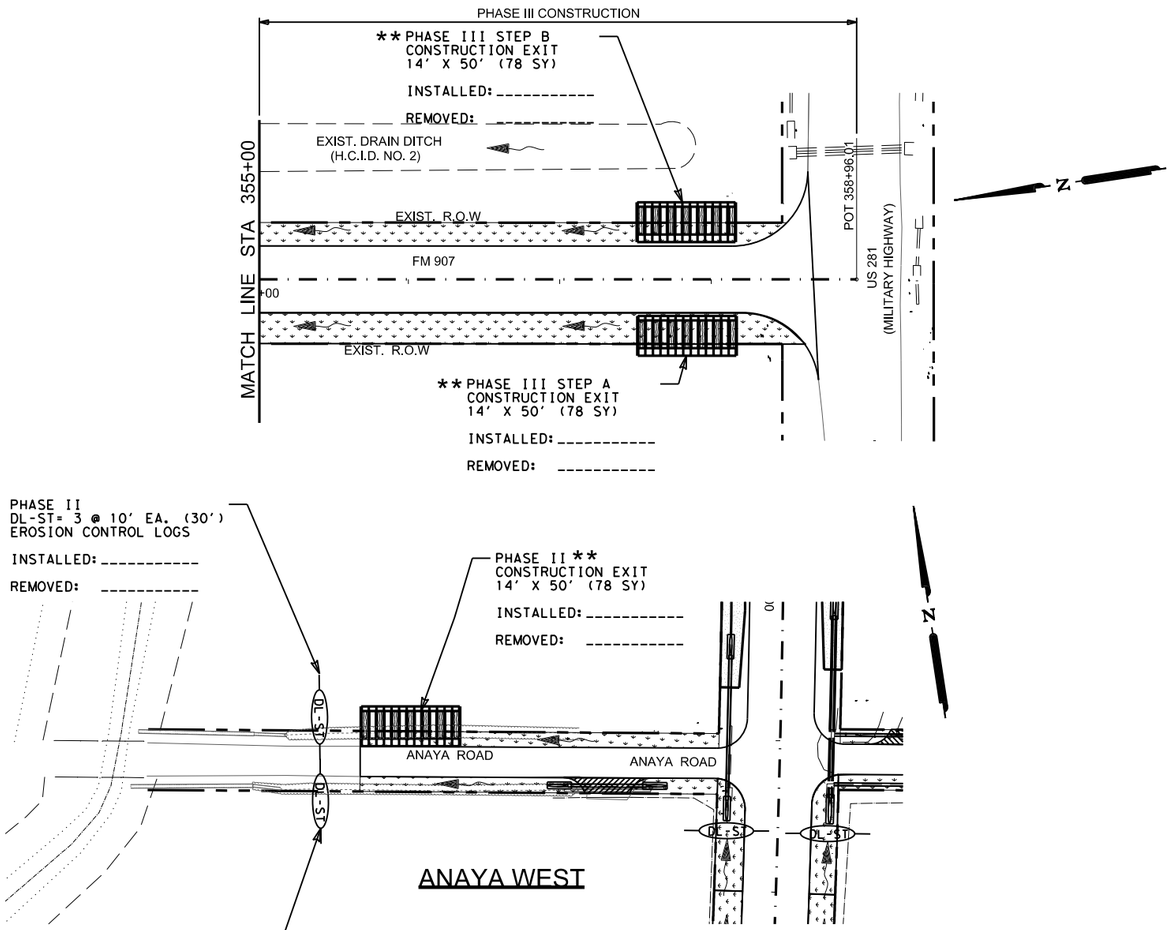
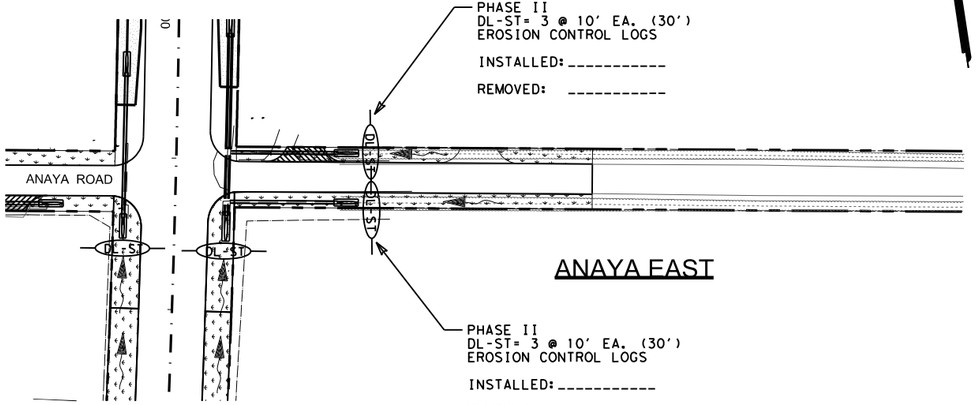


ANAYA WEST

PHASE II
DL-ST= 3 @ 10' EA. (30')
EROSION CONTROL LOGS
INSTALLED: _____
REMOVED: _____



ANAYA EAST

PHASE II
DL-ST= 3 @ 10' EA. (30')
EROSION CONTROL LOGS
INSTALLED: _____
REMOVED: _____

LEGEND:

- CULVERT LOCATION
- DIRECTION OF FLOW
- SEEDING AREA
- CONSTRUCTION EXIT (TYPE 2)
- CI-ST — CURB INLET SEDIMENT TRAP (15' EA)
- RFD1 — ROCK FILTER DAM (TYPE 1)
- RFD2 — ROCK FILTER DAM (TYPE 2)
- RFD4 — ROCK FILTER DAM (TYPE 1)
- SCF — TEMP SEDIMENT CONTROL FENCE
- DI-ST — DROP INLET SEDIMENT TRAP (LOG) (40' EA)
- DL-ST — DITCH LINE SEDIMENT TRAP (LOG)
- CL-D — EROSION CONTROL LOG DAM
- CL-DI — EROSION CONTROL LOG AT DROP INLET

GENERAL NOTES

1. THE CONTRACTOR MUST CONTACT THE ENGINEER BEFORE PLACEMENT OF ANY EROSION CONTROL DEVICES.
2. CONSTRUCTION EXITS ARE TO BE LOCATED AND INSTALLED BASED ON FIELD CONDITIONS AND AS APPROVED BY THE ENGINEER. THE LOCATION OF THE CONSTRUCTION EXIT SHOULD BE SUFFICIENT FOR CONTINUOUS USE BY THE CONTRACTOR DURING CONSTRUCTION.
3. EROSION CONTROL DEVICES SHALL ONLY BE PLACED DURING PHASE CONSTRUCTION. DEVICES SHALL NOT BE PLACED ALL AT THE SAME TIME.
4. EROSION CONTROL DEVICES MAY BE MODIFIED TO MEET FIELD CONDITIONS OR AS DIRECTED BY THE ENGINEER.
5. VEGETATIVE WATERING APPLICATION RATE = 88,300 GAL/AC @ 13 CYCLES.

ITEM	DESCRIPTION	UNIT	QUANT
164 6023	CELL FBR MLCH SEED (PERM)(RURAL)(CLAY)	SY	1,976
164 6029	CELL FBR MLCH SEED (TEMP)(WARM)	SY	1,976
* 166	FERTILIZER	TON	0.02
168 6001	VEGETATIVE WATERING	MG	36
169 6003	SOIL RETENTION BLANKETS (CL 1) (TY C)	SY	-
506 6004	ROCK FILTER DAM (TYPE 4) (INSTALL)	LF	-
506 6011	ROCK FILTER DAM (TYPE 4) (REMOVE)	LF	-
506 6021	CONSTRUCTION EXITS (INSTALL) (TY 2)	SY	234
506 6024	CONSTRUCTION EXITS (REMOVE)	SY	234
506 6038	TEMP. SEDIMENT CONTROL FENCE (INSTALL)	LF	-
506 6039	TEMP. SEDIMENT CONTROL FENCE (REMOVE)	LF	-
506 6041	BIODEGRADABLE EROSION CONTROL LOGS (12 INCH DIAM) (INSTALL)	LF	120
506 6043	BIODEGRADABLE EROSION CONTROL LOGS (12 INCH DIAM) (REMOVE)	LF	120

* FOR CONTRACTORS INFORMATION ONLY (NON-PAY ITEM)
** SEE GENERAL NOTE NO. 2 CONCERNING CONSTRUCTION EXIT PLACEMENT

STATE OF TEXAS
JOSE A. RODRIGUEZ
117308
LICENSED
PROFESSIONAL ENGINEER

09/07/21

Pharr District Central Design

Texas Department of Transportation

FM 907

SW3P
LAYOUT

SCALE: 1" = 100' SHEET 4 OF 4

© 2021	CONT	SECT	JOB	HIGHWAY
	1586	01	079	FM 907
	DIST	COUNTY		SHEET NO.
	PHR	HIDALGO		253

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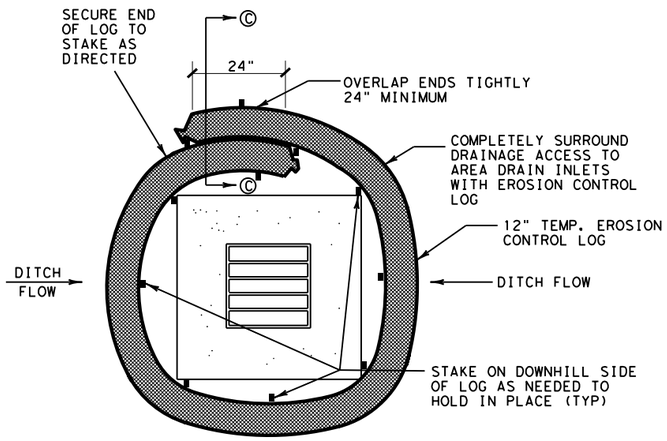
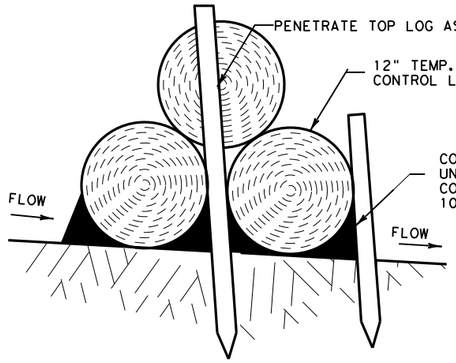


DROP INLET SEDIMENT TRAP

NTS

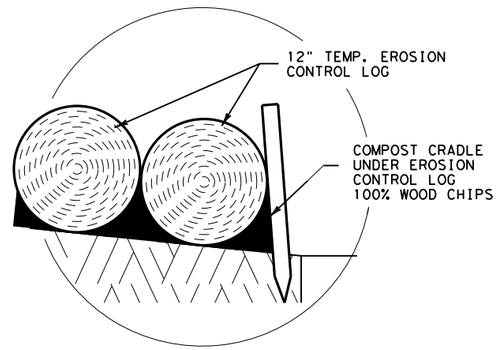
DI-ST



SECTION A-A

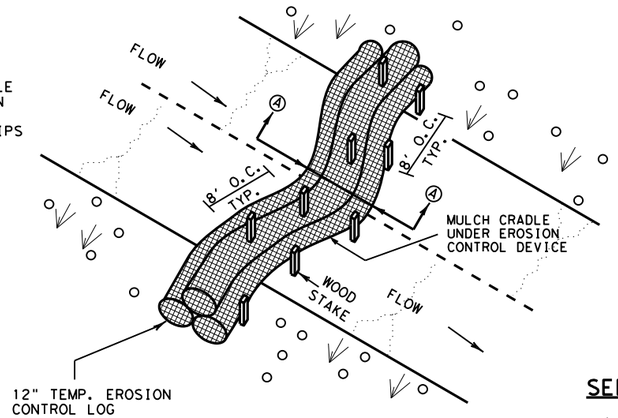
DITCH LINE SEDIMENT TRAP A-A

DL-ST



SECTION C-C

OVERLAP WITH COMPOST CRADLE



DITCH LINE SEDIMENT TRAP

DL-ST

PLANS SHEET LEGEND

DI-ST — DROP INLET SEDIMENT TRAP

DL-ST — DITCH LINE SEDIMENT TRAP

BOCI-ST — BACK OF CURB INLET SEDIMENT TRAP

ROW-ST — RIGHT OF WAY SEDIMENT TRAP

CI-ST — CURB INLET SEDIMENT TRAP

SEDIMENT BASIN & TRAP USAGE GUIDELINES

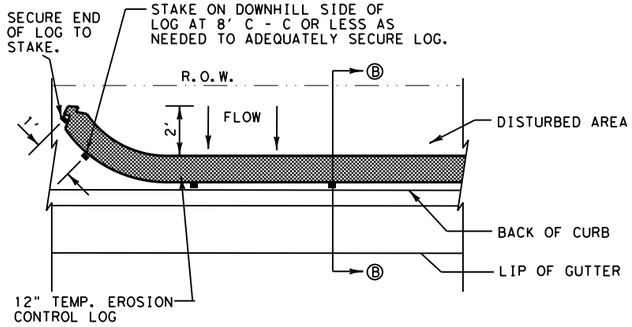
A sediment trap may be used to precipitate sediment out of runoff draining from an unstabilized area.

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).

Sediment traps should be placed in the following locations:

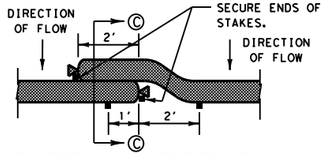
1. Immediately preceding drain inlets
2. Just before the drainage enters a water course
3. Just before the drainage leaves the right of way
4. Just before the drainage leaves the construction limits where drainage flows away from the project

The trap should be cleaned when the capacity has been reduced by ½ or the sediment has accumulated to a depth of 1', whichever is less. Cleaning and removal of accumulated sediment deposits is incidental and will not be paid for seperately.



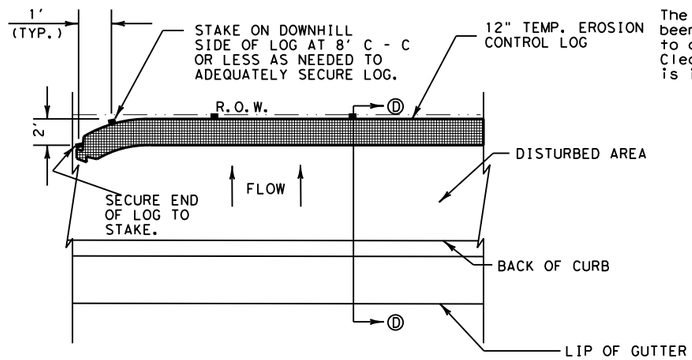
PLAN VIEW

NTS



OVERLAP DETAIL PLAN VIEW

NTS

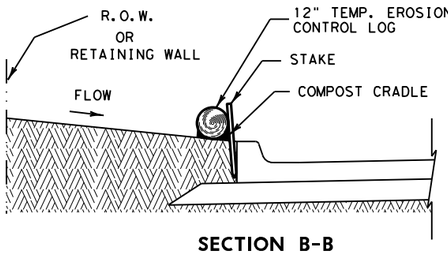


PLAN VIEW

NTS

GENERAL NOTES

1. LENGTHS OF EROSION CONTROL LOGS SHALL BE IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS AND AS REQUIRED FOR THE PURPOSE INTENDED. MAXIMUM LENGTH OF LOGS SHALL BE 30' FOR 12" DIAMETER LOGS.
2. 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.
3. STUFF LOGS WITH SUFFICIENT FILTER MATERIAL TO ACHIEVE DENSITY THAT WILL HOLD SHAPE WITHOUT EXCESSIVE DEFORMATION.
4. STAKES SHALL BE 2" X 2" WOOD 4' LONG, EMBEDDED SUCH THAT 2" PROTRUDES ABOVE LOG.
5. COMPOST CRADLE MATERIAL IS INCIDENTAL AND WILL NOT BE PAID FOR SEPARATELY.

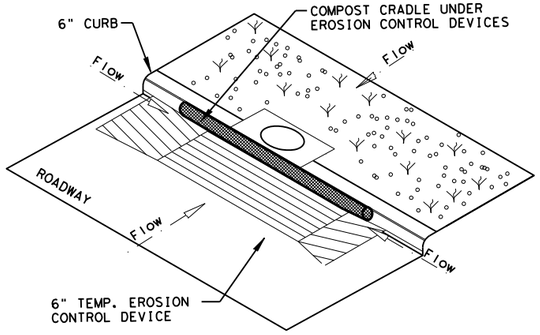


SECTION B-B

BACK OF CURB INLET SEDIMENT TRAP

NTS

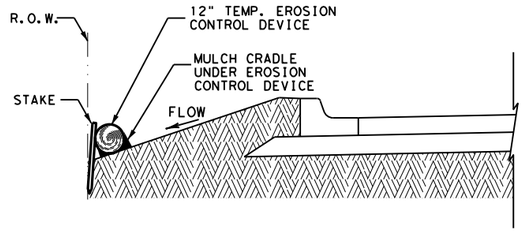
BOCI-ST



CURB INLET SEDIMENT TRAP

NTS

CI-ST



SECTION D-D

RIGHT-OF-WAY SEDIMENT TRAP

NTS

ROW-ST

PHARR DISTRICT STANDARD

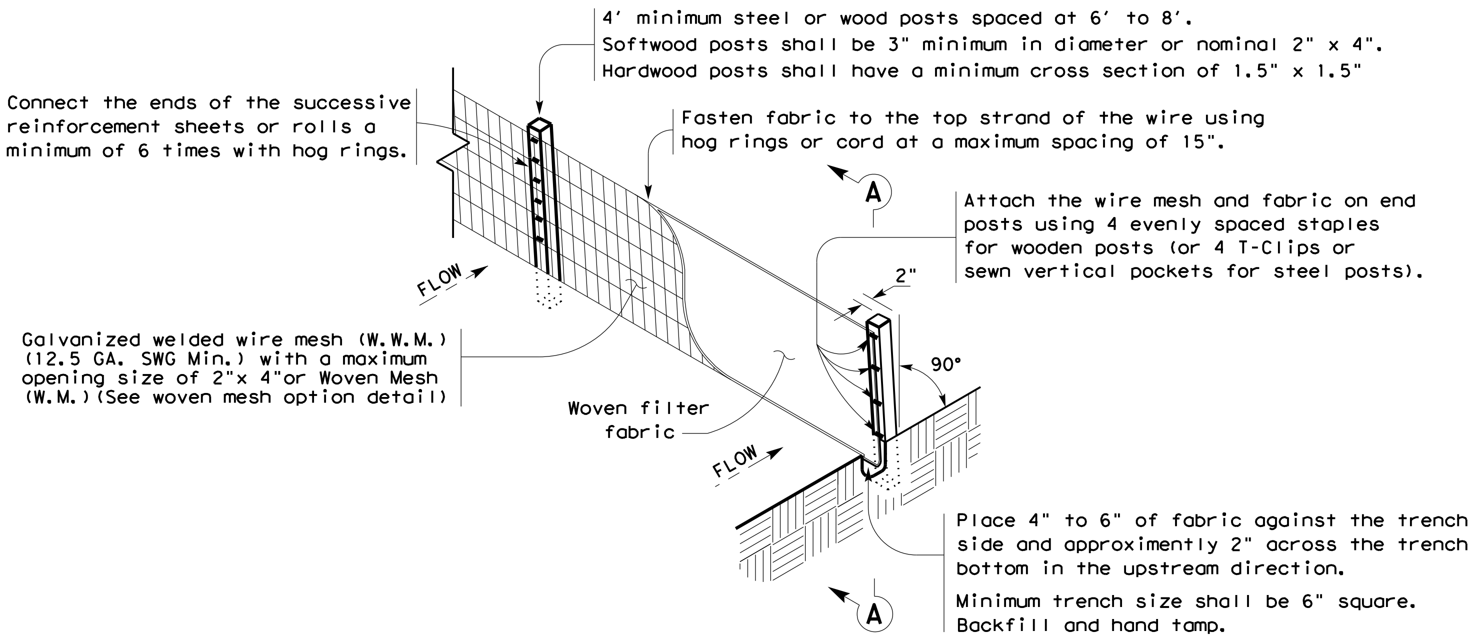
Texas Department of Transportation

TEMPORARY EROSION CONTROL LOGS TECL-17 (PHR)

FED. RD. DIV. NO.	PROJECT NO.		HIGHWAY NO.
6			FM 907
STATE	DISTRICT	COUNTY	SHEET NO.
TEXAS	PHARR	HIDALGO	254
CONTROL	SECTION	JOB	
1586	01	079	

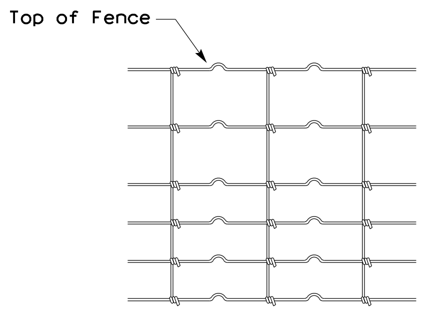
LEVELS DISPLAYED

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



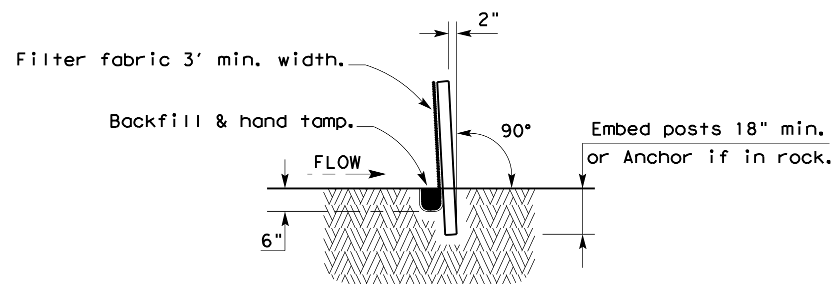
TEMPORARY SEDIMENT CONTROL FENCE

SCF



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.



SECTION A-A

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.

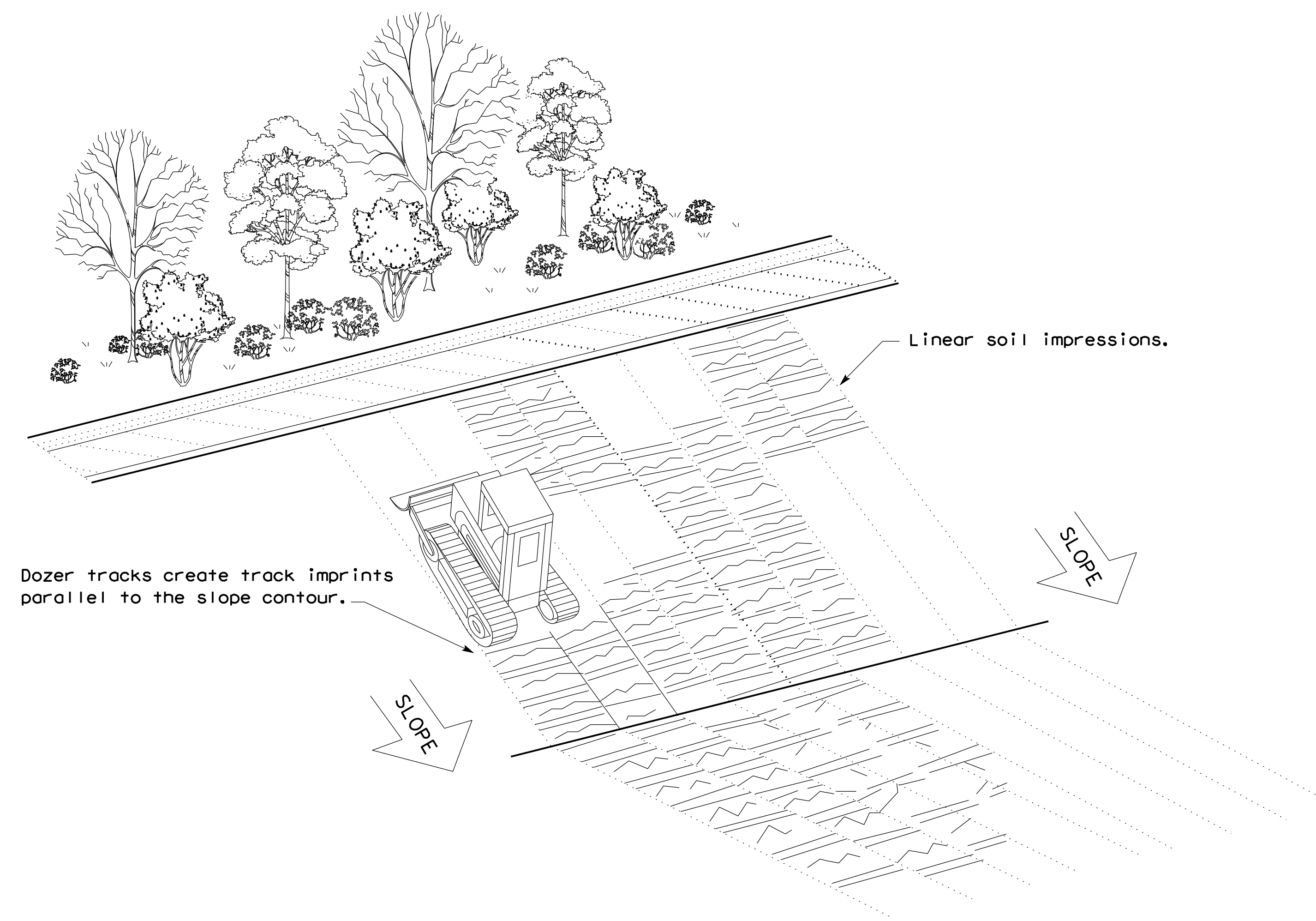
LEGEND

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	1586	01	079		FM 907	
	DIST		COUNTY		SHEET NO.	
	PHR		HIDALGO		255	

DATE: 8/30/2021
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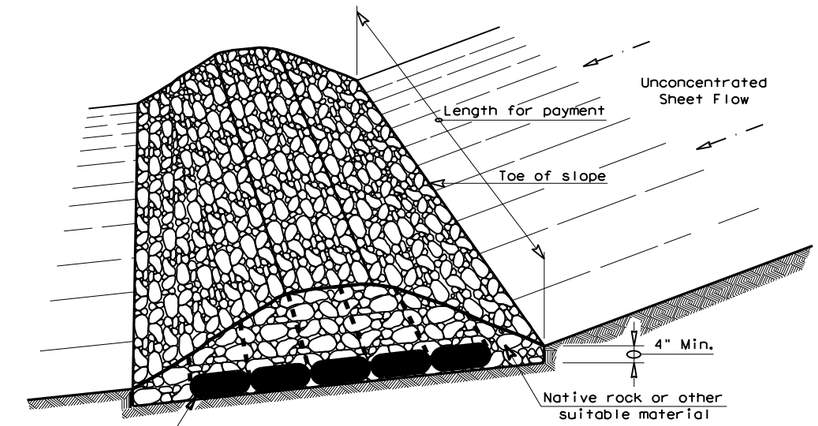
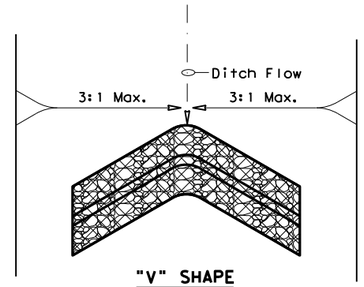
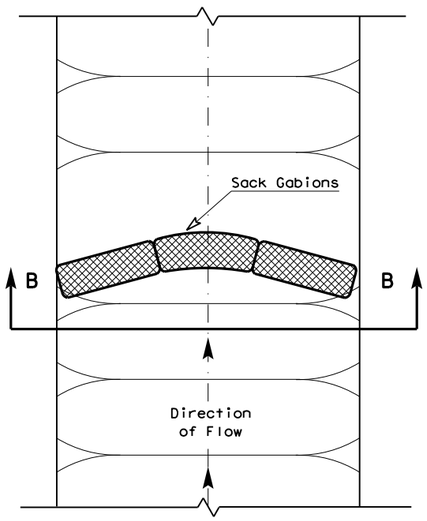


FILTER DAM AT TOE OF SLOPE

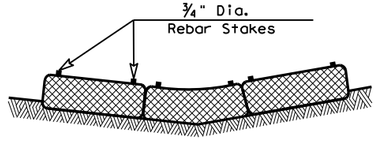
RFD1



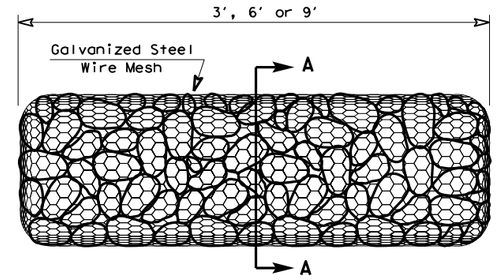
"V" SHAPE PLAN VIEW



PLAN VIEW

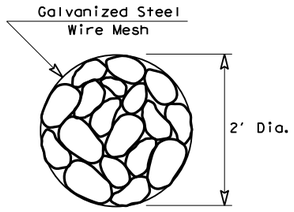


SECTION B-B

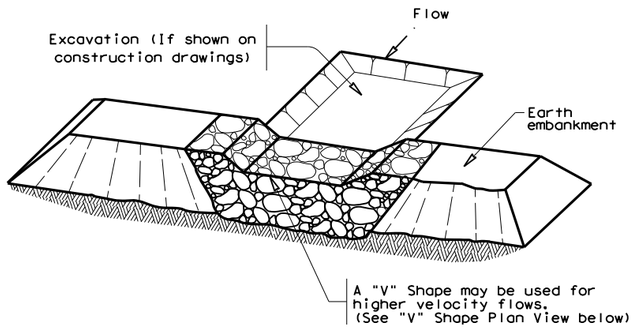


TYPE 4 (SACK GABIONS)

RFD4

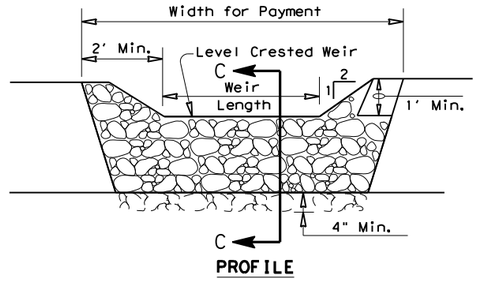


SECTION A-A

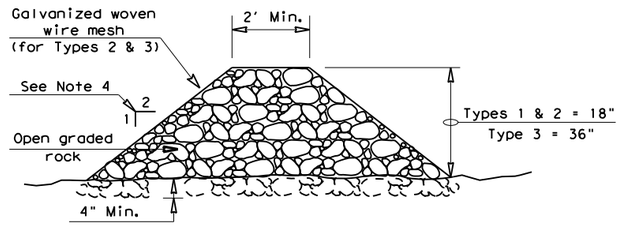


FILTER DAM AT SEDIMENT TRAP

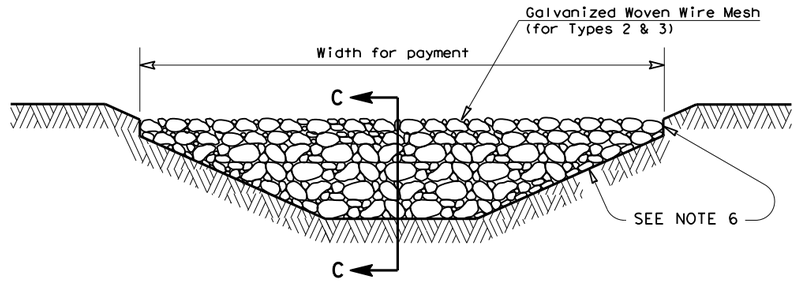
RFD1 — OR — RFD2



PROFILE



SECTION C-C



FILTER DAM AT CHANNEL SECTIONS

RFD1 — OR — RFD2 — OR — RFD3

ROCK FILTER DAM USAGE GUIDELINES

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

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

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

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

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

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

GENERAL NOTES

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

PLAN SHEET LEGEND

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

Texas Department of Transportation — Design Division Standard

TEMPORARY EROSION, SEDIMENT AND WATER POLLUTION CONTROL MEASURES

ROCK FILTER DAMS

EC(2)-16

FILE: ec216	DN: TxDOT	CK: KM	DW: VP	DN/CK: LS
© TxDOT: JULY 2016	CONT	SECT	JOB	HIGHWAY
REVISIONS	1586	01	079	FM 907
	DIST	COUNTY		SHEET NO.
	PHR	HIDALGO		256

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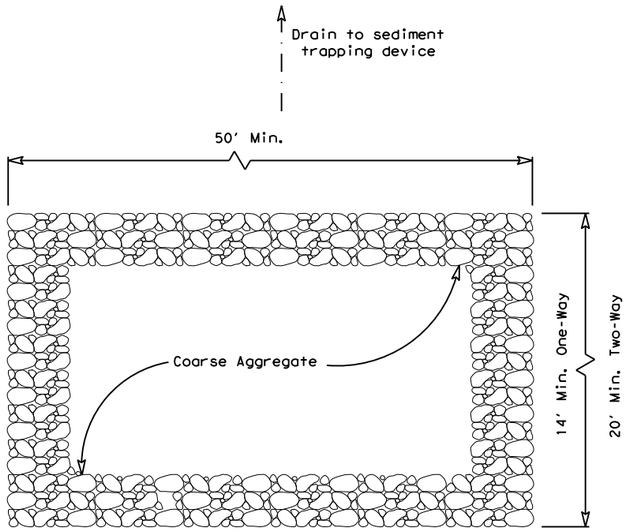
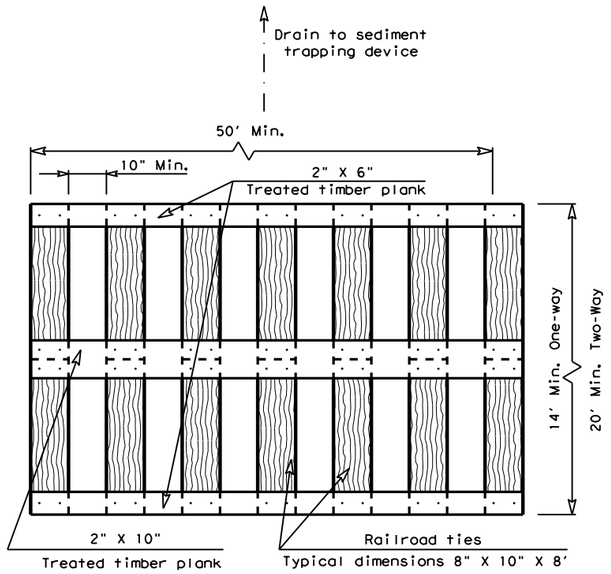


PLAN VIEW



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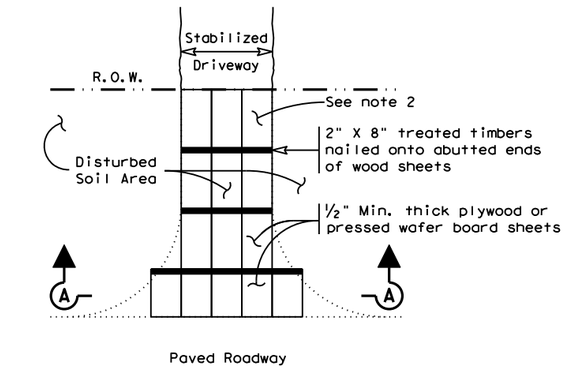
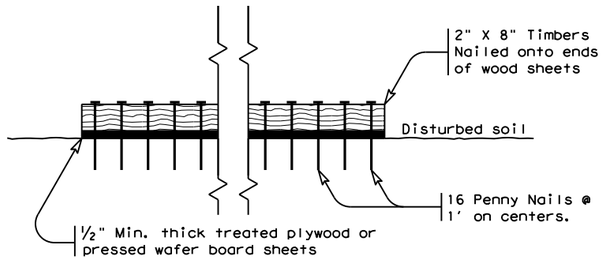


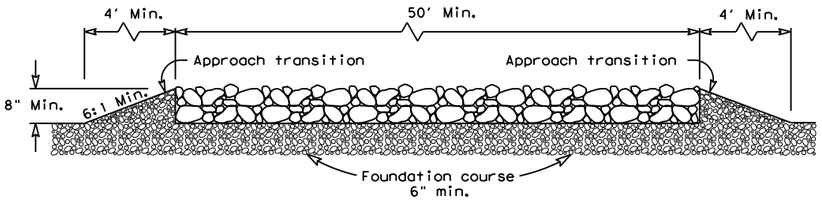
PLAN VIEW



SECTION A-A

CONSTRUCTION EXIT (TYPE 3)

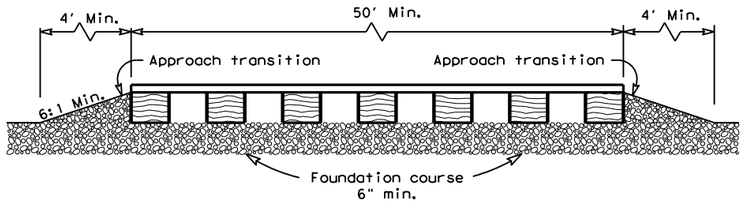
SHORT TERM



ELEVATION VIEW

CONSTRUCTION EXIT (TYPE 1)

ROCK CONSTRUCTION (LONG TERM)



ELEVATION VIEW

CONSTRUCTION EXIT (TYPE 2)

TIMBER CONSTRUCTION (LONG TERM)

GENERAL NOTES (TYPE 1)

1. The length of the type 1 construction exit shall be as indicated on the plans, but not less than 50'.
2. The coarse aggregate should be open graded with a size of 4" to 8".
3. The approach transitions should be no steeper than 6:1 and constructed as directed by the Engineer.
4. The construction exit foundation course shall be flexible base, bituminous concrete, portland cement concrete or other materialas approved by the Engineer.
5. The construction exit shall be graded to allow drainage to a sediment trapping device.
6. The guidelines shown hereon are suggestions only and may be modified by the Engineer.
7. Construct exits with a width of at least 14 ft. for one-way and 20 ft. for two-way traffic for the full width of the exit, or as directed by the engineer.

GENERAL NOTES (TYPE 2)

1. The length of the type 2 construction exit shall be as indicated on the plans, but not less than 50'.
2. The treated timber planks shall be attached to the railroad ties with ½"x 6" min. lag bolts. Other fasteners may be used as approved by the Engineer.
3. The treated timber planks shall be #2 grade min., and should be free from large and loose knots.
4. The approach transitions shall be no steeper than 6:1 and constructed as directed by the Engineer.
5. The construction exit foundation course shall be flexible base, bituminous concrete, portland cement concrete or other material as approved by the Engineer.
6. The construction exit should be graded to allow drainage to a sediment trapping device.
7. The guidelines shown hereon are suggestions only and may be modified by the Engineer.
8. Construct exits with a width of at least 14 ft. for one-way and 20 ft. for two-way traffic for the full width of the exit, or as directed by the engineer.

GENERAL NOTES (TYPE 3)

1. The length of the type 3 construction exit shall be as shown on the plans, or as directed by the Engineer.
2. The type 3 construction exit may be constructed from open graded crushed stone with a size of two to four inches spread a min. of 4" thick to the limits shown on the plans.
3. The treated timber planks shall be #2 grade min., and should be free from large and loose knots.
4. The guidelines shown hereon are suggestions only and may be modified by the Engineer.

Texas Department of Transportation | Design Division Standard

TEMPORARY EROSION, SEDIMENT AND WATER POLLUTION CONTROL MEASURES

CONSTRUCTION EXITS

EC(3)-16

FILE: ec316	DN: TxDOT	CK: KM	DW: VP	DN/CK: LS
©TxDOT: JULY 2016	CONT	SECT	JOB	HIGHWAY
REVISIONS	1586	01	079	FM 907
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	PHR	HIDALGO		257

DATE: 8/30/2021
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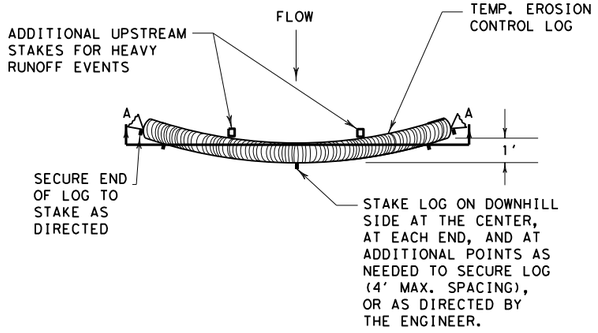
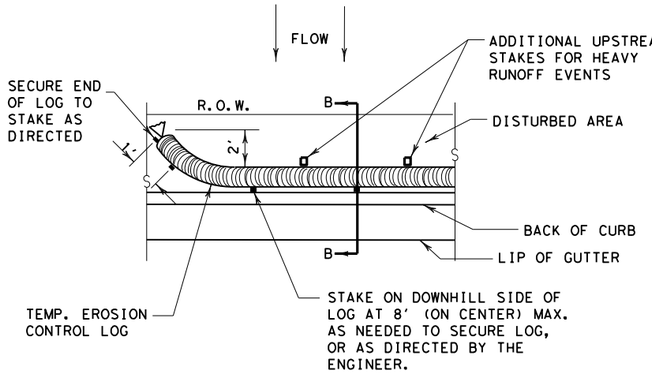


PLAN VIEW



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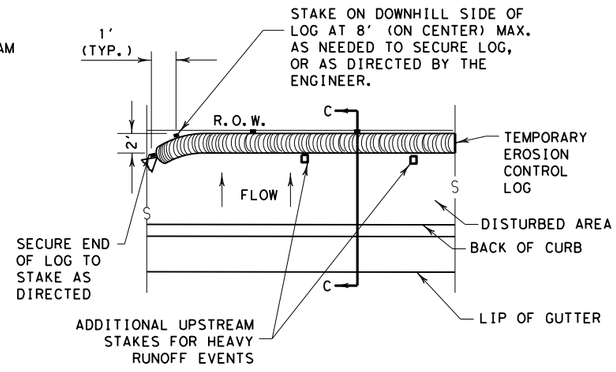

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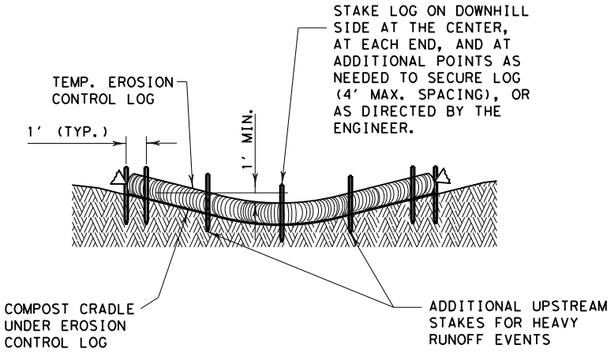
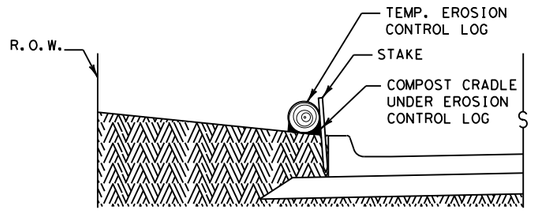


SECTION A-A

EROSION CONTROL LOG DAM

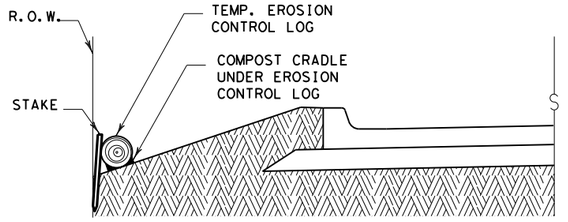
CL-D



SECTION B-B

EROSION CONTROL LOG AT BACK OF CURB

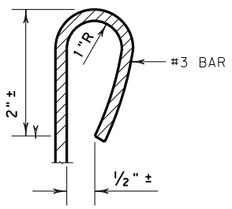
CL-BOC



SECTION C-C

EROSION CONTROL LOG AT EDGE OF RIGHT-OF-WAY

CL-ROW



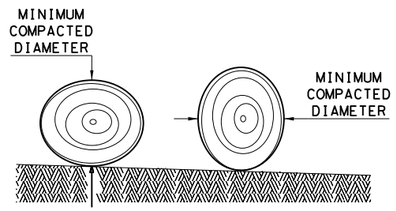
REBAR STAKE DETAIL

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

GENERAL NOTES:

1. EROSION CONTROL LOGS SHALL BE INSTALLED IN ACCORDANCE WITH MANFACTURER'S RECOMMENDATIONS, OR AS DIRECTED BY THE ENGINEER.
2. LENGTHS OF EROSION CONTROL LOGS SHALL BE IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS AND AS REQUIRED FOR THE PURPOSE INTENDED.
3. UNLESS OTHERWISE DIRECTED, USE BIODEGRADABLE OR PHOTODEGRADABLE CONTAINMENT MESH ONLY WHERE LOG WILL REMAIN IN PLACE AS PART OF A VEGETATIVE SYSTEM. FOR TEMPORARY INSTALLATIONS, USE RECYCLABLE CONTAINMENT MESH.
4. FILL LOGS WITH SUFFICIENT FILTER MATERIAL TO ACHIEVE THE MINIMUM COMPACTED DIAMETER SPECIFIED IN THE PLANS WITHOUT EXCESSIVE DEFORMATION.
5. STAKES SHALL BE 2" X 2" WOOD OR #3 REBAR, 2'-4' LONG, EMBEDDED SUCH THAT 2" PROTRUDES ABOVE LOG, OR AS DIRECTED BY THE ENGINEER.
6. DO NOT PLACE STAKES THROUGH CONTAINMENT MESH.
7. COMPOST CRADLE MATERIAL IS INCIDENTAL & WILL NOT BE PAID FOR SEPARATELY.
8. SANDBAGS USED AS ANCHORS SHALL BE PLACED ON TOP OF LOGS & SHALL BE OF SUFFICIENT SIZE TO HOLD LOGS IN PLACE.
9. TURN THE ENDS OF EACH ROW OF LOGS UPSLOPE TO PREVENT RUNOFF FROM FLOWING AROUND THE LOG.
10. FOR HEAVY RUNOFF EVENTS, ADDITIONAL UPSTREAM STAKES MAY BE NECESSARY TO KEEP LOG FROM FOLDING IN ON ITSELF.



DIAMETER MEASUREMENTS OF EROSION CONTROL LOGS SPECIFIED IN PLANS

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
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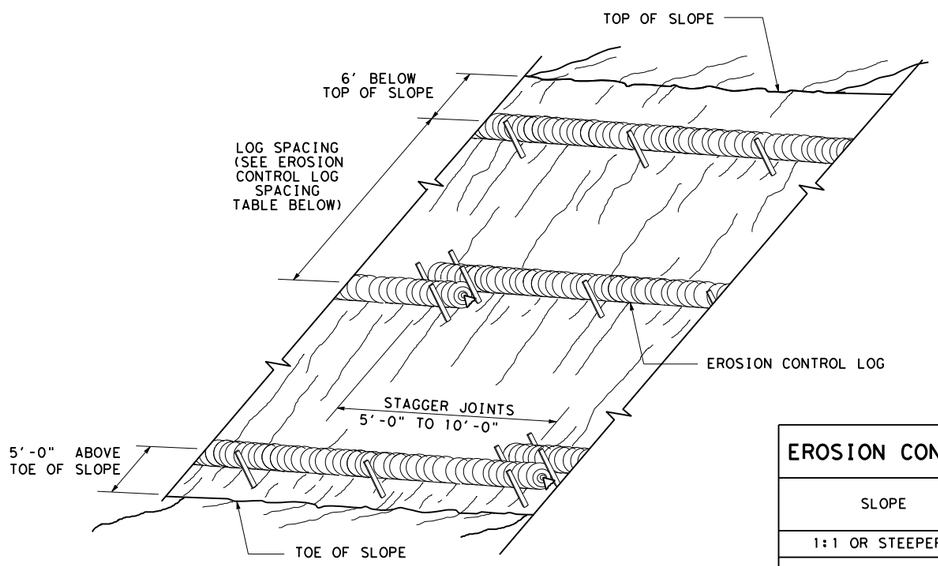
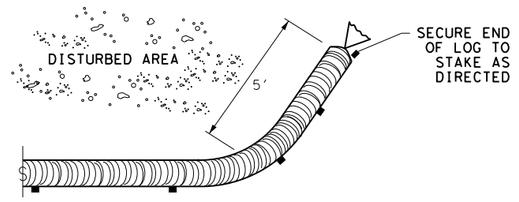


EROSION CONTROL LOGS ON SLOPES
STAKE AND TRENCHING ANCHORING

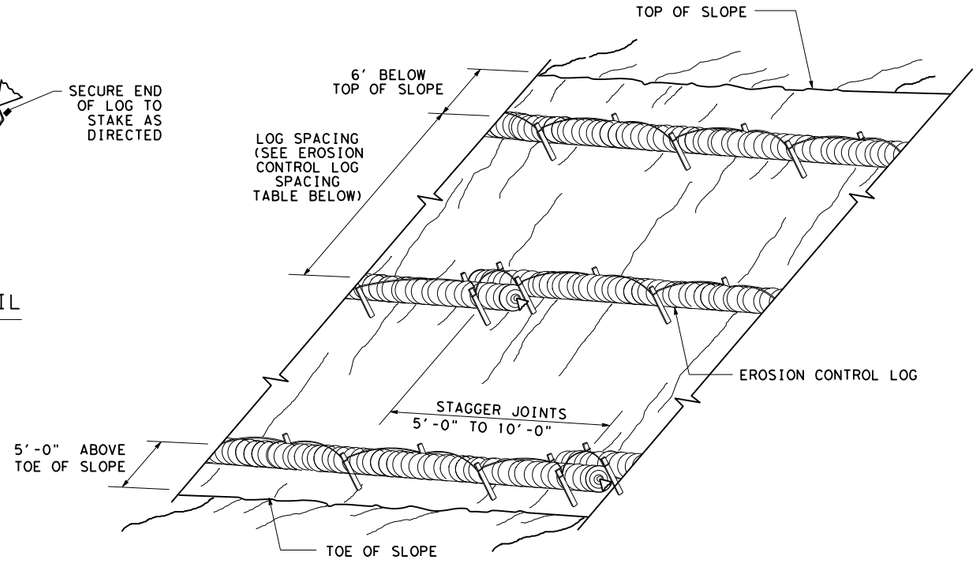
CL-SST



END SECTION RAP DETAIL

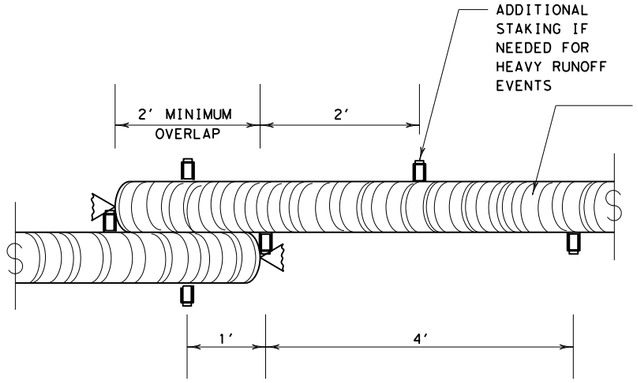
EROSION CONTROL LOG SPACING TABLE				
SLOPE	LOG DIAMETER			
	6"	8"	12"	18"
1:1 OR STEEPER	5'	10'	15'	20'
2:1	10'	20'	30'	40'
3:1	15'	30'	45'	60'
4:1 OR FLATTER	20'	40'	60'	80'

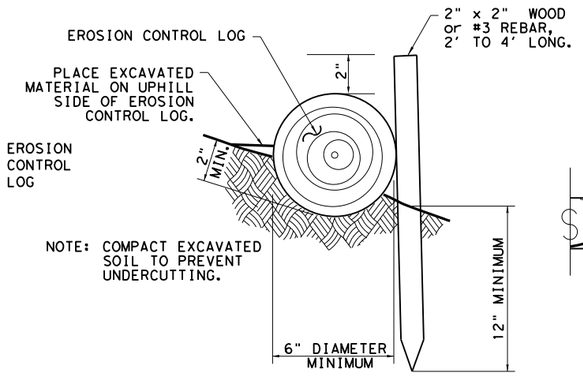
* ADJUSTMENTS CAN BE MADE FOR SOIL TYPE:
SOFT, LOAMY SOILS-ADJUST ROWS CLOSER TOGETHER;
HARD, ROCKY SOILS- ADJUST ROWS FARTHER APART



EROSION CONTROL LOGS ON SLOPES
STAKE AND LASHING ANCHORING

CL-SSL

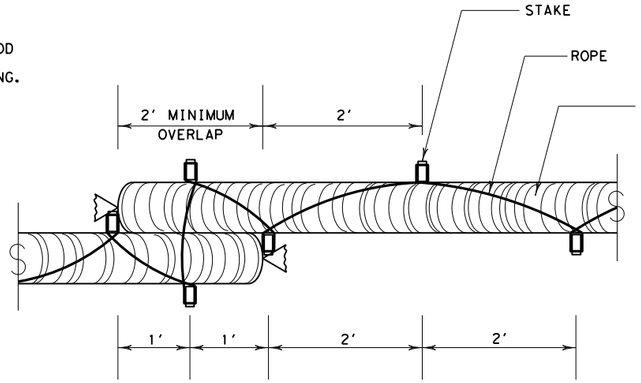


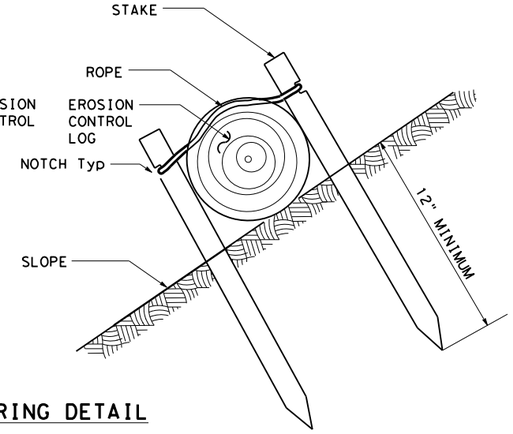


STAKE AND TRENCHING ANCHORING DETAIL

CL-SST

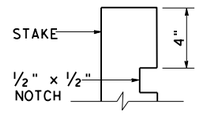
TRENCH DEPTH TABLE	
LOG DIAMETER	DEPTH
6"	2"
8"	3"
12"	4"
18"	5"





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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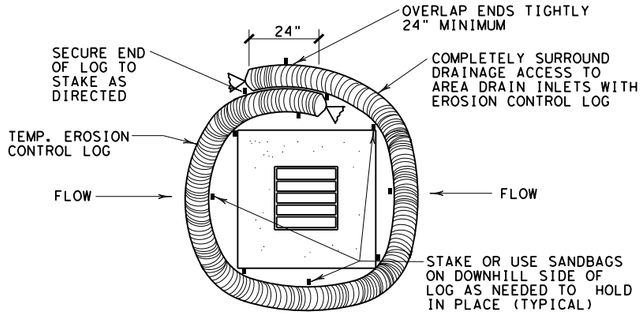
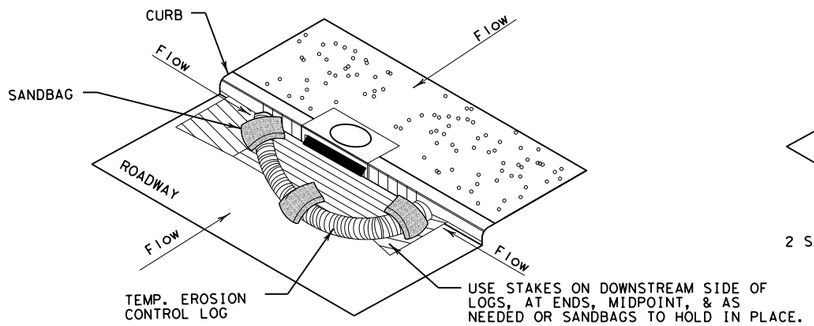


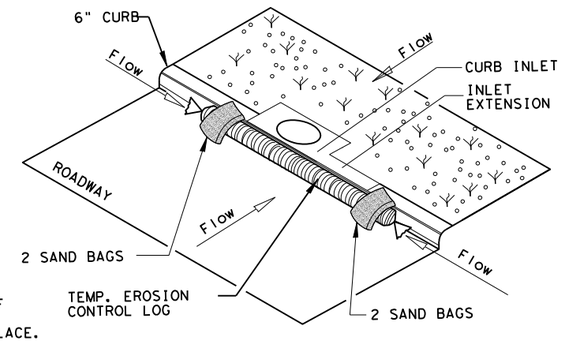
EROSION CONTROL LOG AT DROP INLET

CL-DI



EROSION CONTROL LOG AT CURB INLET

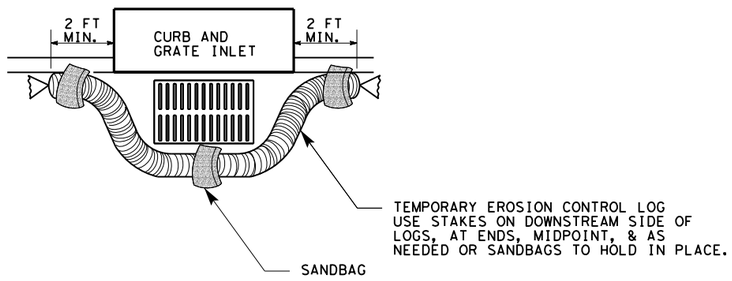
CL-CI



EROSION CONTROL LOG AT CURB INLET

CL-CI

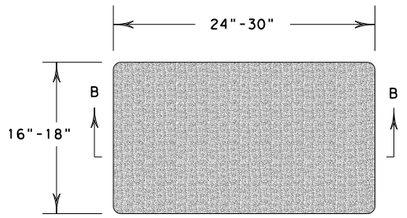
NOTE:
EROSION CONTROL LOGS USED AT CURB INLETS SHOULD ONLY BE USED IF THEY WILL NOT IMPEDE TRAFFIC OR FLOOD THE ROADWAY OR WHEN THE STORM SEWER SYSTEM IS NOT FULLY FUNCTIONAL.



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

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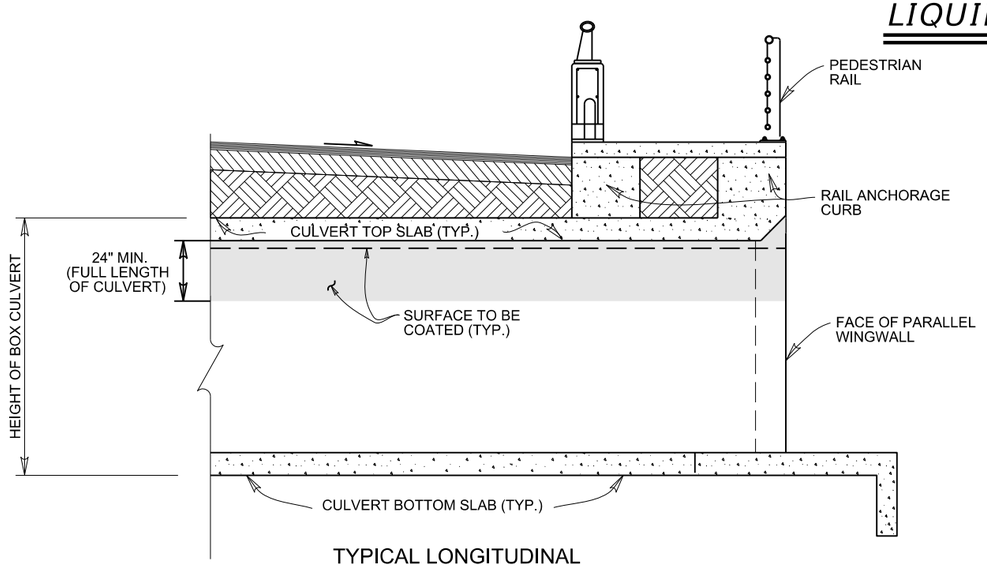
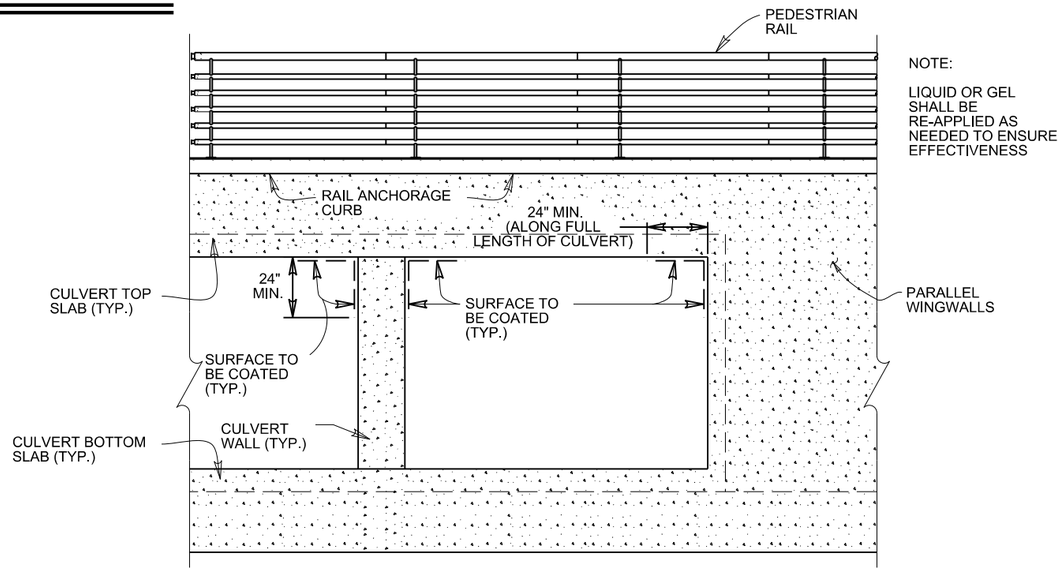
	PHR	HIDALGO				260

DATE: 03/03/2022 11:31 AM
FILE: DOCUMENT NAME

LIQUID OR GEL INSTALLATION



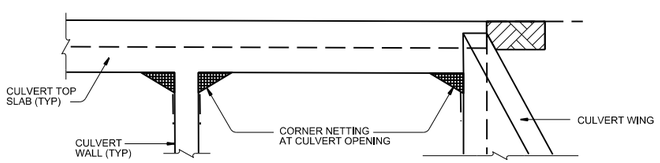
TYPICAL LONGITUDINAL SECTION AT CULVERT OPENING



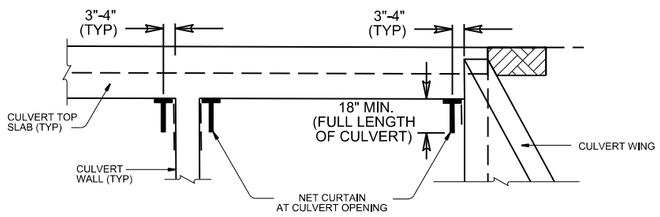
TYPICAL PARTIAL TRANSVERSE ELEVATION

TYPICAL BIRD EXCLUSION MEASURE INSTALLATION DETAILS FOR A BOX CULVERT

TYPICAL CORNER NETTING INSTALLATION



TYPICAL PARAPET CURTAIN INSTALLATION DETAILS



GENERAL NOTES:

1. CLIFF SWALLOWS AND OTHER MIGRATORY BIRDS ARE FEDERALLY PROTECTED UNDER THE FEDERAL MIGRATORY BIRD TREATY ACT. THIS STATUTE INCLUDES LIVE AND DEAD BIRDS, ANY PART, NEST, OR EGG. UNLESS PERMITTED BY REGULATIONS, IT PROHIBITS PURSUIT, HUNTING, TAKING, CAPTURING, KILLING, AND ATTEMPTING TO TAKE ANY MIGRATORY BIRD. NESTING ACTIVITY TYPICALLY OCCURS DURING THE MONTHS OF FEBRUARY THROUGH SEPTEMBER.

2. ANY PROJECT WITH A CULVERT(S) HAS POTENTIAL FOR NESTING BY SWALLOWS OR OTHER MIGRATORY BIRDS. ROADWAY CONSTRUCTION THAT DOES NOT INCLUDE SPECIFIC WORK ON CULVERT(S) WITHIN THE PROJECT AREA MAY ALSO HAVE THE POTENTIAL TO RESULT IN A 'TAKE' OF MIGRATORY BIRDS.

3. THE CONTRACTOR SHALL IMPLEMENT EXCLUSIONARY MEASURES TO PREVENT SWALLOWS FROM BUILDING NEW NESTS PRIOR TO OR DURING THE NESTING SEASON (FEBRUARY 15 - OCTOBER 1) ON ANY CULVERT(S) WITH EVIDENCE OF PRIOR NESTING.

4. 'NON-ACTIVE' NESTS SHOULD BE REMOVED PRIOR TO OR DURING THE NESTING SEASON IN ACCORDANCE WITH STANDARD SPECIFICATION ITEM 427 BLAST CLEANING OR MANUFACTURER DIRECTION. HOWEVER, NO NESTS SHOULD BE REMOVED PRIOR TO COORDINATION WITH THE DISTRICT ENVIRONMENTAL COORDINATOR.

5. EXCLUSION MEASURES GENERALLY INCLUDE THE FOLLOWING: FOR CULVERTS A VARIETY OF OPTIONS EXIST; PAINTING OF SPECIAL 'STICKY' COATINGS TO THE UPPER SURFACES, INSTALLATION OF NET CURTAINS FROM THE CEILING, AND INSTALLATION OF TRIANGULAR 'CORNER' STRUCTURES. SEE LAYOUTS FOR MORE DETAIL.

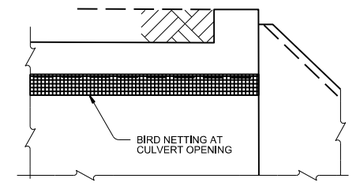
6. FOR LIQUID OR GEL METHODS, THE SURFACE PREPARATION AND COATING INSTALLATION WILL BE MADE IN ACCORDANCE WITH ITEM 427 SURFACE FINISH FOR CONCRETE OR MANUFACTURER DIRECTION. LIQUID OR GEL USED SHALL BE NON-TOXIC, TACKY BIRD REPELLENT LIQUID - BIRD X BIRD PROOF (OR EQUIVALENT). PAYMENT WILL BE SUBSIDIARY TO THE STRUCTURE ITEMS.

7. NETTING APPLICATIONS FOR TRIANGULAR 'CORNER' STRUCTURES AND/OR 'CURTAINS' WILL BE IN ACCORDANCE WITH SPECIAL SPECIFICATION BIRD EXCLUSION METHOD.

8. ALL EXCLUSION MEASURES MUST BE ACCOMPANIED BY ACTIVE (DAILY) MONITORING BY A TRAINED OBSERVER (CONTRACTOR PROVIDED). NOTE: BIRDS AND OTHER WILDLIFE MAY BECOME ENTRAPPED WITH ANY EXCLUSION MEASURE.

9. THE CONTRACTOR SHALL REMOVE ALL STRUCTURAL EXCLUSIONARY MEASURES IMMEDIATELY AFTER PROJECT COMPLETION.

TYPICAL CORNER NETTING INSTALLATION



TYPICAL LONGITUDINAL SECTION AT CULVERT OPENING

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BIRD EXCLUSION DETAILS

SHEET 1 OF 2

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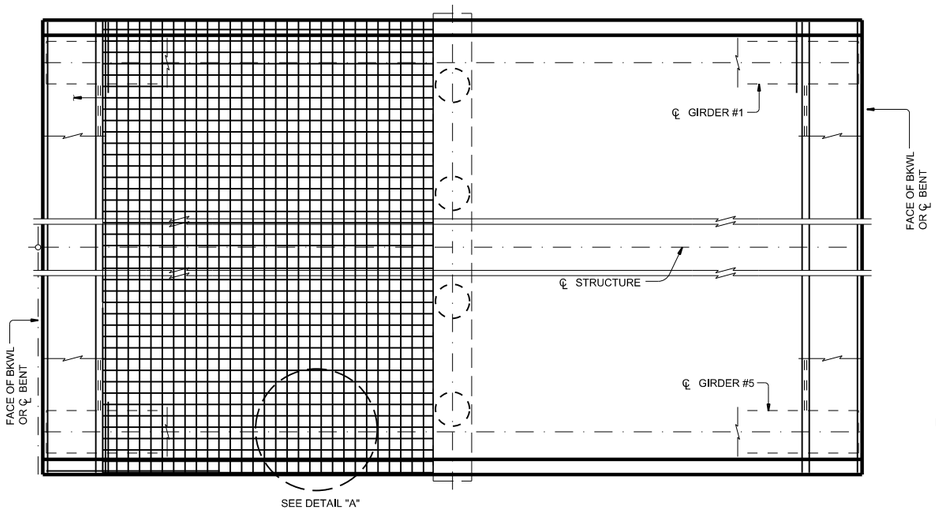
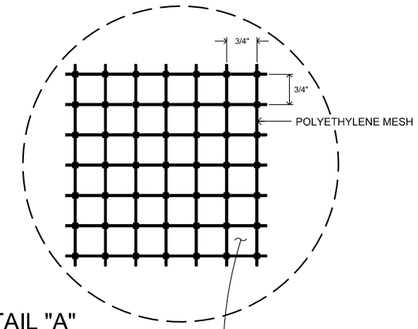
	DIST	COUNTY		SHEET NO.
	PHR	HIDALGO		261

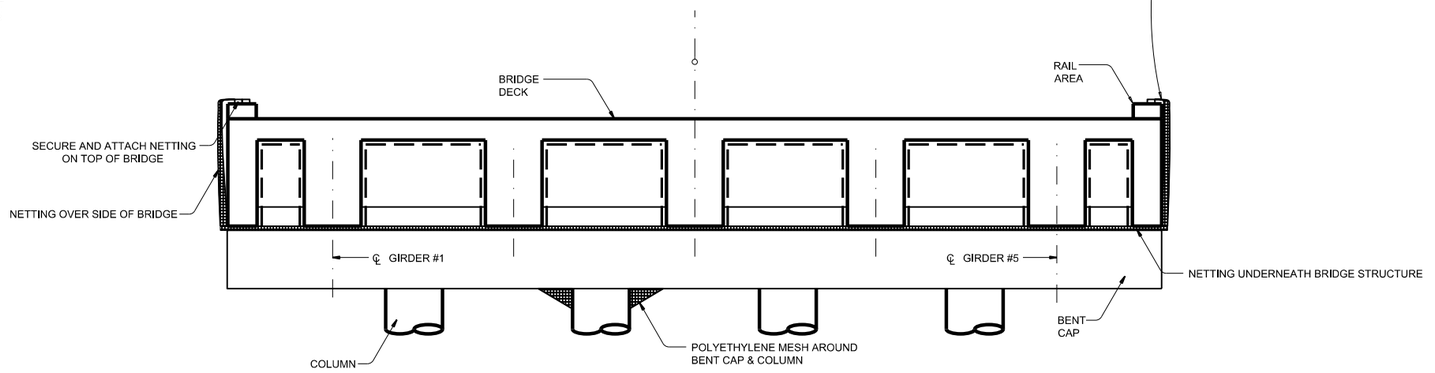
TYPICAL BIRD NETTING INSTALLATION DETAILS FOR A BRIDGE



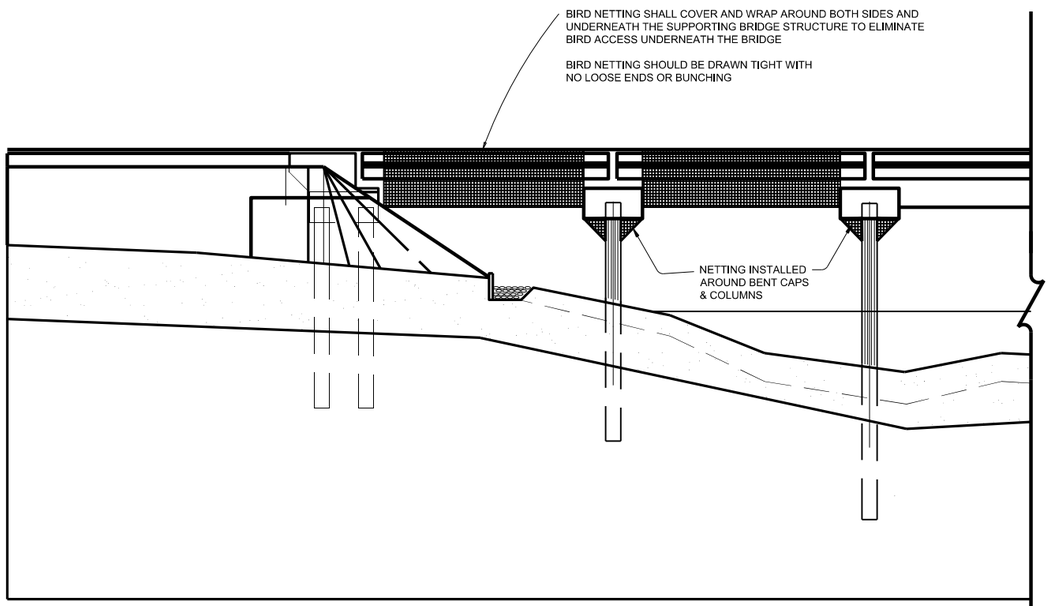
PLAN



DETAIL "A"



TYPICAL TRANSVERSE SECTION



TYPICAL BRIDGE SIDE ELEVATION

GENERAL NOTES:

1. CLIFF SWALLOWS AND OTHER MIGRATORY BIRDS ARE FEDERALLY PROTECTED UNDER THE FEDERAL MIGRATORY BIRD TREATY ACT. THIS STATUTE INCLUDES LIVE AND DEAD BIRDS, ANY PART, NEST, OR EGG. UNLESS PERMITTED BY REGULATIONS, IT PROHIBITS PURSUIT, HUNTING, TAKING, CAPTURING, KILLING, AND ATTEMPTING TO TAKE ANY MIGRATORY BIRD. NESTING ACTIVITY TYPICALLY OCCURS DURING THE MONTHS OF FEBRUARY THROUGH SEPTEMBER.

2. ANY PROJECT WITH A BRIDGE(S) HAS POTENTIAL FOR NESTING BY SWALLOWS OR OTHER MIGRATORY BIRDS. ROADWAY CONSTRUCTION THAT DOES NOT INCLUDE SPECIFIC WORK ON BRIDGE(S) WITHIN THE PROJECT AREA MAY ALSO HAVE THE POTENTIAL TO RESULT IN A 'TAKE' OF MIGRATORY BIRDS.

3. THE CONTRACTOR SHALL IMPLEMENT EXCLUSIONARY MEASURES TO PREVENT SWALLOWS FROM BUILDING NEW NESTS PRIOR TO OR DURING THE NESTING SEASON (FEBRUARY 15 - OCTOBER 1) ON ANY BRIDGE(S) WITH EVIDENCE OF PRIOR NESTING.

4. 'NON-ACTIVE' NESTS SHOULD BE REMOVED PRIOR TO OR DURING THE NESTING SEASON IN ACCORDANCE WITH STANDARD ITEM 427 BLAST CLEANING OR MANUFACTURER DIRECTION. HOWEVER, NO NESTS SHOULD BE REMOVED PRIOR TO COORDINATION WITH THE DISTRICT ENVIRONMENTAL COORDINATOR.

5. EXCLUSION MEASURES GENERALLY INCLUDE THE FOLLOWING: FOR BRIDGES, NETTING IS THE MOST EFFECTIVE OPTION, NOTING INSTALLATION WILL BE IN ACCORDANCE WITH SPECIAL SPECIFICATION BIRD EXCLUSION METHOD. SEE LAYOUTS FOR MORE DETAIL.

6. ALL EXCLUSION MEASURES MUST BE ACCOMPANIED BY ACTIVE (DAILY) MONITORING BY A TRAINED OBSERVER (CONTRACTOR PROVIDED). NOTE: BIRDS AND OTHER WILDLIFE MAY BECOME ENTRAPPED WITH ANY EXCLUSION MEASURE.

7. THE CONTRACTOR SHALL REMOVE ALL STRUCTURAL EXCLUSIONARY MEASURES AFTER PROJECT COMPLETION.

Texas Department of Transportation

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BIRD EXCLUSION DETAILS

SHEET 2 OF 2

FILE:	DN:	CK:	DW:	CK:
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	PHR	HIDALGO		262

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